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OFFICIAL
GAZETTE
UNITED STATES
PATENT OFFICE
VOL 83
NO 1 THRU 13
APR-JUN-1898

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME LXXXIII.

APRIL 5 TO JUNE 28, INCLUSIVE,

1898.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1898.

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DIGEST OF DECISIONS OF THE COMMISSIONER OF PATENTS AND OF THE UNITED STATES COURTS IN PATENT CASES.

INDEX OF PATENTS AND PATENTEES FOR THE QUARTER YEAR, APRIL TO JUNE, 1898.

ERRATA.

601,746, page 47, in heading, strike out the words "assignor of one-fourth to M. W. Duddy, same place."

602,046, page 150, in heading, residence of inventor, for "Dover, Md." read *Dover, Del.*

602,779, page 419, strike out all after number—title, drawing, and claim—and insert CANCELED.

602,802, page 428, second claim, line 3, for the word and reference-letter "passages *s*" read *passages s and s';* same page and claim, line 5, for "passages *s* and *s'*" read *passage s.*

602,808, page 512, first claim, line 3, after the word "amidonaphthol" strike out the word "and."

602,813, page 513, first claim, line 6, for the word "phenol" read *phényl.*

604,312, page 1038, in heading, name of assignee, for "William B. Lautz" read *William B. Lantz.*

604,317, page 1040, first claim, line 3, second claim, line 2, third claim, line 2, and fourth claim, line 2, for the word "bray" read *brea.*

604,374, page 1062, strike out all after number—title, drawing, and claims—and insert CANCELED.

604,376, page 1268, in heading, name of inventor, for "Edward H. Chappius" read *Edward H. Chappuis.*

605,052, page 1325, in heading, after residence of inventor, insert *assignor to the Stecher Lithographic Company, same place,* and for serial number "544,033" read *544,032.*

605,057, page 1326, in heading, name of assignee, for "Howard & Bullough Machine Company, Limited" read *Howard & Bullough American Machine Company, Limited.*

605,186, page 1394, in heading, residence of assignee, for "New Haven, Conn." read *same place.*

605,631, page 1573, in heading, assignment, name of assignees, for "The Firm of T. Gansel" read *The Firm of I. Gansel.*

605,724, page 1606, in heading, name of last-mentioned patentee, for "Guillaume Giron-Lanauze" read *Guillaume Giroi-Lanauze,* and the residence of the first-mentioned patentee for "Castelmoran" read *Castelmoron.*

605,784, page 1626, strike out the drawing. This figure was inadvertently inserted and the figure pertaining to the case omitted.

605,814, page 1637, twenty-eighth claim, line 7, strike out the word "or."

606,219, page 1820, first claim, line 2, for the word "paramidodimethylanilinthiosulfo" read *paraamidodimethylanilinthiosulfo.*

606,231, page 1831, fifth claim, line 5, after the word "opposite," insert the word *side.*

606,289, page 1853, in heading, name of inventor, for "Eduard Lays" read *Edward Lays.*

606,528, page 1938, twenty-eighth claim, line 4, and twenty-ninth claim, line 3, for the word "removable" read *removably.*

606,594, page 1962, in heading, strike out the words "Patented in Mexico September 8, 1896, No. 907.

Commissioner's decisions, page 746, first column, line 39, after the word "claims" strike out the period and insert a comma, and, same column, line 40, strike out the words "The two patents" and insert the words *and the claims;* same page, second column, line 16, for the word "Neither" read *Either.*

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

APRIL—JUNE, 1898.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 1. TUESDAY, APRIL 5, 1898. PRICE—$5 per year.

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DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 31, 1898.

Attention is called to Order 709, dated November 26, 1898, which is as follows:

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

This order is still in force.

Examiners are prohibited from making any change in the claims or specification of an application without the consent of applicants or their attorneys; but when amendment becomes necessary the Office will duly advise, by letter, the applicant or his representative before passing a case to issue.

C. H. DUELL,
Commissioner.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electrical Engineer, New York, a weekly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1898.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 29, 1898.

SIR: The Secretary of the Interior has ordered that Thomas J. Stafford, of Creston, Iowa, be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 30, 1898.

SIR: The Secretary of the Interior has ordered that J. D. Bacon, of Troy, Ind., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $10; single copies, 10 cents; if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $6.75 per volume. *Payment in advance.* No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Renewal of Forfeited Cases.

Rule 178. When the patent has been withheld by reason of non-payment of the final fee, any person, whether inventor or assignee, who has an interest in the invention for which such patent was ordered to issue may file a renewal of the application for the same invention; but such second application must be made within two years after the allowance of the original application. • • •

Rule 179. In such renewal the oath, petition, specification, drawing, and model of the original application may be used for the second application; but a new fee ($15.00) will be required. • • •

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 29, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between two and three months.			
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 10	Mar. 14	256
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 5	Mar. 14	254
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153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 3	Mar. 12	227
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 7	Mar. 3	225
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250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 20	Mar. 17	599
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 8	Mar. 17	337
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Designs	18—No. 28,443 to No. 28,460, inclusive.
Trade-Marks	3—No. 31,453 to No. 31,455, inclusive.
Labels	None.
Prints	None.
Reissues	1—No. 11,659.
Total issue	448

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
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Arizona Territory	.....	.....	New Jersey	27	.....
Arkansas	5	.....	New Mexico Territ'y	.....	.....
California	11	.....	New York	54	.....
Colorado	5	.....	North Carolina	2	.....
Connecticut	8	.....	North Dakota	2	.....
Delaware	1	.....	Ohio	33	1
District of Columbia	3	.....	Oklahoma Territory	1	.....
Florida	.....	.....	Oregon	3	.....
Georgia	2	.....	Pennsylvania	44	.....
Idaho	1	.....	Rhode Island	2	.....
Illinois	30	.....	South Carolina	3	.....
Indian Territory	2	.....	South Dakota	1	.....
Indiana	11	.....	Tennessee	5	.....
Iowa	14	.....	Texas	2	.....
Kansas	5	.....	Utah	1	.....
Kentucky	3	.....	Vermont	7	.....
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Maine	2	.....	Washington	5	.....
Maryland	3	.....	West Virginia	12	.....
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Michigan	17	.....	Wyoming	.....	.....
Minnesota	7	.....	U. S. Army	.....	.....
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Missouri	8	1	Total to citizens of the United States	401	3
Montana	.....	.....			
Nebraska	2	.....			
Nevada	.....	.....			

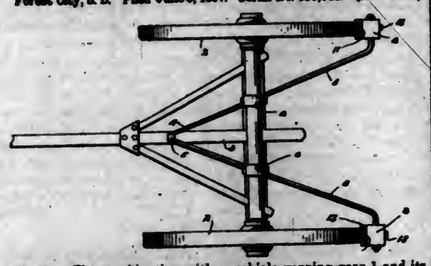
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentine	.....	.....	Jamaica	.....	.....
Australia	.....	.....	Mexico	.....	.....
Austria-Hungary	.....	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	1	.....	New South Wales	.....	.....
Bermuda	.....	.....	New Zealand	1	.....
Brazil	.....	.....	Norway	.....	.....
Canada	8	.....	Portugal	.....	.....
Cape Colony	.....	.....	Queensland	.....	.....
Chile, Republic of	.....	.....	Roumania	.....	.....
China	.....	.....	Russia	.....	.....
Colombia	.....	.....	Scotland	.....	.....
Cuba	.....	.....	South African Republic	.....	.....
Denmark	.....	.....	South Australia	.....	.....
Egypt	.....	.....	Spain	.....	.....
England	15	.....	Sweden	.....	.....
Finland	.....	.....	Switzerland	.....	.....
France	4	.....	Victoria	1	.....
Germany	12	.....	Total to citizens of foreign countries	43	.....
Hawaii	.....	.....			
Ireland	.....	.....			
Italy	1	.....			

PATENTS

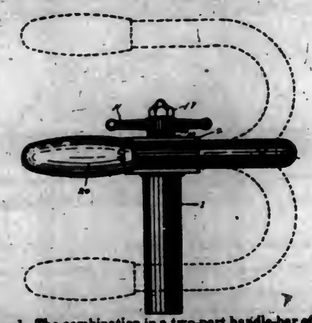
GRANTED APRIL 5, 1898.

601,623. WHEEL-CLEANER FOR VEHICLES. MARVIN ASH, Forest City, S. D. Filed June 3, 1897. Serial No. 639,318. (No model.)



Claim.—The combination with a vehicle running-gear 1 and its wheels 2, 2 of the V-shaped spring-metal bracket 4 fixed to the running-gear by the bolt 5 and adjustable clamps 6, 6 and leaving the free ends of its integral diverging arms 6, 6 extending across the path of the wheels, and the cast-metal shoes 8, 8 adjustably secured on the free ends of said arms, by means of the set-screws 12, 13 and having their faces contiguous to said wheels formed with a diagonal recess 9 and parallel ears 10, 10 terminating in beveled edges 12, 12 substantially as shown and described.

601,624. ADJUSTABLE HANDLE-BAR FOR BICYCLES. GEO. M. BEARD, Angola, Ind. Filed Oct. 24, 1896. Serial No. 609,944. (No model.)

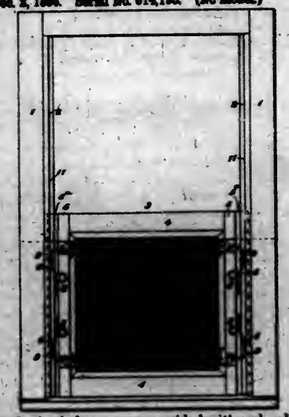


Claim.—1. The combination in a two-part handle-bar of the post 1; the handle-bar head 2 secured in said post by a tubular screw-threaded stem, and having the circular openings 3 arranged in parallel relation for the purpose described, and having its central portion horizontally slotted to admit of clamping said handle-bar when mounted therein; the handle-bar sections 19 rotatably mounted in said openings 3 and provided upon their inner ends with the opposite and coincident screw-threaded annular faces 23 adapted to engage the adjusting-screw; the vertical adjusting-screw 5 rotatably mounted in said head as shown, between the said handle-bar sections and adapted for an actuating engagement with said faces 23, and provided with a reduced screw-threaded extension 8 having a longitudinal slot 9; and a hand-lever 11 mounted on said extension by a screw-threaded connection and provided with a spring-pressed catch-bolt loosely mounted therein as described and adapted for a holding engagement with said slot 9, all substantially as described.

2. The combination of the head 2 centrally slotted as shown, and provided with handle-bar openings 3 in parallel arrangement and having a vertical central opening for the adjusting-screw; the handle-bar sections provided upon their inner ends with the annular threaded faces 23 adapted for a simultaneous actuating engagement with the adjusting-screw when rotatably mounted in said openings; the handle-bar-adjusting screw 5 rotatably mounted in said vertical opening and adapted for an actuating engagement with the said handle-bar sections and provided with a screw-threaded stem 8 longitudinally slotted as shown; the plates 10 loosely mounted on said stem and having a plurality of balls 18 arranged as shown, for the purpose specified; and a hand-lever 11 rotatably mounted on said stem by a screw-threaded connection and having a spring-pressed catch 12 arranged therein to holdingly engage said slotted stem for the purpose of rotating the said adjusting-screw 5, and a screw-threaded cap 17 adapted to limit the upward movement of said hand-lever, all substantially as described.

3. The combination of a centrally slitted or slotted handle-bar head 2 having a central vertical perforation for the adjusting-screw, a circular opening 3 for the handle-bar, so arranged as to communicate with said vertical perforation, and having a pendent supporting-stem; a one-piece handle-bar rotatably mounted in said opening and provided midway its ends with an annular concave screw-threaded face 23; the adjusting-screw 5 rotatably mounted in said vertical perforation and adapted to form an actuating engagement with said handle-bar, and provided with a screw-threaded stem 8; the plates 10 mounted on said stem as described for the purpose specified; and a hand-lever 11 rotatably mounted on said stem by a screw-threaded connection, and having a spring-pressed catch 12 arranged therein to holdingly engage said stem for the purpose of rotating the said adjusting-screw 5, and a screw-threaded cap 17 adapted to limit the upward movement of said hand-lever, all substantially as described.

601,625. WINDOW-SCREEN. GEORGE A. RIDEOUT, Keene, N. H. Filed Dec. 2, 1896. Serial No. 614,195. (No model.)



Claim.—1. A window-screen provided with a plurality of retaining and guiding springs at one or both sides, each of which embodies a coil located in a recess and projects outwardly therefrom to form a bearing and thence inwardly through the frame, said outwardly-projecting portion being normally inclined with reference to the edge of the frame and separated laterally from said edge by a space adapted to receive a track-molding or flange.

2. A window-screen provided with a plurality of retaining and guiding springs at one or both sides, each of which embodies a coil of one or more turns located in a cylindrical recess in the frame and extends therefrom outwardly to form a bearing and thence inwardly through the frame, said outwardly-projecting portion being normally inclined with reference to the edge of the frame and separated laterally from said edge by a space adapted to receive a track-molding or flange.

3. A window-screen comprising a frame, one or both of the side portions of which has a plurality of guideways or recesses one side of each of which consists of a metal plate or strip having offset retaining edges embedded in the frame, and retaining and guiding springs each of which has one end inserted in the frame and extends outwardly at an acute angle to the edge of the frame to form a bearing and thence inwardly through the corresponding recess or guideway in the frame.

4. A window-screen frame one or both of the side pieces of which has a plurality of guideways or recesses, one side of each of which consists of a strip or plate having offset edges embedded in the frame, in combination with a plurality of springs each of which has one end rigidly connected to the frame and has a coil adjacent to said end which is located in a corresponding recess, said spring extending outwardly from said coil to form a bearing and thence inwardly through the corresponding recess or guideway.

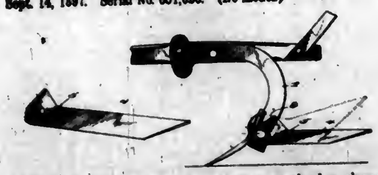
5. The combination with a window-casing having a molding at each side, provided with a laterally-projecting ledge, of a screen-frame the extreme width of which is materially less than the inside width of the casing, said frame having a plurality of retaining and guiding springs at each side, each of which embodies a coil located in a recess in the frame and projects outwardly against the ledge of the molding and thence inwardly through a guideway in the frame, said outwardly-projecting portion being inclined with reference to the edge of the frame.

601,626. BOWLING-ALLEY. EDWARD BROOKS, Milton, Mass. Filed Feb. 23, 1897. Serial No. 624,574. (No model.)



Claim.—In a bowling-alley an electric circuit broken at the spot where the pin stands; two binding-posts set upon the circumference of a suitably-sized circle struck from the center of the spot, their tops flush with the surface of the alley and ninety degrees apart and a pin having a metal ring inlaid upon the bottom thereof flush with its bottom surface and of suitable size to connect the two binding-posts, all arranged substantially as described.

601,627. SWEEP. ANDREW J. BROWN, Bold Spring, Ga. Filed Sept. 14, 1897. Serial No. 651,636. (No model.)



Claim.—In combination, a plow foot or standard, a plow point or shovel secured to the lower end of the standard and projecting beyond the side thereof, a sweep comprising a blade having its inner end bent about at right angles upon an oblique line and terminating in straight edges disposed at different relative angles to each other and adapted to underlap and touch the rear side of the said point or shovel, and a fastening-bolt securing the sweep to the standard and passing through an opening in the bent end of the blade, substantially as and for the purpose set forth.

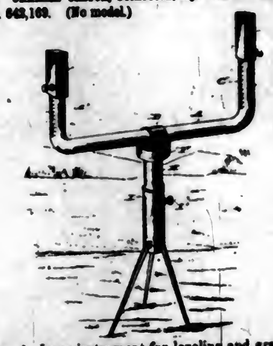
601,628. CARPET-SWEEPER. EMILY B. BROWNE, Dedham, Mass. Filed Nov. 5, 1897. Serial No. 657,499. (No model.)



Claim.—1. In a carpet-sweeper, in combination with the driving-wheels, a rotary brush in two sections, one section inclosed in a frame between two pairs of driving-wheels and the other section projecting beyond the driving-wheels and inclosed in a casing for receiving the dirt, substantially as described, for the purposes specified.

2. In a carpet-sweeper, in combination with the driving-wheels, a rotary brush in two sections, one section inclosed in a frame between two pairs of driving-wheels and the other section projecting beyond the driving-wheels and inclosed in a casing, said casing being adjustably secured to the main frame of the sweeper, substantially as described for the purposes specified.

601,629. COMBINED SPIRIT-LEVEL AND GRADING INSTRUMENT. CHARLES CASTOR, Princeton, Ky. Filed June 24, 1897. Serial No. 642,169. (No model.)



Claim.—1. In an instrument for leveling and grading, the combination of the tripod-cylinder, the tube adjustably held therein, and a level mounted to turn on said tube, said level consisting of a glass tube having the upturned ends having graduated scales thereon, and an adjustable cap on each upturned end, substantially as shown and described.

2. In a level, the combination of the tripod-cylinder, a level mounted thereon so that it can be turned, said level consisting of a glass tube having the upturned ends with graduated scales, and an adjustable cap on each upturned end of the glass tube, and means for securing said caps at any desired adjustment, substantially as described.

601,630. PROTRACTOR. ARTHUR W. CRAIG, Fortress Monroe, Va. Filed May 24, 1897. Serial No. 637,837. (No model.)



Claim.—1. A protractor having the curve whose equation is $y=(x-a)\tan.\frac{\pi x}{2a}$, substantially as shown and for the purpose described.

2. A protractor having two curved plotting edges, one a semicircle and the other a curve whose equation is $y=(x-a)\tan.\frac{\pi x}{2a}$, as and for the purpose described.

3. An instrument designed for use as a protractor and for the multisection of angles, having for its exterior plotting edge the curve whose equation is $y=(x-a)\tan.\frac{\pi x}{2a}$, and for its interior plotting edge a semicircle, both curves having a common center, and both being graduated substantially as shown and described.

4. An instrument designed for the construction of the equivalent squares of given circles and conversely for the construction of the equivalent circles of given squares, having a plotting edge which at D is a line perpendicular to the base of the instrument, coincides with a point whose equation is $y=(x-a)\tan.\frac{\pi x}{2a}$, as and for the purpose described.

5. An instrument designed for the construction of cycloidal curves having an exterior edge constructed from the curve whose equation is $y=(x-a)\tan.\frac{\pi x}{2a}$, reference-line A B and point D and its face graduated, all substantially as shown and described.

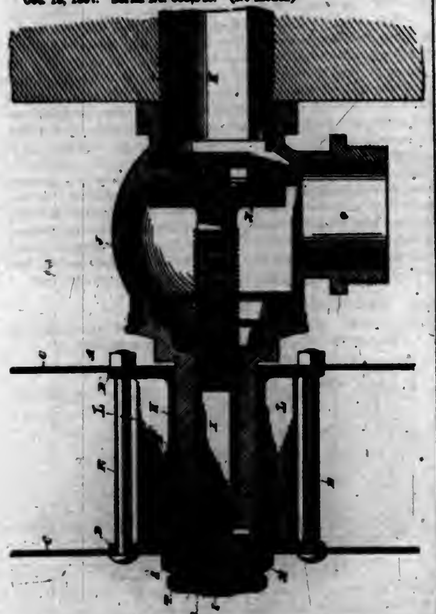
6. In a drawing instrument, a frame-plate having a curved exterior edge, and a semicircular interior edge, the centers of these curves coincident, and a base-plate A, B, the base-line A, B, and the maximum vertical of the exterior curve of the frame-plate having the ratio $\frac{A\,B}{O\,D}=\pi$, and the face of the frame-plate being ruled and graduated, all substantially as shown and described.

601,631. LIFTING DEVICE. WILLIAM T. B. CLEMM, Pocahontas, Va. Filed Feb. 2, 1897. Serial No. 621,617. (No model.)



Claim.—The herein-described lifting device comprising two similar bars one of which is provided with keepers through which the other is adapted to slide, cross-heads mounted upon the upper end of each of said bars, angularly-projecting plates secured to each of said cross-heads, each of said plates being rectangular in form and being semicircular at the free end, the free end of each plate being beveled on one side, each being beveled on the side opposite to the other, the said plates being substantially the same length whereby the said under plate projects beyond the said upper plate at the end thereof, and a brace connecting said under plate with one of the said keepers, and a hook mounted in the upper end of the said sliding bar to which the said upper plate is secured substantially as and for the purpose described.

601,632. HOSE-REEL. EDWARD CLIFF, Newark, N. J. Filed Oct. 18, 1897. Serial No. 655,546. (No model.)



Claim.—1. In combination with the water-supply apparatus having the valve, projecting valve-stem and exposed hose-attaching nozzle, the reel adapted to operate said stem, means connecting the reel with said stem but permitting said stem to move longitudinally, means restraining said reel, while revolving, against traveling with said stem, and the hose at one end connected with said exposed nozzle and thence while doubled at about its center wound upon said reel; substantially as set forth.

2. In combination with the water-supply apparatus having the valve, valve-stem and exposed hose-attaching nozzle, the sleeve around said stem, the reel mounted on said sleeve, means for preventing the reel while revolving from traveling longitudinally on said sleeve, means connecting said reel with said stem to transmit the motion of the reel to said stem to operate the valve, and the hose at one end connected with said exposed nozzle and thence while doubled at about its center wound upon said reel; substantially as set forth.

3. In combination with the water-supply apparatus having the valve, projecting valve-stem, and exposed hose-attaching nozzle, the sleeve connected with said water-supply apparatus and having an internal thread, the reel mounted upon said sleeve, means connecting a polygonal portion of said valve-stem with said reel but permitting said stem during the revolving of the reel to travel longitudinally, means preventing said reel from having a traveling motion while revolving on said sleeve, and the hose at one end connected with said exposed nozzle and thence wound upon said reel; substantially as set forth.

4. The water-supply apparatus having a hollow sleeve, a valve and a valve-stem projecting through said sleeve, combined with a reel mounted to turn axially upon said sleeve, the sleeve R, having a polygonal aperture fitting upon a polygonal portion of said valve-stem and provided at one end with a head and at its other end with a nut, whereby said sleeve may be clamped against a portion of said reel to connect the reel and valve-stem, and suitable hose wound upon said reel; substantially as set forth.

5. In combination with the water-supply apparatus having a sleeve, a valve and a valve-stem projecting into said sleeve and having a threaded portion to engage the thread of said sleeve and also a polygonal portion, the reel mounted to revolve upon said sleeve and otherwise stationary therewith, the sleeve R having a polygonal aperture receiving the polygonal portion of said valve-stem and having also the head G within the bore of said reel, the nut S on said sleeve R for clamping a portion of said reel against said head, and hose suitably wound upon said reel; substantially as set forth.

6. In combination with water-supply apparatus having the internally-threaded sleeve, the valve and the valve-stem projecting into said sleeve and being threaded in one portion and polygonal in cross-section in another portion, the reel mounted to revolve upon said sleeve and keyed thereon and extending outward beyond the outer end of said sleeve, the sleeve R having a polygonal aperture receiving said valve-stem and provided with the head G intermediate the outer end of said sleeve and the outer portion of the reel, and the nut upon said sleeve R to clamp said outer portion of the reel against the said head G; substantially as set forth.

7. In combination with water-supply apparatus having a valve, a sleeve and a valve-stem projecting through said sleeve, the reel receiving within its hub said sleeve and valve-stem, means directly on and carried by said valve-stem for detachably connecting said stem with said reel so that said stem may receive the motion of said reel, and means for preventing said reel from traveling longitudinally with said stem; substantially as set forth.

8. In combination with water-supply apparatus having a sleeve, a valve and a valve-stem projecting through said sleeve, the reel mounted upon said sleeve, a key securing said reel upon said sleeve but permitting of the revolving motion of said reel around said sleeve, the sleeve R upon and carried by a polygonal portion of said valve-stem, and means for connecting the said sleeve R to the reel; substantially as set forth.

601,633. HOSE-REEL. EDWARD CLIFF, Newark, N. J. Filed Oct. 18, 1897. Serial No. 655,547. (No model.)

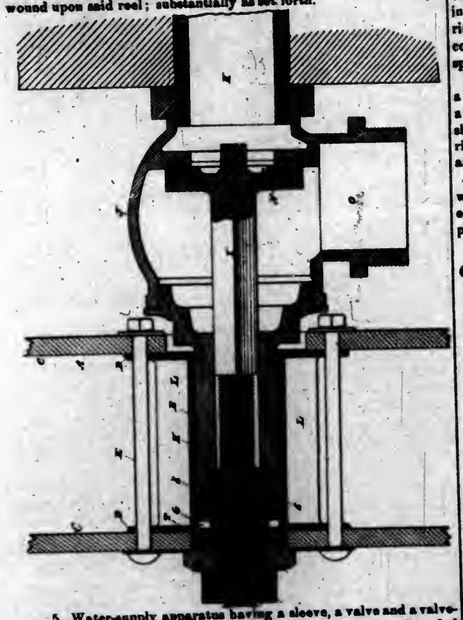
Claim.—1. In combination with the water-supply apparatus having the valve, projecting valve-stem and exposed hose-attaching nozzle, the reel adapted to operate said stem, means connecting the reel with said stem to operate the same and the hose at one end connected with said exposed nozzle and thence, while doubled at about its center, wound upon the said reel, the said reel and the said valve-stem being arranged at an angle of about forty-five degrees; substantially as and for the purposes set forth.

2. In combination with water-supply apparatus having a tubular sleeve, a valve and a valve-stem projecting into said sleeve, the reel mounted to revolve upon said sleeve, means connecting said reel with the valve-stem for the purpose of operating the valve from the reel, and hose suitably wound upon the reel, said valve-stem, said sleeve and said reel being arranged at an angle of about forty-five degrees; substantially as shown and described.

3. In combination with water-supply apparatus having a stationary sleeve, a valve and a valve-stem projecting through said sleeve, the reel mounted to turn axially upon said sleeve, the revoluble sleeve having a threaded bore to receive the threaded portion of the valve-stem, and means for connecting said revoluble sleeve to the reel; substantially as set forth.

4. In combination with water-supply apparatus having a sleeve, a valve and a valve-stem projecting through said sleeve, a reel mounted to turn axially upon said sleeve, the revoluble sleeve having a threaded bore to receive the valve-stem and provided with the flange, the nut for connecting said flange to the reel so that said reel

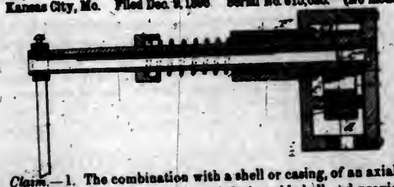
and said sleeve R may revolve together, means for preventing said revoluble sleeve from traveling longitudinally, and hose suitably wound upon said reel; substantially as set forth.



5. Water-supply apparatus having a sleeve, a valve and a valve-stem projecting through said sleeve, said valve-stem having a threaded portion and a polygonal portion and said sleeve having a polygonal bore to engage the polygonal portion of said valve-stem, combined with the reel mounted to turn axially upon said sleeve, the threaded sleeve mounted to revolve axially on and receiving the threaded portion of said valve-stem, means for detachably connecting said threaded sleeve to the reel in order that said reel and sleeve may revolve together, and hose suitably wound upon said reel; substantially as set forth.

6. In combination with water-supply apparatus having a sleeve, a valve and a valve-stem projecting into said sleeve, a hose-reel mounted to turn axially on said sleeve, means for connecting said reel to said stem for operating the latter and the valve, and means for preventing said stem from turning axially during its longitudinal movement; substantially as set forth.

601,684. COCK OR FAUCET. JOHN F. COTTER and JOSEPH TAGER, Kansas City, Mo. Filed Dec. 9, 1896. Serial No. 615,095. (No model.)



Claim.—1. The combination with a shell or casing, of an axially-turning, hollow, outlet-stem fitted tightly in said shell and provided at its inner part with lateral ports which open into the bore of longitudinal passage in said shell, a movable guide situated at one side of said stem, within the shell, and an endless band or ring-packing stretched around said guide and the stem and fitted tightly to the stem to expose or cover the lateral ports in said stem, as set forth.

2. In combination, a hollow outlet-stem provided with lateral egress-ports, an antifriction-roller forming a guide which is situated at one side of said stem, and a movable band or packing fitted around said roller and the stem, as set forth.

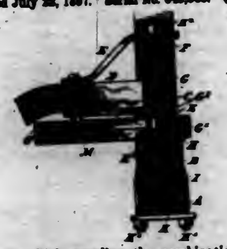
3. In combination a hollow outlet-stem having a lateral egress-port, a guide-roller and an endless packing reinforced by external metallic bands and stretched around said guide-roller and the outlet-stem to expose or close the ports in the latter, as and for the purposes described.

4. The combination with a shell having a gland, a guide-roller within the shell, and an endless ring or band fitted to the guide-roller, of a hollow outlet-stem extending through said gland and having its inner perforated end partially encompassed by said endless band or ring, a packing around the stem and within the gland, a spring to compress said packing, and means for varying the pressure of the spring, substantially as and for the purposes described.

5. In combination, a shell or casing provided with a stuffing-box, a hollow outlet-stem stepped in said shell and having an egress-port, a removable top or cap for said shell, a guide-roller journaled in the shell independently of the top or cap plate thereof, and a band or ring-packing fitted around the guide-roller and the outlet-stem, as and for the purposes described.

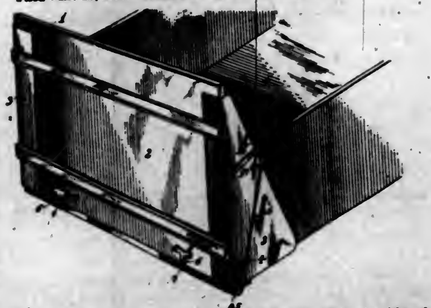
6. In combination, a shell or casing, a hollow outlet-stem stepped within said shell, a guide-roller situated at one side of said stem, an endless band or ring-packing, and means for moving said band or packing, as set forth.

601,685. VEHICLE-COUPLING. JERRY CROWLEY, Cabinlove, W. Va. Filed July 22, 1897. Serial No. 645,505. (No model.)



Claim.—In a vehicle-coupling, the combination with the axle, the lower bolster, the upper bolster and the spring, of the fifth-wheel, the two plates of which are supported between the upper and lower bolsters, the clip I, securing the lower bolster to the axle and provided with a bell-shaped recess and a central opening in its upper end and with depending flanges I' lying transversely upon the upper bolster, a flat plate resting upon the upper bolster and inclosed within the recess in the upper part of the clip, between the flanges I', a bolt passing through the upper bolster and the spring and provided with a head at its lower end, with rounded outer surface to rest upon the plate H', said head being countersunk to fit the recess H, the bolt being thickened under the head to form a shoulder G^3, a boot clip upon the bolt, with its lower end resting upon said shoulder, passing up around the upper bolster and spring and having its upper end fitted upon the upper end of the bolt, and a nut K' threaded upon the bolt above the upper end of the clip E, all substantially as described.

601,686. SHOVELING-BOARD. NEWTON A. CRIMAN, Decatur, Ill. Filed June 28, 1897. Serial No. 642,645. (No model.)



Claim.—1. The combination with an end-gate, of the shouldered links pivoted at one end to said gate and arranged thereon for the opposite shouldered end of the link to engage with the free edge of the gate, and a rod connected to the link beyond its shouldered end, whereby the link loosely connects the rod to the gate and permits a limited vertical adjustment of the rod relative to the gate to accommodate the latter to wagon-bodies of different heights, substantially as described.

2. The combination with a wagon-body and an end-gate of the loose links or clips pivoted to said end gate and provided with flanges which embrace the gate and with shoulders to limit the play or movement of said links, hangers on said body, and rods loosely connected to the free ends of the links and engaging with the hangers, for the purposes described, substantially as set forth.

3. A hinge for an end-gate or shoveling-board, comprising the separable members, one of which is provided with prongs situated at right angles to each other to be embedded in a wagon-body, as and for the purposes described.

4. The combination with a wagon-body and an end-gate of the separable hinge comprising a member, 7, fixed to said wagon-body and provided with a rearwardly-extending pintle and with the lateral extending head at the rear extremity of said pintle, and the plate-like member, 8, fastened to the end-gate and having its curved and forked members, 21, arranged to straddle the pintle to rest thereon; the forked parts of said hinge member, 8, being adapted when the gate is in a vertical position to turn under the head of the pintle and prevent vertical displacement of said end-gate, substantially as described.

5. A hanger for an end-gate and shoveling-board comprising a horizontal bracket member constructed for application to the upper edge of the wagon-body, and an outwardly-projecting horizontal arm fastened to said bracket member to lie substantially at right angles thereto and adjustable longitudinally thereon, substantially as described, for the purposes set forth.

6. A hanger comprising a horizontal bracket member, an outwardly-projecting forked arm applied laterally to the bracket member to lie substantially at right angles thereto, and means for clamping said arm rigidly and adjustably to the bracket member, as and for the purposes described.

7. An end-gate hanger, comprising a horizontal bracket constructed for application to the upper edge of a wagon-body and provided with an exposed corrugated face, a horizontal fulcrum-arm extending outwardly from said bracket and having a corrugated inner end which is interlocked with said corrugated face of the bracket, and a bolt which unites the arm and bracket rigidly together and is adjustable with said arm in a horizontal direction on the bracket, substantially as and for the purposes described.

8. A hanger comprising a bracket member provided with angular arms on one side and having a corrugated face and a slot, an arm provided with fingers and with a corrugated face-plate arranged in such relation to one of the fingers as to form a shoulder, and a bolt with its head fitted in the slot of the bracket member and passing through the arm to hold the latter adjustably on said bracket member, as and for the purposes described.

9. An end-gate hanger, comprising an elongated horizontal bracket constructed for application to the upper edge of a wagon-body, a horizontal fulcrum-arm extending outwardly from the bracket substantially at right angles thereto and provided with forks arranged to confine between themselves a locking-rod, and means for clamping said bearing-arm adjustably to the bracket, substantially as and for the purposes described.

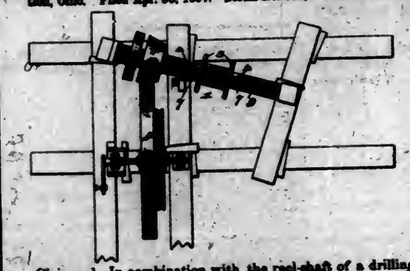
601,687. COMBINED TABLE AND GAME-COUNTER. DANIEL B. CUTLER, Searsburg, Vt. Filed Sept. 16, 1897. Serial No. 651,942. (No model.)



Claim.—1. The combination with a table-top provided with a circular recess and a plurality of concentric slots extending through the bottom thereof, of a dial around the edge of the recess, a transparent plate over said recess, an arbor mounted at the center of the recess, a plurality of hands on said arbor, and pins projecting from the under side of said hands and working in and extending through said slots, substantially as and for the purpose specified.

2. The combination with a table-top provided with a circular recess and a plurality of concentric slots extending through the bottom thereof, of a dial around the edge of the recess, a transparent plate over said recess, an arbor mounted at the center of the recess, a plurality of hands on said arbor, pins projecting downward from the under side of said hands and working in and extending through said slots, and a thumb-nut on the lower end of the arbor beneath the table-top, substantially as shown and described.

601,688. SAND-LINE SPOOL. RUSSELL A. DAYTON, Burton Station, Ohio. Filed Apr. 30, 1897. Serial No. 634,569. (No model.)



Claim.—1. In combination with the reel-shaft of a drilling-rig, of a portable sand-line spool comprising a spool-body having a large-sized longitudinal bore and provided at each end with a series of regularly-spaced offset exteriorly-arranged fastening means adapted to engage with the shaft, said spool being separate and independent of the shaft and adapted to be secured thereon at different points, substantially as set forth.

2. A portable sand-line spool for well-rigs comprising a cylindrical spool-body with a large longitudinal opening or bore and provided with circular end guard-flanges, and a circular series or plurality of offstanding legs exterior to said flanges, and set-screws mounted in said legs and adapted to impinge on the shaft receiving the spool, substantially as set forth.

601,689. CLAMP FOR HANDLING HYDRAULIC HOSE. PHILIP J. DOYLE, Memphis, Tenn. Filed June 11, 1897. Serial No. 640,297. (No model.)



Claim.—1. A hinged clamp for handling hose, constructed as herein described, with a pair of jaws 1, 1, of semicircular form to fit the hose or pipe, hinged together at 2, 2, and provided with a spring-pawl 8 for securing the jaws in closed position, and with handles 5, 5, for carrying the hose located tangentially to the clamp.

2. The combination of the jaws 1, 1, hinged together at 2, formed at their extremities with sockets 3, 4, the handles 5, 5, secured in said sockets, the arm 7 projecting from the socket 3, the spring pawl 8 mounted in the said arm and the cross-bar 11 in the socket 4 with which said spring-pawl engages, as and for the purposes described.

3. The combination of the hinged jaws 1, 1, sockets 3, 4, thereon, handles 5, 5 in said sockets, latch device 7, 8, 9, and cross-bar 11 for securing the sockets in closed position, as and for the purposes described.

4. The combination of the hinged jaws 1, 1, sockets 3, 4, handles 5, 5, and suitable catch device 7, 8, 9, 11, and the hoisting-stirrup 14 secured to the socket 3 for raising the hose by tackle applied to the clamp, substantially as described.

601,640. METHOD OF TREATING ORES CONTAINING GOLD, SILVER, OR COPPER. ALEXANDRE BYARD, Paris, France. Filed May 3, 1897. Serial No. 635,719. (No specimens.)

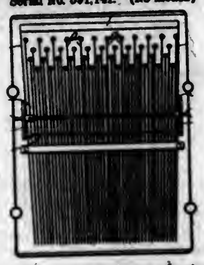
Claim.—1. The method herein described of treating ores or other matters containing gold, silver or copper, by forming a weak solution of hydrochloric acid with a small quantity of a compound of an alkali metal or alkali-earth metal, such as permanganate of potash, in such proportions that chlorin is not generated, thereby producing a stable mixture which will dissolve the specified metals in the cold, and treating the ores or metalliferous matters with said mixture, substantially as set forth.

2. The treatment of ores or other matters containing gold, silver or copper, by means of a weak solution of hydrochloric acid in conjunction with a permanganate salt of an alkali metal or earth metal, the said materials being used in such proportion as to produce a liquid free from the odor of chlorin, substantially as described.

3. The treatment of ores or other matters containing gold, silver or copper, by means of a weak solution (about three per cent.) of

hydrochloric acid to which is added, while cold, about four hundred grams of permanganate of potash per one thousand kilos of dissolvent, as set forth.

601,641. COUNTING APPARATUS FOR TYPE-WRITERS OR LIKE MACHINES. WILLIAM FIRS, Wellingborough, England. Filed May 11, 1896. Serial No. 591,141. (No model.)



Claim.—A counting or registering mechanism for a type-writer consisting of two rotating wheels geared into one another and connected to a suitable counting or registering mechanism, an oscillating lever-arm oscillating between two teeth one on each wheel so that by the oscillation to one side the arm acts on the tooth of one wheel to move it and consequently both wheels through one-half a tooth-space and by the oscillation to the other side the arm then acts on a tooth of the other wheel and completes the motion through a complete space, a means for actuating the lever-arm in one direction from the letter keys, and a means for actuating the lever-arm in the reverse direction from the spacing-key.

601,642. STOVE-TRUCK. DAVID L. FOGLEMAN, Danville, Pa. Filed Dec. 13, 1897. Serial No. 661,643. (No model.)



Claim.—1. A device of the class described comprising a truck-frame mounted upon wheels, a centrally-arranged master-wheel journaled on the truck-frame, a vertically-movable supporting-frame provided with depending screws, pinions provided with threaded openings receiving the screws, said pinions meshing with the master-wheel and means for rotating the master-wheel whereby the supporting-frame is raised and lowered, substantially as described.

2. A device of the class described comprising a truck-frame mounted upon wheels, a vertically-movable supporting-frame, screws connected with the supporting-frame, pinions provided with threaded openings to receive the screws, a master-wheel arranged within the pinions and meshing with the same, and an operating-shaft provided with a pinion meshing with the master-wheel, substantially as described.

3. A device of the class described comprising a truck-frame mounted upon wheels, a vertically-adjustable supporting-frame, vertical screws supporting the same, pinions bearing against the truck-frame and provided with threaded openings receiving the screws, a master-wheel arranged within the pinions and provided at its periphery with teeth meshing with the same, said master-wheel having teeth on one of its faces, a longitudinal shaft journaled in suitable bearings and extending to the front of the truck, and a pinion mounted on the rear end of the shaft and meshing with the teeth on the face of the master-wheel, substantially as described.

4. A device of the class described comprising a truck-frame mounted upon wheels and composed of side bars provided at their inner faces with sockets, and cross-bars having upturned ends bearing against the inner faces of the side bars and secured in the said sockets, a vertically-adjustable supporting-frame, and means for raising and lowering the same, substantially as described.

601,643. CAR-COUPLING. GEORGE J. FORREY, Carlisle, Pa., assignor of one-half to S. L. Diven, same place. Filed Dec. 20, 1896. Serial No. 617,343. (No model.)

Claim.—1. In a car-coupling, the combination of a draw-head, a knuckle having an arm pivoted centrally of the draw-head, and a spring-actuated block engaging the arm of the knuckle to cushion the same and limiting the pivotal movement thereof, substantially as described.



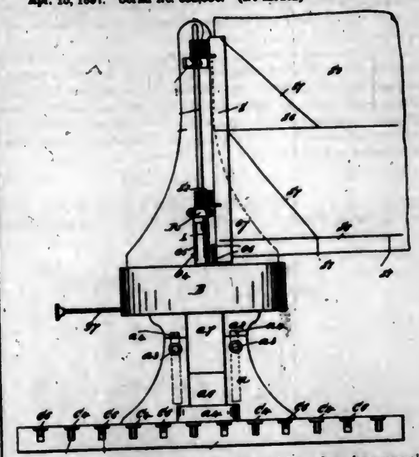
2. In a car-coupling, the combination of a draw-head, a knuckle pivoted centrally of the draw-head and provided with a rearwardly-extending lug, and a spring-actuated block having a recess receiving the lug and forming opposite shoulders to limit the swing of the knuckle, substantially as described.

3. In a car-coupling, the combination of a draw-head provided at its top and bottom with centrally-arranged longitudinal slots, a knuckle provided with an arm having a perforation, a knuckle-pin arranged in said slots and passing through the perforation of the knuckle, a spring-actuated block engaging the arm of the knuckle to cushion the latter and limiting the swing thereof, and a transverse spring engaging the knuckle, substantially as described.

4. In a car-coupling, the combination of a draw-head, a knuckle pivoted centrally of the draw-head and provided at its outer side with a recess, a rib arranged in the recess, a projection mounted on the draw-head opposite the recess, a transverse spiral spring having its outer end mounted on the projection, and a plug arranged in the inner end of the spiral spring and having a grooved head to engage the said rib, substantially as described.

5. In a car-coupling, the combination of a draw-head, a knuckle having its arm pivoted centrally of the draw-head and capable of a limited movement longitudinally of the same, a longitudinal spring for cushioning the knuckle, a transverse spring engaging the latter, and means for connecting the knuckle with a car, substantially as described.

601,644. MUSIC-TURNER. REBA W. FUNK, Canton, Minn. Filed Apr. 15, 1897. Serial No. 632,330. (No model.)



Claim.—1. A music-leaf turner comprising a base box or casing, a supplemental box or casing mounted thereover, music-frames revolubly supported above said supplemental box or casing, a tubular and revoluble cylinder supported above said supplemental box or casing, and provided with a slot in one side thereof, and an extension which projects downwardly into said supplemental box or casing, a screw which passes upwardly through said extension and through said cylinder, and on which is mounted a block which is provided with an arm which projects through said slot, and which is adapted to operate in connection with lugs or projections formed on said music-frames, substantially as shown and described.

2. In a music-turner, a base box or casing provided with two spring-operated shafts, each of which is provided with keys, a supplemental box or casing mounted above said base box or casing, a shaft mounted above said supplemental box or casing, and provided with music-supports which are revolubly mounted thereon, a revoluble cylinder mounted below said shaft and provided with an extension which projects into the supplemental box or casing, a screw which passes upwardly through said extension and through said cylinder, a movable block mounted on said screw and provided with an arm which projects through a vertical slot formed in said cylinder, a spring-drum mounted in said supplemental box or casing and operative devices connected with said parts whereby the music-supports may be turned by operating the shafts in the base box or casing, substantially as shown and described.

3. In a music-turner, a base box or casing, provided with two spring-operated shafts, each of which is provided with keys, a supplemental box or casing mounted above said box or casing, a shaft mounted above said supplemental box or casing, and provided with music-supports which are revolubly mounted thereon, a revoluble cylinder mounted below said shaft and provided with an extension which projects into the supplemental box or casing, a screw which passes upwardly through said extension and through said cylinder, a movable block mounted on said screw and provided with an arm which projects through a vertical slot formed in said cylinder, a spring-drum mounted in said supplemental box or casing, and operative devices connected with said parts whereby the music-holders may be turned by operating the shafts in the base box or casing, said supplemental box or casing being vertically adjustable, substantially as shown and described.

4. A music-turner comprising a base box or casing, spring-operated shafts mounted therein, each of which is provided with keys, a supplemental box or casing mounted above said base box or casing, and connected therewith, operative shafts connected with the shafts in the base box or casing, and projecting upwardly into said supplemental box or casing, a shaft supported above said supplemental box or casing and provided with music-supports which are revolubly mounted thereon, a revoluble cylinder mounted below said shaft, and provided with a slot in one side thereof, and an extension which projects downwardly into the supplemental box or casing, a screw which passes upwardly through said extension and through said cylinder, a block mounted on said screw within said cylinder and provided with an arm which projects through said slot and which is adapted to operate in connection with said music-supports, a spring-drum mounted in said supplemental box or casing, and operative devices whereby the music-holders may be operated by means of said spring-operated shafts, substantially as shown and described.

5. A music-leaf turner, comprising an oblong box or casing, spring-operated shafts mounted in said box or casing and provided with keys, a supplemental box or casing supported above said box or casing, operating-shafts connected with the shafts in the base box or casing, and extending upwardly into the supplemental box or casing, a spring-drum mounted in said supplemental box or casing, music-frames revolubly supported above said supplemental box or casing, a cylinder revolubly supported above said supplemental box or casing, and provided with an extension which projects downwardly therein into, a screw which projects upwardly through said extension, and through said cylinder, and provided with a block which is mounted thereon, on which is formed an arm which projects through a slot formed in said cylinder, said arm being adapted to operate in connection with lugs or projections formed on the music-frames, and operating devices whereby said operating-shafts may be manipulated so as to turn said music-frames in either direction, substantially as shown and described.

6. A music-leaf turner comprising a base box or casing, a supplemental box or casing mounted thereover, music-frames revolubly supported above said supplemental box or casing, a tubular and revoluble cylinder supported above said supplemental box or casing, and provided with a slot in one side thereof, and an extension which projects downwardly into said supplemental box or casing, a screw which passes upwardly through said extension, and through said cylinder, and on which is mounted a block which is provided with an arm which projects through said slot, and which is adapted to operate in connection with lugs or projections formed on said music-frames, a spring-drum mounted in said supplemental box or casing, and gearing connected with said drum, the extension of said cylinder, and adapted to be operated by spring-operated shafts mounted in the box or casing for turning said music-frames in either direction, substantially as shown and described.

601,645. RAIL-SUSTAINING BAR. WILLIAM GOLDIE, Wilkinsburg, Pa. Filed Apr. 17, 1897. Serial No. 632,586. (No model.)

Claim.—1. A narrow rigid rail-sustaining bar of length corresponding approximately to the width of the rail-base, and having a lateral upwardly-projecting shoulder at one end and lateral downwardly-projecting prongs at or near each end, substantially as set forth.

2. A narrow rigid rail-sustaining bar having lateral downwardly-projecting prongs at or near the ends, the upper portions of the prongs being the full width of the bar, substantially as set forth.



3. A narrow rigid rail-sustaining bar having an upwardly-projecting lateral shoulder at one end, and a downwardly-projecting prong directly under the shoulder, substantially as set forth.

4. In combination with a rail and tie, a rail-sustaining bar of length corresponding approximately to the width of the rail-base and having an upwardly-projecting shoulder at one end to sustain lateral strain, and downwardly-projecting prongs at each end, the upper portions of which are the full width of the bar, said bar being interposed transversely of the rail and being adapted to be pressed bodily into the tie, substantially as set forth.

601,646. RAIL-SUSTAINING BAR OR PLATE. WILLIAM GOLDIE, Wilkinsburg, Pa. Filed May 17, 1897. Serial No. 636,902. (No model.)



Claim.—1. A rail-sustaining bar or plate having prongs or flanges thereon extending beyond the end thereof and spread into flaring diagonal position so as to give lateral resistance between the same and the tie, substantially as set forth.

2. A rail-sustaining bar or plate having at the outer end thereof an upwardly-projecting shoulder, and beyond such outer end prongs or flanges extending diagonally to the body of the plate so as to give lateral resistance between the same and the tie, substantially as set forth.

3. A rail-sustaining bar or plate having flanges extending longitudinally thereof and having the ends of the flanges extending diagonally to the main portions thereof, so as to give lateral resistance between the same and the tie, substantially as set forth.

4. A rail-sustaining bar or plate having flanges extending longitudinally thereof and having the ends of said flanges spread into flaring position diagonal to the main portions thereof so as to give lateral resistance between the same and the tie, substantially as set forth.

5. A rail-sustaining bar or plate having a shoulder at the outer end thereof and having flanges projecting forward into flaring or diagonal position, and ribs along the inner faces of the upper portions of said flanges, substantially as set forth.

6. A rail-sustaining bar or plate having a shoulder at the outer end thereof, and a strengthening-rib extending longitudinally along the bottom face thereof and upwardly on the outer face of said shoulder, substantially as set forth.

601,647. RAIL-SUSTAINING BAR OR PLATE. WILLIAM GOLDIE, Wilkinsburg, Pa. Filed Nov. 20, 1897. Serial No. 660,124. (No model.)

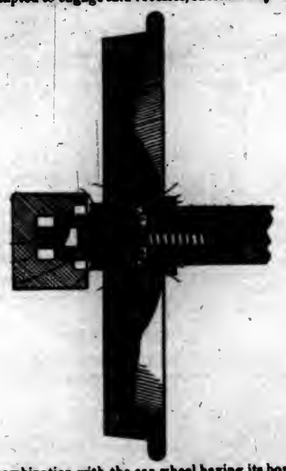
Claim.—A rail-sustaining plate or bar formed of a body portion having a flange extending below the same, the upper part of each flange being straight while the base thereof is formed of a series of diagonally-extending cutting edges joining each other and pressing-faces alternately tapering on the inside and outside of the plate and extending down to each diagonal cutting edge, substantially as set forth.

601,648. CAR WHEEL AND AXLE. JACOB A. GRAHAM and JOHN W. KILE, Deerfield, Va. Filed Mar. 30, 1896. Serial No. 585,295. (No model.)

Claim.—1. The combination with a car-wheel, its axle and axle-box, of means for holding the wheel fast upon the axle and means actuated by the axle-box for automatically allowing the same to turn loosely thereupon when rounding a curve, substantially as described.

2. The combination with the car-wheel having its bore provided

with diametrically-disposed recesses, of an axle having spring-actuated pawls adapted to engage said recesses, substantially as described.



3. The combination with the car-wheel having its bore provided with diametrically-disposed recesses, of an axle having spring-actuated pawls adapted to engage said recesses, and a spring within the bore of the axle, substantially as described.

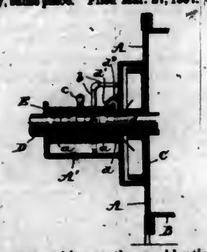
4. The combination with the car-wheel having its bore provided with diametrically-disposed recesses, of an axle having spring-actuated pawls adapted to engage said recesses, and a spring within the bore of the axle, and an endwise-movable bolt adapted to actuate said pawls, substantially as described.

5. The combination with the car-wheel having its bore provided with diametrically-disposed recesses, of an axle having a longitudinal bore, a spring located therein, a spring-plate resting thereon and dogs pivotally mounted on said plate and projecting through recesses in the axle and engaging recesses in the bore of the wheel, substantially as described.

6. The combination with the car-wheel having its bore provided with diametrically-disposed recesses, of an axle having a longitudinal bore, a spring located therein, a spring-plate resting thereon and dogs pivotally mounted on said plate and projecting through recesses in the axle and engaging recesses in the bore of the wheel, and an endwise movable bolt adapted to be automatically forced into the bore of the axle as the car approaches a curve, substantially as described.

601,649. OILER FOR SHAFTS OF PRESSURE-BLOWERS.

THOMAS W. GREEN, Philadelphia, Pa., assignor to the Wilbraham Baker Blower Company, same place. Filed Mar. 27, 1897. Serial No. 629,470. (No model.)



Claim.—1. In a rotary blower, the combination of the journal-box E, provided with one or more of the oilways *a*, extending into the oil-reservoir A', and having therein the annular groove *d*, and vent-passage *d'*, with the pipe *b*, having suitable oil-inlet and extending from the oil-reservoir to the inside of the blower, substantially as shown.

2. In a rotary blower the combination of the journal-box E, provided with the oilways *a*, and oil-reservoir A', having suitable oil-inlet and annular groove *d*, registering with the vent-passage *d'*, having the lip or cover d^2, with a pipe *b*, extending from the oil-reservoir to the inside of the blower and provided with a valve b^2, located between the reservoir and the casing surrounding the blower, substantially as shown.

3. In a rotary blower the journal-box E, having therein the oil way or ways *a*, and the vent-passage *d'*, and the reservoir A', provided with a suitable inlet for the oil and connected with the inside of the blower, in combination with the shaft D, having therein an annular groove registering with the vent-passage in the journal-box, substantially as shown.

4. In a rotary blower, the combination of the impeller-shaft D, surrounded by an annular groove, with a journal-box provided with the vent-passage *d'*, having the overhanging lip or extension d^2, substantially as and for the purpose described.

5. In a rotary blower a vent for shafts, said vent consisting of an annular groove surrounding the shaft and a passage leading from said groove to the outside of the journal-box, said vent being located in said journal-box between the blower-head and the oil-carrying journal-bearings of the journal-box, as set forth and for the purpose specified.

6. In a pressure-blower, the combination of the journal-box E, the journal therein and a suitable bearing for said journal, an oil-reservoir formed on the under side of the journal-box, and the oil-passages *a*, *a*, extending from the reservoir up through the journal-box to the journal for the purpose of supplying oil to said journal, with the impeller or blower and pipes *b*, *b*, connecting the interior of the said blower with the oil-reservoir for the purpose of creating a pressure in said oil-reservoir to force the oil therefrom up through the passages *a*, *a*, onto the said journal, as set forth.

601,650. COLLAPSIBLE CRATE.

GEORGE H. GROVE, Hummelstown, Pa. Filed Oct. 8, 1897. Serial No. 654,831. (No model.)



Claim.—1. A collapsible crate consisting of a bottom, end pieces secured thereto, ends hinged to said pieces, a partition, sides hinged between the partition and end strips, and a top made in two subdivisions each composed of two sections hinged together and to the ends, substantially as shown and described.

2. A collapsible crate consisting of a bottom, end pieces attached thereto, a partition made in two sections, one stationary and the other movable, sides hinged between the end strips and partition, ends hinged to the end strips, a top consisting of the sections I, J, J' and J' hinged together and to the ends, a sliding pin adapted to pass through the inner rails of the top, and a staple projecting upward from the movable section of the partition and adapted to receive the pin in its passage, substantially as and for the purpose set forth.

3. In combination, a bottom, end strips secured thereto, a partition secured to the middle of the bottom, said partition consisting of a stationary section and a swinging section, sides hinged between the end strips and partition, ends hinged to the end strips, a top made in two subdivisions each of which is hinged to one of the ends, said subdivisions consisting of two sections hinged together, dowel-screws for holding the movable parts in proper relative position, dowel-screws for securing certain of the parts together either in their distended or folded positions, a staple projecting upward from the swinging section of the partition, a locking-pin adapted to pass through the inner rails of the top and the staple, and a clip to which said pin is secured, as specified.

601,651. PLUNGER BRAKE-HEAD.

EDWARD S. HALL, New York, N. Y. Filed Dec. 22, 1896. Serial No. 616,576. (No model.)



Claim.—1. A brake-head comprising a head-plate and a renewable shoe having embedded fastenings adapted for attaching it to the head-plate, said embedded fastenings of the shoe being nearer the wheel-tire than is the head-plate and presenting only rounded

surfaces to the tire thereby preventing injury thereto by the fastenings should the shoe be overworn or be torn away from the head-plate.

2. A brake-head comprising a head-plate and a renewable shoe having partially-embedded fastenings adapted at their projecting portions for attaching the shoe to the head-plate, the embedded portions of the fastenings being nearer the wheel-tire than is the head-plate and presenting only rounded surfaces to the tire thereby preventing injury to the tire by the fastenings should the shoe be overworn or be torn away from the head-plate.

3. A brake-head comprising a head-plate and a renewable shoe having embedded fastenings each provided with two end portions adapted for attaching the shoe to the head-plate, said embedded portions of the shoe being nearer the wheel-tire than is the head-plate and presenting only rounded surfaces to the tire thereby preventing injury thereto by the fastenings should the shoe be overworn or be torn away from the head plate.

4. A brake-head comprising a head-plate and a renewable shoe having partially-embedded fastenings adapted at their projecting end portions for attaching the shoe to the head-plate, said projecting portions of the fastenings being connected in pairs by the embedded portions and said embedded portions being nearer the wheel-tire than is the head-plate and presenting only rounded surfaces to the tire thereby preventing injury thereto by the fastenings should the shoe be overworn or be torn away from the head-plate.

5. A brake-head comprising a head-plate having two pairs of keyhole-slots and renewable friction shoe or shoes provided with partially-embedded fastenings, each fastening having a head at each of its projecting ends, the embedded portions of the fastenings being nearer the wheel-tire than is the head-plate and presenting only rounded surfaces to the tire thereby preventing injury thereto should the friction-shoes be overworn or be torn away; the projecting headed portions of each fastening being adapted to engage one pair of keyhole-slots in the head-plate and look outside the plate.

6. A brake-head comprising a head-plate having lugs or parts taking endwise thrust of a brake-shoe, and a renewable shoe having embedded fastenings adapted for attaching it to the head-plate, said embedded fastenings being nearer the wheel-tire than is the head-plate and presenting only rounded surfaces to the tire thereby preventing injury thereto by the fastenings should the shoe be overworn or be torn away; said embedded brake-shoe fastenings also being nearer the tire than are the end-thrust-receiving lugs of the head-plate thereby guarding the tire against puncture by the lugs.

7. A brake-head comprising a head-plate and a renewable brake-shoe having embedded fastenings adapted for attaching it to the head-plate, said embedded fastenings being nearer the wheel-tire than is the head-plate and presenting only rounded surfaces to the tire thereby preventing injury thereto by the fastenings should the shoe be overworn or be torn away; said head-plate having end-thrust-receiving lugs which are farther from the tire than are the brake-shoe fastenings and are prevented from injuring the tire by said fastenings; said head-plate also having side resistance-pieces taking lateral thrust of the brake-shoe.

601,652. ROTARY-PLUG COCK.

WILLIAM F. HARRISON, West Chester, Pa. Filed May 26, 1897. Serial No. 638,189. (No model.)

Claim.—1. A plug-cock having a body with a plug-chamber and ports, a plug located in the plug-chamber, a cap secured to the body over the plug-chamber, a stop-washer at the end of the plug and an adjustable wedge-disk located between the end of the plug and the inside of the cap, substantially as specified.

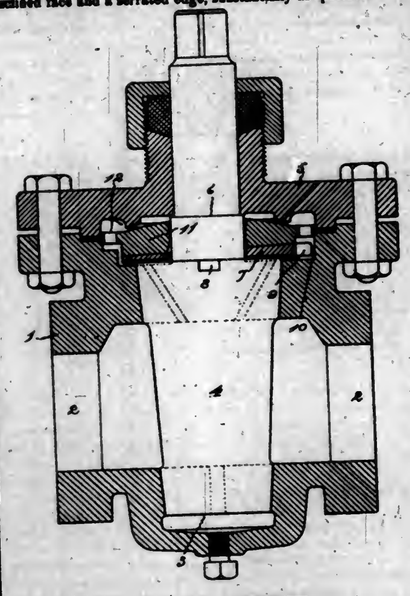
2. A plug-cock having a body with a plug-chamber and ports, a plug located in the plug-chamber, a cap secured to the body over the plug-chamber, and an adjustable wedge-disk located between the end of the plug and the inside of the cap, substantially as specified.

3. A plug-cock having a body with a plug-chamber and ports, a plug located in the plug-chamber, a cap secured to the body over the plug-chamber, a washer at the end of the plug, said washer having a part that is adapted to engage the walls of the body to determine the amount of rotary movement of the plug, and a wedge-disk between the washer and the inside of the cap, substantially as specified.

4. A plug-cock having a body with a plug-chamber and ports, a plug located in the plug-chamber, a cap secured to the body over the plug-chamber, a washer with an inclined face at the end of the plug, said washer having a part that is adapted to engage the walls of the body to determine the amount of rotary movement of the plug, and a wedge-disk between the washer and the inside of the cap, substantially as specified.

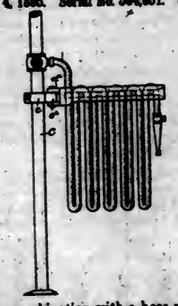
5. A plug-cock having a body with a plug-chamber and ports, a cap secured to the body over the plug-chamber, a stop-washer with lugs loosely projecting into sockets in the end of the plug and with an inclining face, and a wedge-disk with lugs loosely projecting into recesses in the walls of the body, located between the washer and the inside of the cap, substantially as specified.

6. A plug-cock having a body with a plug-chamber and ports, a plug located in the plug-chamber, a cap secured to the body over the plug-chamber, and a wedge-disk with one globular face and one inclined face and a serrated edge, substantially as specified.



601,653. HOSE-RACK.

HENRY J. M. HOWARD, Washington, D. C. Filed Oct. 4, 1895. Serial No. 564,651. (No model.)



Claim.—1. The combination with a hose-rack, of hose-carrying pins arranged in horizontal alinement and adapted to slide in the direction of the length of the rack and to be entirely disconnected therefrom in the act of removing the hose, substantially as described.

2. A hose-rack comprising a support provided with longitudinal guides or ways, and hose-carrying pins arranged in horizontal alinement and adapted to move on or in the guides or ways and to be entirely disconnected therefrom in the act of removing the hose, substantially as described.

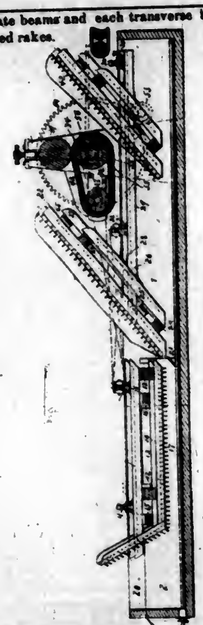
3. A hose-rack comprising a support provided with longitudinal guides or ways, hose-carrying pins arranged in horizontal alinement and adapted to move on or in the guides or ways and to be entirely disconnected therefrom in the act of removing the hose, and means for preventing the accidental escape of the pins from the rack, when the hose is hung thereon, substantially as described.

601,654. APPARATUS FOR TREATING TOBACCO.

ALPHEUS V. HYDER, Richmond, Va., assignor of two-thirds to S. P. Mays and W. J. Whitehurst, same place. Filed Jan. 16, 1897. Serial No. 619,440. (No model.)

Claim.—1. The combination with a vat, and rotary crank-shafts, of longitudinal bars connected with these cranks and operated thereby, inclined beams secured to the longitudinal bars, transverse bars

secured to alternate beams and each transverse bar provided with alternately-disposed rakes.

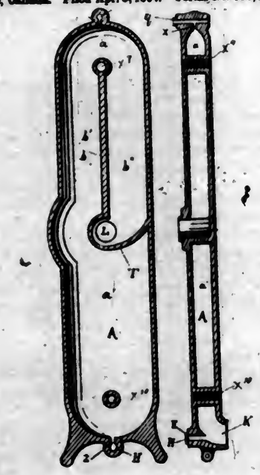


2. The combination with a vat, and means for conveying tobacco through the liquid in the vat, of a series of feeding-aprons onto which the tobacco is discharged, the said aprons being of different lengths, substantially as set forth.

3. The combination with a vat and means for conveying tobacco through the liquid in the vat, of a series of aprons for feeding the tobacco to the conveyer of a drying and ordering machine, and an evener for evening the tobacco after it has been deposited on the conveyer, substantially as set forth.

4. The combination with a vat and means for conveying tobacco through the liquid therein, rolls for expressing the excess of liquid from the tobacco, of feeding-aprons, means for taking the tobacco as it comes from the rolls and discharging it onto the feeding-aprons and an evener for evening up the tobacco discharged from the feeding-aprons, substantially as set forth.

601,655. RADIATOR. JOHN T JACKSON and FERGUS J. TRAVERS, Toronto, Canada. Filed Apr. 5, 1897. Serial No. 630,814. (No model.)



Claim.—1. The combination of a plurality of vertical radiator-sections each having transverse conduits at top and bottom for the escape of air and water of condensation, respectively, a steam-inlet opening and steam-outlet opening at its middle portion, and means for clamping the sections together, the several conduits and openings of the sections intercommunicating.

2. The combination of a plurality of vertical radiator-sections each having transverse conduits at top and bottom for the escape of air and water of condensation, respectively, a steam-inlet opening and a steam-outlet opening at its middle portion, and means for clamping the sections together, a deflecting-plate in each section separating the central inlet and outlet thereof, the several conduits and openings of the sections intercommunicating.

3. A vertical radiator, comprising a plurality of loops or sections each provided with top and bottom projections which fit together to form steam-tight joints, said projections having passages to allow the sections to communicate with each other, and with central fastening devices which serve to firmly secure the loops together at the center and to draw their top and bottom connections into close union.

4. An end loop of a radiator consisting of two chambers a, a', the lower chamber a' forming a single water-leg and provided with an inlet-opening, the upper chamber a divided by a vertical partition into two vertical water-legs b', b'', the vertical water-leg b' in communication with the lower chamber a', and the water-leg b'' in communication at the top of the loop with the water-leg b', the radiator-loop being provided with an outlet-port at the lower end of the water-leg b'', and a curvilinear horizontal partition connected to the lower end of the vertical partition separating the lower end of the water-leg b'' and outlet-port from the lower chamber a' and water-leg b', substantially as set forth.

5. An end loop of a radiator consisting of two chambers a a', the lower chamber a' forming a single water-leg and provided with an inlet-opening, the upper chamber a divided by a vertical partition into two vertical water-legs b', b'', the vertical water-leg b' in communication with the lower chamber a', and the water-leg b'' in communication at the top of the loop with the water-leg b', the radiator-loop being provided with an outlet-port at the lower end of the water-leg b'', and a curvilinear horizontal partition connected to the lower end of the vertical partition separating the lower end of the water-leg b'' and outlet-port from the lower chamber a' and water-leg b' and an exterior integral passage at the lower end of the said loop communicating therewith by a vertical opening, substantially as set forth.

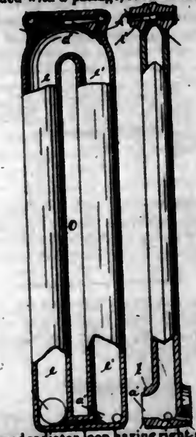
6. An end loop of a radiator consisting of two chambers a, a', the lower chamber a' forming a single water-leg, the upper chamber a divided by a vertical partition into two vertical water-legs b', b'', the vertical water-leg b' in communication with the lower chamber a', and the water-leg b'' in communication at the top of the loop with the water-leg b', the radiator-loop being provided with an outlet-port located at the center of the loop and at the lower end of the water-leg b'', a curvilinear horizontal partition connected to the lower end of the vertical partition separating the lower end of the water-leg b'', and outlet-port from the lower chamber a' and water-leg b', a port at the lower end of the said loop: in combination with an intermediate loop, comprised of vertical water-legs in communication with each other, and separated by vertical partitions, an inlet and outlet for the water-legs separated by a curvilinear horizontal partition, drainage-openings at the bottom of the said loops in connection with each other and with the flow and return pipes, and air-vents at the top of the loops in communication with each other, substantially as set forth.

601,656. STEAM OR HOT-WATER RADIATOR. JOHN T. JACKSON and FERGUS J. TRAVERS, Toronto, Canada. Filed Apr. 12, 1897. Serial No. 631,706. (No model.)

Claim.—1. A radiator having loops coil-shaped the water-legs thereof being in circulation at the top only, said loops having a transverse passage at the top of the loop and two passages vertical to the said water-legs and connected with the transverse passage at the top of the loop, one of said vertical passages being located at one side of the loops and the other at the other side thereof, substantially as set forth.

2. A radiator having loops coil-shaped the water-legs thereof being in circulation at the top only, having a transverse passage, and two vertical passages, and two longitudinal passages at the two upper angles of the radiator-loops at opposite sides thereof, and at right angles to the vertical and transverse passages and the water-legs, whereby when the several loops of the radiator are brought together the two longitudinal passages form two continuous parallel passages from one end of the radiator to the other in circulation with the water-legs of the several loops thereof by means of the transverse and vertical passages therein, substantially as set forth.

3. The combination with the legs of the radiator-loop provided with transverse passages at their lower ends, of a brace connecting the legs and provided with a passage, substantially as set forth.



4. A coil-shaped radiator-loop having right-angle bends or elbows at the lower or feed and return ends of the water-legs with openings or passages joining with the right-angle bends at the opposite side of the said elbows from the outlet and inlet ports, said openings or passages when two loops are brought together registering to form one continuous passage between the loops for drainage purposes substantially as set forth.

5. A radiator-loop provided with vertical air-passages arranged at opposite sides of the upper end of the loop; a longitudinal passage communicating with and connecting said vertical passages, transverse air-passages arranged at right angles to the longitudinal passage and communicating with the latter; and transverse and horizontal drainage-passages at the lower end of the loop and communicating with the water-legs of said loop, substantially as shown and described.

6. A radiator comprising a plurality of loops each of which is provided at opposite sides of its upper end with two independent passages communicating with the water-legs of the loop; and at opposite sides of its lower end with two independent drainage-passages also in communication with the water-legs, substantially as shown and described.

601,657. HAT-FASTENER. OSCAR J. JOHNS and MILTON R. KERR, Winfield, Kans. Filed Feb. 8, 1897. Serial No. 622,563. (No model.)



Claim.—1. A hat-fastening comprising a casing provided with an opening and having the portion surrounding the opening pressed inward, forming a cavity and an inner projection, a slide provided with an opening corresponding with the opening of the casing and pressed outward between its edges, forming a space to clear the aforesaid inner projection, a pin movable transversely through the openings of the slide and casing and having its point enlarged to lie within the aforesaid cavity and prevent the outward displacement of the pin, and means for normally holding the openings of the casing and slide out of register, substantially as and for the purpose set forth.

2. A hat-fastening comprising a casing, a slide located in the casing, a pin operating through corresponding openings in the slide and casing, and a spring interposed between the casing and slide for normally holding the openings in the slide and casing out of register, substantially as and for the purpose set forth.

3. In a hat-fastening, a casing, a slide located in the casing, a spring consisting of a length of wire bent upon itself in a zigzag direction and interposed between the casing and slide, and a pin operating through corresponding openings in the slide and casing, substantially as set forth.

4. In a hat-fastening, a casing, a slide operating therein, a pin working through openings in the casing and slide, and a spring interposed between the casing and slide and consisting of a length of wire folded upon itself in opposite directions and having coils at the folds, substantially as shown for the purpose described.

5. In a hat-fastening, a casing having an opening near one end, and having a cavity surrounding the opening in the outer face of the casing, a slide operating in the casing and having an elongated opening and a centrally-depressed portion to provide clearance for the inwardly-depressed part of the casing forming the aforesaid cavity, a pin operating through the openings of the slide and casing and having its penetrating end enlarged, and a spring interposed between the casing and slide, as and for the purpose set forth.

6. In a hat-fastening, a plate having its opposite edge portions curved or bent to form guides, and having portions cut and bent outwardly, forming ears which are apertured, and having an end portion bent, a slide operating in the said guides, a spring interposed between the bent or closed end of the casing and the slide, and a pin operating through openings of the slide and casing, substantially in the manner and for the purpose specified.

601,658. BARREL-CLEANER. CHARLES KAESTNER, Chicago, Ill., assignor to Charles Kaestner & Co., same place. Original application filed June 1, 1897, Serial No. 638,979. Divided and this application filed Dec. 6, 1897. Serial No. 660,967. (No model.)



Claim.—1. A keg or barrel cleaner comprising a soaking-trough in and along which the kegs or barrels are soaked and moved, an overhead endless carrier elevated to clear the water within the trough and provided with projecting arms which engage and move the kegs or barrels along the trough and suitable supporting means for the overhead mechanism, substantially as described.

2. A keg or barrel cleaner comprising a soaking-trough in and along which the kegs or barrels are soaked and moved, an endless carrier provided with projecting arms which are hinged to the endless carrier and arranged for engaging the kegs or barrels and moving the same along the trough, and suitable supporting means for the overhead mechanism and link-braces hinge-connected with the endless carrier and said arms, substantially as described.

3. A keg or barrel cleaner comprising a soaking-trough in and along which the kegs or barrels are soaked and moved, an endless overhead carrier provided with projecting arms which successively engage and move the kegs or barrels from the receiving end to the delivery end of the trough and also carry such kegs or barrels up an incline at said delivery end of the trough and suitable supporting means for the overhead mechanism, substantially as described.

4. A keg or barrel cleaner comprising a soaking-trough in and along which the kegs or barrels are soaked and moved, overhead mechanism for moving the kegs or barrels along the trough consisting in a couple of elevated endless chains arranged upon sprockets provided with projecting hinged arms, and link-braces connected with the chains or link belts and said arms, the latter being arranged for engaging the kegs or barrels, and suitable supporting means for the overhead mechanism, substantially as described.

5. A keg or barrel cleaner comprising a soaking-trough in and along which the kegs or barrels are soaked and moved, overhead mechanism for moving the kegs or barrels along the trough comprising endless chains or link belts F arranged upon sprockets, arms e hinged to the chain or link belts; rods e^4 connecting the arms in pairs, and suitable supporting means for the overhead mechanism, and a track supporting the upper leaves of the chain or link belts against sagging, substantially as described.

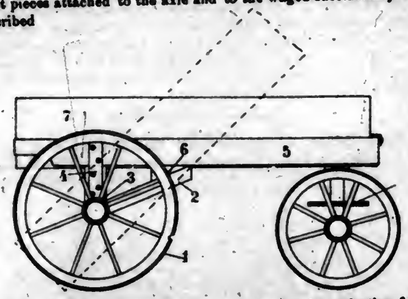
6. A keg or barrel cleaner comprising a soaking-trough in and along which the kegs or barrels are soaked and moved; a track for supporting the kegs or barrels within the trough; and guides I having swinging supports and provided with arms which are adjustably connected with fixtures, substantially as described.

7. A keg or barrel cleaner comprising a trough in and along which the kegs or barrels are soaked and moved; standards K rising from the trough; an elevated endless carrier arranged upon sprockets which are supported by the said standards, and provided with projecting arms for engaging and moving the kegs or barrels, and a track arranged to uphold the upper leaf of the endless carrier, substantially as described.

601,659. DUMPING-WAGON. GEORGE KAUTZ, Albany, N. Y. Filed Nov. 8, 1897. Serial No. 657,788. (No model.)

Claim.—1. A dumping-wagon having a rear crank-axle projecting forward of the rear wheels and under the wagon, the forward end of the crank-axle being attached to the wagon; the arms of the axle sloping downward and rearward and out of contact with the wagon and having stay-pieces between the axle and the wagon substantially as described.

2. A dumping-wagon having a rear crank-axle projecting forward of the rear wheels and under the wagon, the forward end of the crank-axle being movably attached to the wagon; the arms of axle sloping downward and out of contact with the wagon and upright pieces attached to the axle and to the wagon substantially as described



3. A dumping-wagon having a rear crank-axle projecting forward of the rear wheels and under the wagon the crank-axle having a cross bar or head extending across the wagon-bottom and means for pivoting the wagon-box to the crank-axle cross head or bar, the arms of the axle sloping downward and rearward and out of contact with the wagon and stay-pieces attached to the axle and to the wagon substantially as described.

601,660. EXPANSIBLE PULLEY. THEODOR KIRCHHOFF, Milwaukee, Wis. Filed Aug. 11, 1897. Serial No. 647,863. (No model.)



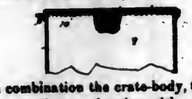
Claim.—1. An expansible pulley comprising a disk fast upon a hub or sleeve and provided with a series of equidistant radial grooves, a similar disk mounted loosely on the hub and provided with a registering series of grooves, and a series of sectors of the rim, each carrying an angular inward extension consisting of a web lying between the two disks, a cross web or ribs lying in opposite radial grooves, one side thereof being provided with a lug projecting through the groove of the movable disk, and a disk loosely mounted on the shaft and having a spiral groove in its inner face to engage said lugs, all arranged and combined substantially as set forth.

2. An expansible pulley, comprising a disk fast upon the hub, provided with a series of radial grooves in its inner face, a disk mounted loosely on the hub and having a corresponding series of grooves extending through it, a series of rim-sectors provided with ribs to enter said grooves and a lug to project through each groove of the movable disk, and an adjusting-disk lying against the movable disk and having a spiral groove in its inner face to receive said lugs, all arranged and combined substantially as set forth.

3. An expansible pulley, comprising a disk fast upon the hub, provided with a series of radial grooves in its inner face, a disk loosely mounted on the hub and having a corresponding series of grooves extending through it, a series of spacing-blocks on its inner face between said grooves, a series of rim-sectors provided with ribs to enter said grooves and a lug to project through each groove of the movable disk, and an adjusting-disk lying against the movable disk and having a spiral groove in its inner face to receive said lugs all arranged and combined substantially as described.

4. An expansible pulley, comprising a disk fast upon the hub, provided with a series of radial grooves in its inner face, a disk loosely mounted on the hub and having a corresponding series of grooves extending through it, a series of spacing-blocks on its inner face between said grooves, a series of rim-sectors provided with ribs to lie between the disks and fit snugly around said spacing-blocks, and ribs at right angles thereto to enter said grooves and a lug to project through each groove of the movable disk, and an adjusting-disk lying against the movable disk and having a spiral groove in its inner face to receive said lugs, all arranged and combined substantially as described.

601,661. METAL DOG-CASE. HENRY H. KNIGHT, Janelew, W. Va. Filed June 10, 1897. Serial No. 640,307. (No model.)



Claim.—In combination the crate-body, the top overlapping the same and having openings registering with openings in the body, a partition having a groove in its edge and the rod passing through the openings and the groove, substantially as described.

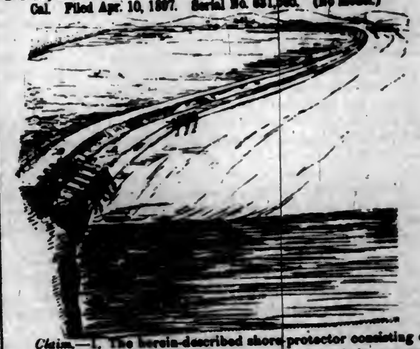
601,662. SOAP-HOLDER FOR TUBS. ENOCH H. LOSSELL, Mecosta, Mich., assignor of two-thirds to H. R. Walker and Robert C. Smith, Ionia, Mich. Filed Apr. 30, 1896. Renewed Sept. 22, 1897. Serial No. 652,640. (No model.)



Claim.—1. A soap-holder attachment comprising a U-shaped frame the sides of which are provided with inclined grooves and having a cut-out portion near the upper and thereof, inwardly-extending lugs formed integral with said sides and provided with curved ends, supports also formed integral with said sides and opposite to the cut-out portion, a removable shelf sliding in the inclined grooves and provided with flanges adapted to retain the soap on the shelf, one of said flanges being adapted to engage with the curved ends of the inwardly-projecting lugs to retain the shelf upon said supports, said shelf also having a locking-notch, and a spring secured to the lower side of the frame and adapted to engage with the locking-notch, substantially as set forth.

2. A soap-holder attachment comprising a U-shaped frame, the sides of which are provided with inclined grooves and having a cut-out portion near the upper end thereof, inwardly-extending lugs formed integral with said sides and provided with curved ends, supports also formed integral with said sides and opposite to the cut-out portion, a removable shelf having its ends beveled and sliding in the inclined grooves, said shelf also having flanges projecting from one of its faces and adapted to retain the soap thereon, one of said flanges being provided at its ends with extensions adapted to engage with the curved ends of the inwardly-extending lugs to retain the shelf upon said supports, said shelf being further provided with a drain-spout and also having a locking-notch, and a spring secured to the U-shaped frame and adapted to engage with said locking-notch to retain the shelf in said frame, substantially as set forth.

601,663. SHORE-PROTECTOR. THOMAS B. LOVBAL, Sacramento, Cal. Filed Apr. 10, 1897. Serial No. 631,565. (No model.)



Claim.—1. The herein-described shore-protector consisting of a frame having the brushes located thereon, said frame being composed of a series of standards or timbers connected together by wire bands or the like, the lower ends of said timbers being provided with the pointed ends, in combination with a skid or way having the rollers mounted thereon, for the purpose described.

2. A mattress for the purpose described comprising the framework having the bands or wire rods surrounding the same and adapted to secure the several parts in position, the brushes located within said framework, said framework being provided with the lower pointed ends, and an upwardly-extended bar from the rear portion thereof adapted to be secured to the upper surface of the embankment or shore, substantially as shown and described.

3. The mattress for protecting levees or banks, consisting of parallel poles having pointed lower ends adapted to sink into the river-bottom at the bottom of the bank or levee, the layer of bunches of brush upon said poles, the parallel shorter poles laid upon said layer of brush, and the bands connecting the parallel poles and bending them tightly upon the brush, substantially as described.

4. A shore-protector comprising a way or skid having the rollers mounted thereon as shown, in combination with a mattress, the same consisting of two sections suitably secured together, one of said sections being provided with the downwardly extended pointed end and a connection secured to the portion carrying said end, the same being adapted to be attached to a stake on the surface of the ground and then to the upper extended end of the portion of the mattress carrying the pointed end, substantially as and for the purpose set forth.

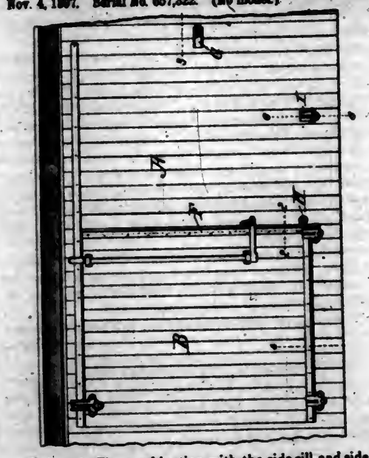
601,664. PRESSURE-ACTUATED GOVERNOR FOR PUMPS. JAMES H. MACDONALD, Athol, Mass. Filed June 10, 1897. Serial No. 640,306. (No model.)



Claim.—1. Automatic valve-adjusting mechanism including a diaphragm-chamber, a diaphragm connected with a valve to be actuated and exposed at opposite sides to the pressure, respectively, of a fluid motive agent and a fluid acted upon by compressive force, the pressure of the second-named fluid being conveyed to the diaphragm-chamber by a casing disposed perpendicularly with relation to the plane of the diaphragm, a coiled spring attached at one end to an object fixed to and carried by the diaphragm, a feed-nut attached to the opposite end of said spring, and an axially-immovable feed-screw swiveled in the casing in an axial position, threaded in said feed-nut, and provided with exposed means whereby it may be turned to adjust the feed-nut to vary the tension of said spring, substantially as specified.

2. The combination with a controlling-valve provided with a plurality of ports for controlling a corresponding number of feed-ports, said valve having a stem, a diaphragm-chamber having a peripherally-secured diaphragm centrally attached to the valve-stem, means for adjusting the valve with relation to its stem and in a direction parallel therewith, said diaphragm being exposed at one side to the pressure of fluid motive agent which is adapted to be controlled in its passage through the feed-ports by said valve, a casing communicating with the diaphragm-chamber at the opposite side of the diaphragm and exposed to fluid subjected to a compressive force, a spring arranged in said casing and attached to an object carried by the diaphragm and adapted to exert a pressure in opposition to that of said motive agent, a feed-nut fixed to the opposite end of the spring, and a feed-screw swiveled in the casing and engaging the feed-nut, whereby when the feed-screw is rotated the feed-nut is moved axially to vary the tension of the spring, the feed-screw being provided with a collar or enlargement fitted in a seat in the casing and held in place by means of a removable plug substantially as specified.

601,665. CAR-DOOR. EDWARD S. MARSHALL, St. Louis, Mo., assignor to the Missouri Railway Equipment Company, same place. Filed Nov. 4, 1897. Serial No. 657,222. (No model.)



Claim.—1. The combination with the side sill and side wall of a car, of the decking or flooring which is cut short of the outer edge of the side sill, and an angle-iron for sealing the exposed cracks or joints; substantially as described.

2. The combination with the side wall A of a car, the door B, side sill C, decking D, and an angle-iron E; substantially as described.

3. The herein-described stop-casting adapted to be attached to the side wall of a car, the same consisting of a body portion G formed with a recess *g* in its front side and a gooseneck extension *g'*; substantially as described.

4. The combination with the side wall A of a car, the door B, having a sealing-strip F on its rear outer end, and a back-stop G formed with a recess *g* for receiving the projecting edge of strip F, and an extension *g'* for extending over the door to prevent the same from swinging out; substantially as described.

5. The combination with the side wall of a car, of a sliding door, and a rubbing knob or projection formed with a convexed face, which knob is secured to the side wall of the car adjacent to the lower rear edge of the door-opening, for throwing the door away from the side wall of the car; substantially as described.

6. The combination with the side wall of a car, of a sliding door suspended by suitable hangers, a knob or projection H secured to the side wall of the car adjacent to the lower rear edge of the door-opening, said knob being formed with a convexed outer face and cooperating with the battes on the lower inner edge of the door for throwing said door, in its opening and closing movement, away from the side wall of the car, so that said door will not bind, should the side wall of the car be bulged; substantially as described.

7. The combination with the side wall of a car, of a sliding door, a rubbing knob or projection for holding the door away from the side wall of the car, and a guide-bracket for securing said rubbing-knob to the side wall of the car; substantially as described.

8. The combination with the guide-bracket I formed with a groove *i* and a pocket *i'* in its inner face, of a rubbing-knob J, and a headed shank *j j'*, extending from said knob and cooperating with the groove and pocket in the guide-bracket; substantially as described.

601,666. SAFETY-PIN. WILLIS B. MICHAEL, Enterprise, W. Va. Filed July 20, 1897. Serial No. 646,206. (No model.)



Claim.—1. A safety-pin formed from a single piece of wire, and comprising a body portion, a pin proper, a keeper, a spring-actuated arm having a lateral projection normally lying across the pin to hold the latter in its keeper, said projection being movable vertically and laterally out of the path of travel of the pin, substantially as described.

2. A wire safety-pin, comprising a body portion and a pin proper, a keeper formed at the forward end of the body portion, a coil located above said keeper, rearwardly-extending arms leading from said coil, one of said arms being bent at its forward end to form a stop having

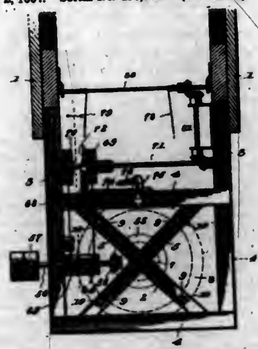
a downwardly and outwardly inclined portion and a horizontally-disposed portion extending across above the pin to hold it in its keeper, said stop being movable vertically with the arms and laterally by the engagement of the pin with the inclined portion of the stop, substantially as described.

3. A wire safety-pin, comprising a body portion and a pin proper, a keeper formed at the forward end of the body portion, a coil located above said keeper, rearwardly-extending arms leading from said coil and lying on opposite sides of the body portion, one of said arms being bent at its forward end to form a stop having a downwardly and outwardly inclined portion, and a horizontally disposed portion extending across above the pin to hold it in its keeper, and then being bent to form a spring-loop to straddle the other arm and the body portion, said stop being movable vertically with the arms against the spring action of the coil and laterally against the spring action of the loop by the engagement of the pin with the inclined portion of the stop, substantially as described.

4. A wire safety-pin, comprising a body portion and a pin proper, a keeper formed at the forward end of said body portion, a coil located above said keeper, rearwardly-extending arms leading from said coil, and a stop at the forward end of one of said arms.

5. A wire safety-pin, comprising a body portion and a pin proper, a keeper formed at the forward end of said body portion, a coil located above said keeper, rearwardly-extending arms leading from said coil, located one on each side of the strand constituting the main portion of the body part, and having a flange constituting a finger-engaging portion, one of the said arms being bent at an angle at its forward end, forming a stop, the spring-pressure exerted by said coil serving to hold said arms in their normal position.

601,667. STRAW-STACKER. ROBERT MOY, Modena, Wis. Filed Sept. 2, 1897. Serial No. 650,365. (No model.)



Claim.—1. In a straw-stacker, the combination with a swinging frame, and a power-shaft, of an actuating-shaft, an intermediate shaft between the power and actuating shafts, clutch mechanism and connections between said power and intermediate shafts to drive the latter shaft in reverse directions alternately from the power-shaft, a yieldable trip operatively connected with said clutch, detents on the swinging frame to contact alternately with said yieldable trip, and connections between the actuating-shaft, the intermediate shaft and the swinging frame, substantially as described.

2. In a straw-stacker, the combination with a base-frame, a swinging frame pivoted on a fixed king-bolt or arbor and carrying a conveyer driving-shaft, and a double master-gear mounted loosely on said arbor and operatively connected with the conveyer driving-shaft, of a power-shaft geared to said master-gear and provided with two pulleys, an intermediate shaft having loose pulleys operatively connected by belts with said pulleys of the power-shaft, a clutch between the loose pulleys of the intermediate shaft, a spring-controlled trip mounted in the path of the swinging frame, means connecting said clutch and trip, and an actuating-shaft operatively connected with the intermediate shaft and said swinging frame, substantially as described.

3. The combination with a swinging stacker-carrying frame, and a supporting-frame, of an actuating shaft, cables coiled reversely on the actuating-shaft and attached to the swinging frame, a power-shaft, an intermediate shaft geared to the actuating-shaft, the pulleys mounted on the intermediate shaft, belts fitted to said power-shaft and the pulleys to drive the latter in opposite directions, a clutch mechanism to make the pulleys fast with the intermediate shaft alternately, and a trip mechanism actuated by the swinging frame to control the clutch mechanism, substantially as described.

4. The combination with a swinging stacker-carrying frame, a power-shaft, and an actuating-shaft connected with said frame, of an intermediate shaft, the pulleys mounted on said intermediate shaft, the straight and crossed belts between the power-shaft and said pulleys, the clutch between said pulleys, the spring-trip connected with said clutch, and the spaced detents carried by the swinging frame and arranged to alternately strike the trip, substantially as described.

5. The combination with a swinging stacker-carrying frame, and a power-shaft, of an actuating-shaft, cables attached to the swinging frame and coiled in reverse directions on the actuating-shaft, an intermediate shaft geared to the actuating-shaft, pulleys mounted loosely on the intermediate shaft and geared to the power-shaft to be driven thereby in opposite directions, a slidable clutch between said pulleys, a shipper-rod, a trip connected to the shipper-rod, and detents carried by the swinging frame and arranged to alternately strike the trip, as and for the purposes described.

6. The combination with a main supporting-frame, a swinging stacker-carrying frame pivotally attached to the supporting-frame, and a stacker-conveyer driven by a shaft, 13, on said stacker-frame, of a power-shaft, a counter-shaft geared to the shaft, 13, a master-gear loose on the pivotal connection of the swinging frame and geared with the power-shaft and the shaft 13, an actuating-shaft having flexible connections with the swinging frame, an intermediate shaft geared to the actuating-shaft, a shifting mechanism including a clutch and operatively connecting the intermediate shaft with the power-shaft, and a trip-controlled tripper actuated by the swinging frame and connected with the clutch, for the purposes described substantially as set forth.

7. The combination with a swinging frame, and a sectional foldable stacker mounted thereon, of a stacker-adjusting shaft having cables which are branched and attached to the sections of the stacker-frame, a guide-bail through which the stacker-cables are passed, an adjusting-shaft having a flexible cable connected with the guide-bail, and an adjusting-shaft carried by one section of the stacker-frame and having cables connected with the other section of said stacker-frame, as and for the purposes described.

601,668. PROCESS OF POLISHING MARBLE. JOHN M. MUELLER, Jr., Cincinnati, Ohio. Filed Aug. 10, 1895. Serial No. 558,930. (No specimens.)



Claim.—1. The improvement in the art of polishing marble which consists in subjecting the stone simultaneously to the action of oil and a rapidly-moving tool, substantially as and for the purpose set forth.

2. The improvement in the art of polishing marble which consists in subjecting the stone to the simultaneous action of oil, a fine abradant and a rapidly-moving tool, substantially as and for the purpose set forth.

3. The improvement in the art of polishing stone and marble consisting, as a final step, in subjecting the material under treatment to the action of a fine abradant in the presence of oxalic acid and an oil or fat, applied by a tool moving so rapidly as to prevent absorption by the material under treatment of the oil or fat employed, substantially as described.

601,669. GARMENT-HOOK. WILLIAM P. MCILVAR, Cambridge, Ohio. Filed Apr. 30, 1897. Serial No. 634,591. (No model.)

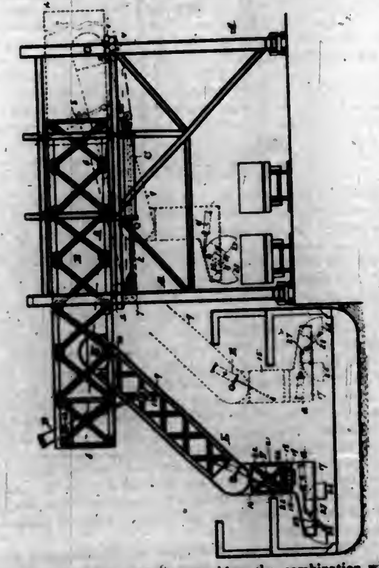


Claim.—1. A supporting-hook and lock therefor, comprising a projection to which is attached or formed integral an arm that is curved downwardly and upwardly terminating in a head on a line with a vertical opening in the projection, a presser-bar located within the opening and having notches, and a lock carried by the projection so that the bolt thereof will engage the notches of the presser bar, substantially as shown and for the purpose set forth.

2. In a supporting-hook and locking device therefor, the combination with a projection carrying an arm which is curved downwardly and inwardly terminating in a head, the projection having a vertical opening, a presser-bar movable within the vertical opening of the projection and having a foot which engages the head of the hook, a spring for normally raising the presser-bar, and a lock carried by the projection so that the bolt thereof will engage the notches in the presser-bar, substantially as shown and for the purpose set forth.

3. In a supporting-hook and lock therefor, the combination with a wall-plate having means for attaching the same in place, a projection extending from the wall-plate and carrying an arm which is curved downwardly and inwardly terminating in a head, a presser-bar located within a vertical opening in the projection and having a foot adapted to engage the head of the hook, said presser-bar having notches therein, a helical spring encircling the presser-bar and interposed between the head thereon and the projection by which the presser-bar is supported, together with a lock supported by said projection and having a bolt which engages notches in the presser-bar, substantially as shown and for the purpose set forth.

601,670. LOADING OR UNLOADING APPARATUS. JOHN MCMYLER and GEORGE H. HULETT, Cleveland, Ohio. Filed Jan. 30, 1897. Serial No. 621,203. (No model.)



Claim.—1. In an unloading-machine, the combination with a frame, and a beam extending out laterally therefrom, of a leg depending from the beam and a scoop or bucket supported on the lower end of the leg and capable of being turned completely around relative to the beam which carries it.

2. In an unloading-machine, the combination with a frame, and a beam supported thereon and adapted to be shifted endwise, of a lifting-arm pivoted to this beam, a depending leg pivotally attached to the arm, a foot having a rotary connection with the leg, a scoop or bucket connected with the foot and means for operating and controlling each of these parts.

3. The combination with a leg adapted to be extended down into the hold of a vessel, of a scoop or bucket connected with the lower end of the leg, said scoop or bucket extended laterally to one side of the axial center of the leg and capable of being turned around horizontally through a complete circle.

4. The combination with a depending leg, and means for raising it from and lowering it into the hold of a vessel, of a scoop or bucket connected with the lower end of the leg and located at one side of the axial center of the leg.

5. The combination with a depending leg and means for shifting it laterally and moving it up and down, of a scoop or bucket connected with the lower end of the leg at one side of the axial center of the leg.

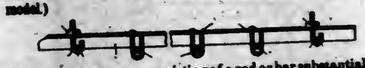
6. The combination with a depending leg, of a revolvable foot having rollers on its upper end which travel on a circular track on the lower end of the leg, and means for rotating this section, substantially as set forth.

7. The combination with a depending leg, of a revolvable foot depending from the lower end of the leg, one part having a circular track and the other rollers connected therewith which turn on the track, drums connected with the foot, cables extending around the drums in opposite directions, and means for moving these cables to turn the section.

8. In an unloading-machine, the combination with the frame, and an endwise-movable beam supported thereon, of a hydraulic ram the piston-rod of which extends out at both ends of the cylinder and a cable extending from each end of the piston to an end of the beam whereby to shift the latter endwise.

9. In an unloading-machine, the combination with a frame, a beam having sliding connections therewith, a tilting arm pivoted to the beam, a leg pivoted to the arm, a laterally-extending foot having a rotary connection with the leg and a scoop or bucket connected with the foot, of hydraulic rams for operating each of these several parts.

601,671. WIRE-FENCE STAY. MICHAEL NEIL and FRANK H. RUSSELL, Dayton, Ohio. Filed Aug. 2, 1897. Serial No. 646,768. (No model.)



Claim.—A fence-stay, consisting of a rod or bar substantially semi-tubular or V shape in cross-section, two screw-hooks, each adapted to be adjusted in the upper and lower ends of the bar, said hooks adapted to engage the top and bottom fence-wires and to kink them into the concavity of the bar, and a series of intermediate loops rigidly secured to the bar, each loop consisting of a headed wire passed through perforations in the stay and having their free ends bent into elongated loops extending into the concave surface of the bar, and beyond the edges thereof, with the free ends resting rigidly against the bar, said intermediate loops being thereby rigidly held within the concavity of the bar and adapted to receive and support the intermediate fence wires and to permit the same to move longitudinally and horizontally, substantially as and for the purposes described.

601,672. WRENCH. JOHN G. NEWELL, New Haven, Conn., assignor of one-half to Levi T. Snow, same place. Filed July 22, 1897. Serial No. 645,901. (No model.)



Claim.—The combination with the slotted yoke 4, provided with the web 17, the handle 1 provided with the leaf-spring 18 and the pin 2 on which it is fulcrumed in said slotted yoke, and the movable jaw 9, longitudinally adjustable in said yoke, and provided with a series of teeth 11, adapted to engage the corresponding teeth 7, on the handle 1, substantially as shown and described.

601,673. PROCESS OF MORDANTING. FRANCIS J. OAKES, New York, N. Y. Filed June 11, 1897. Serial No. 640,365. (No specimens.)

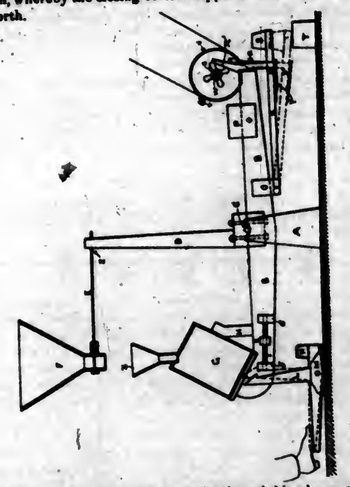
Claim.—The process of mordanting a fiber or fabric consisting in first subjecting it to a solution of tannic acid, and afterward subjecting it to a bichromate or chromic-acid bath, thus fitting it for dyeing with any desired color, substantially as specified.

601,674. WEIGHING APPARATUS. FRANKLIN W. OLIN, Alton, Ill. Filed Mar. 6, 1896. Serial No. 581,940. (No model.)

Claim.—1. In a weighing apparatus, a suitable pivoted weighing-beam, adapted to retain a weighing can or receptacle at the end of one arm thereof, a weight carried by the opposite arm indicating the number of pounds to be weighed, means operating in connection with the end carrying the receptacle for normally retaining the beam stationary against the gravitating action of the weight and subsequently releasing said beam and allowing the weighted arm to immediately or suddenly tilt downward, a suitable source of supply for the material to be weighed, and intermediate connections between the source of supply and the beam for controlling the delivery of the material to be weighed from the source of supply, substantially as set forth.

2. In a weighing apparatus, a suitable pivoted weighing-beam, a can at the free end of one arm thereof, a weight indicative of the number of pounds carried by the opposite arm, means operating in

connection with the end carrying the receptacle for normally retaining the beam stationary against the gravitating action of the weighted arm and subsequently releasing the beam and allowing the weighted arm to immediately tilt downward, a suitable hopper, intermediate connections between the hopper and beam for opening the hopper with the sudden tilting of the beam in one direction, suitable means independent of the weighing apparatus for suddenly lightening the weighted arm of the beam and cause the beam to tilt in the opposite direction, whereby the closing of the hopper is effected, substantially as set forth.



3. In a weighing apparatus, a suitable weighing-beam adapted to retain a weighing-receptacle at the end of one arm thereof, and having a weighted arm carrying an adjustable or shifting weight adapted to be set for weighing a predetermined quantity of material and adapted to tilt the beam in one direction, an independent actuating device in connection with the weighted arm for reducing the weight of the arm to less than the weight of the arm carrying the receptacle whereby the beam will tilt in the opposite direction, means operating in connection with the arm carrying the receptacle for normally retaining the beam stationary against the gravitating action of the weight, and subsequently releasing said beam and allowing the weighted arm to tilt downward, and a suitable source of supply for the material to be weighed controlled by the beam, substantially as set forth.

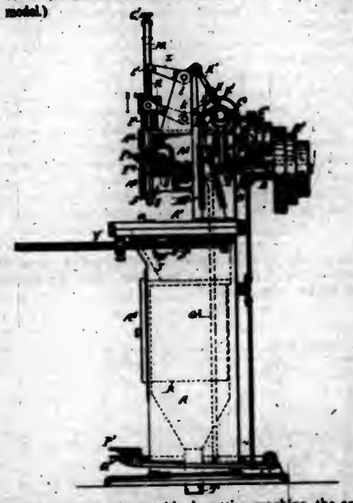
4. In a weighing apparatus, a suitable pivoted beam, adapted to carry a can or other receptacle at the end of one arm thereof, a balance-adjusting device carried by said arm, a weight carried by the opposite arm indicative of the number of pounds to be weighed, a bar pivoted to the weighted arm, a trigger pivoted at the free end of the bar and adapted to engage the free end of the weighted arm, a spring-plate controlling said trigger, a weight carried at the free end of the bar pivoted to the weighted arm of the beam, a series of arms driven by an independent source of power and adapted to impinge against the trigger and release the same from the weighted arm of the beam, a releasing foot-lever for normally holding the beam in a horizontal position, a suitable hopper, a closing-plate for the mouth of the hopper, an arm carried by the beam and adapted to swing with the tilting of the latter, the free end of the arm controlling the movements of the closing-plate, the parts operating as and for the purpose set forth.

5. In a weighing apparatus, a suitable beam, a weighted arm for the same, a weighted bar pivoted to said arm, a spring-controlled trigger pivoted along said bar and adapted to engage with the free end of the weighted arm, an extension for said trigger having an inclined surface, a series of revolving arms driven from an independent source of power adapted to impinge against the inclined surface of the trigger extension, and suitable means for controlling the beam from the opposite arm thereof, substantially as set forth.

6. In a weighing apparatus, a suitable beam having a weighted arm, a weighted bar pivoted to said arm, a spring-controlled trigger pivoted along said bar and adapted to engage with the free end of the weighted arm, and an actuating device for tripping the trigger and releasing the bar from the weighted arm, substantially as set forth.

7. In a weighing apparatus, a suitable beam having a weighted arm, a weighted bar pivoted to said arm, a trigger pivoted along said bar and adapted to engage with the free end of the weighted arm, and an actuating device for tripping the trigger and releasing the bar from the weighted arm, substantially as set forth.

601,675. BUTTON-BLANK-CUTTING MACHINE. WILLIAM A. PENDRY, Detroit, Mich. Filed Apr. 5, 1897. Serial No. 630,787. (No model.)



Claim.—1. In a button-blank-cutting machine, the combination of a supporting-frame, a rotatable mandrel sleeved through a portion of said frame, a plunger within the mandrel and carried thereby, means to simultaneously reciprocate the mandrel and plunger, a saw carried by the plunger within said mandrel, a push-bar within the plunger, and means to reciprocate the push-bar, said mandrel projecting downward about the saw toward its lower end and provided at its lower end with a chuck to engage about the saw, the means to reciprocate the mandrel and plunger, and the means to reciprocate the push-bar acting in successive order, for the purpose set forth.

2. In a button-blank-cutting machine, the combination of a rotatable mandrel, a plunger within the mandrel and carried thereby, a saw carried by the plunger within said mandrel, a push-bar within the plunger, a rotatable shaft, a bell-crank actuated from said shaft to simultaneously reciprocate the mandrel and the plunger, and an additional bell-crank actuated by said shaft to reciprocate the push-bar, said mandrel projecting downward about the saw toward its lower end and provided at its lower end with a chuck to engage about the saw, the bell-crank to reciprocate the mandrel and plunger, and the bell-crank to reciprocate the push-bar acting in successive order, for the purpose set forth.

3. In a button-blank-cutting machine, the combination of a rotatable mandrel, a plunger within the mandrel, a push-bar within the plunger, a rotatable shaft, cams mounted upon said shaft, bell-cranks connected the one with the mandrel and the other with the push-bar, said bell-cranks actuated by the corresponding cams upon said shaft, and means to throw said cams out of operation with said bell cranks, substantially as described.

4. In a button blank-cutting machine, the combination of a supporting-frame, a plunger, a tubular saw carried by the plunger, a rotatable mandrel sleeved through a portion of said frame carrying said plunger therewithin and projecting downward about the saw at its lower end, a chuck carried by the mandrel located about the lower end of the saw to engage and hold the saw, a plug within the saw to prevent too great tension of the chuck upon the saw, a push-bar reciprocatory through said plug, and means to simultaneously reciprocate the mandrel and plunger, substantially as set forth.

5. In a button-blank-cutting machine, the combination of a supporting-frame, a mandrel sleeved through a portion of said frame, a plunger carried by the mandrel therewithin, a cutter carried by the plunger within the mandrel, a driving-shaft geared with the mandrel to simultaneously rotate the mandrel and plunger, a push-bar within the plunger, means to simultaneously reciprocate the mandrel and plunger, and means to reciprocate the push-bar, said mandrel projecting downward about the saw toward its lower end and provided at its lower end with a chuck to engage about the saw, said mandrel and plunger and said push-bar made reciprocatory in successive order, substantially as set forth.

6. In a button-blank-cutting machine, the combination of a mandrel, a plunger projecting into the upper end of the mandrel and carried by the mandrel therewithin, means to simultaneously rotate the mandrel and plunger, a tubular saw engaged with the lower end of the plunger and projecting through the lower end of the mandrel, a push-bar within the plunger and saw, and automatic mechanism to simultaneously feed and to retract the mandrel and plunger, and automatic mechanism to reciprocate the push-bar, said mandrel and plunger and said push-bar reciprocated in successive order, substantially as described.

7. In a button-blank-cutting machine, the combination of a mandrel, a plunger carried by the mandrel therewithin, a cutter carried by the plunger, means to rotate the mandrel and plunger, a push-bar within the spindle, a feed-shaft provided with a worm, a shaft C^4 provided with a worm-gear meshing with a worm on the feed-shaft, cams upon the shaft C^4, a bell-crank actuated by one of said cams to simultaneously reciprocate said mandrel and plunger, an additional bell-crank actuated by the other of said cams to reciprocate the push-bar, and means to throw the cams out of operation, substantially as set forth.

8. In a button-blank-cutting machine, the combination of a mandrel, a plunger carried by the mandrel therewithin, means to rotate the mandrel and plunger, a saw carried by the plunger, a push-bar within the mandrel, a feed-shaft, a shaft C^4 provided with cams and geared with the feed-shaft, a bell-crank actuated by one of said cams to simultaneously feed the mandrel and plunger, an additional bell-crank actuated by the other of said cams to reciprocate the push-bar, and means to throw said cams out of operation, substantially as described.

9. In a button-blank-cutting machine, the combination of a mandrel, a plunger carried by the mandrel therewithin, a cutter carried by said plunger, means to rotate the mandrel and plunger, a push-bar within the plunger, a feed-shaft provided with a worm, a shaft C^4 geared with said worm and provided with cams, a bell-crank actuated by one of said cams to simultaneously feed the mandrel and plunger, and a bell-crank actuated by the other of said cams to reciprocate the push-bar, said bell-cranks provided with wipers riding upon said cams, and means to throw said cams out of operation, substantially as described.

10. In a button-blank-cutting machine, the combination of a mandrel, a plunger carried by the mandrel therewithin, a saw carried by the plunger, a push-bar within the plunger, means to rotate the mandrel and plunger, driving devices to successively feed the cutter and the push-bar to the work, and means to longitudinally adjust and hold the plunger within the mandrel to adjust the saw to the work, said mandrel projecting downward about the saw toward its lower end and provided at its lower end with a chuck to engage about the saw, substantially as set forth.

11. In a button-blank-cutting machine, the combination of a rotatable mandrel, a plunger carried by the mandrel therewithin, a tubular saw carried by the plunger, a push-bar within the plunger, a yoke engaging the upper end of the push-bar, a driving device to simultaneously feed the mandrel and plunger, and a device to reciprocate the push-bar, said mandrel projecting downward about the saw toward its lower end and provided at its lower end with a chuck to engage about the saw, substantially as described.

12. In a button-blank cutting machine, the combination of a rotatable mandrel, a cutter, a push-bar, a rotatable shaft C^4 provided with cams mounted thereupon, bell-cranks actuated by said cams to feed the cutter and the push-bar to the work, and means to reciprocate said shaft to carry the cams out of operation with said bell-cranks and to retract the same, substantially as described.

13. In a button-blank-cutting machine, the combination of a mandrel, a cutter, a push-bar, a rotatable shaft provided with cams mounted thereupon, bell-cranks actuated by said cams to feed the cutter and the push-bar to the work, a bell-crank and foot-lever connected with said shaft to force the cams out of operation with the bell-cranks, substantially as described.

14 In a button-blank-cutting machine, the combination of a mandrel, a plunger carried by the mandrel therewithin, a cutter carried by the plunger, a push-bar within the plunger, a feed-shaft, a shaft C^4 geared with the feed-shaft, cams upon the shaft C^4, a clutch to throw the feed-shaft into and out of operation, a bell-crank actuated by one of said cams to simultaneously reciprocate the mandrel and plunger, an additional bell-crank actuated by the other of said cams to reciprocate the push-bar, said mandrel and plunger and said push-bar being reciprocated in successive order, substantially as set forth.

15. The combination with a button-blank-cutting machine, of a support, a removable open-work basket having an air-tight engagement within the support, and means to exhaust air through said basket to separate the foreign matter from the blanks, substantially as and for the purpose described.

16. In a button-blank-cutting machine, the combination of a support provided with a hollow die, an open-work basket beneath said die and within the support, an exhaust-pipe beneath the basket, and means to admit an additional supply of air above the basket, said basket having a tight engagement in the support whereby air will be drawn through the die and through the basket into the exhaust-pipe, substantially as and for the purpose described.

17. The combination with a button-blank-cutting machine provided with a hollow support and with a hollow die opening through said support, of an open-work receptacle located within said support beneath said die for receiving the blanks, an exhaust-pipe, and means to exhaust air through said die and receptacle into said exhaust-pipe, whereby the foreign matter will be separated from the blanks, as set forth.

18. In a button-blank-cutting machine, the combination of a rotatable mandrel, means to reciprocate the mandrel, a plunger within the mandrel, and a saw projecting within the mandrel and carried by the plunger, said plunger with its saw removable from the upper end of the mandrel, substantially as described.

19. In a button-blank-cutting machine, the combination of a rotatable mandrel, means to reciprocate the mandrel, a plunger within the mandrel, a saw projecting within the mandrel attached to the lower end of the plunger, and means to longitudinally adjust and positively hold the plunger with the saw within the mandrel in a desired position of adjustment, substantially as described.

20. In a button-blank-cutting machine, the combination of a rotatable mandrel, means to reciprocate the mandrel, a plunger located within the mandrel, a saw projecting within the mandrel engaged with the plunger, a chuck to engage the saw toward its lower extremity, and additional means to adjust and hold the plunger and saw in desired position of adjustment within the mandrel, substantially as described.

21. In a button-blank-cutting machine, the combination of a rotatable mandrel, means to reciprocate the mandrel, an elongated plunger therewithin, an elongated tubular saw projecting within the mandrel engaged with the plunger, and means to adjust and hold the plunger within the mandrel in a desired position of adjustment, said plunger and saw removable from the upper end of the mandrel, substantially as set forth.

22. In a button-blank-cutting machine, the combination of a rotatable mandrel, a plunger therewithin, a tubular saw carried by the plunger, a chuck provided with jaws having a wedge-shaped engagement against the adjacent inner face of the mandrel, and bearing against the saw, and with a cap having a screw-threaded engagement upon the mandrel to give a desired tension of the chuck upon the saw, a plug within the saw to prevent too great a tension of the chuck upon the saw, a push-bar reciprocatory through said plug, and means to reciprocate the mandrel and the push-bar, substantially as set forth.

601,676. BRICK-CLEANING MACHINE. SAMUEL A. PRESCOTT, Wilkinsonville, Mass. Filed Feb. 2, 1897. Serial No. 621,648. (No model.)



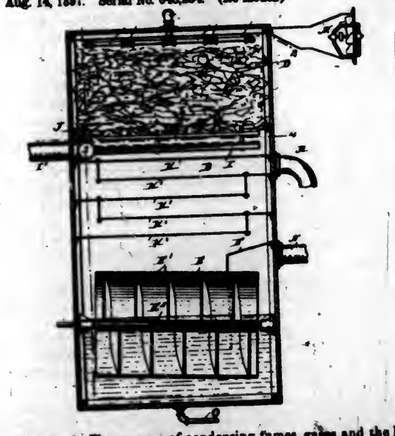
Claim.—1. A machine for cleaning old bricks, consisting of frame A, bearings A' A' secured thereto, horizontal transverse shaft C fitted to turn in said bearings and means for turning said shaft, in combination with wheel B mounted on said shaft, the pins B' projecting laterally from the sides of said wheel, and casing D having openings D' at the sides to admit the bricks to be cleaned, and an opening at the bottom through which the mortar scraped from the bricks may be discharged, substantially as set forth.

2. The combination of frame A, bearings A' A' secured thereto, horizontal transverse shaft C fitted to turn in said bearings and means whereby said shaft may be turned, in combination with radial sections B^3, a central disk to which they are fastened, the holding side plates B^2 B^2 and peripheral plate B^1, the pins B' projecting laterally from the sides of the wheel, and casing D having openings D' at the sides to admit the bricks to be cleaned and an opening at the bottom through which the mortar scraped from the bricks may be discharged, substantially as set forth.

3. The combination of frame A, bearings A' A' secured thereto, horizontal transverse shaft C fitted to turn in said bearings and means whereby said shaft may be turned, in combination with wheel B com-

posed of radial sections B^3 a central disk to which they are fastened, the holding side plates B^1 B^2 and peripheral plate B^4, the pins B' projecting laterally from the sides of the wheel, casing D having openings D' at the sides to admit the bricks to be cleaned and an opening underneath through which the mortar removed from the bricks may be discharged, and means for adjusting said casing consisting of suitable bearings secured to the stationary part of the casing and frame A as described, suitable threaded spindles turning in said bearings and bearings on the movable side plates of the casing, substantially as set forth.

601,677. METHOD OF AND APPARATUS FOR CONDENSING FUMES OR GASES. HANNIBAL W. RAPPLEYE, Philadelphia, Pa. Filed Aug. 14, 1897. Serial No. 648,234. (No model.)



Claim.—1. The process of condensing fumes, gases and the like, which consists in holding water in temporary suspension and in diffusing it over a large area while so suspended, cooling the water while so suspended by passing a current of air through it, and directing the water so cooled and diffused upon the gases or fumes to be condensed.

2. The process of condensing fumes, gases and the like, which consists in holding water in temporary suspension and diffusing the same over a large area, cooling the water so suspended by a current of air, directing the water so cooled and diffused upon the gases or fumes to be condensed, and retarding the passage of the water through the same.

3. The process of condensing fumes, gases and the like within a condensing-chamber, which consists in holding water in temporary suspension and diffusing the same over a large area, cooling the water so suspended by a current of air, directing the water so cooled and diffused upon the gases or fumes to be condensed, retarding the passage of the water through the same, and then withdrawing such water from the condensing-chamber and again conveying it to the said medium.

4. In an apparatus for condensing fumes, gases and the like, the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, means to admit water into the upper part of said compartment, means for passing a current of air through said compartment to cool the water therein, and means to admit the fumes or gases to be condensed into said condensing-chamber beneath said compartment.

5. In an apparatus for condensing fumes, gases and the like, the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, means to admit water into the upper part of said compartment, means for passing a current of air through said compartment to cool the water therein, perforated walls in said condensing-chamber beneath said compartment, forming a passage for the fumes or gases to be condensed and adapted to permit the passage of the water through the perforations thereof, and means to admit the fumes or gases to be condensed into said passage.

6. In an apparatus for condensing fumes, gases and the like, the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, a water-inlet pipe, perforated water-distributing pipes arranged in the upper part of the condensing-chamber adapted to distribute water into the upper part of said compartment and communicating with the water-inlet pipe, an air-inlet pipe, perforated air-distributing pipes arranged in said condensing-chamber adapted to distribute air into the lower part of said compartment, an air-exhaust fan in connection with the upper part of said condensing-chamber adapted to withdraw the air from the air-distributing pipes upwardly through said compartment, and means to admit the fumes or gases to be condensed into said chamber beneath said compartment.

7. In an apparatus for condensing fumes, gases and the like, the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, a water-inlet pipe, perforated water-distributing pipes arranged in the upper part of the condensing-chamber adapted to distribute water into the upper part of said compartment and communicating with the water-inlet pipe, an air-inlet pipe, perforated air-distributing pipes arranged in said condensing-chamber adapted to distribute air into the lower part of said compartment, an air-exhaust fan in connection with the upper part of said condensing-chamber adapted to withdraw the air from the air-distributing pipes upwardly through the said compartment, perforated walls in said condensing-chamber beneath said compartment forming a passage for the fumes or gases to be condensed and adapted to permit the passage of the water through the perforations thereof, and a gas or fume inlet pipe communicating with the passage so formed.

8. In an apparatus for condensing fumes, gases and the like, the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, means to admit water into the upper part of said compartment, means for passing a current of air through said compartment to cool the water therein, means to admit the fumes or gases to be condensed into said condensing-chamber beneath said compartment, and a rotary spiral cylinder condenser in the lower part of the condensing-chamber.

9. In an apparatus for condensing fumes, gases and the like, the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, means to admit water into the upper part of said compartment, means for passing a current of air through said compartment to cool the water therein, perforated walls in said condensing-chamber beneath said compartment, forming a passage for the fumes or gases to be condensed and adapted to permit the passage of the water through the perforations thereof, means to admit the fumes or gases to be condensed into said passage, and a rotary spiral cylinder condenser in the lower part of the condensing-chamber.

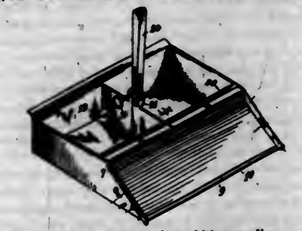
10. In an apparatus for condensing fumes, gases and the like the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, a water-inlet pipe, perforated water-distributing pipes arranged in the upper part of the condensing-chamber adapted to distribute water into the upper part of said compartment and communicating with the water-inlet pipe, an air-inlet pipe, perforated air-distributing pipes arranged in said condensing-chamber adapted to distribute air into the lower part of said compartment, an air-exhaust fan in connection with the upper part of said condensing-chamber adapted to withdraw the air from the air-distributing pipes upwardly through said compartment, means to admit the fumes or gases to be condensed into said chamber beneath said compartment, and a rotary spiral cylinder condenser in the lower part of the condensing-chamber.

11. In an apparatus for condensing fumes, gases and the like, the combination of a condensing-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, a water inlet pipe, perforated water-distributing pipes arranged in the upper part of the condensing-chamber adapted to distribute water into the upper part of said compartment and communicating with the water-inlet pipe, an air-inlet pipe, perforated air-distributing pipes arranged in said condensing-chamber adapted to distribute air into the lower part of said compartment, an air-exhaust fan in connection with the upper part of said condensing-chamber adapted to withdraw the air from the air-distributing pipes upwardly through the said compartment, perforated walls in said condensing-chamber beneath said compartment forming a passage for the fumes or gases to be condensed and adapted to permit the passage of the water through the perforations thereof, a gas or fume inlet pipe communicating with the passage so formed, and a rotary spiral cylinder condenser in the lower part of the condensing-chamber.

12. In an apparatus for condensing fumes, gases and the like, the combination of a condenser-chamber having in its upper part a compartment containing a water suspending and diffusing medium, said compartment having a bottom adapted to permit the passage of the water therethrough, a water-inlet pipe, perforated water-distributing pipes arranged in the upper part of the condensing-chamber adapted to distribute water into the upper part of said compartment and communicating with the water-inlet pipe, an air-inlet pipe, perforated air-distributing pipes arranged in said condensing-chamber adapted to distribute air into the lower part of said compartment, an air-exhaust fan in connection with the upper part of said condensing-chamber adapted to withdraw the air from the air-distributing pipes upwardly through the said compartment, perforated walls in said condensing-chamber beneath said compartment forming a passage for the fumes or gases to be condensed and adapted to permit the passage of the water through the perforations thereof, a gas or fume inlet pipe communicating with the passage so formed, a rotary spiral cylinder condenser in the lower part of the condensing-chamber, a water-exit pipe leading from the lower part of said condensing-chamber in connection with the water-inlet pipe, and means interposed in said water-pipe connection from the lower to the upper part of the condensing-chamber to force the water therethrough.

13. In an apparatus for condensing fumes, gases and the like, the combination of the condensing-chamber of an open-work flooring in the upper part of the condensing-chamber sustaining a water suspending and diffusing medium, an air-inlet pipe, perforated air-distributing pipes beneath the open-work flooring communicating with the air-inlet pipe, a perforated horizontal partition beneath the air-distributing pipes, perforated staggered horizontal walls beneath the said partition forming a passage for the fumes or gases, a gas or fume inlet pipe communicating with the passage so formed, a rotary spiral cylinder condenser in the lower part of the condensing-chamber, a water-pipe connection between the lower part of the condensing-chamber and the upper part thereof, water-distributing pipes in the upper part of the condensing-chamber communicating with said pipe connection, an air-exhaust fan in connection with the upper part of the condensing-chamber adapted to establish a current of air in the condensing-chamber upwardly from the air-distributing pipes, and means interposed in the water-pipe connection to force the water therethrough from the lower to the upper part of the condensing-chamber, substantially as described.

601,678. SCRUBBING APPLIANCE. FREDERICK W. RICHTER, Chicago, Ill. Filed June 3, 1897. Serial No. 639,365. (No model.)



Claim.—1. The herein-described scrubbing appliance comprising a substantially rectangular tray, an inclined upwardly and rearwardly disposed side to said tray, and a correspondingly-inclined lip or guard projecting from the opposite side of the tray, the said inclined side being provided with end flanges or guards extending above its upper surface, substantially as described.

2. The herein-described scrubbing appliance comprising a substantially rectangular water tray or receptacle, a gradually inclining or slanting side to said receptacle, vertically-disposed flanges or guides at the extremities of said inclined side, and an adjustable handle secured within said tray, substantially as and for the purpose described.

3. The herein-described scrubbing appliance comprising a tray or receptacle having an inclined front, a transverse lip projecting rearward from the upper edge of the back of the tray or receptacle, a vertical partition disposed longitudinally of the tray or receptacle and provided at its ends with openings, and an adjustable handle mounted on the partition, substantially as described.

4. The herein-described scrubbing appliance comprising a tray or receptacle having an inclined front and provided at the ends thereof with vertical flanges extended beyond the inclined front to form guards, and a flexible strip secured to the bottom of the tray or receptacle at the front thereof, adapted to fit closely against a floor or other supporting-surface and terminating short of the projecting ends of the flanges, substantially as described.

5. In a device of the class described, the combination with a tray or receptacle provided at its front with a strip, of guards located at opposite sides of the tray or receptacle, yieldingly mounted on the same and projecting beyond the strip to form cushions, substantially as described.

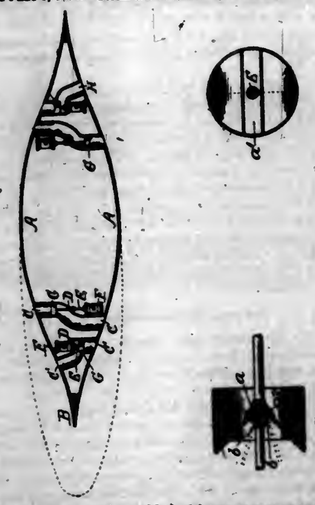
6. In a device of the class described, the combination with a tray or receptacle, of a pair of plates pivoted at opposite sides thereof and projecting forward therefrom to form guards, and springs mounted on the tray or receptacle and connected with the inner or rear portions of the plates, whereby the latter are yieldingly mounted and form cushions, substantially as described.

7. In a device of the class described, the combination of a tray or receptacle having an inclined front extended beyond the bottom to form a transverse recess, a flexible strip provided with a rigid binding-strip and extending beyond the inclined front, and guard-plates arranged at opposite sides of the tray or receptacle and extending beyond the flexible strip, substantially as described.

8. In a device of the class described, the combination of a tray or receptacle having an inclined front extending beyond the bottom and forming a transverse recess, bosses arranged in the recess and provided with threaded openings, a flexible strip provided at its inner edge with a binding-strip and arranged on the bottom of the tray and projecting beyond the front thereof, and screws passing through the flexible strip and the binding-strip and engaging the threaded openings of the lugs, substantially as described.

9. In a device of the class described, the combination of a tray or receptacle having an inclined front, provided at its upper or rear edge with a depending flange, and a transverse scraper-bar mounted on the tray or receptacle and located slightly in rear of the inclined front in position to be engaged by a squeegee or scraper after the same has been swept up the inclined front, said scraper being curved in cross-section and presenting a convex upper face and a concave lower face, substantially as described.

601,679. HYDRAULIC STEERING MECHANISM FOR VESSELS. JOHN RITCHIE and HARVEY W. RITCHIE, Cook County, Ill. Filed June 9, 1897. Serial No. 639,947. (No model.)



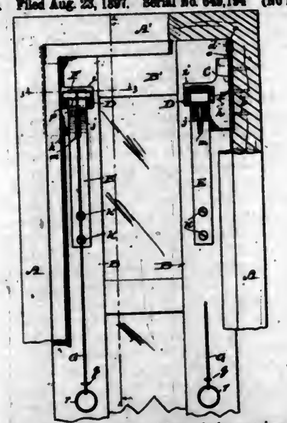
Claim.—1. A vessel provided with two or more passages extending transversely through the hull and having propeller-shafts located in said passages which are adapted to have a reciprocating endwise movement therein, and propellers, mounted on said shafts, substantially as described.

2. A vessel provided with transverse passages through the hull and opening outwardly from each side thereof, propeller-shafts entering said passages through the side walls and having a reciprocating endwise movement therein, and propellers, having an opening and closing action and mounted on the outer ends of said shafts; the inner ends connecting with the motive power, substantially as described.

3. A vessel having transverse passages through the hull which curve from a right line to provide an offset, propeller-shafts extending into said passages and having a reciprocating endwise movement therein and having propellers mounted on the outer working ends thereof; the inner ends of said shafts connecting with the motive

power, and each propeller being adapted to be operated independently of the other, substantially as described.

601,680. DETACHABLE SASH. WILLIAM ROMUNDER, Milwaukee, Wis. Filed Aug. 23, 1897. Serial No. 649,194. (No model.)



Claim.—1. The combination with a window casing, of movable socket-hinges attached thereto, said movable sockets having exterior latches projecting therefrom, a detachable sash adapted to fit within said hinge-sockets, and slotted catches secured to said sash for engagement with said latches, substantially as set forth.

2. The combination with a window-casing, of movable socket-hinges attached thereto, and provided with exterior projecting latches, a detachable sash adapted to fit within said hinge-sockets, slotted catches secured to said sash for engagement with said latches, and devices for releasing said catches from said engagement, substantially as set forth.

3. The combination with a window-casing, having projecting latches, of a detachable sash and slotted spring-catches secured at their lower ends to said sash for engagement with said latches, slotted cylinders loosely connected to the free top ends of said catches, and cords, wires or chains secured to said cylinders adjacent to their points of connection with said catches, substantially as set forth.

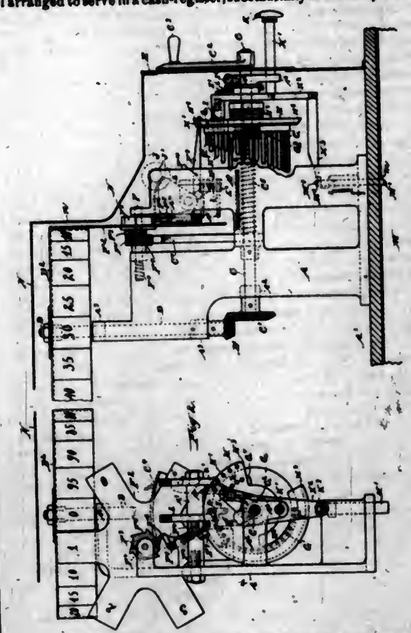
4. The combination with a window-casing, of stationary hinge-plates secured thereto, movable hinge-plates pivotally secured to said stationary plates and having right-angled flanges projecting therefrom forming open sockets, and latches projecting from the exterior of said sockets, a detachable sash adapted to fit within said sockets, and slotted spring-catches secured to said sash for engagement with said latches, substantially as set forth.

601,681. CASH-REGISTER. ROBERT A. W. ROSANDER and JOHN R. PEARSON, Brooklyn, N. Y., assignors of thirteen-twentieths to Frank C. Gaffney, same place. Filed June 16, 1897. Serial No. 640,955. (No model.)

Claim.—1. In a cash-register, two indicators, one bearing a series of numbers indicating dollars and the other a series indicating fractions thereof, adapted to be exposed at an opening in the casing in proper relation to each other, in combination with a single lever connected to both, adapted when swung in one direction to operate the dollars-indicator and in the other direction to operate the fractional indicator, a registering mechanism, and a single thrust-rod operating the registering mechanism to register both numbers, all substantially as herein specified.

2. In a cash-register, a drum bearing a series of numbers indicating the fractional parts of a dollar, a shaft connecting to the drum, a disk bearing a series indicating the dollars and operated from the same shaft, an opening in the casing through which the said figures indicating the amount of the purchase in dollars and fractions are exposed in proper relation to each other, a lever fixed to the shaft to turn the latter, and connections whereby the movement of the lever in one direction operates the dollars-indicator and in the other direction operates the fractional indicator, all combined and arranged to serve substantially as herein specified.

3. A shaft, a drum bearing a series of numbers indicating fractional parts of a dollar and turning with the shaft, and an operating-lever fixed to the shaft, in combination with a disk bearing a series of numbers indicating dollars, a pinion connected to said disk and a toothed segment carried by said shaft and meshing with said pinion, all arranged to serve in a cash-register, substantially as herein specified.



4. A shaft, a drum bearing a series of numbers indicating fractional parts of a dollar and turning with the shaft, and an operating-lever fixed to the shaft, in combination with a disk bearing a series of numbers indicating dollars, a loose pinion connected to said disk to turn the latter in one direction and move idly in the opposite direction, a holding means adapted to prevent the reverse movement of the disk, and a toothed segment mounted on said shaft and meshing into said pinion, all substantially as herein specified.

5. In a cash-register, a shaft operating an indicator, in combination with a disk carrying a series of pins of different lengths corresponding to the numbers on the indicator and adapted when thrust forward to present to the registering mechanism the pin corresponding to the number to be registered and to operate said registering mechanism to an extent governed by the length of the pin, all substantially as herein specified.

6. In a cash-register, a drum bearing a series of numbers indicating fractional parts of a dollar, a disk bearing a series indicating dollars, and a shaft operating both indicators, in combination with disks or plates arranged to slide on said shaft, each carrying a series of pins of differing lengths, those on one disk corresponding to the numbers on one indicator and the others to those on the other indicator, adapted when thrust forward to present to the registering mechanism the pins corresponding to the dollars and fractions thereof and operate the registering mechanism to an extent governed by the length of such pins, all substantially as herein specified.

7. In a cash-register, two indicators, one bearing a series of numbers indicating dollars and the other a series indicating fractions thereof, adapted to be exposed at an opening in the casing in proper relation to each other, in combination with a single lever connected to both, adapted when swung in one direction to operate the dollars-indicator and in the other direction to operate the fractional indicator, a registering mechanism, a drawer-opening mechanism, and a single thrust-rod operating the registering mechanism to register both numbers and also release said drawer, all substantially as herein specified.

8. The shaft C, the pointer C^3 and toothed segment C^4 fixed on said shaft, the gears C′ and D′, shaft D and drum D^2 mounted thereon, in combination with the shaft F, the spider-disk F^2 and the ratchets F^4 and F^6 fixed thereon, the loose pinion F′ meshing with said toothed segment and having a pawl F^5 engaging one of said ratchets, a dog F^6 engaging the other ratchet, and the torsional spring F^{11} tending to turn the said shaft F in opposition to the dog and its ratchet, all substantially as herein specified.

9. The drum D^2 and spider-disk F^2 and their operating means, in combination with the ratchet F^6 on said disk, the dog F^6 engaging said ratchet, and the spring-actuated slide F^7 and releasing-lever F^8, and means for operating the latter all substantially as herein specified.

10. The shaft C and its spider-disk and drum bearing respectively a series of numbers indicating dollars and a series indicating fractions thereof, in combination with the disk G and plate H arranged to slide on said shaft, each bearing a series of pins G′, H′ of differing lengths, a registering mechanism for each series consisting of a slotted yoke L^2, guides A^5 therefor, toothed segment L having thd arm L^3 and pin L^4 engaged in said yoke, and meshing with the wheel J, the said yoke adapted to be struck by one of the pins in the series and be driven to an extent determined by the length of the pin, and correspondingly move the said registering mechanism, all substantially as herein specified.

11. The shaft C and its pointer C^3, the sleeve G^2 mounted on the shaft and turning therewith and adapted to slide axially thereon, the disk G and its series of pins G′ fixed on the sleeve, the plate H and its series of pins H′ mounted on the said sleeve with liberty to turn thereon, a torsional spring H^3 connecting said plate and sleeve, a lug G^4 carried by said disk and engaging said plate to turn the latter when the shaft is turned in one direction, the sliding bolt I adapted to engage one of a series of cavities A on said plate, the arm K^5 mounted on the said sleeve and carrying said bolt, the rod K′ and its knob K whereby the disk and plate may be thrust inward on said shaft, and a registering mechanism adapted to be operated to varying extents depending on the lengths of the pins presented thereto, all combined and arranged to serve substantially as and for the purpose herein specified.

12. The drum D^2 and spider-disk F^2, and their operating means, in combination with the ratchet F^6 on said disk, the dog F^6 engaging said ratchet, slide F^7, releasing-lever F^8, and the plate H having the beveled edge H^2 adapted when thrust forward to engage and lift the free end of said lever and release said spider-disk, all substantially as herein specified.

13. The drum D^2 and spider-disk F^2, and their operating means, in combination with the ratchet F^6 on said disk, the dog F^6 engaging said ratchet, slide F^7, releasing-lever F^8, and the plate H having the beveled edge H^2, and the dog H^7 carried by said plate, adapted to lift the free end of the lever and release the spider-disk when the plate is turned in one direction, all substantially as herein specified.

14. The plate H mounted on the sleeve G^2 and having the series of pins H′ of differing lengths and a corresponding series of cavities A, in combination with the sliding bolt I adapted to engage said cavities, the lever I′ controlling the bolt and having the groove i, the dog I^2 adapted to be struck by said lever and thereby withdraw said bolt, the lug G^4 on said sleeve adapted to lift said dog when presented to the latter and allow it to lie inoperatively in said groove, all substantially as herein specified.

15. The sleeve G^2 turning with the shaft C and free to slide axially thereon, the disk G fixed on said sleeve, the plate H carried by the sleeve with liberty to turn thereon, the series of pins G′ and H′ carried by said disk and plate and adapted to operate a registering mechanism, the arm K^5 inclosing said sleeve and moving axially therewith, a beveled extension K^6 carried by the arm, a spring-catch M′ controlling the cash-drawer M, operated by said extension, and the rod K′ and single knob K for operating the registering mechanism and releasing the cash-drawer by a single thrust, all combined and arranged to serve substantially as herein specified.

601,682. FENCE-STAY. WILLIAM H. ROYER, Painter Creek, Ohio. Filed Aug. 9, 1897. Serial No. 647,626. (No model.)

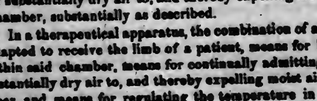


Claim.—1. As a new article of manufacture, a stay or fastener for fence-wires comprising a supporting-plate formed of a strip of metal folded upon itself, and having one of its ends bent to form a substantially horizontal flange, and a fastening-wire supported in the loop formed by folding the said strip and projecting at each end beyond the side edges of the supporting-plate, substantially as described.

2. The combination with a fence-wire, and a fence-post having a horizontally-disposed kerf or recess formed therein, of a stay comprising a supporting-plate having a flange at its lower end to fit in said kerf, a fastening-wire supported by said plate with its ends extending beyond the side edges of the plate, said extended ends being coiled around the fence-wire, and a device to secure the plate to the post, substantially as described.

3. The combination with a fence-wire, and a fence post having a horizontally-disposed kerf or recess formed therein, of a stay comprising a supporting-plate formed of a strip of metal folded upon itself and having one of its ends bent to form a substantially horizontal flange to fit in said kerf, and a fastening-wire supported in the loop formed by folding the said metal strip, said wire extending at each end beyond the side edges of the supporting-plate, and the extending ends being coiled around the fence-wire, and a nail driven through an opening in the supporting-plate and the fence post and being clenched, substantially as and for the purpose specified.

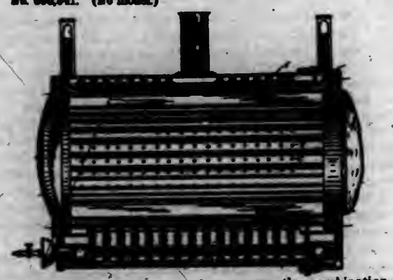
601,688. SWIVEL HOSE-COUPLING. DE WARE B. SMITH, Deerfield, N. Y. Filed Oct. 18, 1897. Serial No. 655,561. (No model.)



Claim.—1. The combination in a hose-swivel of the tubular body having one end screw-threaded, and the other flared, of a sleeve mounted on the body and having a rounded end conforming on the exterior with the flared end of the body, substantially as set forth.

2. The combination with the hose of a swivel consisting of a tubular body having a screw-thread at one end and flared at the other end, of a sleeve mounted on the body the end of the sleeve and flared end of the body being made to conform whereby the hose covers and closes the joint, substantially as set forth.

601,684. THERAPEUTICAL APPARATUS. AUSTIN V. M. SPRAGUE, Brooklyn, N. Y. Original application filed Feb. 18, 1897, Serial No. 623,905. Divided and this application filed Dec. 6, 1897. Serial No. 660,841. (No model.)



Claim.—1. In a therapeutical apparatus, the combination of a chamber adapted to receive or to be applied to a part of the human body, means for maintaining the temperature within said chamber above the boiling-point of water and means for admitting such a current of dry air to said chamber as will remove the vapors arising from the part of the body being treated as rapidly as they are generated, substantially as described.

2. In a therapeutical apparatus, the combination of an air-chamber adapted to receive the limb of a patient, means for continually heating, and maintaining the temperature of, the air within said chamber above the boiling-point of water, and means for admitting such volume of air to said chamber as to continually effect the displacement of the accumulating vapor, substantially as described.

3. In a therapeutical apparatus, the combination of an air-chamber adapted to receive the limb of a patient, means for heating the air within said chamber, and means for continually admitting a current of substantially dry air to, and thereby expelling moist air from, said chamber, substantially as described.

4. In a therapeutical apparatus, the combination of an air-chamber adapted to receive the limb of a patient, means for heating the air within said chamber, means for continually admitting a current of substantially dry air to, and thereby expelling moist air from, said chamber, and means for regulating the temperature in said chamber, substantially as described.

5. In a therapeutical apparatus, the combination of an air-chamber adapted to receive the limb of a patient, means for heating the air within said chamber, a series of tubes for continually admitting a current of substantially dry air to said chamber to expel moist air therefrom and another series of tubes for continually discharging

said moist air from said chamber, dampers for each of said series of tubes, and means for operating said dampers, substantially as described.

6. In a therapeutical apparatus, the combination of an air-chamber adapted to receive the limb of a patient, means for heating the air within said chamber, a series of tubes for continually admitting a current of substantially dry air to said chamber to expel moist air therefrom and another series of tubes for continually discharging said moist air from said chamber, dampers for each of said series of tubes, and a lever for simultaneously operating said dampers, substantially as described.

7. In a therapeutical apparatus, an air-chamber adapted to receive the limb of a patient and provided with ventilative openings, a flue surrounding said air-chamber, and a source of heat communicating therewith and situated below said air-chamber and in contiguity to said openings so as to induce a current of substantially dry air to said chamber, substantially as described.

8. In a therapeutical apparatus, an air-chamber provided with ventilative openings, a perforated casing arranged within said chamber and adapted to receive the limb of a patient, a flue surrounding said air-chamber, and a source of heat communicating therewith and situated below said chamber and in contiguity to said openings so as to induce a current of substantially dry air to said chamber, substantially as described.

9. A therapeutical apparatus consisting of the concentrically-arranged inner, intermediate and outer casings, the inner casing being perforated and adapted to receive the limb of a patient and the outer casing being open at the top and bottom, a heating apparatus beneath said bottom opening in the outer casing, a series of tubes communicating with the intermediate casing and projecting through the bottom opening in the outer casing and below the heating apparatus, another series of tubes communicating with the top of said intermediate casing and extending through the outer casing, one of said series of tubes being adapted to admit fresh air to, and the other of said series of tubes being adapted to discharge moist air from, the intermediate casing, slide-dampers for controlling the supply of air through the tubes, and an operating lever for simultaneously operating the damper of each of said series of tubes, substantially as described.

10. A therapeutical apparatus consisting of the concentrically-arranged inner, outer and intermediate cylinders, the inner cylinder being perforated, adapted to receive the limb of a patient and provided with internally-arranged protective pads, the intermediate cylinder having a series of tubes for admitting fresh air at the bottom thereof, and the outer cylinder having an opening at the top and bottom, means situated beneath said bottom opening in the outer cylinder for heating the air therein and in the intermediate cylinder, slide-dampers for the tubes arranged on the intermediate cylinder, an operating-lever for the dampers fulcrumed on the outer cylinder and adapted to simultaneously adjust said dampers, a gage for the lever, a door adapted to close the cylinders at one end and provided with an observation-port, and a flexible covering secured to the other end of the outer cylinder, substantially as described.

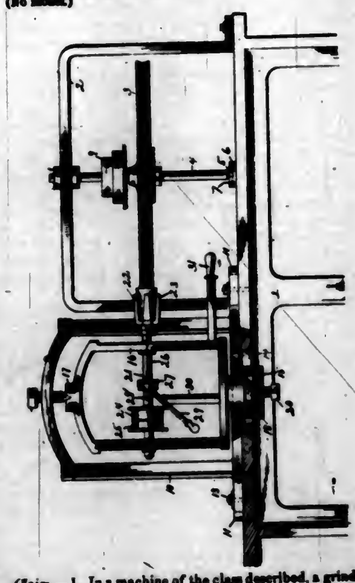
11. In a therapeutical apparatus, the combination of an air-chamber adapted to receive the limb of a patient, a plurality of parallel burners for heating the air within said chamber and situated below the same, and lower or inlet tubes and upper or outlet tubes communicating with said chamber, said lower tubes being arranged between and having their mouths situated slightly below said burners and said burners being adapted to induce ventilative streams of fresh air through the tubes and the chamber, substantially as described.

12. In a therapeutical apparatus, an air-chamber adapted to receive the limb of a patient and provided with means for continually ventilating said chamber, a flue surrounding said chamber, and a heating apparatus situated beneath and communicating with said flue and adapted to induce a heated, continuous and enveloping current of air into contact with said air-chamber, substantially as described.

13. In a therapeutical apparatus, an air-chamber adapted to receive the limb of a patient and provided with upper and lower ventilative openings, a flue surrounding said air-chamber, and a heating apparatus communicating with said flue and situated contiguous to the lower ventilative openings in the air chamber, and adapted to induce a heated, continuous and enveloping current of air into contact with said chamber and to project streams of fresh air through said ventilative openings in the chamber, substantially as described.

14. In a therapeutical apparatus, the combination with an operating-chamber adapted to receive the limb of a patient and provided with a supporting-frame, of a base therefor, a vertical externally-threaded pedestal telescoped into said base, an adjusting internally-threaded hand-wheel for the pedestal operating thereon and resting on the base, laterally-extending arms carried by said pedestal, an extension projecting forwardly and upwardly from the end of one of said arms, an axis for said chamber rigidly secured to the frame and having bearings in said arms, an upwardly-extending lever secured to the end of said axis adjacent to the extension, and an adjusting hand-screw for tilting said chamber operating in the upper end of the extension and having a ball-and-socket connection with the lever, substantially as described.

601,685. MACHINE FOR CUTTING AND SMOOTHING TUMBLERS. ADAMS STREETER, Morgantown, W. Va., assignor to the Seneca Glass Company, same place. Filed Nov. 3, 1897. Serial No. 657,945. (No model.)



Claim.—1. In a machine of the class described, a grinding-wheel, a supporting-frame arranged adjacent to said grinding-wheel and capable of adjustment, a holding-frame rotatably mounted within said supporting-frame, and a rotating tumbler-holder carried by said holding-frame, said holder rotating at right angles to the plane of rotation of said grinding-wheel, substantially as described.

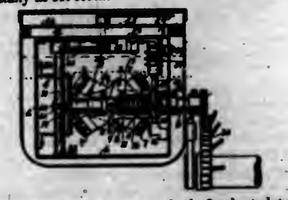
2. In a machine of the class described, a grinding-wheel, a supporting-frame arranged adjacent to said grinding-wheel and capable of adjustment, a holding-frame rotatably mounted within said supporting-frame, a rotating tumbler-holder carried by said holding-frame, said holder rotating at right angles to the plane of rotation of said grinding-wheel, and means for removing the tumbler from the holder, substantially as described.

3. In a machine of the class described, a grinding-wheel, a supporting-frame arranged adjacent thereto and capable of adjustment, a bearing carried by the supporting-frame, a holding-frame arranged within the supporting-frame and provided at its upper and lower ends with bearing-lugs, the lower of said lugs being arranged within the bearing carried by the supporting-frame, adjusting-screws for retaining the holding-frame within the supporting-frame, a tumbler-holder carried by the holding-frame and arranged in the same plane as the grinding-wheel, and means for removing the tumbler from said holder, substantially as described.

4. In a machine of the class described, a grinding-wheel, a supporting-frame arranged adjacent thereto and capable of adjustment, a bearing formed in the supporting-frame, a holding-frame rotatably mounted within said supporting-frame and provided at its upper and lower ends with bearing-lugs, the lower of said lugs being disposed within the bearing of the supporting-frame, adjusting-screws for retaining the holding-frame within the supporting-frame, a tubular shaft carried by the holding-frame, a tumbler-holder mounted upon said shaft and arranged in the same plane as the grinding-wheel, an extracting-rod disposed within said tubular shaft for removing the tumbler from the holder, and means for actuating said rod, substantially as described.

601,686. MECHANISM FOR INDICATING TRAVEL OF BICYCLES, &c. WILLIAM B. STUBBS, Chester, Pa. Filed Dec. 23, 1896. Serial No. 616,794. (No model.)

Claim.—1. In a speed-indicator for bicycles, and other wheeled vehicles, the combination of the rotatable shaft adapted to be driven by the wheel of the vehicle, the spring-controlled cross-bars pivoted to the said shaft, the sliding part supported by the latter, connections between said part and cross-bars, whereby when the latter are moved outwardly on their pivot by centrifugal motion induced by the rotation of said shaft, an outward longitudinal movement will be imparted to the sliding part, means for preventing the rotation of said part, together with the rock-shaft and its arm against which latter the outer end of the said sliding part is adapted to bear, said arm being adjustable toward and away from the axis of said shaft, the index connected with said rock-shaft, and a spring adapted to always maintain the said arm of the rock-shaft in contact with the sliding part, substantially as set forth.



2. The combination of the rotatable shaft adapted to be driven by the wheel of a bicycle or the like, the spring-controlled bars pivoted thereto, the sliding pin, suitable connections between said pin and bars, the spring-controlled rock-shaft, an arm secured thereto against which said pin is adapted to impinge, means for adjusting said arm toward and away from the axis of the rock-shaft, the index-carrying arbor, and suitable connections between said rock-shaft and arbor; the construction and arrangement being substantially as described, whereby the movement of said pin is transmitted to the said arbor substantially as and for the purpose set forth.

3. The combination of the rotatable shaft adapted to be driven by the wheel of a bicycle or the like, the spring-controlled cross-bars pivoted thereto, the sliding pin supported by said shaft, the sliding yoke engaging studs or projections of said cross-bars, and also adapted to impinge against said pin, the rock-shaft, an arm secured thereto and adjustable toward and away from the axis thereof, against which the pin impinges, the segment-gear carried by said rock-shaft, the index-carrying arbor, the gear thereon engaging said segment, and the spring for controlling the arbor and its adjuncts or connections, all constructed and adapted to operate substantially as and for the purpose set forth.

4. The combination of the rotatable shaft adapted to be driven by the wheel of a bicycle or the like, the cross-bars pivoted to said shaft, the pin adapted to slide in the end of the shaft, the spring-controlled reciprocating yoke, having its crown impinging against said pin, and connected to said cross-bars substantially in the manner and by the means shown and described, the spring controlled rock-shaft, the index-carrying arbor, suitable gearing connecting said arbor and rock-shaft, together with the disk against whose edge the said sliding pin is adapted to bear and the adjusting, disk-carrying screw secured to said rock-shaft, substantially as and for the purpose set forth.

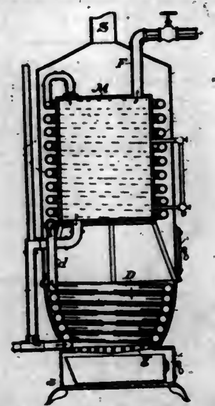
5. In mechanism of the character described, the combination of the rotatable shaft adapted to be driven by the wheel of a bicycle or other vehicle, the cross-bars pivoted to the said shaft, a sliding part carried by the said shaft and operatively connected with said cross-bars, the spring acting upon the said sliding part, the spring-controlled rock-shaft, the index-carrying arbor, suitable gearing connecting said arbor and rock-shaft, together with an arm secured to said rock-shaft and against which said sliding part is arranged to impinge, said arm being adjustable toward and away from the axis of the said rock-shaft, substantially as set forth.

6. The combination of the rotatable shaft adapted to be rotated by the wheel of a bicycle or the like, the arbor having the index secured thereto, mechanism substantially as described, whereby said index is caused, through the rotation of said driven shaft, to oscillate in correspondence with the speed of travel of the bicycle, or the like, and consequent speed of rotation of said shaft; together with a rotatable shaft, as 36, suitably geared to the last-mentioned shaft, a gear, as 38, a worm, 37, or the like, upon shaft, 36, engaging said gear, said gear having a tooth or projection; together with the rotatable annulus provided with teeth or projections with which the projection of the gear, 38, is adapted to consecutively engage, substantially as and for the purpose set forth.

7. In mechanism of the character described, the combination of the rotatable shaft adapted to be driven by the wheel of a bicycle or other vehicle, the cross bars pivoted to said shaft, the sliding part carried by said shaft and operatively connected to said cross-bars, the spring arranged to act upon said sliding piece in opposition to the centrifugal action of the said cross-bars induced by the rotation of said shaft, the spring-controlled rock-shaft, an index-carrying arbor, suitable gearing connecting said arbor and rock-shaft, and an arm secured to said rock-shaft and against which the outer end of said sliding part is arranged to impinge, said arm being adjustable toward and away from the axis of the said rock-shaft, together with a distance-measuring device geared to the first-named shaft, substantially as set forth.

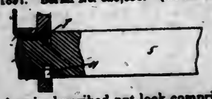
8. In mechanism of the character described, the combination with a sliding part, centrifugally-acting devices connected to said part to impart an endwise movement thereto in one direction, a spring arranged to act upon said sliding part in opposition to the action of the centrifugal devices, of an index-carrying arbor, a rock-shaft geared to said arbor, and an arm secured to said rock-shaft and forming a bearing for the said sliding part, said arm being adjustable toward and away from the axis of the said rock-shaft, substantially as set forth.

601,687. STEAM OR HOT-WATER HEATER. FRED SOOGLE, Brewer, Me. Filed Feb. 6, 1897. Serial No. 622,381. (No model.)



Claim.—The furnace, the boiler located above the fire-pot, a coil of pipe connected at its upper end to the boiler and extending spirally around it, and a second coil arranged inside of the fire-pot of the furnace, and forming a continuation of the coil which surrounds the boiler; a blow-off pipe, a pipe connected with both the blow-off pipe and the bottom of the boiler, a return-pipe, and a support for the boiler extending up from the top of the fire-pot, substantially as shown and described.

601,688. NUT-LOCK. SAMUEL W. TELFORD, Little Rock, Ark. Filed Mar. 1, 1897. Serial No. 625,653. (No model.)



Claim.—The herein-described nut-lock comprising the combination with a bolt having a screw-threaded extension and an annular groove at the base of said extension in which is formed a plurality of ratchet-teeth of a nut mounted on said screw-threaded extension, a pawl mounted in a chamber at the inner end of said nut and adapted to engage the ratchet-teeth formed in said groove and a lever mounted in a longitudinal bore or passage in said nut and provided at the outer end with an angular extension and at the inner end with a loop through which said pawl passes, substantially as and for the purpose described.

601,689. HOSE-COUPLING RESHAPER. GEORGE W. WALLIS, Saginaw, Mich. Filed Aug. 9, 1897. Serial No. 647,650. (No model.)

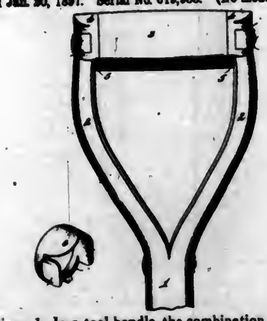
Claim.—1. A re-former for the nut-sections of hose-couplings, comprising a cylinder made of four or more duplicate sections held together by rubber bands fitting recesses in each end thereof, the sections held in alinement by a central ring fitting into a groove in each section, in line, a screw-threaded portion and a smooth portion on the outer surface of the sections adapted to engage the threaded portion of the coupling and the inner surface of the tailpiece respectively, a

central tapering core in the cylinder so constructed, and a mandrel having a conical portion adapted to pass into the tapering core of the cylinder and expand the same by forcing the sections apart and against the wall of the coupling and tailpiece, as and for the purpose set forth.



2. In a hose-coupling reshaper comprising a cylinder made up of sections, and means for expanding the same, the means for holding the sections thereof in transverse alinement comprising a horizontal groove in each section, in line and on the inside thereof, and a ring adapted to fit the groove in each section and thereby hold the sections in transverse alinement, as specified.

601,690. TOOL-HANDLE. JOHN P. WALTER, Edgerton, Ohio. Filed Jan. 20, 1897. Serial No. 619,955. (No model.)



Claim.—1. In a tool-handle, the combination with the hand-grip and the forked handle, of a ferrule fitted on the end of the hand-grip and having an integral pin to project into the side of the prong, integral wings adapted to be bent over onto the side of the prong, and an integral cap to fit over the end of the prong, substantially as described.

2. As a new article of manufacture, a ferrule comprising a ring portion, and a cap, side wings, and a pin or point, all projecting laterally in one direction from one face of the ring, substantially as described.

601,691. TREE-BOX. WILLIAM B. WATSON, Richmond, Ind., assignor of one-half to Seth F. Watson, same place. Filed Sept. 8, 1897. Serial No. 650,896. (No model.)

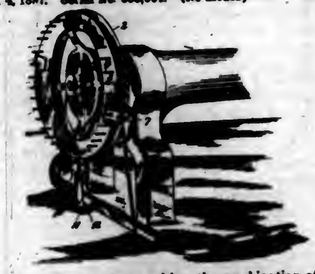


Claim.—1. A metallic tree-box comprising a number of rods arranged at intervals in circular form, and a ring at the upper end of said rods formed of angular sections pivoted together and adapted to be manipulated in the manner for the purpose substantially as described.

2. A metallic tree-box comprising a number of rods arranged in circular form by the employment of attached rings, a ring at the upper end of said rods formed of angular perforated sections pivoted together, and a band for the tree-trunk having tongues for engaging the perforations in the sections, substantially as described.

3. A metallic tree-box comprising a number of rods arranged in circular form by the employment of rings, a ring at the upper end of said rods formed of angular sections pivoted together, a band for the tree-trunk having tongues for engaging perforations in the upper ring, and means for anchoring the box to the ground consisting of points on the box, and pegs adapted for insertion in the ground and having bolt connection with the lowermost ring.

601,692. SEWING-MACHINE BRAKE. JOHN R. WEAVER, Commerce, Tex., assignor of one-half to Mike St. Clair, same place. Filed Oct. 4, 1897. Serial No. 653,961. (No model.)

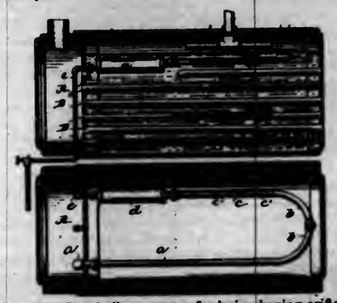


Claim.—1. In a sewing-machine, the combination of a series of pins supported to move with the shaft and concentric therewith, a vertical standard secured to the table, and a gravity-dog pivoted intermediate its ends to the upper end of the standard, with its upper end lying in the path of travel of the pins and its lower end normally engaging the standard, substantially as described.

2. In a sewing-machine, the combination with the shaft and the hand-wheel mounted thereon, of a ring secured to the hand-wheel and concentric to the shaft, a series of pins projecting outwardly from said ring, a vertical standard secured to the table of the machine, and a gravity-dog pivoted intermediate its ends to the upper end of said standard, with its upper end lying in the path of travel of said pins and its lower end normally engaging the standard, substantially as described.

3. In a sewing-machine, the combination with the shaft and the hand-wheel mounted thereon, of a flat metal ring of substantially the same diameter as the hand-wheel, a series of pins projecting outwardly from said ring, U-shaped clips adapted to embrace the peripheries of the hand-wheel and the ring, said clips having perforations near each end one of said perforations fitting over one of the pins, and the other perforation serving as a seat for a set screw to engage the inner face of the hand-wheel, a standard secured to the machine-table, and a gravity-dog pivoted to said standard with its upper end lying in the path of travel of said pins, substantially as described.

601,693. WATER-FEED FOR BOILERS. ALFRED B. WILLOUGHBY, Philadelphia, Pa. Filed May 18, 1897. Serial No. 637,095. (No model.)



Claim.—1. In a boiler, a water-feed pipe having orifices in said pipe within the boiler at the desired point for delivery of the water, a pipe secured to and extending beyond said pipe, the water-feed pipe opening into said last-mentioned pipe at or near its upper end, said last-mentioned pipe extending below the adjacent section of the water-feed pipe, and a normally-closed discharge-pipe opening from said extension-pipe at or near its lower end.

2. In a boiler, a water-feed pipe having orifices in said pipe above the horizontal center of the pipe within the boiler at the desired point for delivery of the water, a pipe secured to and extending beyond said pipe, the water-feed pipe opening into said last-mentioned pipe at or near its upper end, said last-mentioned pipe extending below the adjacent section of the water-feed pipe, and a normally-closed discharge-pipe opening from said extension-pipe at or near its lower end.

3. In a boiler, a water-feed pipe having orifices in said pipe within the boiler at the desired point for delivery of the water, a pipe secured to and extending beyond said pipe, the water-feed pipe opening into said last-mentioned pipe at or near its upper end, said last-

mentioned pipe extending below the adjacent section of the water-feed pipe, and a normally-closed discharge-pipe extending from said extension-pipe at or near its lower end, and a valve upon the discharge-pipe adapted when operated to open said pipe.

4. In a boiler, a water-feed pipe having orifices in said pipe above the horizontal center of the pipe within the boiler at the desired point for delivery of the water, a pipe secured to and extending beyond said pipe, the water-feed pipe opening into said last-mentioned pipe at or near its upper end, said last-mentioned pipe extending below the adjacent section of the water-feed pipe, and a normally-closed discharge pipe opening from said extension-pipe at or near its lower end, and a valve upon the discharge-pipe adapted when operated to open said pipe.

5. In a boiler, a water-feed pipe having orifices in said pipe within the boiler at the desired point for delivery of the water, an extension-pipe of larger diameter than the water-feed pipe and extending below the adjacent section of the water-feed pipe into which said feed-pipe opens, the discharge from said extension-pipe being normally closed.

6. In a boiler, a water-feed pipe having orifices in said pipe above the horizontal center of the pipe within the boiler at the desired point for delivery of the water, an extension-pipe of larger diameter than the water-feed pipe into which said feed-pipe opens, said extension-pipe extending below the adjacent section of the water-feed pipe, the discharge from said extension-pipe being normally closed.

7. In a boiler, a water-feed pipe having orifices in said pipe within the boiler at the desired point for delivery of the water, an extension-pipe of larger diameter than the water-feed pipe into which said feed-pipe opens, the said extension-pipe extending below the adjacent section of said water-feed pipe, the discharge from said extension-pipe being normally closed, a valve controlling the discharge from said extension-pipe and adapted when operated to open said pipe.

8. In a boiler, a water-feed pipe having orifices in said pipe above the horizontal center of the pipe within the boiler at the desired point for delivery of the water, an extension-pipe of larger diameter than the water-feed pipe into which said feed-pipe opens, said extension-pipe extending below the adjacent section of said water-feed pipe, the discharge from said extension-pipe being normally closed, a valve controlling the discharge from said extension-pipe and adapted when operated to open said pipe.

9. In a boiler, a water-feed pipe having orifices in said pipe within the boiler at the desired point for delivery of the water, an extension-pipe of larger diameter than the water-feed pipe into which said feed-pipe opens at or near its upper end, said extension-pipe extending below the adjacent section of the water-feed pipe, the discharge from said extension-pipe being normally closed.

10. In a boiler, a water-feed pipe having orifices in said pipe above the horizontal center of the pipe within the boiler at the desired point for delivery of the water, an extension-pipe of larger diameter than the water-feed pipe into which said feed-pipe opens at or near its upper end, said extension-pipe extending below the adjacent section of the water-feed pipe, the discharge from said extension-pipe being normally closed.

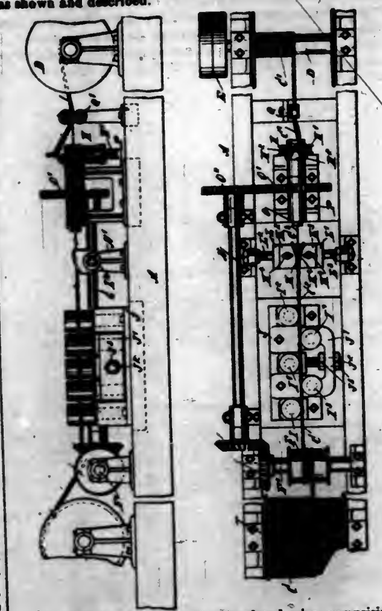
11. In a boiler, a water-feed pipe having orifices in said pipe within the boiler at the desired points for delivery of the water, an extension-pipe of larger diameter than the water-feed pipe into which said feed-pipe opens at or near its upper end, said extension-pipe extending below the adjacent section of said water-feed pipe, the discharge-pipe normally closed connecting with said extension-pipe at or near its lower end.

601,694. MACHINE FOR RESTORING INSULATED WIRE. NELSON WILSON, Portland, Oreg., assignor of one-third to Charles Nolen, same place. Filed Aug. 20, 1897. Serial No. 648,929. (No model.)

Claim.—1. A machine for restoring insulated wire, provided with a straightening device for straightening the old insulated wire, and a stripping device in advance of the said straightening device for removing the insulation from the wire, substantially as shown and described.

2. A machine for restoring insulated wire, comprising a winding-up device, for winding the straightened and new insulated wire, and imparting a traveling motion to the wire under treatment, a straightening device for straightening the old, insulated wire, a stripping device for removing the insulation from the wire, and a covering or wrapping device for winding new insulating fabric upon the stripped and straightened wire previous to winding up the new wire on the said winding device for winding up the finished wire, substantially as shown and described.

3. A machine for restoring insulated wire, comprising a straightening device for straightening the injured insulated wire, a stripping device forward of the said straightening device, for removing the old insulation from the straightened wire, and a covering or wrapping device in advance of the said stripping device, for placing a new insulating material on the straightened and stripped wire, substantially as shown and described.



4. A machine for restoring insulated wire, comprising sets of rolls between which the injured insulated wire passes to straighten the same, a pair of knives between which the straightened wire passes, to remove the old insulation therefrom, an arbor through which travels the stripped, straightened wire, and a spool-carrier on the said revoluble arbor, for winding a new insulating material upon the said wire, substantially as shown and described.

5. A machine for restoring insulated wire, comprising sets of rolls between which the injured insulated wire passes to straighten the same, a pair of knives between which the straightened wire passes, to remove the old insulation therefrom, an arbor though which travels the stripped, straightened wire, a spool-carrier on the said revoluble arbor, for winding a new insulated material upon the said wire, means for imparting a traveling motion to the wire, to pass the same through the said rolls, the knives and the arbor, and a drum driven from the said traveling wire, and connected with the said carrier, to rotate the same, substantially as shown and described.

6. A machine for restoring insulated wire, provided with a pair of knives having curved cutting edges between which passes the wire, the knives being laterally adjustable, substantially as shown and described.

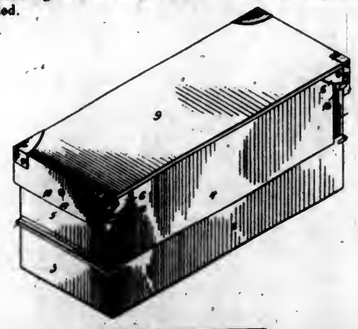
7. A machine for restoring insulated wire, provided with a pair of knives having curved cutting edges between which passes the wire, the knives being laterally adjustable, and means for setting the knives at a desired angle at their cutting edges relatively to the wire passing between the knives, substantially as shown and described.

601,695. SHIPPING CRATE OR CASE. EDGAR A. WOLFE and PETER E HART, Salt Lake City, Utah. Filed Apr. 28, 1897. Serial No. 634,940. (No model.)

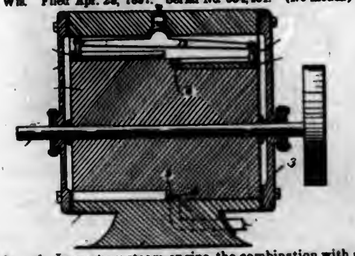
Claim.—1. A shipping-crate of two-part construction, one part consisting of a bottom, and side and end walls hingedly connected to the bottom to fold inwardly and occupy positions approximately parallel with the bottom, and said end walls and the ends of the bottom being provided with duplicate exterior projecting ribs arranged transversely parallel with the bottom, and the other part consisting of a top or cover, separable from the first-named part, and provided with fixed depending end flanges provided in their inner surfaces with grooves to receive the ribs and form an interlocking connection between the members of the crate, substantially as specified.

2. A shipping-crate comprising a body portion having a bottom provided with upstanding side and end flanges forming a receptacle, and side and end walls hingedly connected respectively to the side and end flanges of the bottom and adapted to fold inwardly over said receptacle to occupy positions approximately parallel with the bot-

tom, said end walls and the end flanges of the bottom being provided with duplicate outwardly-extending guide-ribs arranged parallel with the bottom; and a separate top or cover provided with fixed depending end flanges having their inner surfaces grooved to receive said guide-ribs, in combination with a transverse partition removably fitted at its side edges in vertical grooves in the side walls, substantially as specified.



601,696. ROTARY STEAM-ENGINE. ANTON ZWIEBEL, Burlington, Wis. Filed Apr. 29, 1897. Serial No. 634,401. (No model.)



Claim.—1. In a rotary steam-engine, the combination with a cylinder provided with inlet and exhaust ports, of a rotary piston arranged within said cylinder and provided at its ends on opposite sides with semicircular recesses, one of the end walls of each recess being provided with an impacting-shoulder and the other with an actuating-shoulder, and the side wall of each recess being provided with transverse apertures communicating with vertical apertures arranged to come opposite the inlet-ports of the cylinder, the vertical apertures of one set being in line with the vertical apertures of the other set, and impacting-heads secured to said cylinder and adapted to successively engage the recesses of the piston, substantially as set forth.

2. In a rotary steam-engine, the combination with a cylinder provided with inlet and exhaust ports, of a rotary piston arranged within said cylinder and provided at its ends on opposite sides with semicircular recesses, one of the end walls of each recess being provided with an impacting shoulder and the other with an actuating-shoulder, and the side wall of each recess being provided with transverse apertures communicating with vertical apertures arranged to come opposite the inlet-ports of the cylinder, the vertical apertures of one set being in line with the vertical apertures of the other set, impacting-heads secured to said cylinder and adapted to successively engage the recesses of the piston, and a connection between the impacting heads, whereby when one head is elevated by the operating-shoulder, the other head will be depressed or lowered into its recess in the piston, substantially as set forth.

601,697. TREE-PROP BRACKET. AMOS B. AMENT and MARCELLUS H. EVANS, Riverside, Cal. Filed Apr. 24, 1897. Serial No. 633,731. (No model.)



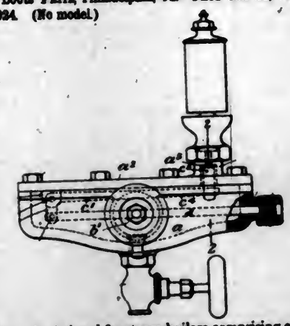
Claim.—A tree-prop bracket comprising the plate 1 provided with the approximately rectangular orifice 2 the converging ears 4 4 and semicircular edge 5 the lateral projecting teeth 12 12, and the integral convex-faced arm 9, substantially as shown and described.

601,698. BOTTLE-STOPPER. ALEXANDER BACKHAUS, Königsberg, Germany. Filed Dec. 30, 1897. Serial No. 664,654. (No model.)



Claim.—The combination with a receptacle having a shoulder around its opening, and an elastic stopping-cap provided with an inwardly-thickened edge to catch under said shoulder, of a depression formed in said shoulder and extended projections so arranged on the portion of the receptacle adjacent to its shoulder that a channel is formed for establishing communication between said depression and the atmosphere, substantially as and for the purpose stated.

601,699. SIGNAL FOR STEAM-BOILERS. HENRY BECHTEL and LOUIS FRITZ, Philadelphia, Pa. Filed Oct. 21, 1897. Serial No. 656,224. (No model.)



Claim.—1. A signal for steam-boilers comprising a casing in communication with the boiler, a valve-seat formed with said casing, a whistle attached to said valve-seat, a right-angular lever located inside the casing and hinged to a projection thereof, a horizontally-disposed expansion-rod located inside the casing and having one of its ends secured to the said casing and the other to one arm of the said lever, and a valve-stem fitting the said valve-seat and being connected to the other arm of the said lever, substantially as and for the purposes set forth.

2. A signal for steam-boilers comprising a casing in communication with the boiler, a valve-seat and a whistle connected with said casing, a right-angular lever located inside the casing and hinged to a projection thereof, a horizontally-disposed expansion-rod located inside the casing and having one of its ends adjustably secured to the said casing and the other to one arm of the said lever, and a valve-stem fitting the said valve-seat and being connected to the other arm of the said lever, substantially as and for the purposes set forth.

3. In a signal for steam-boilers, the combination with a casing, a valve-seat, a valve-stem, a lever and a horizontally-disposed expansion-rod located within said casing and having one end pivoted to said lever and the other end threaded and protruding from the said casing, of means for adjusting the said rod and valve-stem, comprising a nipple on said casing, a nut on said threaded end of the expansion-rod, and a jam-nut screwing over the said nipple, substantially as and for the purposes set forth.

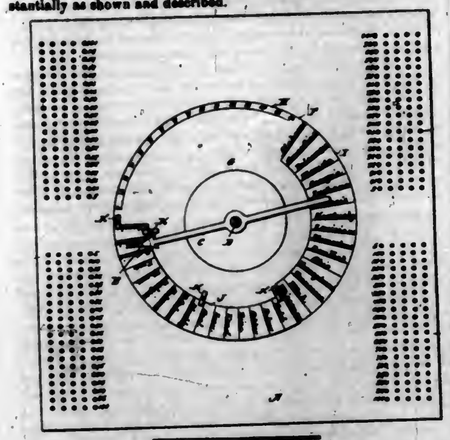
601,700. GAME APPARATUS. THOMAS BIRCH, Noblesville, Ind. Filed May 11, 1897. Serial No. 636,060. (No model.)

Claim.—1. A game apparatus, consisting of a base-board, a pointer pivoted to the center thereof so as to freely revolve, a circle formed around the center of said pointer, a series of numbers located within this circle, the names of certain States of the Union also located within the circle, and a segment having a number of names or designating terms thereon adapted to be detached from the board, as specified.

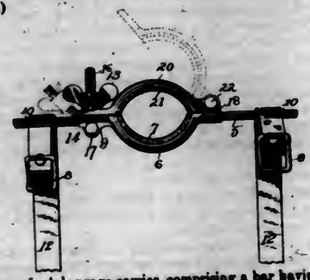
2. A game apparatus, consisting of a base-board having four series of holes formed therein for the reception of score-pins, a circle inscribed upon said board, a block located at the center of the circle, a pointer pivoted upon the block, a series of numbers located within the circle, the names of certain States of the Union located within the circle, and a segment having names thereon detachably secured to the board, as specified.

3. The herein-described combination of a base-board having four series of holes therein for the reception of score-pins, a block secured at the center of the board, a circle formed concentric with this block,

a pointer pivoted upon the block, a band inscribed within the circle and divided into spaces, each of which is numbered, a band I also inscribed within the circle and having the names of certain States of the Union thereon, a segment having certain names thereon, and turn-buttons for securing this segment in place relative to the circle, substantially as shown and described.



601,701. BICYCLE LUGGAGE-CARRIER. CHARLES J. BROWN, Long Island City, N. Y. Filed Jan. 14, 1897. Serial No. 619,274. (No model.)



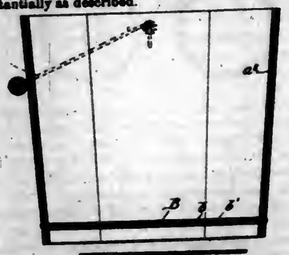
Claim.—1. A luggage-carrier comprising a bar having an arch intermediate its ends, slots in the bar adjacent one end of the arch, through said slots, a slot in the bar adjacent one end of the arch, an ear at each side of the slot, a bolt passed through the last-named slot and pivoted to the ears, an ear on the bar adjacent the opposite end of the arch and a second arch pivotally connected at one end with the last-named ear, and having a slotted extension at its opposite end adapted to receive in its slot the said bolt, and a clamping-nut upon the bolt adapted to draw the arches toward each other.

2. In a luggage-carrier, the combination with a bar having an arch intermediate its ends and slots in the bar adjacent its ends, of straps passed through said slots, a slot in the bar adjacent one end of the arch, an ear at each side of the slot at the base of the arch, a bolt passed through the last-named slot, a pivot passed through said bolt and engaging the said ears, an ear on the opposite side of the bar from the first-named ear and adjacent the opposite end of the arch, a second arch pivotally connected at one end with the last-named ear, and having a slotted extension at its opposite end adapted to receive the said bolt, a clamping-nut upon the bolt adapted to draw the arches toward each other and yieldable linings for the arches.

601,702. PAIL, &c. ANDREW BURGLAND, Chicago, Ill., assignor to Ellen Burgland, same place. Filed May 22, 1897. Serial No. 637,648. (No model.)

Claim.—1. As an article of manufacture, a hoopless pail composed of a series of layers of wood each layer consisting of a series of upright staves arranged edge to edge the joints of the respective layers breaking with those of the companion layer and the various layers being glued or cemented together, and a fixedly-secured bottom, substantially as described.

2. A hoopless wooden pail composed of a body portion made up of a plurality of layers each layer consisting of a series of staves arranged edge to edge the joints of one layer breaking with those of the other layers, the various layers being glued or cemented together, a bottom, and suitable fastening devices spanning the joints of the outer layer projecting through the layers and entering the bottom, substantially as described.



601,708. ARTIFICIAL DENTURE. EDWARD L. CHAFFIN, Helena, Ark. Filed June 26, 1897. Serial No. 642,494. (No model.)



Claim.—1. An improved artificial denture, comprising an anchor-bar fixedly joined to the natural teeth and an artificial tooth-carrying saddle, detachably secured to the said bar, as set forth.

2. The combination with the anchor, teeth having cavities formed in the palato-approximal portion thereof, cut flush with the gum margin, and the anchor-bar having its ends fixedly secured in such cavities, of an artificial tooth-holding body having a clasp portion to fit the said bar as specified.

3. As an improvement in artificial denture, the combination with the anchor-bar fixedly held to a pair of the natural teeth, of a saddle member adapted to slip over the bar, said saddle having a spring-clasp portion whereby to tightly engage the anchor-bar, and the artificial tooth or shells secured to such saddle as set forth.

601,704. MACHINE FOR CUTTING TREAD-FILLING STRIPS FOR WHEEL-TIRES. GEORGE H. CLARK, Boston, Mass. Filed July 28, 1897. Serial No. 646,223. (No model.)



Claim.—1. In a machine for cutting segmental strips, the combination of a rotating crown-knife, a work-rest in front of and projecting into it a short distance only, and made of a width to closely fit within said knife, an edge guide located in front of and close to said knife, and a top guide for the strip located above the knife, substantially as described.

2. In a machine for cutting segmental strips, the combination of a hollow rotatable shaft having a crown-knife at one end, a work-rest in front of and projecting into said knife a short distance only, and made of a width to closely fit within said knife, an edge guide located in front of and close to said knife having a portion which projects laterally over said work-rest, and which serves as a top guide, and means for adjusting said edge guide whereby said top guide may occupy different elevations above the knife, substantially as described.

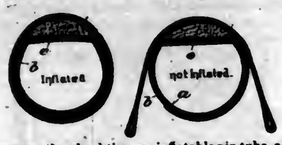
3. In a machine for cutting tread-filling strips for wheel-tires, the combination of a rotating crown-knife, and a work-rest in front of and projecting into it, and made of a width to closely fit within said knife, and an adjustable edge and top guide secured to one side of said work-rest close to said knife, substantially as described.

4. In a machine for cutting tread-filling strips for wheel-tires, the combination of a rotating crown-knife, and a work-rest in front of and projecting into it, and made of a width to closely fit within said knife, and an edge and top guide for the strip said top guide located above said work-rest and above the knife, substantially as described.

601,705. PNEUMATIC WHEEL-TIRE. GEORGE H. CLARK, Boston, Mass. Filed Sept. 21, 1897. Serial No. 652,454. (No model.)

Claim.—1. A pneumatic wheel-tire comprising an inflatable air-tube, an expansive sheath of fabric containing it, and a non-extensible circular protecting-strip, segmental in cross-section, at the tread

side of said sheathed tube, all of said parts being vulcanized together and producing, when inflated, an egg-shaped tire, substantially as described.

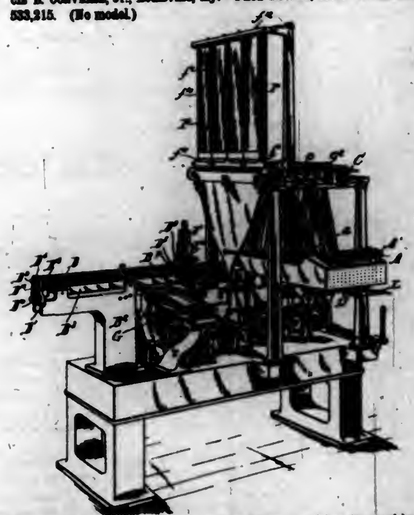


2. In a pneumatic wheel-tire, an inflatable air-tube, an expansive sheath containing it, a non-extensible circular protecting-strip at the tread side of said sheathed tube, comprising essentially a circular strip of cork, segmental in cross-section, and composed of two or more cork strips scarfed at the ends and secured together, and an outer covering for the tire, substantially as described.

3. A pneumatic wheel-tire comprising an inflatable air-tube, contained within an expansive sheath, a non-extensible protecting-strip at the tread side of said sheathed tube, composed of a circular strip of cork, segmental in cross-section and a non-extensible strip of fabric secured thereto, all of said parts being vulcanized together, substantially as described.

4. A protecting-strip for pneumatic wheel-tires consisting of a circular strip of cork, segmental in cross-section, and composed of two or more cork strips scarfed at the ends and secured together, and a non-expansive strip of fabric secured to said segmental strip, substantially as described.

601,706. TYPE SETTING AND JUSTIFYING MACHINE. FRANCIS R. CONVERSE, Jr., Louisville, Ky. Filed Dec. 30, 1894. Serial No. 533,215. (No model.)



Claim.—1. In a type setting and justifying machine, in combination, a line-holder, temporary spreading spacing devices adapted to be inserted between types as they are composed therein, mechanism for inserting said devices in the line, retarding mechanism connecting said inserting mechanism with a controlling-key whereby all actuation of the key causes the operation of the inserting mechanism after the lapse of a predetermined interval of time and whereby a second impulse of the key before the completion of the insertion of the first spacing device will be communicated to the inserting mechanism and cause the insertion of a second spacing device, for the purpose specified.

2. In a type-setting mechanism, in combination, a set of operating-keys, a set of type-cases, mechanism controlled by said keys for ejecting types from said cases, converging chutes leading from the points of ejection to a common point, each of said chutes having a roller at its upper end against which the foot end of the ejected type falls, for the purpose specified.

3. In a type-setting mechanism, in combination, a set of finger-keys, a set of type-cases, a set of bars capable of ejecting types from their cases, said bars having teeth upon their upper and under sides and being movable longitudinally and having some part thereof capable of being raised by a movement other than its longitudinal movement into connection with a revolving gear-cylinder above said bars and extending across them, mechanism operated by said finger-keys for so raising said ejector-bars into connection with said cylinder whereby said ejector-bars are moved to eject types from their corresponding cases, a second gear-cylinder below said bars and extending across them, and means whereby said ejector-bars automatically drop into connection with said latter cylinder when they reach the forward end of their stroke whereby they are returned to their original positions, substantially as and for the purposes specified.

4. In a type-setting mechanism, in combination, a set of finger-keys, a set of corresponding type-cases, a set of bars capable of longitudinal movement for ejecting types from their cases, a revolving member extending across said bars above the same and one extending across the bars below them, said bars having some portion thereof capable of a movement other than their longitudinal movement whereby they may be raised into connection with said upper revolving member, raising-fingers located beneath said bars, mechanism connecting said raising-fingers with the finger-keys whereby an actuation of a finger-key causes its corresponding raising-finger to raise an ejector-bar into connection with the upper revolving member and hold it there until it has completed its forward stroke, a notch on the under side of each ejector-bar so situated that it comes over the raising-finger when the bar has ejected its type from its case, said notch being of such dimensions that when it comes over the raising-finger the ejector-bar drops out of connection with the upper revolving member and into connection with the lower revolving member whereby the ejector-bar is returned to its original position, and means for releasing the connection between the lower revolving member and the said ejector-bar when the latter shall have returned to its said original position, substantially as and for the purpose specified.

5. In a type-setting mechanism, the combination of a finger-key, a pivoted raising-finger, an ejector-bar having a raisable portion above said raising-finger, a revolving member above said bar, mechanism connecting said raising-finger with a finger-key whereby a depression of the finger-key causes the operative end of the raising-finger to raise its corresponding ejector-bar into connection with the said revolving member, the perpendicular distance between the pivot of the raising-finger and its corresponding ejector-bar when elevated bearing such proportion to the length of the raising-finger between its pivot and its operative end that when the raising-finger raises the ejector-bar into contact with the revolving member the raising finger will be in a position near enough vertical to remain elevated and hold the ejector-bar in contact with the revolving member after the depressing force is removed from the finger-key, for the purpose specified.

6. In a type-setting mechanism, the ejector-bar *d*, formed with an oscillatable tail *d'*, said tail having gear-teeth upon its upper and lower sides, in combination with the toothed revolving members *e* and *e'*, substantially as described.

7. In a type-setting mechanism, in combination, a set of finger-keys, a corresponding set of type-cases, there being one type-case for each finger-key and one or more additional type-cases for some of the keys of the most commonly used characters, an ejector-bar for each type-case adapted to eject types therefrom, mechanism connecting the finger-keys with corresponding ejector-bars whereby a depression of a key causes the ejection of its corresponding type, and a set of individual shifting mechanisms each corresponding to a character of which there are additional type-cases and each operating to independently shift the mechanism connecting a key of a character to which there corresponds more than one type-case with the ejector-bars for said cases, whereby one key may operate to cause the ejection of types from one type-case until they are exhausted and then its connecting mechanism may be shifted and it may cause the ejection of types from another type-case, for the purpose specified.

8. In a type-setting mechanism, in combination, a set of ejector-bars having raisable portions, a corresponding set of raising-fingers, each operating upon the raisable portion of its corresponding ejector-bar, a shifting rod operating to change the relative position existing between a raising-finger and the ejector-bar whereby said raising-finger may operate successively upon more than one ejector-bar, for the purpose specified.

9. In a type-setting mechanism, in combination, a set of finger-keys, a set of rocking shafts connected therewith, a set of raising-fingers actuated by said rocking shafts, said raising-fingers being loosely journaled upon a shaft and being operative upon the raisable portions of a set of ejector-bars, and one or more shifting rods whereby one or more of said raising-fingers may be made to successively operate upon more than one of said ejector-bars, for the purpose specified.

10. In a type-setting mechanism, a type-case from off the bottom of which types may be ejected singly in a path which is substantially a straight prolongation of the position occupied by the bottom type in the case, said bottom being formed substantially as described and having some portion which is out of contact with the lowest type when the same lies flatly on the bottom of the case, whereby the types are prevented from descending askew, for the purpose specified.

11. In a type-setting mechanism, a type-case from off the bottom of which types may be ejected singly in substantially the same horizontal plane in which the bottom type lies, said bottom being made with a depression therein, whereby the types are prevented from coming down askew and are allowed to descend evenly, substantially as described and for the purpose specified.

12. In a type-setting mechanism, a type-case from off the bottom of which types may be ejected singly, the forward part of said bottom having a groove therein, said groove being located far enough back from the front edge of the bottom so that there is a portion of the said bottom forming a wall in front of the groove, said groove operating to insure the descension of the type evenly, whereby the sticking of the lowest type in a position where the ejector-bar cannot eject it is prevented, in combination with an ejector-bar adapted to enter the type-case from behind and above the lowest type therefrom, substantially as described.

13. In a type-setting mechanism, a bank of type-cases having rigid sides, back and partitions and a removable end, said end being held in place by a pin passing through each side of the case and into said end and held therein by a spring to which it is attached, in combination with mechanism operating upon the spring and adapted to withdraw the pin from the said end and hold it out of contact therewith, whereby the said end may be removed, substantially as described.

14. In a type-setting mechanism, the bank of type-cases P having the removable end *b*, in combination with the spring b^3 and pin *b* projecting from said spring through a hole in the side of the bank and into a hole in the end *b*, and the wedge-faced bar b^4 adapted to come under the said spring b^3, substantially as described and for the purpose specified.

15. In a type-setting mechanism, a bank of type-cases held in a substantially vertical position and being capable of being removed from its supports by first being tipped backward at its upper end, in combination with a front hinged at its lower end and capable of backward movement at its upper end, and a stop to limit said backward movement, substantially as described.

16. In a type-setting mechanism, the chute-plate g^{13}, constructed with channels therein, said channels being so disposed that they from chutes leading from the various points near the top of said chute-plate to a common point near the bottom thereof, in combination with a ledge *g* hinged to the top of said chute-plate, guides *g'* secured to said ledge, the spaces between said guides forming continuations of the channels in the chute-plate, and the piece g^{11} secured to said guides, substantially as described.

17. In a type-setting mechanism, in combination, type-cases, from which types are ejected singly, a ledge to receive and support the face end of a type so ejected, guides between which said type is free to fall and a roller so placed and revolved as to receive the falling end of said type and assist the downward movement thereof, for the purpose specified.

18. In a type-setting mechanism, chutes converging into a common channel through which types may fall, in combination with a wheel placed tangentially to the line of travel of types through said common channel, said wheel being on an axis capable of translation in such manner that the distance between the circumference of the wheel and the opposite wall of the channel may be varied, for the purpose specified.

19. In a type-setting mechanism, in combination, the wheel *h*, the oscillatable support h^2 carrying the same, and the gears h^3 and h^4—the axis of rotation of said gear h^4 being substantially the same as the axis of oscillation of said support h^2, substantially as and for the purpose specified.

20. In a type-setting mechanism, in combination with a channel down which types may fall, the yielding wheel *h*, and the advancing wheel *h'*, said wheels being so placed that a type passing down said channel may come into contact with the wheel *h'* before leaving the wheel *h*, substantially as and for the purpose specified.

21. In a type-setting mechanism, in combination, the wheel *h*, the shaft h^6, the gears h^7 and h^8, the gears h^9 and h^{10}, the shaft h^{11}, and the wheel *h'*, substantially as described.

22. In a type-setting mechanism, a movable line-holder having a flange thereon against which a type may be set up, in combination with a revolving wiper-wheel having a plurality of arms whereby one of said arms is adapted to receive the foot end of a type descending from above and lower the type while the following arm advances the type and thereby moves the line-holder forward a distance equal to the thickness of said type, for the purpose specified.

23. In a type-setting mechanism, in combination, a traveling line-holder, a bar capable of a limited movement with the line-holder, means whereby said bar is connected with the line-holder and moved with it a certain predetermined distance and then passes out of moving connection with said line-holder and is held stationary until said line holder has moved a predetermined additional distance when said bar is released, a spring serving to retract said bar when released and means whereby the retraction of said bar causes a signal to be given indicating that the line-holder has reached a certain predetermined point, for the purpose specified.

24. In a type-setting mechanism, a traveling line-holder *i* in combination with a bar *z* capable of a limited longitudinal movement, projections z^2 and *z'* upon said bar, a supporting-surface for said bar having a depression z^3 therein, a spring z^4 tending to retract said bar, a hammer z^5 arranged to strike a gong z^6 when said bar is retracted, substantially as described.

25. In a mechanism for justifying a line of type, in combination, one or more line-holders adapted to receive and hold a line of type and spacing devices, and to be moved successively to a position where it is filled with type and spacing devices, to a position where space-blanks are substituted for the spacing devices, to a position where the line of type is delivered from the line-holder, and thence again to the first position mentioned; means whereby said line-holder is automatically carried to these successive positions: one or more spacing devices independent of said line-holder, capable of being inserted between types in the line-holder and of being withdrawn from the line-holder and returned to the position from which they were inserted into the line; and means for inserting such spacing devices, for withdrawing them and for returning them to the position from which they were inserted in the line, for the purpose specified.

26. In a mechanism for justifying a line of type, in combination with two or more traveling line-holders, a series of independent wedges supported in position to be inserted between types in the line of one of said line-holders, mechanism for inserting the same, mechanism for withdrawing said wedges and supporting them independent of said line-holder, and means for returning them to position for insertion between the types of a succeeding line-holder, for the purpose specified.

27. In a justifying mechanism, the combination of a traveling line-holder, wedges interposed between the words thereon and carried therewith, said wedges having eyes adapted to receive a guide, mechanism for withdrawing said wedges, a guide adapted to engage with said eyes, and means for propelling said wedges along said guide, for the purpose described.

28. The combination of a reciprocating mechanism adapted to support a line-holder; a space-magazine having discharge-orifices; a line-holder adapted to receive and contain and support a line of types and wedges; a bumper toward which the reciprocating mechanism moves and against which the wedges impinge; and mechanism affording sufficient retrograde movement of the line-holder to cause the line of type to register with one of the orifices of the space-magazine, for the purpose specified.

29. In a justifying mechanism, the combination of a traveling line-holder, a reciprocating platform capable of supporting said line-holder, a rack and pawl serving to sustain the platform temporarily against return movement, for the purpose specified.

30. In a justifying mechanism, the combination of a traveling line-holder carrying types and temporary spacing devices, means for moving the same crosswise of the line, a rack and pawl serving to sustain the same temporarily against return movement, said rack having notches corresponding with the orifices of a space-magazine, for the purpose described.

31. In a justifying mechanism, in combination, a reciprocating platform, means for supporting thereon a line of types and spacing devices, a detent serving to sustain the platform temporarily against return movement, mechanism for removing the spacing devices from the line, and mechanism for throwing said detent out of action after the last spacing device has been removed, for the purpose specified.

32. In a justifying mechanism, a traveling line-holder adapted to carry a line of type upon its upper side, in combination with a reciprocating bar beneath said line-holder, said bar carrying a trip adapted to engage with said line-holder whereby an advancement of the bar advances the line-holder while a retraction of the bar does not retract the line-holder, substantially as specified.

33. In a type-justifying mechanism, in combination, a line-holder, spacing-wedges between types in a line contained therein, a bumper adapted to drive in said wedges and having its bumping-face at an angle to the line of type, said angle being unchanged during the operation of bumping, whereby wedges near one end of the line are driven farther in than wedges near the other end, for the purpose specified.

34. In a justifying mechanism, in combination, a line-holder, temporary spreading spacing devices between types in a line contained therein, means for causing said devices to increase the line-spaces, means for substituting space-blanks for the spacing devices, and means for preventing this substitution when the increase of line-space is more than or less than a predetermined amount, respectively, for the purpose specified.

35. In a type-justifying mechanism, in combination, a line-holder,

temporary spacing devices between types in a line contained therein and adapted to spread the line by being moved through it, means for moving said devices through the line, means for advancing the line-holder which are thrown into operation only when the wedges have been advanced more than a predetermined minimum and less than a predetermined maximum, for the purpose specified.

36. In a type-justifying mechanism, a series of wedges and mechanism for inserting the same thin end foremost in a direction transverse to the length of a type into a line of type being assembled, in combination with a wiper-wheel adapted to force forward the line set up, and means for diverting the point of a wedge being inserted from the arms of the wiper-wheel while permitting the insertion of the thin end of the wedge between the wiper-wheel and the type, for the purpose specified.

37. In a justifying mechanism, a wedge less in height than the types with which it is to be used, and having a notch near its large end, substantially as described.

38. In a justifying mechanism, a wedge less in height than the types with which it is to be used, and having an eye through it, substantially as described.

39. In a justifying mechanism, a wedge less in height than the types with which it is to be used and having an eye through it and a notch near the large end thereof, substantially as described.

40. In a justifying mechanism, a wedge having a straight extension at each end thereof, and having a notch in the larger of said extensions, substantially as described.

41. In a justifying mechanism, a wedge having a straight extension at each end thereof, and having an eye through the larger one of said extensions, substantially as described.

42. In a justifying mechanism, a wedge having an extension at each end thereof, and having an eye through, and a notch in, the larger one of said extensions, substantially as described.

43. In a justifying mechanism, a traveling line-holder having recessed flanges at the ends thereof and a rabbeted edge, substantially as described.

44. In a justifying mechanism, a traveling line-holder having recessed flanges at the ends thereof, and having feet on the under side thereof, substantially as described.

45. In a justifying mechanism, a traveling line-holder adapted to carry a line of type and wedges interposed therein and engaging therewith, said wedges being adapted to be moved across the line-holder through the line, said line-holder having a surface adapted to stand under the center of gravity of said wedges when resting in any engaging position upon the same, whereby gravity holds said wedges in place, for the purpose specified.

46. In a justifying mechanism having a series of space-blanks and wedges tapering to correspond therewith, a line-holder having a rabbet along its front edge, and adapted to carry a line of type thereon, and having extending from said rabbet a plain surface at least as many times greater than the width of the rabbet as there are different-sized space-blanks whereby the wedges corresponding to said space-blanks may be supported by said surface, substantially as and for the purpose specified.

47. In a justifying mechanism, the combination with a space-magazine adapted to hold a graduated series of space-blanks in order across the same, and a series of wedges tapering to correspond therewith, of a line-holder adapted to support a line of type, and having a surface extending back of said line a distance at least as great as the internal width of said space-magazine, and thereby adapted to support said wedges and permit the same to rest by gravity upon said surface, substantially as and for the purpose specified.

48. In a justifying mechanism, a traveling line-holder i, having the recessed flange i^3 at each end thereof, having the rabbeted edge i^6, and having the feet i^5 and i^8, substantially as described.

49. In a justifying mechanism, the wedge-withdrawing device consisting of the block w^4 having the flange w^7, the pawl w^8, and the lever w^9, substantially as described.

50. In a justifying mechanism, the wedge-withdrawing mechanism, consisting of the block w^4, the guide w^5, the pawl w^{13}, and the rod j', substantially as described.

51. In a justifying mechanism, the combination with a wedge having an eye through it, of the rod j' and the sliding block j^5 carrying the trip j^6, substantially as described.

52. In a justifying mechanism, in combination with a space-magazine, the space-plungers F, the cross-head F^6 carrying the block F^9 to engage said plungers, substantially in the manner described.

53. In combination with the space-magazine of a type-justifying mechanism, the plunger-frame F, the plungers F' having lugs F^7, the cross-head F^6 slidable longitudinally on said frame, the block F^9 slidable transversely in said cross-head and operating to engage one of said lugs F^7, substantially as described.

54. In a justifying mechanism, in combination, the space-magazine, the vertically-movable cross-head F^6 carrying the sliding block F^9, said block being so connected with the platform that, while having an independent vertical movement, it partakes of the transverse movement of said platform, substantially in the manner described.

55. In a justifying mechanism, in combination with the platform p, the rack R, the pawl R', the catch R^2, substantially as described.

56. In a justifying mechanism, in combination with the platform p, the rack R, the pawl R', having the arm R^3, and the leg R^4, substantially as described.

57. In a justifying mechanism, in combination, the bumper m', the platform p, movable toward said bumper, for the purpose specified.

58. In a justifying mechanism, in combination, the bumper m', the platform p, the rack R, and the pawl R', substantially as described.

59. In a justifying mechanism, in combination with the movable bumper m, the raising-bar x partaking of the motion of said movable bumper, the rod x^6, the lever x^7, the shaft x^4 and the detent x^5, substantially as described.

60. In a justifying mechanism, in combination with the space-magazine, the framework D carrying the slats D^2 upon which are hung the followers D^7, said followers being pulled forward by cords to which weights are attached, substantially in the manner described.

61. In a justifying mechanism, the platform p, the springs p^{11} and p^{12} suitably connected with the platform and tending to move it in opposite directions, one of the said springs being stronger than the other, in combination with mechanism adapted to counteract the force of the stronger spring whereby the platform is moved by the weaker spring in the direction of its tendency, for the purpose described.

62. In a justifying mechanism, in combination, the platform p, the lever p^{10} connected therewith loosely whereby it may move the platform in one direction but not in the other, means acting upon said lever and tending to pull the platform forward, weaker means tending to pull the platform rearward, and a cam operating to move said lever in the direction to overcome its pull upon the platform whereby the latter is moved by the weaker means, for the purpose specified.

63. In a justifying mechanism, in combination, the platform p, the lever p^7 connected therewith, the spring p^{11} acting through said lever and urging the platform rearward, the lever p^{14}, and the spring p^{12} acting upon the latter lever and urging the platform forward, substantially as described.

64. In a justifying mechanism, in combination, the guide j^3, the block j^4 slidable along the same, the lever j^{10} connected with said block, the cam j^{11} forcing said lever in one direction, and the spring j^{12} forcing it in the other direction, substantially as described and for the purpose specified.

65. In a justifying mechanism, the wiper-wheel X, having the substantially conical face X^{16}, substantially as described and for the purpose specified.

66. In a justifying mechanism, a traveling line-holder having recessed ends, a galley, a finger projecting across the width of the galley in such position that as the line-holder advances it will pass through the recesses in the ends thereof and be in a position behind the line of type therein, in combination with mechanism adapted to advance said finger and thereby move the line of type from the line-holder into the galley and then retract said finger back of its original point of rest and thereby carry the line-holder with it, substantially as and for the purpose described.

67. In a justifying mechanism, the finger g^3 extending across the mouth of a galley and adapted to enter behind the line of type carried by a traveling line-holder, the lever g^2 connected with said finger, and the cam g so operating said finger that it moves forward shoving the line of type from the line holder into a galley, and then moves rearward back of its original point of rest and carries the line-holder with it, substantially as described.

68. In a justifying mechanism, a traveling line-holder adapted to support a line of type upon its upper side, said line-holder having feet i^9 adapted to slide in a groove i^{10} in the track i^{16}, in combination with rails i^2 and i^4 adapted to confine the line of type supported upon the upper side of said line-holder, substantially as described.

69. In a justifying mechanism, a line-holder having a recessed flange or wall against which the first type in the line bears, in combination with means for preventing said first type from entering the recess in said wall as it is being inserted in the line-holder, for the purpose specified.

70. In a justifying mechanism, in combination, a traveling line-holder, a track g^{12} along which said line-holder may slide, a revolving screw operating to propel said line-holder along said track, substantially as described.

71. In a type-justifying mechanism, in combination, a line of type, mechanism for inserting spacing devices between types in the line, a lever c^3 operating to throw said mechanism into action, a bar c^6 having a lug c^7 thereon which may be brought into contact with said lever and cause it to operate, means for retracting said lug from engagement with said lever, a revolving shaft c^9, and mechanism actuated when desired causing said bar c^6 to be brought into engagement with said shaft when the lug on the said bar c^7 is out of engagement with said lever c^3, substantially as described.

601,707. RAIL-BOND. JOHN J. DAIRTON, Chicago, Ill. Filed Feb. 15, 1897. Renewed Mar. 9, 1898. Serial No. 673,275. (No model.)



Claim.—1. A rail-bond provided with terminal sleeves entering tapered holes in the rail web or flange from the larger end of the hole and removably expanded therein by tapered drift-pins inserted from the same side as the rail-bond, said drift-pins being longer than the terminal and arranged to project at each end thereof and the end of the terminal being left substantially flush with the face of the rail so as to prevent the expansion of the metal under the action of the drift-pin from forming a bead or head to interfere with the removal of the bond.

2. A rail-bond provided with tapered terminal sleeves entering tapered holes in the rail web or flange from the larger side of the hole and removably expanded therein by tapered drift-pins inserted from the same side as the rail-bond, said terminals being counterbored throughout the portions thereof external to the rail, and the drift-pins being of greater length than the terminals and arranged to project at each end of the latter.

601,708. MAGAZINE-FIREARM. ROBERT DIMMOCK, Passaic, N. J., assignor of three-fourths to Charles B. Dunn and Paul R. Lafferts, same place, and Paul R. Van Mater, Washington, D. C. Filed Mar. 16, 1897. Serial No. 627,280. (No model.)



Claim.—1. In a firearm, the combination with a gun frame, barrel, and stock, of a cartridge-passage communicating between the gun-barrel and the stock, a cartridge-feed mechanism, a reciprocating breech block working within the gun-frame, a locking-block movably secured to the breech-block, and an actuating connection between the cartridge-feed mechanism and the locking-block, arranged to lock the block in place when in firing position, substantially as set forth.

2. In a firearm, the combination, with a gun frame, barrel, and stock, of a cartridge-passage communicating between the gun-barrel and the stock, a cartridge-feed mechanism, a reciprocating breech-block working within the gun-frame, a locking-block movably secured to the breech-block, and a folding connection between the locking-block and the feed mechanism, whereby the block, when moved from its firing position, may be folded down close to the feed mechanism, within the gun-frame, substantially as and for the purpose set forth.

3. In a firearm, the combination with a frame, barrel, stock having a cartridge-passage therein, and a cartridge-passage between the stock and barrel, of a reciprocatory feed-slide for advancing the cartridges from the stock, a reciprocatory breech-block working within the gun frame in rear of the barrel, a locking-block secured to the breech-block and movable out of line with the barrel, to a position within the gun-frame, and a folding connection between the locking-block and the feed-slide, substantially as set forth.

4. In a gun, the combination with a frame, barrel, and stock, of a laterally-disposed passage for the cartridges between the stock and barrel, a feed mechanism provided with means extending into the passage and which act upon the cartridges while within such laterally-disposed passage to advance them through it, a reciprocatory breech-block working within the frame in the rear of the barrel, means for actuating the breech-block, and means for actuating the feed mechanism, substantially as set forth.

5. In a gun, the combination with a frame, barrel, stock, and cartridge chamber or passage within the stock, of a laterally-disposed passage establishing communication between the magazine-chamber and the barrel, a feed-slide provided with means for advancing cartridges through the passage, a reciprocatory breech-block working within the frame in the rear of the barrel, and means for actuating the breech-block connected with the feed-slide, substantially as set forth.

6. In a firearm, the combination with a frame, barrel, stock, and cartridge-passage within the stock and frame communicating with the barrel, of a feed-slide provided with means for advancing cartridges through the passage, a locking-block also provided with means for advancing cartridges through the passage, and means for actuating the locking-block and feed-slide, respectively, substantially as set forth.

7. In a firearm, the combination with a frame, and section of cartridge-passage within the frame, of a breech-block and locking-block movably secured thereto, means upon the locking-block for advancing a cartridge within the passage to a position in front of the breech-block, and mechanism for actuating the locking-block, substantially as set forth.

8. In a firearm, the combination with a frame, stock, and cartridge-passage partially within the frame and partially within the stock, of a feed-slide provided with means for actuating a cartridge through the passage within the stock, a locking-block provided with means for actuating the cartridge through the passage within the frame to a position in front of the breech-block, and means for actuating the feed-slide and locking-block, respectively, substantially as set forth.

9. In a gun, the combination with a frame adapted to be secured at one end to a barrel, and at the other end to a stock, of a movable breech-block within the frame, a locking-block movably secured to the breech-block, means for operating the locking-block, and a connection between said means and the locking-block provided with engaging parts which are brought into supporting contact with the frame at the final closing movement of the parts, substantially as set forth.

10. In a firearm, the combination with a frame adapted to be secured at one end to a barrel, and at the other end to a stock, of a movable breech-block within the frame, a locking-block movably secured to the breech-block, a feed-slide working in the frame, a link pivotally connected at one end to the locking-block, and at the other end to the feed-slide, means of direct contact between the link and the locking-block at one end, and through the feed-slide with the frame at the other, and mechanism adapted to actuate the feed-slide, and to interpose the link vertically between the frame and the locking-block, substantially as set forth.

11. The combination with a gun-frame, an abutment-face on the forward end thereof, of a reciprocatory breech-block within the frame, a locking-block pivotally secured to the breech-block, a fulcrum extension upon the locking-block adapted to bear against the abutment-face upon the frame, to start the breech-block, and means for actuating the locking-block, substantially as set forth.

12. In a firearm, the combination with a reciprocatory breech-block, and mechanism for actuating it, of a firing-pin movable within the breech-block and having an extension which works in a longitudinal groove in the gun-frame, and a stop-shoulder against which said extension strikes for intercepting the rearward movement of the firing-pin, substantially as set forth.

13. In a firearm, the combination with a reciprocatory breech-block, of a spring-hook carried thereby and adapted to engage the heel of a cartridge, a stop located at one side of the path of said block, and a firing-pin movably mounted in said breech-block and extended so as to engage with said stop when the block is drawn backward, substantially as and for the purpose described.

14. In a firearm, the combination with a gun-frame having one of its sides provided with a groove or depression, of a movable locking-block mounted within the gun-frame, means for actuating the block, a spring-actuated plunger within the block having a lateral projection which enters the said groove or depression, a sear also extending within the said groove or depression for engaging with said projection, and a trigger operatively connected with the sear, substantially as set forth.

15. In a firearm, the combination with a breech-block, and a relatively movable firing-pin carried thereby, of a locking-block connected to the breech-block, means for actuating said blocks, a spring-actuated plunger mounted in the locking-block, a sear for engaging said plunger, and a trigger operatively connected to said sear, substantially as described.

16. In a firearm, the combination with a movable breech-block, of a locking-block connected thereto, means for actuating said blocks, a plunger mounted in the locking-block, and provision for holding the plunger back as the locking-block is advanced, substantially as described.

17. In a firearm, the combination with a movable breech-block, of a locking-block connected thereto, means for actuating said blocks, a plunger mounted in the locking-block, and means operative by the trigger for holding and releasing said plunger, substantially as described.

18. In a firearm, the combination with a gun-frame, a movable sear, a movable plunger-containing member, plunger and spring, and means for giving to the plunger-containing element irregular movements, whereby in traveling in one direction it is caused to take one path, and when traveling in the other direction, another path of intermittently-operative connecting mechanism uniting the plunger and sear, whereby the plunger is caught by the sear in its movement in one direction and not in the other, substantially as set forth.

19. In a firearm, the combination with a gun-frame having one of its sides provided with a groove or depression, of a sear extending within such groove or depression, a trigger operatively connected therewith, a movable plunger-containing element mounted within the gun-frame, a plunger and spring within such element, the plunger being provided with a projection which extends into said groove or depression, and is adapted to engage with the sear, and means for giving to the plunger-containing element irregular movements, whereby when it is moved in one direction it is caused to take one path, and when moved in the opposite direction to take another path, substantially as set forth.

20. In a firearm, the combination with a gun-frame, movable sear, and movable element, for example, a locking-block, working within the frame, of a groove in the sear, and in the frame, respectively, and a stud upon the movable element working within the groove in the frame and sear, respectively, substantially as and for the purpose specified.

21. In a firearm, the combination with a gun-frame, and movable sear, provided with a plunger-stud-engaging face, of a movable breech-block within the frame, a locking-block movably secured thereto, a plunger and plunger-spring within the locking-block, and a plunger-stud adapted to engage and ride upon the face of the sear during the movement of the locking-block to the firing position, substantially as set forth.

22 In a firearm, the combination of a gun-frame provided with a groove having a plurality of guiding edges or surfaces, a reciprocatory breech-block, a locking block movably secured thereto, and carrying a projecting stud which extends into the aforesaid groove, whereby when the locking-block is moved in one direction it is directed in one course, and when moved in the opposite direction is directed in a different course, a reciprocatory hand-grip, and connections between the said hand-grip and the said blocks, substantially as set forth.

23. In a firearm, the combination of a gun-frame provided with a groove, a reciprocating breech-block, a locking-block movably secured thereto, and carrying a laterally-projecting stud working in said groove, a reciprocating hand-grip mounted on the barrel, a feed-slide connected thereto, and a link interposed between the feed-slide and locking-block, substantially as described.

24. In a firearm, the combination with a gun-frame provided in its inner wall with a groove, of a movable breech-block, a locking-block connected thereto, locking-block-actuating mechanism, a reciprocatory plunger within the locking-block, and a stud on the plunger working in the groove in the gun-frame, substantially as and for the purpose described.

25. In a firearm, a gun-frame provided in its inner wall with a groove for the sear, in combination with a movable sear mounted therein, a movable breech-block, a locking-block connected thereto, a plunger reciprocating in the locking-block, a stud on the plunger for engagement with the sear, and a trigger having engagement with said sear and adapted to move the latter into and out of the path of the plunger-stud, substantially as described.

26. A breech-loading firearm having one or more cartridge-compartments in its stock, in combination with a longitudinally-extended magazine located at one side of the center of the gun, said magazine converging at its ends toward the gun-barrel and the said cartridge-compartments, respectively, a feed-slide for advancing the cartridges through the magazine, a reciprocating breech-block, a locking-block pivotally connected thereto, and a link connecting said locking-block and feed-slide, substantially as described.

27. In a firearm, a longitudinal magazine deflected to one side, in combination with a feed-slide having parts widened to correspond with the deflected part of the magazine and provided with feeders at intervals in its links and means for actuating the feed-slide, substantially as described.

28. In a firearm, a longitudinal magazine deflected to one side in combination with a flexible feed-slide deflected in its length, and having widened parts, spring-feeders at intervals in the length of the feed-slide, and located out of line to correspond with the deflected part of the magazine, and means for actuating the feed-slide, substantially as described.

29. In a firearm, the combination with a laterally-deflected magazine, of a feed-slide provided with feeders located at different intervals, and arranged out of longitudinal alinement corresponding to the lateral curvature of the magazine, substantially as described.

30. In a firearm, the combination with a frame, stock and barrel, of a cartridge-passage within the frame and stock having a deflected portion, a feed-slide, feed-slide actuating mechanism, and a laterally-disposed feeder upon the slide adapted to feed a cartridge through the deflected part of the passage from the stock to the frame, substantially as set forth.

31. In a magazine repeating-gun, the combination with a cartridge-passage, and feed mechanism coöperating therewith to advance a series of cartridges through the same, of cartridge-point-deflecting mechanism adapted to deflect the point of each cartridge from the cap of its advance neighbor, comprising yielding detents which bear upon the cartridges as they pass through the passage, substantially as set forth.

32. In a firearm, the combination with a gun-frame, movable breech-block and locking-block movably secured thereto, of a cartridge-passage in the frame arranged at the side of the said block, and a yielding feeder upon the forward end of the locking-block, moving in the line of the passage and adapted to advance a cartridge from the passage, substantially as set forth.

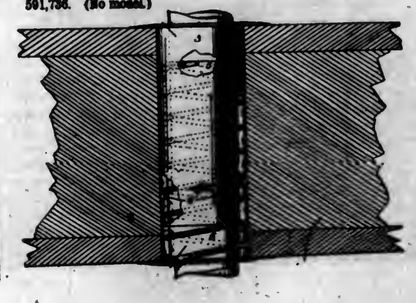
33. In a firearm, the combination with a laterally-deflected magazine, of a reciprocating feed-slide provided with spring-feeders located at different intervals and arranged out of longitudinal alinement corresponding to the lateral curvature of the magazine, and spring-detents arranged in corresponding order for preventing the backward movement of the cartridges, substantially as described.

34. A firearm containing a cartridge-chamber for holding a supply of cartridges, in combination with a support for confining the cartridges in said chamber, means for moving said support from beneath the cartridges, and mechanism for feeding the cartridges, substantially as described.

35. A firearm having a chamber for containing a supply of cartridges, in combination with a pair of supports, arranged at the discharge of said chamber, means for simultaneously operating said supports from beneath the cartridges, and suitable feeding mechanism, substantially as and for the purpose described.

36. A firearm having a chamber for containing a supply of cartridges, in combination with spaced supports for confining the cartridges therein, a rotatable disk, arms or links interposed between said disk and the supports, an arm on the spindle of the disk for turning the latter, and means for engaging and holding said arm, substantially as described.

601,709. PIPE-THIMBLE. PATRICK V. DWYER, St. Paul, Minn., assignor to Louise A. Frank, same place. Filed May 15, 1896. Serial 591,736. (No model.)



Claim.—1. As an improved article of manufacture, a thimble of the clam described, made up of telescoping sections, the intermediate spiral spring having its ends rigidly connected to one of said sections, and the threads or projections upon the other section engaging said spring intermediate of its ends.

2. As an improved article of manufacture, a thimble of the clam described, comprising in combination the telescoping sections, the intermediate resilient spiral connected by its ends to one section, and the means carried by the other section for engaging said spiral intermediate of its connections.

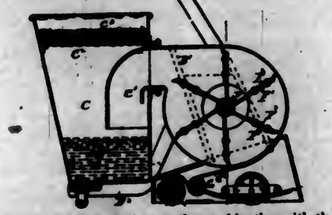
601,710. BICYCLE. RIENZO C. FAY, Springfield, Ohio, assignor to the Thomas Manufacturing Company, same place. Filed Sept. 17, 1896. Serial No. 606,022. (No model.)



Claim.—1. In a bicycle, the combination with the driving shaft or arbor having a projection recessed and shouldered, the shoulder being generally crosswise but oblique to the axis of the shaft, a crank or pedal with an eye fitted to the shaft and an opening crosswise of the projection, a wedge-bolt having a shoulder oblique to its own axis and the axis of the shaft, and fitting the oblique shoulder on the projection of the shaft, said wedge-bolt being fitted also to the opening, and an opposing surface on the shaft or arbor to resist the crank or pedal when the bolt is moved in one direction.

2. In a bicycle, the combination with a driving shaft or arbor having a shoulder generally crosswise but oblique to its axis, a crank fitted to said shaft or arbor, a wedge-bolt fitted transversely through the eye of the crank and having a shoulder oblique to its own axis and in line with the oblique shoulder on the shaft or arbor, a sprocket-wheel having a connection with the crank and reversible on the arbor, and a fixed surface on the arbor inside of the sprocket and against which it is pressed by the crank through the action of the oblique shoulders.

601,711. CARPET-CLEANER. ALBERT F. GUE, Boston, Mass., assignor to the Gue-Donnell Company, same place. Filed Oct. 8, 1897. Serial No. 654,555. (No model.)



Claim.—1. In a carpet-cleaner, the combination with the casing, the carpet-beating device and the air exhaust apparatus, of a water-receptacle having the air-exhaust delivered upon the surface of the water therein, and a moistened screen covering the mouth of said receptacle, whereby the heavier particles of dirt removed from a carpet are held by said water free from further action on the part of the discharging air, and the finer particles of dust are caught by the said screen which is kept constantly moistened by the spray arising from said water as distributed by said air-blast.

2. In a carpet-cleaner, the combination with the casing, the carpet-beating device and the air-exhaust apparatus, of a water-receptacle having the air-exhaust delivered upon the surface of the water therein, and a layer of curled hair adapted to wholly close the mouth of said receptacle, and to be kept constantly moistened by the spray arising from the water in the receptacle, substantially as and for the purpose set forth.

3. In a carpet-cleaner, the combination with the casing, the carpet-beating device and the air-exhaust apparatus, of a water-receptacle having the air-exhaust delivered upon the surface of the water therein, a wire screen closing the mouth of said receptacle and a layer of curled hair supported by said wire screen, and adapted to be kept constantly moistened by the spray arising from the agitated water in said receptacle, substantially as and for the purpose set forth.

4. In a carpet-cleaner, the combination of series of carpet-beating arms, a casing snugly containing the same, a fan-casing and fan fan, means for actuating said fan and beaters, a water-receptacle located immediately behind said fan, and a flue taking the exhaust from said fan and discharging upon the surface of said water, substantially as and for the purpose set forth.

5. In a carpet-cleaner, the combination with the casing, the rocking-shaft and the beater-arms elastically impressed downward, of the rigid arm projecting from said rocker-shaft, the revoluble wheel located above said arm and the striking-wheels linked to said revoluble wheel as set forth, whereby the rotation of the latter wheel is adapted by the forcible impact with said rigid arm of said striking-wheels to actuate said beaters.

6. In a carpet-cleaner, the combination with the beating device and the casing snugly inclosing the same, of the fan located upon said casing and provided with a casing of its own centrally communicating with the said beater-casing, the supporting-arms extending rearwardly from said casing, and the water-receptacle supported upon said arms and means for detachably securing it in communication with said fan, substantially as and for the purpose set forth.

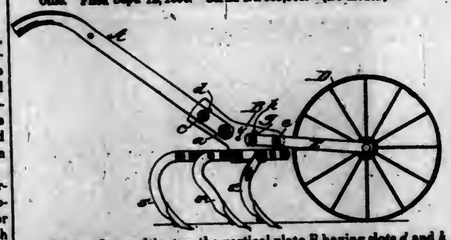
601,712. SHREDDER. LEVI L. LANE, Chicago, Ill., assignor to the Whitman & Barnes Manufacturing Company, Akron, Ohio. Filed July 17, 1897. Serial No. 644,835. (No model.)



Claim.—1. In a shredder, the combination of the annular cutting-plates, the series of annular hubs cast on said annular cutting-plates having a cylindrical portion fitting upon an inner sleeve and a raised portion which extends around said cylindrical portion at an incline to the axis thereof and the sleeve with which said hub interlocks, substantially as described.

2. In a shredder the combination of the shaft 1, the sleeve 2, rigidly attached to said shaft 1, said sleeve having on its outside the three ridges 6, a series of cutting-plates or saws 8 having hubs 9 adapted to fit over said sleeve, three ridges on the inside of said hub 9 adapted to engage with the three ridges 6 on the outside of said sleeve 2, means for securing said plates and hubs to said sleeve, said plates 8 being substantially parallel with each other and at such an angle to the axis of said shaft 2 that opposite edges of successive plates lie in substantially the same plane perpendicular to the axis of said shaft, substantially as described.

601,718. CULTIVATOR. DAVID M. MOTHERWELL, Chicago, Ill., assignor to the Whitman & Barnes Manufacturing Company, Akron, Ohio. Filed Sept. 13, 1896. Serial No. 605,505. (No model.)

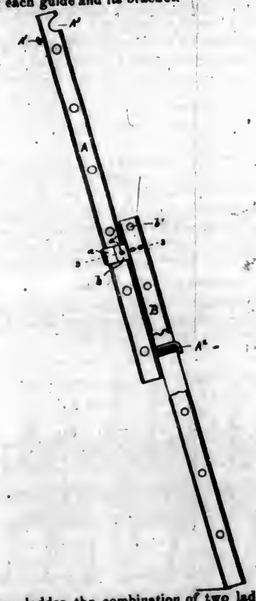


Claim.—In a cultivator, the vertical plate B having slots *d* and *h* and holes *a* and *c* by which a handle-frame and wheel are adjustably connected and having another hole for securing a tool-standard, for the purpose specified.

601,714. STEP AND EXTENSION LADDER. CHARLES HAPIER, Rochester, N. Y., assignor to Isaac H. Dewey, same place. Filed Sept. 25, 1897. Serial No. 653,047. (No model.)

Claim.—1. In a ladder, the combination of two ladder-sections, one of which has an upper stop A' and lower stops or hooks A^2 thereon, there being a notch A^3 in each side rail, a pair of stationary brackets *b* upon the other section B, guides *a* fitting upon the outer

side and both edges of each side rail of the section A, and a pivot a' connecting each guide and its bracket.

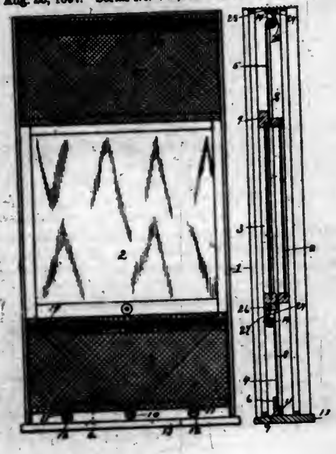


2. In a ladder, the combination of two ladder-sections, one of which, A, has stops thereon and a notch A^2 in each side rail for engaging a round of the other section B and thereby supporting said section B, a pair of stationary brackets b upon the other section, a guide a fitting upon each side rail of the section A and a pivot a' connecting each guide and its bracket.

3. In a ladder, the combination of two ladder-sections, one of which, A, has stops thereon, and is provided with means for engaging and thereby supporting the other section B, a pair of stationary brackets b upon the section B, a guide a fitting upon the outer side and both edges of each rail of the section A, and a pivot a' connecting each guide and its bracket.

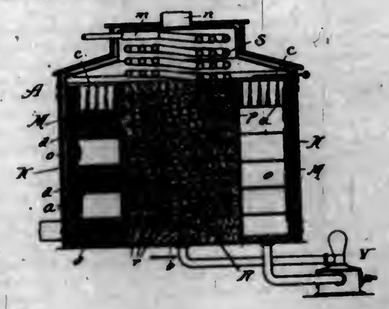
4. In a ladder, the combination of two ladder-sections, one of which, A, has stops comprising hooks A^3 thereon, a pair of stationary brackets b upon the other section B, a guide a fitting upon the outer side and both edges of each side rail of the section A, and a pivot a' connecting each guide and its bracket.

601,715. WINDOW-SCREEN. JOHN H. ORSTAD, Dayton, Ohio. Filed Aug. 25, 1897. Serial No. 649,493. (No model.)



Claim.—A window-screen comprising fibrous material 4 having its lower horizontal edge secured between strips 6 and 7 so that the vertical edges of said material will lie close to the parting-strips of the window-frame, a roller to which the upper horizontal edge of said material is attached, two horizontal strips 26 attachable to the bottom of a window-sash, brackets 24 secured to the upper side of said strips, and upon which the said roller is mounted, and a strip of fibrous material inclosed longitudinally between said strips 26 in line with the longitudinal center of the roller and adapted to rest on said roller throughout the length thereof, as shown and described.

601,716. CONDENSING-WATER AND AIR COOLING APPARATUS FOR REFRIGERATING-MACHINES. JULIUS SIEBLACHE, Nuremberg, Germany. Filed Feb. 26, 1897. Serial No. 626,120. (No model.) Patented in France Dec. 21, 1892, No. 226,556; in Germany Jan. 13, 1893, No. 72,657; in Italy Mar. 28, 1893, No. 1,194; in Austria-Hungary May 6, 1893, No. 1,089 and No. 5,637, and Aug. 20, 1893, No. 10,230 and No. 19,809; in Switzerland July 22, 1893, No. 7,263, and June 30, 1894, No. 8,798; in Belgium Aug. 25, 1894, No. 96,943, and in England May 14, 1895, No. 9,530.



Claim.—1. In a refrigerating apparatus, an air-cooler comprising, in combination, a refrigerator R having the surrounding shell p incased in a shell M, a vertical series of intercommunicating chambers o between said shells, means for forcing air upward through said chambers, a pump for forcing the liquid upward through said refrigerator to fall through said chambers, and thereby produce a continuous circulation of the liquid, and an outlet for the air, substantially as described.

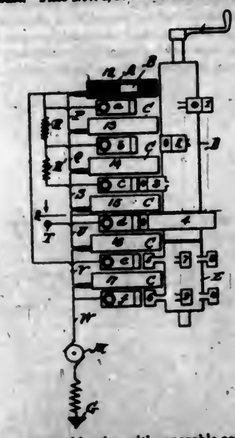
2. In a refrigerating apparatus, an air-cooler comprising, in combination, a refrigerator R having the surrounding shell p incased in a shell M, a vertical series of intercommunicating chambers o between said shells, coiled pipe S in the upper part of the cooler in the path to the air-outlet a therefrom and affording a drier, means for forcing air upward through said chambers to said outlet, and a pump for forcing the liquid upward through said refrigerator to fall through said chambers and thereby produce a continuous circulation of the liquid, substantially as described.

3. In a refrigerating apparatus, a condenser C comprising, in combination, the coiled pipe r' incased in a shell p' surrounded by a shell M', a vertical series of intercommunicating chambers o' between said shells, means for forcing air upward through said chambers, and a pump for forcing the liquid upward through said shell p' to fall through said chambers and thereby produce a continuous circulation of the liquid, substantially as described.

4. In a refrigerating apparatus, the combination of an air-cooler A having an outlet n and containing the refrigerator R and the intercommunicating chambers o surrounding said refrigerator, means for forcing air upward through said chambers, a pump for forcing the liquid upward through said refrigerator to fall through said chambers and thereby produce a continuous circulation of the liquid, and a condenser C having an outlet n^3 in its upper end communicating with said cooler near its base, said condenser containing the incased coiled pipe r' and the circumferential intercommunicating chambers o' and communicating from its base portion with the outlet n of said cooler, and a pump for forcing the liquid upward through the incasement of said coiled pipe to fall through said chambers and thereby produce a continuous circulation of the liquid, substantially as described.

5. In a refrigerating apparatus, the combination of an air-cooler A, a condenser C communicating from its upper end with the cooler at its base, a blower D in said communication, a chamber B communicating with said cooler at its upper end and with said condenser at its base, and pumping means for circulating the liquid of the air-cooler and condenser through each, substantially as described.

601,717. SOLENOID BLOW-OUT FOR DISPERSING ARCS FORMED IN BREAKING ELECTRIC CIRCUITS. SIDNEY H. SHORT, Cleveland, Ohio. Filed Nov. 1, 1897. Serial No. 657,051. (No model.)



Claim.—1. The combination with separable contacts arranged in an electric circuit of a spiral conducting-coil arranged in proximity to said contacts and normally in shunt-circuit therewith, said coil adapted to be introduced in the circuit of said contacts at the moment circuit is broken between said contacts, as and for the purpose set forth.

2. The combination with separable contacts arranged in a circuit to be broken, a conducting-coil having a central open space, said central open space being arranged in proximity to said contacts, said coil being normally in shunt-circuit with said contact, and means whereby said coil is introduced into main or direct circuit at the moment circuit is broken between said contacts, as and for the purpose set forth.

3. The combination with separable contacts included in a circuit to be broken, a coil of conducting material arranged in insulated convolutions, said coil being arranged in proximity to said contacts, said coil being normally in shunt-circuit with said contacts, and means for introducing said conducting-coil into working circuit with said contacts at the instant the circuit is broken between said contacts, as and for the purpose set forth.

4. The combination with separable contacts arranged in a circuit to be broken, a conductor normally in shunt-circuit with said contacts and arranged in convoluted coils, an inclosing case for said conductor, and means for introducing such conductor into the main circuit of said contacts at the moment circuit is broken between such contacts, as and for the purpose set forth.

5. The combination in a controller of a switch including a series of separable contacts, an electric blow-out coil arranged in proximity to each pair of such separable contacts, said electric blow-out coils being normally out of main working circuit with said contacts, and means whereby said coils are introduced into the main working circuit of said contacts at the moment circuit is broken between such contacts, as and for the purpose set forth.

6. The combination in a controller of a switch including contacts, a conductor formed into convoluted coils having a central open space and arranged in proximity to each pair of separable contacts, said coils being normally out of main working circuit with said contacts, and means for introducing such coils into the main working circuit of said contacts in advance of the opening or breaking of said circuit between said contacts, as and for the purpose set forth.

7. The combination of a controller-cylinder having contact-segments, stationary fingers arranged in the main circuit adapted to contact with said segments whereby the main circuit is made or broken and the motor-resistance and motor connections varied, a conducting-coil arranged in proximity to the point where circuit is broken between each finger and its cooperating segment, and contact-terminals and segments whereby said coils are out of main working circuit while the controller-cylinder is in running position but adapted to be introduced into main working circuit at the moment circuit is broken between said fingers and segments, as and for the purpose set forth.

8. The combination in a controller of a cylinder, contacts mounted thereon, relatively stationary cooperating contacts, a conducting-coil arranged in the circuit to be broken adjacent to each pair of contacts to be broken, said coils comprising spiral convolutions, a shunt-circuit for said coils and contacts controlling said shunt-circuit, whereby when said controller is in "running" position said coils are cut out of working circuit, but are replaced in circuit in advance of the opening of said circuit, as and for the purpose set forth.

9. In a controller, a series of separable contacts for controlling the main circuit, a corresponding series of conducting-coils arranged in proximity to said separable contacts, said coils being arranged in series with each other and normally out of the main working circuit, and means whereby said coils are introduced to the main working circuit at the moment circuit is broken between said contacts, as and for the purpose set forth.

10. In a controller, a series of separable contacts, a conducting-coil arranged adjacent to and having a central open space presented toward each pair of contacts, and means for cutting said coils into and out of circuit with said contacts, as and for the purpose set forth.

11. In an electric controller, the combination with a plurality of fixed fingers and corresponding movable contacts and conducting-coils arranged in proximity to and having a central open space presented toward the contact ends of said fingers and adapted to be cut into and out of the circuit thereof, as and for the purpose set forth.

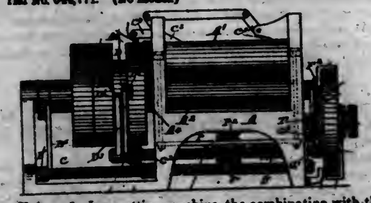
601,718. HOT AND COLD WATER FAUCET. GUSTAVE A. SODERLUND, Somerville, Mass. Filed Sept. 30, 1897. Serial No. 653,598. (No model.)



Claim.—1. In a faucet of the character described, the casing provided with hot and cold water inlets; the plug provided with ports for receiving hot and cold water; the spout B secured to the casing; a downwardly-extending rod eccentrically secured to the lower end of the plug; the valve P normally seated against the inner end of the spout; and the valve-stem P' extending rearward from said valve and pivotally connected at its rear end with said eccentric-rod, substantially as and for the purpose set forth.

2. In a faucet of the character described, the casing provided with hot and cold water inlets; the plug provided with ports for receiving hot and cold water; the spout B secured to the casing; a downwardly-extending rod eccentrically secured to the lower end of the plug; the valve P normally seated against the inner end of the spout; the valve-stem P' extending rearward from said valve and provided with the slot E'' whereby said stem is loosely connected with said eccentric-rod; and the guide S' rigidly connected with the front end of said valve, substantially as and for the purpose set forth.

601,719. CUTTING-MACHINE. JOHN H. TAYLOR, Cohoes, N. Y., assignor to J. H. Wilson & Co., same place. Filed July 16, 1897. Serial No. 644,771. (No model.)



Claim.—1. In a cutting-machine, the combination with the feed-rolls, of a rotary pattern-disk, means for operatively connecting the disk and rolls; a cutter; means for actuating the rolls and cutter alternately; and a trip on the pattern-disk engageable with the alternating mechanism to operate the same, substantially as described.

2. In a cutting-machine, the combination with the feed-rolls and cutter, of a drive-shaft for the feed-rolls, a drive-pulley rotary independently of said shaft, a sleeve rotary on said shaft independently of said pulley, a beveled gear fixed on said shaft, a beveled gear fixed on said pulley, a pinion rotatively fixed on said sleeve in engagement with both of said beveled gears, operating connections between said

sleeve and cutter; a brake for said sleeve; a brake for said shaft; a rotary pattern-disk; roll-actuated mechanism for rotating the disk; and means actuated by the pattern-disk for applying said brakes alternately, substantially as described.

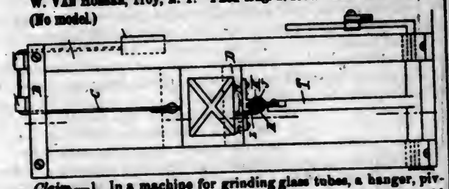
3. In a cutting-machine, the combination with the feed-rolls, the drive-shaft therefor, the cutter, and means for operating the drive-shaft and cutter alternately, of a rotary pattern-disk, intermittent gear connections between the drive-shaft and disk, a trip carried by the pattern disk engageable with said alternating mechanism; and means for releasing the intermittent gear and restoring the disk to its initial position, substantially as described.

4. In a cutting-machine, the combination with the feed-rolls drive-shaft, and cutter, of a rotary pattern-disk, a trip carried by said disk, an intermittent gear connection between said disk and shaft, a drive-pulley rotary independently of said shaft, a sleeve rotary on said shaft independently of said pulley, a beveled gear fixed on said shaft, a beveled gear fixed on said pulley, a pinion rotatively fixed on said sleeve in engagement with both of said beveled gears, a brake for said shaft, a brake for said sleeve, a brake-shaft, connections between the brake-shaft and several brakes whereby rocking movements of said brake-shaft cause the brakes to operate alternately, an arm on the brake-shaft projecting into the path of said trip, a cutter-operating shaft, a cam connection between the cutter-operating shaft and said sleeve, a connection between the cutter-operating shaft and said intermittent gear, and a spring and stop for restoring the pattern-disk to its initial position, substantially as described.

5. The combination with a pair of feed-rolls, and means for supporting and driving said rolls, of segmental journal-bearings for one of said rolls, two pairs of rods, each pair connected at one end with one of said segmental bearings, a common cross-plate connected with the other end of both pairs of rods, a fixed support, and a spring interposed between said support and plate, substantially as described.

6. In a cutting-machine, the combination with feeding mechanism, and a fixed cutter, of an obliquely-movable cutter, a spring-supported presser-bar having a roller-track on its upper side; and a pair of yielding rollers secured to the obliquely-movable cutter and adapted to engage and roll upon said track, substantially as described.

601,720. MACHINE FOR GRINDING GLASS TUBES. THEODORE W. VAN HORNEN, Troy, N. Y. Filed Aug. 2, 1897. Serial No. 646,766. (No model.)



Claim.—1. In a machine for grinding glass tubes, a hanger, pivotally supported; a tube-carrier capable of revolving within said hanger; a means for preventing the longitudinal movements of said carrier in said hanger; a thimble adapted to be inserted within the ends of said carrier; the end of said carrier slotted and tapered, arranged to exert a pressure upon the thimble substantially as described.

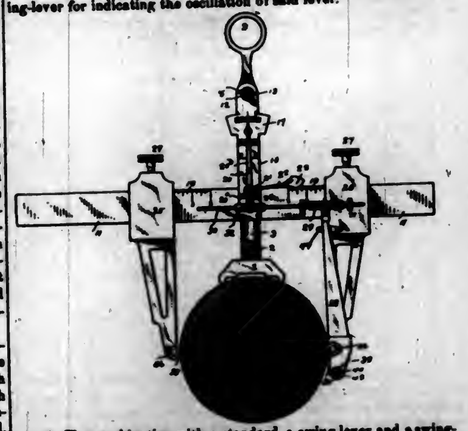
2. In a machine for grinding glass tubes, a hanger suitably supported; a carrier adapted to engage with said hanger, allowing for the revolution of the carrier within the hanger; a means for preventing the longitudinal movements of the carrier within the hanger; a ratchet mounted on the carrier, a dog suitably mounted adapted to engage the said ratchet when the carrier is horizontal and to become disengaged therefrom after the carrier has made a partial revolution substantially as described.

601,721. INSTRUMENT FOR MEASURING DIAMETERS. GEO. VIER, Ansonia, Conn. Filed June 30, 1897. Serial No. 642,897. (No model.)

Claim.—1. The combination with a standard, a swing-lever suspended therefrom and having a scale, and a swing-bar rigidly secured to the swing-lever, of adjustable slides on the swing-bar, a bearing-lever pivoted to one of the slides, said bearing-lever and the other slide being adapted to engage a roll and mechanism intermediate the bearing-lever and the scale whereby variations in the diameter of the roll are indicated on the scale.

2. The combination with a base, a standard, a swing-lever suspended therefrom and having a scale and a swing-bar rigidly secured to the swing-lever, of adjustable slides on the swing-bar, a bearing-lever pivoted to one of the slides, said bearing-lever and the other slide being provided with hardened bearings to engage a roll and mechanism connected with the bearing-lever for indicating variations in the diameter of the roll.

3. The combination with a standard, a slide 4 adjustable thereon, a swing-lever pivoted to the slide and a swing-bar fixed to the swing-lever, said standard and said swing-bar being provided with scales 18 for the purpose set forth, of slides 25 and 26 on the swing-bar, a bearing-lever pivoted to slide 26, said bearing-lever and slide 25 being adapted to engage a roll and mechanism connected with the bearing-lever for indicating the oscillation of said lever.



4. The combination with a standard, a swing-lever and a swing-bar secured thereto, of adjustable slides on the swing-bar, a bearing-lever pivoted to one of the slides, said bearing-lever and the other slide being adapted to engage a roll, indicating-lever 20 and adjusting-rod 30 pivotally connected to the bearing-lever and to the short arm of the indicating-lever.

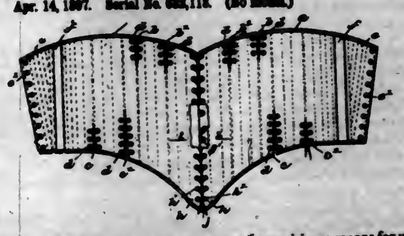
5. The combination with a standard, a swing-lever having a scale, and a swing-bar secured to the swing-lever, of adjustable slides on the swing-bar, a bearing-lever pivoted to one of the slides, said bearing-lever and the other slide being adapted to engage a roll, indicating-lever 20, adjusting-rod 30, block 32 adjustable on said rod to which the bearing-lever is pivoted and block 32 also adjustable on said rod to which the short arm of the indicating-lever is pivoted.

6. The combination with a standard, a swing-bar suspended therefrom, adjustable slides on the swing-bar and a bearing-lever pivoted to one of the slides, of an indicating-lever having a hub 21, an arm and weight extending from said hub at an angle to the lever and adjusting-rod 30 to which the bearing-lever and the short arm of the indicating-lever are connected.

7. In an instrument of the character described the combination with a swing-bar, slides thereon, and a bearing-lever pivoted to one of said slides, said bearing-lever and the other slide being provided with adjustable hardened bearings adapted to engage opposite sides of the center of a roll, of an indicating-lever and an adjusting-rod to which the indicating-lever and the bearing-lever are connected.

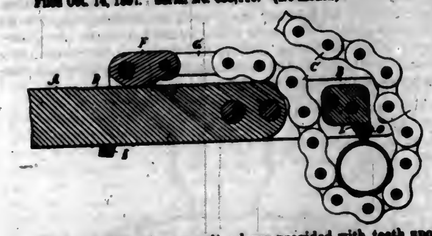
8. In an instrument of the character described the combination with a swing-lever having a scale, a swing-bar, slides thereon, and a bearing-lever pivoted to one of said slides, said bearing-lever and the other slide being adapted to engage a roll, of an indicating-lever the long arm of which registers with the scale and an adjusting-rod which is connected to the bearing-lever and to the short arm of the indicating-lever.

601,722. CORSET. LILLIAN S. WALKER, Boston, Mass. Filed Apr. 14, 1897. Serial No. 632,118. (No model.)



Claim.—The improvement in corsets comprising a means for uniting the parts in front consisting of a series of hooks *g*, studs *f*, covering flaps *h h*, provided with rows of eyelets *h' h'*, and a lacing *j*, substantially as shown and described.

601,728. PIPE-WRENCH. ALBERT WEBER, Camden, N. J. Filed Oct. 14, 1897. Serial No. 655,119. (No model.)

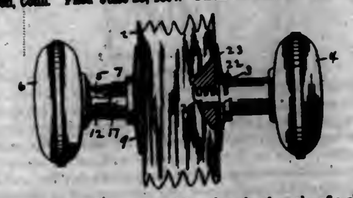


Claim.—1. In a pipe-wrench, a lever provided with teeth upon its edge, and jaws upon its inner end, combined with a chain, a movable clutch to which the inner end of the chain is attached, and a sharp-edged bearing in the lower edge of the lever; the chain being provided with pivotal points, and the inner sides of the jaws with cavities to receive the pivots, substantially as set forth.

2. In a pipe-wrench, the lever provided with sockets in its lower edge, and the triangular bearing provided with sharp points or teeth, and means for clamping the pipe or rod against the sharp edge of this bearing, substantially as specified.

3. In a pipe-wrench, a lever provided with teeth upon its inner end, a slide or keeper placed thereon, a clutch pivoted thereto and adapted to engage with the teeth, and a chain loosely connected to the clutch and passing down between the two jaws, combined with a sharp-edged bearing upon the lower edge of the lever; the inner sides of the jaws being provided with a cavity, and the links of the chain being provided with pivotal points or bearings which catch in the cavity, whereby the chain can be adjusted from either end, substantially as shown and described.

601,724. KNOB ATTACHMENT. HENRY J. P. WHIPPLE, New Haven, Conn. Filed June 26, 1897. Serial No. 642,948. (No model.)



Claim.—1. The combination with a door-knob neck, of a sleeve mounted upon said neck and adapted for a free sliding movement longitudinally of the latter, and a detent upon said neck adapted to make contact with said sleeve to limit its movement, one of said two contacting parts being provided with a plurality of contact-surfaces located at varying distances from the inner end of the neck, to hold the sleeve in different positions upon the latter, substantially as described.

2. The combination with a door-knob neck, of a sleeve mounted upon said neck and projecting at its inner end beyond the end of the latter, said sleeve being free to move longitudinally upon the neck and being provided with a plurality of engaging surfaces located at varying distances from its inner end, and a detent upon the neck adapted to engage said surfaces on the sleeve interchangeably, substantially as and for the purpose described.

3. The combination with the neck of a door-knob, of a sleeve loosely mounted upon said neck and projecting at its inner end beyond the end of the latter, said sleeve having in its outer end a series of notches or depressions of a progressively-varying depth, and a spring-actuated detent radially movable upon the neck and adapted, in its outermost position, to engage the notches or depressions in said sleeve, substantially as described.

4. The combination with the neck of a door-knob having located thereon a radially-movable, spring-actuated detent the outer face of which is shouldered as described, of a sleeve loosely mounted upon said neck and overlapping at its outer end said detent, said sleeve having in its said outer end a series of notches or depressions of varying depth to receive the shoulder on the detent, substantially as set forth.

5. The combination with a door-knob neck provided with a circumferential groove or recess and with a longitudinal notch or recess leading therefrom to the end of said neck, of a detent having a stem or shank which enters a transverse socket in said neck and having its outer face provided with a shoulder as described, a spring located in said socket and exerting outward pressure against the stem of said detent, and a sleeve loosely mounted upon said neck and overlapping said detent at one end, said sleeve being provided with an internal projection to enter the circumferential groove in the neck and having at the end thereof which overlaps said detent a series of notches or depressions of varying depth to receive the shoulder on the latter, substantially as described.

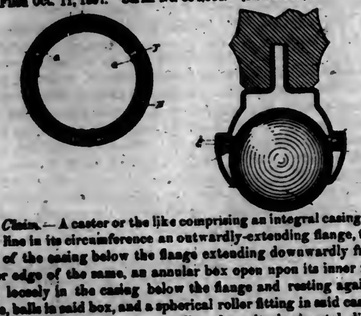
6. The combination with the knob-neck 5 having the recess 13 and socket 15, of the detent 12 having the stem 14 which enters said socket and the shoulder 17, spring 16, and sleeve 7 projecting at its inner end beyond the end of said neck and having in its outer end the series of notches 10 of varying depth, substantially as described.

601,725. CHATELAINE. SOPHIA ZEUSCHMIDT, Allegheny, Pa. Filed May 8, 1897. Serial No. 636,137. (No model.)



Claim.—In chatelaines, the combination of a frame suspended from a belt, and consisting of two downwardly-extending strips of material and a third piece of material interposed between and attached to said strips; a pocket on each of said strips, and a third pocket on said intermediate piece.

601,726. BALL-CASTER. GEORGE L. BOVEROUX, Oakland, Cal. Filed Oct. 11, 1897. Serial No. 654,831. (No model.)



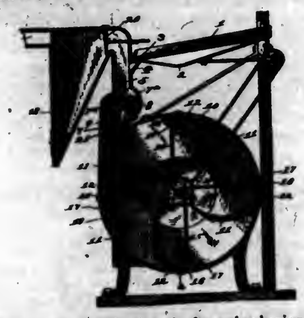
Claim.—A caster or the like comprising an integral casing having at a line in its circumference an outwardly-extending flange, the portion of the casing below the flange extending downwardly from the outer edge of the same, an annular box open upon its inner face fitting loosely in the casing below the flange and resting against the same, balls in said box, and a spherical roller fitting in said casing and projecting therefrom, and, at a line above its horizontal diameter, bearing upon the balls in the box; substantially as described.

601,727. MUSIC-CHAIR. WILBUR O. CAMPBELL and EVA K. CAMPBELL, Sulphur Springs, Ark. Filed Sept. 30, 1896. Serial No. 607,493. (No model.)



Claim.—The combination with a suitable supporting-frame, of a vertically-adjustable seat mounted on the same, an auxiliary seat hinged to each side of the main seat so as to be folded thereon or extended at will, and vertically-adjustable supporting-legs pivotally connected to the outer ends of the auxiliary seats and each comprising two spaced slotted pivoted bars, a yoke, the respective arms of which are slotted, and connecting-screws adapted to be passed through the slots of the respective pivoted arms and arms of the yoke, whereby the yoke may be raised or lowered to adjust the height of the support, substantially as described.

601,728. SCOURING, DISINTEGRATING, AND SEPARATING MACHINE. JOHN M. CASE, Cincinnati, Ohio. Filed Apr. 15, 1896. Serial No. 587,955. (No model.)



Claim.—1. The combination of a fan-casing having an abrading inner surface, a combined fan and abrader comprising air-blast-producing blades and abrading-surfaces, an approximately circular chamber and a straight outer wall provided with an overhanging upper portion which deflects the material upward and forward into said chamber across the air-blast, said chamber and wall being located on the upgoing side of the fan, the deflecting-board 9 and the adjustable partitions 8 which receive the descending material in the dead-air space formed by the curvature of the chamber and the said deflecting-board 9.

2. The combination of a combined fan and disintegrator comprising blast-producing blades, outer scouring, abrading or grinding surfaces, a fan-case having an inner scouring, abrading or grinding surface, and a tangential outlet and an approximately curved chamber provided with an outer straight wall having an overhanging upper portion situated on the upgoing side of the fan, the adjustable partitions, and the dead-air space formed by the deflecting-board 9.

3. The combination of a fan-casing having an abrading inner surface, and a combined fan and abrader comprising blast-producing blades, and abrading-surfaces, both in said casing, radial brace-bars connecting the outer ends of the blades to the hub of the fan, adjusting-nuts on said rod adapted to engage the blades whereby the fan-arms may be adjusted to variable distances to the fan-case to simultaneously vary the abrading and fan action; said fan-casing having a tangential discharge-opening, and a chamber formed with a front straight wall provided with an overhanging upper portion, and a curved rear wall, adjustable partitions, and a deflecting-board 9 arranged in said chamber, the curvature of the chamber and the deflecting-board forming a dead-air space whereby the material is continuously deflected across the upgoing blast of air delivered by said fan simultaneously with the material.

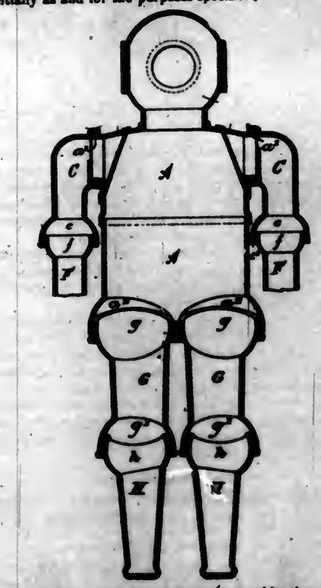
4. In a combined disintegrating and separating machine, the combination of a combined fan and reducer having adjustable arms provided with fan-blades and abrading or grinding surfaces, a fan-casing surrounding said fan and also provided with disintegrating surfaces, in which both the separating blast and reduction take place, a tangential outlet in said fan-casing, an approximately circular chamber provided with a straight outer wall having an overhanging upper portion, said chamber communicating with the said tangential outlet, a return-passage consisting of a dead-air space formed by a deflecting-board 9 and the curved rear wall of said chamber, also making communication between the fan-casing and the said circular chamber, an escape-passage for the air-blast and light materials beyond said circular chamber, and settling-chambers; all substantially as set forth.

601,729. DIVING APPARATUS. WILLIAM R. FAREY, London, England. Filed Mar. 11, 1897. Serial No. 627,070. (No model.)

Claim.—1. In an improved diving-dress constructed from metal sections, joints connecting the various parts formed from a hemispherical socket on one part, and a hemispherical enlargement on the adjacent part fitting into the socket closely, flanges limiting the motion of the parts and packing forming a water-tight joint substantially as and for the purposes specified.

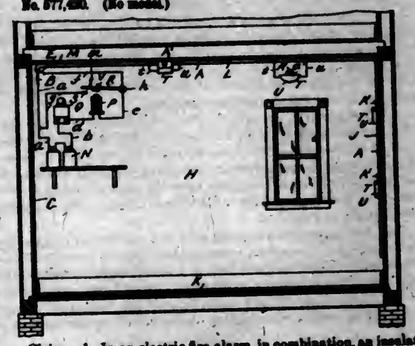
2. In an improved diving-dress formed from metal sections connected together, the combination with ball-and-socket joints at the elbows, hips and knees and leather packing in the said joints, of flanges on the shoulder-piece, an enlargement at the top of the upper arm-piece, channeled leather packing placed in the groove formed by the enlarged part and a screwed ring completing the joint substantially as described and shown and for the purposes specified.

3. In an improved diving-dress constructed from metal and made in sections connected together, joints for the elbows, hips and knees, formed from a hemispherical socket on one part, a hemispherical enlargement on the adjacent part pivoted to and fitting closely in the socket, flanges on the inside of the socket and on the enlargement and limiting the motion, packing formed from a channeled leather ring placed in the joint and a screwed ring fixing the packing in place substantially as and for the purposes specified.



4. In an improved diving-dress the combination with a metal body-piece, a head-piece screwed into the top of the body, upper and lower arm-pieces and upper and lower leg-pieces all constructed from metal of ball-and-socket joints for the elbow, hips and knees formed from hemispherical enlargements on the ends of the parts pivoted together flanges on these enlargements channeled leather packing-rings and screwed rings holding the packing in place, and shoulder-joints formed from flanges on the shoulder-pieces, enlargements on the upper ends of the arm-pieces leather packing-rings in the channel so formed and screwed rings completing the joint, constructed substantially as described and shown in the accompanying drawings and for the purposes specified.

601,780. HEAT-DETECTOR FOR ELECTRIC FIRE-ALARM SYSTEMS. JOHN D. GOULD, Brooklyn, N. Y. Filed Jan. 30, 1899. Serial No. 677,490. (No model.)

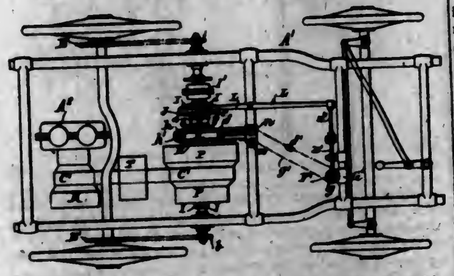


Claim.—1. In an electric fire-alarm, in combination, an insulated block, a recess or chamber in said block, a bulb or globule or knob of fusible metal or compound of metal suspended over said recess, and two wires or conductors extending into said recess independent of and insulated from each other, an electric cable or conductor composed of a central core of copper or other electric wire, a covering of fusible metal or compound of metal over said central wire, an insulating material over said fusible metal, an electric wire or wires wound upon the insulating material and an insulating material covering the whole, the central wire with its fusible-metal covering and the electric wire wound upon the insulating material being electrically connected to the two wires respectively of the insulated block and respectively to the two poles of an electric battery.

2. In an electric fire-alarm, in combination, an insulated block, a recess or chamber in said block, a bulb or globule or knob of fusible metal or compound of metal suspended over said recess, and two wires or conductors extending into said chamber independent of and insulated from each other, two other wires arranged in close proximity side by side but electrically separated from each other, one of said wires being formed of a metal fusible at a low temperature, said latter wires at one end being respectively connected to the wires of the block and respectively connected at their other ends to the poles of an electric battery.

3. In an electric fire-alarm, in combination, an insulated block, a recess or chamber in said block, a bulb or globule or knob of fusible metal or compound of metal suspended over said recess and two wires or conductors extending into said chamber independent of and insulated from each other, and two other wires, one of which is formed of a fusible metal or compound of metal and covered with an insulating material and the other of said wires being wound about and over the insulating material, said latter wires at one end being respectively connected to the wires of the insulated block and at their other ends respectively connected to the poles of an electric battery.

601,781. MOTOR-VEHICLE. CHARLES R. LAVERRY, Chauny, France. Filed Aug. 30, 1897. Serial No. 649,812. (No model.)



Claim.—1. In variable-speed apparatus, the combination with a stepped pulley, of a speed-changing mechanism, and a speed-reversing mechanism operatively connected thereto, and means for operating both the speed-changing and the speed-reversing mechanisms.

2. In variable gearing, the combination with internal and external gears revolving together, of a pinion for meshing with either of said gears, said pinion and gears relatively movable, and constituting the one a driving and the other a driven part, and means for moving the movable part for alternately engaging the pinion with the different gears, and thereby reversing the motion of the driven part.

3. The combination with a shaft, of a wheel loosely mounted thereon and having two gear-wheels connected to and revolving with it in its interior, a pinion for meshing alternately with said gears, a differential pinion driven by said first pinion, a carrier for said pinions movable axially to bring said first pinion into mesh with either of said gears, and a third gear-wheel meshing with said second pinion.

4. The combination with a driving-pulley having a spur-gear, of a pinion meshing with said gear, a carrier for said pinion, a second pinion driven by said first pinion, a second gear meshing with said second pinion, a brake controlling rotation of said second gear, a shaft carrying said pulley-carrier and second gear, and a clutch for clutching said second gear to said shaft, whereby said second gear can be clutched to said shaft and then will cause the shaft and pulley to revolve together, and can be held immovable by said brake, and then will cause said pulley and carrier to revolve at different speeds.

5. The combination with a variable-speed apparatus, of a shaft having one member of a clutch, a speed-changing mechanism having a reciprocal member of a clutch, a pulley in operative connection with said mechanism, and a spring tending to engage the members of said clutch and thereby lock said pulley and mechanism together.

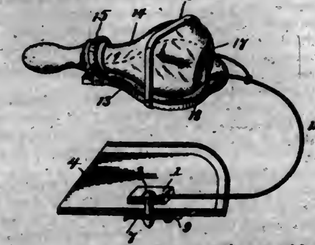
6. The combination with a variable and reversible speed mechanism, of a controlling mechanism therefor to be operated by the operator of the car, having two movements, and movable to a plurality of positions, said controlling mechanism when in one position disengaging said speed mechanism to arrest the car, when in another position throwing said mechanism into engagement for driving a car forward at a relatively great speed, when in another position engaging said speed mechanism for driving a car forward at a lesser speed, and when in another position engaging said mechanism for driving a car to the rear, and a car carrying said speed and controlling mechanisms.

7. For a variable and reversible speed mechanism, an operating-handle comprising a rod having both a reciprocatory and a rotary motion, a pinion on the rod, a brake for controlling a speed mechanism having brake-straps and oppositely-threaded nuts in their adjacent ends, a reversely-threaded screw engaging said nuts and having a pinion, and a connection between the pinions of said rod and screw driving the latter with the former, a shifter for reversing said mechanism, and a connection between said shifter and said rod for operating the former with the reciprocatory motion of the latter.

8. In variable-speed mechanism, a shaft, a wheel loosely mounted thereon, two gears fixed on said wheel, the one an internal and the other an external gear at different positions longitudinally of the shaft, a pinion for meshing with said gears, movable axially to engage with either and to a neutral position relatively to both, a second pinion of different diameter to the first and revolving therewith, a carrier for said pinions keyed to the shaft, a third gear meshing with said second pinion and rotative on said shaft, a clutch having one member fixed to the shaft and the other member fixedly connected to said third gear for clutching the latter to rotate with and freeing it from the shaft, means for operating said clutch, and means for moving said pinions axially, substantially as and for the purpose set forth.

9. In variable-speed mechanism, a shaft, a wheel loosely mounted thereon, two gears fixed on said wheel, the one an internal and the other an external gear at different positions longitudinally of the shaft, a pinion for meshing with said gears, movable axially to engage with either and to a neutral position relatively to both, a second pinion of different diameter to the first and revolving therewith, a carrier for said pinions keyed to the shaft, a third gear meshing with said second pinion and rotative on said shaft, a clutch having one member fixed to the shaft and the other member fixedly connected to said third gear for clutching the latter to rotate with and freeing it from the shaft, means for operating said clutch, means for moving said pinions axially, a brake for controlling rotation of said third gear, and means for operating said brake, substantially as and for the purpose set forth.

601,782. ADJUSTABLE NURSING-BOTTLE HOLDER. GEORGE W. MCCOLLOM, Council Bluffs, Iowa. Filed June 26, 1897. Serial No. 642,511. (No model.)



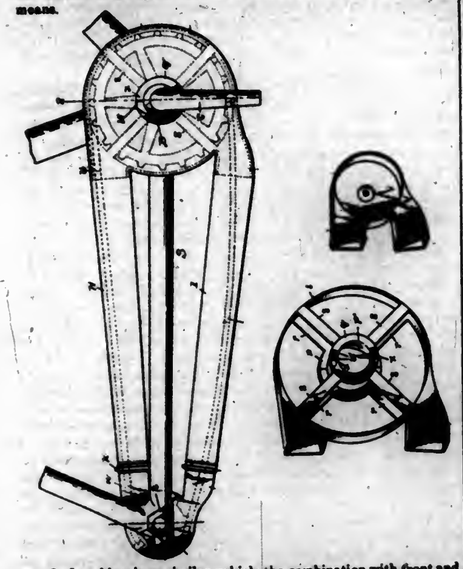
Claim.—1. A support for nursing-bottles, comprising the plate 1, the arm 12, fixed thereto, the supporting-plate 13, fixed in a horizontal position to the upper end of said arm, and provided with the staples 15 and 16, and the detachable pin 17, and means for detachably securing said plate 1 to a nursery chair or table as and for the purpose set forth.

2. The combination with the resilient arm 12, a supporting-plate 13, fixed thereto, and means as described for securing a nursing-bottle to said supporting-plate, of the plate 1, fixed to said resilient arm, and provided with a central orifice, the bolt 2 provided with the annular groove 6, and a latch-plate 7, provided with the recess 10 adapted to removably secure said bolt in place, as and for the purpose set forth.

601,788. GEAR-CASE. NORMAN A. PHILLIPS, New Castle, Pa., assignor to the Frost Gear Case Company, New York, N. Y. Filed Jan. 19, 1897. Serial No. 619,803. (No model.)

Claim.—1. In a bicycle or similar vehicle, the combination with sprockets and intermediate motion-transmitting means, of a frame inclosing one of said sprockets and provided with openings through which the transmitting means passes, an elastic covering closely fitting the frame, openings in the covering registering with those of the frame, a casing for the second sprocket having openings through which the transmitting means passes and elastic material intermediate

the frame and casing, secured thereto and inclosing the transmitting means.



2. In a bicycle or similar vehicle the combination with front and rear sprockets and intermediate means for transmitting motion, the sprockets being correlatively adjustable, of a frame inclosing the front sprocket, openings in the frame through which the transmitting means passes, elastic material fitted upon the frame and having tubular extensions corresponding in location with their respective openings in the frame and inclosing the motion-transmitting means, and a casing for the rear sprocket having openings through which the transmitting means passes, the said tubular extensions being secured to the casing.

3. In a bicycle or similar vehicle, the combination with the front and rear sprockets and adjacent tie-rod, of casings for the sprockets, flexible tubes intermediate the casings and inclosing the free chain-sections, rigid linings within the tubes intermediate their extremities, and clamps engaging the tubes exteriorly of the linings, said clamps having connection with the tie-rod.

4. In a device of the class described the combination with a sprocket of an inclosing frame comprising rings having radiating spokes, and a band secured to the spokes and encircling the rings, said band having an opening adapted for the passage of the sprocket therethrough.

5. In a device of the class described, a frame comprising rings having peripheral grooves and radiating spokes, said rings lying in parallel planes and upon a common axis, a band secured to said spokes and encircling the rings, openings in the band terminating in tubular extensions and an additional opening in the band.

6. A sprocket-casing comprising a frame having an elastic covering said frame comprising rings and a band supported thereby and openings in the covering corresponding to those of the rings, the material surrounding the openings of the covering lying upon the rings.

7. A sprocket-casing comprising a frame having an elastic cover, said frame comprising rings and a band supported thereby, said rings having peripheral grooves, openings in the covering corresponding to those of the rings, the material surrounding said openings lying within the grooves of the latter.

8. In a bicycle or similar vehicle the combination with the driving-wheel and the driven wheel of a suitable motion-transmitting device, and a casing for one of said wheels consisting of a rigid frame suitably perforated for the passage of said motion-transmitting device and formed of separable parts including a grooved ring located upon one side of the driving-wheel, an exterior covering of soft elastic rubber having one edge suitably supported at or upon one side of the wheel and its other edge contracted in or upon said grooved ring, substantially as described.

9. In a bicycle or similar vehicle the combination with the driving-wheel, the driven wheel and a suitable motion-transmitting device, of a covering for one of said wheels consisting of a metal frame attached to the vehicle, said frame having tubular extensions for the passage of the motion-transmitting device, and an elastic flexible box or case having substantially the same form or outline as said frame and corresponding tubular extensions, said elastic flexible case inclosing and contracting upon said metal frame, substantially as described.

601,784. CORSET-STEEL. MARY R. MCCLOSKEY-PLATTER, New York, N. Y. Filed Jan. 9, 1897. Serial No. 618,831. (No model.)



Claim.—1. A corset steel or stiffener comprising the springs *a* and *b*, each slotted at one end and adapted to slide one upon the other, the caps *c* and *e* secured respectively to the springs *a* and *b*, and the pins *d* and *f* uniting the two portions of the caps and passing through the slots of the springs.

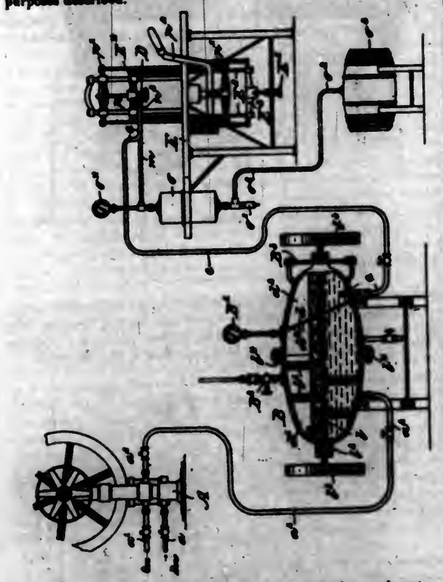
2. The combination with a corset-steel composed of two springs arranged to slide one upon the other and provided with slots, *a' b'*, and caps, *c*, and *e*, and pins, *d*, and *f*, uniting the two portions of the caps and passing through the slots of the springs, one of said springs being provided with a row of fastening devices, of a sheath of fabric or like material inclosing the springs and constructed with longitudinal oblong openings through which pass the fastening devices, whereby the sliding movement of the springs with reference to each other, the caps, and the pins, is permitted without strain or wear upon the fabric or material of the sheath, substantially as and for the purpose herein set forth.

3. In a corset, the combination of two steels placed at opposite edges of the front opening of the corset and each composed of two springs, *a*, and, *b*, caps, *c*, and *e*, and pins, *d*, and *f* uniting the two portions of the caps, of a row of fastening-eyes, *f*, extended from the edge of one of the steels in a like plane to the latter, and a corresponding row of buttons, *g*, placed upon the opposite steel and projecting at an angle to the plane thereof, of sheaths, *h*, *h*, composed of fabric or like material and provided with elongated openings through which pass, respectively the eyes and the buttons, and which are so proportioned to the size and shape of the said fastening devices as to prevent strain upon the material of the sheaths by or during the bending of the steels, substantially as and for the purpose herein set forth.

601,785. APPARATUS FOR CARBONATING AND BOTTLING MALT LIQUIDS. CHARLES SAW, Philadelphia, Pa. Filed Jan. 22, 1897. Serial No. 620,168. (No model.)

Claim.—1. In an apparatus of the character described, a carbonator, divided into two chambers by a transversely and obliquely arranged partition, the upper portion of said partition being perforated to permit of the flow of liquid from one chamber to the other without foaming, substantially as and for the purposes described.

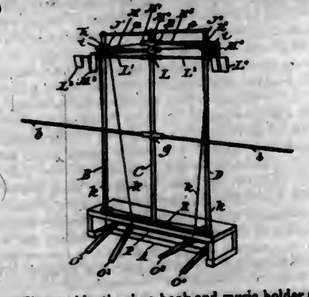
2. In an apparatus of the character described, a carbonator, a shaft traversing the same, agitating blades or paddles secured to one portion of said shaft, and an obliquely-arranged partition dividing said carbonator into two chambers in only one of which the paddles are adapted to rotate, said partition having its upper portion perforated to permit of the passage of liquid from the agitating-chamber to the other chamber without foaming, substantially as and for the purpose described.



3. In an apparatus of the character described, a carbonator, a bottling-table and a nozzle, a delivery pipe leading from the carbonator to the nozzle and terminating in the nozzle in a conical screen or rose adapted to direct the liquid against the walls of the nozzle, substantially as and for the purposes described.

4. In an apparatus of the character described, a carbonator divided into two chambers by a partition, the upper portion whereof is perforated to permit of the flow of liquid from one chamber to the other, a delivery-pipe leading from the latter chamber, a bottling-nozzle, and a conical rose located within the nozzle and connected with said delivery-pipe, substantially as and for the purposes described.

601,786. MUSIC OR BOOK HOLDER AND RACK. ANDREW J. SHEPPARD, Chicago, Ill. Filed June 23, 1897. Serial No. 642,210. (No model.)



Claim.—The combination in a book and music holder and rack, with a box A of uprights B, C, D, firmly secured thereon, said upright C being provided with collars *g*, bearing the arms *f*, *f*, and collars L, M, M^4; the collars L_1, M_1, M^4 being provided with arms L', L^2, M', M^3, said arms bearing clasps L^3, L^4, M^5, M^6, said arms M', M^3 being movable around the upright C, the cords *i*, *i*, *i*, *i*, and the keys O', O^2, O^3, O^4, substantially as set forth.

601,787. COMBINATION-TOOL. ALVA B. SMITH, Oakland, Texas. Filed Mar. 13, 1897. Serial No. 627,126. (No model.)

Claim.—1. In a tool of the class described, the combination of a handle having an extension formed at its outer end into a coring-blade, a paring-blade having position below the extension, and provided with angularly-bent ends extending up through openings in said extension, means for adjusting the said paring-blade relatively to the extension, and means auxiliary to the said adjusting means for holding the paring-blade in adjusted position, substantially as described.



2. In a tool of the class described, the combination of a tubular handle provided with an extension having its outer end formed into a substantially semicircular coring-blade, a paring-blade below the said extension and provided with angularly-bent ends projecting through openings in said extension and having teeth or serrations to engage therewith, a spring to normally project the said paring-blade outwardly from the extension, and means for holding the said blade against the tension of the spring, substantially as described.

3. In a tool of the class described, the combination of a handle provided with an extension having the outer end thereof formed into a coring blade and provided with openings, a paring-blade having position below the extension and provided with right-angularly-extending ends projecting through said openings, and a corkscrew pivoted to the said extension and having its heel end adapted to bear against one of the said ends of the parer-blade and by frictional contact therewith hold the said blade relatively to the said extension, substantially as described.

4. In a tool of the class described, the combination of a handle provided with an extension having its outer end formed into a coring-blade, a paring-blade extending parallel with the said extension and provided with bent ends projecting through said extension, a spring to normally press the blade outward from the handle extension, and a corkscrew pivoted to the extension and having its heel end bearing against one of the angularly-bent ends of the paring-blade, whereby, by moving the said corkscrew, the paring-blade may be held against the tension of the said spring, substantially as described.

601,788. APPARATUS FOR MANUFACTURING CLOSED-ENDED VESSELS. LUIGI STAMPACCHIA, Bologna, Italy, assignor to Ernesto G. Fabbri, New York, N. Y. Filed Aug. 10, 1896. Serial No. 602,302. (No model.) Patented in Italy Sept. 15, 1894, No. 37,179; in Switzerland Mar. 14, 1896, No. 12,178; in England Mar. 18, 1896, No. 6,089; in Belgium Mar. 31, 1896, No. 120,364, and in France June 25, 1896, No. 254,784.



Claim.—1. An apparatus for elongating open-ended vessels, comprising a die-plate having an opening, a portion of the wall of said opening being inclined downward and inward and the upper and lower portions of the wall of said opening being extended beyond the extremities of the inclined portion, a hollow plunger having its lower end beveled off downward and inward, to correspond to the inclination of said inclined wall, means for reciprocating said hollow plunger and holding it rigidly with the lower outer corner of its lower end within the die-opening, an inner plunger and means for reciprocating it through the hollow plunger and the die-opening.

2. An apparatus for elongating open-ended vessels, comprising a die-plate having an opening, a portion of the wall of said opening being inclined downward and inward and the upper portion of the wall of said opening being extended beyond the upper extremity of the inclined portion, a hollow plunger having its lower end beveled off downward and inward, to correspond to the inclination of said inclined wall, means for reciprocating said hollow plunger and holding it rigidly with the lower outer corner of its lower end within the die-opening, an inner plunger and means for reciprocating it through the hollow plunger and the die-opening.

3. An apparatus for elongating open ended vessels, comprising a die-plate having an opening, a portion of the wall of this opening being inclined downward and inward, a hollow plunger adapted to enter said opening and having its lower end beveled off to correspond to the inclination of the wall thereof, whereby a rigid-walled converging channel is formed, an inner plunger adapted to reciprocate through the hollow plunger and the die-opening, and means for bringing the two plungers down into the die together as one solid plunger and holding the outer plunger within the die-opening while the central one passes on through the same, as and for the purposes set forth.

4. An apparatus for elongating open-ended vessels, comprising a die-plate having an opening through it, a portion of the wall of said

opening being inclined inward and downward, the upper and lower portions of the wall of said opening being extended beyond the extremities of the inclined portion, a hollow plunger having its lower end beveled to correspond to the inclination of said inclined wall, an inner plunger adapted to work through the hollow plunger and die-opening, and means for bringing the two plungers down upon the blank together as one solid plunger and holding the outer plunger with its lower corners within the die-opening while the inner plunger passes through, as and for the purposes set forth.

601,739. GRAIN MEASURER AND REGISTER. SCOTT STEWART and JOHN F. SWISHER, Rivesville, W. Va. Filed May 20, 1897. Serial No. 637,477. (No model.)



Claim.—1. In a measuring device, a chute, slides for alternately controlling the chute, and means whereby one slide is locked in position before the other slide receives any movement, substantially as described.

2. In a measuring device, a chute, slides for alternately controlling the passage therethrough, levers connected to the slides, a wheel having recesses to receive studs connected to the levers, and means for locking one lever against action while the other is receiving any movement, substantially as described.

3. In a device of the character described, a receptacle, slides controlling the passage therethrough, levers attached to the slides at one end and having slots in the opposite end, a stud arranged at the end of each lever with the slot, a wheel having a peripheral recess, and means for depressing the stud of the lever into the recess, substantially as and for the purpose described.

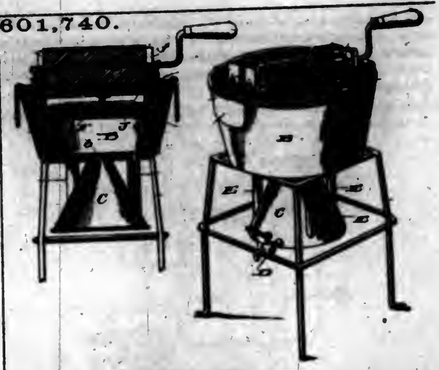
4. In a device of the character described, a receptacle, slides for controlling the passage therethrough, levers attached to the slides at one end and having slots in the opposite ends, a bracket having a stud, on the end of each lever with the slot, a wheel having a peripheral recess and a stud projecting from the side of the wheel, substantially as set forth.

601,740. WASHING-MACHINE. JOHN B. TURBEVILLE and MARION P. HIGGS, Lingleville, Tex. Filed Oct. 17, 1895. Serial No. 566,023. (No model.)

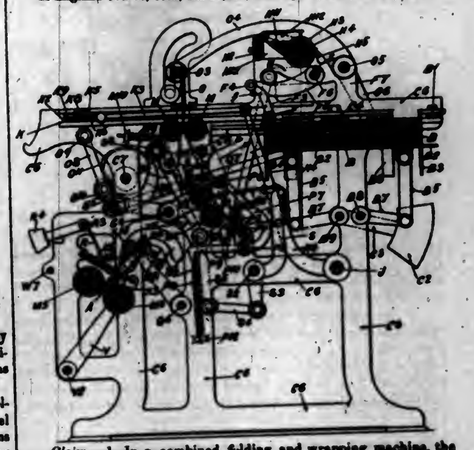
Claim.—1. The combination with a tub, having inclined sides, of a plate carrying a series of rollers, and metallic plates secured to opposite ends of the said plate, and having their outer ends bent to engage over the upper edge of the tub, with the portions within the tub inclined to conform to the inclination of the walls of said tub; substantially as described.

2. The combination with a tub having inclined walls, of a plate carrying a series of rollers and the metallic plates secured at one end to the under side of said plate at the ends each of said metallic plates having an inclined portion to conform to, and bear against, the inner surface of the inclined walls of the tub, and their other ends bent downward and outward forming a loop resting upon the upper edge of said tub, substantially as herein shown and described.

601,740.



601,741. MACHINE FOR FOLDING AND WRAPPING NEWSPAPERS. FRED WAITE, Otley, and JASON SAVILLE, Bradford, England. Filed Sept. 23, 1896. Serial No. 606,417. (No model.) Patented in England Oct. 31, 1891, No. 16,810, and Sept. 7, 1896, No. 16,815.



Claim.—1. In a combined folding and wrapping machine, the combination with a wrapper-box having a vertically-movable bottom and a stop against which the wrappers contained in the box are pressed when the said bottom is raised, of a roller having cut-away portions or recesses along its length, said roller being adapted to be brought into contact with the uppermost wrapper to apply gum thereto at intervals as described and means for lowering the bottom of the box after the gum has been applied to the said uppermost wrapper.

2. In a combined folding and wrapping machine, the combination with a gum-receptacle having a discharge-opening for the gum, and a roller projecting into said opening to receive gum, of a receptacle adapted to contain wrappers, a second roller adapted to be brought into contact with the uppermost wrapper, a driving-shaft, a cam-shaft, a cam on the latter, said shafts being geared together, a third shaft, connections intermediate the latter and the cam for effecting the rocking of the said third shaft, and a connection between the latter shaft and the said second roller whereby the latter is first brought into contact with the first roller to receive gum and then brought into contact with the uppermost wrapper to apply gum thereto.

3. In a combined folding and wrapping machine, the combination with a gum-receptacle having a discharge-opening for the gum, a distributing-roller projecting into said opening to receive gum, and a shaft upon which the distributing-roller is mounted, of a receptacle adapted to contain wrappers, a second roller adapted to be brought into contact with the uppermost wrapper, a driving-shaft, a cam-shaft, a cam on the latter, said shafts being geared together, a third shaft, connections intermediate the latter shaft and the cam for effecting the rocking of the said third shaft, a connection between the latter shaft and the said second roller whereby the latter is first brought into contact with the first roller to receive gum and then brought into contact with the uppermost wrapper to transfer the gum to the same, and connections intermediate the shaft of the gum-distributing roller and the cam whereby the said roller is intermittently moved when the said second roller is in contact with it.

4. In a combined folding and wrapping machine, the combination with a gum-receptacle having a discharge-opening for the gum, a distributing-roller projecting into said opening to receive gum, and a shaft upon which the distributing-roller is mounted, of a receptacle adapted to contain wrappers, a second roller adapted to be brought into contact with the uppermost wrapper, a driving-shaft, a cam-shaft, a cam on the latter, said shafts being geared together, a third shaft, connections intermediate the latter shaft and the cam for effecting the rocking of the said third shaft, a connection between the latter shaft and the said second roller whereby the latter is first brought into contact with the first roller to receive gum and then brought into contact with the uppermost wrapper to transfer the gum to the same, a toothed wheel on the shaft of the gum-distributing roller, a rock-lever loosely mounted on said shaft, a pawl carried by one end of said lever and engaging the toothed wheel, a rock-shaft, pivotally-connected levers connecting the latter with the rock-lever, and further pivotally-connected levers connecting the said rock-shaft with the cam on the cam-shaft.

5. In a combined folding and wrapping machine, the combination with a wrapper-box, and a roller adapted to be brought into contact with the uppermost wrapper and apply gum thereto, of a reciprocating carriage, a shaft thereon, a series of spring-actuated fingers, carried by the said shaft, said fingers being adapted to cooperate with a transverse gripping edge on the carriage to clamp a wrapper as described and the said shaft being adapted to be tilted so as to raise the fingers to permit the edge of the wrapper suspended from the gumming-roller to pass between the fingers and the said edge of the carriage, and means for varying the extent of reciprocation of the carriage consisting essentially of a driving-shaft, a cam-shaft, a cam on the latter, said shafts being geared together, a rock-shaft, arms on the latter, and adjustably connected together, a rod connected at one end with the cam, and having an adjustable connection at the other end with one of the said arms, arms on the rock-shaft and rods connecting the latter arms with the carriage.

6. In a combined folding and wrapping machine, the combination with the table of the machine adapted to support the papers to be folded and wrapped and having a slot, of a pair of rollers arranged beneath the table and having their nipping edges approximately in line with the slot, a folding-blade arranged vertically and adapted to reciprocate through the slot, a second pair of folding-rollers, tapes or bands adapted to conduct the wrapper and contents to the said second pair of rollers, and a second folding-blade arranged to fold and force the wrapper and contents between the second pair of rollers, a pair of sealing-rollers, a box, and means for tilting the box after having received the wrapper and paper and simultaneously moving it from the second pair of folding-rollers toward the sealing-rollers whereby the said wrapper and paper are presented to the sealing-rollers.

7. The combination with a pair of folding rollers and a pair of sealing-rollers, of a box adapted to receive the folded paper and wrapper from the folding-rollers and to be inverted to present the said paper and wrapper to the sealing-rollers, said box having an adjustable bottom or rest for the paper and wrapper, a back plate, and spring-pressed fingers adapted to grip the edge of the wrapper between them and the edge of said back plate.

8. The combination with a roller adapted to apply gum to the edge of a wrapper, said roller having reduced portions or grooves and adapted to apply gum at intervals along the edge of the wrapper, of folding-rollers provided with reduced portions or grooves corresponding to the like portions of the gumming-roller, a pair of sealing-rollers, a box adapted to receive the folded paper and its wrapper from the folding-rollers and to be inverted to present them to the sealing-rollers, said box having a back plate provided with notches corresponding to the grooves in the folding-rollers, and spring-pressed fingers adapted to grip the edge of the wrapper between them and the back plate.

9. The combination with a pair of folding-rollers and a pair of sealing-rollers, of a box adapted to receive the folded paper and wrapper from the folding-rollers and to be inverted to present them to the sealing-rollers, said box having a back plate, spring-pressed fingers adapted to grip the edge of a wrapper between them and the back plate, a rock-shaft carrying the said fingers, an arm on said rock-shaft, a projection on the machine against which said arm is adapted to strike to effect the opening of the fingers when the box is moved toward the folding-rollers, for the purpose of receiving the wrapper and contents.

10. In a combined folding and wrapping machine, the combination with a wrapper-box having a vertically-movable bottom, of rock-shafts, a segmental rack mounted on one of said shafts, pinions on the shafts gearing the same together, arms on said shafts, links pivotally connected to the arms and to the bottom of the box, and a weighted arm also mounted on one of the rock-shafts operating to normally force the said bottom upwardly, a rotatable cam-shaft, a cam thereon, an arm carrying a pawl adapted to engage the rack, said arm being loosely mounted on one of the rock-shafts, connections between the latter arm and the cam, and a pivoted lever having one end weighted and its opposite end operating upon the pawl to disengage it from the rack in the manner described.

11. In a combined folding and wrapping machine, the combination with a wrapper-box and its vertically-movable bottom, of means for raising and lowering said bottom consisting of shafts B^2, B^3, pinions thereon engaging each other, arms B^4 B^5, B^7 B^7 rigidly mounted on the shafts, links B^6 pivotally connected to the outer ends of the arms, and to the bottom, an arm on the shaft B^2 and carrying a weight, a segmental ratchet on the shaft B^2 an oscillatory arm D^2 loosely mounted on the latter shaft, a pawl loosely mounted on the arm D^2 and adapted to engage the ratchet D, a pivoted lever, one end carrying a weight and its other end being inclined and adapted to engage the pawl, and a stop to limit the throw of the latter lever.

12. In a combined folding and wrapping machine, the combination with a wrapper-box having a vertically-movable bottom upon which the wrappers are placed, of a bar arranged above the bottom against which bar the wrappers are pressed, and means for normally pressing the wrappers against the bar consisting of links pivotally connected at one end to the bottom of the box, rock-shafts, arms secured at one end upon said shafts and being pivotally connected at the other end to the other end of the links, pinions upon the rock-shafts gearing together, and a weighted arm carried by one of the rock-shafts, as described.

13. In a combined folding and wrapping machine, the combination with a wrapper-box, of means for gumming one edge of the wrappers comprising a paste or gum receptacle, a cylinder projecting into the latter and adapted to receive gum on its periphery, swinging arms, a roller carried by the said arms and adapted to apply gum to the edge of the wrappers and means for periodically operating the swinging arms to cause the roller to be brought into contact with the cylinder and receive gum therefrom, consisting of a cam-shaft, a cam thereon, a pivoted lever G^2 carrying at one end a roller bearing upon the cam, a rod G^3 connected to the other end of the lever G^2, an arm G connected to the rod G^3, a rock-shaft to which the arm G is secured arms F^2 rigidly secured to the rock-shaft, a shaft loosely mounted in the arms F^2, and upon which shaft the swinging arms carrying the gumming-roller are mounted, a projection on one of the swinging arms, a roller on said projection, and an abutment against which the latter roller is adapted to strike.

14. In a combined folding and wrapping machine, the combination with a wrapper-box, of means for gumming one edge of the wrappers, comprising a gum-receptacle, a cylinder projecting into the latter and adapted to receive gum on its periphery, swinging arms, a roller carried by said arms adapted to apply gum to the edge of the wrappers, means for periodically operating the swinging arms to cause the roller to be brought into contact with the cylinder and receive gum therefrom, means for partially rotating the cylinder while the roller is in contact therewith, and means whereby the rotation of said roller is insured while in contact with the cylinder, consisting of a yielding roller mounted upon the shaft of the gumming-roller, and a disk mounted on the shaft of the cylinder and with which disk the yielding roller is adapted to come in contact, as described.

15. In a combined folding and wrapping machine, the combination with a wrapper box, of means for gumming one edge of the wrappers comprising a gum-receptacle, a cylinder projecting into the latter and receiving gum on its periphery, a gumming-roller adapted to apply gum directly to the edge of the wrappers, a set of swinging arms in which said roller is mounted, a second set of swinging arms to which the first set is pivotally connected, an abutment or tappet arranged to effect a swinging movement of the first set of arms independently of the second set at a certain point in the upward movement of the arms to thereby bring the gumming-roller into contact with the cylinder, and means for periodically raising the sets of arms, for the purpose specified.

16. In a combined folding and wrapping machine, the combination with a wrapper-box, of means for gumming one edge of the wrappers, comprising a gum-receptacle, a cylinder projecting into the latter and receiving gum on its periphery, a gumming-roller adapted to apply gum directly to the edge of the wrappers, a set of swinging arms in which said roller is mounted, a second set of swinging arms to which the first set is pivotally connected, an abutment or tappet, an antifriction-roller carried by one of the first set of arms and adapted to strike said tappet at a point in the upward movement of the said first set of arms and means for periodically raising the sets of arms for the purpose specified.

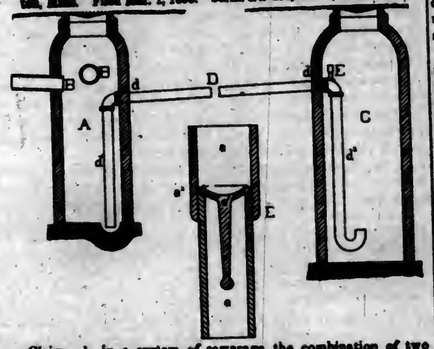
17. The combination with a pair of folding-rollers, of a box adapted to receive the paper and its wrapper after having been folded by said rollers a second pair of folding-rollers in proximity to said

box and a blade adapted to force the folded paper and wrapper between the said second pair of rollers to receive a second fold, a second box arranged to receive the paper and wrapper after being folded by the second pair of rollers, said second box adapted to be inverted after receiving the paper and wrapper, a rock-shaft, arms mounted thereon and within which arms said second box is loosely journaled, a crank on one of the journals of the said box, and provided with a pin, a cam-race within which said pin is arranged, whereby to effect the tilting or inversion of the said box when the rock-shaft is turned and a pair of sealing-rollers adapted to receive between them the contents of the second box when the latter is tilted, as specified.

18. The combination with a pair of folding-rollers, and a pair of sealing-rollers, of a box arranged intermediate said pairs of rollers, said box having an adjustable bottom, and being adapted to be inverted after receiving the folded paper and wrapper from the folding-rollers, and deliver the same to the sealing-rollers, and means for effecting the tilting or inversion of the box consisting of a rock-shaft, arms mounted thereon and within which arms said box is journaled, a crank on one of the journals of the box, and provided with a pin, and a cam-race within which said pin is arranged, as specified.

19. The combination with a pair of folding-rollers, and a pair of sealing-rollers, of a box arranged intermediate said pairs of rollers, and adapted to be inverted to deliver the folded paper and wrapper to the sealing-rollers, means for effecting the inversion of the box consisting of a rock-shaft, arms mounted thereon and within which arms said box is journaled, a crank on one of the journals of the box and provided with a pin, and a cam-race within which said pin is arranged and a series of gripper-fingers carried by the box adapted to grip the folded paper and wrapper after leaving the folding-rollers and during the inversion of the box, and until engaged by the sealing-rollers, as specified.

601,742. SEWER CONSTRUCTION. GEORGE E. WARING, Jr., Newport, R. I., assignor to the Drainage Construction Company, Boston, Mass. Filed Mar. 1, 1898. Serial No. 464,267. (No model.)

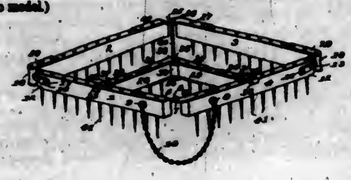


Claim.—1. In a system of sewerage, the combination of two wells or receptacles as shown, with the siphon and inlets as shown, the siphon having an approximately horizontal run located below the level of the inlet-pipes to one of the wells, substantially as shown.

2. In a system of sewerage, a siphon having its inlet and outlet normally sealed, being substantially horizontal but with sufficient rise toward its discharging end for the accumulation of air, and having suitable appliances for the extraction of accumulated air, substantially as described.

3. In a system of sewerage, a siphon, having its inlet and outlet normally sealed, and with the highest point of its course below the level to which accumulating water or sewage may be allowed to rise in the wells or chambers which it drains, in combination with suitable appliances for the escape of accumulated air, substantially as described.

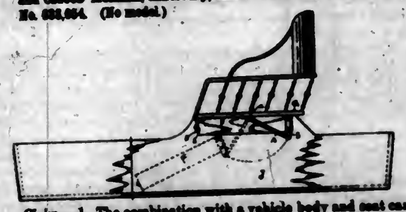
601,743. COMBINED CULTIVATOR AND HARROW. JOSEPH A. WIMMER, Vancouver, Wash. Filed Mar. 17, 1897. Serial No. 627,905. (No model.)



Claim.—1. The beams 1, 2, 3, and 4, provided with a series of vertical parallel teeth and having their contiguous ends detachably hinged together, in combination with the intermediate beams 20 and 29, provided with a series of vertical parallel harrow-teeth, and having their outer ends detachably secured to said beams 1 and 4 and their rear converging ends hinged together and provided with a projecting hook 30, and the adjustable coupling-chain 40, connecting said hook with the contiguous ends of the main beams 2 and 3, substantially as shown and described.

2. A harrow comprising a horizontal frame, the angle-bracket 56 pivoted thereto by the bolt 59 and provided with the orifices 60, 62 and 67 in combination with the bolt 61, the standard 66, provided with the orifices 64 and 65 and the sleeve 70 and the bolts 63 and 69 adapted to adjustably secure said standard to said angle-plate, substantially as shown and described.

601,744. CURTAIN-BOX FOR VEHICLES. HARLAN P. WELLS and GEORGE MERRILL, Amesbury, Mass. Filed May 28, 1897. Serial No. 638,654. (No model.)



Claim.—1. The combination with a vehicle body and seat carrying one member of a locking device, of a curtain-box normally supported under the seat, having at its front end the other member of a locking device; and cooperating means attached respectively to the curtain-box and wagon-body for permitting the box to be concurrently lowered and advanced from under the seat, substantially as and for the purpose set forth.

2. The combination with a vehicle body and seat carrying one member, of a locking device, of a curtain-box having a yielding bottom and normally supported under the seat, the said seat having at its front end the other member of a locking device; and cooperating means attached respectively to the curtain-box and wagon-body for permitting the box to be concurrently lowered and advanced from under the seat, substantially as set forth.

3. The combination with a vehicle body and seat carrying one member of a locking device, of a curtain-box normally supported under the seat, having at its front end the other member of a locking device; and pivotal cooperating means attached respectively to the curtain-box and wagon-body for permitting the box to be concurrently lowered and advanced from under the seat; in substance as set forth.

4. The combination with a vehicle of a seat; and a curtain-box supported under the seat by means of a rod A and slotted bearings B, B; in substance as set forth.

601,745. GARMENT-SUPPORTER. HENRY S. BREWINGTON, Baltimore, Md. Filed Oct. 2, 1897. Serial No. 653,826. (No model.)



Claim.—1. A garment-supporter or clasp comprising a plate, and a spring-tongue provided with rearwardly-pointed barbs or tangs turned toward the body of the tongue and adapted to be held, by the elasticity of said tongue, in contact with the plate, substantially as described.

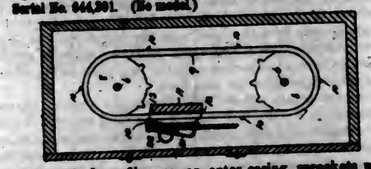
2. A garment-supporter or clasp comprising a plate, and a spring-tongue provided with rearwardly-pointed barbs or tangs stamped out of the metal of the plate and turned toward the body of the tongue and adapted to be normally held, by the elasticity of said tongue, in contact with the plate, substantially as described.

3. A garment-supporter or clasp comprising a plate, and a spring-tongue stamped out of the metal of the plate and bent to form a curved spring, being also provided with rearwardly-pointed barbs or tangs, turned toward the body of the tongue and adapted to be normally held, by the elasticity of said tongue, in contact with the plate, substantially as described.

4. A garment-supporter or clasp comprising a plate, and a spring-tongue stamped out of the metal of the plate and bent to form a curved spring, being also provided with rearwardly-pointed barbs or tangs, turned toward the body of the tongue and adapted to be normally held, by the elasticity of said tongue, in contact with the plate, at points outside of the space from which the head and barbs were stamped, substantially as described.

5. The herein-described clasp for garment-supporters, consisting of a single piece of elastic sheet metal, comprising the plate, A, and tongue, B, with head, C, and barbs or points, D D, the tongue being bent at E to form a curved spring on one side of the plane of the plate, and the head and its points projecting on the opposite side of said plane, the front edge of the head being held normally out of the plane of the plate to permit of the introduction of the fabric of the garment between the head and plate, and the points being inclined toward, and normally resting with spring-pressure on, the plate to cause them to engage the fabric so entered and prevent its withdrawal, substantially as described.

601,746. FILE-CASE. FRANK B. CLARK, West Bend, Iowa, assignor of one-fourth to M. W. Duddy, same place. Filed July 13, 1897. Serial No. 644,301. (No model.)



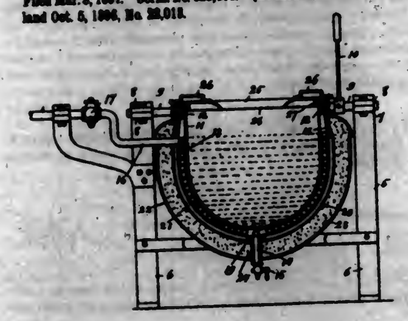
Claim.—1. In a file-case, an outer casing, sprockets mounted therein, endless bands traversing the sprockets, rods connected respectively with said endless bands, and means for rotating said bands, in combination with a letter-file, comprising a back plate, means for retaining documents thereon, and hooks whereby said plate may be attached to said rods, substantially as shown and described.

2. In a file-case, the combination with an outer casing, sprockets mounted therein, endless bands traversing said sprockets, rods connected respectively with said bands, and bearing-surfaces for said endless carriers, of a file consisting substantially of a back plate, means for retaining documents thereon, and hooks whereby said plate is movably attached to said rod, substantially as shown and described.

3. In a file-case, the combination with an outer casing, sprockets mounted therein, endless bands traversing said sprockets, rods connected respectively with said bands, and bearing-surfaces for said endless carriers, of a file consisting substantially of a back plate, means for retaining documents thereon, and hooks whereby said plate is removably attached to said rod, said outer casing being provided with means of access to said file, substantially as shown and described.

4. In a file-case, the combination with an outer casing, sprockets mounted therein, endless bands traversing said sprockets, rods connected respectively with said bands, and bearing-surfaces for said endless carriers, of a file consisting substantially of a back plate, and hooks whereby said plate is removably attached to said rod, said outer casing being provided with means of access to said file, a supplemental plate hinged to said back plate, having a catch pivoted thereto, and a spring-actuated retaining-clasp, substantially as shown and described.

601,747. CANDY-KETTLE. JOHN CLEAVE, Crediton, England. Filed Mar. 3, 1897. Serial No. 625,803. (No model.) Patented in England Oct. 5, 1896, No. 22,913.



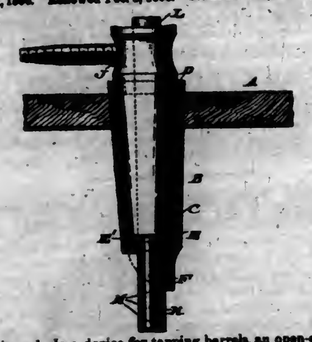
Claim.—The herein-described kettle comprising a pivotally-mounted kettle, a continuous coil of pipe surrounding the same and being in contact therewith, a steam-pipe communicating with said coil through a universal joint, a discharge-spout connected with the lower end of said coil, a casing inclosing the said coil, a double casing inclosing the first-named casing, the inner wall of which is held at a predetermined distance therefrom, a packing of asbestos between the walls of said double casing, and means for revolving said kettle, substantially as and for the purpose described.

601,748. POWER-TRANSMITTING CHAIN. THOMAS D. DUNDAS and GEORGE SEDDON, London, England; said Seddon assignor to said Dundas. Filed Mar. 20, 1897. Serial No. 628,518. (No model.) Patented in England Dec. 17, 1896, No. 26,576.



Claim.—A sprocket-chain comprising a series of links, blocks pivotally connecting the links together and lugs extending from each link to overhang the ends of a contiguous link, substantially as described.

601,749. DEVICE FOR TAPPING BEER-BARRELS. WILLIAM T. FINEGAN, Philadelphia, Pa., assignor to Carl Oldorp and Nellie T. Keenan, same place, and John J. Mahoney, Atlantic City, N. J. Filed Oct. 1, 1896. Renewed Feb. 8, 1898. Serial No. 669,998. (No model.)

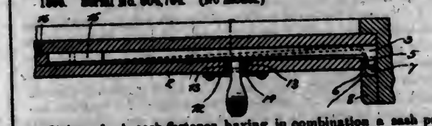


Claim.—1. In a device for tapping barrels, an open-ended shell, a valve or disk connected therewith, and a two-faced flange within said shell for said valve, the upper face forming a rest for a faucet, adapted to be inserted in the shell, and the lower face forming a seat for said valve.

2. In a device for tapping barrels, the combination of an open-ended shell C, with a disk or valve F adjacent to an end thereof, and an internal valve-seat E having a passage E' therethrough, said valve being adapted to normally rest upon said seat, and said shell being adapted to receive a tap having a pipe therein, said pipe being adapted to unseat said valve.

3. In a device for tapping barrels, &c., a hollow shell C open at one end and having the other end normally closed, a flange E within said shell having an opening E' therethrough, one side of said flange being adapted to serve as a seat for said valve F, and the latter having a portion H common to itself and to said shell, in combination with a tap J adapted to be inclosed by said shell and supported upon said flange E, and the perforated pipe K adapted to pass through said faucet and opening E' and to discharge air into the interior of said barrel.

601,750. SASH-FASTENER. BENJAMIN N. GILPILLAN, Chicago, Ill., assignor of one-half to H. A. Wheeler, same place. Filed Sept. 3, 1896. Serial No. 604,764. (No model.)

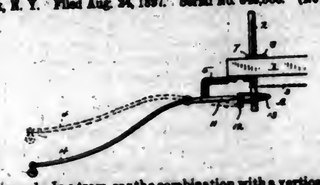


Claim.—1. A sash-fastener having in combination a sash provided with a recess extending longitudinally of its horizontal frame member, a spring secured in said recess and having an angular bend at its outer end projecting from said sash and having its end turned at an angle to said bend and being rounded from top to bottom, a

bead arranged opposite the rounded end of said bead and having corrugations adapted to engage therewith, and means secured to said sash for depressing said spring, substantially as set forth.

2. A sash-fastener having in combination a sash provided with a mortise in its lower edge and having the opening 6 at the end thereof, a bead or guide-strip located opposite said opening 6, a block 16 driven into said mortise, a flat spring secured to and extending longitudinally of said block and having an angular bend forming a dog, projecting through said opening 6 and engaging with said guide-strip, said block 16 being cut away behind said spring, a lifting-lever pivoted to said sash and having the nose-piece 11 impinging said spring, and a thumb-piece located over said lifting-lever, substantially as set forth.

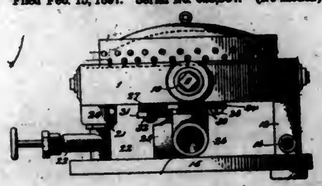
601,751. MECHANISM FOR LOWERING CAR-FENDERS. ROBERT HARRIS, Bridgeport, Conn., and MARCUS K. GOLDSMITH, New York, N. Y. Filed Aug. 24, 1897. Serial No. 649,308. (No model.)



Claim.—1. In a tram-car the combination with a vertically-swinging fender having a rigid arm extending backward therefrom, of a brake-staff carrying a device A which directly engages the arm and acts to swing the fender downward when the brake-staff is rotated to set the brake.

2. The combination with a vertically-swinging fender having a rigid arm extending backward therefrom and carrying an antifriction-roller, of a brake-staff carrying a spiral plate which engages the arm and acts to tilt the arm and allow the fender to swing downward when the brake-staff is rotated to set the brake.

601,752. VAPOR-BURNER. HARRY C. HOSMER, Indianapolis, Ind. Filed Feb. 15, 1897. Serial No. 623,537. (No model.)



Claim.—1. A retort comprising a hollow annular chamber, a web or bottom plate surrounded and supported thereby, said plate being provided with a central opening, and a removable disk seated on said plate and surrounded by the chamber and provided at its center with an annular flanged opening corresponding with the opening in the bottom plate, substantially as specified.

2. A retort, comprising a hollow annular chamber, a bottom plate supported by and surrounded by the said chamber, and provided with a central opening, and a removable disk seated on and supported by the bottom plate, and provided at its center with an opening registering with that of the plate, said opening in the disk being provided with a surrounding collar or flange, the lower end of which projects below the disk and fits removably in the opening in the bottom plate, substantially as specified.

3. The combination with a retort provided with a mixing-chamber and a vapor-discharge located below the latter, of a pair of movable tubes either of which is adapted to be moved into line with the vapor-discharge and mixing-chamber to the exclusion of the other, and one of which is provided with a lateral discharge out of line with the mixing-chamber and closed at said upper end.

4. The combination with a retort having a mixing-chamber, and a vapor-discharge located below the same, of a cut-off plate eccentrically pivoted with relation to the said mixing-chamber and provided with an opening that may be caused to register with the chamber by a movement of the plate, a tube extending from the opening in the plate and so disposed that when in line with the mixing chamber to aline with the vapor-discharge, and a second tube similarly located with relation to the mixing-chamber and vapor-discharge and extending from an imperforate part of the plate and provided below the same with a lateral discharge.

5. The combination with a retort having a mixing-chamber, a vapor-discharge located below the same, of a cut-off plate eccentrically pivoted to the under side of the retort at one side of the mixing-chamber and provided with an opening that may be caused to register with the chamber by a movement of the plate, a tube extending from the opening in the plate and so disposed that when in line with the mixing-chamber it will also be in alinement with the vapor-discharge, a second tube similarly disposed and located with relation to the mixing-chamber and vapor-discharge and extending from an imperforate part of the plate and provided with a lateral discharge, and means for limiting the pivotal movements of said plate whereby one or the other of said tubes will be brought into alinement as mentioned when the movement of the plate has been arrested by one of said stops.

6. The combination with a retort having a mixing-chamber, and a vapor-discharge located adjacent thereto but spaced therefrom, of a movable vapor-guide located between the said vapor-discharge and the mixing-chamber, and a tube eccentrically and pivotally supported with relation to the mixing-chamber and vapor-discharge, said tube being adapted to be moved into alinement with the vapor-discharge and the mixing-chamber and having its upper end closed and provided below the same with a side discharge-opening.

7. The combination with the annular retort provided with the centrally-located mixing-chamber, of the vapor-discharge located below and at one side of said mixing-chamber, a cut-off plate pivoted to the under side of the said retort eccentrically with relation to the mixing-chamber; said cut-off plate having an opening adapted to be registered with the mixing-chamber, a curved tube projecting downwardly and laterally from the opening in the cut-off plate so as to form a continuation of the mixing-chamber, and a companion similar tube extending from an imperforate part of said plate and provided with a side discharge below the said plate.

8. The combination with the retort having the centrally-located mixing-chamber, and the valved vapor-discharge at one side of and below the chamber, of a plate pivoted to the under side of the retort and the said chamber and provided with an opening in line with the chamber, an arm extending from the plate, a curved keeper-bar located under the arm and terminating in posts secured to the under side of the retort and forming stops for limiting the movement of the arm and plate, and a pair of tubes secured to the plate and curved so as to form a continuation of the mixing-chamber when in line with the vapor discharge, one of said tubes being located in line with the opening in the plate and the other of said tubes having its upper end closed by said plate, and provided at one side below the plate with a slit or escape-opening for the vapor, substantially as specified.

601,753. KITCHEN-RACK. MARGUERITE KAISER, St. Louis, Mo. Filed May 3, 1897. Serial No. 634,906. (No model.)



Claim.—1. In a rack, a suitable back-plate, side walls carried thereby, and disposed in planes perpendicular to the plane of the back-plate said walls tapering from bottom upward, suitable recesses disposed along said walls and inclining upwardly and progressively increasing in depth from top to bottom, the recess on one side alining with a corresponding recess on the opposite side, and the bases of the recesses being disposed in a plane removed a suitable distance from the adjacent surface of the back-plate, substantially as set forth.

2. In a rack, a suitable back-plate, side walls carried thereby, and disposed in planes perpendicular to the plane of the back-plate said walls being inclined toward one another and tapering from bottom upwardly, suitable recesses disposed along said walls and inclining upwardly and progressively increasing in depth from top to bottom, the recess on one side alining with a corresponding recess on the opposite side, and the bases of the recesses being disposed in a plane removed a suitable distance from the adjacent surface of the back, substantially as set forth.

601,754. CANDLE HOLDER AND EXTINGUISHER. JOHN W. KYHAST, Brooklyn, N. Y. Filed June 10, 1897. Serial No. 640,169. (No model.)



Claim.—1. A combination candle holder and extinguisher consisting of a disk or plate, an arm or rod connected therewith and provided at its end with means for securing it to a support, said disk or plate being provided with two semicircular jaws each of which is provided with an arm one of which is rigidly secured to said plate, the arm of the other being movable and being connected with the rigid jaw by a spring-hinge and means for operating said movable arm, another spring-operated arm pivotally connected with one of said jaws and provided with an extinguishing-plate adapted to be held to one side of said jaws by a candle which is inserted therein, and being adapted also to be projected over said jaws when the candle is consumed to a predetermined point, substantially as and for the purpose described.

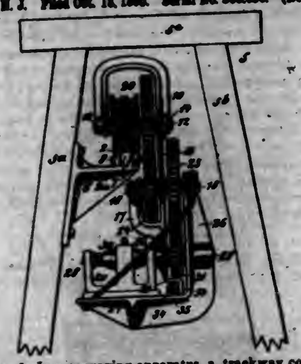
2. A combination candle holder and extinguisher, consisting of a disk or plate, an arm or rod connected therewith and provided at its end with means for securing it to a support, said disk or plate being provided with two semicircular jaws, each of which is provided with an arm, one of said arms being rigidly secured to said plate and the other arm being movable and being connected with the rigid arm by a spring-hinge and means for operating said movable arm, another spring-operated arm pivotally connected with one of said jaws and provided with an extinguishing-plate adapted to be held out of engagement with the upper edge of said jaws by a candle which is inserted therein, and being adapted also to be projected over said jaws when the candle is consumed to a predetermined point, substantially as and for the purpose set forth.

601,755. EGG-POACHER. ELISABETH LOUDEN, Omaha, Nebr. Filed July 10, 1897. Serial No. 643,070. (No model.)



Claim.—As an article of manufacture, an egg-poacher consisting of a perforated body flared upwardly, portions of its lower edge being turned inwardly to form supporting-flanges, the remaining portions forming legs, and a removable bottom adapted to rest on said flanges.

601,756. CONVEYING APPARATUS. THOMAS S. MILLER, South Orange, N. J. Filed Oct. 12, 1895. Serial No. 565,630. (No model.)



Claim.—1. In a conveying apparatus, a trackway composed of two cables laid side by side each composed of wire strands, the strands of one cable being twisted inversely to those of the other, in combination with a traction-wheel running on said cables substantially as described.

2. In a conveying apparatus, in combination, a trackway composed of two cables laid side by side each composed of strands twisted together and a carriage containing a traction-wheel having upon its periphery the imprint of the supporting-surface of the strands of both of said cables, the strands of said cables being twisted inversely, substantially as described.

3. In a conveying apparatus, in combination, a load-carriage provided with a supporting grooved wheel and a trackway composed of a plurality of cables substantially equal in diameter laid side by side between the flanges of said wheel; said cables being composed of wire strands twisted inversely, substantially as described.

4. In a conveying apparatus, in combination, a load-carriage provided with a supporting grooved wheel and a track composed of a plurality of cables substantially equal in diameter laid side by side between the flanges of said wheel; said wheel being provided with an impression between its flanges corresponding with the supporting-surface of one or both of said cables, substantially as described.

5. In a conveying apparatus, in combination, two cables side by side, a rack parallel with them, a wheel having its periphery indented to correspond with the supporting-surface of said cable and gear-teeth adapted to engage with said rack, substantially as described.

6. A traction-wheel containing on its periphery impriate corresponding with the inversely-inclined strands of two side-by-side cables twisted in opposite directions, substantially as described.

7. A traction-wheel containing on its periphery the imprint of the strands of two side-by-side cables, in combination with gear-teeth, substantially as described.

8. In a conveying apparatus, in combination the shaft 12, the traction-wheel 20 and gear 22 fixed thereon, the shaft 13, the traction-wheel 21 and gear 23 fixed thereon and a frame consisting of the bridge-piece 11 carrying the ends of said shaft 12, the bridge-piece 10 carrying the ends of said shaft 13 and a longitudinal piece 14 connecting said bridge-pieces and a pendent piece 16 provided with bearings for the shaft 18, and the shaft 18 substantially as described.

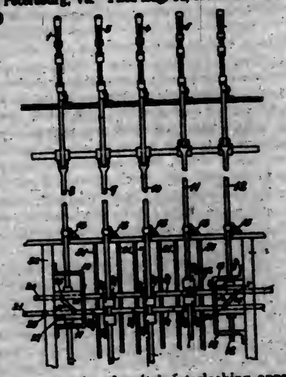
9. In a conveying apparatus, in combination, a trackway, traction-wheels thereon, a frame carried by said traction-wheels, a shaft, as 18 carrying the gear-wheel 26, means whereby said gear-wheel is connected with said traction-wheels, a platform 27, a pivotal support for said platform concentric with said wheel 25, a motor mounted upon said platform, gearing whereby said motor is connected with said gear 25 and a steadying-arm 19 connected with said frame and having a slot through which the shaft of said motor passes, substantially as described.

10. In a conveying apparatus, in combination, the traction-wheels, the shafts 12 and 13, the frame provided with the bearings for said shafts, the gears 22 and 23 fixed to said shafts, the shaft 18 also having its bearing in said frame, the gears 24 and 25 fixed upon said shaft 18, the pendulum-frame pivoted upon the end of said shaft 18, a motor-shaft 28 carried by said pendulum-frame and a gearing 21 whereby said motor-shaft is connected with said gear 25, substantially as described.

11. In a conveying apparatus, in combination, the traction-wheels, the shafts 12 and 13, the frame provided with the bearings for said shafts, the gears 22 and 23 fixed to said shafts, the shaft 18 also having its bearing in said frame, the gears 24 and 25 fixed upon said shaft 18, the pendulum-frame pivoted upon the end of said shaft 18, a motor-shaft 28 carried by said pendulum-frame and a gearing 21 whereby said motor-shaft is connected with said gear 25, an arm extending downward from said traction-wheel frame and a bearing-surface upon said pendulum-frame resting in contact with said arm as said pendulum-frame vibrates upon the shaft 18, substantially as described.

12. In a conveying apparatus in combination two cables laid side by side the strands of one cable being twisted inversely to those of the other and a traction-wheel having upon its periphery an imprint of the supporting-surface of said strand, substantially as described.

601,757. SIGNAL AND SWITCH INTERLOCKING APPARATUS. ELLERSON P. OWEN, Manchester, Va., assignor of one-half to Morton Riddle, Jr., Petersburg, Va. Filed Aug. 11, 1897. Serial No. 647,910. (No model.)



Claim.—1. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs, a locking-bar

perforated or slotted to permit the passage of the blocks or dogs through the perforations, and mechanism connected with one or more of the said rods, whereby the locking-bar will be moved, when one of the rods which are provided with the said mechanism is operated, to lock the other rods; substantially as described.

2. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs which may be intercepted by a locking-bar, a locking-bar perforated or slotted to permit the passage of the blocks or dogs through the perforations or slots, and a plate or frame connected with one of the rods, and having means whereby it will, when operated, move the locking-bar to lock the other rods; substantially as described.

3. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs which may be intercepted by a locking-bar, a locking-bar perforated or slotted to permit the passage of the blocks or dogs through the perforations or slots when the locking-bar is in its normal position, and which may intercept the said blocks or dogs when it is moved from its normal position, and provided with means whereby it may be moved, said means being engaged by a plate or frame connected with a switch-operating rod or signal-operating rod, and a plate or frame connected with one of the rods, and having an inclined face engaging the locking-bar, whereby it will, when operated, move the locking-bar from its normal position to lock the other rods; substantially as described.

4. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs which may be intercepted by a locking-bar, a locking-bar perforated or slotted to permit the passage of the blocks or dogs through the perforations or slots when it (the locking-bar) is in its normal position, and which may intercept the blocks or dogs when it is moved from its normal position, and provided with means whereby it may be moved, said means being engaged by a plate or frame connected with a switch-operating rod or a signal-operating rod, and a plate or frame connected with one of the rods, and having an inclined face engaging the locking-bar, whereby it will, when operated, move the locking-bar from its normal position to lock the other rods; substantially as described.

5. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs which may be intercepted by a locking-bar, a locking-bar perforated or slotted to permit the passage of the blocks or dogs through the perforations or slots when it is in its normal position, and which may intercept the blocks or dogs when it is moved from its normal position, and provided with a pin or friction-roller whereby it may be moved, said pin or friction-roller engaging a plate or frame connected with a switch-operating rod or a signal-operating rod, and a plate or frame connected with one of the rods, and having an inclined face or slot engaging said pin or friction-roller, whereby it will, when operated, move the locking-bar from its normal position to lock the other rods; substantially as described.

6. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs so constructed that any one of them may, when operated, engage a locking-bar when in its normal position and move it from that normal position, and that they may be intercepted by the said locking-bar when it has been previously moved from its normal position, a locking-bar perforated or slotted to permit the passage of the blocks or dogs through the perforations or slots when it is in its normal position, and which may intercept the blocks or dogs when it is moved from its normal position, the said perforations or slots being so constructed that they may, when the locking-bar is in its normal position, neatly engage the said blocks or dogs, and blocks or dogs connected with one or more of the rods, and having inclined faces, and which may engage in perforations or slots in the locking-bar when the locking-bar is in its normal position, and any one of which, when operated and engaging in one of the said perforations or slots, shall, by means of one of its inclined faces, move the said locking-bar from its normal position to lock the other rods, and which, when the locking-bar has been previously moved from its normal position, shall be intercepted by the locking-bar; substantially as described.

7. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs so constructed that any one of them may, when operated, engage a locking-bar when in its normal position and move it from that normal position, and that they may be intercepted by the said locking-bar when it has been previously moved from its normal position, a locking-bar perforated or slotted to permit the passage of the blocks or dogs through the perforations or slots when it is in its normal position, and which may intercept the blocks or dogs, thus locking the rods to which the said blocks or dogs are connected, when it is moved from its normal position, the said perforations or slots being so constructed that they may, when the locking-bar is in its normal position, neatly engage the said blocks or dogs, and blocks or dogs connected with one or more of the said rods, and having inclined faces, and which may engage in perforations or slots in the locking-bar, and any one of which, when operated and engaging in one of the said perforations or slots, shall, by means of its said inclined face, move the said locking-bar from its normal position to lock the other rods, and having other inclined faces whereby when any one of them having been operated to move the locking-bar from its normal position that one is operated in the opposite direction, it shall move the locking-bar to its normal position, and which blocks or dogs shall, when the locking-bar has been previously moved from its normal position, be intercepted by the locking-bar; substantially as described.

8. In a signal and switch interlocking apparatus, the combination of a locking-bar having perforations or slots, the said perforations or slots having inclined or beveled ends, and a series of switch-operating rods and signal-operating rods, said rods being provided with blocks or dogs, the said blocks or dogs having faces inclined to the line of the direction of the motion of the rods, and having truncated corners, and adapted to engage neatly, when the rods to which they are connected are operated, in the perforations or slots in the locking-bar to move the said locking-bar; substantially as described.

9. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal operating rods, said rods being provided with blocks or dogs having inclined faces and being so constructed that any one of them may engage in one of a series of perforations or slots in a locking-bar to move said locking-bar to lock the other rods when the rod to which it is connected is operated in one direction, and to move said locking-bar to unlock the other rods when the rod to which it is connected is operated in the opposite direction, a locking-bar having perforations or slots adapted to engage the said blocks or dogs, and adapted to be moved from its normal position by any one of the said blocks or dogs when that one is operated and engages in one of the perforations or slots, and adapted to intercept the other blocks or dogs and so to lock the rods to which they are connected when it is moved from its normal position, and mechanism engaging the said locking-bar and tending to keep the said locking-bar in its normal position; substantially as and for the purpose described.

10. In a signal and switch interlocking apparatus, the combination of a series of switch-operating rods and signal-operating rods, a locking-bar perforated or slotted to permit the engaging of blocks or dogs in said perforations or slots, blocks or dogs having inclined faces and truncated corners, and connected one with each of the said rods, and so constructed that any one of them may, when the rod to which it is connected is operated in one direction, engage in one of the perforations or slots of the locking-bar to move said locking-bar to intercept the other blocks or dogs and so lock the rods to which they are connected, and the locking-bar having been so moved, and when the rod to which the said block or dog is connected is operated in the reverse direction, to move the locking-bar to free the other blocks or dogs and so unlock the rods to which they are connected, and a counterbalance engaging the locking-bar, and, by exerting an endwise pressure on it in one direction, tending to keep it in such a position that all the blocks or dogs and the rods to which they are connected are free to be operated; substantially as and for the purpose described.

601,758. ELECTRIC LANTERN. OSCAR C. FRAHM, West New Brighton, N. Y. Filed June 28, 1897. Serial No. 642,614. (No model.)

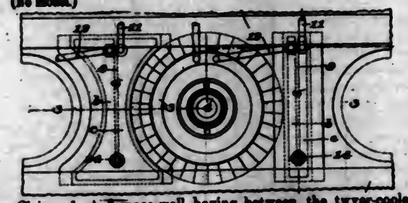


Claim.—1. A battery, comprising a casing having a removable head thereon and a depending cylindrical carbon attached to said head, an inclosed porous cup and a removable zinc contained within said cup, the said cup and the said casing adapted for respectively containing chemical compounds, the said head having a diagonal vent containing mercury leading therethrough for escape of gases, substantially as shown and described.

2. In a battery, the combination of a porous cup containing a suspended zinc, and a cylindrical carbon surrounding said zinc, and a casing inclosing the said parts, said casing having a removable head to which the said carbon is attached and from which the zinc is suspended, and a recess formed in said head for containing mercury, said chamber adapted as a vent from the battery and the mercury therein adapted for closing the outlet when the battery is tilted or inverted, substantially as shown and described.

3. A battery comprising a porous cup containing a suspended zinc, a cylindrical carbon surrounding said zinc, a casing inclosing said parts, said casing having a removable head to which the carbon is attached and from which the zinc is suspended and a recess in said head for containing mercury, said chamber adapted as a vent from the battery and the mercury therein adapted for closing the outlet when the battery is tilted or inverted; in combination with an electric lantern projected from the side of said casing and connected to the battery, substantially as shown and described.

601,759. MEANS FOR PROTECTING FURNACE-WALLS. JAMES SCOTT, Pittsburg, Pa. Filed Dec. 20, 1896. Serial No. 617,162. (No model.)

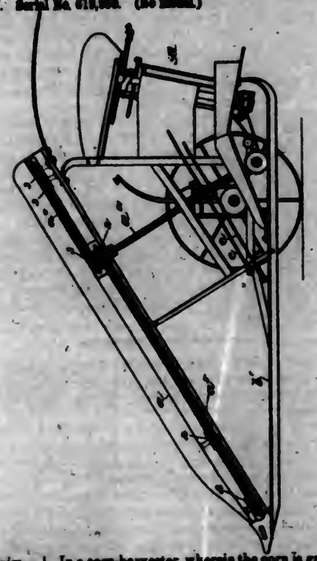


Claim.—1. A furnace-wall having between the twyer-coolers hollow buckstays set in upright position and provided with passages for a cooling medium, and a band confining the same to the furnace-wall.

2. A furnace-wall having between the twyer-coolers oblong hollow buckstays set in upright position and provided with passages for a cooling medium, and bands confining the same above and below.

3. A water-cooling box contracted at the middle portion and flaring in width toward top and bottom.

601,760. CORN-HARVESTER. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Jan. 20, 1897. Serial No. 619,998. (No model.)



Claim.—1. In a corn-harvester, wherein the corn is gathered, cut and bound on end, a laterally-confined corn-passage, a binder at the rear end thereof, a cutter crossing said passage, a rapidly-moving corn-engaging device working rearwardly along the front part of said passage, and a slowly-moving corn engaging device working rearwardly along the rear part of said passage in continuation of said rapidly-moving corn-engaging device, substantially as described.

2. In a corn-harvester, a laterally-confined corn-passage, a cutter, a rapidly-moving corn-engaging device working rearwardly along the front part of said passage approximately to a vertical plane with the cutter, and a slowly-moving corn-engaging device working along said corn-passage rearward of the cutter, substantially as described.

3. In a corn-harvester wherein the corn is gathered, cut and bound on end, a laterally-confined corn-passage, a binder at the rear and thereof, a cutter crossing said passage, two corn-engaging devices working rearwardly along said passage, one at the rear of the other, the rear one working at a slower speed than the one in front of it, and in continuation thereof, and a butt engaging device arranged below said rear corn-engaging device, which works in conjunction therewith and at substantially the same speed, substantially as described.

4. In a corn-harvester, a laterally-confined corn-passage, a cutter and a binder, a rapidly-moving corn-engaging device working rearwardly along the front part of said passage approximately to the cutter, a slowly-moving corn-engaging device working rearwardly along said passage from the cutter toward the binder, and a butt-engaging device arranged below said slowly-moving corn-engaging device which works in conjunction therewith and at substantially the same speed, substantially as described.

5. In a corn-harvester, a laterally-confined corn-passage, a cutter and a binder, a rapidly-moving corn-engaging device working rearwardly along the front part of said passage approximately to the cutter, a slowly-moving corn-engaging device working rearwardly along said passage from a point in advance of the cutter toward the binder, and a butt-engaging device which works from a point in advance of the cutter rearwardly toward the binder and in conjunction with said slowly-moving corn-engaging device below which it is located, said slowly-moving corn-engaging device and butt-engaging device working at substantially the speed of the machine, substantially as described.

6. In a corn-harvester, a laterally-confined corn-passage, a pair of rapidly-moving upwardly-inclined corn-engaging chains working along the front part of said passage, a pair of slowly-moving upwardly-inclined corn-engaging chains working along the rear part of said passage in continuation of the aforesaid chains, substantially as described.

7. In a corn-harvester, a laterally-confined corn-passage, a pair of rapidly-moving upwardly-inclined chains working along the front part of said passage, a pair of slowly-moving upwardly-inclined corn-engaging chains working along said passage at the rear of the aforesaid chains, and in continuation thereof, and butt-feeding devices arranged below said slowly-moving corn-engaging chains which work in conjunction therewith, substantially as described.

8. In a corn-harvester, a laterally-confined corn-passage, and two corn-engaging chains working rearwardly along said passage, one in front of the other, the front chain traveling faster than the rear chain, and a single operating-shaft for said chains having thereon two driving-wheels of different diameters around which said chains pass, substantially as described.

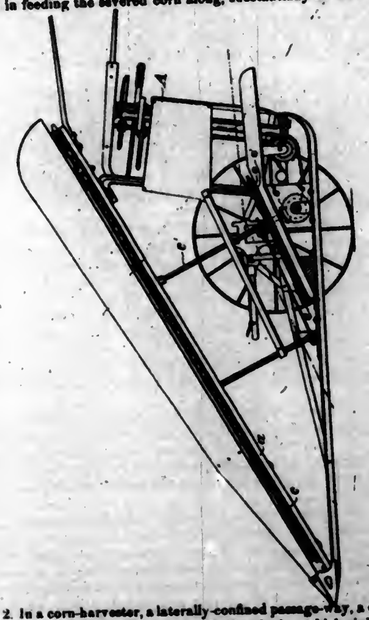
9. In a corn-harvester, a laterally-confined corn-passage, a pair of rapidly-moving corn-engaging chains working along the front part of said passage, the engaging portions of which are drawn taut, and a pair of slowly-moving corn-engaging chains working along the rear part of said passage, the engaging portions of which are held slack, substantially as described.

10. In a corn-harvester, a laterally-confined corn-passage, a pair of rapidly moving corn-engaging chains working along the front part of said passage, the engaging portions of which are drawn taut, and a pair of slowly-moving corn-engaging chains working along the rear part of said passage, the engaging portions of which are held slack, and reciprocating butt-feeding jaws located below said rear chains, and working conjunctively therewith to feed along the corn, substantially as described.

11. In a corn harvester wherein the corn is gathered, cut and bound on end, a laterally-confined corn-passage, a cutter crossing said passage, a binder at the rear end of said passage, a floor along said passage from the cutter to the binder, devices for continuously engaging and positively moving the corn rearward and presenting it to the cutter, yielding stalk-feeding devices working in continuation thereof from the cutter rearward toward the binder, and one or more pairs of butt-feeding jaws located beneath said yielding stalk-feeding devices which work in conjunction therewith to engage the severed corn while resting upon the floor of said passage, and convey it rearward toward or to the binder, substantially as described.

601,761. CORN-HARVESTER. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed Mar. 15, 1897. Renewed Jan. 20, 1898. Serial No. 667,006. (No model.)

Claim.—1. In a corn-harvester, a laterally-confined corn-passage, a cutter, a butt-engaging device located in proximity to the cutter which engages the corn in front of said cutter and holds it while the cutter severs it, and means for operating said butt-engaging device at a speed substantially equal to the speed of the machine, combined with a rapidly-moving corn-engaging device working rearwardly along said corn-passage from front to rear, to "right" the stalks in front of the cutter, and thereafter assist in feeding them along in upright position, a butt-feeding device at the rear of said butt-engaging device, and means for operating it at a speed substantially equal to the speed of said corn engaging device, in conjunction with which it works in feeding the severed corn along, substantially as described.



2. In a corn-harvester, a laterally-confined passage-way, a cutter, a rapidly working corn righting and feeding device, which rights the corn in front of the cutter, and assists in feeding the severed corn rearward, rapidly-working butt-feeding devices at the rear of the cutter which work in conjunction with said corn-feeding device, and at substantially the same speed, and a butt-engaging device which engages the corn in front of the cutter and holds it as the cutter operates, and means for operating said butt-engaging device at substantially the speed of the machine, substantially as described.

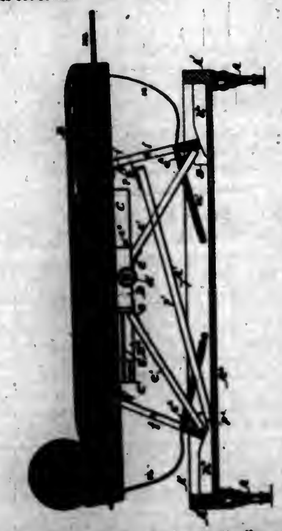
3. In a corn-harvester, a laterally-confined passage-way, a cutter crossing it substantially midway its length, and a binder at its rear end, a rapidly-moving corn righting and feeding device working substantially from end to end of said passage-way, which rights the corn in front of said cutter and feeds along the severed corn at the rear thereof, a slowly-moving butt-engaging device which engages the butts in front of and presents them to the cutter, and a rapidly-moving butt-feeding device at the rear of said butt engaging device, which works in conjunction with said corn-engaging device in feeding the severed corn toward or to the binder, substantially as described.

4. In a corn-harvester, a cutter, a butt-engaging device which engages the butts in front of and presents them to the cutter, means for operating said butt-engaging device substantially at the speed of the machine, and a butt-feeding device at the rear of said butt-engaging device which moves rearward more rapidly, substantially as described.

5. In a corn-harvester, the combination of a cutter, a butt-engaging device which engages the butts in front of and presents them to the cutter, means for operating it substantially at the speed of the machine, a rapidly-moving butt-feeding device at the rear of said cutter, and a rapidly-moving corn righting and feeding device working in advance of the cutter to right the corn and at the rear of the cutter to feed the severed corn along, substantially as described.

601,762. SURGICAL LOUNGE. SELIAH STEVENS, Boston, Mass. Filed June 18, 1897. Serial No. 641,271. (No model.)

Claim.—1. An operating-lounge composed of a base and a top, said top having hinged to it near its end holding-legs, braces hinged to the free ends of said legs, and slides hinged to the opposite ends of said braces, combined with longitudinally-arranged guides to receive said slides, and means to clamp and hold said slides in adjusted position, to thereby keep the top elevated above the base, as and for the purposes set forth.



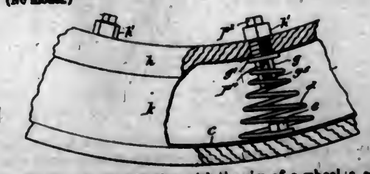
2. The top part provided with a longitudinally-arranged guiding-cleat, two slides cooperating with different sides of the said cleat, and blocks D located at the outer sides of said slides, braces attached to said slides, and legs hinged to the said top part and to the said braces, and a base-frame on which the lower ends of said legs rest, combined with means to move said blocks to clamp the said slides and hold them, substantially as described.

3. The top part provided with a longitudinally-arranged guiding-cleat, two sides cooperating with different sides of the said cleat, and blocks D located at the outer sides of said slides, braces attached to said slides and legs hinged to the said top part and to the said braces, and a base-frame having blocks on which said legs slide, and pins to engage and hold the said legs when in their elevated positions, combined with means to move said blocks to clamp the said slides and hold them, substantially as described.

4. The top part provided with a longitudinally-arranged guiding-cleat, two slides cooperating with different sides of the said cleat, and blocks D located at the outer sides of said slides, braces attached to said slides, legs hinged to the said top part and to the said braces, and a base-frame having tracks on which said legs slide and pins to engage and hold the said legs when in their elevated positions, and locking devices for said legs, substantially as described.

5. An operating-lounge composed of a base, and a top, said top having connected to it legs and slides, and braces attached to said slides, combined with means to guide and clamp the said slides when it is desired to retain the top part of the lounge elevated for an operating-lounge, and a link connecting said base and one of said legs, substantially as described.

601,763. TIRE. CHARLES TAYLOR, Montreal, Canada, assignor of two-thirds to George Saunderson, same place, and George Plunkett Magann, Toronto, Canada. Filed Sept. 14, 1896. Serial No. 606,795. (No model.)



Claim.—1. In combination with the rim of a wheel, a series of guides secured thereto, a series of sections adjustable longitudinally

of said guides, a series of helical springs one end of each of which takes about one of said guides and bears upon one of said adjustable sections and the other end of each being connected to a tread, for the purpose set forth.

2. In combination with the rim of a wheel, a tread and an annulus located inside of and in contact with said tread, a series of guides secured to said tread, a series of sections adjustable longitudinally of said guides, a series of helical springs one end of each of which takes about one of said guides and bears upon one of said adjustable sections and the other end of each being connected to said annulus and a covering for said springs consisting of a pair of separate strips, the inner side edges whereof are connected to said rim and the outer side edges confined between said annulus and tread, for the purpose set forth.

3. In combination with the rim of a wheel, a series of guides carried by said rim, a series of bearing-sections carried by said guides and adjustable longitudinally thereof, a series of helical springs located between said rim and tread and each adapted to bear at one end upon the inside of said tread and having the outer end thereof encircling the end of one of said guides and bearing upon said adjustable bearing-section and means for adjusting said bearing-sections, for the purpose set forth.

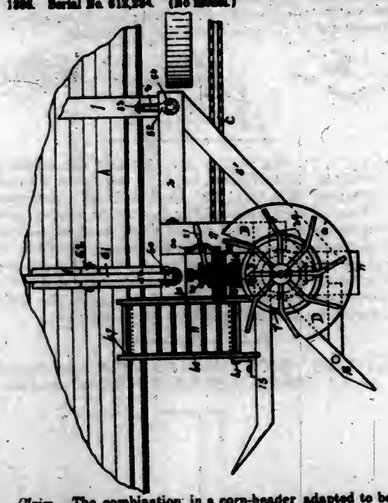
4. In combination with the rim of a wheel such rim having openings therethrough, a series of guides each consisting of a slitted tubular section provided with a rigid collar and having one end screw-threaded and adapted to project through the openings in the rim to receive a retaining-nut thereon, a portion of the opening through said tubular section being diminished to form a shoulder; a bolt having one end projecting through said diminished opening and finished in a squared head; a collar formed rigidly upon said bolt; the other end of said bolt being screw-threaded, a collar adapted to be screwed upon said bolt and having radially projecting arms passing through the slits in said tubular section, a series of helical springs one end of each of which takes about one of said tubular guides and bears upon the said arms and their other ends being connected to a tread, and a covering for said springs connected to said rim and to said tread, for the purpose set forth.

5. In combination with the rim of a wheel such rim having openings therethrough, a series of guides each consisting of a slitted tubular section provided with a rigid collar and having one end screw-threaded and adapted to project through the openings in the rim to receive a retaining-nut thereon, a portion of the opening through said tubular section being diminished to form a shoulder; a bolt having one end projecting through said diminished opening and finished in a squared head; a collar formed rigidly upon said bolt; the other end of said bolt being screw-threaded; a collar adapted to be screwed upon said bolt and having radially-projecting arms passing through the slits in said tubular section, a series of helical springs one end of each of which takes about one of said tubular guides and bears upon said arms, and their other ends being connected to a tread, and a covering for said springs consisting of a pair of separate strips, the side edges whereof are connected one to said rim and the other to said tread, for the purpose set forth.

6. In combination with the rim of a wheel such rim having openings therethrough, a series of guides each consisting of a slitted tubular section provided with a rigid collar and having one end screw-threaded and adapted to project through the openings in the rim to receive a retaining-nut thereon, a portion of the opening through said tubular section being diminished to form a shoulder; a bolt having one end projecting through said diminished opening and finished in a squared head; a collar formed rigidly upon said bolt; the other end of said bolt being screw-threaded; a collar adapted to be screwed upon said bolt and having radially-projecting arms passing through the slits in said tubular section, a series of conical helical springs one, the smaller, end of each of which takes about one of said tubular guides and bears upon the said arms and their other ends being connected to a tread, and a covering for said springs connected to said rim and to said tread, for the purpose set forth.

7. In combination with the rim of a wheel, each rim having openings therethrough, a series of guides each consisting of a slitted tubular section provided with a rigid collar and having one end screw-threaded and adapted to project through the openings in the rim to receive a retaining-nut thereon, a portion of the opening through said tubular section being diminished to form a shoulder; a bolt having one end projecting through said diminished opening and finished in a squared head; a collar formed rigidly upon said bolt; the other end of said bolt being screw-threaded; a collar adapted to be screwed upon said bolt and having radially-projecting arms passing through the slits in said tubular section, a series of conical helical springs one, the smaller, end of each of which takes about one of said tubular guides and bears upon the said arms and their other ends being connected to a tread, and a covering for said springs consisting of a pair of separate strips the side edges whereof are connected one to said rim, and the other to said tread, for the purpose set forth.

601,764. KAFIR-CORN HEADER. JOSEPH B. TILLEY, JOHN B. TILLEY, and LEAFBERRY F. TILLEY, Keighley, Kans. Filed Nov. 16, 1896. Serial No. 612,284. (No model.)



Claim.—The combination, in a corn-header adapted to be used in connection with an ordinary wagon, of the following instrumentalities, to wit: a supporting-frame adjustably secured to said wagon, the gathering-arms, 15 and 16, secured to said frame, the main operating-shaft, B, suitably journaled within said supporting-frame, the clutch-section, 20, working upon said shaft, said clutch-section being actuated by the lever, 21, the loose chain-pulley, 22, secured to said shaft adjacent to said clutch-pulley, said loose chain-pulley being in chain connection with one of the wheels of said wagon, the approximately circular trough, D, positioned above said shaft, B, the flange, c, forming part of said trough, the rotating cutting-knife, F, within said trough, said knife projecting beyond the union of said gathering-arms, 15 and 16, the shaft, 30, secured to said cutter and further being provided with the bevel-gear, 31, the reel, 35, upon said shaft, 30, the elevator, H, positioned below said reel, 35, the bevel gear, 36, secured to the shaft, B, meshing with said gear, 31, the spool, 40, secured to said shaft, B, the shaft, 41, positioned at right angles above said spool, 40, said shaft, 41, being provided with a spool, 43, and the belt, 44, working upon said spools, 40 and 43, all arranged to operate substantially in the manner set forth.

601,765. PLOW-HANDLE CLAMP. JAMES G. WELLS, Jackson, Tenn. Filed Nov. 8, 1897. Serial No. 657,736. (No model.)



Claim.—1. The combination with the beam and the handles of a plow, of a clamp consisting of a clip-plate for each handle, each plate having studs at its four corners, embracing the handles, one of the studs at the upper edge of the plate at the rear sides of the handles and one of the studs at the lower edge of the plate at the front sides of the handles entering and bolting with a bore in the opposite sides of the beam, and a nutted bolt binding the clip-plates, the handles and the beam.

2. As a new article of manufacture a plow-handle clip-plate formed with a central hole, a stud at its four corners, two of said studs at diagonal corners being longer than the other two and the said longest studs being a greater distance apart than the other two substantially as described.

601,766. RAILROAD-TIE PLATE. WILLIAM J. ALLEN, Clarendon, Ark. Filed July 3, 1897. Serial No. 643,407. (No model.)

Claim.—A railroad-tie plate, consisting of a rectangular plate, having a turned-up lip cut from the body of the plate and designed

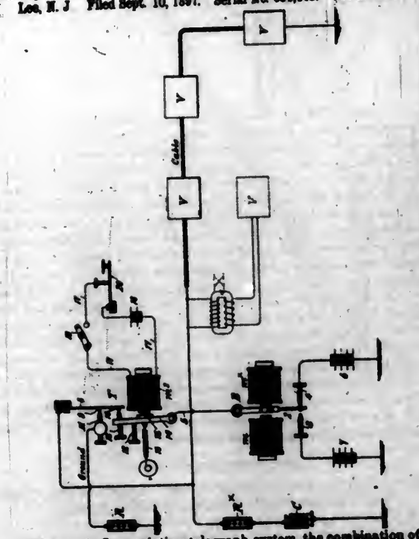
to engage the base-flange of a rail, an aperture for a spike in alinement with the lip, and two parallel V-shaped ribs located on the reverse side of the plate from the lip, extending from end to end of the plate near the side edges thereof, and adapted to be embedded in the tie lengthwise of the grain, substantially as described.



601,767. COMPOSITION FOR COLORING AND PRESERVING WOOD, &c. McKENZIE ARNN, Bristol, Va., assignor to A. H. Bonnebrd, same place. Filed Feb. 27, 1897. Serial No. 626,408. (No specimens.)

Claim.—The above-described composition for coloring, preserving and strengthening timber consisting of one hundred pounds lime, one hundred pounds salt, ten pounds alum, ten pounds of blue-stone, ten pounds of copperas, two pounds litharge, five pounds gum-arabic, ten gallons of kerosene-oil, mixed in clear water and stirred well, with two pounds metallic lead, five pounds metallic zinc, and one pound metallic copper dissolved in ten gallons nitric acid.

601,768. PRINTING-TELEGRAPH SYSTEM. JOHN BURRY, Fort Lee, N. J. Filed Sept. 10, 1897. Serial No. 651,165. (No model.)



Claim.—1. In a printing-telegraph system, the combination of a line, a receiver provided with printing and polarized type-controlling electro magnets operated by the line-current, an automatic current-reverser in said line intermediate the source of electrical energy and said receiver and adapted to be held closed while a transmitter-key is held closed, a "ground" through non-inductive resistance normally disconnected from the line and located between the said reverser and said receiver, and a two-way switch in said line between said reverser and said receiver arranged to throw the battery off and on and simultaneously to connect and disconnect the said "ground" and the receiver end of the line, substantially as described.

2. In a printing-telegraph system, the combination of a line, a receiver provided with printing and polarized type-controlling electro magnets operated by the line-current, an automatic current-reverser in said line intermediate the source of electrical energy and said receiver and adapted to be held closed while a transmitter-key is held closed, a "ground" through non-inductive resistance normally disconnected from the line and located between the said reverser and said receiver, and a two-way switch in said line between said reverser and said receiver arranged to throw the battery off and on and simultaneously to connect and disconnect the said "ground" and the receiver end of the line, with a condenser connected to said line, substantially as described.

3. In a printing-telegraph system, the combination of a line, a receiver provided with printing and polarized electro magnets operated by the line-current and a slipping type-controlling escapement operated by said polarized magnets, an automatic current-reverser in said line intermediate the source of electrical energy and said receiver and adapted to be held closed while a transmitter-key is held closed, a "ground" through non-inductive resistance normally disconnected from the line and located between the said reverser and said receiver, and a two-way switch in said line between said reverser and said receiver arranged to throw the battery off and on and simultaneously to connect and disconnect the said "ground" and the receiver end of the line, substantially as described.

4. In a printing-telegraph system, the combination of a line, a receiver provided with printing and polarized electro magnets operated by the line-current and a slipping type-controlling escapement operated by said polarized magnets, an automatic current-reverser in said line intermediate the source of electrical energy and said receiver and adapted to be held closed while a transmitter-key is held closed, a "ground" through non-inductive resistance normally disconnected from the line and located between the said reverser and said receiver, and a two-way switch in said line between said reverser and said receiver arranged to throw the battery off and on and simultaneously to connect and disconnect said "ground" and the receiver end of the line, with a condenser connected to said line, substantially as described.

5. In printing-telegraph systems employing a single line or wire for transmitting and printing, the method of transmitting and printing characters and repeating any character alongside itself which consists in transmitting and printing characters by means of a resonant alternating line-current, and in transforming the electrical conditions from the resonant state to a state of slow discharge and back to the resonant state to repeat a character alongside itself, substantially as described.

6. In a printing-telegraph system, the combination of an electro-magnet, a battery and circuit for energizing said magnet, a key in said circuit, an armature-lever 14 for coaction with said magnet and provided with a contact-point 13, a spring-arm 8 provided with contact-points 9 10, a ground through non-inductive resistance provided with a contact-point 11, the batteries 6, 7 and current-reverser B, the line 5 connected with arm 14, and the line provided with receivers and connected with arm 8 and with a condenser C, substantially as described.

601,769. PILLOW-BLOCK. WILLIAM J. DALY, Rankin, Pa. Filed June 10, 1897. Serial No. 640,161. (No model.)



Claim.—1. A pillow-block having a concave seat formed therein, a block having a convex face engaging therewith, and a bearing-block separate from and supported on said block, substantially as set forth.

2. In a pillow-block, the combination of a main frame, a stationary side piece extending up therefrom, a movable side piece opposite said stationary side piece and extending up from said frame, bearing-blocks between said side pieces, and a top piece secured to said side pieces, substantially as set forth.

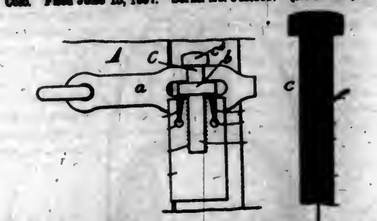
3. In a pillow-block, the combination with a suitable bed-plate having an aperture therein, of a main frame resting thereon, a stationary side piece on said frame, a movable side piece having a foot entering said aperture in said bed-plate, and a top piece secured to said side pieces, substantially as set forth.

4. In a pillow-block, the combination with a suitable bed-plate having an aperture therein, of a main frame resting thereon, a stationary side piece on said frame, a movable side piece passing down through an opening in said frame, a foot on said movable side piece entering said aperture in said bed-plate, said foot engaging the inner face of said frame, and a top piece secured to said side pieces, substantially as set forth.

5. In a pillow-block, the combination with a suitable bed-plate, of a main frame resting thereon and adapted to move transversely, a stationary side piece on said frame, a movable side piece, bearing-blocks between said side pieces, and a top piece secured to said side pieces, substantially as set forth.

6. In a pillow-block, the combination with a suitable bed-plate having an aperture therein, of a main frame resting thereon, a stationary side piece, a movable side piece passing through an opening in said frame, said movable side piece having a foot entering said aperture in said bed-plate, said foot engaging the inner face of said frame, said frame and movable side pieces having lugs thereon, a brace-block engaging said lugs, and a top piece secured to said side pieces, substantially as set forth.

601,770. SEAL-BOLT. FREMONT C. DOERNBADER, Colorado Springs, Colo. Filed June 15, 1897. Serial No. 640,895. (No model.)



Claim.—1. In a seal-lock, the combination with a seal having a plurality of transversely-disposed webs, of a locking-pin provided with a longitudinally-disposed slot and teeth in the walls of the slot for engagement with the webs of the seal.

2. In a seal-lock, the combination of a locking-pin provided with a longitudinally-disposed toothed slot, a plurality of hooks projecting from a lock member, and a seal having transverse webs for engagement with the slot-teeth and perforations for engagement with the hooks.

3. In combination with a lock as described, of a pin provided with a longitudinally-disposed slot the walls of which are provided with alternately-disposed ratchet-shaped teeth, and a seal formed of thin flexible material provided with incisions forming a plurality of webs for engagement with the teeth of the slot, substantially as described.

4. In a seal-lock of the character described, the combination with a lock member carrying hooks, of a pin having a longitudinally-disposed toothed slot, and a seal of thin sheet material having perforations for engagement with the hooks, and webs for engagement with the slot-teeth, and having a space for the reception of impressions made in the manner and for the purpose set forth.

601,771. BALL OR COP OF TWINE. GEORGE H. ELLIS and JOHN F. STEWARD, Chicago, Ill. Filed Apr. 20, 1895. Serial No. 547,486. (No model.)



Claim.—1. A cylindrical cop or ball made up of superposed layers or courses, each layer consisting of coils wound spirally from end to end of the cop in reverse directions, the angle of the coils relative to the axial line of the cop being the same in all the layers, and the pitches of the coils being so arranged in the several layers as that the coils in each layer will form a bond for those in the layer beneath.

2. A cylindrical cop or ball made up of superposed layers or courses, each layer consisting of coils wound spirally from end to end of the cop in reverse directions, the angle of the coils relative to the axial line of the cop being the same in all the layers, and the pitches of the coils of any given layer being greater than those of the layer beneath it so as to form a bond for the latter.

3. A cylindrical cop or ball made up of superposed layers or courses, each layer consisting of coils wound spirally from end to end of the cop in reverse directions, the angle of the coils relative to the axial line of the cop being the same in all the layers, and the pitches of the coils in any given layer being greater than those of the underlying layer, and the number of pitches in the several layers diminishing as the diameter of the cop increases.

4. A cylindrical cop or ball made up of superposed layers or courses, each layer consisting of coils wound spirally from end to end of the cop in reverse directions, the angle of the coils relative to the axial line of the cop being the same in all the layers, and the pitches of the coils in any given layer being greater than those of the underlying layer, and the number of pitches in the several layers diminishing as the diameter of the cop increases, the number of pitches in the outer or finishing layer being divisible into the length of the cop in whole or half numbers only.

601,772. WRENCH. THOMAS FORSHEE, New Ulm, Minn. Filed Mar. 26, 1896. Renewed Jan. 26, 1898. Serial No. 668,494. (No model.)

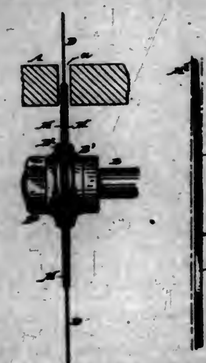
Claim.—1. The combination with the fixed jaw and its shank, of the movable jaw, the arms pivoted on its shank, the dog carried by the said arms, and the eccentric lever mounted on the dog, as set forth.

2. The combination with the fixed jaw and its shank, of the movable jaw, the arms pivoted on the shank of the movable jaw, the dog carried by the arms, the eccentric lever mounted on the dog, and the springs on the shank of the movable jaw acting on the said arms, as set forth.



3. The wrench described consisting of the fixed jaw, its toothed shank, the movable jaw, its shank, the guide thereon, the arms pivoted on the shank of the movable jaw, the springs on the shank of the movable jaw and acting on said arms, the toothed dog pivotally mounted on the arms, and the eccentric lever pivoted on the pivot of the dog, all substantially as and for the purpose specified.

601,773. MEANS FOR STIFFENING CIRCULAR SAWS. CHAS. FOSS, Rutherford, N. J. Filed May 29, 1897. Serial No. 638,681. (No model.)

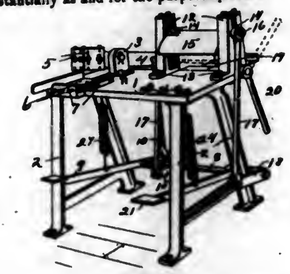


Claim.—The saw A, mandrel B, and securing means B', B², B³, in combination with the disks M of less diameter than the saw, applied one on each face of the latter, and each having the central opening to matching to and receiving said mandrel, the said disks being slightly concaved on the faces adjacent to the saw and corresponding each to the other in diameter, thickness, temper, and concavity, and flattened and compressed into close contact with said saw over the whole covered surface to maintain the saw in a true plane, all arranged to serve substantially as and for the purpose herein specified.

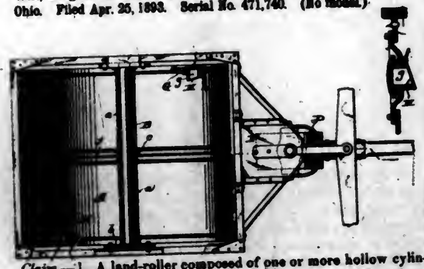
601,774. MACHINE FOR FOLDING SLIP-JOINTS FOR RAVER-TROUGHS. ROBERT P. FOWLER, Canton, Ohio, assignor of one-half to Burnhard Dick, same place. Filed Mar. 26, 1897. Serial No. 630,194. (No model.)

Claim.—The combination of the bed-plate 1 supported upon standards, the housings 12 secured to the bed-plate 1, the combined ham-

mer and gage 15 movable vertically and provided with the recess 22, the folding-bar 19 journaled to the bed-plate and provided with the operating-lever 20, the bars 17, connected at their upper ends to the bearings 16, and at their lower ends to the arms 18, the shaft 8 provided with the foot-lever 21, and the spring 24 connected to the foot-lever, substantially as and for the purpose specified.



601,775. LAND-ROLLER. WILLIAM F. GOODHUE, Milwaukee, Wis., assignor to the Addyston Pipe and Steel Company, Cincinnati, Ohio. Filed Apr. 25, 1893. Serial No. 471,740. (No model.)



Claim.—1. A land-roller composed of one or more hollow cylinders each having a filling-opening in the end and provided with an outwardly-closing check-valve in said opening and a cap for closing said opening outside of the check-valve, substantially as and for the purposes set forth.

2. A land-roller composed of one or more hollow cylinders, each of which has a vent-opening and is provided in the end near the periphery with an aperture and with an inwardly-opening valve adapted to permit the inflow but prevent the outflow of liquid therefrom, and a cap for closing said aperture outside of said valve, substantially as and for the purposes set forth.

3. In a land-roller, the combination of a suitable frame, a hollow cylinder mounted and arranged to turn therein, a valve arranged to close outwardly over an opening in the end of said cylinder, and a vent-opening between said valve and the periphery of the cylinder, substantially as and for the purposes set forth.

4. In a land-roller, the combination of a suitable frame, a hollow cylinder journaled therein and formed or provided in one end near its periphery with a sleeve open at its ends outside and inside of said cylinder, the outer end of said sleeve being screw-threaded and provided with a screw-cap, and a valve hinged to the inside of the cylinder at one side of said sleeve and provided with a projection arranged to limit its opening, substantially as and for the purposes set forth.

5. In a land-roller, the combination of one or more hollow cylinders, each having a filling-opening and a separate vent-hole and provided with an outwardly-closing check-valve in said filling-opening, substantially as and for the purposes set forth.

601,776. CORK-PROTECTOR. CHARLES W. MACKEY, Moravia, N. Y. Filed Aug. 26, 1896. Renewed Nov. 3, 1897. Serial No. 657,204. (No model.)

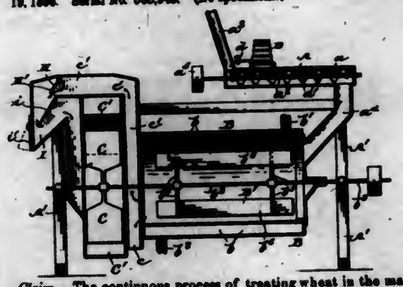
Claim.—1. A corkscrew having an extension adapted to lie against the exterior of the body of a bottle so as to be engaged by the label when the corkscrew is inserted in the stopper, substantially as described.

2. A corkscrew provided with oppositely-projecting extensions adapted to lie against the body of the bottle at substantially diametrically opposite points, so as to be engaged by the label when the latter is applied to the bottle and the corkscrew inserted in the stopper, substantially as described.

3. The combination with a stopper-protecting device adapted to fit over a cork and embrace the body of the bottle so as to be engaged by the label, of a corkscrew permanently secured thereto and adapted to engage the stopper, substantially as described.



601,777. PROCESS OF TREATING WHEAT IN MANUFACTURING FLOUR. ARTHUR F. CHEVERTON, Winneconne, Wis. Filed Mar. 19, 1896. Serial No. 583,943. (No specimens.)



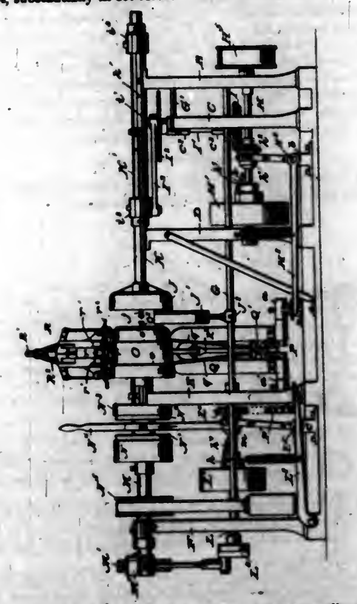
Claim.—The continuous process of treating wheat in the manufacture of flour which consists essentially in first rapidly moving the wheat and slightly moistening it in transit with water without soaking the bran, next passing the wheat through a polisher and at the same time subjecting it to dry heat and mutual attrition whereby it is dried, seasoned, and polished, and finally passing the wheat thus prepared, in the bran, to the first break-rolls, substantially as described.

601,778. BASKET-MAKING MACHINE. ROGER R. REED, Douglas, Mich., assignor of two-thirds to Elmer E. Wood, D. Milton Gerber, and Cornelius Gerber, same place. Filed May 27, 1897. Serial No. 638,247. (No model.)

Claim.—1. In a basket-making machine, the combination with a form mounted on a shaft connected with mechanism for imparting an intermittent rotary movement or a continuous rotary movement thereto, a shaft journaled in line therewith and provided with a hood or cap, means for moving the same over the form so as to bend and retain the basket-splints thereon, of a stapling-machine mounted on a swinging support so that it can be moved into operative position over the form or to one side of the same, when placing the splints on the form or removing the completed basket therefrom.

2. In a basket-making machine, a shaft having a basket-form carried thereby, a cap or hood carried by a shaft on a line therewith, said shaft being mounted so as to be moved to and from the form, a stapling machine mounted on a swinging support, the driving-shaft of the stapling-machine being in gear with the driving mechanism for the shaft upon which the form is mounted, said mechanism embodying a pawl and ratchet for imparting an intermittent rotary motion to the form and gearing to operate the stapling-machine when the form is at rest, substantially as shown and for the purpose set forth.

3. In a basket-making machine, the combination with a shaft having a basket-form attached thereto, mechanism for imparting to said shaft and basket-form an intermittent rotary motion, a pulley mounted on the shaft so as to impart when it positively engages the shaft a continuous rotary movement, a second shaft mounted on a line with the shaft carrying the form, the same being provided with a hood or cap, and means for supporting the shaft so that it may be moved to place the hood or cap partially over the form; together with a stapling-machine supported so as to be moved to an operative position over the form or to one side of the same, the stapling-machine being connected with the shaft carrying the form so that a downward movement of the staple-drivers will be effected when the form is at rest, substantially as set forth.



4. In a basket-machine, the combination of a horizontally-mounted shaft carrying a basket-form, of a shaft mounted on a line therewith and provided with a cap or hood for bending the basket-splints over the form, said shaft being connected with means for moving the same longitudinally, the basket-form having its end adjacent to the hood or cap concave, and a spring-projected rod carried by the shaft upon which the hood or cap is mounted for bending the splints in the concave portion of the basket-form, for the purpose set forth.

5. In a basket-making machine, the combination with the shafts one carrying a form having a concave end and the other a cap or hood, the shaft carrying the cap or hood being movable longitudinally to and from the form, of spring-projected rods carried by the shafts so as to be on a line with each other to provide means for holding the splints and forcing them in the concave portion of the basket-form prior to the engagement of the hood or cap with said splints, said hood or cap bending and holding the splints over the form while the bands are being applied thereto, the spring-projected rod carried by the shaft upon which the form is mounted projecting the basket from the form when the cap is moved away therefrom, for the purpose set forth.

6. In a basket-making machine the combination with shafts one having a form with concave end and the other a splint-bending cap mounted thereon, of spring-projected rods carried by the shafts and positioned centrally with respect to the form and cap, one of the rods having means for limiting its inward movement so that a part thereof will be positively projected to force the splints into the concave end of the basket-form prior to the bending of the splints over the form by the cap, for the purpose set forth.

7. In a basket-making machine the combination with a basket-form mounted on a horizontal shaft, said form having shoulders to provide inner hoop-bearings, the outer end of the form being concave, a hood or cap mounted on a shaft having means for moving the shaft so as to position the hood or cap over the form, the shafts upon which the form and hood or cap are mounted each carrying spring-projected rods which hold the splints centered, one of the rods having means for holding the same positively projected so as to bend the splints within the concave portion of the form, the hood or cap subsequently bending the splints over the form, substantially as shown and for the purpose set forth.

8. In a basket-machine, the combination with a form having a concave end, of a hood or cap adapted to bend the splints over the form, a rod carried by the shaft upon which the hood is mounted, a spring for projecting said rod and a collar or stop to limit the inward movement of the rod to provide a projecting portion which will force the splints into the concave portion of the form.

9. In a basket-making machine, the combination of a shaft mounted so as to be rotatable in bearings, the bearings being supported so as to have a longitudinal movement, a hood or cap for the purpose set forth mounted on one end of the shaft, a lever fulcrumed on a fixed frame and provided with a projecting portion for engagement with the sliding frame having the bearings and means substantially as shown for effecting the movement of the sliding frame for the purpose set forth.

10. In a basket-making machine, the combination with a form, of a cap or hood mounted on a shaft, means for moving the shaft and hood to and from the form embodying a sliding frame with bearings in which the shaft is journaled, a pitman connected to the sliding frame and to an arm or disk, a vertical shaft on which said arm or disk is mounted, a gear-wheel on the lower end of said shaft; together with a horizontal shaft having a driving-pulley loosely mounted thereon, a sliding block for throwing a clutch of the driving-pulley in engagement with the shaft and a lever for moving said clutch, substantially as shown.

11. In a basket-making machine, the combination with a form and hood having spring-projected splint-holding bars or rods, of a centering device positioned beneath the form and cap so as to occupy an intermediate position between the same with which the ends of the splints are adapted to engage, substantially as shown.

12. In a basket-making machine having a form and hood, of a segmental plate supported beneath the same to serve as a centering device for the splints, together with spring-projected splint-holding bars carried by the shafts upon which the form and hood are mounted so as to engage with the center of the splints, substantially as shown.

13. In a basket-making machine having a form and hood or cap, of a segmental centering device supported beneath the same said centering device having on one of its edges an upwardly-projecting flange, the supports for the form and hood having spring-actuated splint-holding rods beneath which the centering device is positioned for the purpose set forth.

14. In a basket-making machine, the combination with the shafts having hollow ends upon which are mounted a form and hood for bending the splints over the same, spring-actuated splint-engaging rods carried by the hollow shafts; together with a segmental centering device adjustably mounted upon the frame below the splint-holding rods for the purpose set forth.

15. In a basket-making machine, the combination with a form and means for holding splints thereon and imparting a rotary movement thereto, of a stapling-machine mounted on a swinging support so as to be moved into operative position over the form, said stapling-machine having a pair of staple-drivers maintained at opposing angles with each other and with the grain of the hoops and splints.

16. In a basket making machine, the combination with a stapling-machine mounted on a movable support the same having in front of the staple-drivers thereof hoop-rollers, of a form mounted on a shaft said form having shoulders against which the inner hoops of the basket abut positioned so that the inner hoops will be beneath the staple-drivers and hoop-rollers adjacent thereto when the stapling-machine is moved over the form, for the purpose set forth.

17. In a basket-making machine, the combination with a form and a cap for holding the splints thereon, and means for imparting an intermittent rotary movement to the form, of a stapling-machine having a pair of rollers for the exterior hoops and mechanism for driving two staples simultaneously when the form is at rest, the shaft carrying the form and the driving-shaft of the stapling machine being in gear with each other, substantially as shown and for the purpose set forth.

18. In a basket-making machine, the combination with a shaft having means for imparting an intermittent rotary movement thereto, a form mounted on said shaft, a stapling machine supported so as to be moved to one side of the form to provide room to bend the splints upon the form, the stapling-machine being moved over the same when in operative position, a cap or hood for holding the splints on the form and mechanism substantially as shown for operating the stapling-machine when the form is at rest for the purpose set forth.

19. In combination with a basket-making machine having a form and means for holding the basket-splints thereon, of a stapling-machine mounted on a swinging support, a foot lever or brake for moving the stapling-machine above the form; together with means for throwing the driving mechanism which operates the stapling-machine in gear with the shaft upon which the form is mounted, substantially as shown.

20. In a machine for making baskets from splints and hoops, a form over which the splints are bent, a cap for bending and holding the splints thereon, in combination with a stapling-machine which is movable at right angles to the longitudinal axis of the form, rollers carried by the frame of the stapling-machine in advance of the staple-driving mechanism and a cross-bar having upwardly-projecting guide-pins, supported so as to be positioned in advance of the rollers, substantially as shown and for the purpose set forth.

21. In a basket-making machine, the combination with a form and a cap or hood for holding the splints thereon, the shaft upon which the form is mounted carrying a ratchet-wheel, means for turning the ratchet-wheel, said shaft also carrying a friction-brake to provide means for holding the shaft against rotation; together with a stapling-machine and means for operating it from the driving-shaft to which the shaft carrying the form is geared so that the staples will be driven when the form is at rest for the purpose set forth.

22. In a basket-making machine, the combination of a pair of shafts in alinement with each other, one of the shafts having a basket-form mounted thereon, the other shaft carrying a cap or hood for bending and holding the splints upon the form, means for imparting an intermittent rotary movement to the shaft carrying the form, a stapling-machine in gear with a main driving-shaft, said main driving-shaft also being connected to the shaft carrying the form, means for disengaging the driving-pulley from the main driving-shaft, a pulley mounted on the shaft carrying the form and a clutch adapted to be placed in engagement therewith, so as to effect a continuous rotary movement of the form without operating the staple-driving mechanism, the parts being organized and combined substantially as shown and for the purpose set forth.

23. In a basket-making machine, the combination of an intermittently-driven shaft carrying a form, of a shaft mounted so as to be movable to and from the form, a hood carried by said shaft, driving-shafts as H, L, and means for connecting said shafts with the shafts carrying the form and hood, pulleys loosely mounted on the shafts L, H, and foot-levers having their ends projecting toward each other, said foot-levers being connected to rock-shafts having arms for engagement with slides mounted on the shafts L, H, so that when the foot-levers are depressed the slides will be moved to engage clutches on the shafts so that said pulleys will be positively connected with the shafts; together with an arm pivotally attached to a crank-shaft, said arm carrying stapling mechanism, a foot-lever for bringing the arm forward so that the stapling mechanism will be in operative position and gearing for connecting the crank-shaft to the shaft L, the parts being combined and organized substantially as shown and for the purpose set forth.

24. In a basket-making machine the combination with the form and means for holding splints thereon and imparting an intermittent rotary motion to the form and splint-holder, of a duplex stapling-machine having separate plungers and staple-forming devices, guide-rollers and wire-holders, motion being imparted to the operative parts by a single rod which is reciprocated from the shaft which drives the shaft carrying the form; the stapling-machine also carrying in front of the staple-inserting plungers, flanged rollers for the hoops and an intermediate resilient bar carrying a cross-bar with upwardly-projecting pins, the parts being organized substantially as shown and for the purpose set forth.

25. In a basket-making machine, the combination with a form, and a hood or cap for bending the splints and holding them on the form, the form and the hood or cap being mounted on independent shafts, means for moving longitudinally one of the shafts so that it will turn in unison with the shaft carrying the form, of a stapling-machine carried by a swinging support, so as to be positioned away from the form and brought over the form, the basket form serving as an anvil for the staple-drivers, substantially as set forth.

26. The combination in a basket-making machine, having a driven shaft to which is imparted an intermittent rotary movement, a basket-form carried by said shaft and a cap or hood for holding the basket-splints thereon, of a stapling-machine mounted on a swinging support, the driving-shaft of the stapling-machine being geared and ordinately arranged to operate the staple-drivers which are indirectly connected with said shaft so that the downward movement thereof will be between the impulses of the basket-form, the mechanism embodying a driving-shaft with which the driving-shaft of the form and the driving-shaft of the stapling-machine are geared for the purpose set forth.

27. In combination with the basket-making machine, a staple making and driving mechanism, comprising a base-frame with stapling mechanism arranged at opposing angles with respect to the longitudinal axis of the basket-form, the base-frame having a centrally-projecting lug upon which are mounted hoop-rollers, a plate carried by the lug so as to project in advance of the hoop-rollers, said plate having upward-projecting pins; together with a reciprocating frame the downward movement of which actuates the mechanism which forms and drives the staples, substantially as shown.

28. In combination with a basket-making machine, a stapling-machine having a pivotally-supported base-frame with staple making and driving mechanisms carried thereby so as to be at opposing angles relative to the longitudinal axis of the basket-form, an operating-rod which passes through and is guided by the base frame, a frame mounted on said shaft so as to reciprocate therewith said frame carrying depending members which actuate the staple making and driving mechanisms and means in engagement with each other for rotating the basket-form and reciprocating the operating-rod of the stapling mechanism, substantially as shown and for the purpose set forth.

29. In combination with a basket-making machine, a duplex stapling-machine comprising a lower base-frame, the portions which carry the staple making and driving mechanisms being arranged at opposing angles with each other, a driving-rod for operating both staple making and driving mechanism, said rod passing through the base-frame and being guided thereby, a reciprocating frame carrying pawls for operating the feed-wheels, latches for engagement with the staple-formers, and staple-drivers connected to the upper reciprocating frame, substantially as shown and for the purpose set forth.

601,779. CHALK-HOLDER. GEORGE P. ROBBINS, Fremont, Ohio. Filed Mar. 2, 1897. Serial No. 626,760. (No model.)

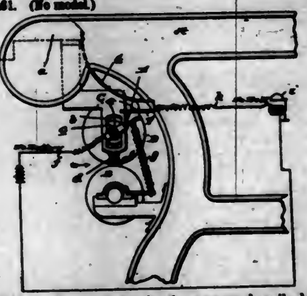


Claim.—1. A chalk-holder consisting of a conical body B, a longitudinal groove in the wall thereof and a strap or band secured in said groove and of such length as to hold said holder to the hand, as set forth.

2. A chalk-holder consisting of a conical body B, a band or strap secured thereto and means for holding said strap or band to the holder, in combination with a chalk fitting into said holder and held therein by friction.

3. A chalk-holder consisting of a conical body B, a longitudinal groove in the wall thereof entering throughout its entire length, and an elastic strap or band secured in said groove, and of such length as to hold said holder to the hand in combination with a conical piece of chalk or other suitable material, held in said body B by binding against the inner wall thereof and against the elastic band, as set forth.

601,780. APPARATUS FOR DETECTING WRINKLES IN CLOTH. THOMAS ROWE, Woonsocket, R. I. Filed Sept. 13, 1897. Serial No. 651,491. (No model.)



Claim.—In the apparatus for the purpose described, the combination of the main frame, a feed-roll journaled in the main frame, hanger arms or supports connected with the main frame and disposed above the feed-roll and having vertically-elongated slots, the bearing-blocks arranged in said slots, screws taking through threaded apertures in the hanger-arms and adjustably supporting the bearing-blocks, the normally idle detector-roll having journals arranged in the bearing-blocks, a yielding contact device supported by the frame and forming one terminal of an electric circuit, a contact-finger fixed on the journal of the detector-roll and forming the other terminal of the circuit and adapted, when the detector-roll is rotated, to engage the yielding contact device, and a coiled spring connected at one end

to the contact-finger and at its opposite end to the frame, substantially as specified.

601,781. BATHING-SUIT. MARY M. SHEPARD, Darlington, S. C. Filed Jan. 11, 1897. Serial No. 618,822. (No model.)



Claim.—1. In a bathing-suit, the combination of stockings, pants having their leg portions of larger diameter than the stockings, and having their lower ends gathered and permanently secured to the upper ends of the said stockings so as to drape thereover and produce a baggy effect, and elastics secured at their lower ends to the upper portion of the stockings and at their upper ends to the lower portion of the pants a distance above the tops of the stockings and having the intermediate portion loose, whereby the stockings are supported without interfering with the baggy effect of the pants, substantially as set forth.

2. In a bathing-suit, the combination of a waist and a pair of pants formed together, the pants having the seat portion shirred, elastics applied to the shirred portions, and reinforcing tapes or straps joined at their lower ends to the upper portion of the elastics and connected at their upper ends with the waist, substantially as and for the purpose set forth.

3. In a bathing-suit, the combination of a waist and pants formed together, stockings attached to the pants, reinforcing-strips applied to the stockings, elastics joined to the upper ends of the reinforcing-strips and having connection at their lower ends with the knee portion of the stockings and at their upper ends with the pants, and reinforcing-strips joined at their lower ends to the upper ends of the said elastics and stitched to the waist and extending to the upper portion thereof, substantially as set forth.

4. A bathing-suit comprising a waist, pants, stockings and shoes permanently connected substantially as set forth, corsets having each half permanently secured between its ends to the waist upon opposite sides of a medial line, elastics shirred to the seat portion of the pants, reinforcing-strips applied to the lower portion of the stockings, elastics joined to the upper ends of the reinforcing-strips and having connection at their lower ends with the knee portion of the stockings and shirred thereto, and shirred at their upper ends with the lower portion of the pants, tapes secured to the upper portion of the waist and having their lower ends attached to the upper ends of the elastics applied to the pants and stockings, and other tapes secured to the upper back portion of the waist and having connection at their lower ends with the elastics secured to the seat, substantially as set forth.

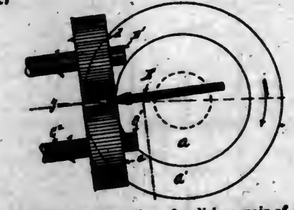
601,782. PLANT-SUPPORT. WILLIAM H. SPIRE, Marthasville, Miss. Filed Dec. 22, 1897. Serial No. 663,088. (No model.)



Claim.—1. The herein-described tie, for connecting plants to supports, formed of a single piece of spring metal and comprising the plant-receiving loop having a convex inner side and also having the open mouth, and the outwardly-curved arms forming the terminals of the loop; said arms being adapted to embrace a support and terminating in barbs adapted to be embedded in the same, substantially as specified.

2. The herein-described tie, for connecting plants to supports, formed of a single strip of spring sheet metal and comprising the plant-receiving loop of concavo-convex form in cross-section having its convex side inward and also having an open mouth, and the outwardly-curved arms forming the terminals of the loop; said arms being adapted to embrace a support and terminating in barbs struck from one of their edges at intervals on their length, substantially as specified.

601,788. MECHANISM FOR PIERCING METAL INGOTS. JOHN C. BRUNSON, Erie, Pa. Filed Nov. 1, 1897. Serial No. 657,080. (No model.)



Claim.—1. The combination of a disk, a pair of rolls overlapping the face of said disk, and a mandrel in the axis of the passage between said disk and rolls, substantially as set forth.

2. The combination in an ingot or billet piercing machine, of a disk, a pair of rolls overlapping the edge of the face of said disk, and a piercing-mandrel located in the axis of the passage between said disk and rolls at or near its narrowest point, substantially as set forth.

3. The combination in an ingot or billet piercing machine, of a disk having the periphery of its face beveled, a pair of rolls overlapping the beveled surface of said disk, and a piercing-mandrel located in the axis of the passage between said disk and rolls at or near the exit end of said passage, substantially as set forth.

4. The combination in an ingot or billet piercing machine, of a disk, a pair of conical rolls overlapping the edge of the face of said disk, and a piercing-mandrel located in the axis of the passage between said disk and rolls at or near its narrowest point, substantially as set forth.

5. The combination in an ingot or billet piercing machine, of a disk, having the periphery of its face beveled, a pair of conical rolls overlapping the beveled surface of said disk, and a piercing-mandrel located in the axis of the passage between said disk and rolls at or near the exit end of said passage, substantially as set forth.

601,784. MECHANISM FOR ROLLING OUT HOLLOW METAL INGOTS INTO TUBES. JOHN C. BRUNSON, Erie, Pa. Filed Nov. 1, 1897. Serial No. 657,081. (No model.)



Claim.—1. In a machine for reducing and drawing out hollow ingots or billets into tubes, a disk, a pair of rolls overlapping the edge of the face of said disk, and a mandrel in the axis of the passage between said disk and rolls, extending throughout said passage, substantially as set forth.

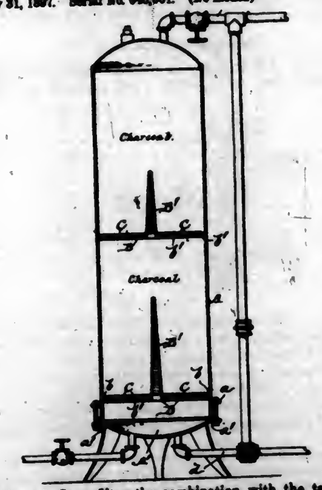
2. In a machine for reducing and drawing out hollow ingots or billets into tubes, a disk having the periphery of its face beveled, a pair of rolls overlapping the beveled surface of said disk, and a tapering mandrel inserted in the ingress end of the passage between said disk and rolls, and extending throughout said passage in the axis thereof, substantially as set forth.

3. In a machine for reducing and drawing out hollow ingots into tubes, a disk, a pair of conical rolls overlapping the edge of the face of said disk, and a mandrel located in the axis of the passage between

said disk and rolls, and extending throughout said passage, substantially as set forth.

4. In a machine for reducing and drawing out hollow ingots into tubes, a disk having the periphery of its face beveled, a pair of conical rolls overlapping the beveled surface of said disk, and a tapering mandrel inserted in the ingress end of and extending throughout the passage between said disk and rolls in the axis thereof, substantially as set forth.

601,785. **FILTER.** JOHN F. WIESBACK, Scranton, Pa. Filed July 31, 1897. Serial No. 646,661. (No model.)

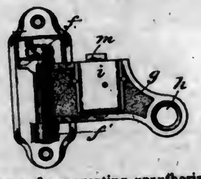


Claim.—1. In a filter the combination with the tank, of the "spider" or "grate" having the central perforated or foraminous cone and the coil of sheet metal arranged edgewise to, and upon, said "grate" or "spider," substantially as specified.

2. In a filter, the combination of a suitable tank or receptacle designed to contain charcoal or other suitable filtering agent, a spider or grate arranged in said tank, a coil of sheet metal arranged edgewise to and upon said spider, a valved service-pipe arranged outside of said tank and connecting therewith at or near its top, a valved feed-pipe connecting with said pipe at or near its bottom, and a valved waste-water pipe located near or at the bottom of the tank, substantially as described.

3. In a filter, the combination of a suitable tank designed to contain charcoal or other suitable filtering agent, a spider or grate arranged in said tank having a foraminous cone, a coil of metal ribbon arranged edgewise to and upon the spider, a valved feed-pipe connecting with the tank at or near its bottom, a valved service-pipe connected to said tank at or near its top, and a valved waste-water pipe connected tot he tank at or near its bottom, substantially as described.

601,786. **LOCK FOR TELEPHONES.** RALPH H. ALLEN, Fitchburg, Mass. Filed Sept. 3, 1897. Serial No. 650,428. (No model.)

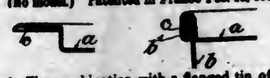


Claim.—1. A means for preventing unauthorized use of a telephone, consisting of a base-plate and bracket, adapted to be secured in proximity to the call means of the instrument, and a swinging arm supported by the base-plate or bracket and adapted to engage the call means and to be locked in engaged position and to be unlocked with a key.

2. A means for preventing unauthorized use of a telephone, consisting of a base-plate and bracket, adapted to be secured in proximity to the crank-arm of the call-box, a stationary arm forming a part of the said base-plate and bracket, a swinging arm pivotally supported by the said base plate and bracket and adapted to engage the said crank-arm and to be locked to the stationary arm when so engaged, and to be unlocked by a key and disengaged from said crank-arm.

3. As a new article of manufacture, a base-plate bracket provided with the recessed arm *k*, the swinging locking-arm *g* provided on its end with means to engage the crank-arm of the call or bell box of a telephone, and a lock carried by the swinging arm, adapted to be operated by a key, the bolt of which lock is adapted to engage the recess of the arm *k*.

601,787. **HERMETIC FASTENING FOR PRESERVE OR OTHER TINS.** ISIDORE BLOCH, Paris, France. Filed Aug. 14, 1897. Serial No. 648,198. (No model.) Patented in France Feb. 13, 1897, No. 264,942.



Claim.—1. The combination with a flanged tin, of a cover having a flange facing and adjoining the flange on the tin, one of said flanges being provided with a suitable fillet, the two flanges being deflected into positions parallel with and close to portions of the walls of the tin, substantially as set forth.

2. The combination with a flanged tin, of a cover having a flange facing the flange on the tin, one of said flanges being provided with a suitable fillet, the flange on one part overlapping and adjoining both sides of the flange on the other part, both flanges being deflected into positions parallel with and close to portions of the walls of the tin, substantially as set forth.

3. The combination with a flanged tin, of a cover having a flange facing and adjoining the flange on the tin, one of said flanges being provided with a suitable fillet, the two flanges deflected into positions close to outer surfaces of the walls of the tin, the cover being deflected inside of the tin, the portions so deflected being placed close to the interior surfaces of said tin, substantially as set forth.

4. The combination with a tin *b* having a flange *b'* turned downward, of a cover *a* having a flange provided with a fillet *c*, each flange being deflected downward and upward along flange *b'*, substantially as set forth.

601,788. **STRING INSTRUMENT.** THOMAS BERRY, Geneva, Ohio. Filed June 26, 1897. Serial No. 642,360. (No model.)



Claim.—1. In a musical string instrument, the combination with a metallic straining-frame, said straining-frame being provided with fulcrumed levers, one arm of said levers engaging and operating a straining-bar to which the strings are attached and another arm engaging a screw whereby the said levers are operated, substantially in the manner and for the purpose set forth.

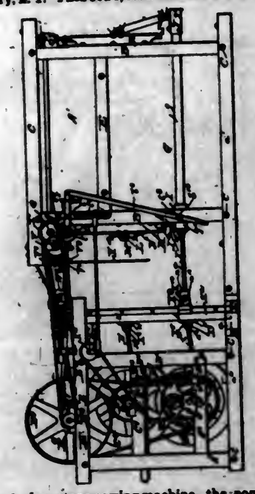
2. The combination with a straining-frame, of levers mounted in said straining-frame and fulcrumed thereto, said levers being operated by adjusting-screws and operating in turn to control the tension of the string by means of a straining-bar to which the strings are attached, substantially as and for the purpose shown and described.

3. The combination with a straining-frame and a series of adjusting-screws connected therewith and operating therein substantially as indicated, of a series of three-armed levers, one of the arms of said levers operating as a fulcrum-point, and engaging in the straining-frame another arm actuated by the adjusting-screws aforesaid, and the third arm operating the straining-bar and through it controlling the tension of the string, substantially as and for the purpose shown and described.

4. The combination in a musical string instrument, of a straining-frame from whence the tension of the string is controlled, said frame being secured to the wooden frame or back of the instrument at the end of the wooden frame, and a bridge in close proximity to the straining-bars, said bridge resting directly either upon the sounding-board or upon the wooden frame of the instrument, substantially as and for the purpose shown and described.

5. The combination with the string-frame of a piano of a metallic straining-frame, provided with suitable straining devices controlling the tension of the strings, said straining-frame being provided with a flange A^6 for securing it to the string-frame, and bridge C located in close proximity to the straining-frame, substantially as and for the purpose shown and described.

601,789. **STONE-SAWING MACHINE.** HARRY H. CUMMINGS, Dobbs Ferry, N. Y. Filed Oct. 9, 1896. Serial No. 608,267. (No model.)

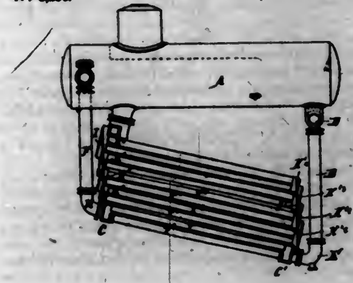


Claim.—1. In a stone-sawing machine, the combination, with a frame, one end of which is provided with longitudinal beams, of short shafts, one above the other, a pulley upon each of the upper shafts, and two driving-pulleys upon the lower one, a belt from the lower pulleys to each of the upper pulleys, a frame upon said beams provided with a toothed rack, a pulley in one end of the rack adapted to engage with the belt from the lower to the upper pulley, a rod, one end of which is provided with a gear-wheel in engagement with the rack, a hand-wheel upon the rod, a sash suspended in the frame, and means for connecting said sash with the two lower shafts, substantially as set forth.

2. In a stone-sawing machine, the combination, with a frame, of a sash suspended at one end of the frame and operating mechanism at the other end, a reciprocating frame intermediate the sash and the operating mechanism, a clamp within the frame, a rod for connecting the clamp with the sash therewith, a vertical screw-threaded shaft through the clamp, a longitudinal shaft journaled in the main frame above the reciprocating frame, and mechanism connected with the upper end of the screw-threaded shaft and longitudinally movably connected with the longitudinal shaft, substantially as set forth.

3. In a stone-sawing machine, the combination, with a frame, provided with posts, of hangers upon the posts, a sash suspended from the hangers, a reciprocating frame at one end of the sash and provided with a clamp, means for moving the reciprocating frame, a vertical screw-threaded shaft through each of the hangers and the clamp, a train of gearing connected with the screw-threaded shafts, and means for operating the gearing continuously or intermittingly, substantially as set forth.

601,790. **WATER-TUBE STEAM-GENERATOR.** LOUIS DE MASTRE, Willebroek, Belgium. Filed Mar. 31, 1897. Serial No. 630,173. (No model.) Patented in Belgium Dec. 28, 1896, No. 125,270; in France Feb. 13, 1897, No. 264,045; in Italy Feb. 14, 1897, No. 56/310; in England Feb. 26, 1897, No. 5,216; in Germany Mar. 2, 1897, No. 96,833; in Spain Mar. 6, 1897, No. 20,901, and in Austria Mar. 8, 1897, No. 47/3,233.



Claim.—1. A water-tube steam-generator consisting of one or two rows of inclined water-tubes placed immediately over the fire, joined at their ends into transverse collectors communicating at each end direct with an upper steam receiver and collector the front one at or about water-level, and the rear one at the base thereof, an upper group of inclined water-tubes interposed between said lower group and the steam-receiver consisting of separate elements each comprising two superposed water-tubes joined at their ends into vertically-arranged short sectional junction-boxes each connected to the one above and below it by open water-tube couplers, the upper front boxes all communicating with a transverse collector connected to the base of the steam-collector and the lowest rear boxes communicating by open water-tube couplers with the rear side of the rear transverse collector of the lower tube group, substantially as described for the purposes specified.

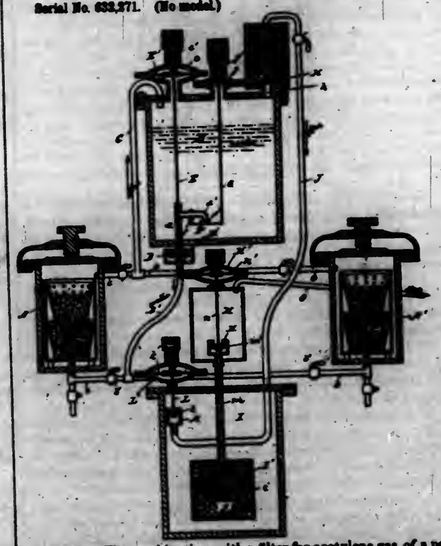
2. In a water-tube steam-generator the combination with the upper steam-receiver A of the lower tube group T, collectors O O' and independent pipe connections thereto, the upper tube group T^5 with sectional tube-end junction-boxes $K'K^2$, K^2, K^3, K^4, K^5, K^6, K^7, K^8 formed and arranged in sinuous lines, the front upper transverse collector L' being connected to the base of the steam-receiver A and the rear water connection to collector O' substantially as described.

3. In a water-tube steam-generator the combination with the upper steam-receiver A of the lower tube group T, collectors O O' and independent pipe connections thereto, the upper tube group T^5 with sectional tube-end junction-boxes K', K^2, K^3, K^4, K^5, K^6, K^7, K^8, K^9 in vertical lines with the front transverse collector L' connected to the base of the receiver A and rear water connection to collector O' substantially as described.

4. In a water-tube steam-generator the combination with the steam-receiver A, lower tube group T independently connected thereto, of the upper group of tubes T^5 comprising a superposed series of tubulous elements each element made up of two inclined superposed water-tubes fixed at their ends into sectional junction-boxes each box having three openings in its inner face, two for the tubes, and the third for a coupler joining it to the next lower similar box, three openings in front, one for the upper coupler, and two for access-holes and covers, said boxes being arranged in step-like form at each end and resting on each other substantially as described.

5. In a water-tube steam-generator the combination with the steam-receiver A, of the lower group of pipes T having an independent connection with the receiver at each end, the upper group of pipes parallel and coextensive with said lower group, an independent connection from the front of said upper group to the receiver, and a connection between the rear ends of the upper and lower group, substantially as described.

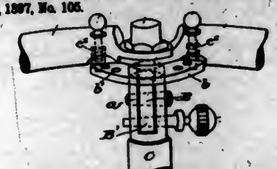
601,791. **APPARATUS FOR GENERATING ACETYLENE GAS.** JOHN FLOOD and JOSEPH KIPLING, Quebec, Canada. Filed Apr. 15, 1897. Serial No. 633,271. (No model.)



Claim.—The combination, with a filter for acetylene gas, of a perforated vessel I inside the ves-

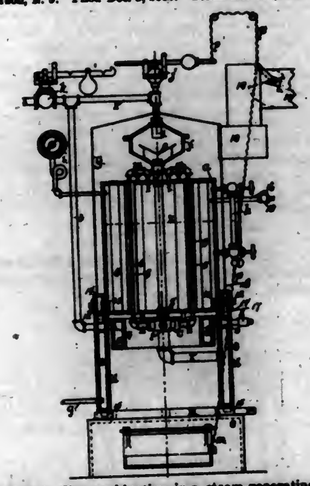
sel F', absorbent cotton in the vessel *i*, charcoal between the vessels F and *i*, a gas-pipe leading out of the vessel *i*, a gas-pipe J leading into the filter, and an automatic valve connected to the said filter and regulating the admission of gas through the pipe J, substantially as set forth.

601,792. HANDLE-BAR FOR CYCLES. DOUGLAS GARDNER and EDWARD R. HARTLEY, Birmingham, England. Filed Mar. 11, 1897. Serial No. 626,902. (No model.) Patented in England June 26, 1896, No. 14,123; in Germany Dec. 28, 1896, No. 93,244; in Belgium Feb. 20, 1897, No. 126,474; in France Feb. 22, 1897, No. 264,303; in Italy Feb. 28, 1897, XXXII, 43,984; in Spain Feb. 26, 1897, No. 20,458, and in India Mar. 16, 1897, No. 105.



Claim.—In combination, the steering-pillar having a forked upper end, a segmental plate pivoted in said fork and perforated to receive a pin, the said segment carrying a horizontal circular plate with a pivot-stud centrally thereof and of the fork and segment, and the handles both pivoted on said stud and having a pin passing through the handles into perforations in the plate, substantially as described.

601,793. STEAM-GENERATING APPARATUS. HENRY HERRIG, Paterson, N. J. Filed Dec. 3, 1897. Serial No. 660,686. (No model.)



Claim.—1. The combination, in a steam-generating device of a water-holding case *c*, pipes *u*, connected to pipes *o*, running through boiler-tubes 6, the pipe *w*, the pipes *r* and *s* for supplying case *c* from water-back and boiler; and the water-back *d*, the boiler *a* and their connections together substantially as described.

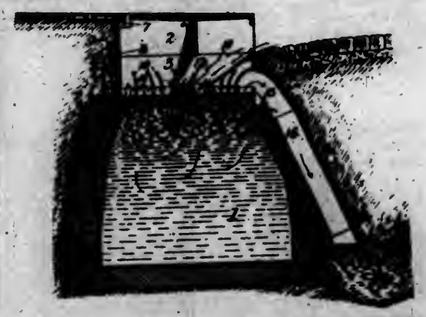
2. The combination in a steam heating device of an annular superheating-chamber, and its connection with a separator *f*, and the water-back *d*, the boiler *a*, and their connection with each other; substantially as described.

3. In a steam heating apparatus the annular superheating-chamber, in combination with the case *c*, and pipes *u*, *o*, and *w*, for the purpose of making steam quickly and superheating steam, all substantially as set forth.

4. In a closed-circulation and steam heating device the superheating device placed inside of the fire-box; consisting of an annular chamber in connection with a separator *f*, in combination with the water-back *d*, boiler *a*, water-heating case *c*, the water-tube connection *r*, pipes *u* and *o*, substantially for the purpose set forth.

5. In a steam-heating and closed circulating device a water-back *d*, and boiler connected; heating-case *c*, water-tube *r*, small pipes *u*, *o*, and *w*, in combination with steam-separating case *f*; jacket *g*, an annular superheating-chamber *b*, and pipes adapted for radiator connections, completing a closed circulation, substantially as described.

601,794. CATCH-BASIN FOR SEWERS. JOSEPH W. HENNINGER, Plymouth, Pa. Filed Feb. 17, 1897. Serial No. 623,774. (No model.)



Claim.—In a catch-basin for sewers of the character described, the combination with the two-part or sectional casting formed with apertured lugs, 8, the upper section having an inlet-opening and rectangular top, and the lower section having an outlet-opening, of the adjusting-bolts, 9, the inlet-tube 12 having oppositely-flaring sections, the inclined gutter 14 extending partly around the lower casting, the grating 18 along the outer edge of the gutter, and the outlet-pipe 16, substantially as described.

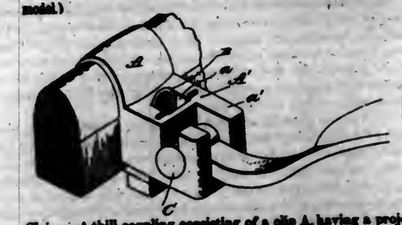
601,795. DRAFT-EQUALIZER. GEORGE F. HILLEGAS, Lane County, Oreg. Filed Aug. 9, 1897. Serial No. 647,893. (No model.)



Claim.—1. A draft-equalizer comprising a pair of flat bars A A, equalizer-bars pivoted between the ends of the same so as to engage therewith and provided at their ends with draft-hooks, means for connecting and centrally spreading the bars A A consisting of a tubular section, a bolt passing therethrough and a clevis the ends of which lie over the bars so as to be engaged by the head of the bolt and its nut, substantially as shown and for the purpose set forth.

2. In a draft-equalizer the combination with the metallic bars A, A, a tubular section for holding said bars separated at the center, a bolt which passes through the tubular section the bars *a a* and the eyes of the clevis, a clevis the ends portions of which lie over the bars A, A, bars or doubletrees B, B, pivotally attached to the outer ends of the bars A A by bolts, substantially as shown and for the purpose set forth.

601,796. THILL-COUPLING. FRANK A. KEEN and PHILIP H. KEEN, Mason City, Iowa. Filed Aug. 26, 1897. Serial No. 649,467. (No model.)



Claim.—A thill-coupling consisting of a clip A, having a projecting block A', with an aperture *a* therethrough, the rear wall of the aperture being inclined to provide an opening which is wider at the base than at the top, a transverse socket in advance of the aperture *a* and connected by an opening therewith, a thill-iron having a circular cross bar and a shank which projects therefrom and a metallic antirattling-spring B made of a single piece of wire to present coils, the upper end members farthest from the coil being bent outwardly so as to lie over the top wall of the block, an intermediate portion bearing upon the cross-bar C of the thill-iron, the parts being combined and organized substantially as shown and for the purpose set forth.

601,797. OIL-CAN. LEWIS MARSH, New York, N. Y. Filed Feb. 19, 1897. Serial No. 624,068. (No model.)



Claim.—An oil-can, in which are comprised a body or oil-holder; a vertical ring upon the body at the base of the spout, containing absorbent material; and a removable cloak arranged to pass over the absorbent material holder, clearing the same, but snugly embracing the body of the oil-holder, and extending to the bottom thereof, substantially as shown and described.

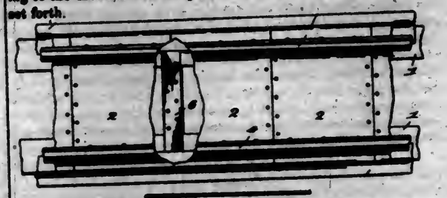
601,798. REFRIGERATOR LUNCH-BOX. ADOLF SOBEKA, New York, N. Y. Filed May 4, 1897. Serial No. 635,522. (No model.)



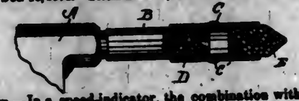
Claim.—As an improved article of manufacture, a refrigerator lunch-box comprising an outer shell 1, of waterproof paper-board, a box 1×, of sheet metal, inclosed within said paper shell and having an apertured partition 8, which divides it into two compartments, an ice-chamber at the bottom of one of said compartments, and an outlet for the water from the ice, a sheet-metal cover for said box, said cover being also covered with waterproof paper-board, a hinging-strap 3, which hinges the cover to the box, a securing strap and buckle for said cover, and an apertured tray 11, suspended in the box over the ice-chamber, said tray having hooks 11×, which take, one over the partition in the box and the other over one end of the latter, substantially as set forth.

601,799. RAILWAY BED AND TIE. BEN SMITH, Denver, Ill. Filed Sept. 20, 1897. Serial No. 652,573. (No model.)

Claim.—A road-bed and ties comprising a series of stringers arranged end to end and parallel with each other; metallic plates connecting the said stringers and extending entirely across the upper faces thereof, said plates being formed with perforations for the passage of spikes or bolts, whereby the plates and the track-rails are secured to the stringers, metallic plates secured to the upper outer edges of the stringers for the purpose set forth, and metallic strips secured to the faces of the braces between the stringers and extending to the metallic side strips, substantially as and for the purpose set forth.

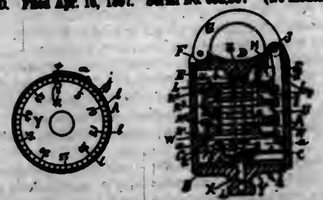


601,800. SPEED-INDICATOR. LABOT S. STARRETT, Athol, Mass. Filed Dec. 16, 1896. Serial No. 573,864. (No model.)



Claim.—In a speed-indicator, the combination with the chambered spindle B and its conically-recessed yielding plug D, of the auxiliary sleeve C fitting frictionally over and around the chambered end of the spindle, and having the yielding conical tip E, substantially as and for the purpose set forth.

601,801. PERMUTATION-PADLOCK. ASHER B. STORY, Buxton, N. D. Filed Apr. 16, 1897. Serial No. 632,207. (No model.)



Claim.—1. In a combination or permutation lock, the combination with an operating-dial having the touching-pin *k*, the deep and numbered graduations *j*, upon its side and the deep graduations *l*, farther apart upon its outer edge or circumference, of a spring-arm having two edges adapted to be pressed one against the graduations *j*, and the other against the graduations *l*, substantially as and for the purpose set forth.

2. In a permutation-padlock, the combination with the casing A, having the screw-top D, adapted to be screwed upon the casing and having the hole H, the curved shackle G, pivoted to one edge of the cover and having the notched locking-bar I, pivoted to its swinging end and adapted to be inserted through the hole H, in the opposite edge of the cover and means for guiding it inside the casing, so as to prevent unscrewing of the cap, when the locking-bar is inserted, and notched locking-disks for locking the bar I, inside the lock, the said notches for the locking-bar being deeper as they approach the cover or top of the lock, substantially as and for the purpose set forth.

601,802. WHEEL. CHARLES D. STEVENS, New York, N. Y. Filed Feb. 27, 1897. Serial No. 625,236. (No model.)



Claim.—1. The combination in a wheel, of a rim comprising a spring split circular tube A A', the portion A being independent and of a differing material from the part A', and constituting the tread proper, substantially as described.

2. The combination in a wheel, of a rim comprising a spring split circular tube A A', the portion A being independent and of spring metal and united at one side only to the portion A', substantially as herein specified.

3. The combination in a wheel, of a rim comprising a spring split circular tube A A', the free lapping portion of which is shouldered for the reception of the other edge portion, substantially as specified.

601,803. BARREL-LINING. JOHN V. BUSH, Chicago, Ill., assignor, by direct and mesne assignments, to Taylor B. Brown, same place. Filed June 12, 1897. Serial No. 640,488. (No model.)

Claim.—1. A removable lining for barrels made of three separate pieces of thin, flexible material comprising a tubular body portion consisting of a continuous strip which extends from the top to the bottom of said barrel and overlaps at its meeting edges, a lower end wall provided with an upturned marginal flange which extends outside of and embraces the lower end of the body portion, a sheet or disk engaging the upper end of the body portion to form the top wall of the lining; said tubular body portion being slitted at its upper margin to form a plurality of flaps which are bent inwardly to overlie said top wall and which, when they are so bent inwardly, overlap each other at their side margins to form in effect a continuous inwardly extending flange above said wall.

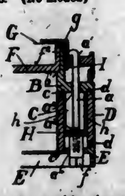


2. A removable lining for barrels or the like made of three separate pieces of thin flexible material comprising a tubular body portion which consists of a continuous strip extending from the top to the bottom of the barrel and overlapping at its meeting edges, a lower end wall comprising a circular sheet or disk of flexible material slitted in its margin and turned upwardly to form a plurality of marginal flaps which meet each other and overlap to constitute a continuous flange which extends outside of and embraces the tubular end of the body portion and a circular sheet or disk engaging the upper end of said tubular body portion to form the top wall thereof said tubular body portion being provided with a plurality of integral flaps upon its upper edge which are turned inwardly to overlie said top wall.

3. A removable lining for bulged barrels made of three separate pieces of thin, flexible material comprising a tubular body portion made from a continuous strip equal in length to the greatest interior circumference of the barrel, said body portion being crimped or folded at its opposite ends to fit within the end portions of the barrel, a lower end wall provided with an upturned, marginal flange which latter is adapted to extend outside of and embrace the lower end of said body portion and a sheet or disk adapted to engage the upper end of said body portion to form the top wall of the lining.

4. A removable lining for bulged barrels made of three separate pieces of thin flexible material comprising a tubular body portion made from a continuous sheet which is equal in length to the greatest interior circumference of the barrel and which is crimped or otherwise shaped at its opposite ends to fit within the end portions of the barrel, a lower end wall provided with a slitted upturned marginal flange adapted to extend outside of and embrace the lower end of said body portion, a circular sheet or disk adapted to engage the upper end of said body portion to form the top wall of the lining and a plurality of integral flaps on the upper end of the said body portion which are turned inwardly to overlap said top wall and being arranged to overlie each other at their side edges.

601,804. BANJO. JOHN BRANDT, Chicago, Ill. Filed Mar. 29, 1897. Serial No. 629,742. (No model.)



Claim.—1. In a banjo, the combination of a drum, of a ring having a flange at a suitable angle to the body of said ring, said flange having an offset part or shoulder on the inner side thereof: and a sounding-board placed beneath said drum, and occupying the entire area of said flanged ring, said sounding-board having a flange adapted to fit closely against the inner offset portion of the flange on said ring, in such manner that said sounding-board may be held in position by the friction of said adjacent parts alone; said sounding-board having a sound-hole therein: substantially as described.

2. A banjo, the body whereof is formed of a hollow frame composed of parallel rings, and rings, the bodies whereof are placed substantially perpendicular thereto; the several portions of said frame being detachably united by suitable means, substantially as described.

3. A banjo, the body whereof is composed of a hollow frame, composed of separable portions detachably united by hook-bolts or clamps, substantially as described.

4. A banjo, the body whereof is formed of a hollow frame, composed of parallel rings and rings placed perpendicular thereto; said parallel rings having suitable apertures therein to receive hook-bolts, or other suitable form of clamp; in combination with an adjustable ring for regulating the tension of the drum of said banjo, and hook-bolts, or other form of adjustable clamps, passing through said apertures and engaging with the adjustable tension-regulating ring, substantially as described

5. A banjo, the frame whereof is composed of a flat ring having a flange placed perpendicular thereto, said flange sustaining the drum of the banjo and an outside flange or guide having a sliding engagement with the flange of an adjustable ring for regulating the tension of the drum of said banjo; two rings placed perpendicularly to said flat ring on the side thereof, opposite said perpendicular flange, and a ring at the opposite ends of said perpendicular rings, forming a bearing for hook-bolts or clamps, connecting said several portions of said frame, substantially as described.

6. In a banjo, the body whereof is composed of a hollow frame composed of rings and flanges, as described, a supplementary ring placed between the upper and lower rings of said frame, and held rigidly in position as a bearing for the nuts on the hook-bolts for regulating the tension of the drum, substantially as described.

7. In a banjo, substantially as described, a ring B, having an upright flange, B', for sustaining the drum of said banjo, and an outer flange, B^2, having sliding engagement with a downward flange, A^2, of the ring A; said ring A, having an inside flange, A', for holding the drum of said banjo in position, and regulating the tension thereof; in combination with an inner ring, C, and an outer ring, D, placed perpendicular to the central portion, b', of the ring, B'; said rings, C and D, engaging at their opposite ends with the ring E; said ring E having an outer downward flange, e'; said rings B, C, D and E being held together by the hook-bolts, b, and the nuts, b^2, bearing on the outer portion of the ring E; and hook-bolts or clamps, a, bearing upon the upper outside surface of the ring, A, at one extremity thereof, and having nuts, f, at their other extremity; said hook-bolts passing through suitable apertures in said several rings, and said nuts, f, having a suitable bearing within said hollow frame for adjusting the ring A, substantially as described.

601,805. TENT-FASTENING. ROBERT C. COOK, Oak Park, Ill. Filed Mar. 13, 1897. Serial No. 627,246. (No model.)



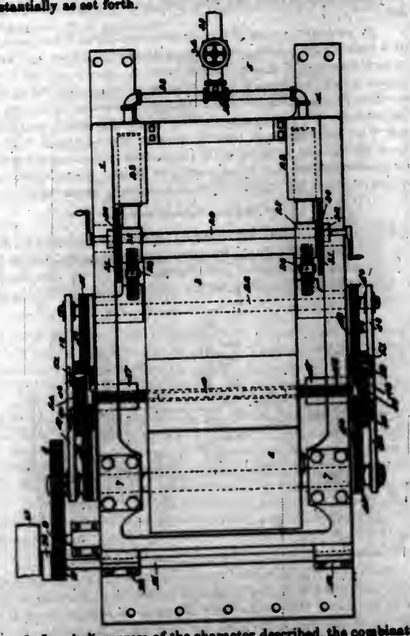
Claim.—1. The combination, with a tent-section having a corded edge, of a fastening for said section, said fastening having a metal body provided at one end with curved jaws forming an enlarged and unobstructed opening which receives and is adjustable along the corded edge of the tent-section, said jaws having between their extremities an opening of less width than the corded edge, extending in the line of strain and adapted to admit the body of the tent-section, and the body of said fastening being perforated for the attachment thereto of a rope, substantially as and for the purpose described.

2. A combined tent-clip and guy-rope fastening consisting of a metal body having open jaws at one of its ends curved to embrace the margin of the tent and adjustable therealong, intermediate separated perforations through which an end of the guy-rope may be run, and having its other end adapted for connection with another strand or end of the guy-rope, substantially as described.

601,806. PRESS FOR BALING COTTON. FRANK I. DYER, Washington, D. C., assignor to the American Cotton Company, New York, N. Y. Filed Nov. 23, 1894. Serial No. 529,251. (No model.)

Claim.—1. In a cotton-press of the character described, the

combination of two baling-rolls, and a core mounted between said baling-rolls in the same horizontal plane therewith, the baling-rolls being movable toward and away from each other, whereby the completed bale may be dropped by gravity from between the baling-rolls, substantially as set forth.



2. In a baling-press of the character described, the combination of two baling-rolls, a core mounted between said baling-rolls and in the same horizontal plane therewith, and means for effecting pressure on the baling-rolls, said baling-rolls being movable away from and toward each other, whereby the completed bale may be dropped by gravity from between the same, substantially as set forth.

3. In a baling-press of the character described, the combination of two baling-rolls, a core mounted between said baling-rolls and in the same horizontal plane therewith, a hydraulic cylinder having a piston connected with the journal-boxes of one of the baling-rolls, and means for offering resistance to the movement of said piston in said cylinder, said baling-rolls being movable toward and away from each other, whereby the completed bale may be dropped by gravity from between the same, substantially as set forth.

4. In a baling-press of the character described, the combination of two baling-rolls, a core mounted between said baling-rolls and in the same horizontal plane therewith, a hydraulic cylinder having a piston connected with the journal-boxes of one of the baling-rolls, a second and smaller cylinder connected with said hydraulic cylinder behind the piston therein, and a piston in said second cylinder adapted to be elevated by the movement of the hydraulic piston to allow for the gradual escape of water from the hydraulic cylinder, said baling-rolls being movable toward and away from each other, substantially as set forth.

5. In a baling-press of the character described, the combination of two baling-rolls, a core mounted between said baling-rolls and in the same horizontal plane therewith, said baling-rolls being movable toward and away from each other, a hydraulic cylinder having a piston connected with the journal-boxes of one of the baling-rolls, a second and smaller cylinder connected with said hydraulic cylinder behind the piston therein, a piston in said second cylinder adapted to be elevated by the movement of the hydraulic piston to allow for the gradual escape of water from the hydraulic cylinder, and means for effecting a graduated resistance to the elevation of the second piston, substantially as set forth.

6. In a baling-press of the character described, the combination of two baling-rolls, a core mounted between said baling-rolls and in the same horizontal plane therewith, said baling-rolls being movable toward and away from each other, a hydraulic cylinder having a piston connected with the journal-boxes of one of the baling-rolls, a second and smaller cylinder connected with said hydraulic cylinder behind the piston therein, a piston in said second cylinder adapted to be elevated by the movement of the hydraulic piston to allow for the gradual escape of water from the hydraulic cylinder, and an adjustable weight on the piston of the said second cylinder, substantially as set forth.

7. In a baling-press of the character described, the combination of a stationary baling-roll, a movable baling-roll, a core mounted between said baling-rolls in the same horizontal plane therewith, the baling-rolls being movable toward and away from each other, means for effecting pressure on the baling-rolls, a shaft carried by the movable baling-roll behind the same and having a gear-wheel keyed near each end thereof, and a rack on each side of the main frame of the machine with which said gear-wheel engages for the purpose mentioned, substantially as set forth.

8. In a cotton-press of the character described, the combination with two baling-rolls mounted in the same substantially horizontal plane, of a core mounted between said baling-rolls and on which the bale is formed, means for constantly rotating the bale, whereby a continuous sheet or bat of cotton may be wound convolutionally thereon, and an inclined apron or guideway for conveying said continuous sheet or bat to the revolving bale, substantially as set forth.

9. In a cotton-press of the character described, the combination of a stationary baling-roll, a movable baling-roll mounted in the same substantially horizontal plane therewith, means for rotating said rolls, means for effecting pressure on the movable baling-roll, and an apron or guideway permanently located above the stationary baling-roll for conveying a continuous sheet or bat of cotton between said rolls, whereby said sheet or bat will be wound convolutionally on the bale, substantially as set forth.

10. In a cotton-press of the character described, the combination of a stationary baling-roll, a movable baling-roll mounted in the same substantially horizontal plane therewith, a core mounted between said baling-rolls and on which a continuous sheet or bat of cotton is wound convolutionally while being subjected to pressure of said baling-rolls, means for rotating said baling-rolls, means for effecting pressure on the movable baling-roll, and an apron or guideway permanently located above the stationary baling-roll for conveying said continuous sheet or bat to the rotating bale, substantially as set forth.

11. In a cotton-press of the character described the combination of two baling-rolls mounted in the same substantially horizontal plane and between which the bale is formed, said rolls being movable gradually away from each other as the bale enlarges in size, means for resisting the tendency of said rolls to separate, means for constantly rotating the bale, whereby a continuous sheet or bat of cotton may be wound convolutionally thereon, an apron or guideway for conveying said continuous sheet or bat to the rotating bale, and a guide or table beneath said baling-rolls for receiving the finished bale, substantially as set forth.

12. In a cotton-press of the character described, the combination of two baling-rolls mounted in the same substantially horizontal plane, a core mounted between said baling-rolls and on which the bale is formed, means for effecting pressure on the bale during its formation, means for constantly rotating the bale, whereby a continuous sheet or bat of cotton may be wound convolutionally thereon, an apron or guideway for conveying said continuous sheet or bat to the rotating bale, and a guide or table beneath said baling-rolls for receiving the finished bale, substantially as set forth.

13. In a cotton-press of the character described, the combination of a stationary baling-roll, a movable baling-roll mounted in the same substantially horizontal plane therewith, means for rotating said rolls, means for effecting pressure on the movable baling-roll, an apron or guideway permanently located above the stationary baling-roll for conveying a continuous sheet or bat of cotton between said rolls, whereby said sheet or bat will be wound convolutionally on the bale, and a guide or table beneath said rolls for receiving the finished bale, substantially as set forth.

14. In a cotton-press of the character described, the combination of a stationary baling-roll, a movable baling-roll mounted in the same substantially horizontal plane therewith, a core mounted between said baling-rolls and on which a continuous sheet or bat of cotton may be wound convolutionally while being constantly subjected to the pressure of said baling-rolls, means for rotating said baling-rolls, means for effecting pressure on said movable baling-roll, an apron or guideway permanently located above the stationary baling-roll for conveying said continuous sheet or bat to the revolving bale, and a guide or table beneath said baling-rolls for receiving the finished bale, substantially as set forth.

15. In a cotton-press of the character described, the combination of two baling-rolls and a core mounted between said baling-rolls in the same horizontal plane therewith, means for feeding a continuous sheet or bat to said core, and means for automatically starting the commencement of the winding of said sheet or bat around said core, substantially as set forth.

16. In a cotton-press of the character described, the combination

of two baling-rolls and a core mounted between said baling-rolls in the same horizontal plane therewith, means for feeding a continuous sheet or bat of cotton to said core, and a flexible guide-strip in engagement with said core for starting the commencement of the winding of said continuous sheet or bat thereon, substantially as set forth.

17. In a cotton-press of the character described, the combination of two baling-rolls between which the bale is formed, said baling-rolls being movable gradually away from each other as the bale enlarges in size, means for constantly rotating the bale, whereby a continuous sheet or bat of cotton may be wound convolutionally thereon, an operating-lever 15 actuating a clutch for arresting the rotation of the rolls, a cylinder containing a fluid, a piston mounted therein with which one of said rolls is connected, whereby the tendency of the rolls to separate is resisted, means for resisting the flow of liquid from said cylinder by the movement of the piston therein, and a valve adjacent to said operating-lever for allowing the return of the liquid into the cylinder for the formation of a new bale, substantially as set forth.

18. In a cotton-press of the character described, the combination of two baling-rolls mounted in the same substantially horizontal plane and between which the bale is formed, said baling-rolls gradually separating as the bale enlarges, a sprocket-wheel for driving each end of the shaft of each baling-roll, and connections between said sprocket-wheels for driving said baling-rolls, said connections allowing for the separation of said baling-rolls, substantially as set forth.

19. In a cotton-press of the character described, the combination of two baling-rolls mounted in the same substantially horizontal plane, said baling-rolls gradually separating as the bale enlarges, a core mounted between said baling-rolls and on which the bale is formed by convolutionally winding a continuous sheet or bat thereon, a sprocket-wheel for driving each end of the shaft of each baling-roll, and connections between said sprocket-wheels for driving said baling-rolls, said connections allowing for the separation of said baling-rolls, substantially as set forth.

20. In a cotton-press of the character described, the combination of two baling-rolls mounted in the same horizontal plane, means for resisting the tendency of said rolls to separate, and a core adapted upon the accumulation of the cotton to be supported slightly out of the plane of the baling-rolls, whereby the thrust of the bale will be received by the said baling-rolls instead of upon the bearings of said core, substantially as set forth.

21. In a cotton-press of the character described, the combination of two baling-rolls mounted in the same horizontal plane, a core normally in the plane of the baling-rolls and between the same, and means for gradually elevating the core out of its normal plane during the formation of the bale for the purpose mentioned, substantially as set forth.

22. In a cotton press of the character described the combination of two baling-rolls, means for effecting pressure on the baling-rolls, a core mounted between said baling-rolls and normally in the same plane therewith, and means for gradually elevating the said core out of its normal plane during the formation of the bale, substantially as set forth.

23. In a cotton-press of the character described, the combination of two baling-rolls, means for effecting pressure on the baling-rolls, means for rotating said baling-rolls simultaneously, a core mounted between said baling-rolls and normally in the same plane therewith, and means for gradually elevating said core out of its normal plane during the formation of the bale, substantially as set forth.

24. In a cotton-press of the character described, the combination of the main frame, two baling rolls mounted therein in the same horizontal plane, an inclined guide in each side of said frame, a bearing-box working in each of said guides, and a core carried by said bearing-boxes normally in the plane of the baling-rolls and adapted to be gradually elevated out of its normal plane during the formation of the bale, substantially as set forth.

25. In a cotton-press of the character described, the combination of two baling-rolls mounted in the same horizontal plane, one of said rolls being stationary and the other movable, a core normally in the plane of the baling-rolls and between the same, means for gradually elevating the core out of its normal plane during the formation of the bale, a shaft 29 having gear-wheels 32 keyed to the ends thereof, racks 31 with which said gear-wheels engage, and adjustable connections between the movable baling-roll and said shaft for the purpose mentioned, substantially as set forth.

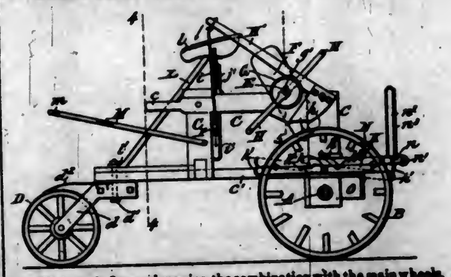
26. In a baling-press of the character described, the combination of two baling-rolls movable toward and away from each other, a core mounted between said baling-rolls and in the same plane therewith, sprocket-wheels 45, 46 carried by the shafts of said baling-rolls, swinging arms 47, 48 extending from said shafts and connected together at the lower ends, sprocket-wheels 50 and 51 at the lower ends of said swinging arms, connections between said sprocket-wheels 50 and 51, and sprocket-chains 55 and 56 connecting said sprocket-wheels 50, 51, and 45, 46, substantially as set forth.

27. In a baling-press of the character described, the combination of a stationary baling-roll, a movable baling-roll, a core mounted between said baling-rolls and movable toward and away from the stationary roll, and a shaft carrying a roll of canvas mounted above said core and traveling back and forth with the same, substantially as set forth.

28. In a cotton-press of the character described, the combination of a main frame, a baling-roll 2 mounted therein, slotted guides 20 in each side of said frame, bearing-boxes 21 carried in said slotted guides, a core 4 mounted in said frame between said baling-rolls, sprocket-wheels 45, 46 carried by the shafts of said baling-rolls, swinging arms 47, 48 extending down from said shafts and connected together at the lower ends thereof, sprocket-wheels 50 and 51 at the lower ends of said swinging arms, connections between said sprocket-wheels 50 and 51, and sprocket-chains 55 and 56 connecting said sprocket-wheels 50, 51, and 45, 46, substantially as set forth.

601,807. COMBINED REEL-CARRIER AND FEED-CART.

MARTIN HELGESON and OLAUS HELGESON, Linden, Minn., assignors of one-third to R. K. RASMUSSEN, Lake Crystal, Minn. Filed June 12, 1897. Serial No. 640,491. (No model.)



Claim.—1. In a reel-carrier, the combination with the main wheels, a reel-shaft, and a brake-roller secured thereto and adjustable in and out on the same, of a brake-lever, arranged to engage the brake-roller in one position of the same, and provided with a shoe arranged to engage one of the main wheels in the other position of the brake-roller, substantially as described.

2. In a reel-carrier, the combination with the main wheels, a reel-shaft having two pin-holes at its end, a brake-roller mounted on said end and having a pin-hole arranged to be brought into register with either pin-hole in the shaft, and a pin insertible in the registering pin-holes, of a brake-lever arranged to engage the brake-roller in one position of the latter, and provided with a shoe for engagement with one of the main wheels when the brake-roller is in its other position.

3. In a reel-carrier, the combination, with a main wheel of a scraper-bar pivoted eccentrically to the axis of the main wheel, a scraper at each end of the scraper-bar, each scraper being arranged to be brought into engagement with the wheel-rim when the scraper-bar is tipped in one direction on its pivot, and means for locking said scraper-bar in such tipped position.

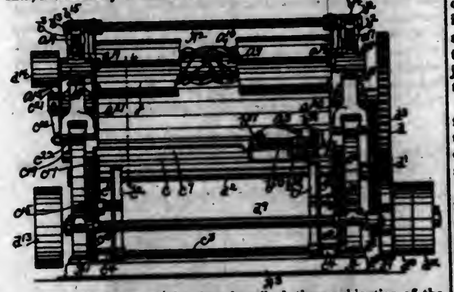
4. In a reel-carrier, the combination with a main wheel of a scraper-bar pivoted eccentrically to the axis of the main wheel and provided with notches equidistant from the pivotal point and on each side of the same, a scraper at each end of the scraper-bar and arranged to respectively contact with the wheel-rim, when the scraper-bar is tipped, and a locking-pawl pivoted above the scraper-bar and arranged to be brought into engagement with either notch in the said bar, whereby the same is locked when tipped in either direction.

5. In a combined reel-carrier and feed-cart, the combination, with a framework arranged to receive both a reel and a cart-body interchangeable with the reel, and wheels on which said framework is mounted, of a removable brake mechanism arranged to brake the wheels and the reel, a cross-bar arranged to engage both the brake mechanism and the cart-body, and means for operating the cross-bar, whereby the said means serves either to apply the brake mechanism or to tilt the cart-body, substantially as described.

601,808. MACHINE FOR WORKING HIDES OR SKINS.

ALBERT F. JOHNS, Salem, Mass., assignor to the Vaughn Machine Company, Portland, Me. Filed June 4, 1897. Serial No. 639,267. (No model.)

Claim.—1. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work-support upon which the hide or skin to be treated is placed, and an operating roll or cylinder supported by levers whose pivots are in a substantially vertical plane passing through the axis of the roll or cylinder and normally held substantially in the path of movement of the work-support, and means to automatically hold the said cylinder in its normal position and permit it to yield as the skin passes by it and yet automatically maintain the said cylinder in contact with the hide or skin under pressure irrespective of the thickness of the said hide or skin, substantially as described.



2. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work-support, an operating cylinder or roll cooperating therewith, supports for said roll or cylinder movable in the arc of a circle and in which said roll is supported above the center of said circle, and means connected to said supports to normally place the said roll substantially in the path of movement of the work-support and adapted to permit the said roll to be moved by the work away from its normal position and to automatically maintain the said roll in contact with the work irrespective of the thickness of the same, substantially as described.

3. In a machine of the class described, the combination of the following instrumentalities, viz: a revolvable drum or work-support, means to secure the work thereon, a revolving cylinder or roll cooperating with the said drum, pivotal supports for said roll in which said roll is mounted in a substantially vertical line through the pivots for said supports, means to automatically move the said supports and the roll or cylinder toward said drum and maintain the said roll in engagement with the work on the revolving drum, substantially as described.

4. In a machine of the class described, the combination of the following instrumentalities, viz: a revolvable operating tool cooperating with said drum, substantially vertical pivotal supports for said tool movable toward and from the drum and in which the said tool is supported substantially in a vertical line through the pivots for said supports, means to automatically move said tool toward the said drum, and means to limit the movement of the tool toward said drum, substantially as described.

5. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work support, a operating roll or cylinder cooperating therewith, pivoted levers supporting said roll, rods connected to said levers, springs to act on said rods and normally position the operating-roll substantially in the path of movement of the work-support, and means to limit the movement of the said operating-roll toward and from the work-support, the said springs automatically keeping the said operating-roll in engagement with the work while the latter is carried by its support past the said roll, substantially as described.

6. In a machine of the class described, the combination of the following instrumentalities, viz: a movable segmental drum, a clamping mechanism cooperating therewith, and an automatic feed mechanism cooperating with the segmental drum and clamping mechanism and actuated by said drum to feed the work onto the drum when the clamping mechanism is open, substantially as described.

7. In a machine of the class described, a segmental rotatable drum, an automatic work-feed mechanism consisting of a support for the work movable toward the drum, and a pusher movable with said support, and means to act on said pusher and push the work off from its support, substantially as described.

8. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work-support, an operating roll or cylinder cooperating therewith, substantially vertical pivoted levers supporting said roll, rods connected to said levers, and springs to act on said rods and automatically keep said operating-roll in engagement with the work while the work is carried by its support past the said roll, substantially as described.

9. In a machine of the class described, the combination of the following instrumentalities, viz: a work-support comprising segments of a drum, clamping mechanisms cooperating with said segments and comprising stationary members or jaws, and movable jaws located within and movable toward the center of the drum to open the said jaws, actuating mechanisms for said movable jaws connected to said jaws to positively move the same, and a cam to operate said actuating mechanisms, substantially as described.

10. In a machine of the class described, the combination of the following instrumentalities, viz: a work-support comprising segments of a drum, an automatically-positioned operating roll or cylinder cooperating with said drum-segments, clamping mechanisms cooperating with said segments and comprising stationary members or jaws, and movable jaws located within and movable toward the center of the drum to open said jaws, actuating mechanisms for said movable jaws connected to said jaws to positively move the same, and a cam to operate said actuating mechanisms, substantially as described.

11. In a machine of the class described, the combination of the following instrumentalities, viz: a rotatable segmental drum, an automatic feed mechanism for the work cooperating with said segmental drum, and means movable with the drum to operate said feed mechanism, substantially as described.

12. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work-support, an operating roll or cylinder, pivoted levers in which said roll is adjustably supported, spring-actuated rods connected to said levers to move the said roll toward the work-support, and adjustable means carried by the said levers to limit the movement of the said roll toward the work-support, and means to regulate the force of the said springs, substantially as described.

13. In a machine of the class described, the combination of the following instrumentalities, viz: a rotatable segmental drum provided with a clamping mechanism comprising a stationary jaw, and a movable jaw pivotally supported within the drum at one side of the center thereof and movable toward the center of the drum to open said jaw, substantially as and for the purpose specified.

14. In a machine of the class described, the combination of the following instrumentalities, viz: a rotatable segmental drum, a stationary clamping-jaw secured to the said drum, a movable clamping-jaw pivoted within the drum at one side thereof to cooperate with the inner face of the stationary jaw and movable toward the center of the drum to open said movable jaw, a cam, and mechanism connected to the free end of the pivoted jaw and operated by said cam, substantially as and for the purpose specified.

15. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work-support upon which the hide or skin to be treated is placed, and an operating roll or cylinder movable in the arc of a circle having its center in a substantially vertical plane extended through said roll and normally held substantially in the path of movement of the work-support, and means to automatically hold the said cylinder in its normal position and permit it to yield as the skin passes by it and yet automatically maintain the said cylinder in contact with the hide or skin under a minimum pressure irrespective of the thickness of the said hide or skin, and means to adjust the pressure of the operating roll or cylinder upon the work, substantially as described.

16. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work-support, an operating roll or cylinder cooperating therewith, substantially vertical levers pivoted at their lower ends and in which the said roll is pivoted to move in a substantially horizontal direction, and means to act on said levers and yieldingly maintain the said roll in operative engagement with the work on the said support, substantially as described.

17. In a machine of the class described, the combination of the following instrumentalities, viz: a movable work-support upon which the hide or skin to be treated is placed, and an operating roll or cylinder movable in the arc of a circle having its center in a substantially vertical plane extended through said roll and normally held substantially in the path of movement of the work-support, and means to automatically hold the said cylinder in its normal position and permit it to yield as the skin passes by it and yet automatically maintain the said cylinder in contact with the hide or skin under a minimum pressure irrespective of the thickness of the said hide or skin, substantially as described.

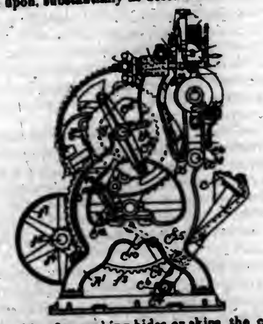
18. In a machine of the class described, the combination of the following instrumentalities, viz: a segmental drum, a clamping mechanism cooperating therewith and comprising a stationary jaw and a movable jaw pivoted within the drum off the center thereof and movable toward said center to open said jaw, an operating-roll, substantially vertical levers supporting said roll and pivoted in a substantially vertical plane tangential to said drum, means to move said roll toward said drum, and means to limit said movement of the roll, substantially as described.

601,809. MACHINE FOR WORKING HIDES OR SKINS.

ALBERT F. JOHNS, Salem, Mass., assignor to the Vaughn Machine Company, Portland, Me. Filed June 9, 1897. Serial No. 639,969. (No model.)

Claim.—1. In a machine for working hides and skins, the combina-

tion of the following instrumentalities, viz: a rotatable work-support, a clamping mechanism movable with said work-support and provided with a movable jaw pivoted within the said work-support off the center thereof and movable toward the center of said work-support in the act of opening, an actuating mechanism for said movable jaw, and a cam provided with a cam-groove which is engaged by said actuating mechanism and is constructed to open the jaw, to hold the same open to permit the hide to be placed in position, to gradually close said jaw on the hide, and to hold the jaw closed while the hide is being acted upon, substantially as described.



2. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a rotatable work-support, a clamping mechanism coöperating therewith and provided with a movable jaw, a cam provided with a cam-groove, and an actuating mechanism for said movable jaw engaging said cam-groove and comprising two loosely-connected members having a yielding medium interposed between them, and means to limit the movement of said members by said yielding medium, substantially as described.

3. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a rotatable work-support, a clamping mechanism coöperating therewith and provided with a movable jaw, a cam provided with a cam-groove, and an actuating mechanism for said movable jaw engaging said cam-groove and comprising two loosely-connected members, a spring interposed between said members, means to adjust the tension of said spring, and means to limit the movement of said members by said spring, substantially as described.

4. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a rotatable segmental drum, a clamping mechanism coöperating therewith and provided with a movable jaw pivoted at one end within said drum and having its free end movable toward the center of the drum in the act of opening, an actuating mechanism positively connected to the free end of said jaw, and a cam having a cam-groove engaged by said actuating mechanism to positively move said jaw in opposite directions and thereby positively close and open said jaw, substantially as described.

5. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a rotatable work-support, a clamping mechanism coöperating therewith and provided with a movable jaw, an actuating mechanism positively connected to said jaw and consisting of loosely-connected members having a yielding medium between them, means to limit the movement of said members by said yielding medium, and a cam positively engaged by said actuating mechanism to positively close and open the said movable jaw, substantially as described.

6. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a segmental drum, a clamping mechanism coöperating therewith and comprising a stationary jaw, a movable jaw pivoted within said drum at one side of its center to move toward the center of the drum in the act of opening, a cam provided with a cam-groove, and an actuating mechanism for said movable jaw comprising two members loosely connected together and one of which is connected to the free end of the movable jaw, and a yielding medium between said members, substantially as described.

7. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a movable work-support, an operating-roll coöperating therewith, supporting-levers for said roll, a hood or cover for said roll pivoted to said levers, and means to lock said cover in its operative position, substantially as described.

8. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a rotatable work-support, a clamping mechanism coöperating therewith and provided with a movable jaw pivoted at one end within said work-support off the center thereof and having its free end movable toward the center of the work-support in the act of opening, a stationary cam provided with a cam-groove, and an actuating mechanism for said movable jaw positively connected to the free end of said jaw and engaging said cam to be actuated thereby to positively and pivotally open and close said movable jaw, substantially as described.

9. In a machine for working hides or skins, the combination of the following instrumentalities, viz: a rotatable work-support, a clamping mechanism coöperating therewith and provided with a movable jaw, an actuating mechanism connected to said jaw and comprising two members pivotally connected together and provided with arms a yielding medium interposed between said arms, means on said members to limit their movement by said yielding medium, and a cam positively engaged by said actuating mechanism to positively close and open said movable jaw, substantially as described.

601,810. RAILROAD-TIE. JOHN KLEIN, Nescopeck, Pa. Filed Sept. 30, 1897. Serial No. 653,622. (No model.)

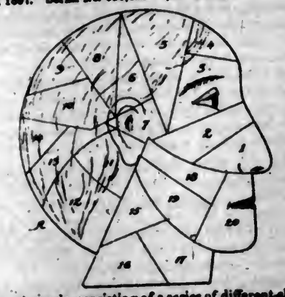


Claim.—1. A metallic tie comprising a central section adapted to extend between and engage the inner faces of a pair of rails and provided with lateral extensions having openings, the end sections engaging the outer faces of the rails and provided with threaded pins extending through the openings of the lateral extensions, and nuts engaging the threaded pins and arranged at the inner edges of the lateral extensions, substantially as described.

2. A metallic cross-tie comprising a central section provided with lateral extensions having openings, the end sections provided with threaded pins extending through the openings of the lateral extensions, nuts engaging the threaded pins and arranged at the inner edges of the lateral extensions, and the vertical projections 3 mounted on the sections and engaging the inner and outer faces of the rails, each projection being provided with vertical faces and recessed at 7 and undercut at 4 to provide recesses to receive the bottom flanges of the rails, substantially as described.

3. A metallic tie formed of three sections, the middle sections being adapted to extend between and partly below the track-rails and having its ends widened laterally and provided with vertical projections to engage the web of the respective rails on their inner sides and having also a recess in each end from which openings extend out to opposite sides of the middle portion of the section, and the end sections being adapted to abut against the ends of the middle sections below the rails and having vertical projections to engage the web of the respective rails of their outer sides, each end section having a tongue on its inner end to fit in the recess in the ends of the middle section, threaded pins extending from the tongue through the said openings, and nuts on the threaded pins, substantially as described.

601,811. PUZZLE. JACOB H. LANDIS, Custer's Ford, Pa. Filed Nov. 19, 1897. Serial No. 659,121. (No model.)



Claim.—A puzzle, consisting of a series of different-shaped blocks adapted to be arranged and rearranged to form the outline of two or more figures, said blocks having various features printed on each side thereof, whereby in one arrangement one figure will be represented and by a reversal and a different arrangement another figure will be represented, said blocks being numbered so that by placing adjacent blocks so as to have consecutive numbers aid will be given in the formation of the figures, substantially as shown and described.

601,812. BEEF-ROASTER. PIERRE MICHEL, Philadelphia, Pa. Filed Nov. 20, 1897. Serial No. 659,561. (No model.)



Claim.—In combination, a furnace, an open grate therefor, a flue leading therefrom, a casing inclosing the space in front of the grate, sliding doors arranged on curved ways, a series of spindles journaled vertically, a series of supporting-rods suspended from said spindles, a series of chains depending from the rods, a cross-shaft, gears carried thereby meshing with gears carried by the spindles, a set of beveled gears for revolving the cross-shaft, a worm-wheel secured upon the beveled gear-shaft, a worm meshing with said worm-wheel, and a motor-wheel carried upon the same shaft with the worm, all arranged substantially as and for the purpose set forth.

601,813. BICYCLE HANDLE-BAR. HOWARD W. MCGRADY, Oak Park, Ill. Filed May 10, 1897. Serial No. 635,661. (No model.)

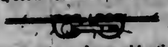


Claim.—1. A tubular bicycle handle-bar in combination with a tubular handpiece detachably connected to the handle-bar, said handpiece being composed of a metal tube internally provided with a piston and air-conduits, whereby it is adapted to serve as a pump, said handpiece being externally provided with a suitable cushion forming a hand-grip, substantially as described.

2. A tubular bicycle handle-bar in combination with a pump-barrel, said parts being adapted for threaded connection with each other, the threads being located externally of the body of the pump and at a point between its ends, the discharge end of the pump being adapted to project into the hollow end of the handle-bar and the remainder of the body of the pump projecting beyond said bar and adapted to serve as a handpiece, substantially as described.

3. The combination, with a hollow handle-bar, of a hollow grip having an outer closed end and an open inner end, and detachably secured to the handle-bar, and a piston in the grip, and having its stem projecting into the handle-bar, substantially as described.

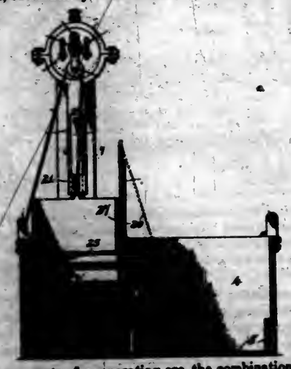
601,814. GARMENT-CLASP. WILLIAM G. MOORE, Wilmington, Del. Filed June 4, 1897. Serial No. 639,422. (No model.)



Claim.—In a garment-clasp, the combination of two oppositely-located semispherical casings and a rod having a flattened circular head thereon socketed within one of the said casings, the said rod having an oval head upon its free end which engages within the other casing, said casing having a key-shaped aperture leading therethrough, and means for fastening the said casings to the opposing flaps of the garment, substantially as shown and described.

601,815. ORE SEPARATOR. ANDREW W. PATTERSON, Aurora, Mo. Filed May 26, 1897. Serial No. 638,263. (No model.)

Claim.—1. In apparatus for separating ore, the combination of a tank, a jig-box, a shaft having an eccentric portion, connections between the jig-box and eccentric portion of the shaft and comprising parts slidably related and having a limited movement, and means independent of the suspending and jigging mechanism for raising and lowering the jig-box and moving the parts comprising the slidable connections, substantially as set forth.



2. In apparatus for separating ore, the combination of a tank, a jig-box, a shaft having an eccentric portion, bars secured at their outer ends to the jig-box and eccentric portion of the shaft and having their inner ends slidably connected, and limited in their outward movement, a windlass, and a cord or flexible connection between the jig-box and windlass for raising and lowering the jig-box and moving the parts comprising the slidable connection, substantially as set forth.

3. In combination, a tank, a jig-box, a shaft, an eccentric adjustably connected with the shaft, bars slidably related and connecting the adjustable eccentric with the jig-box, and limited in their outward movement, and means independent of the jigging mechanism for raising and lowering the jig-box and moving the slidably-related bars relatively to each other, substantially in the manner set forth for the purpose described.

4. In apparatus for separating ore, a jig-box provided with an opening in its side, a pendent plate having loose connection at its upper end with the box at a point below the said opening, a gate normally closing the opening, and a connection between the pendent plate and gate for raising the lower end of the plate when elevating the gate, substantially as set forth for the purpose described.

5. An apparatus for separating ore comprising in its construction a tank subdivided by a vertical partition, forming a vat and sludge-box, the rear end of the vat and the partition being provided with sluice-gates, a jig-box operating in the vat and having a gate-controlled opening in its rear side, plates having loose connection with the sides of the jig-box, a shaft, eccentrics adjustably connected with the shaft, bars slidably connected and interposed between the jig-box and eccentrics, sheave-pulleys loosely mounted upon the said shaft, a windlass, and connections between the windlass and jig-box for raising and lowering the latter, substantially in the manner set forth for the purpose specified.

601,816. HOOK AND EYE. CHARLES F. ROSSIER, Aldrich, Ala. Filed Mar. 15, 1897. Serial No. 627,522. (No model.)

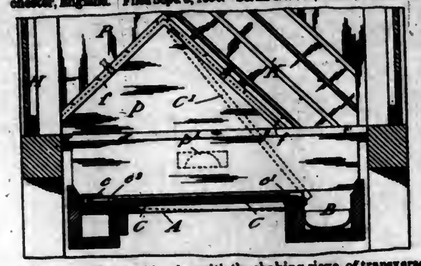


Claim.—1. A garment-fastener having a dished body-plate provided with prongs projecting on its concave side and extending approximately parallel with it, and lying chiefly within its concavity, said prongs extending parallel to and out of line with one another.

2. A garment-fastener having a dished body-plate provided with prongs 3, 3, projecting on its concave side, having abrupt bases 10, and extending approximately parallel with it, but turned downwardly at their points, formed with barbed heads, and lying chiefly within the concavity of the dished plate.

3. A garment-fastener having a dished body-plate provided with prongs projecting on its concave side and extending approximately parallel with it, and lying chiefly within its concavity, said prongs having barbed heads, the rear shoulders 9, 9 of which are beveled and rounded as shown to hold the prongs in the fabric while permitting intentional detachment therefrom.

601,817. PURIFIER FOR MIDDLINGS. HENRY SIMON, Manchester, England. Filed Sept. 3, 1896. Serial No. 604,666. (No model.)

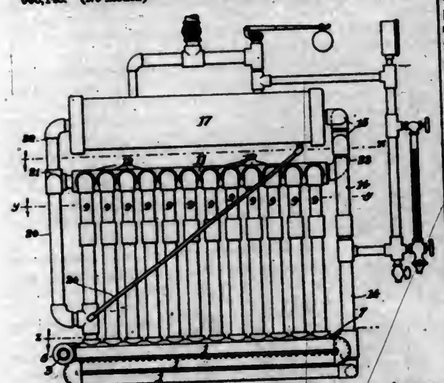


Claim.—1. The combination with the shaking-sieve, of transverse dust-collecting channels arranged above the same and hinged to one of the longitudinal sides of the sieve-frame, whereby the channels can be swung up when access is required to the sieve, substantially as set forth.

2. The combination with the shaking-sieve having a longitudinal dust-channel along one of its sides, of a grid of transverse dust-collecting channels arranged above the sieve with their lower sides in proximity to the sieve and their upper sides sloping toward said longitudinal dust-channel, said grid of channels being composed of sections which are arranged side by side from the head to the tail of the sieve and hinged to the sieve-frame on the side on which said longitudinal channel is arranged, substantially as set forth.

3. The combination with the inclosing casing and the shaking-sieve having a longitudinal dust-channel along one of its sides, of a grid of transverse dust-collecting channels attached to the sieve and arranged in proximity to the upper side of the sifting-surface, with their upper sides sloping toward said longitudinal channel, and stationary steeply-inclined dust-collecting channels extending across the interior of said casing and arranged with their lower ends over said longitudinal channel and with their higher ends over the opposite side of the sieve, substantially as set forth.

601,818. BOILER FOR STEAM HEATING APPARATUS. HADLEY J. STRICKER, Port Chester, N. Y. Filed Nov. 29, 1897. Serial No. 660,145. (No model.)

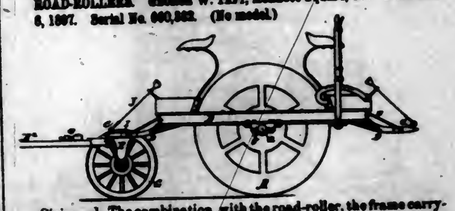


Claim.—1. In a boiler for a steam heating apparatus, the combination of the horizontal pipes disposed in communicating lengths one above the other at the sides of the fire-box, the horizontal pipes at the front and rear of said box and with which the first-mentioned pipes communicate, the horizontal pipes 7, 8, in communication with the before-mentioned pipes, the vertical pipes leading from the pipes 7, 8, the horizontal pipe 11 near the top of the boiler with which said vertical pipes communicate, the steam-dome at the top of the boiler, and connections between the ends of said dome and the ends of said pipe 11, substantially as set forth.

2. In a boiler for a steam heating apparatus, the combination of a system of communicating pipes horizontally disposed around the sides of the fire-box of a furnace, vertical pipes communicating with each other and extending upward at opposite sides of the boiler, a horizontally-disposed pipe near the top of the boiler into which these vertical pipes lead, a steam-dome on top of the boiler, and connections between the ends of said horizontal pipe and the ends of said dome and additional connections between the aforesaid connections and the horizontally-arranged series of pipes independent of the said vertical pipes, substantially as set forth.

3. In a boiler for a steam heating apparatus, the combination of a system of communicating pipes horizontally disposed around the sides of the fire-box of a furnace, the series of vertical pipes communicating with each other and leading upward from said system at opposite sides of the boiler, the steam-dome at the top of the boiler, the horizontally-disposed pipe 11 near the top of the boiler and into which the vertical pipes lead, the pipes 14, 18, 20, leading from said horizontal system upwardly and connected with the sides of said dome, and connections between the ends of the pipe 11 and the pipes 14, 20, substantially as set forth.

601,819. TONGUE-TRUCK CONNECTION FOR REVERSIBLE ROAD-ROLLERS. GEORGE W. TAFT, Kennett Square, Pa. Filed Dec. 6, 1897. Serial No. 660,862. (No model.)



Claim.—1. The combination, with the road-roller, the frame carrying the bearings for the roller axle or journals, and the detachable tongue-truck; of a connection-plate fixed to said frame, and having the forwardly tapered horse V-shaped mouth, and seat for receiving the pintle-stud, and the locking yoke or loop hinged upon said connection-plate and adapted to fall in front of the pintle-stud for confining the same in said seat; said yoke provided with the forward projection having the upwardly-inclined under surface, substantially as set forth.

2. In combination, substantially as described, with a road-roller, its draft-frame, and the detachable tongue-truck having means for harnessing the team thereto, and carrying the pintle-stud; a tongue-truck connection at each end of said draft-frame, each comprising a projecting bifurcated plate having forwardly-tapered arms or horns with a pintle-receiving space between, and a movable yoke or fastener adapted for automatic elevation, and instant engagement with the pintle-stud of said tongue-truck when backed into said receiving-space, and means under control of the attendant for retracting said fastener and thereby detaching said tongue-truck, for the purposes set forth.

3. In a tongue-truck-attaching appliance, the connection-plate having a pintle-seat and forwardly-open mouth leading into said seat, the side portions fitted with lugs or shoulders *m*; and the upwardly-swinging yoke, its arms loosely hinged on said plate, its fore part having a forwardly upwardly inclined projection, an inner seat for embracing the pintle-stud, and its outer angles fitted with surfaces *n* that engage or abut on said shoulders, in combination with the tongue-truck having the pintle-stud fixed thereon.

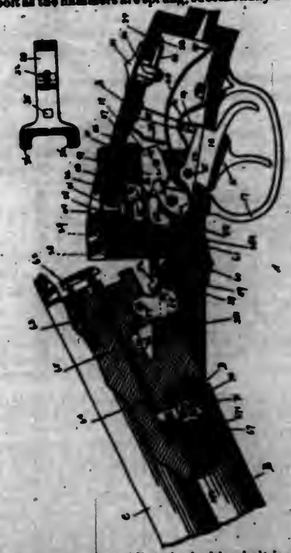
4. In a tongue truck-attaching appliance, the pintle-stud rigidly fixed upon the tongue-plate, said stud having a head or flange that projects rearward and laterally beyond the cylindrical body of the stud, but presenting no projection at its forward side; in combination with the connection-plate provided with a pintle-seat recess with a semicircular flange or lip over which said head engages; and a yoke or drop-fastener adapted to fall in front of said pintle-stud for retaining said pintle with said head and lip in conjunction, substantially as set forth.

601,820. BREECH-LOADING FIREARM. REINHARD T. TORKELSON, Worcester, Mass. Filed Mar. 18, 1893. Serial No. 466,732. (No model.)

Claim.—1. In a gun, the combination of a trigger 10 and a sear 12 formed in separate pieces, and mounted on the same shaft, the trigger-body being cut away along its upper edge to present a long working shoulder, and being provided with an overhanging lug 14, the sear fitting under, and being held in place by the lug 14, and having a long working face to rest upon the shoulder of the trigger-body, substantially as described.

2. In a gun, the combination of a trigger, a hammer, and a safety-slide 30 formed of a spring-metal body having an integral spring-catch 31 adapted to hold the safety-slide in one of two positions, an integral spring-finger 36 adapted to be engaged by the hammer, a finger-piece or push 31 extending outside of the gun-casing, and an arm 35 secured to the slide by being headed into the same, and adapted to engage the trigger, substantially as described.

3. The combination in a gun of the framing, the barrels pivoted thereto, the hammers, the firing-pins, the triggers, the cocking-lever for cocking the hammers as the gun is broken, a vertical shaft having a lever or snap at its upper end, and suitably connected at its lower end to operate a sliding locking-bolt for locking the barrels and framing together, of pins or projections on the hammers, adapted to be engaged by the locking-bolt so that the first part of the unlocking movement of the locking-bolt tends to move the hammers away from the firing-pins, and that thereafter the hammers are cocked by the breaking of the gun, the locking-bolt being moved far enough forward, when the same is in position to lock the frame and barrels together that the pins or projections on the hammers, will not strike the locking-bolt as the hammers are sprung, substantially as described.



4. In a gun, means for holding the locking-bolt in one position, consisting of the cylinder 45 having an ear 46 adapted to fit into the framing, the pin 48 fitted into the cylinder, said pin being slabbed at 49, and the edge of the cylinder being forced in at 50 to engage the slabbed portion of the pin to prevent the pin from being removed from the cylinder, and a spring 51 mounted behind the pin, substantially as described.

5. In a gun, the combination of the locking-bolt having the inclined cam-shoulder 39 and a tooth 40 arranged upon the upper surface of the locking-bolt, and the vertical operating-shaft 41 having a downwardly-projecting rib or tooth 43 which fits between said cam-shoulder 39 and the tooth 40 whereby the locking-bolt can be moved positively in either direction, the tooth 40 being curved so as not to interfere with the rearward motion of the locking-bolt, substantially as described.

6. In a gun, the combination of the framing, the barrels pivoted thereto, of a slide 59 having a dovetailed projection fitting into a dovetailed way in the framing, and being held in place by a screw 61 carried by said slide, and fitting into a groove in the framing, a friction-spring mounted in a recess in said slide, the slide being so arranged that when the screw 61 is removed, the slide can be moved back far enough so that it can be disengaged from the dovetailed way, the triggers and hammers, a pivoted cocking lever, a pivoted cam carried by the barrels, and adapted to actuate the cocking-lever, and to be engaged by the slide 59 so that it may be moved from its engagement with the cocking-lever, substantially as described.

7. The combination in a gun of the framing carrying the breech mechanism, of the barrels pivoted to the framing, the extractor mounted in the barrels, the extractor-lever, said extractor-lever being mounted in a slotted block 67 on the pins 69, said slotted block being fixed with relation to said barrels, thus forming a bearing for the extractor-lever, which can be replaced without replacing the entire fire-arm, the extractor-lever being adapted to bear on part of the framing to actuate the extractor, substantially as described.

601,821. BALL-BEARING FOR CYCLES OR VELOCIPEDES. WILLIAM W. TOURJÉE, Hartford, Conn. Filed June 28, 1897. Serial No. 642,567. (No model.)

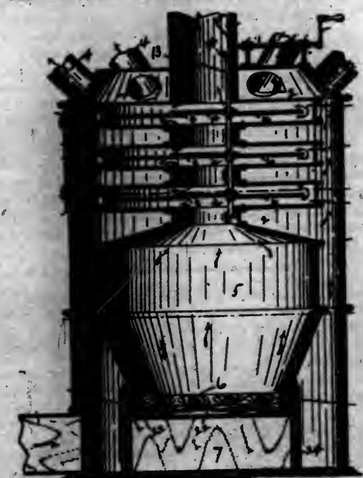
Claim.—1. A ball-bearing member consisting of an externally-threaded section having a raceway and an internal thread adjacent to said raceway; a ball-retainer seated in said section and provided with a series of recesses to receive and retain the balls; and an externally-threaded cap fitted within the first-named section and serving to secure the ball-retainer in position.



2. The combination of a shaft; a casing surrounding said shaft; a bearing consisting of two sections secured, respectively, to the shaft and casing and having bearing-surfaces, the bearing-section carried by the casing having an annular seat; a disk loosely fitted in said seat and having a central aperture to receive the shaft and also having a series of substantially elliptical sockets extending from the wall of the aperture; and a series of balls disposed in said sockets.

3. A retainer for bearing-balls, consisting of a plate having an aperture and a series of substantially elliptical recesses communicating with the aperture.

601,822. HOT-AIR FURNACE. JAMES T. WARREN, Buffalo, N. Y. Filed Nov. 13, 1897. Serial No. 658,341. (No model.)



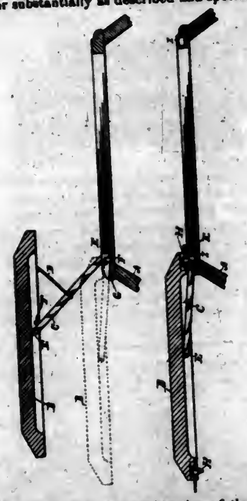
Claim.—In a hot-air furnace the combination with the fire-box and smoke-pipe, of a series of separated drums communicating with each other and with the fire-box and smoke-pipe and arranged within the hot-air chamber, a series of diaphragms of less diameter than the drums and centrally arranged therein whereby the heat generated in the fire-box has passing contact with the entire radiating-surface of the drums, and a series of openings in the diaphragms and a series of dampers operating with the openings in the diaphragms to produce a direct draft from the fire-box to the smoke-pipe when desired.

601,828. BURIAL-CASKET. OSCAR M. ALLEN, Kalamazoo, Mich. Filed Apr. 23, 1896. Serial No. 588,705. (No model.)

Claim.—1. In a burial-casket the combination of the body portion A; the lid B, with recesses on its under side; links C, pivoted at each end with the pivots E, one of which is located in a recess in the lid and the other of which is located in the side of the opening in the top; adjustable bolts F, with shoulders F', thereon located in the lid and on the top in position to project into the path of the links for adjusting the same; a hook D, on the lid positioned to hook under a link to sustain the top in the level position; catches on the lid positioned to engage catch-plates on the body to fasten the lid and to adjust the same on a level with the top in the open position all coacting together substantially as described for the purpose specified.

2. In a burial-casket the combination of the body portion A;

the lid B, with recesses on its under side; links C, pivoted at each end with the pivots E, one of which is located in the recess in the lid and the other of which is located in the top; catches on the lid positioned to engage catch-plates on the body to fasten the lid and to hold the same on a level with the top in the open position all coacting together substantially as described and specified.



3. In a burial-casket the combination of the body portion A; the lid B, with recesses on its under side; links C, pivoted at each end with the pivots E, one of which is located in a recess in the lid and the other of which is located in the opening in the side of the top; adjustable bolts F, with shoulders F', thereon located in the lid and on the top in position to project into paths of the links for adjusting the same; the hook D, on the lid positioned to hook under a link to sustain the top in the level position all coacting together as described for the purpose specified.

601,824. VELOCIPEDE DRIVING-GEAR. GERALD BARKER, London, England. Filed Nov. 27, 1896. Serial No. 613,517. (No model.) Patented in England Nov. 16, 1894, No. 22,151; in France Aug. 20, 1895, No. 248,956; in Belgium Aug. 20, 1895, No. 117,235, and in Germany Sept. 7, 1895, No. 86,700.



Claim.—In velocipede driving-gear, the combination with the main cranks, of secondary cranks mounted thereon provided with planet-wheels, and stationary externally-toothed sun-wheels with which said planet-wheels engage, said sun and planet wheels being of the same size, and pedals upon the secondary cranks.

601,825. APPARATUS FOR SHAPING METAL WARE. TIMOTHY CONNERS, Portland, Conn., assignor to the American Stamping Company, New York, N. Y. Filed May 17, 1897. Serial No. 636,572. (No model.)



Claim.—In apparatus for the manufacture of swelled ware, the externally-tapered dies B B', recessed to conjointly present the circular bottom space *c*, a plate C adapted for said space, together with the confining-ring D, and rubber filling E, in combination with the punch H and flange-holding die G of a die-press, all arranged for joint operation substantially as herein specified.

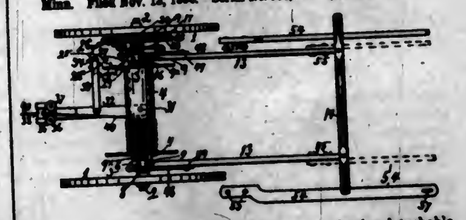
601,826. VEHICLE-TIRE. GEORGE W. CROSS, Pittston, Pa. Filed June 12, 1897. Serial No. 640,409. (No model.)



Claim.—1. A vehicle-tire having an annular recess and side recesses, and a spring or springs embedded in said tire, substantially as set forth.

2. A vehicle-tire having an annular recess or recesses, and two parallel springs embedded in said tire, substantially as set forth.

601,827. HAND-CART. GUSTAF A. DAHLBERG, New Sweden, Minn. Filed Nov. 12, 1896. Serial No. 611,977. (No model.)



Claim.—1. A combined hand and horse cart, having detachable shafts for the horse, adapted to be readily attached to the shafts used for hand-power, substantially as set forth.

2. In a wire-cart, the combination with a pair of ground-wheels, axle and frame carried thereby, a wire-reel mounted on the frame and operatively connected with one of the ground-wheels, a shunting-lever pivoted in the frame and carrying at one end rollers for guiding the wire onto the reel, a pitman pivoted to said lever, the crank-wheel 27 operating the pitman and having teeth upon its periphery and a spiral-toothed wheel engaging said teeth, and being secured to one of the traction-wheels, is thereby revolved, and operates the shunting-lever, substantially as set forth.

3. In a hand-cart the combination of a pair of ground-wheels, a frame carried thereby, a wire-reel mounted in the frame and a swinging arm for guiding the wire onto the reel, said arm being provided with four friction-rollers or guiding-sheaves between which the wire passes, and means for swinging the arm by the revolving of one of the ground-wheels, substantially as shown and described.

4. A hand-cart having a pair of ground-wheels and a frame carried thereby, and a pair of shafts projecting from the frame and connected together by a handle as 14, said shafts being adjustably secured to the frame, so that they may readily be raised and lowered relatively to the frame, by the extensible braces 48, substantially as and for the purpose described.

601,828. LEATHER AND RUBBER SUBSTITUTE. ORRIN R. DUREN, Boston, Mass., assignor of one-half to Charles Curtis, Newton, Mass. Filed July 1, 1897. Serial No. 643,092. (No specimens.)



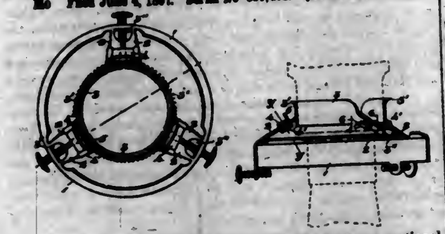
Claim.—1. The improved of making a substitute for leather or rubber, consisting in first drying a mass of chemical wood-pulp, then separating the individual dry fibers to bring the mass to a flocculent state, then mixing the flocculent fibers with a mass of rubber cement and pulverized mineral, and then forming the mixture into the shape desired and subjecting it to a degree of heat which is less than that usually employed for vulcanization.

2. The improved method of making a substitute for rubber or leather, consisting in first drying a mass of chemical wood-pulp, secondly separating the individual dry fibers to bring the mass to a flocculent state; thirdly, mixing the flocculent fibers with a mass of rubber cement and a pulverized mineral; fourthly, spreading the mixture into a relatively thick sheet, fifthly, subjecting the sheet to a degree of heat which is less than that usually employed for vulcanization, and lastly, compressing the sheet.

3. A compacted sheet of material consisting of chemical wood fibers uniformly mixed with and enveloped in a firmly-adherent mass of cured rubber and pulverized mineral.

4. As an article of manufacture, a vehicle-tire composed of compacted material, said material consisting of chemical wood fibers uniformly mixed with and enveloped in a firmly-adherent mass of cured rubber and pulverized mineral.

601,829. SHADE-HOLDER. MORRIS D. GREENBARD, St. Louis, Mo. Filed June 4, 1897. Serial No. 639,471. (No model.)



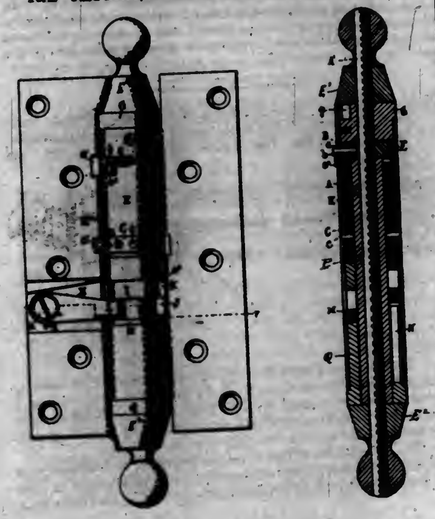
Claim.—1. In a shade-holder, a suitable shade-ring, a sectional clamping-band forming a part thereof, a series of pairs of flat webs having outer inclined edges connecting the sections of the clamping-band to the shade-ring, a slide having rounded terminal portions embracing the webs, the bases of the webs being cut away to increase the resiliency of the same, substantially as set forth.

2. In a shade-holder, a suitable shade-ring, a clamping-band, webs connecting the band to the shade-ring, the bases of the webs being cut away at their juncture with the shade-ring, substantially as set forth.

3. In a shade-holder, a shade-ring, a clamping-band, and flat webs having outer inclined or diverging edges connecting the shade-ring to the clamping-band, the bases of the webs being cut away at their juncture with the shade-ring, substantially as set forth.

4. In a shade-holder, a suitable shade-ring, a sectional clamping-band forming a part thereof, a series of pairs of flat webs rigidly connecting the sections of the band to the shade-ring, the webs having outer inclined edges normally diverging from the shade-ring toward the clamping-band, a slide embracing each pair of webs and adapted to draw the same together upon movement thereof in one direction, the flat faces of the webs being inclined to the planes of the circles of the shade-ring and clamping band, substantially as set forth.

601,830. DOOR-CHECK. CHARLES F. HARRINGTON, New York, N. Y., assignor to the Mechanical Door Hinge Check Company, of New York. Filed Nov. 3, 1896. Serial No. 610,965. (No model.)



Claim.—1. A door-check consisting of a hinge having in combination interfering projections carried by the opposite parts of the hinge, engaging with each other before the door is completely closed so as to check the closing movement, and moved out of engaging position after the door is checked to permit the final closing of the door, substantially as set forth.

2. In a door-check whose elements are attached to a door-hinge, the combination of a check-pawl, a channel in which the said check-pawl travels, a shoulder in the path of travel of said pawl, a channel or chamber into which the said pawl may pass after striking against the said shoulder, and means for causing said pawl to strike said shoulder and for causing said pawl to pass into said chamber, as the door is closed, substantially as set forth.

3. In a door-check whose elements are attached to a door-hinge, the combination of a check-pawl, a channel in which the said check-pawl travels, a shoulder in the path of travel of said pawl, a channel or chamber into which the said pawl may pass after striking against the said shoulder, and means for causing said pawl to strike said shoulder and for causing said pawl to pass into said chamber, and means for decreasing the sharpness of the blow of the said pawl upon the said shoulder, substantially as set forth.

4. In a door-check whose elements are attached to a door-hinge, the combination of a check-pawl, a channel in which the said check-pawl travels, a shoulder in the path of travel of said pawl, a channel or chamber into which the said pawl may pass after striking against the said shoulder, and means for causing said pawl to strike said shoulder and for causing said pawl to pass into said chamber, means for allowing a yielding movement to said shoulder under the blow of said pawl, and a device for retarding the movement of the door while swinging to, having means for suddenly decreasing the opposition of said device to the closing movement of the door before it is fully closed, substantially as set forth.

5. The combination of the leaves of a door-hinge with a check-pawl, a channel in which said check-pawl moves, having an offset *i*, and a chamber K, a shoulder formed in said channel means for holding the said pawl so as to strike said shoulder, springs connected with said shoulder, permitting it to give under the blow of said pawl, and means for causing said pawl to pass into said chamber K, after its contact with said shoulder, substantially as set forth.

6. In a door-check, a combination with the leaves of a door-hinge, of a spring-actuated check-pawl attached to one leaf of the hinge, a catch-lever adapted to hold said check-pawl against its spring, a channel in the body of the hinge in which the end of said check-pawl travels, a leg in said channel for operating the catch-lever, a shoulder held by a spring in said channel and capable of a yielding movement when struck by said check-pawl, and a chamber connected with the channel into which said check-pawl may pass when not held by the catch-lever against its spring.

7. The combination of the leaves of a door-hinge and a door-checking device operating to bring the door to a full stop before it is shut with a spring connected to said leaves and means for adjusting the tension of the said spring, and means for increasing its tension on the opening of the door and partially releasing said tension when the door has reached a predetermined position, substantially as set forth.

8. The combination of the leaves of a door-hinge and a door-checking device operating to bring the door to a full stop with a spring A, connected to said leaves and operated by the movement thereof, a pawl F for holding said spring, the lug, *b*, adapted to be caught by spring-catch for holding said spring, and the pin, *g*, for tripping said pawl, and releasing said spring, substantially as set forth.

9. In a door-check the combination with a door-checking device having a check-pawl of a movable block, having a shoulder against which the check-pawl of the checking device strikes, and spring or springs connected with said block so as to allow the same yielding movement under the contact of said check-pawl, substantially as set forth.

10. In a door-check the combination with a door-checking device having a check-pawl of a movable block, and a shoulder against which the pawl of the checking device strikes, spring or springs connected with said block so as to allow the same a yielding movement under the contact of said pawl, and means for limiting the movement of said block against said springs, substantially as set forth.

11. The combination of the leaves of a hinge with a door-check substantially concealed in the structure of the hinge, and having a check-pawl working in a channel and adapted to impinge upon a shoulder in said channel, and springs connected with said shoulder and allowing the same a yielding movement, and a spring for retarding the closing movement of the door, having means operated by the opening movement of the door for increasing the strength of said spring, and means operated by the closing of the door for partially releasing said spring when the door is at a predetermined position, substantially as set forth.

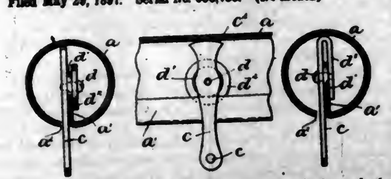
601,881. CORNER-BUFFER FOR TRUNKS. JOSIAH W. HAYDEN, Jr., Boston, Mass. Filed Oct. 13, 1897. Serial No. 655,095. (No model.)



Claim.—1. A corner-buffer for trunks, comprising a pyramidal frame having attaching extensions and intermediate guide portions to embrace the corner edges of the trunk, said frame having an opening at the apex and an adjacent enlarged internal seat, a yielding disk located in said seat and provided with an outer recessed face, and a substantially hemispherical metal buffer mounted in the disk and extended through the apex-opening of the frame, substantially as described.

2. A corner-buffer for trunks, comprising a pyramidal frame having attaching extensions and intermediate guide portions to embrace the corner edges of the trunk, said frame having an opening at the apex and an adjacent enlarged internal concaved seat, a yielding disk having a convex periphery, and a recessed outer face, and a hemispherical metal buffer mounted in the outer face of the disk and with its convex surface extended partially through the apex-opening of the frame, substantially as described.

601,882. CURTAIN-POLE. ALBERT F. HENDERSON, Boston, Mass. Filed May 29, 1897. Serial No. 638,753. (No model.)



Claim.—1. The combination with a curtain-pole formed of sheet metal bent into tubular form with a single inwardly-projecting flange or track a' and a longitudinal slot, of a carrier consisting of a hanger passed through said slot into the interior of the said pole, and provided with a roller entirely inclosed by the said pole and resting upon said flange or track said hanger and said pole being constructed and arranged to coact in holding the roller from being displaced from the track.

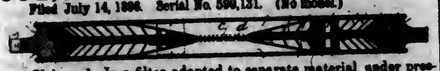
2. The combination of a curtain-pole formed of sheet metal bent into tubular form with a single inwardly-projecting flange or track located entirely inside thereof, and having a longitudinal slot, and a carrier consisting of a hanger passed through said slot into the interior of the pole and resting upon the flange or track, said hanger having means for holding the roller on the track.

3. The combination with a curtain-pole formed of sheet metal bent into tubular form with a single inwardly-projecting flange or track a' and a longitudinal slot, of one or more carriers, each consisting of a hanger passed through said slot and provided with a roller resting upon said flange or track, said hanger having its upper portion extended beyond the roller into proximity to the inner wall of the pole for the purpose set forth.

4. The combination with a curtain-pole formed of sheet metal bent in tubular form with a single inwardly projecting flange or track, of a carrier consisting of a hanger having its upper portion doubled upon itself, and a roller resting and rolling upon the said flange or track, and journaled in the doubled portions of the hanger.

5. The combination with a curtain-pole formed of sheet metal bent into tubular form with a single inwardly-projecting flange or track a' and a longitudinal slot, of a carrier consisting of a hanger passed through said slot into the pole, a roller resting and rolling upon said track, a screw for journaling said roller on the hanger, and means coacting with the body of the hanger for holding the roller on the said track, said hanger having its upper portion in proximity to the upper interior wall of the tube and curved as at c^3.

601,883. FILTER-PRESS. ELI E HENDRICK, Carbondale, Pa. Filed July 14, 1896. Serial No. 599,131. (No model.)



Claim.—1. In a filter adapted to separate material under pressure, the combination of a series of press elements arranged in series, each element comprising a ring or annulus, a filtering medium removably connected therewith and having a substantially central opening, and a detachable locking-ring for securing said filtering medium to said ring or annulus, substantially as set forth.

2. In a filter-press element of the character described, the combination of a ring or annulus having an interior flange, a series of filter-plates removably secured to the same and supported thereby, (said series comprising a central vertically-corrugated plate and two adjacent perforate plates on both sides thereof) all of said plates having a central opening for the passage of the liquid under pressure, and two blankets secured together at said central opening and covering said plates and resting on the ring or annulus, substantially as described.

3. In a filter-press element of the character described, the combination of a ring or annulus provided with an interior flange, a filter-plate supported on said flange, a locking-ring cooperating with the ring or annulus for securing said plate in position, said plate having a central opening for the passage of the liquid under pressure, and two blankets secured together at said central opening and covering said plate and resting on the ring or annulus, substantially as set forth.

4. In a filter-press element of the character described, the combination of a ring or annulus provided with an interior flange, a filter-plate supported on said flange, a locking-ring for securing said plate in position, means for detachably securing said locking-ring to the ring or annulus, said plate having a central opening for the passage of the liquid under pressure, and two blankets secured together at said central opening and covering said plate and resting on the ring or annulus, substantially as described.

5. In a filter-press element of the character described, the combination of a ring or annulus provided with an interior flange, a series of filter-plates supported on said flange, (said series comprising a central corrugated plate and two perforate plates on both sides thereof,) all of said plates having a central opening for the passage of the liquid under pressure, a locking-ring cooperating with the ring or annulus for securing said series of plates in position, and two blankets secured together at said central opening and covering said plate and resting on the ring or annulus, substantially as described.

6. In a filter-press element, the combination with a ring or annulus having internal lips, of a filtering medium within said ring or annulus and a locking-ring coacting with said internal lips to secure said filtering medium to said ring or annulus, substantially as described.

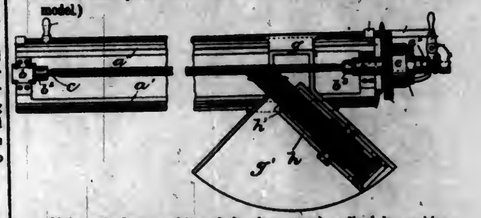
7. In a filter-press element, the combination with a ring or annulus having internal lips beveled at their ends, of a filtering medium and a locking ring coacting with said internal lips to secure said filtering medium to said ring or annulus, substantially as described.

8. In a filter-press element, the combination with a ring or annulus having internal lips, of a filtering medium and a locking-ring, having rabbets or grooves coacting with said internal lips to secure said filtering medium to said ring or annulus, substantially as described.

9. In a filter-press element, the combination with a ring or annulus, of a filter plate or plates, a locking-ring for securing removably said plate or plates in position, and a disk of fabric, substantially as described.

10. In a filter-press element, the combination with a ring or annulus having an outlet for the filtered material, of a filter plate or plates having hollow bosses, a locking-ring for securing said plate or plates in position and a blanket of fabric on either side of said plate or plates, substantially as described.

601,884. MACHINE FOR MAKING VEHICLE-TIRES. FREDERICK W. HEBETH, Boston, Mass., assignor to the Consolidated Rubber Works, same place. Filed Apr. 30, 1897. Serial No. 634,607. (No model.)



Claim.—1. In a machine of the character described, in combination, a bed, a mandrel thereon, means for rotating the mandrel, a carriage mounted to slide upon the bed, means for sliding the carriage, a warp beam mounted upon the carriage, and a liquid-receptacle also mounted upon the carriage to move therewith.

2. In a machine of the character described, in combination, a bed having parallel guides, a mandrel, a carriage arranged to slide on the parallel guides of the bed, means for sliding said carriage, a liquid tank or receptacle mounted upon the said carriage, and a warp-beam also mounted upon the carriage, said receptacle and said beam being adjustable relatively to the mandrel.

3. In a machine of the character described, in combination, a bed-frame having parallel guides, a carriage arranged to slide upon said guides, a mandrel mounted upon the said frame, a liquid tank or receptacle mounted upon said carriage, a warp-beam journaled upon said carriage, and means for conducting the threads therefrom through the liquid in the tank to the mandrel.

4. In a machine of the character described, in combination, a a bed-frame, a mandrel thereon, a carriage arranged to slide upon the bed-frame, a warp-beam mounted upon the carriage, and adjustable means mounted upon the carriage for varying the width of the warp.

5. In a machine of the character described, in combination, a bed-frame, a mandrel thereon, a carriage arranged to slide upon the bed-frame, a warp-beam mounted upon the carriage, and an adjustable comb mounted upon the carriage for varying the width of the warp.

601,885. BATH-GOWN. HARTLAND LAW and HERBERT H. LAW, San Francisco, Cal. Filed Aug. 4, 1897. Serial No. 647,078. (No model.)



Claim.—1. A bath-gown composed of flexible material and provided with a body portion having side openings extending the width of the gown and downward from the shoulder portion thereof, a rear portion, a front portion of greater length than the rear portion, tapering side portions connected to the front and rear portions at their lower ends and extended at their upper ends to form the lower portion of the sleeve, tapering sleeve portions to form the upper portion of said sleeves, and means for contracting the neck and outer ends of the sleeve portions; substantially as specified.

2. A bath-gown comprising front, bottom and rear portions, said front portion being of greater length than the rear, tapering side portions secured to the front, bottom and rear portions at their lower ends to form side openings extending the width of the gown downward from the shoulder portion thereof, tapering sleeve portions secured to the upper ends of the front, rear and side portions, and means for contracting the outer ends of said sleeve portions; substantially as specified.

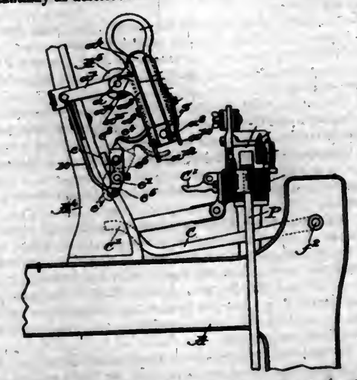
601,886. SHUTTLE-CHANGING MECHANISM FOR LOOMS. CHARLES A. LITTLEFIELD, Lowell, Mass., assignor to the Northrop Loom Company, Saco, Me., and Hopedale, Mass. Filed Dec. 4, 1896. Serial No. 614,498. (No model.)

Claim.—1. A loom containing the following instrumentalities, viz: a lay having a shuttle-box; a filling-detector; a movable shuttle-feeder independent of the lay; a shuttle-transferrer operative upon failure of the filling to transfer a shuttle from the shuttle-feeder to the shuttle-box, and connections between the transferrer and shuttle-feeder to move the feeder into position for the transfer of a shuttle, substantially as described.

2. A loom containing the following instrumentalities, viz: a lay having a shuttle box; a filling-detector; a movable shuttle-feeder independent of the lay; a shuttle-transferrer, and means independent of the lay and operative upon failure of the filling to move the shuttle-feeder in unison with the lay and to effect the transfer of a shuttle from the feeder to the shuttle-box, substantially as described.

3. A loom containing the following instrumentalities, viz: a lay having a shuttle-box; a filling-detector; means independent of the lay to support a fresh shuttle; a transferrer, including a rock-shaft, located at the rear of the lay-path, and mounted independently of the shuttle-supporting means, and fingers on said rock-shaft, adapted to engage and transfer a shuttle from its supporting means to the shuttle-box upon failure of the filling, substantially as described.

4. A loom containing the following instrumentalities, viz: a lay having a shuttle-box; a filling-detector; and a shuttle-feeder pivotally mounted above and independent of the lay, and adapted to be moved in unison therewith for a part of its stroke, in juxtaposition to the shuttle-box, combined with a transferrer mounted on a stationary part of the loom, means operative upon failure of the filling to actuate the transferrer and transfer a shuttle from the feeder to the shuttle-box while said feeder is moving in unison therewith and means to move the feeder by or through operation of the transferrer, substantially as described.



5. A shuttle-feeder for looms, comprising end guards having openings therein through which the extremities of a shuttle project, yielding detents to retain and also support the shuttle in the feeder, and side guides to direct the exit of a shuttle, substantially as described.

6. In a loom the following instrumentalities, viz: a lay having a shuttle-box; a movable shuttle-feeder independent of the lay and having an open bottom; yielding detents to engage the lowermost shuttle and retain it in the feeder; an independently-supported transferrer having fingers to engage the projecting ends of the lowermost shuttle and transfer it to the shuttle-box; and means operative upon failure of the filling to move the shuttle feeder in unison with the lay and at the same time effect the transfer of a shuttle, substantially as described.

7. In a loom adapted to renew its supply of filling when necessary, the lay having a receiving shuttle-box at one end and an ejecting shuttle-box at the other end; a movable shuttle-feeder independent of the lay and adjacent the receiving shuttle-box, containing a supply of shuttles each with its filling; a filling-detector; means to effect the ejection of the spent shuttle; and means independent of the lay, to move the shuttle-feeder in unison with the lay and transfer a fresh shuttle from the feeder to the receiving shuttle-box, said means operating simultaneously upon failure of the filling, substantially as described.

8. In a loom provided with means to renew its supply of filling when necessary, the lay, a shuttle-box thereon provided with two throats, one above the other, means to direct the exit of a shuttle from the box through one of said throats, and across the lay, or through the other throat to be ejected, and a filling-detector, to control the operation of said shuttle-directing means, substantially as described.

9. In a loom provided with means to renew its supply of filling when necessary, the lay, a shuttle-box thereon provided with two throats, one above the other, and a movable bottom, means to move the bottom to direct the exit of a shuttle from the box through either of said throats and a filling detector to control such means, whereby the shuttle when thrown from the said box either travels across the lay or is ejected, substantially as described.

10. In a loom provided with means to supply a fresh shuttle upon failure of the filling, the lay, a filling-detector; a shuttle-box having a shuttle-ejecting throat, and a throat in alinement with the raceway of the lay, a pivoted bottom for said shuttle-box, slotted for the picker-stick, a detent to retain said bottom in normal position, whereby the shuttle when thrown travels across the lay, and a releasing device, controlled by the filling-detector, to release the shuttle-box bottom from its detent upon failure of the filling, and after the entrance of the shuttle into the said box, whereby the shuttle will be shot through the ejecting-throat and ejected at the next stroke of the picker-stick, substantially as described.

11. In a loom provided with means to supply a fresh shuttle upon failure of the filling, the lay having a shuttle-box provided with an

ejecting-throat, a box-bottom mounted to swing vertically, a shuttle-director movable with said bottom, and means operative upon failure of the filling to swing said bottom and move the director to direct the shuttle to said ejecting-throat, to be ejected from the shuttle-box by the picking mechanism at the next pick, substantially as described.

12. In a loom, the lay having a shuttle-box provided with an ejecting-throat and a movable bottom, and a receptacle beneath the lay, combined with means operative upon failure of the filling to move said bottom to direct a shuttle to said throat as it is thrown from the shuttle-box, to be ejected therefrom, into said receptacle, substantially as described.

13. In a loom, filling-supplying mechanism, and mechanism operative upon failure of the filling to effect the delivery of a fresh supply of filling at one end of the loom and to eject the spent filling-carrier at the other end during the back stroke of the lay, substantially as described.

14. In a loom provided with means to furnish a fresh supply of filling, the lay, a shuttle-box thereon, a filling-detector, and means controlled thereby and operative upon failure of the filling, to eject a spent filling-carrier from the shuttle-box by effecting a change in the direction and location of its normal path of movement as it leaves said shuttle-box during the back stroke of the lay, substantially as described

15. In a loom provided with means to furnish a fresh supply of filling, the lay, a shuttle-box thereon, a filling-detector, means controlled thereby and operative upon failure of the filling, to eject a spent filling-carrier in the shuttle-box by effecting a change in the direction and location of its normal path as it leaves the inner end of the said shuttle-box during the back stroke of the lay, and means to restore the shuttle-box to normal condition at the next beat of the lay, substantially as described.

16. A loom containing the following instrumentalities, viz: a lay having a shuttle-box; means independent of the lay to support one or more fresh shuttles, and movable adjacent to and in unison with the shuttle-box when a shuttle is to be transferred; means located at the rear of the lay-path and operative upon failure of the filling, to engage and transfer a shuttle from said supporting means to the shuttle-box, and devices independent of the lay to effect the movement of the supporting means, substantially as described.

17. In a loom provided with means to supply a fresh shuttle upon failure of the filling, the lay having an ejecting shuttle-box, cooperating picking mechanism, and means operative upon failure of the filling to effect a change in the direction of the normal path of movement of the spent shuttle, while the latter is in the ejecting shuttle-box, whereby it will be ejected as it is thrown from the said shuttle-box by said picking mechanism, substantially as described.

601,887. BOBBIN OR UNDER-THREAD CASE FOR SEWING-MACHINES. LEE A. MILLER, Milwaukee, Wis., assignor to The Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Filed June 18, 1897. Serial No. 641,263. (No model.)



Claim.—1. A bobbin-case having a post and a lever mounted on said post, combined with a starting device having a projection to engage the bobbin surrounding said post, and connections between said lever and starting device to start said bobbin outwardly on said post, substantially as described.

2. A bobbin-case having a post, a starting device presenting a projection outside said post, and a bobbin surrounding said post, and a lever mounted on said post, combined with a link which in the movement of said lever operates said projection, substantially as described.

3. A bobbin-case having a post, a starting device made as a sliding sleeve having a projection, and a bobbin mounted on said sleeve, combined with a lever mounted on said post, and having a link connected with and operating said sleeve, substantially as described.

4. A bobbin-case having a post, a starting device made as a sliding sleeve having a projection, and a bobbin mounted on said sleeve, combined with a lever mounted on said post, and having a link connected with and operating said sleeve, said lever being long enough to overlap the bobbin from its center to the edge of the bobbin-case, the end of the lever entering a notch of the said case, substantially as described.

601,888. MAGAZINE-FIREARM. SAMUEL H. MCCLEAN, Washington, Iowa. Filed Mar. 13, 1891. Serial No. 384,944. (No model.) Patented in England Apr. 7, 1892, No. 6,063; in France June 7, 1892, No. 222,156, and in Germany June 26, 1892, No. 68,699.



Claim.—1. In a breech-loading firearm, a grip-lever, an operating-lever connected to the grip lever, a spring resisting the movement of said levers, a reciprocating breech-block connected to the operating-lever, shell-extractors attached to the breech-block, a vertically-reciprocating cartridge-carrier, a carrier-lever connecting said breech-block and carrier, and a rotating multichambered magazine engaged by the carrier to rotate it.

2. In a breech-loading firearm, a grip-lever, an operating-lever connected to the grip-lever, a spring resisting the movement of said levers, a breech-block connected to the operating-lever, a vertically-reciprocating carrier, a carrier-lever connecting the carrier and the breech-block, and a rotating multichambered magazine having spring-actuated cartridge-followers engaging with the carrier to rotate the magazine.

3. In a firearm provided with a barrel, cartridge-magazine, and stock or handle, the combination of a grip-lever pivotally suspended between the walls of a chamber in said stock or handle, an operating-lever connected by a rod or bar with the said grip-lever, and its lower extremity pivotally connected to the walls of said chamber, a spring bearing on said lever, a breech-block pivotally connected with the upper extremity of said operating-lever, a cartridge-carrier, and a cartridge-carrier-lifting lever, all substantially as shown.

4. In a firearm the combination of a grip-lever pivotally suspended between the walls of the chamber formed of opposite sides of the stock or handle, an operating-lever composed of two parts hinged together and connected by a bar or rod with said grip-lever, its lower extremity pivotally connected with said walls and held in position by a spring, a breech-block pivotally connected with the upper extremity of said operating lever, a cartridge-carrier, a cartridge-carrier-lifting lever, and a hammer, all actuated and operated by the retraction of said grip-lever and by said spring.

5. In a firearm, the combination of a grip lever and an operating-lever connected by a bar or rod each pivotally connected with the opposite walls of the chamber of the stock or handle, a spring resisting the retraction of said levers and restoring them to their normal position, and a breech-block pivotally connected with said operating-lever, said breech-block being provided with projecting pins engaging in grooves in the opposite walls of said chamber, whereby by means of the retraction of said grip-lever and said spring said breech-block may be withdrawn from and returned to its position as breech to the barrel of the firearm as desired.

6. In a firearm the combination of a grip-lever and an operating-lever connected by a bar or rod, each pivotally connected with the opposite walls of a chamber in the stock or handle, a spring resisting the retraction of said levers and restoring them to their normal position, a cartridge-carrier-lifting lever, a breech-block pivotally connected with said operating-lever, and a cartridge-carrier operated by said cartridge-carrier-lifting lever.

7. In a firearm, the combination of a breech-block provided with projecting pins on its opposite sides, near both forward and rear ends, the former pins engaging in horizontal grooves and the latter in vertical and inclined grooves in the opposite walls of the chamber of the stock or handle of said firearm, blocks or plates located and sliding in said horizontal grooves provided with spring-catches whereby the said breech-block is moved backward or forward in said groove, whose depth diminishes and increases at proper distances, the rim or flange of the cartridge is seized by said spring-catches, and the shell or cartridge is extracted, and an operating-lever connected with said breech-block and by the means of which the same is operated.

8. In a firearm, the combination of a rotating cartridge-magazine provided with two or more chambers, a cartridge-carrying device capable of upward and downward movement between the opening of one of the chambers of the magazine and the bore of the barrel, said cartridge-carrying device being operated by an operating-lever mechanism making engagement between the rotating magazine and the cartridge-carrying device, after the last cartridge in the chamber of the magazine has been expelled, whereby the upward movement of the cartridge-carrying device rotates the magazine to the desired

position when another chamber is presented for the ejection and use of the cartridges.

9. In a firearm a rotating magazine having cartridge tubes or chambers, each tube or chamber having a longitudinal groove; a plunger provided with a stock and spring, movable in said tube or chamber, each plunger provided with a pin moving in said groove and capable when said tube or chamber is empty of projecting through a slot in the end wall or partition of the chamber of the stock or handle, in combination with a cartridge-carrying device provided with a vertical plate containing a diagonal or inclined slot, engaging the projecting pin of said plunger, whereby the upward movement of said cartridge carrying device rotates said magazine and brings the next loaded chamber opposite the point of ejection.

10. In a firearm a cartridge carrier having a vertical and a horizontal plate or face, the horizontal plate being provided on each side with dependent arms or wings and having two longitudinal slots, the vertical plate adjusted to move in vertical grooves in the opposite walls of the chamber of the stock or handle, and having a diagonal or inclined slot, in combination with two shells hinged to the central line of the horizontal plate, a pair of sliding bars passing beneath said shells and made integral with a vertical plate, said bars being pivotally connected with rods that passing through the slots in said horizontal plate are pivotally connected with the respective arms or wings thereof, whereby the cartridge ejected from the magazine may be retained or freed in the receipt and delivery thereof by said cartridge-carrier.

11. In a firearm, a breech mechanism, a grip-lever forming a hand grasp substantially as described, pivotally supported in the stock or grip of the weapon and conforming to the contour of said parts and operatively connected to the breech mechanism and means to return the grip-lever to normal position.

12. A grip-lever, movably retained and controlled by the walls of a chamber formed in the stock or handle of a firearm, an operating-lever connected to the said grip-lever, a reciprocating breech-block connected to the said levers, and a spring resisting the movement of said levers, and restoring them to their normal position, the reciprocating of the grip-lever giving a reciprocating movement to the breech-block.

13. In a breech-loading firearm, the combination of a hand grip-lever pivotally mounted in the stock-chamber, an operating-lever connected to the grip-lever and operated thereby, a spring resisting the movement of said levers and restoring them to their normal position, a reciprocating breech-block pivotally connected to the operating-lever, a spring-actuated hammer engaged by said breech-block, and a spring-actuated trigger engaging the heel of the hammer, the grip-lever operating to actuate the operating-lever and breech-block and cock the hammer and the trigger operating to release the hammer.

14. A grip-lever connected to an operating-lever, a spring resisting the movement of said lever and restoring them to their normal position, the said lever connected to a reciprocating breech-block, which breech-block engages with the short arm of a carrier-lever, the long arm of which lever engages with a vertically-reciprocating carrier, a carrier provided on its anterior face with a diagonal groove which engages with a rotating cartridge-magazine, the upward movements of the carrier rotating the magazine, the grip-lever causing a reciprocating movement of the breech-block, a vertically-reciprocating movement of the carrier and a rotating movement of the magazine.

15. A grip-lever provided with a projection or connection for engagement with the operating mechanism of a breech-loading firearm, an operating-lever which is connected to the said grip-lever and is hinged to a reciprocating breech block, a spring resisting the movement of said levers, and restoring them to their normal position, the said breech block engaging with a spring-actuated hammer which engages with a trigger in the usual manner, the said breech-block also engaging with the short arm of a carrier-lever, the long arm of which engages with a vertically-reciprocating carrier, a vertically-reciprocating carrier provided on its anterior face with a diagonal groove, which engages with the rotating cartridge-magazine, the upward movement of the carrier rotating the magazine, the grip-lever giving a reciprocating movement to the breech-block, a vertically-reciprocating movement to the carrier, a rotating movement to the magazine, and a rearward movement to the hammer, the said grip-lever and trigger actuating and discharging the firearm.

16. In a firearm, provided with a stock or handle having a chamber therein, the walls of the stock-chamber having cam-grooves 25, which grooves 25 are of varying depth, a grip-lever provided with a connection for engagement with the operating mechanism of a breech-loading firearm, an operating-lever connected to the said grip-lever, a spring resisting the movement of said levers, and restoring them to their normal position, a reciprocating breech-block connected with the said levers, the breech-piece provided with pins or bearings d'' arranged to engage with spring-extractors, spring-extractors arranged to slide back and forth in the cam-grooves 25, the extractors engaging with the pins d'' and the outer side of the extractors constructed to bear against the bottom of the grooves, the cam action of the grooves causing the extractors to grasp the cartridge as moved forward and to release the shell when fully extracted.

17. A vertically-reciprocating cartridge-carrier having attached to its upper face a cartridge receiver or cradle, the semicylindrical walls of the receiver being fastened to the upper surface of the carrier in the central longitudinal line thereof, the forward ends of these shells being even with the front face of the carrier and constructed to receive the cartridges as they pass out of the magazine into the stock-chamber.

18. In a firearm the barrel, the stock or handle provided with a chamber therein, a grip-lever, an operating-lever movably retained and controlled in its movements by the walls of said chamber, and bars or rods E connecting said grip-lever and operating-lever, in combination with the firing mechanism of said firearm, as set forth.

19. In a firearm, the combination with the grip-lever and the operating-lever suitably connected together, of a reciprocating breech-block and shell extractor attached thereto, said operating-lever actuating said breech-block and said shell-extractor, substantially as set forth.

20. In a firearm the combination with the stock and barrel thereof, and a reciprocating breech-block attached to the operating-lever, of, a grip-lever C, an operating-lever D, bar E connecting the same, and spring S, as set forth.

21. In a breech-loading magazine-firearm, the combination of firing mechanism, a reciprocable breech-block carrying shell-extracting means, a vertically-reciprocating cartridge-carrier arranged between the magazine and barrel, and a spring-controlled hand grip-lever pivotally and yieldingly supported between the walls of the stock-chamber and connected with the breech-block and cartridge-carrier and operative by the compression of the hand to actuate the firing mechanism and thereafter extract the spent shell and bring a fresh cartridge into position at the barrel, substantially as described.

22. In a breech-loading firearm, the combination with the vertically-reciprocating cartridge-carrier and means for actuating it by operating the weapon, of a diagonal groove in the outer wall of the cartridge-carrier and a multichambered rotary magazine, the chambers containing springs against which the cartridges are inserted and having projections on the cartridge-followers thereof to enter the said diagonal groove as the chambers become depleted of cartridges, whereby the reciprocating movement of the cartridge-carrier rotates the magazine, substantially as and for the purpose set forth.

23. In a breech-loading magazine-firearm, a reciprocating breech-block, a reciprocating cartridge-carrier, means for reciprocating the carrier and breech-block, releasable support for the carrier when elevated, comprising a spring-catch having a latch-shaped support in the path of the carrier and a second latch-shaped support in the path of the breech-block.

24. In a breech-loading magazine-firearm, the combination with the reciprocating breech-block, of a vertically-reciprocating spring-actuated cartridge-carrying device and a carrier-lever connecting the breech-block and carrier.

25. In a breech-loading firearm, a grip-lever forming a hand-grasp, a reciprocating breech-bolt connected to the grip-lever, a vertically-reciprocating cartridge-carrier, and a carrier-lever engaging the carrier and engaged by the breech-bolt.

601,889. MAGAZINE BOLT-GUN. SAMUEL H. MCCLEAN, Washington, Iowa. Filed Mar. 23, 1894. Serial No. 505,003. (No model.) Patented in England May 15, 1894, No. 9,537; in France May 17, 1894, No. 236,235, and in Germany May 19, 1894, No. 83,136.

Claim.—1. In a breech-loading firearm, a stock-chamber provided with cam-guides in the walls thereof, a grip-lever connected to the stock or handle and provided with guides, a firing-pin, a breech-bolt, a connection between the breech-bolt and the grip-lever provided with a pin to engage the guides of the stock chamber and the grip-lever, and a sear in the path of the grip-lever to hold the firing-pin, substantially as described.

2. In a firearm, a firing mechanism comprising a grip-lever connected to a reciprocating breech-piece, an immovable guide engaging the connecting medium a movable cam-guide in the grip-lever engaging the connecting medium, a spring-actuated firing-pin carried by the breech-piece and a sear engaging the firing-pin and located in the path of the grip-lever.

3. In a firearm, a stock-chamber provided with cam-guides in the walls thereof, a grip-lever connected to the stock or handle and formed with cam-slots in its upper extremities, a reciprocating breech-bolt, connection between the breech-bolt and the grip-lever provided with pins to engage the guides in the stock-chamber and grip-lever, a firing-pin carried by the breech-bolt, a sear engaging the firing-pin, and a trigger engaging the sear.

4. In a breech-loading firearm, a grip-lever, a reciprocating breech-piece connected to the grip-lever a spring-actuated firing-pin carried by said breech-piece, a sear for engaging the firing-pin, a trigger engaging said sear and a dog to lock and release the grip-lever and the trigger being operative to release the dog and firing mechanism, substantially as described.



5. In a breech-loading firearm, a firing mechanism, comprising a grip-lever, a reciprocating breech-piece connected to the grip-lever, a spring-actuated firing-pin carried by the breech-piece, a sear engaging the firing-pin, and provided with an arm extending through the stock-wall whereby the sear may be disengaged from engagement with the firing-pin.

6. In a firearm, a cartridge-carrier held movably between the walls of the forward end of the stock-chamber, its rear end connected to the walls of the stock to move the rear end of the carrier in an upward and backward direction and its forward end connected to the stock-walls to give the forward end of the carrier an upward and rotary movement, a carrier-lever connected to the carrier, and an operating-lever connected to the carrier-lever, the said carrier having both a reciprocating and rotating movement with relation to the barrel and magazine.

7. In a breech-loading firearm, a grip-lever, a reciprocating breech-piece connected to said lever, a spring-actuated firing-pin carried by said breech-piece, a sear engaging said pin and disengaged from the pin by the grip-lever, a cartridge-carrier having a reciprocating and rotating movement and a carrier-lever connected to the grip-lever, and engaging with the carrier to operate it, substantially as described.

8. In a breech loading firearm, a stock-chamber having cam-guides located opposite the rear end of the magazine and rising into line with the barrel, a cartridge-carrier having pins or lugs on its upper corners to engage the guides, the guides controlling the movement of the carrier to give it a compound reciprocating and rotary motion with relation to the magazine and barrel, and an operating-lever connected to the carrier.

9. In a breech-loading firearm, a grip-lever forming a hand-grasp, substantially as described, pivotally supported in the stock or grip of the weapon and conforming to the contour of said part, a carrier-lever connected to said grip lever and having a cam-guide to engage the cartridge-carrier, and a cartridge-carrier connected to the carrier-lever.

10. In a breech-loading firearm, a grip-lever, a carrier-lever connected to the grip-lever, and a cartridge-carrier supported in stationary cam-guides and connected to the carrier-lever.

11. In a firearm a cartridge-holder having gripping-arms hinged to the sides of a cartridge-carrier, a spring to draw the arms together, a wedge-shaped cam having a reciprocating movement to open and close the arms.

12. In a breech-loading firearm a grip-lever provided with a lug J^3, on its inner forward part, a trigger provided with a catch L' on its inner side thereof, a lock M pivoted to the trigger-plate in front of the trigger to engage therewith to hold it out of engagement with the grip-lever.

13. In a breech-loading firearm, a cartridge-carrier having grooves in its upper side to receive and hold a reciprocating cam, a cartridge-holder hinged to the opposite sides of the carrier and having its upper ends formed to grip the cartridge, and its inner sides converging toward each other, a reciprocating wedge-shaped cam engaged and held on the upper side of said carrier by the grooves and having a reciprocating movement to open and close the cartridge-holder.

14. In a breech-loading firearm, a cartridge-holder having gripping-arms hinged to the side of the cartridge-carrier, a spring to draw the arms together, a wedge-shaped cam having a reciprocating movement to open and close the arms, said cam being in the path of the forward movement of the breech-piece when the carrier is in its upper position, and engaging with a stop when it descends to position in front of the magazine, to reciprocate the cam.

15. In a breech-loading firearm, a reciprocable breech-piece, a spring-actuated firing-pin carried by said breech-piece, a sear for the firing-pin, a cartridge-carrier having a compound reciprocating and rotary motion with relation to the magazine and barrel, a carrier-lever having a cam-guide engaging the carrier, a grip-lever connected with the breech-piece and carrier-lever to operate them, a cartridge-holder connected to said carrier and automatically actuated to open at the barrel and close at the magazine.

16. In a firearm, a grip-lever or hand-grasp, a carrier-lever connected to said grip-lever or hand-grasp, a carrier connected to said carrier-lever, a cartridge-holder connected to said carrier and having gripping-arms to engage the cartridge, a reciprocating cam removable between the said arms to open and close them.

17. In a firearm, a grip-lever a reciprocating breech-piece connected to said grip-lever, a spring-actuated firing-pin carried by said breech piece, a sear engaging said firing-pin, a trigger engaging said sear to disengage it from the firing-pin, a carrier-lever connected to the grip-lever, a carrier connected to said carrier-lever, and having a reciprocating and rotating movement, a cartridge-receiver connected to the carrier and provided with arms which are opened and closed by a reciprocating cam, substantially as described.

18. In a firearm a cartridge-magazine conveying its cartridges in file containing a spring-actuated cartridge-follower and a longitudinal rack connected to the follower and provided with a series of seats for the ends of a file of cartridges, to maintain the cartridges in regular order substantially as described.

19. In a breech-loading firearm, the combination with the stock-chamber and carrier, of a magazine containing a spring-controlled rack adapted to hold the supply of cartridges in file and locking means substantially as described, for the rack disengaged by the action of the cartridge-carrier to release the rack to feed the cartridges successively to said carrier, substantially as described.

20. In a breech-loading firearm, the combination with the stock-chamber and carrier of a magazine containing a spring-controlled rack, adapted to hold the supply of cartridges in file, and having a scale to indicate the number of cartridges in the magazine, and a locking means for the rack located in the path of the carrier and disengaged by the carrier to successively feed the cartridges into the embrace of the carrier, substantially as described.

21. In a breech-loading firearm the combination of a reciprocating breech-piece, a spring-actuated firing-pin carried by said breech-piece, a sear engaging the firing-pin, a cartridge-carrier having a compound reciprocating motion with relation to the barrel and the magazine, a cartridge-holder having arms to automatically grasp the cartridge as it passes into the stock-chamber, and release it as it passes into the barrel, a grip-lever connected to the breech-piece, a carrier-lever connected to the grip-lever and cartridge carrier to operate them, and a magazine having a spring-controlled rack, said rack being provided with locking means which means are disengaged by the movement of the carrier to allow the magazine to feed the cartridges successively into the embrace of the cartridge-holder, substantially as described.

22. The combination of the magazine, the spring-actuated follower therein, the cartridge-rack connected to the follower, and formed with seats to receive the cartridges, and having pins on the sides thereof, and a guide in the stock-chamber formed with grooves in the sides to take the pins of the cartridge-rack, as and for the purpose specified.

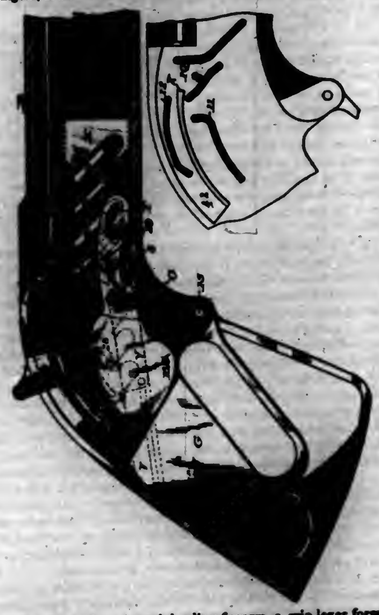
23. A breech-loading firearm having a grip-lever forming a hand grasp, substantially as described, pivotally supported in the stock or grip of the weapon and conforming to the contour of said part as its primary actuating means for loading and firing the weapon, a carrier-lever having a pin-and-slot connection with the grip-lever to permit limited movement of the latter independently of the carrier-lever, substantially as described.

24. In a breech-loading firearm comprising in combination with the barrel and stock or handle containing a chamber, a spring-controlled grip-lever carrying studs and provided with a cam-slot, a breech-piece carrying the firing-pin and an extractor and having a hinged link connection by a pin with said cam-slot and entering a stationary cam guide O, sears for the firing-pin and a thumb-piece on one of the sears, a trigger provided with a locking-dog and an adjustable lock, a carrier-lever having a slot for the stud and adapted to be engaged with said grip-lever and provided with a cam-guide, a cartridge-carrier engaging and controlled by said cam-slot, and stationary cam-guides and provided with a cartridge-holder and a magazine operator to feed the cartridges to the carrier, the whole being constructed and arranged to operate, substantially as described.

25. In a breech-loading firearm, a cartridge-carrier movable between the magazine and the barrel, a movable cam-guide engaging and reciprocating the carrier, and a stationary cam-guide engaged by the carrier.

26. In a breech-loading firearm, a cartridge-carrier engaging with a movable and an immovable cam-guide to reciprocate the carrier, an actuating-lever, and a carrier-lever having a pin-and-slot connection with the actuating-lever and connected to the carrier to control the movements of the carrier.

601,840. MAGAZINE-FIREARM. SAMUEL H. McCLEAN, Washington, Iowa. Filed June 20, 1894. Serial No. 514,120. (No model.)



Claim.—1. In a breech-loading firearm, a grip-lever forming a hand-grasp, hinged to the stock or handle of the weapon, and conforming to the contour of the gripping-hand, and a breech-bolt connected to and carried by said lever.

2. In a breech-loading firearm, a breech-closing mechanism, comprising a swinging hand grip-lever hinged to the stock or handle of the firearm, and having an upper or breech-closing extremity, provided with a slot; a swinging breech-bolt connected to and carried with said swinging grip-lever by a pin which engages with the said slot to give a limited movement to the breech-bolt.

3. A forward locking device for a breech-loading firearm, comprising a stock-frame having a receiver formed as an arc of a circle; a cam-guide in the frame beneath the receiver, the forward end of the guide being eccentric to the movement of the breech-bolt; a breech-bolt formed on the arc of a circle to swing in said receiver; a hand grip-lever hinged to the stock or handle and having cam-slots in its upper end, and a locking-bar hinged at its rear end to the breech-bolt and connected to the grip-lever by a pin which cooperates with the said cam-guides to lock and unlock the breech-bolt in front of the guides and immediately behind the breech.

4. A forward locking mechanism for a breech-bolt, comprising a swinging hand grip-lever hinged to the stock or handle of the weapon; a swinging breech-bolt connected to the grip-lever by a pin and slot to give limited movement to the breech-bolt; a locking-bar hinged at its rear end to the breech-bolt and connected to the grip-lever by a pin and a movable and an immovable cam-guide engaged by said pin to lock and unlock the breech-bolt.

5. In a breech-loading firearm, a receiver having a cam-guide groove which has a varying direction, the cam part of the guideway being eccentric to the path of movement in which the breech-bolt is guided, a breech-bolt movable in the receiver, and shell-extractors attached to the breech-bolt and engaging with the said cam-guide groove to engage and release the cartridge.

6. A stock-frame, in a firearm, having a receiver formed on an arc of a circle, and a cam-guide in the frame, formed with a varying rearward direction; shell-extractors pivoted to a swinging breech-bolt, and provided with a pin to engage the said guide, to cause the extractors to engage with the cartridge, and to move the hooked extremity of the extractors in line with the bore of the barrel.

7. In a breech-loading firearm; a stock-frame having a cam-guide in walls of the receiver, the guide having a rearward and varying direction, and the rear end of the guide having a short curve eccentric to the movement of the breech; shell-extractors attached to a reciprocating breech-bolt, and provided with a pin to engage with said cam, the rear end of the cam causing the extractors to assist in ejecting the shell.

8. In a breech-loading firearm: a carrier-lever pivoted to an operating-lever and connected to a movable cartridge-carrier, and provided with a pin to engage with a guide in the stock-wall to modify the movement of the lever.

9. In a breech-loading firearm, a cartridge-carrier having gripping-arms pivotally supported in the carrier, having a crank to rotate the arms, their upper ends formed to grip the cartridge; a movable slide retained on the upper side of the carrier and connected to the cranks to rotate the arms into and out of engagement with the cartridge.

10. In a breech-loading magazine-firearm, a cartridge-carrier having gripping-arms pivoted to the carrier, and having cranks; a reciprocating slide to engage the arms by means of cam-slots to rotate the arms.

11. In a breech-loading firearm; a firing mechanism, comprising a swinging hand-grip lever; a breech-bolt connected to and carried with the lever; a firing-pin carried by the breech-bolt; and a sear to hold and release the firing-pin.

12. In a breech loading firearm; a firing mechanism, comprising a grip lever; a breech-bolt carried by the grip-lever; a spring-actuated firing-pin carried in the breech-bolt; a sear engaging the firing-pin and located in the path of the movement of the grip-lever, and disengaged by the grip-lever to fire the weapon.

13. In a breech-loading firearm; a stock-frame having guides 9, 10 and 14 in the walls of the stock-chamber; a swinging grip lever hinged to the stock or handle; a carrier-lever pivoted to the grip-lever, and having a pin engaging the guide 14; and a carrier having pins at its forward and rear ends to slide in the guides 9 and 10, the carrier being pivotally connected to the carrier-lever.

14. In a breech-loading firearm; a loading mechanism, comprising a swinging grip-lever pivoted to the stock or handle of the weapon; a breech-bolt connected to and carried with the grip-lever; a carrier-lever connected to the grip-lever by a pin and slot; and a reciprocating carrier connected to the carrier-lever.

15. In a magazine-firearm, a swinging grip-lever hinged to the stock or handle of the weapon; a breech-bolt connected to and carried with the grip-lever; a carrier-lever connected to the grip-lever; a carrier having gripping-arms pivoted in the carrier, and having a crank engaged by a reciprocating slide to rotate the arms; a cartridge-magazine carrying its cartridges in file, and having a rack to maintain the regular order of the cartridges; and a spring engaging the rack and disengaged by the carrier.

16. In a firearm; a cartridge-ejector attached to the upper surface of a cartridge-carrier, and having an upwardly-projecting arm to engage the cartridge, and a laterally-projecting arm to engage with a shoulder on the stock-wall, the upward movement of the carrier actuating it to laterally eject the cartridges.

17. In a breech-loading firearm; a swinging grip-lever pivoted to the stock or handle of the weapon; a breech-bolt connected to and carried with the grip-lever; a carrier-lever connected with the grip-lever; a movable carrier attached to the carrier-lever; and a cartridge-ejector attached to the upper surface of the carrier, and having an upwardly-extending arm to engage the cartridge, and a laterally-extending arm to engage a lug on the side wall to laterally eject the cartridge.

601,841. MAGAZINE BOLT-GUN. SAMUEL N. MCCLEAN, Washington, Iowa. Filed June 5, 1895. Serial No. 551,783. (No model.)



Claim.—1. In a firearm, a reciprocating breech-bolt having a wedge-shaped cam on its under side, a reciprocating handle connected to the said bolt, a vibrating cartridge-carrier having gripping-arms and converging cam-faces on the inner sides thereof, the wedge on the under side of the breech-bolt movable between the arms of the carrier to release the cartridge.

2. In a firearm, a reciprocating handle having a cam-guide which is provided with a double or diamond-shaped forward end, a reciprocating breech-bolt connected to said handle, and a vibrating cartridge-carrier engaging said handle by means of the said guide, substantially as described.

3. In a firearm, a reciprocating handle, a longitudinally-reciprocating breech-bolt having a pin or projection on its under side, a connecting medium H between the said bolt and handle, having a diagonal cam-guide which partially encircles the bolt to reciprocate and rotate it, and shell extractors attached to a collar which encircle said bolt, and a side wall of the receiver having a groove of varying depth the extractors adjusted to bear against the bottom of said grooves to actuate the extractors to grip the cartridge, substantially as described.

4. In a firearm, a reciprocating handle having in its side walls a cam-guideway which is provided with a double or diamond-shaped forward end, a reciprocating breech-bolt connected to said handle, a vibrating cartridge-carrier having gripping-arms for holding the cartridge and engaging with the cam-track in said handle by means of pin P^2 to vibrate it between the barrel and magazine, substantially as described.

5. In a firearm, a reciprocating handle having in its side walls a cam-guideway which is provided with a double or diamond-shaped forward end to hold the carrier in alinement with the barrel until the extractors have gripped the cartridge and started in into the barrel and to permit the breech-bolt to be sufficiently withdrawn before lifting the carrier, a reciprocating breech-bolt connected to said handle, a vibrating cartridge-carrier having gripping-arms for holding the cartridge and engaging with the cam-guideway in said handle to vibrate it between the barrel and magazine, a wedge-shaped projection attached to said breech-bolt and movable between the arms of said carrier to separate them when said bolt is reciprocated, substantially as described.

6. In a firearm, a reciprocating handle having a cam-guideway in its side walls, said guideway having a double or diamond-shaped forward end, a cartridge-carrier having gripping-arms which engage with said guideway by means of pin P^2 to cause a vibrating movement of the carrier, substantially as set forth.

7. In a firearm, a reciprocating handle, a cartridge-rack formed with a series of notches corresponding to the number of cartridges carried by the rack, a dog pivoted in said handle, and arranged to connect with said notches whereby the reciprocating movement of the handle causes a reciprocating movement of the rack, all substantially as described and set forth.

8. In a firearm, a reciprocating handle, a cartridge-rack formed with a series of notches corresponding to the number of cartridges carried by the rack, a dog pivoted in said handle and arranged to connect with the said notches whereby the reciprocating movement of the handle causes a reciprocating movement of the rack, a spring-actuated dog T attached to said handle and a spring-actuated dog engaging said rack and located in the path of movement of the dog T and disengaged by the said dog to release the rack, all substantially as described.

9. In a firearm, a cartridge-rack having a series of notches corresponding to its number of cartridges, a dog engaging said notches, and a slide or feed cut-off engaging the said dog to disengage it from the rack, all substantially as described.

10. A cartridge-magazine located beneath the barrel, a cartridge-rack E formed of sections hinged together and having a series of chambers corresponding to the number of cartridges carried in the magazine, a guide for the said rack extending through said magazine, and the stock in which the rack slides in its reciprocating movement, all substantially as described.

11. In a firearm, a reciprocating handle having a cam track in its side walls, a reciprocating breech-bolt connected to said handle, a cartridge-carrier having gripping-arms engaging by means of the pin P^2 with the cam-guide in the said handle to vibrate the carrier, a cartridge-rack having a series of chambers for its cartridges and a corresponding series of notches on its under side, a cartridge-rack guide D in which the said cartridge-rack is guided, a spring-actuated dog S located in the handle, and movable beneath the said rack located in the said handle and engaging with the notches in the said rack to actuate it, substantially as described.

12. In a firearm, a reciprocating handle having a cam-guide in its side walls, a reciprocating breech-bolt connected to said handle, a cartridge-carrier having gripping-arms engaging the cam-guide in the said handle by means of pin P^2 to vibrate the carrier, a cartridge-rack having a series of chambers for its cartridges and a corresponding series of notches on its under side, a cartridge-rack guide D in which the said cartridge-rack is guided, a spring-actuated dog S located in the handle, and movable beneath the said rack and located in the said handle and engaging with the notches in the said rack to actuate it, an auxiliary dog pivoted to the side walls and located beneath the rack engaging the notches of the rack and disengaged from the rack by the rearward movement of the handle, substantially as described.

13. In a firearm, a reciprocating handle, a reciprocating breech-bolt having diagonal cam-lugs attached to its forward end, the side walls of the receiver having corresponding cam-lugs to engage and lock the bolt, a connecting medium H between the said breech-bolt and the handle having a diagonal cam-slot which partially encircles the bolt, a spring-actuating firing-pin carried by said bolt, a sear engaging said firing-pin, located in the path of the handle and disengaged by the handle to discharge the weapon, all substantially as described.

14. In a firearm, a reciprocating handle having a wedge-shaped forward end a vibrating cartridge-carrier having gripping-arms, and converging cam-faces on the inner sides thereof, the said handle movable between the arms to cause them to grip and release the cartridge, a reciprocating breech-bolt having a diagonal cam-leg attached to its forward end, a side wall of the receiver having corresponding cam-lugs to engage and lock the bolt, a connecting medium H between the said breech-bolt and the handle having a diagonal cam-slot which partially encircles the bolt, a spring-actuated firing-pin carried by said bolt, a button firing device engaging said firing-pin, composed of a sear engaging said firing-pin and having a button to disengage it from said pin, all substantially as described and set forth.

15. In a firearm, a reciprocating handle, a reciprocating breech-bolt connected to said handle, a connecting medium H between said breech-bolt and said handle having a cam-slot partially encircling the bolt, a lock H^6 located across the path of the track H^5 in the part H and engaging the pin J' to lock and release it, a cam-groove A' in the frame having a longitudinal direction beneath the bolt and carving down near its forward end to actuate the said lock to release the pin J' and allow the part H to rotate the bolt, substantially as described.

16. In a breech-loading firearm, a reciprocating and rotating breech-bolt, a stock-frame having a cam-guide A' beneath the bolt, and a bolt-actuating part having a cam-guide encircling the bolt, the said bolt-actuating part engaging the cam-guide of the stock-frame to actuate, lock and release the bolt.

17. In a breech-loading firearm, a reciprocating and rotating bolt, a stock-frame having a cam-guide A' beneath the bolt, and a handle connected with the bolt and engaging the said cam-guide to time the rotating locking action of the bolt.

18. In a breech-loading firearm, a reciprocating breech-bolt having its bolt-head integral with the body part thereof, shell-extractors attached to a collar to encircle the bolt, the said collar formed of relatively-movable sides to permit the extractors to be applied to the bolt between the locking-lugs and the body part of the same.

601,842. MAGAZINE BOLT-GUN. SAMUEL N. MCCLEAN, Washington, Iowa. Filed June 20, 1895. Serial No. 553,493. (No model.)



Claim.—1. In a magazine-firearm, a cartridge-magazine carrying its cartridges in file, a stock-wall having a groove in line with the foremost cartridge in the magazine, a slide movable in the said groove and having a forward hooked extremity extending into the path of the cartridges, and a rearward hooked extremity extending into the path of the breech-bolt, and a reciprocating breech-bolt engaging the said slide to afford a limited movement of the same.

2. In a firearm, a reciprocating handle, a breech-bolt having a reciprocating and rotating movement, a connecting medium between the bolt and the handle having a cam-guide to rotate the bolt, a cartridge-magazine carrying its cartridges in file, a stock-wall having a guide D^4, opposite the foremost cartridge in the magazine, a slide D, movable in said guide-grooves, and engaging with the foremost cartridge in the magazine, and with the said connecting medium to turn the bolt and handle, and a cartridge-carrier to transfer cartridges from the magazine to the barrel.

3. In a breech-loading firearm, a reciprocating handle, having a wedge-shaped forward end, a cartridge-carrier having gripping-arms to engage the cartridge and beveled between the arms, a reciprocating breech-bolt connected to the said handle, and said handle movable between the arms of the carrier.

4. In a firearm, a reciprocating handle, a reciprocating carrier movable between the barrel and magazine and actuated by said handle, a reciprocating breech-bolt, a connecting medium H between said breech-bolt and handle, a dog H' pivoted to the said part H, a stock-frame having a longitudinal cam-groove H^3 to guide the dog H', a cartridge-magazine carrying its cartridges in file and a slide D engaging the foremost cartridge in the magazine and having a rear or hooked extremity in the path of the dog H' and engaged by it to transfer cartridges from the magazine to the carrier, all substantially as described and set forth.

5. In a firearm, a cartridge-carrier movable between the magazine and barrel and having gripping-arms to engage the cartridge, a reciprocating handle movable between said arms and having a wedge-shaped forward end to cause the carrier to open and close, substantially as described and set forth.

6. In a firearm, a breech-bolt having both a reciprocating and rotating movement, a firing-pin movable in a chamber formed on the bolt and having only a reciprocating movement, the connecting part of the pin with the bolt having a cam shape and the connecting part of the bolt with the pin having a cam shape the rotating movement of the bolt bringing it into line with the firing movement of the pin, and a connecting medium H between said bolt and said handle partially encircling the bolt and having a cam-guide to reciprocate and lock it, shell-extractors attached to a collar which encircles the bolt, the stock-wall having converging cam-guides to cause the extractors to grip and release the cartridge, all substantially as described and set forth.

7. In a firearm, a cartridge-magazine carrying its cartridges in file, a spring-actuated follower, a stock-frame having slots O^2 and O^7 and a pin on said follower C' cooperating with these slots in the stock to permit the magazine to be opened for the purpose of filling it, all substantially as described and set forth.

8. In a firearm, a reciprocating handle, a breech-bolt having near its forward end cam-shaped lugs E', a stock-frame having a corresponding cam-shaped lug A', a connecting medium H between said handle and bolt and partially encircling the bolt and connected with it by a cam-guide H^2, which guide has both a straight and a diagonal part to cause both a reciprocating and rotating movement of the bolt and to permit a firing movement of the handle after the locking movement of the bolt is complete, a lock T pivoted to the part H and engaging the pin H^4 and a stock-wall having a cam-guide H^5 to engage the said lock T, all substantially as described and set forth.

9. In a firearm, a reciprocating handle, a reciprocating breech-bolt, a connecting medium between said bolt and handle partially encircling the bolt and having a cam guide to rotate and lock it, a firing-pin movable in a chamber formed in the bolt and having a lug which prevents it from partaking of the bolt's rotation, the face of the pin which connects with the bolt having a cam shape and the face of the bolt which connects with the pin having a corresponding cam shape, the rotating movement of the bolt bringing it into line with the complete firing movement of the pin, a dog L engaging the said spring-actuated firing-pin and located in the path of the handle and disengaged by the handle to discharge the weapon, all substantially as described and set forth.

10. In a firearm, a reciprocating handle, a longitudinally-reciprocating breech-bolt, a spring-actuated firing-pin carried by the bolt, a connecting medium between said bolt and handle which engages with the pin H^4 and employs the action of a cam-guide to reciprocate and rotate the bolt, a sear engaging the firing-pin and a trigger engaging the sear to disengage it from said pin and engaging with said handle by means of the notch K^3 which notch is of sufficient length to allow the trigger to disengage the sear and discharge the weapon, the further movement of the trigger causing said trigger to release the handle, all substantially as set forth and described.

11. In a firearm, a reciprocating handle, a reciprocating breech-bolt connected to said handle, a carrier movable between the magazine and barrel and actuated by said handle, a cartridge-magazine carrying its cartridges in file, a reciprocating slide engaging the foremost cartridge in the magazine, a dog having a hook-shaped extremity and pivotally attached to the connecting medium between the bolt and handle, a stock-wall having a longitudinal cam-guide connected to said wall to cause it to engage, actuate, and release the carrier-feeding slide, a spring-actuated firing-pin carried by said breech bolt, shell-extractors attached to said bolt, a sear engaging the firing-pin and tripped by the handle, substantially as described.

12. In a firearm, a reciprocating handle, a reciprocating dog actuated by said handle, a stock-wall having a cam-guide to engage and control the movement of said dog, a cartridge-magazine carrying its cartridges in file, a carrier-feeding slide engaging the foremost cartridge in said magazine and engaged by the said reciprocating dog the dog having a sufficient forward movement to allow the initial part of the rearward movement of the handle to unlock the bolt before the dog encounters said slide to actuate it to draw a cartridge from the magazine into the receiver, substantially as described and set forth.

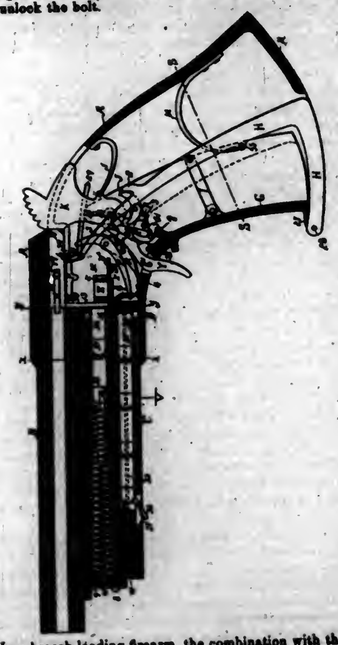
13. In a firearm, a reciprocating handle, a reciprocating dog actuated by the said handle, a cartridge-magazine carrying its cartridges in file, a reciprocating slide engaging the foremost cartridges in the magazine and engaged by the said dog to transfer cartridges from the magazine to the carrier, and a pin connected to said slide to draw it out of the path of said dog and cut off the magazine when it is desired to use the weapon as a single-loader, all substantially as set forth and described.

601,848. MAGAZINE-FIREARM. SAMUEL N. MCCLEAN, Washington, Iowa. Filed Apr. 20, 1892. Renewed July 19, 1897. Serial No. 643,103. (No model.) Patented in England Apr. 7, 1892, No. 6,052, and in Germany June 25, 1892, No. 62,660.

Claim.—1. In a breech-loading firearm, an actuating mechanism comprising a grip-lever, a locking-dog engaging the grip-lever, and a trigger engaging the dog to release the grip-lever by the firing movement of the trigger.

2. In a breech-loading firearm, a grip-lever, an operating-lever

connected to said grip-lever, a reciprocating breech-block, a connecting medium between said breech-block and said levers and a stock-wall having a cam-track to engage the said connecting medium to lock and unlock the bolt.



3. In a breech-loading firearm, the combination with the reciprocating block, of a grip-lever and operating-lever connected together, a guide-groove 29, in the stock-wall a breech-locking bar P, hinged at one end to the breech-block and engaging the said guide-groove, a link connection O, between the end of said locking-bar and operating-lever, and a shoulder on the stock-wall against which the said bar locks, substantially as described.

4. In a breech-loading firearm, the combination with the reciprocating breech-block, of a grip-lever, an operating-lever connected with the grip-lever and with the breech-block, a spring resisting the movement of said levers and restoring them to their normal position, a spring-actuated hammer cocked by the movement of the breech-block, a spring-actuated trigger to engage the hammer, and a spring-actuated secondary sear engaging said hammer and located in the path of the forward movement of the operating-lever.

5. In a breech-loading firearm, a grip-lever an operating-lever connected to the grip-lever, a reciprocating breech-block connected to the operating-lever, a spring-actuated hammer cocked by the movement of the breech-block a sear engaging the hammer, and located in the path of the movement of the operating-lever, and engaged by the operating-lever to discharge the weapon.

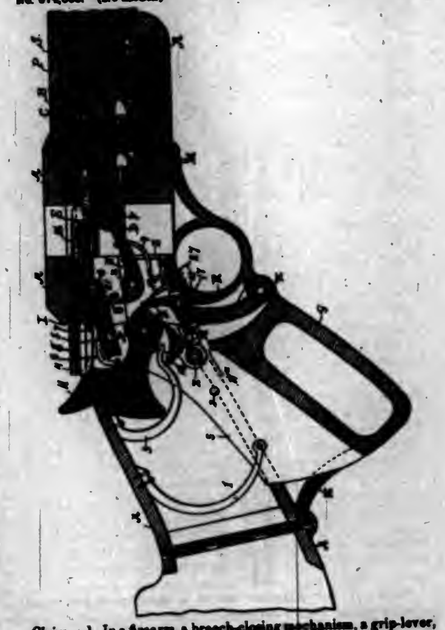
6. In a breech-loading firearm, the combination with the reciprocable breech-block, of an operating-lever connected to the breech-block a grip-lever connected to the operating-lever, a spring resisting the movement of said levers to restore them to their normal position, a spring-actuated hammer, a spring-controlled locking-dog to engage and lock the grip-lever, and a spring-actuated trigger connected with said dog to release the grip-lever by the firing movement of the trigger.

7. A cartridge-carrying device for a breech-loading magazine-firearm, said device comprising a reciprocating carrier having cam-guides formed in its horizontal portion and arranged in pairs the members of which are located respectively near the forward and rear ends of the carrier a cartridge-receiver formed in relatively-adjustable sections having lugs to engage the said cam-guides the cam-action of the guides and the reciprocating movement of the cartridge-receiver operating to open and close the same.

8. In a breech-loading firearm the combination with the rotary magazine having tubular chambers containing spring-plungers, of a spring-catch 46 normally locking the magazine against rotation and disengaged by the contact of the spring-plungers, substantially as described.

9. In a firearm, a grip-lever hinged to the stock or handle of the weapon, a spring resisting the movement of the lever, a dog engaging the lever and holding it locked in its forward position, and a trigger engaging the dog to release the grip-lever by the action of the trigger.

601,844. MAGAZINE-FIREARM. SAMUEL H. MCCLEAN, Washington, Iowa. Filed June 17, 1896. Renewed Mar. 15, 1898. Serial No. 674,000. (No model.)



Claim.—1. In a firearm, a breech-closing mechanism, a grip-lever, a reciprocating breech-bolt connected to the grip-lever by a pivot which engages with a movable and an immovable cam-guide, to reciprocate and lock the breech-piece.

2. In a firearm the side walls of the chamber having cam-grooves 21 which grooves have a curved and rearward direction, a grip-lever having lateral walls arranged to pass forward and upward on either side of the operating devices, said walls having cam-slots cut in their upper extremities, a breech-locking pin which passes through the said cam breech-locking slots and extends into said curved grooves 21, a breech-locking bar which is hinged to a reciprocating breech-bolt and connected to said breech-locking pin, a locking-shoulder fixedly attached to the stock-wall which engages with the said breech-locking bar N.

3. In a breech-loading firearm, a breech-locking mechanism, comprising a frame-wall having a cam-guide located beneath the breech-bolt and a shoulder against which the breech-bolt is locked, a reciprocating breech-bolt, a grip-lever having a cam-guide in its upper extremity, a connecting-bar between the breech-bolt and the grip-lever to engage with the said cam-guides to lock and unlock the breech, and to engage with said shoulder when the breech-bolt is locked.

4. In a breech-loading firearm, a grip-lever hinged to the stock or handle of the weapon, a spring to resist the movement of the lever, a breech-bolt connected to said lever, a hammer engaged by the breech-bolt, a spring-actuated sear engaging the heel of the hammer and a lug on the grip-lever, which, in its forward movement disengages the said sear from the hammer.

5. In a breech-loading firearm a firing and automatic firing mechanism, comprising a grip-lever a spring to resist the movement of the grip-lever, a reciprocating breech-bolt, a hammer engaged by the breech-bolt, a sear to engage the heel of the hammer and located in the path of, and disengaged by the grip-lever to fire the weapon, a trigger to engage the hammer, and a lock attached to the frame to engage the trigger and hold it out of engagement with the hammer, whereby the weapon may be discharged by the action of the trigger or grip-lever as desired.

6. In a breech-loading firearm, a grip-lever forming a hand-grasp, a reciprocating breech-bolt, a connecting medium between the grip-lever and the breech-bolt engaging with a movable and an immovable cam-guide, and a cartridge-carrier, all actuated by said grip-lever.

7. In a breech-loading firearm a chamber having a cam-guide beneath the breech-bolt and a breech-locking shoulder, a grip-lever having cam-slots in its upper end, a connecting-bar between the breech-bolt and grip-lever and engaging said cam-guides and said shoulder to lock and unlock the breech, a carrier-lever engaging with said bar and a reciprocating carrier engaging said lever.

8. A stock wall or plate provided with a triangular-shaped cam-groove *a*, a reciprocating cartridge-receiver or semicylindrical shell E attached to a cartridge-carrier a movable bearing 11 against which the shell E springs, the said bearing engaging with the said triangular cam-groove *a* and the cam action of the groove operating to open and close the receiver as and for the purpose set forth.

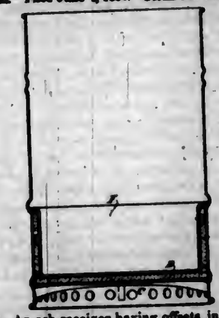
9. A cartridge-receiver or semicylindrical shell E, a cartridge-carrier connected with said shell, movable bearings 11 against which the respective opposite sides of the shell E spring in opening, a stock wall or plate containing a cam-groove *a* with which the said movable bearings 11 engage, a projection or arm 12 which is arranged in the path of the forward movement of a reciprocating breech-bolt, a reciprocating breech-bolt engaging with the said bearings 11.

10. A cartridge-magazine located beneath the barrel and having its rear end hinged to the frame, so that the magazine can be swung out to the side of the frame when it is desired to load the same, the forward end of the magazine having a corresponding hinge which is fastened to an arm which arm is fixedly attached to the barrel.

11. A cartridge-magazine located beneath the barrel and having at its rear end a projection attached to the side of the magazine which projection is hinged to the frame of the weapon, the forward end of the magazine having a corresponding projection which is attached or hinged to a projection or arm which is fixedly attached to the barrel, the said magazine containing a spring-actuated plunger and having a longitudinal slot in which slot sides a pin or spur which is fixedly attached to the plunger and by means of which the plunger can be forced forward.

12. The combination with the barrel and stock of a breech-loading firearm of a magazine beneath the barrel and eccentrically and pivotally supported.

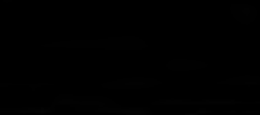
601,845. SAFETY ASH-RECEIVER. SIDNEY M. SMITH, San Francisco, Cal. Filed June 4, 1897. Serial No. 639,462. (No model.)



Claim.—1. An ash-receiver having offsets in its sides, a bottom for the receiver, arched upward to resist strain and having its edge expanded into one of said offsets, a second bottom of smaller diameter than the interior of the receiver and having its edge turned upward parallel with the sides of the receiver and expanded into the other offset, and a filling of non-heat-conducting material in the spaces between the bottoms and between the upturned edge of one bottom and the inner wall of the receiver.

2. An ash-receiver consisting of an exterior containing vessel, channels formed intermediate between the top and bottom edges, a bottom arched and having its edges expanded and locked into the lower channel, a second bottom of smaller diameter than the interior of the receiver with sides extending upwardly and the upper edge expanded and locked into the uppermost of the grooves or channels of the receiver, and a filling of non-conducting material continuous between the double bottoms and the double sides.

601,846. SPINDLE AND BEARING. WALLACE I. STIMPSON, Milford, Mass., assignor to the Sawyer Spindle Company, Boston, Mass. Filed Oct. 24, 1896. Renewed Nov. 13, 1897. Serial No. 658,437. (No model.)



Claim.—1. A bolster-case, a bolster held from rotation therein and having a tapering bore, a spindle having a tapering pintle to enter said bore, a step adjustably connected with the bolster by a screw-thread, and a spring locking-finger on the step adapted to engage the bolster and prevent rotation of the step relatively thereto, said finger having its free end bent out to facilitate unlocking, substantially as described.

2. A bolster-case, a bolster held from rotation therein and having a series of longitudinal notches at its lower end, a spindle to enter the bolster with a tapering fit, a step adjustably connected with the bolster by a screw-thread, and a yielding locking-finger secured to the step and adapted to enter one of the notches in the bolster, substantially as described.

3. A bolster-case, a spindle bolster held from rotation therein, a step adjustably connected thereto, and a locking-finger carried by one to enter a notch in the other and thereby prevent relative rotation of the bolster and step, substantially as described.

601,847. CAR-COUPLING. CLINTON A. TOWER, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Nov. 29, 1897. Serial No. 660,033. (No model.)



Claim.—1. A coupler having a knuckle, a movable lock, a floating lock-set unattached to the lock and having a portion extending into the path of its motion so as to be engaged, raised and moved laterally thereby into supporting position: substantially as described.

2. A coupler having a knuckle, an upwardly-movable lock, a floating lock-set unattached to the lock and having a portion extending into the path of its motion so as to be engaged and raised thereby, and having a bearing at the draw-head whereby it may be moved into the supporting engagement with the tail of the knuckle; substantially as described.

3. A coupler having a knuckle, an upwardly-moving lock, a floating stilt-like lock-set unattached to the lock, but having a lock-supporting step, and an arm extending into the path of the lock's motion and adapted to be successively engaged, raised and moved laterally thereby into supporting position on the knuckle's tail; substantially as described.

4. A coupler having a knuckle, a movable lock, and a stilt-like lock-set consisting of an upright bar having projecting portions between which the lock operates to move the lock-set; substantially as described.

5. A coupler having a knuckle, a locking and knuckle-opening piece movable to open the knuckle, and a lock-set adapted to be raised into supporting position by the locking and opening piece when the motion of the latter is restrained by the interlocking of a companion knuckle and to be supported by the locking and opening piece when the latter is moved to the limit of its motion in opening the knuckle; substantially as described.

6. A coupler-knuckle having on the upper surface of its tail a basin or groove adapted to support and retain the foot of a lock-set, said basin or groove having a retaining-rim on the side next to the end of the tail; substantially as described.

7. A coupler-knuckle having on the surface of the end portion of its tail a basin or groove leading toward the margin of the knuckle and adapted to support and retain the foot of a lock-set, and a lock-set or stilt whose foot is adapted to fit in said groove and which extends upwardly through the draw-bar; substantially as described.

8. A stilt-shaped lock-set having a lock-supporting step portion, and a lifting-arm, said parts providing an intermediate space adapted to receive a lock by which the lock-set is operated; substantially as described.

9. A stilt-shaped lock-set having a lock-supporting step portion, and a lifting-arm, said parts providing an intermediate space adapted to receive a lock by which the lock-set is operated, said lock-set extending through the draw-head to the exterior thereof; substantially as described.

601,848. BOTTLE. WILLIAM WILSON, Oakland, Cal. Filed Oct. 22, 1897. Serial No. 656,010. (No model.)

Claim.—1. The combination with a bottle, of an extension fixed to and essentially in line with the bottle-neck, a spirally-grooved carrier having a stopper fixed to its inner end, means for rotating the carrier to withdraw the stopper or close it against the neck of the bottle, a chamber in the upper part of the extension, an opening made

in the extension communicating with the chamber, said chamber having a discharge-passage at one side through which liquid may flow when the bottle is tilted for the purpose, and an automatically-acting inwardly-closing valve between the chamber and interior of the extension whereby liquid is prevented from entering the bottle from the discharge-passage.



2. The combination of a bottle with an extension fixed to and essentially in line with the neck, a spirally-grooved carrier fitting and movable with relation to the extension, having a stopper upon its inner end by which the neck is opened or closed, a chamber in the upper part of the extension and communicating therewith through a discharge-passage opening from the extension, an automatic inwardly-closing valve or diaphragm controlling said opening whereby liquid is prevented from entering through the discharge-passage, a second passage for the inlet of air to replace the discharged liquid, said passage having a valve or diaphragm fixed within it which will allow the ingress of air to replace the discharged liquid but it will arrest the passage inwardly of any liquid.

601,849. PORTABLE POLE-STEP. GEORGE D. AIKEN, Salt Lake City, Utah. Filed June 12, 1897. Serial No. 640,556. (No model.)



Claim.—1. A holder for pole-steps and the like comprising a spike having a head provided with an opening therethrough, and a plate at the inner end of said head extending in the direction of the opening, whereby a shank upon a pole-step can be inserted through the opening and rest against the plate; substantially as described.

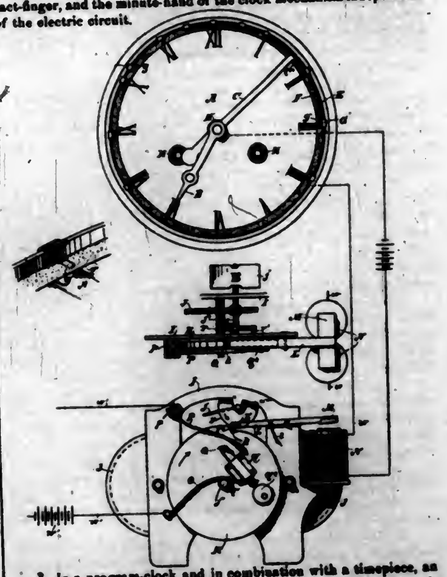
2. A holder for pole-steps and the like comprising a vertical plate, a head upon said plate below its upper edge and extending at an angle to the plate, said head being provided with an opening for receiving a suitable portion of the step, an inclined wall between the vertical plate and the outer end of the head, and means for securing the holder to a pole or other member; substantially as described.

3. A holder for pole-steps and the like comprising a spike having a head provided with a vertical socket, a vertical plate to bear on the pole, forwardly-projecting legs on the plate below the head and inclined flanges connecting the plate and head at opposite sides of the socket; substantially as described.

601,850. PROGRAM-CLOCK. ELVIN F. BURRILL, Oakland, Cal. Filed Sept. 4, 1896. Serial No. 604,837. (No model.)

Claim.—1. In a program-clock, the combination of a dial having an annular flange or circle, a node consisting of a substantially U-shaped plate having resilient side arms or members adapted to straddle said flange or circle and to be adjusted to different points thereon, a finger projecting transversely and directly from the lower extremity of one of the legs of the node and being of a substantially right-angled-triangular shape in cross-section, an electrically-operated clock-hand having an underbent lever on its outer end, adapted to extend in the direction of the movement of the hand and to travel up the slope of the finger and an insulating-strip on the under side of the lever and covering the major portion and exposing the point thereof whereby the lever travels up the slope and makes contact with the ridge or edge of the finger.

2. In a program clock, the combination of a dial having an annular flange or circle, set on edge, a substantially U-shaped plate or node having its side legs or members to embrace and frictionally engage said flange or circle, one of said legs having rigid with and projecting directly from its lower extremity a contact-finger triangular in cross-section, an electrically-connected hour-hand of a clock mechanism, a ring of insulating material fitted to the dial at one side of the circle or flange, and upon which the broad flat base of the finger lies, an underbent lever carried by the hand and having on its under surface an insulating-strip which exposes only the extremity of the lever to electrical contact with the upper edge or ridge of the contact-finger, and the minute-hand of the clock mechanism independent of the electric circuit.

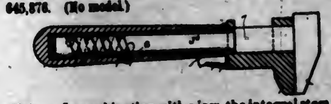


3. In a program-clock and in combination with a timepiece, an electric circuit and connections by which a hand of the timepiece is adapted to close said circuit at prescribed times, an intermediate device set in operation by the closing of said circuit and adapted to actuate the ultimate mechanism for rendering the program, said device consisting of a power mechanism, a cam rotated thereby, a lever for releasing and stopping said cam, an electromagnet and armature operated by the timepiece-circuit to actuate the lever, a fixed electrical contact-piece, and a contact-finger carried by the cam and adapted to make and break electrical contact with said piece.

4. In a program-clock and in combination with a timepiece, an electric circuit and connections by which a hand of the timepiece is adapted to close said circuit at prescribed times, an intermediate device set in operation by the closing of said circuit and adapted to actuate the ultimate mechanism for rendering the program, said device consisting of a power mechanism, a cam rotated thereby, a lever and means controlled thereby and operating through the fly or fan regulating device of the power mechanism for releasing and stopping said cam, an electromagnet and armature operated by the timepiece-circuit to actuate the lever, a fixed electrical contact-piece, and a contact-finger carried by the cam and adapted to make and break electrical contact with said piece.

5. In a program-clock, and in combination with a timepiece, an electric circuit and connections by which a hand of the timepiece is adapted to close said circuit at prescribed times, an intermediate device set in operation by the closing of said circuit and adapted to actuate the ultimate mechanism for rendering the program, said device consisting of a power mechanism, a cam rotated thereby, a lever for releasing and stopping said cam, an electromagnet and armature operated by the timepiece-circuit to actuate the lever, a fixed electrical contact-piece and a contact-finger carried by the cam and adapted to make and break electrical contact with said piece, said finger being adjustable to increase or diminish the length of its contact.

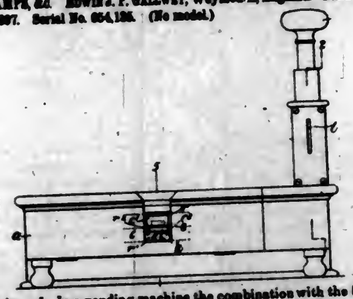
601,851. WRENCH. ALFRED B. FRACK, Girard, Ohio, assignor to Henry C. Marshall, same place. Filed July 26, 1897. Serial No. 645,876. (No model.)



Claim.—In combination with a jaw, the integral stem thereof with a blind helical groove about the said stem, a jaw slidably mounted upon the said stem and having an extended leg with the key and slot

therefor and the circular recess, the hollow handle slidably mounted upon the stem, the annular flange of the said handle engaging the said circular recess, the set-screw threaded into the said handle, the hollow end of the said set-screw, and the ball playing in the said hollow and in the before-mentioned blind helical groove, all substantially as described.

601,852. COIN-FREED APPARATUS FOR DELIVERING STAMPS, &c. EDWIN J. P. GALLWEY, Weymouth, England. Filed Oct. 5, 1897. Serial No. 654,126. (No model.)



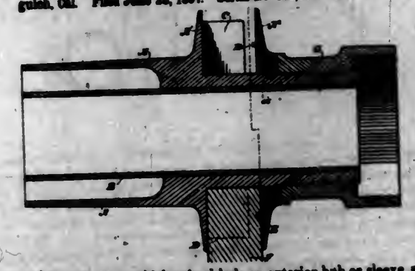
Claim.—1. In a vending-machine the combination with the band provided with a series of transverse pockets, each provided with an indicating device, means for feeding said band, a casing provided with a delivery-aperture in line with the path of said band, a transparent plate closing a portion of said aperture and adapted to lie over the indicating devices of said band, and a plate extending over the adjacent portion of said aperture, said plates having a slit formed between them in line with the path of the band to allow the articles carried by said band to project therethrough, substantially as described.

2. In a vending-machine, the combination with the band provided with a series of transverse pockets of feeding mechanism for said band, a casing provided with a delivery-aperture in the path of said band, a pair of plates extending over portions of said aperture and inclosing said band, said plates having their adjacent edges separated to form a slit in line with the path of the band, to allow the articles carried by the band to project therethrough, substantially as described.

3. In a vending-machine, the combination with the band provided with a series of transverse pockets opening toward one edge of the band, feeding mechanism for said band, a casing provided with a delivery aperture in the path of the band and a spring plate or tongue in said aperture for covering the exposed portion of the band, and provided with an inclined projection adapted to pass between the band and the articles carried thereby, substantially as described.

4. In coin-freed apparatus for delivering stamps and other articles the combination with a casing having a window or orifice, of a band for holding the stamps or other articles, of two rollers upon one of which the band is initially wound and upon the other of which the said band is intermittently wound upon the insertion of coins into the apparatus so as to bring the stamps upon the band successively in front of the window or orifice, and of a spring plate or tongue for covering the exposed portion of the band, and having an inclined projection for tilting forward the stamps or other articles in the window or orifice, substantially as described.

601,853. VEHICLE-WHEEL HUB. GUSTAVE A. KROHN, Goldgulch, Cal. Filed June 26, 1897. Serial No. 642,569. (No model.)

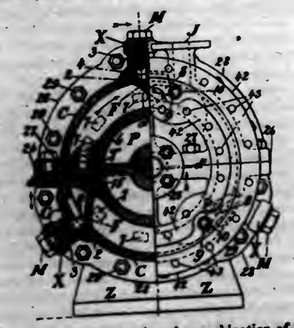


Claim.—1. In a vehicle-wheel hub, an exterior hub or sleeve, an interior box or journal to receive the spindle upon which the wheel turns, a fixed circular flange projecting outwardly from the hub having the inner face in a plane transverse to the axis, and the opposite end of the hub or sleeve being made cylindrical and partially screw-threaded, radial plates fixed or formed with the fixed flange, a disk movable upon the cylindrical portion of the hub having an annular flange projecting from its inner plane face, spokes having corresponding grooves formed to receive the annular flange, said spokes being tapered to enter the space between the disks and between the radial plates and each having a recess in one of its pieces and extending only part way across the same, and adapted to entirely receive one of said plates and to leave a face to abut against the face of an adjacent spoke, and a nut adapted to screw upon the outer end of the sleeve or hub whereby the movable disk is compressed firmly upon the spokes after they are in position and the whole locked together.

2. In a vehicle-wheel hub, an exterior sleeve adapted to contain an interior box or axle-journal and having fixed and movable disks, the inner faces of which are in planes transverse to the axis, one of said disks having projecting radial planes and the other an annular rib and spokes correspondingly cut out and grooved to fit said plates and rib, a screw-threaded nut turnable upon the end of the hub whereby the disks are clamped together upon the spokes, and an open channel formed in the end of the hub with radial ribs substantially as described.

3. In a vehicle-hub, a sleeve having an inner box to form an axle bearing or journal, circular fixed and movable flanges between which the spokes are to be clamped, with suitable means for locking said spokes in place, and a screw turnable upon the sleeve to force the movable flange against the spokes, an open annular channel formed within the disk exterior to the axle-box, said channel having annular inwardly-projecting ribs H and a wood filling driven into said channel and locked in place by said ribs.

601,854. ROTARY ENGINE. JOHN H. MEYER, Philadelphia, Pa. Filed Mar. 9, 1897. Serial No. 626,571. (No model.)



Claim.—1. In a rotary engine the combination of a steam-cylinder C, having pivoted on the inner circumference thereof a valve F, with a piston P having a moving fit in the cylinder and provided with a valve-lifting thumb T, the said cylinder C being provided with suitable inlet and exhaust ports for the steam, and the piston P having the side rings 1, 1, provided on one side with the inlet-ports 8, and the curved exhaust-port 6 extending from the front of the thumb to the side thereof next the exhaust side of the cylinder and connecting the interior of the piston with the exhaust-ports 7, substantially as shown.

2. In a rotary engine the combination of a cylinder C, provided with inlet and exhaust ports and having flap-valves F, pivoted thereto, and means for holding said flap-valves in contact with the periphery of the piston, with a piston P having the side rings 1, 1, mounted in said cylinder and having thereon the lifting-thumb T, provided with the curved exhaust-port 6 extending from the front to the side of the thumb next to the exhaust side of the cylinder for the purpose of connecting the interior of said cylinder directly with the exhaust-ports, as set forth.

3. In a rotary engine the combination of two or more steam-cylinders of different volumes mounted upon a single driving-shaft, each of said cylinders having pivoted on the inside thereof a series of flap-valves F, with the pistons P, having thereon the side rings 1, 1, and between said side rings the extending thumbs T, operating the flap-valves, the several cylinders being provided with suitable inlet and exhaust ports and connected with a steam-supply, each piston having in the side ring 1 thereof the inlet-port 8, and in the extending thumbs the curved exhaust-ports 6, forming a connection with the exhaust-ports 7 of the cylinders, substantially as shown and for the purpose described.

4. In a rotary engine the combination of two or more steam-cylinders having therein steam-inlet ports, and increasing in volume from the first cylinder that takes steam to the last one that exhausts, with the receiver R located between each two of the cylinders, and the several series of the flap-valves F, pivoted on the inner circumference of each cylinder, and a series of pistons P, having the side rings 1, 1, and mounted on the same driving-shaft and having moving fit in their respective cylinders, and each of said pistons having thereon a series of valve-lifting thumbs T, provided with the curved exhaust-ports 6, that extend through said thumbs from the front to the side thereof and through the adjacent side ring 1 and register with exhaust-ports in the sides of the cylinder, substantially as shown.

5. In a rotary engine the combination of the series of steam-cylinders C, having between each two of the cylinders, the receivers R, and having on one side of each cylinder, the inlet-ports 9, the first of said inlet-ports being connected with the steam-chest and the others with the several receivers and on the opposite side of said cylinders the exhaust-ports 7, connected with the several receivers and with the outlet on the last cylinder; with the flap-valves F, pivoted to the inner circumference of the cylinders and provided with suitable means for forcing said valves down after they have been raised, and the pistons P, all mounted on the same shaft and having thereon the side rings 1, 1, and inlet-ports 8, registering with inlet-ports 9, in the cylinders and provided with the extending thumbs T, having the exhaust-ports 6, that register with the exhaust-ports 7, in the cylinders as the pistons turn around, all arranged substantially as shown.

6. In a rotary engine, the combination of a cylinder C, flap-valves F, pivoted on the inside of the cylinder, extensions X, located on the outside of the cylinder and connected with a steam-supply and having therein the steam-piston K, and rod 5, pressing upon the flap-valve, with the piston P, having thereon the thumbs T, and side rings 1, 1, the cylinder and piston P, being each provided with suitable inlet and exhaust ports and connected with a steam-supply, substantially as shown.

7. In a rotary engine, the combination of the cylinder C, having therein the pivoted flap-valve F, and on the outside the closed extensions X, bored out to fit the liners 35, having therein the openings 36 and 37, with the pistons K, operating-rods 5, pressing against the flap-valves F, substantially as shown.

8. The closed top extension X, having on the side thereof an opening that connects with a steam-supply and on the opposite side a similar opening for the exhaust, in combination with the liner 35, fitting into said extension and having therein the two rows of openings 36 and 37, and the small piston K, having therein the openings 40 and the extending rod 5, that presses against the flap-valves, substantially as shown and for the purpose described.

9. In a rotary engine, the cylinder C, a steam-inlet port provided with a bushing movably secured in the cylinder and held in sliding contact with the side of the piston by the pressure of the ingoing steam on the outer surface of the port, substantially as shown.

10. In a rotary engine, the cylinder C, the steam-inlet port 9, provided with a bushing movably secured in the cylinder C, and surrounded by the conical packing-ring 12 and held in sliding contact with the side of the piston P, by the pressure of the ingoing steam, substantially as shown and described.

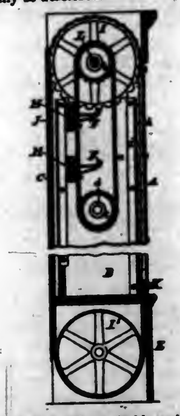
11. In a rotary engine, the cylinder C, the exhaust-port 7, provided with a bushing movably secured in the cylinder C, and held in sliding contact with the side of piston P, by means of the spring 21, substantially as shown and described.

12. A piston for rotary engines composed of the two side rings 1, 1, having a moving fit in the cylinder and inclosing between them a central portion having thereon the extending thumb T, the side rings 1, 1, being provided with inlet and exhaust ports respectively above the said central portion, and the thumb T having therein the curved exhaust-port 6 that extends from the front of the thumb to the outside of the piston passing through the side ring 1 that lies next to the exhaust side of the cylinder, substantially as shown.

13. In a rotary steam-engine the combination of a cylinder C provided with an inlet and exhaust port on opposite ends thereof and having pivoted on the inner circumference a valve F, with a piston P provided with valve-lifting thumb T, having therein the curved exhaust-port 6 extending from the front of the thumb to the side thereof next to the exhaust side of the cylinder; and the two side rings 1, 1, having a moving fit in the cylinder; the forward one of said side rings being provided with a steam-inlet port that registers at intervals with the inlet-port on the front end of the cylinder and the rear one of said side rings having therein an exhaust-port that registers with the curved exhaust-port in the thumb T and communicates with the exhaust-opening in the rear end of the cylinder, as shown.

601,855. WARDROBE. SAMUEL P. MOULTHROP, Rochester, N. Y. Filed Sept. 13, 1897. Serial No. 651,530. (No model.)

Claim.—1. The combination with a suitable casing, open at its top and at the front, of the perforated movable flexible screen coextensive with said front and top openings and adapted to be shifted vertically up and down to open and close the front, suitable pulleys revolving on horizontal axes in the upper and lower parts of the casing, the flexible bands connecting the ends of the flexible screen and passing around said pulleys, and means for operating the flexible screen, substantially as described.

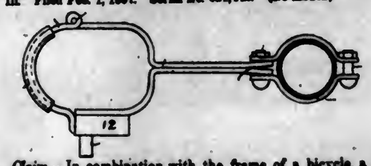


2. The combination with a suitable casing open at its top and at the front, of the perforated movable flexible screen adapted to be shifted vertically up and down to open and close the front, suitable pulleys revolving on horizontal axes in the upper and lower parts of the casing, the flexible bands connecting the ends of the flexible screen and passing around said pulleys, means for operating the flexible screen, a floor or partition having openings for the passage of the bands, and a bar K to hold the screen extended laterally and serve as a stop at the floor, substantially as described.

3. The combination with a suitable casing open at its top and at the front, of the perforated movable flexible screen adapted to be shifted vertically up and down to open and close the front, suitable pulleys revolving on horizontal axes in the upper and lower parts of the casing, the flexible bands connecting the ends of the flexible screen and passing around said pulleys, means for operating the flexible screen, a floor or partition having openings for the passage of the bands, a bar K to hold the screen extended laterally and serve as a stop at the floor, guides A, i, and binding *g*, substantially as described.

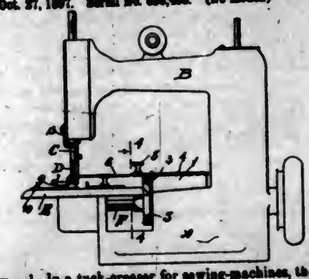
4. In combination, a suitable casing open at its top and at the front, and having a horizontal partition forming a lower compartment, a door for said compartment, a perforated movable flexible screen adapted to be shifted vertically up and down to open and close the front, stops on said screen, suitable pulleys revolving on horizontal axes in the upper part of the casing and in the lower compartment near the ends of said casing, flexible bands connecting the ends of the flexible screen and passing around said pulleys in the lower compartment, and means for operating the flexible screen, substantially as described.

601,856. LOCK FOR BICYCLES. FRED C. MCDONALD, Chicago, Ill. Filed Feb. 1, 1897. Serial No. 621,442. (No model.)



Claim.—In combination with the frame of a bicycle, a clamp consisting of two halves adapted to embrace a portion of said frame and provided with bolts for securing it thereto, an arm consisting of two pieces brazed or riveted together and terminating in a fork adapted to embrace the rim of a wheel of said bicycle, a second and lesser fork on the other end of said arm pivoted to one of the bolts of said clamp and provided with means for giving it a frictional contact with the halves of said clamp, a shackle-arm pivoted to one branch of said first-mentioned fork and having its free end adapted to engage the other branch, and a lock on said other branch for securing the free end of said shackle-arm.

601,857. TUCK-CREASER. WILLIAM H. RIEF, Newark, N. J. Filed Oct. 27, 1897. Serial No. 656,468. (No model.)

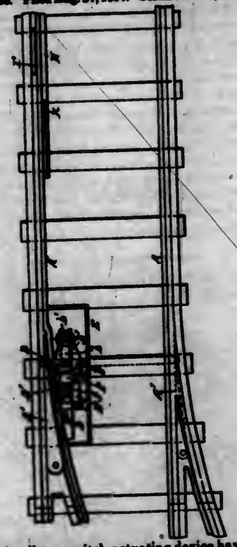


Claim.—1. In a tuck-creaser for sewing-machines, the combination of a creaser-gage, a flexible creaser-arm having one end adjustably secured and its other end extending over the creaser-gage, a cam placed in engagement with said creaser-arm for vibrating the same, and a spring having one end in connection with said creaser-arm and its other end attached to a fixed part of the machine for the purpose of preventing whipping of the creaser-arm, substantially as described.

2. In a sewing-machine, the combination with a stitch-forming mechanism, of a flexible plate attached to the bed of the machine, a creaser-arm having an adjustable connection with the plate and having its forward end extending between the needle-bar and presser-bar, a cam mounted on the main shaft of the machine and engaging with said plate, a spring connected with the arm of the machine and with the free end of the creaser arm, a creaser-gage cooperating with the creaser-arm, and a tucker-gage, substantially as described.

3. In a tuck-creaser for sewing-machines, the combination of a flexible plate, a creaser-arm slotted at its rear end, means for connecting said creaser-arm to the plate located near the end of the plate toward the needle-bar, a creaser-gage cooperating with the creaser-arm, and a cam acting on said plate, substantially as described.

601,858. SWITCH-ACTUATING MECHANISM FOR RAILWAYS. WILLIAM H. ROBERTS, Detroit, Mich., assignor of one-half to Samuel Heath, same place. Filed Aug. 27, 1897. Serial No. 649,699. (No model.)



Claim.—1. A railway-switch-actuating device having in combination a switch-point, a reciprocatory dog, mechanism connected with said switch-point actuated by said dog to shift the point, and means located at a distance from the point actuated by a moving car to actuate said dog, substantially as set forth.

2. A railway-switch-actuating device having in combination a switch-point, a reciprocatory and oscillatory dog, and a movable lever connected with the switch-point actuated by the dog, said lever having a fixed fulcrum, for the purpose set forth

3. A railway-switch-actuating device having in combination a switch-point, a reciprocatory and oscillatory dog, an oscillatory lever fulcrumed independently of the point, and means connecting said lever with the switch-bar, said lever engageable by the dog to throw the switch-point in the opposite direction from the position occupied, for the purpose set forth.

4. A railway-switch-actuating mechanism having in combination a horizontally-oscillatory switch-point, a horizontally-oscillatory lever having a fixed fulcrum, a device connecting the switch-point with said lever, a reciprocatory and oscillatory mechanical device to engage said lever to throw the lever and actuate the switch-point, and additional means actuated by a moving car at a point distant from the switch-point to actuate said reciprocatory and oscillatory device, for the purpose set forth.

5. A railway-switch-actuating device having in combination a switch-point, an oscillatory lever connected therewith fulcrumed independently of the switch-point, a reciprocatory slide, and an oscillatory dog carried by said slide to engage said lever, for the purpose set forth.

6. A railway-switch-actuating mechanism having in combination a switch-point, a lever connected therewith fulcrumed independently of the point, and a reciprocatory and oscillatory device to engage said lever to move the switch-point into the opposite position from that occupied, for the purpose set forth.

7. A railway-switch-actuating mechanism having in combination a switch-point, a lever connected therewith, a slide, an oscillatory dog carried by the slide to actuate said lever, said lever provided with vertically-extended shoulders, one of which is engageable by said dog to throw the switch-point into an opposite position from that occupied, for the purpose set forth.

8. A railway-switch-actuating mechanism having in combination a switch-point, a reciprocatory slide, a laterally-oscillatory dog carried by said slide, means to retract said dog into normal position when the slide is retracted, and a device connected with the switch-point actuated by said dog to throw the switch-point into opposite position from that occupied, for the purpose set forth.

9. A railway-switch-actuating mechanism having in combination a switch point, an oscillatory lever connected therewith, a reciprocatory slide, ways in which said slide reciprocates, and an oscillatory dog carried by said slide engageable with said lever to throw the switch-point into opposite position from that occupied, said ways adjacent to the dog constructed to guide the dog into normal position when the slide is retracted, for the purpose set forth.

10. A railway-switch-actuating mechanism having in combination a switch-point, a lever connected therewith fulcrumed independently of the point, a reciprocatory slide, an oscillatory dog carried by the slide to engage said lever, an operating-rod connected with said slide to force the slide toward the lever, and means to retract the slide, for the purpose set forth.

11. In a switch-actuating mechanism, the combination with a switch-point, of a lever connected therewith, a reciprocatory slide provided with means to engage said lever and throw the switch-point into the opposite position from that occupied, a rod connected with said slide, and a lever connected with the opposite end of said rod, said lever engageable by a device carried by a car, for the purpose set forth.

12. A railway-switch-actuating device having in combination a switch-point, a lever connected therewith fulcrumed independently of said point, mechanism to shift the position of said lever to actuate the point, a rod connected with said mechanism, a lever connected with said rod, a lever provided with a shoulder engageable by a car-wheel to throw the first-named lever into position, and means carried by a car to engage the first-named lever, for the purpose set forth.

13. A railway-switch-actuating mechanism having in combination a switch point, a lever having a fixed fulcrum, mechanism to throw the lever into position opposite to that occupied to actuate the point, a rod G, and levers I, J and K arranged, substantially as and in the manner set forth.

14. A railway-switch-actuating mechanism having in combination a switch-point, a lever having a fixed fulcrum independent of the point, of mechanism connected therewith to throw the point into position opposite to that occupied, an operating-rod connected with said mechanism, and means engageable by a car to actuate said rod, substantially as set forth.

15. A railway-switch-actuating device having in combination a switch-point, a reciprocatory and laterally-oscillatory dog, and means connected with the switch-point actuated by said dog to shift the point, substantially as set forth.

16. A railway-switch-actuating device having in combination a switch point, a reciprocatory and oscillatory dog, fixed guides or ways in which said dog reciprocates, and means connected with the switch-point actuated by said dog to shift the point, substantially as set forth.

17. A railway-switch-actuating device having in combination a

switch-point, a reciprocatory dog, and a lever connected with the switch-bar actuated by the dog, said lever fulcrumed at one end and swinging at the end adjacent to the dog in the arc of a circle, substantially as set forth.

18. A railway-switch-actuating device having in combination a switch-point, a reciprocatory and oscillatory dog, fixed guides or ways in which said dog reciprocates, and means connected with the switch-point actuated by the dog to shift the point, said fixed guides or ways directing the dog in its reciprocation, and oscillating the dog back into normal position when retracted, substantially as set forth.

19. In a railway-switch-actuating device, the combination of a switch-point, a reciprocatory dog, a lever connected with the switch-bar actuated by the dog, said dog when the switch-point is intermediate the adjacent rails capable of reciprocation without actuating said lever, substantially as set forth.

601,859. BLUE AZO DYE. CHRISTIAN RUDOLPH, Offenbach-on-the-Main, Germany, assignor to The Firm of K. Oehler, same place. Filed Jan. 4, 1893. Serial No. 457,290. (Specimens.)

Claim.—1. The method of producing a new blue tetrazo dyestuff consisting in combining tetrazo diphenyl or ditolyl first with one molecule of amidoöxy-alpha-naphthalene-disulfo-acid in an alkaline solution and then with one molecule of dioxynaphthalene 2.6 dissolved in alkali.

2. As a new article of manufacture the blue dyestuff herein described which is a black-violet powder with a metallic luster, soluble in water with a blue-violet and in sulfuric acid with a greenish-blue color; muriatic acid changing the color of its watery solution into red-violet and soda-lye into blue; zinc-dust decoloring its alkaline solutions, substantially as set forth.

601,860. CLIP FOR DROP-LIGHT WIRES. CHARLES SCHUETZ, Newark, N. J. Filed Dec. 1, 1896. Serial No. 614,046. (No model.)



Claim.—1. A clip for adjusting the height of electric lamps, consisting of two recessed substantially U-shaped links adapted for the passage of the wires, a central link having cam-shaped ends projecting into the recesses of said outer links, and removable pins passing through the outer links and central link and hinging the former to the latter at different points, so as to permit said outer links to swing in line with the longitudinal axis of the central link, substantially as described.

2. A clip for adjusting the height of electric lamps, consisting of two recessed, substantially U-shaped links adapted for the passage of the wires, a central link having its ends projecting into the recesses of said outer links, and removable pins passing through the outer links and central link and hinging the former to the latter at different points, so as to permit said outer links to swing in line with the longitudinal axis of the central link, substantially as described.

601,861. PRESSER-FOOT FOR SEWING-MACHINES. GEORGE W. STEVENSON, Cramer's Hill, N. J., assignor of one-half to Theodore Loss, same place. Filed Oct. 8, 1897. Serial No. 654,506. (No model.)

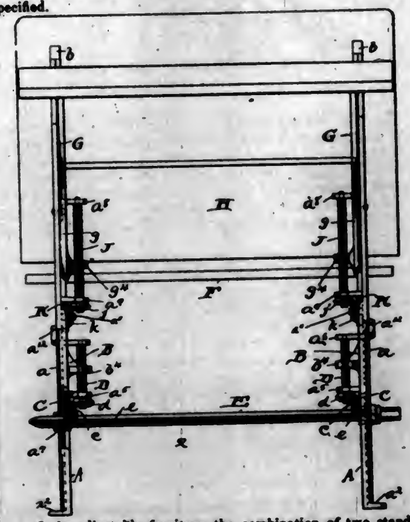


Claim.—1. In a presser-foot for a shoe-sewing machine, a pin or stud secured thereto and projecting downwardly, and a roller mounted thereon, adapted to revolve in a plane parallel to the edge of the work and adapted to contact therewith, so as to act as a guide for the latter.

2. In a presser-foot for a shoe-sewing machine, a pin or screw projecting from the bottom thereof, a roller mounted thereon adapted to contact with the edge of the work and a lug or ear on said foot adapted to enter a groove in said work and assist in guiding the same.

601,862. ADJUSTABLE FURNITURE. WILHELM WICKE, Cleveland, Ohio, assignor to the Cleveland School Furniture Company, same place. Filed July 27, 1896. Serial No. 600,666. (No model.)

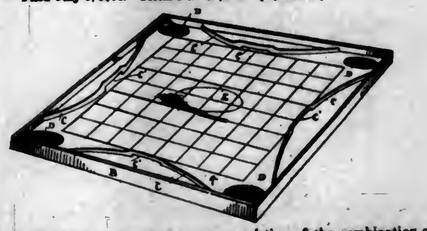
Claim.—1. In adjustable furniture, the combination of two standards having each a hole for the reception of an operating-shaft, an operating-screw journaled on the inner side of each standard, a bevel-gear secured to each of said screws, and a rigidly-connected pinion and beveled gear mounted upon the inner side of each standard adjacent to said holes therein, with the movable members which slide upon said standards, an arm rigid with each of said members with which said screws engage, and an operating-shaft adapted to be removably mounted in said holes and having pinions which engage with the pinions hereinbefore named, substantially as and for the purpose specified.



2. In adjustable furniture, the combination of two standards, each having on its inner side two ears a^{9} a^{9}, a rigidly-connected pinion and beveled gear mounted on the inner side of each standard, said standards having each a hole for the reception of an operating-shaft, with two desk-supports which slide respectively against the inner sides of said standards, and have each a slot through which the ear a^{9} projects, an inwardly-projecting arm, and a screw engaging with said arm, and mounted in the two ears a^{9} a^{9}, and a bevel-gear secured to said screw, substantially as and for the purpose specified.

3. In adjustable furniture, the combination of two standards, each having on its inner side two ears a^{9} a^{9}, and a vertical groove a^{10}, and an operating screw mounted in said ears, with two desk-supports each having a vertical slot through which the ear a^{9} projects, and a rib g^{2} which projects into the vertical groove a^{10}, arms on said supports with which said screws engage, and mechanism for turning said screws, simultaneously, substantially as and for the purpose specified.

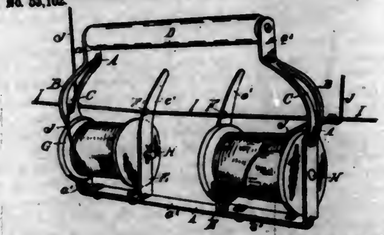
601,863. GAME APPARATUS. EDGAR L. WILLIAMS, Peoria, Ill. Filed July 9, 1896. Serial No. 598,521. (No model.)



Claim.—1. A game apparatus consisting of the combination of a board A bounded by the sides B, curved arch-piece C secured to each of the sides B and the said board A, to form inclosures, the openings C in the said arch-pieces, in the middle of the length thereof, a pocket or recess D cut into the surface of the board in each angle thereof and located between the adjacent ends of the arches C, and the center playing-circle E, all arranged substantially as herein described and shown.

2. A game apparatus consisting of the combination of a board A, bounded by the sides B, curved arch-pieces C secured to each of the sides B and the said board A to form inclosures, the openings C in the said arch-pieces in the middle of the length thereof, a pocket or recess D cut into the surface of the board in each angle thereof and located between the adjacent ends of the arches C, the center playing-circle E and a square upon the board to indicate the playing position all arranged substantially as herein described and shown.

601,864. DEVICE FOR APPLYING STAY-WIRES TO WIRE FENCES. HENRY WITNEY, Hastings, Mich. Filed Aug. 16, 1897. Serial No. 648,412. (No model.) Patented in Canada Aug. 4, 1898, No. 53,102.

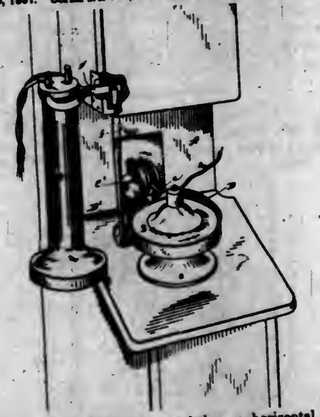


Claim.—1. A frame A, formed with a swell or projection B and with an opening C, and a handle D, in combination with the spool G, and means for supporting the latter, and standards E, E, formed with the beveled or inclined ends e' and with a notch or recess F, substantially as and for the purpose set forth.

2. A frame A, formed in three sections a', a^{2}, and a^{3}, and the sections a' and a^{2} each formed with the swell or projection B and with an opening C, and a handle D, in combination with the spools G G, and means for supporting the latter, and the standards E E, formed with the beveled or inclined end e' and with a notch or recess F, substantially as and for the purpose set forth.

3. In a tool for weaving stay-wires, the combination of an inclosing frame comprising two outwardly-curving side bars formed with openings, a handle-bar between the side bars at one end, and an end bar connecting the opposite ends, curved standards mounted upon said end bar and provided with notches for the line-wires, and wire-carrying spools mounted between the side bars and the adjacent standards.

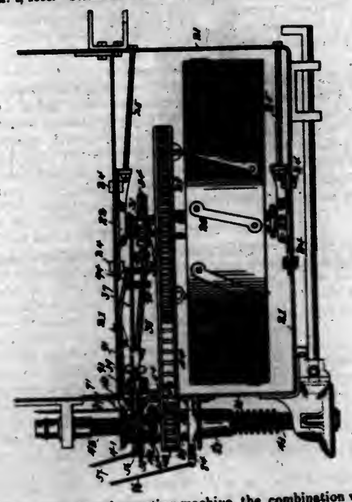
601,865. TELEPHONE. THOMAS F. ABNER, Detroit, Mich. Filed Apr. 26, 1897. Serial No. 633,917. (No model.)



Claim.—1. A transmitter suspended on a horizontal axis in a plane in or parallel to the diaphragm, so journaled that the speaking-tube is normally downward, and means connecting the movable receiver-hook with the transmitter, compelling the latter to rotate so that the diaphragm is in substantially a perpendicular plane when the receiver is detached from the hook, substantially as and for the purpose described.

2. In a rotating transmitter, the combination of a spring-hook, a receiver, a link connecting the hook to a crank on a rotating transmitter and a transmitter hung on a horizontal axis in a plane in or parallel to the diaphragm, substantially as described.

601,866. HARVESTER. JOHN F. APPLEBY, Chicago, Ill., assignor, by mesne assignments, to David Kelly, same place. Filed Mar. 4, 1895. Serial No. 540,439. (No model.)



Claim.—1. In a harvesting-machine, the combination with the ground-wheel and its axle loosely mounted therein and provided with gears affixed thereto, a main frame, racks rigidly secured therewith and enmeshed with the gears on the axle, a shaft having a sprocket-gear constantly driven from the main ground-wheel, two rigidly-connected pinions slidably mounted on said shaft, one of said pinions having an annular hub provided with cam-slots, said sprocket-gear having pins engaged in said cam-slots, a worm-shaft having a bevel-pinion arranged between said sliding pinions and a spring connecting one of said pinions and the sprocket-gear of the main shaft and normally tending to hold said pinions out of engagement with the bevel-pinion and worm-shaft, substantially as described.

2. In a harvesting-machine, the combination with the ground-wheel and its axle loosely mounted therein and provided with gears affixed thereto, a main frame, racks rigidly secured therewith and enmeshed with the gears on the axle, a shaft having a sprocket-gear constantly driven from the main ground-wheel, two rigidly-connected pinions slidably mounted on said shaft, one of said pinions having an annular hub provided with cam-slots, a worm-shaft having a bevel-pinion arranged between said sliding pinions and a spring connecting one of said pinions and the sprocket-gear of the main shaft and normally tending to hold said pinions out of engagement with the bevel-pinion and worm-shaft, substantially as described.

3. The combination with gearing for vertically raising and lowering the frame and platform of a harvesting-machine, of a gear-shifting mechanism, a bracket projecting rearwardly from the frame of the machine and having a tubular standard, a pipe-section extending therethrough and having cranks on the ends thereof, a connection between one of said cranks and a shifting lever, a foot-treadle beneath the driver's platform and a connection between the other of said cranks and the treadle, substantially as described.

4. In a harvesting-machine, the combination with gearing for driving the cutting and binding mechanism and gearing for raising and lowering the main frame and platform, of a bracket extending rearwardly from the main frame, a frame member extending rearwardly over said bracket and having a driver's seat mounted thereon, a tubular standard rising from the bracket and to which the frame member is connected and gear-shifting mechanism, the controlling members whereof comprise a tube and a rod mounted to rock within the hollow of the standard, the rod passing through the tube and both having connections whereby they may be rocked by the driver from his seat, substantially as described.

601,867. CAR-AXLE LUBRICATOR. STEWART AMSDEN, Walkerville, Canada. Filed Apr. 8, 1897. Serial No. 631,944. (No model.)

Claim.—1. In a lubricator for car-axle journals, in combination with a spring-supporting frame, a pad having downturned side flaps, and the adjacent downturned middle flaps, a surface extending en-

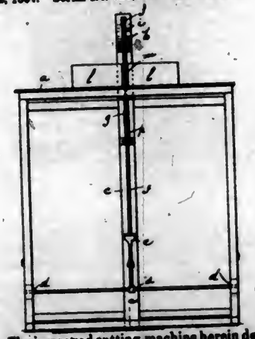
tirely across the box under the journal and a downturned end flap extending across the box as described.



2. In a car-axle journal, in combination with a supporting spring-frame, a pad provided with downturned side flaps, the downturned middle flaps and the downturned end flaps, substantially as described.

3. In a car-axle lubricator, in combination with a spring-supporting frame, a pad adapted to engage under the journal, and to extend across the box from side to side thereof, provided with downturned side and middle flaps, and an end flap extending across the box and hanging vertically, substantially as described.

601,868. CUTTING-MACHINE. DAVID BROOKS, Verona, N. J. Filed Mar. 22, 1897. Serial No. 628,649. (No model.)



Claim.—1. The improved cutting-machine herein described, comprising a bench or table having cutting-blocks affixed to the upper surface thereof and projecting upward, a cutting-blade working in an open slot in the top of said table, and having an up-and-down movement and a movement to and from said blocks, said cutting-blade when in normal position forming with the blocks, the sides of a trough-like aperture into which the bunch of fibers to be cut can be dropped from above, and long and short levers at the opposite ends of said cutting-blade and means for operating said levers, substantially as set forth.

2. The combination with the bench or table, of the pedal *e*, connecting-rod *f*, long and short levers, *j*, *g*, a cutting-blade connecting said levers, cutter-blocks *l*, *l*, a spring and a connecting-rod *o*, attached to one of the said levers and the spring, all arranged and combined, substantially as set forth.

601,869. IDENTIFYING DEVICE. GEORGE W. BUSH, Detroit, Mich. Filed July 8, 1897. Serial No. 643,818. (No model.)



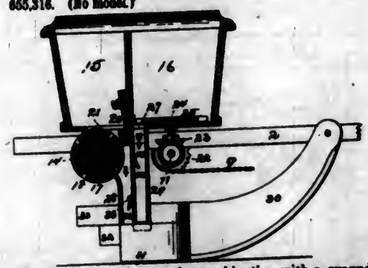
Claim.—1. In an identification-tablet, the combination of an indestructible outer casing provided with a cover removably secured thereto and a tablet composed of asbestos paper secured within said casing between a back of sheet metal and a covering of mica.

2. In an identification-tablet, the combination of the outer casing A provided with an open slot E, a lug F, the cover B secured therein, the apertured ears C C on the casing and cover and a tablet composed of the metal backing A formed with lugs I the asbestos sheet J and sheet of mica K, the parts being arranged substantially as shown and described.

3. In an identification-tablet, the combination of an outer casing provided with a slotted wall, a lug, and an apertured ear, a tablet within said casing, and a cover therefor provided with an apertured ear and adapted to be held in the casing by the said lug and a retaining-shoulder on said slotted wall with said apertures in alinement, substantially as described.

4. In an identification-tablet, the combination of a casing, a tablet therein comprising the metal backing provided with holding-lugs, the asbestos sheet, and the mica sheet held on said backing by said lugs, and a cover secured in said casing, substantially as described.

601,870. PLANTER. GEORGE B. DAVISON, Utica, N. Y., assignor to the Eureka Mower Co., same place. Filed Oct. 15, 1897. Serial No. 655,316. (No model.)

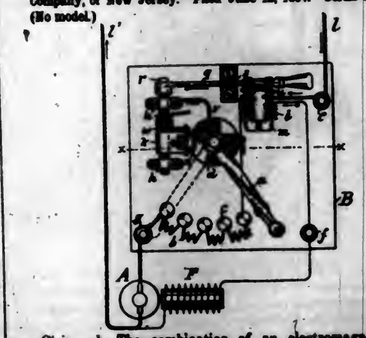


Claim.—1. In a planter, the combination with a ground-opener comprising a body and wings thereon of varying outward projection, arranged in pairs, and tiers in different planes, of a fertiliser-hopper and a chute leading therefrom toward the path of the body of said opener, and a deflector in the bottom of said chute whereby the fertiliser is deflected into the paths of the upper tier of wings of said opener.

2. In a planter the combination with a seedbox and a fertiliser-hopper, and a ground-opener comprising a body and diverging wings of varying projection arranged in tiers one above another, of a seed-chute leading from the seedbox to the path of the lowermost tier of said wings, and a fertiliser chute leading from the fertiliser-hopper to said opener, and a deflector in said chute whereby the fertiliser is spread into the paths of the upper tier or tiers of said wings.

3. In a planter, a seedbox, a fertiliser-hopper, a power-driven shaft, a feed-distributing cylinder mounted thereon, and discharge-chute from said box and hopper combined with separate valves normally closing said chutes, a disk upon said shaft, provided with pins at spaced intervals, a pawl intermittently engaged by said pins and connected to both of said valves, whereby both are simultaneously opened each time one of said pins engages with said pawl, which is provided with a beveled tooth whereby said pawl is raised to open said valves by the engagement of each tooth therewith, and which locks said disk against backward rotation.

601,871. ELECTROMAGNETIC CIRCUIT-BREAKER. GANO S. DUNN, East Orange, N. J., assignor to the Crocker-Wheeler Electric Company, of New Jersey. Filed June 12, 1897. Serial No. 640,411. (No model.)



Claim.—1. The combination of an electromagnetic circuit-breaker, a resistance-controlling switch, means controlled by the resistance-controlling switch for locking the circuit-breaker against closure in certain positions of the switch, and means for permitting the opening of the circuit-breaker in all positions of the switch, substantially as described.

2. The combination of an electromagnetic circuit-breaker, a resistance-controlling switch, a part moved by the switch into position to lock the circuit-breaker against movement in one direction, and means for permitting the circuit-breaker to open the circuit in any position of the switch, substantially as described.

3. The combination of an electromagnetic circuit-breaker, a latch thereon which permits it to move freely in one direction only, a resistance-controlling switch, and a part on the resistance-controlling switch movable into the path of the latch, substantially as described.

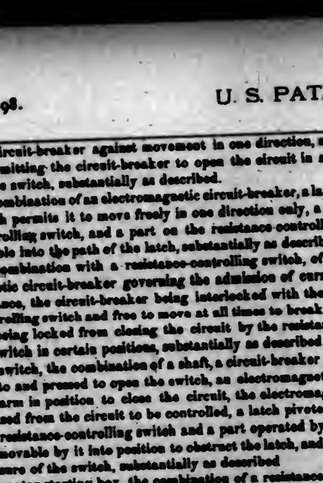
4. The combination with a resistance-controlling switch, of an electromagnetic circuit-breaker governing the admission of current to the resistance, the circuit-breaker being interlocked with the resistance-controlling switch and free to move at all times to break the circuit, but being locked from closing the circuit by the resistance-controlling switch in certain positions, substantially as described.

5. In a switch, the combination of a shaft, a circuit-breaker arm keyed thereto and pressed to open the switch, an electromagnet for holding the arm in position to close the circuit, the electromagnet being energized from the circuit to be controlled, a latch pivoted on the shaft, a resistance-controlling switch and a part operated by the switch and movable by it into position to obstruct the latch, and prevent the closure of the switch, substantially as described

6. In a motor-starting box, the combination of a resistance-controlling switch and resistances, a circuit-breaker arm for breaking and completing the circuit in which the resistances are included, a finger upon said arm free to move in one direction only, an electromagnet for holding the arm in position to complete the circuit, a shunt-wound motor having its field-coils and armature in series with the contacts made by the circuit-breaker arm and switch-arm, the coils of the electromagnet being also in series with the circuit-breaker arm and switch-arm and in shunt with the armature of the motor, substantially as described.

7. In a motor-starting box, the combination of resistances, a switch governing the flow of current therethrough, a circuit-breaker arm for breaking and completing the circuit in which the resistances are included, a latch upon the circuit-breaking arm free to move in one direction only, an electromagnet provided with oppositely-wound coils, and holding the circuit-breaker in position to complete the circuit, a shunt-wound motor whose armature and field-coils are in series with the contacts of the switch and circuit breaker arm, one of the windings upon the magnet being in shunt with the armature of the motor, and the other winding upon the magnet being in series with the armature of the motor, substantially as described.

601,872. WAGON-BRAKE. WILLIAM FRASER, Dobbs Ferry, N. Y. Filed Nov. 2, 1897. Serial No. 657,189. (No model.)



Claim.—1. In a chock or lock brake, the combination of a vehicle-axle, a bracket or standard rigidly mounted upon said axle and extending upwardly therefrom, a brake-lever journaled upon said bracket or standard and carrying a brake shoe, and suitable hand-controlled operating means adapted to throw the brake-lever forward or backward and lock the brake-shoe against the wheel in either position to prevent rotation either backward or forward, as set forth.

2. The combination, in a lock-brake, of a vehicle-axle, a bracket or standard rigidly mounted upon the axle, a brake-lever journaled upon said bracket or standard and carrying a brake-shoe, said brake-lever being constructed and arranged to move the brake-shoe into two braking positions from a normal central inoperative position, and suitable operating means connected with the brake-lever and adapted to throw the brake-lever to one side or the other of the central inoperative position and lock the brake-shoe against the wheel in either of the braking positions to prevent rotation either backward or forward, as set forth.

3. The combination, in a brake, of the vehicle-axle, a bracket or standard rigidly mounted upon the axle, a brake-lever journaled upon the bracket or standard and adapted to move the brake-shoe into two braking positions from a normal central inoperative position, a brake shoe or block carried by the brake-lever in position to engage the rim of the wheel, and suitable operating mechanism constructed to hold the braking-lever normally in central inoperative position and throw said lever forward or backward and lock the brake-shoe against the wheel in either of the braking positions to prevent rotation either backward or forward, substantially as set forth.

4. In a chock or lock brake, the combination of a vehicle-axle, a bracket or standard rigidly mounted upon the axle, a brake-lever journaled at a point between its ends upon the bracket or standard, a brake-shoe mounted upon the brake-lever upon one side of its journal, and operating mechanism engaging said brake-lever upon the opposite side of its journal, substantially as set forth.

5. The combination, in a chock or lock brake, of a vehicle-axle, a bracket or standard rigidly mounted upon the axle, a brake-lever journaled at a point between its ends upon said bracket or standard, a brake-block mounted upon one end of the brake-lever, an operating rock-lever journaled upon the bracket or standard and engaging the brake-lever at or adjacent to the end farthest away from the brake-block, and a hand operating device controlling said operating rock-lever, as set forth.

6. The combination in a chock or lock brake, of the vehicle-axle, a bracket or standard secured to the axle, a brake-lever carrying a brake-shoe at one end and formed with an elongated slot at the other end, a rock-shaft journaled in the bracket or standard, a rock-arm keyed to one end of said rock-shaft and engaging the slot in the brake-lever, a rock-arm keyed to the other end of said rock-shaft and operatively connected with a hand-lever, as set forth.

7. In a brake, the combination of an axle, a bracket or standard mounted upon the axle, a spring secured to the axle by suitable clips, a brace-plate attached to the bracket or standard and secured to the axle by the clips, a brake-lever journaled upon the bracket or standard, and suitable operating means, as set forth.

601,873. METALLIC PARTITION. GODFREY FOSMAR, Cleveland, Ohio. Filed June 9, 1897. Serial No. 639,971. (No model.)



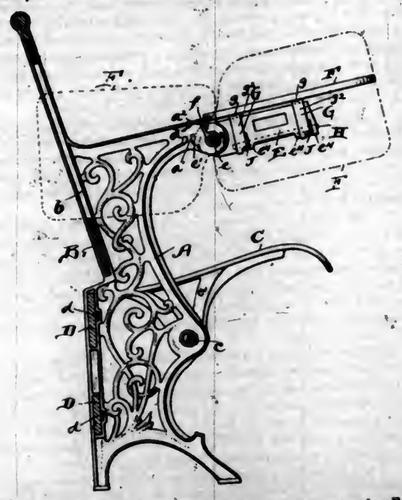
Claim.—1. A metallic partition comprising a sheet of metal bent sinuously to form the folds *a* which lie in parallel planes, and the connecting ends *a'*, said partition having a plurality of integral tongues punched from said ends and bent around into positions at right angles substantially to the folds and remaining attached in the lines where the folds and ends join, substantially as specified.

2. A metallic partition comprising a sheet of metal bent sinuously into a series of folds *a a* which lie in substantially parallel planes, and connecting ends *a'* which are substantially the same at one side of the wall as at the other, whereby the partition is adapted when embedded in the middle of the wall to furnish the same support for each side, said ends having a plurality of tongues projecting from them substantially at the junction of the folds and ends and in a direction substantially at right angles to the folds, combined with plaster, cement, or like material filling the spaces between the folds and covering the ends and tongues, substantially as specified.

3. A metallic partition, comprising a sheet of metal bent sinuously to form the folds *a a* which lie in parallel planes, and connecting ends *a'*, said partition having a plurality of integral tongues punched from said ends and bent around into positions at right angles substantially to the folds, combined with plaster, cement or like material filling the spaces between the folds and covering the ends and embedding the tongues, substantially as specified.

601,874. LECTURE-ROOM SEAT. HARVEY B. HEYDRICK and WILLIAM F. SMITH, Cleveland, Ohio, assignors to the Cleveland School Furniture Company, same place. Filed May 12, 1897. Serial No. 636,142. (No model.)

Claim.—1. In a lecture-room seat, in combination, an arm, an extension thereof pivoted at one end to said arm near its forward end and adapted to be turned about said pivot through the upper portion of a circle from an approximately horizontal forward position to an approximately horizontal rear position, and an arm-board pivoted to said extension and adapted to be approximately horizontal when said extension is in its forward position and approximately vertical when said extension is in its rear position, and one or more springs tending to retain said arm-board in its horizontal position when it is in that position, substantially as described.



2. In a lecture-room seat, in combination, the extension E pivoted to a support, the arm-board F, the bracket-arms G secured to said arm-board, the ears g on said bracket-arms, the rod H extending through said ears, and the springs J surrounding said rod and bearing at one end against the extension E and at the other against the bracket-arms, substantially as described.

3. In a lecture-room seat, in combination, the extension E pivoted to a support, the arm-board F, the bracket-arms G secured to said arm-board, the ears g on said bracket-arms the rod H extending through said ears, and the springs J surrounding said rod and having one end hooked onto a flange e^3 on said extension and the other onto the lug g^2 on the ear of said bracket-arm, substantially as described.

4. In a lecture-room seat, in combination, the extension E pivoted to a support, the arm-board F, the bracket-arms G secured to said arm-board, the ears g on said bracket-arms, the rod H extending through said ears, and the lug g^4 adapted to engage with said extension and limit the extent of movement of the bracket-arms away from said extension, and a spring forcing said bracket-arms toward said extension, substantially as described.

5. In a lecture-room seat, in combination, the extension E pivoted to a support, the arm-board F, the bracket-arms G secured to said arm-board, the ears g on said bracket-arms, the rod H extending through said ears and through ears on the extension whereby the bracket-arms may be swung substantially parallel with said extension, the lug g^4 adapted to engage with said extension and limit the extent of movement of the bracket-arms away from said extension, and elastic stops e^3 between said extension and said bracket-arms, said stops limiting the movement of the bracket-arms toward said extension, substantially as described.

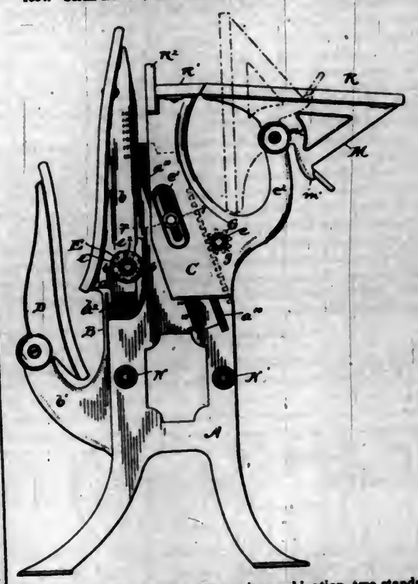
6. In a lecture-room seat, the arm a, the extension E pivoted thereto and adapted to stand in a forward position in front thereof, the upper surface of said extension being below a prolongation of the upper surface of the arm a, an arm-board F pivoted to said extension, and adapted to stand approximately horizontal above the same, said arm-board when in this position having its lower surface below the said prolongation whereby the rear edge f of the arm-board and the front corner a^3 of the arm cooperate as a stop preventing the turning of the extension about its pivot when the arm is in its approximately horizontal position, substantially as described.

7. In a lecture-room seat, in combination, the arm a, the extension E pivoted thereto at e, the lug f and the stop a' limiting the movement of the extension in the forward direction, the arm-board F pivoted to said extension, a spring tending to hold said arm-board approximately horizontal, but allowing it to be tipped up into a substantially vertical position, whereby said extension may be folded over alongside of the arm a, substantially as described.

8. In a lecture-room seat, in combination, the side frame, having a forwardly-projecting arm, an extension E pivoted to the inner side of the front end of said arm on a transverse horizontal pivot, an arm-board, bracket-arms secured thereto having laterally-extended ears which are pivoted to the ears on the lower edge of said extension on a longitudinal horizontal pivot, and springs acting to turn said arm-board upon its pivot, substantially as described.

9. A lecture-room seat consisting of a continuous back B divided by a plurality of sides A, and seats C, in combination with the extension E pivoted to a side, the arm-board F pivoted to said extension and pressed toward an approximately horizontal position above the same by a spring, a slot through the back of the seat beyond said side, said arm-board being adapted to be folded back and project through said slot, substantially as described.

601,875. ADJUSTABLE SCHOOL FURNITURE. HARVEY B. HITSHEW and WILLIAM F. STIEFF, Cleveland, Ohio, assignors to the Cleveland School Furniture Company, same place. Filed May 12, 1897. Serial No. 636,143. (No model.)



Claim.—1. In school furniture, in combination, two standards, each having a rack on its front edge and a forward extension below said rack, with seat-supports, each having its lower part overlapping and in contact with the inner face of the forward extension of the standard, a pinion mounted on the inner side of each seat-support and in engagement with the adjacent rack, and means for forcing into intimate contact the overlapping parts of the seat-supports and standards, substantially as specified.

2. In school furniture, in combination, two standards each having a rack on its front edge, and a forward extension below said rack, and a flange which lies outside of and is coextensive with said rack, whereby the rack is hidden from view, seat-supports, the lower parts of which overlap and are in contact with the inner faces of the forward extensions of the standards, each seat-support being provided with an offset boss b^{13}, the rear edge of which extends in front of the flange on the corresponding standard, a pinion, lying against the inner face of each seat support in engagement with the adjacent rack on the standard, and having its hub rotatively secured in a hole in said boss, and means for clamping together the overlapping parts of the seat-supports and standards, substantially as specified.

3. In school furniture, in combination, two standards each having a vertical rack; and a forward extension, means for holding the rear part of said standards apart, two seat-supports which respectively overlap the forward extensions of said standards and are in contact with the inner faces thereof, a pinion rotatably mounted upon each seat-support above the part which overlaps the forward extension of the standard, and in engagement with the adjacent rack, said pinions being respectively in alinement and having each an angular hole adapted to receive an operating key or shaft, and mechanism for clamping together the overlapping parts of the seat-supports and standards, substantially as specified.

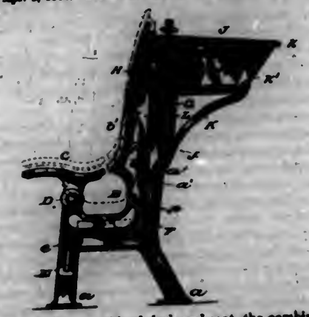
4. In adjustable school furniture, in combination, two standards each having a vertical rack, the horizontal and vertical boards J J' secured between them, two vertically-slotted seat-supports placed against the inner faces of said standards, said seat-supports and standards having interlocking tongues and grooves, a vertical board placed between said seat-supports in front of the front edge of the horizontal board J', the tie-rods N N', and the pinions mounted in said seat-supports, substantially as specified

5. In adjustable school furniture, in combination, two standards, each having a vertical rack on its front edge, and a forward projection, the inner surface of which projection is horizontally corrugated, a spacing-board held between the rear parts of said standards, two seat-supports which overlap the forward extensions of said standards and are in contact with the inner faces thereof, said contacting portion being likewise horizontally corrugated, a spacing-board secured to and between the lower part of said seat-supports, and two tie-rods, one connecting the rear parts of said standards, the other passing through vertical slots in the seat-supports and through holes in the standards, whereby the corrugated surfaces of the seat-supports and standards may be forced into intimate contact, and pinions mounted on the inner faces of said seat-supports adjacent to and in engagement with said racks, substantially as specified.

6. In adjustable school furniture, in combination, two standards, each having an inclined rack on its upper rear end, a correspondingly-inclined corrugated surface on the outer face thereof, a correspondingly-inclined channel on the other face, and a correspondingly-inclined slot through said corrugated surface and channel, two desk-supports having an inclined slot, and correspondingly-inclined corrugated surfaces on their inner faces, the plates K with bosses k, and bolts k', and pinions mounted on the desk-supports and engaging with the racks, substantially as specified.

7. In an adjustable school furniture, in combination, the standards each having a vertical rack on its front edge, and an inclined rack on its rear edge, a spacing device secured between said standards, two seat-supports movable against the inner faces of said standards, a spacing-board secured between them, pinions mounted on the inner faces of said seat-supports in engagement with said racks, two desk-supports mounted upon and in engagement with the outer faces of said seat supports, inclined guides therefor, pinions mounted on the inner faces of the desk-supports in engagement with the inclined racks, and clamping devices for securing the seat-supports and desk-supports to the standards, substantially as specified.

601,876. SCHOOL-DESK. ALBERT H. KENNEDY, Rockport, Ind., assignor to the Cleveland School Furniture Company, Cleveland, Ohio. Filed Apr. 1, 1897. Serial No. 630,201. (No model.)



Claim.—1. In a combined desk and seat, the combination with the standards, two desk-frames which slide thereon, two seat-frames which slide upon said standards, two vertical screws which engage with the standards and desk-frames, two vertical screws which engage with the seat-frames and standards, a desk-top secured to the desk-frames having holes, and an operating device adapted to project through said holes and engage with and simultaneously operate both desk-frame screws or both seat-frame screws, substantially as specified.

2. In school furniture, the combination with the standards, two connected frame members which slide respectively thereon, and two vertical adjusting-screws which engage with said standards and frame members, with a removable operating device consisting of a shaft N, yokes O O, vertical shafts journaled in said yokes and adapted to engage with the upper ends of said operating-screws, and bevel-gears on said vertical shafts and shaft N respectively, substantially as specified.

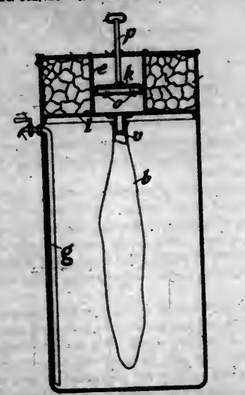
3. In a school-desk, the combination with the end frames made in separate sections and provided with cleats adapted to secure them one to the other in vertically-adjustable positions, of adjusting-screws for each of the end frames, and an operating device for simultaneously operating the adjusting-screws.

4. In a school-desk, the combination with the standards having beaded edges, and cleats extending from said edges, of desk-frames having beaded edges corresponding with those of the standards and adapted to engage the cleats extending from the edges of the standards, vertically-adjusting screws at each end of the desk, and a removable device for operating the adjusting-screws simultaneously.

5. In a combined school desk and seat, the combination with the vertical standards having beaded edges and cleats extending therefrom and integral therewith, of the vertically-adjustable seat-frames similarly provided with beaded edges for engaging the cleats upon the standards and having also cleats extending over the beading of the standards, of vertically-adjusting screws arranged upon the inside of the said standards and means for operating said adjusting screws simultaneously to effect the desired adjustment.

6. In a combined school desk and seat, the combination with the vertical standards having beaded edges and cleats extending from both of said edges, of the vertically-adjustable seat-frames similarly provided with beaded edges for engaging the cleats upon the standards and having also cleats engaging the beaded edges of the standards, a desk having end frames provided with beaded edges adapted to engage the cleats upon the rear edges of the standards, and provided also with cleats extending over the said beaded edges of the standards, a screw-threaded block attached upon the inner side of each of the standards, a pair of adjusting-screws engaging the seat-frames and the blocks upon the standards, and a separate pair of adjusting-screws engaging the desk-frames and the said blocks upon the standards, said adjusting-screws being arranged on the inside of the seat and desk frames, and means for operating either pair of adjusting-screws simultaneously to effect the desired adjustment.

601,877. APPARATUS FOR TRANSPORTING AND PRESERVING LIQUIDS. PAUL LOCHMANN, Leipsic, Germany. Filed Aug. 14, 1896. Serial No. 602,732. (No model.)

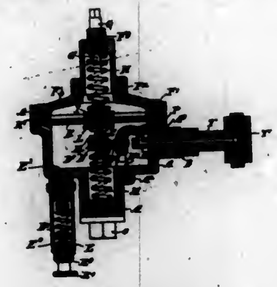


Claim.—In an apparatus for transporting and preserving liquids, the combination with a vessel, of an elastic expeller within the vessel, a pump for inflating the expeller and forcing the contained liquid in the vessel through the outlet thereof, and a cooling-chamber surrounding the pump, substantially as set forth.

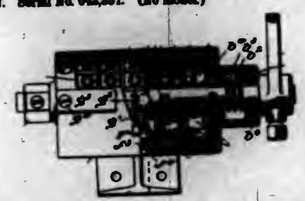
601,878. FLUID-PRESSURE REGULATOR. RICHARD MATCHETT, Melbourne, Victoria. Filed Feb. 27, 1897. Serial No. 625,272. (No model.)

Claim.—A fluid-pressure regulator, comprising the separable casings A F, provided with inlet and outlet pipes T and C, the diaphragm K interposed between said separable casings and forming an upper and lower chamber, a gripper comprising two independent blocks arranged on opposite sides of the diaphragm, the upper block being provided with a stud and the lower block with a screw, the adjustable threaded plug G having a reduced extension G', a coiled spring H, the end coils of which engage the extension and a stud of the screw and gripper sections respectively, and is confined between the

two, a post N³ having a screw-threaded engagement with the section A of the casing, a bell-crank lever journaled to said post and having at one end a valve to control the inlet-passage, and having at its other end a screw-threaded aperture through which projects the screw of the lower gripper-section, and by means of which the bell-crank may be adjusted to regulate its valve, a screw-threaded plug O secured to the lower section of the casing, a spring M surrounding the lower end of the screw and engaging the plug O, the adjusting-nut L³ on said screw above the end of the bell-crank lever, and the spring-actuated safety-valve E having the adjusting-plug E³, substantially as set forth.



601,879. COUNTER. JOHN F. McHUTT, Warren, Ohio, assignor to the Harris Automatic Press Company, Niles, Ohio. Filed June 25, 1897. Serial No. 642,231. (No model.)



Claim.—1. The combination with a casing having a sight-opening therein, of a shaft mounted in said casing, a series of dial-wheels on said shaft, and means for successively operating the same, a cap secured on said shaft, a spring engaging said shaft, and a stop adapted to limit the movement of said shaft by engaging with said cap, substantially as set forth.

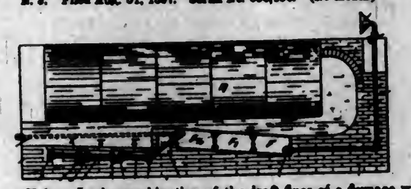
2. The combination with a casing having a sight-opening therein, of a shaft mounted in said casing, a series of dial-wheels on said shaft, and means for successively operating said wheels, a stop projecting from one end of said casing, a cap secured on said shaft and having shoulders designed to engage said stop, and a spring encircling said shaft within said cap and connected to the latter, substantially as set forth.

3. The combination of a casing, a shaft mounted therein, dial-wheels on said shaft, and means for successively operating the same, a cap secured on the end of said shaft, a spring within said cap connected thereto at one end, its other end being secured to said casing, a stop adapted to limit the movement of said shaft, a lever engaged by one of said dial-wheels, a hammer carried by said lever, and a sounding-plate secured to said casing and adapted to be struck by said hammer, substantially as set forth.

4. The combination of a casing, a shaft mounted therein, dial-wheels on said shaft, and means for successively operating the same, a cap secured on the end of said shaft, a spring within said cap connected thereto at one end, its other end being secured to said casing, a stop adapted to limit the movement of said shaft, a spring-pressed lever engaged by one of said dial-wheels, a hammer carried by said lever, posts projecting from said casing, and a sounding-plate secured to said posts and adapted to be struck by said hammer, substantially as set forth.

5. The combination with the casing having an upper sight-opening, a lower opening and a hollow boss in line therewith, of a shaft extended through said casing having dial-wheels thereon, a lever fulcrumed in said lower opening and designed to be operated by one of said dial-wheels, a spring fitted in said boss and bearing against said lever, a hammer carried by said lever, and a sounding-plate secured to said casing and designed to be struck by said hammer, substantially as set forth.

601,880. BOILER-FURNACE. FRANCIS F. PARSONS, Paterson, N. J. Filed Aug. 31, 1897. Serial No. 650,126. (No model.)



Claim.—In the combination of the draft-flues of a furnace with the cross grate-bars, a hollow cross grate-bar, having its upward-slanting sides perforated, the ends of the said cross grate-bars furnished with holes, a draft-pipe system connecting said bars with each other, substantially as it is illustrated and described, for the purposes as set forth.

601,881. PLATFORM-SCALE. WILLIAM H. SANDERSON, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed May 24, 1897. Serial No. 637,903. (No model.)



Claim.—1. In a platform-scale, the combination of a platform having bifurcated legs, bearing-blocks loosely fitted in the furcations, a row of balls interposed between each block and the end of the corresponding furcation, plates F having beveled ends, which plates are secured to the lower ends of the legs and extend under the edges of the blocks, the inner ends of said plates being beveled, with the platform-levers, and knife-edges carried by said levers and adapted to support said bearing-blocks, substantially as specified.

2. In a platform-scale, the combination of a platform having bifurcated legs, bearing-blocks loosely fitted in the furcations, the upper surface of each bearing-block and the surface forming the upper end of each furcation having depressions arranged in a row transverse to the furcations, a plurality of balls above each bearing-block in said depressions, the plates F secured to the lower ends of the legs and extending under the edges of the blocks and being at such distance therefrom as to prevent such a downward movement of the bearing-blocks as will permit the balls to escape from said depressions, substantially as specified.

3. In a platform-scale, the combination of a subplatform and a platform, with a set of ball-cups on the lower face of the platform, another set of ball-cups on the upper face of the subplatform some of said ball-cups being vertically adjustable, and a ball interposed between each pair of cups, substantially as specified.

4. In a platform-scale, the combination of a subplatform, a plurality of vertically-adjustable ball-cups secured thereto, with the platform having corresponding cups on its under side, and a ball between each pair of cups, substantially as specified.

5. In a platform-scale, the combination of a subplatform, a plurality of adjustable screws which screw vertically downward into said subplatform, said screws having cup shaped heads, with the platform having corresponding cups on its under side, and a ball between each pair of cups, substantially as specified.

6. In a platform-scale, the combination of the platform-levers and knife-edges carried thereby, the subplatform, bearing-blocks adapted to engage with said knife-edges, the upper face of the bearing-blocks and the proximate face of the subplatform being provided with correlated grooves arranged transversely to the knife-edges, balls in said grooves between the bearing-blocks and subplatform, means connecting the bearing-blocks and subplatform, which means permit the block to rock upon said balls, but prevent the block from moving far enough away from the subplatform to permit the escape of the balls from said grooves, the platform having ball-cups on its under surface, and the subplatform having correlated ball-cups on its upper surface, and a ball confined between each pair of said ball-cups, substantially as specified.

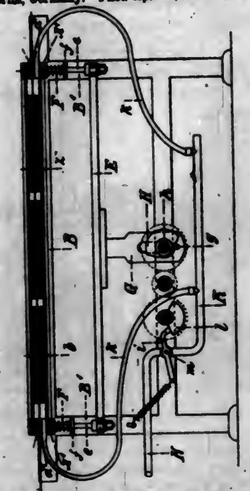
7. In a platform-scale, the combination of a subplatform having bifurcated legs and having lateral recesses above the furcations, adjustable bearing-blocks in said furcations, a plurality of threaded pins which pass vertically through the subplatform into said recesses, said pins having cup-shaped upper ends, a nut on said pins in said recesses, with a platform having corresponding cups on its under side, and a ball between each pair of cups, substantially as specified.

8. In a platform-scale, the combination of a subplatform having bifurcated legs, bearing-blocks loosely fitted in the furcations, a row

of balls between each block and the end of the corresponding furcation, plates F secured to the lower ends of said legs and extending under the blocks whereby the blocks are prevented from falling out of said furcations, vertically-adjustable cups secured to the subplatform, over said blocks, with a platform having corresponding cups on its under side, and balls between the platform and subplatform in each pair of cups, substantially as specified.

9. In a platform-scale, the combination of a subplatform and a platform, with a set of ball-cups on the lower face of the platform, one near each corner thereof, a set of ball-cups correspondingly disposed on the upper face of the subplatform, at least one of said last-named ball-cups being formed in the upper end of a support which is adjustable in the said platform, and a ball interposed between each pair of cups, substantially as specified.

601,882. PHOTOGRAPHIC-PRINTING APPARATUS. ARTHUR SCHWARZ, Berlin, Germany. Filed Apr. 12, 1897. Serial No. 631,767. (No model.)



Claim.—1. In a copying-frame, the combination of a rigid translucent plate at one side of the frame, a flexible transparent plate at the other side, to expose to the light on both sides of the frame photographic paper sensitized on both sides and insure the register of upper and lower negatives, said plates being arranged to leave a space between the two plates for the passage of the sensitized paper, and an air-exhauster communicating with said space, substantially as and for the purposes described.

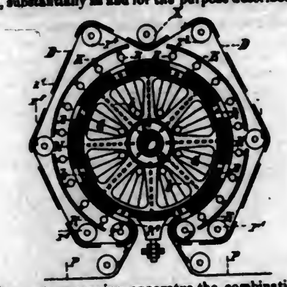
2. In a copying-frame, the combination of a rigid upper frame, a movable lower frame, springs exerting an upward pressure on the lower frame, means for moving the lower frame against the pressure of said spring for the insertion of the paper and comprising a bar extending across the lower frame beneath the same and connected by upwardly-extending arms to the lower frame at opposite ends thereof, and means for releasing the lower frame to permit the springs to close the same against the upper frame, substantially as and for the purposes described.

3. In a copying-frame, the combination of a stationary frame and a movable frame adapted to be brought together and leave a space between them, springs for closing one frame against the other, a cam actuating the movable frame to periodically draw it from the other against the influence of said springs, a valve-controlled air-exhaust in communication with the space between the two frames, and means for automatically actuating the valve in the air-exhaust after the frames have been brought together for the purpose of exhausting air from the space between the frames, substantially as set forth.

601,888. PHOTOGRAPHIC-PRINTING APPARATUS. ARTHUR SCHWARZ, Berlin, Germany. Filed May 7, 1897. Serial No. 635,508. (No model.)

Claim.—1. In a rotary pneumatic copying apparatus the combination of a rotary cylinder with a pressure-blanket traveling with said cylinder and means for forming a vacuum between the cylinder and the blanket, substantially as and for the purpose described and set forth.

2. In a rotary pneumatic copying apparatus the combination of a rotary cylinder with disks equipped with air-ducts, said air-ducts connecting the space between the surface of the cylinder and the pressure-blanket with the hollow axle upon which the cylinder is mounted, substantially as and for the purpose described and set forth.



3. In a rotary copying apparatus the combination of a rotary cylinder with a pressure-blanket circulating around and covering nearly the entire surface of the cylinder, air-openings for the evacuation of the air between the cylinder and the blanket and a sliding spring-actuated guard adapted to close the air-holes not covered by the blanket, substantially as and for the purpose described and set forth.

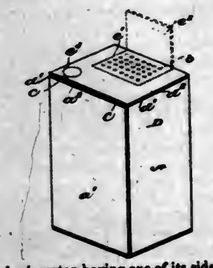
4. In a rotary copying apparatus the combination of a rotary cylinder provided with disks B B' and mounted upon a hollow shaft, air-holes provided in the shaft and ending in a circular groove in the hub of said disks, air-passages provided in the spokes of the disks and connecting the space between the cylinder and the pressure-blanket with the hollow shaft, substantially as and for the purpose described and set forth.

5. In a rotary copying apparatus, the combination of a rotary cylinder, and a shaft inside of said cylinder rotatable in the opposite direction to the cylinder and carrying a lighting medium for the exposure, substantially as and for the purposes described.

6. In a rotary copying apparatus, the combination of a rotary cylinder, and means for creating a circulation of air within the cylinder for ventilating and cooling the interior of the cylinder, substantially as and for the purposes described.

7. In a rotary copying apparatus, the combination with a rotary cylinder, of a shaft within the cylinder and rotatable at a different speed from the cylinder, and means connected to said shaft for creating an air-current within the cylinder for ventilating and cooling the interior of the cylinder, substantially as and for the purposes described.

601,884. CARTON. FRANK P. TUCKER, Somerville, Mass. Filed Aug. 21, 1897. Serial No. 648,999. (No model.)



Claim.—1. A carton having one of its sides provided with a flap having a series of indentations therein, a plate fitted over said flap having perforations therein corresponding to the indentations of said flap and a second flap fitted over said plate, and having a removable portion adjacent the latter.

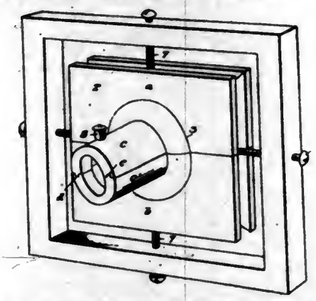
2. A carton having its sides provided with end flaps, and a perforated plate fitted over a portion of one of said flaps and having a flanged edge and ends fitting against the edges of said flap, substantially as set forth.

3. A carton having its sides provided with end flaps, and a perforated plate fitted over a portion of one of said flaps, one of the remaining flaps being designed to fit over said former flap and plate and having a scored line thereon, substantially as and for the purpose set forth.

4. The herein-described carton consisting of the box having one side provided with a flap, a perforated plate fitted thereon, opposite flaps having cut-aways and fitted down over said former flap, and an

outer flap having a scored line for forming a small flap or section located over the perforations in said plate, substantially as set forth.

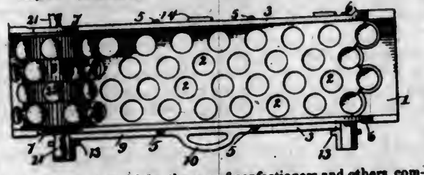
601,885. SHAFT-HANGER. SAMUEL COFFIN, High Point, N. C. Filed Nov. 29, 1897. Serial No. 660,139. (No model.)



Claim.—1. In a shaft-hanger, the combination with a two-part casing, each part having a semicircular groove and coacting lugs and recesses, of a bearing consisting of two parts having coacting ribs and grooves, and provided with semicircular convex bulges to seat in the grooves of the casing; and provided with an interior oil-chamber, substantially as set forth.

2. In a shaft-hanger, the combination with a frame provided with radially-disposed set-screws, of a two-part casing supported in said frame, and provided with an annular central groove, and a two-part bearing having an annular curved bulge to fit in said groove to form a ball-and-socket joint, substantially as set forth.

601,886. MOLDING-MACHINE FOR CONFECTIONERS' USE. JOHN S. CROWELL, Springfield, Ohio. Filed July 1, 1897. Serial No. 643,152. (No model.)



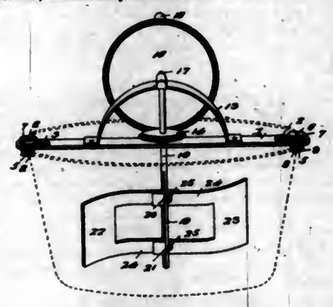
Claim.—1. A mold for the use of confectioners and others, comprising a horizontal bed-plate provided with a series of orifices, the side rails 3 3 fixed thereto and provided with the shoulders 6 6, and the plane platen 9 removably secured contiguous to the lower face of said bed-plate, in combination with the roller 8, provided with flanges 7 7, and the radial plungers 23 23, substantially as shown and described.

2. The bed-plate 1, provided with a series of orifices 2 2, the side rails 3 3, adjustably secured thereto, and the transverse guides 11 11 secured to the lower face of said bed-plate, in combination with the laterally-sliding platen 9, having a transverse movement in said guides, and the roller 8 provided with plungers 23 23 and the flanges 7 7, substantially as shown and described.

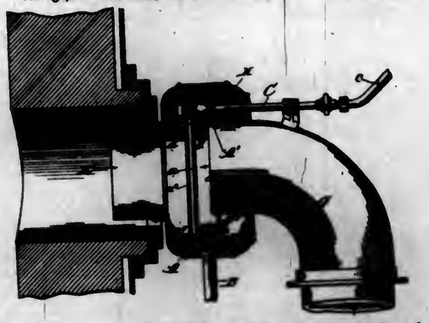
3. The combination with the orificed bed-plate, the side rails and the movable platen 9, of the roller 8, formed of the sectional rings 22 22, provided with radial plungers 23, and the disks 19 and 20 and stay-rods 25, connecting said disks and rings, substantially as shown and described.

601,887. CAKE-BEATER. ALBERT W. CUSTER, New Whatcom, Wash. Filed Mar. 16, 1897. Serial No. 627,863. (No model.)

Claim.—The horizontal supporting-brace 1, provided at its outer ends with longitudinal slots 2 3, the guide-clamps 5 5 formed with the square shank 4, which engage said slots, and the vertical threaded stud 6 provided with the thumb-nut 7, and having the vertical recess 8 and thumb-screw 9, and the central bearing 12 in combination with the curved bracket 13, provided with the horizontal stud 17, the vertical cylindrical shaft 10 journaled in the bearing 12 and curved bracket 13 and having the integral depending rectangular portion 19 provided with the transverse slots 20 21 and thumb-screws 25, the curved radial paddles 22-23, having horizontal parallel arms 24 24 adapted to engage said slots 20 21, the bevel gear-wheel 16 mounted on said stud 17 and the bevel-pinion 14, adjustably secured to the shaft 10 by the set-screw 15, its hub forming a support for the said shaft and having its beveled toothed face meshing with the larger gear-wheel 16, substantially as shown and described.



601,888. GAS-WASHING APPARATUS. ALBERT H. DEACON, Chicago, Ill. Filed May 13, 1897. Serial No. 636,574. (No model.)



Claim.—1. In a gas-washing apparatus, the combination of a disk or similar element, a nipple screw-threaded in the upper portion thereof and provided with longitudinal lateral openings, a water-distributer secured to the threaded nipple and provided with a supply-opening at one portion thereof, a feed-pipe screw-threaded into and connected with the water-distributer so that such distributer may be rotated therewith, a waste-pipe for carrying off the water, and a gas-supply pipe arranged with its outlet-opening adjacent to the surface of the disk, substantially as described.

2. In a gas-washing apparatus, the combination of a disk provided with a water-jacket, a water-distributer arranged in the upper portion thereof so as to flow a sheet of water down and over the inner surface of the disk, a water-discharge pipe connected with the lower portion of the disk, a gas-supply pipe arranged with its outlet adjacent to the face of the disk, and a casing provided with an outlet surrounding the disk and outlet of the gas-supply pipe to compel the gas after being cleansed to pass out through the outlet of such casing, substantially as described.

601,889. NUT-LOCK. JOHN HARRIS, Shamokin, Pa. Filed Dec. 22, 1897. Serial No. 662,903. (No model.)



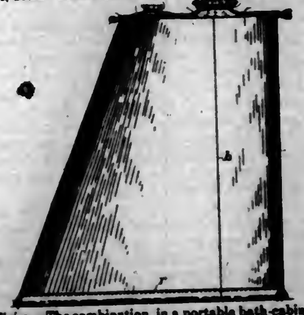
Claim.—The combination with a grooved bolt, a nut having a rib adapted to said bolt, a clamping-nut having at its base diagonal communicating recesses intersected by an aperture, a band for encompassing both nuts provided with an aperture, and a split key adapted to be inserted through the apertures of the band and nut and to have its ends spread apart by the diagonal recesses, substantially as set forth.

601,890. CLAMP FOR BICYCLE-SADDLES. JONATHAN A. HUNT, Westborough, Mass. Filed Jan. 26, 1897. Serial No. 620,566. (No model.)

Claim.—1. In a clamp for bicycle-saddle springs, the combination with the casing or shell split or divided at one side or end, and having a tubular internal-threaded extension on said divided end, and a collar or holding-band thereon, and a bolt turning in said tubular extension, to communicate direct pressure in a horizontal plane, to the clamping-jaws, of two clamping blocks or jaws having grooved or recessed inner edges, and grooved or recessed outer edges, substantially as shown and described.

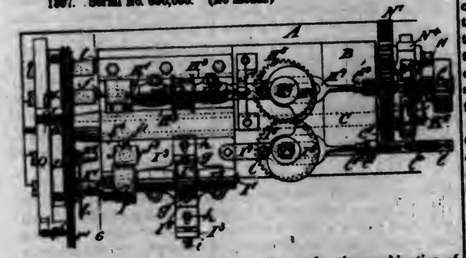
2. In a clamp for bicycle-saddle springs, the combination with the casing or shell split or divided at one side or end, and having a tubular internal-threaded extension on said divided end, and a collar or holding-band thereon, and a clamping-bolt turning in said tubular extension, of two clamping blocks or jaws having grooved or recessed inner edges, and grooved or recessed outer edges, and a third clamping-block, against which the inner end of the clamping-bolt bears, substantially as shown and described.

601,891. PORTABLE BATH-CABINET. RUSSELL M. IRWIN, Nashville, Tenn. Filed Sept. 10, 1897. Serial No. 651,157. (No model.)



Claim.—The combination, in a portable bath-cabinet, of a round, flexible and apertured top, having a soft elastically-gathered collar, centrally placed near the rear part thereof, and a soft elastically-gathered sleeve to the right and front of said collar; a flexible wall descending from said top, in straight-down lines around the rear part thereof, and in outwardly-expanding lines around the front part thereof—the upper part of said wall being gathered beneath and within the rim of the aforesaid top, and formed into a casing, overhanging said wall, having a reinforced slot in the edge thereof, and the lower part of said wall being formed into a casing around the bottom thereof and having a reinforced slot in the outer face of said casing; and a pair of flexible and integral framing-wires, dimensioned, respectively, to the aforesaid upper and lower casings of the said wall, and provided each with a socket at one end of said wire; the whole constructed and arranged as hereinbefore fully described.

601,892. MACHINE FOR CUTTING CORKS. JULIUS JONSON, New York, N. Y., assignor to Rose Jonson, same place. Filed Mar. 31, 1897. Serial No. 630,063. (No model.)



Claim.—1. In a machine for cutting corks, the combination of an intermittently-rotating carrier, a series of tubular chucks arranged in said carrier in a circle concentric therewith and adapted for the insertion and passage directly through them of sticks of cork, and a cutter, consisting of a hollow cutter-stock and a cutter-blade projecting therefrom for turning portions of said sticks which are successively protruded through the said chucks and carrier, all in combination substantially as herein described.

2. In a machine for cutting corks, an intermittently-rotating carrier, a series of revolving tubular chucks arranged in bearings in said carrier with their axes in a circle concentric to and parallel with the axis thereof and adapted for the passage through them of sticks of cork, a rotary grinder having its axis parallel with the axis of the carrier and with the axes of the chucks, for grinding the sides of portions of sticks which pass through and protrude beyond said chucks and carrier, and a stationary holder for receiving the said protruding portions of the sticks during the grinding, all in combination substantially as herein described.

3. In a machine for cutting corks, the combination of an intermittently-rotating carrier, a series of tubular chucks arranged in said carrier and adapted for the passage through them of sticks of cork, a turning-cutter consisting of a hollow stock and a cutting-blade projecting therefrom and opposite to which the said chucks are brought by the rotation of the carrier for the purpose of turning portions of sticks of cork which are successively protruded through the said chucks and carrier, and means for moving said cutter toward and from the chucks to receive the successively-protruded portions of the sticks during the intermissions of the rotation of the carrier, substantially as herein described.

4. In a machine for cutting corks, the combination of an intermittently-rotating carrier, a series of revolving tubular chucks arranged in bearings in said carrier and adapted for the passage through them of sticks of cork, a rotary grinder in proximity to which the said chucks are brought by the rotation of the carrier for the grinding of portions of the sticks successively protruded through the chucks, and means for drawing back said grinder in lines parallel with the axis of rotation of the carrier during the intermissions of the rotation of the latter to permit the passage by of the so-protruded portions of the sticks, substantially as herein described.

5. In a machine for cutting corks, the combination of an intermittently-rotating carrier, a series of revolving open tubular chucks fitted to bearings in said carrier, a hollow rotary turning-cutter which incloses the work and a rotary grinder opposite to which the said chucks are successively brought by the rotation of the carrier and retained during the intermissions in the rotation thereof, means for preventing the turning of that chuck which is at any time opposite the said cutter and while a stick in said chuck is being turned by the rotation of said cutter around it, and means for at the same time giving rotary motion to another chuck which is at the same time opposite the grinder for the purpose of presenting all sides of said stick to the grinder, substantially as herein described.

6. In a machine for cutting corks, the combination of an intermittently-rotating carrier, chucks fitted to turn in bearings in said carrier and provided each with a band-pulley and a ratchet-wheel, a hollow rotary cutter which incloses the work, a rotary grinder opposite to which said chucks are successively brought by the rotation of the carrier, a driving-belt, a stationary support and guide-pulleys attached thereto for guiding the said belt over the pulley of a chuck which is opposite the grinder for driving that chuck, and a pawl for engaging with the ratchet-wheel of a chuck which is opposite the cutter for preventing the rotation of the latter chuck, substantially as herein described.

7. The combination with the rotary grinder, of a cork-holder consisting of a socket closed at one end and open at the other and having a lateral opening for the periphery of the grinder, and a pivot in the closed end of the holder provided with teeth at its inner end, substantially as herein described.

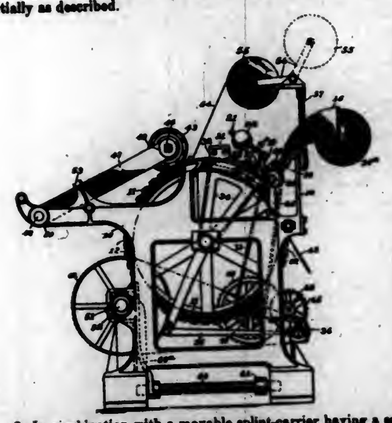
8. The combination of the intermittently-rotating horizontal shaft C, the carrier D on said shaft, the chucks E in said carrier, the rotary cutter H *e* opposite to which the chucks are brought by said carrier, the upright rotary shaft H^6, the cam H^5 on said shaft H^6 for moving the cutter toward and from the carrier during the intermissions of the rotation of the latter, the stop-lever P for arresting the rotation of the carrier, and the cam P^5 on said shaft H^6 for operating said stop-lever and means for rotating the shafts C and H^6, all substantially as herein described.

9. The combination of the intermittently-rotating horizontal shaft C, the carrier D on said shaft, the chucks E in said carrier, the rotary cutter H *e* and the rotary grinder I opposite to which the chucks are successively brought by said carrier, the upright rotary shaft H^6, the cam H^5 on said shaft H^6 for moving the cutter toward the carrier, the upright pivot I^5 and the cam I^5 thereon for moving the grinder toward the carrier, and the gears H^5 I^5 on the said shaft H^6 and cam I^5 respectively for producing the rotation of said cam I^5, all substantially as herein described.

601,898. MACHINE FOR CUTTING AND ASSEMBLING MATCH-SPLINTS. JOHN F. KAY, Passaic, and DANIEL HUTCHINSON, Bound Brook, N. J., assignors to the Diamond Match Company, Chicago, Ill. Filed Sept. 3, 1897. Serial No. 650,491. (No model.)

Claim.—1. In combination with a movable splint-carrier having a series of splint receiving and holding devices adapted to hold the splints in a position transverse to the line of travel of the carrier,

means for moving the carrier, means for feeding a strip or sheet of veneer toward the carrier and into its splint receiving and holding devices, as such devices are brought successively up to the path of the veneer, so that the forward end of such veneer, will lie transversely, with reference to the carrier, in each holding device into which it is fed and a cutting device operating close to the face of the carrier to cut off from the rest of the veneer the portions of the latter projecting into the receiving and holding devices of the carrier, substantially as described.



2. In combination with a movable splint-carrier having a series of transverse grooves to hold the splints, means for feeding the veneer into such grooves, so that its forward edge, extending in a direction transverse to the carrier, will project into the grooves as they are brought, by the movement of the carrier, to a certain point, and a cutting device to cut off the portions of the veneer projecting into the carrier-grooves, substantially as and for the purpose described.

3. In combination with a movable splint-carrier having a series of transverse splint-holding grooves, a suitable way or support for a strip of veneer, feed mechanism to feed the veneer forward into each groove in the carrier, as such groove is brought by the movement of the carrier into position in front of the veneer, so that the forward edge of the veneer, extending in a direction transverse to the carrier, will be seated in the groove and means for cutting the veneer, close to the face of the carrier after the veneer has been moved into a groove in the carrier substantially as and for the purpose described.

4. In combination with a suitable table for supporting a sheet of veneer, a movable carrier with transverse splint-holding grooves moving past such table, means for feeding the veneer forward, with its forward edge transverse to the carrier to cause it to project into the grooves in the carrier, as they are successively brought, by the motion of the carrier, into position opposite the end of the veneer, and a reciprocating knife acting close to the face of the carrier to cut off from the veneer each portion thereof projected into a groove in the carrier, substantially as and for the purpose described.

5. In combination with a movable splint-carrier, having a series of transverse splint-holding grooves, and a tape-receiving groove at right angles to the other grooves, a support for a strip of veneer past which the carrier moves, means for feeding the veneer forward into the transverse grooves of the carrier, as they are successively brought opposite the veneer by the movement of the carrier, and means for cutting off each portion of the veneer so projected into each groove of the carrier, substantially as and for the purpose described.

6. In combination with a movable splint-carrier having a series of transverse splint-holding grooves and a tape-receiving groove at right angles to and deeper than the other grooves, a veneer-supporting table past which the carrier moves, having a portion projecting into the tape-receiving groove, means for feeding the veneer forward into the transverse grooves in the carrier, as they are successively brought opposite the veneer by the movement of the carrier, and means for cutting off the portion of the veneer so projected into each groove in the carrier, substantially as and for the purpose described.

7. In combination with a movable carrier, having a series of transverse splint-holding grooves and a tape-receiving groove at right angles to and deeper than each transverse grooves, a veneer-supporting table, past which the carrier moves, having a portion extending into the tape-receiving groove in the carrier, and a transverse knife-edge-receiving groove, means for feeding a strip of veneer on the table forward, to cause it to project into the transverse grooves in the carrier, as such grooves are brought successively up to a certain point by the travel of the carrier, and a traveling knife to cut off the portions of the veneer so projected into the grooves of the carrier, substantially as and for the purpose described.

8. In combination with a movable carrier having a series of transverse splint-holding grooves, means for feeding a sheet of veneer to cause it to project into the carrier-grooves, with its forward edge transverse to the carrier and substantially parallel with the grooves as they are successively brought to a certain position by the travel of the carrier, and a veneer-cutting knife moving close to the face of the carrier, so as to cut off the portions of the veneer which are projected into the grooves of the carrier, substantially as and for the purpose described.

9. In combination with a movable carrier, having a series of transverse splint-holding grooves, feed devices to feed a strip of veneer forward into each one of the carrier-grooves as it is brought opposite the veneer by the movement of the carrier so that the forward portion of the veneer will be seated in the groove transverse to the carrier, and a reciprocating knife moving across the path of the veneer close to the face of the carrier, and means for actuating such knife each time that the veneer is moved into a carrier-groove so as to cut off the part of the veneer seated in such groove, substantially as and for the purpose described.

10. In combination with a movable carrier having a series of transverse splint-holding grooves with their forward sides beveled or inclined, feed devices to feed a strip of veneer forward into the grooves, as they are successively brought, by the movement of the carrier, into position to receive the veneer, a knife to cut off the portion of the veneer fed into each groove, moving close to the face of the carrier so as to cut the veneer transversely and to sever the part which rests in the carrier-groove from the rest of the strip of veneer outside of the groove leaving such part in the form of a splint lying transversely in the groove, and means for actuating such knife, substantially as and for the purpose described.

11. In combination with a movable grooved splint-holding carrier, a support for a strip of veneer, one or more rapidly-revolving feed-rolls, to feed the veneer on the support toward the carrier with its forward edge transverse to the carrier, and substantially parallel with the grooves in the latter, a cutter to cut the veneer close to the face of the carrier, and means for actuating it to cut the veneer, each time that the latter is fed into a carrier-groove after the veneer has been fed into the groove, substantially as and for the purpose described.

12. In combination with a series of parallel grooved splint-carriers having corresponding splint-holding grooves, means for moving such carriers, means for feeding into the grooves of the carriers a strip of veneer of a width equal to the length of a series of splints, sufficient in number to afford one splint for each carrier, a cutter to cut off the veneer close to the face of the carriers, means for actuating such cutter to cause it to cut the veneer each time that it has been fed into the grooves of the carrier, feed mechanism to feed the veneer into the grooves of the carrier, and means for cutting the splints transversely between the carriers, substantially as and for the purpose described.

13. In combination with two parallel grooved movable splint-carriers, means for feeding into the corresponding grooves of the two carriers, a strip of veneer of a width equal to the length of two matched splints, a cutter to cut the veneer transversely, close to the face of the carriers after it has been fed into the grooves of the latter, and a second cutter to divide the splints between the two carriers, substantially as and for the purpose described.

14. In combination with a series of parallel transversely-grooved splint-carriers and means for moving them, means for feeding a strip of veneer into the grooves of the carriers, a reciprocating knife adapted to cut the veneer close to the carriers, after it has been fed into the latter, a splint-dividing knife, moving with the former knife, to cut the splints in two between the carriers, and means for actuating the knives so that the veneer-cutting knife will cut the veneer each time that the latter has been fed forward into the corresponding grooves of the two carriers, substantially as and for the purpose described.

15. In combination with a movable carrier with transverse splint-holding grooves, and a tape-groove at right angles to the other grooves, a coiling device to coil up such tape, means for actuating such device, a support for a strip of veneer, means for feeding such veneer toward the carrier, so that it will be projected into each transverse groove in the carrier, as such groove is brought opposite the veneer by the motion of the carrier, and means for cutting off each portion of the veneer so projected into a carrier-groove, substantially as and for the purpose described.

16. In combination with a movable carrier with transverse splint-holding grooves and a tape-groove at right angles to such grooves, a coiling tape passing through a portion of the tape-groove, a support for a strip of veneer, means for feeding such strip forward toward the carrier, to cause it to enter each transverse carrier-groove, as it is brought up to the veneer by the travel of the carrier, means for cutting off from the veneer each portion so projected into a carrier-groove, a second coiling tape above the splints in the carrier-grooves, and a rotary coiling device with which the two tapes are connected, substantially as and for the purpose described.

17. In combination with a rotary wheel having a series of transverse splint-holding grooves, and a circumferential tape-receiving groove, a coiling tape, a support for a strip of veneer, means for feeding such veneer toward the grooved wheel, so that it will enter each transverse groove therein, as such groove is brought up opposite the veneer by the rotation of the wheel, cutting mechanism to cut the veneer close to the face of the wheel, each time that the veneer has been moved to cause it to enter a wheel-groove, and a coiling device with which the coiling tape is connected, substantially as and for the purpose described.

18. In combination with a rotary wheel having a series of transverse splint-holding grooves, a reciprocating head moving over the face of the wheel close thereto, a knife carried by such head, means for feeding a strip of veneer into the grooves of the wheel, and means for actuating the head to cause the knife to cut the veneer, after it has been fed into a groove in the wheel, substantially as and for the purpose described.

19. In combination with a rotary wheel having a series of transverse splint-holding grooves, means for feeding a strip of veneer into such grooves, as they are brought successively opposite a certain point, a head having its inner or under side close to the face of the wheel, a veneer-cutting knife on the head, and means for reciprocating the head in a curved path substantially concentric with the wheel, substantially as and for the purpose described.

20. In combination with a rotary wheel having a series of transverse splint-holding grooves and a circumferential coiling-tape-receiving groove, means for feeding a strip of veneer into the transverse grooves, as they are successively brought by the rotation of the wheel up to a certain point, a swinging frame moving in a path concentric with the wheel, means for swinging such frame back and forth, a head carried by each frame moving close to the face of the wheel, and a knife on each head having its edge moving close to the wheel-face and across the path of the veneer from the veneer-feeding means, a coiling tape passing through a part of the circumferential groove in the wheel, and coiling devices for taking the tape from the wheel and coiling it up, substantially as and for the purpose described.

21. In combination with a rotary wheel having a series of transverse splint-holding grooves, means for feeding a strip of veneer into such grooves as they are successively brought up to the path of the veneer by the rotation of the wheel, a head reciprocating in a path concentric with the face of the wheel, and having a plate-like extension carved in a line substantially concentric with the wheel-face, a cutter moving with the head, having its edge adapted to cut through the veneer close to the wheel-face, and means for reciprocating such head, substantially as and for the purpose described.

22. In combination with two rotary wheels having corresponding splint-holding grooves, means for feeding a strip of veneer into the grooves of the wheels as they are brought successively up to a given point, a reciprocating head moving close to the faces of the wheels, a transverse cutter on the head to cut the veneer after it has been fed into the wheel-grooves, a second cutter moving with the head, arranged to cut the splints in the wheel-grooves in two at a point between the wheels, and means for reciprocating the head, substantially as and for the purpose described.

23. In combination with a movable carrier having a series of transverse splint-holding grooves of a depth to receive and hold a splint, a table to support a sheet of veneer, a feed-roller to engage one side of the veneer upon the table, a second feed-roller to engage the other side of the veneer, journaled in a swinging weighted frame, gearing connecting the two rollers, means for rotating one of the rollers, and means for cutting across the sheet of veneer operating close to the face of the grooved carrier, so as to sever from the rest of the veneer the portion of the veneer seated transversely in any one of the carrier-grooves, substantially as and for the purpose described.

24. In a feed mechanism, the combination of a pair of rollers, a movable support for one roller, a projection connected with said support, and an eccentric journaled on the shaft of the other roller, and engaging said projection, substantially as and for the purpose described.

25. In combination with a movable carrier having a series of splint-holding grooves, a suitable table for supporting a sheet of veneer, having a projection alongside of the grooved part of the carrier, and a knife-edge-receiving groove in a plane close to the surface of the carrier, means for feeding the veneer over the table and into the carrier-grooves, as the latter are brought successively opposite the path of the veneer, and a cutting device having its knife-edge adapted to cut the veneer when fed into the grooves, and enter the groove in the table.

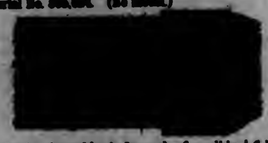
26. In combination with a suitable table for supporting a sheet of veneer, a movable carrier with splint-holding grooves, means for feeding the veneer to cause it to project into the carrier-grooves as they are brought successively opposite the end of the veneer, a knife and means for actuating it, the table having a portion projecting across the path of the knife provided with a groove for the entrance of the knife, that opens beyond the point to which the knife reaches on entering it, substantially as and for the purpose described.

27. In combination with a movable carrier having a series of transverse splint holding grooves, a table to support a strip of veneer having a portion extending across the path of the knife close to the face of the carrier and provided with a transverse knife-edge-receiving groove with one or more clearing-passages connected with its rear side, means for feeding a strip of veneer over the table and into the carrier-grooves, a reciprocating knife to cut the veneer, and means for removing such knife to cause it to pass into and from the groove in the table, substantially as and for the purpose described.

28. In combination with a movable carrier having splint-holding grooves, a cutter-carrying head, movable to and fro adjacent to the grooved surface of the carrier, a shield also adjacent to such surface, and a projection from the head into an opening in the shield, substantially as and for the purpose described.

29. In combination with a wheel having peripheral, splint-holding grooves, a veneer-feeding mechanism, a cutter-carrying head reciprocating adjacent to the periphery of and concentric with the wheel, a shield also adjacent to said periphery, a projection from the head into an opening in the shield, a tape and a tape-coiling spool, substantially as and for the purpose described.

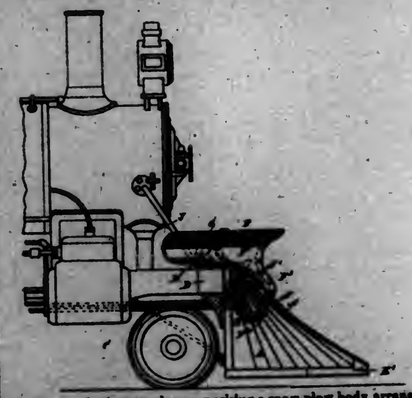
601,894. KNIT MITTEN. ISAAC W. LAMB, Perry, Mich., assignor to the Lamb Glove and Mitten Company, same place. Filed June 15, 1896. Serial No. 595,694. (No model.)



Claim.—1. A mitten-blank formed of a ribbed fabric having a main portion and a tip of a different rib style than the said main portion, the tip being formed by the stitches narrowed in all the courses at the inside, and with some of the stitches narrowed in the last courses and at the outside of the tip, substantially as shown and described.

2. A mitten-blank formed of a ribbed fabric having a main portion and a tip of a different rib style than the said main portion, the tip having stitches narrowed in all the courses at the inside of the tip and with some of the stitches narrowed in the last courses and at the outside of the tip, the meshes in all the courses being closer than those of the preceding courses, substantially as shown and described.

601,895. SNOW-PLOW. WILLIAM R. LLOYD, New York, N. Y. Filed Sept. 23, 1897. Serial No. 652,737. (No model.)



Claim.—1. A snow-plow comprising a snow-plow body arranged for extension over the pilot and formed near its upper end with an opening for the passage of the draw-bar, couplings, &c., and a movable cleaner on the upper portion of the said body and normally closing the said opening, the said cleaner being movable to uncover the said opening for passing the draw-bar and couplings through the said opening, substantially as shown and described.

2. A snow-plow provided with a body arranged for attachment to the pilot of the locomotive, a clearer fulcrumed on the upper portion of the said body and normally resting thereon, and means substantially as described, for locking the said clearer in place on the said body, substantially as set forth.

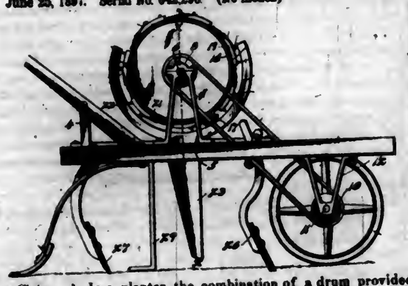
3. A snow-plow provided with a body extending over the pilot of the locomotive and provided at its lower end with a frame for connection with the pilot, the upper end of the said body being attached to the buffer-beam of the locomotive, and a clearer having wings standing at angles to each other and pivoted on the upper end of the said body, the said clearer normally resting on and being locked to the upper portion of the said body and arranged to swing out of engagement with the body to uncover an opening in the upper portion thereof for the passage of the draw-bar, couplings, &c., substantially as shown and described.

601,896. RUNNING-GEAR FOR RAILWAY-CARS. ARIARD J. LODRIGUES, Belle Rose, La. Filed Nov. 19, 1897. Serial No. 659,160. (No model.)



Claim.—In an improved truck for railway-cars the combination with the main cross-beam of the herein-described extension-bars 3, reinforced by twisted diagonal braces 2; the transverse bars 10 connecting the double series of extension-bars; the wheels provided with separate axles 16, journaled in antifriction-boxes 4; the rotatable block 8; the laterally-swinging coupling-bars 9 attached thereto; the bolster 5, supported at its ends and center by springs 6 and 7; the supplemental removable bolster 18, adapted to swing laterally as shown and provided at its ends with adjustable standards; all constructed and arranged substantially as and for the purposes herein specified.

601,897. PLANTER. EUGENE MICHOS, Grand Chenier, La. Filed June 25, 1897. Serial No. 642,296. (No model.)



Claim.—1. In a planter, the combination of a drum provided with a series of discharge-openings, a band encircling the drum and having a longitudinal slot and graduations at one side of the slot, and provided with openings corresponding with the said discharge-openings and a fastening projecting from the drum and operating in the longitudinal slot of the band and serving to retain the latter in a located position and to act jointly with the graduations to properly position the band with respect to the drum to secure the required size and form of discharge-openings, substantially as set forth.

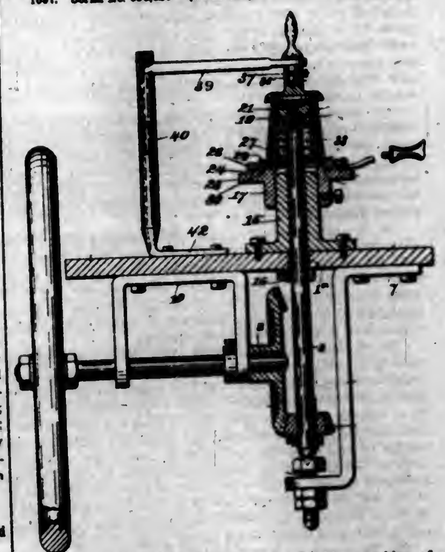
2. In a planter, the combination of a rotatable drum having a series of discharge-openings, a band encircling the drum and provided with a corresponding series of openings, and adjustable to vary the size of the openings, and a cut-off for each opening of the band applied directly thereto and movable therewith, substantially as set forth.

3. In a planter, the combination of a drum having a series of openings around its circumference, a band encircling the drum and having a corresponding series of openings, a cut-off for each opening of the band, and a spring for each cut-off to hold it either open or closed, substantially in the manner set forth for the purpose described.

4. In a planter, the combination of a drum having a discharge-opening, a cut-off for the said opening having a projection, and a spring disposed to engage with the projection to hold the cut-off open and to bear against the latter and hold it closed, substantially as set forth.

5. In a planter, the combination of a drum having a series of openings around its circumference, a band encircling the drum and having a corresponding series of openings, means for adjusting the band to vary the size of the openings and securing it when positioned, a cut-off for each opening of the band, and means for holding the cut-offs either open or closed, substantially as set forth.

601,898. MACHINE FOR FINISHING GLASSWARE. PATRICK J. MCDONOUGH and THOMAS H. SHELLY, Bellaire, Ohio. Filed Nov. 17, 1897. Serial No. 658,836. (No model.)



Claim.—1. The combination in a glass-finishing machine, of a bearing-sleeve, a collar having a circular groove and adjustable on the sleeve, means to adjust the collar, a ring having a tongue to engage said groove, and a gage-rim upon the opposite side of the ring from said tongue, as set forth.

2. A tumbler-supporting and gage ring for glass-finishing machines, comprising a lateral outer flange, an inner flange, a bottom tongue, a top rim, and a suitable handle, as set forth.

3. A split ring forming a bearing and a gage for an article in a glass-finishing machine, comprising an inner grooved flange, an outer flange a handle thereon a top gage-rim, and a tongue opposite the said rim, as set forth.

4. The combination of a sleeve forming a shaft-bearing, a collar adjustable on the sleeve, means to adjust the collar, and a rotatable tumbler-carrying gage-ring upon the top of the said collar, as set forth.

5. In a glass-finishing apparatus, the combination, with the driving mechanism having a vertical shaft, and the table supporting the same, of the driving-head detachably secured to said shaft, a bearing-sleeve having a flange secured to the table, a collar adjustable on the sleeve, means to adjust the collar, a hollow standard attached to the table, an arm having an angle portion to turn in said standard, and a disk-cup swiveled to the said arm, as set forth.

6. The combination with the shaft, the driving-head detachably secured to the shaft and means to drive the shaft, of a fixed sleeve forming a bearing for the shaft, a collar adapted to be adjusted on the sleeve to vary the distance between the driving-head and the collar, and means to adjust the collar, as set forth.

7. The combination with the shaft provided with a reduced shouldered end having a screw-threaded countersink, of a driving-head having a recessed or concaved top, and a bottom adapted to fit over the reduced end against said shoulder, means to drive the shaft, a fixed sleeve forming a bearing for the shaft, and a collar adapted to be adjusted on the sleeve to vary the distance between the driving-head and the collar, and means to adjust the collar, as set forth.

8. The combination with a vertical shaft having a driving-head, and means for operating the shaft, of the hollow standard having a stop projection, an angle-arm operated in said standard against the stop, and the disk-cup rotatably connected to said arm to hold an article of glassware upon the driving-head, as set forth.

9. The combination with the vertical shaft having a driving-head, and means for operating the shaft, of the fixed hollow standard having a portion cut away to form a stop, an angle-arm operated in the standard, a notched spindle secured to the standard, and a disk-cup having a hollow stem provided with a set-bolt engaging said spindle-notch to rotatably connect the cup to the angle-arm, as set forth.

601,899. VESTIBULE-CAR. THOMAS L. MCKEEN, New York, N. Y. Filed Nov. 1, 1897. Serial No. 657,074. (No model.)

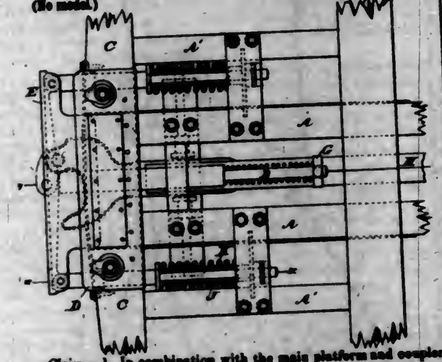


Claim.—1. In a vestibule-car, in combination with the buffer-platform, buffer-stems and face-plate E, the rod T, bracket U, spring W, washer V and cotter X, arranged at the top of the car, hood or case M surrounding the rear end of buffer-stem and confining the coil-spring P, cable Z, and eye-bolt R and adjusting-nut S, substantially as and for the purpose set forth.

2. The rod T in the upper portion of the vestibule adapted to reciprocate as described, in combination with the bracket U, spring W, washer V and cotter-pin X, whereby the outward movement of the rod T and face-plate is steadied and limited, substantially as hereinbefore set forth.

3. In combination with means at the upper portion of the vestibule for controlling the movement of the upper portion of the face-plate, a hood or case surrounding the rear end of the buffer-stem, a spring confined between the forward end of the hood or case and a follower on the buffer-stem, and a cable having one end attached to the plate-operating means in the top of the vestibule, and the other end adjustably connected to the hood or case surrounding the buffer-stem, substantially as hereinbefore set forth.

601,900. BUFFER-PLATFORM FOR RAILROAD-CARS. THOMAS L. MCKEEN, New York, N. Y. Filed Nov. 1, 1897. Serial No. 657,075. (No model.)



Claim.—1. In combination with the main platform and coupler, and the buffer-platform constructed with a central rear projection or lip M and side teats or pivots O, the central buffer-stem provided with a forwardly-extended lip, and the side buffer-stems with recesses or pockets corresponding with the pivots O, substantially as and for the purpose set forth.

2. In combination with the main platform D, coupler H and buffer-platform E, the central buffer-stem B turned downwardly and then at right angles, the eyebolt G secured to the coupler, and the spring J interposed between the vertical plane of the stem B and the face of the eyebolt G, substantially as and for the purpose set forth.

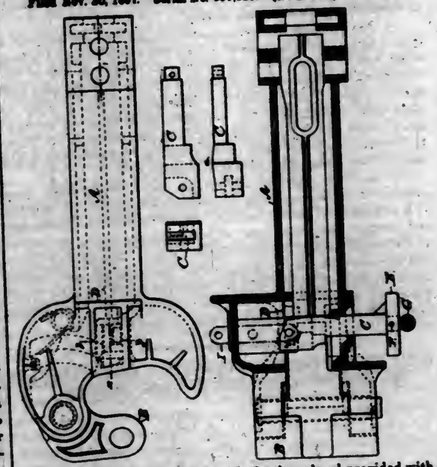
3. In combination with the main platform D, buffer-platform E, coupler H and central buffer-stem B, the side buffer-stems N, the brackets S, braces U and springs W and cotter-pins X, substantially as and for the purpose set forth.

4. In combination with the side sills A, A', side buffer-stems N, and springs R, the brackets S bridging the sills A, A' and braced against the cross-beam V by an intermediate brace-bar U, substantially as and for the purpose set forth.

5. In combination with the side stems N, brackets S, springs R, and cotter-pins X, the pantaloons-springs W, secured to the top plate of the brackets and bearing at their free ends against the vertical arm of the brackets, substantially as shown and described.

6. In combination with the side buffer-stems provided with collars F, and the brackets S formed with the extension-collars T, the coil-springs Q, R, pantaloons-springs W and cotter-pins X, substantially as and for the purposes set forth.

601,901. CAR-COUPLING. THOMAS L. MCKEEN, New York, N. Y. Filed Nov. 20, 1897. Serial No. 659,223. (No model.)

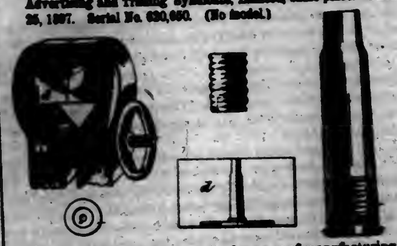


Claim.—1. In combination with the draw-head provided with a comparatively narrow vertical rearwardly-inclined channel, and the knuckle B constructed as described, the gravity locking-block C formed with a thickened upper portion, an attenuated lower portion, and adapted to be placed in operative position through the mouth of the draw-head and retained therein solely by the knuckle B, substantially as and for the purpose set forth.

2. In combination with a draw-head having the usual draft inclines resulting from drawing the cores from the boxes, a locking-block C tapered in both directions on one of its sides to correspond with the draft-lines in the draw-head, whereby the natural creeping tendency of the locking-block is prevented as hereinbefore set forth.

3. In combination with the draw-head A and knuckle B, the lock C provided with a removable shoe E, whereby the latter may be removed when assembling the parts, and then secured in position to constitute an extended contact-surface for the lock-lifting device, substantially as described.

601,902. CARTRIDGE-CASE AND PROCESS OF MAKING SAME. FREDERICK W. OLIVER, London, England, assignor to the Publishing, Advertising and Trading Syndicate, Limited, same place. Filed Jan. 26, 1897. Serial No. 620,660. (No model.)



Claim.—1. The herein-described process of manufacturing bodies for cartridge-cases from a waterproof compound composed of a por-

ous material impregnated with celluloid, which consists in first forming a tube of such compound, and then compressing the walls of the tube diametrically while heated to give it the interior and exterior conformation of the finished body.

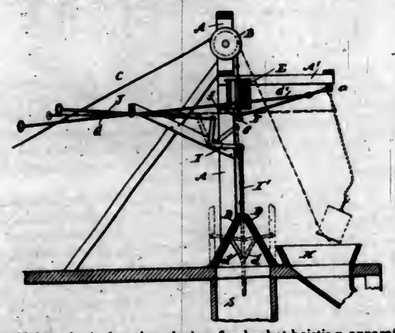
2. The herein-described process of manufacturing bodies for cartridge-cases from waterproof compound, which consists in first forming a tube of the compound, then compressing the walls of the tube diametrically while heated to give it the interior and exterior conformation of the finished body, and simultaneously by such diametrical pressure molding a screw-thread in one end of the body for the reception of a correspondingly-threaded cap or plug.

3. The herein-described process of manufactering bodies for cartridge-cases from a waterproof compound composed of a porous material impregnated with celluloid, which consists in first forming a tube of such compound, then compressing the walls of the tube diametrically while heated to give it the interior and exterior conformation of the finished body, and simultaneously by such diametrical pressure molding a screw-thread in one end of the body for the reception of a correspondingly-threaded cap or plug.

4. The herein-described process of manufacturing cartridge-cases from a waterproof compound composed of a porous material impregnated with celluloid, which consists in first forming a tube of such compound, then compressing the walls of the tube diametrically while heated to give it the interior and exterior conformation of the finished case, simultaneously by such diametrical pressure molding a screw-thread in one end of the body, and then softening the thread as described and introducing a correspondingly-threaded cap or plug molded from a compound containing celluloid.

5. As a new article of manufacture, the herein-described homogeneous cartridge-case having an integral waterproof body composed of a compound of porous material and celluloid molded under heat and pressure into shape, open at both ends and having an internal screw-thread molded in one end, and a cap or plug molded from a like compound, having a corresponding screw-thread, and screwed into and integrally united with the threaded end of the body by softening the substance of the plug and the substance of the body to cause their surfaces in contact to weld or intimately unite.

601,903. DUMP FOR ORE-BUCKETS. HECTOR PEPIN, Victor, Colo. Filed Nov. 29, 1897. Serial No. 660,069. (No model.)



Claim.—1. A dumping device for bucket-hoisting apparatus, comprising a bail or knob suspended from the bottom of the bucket by a short chain or similar connector, and a lever pivoted at one side of the bucket and terminating at its outer end in a fork or yoke which narrows at its extremity, said lever being adapted to be swung beneath the bucket when it is raised, and to embrace the knob suspended from the bucket, substantially as described.

2. A dumping device for bucket-hoisting apparatus, comprising a bail or knob suspended from the bottom of the bucket by a short chain or similar connector, a lever pivoted at one side of the bucket and terminating at its outer end in a fork or yoke which narrows at its extremity, said lever being adapted to be swung beneath the bucket when it is raised and to embrace the knob suspended therefrom, and a hand lever connected with said swinging lever, to control it, substantially as described.

3. A dump for bucket-hoisting devices, comprising a knob suspended from the bottom of the bucket, a lever pivoted at one side of the bucket, having a fork or yoke which narrows to a point at its outer end, said lever being adapted to swing beneath the bucket when it is raised and to embrace the knob suspended therefrom, and a hopper located beneath said lever to receive the contents of the bucket, substantially as described.

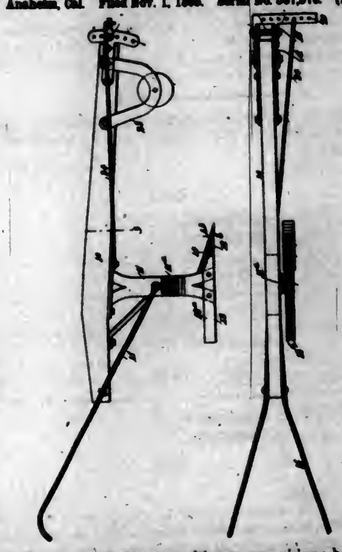
4. A dump for bucket-hoisting devices, comprising a ball or knob suspended from the bottom of the bucket, a lever pivoted at one side of the bucket, having a fork or yoke which is narrow at its outer extremity, said lever being adapted to swing beneath the bucket when it is raised and to embrace the knob suspended therefrom, trap-doors hinged at the upper end of the shaft and at opposite sides thereof, and levers by which said doors may be opened or closed, substantially as described.

5. A dump for bucket-hoisting devices, comprising a ball or knob suspended from the bottom of the bucket, a lever pivoted at one side of the bucket, having a fork or yoke which is narrow at its outer extremity, said lever being adapted to swing beneath the bucket when it is raised and to embrace the knob suspended therefrom, trap-doors hinged at the upper end of the shaft and at opposite sides thereof, levers by which said doors may be opened or closed, and a hopper located beneath said swinging lever to receive the contents of the bucket, substantially as described.

6. A dump for bucket-hoisting devices, comprising a ball or knob suspended from the bottom of the bucket, a dumping-lever pivoted at one side of the bucket and having a fork or yoke which at its outer extremity is narrow, said lever being adapted to swing beneath the bucket when it is raised and to embrace the knob suspended therefrom, trap-doors hinged on opposite sides of the shaft and adapted to meet above the shaft to form an A-shaped cover therefor, links pivoted to said doors and to each other to form a toggle-joint, and levers connected to the center of said toggle-joint to operate the doors, substantially as described.

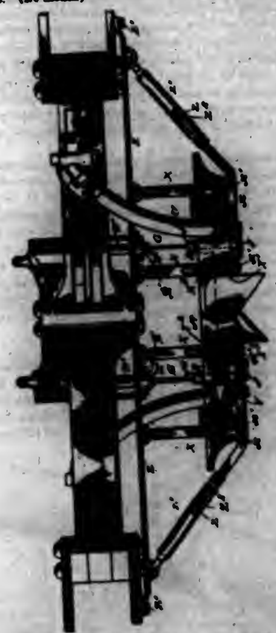
7. A dump for bucket-hoisting devices, comprising a ball or knob suspended from the bottom of the bucket, a dumping-lever pivoted at one side of the bucket and having a fork or yoke which at its outer extremity is narrow, said lever being adapted to swing beneath the bucket when it is raised and to embrace the knob suspended therefrom, trap-doors hinged on opposite sides of the shaft and adapted to meet above the shaft to form an A-shaped cover therefor, links pivoted to said doors and to each other to form a toggle-joint, levers connected to the center of said toggle-joint to operate the doors, and a hopper located beneath said dumping-lever to receive the contents of the bucket, substantially as described.

601,904. MACHINE FOR DIGGING BEETS. LYMAN PIER, Anaheim, Cal. Filed Nov. 1, 1897. Serial No. 657,576. (No model.)



Claim.—A beet digger or cultivator, comprising a beam, a standard bent intermediate its upper and lower ends so as to provide a lower vertical portion located at one side of the vertical plane of the beam and traveling beneath the soil, parallel horizontal plates secured to the opposite sides of the bottom of the standard and extending longitudinally in front and rear thereof, said plates being connected at their forward ends by an inclined and integral connecting-plate, and an inclined point of substantially rectangular shape having plane upper and lower surfaces and straight from its front to its rear edge, said point being bolted to the connecting portion of the parallel plates, substantially as described.

601,905. AUTOMATIC AIR AND STEAM BRAKE COUPLING. WILLIAM J. PUGH, Muscatine, Iowa, assignor to the Walker Automatic Air Coupler Company, Charleston, W. Va. Filed June 20, 1897. Serial No. 642,575. (No model.)



Claim.—1. In an automatic fluid-pressure coupling, the combination of the opposite similar interlocking heads, each having a female portion and a hollow male portion, a jointing-plug in the male portion, springs for moving the jointing-plug outward; an air-passage in the head, a valve in said air-passage; and a rod for operating said valve projecting forward in the female portion and adapted to engage the end of the male portion of the opposite coupling so as to open the valve when the heads interlock, and so as to close the valves when the heads disengage; and means for disengaging said rod from the male portion of the heads after the valve is closed, substantially as and for the purpose described.

2. In an automatic fluid-pressure coupling, the combination of the opposite similar interlocking heads each having a male and female portion substantially as described; an air-passage in the male portion, a jointing-plug in the male portion communicating with said air-passage, a rotary valve in said passage, a hooked rod for turning said valve projecting into the female portion and adapted to engage a hook on the end of the male portion of the opposite coupling; and a bevel for causing the rod to disengage the male portion after the valve is closed, substantially as and for the purpose described.

3. In an automatic fluid-pressure coupling, the combination of the opposite similar interlocking heads, each having a hollow male portion, a jointing-plug in the male portion, springs for moving the jointing-plug outward, a flexible pipe connection between the jointing-plugs and air-passage in the head; a valve in said air-passage; and a rod for operating said valve projecting forward in the female portion and adapted to engage the end of the male portion of the opposite coupling so as to open the valve when the heads interlock, and so as to close the valves when the heads disengage; and means for disengaging said rod from the male portion of the heads after the valve is closed; and means for separating the jointing-plugs laterally, as the heads separate, all substantially as and for the purpose set forth.

4. In an automatic fluid-pressure coupling, the combination of the interlocking heads, the air-passages therein, the valves in said passages, and means for operating said valves substantially as described; with a sliding plate of valve adapted to close the outlet of the air-passage in the heads when they are disconnected to prevent the entrance of dust, &c., substantially as and for the purpose described.

5. In an automatic fluid-pressure coupling the combination of the interlocking heads, each having a male and female portion substantially as described, an air-passage in the male portion, a jointing-plug in the male portion communicating with the air-passage, a valve in said air-passage and means for operating said valve; with a sliding valve or cover for the outlet in the jointing-plug, means for moving it out of the way when the heads are coupled, and for moving it back to place when the heads are disengaged, substantially as described.

6. In an automatic fluid-pressure coupling the combination of the opposite similar interlocking heads, each having a hollow male portion communicating with the air-passage, a valve in said air-passage, a sliding cover for the outlet of the air-passage, and connections between said cover and valve whereby when the valve is opened the cover is withdrawn, substantially as and for the purpose described.

7. In an automatic fluid-pressure coupling, the combination of the interlocking similar heads each having a hollow male portion, a jointing-plug therein communicating with the air-passage in the body of the head, a main valve in said passage, a sliding valve or cover for the outlet of the plug; a sliding rod for operating said main valve having a pin engaging a slotted lug in said cover, whereby when the valve is opened the cover is drawn out of the way, all substantially as and for the purpose set forth.

8. In an automatic fluid-pressure coupling, the combination of the opposite similar interlocking heads each having a male and female portion substantially as described, an air-passage in the male portion, a jointing-plug in the male portion communicating with said air-passage, a rotary valve in said passage, a hooked rod for turning said valve projecting into the female portion and adapted to engage a hook on the end of the male portion of the opposite coupling; and a bevel for causing the rod to disengage the male portion after the valve is closed; with a valve for closing the outlet of the jointing-plug, and connections substantially as described, between said cover-valve and the said rod, all substantially as and for the purpose set forth.

9. In an automatic fluid-pressure coupling, the combination of the head provided with an air-passage, a valve therein a rod for operating said valve adapted to be actuated by the opposite head substantially as described, a spring adapted to open said valve if the heads are pulled apart accidentally, and means substantially as described, for keeping said spring out of action while the parts are in normal condition, for the purpose and substantially as described.

10. In an automatic fluid-pressure coupling, the combination of the head provided with an air-passage, a valve therein, mechanism for opening and closing said valve automatically by the action of the opposite head in coupling and uncoupling; with means substantially as described, for automatically opening said valve if the heads are pulled apart because of accident, substantially as and for the purpose described.

11. In an automatic fluid-pressure coupling, the combination of the head provided with an air-passage, a valve therein, mechanism for opening and closing said valve automatically by the action of the opposite head in coupling and uncoupling; with means substantially as described, for automatically opening said valve if the heads are pulled apart because of accident, and means substantially as described for keeping said means out of operative position when the parts are in normal working condition, for the purpose and substantially as described.

12. In an automatic fluid-pressure coupling, the combination of the opposite similar heads each having a hollow male portion provided with an air-passage, a valve therein, the hooked rod as E for operating said valve adapted to be actuated by the opposite head; a spring H adapted to open said valve should the heads be accidentally pulled apart; a rod F adapted to prevent said spring engaging rod E when the parts are in normal working condition or relation; and a vertically-movable bar *f*, adapted to engage and shift rod F so as to cause it to throw spring H out of operative position when the devices are to be uncoupled in ordinary working, substantially as and for the purpose set forth.

13. In an automatic fluid-pressure coupling, the combination of the coupling-head having an air-passage, a rotary valve therein, a rod as E for operating said valve, a spring H adapted to engage rod E to open said valve; and a rod as F lying beside rod E and adapted to prevent spring H engaging the latter, for the purpose and substantially as described.

14. In an automatic fluid-pressure coupling, the combination of the coupling-head having an air-passage, a rotary valve therein, a rod as E for operating said valve, a spring H adapted to engage rod E to open said valve; and a rod as F lying beside rod E and adapted to prevent spring H engaging the latter; and the beveled bar *f* adapted to shift rod F so as to cause it to control spring H as described; with the locking-pin of the draft draw-bar, the clutch pivoted thereto, and the rod sliding through said clutch and connected to bar *f*, whereby bar *f* is raised with the locking-pin, all substantially as and for the purpose set forth.

15. The combination of the head having hollow male portion A^2, and female portion A', with the spring retracted plug B in part A', a flexible connection between said plug and an air-passage in the body

of the head, the valve D in said air-passage, the plate D' and hooked rod E for operating said valve, all substantially as and for the purpose described.

16. The combination of the head having hollow male portion A^3, and female portion A', with the spring-retracted plug B in part A', a flexible connection between said plug and an air-passage in the body of the head, the valve D in said air-passage, the plate D' and hooked rod E for operating said valve; with the sliding cover-valve c, having lug c' engaged by a pin on rod E, all substantially as and for the purpose described.

17. The combination of the head having hollow male portion A^3, and female portion A', with the spring-retracted plug B in part A', a flexible connection between said plug and an air-passage in the body of the head, the valve D in said air-passage, the plate D' and hooked rod E for operating said valve; with the spring H, the double-beveled rod F for throwing said spring out of engagement with rod E, and means for operating rod F, all substantially as and for the purpose set forth.

18. The combination of the head having hollow male portion A^3, and female portion A', with the spring-retracted plug B in part A', a flexible connection between said plug and an air-passage in the body of the head, the valve D in said air-passage, the plate D' and hooked rod E for operating said valve; with the spring H adapted to engage rod E and close the valve, the spring-actuated double-beveled rod F underlying spring H and adapted to throw it out of engagement with rod E, and means for properly shifting rod F, all substantially as and for the purpose described.

19. The herein-described packing-ring b, having lateral flanges b^2, provided with flaring flange b^3, for the purpose and substantially as described.

20. The herein-described packing-ring b^5, for the purpose described, having lateral flanges b', b^2, at its ends, and a flaring flange b^3 on the edge of flange b^2, substantially as described.

21. The combination of the draw-bar, the plate Z suspended thereunder, the pair of swinging shackles X, X, suspended from said plate, the bars x connecting the shackles, the telescoping plunger and tube connecting bars x to the plate, and the cushioning-spring in the tube; with the fluid-pressure coupling supported in said shackles, and the bolts X' thereon engaging slots X^2 in the front shackle, all substantially as and for the purpose set forth.

22. The combination of the opposite heads A each having a hollow male portion as A^3 and female portion as A' substantially as described; a valve D in the hollow passage in part A^3, an angular plate D' on the valve D, and a spring D^2 pressing against the edge of said plate for throwing and holding the valve fully open or closed, all substantially as described.

23. The combination of the head having hollow male portion A^3, and female portion A', with the spring-retracted plug B in part A', a flexible connection between said plug and an air-passage in the body of the head, the valve D in said air-passage, the plate D' and hooked rod E for operating said valve, and the spring D^2 bearing against the edge of said plate to throw and hold the valve fully open or closed, all substantially as and for the purpose described.

601,906. WATER-MOTOR. ELI A. RUDASILL, Shelby, N. C. Filed June 22, 1897. Serial No. 641,784. (No model.)



Claim.—1. A water-motor, comprising a lever pivoted near its middle, and having buckets pivoted to the ends thereof, water-conveying spouts adapted to deliver water alternately to said buckets, and bars pivoted near one end to each other, and at their other ends respectively pivoted to a fixed point and secured to the bucket, to turn the latter upon its pivot, substantially as described.

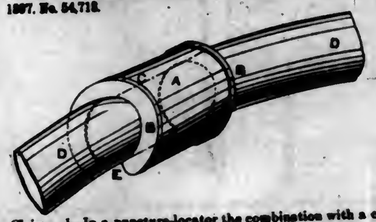
2. A water-motor, comprising a lever pivoted near its middle, and having buckets pivoted to the ends thereof, water-conveying spouts carried upon the said lever, extending from said buckets upwardly and toward the center of the motor, a water-delivery pipe discharging into the said conveying-pipes above the lever-pivot, two bars pivoted at one end to each other, and at their other ends respectively connected to a bucket and pivoted to a fixed point, substantially as shown and described.

3. A water-motor comprising a lever pivoted near is middle and having buckets pivoted to the ends thereof, water-conveying pipes adapted to deliver the water alternately to said buckets, and bars adjustably pivoted at one end to each other by means of slots and a pivot-bolt, and at their other ends respectively fixed to a bucket-pivot and pivoted to a fixed point, substantially as described.

4. A water-motor comprising a lever pivoted near its middle and having buckets pivoted to the ends thereof, water conveying spouts adapted to deliver water alternately to said buckets, a segment-gear fixed to the lever at its pivot, a rack mounted to reciprocate and meshing with said gear, and bars pivoted near one end to each other, and at their other ends respectively pivoted to a fixed point and secured to the bucket, to turn the bucket upon its pivot, substantially as described.

5. A water-motor comprising a lever pivoted near its middle and having buckets pivoted to the ends thereof, said buckets being mainly cylindrical but having two tangential faces, one of which is open, water-conveying spouts carried upon said lever, extending from said buckets upwardly and toward the center of the motor, a water-delivery pipe discharging into said conveying-pipes above the lever-pivot, and two bars pivoted at one end to each other and at their other ends connected respectively to the buckets and pivoted to a fixed point, whereby the buckets are adapted to be tipped to empty them at the limit of their downward swing, substantially as described.

601,907. APPLIANCE FOR INDICATING POSITION OF PUNCTURES IN PNEUMATIC TIRES. RICHARD J. SOWDEN, Manchester, England. Filed Dec. 22, 1896. Serial No. 616,693. (No model.) Patented in England June 24, 1896, No. 14,017; in Belgium Dec. 22, 1896, No. 126,294; in Italy Dec. 22, 1896, No. 50,767, and in Canada Jan. 23, 1897. No. 54,718.



Claim.—1. In a puncture-locator the combination with a casing of transparent material adapted to grasp the tire, of end pieces connected to and supporting said casing free of the tire, and a suitable material applied to the transparent surface of the casing and adapted to be displaced by a leakage of air from the tire, substantially as described.

2. An appliance for locating or indicating the position of a puncture or small hole in a pneumatic tube or tire comprising an exterior transparent casing A fitted into horseshoe-shaped ends B with an inner edge to embrace the tube or tire forming a chamber C to contain a light material capable of being displaced by a fine spray or jet of air.

3. In an appliance for locating or indicating the position of a puncture or small hole in a pneumatic tube or tire the combination of the outer transparent casing A provided with a slit or slot E along one side horseshoe shaped ends B into which the transparent casing A is fitted the inner edges of which embrace and fit against the tube or tire D forming a chamber C and fine light material inserted in the chamber to be displaced by a fine spray or jet of air.

601,908. MACHINE FOR GRAINING LUMBER. HUGH SILVER, Lindsay, Canada. Filed Mar. 1, 1897. Serial No. 626,062. (No model.)

Claim.—1. In a machine for graining lumber, a design-roller having its surface formed of a thin sheet of basswood bent around a roller with the fiber running in the direction of the bend, a continuous grain pattern being indented in the surface of the wood, whereby said roller may be rotated several times so as to make no "break" in the grain impression, in combination with a composition printing-roller adapted to revolve in contact with the said design-roller, substantially as and for the purpose specified.

2. In a machine for graining lumber, a design-roller having its surface formed of a thin sheet of basswood bent around a roller with the fiber running in the direction of the bend, a continuous grain pattern being indented in the surface of the wood, whereby said roller may be rotated several times so as to make no "break" in the grain impression, and means for continuously inking the said roller, in combination with a composition printing-roller adapted to revolve in contact with the said design-roller and a pressure-roller adapted to press the lumber against the said printing-roller, substantially as and for the purpose specified.

3. In a machine for graining lumber, a design-roller having its surface formed of a thin sheet of basswood bent around a roller with the fiber running in the direction of the bend, a continuous grain pattern being indented in the surface of the wood, whereby said roller may be rotated several times so as to make no "break" in the grain impression, a paint-fount within which the said roller revolves, and a scraper adapted to remove surplus paint from the surface of the roller, in combination with a composition printing-roller adapted to revolve in contact with the said design-roller and a pressure-roller adapted to press the lumber against the said printing-roller, substantially as and for the purpose specified.

4. In a machine for graining lumber, a design-roller having its surface formed of a thin sheet of basswood bent around a roller with the fiber running in the direction of the bend, a continuous grain pattern being indented in the surface of the wood, whereby said roller may be rotated several times so as to make no "break" in the grain impression, a paint-fount within which the said roller revolves, and a scraper adapted to remove surplus paint from the surface of the roller, in combination with a composition printing-roller adapted to revolve in contact with the said design-roller; a pressure-roller adapted to press the lumber against the said printing-roller, and a scraper adapted to remove the pattern from the surface of the printing-roller at a point after it has operated on the lumber and before a fresh impression is received from the design-roller, substantially as and for the purpose specified.



5. In a machine for graining lumber, a design-roller bearing a grain pattern, a paint-fount within which the said roller revolves, and a scraper adapted to remove surplus paint from the surface of the roller, in combination with a composition printing-roller adapted to revolve in contact with the said design-roller; a U-shaped scraper adapted to remove the pattern from the surface of the printing-roller at a point after it has operated on the lumber and before a fresh impression is received from the design-roller; a pressure-roller journaled on arms, each pivoted at one end to the frame of the machine and resting at the other upon an adjustable support, and springs adapted to hold down the said arms, substantially as and for the purpose specified.

6. In a machine for graining lumber, a design-roller bearing a grain pattern and carried in bearings longitudinally adjustable on the frame; a paint-fount within which the said rolleŕ revolves, and a scraper adapted to remove surplus paint from the surface of the roller, in combination with a composition printing roller adapted to revolve in contact with the said design-roller; a U-shaped scraper adapted to remove the pattern from the surface of the printing-roller at a point after it has operated on the lumber and before a fresh impression is received from the design-roller; a pressure-roller journaled on arms, each pivoted at one end to the frame of the machine and resting at the other upon an adjustable support, and springs adapted to hold down the said arms, substantially as and for the purpose specified.

7. In a machine for graining lumber, a design-roller bearing a grain pattern in intaglio, in combination with a flexible-supported scraper having its edge curved in a vertical plane and a strip of flexible material connected thereto, substantially as and for the purpose specified.

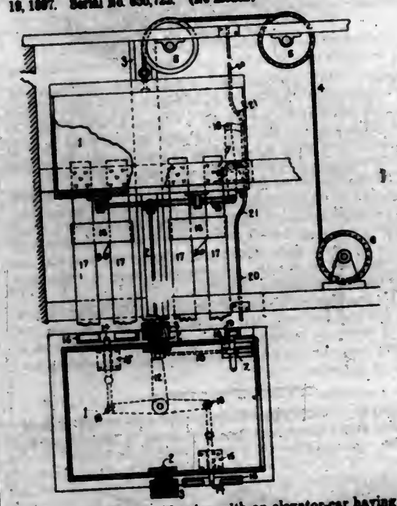
8. A frame for a machine of the class described provided with a table B; adjustable bearings E, for a design-roller; bearings c, for a printing, painting or sizing roller; bearings a, for a guide-roller; bearings A, for a rotary brush and the cross-bar O, adapted to carry a brush, substantially as and for the purpose specified.

9. A frame for a machine of the class described, provided with a table B; adjustable bearings E, for a design-roller; bearings c, for a printing, painting or sizing roller; bearings a, for a guide-roller; bearings A, for a rotary brush; the cross-bar O, adapted to carry a brush, and the notched cross-bar F, substantially as and for the purpose specified.

10. A frame or machine of the class described, provided with a table B, adjustable bearings E for a design-roller, bearings c for a printing, painting or sizing roller, bearings a for a guide-roller and fount-supports located below the bearings E and c, substantially as described.

11. A design-roller having its surface formed of a thin sheet of basswood bent around the roller with its grain running in the direction of the bend, a continuous grain pattern being indented in the surface of the wood, substantially as and for the purpose specified.

601,909. ELEVATOR. RUDOLPH C. SMITH, Yonkers, N. Y., assignor of one-half to James Gruickshank, Kingston, N. Y. Filed Oct. 19, 1897. Serial No. 655,723. (No model.)



Claim.—1. The combination with an elevator-car having a projecting part, of an elevator-shaft in which said car moves, slideways supported in tension by said elevator-shaft, and the normally stationary clamps on said slideways to be engaged by said projecting part of the car structure, the portion of the slideways below said clamps being proportioned to resist the motion of the clamps and the latter being slidable by abrading the slideways, as described.

2. The combination of an elevator-car having movable dogs with an elevator-shaft in which said car moves, slideways supported in tension by said elevator-shaft, clamps normally stationary on said slideways and in the path of the movable dogs but slidable by abrasion on said slideways, and means to keep the dogs from striking the stop-clamps when the car travels at a safe speed, as described.

3. The combination of an elevator-car having movable dogs, with an elevator-shaft in which said car moves, slideways supported in tension by said elevator-shaft, stop-clamps normally stationary on said slideways, and in the path of the movable dogs, but slidable by abrasion on said slideways, means for keeping the dogs from striking said clamps when the car travels at a safe speed, and a compulsory track for maintaining said dogs in a normally outward position, as described.

4. The elevator-car, the movable dogs carried thereby, and mechanism for operating said dogs, combined with suspended slideways located in the elevator-shaft and arranged in pairs, and the stop-clamps encompassing said slideways and normally stationary thereon, the inner surfaces of said clamps being serrated and said slideways below the normal stationary position for said clamps being of greater cross-section than at said clamps; substantially as set forth.

5. The elevator-car, the movable dogs carried thereby, the lever mechanism for operating said dogs, and the stationary rail for said lever mechanism, the said rail having an outward curve at a definite

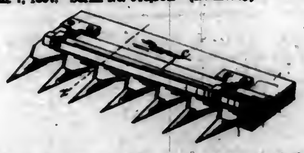
point, combined with the suspended slideways in the elevator-shaft, and stop-clamps on said slideways and in the path of said dogs when the latter are in their normal outward position, said slideways having a greater cross-section below than at said stop-clamps; substantially as set forth.

6. The car having a projecting arm, combined with a vertical slideway suspended in the elevator-shaft, and a stop-clamp on said slideway and normally stationary thereon and in the path of said projecting arm; substantially as set forth.

601,910. PAINT. TAYLOR STEPHENSON, Manning, Iowa. Filed Sept. 7, 1897. Serial No. 650,814. (No specimens.)

Claim.—A paint composed comprising oil, gum-asphaltum, rosin, wax, gum-arabic, shellac, litharge, sulfate of zinc and gum-amber, substantially in the proportions specified.

601,911. MOWING-MACHINE. HENRY R. STERLING, Barton, Ark. Filed Jan. 7, 1897. Serial No. 618,361. (No model.)

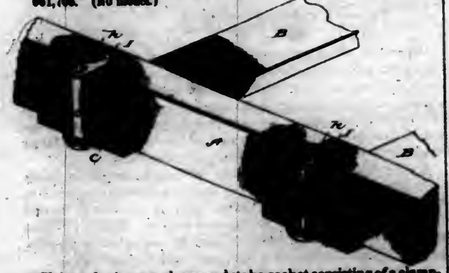


Claim.—1. In a machine of the character described, the combination with the cutter-bar, of knives carried thereby, bolts and nuts for securing said knives upon the bar, a locking member adapted to prevent displacement of said nuts, and gripe carried by the frame of the machine for holding the cutter-bar in position, and the locking member in engagement with the nuts, substantially as described.

2. In a machine of the character described, the combination with the cutter-bar, of knives carried thereby, bolts and nuts for securing said knives upon the bar, a locking member consisting of a casing adapted to inclose said nuts and prevent their displacement, and gripe carried by the frame of the machine and adapted to retain said casing and cutter-bar in position and permit the same to reciprocate therethrough, substantially as described.

3. The combination with a plurality of nuts, of a casing comprising top, side and end walls and adapted to inclose said nuts, and divided by transverse partitions in compartments of such size as to receive two nuts, whereby the same are prevented from rotating, substantially as described.

601,912. COMBINED FRAME-BRACE AND STAKE-SOCKET. LORENZO STOWE, Chattanooga, Tenn. Filed Dec. 13, 1897. Serial No. 661,702. (No model.)



Claim.—1. A wagon-brace and stake-socket consisting of a clamping member adapted to support and clamp the cross-piece to the side sill or side-board of the wagon-frame, a stake-socket member, and a bolt adapted to connect said members together and to the side sill or side-board, substantially as described.

2. A wagon-brace and stake-socket, consisting of a clamping-plate provided with parallel end flanges, a socket member having flanges, and a bolt adapted to be passed through the flanges on the socket member and body of the clamping-plate, substantially as described.

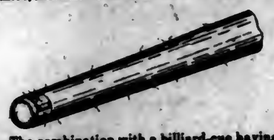
3. A wagon-brace and stake-socket, consisting of a clamping-plate provided with parallel end flanges formed with spurs or projections, a socket member having flanges, and a bolt adapted to be passed through the flanges on the socket member and body of the clamping-plate, substantially as described.

4. A wagon-brace and stake-socket, consisting of a clamping-plate provided with a bolt-hole and parallel end flanges having lugs or projections, a vertical socket member provided with top and bottom flanges having alined bolt-holes, and a bolt adapted to be passed through the said holes in the socket-flanges and clamping-plate, substantially as described.

5. A wagon-brace and stake-socket, consisting of a cross-piece clamp provided with parallel end flanges each having a lug or projection, a socket member, and a bolt adapted to connect the said clamp and socket member.

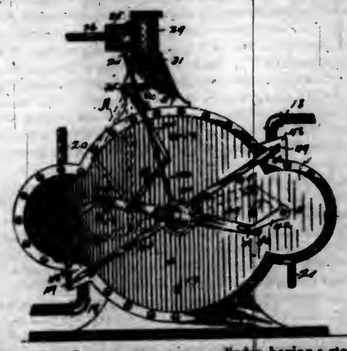
6. In a wagon, the combination with a side sill or board and bottom cross-piece, of a clamping-plate supporting the end of the cross-piece and provided with end flanges engaging the side edges of said cross-piece and having lugs or projections entering recesses in the under side of the side sill or board, a vertical socket member on the exterior of said sill or board and provided with flanges lapping over upon the top and bottom edges of the same, and a bolt extending through the side sill or board, socket-flanges and body of the clamping-plate and connecting said parts together, substantially as described.

601,918. TIP-FASTENER FOR BILLIARD-CUES. PEYTON B. TARVIN, Ardmore, Ind. Ter. Filed May 21, 1897. Serial No. 637,637. (No model.)



Claim.—The combination with a billiard-cue having longitudinal cavities ending in a reduced portion, and a cue-tip having a peripheral groove and a neck of equal diameter to said reduced portion, of means for fastening the tip to the cue comprising two separate arms each being secured in the said cavities, and having movable ends, and a set-screw passing through the movable ends and through the cue, said movable ends being tapered and provided with lateral wings to hug the tip-neck and said reduced portion, one edge of the wings bearing against a shoulder of the cue and the other end forming a bearing for the tip, and having a lip to engage the said tip-groove, as set forth.

601,914. ROTARY ENGINE. WILLIAM D. THOMAS, Allegheny, Pa. Filed Apr. 12, 1897. Serial No. 631,864. (No model.)



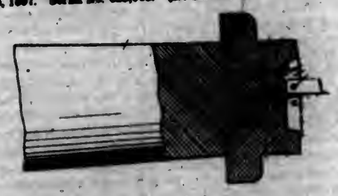
Claim.—1. In a rotary motor, a cylinder having a steam chest provided with inlet-valves, a power-wheel mounted upon a driving-shaft, rocker-valves mounted within said cylinder, a steam-chest and cylinder, arranged above the main cylinder, and eccentric connections from the driving-shaft to the inlet-valves and to the steam-chest above the main cylinder whereby the inlet-valves are automatically opened and closed, a beam swiveled to the cylinder-head, the ends of said beam being pivotally secured to the rocker-lever and crank-arms, connections between the piston operating in the cylinder above the main cylinder and the said beam, whereby said rocker-valve is made to perform two operations at one stroke of the piston, and permit the uninterrupted movement of the power-wheel, substantially as shown and described.

2. In a rotary motor, a cylinder, a power-wheel mounted upon a driving-shaft in said cylinder, said power-wheel having abutments, rocker-arms mounted in the cylinder, a steam-chest and cylinder arranged above the main cylinder, a piston operating in said cylinder, a beam swiveled on the cylinder-head, the ends of said beam being pivotally secured to the rocker-lever and crank-arms, connections between said piston and the said beam, whereby said rocker-arms are permitted to perform two complete operations at one stroke of the piston, a ring or plate secured to the cylinder-head, a steam-chest and inlet-valves for said main cylinder, and eccentric connections from the driving-shaft with the inlet-valves, and the valves controlling the steam-chest above the main cylinder whereby the inlet-ports are automatically opened and closed, and the rocker-arms are operated so as to permit the uninterrupted movement of the power-wheel, substantially as shown and described.

3. In a rotary motor, a cylinder, having a steam-chest provided with inlet-valves, a power-wheel mounted upon a driving-shaft, rocker-valves mounted within said cylinder, a steam-chest and cylinder arranged above the main cylinder, and eccentric connections from the driving-shaft to the inlet-valves and to the steam-chest above the main cylinder, whereby the inlet-valves are automatically opened and closed and the rocker-valves operated to permit the uninterrupted movement of the power-wheel, substantially as shown and described.

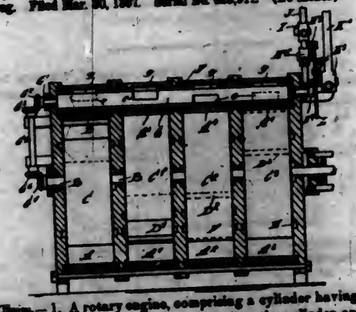
4. In a rotary motor, a cylinder and a power-wheel mounted upon a driving-shaft in said cylinder, said power-wheel having abutments, rocker-valves mounted in the cylinder, a steam-chest and cylinder arranged above the main cylinder, a ring or plate secured to the cylinder-heads, a steam-chest and inlet-valves for said main cylinder, and eccentric connections from the driving-shaft with the inlet-valves and the valve controlling the steam-chest above the main cylinder, whereby the inlet-ports are automatically opened and closed, and the rocker-arms are operated so as to permit the uninterrupted movement of the power-wheel, substantially as shown and described.

601,915. NUT-LOCK. JOHN B. TOWNSEND, Denver, Colo. Filed Mar. 5, 1897. Serial No. 626,963. (No model.)



Claim.—The combination with a threaded object, and a nut designed to fit thereon, of a pair of dogs pivotally mounted in a diametrical groove in the extremity of said object and projecting radially beyond the outer threaded surface thereof, said dogs being adapted to fold entirely within the plane of the nut, the nut having in its outer face oppositely-located notches terminating short of the outer edges of the same and adapted to receive said dogs wholly within the plane of the nut, and means for holding said dogs in either their operative or inoperative positions, substantially as described.

601,916. ROTARY ENGINE. CLARENCE W. TRIPLETT, Leland, Oreg. Filed Mar. 20, 1897. Serial No. 628,911. (No model.)



Claim.—1. A rotary engine, comprising a cylinder having an internal offset provided with ports leading into the cylinder and with ports each connected with a pipe leading to a valve controlling the admission of the motive agent, a piston arranged concentric in the cylinder and having its peripheral face in contact with the offset at or near the middle thereof, piston-heads fitted to slide in the piston, a hollow reversing-valve mounted in the offset and provided with oppositely-arranged pairs of ports, a revoluble valve in the reversing-valve and provided with a port in its periphery, means for operating said revoluble valve from the shaft of the piston and means for simultaneously operating the reversing-valve and the valve controlling the admission of the motive agent, substantially as described.

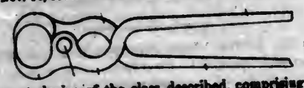
2. A rotary engine, comprising a cylinder having an internal offset containing the ports *a*, *b*, *h*, *i*, a piston arranged concentric in the cylinder and having its peripheral surface in contact with the said offset, piston-heads mounted to slide in the piston, a hollow reversing-valve mounted in the offset of the cylinder and provided with oppositely-arranged ports *c*, *f*, *d*, *g*, a revoluble valve in the reversing-valve and operated from the piston-shaft, said valve being provided with a port *e* in its periphery, substantially as described.

3. A rotary engine, comprising a series of cylinders, each having an internal offset containing the ports *a*, *b*, *h*, *i*, pistons arranged in the said cylinders and having their peripheral surfaces in contact with the said offsets, piston-heads fitted to slide in the piston and set at quarter-turns relatively one to the other, the hollow reversing-valve F having ports *e f d g*, and the revoluble valve G mounted in the valve F and driven from the piston-shaft, said valve being provided with peripheral ports set in quarter-circle, substantially as described.

4. In a rotary engine, the combination with a cylinder having an internal offset provided with ports, a piston in the cylinder and having its periphery in contact with the offset, piston-heads extending in the piston, a hollow reversing-valve, and a revoluble valve mounted in the reversing-valve, of a branch supply-pipe connected with ports in the offset, a valve in said supply-pipe, an exhaust-pipe, a valve in the exhaust-pipe, and means for simultaneously operating the valves in the supply and exhaust pipes and the reversing-valve, substantially as described.

5. In a rotary engine, the combination with a cylinder having an internal offset provided with ports, a piston in the cylinder and having its periphery in contact with the said offset, piston-heads sliding in the piston, a hollow reversing-valve, and a revoluble valve in the reversing-valve, of the supply-pipe J, the valve I therein, pipes N N′ leading from the supply-pipe to ports in the offset of the cylinder, the valve H^2 connected with the valve I, the pipes H H′ leading from ports in the offset to valve H^2, exhaust-pipes K K′ connected with the ports with which the pipes H H′ are connected, the valve-casing K^2 with which the pipes K K′ connect, the valve K^2 in the said casing and means for simultaneously operating the valves F, H^2 and K^2, substantially as herein shown and described.

601,917. FARRIER'S PINCERS. HUBERT WAGNER, Buffalo, N. D. Filed Nov. 16, 1897. Serial No. 658,726. (No model.)



Claim.—A device of the class described, comprising a pair of curved jaws pivotally connected with each other, and handles crossing each other at the back of the jaw-pivot and laterally bent to pass by each other, the handles being curved adjacent to the pivot to conform to the curvature of the jaws for receiving the same when the jaws are open, substantially as shown and described.

601,918. SLACK-ADJUSTER FOR BRAKE-GEAR. GUY H. WATERS, New Haven, Conn. Filed Oct. 25, 1897. Serial No. 656,378. (No model.)

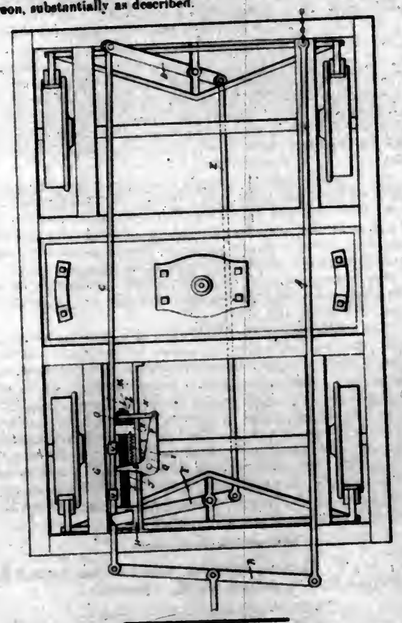
Claim.—1. In combination with brake mechanism including a dead-lever and a top rod, of a block to which the inner end of said dead-lever is secured a screw-shaft upon which said block is mounted, and connections between said top rod and screw-shaft, whereby movement of the top rod imparts movement to said shaft, and so as to adjust the position of the inner end of said dead-lever, substantially as described.

2. In combination with brake mechanism including a dead-lever and a top rod, of a block to which the inner end of said dead-lever is secured, a screw-shaft upon which said block is mounted, a bell-crank lever adapted to be turned by the movement of said top rod, and connections between said top rod, bell-crank lever and screw-shaft whereby movement of the top rod imparts movement to said shaft, and so as to adjust the position of the inner end of said dead-lever, substantially as described.

3. In combination with brake mechanism comprising a dead-lever and a top rod, of a slack-adjuster consisting of a block to which the inner end of said dead-lever is secured, a screw-shaft upon which said block is mounted for transverse movement, a ratchet on the outer end of said screw-shaft, a pawl mounted for engagement with said ratchet, and a bell-crank lever engaged with said pawl and adapted to be turned by the movement of said top rod, substantially as described.

4. A slack-adjuster for brake-gear, consisting of guideways, a block mounted between said ways upon a screw-shaft, a ratchet fixed to the outer end of said screw-shaft, an arm also mounted on said

shaft and carrying a pawl, the nose of which engages with the teeth of said ratchet, a link connected with the outer end of said arm and with one arm of a bell-crank lever mounted upon a pivot above said screw-shaft the other arm of said lever extending over said screw-shaft, and so that movement imparted to said bell-crank lever in one direction will revolve said screw-shaft and thereby move the block thereon, substantially as described.



601,919. BOTTLE. HENRY WEIL, New York, N. Y. Filed Aug. 10, 1897. Serial No. 647,751. (No model.)

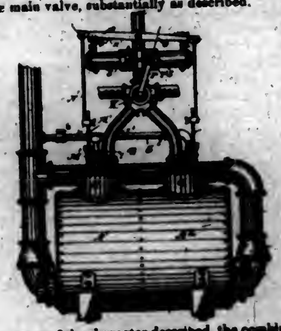


Claim.—1. A bottle, having a valve-seat in its neck portion, a valve for engaging therein, a bar extended through a hole at one side of the neck, a socket extended through a hole at the opposite side of the neck, a locking device engaging the bar with the socket, and a guard above the bar, substantially as specified.

2. In a bottle, the combination with a valve in the neck thereof, of a cross-bar extended through a hole at one side of the neck, a head on the outer end of the bar, a socket extended through a hole at the opposite side of the neck and receiving the end of the rod, a spring-dog carried by the rod and having locking engagement with the socket, and a head on the outer end of the socket, substantially as specified.

601,920. PUMP. MILO L. G. WHEELER, North Yakima, Wash. Filed June 1, 1897. Serial No. 638,948. (No model.)

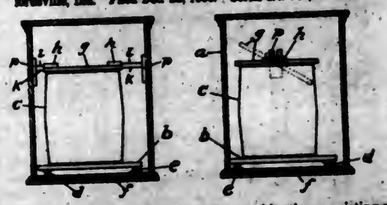
Claim.—1. In a pump of the character described, the combination of two liquid-compartments, inlets and outlets therefor, a pipe communicating with the source of pressure and with each of said compartments, exhausts in communication with said pipes, a valve controlling the communication between the supply-pipe and compartments and with the exhaust, cylinders, pistons movable therein, said pistons being connected to operate in unison, pipes communicating with the cylinders and the pressure-supply pipe, exhausts for said cylinders, valves controlling the communication between the pipes and the exhausts and the supply-pipe, arms secured to said valves, tubular guides extending within the compartments, rods movable in said guides, an interfhediately-pivoted lever to which the rods are pivoted, a connection between the respective ends of the lever and the arms of the valves, stops carried by said rods at their lower ends, floats within the compartments and movable upon said tubular guide, said floats adapted to alternately engage the stops of the rods for the purpose described, and an operative connection between the pistons and the main valve, substantially as described.



2. In a pump of the character described, the combination of two tanks adapted to contain the liquid to be pumped, a pipe communicating with a source of pressure, pipes communicating with the supply-pipe and the tanks, exhausts for said pipe, a valve controlling the communication between said pipes and the supply-pipe and the exhausts, cylinders positioned upon said supply-pipe, pistons movable in said cylinders, a piston-rod connecting said pistons, an arm secured at one end to the valve and engaging the piston-rod at its opposite end, pipes communicating with the supply-pipe and said cylinders, exhaust-ports for said pipes, valves within said pipes for controlling the communication between the same and the supply-pipe and the exhausts, tubular guides positioned within the tanks, rods movable within the guides, an intermediately-pivoted lever to the opposite ends of which the rods are connected, operative connections between said levers and the cylinder-valves, floats within the tanks movable upon the tubular guide and adapted to engage the rods to operate the same, and an outlet and inlet for said tanks, substantially as described.

3. In a pump, the combination of two liquid-compartments, inlets and outlets therefor, a pipe communicating with the source of pressure and with each of said compartments, exhausts in communication with said pipes, a valve controlling the communication between the supply-pipe and compartments, cylinders, pistons therein, pipes communicating with the cylinders and the pressure-supply pipe, exhausts for said cylinders, valves controlling the communication between the pipes and the exhausts and the supply-pipe, arms on said valves, rods movable in said compartments, a lever to which the rods are connected, connections between the ends of the lever and the arms of the valves, stops carried by said rods at their lower ends, floats within the compartments adapted to alternately engage the stops on the rods, and an operative connection between the pistons and the main valve, substantially as described.

601,921. GROCER'S CABINET. ROBERT H. WHITTED, Crawfordsville, Ind. Filed Dec. 28, 1896. Serial No. 616,726. (No model.)



Claim.—In a grocer's cabinet, the combination consisting of the door *a* having a quadrant shelf *b* rigidly fixed to the inner side thereof; rollers *d* and *e* supporting and facilitating the swinging of the shelf *b* out and in; the tilting cover *g*, standing normally in an inclined position and adapted to automatically assume a horizontal position as cover of a vessel *c* swung underneath thereof when standing upon the swinging shelf *b*; and the parts *k*, *l*, *p* and *h*; all used in combination and substantially as, and for the purposes set forth.

601,922. POCKET-BOOK. GEORGE A. WHELAND, Duluth, Minn. Filed Oct. 7, 1897. Serial No. 654,441. (No model.)

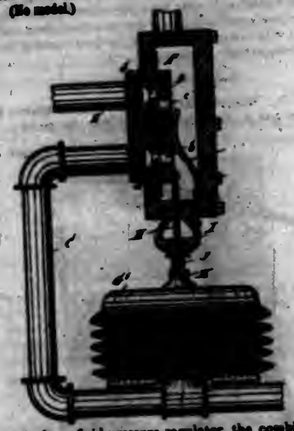
Claim.—1. As a new article of manufacture, a pocket-book formed of stiff paper, the said paper being folded twice, the said pocket-book comprising an inner and an outer sheet connected with each other at one end edge only and forming two outer pockets and an intermediate or central space or pocket, the sheets maintaining their shape and their folded position by the stiffness of the material, the outer pockets being open at the front and one end and closed at the opposite end, the central space or pocket being open at both ends and the front, and binding secured over the creased portion to receive the same and serve as a hinge, substantially as described.



2. As a new article of manufacture, an advertising pocket-book formed of stiff paper adapted to receive advertisements, the said paper being scored so as to enable it to be folded twice, the said pocket-book comprising an inner and an outer sheet connected with each other at one edge only and forming two outer pockets and an intermediate or central space or pocket, the sheets maintaining their shape and their folded position by the stiffness of the material, the outer pockets being open at the front and one end and closed at the opposite end, the central space or pocket being open at both ends and the front, and binding secured over the creased portion to receive the same and serve as a hinge, and the outer corners of the several layers of the pocket-book at the end where the pockets are open being rounded, substantially as described.

3. As an improved article of manufacture, a pocket-book formed of stiff paper or other material comprising in its construction an inner and an outer sheet connected with each other at one edge only, and another sheet secured to the first sheet along one edge only so that when the sheets are folded, as described, two outer pockets closed at bottom and open at the top and ends, and an inner space open at top, bottom and front and closed at rear, are secured, substantially as described.

601,923. FLUID-PRESSURE REGULATOR. JESSE WILLIAMS and JOSEPH B. RAMS, Pueblo, Colo. Filed May 19, 1897. Serial No. 637,217. (No model.)



Claim.—1. In a fluid-pressure regulator, the combination of a chest having an inlet and an outlet orifice, and having a valve-seat formed around the outlet-orifice, a slide-valve mounted on the seat and commanding the outlet-orifice, a spring attached to the interior of the chest and pressing the slide-valve against the seat, a rod attached to the slide-valve, a spring actuating the rod, and a bellows in connection with the rod whereby to actuate the same.

2. In a fluid-pressure regulator, the combination of a chest having an inlet and an outlet orifice, the chest having a valve-seat formed around the outlet-orifice, a slide-valve mounted on the valve-seat and commanding the outlet-orifice, a spring attached to the interior of the chest and pressing the slide-valve against the seat, a rod attached to the slide-valve and moving through a gland in the chest, and means for actuating the rod whereby to move the slide-valve.

3. In a fluid-pressure regulator, the combination of a chest having an inlet and an outlet orifice, the chest having a valve-seat formed around the outlet-orifice, a slide-valve moving on the valve-seat and commanding the outlet-orifice, a spring attached to the interior of the chest and pressing the slide-valve on the seat, a rod attached to the slide-valve, a packing-gland in one wall of the chest through which gland the rod reciprocates, a bellows in connection with the rod and having communication with the outlet-orifice of the chest, and an expansive spring surrounding the rod and bearing against the bellows and against the packing-gland.

4. In a fluid-pressure regulator, the combination of a chest having an inlet and an outlet orifice therein, a slide-valve commanding one of the orifices, a rod attached to the slide-valve, a packing-gland in one wall of the chest through which gland the rod reciprocates, a bellows attached to the rod and having communication with the orifice commanded by the valve, and an expansive spring surrounding the rod and bearing against the gland and bellows.

601,924. TOY OR PUZZLE. ROBERT WILSON, Newark, N. J., assignor, by mesne assignments, to the Aladdin Lamp Company, of New Jersey. Filed May 4, 1897. Serial No. 634,998. (No model.)



Claim.—1. A toy or puzzle comprising a suitable box or case, having angularly-arranged sides and a base all tapering toward the ends of the box, to form at or near the middle of the box, a portion a^3 which is wider than the remaining parts of the box, and said base having differently-colored portions, and balls or marbles in said box, consisting, of a single ball or marble of a color different from the colored portions of the box or case, and two sets of balls or marbles of colors corresponding to said colored portions of the box or case, said smaller balls or marbles being adapted to pass the larger ball or marble only at the center of the box, substantially as and for the purposes set forth.

2. A toy or puzzle comprising a suitable box or case, having angularly-arranged sides and a base all tapering toward the ends of the box, to form at or near the middle of the box, a portion a^3 which is wider than the remaining parts of the box, and said base having differently-colored portions, and balls or marbles in said box, consisting, of a single ball or marble of a color different from the colored portions of the box or case, and two sets of balls or marbles of colors corresponding to said colored portions of the box or case, said sets of balls or marbles all being of the same size, and said single ball or marble being of a larger size, said smaller balls or marbles being adapted to pass the larger ball or marble only at the center of the box, substantially as and for the purposes set forth.

3. A toy or puzzle comprising a suitable box or case, having a base and sides a^4 tapering toward its ends, said base and sides having differently-colored portions a^2 and a^4, and balls or marbles movable in said box, consisting, of a single ball or marble of a color different from the colored portions of the box or case, and two sets of balls or marbles of colors corresponding to said colored portions of the box or case, substantially as and for the purposes set forth.

4. A toy or puzzle comprising a suitable box or case, having a base and sides a^4 tapering toward its ends, said base and sides having differently-colored portions a^2 and a^4, and balls or marbles movable in said box, consisting, of a single ball or marble of a color different from the colored portions of the box or case, and two sets of balls or marbles of colors corresponding to said colored portions of the box or case, said sets of balls or marbles all being of the same size, and said single ball or marble being of a larger size, substantially as and for the purposes set forth.

5. A toy or puzzle comprising a suitable box or case, having angularly-arranged sides and a base all tapering toward the ends of the box, to form at or near the middle of the box, a portion a^3 which is wider than the remaining parts of the box, and said balls or marbles movable in said box, consisting, of a large ball or marble *b*, and differently-colored sets of smaller balls or marbles *c* and *c'*, said smaller balls or marbles being adapted to pass the larger ball or marble only at the center of the box, substantially as and for the purposes set forth.

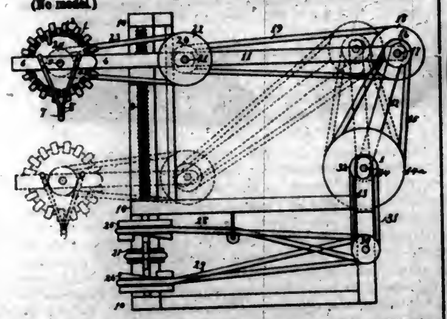
6. A toy or puzzle, comprising a suitable box or case, having a base and sides a^4 tapering toward its ends, and balls or marbles movable in said box, consisting of a large ball or marble *b*, and differently-colored sets of smaller balls or marbles *c* and *c'*, substantially as and for the purposes set forth.

601,925. JOINT FOR RIMS OF VEHICLE-WHEELS. GEORGE L. WILSON, Plymouth, Ind. Filed Nov. 8, 1897. Serial No. 657,703. (No model.)

Claim.—A joint for the rims of vehicle-wheels or for other purposes, the meeting ends of sections thereof formed with a tongue having the three angles *b c d* and the shoulder *i*, and the notched seat having the angles *f g h* with which the tongue of the adjacent section engages as shown, and a flat-sided tapering key inserted between the tongues, substantially as and for the purpose set forth.



601,926. MACHINE FOR SPLITTING BEEVES. HARLAND H. YOUPE, Kansas City, Mo., assignor of two-thirds to John W. Smith and Wallace G. Tower, same place. Filed July 9, 1897. Serial No. 643,970. (No model.)



Claim.—1. In a machine for splitting beeves, the combination with a suitable frame, an arm having a vertical travel on said frame, and means for operating said arm, of a series of revolving cleavers mounted on a shaft journaled on said arm, a bifurcated guide-pin carried on said arm arranged to follow the spinal cord of a carcass suspended under said arm, and means for revolving said cleavers: substantially as set forth.

2. In a machine for splitting beeves, the combination with a suitable frame, a screw mounted vertically upon said frame and means for giving direct and reverse motion to said screw; of an arm arranged to travel on said screw, a series of revolving cleavers mounted on a shaft journaled on said arm, a bifurcated guide-pin carried on said arm arranged to follow the spinal cord of a carcass suspended under said arm, and means for revolving said cleavers; substantially as set forth.

3. In a machine for splitting beeves, the combination with a series of cleavers mounted upon a revolving shaft and an arm upon which said shaft is journaled, of a bifurcated guide-pin carried on said arm and arranged to operate in advance of said cleavers; substantially as set forth.

4. In a machine for splitting beeves, the combination with a suitable frame and an arm arranged to travel vertically in said frame, of a bifurcated guide-finger carried on said arm and arranged to follow the spinal cord of the carcass suspended under said arm; substantially as set forth.

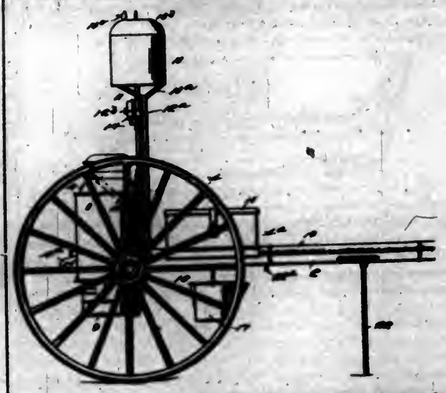
601,927. ENAMELED PAPER AND COMPOUND USED TO ENAMEL SAME. FREDERICK G. ANSHUS, London, England, assignor to the Publishing, Advertising and Trading Syndicate, Limited, same place. Filed Sept. 10, 1897. Serial No. 651,249. (No specimens.)

Claim.—1. As a new article of manufacture, the herein-described enameled paper, the enameled surface of which is adapted to receive and retain printing and lithographic impressions, which enameled surface consists of a nitrocellulose compound of the character described and pigment, the proportion of the latter to the composition being larger than, or in excess of the proportion of the nitrocellulose compound for the purpose set forth.

2. As a new article of manufacture, the herein-described enameled paper, the enameled surface of which is adapted to receive and retain printing and lithographic impressions, which enameled surface consists of a nitrocellulose compound of the character described containing oil and pigment, the proportion of the latter to the composition being larger than, or in excess of the proportion of the nitrocellulose compound for the purpose set forth.

3. A composition of matter to be used as an enamel adapted to receive printing and lithographic impressions, consisting of a nitrocellulose compound of the character described and a pigment, the proportion of the latter to the composition being larger than or in excess of the proportion of the nitrocellulose compound, substantially as described.

601,928. REFRESHMENT-CART. CLIFTON S. ARNOLD, Sing Sing, N. Y. Filed Mar. 30, 1897. Serial No. 629,906. (No model.)



Claim.—1. The combination in a refreshment-cart, with the axle and pole thereof, of the body portion composed of two metallic plates having their forward ends attached to the pole, thence bent outwardly at substantially right angles thereto in opposite directions and inclining toward the ends of the axle, and thence inwardly in loop form with their ends attached to said axle near its center, thereby forming loop-supports for the vessels, substantially as shown and described.

2. In a refreshment-cart, the combination with the axle and pole thereof, of the body portion composed of two metallic plates or straps set on edge and having their forward ends attached to the pole, thence bent outwardly in opposite directions and rearwardly toward the ends of the axle and thence inwardly with their rear ends bent in loop form and attached to said axle near its center, thereby forming loop-supports for the vessels, said axle being bent into crank form and provided near its ends with inwardly-extending portions forming bearings for said plates, substantially as described

601,929. WIRE-SPLICING PLIERS. ROBERT BRATT, Tarentum, Pa. Filed Aug. 4, 1897. Serial No. 647,054. (No model.)



Claim.—As a new article of manufacture, the pliers as herein described, consisting of two parts interlocked, one operating within the other and each part carrying a jaw which is provided with corrugations, one of said jaws being provided with a groove near the upper edge of the same and extending transversely thereof, the opposite jaw being provided at one side with a projection having a longitudinal inclined groove opening outwardly from the jaw, and a spring arranged between the handles to keep the jaws normally apart, substantially as shown and described.

601,930. ADJUSTABLE HANGER FOR INCANDESCENT LIGHTS. FRED C. BELL, Coeur d'Alene, Idaho, assignor, by direct and mesne assignments, to H. G. Paul, same place. Filed Mar. 20, 1896. Serial No. 583,215. (No model.)



Claim.—1. The combination with the rotatable drum, having a hook on its periphery, and the pivoted dogs and the pins on the inside of one of the heads thereof, of the spindle the notched disk fixed thereto, the hub secured to said spindle, the radial arms secured to said hub having quadrangular loops at the outer ends, the rollers journaled to said loops and lying in different planes from said arms, and the rope engaging with said hook and wound around the drum and its ends passed through said loops and bearing against said rollers, substantially as described.

2. The combination with the rotatable drum having a hook on its periphery, and the pivoted dogs and pins on the inside of one of the heads thereof, of the spindle the flaring shield secured thereto, the notched disk secured to said spindle with which the said dogs engage, the hub secured to said spindle, the radial arms having quadrangular loops at the outer ends, the rollers journaled thereto in different planes and the cord connected with said hook and wound around the drum and its ends passed through said loops and bearing against said rollers, substantially as described.

601,931. COMPRESSED-MEAT CAN. JESSE L. BLAIR, Prospect, Ohio. Filed Aug. 23, 1897. Serial No. 649,209. (No model.)



Claim.—A can or casing for containing and compressing meats, comprising two semicylindrical sections pivoted to open and close, a cover for one end of the can, and a follower-cap for the opposite end of the can comprising a casing movable in the can and having a perforated bottom, apertured walls, and a circumferential flange to engage the upper edge of the can, substantially as described.

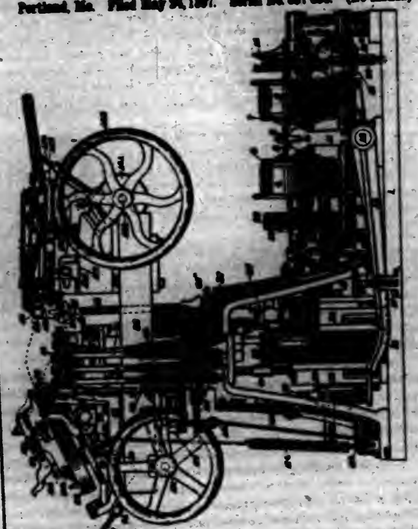
601,932. CUTTER-HEAD. GEORGE R. BOYD, Cairo, Ill., assignor of three-fourths to Charles S. Carey and Ernest Lemon, same place. Filed Sept. 7, 1897. Serial No. 650,777. (No model.)



Claim.—1. A cutter-head having a cylindrical body portion having longitudinal grooves in its periphery, each groove having arc-shaped surfaces running outward and disposed tangentially to the body portion, cutters arranged respectively in the grooves and lying snugly against the arc-shaped surfaces thereof, the cutters projecting beyond the body portion and having transversely elongate slots therein, keys laid respectively on the cutters, and screws passed through the keys and through the slots of the cutters, the grooves engaging screw-holes in the body portion and the body portion having a plurality of holes for each screw so that the cutters and grooves may be adjusted.

2. A cutter-head having a body portion with a groove therein, the groove having an arc-shaped surface, an arc-shaped cutter laid in said groove and adjustable transversely therein, a key curved to conform to the cutter and having at one side an outwardly-extending flange and the opposite side being cut out, and a bolt passed through the key and cutter and engaging the body portion.

601,933. LASTING-MACHINE. MATTHIAS BRUCE, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed May 24, 1897. Serial No. 637,893. (No model.)



Claim.—1. A machine for lasting boots and shoes, containing toe, heel and side lasting mechanisms, and a support for the last carrying the shoe to be lasted, all constructed and arranged to permit said last and said toe and heel lasting mechanisms to be relatively and automatically moved to bring the respective lines of action of said toe and heel lasting mechanisms into substantial correspondence with the line of direction in which the toe and heel portions of the last respectively face, substantially as described.

2. A machine for lasting boots and shoes containing toe and heel lasting mechanisms, and a support for the last carrying the shoe to be lasted, all constructed and arranged to permit said last and said toe and heel lasting mechanisms to be relatively and automatically moved to bring the respective lines of action of said toe and heel lasting mechanisms into substantial correspondence with the line of direction in which the toe and heel portions of the last respectively face, substantially as described.

3. A lasting-machine for use in lasting boots and shoes, containing a support for the last and end lasting mechanism, constructed and arranged to permit relative and automatic movement of said last and end lasting mechanism to enable the latter to act in a direction corresponding to the direction in which the end of the last faces, substantially as described.

4. A machine for lasting boots and shoes, containing manually-operated end lasting mechanism, an operating-handle for the said end lasting mechanism, a support for the last and the shoe thereupon, and means whereby movement of said operating-handle acts first and automatically to aline said end lasting mechanism and the end of the last, and thereafter to lay the material of the shoe over and upon said last.

5. A machine for lasting boots and shoes, containing a support for the last with the shoe thereupon, and end lasting mechanism with a clasp adapted to embrace the end of the last and the material thereupon, and means whereby said clasp on meeting and adapting itself

to the alinement of the end of the last, acts automatically to move said end lasting mechanism also into alinement with said end of the last.

6. A machine for lasting boots and shoes containing end lasting mechanisms, and a support for the last carrying the shoe to be lasted all constructed and arranged to permit said last and said end lasting mechanism to be relatively and automatically moved by said last to bring the alinement of said end lasting mechanisms and the ends of said last into substantial correspondence.

7. A machine for lasting boots and shoes, containing a support for the last carrying the shoe to be lasted, toe, heel and side lasting mechanisms, means to move said toe and heel lasting mechanisms one toward and from the other and with relation to said side lasting mechanisms, said last support and said toe and heel lasting mechanisms being constructed and arranged to relatively and automatically move to bring said toe and heel lasting mechanisms into substantial alinement with the ends of said last.

8. A machine for lasting boots and shoes containing a support for the last carrying the shoe to be lasted, toe, heel and side lasting mechanisms, said last-support and said toe and heel lasting mechanisms being constructed and arranged to permit a relative and automatic movement to bring the alinement of the ends of said last and the alinement of said toe and heel lasting mechanisms into correspondence, said toe and heel lasting mechanisms also having the capacity of rolling to accommodate the roll of said last and the capacity of tipping to accommodate the spring of said last, substantially as described.

9. In a machine for lasting boots and shoes, a support for the last, toe and heel lasting mechanisms, means to actuate said toe and heel lasting mechanisms, said last-support and said toe and heel lasting mechanisms being constructed and arranged automatically to permit alinement of the last relatively to the toe and heel lasting mechanisms as an incident to the operation of the latter, substantially as described.

10. A machine for lasting boots and shoes, containing a support for the last, with a shoe thereon, and end lasting mechanism with a member adapted to engage the end of the last and the material thereupon, and means whereby said member on meeting the end of the last or the material thereupon acts automatically to move said end lasting mechanism into position in correspondence with the end of said last as indicated by said positioning member.

11. In a lasting-machine, end lasting-plates, actuating means to move and close the same, a member to bear against the side of the boot or shoe prior to closure of the wiper-plates, and connections between said member and said lasting-plates whereby the latter will be adjusted automatically by movement of said member to act properly upon last ends whether rights or lefts presenting difference of swing.

12. In a machine for lasting boots and shoes, end lasting-plates mounted to swing about a common center, a transverse slide bar connected with said end lasting-plates to govern the relative movement of the latter about their common center and thereby to adapt the same to the swing of the end of the boot or shoe being lasted, whether a right or a left, combined with a swinging member in the form of an end clasp, and connections between the same and said transverse sliding bar for moving the latter and thereby automatically adjusting said end-wiper plates to act properly upon the upper of the boot or shoe being lasted.

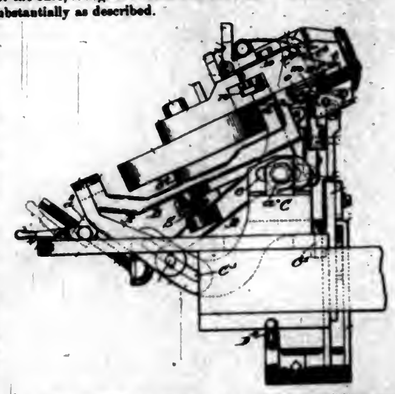
13. In a lasting-machine, the combination with the lasting devices and means for actuating the same, of means automatically to cause relative movement of said lasting devices and the last laterally to adapt the same for the swing of lasts either rights or lefts.

601,984. LASTING-MACHINE. MATTHIAS BROCK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Apr. 14, 1896. Serial No. 587,488. (No model.)

Claim.—1. In a machine for lasting boots and shoes, a head mounted to swing laterally about a relatively-fixed center, a longitudinally-movable slide-bar supported in the head, and wiper-plates mounted to swing about a common center on said slide-bar, combined with actuating means to move the wiper-plates forward and to close them over the toe of the last, substantially as described.

2. In a machine for lasting boots and shoes, a laterally-movable head mounted to be swung about a relatively-fixed center, a slide-bar in the head, wiper-plates, and carriers therefor, mounted to swing about a common center on the slide-bar, and independent adjustable connections between said carriers and wiper-plates, combined with actuating means to move the carriers forward and to close the wiper-plates, lateral movement of the head about its center adjusting the wiper-plates to act uniformly upon the sides of the last, substantially as described.

3. In a machine for lasting boots and shoes, a base mounted to swing laterally about a relatively-fixed center, a tipping-plate holder supported thereby, and a tipping plate carried by the holder, combined with a slide-bar, wiper-plates mounted thereon to swing about a common center, actuating means to move said plates forward and to close them over the bottom of the last, and an adjusting device for the base, to regulate the lateral movement thereof about its pivot, substantially as described.



4. In a machine for lasting boots and shoes, a sliding carriage, a head mounted thereon to swing laterally about a pivot beneath the center of the end of the last, and means to retain said head in lateral adjustment on the carriage, combined with wiper-plates carried by the head, and actuating means to move the said wiper-plates forward and to close them over the toe of the last, substantially as described.

5. In a machine for lasting boots and shoes, a head mounted to swing laterally about a relatively-fixed center, the wipers mounted upon the said head, means on said head to actuate the said wipers to wipe the material over and upon the last or the inner sole thereupon, and means to swing said head laterally to adapt the said wipers to lasts, either rights or lefts, having different inclinations, substantially as described.

6. In a lasting-machine, the combination with lasting devices having a capacity for automatically shifting into one or another position to meet ends of right or left shoes presenting differences of swing, of means for manually shifting said lasting devices also into position for meeting ends of right or left shoes presenting differences of swing, substantially as described.

7. In a lasting-machine, the combination of toe-lasting devices and a last-supporting jack, capable of a relative movement about a center substantially in vertical alinement with the central point of the toe of a last on the jack, mechanism for relatively laterally moving the toe-lasting devices and jack to change the longitudinal inclination of the toe-lasting devices and jack to adjust the toe-lasting devices for right and left shoes.

8. In a lasting-machine, the combination with lasting devices to last the end of a shoe and means independent of the last to actuate said lasting devices of a swinging support for said lasting devices, said swinging support enabling said lasting devices to be adjusted to meet the varying swings of last ends whether rights or lefts.

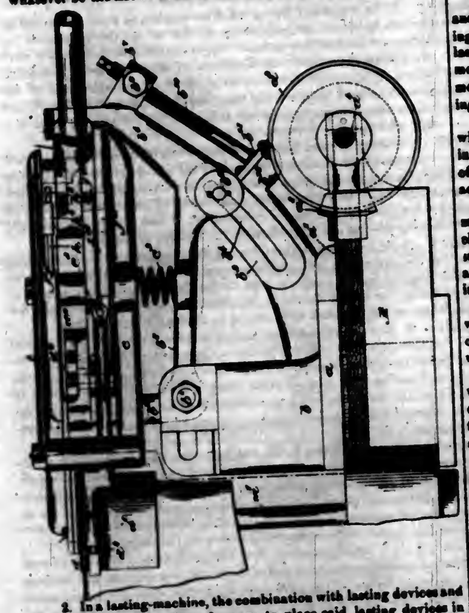
9. In a lasting-machine, the combination with lasting devices to last the end of a shoe of a swinging support for said lasting devices said support being mounted to swing about a center substantially under the center of the adjacent end of the last, to enable said lasting devices to be adjusted to meet the ends of lasts whether rights or lefts presenting a difference of swing.

10. In a lasting-machine, the combination with lasting devices to last the end of a shoe of a swinging support for said lasting devices, means independent of a last to actuate said lasting devices, and means automatically to swing said support with its said lasting devices to adapt the latter to act upon last ends whether rights or lefts presenting a difference of swing.

11. In a lasting-machine, the combintion with lasting devices to last the end of a shoe of a swinging support for said lasting devices means independent of the last to actuate said lasting devices means automatically to swing said support with its said lasting devices to adapt the latter to act upon last ends whether rights or lefts presenting a difference of swing and locking means to lock said swinging support in position.

601,985. LASTING-MACHINE. MATTHIAS BROCK, Boston, Mass., assignor, by mesne assignments, to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Feb. 14, 1896. Serial No. 579,281. (No model.)

Claim.—1. In a lasting-machine, the combination with lasting devices and actuating means therefor, of means acting automatically to cause said lasting devices in their lasting movement to stop always at substantially the same distance inwardly from the sides of the last, whatever be the size or width of the latter, substantially as described.



2. In a lasting-machine, the combination with lasting devices and actuating means therefor, of means to place said lasting devices in starting positions substantially the same distance from the outside of said last, whatever the size or width of the latter, substantially as described.

3. In a lasting-machine, the combination with lasting devices and actuating means therefor, of means cooperating with the last or the material thereupon for automatically placing said lasting devices in starting positions at substantially the same distance from the outside of said last, whatever the size or width of the latter, substantially as described.

4. In a lasting-machine, the combination with lasting devices, and actuating means therefor, of means cooperating with the last or with the material thereupon to vary the inward limit of lasting movement of said lasting devices, substantially as described.

5. In a lasting-machine, the combination with lasting devices and actuating means therefor, of means to predeterminately vary the inward limit of lasting movement of said lasting devices to meet varying sizes or widths of lasts, substantially as described.

6. In a lasting-machine, the combination with lasting devices of automatic limit-varying means for automatically varying the inward limit of lasting movement of said lasting devices to meet varying sizes or widths of lasts, substantially as described.

7. In a lasting-machine, the combination with lasting devices, of means cooperating with the side of the last or the material thereupon for predeterminately varying the inward limit of lasting movement of said lasting devices to meet varying sizes or widths of lasts, substantially as described.

8. In a lasting-machine, the combination with end lasting devices and means to shift the same laterally to meet right and left lasts, of means to predeterminately fix the limit of lasting movement of said lasting devices always at substantially the same distance inwardly from the outside of the last, whatever be the width of the latter, substantially as described.

9. In a lasting-machine, the combination with end lasting devices, means to shift the same laterally to meet right and left lasts and means to vertically adjust said lasting devices to meet the difference in spring of the lasts, of means to predeterminately fix the limit of lasting movement of said lasting devices always at substantially the same distance inwardly from the outside of the last, whatever be the width of the latter, substantially as described.

10. In a lasting-machine, the combination with lasting devices and positioning devices to vary the inward limit of lasting movement of said lasting devices, of means to successively operate said positioning devices and lasting devices, substantially as described.

11. In a lasting-machine, the combination with lasting devices and predeterminate positioning devices therefor, of a single operating member connected with and to successively operate said positioning and lasting devices, substantially as described.

12. In a lasting-machine, the combination with lasting devices and predeterminate positioning devices therefor, of a single operating member connected with and to operate both said positioning and lasting devices, and furnishing a lost motion between the beginning of movement of the said operating member and the beginning of the movement of said lasting devices during which period said positioning devices are operated, substantially as described.

13. In a lasting-machine, the combination with the swinging wipers and actuating means to open and close the same, of positioning means cooperating with the last to swing the said wipers or either of them into starting position prior to movement of the same by said actuating means, substantially as described.

14. In a lasting-machine, the combination with swinging wipers, means to reciprocate the same and cam-surfaces thereon to open and close said wipers, of positioning means cooperating with said cam-surfaces to change the position of said wipers or either of them in addition to the change in position imparted thereto by said actuating means, substantially as described.

15. In a lasting-machine, the combination with the swinging wipers provided with cam-slots and means to reciprocate the same, of positioning devices cooperating with the sides of the last and provided with studs entering said cam-slots, substantially as described.

16. In a lasting-machine, the combination with the swinging wipers provided with cam-slots and means to reciprocate the same, of positioning devices provided with pins entering said slots, and means to move said positioning devices toward and from the sides of said last, substantially as described.

17. In a lasting-machine, the combination with lasting devices and an operating member therefor, of a positioning device connected with and to be moved by said operating member against the last, and a spring interposed between said operating member and positioning device to enable the latter to be moved after the former contacts with the last or the material thereupon, substantially as described.

18. In a lasting-machine, the combination with the swinging wipers provided with cam-slots, and a handle connected with and to reciprocate said wipers, of fulcrumed positioning devices provided with pins entering said cam-slots and operating-levers connected with said positioning devices, and themselves provided with cam-slots to be operated by said handle, substantially as described.

19. In a lasting machine the combination with lasting devices and actuating means therefor of means for predeterminately varying the movement of said lasting devices by said actuating means to cause said lasting devices to uniformly operate on lasts of varying width, substantially as described.

20. In a lasting-machine, the combination with lasting devices, of means for actuating the same, said means also acting to automatically vary the lasting movement of said lasting devices according to the width of the particular last used, substantially as described.

21. In a lasting-machine, the combination with end lasting devices made laterally adjustable to meet right and left lasts, vertically adjustable to meet different springs of last, and capable of rocking to adapt the same to the inclination of the last-bottom; of means to predeterminately vary the limit of lasting movement of said lasting devices to meet varying widths or sizes of lasts, substantially as described.

22. In a lasting-machine, the combination with end lasting devices and a clasp, and means to shift the said lasting devices and clasp laterally to meet right and left lasts, of means to predeterminately position said lasting devices at the same distance inwardly from the outside of said last, whatever be the size or width of the latter, substantially as described.

23. In a lasting-machine the combination with lasting devices, a clasp and means to open and close the same; both said lasting devices and clasp having the capacity of lateral shifting or adjustment to meet the varying swings of right or left lasts, of connecting device between said lasting devices and said clasp whereby lateral shifting of one causes lateral shifting of the other substantially as described.

24. In a lasting-machine, the combination with lasting devices, and a yielding clasp capable of adapting itself to different shapes of lasts at the end thereof, of means to shift said yielding clasp laterally to meet right and left lasts, means to vertically adjust said clasp to meet different springs of lasts and to roll it to meet the angle due to the roll of the last, substantially as described.

25. In a lasting-machine, the combination with lasting devices, of a clasp and positioning devices cooperating therewith to predeterminately position said lasting devices at substantially the same distance inwardly from the outside of said last, whatever the size or width of the latter, substantially as described.

26. In a lasting-machine, the combination with the end lasting devices, of the positioning devices cooperating therewith to predeterminately position said lasting devices at substantially the same distance inwardly from the outside of the last whatever be the size or width of the latter, the chain connected therewith and the clasp arranged on said chain, substantially as described.

27. In a lasting-machine, the combination with end lasting devices, the positioning devices cooperating therewith to predeterminately position said lasting devices at substantially the same distance inwardly from the outside of the last whatever be the size or width of the latter, the chain yieldingly connected therewith and the clasp arranged on said chain, substantially as described.

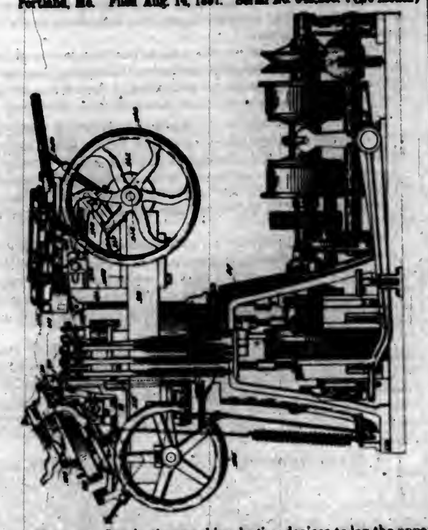
28. In a lasting-machine, the combination with the swinging wipers, the reciprocating slotted actuator therefor, an operating-lever and a pin moving in said slot and operated by said lever, combined with a latch adapted to hold said lever in position with said pin at one end the slot in said actuator, and means to release said latch, substantially as described.

29. In a lasting-machine, the combination with lasting devices, an operating member therefor, connections between said operating member and lasting devices, whereby initial movement of said operating member in one direction takes place without corresponding movement of said lasting devices, and initial movement of said operating member in an opposite direction causes corresponding movement of said lasting devices.

30. In a lasting-machine, the combination with lasting devices, and positioning means therefor, an operating member, operating connections between the same and said lasting devices and positioning means, said operating connections automatically causing movement of said positioning means prior to lasting movement of said lasting devices on movement of said operating member in one direction, but not in an opposite direction.

31. In a lasting-machine, the combination with lasting devices, and positioning means therefor, of an operating member, means connecting the said operating member with said lasting devices and positioning means, said connecting means causing initial movement of said operating member first to operate said positioning means to position the lasting devices prior to effective lasting movement thereof, said connections thereafter connecting said operating member and lasting devices whereby the latter are made directly responsive to the movements of said operating member.

601,936. LASTING-MACHINE. MATTHIAS BROCK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Aug. 14, 1897. Serial No. 648,236. (No model.)



Claim.—1. In a lasting-machine, lasting devices to lay the upper over the bottom of the last at an end thereof, and means actuating both lasting devices to impart to one movement in excess of movement of another when the latter meets with undue resistance as compared with resistance to the former.

2. An organized lasting-machine containing a set of toe-lasting devices, and a set of heel-lasting devices to lay the upper over the bottom of a last, and means to impart to one of each set of said lasting devices movement in excess of movement of another lasting device of the same set when the latter meets with undue resistance as compared with the resistance to the former.

3. An organized lasting-machine containing a set of toe-lasting devices and a set of heel-lasting devices to lay the upper over the bottom of the last, and means to impart to the lasting devices of each set, lasting movements the allowance of which is varied and determined by the relative resistances opposed to the movement of the devices of each set, whereby said lasting devices automatically and freely adapt themselves to the ends of a last, whether a right or a left, whatever be its swing.

4. An organized lasting-machine, containing lasting devices for the toe and for the heel which act to lay the upper over the bottom of a last, said lasting devices at each end of the last being mounted at all times to swing freely transversely to accommodate lasts of varying swing, and means independent of said last to advance said lasting devices over the edges of the bottom of the last.

5. In a lasting-machine, lasting devices to act upon the material at the end of the last, actuating means for said lasting devices to cause the latter to freely shift to the right or to the left whenever during the lasting operation the resistance offered to one of said devices unduly exceeds that offered to another of said devices.

6. In a lasting-machine, lasting devices to act upon the material at the end of the last, and means to impart to one of said lasting devices inward movement in excess of another of said lasting devices, said lasting devices at all times being free to shift to the right or to the left when the advance movement of one unduly exceeds that offered to the advance movement of another during the lasting operation.

7. In an organized lasting-machine, the combination with a support to hold the last in substantially fixed position, of end lasting devices to act upon the material at the end of the last, and means to impart to one of said lasting devices movement in excess of movement of another of said lasting devices when the latter meets with undue resistance from the last or the material thereupon.

8. In a lasting-machine, end lasting devices consisting of end-wiper plates, means to open and close said wiper-plates and to cause the same to move one in excess of another when the latter meets with undue resistance as compared with the resistance offered to the former.

9. An organized lasting-machine containing a set of toe wiper plates, and a set of heel-wiper plates, and means to open and close the wiper-plates of each set, and to impart to one of the plates of each set movement in excess of movement of another plate of the same set when the latter meets with undue resistance, as compared with the resistance offered to the former.

10. A lasting-machine containing a support for a last, and end lasting devices consisting of wiper-plates, means to open and close the same for lasting, and means to enable said plates to freely and laterally move when opening and closing to meet varying lasts, either rights or lefts, or having different side inclinations.

11. In an organized lasting-machine, a support for a last, end lasting devices to act upon the material at the end of a last on said support, and means to effect a relative movement between one of said lasting devices and said last in excess of the relative movement between another of said lasting devices and last when the last-mentioned lasting device is opposed by an undue resistance as compared with the resistance of the first-mentioned last.

12. An organized lasting-machine containing a support for a last, a set of toe-lasting devices and a set of heel-lasting devices, and means to effect a relative movement between one of said lasting devices and said last in excess of the relative movement between said last and another of the lasting devices of the same set when the latter are opposed with undue resistance as compared with the resistance opposed to the former.

13. In a lasting-machine, lasting devices to act upon the material at the end of a last, means to impart to one of said lasting devices a movement at variance with the movement imparted to another of said lasting devices, and means to return the said lasting devices always to substantially the same starting positions.

14. An organized lasting-machine containing a support for a last, and end lasting devices to act upon the material at the end of the last on said support, means to impart to the said last and lasting devices a relative movement, the relative movement of said last and one of said lasting devices being at variance with the relative movement of said last and another of said lasting devices, and means to return said last and said lasting devices to substantially the same relative position after one lasting operation and preparatory to the next.

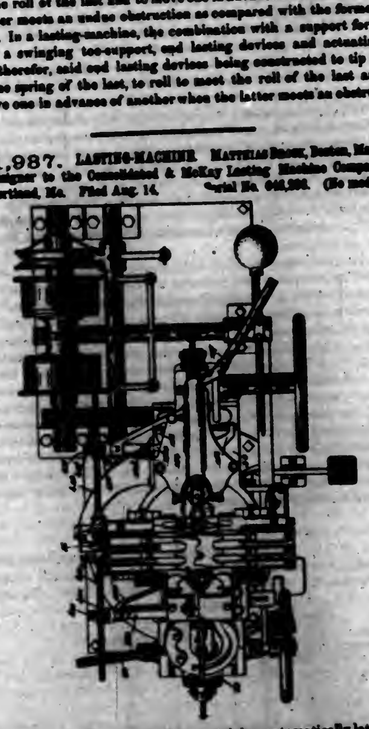
15. In a lasting-machine, lasting devices to lay the upper over the bottom of the last at an end thereof, and means connected with a plurality of said lasting devices to move one of the same after a cooperating lasting device at the same end of the last has been stopped.

16. In a lasting-machine, the combination with a support for a last, of end lasting devices, and actuating means therefor, said end lasting devices being free to roll to meet the roll of the last and to shift transversely to meet the swing of the last, or to enable one to move relatively to the other when movement of the latter is obstructed.

17. In a lasting-machine, the combination with a support for a last, of end lasting devices, and actuating means therefor, said end lasting devices being movable to change their vertical inclination to meet the spring of the last to change their transverse inclination to meet the roll of the last and to move one in advance of another when the latter meets an undue obstruction as compared with the former.

18. In a lasting-machine, the combination with a support for a last, of a swinging toe-support, end lasting devices and actuating means therefor, said end lasting devices being constructed to tip to meet the spring of the last, to roll to meet the roll of the last and to move one in advance of another when the latter meets an obstruction.

601,937. LASTING-MACHINE. MATTHIAS BROCK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Aug. 14. Serial No. 648,238. (No model.)



Claim.—1. A lasting-machine containing automatically laterally adjustable toe-lasting devices, and automatically laterally adjustable heel-lasting devices, and connections between the two, whereby automatic lateral adjustment of the toe-lasting devices causes corresponding lateral adjustment of the heel-lasting devices, and vice versa.

2. A lasting-machine containing automatically laterally adjustable toe-lasting devices, and automatically laterally adjustable heel-lasting devices, and connections between the two, whereby automatic lateral adjustment of the toe-lasting devices causes corresponding lateral adjustment of the heel-lasting devices.

3. A lasting-machine, containing laterally-adjustable toe-lasting devices, and laterally-adjustable heel-lasting devices, and means simultaneously and automatically to adjust said heel and toe lasting devices.

4. In a lasting-machine, the combination with automatically laterally adjustable toe-lasting devices, and automatically laterally adjustable heel-lasting devices, of devices connecting said toe and heel lasting devices, whereby one is automatically actuated by the other, and means whereby the direction of automatic movement of one by the other may be changed as necessary.

5. In a lasting-machine, the combination with the tipping and rolling toe-lasting devices, and tipping and rolling heel-lasting devices, of means for simultaneously automatically and laterally adjusting the said toe-lasting devices and heel lasting devices to meet the swing of a last.

6. In a lasting-machine, the combination with the toe-lasting plates and the heel-lasting plates, and actuating means therefor, of means to adjust laterally the said toe and heel lasting plates automatically and simultaneously to meet varying swings of lasts.

7. In a lasting-machine the combination with the toe-lasting devices, and heel-lasting devices adjustable one toward the other to meet lasts of different lengths, of means for automatically, simultaneously and laterally adjusting said toe and heel.

8. In a lasting-machine, the combination with the automatically laterally adjustable toe-lasting devices, and the automatically laterally adjustable heel-lasting devices, of connections between the two for operating the one by or with the other, and means to vary the extent of movement of one by or with the other.

9. In a lasting-machine, the combination with the laterally-adjustable toe-lasting devices, and laterally-adjustable heel-lasting devices, of means including two shafts connecting the said toe and heel lasting devices for movement of one by or with the other, and means to vary the direction of movement of one of said shafts by or from the other.

10. A lasting-machine, containing laterally-adjustable toe-lasting devices, and laterally-adjustable heel-lasting devices, means for simultaneously and automatically adjusting the said toe and heel lasting devices laterally to meet varying swings of lasts, and means to disconnect said toe and heel lasting devices to enable them to be independently operated when desired.

11. In a lasting-machine containing a support for a last, and toe-lasting devices and heel-lasting devices, combined with means for automatically and simultaneously adjusting said toe and heel lasting devices laterally into positions automatically determined by a last on said support.

12. In a lasting-machine, the combination with a support for a last, of toe-lasting devices and heel-lasting devices, and means set in operation by contact with the last or the material thereupon automatically to shift said toe and heel lasting devices laterally.

13. In a lasting-machine, the combination with a support for a last, of toe and heel lasting devices and a toe-clasp, and means to move the same relatively to the said last upon said support, and connections between the said toe-clasp and lasting devices automatically to shift the latter laterally by or from the former.

14. In a lasting-machine, the combination with toe and heel lasting devices, and a support for a last, of a heel-clasp, and means to move the same relatively to and in cooperation with a last upon the said support, and connections between said heel-clasp and lasting devices automatically to shift the latter laterally by or from said clasp.

15. A lasting-machine, containing laterally-adjustable toe-lasting devices, and laterally-adjustable heel-lasting devices, and connections between the two, whereby automatic lateral adjustment of the one causes corresponding adjustment of the other.

16. A lasting-machine, containing laterally-adjustable toe-lasting devices, and laterally-adjustable heel-lasting devices, and connections between the two, whereby automatic lateral adjustment of the one causes corresponding adjustment of the other, and means for changing the direction of such adjustment of the one by automatic adjustment of the other.

17. In a lasting-machine, the combination with toe and heel lasting devices, and toe and heel clasps or pads, of means connecting said toe-clasp with said heel-lasting devices for laterally shifting the latter by or from the former.

18. In a lasting-machine, the combination with toe and heel lasting devices, and toe and heel clasps or pads, of means connecting said heel-clasp with said toe-lasting devices for laterally shifting the latter by or from the former.

19. In a lasting-machine, the combination with toe and heel lasting devices, of means cooperating with one end of the last to laterally shift the lasting devices at the opposite end of the last.

20. In a lasting-machine, the combination with a support for a last, and toe and heel lasting devices, of a rising-and-falling toe-clasp, and connections between the same and the said toe and heel lasting devices for laterally adjusting the latter by the former.

601,938. LASTING-MACHINE. MATTHIAS BROCK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Jan. 18, 1897. Serial No. 618,998. (No model.)

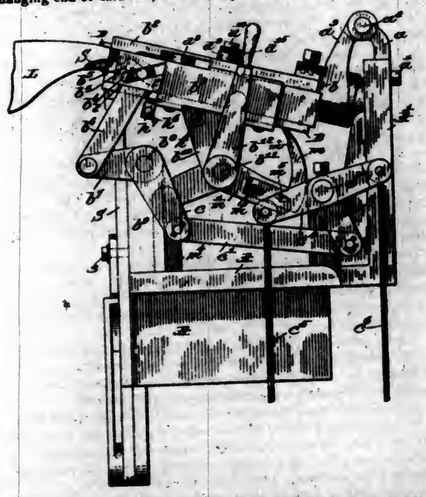
Claim.—1. A support for the last or form, means to engage the material to be lasted and lay the same upon the bottom of said form, the latter and said means having a relative movement in a direction to conform approximately to an overhanging end of said last or form, substantially as described.

2. A support for a last or form, wipers, and means of which said wipers form a part to engage the material and raise said material relatively to said form and also carry said material inwardly to fit the same about the end of said form, substantially as described.

3. In a lasting-machine, a support for a last, end lasting devices to lay the material over the bottom of the last, and means independent of said lasting devices to engage the material upon said last, said last having a relative movement in a direction to conform approximately to the overhanging end of said last, substantially as described.

4. In a lasting-machine, a support for the last, end lasting de-

vices and upwardly-wiping means, and means to cause a relative movement of said last and the said lasting devices, and upwardly-wiping means in a direction to conform approximately to an overhanging end of said last, substantially as described.



5. A support for a last or form, a head, means thereon to engage the material upon said last, the latter and said head having a relative movement in a direction to conform approximately to an overhanging end of said last or form, substantially as described.

6. In a lasting-machine, a support for a last, a head mounted to swing about an axis at a level above the bottom of said last, means on the said head to engage the material, and means to move said head about its said axis to cause the said material to be laid upon said last, substantially as described.

7. The combination with a support for a last or form, and lasting means to engage the material to lay the same over and upon said form and having also a rising-and-falling movement, of an end clasp having a rising-and-falling movement, and means automatically to impart to said clasp and said lasting means a movement longitudinally of the last in addition to said rising-and-falling movement, substantially as described.

8. In a machine of the class described, a clasp having an entrance adjustable as to its width, combined with means for changing the lateral alinement of said clasp without varying the width of said entrance, substantially as described.

9. In a machine of the class described, a clasp adjustable as to its width, and means for bodily swinging said clasp about a center at or in the vicinity of the closed end of said clasp, substantially as described.

10. In a machine of the class described, a clasp, laterally-swinging supporting means therefor, and laterally-swinging connections between said supporting means and the end of said clasp, substantially as described.

11. In a lasting-machine, end wipers, a suitable support therefor, a sliding member longitudinally movable in said support said sliding member and said wipers having the one curved guiding-surfaces and the other cooperating guiding projections of a curvature corresponding to that of said guiding-surfaces, substantially as described.

12. In a lasting-machine, disconnected end wipers, a support therefor, and means for imparting a relative movement to said wipers in a circular path about a common axis of movement, substantially as described.

13. In a lasting-machine, end wipers, a suitable support therefor, a longitudinally-sliding member mounted in said support and carrying said end wipers, a single curved slot and cooperating projecting surfaces furnishing the means for directing the movement of each of said end wipers on and with relation to said sliding member, substantially as described.

14. In a lasting-machine, end wipers, a support for and on which said wipers have a forward-and-back movement, and fulcrumed connections between said wipers and said support, whereby said forward-and-back movement also causes said plates to be moved for relative opening and closing, substantially as described.

15. In a lasting-machine, end wipers, a support therefor, and wiper-operating devices on said support, projection-and-slot connections between the said wipers and said wiper-operating devices, and means for moving said connections bodily forward and back with the forward-and-back movements of the said end wipers, substantially as described.

16. In a lasting-machine, end wipers, supporting means therefor, means to open and close said wipers, and means movable longitudinally in a rectilinear line to impart to said wipers an auxiliary sidewise movement, substantially as described.

17. In a lasting-machine, lasting devices, actuating means therefor, a plurality of supporting members for and to effect rise and fall of said lasting devices, and oppositely-moving cam-surfaces cooperating with the respective supporting members to effect rolling of said lasting devices, substantially as described.

18. In a lasting-machine, lasting devices, actuating means therefor, means to effect rise and fall of said lasting devices in a direction approximating the overhang at the end of a last, combined with means to roll said lasting devices, substantially as described.

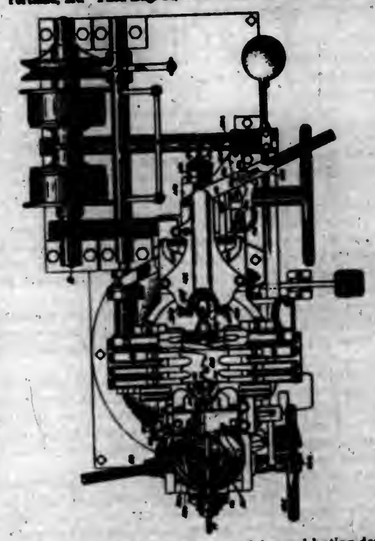
19. In a lasting-machine, lasting devices, actuating means therefor, means to swing said lasting devices to cause rising-and-falling lasting movement, combined with means to roll said lasting devices, substantially as described.

20. In a lasting-machine, the combination of lasting devices with raising and lowering devices therefor, said raising and lowering devices also comprising means for rolling said lasting devices, substantially as described.

21. In a lasting-machine, end lasting devices constructed and arranged to be opened and closed to lay the material over and upon the last or form, said lasting devices having also a forward-and-back movement, a rolling movement to adapt the same to the roll of a last, and a rising-and-falling movement in a direction approximating the line of overhang at the end of a last, substantially as described.

22. In a lasting-machine for boots and shoes, a last or form to hold the boot or shoe to be lasted, combined with lasting devices having a movement to lay the material over and upon said last or form, said lasting devices having in addition a rolling movement in a direction approximating the line of overhang at the end of a last to enable them to lay the material closely about the said overhanging last end, and a shifting movement to the right or left to adapt the said lasting devices to the varying ends of lasts either rights or lefts, substantially as described.

601,989. LASTING-MACHINE. MATTHIAS BROOK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Aug. 14, 1897. Serial No. 648,248. (No model.)



Claim.—1. A lasting-machine containing end lasting devices to act upon the material at an end of a last, said lasting devices automatically and normally assuming a position for a last of one swing, and means to shift the said lasting devices into position for a last of opposite swing when necessary.

2. A lasting-machine containing end lasting devices to act upon the material at an end of a last, said lasting devices normally assuming a position for a last of one swing, means to shift said lasting devices into position for a last of opposite swing, and means to vary said normal position and the said position into which the said lasting devices may be swung.

3. A lasting-machine containing heel and toe lasting devices, normally assuming a position for a last of one swing, and means to shift said heel and toe lasting devices into positions for a last of opposite swing when necessary.

4. A lasting-machine containing end lasting devices to act upon and last the material at an end of a last, actuating means for said end lasting devices, and auxiliary means to shift said lasting devices for right and left lasts having a difference of swing, said auxiliary means being dependent for its operation upon the operation of said actuating means.

5. A lasting-machine containing end lasting devices to act upon and last material at an end of a last, actuating means for said end lasting devices, and means auxiliary to said actuating means to shift said lasting devices for right and left lasts, said means being operable by the hand of the operator operating said actuating means in substantially one and the same operation.

6. In a lasting-machine containing end lasting devices to last the material at an end of a last, an operating-handle controlling the lasting operation of said devices, and means operable by a hand engaging said operating-handle to shift said lasting devices for right and left lasts.

7. A lasting-machine containing end lasting devices to last the material at an end of a last, an operating-handle controlling the lasting movements of the said lasting devices, and a movable member mounted on said operating-handle, movement of which relatively to said handle operates to cause said lasting devices to be shifted for right and left lasts.

8. A lasting-machine, containing end lasting devices, an operating-handle for imparting lasting movement thereto, a movable member arranged close to said operating-handle, connections intermediate said movable member and said lasting devices for transversely shifting said end lasting devices to change the allowment thereof by movement of the said movable member, and means to render said connections inoperative.

9. A lasting-machine containing end lasting devices, an operating-handle therefor, connecting means under the control of the operator between said operating-handle and lasting devices for transversely shifting the latter on movement of the former at times and not at others, as necessary.

10. In a lasting-machine, the combination with end lasting devices, and means to transversely shift the same for rights and lefts, of means automatically to lock said lasting devices in the positions into which they are shifted during the lasting operation.

11. In a lasting-machine, the combination with end lasting devices, and an operating-handle to impart lasting movement thereto, of locking means for said lasting devices controlled by movement of the said operating-handle.

12. In a lasting-machine end lasting devices to last the material at the end of a shoe, actuating means therefor, means automatically to shift said lasting devices into position to meet the swing of the end of a last and means under the control of the operator for disconnecting said automatic shifting means at will.

601,940. LASTING-MACHINE. MATTHIAS BROOK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Aug. 14, 1897. Serial No. 648,209. (No model.)

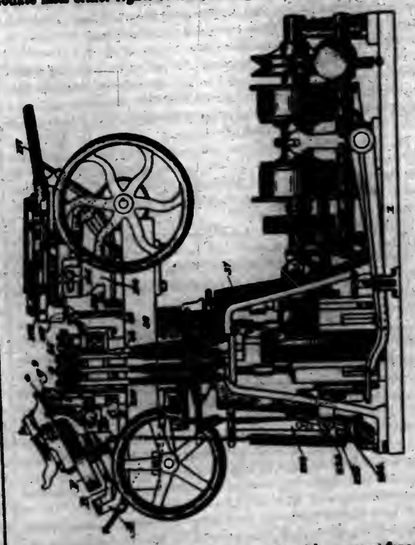
Claim.—1. In a lasting-machine, the combination with heel and toe lasting devices, of manually-operable means to change by one operation the positions of the heel and toe lasting devices to meet lasts, either rights or lefts, or lasts having a difference of swing.

2. In a lasting-machine, the combination with toe and heel lasting devices, of manually-operable means to simultaneously shift the said toe and heel lasting devices to adapt the same to lasts, either rights or lefts, having a difference of swing.

3. In a lasting-machine, the combination with toe and heel lasting devices, of a manually-operable controlling member or lever, and connections between the same and the said toe and heel lasting devices, whereby movement of the said controlling member moves both said toe and heel lasting devices to accommodate lasts, either rights or lefts, or lasts having a difference of swing.

4. In a lasting-machine, the combination with a support for a last, toe lasting devices, and means for tipping the same, and heel-lasting devices and means for tipping the latter, of manually-operable means for simultaneously shifting the said lasting devices laterally to accommodate lasts, either rights or lefts, having a difference of swing.

5. In a lasting-machine, the combination with a support for a last, toe-lasting devices, and means for rolling the same, and heel-lasting devices and means for rolling the latter, of manually-operable means for simultaneously shifting the said lasting devices laterally to accommodate lasts either rights or lefts, having a difference of swing.



6. In a lasting-machine, the combination with a support for a last, toe lasting devices, and means for tipping and rolling the same, and heel-lasting devices and means for tipping and rolling the same, of manually-operable means for simultaneously shifting the said lasting devices laterally to accommodate lasts, either rights or lefts, having a difference of swing.

7. In a lasting-machine, the combination with a support for a last, toe and heel lasting devices, and means for moving the same toward and from each other to accommodate lasts of different lengths, of manually-operable means for simultaneously shifting the said lasting devices laterally to accommodate lasts, either rights or lefts, having a difference of swing.

8. In a lasting-machine, the combination with a support for a last, the toe and heel lasting devices, and means for moving the same toward and from each other to accommodate lasts of different lengths, said toe and heel lasting devices having respectively means for tipping and rolling the same, of manually-operable means for simultaneously shifting the said lasting devices laterally to accommodate lasts, either rights or lefts, having a difference of swing.

9. In a lasting-machine, the combination with toe and heel lasting devices, of manually-operable means for simultaneously shifting the same to meet lasts, either rights or lefts, having a difference of swing, of means for varying the shifting movement of the said lasting devices by the said manually-operable means.

10. In a lasting-machine, the combination with toe and heel lasting devices, of manually-operable means for simultaneously shifting the same to accommodate lasts, either rights or lefts, having a difference of swing, and means whereby the shifting of the said lasting devices by the said manually-operable means may be in the same or in opposite directions as necessary.

11. In a lasting-machine, the combination with toe and heel lasting devices, of the swinging stands upon which the said lasting devices are respectively mounted, and manually-operable means for simultaneously swinging the said stands to thereby shift the said lasting devices to meet lasts, either rights or lefts, having a difference of swing.

12. In a lasting-machine, the combination with toe and heel lasting devices, and the swinging stands carrying the same, said stands being relatively movable one toward and from the other, of manually-operable means for swinging the said stands and thereby shifting the said lasting devices to meet lasts, either rights or lefts, having a difference of swing.

13. In a lasting-machine, the combination with toe and heel lasting devices, a single shaft, and connections between the same and the said lasting devices, whereby rotation of the said shaft in opposite directions shifts the said lasting devices first in one and then in an opposite direction to meet lasts, either rights or lefts, having a difference of swing, and manually-operable means for rotating the said shaft.

14. In a lasting-machine, end lasting devices to act upon and la

connection with an end of a last, of manually-operable means for shifting the said end lasting devices to accommodate an end of a last, either a right or a left, having a difference of swing, and adjustable means for varying the relative movement of said lasting devices and manually-operable means, substantially as described

15. In a lasting-machine, toe and heel lasting devices, and means respectively for actuating the same to lay the material upon the last, of manually-operable means independent of said actuating means for shifting both said toe and heel lasting devices for lasts, either rights or lefts, presenting a difference of swing.

16. In a lasting-machine, toe and heel lasting devices, and supports therefor made movable to adapt said lasting devices to lasts, either rights or lefts, having a difference of swing, and connections between the said movable supports whereby movement of one causes movement of the other.

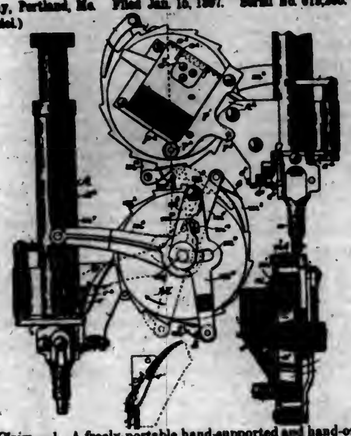
17. In a lasting-machine, the combination with heel and toe lasting devices, and means whereby said lasting devices automatically shift for lasts having a difference of swing, of means for manually shifting the said lasting devices to adapt the same for lasts having a difference of swing.

18. In a lasting-machine, the combination with heel and toe lasting devices, and means whereby said lasting devices automatically shift for lasts having a difference of swing, of means for manually shifting the said lasting devices to adapt the same for lasts having a difference of swing, said means for manually shifting the said plates being used alone or supplementary to the automatic means as desired.

19. In a lasting-machine, the combination with toe-lasting devices, and actuating means therefor, and supporting means for the same, and heel-lasting devices, actuating means therefor, and supporting means for the same, of means coöperating with and for shifting both the said supporting means to adapt their said lasting devices to the opposite ends of lasts having a difference of swing.

20. In a lasting-machine, toe-lasting devices, actuating means therefor, a toe pad or clasp, and a stand or carrier supporting the same, and heel-lasting devices, a heel-clasp and a stand or carrier therefor, combined with means for simultaneously shifting the said stands or carriers and thereby their respective lasting devices, and clasps to adapt the same for lasts having a difference of swing.

601,941. NAILING APPARATUS. MATTHIAS BROCK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Jan. 15, 1897. Serial No. 619,205. (No model.)



Claim.—1. A freely-portable hand-supported and hand-operated nailing apparatus containing in combination a casing adapted to be carried by the hand; a fastening-receptacle mounted on said casing; a reciprocating hand-operable driver and nail or fastening feeding means connected with and deriving feeding movement from said driver, said feeding means and connections between the same and driver moving without change in direction during movement of said driver in any one direction, movement of said driver in opposite directions causing effective movement of said feeding means always in the same direction, substantially as described.

2. In a machine of the class described, the combination with a reciprocating driver, of a fastening-receptacle, and intermittingly-operated means acting always in the same direction to deliver fastenings from the said receptacle for the said driver, and said means being actuated by said driver during movement of the latter in one and also in an opposite direction, substantially as described.

3. A freely-portable hand-supported and hand-operated nailing apparatus containing in combination a casing adapted to be carried by the hand, a reciprocating hand-operable driver, and a rotatable fastening-receptacle, both mounted on said casing and devices actuated by said driver to impart relatively slow and easy step-by-step rotation to said receptacle both on and during substantially the entire driving and on the return movement of said driver, substantially as described.

4. In a nailing apparatus of the class described, a reciprocating driver, a casing, a rotatable fastening-receptacle on said casing and provided interiorly with means to lift the contained nails, nail-conducting means to convey nails from said receptacle to said driver and means actuated by said driver to impart rotation to said receptacle during both the driving and also during the return movement of said driver said means tending to move said receptacle in but one direction during movement of said driver in either direction.

5. The combination with the driver, the casing, a rotatable receptacle and means to impart step-by-step rotation thereto from said driver during the driving and also during the return movement of the latter and a clearer arranged over and clearing the properly-positioned fastenings on said conductor and connecting devices intermediate said rotatable receptacle and said clearer for communicating to the latter a vibrating motion by and from step-by-step rotation of the said receptacle.

6. The combination with the driver and its case, of a conductor to convey fastenings to the said driver, a spring-controlled fastener-impelling device, having a stop-surface to engage the head of a fastening from said conductor, and means acting upon the shank of the fastening to move the latter into inclined position while its head is yet engaged by said stop-surface, said impelling device being actuated to release the fastening-head when the pressure upon the shank reaches a predetermined degree, substantially as described.

7. The combination with the driver, its case, and the conductor leading to the driver, of a yielding pivoted controller having a stop-surface and means engaging a fastening to press the head of such fastening against such stop-surface first to position the fastening and then to turn said controller on its said pivot to free said fastening substantially as described.

8. In a machine of the class described, the combination with a driver, and a fastening-conductor leading thereto, means for controlling the passage of fastenings toward said driver, said means being constructed to furnish a dwell intermediate the beginning and the end of its movement in one direction in which a fastening can assume proper position for final and accurate movement, substantially as described.

9. In a machine of the class described, the combination with a driver and a fastening-conductor leading thereto, of a fastening separating and feeding gate having a fastening-separating point to separate a fastening from a series of fastenings, and means to impart to said gate an initial movement to cause its said point to separate a fastening, and a final fastening-feeding movement in the same direction as said initial movement but separated from said initial movement by a period of dwell, substantially as described.

10. The combination with a fastening-conductor, of a single means to act upon a fastening in said conductor and move the said fastening into a new position to hold said fastening in its said new position so as to enable the said fastening to be positioned with certainty for a subsequent movement, and to finally impart such subsequent movement to said fastening, substantially as described.

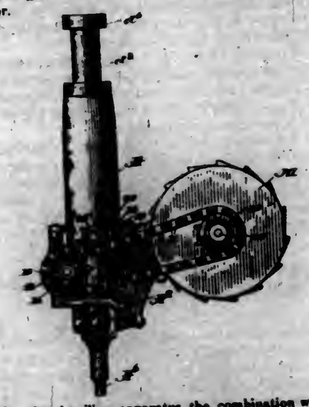
11. In a machine of the class described, a driver and means to convey the fastenings toward said driver, said means holding one or more of said fastenings in position approximately parallel to line of travel of said driver, combined with means to act upon a fastening so positioned to impel the said fastening endwise into the path traversed by said driver, substantially as described.

12. In a machine of the class described, the combination with a driver and a fastening-conductor leading thereto, of means to feed the fastening singly toward said driver, and a yielding impelling device to act upon and retard the movement of the head of a fastening, a face of said impelling device acting as a hammer to positively impel a fastening so retarded toward said driver, substantially as described.

13. In a fastening-driving apparatus, a conductor to receive and guide fastenings, a driver, a fastening-passage in communication therewith and a spring-actuated impelling device to act on a fastening at the end of said conductor and shoot said fastening endwise into said fastening-passage to be in position to be acted upon by said driver, substantially as described.

601,942. HAND NAILING APPARATUS. MATTHIAS BROCK, Boston, Mass., assignor to the Consolidated & McKay Lasting Machine Company, Portland, Me. Filed Aug. 14, 1897. Serial No. 648,237. (No model.)

Claim.—1. In a hand nailing apparatus, the combination with a driver and a driver actuator, of means for controlling the supply of nails to said driver, and an endless flexible connection traveling always in one direction interposed between the said driver-actuator and nail-controlling means, and through which the latter is actuated by the former.



2. In a hand nailing apparatus, the combination with a driver and a reciprocating actuator therefor, of a loose nail-holding receptacle, means controlling the supply of nails therefrom to said driver, and a flexible connection traveling always in one direction interposed between the said driver-actuator and nail-controlling means, and through which the latter is actuated by the former.

3. In a hand nailing apparatus, a reciprocating driver and its actuator, rotary means located at one side of said driver and more or less removed therefrom, to control the supply of nails to said driver, and means to conduct the nails from said rotary nail-controlling means to said driver, combined with means closely adjacent the said driver and its actuator for transforming the reciprocating movement of the latter into a rotary motion, and connections between such means and said nail-controlling means for operating the latter by or from the former, said connections being independent of said controlling means, substantially as described.

4. In a hand nailing apparatus, a case containing a reciprocating driver, a driver-actuator, a rotary nail-controlling part carried by said case, and means to conduct the nails from said nail-controlling part to said driver, combined with means for obtaining a rotary movement by and from the reciprocating movement of said driver or its actuator, and a flexible connection joining such means with and to rotate said nail-controlling part, said flexible connection being independent of said nail-conducting means, substantially as described.

5. In a hand nailing apparatus, a case, a reciprocating driver, its actuator, a rotary feed-controlling part, means to conduct nails therefrom to said driver, and means independent of said nail-conducting means and actuated by said driver and including a flexible connection, for transforming a step-by-step rotary movement always in one direction to said feed-controlling part from said driver or its actuator, substantially as described.

6. In a hand nailing apparatus, a case, a reciprocating driver, and its actuator, a wheel journaled on said case, and devices moved by said actuator to impart a step-by-step rotation to said wheel, a rotary nail-receiving hopper also mounted on said case, and an endless connection joining the same with and to be rotated by said wheel, substantially as described.

7. In a hand nailing apparatus, a case, a reciprocating driver, and its actuator, a wheel, and devices to impart a step-by-step movement thereto from said actuator, a rotary feed-controlling hopper, and a flexible connection positively rotating the same from the said wheel, substantially as described.

8. In a hand nailing apparatus, a case, a reciprocating driver and its actuator, a swinging lever arranged to be moved by said actuator, a wheel and pawl-and-ratchet mechanism interposed between the same and the said lever, a rotary feed-controlling hopper, and a sprocket-chain connecting the same with and to be driven by said wheel, substantially as described.

9. In a hand nailing apparatus, a hand-operated reciprocating driver, and a suitable case, of a rotary nail-controlling part carried by said case, and connections interposed between the said nail-controlling part and said driver and including an endless flexible connection, whereby hand-operated reciprocation of the said driver transmits therefrom through the said flexible connection a rotary movement to the said nail-controlling part.

10. In a hand nailing apparatus, the combination with a suitable case, and a hand-operated driver arranged thereon, of a loose nail-holding receptacle, a raceway to conduct the loose nails therefrom to driving position adjacent the said driver, a rotary feed-controlling part governing the flow of the loose nails to said raceway, and an endless flexible connection interposed between said driver and said rotary nail-controlling part for operating the latter by hand-operated movement of the former.

601,948. BUTTON-REMOVER. STEPHEN R. BUELL, Mine, Ohio. Filed Oct. 14, 1896. Serial No. 608,804. (No model.)



Claim.—1. A button-removing device, comprising a head having an entrance-slot, ways at each side of said slot and inclined away from the entrance end thereof, and a cutter pivoted on the head and movable across the slot to coöperate with one of the edges of said slot to sever the button, substantially as described.

2. A button-removing device, consisting of a head provided with an entrance-slot, ways arranged at each side of said slot and inclined away from the entrance end thereof and having their rear ends arranged to form guards overhanging the cutter, and a cutter pivoted on the head and movable across the slot beneath said guards to coöperate with one of the side edges of the slot to sever the button, substantially as described.

3. A button-remover, consisting of a head having a concaved under surface and provided with an entrance-slot, guards arranged at each side of said slot and inclined away from the entrance end thereof, and a cutter operating across the rear end of said slot and between the head and the rear ends of the guards, substantially as described.

4. The herein-described device comprising a head constituting one of the cutters, a handle attached to said head, a cutter pivoted on and coöperating with said head and provided with a handle, and a spring interposed between and connected at its opposite ends to said handles, said spring being arranged to retract the pivoted cutter and at the same time to press said cutter against the head of the device, substantially as described.

5. The herein-described device, comprising a head constituting also a cutter and provided with a handle, a vibratory cutter having a handle which is deflected to one side of the plane of the cutters in rear of their pivotal connection, and a C-shaped spring having one end attached to one of the handles and its opposite end connected to the other handle, said spring operating to retract the pivoted cutter and to hold said cutter in working contact with the head, substantially as described.

6. A button-removing device comprising a head having an entrance slot, ways at each side of said slot and inclined away from the entrance end thereof, a cutter pivoted on the head and movable across the slot to coöperate with one of the side edges of the slot to sever the button, and a button-receptacle superposed above the cutter to receive the buttons when severed, substantially as described.

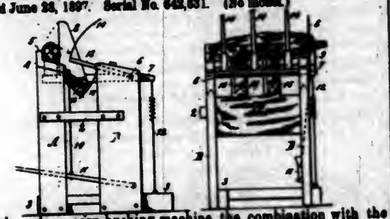
7. A button-removing device comprising a head having an entrance-slot, inclined ways sloping upward rearwardly and united at their rear ends, a cutter operating across the inner end of said slot, and a button-receptacle mounted on said ways at their rear ends, substantially as described.

8. A button-removing device, comprising a head having an entrance-slot, inclined ways at each side of said slot extending over the cutter and having their rear ends united and turned upward to form an inclined wall, a cutter operating across the inner end of said slot, and a button-receptacle mounted on said ways, the rear upturned portion of which forms a portion of the bottom of said receptacle, substantially as described.

9. A button-removing device, comprising a head having an entrance-slot, a cutter operating across the inner end of said slot, upwardly and rearwardly inclined ways at each side of said slot and extending over the cutter, a button-receptacle mounted on said ways and having an entrance-opening for the buttons, and a flap or gate normally closing said opening but adapted to yield to allow the ingress of the buttons and to prevent the egress thereof, substantially as described.

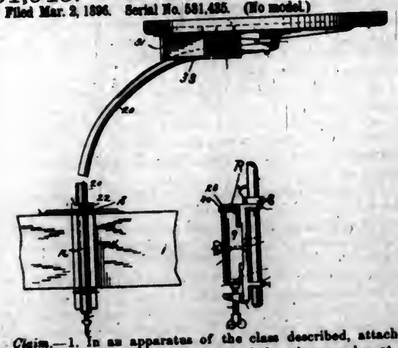
10. A button-removing device, comprising a head having an entrance-slot, a cutter operating across said slot, upwardly and rearwardly inclined ways at each side of said slot extending over the cutter, a button-receptacle having an entrance-opening for the buttons, a movable gate operating automatically to allow the ingress and prevent the egress of the buttons, a spring-actuated lid or cover for said receptacle, and a projecting lip on said cover, substantially as and for the purpose described.

601,944. CORN-HUSKER. JOHN M. CARLISLE, Spartanburg, S. C. Filed June 28, 1897. Serial No. 642,631. (No model.)



Claim.—In a corn-husking machine the combination with the treadle and an oscillatory arm or lever, of the herein-described stabgage and shearing-knife operated by the lever, the swinging presserbars 13 provided on their free ends with resilient cam extensions, and the duplicate series of convergent spring-fingers provided with stripping-claws, all constructed and arranged to operate substantially as and for the purpose herein specified.

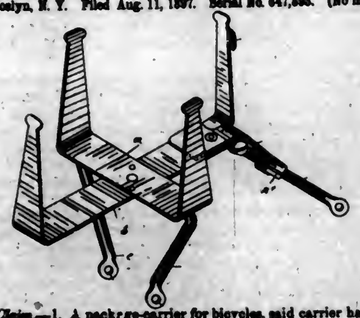
601,945. INVALID-TABLE. JAMES H. CHANDLER, Boston, Mass. Filed Mar. 2, 1896. Serial No. 581,425. (No model.)



Claim.—1. In an apparatus of the class described, attaching means, including a bracket having a fixed clamping member at one end and a foot at the other end, a movable clamping member mounted on said foot, a follower adapted to engage the under side of a bed-rail, means to detachably connect the follower with and to clamp it upon the bracket when vertically adjusted, and a table-supporting standard carried by the bracket, the fixed clamp member bearing against the bed-rail while the movable member acts to hold the follower in adjusted vertical position, substantially as described.

2. In an apparatus of the class described, attaching means, including a longitudinally-slotted bracket having a laterally-extended clamping member rigidly mounted thereon, a movable clamping member also mounted on the bracket, a follower engaged by said movable member, the bed-rail being held between said follower and the fixed clamping member, a headed bolt extended through the follower and the slot in the bracket, and a locking-nut on said bolt, to firmly secure the follower to the bracket, substantially as described.

601,946. BICYCLE PACKAGE-CARRIER. GEORGE G. CLAPHAM, Roslyn, N. Y. Filed Aug. 11, 1897. Serial No. 647,693. (No model.)

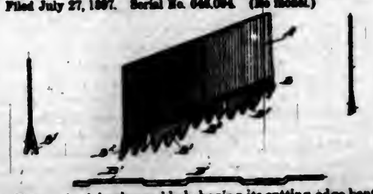


Claim.—1. A package-carrier for bicycles, said carrier having a body or main portion formed of rigidly-connected plates with resilient upwardly-bent ends, legs carried on the body portion and formed of a bar having its ends bent downward to form the legs, the intermediate portion of the bar being mounted to rock on the body portion, a clip attached to each of said legs, whereby the legs may be connected with the bicycle-frame, an additional leg hinged to the front of the body portion, and a clip coacting with said additional leg to hold the same on the bicycle-frame.

2. In a package-carrier, the combination of a body portion having an upwardly-extending resilient portion provided with a finger, a leg pivoted to the body portion, and a spring-arm mounted to swing on the body portion and capable of engaging the leg, the leg being capable of swinging up to engage the finger.

3. In a package-carrier, the combination of a body portion having an upwardly-projected resilient portion, a leg pivoted to the body portion and capable of swinging up to engage said resilient portion whereby to hold the leg in inactive position, and a spring-arm pivoted to the body portion and capable of engaging the leg to hold the same in active position.

601,947. HACK-SAW. GEORGE H. CLEMSON, Middletown, N. Y. Filed July 27, 1897. Serial No. 646,094. (No model.)



Claim.—1. A hack-saw blade having its cutting edge bent alternately in opposite directions, the bends being of rectangular form of uniform width and depth, and each extending over a plurality of teeth, the bends extending inwardly beyond the base of the teeth a distance approximately equal to the height of the teeth, substantially as shown and described.

2. A hack-saw blade having its cutting edge bent alternately in opposite directions, the bends standing at right angles to the length of the blade, the bends being of rectangular form of uniform width and depth and each bend extending over a plurality of teeth, the bends extending inwardly beyond the base of the teeth a distance approximately equal to the height of the teeth, substantially as shown and described.

3. A hack-saw blade provided with approximately rectangular bends arranged alternately on opposite sides of the blade and at an acute angle to the main plane thereof, each of said bends extending over a plurality of teeth and also extending inwardly beyond the bases of the teeth a distance approximately equal to the height of the teeth, substantially as described.

601,948. SASH-FASTENER. ALEXANDER COOPER, Lakeview, N. J. Filed Jan. 4, 1897. Serial No. 617,867. (No model.)



Claim.—The combination with the side pieces of a window-frame and with a sash vertically movable between said side pieces, of a rack-rod arranged on each side piece close to the inner face of each stile of said sash and approximately in the same plane therewith, pinions journaled on the face of the stiles and engaging the rack-rods, and each provided with a flange on its perimeter spacing the sash from the rack-rod, a vertically-set pinion inclosed in the bottom rail of the sash and provided with a suitable exposed operating element, and spring-pressed locking-bars also inclosed by the bottom rail and provided at their outer ends with integral and exposed angular extensions engaging the rack-rods and at their inner ends with racks engaging the pinion, said locking-bars being arranged the one above and the other below said pinion, substantially as described.

601,949. CALENDAR. MARTIN COWEE, Bellaire, Ohio. Filed Mar. 13, 1897. Renewed Mar. 10, 1898. Serial No. 673,602. (No model.)

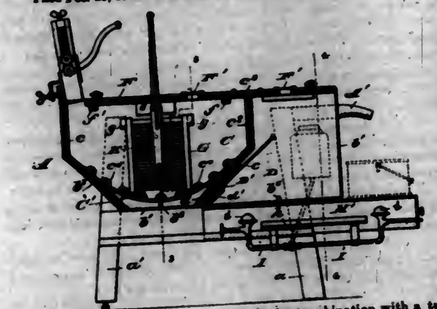
Claim.—1. In a calendar, the combination, with a frame provided with a back and a narrower front extending from the top of the back, terminating at the central portion of the back in a disk, the back being provided with an opening and the front with a corresponding or registering opening, at a margin of each of which openings the names of the days of the week are indicated, of a date-bearing leaf pivoted between the front disk portion of the frame and the back of the frame, revolving between the two members, said date-bearing leaf being provided with a series of radial panels, the inner or contracted ends whereof terminate at the disk portion of the frame, each of said panels bearing characters representing the dates of the days of one week and the name of the month to which the week belongs, all being arranged for the purpose set forth.



2. In a calendar, the combination, with a frame, of a date-bearing leaf mounted to revolve on the frame, said frame being provided with a display-opening, and a pivot on which the date-bearing leaf revolves, the said pivot having one of its ends bifurcated and the members thereof carried in opposite directions, the date-bearing leaf being also provided with a tongue forming a portion of the margin of the opening through which the pivot passes, as and for the purpose specified.

3. In a calendar, the combination, with a frame and a revolving date-bearing disk, the said disk being provided with a central opening and cuts leading therefrom, forming a tongue, of a pivot passed through the frame and through the opening in the disk, one end of said pivot being bifurcated and its members carried in opposite directions, as and for the purpose specified.

601,950. WASHING-MACHINE. ALBERT W. DAVIS, Harvey, Ill. Filed Feb. 22, 1897. Serial No. 624,852. (No model.)



Claim.—1. In a washing-machine, the combination with a tub divided into two compartments, each having a metallic bottom, means for establishing communication between the compartments, the supporting-frame of the tub being provided with depending side pieces, of a heating apparatus which is longitudinally movable with respect to the compartments of the tub, the same consisting of burners, an oil-supply tank in communication with the burners, a slide to which the burners and oil-tank are attached, the slide having openings above the burners and depending side pieces for engagement with the depending side pieces of the tub, substantially as shown and for the purpose set forth.

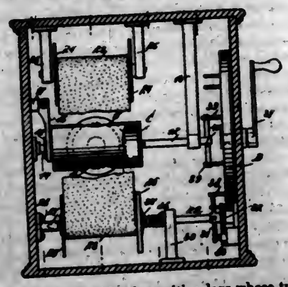
2. In a washing-machine, the combination with a tub having a metallic bottom and end, a partition dividing the tub into compartments C, D, one compartment having a bed C' with perforations and slats c' having perforations which register with the perforations in the bed, an aperture d in the partition positioned below the bed, the compartment B, being formed by the partition, side pieces of the tub and an upward continuation of the metal bottom; together with a cut-off or closure for the aperture d, substantially as shown and for the purpose set forth.

3. In a washing-machine, a tub provided with a metallic bottom and end, a partition dividing the tub into two compartments in combination with a slide carried by the frame which supports the tub, said slide having a cross-piece A with depending brackets, one of the brackets being disposed at right angles to the other brackets as shown, burners, pipes and an oil-tank supported by the brackets and connected thereby to the slide, substantially as shown and for the purpose set forth.

4. In a washing-machine the combination with a tub having a metallic bottom and end, a partition dividing the tub into two compartments, metallic strips H, H, secured to the frame of the tub, the lower edges of said strips being bent inwardly and upward, of a slide H' having a top portion with apertures, depending side portions for engagement with the lower bent edges of the strips a transverse plate carried by the slide, brackets which depend from said plate, an oil-tank, burners and connecting-pipes carried by the brackets so as to move in unison with the slide, the burners being disposed below the apertures in the top portion of the slide, substantially as shown and for the purpose set forth.

5. In a washing-machine a tub having a metallic bottom and depending side plates H, H, in combination with a longitudinally-movable slide carrying heaters and oil-supply tank, said slide having a depending end portion with projecting knobs, and an aperture through which passes a valve-rod which is connected with a burner of the heater nearest the depending end of the slide, substantially as shown and for the purpose set forth.

601,951. KINETOGRAPHIC CAMERA. WARREN R. DAVIS, Brooklyn, N. Y. Filed Apr. 13, 1897. Serial No. 631,967. (No model.)



Claim.—1. The combination, with a lens whose tube has a concaved inner end, and a cylindrical shutter held to revolve close to the concaved surface of the lens-tube, said cylindrical shutter being provided with diametrically opposite openings arranged for the passage of light from one side of the shutter to the other, of a film-carrying device, and mechanism for operating both the shutter and the film-carrying device.

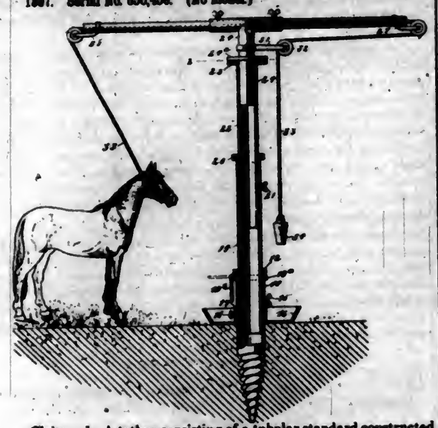
2. The combination, with a lens whose tube has a concaved inner end, and a rotatable shutter adjacent to the concaved surface of the lens-tube, the said shutter being of hollow cylindrical construction and having diametrically opposite openings in its sides, of a film-carrying device, a master-wheel, and a time driving connection between the master-wheel, the film-carrying device and said shutter.

3. The combination, with a lens, and a rotatable shutter adjacent to the lens, of hollow cylindrical construction and provided with diametrically opposite openings in its sides, of a detent for the said shutter, a film-carrying device, a feed for the film-carrying device, a master-wheel, a connection between the master-wheel and said feed for the film, a shifting device for the shutter, and a connection between the said shifting device and the master-wheel, substantially as shown and described.

4. The combination, with a lens, a rotatable hollow cylindrical shutter held to turn in close proximity to the inner end of the lens, being provided with diametrically opposite openings, one in each side, and a two-armed lever connected with a trunnion of the said shutter, of a detent for the said shutter, film-carrying reels, one of which is provided with a star-wheel, a master-wheel, and two series of pins located on the master-wheel, one series of pins being arranged for engagement with the star-wheel and the other series being arranged for engagement with the double-armed lever.

5. The combination, with a lens, a rotatable hollow cylindrical shutter held to turn in close proximity to the inner end of the lens, being provided with diametrically opposite openings, one in each side, and a two-armed lever connected with a trunnion of the shutter, of a detent for said shutter, film-carrying reels, one of which is provided with a star-wheel, a master-wheel, and two series of pins located on the master-wheel, one series of pins being arranged for engagement with the star-wheel and the other series for engagement with the double-armed lever, a ratchet-and-pawl mechanism connected with the support for the star-wheel, and guide-rollers between which the film passes from one reel to the other.

601,952. TETHER. JOHN DAY, Logansport, Ind. Filed Sept. 3, 1897. Serial No. 650,456. (No model.)



Claim.—1. A tether consisting of a tubular standard constructed in adjustable sections, means for securing the sections together, a tubular T-head mounted to turn on the upper section of the standard, a tubular cross-bar extending through the upper or horizontal member of the T-head and projecting at both ends thereof, the said cross-bar being adjustable in the said member of the T-head, guides at the ends of the cross-bar, a tether-rope passing over the said guides and through the said tubular cross-bar, and means for turning said standard for the purpose set forth.

2. In a tether, the combination with a standard constructed in adjustable sections, and locking devices for the sections, the uppermost section of the standard being provided with a flange or table, of a T-shaped tubular head held to turn in the upper section of the standard, the head being provided with a flange or table adapted to turn upon the corresponding part of the standard, a tubular cross-bar secured in the horizontal portion of the T-head, fastening devices for the said cross-bar, guides located at the ends of the cross-bar, a guide carried by the said T-head, and a tether-rope weighted at one of its ends, passed over the said guides and through the said tubular cross-bar, for the purpose set forth.

3. In a tether, the combination, with a standard constructed of tubular telescopic sections, the various sections being provided with fastening devices, of a T-head provided with a horizontal member and fastening devices at said member, a tubular cross-bar secured in the horizontal member of the head, extending beyond both ends thereof, guides located at the ends of the tubular bar and upon the T-head, and a rope weighted at one end, passed over the said guides and through the said cross-bar, whereby the end of the rope adapted for attachment to the animal will be at the side of the standard opposite that at which the weight is located, and whereby the rope will have little frictional contact and the major portion of the rope will be protected, for the purpose specified.

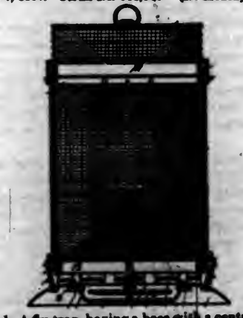
4. In a tether, the combination, with a standard constructed in tubular telescopic sections, sundry of the sections being provided with fastening devices, the upper section being provided with a horizontal flange or table, and a trough carried by the standard, and adjustable thereon, of a T-head having a tubular vertical section, the said T-head being arranged to turn in the upper portion of the standard and provided upon its vertical member with a horizontal flange or table adapted to engage with a corresponding flange or table on the standard, a tubular cross-arm secured in the vertical member of the said head, extending beyond both ends of the said member, fastening devices for the said arm, pulleys secured to the cross-arm, one at each end, and a third pulley secured upon the T-head, and a tether rope or chain provided with a weight at one end, the rope or chain being carried from the weight over the pulley on the T-head, over one of the pulleys on the cross-arm, through the cross-arm and over the opposing pulley on said arm, as specified.

5. A tether consisting of a standard, a tubular cross-bar adjustably held in a support mounted to turn at the upper end of said standard, the said cross-bar extending beyond both ends of said support, a guide-pulley supported at each end of the said tubular cross-bar, the upper peripheral portion of each pulley being in horizontal alinement with the interior of the cross-bar, the support for said cross-bar being also provided with a guide-pulley, and a weighted tether rope or chain passing through the said tubular cross-bar and over the said guide-pulleys, substantially as set forth.

6. A tether, comprising a standard carrying a trough and provided with means for turning the said standard into and out of the ground, a tubular cross-bar held in a support mounted to turn at the upper end of the standard, brackets located at the ends of the cross-bar, the said brackets each carrying a guide-pulley having its upper peripheral portion in horizontal alinement with the interior of the cross-bar, the support for said cross-bar being also provided with a guide-pulley, and a weighted tether rope or chain passing through the said tubular cross-bar and over the said guide-pulleys, substantially as described.

7. In a tether, the combination with a standard made in sections and a tether rope or chain carried by the standard, the base-section of said standard being pointed at its lower end and provided with a spiral thread or flange, and having a rib at its upper end, of a ring loosely encircling the base-section below the rib, and a lever pivoted to the ring and having a cam-head adapted when the lever is carried to the horizontal position to bind the ring upon the section, whereby the base-section may be turned into or out of the ground by means of said lever, as and for the purpose set forth.

601,953. FLY-TRAP. WILLIAM EICHELBERGER, Ash Grove, Ill. Filed Dec. 7, 1897. Serial No. 661,048. (No model.)



Claim.—1. A fly-trap, having a base with a central orifice therein, a pan seated in said orifice and adapted to contain the bait, a post standing centrally on the pan, a float movable vertically on the post and adapted to be sustained by the liquid bait within the pan, an annulus bearing on the base and surrounding the pan and having orifices for the admission of the flies, a cage seated on the annulus, and a funnel within the cage, the funnel overhanging the bait-pan and opening into the cage.

2. A fly-trap having a base with an orifice in the center thereof, a bait-pan seated in the orifice, a post standing on the bait-pan, a float having vertical movement on the post, an annulus seated on the base, and a cage bearing on the annulus and located over the bait-pan.

3. A fly-trap having a receptacle for liquid bait, a post standing in said receptacle, and a float movable vertically on the post and capable of being sustained on the bait in said receptacle.

4. A fly-trap, having a base provided with a receptacle for liquid bait, a cage supported on the base, and a float adapted to be sustained on said liquid bait to afford a resting place for the flies.

601,954. SLIDING-JAW WRENCH. ALBERTUS ENOS, Sioux City, Iowa, assignor of one-eighth to Henry B. Jerome, Gardenville, Minn. Filed Sept. 15, 1897. Serial No. 651,733. (No model.)



Claim.—In combination, a hollow handle having slanting rear edges, an extension formed on the rear of the handle with teeth on its upper face, a jaw formed on the forward end of the handle, a shank operating through the hollow handle having teeth to engage the teeth of said handle, a pin in the shank adapted to ride on the incline of the handle and a jaw on the shank lying approximately parallel with the jaw of the handle as the jaws are drawn together by the action of the incline and the pin, as and for the purpose described.

601,955. STRAINER FOR COFFEE-POTS. SIMON J. FREEMAN, Bradford, Pa. Filed July 20, 1897. Serial No. 645,322. (No model.)

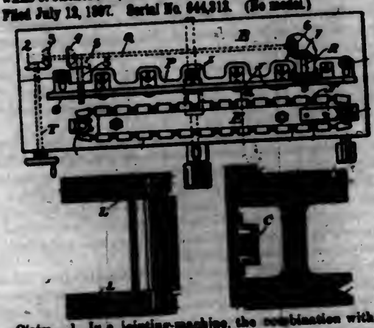
Claim.—1. A removable strainer adapted to be placed within a pot, the said strainer consisting of an inner straining-plate provided with a flange, supports for the inner straining-plate arranged for engagement with the body of the pot, and a forward straining-plate having smaller openings than the rear straining-plate, the said forward straining-plate being supported by the flange of the rear straining-plate, for the purpose set forth.



2. An auxiliary strainer for coffee-pots adapted as an interior strainer, the said auxiliary strainer consisting of an inner straining-plate and a flange connected therewith, the inner straining-plate being at an angle to the flange and pendent therefrom, the said flange being provided with supports arranged for engagement with the body of the pot, and a forward straining-plate, serving as an intermediate straining device when the auxiliary strainer is in position on the body of the pot, the said forward straining-plate having openings of less dimensions than the inner straining-plate and being attached to the flange of the rear straining-plate, for the purpose set forth.

3 An auxiliary strainer for coffee-pots adapted as an interior strainer, the said auxiliary strainer consisting of a rear strainer-plate, a flange connected with the rear straining-plate, from which the latter is downwardly and forwardly projected at an obtuse angle, the flange being provided with a central opening and with hooks arranged for engagement with the upper edge of the body of the coffee-pot to which the attachment is made, and a forward strainer having openings of less dimensions than those of the rear strainer, the forward strainer being provided with a hook arranged to be passed through the opening in the flange of said rear strainer, for the purpose specified.

601,956. GLUE-JOINTING MACHINE. ROBERT M. GLEASON, Edward J. Jamieson, and Alfred E. Watrous, Grand Rapids, Mich. Filed July 13, 1897. Serial No. 644,913. (No model.)



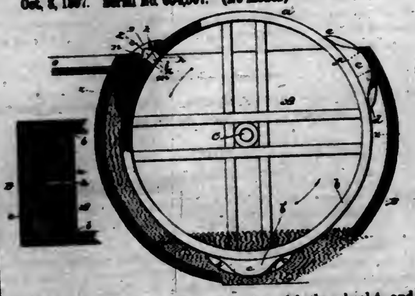
Claim.—1. In a jointing-machine, the combination with a bed, of a stationary guide supported on the bed and grooved on its opposite sides, sprocket-wheels arranged at the opposite ends of said guide, means for rotating the sprocket-wheels, an endless chain lying in the grooves on the sides of the guide and driven by the sprocket-wheels, a series of vertical slats carried by the chain and each provided at its top with a tongue which engages and travels in a corresponding groove in the top of the guide, and at its bottom with a beveled tongue which engages and travels in a beveled groove in the side of the guide, a series of pressure-rollers arranged parallel to the feeding-surface of the slats, a frame supporting said rollers, and means for adjusting said frame toward and from the slats, substantially as described.

2. In a jointing-machine, the combination with a bed, of a stationary guide supported on the bed, and grooved on its opposite sides, sprocket-wheels arranged at the opposite ends of the guide, an endless chain passing around said sprocket-wheels and lying in the grooves on the opposite sides of the guide, means for driving the sprocket-wheels, vertical slats carried by the chain and each provided with an overhanging tongue at its top which engages and travels in a corresponding groove formed in the upper face of the guide and at its bottom with a beveled tongue which engages and travels in a corresponding beveled groove in the side of the guide, a series of pressure-rollers mounted in movable journal-boxes, a spring for each journal-box operating to push forward the journal-box and roller, a frame carrying journal-boxes, rollers and springs, and means for adjusting the frame toward and from the feeding-surface of the slats, substantially as described.

3. In a jointing-machine, the combination with a bed, of a stationary guide supported thereon, sprocket-wheels arranged at the ends of the guide, means for rotating the sprocket-wheels, an endless sprocket-chain driven by the sprocket-wheels, vertical slats carried by the sprocket-chain, tongues formed on the tops of the slats and engaging and traveling in a corresponding groove in the top of the guide, tongues formed on the bottoms of the slats and engaging and traveling in a corresponding groove in the side of the guide, and means for holding the stock parallel to and in contact with the feeding-surface of the slats, substantially as described.

4. In a jointing-machine, the combination with a stationary guide having grooves formed in its top and side respectively, sprocket-wheels arranged at the ends of the guide, an endless chain driven by said sprocket-wheels about said guide, vertical slats carried by the sprocket-chain and each provided at its top and bottom with tongues which engage and are guided by the grooves in the guide, a series of pressure-rollers, each roller mounted in a movable journal-box, a spring for each journal-box and roller, a frame for supporting said journal-boxes, rollers and springs, and means for simultaneously adjusting the opposite ends of said frame for adjusting uniformly the entire series of rollers toward and from the feeding-surface of the slats, substantially as described.

601,957. NORIA. REUBEN P. GRAY, Washington, D. C. Filed Oct. 6, 1897. Serial No. 654,567. (No model.)

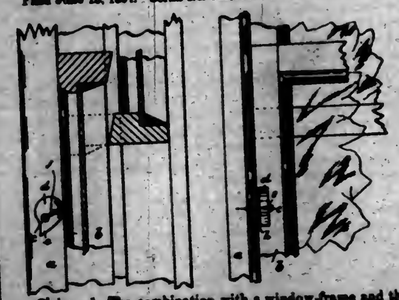


Claim.—1. In a noria, in combination with the wheel A, and the casing, the buckets c on the periphery of said wheel, said buckets being prow-shaped, as at d, for the purpose set forth, substantially as described.

2. In a noria, the combination of the wheel having the buckets, the casing forming a water space or chamber on one side of the wheel, and the valves, to prevent the formation of a vacuum in the said water space or chamber, substantially as and for the purpose described.

3. In a noria, the combination with the casing, forming the water space or chamber, of the wheel A having the peripheral buckets, the said buckets having their front and rear ends respectively prow-shaped, as at d, and stern-shaped as at e, for the purposes set forth, substantially as described.

601,958. SASH-HOLDER. ADOLPH HARTHORN, Paterson, N. J. Filed June 15, 1897. Serial No. 640,831. (No model.)



Claim.—1. The combination with a window-frame and the sash arranged therein, of a curved block of fibrous material, pivotally and eccentrically arranged on the window-frame, the eccentric and curved portion of said block being normally beyond the dead-center of rotation of said block and in frictional contact with the said sash, and

a metallic strengthening-rib in said block and embedded therein and in the radial line to its culminating-point and provided at its outer portion with a segmental-shaped flange also embedded in said block and adapted to strengthen that portion thereof which bears against the sash and to furnish additional weight thereto, substantially as described.

2. The combination with a window-frame and the sash arranged therein, of a curved block of fibrous material pivotally and eccentrically arranged on the frame and provided with a downwardly-extending projection, the curved and eccentric portion being normally beyond the dead-center of rotation of said block and in frictional contact with the sash, a metallic strengthening-rib embedded in said block and provided at its inner end with a sleeve penetrating said block and at its outer end with a segmental-shaped flange, said rib being arranged in the radial line to the culminating-point of the eccentric block, and an axle—such as a screw—penetrating said sleeve and serving as a fulcrum for the block, all said parts, substantially as and for the purposes described.

3. The combination with a window-frame and the sash arranged therein, of a curved block of fibrous material pivotally and eccentrically arranged on the frame and provided with a downwardly-extending projection, the curved and eccentric portion of said block being normally beyond the dead-center of rotation of said block and in frictional contact with the sash, a metallic strengthening-rib in said block and in the radial line to its culminating-point and provided on its sides with a series of lugs or projections embedded in said block, a segmental-shaped flange on the outer end of said rib, and approximately parallel with the outer edge of said curved or eccentric portion of the block, and an axle—such as a screw—penetrating said sleeve and secured to the frame and serving as a fulcrum for the block, all said parts, substantially as and for the purposes described.

601,959. SASH-FASTENER. ADOLPH HARRICHER, Paterson, N. J. Filed Nov. 1, 1897. Serial No. 656,990. (No model.)



Claim.—The combination with a vertically-movable sash and with the window-frame respectively having teeth and a socket oppositely arranged on their adjacent faces, of a bead secured to said frame and provided with an aperture therein, a plate secured to said frame over said socket and extending beneath the bead and its aperture, an elongated spring secured at one end to the outer end of said plate and on the rear face thereof, a bolt and a notched operating-lever rigidly secured to said spring at right angles thereto and penetrating said plate, the bolt being in alinement with said teeth and the lever being in alinement with the bead-aperture, projecting through the same and adapted to be pressed, toward said sash, to operate the spring, and a locking-pawl pivoted to said bead and adapted to engage the notch in said lever, substantially as described.

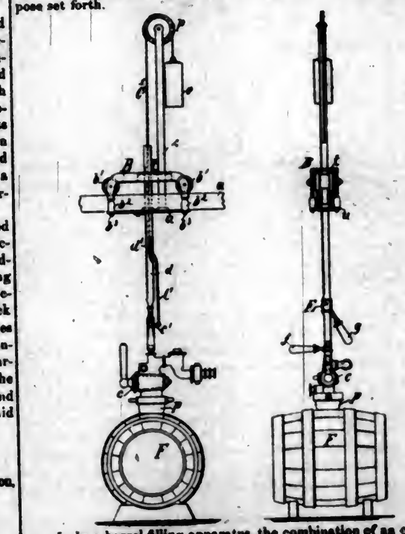
601,960. BARREL-FILLING APPARATUS. WILHELM HARTMANN, Offenbach-on-the-Main, Germany. Filed Mar. 13, 1897. Serial No. 627,369. (No model.)

Claim.—1. In a barrel-filling apparatus, the combination with a filling appliance, a carrier therefor from which it is suspended to have free up-and-down motion, a counterpoise for said appliance and means for rigidly connecting the same with its carrier, of an overhead track along which the carrier is adapted to travel, for the purpose set forth.

2. In a barrel-filling apparatus, the combination of an overhead track, a carriage adapted to travel thereon, a support displaceable vertically in said carriage, and a locking device for locking said support to said carriage, with a filling appliance connected and having vertical motion with and independently of said support and means for imparting such motion to the filling appliance independently of its support, for the purpose set forth.

3. A barrel-filling apparatus comprising an overhead track, a carriage adapted to travel thereon, a support displaceable vertically in bearings in said carriage, a filling appliance connected and displaceable vertically with and independently of said support a counterpoise for said support and a filling appliance, a locking device for locking the support to its carriage, and means for displacing the filling appliance in a vertical plane independently of its support, for the purpose set forth.

4. In a barrel-filling apparatus, the combination of an overhead track, a carriage adapted to travel thereon and provided with an upright and a pulley journaled thereon, with a support movable vertically in bearings in said carriage, a filling appliance connected and movable with and independently of said support, said parts counterbalanced on the aforesaid pulley, a locking device for locking the support to its carriage, and means for imparting motion to the filling appliance in a vertical plane independently of its support, for the purpose set forth.



5. In a barrel filling apparatus, the combination of an overhead track, a carriage adapted to travel thereon, rolling bearings connected with the outer vertical faces of the track-rails, and an upright carrying a pulley rising from said carriage, with a support movable vertically in bearings in the carriage, a filling appliance connected and movable with and independently of said support, said parts counterbalanced on the aforesaid pulley, a locking device for locking the support to its carriage, and means for imparting motion to the filling appliance in a vertical plane independently of its support, for the purpose set forth.

6. In a barrel-filling apparatus, the combination of an overhead track, a carriage adapted to travel thereon and a spring-actuated locking-dog pivoted to said carriage, with a filling appliance or cock, a cylindrical support therefor provided with teeth extending over a portion of its periphery only, adapted to be engaged by the aforesaid locking dog, said support counterbalanced on the carriage and having endwise and rotary motion in bearings in said carriage, substantially as and for the purpose set forth.

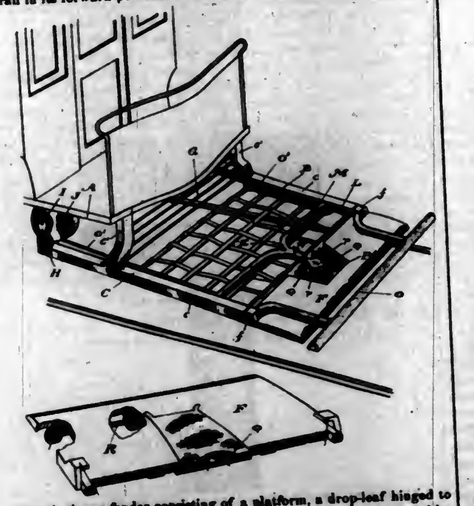
7. In a barrel-filling apparatus, the combination of an overhead track, a carriage adapted to travel thereon and comprising two side bars having turned-down ends terminating in a journal, an antifriction-roller on said journal in contact with the outer vertical face of the track-rails, a bridge connecting the side bars of the carriage above the rails, a bridge secured to the aforesaid journals below said rails, and a spring-actuated locking-dog pivoted to said bridge, with a filling appliance, a cylindrical support therefor provided with teeth extending over a portion of its periphery only, adapted to be engaged by the aforesaid locking-dog, said support being counterbalanced on the carriage and having vertical as well as rotary motion in bearings in the carriage-bridges, substantially as and for the purpose set forth.

601,961. FENDER FOR CARS. HENRY HAYWOOD and GEORGE TOTTEN, Toronto, Canada; said Haywood assignor to said Totten; said Totten assignor of one-fourth to Harry F. Lowe, same place. Filed July 13, 1897. Serial No. 644,462. (No model.)

Claim.—1. A car-fender consisting of a platform, a drop-leaf hinged to the front of the platform, guides at the side of the platform, guides on the hinged leaf in continuation of the platform-guides, a movable guard-rail sliding in the said guides, and when in its forward position adapted to hold the drop-leaf clear of contact with the rails or road-bed, substantially as specified.

2. A car-fender consisting of a platform, a leaf hinged to the front of the platform, a movable guard-rail at the front of the fender adapted to hold the hinged leaf normally clear of the road-bed, and means for withdrawing the guard-rail to the rear of the platform when meeting an obstacle substantially as specified.

3. A car-fender consisting of a platform, a drop-leaf hinged to the front of the platform, guides at the sides of the platform, guides on the hinged leaf in continuation of the platform-guides, a movable guard-rail sliding in the said guides, and when in its forward position adapted to hold the drop-leaf clear of contact with the rails or road-bed, a lock carried by the drop-leaf to releasably hold the guard-rail in its forward position, substantially as specified.



4. A car-fender consisting of a platform, a drop-leaf hinged to the front of the platform, guides at the side of the platform, guides on the hinged leaf in continuation of the platform-guides, a movable guard-rail sliding in the said guides, and when in its forward position adapted to hold the drop-leaf clear of contact with the rails or road-bed, and means to cause the withdrawal of the guard-rail to the rear of the platform when meeting an obstacle, substantially as specified.

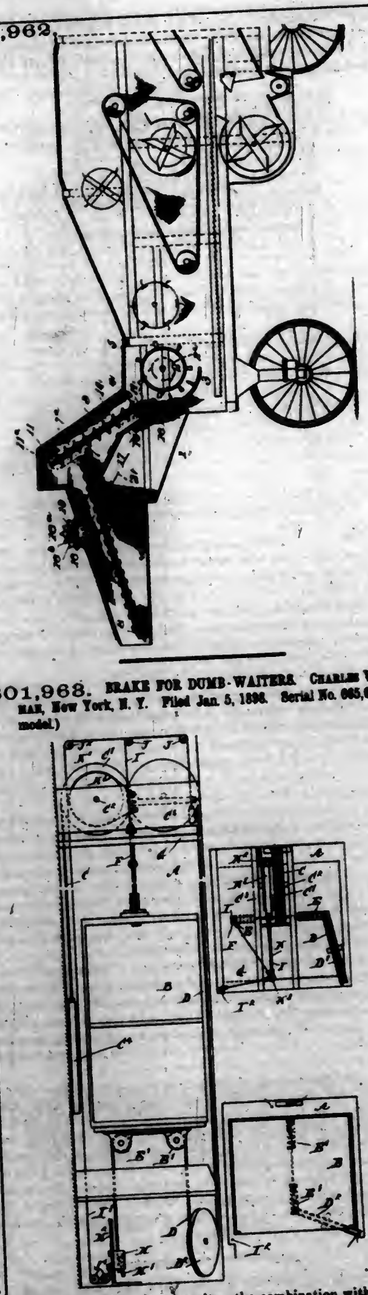
5. A car-fender consisting of a platform, a drop leaf hinged to the front of the platform, guides at the side of the platform, guides on the hinged leaf in continuation of the platform-guides, a movable guard-rail sliding in the said guides, and when in its forward position adapted to hold the drop-leaf clear of contact with the rails or road-bed, a lock carried by the drop-leaf to releasably hold the guard-rail in its forward position, and means to cause the withdrawal of the guard-rail to the rear of the platform when meeting an obstacle, substantially as specified.

6. In a car-fender, the combination of a platform, a drop-leaf hinged to the front of the platform, guide-rails at the sides of the platform, and guides carried by the drop-leaf in continuation of the guide-rails, a sliding frame moving in the guides, and when in its forward position adapted to hold the drop-leaf clear of contact with the rails or road-bed, a lock carried by the drop-leaf, a bolt carried by the frame, adapted to be engaged by the lock, a guard-rail carried by the frame, adapted to project beyond the drop-leaf when the frame is in its forward position, a shaft journaled in suitable bearings mounted on the platform, drums carried by the shaft, flexible connections secured to the sliding frame, adapted to be wound on the drums, and a spring to actuate the said shaft, substantially as specified.

601,962. BAND-CUTTER AND FEEDER. JOSEPH F. HOSKEN, Scandia, Kans. Filed Aug. 5, 1897. Serial No. 647,298. (No model.)

Claim.—The combination with the main frame 1 of a threshing-machine, of a beating drum or cylinder 2 mounted therein, a covered frame or inclosing housing 4 hinged at its inner end to the feeding-in end of the main frame and adapted to be turned over upon the same, the concave-breasting 3, an upwardly-inclined carrier 6 mounted on shafts journaled in said frame, a carrier-rake 7 also mounted on shafts journaled in the frame 4 and extending at an angle to the bundle-carrier and on a line between the cylinder and breasting, a guide-board 15 fixed to the frame 4 and extending parallel with the lower end of the said carrier-rake, said guide-board having its lower end rigidly secured to the concave and provided with an integral thickened deflecting portion 16 contiguous to the same, and its upper end provided with an inclined extension 17 extending beneath the delivery end of the carrier 6, a rotary band-cutter also mounted in the frame 4 above said carrier 6, and means for operating the cylinder, carrier, carrier-rake and band-cutter, substantially as described.

601,962



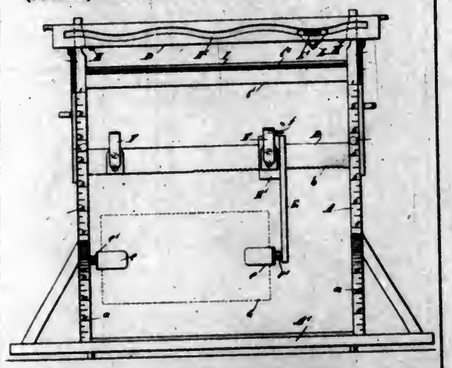
601,968. BRAKE FOR DUMB-WAITERS. CHARLES W. HOFFMAN, New York, N. Y. Filed Jan. 5, 1898. Serial No. 665,690. (No model.)

Claim.—1. In a dumb-waiter, the combination with a cage, of a hoisting-rope therefor, movable pieces with which the ends of the ropes are connected, a brake mechanism, and connections between said movable pieces and said brake mechanism, whereby the brake is released whenever a pull is exerted on the said rope, substantially as shown and described.

2. In a dumb-waiter, the combination with a cage, of a hoisting-rope therefor, slides having a limited sliding motion and with which the ends of the said rope are connected, a brake mechanism nor-

mally braking the counterbalance of the dumb-waiter, and connections between the said slides and the said brake mechanism, whereby the brake is released whenever a pull is exerted on said rope, substantially as shown and described.

601,964. CLOTH MEASURING AND CUTTING DEVICE. WILLIAM B. HOOD, Waco, Tex. Filed June 29, 1897. Serial No. 642,837. (No model.)



Claim.—1. A cloth measuring device having two spaced bars for measuring the cloth, bars between which the cloth may be secured, one of said clamping-bars having a sinuous or waved slot therein which approaches and recedes from the cloth, a block slidable in said slot, and a knife attached to said block and adapted to engage the cloth where secured between the bars, whereby a vertically-reciprocating movement is given to the knife during its horizontal traverse, substantially as described.

2. A cloth-measuring device, having two spaced clamping-bars for measuring the cloth, bars between which the cloth may be secured, an elastic cushion between the bars, one of said bars having a sinuous or waving slot therein which approaches and recedes from the cloth, a block slidable in said slot, and a knife attached to said block and projecting across the space occupied by the cloth, whereby a vertically-reciprocating movement is given to the knife during its horizontal traverse, substantially as described.

3. A cloth-measuring device, comprising a base, supporting-posts mounted thereon, a bar connecting said posts, a depending arm adjustable on said bar, pivots for the bolt or roll of cloth, one on said depending arm and the other on the supporting-posts, two spaced bars over which the cloth is drawn for measuring, a clamp adjacent to one of said spaced bars having a sinuous or waving knife-guide, and a knife movable on said clamp for cutting the cloth, whereby a vertically-reciprocating movement is given to the knife during its horizontal traverse, substantially as described.

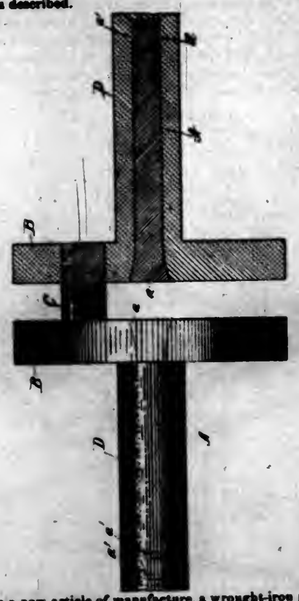
4. A cloth-measuring device, comprising a supporting-frame, a cross-bar, an arm adjustable on said cross-bars, pivots for the cloth bolt, one upon said adjustable arm, spaced bars for measuring the cloth, one of them being provided with a waving or sinuous knife-guide, a sliding knife mounted on said guides, and spring clamping-fingers adapted to hold the measured cloth while being cut, substantially as described.

5. A cloth-measuring device having two clamping-bars between which the cloth passes and by which it may be held, a scale using said bars as a base of measurement, both of said bars having a straight slot extending laterally the cloth and in line with each other, and one of said bars having a slot extending substantially at right angles to the other and connecting therewith, said slot approaching and receding from the clamping-surface in a waving or sinuous manner and a knife-blade within the straight slots having a guide sliding in the waving slot whereby a vertical reciprocating movement is given to the knife during its horizontal traverse.

601,965. COMBINED CRANK SHAFT AND DISK. ALBERT L. IDE, Springfield, Ill.; Addie F. Ide, Francis P. Ide, and Roy W. Ide executors of said Albert L. Ide, deceased. Filed Feb. 1, 1897. Serial No. 621,467. (No model.)

Claim.—1. As a new article of manufacture, a strengthening rod or core of metal, and an engine crank shaft and disk formed in one integral casting about said rod or core, substantially as described.

2. As a new article of manufacture, the combination of an axially-disposed strengthening rod or core of metal, with a crank shaft and disk formed in one integral casting about said rod or core, substantially as described.



3. As a new article of manufacture, a wrought-iron rod or core, and an engine crank shaft and disk formed in one integral casting about said rod or core, substantially as described.

4. As a new article of manufacture, an engine crank shaft and disk formed in one integral casting, and a wrought-iron rod or core contained within said shaft and disk, said core being flared at the disk end and scored at the opposite end, substantially as described.

5. As a new article of manufacture, a strengthening rod or core of metal which is scored, and an engine crank shaft and disk formed in one integral casting about said rod or core, substantially as described.

601,966. MANUFACTURE OF SEAMLESS DRAWN TUBES. ELLWOOD IVINS, Philadelphia, Pa. Filed Apr. 19, 1897. Serial No. 633,813. (No model.)

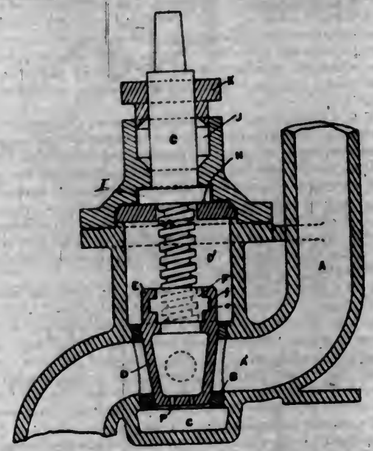


Claim.—1. The mode herein described of making seamless drawn metal tubes having walls of greater or less thickness between the ends than at the ends, said mode consisting in inserting in a tube, before drawing the same, a mandrel having an external configuration, similar to that of the desired internal configuration of the drawn tube, then compressing the tube upon the mandrel so as to cause it to conform internally to the external shape of the mandrel, then expanding the tube by subjecting to intermittent pressure the outside of those portions of the tube which have the least internal diameter, and then withdrawing the mandrel from the tube, substantially as specified.

2. The mode herein described of making seamless drawn metal tubes having walls of greater or less thickness between the ends than at the ends, said mode consisting in inserting in a tube, before drawing the same, a mandrel having an external configuration similar to that of the desired internal configuration of the drawn tube, then compressing the tube upon the mandrel so as to cause it to conform internally to the external shape of the mandrel, and then expanding the tube by subjecting to intermittent pressure the outside of those portions of the tube which have the least internal diameter, and then withdrawing the mandrel from the tube, and then again subjecting the tube to pressure throughout its length, whereby it is reduced in diameter and a surface finish is imparted to it, substantially as specified.

3. As a new article of manufacture, a seamless drawn metal tube, having its walls between the ends of greater or less thickness than at the ends, the difference in gage between the thick and thin portions of the tube exceeding two gages, substantially as specified.

601,967. HYDRANT, STOP-VALVE, OR THE LIKE. CHARLES JONES, Liverpool, England. Filed May 22, 1897. Serial No. 637,755. (No model.)



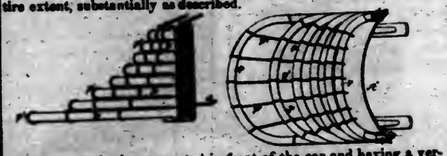
Claim.—1. In a hydrant or stop-valve, the combination with the shell or casing, of a conical valve-seat locked or retained therein by lateral set-screws; a cone valve having relief-holes formed in its lower end; a nut carried freely by the upper end of the valve; and a stem or rod working in said nut for raising and lowering the same and the valve, substantially as described.

2. The combination in a hydrant or stop-valve, of shell or casing, a chamber C formed in the lower part thereof, a conical valve-seat mounted in the shell above said chamber, set-screws extending through the shell and holding the seat in place, a chamber D' above the seat, a conical valve provided with openings in its lower end, a nut loosely mounted in the upper end of said valve, a rotary screw-spindle engaging said nut, and means for preventing endwise movement of the spindle.

3. The combination in a hydrant or stop-valve, of a shell or casing, a chamber C formed in the lower part of the casing, a conical valve-seat mounted in the shell above said chamber, set-screws extending through the shell and holding the seat in place, a chamber D' above the seat, a conical valve provided with openings P in its lower end, a nut F having wings *f* extending into recesses said recesses being of such size as to allow a limited play of the parts, a screwed spindle engaging said nut, means for holding said spindle against endwise movement, and means for guiding and holding the nut and valve against rotation as they are raised and lowered.

601,968. CAR-FENDER. JOHN KELLER, Philadelphia, Pa. Filed June 26, 1896. Serial No. 596,891. (No model.)

Claim.—1. A fender of the pick-up class having a contracted projecting nose portion, and a vertically-thickened rear portion bearing rigidly on the frame of the car, the projecting portion of the fender being flexible and elastic in all directions throughout its entire extent, substantially as described.



2. A car-fender supported in front of the car and having a vertical support upon the truck-frame, and a vertically-movable connection with the front portion of the car-body, whereby teetering movements of the latter will not cause like movements of the fender, said fender being free to be lifted vertically from its supports, substantially as specified.

3. A car-fender of the pick-up class, having its portion projecting beyond the car flexible and elastic throughout and provided with means for introducing air into the same and maintaining it therein under pressure, substantially as specified.

4. A car-fender consisting of a supporting-frame and a series of hollow flexible pipe-sections projecting forwardly beyond said supporting-frame and supported thereupon one above another but having no rigid support in the projecting portions, substantially as specified.

5. A car-fender consisting of a supporting-frame and a series of flexible pipe-sections projecting forwardly beyond said supporting-frame and supported thereon, one above another but having no rigid support in the projecting portions, and flexible stays or braces connecting said pipe-sections, substantially as specified.

6. The within-described wheel-guard for cars, said guard consisting of a cushion applied to the forward side of the brake-beam, substantially as specified.

7. The within-described wheel-guard for cars, said guard consisting of a cushion applied to the forward side of the brake-beam and overlapping the shoes, substantially as specified.

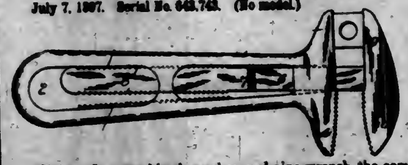
601,969. METHOD OF MANUFACTURING CUTTING-BLOCKS. FRIEDRICH R. LAUN, Leipsic-Anger, Germany. Filed Dec. 7, 1896. Serial No. 614,541. (No specimens.) Patented in Germany Feb. 26, 1896, No. 90,893; in England Sept. 3, 1896, No. 19,837; in France Sept. 17, 1896, No. 260,733; in Austria Sept. 23, 1896, No. 46/3,797, and in Hungary Oct. 14, 1896, No. 7,264.

Claim.—1. The method for producing backing, cutting or punching blocks by soaking plates of pasteboard in a solution of glue, kitchen salt, glycerin and water, treating them in a bath of alum and water, pasting the plates together, and subjecting the resulting blocks to pressure, substantially as described.

2. The method for producing backing, cutting or punching blocks by soaking plates of pasteboard in a heated solution of glue, kitchen salt, glycerin and water, treating them in a bath of alum and water, pasting the plates together, and subjecting the resulting blocks to pressure, substantially as described.

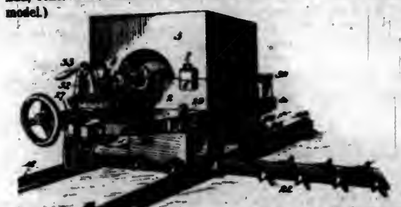
3. The method for producing backing, cutting or punching blocks by soaking plates of pasteboard in a heated solution of glue, kitchen salt, glycerin and water, treating them in a bath of alum and water, pasting the plates together with a composition of casein, glue, starch and water, and subjecting the resulting blocks to pressure, substantially as described.

601,970. COMBINED NUT AND PIPE WRENCH. OLOF LARSON and CHARLEY BRAMELL, Ashland, Wis., assignors of part to Charley Hilton, S. Gust Peterson, Axel Fridstrom, John Sundell, Monson & Larson, Walfrid Nystrom, and Andrew C. Anderson, same place. Filed July 7, 1897. Serial No. 643,743. (No model.)



Claim.—In a combined monkey and pipe wrench, the combination with the handle having stationary jaws at the end and formed with a central recess forming rigidly-connected arms, having rack-teeth in the inner edges and said handle at the front end with a tapering opening, of the shank passing through said opening and having jaws at one end, and formed with rack-teeth on opposite sides or edges, substantially as described.

601,971. MINING-MACHINE. DAVID A. LEE and THOMAS B. LEE, Centreville, Iowa. Filed Feb. 16, 1897. Serial No. 623,653. (No model.)

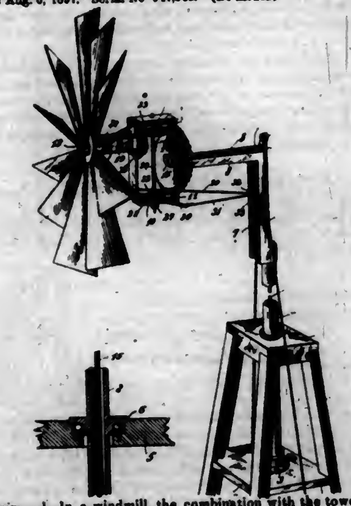


Claim.—1. In a mining-machine, the combination of a frame, provided at one side with bearings, a stub-axle journaled in said bearings and provided with a carrying-wheel, a support mounted on the frame at the opposite side thereof, a vertically-movable standard passing through an opening of the frame and having a bifurcated lower portion and a tubular upper portion the latter being interiorly threaded, a wheel journaled in the lower portion of the standard, a vertical adjusting-screw swiveled to and depending from the support, said screw engaging the tubular portion of the standard and adapted to raise and lower the frame, and a motor-shaft connected with and actuating the stub-shaft, substantially as described.

2. In a mining-machine, the combination of a frame provided at one side with bearings, a stub-axle journaled in said bearings and having a carrying-wheel, a support mounted on the frame at the opposite side thereof, a vertically-movable tubular standard passing through the frame and having an interiorly-threaded tubular upper portion, a wheel carried by the standard, an adjusting-screw swiveled to the bracket or support and engaging the standard, the vertical shaft 35 journaled on the frame, the longitudinal motor-shaft, gearing connecting the lower end of the shaft 35 with the stub-axle, a worm arranged on the motor-shaft, the gear-wheel 34 meshing with the worm and mounted on the vertical shaft 35, the clutch-section 41 connected with the gear-wheel 34, the sliding clutch-section 40 keyed to the shaft, and a clutch-lever fulcrumed on the frame and connected with the sliding clutch-section, substantially as described.

3. In a mining-machine, the combination of a frame provided with an opening, an inverted-U-shaped support mounted on the frame over the opening, a vertically-movable standard mounted in the opening of the frame and having a tubular upper portion and a bifurcated lower portion, the upper portion being interiorly threaded, a wheel journaled in the lower portion of the standard, and a vertical adjusting-screw swiveled to and depending from the support, said screw engaging the tubular portion of the standard and adapted to raise and lower the frame, substantially as described.

601,972. WINDMILL. RUDOLPH LEONHART, Jr., Fresno, Cal. Filed Aug. 6, 1897. Serial No. 647,363. (No model.)



Claim.—1. In a windmill, the combination with the tower and the mast supported to turn axially therein, of a frame rigidly connected to the upper end of the mast, a frame pivotally supported by the first frame and arranged to swing horizontally, a wind-wheel carried by the pivoted frame and adapted to swing horizontally into and out of the wind, and means to turn the wind-wheel frame on its pivot and secure it in position, substantially as described.

2. In a windmill, the combination with the tower and the mast supported to turn axially therein, of a U-shaped frame rigidly connected to the upper end of the mast, a similar U-shaped wind-wheel-supporting frame, the upper and lower horizontal arms of which are respectively supported on the upper and lower horizontal arms of the first-named frame, a vertical shaft supported by the horizontal arms of the said frames and serving as a pivot for the supporting-frame, a wind-wheel carried by the said frame, and means to turn the wind-wheel frame on its pivot and secure it in position, substantially as described.

3. In a windmill, the combination with a tower and the mast supported to turn axially therein, of a U-shaped frame rigidly connected to the upper end of the mast, a similar U-shaped frame, the upper and lower horizontal arms of which are respectively supported on the upper and lower arms of the first-named frame, a vertical shaft supported by the horizontal arms of the said frames and serving as a pivot for the supported frame, a wind-wheel carried by the pivoted frame, a spring coiled around the lower end of said shaft and having its ends secured to the lower horizontal arms of the respective frames to turn the pivoted frame in one direction, a lever and rope secured to the pivoted frame to turn it in the opposite direction, and stops on the frames to limit the movement of the pivoted frame by the spring, substantially as described.

4. In a windmill, the combination with a tubular mast and the wind-wheel, of two oppositely-disposed U-shaped frames, one being pivotally supported by the other, the supporting-frame being rigidly connected to the mast and the pivoted frame carrying the wind-wheel, a spring to turn the wind-wheel frame on its pivot, in one direction, stops to limit the movement of the said frame by the spring, and means to turn said frame in the opposite direction, substantially as described.

5. In a windmill, the combination with a tubular mast and the wind-wheel, of two oppositely-disposed U-shaped frames, one being pivotally supported by the other, the supporting-frame being rigidly connected to the mast and the pivoted frame carrying the wind-wheel, a spring to turn the wind-wheel frame on its pivot in one direction, stops to limit the movement of said frame by the spring, a lever secured to the lower horizontal arm of the pivoted frame and extending diagonally across it, and ropes secured to the ends of said lever to turn the wind-wheel frame on its pivot and secure it in position, substantially as described.

6. In a windmill, the combination with the tower, the tubular mast supported to turn axially therein, and the pump-rod, of spaced vertical arms secured to the upper end of the mast, spaced horizontal arms extending from the upper ends of said vertical arms, a U-shaped frame rigidly secured to the ends of said horizontal arms, bearings secured between said horizontal arms, a shaft journaled in said bearings and having a crank connection at one end of the pump-rod, a beveled gear on the other end of said shaft within the U-shaped frame, a second U-shaped frame pivotally supported by the first-named frame, a wind-wheel shaft journaled in bearings carried by the said second frame, a beveled pinion on the wind-wheel shaft, a beveled gear meshing with the said pinion and the beveled gear on the crank-shaft, and means to turn the windmill-frame on its pivot, substantially as described.

601,978. CENTRIFUGAL FILTER. JOSEPH A. LOMBAS, Lockport, La., assignor of one-half to Ernest Amidee Boudreau, Cypre Mort, La. Filed Sept. 26, 1897. Serial No. 653,031. (No model.)



Claim.—1. In an apparatus for filtering cane juice, the combination with the casing, of the rotatable perforated drum located therein provided with a removable bottom and a removable top ring, the removable filtering-cloth on the inner side of the drum, the edges of which are inserted in grooves in said bottom and ring, and the hooks pivoted to said bottom and engaging with eyes secured to the ring for connecting and holding said bottom and ring in place, substantially as described.

2. In an apparatus for filtering cane-juice, the combination with the casing, the rotatable shaft, and the annular flange in the bottom of said casing, of the perforated drum secured to said shaft, the bottom of which is formed with discharge-openings, the filtering-cloth, at the inner side of said drum, the annular flange on the bottom of said drum outside of said openings, the cone secured to said shaft, and the pivoted lever, the inner end of which is connected with the drum, substantially as described.

601,974. SUSPENDING DEVICE FOR HORSE-BOOTS, &c. PAUL MESSNER, Glenville, Md. Filed July 26, 1897. Serial No. 645,985. (No model.)



Claim.—The combination of horse-boots and a suspender for holding the boots in proper adjustment, consisting of a strap extending over the back, a neck-strap, bracelets or straps 9 adapted to be applied to the forearm of a horse suspended by said straps, and means for connecting the bracelet with the front and rear edges of the boots, whereby the boots will be held centrally below the hoofs of the horse without tendency to tilt or upset, substantially as described.

601,975. PERMUTATION-LOCK. JOHN H. MOORE, Seward, Nebr. Filed July 19, 1897. Serial No. 645,062. (No model.)



Claim.—1. A permutation-lock, comprising a rotatable member mounted in a door and provided with a radial opening and a marked dial, a second member mounted rotatably in the door and adapted to slide toward or from the first-named member, a plate mounted thereon and provided with a tongue, a second plate mounted thereon, and provided with a bolt extension, and a spring holding said member and its connected parts advanced, substantially as described.

2. A permutation-lock, comprising a member consisting of a tubular hub rotatably mounted in a door and provided with a radial opening, a groove and notches, a knob provided with a tubular stem fitting in said hub and having a pin engaging said notches, a marked dial engaging the groove of the hub, and a clamping-bolt clamping said hub and said knob upon the interposed dial, a second member, mounted slidingly and rotatably in the door, and provided with a bolt extension at one side and a sliding plate having a tongue at its opposite side, and a spring holding said second member with the bolt normally advanced, substantially as described.

3. A permutation-lock, comprising a door provided with an elongated opening and with a tongue projecting inwardly of the same at one end, a member rotatably mounted in said opening and provided with a radial opening adapted to register with said tongue, and with peripheral notches in the plane of said radial opening, a ring mounted upon said member and provided with a bolt extension, and a spring holding said member and said bolt normally advanced, substantially as described.

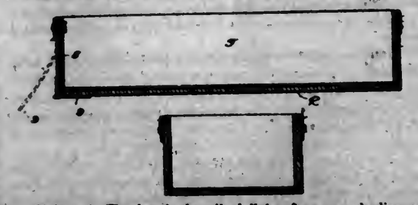
4. A permutation-lock, comprising a member consisting of a tubular hub rotatably mounted in a door and provided with a radial opening, a groove and notches, a knob provided with a tubular stem fitting in said hub and having a pin engaging said notches, a marked dial engaging the groove of the hub, and a clamping-bolt clamping said hub and said knob upon the interposed plate, a second member, mounted rotatably and slidingly in the door and having an opening, and provided with a bolt extension at one side and a sliding plate having a tongue at its opposite side, a spring holding said second member with the bolt normally advanced, and a tongue projecting from the door to prevent the withdrawal of the bolt until it registers with an opening of said sliding member, substantially as described.

5. A permutation-lock, comprising a door provided with an elongated opening and with a tongue projecting inwardly of the same at one end, a member rotatably mounted in said opening and provided with a radial opening adapted to register with said tongue, and with peripheral notches in the plane of said radial opening, a ring mounted upon said member and provided with a bolt extension, a spring holding said member and said bolt normally advanced, and a lever mounted upon the door and provided with a circular opening in which said member is rotatably mounted, substantially as described.

6. A permutation-lock, comprising a door provided with an elongated opening and with a tongue projecting inwardly of the same at one end, a member rotatably mounted in said opening and provided with a radial opening adapted to register with said tongue, and with peripheral notches in the plane of said radial opening, a ring mounted upon said member and provided with a bolt extension, and a spring holding said member and said bolt normally advanced, a second member rotatably mounted in the door and provided with an opening, a marked dial mounted upon each of said members, and a sliding plate mounted upon the first-named member and provided with a tongue adapted to engage the opening of the last-named member, substantially as described.

7. In a permutation-lock, a door provided with a circular opening, an elongated opening, a tongue projecting inwardly of said opening at the end adjacent to the circular opening, and radial marks adjacent to said openings upon its face, a rotatable and slidable member mounted in one opening of the door, and consisting of a hub having a radial opening, a groove, notches and a pin, a knob provided with a tubular extension fitting in said hub and internally threaded, and with a pin engaging said notches, a marked dial-plate having its inner edge engaging said groove, a washer surrounding said stem bearing against the inner end of the hub, a washer bearing against said first-named washer, and a clamping-bolt engaging said stem and said last-named washer so as to clamp the members firmly upon said dial and said pin reliably in said notches, a sliding plate mounted upon said hub and provided with a tongue, a notched washer mounted upon said hub engaging said pin and bearing against said sliding plate, a ring mounted upon said hub and held in place by the first-named washer, and provided with a bolt extension, a second member rotatably mounted in the door and provided with a radial opening and a marked dial, and a spring holding the first-named member yieldingly advanced, substantially as described.

601,976. WAGON-BODY LINING. FRANK H. MURRAY, Salina, Kans. Filed Oct. 29, 1897. Serial No. 656,758. (No model.)



Claim.—1. The herein-described lining for wagon-bodies, composed of flexible material and embodying a bottom, sides and ends, the rear end or tailpiece being secured at its upper portion to the sides and having its lower end loose to form a flap of sufficient length to extend beneath the bottom, substantially as described.

2. A lining or sack for wagon-bodies, composed of flexible material, and comprising a bottom, sides and ends, the sides and ends being of greater height than the height of the wagon-body to form flaps which are of sufficient length to extend over the upper edge of the body and down upon the outside thereof, the outer edges of the flaps being provided with eyelets or holes, substantially as described.

601,977. BICYCLE-CANOPY. CHARLES M. MCDONALD, Italy, N. Y. Filed Oct. 21, 1896. Serial No. 609,564. (No model.)



Claim.—1. A canopy for bicycles, &c., comprising four standards arranged in pairs at the front and rear thereof, a canopy-top removably fitted upon the upper ends of said standards, one or more brackets for securing the forward pair of standards to the head of the machine and permitting their vertical adjustment, and spaced brackets slidingly connected to the rear standards and adapted to be fitted upon the rear or drive wheel axle, substantially as described.

2. In a canopy for bicycles, &c., the combination with the canopy-top, of a pair of standards at the forward end of said top, vertically-spaced brackets adapted to be secured to the head of a bicycle and made of unequal size so as to hold said standards in vertical position, said brackets each consisting of a transverse strip or bar having its opposite ends provided with standard-sockets which hold the standards and admit of their vertical adjustment, a rearwardly-bowed strip or bar, and a clip connected to the central portion of the last-named bar and adapted to embrace the head of the bicycle, substantially as described.

3. An attachment for bicycles, &c., consisting of a pair of brackets spaced apart vertically and connected by suitable braces, said brackets being adapted to be secured to the head of a bicycle and each comprising a transverse strip or bar having sockets at each end, a rearwardly bowed or curved strip or bow attached thereto, and a clip secured to the central portion of said curved bar and adapted to embrace the head of a bicycle, said attachment constituting both a luggage-carrier and a support for the spaced standards of a detachable canopy, substantially as described.

4. In a bicycle-canopy consisting of a top and four supporting-standards, the combination with the rear standards, of attaching devices for securing the standards to the drive-wheel axle, said attaching devices having openings to receive the ends of said axle and means connected to the machine-frame to support the forward standards, substantially as described.

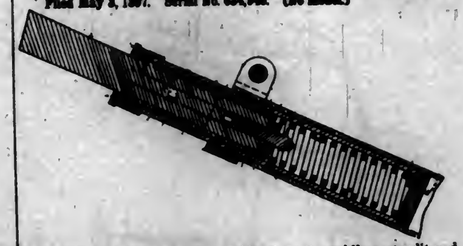
5. In a canopy for bicycles, &c., comprising a top and spaced front and rear standards, the combination with the rear standards, of spaced triangular-shaped brackets each having an opening to receive the drive-wheel axle and also provided with vertically-spaced sockets for the reception of said standards and means connected to the machine-frame to support the forward standards, substantially as described.

6. In a canopy for bicycles, &c., the combination with a series of standards, of a canopy-top removably fitted upon said standards and comprising cross-bows provided at their extremities with openings for the upper ends of the standards, a fabric covering for said bows, and flexible loops on said covering whereby the latter may be connected to the standards, substantially as described.

7. In a canopy for bicycles, &c., the combination with a series of standards having reduced upper ends, of a canopy-top comprising cross-bows pivotally connected and having their ends apertured to fit over the reduced ends of the standards, a fabric covering for said bows also provided with openings for the upper ends of the standards, a flexible stay extending around said covering, and flexible loops at the corners of the top for engaging pins or hooks on the standards, substantially as described.

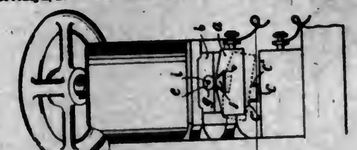
8. In a canopy for bicycles, &c., the combination with a series of standards having reduced upper ends, of a canopy-top comprising cross-bows connected pivotally at their intersection and provided at their extremities with openings, metal reinforcements folded over the ends of said cross-bows and also provided with openings to receive the ends of the standards, and a fabric covering for said bows provided at suitable points with loops for engaging pins or hooks on the standards, the canopy top as a whole being removably fitted upon the standards, substantially as described.

601,978. BICYCLE, &c. HENRY NEVILL, Southampton, England. Filed May 3, 1897. Serial No. 634,946. (No model.)



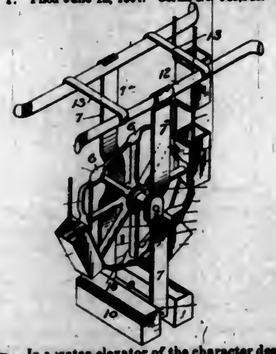
Claim.—In a bicycle, the combination of a saddle-post split and provided with a screw-threaded opening at its lower end, a bolt to engage said opening, a spring supporting said saddle-post, a casing around said saddle-post, and antifriction-balls located in recesses between the saddle-post and casing, substantially as described.

601,979. ELECTRIC WELDING-MACHINE. CHRISTIAN NIELSEN, Brooklyn, N. Y. Filed June 15, 1897. Serial No. 640,851. (No model.)



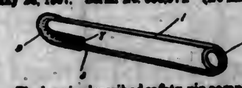
Claim.—In an electric welding-machine the combination with the vise comprising a frame, a screw and a sliding block, provided with a circular recess in its center, set in the frame and connected to the screw, of a clamping-jaw, having its top beveled from center to its sides, a dovetail groove in its apex, a pivoting device having a dovetail-shaped base, and a circular head, and of a screw passing through the head of the pivoting device and through the sliding block, and connecting the clamping-jaw to the sliding block of the vise.

601,980. WATER-ELEVATOR. JOHN R. OVERTON, Port Jefferson, N. Y. Filed June 12, 1897. Serial No. 640,548. (No model.)



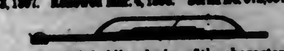
Claim.—In a water-elevator of the character described, the combination with the sprocket-wheel, the rim of which is composed of alternate reduced and enlarged portions at different distances from the shaft or axle thereof, of the vertical downwardly-depending arms through which the journals of the axle pass, the weight at the lower end thereof having a groove in the upper and lower side, the bars located in said grooves and secured to said arms, the upwardly-extending arms, through which said journals also pass, the horizontal arms secured thereto, the ends of which are curved outwardly, the cross-bars connected with said horizontal bars and the endless chain and buckets, substantially as specified.

601,981. SAFETY-PIN. JOSEPH T. PAYNE, Sweet Springs, Mo. Filed May 26, 1897. Serial No. 638,574. (No model.)



Claim.—The herein-described safety-pin comprising the body portion 1 formed with the loop 6 one of the terminal ends of which is turned upward to form a tooth 7 which is provided with a locking-notch 8 and the other end pointed and provided with an eye 5 adapted to engage said tooth and notch, and the sheet-metal guard secured to the said loop so as to protect the tooth and open on both sides, whereby the pointed end may engage said tooth from either side of the guard, substantially as shown and described.

601,982. WATCHCASE. MARTIN PERRIN, Bristol, Conn. Filed Apr. 13, 1897. Renewed Mar. 4, 1898. Serial No. 672,694. (No model.)



Claim.—In a watch-holding device of the character set forth, the combination of a supporting strap or band provided with two widened portions to extend over the palm and back of the hand, the said portion extending over the back of the hand having a pocket therein, a metallic plate in the said pocket provided with a screw stud or shank, and a watchcase having a screw-opening therein to removably engage the screw stud or shank, and securing devices, substantially as and for the purposes specified.

601,983. FURNACE. ANDREW J. POLVER, Milan, Ohio, assignor of one-half to Homer W. Fisk, same place. Filed May 13, 1897. Serial No. 636,309. (No model.)



Claim.—1. In a furnace, the combination of intermediate and side bars having end extensions which abut and unitedly form end bars, lugs formed on the inner side of the end extensions of the bars at their extremities and unitedly forming bearings opposite the joints formed between the said extensions, and grate-bars supported at their ends in the said bearings and overlapping the joints formed between the end extensions of the aforesaid bars, substantially as and for the purpose set forth.

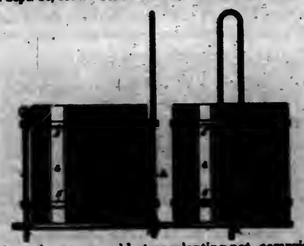
2. In a furnace, the combination of an intermediate and side bars, the latter having inner extensions and the former cross-heads at their ends which are connected together, quadrant-shaped lugs formed on the inner side of the cross-heads and inner extensions at their extremities and unitedly providing bearings, and rocking bars journaled at their ends in the said bearings and overlapping the joints formed between the cross-heads and inner extensions, substantially as set forth for the purpose described.

3. In a furnace, the combination of an intermediate and side bars made hollow and having hollow end extensions which are connected together and have the spaces formed therein in communication, the side bars having their spaces extending through the top side and having notches in the top edge of the inner walls, and cap-plates closing the upper side of the spaces and notches in the side bars, substantially as shown for the purpose set forth.

4. In a furnace, a hollow bar having its top side open, and having the side walls connected at intervals by transverse webs, and having notches in the top edge of a side wall, said notches being deeper at their inner ends and contracting toward their extremities and outer discharge ends and inclining rearwardly, and a cap-plate closing the top side of the bar and the said notches, substantially as described.

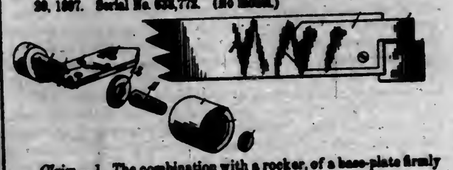
5. A furnace comprising hollow intermediate and side bars, the latter having inner hollow extensions and the former hollow cross-heads, tie-rods connecting the several bars and extending through the spaces formed within the end extensions thereof, cap-plates closing the spaces of the side bars and notches formed in the top edge of the inner walls thereof, and rocking bars journaled in bearings provided opposite the joints formed between the inner extensions and cross-heads, substantially as shown and described.

601,984. TRANSPLANTER. ROSS T. REASONS, Hopkinsville, Ky. Filed Sept. 16, 1897. Serial No. 651,990. (No model.)



Claim.—A non-separable transplanting-pot, comprising the bottom plate, a handled rod secured thereto, semicylindrical sides pivoted to the rod, and a key-legged retaining-pin therefor, substantially as described.

601,985. ROCKER ATTACHMENT. HIRAM P. REED, Addison, N. Y., assignor of one-half to Fred C. Taber, same place. Filed May 20, 1897. Serial No. 638,772. (No model.)



Claim.—1. The combination with a rocker, of a base-plate firmly secured to the lower face of the heel portion of the rocker and projecting beyond the end thereof, an axle extending laterally from the outer end of the plate, a roller provided with a non-abrading cover and journaled on the axle and projecting at one end beyond the outer end of the axle and also beyond the outer vertical face of the rocker, and means to secure the roller on the axle, substantially as described.

2. The combination with a rocker, of a base-plate firmly secured to the lower face of its heel portion and provided with an upwardly and outwardly extending boss projecting beyond the end of the rocker, an axle extending laterally from the boss beyond the plane of the outer vertical face of the rocker, a roller journaled to revolve on said axle, said roller having an unyielding core and a peripheral surface of rubber or similar yielding and non-abrading material which also extends beyond the outer end of the core of the roller, substantially as and for the purpose specified.

601,986. WIRE FENCE. PETER J. SCHILLO, Ionia, Mich. Filed July 22, 1897. Serial No. 645,230. (No model.)



Claim.—1. A wire fabric having intersecting single and two strand members, the two-strand member comprising spaced parts or legs, and ties connecting said members at their points of intersection, each tie consisting of a link having upturned terminal closed loops engaging a single-strand member respectively beyond the opposite edges of the intersecting two-strand member, and having a connecting portion, between said terminal loops, arranged in contact with the two-strand member upon the opposite side from the single-strand member and bowed inwardly between the parts or legs of the two-strand member, substantially as specified.

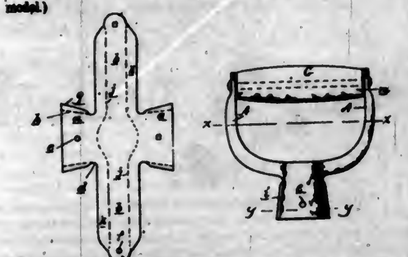
2. A wire structure having intersecting single and two strand

members, and ties connecting said members at their points of intersection, each tie consisting of an elongated closed link having terminal upturned closed loops engaging a single-strand member respectively beyond the parts or legs of the two-strand member, and having a connecting parallel-sided portion between said terminal loops arranged in contact with, and spanning the interval between, the parts or legs of the two-strand member at the opposite side from the single-strand member and bowed inwardly between said parts or legs, substantially as specified.

3. A fence having runners intersected by a stay provided with spaced parts or legs, and a tie consisting of a link having looped upturned extremities engaging a runner beyond the parts or legs of the stay, the portions of the tie and runner between the parts or legs of the stay being bowed inwardly or toward each other, substantially as specified.

4. A fence having runners intersected by a stay provided with spaced parts or legs, and a tie consisting of an elongated parallel-sided link, having upturned looped extremities engaging a runner beyond the parts or legs of the stay, the connecting portion of the link having its parallel sides arranged to span the interval between the parts or legs of the stay upon the opposite side thereof from the runner, and respectively above and below the plane thereof, and the portions of the runner and the parallel sides of the link, between the parts or legs of the stay, being bowed inwardly or toward each other between said parts or legs of the stay, whereby the bowed portion of the runner lies between the planes of the bowed portions of the sides of the link, substantially as specified.

601,987. SHEET-METAL HANDLE FOR SHOVELS. William Sherray, Detroit, Mich. Filed July 1, 1897. Serial No. 643,014. (No model.)



Claim.—1. The herein-described sheet-metal blank for a shovel-handle being formed with limbs *b* and arms *a* arranged in the form of a cross the limbs having tapering ends terminating in circular ears *f* and the arms being of trapezoidal shape formed with notches *d* at the base.

2. A handle for shovels consisting of a single-piece metal blank having an elongated body portion and oppositely-arranged extensions at the center bent into a socket and united at their edges and the edges of the body portion of the blank beyond the socket being turned back toward each other and the portion beyond the socket being laterally curved, and a grip secured between the ends, substantially as described.

3. As a new article of manufacture, a shovel-handle formed of a sheet-metal blank with a socket and two side bars formed hollow and with closed ends terminating into ears, the edges of the sheet from which the handle is formed forming a flush joint along the center of the outer surface and a hooked seam along the sides of the socket the inner surface being smooth and continuous through the socket and side bars.

4. A shovel-handle formed of a single sheet-metal blank composed of the eared limbs *b* and trapezoidal arms *a*, the limbs *b* being formed into hollow side bars by having like portions along the opposite edges turned over to form a convex outer-wall joint in the center, the inner wall being flat and continuous and the arms *a* being turned over to form each one-half of the vertical wall of the socket, said arms being formed with tapering hooked edges joined into a tapering seam, and a wooden grip-bar secured between the ears of the side bars.

601,988. BOTTLE ATTACHMENT. Albert G. Shalley, Boston, Mass. Filed Aug. 2, 1897. Serial No. 646,822. (No model.)

Claim.—A handle device for bottles, jars, &c., consisting of an upper band attached to the neck and having its ends united to each other and to the upper end of the handle by one soldered joint, and having a second band having its ends united to each other and to the lower end of the handle by a single soldered joint substantially as and for the purpose set forth.

601,988.



601,989. HAT-PIN. Felix Stewart, New York, N. Y. Filed Sept. 7, 1897. Serial No. 650,775. (No model.)



Claim.—1. A hat-pin, comprising a flanged and curved sheath for attachment to head-gear, a pin fitted to slide in the sheath, and an auxiliary pin moving with the sheath-pin and curved in an opposite direction thereto to stand at angles to the sheath to lock or entrap some of the hair of the wearer's head between the auxiliary pin and the sheath when the pin is pushed into the sheath, substantially as shown and described.

2. A hat-pin comprising a flanged and curved sheath for attachment to head-gear, a pin fitted to slide in the sheath and formed at one end with a drop, a handle secured on the drop end of the said pin, and an auxiliary pin secured on the said handle, and curved in an opposite direction to the pin and the sheath to stand at angles to the latter and with its point close to the sheath when the pin is pushed in, substantially as shown and described.

601,990. REMOVABLE SPROCKET-RIM. Robert B. Sutes, Media, Pa. Filed July 14, 1897. Serial No. 644,530. (No model.)



Claim.—1. The combination with the sprocket-wheel, of the removable sprocket-rim, provided with inwardly-extending lugs, formed with holes near their ends, the segmental clamping-plate formed with coinciding holes and the screw bolts and nuts, substantially as described.

2. The combination with the sprocket-wheel, of the removable sprocket-rim formed at the inner side with curved projections corresponding in number with the teeth of the sprocket-wheel and bearing against said wheel between the teeth thereof, the inwardly-extending lugs formed with holes near their ends, the segmental clamping-plate formed with coinciding holes and the screw bolts and nuts, substantially as described.

601,991. GATE. George Van Dusen, New Lisbon, Ind. Filed Jan. 6, 1898. Serial No. 666,896. (No model.)

Claim.—1. The combination of a crane, a horizontal pintle pivotally mounted on the crane and arranged to swing from one side to the other of the same, a gate, a frame or hanger mounted on the horizontal pintle and provided with a vertical pintle carrying the gate, said frame or hanger being adapted to swing on the horizontal pintle to carry the gate over the hanger, substantially as and for the purpose described.



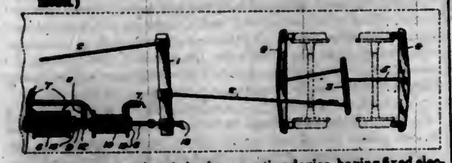
2. The combination of a crane, a horizontal pintle pivotally mounted on the crane, a gate, a frame or hanger mounted on the horizontal pintle and provided with a vertical pintle carrying the gate, said frame or hanger being adapted to swing on the horizontal pintle and being detachably interlocked with the same to hold it normally against such swinging, and a spring for retaining the hanger or frame in engagement with the horizontal pintle, substantially as described.

3. The combination of a crane, a gate, a horizontal pintle provided at its inner end with a block pivoted to the crane and provided with a recess, a vertical pintle receiving the gate and provided with a hanger mounted on the horizontal pintle and engaging the recess of said block, and a coiled spring disposed on the horizontal pintle and holding the hanger in engagement with the recess of the block, substantially as described.

4. The combination of a crane provided with an opening, a vertical pivot arranged at the outer end of the opening, a horizontal pintle provided with a block mounted on the vertical pivot, a hanger mounted on the horizontal pintle and engaging the block, a vertical pintle carried by the hanger, a gate provided with an opening and mounted on the vertical pintle, and a spring for holding the hanger in engagement with the block, substantially as described.

5. The combination of a crane having a horizontal opening, a vertical pivot arranged at the outer end of the opening, a gate having an opening, a horizontal pintle provided at its inner end with a block arranged on the vertical pivot, a substantially Y-shaped hanger provided in its arms with openings receiving the horizontal pintle, a vertical pintle mounted on the stem of the hanger and carrying the gate, and a coiled spring disposed on the horizontal pintle and holding the hanger in engagement with the block, substantially as described.

601,992. ELECTRIC BRAKE-MECHANISM. Alexis Vandenberg, Swanson, Kans. Filed Sept. 13, 1897. Serial No. 651,529. (No model.)



Claim.—1. An electric brake-operating device, having fixed electromagnets, and a movable plunger operating axially through one electromagnet, with its extremities permanently located beyond the ends thereof, for attraction by the other, and adapted to be operatively connected with brake mechanism, substantially as specified.

2. An electric brake-operating device having fixed main and auxiliary electromagnets, of relatively different strengths, arranged in alinement, and connected in series, and a movable plunger operating axially through the auxiliary electromagnet, and terminally disposed for attraction by the main electromagnet, the extremities of said plunger being permanently located beyond the ends of the auxiliary electromagnet, and one of them being adapted for connection with a brake mechanism, substantially as specified.

3. An electric brake-operating device, having a magnet provided with contiguous spaced poles, and a polarized plunger terminally disposed between the poles of said magnet and adapted to be operatively connected with the moving parts of a brake mechanism, substantially as specified.

4. An electric brake-operating device, having a "club-foot" electromagnet constructed with the extremity of its unwound leg contiguous to and in alinement with the wound leg, and a polarized plunger terminally disposed between the poles of said magnet for relative attraction and repulsion thereby, and adapted to be operatively connected with the moving parts of a brake mechanism, substantially as specified.

5. An electric brake-operating device having a main "club-foot" electromagnet provided with a terminally-bifurcated bare leg arranged contiguous to and in alinement with its wound leg, and an auxiliary electromagnet axially alined with the wound leg of the main magnet, and having an axially-movable core terminally arranged between the poles of the main magnet and permanently out of contact with the like pole, substantially as specified.

601,993. METHOD OF MANUFACTURING CASKS OR BARRELS FROM VENEERS. Carl Wittgowsky, Berlin, Germany. Filed May 27, 1897. Serial No. 638,326. (No model.) Patented in Germany Dec. 3, 1895, No. 85,451; in Hungary Feb. 3, 1896, No. 5,903; in France Feb. 5, 1896, No. 253,735; in Belgium Feb. 10, 1896, No. 119,702; and in Austria Sept. 18, 1896, No. 3,560.

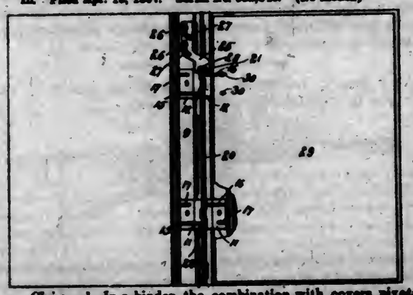


Claim.—1. The method of manufacturing veneer mantles for barrels and casks, consisting in uniting at least two veneers having the same direction of grains, with at least one veneer arranged between said two and having its grain running perpendicular to the grains of said two former veneers, subjecting the veneer plate thus formed after its having been united and dried to the action of a jet of steam, and finally bending the said plate under heat and pressure, in such a manner, that the grains of the said two former veneers run around the mantle, for the purpose as described.

2. The method of manufacturing veneer mantles for barrels and casks, consisting in uniting at least two veneers having the same direction of grains, with at least one veneer arranged between said two and having its grain running perpendicular to the grains of said two former veneers; moistening the veneer plate thus formed, after its having been united and dried, subjecting the said plate to the action of a jet of steam, and finally bending it under heat and pressure, in such a manner, that the grains of the said two former veneers run around the mantle, for the purpose as described.

3. The method of manufacturing veneer mantles for barrels and casks, consisting in uniting in a curved state at least two veneers having the same direction of grains, with at least one veneer arranged between said two and having its grain running perpendicular to the grains of said two former ones; moistening the curved veneer board thus formed, subjecting it to the action of a jet of steam, and finally bending it under heat and pressure, in such a manner, that the grains of the said two former veneers run around the mantle, for the purpose as described.

601,994. TEMPORARY BINDER. John R. Barrett, Chicago, Ill. Filed Apr. 10, 1897. Serial No. 632,840. (No model.)



Claim.—1. In a binder, the combination with covers pivotally connected together, of retaining-hooks carried by and moving with each of said covers when said covers open and close, the hooks of the two covers being arranged to normally overlap both when the covers are open and when they are closed, and a rod forming the hinge-pin and having its ends connected with the hinge of said covers at opposite sides, said rod being movable longitudinally to disengage one of its ends from said hinge, substantially as described.

2. In a binder, the combination with hinged back members, and normally-overlapping retaining-hooks carried thereby, of a rod forming the hinge-pin and having its ends connected with the hinge at opposite sides, said rod being movable longitudinally, whereby it may be thrown into and out of operative position, substantially as and for the purpose specified.

3. In a binder, the combination with back members, and hinges connecting said back members, said hinges having recesses 23 24, of a torsion-spring having its ends fitted in said recesses, substantially as described.

4. In a binder, the combination with back members, and hinges connecting said back members, said hinges having recesses 23 24, of a torsion-spring having its ends fitted in said recesses, said spring being movable to cause one end thereof to move out of its recess, substantially as and for the purpose specified.

5. In a binder, the combination with back members hinged together, of retaining-hooks carried thereby, and binder-sheets adapted to be threaded upon said hooks, said binder-sheets having perforations, the outer portions of said perforations being of less diameter than the mean diameter of said retaining-hooks, substantially as described.

6. In a binder, the combination with back members hinged together, of retaining-hooks carried thereby, and binder-sheets adapted to be threaded upon said hooks, said sheets having oval perforations to receive said hooks, substantially as described.

7. In a binder, the combination with back members hinged together, and normally-overlapping retaining-hooks carried thereby, of a spring for preventing accidental excessive opening of said back members, and a locking device for locking back said back members when bent back to expose the ends of said retaining-hooks, substantially as described.

8. In a binder, the combination with back members hinged together, and normally-overlapping retaining-hooks carried thereby, of a spring for preventing accidental excessive opening of said back members, and a locking device consisting of a sliding plate adapted to engage the hinge of the back members to lock said members back to expose the ends of the retaining-hooks, substantially as described.

9. In a binder, the combination with back members hinged together and normally-overlapping retaining-hooks carried thereby, of a spring for preventing accidental excessive opening of said back members, and a locking device consisting of a sliding plate adapted to engage the hinge of the back members to lock said members back to expose the ends of the retaining-hooks, said plate having inclined grooves 27, substantially as described.

601,995. ALBUMEN PREPARATION SOLUBLE IN WATER.

FELIX BAUER, Berlin, and ALBERT BAUER, Elberfeld, Germany, assignors to Bauer & Cie., Berlin, Germany. Filed Mar. 1, 1898. Serial No. 672,163. (No specimens.)

Claim.—1. The process for manufacturing albumen preparations soluble in water from glycerophosphates and albumicoids (albuminates, casein of milk and vegetable casein), consisting in mixing the albuminoids suspended in an inactive liquid with the quantities of glycerophosphates necessary for solution, in heating the mixture, in eliminating the water, and in drying the product, substantially as set forth.

2. The within-described water-soluble albumicoid product containing glycerophosphate of soda, and obtained as set forth, in the form of a powder, white in color, without smell and taste, absorbing cold water readily and dissolving by heat into a milky liquor, substantially as described.

601,996. DEHORNER.

ERNEST A. BULLOCK, Elba, Mich. Filed Feb. 18, 1897. Serial No. 624,031. (No model.)



Claim.—1. A dehorner comprising a stock, oppositely-curved cutters applied to the same side of the stock, the one being pivoted and the other adjustable by means of independent adjusting and securing devices, an operating-lever pivoted between its ends to the same side of the stock provided with the cutters, and a loose connection between the pivoted cutter and the operating-lever, substantially as set forth.

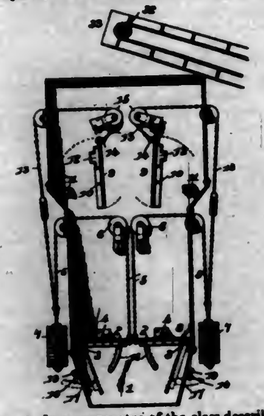
2. In a dehorner, the combination of a pivoted cutter, a second cutter having a stem and a bracing-shoulder at the base of the stem, a wedge interposed between the shouldered end of the adjustable cutter and its support, and means applied to the stem for securing the adjustable cutter in the required position, substantially as specified.

3. In a dehorner, a stock having an arch between its ends, co-operating cutters at one side of the arch, one of the cutters being pivoted to the stock at one end of the arch, and an operating-lever fulcrumed to the stock at the opposite side of the arch and having connection with the pivoted cutter, the arch affording clearance for the inner end of the said lever, substantially as specified.

4. A dehorner comprising a bar having a portion between its ends bent to provide an arch, a cutter pivoted to the bar at one end of the arch, a second cutter having a threaded stem passing through an opening in the bar and having a bracing-shoulder at the base of the stem, a slotted wedge interposed between the shouldered end of the adjustable cutter and the bar for properly positioning the cutter, securing means applied to the stem of the adjustable cutter for holding it in place, an operating-lever fulcrumed to a stud provided on the bar at the opposite side of the arch, a link connecting the inner end of the lever with the pivoted cutter, and a stop for limiting the inner movement of the lever, substantially as set forth.

601,997. AUTOMATIC SCALE FOR MEASURING MATERIAL IN BULK.

PRESTE B. CLARKE, Mobile, Ala. Filed May 20, 1896. Renewed Sept. 17, 1897. Serial No. 652,075. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a scale-chute, a scale-gate hingedly mounted in the chute and arranged to swing downward in opening, a pivotally-mounted cut-off gate arranged in the chute and located above the scale-gate and provided with a weight for closing it, a weight 7, a chain or cable having one end connected to the weight, and its other end connected with the scale-gate, and a cable or chain 13 having one end attached to the cut-off gate and the other end attached to the weight 7, and capable of holding the cut-off gate open when the scale-gate is closed and adapted to be slackened when the weight 7 rises through the opening of the scale-gate, whereby the cut-off gate is permitted to close automatically, substantially as described.

2. In an apparatus of the class described, the combination of a scale-chute, scale-gates hinged at their outer ends to the chute and located within the same, weights located outside of the chute, the chains 5 having their outer ends attached to said weights, and their inner ends secured to the free ends of the scale-gates and passing over guide-pulleys located above the gates, the cut-off gates arranged within the chute and pivoted intermediate of their ends and provided with counterweights for closing them, and the chains 13 connected with the cut-off gates and passing over suitable guide-pulleys, and connected with the first-mentioned weights, substantially as and for the purpose described.

3. In an apparatus of the class described, the combination of a scale-chute, hingedly-mounted scale-gates arranged within the chute and connected at their outer ends with the same, ratchet-bars mounted on the free ends of the scale-gates, pawls mounted in the chute and arranged to engage the ratchet-bars automatically for locking the scale-gates in their open position, weights connected with the scale-gates for holding the same normally in a horizontal position, and connections between the weights and the pawls, whereby the latter are disengaged from the ratchet-bars after a limited engagement, substantially as described.

4. In an apparatus of the class described, the combination of a scale-chute, the hingedly-mounted downwardly-swinging scale-gates arranged within the chute, weights connected with the scale-gates for holding the same normally closed, ratchet-bars depending from the scale-gates, rock-shafts provided with pawls to engage the ratchet-bars and having arms, a slide arranged beneath and adapted to engage the arms of the rock-shafts to release the gates, mechanism for actuating the slide, and connections between the weights and such actuating mechanism, whereby the latter is set in operation when the gates are opened, substantially as described.

5. In an apparatus of the class described, the combination of a scale-chute, swinging gates arranged within the same, weights connected with the gates for holding the same normally closed, ratchets carried by the gates, pawls mounted on the chute for engaging the ratchet-bar for holding the gates open, a continuously-rotating wheel, a shaft carrying a wheel and capable of a limited movement for enabling its wheel to be carried into and out of engagement with the continuously-rotating wheel, a pulley or drum mounted on the shaft, a chain secured to and adapted to be wound around the drum and connected with the pawls and adapted to withdraw the same from their engagement, and connections between the shaft and the weights, whereby the said wheels are caused to engage or mesh with each other when the gates are opened, substantially as described.

6. In an apparatus of the class described, the combination of a scale-chute, hingedly-mounted gates arranged within the chute, weights connected with the gates for holding the same normally closed, ratchets carried by the gates, pawls mounted on the chute for engaging the ratchets, rock-shafts carrying said pawls and provided with arms, a slide having a limited movement and arranged to engage the arms, a continuously-rotating wheel, a shaft carrying a wheel for meshing or engaging with the continuously-rotating wheel and provided with a pulley or drum, a spring connected with the shaft and adapted to hold the said wheels in engagement, a chain secured to the pulley or drum and adapted to be wound thereon and connected with said slide, and connections between the shaft and the weights, whereby the spring is permitted to engage the said wheels, substantially is described.

7. In an apparatus of the class described, the combination of a scale-chute, scale-gates arranged within the chute and hinged at their outer ends to the same, rack-bars depending from the free inner ends of the scale-gates, pawls mounted on the chute and located below the hinges of the scale-gate and arranged to engage the rack-bars automatically for locking the scale-gates in their open position, weights connected with the scale-gates for holding the same normally closed, and means for disengaging the pawls from the rack-bars to permit the weights to close the gates, substantially as described.

8. In an apparatus of the class described, the combination of a scale-chute, a conveyor provided with a continuously-rotating wheel, a scale-gate arranged within the chute, a locking device for holding the scale-gate in its open position, a wheel intermittently contacting with the continuously-rotating wheel and operated by the same, a cable or chain connected at one end with the intermittently-rotating wheel and adapted to be wound up by the same, and having its outer end connected with the locking device, whereby the latter is tripped to release the gate, and means for moving the intermittently-rotating wheel into and out of contact with the continuously-rotating wheel, substantially as described.

9. In an apparatus of the class described, the combination of a scale-chute, a scale-gate hinged in the chute, a locking device for holding the scale-gate open, a weight connected with the scale-gate and adapted to close the same, a continuously-rotating wheel, an intermittently-rotating wheel adapted to be moved into and out of contact with the continuously-rotating wheel, a chain or cable connected at one end with the intermittently-rotating wheel and adapted to be wound by the same, and having its other end connected with the locking device and adapted to trip the same to release the gate, and connections between the weight and the intermittently-rotating wheel, whereby the latter is moved into and out of contact with the continuously-rotating wheel when the gate is open and is drawn out of contact when the gate is closed, substantially as described.

601,998. FASTENING DEVICE.

ALFRED CURRIER, Grand Rapids, Mich., assignor of one-half to William Powers Putnam, same place. Filed June 25, 1897. Serial No. 642,265. (No model.)

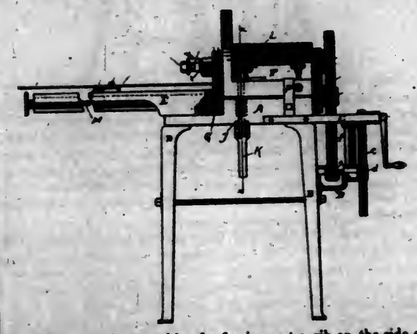


Claim.—1. In combination, the tubing, the cylindrical plug inserted therein having a plain face at right angles to the axis of the tube, the dished washer having its concave side in proximity to said plain face, the bolt passing through the washer and plug and having a head bearing against the convex side of the washer, and the threaded member engaging the threaded end of the bolt and adapted to draw the same up to straighten the concave washer, substantially as described.

2. In combination, the tube, the split cylindrical block, the dished washer abutting against the face of the block, the bolt passing through the washer and block and having a wedge-shaped portion operating in conjunction with the split portion of the block, and having also a head bearing against the convex side of the washer, and means threaded upon the end of the bolt for drawing upon it to spread the block and straighten the washer, substantially as described.

601,999. SAW-TOOTH-RIBBING MACHINE.

CHARLES H. DOUGLAS, Chicago, Ill. Filed May 20, 1897. Serial No. 638,317. (No model.)



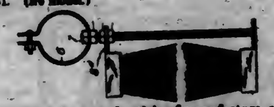
Claim.—1. In a machine for forcing out a rib on the side of a saw-tooth, the combination with a main frame, of shafts mounted thereon parallel or nearly so with each other, rolls of the required form attached to said shafts, mechanism to rotate them in unison with each other, mechanism to adjust them the required distance from each other, and a device to open and close the said rolls in relation to each other without altering the adjustment, as and for the purpose specified.

2. In a saw-tooth-ribbing machine, the combination with a main frame, of two pieces of metal mounted thereon on which there are curved surfaces of the form required for ribbing saw-teeth, mechanism to move said curved surfaces in unison with each other, mechanism to adjust said curved surfaces the proper distance from each other to act as desired upon a saw-tooth, and a device that will permit one tooth to be acted upon and another tooth to escape action while ribbing a saw, substantially as specified.

3. In a saw-tooth-ribbing machine, the combination with a main frame, of a piece of metal mounted thereon on which there is a curved surface of the required form for ribbing a saw-tooth when said tooth is passed between it and another metal surface of the required form, mechanism to adjust said curved surface and the corresponding surface in the required relation to each other to rib a saw-tooth, and means to cause said curved surface to act on alternate teeth, as specified.

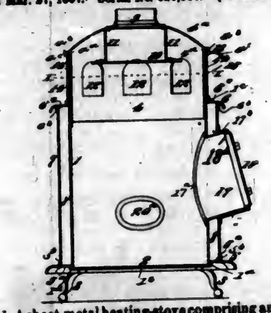
602,000. AUTOMATIC CHAIN-CLEANING DEVICE FOR BICYCLES.

BOOKER FAY, Denver, Colo. Filed Nov. 5, 1896. Serial No. 611,181. (No model.)



Claim.—As an improved article of manufacture, a chain-cleaning device for bicycles comprising a vertical stem having its upper extremity threaded, a clamp attached to the upper extremity of the stem, a horizontal shoe or holder whose body part is composed of flanges bent to form an open-ended, dovetailed receptacle, said shoe having a projection apertured to receive the threaded portion of the stem, lock-nuts applied to the stem and engaging the apertured projection of the shoe on opposite surfaces, whereby the said shoe is vertically adjustable on the stem, a block inserted in the dovetailed receptacle of the shoe and having a depending brush, said block being detachable, a similar shoe made fast to the lower extremity of the stem, a detachable block inserted in said shoe and provided with an upwardly-projecting brush, the two brushes being adapted to engage the opposite surfaces of the chain when the device is in place on the bicycle, as and for the purpose set forth.

602,001. HEATING-STOVE. CHARLES L. FELSUNG, Clay City, Ill. Filed Mar. 27, 1897. Serial No. 630,580. (No model.)

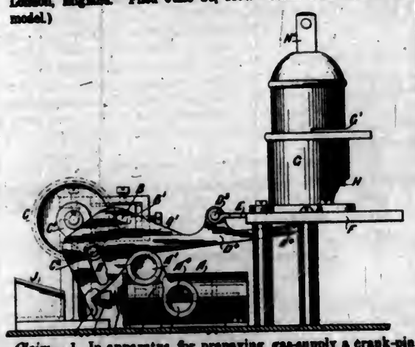


Claim.—1. A sheet-metal heating-stove comprising an inner casing formed with an outturned and inturned lower end providing a bead, and with an outturned upper flange, the imperforate bottom supported on the inturned portion of the lower end of the inner casing, the lower ring fitting around the inner casing and seating on the bead, the outer casing supported on the lower ring and providing an air-chamber in connection with the inner casing and the upper ring supported on the outer casing and supporting the inner casing thereon; substantially as described.

2. A sheet-metal heating-stove comprising an inner casing, the lower ring fitting around the inner casing, the outer casing supported on the lower ring, the upper ring supported on the outer casing and supporting the inner casing thereon, and the removable top consisting of the dome-shaped upper end formed with a bead, with an inturned flange at its lower edge and with a central flue-opening, the lower portion formed with an outturned flange supported on the inturned flange of the upper end, and the surrounding band fitting beneath the inturned flange and supporting the top upon the inner casing; substantially as described.

3. A sheet metal heating-stove comprising an inner casing, the lower ring fitting around the inner casing, the outer casing supported on the lower ring, the upper ring supported on the outer casing and supporting the inner casing thereon, a tube extending through the casings formed with a flange whereby it is secured to the inner casing, and a flanged collar whereby the tube is secured to the outer casing; substantially as described.

602,002. PREPAID-GAS-SUPPLY METER. JOHN D. FORSTER, London, England. Filed June 21, 1897. Serial No. 641,022. (No model.)



Claim.—1. In apparatus for prepaying gas-supply a crank-pin, revolved by the index mechanism of a meter, a bar, operated by the crank-pin, a projection on the bar acting to open and close a gas-supply pipe from the main to the meter, trunnions on the bar pivoted on a delivery-slide of coin-controlled mechanism and an extension of the bar by which the latter may be rocked to open the valve and allow the meter mechanism to act, such rocking of the bar being effected by a plunger through the medium of an inserted coin, substantially as and for the purposes described.

2. In a prepayment mechanism for gas-supply, the combination with a coin-receptacle; a plunger working in said receptacle; a delivery-slide also working in said receptacle; a rocking bar pivoted to said delivery slide; a crank pin revolved by the index mechanism of the meter and connected to said bar for operating the latter; means operated by said bar to open and close a gas-supply pipe; and a projection on said bar adapted to be operated by said plunger through the medium of an inserted coin, substantially as described.

3. In a prepayment mechanism for gas-supply, the combination with a coin-receptacle; a plunger working in said receptacle; a slotted guide-plate beneath said receptacle; a delivery-slide working upon said guide-plate; a rocking bar pivoted to said delivery-slide; a crank-pin revolved by the index mechanism of the meter and connected to said rocking bar for operating the latter, means operated by said bar to open and close a gas-supply pipe; and an extension on said bar adapted to be operated by said plunger through the medium of an inserted coin, substantially as described.

4. In a prepayment mechanism for gas-supply, the combination with a coin-receptacle; a piston working in said receptacle; a delivery-slide also working in said receptacle; a rocking bar pivoted to said delivery-slide; a crank-pin revolved by the index mechanism of the meter and connected to said bar for operating the latter; a spring-plunger connected to a valve in the gas-main, normally holding said valve open; a projection on said rocking bar adapted to strike said valve-plunger and close said valve when at rest; and an extension on said bar adapted to be operated by said piston through the medium of an inserted coin, substantially as described.

5. In a prepayment mechanism for gas-supply, the combination with a coin-receptacle; a piston working in said receptacle; a slotted guide-plate beneath said receptacle; a delivery-slide working upon said guide plate; a rocking bar pivoted to said delivery-slide; a crank-pin revolved by the index mechanism of the meter and connected to said rocking bar for operating the latter; a spring-plunger connected to a valve in the gas-main normally holding said valve open; a projection on said rocking bar adapted to strike said valve-plunger and close said valve when at rest; and an extension on said rocking bar adapted to be operated by said piston through the medium of an inserted coin, substantially as described.

602,003. BACK-BAND FOR HARNESS. JOHN A. PRESWELL, Buford, Ga. Filed July 3, 1897. Serial No. 643,267. (No model.)



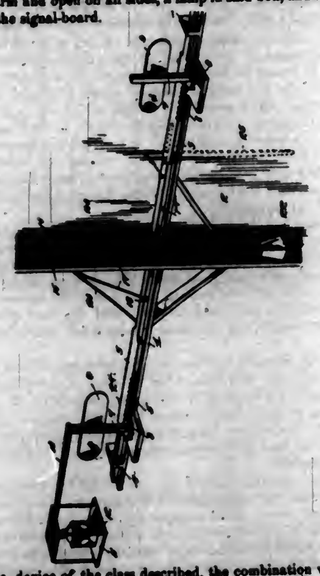
Claim.—1 In a back-band for harness, the combination with a strap having its ends folded upon itself and adjustably connected together midway the length of the folded strap; of a plurality of rounded blocks provided with openings therethrough for the passage of said folded strap, fitted thereon upon each side of its middle portion; one of said blocks on each side being secured to a stationary portion of said strap; and devices connected to the folded ends of said strap for attaching the same to a pair of traces, substantially as described.

2. In a back-band for harness, the combination with a strap having its ends folded upon itself and adjustably connected together midway the length of the folded strap; of a plurality of blocks having rounded inner faces, provided with openings therethrough near the outer faces for the passage of said folded strap, fitted upon said folded strap upon each side of its middle portion; one of said blocks on each side being secured to a stationary portion of said strap; the end block on each side having a thin lower extension thereon; and devices connected to the folded ends of said strap, and hanging alongside of the extensions on said end blocks, adapted to engage a pair of traces, substantially as described.

3. In a back-band for harness, the combination with a strap having an adjustable connection midway of its length; of a plurality of rounded blocks provided with openings therethrough for said strap, fitted thereon upon each side of said adjustable connection, one of such blocks on each side of said connection being secured to said strap; and devices carried by the ends of said strap for detachably connecting the same to a pair of traces, substantially as described.

602,004. RAILWAY-SIGNAL. GEORGE W. GREEN, South McAlester, Ind. Ter. Filed June 16, 1897. Serial No. 640,193. (No model.)

Claim.—1. In a device of the class described, the combination with a rotary signal-board, of a signal-lamp box carried thereby on a swinging arm and open on all sides, a lamp in said box, and means for turning the signal-board.



2. In a device of the class described, the combination with an outer rotary signal-board, of a similar inner rotary signal-board, a shifting rack-bar and pinions affording an operative connection between the two signal-boards, and means for moving said bar, substantially as described.

3. In a device of the class described, the combination with a signal, of a sliding rack-bar and pinion for operating the same, a pull-cord connected to the sliding bar and used for operating the same in one direction, and a second cord also connected to the bar and adapted for moving it in the other direction.

4. In a device of the class described, the combination with a movable signal, of a shifting rack-bar and pinion for operating the same, pulleys, a pull-cord connected to the shifting bar and running over one pulley, a third pulley, carried on the support for the shifting bar and a cord running over the last-named pulley and the remaining pulley of those aforesaid, and having one end connected to the shifting bar.

5. In a device of the character described, the combination with a movable signal located in the path of a moving vehicle and designed to be operated thereby, of a flexible piece operatively connected with said signal, and a weight secured to said piece and designed to retain the signal in one position, and mechanism for moving the signal in opposition to the weight, substantially as specified.

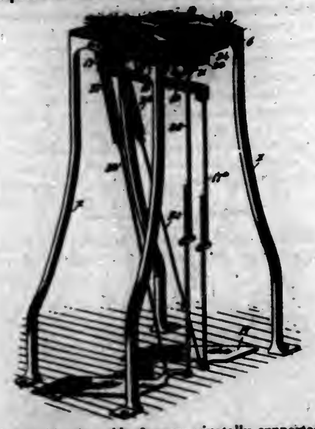
6. In a device of the class described, the combination with an upright spindle and a signal-board and a signal-arm overhanging the track and carried by said spindle, of a pinion secured to the spindle, a shifting bar having a rack engaging with the pinion, a pull-cord connected to the shifting bar and adapted to move the same in one direction, and a second pull-cord connected to the said bar and adapted to move it in the opposite direction.

602,005. HEEL-BUILDING MACHINE. ELMER S. GOSS, Ellsworth, Me., assignor to J. H. Hopkins, same place. Filed Jan. 18, 1897. Serial No. 619,868. (No model.)

Claim.—1. In a heel-building machine, the combination of a reciprocating head, a rear former having adjustable connection therewith, side formers, movable connections between the side formers and the said reciprocating head, means for relatively adjusting the side formers and movable connections, and adjustable stops to engage with the side formers as they are advanced and simultaneously move them inward, substantially as set forth.

2. In a heel-building machine, the combination of side formers pivotally supported intermediate of their ends, and adjusting means operating upon the side formers upon opposite sides of their pivotal supports, substantially in the manner and for the purpose set forth.

3. In a heel-building machine, the combination with side formers, of curved arms pivotally supported and adapted to engage with the formers to one side of their support, and set-screws for adjusting the said arms to vary the position of the formers, substantially as and for the purpose set forth.



4. In combination, side formers pivotally supported, and set-screws for turning the formers upon their pivotal supports, substantially as and for the purpose set forth.

5. In a heel-building machine, the combination of pivoted arms bearing oppositely-disposed formers, a bow-spring for spreading the arms, at their free ends and normally holding the formers separated, headed fastenings passing through slots at the extremities of the bow-spring and loosely and positively connecting them with the pivoted arms, substantially in the manner set forth.

6. In combination, a reciprocating head, arms having connection with the head, formers pivotally attached to the arms, and adjustable stops to engage with the formers to bring them together during a travel or movement of the head, substantially as and for the purpose set forth.

7. In combination, a reciprocating head, arms having pivotal connection with the head, formers pivotally attached to the arms, means as set-screws, for adjusting the formers with respect to their carrying-arms, and adjustable stops to engage with the formers to cause them to grip the heel when moving the said head forward, substantially as described.

8. In a heel-building machine, the combination of a reciprocating head, arms movable with the head and bearing side formers, adjustable stops for causing the formers to grip the heel, and a rear former having adjustable connection with the said reciprocating head, substantially as and for the purpose set forth.

9. In a heel-building machine, the combination with a bed and formers, of a lever bearing a gage to cooperate with the formers to provide a heel-space, said gage being movable with the lever to a point below the bed, substantially as and for the purpose set forth.

10. In a heel-building machine, the combination with a bed, and formers, of a lever, and a gage having adjustable connection with the lever and movable with the latter to a point below the bed so as to admit of the ready removal of the completed heel, substantially as described.

11. In combination, a bed, a reciprocating head, a rear former having adjustable connection with the head, arms pivotally attached to the said reciprocating head, a spring for holding the arms separated at their free ends, side formers pivotally attached to the arms, set-screws interposed between the side formers and their arms, other arms pivoted to the bed and bearing antifriction-rollers to engage with the front ends of the side formers, set-screws for adjusting the last-mentioned arms, a vertically-adjustable gage, and actuating mechanism for the gage and reciprocating head, substantially as set forth.

602,006. NIGHT-ROBE. JOHN GRIMDT, Jersey City, N. J. Filed Nov. 17, 1897. Serial No. 658,890. (No model.)

Claim.—1. As an article of manufacture, a garment of the class described, having a front and rear breadth of material, a flap 10 formed by extending the material of one of the breadths beyond its lower edge, said flap being bent over and extended upwardly in front of said breadth, and secured thereto at its side edges, and at its upper edge at a point between said side edges, so as to leave unobstructed openings 16 leading into the interior of said pouch, substantially as described.

2. As an article of manufacture, a garment of the class described,

having front and rear breadths of material, a flap secured to one of said breadths at the bottom and sides, and at the top at a point intermediate of the sides, and an extension from the top of the flap extending down between the said flap and breadth, substantially as described.



602,007. WITHDRAWN.

602,008. MOVING WAY OR STAIR FOR TRANSPORTING PERSONS AND GOODS. JACQUES HALLÉ, Paris, France. Filed Nov. 3, 1897. Serial No. 657,305. (No model.) Patented in France Apr. 5, 1897, No. 265,663.



Claim.—1. A movable inclined way or stair formed in two sections with a landing interposed between said sections, and having an endless flexible apron or belt common to both sections, the first section of said apron rising to a point with its tread-surface on a level with the plane of the landing, means for deflecting the apron under said landing to the second section, and means for driving the apron, substantially as described.

2. In a movable inclined way or stair, a plurality of sections with a landing interposed between the same, a flexible apron or belt common to both sections and running over suitable rollers at the ends of the sections, a roller beneath the landing under which the apron runs and whereby it is deflected under the landing to the succeeding section, and means for driving the belt, substantially as described.

3. In a movable inclined way or stair, the combination with an apron or belt, of a movable hand-rail sliding on a fixed bar extending longitudinally therewith at the side of the way, and means for driving the apron and hand-rail, substantially as described.

4. In a movable inclined way or stair, the combination with an apron or belt, of an endless hand-rail running over suitable drums and sliding on a fixed bar extending longitudinally therewith at the side of the way, and means for driving the apron and hand-rail, substantially as described.

5. In a movable inclined way or stair, the combination with an apron or belt, of an endless flexible hand-rail running over drums at the ends of said way, a fixed bar arranged at one side of the way between said rollers and along which the upper part of the hand-rail slides, a shield or cover over the lower part of the hand-rail projecting downwardly into close proximity with the edge of the apron, and means for driving the apron and hand-rail, substantially as described.

6. In a movable inclined way, the combination with the tread portion and a movable hand-rail, of an incline K extending along the inner edge of the hand-rail at the exit end of the way, its upper edge extending upwardly from the plane of the hand-rail to a point above the same, whereby the hand of a person being transported by the way is lifted from the hand-rail upon arriving at the exit end of the way, as set forth.

7. In a movable inclined way or stair for the transport of persons or goods, the combination of a continuous apron consisting of thin leather strips secured together and running over drums D D', of which one is a driving-drum and drawn by frictional contact the upper length of the apron which serves as a moving path, while the other drum serves as a stretching-drum, the upper length of the apron being supported by rollers arranged at intervals thereunder, with a continuous flexible and separate hand-rail F F' driven from the apron and moving at the same speed therewith, said hand-rail running over two drums G G' of which one is a stretching-drum and the other a driving-drum, a fixed bar H on the upper winged edge of which the hand-rail slides running from one drum to the other and supported on uprights, panels between said uprights, and inclined plinths e e' extending downwardly into proximity with the upper surface of the edge of the apron, substantially as described.

8. In a movable way or stair of the kind referred to, ramps or inclines K K which are connected to boxes inclosing the moving parts, and which are smooth, curved, and turned up in such a manner as, at the end of the travel, to raise the wrists of the passengers, while their feet move forward and slide upon the fixed flooring, substantially as described.

9. In a moving way or stair of the kind referred to, the arrangement of two or more lifts, placed one behind another, each having a separate hand-rail, but being served by the same apron, which is deflected under each landing E by means of a roller L, substantially as described.

602,009. MEANS FOR TESTING FLUID-PRESSURE SYSTEMS. GEORGE S. HOBURN, Windsor, Canada. Filed Mar. 26, 1894. Serial No. 505,206. (No model.)

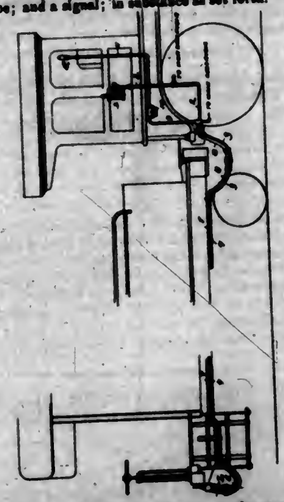
Claim.—1. The combination with two fluid-pressure pipe-lines and a signal, of testing mechanism operatively connected thereto, such mechanism being arranged to operate by a variation of fluid-pressure in one pipe to vary the fluid-pressure in the other, and thereby operate the signal; substantially as described.

2. The combination with two fluid-pressure pipe-lines extending from the locomotive throughout the length of the train, and a signal, of testing mechanism operatively connected thereto, such mechanism being arranged to operate by a variation of fluid-pressure in one pipe to vary the fluid-pressure in the other, and thereby operate a signal; substantially as described.

3. The combination with two fluid-pressure pipe-lines on a railway-train, one of them being an air-brake pipe-line, and a signal, of testing mechanism operatively connected thereto, such mechanism being arranged to operate by a variation of fluid-pressure in one pipe to vary the fluid-pressure in the other, and thereby operate the signal; substantially as described.

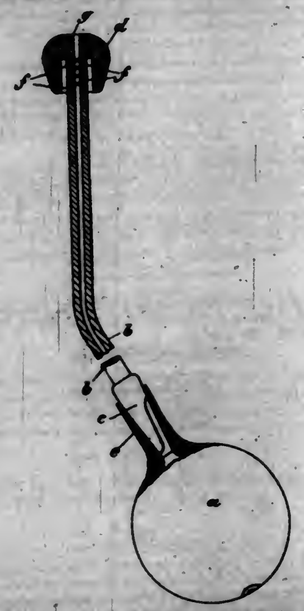
4. The combination with two fluid-pressure pipe-lines, means for varying the pressure at one end of said pipe-lines, and a signal, of testing mechanism operatively connected thereto, such mechanism being arranged to operate by a variation of fluid-pressure in one pipe to vary the fluid-pressure in the other, and thereby operate the signal; substantially as described.

5. The apparatus for testing the air-brake and signal systems, consisting of the following elements in combination, to wit: a train-pipe; a signal-pipe; a proving-valve; means for discharging air from the train-pipe; and a signal; in substance as set forth.



6. A proving-valve having fluid-pressure pipe-couplings, one of which communicates with a chamber in a valve-casing, a piston in said chamber, and said piston controlling an opening from a second chamber which communicates with the other pipe-coupling; substantially as described.

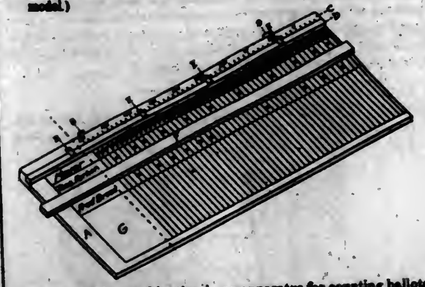
602,010. INSUFFLATOR. ALEXANDER HOSSEA, Berlin, Germany. Filed June 12, 1897. Serial No. 640,867. (No model.)



Claim.—1. As a means for introducing pulverulent substances into cavities of the bodies of men or animals, and distributing or dispersing them within said cavities the combination with a compressible ball and a pipe extending from the same, of a mushroom-like head secured to the free end of said pipe without closing the bore of the same, and having in its rear part a space opening to the rear side of the head, and surpassing in diameter the diameter of the pipe; the part of the latter located within said space having holes putting the bore of the pipe in communication with the said space, as set forth.

2. As a means for introducing pulverulent substances into cavities of the bodies of men or animals, and distributing or dispersing them within said cavities, the combination with a compressible ball having a tube-like extension with a bore widening from its inner end to its outer one, and with a pipe having a shovel-like end piece of conical shape adapted to take into, and be connected with, said tube-like extension of the ball, of a mushroom-like head secured to the free end of said pipe, and having in its rear part a space opening to the rear side of the head and surpassing in diameter the diameter of the pipe; the part of the latter located within said space having holes putting the bore of the pipe in communication with the said space, as set forth.

602,011. APPARATUS FOR COUNTING BALLOTS. FRANK B. HOLT, Lynn, Mass. Filed Feb. 21, 1896. Serial No. 580,236. (No model.)



Claim.—The combination in an apparatus for counting ballots of the straight-edge F, the board A having upon one side springs B B, the clamp C, held in position by said springs, said clamp C, having upon its upper surface marks placed at regular distances from each other to show the proper place for each ballot, and also buttons E, E, E, E, and the follower D, for the purpose specified, all substantially as described.

602,012. FORK SIDE FOR BICYCLES. ELLWOOD IVINS, Philadelphia, Pa. Filed July 2, 1895. Renewed Mar. 14, 1898. Serial No. 673,867. (No model.)

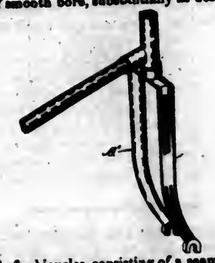


Claim.—As an article of manufacture, a fork side for bicycles consisting of a seamless tube having each end thereof made comparatively thick and gradually diminishing in thickness from both ends toward its center, such gradually-diminishing thickness of metal merging into each other at a distance from the ends of the tube and at a point where the least strength is required; the exterior of the tube being cylindrically tapering from end to end and its interior cylindrically tapering or conical from an intermediate point in opposite directions toward each end, so that the strength of the tube may gradually increase from its weakest point toward either end, where increased strength is required, substantially as described.

609,013. FORK SIDE FOR BICYCLES. ELLWOOD IVINS, Philadelphia, Pa. Filed Sept. 13, 1898. Renewed Mar. 14, 1898. Serial No. 673,868. (No model.)

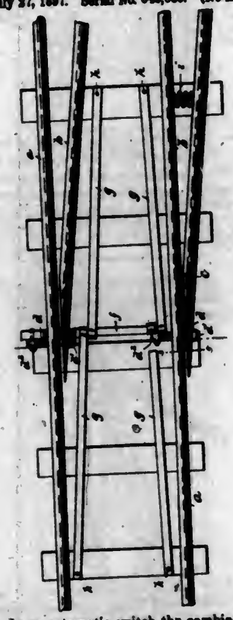
Claim.—1. As a new article of manufacture, a tubular frame-piece for bicycles and other vehicles, consisting of a drawn tube having a series of tapering ribs on its inner surface extending longitudinally thereof, said ribs being thickest at or near the end or ends of the tube and gradually decreasing in size toward its center, substantially as described.

2. A fork side for bicycles, consisting of a seamless tube having a series of longitudinal ribs tapering inwardly from each end thereof toward its center and gradually vanishing or merging into an intermediate portion of smooth bore, substantially as described.



3. A fork side for bicycles, consisting of a seamless tubular piece of tapering form having a series of longitudinal ribs extending from each end on the inside thereof toward its center and gradually diminishing in size until they vanish or merge in an intermediate portion having a smooth bore, substantially as described.

602,014. RAILWAY-SWITCH. EDWIN J. JENKINS, Elloree, S. C., assignor of part to J. M. Oliver and Henry H. Brunson, Orangeburg, S. C. Filed July 27, 1897. Serial No. 646,069. (No model.)



Claim.—1. In an automatic switch the combination of the rails, the switch-rails, a spring between said main and switch rails, rockers loosely attached to said switch-rails, a connecting-bar for said rockers, inclined bars resting on said connecting-bar, and hangers carried by the coaches adapted to impart the operating-pressure to the said inclined bars, substantially as described.

2. An automatic switch comprising the main and switch rails, rockers attached to said switch-rails, a connecting-rod for said rockers, inclined rods or bars having their highest points resting on and loosely secured to said connecting-bar, which are adapted to receive the operating-pressure from the train, hangers carried by the train and operated therefrom, substantially as described.

3. An automatic switch comprising the main and switch rails, a spring between said main and switch rails, rockers loosely attached to said switch-rails, a rod connecting said rockers, the inclined rods resting on said connecting-rod and operated from the train and a spring-actuated catch to hold the switch closed and operated by the rockers, substantially as described.

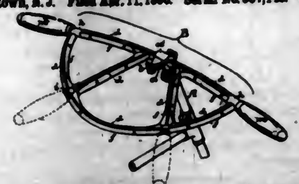
4. An automatic switch composed of the main rails, the switch-rails, a raised inclined portion on one of said switch-rails, rockers loosely attached to said switch-rails, a connecting-bar for said rockers, inclined bars arranged longitudinally between the main rails their highest point resting on said connecting-bar and adapted to receive operating-pressure from the train and a spring-actuated catch operated by the said rockers and adapted to securely hold the switch-rails closed, substantially as described.

602,015. ADJUSTABLE HANDLE-BAR FOR BICYCLES. FRANK JOHNSON, Rhinelander, Wis. Filed Aug. 11, 1896. Serial No. 602,426. (No model.)



Claim.—The combination with a steering-head, of a handle bar journaled therein and provided with a rack, a locking-plate hinged to the steering-head and provided with teeth and a vertical elongated curved slot, a spring for keeping the teeth of the locking-plate normally in engagement with the rack of the handle-bar, a lever pivoted to the handle bar and provided with a finger which works in the slot of the locking-plate and has a head on its end to prevent detachment from the locking-plate, and a presser-spring for said lever.

602,016. HANDLE-BAR FOR BICYCLES. HENRY H. JOHNSON, Morristown, N. J. Filed Apr. 11, 1896. Serial No. 587,148. (No model.)



Claim.—1. A bicycle handle-bar consisting of a transverse pivot-bar and a bar connected thereto and constituting a segment of a circle, the pivot bar being hung to the upper end of the handle-bar post so that the segmental bar is susceptible of swinging vertically and being combined with means whereby it can be secured to said post after adjustment, substantially as specified.

2. A bicycle handle-bar consisting of a transverse pivot-bar and a bar connected thereto and constituting a segment of a circle, the pivot-bar being hung to the upper end of the handle-bar post so that the segmental bar is susceptible of swinging vertically, and said segmental bar being provided with handles adjustable to different positions around the same, substantially as specified.

3. A bicycle handle-bar consisting of a transverse bar secured to the upper end of the handle-bar post, and a bar secured to said transverse bar and constituting a segment of a circle, said handle-bar having openings therein at right angles or thereabout to each other, and said openings being provided with means for the reception and rigid retention of detachable handles, substantially as specified.

602,017. INCUBATOR. ROMAN T. KANSKI, New York, and EDWARD S. FREEMAN, New Rochelle, N. Y. Filed Apr. 23, 1897. Serial No. 633,630. (No model.)



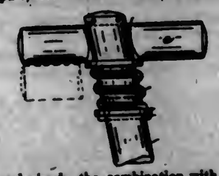
Claim.—1. In an incubator, the combination of an exterior casing having suitable openings and doors, a heater, an interior casing constituting the egg-chamber and having an outlet or passage through said exterior casing, a heat-transmitting partition forming the floor of said egg-chamber but less in area than the bottom of said egg-chamber, a frame 15 constructed and arranged to support said floor, a sand seal following the edges of said floor within the egg-chamber, a closed receptacle suspended within said egg-chamber, pivoted doors in said exterior casing, levers attached to said doors, a vertical rod pivotally jointed with the levers, a tube secured vertically to said rod, piping connecting said closed receptacle and vertical tube and having a flexible portion, said receptacle, piping and tube containing an expansive liquid, and variable weights borne by said levers, substantially as described.

2. In an incubator, an exterior casing, an interior casing supported by said exterior casing and constituting the egg-chamber, a partition arranged as the floor of said egg-chamber, said partition consisting of a stone plate less in area than the bottom of said egg-chamber, a frame 15 supporting said plate, a detachable flange or ridge upon the upper surface of said plate near its edges, and a sand seal contained between said flange and the walls of said egg-chamber and covering the edges of said plate, the sand acting also as a receiver and distributer of moisture, substantially as described.

3. In an incubator, the combination of a casing having suitable openings and doors, a stone slab arranged to divide said casing interiorly into an upper egg chamber and a lower heater-chamber, said egg-chamber having independent side walls forming an air-space within said casing, a heater adjustable toward or from said stone, said stone being so formed and supported as to leave, within the egg-chamber, a recess or gutter between its edges and the casing, absorbent material filling said gutter thereby forming a seal to exclude fumes from the heater, a pipe for serving water to said absorbent material and for ventilating said egg-chamber, removable egg-trays and supports therefor, a walled passage leading into said egg-chamber from a casing-opening, pivoted shutters forming part of said casing, levers attached to said shutters, a receptacle and tubing containing expansible fluids, said tubing having a flexible portion, a rod attached to said tubing and pivotally jointed to said levers, adjustable weights arranged to act upon said levers and to balance the weight of said rod with the tubing and contents borne thereon, substantially as described.

4. In an incubator, the combination of a casing having suitable openings and doors, a soapstone slab arranged to divide said casing interiorly into an upper egg-chamber and a lower heater-chamber, said egg-chamber having independent side walls forming an air-space within said casing, a heater adjustable toward or from said soapstone, said stone being so formed and supported as to leave, within the egg-chamber, a recess or gutter between its edges and the casing, sand filling said gutter thereby forming a seal to exclude fumes from the heater, a pipe for serving water to said sand and for ventilating said egg-chamber, removable egg-trays and supports therefor, a walled passage leading into said egg-chamber from a casing-opening, pivoted shutters forming part of said casing, levers attached to said shutters, a receptacle and tubing containing fluids of different expansibility, said receptacle being located within the egg-chamber, said tubing having a flexible portion, a rod attached to said tubing and pivotally jointed to said levers, adjustable weights arranged to act upon said levers and to balance the weight of said rod with the tubing and contents borne thereon, substantially as described.

602,018. SADDLE-SUPPORT FOR VELOCIPEDES. ALFRED J. PARKER, Newark, N. J., assignor to Harry Louis Hepburn, New York, N. Y. Filed Sept. 9, 1896. Serial No. 605,267. (No model.)



Claim.—In a velocipede, the combination with the slotted bar of the frame, of a horizontal saddle, supporting-bar, recessed at *i*, *i*, the end walls of the recesses being rounded and a spring for holding the horizontal bar in an elevated position, substantially as set forth.

602,019. TOY. JOSEF SCHUPAN, Fürstheim, Germany. Filed July 27, 1897. Serial No. 646,127. (No model.)



Claim.—1. As a means for making top-like disks spin, the combination with a plate *b*, a ledge b^3 upon said plate, and an elastic cover b^2 upon said ledge, of a lever *c* attached to the plate *b*, a ledge c^4 upon said lever, an elastic cover c^3 upon this ledge, and means for holding the said plate and operating the lever, as set forth.

2. As a means for making top-like disks spin, the combination with a plate *b*, a ledge b^3 upon said plate, and an elastic cover b^2 upon said ledge, of a lever *c c'* attached to the plate, a ledge c^4 upon said lever, an elastic cover c^3 upon this ledge, a handle *f* secured to the plate *b*, and a lever *g g'* attached to said handle, and adapted to operate the lever *c c'*, as set forth.

3. As a means for making top-like disks spin, the combination with a plate *b*, a ledge b^3 upon said plate, and an elastic cover b^2 upon said ledge, of a lever *c c'* attached to the plate, a ledge c^4 upon said lever, an elastic cover c^3 upon this ledge, a figure representing a hunter having movable arms and a gun held by said arms, and adapted to be fixed to the plate *b*; a lever reaching down from said arms into the way of the lever *c c'*, and means for holding the said plate and operating the lever *c c'*, as set forth.

602,020. WHEEL-RIM. LEANDER D. JUDKINS, Boston, Mass., assignor of one-half to Alexander F. Munro, same place. Filed Oct. 21, 1897. Serial No. 655,909. (No model.)



Claim.—1. The combination with a wheel-rim, of a tire extending around the outer face thereof, the surface of said tire lying in contact with the said face and extending across the same, and fastening devices comprising plates or strips of suitable material provided with lateral extensions curved to conform to and support the surface of the tire where it projects beyond the sides of the rim so as to afford in conjunction with the said rim a channel to laterally support the tire, and means for securing said fastening devices to the opposite sides of the rim, substantially as and for the purpose described.

2. The combination with a wheel-rim, of a pneumatic tire comprising a continuous tube extending around and supported upon the outer face of said rim, flaps or extensions from the outer surface of the said tire separated from each other by a space substantially equal to the width of the said face across which the said tire extends between said flaps, fastening devices comprising plates or strips of suitable material adapted to engage the outer surfaces of the tire-flaps and to be secured to the wheel-rim at opposite sides thereof, and lateral extensions from said fastening devices curved to conform to and support the tire where it projects laterally beyond the said wheel-rim, substantially as described

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602,021. ROD-MILL FLOOR. GEORGE LEHBERGER, Braddock, Pa., assignor of one-half to Peter McIlvried, same place. Filed June 26, 1897. Serial No. 642,266. (No model.)

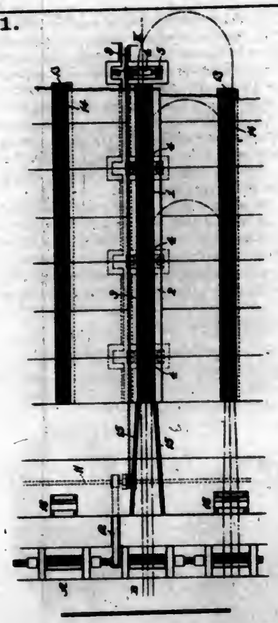
Claim.—1. In a rod-mill the combination of a pair of rolls, a floor extending in front of the rolls and a feed mechanism consisting of a series of positively-driven rollers arranged in the line of feed of the rods as they come from the rolls and with their upper surfaces approximately on a level with the floor, substantially as set forth.

2. In a rod-mill the combination of a pair of rolls, a floor extending in front of the rolls, a trough below the level of the floor and arranged in the line of movement of rods coming from said rolls and a series of positively-driven rollers arranged along said trough, substantially as set forth.

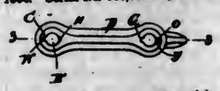
3. In a rod-mill the combination of a pair of rolls, a trough arranged below the floor and in the line of movement of rods coming from said rolls, a vertical shield or guide along one side of the trough, and a series of positively-driven feed-rollers arranged along said trough, substantially as set forth.

4. In a rod-mill, the combination of two pairs of rolls, troughs arranged below the floor-level and in the line of movement of rods coming from one pair of rolls and going to the other pair of rolls, vertical guards or shields arranged along the outer sides of said troughs, and a series of positively-driven feed rollers, arranged in the trough in line with the delivery-rolls, substantially as set forth.

602,021.



602,022. CLEVIS. WILLIAM H. LIGHTCAP, Hazel Green, Wis. Filed Dec. 19, 1896. Serial No. 616,330. (No model.)



Claim.—1. In a clevis, the combination with a bar A, of a pin B, a link L, and a bar D, the bar D being provided with holes adjacent to the ends provided with the slots H and G, and the pin and link being provided with suitable lugs adapted to register with the slots, substantially as shown and described.

2. In a clevis, the combination with a bar A having rigidly secured thereto a pin B having a lug C, a link L having the pivot or journal end portions N and N' provided with like lugs, and a bar D having suitable journal-perforations adapted to receive the journal portions of the pin B and link L and provided with suitable slots H and G to allow of the connection of the parts when in one position, and the bar A being provided with a suitable journal perforation and slot adapted to receive the pivot portion N' of the link L, substantially as shown and described and for the purposes set forth.

3. In a clevis, the combination with a bar A, of a pin B, a bar D, and a curved link L provided with journal portions N and N' pivoted in the bars A and D, the construction being such that the bar D can only be disconnected from the pin B when the bow of the link is pointing toward the pin B, substantially as shown and described and for the purposes set forth.

4. In a clevis, the combination with a bar A, of a bolt B having a lip C at the upper end, a bar D having a slot H, and a link L pivoted to the bars A and D in such manner as by its rotation to give a reciprocal movement to the bar D so as to lock and unlock the same from the pin B, substantially as shown and described and for the purposes set forth.

5. In a clevis, the combination with a bar A, of a bolt B connected at one end with the bar A and having a lip C at the other end, a bar D having a slot H adapted to fit over the lip C and be drawn back under the same, and a curved link L rotatably pivoted in the bars A and D the pivots being eccentric one to another, substantially as shown and described and for the purposes set forth.

602,023. DUSTLESS ROAD, RAILWAY ROAD-BED, &c. FREDERICK W. MATTERN, Los Angeles, Cal., assignor, by mesne assignments, to the Dustless Roadbed Company, Camden, N. J. Filed Dec 5, 1896. Serial No. 615,008. (No model.)

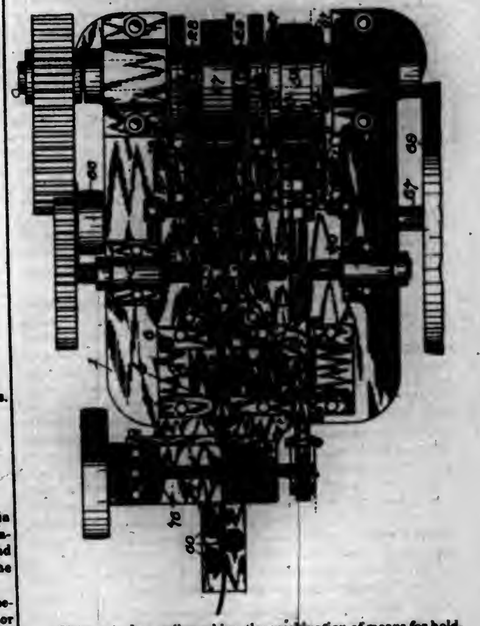
Claim.—1. A road having a covering consisting of fine earthy or mineral matter and heavy oil incorporated therewith, substantially as set forth.

2. A road having a covering consisting of fine earthy or mineral matter and heavy oil and maltha incorporated therewith, substantially as described.



3. A railway road-bed of fine material, such as gravel, sand, or cinder, having its surface treated with heavy oil as and for the purpose set forth.

602,024. NAIL-MACHINE. JOHN A. STAPLES and CHARLES BUSH, Newburg, N. Y., assignors to Charles H. Hanford, same place. Filed July 14, 1897. Serial No. 644,585. (No model.)



Claim.—1. In a nail-machine, the combination of means for holding a nail-blank, with a nail-heading punch or die, means for gradually pushing or forcing the punch or die against the end of the blank, to spread the metal into a head, as distinguished from a sudden blow, and means for imparting a movement to the punch or die in a direction transverse to the line of thrust during the gradual spreading thrust of the die against the blank, said transverse movement assisting the spreading of the metal, substantially as and for the purpose set forth.

2. In a nail-machine, the combination of means for holding a nail-blank, with a nail-heading punch or die, means for gradually pushing or forcing the punch or die against the end of the blank, to spread the metal into a head, as distinguished from a sudden blow, and means for imparting an oscillatory motion to the punch during the gradual head-spreading thrust of the die against the blank to assist in the formation of the head, substantially as set forth.

3. In a nail-machine, the combination of a suitable clamp for holding a blank, a longitudinally and circumferentially movable header carrying a heading die, means for gradually moving the header longitudinally for forcing the die against the blank, to spread the metal into a head, and means for simultaneously imparting a circumferential movement to the header, to assist the spreading action, substantially as set forth.

4. In a nail-machine, the combination of a suitable clamp for holding a blank, a longitudinally-movable and circumferentially-oscillating header adapted to receive a metal-spreading heading punch or die, means for imparting a gradual longitudinal spreading movement to the header longitudinally, as distinguished from a sudden blow, means for simultaneously oscillating the header, to assist the spreading action, and means for operating the clamp, substantially as set forth.

5. In a nail-machine, the combination of a blank-holding clamp, means for operating the clamp, a header comprising a longitudinally-sliding portion and a circumferentially-movable portion, a heading die or punch secured to the header, and means for imparting a longitudinal movement to the header and simultaneously therewith oscillate the circumferentially-movable portion, substantially as set forth.

6. In a nail-machine, the combination of a suitable wire-feeding device, the laterally-operating holding and cutting-off clamp, combined longitudinally movable and oscillatory header, carrying a heading device or punch, a longitudinally-moving wedge engaging the movable member of the lateral clamp, a power-shaft, and cams mounted upon said power-shaft for operating said header and wedge, substantially as set forth.

7. In a nail-machine, the combination of a blank-holding clamp, means for operating the clamp, a heading punch or die, and an intermittently-operating wire-feeding device automatically thrown out of operation by the action of the clamp-operating means, substantially as set forth.

8. In a nail-machine, the combination of a blank-holding clamp, means for operating the clamp, a header, a pair of blank-feeding rolls, and means operated by the clamp-operating means for rendering the feed-rolls inoperative, substantially as set forth.

9. In a nail-machine, the combination of a blank-holding clamp, a header, feed-rolls, a block or wedge mounted between the shafts or journals of the feed-rolls, and means for automatically operating the block or wedge for moving the rolls into or out of operative relation, as set forth.

10. In a nail-machine, the combination of a blank-holding clamp, a header, cooperating feed-rolls, a block or wedge mounted upon the journal or shaft of one of the feed-rolls and adapted to engage the shaft or journal of the other feed-roll, means for forcing said block or wedge in one direction for separating the feed-rolls and said block or clamp being adapted to be moved in the opposite direction by the rotation of the shafts or journals, as set forth.

11. In a nail-machine, the combination of a blank-holding clamp, a header, cooperating feed-rolls, a block or wedge formed with a socket fitting on the shaft or journal of one feed-roll and an elevated portion adapted to engage the shaft or journal of the other feed-roll, and means for operating said block or wedge, as set forth.

12. In a nail-machine, the combination of a blank-holding clamp having a stationary and movable member, a wedge for operating the movable member, a pair of feed-rolls, a block or wedge supported between the shafts or journals of the feed-rolls, and an arm projecting from the clamp-operating wedge and suitably connected with the block or wedge for operating it, as set forth.

13. In a nail-machine, the combination of the blank feeding mechanism, the cutting-off and holding die or clamp, and the header and operating mechanism, the operating mechanism of the header being constructed and arranged to cause the header to recede slightly as the blank is cut off just prior to the heading operation, as and for the purpose set forth.

14. In a nail-machine, the combination of the stationary and movable blank-holding members, the header, the operating-wedge engaging the movable member of the blank-holding clamp for forcing it in one direction, and a secondary wedge on the main operating-wedge engaging a projection or shoulder on the said movable member for moving it in the opposite direction, as set forth.

15. In a nail-machine, the combination of means for feeding a wire blank, a blank-holding clamp or die, a heading die or punch, means for operating the blank-holding clamp and heading die or punch, and a guide such as 95 arranged in the path of the wire blank and adapted to center the blank in the holding clamp or die, as set forth.

16. In a nail-machine, the combination of means for feeding a wire blank, a holding clamp or die, a header, means for operating the clamp and header, and a blank-guide such as 95 adapted to guide the blank to the clamp and means for moving the guide out of the way of the header when the header comes into operation.

17. In a nail-machine, the combination of means for feeding a wire blank, a holding clamp or die, a header, means for operating the clamp and header, and a blank-guide such as 95 formed with a beveled shoulder for guiding the blank into position in the clamp, and means of engagement between the header and guide for throwing the latter out of position when the former is brought into operation, as set forth.

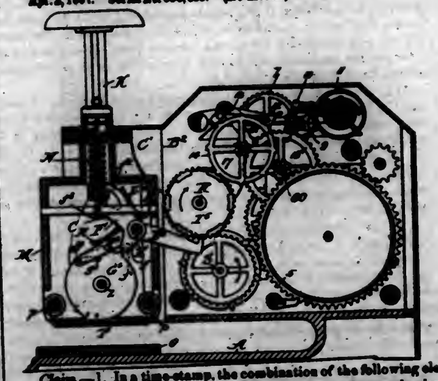
18. In a nail-machine, the combination of means for feeding a wire blank, a holding clamp or die, a header, means for operating the clamp and header, and a blank-guide supported in the path of the blank and movable laterally thereto; said guide having a beveled shoulder against which the end of the blank impinges to center it in the holding-clamp, and a second beveled shoulder against which the header impinges to move it out of the way when the header operates, as set forth.

602,025. EYEGLASS-CASE. CHARLES B. WHITE, Quincy, Mass., assignor to William B. White, Boston, Mass. Filed Nov. 23, 1896. Serial No. 613,797. (No model.)

Claim.—The herein-described eyeglass-case consisting of a blank bent or folded at its sides to form the ends of the case and folded upwardly at its lower end to form the front of the case and provided near its edge with a hollow headed stud, a cover hinged to the back of the case and adapted to be folded onto the front and provided with a spring-socket to engage the headed stud, and a post one end of which is adapted to enter the hollow stud and span the space between the front and back of the case to hold them separated a suitable distance so that the case may not collapse and injure the eyeglass, substantially as described.



602,026. TIME-STAMP. JOHN S. BLEMING, Chicago, Ill., assignor, by direct and mesne assignments, to Albert Tuerk, same place. Filed Apr. 2, 1897. Serial No. 630,415. (No model.)



Claim.—1. In a time-stamp, the combination of the following elements: the clock mechanism, a series of cams connecting mechanism whereby the movement of the clock operates the cams, registering devices normally wholly disconnected from the clock mechanism and the cams, and means for momentarily securing mediate connection between the registering devices and the cams, whereby the position of the cams regulates the impression of the stamp, substantially as described.

2. In a time-stamp, the following elements in combination: clock mechanism, a controlling-train, whereby the clock remains inactive at regular intervals, a series of cams, mechanism connecting the same to the clock whereby the movement of the clock operates the cams, registering devices normally wholly disconnected from the clock mechanism and the cams, and means for momentarily securing mediate connection between the registering devices and the cams, whereby the position of the cams regulates the impression of the stamp, substantially as described.

3. In a device of the kind described, the clock mechanism, a series of cams, and connecting mechanism whereby the movement of the clock operates the cams, in combination with a movable frame containing a series of registering-wheels, wholly disconnected from the clock mechanism and cams, and means for momentarily securing mediate connection between the registering-wheels and the cams, whereby the position of the cams regulates the position of the registering-wheels, when the stamp is operated, substantially as set forth.

4. In a device of the kind described, a clock mechanism, a controlling-train whereby the clock remains inactive at regular intervals, cams, and connecting mechanism whereby the movement of the clock operates the cams, in combination with a movable frame containing a series of registering-wheels wholly disconnected from the clock mechanism and the cams, and means for momentarily securing mediate connection between the registering-wheels and the cams, whereby the position of the cams regulates the position of the registering-wheels when the stamp is operated, substantially as described.

5. In a device of the kind described, the clock mechanism, a series of cams, and connecting mechanism whereby the movement of the clock operates the cams, in combination with a vertically-movable frame and series of registering-wheels, G, G', &c., provided with cam-formed slots, *g*, *g'*, &c., levers, D, D', &c., pivoted between their ends and provided at their outer ends with pins, *d*, *d'* &c., adapted to be loosely positioned in said slots, the inner ends of the levers extending into the clock mechanism and being positioned in a vertical plane with the several cams, and means for normally holding the outer ends of the levers at their upper limit, whereby upon depressing

the frame the levers are released and the registering-wheels set in a position governed by the upward movement of the inner ends of the levers as limited by the action of the cams, substantially as described.

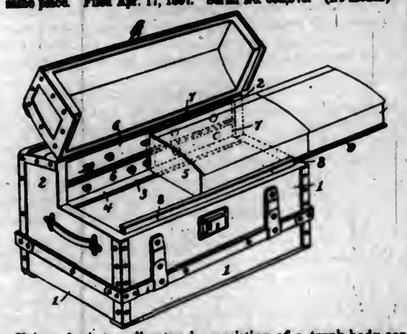
6. In a device of the kind described, the clock mechanism and controlling-train whereby the clock remains inactive at regular intervals, a series of cams, and connecting mechanism whereby the movement of the clock operates the cams, in combination with a vertically-movable frame, a series of registering-wheels, G, G', &c., provided with cam-formed slots, *g*, *g'*, &c., levers, D, D', &c., pivoted between their ends and provided at their outer ends with pins, *d*, *d'*, adapted to be loosely positioned in said slots, the inner ends of the levers extending into the clock mechanism, and being positioned in a vertical plane with the several cams, and means for normally holding the outer ends of the levers at their upper limit, whereby upon depressing the frame the levers are released and the registering-wheels set in a position governed by the upward movement of the inner ends of the levers as limited by the action of the cams, substantially as and for the purpose set forth.

7. In a device of the kind described, the movable frame, M, the plunger, K, the frame, F, the registering-wheels, G, G', &c., and the levers, D, D' &c., in combination with a clock mechanism, the cams, I, I' &c., and connecting mechanism between the clock and said cams whereby the movement of the clock operates the cams, substantially as and for the purpose set forth.

8. In a device of the kind described, the movable frame, M, plunger, K, frame, F, registering-wheels, G, G' &c., provided with alinement depressions 1, 2, 3, the levers, D, D' &c., and the spring H, in combination with a clock mechanism, the train 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15, the cams, I, I', &c., and connecting mechanism whereby the clock mechanism remains inactive at regular intervals and when in action regulates the position of the cams, substantially as and for the purpose set forth.

9. In a device of the kind described, the frame M, the plunger K, the frame F, spring L, registering-wheels, G, G' &c., provided with alinement depressions 1, 2, 3, the levers, D, D' &c., the spring H and the inking-ribbon P and pad O, in combination with a clock mechanism, the cams, I, I', and connecting mechanism whereby the operation of the clock regulates the position of the cams, substantially as and for the purpose described.

602,027. TRAVELING-TRUNK. HENRY A. BOOTH and JOHN P. PLUMMER, Petersburg, Va., assignors of one-fourth to Bernard Mann, same place. Filed Apr. 17, 1897. Serial No. 632,573. (No model.)



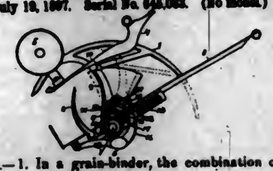
Claim.—1. A traveling-trunk, consisting of a trunk-body constructed along its rear portion with an elevated top casing containing drawers, a bottom wall fitted into the trunk-body under said casing, bracing the top portion of the trunk-body and projecting in front of the drawers to provide an offset ledge, a guideway arranged at the top front edge of the trunk body and open at both ends, a lengthwise-sliding tray resting at its inner edge upon said offset ledge, engaged at its front edge with said guideway and constructed to stand in front of and cover and conceal the drawers in the elevated casing, and to be slid in either direction from the ends of the trunk, and a cover-section hinged to the top front edge of the drawer-casing, substantially as described.

2. The combination, in a traveling-trunk, of a trunk-body constructed along its rear portion with an elevated top casing containing sliding drawers, a bottom wall arranged in the trunk-body under said casing, bracing the end and rear walls of the trunk-body and having an offset ledge in front of the drawers, a grooved guide arranged at the front top edge of the trunk-body, a lengthwise-slidable tray supported by said ledge and said grooved guide, constructed to slide longitudinally in either direction from the ends of the trunk and made substantially the height of the drawer-casing, so that the drawers are covered and concealed by the tray when it is in normal position, and a cover-section hinged to the front top edge of the drawer-casing, substantially as described.

3. A traveling-trunk, consisting of a trunk-body constructed along its rear portion with an elevated top casing containing drawers, an offset ledge running along the front bottom portion of said casing, a grooved guideway arranged at the top front edge of the trunk-body and open at both ends, a horizontally-projecting guide-rib extending along the central portion of the elevated top casing, a lengthwise-sliding tray supported by said offset ledge and grooved guideway and resting against the said horizontal guide-rib, and the cover-section hinged to the top front edge of the trunk-body, said tray normally standing in front of and concealing the drawers in the elevated casing and constructed to be slid in either direction from the ends of the trunk, substantially as described.

4. A traveling-trunk, consisting of a trunk-body constructed along its rear portion with an elevated top casing containing drawers, an offset ledge running along the front bottom portion of said casing and projecting in front thereof, a grooved guide at the top front edge of the trunk-body and open at both ends, a horizontally-projecting guide-rib extending along the elevated top casing above and parallel with said offset ledge, a lengthwise-sliding tray resting at its inner edge upon the offset ledge and having at its outer edge a flange engaging the grooved guideway, and a cover-section hinged to the top front edge of the trunk-body, said tray normally standing in front of the drawers and constructed to be slid in either direction and in its sliding motions guided by the said projecting guide-rib, substantially as described.

602,028. GRAIN-BINDER. EDWARD W. DEERING, Milwaukee, Wis., assignor to the Milwaukee Harvester Company, same place. Filed July 19, 1897. Serial No. 645,063. (No model.)



Claim.—1. In a grain-binder, the combination of feeding and packing mechanism, a trip and compressor arm, a cord holder and knotter, a needle or cord-placing arm and a two-part supplemental compressor having its lower member pivoted upon the axis of the needle and adapted to be moved forward with it against the gavel, a swinging leg pivoted to said lower member and adapted to engage with a fixed part of the binder-frame to retain said lower member against the gavel during a portion of the retrograde movement of the needle, a means for disengaging the leg from the said fixed part, an upper part pivoted to the lower part and adapted to be carried forward with it, said upper part being provided with a heel extension adapted to engage with a portion of the needle for the purpose of retaining it against the gavel during a portion of the retrograde movement of the needle, substantially as and for the purpose described.

2. In a grain-binder, the combination of a needle and a compressor acting upon opposite sides of the gavel, with an auxiliary or supplemental compressor attached to, and having a limited pivotal movement upon the axis of said needle and adapted to be moved forward with the needle against the gavel, and a leg pivoted to said auxiliary compressor adapted to engage with a fixed part of the binder to retain said compressor against the gavel, and a means for disengaging said leg from said fixed part, substantially as and for the purpose described.

3. In a grain-binder, the combination of the needle with a supplemental compressor pivoted at or near its axis, and adapted to move forward with it, and a means for positively retaining said compressor against the gavel during a portion of the retrograde movement of said needle.

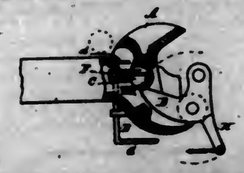
4. In a grain-binder, the combination of the needle with a supplemental compressor pivoted at or near its axis, and adapted to move forward with it, and a means for positively advancing said compressor against the gavel during a portion of the retrograde movement of said needle.

5. In a grain-binder, a needle and an auxiliary compressor comprising two primary members, one of which members has a limited pivotal movement upon the axis of the needle, a stud upon the needle adapted to engage with the two members and carry them forward with the needle, a means for retaining in its forward position the member which is pivoted to the axis of the needle, during a portion of the backward movement of the needle, and a heel extension upon the other member adapted to engage with the stud upon the needle and maintain said member in its forward position during a portion of the retrograde movement of the needle, substantially as and for the purpose described.

6. In a grain-binder, an auxiliary compressor comprising the following members in combination, the part 8 having the eccentric slot 11, the parts 9 and 12 pivotally connected with part 8, the helical spring 15 interposed between the parts 8 and 12, the heel extension 18 upon part 9, the toe-piece 20 upon part 12, the step 16 upon the frame-piece 6, the needle 1 and the stud and rivet passing through the eccentric slot 11, the roller 17, and the lip 19, substantially as and for the purpose described.

7. In a grain-binder, a needle and an auxiliary compressor comprising two primary members, one of which members has a limited pivotal movement upon the axis of the needle, a stud upon the needle adapted to engage with the two members and carry them forward with the needle, a means for retaining in its forward position the member which is pivoted to the axis of the needle during a portion of the backward movement of the needle, and a heel extension upon the other member adapted to engage with the stud upon the needle and to advance said member against the gavel during a portion of the retrograde movement of the needle, substantially as and for the purpose described.

602,029. CAR-COUPLING. JOHN W. FAWCETT, Lawrenceburg, Ind., assignor of two-thirds to John H. Fox and John Bamart, same place. Filed Oct. 14, 1897. Serial No. 655,116. (No model.)



Claim.—1. In a car-coupler, the combination with the draw-head, formed with an inclined cavity with a lateral opening at one end, the ball located in said cavity, the vertical pin passing through an opening in the draw-head, the rock-shaft journaled below said cavity and provided with an upwardly and forwardly extending arm, of the knuckle formed with a rearwardly-extending arm adapted to engage with said ball, substantially as described.

2. In a car-coupler, the combination with the draw-head formed with an inclined cavity, a lateral curved opening intersecting the same, the ball located in said cavity, the vertical pin for holding said ball in place, the rock-shaft, the forwardly and upwardly extending arm, and the stirrup-shaped projection at the front of the draw-head, of the pivoted knuckle having a rearwardly-extending arm adapted to engage with said ball, substantially as described.

602,030. HARVESTER-TRUCK. JAMES A. GRAHAM and EDWARD J. BURKETT, Milwaukee, Wis., assignors to the Milwaukee Harvester Company, same place. Filed June 4, 1897. Serial No. 639,402. (No model.)

Claim.—1. In a harvester-truck, the combination of the axle and wheels, with sustaining link-braces having pivotal connection with the axle and adapted to be hooked to portions of the harvester-frame in a manner to sustain its entire weight.

2. In a harvester-truck, the axle and wheels, the clips clamped to the axle and provided with bearings for the hook-shaped ends of the sustaining-links.

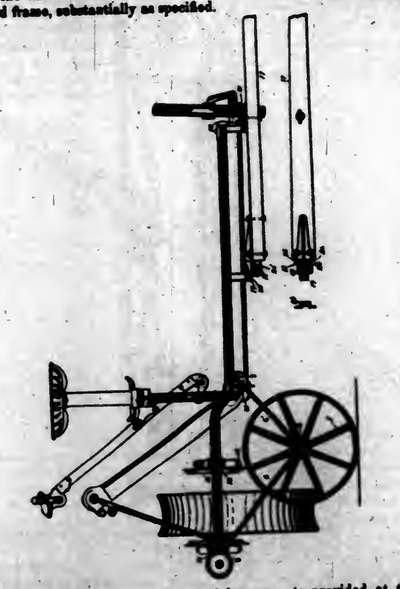
3. In a harvester-truck, the combination of the axle and the clamping-clips provided with bearings for the reception of the hook-shaped ends of the sustaining-links, and the pintle portion projecting into the axle, with the clamping-bolts, substantially as specified.

4. In a harvester-truck, the axle provided with means for attaching pivotal sustaining-links thereto.

5. In a harvester-truck, the axle provided with means for attaching pivotal sustaining-links thereto, said links adapted to swing down approximately parallel with said axle, substantially as shown and described.

6. In a harvester-truck attachment, a draft-pole provided at its rear end with a supplemental draft connection, said draft-connection provided with a hook-shaped portion, and an upwardly-projecting portion, in combination with a bracket affixed to the under side of the harvester-platform and into which the hook-shaped portion of the draft connection is adapted to seat itself, and a means for securing the draft-pole to the grain-wheel end of the harvester-platform, substantially as described.

7. In a harvester-truck, sustaining-supports having connection with the axle near the supporting-wheels, and diverging as they extend upward and provided with means for attaching their upper ends to the harvester-frame and adapted to sustain the entire weight of said frame, substantially as specified.



8. In a harvester-truck, sustaining-supports provided at their lower ends with hook-shaped portions, clips clamped to the axle and adapted to receive the hook-shaped ends of the sustaining-supports and provided with a shouldered recess for the reception of the wheel-hub, substantially as shown and specified.

9. In a harvester-truck, sustaining-supports having pivotal connection with the axle and diverging as they extend upward and provided with hook-shaped ends adapted to connect with a part secured to the frame of the part to be supported in a manner to sustain the entire weight of said part, and means for securing them in said parts, substantially as described.

10. In a harvester-truck, the combination of the axle and wheels, the sustaining-links adapted to connect with fixed parts of the harvester-frame, and connecting-clips between the members of the truss-frame and the sills, said clips provided with loop portions for the reception of a sliding latch to lock said sustaining-links in operative position, substantially as shown and described.

11. In a harvester-truck, the combination of the axle and wheels, the sustaining-links, having hook-shaped ends to connect with fixed parts of the harvester-frame, and other hook-shaped ends having pivotal connection with a part clamped to the truck-axle, with pivotal, gravity-latches to retain the upper hook-shaped ends of said sustaining-links in operative position, substantially as shown and described.

12. In a harvester-pole attachment, the combination of a pole, a draft-casting connected thereto, a draft-stud connected with the harvester-frame, said draft-stud provided with an annular groove or collar, and a yielding latch pivoted to the draft-casting and engaging with the annular groove or collar, substantially as described.

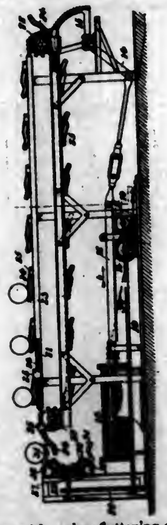
13. In a harvester-pole attachment, the combination of a pole, a draft-piece connected thereto, said draft-piece provided with the raised portion 20', a bracket secured to the harvester-platform, and said draft-piece provided with a hook portion adapted to connect with the bracket, substantially as shown and described.

14. In a harvester-pole attachment, the combination of a pole, a draft-casting connected thereto, a latch pivoted to the draft-casting, a spring acting upon the latch, a draft-stud secured to the harvester-frame, said draft-stud provided with a notch or shoulder portion adapted to engage with the spring-pressed latch whereby the said draft-stud and the said draft-casting are maintained in pivotal relation, substantially as described.

602,031. GLASS-ANNEALING LEHR. JOHN H. LINGENS, New Kensington, Pa. Filed Mar. 10, 1897. Serial No. 626,727. (No model.)

Claim.—1. The combination with a glass-flattening oven, of a carrier extending thereinto and consisting of an endless chain having guide-blocks, and guide-bars between which they travel, said chain

having lateral supporting-arms for the glass cylinders; substantially as described.



2. The combination with a glass-flattening oven, of a carrier extending thereinto, and an endless conveyer having arms which cross the path of motion of the carrier, whereby glass cylinders carried by the conveyer are deposited upon the carrier; substantially as described.

3. A carrier for carrying and transferring glass cylinders, the same comprising an endless chain having arms fixed at one end to the chain and extending thence free from the chain in a direction substantially parallel with the line thereof; and a second carrier extending in a line which is crossed by said arms as they project from the chain at the turning-point; substantially as described.

4. A carrier for carrying and transferring glass, the same comprising an endless chain having arms fixed at one end to the chain and extending thence free from the chain, substantially parallel with the line thereof, said arms being adapted to support and carry the glass and to project at the turning-point of the chain, and a receiving device situated at the turning-point of the chain, and adapted to be crossed by said arms as they project, substantially as described.

5. The combination with a glass-flattening oven, having a flattening-table, of a movable plate or bottom arranged in proximity to the flattening-table, and adapted to cause the discharge of broken glass, substantially as described.

6. The combination with a glass-flattening oven, having a flattening-table, of a movable plate or bottom arranged in proximity to the flattening-table and adapted to cause the discharge of broken glass, and a carrier extending into the oven over said plate or bottom, substantially as described.

602,032. PAPER-BAG CABINET. PETER F. MAUER, Stapleton, Minn. Filed Apr. 30, 1897. Serial No. 634,633. (No model.)



Claim.—In a paper-bag cabinet, a casing divided into compartments corresponding to the sizes of bags, and with a hinged front to each of said compartments, a sliding shelf in the bottom of each of said compartments upon which the supply of bags is retained, and supported upon ways by which a cavity is formed beneath each shelf, a spring in each of said cavities connected by its ends to the casing and the shelf, and rods connecting each of said shelves to its respective front, substantially as hereinbefore set forth.

602,033. AGRICULTURAL IMPLEMENT. HERSCHEL C. MILBURN, Whiteville, La. Filed Mar. 9, 1897. Serial No. 626,608. (No model.)

Claim.—1. A rake comprising supporting-wheels, a head, fingers adjustable in said head, a tongue loosely mounted upon the head, and a means for locking the head with relation to the tongue to prevent its rotation, substantially as shown and described.



2. A rake comprising a head, supporting-wheels mounted upon the ends of said head, the head formed with vertical recesses, collars secured upon opposite sides of the head, fingers passing through the collars and the recesses of the head, a means for adjustably securing the fingers within the collars, a tongue loosely mounted upon the head, and a means for locking the head to the tongue and releasing the same therefrom, substantially as shown and described.

3. A rake comprising a head, supporting-wheels journaled upon each end of the same, a collar upon the central portion of the head, oppositely-extending shoulders upon the collar, a tongue loosely mounted upon the head, a dog pivoted in the tongue and adapted to engage the notches of the collar, an operating-lever, a link connecting the opposite end of the dog with the operating-lever, weighted arms for assisting in the rotation of the head when released by the dog, adjustable fingers secured to the head, and a means for holding the dog normally in engagement with the notches of the collar, substantially as shown and described.

4. A rake comprising a head, fingers adjustably secured in said head and curved at their opposite ends, a three-pronged attachment adapted to be secured to the fingers for converting the same into a three-pronged rake, supporting-wheels for the head, a tongue loosely mounted upon the head, and a means for locking the tongue and head or releasing the same, substantially as shown and described.

602,034. BICYCLE. JOHN P. MURPHY, Adrian, Mich., assignor of two-thirds to James Murphy and Lewis T. Lockner, same place. Filed Sept. 11, 1896. Serial No. 605,521. (No model.)



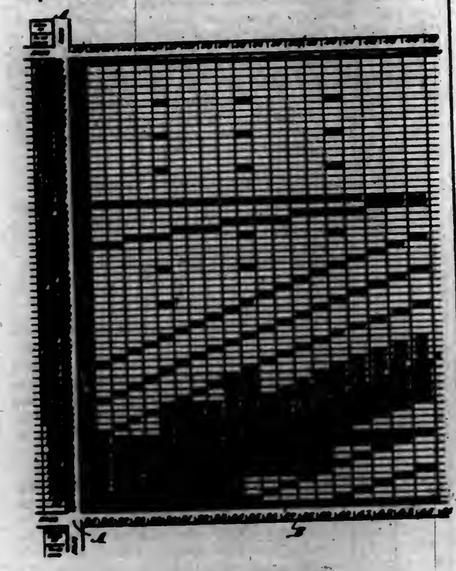
Claim.—1. In a bicycle, a frame comprising front and rear steering-heads, in combination with front and rear forks having their stems received in said heads, one stem having connection with the handle-bar and the other with the saddle-post, connections between said forks for turning them in opposite directions, propelling mechanism carried by the rear fork, and a stiffening-spring connecting the front fork with the frame carrying the propelling mechanism, substantially as described.

2. In a bicycle, a frame comprising front and rear heads, in combination with front and rear forks having their stems received in said heads and having connection with the handle-bar and saddle-post, crossed connections between said forks, a crank-hanger, bottom runs rigidly connecting said crank-hanger and rear fork, braces connecting the crank-hanger and upper end of the rear-fork stem, propelling mechanism arranged to move with the rear fork and crank-hanger, and a flexible yielding connection between the crank-hanger and front fork, substantially as described.

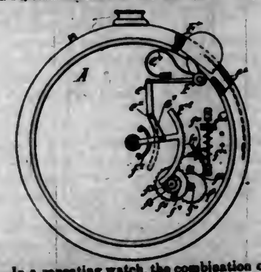
3. In a bicycle, a frame comprising a front head and a rear head, front and rear forks having their stems arranged to turn therein, connection between said forks for simultaneously turning them in opposite directions, propelling mechanism fixed relatively to one fork, and a yielding connection between the other fork and the part of the frame carrying the propelling mechanism, substantially as described.

602,035. LIFE-INSURANCE TABLE OR CHART. NATHAN P. NEAL, Waxahachie, Tex. Filed Oct. 7, 1897. Serial No. 654,413. (No model.)

Claim.—A life insurance table or chart composed of horizontal and vertical rows of parallelograms, the median and approximately diagonal row of parallelograms containing the number of deaths out of an assumed number of insured persons, annually, for an assumed period, the numbers indicating the years or ages included in such period being inscribed in a vertical column at the side of the table, each number of the series being placed opposite the appropriate horizontal row, and all the parallelograms differing in length according to the mortality of different years or ages, and the parallelograms on the respective sides of the diagonal row or mortuary-line indicating the premiums and the other side the claims, as shown and described.



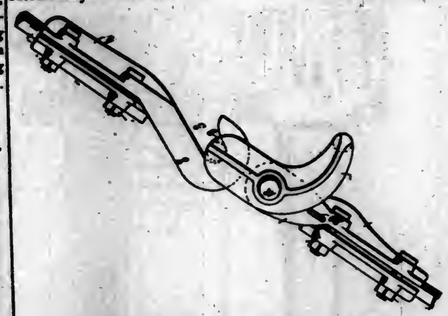
602,036. REPEATING WATCH. CHARLES PEARL, New York, N. Y., assignor of three-fourths to Levy, Dreyfus & Co., same place. Filed Oct. 24, 1896. Serial No. 609,990. (No model.)



Claim.—In a repeating watch, the combination of a pusher projecting outside of the watch a spring-actuated elbow-lever actuated by said pusher, an oscillating motor-segment pivoted to the movement-plate, a pivot-link connecting the elbow-lever with the toothed segment, a pawl and ratchet-wheel, a pinion arranged between the pawl and ratchet-wheel and said motor-segment, said pinion being engaged by said motor-segment, a train of transmitting gear-wheels operated by the pawl and ratchet-wheel, a spur-wheel actuated by the last gear-wheel of the train of transmitting gear-wheels, a worm engaged by the teeth of said spur-wheel, and a fly on the worm-shaft, substantially as set forth.

602,037. DISCONNECTING-COUPLING FOR PULL-RODS. MICHAEL S. SCHALL, Lima, Ohio, assignor of one-half to George H. Mosby and Stewart M. Brice, same place. Filed June 15, 1897. Serial No. 641,203. (No model.)

Claim.—1. In a coupling for rods, or the like, to be used in the transmission of power, the combination of a hook having a shank portion adapted to be clamped onto a rod or other part to be connected up, a yoke having in one end a cross-bar with which said hook is adapted to engage, a clevis provided with an eye in one end and having a shank portion adapted to be clamped onto another rod or part to be connected up, and a pivot pin or bolt secured through the said clevis-eye and through holes in the sides of the said yoke, substantially as described.



2. In a coupling for rods, or the like, to be used in the transmission of power, the combination with a hook adapted to be clamped to one rod or part, and a clevis adapted to be clamped to another rod or part and having an eye in one end, of a yoke having cross-bars in its ends and provided with holes intermediate its ends, and a pivot pin or bolt adapted to be secured in the holes of said yoke and extended through the eye of the clevis, substantially as described.

3. In a coupling for rods, or the like, to be used in the transmission of power, the combination of a hook having a clamping-shank for connection with a rod of wood, iron, wire or cable or other part, a clevis having a clamping-shank for connection with another rod or part, the said clevis being provided with an eye in one end and having legs on its opposite sides, a yoke having cross-bars at its ends and provided in its sides with holes intermediate said bars one of said bars being adapted for engagement of the hook, and a pivot, pin or bolt secured in the said holes of the yoke and extended through the eye of the clevis, substantially as described.

602,038. VEHICLE-TIRE. WILLIAM A. SHULER, Arcanum, Ohio. Filed Oct. 9, 1896. Serial No. 608,247. (No model.)



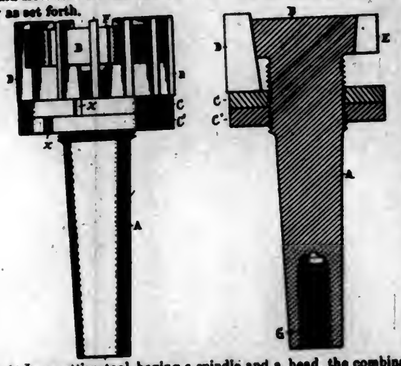
Claim.—In a vehicle-tire, the rim *a*, the metallic tire *b* secured to the rim, and which tire is wider than the rim so that the edges of the tire project beyond the sides of the rim; and the rubber tire *g*, having projecting portions *c* which cover the edges of the metallic tire and extend along the sides of the rim; combined with the sheet-metal clamps which have their inner edges secured to the sides of the rim, and which are curved outwardly and thickened at their outer edges, the said thickened edges catching in recesses formed in opposite sides of the rubber tire, whereby the rubber tire is clamped in position against the metal tire and opposite sides of the rim, substantially as shown and described.

602,039. MILLING-CUTTER. LUKE SMITH, Easton, Pa., assignor of one-half to George H. Pfell, same place. Filed Jan. 6, 1897. Serial No. 618,114. (No model.)

Claim.—1. In a cutting-tool with a spindle and a head, having radial taper-slots cut in its periphery, the combination of detachable taper-cutters loosely fitting in said slots, with means for adjusting the position of said cutters as a whole while permitting the individual adjustment of the cutters, and means for holding said cutters in place when adjusted, substantially as set forth.

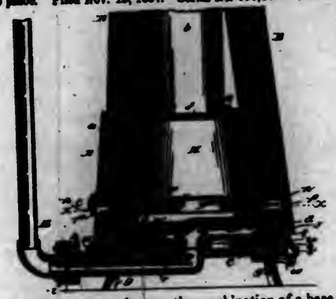
2. In a cutting-tool having a spindle and a head, the combination of detachable taper-cutters fitting in taper-slots of the periphery of said tool, with means for adjusting the position of said cutters so as to vary the diameter of the cutting edge of said tool, slots in the head of said tool and dowels fitting into and expanding said slots to hold the cutters in the head of said tool, substantially as set forth.

3. In a cutting-tool having a spindle and a head, the combination of detachable taper-cutters fitting in taper-slots in the periphery of the head of said tool, with a nut on said spindle for varying the diameter of the cutting edge of said cutters, a lock-nut on said spindle, slots in the head of said tool, and dowels fitting into and expanding said slots to hold the cutters in the head of said tool, substantially as set forth.



4. In a cutting-tool having a spindle and a head, the combination of detachable taper-cutters D fitting in taper-slots E, an adjusting-nut for moving said cutters in said slots, a locking-nut, and slots and dowels in the head of said tool for pinching said cutters in position when adjusted, substantially as set forth.

602,040. WATER-HEATER. CHARLES R. TYLER and CHARLES F. PRIME, Brooklyn, N. Y.; said Tyler assignor to Charles F. Walther, same place. Filed Nov. 13, 1897. Serial No. 658,408. (No model.)



Claim.—1. In a water-heater, the combination of a base or table having a circumferential groove or channel and a passage or pipe in its under side and leading up through its center, a burner supported above said base or table and having a pipe or passage connecting with the passage in the base, and discharging within the burner, a shell or casing surrounding the burner and having its lower edge seated in the groove or channel of the base so as to make a tight joint therewith, means for detachably locking the shell or casing to the base and means for admitting air to the burner.

2. A heater adapted to be placed in or under water and consisting of a base formed integrally with a pipe or passage, and means connecting the same with a gas-supply pipe, said pipe or passage opening up through the center of the base; a two-part burner, one of whose members is formed rigid with a pipe or passage which connects at one end with the passage in the base and whose opposite end discharges into the burner, and an exterior shell or casing and means for detachably locking it to the base, and making a tight joint therewith, said shell or casing having an expanded or enlarged annular portion in line with the burner-openings.

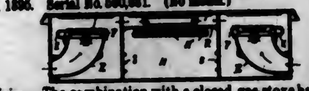
3. In a heater to be placed in or under water, the base or table and the burner and means for admitting gas thereto, in combination with a shell or casing surrounding the burner and made rigid with air-feeding pipes or tubes, a cylinder inside of the shell or casing and secured directly on top of the burner, and located in the upper part of the shell or casing, and a flue or pipe of reduced diameter leading from the upper part of said shell or casing.

4. The combination with the base or table, a burner supported above the same and means for supplying gas thereto, of an exterior shell or casing tapering from its bottom upwardly and made rigid with air-feeding tubes and a central flue of reduced diameter, said shell or casing having an expanded portion or annular enlargement approximately in line with the burner outlets or openings.

5. The combination of the base, the burner, the exterior shell or casing having a flange around its lower portion, the locking devices for the shell consisting of vertically-disposed bars placed around the base and having shanks fitting openings therein, curved transverse bars on the upper ends of the vertical bars, and adapted to engage the said flange of the shell, and levers pivotally secured to the shanks of the vertical bars and having cam-heads to engage the base whereby the upper transverse bars draw the shell or casing down on the base to make a tight joint, and means for feeding gas and air to the burner.

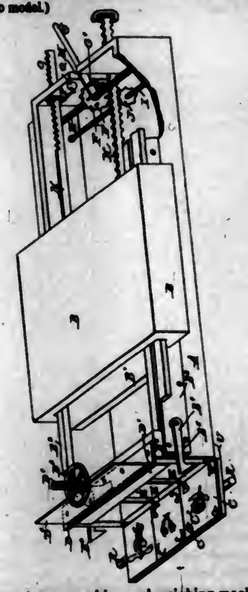
6. An improved water-heater consisting of a base formed integral with a gas-supply passage and annular groove or channel, a burner having a gas-passage communicating with the passage in the base, an interior cylinder secured to the top of the burner, an exterior shell or casing seated on the base and made rigid with air-feeding pipes and having a central flue of reduced diameter, leading from its upper end, means for detachably locking the shell or casing to the base, means for supplying gas to the burner and a pilot-light consisting of a tube to be passed into one of the air-feeding tubes to ignite the gas at the burner.

602,041. GAS-STOVE. PETER G. VAN WIE, Piqua, Ohio, assignor to the Favorite Stove and Range Company, same place. Filed Aug. 27, 1895. Serial No. 560,661. (No model.)



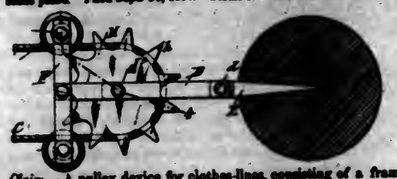
Claim.—The combination with a closed gas-stove having a closed compartment in its upper portion, of a tubular air-supply flue communicating at its lower end with the atmosphere, through the side of the stove, and projecting at its upper end into said compartment, an annular gas-burner secured upon the upper, discharge end of said flue, a gas-supply pipe for supplying gas to said burner, and a deflector-plate arranged centrally within the burner, substantially as specified.

602,042. BUTTER PRINTER AND WEIGHING MACHINE. ALFRED C. DODGE, Binghamton, N. Y. Filed Feb. 18, 1897. Serial No. 624,005. (No model.)



Claim.—In a butter working and weighing machine, the combination with the box A having the sliding pressure-tight cover B and the adjustable retaining and printing door C, with the cutting-knife D^4 operating directly back of said door, the plunger V to which is attached the notched computing and weighing bar N engaging the bell Q by means of the trip-hammer P, the bell Q, the trip-hammer P, and the cog-actuated plunger-shaft K operated by the ratchet-wheel F and lever G; as described and specified.

602,043. CLOTHES-LINE PULLEY. HERMAN BOEHM, New York, N. Y., assignor of two-thirds to Bernhard Liebig and Charles Sandberg, same place. Filed Sept. 30, 1897. Serial No. 653,680. (No model.)



Claim.—A pulley device for clothes-lines, consisting of a frame adapted to be attached to a suitable point of support, a pair of idle-pulleys mounted on said frame, and a double-toothed wheel also mounted on said frame in a plane parallel with the pulleys, said wheel being arranged between and adjacent to said pulleys, whereby the teeth thereon are adapted to cooperate with said pulleys, substantially as set forth.

602,044. MEANS FOR PREVENTING FRAUD IN CONNECTION WITH CONTENTS OF BOTTLES OR THE LIKE. GEORGE H. GRAPES, Wellington, New Zealand, assignor of one-half to Alfred O'Brien, Sunnerfield, England. Filed Oct. 28, 1897. Serial No. 656,711. (No model.)



Claim.—1. A safety device for bottles and the like consisting of a thin piece of metal secured transversely in the bottle-neck, and a depending hook secured to the cork or stopper, said hook being arranged to pass under the transverse piece when inserted into the bottle-neck and adapted to engage with and break the said piece when the cork or stopper is withdrawn.

2. A safety device for bottles and the like consisting of a wire secured transversely in the bottle-neck, and a cork or stopper carrying two oppositely-disposed hooks having bent-up extremities, the ends of which approach each other to provide a guideway for the wire during the insertion of the cork or stopper into the bottle neck, said hooks being arranged so that one of them will engage with and break the wire when the cork or stopper is withdrawn from the bottle.

3. A safety device for bottles and the like consisting of a wire secured transversely in the bottle-neck, a hook for engaging said wire, and a screw-stem on said hook for securing it in the cork of the bottle, substantially as described.

4. A safety device for bottles and the like consisting of a wire secured transversely in the bottle-neck, two pieces of metal having bent-up extremities for engaging said wire, and a screw-stem secured to said pieces for connecting them to the cork or stopper substantially as described.

5. A safety device for bottles and the like consisting of a wire secured transversely in the bottle-neck, two pieces of metal having bent-up extremities for engaging said wire, a screw-stem secured to said pieces, and prongs secured to said screw-stem for preventing it turning relatively to the stopper in which it is secured, substantially as described.

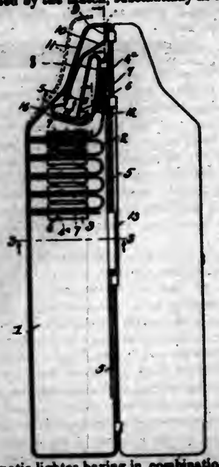
6. The combination with a bottle-neck, of a stopper for the same, a wire secured transversely in said neck, and means carried by and depending from the stopper for engaging with the transverse wire to break the same when the stopper is withdrawn, substantially as described.

7. The combination of a bottle-neck, a stopper for the same, a wire fixed transversely in said neck, a pair of pieces having overlapping hooked extremities for breaking said wire as the stopper is withdrawn, and a screw-stem secured to said pieces for connecting the same to the stopper substantially as described.

8. The combination of a bottle-neck, a stopper for the same, a wire fixed transversely in said neck, a pair of pieces having overlapping hooked extremities for breaking said wire as the stopper is withdrawn, a screw-stem secured to said pieces for connecting the same to the stopper, a transverse metal piece secured to said screw-stem, and prongs on said transverse piece for preventing the screw-stem from being screwed out of the stopper, substantially as described.

602,045. AUTOMATIC LIGHTER. DELIA K. HAWLEY, Chicago, Ill., assignor to the Rathbun Manufacturing Company, same place. Filed Sept. 17, 1897. Serial No. 651,971. (No model.)

Claim.—1. An automatic lighter having in combination a box or receptacle for containing a strip of connected matches, an ejector for forcing said matches from said box, said box being provided with an opening and a spring-tongue closing said opening, and an igniter having a portion adapted to bear against and deflect said tongue before the latter is reached by the match, substantially as set forth.



2. An automatic lighter having in combination a box or receptacle for containing a strip of connected matches, an ejector, a flexible guide arranged adjacent to the line of movement of said ejector, a dog arranged at the lower or inner end of said guide for preventing retrograde movement of the match, and an igniter arranged at the other end of said guide, substantially as set forth.

3. An automatic lighter having in combination a box or receptacle for containing a strip of connected matches, and being provided at one end with an opening and a spring-tongue closing said opening, an ejector for forcing said matches through said opening and means for deflecting said tongue and igniting the match before the latter reaches the tongue, substantially as set forth.

4. An automatic lighter having in combination a box or receptacle for containing a number of connected matches, an ejector having a point for ejecting said matches, said box being provided with an opening for the passage of the matches and a spring-tongue for closing said opening and having a notch adapted to fit around said point after the match is ejected, and an igniter arranged in the line of movement of the match, substantially as set forth.

5. An automatic lighter having in combination a box or receptacle, an ejector arranged against one side thereof and having a slide 13 turned over and embracing said side, and a cover to said box fitting against said ejector and holding the same in place, substantially as set forth.

6. An automatic lighter having in combination a box or receptacle, an ejector consisting of a flat strip arranged against one side thereof and having a slide 13 turned over and embracing said side, and a cover for said box having the cut-away portion 14 forming a slot for the movement of said slide, said ejector having a portion projecting beyond or below said slot and fitting under said cover, substantially as set forth.

7. An automatic lighter having in combination a box or receptacle, an ejector, the igniter 9, guide-spring 8 and spring-dog 12 formed in one piece and secured in said box, substantially as set forth.

8. An automatic lighter having in combination a box or receptacle, an ejector, a spring-strip having one end pointed and arranged adjacent to the line of movement of said ejector and constituting an igniter, the intermediate portion of said strip being doubled backwardly upon itself to form the spring-guide 8 adjacent to the line of movement of said ejector and the spring-dog 12 composed of a tongue struck up from said strip and projecting toward said ejector, substantially as set forth.

9. An automatic lighter having in combination a box or receptacle, an ejector, a spring-strip bent to form an igniter 9 and guide-spring 8, a tongue struck up from the bottom of said box and passing through said spring-strip and the lug 15 struck up from said box and bearing against said strip at another point, substantially as set forth.

10. An automatic lighter having in combination a box or receptacle, an ejector, a strip having one end pointed to form the igniter 9, bent to form the shoulder 10, doubled back upon itself to form the guide spring 8 adjacent to the line of movement of the ejector,

the dog 12 struck up from said strip and the guide 16 rounded off from said dog, and a spring-tongue for closing the aperture of the box arranged adjacent to a part of said strip and adapted to be deflected thereby, substantially as set forth.

602,046. HORSESHOE. WILLIAM S. HYDE, Dover, Md., assignor of one-half to James H. Wilson, same place. Filed Nov. 3, 1897. Serial No. 657,305. (No model.)



Claim.—1. A horseshoe composed of an upper plate and a lower plate respectively provided with close-fitting mortises and tenons, the said upper plate being provided on its bottom with tubular internally-screw-threaded bosses, and the said lower plate having on its top annular bosses to loosely engage the said tubular bosses of the upper plate, and provided on its bottom with recesses, an elastic plate interposed between the said upper shoe-plate and lower shoe-plate, and screw-bolts engaged in the tubular bosses of the upper plate and having the heads of said bolts loosely inclosed in the recesses in the bottom side of the lower plate, substantially as and for the purposes described.

2. In a horseshoe, the combination of an upper shoe-plate adapted to be nailed to the hoof and provided with a number of mortises and with circular openings that are surrounded on the bottom of said plate by tubular internally-screw-threaded bosses and concentric annular recesses, a lower shoe-plate having its top provided with tenons to closely engage said mortises and with annular bosses to loosely engage said tubular bosses, and having circular recesses in its bottom, an elastic and perforated plate interposed between the said upper shoe-plate and lower shoe-plate, and screw-bolts to secure the said plates together, the said screw-bolts being engaged in the tubular internally-screw-threaded bosses of the upper plate and having their heads loosely inclosed in the recesses in the bottom of the lower plate, substantially as and for the purposes described.

602,047. ANTIFRICTION-BEARING. CHARLES B. HOBSON, Boerne, Tex., assignor of one-half to Samuel S. Eveland, Philadelphia, Pa. Filed Apr. 24, 1897. Serial No. 633,748. (No model.)



Claim.—1. An antifriction-bearing comprising a series of rollers, roller-supports at opposite ends only thereof and having inwardly-projecting lugs formed with roller-sockets between them, a ring removably secured to one of the roller-supports and closing the ends of the roller-sockets to prevent endwise displacement of the rollers, means for closing the sockets in the other roller-support, a shaft or journal against which the rollers bear throughout their entire lengths and a casing against which the rollers bear throughout the greater portion of their lengths.

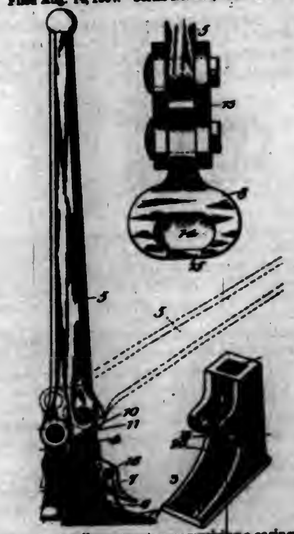
2. The combination of the rollers, the roller-supports having individual sockets for the rollers, and balls arranged in said individual roller-sockets at the ends of the rollers.

3. The combination of the rollers, roller-supports formed with a series of roller-sockets, devices for closing the ends of the sockets, and balls extending partially through the openings in said closing devices and bearing against the ends of the rollers.

4. An antifriction-bearing comprising a series of rollers, roller-supports at opposite ends thereof having inwardly-projecting lugs formed with roller-sockets between them, a ring removably secured to one of the roller-supports, and detachably connected with it, means for closing the sockets in the other roller-support, balls arranged individually in the roller-sockets and interposed between the ends of the rollers and the ring, a shaft or journal against which the rollers bear throughout their entire lengths, and a casing against which the rollers bear throughout the greater portion of their lengths.

5. An antifriction-bearing comprising a series of rollers, roller-supports at opposite ends only thereof and having inwardly-projecting lugs formed with roller-sockets between them which are open at their inner and outer ends to permit the rollers to bear against the journal and also against the case, and are open at opposite ends to permit endwise movement of the rollers, a ring removably secured to one of the roller-supports and closing the ends of the roller-sockets to prevent endwise displacement of the rollers, means for closing the sockets in the other roller support, a shaft or journal against which the rollers bear throughout their entire lengths, and a casing against which the rollers bear throughout the greater portion of their lengths.

602,048. SPIKE-EXTRACTOR. ANDREW F. JACKSON, Oklahoma, Okla. Filed Aug. 14, 1897. Serial No. 648,360. (No model.)



Claim.—1. A spike-extractor, comprising a casing forming a support, a vertically-movable fulcrum-block mounted in the casing, an operating-lever fulcrumed on the block and arranged to engage the same to limit its movement and permit the device to be swung bodily, and a spike-engaging device carried by the lever, substantially as described.

2. A spike-extractor comprising a casing having a vertical tubular portion and a rearward extension forming a fulcrum, a vertically-movable fulcrum-block mounted in the tubular portion of the casing, a lever fulcrumed on the block and adapted to engage the same to limit its swing, a spike-engaging device carried by the lever, and a pawl mounted on the casing and engaging the block, substantially as described.

3. A spike-extractor, comprising a casing forming a fulcrum, a vertically-movable fulcrum-block mounted in the casing and provided with ratchet-teeth, a pawl mounted on the casing and engaging the ratchet-teeth for holding the fulcrum-block elevated, a lever fulcrumed on the block, and a spike-engaging device carried by the lever, substantially as described.

4. A spike-extractor comprising a casing provided with a straight vertical front face forming a guide, a vertically-movable fulcrum block mounted in the casing, a lever fulcrumed on the block, and a spike-engaging claw guided on the straight front face of the casing and connected with the lever, substantially as described.

5. A spike-extractor comprising a casing provided with side flanges, a vertically movable fulcrum-block mounted in the casing and having its upper end bifurcated and provided between the sides of the bifurcated portions with an inclined shoulder forming a stop, a lever fulcrumed in the bifurcation of the block and having a shoulder arranged to engage said stop to limit its swing, a pawl pivoted between the flanges of the casing and engaging the block, and a spike-engaging device carried by the lever, substantially as described.

REISSUES.

11,659. BLACK DYE AND PROCESS OF MAKING SAME. RAYMOND VIDAL, Paris, France. Filed Feb. 26, 1898. Serial No. 671,903. Original No. 522,120, dated July 17, 1894.

Claim.—1. The process herein described of producing greenish-black, bluish-black and black dyestuffs capable of dyeing the fiber without mordants, which consists in heating ortho or para dioxybenzene, such as quinone, hydroquinone, toluquinone, or pyrocatechin in the presence of sulfur and of ammonia or of substances which are capable of generating ammonia during the reaction, substantially as set forth.

2. The process herein described of producing black dyestuff, by heating hydroquinone in presence of sulfur and ammonia, substantially as set forth.

3. The described black coloring-matters, derived from ortho or para dioxybenzene by heating with sulfur and ammonia, said coloring-matters being soluble in alkalies and alkaline sulfites, and capable of dyeing unmordanted cotton fiber in black or blackish shades, substantially as described.

4. The described coloring-matter derived from hydroquinone by heating with sulfur and ammonia, said coloring-matter being a dark mass, insoluble in water or acids, soluble in alkalies and alkaline sulfites, the alkaline solutions being readily oxidized on exposure to air thereby becoming intensely black, and capable of dyeing unmordanted cotton fiber in black shades, substantially as set forth.

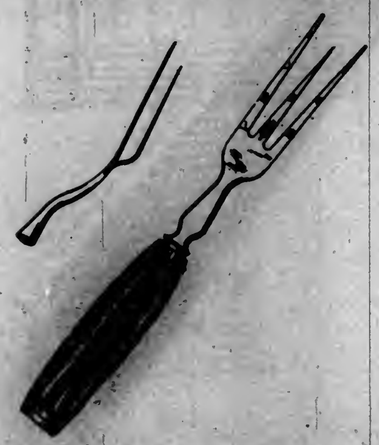
DESIGNS.

28,443. CUFF-BUTTON. HAROLD I. PALMER, Utica, N. Y. Filed Feb. 15, 1898. Serial No. 670,457. Term of patent 7 years.



Claim.—The design for the cuff-button herein shown and described.

28,444. CARVING-FORK. CHRISTOPHER RICHARDSON, Howard, N. J. Filed Oct. 6, 1897. Serial No. 654,302. Term of patent 14 years.



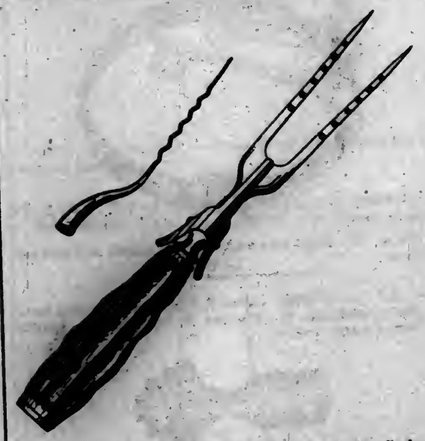
Claim.—The design for a carving-fork as herein described and shown.

28,445. CARVING-FORK. CHRISTOPHER RICHARDSON, Howard, N. J. Filed Oct. 6, 1897. Serial No. 654,301. Term of patent 14 years.



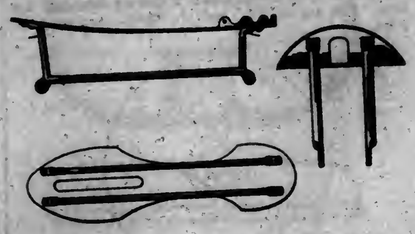
Claim.—The design for a carving-fork as herein described and shown.

28,446. CARVING-FORK. CHRISTOPHER RICHARDSON, Howard, N. J. Filed Oct. 6, 1897. Serial No. 654,303. Term of patent 14 years.



Claim.—The design for a carving-fork, as herein described and shown.

28,447. ROLLER-SKATE FRAME. ROBERT REAM, Philadelphia, Pa. Filed Dec. 22, 1897. Serial No. 663,167. Term of patent 7 years.



Claim.—The design for a roller-skate frame herein shown and described.

28,448. GARMENT-HANGER. ADELINE M. WALKER, Elizabeth, N. J., and FRANCES C. JACKSON, New York, N. Y. Filed Oct. 1, 1897. Serial No. 653,754. Term of patent 3½ years.



Claim.—The design for a garment-hanger herein substantially as shown and described.

28,449. GARMENT-HANGER. ADELINE M. WALKER, Elizabeth, N. J., and FRANCES C. JACKSON, New York, N. Y. Filed Oct. 1, 1897. Serial No. 653,755. Term of patent 3½ years.



Claim.—The design for a garment-hanger herein substantially as shown and described.

28,450. WAIST-BELT. CELIA KOHLMAN, New York, N. Y. Filed Dec. 9, 1897. Serial No. 661,232. Term of patent 14 years.



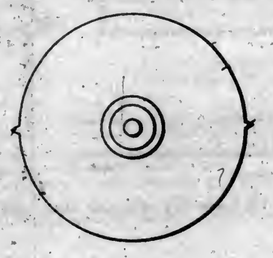
Claim.—The design for a waist-belt, substantially as shown and described.

28,451. BURNER. CARTER H. PAGE, Jr., and ERNEST L. ERNSBERT, Philadelphia, Pa. Filed Mar. 20, 1897. Serial No. 628,263. Term of patent 14 years.

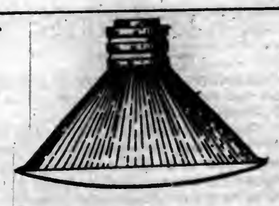


Claim.—A design for a burner for incandescent gas-lights, substantially as shown and described.

28,452. BULB FOR ELECTRIC LAMPS. EDWARD MILLER, Akron, Ohio, assignor of two-thirds to Orlando W. Groff and Anton Rapp, same place. Filed Jan. 20, 1898. Serial No. 668,674. Term of patent 7 years.

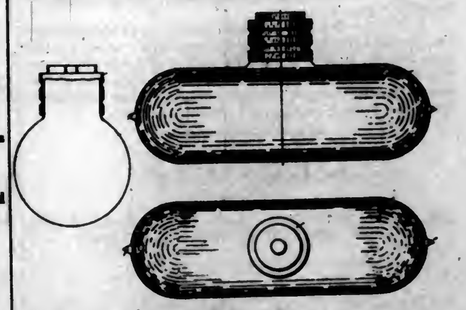


28,452.



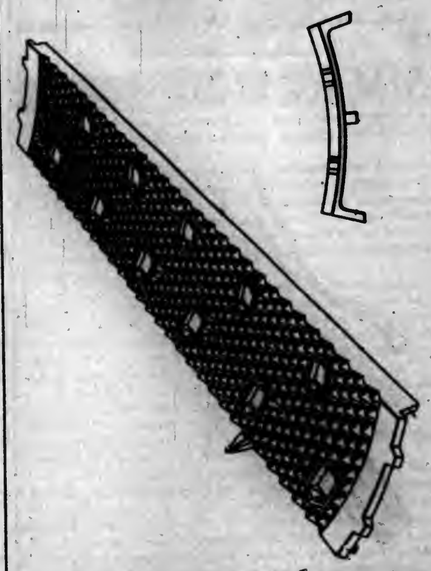
Claim.—The design for a bulb for electric lamps substantially as herein shown and described.

28,453. BULB FOR ELECTRIC LAMPS. EDWARD MILLER, Akron, Ohio, assignor of two-thirds to Orlando W. Groff and Anton Rapp, same place. Filed Jan. 20, 1898. Serial No. 668,675. Term of patent 7 years.



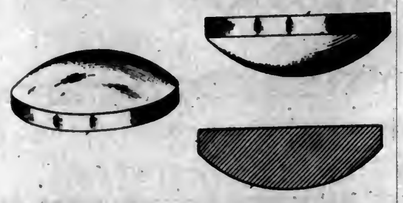
Claim.—The design for a glass bulb for electric lamps substantially as herein shown and described.

28,454. CONCAVE-SECTION FOR SEPARATORS. JOHN M. KAILOR and MARSHAL T. REEVES, Columbus, Ind., assignors to the Reeves & Company, same place. Filed Jan. 20, 1898. Serial No. 668,693. Term of patent 14 years.



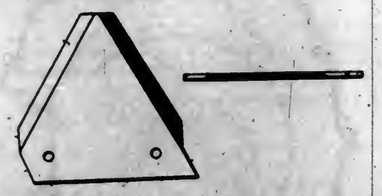
Claim.—The design for a concave-section for separators, substantially as shown and described.

28,455. METAL INGOT. WALTER H. BAKER, St. Louis, Mo., assignor to the National Lead Company, same place. Filed Jan. 24, 1898. Serial No. 667,823. Term of patent 14 years.



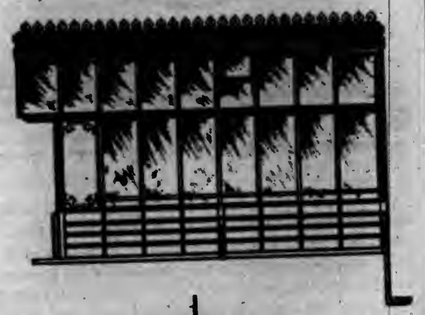
Claim.—A design for a metal ingot substantially as herein shown and described.

28,456. SECTION-KNIFE FOR MOWING-MACHINES. WARREN M. BRINKERHOFF, Auburn, N. Y. Filed Mar. 3, 1897. Serial No. 626,900. Term of patent 14 years.



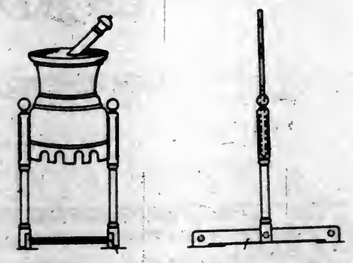
Claim.—The design for a section-knife for mowing-machines, substantially as herein shown and described.

28,457. WAGON BODY AND TOP. SAMUEL VANDUSEN SMITH, Philadelphia, Pa. Filed Jan. 26, 1898. Serial No. 667,926. Term of patent 14 years.



Claim.—The design for a wagon body and top herein shown and described.

28,458. BICYCLE-STAND. HARRY DOLSON and BENJAMIN G. APPLEBY, Saginaw, Mich. Filed Jan. 20, 1898. Serial No. 667,695. Term of patent 7 years.



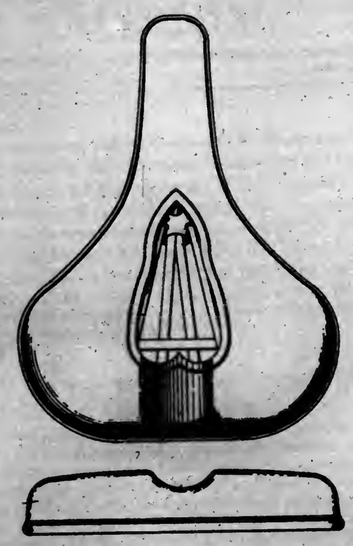
Claim.—The design for a bicycle-stand as herein shown and described.

28,459. SADDLE-CUSHION. LARKIN ORDERDONK, Winthrop, Mass. Filed June 3, 1897. Serial No. 639,354. Term of patent 7 years.



Claim.—The design for a cushion for saddles, substantially as shown and described.

28,460. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Dec. 6, 1897. Serial No. 660,973. Term of patent 14 years.



Claim.—A design for a bicycle-saddle, substantially as shown and described.

TRADE-MARKS

REGISTERED APRIL 5, 1898.

81,453. PROPRIETARY MEDICINES FOR COLDS AND KINDRED COMPLAINTS. De Land Medical Company, Boston, Mass. Filed Jan. 24, 1898.

DE LAND'S



Essential feature.—The words "De Land's" and a representation of a man on horseback. Used since January 1, 1898.

81,454. CERTAIN NAMED PROPRIETARY MEDICINAL PREPARATION. Dees Chemical Company, St. Louis, Mo. Filed Feb. 24, 1891.

NEUROSINE

Essential feature.—The word "Neurosine." Used since February, 1891.

81,455. BICYCLES. The Columbus Bicycle Company, Columbus, Ohio. Filed Aug. 23, 1897.



Essential feature.—The letter "C" with a pictorial representation of the landing of Columbus upon a disk having a surrounding circle and radial lines representing a vehicle-wheel. Used since December, 1896.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

FREEMAN v. BERNSTEIN *et al.*

Decided March 19, 1898.

INTERFERENCE—PAPER EXHIBITS, REPRODUCTION OF—DISCRETIONARY POWER OF THE COMMISSIONER TO REQUIRE.

The rules of the Patent Office do not require that paper exhibits should be reproduced, so that copies may be furnished for the convenience of the various tribunals of the Office and for the counsel for the adverse parties. In the absence of such rule it is not within the discretion of the Commissioner of Patents to make such requirement.

APPEAL on motion.

ELECTRIC-LIGHTING SYSTEM.

Application of Walter K. Freeman filed April 25, 1888, No. 271,986. Application of Alexander Bernstein filed August 4, 1887, No. 246,105. Application of Rudolph M. Hunter filed June 18, 1887, No. 241,729. Application of Elihu Thomson and Edwin J. Houston filed February 19, 1887, No. 228,183. Application (reissue) of The Westinghouse Electric Company and John D. Gibbs filed August 6, 1889, No. 319,955.

Messrs. Church & Church for Freeman.

Mr. J. W. Smith and *Mr. H. S. Mackaye* for Bernstein.

Mr. R. M. Hunter pro se.

Mr. H. C. Townsend for Thomson and Houston.

Mr. H. S. Mackaye for The Westinghouse Company and Gibbs.

DUELL, *Commissioner:*

This is an appeal by Hunter from the decision of the Examiner of Interferences granting the postponement of the hearing for a period of thirty days and also requiring him to reproduce his paper exhibits and furnish copies thereof to opposing counsel.

Upon the hearing Hunter abandoned his appeal so far as it related to the postponement of the hearing for the reason that the thirty days' extension granted by the Examiner had then expired. This only leaves for review the action of the Examiner of Interferences in requiring Hunter to reproduce his paper exhibits. The Examiner of Interferences in granting the motion for the reproduction of the exhibits said:

So far as the Examiner is aware, this is a question without a precedent.

That paper exhibits should be reproduced so that copies can be furnished for the convenience of the various tribunals of the Office and for the counsel for the adverse parties is not required by any rule of the Office. In the absence of such rule I cannot agree with the Examiner of Interferences in his statement—

that it is within the discretion of the Commissioner to make such a requirement.

Interference proceedings have become so onerous to the parties involved that I am unwilling to strain any rule that would result in placing additional burdens upon parties to such proceedings. The interference proceedings are now too expensive and complicated.

I fail to see any ground for the statement that Hunter's record will be unintelligible without copies of his paper exhibits being furnished. If Hunter's record is not intelligible with the originals, it will certainly not be made more intelligible by any number of reproductions furnished for the convenience of the Office and counsel. The argument advanced by counsel for Freeman that if an appeal to the court be taken the exhibits will have to be reproduced and therefore they should now be furnished is clearly untenable. Such contingency has not yet arisen, and it is unnecessary at this stage of the proceedings to provide for it. Even were an appeal to be hereafter taken, it cannot now be said which party would have to bear the expense of printing the records.

The action of the Examiner of Interferences in requiring Hunter to print his paper exhibits is reversed.

I have been asked to direct the Examiner in setting another date for final hearing to consider the magnitude of the records. The Examiner will of course give a reasonable time for counsel to prepare their arguments; but in view of the fact that this interference has been pending for many years I also call his attention to the fact that the public have some rights and that therefore as early a date of hearing should be set as is compatible with the interests of the parties.

MOWER v. CRISP AND COPELAND.

Decided March 25, 1898.

1. INTERFERENCES—REDUCTION TO PRACTICE—LACHES IN APPLYING FOR PATENT—RIVAL INVENTORS—ESTOPPEL.

Where an inventor is guilty of laches in putting aside a machine for eleven years after it was perfected and tested, he is estopped by such laches from receiving a patent by reason of the entrance into the same field of a rival inventor who reduced the invention to practice, obtained a patent, placed the invention on the market, and gave to the world the knowledge and use of such invention.

2. SAME—PRIORITY—ESTOPPEL—RIGHT TO A PATENT.

While M. was the first to reduce to practice and therefore entitled to an award of priority, yet on account of laches in applying for a patent he is not entitled to a patent, and the Examiner directed to reject the claims of M. involved in the interference after final award of priority.

APPEAL from Examiners-in-Chief.

TACK-DRIVING MACHINE.

Application of Samuel E. Mower filed May 14, 1894, No. 511,089. Patent granted Joseph E. Crisp and Geo. W. Copeland June 30, 1891, No. 455,174.

Messrs. Crosby & Gregory and *Mr. Fred. P. Fish* for Mower.

Mr. E. P. Howe and *Messrs. Phillips & Anderson* for Crisp and Copeland.

DUELL, *Commissioner*:

This is an appeal by Crisp and Copeland from the decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority to Mower.

The issue is:

In a hand tacking and loading machine the combination of a suitable tack-driver, a tack-loader and loading mechanism, with a tack-chute composed of two parts, one part fixed to the tack-driving device, and the other part fixed to the loading mechanism, and means for connecting and disconnecting the same, for the purposes set forth.

Both the Examiner of Interferences and the Examiners-in-Chief found that Mower in 1881 made a practically successful machine which embodies the subject-matter of the issue. This finding is abundantly warranted by the testimony. This machine was, in 1882 and 1883, tested with satisfactory results.

All this occurred long prior to any conception or reduction to practice by Crisp and Copeland. Priority is therefore awarded to Mower.

Were no other questions involved than that of priority, it would be unnecessary to add further to this decision. The record, however, raises another question which is not so easy of solution.

The proofs show that after such tests were made in 1882–3 the exhibit machine was laid aside for some eleven years. Meanwhile Crisp and Copeland conceived the same invention, reduced it to practice, applied for and obtained a patent, and placed the invention upon a large scale on the market, and the public through them acquired knowledge of the invention and the right to use the same, some four hundred machines being put on the market by their assignee before Mower took any steps to obtain a patent or put the invention into use. It was not until the Crisp and Copeland patent had been issued for nearly three years and the machines had been placed upon the market for nearly two years in New England, where Mower lived, that the Mower application was filed. Even then neither Mower nor Henry G. Thompson, who claimed to be the equitable if not the legal owner of the invention, took any steps to apply for a patent; but the initiative was taken by one Hurd, the agent of a corporate rival of the corporation owning the Crisp and Copeland patent, who obtained from Mower, through Thompson, the execution of an application by Mower and its assignment to such corporation. It will be seen that the invention in controversy was not given to the public by Mower, but by Crisp and Copeland.

Pending these interference proceedings the question of abandonment was raised by the attorney for Crisp and Copeland, and by consent of the attorneys for the respective parties the application of Mower was remanded to the Primary Examiner to consider that question. It was decided adversely to Mower by the Examiner, and thereupon Mower took an appeal to the Examiners-in-Chief. They reversed the Examiner, holding that the excuse given by Thompson why an application was not filed by Mower was sufficient and abandonment had not been proved. Mower seems to have not known why the application was not prosecuted. Thompson says it was because he had parted with his rights in certain patents and that he was not being treated fairly and so determined to withhold any application by Mower until about the time when such prior patents would expire; but in my opinion the testimony does not show that such patents were dominating patents, so as to warrant the delay on the part of Mower, for at the best they would only prevent the *full* enjoyment of the invention, for Mower's application states that the invention is useful—

in the producing of boots and shoes, and for many other purposes in the arts.

While actual abandonment may not have been proved, yet a more serious question is raised by counsel for Crisp and Copeland—*i. e.*, that Mower and his assignee are estopped by their laches in sleeping upon their rights and allowing another to enter the field, obtain a patent, put the invention into public use, and give to the public the right to use the same, which right is embraced by the public.

I am clearly of the opinion that Mower and his assignees, who are in no better position than he, were guilty of laches in putting aside the machine for some eleven years after it was perfected and tested, and that they are estopped by such laches from receiving a patent by reason of the entrance into the same field of rival inventors who reduced the invention to practice, obtained a patent, placed the invention upon the market, and gave to the world the knowledge and use of the invention, in return for which, I apprehend, is found the consideration which induced the framers of the Constitution to grant therein the power to Congress to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries. This conclusion is supported more or less forcibly by various authorities.

In the case of *Kendall et al.* v. *Winsor* (21 How., 322, 328) Mr. Justice Daniels, speaking for the Supreme Court, said:

The true policy and ends of the patent laws enacted under this Government are disclosed in that article of the Constitution, the source of all these laws, viz: "to promote the progress of science and the useful arts," contemplating and necessarily implying their extension, and increasing adaptation to the uses of society. (*Vide* Constitution of the United States, Art. I, sec. 8, clause 9.) By correct induction from these truths, it follows, that the inventor who designedly, and with the view of applying it indefinitely and exclusively for his own profit, withholds his invention from the public, comes not within the policy or

objects of the Constitution or acts of Congress. He does not promote, and, if aided in his design, would impede, the progress of science and the useful arts. And with a very bad grace could he appeal for favor or protection to that society which, if he had not injured, he certainly had neither benefited nor intended to benefit. * * *

It is the unquestionable right of every inventor to confer gratuitously the benefits of his ingenuity upon the public, and this he may do either by express declaration or by conduct equally significant with language—such, for instance, as an acquiescence with full knowledge in the use of his invention by others; or he may forfeit his rights as an inventor by a wilful or negligent postponement of his claims, or by an attempt to withhold the benefit of his improvement from the public until a similar or the same improvement should have been made and introduced by others.

The facts in the case of *Rowley* v. *Mason*, which was an appeal from the Patent Office to the Supreme Court of the District of Columbia, (Vol. 2 *American Law Times Reports*, 106,) were somewhat similar to those in the case at bar. Mason, it seems, perfected his invention in 1859, but failed to file his application until January, 1868, a period of about nine years intervening between the time of the perfection of the invention and the filing of the application. In the meantime, during the year 1866, Rowley, without any knowledge of the invention having been made by Mason, perfected the device which Mason had perfected seven years previously, and filed his application on November 26, 1867. Judge Fisher in deciding this case said:

Upon a careful consideration of all the testimony in the case, I have come to the conclusion, though with much hesitation, that Mason invented the device claimed in this case in the year 1859, and reduced his invention to a fixed, positive, and practical form, and is therefore the first inventor.

I now proceed to the inquiry whether he has or has not forfeited his right to a patent, as against a subsequent, independent inventor, for there is no question in my mind that Rowley is such.

After reviewing the authorities and the facts in the case the judge decided that, although Mason was the first inventor, priority should be awarded to Rowley, and he ordered that a patent be issued to Rowley. In his decision he used this language:

The great object of the patent law is the promotion of the arts and sciences as rapidly as possible, by means of holding out to inventors an exclusive monopoly in their inventions for a limited term; and the principle laid down by Justice Story conforms to the spirit of our patent system. Were it otherwise than he decided, inventors would sleep upon their inchoate inventions and put off their reduction to practical form to a more convenient season, the result of which would be, in many instances, the loss of useful inventions and improvements which they had begun and might well have perfected; while other inventors would be deterred from expending their money and brain-work in perfecting inventions by the apprehension that some more sluggish genius might step in and anticipate the fruits of his labors at the eleventh hour. The same sound policy seems to me to require that, as between two independent inventors, the one who has perfected his invention but chooses to sleep upon it for nine years, or even a less period, and is only aroused from his slumbers by the application of a subsequent inventor for his patent, has no right to complain if that application should meet with success.

After this decision there were certain proceedings conducted in the Patent Office and in the Supreme Court of the District by which Mason obtained a patent, and this patent was in suit in the case of *Consolidated Fruit Jar Co.* v. *Wright*, (6 O. G., 337; 12 Blatchf., 149.) Judge Woodruff in his decision said:

The acts and neglect of Mason, the patentee, amounted to an abandonment of the supposed invention, and of all claim to a patent therefor. It was not until after the several patents above specified had been obtained by others, and after Rowley, in concert with Imlay, had engaged largely in the manufacture, and they had been for very nearly two years extensively sold, that Mason, nine years after his alleged invention, comes forward to claim the exclusive right to make such jars. If he originally might have claimed it, he had slept too long. He had abandoned the manufacture. His instruments of manufacture were lost, or had passed from his possession and control, without an effort to reclaim them. Others having no connection with him had produced and given to the public the benefit of the device he now seeks to claim, and had devoted their time and capital to its production and sale. There was no reason for this delay, if Mason entertained any purpose to pursue the invention or patent it. He had abundant means for this purpose. He actually applied for and received another patent. He apparently applied himself to a totally different subject, so as to indicate that, for some reason, he did not regard the device worthy of further attention, until either the ingenuity or skill, judgment and capital of others, applied to the manufacture and sale, suggested to him that the alleged invention had value. The remarks of Judge Fisher, of the Supreme Court of the District of Columbia, in his opinion in the matter of the interference between the applications of Rowley and Mason, (put in evidence by the complainant,) are forcible and apt to this view of Mason's rights, especially as against Rowley, who, it seems, defends this suit. (*Adams* v. *Jones*, 1 Fish. Pat. Cas., 537; *White* v. *Allen*, 2 Id., 440; *Staples* v. *R. R. Co.*, Id., 532; *Roussos* v. *Mayor*, 1 Id., 538.) As well on the ground of abandonment as on the ground of unnecessary delay and neglect, until Rowley, or Rowley and Imlay, had produced and put the alleged invention into extensive use and on sale, for nearly two years, expending their time, industry, skill, and capital, the patent to Mason must be regarded as invalid.

For, in my opinion, is it material to inquire whether Mason or Rowley did or could have obtained a patent for the combination in question. If an inventor, without substantial reason or excuse, abandons the use of his invention, and for nine years sleeps on his rights, and in the meantime others, in good faith, employ their industry, skill, and money in producing the same thing, and give the public the benefit thereof, putting it into extensive use and on sale, such a state of facts not only warrants the inference of abandonment by the first inventor, but it also creates, as between him and the others, the same equity as would arise if such others had gone further and taken out a patent. Whether the device be patented, or has "gone into use without a patent," should make no difference. (*Kendall* v. *Winsor*, 21 How., 322.) This is not because lapse of time, *per se*, deprives an inventor of his right, but because the circumstances giving character to the delay indicate abandonment; and also because the intervening rights of others make it inequitable that he should thereafter be permitted to assert any such exclusive title to the invention.

On appeal to the Supreme Court of the United States (94 U. S., 92) the decision of Judge Woodruff was sustained, the Court finding that the fact that when Mason showed his invention to his attorney in 1859 he was advised that if he patented it he could not use it, as it would infringe earlier patents which he had parted with to others, was not a sufficient reason for the delay in filing the application; that no sufficient reason was disclosed in the record why the application for the patent was not made earlier, and that it was not for want of the necessary pecuniary means on the part of Mason.

Justice Swayne, speaking for the Court, said:

He who is silent when he should speak must be silent when he would speak, if he cannot do so without a violation of law and injustice to others.

The supineness of the patentee is unexplained and inexcusable. A principle akin to the doctrine of equitable estoppel applies.

In the case of *United States Rifle and Cartridge Co.* v. *The Whitney Arms Co.* (11 O. G., 373) Judge Shipman cited the case of *Kendall* v. *Winsor* and the *Fruit Jar Company Case*, *supra*, with approval, in this language:

A person "may forfeit his rights as an inventor by a wilful or negligent postponement of his claims, or by an attempt to withhold the benefit of his improvement from the public until a similar or the same improvement should have been made and introduced by others." (*Kendall* v. *Winsor*, 21 How., 322.) If there was no purpose on the part of Cochran to withhold his improvement from the public, there was a negligent postponement of his claims until after the other inventor had acquired equities which it seems unjust to destroy. The language of Judge Woodruff in *Consolidated Fruit Jar Company* v. *Wright*, (6 O. G., 337; 12 Blatchf., C. C. R., 149,) though not necessary to the decision of that case, is just and pertinent to the facts which are here disclosed.

Mr. Justice Clifford, speaking for the Supreme Court of the United States, in the case of *Bates* v. *Coe*, (16 O. G., 337; 98 U. S., 31, 46,) said:

Inventors may, if they can, keep their inventions secret; and if they do for any length of time, they do not forfeit their right to apply for (obtain) a patent, unless another in the meantime has made the invention and secured by patent the exclusive right to make, use, and vend the patented improvement. Within that rule and subject to that condition, inventors may delay to apply for a patent.

In the case of *Boyd* v. *Cherry* (4 McCrary, 70, 76) it was said:

The rights of a patentee are granted to him upon the consideration of the giving by him to the public of a new and useful discovery. If some one before him had already given the same invention or discovery to the public, this consideration fails, and he has no basis for his claim of exclusive right. Hence it is that the alleged prior invention must have been made public.

If kept secret by the first inventor until the second has discovered it and given it to the public, the latter will be protected, for it is to him that the public is indebted; it is from him that the public has received value; and as no one can impart that which he does not possess, it must appear that the alleged prior inventor was aware not only of his discovery, but also of its utility.

On this same question Judge Shipman, in the case of *Hubel* v. *Dick*, (36 O. G., 939; 28 Fed. Rep., 132, 140,) used this language:

The question therefore is, should the first inventor, who proceeded with reasonable diligence to perfect an important invention, and who produced a successful machine before the junior inventor's patent was issued, lose his right to the fruit of his invention on account of the delay which he exhibited in applying for his patent? That laches merely in applying for a patent, when there were no laches in otherwise perfecting the invention, may compel an inventor to be deprived of his patent, another inventor having meanwhile given the same invention to the public, is probably true. The remarks of Acting Commissioner Duncan in *Monce* v. *Adams*, (1 O. G., 2,) are important and valuable upon this point. In the case under consideration the utmost time during which the inventor may be chargeable with laches was nineteen months—the interval between the completion of his working drawings and his application for a patent. Ten months elapsed after the completion of the machine. When an inventor of a machine of the important character of either Tucker's or Taylor's, who has been diligent in perfecting and reducing his invention to practice, and in attempts to bring his machine to the knowledge of the public, has merely paused, before applying for a patent, for a period of nineteen months after he completed his working drawings, and ten months after he completed his machine, I cannot say that there were such laches as should deprive him of the reward which ordinarily attends priority of invention. Our inventors are more apt, I suppose, to go into the Patent Office with incomplete inventions than to wait too long after experiment has achieved perfection. A decision which should compel haste in applying for patents before actual practice had tested the truth of the inventor's theory, and had overcome difficulties in the operation of the mechanism, would, I think, be productive of more injury than a decision which, while compelling diligence in perfecting the invention, was indulgent of some delay in seeking the Patent Office.

In this connection see also *Ellithorp* v. *Robertson* (MacA. Pat. Cas., 585, 597) and *Robinson on Patents*, (Vol. 1, secs. 323, 385, and 390.)

Believing that the facts and the law applicable thereto warrant me in holding that Mower is not justly entitled to a patent, I direct the Primary Examiner at the close of the interference proceedings, if priority shall be awarded to Mower by the final tribunal, to reject the claims of Mower involved in this interference.

While the decision of the Examiners-in-Chief upon the question of priority is affirmed, yet Mower is held not to be entitled to a patent.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

GLENN *et al.* v. ADAMS.

Decided February 8, 1898.

1. INTERFERENCE—APPEAL TO COURT OF APPEALS—WEIGHT TO BE GIVEN TO DECISIONS OF PATENT OFFICE.

Where the several tribunals of the Patent Office concur in findings in respect to a mere matter of fact about which testimony is conflicting, *Held* there is no reasonable ground for supposing that the Court of Appeals of the District of Columbia will reverse those findings unless it be shown clearly and beyond reasonable doubt that there had been error committed in comparing and weighing the evidence.

2. SAME—PRIORITY—DECISION OF COMMISSIONER AFFIRMED.

The decision of the Commissioner of Patents in awarding priority of invention to Adams affirmed.

Messrs. Dodge & Sons for the appellants.
Messrs. Kay & Totten for the appellee.

ALVEY, *J.*:

This is an appeal from a decision of the Commissioner of Patents in an interference proceeding in the Patent Office instituted and declared between the joint application of Harvey S. Glenn and Coulter E. Glenn and a pending application of Samuel Adams for the same or a similar invention. The application of the Glenns was filed on the 22d of March, 1895, and that of Adams was filed on the 11th of February, 1895. The subject-matter of the invention is a supposed new and useful improvement in the mode of constructing cables, ropes, etc., used for drilling oil, gas, and water wells and for all other drilling purposes, etc. The issue declared is as follows:

As an improved article of manufacture, a drilling-cable comprising a wire section and a rope section spliced together.

The structure of the article of the alleged invention would seem to be very simple, though its improvement and utility may be very considerable. The object of the splicing is to secure elastic and springing action in the use of the cable, which is not obtainable from an entire wire cable.

Under the preliminary statements of the parties a considerable volume of testimony was taken, and the whole controversy resolves itself into a few facts, and the testimony in regard to which is exceedingly conflicting. Indeed, the question involved mainly depends upon the credibility of the parties and their witnesses.

Adams alleges in his preliminary statement that he conceived the invention about December 1, 1887, and that he disclosed it to others about December, 1887, or January, 1888; that he made a drawing of it about December, 1887, and at different times since; that he made experimental tests in drilling with the spliced or combined rope about January, 1888, and at different times since, and that he found by such experiments that the invention was practicable; that in the summer of 1894 he gave permission for the use of the combined cable in controversy in the drilling of a well in which the Glenns were employed, and that the invention was during the progress of the work in drilling of that well disclosed to the Glenns, and the use of the invention proved to be successful.

In the preliminary statement by the Glenns they allege that they conceived the invention involved in the issue on or about the 18th of October, 1894, and that they communicated such invention to one or more persons on or about the same date, and that Samuel Adams was one of such persons; that the invention was embodied in a full-sized operative form on or about the 25th of October, 1894, and practically operated at that time; that the device has been in public use from October 25, 1894, and on sale since November, 1894, and that drawings or sketches were made in November 1894.

These respective preliminary statements were sworn to by the parties, and the facts stated therein were substantially testified to by the respective parties when they were examined as witnesses.

The case was carefully considered and the conflicting evidence compared by the Examiner of Interferences, and he awarded priority to Adams. An appeal was taken by the Glenns to the Board of Examiners-in-Chief, and that tribunal upon going over the evidence carefully affirmed the judgment of the Examiner of Interferences, and from the latter ruling an appeal was taken to the Commissioner in person, and he affirmed the previous findings and conclusions.

After these several concurrent findings in the Patent Office in respect to a mere matter of fact, about which the testimony is conflicting, there could be no reasonable ground to suppose that this court would reverse those findings unless it be shown clearly and beyond reasonable doubt that there had been error committed in comparing and weighing the evidence.

We have examined all the testimony with great care—that given by the parties themselves, as well as that given by the disinterested witnesses—and we cannot perceive how the officials of the Patent Office could upon any fair construction of the evidence have made their findings different from those they have made. If we allow that the circumstantial and apparent candid history of the conception and the practical experiments made of it, as furnished in the testimony of Adams, is fairly countervailed by that furnished in the testimony of the Glenns, yet the other witnesses in the case, to say nothing of the onus of proof, would seem to make it clear beyond reasonable doubt that Adams was the first to conceive and to make disclosure to others and was first to make practical experiments of the invention, or, rather, illustrations of it. It is clear also that the conception of the invention was disclosed to the Glenns by Nevin by authority of Adams, and, while the Glenns were the first to apply the invention or device in the actual operation of drilling an oil-well, yet they did so upon the suggestion and urgent request of Nevin and rather against their own judgment as to the practical working of what was to them at the time a doubtful invention of anything useful.

It being made clear by the evidence in the case that the conception of the invention was that of Adams, and that he made full disclosure thereof, and that among those to whom disclosure was made was Nevin, who disclosed it to the Glenns, who had not known of the invention before, it would seem to be but a reasonable conclusion that the application of the invention or device in the drilling of the well upon the suggestion of Nevin should in reason and justice inure to the benefit of Adams as a reduction to practice of his invention. It is immaterial, as said by the Examiner of Interferences, that the cable was made without any instruction or supervision by either Adams or Nevin. The suggestion or request of Nevin that the cable should be made and used was a sufficient disclosure of the invention, and, as said by the Examiner—

the splicing of wire cables and of Manila cables is old and well known, and any skilled workman could, it is believed, readily splice a wire cable to a Manila cable without being instructed as to the manner of doing so, as the mere suggestion would be sufficient for him, and he would exercise no inventive faculty in carrying out the suggestion.

Therefore, Adams being the first to conceive, the first to disclose, the first to reduce to practice, and the first to apply to the Office for a patent, he is entitled to priority on the present issue.

We must therefore order and direct that the proceedings in this case and this decision be certified to the Commissioner of Patents, to be entered of record in the Patent Office, as directed by law, and it is so ordered.

U. S. Circuit Court—District of Connecticut.

BRIGGS v. BUTTERWORTH, COMMISSIONER OF PATENTS.

Decided March 29, 1898.

1. BILL UNDER SECTION 4915, REVISED STATUTES—BRIGGS—ICE-PLANER—REISSUE—RIGHT TO A PATENT.

A bill in equity for a decree that John N. Briggs is entitled to a reissue of Letters Patent No. 367,267 in accordance with the provisions of Revised Statutes, section 4915, dismissed, as the question of patentability of the combination claimed had been substantially passed upon by the Circuit Court of Appeals. (60 Fed. Rep., 87.)

2. DOUBLE USE—PATENTABILITY—POTTS v. CREAGER CONSTRUED.

It is now settled that *Potts* v. *Creager* (70 O. G., 494; 155 U. S., 597) did not announce any new doctrine or modify the existing rules of law. The same principle had already been stated and applied in *Bloch* v. *City of San Francisco*, (118 U. S., 679;) *Pa. R. R. Co.* v. *Locomotive Co.*, (27 O. G., 207; 110 U. S., 490;) *Aron* v. *Railroad Co.*, (49 O. G., 1365; 132 U. S., 186,) and in *Briggs* v. *Central Ice Co.*, (54 Fed. Rep., 376, and 60 Fed. Rep., 87.)

Messrs. Lee & Lee and *Messrs. Pollok & Mauro* for the complainant.
Mr. W. A. Megrath for the defendant.

TOWNSEND, *J.*:

Bill in equity for a decree that applicant is entitled to a reissue of Patent No. 367,267, in accordance with the provisions of Revised Statutes, section 4915. On July 26, 1887, said patent was issued to the complainant for "an apparatus for planing cakes of ice." The first claim in his original application had been rejected and as amended was as follows:

1. The combination, with the cutter-head and the racks directly attached thereto, of the guides for both cutter-head and the racks, arranged perpendicularly to the plane of the elevator, the pinions mounted on said guides and engaging in said racks, and the levers or arms for operating said pinions, all constructed, substantially as described, so that the depth of the cut may be directly and positively regulated by means of the levers, as herein specified.

In a suit for infringement of this claim Judge Coxe held that said claim must be limited to the precise mechanism described and that the claim as thus limited was not infringed. (*Briggs* v. *Central Ice Co.*, 54 Fed. Rep., 376.) Upon appeal the Circuit Court of Appeals held that in view of the prior art the claim was destitute of patentable novelty. (*Briggs* v. *Central Ice Co.*, 60 Fed. Rep., 87.) The complainant thereupon amended his claims and applied for a reissue of said patent. One of the amended claims was as follows:

2. The combination with the cutter-head and the racks directly attached thereto, of the guides for both cutter-head and racks, arranged perpendicularly to the plane of the elevator, the pinions mounted on said guides and engaging in said racks, and the levers or arms for operating said pinions, a cutter consisting of a number of points entering the ice in such a manner as not only to cut but to groove it at one operation and an ice-elevator

adapted to positively force the ascending cakes of ice into contact with the cutter and groover, all constructed substantially as described, so that the depth of the cut may be directly and positively regulated by means of the levers, and the ice at the same time properly grooved for storage.

The only difference between said original and this amended claim consists in the insertion in the latter of the following language:

A cutter consisting of a number of points entering the ice in such a manner as not only to cut but to groove it at one operation and an ice-elevator adapted to positively force the ascending cakes of ice into contact with the cutter and groover.

The Primary Examiner and the Examiners-in-Chief of the Patent Office rejected said claim, and the Commissioner of Patents affirmed the decision of the Examiners-in-Chief. The complainant thereupon appealed to the Court of Appeals of the District of Columbia, which sustained the decision of the Commissioner of Patents in refusing to allow said claim. Complainant thereupon filed this bill.

It is unnecessary here to discuss the construction or operation of the patented machine or the prior art. All these matters have been fully considered in the opinions of the tribunals hereinbefore referred to.

The questions herein presented are as follows:

1. Does the addition of new matter to said claim affect the patentability of the combination?

2. If not, would the Court of Appeals for the Second Circuit have decided differently if their decision had followed instead of preceded *Potts* v. *Creager* (70 O. G., 494; 155 U. S., 597)?

3. Does the discovery of a portion of the Butterfield Patent Office model affect the decision of this controversy?

In the opinion of the Court of Appeals for the District of Columbia (78 O. G., 169) the Court says:

Nor does the addition to the present claim * * * of "a cutter consisting of a number of points entering the ice in such a manner as not only to cut, but to groove it at one operation" add anything new to the combination, for, as we have seen, that cutter was specifically described in reissued Patent No. 11,060, and, besides, was shown in the specification and drawings of No. 367,267. Notwithstanding, therefore, the able and ingenious arguments made on behalf of the appellant, we must say that we think the Commissioner was right in the conclusion that the whole combination had been substantially passed upon by the Circuit Court of Appeals.

After independent examination I concur in this opinion.

It is admitted that the new matter in said claim specifies at most only two new elements:

A cutter consisting of a number of points entering the ice in such a manner as not only to cut but to groove it at one operation.

An ice-elevator adapted to positively force the ascending cakes of ice into contact with the cutter and groover.

But both of these elements are necessarily implied in the original claim, which was held void for want of patentable novelty by the Court of Appeals in *Briggs* v. *Central Ice Co.*, *supra*. In that case the Court, by Judge Wallace, said:

Assuming the ice-elevator, although not specifically mentioned, ought to be regarded as an element of the claim, and recognising the fact, as we must upon the proofs, that the other devices of the claim were never before assembled together in an ice-elevator, nevertheless, we are of the opinion that the claim is destitute of patentable novelty.

The other element, the cutter, must also be regarded as one of the elements covered by said original claim, not only because a cutter is necessary for the operation of said machine but because the original claim specified such a combination with a—

cutter-head that the depth of the cut may be directly and positively regulated by means of the levers.

Even if this were not so this element would add nothing to the novelty of the combination, for precisely such a cutter was described in Briggs's prior reissue patent, No. 11,060.

Whatever uncertainty may have originally existed as to the scope or effect of *Potts* v. *Creager*, *supra*, it is now settled that it did not announce any new doctrine or modify the existing rules of law so far as this case is concerned. The same principle had already been stated and applied in *Bloch* v. *City of San Francisco*, (113 U. S., 679;) *Pa. R. R. Co.* v. *Locomotive Co.*, (27 O. G., 207; 110 U. S., 490;) *Aron* v. *Railroad Co.*, (49 O. G., 1365; 132 U. S., 186,) and in *Briggs* v. *Central Ice Co.*, *supra*, Judge Coxe and the Court of Appeals, affirming his decision, stated and applied the same rule. Judge Wallace says:

When thus assembled together the elevating mechanism performs no new functions, and the adjusting cutter mechanism performs precisely the functions it did in the Butterfield machine. It is wholly immaterial that the adjusting devices of Butterfield were designed to be used in a machine for planing wood. The application of an old organism to an analogous use is not patentable. * * * It is not invention to use an old combination of devices in a new location to perform the same operations, when no changes or modifications are required to adapt it to the new use, or when only such are required as can be made by the exercise of ordinary mechanical skill.

Since the decision of *Briggs* v. *Central Ice Co.*, *supra*, the expert for complainant has discovered the damaged Patent Office model of the Butterfield invention. The experts are at issue as to the purpose for which certain screw-threaded holes and slotted bars were shown in said model and as to the consequent effect to be given to the statement in the Butterfield specification that the knife is adjusted to set at a required thickness. The evidence is not sufficiently definite to narrow the scope of the Butterfield patent as already construed by the various courts.

All the elements of the patented combination were old. The principle of their combined operation was disclosed in the prior art and the modified adjustment and operation required only mere mechanical skill.

Let the bill be dismissed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 2. TUESDAY, APRIL 12, 1898. PRICE—$5 per year.

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Attorneys.

(ORDER No. 1,195.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 9, 1898.

With the approval of the Secretary of the Interior, O. U. Perrin, of Crawfordsville, Ind., is hereby disbarred from practice before the United States Patent Office for gross misconduct, pursuant to the provisions of section 487 of the Revised Statutes.

C. H. DUELL,
Commissioner.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 7, 1898.

SIR: The Secretary of the Interior has ordered that Carlton G. Palmer, of Norfolk, Va., be not recognised after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 7, 1898.

SIR: The Secretary of the Interior has ordered that James A. Vance, of Perryville, Ark., be not recognised after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

Disclaimers.

262,576.—*Leroy B. Firman*, Chicago, Ill. IMPROVEMENT IN MULTIPLE SWITCHBOARDS FOR TELEPHONE-EXCHANGES. Patent dated January 17, 1882. Disclaimer filed April 8, 1898, by the present assignee, the *Western Electric Company*, Chicago, Ill.

Enters its disclaimer:

"To the said second claim in the specification of the said Letters Patent, which is in the words following, to wit:

"2. The combination of two or more multiple boards to which the lines of the terminal stations are connected, and means, as described, whereby the switchman may readily ascertain what lines are in use.'"

338,843.—*George Eastman* and *William H. Walker*, Rochester, N. Y. IMPROVEMENT IN APPARATUS FOR MANUFACTURING SENSITIVE PHOTOGRAPHIC FILMS. Patent dated March 8, 1887. Disclaimer filed April 6, 1898, by the present assignee, the *Eastman Kodak Company*, Rochester, N. Y.

Enters its disclaimer—

"To so much of said claim (3) as extends the said claim to include, in combination and arrangement with the other devices recited therein, any hang-up machine other than essentially the hang-up machine described in the specification of the said patent and shown in the drawings thereof, that is to say, a hang-up machine having essentially a carrier mechanism combined with loose rods with which the carrier mechanism is adapted to engage and in conjunction with which it operates to form the paper into loops as it is coated and to support it while drying, the paper hanging substantially at rest with reference to such supports at all times while it is supported thereby.

"And also to that part of the specification of the said Letters Patent on page 3, lines 64 and 65 thereof, which is in the following words, to wit: 'of any approved construction.'"

Regulations in Relation to Mail-Matter.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of this city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 5, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	In arrears—Between two and three months.			
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 17	Mar. 28	256
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 17	Mar. 24	254
108	XIX. Stoves and Furnaces	Jan. 8	Mar. 23	413
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 8	Mar. 22	234
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 7	Mar. 22	202
248	I. Tillage and Fences	Jan. 6	Mar. 21	257
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 15	Mar. 4	249
	Between three and four months.			
190	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 27	Mar. 28	255
248	XVIII. Steam-Engineering, etc	Dec. 17	Mar. 26	216
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 16	Mar. 26	302
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Dec. 8	Mar. 25	376
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 27	Mar. 24	490
253	X. Carriages and Wagons	Dec. 21	Mar. 24	331
106	II. Farm Stock, Products, etc.	Dec. 10	Mar. 23	511
38	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Dec. 6	Mar. 23	426
89	XXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 22	Mar. 21	348
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 16	Mar. 21	546
93	XXI. Textiles, etc	Dec. 13	Mar. 21	350
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Dec. 31	Mar. 18	521
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 20	Mar. 17	317
240	VII. Velocipedes	Dec. 10	Mar. 17	927
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 23	Mar. 1	329
	Between four and five months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 4	Mar. 26	253
133	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 10	Mar. 24	268
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 1	Mar. 23	226
36	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 9	Mar. 22	553
217	XXXIII. †Trade Marks, etc., †Designs, Drafting, and Optics.	Nov. 26	Mar. 21	171
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	Feb. 17	486
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Feb. 16	484
	Between five and six months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Nov. 1	Mar. 28	709
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 11	Mar. 23	509
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 1	Feb. 21	448
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Oct. 20	Feb. 12	423

Applications Under Examination—Continued.

	Between six and seven months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 10	Dec. 6	574
221	XXIII. Instruments of Precision, Acoustics, etc.	Sept. 9	Feb. 4	463

Total number of applications awaiting action 13,906

Under one month.			
†Designs	Mar. 5	Mar. 21	242
Between one and two months.			
*Trade-Marks	Mar. 1	Mar. 21	257

ISSUE OF APRIL 12, 1898.

Patents	369	No. 602,049 to No. 602,417, inclusive.
Designs	19	No. 28,461 to No. 28,479, inclusive.
Trade-Marks	11	No. 31,456 to No. 31,466, inclusive.
Labels	None.	
Prints	None.	
Reissues	None.	
Total issue	399	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			New Hampshire	1	
Arizona Territory			New Jersey	19	
Arkansas	5		New Mexico Territ'y		
California	14		New York	61	5
Colorado	4		North Carolina	2	
Connecticut	15	1	North Dakota	1	
Delaware			Ohio	20	1
District of Columbia	1		Oklahoma Territory		
Florida			Oregon	3	
Georgia	3		Pennsylvania	54	
Idaho	1		Rhode Island	1	
Illinois	20	2	South Carolina		
Indian Territory			South Dakota		
Indiana	10		Tennessee	4	
Iowa	6		Texas	6	
Kansas	2		Utah	1	
Kentucky	3		Vermont	1	
Louisiana	1		Virginia	1	
Maine	1		Washington	1	
Maryland	6		West Virginia	3	
Massachusetts	25		Wisconsin	4	
Michigan	12		Wyoming		
Minnesota	2		U. S. Army		
Mississippi			U. S. Navy		
Missouri	10				
Montana	1		Total to citizens of the United States	337	9
Nebraska	1				
Nevada					

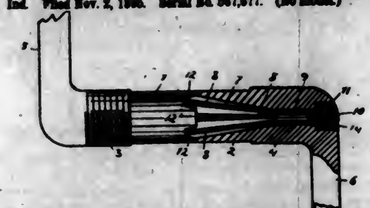
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		
Australia			Mexico		
Austria-Hungary	1		Netherlands		
Barbadoes			Newfoundland		
Belgium			New South Wales	2	
Brazil			New Zealand		
Burmah	1		Norway		
Canada	7		Portugal		
Cape Colony			Queensland		
Chile, Republic of	1		Roumania		
China			Russia		
Colombia			Scotland		
Cuba			South African Republic		
Denmark	1		South Australia		
Egypt			Spain	1	
England	18	1	Sweden	1	1
Finland			Switzerland		
France	7		Victoria		
Germany	11				
Hawaii			Total to citizens of foreign countries	51	2
Ireland					
Italy					

PATENTS

GRANTED APRIL 12, 1898.

602,049. BICYCLE CRANK-SHAFT. George M. Beard, Angola, Ind. Filed Nov. 2, 1895. Serial No. 567,677. (No model.)

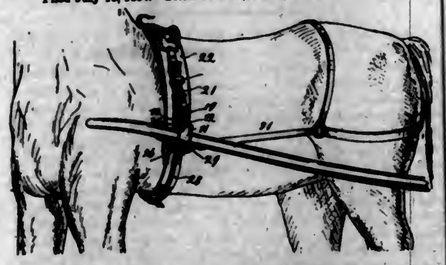


Claim.—1. The combination of a two-part bicycle crank-shaft, one part having a cylindrical axle-shaft with notches 12 and alternate recesses upon its inner end, and tapering spindle extension with a screw-threaded end as shown, and adapted to receive a nut thereon, and the other part having a tapering longitudinal tubular opening, and notches 13 at its inner end adapted to receive the spindle end of the opposite part as shown, and the two parts to be rigidly secured together by means of a nut 11 engaged upon the screw-threaded end of the spindle, all substantially as shown and described and for the purpose stated.

2. The combination of a two-part bicycle crank-shaft and axle, one part having a cylindrical axle-shaft with notches 12 cut in the surface of the inner end with alternate recesses and a tapering spindle extension 7 having one or more grooves 8 therein and a screw-threaded end 10, adapted to receive the nut 11, and the other part having a tubular interior longitudinal opening with notches on its inner walls adapted to engage the grooves 8 in the spindle 7 and having also notches 13 at its inner end adapted to engage the recesses between the notches upon the opposite part, and the two parts secured together by the nut 11 upon the screw-threaded end 10 as shown and described and for the purpose stated.

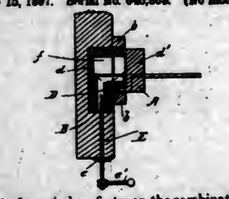
3. A two-part telescopic crank-shaft, one of said parts being tubular and adapted to receive a portion of the other part, flattened surfaces upon the entering part, lugs upon the end of the receiving part, and a locking device entering the tubular or receiving part and engaging the entering portion of the other part, substantially as described.

602,050. SHAFT-TUG. Henry A. Beesley, Portsmouth, Ohio. Filed July 19, 1897. Serial No. 645,014. (No model.)



Claim.—In a shaft-tug, the combination of the shaft-bearing 9, upwardly-projecting members 10 and 11, a tongue 12, a pin whereby it is pivotally connected to the upper end of member 10, a coil-spring supported on this pin, a loop 16 secured to the upper end of the tug, and a barrel 17 formed thereat by bending and turning over the upper end of member 10, said barrel forming means for protecting the coil spring mentioned and for securing loop 16 to the tug.

602,051. SASH-FASTENER. Joseph A. Black, Parnell, Iowa. Filed June 15, 1897. Serial No. 640,868. (No model.)



Claim.—1. In a window-fastener, the combination, with a bracket carried by the window-frame and provided with a vertical recess *f'* and a horizontal recess *f*, of a longitudinally-slidable pawl journaled in the said bracket and free to oscillate in a vertical plane while under the recess *f'*, and means for sliding the said pawl into the recess *f* whereby it is prevented from oscillating, substantially as set forth.

2. In a window-fastener, the combination, with a bracket carried by the window-frame and provided with a vertical recess *f'* and a horizontal recess *f*, of a longitudinally-slidable pawl journaled in the said bracket and free to oscillate while under the recess *f'*, a small rod secured to the pawl at its axis and projecting through the front of the window-frame, and a laterally-projecting handle secured to the said rod and operating to depress the said pawl, substantially as set forth.

602,052. TIRE-PATCHER. Charles A. Bradshler, Canton, Ohio. Filed Nov. 23, 1897. Serial No. 659,598. (No model.)



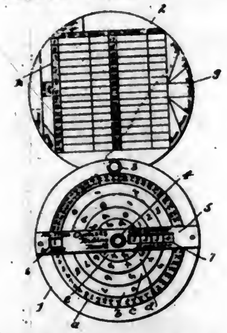
Claim.—1. The compressible case having removably attached thereto a needle provided at its piercing end with an open slot, a cross-bore or opening located below the bottom of the open slot, and a bore communicating with the slot and the cross-bore, substantially as and for the purpose specified.

2. The combination of a compressible case, a screw-threaded cap provided with short bars removably attached to the compressible case, a yielding cover surrounding the compressible case, and a hollow needle provided with an open slot at its piercing end, substantially as and for the purpose specified.

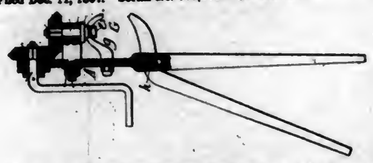
3. The combination of a compressible case, having removably attached thereto a cap and hollow needle, a yielding case surrounding the compressible case, and a casing to receive and hold the compressible and yielding cases, substantially as and for the purpose specified.

602,053. CYCLIST'S RIDING-RECORD. Hiram A. Brooks, Baltimore, Md. Filed July 1, 1897. Serial No. 643,108. (No model.)

Claim.—A device of the character described, comprising a circular cover or disk with a calendar of the months of the year on the back thereof and suitable spaces opposite the months for the purposes set forth, rotatable disks centrally secured to the circular cover or disk, and provided near their peripheries with numerals, said disks being adapted to rotate independently of each other, a strip secured to the cover or disk at either side thereof and provided with a slot or opening adapted to come opposite the numerals on the largest disk, and a slot at the other end adapted to come opposite the numerals on the remaining disks when they are alined, a disk pivotally secured to the disk 1, and provided on its inner face with a calendar indicating the days of the month, means for attaching a cord or ribbon or other securing device whereby the same is supported, substantially as and for the purpose set forth.



602,054. NUT-WRENCH. HENRY L. BUTLER, Emerson, Nebr. Filed Dec. 11, 1897. Serial No. 661,578. (No model.)



Claim.—1. In a nut-wrench, the combination with a bar carrying a fixed jaw and a movable jaw pivoted thereto, a spindle mounted in a bearing on said bar, a wrench-head carried by said spindle and located at said fixed jaw, and means for rotating said spindle substantially as described.

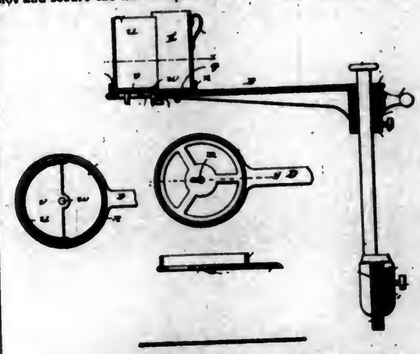
2. In a nut-wrench, the combination with a clamp comprised of a fixed and a movable jaw, said fixed jaw having a bifurcation, of a spindle, a wrench-head carried by the spindle and located at the bifurcation, a bevel gear-wheel on said spindle, a second bevel gear-wheel meshing with the aforesaid gear-wheel, and a crank-handle connected with the second wheel to operate it, substantially as described.

3. In a nut-wrench, the combination of a slotted bar, a movable clamp-jaw pivoted on a bolt adjustable in the bar-slot, a fixed clamp-jaw secured to said bar adjacent to the movable jaw, and having its outer end bifurcated and curved as described, a bracket on said bar, a spindle journaled in said bracket having at its lower end a wrench-head, and having at its upper end a squared portion and a reduced screw-threaded portion, a bevel gear-wheel on the squared portion, a nut on the reduced portion, and a second bevel gear-wheel meshing with the aforesaid gear-wheel and mounted on an operating crank-shaft journaled in the upper end of said bar, substantially as described.

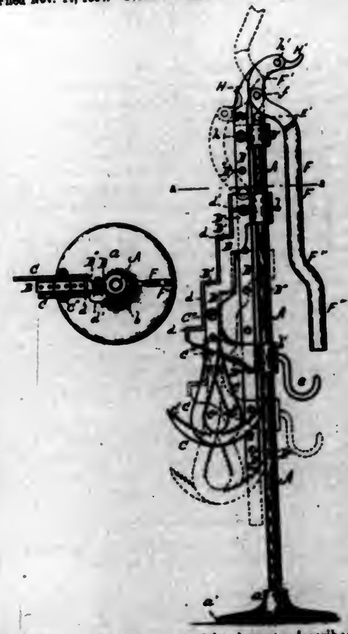
602,055. BED ATTACHMENT. THOMAS H. CAMPBELL, Seattle, Wash. Filed May 20, 1897. Serial No. 637,490. (No model.)

Claim.—1. The holder comprising the fixed section having the central depending angular stud or key, and also having the legs, and the swinging section pivoted as described and arranged in the cut-out portion of the fixed section so as to open and close the same, in combination with the horizontal arm adapted to be supported on a bed-rail and having the vertically-disposed keyhole-slot with the inclined plane on the under side, and the annular flange on its upper side, substantially as specified.

2. The upright, having its lower end bifurcated, and one of its branches screw-tapped to receive a thumb-screw for fastening the same to a bed-rail, in combination with the horizontal arm arranged on the upright and adjustably supported by means of a collar, said arm having a handle at one end, and its opposite end having an annular flange on its upper side and a vertically-disposed keyhole-slot, and a holder having a depending key or angular stud to take into said slot and secure the holder upon the arm, substantially as specified.



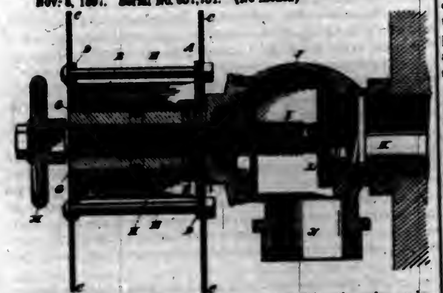
602,056. LIFTING-JACK. FRANK W. CHICKERING, Cabot, Vt. Filed Nov. 17, 1897. Serial No. 658,787. (No model.)



Claim.—1. In a lifting-jack of the character described, the standard A; the lifting-frame B provided with the arms B″ B‴ slidable on the standard; the hooks C pivotally secured at their upper ends to opposite sides of the lifting-frame and arranged with their hooked portions extending toward each other, such portions being provided with the inner serrated edges C′; the lifting-bar D extending through said arms B″, B‴ and adjustably connected thereby as to height with the lifting-frame and slidable on the standard; an extension or coupling driven into the upper end of the standard; the lifting-lever F provided with the curved portion F′ pivotally connected with the upper end of said coupling or extension; and the curved link H pivotally connected at its opposite ends with the upper end of the lifting-bar and the upper end of the lifting-lever, substantially as set forth.

2. A lifting-jack of the character described, comprising the standard A; the base *a* made bell-shaped and with its lower edge provided with the serrations *a′*; the lifting-frame B provided with the hook *c*, said lifting-frame slidable on the standard; the lifting-bar D adjustably secured to the lifting-frame and extending through suitable arms connecting the same with the standard, said lifting-bar slidable on said standard; the coupling or extension projecting upward from the upper end of the standard; the lifting-lever F pivotally secured to upper end of said coupling or extension, and the curved link H pivotally secured at its opposite ends to the upper ends of the lifting-bar and lifting-lever and provided at its upper end with the hook H′, substantially as described.

602,057. HOSE-REEL. EDWARD CLIFF, Newark, N. J. Filed Nov. 8, 1897. Serial No. 657,751. (No model.)



Claim.—1. The water-supply apparatus having the valve-casing, valve, exposed hose-attaching nozzle, sleeve and valve-stem, the latter passing through said sleeve, combined with the reel mounted to revolve upon said sleeve, the hose secured to said exposed nozzle and thence wound upon said reel, and the handle upon the said stem; substantially as set forth.

2. The water-supply apparatus having the valve-casing, valve, exposed hose-attaching nozzle, sleeve, and valve-stem, the latter passing through said sleeve, combined with the reel mounted to revolve upon said sleeve, the key retaining the reel upon said sleeve, the frictional device applied to said reel to prevent the too free revolution of the same, the hose secured to said exposed nozzle and thence wound upon said reel, and the handle upon said stem; substantially as set forth.

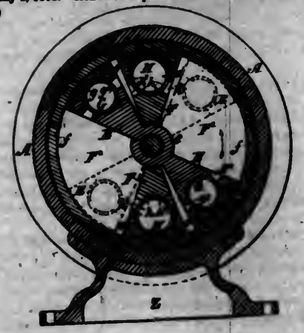
3. The water-supply apparatus having the valve-casing, the valve, the threaded valve-stem, the sleeve connected with said casing and internally threaded to engage said valve-stem, and the exposed hose-attaching nozzle, combined with the reel mounted to revolve upon said sleeve, the hose attached to said nozzle, and thence wound upon said reel, and the handle upon said stem; substantially as set forth.

602,058. POLISHING-BRUSH. GEORGE F. COOPER, Xenia, Ohio. Filed Oct. 12, 1897. Serial No. 654,821. (No model.)



Claim.—A polishing-brush consisting of a metal back having downwardly-extending flanges or rims, the lower edges of which are cut away at intervals and inwardly inclined forming a contracted opening, a plurality of longitudinal strips of cloth, felt, chamois or similar material, said strips being secured in the back by means of the said inclined flanges, substantially as described.

602,059. ENGINE. DANIEL LE ROY DRESSER, Flushing, N. Y. Filed May 1, 1893. Renewed Sept. 20, 1897. Serial No. 652,269. (No model.)



Claim.—1. In a rotary engine, the combination with an outer cylinder, or casing, and a central shaft, of two pistons or sets of pistons, so arranged that each piston or set of pistons shall make a partial revolution or circumferential movement at each admission of steam and impart its motion to the shaft while the other piston, or set of pistons, is held from movement, and valves for controlling said pistons, the said valves being carried by the pistons, substantially as set forth.

2. In a rotary engine, the combination with an outer cylinder or casing, and a central shaft, of two pistons or sets of pistons adapted to move alternately, valves in connection with each piston or set of pistons, and means whereby the valves in one piston or set of pistons are operated by the movement of the other piston or set of pistons, substantially as set forth.

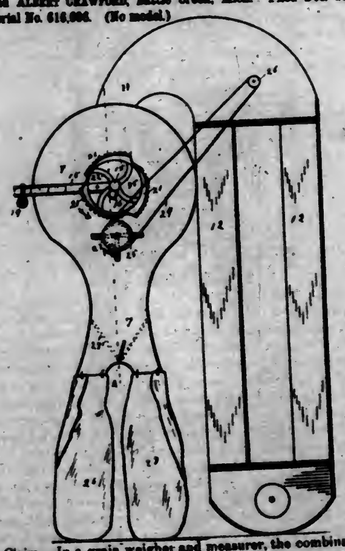
3. In a rotary engine, the combination with an outer cylinder or casing, and a central shaft, of two pistons or sets of pistons adapted to move alternately in the same circumferential path, inlet-valves in connection with one piston or set of pistons, and outlet or exhaust valves in connection with the other piston or set of pistons, and means for automatically operating said valves, substantially as set forth.

4. In a rotary engine, the combination with an outer cylinder or casing having a steam-inlet and a steam-outlet, and a central shaft, of two disks carried by the shaft, pistons projecting from both of said disks toward each other and dividing an intervening annular space, valves automatically operated by the movement of said pistons, and two collars fixed upon the central shaft, one adjacent to each of said disks, and adapted to receive rotary motion therefrom, substantially as set forth.

5. In a rotary engine, the combination with an outer cylinder or casing having a steam-inlet and a steam-outlet, and a central shaft, of two disks carried by the shaft, pistons projecting from both of said disks toward each other, valves automatically operated by the movement of said pistons, two collars fixed upon the central shaft one adjacent to each of said disks, and means in connection with the casing, the disks and the collars, whereby motion is imparted to the shaft through each of the collars alternately, and the disks and pistons are held alternately from backward or reverse movement, substantially as set forth.

6. In a rotary engine, the combination with an outer cylinder or casing, and a central shaft, of a disk carrying pistons and valves and having a cylinder or sleeve loosely surrounding said shaft, a disk also carrying pistons and valves and mounted loosely upon said cylinder or sleeve near its end and having an annular flange or rim extending to or beyond said first-named disk, said sleeve and said flange circumscribing the space in which the pistons rotate, and having devices, as tappets, for operating the valves, substantially as specified.

602,060. GRAIN WEIGHER AND MEASURE. JOHN W. DUTTON and ALBERT CRAWFORD, Battle Creek, Mich. Filed Dec. 23, 1896. Serial No. 616,996. (No model.)



Claim.—In a grain weigher and measurer, the combination of a hopper having the elongated slots, a revoluble wheel having grain-

compartments and an axle with ends in said slots, a wheel or disk attached to one end of the axle and having a series of eccentric peripheral portions, each of said portions having gear-teeth at outer edge, a weight-bar, and a pinion to which motion is imparted and adapted to mesh with the gear-teeth of the eccentrics, to guard against clogging, substantially as set forth.

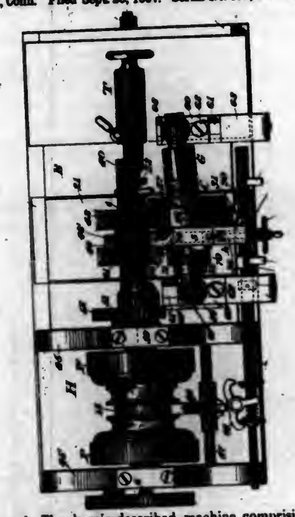
602,061. STAMP-PAD. WILLIAM A. ECHELBERGER, Hot Springs, Ark. Filed Dec. 7, 1896. Serial No. 614,758. (No model.)



Claim.—1. An inking-pad for hand or other stamps, consisting of a block of wood or other suitable material provided with slits dividing it up into different sections, sheets of fabric covering each of said sections fitted down within said slits and glued or otherwise secured along its outer edges to the edges of said slits, and absorbent material interposed between the upper surface of said sections and said sheets of fabric, substantially as and for the purpose described.

2. An inking-pad for hand or other stamps consisting of a pan of sheet metal, a block of wood or other suitable material fitting within said pan and provided with slits dividing said block up into different sections, sheets of fabric covering each of said sections fitted down within said slits and glued or otherwise secured along its outer edges, and absorbent material interposed between the upper surface of said sections and said sheets of fabric, substantially as and for the purpose described.

602,062. METAL-WORKING MACHINE. FRANK G. ECHOLS, Hartford, Conn. Filed Sept. 20, 1897. Serial No. 652,226. (No model.)



Claim.—1. The herein-described machine comprising a work-holder; a tool-holder; automatically-operative mechanism for rotating one of said holders; an intermittently-effective cutting-tool carried by the tool-holder; and means for automatically oscillating one of said holders toward and from the other a plurality of times during each rotation of the rotary holder and for maintaining a fixed interval between the holders while they are in their working positions, the parts being combined substantially as and for the purpose specified.

2. The herein-described machine comprising a work-holder; a tool-holder; automatically-operative mechanism for rotating one of said holders; means for imparting a feed movement to one of said holders; an intermittently-effective cutting-tool carried by the tool-holder; and means for automatically oscillating one of said holders toward and from the other a plurality of times during each rotation of the rotary-holder and for maintaining a fixed interval between the holders while they are in their working positions, the parts being combined substantially as and for the purpose specified.

3. The herein-described machine comprising a tool-holder; a tap-holder; automatically-operative mechanism for continuously rotating the tap-holder; an intermittently-effective cutting-tool carried by the tool-holder; and means for automatically oscillating the tool-holder to carry said tool into engagement with alternate wings of the tap and maintaining it at a fixed distance from the axis of the tap while in its working position and for withdrawing said tool from engagement with intermediate wings of said tap, the parts being combined substantially as and for the purpose specified.

4. The combination, with a work-holder and with a tool-holder, of means for rotating one of said holders; means for imparting a feed movement to the tool-holder; an intermittently-effective cutting-tool carried by the tool-holder; a tool-holder guide disposed at an angle to the longitudinal axis of the work-holder, and means for automatically shifting one of said holders toward and from the other a plurality of times during each rotation of the rotary holder.

5. The combination, with a work-holder and with a tool-holder, of means for rotating one of said holders; means for imparting a feed movement to the tool-holder; an intermittently-effective cutting-tool carried by the tool-holder; a tool-holder guide adjustable at an angle to the longitudinal axis of the work-holder; and means for automatically shifting one of said holders toward and from the other a plurality of times during each rotation of the rotary holder and for maintaining a fixed interval between the holders while they are in their working positions.

6. The combination, with a tool-holder guide, of a work-holder; a tool-holder carried by said guide for oscillation toward and from the work-holder; work-holder-rotating means; means for imparting a feed movement to the tool-holder; a cutting-tool carried by the tool-holder; and automatic rotary tool-holder-oscillating means.

7. The combination, with a tool-holder guide, of a work-holder; a tool-holder carried by said guide for oscillation toward and from the work holder; work-holder-rotating means; means for imparting a feed movement to the tool-holder; a tool-slide carried by, and movable transversely of, the tool-holder; a cutting-tool carried by the tool-slide; and automatic rotary tool-holder-oscillating means.

8. The combination, with a tool-holder guide, of a work-holder; an oscillatory tool-holder embodying a sleeve mounted to slide on said guide and pivoted to the main portion of the tool-holder; work-holder-rotating means; means for imparting a feed movement to the tool-holder; a cutting-tool carried by the tool-holder; and automatic tool-holder-oscillating means.

9. The combination, with a work-holder, of automatically-operative work-holder-rotating means; a tool-carriage; mechanism for imparting a feed movement to the tool-carriage; a tool-holder supported on the tool-carriage for oscillation transversely to the longitudinal axis of the work-holder; a cutting-tool carried by the tool-holder; and means for automatically oscillating said tool-holder toward and from the work-holder a plurality of times during each rotation of the work-holder and for maintaining the tool at a fixed distance from the axis of the work-holder while in its working position.

10. The combination, with a work-holder, of work-holder-rotating means; a guide adapted to be set at an angle to the longitudinal axis of the work-holder; a tool-carriage; mechanism for imparting a feed movement to the tool-carriage; a tool-holder carried by the tool-carriage; a tool-slide supported on the tool-holder to slide transversely thereof and guided by said guide; a cutting-tool carried by the tool-slide; and means for shifting said tool-holder toward and from the work-holder.

11. The combination, with a work-holder, of work-holder-rotating means; a guide adapted to be set at an angle to the longitudinal axis of the work-holder; a tool-carriage; mechanism for imparting a feed movement to the tool-carriage; a tool-holder carried by the tool-carriage; a tool-slide supported on the tool-holder to slide transversely thereof; a sleeve slidable on said guide and movably connected with the tool-slide; a cutting-tool carried by the tool-slide; and means for shifting said tool-holder toward and from the work-holder.

12. The combination, with a work-holder and means for rotating the same, of a guide adapted to be set at an angle to the longitudinal axis of the work-holder; a tool-carriage; mechanism for imparting a feed movement to the tool-carriage; a tool-holder supported on the tool-carriage for oscillation transversely to the longitudinal axis of the work-holder; a tool-slide supported on the work-holder to slide transversely thereof and guided by said guide; a cutting-tool carried by the tool-slide; and means for oscillating said tool-holder toward and from the work-holder

13. The combination, with a work-holder and with a tool-holder, of work-holder-rotating means; means for imparting a feed movement to the tool holder; an intermittently-effective cutting-tool carried by the tool-holder; means for automatically shifting said tool-holder toward and from the work-holder a plurality of times during each rotation of the work-holder; and throw-out mechanism for automatically shifting the tool-holder out of action at a predetermined point in the operation of the machine.

14. The combination, with a work-holder and with a tool-holder, of work-holder-rotating means; mechanism for imparting a feed movement to the tool-holder; an intermittently-effective cutting-tool carried by the tool-holder; means for automatically shifting said tool-holder toward and from the work-holder a plurality of times during each rotation of the work-holder; and for maintaining the tool at a fixed distance from the axis of the work-holder while in its working position and means controlled by the feed movements of the tool-holder for automatically reversing the operation of the feed mechanism.

15. The combination, with a work-holder and with a tool-holder, of work-holder-rotating means; mechanism for imparting a feed movement to the tool-holder; an intermittently-effective cutting-tool carried by the tool-holder; means for automatically shifting said tool-holder toward and from the work-holder a plurality of times during each rotation of the work-holder; and for maintaining the tool at a fixed distance from the axis of the work-holder while in its working position and means controlled by the feed movements of the tool-holder for automatically reversing the operation of the feed mechanism at opposite ends of the range of travel of the tool-holder.

16. The combination, with a work-holder and with a tool-holder, of work-holder-rotating means; mechanism for imparting a feed movement to the tool-holder; an intermittently-effective cutting-tool carried by the tool-holder; means for automatically shifting said tool-holder toward and from the work-holder a plurality of times during each rotation of the work-holder; means for automatically reversing the operation of the feed mechanism; and mechanism for automatically throwing the tool-holder into and out of action alternately at the beginning and at the end of its range of travel.

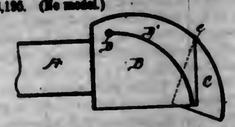
17. The combination, with a work-holder and with an oscillatory tool-holder, of means for continuously rotating the work-holder; an intermittently-effective cutting-tool carried by the tool-holder; and a rotary shaft carrying a plurality of wipers cooperative with the tool-holder for intermittently oscillating the latter away from the work-holder during the rotation of said work-holder and for maintaining the tool at a fixed distance from the axis of the work-holder while in its working position.

18. The combination, with an oscillatory tool-holder and with a work-holder, of means for continuously rotating the work-holder; an intermittently-effective cutting-tool carried by the tool-holder; and a rotary shaft carrying a plurality of equidistant wipers cooperative with the tool-holder for intermittently oscillating the latter away from the work-holder during the rotation of said work-holder and for maintaining the tool at a fixed distance from the axis of the work-holder while in its working position.

19. The combination, with a tool-holder and with a tap-holder adapted to carry a tap having equidistant wings, of means for continuously rotating the tap-holder; an intermittently-effective cutting-tool carried by the tool-holder; a rotary shaft carrying a plurality of equidistant wipers, one for each wing of the tap, and cooperative with the tool holder for intermittently shifting the latter away from the work-holder during the rotation of said work-holder; and a two-to-one gear-train between the work-holder and said shaft.

20. The combination, with a work-holder and with a tool-holder, of work-holder-rotating means; means for imparting a feed movement to the tool-holder; an intermittently-effective cutting-tool carried by the tool-holder; a tool-holder guide adjustable at an angle to the longitudinal axis of the work-holder; a taper-indicating device for determining the angular position of said guide; and means for shifting the tool-holder toward and from the work-holder and for maintaining the tool at a fixed distance from the axis of the work-holder while in its working position.

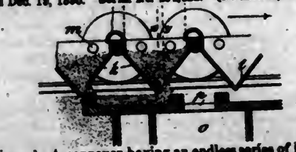
602,063. STACKER. PERRY W. HAZZARD, Lafayette, Ill., assignor of one-half to Frank R. Cole, Peoria, Ill. Filed Sept. 27, 1897. Serial No. 653,136. (No model.)



Claim.—1. In a wind-stacker, provided with a suitable chute, a hood arranged at its outer end, having suitable fingers carried therein acting as a stop for the straw, a suitable deflector for the chaff hinged to the hood and suitable mechanism for actuating the said fingers and deflector as the chute is raised or lowered, all substantially as and for the purpose described.

2. In a wind stacker, the combination with the hood B, suitably secured to the chute of the stacker, of suitable fingers D', the rod D, at the inner and forward end of the hood B; the deflector C, hinged at *c* to the hood and rods *d* and *e* and suitable mechanism for actuating the said rods causing a raising and lowering of the said fingers and deflector when the chute is up or down, all substantially as and for the purpose described.

602,064. CONVEYER. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Dec. 18, 1893. Serial No. 494,122. (No model.)



Claim.—1. A conveyer having an endless series of buckets, each having an opening in the bottom and one wall of each bucket forming a scraper, whereby the scraping action of the buckets serves to control automatically the discharge of material therefrom, substantially as set forth.

2. A scraping-conveyer having each one of its scrapers or flights in the form of a bucket with an opening in the lower part of the forward side of such bucket, whereby the scraping action of such bucket serves to control automatically the discharge of material from the buckets, substantially as set forth.

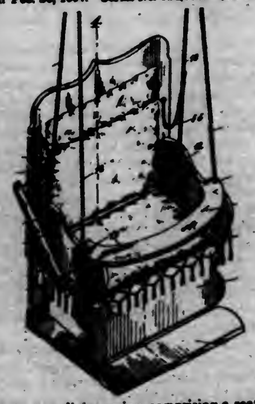
3. In a conveyer, the combination of an endless chain of moving buckets having openings in their bottoms, means for delivering material to said buckets, and means for effecting a distribution of such material, consisting of a platform over which said buckets move from the place of receiving to the place of delivery of such material, and a series of receptacles having openings in said platform directly under the line of movement of said buckets, substantially as set forth.

4. The combination of an endless chain of buckets having openings in their bottoms, means for delivering material to said buckets, a series of open receptacles situated beneath said buckets and a platform above the upper ends of said receptacles, and over which the material is moved by the scraping action of said buckets, substantially as set forth.

5. The combination of an endless chain of buckets having openings in their bottoms; said openings facing the direction in which the buckets are moved, means for delivering material to said buckets, a series of open receptacles situated beneath said buckets, and a platform above the upper ends of said receptacles, and over which the material is moved by the scraping action of said buckets, substantially as set forth.

6. The combination of an endless chain of buckets having openings in their bottoms, means for delivering material to said buckets, a series of open receptacles situated beneath said buckets, a platform above the upper ends of said receptacles, having openings therein into said receptacles and over which the material is moved by the scraping action of said buckets, and vertical sides for said platform between which the said buckets operate, substantially as set forth.

602,065. RECLINING-SWING. WILLIAM H. ELLIOTT, Bradner, Mo. Filed Feb. 20, 1897. Serial No. 624,236. (No model.)



Claim.—1. A reclining-swing comprising a seat, back and foot-rest suitably hinged together, arms pivoted at one end to the seat, a

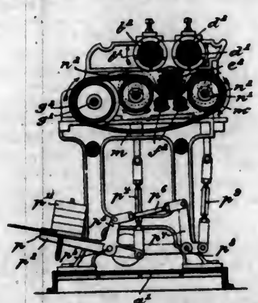
rod carried by the back, rack-bars also carried by the back which are adapted to be engaged by the rod for holding the parts in the desired position, means for holding the rod normally in engagement with the racks, and suspending devices for supporting the swing, substantially as described.

2. A reclining-swing comprising a seat, back and foot-rest suitably hinged together, guideways secured upon the back, racks formed within the guideways, arms pivoted at one end to opposite sides of the seat, a rod journaled between the opposite ends of the arms and adapted to move within the guideways, cranks formed upon said rod and adapted to engage the racks, springs adapted to hold the cranks normally in engagement with the racks and against the tension of which the crank-rod is disengaged therefrom, means for operating said rod, and suspending devices for the swing, substantially as described.

3. A reclining-swing comprising a seat, back and foot rest suitably hinged together, guideways formed upon the back, racks formed in said guideways, arms pivoted at one end to opposite sides of the seat, a rod connecting the opposite ends of the arms, said rod adapted to extend through the guideways, cranks formed on said rod and adapted to engage the teeth of the racks, means for holding the cranks normally in engagement with the racks, a crank formed on said rod intermediate its ends, an operating-rod secured at one end to said crank and at its opposite end extending within convenient reach for operating the crank-rod to secure the proper adjustment of the swing, and means for suspending the swing, substantially as described.

4. A reclining-swing comprising a seat, back and foot-rest suitably hinged together, suspending ropes connected at their lower ends to the seat, side pieces carried by the rope and independent of the seat, flexible connections between the ropes and the back, arms hinged at one end to the foot-rest, arms secured to the back of the swing and at their opposite ends pivoted to the first-named arms, guideways formed in the upper ends of the arms which are secured to the back, racks arranged within said guideways, a crank-rod carried by the back and extending within the guideways for the purpose of engaging the racks, and means for holding the rods normally in engagement with the racks, substantially as described.

602,066. HIDE, SKIN, OR LEATHER MACHINERY. WILLIAM EVANS, Philadelphia, Pa. Filed Aug. 9, 1897. Serial No. 647,325. (No model.)



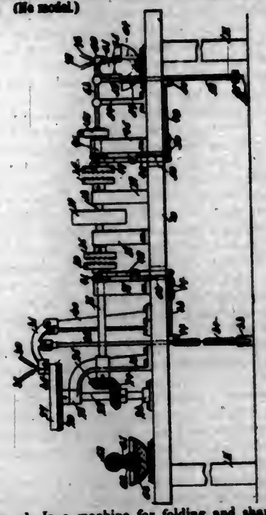
Claim.—1. In a machine of the character described, two or more finishing-rolls having fixed bearings, an endless traveler-apron upon which the hide, skin or leather is supported and normally at rest, a friction-roll for driving said apron and means for simultaneously bringing said apron into close contact with respect to said friction-roller and operative position with respect to said finishing-rolls, whereby said apron is set in motion and the hide, skin or leather at one operation acted upon from end to end successively by each finishing-roll, substantially as and for the purposes described.

2. In a machine of the character described, two finishing-rolls, an endless apron supporting the work, a gripping-roller located below and between the finishing-rolls, two feed-rolls between which and the grip-roller the apron is adapted to travel, two rollers each arranged on either side of the grip-roller below the apron said grip-roller adapted to actuate said apron when said rollers are raised and means for raising said rollers to bring successive portions of the apron into operative position with respect to the rolls, substantially as and for the purposes described.

3. In a machine of the character described, an endless apron, a grip-roller and feed-rollers between which the apron is adapted to be frictionally operated, a stationary drum around which the apron travels, two vertically-movable rollers upon which the apron is supported arranged respectively on either side of the gripping and feed-rollers, said grip-roller adapted to actuate the apron when said rollers are raised, and a treadle mechanism for simultaneously raising and lowering the supporting-rollers, substantially as and for the purposes described.

4. In a machine of the character described, a plurality of finishing-rolls, the bearings whereof are fixed to prevent vertical movement of the rolls, a traveler-apron located below and normally out of operative position with respect to all the rolls, a plurality of presser-rollers or their equivalents arranged beneath the apron, and each located under corresponding finishing-rolls, and means for successively raising the presser-rollers to present portions of the traveler-apron in operative position with respect to each succeeding finishing-roll, whereby the work may be operated upon from end to end successively by the finishing-rolls at one operation, substantially as and for the purposes described.

602,067. MACHINE FOR FOLDING AND SHAPING COLLARS. ANTONINO FARINA, New York, N. Y. Filed Feb. 17, 1896. Serial No. 579,549. (No model.)



Claim.—1. In a machine for folding and shaping collars, the combination with a drive-shaft, of a flanged disk, a shaft carrying said disk, a driving mechanism for said shaft, a movable block grooved to receive the flange of the disk, and means for simultaneously moving the block into and out of engagement with the flange of the disk and throwing the driving mechanism of the disk-carrying shaft into and out of gear with the drive shaft, substantially as described.

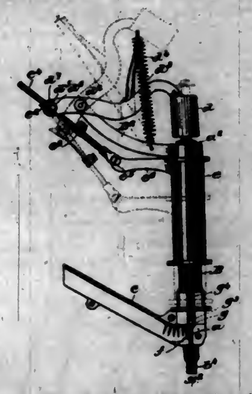
2. In a machine for folding and shaping collars, the combination with a drive-shaft, of a flanged disk, a shaft carrying said disk, a driving mechanism for the shaft, a clutch mechanism between the said shaft and the drive-shaft, a pivoted block grooved to receive the flange of the disk, and means for simultaneously raising and lowering the block and operating the clutch to throw the driving mechanism of the disk-carrying shaft into and out of engagement with the drive-shaft, substantially as described.

3. The combination with a frame, of a shaft capable of being continuously driven, a second shaft, a clutch capable of connecting the two shafts, a disk having a flange, the disk being driven from the second shaft, a pivotally-mounted lever, a block carried by the lever and capable of engaging the flange of the disk, mechanism for moving the lever, and a connection between said mechanism and the clutch, the connection being capable of engaging the members of the clutch simultaneously with the downward movement of the lever, substantially as described.

4. In a machine for folding and shaping collars, the combination with a drive-shaft, of a flanged disk, a shaft carrying said disk, a driving mechanism for the shaft, a clutch connecting said mechanism with the drive-shaft, a pivoted block grooved to receive the flange of the disk, a treadle connected with the pivoted block, and means for operating the clutch from the treadle, substantially as described.

602,068. HARD TACK-DRIVER. JAMES H. FERGUSON, Boston, Mass., assignor to George Ferguson, same place. Filed Mar. 30, 1897. Serial No. 630,691. (No model.)

Claim.—1. In a hand tack-driver, the combination with a driver-rod adapted to cooperate with a tack to be driven, of a pivotally-supported hammer for said rod, and an actuating device adapted by a continuous movement in one direction to automatically set and release said hammer to drive the tack, substantially as described.



2. In a hand tack-driver, the combination with the driver-rod, of a guideway for said driver-rod formed in a suitable frame or casing, the end of the said driver-rod projecting beyond the said casing, an external hammer connected with said casing and adapted to strike the end of the said rod to drive the tack, and an actuating device adapted by a continuous movement in one direction to set and release said hammer, substantially as described.

3. In a hand tack-driver, the combination with the guideway, adapted to receive tacks one by one, of a driver-rod longitudinally movable in said guideway, a sleeve surrounding said guideway and longitudinally movable with relation thereto, a hammer pivotally supported above said guideway and adapted to strike the said driver-rod, a latch connected with said sleeve and adapted during the movement thereof in one direction to engage the said hammer whereby a movement thereof in the opposite direction will carry the hammer to its operative position, and means for automatically disengaging said latch to permit the hammer to operate, substantially as described.

4. In a tack-driver, the combination with the driver-rod, of a guideway for said driver-rod, a raceway or feed-chute for the tacks extending toward said guideway, a gate normally extending transversely across said raceway and yieldingly held in each position as by a spring, and a projection directly connected with said gate and extending into said guideway beyond the said chute in the path of said driver-rod whereby the said gate is opened by the cooperation of said driver-rod with said projection after the end of the said driver-rod has passed the said chute in its operative movement, and is closed by the action of its spring before the end of the driver-rod has reached the chute in the inoperative movement of said rod, substantially as described.

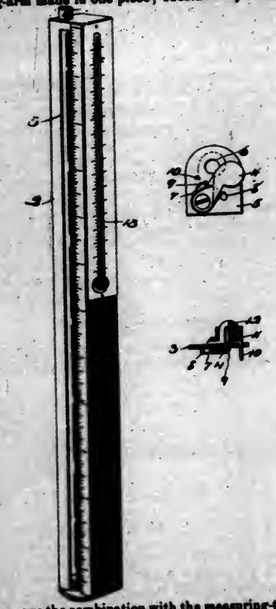
5. In a tack-driver, the combination with the guideway *b*, of the driver-rod *a* longitudinally movable therein, the feed-chute *c* opening into said guideway, the gate *f* mounted on the pivoted bar f^2 and extending transversely across said feed-chute, and the projection f^3 from said bar extending into said guideway below the said feed-chute and adapted to be engaged and operated by the driver-rod, substantially as described.

6. In a tack-driver, the combination with the driver-rod and guideway therefor, of a feed-chute or raceway communicating with said guideway, a gate for controlling the tacks in said raceway, an actuating-cam for said gate extending into said guideway below the said raceway and adapted to be operated upon by the driver to open the gate, a "kicker-in" for positioning a tack in said guideway, and a cam projection from said "kicker-in" extending into the said guideway above the said chute, said cam projection being adapted to be operated upon by the driver to move the said "kicker-in" out of the way during the descent of said driver, substantially as described.

602,069. GAGE FOR LIQUID IN VESSELS. ROY S. FOLTZ and CHARLES A. PHILLIPS, New Castle, Pa. Filed Apr. 24, 1897. Serial No. 633,698. (No model.)

Claim.—1. In a gage the combination with the tube and its inclosing casing, the spring-pressed valve for closing said tube, the pin for holding the valve retracted, and the trigger or arm for releasing the valve; substantially as described.

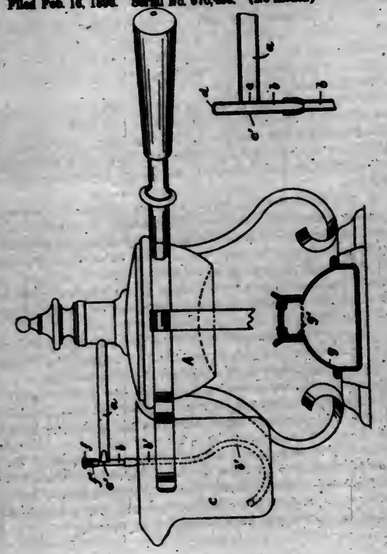
2. In a gage the combination with the tube and its inclosing casing, the spring-operated valve for closing the tube, the holding-pin and releasing-arm made in one piece; substantially as described.



3. In a gage the combination with the measuring-tube and its inclosing casing, the spring-operated valve for closing the tube, the valve-holding pin and releasing-arm formed in one piece and the spring holding said pin and arm projected; substantially as described.

4. In a gage the combination with the measuring-tube and its inclosing casing, of the spring-operated valve, the valve-holding pin and releasing-arm formed of one piece of wire bent to substantially U shape, with one branch shorter than the other, the shorter branch constituting the holding pin and the longer the releasing-arm; substantially as described.

602,070. ATOMIZER. WALTER S. FIELD, London, England. Filed Feb. 16, 1898. Serial No. 670,466. (No model.)

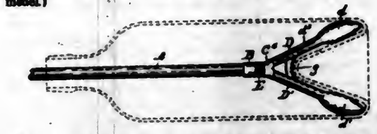


Claim.—1. A spraying device comprising the receptacle for the liquid to be sprayed, the suction-pipe depending therein and having oppositely-located openings near its upper end, the supply-pipe for the fluid under pressure communicating with one of said openings, and means for admitting a varying quantity of air to the suction-pipe above the said openings for regulating the supply of liquid to be sprayed, substantially as described.

2. In spray-producing apparatus, a regulating device consisting of a cap provided with a hole and rotatable upon a suction-pipe also furnished with a hole, these holes being capable of coinciding, the suction-pipe being secured across a jet pipe or spout and said suction-pipe communicating with the liquid to be vaporized and being furnished with two diametrically opposite holes allowing the vaporizing steam or gas to pass from said jet-pipe across the suction-pipe and to escape from the outer larger hole, the amount of liquid sprayed by said jet of gas being variable or reducible by admitting air into the suction-pipe through the regulating-cap, substantially as described.

3. In spray-producing apparatus and the like, the combination with the jet-pipe of the apparatus, of a suction-pipe secured thereto and having holes *d e e'*, and a regulating-cap *f* rotatable upon said suction-pipe and having a hole *f'*, substantially as and for the purposes described.

602,071. BOTTLE-WASHER. GEORGE P. GOULDING, Charlotte, Monroe County, N. Y. Filed Dec. 22, 1896. Serial No. 616,641. (No model.)



Claim.—1. In a bottle-washing device, a hollow base-piece adapted for connection with a water-supply device, tubes extending therefrom whereby water is conducted from said base-piece and delivered at the extremities of said tubes, said tubes being adapted to fold together for insertion through the neck of a bottle, and a flexible web or band connecting said tubes.

2. In a bottle-washing device, a hollow base-piece adapted for connection with a water-supply device, flexible tubes extending from said base-piece whereby water may be conducted from said base-piece and delivered at the extremities of said tubes, stiffening means for each of said flexible tubes, and a flexible web or band connecting said flexible tubes.

3. In a bottle-washing device, a hollow base-piece adapted for connection with a revoluble water-supply device, and angularly-separable stiffened tubes connected to said base-piece whereby water may be conducted therefrom and delivered at the extremities of said tubes, said tubes being adapted to fold together for insertion through the neck of a bottle, each tube having a flexible end, and a flexible web or band connecting said tubes.

4. In a bottle-washing device, a ferrule adapted for connection with a revoluble water-supply device, a pair of rigid tubular arms pivoted to said ferrule and having their ends within the same, and a flexible tube of soft material around each arm and perforated at the end for emergence of water.

5. In a bottle-washing device, a ferrule adapted for connection with a revoluble water-supply device, a pair of rigid tubular arms pivoted to and within said ferrule and extending therefrom, and a flexible tube on each rigid arm having a bulbous end of soft material, and a perforation at the extremity of said end for delivery of water therefrom.

6. In a bottle-washing device, a ferrule adapted for connection with a revoluble water-supply device, a pair of rigid tubular arms pivoted to and within said ferrule and extending therefrom and adapted to be folded together and to move to an angular position with reference to each other, and a flexible tube of fabric on each rigid arm having a fringed, fibrous edge and a bulbous end, and a perforation at the extremity of said bulbous end for the delivery of water therefrom.

7. In a bottle-washing device, a ferrule B adapted for connection with a revoluble water-supply device, having a central plate C^2 therein, a pair of rigid, open tubular arms C C having one end of each within said ferrule and on each side of said plate, a pivoting-pin C^3 passing transversely through said ferrule, plate and arms, and a flexible tube of soft material on each arm provided with a perforation.

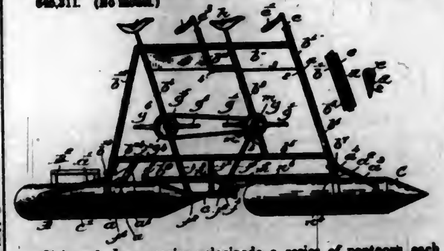
8. In a bottle-washing device, a ferrule B adapted for connection with a revoluble water-supply device, having a central plate C^2 therein, a pair of rigid, open tubular arms C C having one end of each within said ferrule and on each side of said plate, a pivoting-pin C^3 passing transversely through said ferrule, plate and arms, and a flexible tube D D' having a perforated bulbous end *d d'* on each arm.

9. In a bottle-washing device, a ferrule B adapted for connection with a revoluble water-supply device, having a central plate C^2 therein, a pair of rigid, open tubular arms C C having one end of each within said ferrule and on each side of said plate, a pivoting-pin C^3 passing transversely through said ferrule, plate and arms, a flexible tube D D' having a perforated bulbous end *d d'* on each arm, and a web or band extending from one tube to the other.

10. In a bottle-washing device, a hollow base-piece adapted for connection with a revoluble water-supply device, a pair of flexible tubes and a tubular stiffening-arm within each flexible tube, whereby water is conducted from said base-piece and delivered at the extremity of said flexible tube, and a flexible reinforcing-layer between the extremity of each arm and its flexible tube.

11. In a bottle-washing device, a hollow base-piece adapted for connection with a water-supply device and tubes extending therefrom whereby water is conducted from said base-piece and delivered at the extremities of said tubes, said tubes having flexible ends and being adapted to fold together for insertion through the neck of a bottle.

602,072. MARINE VELOCIPEDE. JAMES F. GRADY, Boston, and MICHAEL HART, Cambridge, Mass. Filed July 21, 1897. Serial No. 645,311. (No model.)



Claim.—1. In a marine velocipede a series of pontoons, each having a yoke, combined with a velocipede-frame detachably mounted on said yokes, a seat on said frame, a crank-shaft having a bevel-gear, a propeller-shaft mounted in bearings carried by said frame and provided with a bevel-gear, an intermediate shaft *f*, having two bevel-gears and interposed between the crank-shaft and the said propeller-shaft to rotate the same, a steering-shaft connected with the leading pontoon and a handle-bar located in front of the seat ready to be grasped by the hands, to operate substantially as described.

2. In a marine velocipede, a frame supported at its rear end upon two cigar-shaped pontoons to which the rear end of said frame is fixed, a third cigar-shaped pontoon located in front of the two rear pontoons and having a collar upon which the front end of said frame is loosely mounted to turn, a steering-shaft extended through the front tube of said frame and fixed to the yoke of the front pontoon, steering-handles connected with said steering-shaft, a propeller mounted in bearings of said frame, a crank-shaft, an intermediate shaft and gearing interposed between the gearing on the said crank-shaft, and the said propeller-shaft, to rotate the latter, substantially as and for the purpose set forth.

3. In a marine velocipede, three pontoons, each provided with a collar fixed to it at its upper side, a frame having a saddle-seat, a crank-shaft, bearings for a propeller-shaft, and collars b^9, b^{10}, to rest on the collars fixed to the pontoons, means to hold the said collars together, and a steering-shaft and its handle-bar, the construction being substantially as described, whereby the frame and its propeller may be readily attached and detached with relation to the said pontoons.

4. In a marine velocipede, a series of pontoons, a detachable frame carrying the crank-shaft, steering-shaft and propeller, and a series of links to connect the leading pontoon with the rearmost pontoons, whereby the leading pontoon may be readily braced from the rearmost pontoons, and the leading pontoon may when desired be capable of being slid back into position between the rear pontoons when the frame is removed, substantially as described.

602,073. GARMENT-SUPPORTER. ALVA S. GRIER, St. Mary's, W. Va. Filed June 5, 1897. Serial No. 639,513. (No model.)

Claim.—A garment-supporter consisting of a belt formed of detachable sections, supports secured to the front of the belt and detachably connected together and provided with extra buttonholes for securing the supports to the buttons upon the inner side of the garment, detachable hangers upon the opposite sides of the belt having flexible tongues at their upper ends with buttonholes, and additional buttonholes in the hangers for securing them to the buttons upon the inner side of the garment, said belt and hangers adapted for horizontal and vertical adjustment, substantially as and for the purpose set forth.



602,074. WATER-SPRAYING APPARATUS. HERMANN GOETTOW, Vienna, Austria-Hungary. Filed June 15, 1897. Serial No. 640,810. (No model.) Patented in Germany June 11, 1896, No. 91,909; in England June 13, 1896, No. 11,834; in Hungary June 16, 1896, No. 4,314; in Italy June 21, 1896, No. 30,169/472, and in Austria Sept. 13, 1896, No. 45/3,316.



Claim.—1. In a spraying device, the combination with a casing, of a valve-seat movably interposed between the inlet and the outlet, means for yieldingly resisting its movement, a movable valve adapted to coact with the valve-seat and to become separated therefrom upon movement of said seat, and a distributer for spreading the liquid, substantially as specified.

2. In a spraying device, the combination with a casing, of a valve-seat movably interposed between the inlet and the outlet, a spring for yieldingly resisting its movement, a movable valve adapted to coact with the valve-seat and to become separated therefrom upon movement of said seat, a proper stop for arresting the movement of the seat while the same is actuated by said spring, and a distributer for spreading the liquid, substantially as specified.

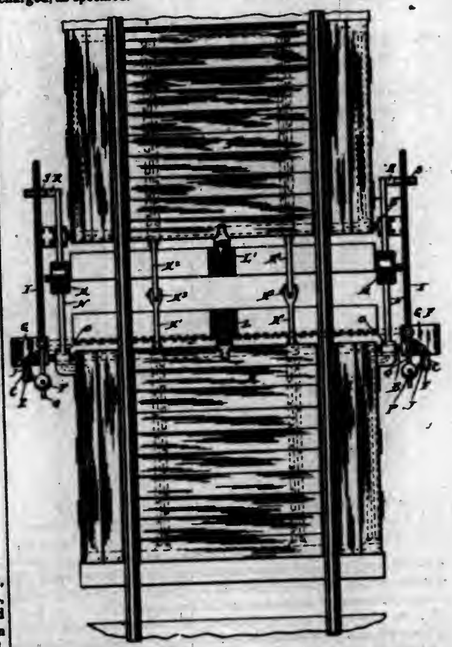
3. In a spraying device, the combination with a casing, of a valve-seat movably interposed between the inlet and the outlet, means for yieldingly resisting its movement, a movable valve adapted to coact with the valve-seat and to become separated therefrom upon movement of said seat, and a spraying device having a channel through which the water is forced, the walls of said channel comprising a portion of the surface of the valve-body and a surrounding surface, substantially as specified.

4. In a spraying device, the combination with a casing, of a valve-seat movably interposed between the inlet and the outlet, means for yieldingly resisting its movement, a movable valve adapted to coact with the valve-seat, a movable, grooved, hollow cone adapted to become seated in the outlet of the casing, a grooved portion of the movable valve-body being adapted to become seated in the hollow cone, and means for guiding said hollow cone along the valve-body, substantially as specified.

5. In a spraying device for damping air and ventilation purposes, the combination with a casing of a valve comprising a spindle and two cones such as *d* and *e*, the seating of the latter cone *e* being in the lower part of the casing and either the seating or the cone having suitable grooves cut in it, the seating of the former cone *d* being a movable ring such as *e*, a spring tending to raise this ring and a device to limit the upward movement of the movable ring substantially as and for the purpose described and illustrated in the accompanying drawings.

602,075. CATTLE-GUARD. WALTER C. HALLEY, Halley, Ark. Filed June 10, 1897. Serial No. 640,197. (No model.)

Claim.—1. In combination, a post set upon each side of the railway, gates hinged thereto, weights for balancing said gates, two rock-shafts journaled in suitable bearings and extending across the railway-track, arms projecting upward from one of said shafts, levers connected to said arms, short arms projecting from the pintle-posts of the gates, horizontal links connecting the last-named levers and the short arms, and the figure of a dog having firing mechanism therein whereby when the gates are swung closed a cartridge will be discharged, as specified.



2. In combination, a post set upon each side of the railway, gates hinged thereto, weights for balancing said gates, two rock-shafts journaled in suitable bearings and extending across the railway-track, arms projecting upward from one of said shafts, levers connected to said arms, short arms projecting from the pintle-posts of the gates, horizontal links connecting the last-named levers and the short arms, a figure of a dog having firing mechanism therein whereby when the gates are swung closed a cartridge will be discharged, and latch-hooks carried by the weighted arms for holding the gates open so long as the platforms remain in their normal positions, as specified.

3. A cattle-guard consisting of posts mounted on either side of a railway-track, gates hinged thereto, weights for balancing said gates, rock-shafts journaled in suitable bearings and extending across the track, platforms mounted on said rock-shafts, weighted levers connected with said rock-shafts, latches on the weighted levers to engage the gates, and means connected with the rock-shafts to close said gates when the platforms are depressed, substantially as set forth.

602,076. COTTON-PICKING MACHINE. ARTHUR A. HAMERSCHLAG and THEODORE H. PRICE, New York, N. Y. Filed Apr. 12, 1897. Serial No. 631,740. (No model.)

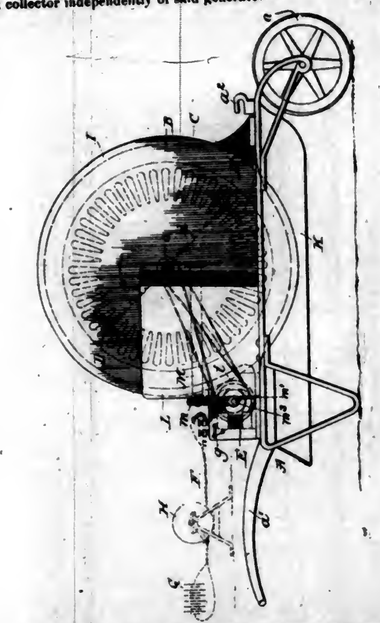
Claim.—1. In a cotton-picking machine, the combination of a supporting-frame, a generator of electricity having movement relatively to said frame, and a cotton-collecting member having movement relatively to the frame independently of the generator, and located in inductive proximity to said generator, so as to be charged by induction therefrom.

2. In a cotton-picking machine, the combination of means for generating electricity, and a movable collector whose movement is independent of such generating means, said collector being located in inductive relation to said generator so as to be charged therefrom by induction.

3. In a cotton-picking machine, the combination of a rotating generator of electricity, and a rotating collector moving at a different speed from said generator and located in inductive relation thereto so as to be charged therefrom by induction.

4. In a cotton-picking machine, the combination of a generator of electricity inclosed in a closed casing, and a collector outside of

said casing and charged by said generator, and means for moving said collector independently of said generator.



5. In a cotton-picking machine, the combination of a generator of electricity inclosed in a closed casing, means for drying the air within said casing, a collector outside of said casing and charged by said generator but movable independently thereof.

6. In a cotton-picking machine, the combination with an electrical generator, a movable collector moving in the field of influence of said electrical generator and charged therefrom by induction, and a receptacle for cotton placed beneath said collector, whereby the cotton which is collected and discharged by the varying electrification of said collector, will be caught by said receptacle.

7. In a cotton-picking machine, the combination with a rotating generator of the influence type, of a rotating collector located in inductive relation to said generator, and means for driving the collector and generator independently, the generator being driven at a higher rate of speed than the collector.

8. In a cotton-picking machine, the combination of two electrified disk collectors rotating in parallel planes and adapted to pick from two rows of cotton at once and an electrical generator located between, and in inductive proximity to both of said disk collectors.

9. In a cotton-picking machine, the combination of a collector-disk, a rotary influence-generator having a rotating disk adjacent to the collector-disks and having two brushes at opposite points.

10. In a cotton-picking machine, the combination with an inclosed electrical generator, of a collector movable independently of said generator and located in inductive relation thereto so as to be charged by induction therefrom.

602,077. BRUSH. HARVEY W. HASCY, Hempstead, N. Y. Filed Aug. 3, 1897. Serial No. 646,884. (No model.)



Claim.—1. A "socket-brush" comprising a handle having a bristle-receiving opening therein, bristles contained within said opening, and a ferrule having a hollow extension within the bristle-receiving opening in the handle and surrounding the bristles contained therein and a flanged portion surrounding the lower end of the handle and secured thereto.

2. A "socket-brush" comprising a handle having a longitudinal bristle-receiving opening in one end thereof, bristles received within said opening and a ferrule having a hollow extension within the bristle-receiving opening in the handle and surrounding the bristles contained therein and a flanged portion surrounding the lower end of the handle and spun into a groove formed in the sides of said handle, substantially as described and for the purposes specified.

602,078. TROUSERS-CREASER. JOHN B. HOLMES, Albany, N. Y. Filed June 30, 1897. Serial No. 643,045. (No model.)



Claim.—In an apparatus for creasing trousers, the parallel slats A and B adapted to receive the bottoms of a pair of trousers, and the cams C C adapted to press the said slats together, in combination with the longitudinal slats D E and D E adapted to receive the fold edges of the sides of the trousers, and the springs F F adapted to press said slats together, and means for pivotally connecting the upper ends of the slats D D to the slat E and the slat H for securing together the free ends of the longitudinal slats D D, substantially as described and for the purpose set forth.

602,079. CAR. IVES J. HOYT, Watseka, Ill. Filed June 30, 1897. Serial No. 643,867. (No model.)



Claim.—The combination with a car, of the brackets mounted thereon near the top thereof and provided with slotted horizontal arms, a transverse safety-platform arranged on the brackets and having its upper face flush with the top of the car, fastening devices depending from the platform, passing through the slots of the brackets and engaging the latter, and cushioning-springs interposed between the platform and the car, substantially as and for the purpose described.

602,080. URINAL-PAN. THOMAS H. HUTCHINSON, Brooklyn, N. Y. Filed May 16, 1896. Serial No. 591,770. (No model.)



Claim.—1. The herein-described urinal-bowl having upper and lower pans integral therewith, said upper pan being designed to be flushed from the front toward the rear, and said lower pan being flushed from the rear toward the front, the forward portion of said lower pan being extended beneath the inner portion of said upper pan, a depending portion of said upper pan being beneath the level of the water of the lower pan, and an outlet with which said lower pan communicates, the rear wall of the bowl extending above the point where the rearward flush enters, substantially as set forth.

2. The herein-described urinal-bowl, having upper and lower pans integral therewith forming passage-ways between themselves and between said lower pan and the bottom of the urinal, and an outlet into which said latter passage-way opens, said upper pan being flushed from the front toward the rear, and said lower pan from the rear toward the front, said upper pan being provided at its rear end with a depending portion which intercepts the water-level of said lower pan the rear wall of the bowl extending above the point where the rearward flush enters, substantially as set forth.

3. The herein-described urinal-bowl having an upper water-chamber, a depending pipe leading therefrom, a hollow rim also leading from said chamber and slotted at the front end of the bowl, upper and lower pans integral with said bowl, said upper pan extending from the front end of said bowl to near the rear wall thereof, and said lower pan extending from said rear wall to near the front wall of said bowl, said depending pipe opening onto said lower pan beneath the water-level thereof, and said upper pan having at its rear end a depending portion which intercepts the water-level of said lower pan, substantially as set forth.

4. The herein-described urinal-bowl having an upper water-chamber, a depending pipe leading therefrom, apertures being formed in the bottom of said chamber, a hollow rim also leading from said chamber and having a series of perforations facing the side walls of the bowl, and a slot at the front end of the bowl, upper and lower pans integral with said bowl, said upper pan extending from the front end of said bowl to near the rear wall thereof, and said lower pan extending from said rear wall to near the front wall of said bowl, said depending pipe opening onto said lower pan beneath the water-level thereof, and said upper pan having at its rear end a depending portion which intercepts the water-level of said lower pan, substantially as set forth.

602,081. TRACK-CLEANER. JOHN HYDE, Trenton, N. J. Filed July 20, 1897. Serial No. 645,245. (No model.)



Claim.—1. A track-cleaner having a guide, a brush hub or slide mounted for axial and rotary movement in the guide and yieldingly held in its depressed position, and an interlocking connection, consisting of axially-disposed grooves or channels in one of said members, one of said grooves terminating short of the others at its lower end and a feather or web on the other member to engage one of said grooves or channels, to maintain the hub or slide at the desired rotary adjustment while permitting upward axial movement, substantially as specified.

2. A track-cleaner having a tubular guide, a spring-depressed brush hub or slide fitted for axial and rotary adjustment in the guide and yieldingly held in its depressed position, said guide being provided with a plurality of grooves or channels, extending to the upper end of the guide, one of the grooves having its lower end above the plane of the others and a feather or web carried by the hub or slide for engaging either of said grooves or channels, and adapted to be disengaged at the upper ends thereof, substantially as specified.

3. A track-cleaner having a tubular guide provided with a plurality of interior main grooves or channels, and a false or auxiliary groove or channel of less depth than the main grooves or channels, and a brush hub or slide fitted for axial and rotary movement in the guide and yieldingly held in its depressed position, said hub or slide being provided with a radial feather or web to engage one of said grooves or channels, substantially as specified.

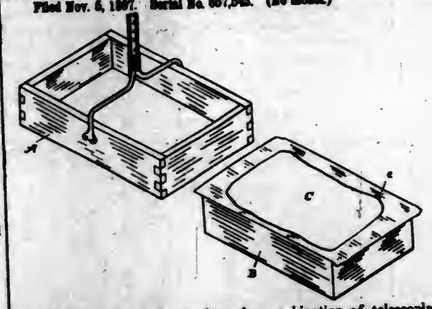
4. A track-cleaner having a guide provided with a bracket adapted to be attached to a car-truck, a brush hub or slide fitted for axial and rotary adjustment in the guide, and fitted with a stem and an operating-handle, a feather or web carried by the hub or slide to engage either of a plurality of grooves or channels in the wall of the guide, a stop-pin for limiting the depression of the hub or slide, and an actuating plate-spring attached to the bracket and bearing upon a shoulder or offset portion of the hub or slide, to yieldingly hold the latter in its depressed or operative position, substantially as specified.

5. A track-cleaner having a tubular guide provided with a bracket for attachment to a car-truck, a brush hub or slide fitted for axial and rotary adjustment in the guide and terminating at its lower end in a brush-seat, a feather or web carried by the hub or slide to engage either of a plurality of grooves or channels in the wall of the guide, a reduced stem extending axially from the hub or slide and terminating in a removable operating-handle, a removable stop-pin fitted transversely in the hub or slide to limit the downward movement thereof, and an actuating plate-spring attached to the bracket and bearing terminally upon the upper end of the hub or slide, to hold the latter yieldingly in its depressed position, substantially as specified.

602,082. COMPOSITION FOR ROADWAYS, TILES, &c. JOB JOHNSON, Glendale, N. Y. Filed Nov. 6, 1897. Serial No. 657,622. (No specimens.)

Claim.—A composition for roadways, tiles and the like consisting of clay, sharp sand, hard-coal dust, pulverized rock-salt, charcoal-dust and water, in about the proportions specified.

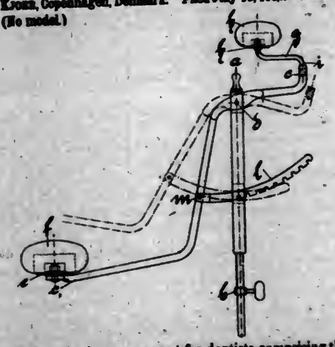
602,083. FLY-CATCHER. CHARLES A. KIESER, Louisville, Ky. Filed Nov. 5, 1897. Serial No. 657,543. (No model.)



Claim.—1. In a fly-catcher, the combination of telescoping frames, sticky fly-paper adapted to be clamped between said telescoping frames, and an adjustable handle secured to said frames, substantially as described.

2. In a fly-catcher, the combination of the outer frame A, the inner frame B, the fly-paper C, having a plain edge *c* adapted to be engaged between said inner and outer frame, which are constructed to telescope with each other, a bail arranged to be secured to the sides of said outer frame, having a hollow threaded extension at its center, and a handle provided with a screw-thread at one end adapted to engage with said extension, substantially as described.

602,084. ARM-SUPPORT FOR DENTISTS. LAURITS P. J. V. KJÆR, Copenhagen, Denmark. Filed July 10, 1897. Serial No. 644,060. (No model.)

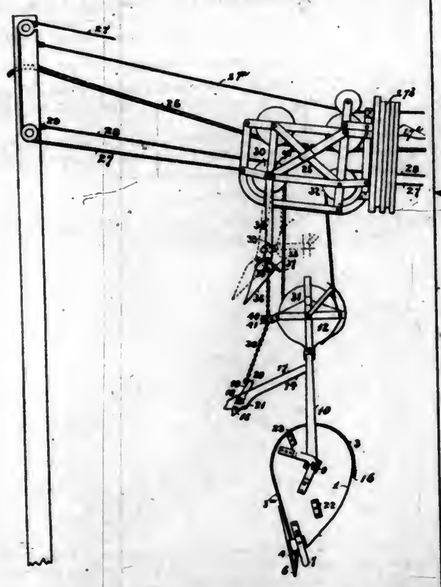


Claim.—1. An arm-support for dentists comprising the combination of a rod *a*, adapted for application to a dental chair, a bent and pivoted rod constituting an arm-support, and a segmental rack-bar interposed between said arms, substantially as described, for adjusting said parts.

2. An arm-support for dentists comprising the combination of a rod *a*, a clamping-ring *b*, a bent rod pivoted to the rod *a*, and having arm-supports at its ends, and a segmental rack-bar interposed between said rods, substantially as described.

3. In combination a rod, as *a*, a bent rod pivoted to the rod *a*, and provided at one end with an arm-support, and a third bent rod pivoted to the other end of the second rod and provided with an arm-support, substantially as described.

602,085. **CONVEYING APPARATUS.** FRANK B. KNIGHT, Brooklyn, N. Y. Filed Oct. 5, 1897. Serial No. 654,100. (No model.)



Claim.—1. In a hoisting apparatus, in combination, a fall-block, a bucket pivotally sustained by said fall-block with its center of gravity above said pivots, a latch whereby said bucket is maintained in a non-dumping position, a dumping member adapted for disengaging said latch and a dumping-member actuator relatively to which said fall-block has a movement; said dumping member and actuator being adapted to interlock as the fall-block descends, substantially as described.

2. In a hoisting apparatus, in combination, a fall-block, a bucket pivotally sustained by said fall-block with its center of gravity above said pivots, a latch whereby said bucket is maintained in a non-dumping position, a dumping member adapted for disengaging said latch and a dumping-member actuator relatively to which said fall-block has a movement and a carriage supporting both said fall-block and said dumping-member actuator; said dumping member and actuator being adapted to interlock as the fall-block descends, substantially as described.

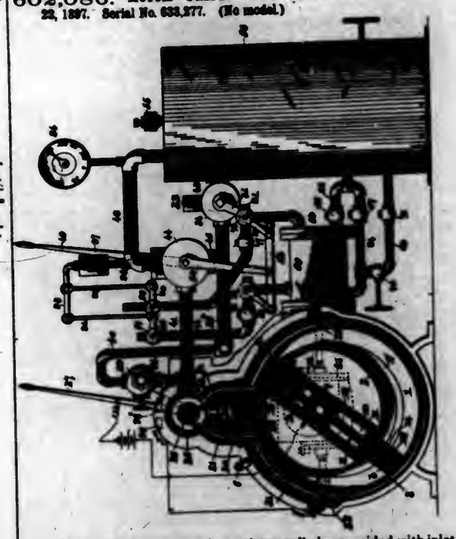
3. In a hoisting apparatus, in combination, a fall-block, a bucket pivotally sustained by said fall-block with its center of gravity above said pivots, a latch whereby said bucket is maintained in a non-dumping position, a dumping member adapted for disengaging said latch, a dumping-member actuator relatively to which said fall-block has a movement and a trigger connected with said latch and said dumping member; said dumping member and actuator being adapted to interlock as the fall-block descends, substantially as described.

4. In a hoisting apparatus, in combination, a fall-block, a bucket pivotally sustained by said fall-block with its center of gravity above said pivots, a latch whereby said bucket is maintained in a non-dumping position, a dumping member adapted for disengaging said latch and a dumping-member actuator relatively to which said fall-block has a movement and a rest connected with the fall-block whereby said dumping member is normally supported substantially as described.

5. In a hoisting apparatus, in combination, a fall-block, a bucket sustained by said fall-block, a latch whereby said bucket is maintained in a non-dumping position, a dumping member adapted for disengaging said latch, a dumping-member actuator relatively to which said fall-block has a movement and a guard whereby the mouth of said dumping-member actuator is controlled, substantially as described.

6. In combination, the hook 34, a projection therefrom carrying the inclined surface 36, a pivoted guard 37 lying across the mouth of said hook, a member 39, means for reciprocating said member relatively to said hook and dumping mechanism connected with said member, substantially as described.

602,086. **MOTOR.** FRANK M. MACKEY, Elmira, N. Y. Filed Apr. 22, 1897. Serial No. 633,877. (No model.)



Claim.—1. A motor having a piston-cylinder provided with inlet and exhaust ports, a reservoir, and valve mechanism, whereby either of said ports may be arranged in communication with the reservoir and the other exposed to the atmosphere, to adapt the reservoir to act alternately as a dispenser and a receiver, substantially as specified.

2. A motor having a piston-cylinder, a reservoir, supply and exhaust conveyers connecting the reservoir respectively with the inlet and exhaust ports of the cylinder, and valves controlling said conveyers and contiguous ports exposed to the atmosphere, whereby the reservoir is adapted to act alternately as a dispenser and a receiver, substantially as specified.

3. A motor having a piston-cylinder, a reservoir, supply and exhaust conveyers connecting the reservoir respectively with the inlet and exhaust ports of the cylinder, and supply and cut-off valves for controlling said conveyers and having their casings provided respectively with suction and outlet ports either of which is adapted to be arranged in communication with the conveyer when the contiguous valve is arranged to cut off communication between said conveyer and the reservoir, substantially as specified.

4. A motor having a piston-cylinder, a reservoir, supply and exhaust conveyers connecting the reservoir respectively with the inlet and exhaust ports of the cylinder, supply and cut-off valves controlling the conveyers and having their casings provided respectively with suction and outlet ports which are adapted to be arranged respectively in communication with said conveyers when the valves are arranged to cut off communication between the conveyers and the reservoir, and means for communicating simultaneous movement to said valves whereby when one is arranged to cut off communication between the conveyer and the reservoir, the other is adjusted to open communication with the reservoir, substantially as specified.

5. A motor having a piston-cylinder, a reservoir adapted to perform the function of a vaporizing-retort, a heating device, a sprayer arranged in the reservoir, pump mechanism in connection with the sprayer and provided with an inlet-pipe, supply and exhaust conveyers connecting the reservoir with the inlet and exhaust ports of the cylinder, supply and cut off valves for controlling said conveyers and having their casings provided with suction and outlet ports, means for simultaneously operating said valves to open communication between the reservoir and one conveyer and cut off communication between the reservoir and the other conveyer, and a controlling-valve, arranged in said inlet-pipe of the pump mechanism, operatively connected with the supply and cut-off valves, and having its casing provided with a suction-port, substantially as specified.

6. A motor having a piston-cylinder, a reservoir adapted to perform the function of a vaporizing-retort and having independent communication respectively with the inlet and exhaust ports of the cylinder, valve mechanism for controlling communication between the reservoir and said ports and also controlling suction and outlet ports adapted to be arranged in communication, respectively, with the inlet and exhaust ports of the cylinder, a heating device for the reservoir, a sprayer arranged in the reservoir, a pump mechanism having outlet-ports communicating with the supply-pipe which is connected with the sprayer and also having inlet-ports adapted to admit different fluids for discharge into said supply-pipe, and controlling-valves for the inlet-ports of the pump, operatively connected with the said valve mechanism for controlling communication between the reservoir and the ports of the cylinder, said controlling-valves having their casings provided with suction-ports, substantially as specified.

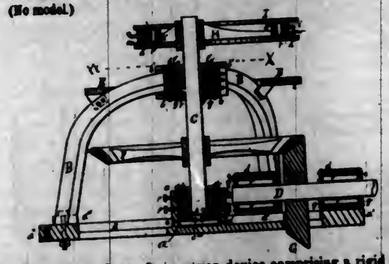
7. A motor having a piston-cylinder, a reservoir adapted to perform the function of a retort, means of communication between the reservoir and the inlet and exhaust ports of the cylinder, valve mechanism for controlling said communication, and also controlling suction and outlet ports adapted to be arranged in communication respectively with the inlet and exhaust ports of the cylinder, a heating device, a pump mechanism for supplying motive agent to the reservoir and having its cylinder in communication with inlet-pipes, controlling-valves in said inlet-pipes operatively connected with said valve mechanism for controlling communication between the reservoir and the ports of the cylinder, the controlling-valve casings having suction-ports, and governor-valves arranged in said inlet-pipes, and a diaphragm exposed to the pressure of the contents of the reservoir and operatively connected with the governor-valves, substantially as specified.

8. A motor having high and low pressure piston-cylinders, supply and exhaust conveyers respectively in communication with the inlet and exhaust ports of said cylinders, and a four-way controlling-valve having its casing in communication at diametrically opposite points with the high-pressure supply and the low-pressure exhaust ports, and also in communication at diametrically opposite points with the high-pressure exhaust and the low-pressure supply ports, substantially as specified.

9. A motor having an eccentric piston-cylinder, and a dividing-gib arranged between the feed-ports, said gib being longitudinally expansible and comprising sections having overlapping contiguous extremities, a tube connecting the sections longitudinally to form a guide therefor, and an expansion-spring housed in the tube, and bearing terminally against the gib-sections, substantially as specified.

10. A motor having a cylinder, a controlling-valve for the ports of the cylinder, a rotary piston, opposite contact or sparking points, spaced terminals connected respectively with the contact-points, and an operating-lever for said valve adapted to perform the function of a switch to contact with either of said terminals, said lever being included in an electrical circuit which also includes the piston, substantially as specified.

602,087. **DEVICE FOR DISTRIBUTING AND EQUALIZING POWER.** RUSSELL MARVIN, Findlay, Ohio, assignor of one-half to S. M. B. Priddy, same place. Filed May 10, 1897. Serial No. 635,969. (No model.)



Claim.—1. A frame for a power device comprising a rigid cast bed A, having at its center a socket *a*; posts or risers B rigidly attached to bed A, and curving inwardly, meeting at their upper concaved ends *b*, about the vertical axis of socket *a*, and adapted by bolts through flanges *b'* to be solidly fastened together; and a ring E having holes *e*, said ring encircling and rigidly attached to posts B, substantially as above described.

2. In a frame of a power device, the combination of a bed-piece A, having a socket *a* at its center, and posts B rising from its perimeter and curving inwardly meeting by concaved ends about the vertical axis of said socket *a*, with a ring E, rigidly attached to posts B, and having holes *e*, as and for the purpose above described.

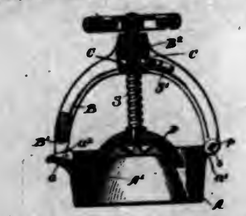
3. In a power device a bearing for a vertical shaft D, comprising antifriction-rolls *r*, a hard thin metal bushing *s*, its wall severed by a diagonal slit J; a heavy bushing of softer metal *s'* and set-screws *p* and *p'* for adjusting and holding said bushings substantially as and for the purpose specified.

4. In a power device the combination of an antifriction-bearing sustaining the weight of a rotating vertical shaft C, comprising a terminal cap *c* to said shaft, having on its under side a groove *c''*, a bearing-plate *c'* having a corresponding groove *c''* said grooves containing balls *c'''*, with an antifrictional bearing sustaining the lateral strain of said shaft C, comprising rolls *r*, a thin hard-metal bushing *s*, a softer heavy bushing *s'* and set-screws *p* and *p'*; both said bearings being contained in a socket *a*, substantially as and for the purpose above specified.

5. In a power device, the combination of a frame comprising a cast bed-piece A, provided at its center with a socket *a*, adapted to contain a bearing for the foot of a rotating vertical shaft C; risers or posts B securely fastened at their feet to said bed-piece A, curving inwardly and meeting by upper concaved ends *b*, and adapted to be solidly fastened by flanges *b'* about the vertical axis of socket *a*, and to receive within the orifice formed by said concaved ends *b*, a bearing for the upper end of said vertical shaft C, with a vertical shaft C, adapted to be rotated and bearing solidly attached thereto wheel F, and eccentric-wheel H, with an encircling ring I, substantially as and for the purpose above described.

6. In an eccentric device for converting rotary motion into reciprocating motion comprising the eccentric-wheel H, solidly mounted upon a vertical rotating shaft C, and bearing loosely mounted on a flange *h* by travelers, an encircling non-rotating ring I, said eccentric H and ring I having between them an antifrictional bearing formed by a series of vertical rolls *r'* broken into sections by rectangular shoes *l*, the combination of such eccentric H and ring I with rolls *r'* and shoes *l*, as and for the purposes above described.

602,088. **LEMON-SQUEEZER.** CHARLES MORGAN, Freeport, Ill. Filed Aug. 20, 1897. Serial No. 648,913. (No model.)



Claim.—1. In a lemon-squeezer, the combination with a bowl and an internal cone formed thereon, of a bail hinged at one end to the bowl by means of a pivot in one part, passing through a slot in the other part, a screw supported in the bail and a shell mounted on the end of the screw and adapted to be forced toward the cone, the free end of the bail and the corresponding point on the bowl being formed with coacting parts adapted to interlock, when the pivot of the bail and bowl is in one position in its slot, but to be free from each other when the pivot is in a different position, substantially as described.

2. The combination with the bowl having the internal cone and formed with ears *a'*, and lips, a^3, of the bail, B, having the inclined slot, *s*, and hooks adapted to engage the lips, a^3, the pivot, *p*, passing through the ears, *a'*, and slot, *s*, the screw, S, mounted in the bail and the shell, D, mounted on the screw; substantially as described.

3. In a lemon-squeezer, or analogous device, the combination with a suitable bowl and vertically-reciprocating plunger, of a bail or bridge in which said plunger is mounted said bridge being adapted to hook to the bowl upon one side by lateral movement with respect thereto and being pivotally connected to the bowl upon the opposite side so as to be capable of oscillation thereupon and also of lateral movement with respect thereto, whereby by moving said bail laterally with respect to the bowl, its free end may be engaged therewith or disengaged therefrom as desired; substantially as described.

4. In a lemon-squeezer or analogous device the combination with a suitable base or bowl and a plunger adapted to compress the lemon or other article between it and the base or bowl, of a bail or bridge supporting the plunger, said bail or plunger having upon one end a hook adapted to engage the base or bowl by lateral movement with respect thereto and being pivoted to the base or bowl at the opposite side by means of a pivot and slot, one portion of said slot being nearer to the hook when in engagement with the bowl than remaining portions; substantially as described.

602,089. **CENTER-BEARING.** PETER H. MURPHY, East St. Louis, Ill. Filed Feb. 12, 1896. Serial No. 670,022. (No model.)

Claim.—1. The combination with a bolster, of a center-bearing, and a wedge operating between said bolster and center-bearing, substantially as described.

2. The combination with a bolster, of a vertically-movable center-bearing, a wedge operating between said bolster and center-bearing, and a locking-block for locking said wedge in an adjusted posi-

tion, said wedge holding said locking-block in place substantially as described.

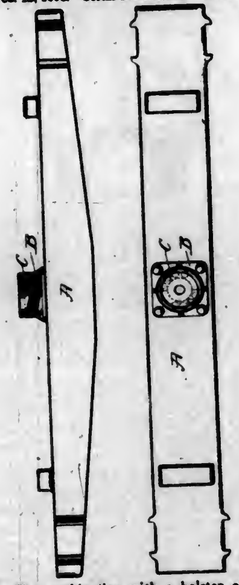


3. The combination with a bolster, of a vertically-movable center-bearing, a wedge which operates between said bolster and center-bearing, and a locking-block formed with a flange fitting in said wedge, substantially as described.

4. The combination with a bolster, of a vertically-movable center-bearing having guiding-flanges which embrace the side walls of the bolster, a wedge operating between said bolster and center-bearing, a locking-block for said wedge, and a bolt E, substantially as described.

5. The combination with a bolster, of a center-bearing having guiding-flanges *b*, an inclined face *b'* on its under side, and shoulders *b''* on each side of said inclined face, a slotted wedge C having a recessed portion *c'* in its head, and a locking-block D having a flange *d*, and a projection *d'*, substantially as described.

602,090. CENTER-BEARING. PETER H. MURPHY, East St. Louis, Ill. Filed Feb. 12, 1896. Serial No. 670,023. (No model.)



Claim.—1. The combination with a bolster, of concentrically-arranged projections rising therefrom, said projections being formed with inclined faces, and a center-bearing formed with corresponding projections having correspondingly inclined faces to match said bolster projections, substantially as described.

2. The combination with a bolster, of a center-bearing, and means for adjusting said center-bearing vertically and revolubly, relative to said bolster, substantially as described.

3. The combination with a bolster, of a center-bearing which is vertically and revolubly adjustable relative thereto, and means for locking said center-bearing in its adjusted position, substantially as described.

4. The combination with a bolster having inclined lugs, of a center-bearing having matching lugs, and interlocking devices between said lugs, substantially as described.

5. The combination with a bolster provided with concentrically-arranged inclined lugs formed with projections or openings, of a center-bearing provided with concentrically-arranged inclined lugs to match said bolster-lugs, and converse parts on the inclined faces of the center-bearing lugs to engage the projections or openings of the bolster-lugs, substantially as described.

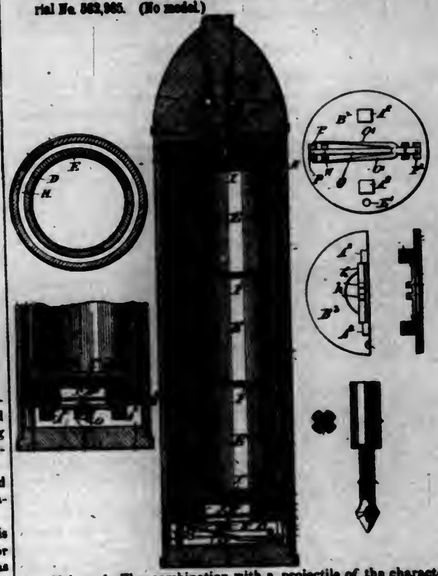
6. The combination with a bolster, of a bolster-plate B formed with projections *b*, said projections having openings *b'* arranged therein, a center-bearing C formed with projections *c*, and lugs *c'* on said projections to engage the openings *b'* of the projections *b*, substantially as described.

602,091. COMBINATION CURTAIN AND WINDOW-SHADE HOLDER. THOMAS MCCORMICK, Mount Pleasant, Pa. Filed Mar. 19, 1897. Serial No. 626,318. (No model.)



Claim.—A device of the class described comprising a horizontal guide-bar designed to be mounted on a window-frame and extend entirely across the same, a pair of slides located at the ends of the guide-bar and each constructed of a single piece of sheet metal provided at its inner edge with a perforated ear and having its upper and lower edges bent inward on themselves to form L-shaped flanges for engaging the upper and lower edges of the guide-bar, the rectangular clips mounted on the slides and arranged in vertical alinement, the pole-receiving brackets provided with oppositely-disposed arms having their terminals bent vertically in opposite directions and engaging said clips at the inner edges thereof to lock the brackets against upward or downward movement, the terminals of said arms being interlocked with the rectangular clips, whereby the brackets are prevented from swinging horizontally, and means for securing the slides at the desired adjustment, substantially as described.

602,092. VACUUM-PROTECTED HIGH-EXPLOSIVE SHELL. RICHARD J. MCKNOWN, Sault Ste. Marie, Mich. Filed Mar. 12, 1896. Serial No. 582,965. (No model.)



Claim.—1. The combination with a projectile of the character described, of a perforating firing-pin, having notches therein, and a detonator-ring upon the pin adapted to be exploded through said notches, said notches affording communication with the explosive material of the projectile, as set forth.

2. A high-explosive projectile comprising two casings, one elastically held within the other to form a vacuum-chamber between them, the inner one of said casings having a series of separated cells containing explosive material, an anvil having passage-ways therethrough and secured in the head of the projectile, a firing-pin working through said head and through the anvil and having notches or passage-ways therein, and a detonator-ring upon the pin to engage the anvil and explode the material in said cells, as set forth.

3. A high-explosive projectile comprising an outer shell or casing, head and breech plates removably secured in the ends of said casing, an inner casing elastically held between the said two plates to form a vacuum-chamber between the shells, the cells or cases secured in the inner shell and adapted to contain explosive material, a firing-pin having a pointed notched end to pierce the end of the inner casing, a detonator-ring secured to the pin, and a flexible nut through which a portion of the pin works, said nut being secured in the projectile-head and forming an anvil for the detonator-ring, whereby the latter is exploded, the said nut and the pin-notches affording communication with the cells, as set forth.

4. A high-explosive projectile comprising an outer shell, the head-plate, the breech-plate closing the end of the shell and having a thin central portion, an inner shell containing explosive material and elastically held between the said two plates, a removable end upon the inner shell having a thin central portion, a movable firing-pin working through the head-plate and adapted to break the thin portion of said end, and means attached to the breech-plate and actuated by pressure upon the thin portion of the breech-plate to indicate the degree of exhaustion of the inclosed air, as set forth.

5. A firing-pin for high-explosive projectiles comprising a cylindrical body working through the projectile-head and having a detonator and a pointed notched end to pierce the inclosure containing the projectile explosive material and communicate the explosion of the detonator to said material, as set forth.

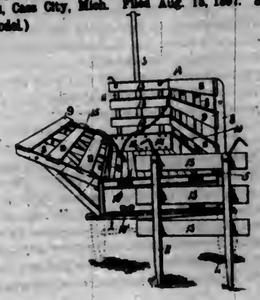
6. In an explosive projectile the combination of the outer shell, the head-plate, the breech-plate having a thin portion forming a diaphragm, an inner shell having an end the central portion of which is thinner than the body, a series of cells in the inner shell containing explosive material and separated by partitions, cushions engaging the ends of the inner and outer shells, and means upon the breech-plate, and operated by said diaphragm to indicate the degree of exhaustion of air from a chamber formed by the said two shells, as set forth.

7. The combination of the inner shell containing explosive material, and having an end provided with a thin portion, the outer shell, the head-piece, the head-plate having a screw-threaded extension to which the said head-piece is secured, the breech-plate having a thin central portion forming a diaphragm, a cushion engaging the head-plate and one of the inner shell ends and having a central aperture, a firing-pin working through said aperture and adapted to break the thin portion of the inner shell end, a cushion between the other end of the inner shell and the breech-plate, and having a space in which the diaphragm is operated, and a series of levers linked together and connected to the diaphragm to note the degree of exhaustion of air from the chamber formed between the said two shells, as set forth.

8. The combination with a projectile having a vacuum-chamber formed between the outer and inner shells of the projectile, of a vacuum-gage comprising a diaphragm in the projectile breech-plate, a graduated scale, a series of levers connected together and to the breech plate and operated by pressure upon the diaphragm to indicate upon the scale the degree of air exhausted from the chamber, as set forth.

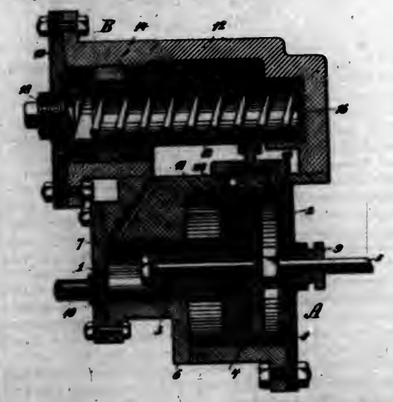
9. The combination with a high-explosive projectile, of an anvil secured in the projectile-head, a firing-pin having a notched end, and working through the anvil and through said head, and having a collar resting against the anvil, and a detonator upon the pin adapted to be exploded by contact with the anvil, said explosion being communicated to the projectile explosive material through said pin-notches, as set forth.

602,093. COMBINED GRAIN, HAY, AND STOCK RACK. ELIAS MCKIM, Cass City, Mich. Filed Aug. 18, 1897. Serial No. 648,651. (No model.)



Claim.—In a combined grain, hay and stock rack and wagon, the combination with the body thereof, provided on its sides with upright cleats, having eyes in their upper ends, and at its ends with angular metallic keepers, of side sections comprising vertical bars and horizontal slats, hooks secured to said side sections and adapted to engage said eyes, end sections comprising vertical bars and horizontal slats, said bars being adapted to enter said end keepers, hooks upon the end sections adapted to engage the side sections, a chain secured at its outer ends to the said sections for supporting the same one from the other, a hook secured to the wagon-floor adapted to engage the links of said chain for the purpose of adjusting the positions of said side sections relative one to the other, and bars pivotally connected to the vertical bars of the side sections, whereby the rear and middle portions of said sections are supported, as and for the purpose set forth.

602,094. AIR-BRAKE. JOHN J. HEP, New York, N. Y. Filed July 31, 1897. Serial No. 646,579. (No model.)



Claim.—1. The combination in an air-brake system of a pump and pump-operating mechanism of a compound air-cylinder comprising two cylinders of different diameters, a piston within said compound cylinder having heads of different diameters corresponding with the bores of said compound cylinder a valve-chamber in open communication with the smaller cylinder and having a port communicating with the larger cylinder and an exhaust-port, a valve in said valve-chamber, and means acting under variations in air-pressure for operating said valve to alternately open and close said larger cylinder to the valve-chamber and the exhaust, substantially as described.

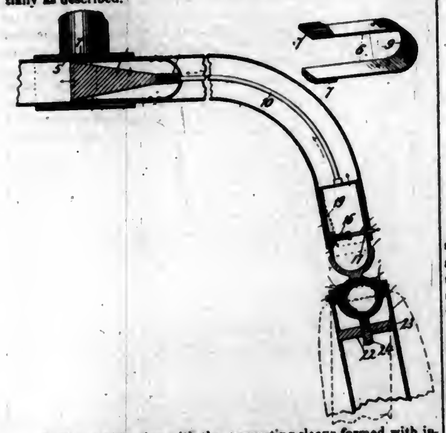
2. The combination in an air-brake system of a pump and pump-operating mechanism, of a compound air-cylinder comprising two cylinders of different diameters, a piston within said compound cylinder having heads of different diameters corresponding with the bores of said compound cylinder, a valve-chamber having open communication with the smaller of said cylinders, and having a port connecting with the larger of said cylinders, an exhaust-port, and a valve controlling said ports whereby air is admitted to the larger cylinder to move the piston in one direction and exhausted therefrom to move it in the opposite direction, substantially as described.

3. The combination in an air-brake system of a pump and pump-operating mechanism, a compound air-cylinder comprising two cylinders of different diameters, a piston within said compound cylinder having heads of different diameters corresponding with the bores of said compound cylinder, a valve-chamber having open communication with the smaller of said cylinders and having a port connecting with the larger of said cylinders, an exhaust-port and means for controlling said ports whereby air is exhausted from the larger cylinder to allow the piston to move in one direction, and is admitted to said cylinder to move the piston in the opposite direction, substantially as described.

602,095. BICYCLE HANDLE-BAR AND HANDLE. GEORGE H. NEWELL, Gloucester, Mass. Filed Jan. 27, 1898. Serial No. 667,915. (No model.)

Claim.—1. The combination in a bicycle, or like machine, of a central supporting-sleeve having internal teeth or serrations, a hollow handle-bar arranged therein and provided with openings, a locking device arranged within the handle-bar and adapted to project through said openings and engage the teeth or serrations on the sleeve, a connection extending substantially to the handle at the end

of the bar for operating the locking device in one direction, and a spring for operating said device in the opposite direction; substantially as described.



2. The combination with the supporting-sleeve formed with internal teeth or serrations, and the handle-bar, provided with central openings, of locking devices comprising a toothed or serrated spring, a wedge for causing said spring to engage the serrations in the sleeve, an operating connection, and a catch device for securing the connection when the parts are in locked position; substantially as described.

3. The combination with the central supporting-sleeve and hollow handle-bar, of the toothed locking-spring, a wedge for causing said spring to engage the serrations in the sleeve, a connection secured to said wedge, a retracting-spring for the connection, and a sliding sleeve secured to the outer end of the connection; substantially as described.

4. The combination with the ball projecting from the handle-bar, of a tubular handle provided at its inner end with an inwardly-projecting ring or flange, a socket-bearing within the handle, and a connection between the handle and the bearing whereby the ball may be clamped within the socket by the turning of the handle; substantially as described.

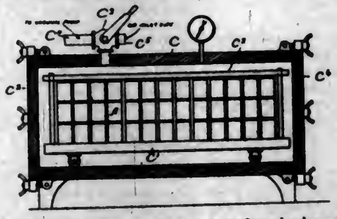
5. In a bicycle, or the like, the combination of the steering-head stem and sleeve, a handle-bar rotatably adjustable in said sleeve, locking devices to secure the bar in different positions of adjustment, actuating mechanism for said locking devices, said mechanism being concealed and protected within the hollow of the bar, and a push-button projecting through a perforation in the handle-bar in proximity to the handle, whereby the actuating mechanism for the locking device may be released by the thumb or finger without disengaging the hand from the handle; substantially as described.

6. In a bicycle, or the like, the combination of the stem or steering-head and its sleeve, a handle-bar rotatably adjustable in said sleeve, locking devices to secure the bar in different positions of adjustment, actuating mechanism for said locking devices, said mechanism being concealed and protected within the hollow of the handle-bar and extending substantially to the handle at the end of the bar, a spring for holding the locking devices normally locked, and a push-button projecting through a perforation in the handle-bar near the handle and connected with said actuating mechanism, whereby the actuating mechanism for the locking devices may be released by the thumb or finger without removing the hand from the handle, and the adjustment of the bar effected while holding the handle; substantially as described.

7. The combination with a ball on the end of the handle-bar, of a handle provided with an internal socket-bearing, a screw-threaded stem for said bearing, a ring secured to the handle and encircling the ball on the opposite side of its center from the socket, and a threaded projection in the handle into which the stem of the socket screws, whereby the socket and the ring are clamped upon the ball; substantially as described.

8. The combination with a ball on the end of the handle-bar, of a handle provided with an internal socket-bearing, a screw-threaded stem for said bearing, said stem being constructed in two parts movable lengthwise only with respect to each other, a ring secured to the handle and encircling the ball on the opposite side of its center from the socket, a spring reacting between the parts of the socket-stem, and a threaded projection in the handle into which the stem screws, whereby the socket and the ring are clamped upon the ball; substantially as described.

602,096. PROCESS OF CANNING FOOD. Erwin Horton, Maywood, Ill., assignor to the Horton Bros., Chicago, Ill. Filed Oct. 7, 1897. Serial No. 654,333. (No specimens.)



Claim.—1. The herein-described process of canning hermetically-sealed food, consisting in placing the food in cans provided with covers adapted to be sealed by atmospheric pressure, placing the cans with their covers in place within a receiver, exhausting the air in the cans, and sealing the covers on the cans by the sudden admission of air to the receiver, substantially as described.

2. The herein-described process of canning hermetically-sealed food, consisting in placing the food in cans provided with covers adapted to be sealed by atmospheric pressure, placing the cans with their covers in place within a receiver, exhausting the air in the cans, sealing the covers on by the sudden admission of air to the receiver, then locking the covers securely to the cans so as to form an air-tight mechanical seal, and finally cooking the contents while in vacuum, substantially as described.

3. The herein-described process of canning hermetically-sealed food, which consists in placing the food in cans with covers for the entire top, placing such filled cans with their covers in place within a receiver, exhausting the air from the receiver, cans, and contents, and seaming the covers on the cans so as to form an air-tight mechanical seal, substantially as described.

4. The herein-described process of canning hermetically-sealed food, which consists in placing the food in cans with covers for the entire top, placing such filled cans with their covers in place within a receiver, exhausting the air from the receiver, cans, and contents, and seaming the covers on the cans so as to form an air-tight mechanical seal, then clamping the filled cans and processing the same to sterilize the contents, substantially as described.

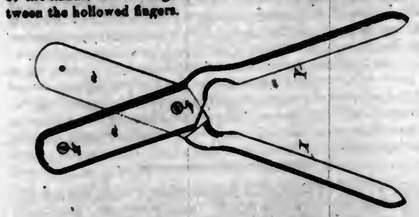
5. The process of canning food or other articles, consisting in the following steps: first, filling the cans, next extracting the air therefrom, next sealing the covers on the cans with a vacuum seal, next locking the covers securely to the cans by seaming to prevent the escape of their contents or of steam or gases arising therefrom during the next or cooking step, and finally cooking the contents while in vacuum; substantially as shown and described.

6. The process of canning hermetically-sealed food, consisting in the following steps: first filling the cans, next producing by mechanical means as near a perfect vacuum in the cans as practicable by removal of the air therefrom, next sealing the covers on the cans by seaming to prevent the return of air thereto and to prevent the escape of their contents or of steam or gases arising therefrom during the next or cooking step, and next cooking the food contained in the cans while in a vacuum, whereby the injurious effects upon the cans and contents of the air always heretofore sealed up in the cans with the food, is avoided, substantially as shown and described.

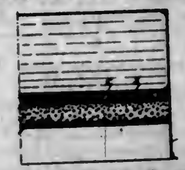
7. The herein-described process of canning hermetically-sealed food, consisting in placing the food in cans provided with covers adapted to be sealed by atmospheric pressure, placing the cans with their covers in place within the receiver, exhausting the air in the cans, and sealing the covers on by the sudden admission of air to the receiver, next removing the cans from the receiver and securely sealing the covers to the cans by a mechanical seal to prevent the escape of their contents or of steam or gases arising therefrom, next placing the cans in suitable clamps to prevent the action of the steam cooking from breaking the sealed joint between the cans and covers, placing the cans in a cooking-retort and sterilizing and cooking the contents while in vacuum, next removing the cans from the retort and cooling the contents, and next removing them from the clamps, substantially as shown and described.

602,097. ASPARAGUS-HOLDER. Christopher H. Oberle, New York, N. Y. Filed Apr. 26, 1897. Serial No. 633,113. (No model.)

Claim.—An asparagus-holder, comprising two jaws or sections each consisting of a grooved or hollowed finger, and a handle portion recessed at its inner end and flattened at its inner side, whereby the two handle portions may be closed one upon the other and overlapped to constitute a single flat grasping end for the device, in combination with a pivot for securing the handle-sections together, and a fastening device for detachably securing the outer overlapped ends of the handle-sections together to clamp the stalk of asparagus between the hollowed fingers.



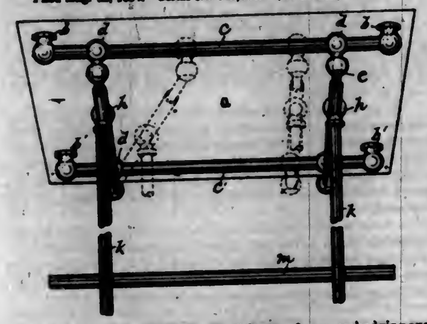
602,098. PURIFYING CONDENSATION-WATER FROM OIL BY FILTRATION. Gustav Closius, Grevenbrück, Germany, assignor to the Maschinenfabrik Grevenbrück, Actiengesellschaft, same place. Filed Feb. 17, 1897. Serial No. 623,877. (No specimens.) Patented in Germany Mar. 22, 1894, No. 80,116, and in England Dec. 24, 1895, No. 24,708.



Claim.—1. The method of freeing the condensation-water of steam-engines from the lubricating-oil by filtration which consists in preparing a mixture of water and flaky mineral particles, separating the latter from the former by collecting them in the form of a thin layer on a permeable bed, and causing the condensation-water to filter through such mineral layer.

2. A filter for freeing condensation-water of steam-engines from lubricating-oil composed of a permeable bed and a thin mineral layer composed of calcareous mud which forms a layer of a flaky nature, substantially as described.

602,099. DISPLAY-FRAME. Joseph C. Palmer, Norwich, Conn. Filed Aug. 12, 1897. Serial No. 648,077. (No model.)



Claim.—1. The herein-described display-frame, embodying overhead ways, telescopic rods extending from one way to another and having swiveled connections therewith, and floating article-supporting rods slidably mounted on said telescopic rods, whereby said article-supporting rods have a universality of adjustment in horizontal planes, substantially as described.

2. The herein-described display-frame, consisting of the supporting-ways, collars slidably mounted thereon, the telescopic rods extending from way to way and swiveled at their ends upon said collars, the article-supporting rods extending at an angle with said telescopic rods and slidably mounted thereon at one end, and the bar connecting the other ends of said article-supporting rods together.

3. In a display-frame, the combination with the supporting-ways, and the collars loosely mounted thereon, of the plugs swiveled upon said collars, the telescopic tubes attached to said plugs, a perforated plug within one end of the smaller of said tubes, and a wire or rod in said smaller tube, said wire or rod extending through said perforated plug and having an enlarged free end designed to engage the same when the tubes are extended to their full limit, substantially as described.

4. In a display-frame, the combination with the supporting-ways, means between the ends thereof for supporting the same, and the collars slidably supported by said ways, said parts being relatively constructed to permit said collars to slide beyond said way-supports, of the telescopic rods having a swiveled connection with said collars, and the article-supporting rods carried by said telescopic rods, substantially as shown and described.

602,100. AXLE-BEARING FOR VEHICLE-WHEELS. Reuben C. Patterson, Summit, Ga. Filed Oct. 8, 1897. Serial No. 654,544. (No model.)



Claim.—1. In a device of the class described, the combination of an axle, conical bearing-sleeves mounted on the axle, a hub having an axle-box fitting the bearing-sleeves, said hub being provided at its ends with annular recesses, the inner and outer dust-caps mounted on the axle, extending over the ends of the bearing-sleeves and the axle-box and provided with annular flanges extending into the annular recesses of the hub, and an axle-nut, substantially as described.

2. In a device of the class described, the combination of an axle, a hub provided with an axle-box and having a central oil-supply passage, and conical bearing-sleeves mounted on the axle and provided at their upper faces with longitudinal grooves or gutters terminating short of the outer ends of the sleeves to close their outer terminals and adapted to return oil to the center of the bearing, substantially as described.

3. In a device of the class described, the combination of an axle, conical bearing-sleeves, a hub having an axle-box, dust-caps arranged at the ends of the axle-box and mounted on the axle, an axle-nut, and a central series of washers interposed between the adjacent ends of the bearing-sleeves and adapted to be removed to permit the bearing-sleeves to be advanced for taking up the wear, the washers removed from the central series being designed to be arranged on the axle between the outer dust-cap and the outer bearing-sleeve, substantially as described.

4. In a device of the class described, the combination of an axle, conical bearing-sleeves mounted on the axle and provided at their upper faces with longitudinal grooves or gutters terminating short of the outer ends of the sleeves and adapted to convey oil from the ends of the bearing to the center thereof, a hub having an oil-hole, and an axle-box provided at its outer face with a recess communicating with the oil-hole of the hub, said axle box being provided with an oil-passage extending from the recess to the bearing, substantially as described.

5. In a device of the class described, the combination of an axle, conical bearing-sleeves provided at their upper faces with longitudinal grooves or gutters terminating short of the outer ends of the sleeves, a hub having an oil-hole and provided at its ends with annular recesses, an axle-box provided with a central recess communicating with the oil-hole of the hub and with the center of the bearing, and dust-caps covering the ends of the axle-box and the sleeves and provided with annular flanges extending into the annular recesses of the hub, substantially as described.

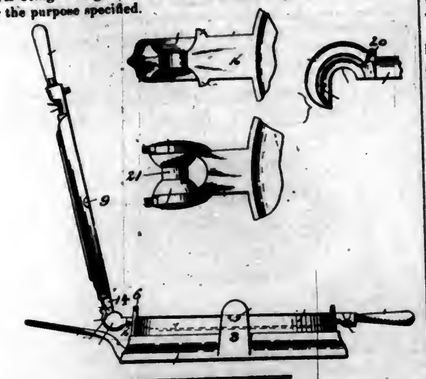
6. In a device of the class described, the combination of a hub having an oil-hole, a plug fitting therein and provided at its outer end or head with a recess, and a spring mounted on the hub and engaging the recess of the plug, substantially as described.

602,101. WAFFLE-IRON. Earle C. Perry, Jeffersonville, Ind., assignor to the Indiana Manufacturing Company, same place. Filed Dec. 13, 1897. Serial No. 661,643. (No model.)

Claim.—1. In a waffle iron, the combination with the sections 7 and 8, of a hinge connection therefor comprising lugs carried by said sections, one of said lugs having a hook portion 17 with a curved bearing-face on its inner side and lateral shoulders 23, and the other section having a rounded portion and shoulders 20, and the said hook portion being adapted to loosely fit and have a turning movement upon the said rounded portion, and the sections being adapted to be separated at any point in the turning movement by lifting the section 8 and its lug rectilineally off or away from section 7 and its lug, all being arranged for coöperation as and for the purposes specified.

2. In a waffle-iron, the combination with the sections 7 and 8, of a hinge connection therefor comprising lugs carried by said sections adapted to engage and have a turning or pivotal movement one upon

the other, one of said lugs having a hook portion with inclined or beveled sides, and the other lug having a spool-shaped portion, said parts being arranged and adapted to cooperate in the manner and for the purpose specified.



602,102. RAIL-JOINT. THEODORE F. PHILIPPI, St. Louis, Mo. Filed Aug. 18, 1897. Serial No. 648,437. (No model.)



Claim.—1. A rail-joint comprising a casing adapted to embrace the flanges and webs of two contiguous rails, and conforming in cross-section to that of the parts embraced, and means for simultaneously drawing the contiguous ends of the rails toward one another and also forcing said rails firmly against the bottom of the casing, substantially as set forth.

2. A rail-joint comprising a casing adapted to embrace the flanges and webs of two contiguous rails, and conforming in cross-section to that of the parts embraced, means for securing the vertical walls of the casing to the webs of the rails, and means for simultaneously drawing the contiguous ends of the rails toward one another and also forcing said rails firmly against the bottom of the casing, substantially as set forth.

3. A rail-joint comprising a casing adapted to embrace the lower flanges and webs of the adjacent ends of two rails, the web of each rail having suitable openings formed therein, and the vertical walls of the casing also having suitable openings adapted to normally but eccentrically aline with the openings of the webs, the said openings intersecting along the ends of a chord inclined toward the free end of the rail thus leaving sections of the metal of the web exposed along a diagonal line tending toward the center of the length of the casing, a key adapted to be forced through each of the alining openings whereby in the driving of the key the rails are forced toward each other and at the same time firmly against the bottom of the casing, the key having an opening at one of its ends, and a pin adapted to be passed through said opening whereby the vertical walls of the casing are drawn firmly against the webs, substantially as set forth.

602,103. CABINET. JOHN W. PLACE, New York, N. Y. Filed Feb. 20, 1897. Serial No. 624,367. (No model.)

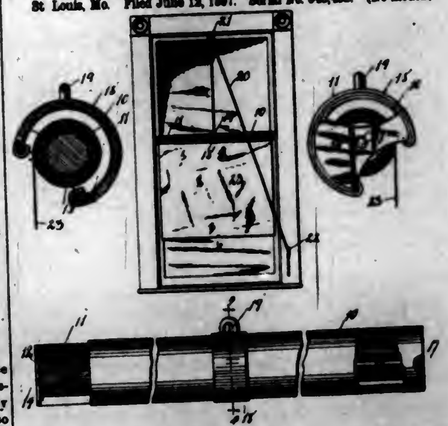


Claim.—1. In a cabinet, the combination with a revolubie base having on its upper side compartments and an outer circular wall, of a top F containing a sector-shaped opening and provided with top ledges f^2, f^3, and an independently-movable cover below the top F, such cover serving as a depressed rest, substantially as specified.

2. In a cabinet, the combination with a revoluble base having on its upper side compartments inclosed laterally by an outer circular wall, of a top F containing a sector-shaped opening and provided with top ledges f^2, f^3, and a well H, located in the top coincident with its vertical axis and that of the base, substantially as specified.

3. In a cabinet, the combination with a revoluble base having on its upper side a series of compartments and another circular wall, of a top F containing a sector-shaped opening and a central tubular bearing for both base and top, adapted for a bracket-arm pintle, and for permitting said base and top to revolve independently, substantially as specified.

602,104. ADJUSTABLE SHADE-SUPPORT. JOHN H. REINHARD, St. Louis, Mo. Filed June 12, 1897. Serial No. 640,452. (No model.)

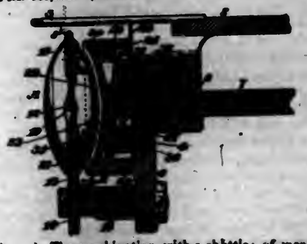


Claim.—1. A curtain-support comprising a member 10 arched and having its opening in the bottom thereof, a member 11 arched and telescoping within the member 10, inturned flanges or hooks on the margins 10 engaging the margins of the members 11 and retaining the same in sliding engagement, cross-bars 12, 13, on the members 10, 11, which cross-bars are apertured to receive the pivots of a curtain-roller, a strap 18 slidingly mounted on the member 10, an eye 19 on said strap, a cord 20 secured at one end to the eye 19, a pulley 21 suitably supported and receiving the bight of the cord 20 and a stud to which the free end of the cord 20 is attached removably and replaceably.

2. An adjustable shade-support comprising arched metallic sections overlapping and telescoping upon each other, roller-supports integrally formed on extreme opposite ends of said sections and a hanger-strap adjustably mounted on the outer section approximately midway of the extreme opposite ends of the sections, in combination with a cord fixed at one end to the hanger-strap and means for supporting said cord.

3. In a device of the class described an arched metallic section, a cross-bar at one end of said section, an arched metallic section inclosing and telescoping upon the first said section, a cross-bar in the opposite end of the latter section, a strap movably mounted on the said section and an eye on said strap as set forth.

602,105. ACTUATING MECHANISM FOR SEWING-MACHINE LOOPERS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Jan. 14, 1897. Serial No. 619,200. (No model.)



Claim.—1. The combination, with a shuttle: of means for operating said shuttle, consisting of a driving-shaft; a case having a series of equidistantly-disposed chambers located near the periphery thereof and also having a convex portion; a series of grooved driving-pins mounted in said chambers; a plate provided with a concavo-convex hub and with a series of peripheral projections engaging the walls of the chambers and adapted to engage the driving-pins; and an inclined plate fixedly secured to the framing and provided with a concave seat to receive the hub of said disk.

2. The combination, with a rotary shuttle having driving-sockets, of a rotary support having its axis of rotation coincident with that of the shuttle; means for rotating said support; a circuit of shuttle-driving pins carried by, and disposed transversely to the plane of rotation of, the support, and having on their inner sides transverse recesses facing toward the axis of rotation of such support; a pin-reciprocating actuator in engagement with the walls of said recesses in the driving pins and disposed in a plane at an inclination to the axis of rotation of the rotary support; and means for maintaining said actuator in said plane.

3. The combination, with a rotary shuttle having driving-sockets, of a rotary support having its axis of rotation coincident with that of the shuttle; means for rotating said support; a circuit of shuttle-driving pins carried by, and disposed transversely to the plane of rotation of, the support, and having on their inner sides transverse recesses facing toward the axis of rotation of such support; a rotary pin-reciprocating actuator in engagement with the walls of said recesses in the driving-pins, and rotatable in unison with, and in a plane at an inclination to the axis of rotation of, the rotary support; and means for maintaining said actuator in said plane.

4. The combination, with a rotary shuttle having driving-sockets, of a rotary support having its axis of rotation coincident with that of the shuttle and having a series of chambers transverse to its plane of rotation; means for rotating said support; shuttle-driving pins carried in said chambers and disposed in a circuit, and having on their inner sides transverse recesses facing toward the axis of rotation of said support; a pin-reciprocating actuator disposed in a plane at an inclination to the axis of rotation of the rotary support, and having radial projections in engagement with the end walls of the recesses in the driving-pins and with the side walls of the chambers in the support, to thereby rotate in unison with said support; and means for maintaining said actuator in said plane.

5. The combination, with a rotary shuttle having driving-sockets, of a rotary casing having its axis of rotation coincident with that of the shuttle and having a series of chambers transverse to its plane of rotation; means for rotating said casing; shuttle-driving pins carried in said chambers and disposed in a circuit, and having on their inner sides transverse recesses facing toward the axis of rotation of such casing; a fixed member having a supporting-face inclined to the axis of rotation of the casing; and a pin-reciprocating actuator disposed in a plane at an inclination to such axis, and in engagement with the end walls of the recesses in the driving-pins, and between, and forming a universal joint with, the rotary casing and said fixed member.

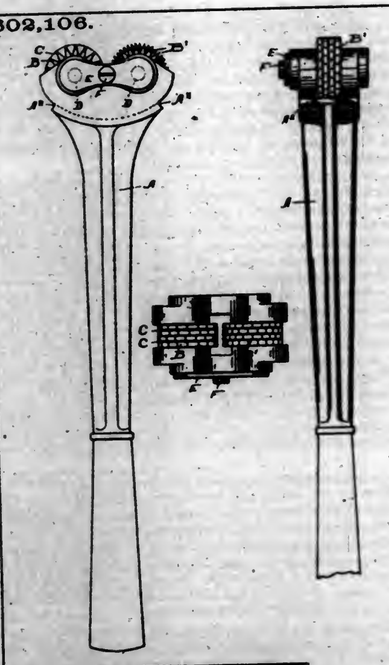
6. In a sewing-machine, the combination, with framework, of a looper peripherally supported for rotation and having a series of driving-sockets, and driving mechanism comprising a driving-shaft journaled in said framework for rotation; a casing having an exteriorly-curved or convex hub and mounted on said shaft for rotation therewith and also having a series of transversely-extending chambers; a driver-pin mounted in each of said chambers for sliding movement, each of said pins having a transverse slot communicating with a slot in the inner wall of its respective chamber; a member fixedly secured to said framework and having an inclined face and having a centrally-disposed bore or opening provided with a curved or concaved wall; an actuator provided with a series of projections extending through the slots of the chamber-walls and engaging in the slots of the driver-pins, said actuator also having a concavo-convex hub fitting intermediate the hub of the casing and the concaved wall of the inclined faced member, for rotation with said casing, to thereby actuate said drivers laterally or transversely of said casing toward and from the looper, to engage and disengage in the sockets thereof.

602,106. TOOL FOR DRESSING EMERY-WHEELS. CHARLES E. ROGERS, Oak Park, Ill. Filed Aug. 12, 1897. Serial No. 647,909. (No model.)

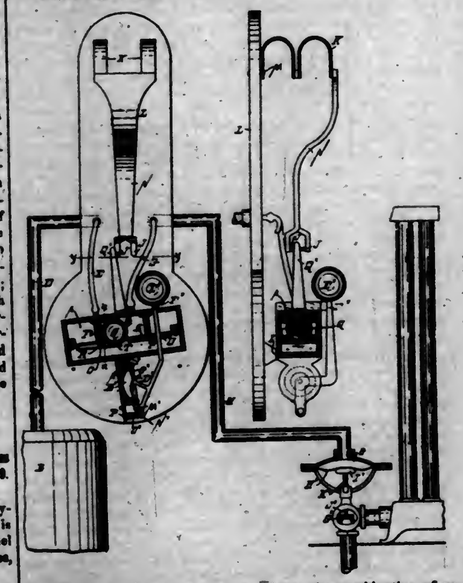
Claim.—1. As a new article of manufacture, a Huntington emery-dresser, the handle of which is both bifurcated and widened, and is provided with two sets of dressing devices supported upon parallel pivots, and with a shoulder A^2 under each set of the dressing devices, substantially as set forth.

2. As a new article of manufacture, a Huntington emery-dresser, the handle of which is both bifurcated and widened, and is provided with two sets of dressing devices supported upon parallel removable pivots, and with a pivot-keeper E acting upon both pivots, substantially as specified.

602,106.



602,107. TEMPERATURE-REGULATOR. ALFRED ROESCH, Bridgeport, Conn., assignor to the Davis & Roesch Temperature Controlling Company, of New Jersey. Filed July 24, 1897. Serial No. 645,844. (No model.)



Claim.—1. In a temperature-regulator, the combination of an oscillating valve-chamber; an inlet air-duct communicating between said valve-chamber and an air reservoir; an outlet air-duct communicating from said valve-chamber with the diaphragm-chamber of a steam-controlling valve; inlet and outlet air-controlling valves, both

located within said valve-chamber and provided with supporting-bearings, by which said valves are automatically thrown in contact with their respective seats; a rolling weight or ball located in said valve-chamber and adapted as said chamber is oscillated toward the right and left, to roll of its own gravity from one side of said valve-supporting bearings to the other, whereby said valves are alternately opened and closed by the gravity of said weight; and means under control of a thermostat for actuating said oscillating valve-chamber, substantially as and for the purpose specified.

2. In a temperature-regulator, the combination of an oscillating valve-chamber; an inlet air-duct communicating between said valve-chamber and an air-reservoir; an outlet air-duct communicating from said valve-chamber with the diaphragm-chamber of a steam-controlling valve; inlet and outlet air-controlling valves both located within said valve-chamber and provided with supporting-bearings by which said valves are automatically thrown in contact with their respective seats; a weight or ball located in said valve-chamber and adapted, as said chamber is oscillated toward the right and left, to roll of its own gravity from one side of said valve-supporting bearings, to the other, whereby said valves are alternately opened and closed by the gravity of said weight; means for actuating said oscillating valve-chamber; retaining-catches adapted to automatically engage the bearings of said valve-chamber at each end of its oscillatory movement and a thermostat, adapted as it is moved by the changes of temperature, to release said oscillating chamber from engagement with said retaining-catches, substantially as and for the purpose specified.

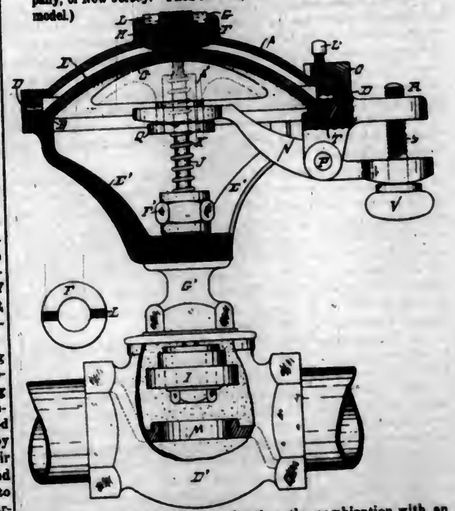
3. In a temperature-regulator, the combination of an oscillating valve-chamber; an inlet air-duct communicating between said valve-chamber and an air-reservoir; an outlet air-duct communicating from said valve-chamber with the diaphragm-chamber of a steam-controlling valve; inlet and outlet air-controlling valves both located within said valve-chamber and provided with supporting-bearings by which said valves are automatically thrown in contact with their respective seats; a weight or ball located in said valve-chamber and adapted, as said chamber is oscillated toward the right and left, to roll of its own gravity from one side of said valve-supporting bearings, to the other, whereby said valves are alternately opened and closed by the gravity of said weight; a diaphragm-chamber formed in connection with said oscillating valve-chamber; an air-duct communicating between said valve-chamber and said diaphragm-chamber; a weight-supporting arm pivotally connected with said valve-chamber; a diaphragm plate or bearing communicating between the diaphragm of said diaphragm-chamber and said weight-supporting arm and adapted to move said weight and arm in one direction, past the center of gravity, as said diaphragm is extended by the admission of compressed air; a counteracting spring communicating between the stationary bearing of said valve-chamber and said weight-supporting arm and adapted, when relieved from the action of the compressed air in said diaphragm-chamber, to throw said weight-supporting arm in the opposite direction; an oscillating extension-arm formed in connection with said valve-chamber and adapted, as said chamber is oscillated, to be brought in contact with retaining-catches; a thermostat rigidly affixed to one end of a supporting bed-plate; an arm affixed at one end to the free end of said thermostat; retaining-catches affixed to the free end of said arm; and an oscillating arm or bearing extending from said valve chamber and adapted to engage the catches supported from said thermostat, all substantially as and for the purpose specified.

4. An oscillating valve-chamber having inlet and outlet ports, an exhaust-port, valves controlling said inlet and exhaust ports and normally closing said ports, a rolling weight or ball controlling the movement of said valves and adapted to retain one or the other alternately in an open position as said valve-chamber is oscillated, substantially as described.

5. An oscillating valve-chamber having inlet and outlet ports, an exhaust-port, valves controlling said inlet and exhaust ports and normally closing said ports, a rolling weight or ball controlling the movement of said valves and adapted to retain one or the other alternately in an open position as said valve-chamber is oscillated, and a weighted arm pivoted to said valve-chamber and adapted to swing on said pivot to oscillate said valve-chamber, substantially as specified.

6. In a temperature-regulator the combination with an oscillating valve-chamber having inlet and outlet ports, an exhaust-port, valves controlling said inlet and exhaust ports and normally closing said ports, a rolling weight or ball controlling the movement of said valves and adapted to retain one or the other alternately in an open position as said valve-chamber is oscillated, and a weighted arm pivoted to said valve-chamber and adapted to swing on said pivot to oscillate said valve-chamber, and a thermostat governing said oscillating movement of said valve-chamber, of connections between said inlet-port and a fluid-reservoir, connections between said outlet-port and fluid-actuated mechanism and means whereby said weighted arm is swung in one direction by the fluid admitted to said valve-chamber from said reservoir and is permitted to swing in another direction when said fluid is exhausted therefrom, substantially as specified

602,108. DIAPHRAGM-CHAMBER. ALFRED ROESCH, Bridgeport, Conn., assignor to the Davis & Roesch Temperature Controlling Company, of New Jersey. Filed Nov. 23, 1897. Serial No. 659,568. (No model.)



Claim.—1. In a diaphragm-chamber, the combination with an annular diaphragm-seat and diaphragm; of an interior wall or disk adapted to impinge upon the periphery of said diaphragm, above its seat; an exterior inclosing wall located above said disk, secured at intervals to said annular seat; and a central binding-screw having screw-threaded bearings in said exterior wall and adapted, as it is turned downward, to bear against said interior wall or disk, whereby the latter is retained in close contact with said diaphragm, substantially as and for the purpose specified.

2. In a diaphragm-chamber, the combination with an annular diaphragm-seat B and diaphragm C; of an interior wall or disk E, adapted to impinge upon the periphery of said diaphragm above its seat; an exterior inclosing wall A located above said disk E; two or more fastening-pins D located at intervals in the contiguous bearings of said exterior wall A and said diaphragm-seat B, by which said parts are secured together; and a central bearing-screw F having screw-threaded bearings G in said exterior wall, and adapted, as it is turned downward, to bear against said interior wall or disk E, whereby the latter is retained in close contact with said diaphragm, said diaphragm is forced firmly to its seat, and an air-tight chamber is formed between said diaphragm and said inclosing disk E, substantially as and for the purpose specified.

3. In that class of diaphragm chambers in which the diaphragms are actuated by compressed air for operating fluid-controlling valves, the device herein described for actuating the fluid-controlling valve independently of the action of said diaphragm, when the same is relieved from pressure, consisting in the combination with a diaphragm-chamber and the stem of a fluid-controlling valve of an actuating-lever centrally pivoted to a supporting-bracket and connected at one end with the valve-stem of said fluid-controlling valve, and at its opposite end, by an adjusting screw, with the screw-threaded bearings of a stationary supporting-arm, whereby, as said screw is turned forward in its bearings, said lever is swung upon its pivotal support, and said fluid-controlling valve is forced to its seat, substantially as and for the purpose specified.

4. In that class of diaphragm-chambers in which the diaphragms are actuated by compressed air for operating fluid-controlling valves, the device herein described for actuating the fluid-controlling valve independently of the action of said diaphragm, when the same is relieved from pressure, consisting in the combination with a diaphragm-chamber and the stem of a fluid-controlling valve of an actuating-lever; a lever-supporting bracket adjustably attached to said diaphragm-chamber; and an adjusting-screw having screw-threaded bearings in a projecting arm of said bracket, said lever being centrally pivoted to said supporting-bracket and connected at one end with the valve-stem of said fluid-controlling valve, and at its opposite end by said adjusting-screw, with the screw-threaded bearings of a projecting arm from said bracket, whereby, as said screw is turned forward in its bearings, said lever is swung upon its pivotal support, and said fluid-controlling valve is forced to its seat, substantially as and for the purpose specified.

602,109. PROCESS OF MAKING SALTS OF PARAMIDOPHENOL. ISRAEL ROSS, Frankfort-on-the-Main, Germany. Filed June 19, 1895. Serial No. 553,297. (Specimens.) Patented in England June 6, 1895, No. 11,288; in Belgium June 10, 1895, No. 116,014; in Austria June 10, 1895, No. 45/3,966; in France June 11, 1895, No. 248,069, and in Hungary June 14, 1895, No. 4,805.

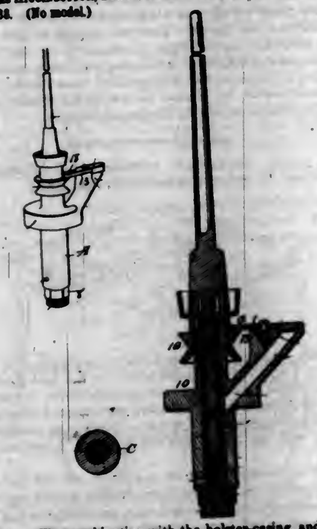
Claim.—1. Process for the manufacture of primary citrates of alkyl ethers of paramidophenols, which consists in dissolving molecular quantities of citric acid and amidophenol alkyl ether in a suitable solvent, such as alcohol and crystallizing out the salt thus obtained, substantially as described.

2. As new products of manufacture, the primary salts of citric acid with alkyl ethers of paramidophenol composed according to the formula

$$C_6H_8O_7.NH_2C_6H_4O\ alkyl,$$

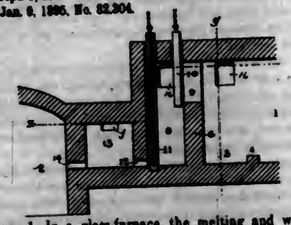
being white crystallizing compounds, melting at 186° to 187° centigrade, easily soluble in water, less soluble in alcohol and almost insoluble in petroleum ether and benzene.

602,110. SPINDLE-BEARING. WILLIAM M. ROSEWORTH and THOMAS HIGGINBOTTOM, Lowell, Mass. Filed Sept. 25, 1897. Serial No. 653,068. (No model.)



Claim.—The combination with the bolster-casing, and a bolster therein, of a screw adapted to turn in the lower end of the casing, a step, a pin in the inner end of the screw for securing the step pivotally therein, the screw entering and concealed by the casing when the step is in position.

602,111. MEANS FOR KEEPING GLASS CLEAR IN REGENERATIVE GLASS-FURNACES. GUSTAV SCHLUDER, Deuben, Germany. Filed Sept. 3, 1895. Serial No. 561,346. (No model.) Patented in Germany Jan. 9, 1895, No. 82,304.



Claim.—1. In a glass-furnace, the melting and working compartments placed at opposite ends of the furnace, combined with the compartments 3 extending from the melting-compartment, the compartment 8 connected with the compartment 3 by the passage 5, and the opening 9 through the dividing-wall, the compartment 13 connected by suitable passages with the working-compartment, the compartment 13 being connected to the compartment 8 by means of the passage 12, and with the working-compartment by the passages 14 and 15, the valve 10 for controlling the passage or opening 9, and the valves 7 and 11 for controlling the passages 5 and 12, the parts being arranged to operate substantially as shown.

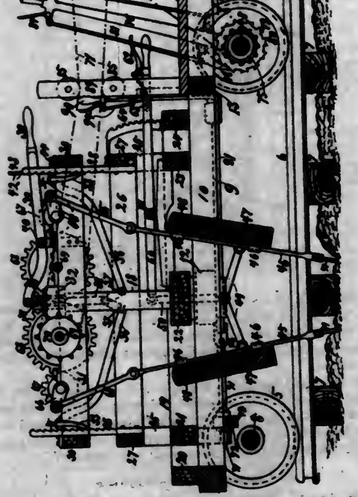
2. A glass-furnace comprising a glass-melting compartment for melting the batch, having a curb extending across the floor of the same, dividing the melting-compartment into two parts, an outlet-channel a little lower than the said curb, a working-compartment and an intermediate compartment between said outlet-channels and working-compartment and suitable connecting-channels extending from one compartment to the other, substantially as described.

3. A plate-glass-melting furnace comprising a melting-compartment and working-compartment, an intermediate compartment, and a discharge-compartment between the said intermediate and working compartments, and valves controlling respectively an adit-channel at one end of the intermediate compartment and a discharge-channel at the other end thereof, substantially as described.

4. A plate-glass-melting furnace comprising a melting-compartment and working-compartment, an intermediate settling-compartment, valve-controlled channels at the bottom and at opposite ends thereof, and a gas or head window having a door or damper to cover the same at the upper part of the dividing-wall between said compartments, substantially as described.

5. A plate-glass-melting furnace comprising a melting-compartment, a working-compartment, an intermediate compartment, valve-controlled channels at opposite ends thereof, a discharge-compartment between the intermediate and working compartments, and plate closed and controlled windows for observation and for working the glass in the said melting intermediate and discharge chambers, substantially as described.

602,112. TAMPING-MACHINE. GUSTAF SHEDEMAN, Washburn, Wis., assignor of one-half to Jacob Anderson, Racine, Wis. Filed Feb. 6, 1897. Serial No. 622,371. (No model.)

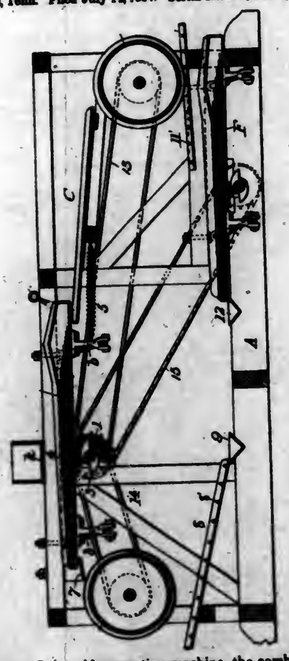


Claim.—1. A tamping-machine having an elongated main frame supported on axles and wheels, fitting the railroad-track, a platform secured upon one end of the frame and carrying an engine; a tamper-frame mounted upon the other end of the main frame, said tamper-frame being capable of swinging on its center in the horizontal plane; a tamping mechanism mounted in the tamper-frame and operatively connected with the engine, substantially as and for the purpose set forth.

2. A tamping machine having a main frame moving on wheels on the railway-track; a tamping-frame mounted on the main frame and swinging on its center in the horizontal plane, said tamper-frame having an upper section which is capable of being raised or lowered; a tamping mechanism mounted thereon and operatively connected with an engine mounted on a platform on the main frame, and means for spreading the tamping-bars and swinging the tamper-frame, and for supporting its upper section, substantially as and for the purpose set forth.

3. A tamping-machine having a main frame moving on wheels, a horizontally-swinging tamping-frame mounted thereon and consisting of a lower and an upper section; the lower section having pivotally-secured swinging planks as 47, with a series of tamping-bars sliding in guides secured on said planks, and the upper frame-section having journaled on it multiple crank-shafts operatively connected with the tamping-bars and having gears by which they receive power from an engine, also mounted on the main frame, said upper frame-section being self-adjustable up and down according to the height of the ground under the tamping-bars, and means for supporting the upper frame-section at various elevations and means for spreading the swinging planks or bars 47, substantially as and for the purpose specified.

602,118. GOLD-SEPARATING MACHINE. BENJAMIN W. SWEET, Knoxville, Tenn. Filed July 14, 1897. Serial No. 644,541. (No model.)



Claim.—1. In a gold-separating machine, the combination with a feed-trough, an inclined concentrating-table, and means for operating the same, of amalgamating-surfaces at each end of said table for receiving the heavier and lighter grades respectively, substantially as described.

2. In a gold-separating machine, the combination with a feed-trough, a concentrating-table, and means for operating the same, of an amalgamating-plate and an amalgamating-roll stationed in series at the head end of said table, and an amalgamating-roll stationed at the tail end of said table, substantially as described.

602,114. COMBINATION-LOCK. LEWIS C. THOMPSON, Indianapolis, Ind. Filed June 21, 1897. Serial No. 641,536. (No model.)



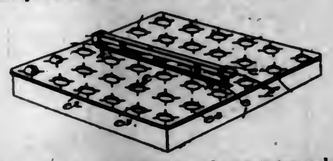
Claim.—1. In a permutation-lock, a bolt actuated by a stud-pin, a stud-pin accessible from the outside of the lock and arrested in its movement by tumblers, a pair of movable tumbler-plates having slots which register with each other at certain positions of the plates to allow the stud-pin to pass into them, thereby permitting the maximum stroke of the stud-pin, a pair of knobs on the outside of the case mounted on separate spindles, said knobs having index-rings and means consisting of cranks or cams on the inner ends of their spindles for independently moving the tumbler-plates, as and for the purposes specified.

2. A bolt actuated by a stud-pin, a stud-pin accessible from the outside of the lock and checked in its movement by tumblers, a pair of tumbler-plates moving about a common center and having slots which register with each other at certain positions of the plates to allow the stud-pin to pass into them thereby permitting the maximum movement of the said pin and means for moving the tumbler-plates from the outside of the lock-case, into an ascertained position consisting of a pair of spindles, one for each tumbler-plate, having outside knobs and crank or cam connections between the inner end of each spindle and its respective plate, all substantially as described.

3. In a permutation-lock, a pair of tumbler-plates moving about a common pivotal point and having a series of notches in the periphery of the plates, spindles having knobs on the outside of the case, said spindles being connected with the tumbler-plates by means substantially as described whereby rotary movement of the knobs will impart reciprocating movement to the plates.

4. A bolt actuated by a stud-pin, a stud-pin accessible from the outside of the lock and checked in its movement by tumblers, a pair of tumbler-plates having slots which register with each other at certain positions of the plates to allow the stud-pin to pass into them thereby permitting the maximum movement of the said pin, a pair of knobs on the outside of the case having index-rings said knobs and rings being mounted on revoluble spindles, cams adjustably secured to the inner ends of the spindles for moving the tumbler-plates substantially as described and for the purposes specified.

602,115. EGG-TESTER. IRVING S. VERMES, Schenectady, N. Y. Filed Sept. 10, 1897. Serial No. 651,203. (No model.)



Claim.—1. An egg-carrying frame for egg-testers and the like, comprising a rigid rim of a depth somewhat less than the length of an egg, a double thickness of cloth stretched over the top of said rim, said thicknesses having registering apertures and non-registering slits radiating therefrom, and movable egg-supports attached to the bottom of said rim in line with said apertures, substantially as described.

2. An egg-carrying frame for egg-testers and the like comprising a body portion, rods pivoted upon said body portion, egg-supporters upon said rods, loops upon said rods, and a plate having reciprocation secured to said loops; substantially as described.

3. An egg-carrying frame for egg-testers and the like comprising a body portion, rods pivoted upon said body portion, egg-supporters upon said rods, loops upon said rods, and a plate having reciprocation, said plate being provided with slots in which the loops rest; substantially as described.

4. An egg-carrying frame for egg-testers and the like, comprising a body portion, egg-supporting members upon said body portion, said members being movable into and out of supporting position, members provided with eyes upon said body portion, a handle-bar slidable in said eyes, and connections between the handle-bar and the supporting members for operating the latter from the former; substantially as described.

5. An egg-carrying frame for egg-testers and the like, comprising a rim, a pair of cross-strips secured to said rim, said cross-strips being spaced apart, egg supporters upon the body portion of the frame, strips having their upper portions formed into eyes and their lower portions secured between the cross-strips, and a handle-bar in said eyes; substantially as described.

6. An egg-carrying frame for egg-testers and the like, comprising a rim, a pair of cross-strips secured to and within said rim; said said cross-strips being spaced apart, egg-supporters upon the body portion of the frame, said supporters being movable into and out of supporting position, a plate slidable lengthwise between said cross-strips, said plate being in connection with the egg-supporters whereby its movement serves to carry said supporters into and out of supporting position, arms secured to said plate, and a longitudinally-slidable handle-bar connected to said arms; substantially as described.

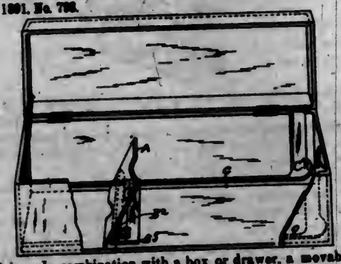
7. An egg-carrying frame for egg-testers and the like, comprising a rim, a pair of cross-strips secured upon and within said rim, said strips being spaced apart, egg-supporters upon the body portion of the frame, said supporters having movement into and out of supporting position, strips having their upper ends formed into eyes while their lower ends are secured between the cross-strips, a handle-bar longitudinally slidable in said eyes, arms depending from said handle-bar and entering between the cross-strips, a plate slidable lengthwise between said cross-strips secured to the arms, and connections between the plate and the egg-supporters whereby in the movement of the handle-bar the egg-supporters are carried into or out of supporting position; substantially as described.

8. In an egg-carrying frame for egg-testers or the like, a rim, a plate having sliding movement within the walls of the rim, a rod pivoted upon a wall of the rim, egg-supporters upon said rod, a loop upon said rod, and a link having pivotal connection with the plate and the loop; substantially as described.

9. An egg-supporting frame for egg-testers and the like comprising a body portion, egg-supporters upon said body portion, said supporters being movable into and out of supporting position, a handle-bar, connections between the handle-bar and the egg-supporters, said handle-bar being movable to operate the egg-supporters as aforesaid, a shoulder upon said handle-bar, and a spring upon the body portion of the frame and resting against the shoulder whereby accidental movement of the egg-supporters is prevented; substantially as described.

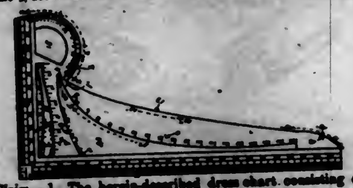
10. An egg-supporting frame for egg-testers and the like comprising a body portion, egg-supporters upon said body portion, said supporters being movable into and out of supporting position, a handle-bar, connections between the handle-bar and the egg-supporters, said handle-bar being movable to operate the egg-supporters as aforesaid, a shoulder upon said handle-bar, a spring upon the body portion of the frame and resting against the shoulder whereby accidental movement of the egg-supporters is prevented, and a push-pin through the handle-bar to release the spring from engagement with the shoulder; substantially as described.

602,116. APPARATUS FOR KEEPING LETTERS OR OTHER DOCUMENTS. THOMAS B. VERMOR, Wallington, England. Filed May 21, 1896. Serial No. 676,035. (No model.) Patented in England Jan. 15, 1891, No. 793.



Claim.—In combination with a box or drawer, a movable support, permanently inclined, guides therefor, and a hinged guiding-piece B^3 extending from the rear of the movable support, substantially as described.

602,117. DRESS-CHART. IDA WILLIAMS, Wichita, Kans. Filed June 1, 1897. Serial No. 639,042. (No model.)



Claim.—1. The herein-described dress chart, consisting of the combination of a square, a back and front neck curve, a back-neck scale, a front-neck scale the divisions being unequal in length on said neck-curve, a convex and concave brass leading from said neck-curve to the end of the long arm of said square, said convex curve having a back-curve scale, the inner end of the short arm of said square being convex forming the front-shoulder curve, and having a front-shoulder scale, a double concave arm connecting the neck-curve to the long arm of said square, the upper concave curve of said arm having a back-shoulder scale, and the lower concave curve for the back arm-scye.

2. The herein-described dress-chart, consisting of the combination of a square having arms of unequal length, the inner edge of the shorter of said arms being convex, and provided with a front-shoulder scale, a back and front neck curve, a back-neck scale, and a front-neck scale with the divisions unequal in length on said neck-curve, a concave and convex arm joining said neck-curve to the long arm of said square, said convex side having a back-curve scale, said concave side terminating at said neck-curve on an angle, a double concave arm nearly parallel to the short arm of said square, one of the concave curves having a back-shoulder scale.

602,118. STOVE. FRANK C. WILSON, Aurora, Ill. Filed Aug 24, 1896. Renewed Mar. 5, 1898. Serial No. 672,777. (No model.)



Claim.—1. The combination with a stove, of an air-feed flue tapering toward its inner end, such flue entering the stove above and terminating directly over the fire-pot, and having an annular discharge-aperture directed downwardly and outwardly.

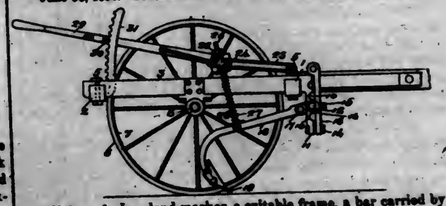
2. The combination in a stove, of an air-feed flue entering the stove above and terminating directly over the fire-pot, and having an annular discharge-aperture directed downwardly and outwardly.

3. The combination in a stove, of a fire-pot and an air-flue entering the combustion-chamber from above and terminating at the top of the fire-pot and upon the vertical axis thereof, with a conical deflector centrally entering the mouth of the flue but spaced apart from its walls to form an annular discharge-port.

4. The combination with a stove, of an air-feed flue tapering toward its inner end, such flue entering through the top of the stove and terminating approximately at the top of the fire-pot, a conical deflector having its apex located within the inner end of the flue, whereby a downwardly and outwardly directed annular discharge-aperture is formed.

5. The combination with a stove having a fire-pot, of an air-feed flue entering the combustion-chamber and having an annular discharge-aperture directed downwardly and outwardly from the center of the chamber and above the fire-pot.

602,119. LAND-MARKER. JOHN H. WINTER, Brooks, Ill. Filed June 30, 1897. Serial No. 642,965. (No model.)



Claim.—1. In a land-marker, a suitable frame, a bar carried by the frame at the forward end thereof, arms having pivotal ends connected to said bar, means for adjusting the bar in a vertical plane, shovels carried by the free ends of said arms and occupying a post-

tion substantially under the axle of the frame, and suitable springs for pressing the shovels against the ground, substantially as set forth.

2. In a land-marker, a suitable frame, a bar carried by the frame, arms having pivotal ends adapted to slide along said bar, means for adjusting said bar in a vertical plane, shovels carried by the free ends of said arms and occupying a position under the axle of the machine, and suitable springs for pressing the shovels against the ground, substantially as set forth.

3. In a land-marker, a suitable frame comprising front and rear members, side members adjustable along said front and rear members, a bar carried at the front end of the frame, rings slidingly mounted on said bar, arms pivoted to said rings, deflected arms having alining recesses or notches for receiving the opposite ends of the bar whereby the latter can be adjusted vertically, means for clamping said bar in position, levers pivoted along the front member, a bar carried by said levers, guide-rods extending from said last bar and connecting with the pivoted arms, springs encircling the guide-rods and interposed between the pivoted arms and the bar carried by the pivoted levers, shovels carried at the free ends of the pivoted arms, operating-levers for the shovel carrying bar, a spring-actuated pawl carried by each lever, and a rack-bar for the pawls, the parts operating substantially as and for the purpose set forth.

602,120. NUT-LOCK. ALBERT S. WRIGHT, Battle Creek, Mich. Filed July 14, 1897. Serial No. 644,543. (No model.)



Claim.—I. In a nut-lock, the nut provided on one side of its screw-threaded bore with a perforation angular in form at its inner end and round and screw-threaded at its outer end, in combination with a block or die roughened on its inner face and conformieg in shape in transverse section to the inner end of said perforation, and a screw adjustable in the outer screw-threaded end of said perforation, said screw being connected with the outer end of said block or die for moving it into and out of engagement with the bolt, substantially as described.

2. The combination with a nut provided with a perforation extending at right angles to its screw-threaded bore, said perforation being angular or polygonal in form at its inner end adjacent to said bore, and rounded or screw-threaded at its outer end, of a block or die movable in said angular end and held against rotation thereby, and having a threaded inner face for engaging the threads of the screw-bolt, and a screw coupled to said block or die and adjustable in the outer end of said perforation for moving said block into and out of engagement with the bolt, substantially as described.

3. The combination with a nut having a perforation extending laterally from its bore and screw-threaded at its outer end, of a set-screw engaging said perforation, and a non-rotatable block connected with the inner end of said screw and having a screw-threaded inner face, substantially as described.

602,121. STAPLING-MACHINE. FRANK S. BRADLEY, New Haven, Conn. Filed May 21, 1897. Serial No. 637,622. (No model.)

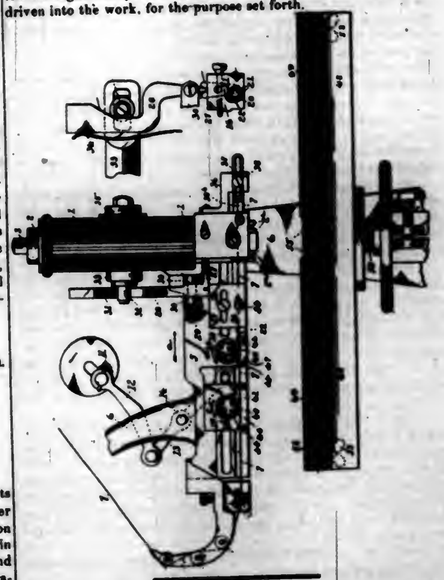
Claim.—1. In a staple-stitching machine, the combination with the stitching mechanism, of a separable work-supporting table comprising a base and a removable upper portion, said removable portion carrying the necessary clenchers and means whereby it is readily attached and detached from the lower portion or base, for the purpose set forth.

2. In a staple-stitching machine, a separable work-supporting table comprising a base having inclined sides and a flat top, a V shaped block carrying the necessary clenchers adapted to be removably attached to said base, for the purpose set forth.

3. In the wire feeding and controlling mechanism of a staple-stitching machine, the combination with a wire-supporting bed, of an eccentrically-supported disk, a tension-spring therefor, a serrated-faced ring operatively mounted thereon, said ring adapted to turn on its support and permit the wire to move freely in one direction and to firmly engage the wire to prevent its movement in the opposite direction, for the purpose set forth.

4. In a staple-stitching machine, the combination with the wire-feeding mechanism of a cutter-box adapted to have a longitudinal adjustment, a wire-guide mounted in said cutter-box, said guide having longitudinal grooves in its periphery for the wire and a shell to encircle such grooves, a cutter and means for operating said cutter, for severing the wire, substantially as set forth.

5. In a staple-stitching machine, the combination, with the wire-feeding and staple-forming mechanism, of a deflector having an inclined surface to engage that portion of the wire fed beyond the forming-bar, which portion forms one of the legs of the staple, and impart a forward set thereto so as to overcome its tendency to follow its angular-shaped end, produced by the cutting-off tool, when driven into the work, for the purpose set forth.



602,122. LANTERN-BRACKET. JOHN W. BRAGGER, Watertown, N. Y., assignor to the Hitchcock Lamp Company, same place. Filed Oct. 18, 1897. Serial No. 655,621. (No model.)



Claim.—1. In an attachment for a bicycle-lamp, the jaws, one of which is provided with notches in its free end, and a link which is applied to these notches, and adapted to freely turn upon them, the link being combined with means for clamping the jaws, substantially as set forth.

2. In a device for securing bicycle-lamps in position, the pivoted jaws recessed as shown, the link placed over the free ends thereof, the lugs on the inner longitudinal edges of the link, and the tightening-screw, as set forth.

3. The jaws, one of which is provided with notches in its edge, and the link having one of its ends curved, and provided with internal stops, the link being combined with means for clamping the jaws, substantially as shown.

602,123. RIM-JOINT FOR VEHICLE-WHEELS. FRANCIS I. BRANDON and AMOS ROOP, Hicksville, Ohio. Filed Feb. 12, 1897. Serial No. 623,155. (No model.)



Claim.—1. In a joint for wooden rims, a section having a pin and tenons at the sides of the said pin, and a matching section having a socket to receive and wholly inclose the pin, and formed with grooves at the sides of the socket to receive the aforesaid tenons, substantially as and for the purpose described

2. In a joint for wooden rims, a section having a central pin, and a series of segmental tenons concentric with the pin and tapering longitudinally throughout their length, the outer ends being the smaller, and a matching section having a central socket, and a series of segmental grooves concentric with the socket and of a corresponding taper to the tenons of the first-mentioned section so as to snugly receive them, substantially as set forth for the purpose described.

3. In a joint for wooden vehicle-rims, a section having a centrally-disposed pin and a series of tenons at the sides of and concentric with the pin and extending from the inner to the outer edges of the rim, and a matching section having a socket to receive and wholly inclose the pin, and having a series of grooves at the sides of and concentric with the socket and extending through the inner and the outer edges of the rim and snugly receiving the tenons of the first-mentioned section, substantially as specified.

602,124. BUTTER CAKE AND MEANS FOR MAKING SAME. FRANK BURGER and HENRY M. WILLIAMS, Fort Wayne, Ind.; said Burger assignor of one-half of his right to said Williams. Filed Aug. 17, 1897. Serial No. 648,596. (No specimens.)



Claim.—1. As a new article of manufacture, a butter cake consisting of a lump of butter having a recess at the top for the purpose of receiving ice and a central opening to permit the escape of the melted water.

2. As a new article of manufacture, a butter cake consisting of a lump of butter having a recess at the top for the purpose of receiving ice, a central opening to permit the escape of the melted water, and a corrugated bottom surface.

3. A mold comprising three parts hinged together at one side and having handles, the central portion provided with a central opening, the upper portion provided with a convex projection and pin, and the lower portion provided with a central opening to receive the pin, substantially as described.

4. A mold comprising three parts hinged together at one side and having handles, the central portion provided with a central opening, the upper portion provided with a convex projection and pin, and the lower portion provided with a central opening to receive the pin and projections E extending from the side above the central portion, substantially as described.

602,125. BATH-TUB SEAT. WILLIAM BURROWS, Brooklyn, N. Y. Filed Dec. 9, 1897. Serial No. 661,213. (No model.)

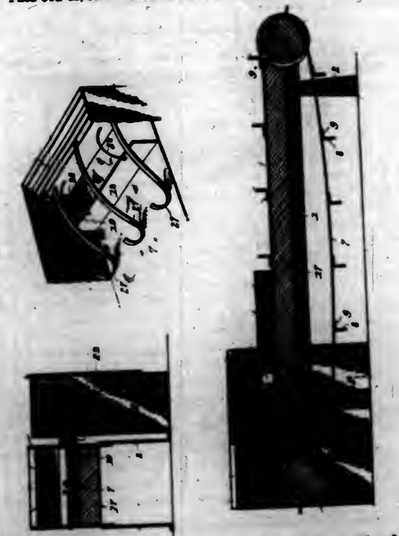


Claim.—1. In a seat for bath-tubs the combination of the seat proper, the same being lengthwise adjustable, and two or more hangers adapted to be suspended from the rim of the tub and provided with cross-pieces to which the said seat proper is detachably secured.

2. In a seat for bath-tubs the combination of the lengthwise-adjustable seat proper, and a plurality of hangers suspended from the rim of the tub, to which the said seat is detachably secured; said hangers being provided with cushions of elastic material at the points of contact with the tub.

3. In a seat for bath-tubs the combination of the seat proper composed of a solid piece of material and provided with laterally-adjustable rods bearing hooks on their outer ends, and a plurality of hangers suspended from the rim of the tub to which the said seat proper is attached by means of said hooks.

602,126. FLY-TRAP. TRAMMOND CLEMENT, Thibodeaux, La. Filed Oct. 12, 1897. Serial No. 654,957. (No model.)



Claim.—1. In a fly-trap, the combination of a supporting-frame, a casing provided with an extension having a transparent top wall, an endless carrier having one of its flights passing beneath the casing, said endless carrier being provided at intervals with flexible transverse strips, and a yieldingly-mounted brush or scraper arranged within the casing and adapted to remove flies from the carrier, substantially as and for the purpose described.

2. In a fly-trap, the combination of a casing having a transparent portion, an endless carrier having one of its flights passing beneath the transverse portion of the casing, said endless carrier being provided at intervals with flexible transverse strips, and a transverse roll loosely resting upon the upper face of the upper flight of the endless carrier to remove flies from the same, substantially as described.

3. In a fly-trap, the combination of a frame or support, an endless carrier mounted thereon, a superimposed casing arranged over a portion of the endless carrier, spring-arms mounted within the casing, and a brush or scraper-blade hinged to the spring arms and engaging the endless carrier, substantially as and for the purpose described.

4. In a fly-trap, the combination of a frame or support, an endless carrier, a casing located above the portion of the endless carrier, rolls located above and below the endless carrier and engaging the same, the upper roll being capable of a limited vertical movement, and a movable top or plate arranged within the casing and resting upon the upper roll, substantially as described.

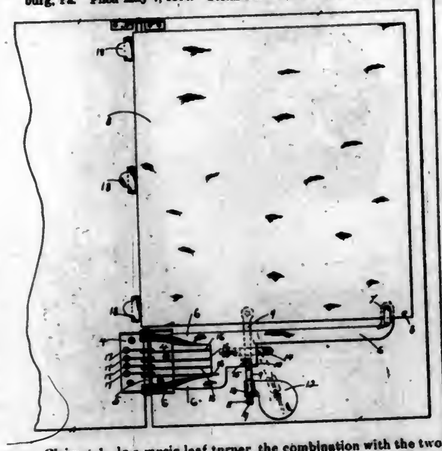
5. In a fly-trap, the combination of a frame or support, an endless carrier, a casing located over a portion of the endless carrier, rolls located above and below the endless carrier and arranged at the back of the casing, the upper roll being capable of a limited vertical movement, a movable top or plate arranged within the casing, supported at its front edge by the same and having its rear portion resting upon the upper roll, and spring-fingers extending upward from the rear portion of the top or plate and engaging the adjacent wall of the casing, substantially as described.

6. In a fly-trap, the combination of a frame or support, an endless carrier, a casing disposed over a portion of the same, upper and lower rolls engaging the endless carrier at the back of the casing, and curved springs mounted within the casing and engaging the endless carrier in advance of the rolls, substantially as described.

7. In a fly-trap, the combination of a casing, an endless carrier arranged beneath the same and provided with flexible transverse strips, upper and lower rolls engaging the carrier at the back of the casing, springs extending from the casing and engaging the carrier in advance of the rolls, and a yieldingly-mounted brush or scraper arranged within the casing, substantially as described.

8. In a fly-trap, the combination of an endless carrier, a casing disposed over a portion of the same, a cage communicating with the casing, upper and lower rolls engaging the endless carrier at the back of the casing, the upper roll being capable of a limited vertical movement, a top or plate loosely resting upon the upper roll and moving with the same, springs engaging the endless carrier in advance of the rolls, and a yieldingly-mounted scraper or brush arranged within the casing adjacent to the communication between the same and the cage, substantially as described.

602,127. SHEET-MUSIC TURNER. CHARLES A. CORP, Wilkinsburg, Pa. Filed May 7, 1897. Serial No. 635,490. (No model.)



Claim.—1. In a music-leaf turner, the combination with the two sections, the hinges at the upper and lower ends connecting them together, the arms pivoted on the pintle of said lower hinge, formed with a notch in the lower edge and provided with a clip at the outer end, and the springs for actuating said arms, of the spring-trigger pivoted to one of said sections, the hook intermediate the ends and the strap secured to said sections for limiting the movement of the trigger, substantially as described.

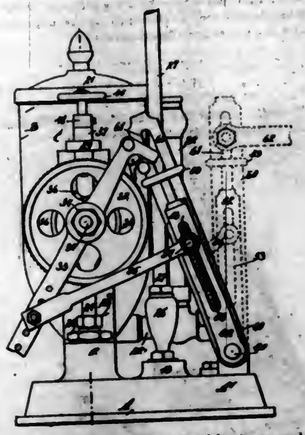
2. In a music-leaf turner, the combination with the two sections, the hinges at the upper and lower ends connecting them together, the series of arms pivoted to the pintle of the lower hinge, formed with a notch in the lower edge and provided with a clip at the outer end and the springs for actuating said arms, of the trigger pivoted to one of said sections, the hook intermediate its ends, the pin near the lower end, the finger-piece loosely mounted on said trigger, and having a slot or notch in one edge which engages with said pin and the strap for limiting the movement of the trigger, substantially as described.

602,128. AUTOMATIC LUBRICATOR. ALEXANDER A. DE WITT, New York, N. Y. Filed June 2, 1897. Serial No. 638,134. (No model.)

Claim.—1. A lubricator, comprising a pump, the rod whereof has two tappets or striking-points thereon, one of which is movable relative to the other, an actuating-cam revolving between the striking-points and a threaded rod mounted longitudinally upon the piston-rod and engaging the adjustable striking-point to move it.

2. In a lubricator, a pump the piston whereof consists of a rod, a ring-body and a neck, the body of the piston having a fixed lower striking-point, an upper striking-point, adjustable to and from the fixed striking-point, an adjusting-screw located in the neck and controlling the movement of the adjustable striking-point, a winged cam held to revolve in the ring-body and arranged for engagement with the two striking-points, and means for imparting rotary movement to the cam, as specified.

3. In a lubricator, the combination, with a pump and its piston, the piston consisting of a rod, a ring-body and a neck, the ring-body being provided with a fixed striking-point and a second striking-point adjustable to and from the fixed striking-point, and an adjusting-screw having a right and a left hand thread, one thread engaging with a corresponding thread in the neck of the piston and the other thread entering the adjustable striking-point, of a winged cam held to revolve in the ring-body of the piston, the cam being arranged for engagement with the two striking-points, an actuating device for the cam, a regulating device controlling the actuating mechanism, a motor, and means for operating the regulating device from said motor.



4. In a lubricator, the combination, with a pump and its piston, the piston comprising a rod, a ring-body and a neck, the body being provided with a fixed striking-point and an adjustable striking-point, and a winged cam held to revolve within the ring-body between the two striking-points, of a ratchet connected with said cam, an arm carrying a dog, arranged to move the said ratchet, a regulating-arm, an arm connecting with the ratchet-arm and adjustably connected with the regulating-arm, a shaft carrying the regulating-arm, and an operating-arm arranged for connection with a motor, attached to the said shaft, for the purpose specified.

5. In a lubricator, the combination, with a pump and its piston, the piston consisting of a rod, a ring-body and a neck, the ring-body being provided with a fixed striking-point and a movable striking-point, an adjusting-screw held to turn in the neck, having a right and left hand thread, one of the threaded surfaces engaging with the adjustable point, and a winged cam held to revolve between the striking-points of the piston, of a ratchet-wheel connected with the cam, an arm provided with a dog, engaging with the teeth of the ratchet-wheel connected with the cam, a shaft, a regulating-arm connected with the said shaft, and a connecting-rod adjustably attached to the arm carrying the dog and to the regulating-arm, an operating-arm connected with the said shaft, and means, substantially as described, for effecting an adjustable connection between the operating-arm and a motor, for the purpose set forth.

602,129. SEAL. THOMAS H. FREES, Cincinnati, Ohio, assignor of one-third to Richard H. Clawson, same place. Filed June 10, 1897. Serial No. 640,156. (No model.)

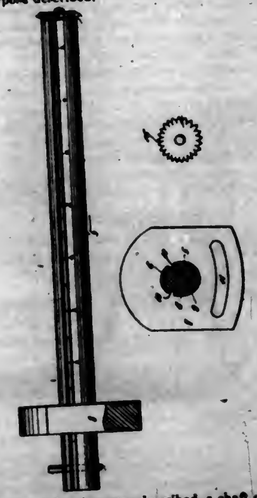


Claim.—The combination with a hasp and staple of the wire rod having a head at one end and formed with corrugations adjacent thereto and the lead disk through which said rod is passed and engaging with said corrugations and said rod passed through the staple and its end coiled around the rod near the disk, substantially as described.

602,130. CARPENTER'S TOOL. BERT FULLER, Sacramento, Cal. Filed Feb. 24, 1897. Serial No. 624,526. (No model.)

Claim.—1. In a rule, a shaft oval in form in cross-section and provided with grooves adjacent to one edge thereof, and with a scale in either of said grooves, substantially as and for the purpose described.

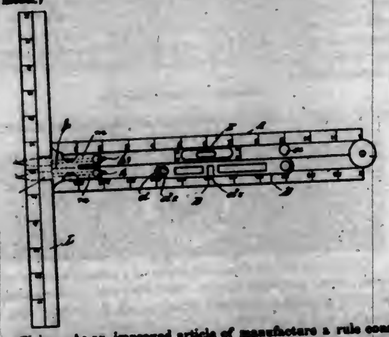
2. In a rule of the character described, a shaft oval in form in cross-section, and provided with grooves adjacent to one edge thereof and with a scale in either of said grooves, a sliding block mounted upon said shaft and provided with an opening which corresponds in shape with a cross-section of said shaft, segmental plates secured to said block and adapted to act as bearing-surfaces, substantially as and for the purpose described.



3. In a rule of the character described, a shaft oval in form in cross-section, and provided with grooves adjacent to one edge thereof and with a scale in either of said grooves, a sliding block mounted upon said shaft and provided with an opening which corresponds in shape with a cross-section of said shaft, segmental plates secured to said block and adapted to act as bearing-surfaces, and a tracing-wheel mounted centrally of one end of said rule, said wheel being divided on the perimeter thereof by lines which cross each other, and the sections between said lines being sharpened, substantially as and for the purpose described.

4. A combined ruler and scriber, comprising a shaft, oval in form in cross-section, and provided with two longitudinal grooves, and with a scale in either of said grooves, a beveled wheel having serrated edges mounted on one end of said shaft, a pin mounted adjacent to the opposite end, and a sliding block having a central opening corresponding in shape to a cross-section of said shaft, and also provided with tongues adapted to engage said grooves, substantially as and for the purpose described.

602,131. RULE AND MEASURING-STICK. ALBERT W. SOUTLOCK, Brooklyn, N. Y. Filed Feb. 26, 1896. Serial No. 581,114. (No model.)



Claim.—As an improved article of manufacture a rule consisting of two parts which are hinged together, one of said parts being provided with an arm which is pivotally connected therewith and which is provided at the free end thereof with a hook, said hook being adapted to engage with a pin or projection formed on the said other part when the said parts are at a predetermined angle, said arm being provided centrally with a notch or recess, and the said other part being provided with a leg or projection which is adapted to engage said recess when said parts are held at a second predetermined angle, one of said parts being provided with a spirit-level, and each of said parts being provided at the free end thereof with apertures, each of which is provided with a longitudinal slot, a set-screw mounted at the inner end of each, steel points mounted in said apertures, and a pencil-holder provided with a pencil mounted on one of said points, said pencil-holder consisting of a tube adapted to engage one of said points and a supplemental tube secured thereto and adapted to hold a pencil, a T-square attachment mounted transversely of the outer end of said rule, the same being provided with a side wing having openings at the outer end thereof and said set-screws being adapted to engage said openings and also said points, substantially as and for the purpose described.

602,182. ARMOR FOR PNEUMATIC TIRES. ROBERT C. HANSELL, San Antonio, Tex. Filed Aug. 13, 1897. Serial No. 648,129. (No model.)



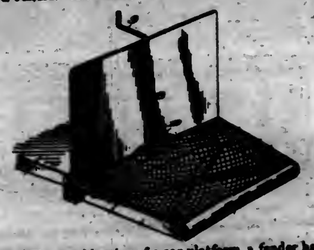
Claim.—1. The combination with a tire, of a puncture-proof armor comprising a plurality of transverse series of overlapping plates or scales, each pair of adjacent series of plates being composed of plates or scales of unequal number and each series of scales or plates connected flexibly together by hinge-joints which lie in the direction of the length of the tire, the hinge-joints of each series of plates being out of line with the corresponding joints of the scales on opposite sides thereof, substantially as described.

2. The combination with a tire, of a puncture-proof armor therefor comprising a plurality of transverse series of plates of unequal number, the alternate series consisting of a number of plates hinged together at their adjacent edges, and the intermediate series consisting of other plates hinged together and arranged to lap the alternate series of plates lengthwise of the tire; all the joints of the plates extending in the direction of the length of the tire, and the hinges of contiguous series of plates being out of line with each other, for the purposes described, substantially as set forth.

3. A flexible armor for inflatable tires comprising transverse series of plates arranged to lap at their adjacent ends and provided with slitted ears, the adjacent plates of each series being united by headed pintles which fit loosely in the slitted ears, as and for the purposes described.

4. A flexible armor for inflatable tires comprising the plates or scales, each pair of scales being provided on their contiguous edges with ears, and the coupling-pins arranged with their longitudinal axes at right angles to the length of said scales and having their headed ends loosely connected to the ears of the adjacent pairs of scales, substantially as described.

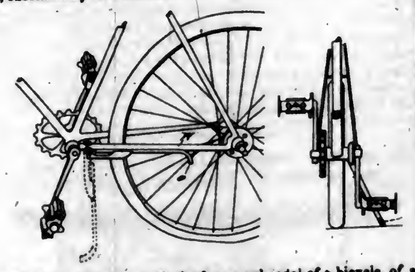
602,183. CAR-FENDER. FREDERIC A. HAINES, ANDREW M CUPPLES, and MICHAEL MCCANN, Tyrone, Pa. Filed June 26, 1897. Serial No. 642,462. (No model.)



Claim.—The combination of a car-platform, a fender having flaring sides hinged thereto, a roller carried between the front end of said sides, a netting secured to and depending from said sides, a lever attached to said frame provided with a handle adapted to extend over the dashboard of the platform when the fender is raised, and a spring-actuated catch adapted to encircle said lever and hold said fender in its raised position, substantially as described.

602,184. BICYCLE-REST. FRANK F. HAWES, Westfield, Mass., assignor of two-thirds to Edwin J. Smith and Clarence K. Prince, same place. Filed Feb. 11, 1896. Serial No. 578,882. (No model.)

Claim.—1. The combination with the frame of a bicycle, of a clamp piece embracing said frame near the pedal, and a leg having jointed connection to said clamp-piece, in position to be engaged by the pedal when swung away from contact with the frame, and means for retaining the leg folded against the frame, or in extended position, substantially as described.

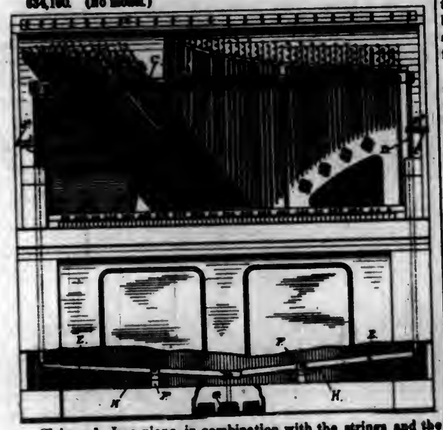


2. The combination with the frame and pedal of a bicycle, of a supporting-rest connected to the frame and having a joint which may be folded in one direction only, means for holding the rest in folded or in extended position, said rest connected to the frame in position when extended to be struck by the moving pedal and folded back against the frame, and to be passed by the pedal when closed, all substantially as described.

3. The combination with the frame and pedal of a bicycle, of a rest connected to said frame, said rest having a joint which may be folded in one direction only, means for holding said rest folded against the frame or extended to act as a support, said rest attached in position to be struck and turned back from its extended to its folded position by the movement of the pedal, said rest also provided with a foot-piece by which it may be turned out by the foot of the rider without dismounting, whereby the support may be turned either out or in without dismounting, all substantially as described.

4. In a bicycle-support, the combination with a movable supporting-leg, of mechanism actuated by the movement of the drive-sprocket which is adapted to engage with the leg and raise the latter out of supporting position.

602,185. TONE-MODIFYING ATTACHMENT FOR PIANOS. JOHN C. KIDD, San Francisco, Cal. Filed Apr. 27, 1897. Serial No. 634,160. (No model.)



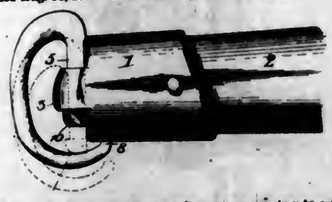
Claim.—1. In a piano, in combination with the strings and the action of the piano, an elastic diaphragm interposed between the hammers of the action and the strings but normally out of contact with both and having strikers or contacts on the face next to the strings and in line with the striking-face of the hammers, the said diaphragm being confined at the top and bottom edges or longer sides.

2. In a piano, in combination with the strings and the action of the piano, a skeleton bar or frame having a rectangular opening, or openings, an elastic diaphragm fixed over said opening or openings, means for moving said frame into and out of working position between the hammers and the strings to receive the blows of the hammers on the front face of the diaphragm when in working position and to stand out of the path of the hammers when not in operation, and strikers or contacts on the opposite face of the diaphragm in line with the hammers, as specified.

3. The combination of the skeleton frame having an opening or openings extending the full length of the pianoforte-action to take in the hammers, an elastic diaphragm stretched across said opening and strikers or contacts on the back face of said diaphragm at intervals of distance apart, the diaphragm being perforated or partially separated between said strikers, as specified.

4. The combination with the skeleton frame having an opening or openings, an elastic diaphragm stretched across said opening or openings, strikers or contacts on the back face of said diaphragm at intervals of distance apart, the said diaphragm being partially separated between the said strikers, and means for moving said frame into and out of working position with respect to the strings and the hammers of a piano, as described consisting of the rods D D, levers E E, pedal G and springs H, substantially as specified.

602,186. WHIFFLETREE-HOOK. PIUS R. LACK, Paducah, Ky. Filed Aug. 31, 1897. Serial No. 650,164. (No model.)



Claim.—1. In means for securing a trace or tug to a whiffletree or the like, the combination of a ferrule having a cross-bar at its outer end, and a hook having its shank slidably mounted in the space formed between the said cross-bar and terminal of the ferrule and having its extremity headed to engage with the rear side of the cross-bar and limit the forward movement of the hook, and having its bill portion extending beyond the said cross-bar and carving in the rear of the headed end of the shank and engaging with the rear side of the ferrule, substantially as shown for the purpose specified.

2. In means for securing a trace or tug to a whiffletree or the like, the combination of a ferrule provided at its outer end with the cross-bar, and a hook having its shank portion slidably mounted in the space formed between the cross-bar and outer end of the ferrule and headed to engage with the rear side of the cross-bar, and having its bill portion exterior to the cross-bar and carving around it and the headed end of the shank and having the extremity of the bill bent and adapted to enter a depression in the rear side of the ferrule so as to make positive engagement therewith, substantially as set forth.

3. In combination, a ferrule having a cross-bar at its outer end midway between its front and rear sides and having a depression in its rear side a short distance from its outer end and having a notch forward of the cross-bar, and a hook having its shank portion slidably mounted in the space formed between the cross-bar and outer end of the ferrule and having its inner end headed to engage with the rear side of the cross-bar and its front end normally fitted in the said notch, and having its bill carving around the cross-bar and the headed end of the shank and bent to make positive engagement with the recess in the rear side of the ferrule, substantially as and for the purpose specified.

602,187. LEVEL. JOHN LEWTON and JOHN DUNCKER, Homer, Mich. Filed Nov. 23, 1896. Serial No. 613,100. (No model.)



Claim.—In a level, the combination of a suitable block A having straight edge; a receptacle supported within said block consisting of oppositely-situated transparent sides; a ring E, between the same, with gaskets F at each side; rings C, C, to each side of the same having marked thereon a suitable scale retained and clamped upon the glass by suitable screws *n*, and supporting rings B, B, let into each side of the block to engage the central receptacle and hold it in a fixed position, all coacting together substantially as described for the purpose specified.

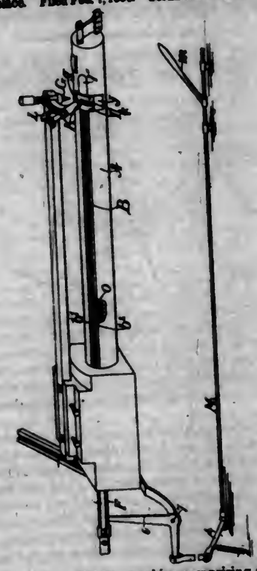
602,188. END-GATE. SAMFORD D. METCALFE, Brooton, Ill. Filed Aug. 28, 1897. Serial No. 649,851. (No model.)

Claim.—1. The combination of a wagon-body provided at its bottom with a transverse cleat projecting laterally from it, stops mounted on the body in advance of the projecting ends of the cleat, an end-gate having a hinged section and provided with side pieces or wings having their lower ends interposed between the projecting portions of the cleat and the stops, a lever provided with a longitudinal slot, a link connecting one end of the lever with the adjacent side of the end-gate, a pivot mounted on the wagon-body and passing through the slot of the lever, and a catch or stop mounted on the end-gate and arranged to be engaged by the other end of the lever, substantially as described.



2. The combination of a wagon-body provided at its bottom with a transverse cleat projecting laterally from it, an end-gate having a lower hinged section and provided with side pieces or wings having their lower ends arranged in advance of the ends of the cleat, the lower hinged section being supported directly upon said cleat, stops mounted on the wagon-body and located in advance of the lower ends of the side pieces or wings to prevent the end-gate from slipping forward when the lower hinged section is unfastened, a pivot mounted on the wagon-body, a slotted lever fulcrumed on the pivot, a link hinged to the end-gate and to one end of the lever, a catch mounted on the end-gate and arranged to be engaged by the other end of the lever, and means for locking the lever against longitudinal movement when the end-gate is closed, substantially as described.

602,189. RIVET-STICKING MACHINE. LOUIS R. MILLER, Los Angeles, Cal., assignor of one-half to William Lacy, Jr., and Richard H. Lacy, same place. Filed Feb. 7, 1896. Serial No. 578,262. (No model.)



Claim.—1. A rivet-sticking machine comprising a stake having a reciprocating rivet-inserting carrier, and a spring-pressed rivet hole-centering pin adapted and arranged to be moved in the extended path of such carrier, substantially as set forth.

2. In a rivet-sticking machine having a stake and a rivet-carrier within the stake for moving a rivet toward the face of the stake, a rivet-hole-centering pin adapted and arranged to be moved toward and from the stake in the extended path of such rivet-carrier

3. In a rivet-sticking machine the combination of the stake; a rivet-hole punch; a rivet-hole-centering pin arranged in a plane with the punch common to the plane in which the seam is to be made; and means for moving a rivet toward such pin along the extended axis thereof.

4. In a rivet-sticking machine the combination of the stake having a rivet-runway therealong; a rivet-carrier arranged at the end of the runway to seat a rivet; a rivet stop and guide at one side of the carrier; means for moving the carrier toward the face of the stake; and a spring connected with the stake and arranged to press against the head of the rivet to force the rivet against the stop and guide and having its upper edge practically flush with the rivet-seat of the carrier when the carrier is fully thrown out to stick a rivet.

5. The combination set forth of the stake provided with a runway along the stake; means for moving rivets along such runway; a reciprocating rivet-inserting carrier arranged at the end of such runway to move in a path transverse to such runway; a reciprocating slide operatively connected with the carrier to reciprocate the same and also operatively connected with the means for moving the rivets along the runway, to operate such means; and means for operating the slide.

6. The combination of the stake; the rivet-guide closed at one end and open at the other end and arranged transverse the stake; the rivet-carrier arranged beneath the closed end of such guide and provided with a seat to seat a rivet; means for moving the carrier toward the guide; a spring arranged to press upon the head of the rivet when thus seated and to force it toward a point below the closed end of the guide; and a stop and guide to prevent the point of the rivet-stem from passing beyond the guide.

7. The combination of the stake; the rivet-head-engaging spring; the rivet-carrier arranged to move back and forth by the side of such spring and provided with a rivet-seat which is brought flush with the outer edge of the spring when the carrier is thrown out to stick a rivet and a rivet-stop arranged to hold the rivet so that its head will engage with the spring while the carrier moves.

8. In a rivet-sticking machine the combination set forth of the stake; the rivet-guide open at one end and closed at the other end; the rivet-carrier adapted and arranged to receive and seat a rivet and to move it upward toward the closed end of the rivet-guide; means for retaining the rivet on the carrier-seat while it is moving toward the rivet-guide; a rivet-support arranged along and beneath the guide and sloping downward from such carrier; and the means for operating the carrier.

9. In a rivet-sticking machine the combination set forth of the stake; the rivet-runway along the stake; a chute for supplying the runway with rivets; a plunger for moving the rivets along the runway; a rivet-carrier at the end of the runway; means for reciprocating the rivet-carrier transverse the runway; a slide connected with such means and with the rivet-moving plunger to operate them, and means for reciprocating the slide.

10. In a rivet-sticking machine the combination set forth of the stake; the rivet-runway along the stake; a chute for supplying the runway with rivets; a plunger for moving the rivets along the runway; a rivet-carrier at the end of the runway; means for reciprocating the rivet-carrier transverse the runway; a slide connected with such means and with the rivet-moving plunger to operate them; means for operating the slide; a rivet-hole punch; and the reciprocating rivet-hole-centering pin arranged in a common plane with the punch and the seam to be riveted.

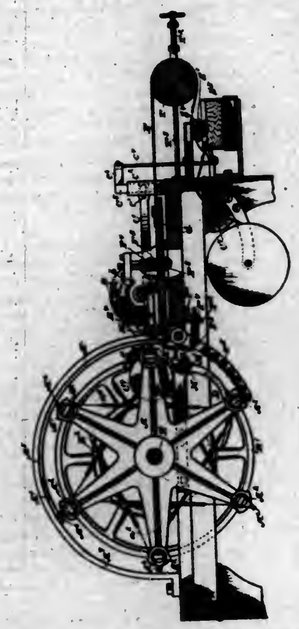
11. The combination of the stake; the rivet-guide having on its under side a beveled face to receive the end of the rivet-stem; a rivet-carrier arranged beneath the beveled face of the guide and provided with a seat to seat the head of the rivet; a spring arranged to press upon the head of the rivet when thus seated and to force it toward a point below the beveled face of the guide; and the stop and guide arranged to prevent the end of the rivet-stem from passing beyond such point.

12. In a rivet-sticking machine the combination of the stake provided with a transverse bore and provided on one side with a channel extending from such bore to the rear end of the stake, and with a slideway extending from end to end of the stake, and also provided with a guideway extending from the front end to and beyond the transverse bore; a slide arranged in the slideway; the rivet-carrier arranged in the transverse bore; and the bent slide operatively connected with the carrier by suitable means to cause its reciprocation in the transverse bore, substantially as set forth.

602,140. PAPER-BOX-MAKING MACHINE. CHARLES H. PALMER and JOHN W. DUNCAN, Akron, Ohio. Filed Apr. 19, 1897. Serial No. 632,701. (No model.)

Claim.—1. In a box-making machine that forms the box from a printed or figured strip of paper, a table provided with an aperture having rigid walls that form two sides of the box, the vertically-re-

tating arms A, the horizontally-revolving box-forming dies journaled thereto, the folding oscillating die for folding one edge of the box over the die journaled in the rotating arm as it moves downward, combined with the stationary cam-track and the crank-arms of the die journaled in the rotating arm, to secure the proper action of the dies to fold the other glued part of the box over against the pressure-spring located beneath the table, and said pressure-spring, substantially as shown and described.



2. In a box-making machine, the vertically-rotating arms and their box-forming dies in combination with the oscillating folding-die and its spring-pressure plate that folds over one edge of the box, and the spring-pressure arm, substantially as shown and described.

3. In a box-making machine the vertically-rotating arms and revolving dies, actuated by their crank-arms, the cam track, the oscillating folding die and spring-pressure arm, to form the box, combined with the box-discharging arm and its cam-track that removes the completed box from the dies of the revolving arm in its continuous rotation substantially as shown and described.

4. In a box-making machine the combination of the vertically-rotating arms and revolving die, the fixed oscillating folding-die M and its spring-pressure plate *m* that is caused to oscillate on its pivot M' and fold over the top edge of the box on the rotating die as it is brought in contact therewith, and its spring O and crank *n* that cause it to rock back to its normal position substantially as shown and described.

5. In a box-making machine the intermittent feed-rollers and their pressure flanges or surface provided with an intermittent releasing-notch, one of said rollers being provided with a feed-regulating tooth to admit the free movement of the paper, whereby the paper is fed forward by the feed-regulating tooth independent of the feeding-flanges substantially as shown and described.

6. In a paper-box-making machine the pawl-bearing plate B loosely journaled on its shaft *b'*, the ratchet-plate B' keyed to said shaft, the geared wheel *b*, the pinion b^2, the feed-roll shaft and its adjusting tooth F' and the knife, whereby the material may be regulated and properly timed in feeding a printed and perforated strip of paper to the cutting-knife substantially as shown and described.

7. In a box-making machine for making a box from a continuous printed or figured paper strip provided with regulating feed apertures or notches at regular intervals, the combination of the feed-rollers, the feed regulating tooth carried by one of the rollers operating to intermittently adjust the forward movement of the paper to secure the proper placement of the figure thereon in relation to the box-forming dies, as the paper is fed forward in an intermittent movement in the formation of boxes, substantially as shown and described.

8. In a box-making machine the mechanism for feeding the printed strip having the aperture F^6 for regulating its feed, comprising the rollers having the fluted-tooth F' and the notched flanges to admit a free movement and adjustment of the printed strip forward in combination with the knife H operating substantially as shown and described.

9. In a box-making machine the vertically-moving frame, the intermittently-revolving glue-roller S^3 supported and journaled thereon, the glue-tank in which the roller revolves and provided with its fluted gluing-surface S^4, means for intermittently raising the frame vertically to cause the surface S^4 to place the glue upon the strip of paper that passes over it, substantially as shown and described.

10. In a box-making machine the glue-roller S^3, its intermittent fluted or corrugated gluing-surface S^4 said roller being journaled within the vertically-vibrating frame O^2, the glue-tank, means for intermittently rotating the roller in the tank, and means for vibrating the frame for applying the glue at certain intervals to the paper as it passes over it, substantially as shown and described.

11. The glue-roller shaft S, its ratchet-wheel S' secured thereto, its pawl and crank-arm S^2 loosely journaled thereon, its rod *r'*, actuated by the pivot-pin *r* secured to the continuously-rotating pinion E^2, secured to the shaft E^3, combined with cam-wheel O^3 that causes the lever C to vibrate on its axis C' and impart a vertical vibratory movement to the glue-roller-supporting frame, substantially as shown and described.

12. The glue-roller-supporting arms O^2, their vertically-vibrating rod O^7, the vibrating lever C and its cam-wheel O^3, connections intermediate the rod o^7 and the lever C, whereby an intermittent vertical action is imparted to the gluing-roll substantially as shown and described.

13. In a box-making machine the combination of the vibrating lever E that is pivoted at *e* and provided with the knife H secured to the center of the pivoted arm which is extended to a point below the table, the main actuating-shaft E and the star-wheel E' arranged to press down upon the arm E below the plane of the table and thus secure a right-angle cut upon the strip of paper from which the box is to be formed substantially as shown and described.

14. In a box-making machine that forms the box from a continuous strip of paper, having the printed or figured surface thereon, and provided with adjusting apertures or notches therein, the intermittent rotating and vertically-vibrating glue-roll, the guiding-roll T, the feed-rolls and their guiding-flanges F', the feeding pressure-flanges F^4, the adjusting-notch F^6, and feed-regulating tooth F', the spring holding-fingers A, A, the knife H, and the stop H', in combination with the rotating box-forming dies, substantially as shown and described.

602,141. BICYCLE-SUPPORT. CHARLES C. PLANTES, Hartford, Conn. Filed Mar. 9, 1897. Serial No. 626,642. (No model.)

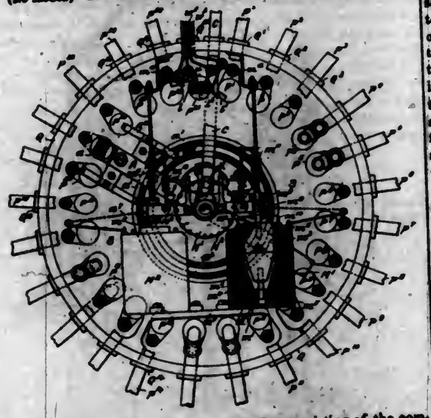


Claim.—1. In combination with a bicycle having a tubular frame member with its lower end open, a sliding carrier located in said tube, curved legs pivoted to said carrier and crossed when within the tube, a guide-pin located between the legs near the lower end of the tube, each of said legs held within the tube by yielding pressure and having a stop-shoulder cooperating with the guide-pin when the legs are extended, and means for moving the carrier, all substantially as described.

2. In combination with a bicycle having a tubular frame member *a* with an open lower end, a reciprocating carrier *c* located in said tube, curved yielding legs *f*, *f'*, pivoted to said carrier and crossed when within the tube, stop-shoulders f^2, f^3, on said legs, a guide-pin *g* fixed across the tube near its lower end and located between the said legs, each leg when within the tube making contact with the opposite inner walls whereby it is held with a yielding grasp against movement, and the means for reciprocating the carrier, all substantially as described.

3. In combination with a bicycle having a tubular frame member with its lower end open, a perforated cap partly covering the lower end, a reciprocating carrier located in said tube, curved legs pivoted to said carrier and crossed when within the tube, a guide pin located between said legs near the lower end of the tube, each of said legs having a stop shoulder cooperating with the guide-pin when the legs are extended, means for holding the legs within the tube, and means for reciprocating the carrier, all substantially as described.

602,142. SUPPLY SYSTEM FOR ELECTRIC RAILWAYS. PERCIVAL J. PERKINS, London, England, assignor of one-half to Julian Mossay Vernon Mossay-Kant, same place. Filed Oct. 27, 1893. Serial No. 610,210. (No model.) Patented in England Feb. 2, 1894, No. 2,274.



Claim.—1. A system of electric traction consisting of the combination of a rail or tramway track forming the return-circuit, an electrically-propelled vehicle on the track having collectors attached which pick up the current from a series of surface plates or rails a certain number of which form a block, and a shunt-collector on the vehicle connected to return-rail through a resistance also carried on vehicle, a main supply-conductor from source of electricity and conductors from distributers to the separate sections of a block, a series of distributers one for each block of sections for successively connecting the current from the main supply to the said separate sections in exact relationship with the movement of the car or vehicle substantially as set forth.

2. In a system of electric traction in which current is fed to the car from a number of separate short conducting-sections, a certain number of each sections forming a block for lines on which cars travel; a current-distributer for each block consisting of a magnet in shunt with the main supply to car and a movable armature connected to and operating a rocking bar provided with return-springs and pawl and ratchet-wheel for automatically actuating a main-current-distributing arm with a shunt-arm arranged to rotate over contact-pieces for successively connecting the main current from the source of supply to the said separate sections and disconnecting same as and when required, and the circuit connections from main supply through distributer to section and car-motor and resistance to return-circuit substantially as set forth.

3. In a system of electric traction in which the current is fed to the car from a number of short conducting-sections a certain number of each sections forming a block for tram-lines on which cars travel in both directions, a reversing-distributer for each block comprising two magnets in shunt with the main supply to car their movable armatures connected to and operating a rocking bar provided with return-springs and pawls and ratchet-wheels for automatically actuating a main-current-distributing arm with two shunt-arms arranged to rotate in both directions over contact-pieces for successively connecting the main current from the source of supply to the said separate sections and disconnecting same as when required, and the circuit connections from main supply through distributer to sections and car-motor and resistance to return-circuit.

4. A distributer for use in a system of electric traction of the kind above described consisting of the combination of a rotary main supply contact-arm connected with a source of electrical supply, two small contact-arms on each side of main arm but insulated therefrom, two contact-rings on which the former have connection each connected through one of a pair of magnets to the source of supply, said magnets being excited in shunt by means of a collector and resistance carried by a vehicle, a rocking switch permitting only one of the magnets being excited at one time, two movable armatures connected to opposite ends of a rocking bar, springs attached to opposite ends of rocking bar and two pawls together with controlling-springs, two oppositely-cut ratchet-wheels permitting the main arm to be moved one contact at a time in either direction and locking-catches for ratchets and means for operating same, a series of contacts arranged circumferentially, a series of feeder-cables attached to same, standards for feeder-cables, the whole inclosed in a casing provided with bosses and glands for feeder and main cables substantially as set forth.

5. A distributer for use in a system of electric traction of the kind above described consisting of the combination of a main supply contact-arm connected with the source of electrical supply, a shunt contact arm insulated from main arm, a contact-ring on which the shunt-arm makes contact each connected through an electric magnet to the source of supply, said magnet being excited in shunt by means of a collector and resistance carried by vehicle, the movable armature of magnet connected to a rocking bar, a spring opposed to action of magnet and attached to rocking bar and pawl together with its controlling-springs and a ratchet-wheel permitting the main arm to be moved one contact at a time and locking-catches for ratchet and means for operating same, or series of contacts arranged circumferentially, a series of corresponding feeder-cables attached to same and standards for feeders, the whole inclosed in a casing provided with glands for main and feeder cables substantially as set forth.

6. A system of electric traction consisting of the combination of a rail or tramway-track forming the return-circuit, an electrically-propelled vehicle on the track having collectors attached which pick up the current from a series of surface plates or rails a certain number of which form a block, and a resistance for the block in shunt from the distributer to the return-rail, a main conductor from source of electricity and a series of distributers one for each block of sections for successively connecting the main supply to the said separate sections simultaneously with the movement of the vehicle and cutting in resistance when required, substantially as set forth.

7. A distributer for use in a system of electric traction of the kind above described consisting of the combination of a main supply contact arm connected with a source of supply, six shunt contact-arms connected with one another in pairs, three on each side of but insulated from main contact-arm, four contact-rings on which the said shunt-arms make contact, two of which are connected in shunt through a pair of magnets to the source of supply, and the other two connected respectively through two permanent stationary resistances to the return-rail, said magnets being excited by a shunt-current from main supply through the stationary resistance, a rocking switch permitting only one magnet to be excited at one time, the movable armatures of said magnets connected to opposite ends of a rocking bar and two pawls together with controlling-springs, two oppositely-cut ratchet-wheels permitting the main and shunt arms to be moved one contact at a time in either direction, and locking-catches for ratchets and means for operating same, a series of contacts arranged circumferentially, standards attached to same, a series of feeder-cables attached to standards, the whole inclosed in a casing having bosses and glands for main and feeder cables substantially as set forth.

8. A distributer for use in a system of electric traction of the kind above described consisting of the combination of a main supply contact-arm connected with a source of supply, two shunt contact-arms on each side of but insulated from the main contact-arm, two contact-rings on which the said shunt-arms make contact, one of which is connected in shunt through a magnet to the source of supply and the other connected through a permanent stationary resistance to the return-rail, said magnet being excited by a shunt-current from main supply through the stationary resistance, the movable armature of said magnet being connected to end of rocking bar and pawl together with controlling-springs, two oppositely-cut ratchet-wheels permitting the main and shunt arms to be moved one contact only at a time in one direction only, and locking-catch for ratchet and means for operating same, a series of contacts arranged circumferentially, standards attached to same, a series of feeder-cables attached to standards, the whole inclosed in a casing having bosses and glands for main and feeder cables substantially as set forth.

9. In a system of electric traction, the combination of an electrically-propelled vehicle having one or more main collectors making contact successively with a series of surface plates or rails, a shunt-brush on the vehicle directly in advance of the main collectors making contact successively with the said series of surface plates or rails and a resistance in the vehicle directly connected to the return-rail and the shunt-brush whereby a shunt-current can flow directly between the main-supply conductor and the return-rail, through the resistance and the magnets of the various distributers in circuit and so actuate said magnets, substantially as set forth.

10. In a system of electric traction in which the rails form a return-circuit and the electrically-propelled vehicle on the track has collectors attached, which pick up current from a series of surface plates or rails a certain number of which form a block, and in addition has a shunt-collector and resistance carried on the car for the purpose of operating vehicles passing to a branch line the combination of two reversing-distributers each consisting of a rotary main supply contact-arm two contact-arms one on each side of said arm but insulated therefrom, two contact-rings with which the side arms have connection, two magnets, a rocking bar, two springs and pawls, controlling-springs, two oppositely-toothed ratchet-wheels, contact-feeders cable and connections substantially as described with a third distributer consisting of a rotary main supply-arm, three side contact-

arms, two of which are arranged at the side of the main supply contact-arm and making contact with two rings and the third arm adjoining one of these side contact-arms, and insulated from them and the main supply-arm, one end of said third arm making contact with a third contact-ring and the other end making contact with an additional small contact, three magnets, two being arranged same as before described, the third making connection between the additional side contact and the main supply-conductor, a rocking arm, two springs and pawls, controlling-springs, oppositely-toothed ratchet-wheels, contacts, feeders, cables and connections, substantially as described the whole working as and for the purpose above set forth.

11. In a system of electric traction in which the rails form a return-circuit and the electrically-propelled vehicle on the track has collectors attached, which pick up current from a series of surface plates or rails a certain number of which form a block and in addition has a shunt-collector and resistance carried on the car and also has a reversible shunt collector which can be connected to either of two resistances carried on car the combination of a reversing-distributer consisting of a rotary main supply contact-arm two contact-arms one on each side of said arm but insulated therefrom, two contact-rings with which the side arms have connection, two magnets, a rocking bar, two springs and pawls, controlling-springs, two oppositely-toothed ratchet-wheels, contact-feeders cables and connections substantially as described, with a reversing-switch carried on vehicle consisting of contact-arms one more than there are collectors (including main and shunt) on the car the outside ones being each connected to return-rail through one of the resistances carried in car and the same number of contact-pieces as there are collectors these being connected to same as and for the purposes set forth.

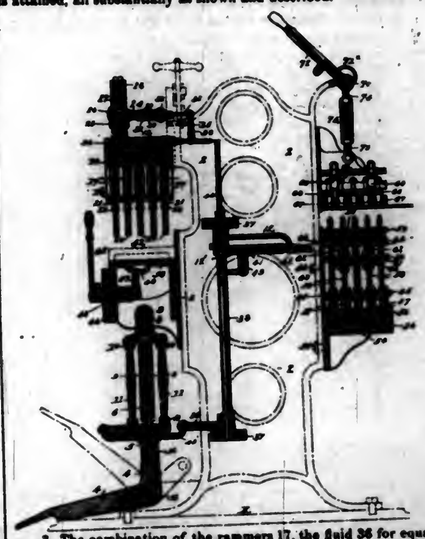
12. In a system of electric traction in which the rails form a return-circuit and the electrically-propelled vehicle on the track has collectors attached, which pick up current from a series of surface plates or rails a certain number of which form a block and in addition has a shunt-collector and resistance carried on the car Z for the purpose of supplying current to the motor of any car which has run into any section of a block then occupied but just cleared, the combination of a reversing-distributer consisting of a rotary main supply contact-arm, two contact-arms one on each side of said arm but insulated therefrom, two contact-rings with which the side arms have connection, two magnets, a rocking bar, two springs and pawls, controlling-springs, two oppositely-toothed ratchet-wheels, contact-feeders cables and connections substantially as described with a separate switch provided with means for operating it by hand consisting of a series of circularly-arranged contacts connected to a series of successive sections, commencing at the first or last section of a block, an extra insulated contact a rotating contact-arm connected to the return-rail through a resistance as and for the purpose set forth.

13. In a system of electric traction in which the rails form a return-circuit and the electrically-propelled vehicle on the track has collectors attached, which pick up current from a series of surface plates or rails, a certain number of which form a block and in addition has a shunt collector and resistance carried on the car for the purpose of electrically disconnecting the exposed section immediately in the rear of the section supplying current to a car the combination of a reversing-distributer consisting of a rotary main supply contact-arm, two contact-arms one on each side of said arm but insulated therefrom, two contact-rings with which the side arms have connection, two magnets, a rocking bar, two springs and pawls, controlling-springs, two oppositely-toothed ratchet-wheels, contact-feeders cables and connections substantially as described with an automatic switch actuated by the movement of the rotary main supply contact-arm consisting of a rocking arm held flexibly in a straight position by means of the clips and springs controlling its position, a contact at each end of the rocking arm being connected to that contact-arm (on each side of the rotary main supply contact-arm) directly opposite same, two separately-insulated contact-pieces each connected to one of the distributer-magnets as and for the purpose set forth.

602,143. CARTRIDGE LOADING AND CRIMPING MACHINE. FREDERICK RAYMOND, Sedalia, Mo. Filed Sept. 7, 1897. Serial No. 650,860. (No model.)

Claim.—1. In a machine for loading or crimping gun-shells, the combination with a loading or crimping block capable of holding a number of gun-shells in position to be loaded or crimped simultaneously, a corresponding number of rammers or crimpers, each capable of an independent longitudinal movement, means for pressing the shells against said rammers or crimpers, and a fluid for equalizing the pressure on said rammers or crimpers, all substantially as and for the purpose set forth.

2. In a machine for loading gun-shells, the combination of a loading-block capable of holding a number of shells in position to be loaded simultaneously, a corresponding number of rammers, each capable of an independent longitudinal movement, a fluid for equalizing the pressure on said rammers, a lever for applying the pressure, and means for automatically releasing said lever as soon as the desired pressure is attained, all substantially as shown and described.



3. The combination of the rammers 17, the fluid 36 for equalizing the pressure on said rammers, the valve 26 capable of being opened by the pressure of said fluid when the desired pressure is attained, the piston 31 capable of being acted upon by said fluid after it has passed through said valve, the movable carriage 3 for the loading-block, the shells therein, the lever 12 for moving said carriage so as to press the shells against said rammers, and means controlled by the movement of said piston for releasing said lever, all substantially as shown and described.

4. In a machine for loading gun shells the combination of the equalizing fluid 36, the rammers 17 capable of acting independently as plungers against said fluid, the valve 26 capable of being opened by the pressure of said fluid when the desired pressure is attained, the piston 31 capable of being acted upon by said fluid after it passes through said valve, the hand-lever 12 provided with a releasing-lock operated by the movement of said piston, for the purpose of releasing said lever, when the desired pressure is attained, the carriage 3 capable of being moved by said lever so as to press the shells against said rammers, and the adjustable table 53 for the purpose of adjusting the shells for receiving the different charges, substantially as shown and described.

5. The combination of the rammers 17, the equalizing fluid 36, the valve 26, the piston 31, the rod 30, the bell crank 33, the rod 44, the bell-crank 43, the lever 12 provided with a releasing-lock consisting of the latch-pieces 41 and 42, the shaft 38 with its arm 39, the connecting-rod 40, the plate 7, the posts 11, 11, and the carriage 3 all adapted to act automatically substantially as and for the purpose shown and described.

602,144. LOCK. WOODBURY D. ROSSMAN, Portland, Oreg. Filed May 25, 1897. Serial No. 638,062. (No model.)

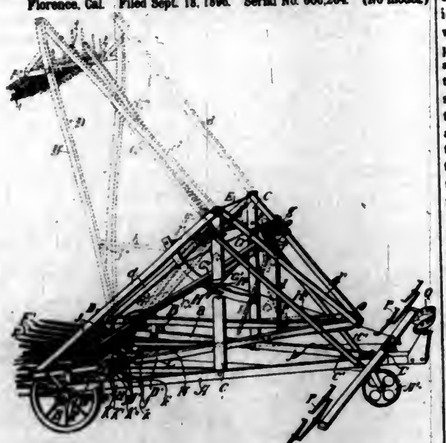


Claim.—1. In a lock as described, the combination of the jaws, the pivot-bolt, one of such jaws having endwise movement on the pivot, the cap-plate, the volute spring having one end held in engagement with the pivot-bolt and the other in engagement with the said jaw, and means for holding the jaws to a locked engagement, substantially as described.

2. In a lock as described, the combination with the pivotally-connected jaws, one of which has a recess having a keyway at one end and a seat in its bottom edge adjacent the pivot end, and the other having a lock-lip, of a series of tumblers or detents having each a pendent portion to engage the seat, a tailpiece to cover the keyway, a lock-nose at the upper front end, a concaved front edge and a spring, substantially as shown and for the purposes described.

3. An improved padlock, comprising a pair of jaws having interlocking ends, one of such jaws having endwise movement on its pivot, and means for automatically swinging it outward when the hook ends are disengaged, said swinging jaw having a lock-lip, the fixed jaw having a recess provided with a keyway at one end and a seat in the opposite edge at a point near the pivotal axis, a series of tumblers or detents independently fulcrumed in the aforesaid seat, springs held to their normal position, each having a tailpiece to normally cover the keyway and a nose-piece at the front upper edge to engage the lock shoulder on the swinging jaw and the cap-plate all being arranged substantially as shown and for the purposes described.

602,145. HAY RAKE AND STACKER. RUFUS A. SIMPSON, Florence, Cal. Filed Sept. 18, 1896. Serial No. 606,264. (No model.)



Claim.—1. A combined rake and stacker comprising a wheel-supported frame having upwardly-projecting standards; a swinging frame pivoted to said standards and carrying at its front end pivoted hay raking and carrying teeth; a crank-shaft journaled to the swinging frame and provided with a projecting crank; an adjusting-rod connecting the crank with the teeth; a guide secured to the stationary frame and adapted to receive and guide the crank-arm; a drum adapted to be operated by the rotation of the supporting-wheels; a flexible connection wound about the drum, passed to the rear and secured to the rear end of the swinging frame; suitable clutch and brake mechanism adapted to connect and disconnect the drum with the supporting-wheels; and means for releasing the crank-arm to allow the rake-teeth to tilt.

2. In a hay rake and stacker, the combination set forth of the wheel-supported base-frame; the uprights secured to such frame; the swinging frame comprising two base members secured together in V shape, front supporting members secured to the front of the V-shaped base diverging upward therefrom and pivotally secured to the uprights, rear supporting members secured to the rear end of the V-shaped base diverging forwardly and outwardly and pivotally secured to the uprights; rake-teeth pivotally secured to the front end of the swinging frame; and means adapted to swing the frame on its pivotal support to elevate the rake-teeth.

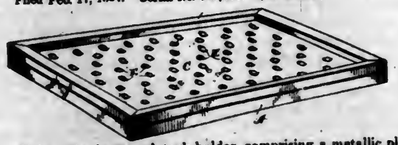
3. A combined hay rake and stacker comprising a triangular frame provided with upwardly-projecting standards and supported at its front end upon an axle; supporting-wheels mounted upon and adapted to rotate such axle; a swivel-wheel supporting the rear end of the frame; a triangular swinging frame pivoted to the top of the standards; rake-teeth pivotally secured to the front end of the swinging frame; a crank-shaft carried by the swinging frame; an adjusting-rod connecting the rake-teeth with the crank-shaft; suitable means for operating the crank-shaft to hold the rake-teeth approximately horizontal as the swinging frame is swung forward to carry its front end upward; a drum adapted to be operated by the rotation of the supporting-axle; a flexible connection wound upon the drum and secured to the rear end of the swinging frame; a clutch adapted to connect and disconnect the drum with the supporting-axle; and a brake adapted to control the movement of the drum.

4. A hay rake and stacker comprising the combination of a frame mounted upon an axle and provided with upwardly-projecting standards; wheels secured upon the axle and adapted to rotate it; a swinging frame pivoted to the top of the standards; a crank-shaft journaled to the swinging frame and provided with a projecting crank-arm; a trip-guide secured to the fixed frame and adapted to guide the crank-arm while the swinging frame is being swung upon its pivots; an adjusting-rod connecting the crank-shaft with the rake-teeth; an adjusting-lever pivoted upon the crank-shaft and provided with projecting arms adapted to engage the crank to partially rotate it to adjust the rake-teeth; a stop secured to the swinging frame and adapted to limit the movement of the adjusting-lever; a drum journaled upon the supporting-axle; a clutch adapted to connect and disconnect the drum with the axle; a brake adapted to control the movement of the drum; a flexible connection wound about the drum, passed to the rear, over a pulley journaled in the movable frame, and thence forward and secured to the adjusting-lever; and means for operating the trip-guide.

5. A hay rake and stacker comprising the combination set forth of a V-shaped base-frame supported upon an axle; suitable supporting-wheels arranged upon and adapted to rotate the axle; a swivel-wheel arranged to support the rear end of the base-frame; upwardly-projecting standards secured to the frame; a swinging frame pivotally secured to the top of the standards; rake-teeth pivotally secured to the front end of the swinging frame; a crank-shaft pivoted to the swinging frame; an adjusting-rod connecting the crank-shaft with the rake-teeth, adapted to adjust the rake-teeth and provided with a crank-arm; a U-shaped guide pivoted to the base-frame and adapted to receive and guide the crank-arm; a trip-clutch adapted to engage the guide to hold it in position to guide the crank-arm and to be tripped to allow the guide to release the arm; an adjusting-lever pivoted upon the crank-shaft and provided with a projecting arm adapted to engage the crank to adjust the rake-teeth; a drum journaled upon the supporting-axle; a clutch adapted to connect and disconnect the drum with the supporting-axle; a brake adapted to control the movement of the drum; and a flexible connection wound about the drum, passed to the rear over a supporting-pulley journaled in the movable frame, thence forward and secured to the adjusting-lever.

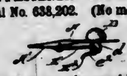
6. In a hay rake and stacker the trip-guide set forth comprising a U-shaped member pivotally secured to a support; and a dog adapted to engage such member to lock it in position or to be released to allow the guide to swing with its mouth open in either direction.

602,146. TACK-HOLDER. FREDERIC W. SONGER, Alcott, Colo. Filed Feb. 17, 1897. Serial No. 623,878. (No model.)



Claim.—An improved tack-holder, comprising a metallic plate formed on its top surface with a plurality of circular depressions or indentations, the center of each depression being formed with a perforation with the metal upset in forming the perforation depending from the under side of the plate and forming a tubular holder, the tack-points being adapted to extend through the tubular holders with their heads filling the plate depressions and making the top surface of the plate substantially unbroken, a rim projecting above and surrounding the top surface of the plate, and a rim depending therefrom and similarly surrounding the under surface of the plate and serving to sustain the tack-holding plate free from a table or other support, substantially as shown and described.

602,147. SHOE-FASTENER. JOHN STECH, Butte, Mont. Filed May 26, 1897. Serial No. 638,202. (No model.)

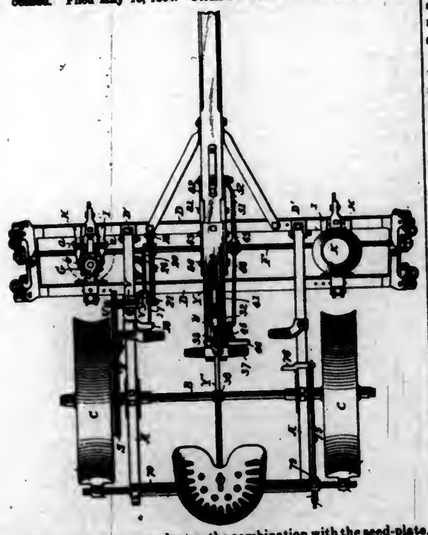


Claim.—1. In a shoe-fastener the combination of an eye or catch secured to the lower flap of a shoe, with a securing device comprising the body E', secured on the lower surface of the upper flap of the shoe and formed with the arms e^2, and e^3, comprising the hook E^3, to engage said eye, the button D, having the eyelet-shank d, secured on the upper flap and between the arms of the hook by means of the wire of which the hook is a portion, substantially as described.

2. In a shoe-fastener the combination of the catch C, having the arms c', bent back upon themselves to secure said catch to the lower flap of the shoe, with the securing device comprising the body E', secured on the lower surface of the upper flap of the shoe and formed with the arms e^2, and e^3, comprising the hook E^3, to engage said eye, the button D, having the eyelet-shank d, secured on the upper flap

and between the arms of the hook by means of the wire of which the hook is a portion, substantially as described.

602,148. CORN-PLANTER. JOHN D TRACY and JAMES F. PLATT, Sterling, Ill.; John W. Platt administrator of said James F. Platt, deceased. Filed May 10, 1897. Serial No. 635,927. (No model.)



Claim.—1. In a corn-planter, the combination with the seed-plate, of a rock-shaft provided with two projecting arms a pawl pivotally mounted upon each arm of the rock-shaft for imparting movement to the seed-plate at each half-stroke of said shaft, substantially as described.

2. In a corn-planter, the combination with the rock-shaft, and the seed chute or tube, of a reciprocating pitman in the tube operated by the shaft, a seed-cut-off valve, a discharge-valve in movable connection with the lower end of said pitman, and a seat upon the seed-chute for said discharge-valve, substantially as described.

3. In a corn-planter, the combination with the rock-shaft, and the chute or tube, of a reciprocating pitman in the tube and formed with two surfaces out of alinement with each other, a cut-off valve in the tube adjacent to the intersection of the two surfaces, and a pivoted discharge-valve at the lower end of the tube and in movable connection with the pitman, and a seat for the discharge-valve, substantially as described.

4. In a corn-planter, the combination with the rock-shaft, of a seed chute or tube, a reciprocating pitman in the tube operated from the rock-shaft, a discharge-valve formed with an open pocket communicating with the seed-chute at one end, said valve being adapted to a seat upon the seed-chute and connected to the pitman to be moved thereby from its seat to open the discharge end of the pocket, substantially as described.

5. In a corn-planter, the combination with the rock-shaft, and the seed chute or tube, of a reciprocating pitman in the tube operated by the shaft, a discharge-valve in movable connection with the lower end of said pitman and comprising an open pocket, a seat for said valve, and a cut-off valve intermediate the ends of the pitman, substantially as described.

6. In a corn-planter, the combination with the rock-shaft, and the seed chute or tube, of a reciprocating pitman in the tube operated by a wrist-pin on the shaft, a discharge-valve in movable connection with the lower end of said pitman and comprising an open pocket, a seat for said valve, a cut-off valve intermediate the pocket and wrist-pin, and means for holding the latter valve in its open and closed positions relative to the pitman, substantially as described.

7. In a corn-planter, the combination with the rock-shaft having the wrist-pin, and the seed chute or tube, of a reciprocating pitman in the tube operated from the wrist-pin, a discharge-valve in movable connection with the lower end of said pitman and comprising an open pocket, a seat for said valve, a cut-off valve, and a spring for holding the latter in its open and closed positions relative to the pitman, substantially as described.

8. In a corn-planter, the combination of the main frame, the rock-shaft and the seed-plates operated by the latter, the pitman-rod and crank-shaft for operating the rock-shaft, and a movable locking device for maintaining said pitman in operative connection with the rock-shaft when the frame is down, and for releasing or breaking such connection on the raising of the frame, substantially as described.

9. In a corn-planter, the combination with the main frame, the rock-shaft and seed-plates operated by the latter, of a crank-shaft and a pitman for operating the rock-shaft, and a pivoted latch and a slide for maintaining the pitman in operative connection with the rock-shaft when the frame is down, and for releasing or breaking said connection on the raising of the frame, substantially as described.

10. In a corn-planter, the combination with the main frame and the rock-shaft, of a slotted slide in movable connection with said shaft, a reciprocating pitman, and means for locking the pitman to the slide when the frame is down and for unlocking the same on lifting the frame, substantially as described.

11. In a corn planter, the combination with the main frame and the rock-shaft, a reciprocating pitman, an arm on the shaft, a slotted slide working in a guide on the frame and in connection with said arm, a pivoted latch for locking the slide and pitman together when the frame is down, and means for unlocking the same on raising the frame and permitting the pitman to work idle in the slot of the guide, substantially as described.

12. In a corn-planter, the combination with the main frame and the rock-shaft, of a reciprocating pitman, a reciprocating slide in connection with said shaft and having a longitudinal slot, a latch-bar pivoted to the slide and constructed at its forward end to engage a stud on the pitman, the said latch and slide having engaging guide-arms, and means on the frame for raising the latch as the frame is lifted, substantially as described.

13. In a corn-planter, the combination with the wheels, of a rock-shaft to the rear thereof, adjustable scrapers or blades on said shaft, an arm on the shaft, a connecting-rod passing through the arm, a spring and adjusting-nuts, and a lever operated by the foot of the driver, substantially as described.

602,149. CLAMPING DEVICE. ROLLIN H. WHITE, Cleveland, Ohio, assignor to the A. L. Moore Company, same place. Filed June 17, 1897. Serial No. 641,103. (No model.)



Claim.—1. In a clamping device, in combination, the fixed tubular member having an external shoulder and a parti-cylindrical end with beveled edges, a split ring having a parti-cylindrical end with beveled edges, which end is complementary to the corresponding end of the tubular member, and means for moving said two parts relatively in a path parallel to their axes, substantially as and for the purpose specified.

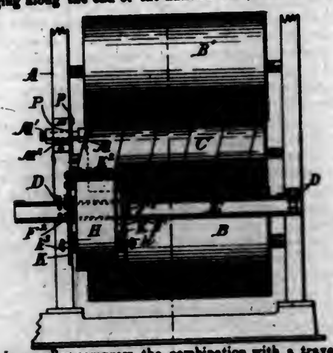
2. In a clamping device, in combination, the fixed tubular member having an external shoulder and a parti-cylindrical upper end with undercut edges, a split ring externally threaded on its upper end and having its lower end of parti-cylindrical form, complementary to the corresponding part of the fixed member and having undercut edges, and a nut screwed onto the split ring and engaging with the external shoulder on the fixed member, substantially as and for the purpose specified.

3. The combination of the front-fork head having a parti-cylindrical upper end with undercut edges, a sleeve D having a ball-cup *d'*, which is screwed onto said fork-head, an externally-threaded split ring having an unthreaded parti-cylindrical end with undercut edges, which end is complementary to the corresponding end of the fork-head, and a nut which screws onto the ring and abuts against the top of said sleeve D, substantially as and for the purpose specified.

602,150. BAGGING ATTACHMENT FOR ROLLER-COMPRESSES. DAVID C BALL, St. Louis, Mo., assignor to the American Cotton Company, New York, N. Y. Filed Nov. 2, 1896. Serial No. 567,744. (No model.)

Claim.—1. The combination with a roller-compress, of a traveling carriage and means for journaling a roll of bagging thereon, and an adjustable knife adapted to trim the said bagging from the end of the covered bale, substantially as described.

2. The combination with a roller-compress, of a traveling carriage and means for journaling a roll of bagging thereon, of a knife rigidly attached to the frame of the compress, and adapted to trim the bagging along the end of the finished bale, substantially as described.



3. In a roller-compress, the combination with a traveling carriage and means for guiding the same from one end of the core-roll to the other, of means for journaling a roll of bagging on said carriage, to be fed to the core-roll, and means for automatically trimming the said bagging along the end of the finished bale, substantially as described.

4. In a roller-compress, the combination with a traveling carriage and means for guiding the same from one end of the core-roll to the other, of means for journaling a roll of bagging on said carriage to be fed to the core-roll, and a knife rigidly attached to the frame of the compress and adapted to trim the bagging along the edge of the finished bale, substantially as described.

5. The combination with a roller-compress, of a traveling carriage, means for journaling a roll of bagging on said carriage to be fed to the core-roll, tension devices interposed between said roll of bagging and said core-roll, and means for automatically trimming the said bagging along the edge of the covered bale, substantially as described.

6. The combination with a roller-compress, of a traveling carriage, means for journaling a roll of bagging on said carriage to be fed to the core-roll, tension devices interposed between said roll of bagging and said core-roll and a knife adapted to trim the edge of said bagging along the edge of the covered bale, substantially as described.

7. In a roller-compress, the combination with a traveling carriage and means for guiding the same from one end of the core-roll to the other, and means for journaling a roll of bagging on said carriage to be fed to the core-roll, tension devices interposed between said roll of bagging and said core-roll, and a knife rigidly attached to the frame of the compress and adapted to trim said bagging along the edge of the covered bale, substantially as described.

8. In a roller-compress, the combination with an I-rail secured to the frame of the press and approximately parallel to the axes of the rolls, of a carriage traveling on said I-rail, with rollers engaging the upper and lower flanges of said rail, means for journaling a roll of bagging on said carriage, to be fed to the core-roll, tension devices carried by said carriage, and interposed between said bagging-roll and said core roll, and means for automatically trimming said bagging along the edge of the covered bale, substantially as described.

9. In a roller-compress, the combination with an I-rail secured to the frame of the press, and approximately parallel to the axes of the rolls of a carriage traveling on said I-rail with rollers engaging the upper and lower flanges of said rail, means for journaling a roll of bagging on said carriage to be fed to the core-roll, tension devices carried by said carriage and interposed between said bagging-roll and said core-roll, and a knife rigidly attached to the frame of the compress, and adapted to trim the said bagging along the edge of the covered bale, substantially as described.

10. In a roller-compress, the combination with a rail secured to the frame of the press, and approximately parallel to the axes of the rolls, of a carriage traveling on said rail, means for journaling a roll of bagging on said carriage to be fed to the core-roll, tension devices interposed between said roll of bagging and said core-roll, and means for automatically trimming the said bagging along the edge of the covered bale, substantially as described.

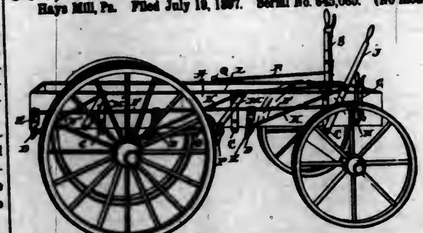
11. In a roller-compress, the combination with a rail secured to the frame of the press and approximately parallel to the axes of the rolls, of a carriage traveling on said rail, means for journaling a roll of bagging on said carriage to be fed to the core-roll, tension devices interposed between said roll of bagging and said core-roll, and an adjustable knife mounted in the framework of the compress and adapted to trim the said bagging along the edge of the covered bale, substantially as described.

12. The combination with a roller-compress, of a swiveled traveling carriage, means for journaling a roll of bagging carried thereon, and an adjustable knife adapted to trim the said bagging from the end of the covered bale, substantially as described.

13. In a roller-compress, the combination with a traveling carriage and means for guiding the same from one end of the bale in the press to the other, of means for journaling a roll of bagging on said carriage to be fed to the bale, and having its axis at an angle to the axis of the bale, and means for automatically trimming the said bagging along the ends of the finished bale, substantially as described.

14. In a roller-compress, the combination with a rail secured to the frame of the press, and approximately parallel to the axes of the rolls, of a carriage traveling on said rail, with a support for a roll of bagging swiveled thereon, means for feeding the said bagging under tension to the bale in the press, and means for automatically trimming the said bagging along the edge of the covered bale, substantially as described.

602,151. DUMPING-WAGON. JOHN BECKER and GEORGE BECKER, Hays Mill, Pa. Filed July 19, 1897. Serial No. 645,065. (No model.)



Claim.—1. In a dumping-wagon, the combination of sides A, downwardly-swinging bottom sections B, the rear axle, one of the bottom sections swinging vertically adjacent the axle, the bail-shaped brake-beam mounted to swing vertically on the front side of the axle with its extremities extending to the wheel-peripheries, and brake-shoes on the beam extremities, substantially as shown and described.

2. In a dumping-wagon, the combination of sides A, downwardly-swinging bottom sections B, one section being arranged to swing vertically adjacent the rear axle, a bail-shaped brake-beam mounted to swing vertically on the front of the axle without interfering with the vertical movement of said bottom sections, an L-shaped brake-actuating lever, and brake-blocks securing to the extremities of the brake-beam arms, substantially as shown and described.

602,152. EGG-BEATER. FRANK S. BELLANGER, Waterbury, Conn., assignor to D. J. Barry & Co., New York, N. Y. Filed Jan. 23, 1897. Serial No. 620,009. (No model.)



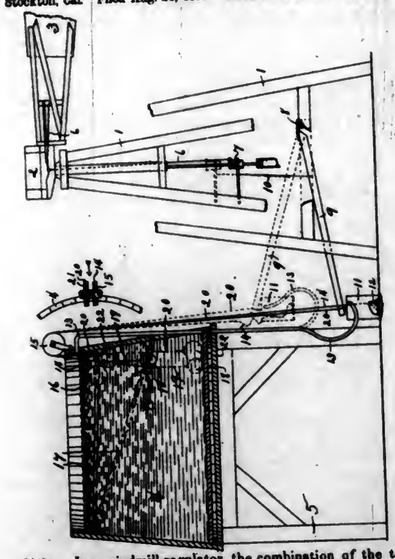
Claim.—1. An egg-beater, comprising a frame provided with parallel guide-rods having a handle at their upper ends, and with a series of parallel arms at the lower ends of the guide-rods, a beater having a screw-rod whose upper end is mounted in a socket in the handle, and a series of parallel fingers at the lower end of the screw-rod, the central finger being longer than the others and mounted in a socket between two of the arms of the frame, and a nut sliding on the guide-rods of the frame and engaging the screw-rod of the beater, substantially as described.

2. An egg-beater, comprising a frame formed of a single piece of wire bent to form parallel guide-rods and a series of doubled-up parallel arms at the lower ends of the guide-rods, a handle secured to the upper ends of the guide-rods, a beater formed of a single piece of wire bent to form a screw-rod and parallel fingers at the lower end of the screw-rod, the beater being mounted in the frame with its screw-rod projecting up between the guide-rods of said frame and its fingers between the arms thereof, and a nut sliding on said guide-rods and engaging the screw-rod of the beater, substantially as described.

3. An egg-beater, consisting of a frame formed of a single piece of wire bent to form parallel guide-rods and parallel arms at the lower ends of the guide-rods, a socket being formed between two of the said arms, a handle secured to the upper ends of the guide-rods, a beater formed of a piece of wire bent to form a screw-rod whose upper end is mounted in a socket in the handle and a series of parallel

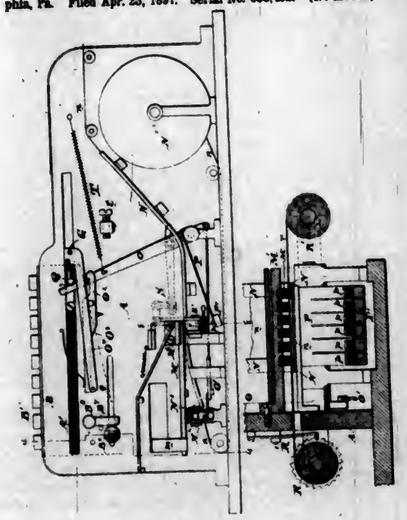
fingers at the lower end of the screw-rod, the central finger being longer than the others and mounted in the socket between the arms of the frame, and a nut sliding on the guide rods and engaging the screw-rod, substantially as herein shown and described.

602,158. WINDMILL-REGULATOR. WESTLEY P. H. CAMPBELL, Stockton, Cal. Filed Aug. 21, 1897. Serial No. 649,078. (No model.)



Claim.—In a windmill-regulator, the combination of the tank, the vessel arranged to hang suspended from mechanism for throwing the wheel of the mill into and out of the wind and having the upwardly-opening valve 12 in its bottom, the flexible pipe connecting the tank and the vessel, the weight 22, a cord taking over a sheave on the tank and connecting the weight 22 with the vessel, the float arranged in the tank, a cord taking over a sheave on the tank and connecting said float with the valve 12 of the vessel, and the weight 18 suspended from the said float, substantially as and for the purpose set forth.

602,154. ADDING-MACHINE. CHARLES C. CLIFFORD, Philadelphia, Pa. Filed Apr. 23, 1897. Serial No. 633,432. (No model.)



Claim.—1. In an adding-machine, the combination of a series of sets of keys each independently movable, a series of sliding step bars each adapted to be operated by a set of the keys, means to move the keys relatively to the step-bars, a series of registering devices respectively operated by the step-bars, transferring devices controlled by the registering devices of one order of numbers to move the registering devices of the next higher order one point, and means acting after the direct action of the step-bars upon the registering devices to operate the transferring devices.

2. In an adding-machine, the combination of a series of sets of keys, a series of step-bars operated by the keys, means to move the keys relatively to the step-bars, a series of registering devices respectively operated by the step-bars, means to move the registering devices from the step-bars, transferring devices controlled by the registering devices of one order of numbers to move the registering devices of the next higher order one point, means acting after the direct action of the step-bars upon the registering devices to operate the transferring devices, and a shield controlled by the transferring devices to shield the numbers of the registering devices from view in case said transferring device becomes inoperative or fails to register.

3. In an adding-machine, the combination of a series of sets of keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, and means acting after the direct action of the step-bars upon the registering devices to operate the transferring devices.

4. In an adding-machine, the combination of a series of sets of keys, a series of step-bars operated by the keys, means to move the keys relatively to the step-bars, a series of registering devices respectively operated by the step-bars, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a transfer-operating frame having operating parts for imparting motion to the transferring device, and hand-operated devices for reciprocating the transfer-operating frame.

5. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, means for moving the keyboard, a series of registering devices respectively operated by the step-bars, transferring devices controlled by the registering devices of one order to move the registering devices of the next higher order one point, a transfer-operating frame having operating parts for imparting motion to the transferring device, hand-operated devices for reciprocating the transfer-operating frame, a latch to intermittently connect the keyboard and transfer-operating frame whereby the former is moved by the latter, and a trip for releasing the latch after a given movement of the keyboard is made.

6. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, means for moving the keyboard, and means to lock the keyboard against return movement until its full movement is completed in registering.

7. In an adding machine, the combination of a series of sets of keys, means to move the keyboard, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a transfer operating frame having operating parts for imparting motion to the transferring device, hand-operated devices for reciprocating the transfer-operating frame, and means to lock the transfer-operating frame against return movement until its full movement is completed in registering.

8. In an adding machine, the combination of a series of sets of keys, means for supporting and reciprocating all of the keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices controlled by the registering devices of one order to move the registering devices of the next higher order one point, and means acting after the direct action of the step-bars upon the registering devices to operate the transferring devices.

9. In an adding-machine, the combination of a series of sets of keys, means for supporting and reciprocting all of the keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices controlled by the registering devices of one order to move the registering devices of the next higher order one point, a transfer-operating frame having operating parts for imparting motion to the transferring device, hand-operated devices for reciprocating the transfer-operating frame, and means to lock the transfer-operating frame against return movement until its full movement is completed in registering.

10. In an adding-machine, the combination of a series of sets of keys, means for supporting and reciprocating all of the keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices controlled by the registering devices of one order to move the registering devices of the next higher order one point a transfer-operating frame having operating parts for imparting motion to the transferring device, hand-operated devices for reciprocating the transfer-operating frame, a shield controlled by the transferring devices to shield the numbers of the registering devices from view in case said transferring device becomes inoperative or fails to register, and means to lock the transfer-operating frame against return movement until its full movement is completed in registering.

11. In an adding-machine, the combination of a series of sets of keys, a series of registering devices respectively operated by said sets of keys, a single locking-piece for each set of keys extending longitudinally past all of the keys of a set movable by any key of a set and for locking each of said keys of a set in operative position, and a common releasing mechanism for simultaneously moving all of the locking-pieces of the several sets of keys.

12. In an adding-machine, the combination of a series of sets of keys, a reciprocating keyboard carrying said keys, a series of registering devices respectively operated by said sets of keys, a single locking-piece for each set of keys for locking the keys movable with said keyboard in operative position, a common releasing mechanism for simultaneously releasing all of the keys upon completing the registration and reciprocation of the keyboard, and hand-controlled means for throwing the common releasing mechanism out of action.

13. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices, connecting devices between the step-bars and respective registering devices, means for moving the keyboard, locking devices for each set of keys for locking the keys in operative position, and a common releasing mechanism for simultaneously releasing all of the keys upon completing the registration.

14. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices, connecting devices between the step-bars and respective registering devices, means for moving the keyboard, locking devices for each set of keys for locking the keys in operative position, a common releasing mechanism for simultaneously releasing all of the keys upon completing the registration, and means to lock the keyboard against return movement until its full movement is completed in registering.

15. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices, connecting devices between the step-bars and respective registering devices, means for moving the keyboard, transferring devices operated by the means for moving the keyboard and controlled by the registering devices of one order of numbers to move the registering devices of the next higher order one point, locking devices for each set of keys for locking the keys in operative position, a common releasing mechanism for simultaneously releasing all of the keys upon completing the registration, and means to lock the keyboard against return movement until its full movement is completed in registering.

16. In an adding-machine, the combination of a series of sets of keys, a series of registering devices operated by said keys, hand-operated devices for producing a reciprocation to all of the keys relatively to the registering devices, transferring devices adapted to move the registering devices one point with each operation of the registering devices, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, and a reciprocating transfer-operating frame having operating parts for imparting motion to the transferring devices and movable under the action of the hand-operated devices for causing the relative reciprocation of the keys with respect to the registering devices.

17. In an adding-machine, the combination of a series of sets of keys, a series of registering devices respectively operated by said sets of keys, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a transfer-operating frame having operating parts for imparting motion to the transferring device, and means to lock the transfer-operating frame against return movement until its full movement is completed in registering.

18. In an adding-machine, the combination of a series of sets of keys, a series of registering devices respectively operated by said sets of keys, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a transfer-operating frame having operating parts for imparting motion to the transferring device, and a shield controlled by the transferring devices to shield the numbers of the registering devices from view in case said transferring device becomes inoperative or fails to register.

19. In an adding-machine, the combination of a series of sets of keys, means for simultaneously reciprocating all of the keys in registering, a series of registering devices respectively operated by said sets of keys, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a reciprocating transfer-operating frame having operating parts for imparting motion to the transferring device, locking devices for each set of keys for locking the keys in operative position, and a common releasing mechanism for simultaneously releasing all of the keys upon completing the registration.

20. In an adding-machine, the combination of a series of registering devices, key mechanism for operating the registering devices, means to reciprocate the key mechanism, transferring devices for moving the registering devices one point with each complete reciprocation of the key mechanism in the operation of registering, a trip controlled by the registering devices of the next lower order to put the transferring devices into operative position, and devices under the control and operating in conjunction with the means for reciprocation of the key mechanism for imparting motion to the transferring devices.

21. In an adding-machine, the combination of a series of registering devices, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a transfer-operating frame having operating parts for imparting motion to the transferring device, hand-operated devices for reciprocating the transfer-operating frame, and means to lock the transfer-operating frame against return movement until its full movement is completed in registering.

22. In an adding-machine, the combination of a series of registering devices, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a shield controlled by the transferring devices to shield the numbers of the registering devices from view in case said transferring device becomes inoperative or fails to register, a transfer-operating frame having operating parts for imparting motion to the transferring device, and hand-operated devices for reciprocating the transfer-operating frame.

23. In an adding-machine, the combination of a series of registering parts adapted to bring into view figures corresponding to the numbers added, a series of sets of keys carried in a keyboard, a series of step bars one to each set of keys acting as connecting mechanism between the keys and the registering devices for imparting a movement to said registering devices corresponding to the key or keys operated, means for imparting a relative movement between all of the keys and step-bars in registering printing devices for printing consecutively on a strip of paper the successive amounts which have been added, and connecting mechanism between the printing devices and the keys for operating the registering devices.

24. In an adding-machine, the combination of a series of registering devices, a series of reciprocating step-bars for operating the respective registering devices, a series of sets of keys one set for each step-bar in which each key of a set is adapted to cause the step-bar of that set to be moved to a definite and different distance, and means to impart a relative movement between the keys and the step-bar.

25. In an adding-machine, the combination of a series of registering devices, a series of step-bars for operating the respective registering devices, a series of sets of keys one set for each step-bar in which each key is adapted to move the step-bar to a definite distance, means to impart a relative movement between the keys and the step-bar, transfer devices connecting the several registering devices in pairs and controlled by the registering devices of the lower order of any pair, and means operating with the action of the keys for operating the said transferring devices.

26. In a transferring device for an adding-machine, the combination of two registering-wheels, one of which is provided with a ratchet-wheel and the other with a pin or projection, a pivoted lever having a pawl engaging with the ratchet-wheel, a spring to move the lever and pawl into operative position, a latch for holding the lever and pawl out of operative position adapted to be released by the pin or projection on the other registering-wheel, means for positively moving each of the registering-wheels, and hand-controlled means for operating the pivoted lever and pawl against the action of the spring to turn the ratchet-wheel.

27. In a transferring device for an adding-machine, the combination of two registering-wheels, one of which is provided with a ratchet-wheel and the other with a pin or projection, a pivoted lever having a pawl engaging with the ratchet-wheel, a spring to move the lever and pawl into operative position, a latch for holding the lever and pawl out of operative position adapted to be released by pin or projection on the other registering-wheel, means for moving each of the registering-wheels, means for operating the pivoted lever and pawl, keys to control the movement of the registering-wheels, a keyboard, means to move the keyboard, and connecting devices between the means for moving the keyboard and the means for operating the pivoted lever whereby the latter is caused to move after the operation of the former.

28. In a transferring device for an adding-machine, the combination of two registering-wheels, one of which is provided with a ratchet-wheel and the other with a pin or projection, a pivoted lever having a pawl engaging with the ratchet-wheel, a spring to move the lever and pawl into operative position, a latch for holding the lever and pawl out of operative position adapted to be released by pin or projection on the other registering-wheel, means for moving each of the registering-wheels, means for operating the pivoted lever and pawl, a sight-opening for reading the figures on the dials, and a shield controlled by the pivoted lever for closing the sight opening when it fails to complete its oscillation.

29. In an adding-machine, the combination of a series of sets of keys, a reciprocating keyboard for moving said keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices controlled by the registering devices of one order of numbers to move the registering devices of the next higher order one point, means acting after the direct action of the step-bars upon the registering devices to operate the transferring devices and under the control of the means for reciprocating the keyboard, printing devices for printing consecutively on a strip of paper the successive amounts which have been added, and means forming a connection between the registering devices and the printing devices whereby the said parts operate simultaneously.

30. In an adding-machine, the combination of a series of sets of keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a transfer-operating frame having operating parts for imparting motion to the transferring device, hand-operated devices for reciprocating the transfer-operating frame, printing devices for printing consecutively on a strip of paper the successive amounts which have been added, and connecting devices between the step-bars and the type of the printing devices whereby the step-bars simultaneously operate the registering devices and printing devices.

31. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, means for moving the keyboard, means to lock the keyboard against return movement until its full movement is completed in registering, and printing devices under the control of the step-bars for printing consecutively on a strip of paper the successive amounts which have been added upon the registering devices.

32. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, means for moving the keyboard, means to lock the keyboard against return movement until its full movement is completed in registering, a series of type-bars respectively connected with the several step-bars, impression devices for pressing the paper against the type-bars, and means for moving the step-bars and type-bars connected therewith not operated by the keys a short distance to bring the zero-type into printing operation upon the registering of a given amount upon the registering devices.

33. In an adding-machine, the combination of a series of sets of keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices controlled by the registering devices of one order to move the registering devices of the next higher order one point, means acting after the direct action of the step-bars upon the registering devices to operate the transferring devices, a series of type bars respectively connected with the several step-bars, means to feed a paper strip under the type-bars, impression devices for pressing the paper against the type-bars, and means for moving the step-bars and type-bars connected therewith not operated by the keys a short distance to bring the zero-type into printing operation upon the registering of a given amount upon the registering devices.

34. In an adding-machine, the combination of a series of sets of keys, a series of step-bars operated by the keys, a series of registering devices respectively operated by the step-bars, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, means acting after the direct action of the step-bars upon the registering devices to operate the transferring devices, a series of type-bars respectively connected with the several step-bars, means to feed a paper strip under the type-bars, impression devices for pressing the paper against the type-bars, and means for moving the step-bars and type-bars connected therewith not operated by the keys a short distance to bring the zero-type into printing operation upon the registering of a given amount upon the registering devices.

35. In an adding-machine, the combination of a series of registering parts adapted to bring into view figures corresponding to the numbers added, a series of sets of keys carried in a keyboard, connecting mechanism between the keys and the registering devices for imparting a movement to said registering devices corresponding to the key or keys operated, printing devices for printing consecutively on a strip of paper the successive amounts which have been added, connecting mechanism between the printing devices and the keys for operating the registering devices, and means controlled by the registering mechanism for bringing into printing position the zero-type corresponding to the keys of the lower order of the series of sets of keys when no key of such set has been operated.

36. In an adding-machine, the combination of a series of sets of keys, a keyboard for said keys, a series of step-bars operated by the keys, a series of registering devices, connecting devices between the step-bars and respective registering devices, means for moving the keyboard, transferring devices operated by the means for moving the keyboard and controlled by the registering devices of one order of numbers to move the registering devices of the next higher order one point, locking devices for each set of keys for locking the keys in operative position, a common releasing mechanism for simultaneously releasing all of the keys upon completing the registration, means to lock the keyboard against return movement until its full movement is completed in registering, type-bars moved by the step-bars, a paper guide arranged adjacent to the type-bars, means to feed the paper intermittently, an impression device or hammer for pressing the paper toward the type, spring-actuated devices for operating the impression device, a lock controlling the spring-actuated devices, and devices under the control of the means for moving the keyboard for operating the lock to release the spring-actuated device whereby the printing operation takes place simultaneously with the registering operation.

37. In an adding-machine, the combination of a series of registering devices, transferring devices adapted to move the registering devices one point operated by a moving part of the machine with each operation, a trip controlled by the registering devices of the next lower order to put the transferring devices into action, a transfer-operating frame having operating parts for imparting motion to the transferring device, hand operated devices for reciprocating the transfer-operating frame, a series of type-bars respectively connected with the registering devices so as to be moved simultaneously therewith, impression devices for the type-bars, and connecting devices between the impression devices and transfer-operating devices whereby the printing is performed when the registration has been completed.

38. In an adding-machine, the combination of a series of sets of keys adapted to be depressed, a lock for each set of keys and common to all of the keys of a set adapted to lock any key depressed and hold it in its depressed condition and automatically release it upon depressing any other key of the set, registering devices, reciprocating hand-operated connecting means whereby the keys depressed are adapted to operate the registering devices, and a common releasing device for all of the locks of the several sets of keys controlled by the hand-operated connecting means whereby all of the keys may be simultaneously released.

39. In an adding-machine, the combination of a series of registering-wheels, a series of sets of keys for operating the several registering-wheels one set being adapted to control a single registering-wheel, transferring devices adapted to act upon the registering-wheels and be thrown into operative condition by the action of the registering-wheel of the next lower order, and hand-power devices for operating the transferring devices to positively move them in performing the act of registration as in carrying the maximum amount of one registering-wheel to the next registering-wheel of a higher order.

602,155. LUBRICATING APPARATUS. ALPHONSE CHIK, Paris, France. Filed Dec. 30, 1896. Serial No. 617,471. (No model.)

Claim.—In a mechanical oiling or lubricating apparatus the combination with a circular box having radial bores therein, and tubes or pipes seated in said bores, of two shafts one surrounding the other and concentric therewith penetrating into said box, a sector mounted on each of said shafts, within said box, two eccentric gears mounted oppositely, one on each of said shafts, a driving-shaft, eccentric gears thereon meshing with said first-mentioned gears whereby said first-mentioned shafts will be alternately accelerated and slackened, and the sectors made to alternately approach and separate, and means whereby said driving-shaft will be revolved, substantially as described.



602,156. NON-REFILLABLE BOTTLE. HERMAN C. FUHLHAGE, Edina, Ill. Filed Nov. 27, 1896. Serial No. 613,509. (No model.)



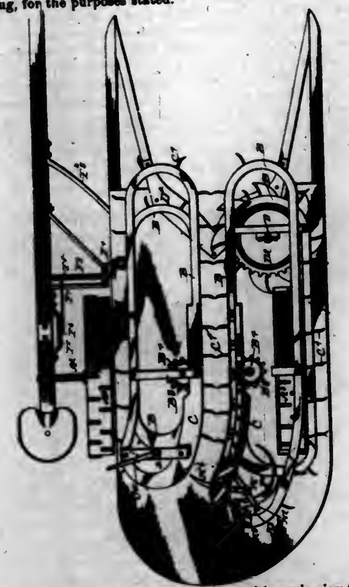
Claim.—1. The combination with the neck of a bottle having an annular groove, of a frangible cap provided with a socket adapted to receive the said neck, said cap being also provided with a recess opening into said socket and a spring secured within said socket and having an arm arranged within said recess, the lower end of said spring being bent inwardly to engage said groove, substantially as described.

2. The combination with the neck of a bottle having an annular groove, of a frangible cap provided with a socket to receive said neck, said cap being also provided with a vertical recess opening into said socket, a spring secured in said socket having a downwardly-projecting arm arranged within said recess, the lower end of said arm being bent inwardly to engage said groove, substantially as described.

602,157. CORN-HARVESTER. WILLIAM H. GRAY, Eddyville, Iowa. Filed Oct. 26, 1896. Serial No. 610,163. (No model.)

Claim.—1. In a corn-harvester or the like, the combination of a continuous hollow track having a laterally-enlarged portion at its inner rear end portion, a conveyer-chain of a length somewhat greater than the distance around the said track composed of a series of links of two kinds alternately arranged, the one having a flat top, two downwardly-projecting journals at its ends, a downwardly-projecting leg at its central portion, and a laterally-projecting arm, and the other having a flat under part two upwardly-projecting ends with openings to receive said journals and an upwardly-projecting central leg, and a sprocket-wheel to engage both the projections on the ends and the central portions of the links, substantially as and for the purposes stated.

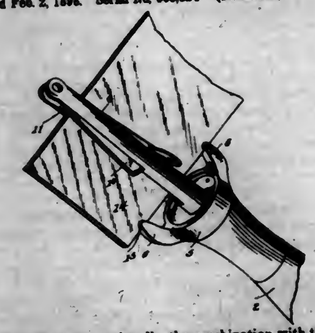
2. An endless conveyer-chain, composed of a series of links of two kinds alternately arranged, the one having a flat top, two downwardly-projecting journals at its ends, a downwardly-projecting central leg and a laterally-projecting arm, and the other having two raised ends with openings to receive the journals and a central upwardly-projecting lug, for the purposes stated.



3. In a corn-harvester the combination with mechanism for operating a binding-needle when the shock is formed, of an arm fixed to the shaft of the binding-needle, a roller on its end, a segmental channel-bar pivoted at one end to a fixed support and having said roller in its groove, a rock-shaft in the machine-frame, a crank-arm thereon, a rod connecting it with the free end of the channel-bar, two other crank-arms on said rock-shaft, rods connected therewith, guides attached to the ends of the rods, two continuous tracks and a conveyer-chain in each track of a length somewhat greater than the distance around the said track so that the chain will fold or kink at the end of the guide, substantially as and for the purposes stated.

4. In a corn-harvester, the combination of a continuous hollow track widened at its inner rear end portion, an endless conveyer-chain arranged to fold or kink at one point, a guide composed of a series of straight-edged links having lugs on their lower ends to project through a slot in the bottom of the track, a head on one link to extend diagonally across the track and permit the links to fold or kink at the end and means for operating the slides automatically, substantially as and for the purposes stated.

602,158. SAW-HANDLE. DAVID I. GREEN, Frontier, Mich. Filed Feb. 2, 1898. Serial No. 668,824. (No model.)

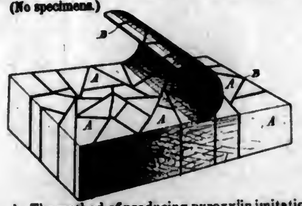


Claim.—1. In a saw-handle, the combination with the grip having a longitudinal bore, a shank extending through said bore and provided with two parallel arms at one end and adapted to embrace the sides of the saw, and a cam-lever pivoted between said ends and adapted to engage the saw and clamp it in position, substantially as set forth.

2. In a saw-handle, the combination with a grip having a longitudinal bore and a swivel-ring, a shank extending through said bore and having a screw-threaded connection with the grip, said shank being provided with parallel arms, and a lever pivoted between said arms and provided with a cam, substantially as set forth.

3. In a saw-handle, the combination with the grip having a longitudinal bore, a nut secured in said bore against rotation, a rubber packing confined between the nut and a shoulder in said bore, a shank extending through the bore and having one end screw-threaded to engage the nut and the other end bifurcated, a ring swiveled to the inner end of said grip, and a cam-lever pivoted between said bifurcated arms, substantially as set forth.

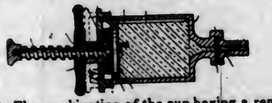
602,159. METHOD OF PRODUCING PYROXYLIN IMITATIONS OF MOSAIC. EDWIN D. HARRISON, Irvington, and CHARLES H. THURBER, East Orange, N. J., assignors to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed June 17, 1896. Serial No. 595,854. (No specimens.)



Claim.—1. The method of producing pyroxylin imitations of mosaics, consisting in, first, forming the pyroxylin compounds in pieces having small cross-sectional areas; second, coating all the surfaces of such pieces with a dyeing substance, and, third, welding the dyed pieces into blocks, shapes or masses, and subsequently cutting a sheet therefrom, substantially as described.

2. A method of producing pyroxylin imitations of mosaics, consisting in, first, forming the pyroxylin compounds into sticks or rods; second, coating all the surfaces of said sticks or rods with a dyeing substance; third, arranging said sticks side by side; fourth, welding said dyed sticks into a mass, and, fifth, cutting sheets from said mass, substantially as described.

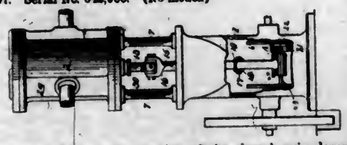
602,160. CUP-LUBRICATOR. JOSEPH R. HOLMES, Elgin, Ill. Filed July 27, 1897. Serial No. 646,095. (No model.)



Claim.—1. The combination of the cup having a removable flat cap, the sleeve moving through said cap and provided with a stop at each end, a piston and a piston-rod, said piston and rod being adapted to be operated positively to discharge the entire contents of the cup independently of a spring and said sleeve having a handle and screw-thread connection with the rod and adapted to bear directly on the cap within the cup, and the spring situated in the cup and bearing on the cap near the upper plane of the cup and also bearing on the piston, substantially as described.

2. The combination of the cup having a removable flat cap, the sleeve movable through said cap and provided with a stop at each end, a piston and a piston-rod, said piston being keyed to the cup, and the piston and rod adapted to be operated positively to discharge the entire contents of the cup independently of a spring, and said sleeve having a handle and screw-thread connection with the rod and adapted to bear directly on the cap within the cup, and the spring situated within the cup and bearing on the cap near the upper plane of the cup and also bearing on the piston, substantially as described.

602,161. MOTIVE ENGINE. AUGUSTUS HOWARD, San Francisco, Cal., assignor to Willard Reed Green, Denver, Colo. Filed June 30, 1897. Serial No. 642,988. (No model.)



Claim.—1. In a motive engine of the class herein described, a cylinder provided with cylinder-heads having inlet and outlet ports therein, rotary distributing disks or valves, and a revoluble piston in said cylinder, connected with and driving said rotary distributing disks or valves by suitable mechanism, substantially as and for the purpose specified.

2. In a motive engine, a piston, a cylinder and heads therefor provided with ports or passages for induction and eduction of the working fluid, and rotary distributing disks or valves provided with ports or passages, said disks being rigidly connected by rods passing through the piston, substantially as and for the purpose specified.

3. In a motive engine, a cylinder and heads therefor provided with induction and eduction ports and passages, a revoluble piston connected with and operating rotary valve-disks in the ends of the said cylinder, a piston rod and a connecting-rod with a universal joint between, and means for positively turning the said rods and piston in accordance with the reciprocating movements of the engine, substantially as specified.

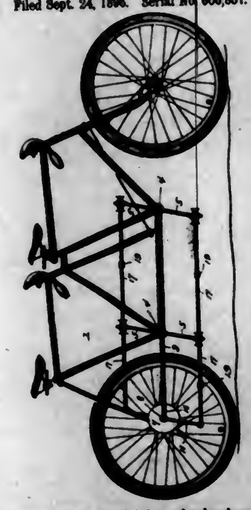
4. In a motive engine, a cylinder and heads therefor provided with induction and eduction ports and passages, rotary distributing disks or valves in the opposite heads, connected together and turning in one direction within the cylinder, and a revoluble piston, piston-rod and connecting-rod, the latter attached to the crank-pin bearing and turned positively by suitable mechanism in accordance with the reciprocating movements of the engine, substantially as specified.

5. In a motive engine, a cylinder, revoluble disks or valves in the ends thereof, induction and eduction ports or passages in the cylinder-head and corresponding ports in the revoluble disks or valves, with means for turning the said disks or valves positively and in accordance with the reciprocating movements of the engine, substantially as specified.

6. In a motive engine, a cylinder, and heads therefor provided with induction and eduction ports and passages, a revoluble piston, piston-rod and connecting-rod, turning in one direction, and distributing disks or valves mounted in the heads of the said cylinder, driven positively by gearing connecting them positively with the crank and crank-shaft, through said revoluble piston and rods, so as to move in accordance with the reciprocating movements of the engine, substantially as specified.

7. In a motive engine, having a cylinder, rotary disk valves in the ends thereof, a reciprocating piston, and piston rod, a means for rotating said rotary valves, consisting of a connecting-rod with universal-joint connection with the piston-rod, bearing on its lower end a spirally-toothed pinion meshing with and impelled by a scroll-toothed gear-wheel borne on the crank-disk concentric with the crank-pin, substantially as specified.

602,162. BICYCLE DRIVING-GEAR. WILLIAM S. KELLOGG, Little Rock, Ark. Filed Sept. 24, 1896. Serial No. 606,857. (No model.)



Claim.—1. In a bicycle, the driving-wheel axle carrying a pinion at its outer end, an internal gear journaled on the frame to mesh with said pinion, a crank rigid on the gear and a pedal-crank, combined with a revoluble member of a ball-race on the pedal-pin and the wrist-pin of the gear-crank respectively, the other members of the respective races being on the cranks, balls in each of the races, and a rod connecting the revoluble members of the ball-races, substantially as described.

2. In a bicycle, the driving-wheel carrying at each side a fixed spur-pinion, in combination with internal gears meshing therewith and each having a portion of its teeth cut away as described, cranks rigid on said gears, and operative connections between said cranks and similar cranks on the crank-axle, said connections having a ball-bearing engagement with the pedal-pins of the driving-cranks at the inner ends of the pedals, substantially as described.

602,163. PIGMENT FOR PAINTS. ALFRED B. KITTREDGE, Boston, and ARTHUR B. BROWNE, Cambridge, Mass., assignors of one-third to Charles M. Read, Boston, Mass. Filed May 21, 1894. Serial No. 512,000. (No specimens.)

Claim.—1. A paint comprising a base of non-crystalline magnetic oxid of iron, and a proper vehicle, as oil or japan, substantially as described.

2. A paint consisting of a base of spongy, friable, non-crystalline black magnetic oxid of iron, a coloring-matter, and a vehicle, combined to form a smooth and completely-mixed paint, substantially as described.

3. A paint comprising a base of non-crystalline spongy, friable magnetic oxid of iron in the form of an impalpable powder, and a vehicle, said vehicle being combined with said base so as to permeate every particle thereof, substantially as described.

602,164. BOOK-SUPPORT. JULIUS A. LOUSTEAU, Yonkers, N. Y. Filed June 24, 1897. Serial No. 642,573. (No model.)



Claim.—1. The combination of a book-rest, a supporting-rod therefor, a bracket for the supporting-rod in which the rod slides longitudinally, and means for locking the rod against rotation in the bracket by sliding it longitudinally therein in drawing the book-rest into its position for use, substantially as described.

2. The combination of a book-rest, a supporting-rod therefor, a bracket for the supporting-rod in which the rod slides longitudinally, and guiding-faces on the rod and bracket to engage and hold the rod against rotation on sliding the rod longitudinally in the bracket in drawing the book-rest into its position for use, substantially as described.

3. The combination of a bracket having circular bearings therein and a guiding face, a book-rest, a rod mounted to slide and rotate in the bearings of the bracket and carrying the book-rest, whereby the latter can be slid in and turned down when not in use, and a guiding-face on the rod to engage the corresponding face on the bracket and hold the book-rest in position when it is slid out and turned up for use, substantially as described.

4. The combination with an intermediate cross-bar, of a connecting cross-bar carried thereby, pivoted arms supported from the intermediate cross-bar, and a side cover extending from the connecting-bar to the free ends of the pivoted arms, substantially as described.

5. The combination with an intermediate cross-bar, of a connecting cross-bar carried thereby, pivoted arms supported from the intermediate cross-bar, strips upon the ends of the pivoted arms forming supports for the lower edges of books placed thereon, and a side cover extending from the connecting cross-bar to the strips and permitting the book-rest thus formed to fold flat, substantially as described.

6. The combination with a book-rest and a book-guard pivoted to swing into and out of contact with a book on the book-rest, of a cam with a plurality of cam-faces attached to the book-guard, and a spring bearing on the same for throwing the book-guard toward a plurality of positions, so that it is thereby either held toward or away from the face of the book-rest or against the back thereof, substantially as described.

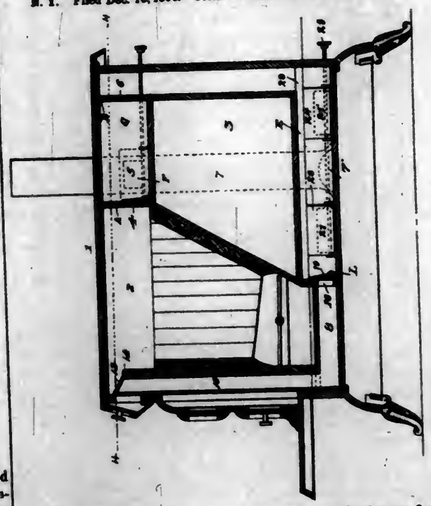
602,165. DRAWING-PEN. FRIEDRICH LUTTERBERG, Mittweida, Germany. Filed Oct. 13, 1897. Serial No. 655,093. (No model.) Patented in Germany Apr. 30, 1896, No. 92,219.



Claim.—1. In a drawing-pen the combination of limbs of unequal length, a movable blade having a pivot connecting it to the shorter limb, a fastening *d*, situated opposite the point of the pen with respect to pivot, and a set-screw to adjust the separation of said limbs, substantially as described.

2. In a drawing-pen the combination of limbs of unequal length, a movable blade pivoted to the shorter limb, a fastening *d*, a set-screw *e* between the pivotal connection of the movable blade with said limb and fastening, said blade having lateral slots to receive the set-screw and the fastening, substantially as described.

602,166. STOVE OR RANGE. HERBERT W. MASON, Glens Falls, N. Y. Filed Dec. 10, 1896. Serial No. 615,179. (No model.)



Claim.—A cooking stove or range, comprising the fire-pot 2, provided with a passage 8 located beneath said pot, vertical flues 10, 12, extending from the upper part of said fire-pot and communicating with said passage, dampers 13, 13, fixed on a common rod 14 and arranged to simultaneously control said flues in combination with the oven 3, the partitions A, B, extending from the top of the oven to the top plate of the stove and provided with the orifices C and D and the damper 4 arranged to control the orifice C, the longitudinal partitions 22 and 29, provided with the orifices 21. 21', and the orifice 26, the dampers 23, 24, fixed on the common rod 25 and adapted to simultaneously control said orifices 21, 21', and the damper 30 adapted to control the orifice 26, the transverse partition I extending between the sides of the stove and between the forward end of the oven and the bottom plate of said stove, and provided with the orifices 16 and 17, the dampers 19, 19', fixed on a common rod L, and adapted to simultaneously control said orifices 16, 17, the vertical flue 7 formed with the orifice 7', communicating with a passage beneath the oven and with an orifice F, communicating with a similar passage above said oven and a damper 5, adapted to control said orifice F, substantially as and for the purpose set forth.

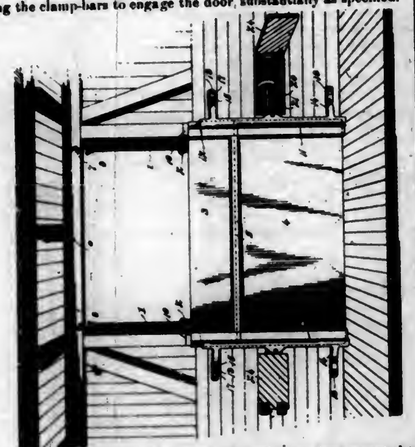
602,167. GRAIN-CAR DOOR. CHARLES L. NEWSTROM and THOMAS H. MILLER, Malden Rock, Wis. Filed Sept. 15, 1897. Serial No. 651,765. (No model.)

Claim.—1. The combination with parallel guide-rods, of a sectional car-door having its members provided with eyes mounted to slide upon said guide-rods, said members being of greater width than the car-door opening to bear against the inner surfaces of the sides of the frame, clamp-bars to engage and hold the edges of said car-door members in contact with the sides of the door-frame, and movable outwardly toward the same, and operating devices for moving the clamp-bars, substantially as specified.

2. The combination with guide-rods and a car-door mounted to slide upon said guide-rods and of greater width than the door-frame to bear against the inner surfaces of the sides thereof, clamp-bars cut away at their inner surfaces to form biting edges to bear against the inner surface of the door, and movable outwardly to force the door against the frame, and means for securing said bars in operative contact with the door, substantially as specified.

3. The combination with guide-rods and a car-door mounted to slide thereon, of clamp-bars adapted to engage the car-door contigu-

ous to its side edges, to hold the latter in contact with the inner surface of the car-door frame, said clamp-bars being pivotally mounted for lateral movement at their upper extremities, and means for operating the clamp-bars to engage the door, substantially as specified.



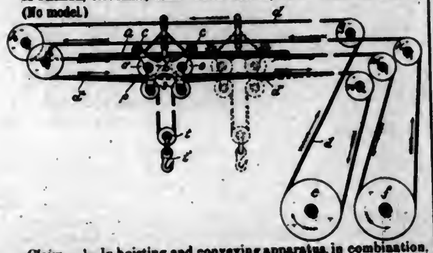
4. The combination with guide-rods and a car-door mounted to slide thereon, of clamp-bars adapted to engage a car-door and hold it in contact with the inner surface of the door-frame, said clamp-bars being provided with lateral arms respectively pivoted and having a slotted connection with the car-frame, and means for securing the clamp-bars in their adjusted positions, substantially as specified.

5. The combination with guide-rods and a car-door mounted to slide thereon, of clamp-bars adapted to engage and secure the car-door in contact with the inner surfaces of the door-frame, drums having flexible connections respectively with said clamp-bars, and means for securing the drums at the desired adjustment, substantially as specified.

6. The combination with a car-door arranged to terminally overlap the inner surfaces of a car-door frame, of clamp-bars for engaging and holding the car-door in contact with the frame, drums operatively connected with the clamp-bars and having exposed heads whereby they may be manipulated from without the car, and means for securing the drums at the desired adjustment, substantially as specified.

7. The combination with a car-door arranged to terminally overlap the inner surfaces of the door-frame, of clamp-bars adapted to engage and secure the door in contact with said surfaces, drums flexibly connected with the clamp-bars and having exteriorly-exposed heads provided with tool-seats, and locking-pawls for engaging ratchet-teeth on said heads, substantially as specified.

602,168. HOISTING AND CONVEYING APPARATUS. HERBERT R. PALMER, Cleveland, Ohio. Filed Dec. 15, 1897. Serial No. 661,942. (No model.)

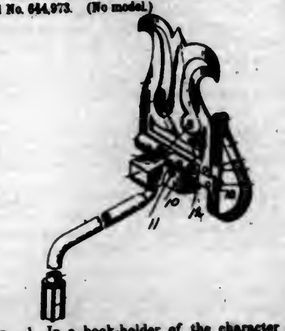


Claim.—1. In hoisting and conveying apparatus, in combination, a track or way, a carriage mounted to travel on said way, and an endless cable driven and controlled by two independently-operated drums; said cable being supported, and connected with the said carriage, substantially as specified.

2. In hoisting and conveying apparatus, in combination, a track or way, a carriage mounted to travel on said way, an endless cable controlled by two independently-operated driving-drums and connected with the said carriage as set forth, and a hoisting-cable *p* rove through pulleys in the said carriage and secured to the driving-cable at opposite sides of said carriage, substantially as described.

3. In hoisting and conveying apparatus, in combination, a fixed way, a carriage mounted to travel reciprocally on said way, and provided with pulleys *o o'*, pulleys *h h'* located at one end of said way, pulleys *g*, *k*, *m* and *a* located at the opposite end of said way, and an endless cable controlled by two independently-driven drums, said cable being passed around the said pulleys, substantially as set forth.

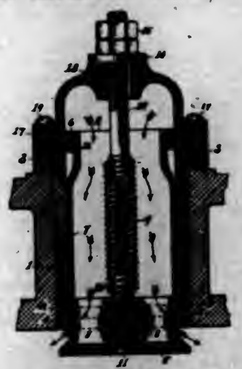
602,169. BOOK-HOLDER. ALBERT L. PLATT, Clinton, Ill., assignor to the Clinton Book-Holder Company, same place. Filed July 17, 1897. Serial No. 644,973. (No model.)



Claim.—1. In a book-holder of the character described, the combination with the socket having peripheral ribs, the rod having bent tapering ends, the leg having a tapering aperture and the pintle, of the plate formed with rounded lugs, the plate connected therewith by a set-screw, the curved back, the stationary fingers, and the pivoted spring-clamps, substantially as specified.

2. In a book-holder of the character described, the combination with the tapering socket, having peripheral ribs, the rod having bent tapering ends, the leg having a tapering aperture, and the transverse pintle, of the plate having curved lugs engaging with said pintle, the plate connected therewith by a set-screw, and formed with a curved flange engaging with said pintle, and with a depression at each end, the curved back, the fingers having rounded sides and the pivoted spring-clamp seated on said depression, substantially as specified.

602,170. AIR-VALVE. EDWARD A. RIX, San Francisco, Cal. Filed Aug. 18, 1897. Serial No. 648,712. (No model.)



Claim.—1. In air-inlet valve, a main shell or casing, an annular valve-shell sliding therein, a stop-collar around the outer end of the valve-shell and a positive stop-ring therefor, fitting into a recess in the outer end of the main shell and held by the valve-stem support, substantially as described.

2. In an air-inlet valve, a main shell or casing, a tubular valve-shell sliding therein, having at one end an integrally-formed stop flange or collar, and at the other end an integrally-formed valve-disk reinforced by integral radial wings, passages or apertures through the valve-shell between the said wings and just above the valve-disk, a positive stop for the collar, removably secured to the said main shell, a tension-spring attached to said valve-disk, and a revoluble stem supporting said spring and valve-shell, substantially as specified.

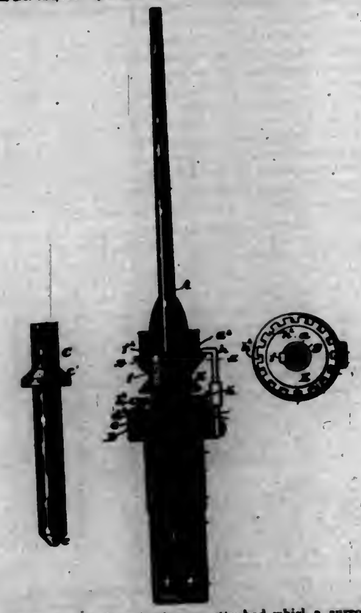
3. In an air-inlet valve a fixed or main shell, a sliding annular valve-body therein, a disk-valve integrally joined to the latter by curved vanes, with radial passages through the shell between said vanes, and an extensible helical spring centrally attached to said valve by a rigid connection, and attached also to a rotating stem at the upper end of said spring, whereby the valve is kept closed when not in action, substantially as described.

4. In an air-inlet valve, a main shell or casing, with means for removably attaching the same to an air-cylinder, a tubular valve-shell sliding therein, having at one end an integrally-formed stop flange or collar, and at the other end an integrally-formed valve-disk, reinforced by integral radial wings, passages or apertures through the valve-shell between the said wings and just above the valve-disk, a positive stop-ring 16 for the stop flange or collar, an open-sided support 13 removably attached to the main shell and securing the said stop-ring 16, a revoluble stem 12 sustained by the open support 13, and a tension-spring 9 attached to the said stem and to the valve-disk, whereby the latter is held closed when not in action, substantially as specified.

5. In an air-inlet valve a fixed main shell, a hollow or annular valve-shell sliding therein, a coiled extension-spring to hold the valve shut when not in action, an adjustable stem connecting to the spring and held by an open-sided support 13 attached to the end of the main shell, partially covering and securing the stop-ring 6, in the manner substantially as described.

6. An air-inlet valve comprising a main shell with means for removably attaching the same to an air-cylinder, a tubular valve-shell sliding therein, having at one end an integrally-formed stop flange or collar, and at the other end an integrally-formed valve-disk reinforced by radial wings, passages or apertures through the valve-shell between the said wings and just above the valve-disk, a removable stop-ring 16 for the stop flange or collar, an open-sided support 13 removably attached to the main shell and securing the said stop-ring 16, a revoluble stem 12 sustained by the open support 13, having adjusting-nuts 15, and a tension-spring 9, attached to the said stem and to the valve-disk, whereby the latter is held closed when not in action, substantially as specified.

602,171. SPINDLE-SUPPORT. EPPA H. RYDE, Waltham, Mass., assignor of one-half to A. M. Goodale, same place. Filed Feb. 20, 1897. Serial No. 624,201. (No model.)



Claim.—1. A bolster having an attached whirl, a surrounding support to receive said bolster, a spindle having its pintle within said bolster and means to connect the said whirl and bolster with the spindle in order that the latter may be rotated with the bolster and its whirl, and ball-bearings interposed between the said bolster and its supporting case near said whirl to constitute a rolling lateral bearing for the bolster, substantially as described.

2. A bolster having an attached whirl, means to sustain said bolster, a spindle having its pintle within said bolster, and means to connect the said whirl and bolster with the spindle in order that the latter may be rotated with the bolster and its whirl, and a packing interposed between said pintle and bolster, substantially as described.

3. A supporting-case, a bolster having at its exterior a tapered or inclined surface, a ring surrounding said bolster, rolling surfaces interposed between said ring and the tapered or inclined surface of the bolster, and a whirl connected with and to rotate the bolster, substantially as described.

4. A supporting-case, a bolster having at its exterior a tapered or inclined surface, a rolling surface to sustain the weight of said bolster, a ring surrounding said bolster, rolling surfaces interposed between said ring and the tapered or inclined surface of the bolster, and a whirl connected with and to rotate the said bolster, substantially as described.

5. The supporting-case, its notched ring, a bolster having an attached whirl, and a spindle provided with a flange independent of and located above said whirl, combined with a hook to overlap the said flange, and a movable lip to enter a notch in the said ring, substantially as described.

6. The bolster-case, a bolster therein provided near its upper end with an inclined or tapered surface, a whirl attached to said bolster, and a ring interposed between said tapered or inclined surface and the lower end of the whirl, combined with a series of balls or rolling surfaces interposed between said ring and said tapered or inclined surface, substantially as described.

7. A supporting-case, a spindle, a bolster having an inclined or tapered surface and rotated in unison with said spindle, combined with a ring mounted on the supporting-case and a series of balls interposed between said inclined or tapered surface of the bolster and said ring, substantially as described.

8. A supporting-case and a spindle, a bolster in which the pintle of the spindle is inserted loosely, means to connect said spindle and bolster that they may be rotated in unison with a suitable packing interposed between said bolster and spindle, substantially as described.

9. A supporting-case and a spindle, a bolster in which the pintle of the spindle is inserted loosely, means to connect said spindle and bolster that they may be rotated in unison, combined with a bearing in said supporting-case for the end of said bolster, and with a suitable packing interposed between said bolster and spindle, substantially as described.

602,172. SECONDARY BATTERY. FRIEDRICH W. SIEMENS, Triberg, Germany, assignor to the Elektrizitäts-Gesellschaft, Triberg, Gesellschaft mit Beschränkter Haftung, same place. Filed June 10, 1897. Serial No. 640,304. (No model.)



Claim.—1. In combination the supporting-frame consisting of the parallel perforated plates with the spacing-tubes *d* and connecting-bolts, and the electrodes consisting of the perforated tubes containing active material, said tubes being piled in the spaces between the plates and resting upon the spacing-tubes, substantially as described.

2. In combination the supporting-frame consisting of the parallel perforated plates of insulating material with the spacing-tubes *d* and connecting-bolts, and the series of electrode elements piled in the spaces between the plates and resting upon the spacing-tubes, substantially as described.

602,173. PLANTER. JAMES D. SCHOFIELD, Dallas, Tex. Filed Sept. 17, 1897. Serial No. 652,012. (No model.)



Claim.—1. In a planter, the combination with a hopper having a bearing, and a feed-disk mounted for horizontal rotation on the

bearing and provided with radial arms, of means for rotating the said feed-disk, and a vibratory feed device located in a slot in the hopper and having an upwardly-disposed end arranged in the path of and adapted to be struck and depressed by the said radial arms of the feed-disk.

2. In a planter, the combination with a hopper having a feed-slot, of a vibratory feed device fulcrumed between its ends in said slot, a cotton-feed, and means for alternately depressing the ends of said feed device.

3. In a planter, the combination with a hopper having a feed-slot, and a vibratory feed-plate having opposite end feed-openings and fulcrumed between its ends in said slot, of a feed-disk, means for rotating the same, and means for vibrating the feed-plate so as to alternately depress its ends and openings below the level of the feed-slot.

4. In a planter, the combination with a hopper the bottom of which is provided with a feed-slot, and a centrally-pivoted vibratory feed-plate having feed-openings at opposite sides of its center, of a feed-disk mounted for rotation in the hopper-bottom and provided with radial arms adapted to travel over said plate, and cam-lugs arranged on the feed-plate in the path of the arms of the feed-disk.

5. In a planter, the combination with a hopper having a feed-slot in its bottom, a vibratory feed-plate intermediately pivoted therein and provided with feed-openings near its opposite ends, and means for opening and closing the openings, of a feed-disk adapted to depress alternately the ends of the plate, and means for rotating said disk.

6. In a planter, the combination with a hopper having its bottom provided with a feed-slot, a centrally-pivoted vibratory feed-plate located therein and having openings near its ends, the edges of which are provided with upwardly-disposed cam-lugs, of a rotary feed-disk, and means for operating the same.

7. In a planter, the combination with a hopper the bottom of which is provided with a feed-slot, a feed-plate pivoted intermediately therein and provided with feed-openings, and a gage-plate located on the feed plate and adapted to overlap the feed-openings therein, of means for vibrating said feed-plate so as to depress its ends alternately below the bottom of the hopper, a feed-disk, and means for operating the same.

8. In a planter, the combination with a hopper having a feed-slot in the bottom at one side of its center, and bearings formed in the opposite edges of the same, a longitudinally-divided rock-shaft journaled therein, means for adjusting one of said shaft sections with relation to the other, a feed-plate having opposite openings mounted in the feed-slot and supported by the stationary section of the rock-shaft, and a gage-plate adapted to cover said openings carried by the adjustable section of the shaft, of means for depressing alternately the ends of the feed-plate, a feed-disk, and means for rotating the same.

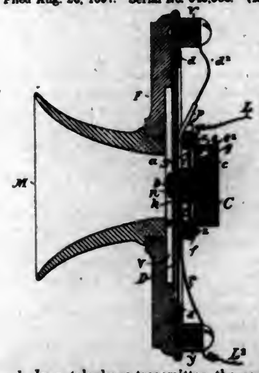
9. In a planter, the combination with a hopper the bottom of which is provided with a feed-slot, a divided rock-shaft journaled intermediate the ends thereof, a feed-plate having opposite openings supported by the lower shaft-section, a gage-plate located on the feed-plate, cam-lugs carried by the feed-plate and gage-plate, and means for securing the shaft-sections in their adjusted positions, of a feed-disk having arms radiating therefrom and adapted to strike the cam-lugs alternately, and means for rotating the feed-disk.

10. In a planter, the combination with the hopper the bottom of which is provided with a feed slot located at one side of its center, said slot having transversely-opposite bearings and terminating at its ends in inwardly-disposed depressed chutes, a feed-plate mounted for vibration in the feed-slot and journaled in the bearings and terminating at its ends in depending curved cut offs and provided at each side of its center with feed-openings, of a rotatable feed-disk journaled in the hopper, means for depressing alternately the ends of the feed-plate whereby their feed-openings are brought opposite the lower ends of the chutes, and means for rotating the feed-disk.

11. In a planter, the combination with the hopper the bottom of which is provided with a feed-slot located at one side of its center, said slot having transversely-opposite bearings and terminating at its ends in inwardly-disposed depressed chutes, a feed-plate mounted for vibration in the feed-slot and journaled in the bearings and terminating at its ends in depending curved cut offs and provided at each side of its center with feed-openings, of cam-lugs located at opposite sides of the center of the feed-plate, a rotatable feed-disk mounted in the bottom of the hopper and provided with radiating arms adapted to strike said lugs successively, and means for rotating said feed-disk.

12. In a planter, the combination with the hopper-wall, a ring located therein and a disk supported below and by the ring and having an annular track, the ring being provided with a curved slot at one side, the ends of the slot terminating in depressed chutes, a rotatable feed-disk located on the track and having arms radiating from its upper edge and a lower toothed periphery, and gearing for engaging the teeth and driving the feed-disk, of a vibratory feed-plate located in the feed-slot and having feed-openings, and lugs located on the plate in the path of and adapted to be successively struck by the radiating arms of the feed-disk.

602,174. TELEPHONE-TRANSMITTER. HERBERT R. SHELDEN, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed Aug. 26, 1897. Serial No. 649,900. (No model.)



Claim.—1. In a telephone-transmitter, the combination of the vibratory diaphragm, and front and back electrodes both mounted thereon, the former being rigidly, and the latter elastically attached thereto; with a variable-resistance medium composed of substantially spherical or rounded carbon granules or particles, held between and in constant contact with the said electrodes; substantially as specified.

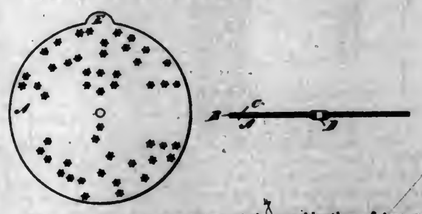
2. In a telephone-transmitter, the combination with the vibratory diaphragm, a case or chamber elastically attached to the said diaphragm and wholly supported thereby, and two electrodes having adjacent contact-surfaces, inclosed in said case, one being mounted directly on the diaphragm and the other on the back of the case; with a variable-resistance medium constituted of spherical or rounded particles of granulated carbon held between the said electrodes, within the said chamber; substantially as set forth.

3. The combination in a telephone-transmitter, with a diaphragm carrying both electrodes, one mounted directly thereon, and the other through an interposed elastic arm or plate, of a mass of granular carbon held between and in contact with the said electrodes to constitute a variable-resistance medium, the grains or particles of carbon being spherical or rounded in form; substantially as set forth.

4. In a transmitting-telephone of the granular-carbon type, the combination with the diaphragm, of a case or chamber containing the electrodes, supported on the said diaphragm, and provided with a spring-back forming or carrying one of the said electrodes, the other being attached directly to the diaphragm, and a mass of rounded or substantially spherical carbon granules or particles held between the said electrodes within the said case; substantially as described.

5. In a transmitting-telephone of the granular-carbon type, the combination of the diaphragm, a resilient or elastic disk or plate secured centrally thereto, a containing case or chamber supported on the spring edges of the said plate and closed thereby, and a variable-resistance medium contained within the said chamber and consisting of a front electrode directly secured to the diaphragm, a complementary electrode carried upon the rear wall of said chamber, and spherical or rounded carbon granulations held between the said electrodes; substantially as specified herein.

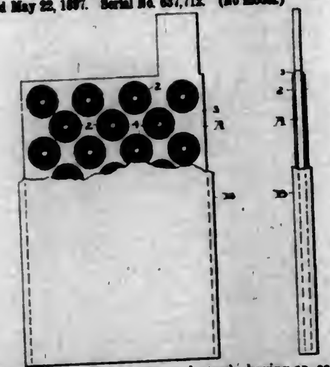
602,175. PUZZLE. JOSEPH T. SMITH, London, England. Filed July 31, 1897. Serial No. 646,688. (No model.)



Claim.—1. A puzzle, consisting of the combination of two or more relatively movable sheets of material, the front sheets being transparent, and all the sheets being secured together, and certain of the sheets having portions of a given complete design, said portions being so arranged that in one position of the sheets relatively to each other, the said portions on all the sheets unite to form a word or words or an easily-recognizable portrait, figure, or the like, while in all other relative positions of the sheets, no word or words, portrait, figure or the like is formed.

2. A puzzle consisting of the combination of a disk A, provided with a projection E, and having representations of certain parts of letters; a second transparent disk B, having a projection E and having representations of other parts of the same said letters, a third transparent disk C, having a projection E, and having representations of the remaining parts of the same said letters, and an eyelet D securing loosely together the three said disks at their center, as and for the purpose set forth.

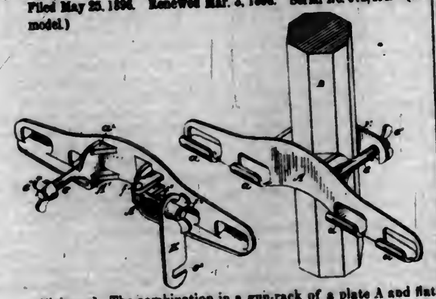
602,176. STORAGE BATTERY. GEORGE A. WASHBURN, Cleveland, Ohio, assignor to the Ohio Storage Battery Company, same place. Filed May 22, 1897. Serial No. 637,712. (No model.)



Claim.—1. A storage-battery electrode having on each side a series of groups of concentric ring-shaped projections of substantially uniform cross-section one with the other and equally spaced at all points to hold active material between them and standing out above the adjacent surface of the plate, and a hole centrally through each group communicating with the opposite side of the plate, substantially as described.

2. An electrode for storage batteries, consisting of a metallic plate having its surface provided with separate and distinct groups of circular projections, said projections similar in depth and cross-section from edge to base and integral with the plate and equally spaced at all points, active material filling the space between said projections, and the space outside of said projections between the groups being without active material, substantially as described.

602,177. GUN-RACK. LOCHIE M. WILES, Philadelphia, Pa. Filed May 25, 1896. Renewed Mar. 3, 1898. Serial No. 672,461. (No model.)



Claim.—1. The combination in a gun-rack of a plate A and flat hooks projecting therefrom adapted to engage with the swivel of a gun, so that the gun can be suspended therefrom, and will be prevented from swinging laterally thereon by the snug fit of the hook, with a clamp for securing the plate to the pole.

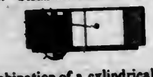
2. The combination in a rack for suspending guns, of a plate A having projecting hooks adapted to receive the swivel of a gun and having lugs at the back fitting the pole and screw-threaded bolts projecting from the lugs one of said bolts being pivoted to its lug, with a plate adapted to rest back of the pole and nuts for confining the plate against the pole, substantially as described.

3. The combination in a gun-rack, of a plate A having two flat hooks projecting outwardly from the plate at each side of the center to which the stacking-swivel of a gun is adapted to be attached, and will be prevented from swinging laterally thereon by the snug fit of the hook, with a clamp for securing the rack to a pole, the hooks being so arranged in respect to the pole that the guns will swing clear of it, substantially as described.

4. The combination in a gun-rack, of a plate A having hooks and having a projection below the hooks for holding the gun clear of the canvas of the tent, with means for attaching the rack to the tent-pole, substantially as described.

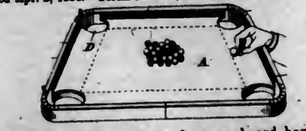
5. The combination in a gun-rack, of a plate, means for securing the plate to the pole, flat hooks projecting from the face of the plate and adapted to fit snugly into the stacking-swivel of a gun so that the gun will be suspended from the hooks and will be prevented from swinging laterally thereon by the snug fit of the hooks, substantially as described.

602,178. SOCKET-BOLT. EMILE L. A. CURRAU, East Orange, N. J. Filed June 23, 1897. Serial No. 641,951. (No model.)



Claim.—The combination of a cylindrical socket having exterior lines of barbs and closed at one end, the said closed and being formed with a slot having a central enlargement with opposite extensions of less width than the said enlargement, the opposite end of the said socket being open and unobstructed, a bolt movably fitted in the said socket and comprising an outer head and a shank extending therefrom reduced near its free end and terminating in a barb wider at its outer terminations than at the point connected to the said shank and adapted to be passed through the said slot having the central enlargement and opposite extensions, and a coil-spring surrounding the reduced part of the bolt and standing flush with the remaining portion of the shank said spring being held between the shoulder formed on the bolt by reducing a portion thereof and the partially-closed end of the socket in which the slot is formed, substantially as described.

602,179. GAME-BOARD. HENRY L. HASKELL, Ludington, Mich. Filed Apr. 2, 1896. Serial No. 585,854. (No model.)



Claim.—1. The combination of a game-board having a face, a rim projecting above the face, a cushion on the rim, a base-line on each side of the board extending across the board from the innermost portion of a pocket-opening to the corresponding portion of the opposite pocket-opening, and yielding pockets outside the base-line, with sets of disks adapted to be grouped about the center of the face, and a disk adapted to be snapped from a base-line to impel the other disks into the pockets either directly or by the deflecting action of the cushion, substantially as described.

2. In a game-board, the combination of a face, a rim, a cushion on the rim, a series of pockets, the corners bearing the pockets having recesses let into them in the plane of the cushion and the face, substantially as described.

3. In a game-board the combination of a face, a series of pockets, a rim forming the outer boundary of each pocket and having a central recess for each pocket extending above and below the plane of the face of the board and adapted to receive the impact of the playing-disk and deflect the same into the bottom of the pocket, substantially as described.

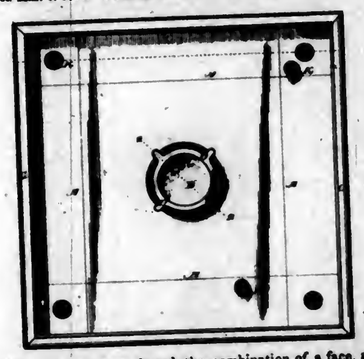
4. In a game-board the combination of a face, a rim, a series of pockets, a central recess in the rim for each pocket curved in all directions and extending above and below the plane of the face of the board and a pocket of felt or similar material hung loosely in front of the said recess, whereby the impact of the playing-disk may carry the loose material before it into the recess and the disk be deflected into the bottom of the pocket, substantially as described.

5. In a game-board the combination of a face, a rim projecting above and below the face, openings in the face for pockets, pockets, each secured to the top of the rim, and an adjustable wire held in the rim and securing each pocket below the face, substantially as described.

6. In a game-board the combination of a face, a rim, openings

in the face for pockets, a groove in the rim for each pocket below the face, a wire secured by each groove and encircling the openings, and pockets held about the openings by the wires, substantially as described.

602,180. GAME-BOARD. HENRY L HASKELL, Ludington, Mich. Filed Mar. 6, 1897. Serial No. 626,281. (No model.)



Claim.—1. In a game-board, the combination of a face, a central pocket-opening, a frame supported by posts on the face and surrounding the pocket-opening, a curtain depending from the frame and guarding the pocket-opening, a bottom for the pocket and means for securing the posts of the frame and the bottom of the pocket, substantially as described.

2. In a game-board, the combination of a face, a projecting rim, lines running parallel with the rim and crossing near the corners to form squares, depressions in the said squares, and a central pocket having an opening guarded by a curtain, substantially as described.

3. In a game-board, the combination of a face, a projecting rim, base-lines, corner-pockets, and a central opening in the face forming the mouth of a pocket, a frame projecting above the face and a flexible curtain hung from the frame and depending within the mouth of the pocket, substantially as described.

4. In a game-board, the combination of a face, a projecting rim, corner-pockets, a central opening in the face forming the mouth of the pocket a frame projecting from the face and surrounding the mouth of the pocket, a curtain hung from the frame and extending into the mouth of the pocket, a fabric forming a bottom for the pocket, a set of legs supporting the frame and passing through the face of the board, and means for securing the legs and the bottom of the pocket to the board, substantially as described.

5. In a game-board, a face, a series of base-lines and a pocket between the base-lines for the retention of surface projectiles, having a curtain or fringe suspended above and encircling the inner side of the pocket-opening, substantially as described.

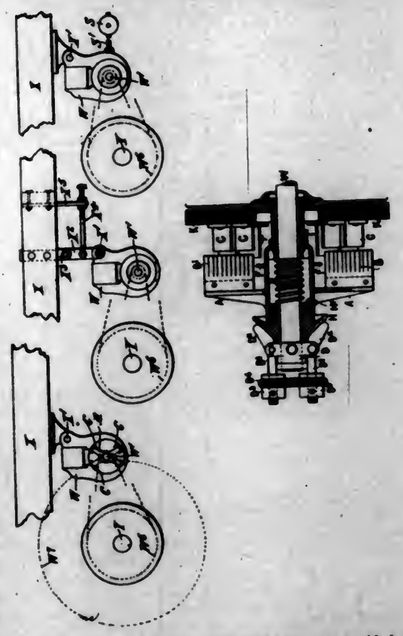
6. In a game-board, the combination of a face, base-lines, a pocket within the base-lines, a frame above the pocket, and a curtain or fringe depending from the frame into the mouth of the pocket, substantially as described.

602,181. MEANS FOR CONNECTING HUBS, COUPLINGS, OR THE LIKE TO SHAFTS. GEORGE C. HOWARD, Wallingford, Pa. Filed Feb. 9, 1897. Serial No. 622,660. (No model.)



Claim.—The combination of the shaft having the sets of peripheral, similar, eccentric, wedge-like projections, the two projections constituting a set being struck on different centers and in opposite directions from their highest points, and the hub or coupling having the series of interval depressions complementary to said projections; the construction and arrangement being substantially as set forth whereby the surfaces of said projections and depressions, respectively, are adapted to frictionally cohere and bind and tighten upon each other when the hub or coupling, or the shaft, is turned in either direction.

602,182. DYNAMO FOR ELECTRIC-CAR-LIGHTING SYSTEMS. EDWIN J. PRESTON and ARTHUR B. GILL, London, England, assignors to J. Stone & Co., same place. Filed Feb. 26, 1895. Serial No. 539,618. (No model.) Patented in England Mar. 17, 1894, No. 5,031, and Nov. 26, 1895, No. 1,611; in France Jan. 17, 1895, No. 244,494; in Belgium Jan. 17, 1896, No. 113,673; in Germany Jan. 19, 1895, No. 92,705; in Switzerland Feb. 6, 1895, No. 9,976; in Italy Mar. 31, 1896, No. 38,175; in Brazil Apr. 24, 1895, No. 1,949; in Austria Apr. 30, 1895, No. 45 / 1,831; in Canada Oct. 3, 1895, No. 50,161; in Hungary Nov. 3, 1895, No. 4,238; in Victoria Dec. 7, 1895, No. 12,735, and in India Dec. 27, 1895, No. 77.



Claim.—1. The combination with the driving-axle provided with a pulley, of a dynamo provided with a pulley and mounted to be capable of movement toward and from the driving-axle in a substantially horizontal direction, a driving-belt applied to said pulleys, and means whereby the dynamo is pressed away from the driving-axle and the pressure is applied to the belt which is necessary for producing the desired normal speed of the dynamo, while the dynamo is drawn toward the axle by an increased speed of the belt, thereby loosening the belt and causing a slip which neutralizes each increase of speed, thus maintaining the desired normal speed of the dynamo-shaft under an excessive speed of the driving-axle, substantially as set forth.

2. The combination with the driving-axle provided with a pulley, of a dynamo provided with a pulley, a substantially horizontal driving-belt applied to said pulleys, and a cone-sided suspension device supporting the dynamo and causing the same to swing away from the driving-axle and tighten the belt for producing the desired normal speed of the dynamo, while permitting the dynamo to be drawn toward the driving-axle by an increased speed of the belt, substantially as set forth.

3. The combination with the driving-axle provided with a pulley, of a dynamo provided with a pulley, a substantially horizontal driving-belt applied to said pulleys, a cone-sided suspension device supporting the dynamo and causing the same to swing away from the driving-axle and tighten the belt for producing the desired normal speed of the dynamo, while permitting the dynamo to be drawn toward the driving-axle by an increased speed of the belt, and means for altering the tension of the belt, substantially as set forth.

4. The combination with a railway-carriage or other vehicle, of a dynamo in one-sided suspension from the under side thereof, pulley-and-belt connection between the shaft of the dynamo and one of the vehicle-axles, the belt being in about a horizontal direction, said dynamo acting as a tension device for the belt, and means for shifting the point of suspension of the dynamo and thereby altering the tension of the belt.

5. The combination with a dynamo and its switchboard provided with two pairs of contacts and electric circuits leading therefrom, of a reversible contact-lever adapted to connect either pair of contacts and mounted loosely on the dynamo-shaft to be shifted from one pair of contacts to the other by the reversal of the direction of rotation, said lever being also capable of movement lengthwise on the dynamo-shaft for engagement with and disengagement from said contacts, and a centrifugal governor mounted on the dynamo-shaft and connected with said contact-lever to hold the latter in engagement with the contacts of the switchboard during the rotation of the dynamo-shaft and to withdraw the lever from said contacts as the rotatory speed falls, preparatory to shifting the lever to the other pair of contacts by the reversal of the rotation, after which the contact-lever is again moved into engagement with the contacts by the increase of the rotatory speed, substantially as set forth.

6. The combination with a vehicle, a dynamo pivotally suspended from the under side thereof, pulley-and-belt connection between the dynamo-shaft and one of the vehicle-axles, said dynamo performing the function of a belt-tightener, suitable contacts on the dynamo-framing, electric circuits leading from said contacts to the brushes, the battery and lamps or other current-receivers, and a rocking switch-lever loose on the dynamo-shaft; of a centrifugal governor controlled by the rotation of the dynamo-spindle, and controlling the switch-lever thereon, substantially as and for the purpose set forth.

7. The combination with a vehicle, a dynamo pivotally suspended therefrom, pulley-and-belt connections between the dynamo-shaft and one of the vehicle-axles, said dynamo performing the function of belt-tightener, suitable contacts and stops on the dynamo-framing, electric connections between said contacts and the dynamo-brushes, the battery and lamps or other current-receivers, and a rocking switch-lever loose on the dynamo-shaft and provided with suitable contacts adapted to cooperate with those on the dynamo-framing; of a centrifugal governor, also on the dynamo-spindle, provided with a retractile spring, said governor connected with the switch-lever and operating to automatically separate its contacts from those on the dynamo framing so soon as the dynamo-shaft ceases to revolve, for the purpose set forth.

8. The combination with the dynamo and its spindle, suitable contacts on the dynamo-framing, electric circuits including said contacts and the dynamo-brushes, suitable stops on said dynamo-framing, and a switch-lever loosely mounted on the dynamo-shaft; of a centrifugal governor on said shaft provided with a retractile spring, said governor connected with the switch-lever and operating to move the same so as to interrupt the electric circuits when the dynamo-shaft ceases to revolve and to position the said lever to reverse the direction of the current when the motion of the dynamo-shaft is reversed, for the purpose set forth.

9. The combination with the dynamo and its spindle, suitable contacts on the dynamo-framing, a battery, electric circuits leading therefrom to said contacts and to the dynamo brushes, suitable stops on said dynamo-framing, and a switch-lever loosely mounted on the dynamo-shaft; of a centrifugal governor on said shaft provided with a retractile spring, said governor connected with the switch-lever and operating to move the same so as to interrupt the electric circuits when the dynamo-shaft ceases to revolve and to position the said lever to reverse the direction of the current when the motion of the dynamo-shaft is reversed, for the purpose set forth.

10. The combination of a dynamo, the brushes P, P', a rocking switch-lever A mounted freely on its shaft and provided with contact-plugs B, B' and cone-sleeve H, contacts C^+ C^- C^s C' and C^2 and stops on the dynamo-framing, electrical circuit connections therefrom to the brushes, a suitable current-receiver, the centrifugal governor D, D', $D^\times$ with spring O and the cone-sleeve H against which the governor-arms $D^\times$ act, substantially as and for the purpose set forth.

11. The combination of a dynamo, the brushes P, P', a rocking switch-lever A mounted freely on its shaft and provided with contact-plugs B, B', and cone-sleeve H, contacts C^+, C^- C^s C' and C^2 and stops on the dynamo-framing, electrical circuit connections therefrom to the brushes, the battery M and the lamp N, the centrifugal governor D, D', $D^\times$, with spring O and the cone-sleeve H against which the governor-arms $D^\times$ act, substantially as and for the purpose set forth.

12. The combination of the dynamo, the switch-lever A with contact plugs B B' and cone-sleeve H, contacts C^+ C^- C^s C' and C^2 and stops, the centrifugal governor D, D' $D^\times$ with spring O, the lever E, contacts G and resistance L, and electrical circuit connections between the latter, a suitable current-receiver, the brushes P P' and the aforesaid contacts C, substantially as set forth.

13. The combination of the dynamo, the switch-lever A with contact-plugs B B' and cone-sleeve H, contacts C^+ C^- C^s C' and C^2 and stops, the centrifugal governor D, D' $D^\times$ with spring O, the lever E, contacts G and resistance L, and electrical circuit connections between the latter, the battery M, the brushes P, P' and the aforesaid contacts C, substantially as set forth.

602,183. SHEET-METAL BOBBIN. JAMES A. BUCKLIFF, Blackburn, England, assignor to himself, and George Paley, Preston, England. Filed Feb. 25, 1898. Serial No. 671,856. (No model.)



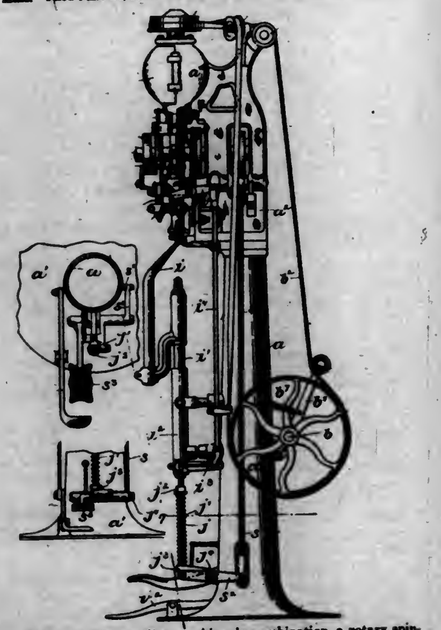
Claim.—1. A bobbin comprising a number of sheet-metal thimbles or pans having their adjacent ends secured one within the other and each having an internal strengthening flange or ring, substantially as described.

2. A sheet-metal bobbin comprising a number of thimbles or pans having their adjacent ends secured one within the other and each formed with an internal inwardly-extending strengthening-flange bent to a more or less tubular shape, substantially as described.

3. A bobbin comprising a number of stamped sheet-metal thimbles or pans each having one of its ends reduced in diameter and provided at that end with an inwardly-projecting flange bent to a tubular shape, the reduced end of one thimble or pan being secured in the unreduced end of the next adjacent thimble or pan, substantially as described.

4. The improved bobbin comprising a number of stamped sheet-metal thimbles or pans each having one of its ends reduced in diameter and provided at that end with an inwardly-projecting flange bent to a tubular shape, the reduced end of one thimble or pan being secured in the unreduced end of the next adjacent thimble or pan and a wooden top and a wooden bottom each carried by a sheet-metal sheath secured to the end of the adjacent thimble or pan, substantially as described.

602,184. MACHINE FOR NAILING SOLES TO UPPERS. ORRELL ASHTON, Lawrence, Mass., assignor to James W. Brooks, principal trustee, Peterham, and F. F. Stanley, associate trustee, Boston, Mass. Filed June 24, 1897. Serial No. 642,101. (No model.)



Claim.—1. In a nailing-machine, in combination, a rotary spindle, and means for feeding the wire therethrough comprising loosely-mounted rolls arranged to roll over the wire when moved in one direction and to grip it between them when moved in the other direction.

2. In a nailing-machine in combination, a rotary spindle, and means for feeding a threaded wire therethrough comprising oppositely-arranged loosely-mounted toothed rolls arranged to roll over the wire when moved in one direction and to grip it when moved in the other direction, and means for supporting and reciprocating said rolls.

3. In a nailing-machine, in combination, a rotary spindle, and means for feeding the wire therethrough consisting of a reciprocatory sleeve rotatable with the spindle, serrated rolls, and means for supporting said rolls on said sleeve, said means being constructed and arranged to permit the rolls to pass over the wire when moved in one direction, and to positively grip and feed the wire when moved in the other direction.

4. In a nailing-machine, in combination, a rotary spindle, and means for feeding the wire therethrough consisting of a reciprocatory sleeve rotatable with the spindle, a series of coacting serrated rolls, and friction-blocks for said rolls, supported by the sleeve.

5. In a nailing-machine, in combination, a rotary spindle, and means for feeding the wire therethrough, consisting of a reciprocatory sleeve rotatable with the spindle, a series of loose serrated wire-feeding rolls, and a friction-block for each roll pivoted on the said sleeve.

6. In a nailing-machine, in combination, a rotary spindle, and means for feeding the wire therethrough, consisting of a reciprocatory sleeve rotatable with the spindle, a series of loose serrated wire-feeding rolls, and a friction-block for each roll pivoted on the said sleeve, the axes of movement of the friction blocks being out of the plane of the axes of the rolls.

7. In a nailing-machine, in combination, a rotary spindle, and means for feeding the wire therethrough, consisting of a reciprocatory sleeve rotatable with the spindle, a series of loose serrated wire-feeding rolls, a friction-block for each roll pivoted on the said sleeve, and springs for thrusting the rolls into engagement with the wire.

8. In a nailing-machine, in combination, a rotary spindle, and means for feeding the wire therethrough, consisting of a reciprocatory sleeve rotatable with the spindle, a series of loose serrated wire-feeding rolls, a friction-block for each roll pivoted on the said sleeve, and spring-held means for thrusting the rolls into engagement with the wire.

9. In a nailing-machine, in combination, a rotary spindle, means for feeding the wire therethrough, and means for checking a backward movement of the wire comprising spring-pressed serrated rollers.

10. In a nailing machine, in combination, a rotary spindle, means for feeding the wire therethrough, and means for checking a backward movement of the wire comprising serrated rollers and friction-blocks for said rollers.

11. In a nailing-machine, in combination, a rotary spindle, means for feeding the wire therethrough, and means for checking a backward movement of the wire comprising serrated rollers and spring-pressed friction-blocks arranged to permit the rolls to rotate in one direction only.

12. In a nailing-machine, in combination, a rotary spindle, means for feeding the wire therethrough, and means for checking a backward movement of the wire comprising serrated rollers, friction-blocks for said rolls, and a collar on said spindle having springs bearing against said friction-blocks.

13. In a nailing-machine, in combination, a rotary spindle having a through-aperture, friction-blocks inserted in said aperture, coacting serrated rolls supported by the blocks, a collar on said spindle, and springs supported by said collar and bearing against the friction-blocks.

14. In a nailing-machine, in combination, a rotary spindle having an aperture in its lower end, a cylindrical throat-piece inserted in said spindle and having a projecting end, a reciprocatory sleeve, and feeding-rolls supported by said sleeve and projecting through slots in the throat-piece and spindle to grip the wire.

15. In a nailing-machine, in combination, a spindle, means for feeding wire therethrough, a roll supported by the spindle, and having friction-rims, spring-pressed friction brake-shoes bearing against said friction-rims to retard the rotation of the reel and a spring connecting said shoes.

16. In a nailing-machine, in combination, a spindle, means for feeding wire therethrough, a yoke connected with the spindle, a wire-reel supported in the yoke, and a journal-pin headed at one end and threaded at said end to engage the yoke.

17. In a nailing-machine, in combination, a rotary spindle, a reciprocatory sleeve having means for feeding the wire through the spindle, a transversely-arranged rotary shaft having a cam, a reciprocatory shaft arranged parallel to the spindle, an arm carried by said reciprocatory shaft and having cheeks or lugs embracing said cam, a roller on said arm, and means for connecting said reciprocatory shaft with said sleeve.

18. In a nailing-machine, in combination, a spindle, means for feeding the wire through the spindle, a reciprocatory shaft from which motion is transmitted to the feeding means, means for reciprocating said shaft, and mechanism for controlling the movements of said shaft, comprising a locking-stop and a foot-lever fulcrumed at the base of the machine and connected to said stop.

19. In a nailing-machine, in combination, a spindle, means for feeding the wire through the spindle, a reciprocatory shaft from which motion is transmitted to the feeding means, means for reciprocating said shaft, and mechanism for controlling the movements of said shaft comprising a sliding stop, a vertically-acting wedge to engage said stop, and a lever connected to said wedge.

20. In a nailing-machine, in combination, a spindle, means for feeding the wire therethrough, a reciprocatory shaft for operating the wire-feeding means, an arm on said shaft having a roller, and mechanism for controlling said shaft comprising a spring-held sliding stop, a wedge to engage the stop, a connecting-rod, and a treadle to operate as described.

21. In a nailing-machine, in combination, a reciprocatory toothed feed-lever, a lever for moving the feed-lever in one direction, an arm adjustably connected to the said lever for moving said feed-lever in the other direction, and two cams for acting on the said lever and the arm connected therewith.

22. In a nailing-machine, in combination, a reciprocatory toothed feed-lever, a two-armed lever for moving the feed-lever positively in each direction, cams for acting on said arms alternately, and means for limiting the degree of movement of the said two-armed lever.

23. In a nailing-machine, in combination, a reciprocatory toothed feed-lever, a two-armed lever for moving the feed-lever positively in each direction, cams for acting on said arms alternately, means for adjusting one of said arms relatively to the other, and an adjusting-screw for limiting the degree of movement of the said two-armed lever.

24. In a nailing-machine, in combination, a reciprocatory horn, a vibrating lever, and a clutch mechanism having a laterally-movable member for connecting the lever and horn only when the horn is partially depressed.

25. In a nailing-machine, in combination, a reciprocatory horn, a vibrating lever, a rod connected with the horn and having a rack, a stationary toothed clutch on the lever, and a revoluble clutch in engagement with the rack, said parts being constructed and arranged whereby when the horn is in its inoperative position the two clutches are out of engagement.

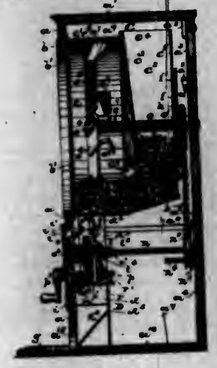
26. In a nailing-machine, in combination, a reciprocatory horn, a vibrating lever, a rack connected with the horn, a toothed clutch-roll mounted on said lever, a stationary clutch confronting the revoluble clutch, stops on said clutches, and a spring for thrusting the clutches into engagement, said parts being constructed and arranged whereby the horn is not reciprocated when there is no shoe upon it.

27. In a nailing-machine, in combination, a reciprocatory horn, a vibrating lever, a rack connected with the horn, a treadle for depressing the horn, a stationary toothed clutch on the lever, a rotary clutch mounted on the said lever and meshing with the rack, coacting stops carried by said clutches, and a cam for acting on the rotary clutch to throw it out of engagement with the stationary clutch.

28. In a nailing-machine, in combination, a reciprocatory horn, a vibrating lever, a rack connected with the horn, a toothed clutch-roll journaled on said lever, a stationary toothed clutch on said lever, a spring for thrusting said clutches into engagement, coacting stops carried by the said clutches, and a cam for thrusting said clutches out of engagement.

29. In a nailing-machine, in combination, a spindle, means for feeding the wire through said spindle, mechanism for controlling the said wire-feeding means, a horn, means for depressing said horn, and treadles or foot-levers arranged in proximity and one below the other, one treadle connected to the horn-depressing means, and the other connected to the wire-feed controlling means.

602,185. VENDING-MACHINE. Michael Benedict, Newark, N. J. Filed June 14, 1897. Serial No. 640,629. (No model.)



Claim.—1. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a delivery-chute connected with said reservoir, and a coin-controlled mechanism for intermittently operating said shaft and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, substantially as and for the purposes set forth.

2. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate f on said shaft, arms f' on said plate, a spindle h' in said shaft, a weighted arm h on said spindle, and a spring-actuated pawl or dog on said arm h adapted to engage with an arm on said plate f and operate the same, substantially as and for the purpose set forth.

3. In a vending-machine, a casing C, having a glass front, a pair of chambers divided by a partition having an opening, for establishing communication between said chambers, a tubular shaft extending through both chambers, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, exposed to view through said glass front, a delivery-chute connected with said reservoir, and a coin-controlled mechanism for operating said shaft, and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, substantially as and for the purposes set forth.

4. In a vending-machine, a candy or goods holding reservoir, comprising a pair of chambers divided by a partition having an opening, for establishing communication between said chambers, a tubular shaft extending through said chambers, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of the buckets past the mouth of the chute, consisting, essentially, of a disk or plate f on said shaft, arms f' on said plate, a spindle h' in said shaft, a weighted arm h on said spindle, and a spring-actuated dog or pawl on said arm h adapted to engage with an arm on said plate f and operate the same, substantially as and for the purpose set forth.

5. In a vending-machine, a candy or goods holding reservoir, comprising a pair of chambers divided by a partition having an opening, for establishing communication between said chambers, a tubular shaft extending through said chambers, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of the buckets past the mouth of the chute, consisting, essentially, of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, and mechanism adapted to be actuated by the action of a coin and cooperating with said means for causing the movement of said disk or plate, substantially as and for the purposes set forth.

6. In a vending-machine, a candy or goods holding reservoir, comprising a pair of chambers divided by a partition having an opening, for establishing communication between said chambers, a tubular shaft extending through said chambers, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, mechanism for operating said shaft and bringing one of the buckets past the mouth of the chute, consisting, essentially, of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, and mechanism, comprising a pair of spindles l and o having coin-receiving slots, a shaft n and a flexible connection cooperating with said means for the movement of said disk or plate, substantially as and for the purposes set forth.

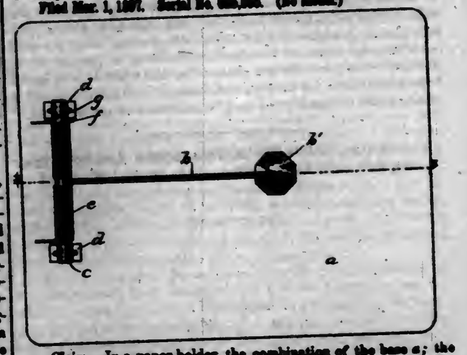
7. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate f on said shaft, arms f' on said plate, a spindle h' on said shaft, a weighted arm h on said spindle, a spring-actuated pawl or dog on said arm h adapted to engage with an arm on said plate f and operate the same, and mechanism adapted to be actuated by the action of a coin and cooperating with said arm h to cause the movement of the latter, substantially as and for the purposes set forth.

8. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate f on said shaft, arms f' on said plate, a spindle h' on said shaft, a weighted arm h on said spindle, a spring-actuated pawl or dog on said arm h adapted to engage with an arm on said plate f and operate the same, a grooved portion h^2 on said arm h, and mechanism, comprising, a pair of spindles l and o having coin-receiving slots, a shaft n, a wheel n^2 on said shaft, and a flexible connection between said wheel n^2 and said grooved portion h^2, substantially as and for the purpose set forth.

9. In a vending-machine, a coin-chute l, and a spring-actuated plate u having prongs extending into and through perforations in said chute, all in combination, with a shaft n, a wheel on said shaft, a pair of spring-like clamping-arms n^4 on said wheel, and a flexible connection between said arms n^4 and said plate u, substantially as and for the purposes set forth.

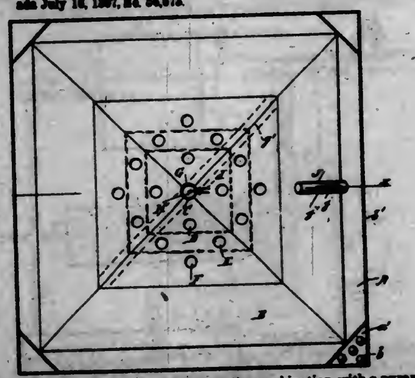
10. In a vending-machine, the combination, with the bracket m having a bearing, and the operating mechanism carried thereby, of a shaft p, and a spring-plate r and bearing-post r' for the one end of said shaft p, substantially as and for the purposes set forth.

602,186. PAPER-HOLDER. Gideon H. Kent, Cambridge, Mass. Filed Mar. 1, 1897. Serial No. 626,295. (No model.)



Claim.—In a paper-holder, the combination of the base a; the curved arm b, attached at one end to the rod c, the ends of which rest in sockets d, d'; the spring e, the center of which is curved upward to form a loop which bears against the arm b, so as to cause the free end of said arm to rest upon the base; and the catch f, fitting into the indentation g in the socket d'; substantially as, and for the purpose, above described.

602,187. GAME APPARATUS. Thomas Renwick, Miami, Canada. Filed July 12, 1897. Serial No. 644,170. (No model.) Patented in Canada July 16, 1897, No. 56,673.



Claim.—1 In a game apparatus, the combination, with a pyramid provided with a hole at its apex, of an ejector-tube let into the said hole and provided with a spring-actuated piston, and a catch projecting within the said tube and normally holding the said piston depressed, substantially as set forth.

2. In a game apparatus, the combination, with a base-board provided with compartments on its surface, of a hollow pyramid placed over the said compartments and provided with holes in its sides communicating with the said compartments, and a hole in its apex; and an ejector-tube provided with a spring-actuated piston and let into the said hole at the apex of the pyramid, substantially as set forth.

3. An ejector-tube provided with a spring-actuated piston, a pivoted catch projecting through a slot in the side of the tube and operating to retain the piston in its depressed position, said catch being adapted to release said piston upon the introduction of a ball or marble in said tube, guides for the catch on the side of the tube, and an elastic band encircling the said tube and catch, substantially as set forth.

4. In a game apparatus, the combination with a base-board having compartments; and a hollow pyramid placed over said compartments, said pyramid being provided with openings arranged in series; of means for automatically ejecting the ball or marble when the same has passed into the central opening, substantially as described.

5. In a game apparatus, the combination with a pyramid provided with an opening at its apex; of an ejector-tube connected with said opening, said tube being provided with a spring-actuated piston; and a catch projecting within said tube, said catch being adapted to normally hold said piston in its inoperative position, said catch being adapted to be released automatically by the action of the ball or marble passing into said tube, substantially as described.

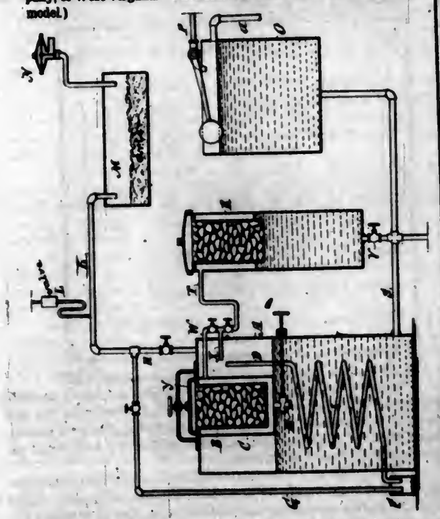
6. In a game apparatus, the combination with a base-board provided with a series of compartments; of a removable hollow pyramid placed over said compartments, said pyramid being provided with openings arranged in series, corresponding in position to the position of said compartments; balls or marbles adapted to be passed over said pyramid and through said openings; and means, secured to said pyramid for passing said balls or marbles over said pyramid.

602,188. TRUNK FOR UNDERGARMENTS. Lena Sittig, Brooklyn, N. Y. Filed Mar. 16, 1897. Serial No. 627,826. (No model.)



Claim.—A trunk for garments, comprising a main portion slitted centrally from back to front and provided with a laterally-elongated opening at the crotch, a toilet-flap and front closure connected along an arched line at the crotch and having their opposite edges attached to the main part of the trunk at distances spaced from the central line or slit of the main portion, substantially as set forth.

602,189. APPARATUS FOR GENERATING ACETYLENE GAS. Joseph A. Vincent, Philadelphia, Pa., assignor to the Electro Gas Company, of West Virginia. Filed Mar. 30, 1896. Serial No. 585,243. (No model.)



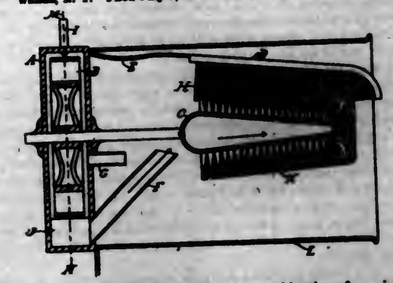
Claim.—1. The combination with the water-tank A having gas-outlet pipe of a carbid-receptacle B located in a vessel C in the upper part of the vessel A, the vessel C, which vessel C has a communication provided with a valve E with the lower part of the tank A, a second generator R having a carbid-receptacle in its upper part which communicates with the lower part of said receptacle R, the said carbid-receptacles B and R being at substantially the same height, the automatic water-supply O communicating with both generators and located at a height above the bottom of the said generators, and connections between the generators provided with valves, substantially as described.

2. The combination in a gas-generator of the water-tank A, having the internal receptacle C, permanently placed in its upper portion and above the water-level when the water is depressed, and having cock E and removable cover Y, substantially as described.

3. The combination in a gas-generator of the water-tank A, having the internal receptacle C, permanently placed in its upper portion and above the water-level when the water is depressed, and having cock E and the water-supply P, substantially as described.

4. The combination in a gas-generator of the water-tank A, having carbid-receptacle B and inclosing chamber C, permanently placed in its upper portion and above the water-level when the water is depressed, and having the valve E and the condenser placed in the chamber A, substantially as described.

602,190. TUMBLER-WASHER. Joseph J. Evans, North Tonawanda, N. Y. Filed July 2, 1897. Serial No. 643,316. (No model.)



Claim.—1. In a tumbler-washer, the combination of a casing provided with a water-inlet, a stationary brush attached to said casing, a hollow rotary brush mounted on a shaft journaled in the casing, a water-wheel on said shaft within the casing, a discharge-pipe leading from the casing to the interior of said hollow brush, and a deflecting-plate within the casing adjacent to said wheel, for deflecting discharge-water into the discharge-pipe, all substantially as described.

2. In a tumbler-washer, the combination of a casing provided with a water-inlet, a stationary brush attached to said casing, a hollow rotary brush mounted on a shaft journaled in the casing, a water-wheel on said shaft within the casing and a discharge-pipe leading from the casing to the interior of said hollow brush, substantially as described.

3. In a tumbler-washer, the combination of a casing containing a rotary water-motor, a hollow rotary brush operated by said motor, a spring-supported stationary brush attached to the casing adjacent the rotary brush and a projection on the stationary brush adapted to be engaged by the article being cleansed and thereby force the brush against its exterior surface, substantially as described.

602,191. DILATOR FOR FINGERS OF THE HAND. Richard A. Loughrey, San Francisco, Cal. Filed Aug. 17, 1896. Serial No. 603,079. (No model.)

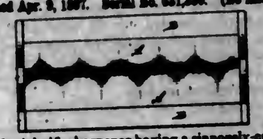


Claim.—1. A dilator consisting of parallel plates having suitable holes and slots, objects or bodies upon which the fingers are stretched and which are located between said plates and having pins passed through the holes and slots therein, and an object or body upon which the thumb is stretched detachably connected with said plates, substantially as described.

2. A dilator consisting of one or more plates formed of interconnected sections, objects or bodies upon which the fingers are stretched and which are held thereby, and means for shifting the plate-sections, substantially as described.

3. A dilator consisting of distenders adapted to be slipped between the fingers, and of plates having holes and slots in which the ends of the rollers are placed, substantially as described.

602,192. KNIFE-SHARPENER. John W. Mailloux, New York, N. Y. Filed Apr. 9, 1897. Serial No. 631,299. (No model.)



Claim.—1. A knife-sharpener having a sinuously-curving groove therein with sides converging to the bottom, the side walls thereof curving upward and outward forming corresponding wavy or corrugated surfaces, said surfaces being composed of abrading material, substantially as described.

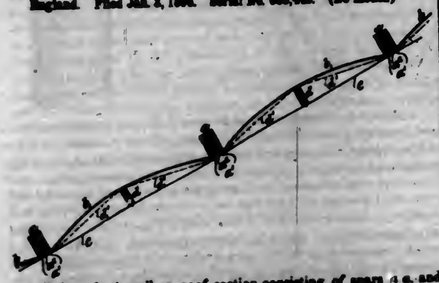
2. A knife-sharpener, comprising a frame having end openings accommodating the knife-blade and two opposed sharpening members held in said frame having abrading-surfaces which flare upwardly and outwardly on curved lines, said surfaces being corrugated so that the groove between the sharpening members forms a sinuous line and the space between the two sharpening members being in line with the end openings in the frame, substantially as described.

602,193. BRUSH. Charles A. Heubel, Boston, Mass. Filed May 21, 1897. Serial No. 637,503. (No model.)



Claim.—A bicycle-tire brush consisting of a pair of concave expansive brushes, a spring attached to the brush-holders and a yielding scraper or wiper attached to the adjacent ends of the brush-holders substantially as and for the purpose set forth.

602,194. PORTABLE HOUSE. Edward L. Frame, Darlington, England. Filed Jan. 2, 1896. Serial No. 665,449. (No model.)



Claim.—1. A wall or roof section consisting of spars *a a*, and arched boards *b b* secured by their edges to the spars *a a*, wire connections between the spars and filling the intervals between the spars.

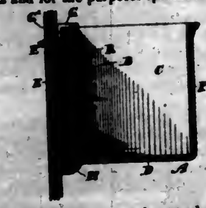
2. A wall or roof section consisting of spars *a a*, arched boards *b b*, in the intervals between the spars, wires *c*, tying the spars one to the other and planks *d*, supporting the arched boards from the wires in the intervals between the spars.

3. A wall or roof section consisting of spars *a a*, arched boards *b b*, the edges of which enter recesses in the spars, fillets *a'* covering and securing the edges of the boards, wires *c c* passed through staples *a² a²* and fixed by them to the spars and planks *d d* inserted between the wires and the arched boards.

4. A flooring-section consisting of a flat board *e*, a corrugated board *f* fixed thereon, and a layer of cement *g*, spread over the corrugated board and filling the corrugations on the upper surface thereof.

602,195. WATER-CLOSET TANK. Charles Pfau, Cincinnati, Ohio, assignor to the Pfau Manufacturing Company, same place. Filed July 9, 1897. Serial No. 643,994. (No model.)

Claim.—1. The combination of a water-closet tank having a recessed back with rearwardly-projecting side edges, and rearwardly-projecting bottom edge, and having the upper back hooks, and the supplemental plate, recessed at rear to receive the limbs of said hooks, and having the lower forwardly-projecting flange adapted to extend under the tank, and the rear edge of the tank-bottom cut away to receive that part of the back which supports the said bottom flange, substantially as and for the purposes specified.



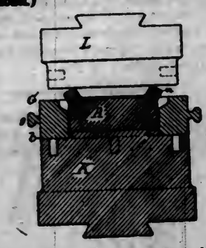
2. The combination of a water-closet tank having a recessed back with rearwardly-projecting side edges and a rearwardly-projecting bottom edge, and having the upper back hooks, and the supplemental plate, recessed at rear to receive the limbs of said hooks, and having the lower forwardly-projecting flange adapted to extend under the tank, and the bottom edge of the tank cut away to receive that part of the supplemental back which receives the said flange, that part of the back being contracted in width and less than the length of the flange, the remaining rear edges of the bottom of the tank and their joint with the supplemental back being covered by the extended flange of the back, substantially as and for the purposes specified.

3. The combination of the supplemental back contracted near the bottom and terminating in a flange extending forward and beyond the adjacent edges of the back, and the water-tank having sides extending rearwardly beyond the back, and parts of the bottom also extended rearwardly and over the flange and assisting to conceal joints, substantially as and for the purposes specified.

4. In a water-tank elevated above the floor, the combination of the supplemental back, having bottom forward projection, and the tank having the upper hook-formed device for engaging the upper edge portion of the supplemental back, the tank being free to swing and rest against the lower part of the supplemental back, and being supported by the extended bottom flange of the latter, substantially as and for the purposes specified.

5. In a water-tank elevated above the floor, the combination of the supplemental back having bottom forward projection, and contracted just before it reaches the projection, and leaving the projection extending laterally beyond the neck, and the tank having the upper hook formed device for engaging the upper edge portion of the supplemental back, the latter recessed where the engagement with the hook-formed device takes place, the tank being free to swing and rest at its lower portion against the lower part of the supplemental back and being supported by the extended bottom flange of the latter, substantially as and for the purposes specified.

602,196. DIE FOR FORGING SOLID-METAL CAR-WHEELS. Samuel H. Raimer, Norristown, Pa. Filed Dec. 22, 1896. Serial No. 616,686. (No model.)



Claim.—1. In combination the upper die L, having a plain flat surface, the lower die K having a raised center *a*, with a plain flat surface, which forms a centering-plug and the shoulder *b* formed around the centering-plug, by depressing the outer edge of the die below the level of the centering-plug, and a wall-ring G, which rests on the shoulder *b* and around the raised center to form the wall of the anvil-die, substantially as described.

2. In combination, the upper die L, having a plain flat surface, the hammer-block, unattached to the upper die and resting upon the center of the blank, the lower die K having a raised center *a*, with a plain flat surface to form a centering-plug and the shoulder *b*, formed around the centering-plug by depressing the outer edge of the die below the level of the centering-plug and a wall-ring G, which rests

on the shoulder *b* and around the raised center to form the wall of the anvil-die substantially as described.

3. In combination the plain-surfaced upper die L, the lower die K having a raised centering plug *a*, with a plain flat surface, thereon, the depressed shoulder *b* surrounding the centering-plug and a wall-ring G, and its flange-groove therein fitting closely around the centering-plug and resting upon the shoulder substantially as described.

4. In combination the die W having the fixed ring *c*, around its center, the die V, having the fixed collar *d* around its center, the raised portion *a'* constituting a centering-plug and the circular shoulder *b'* formed by depressing the die near its periphery, substantially as described.

5. In combination the die W, having the fixed ring *c*, around its center, the die V having the fixed collar *d*, around its center, the raised portion of *a'* with plain flat surface, constituting a centering-plug and the circular shoulder *b'* formed around the centering plug, by depressing the face of the die near its periphery, the wall-ring U, having a flange-groove therein and constructed and arranged to fit around the centering plug, substantially as described.

6. In an apparatus for forging and extending the web of a wheel-blank radially from the hub toward the tread, the combination of the die W having the fixed ring *c* near its center, and the die V, with the fixed ring *d*, near its center and having a raised center around the ring *d*, forming a centering-plug *a'* with a plain flat surface, substantially as described.

7. An apparatus for forging, forming and finishing a solid-metal car-wheel consisting in the combination with the die W having the fixed ring *c* around its center, the die V having the fixed collar *d* around its center, the raised portion *a'* constituting a centering-plug and the circular shoulder *b'* formed around the centering-plug by depressing the face of the die near its periphery the loose plating-rings *e* and *f* and the wall-ring U, having a flange-groove therein fitted around the centering-plug *a'* substantially as specified.

8. In apparatus for forging, forming and finishing a solid-metal car-wheel and causing the metal of the blank to flow radially outward from the hub to the tread and flange the combination with the die W its fixed collar *c* and the loose plating-ring *e*, of the die V with its fixed collar *d*, the loose plating-ring *f* and the wall-ring U having a flange-groove therein substantially as described

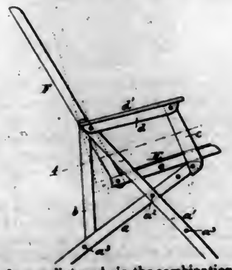
9. In apparatus for forging and shaping the web of a solid-metal car-wheel the combination of the dies W, V, with the fixed collars *c* and *d*, the wall-ring U with its flange-groove therein and the loose plating-rings S, T, substantially as described.

10. An apparatus for forging solid-metal car-wheels, the combination of the dies L, K and their wall-ring G, for forging and flanging a wheel-blank, with the dies W, V, and their wall-ring U, with the fixed and loose collars for forging, forming and finishing a solid-metal car-wheel.

11. The combination of the dies L, K, the plate or punch H, and the wall-ring G, having a flange-groove for forming a flange on a solid-metal wheel-blank by blows or pressure at right angles to the sides of the blank, with the dies W, V, their fixed collars *c* and *d*, the loose collars *e* and *f*, and the wall-ring U having a flange-groove thereon, for forging, forming and finishing the flanged blank into a finished car wheel.

12. In an apparatus for producing car-wheels the combination of means for forging a flange on a wheel-blank by blows or pressure at right angles to the side of the wheel-blank, with means for shaping and finishing by forging, so constructed and arranged as to cause the metal to flow radially outward from the hub to the tread and flange under an operative force.

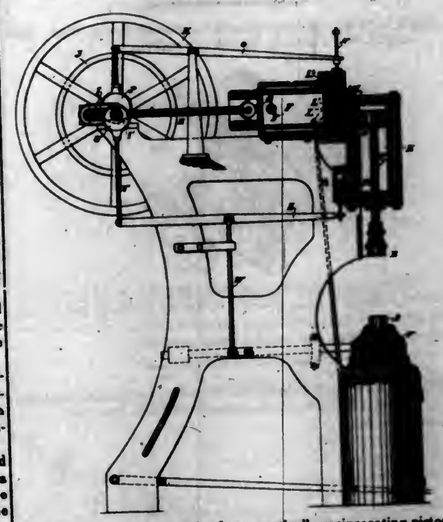
602,197. RECLINING-CHAIR. HIRAM F. RANKIN, Ottawa, Canada, assignor of one-half to Thomas W. A. Lindsay, same place. Filed Nov. 20, 1897. Serial No. 659,221. (No model.)



Claim.—1. In a reclining-chair, the combination with the crossed legs forming the sides of the chair, of upright stop-bars connecting the rear portions of each pair of legs, a back pivoted near its lower end to the upper portions of said stop-bars, and a sliding seat having its rear edge pivotally connected with the lower end of the back and having its front portion loosely supported upon the upper portions of the rearwardly-inclined legs, the rear portion of the seat being arranged to abut against said stop-bars in the normal rearward position, of the seat, substantially as set forth.

2. In a reclining-chair, the combination with the crossed legs forming the sides of the chair, front struts or standards extending upwardly from the upper ends of the rearwardly-inclined legs, arm-rests connecting the upper ends of said standards with the upper ends of the forwardly-inclined legs, upright stop-bars connecting the upper and lower rear members of the crossed legs, a back pivoted near its lower end to the upper end of said stop-bars, and a seat pivoted at its rear edge to the lower end of the back and resting upon the upper front portions of the cross-legs, and arranged to abut against said stop-bars in the rearmost position of the seat, substantially as set forth.

602,198. COMPRESSED-AIR HAMMER. JACOB SCHMIDT, Rio Vista, Cal. Filed June 22, 1897. Serial No. 641,775. (No model.)



Claim.—1. A hammer fixed to a vertically-reciprocating piston-rod having a piston fixed to its opposite end and movable within a containing-cylinder, a second cylinder disposed at right angles to the first-named cylinder, a plunger movable in the second cylinder and connected with a mechanism whereby air is compressed in said second cylinder, a passage between the two cylinders, a valve whereby said passage is closed until the air in the compressing-cylinder has reached any desired tension, and a mechanism connecting said valve with a crank or eccentric upon the main driving-shaft whereby the valve is opened, and the air in the first cylinder is admitted to propel the piston of the second, and a valve and connections for regulating or varying the force of the hammer's blow.

2. In a compressed-air hammer, cylinders disposed with relation to each other, one of said cylinders having a piston movable therein with a piston-rod and a hammer-head connected with the outer end of the piston-rod and adapted to be propelled thereby, a plunger in the other cylinder, a crank-shaft, a connecting-pitman by which the plunger is movable whereby air is compressed in said cylinder by each inward reciprocation of the plunger, a passage connecting said cylinder with the first-named cylinder above its piston whereby the compressed air is admitted in successive charges to impel said piston downward, and a valve actuated by the rotation of the crank-shaft whereby the passage controlled by the valve is retained in closed condition until the air is compressed to the desired tension, and afterward opened to admit it under full pressure of the second cylinder, and a valve and connections for regulating or varying the force of the hammer's blow.

3. In a compressed-air hammer, a cylinder having a piston movable therein, a piston-rod, the lower end of which carries a hammer, a second cylinder arranged with relation to and connecting through an open passage with the upper end of the first-named cylinder, a plunger and mechanism by which it is reciprocated in said second cylinder and to compress air therein, a valve movable so as to retain the connecting-passage closed until the air in the second cylinder has been compressed to the desired tension, connection between said valve and the crank-shaft through which the compressing-piston is actuated, whereby the valve is reciprocated to alternately close and open the passage, a discharge-passage from the lower end of the hammer-cylinder, a valve adjustable to intercept said passage to any desired degree whereby a back pressure is created in the lower part of the cylinder and the force of the blow delivered by the piston and connected parts is regulated.

4. In a compressed-air hammer, a vertical cylinder having a piston reciprocating therein, a piston-rod extending through the lower head of the cylinder and carrying a hammer at its lower end, a compressing-cylinder with a passage connecting it with the upper end of the hammer-cylinder, a crank-shaft and crank whereby the plunger of the compressing-cylinder is actuated, a valve adapted to intercept the passage between the two cylinders until the desired amount of compression is obtained in the compression-cylinder, and mechanism connecting with the crank-shaft to automatically open the valve and allow the air to pass into the hammer-cylinder, a passage opening out of the lower part of the hammer-cylinder, a valve whereby said passage may be intercepted or cut off to any desired degree, a fulcrumed lever, one end of which connects with the said valve and the other with an eccentric upon the crank-shaft by which the valve is actuated to partially intercept the escape of air from the lower part of the hammer-cylinder and to correspondingly reduce the force of the blow.

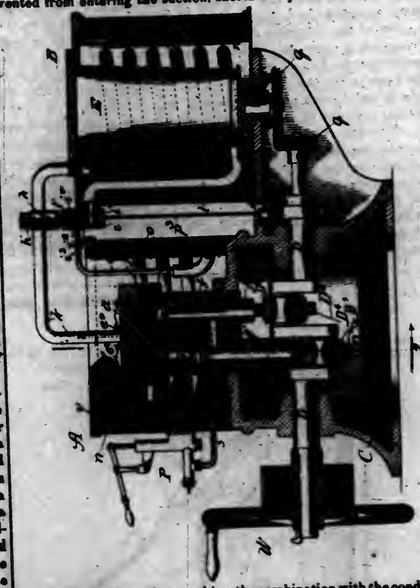
5. In a compressed-air hammer, a vertical cylinder having a piston reciprocating therein, means for admitting air under pressure above said piston, a passage from the lower part of the cylinder through which the air escapes as the piston moves downwardly, a valve movable to intercept said passage to any desired degree and thus cushion the piston at the lower end of its stroke, a lever-arm one end of which is connected with the valve-stem, the other with an eccentric upon the shaft through which the air is compressed, a fulcrumed bar to which the intermediate part of said lever is fulcrumed, a second lever to which the lower end of said fulcrumed bar is connected, said lever being movable up or down so that the valve may be reciprocated by the eccentric without interdopting the air-discharge passage when a full blow is required or it may be moved downwardly to partially intercept the passage for a lighter blow.

6. In a compressed-air hammer, a main cylinder with a piston movable therein, a piston-rod extending through the lower head carrying the hammer with its lower end, a second cylinder having a passage connecting it with the first-named cylinder above its piston and plunger movable in the second cylinder, a crank-shaft and a pitman connecting it with the plunger whereby the latter is reciprocated to compress air on each inward stroke of the plunger, a valve actuated in unison with the movements of the plunger whereby said valve is opened when the desired pressure has been attained within the compression-cylinder and the air under such pressure is admitted into the hammer-actuating cylinder, and a second passage crossing the first passage having a cock through which this first-named passage passes when the apparatus is in operation, and a foot-lever connection whereby said cock may be turned to close the direct connection between the cylinders and allow the air to escape from the compression-cylinder without acting in the lower cylinder.

602,199. REFRIGERATING-MACHINE. JULIUS SIEBLACKE, Nuremberg, Germany. Filed Feb. 26, 1897. Serial No. 626,128. (No model.) Patented in France Dec. 21, 1896, No. 258,856; in Germany Feb. 10, 1898, No. 82,733; in Italy Mar. 26, 1898, No. 1,194; in Austria-Hungary May 6, 1898, No. 1,089 and No. 8,627, and Aug. 20, 1898, No. 10,200; in Switzerland July 22, 1898, No. 7,268, and June 25, 1894, No. 8,786; in Belgium Aug. 25, 1894, No. 95,943, and in England May 14, 1895, No. 9,830.

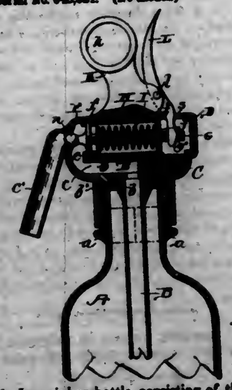
Claim.—1. In a refrigerating-machine, the combination with the condenser and refrigerator of a suction-chamber into which the refrigerator-coil discharges, a discharge-chamber connected with the condenser-coil, a pair of piston-chambers having valve-controlled connection with said suction-chamber and valve-controlled connection with said discharge-chamber, pistons in said piston-chambers and oil-chambers therein behind the pistons, and a by-pass communicating at one end with said oil-chambers and provided with a float-valve having a seat above and below it, whereby gas is prevented from passing from the suction into said oil-chambers and whereby oil is prevented from entering the suction, substantially as described.

2. In a refrigerating-machine, the combination with the condenser and refrigerator of a suction-chamber into which the refrigerator-coil discharges, a discharge chamber connected with the condenser-coil, a pair of piston-chambers intercommunicating through an oil-chamber at one end and each having a valve-controlled connection with said suction-chamber and a valve-controlled connection with said discharge-chamber, pistons in said piston-chambers, and a by-pass leading from said oil-chamber and provided with a float-valve having a seat above and below it, whereby gas is prevented from passing from the suction into said oil-chamber and whereby oil is prevented from entering the suction, substantially as described.



3. In a refrigerating-machine, the combination with the condenser and refrigerator of a compressor seated in the condenser-tank and surrounded therein by the condenser-coil, said compressor containing the piston-chambers *g* and *f* and communicating through an oil-chamber *d'*, the head G of said compressor containing the suction-chamber H into which the suction-pipe *k* leads, the discharge-chamber I communicating with said condenser-coil, the suction-valves *d* and *d'* and discharge-valves *c* and *c'*, pistons *g'* and *f'* in said piston-chambers, and a by-pass *o* leading from said oil-chamber to said suction-chamber and provided with a float-valve *o'* having a seat above and below it, whereby gas is prevented from passing from the suction into said oil-chamber and whereby oil is prevented from entering the suction, substantially as described.

602,200. SIPHON-HEAD. EMIL SIEGEL, Peoria, Ill. Filed June 11, 1897. Serial No. 640,281. (No model.)

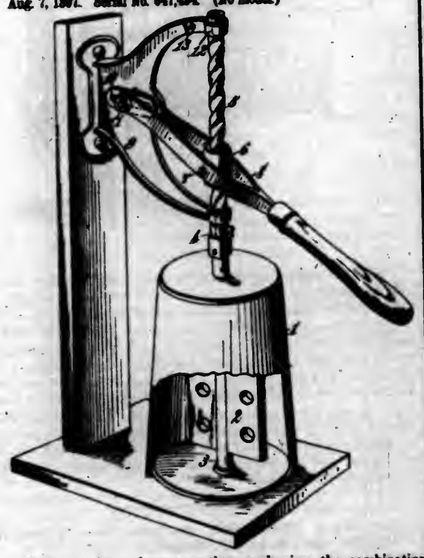


Claim.—1. In a siphon-bottle consisting of the top C, provided with an inwardly-extending integrally-formed tube E, having an open flange at its inner end, a cavity or channel surrounding the tube, of a yielding valve secured in the end of the tube E, provided with a ball or head fitting into a valve-opening in the cavity leading to the spout, and having an extended circular flange and means for tight-

ening the pressure of the valve in the opening consisting of the cap J, suitably carried in connection with tube E, as to be adjustable within said tube providing a positive means for holding the valve in position.

2. In combination with a siphon-bottle, the head or top C, having an inwardly-projecting integrally-formed tube E, having an open flange at its inner end, a cavity or channel surrounding the tube, and a valve of the character described, consisting of the ball or head fitting into a valve-opening leading to the spout and having an extended circular flange carried within the tube E, and bearing against the flange on the tube, of the supplemental tube H, carried within the tube E, and having a flange abutting with the flange of the valve holding the same in position between the flanges of the tubes E and H, preventing any leakage into the tubes, a cap fitting into the tube H, at the rear purposed for adjusting the pressure of the spring upon a washer on the valve-stem, making a positive pressure upon the valve and insuring its close contact with the valve-spring in the spout, and a lever L, pivoted to an arm extension from the top piece and carried through an opening in the casing and inserted in the slot in the valve-stem for drawing liquid from the bottle, all substantially as described and shown

602,201. CHURN. WILLIAM G. STONE, Charlotte, N. C. Filed Aug. 7, 1897. Serial No. 647,494. (No model.)



Claim.—1. In a churn-operating mechanism, the combination with the churn-body, a vibratory dasher therein, a dasher-shaft therefor, a spirally-threaded shaft-section engaged with said dasher-shaft, a bracket supporting said shaft-section, and an interiorly-threaded bur or nut vertically movable on said shaft-section, of an operating-lever engaged intermediate its ends with said bur or nut and having its inner end horizontally movable in a slot in the supporting-bracket, substantially as set forth.

2. In a churn-operating mechanism, the combination with the churn-body, a vibratory dasher therein, a dasher-shaft therefor, a spirally-threaded shaft-section engaged with said dasher-shaft, a bracket supporting said shaft-section, and an interiorly-threaded bur or nut vertically movable on said shaft-section, of an operating-lever having its inner end bifurcated and slightly resilient, said bifurcated portion adapted to engage with trunnions on said bur or nut, and a bolt engaged with the extreme inner ends of the bifurcated lever and movable horizontally in a slot in the supporting-bracket, substantially as set forth.

602,202. GAS-COCK. ALBERT W. TUCKERMAN, Wakefield, Mass. Filed Sept. 21, 1897. Serial No. 652,422. (No model.)



Claim.—In combination with a gas-cock, a locking-pin run transversely through the plug of the cock, said pin having one end bent up to engage notches in the valve-casing, a resilient J-shaped strip having its long end connected to the straight end of said locking-pin and the other end secured to the face of the thumb-piece making the long arm parallel therewith whereby when the thumb-piece is grasped the long arm will also be grasped and pressed inwardly the locking-pin being thereby moved out of engagement with the notches, as and for the purpose set forth.

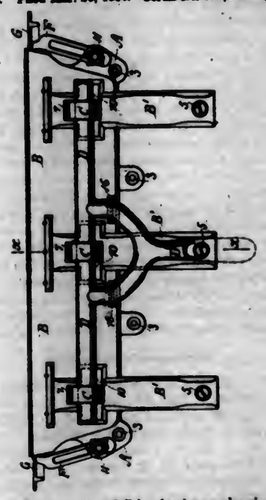
602,203. WITHDRAWN.

602,204. COMBINED CEMENT TUBE AND DISTRIBUTING-BRUSH. ANDREW L. WEIR, Toledo, Ohio. Filed Mar. 1, 1897. Serial No. 625,492. (No model.)



Claim.—A receptacle, for the purpose set forth, consisting of a flexible metallic tube closed at its lower end and provided with an externally-threaded aperture-pipe at its upper end, a nipple having an opening extending centrally therethrough, the lower portion of said opening being enlarged and threaded for the reception of said aperture-pipe, the upper end of said nipple being channeled out, forming parallel walls 10 and 11, the bristles having a portion of their ends seated in the channels of said nipple and held therein by clamping the wall 11 thereabout and the guard-cup 13 adapted to telescope over said nipple substantially as shown and described.

602,205. BAND-SAW CLAMP AND FILING-GUIDE. CHARLES B. WITSCHELL, New York, N. Y., assignor to Winchell & Hutchinson, same place. Filed Mar. 29, 1897. Serial No. 629,967. (No model.)



Claim.—1. The jaws A and B having integral spring legs extending down and means for connecting them together at the lower ends and stops projecting at the inner sides of the jaws and coming into contact when pressure is applied to the jaws, so as to relieve the spring-legs from strain, substantially as set forth.

2. The combination with the jaws A and B, of a clamp-bolt passing through the jaws, a nut upon the rear end of the clamp-bolt, the outer end of the clamp bolt being formed as a hook, a shaft perpendicular to the bolt and passing through the hook and parallel with the jaws, a lever and cams integral with the shaft, the cams being one at each side of the hook of the bolt and acting upon the surface of the front jaw, substantially as specified.

3. The combination with the jaws A and B, of a clamp bolt passing through the jaws, a nut upon the rear end of such clamp-bolt, the outer end of the clamp-bolt being formed as a hook, a cam-shaft passing through the hook of the clamp-bolt and having cams one at each side of such clamp-bolt and a handle forked and extending out from the cam-shaft near each of the cams, substantially as set forth.

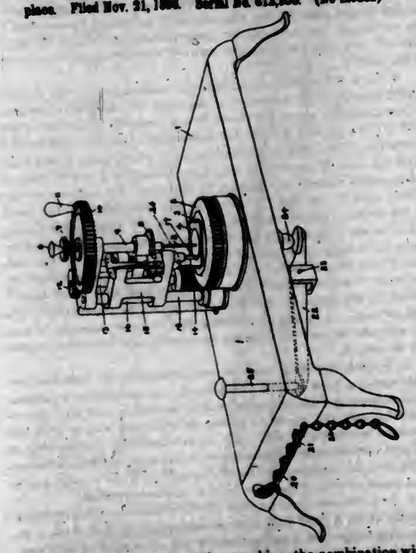
4. The stationary jaw A and movable front jaw B, in combination with the clamp-bolts passing through the jaws and having nuts upon their inner ends and formed as hooks upon their outer ends, a cam-shaft passing through the hooks of the clamp-bolts and having cams at each side of each bolt, there being projecting bearing-surfaces upon the front jaw for engaging the cams and a handle for turning the cam-shaft, substantially as set forth.

602,206. LANTERN. ALFRED L. BARON and JAMES F. HAFFEY, Tiffin, Ohio; said Haffey assignor to said Baron. Filed Mar. 8, 1897. Serial No. 626,499. (No model.)



Claim.—In a tubular lantern, the combination with its tubes, burner, spring-actuated globe, and globe-supporting mechanism, of a bell-crank lever pivoted at its ends to one of the tubes, its loop end overlapping the other, and bearing with its angular faces against the canopy, and a spring-wire latch secured at one end to that tube of the cylinder overlapped by the loop of the lever, and working in a slot therein in the path of the loop end of the lever, whereby, through the cooperation of the lever, the latch, and the globe-supporting mechanism, the globe may be depressed exclusively by manipulation of the lever, and may be elevated exclusively by manipulation of the latch, substantially as and for the purpose specified.

602,207. LENS-CUTTING MACHINE. FREDERICK G. BLANCHARD, Southbridge, Mass., assignor to the American Optical Company, same place. Filed Nov. 21, 1896. Serial No. 612,980. (No model.)

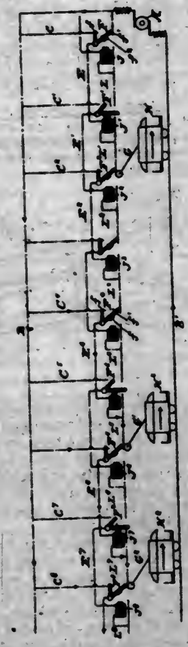


Claim.—1. In a lens cutting machine, the combination with the center tension-rod, the lens pattern secured on the arbor carrying the operating-gear, and the swinging frame carrying the diamond-holder, of an adjustable surface carried on said frame, and adapted to engage the lens pattern, and to be adjusted to vary the distance of the diamond-holder from the center of the lens to be cut, and a pointer connected with and moved by said adjustable surface, and a scale for the pointer, substantially as set forth.

2. In a lens-cutting machine, the combination with the center tension-rod, the lens pattern secured on the arbor carrying the operating gear, and the swinging frame carrying the diamond-holder, of an adjustable surface carried on said frame, and adapted to engage the lens pattern, and to be adjusted to vary the distance of the diamond-holder from the center of the lens to be cut, and a pointer connected with and moved by said adjustable surface, and an adjustable scale for the pointer, substantially as set forth.

3. In a lens-cutting machine, the combination with the swinging frame carrying the diamond-holder, of an adjustable pin carried on said frame, the inner end of which is adapted to engage the edge of the lens pattern, and said lens pattern and a screw for moving the pin toward or away from the pattern, to cause the diamond-holder to move away from or approach the center of the lens to be cut, and a pointer connected with and moved by said pin, to indicate the graduations on a scale carried on the diamond-holder frame, and said scale, substantially as set forth.

602,208. ELECTRIC BLOCK SYSTEM. FRANK BURGER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, same place. Filed Aug. 2, 1897. Serial No. 646,794. (No model.)



Claim.—In an electrical railway block system, the combination with the leading and return conductors of a series of insulated trolley-sections, a series of section-feeders, a normally-closed switch for each section-feeder located at the entrance of each trolley-section and adapted to be engaged by the trolley, a connection between said switch and a rear trolley-section, and a switch-operating magnet in said connection whereby when a car enters a section the corresponding magnet is energized to open the switch and break the circuit controlling the rear section and when the trolley leaves the section and enters a succeeding section, the trolley operates the switch to restore it to its normal or closed position, substantially as described.

602,209. PAINTER'S ROOF-BRACKET. DARIUS CLELAND, Oakland, Cal. Filed June 21, 1897. Serial No. 641,708. (No model.)

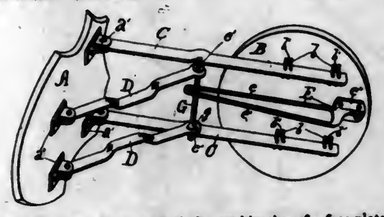
Claim.—1. A cleat for painters' hooks having a foundation or body, a series of spurs secured to said body, a metal member secured to said body and a metal rim projecting outward from said metal

member and adapted to engage the extremity of a painter's hook substantially as set forth.



2. The combination with body A, of one or more metal plates C C secured to said body and provided with integral spurs D, D', projecting plate G secured to said body and slightly offset therefrom, a plate secured to said body and formed with a depression, and a metal rim above said depression for the purpose of holding the painter's hook as set forth.

602,210. COUNTER-STOOL FOR STORES. GEORGE A. COULSON and JOHN MCCAW, Brockville, Canada. Filed Sept. 24, 1897. Serial No. 652,830. (No model.)



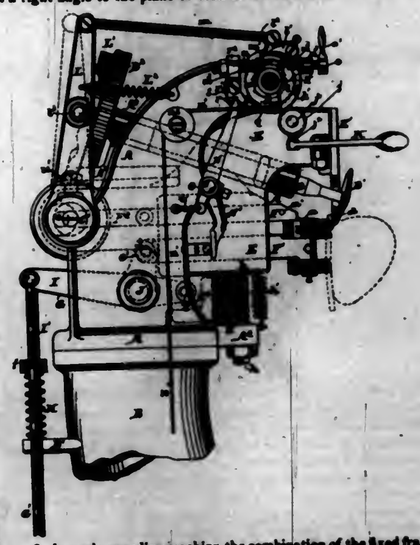
Claim.—1. In a counter-stool, the combination of a face-plate, a pair of bracket-arms, and a pair of braces hinged thereto, a seat secured to the outer end of said arms, a hook formed about midway and on the under side of each of said arms, a bar held in the outer ends of said braces having projecting ends adapted to engage said hooks, and a sprig-keeper attached to said seat and pressing against said bar; with tendency to force said bar against the under side of said arms when traveling midway thereof.

2. In an adjustable counter-stool, a seat, a vertically-swinging supporting-arm attached thereto, such arm being provided with means for detachably holding the traveling end of an adjustable brace, a vertically-swinging brace and means for forcing and holding said brace into engagement with a catch on said arm, and means for pivotally attaching one end of said arm and one end of said brace permanently to a fixed support, said supporting-arm and said brace being adapted to fold closely together in a vertical position against the face of said fixed support, when said seat is not extended for use.

602,211. SOLE-ROUNDING MACHINE. HANFORD T. CROSBY, Boston, Mass. Filed July 17, 1897. Serial No. 644,892. (No model.)

Claim.—1. In a sole-rounding machine the combination of a feed-disk revoluble in an inclined plane and arranged to engage the inseam of a boot or shoe to be acted upon; a horizontally-reciprocating cutter movable in a direction at right angles to the line of feed of the sole; a vertically arranged anvil-surface between said cutter and feed-disk, and in close proximity to the latter near the lowest portion of its periphery; a pressure-roll to bear against the tread-surface of the sole and force it into contact with said anvil-surface and the feed-disk; means for revolving said feed-disk; and means for imparting a rapid reciprocation to said cutter.

2. In a sole-rounding machine the combination of a feed-shaft mounted in fixed inclined bearings; a feed-disk carried by said shaft; means for imparting to said shaft and disk a constant rotation; an arm pivoted to the main frame at its rear end; means for moving said arm about its pivot, at the will of the operator; stops to limit the movements of said arm in both directions; a vertically-arranged anvil-surface carried by said arm with its operative end in close proximity to the rear face of said feed-disk; a pressure-roll carried by said arm and arranged to bear against the tread-surface of the shoe-sole to be acted upon; means for retracting said roll to permit the placing of the shoe in position: a horizontally-arranged slide fitted to a bearing in said arm; a cutter carried by the front end of said slide; and means for imparting to said slide a rapid reciprocation in a direction at a right angle to the plane of feed of the shoe-sole.



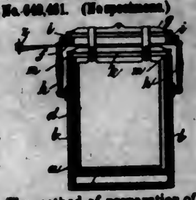
3. In a sole-rounding machine the combination of the fixed frame A'; the bracket A^5; the driving-shaft C provided with the crank-pin *c* and pulley C^5; the feed-shaft D; the feed-disk D'; the worm-wheel D^5; the worm C^5 carried by the shaft C; the arm E mounted upon a fulcrum-pin in axial line with the shaft C; the slides F and F' fitted to bearings in said arm E; the cutter *a* carried by the slide F; the rod F^5 connecting said slide to the crank-pin *c*; the pressure-roll *b* carried by the slide F'; the elbow-lever G connected to said slide F; the rod G and the spring H for reciprocating said slide; the anvil-plate E'; and stops to limit the upward and downward movements of the head E.

4. In a sole-rounding machine the combination of the driving-shaft C provided with the crank *c*; the worm C^5; the shaft D mounted in fixed bearings; the worm-wheel D^5 and feed-disk D' carried by said shaft D; the pivoted arm E; the screw-stop *h* to limit the downward movement of the front end of said head; the anvil-plate E', the truck *j* and the lever K carried by said arm; the slides F and F' fitted to and movable endwise in bearings in said arm; the cutter *a* carried by said slide F; the rod F^5 connecting the said slide F to the crank *c*; the pressure rolls *b b* carried by the slide F'; a spring for moving said slide and rolls toward the front; means for retracting said rolls; means for raising the front end of the arm E; the shaft L^2; the cams *k* and *k'* and the ratchet-wheel *l* all firmly secured upon the shaft L^2; the levers l^3 and m^3 loosely mounted upon said shaft; the pawl *l'* carried by the lever l^3; the shield *m'* carried by the lever m^3; the stops m^2 and *o*; a spring for holding the lever m^3 normally in contact with the stop m^2; and means for moving said lever into contact with the stop *o*.

5. In a sole-rounding machine the combination of a feed-disk revoluble about a fixed axis; a pivoted arm; an anvil-plate, a reciprocating cutter and a spring-pressed roll all carried by said arm; means for moving said arm about its pivot; an adjustable stop to limit the downward movement of said arm; an automatically-varying stop to limit and vary the upward movement of said arm; and means for imparting a rapid reciprocation to said cutter in a plane at right angles to the plane of feed of the shoe for the purpose specified.

6. In a sole-rounding machine the combination with a feed-disk revoluble about a fixed axis, of a pivoted arm; an anvil-plate, a reciprocating cutter and a spring-pressed roll all carried by said arm; means for moving said arm about its pivot; an adjustable stop for limiting the downward movement of said arm; a pair of cams mounted upon a common shaft; means for intermittently moving said shaft and cams about their axes in one direction to a limited extent; means for automatically returning said cams to their normal position; and a revoluble trunk carried by said pivoted arm and arranged to engage the periphery of one or the other of said cams to limit the upward movement of said arm; and means for moving said trunk lengthwise of its axis to transfer it from beneath one cam to a position beneath the other cam as set forth.

602,212. PROCESS OF AND APPARATUS FOR ELECTRODEPOSITING. EMILE L. DUBOSCQ, Epinay sur Seine, France. Filed Aug. 26, 1897. Serial No. 649,451. (No specimens.)



Claim.—1. The method of preparation of the cathodes consisting of depositing on them a thin layer of a metal capable of occluding hydrogen which is not attackable by the solution in which the cathode will be subsequently employed; subsequently saturating with hydrogen the surface of the thin layer of the metal, with which one has previously coated the cathodes in order to prevent the adherence of the metallic deposit to be afterward made, and lastly polishing the surface of the cathodes in order to obtain deposits equally polished.

2. The process which consists in first saturating the surface of a cathode which is of metal capable of occluding hydrogen with hydrogen, electrocoating the cathode with metal, and then stripping the deposit from the cathode.

3. The combination of a vat, anodes, one or more cathodes suspended on cross-bar *g*, conductors *i* on which bars *g* rest, a vibratory frame supporting conductors *i* and means for vibrating said frame.

4. The process consisting in coating a cathode of metal fusible at a low temperature with copper, coating the copper with a metal capable of occluding hydrogen and not attackable by subsequent baths to be used, hydrogenating and polishing the surface of the cathode, electrodepositing metal thereon, removing the fusible core by melting, and stripping the layers of metal first deposited on the cathode from the layer on said first layers.

602,213. GRINDING AND POLISHING DEVICE. GEORGE H. DYER, San Francisco, Cal. Filed June 22, 1897. Serial No. 641,705. (No model.)



Claim.—1. In a polishing or grinding apparatus, a suspending-rod and a main frame having one end carried thereby, disks or grinders journaled and supported in the opposite end adapted to rest upon the surface to be ground or polished, a flexible driving-belt and direction-pulleys over which it passes, through which power is transmitted to actuate the grinding-disks, and means comprising a yoke carried by the rod and serving to connect the latter with the frame and collars adjustable on the rod for varying the length of the latter to regulate the tension of the belt.

2. In a grinding and polishing apparatus, a main frame and suspending rod and yoke, knife-edge bearings by which the yoke is supported, an arc or segment connected therewith, a bolt and locking-nut connecting with the suspending-rod, whereby the yoke and frame may be tilted from one side to the other and fixed at any desired angle, and grinding-disks supported in the opposite end of the adjustable frame adapted to rest upon the surface to be ground or polished, and movable thereon.

3. In an apparatus for grinding and polishing, a main frame, a suspending-rod by which one end is supported, a yoke and adjusting and locking are whereby the frame may be turned from one side to the other, grinding-disks journaled and supported in the opposite end of the main frame with the peripheries of the disks adapted to be adjusted and rest upon the surface to be ground or polished, supports for this end of the main frame and screws whereby adjustment may be made to increase or decrease the amount of cut which the disks will make upon the surface to be operated on.

4. In a grinding and polishing apparatus, a main frame having one end adjustably suspended and capable of being tilted from side to side with an adjusting and holding mechanism, disks journaled at the opposite end of said frame, adapted to rest upon and be movable over the surface to be polished, a flexible driving-belt and direction-pulleys through which power is transmitted to rotate the disks, shanks or standards having ball-bearings adapted to rest and move upon a supporting-surface or guide, and screws whereby the disk-carrying frame may be raised or depressed to increase or decrease the amount of cut made by the disks upon the surface operated on.

5. In a device for grinding and polishing, a main frame having one end suspended with a tilting and locking mechanism whereby it may be turned from side to side about its suspending rod or hanger, grinding or polishing disks journaled at the opposite end of the frame so that they may be moved over a surface upon which they are to act, and a flexible driving-belt and direction-pulleys through which the disks are rotated, a supplemental adjusting frame or plate turnable about the vertical center whereby the grinding-disks may be caused to rotate in planes at an angle with the line of the main supporting-frame.

6. In a grinding or polishing apparatus, a main frame suspended and adjustable with relation to its point of suspension at one end, grinding or polishing disks journaled at the opposite end and independently adjustable therein, a flexible driving-belt and direction-pulleys through which power is transmitted to rotate the disks, so that by means of the independent adjustments at opposite ends of the main frame, any form of surface may be acted upon by the disks.

7. In a grinding or polishing apparatus, a main frame having one end adjustably and movably suspended, grinding or polishing disks journaled in the opposite end and independently adjustable, a suspending yoke or hanger and guides or tracks upon which the upper end of the hanger is supported and movable, a slidable bar adapted to travel between the fixed guides and prevent it from transverse motion therein, a crank mechanism connected with the hanger-frame and this guide whereby the frame and the grinding-disks are moved alternately from side to side.

8. In a grinding and polishing apparatus, a main frame adjustably suspended at one end and movable about its point of suspension, grinding or polishing disks journaled in the opposite end and independently adjustable, a yoke or frame extending upwardly through said disks, fixed supporting-tracks with ball-bearing devices by which the frame is supported upon said tracks and mechanism by which the frame is caused to oscillate transversely, and screws connected therewith by which it is also advanced in the direction of the screws during its oscillations.

9. In a device for grinding and polishing, a main frame adjustably suspended at one end, grinding or polishing disks journaled at the opposite end and movable over the surface to be ground, a suspending yoke or frame having antifrictional bearings, fixed guides or tracks upon which these bearings are movable, horizontal screw-shafts passing through nuts which are connected with the hanger and mechanism by which the screw-shafts are rotated whereby the hanger is caused to move in the line of the supporting-tracks whereby the grinding or polishing disks are advanced in one direction, a yoke slidable between the tracks and prevented from transverse motion thereby, a crank-wheel or eccentric journaled upon the hanger, with a pitman connecting the yoke with its crank whereby the main frame and disks are caused to oscillate transversely while being advanced

by the screws, and a jointed shaft through which motion is transmitted to the crank-wheel without throwing the driving mechanism out of engagement.

602,214. CONTINUOUS MILEAGE-TICKET. JOHN P. EASTMAN, Chicago, Ill., assignor of one-half to Fred M. Lewis, same place. Filed Sept. 20, 1897. Serial No. 652,284. (No model.)



Claim.—1. A ticket of the class described folded along a line, preferably perforated, lengthwise of said ticket intermediate between its edges, and then folded crosswise at intervals, forming a series of pages, connected at the ends, adapted to be drawn out in a continuous ticket, substantially parallel lines across said first line indicating units of distance, and characters representing units of distance corresponding to said transverse lines on each side of said first line and adjacent thereto, substantially as described.

2. A ticket of the class described folded lengthwise between its edges, and then folded crosswise at intervals, forming a series of pages, connected at the ends, adapted to be drawn out in a continuous ticket, a series of lines and corresponding figures representing units of distance on each side of said fold first mentioned and adjacent thereto, substantially as described.

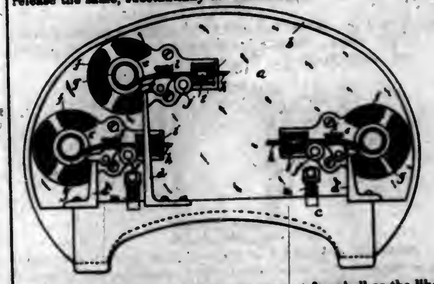
3. In a ticket of the class described, the combination of a cover adapted to hold and protect said ticket, a ticket attached thereto having a fold along its length, and then folded crosswise at intervals, forming a series of pages, connected at the ends, adapted to be drawn out in a continuous ticket, a series of substantially parallel lines and figures corresponding thereto representing units of distance on each side of said first-mentioned fold and adjacent thereto, and a blank space to one side for the holder's signature, substantially as described.

4. The combination of a ticket of the class described having a line, preferably perforated, lengthwise of said ticket intermediate between its edges, substantially parallel lines across said first line indicating units of distance, characters representing units of distance corresponding to said transverse lines adjacent to said first line, in combination with a cover adapted to hold and protect the ticket, said ticket being first folded along said first-mentioned line, and then folded crosswise at intervalvs forming a series of pages, connected at the ends, adapted to be drawn ont in a continuous ticket, substantially as described.

5. In a ticket of the class described, the combination of the cover adapted to hold and protect the ticket, a ticket folded lengthwise between its edges attached thereto, a series of substantially parallel lines and figures corresponding thereto on each side of said fold and adjacent thereto, the fold being so proportioned that the back of one portion will project outside of the other portion and provide a space for the holder's signature, substantially as described.

602,215. DEVICE FOR AMUSING CHILDREN. EDWIN L. FOSTER, Springfield, Mass., assignor of one-half to Thomas B. King, same place. Filed Mar 22, 1897. Serial No. 628,657. (No model.)

Claim.—1. The combination of a tray or support for a ball or the like, a returning device mounted therein, a cord extending from the returning device through an opening in the tray the free end of the cord, or a ball or other article attached thereto, being adapted to rest upon the tray, a stop device in proximity to which the cord passes, said stop automatically checking the return of the cord, when drawn out, to the returning device, and a tripping device, mounted in said tray, having operative connection with said stop device to release the same, substantially as described.



2. The combination of a tray or support for a ball or the like, a cord arranged therein, a returning device to which the cord is attached, a stop device and a tripping device to release the stop, normally extending beyond the edge of the tray, and arranged to be operated by pressure against the edge thereof, substantially as described.

3. The combination of a tray, a movable piece c arranged therein, a returning device, a cord extending from the returning device through the wall of the tray, a stop device arranged between the returning device and the free end of the cord and means extending from the movable piece c to the stop device whereby the stop device may be operated allowing the returning device to operate, substantially as shown.

4. The combination of a tray or support for a ball or other toy, a returning device mounted therein, a cord extending therefrom, and passing through an aperture in the tray, a pulley arranged near said aperture to change the direction of said cord from horizontal to vertical, a stop device for automatically holding said cord when drawn out, and a tripping device for releasing said stop device, arranged to be actuated from the edge of the tray, substantially as described.

5. The combination of a suitable support, a movable piece c arranged therein, springs arranged to maintain the piece c in its normal position, a cord, a returning device therefor, a stop to engage the cord and prevent return movement and a tripping-rod extending from the piece c to the stop whereby the cord is released when the piece c is operated, substantially as and for the purposes stated.

6. The combination of a toy-tray, a supplementary tray having a recess below its bottom to set over and clear toys or toy-cords resting on the lower tray, latches extending upward from the toy-tray, and having overhanging fingers for grasping the supplementary tray, and springs for pressing said latches down upon said supplementary tray when the latter is in position, substantially as described.

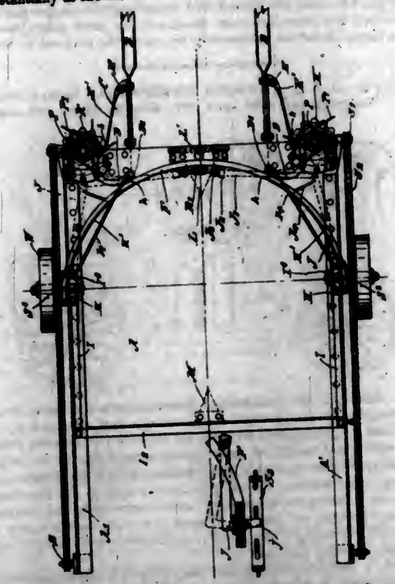
7. The combination of a toy-tray, a supplementary tray having its bottom raised to clear toys on the lower tray, and spring-actuated fingers extending from one of said trays and over the edge of the other tray and holding the two together, substantially as described.

602,216. CORN-HARVESTER. GEORGE GOWEN, Chicago, Ill. Filed Dec. 24, 1896. Serial No. 616,980. (No model.)

Claim.—1. The combination of a platform on which the stalks are carried as gathered; of draft devices attached to the platform; with a frame mounted upon traction-wheels, and said platform movable in relation to the frame; said frame provided with means for supporting the stalks on the platform in an upright position and for stripping the stalks from the platform, means for locking and unlocking the frame to and from the platform, and means for locking and unlocking the wheels for the purpose described.

2. The combination of a supporting-platform for the stalks, of draft devices attached to the platform with a frame, in relation to which the platform is movable, provided with means for supporting the stalks upon the platform and for stripping them from the platform, means for locking and unlocking the platform to and from the frame, and means for locking and unlocking the frame in a fixed position in relation to the ground during the stripping of the stalks from the platform, for the purpose described.

3. The combination of the platform for supporting and carrying the stalks, of draft devices attached thereto, and of devices attached to the platform for cutting the stalks, of devices fixed to the platform for supporting the stalks in an upright position during the cutting; with a frame for supporting the platform mounted upon traction-wheels in a manner that the platform is movable in relation thereto, and said frame carrying devices for supporting the stalks while being gathered, and for removing the stalks when gathered, substantially as shown.



4. The combination of the platform mounted upon a frame, and adapted to slide in relation thereto, said frame consisting of the curved axle bars F, one of them curving forward over the surface of the platform, and posts H fixed to the axle-frame, and the tilting-frame bar I[a] pivoted to said posts with means for moving the platform in relation to the frame whereby the frame strips the stalks from the platform, in the manner shown and for the purpose described.

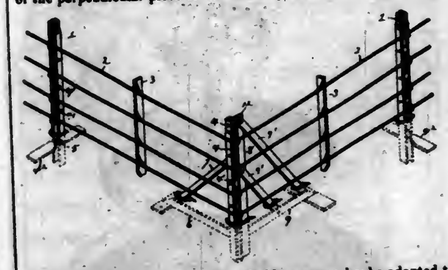
5. The combination of the platform for supporting the stalks while being gathered, of devices mounted upon the platform for cutting the stalks, of draft devices attached to the platform; with a framework suitably mounted upon traction-wheels, said platform sliding in relation to the said framework, means for locking the said framework in a position relative to that of the platform, and means for locking the traction-wheels of the frame simultaneously with the unlocking of the framework and platform, with a tilting frame fixed to the traction-wheel frame and moved therewith for supporting the stalks in an upright position on the platform while being gathered, means connected to the platform whereby by the movement of the platform in relation to the axle-frame the tilting frame is tilted clear of the stalks upon the platform permitting them to be discharged in an upright position, substantially as shown and described.

6. The combination of the platform A, of draft devices attached thereto, of devices mounted on said platform for cutting the stalks, with a traction-wheel frame mounted in a manner that the platform may slide in relation to the frame, and comprising the curved axle-bars F, and the levers J pivoted to the axle-frame in the manner shown, provided with projections for engaging the traction-wheels arresting their motion in the manner shown and for the purpose described.

7. The combination of the platform A, having the draft devices thereto attached, provided with rearwardly-extending arms A', with a traction-wheel frame mounted in a manner that the platform may slide in relation thereto, said frame having a curved bar F crossing the top surface of the platform, in the manner shown, said platform adapted to slide forwardly in relation to the frame and be supported in its forward position by the extending arm A' whereby the curved arm F is permitted to sweep the entire surface of the platform in order to free the stalks entirely therefrom, in the manner shown and for the purpose described.

602,217. FENCE. GEORGE B. GUNN, Camden, Tenn. Filed Sept. 7, 1897. Serial No. 650,703. (No model.)

Claim.—1. In a fence, the combination of a post adapted to be located at the corner, said post consisting of two vertical pieces, blocks located at suitable intervals between said pieces and retaining them at their proper distance apart, an anchor located near the lower end of said post, said anchor being adapted to be buried beneath the surface of the ground, a brace connecting said anchor with the upper portion of the post, an auxiliary brace adapted to be placed opposite the corner of the post, said auxiliary brace consisting of a perpendicular piece adapted to come in contact with the side of the post, an anchor fixed to the lower part of said piece, said anchor being buried in the ground, braces connecting said anchor with the upper portion of the perpendicular piece of the auxiliary brace.

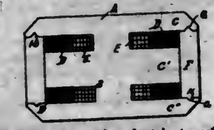


2. In a fence, a post having suitable recesses, hooks adapted to be secured in said recesses, the said hooks adapted to surround the wires and clamp them against the edges of the post, the upper ends of the hooks coming in contact with the edges of the post and thus preventing bowing of the wire.

3. In a fence, a post consisting of two vertical pieces and retained at suitable distances apart, a hook adapted to be secured between said pieces, said hook adapted to surround the wire and clamp the same against the edges of the pieces, the upper end of the hook being broader than the space between the pieces forming the post, the upper end of the hook being adapted to come in contact with the edges of the pieces.

4. In a fence, a post consisting of vertical pieces retained at suitable distances apart, hooks adapted to be located between said pieces, said hooks having their inner faces serrated, the serrated faces adapted to surround the wires and clamp them against the edges of the post, the upper ends of the hooks adapted to come in contact with the edges of the pieces forming the post.

602,218. ELECTRIC TRANSFORMER. LUDWIG GUTMANN, Pittsburg, Pa. Filed Oct. 31, 1890. Serial No. 369,980. (No model.)



Claim.—1. A core element for electric transformers consisting of a plate of magnetic material, two recesses or more provided in said plate for locating the transformer-windings, polar projections caused by said recesses, and a second plate or strip of magnetic material interlocking with the polar projections of the plate named first.

2. A core element for electric transformers or similar translating devices consisting of a plate of magnetic material, two or more recesses in said plate causing extensions, and a strip or plate adapted to interlock with said extensions, as and for the purpose described.

3. A core element for electric transformers consisting of a plate or lamina of magnetic material, two or more recesses in said plate, a second plate adapted to bridge said recesses and means for interlocking the said plates, as and for the purpose described.

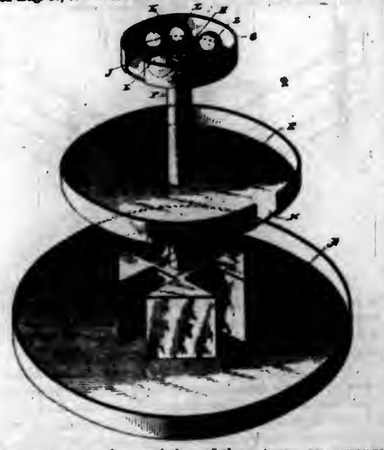
4. In an electric converter the combination with the windings of a laminated core provided with two or more recesses, adapted to admit the windings of said converter and causing extensions or projections, a second set of recesses and projections located in or on the first-named projections, and one or more blocks or wedges located in the second set of recesses and projections, for the purpose described.

5. In an electromagnetic device the combination with energizing-windings of a core, recesses in said core for retaining said winding or windings, projections caused by said recesses forming polar extensions, a second set of recesses located in said polar extensions and blocks or wedges of any suitable magnetic material, located and retained in the recesses last named for establishing a magnetic path from one pole to the other.

6. In an electromagnetic device the combination of a core, recesses provided in said core forming extensions on either side of each

recess, energizing windings or conductors located in said recesses, and partially or completely embedded in said core, a second set of recesses located in the core extensions or poles, and wedges of magnetic material located nearer to the surface or periphery than the winding and retained in the recesses last named, magnetically short-circuiting the poles formed by said extensions, or considerably reducing the magnetic resistance.

602,219. PUZZLE. WILLIARD A. HALLENBECK, Hudson, N. Y. Filed Aug. 17, 1897. Serial No. 648,484. (No model.)

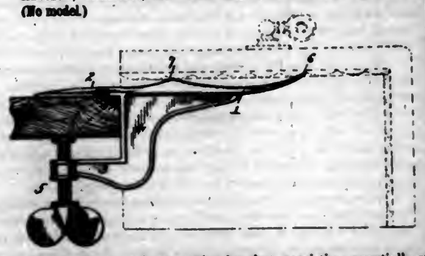


Claim.—1. A puzzle, consisting of three trays, one arranged above the other, each of less diameter than the one next beneath, the two upper trays having openings cut in their rims, and a block having stalls therein located in the lower tray, as specified.

2. As a new article of manufacture, a puzzle, consisting of three circular trays, each of less diameter than the one next beneath, the two trays having openings cut in their rims, a block having stalls formed therein located in the lower tray, and posts upon which the trays are supported, all arranged substantially as and for the purpose set forth.

3. In combination, three circular trays arranged one above the other, each of less diameter than the one next beneath, the two upper trays having openings formed in their rims, a block having stalls formed therein located in the bottom tray, posts D and F for supporting the upper trays, a rod passed through the several members of the device for holding them in place, and four balls to be placed in the upper tray and transferred one by one to the stalls in the lower tray, as specified.

602,220. WORK-SUPPORT FOR CASKETS, &c. ROBERT B. HEDGMAN, Commerce, Mo. Filed May 4, 1897. Serial No. 635,082. (No model.)

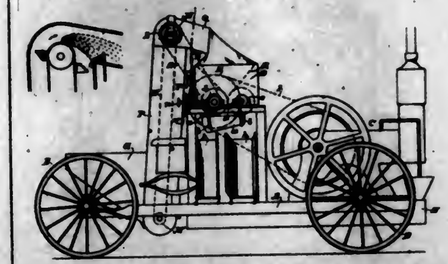


Claim.—1. A work supporting bracket, consisting essentially of an arm provided at one end with means for attaching it to a work-beach or other support and having its other end bent upward and terminating in a reduced supporting-point, said arm also being provided on its upper side near the attaching means with a raised supporting portion in approximately the same plane with the supporting end of the arm, as and for the purposes set forth.

2. A work-support for supporting caskets and other hollow articles, consisting of an arm provided with means for attaching it to a work-beach and supporting it in a substantially horizontal position, said arm having on its upper side two raised supporting portions, one near each end, said two supporting portions lying in substantially the same horizontal plane, as and for the purposes set forth.

3. A work-support for hollow articles, consisting of an arm provided at one end with a clamping device adapted to support it in a substantially horizontal position in front of the work-bench or other support, said arm being provided on its upper side with a supporting-surface near each end thereof, said supporting-surfaces being in substantially the same horizontal plane and in a place above that of the clamping device, substantially as and for the purposes set forth.

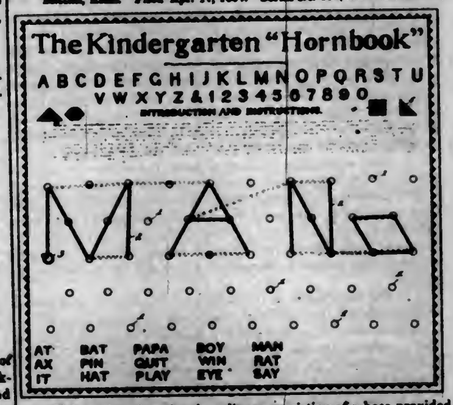
602,221. PORTABLE CRUSHING-MILL. HENRY L. JESSUP, Watsonville, Cal. Filed Apr. 6, 1897. Serial No. 630,917. (No model.)



Claim.—1. The combination, of crushing-rolls and means for actuating the same, an elevator-casing having a discharge-spout at one end and a regulated feed-supply at the opposite end, a bucket elevator within said casing and means actuating the same from one of the crushing-rolls, an adjustable gate operating through the elevator discharge-spout between the upper end of the elevator and the crushing rolls whereby the centrifugal impulse imparted by the elevator at its discharge end and the adjacent gate regulates the supply to the rolls according to the speed of the elevator, and means for adjustably securing said gate.

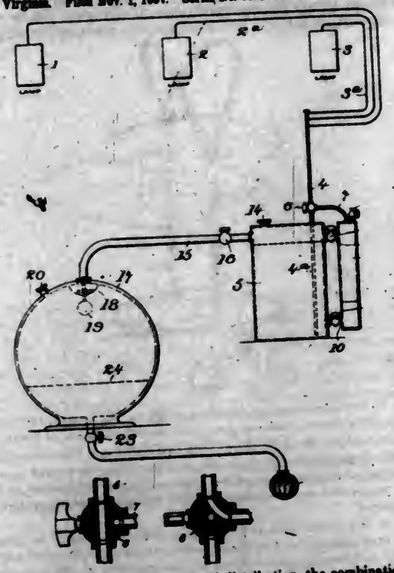
2. A portable crushing mill comprising in a single structure, a wheeled base or support; a driving-motor thereon; an elevator and complementary crushing and separating mechanisms, mounted on said base and operated by said motor; a gate interposed in the feed-passage between the upper end of the elevator and the crushing devices whereby the centrifugal impulse imparted by the elevator in the half-circle traversed at the upper end, and the adjustment of said gate, determines the distribution of the material to the crushing devices according to the speed of the elevator, and means for adjusting the gate.

602,222. EDUCATIONAL APPLIANCE. SAMUEL KIMBLE, Manhattan, Kans. Filed Apr. 17, 1897. Serial No. 632,604. (No model.)



Claim.—An educational appliance consisting of a base provided with a group of indicating-points, arranged at uniform distances apart, any three adjacent points forming an equilateral triangle and a flexible cord permanently attached at one end to the base and adapted to be extended between said indicating-points and lie upon the face of the base to form letters and other characters, different characters being adapted to be formed at the same part of the base by connecting different indicating-points, substantially as specified.

602,223. SYSTEM AND APPARATUS FOR DISTRIBUTING FLUID. ARTHUR KITSON, Philadelphia, Pa., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, of West Virginia. Filed Nov. 1, 1897. Serial No. 657,082. (No model.)



Claim.—1. In a system of fluid distribution, the combination of the service-pipes, a reservoir containing fluid under pressure, a drip-can having a valve-controlled connection to said reservoir, a drip-pipe which leads from the service system to the drip-can, and the valve or valves controlling said service system and drip-pipe, substantially as described.

2. In a system of fluid distribution the combination of the service-pipes, a reservoir containing fluid under pressure, a drip-can and connections from the reservoir thereto, means for subjecting the contents of the drip-can to pressure, a drip-pipe which leads from the service system to the drip-can, and the valve or valves controlling said service system and drip-pipe, substantially as described.

3. In a system of fluid distribution, the combination of the service-pipes, the reservoir containing fluid under pressure, the drip-can on the same level as the reservoir, the drip-pipe which leads from the service system to the drip-can, the valve or valves controlling said service system and drip-pipe, and the valve-controlled connection between the lower portion of the drip-can and the reservoir, substantially as described.

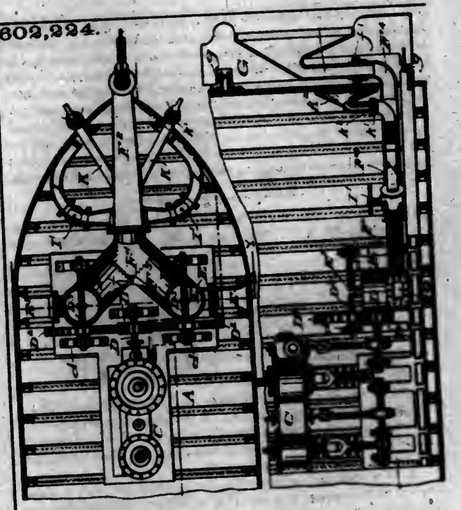
4. In a system of fluid distribution, the combination of the service-pipes, the reservoir containing fluid under pressure, the drip-can on the same level as the reservoir, the drip-pipe which leads from the service system to the drip-can, the valve or valves controlling said service system and drip pipe, and the valve-controlled connection between the lower portion of the drip-can and the reservoir, together with a connection by which the drip-can may be charged with compressed air, substantially as described.

5. In a system of fluid distribution, the combination of the service-pipes, the reservoir containing fluid under pressure, the drip can on the same level as the reservoir, the drip-pipe which leads from the service system to the drip-can, the valve or valves controlling said service system and drip-pipe, and the valve-controlled connection between the lower portion of the drip-can and the reservoir, together with a valve controlled connection from the upper portion of the reservoir to the upper portion of the drip-can, substantially as described.

602,224. HYDROSTATIC VESSEL PROPELLING AND STEERING APPARATUS. FRIEDRICH KRUPP, Berlin, Germany. Filed Sept. 28, 1896. Serial No. 607,242. (No model.)

Claim.—A vessel propelling and steering apparatus, comprising a pump-cylinder, a water-induction pipe, a rudder-blade pivotally supported in the usual manner to the stern of the vessel, a discharge-pipe and a fan-shaped rudder discharge-nozzle journaled to the outer end of the discharge-pipe by flexible joints coincident with the pivotal axis of the rudder-blade, substantially as described.

602,224.



602,225. DUMP-CART. ARTHUR MAXWELL, Ludlow Falls, Ohio. Filed Oct. 27, 1897. Serial No. 656,558. (No model.)

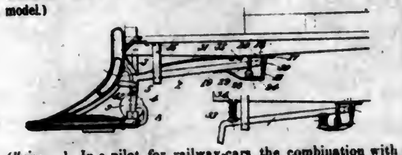


Claim.—1. A dump-cart, comprising the thills, the rectangular frame 3', to which said thills are fixed in the same horizontal plane, the drop axle 5, formed with the integral parallel arms 6 6, and horizontal spindles 7 7, the wheels 8 8, mounted on said spindles, in combination with the body 4, the transverse block 15, fixed to the bottom of said body and provided with the semicircular groove 17, in which the axle is mounted, the transverse bar 18, fixed to the front end of the body and provided with the integral forwardly-projecting toe 19, and the forwardly-projecting brackets 20 20, secured to the forward ends of the sides of said body, substantially as shown and described.

2. A dump-cart comprising the thills, the rectangular frame 3', the horizontal knees 4' 4', connecting said thills and frame, the drop-axle 5, having the integral spindles 7 7, the wheels 8 8 mounted on

said spindles, the hand-lever 9, fixed to said axle 5, and provided with the hinged pawl 10, the semicircular rack 14, fixed to said rectangular frame with a detent 12, located in the path of said pawl in combination with the body 4, the transverse block 15, fixed to said body and provided with the groove 17, forming a bearing for said axle, the transverse bar 18, fixed to the forward end of said body and provided with a horizontal projecting toe 19, and the forwardly-projecting brackets 20 20, secured to the forward end of the body, said toe and brackets adapted to engage the rectangular cart-frame and retain the body in a horizontal position, substantially as shown and described.

602,226. PILOT FOR RAILWAY-CARS. ELTHERA P. MCKAIG, Richmond Hill, N. Y. Filed June 1, 1896. Serial No. 593,855. (No model.)



Claim.—1. In a pilot for railway-cars, the combination with a frame adapted to be secured to a car, of an inflatable protective cushion carried upon the forward part of the frame, and an air-reservoir also carried on the frame and communicating with the cushion supplied with air, substantially as set forth.

2. In a pilot for railway-cars, the combination with a frame adapted to be secured to a car, of a protective inflatable covering extending over the entire front portion of the frame, substantially as set forth.

3. In a pilot for railway-cars, the combination with a frame adapted to be secured to the car, of a protective inflatable covering extending over the entire front portion of the frame, and an air-reservoir communicating with the inflatable covering, substantially as set forth.

4. In a pilot for railway-cars, the combination with a frame adapted to be secured to a car, of a protective inflatable covering extending over the entire front portion of the frame, and an air-reservoir communicating with the inflatable covering and carried upon the frame, substantially as set forth.

5. In a pilot for railway-cars, the combination with a frame and air-supply reservoir thereon, of an inflatable apron carried upon the forward part of the frame, a perforated reservoir within the same, and a pipe uniting the perforated reservoir to the air-supply reservoir, substantially as set forth.

6. The combination with a railway-car, brackets and slotted hinged plates upon opposite sides thereof, of a pilot-frame provided with side frame-pieces entering, respectively, the slots in the hinged plates, enlarged ends upon the frame side pieces, and means for supporting the forward ends of the frame side pieces, substantially as set forth.

7. The combination with a railway-car, brackets and hangers upon opposite sides thereof, respectively, and frame side pieces, of a bolt passing through the hangers, enlarged ends upon the frame side pieces, a slotted hinged plate in each of the brackets adapted to engage the side frame pieces, respectively, means for fastening the hinged plates, and oppositely-acting springs secured to the car and acting upon the top and bottom, respectively, of the side frame-pieces, substantially as and for the purpose specified.

602,227. PROCESS OF FABRICATING METALLOCERAMIC RESISTANCES. LOUIS PARVILLÉE, Paris, France. Filed Nov. 13, 1897. Serial No. 658,450. (No specimens.) Patented in France Sept. 24, 1896, No. 270,952, and in Germany Dec. 1, 1896, No. 94,293.

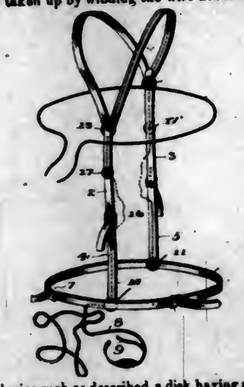
Claim.—1. The herein-described process of making metalloceramic resistances for electrical purposes consisting in mixing a metallic powder with extraneous bodies such as quartz, kaolin, clay or feldspar and with a flux, subjecting the whole to pressure and then firing the same, substantially as described.

2. The herein-described metalloceramic resistance consisting of a metallic powder, crushed quartz, kaolin and a flux, substantially as described.

3. The herein-described metalloceramic resistance consisting of powdered nickel, crushed quartz, kaolin combined with a flux consisting of silica, carbonate of lead and calcined borax all in substantially the proportions specified.

602,228. REMEDIAL APPLIANCE. JOHN R. PETERSON, Washington, D. C. Filed May 19, 1897. Serial No. 637,259. (No model.)

Claim.—1. A device such as described consisting of suitable disks, a webbing supporting said disks, a wire connecting all of the disks, said wire being secured to the webbing, the front and rear sections of the webbing having suitable means for adjustment, buttons fixed to the webbing above said means of adjustment, the wire being disconnected from the webbing about the means of adjustment, said wire also being slack about said means of adjustment and the slack adapted to be taken up by winding the wire about the buttons.

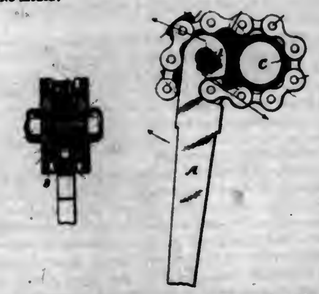


2. In a device such as described, a disk having an inner convexed plate and an outer concaved plate, said plates being secured together at their edges, the inner plate being perforated and the outer plate being adapted to be secured to the webbing of the device and a post attached to the inner side of the convexed plate and bearing at its end against the opposite plate, the disk being adapted to contain a compound.

3. In a device such as described, a disk consisting of an inner convexed plate and an outer concaved-convexed plate, the inner plate being perforated, a post secured to the inner side of the convexed plate, said post being internally threaded and bearing at its ends against the convexity of the concaved-convexed plate, a screw passing through the webbing of the device and being located at its end in the threaded interior of the post.

4. In a device such as described, a suitable webbing made in sections with means for adjusting and a wire connected to said webbing, a button adapted to take up the slack in the wire, said button having about its periphery an annular recess, and a depression located in its under side, said button having a central perforation, a screw passing through said perforation and through the webbing, a tap adapted to secure the bottoms to the webbing, said tap when in place being located within the lateral depression of the button.

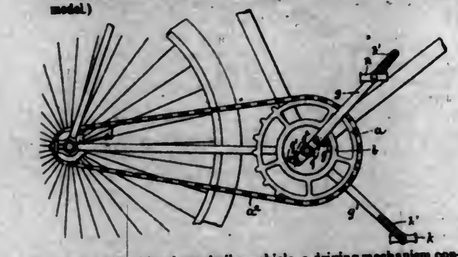
602,229. PIPE-WRENCH. THOMAS M. RIGHTER and GEORGE JEFFRYES, Mount Carmel, Pa. Filed Dec. 13, 1897. Serial No. 661,655. (No model.)



Claim.—1. In a pipe-wrench, the combination of a lever, a pivot-bolt passing through the lever, a pair of jaws fixed upon and adapted to rotate with said bolt, toothed recesses in the periphery of said jaws, slots in the inner faces of the jaws between the recesses, and a chain connected with the lever and provided with pins adapted to engage the slots in the jaws, substantially as described.

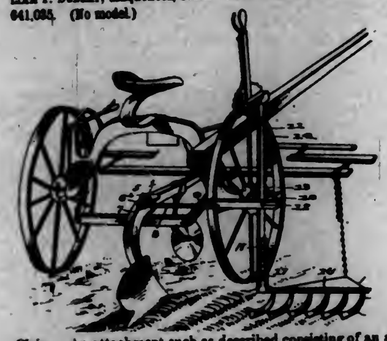
2. A pipe-wrench comprising a lever or handle, a pivot-bolt free to turn in an opening in said handle, a pair of circular jaws arranged upon the bolt on opposite sides of the handle, inclined slots in the inner faces of said jaws, said slots extending inward from the periphery and being inclined to the radii, a chain connected with the handle near the pivot-bolt, said chain having pins projecting from the sides thereof adapted to be seated in the inclined slots of the jaws, substantially as described.

602,230. PROPELLING MECHANISM FOR BICYCLES. IRA W. CORNELYEA, Newark, N. J. Filed Aug. 5, 1896. Serial No. 601,712. (No model.)



Claim.—In a bicycle or similar vehicle, a driving mechanism consisting of a driving-sprocket, a ratcheted disk secured thereto, a second disk, a sleeve securing said disks together, a hanger, a pin or shaft fixed to said hanger and forming a bearing for said sleeve, two treadle-arms, each oscillating upon said fixed shaft, a pawl mechanism connecting each treadle-arm with one of said disks, and two springs each fixed at one end to the pin or shaft and adapted to elevate each treadle-arm, substantially as described.

602,231. PULVERIZING ATTACHMENT FOR PLOWS. WILLIAM F. DUNLAP, Maquoketa, Iowa. Filed June 16, 1897. Serial No. 641,095. (No model.)



Claim.—An attachment such as described consisting of an angular piece adapted to be secured to the plow-beam, a spring-rod pivoted to said angular piece, a lever fulcrumed to the outer end of said rod, a means for securing said lever in a desired point in its path, a bar carrying a number of blades, said bar being adjustably secured to the end of said lever the blades on said bar adapted to come in contact with the ground, a bail attached to the forward edge of said bar, a flexible connection connecting said bail with a stationary point of the plow.

602,232. LOCK-NUT. BUTLER EDGAR, Sunbury, Pa., assignor to Thomas M. Righter, trustee, Mount Carmel, Pa. Filed Aug. 26, 1897. Serial No. 649,617. (No model.)



Claim.—A self-locking nut, having a kerf in one side partially severing it on a plane substantially parallel with its upper and lower faces and having the portion above said kerf set inward, the portion of the hole in the nut below the kerf being circular and the portion above being reduced in one of its diameters, whereby the set-in portion is adapted to grip the bolt, substantially as described.

602,233. NUT-LOCK. BUTLER EDGAR, Sunbury, Pa., assignor to Thomas M. Righter, trustee, Mount Carmel, Pa. Filed June 9, 1897. Renewed Mar. 3, 1898. Serial No. 673,143. (No model.)

Claim.—1. The combination of a threaded bolt or rod, a nut, and a part to be clamped, one of the opposing faces of the nut and clamped part having one or more tapering tangential grooves opening at their larger ends at the sides of the nut, and a hard ball adapted to fit in one of said grooves and to bear against the opposing face when the nut is screwed up to said part, substantially as described.



2. The combination of a threaded bolt or rod, a nut, and a part to be clamped, one of the opposing faces of the nut and clamped part having one or more tapering tangential grooves opening at both ends at the sides of the nut, and a hard ball adapted to fit in one of said grooves and to bear against the opposing face when the nut is screwed up to said part, substantially as described.

602,234. SINGLE-PIECE SHEET-METAL HANDLE. JOHN W. GREER, Manchester, N. Y. Filed May 5, 1897. Serial No. 635,278. (No model.)



Claim.—A single-piece sheet-metal handle consisting of a blank having its longitudinal edges formed up and locked together at the upper side of the handle, thus forming a longitudinal seam extending along the upper side of the handle, recesses cut at the lower end of the body portion of the handle, said recesses adapted to receive the upper edge of the utensil, a lip extending into the utensil and being secured to the inner side thereof, a fold extending through the longitudinal axis of the lip, a flange extending from the lower end of the body portion of the blank, said flange adapted to be secured to the outer side of the utensil, a transverse fold pitching said flange at the proper angle to the handle.

602,235. ELECTRIC-CORD-ADJUSTING DEVICE. FRANCIS H. LAWTON, Summit, N. J. Filed Apr. 5, 1897. Serial No. 630,737. (No model.)



Claim.—1. The combination of flexible insulated electric conducting-cords with an adjusting device therefor consisting of a wire, rod or form of metal having a smooth, curved, contact-surface, said wire being bent or crimped into a series of successively-reversed loops, and having a layer or coating of insulating material on its surface; said flexible cord being intertwined with said adjusting devices, substantially as described.

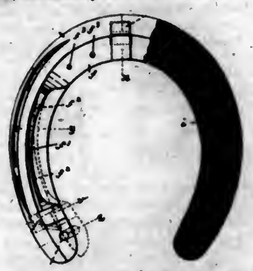
2. An adjusting device for flexible insulated conducting-cords consisting of a metal wire, rod or form of metal having a smooth, curved exterior surface, bent or crimped into a series of successive loops arranged in the same plane, and a layer or coating of insulating vitreous enamel thereon, substantially as described.

602,236. ELASTIC HORSESHOE. THOMAS M. MILLER, Bethlehem, Pa., assignor of one-half to J. Walter Levatt, same place. Filed Aug. 6, 1897. Serial No. 647,231. (No model.)

Claim.—1. A horseshoe comprising a hoof-plate, a horseshoe-shaped band removably arranged on said hoof-plate and having its quarters bent at right angles to itself, an elastic block carried by said band and its quarters and extending to the outer edge of the hoof-plate, and means for removably securing said band and elastic block to the hoof-plate, substantially as and for the purposes described.

2. A horseshoe comprising a hoof-plate, a horseshoe-shaped band removably secured to said hoof-plate and having its quarters bent at

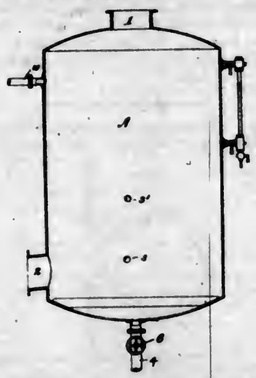
right angles to itself, and an elastic horseshoe-shaped block carried by said band and its quarters and conforming in shape to the shape of the hoof-plate, substantially as and for the purposes described.



3. A horseshoe comprising a hoof-plate provided on its under inner portion with a rabbet and at its toe and heels with openings and adjoining recesses, a band in said rabbet and provided with outwardly-projecting lugs penetrating the said openings and engaging their respective recesses, and an elastic block carried by said band and substantially conforming in shape to the shape of the hoof-plate, substantially as and for the purposes described.

4. A horseshoe comprising a hoof-plate provided at its under inner portion with a rabbet, a horseshoe-shaped band removably arranged in said rabbet and having its quarters bent at right angles to itself, an elastic block carried by said band and its quarters and extending to the outer edge of the hoof-plate, and means for removably securing said band and elastic block to the hoof-plate, substantially as and for the purposes described.

602,237. PROCESS OF AND APPARATUS FOR UTILIZING HORN OR SIMILAR MATERIAL. ALEXANDER MITSCHERLICH, Freiburg, Germany. Filed Nov. 26, 1895. Serial No. 570,216. (No model.)



Claim.—1. The herein-described process for producing adhesive and sizing material from waste ceratin matters, consisting in dissolving the ceratin matter in water under pressure and at a temperature above 100° centigrade; then acidifying the solution and treating the same with lye from the sulfite-cellulose process, or the tanning principle thereof, for the production of a precipitate practically insoluble in water: then dissolving the precipitate in a soda solution, and, finally, concentrating the solution.

2. The herein-described process for producing adhesive and sizing material from waste ceratin matters, consisting in dissolving the ceratin matter in water under pressure and at a temperature above 100° centigrade: then acidifying the solution and treating the same with lye from the sulfite-cellulose process, or the tanning principle thereof, for the production of a precipitate practically insoluble in water; then dissolving the precipitate in a soda solution, and precipitating the sizing matter by acids, acid salts, or salts of alumina.

3. The herein-described process for producing adhesive and sizing material from waste ceratin matters, consisting in dissolving the ceratin matter in water under pressure and at a temperature above 100° centigrade: then acidifying the solution and treating the same with lye from the sulfite-cellulose process, or the tanning principle thereof, for the production of a precipitate practically insoluble in water; then dissolving the precipitate in a soda solution, and precipitating the sizing matter directly in the paper-pulp by the addition of acids, acid salts, or salts of alumina.

4. The herein-described process for producing a pure compound of ceratin and tanning principle, consisting in dissolving waste ceratin matter in water under pressure and at a temperature above 100° centigrade; then mixing the solution with highly-diluted neutralized sulfite lyes, or the tanning principle thereof, and, then precipitating the compound with acids, acid salts, or salts of alumina.

5. The herein-described process for producing adhesive and sizing material from waste ceratin matters, consisting in dissolving the latter in water under pressure and at a temperature above 100° centigrade; then drawing off the liquid and treating the residue with a diluted caustic-soda solution.

6. The herein-described process for producing adhesive and sizing material from waste ceratin matters, consisting in dissolving the latter in water under pressure and at a temperature above 100° centigrade, then drawing off the liquid and treating the residue with a diluted soda solution in the presence of lime.

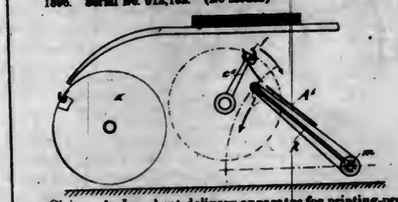
7. The herein-described process for producing adhesive and sizing material from waste ceratin matters, consisting in treating the finely-divided raw ceratin matter, or the masses last separated, with acidified sulfite-cellulose lye until it becomes soluble in a soda solution.

8. The herein-described process for producing adhesive and sizing material from waste ceratin matters, consisting in dissolving the ceratin matter in water under pressure and at a temperature above 100° centigrade; then acidifying the solution and treating the same with lye from the sulfite-cellulose process, or the tanning principle thereof, for the production of a precipitate practically insoluble in water, and dissolving the precipitate in a soda solution.

9. The herein-described method for producing a clear solution of ceratin matters, consisting in dissolving the matter in water under pressure and at a temperature above 100° centigrade by inducing a slow current of water to flow through the mass from above downward in a closed vessel and passing the solution through a filter.

10. The filter herein described consisting of a bottom provided with outlets, a plaited filter-cloth provided with bearings and intermediate pieces allowing the free passage of liquid, laths secured to the filter-bottom and clamping the filter-cloth, and stone plates—all constructed and arranged for working under high pressures, substantially as described.

602,238. SHEET-DELIVERY MECHANISM FOR PRINTING-MACHINES. ERNST NIETER, Nuremberg, Germany. Filed Nov. 16, 1896. Serial No. 612,182. (No model.)



Claim.—1. In a sheet delivery apparatus for printing-presses, the combination of a revolving fly located at the rear of the impression-cylinder and provided with grippers adapted to take the printed sheet from the impression-cylinder and to hold the same in suspension under vibration, and means adapted to engage with the free end of the sheet from below while said sheet is suspended from the fly so as to receive said sheet with the unprinted side down, substantially as described.

2. In a sheet-delivery apparatus for printing-presses, the combination of a revolving fly provided with grippers adapted to take the printed sheet from the impression-cylinder, a displacer adapted to engage with the printed sheet while suspended from the fly, and a frame provided with delivery-tapes for receiving the printed sheet, substantially as described.

3. In a sheet-delivery apparatus for printing-presses, the combination of a revolving fly provided with grippers adapted to take the printed sheet from the impression-cylinder, a vibratory displacer adapted to engage with the printed sheet while suspended from the fly to deflect the sheet, and a rocking frame adapted to move upwardly to receive the sheet when deflected, and provided with delivery-tapes, substantially as described.

4. In a sheet-delivery apparatus for printing-presses, the combination of a revolving fly provided with grippers adapted to take the printed sheet from the impression-cylinder by its leading end and to hold the same in suspension, and a rocking frame adapted to move upwardly to receive the following end of the sheet while suspended from the fly, and provided with delivery-tapes, substantially as described.

602,289. AERIAL RAILWAY. MARTIN A. DE PALACIO, Madrid, Spain. Filed Dec. 20, 1897. Serial No. 662,530. (No model.) Patented in Spain July 6, 1896, No. 17,455; in France Aug. 22, 1896, No. 249,812; in Belgium Aug. 22, 1896, No. 117,108; in Switzerland Aug. 22, 1896, No. 10,967; in Germany Aug. 26, 1896, No. 91,356, and in Sweden Sept. 19, 1896, No. 3,056.



Claim.—1. An aerial railway comprising in combination a line of rails spliced end to end, parallel suspension-cables, pairs of clamping-plates clamping these cables at intervals, eyebolts secured to the two plates of each pair, suspension-rods hooked to the eyebolts and secured to the rails, and pillars supporting at intervals the suspension-cables and the line of rails which take between the said pillars their respective curves of equilibrium, substantially as herein described.

2. An aerial railway comprising in combination a line of rails spliced end to end, and pillars which rest upon the ground in transverse lines about which they may oscillate and which serve to support at intervals the line of rails which takes between the said pillars its curve of equilibrium, substantially as herein described.

3. An aerial railway comprising in combination a line of rails spliced end to end, one or more suspension-cables, means for suspending the line of rails from said cables, and pillars which rest upon the ground in transverse lines about which they may oscillate and which support at intervals the suspension-cables and the line of rails which take between the said pillars their respective curves of equilibrium, substantially as herein described.

4. An aerial railway comprising in combination a line of rails of U-shaped transverse section spliced end to end, a rack located in the throat of the U of the rail, and pillars supporting at intervals the line of rails which takes between said pillars its curve of equilibrium, substantially as herein described.

5. An aerial railway comprising in combination a line of rails of U form spliced end to end, a rack located in the throat of the U of the rail, one or more suspension-cables, means for suspending the line of rails from said cables, and pillars for supporting at intervals the suspension-cables and the line of rails which take between said pillars their respective curves of equilibrium, substantially as herein described.

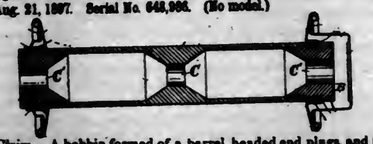
6. An aerial railway comprising in combination a line of rails of U-shaped transverse section spliced end to end, a rack located in the channel of said rails, pillars for supporting at intervals the line of rails which takes between said pillars its curve of equilibrium, carriages the wheels of which run upon the vertical branches of the U-shaped rails and are furnished with teeth engaging with said rack, and vehicles suspended from these carriages, substantially as herein described.

7. An aerial railway comprising in combination a line of rails of U-shaped transverse section spliced end to end, a rack located in the channel of the U-shaped rail, an electric conductor following the line of rails, and insulated therefrom, pillars for supporting at intervals the line of rails which takes between them its curve of equilibrium, carriages the wheels of which run upon the vertical branches of the U-shaped rail and are furnished with teeth engaging with the rack, a vehicle suspended from these carriages, an electric motor in the said vehicle, a trolley for furnishing to the said motor the current which circulates in said electric conductor, and means for transmitting motion from the motor to the wheels above mentioned, substantially as described.

8. An aerial railway comprising in combination a line of rails of U-shaped transverse section spliced end to end, a rack located in the channel of the U-shaped rail, one or more suspension-cables, means for suspending the line of rails from said cables, pillars for supporting at intervals said cables and the line of rails which take between the pillars their respective curves of equilibrium, carriages the wheels of which run upon the vertical branches of the U-shaped rails and are furnished with teeth engaging with said rack, and vehicles suspended from these carriages, substantially as herein described.

9. An aerial railway comprising in combination a line of rails of U-shaped transverse section spliced end to end, a rack located in the channel of the U of the rail, one or more suspension-cables, means for suspending the line of rails from said cables, pillars for supporting at intervals the suspension-cables and the line of rails which take between said pillars their respective curves of equilibrium, an electric conductor following the line of rails and insulated therefrom, carriages the wheels of which run upon the vertical branches of the U of the rails and are furnished with teeth engaging with the rack, a vehicle suspended from these carriages, an electric motor in the vehicle, a trolley for furnishing to the motor the current which circulates in said electric conductor, and means for transmitting motion from the said motor to the above-mentioned wheels for the purpose of driving them, all substantially as herein described.

602,240. BOBBIN. GORDON PENDLETON, Jr., Carbondale, Pa., assignor to the Pendleton Manufacturing Company, same place. Filed Aug. 21, 1897. Serial No. 648,966. (No model.)



Claim.—A bobbin formed of a barrel, headed end plugs, and metallic heads each formed of an inner and an outer piece of sheet metal fastened together at their peripheries, the inner head-piece being formed with a collar fitted around the end of the barrel, and an inward-projecting flange bound between the end of the barrel and the head of the plug and the outer head-piece being bent outward axially at its inner edge to form a collar fitting around the head of the end plug.

602,241. BOBBIN. GORDON PENDLETON, Jr., Carbondale, Pa., assignor to the Pendleton Manufacturing Company, same place. Filed Aug. 26, 1897. Serial No. 649,681. (No model.)



Claim.—1. A bobbin formed of a barrel, end plugs formed with peripheral flanges and with annular recesses within which the ends of the barrel are fixed and a metal reinforcement covering the inner face of each flange, its outer edge bent around the edge of the flange and its inner edge bent axially at an angle to form a flange or collar bound between the periphery of the barrel and the outer wall of said recess.

2. A bobbin formed of a barrel, end plugs formed with peripheral flanges and with annular recesses within which the ends of the barrel are fixed, and a metal reinforcement covering the inner face and the outer edge of each flange, the inner edge of said metal being bent axially at an angle to form a collar or flange between the periphery of the barrel and the outer wall of said recess, and then again bent inward radially to form a flange bound between the end of said barrel and the bottom of said recess.

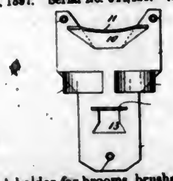
602,242. AIR-INDICATOR FOR BICYCLE-TIRES. WILLIAM R. RICHARDS, Wilkinsburg, Pa. Filed Aug. 26, 1897. Serial No. 649,154. (No model.)

Claim.—In an air-pressure indicator for bicycles and the like consisting of an air-inlet, a plug secured in the air-inlet, the opening in the plug communicating with the air-inlet, an air-cylinder secured

in said plug, said air-cylinder extending longitudinally of the bicycle-rim, and at a right angle to the air-inlet plug, a cap secured to said air-cylinder and provided with a central aperture, a smaller cylinder having a graduated glass scale secured in one side, a piston-head operating in the air-cylinder, a rod secured to said piston-head and passing through the aperture in the cap, a coil-spring arranged between the piston-head and cap, said spring being compressed when the pressure of the atmosphere is increased, said atmospheric pressure being measured by the piston-rod and graduated scale, substantially as shown and described.



602,243. BROOM-HOLDER. LOUIS RYBOLD, New York, N. Y. Filed July 10, 1897. Serial No. 644,129. (No model.)



Claim.—1. A holder for brooms, brushes and other articles, consisting of a plate which is provided with two curved spring-arms extended outwardly, and the ends of which are curved inwardly, said plate being also provided above and below said spring-arms with outwardly-directed plates against which the handle of the broom or brush is adapted to be pressed by the inwardly-curved ends of said spring-arms, substantially as shown and described.

2. A holder for brooms, brushes and other articles, consisting of a plate which is provided with two curved spring-arms extended outwardly, and the ends of which are curved inwardly, said plate being also provided above and below said spring-arms with outwardly-directed plates against which the handle of the broom or brush is adapted to be pressed by the inwardly-curved ends of said spring-arms, said plates being concaved at their outer edges, substantially as shown and described.

3. A holder for brooms, brushes and other articles, consisting of a plate which is provided with two curved spring-arms extended outwardly, and the ends of which are curved inwardly, said plate being also provided above and below said spring-arms with outwardly-directed plates against which the handle of the broom or brush is adapted to be pressed by the inwardly-curved ends of said spring-arms, said plates being concaved at their outer edges, and being also provided with serrations or teeth, substantially as shown and described.

602,244. WATER-TOWER. HERMAN C. SCHMIDT, New York, N. Y. Filed Apr. 16, 1897. Serial No. 632,394. (No model.)

Claim.—1. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding connection with said base-frame, intermediate link connections between the tower-brace and the base-frame, a cable for hoisting said tower-brace and a cable for lowering the same, substantially as described.

2. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in sliding contact with said main standard and its foot in sliding connection with said base-frame, intermediate link connections between the tower-brace and the base-frame, a cable for hoisting said tower-brace and a cable for lowering the same, substantially as described.

3. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding connection with said base-frame, intermediate link connections between the tower brace and the base-frame, a windlass-shaft provided with a hoisting-drum and a lowering-drum, a cable for hoisting said tower-brace and cable for lowering the same, substantially as described.

4. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding connection with said base-frame, intermediate link connections between the tower-brace and the base-frame, a windlass-shaft provided with a pair of conical, spirally-grooved hoisting-drums, and a similar lowering-drum with relatively-reversed groove, a cable for hoisting said tower-brace and a cable for lowering the same, substantially as described.

5. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding connection with said base-frame, intermediate link connections between the tower-brace and the base-frame, a cable for hoisting said tower-brace and a cable for lowering the same, both of said cables operating upon the foot of the tower-brace, substantially as described.



6. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding connection with said base-frame, intermediate link connections between the tower-brace and the base-frame, a windlass-shaft provided with a pair of conical spirally-grooved hoisting-drums, and a similar lowering-drum with relatively-reversed groove, a cable for hoisting said tower-brace and a cable for lowering the same, both of said cables operating upon the foot of the tower-brace, substantially as described.

7. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in sliding contact with said main standard and its foot in sliding connection with said base-frame, a cable for hoisting said tower-brace and a cable for lowering the same, substantially as described.

8. In a water-tower, the combination of a base-frame provided with slotted tracks, a main standard pivoted therein, a tower-brace having its top in sliding contact with said main standard and its foot mounted upon a transverse shaft, provided with antifriction-rollers traveling in the slotted tracks of said base-frame and held thereby in sliding connection with said base-frame, a cable for hoisting said tower-brace and a cable for lowering the same, substantially as described.

9. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding connection with said base-frame, hoisting-cable sheaves traveling with the foot of said tower-brace, a lowering-cable, a windlass-shaft provided with two hoisting-drums and a lowering-drum, a hoisting-cable traveling over said hoisting-cable sheaves and having one end attached to each of said hoisting-drums, and a lowering-cable traveling over said lowering-cable sheaves and having one end attached to said lowering-drum, substantially as described.

10. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding contact with said base-frame, hoisting-cable sheaves traveling with the foot of said tower-brace, intermediate hoisting-cable sheaves, a lowering-cable sheave attached to said base-frame, an intermediate lowering-cable sheave, a windlass-shaft provided with two hoisting-drums and a lowering-drum, a hoisting-cable traveling over said hoisting-cable sheaves and having one end attached to each of said hoisting-drums, and a lowering-cable traveling over said lowering-cable sheaves and having one end attached to said lowering-drum, substantially as described.

11. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in sliding contact with said main standard and its foot in sliding connection with said base-frame, a detent to lock the top of said tower-brace to said main standard, and a detent to lock the foot of said tower-brace to said base-frame, said detents operating when the main standard has been brought into an elevated position, substantially as described.

12. In a water-tower, the combination of a base-frame, a main standard pivoted therein, a tower-brace having its top in contact with said main standard and its foot in sliding connection with said base-frame, and a detent to lock the foot of said tower-brace to said base-frame, said detent operating when the main standard has been brought into an elevated position, substantially as described.

13. The combination, with the tower raising and lowering mechanism of a water-tower, of a windlass-shaft provided with both a hoisting-cable drum and a lowering-cable drum, a hoisting-cable sheave and lowering-cable sheave carried upon a common shaft, a hoisting-cable winding upon said hoisting-cable drum and traveling over said hoisting-cable sheave, and a lowering-cable winding reversely upon said lowering-cable drum and traveling over said lowering-cable sheave, whereby reverse movements are communicated to said common shaft by reversing the revolutions of said windlass-shaft, substantially as described.

14. The combination, with the tower raising and lowering mechanism of a water-tower, of a windlass-shaft provided with both a hoisting-cable drum and a lowering-cable drum, a hoisting-cable sheave and lowering-cable sheave carried loosely upon a common shaft, a hoisting-cable winding upon said hoisting-cable drum and traveling over said hoisting-cable sheave, and a lowering-cable winding reversely upon said lowering-cable drum and traveling over said lowering-cable sheave, whereby reverse lateral movements are communicated to said common shaft by reversing the revolutions of said windlass-shaft, substantially as described.

15. The combination, with the tower raising and lowering mechanism of a water-tower, of a windlass-shaft provided with both a hoisting-cable drum and a lowering-cable drum, a hoisting-cable sheave and lowering-cable sheave carried upon a common shaft, a hoisting-cable winding upon said hoisting-cable drum and traveling over said hoisting-cable sheave, and a lowering-cable winding reversely upon said lowering-cable drum and traveling over said lowering-cable sheave, whereby reverse movements are communicated to said common shaft by reversing the revolutions of said windlass-shaft, and an intermediate adjustable sheave for regulating the tension in said cables, substantially as described.

16. A water-tower adapted to be brought into an erect position, a cable for drawing the tower into such position, a cable for lowering the tower, an adjustable sheave over which the lowering-cable runs, said sheave being provided with a hollow, exterioriy-threaded shank within which one end of the lowering-cable is secured, and which shank is provided exteriorly with lock-nuts for adjusting said sheave and thereby regulating the tension in said cable, substantially as described.

17. A water-tower adapted to be brought into an erect position, a cable for drawing the tower into such position, a cable for lowering the tower, an adjustable sheave carrying said lowering-cable, said sheave being provided with a hollow, exteriorly-threaded shank within which one end of the lowering-cable is secured, a guide-block through which said shank extends, lock-nuts for adjusting said shank and thereby regulating the tension of said cable, and a windlass, provided with a plurality of conical, spirally-grooved drums, for operating said cables, substantially as described.

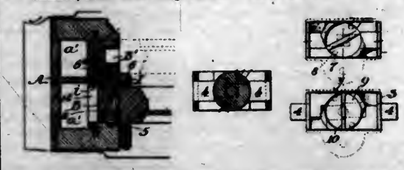
18. In a water-tower, the combination, with the running gears and frame of a truck, of a tower-supporting frame, a main standard having its base secured in said frame, and provided at its opposite end with slotted guideways, a tower-brace supported in said frame and in sliding connection therewith, its upper end engaging in the slotted guideways, aforesaid, and means for sliding out the foot of the brace and thereby erecting the standard, substantially as described.

19. The combination, in a water-tower, of a main standard, provided with a vertical fin and with a head-block carrying two hourglass guide-rollers, a discharge-pipe passing between said guide-rollers, a base-block, for supporting the end of said discharge-pipe sliding upon said standard and provided with a recess corresponding to said fin, a cable attached to said block and traveling over a sheave mounted upon said standard, and a windlass for operating said cable and thereby raising and lowering said pipe, substantially as described.

20. The combination, with the outlet of the discharge-pipe of a water-tower, of a section of hose extending to the nozzle, a pair of arms projecting beyond the end of said discharge-pipe, a pair of pivoted links extending from said arms to the base of the nozzle and pivoted thereto preventing lateral bending of the nozzle, a T-stop depending from the nozzle-base and its cross-bar engaging said links and hose, and a nozzle-line for depressing said nozzle, substantially as described.

21. In a water-tower, the combination with the running-gears and frame of a truck, of a supporting-table mounted thereupon, a base-frame provided with slotted tracks carried by said table, a main standard having its foot pivoted in said base-frame, a tower-brace, having its top in sliding contact with said main standard, and carried upon a transverse shaft provided with antifriction-rollers traveling in said slotted tracks of said base-frame, and also provided with two hoisting-cable sheaves and a centrally-disposed lowering-cable sheave, a pair of arms linking the tower-brace to said base-frame above said slotted tracks, a pair of intermediate hoisting-cable sheaves carried by said base-frame, a windlass-shaft provided with a conical, spirally-grooved drum upon each end, a cable passing around all of said hoisting-cable sheaves and having one of its ends secured to each of said drums, a third conical drum, with relatively-reversed spiral grooves, mounted centrally upon said windlass-shaft, an adjustable lowering-cable sheave mounted upon said base frame, a lowering-cable, having one end secured to said last-mentioned drum and the other end to the shank of said adjustable sheave, and passing around the said adjustable sheave, and said centrally-disposed lowering-cable sheave, substantially as described.

602,245. WINDOW STRUCTURE. THEODORE H. SCHMITZ, Philadelphia, Pa., assignor to the Philadelphia Safety Window Company, Camden, N. J. Filed Aug. 21, 1897. Serial No. 648,991. (No model.)



Claim.—1. In a window structure, the combination, with the main frame, the sash-hangers, the guides therefor, and the sashes journaled or pivoted to said hangers, of an adjustable parting-strip, an inside bead, a spring-hinge therefor, and a lock arranged between the bead and the parting-strip and adapted to lock said bead in closed position, substantially as described.

2. In a window structure, the combination, with the main frame, the sash-hangers, the guides therefor, and the sashes journaled or pivoted to said hangers, of an adjustable parting-strip, an inside bead, a spring-hinge therefor, a laterally-projecting keeper on said bead adapted to enter a recess in the window-frame, a lock arranged between the bead and the parting-strip and adapted to engage said keeper and thereby lock the bead in closed position, substantially as described.

3. In a window structure, the combination, with the main frame, the sash-hangers, the guides therefor, and the sashes journaled or pivoted to said hangers, of the movable bead, the adjustable parting-strip, and a lock arranged between said strip and bead and adapted to lock them in positions of adjustment, substantially as described.

4. In a window structure, the combination, with the main frame, the sash-hangers, the guides therefor, and the sashes journaled or pivoted to said hangers, of the movable bead, the adjustable parting strip, and a lock arranged between said strip and bead and provided with oppositely-movable bolts and with means for simultaneously operating them so as to engage and lock the said strip and bead in positions of adjustment, substantially as described.

5. The herein-described lock for windows, said lock comprising a frame or support, two oppositely-movable transverse bolts therein, a partially-rotatable head, and means whereby the head is loosely connected at diametrically opposite points with the respective bolts.

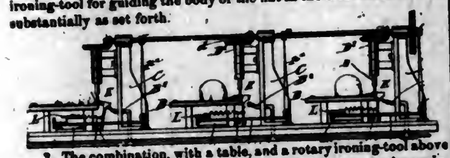
6. The herein-described lock for windows, said lock comprising a casing, a plate incased thereby, two transverse bolts in said plate, lateral studs on said bolts, a partially-rotatable head in said plate and casing provided with diametrically opposite recesses engaged by said studs respectively, and means for turning said head.

7. In a window structure, the combination of the main frame provided with the weight-box and the slotted or open pulley-stile, the grooved guide-strip having a hinged portion adjacent to the slot or opening in said stile, the sash-hanger, the sash journaled or pivoted thereon, the adjustable parting-strip, and the movable inside bead, substantially as described.

602,246. MACHINE FOR CURLING HAT-BRIMS. GUSTAV SCHLOEMBERG, Yonkers, N. Y. Filed Oct. 15, 1897. Serial No. 655,249. (No model.)

Claim.—1. The combination, with a table, and a rotary ironing-tool above said table, of a segmental curling-tool provided with a continuously-grooved face, the ingoing end of said curling-tool being approximately straight to a point adjacent to the ironing-tool and at a tangent to the outgoing end of the curling-tool, said outgoing end projecting inwardly over the table, substantially as set forth.

2. The combination, with a table, and a rotary ironing-tool above said table, of a segmental curling-tool provided with a grooved face and having its outgoing end projecting inwardly over the table, and a guide-roller on the table arranged at a suitable distance from the ironing-tool for guiding the body of the hat as the brim is fed around, substantially as set forth.



3. The combination, with a table, and a rotary ironing-tool above said table, of a segmental ironing-tool provided with a continuously-grooved face, the ingoing end of said curling-tool extending at a tangent to the outgoing end, which latter is curved inwardly over the table, substantially as set forth.

4. The combination, with a rotary ironing-tool, of a table, an elongated segmental curling-tool provided with a grooved face which is curved toward said ironing-tool, and a laterally-extending heel located back of the grooved face at a point intermediate of the projecting ends of the curling-tool, means for applying said curling-tool to the rotary ironing-tool, and means for heating the curling-tool below said heel, substantially as set forth.

5. The combination, with a rotary ironing-tool, of a table, a curling-tool provided with a grooved face, and an edge-guiding piece having a downwardly-projecting and interned hook, for guiding the edge of the hat-brims to the curling devices, substantially as set forth.

6. The combination with a rotary ironing-tool, of a table, a curling-tool provided with a grooved face, a guide-piece for the edge of the hat-brims provided with a raised or swelled center portion, and a curved hook at the inner end of the guide-piece adjacent to the ironing-tool and curling-tool, substantially as set forth.

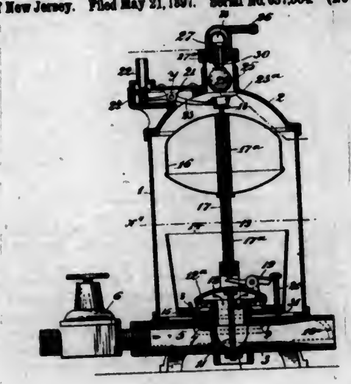
7. A guide-piece for a hat-brim-curling machine, for operating on the edge of the hat-brims, said guide-piece being provided with a raised or swelled inwardly-tapering center portion, and a curved hook at the inner end of the guide-piece, substantially as set forth.

8. The combination with a table, of curling devices for the edge of the hat-brim, a guide-piece for bending and guiding the said edge in its motion to the curling devices, an adjustable arm mounted horizontally on the table, and a guide-roller carried by said arm at a suitable distance from the curling devices for guiding the body of the hat, while the brim is fed through the curling devices, substantially as set forth.

9. The combination with a table, of curling devices, means for feeding and guiding the hat-brim to the curling devices, and a pivoted moistening device adapted to moisten the edge of the brim of different sizes of hats preparatory to curling the same, substantially as set forth.

10. The combination, with a table, and a rotary ironing-tool over the table, of a normally-retracted curling-tool, a lever, a spring connection between the curling-tool and lever, a shoulder with which said lever is engaged for holding the curling-tool against the ironing-tool, and a stop mechanism provided with a cam engaging under and releasing said actuating-lever from said shoulder so as to permit the return of the curling-tool into its normal position after a certain length of time, substantially as set forth.

602,247. HYDRAULIC AIR-COMPRESSOR. WILLIAM F. STARK, New York, N. Y., assignor to the Standard Pump and Filter Company, of New Jersey. Filed May 21, 1897. Serial No. 637,504. (No model.)



Claim.—1. A hydraulic air compressor of the character described having a water-inlet port opening into the compression-chamber at its bottom, a water-outlet port opening downward, and a submergeable cup-float having its bottom between said ports and adapted to close the water-outlet port when buoyed up by the water, and to seat itself directly on and close the water-inlet port when it sinks by gravity, said cup-float having sufficient weight when submerged to prevent the influx of water and being guided in its up-and-down movements, substantially as set forth.

2. In a hydraulic air-compressor of the character described, the combination with the base, having in it a main liquid-inlet communicating with liquid-inlet ports 8, opening into the compression-chamber from the bottom, and a main outlet for the liquid, of the shell 12, having an outlet-port 12^a, communicating with the main liquid-outlet through the upright stem of said shell, and a cup-float 14, adapted to move up and down on the stem of the shell 12, and to close the outlet-port 12^a when buoyed up, and to seat on and close the inlet-ports 8 when it sinks to the bottom of the compression-chamber, substantially as set forth.

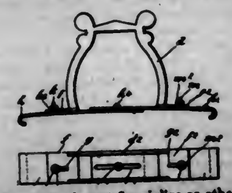
3. In a hydraulic air-compressor of the character described, the combination with the fixed, upright stem 13, forming a guide for the rod 17, the said rod, having a head 18, the valve controlling the air-inlet, and the lever 23, carrying said valve and having its arm arranged over the head 18, of a lever 19, fulcrumed on a fixed part, one arm of which takes under the rod 17, the cup-float having a projection which takes over the other arm of the lever 19, and the upper float 16, guided on the stem 13 and adapted to take under the head 18, when the float rises, whereby the air-inlet is opened by the rise of the upper float and kept open by the descent of the cup-float, substantially as set forth.

4. In a hydraulic air-compressor of the character described, the combination with the head or cover of the compression-chamber, and the removable plate 21, having in it the air-inlet 22, of the valve-lever 23, fulcrumed on said plate 21, and the valve 24 mounted on one arm of said lever, the other arm of the lever being weighted to keep said valve up to its seat whereby ready access to said valve and lever is provided, substantially as set forth.

5. In a hydraulic air-compressor of the character described, the combination with the upright, fixed stem 13, the float 16, guided thereon, the rod 17, guided non-rotatively on said stem and having a screw-adjustable head, 18, adapted to take over a part of the float, of the valve controlling the air-inlet, and the lever 23, carrying said valve, said lever having an apertured head 23^a, which takes over the nicked head 18, and said head 23^a being arranged directly beneath the air-outlet, whereby the head 18 may be conveniently adjusted on its stem.

6. In a hydraulic air-compressor, the combination with the casing containing the compression-chamber, having a cover or head 2 and a base 3, having a main inlet 5, a chamber 7, ports 8, for the admission of water to the compression-chamber, and a main outlet 10, of the shell 12, having a hollow stem, fixed in the base, and an annular outlet-port 12^a, communicating with the outlet 10, the cup-float 14, having an aperture in its bottom embracing the stem of the shell 12, and adapted to move up and down thereon to seat on and close, respectively, the outlet and inlet for the water, an inlet for the air, a valve and lever controlling said air-inlet, a float adapted, when buoyed up, to open said valve, and means, controlled and operated by the cup-float whereby, on the descent of the latter, the air-inlet valve is kept open, substantially as set forth.

602,248. ATTACHMENT FOR MUSICAL INSTRUMENTS. MARY E. VERDIER, Easton, Pa. Filed Sept. 24, 1897. Serial No. 652,570. (No model.)



Claim.—1. In an attachment for violins or other similar instruments, two vertically-extended parallel guide-plates unconnected at the top and passing over the strings, sliding plates rigidly attached to the bottom of the same, means substantially as described for attaching the same to a violin or other instrument and means whereby said first-mentioned plates may be properly adjusted with relation to the strings, substantially as described.

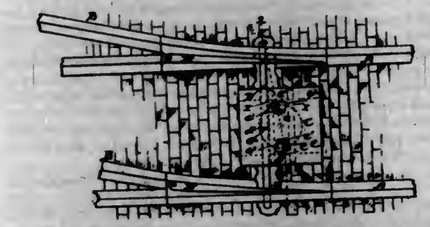
2. In an attachment for violins or other similar instruments, the combination with two vertical parallel guide-plates, and plates supporting the same, of laterally-movable plates adapted to be attached to the belly of the violin, and means in conjunction with said supporting and said adjusting plates, whereby said guide-plates may be properly adjusted in relation to the strings, substantially as shown and described.

3. In an attachment for violins or other similar instruments, the combination with two vertical parallel guide-plates, and supporting-plates therefor, said supporting-plates having elongated openings therein, of attaching-plates, said attaching-plates being provided respectively with an elongated opening, and a pivot, and screws adapted to cooperate with the openings in said supporting-plates, and nuts adapted in conjunction with said screws to retain the various parts in proper relation, substantially as shown and described.

4. In an attachment for violins or other similar instruments, the combination with two vertical parallel guide-plates, and supporting-plates therefor, said supporting-plates having elongated openings therein, of attaching plates, said attaching-plates being provided respectively with an elongated opening, and a pivot, and screws adapted to cooperate with the openings in said supporting-plates, and nuts adapted in conjunction with said screws to retain the various parts in proper relation, said attaching-plates being so turned at the edges as to clasp the rim of the belly of the violin, substantially as shown and described.

5. In an attachment for violins or other similar instruments, the combination with two vertical parallel guide-plates, and supporting-plates therefor, said supporting-plates having elongated openings therein, of attaching-plates, said attaching-plates being provided respectively with an elongated opening, and a pivot, and screws adapted to cooperate with the openings in said supporting-plates, and nuts adapted in conjunction with said screws to retain the various parts in proper relation, said attaching-plates being so turned at the edges as to clasp the rim of the belly of the violin, and padded to prevent mutilation of the same, substantially as shown and described.

602,249. RAILWAY-SWITCH-OPERATING MECHANISM. JONATHAN R. YOUNG and GEORGE HOLDEN, Conneaut, Ohio. Filed June 5, 1897. Serial No. 639,497. (No model.)

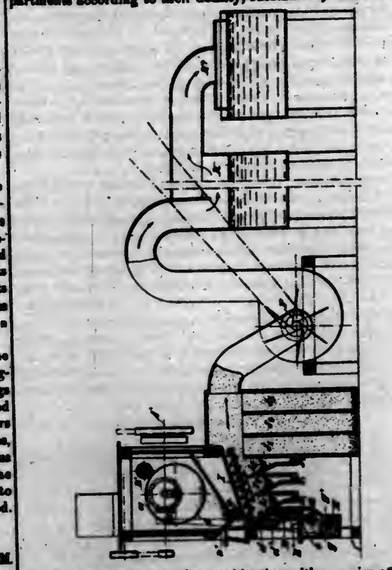


Claim.—In switch-operating mechanism, the combination of a switch-tongue, a bar D pivotally connected with said tongue and arranged below the same and moving endwise transversely of the track, a disk movable on a vertical axis, a pivotal connection between said disk and bar, springs acting to force said disk up, a cover-plate *c* having slots, and tripping-pins secured to said disk and projecting through said slots, substantially as and for the purpose specified.

602,250. ORE-SORTER. JACQUES ABEEL, Paris, France. Filed Sept. 30, 1897. Serial No. 653,569. (No model.) Patented in France Mar. 11, 1897, No. 264,878.

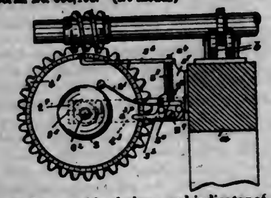
Claim.—1. The combination, with means for separating ore according to its size, of means for separating the same according to its density, comprising a series of chutes for receiving the ore particles which have been separated according to their sizes, a vertical screw conveyer turning in suitable bearings, one of said conveyers for each of said chutes, valves for controlling the supply of ore particles from said chutes to said conveyers, a vented chamber below the said chutes and the screw conveyers, a conveyer arranged in said chamber, means for turning said last-named conveyer, compartments behind said vertical conveyer, and a suction-fan producing a current whereby said vertical screw conveyers are caused to revolve and whereby the particles of ore are deposited into said compartments according to their density, substantially as set forth.

2. The combination of a series of chutes for receiving the particles of ore, a second series of chutes below the latter, valves controlling the openings between the first and second series of chutes, a series of upright screw conveyers arranged in said second series of chutes, a series of screw conveyers arranged above and at an angle to said upright screw conveyers, compartments arranged under the said angularly-arranged screw conveyers, and means for producing a current of air by which the said screw conveyers are all caused to revolve and whereby the particles of ore are deposited into said compartments according to their density, substantially as set forth.



3. In an ore-sorter, the combination with a series of compartments, and means for feeding ore particles to said compartments, of a screw conveyer arranged transversely over said compartments, said conveyer turning freely in suitable bearings, and an air-suction device producing a current whereby said conveyer is caused to turn, and the particles of ore deposited in said compartments according to density, substantially as set forth.

602,251. INDICATOR FOR WINDING, WARPING, AND BEAMING MACHINES. ROBERT ATHERTON, Paterson, N. J. Filed Nov. 30, 1897. Serial No. 660,198. (No model.)



Claim.—1. In a combined alarm and indicator of the character described, the combination with the graduated gear-wheel and its operating means, of a stub-shaft on which said gear-wheel is slidingly and revolubly mounted, a bracket carrying said stub-shaft, a hand-lever fulcrumed on said bracket, an annularly-grooved collar secured on the gear-wheel and surrounding the stub-shaft and also slidingly arranged thereon, an arm or link pivotally connected at one end with said fulcrumed hand-lever and engaging with its other fork-shaped end the said annularly-grooved collar, and a spiral spring connecting said link with the hand-lever for normally holding the gear-wheel in engagement with its operating means, substantially as described.

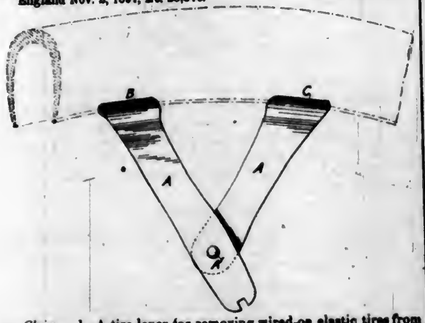
2. In a combined alarm and indicator of the character described, the combination with the graduated gear-wheel and its operating means, of a stub-shaft on which said gear-wheel is slidingly and revolubly mounted, a bracket carrying said stub-shaft, a hand-lever fulcrumed on said bracket, an annularly-grooved collar secured on the gear-wheel and surrounding the stub-shaft and also slidingly arranged thereon, an arm or link pivotally connected at one end with said fulcrumed hand-lever and engaging with its other fork-shaped end the said annularly-grooved collar, a spiral spring connecting said link with the hand-lever for normally holding the gear-wheel in engagement with its operating means, and means for normally holding the fork-shaped end of the link or arm in engagement with the annularly-grooved collar, substantially as and for the purposes described.

3. In a combined alarm and indicator of the character described, the combination with the graduated gear-wheel and its operating

means, of a stub-shaft on which said gear-wheel is slidingly and revolubly mounted, a bracket carrying said stub-shaft, a hand-lever fulcrumed on said bracket, an annularly-grooved collar secured on the gear-wheel and surrounding the stub-shaft and also slidingly arranged thereon, an arm or link pivotally connected at one end with said fulcrumed hand-lever and engaging with its other fork-shaped end the said annularly-grooved collar, a spiral spring connecting said link with the hand-lever for normally holding the gear-wheel in engagement with its operating means, and a hook-shaped pin carried by the bracket and engaging said link or arm for normally holding the fork-shaped portion of the latter in engagement with the said annularly-grooved collar, substantially as described.

4. The combination with a frame, of a stub-shaft carried thereby, a gear-wheel slidingly and revolubly mounted on said stub-shaft and provided with an annularly-grooved centrally-arranged collar, a pin projecting from said gear-wheel, a fulcrumed lever in the path of said pin, a spring-controlled shoe in alinement with and adapted to be operated by said fulcrumed lever and carrying a gong-hammer, a gong on the stub-shaft, a revolving shaft for operating said gear-wheel, a hand-lever fulcrumed in the frame, a link pivotally connected at one end with said hand-lever and having its other fork-shaped end in engagement with the said annularly-grooved collar, and a spiral spring connecting said hand-lever with said link for normally holding the gear-wheel in engagement with the revolving shaft and the pin in the path of the shoe-operating fulcrumed lever, substantially as described.

602,252. TIRE-LEVER. HENRY BEACH, London, England. Filed Dec. 15, 1897. Serial No. 661,980. (No model.) Patented in England Nov. 2, 1897, No. 25,370.



Claim.—1. A tire-lever for removing wired-on elastic tires from wheel-rims, composed of two arms, a joint pin connecting the arms near the ends thereof, to allow the arms to diverge at their free ends, and hook-shaped parts formed at the free ends of the arms adapted to be inserted beneath the wire of the tire to lift same at two points simultaneously over the rim edge, and to allow the operator to seize the wire extending between the two hook parts.

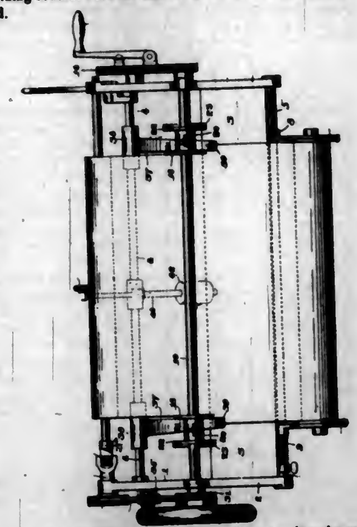
2. In tire-levers, the combination with the two arms, and a joint-pin connecting the arms near the ends thereof, of hook-shaped parts at the free ends of the arms at proper relative angles to coincide with the curvature of the wire as set forth.

602,253. MACHINE FOR TRIMMING WALL-PAPER. JAMES M. BRADY, Philadelphia, Pa. Filed Dec. 12, 1896. Serial No. 615,429. (No model.)

Claim.—1. In a machine for trimming wall-paper, &c., the combination with the supporting-frame, of parallel cutter-bearing shafts, a longitudinally-adjustable rotary cutter on one of said shafts, a similarly-adjustable coacting cutter on the other shaft, a spring to maintain said cutters in contact, and means whereby an adjustment of one of said cutters upon and throughout its shaft in either direction, causes a corresponding adjustment of the other cutter without affecting the pressure or tension of the spring, substantially as specified.

2. In a machine for trimming wall-paper, &c., the combination with the supporting-frame, of the parallel cutter-bearing shafts and the coacting rotary cutting devices carried by the said shafts and consisting each of a sleeve mounted to move longitudinally upon its shaft and having at one end a cutter-disk and at the opposite end a flange, the disk and flange of one of the devices lying between and engaging respectively the disk and flange of the other device, together with means whereby one of said devices may be secured against movement on its shaft, substantially as specified.

3. In a machine for trimming wall-paper, &c., the combination with the parallel cutter-bearing shafts, of the sleeve 20 adjustably secured upon one of the said shafts and having at one end a cutting-disk and at the opposite end a flange, the sleeve 24 movably mounted upon the other shaft and having at one end a flange which engages the outer face of the flange of the sleeve 20, and having also a cutter-disk 19 loosely mounted thereon, and springs for holding said disk in yielding contact with the disk of the sleeve 20, substantially as specified.



4. In a machine for trimming wall-paper, &c., the combination of the frame, the parallel cutter-bearing shafts, their coacting cutting devices, the take-up shaft, mechanism for actuating said shafts, and strip-guides supported at points in rear of and below the cutting devices, and extending upwardly and forwardly to or adjacent to the outer faces of the cutters, in planes above the meeting edges of the cutters and to points in front of them and above the platform or feed-board, whereby the under sides of said guides lie in position to intercept the trimmings and bend and direct the same downward in rear of the cutting devices, substantially as specified.

5. In a machine for trimming wall-paper, &c., the combination of the frame, the parallel cutter-bearing shafts, their coacting adjustable cutting devices, the jointed take-up shaft, means for insuring a uniform winding of the trimmed paper upon said shaft, and the longitudinally-adjustable strip-guides mounted upon the frame at points to the rear of and below the cutter-bearing shafts and extending from thence upwardly and forwardly between the cutting devices and terminating in upwardly-turned end portions, substantially as specified.

6. In a machine for trimming wall-paper, &c., the combination with the frame, of parallel cutter-bearing shafts, their coacting adjustable cutting devices, the take-up shaft, and means for operating the said shafts, a bar or tie-rod arranged between and below the said shafts, longitudinally-adjustable strip-guides on said bar or rod and extending upwardly and forwardly therefrom to or adjacent to the outer faces of the cutting devices in planes above the meeting edges of the cutters and to points in front of said cutters and above the platform or feed-board, whereby the under sides of said guides lie in position to intercept the trimmings and bend and direct the same downward between the lower cutter-shaft and said bar or rod, substantially as specified.

7. In a machine for trimming wall-paper, &c the combination with the supporting-frame, the parallel cutter-bearing shafts, their cutters, the take-up shaft and means for actuating said shafts of a lever whereof one arm carries a weight and the other a roller having a V-shaped periphery, which bears against the paper, during the winding thereof, substantially as specified.

602,254. SPINDLE. JOSEPH DUFFY, Paterson, N. J. Filed Nov. 12, 1897. Serial No. 658,236. (No model.)

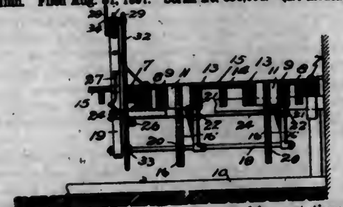
Claim.—1. The combination with the driving means and with the rail provided with a vertical hole, of a bolt penetrating said rail and adjacent to said hole, a shell or chamber loosely mounted on the bolt, a bolster penetrating said shell or chamber and carried thereby and extending into and through the hole in the rail, a washer removably arranged in said hole and carried by the rail and penetrated by the bolster, a spiral spring surrounding said bolster and bearing against said washer and the inner upper portion of the shell or chamber respectively, a sleeve-whirl spindle in the bolster, and means for normally holding said sleeve-whirl spindle in frictional contact with the driving means, substantially as and for the purposes described.

2. The combination with the driving means and with the spindle-rail provided with a vertical hole, of a bolt penetrating said rail and adjacent to said hole and bearing with its nut against the under side of the rail, a collar at or near the upper portion of said bolt, a bolster penetrating the hole in the rail, an annular shell or chamber surrounding said bolster, a lug projecting from said shell or chamber and loosely mounted on the bolt and adapted to bear against the under side of the collar thereon, a washer removably arranged in said hole and penetrated by the bolster, a spiral spring surrounding said bolster and bearing against said washer and the inner upper portion of the shell or chamber respectively, a sleeve-whirl spindle in the bolster, and means for normally holding said sleeve-whirl spindle in frictional contact with the driving means, substantially as and for the purposes described.

3. The combination with the driving means and with the spindle-rail provided with a vertical hole, of a bolt penetrating the rail and adjacent to said hole and provided at its upper portion with a projection, a shell or chamber loosely mounted on said bolt, a bolster penetrating said shell or chamber and carried thereby and extending into and through the hole in the rail, a spiral spring surrounding the bolster and within said shell or chamber, a spindle in said bolster, a sleeve-whirl mounted on said spindle and provided with an annular flange adapted to be engaged by the projection on the bolt, and a spring carried by the rail and adapted to normally hold said sleeve-whirl spindle in frictional contact with the driving means, substantially as and for the purposes described.

4. The combination with the driving means and with the spindle-rail provided at certain intervals with vertical holes, a bolt penetrating said rail and adjacent to its respective hole, a shell or chamber above each hole and loosely mounted on its respective bolt, a bolster carried by each shell or chamber, a sleeve-whirl spindle in each bolster, a spiral spring within each shell or chamber and surrounding its respective bolster, a bracket between adjoining holes and projecting from the spindle-rail, a set-screw adjustably arranged in said bracket, and a flat spring centrally engaged by said set-screw and bearing with its free ends against the shells or chambers of adjoining spindles, substantially as and for the purposes described.

602,255. DUMPING-PLATFORM. SCOTT F. EVANS, Minneapolis, Minn. Filed Aug. 31, 1897. Serial No. 650,091. (No model.)



Claim.—1. A dumping-platform, comprising a stationary part, a movable part pivotally supported thereby, mechanism for tilting said movable part, arms or stops to engage said movable part and lock the same in a horizontal position, said arms or stops being transversely movable with respect to said movable part, and means for disengaging said arms or stops from said movable part, substantially as described.

2. In a dumping-platform, the combination, with the tilting portion of the platform, of means for tilting the same and returning it to its normal position, arms or stops arranged to engage said tilting portion and transversely movable with respect to the same, means connected with said arms for disengaging the same from said tilting portion, and means for automatically returning said arms or stops to their normal position, substantially as described.

3. In a dumping-platform, the combination with the stationary platform, of the tilting track-timbers supported thereby, means for operating the same, the pivoted arms or stops arranged to engage said track-timbers, and lock the same in a horizontal position, said arms or stops being movable transversely with respect to said timbers, means for disengaging said arms or stops from said timbers, and means for automatically returning said arms or stops to their normal position after the operation of dumping is completed, substantially as described.

4. The combination, in a dumping-platform, with the stationary portion, of the pivoted track-timbers supported thereby, means for tilting the same, the brackets secured beneath said stationary portion, the pivoted stops carried thereby and normally in engagement with said track-timbers, means for disengaging said stops from said track-timbers, and means for automatically returning the same to their normal position, substantially as described.

5. The combination, with the stationary platform, of the pivoted track-timbers and means for tilting the same, the brackets arranged beneath said platform, the pivoted stops carried thereby and normally in engagement with said track-timbers, a rod connecting said stops, a standard, a weighted lever pivotally connected to said rod and said standard, and means carried by said standard for operating said lever, for the purpose set forth.

6. The combination, with a tilting platform and means supporting the same, of means for tilting said platform and returning it to its normal position, and means operating laterally with respect to said platform for locking it in a horizontal position and permitting it to tilt when unlocked, substantially as described.

7. The combination, with a tilting platform and means supporting the same, of means for tilting said platform and returning it to its normal position, and pivoted stops transversely movable with respect to said platform for locking it in a horizontal position and permitting it to tilt when unlocked, substantially as described.

8. The combination, with the platform, of the tilting track-timbers, the mechanism for tilting the same, the brake-wheel provided in connection with said mechanism, the strap or band passing over the same, the head or block supporting said brake-wheel and the screw carried by said head and passing through openings provided in the ends of said strap or band, substantially as described.

9. In a device of the class described, the combination with the upright standard, of the head or block carried thereby, the shaft mounted in bearings in said head, the brake wheel arranged upon said shaft, the bracket 36, the screw 37, the strap or band passing over said brake-wheel, said strap having one end attached to said screw and its opposite end provided with a block having a threaded opening to receive the same, and the collar 41 provided upon said screw, substantially as described.

10. The combination, with a tilting platform and means supporting the same, of means for tilting said platform and returning it to its normal position, brackets or hangers supported beneath said platform, pivoted stops carried thereby normally in engagement with said platform to lock the same in a horizontal position, means for simultaneously disengaging said stops from said platform and means for automatically returning said stops to their normal position, substantially as described.

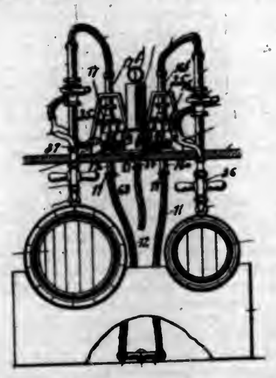
11. The combination, with a tilting platform and means supporting the same, of means for tilting said platform and returning it to its normal position, pivoted stops operating laterally with respect to said platform for locking the same in a horizontal position, means for disengaging said stops to permit the tilting of said platform, and means for automatically returning said stops to their normal position, substantially as described.

12. The combination, with a stationary platform, of the pivoted track timbers, and means for tilting the same, the hangers or brackets arranged beneath said platform, the pivoted stops carried thereby and normally in engagement with said track-timbers, means connecting said stops to simultaneously disengage the same from said timbers, and means for returning said stops to their normal position, substantially as described.

13. The combination, with a stationary platform, of pivoted track-timbers and means for tilting the same, hangers or brackets, stops carried thereby and normally in engagement with said track-timbers, means for simultaneously disengaging said stops from said

timbers and means for automatically returning said stops to their normal position, substantially as described.

602,256. APPARATUS FOR RACKING BEER, ALE, OR OTHER LIQUORS. EDGAR FRIEDMAN, Dobbs Ferry, N. Y., assignor of one-fifth to Louis Baeppler, same place. Filed Sept. 14, 1897. Serial No. 651,600. (No model.)



Claim.—1. In an apparatus for racking beer, &c., the combination of a supply-pipe, two independent filling-tubes communicating with the supply-pipe, and a twin coupling between the independent filling-tubes and supply-pipe located below the level of and at considerable distance from the discharge ends of the filling-tubes, and thereby providing independent equalizing liquid columns in said filling-tubes, substantially as set forth.

2. In an apparatus for racking beer, &c., the combination of a supply-pipe, two independent fillers, a twin coupling attached to the supply-pipe, and independent vertically-extending tubes communicating between the branches of the twin coupling and the independent fillers; the twin coupling being located below the level of the discharge ends of the fillers, substantially as set forth.

3. In a beer-racking device, the combination of the settling-tank, and supply-pipe leading therefrom, a twin coupling in the supply-pipe, independent vertically-extending tubes leading from the branches of the twin coupling, independent fillers communicating with said vertically-extending tubes, and means for supporting the barrels or packages to be filled above the level of the twin coupling, substantially as and for the purpose set forth.

4. In a beer-racking device, the combination of a settling vat or tank, a supply-pipe leading therefrom, a twin coupling attached to said supply-pipe, independent vertically-extending branch tubes communicating with the branches of said twin coupling, suitably-supported independent observation-glasses in said vertically-extending tubes, a pair of independent fillers communicating with said tubes above the observation-glasses, means for supporting the fillers, and a barrel stand or rack adapted to support the barrels or packages to be filled above the level of the twin coupling-tubes, substantially as and for the purpose set forth.

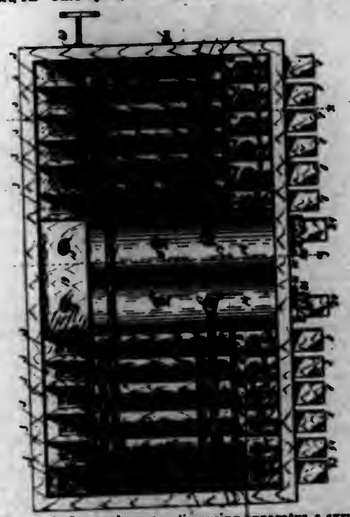
5. In a racking apparatus, the combination of a liquor-supply, and two independent filling devices having overflow-passages in open communication with the packages when in operative position, with a back-pressure device comprising a pressure-chamber communicating with the overflow-passages of both filling devices, and a controlling-valve constructed and arranged to open up communication between the pressure-chamber and both overflow-passages of the filling devices in one position, and between one overflow-passage and pressure-chamber and the other overflow-passage and open air in another position, substantially as set forth.

6. In a racking apparatus, the combination of a liquor-supply, and two independent filling devices having overflow-passages in open communication with the packages when in operative position, with a back-pressure device comprising a pressure-chamber communicating with the overflow-passages of the filling devices, and a valve controlling said communication; said valve being constructed and arranged to be moved into three positions, one position of the valve opening up communication between both filler-overflow passages and pressure-chamber, the second position opening up communication between one overflow-passage and pressure chamber and other overflow-passage and open air, the third position reversing the arrangement of the overflow-passages with relation to the pressure-chamber and open air, substantially as set forth.

7. In a racking apparatus, the combination of a liquor-supply, and two independent filling devices having overflow-passages, with a back-pressure device comprising a pressure-chamber communicating with the overflow passages of the filling devices, a pressure-supply such as an air-pump, and a controlling-valve constructed and arranged to open up communication between the overflow-passages of the filling devices and pressure-chamber, the overflow-passages and the open air, and the pressure-supply and the pressure-chamber, substantially as set forth.

8. In a racking apparatus, the combination of a liquor-supply, and two independent filling devices having overflow-passages, with a back-pressure device comprising a pressure-chamber, a pressure-supply such as an air-pump, and a seven way valve controlling communication between the overflow-passages of the filling devices, with the pressure-chamber and the open air, and the pressure-supply with the pressure-chamber, substantially as set forth.

602,257. SODA-WATER APPARATUS. JOHN F. HAINES, Freeport, Pa. Filed Apr. 3, 1897. Serial No. 630,630. (No model.)



Claim.—1. In a soda-water-dispensing apparatus, a syrup-reservoir, a supply-pipe connecting said reservoir and a supply-can, means operating in connection with said can, whereby a given quantity of syrup is dispensed, a mixing-chamber, a gas-generating chamber, supply-pipe connecting said mixing-chamber and gas generating chamber, and means for dispensing the carbonated liquid, substantially as shown and described.

2. In a soda-water-dispensing apparatus, a mixing-chamber, a gas-reservoir, pipes connecting said chambers, and reservoir, a syrup-reservoir, a syrup-dispensing can, a cylinder communicating with said can, and provided with a discharge-pipe, a piston operating in said chamber, a rod engaging said piston, a bar connecting said rod, and an operating-rod, operating in a compartment, and treadle means for operating said piston, substantially as shown and described.

3. In a soda-water-dispensing apparatus, a syrup-reservoir, a syrup-dispensing can, pipe connections between said reservoir and can, a mixing-chamber, a rotary stirrer journaled in said chamber, and means for operating the same, in combination with a gas-reservoir, a gas-generating chamber located inside said reservoir, and a removable gas-generator, substantially as shown and described.

4. In a soda-water-dispensing fountain, a mixing-chamber, a rotary stirrer journaled in said chamber, a gas-reservoir, pipes connecting said chamber and reservoir, a gas-generating chamber, a gas-generator carried by said generating-chamber, consisting of a cylinder provided with a longitudinal opening in one side, a trough located in said opening, and means for discharging said carbonated liquid, substantially as shown and described.

5. In combination, a soda-water-dispensing apparatus, comprising a mixing-chamber, a rotary mixer journaled in said chamber, an auxiliary chamber communicating with said chamber, a gas-reservoir, a gas-generating chamber, a gas-generator located inside of said chamber, pipes connecting said gas-reservoir and mixing-chamber, and means for dispensing the carbonated beverage, substantially as shown and described.

602,258. TRUNDLE-HOOP. CARL HAUPT, Brooklyn, N. Y. Filed Oct. 30, 1897. Serial No. 656,902. (No model.)



Claim.—1. A trundle-hoop, having eyes on the circumference of the same, said eyes being arranged in pairs at diametrically opposite sides thereof, and cross-strings secured to said eyes and crossing each other at right angles near the center of the hoop, substantially as set forth.

2. The combination, with a trundling-stick provided with a grooved end, of a trundle-hoop having eyes upon the circumference thereof, said eyes being arranged in pairs at diametrically opposite sides of said hoop, and cross-strings secured to said eyes and adapted to spring laterally and be overlapped at the center so as to hug the grooved end of the trundling-stick, substantially as set forth.

602,259. WAGON-JACK. CHARLES T. JAMES, Paterson, N. J. Filed July 12, 1897. Serial No. 644,169. (No model.)



Claim.—The combination with the lifting-bars of a wagon-jack of the character above described, said lifting-bars being provided with a series of vertical sockets, of a metallic strip on the top portion of each of said lifting-bars, and longitudinally arranged thereon, a series of springs between each metallic strip and its respective lifting-bar, and a series of pins carried by said metallic strips and slidingly arranged in the said vertical sockets of the lifting-bars, substantially as and for the purposes described.

602,260. BOBBIN. HERBERT D. KLOTZ, Garden City, N. Y., assignor to the Pendleton Manufacturing Company, Carbondale, Pa. Filed Aug. 21, 1897. Serial No. 648,967. (No model.)

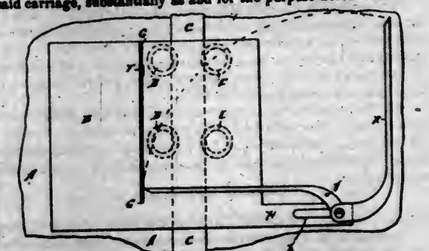


Claim.—1. A bobbin formed of a wooden core having fixed peripheral ribs, a short distance from each end, and metallic heads each formed of an inner and an outer piece of sheet metal bound together peripherally, the inner edge of the outer head-piece encircling the core and bearing axially against the outside of said rib, and the inner head-piece bent axially to form a sleeve surrounding the periphery of said rib and bent radially to encircle the core and bear axially against the inside of said rib.

2. A bobbin formed of a wooden core having fixed peripheral ribs, a short distance from each end, and metallic heads each formed of an inner and outer piece of sheet metal bound together peripherally, the inner edge of the outer head-piece bearing axially against the outside of said rib and the inner head-piece bent radially to encircle the core and bear against the inside of said rib, then bent axially to form a sleeve surrounding the periphery of said rib and then bent outward radially and inward axially to form an annular recess around said sleeve, and an outer barrel having its end seated in said recess and surrounding said sleeve.

602,261. SAW-TABLE GAGE. ANTHONY KOTT, Detroit, Mich. Filed Dec. 15, 1897. Serial No. 661,941. (No model.)

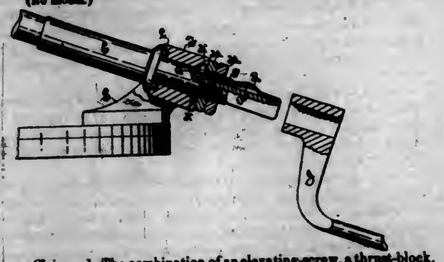
Claim.—1. The combination with a saw-table of a carriage, B, adapted to move upon said table, a guide adapted to constrain the motion of said carriage and arms, J K, adjustably secured to, and laterally beyond the work-supporting part of, said carriage, so that they may be adjusted to different positions over the work, said arms having their index ends extending approximately to the saw-line of said carriage, substantially as and for the purpose described.



2. The combination with a saw-table of a carriage, B, adapted to constrain the motion of said carriage, and arms, J K, pivoted laterally to, and beyond the work-supporting part of, said carriage, so that they may be swung over the work with index ends extending approximately to the saw-line of said carriage, substantially as shown and described.

3. The combination with a saw-table of a carriage adapted to move upon said table, a guide adapted to constrain the motion of said carriage, and arms, J K, pivoted upon one axis, said axis being located upon said carriage laterally beyond the work-supporting part thereof, so that said arms may be swung over the work with index ends extending approximately to the saw-line of said carriage, and means for adjusting said axis toward and away from the work-supporting part of said carriage substantially as shown and described.

602,262. ELEVATING-SCREW FOR AERIAL LADDERS, &c. ASA W. LA FRANCE, Elmira, N. Y., assignor to the La France Fire Engine Company, same place. Filed Jan. 10, 1898. Serial No. 666,156. (No model.)



Claim.—1. The combination of an elevating-screw, a thrust-block, an operating-crank, and a lock whereby the screw is automatically locked from turning in the thrust-block when the crank is removed, substantially as described.

2. The combination of a screw, a thrust-block, a spring-dog attached to the screw-shank to engage a notch in the thrust-block, a projection on the spring-dog, and a crank provided with a socket adapted to depress the spring-dog when attached to the screw-shank, substantially as described.

602,263. AIR-LOCK FOR CAISSONS. SAMUEL MATTSON, Brooklyn, N. Y. Filed Sept. 11, 1897. Serial No. 651,284. (No model.)



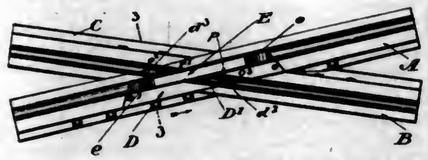
Claim.—1. An air-lock for caissons having an upper opening of substantially oval form, and a correspondingly-shaped gate or cover centrally pivoted, whereby when it is turned on its pivot-bearing it can be projected through said opening, substantially as set forth.

2. An air-lock for caissons having the upper end of its casing bent to form an upper oval opening, a gate or cover also of oval shape but of greater corresponding diameter than said opening, said cover having a central opening, and a bucket having a rope which is passed through said opening, substantially as set forth.

3. An air-lock for caissons having an opening not of uniform diameter, a correspondingly-shaped gate or cover of slightly-increased diameter having a central opening, a spherical body fitted in said opening and having a central hole flared at one end, and a stuffing-box having a hole in line with said former hole, and also flared at its outer end, substantially as set forth.

4. The cover having an opening, a spherical body fitted in said opening, plates attached to said cover having concaved ends for holding said body, which latter has a hole flared at one end, and a stuffing-box in line with said hole having its outer end flared, substantially as set forth.

602,264. RAILWAY TRACK STRUCTURE. FRANK HATHER, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed Dec. 11, 1897. Serial No. 661,580. (No model.)



Claim.—1. The combination of the continuous rail having a suitable length of its tread portion removed, the crossing-rails secured to the continuous rail, and a separate member also secured to the continuous rail and having a head occupying the place of said removed tread.

2. The combination of the continuous rail having a suitable length of its tread portion removed, the crossing-rails secured to the continuous rail, and a separate member parallelling the continuous rail and having a tread portion taking the place of said removed portion.

3. In a railway-crossing, the combination with the rails thereof, one of which has a suitable length of its tread portion removed, of a member having a web and head, the said head occupying the place of the said removed tread and the said web secured to the web of the same rail.

4. In a railway-crossing the combination with the rails thereof, one of which has a suitable length of its tread portion removed, of a member having a web and head, the said head occupying the place of the said removed tread and the said web parallelling and secured to the web of the same rail.

5. In a track structure the combination with a continuous rail having a suitable length of its tread portion removed, of a member parallelling, and secured to, said rail and having a head occupying the place of said removed tread, and a floor plate secured between the said member and the guard of the said rail.

6. The combination of the continuous rail having a suitable length of its tread-surface removed, the crossing-rails secured to the continuous rail, a separate member also secured to the continuous rail and having a head occupying the place of said removed tread, and a floor-plate lying between the said member and the guard of the continuous rail.

7. The combination of a rail having a suitable length of its tread portion removed, a member having a head taking the place of said removed portion, and a floor-plate dovetailed between the guard of the rail and the aforesaid member.

8. The combination of a continuous rail, having a suitable length of its head removed, a pair of crossing-rails, a member having a head and web, the former taking the place of said removed head, a bar dovetailed between the guard of the continuous rail and the head of the said member, and means for securing all the foregoing parts together.

9. In a railway track structure the combination of the rails A, B and C, the member D having a groove in alinement with the grooves of rails B and C, the floor-plate E, and means for securing the whole together.

10. In a railway track structure, a member having a head portion occupying a space formed by the removal of a suitable length of one of the crossing-rails and having a groove across its head portion in alinement with the groove of the other of said crossing-rails.

11. In a railway track structure, a rail having a suitable length of its tread portion removed, in combination with crossing-rails secured thereto, and a member having a head portion taking the place of said removed tread, and an inclined groove across its head in alinement with the groove of the crossing-rails.

12. The combination with the recessed main rail, the crossing-rails secured thereto, the member fitting into the said recess, a groove in said member and in the main rail in alinement with the grooves of the crossing-rails, and a floor-plate in the groove of the main rail.

13. In a railway track structure, the combination with the recessed main rail, the crossing-rails secured thereto, the member fitting into the recess of the main rail, a groove in said member alining with the groove of the crossing-track and having an inclined floor, a similar groove with inclined floor in the guard of the main rail, and a floor-plate in the groove of the main rail.

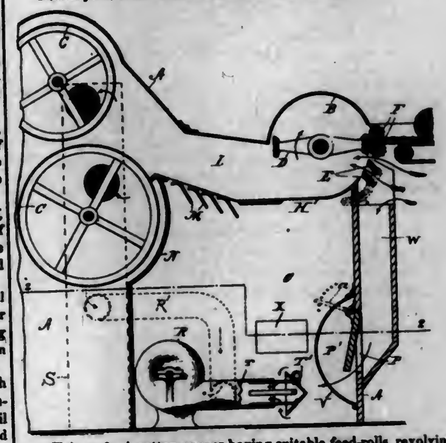
14. The combination of a continuous rail having a recess, a tread member inserted in said recess, crossing-rails abutting opposite sides of the tread member, and a groove in the tread member in alinement with that of the crossing-rails.

15. The combination of a continuous rail having a recess, a tread member inserted in said recess, crossing-rails abutting opposite sides of the tread member, a groove in the tread member in alinement with that of the crossing-rails, and a floor-plate lying beside the tread member and in the groove of the continuous rail.

16. The combination of a continuous guard rail having a recess, a tread member inserted in said recess, crossing-rails abutting opposite sides of the tread member, inclined grooves across the tread member, said grooves being in alinement with the grooves of the crossing-rails, and a floor-plate between the side of the tread member and the guard of the continuous rail.

17. In a railway track structure, the combination with the recessed main rail and the crossing-rails, of a member having a web and head, the web lying beside that of the main rail and the head fitting into the recess therein, splice-bars engaging the rails and the outside of said web, and bolts securing the whole together.

602,265. COTTON-OPENER. JOHN O'CONNELL, Chicopee, Mass. Filed Sept. 9, 1897. Serial No. 651,142. (No model.)

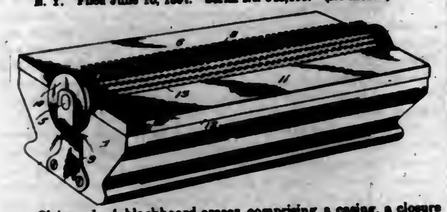


Claim.—1. A cotton-opener having suitable feed-rolls, revolving beater-arms, adjustable bars for receiving the impact of the cotton carried by the said beater-arms, means for revolving said arms, a screen near said bars, a compartment under said screen, suitable means for maintaining a partial vacuum in said compartment whereby a current of air is established through said bars into the machine and down through said screen into the said compartment, combined with means for increasing or diminishing said air-current, for the purpose described.

2. In a cotton-opener, suitable feed-rolls, beater-arms revolving in proximity to said rolls within a suitable case, exhaust-cylinders for receiving fiber from said beater-arm case, adjustable bars located in proximity to said feed-rolls, a compartment under said beater-arm case, a conduit or chute having one of its ends connected to the said compartment, and its opposite end lying near said adjustable bars, means for regulating the size of the opening between said conduit and said compartment, a screen between the said beater-case and said compartment, and means for creating a partial vacuum in the latter, substantially as set forth.

3. In a cotton-opener, suitable feed-rolls, adjustable bars located in proximity to said feed-rolls, beater-arms revolving in proximity to said rolls and bars, exhaust-cylinders for receiving cotton from said beater-arms, a suitable casing for said beater-arms and cylinders, a fan, a compartment under said beater-casing, a conduit extended between said compartment and said cylinders, and connected to said fan whereby air may be exhausted from both said cylinders and compartment, means for regulating the amount of air to be so exhausted, and a conduit connected by one of its ends with said compartment and having its opposite end lying near said bars, and means for opening and closing said conduit, substantially as described.

602,266. BLACKBOARD-CLEANER. LAURA A. PEIK, Geneva, N. Y. Filed June 10, 1897. Serial No. 640,190. (No model.)



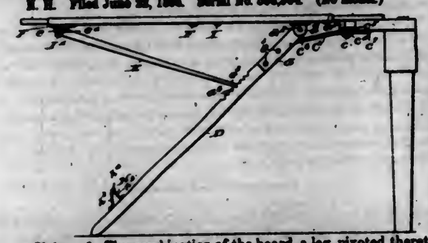
Claim.—1. A blackboard-eraser comprising a casing, a closure for an open side of said casing and provided with a longitudinal central slot, a rotatable roller journaled in the casing, the individual flexible tongues arranged in spiral series on the roller and protruding through the slot in said closure to present abrasive surfaces, and drive-wheels rigid with said roller and protruding beyond the closure to have frictional contact with a blackboard and to positively turn the roller, whereby the roller is rotated and the individual tongues thereof are caused to forcibly impinge against a blackboard-surface to efface chalk or crayon marks therefrom, as set forth.

2. In a blackboard-cleaner, the combination with a casing and rotatable roll journaled therein, of a flexible closure detachably secured to the open side of said casing and having a longitudinal slot through which said roll protrudes, substantially as and for the purposes described.

3. In a blackboard-cleaner, a casing, and a closure made in a continuous sheet of rubber, provided with a central longitudinal slot and arranged to be fastened detachably to the casing by springing the same over the edges thereof, combined with a roll arranged to have its working surface project through the slot in said casing, as and for the purposes described.

4. A blackboard-cleaner comprising a chambered casing having an open side, a flexible closure detachably applied to said open side of the casing and arranged to form a longitudinal slot or opening, and a roll journaled in said casing and provided with the plurality of individual flexible tongues and with the frictional driving wheels or disks, the protruding ends of said tongues forming broad erasive surfaces, substantially as described.

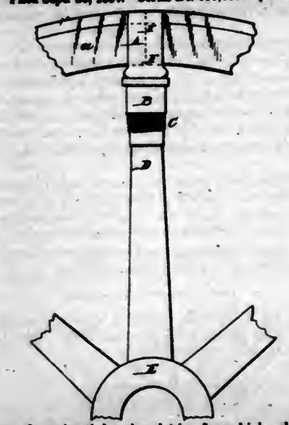
602,267. IRONING-BOARD. ROBERT A. PRESCOTT, Kingston, N. H. Filed June 22, 1897. Serial No. 640,904. (No model.)



Claim.—1. The combination of the board, a leg, pivoted thereto near one end of the same, a brace, hinged to said board near the other end of the same and having a free end adapted to rest upon said leg, to support said board, said brace being adapted to be folded against said board and said leg being adapted to be folded against said brace when not in use, a catch adapted to hold said leg in its folded position, and buffers of elastic material secured to said board and to said brace, respectively, to receive said brace and leg when folded.

2. The combination of the board, a leg, strips secured to opposite sides of an end of the same and extending beyond said end, ears, secured to the bottom of said board, said strips being pivoted to said ears, a spring-lever, supported on said board, between said ears and the adjacent end of said board, a pin passing through said strips above one end of said lever to depress said end of said lever and to raise the other end of said lever when said leg is turned downward, to clamp the edge of a table between said board and the last-named end of said lever, and a brace, to prevent the movement of said leg by said spring-lever, and to enable said board to be adjusted to tables of different heights.

602,268. SPOKE AND FELLY ADJUSTER. JASPER H. RACHESS, Judsonia, Ark., assignor to Moses Wedford and Mary M. Rachess, same place. Filed Sept. 25, 1897. Serial No. 653,062. (No model.)



Claim.—In a tire-tightening device for vehicle-wheels, the combination with the felly having a recess in its inner side, and the tire, of the U-shaped clip comprising the horizontal and vertical portions, the lug on the horizontal portion engaging with said recess, and said horizontal portion formed on its inner side with a cylindrical stud, the hollow rotatable nut formed with an opening with which said stud engages, the exteriorly-threaded thimble, tapered to form a sharp inner end and the spoke with which said thimble engages, substantially as described.

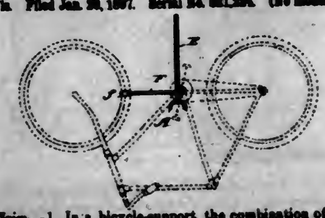
602,269. STOPPER FOR DISCHARGE OF AERATING CAPSULES. HARRY V. R. READ, London, England. Filed Feb. 26, 1897. Serial No. 626,092. (No model.)



Claim.—1. The combination with a bottle or vessel, having a screw-threaded neck, of a screw-threaded stopper arranged to engage the same, a sleeve arranged to hold a capsule and having a lip arranged to rest upon an inner shoulder of the bottle-neck, and a pin upon the stopper arranged to prick the capsule, substantially as described.

2. The combination with a bottle or vessel, of a stopper arranged to carry a capsule, and having a pin arranged to prick the same, and a check-valve arranged between the capsule and the interior of the bottle or vessel; substantially as described.

602,270. BICYCLE-SUPPORT. HOWARD T. SACKETT, Fond du Lac, Wis. Filed Jan. 20, 1897. Serial No. 621,294. (No model.)



Claim.—1. In a bicycle-support, the combination of a crescent-shaped hanger-saddle of trough-shaped cross-sectional form and having the oppositely-facing bearing-surfaces, and a carrying-arm attached centrally to the hanger-saddle, substantially as described, for the purposes set forth.

2. In a bicycle-support, the crescent-shaped hanger-saddle of

trough-shaped cross-sectional contour and provided with a centrally-arranged flat attaching-lug, combined with an overhanging arm which is fastened laterally to said attaching-lug and in central relation to the hanger-saddle, substantially as described, for the purposes set forth.

3. In a bicycle support or hanger, a bearing-block or saddle cast in a single piece of metal and curved continuously throughout its length to form at or near the terminals of said saddle or block the bearing-surfaces which face outwardly and in opposite directions, said saddle being trough-shaped in cross-section and adapted to clasp or embrace the frame-bars of a bicycle to restrain the latter from sidewise displacement, substantially as described, for the purposes set forth.

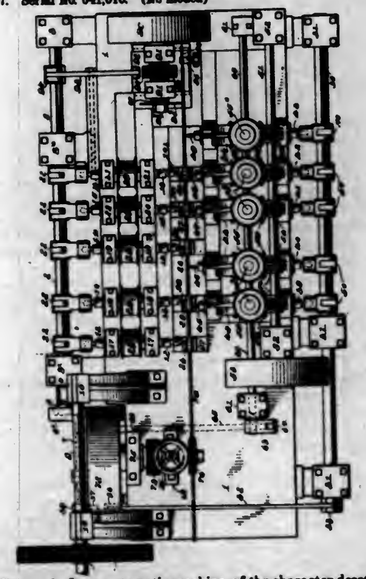
4. As a new article of manufacture, the bicycle-hanger comprising a single cast-metal saddle of trough-shaped cross-sectional contour and curved to present the oppositely-facing bearing-surfaces near the terminals thereof, and the cushion-blocks situated within said trough-shaped saddle and over the bearing-surfaces thereof, substantially as described, for the purposes set forth.

602,271. BOLT-CASE. HENRY B. SARGENT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Jan. 18, 1896. Serial No. 575,954. (No model.)



Claim.—A bolt-case made from a single piece of sheet metal, comprising longitudinally-arranged slack-providing flutes formed in the flat ends of the plate portion of the case, and located at the corners of the bolt-housing which is drawn from the central portion of the blank from which the plate is formed, the drawing of the said portion of the plate tending to form cracks in the metal at the point where the ends of the housing merge into the plate portion of the case, and the presence of the said slack-providing flutes relieving the strain upon the metal at such points and preventing the metal from cracking.

602,272. DRILLING AND TAPPING MACHINE FOR DOOR-KNOB SPINDLES. FRANKLIN B. SHUSTER, New Haven, Conn. Filed June 16, 1897. Serial No. 641,010. (No model.)



Claim.—1. In an automatic machine, of the character described, the combination with a series of drills and their operating mechanism adapted to operate on a rod fed along in front of such drills and against a fixed stop, combined with means for severing a finished section from the end of said rod, for the purpose set forth.

2. In an automatic machine for drilling door-knob spindles, or articles of like character, the combination of a series of drills and mechanism for operating them, feed-rolls adapted to feed a rod along through fixed supports or drill-jigs a distance represented by the length of the finished article, a fixed stop against which the end of such rod is brought each time it is moved forward, and means for cutting off a finished section therefrom, for the purpose set forth.

3. The combination, in an automatic machine, of the character described, of a series of drill-spindles and their operating mechanism, feed-rolls, drill-jigs, or other like supports for a rod to be acted upon, a fixed stop, and a cutting-off apparatus, for the purpose set forth.

4. The combination, in an automatic machine, of the character described, of a series of independently-operating drill-spindles and mechanism therefor, feed-rolls for feeding a rod along the series of drills a distance represented by the length of a section to be severed from said rod, a fixed stop against which the end of the said rod is brought at each forward feed and a cutting-off apparatus, for the purpose set forth.

5. The combination, in an automatic machine, of the character described, of a series of drill-spindles adapted to act on a rod fed forward thereto, operating mechanism therefor, a series of tapping-spindles adapted to operate on the opposite side of said rod, mechanism for operating said tapping-spindles, feed-rolls adapted to feed said rod the full length of a required section, a fixed stop for the end of said rod, and a cutting-off apparatus, for the purpose set forth.

6. The combination, in an automatic machine, of the character described, consisting of a series of drill-spindles and their operating mechanism, feed-rolls for feeding a rod by the end of said spindle, and their operating mechanism, a fixed stop against which said rod is fed, cutting-off apparatus and its operating mechanism, combined so that each time the rod is fed forward against the said stop a distance representing the section to be cut off, the rolls cease feeding, while the drills are operating; and after such drills have performed their work, they will be retreated and the cutting-off mechanism brought into operation, for the purpose set forth.

7. The combination, in an automatic drilling and tapping machine, of the character described, consisting of a series of drilling and tapping spindles, carrying taps and drills, and their operating mechanism, feeding mechanism for feeding a metal strip or rod between the series of said drilling and tapping spindles and against a fixed stop, cutting-off mechanism for severing a completed section from the end of such rod, for the purpose set forth.

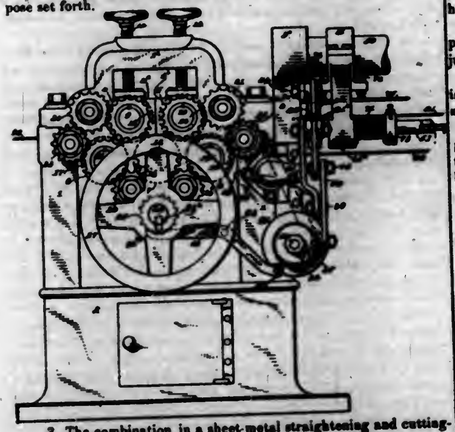
8. The combination, in an automatic drilling and tapping machine, for door-knob spindles and articles of like character, of a series of drilling and tapping spindles carrying the necessary drills and taps adapted to operate to and from the rod-feeding line, operating mechanism for said drilling and tapping spindles, feeding mechanism for feeding a rod between said drills and taps, said feeding mechanism adapted each time it engages the rod to feed said rod forward the full length of the finished article to be severed therefrom and against a fixed stop, cutting-off mechanism between said stop and the drilling and tapping mechanism, drill-jig supports substantially as shown, all combined so that, when the said rod has passed by the line of the series of drills and taps, all of said drills and taps will be operating at the same time, for the purpose set forth.

9. The combination, in an automatic drilling and tapping machine for door-knob spindles or articles of like character, consisting of a series of drilling and tapping spindles carrying drills and taps and adapted to operate to and from the feeding-line of a rod between such drills and taps, mechanism for operating such spindles, feeding device for feeding a rod to be drilled and tapped, drill-jigs or other like supports, a fixed stop against which the end of such rod is fed, and a cutting-off apparatus for severing a completed section therefrom, for the purpose set forth.

602,273. SHEET-METAL STRAIGHTENING AND CUTTING-OFF MACHINE. FRANKLIN B. SHUSTER, New Haven, Conn. Filed June 15, 1896. Renewed Sept. 18, 1897. Serial No. 652,177. (No model.)

Claim.—1. The combination, in a sheet-metal straightening and cutting-off machine, of the straightening-rolls, a support therefor, means, substantially as shown, for operating such rolls, cutting-off mechanism placed forward of such rolls, an overhead supporting-shaft secured in position, substantially as shown, supports depending from said shaft, side rods journaled in the free ends of said supports, table-arms rigidly secured to said shafts, a platform or table on such table-arms, means, substantially as shown, whereby said rods are rotated in their supports and the said table-arms opened and closed, for the purpose set forth.

2. The combination in a sheet-metal straightening and cutting-off machine, of the straightening-rolls and cutting-off mechanism, such cutting-off mechanism placed forward of such rolls, means whereby both sets of mechanism are automatically and independently operated, an overhead supporting-shaft, table-rod supports depending therefrom, table-rods journaled in said supports, a series of table-arms rigidly attached to said rods, a platform mounted on said arms, said platform adapted, when placed in a horizontal position, to form a continuous table, and when said rods are rotated in their supports, the table will open in the center to deliver the metal strips, an adjustable trip to determine the lengths of the metal strips, for the purpose set forth.

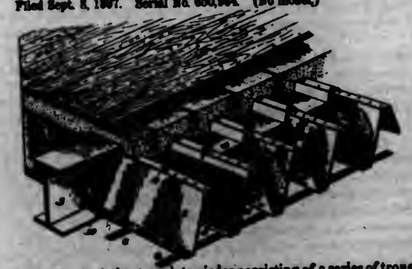


3. The combination, in a sheet-metal straightening and cutting-off machine, with the straightening-rolls and cutting-off mechanism, of table-rod supports, a support therefor, rods journaled in such supports, table-arms rigidly mounted on such rods, platforms overlying such arms, gears rigidly mounted on the inner ends of said rods, segment-gears registering therewith, means for operating such segment-gears whereby the table-arms are opened and closed, springs mounted on such rods to assist in closing said table-arms, a trip-plate for determining the length of the metal strips and means whereby said trip-plate will actuate the cutting-off mechanism and cause the straightening-rolls to cease (temporarily) to rotate while the metal is being severed and the said table-arms are being opened, for the purpose set forth.

4. The combination, in an automatic sheet-metal straightening and cutting-off machine, of feeding and straightening mechanism, shearing-cutters through which the metal is fed from the said feeding and straightening mechanism, a two-section table forward of said cutters, said table adapted to open centrally, each section moving in opposite directions so as to deliver the severed strips flatwise of the metal and thus prevent scratching or marking the face of such strips, combined with a trip to limit the forward feed of said strips, substantially as set forth.

5. The combination, in an automatic sheet-metal straightening and cutting-off machine, of feeding and straightening mechanism, shearing-cutters through which the metal strip passes from said feeding and straightening mechanism, a two-section table forward of said cutters, said table adapted to open in the center, each section having a radial movement on its support so as to deliver the severed strips flatwise, a tripping device pivotally supported above such table when the sections thereof are closed, a balanced trip-lever or other like device connected with the cutting-off mechanism, means for connecting such lever with the tripping device so that, when the end of the metal strip engages such tripping device the cutting-off mechanism will be actuated, substantially as specified.

602,274. SHEET OR PLATE GIRDER. CYRUS B. SELL, Niles, Ohio. Filed Sept. 8, 1897. Serial No. 650,964. (No model.)



Claim.—1. A sheet or plate girder consisting of a series of trough-shaped portions having their sides provided with stiffening corrugations or ribs.

2. A sheet or plate girder composed of a series of trough shapes, and bent plates extending across the openings of the troughs and arranged to receive a filling.

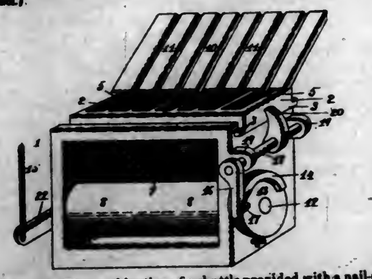
3. A sheet or plate girder consisting of a series of trough shapes having ceiling-strips secured to their bases.

4. A girder composed of alternate oppositely-extending trough portions, with flat bottoms provided with elongated slots for the adjustment of strips secured thereto.

5. The combination with a main girder, of a cross-girder consisting of a series of trough-shaped portions resting upon the flange of the main girder, and a leveling-wedge interposed between them.

6. The combination with two parallel main girders, of a cross-girder consisting of a series of trough-shaped portions resting upon the base flanges of the main girders, and arch-shaped plates located between the sides of the troughs and having their ends supported upon the main girders.

602,275. NAIL-SETTING MACHINE. ALONZO M. STEBBINS, Marlborough, Mass. Filed Sept. 16, 1897. Serial No. 651,893. (No model.)



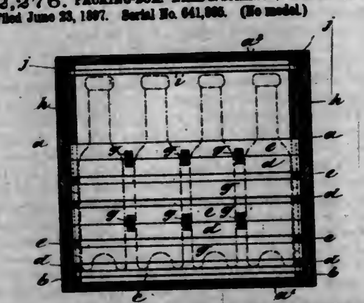
Claim.—1. The combination of a shuttle provided with a nail-slit, a shuttle-race having a nail-slit, a transverse projection or pin across the nail-slit in the shuttle and means for operating the shuttle.

2. The combination of a shuttle provided with a series of nail-slits, a shuttle-race, transverse pins or projections across said nail-slits, and means for operating the shuttle.

3. The combination of a shuttle having a nail-slit, a transverse pin across said slit, a shuttle-race, a conveyer leading from the shuttle, and means for operating the shuttle.

4. The combination of a shuttle having a nail-slit, having a pin or projection across said slit; a shuttle-race; an oscillating shaft having a nail slit or pocket, a conveyer between the shuttle and the shaft and means for operating the shuttle and shaft.

602,276. PACKING-BOX. NILS G. STAHLBERG, Stockholm, Sweden. Filed June 23, 1897. Serial No. 641,986. (No model.)



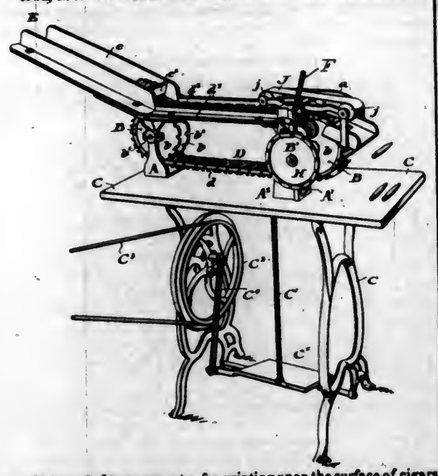
Claim.—1. The combination with a packing-box having grooves *z*, of a cushion base for the articles, and a cushion structure to rest on the articles, of tiers of cell structure, set in said grooves *z*, each of said tiers comprising end members *d* and *e*, the ends of which engage the grooves *z*, and partition members *g*, arranged at right angles to the members *d* and *e* and secured at their ends in the last-named members, said tiers being superposed in the grooves in the box and arranged with the members of alternate tiers crossed, substantially as set forth.

2. In a packing-box having an interior cell structure substantially as described, the superposed tiers each composed of members *d* and *e*, with their ends engaging grooves in the box, and partition members *g*, secured at their respective ends in the last-named members, said partition members being each composed of two strips or

laths placed side by side, but separated by blocks or pieces *k*, substantially as set forth.

3. The combination with the box having grooves *x* in its sides parallel with the ends thereof, of the base in the box consisting of the laths *b*, and the bottom laths *c*, supported in gains or notches in the laths *b*, a series of tiers, composed each of members *d* and *e*, engaging the grooves and partition members *g*, supported at their ends in gains or notches in the members *d* and *e*, said tiers being arranged so that the members of alternate tiers are at right angles.

602,277. PRINTING-MACHINE. GEORGE W. SWIFT, Jr., Bordentown, N. J. Filed June 4, 1897. Serial No. 639,429. (No model.)



Claim.—1. In an apparatus for printing upon the surface of cigars or other cylindrical bodies, a holder for the device to be printed, a flexibly supported printing wheel, and means for revolving the one about the other,—said printing wheel being caused to rotate idly by its contact with the device to be printed upon, substantially as set forth.

2. In a machine for printing upon the surface of cigars or other cylindrical bodies, the following instrumentalities in combination, namely:—a holder for the device to be printed, a printing wheel, means for supplying ink to the same, a flexible carrier for said printing wheel, and means for occasioning the revolution of said printing wheel about said device to be printed,—said printing wheel being mounted in such manner as to be idly rotated by its contact with said device to be printed upon substantially as set forth.

3. In an apparatus for printing upon the surface of cigars or other cylindrical bodies, a holding device for the article to be printed, a printing wheel mounted free for revolution upon an axle device, in such position as to be brought into contact as to its periphery with the article to be printed, means for causing one of said devices to travel around the other, and means for carrying said printing wheel at intervals bodily away from the device, substantially as set forth.

4. In an apparatus for printing upon the surface of cigars or other cylindrical bodies, a holding device for the article to be printed, an idly supported printing wheel mounted free for revolution upon a flexible axle device, in such position as to be brought into contact as to its periphery with the article to be printed, means for causing one of said devices to travel about the other, so that the frictional contact of the printing wheel with the article to be printed occasions the rotation of the printing wheel upon its axle device, and means for supplying ink to said printing wheel, substantially as set forth.

5. In an apparatus for printing upon the surface of cigars or other cylindrical bodies, a holding device for the article to be printed, a printing wheel mounted free for revolution upon a flexible axle device, in such position as to be brought into contact as to its periphery with the article to be printed, and to be rotated by its contact with the article to be printed, means for causing one of said devices to travel about the other, an inking pad, and means for carrying said inking pad and printing wheel into contact, substantially as set forth.

6. In a machine for printing upon cigars or similar cylindrical bodies, in combination, a conveyer, means for imparting intermittent movement to said conveyer, a printing wheel, a flexible shaft upon which said printing wheel is mounted free for rotation, and means for causing periodic revolutions of said flexible shaft,—substantially as set forth.

7. In a machine for printing upon cigars or other cylindrical bodies, in combination, a conveyer for the articles to be printed, means for occasioning the intermittent travel of said conveyer, a printing wheel, and means for causing said printing wheel to circumvolve in turn each of the bodies presented to it by the conveyer,—substantially as set forth.

8. In combination, in a machine for printing upon cigars or other cylindrical bodies, a conveyer, holders mounted upon said conveyer and adapted to contain each one of the bodies to be printed, an idle holder apron supported above said conveyer, and a plate which bears through said holder apron upon the articles as they pass beneath it, a printing wheel and means for causing said printing wheel to circumvolve each of said bodies in succession as said bodies come beneath the plate,—substantially as set forth.

9. In a machine for printing upon cigars and similar cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, a rotatable crank shaft into the vicinity of which the devices to be printed are successively carried, a crank arm mounted on said shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted upon said flexible shaft, and driving mechanism in gear with said first mentioned shaft to occasion its intermittent revolution,—substantially as set forth.

10. In a machine for printing upon cigars and similar cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, a rotatable crank shaft into the vicinity of which the devices to be printed are successively carried, a crank arm mounted on said shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted upon said flexible shaft, a driving mechanism in gear with said first mentioned shaft to occasion its intermittent revolution, and means for placing said printing wheel in contact with an inking device during the periods when said crank shaft is not revolving,—substantially as set forth.

11. In a machine for printing upon cigars and similar cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, a rotatable crank shaft into the vicinity of which the devices to be printed are successively carried, a crank arm mounted on said shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted upon said flexible shaft, a driving mechanism in gear with said mentioned shaft to occasion its intermittent revolution, a constantly rotating inking disk, and means for automatically lowering said shaft first mentioned during the periods of its non-revolution to carry the printing wheel into contact with said ink disk,—substantially as set forth.

12. In a machine for printing upon cigars and other cylindrical bodies, in combination, a conveyer embodying a series of holders for the articles to be printed, a printing wheel, mechanism to operate said printing wheel to cause it to circumvolve successively the articles carried by the conveyer, mechanism for causing the travel of the conveyer, a reciprocating driving rack in gear with the printing wheel operating mechanism, and the conveyer mechanism, the arrangement being such that the printing wheel mechanism is inactive while the conveyer operating mechanism is in operation, and the conveyer operating mechanism is inactive when the printing wheel operating mechanism is in operation,—substantially as set forth.

13. In a machine for printing cigars and other cylindrical bodies in combination, a conveyer, a printing-wheel, mechanism for causing said printing wheel to circumvolve said cigars in succession, an operating rack which operates both mechanisms, and means for throwing said mechanisms, alternately into and out of operation, so that the printing mechanism is active when the conveyer mechanism is inactive and the conveyer mechanism is active when the printing mechanism is inactive,—substantially as set forth.

14. In a machine for printing upon cigars and other cylindrical bodies, in combination, a conveyer provided with a series of holders, a pair of conveyer wheels upon which said conveyer is mounted, means for causing the intermittent travel of said conveyer, a printing wheel, means for causing said printing wheel to successively circumvolve the cigars as the same are successively presented to it by the conveyer, a locking plate mounted upon the shaft of one of the conveyer wheels, said locking plate embodying a series of peripheral notches, a locking device which operates against said locking plate and is adapted to enter one of said recesses each time the conveyer pauses in its travel,—substantially as set forth.

15. In a machine for printing upon cigars and other cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, receiving devices with which said conveyer is equipped to receive the bodies to be printed, a crank shaft mounted in said machine and adapted to have a rotatory movement and also an up and down movement, a rock shaft provided with projecting arms, in which arms said crank shaft is journaled, a crank arm mounted on said crank shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted on the extremity of said flexible shaft, an inking disk, means for causing the rotation of said crank shaft when in its uppermost position, means for automatically tilting said rock shaft to occasion the elevation of said first mentioned shaft to its uppermost position,—substantially as set forth.

16. In a machine for printing upon cigars and other cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, receiving devices with which said conveyer is equipped, to receive the bodies to be printed, a crank shaft mounted in said machine and adapted to have a rotary movement and also an up and down movement, a rock shaft provided with projecting arms in which arms said crank shaft is journaled, a crank arm mounted on said crank shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted on the extremity of said flexible shaft, means for causing the rotation of said crank shaft when in its uppermost position, means for automatically tilting said rock shaft to occasion the elevation of said first mentioned shaft to its uppermost position,—a constantly rotating inking disk, and means for automatically occasioning the lowering of said crank shaft at regular intervals to carry the printing wheel into contact with said inking disk,—substantially as set forth.

17. In a machine for printing upon cigars and other cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, a crank shaft mounted in the framework of the machine and adapted to have both a rotatory and an up-and-down movement, a crank arm mounted on the said shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted on said flexible shaft, an inking disk with which said printing wheel is in contact when the crank shaft is in its lowermost position, and means for automatically causing said crank shaft to alternately occupy its upper and its lower position,—substantially as set forth.

18. In a machine for printing upon cigars and other cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, a crank shaft mounted in the framework of the machine and adapted to have both a rotatory and an up-and-down movement, a crank arm mounted on the said shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted on said flexible shaft, an inking disk with which said printing wheel is in contact when the crank shaft is in its lowermost position, means for automatically causing said first mentioned shaft to alternately occupy its upper and its lower position, means for occasioning the positive rotation of said crank shaft when in its uppermost position,—substantially as set forth.

19. In a machine for printing upon cigars and other cylindrical bodies, in combination, a conveyer, means for occasioning the intermittent travel of said conveyer, a crank shaft mounted in the framework of the machine and adapted to have both a rotatory and an up-and-down movement, a crank arm mounted on the said shaft, a flexible shaft mounted on said crank arm, a printing wheel mounted on said flexible shaft, an inking disk with which said printing wheel is in contact when the crank shaft is in its lowermost position, means for automatically causing said crank shaft to alternately occupy its upper and its lower positions, a gear wheel loosely mounted upon said shaft, a reciprocating rack in mesh with said wheel, and means for locking said wheel to said shaft during the period of the ascent of the rack,—substantially as set forth.

20. In a cigar printing machine, in combination, a crank shaft, a crank on said shaft, a flexible shaft on said crank, a printing wheel on said flexible shaft, a gear wheel loosely mounted on said crank shaft, a pawl carried by said gear wheel, a ratchet wheel fast on the shaft, a stop plate on said shaft, a pawl adapted to engage said stop plate, and a rack engaged with said tooth gear wheel,—substantially as set forth.

21. In a cigar printing machine, in combination, a shaft, a crank on said shaft, a flexible shaft on said crank, a printing wheel on said flexible shaft, a gear wheel loosely mounted on said crank shaft, a pawl carried by said gear wheel, a ratchet wheel fast on the shaft, a stop plate on said shaft, a pawl adapted to engage said stop plate, and a rack engaged with said toothed gear wheel, a collar fast on said shaft and provided with a tooth, a long tooth on said rack adapted to engage with the tooth on said collar,—substantially as set forth.

22. In a cigar printing machine, in combination, a shaft, a crank on said shaft, a flexible shaft on said crank, a printing wheel on said flexible shaft, a gear wheel loosely mounted on said crank shaft, a pawl carried by said gear wheel, a ratchet wheel fast on the shaft, a stop plate on said shaft, a pawl adapted to engage said stop plate, and a rack engaged with said toothed gear wheel, a collar fast on said shaft and provided with a tooth, a long tooth on said rack adapted to engage with the tooth on said collar, elongated slots in the frame of the machine in which said shaft is journaled, a rock shaft having arms with cylindrical bearings in which said shaft is journaled, a rock arm attached to said rock shaft, a pivoted link connected to said rock arm, the lower end of which bears against the lower face of the rack, and a cam face on said rack,—substantially as set forth.

23. In a cigar printing machine, in combination, a shaft, a crank on said shaft, a flexible shaft on said crank, a printing wheel on said flexible shaft, a gear wheel loosely mounted on said shaft, a pawl carried by said gear wheel, a ratchet wheel fast on the shaft, a stop plate on said shaft, a pawl adapted to engage said stop plate, and a rack engaged with said toothed gear wheel, a collar fast on said shaft and provided with a tooth, a long tooth on said rack adapted to engage with the tooth on said collar, elongated slots in the frame of the machine in which said shaft is journaled, a rock shaft having arms with cylindrical bearings in which said shaft is journaled, a rock arm attached to said rock shaft, a pivoted link connected to said rock arm, the lower end of which bears against the lower face of the rack, a cam face on said rack, a bracket through which the central portion of said pivot link extends, a stop mounted on said pivot link, and a spiral spring confined between said bracket and said stop,—substantially as set forth.

24. In a cigar printing machine, in combination, a holder for a cigar, a shaft, a crank arm mounted on said shaft, a flexible shaft connected to said crank arm, and a printing wheel mounted on said flexible shaft, substantially as set forth.

25. In a machine for printing cigars, in combination, a cigar holder, a shaft, a crank arm mounted on said shaft, a flexible shaft adjustably mounted in said crank arm, and a printing wheel mounted on said flexible shaft, substantially as set forth.

26. In a machine for printing cigars, in combination, a holder for cigars, a shaft, a crank arm mounted on said shaft, a flexible shaft mounted on said crank arm, and consisting of two independent parts supported in axial relationship by a spiral spring connected to both, and a printing wheel mounted on said flexible shaft, substantially as set forth.

27. In a cigar printing machine, in combination, a holder for a cigar, a shaft adapted for both rotary and up-and-down movement, a crank arm mounted on said shaft, a flexible shaft connected to said crank arm, and a printing wheel mounted on said flexible shaft, substantially as set forth.

602,278. PLOW. FRANK I. WOODWARD, Hudson, Mich. Filed Oct. 20, 1897. Serial No. 655,832. (No model.)

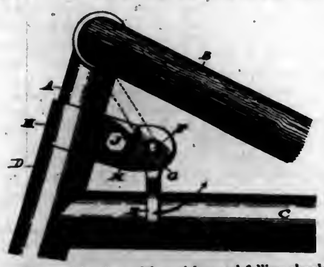


Claim.—1. In a plow, the combination with the beam, the standard formed with a convex corrugated portion provided with horizontal elongated slots, of the plate formed with bolt-holes and having a corrugated concave portion or recess engaging with said convex portion of the standard, and also having a corrugated convex portion or rib engaging with a corresponding concave recess and the bolts passing through said holes and slots in the beam, substantially as described.

2. In a plow, the combination with the beam formed with a recess in the side, of the plate formed on one side with a convex rib

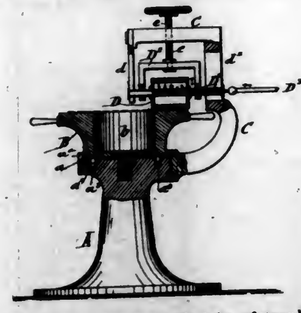
seated in said recess and in its opposite side formed with a concave corrugated recess, the apertured lugs at diagonal corners, the plate having a corrugated convex portion engaging with said recess, and the other side made straight or plain, the jointer abutting against the same, and the yoke passing around said arm and through said lugs, substantially as described.

602,279. BICYCLE RETAINER AND LOCK. JAMES RATTERBY, Philadelphia, Pa. Filed Nov. 20, 1896. Serial No. 612,828. (No model.)



Claim.—The combination with a rising-and-falling shackle having an eye thereon, of a clip, necks rearward of the ends of said clip, ears rearward of said necks, a screw in said necks, and a screw in said eye and ears, said necks being practically rigid, and said ears being practically elastic and said clip, necks and ears being integral continuities of each other.

602,280. MACHINE FOR IRONING BRIMS OF STRAW HATS. AUGUST BOEHEIM, New York, N. Y. Filed July 30, 1897. Serial No. 646,455. (No model.)



Claim.—1. A machine for ironing the brims of straw hats, which consists of a suitable support, a hat-block rotatably mounted upon said support, means carried by said hat-block whereby it may be rotated back and forth beneath the iron, a bracket carried by said hat-block support, and a rotary iron vertically adjustable in said bracket above the rim of the hat-block, substantially as set forth.

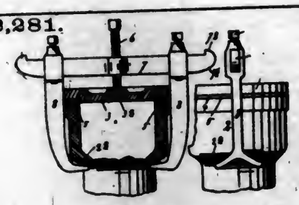
2. A machine for ironing the brims of straw hats, consisting of a hat-block constructed with a surrounding rim for the brim of the hat and rotatably mounted upon a suitable support, means carried by said hat-block whereby it may be rotated back and forth beneath the iron, a bracket carried by the hat block support, a rotary iron adjustably mounted in said bracket above the rim of the hat-block and means for vertically adjusting the iron toward the said rim, substantially as set forth.

3. In a machine for ironing the brims of straw hats, the combination of a cylindrical iron, a tubular shaft for the same, a U-shaped hanger for supporting said shaft, a slotted strap for guiding the tubular shaft, and means for raising and lowering the U-shaped frame, substantially as set forth.

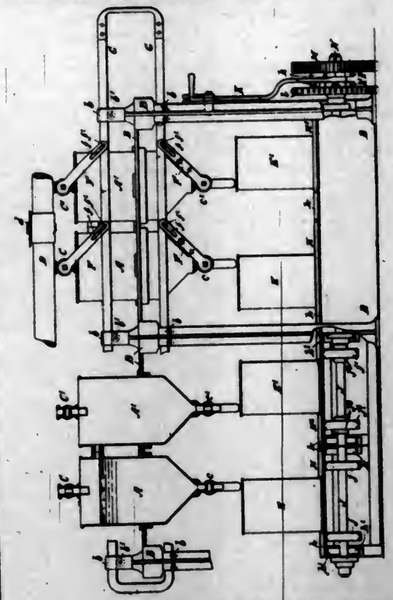
602,281. TESTING-CAP AND CLAMP. PATRICK J. CAHILL, Utica, N. Y. Filed Jan. 12, 1894. Serial No. 496,634. (No model.)

Claim.—The combination in a clamp for securing a testing-cap, of a main bar, hooked arms adapted to engage under the shoulder of a soil-pipe and adjustable on the main bar, set-screws for securing the arms in adjusted position on the main bar, and a main set-screw threaded into the middle of the main bar and adapted to press upon the cap, substantially as set forth.

602,281.



602,282. APPARATUS FOR FILLING OIL-CANS. ANDREW CAMPBELL and JAMES URIE, Rangoon, Burmah, assignors to the Burmah Oil Company, Limited, same place and Glasgow, Scotland. Filed Nov. 2, 1896. Serial No. 610,794. (No model.)



Claim.—1. In an apparatus for filling oil-cans from a storage-tank, the combination of two filling-tanks A, A' each having inlets and discharge-outlets and valves in each of said inlets and outlets, levers F attached to said valves, and the double-armed bar or handle G connected to all of said levers and operating the valves in such manner that the inlet and outlet valves of each tank are opened and closed alternately and the valves of tank A are operated reversely to those of tank A'.

2. In an apparatus for filling oil-cans from a storage-tank, the combination with two discharge-outlets, of means for feeding cans alternately below said outlets, comprising feeding or can-supporting parts mounted to move independently, an operating-lever and connecting devices, such as ratchets and pawls between said lever and the can-supporting parts, whereby the same are moved alternately by motions of the lever in opposite directions.

3. In an apparatus for filling oil-cans, the combination with two discharge outlets, of can-supporting bands located beneath said outlets, shafts supporting and operating said bands, an operating-lever and reversely-placed pawl-and-ratchet connections between said lever and shafts whereby the bands are moved alternately by reverse movements of said lever.

602,283. MOTOR-VEHICLE. LOUIS S. CLARKE, WILLIAM MORGAN, and WILLIAM S. GORDON, Pittsburg, Pa., assignors to the Pittsburgh Motor Vehicle Company, same place. Filed Dec. 16, 1897. Serial No. 662,103. (No model.)

Claim.—1. In motor-vehicles, the combination of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine supported adjacent to said shaft, a gear-wheel loosely mounted around said shaft and connected to the motor, and mechanism connected to said gear-wheel and shaft for starting and driving the vehicle, substantially as set forth.

2. In motor-vehicles, the combination of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine supported adjacent to said shaft, a gear-wheel loosely mounted around said shaft and connected to the motor, a cap or collar fitting loosely around the shaft and having a spring connection with the gear-wheel, and mechanism connected to said cap or collar for starting and driving the vehicle, substantially as set forth.



3. In motor-vehicles, the combination of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said shaft, a gear-wheel loosely mounted around said shaft and connected to the motor, a cap or collar fitting loosely around the shaft and having a spring connection with the gear-wheel, a band-wheel rigidly secured to said shaft, a friction-ring formed in sections adapted to engage with the band-wheel, and mechanism connected to said cap or collar and band-wheel for starting and driving the vehicle, substantially as set forth.

4. In motor-vehicles, the combination of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said shaft, a gear-wheel loosely mounted around said shaft and connected to the motor, a cap or collar fitting loosely around the shaft and having a spring connection with the gear-wheel, a band-wheel rigidly secured to said shaft, a friction-ring formed in sections adapted to engage with the band-wheel, and mechanism connected to said cap or collar, band-wheel and friction-ring for starting and driving the vehicle, substantially as set forth.

5. In motor-vehicles, the combination of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said shaft, a gear-wheel loosely mounted on said shaft and connected to the motor, a cap or collar fitting loosely around the shaft and having a spring connection with the gear-wheel, a band-wheel rigidly secured to said shaft, a friction-ring formed in sections adapted to engage with the band-wheel, cams fitting between the sections of the friction-ring and connected to the cap or collar, and means on said band-wheel adapted to engage with said cams for starting and driving the vehicle, substantially as set forth.

6. In motor-vehicles, the combination of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said shaft, a gear-wheel loosely mounted on said shaft and connected to the motor, a cap or collar fitting loosely around the shaft and having a spring connection with the gear-wheel, a band-wheel rigidly secured to said shaft, a friction-ring formed in sections adapted to engage with the band-wheel, cams fitting between the sections of the friction-ring and connected to the cap or collar, and a clutch around said shaft having arms thereon adapted to engage with a ring bearing against the cams for starting and driving the vehicle, substantially as set forth.

7. In motor-vehicles, the combination with a shaft having pedals thereon, of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said axle or shaft, a gear-wheel loosely mounted on said axle or shaft and connected to the motor, and means connected to said pedals or shaft and gear-wheel for revolving said axle or shaft to start the motor, substantially as set forth.

8. In motor-vehicles, the combination with a shaft having pedals thereon, of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said axle or shaft, a gear-wheel loosely mounted on said axle or shaft and connected to the motor, a ratchet-wheel having a pawl engaging therewith connected to said gear-wheel, and means connected to said pedals or shaft and the pawl for revolving said axle or shaft to start the motor, substantially as set forth.

9. In motor-vehicles, the combination with a shaft having pedals thereon, of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said axle or shaft, a gear-wheel loosely mounted on said axle or shaft and connected to the motor, a ratchet-wheel connected to said gear-wheel, a sprocket-wheel rigidly secured to said axle or shaft having a pawl mounted thereon for engaging with the ratchet-face, and connections from said sprocket-wheel to the pedals or shaft for revolving said axle or shaft to start the motor, substantially as set forth.

10. In motor-vehicles, the combination with a shaft having pedals thereon, a motor or engine adjacent to said axle or shaft, a gear-wheel loosely mounted on said axle or shaft and connected to the motor, connections from the pedals or shaft to the axle or shaft, and means on said axle or shaft for permitting the vehicle to be propelled from the pedals or shaft, substantially as set forth.

11. In motor-vehicles, the combination with a shaft having pedals thereon, of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said axle or shaft, a gear-wheel loosely mounted around said axle or shaft and connected to the motor, connections from the pedals or shaft to the axle or shaft, a gear-wheel or pinion secured on said axle or shaft, and means connected to said pedals or shaft and gear-wheel or pinion for permitting the vehicle to be propelled from the pedals or shaft, substantially as set forth.

12. In motor-vehicles, the combination with a shaft having pedals thereon, of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said axle or shaft, a gear-wheel loosely mounted around said axle or shaft and connected to the motor, a gear-wheel or pinion secured on said axle or shaft, a sprocket-wheel loosely mounted on said axle or shaft and connected to the pedals or shaft, and a dog or pawl mounted on said sprocket-wheel adapted to be held in engagement with the gear-wheel or pinion for permitting the vehicle to be propelled from the pedals or shaft, substantially as set forth.

13. In motor-vehicles, the combination with a shaft having pedals thereon, of an axle or shaft having supporting and driving wheels mounted thereon, a motor or engine adjacent to said axle or shaft, a gear-wheel loosely mounted around said axle or shaft and connected to the motor, a gear-wheel or pinion secured on said axle or shaft, a sprocket-wheel loosely mounted on said axle or shaft and connected to the pedals or shaft, a dog or pawl mounted on said sprocket-wheel, and a movable bolt or pin on said sprocket-wheel adapted to engage with the gear-wheel or pinion for permitting the vehicle to be propelled from the pedals or shaft, substantially as set forth.

14. In motor-vehicles, the combination with an axle or shaft, of supporting and driving wheels loosely mounted around said axle or shaft, hollow caps secured to said wheels around the axle or shaft and provided with bearing surfaces therein, cams or bearing-blocks secured to said axle or shaft, and rollers loosely mounted in standards loosely mounted around the axle or shaft, said rollers being adapted to travel on the cams or bearing-blocks and engage with the bearing-surfaces on the hollow caps for permitting the wheels to be automatically secured to and be freed from said axle or shaft, substantially as set forth.

15. In motor-vehicles, the combination with an axle or shaft, of supporting and driving wheels loosely mounted around said axle or shaft, hollow caps secured to said wheels around the axle or shaft and provided with bearing surfaces therein, cams or bearing-blocks secured to said axle or shaft, rollers loosely mounted in standards loosely mounted around the axle or shaft, said rollers being adapted to travel on the cams or bearing-blocks and engage with the bearing-surfaces in the hollow caps for permitting the wheels to be automatically secured to and freed from said axle or shaft, and clamping-plates fitting around the axle or shaft and adapted to be removably secured to the hollow caps for confining the parts within the hollow caps, substantially as set forth.

602,284. TRACK-WELDING. RICHARD BYAR, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed Sept. 22, 1897. Serial No. 653,523. (No model.)

Claim.—1. The combination with the terminals spacing the ends of the rails, of dies and contacts, detached from said terminals, and secured directly to the sides of said rails, and an upsetting-tool surrounding said terminals and secured to both rails.

2. The herein-described method of welding rails together while permanently laid in the track which consists in passing the current from a suitable source of supply diagonally through the juxtaposed rail ends and then moving the rails longitudinally through the road-bed to upset and compress the heated metal.

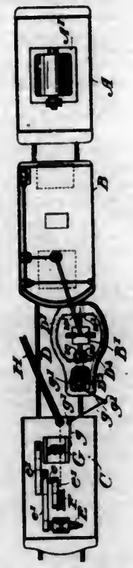
3. In electric welding apparatus a contact bearing against one side of one of the articles to be welded, and a second contact bearing against the other side of the other of said articles.

4. The combination of a pair of detached contacts secured to the sides of the rails, a pair of terminals adapted to contact with said contacts, a yoke passing around said terminals and at one end engaging one rail, and a movable plunger at the other end of said yoke engaging the other rail.

5. The combination with the terminals of the transformer, of a pair of contacts engaged thereby and bearing against the articles to be welded at positions diagonally disposed with relation to the joint, and insulated dies bearing against each of the articles and opposite to the contacts, and means for moving the said articles and the contacts and dies toward each other.

6. The combination of a pair of contacts bearing against the side

of the rails and diagonally disposed relatively to the ends thereof, a pair of dies having insulating members occupying positions opposite to those of the contacts, and the transformer terminals bearing against the backs of the contacts and dies.



7. A tool for moving rails longitudinally through the track and toward each other comprising a yoke surrounding the ends of the rails, jaws at one end of the yoke for engaging one of the said rails, a cylinder bearing against the other end of the yoke and a plunger extending from said cylinder and having jaws for engaging the other of the said rails.

8. A contact adapted to bear against one side of the rail and a die adapted to bear against the opposite side thereof, in combination with a pair of back-stops entering recesses in their rear ends and bolted together through a hole in the rail.

9. The combination of the diagonally-disposed contacts 3 and 4, the diagonally-disposed insulated dies 5 and 6, the back-stops 8 secured to the rails to be welded and engaging the rear ends c^c the contacts and the dies, the top and bottom clamps 11 and 12, and the members 13 connecting the same and forcing them into contact with the top and bottom of the rails.

10. The combination with means for heating and upsetting the ends of the rails, of contacts and dies bearing against the sides of the rails near the ends thereof, and members secured together and bearing respectively against the top and bottom of the rails at the ends thereof.

11. The combination with a stationary transformer having terminals spanning the rails to be welded, of contacts bearing against the side of the rails, and means, controlled by the movement of the terminals, for adjusting the position, and relative pressure of the contacts against different portions of the rail.

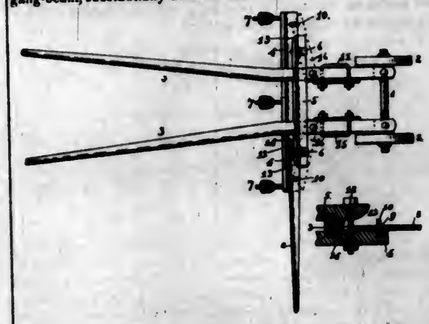
12. In a welding apparatus the combination of a pair of contacts each bearing against a side of one of the articles to be welded and a pair of vertically and transversely movable transformer-terminals bearing against the back of the contacts, and controlling the path of the current through the said articles by their relative vertical and transverse positions, in relation to the contacts.

13. The combination of the contacts 3 and 4 having the lugs 3^d and 4^d, with the transformer-terminals 7 having the projections 7^a extending between said lugs.

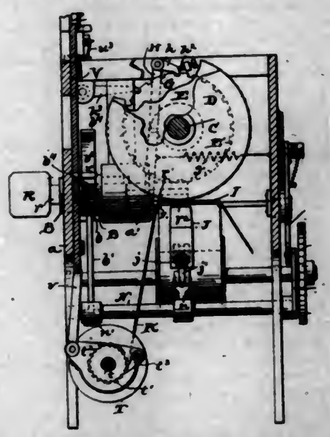
14. The combination of a car, a crane carried thereby and in turn carrying a tool for moving rails longitudinally through the track, a source of motive power upon the car, connections therefrom to a power-pump, a pipe system from the pump to the cylinder of the said tool, and swinging joints in said pipe system for allowing freedom of movement to the tool.

602,285. GARDEN-CULTIVATOR. ADAM FISCUS, Fiscus, Iowa. Filed Sept. 20, 1897. Serial No. 652,286. (No model.)

Claim.—In a wheeled hand cultivator, the combination of the axle-wheels and cultivator-handles, a removable gang-beam secured rigidly to both of said handles, an attaching-clip at each end of the gang-beam upon either side of the cultivator, and an attaching shackle or clip adapted for use upon the cultivator forward of the gang-beam, substantially as described.



602,286. TIME-RECORDER. JAMES H. GERRY, Brooklyn, N. Y., assignor, by mesne assignments, to I. P. Lampson, Cleveland, Ohio. Filed Jan. 14, 1897. Serial No. 619,214. (No model.)



Claim.—1. In a time-recording machine, in combination, a rotatable shaft, a wheel having sixty teeth secured to said shaft, a spring-actuated lever, a pawl carried thereby which engages with said toothed wheel, an electromagnet, the armature therefor secured to said lever, mechanism for temporarily closing the circuit of said magnet at minute intervals, a sleeve loosely mounted on said shaft, a toothed wheel secured to said sleeve, a cam secured to said shaft, a spring-actuated lever arranged to be engaged and operated by said cam, and a pawl carried by said lever engaging with the last-named toothed wheel, said mechanism constituting the entire mechanism for properly moving the hour and minute printing-wheels which are secured respectively to said sleeve and shaft, substantially as specified.

2. In a time-recording machine, in combination, a rotatable tape-spool, mechanism for turning it, a vertically-movable bar for actuating said mechanism, the key-hub, a fork-arm secured thereto, and a pin upon said bar between the forks of said arm, substantially as and for the purpose specified.

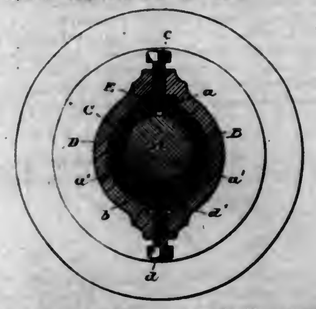
3. In a time-recording machine, in combination, a rotatable shaft, a tape spool secured thereto, a ratchet also secured to the shaft, a cradle mounted upon the shaft, a pawl carried thereby and engaging with the ratchet, a vertically-movable bar, a link connecting it with the cradle, the key-hub, a forked arm secured thereto, and a pin on the bar between the forks of said arm, substantially as and for the purpose specified.

4. In a time-recording machine, in combination, a bell, its striking-lever, a tripping-pawl pivoted to said lever, a vertically-movable bar having a pin which engages with said tripping-lever, the key-hub, a forked arm secured thereto, and a pin on said bar between the forks of said arm, substantially as and for the purpose specified.

5. In a time-recording machine, in combination, the printing-wheels, key-hub, a printing-pad, a lever to which said pad is secured, a rock-shaft, a toggle connection between the rock-shaft and pad-lever, arms secured respectively to the key-hub and rock-shaft, and a link connecting said arms, substantially as and for the purpose specified.

6. In a time-recording machine, in combination, two inking-ribbon spools, ratchets secured thereto, a pivoted lever, two pawls carried thereby and adapted to engage severally with said ratchets, a rock-shaft, an arm secured thereto, a pin on said arm or lever, and forks on the other part between which the said pin lies, substantially as and for the purpose specified.

602,287. JOURNAL-BOX. THOMAS W. GREEN, Philadelphia, Pa., assignor to the Wilbraham Baker Blower Company, same place. Filed Jan. 18, 1898. Serial No. 667,045. (No model.)



Claim.—1. In a journal-box, an open bushing surrounding the shaft and concentric therewith, in combination with an open eccentric collar fitting inside the journal-box and means for closing said collar around the bushing, substantially as shown and for the purpose described.

2. In a journal-box, the combination of the shaft A, and bushing B formed concentric with the shaft and having therein a longitudinal slot, with the open eccentric collar C, and the gib E, resting upon the eccentric collar and means for compressing said gib against the eccentric collar and thereby closing the concentric bushing around the shaft, substantially as shown and described.

3. In a journal-box, the open bushing B, adapted to fit around the shaft and concentric therewith, in combination with the open eccentric collar C, fitting around the bushing B, the gib E, and the set-screw *c*, substantially as shown.

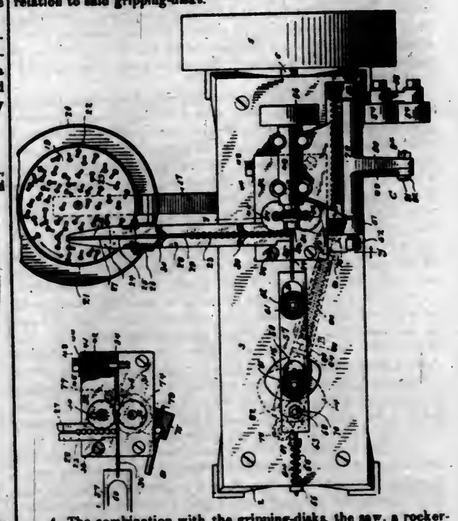
4. In a journal-box, the open bushing B, adapted to fit around the shaft A, and formed concentric therewith, in combination with the open eccentric collar C, the wedge-shaped block *d'*, fitting into the slot *b*, means for moving the block up and down, and the gib E, resting upon the eccentric collar and provided with means for forcing it against said collar, all arranged substantially as shown and for the purpose described.

602,288. MACHINE FOR SLOTTING SCREWS. HARVEY HUBBELL, Bridgeport, Conn. Filed July 17, 1897. Serial No. 644,965. (No model.)

Claim.—1. In a machine for slotting screw-blanks, the combination with feeding mechanism to deliver the blanks to the slotting instrumentalities, of gripping-disks rotating in a horizontal plane which receive the blanks from the said feeding mechanism between their peripheries, means for imparting an intermittent rotation to said gripping-disks, a slotting device carried by a rocker-arm, and mechanism by means of which said rocker-arm is tilted so as to bring the said slotting device into operative relation to the blank at the time when said blank is held stationary by the said gripping-disks.

2. In a machine for slotting screw-blanks, the combination with feeding mechanism to deliver the blanks to the slotting instrumentalities, of a pair of horizontally-gripping disks having notches formed in their edges for the reception of the bodies of the blanks as they come from the feeding mechanism, mechanism for imparting an intermittent rotation to said gripping-disks, a rotary slotting-saw, a rocker-arm by which said saw is carried, and means for tilting said arm and bringing the said saw into operative relation to the blank at the time when said blank is held stationary by said notched gripping-disks.

3. In a machine for slotting screw-blanks, the combination with feeding mechanism to deliver the blanks to the slotting instrumentalities, of a pair of intermittently-rotated notched gripping-disks which receive the blanks from the said feeding mechanism, one of said gripping-disks being movable bodily relative to the other, means to normally force said movable disk yieldingly against the other, so that the blanks are held with a spring-grip, and a slotting-saw in operative relation to said gripping-disks.



4. The combination with the gripping-disks, the saw, a rocker-arm by which the saw is carried and mechanism for tilting the rocker-arm, of an inclined slotted way, a rotating blank-holder having a spiral incline 21 and a pivoted slotted finger adapted to be raised by the incline so that blanks picked up by the finger will pass into the slotted way.

5. The combination with a rotating blank-holder having a spiral incline, of a pivoted slotted finger adapted to pick up blanks lying loosely in the holder and to be raised by the incline on the blank-holder.

6. The combination with a rotating blank-holder having a spiral incline terminating in a shoulder, of a pivoted slotted finger adapted to pick up blanks lying loosely in the holder and to be raised by the incline until the free end is higher than the pivoted end, the finger then passing off at the shoulder and the free end dropping down into the blank-holder.

7. The combination with a rotating blank-holder having a spiral incline, and an inclined slotted way, of a slotted finger adapted to pick up blanks lying loosely in the holder and pivoted at the upper end of the way, said finger being adapted to be raised by the incline until the free end thereof is higher than the pivoted end so that blanks picked up by the finger will pass into the slotted way.

8. The combination with the gripping-disks and fixed and pivoted blocks by which they are carried, of a rotating blank-holder having a spiral incline, an inclined slotted way and a pivoted slotted finger adapted to pick up blanks in the holder and to be raised by the incline so that blanks picked up by the finger will pass into the way and a feed-slide by which the blanks are moved forward singly into position to be gripped by the disks.

9. The combination with the gripping-disks and fixed and pivoted blocks by which they are carried, said blocks having a recess 34 between them, of a rotating blank-holder having a spiral incline, an inclined slotted way leading into said recess, a pivoted slotted finger adapted to travel up the incline by which blanks are picked up in the holder and passed to the slotted way and a feed-slide by which blanks in the recess are carried forward singly into position to be gripped by the disks.

10. In a machine of the character described the combination with intermittently-rotated gripping-disks, of fixed and pivoted blocks by which they are carried, said blocks having a recess between them adapted to receive the shanks but not the heads of the blanks, a spring to normally force said blocks and gripping-disks together, a way from which blanks pass to the recess with the heads upward, and a feed-slide reciprocating in said recess which moves the blanks forward singly into position to be gripped by the disks.

11. The combination with the gripping-disks, shafts by which they are carried, fixed and pivoted blocks in which said shafts are journaled and intermeshing pinions on said shafts, of a ratchet fixed to one of said shafts below the pinion, a lever pivoted on said shafts

below the ratchet and carrying a pawl engaging the ratchet and means for oscillating the lever substantially as described for the purpose set forth.

12. The combination with the gripping-disks, shafts therefor, fixed and pivoted blocks in which said shafts are journaled, and intermeshing pinions on said shafts, of a ratchet on one of said shafts, a lever pivoted on said shaft below the ratchet and carrying a pawl engaging the ratchet, cam 14, a connecting-rod carrying a roller engaging said cam and a spring 79 for retaining the roller in engagement with the cam.

13. The combination with the gripping-disks, shafts therefor, fixed and pivoted blocks in which said shafts are journaled and intermeshing pinions on said shafts, of a ratchet on one of said shafts, a lever pivoted on said shaft below the ratchet and carrying a pawl engaging the ratchet, a spring 79 acting to draw the lever in one direction, cam 14, and a connecting-rod comprising members 80 and 81, said member 80 carrying a roller engaging the cam, a stump 83 through which the member 81 passes and a stump 84 through which member 81 passes freely and said member 81 carrying a collar and a spring 86 which bears against the collar and the stump 83, said spring 86 being stronger than spring 79 but adapted to yield should clogging occur and thereby prevent damage to any portion of the machine.

14. The combination with the table, a block 31, bolted to the table and a block 32 pivoted to the table, said blocks having a recess 34 between them, of intermittent gripping-disks carried by said blocks and having corresponding notches to form recesses *a*, a bolt 43 passing loosely through block 32 and engaging block 31, a spring acting to hold the gripping-disks normally in contact, and a feed-slide by which the blanks are moved forward singly into one of the recesses *b*, the spring yielding to permit the blank to enter the recess, where it is retained until the next actuation of the disks.

15. The combination with the fixed block, pivoted block and intermittent gripping-disks carried by said blocks and having corresponding notches to form recesses *a*, of a spring acting to hold the disks normally in contact, said blocks having a recess 34 between them and being cut away in their opposite faces to form a recess 46, and a feed-slide by which each blank is moved forward into one of the recesses *a*, said blank being released and dropping through recess 46 at the next actuation of the disks.

16. In a machine for slotting screw-blanks, the combination with suitable feeding mechanism, of intermittently-rotated, spring-pressed gripping-disks which receive the blanks from the feeding mechanism, a slotting saw, a rocker-arm in which said saw is mounted, and means to tilt said rocker-arm and force the said slotting-saw into operative relation to said blank at the moment the spring-pressed gripping-disks bring the blank to its stationary position.

17. In a machine for slotting screw-blanks, the combination with suitable feeding mechanism, of a pair of intermittently-rotated, spring-pressed gripping-disks having notches formed in their gripping-peripheries, which receive the blanks independently and hold them stationary during the slotting operation, a slotting-saw, a rocker-arm 50 in which said saw is mounted, a thrust-rod 89 connected with said rocker-arm 50, a roller 88 on said thrust-rod, a rotating cam 87 which bears against said roller and imparts movement to said thrust-rod and rocker-arm, and a spring 90 to hold the roller 88 in contact with said cam 87 and normally raise the rocker-arm 50 so as to keep the saw out of its cutting position.

18. The combination with the fixed block, pivoted block, intermittent gripping-disks carried by said blocks, and having corresponding notches to form recesses *a*, and a spring acting to hold said disks normally in contact, said blocks having a recess 34 between them and being cut away in their opposite faces to form a recess 46 and a feed-slide by which the blanks are moved forward singly and placed in engagement with one of the recesses *a*, a saw, a rocker-arm by which it is carried and mechanism for tilting the rocker-arm at the instant a blank is held by the disks whereby the head of the blank is slotted.

19. The combination with the feeding mechanism and the intermittent gripping-disks, of the saw, a rocker-arm by which the saw is carried, spring 90, cam 87, connecting-rod 89 carrying a roller engaging the cam and having a circular recess 93, an eccentric bushing in said recess and a bolt 91 passing through the rocker-arm and through the eccentric bushing whereby the movement of the rocker-arm may be adjusted to regulate the depth of the cut made by the saw.

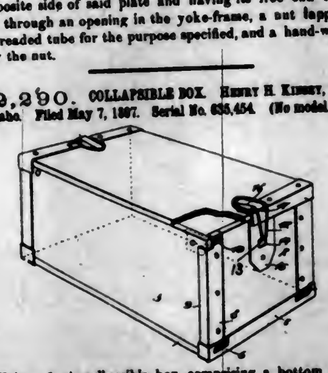
602,289. PIPE-TESTING MACHINE. CLARENCE M. KEMP and CHARLES E. KEMP, Baltimore, Md. Filed Sept. 15, 1897. Serial No. 651,814. (No model.)

Claim.—1. In a pipe-testing apparatus, the combination with a yoke-frame arranged to engage a collar or projection on a pipe, of a plate adapted to cover the end of the pipe and provided with a rubber gasket upon one side and a threaded tube projecting from the opposite side, said tube passing freely through an opening in the yoke-frame, and a nut tapped upon the said threaded tube, as and for the purpose specified.



2. In a pipe-testing apparatus, the combination with a yoke-frame arranged to engage a collar or projection on a pipe, of a plate adapted to cover the end of the pipe and provided with a rubber gasket upon one side, an externally-threaded tube rigidly secured to the opposite side of said plate and having its free end extending loosely through an opening in the yoke-frame, a nut tapped upon said threaded tube for the purpose specified, and a hand-wheel carried by the nut.

602,290. COLLAPSIBLE BOX. HENRY H. KIBBY, Shoshone, Idaho. Filed May 7, 1897. Serial No. 635,454. (No model.)



Claim.—1. A collapsible box, comprising a bottom piece, end pieces having detachable hinge connection with the bottom piece, slideways on the end pieces, side pieces adapted for engagement within the slideways, a cover having flanges at its ends to engage over the end pieces, and removable fastening devices for securing the cover in place when the box is formed and also serving to secure the several parts together when assembled for reshipment, substantially as specified.

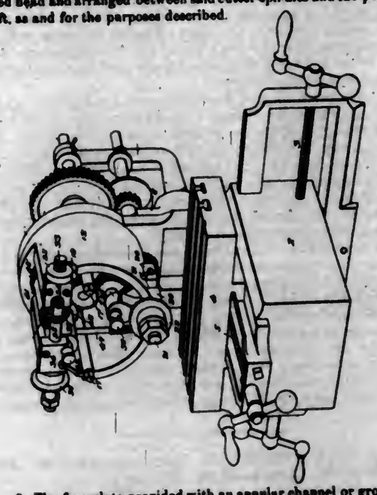
2. A collapsible box, comprising a bottom board, end boards having detachable hinge connections with said bottom board, corner-plates on said end boards forming slideways, side boards adapted for engagement with their ends in said slideways, hook portions on the ends of said side boards near the top for engaging against the outer sides of the end boards, a cover having flanges at its ends to engage over the outer sides of the end boards, and removable fastening devices for securing the top board in position when the box is formed, and also for securing the several parts of the box together when assembled for reshipment, substantially as specified.

3. A collapsible box, comprising a bottom board, end boards having removable hinged connection therewith, corner-plates on the ends of the end boards forming slideways, side boards having their ends seated in said slideways, a top board having depressions in its upper surface at the ends and shoulders at the outer ends of said depressions, plates on the end boards having openings, wire bails having hook portions to engage in said openings, and substantially wedge-shaped cam-blocks having swinging connection with the wire bails and adapted for engagement with the shoulders, substantially as specified.

602,291. MILLING-CUTTER FOR METAL-WORKING MACHINES. ANDREW KLAY, Bluffton, Ohio. Filed Apr. 22, 1897. Serial No. 633,345. (No model.)

Claim.—1. The combination with a post, and a work-bed, of a revoluble head, a central power-shaft, a cutter-spindle 21 journaled on said head, a slidable arrow carried by the head and adapted to be operatively connected with or disconnected from the power-shaft and said spindle, another spindle 25 journaled on the head at right angles to the spindle 21, and a train of gear connections, including another slidable arbor, between the power-shaft and the cutter-spindle 25, as and for the purposes described.

2. The combination of a face-plate carried by a suitable post, a revoluble chambered head fitted laterally against said face-plate and connected thereto to rotate or turn on the same, a power-shaft arranged centrally to said head, independent cutter-spindles carried by the head, and independent gear connections housed within said chambered head and arranged between said cutter-spindles and the power-shaft, as and for the purposes described.



3. The face-plate provided with an annular channel or groove, a rotatable chambered head fitted against said face-plate, and bolts connected to the head and fitted in said channel or groove to travel therein, combined with a power-shaft, and independent exposed spindles journaled on said head and gearing housed in the chambered head and connecting the cutter-spindles independently with said power-shaft, as and for the purposes described.

4. The face-plate provided with an annular channel or groove, a rotatable head having an annular rib fitted in said channel or groove, bolts having heads which travel in said channel and pass through the head, and nuts on the bolts pressing against the sleeves to hold the head rigidly in position, combined with a power-shaft, cutter spindles carried by the head, and gearing between said spindles and the power-shaft, as and for the purposes described.

5. The combination with a post, and a work-bed, of a horizontally-arranged head connected to said post to rotate on its horizontal axis and arranged to overhang the bed, spindles carried by said head and arranged at an angle to each other, a power-shaft common to both spindles, and slidable arbors forming part of the train of gears for connecting the power shaft and the spindles, as and for the purposes described.

6. The combination with a post, and a work-bed, of a power-shaft, a revoluble head connected to said post and arranged concentric with said power-shaft, cutter-spindles carried by said revoluble head and arranged at an angle to each other, and arbors carried by said head and geared with the power-shaft and said spindles, each arbor being adjustable in the head to disconnect the cutter-spindle and the power-shaft, as and for the purposes described.

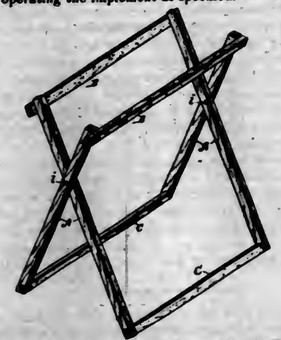
7. The combination with a post, and a work-bed, of a power-shaft, a revoluble head concentric with said shaft and connected to the post, cutter-spindles carried by said head, independent slidable arbors adapted to operatively connect the cutter-spindles with the power-shaft, and means for locking the arbors in their adjusted positions, substantially as described.

8. The combination of a power-shaft, a revoluble head, cutter-spindles carried by said head, grooved arbors slidably fitted in the head, geared to the power-shaft and the cutter-spindles, and adapted to be independently withdrawn from engagement with said spindles and power-shaft, and locking-rods engaging with said grooved arbors, as and for the purposes described.

9. The combination of a power-shaft, a rotatable head, cutter-spindles carried by said head, a slidable arbor having a gear adapted to mesh directly with the power-shaft and one of the spindles, a counter-shaft geared to the other spindle, another slidable arbor having a gear which meshes with the power-shaft and the counter-shaft, and means for locking either arbor in its adjusted position, as and for the purposes described.

602,292. MINT-HARVESTER. OREN B. ABBEY, Dailey, Mich., assignor to Albert M. Todd, Kalamazoo, Mich. Filed May 28, 1896. Serial No. 593,286. (No model.)

Claim.—1. In a mint-harvesting implement, the combination of rectangular frames one of which is slightly larger than the other, the sides A, of which are pivoted together at *i*, *i*, so that the bottom bars C, C, will fold one above the other with the top bars B, B, secured on opposite sides of the side pieces A, A, to form convenient handles for operating the implement as specified.



2. In a mint-harvesting machine the combination of two rectangular frames the sides of which are pivoted the one to the other so that they will open and close like a pair of shears so that the bottom bars can be used for grasping plants and the top bars can be used as convenient handles for operating the same as specified.

602,293. METHOD OF PATCHING SAWS. MICHAEL D. AHEARN, Green Bay, Wis. Filed July 8, 1897. Serial No. 643,893. (No specimens.)



Claim.—The method of repairing fractures in metal plates, consisting in cutting away the metal of the plate on one side of the same directly across the line of the fracture to form a lateral recess and reduce the edges of the fracture to a feather's edge, then inlaying and brazing a corresponding splice-piece within this recess and across the fracture, substantially as and for the purpose described.

602,294. FOOT-BALL. BENJAMIN ARNOLD, East Greenwich, R. I. Filed Oct. 8, 1897. Serial No. 654,502. (No model.)



Claim.—In a foot-ball or like body, a partition placed across from side to side in the ball and attached thereto at its edges, to form a chamber the outer wall of which will be flexible and easily depressed, a valve in the outer wall of said chamber opening into it, a valve in the inner wall of the chamber opening into the ball, a spring to press the outer and the inner walls apart, substantially as described.

602,295. TREATING SOLUTIONS OR ORES CONTAINING ZINC FOR RECOVERING ZINC AS OXIDE. EDGAR A. ASHCROFT, Newcastle, New South Wales. Filed Sept. 4, 1896. Serial No. 604,865. (No specimens.)

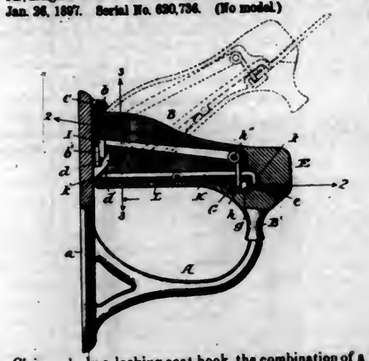
Claim.—1. The herein-described process for the treatment of ores

or solutions containing zinc, which consists in (*a*) obtaining from the zinc-bearing ore or solution solutions of zinc sulfate; (*b*) adding zinc oxid and stirring the mixture until a pasty consistency is obtained; and (*c*) heating the resulting product for the purpose of converting it into zinc oxid, sulfuric or sulfurous acid gas being disengaged; all substantially as described, and for the purposes specified.

2. The herein-described process for the treatment of ores or solutions containing zinc consisting in (*a*) obtaining solutions of zinc sulfate, (*b*) adding zinc oxid and stirring the mixture until a pasty consistency is obtained, (*c*) treating the resulting product for the production of zinc oxid, by first intimately mixing with it carbon (preferably as powdered charcoal) and finally heating the mixture at a uniform temperature for the purpose of converting it into zinc oxid, sulfuric or sulfurous acid gas being disengaged all substantially as described, and for the purposes specified.

3. The herein-described process of treating neutral zinc solutions for the production of zinc oxid, which consists in first converting the neutral zinc salt into basic zinc salt by the addition of zinc oxid, and then intimately mixing with said basic zinc salt, carbon in approximately the proportion of one-twentieth of the weight of the zinc to be recovered, and heating the mixture to a temperature approximating the melting-point of aluminium, substantially as specified.

602,296. LOCKING COAT-HOOK. JOHN C. BACKUS, Smethport, Pa., assignor of one-third to William H. Hungerford, same place. Filed Jan. 26, 1897. Serial No. 620,736. (No model.)



Claim.—1. In a locking coat hook, the combination of a stationary hook, a movable member adapted to close upon the hook at its forward end, so as to confine an article which may be placed between them, a lock which holds the said parts in their closed positions, the said lock engaging with a stationary part of the device in rear of its front or hook part, and a casing surrounding the lock and being arranged above the hook and extending outward substantially as far as its end, and having the opening for the key in its front end, whereby the articles supported by the hook do not hang over, or in front of, the key-opening of the lock, substantially as set forth.

2. The combination of the hook, a movable member adapted to close upon the hook, a push-key lock for holding the hook and the movable member in their closed positions, and a case in which the lock is arranged, extending outward to the end of the hook, the case having an opening for the key at its front end, substantially as set forth.

3. The combination with a hook and its supporting-plate, of a projection extending outward from the plate, a case hinged to the plate, formed with an opening through its rear end through which the said projection enters the case when the latter is moved into engagement with the hook, and with a key-opening in its opposite or forward end, and a lock within the case adapted to engage with the said projection when it enters the case, in order to hold the case in engagement with the hook, and arranged to be operated by a key inserted through the opening in the front end of the case, substantially as set forth.

4. In a lock for a clothes-hook, the inclosing case, a block arranged therein and formed with a number of slots, a key having pins corresponding in arrangement to the slots in the said block, a locking-catch, and a lever carrying the said catch and provided with an arm which extends into one of the slots of the said block, whereby it is operated by the key, substantially as set forth.

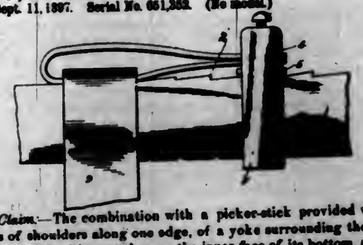
5. In a lock for a clothes-hook, the inclosing case, a slotted block arranged therein, a key having pins corresponding in arrangement to the slots in the said block, a locking-catch, a lever carrying the catch and provided with an arm which extends into one of the slots of the said block, a retaining device for holding the key when inserted in the lock, and means for operating the said retaining device to hold the key when the lock is open, and for releasing the key when the lock is closed, substantially as set forth.

6. The combination with a hook, of a swinging case B, a stationary projection D arranged adjacent to the hook and adapted to enter the case when it is brought into the closing position, and a lock within the case comprising a catch-plate I adapted to engage with the said projection when the case is moved into locking position, and a lever carrying the said catch-plate and arranged to be operated by a key, substantially as set forth.

7. The combination of the swinging case B, a stationary projection D, adapted to enter the case when the latter is moved into a certain position, a locking-plate adapted to engage with the said projection, a lever carrying the said locking-plate, adapted to be operated by a key, and a lever K adapted to retain the key within the lock, this lever being so arranged as to engage with the said projection and be operated thereby to release the key whenever the parts are brought into position to have the catch-plate engage with the said projection, substantially as set forth.

8. In combination with a hook, a case B pivoted adjacent thereto, a spring which tends to move the case away from the hook, a stationary projection D adapted to enter the case when the latter is moved into engagement with the hook, a slotted block G arranged within the case opposite a key-opening, a lever H having an arm A extending into one of the slots of the said block, a catch-plate I carried by the other arm of the said lever, a key having pins corresponding in position to the slots in the said block, and the lever K for retaining the key in the case when the latter is moved away from the hook, the levers H and K being arranged within the case, substantially as set forth.

602,297. PICKER-STICK. JOSEPH BUSHA, Lisbon, Mo. Filed Sept. 11, 1897. Serial No. 651,252. (No model.)



Claim.—The combination with a picker-stick provided with a series of shoulders along one edge, of a yoke surrounding the stick and provided with a tooth upon the inner face of its bottom, a compression-plate movable within the yoke, a loop retained between the compression-plate and the upper end of the yoke, and a set-screw designed to retain the loop ends and to actuate the compression-plate to retain the latter in engagement with the shoulders upon the picker-stick, substantially as specified.

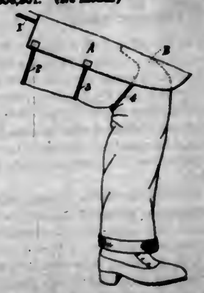
602,298. GEARING. ANDREW F. BEETLER, Doylestown, Pa. Filed Apr. 30, 1896. Serial No. 589,734. (No model.)



Claim.—1. In a gearing, the combination of the drive-wheel having the flange in the middle of its periphery and the pairs of teeth on opposite sides of the said flange, a wheel to be driven having seats in its periphery, and a sprocket-chain taking around and connecting the said wheels and having links respectively comprising the parallel members of right-angle form having the inner arms, the outwardly-directed arms and the transverse bolt connecting the outwardly-directed arms and also having the reduced and apertured portions at the outer ends of the inner arms and the kerfed and apertured portion at the inner ends of the inner arms and pintles flexibly connecting the reduced portions of one link in the kerfs of the next link throughout the chain, substantially as specified.

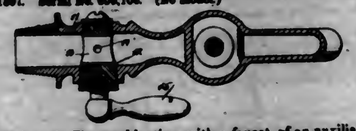
2. In a gearing, the combination of the drive-wheel having the flange in the middle of its periphery and also having peripheral teeth on opposite sides of the flange, a wheel to be driven having seats in its periphery, and the sprocket-chain taking around and connecting the said wheels and having flexibly-connected links respectively comprising the parallel members of right-angle form having the inner arms adapted to be engaged at their rear ends by the peripheral teeth of the drive-wheel and the arms extending outwardly from the forward ends of the inner arms and the transverse bolt connecting the outwardly-directed arms, substantially as and for the purpose set forth.

602,299. ATTACHMENT FOR OVERALLS, LEGGINGS, TROUSERS, &c. GILBERT C. BLAKE, Windsor, England. Filed Oct. 22, 1897. Serial No. 656,201. (No model.)



Claim.—An attachment for overalls, leggings, trousers and like coverings for the legs, consisting of a piece of flexible waterproof fabric or material, a stiffened outer end thereto adapted to project beyond the knee when the latter is bent, and means for attaching said piece to the article to be protected, as and for the purpose set forth.

602,300. FAUCET. CEPHAS W. BRACKETT, Jordan, N. Y., assignor to himself and Stephen L. Rockwell, same place. Filed Nov. 19, 1897. Serial No. 658,108. (No model.)



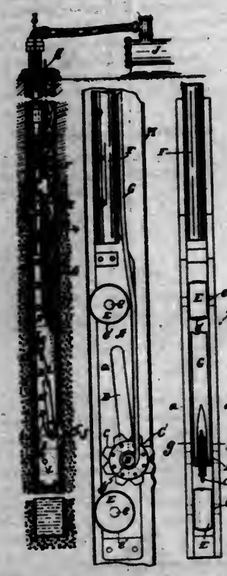
Claim.—1. The combination, with a faucet, of an auxiliary faucet located at the receiving end of the main faucet, the key of the auxiliary faucet being provided with a main opening and auxiliary openings arranged at an angle to the main opening, and removable plugs for the auxiliary openings, substantially as described.

2. The combination, with a faucet, of an auxiliary faucet located at the receiving end of the main faucet, the key of the auxiliary faucet being provided with openings at angles to one another, one of the openings being larger than the other, for the purpose set forth.

3. The combination, with a faucet, of a stop-cock connected therewith, the key of the stop-cock being provided with openings at angles to one another, one of the openings being of such size as to permit the liquid to flow through the key without material interruption, the other opening being tapering, its contracted end facing the source of liquid-supply, as set forth.

602,301. PIPE SLITTER AND PERFORATOR. ANDREW J. BRADLEYTT, Downey, Cal. Filed July 1, 1896. Serial No. 597,734. (No model.)

Claim.—1. The machine for slitting or perforating the tubes of bored or driven wells comprising a stock provided with an oblique guideway for the axle of a rolling cutter; a rolling cutter provided with an axle mounted in said guideway, the cutter being of such diameter that when the axle is in one portion of the guideway, the outer edge of the cutter will project beyond the edge of the stock; antifriction-rollers journaled in the stock and projecting from that edge thereof which is opposite the edge from which the cutter projects; means for forcing water into the well-tube under pressure; means for raising and lowering the stock; and means for moving the cutter-axle along the guideway.



2. The machine for slitting or perforating the tubes of bored or driven wells comprising a stock provided with an oblique guideway for the axle of a rolling cutter; a rolling cutter provided with an axle mounted in said guideway; the cutter being of such diameter that when the axle is in one portion of the guideway, the outer edge of the cutter will project beyond the edge of the stock; antifriction-rollers journaled in the stock and projecting from the edge thereof which is opposite the edge from which the cutter projects; a pipe fastened to the stock to carry the same and arranged to discharge water into the space around the cutter; means for forcing water through the pipe; means for raising and lowering the pipe and stock; and means for moving the cutter-axle along the guideway.

3. The stock with oblique guideway and with antifriction-rollers journaled in the stock and projecting at one edge of the shank, the rolling cutter with axle in the oblique guideway, and adapted to project from that edge of the stock opposite the antifriction-rollers, and means independent of the stock for moving the axle along the guideway.

4. In a pipe slitter or perforator, the combination of two plates, each provided with an oblique slot and being fastened to each other, with an open space between them; two antifriction-rollers between the plates and journaled in the plates and projecting beyond one edge thereof; a rolling cutter arranged between the plates and having an axle journaled in the oblique slots in the plates; and the handle journaled to the axle between the cutter and the plates for moving the axle along the slots.

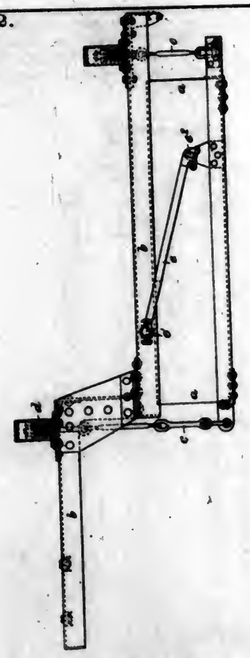
5. The sectional rolling cutter comprising two plates the inner faces of which are flat; pointed segmental sections between the plates arranged with their edges fitted together to support each other, the several segments forming a circle between said plates; an axle extending through the plates and projecting on each side thereof; and means for fastening the plates and pointed segmental sections together.

602,302. SUSPENDING BATTERIES ON CARRIAGES. REGINALD T. D. BROUGHAM and WALTER C. BENNETT, London, England, assignors to the Electrical Vehicle Syndicate, Limited, same place. Filed Dec. 13, 1897. Serial No. 661,735. (No model.)

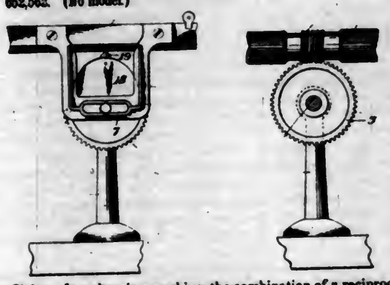
Claim.—1. The combination of the carriage-frame, a box, springs supporting the box from the frame and a rod pivoted at one end to the frame and at the other to the box.

2. The combination of the carriage-frame, springs supported by the frame, links supported by the springs, a box hung on the links and a rod pivoted at one end to the frame and at the other to the box.

602,802.



602,803. HEART-MOTION FOR SPINNING-MACHINES. GEORGE W. CRADWICK, Chester, Pa. Filed Sept. 22, 1897. Serial No. 652,562. (No model.)



Claim.—In a drawing-machine, the combination of a reciprocating roving rod or guide provided with a bracket having two pins, a heart-cam provided with a spring-pressed plunger adapted to engage said pins, and means for actuating said cam, substantially as described.

602,804. FILTER. CHARLES R. CHAMBERLAND, Paris, France. Filed Aug. 30, 1892. Serial No. 444,549. (No model.) Patented in France Sept. 13, 1890, No. 208,236.

Claim.—1. In a filter, the combination with the flexible collector having extended necks as described, of a series of filtering-tubes adapted to be connected into said necks, said collector being adapted to be connected through the walls of a retaining-receptacle to a discharge tube which is extended below the bottom of said filtering-tubes, substantially as specified.

2. The combination with an outer casing, an inner receptacle or filtering-chamber supported within and in the upper part of said outer casing so as to form a reservoir in the lower part of said casing and below said inner receptacle, a series of filtering-tubes within said filtering-chamber, a discharge-pipe extending through the walls of said filtering-chamber, and a connection from said discharge-pipe to a collector with which said filtering-tubes are connected, said discharge-pipe being adapted to discharge into the reservoir in the bottom of said casing, substantially as specified.

3. In a filter, the combination with a retaining-receptacle, and one or more filtering-tubes arranged therein, of a flexible connection extending from the top of said filtering tube or tubes to a stationary discharge-opening adapted to form a communication through the walls of said receptacle, and a discharge-tube connected to the stationary connection on the outside of said receptacle, said discharge-tube being extended below the bottom of said tubes, substantially as specified.

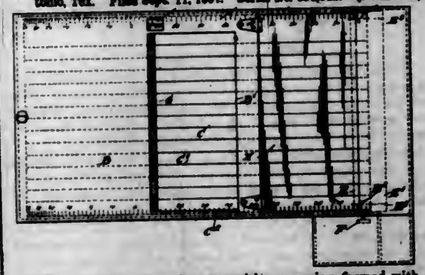


4. In a filter, the combination with a flexible collector having extended necks, as described, a series of filtering-tubes adapted to be connected into said necks, a stationary two-part connection arranged in a perforation in the walls of a retaining-receptacle in which said filtering-tubes are adapted to be placed, said two-part connection having a nipple to which said collector may be attached, and a flexible tube connected to said two-part connection on the outside of said receptacle and extended below the bottom of said filtering-tubes, substantially as specified.

5. In a filter, the combination with a suitable retaining-receptacle, of a series of filtering-tubes arranged therein, a collector having a series of openings one for each tube, flexible slip connections in each of said openings to which said tubes are adapted to be removably attached, and a discharge-pipe from said collector, said discharge-pipe being projected through the walls of said retaining-receptacle and extended below the bottom of said filtering-tubes, substantially as specified.

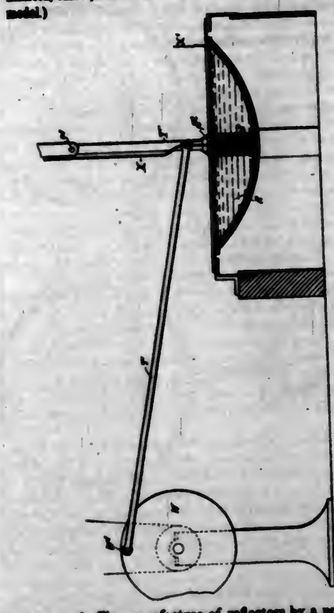
6. In a filter, the combination with an outer casing having an upper retaining-receptacle, and a lower reservoir therein, a series of filtering-tubes in said retaining-receptacle, and a collector having a series of openings one for each tube, a flexible rubber connection in each of said openings to which one of said tubes is removably attached, a discharge-tube from said collector, said discharge-tube being extended through the walls of said retaining-receptacle and into said reservoir, substantially as specified.

602,805. TIME-RECORDER. FREDERICK W. COOK, Jr., San Antonio, Tex. Filed Sept. 11, 1897. Serial No. 651,312. (No model.)



Claim.—A time-recorder, comprising a casing formed with an opening and a slot, a fixed table extending under the said opening, a pair of clock-actuated drawing-rollers journaled in the casing for drawing a sheet of paper over the said table at the casing-opening to permit of writing in a longitudinal direction on the sheet, the latter being provided with a longitudinally-extending graduation indicating hours and subdivisions in minutes, and arranged to appear in the said slot, the said drawing-rollers imparting motion to the sheet in such a manner that the sheet passes a fixed point a distance between two graduation-marks during the interval of one minute, the sheet being also provided with spaced lines for receiving the signatures of the persons at the time indicated by the graduation at the said slot, the lines extending in the direction of the movement of the sheet, and a transfer-strip extending transversely over the sheet at the said opening above the said table and across the said lines, to admit of transferring a mark onto the paper alongside of the corresponding signature, substantially as shown and described.

602,806. MANUFACTURE OF REFLECTORS. SHERARD O. COWPER-COLES, London, England, assignor to the Reflector Syndicate, Limited, same place. Filed June 10, 1897. Serial No. 640,189. (No model.)



Claim.—1. The manufacture of reflectors by a process of deposition consisting in applying to a prepared mold a coating of silver or other suitable metal, then depositing thereon electrically a backing of a common or base metal, and then separating the reflector from the mold by heating the same in a water-bath, substantially as described.

2. The manufacture of reflectors by a process of deposition consisting in applying to a prepared mold a coating of silver, then depositing thereon electrically a backing of a common or base metal, then separating the reflector from the mold by heating the same in a water-bath and lastly applying a film of a non-tarnishable metal to the surface of the reflector to prevent tarnishing thereof, substantially as described.

3. The manufacture of a reflector consisting in coating the convex surface of a suitably shaped and polished glass mold with silver, then depositing electrically on the silver a backing of copper of the required thickness, then separating the reflector from the mold by heating the same in a water-bath, and finally covering the reflecting-surface with a film of palladium to prevent tarnishing thereof, substantially as described.

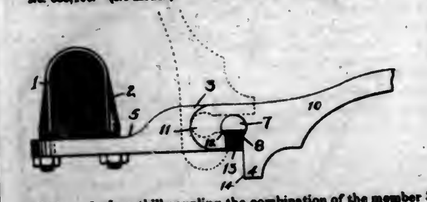
4. The manufacture of a reflector consisting in coating the convex surfaces of a suitably shaped and polished glass mold with silver, then depositing electrically on the silver a backing of a base metal, then applying a stopping-off ring to determine the diameter of the reflector and then continuing the deposition of the base metal until the required thickness has been attained, then separating the reflector from the mold by heating the same in a water-bath, then coating the reflecting-surface with a film of a suitable non-tarnishable metal, and finally trimming the edge of the reflector, substantially as described.

5. In means for the manufacture of reflectors by a process of deposition, the combination with a tank containing an electrolyte, of a glass mold having a metallic coating and having a beveled edge, a ring for carrying the mold, a stopping-off ring to determine the diameter of the reflector and to insure a clear edge thereto, means for suspending and rotating the mold in said electrolyte during the deposition of the metal backing, an anode in said tank, and electrical conductors leading to the metal coating on the mold and to said anode, substantially as described.

6. The combination of a tank containing an electrolyte of a glass mold having a metallic coating, a supporting-ring therefor, a stopping-off ring to determine the diameter of the reflector and to insure a clean edge thereto, a rotary shaft for suspending and rotating the mold in said electrolyte, a joint in the said shaft to admit of tilting the mold when first lowering it into the electrolyte, an anode in said tank and electrical conductors leading to the metal coating on the mold and to the anode in the tank, substantially as described.

7. For coating the reflector with a non-tarnishable metal, the combination of a pan for receiving the reflector and a solution of the metal to be deposited, an anode suspended in the electrolyte from a hinge so as to be capable of swinging, means for swinging the anode, and electrical conductors leading to the anode and to the reflector, substantially as described.

602,807. THILL-COUPLING. ALBERT L. CRANDALL, Rochester, N. Y., assignor to Jesse S. Lee, same place. Filed Apr. 21, 1897. Serial No. 633,166. (No model.)



Claim.—1. In a thill-coupling the combination of the member 3 having the laterally-extending segmental lugs 7 on the sides thereof, with upper portions rounded to afford bearings and their lower sides flattened at 6, and the cooperating member 10 provided with the projecting arms 11 adapted to extend upon opposite sides of the member 3, and having the circular apertures to engage the pins, open on the lower sides, said openings being narrower than the greatest widths of the lugs; substantially as described.

2. In a thill-coupling, the combination with the member 3 having the portion 5 for engaging the axle and the segmental lugs 7 with the rounded upper sides to afford bearings and the cut-away portion 8 upon their lower sides, of the member 10 having the projecting arms 11 adapted to extend on opposite sides of the member 3, said arms having the circular apertures to engage the lugs, and slots or openings 13 extending from the lower sides of said apertures, the clip 2 for attaching the member 8 to the axle and the spring, as 15, arranged between the members.

3. In a thill-coupling the combination with the member 3 having the laterally-extending segmental lugs 7 on opposite sides with their upper surfaces rounded to afford bearings and their lower sides flattened, of the member 10 having the projecting arms 11 adapted to extend on opposite sides of the member 3, said arms having the circular apertures to engage the lugs and slots or openings 13 extending from the lower sides of the arms and a foot 4 on the member 10, formed with its face in line with the forward edge of the slot and projecting below the lugs 7 when the parts are engaged, and a spring as 15, interposed between the two members and held in one of them; substantially as described

602,808. SAFETY-AXLE. THOMAS H. CROOK, York, Pa. Filed July 13, 1897. Serial No. 644,435. (No model.)

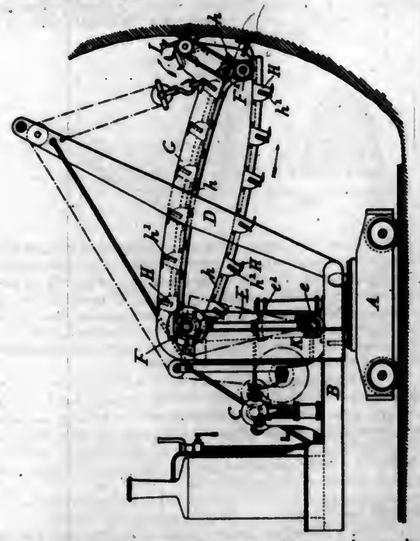


Claim.—1. An axle for vehicles, comprising an intermediate section, end sections pivoted to the intermediate section and forming the spindles, and springs secured to the intermediate section to bear against the end sections; together with projections on the body of the vehicle, substantially as shown and for the purpose set forth.

2. In an axle for vehicles, the combination with an intermediate section formed at its ends into sockets open at one side, spindle-sections pivoted within the sockets to swing laterally with respect to the main section, plate-springs attached to the main section and bearing at their free ends against the spindle-sections to hold them normally on a line with said main section, and projections on the body of the vehicle positioned to engage the spindle sections, substantially as shown and for the purpose set forth.

3. In an axle for vehicles, the combination with a central or main section, sockets formed at the ends thereof, said sockets being open at one side and the top and bottom plates extended vertically, spindle-sections pivoted within the sockets to have a lateral movement with respect to the main section of the axle, plate-springs secured to the axle by the thill-clips and bearing at their free ends upon the spindle-sections; together with a cross-bar attached to the under side of the body of the vehicle and presenting projections arranged to engage the pivoted spindle-sections, substantially as shown and for the purpose set forth.

602,309. EXCAVATING MACHINERY. ARTHUR CAYER and EDGAR C. NEWBY, Cardiff, England. Filed Sept. 29, 1896. Serial No. 607,230. (No model.)



Claim.—1. An excavating-machine comprising a truck, a revolving base-frame thereon carrying boiler, engine, hoisting and crane gear, a pivoted upright frame and a jib, a boom having its one end pivoted to the upright frame and its other end suspended from the jib, a chain of dredging-buckets and a set of revolving picks carried by the boom, all arranged and operating substantially as described.

2. In combination with the dredging-buckets H, the trays A and scrapers *k'* substantially as and for the purpose set forth.

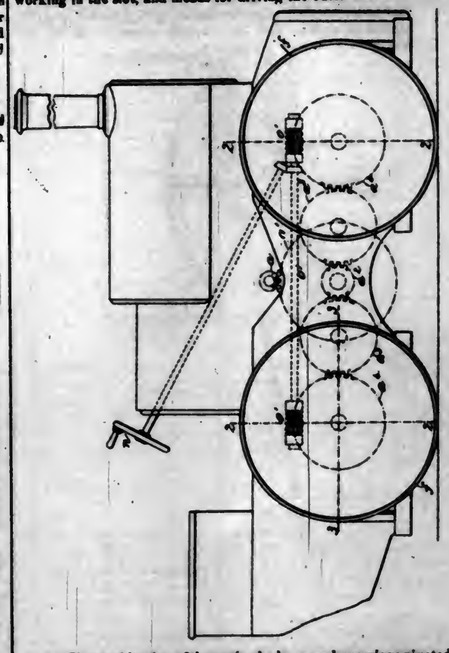
602,310. LOCOMOTIVE. BRAHAM J. DIPLOCK, London, England. Filed Dec. 20, 1897. Serial No. 662,619. (No model.) Patented in England Oct. 19, 1896, No. 19,682.

Claim.—1. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, springs between the axles and undercarriage, a wheel at the center of the undercarriage, a universal joint connecting the central wheel to the axles, a lost-motion pinion at approximately the same level as the central wheel, and means for driving the central wheel from the lost-motion pinion.

2. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, springs between the axles and undercarriage, a wheel at the center of the undercarriage, a universal joint connecting the central wheel to the axle, a lost-motion pinion at approximately the same level as the central wheel, means for driving the central wheel from the lost-motion pinion, and buffers carried by the axle-boxes and bearing against the undercarriage.

3. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, springs between the axles and undercarriage, a wheel at the center of the undercarriage, a universal joint connecting the central wheel to the axle, a lost-motion pinion at approximately the same level as the central wheel, means for driving the central wheel from the lost-motion pinion, and spring-buffers pivoted to the axle-boxes and bearing against the undercarriages.

4. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, and means for driving the outer wheel.



5. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, and means for driving the outer wheel.

6. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, means for driving the outer wheel, and buffers carried by the axle-boxes and bearing against the undercarriage.

7. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, means for driving the outer wheel, and buffers carried by the axle-boxes and bearing against the undercarriage.

8. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, means for driving the outer wheel, and spring-buffers pivoted to the axle-boxes and bearing against the undercarriage.

9. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and buffers carried by the axle-boxes and bearing against the undercarriage.

10. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, guides pivoted to the undercarriage and embracing the outer wheel, and means for driving the outer wheel.

11. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, guides pivoted to the undercarriage and embracing the outer wheel, and means for driving the outer wheel.

12. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and buffers carried by the axle-boxes and bearing against the undercarriage.

13. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and buffers carried by the axle-boxes and bearing against the undercarriage.

14. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and spring-buffers pivoted to the axle-boxes and bearing against the undercarriage.

15. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, a parallel-sided slot in one wheel, a rectangular head pivoted to the other and working in the slot, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and spring-buffers pivoted to the axle-boxes and bearing against the undercarriage.

16. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, means for driving the inner wheel from the outer wheel, guides pivoted to the undercarriage and embracing the outer wheel, and means for driving the outer wheel.

17. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, means for driving the inner wheel from the outer wheel, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and spring-buffers pivoted to the axle-boxes and bearing against the undercarriage.

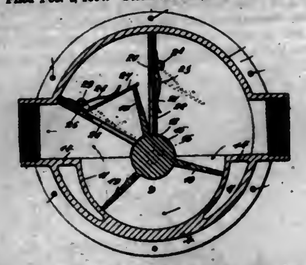
18. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, means for driving the inner wheel from the outer wheel, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and buffers carried by the axle-boxes and bearing against the undercarriage.

19. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, means for driving the inner wheel from the outer wheel, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and buffers carried by the axle-boxes and bearing against the undercarriage.

20. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to the wheels, springs between the axle and the undercarriage, a wheel spherical on its outside fixed to the center of the axle, a wheel spherical on the inside and mounted on the other, means for driving the inner wheel from the outer wheel, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and spring-buffers pivoted to the axle-boxes and bearing against the undercarriage.

21. The combination of the engine-body, an undercarriage pivoted to the body, a pair of wheels supporting the undercarriage, an axle fixed to each wheel, a beveled pinion fixed to each axle, springs between the axles and undercarriage, a wheel spherical on its outside free to turn on the axles, beveled pinions pivoted to the wheel and gearing with the pinions on the axles, a wheel spherical on the inside and mounted on the other, means for driving the inner wheel from the outer wheel, guides pivoted to the undercarriage and embracing the outer wheel, means for driving the outer wheel, and spring-buffers pivoted to the axle-boxes and bearing against the undercarriage.

602,311. FLUID METER OR MOTOR. JOHN H. DIXON, Marietta, Ohio. Filed Feb. 4, 1897. Serial No. 622,017. (No model.)



Claim.—1. A fluid meter or motor having a circular casing, the lower portions of the sides of which are provided with curved interior walls joined to horizontally-extending walls, forming a semicircular cavity eccentric to the circle of the casing, two semicircular plates respectively lying against the heads of the casing and at the inner sides thereof, each plate having an upwardly-extending lug at its middle portion, a drum located between the upwardly-extending lugs and having trunnions respectively mounted therein, blades secured to the drum and projecting radially therefrom, the blades being movable through the semicircular cavity of the casing, a partition radially extending upwardly from the drum and dividing the casing into two compartments, and a spring-pressed valve-plate closing an opening in the partition and permitting the passage of the blades through the opening when the blades move in one direction, substantially as described.

2. A device of the class described having a casing with circular sides, a head at one end of the casing, a head at the other end of the casing, the said second head having a dish-shaped portion projecting into the casing, a radial apertured partition in the casing, a spring-pressed valve for closing the opening in the partition, a series of blades turning with each other and mounted within the casing to be actuated by the fluid, said blades passing through the apertures of the partition and a motor in connection with the blades and located within the dish-shaped portion of the said second head, substantially as described.

3. A fluid meter or motor having a cylindrical casing, a drum mounted within the casing, a series of radial blades carried by the

drum, a partition running radially between the sides of the casing and the drum and having an orifice adjacent to the drum and through which the blades pass as they move with the drum, and a spring-pressed valve-plate normally closing the orifice, the casing having inlet and outlet openings respectively on opposite sides of the partition, substantially as described.

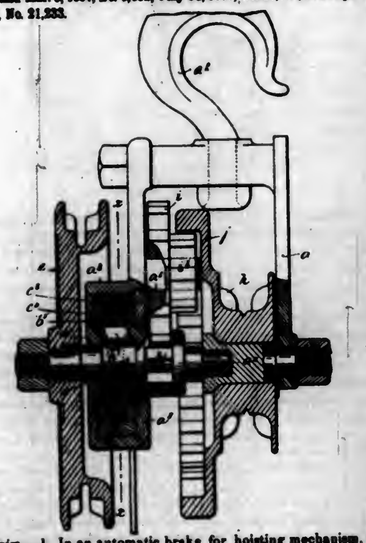
4. A fluid meter or motor having a cylindrical casing with inlet and outlet orifices, a shaft mounted within the casing, a series of blades carried by the shaft, a partition extending radially between the shaft and the sides of the casing and having an orifice therein adjacent to the shaft and through which the blades pass as they move with the shaft, and a spring-pressed valve-plate normally closing said orifice, substantially as described.

5. A fluid meter or motor having a circular casing with inlet and outlet orifices, a shaft revolubly mounted within the casing and held eccentrically therein, a series of blades carried by the shaft, a partition located within the casing and having an orifice adjacent to the shaft and through which the blades pass as they move with the shaft, and a spring pressed valve-plate normally closing the orifice of the partition, substantially as described.

6. A fluid meter or motor having a cylindrical casing having an inlet and outlet on opposite sides, a shaft eccentrically and revolubly mounted within the casing, a series of blades carried by the shaft, a vertical partition running between the shaft and the inner side of the casing and located in the half of the casing having the longest radius from the shaft, a diagonal partition extending inwardly from the upper side of the outlet, the partitions having openings through which the blades pass, and valve-plates normally closing said openings, substantially as described.

7. A fluid meter or motor having a circular casing the lower portions of the sides of which have two curved walls forming a true semicircle, and having horizontal continuations at their upper ends at the inlet and outlet of the casing, a shaft mounted within the casing, a series of blades carried by the shaft and fitting snugly within and movable through said semicircle formed by the walls, and a partition extending radially between the shaft and the casing and located above the curved walls, the partition having an orifice through which the blades pass, and a spring-pressed plate normally closing the orifice, substantially as described.

602,812. LOAD-SUSTAINER FOR WEIGHT-LIFTERS. WILLIAM T. EADES, Birmingham, and THOMAS MATTHEWS, Leamington, England. Filed Oct. 11, 1897. Serial No. 654,872. (No model.) Patented in England Mar. 8, 1897, No. 6,032, July 31, 1897, No. 17,948, and Sept. 16, 1897, No. 21,233.



Claim.—1. In an automatic brake for hoisting mechanism, the combination with the load-wheel, of a shaft arranged in the same axial line with said wheel and having fixed thereon a hand-wheel, a fixed box-casing arranged between the hand-wheel and load-wheel, two friction-disks loosely arranged about said shaft within said box, said disks having inclined adjacent faces and provided with inwardly-projecting lugs, a stud projecting between the lugs and arranged to revolve with the load-wheel, said stud operating when the load-wheel is revolved to separate the lugs and rotate the friction-disks one upon the other and thus force them into frictional contact with the inclosing box, and a stud arranged to be thrown into engagement with either of the said lugs to rotate the friction-disks one upon the other in the opposite direction and withdraw them out of contact with the box, substantially as described.

2. In an automatic brake for hoisting mechanism, the combination with the load-wheel, of a shaft arranged in the same axial line with said wheel and having fixed thereon a hand-wheel, a fixed box or casing arranged between the hand wheel and load-wheel, two friction-disks arranged loosely about the shaft within said box and having inclined adjacent faces, each of said disks being provided with an inwardly-projecting lug, a stud projecting between said lugs and arranged to revolve with the load-wheel, said stud operating to separate the lugs and turn the friction-disks one upon the other and thus force them into frictional contact with the inclosing box, and a stud projecting from the shaft and arranged to engage either of the said lugs when the hand-wheel is turned to turn the friction-disks in the opposite direction and withdraw them out of contact with the box, substantially as described.

3. In an automatic brake for hoisting mechanism, the combination with the load wheel, of a shaft arranged in the same axial line therewith and having fixed thereon a hand-wheel, a fixed box or casing arranged between the hand-wheel and load-wheel, two centrally-apertured friction-disks arranged about the shaft within the box and having inclined adjacent faces, said friction-disks normally rotating together and each provided with an inwardly-projecting lug, a pinion loosely journaled on the shaft and provided with a stud projecting between the said lugs, intermediate gearing driven by the load-wheel for driving said pinion, and a stud projecting from said shaft and arranged to engage either of said lugs by turning the hand-wheel, substantially as described and for the purpose specified.

602,818. HITCHING OR UNHITCHING DEVICE. WILLIAM S. ENDELOW, Jackson, Pa., assignor to Addie S. Endelow, Blain, Pa. Filed July 29, 1897. Serial No. 646,400. (No model.)



Claim.—1. A hitching and unhitching device adapted to be secured to the shaft or thill of a vehicle and comprising a body portion or casing having a recessed under surface, a stud or lug on said recessed portion, a latch pivoted in the recess and having a notched or slotted end, and a spring for engaging with said notch thus locking the latch when closed, substantially as described.

2. A hitching and unhitching device adapted to be secured to the shaft or thill of a vehicle, comprising a body portion or casing having a recessed under surface, undercut shoulders at each end thereof, studs or lugs on said recessed surface, latches pivoted thereto and having notched and rabbeted ends constructed to fit under said shoulders, and springs for engaging and releasing the shoulders, substantially as and for the purposes described.

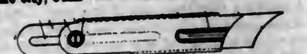
3. A hitching and unhitching device adapted to be secured to the shaft or thill of a vehicle, comprising a body portion or casing having undercut shoulders at each end thereof, studs or lugs on said recessed surface, latches pivoted thereto, and adapted to swing laterally and formed with notches and rabbeted ends to fit under said shoulders and springs, with finger-pieces for engaging and releasing the latter, substantially as and for the purposes described.

4. A hitching and unhitching device adapted to be secured to the thill or shaft of a vehicle, comprising a body portion or casing having a recessed under surface, studs or lugs depending therefrom, swinging latches pivoted thereto, and a spring on top of said box or casing having its ends bent and passed through vertical slots in the body or casing forming finger-pieces for securing and releasing the latches, substantially as and for the purposes described.

5. A hitching and unhitching device adapted to be secured to the thill or shaft of a vehicle comprising a body portion or casing having a recessed under surface, studs or lugs depending therefrom, swinging latches pivoted thereto and a spring on the top of said box or casing having its ends bent and passed through vertical slots in the body or casing, in combination with a tug or trace having a laterally-projecting loop, substantially as and for the purposes described.

6. A hitching and unhitching device adapted to be secured to the thill or shaft of a vehicle comprising a body portion or casing having a recessed under surface, studs or lugs depending therefrom, swinging latches pivoted thereto, and a spring on the top of said box or casing having its end bent and passed through vertical slots in the body or casing, in combination with a tug or trace having a laterally-projecting loop, and a loop in the plane of the trace for the back-strap, substantially as and for the purposes described.

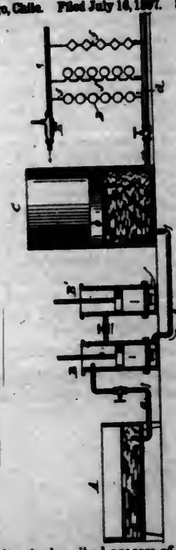
602,814. CHANGEABLE IMPLEMENT. CHARLES J. ERICSON, Salt Lake City, Utah. Filed June 9, 1897. Serial No. 639,909. (No model.)



Claim.—1. In a device of the character described, a stock-piece formed of sheet metal, having side pieces held together in parallel planes by an integral web, said sides having right-angular flanges disposed in the same plane, said sides terminating at one end in laterally-perforated ears, and one side having a pointed toe at the end opposite the ear, substantially as described.

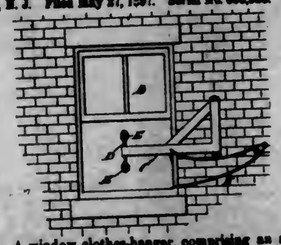
2. A drawing and marking instrument having a blade-section and a stock-section, the blade-section having a longitudinal slot and the stock-section being formed of a sheet of pliable material with a longitudinally-extending slot therein and with a longitudinally-elongated channel on each side of the line of the slot, the said sheet being bent on the line of the slot so that the channels register, and the slotted portion of the blade being received between the portions of the stock, which portions are on each side of the slot therein, and a pivot run through the stock and through the slot of the blade.

602,815. PROCESS OF PRESERVING MILK. ARMILIO FERRANDES, Santiago, Chile. Filed July 16, 1897. Serial No. 644,786. (No specimens.)



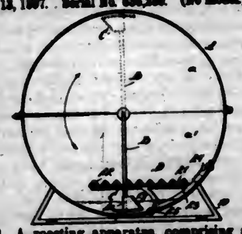
Claim.—The herein-described process of preserving milk which consists, first, in submitting milk at normal temperature to reduced pressure for the removal of all gases therefrom; then introducing the purified milk at normal temperature, solely by means of a vacuum and without exposure to the atmosphere, into a series of connected air-exhausted cans; then hermetically sealing each can of said series of filled cans; then separating the series into individual cans, and finally subjecting the milk within the said sealed and separated cans to sterilization by heat alone, substantially as set forth.

602,816. WINDOW CLOTHES-HANGER. RICHARD B. FORDHAM, Rahway, N. J. Filed May 27, 1897. Serial No. 638,203. (No model.)



Claim.—A window clothes-hanger, comprising an arm pivoted upon vertical pivots to the wall at one side of the window and having pulleys attached by a flexible connection to its outer end, a pulley supported from the wall beyond the pivot of the arm, guy-ropes attached to the arm and extending one direct to the window and the other through said pulley and then to the window, a distant support having pulleys supported therefrom by an elastic connection which takes up the slack of the rope, and a clothes-line extending about a pulley upon the swinging arm and one upon the pole, substantially as described.

602,817. COOKING APPARATUS. GEORGE D. FOX, Buffalo, N. Y. Filed May 13, 1897. Serial No. 636,269. (No model.)



Claim.—1. A roasting apparatus, comprising a pan having a curved bottom, a platform of less length than the pan and secured to the bottom of the pan at one side of a central vertical section thereof, a crank-shaft consisting of a horizontal member extending from end to end of the pan and vertical end members having their upper ends terminating in trunnions journaled in bearings in the pan, one of said trunnions terminating in a handle, and a scoop secured to the horizontal member of the crank-shaft and extending the entire length thereof, substantially as described.

2. A roasting apparatus, consisting of two semicylindrical sections, the lower section being provided with a base, a gridiron of less length than the pan and secured to the bottom of the lower section at one side of a central vertical section thereof, a crank-shaft, consisting of a horizontal member extending from end to end of the lower section and vertical members having their upper ends terminating in trunnions journaled in bearings in the upper portion of said lower section, one of the trunnions terminating in a handle, and a scoop secured to the horizontal and end members of the crank-shaft, the said scoop projecting beyond opposite sides of the said horizontal member, substantially as herein shown and described.

602,818. BICYCLE-SUPPORT. HENRY GEHS, Baltimore, Md. Filed Apr. 13, 1897. Serial No. 631,935. (No model.)



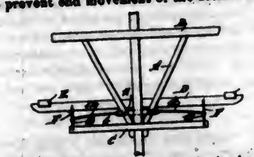
Claim.—1. In a bicycle-support, the U-shaped clip adapted to be connected to the upright frame bar and provided on its loop end with a perforated lug or ear, in combination with a rabbeted hanger having one end beveled and connected to said lug to stand in oblique relation thereto by an upright pivot, and a rod-support connected to said hanger by a transverse pivot to lie normally within the rabbeted hanger, substantially as described.

2. In a bicycle-support comprising a pointed rod, a U-shaped clip for connecting said rod to the rear brace of the bicycle, a hanger having a transverse perforation and one end beveled and pivoted to an ear on the loop end of the clip to stand in oblique relation thereto, the pointed rod having one end bent to form a transverse pivot engaging the hanger, and an elastic U-shaped clip secured to said rod near its swinging end to serve as a foot-rest for forcing the point of the rod into the surface on which it may rest, and also as a clip for engaging the rear brace when the rod is folded against it, substantially as described.

602,819. WAGON-BRAKE. JOSEPH A. GILKEY, Springfield, Oreg. Filed Aug. 2, 1897. Serial No. 646,906. (No model.)

Claim.—1. In a brake, a controlling-spring for the brake-bar, the said spring being longitudinally curved, concaved at its forward face and provided with hooks at its ends, adapted to receive the link connections between a brake-beam and its support, the said

spring normally holding the brake-beam away from the wheels and also serving to prevent end movement of the brake beam.



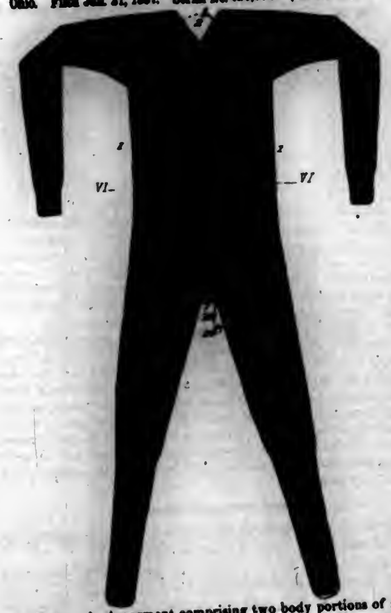
2. In a brake, a controlling-spring for the brake-beam, the said spring being longitudinally curved, its forward face being concaved and its ends terminating in hooks which extend at the front, the material of the spring being likewise bent upon itself to form upright side sections and a horizontal central section, for the purpose specified.

3. The combination, with the hounds of a vehicle, the brake-beam, the supporting-bar for the said brake-beam, and a connection between the brake-beam and supporting-bar, of a spring adapted to control the movement of the brake-beam and normally hold the said beam away from the wheels, the said spring being attached to the hounds and longitudinally curved, its concaved surface facing the front, the spring being further provided with hooks at its ends, facing the front, which hooks engage with the connections between the brake bar or beam and its support, as specified.

4. In a vehicle, the combination, with the running-gear, the brake-beam, the supporting-beam, and links connecting the brake-beam with the supporting-beam, of a spring adapted to control the movement of the brake-beam in a manner to hold it normally from engagement with the wheels of the vehicle, the said spring being longitudinally curved, its forward face being concave, the said material of the spring being bent upon itself to form a central horizontal surface and vertical side surfaces, and end hooks facing the front, the hooks being adapted to engage with the connecting medium between the brake-beam and its support, the horizontal surface of the spring being arranged for attachment to the running-gear at a point between the brake-beam and the support for the same.

5. In a brake, a controlling-spring for the brake-beam, the spring being longitudinally curved and its forward face being concaved, the material of the spring being bent upon itself to form upright side sections and a horizontal central section, the ends of the spring being constructed to engage the connections between the brake-beam and its support, as and for the purpose specified.

602,320. UNDERGARMENT. ISAAC GOLDBERGER, Cleveland, Ohio. Filed Jan. 21, 1897. Serial No. 620,064. (No model.)

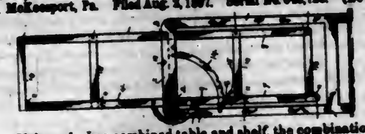


Claim.—1. A garment comprising two body portions of similar shape cut away on divergent lines at the front and also at the back to provide a neck-opening and overlapped flaps at the front and also at the back; substantially as described.

2. A garment comprising two folded body portions of similar shape cut away on divergent lines at the front and also at the back to provide a neck-opening and flaps overlapped at the front and flaps also overlapped at the back; substantially as described.

3. A combination or union suit having a longitudinal seat-opening at the crotch, and a pair of vertically-yielding lappets secured respectively at the ends of the seat-opening and each formed of a piece of knitted ribbed fabric folded transversely parallel with the ribs, substantially as described.

602,321. COMBINED SHELF AND TABLE. CHARLES O. HARLY, McKeesport, Pa. Filed Aug. 2, 1897. Serial No. 646,726. (No model.)

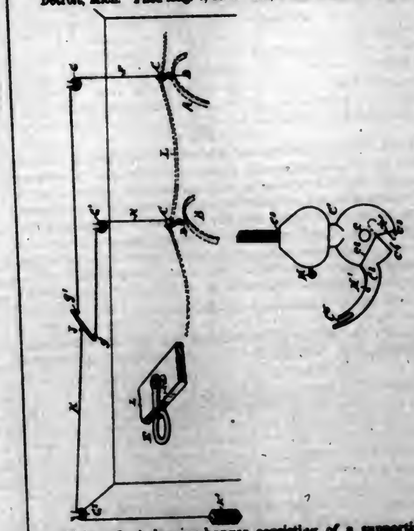


Claim.—1. In a combined table and shelf, the combination of the stand, having pivoted thereto the upper and lower side bars, a series of shelves pivotally connected to said side bars and adapted to stand one above the other, means for converting the said series of shelves into a table and to extend them at angles one to the other, and pawls and racks for holding the said series of shelves in such positions, substantially as shown and described.

2. In a combined table and shelves, the combination of the stand, having pivoted thereto the upper and lower side bars, a series of shelves pivotally connected to the said upper and lower side bars, a pawl and rack for holding the upper and lower series of shelves at various angles one to the other, a quadrant rack mounted on the stand and a pawl secured to the lower side bars and adapted to engage with the said quadrant rack, substantially as shown and described.

3. A combined table and shelves consisting of the frame having pivotally connected thereto, the upper and lower side bars, shelves pivotally connected to said side bars, one of said upper side bars being provided with a rack, and one of the said lower side bars being provided with a pawl adapted to engage with the said rack, means for releasing said pawl, a quadrant rack on the stand and a pawl secured to the lower side bars and adapted to engage with the said quadrant rack, substantially as shown and described.

602,322. HANGER FOR FIRE-HARNESS. MATTHEW HARGOUSE, Detroit, Mich. Filed Aug. 7, 1897. Serial No. 647,479. (No model.)



Claim.—1. A harness-hanger consisting of a supporting-body having a portion of its lower end cut away upon the under rear side, and a lever pivoted in said body and provided with an arm projecting upward on the rear side of the body when in supporting position, and provided with a hook for the engagement of driving-reins with the upper end thereof, the lower end of the lever being provided with a hook to support a portion of the harness, and which hook opens rearwardly, whereby when a pull is exerted upon the driving-reins, the lever will be caused to turn downward at its upper end, and the hook portion will be turned so as to discharge the harness therefrom, substantially as shown.

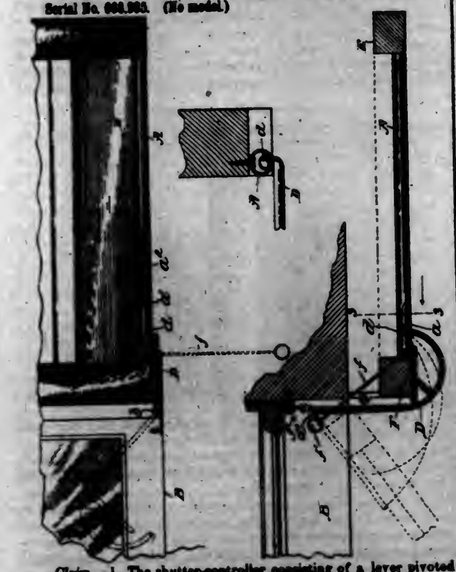
2. In a harness-hanger, a bifurcated body having a portion cut away upon its lower rear side so as to form the shoulders c', c^2, combined with a lever fulcrumed within the body and provided with an arm projecting upward on the rear side of the upper end of the lever, and with a hook upon its lower end, and which hook opens rearwardly when in a supporting position, the hook being adapted to support a portion of the harness, while the arm at the upper end of the lever supports the rein, and which lever when turned upon its fulcrum by a pull upon the rein, releases both the rein and the harness, substantially as described.

3. In a harness-hanger, the combination of a supporting-body, a lever having a fulcrumed engagement therewith, and constructed to engage a portion of the harness at its lower end and to permit a rein of the harness to have a removable engagement therein, said body provided with a spring, and said lever with a pin to engage the spring, for the purpose described.

4. In a harness-hanger, the combination of forward and rear supports for the harness, a cord engaged with each of said supports to support the same, an evener to which said cords are connected toward its opposite ends, a counterweight, a cord connecting the evener intermediate its ends with the counterweight, pulleys between the evener and said supports, respectively, over which the corresponding cords are passed, and a pulley between the evener and the counterweight over which the corresponding cord is passed, whereby either of the cords connecting the evener with said supports will be held taut, should the other of said cords be unhooked, substantially as described.

5. In a harness-hanger, two supports having a portion of their lower ends cut away upon their rear edges, provided with two levers, one for each support, and each lever having a slot or recess in each of its ends, combined with suitable supporting cords, chains, or wires, an evener, and a counterweight; the upper ends of the levers being adapted to receive rings connected with the driving-reins and the lower ends to receive the hooks upon the harness to thereby support said harness, whereby when a pull is exerted upon the driving-reins, the levers are caused to turn downward at their upper ends, and the slotted portions of their lower ends are turned so as to discharge the hooks of the harness therefrom, substantially as shown.

602,323. SHUTTER-CONTROLLER. CHARLES S. HASKINS, Reading, and WILLIAM T. CROWELL, Boston, Mass. Filed Feb. 3, 1896. Serial No. 668,985. (No model.)



Claim.—1. The shutter-controller consisting of a lever pivoted at one end to the sill of the window and bent at its other end to engage a slot in a tube fast to the shutter so as to permit longitudinal movement of the end of the lever along the slot and to permit the rotation of the lever; that tube having slots along its side in two planes ninety degrees apart, the two slots being connected by a slot; all organized and operating substantially as described.

2. The shutter-controller consisting of a lever-swivel pivoted at one end to the sill of the window and bent at its other end to engage a slot in a tube fast to the shutter so as to permit longitudinal movement of the end of the lever along the slot and to permit the rotation of the lever; that tube having slots along its side in two planes ninety degrees apart, the two slots being connected by an oblique slot; all organized and operating substantially as described.

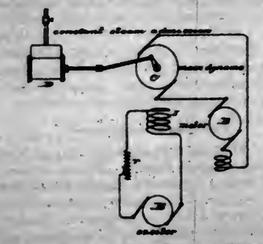
3. The shutter-controller consisting of a lever-swivel pivoted at one end to the sill of the window and bent at its other end to engage a slot in a tube fast to the shutter so as to permit longitudinal movement of the end of the lever along the slot and to permit the rotation of the lever; that tube having slots along its side in two planes ninety degrees apart; the two slots being connected by a slot; and a piece F fast to and projecting substantially at right angles from the lever to serve as a handle for the lever and adapted to give a torsional strain to the lever calculated to turn it upon the swivel when it is free to move, all organized and operating substantially as described.

602,324. PAN-LIFTER. ANTON HAUBERG, Nyack, N. Y. Filed Feb. 27, 1897. Serial No. 625,305. (No model.)



Claim.—A cooking utensil or vessel provided with a radially-extending projection 5 terminating in a raised and substantially cylindrical cross-bar end and having its lower face inclined, and a V-shaped projection 6 below the first-named projection and having its upper face inclined and the lower face substantially horizontal, the said upper projection extending slightly beyond the lower projection and being connected therewith by vertical side plates, in combination with a handling-iron provided with an enlarged end having a downturned hook at its upper edge designed to engage the cylindrical end of the upper projection on the vessel, and a projection below the hook and extending beyond the same, said lower projection being bifurcated, or provided with a V-shaped recess adapting it to snugly grasp the lower projection on the vessel and to rest against said vessel at its end, all substantially as described.

602,325. SYSTEM OF ELECTRICAL PROPULSION FOR VESSELS. JEAN J. HEILMANN, Paris, France. Filed Dec. 3, 1896. Serial No. 570,878. (No model.) Patented in Italy Jan. 28, 1896, No. 38,128; in India Apr. 6, 1896, No. 111; in Russia Apr. 20, 1896, No. 6,610; in Spain July 1, 1896, No. 17,062; in Portugal July 10, 1896, No. 2,099, and in Belgium Oct. 22, 1896, No. 118,016.



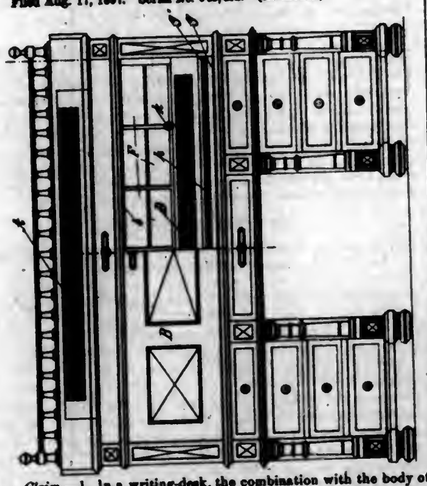
Claim.—1. In a system of electrical propulsion for navigable vessels, the combination with a propeller-wheel, of a steam-engine having a constant steam admission, two or more generating-dynamos having their armatures connected in multiple with the main conductors, and driven by said steam-engine, a separately-driven constant-potential exciting-dynamo with which the field-coils of the main dynamos are connected in multiple, a rheostat in series with the exciter-armature for varying the field strength of said dynamos, two or more electric motors connected to the propeller-shaft, and having their field-coils in series multiple with their armatures, and a reversing-switch between the field-coils and the armatures of said motors, substantially as described.

2. In a system of electrical propulsion for navigable vessels, the combination with a propeller-wheel, of a steam-engine having a constant steam admission, a main generating-dynamo driven by said

steam-engine, a separately-driven constant-potential exciting-dynamo in circuit with the field-coils of said main generator, a rheostat in series with the exciter-armature for varying the field-magnetism of the main generator, and an electric motor in series with the generator-armature and arranged to drive the propeller-shaft, substantially as described.

602,326. WRITING-DESK. HENRICH HEINE, Hanover, Germany.

Filed Aug. 17, 1897. Serial No. 648,422. (No model.)



Claim.—1. In a writing-desk, the combination with the body of the desk, of slide E running in guides thereon, leaf B hinged to slide E and adapted, when drawn out and raised, to close the front of the desk, and when let down and pushed in, to slide with slide E into the guides thereof, slide D sliding in guides above the slide E and provided with a writing-surface, drawers in the desk, a locking-bar *m* for said drawers and a lever *l* controlling said locking-bars and actuated by the slide E in its rearward movement, so as to unlock the drawers when said slide is pushed in.

2. In a writing-desk, the combination with the body of the desk, of slide E running in guides therein, leaf B hinged to slide E and adapted when drawn out and raised to close the front of the desk, slide D sliding in guides above slide E, a leaf C hinged to slide D and forming a writing-surface and spring-catches *k* for supporting said leaf C in an inclined position, or when pressed back, allowing said leaf to fall flat on slide D, said spring-catches extending above the edge of the leaf C when the latter is raised.

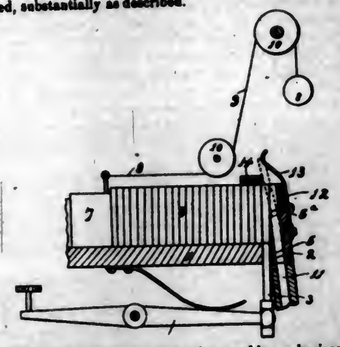
3. In a writing-desk, the combination with the body of the desk, having at its top an inclined surface for writing when standing, of a slide E, running in guides below said surface, a leaf B hinged to slide E, and adapted when raised, to close the front of the desk, and when depressed to be pushed back with slide E in the guides thereof, a slide D, mounted to slide above slide E, and a leaf C hinged to slide D and forming a writing-surface for use when sitting.

602,327. TYPE-SETTING MACHINE. STANLEY H. HODGKIN and PHILIP B. HODGKIN, London, England. Filed Apr. 17, 1897. Serial No. 632,616. (No model.) Patented in England Mar. 23, 1896, No. 6,845.

Claim.—1. In a type setting or composing machine, the combination of a type trough having an opening near one end thereof, a fixed stop adjacent to said opening, a pusher adapted to work through said opening and act against the foremost type in said trough, a discharge-passage in front of said stop, and a movable deflecting device adapted to act against and tilt the forward end of said type so as to bring its other end over said discharge-passage.

2. In a type setting or composing machine, a horizontal or approximately horizontal type-trough having an opening in its lower side and a stop adjacent to said opening, a vertical discharge-passage external to said stop, a pusher arranged to work vertically or approximately so through said opening and act against the bottom of the type above the same, and a deflecting device adapted to cant backward the upper end of a type that is being displaced by said pusher, substantially as described.

3. In a type setting or composing machine, a horizontal or approximately horizontal trough having an opening in its lower side at one end and, adjacent to said opening, a fixed stop terminating at the top in a knife-edge, feeding mechanism whereby a row of type can be fed forward against said stop, a pusher arranged to work vertically through said opening in said trough, a downwardly-extending discharge-passage in front of said stop, and a deflecting device adapted to tilt backward the upper end of a type when the same is being discharged, substantially as described.

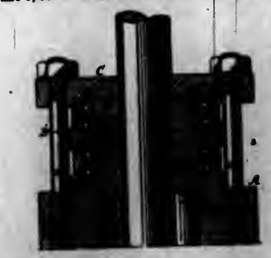


4. In a type setting or composing machine, a horizontal or approximately horizontal trough having an opening in its lower side at one end and, adjacent to said opening, a fixed stop terminating at the top in a knife-edge, feeding mechanism whereby a row of type can be fed forward against said stop, a pusher arranged to work vertically through said opening in said trough, a downwardly-extending discharge-passage in front of said stop, a cross-piece fixed above said trough immediately in rear of the foremost type, and a deflecting device adapted to tilt backward the upper end of said type when it is being removed from said trough, substantially as described.

5. In a type setting or composing machine, the combination of a type-trough having an opening in its lower side at one end, a stop adjacent to said opening, feeding mechanism whereby a row of type can be fed forward against said stop, a pusher adapted to work through said opening and displace type from said trough, a movable deflecting device adapted to tilt each type backward when displaced by said pusher, and key-operated mechanism whereby said pusher and deflecting device are operated.

6. In a type setting or composing machine, the combination of a type trough 1 having an opening 2 and stop 5 with upper knife-edge 5*a*, a vertically-movable pusher 3, arranged to work through said opening, feeding mechanism adapted to feed a row of type along said trough toward said stop, a discharge-passage 11 located in front of said stop, a deflecting device mounted to work over said discharge-passage and act against the upper end of a type when the same is being ejected, and key-operated mechanism adapted to operate said pusher and deflecting device in succession, substantially as described.

602,328. ROD-PACKING. THOMAS H. HOLMES, Wilkes-Barré, Pa. Filed June 3, 1897. Serial No. 639,221. (No model.)



Claim.—1. The combination in a rod-packing, of a segmental ring surrounding the rod, with a ring of non-elastic yielding soft metal mounted on the periphery of the segmental ring, with means for holding the said non-elastic yielding ring tightly against the segmental ring, substantially as described

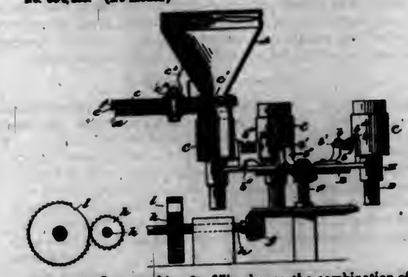
2. The combination in a rod-packing, of the segmental ring D, a spring for holding the segments together on the rod, a segmental ring E mounted against the ring D and having the joints between the segments staggered, a non-elastic yielding soft-metal ring mounted on the periphery of the ring E and a spring tending to hold the soft-metal ring against the segments making a steam tight joint between the segments and the ring, substantially as set forth.

602,329. PULVERIZER. WILLIAM H. HOWE and PETER STIEFERMAN, Kiever, Mo. Filed Sept. 28, 1897. Serial No. 653,405. (No model.)



Claim.—In a pulverizer, a pair of bars provided with horizontally-alined bearings, pipes rotatably mounted in said bearings, set-collars located upon said pipes to prevent their lateral movement, harrow-teeth passing vertically through said pipes, in which harrow-teeth are formed notches, triangular bars passing through said pipes and engaging in the notches of the harrow-teeth, collars fixed upon all of the pipes, fingers extending upwardly from each of said collars, a bar connecting the upper ends of all fingers, and means for rotating the forward one of said pipes and locking it after being rotated to the desired position substantially as specified.

602,330. MEASURING MECHANISM FOR BOX OR CAN FILLING MACHINES. PHIL L. HOYTE and WILLIAM T. WOOD, Nashville, Tenn., said Wood assignor to said Hoyte. Filed Apr. 20, 1897. Serial No. 634,425. (No model.)



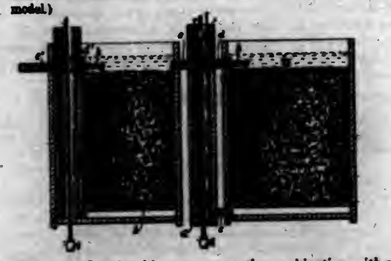
Claim.—1. In a machine for filling boxes, the combination of an intermittently-rotated carrier, box-holders on said carrier having boxes therein, and a feed-hopper having a discharge-opening in the bottom, of a plate provided with a series of holes near its periphery corresponding in number to the number of box-holders and mounted to rotate under and in contact with the discharge of the hopper and in contact with the tops of the boxes, a star-wheel attached to the bottom of the plate having its recesses registering with the holes in the plate, and means for intermittently rotating the carrier to cause the boxes to successively engage the star-wheel, whereby the plate is turned to bring the holes successively in register with the discharge-opening in the hopper and with the boxes, substantially as described.

2. In a machine for filling boxes, the combination with an intermittently-rotated carrier, box-holders on said carrier having boxes therein, and a feed-hopper having a discharge-opening in the bottom, of a plate fixedly mounted on one side of the hopper having an opening in its periphery registering with and forming a continuation of the discharge of the hopper, a plate or disk having a series of openings near its periphery and rotatably mounted below and in close proximity to said fixed plate, a star-wheel attached to the bottom of said rotating plate or disk with its recesses registering with the openings therein, and adapted to be engaged by the boxes in succession as the latter are rotated by the carrier to cause the said boxes to bring the perforations in the rotary plate in register with the openings of the fixed plate and the box, substantially as described.

3. In a machine for filling boxes, &c., the combination with an intermittently-rotated carrier, box-holders on said carrier having boxes therein, and a feed-hopper having a discharge-opening in the bottom, of a disk mounted on said hopper below the discharge-opening and having a perforation near its periphery registering with said discharge-opening, a plate journaled on the hopper below said fixed plate and having a series of perforations near its periphery adapted to register with the perforation in the fixed plate, a washer of suitable material interposed between the two said plates, a star-wheel attached to the bottom of the rotating plate having its indentations or recesses registering with the perforations in said plate and adapted to be engaged by the boxes, substantially as described.

4. In a machine for filling boxes, &c., the combination with an intermittently-rotated box-carrier, box-holders on said carrier having boxes therein, and a vertical feed-hopper having a discharge-opening in the bottom of a disk or plate provided with a series of openings near its periphery journaled on the side of the hopper so as to rotate under and in contact with the opening in the hopper, and normally closing the said opening, of means carried by said plate adapted to be engaged by the boxes in succession for causing the plate to rotate in contact with the tops of the boxes and bring the openings successively in register with the discharge-opening in the hopper and with the boxes, whereby the said boxes are caused to be filled even with the top with material as the hopper-discharge is opened and closed by said plate, substantially as described.

602,331. APPARATUS FOR LEACHING TANBARK. CHARLES IRRGANG, Elmira, N. Y. Filed Mar. 22, 1897. Serial No. 628,700. (No model.)



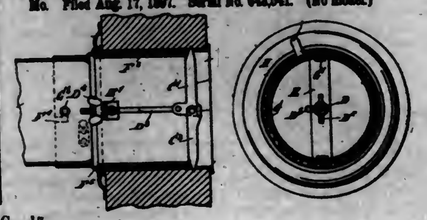
Claim.—1. In a leaching apparatus, the combination, with a vat provided with a perforate false bottom, of a stand-pipe having communication at the top with the upper portion of the vat at or near the water-level therein, and at the bottom with the vat below the false bottom, a pipe passing through the stand-pipe adapted to be supplied with steam or hot water, a valve in the pipe below the stand-pipe, whereby the flow through the heater-pipe may be controlled and any desired temperature imparted to the liquid in the stand-pipe and a circulation upward through the stand-pipe and downward through the vat produced substantially as described, and a draw-off pipe leading from the vat below the false bottom.

2. In a leaching apparatus, the combination, with a series of vats having perforate false bottoms, of intermediate stand-pipes, each of said stand-pipes having communication at the bottom with one vat in the series below its false bottom and at the top with the upper portion of the next adjacent vat at or near the water-level therein, pipes passing through the stand-pipes adapted to be supplied with steam or hot water, means for controlling the flow therethrough, whereby the liquid as it passes through the series of vats is maintained at the required temperature and a circulation of the liquid from vat to vat is produced or augmented substantially as set forth, and draw-off pipes leading from the vats below their false bottoms.

3. In a leaching apparatus, the combination, with a series of vats provided with false bottoms, of intermediate stand-pipes, each of said stand-pipes having communication at the bottom with one vat of the series below its false bottom, and at the top with the upper portion of the same vat and of the next adjacent vat at or near their respective water-levels, pipes leading through the stand-pipes adapted to be supplied with steam or hot water whereby the liquid is maintained at the required temperature and an upward circulation of the liquid through the stand-pipes produced or augmented, means for opening and closing the communications at the top of the stand-pipes in order that one vat may be operated separately or in any number operated in series as may be desired, and draw-off cocks leading from the vats below the false bottoms.

4. In a leaching apparatus the combination of a vat, a stand-pipe connected therewith, a steam or hot-water pipe passing through the center of the stand-pipe, and a piston adapted to fit into the stand-pipe and around the steam or hot-water pipe and to be forced downward into the stand-pipe in order to produce a backflow in the vat for the purpose set forth.

602,332. STOVEPIPE-FASTENER. JEROME JONES, Kansas City, Mo. Filed Aug. 17, 1897. Serial No. 648,541. (No model.)



Claim.—1. In a stovepipe-fastener, the combination of a thimble, a support secured to the thimble and extending across one end thereof, a rod attached to the support, the rod running through the thimble, a short pipe-section fitting within the thimble, a cross-piece secured to said pipe-section and engaged by the rod, the pipe-section having a bead formed therein, a ring-shaped cover engaged by the bead and surrounding the said pipe-section, and a main stovepipe fitting and removably secured within the pipe-section.

2. In a stovepipe-fastener, the combination of a thimble, a support fitting within the thimble and engaged rigidly therewith, the support consisting in two arms pivoted one to the other and one arm having a stop limiting the movement of the arms, a rod connected with the arms, a short pipe-section fitting within the thimble, a cross-piece secured to the short pipe-section and connected with the rod, a ring-shaped cover surrounding the short pipe-section and engaged by a bead thereon, and a main pipe-section fitted and secured within the short pipe-section.

602,883. MATCH BOX OR SAFE. BERNARD W. KARST, Harianburg, Ind., assignor of one-half to George R. Miller, same place. Filed Oct. 19, 1897. Serial No. 655,670. (No model.)



Claim.—1. A match box or safe comprising a casing having a delivery-slot in its front, and an openable back, a partition separating the interior of the casing into two compartments and provided with a groove and an opening at the upper end of the groove, a picker carried by a guide-block movable in the forward compartment, said picker comprising a pivoted arm having at one end picker-fingers and at the other end a cam projection movable in the groove and adapted to enter the opening to tilt the picker and project the fingers through the delivery-slot, means for elevating the picker, and a guide-plate leading from the rearward into the forward compartment, substantially as described.

2. A match box or safe comprising a casing having a delivery-slot in its front, and a back pivoted near its lower end, a partition dividing the interior of the casing into a rearward compartment for containing a package of matches and a forward compartment, said partition having a groove terminating at its upper end in an opening, an inclined guide-plate to guide the matches from the package into the forward compartment, a guide-block vertically movable in the forward compartment, a picker-arm pivotally secured to said block and carrying at one end picker-fingers and having at its other end a cam projection for cooperating with the groove and opening, a cord connected to the block and passed around a sheave in the upper portion of said compartment and passed through the side of the casing and provided with a hand-button, and a stop on the outer side of the casing adapted for engagement with the button to hold the picker in its elevated position, substantially as described.

602,884. ROTARY ENGINE. MARTIN C. KESSLER, Ofiead, Ind. Filed Dec. 3, 1897. Serial No. 660,662. (No model.)



Claim.—1. In a rotary engine, the combination with the casing the rotary piston-hub having radial and lengthwise slots, and pistons proper arranged slidably in such slots, of segmental packing-pieces arranged at the ends of such hub and having radial grooves to receive the ends of said pistons, substantially as shown and described.

2. In a rotary engine, the combination with the casing the piston hub having pistons proper and provided with notches or slots in its ends, of segmental packing-pieces arranged radially, and having internal tongues that fit and are adapted to slide in such notches or slots, substantially as shown and described.

3. In a rotary engine, the combination with the casing and the piston-hub having radial slots and rabbeted ends, of pistons, and segmental packing-pieces arranged in the slots and rabbets, and guided as they slide radially, springs for projecting said pistons and pieces, and disks applied to the ends of the hub to work in contact with and support the packing-pieces, substantially as shown and described.

4. In a rotary engine, the combination with the casing the piston-hub, and pistons proper, of segmental packing abutting the ends of said hub and pistons, and disks arranged exterior to the latter, substantially as described, for the purpose specified.

5. In a rotary engine, the combination with the casing the rotary slotted piston-hub, pistons arranged in the slots, and a series of segmental packing-pieces arranged at the ends of said hub and pistons, and having lapped end portions, as shown and described.

6. In a rotary engine, the combination with the casing rotary piston-hub, and pistons proper, of segmental packing-pieces arranged at the ends of said hub and pistons, of "bridges," or connecting-pieces, held in sockets formed in adjacent ends of the latter, substantially as shown and described.

7. In a rotary engine, the combination with the casing the rotary piston-hub and pistons, of the segmental packing-pieces arranged at and abutting the ends of said hub and piston, and having lapped ends provided with sockets and connecting-pieces or "bridges" arranged and held in such sockets, substantially as shown and described.

602,885. STOVE-LEG. AARON KNISELL and IRVING J. SPARR, Cygnet, Ohio. Filed Nov. 30, 1897. Serial No. 660,196. (No model.)



Claim.—1. In combination with a stove-leg having a cavity or recess therein with grooves communicating therewith, a caster or roller lowering and elevating device pivotally mounted in said leg, and a brace movably attached to the said caster lowering and elevating device at its lower end and having a cross-trunnion at its upper end movable in said grooves, substantially as described.

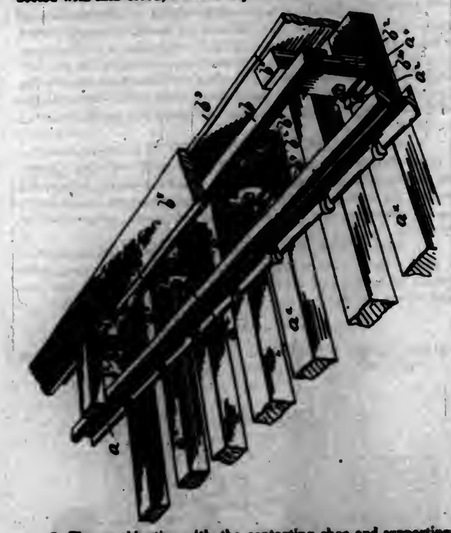
2. In combination with a stove-leg, of a caster lowering and elevating device, and a brace movably attached at its lower end to said caster lowering and elevating device and at its upper end having a cross-trunnion moving in the stove-leg, substantially as described.

3. The combination of a stove-leg having a cavity or recess therein with grooves on the opposite sides of the upper portion thereof terminating in lower shoulders and also provided with a transverse recess, a head pivoted in the lower portion of the said cavity or recess, and provided with a roller or caster and a handle, and a bifurcated brace having its lower end pivoted to the handle of the head and its upper end formed with a cross-trunion adapted to engage the said grooves and transverse recess, substantially as described.

602,886. CONDUCTOR AND CONTACT DEVICE FOR ELECTRIC RAILWAYS. ALVARO S. KROTZ, Springfield, Ohio, WILLIAM P. ALLEN, Chicago, Ill., and OLIVER S. KELLY, Springfield, Ohio. Filed May 26, 1897. Serial No. 638,647. (No model.)

Claim.—1. In a third-rail electric-railway system, the combination of insulating-standards erected alongside the track, a working conductor supported by said standards on the inner side thereof at an elevation above the track, but below the upper ends of the standards, the said conductor projecting horizontally from the standard, and a transversely inclined or sloping cover resting on the tops of the standards and on the extreme edge of the horizontal portion of the conductor, substantially as described.

2. A contacting device for third-rail electric-railway systems, the same comprising a suitably-formed body portion or frame having a shoe, a block pivoted thereto, and a resilient supporting-piece connected with said block, substantially as described.



3. The combination with the contacting shoe and supporting-frame, a pivoted block in said frame, and a flexible supporting-strip connected to said block, substantially as and for the purpose specified.

4. The combination with the contacting shoe, the supporting-frame, the adjustable block pivoted in said frame, the connecting-strip from said block to said shoe, and a supporting-strip extending from said block in contact with said connecting-strip, substantially as specified.

5. The combination with the angularly-shaped contacting shoe and the supporting-frame, angular in cross-section, a pivoted block in said frame, a connecting strip extending between said shoe and frame and connected to said block, and a supporting-strip connected to said block and in contact with said connecting-strip, substantially as specified.

6. The combination with the angle-shaped working conductor, the supporting-standards therefor, the inclined cover and vertical shield for protecting said standards and conductor, said standards being formed in parts and perforated by openings extending substantially parallel with said conductor, substantially as and for the purpose specified.

7. The combination with the standards, the angle-shaped conductor secured thereto, the vertical shield and inclined cover, said shield being projected slightly above said standards and gained into said cover, said cover being supported by said shield, substantially as specified.

602,887. TAILPIECE FOR MUSICAL INSTRUMENTS. ROBERT R. LAMBERT, Perrysburg, Ark. Filed June 26, 1897. Serial No. 641,762. (No model.)



Claim.—1. A tailpiece having two members, and an eccentric connecting the two members with each other, whereby one of the members may be moved forward and rearward.

2. A tailpiece having two members each with a tabulated portion, and a shaft journaled in one tabulated portion and having an eccentric trunnion engaging the other tabulated portion, whereby upon the turning of the shaft one of the members may be moved forward and rearward.

3. A tailpiece consisting in two members, one with a tabulated portion having a slot therein, and the other with two tabulated extensions, a shaft revolubly journaled in the first-named member, a bar fixed to said shaft and movable through the slot of said first-named member, and eccentric trunnions for the shaft, the trunnions respectively engaging the tabulated extensions of the second-named member.

602,888. BOTTLE. LEWIS E. LARRIMER, Schooley's Mountain, N. J. Filed Dec. 23, 1897. Serial No. 663,631. (No model.)

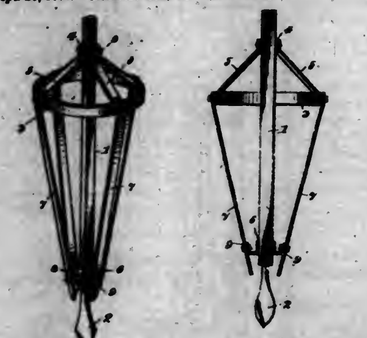


Claim.—1. The combination with a bottle or like receptacle, of a smaller receptacle, the lower portion of which has a solid connection with the neck of the bottle and two tubular connections forming passage-ways between the upper part of the neck of the bottle and the said smaller receptacle, substantially as described.

2. The combination with a bottle or like receptacle, of a smaller receptacle connected with the neck portion of the larger receptacle and communicating with the interior thereof, the said smaller receptacle having its mouth end extending upward beyond the top of the larger receptacle, and a valve-stopper for the larger receptacle capable of opening or closing the communication between the two receptacles, substantially as described.

3. The combination with a bottle or like receptacle, of a vial secured to the neck portion of the said bottle, two tubular connections forming passage-ways between the upper part of the neck portion of the bottle and vial, the mouth portion of the said vial projecting above the top of the bottle, a stopper for the vial and a valve-stopper for the bottle adapted to open and close the passage-ways between the neck of the bottle and the vial, substantially as described.

602,889. WELL-DRILL. EDGAR LAWTON, Oneonta, N. Y. Filed Sept. 20, 1897. Serial No. 652,304. (No model.)



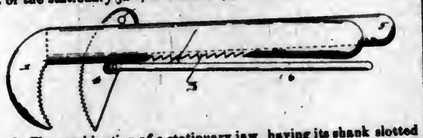
Claim.—1. The combination with a drill-shaft, of an attachment therefor consisting of a frame made up of a ring or band, collars at the upper and lower ends thereof of smaller dimensions than said ring, the lower of said collars having outwardly and upwardly extending flanges thereon, bracing-bars connecting the upper collar with said ring, and cutting-blades or knives secured at their upper ends to said ring, and at their lower ends to said flanges.

2. The combination with a drill-shaft, of an attachment therefor consisting of a frame, made up of a ring or band, collars at the upper and lower ends thereof, of smaller dimensions than said ring, the lower of said collars having outwardly and upwardly extending flanges thereon, bracing-bars connecting the upper collar with said ring, and removable cutting-blades or knives secured at their upper ends to said ring, and at their lower ends to said flanges.

602,840. PIPE-WRENCH. JOHN W. LUND, Boston, Mass., assignor of one-half to John J. Morris, same place. Filed May 21, 1897. Serial No. 637,570. (No model.)

Claim.—1. In a pipe-wrench, the combination of a stationary jaw having its shank slotted, a movable jaw positioned within the slotted shank of the stationary jaw, and capable of longitudinal and angular adjustment with relation thereto, the shank of the stationary jaw be-

ing provided with a series of teeth, a rod secured at one end to the movable jaw, a lug formed on said rod adapted to engage the teeth of the stationary jaw when its lower end is contracted, and means for preventing the movable jaw from becoming disengaged from the slot of the stationary jaw, substantially as set forth.

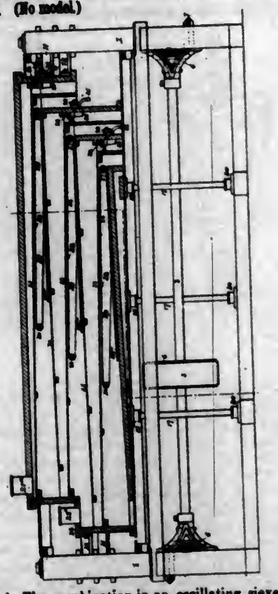


2. The combination of a stationary jaw, having its shank slotted longitudinally, a movable jaw adapted to move within said slot, a pin extending through the stationary jaw on the outer side of the shank of the stationary jaw, a rod secured to the movable jaw on the opposite side of the shank of the stationary jaw, whereby said jaw is prevented from becoming displaced from the slot in which it moves, a series of teeth formed on the shank of the stationary jaw, and a lug carried by the rod for engaging said teeth when the opposite end of the rod is contracted, substantially as set forth.

3. In a pipe-wrench, a plurality of members each comprising a pipe-gripping jaw, and a shank connected rigidly to and to manipulate said jaw, said shanks being extended in proximity to each other, and means, extended along said shanks, to fix said members in adjusted longitudinal position relative to each other, while permitting variation in their relative angular position, substantially as described.

4. In a wrench, a plurality of loosely-assembled members each comprising a jaw and a manipulating-shank; means to prevent displacement of said members; and an auxiliary controlling member extended in proximity to said manipulating-shanks, to fix said members in adjusted longitudinal position, while permitting variation in their angular relation, substantially as described.

602,841. OSCILLATING SIEVE OR BOLTING-MACHINE. CHARLES H. LOUTHENBERG, Philadelphia, Pa., assignor to Walter Griscom and Thomas McPeely, same place. Filed Mar. 18, 1897. Serial No. 628,190. (No model.)



Claim.—1. The combination in an oscillating sieve or bolting-machine, of a pair of sieve-boxes located side by side, upright shafts at the ends of the boxes, each having oppositely-set crank-pins, and brackets projecting from the opposite ends of the sieve-boxes and engaging said crank-pins, an upper crank of one shaft, and a lower correspondingly-set crank of the other shaft being connected to each box, substantially as specified.

2. The combination of a bolting-sieve with an adjustable cut off consisting of an apron located beneath the sieve and passing around a bearing adjacent to the discharge end of the same, the opposite ends of said apron being connected by cords to a winding-drum in advance of the apron, whereby on turning said drum the apron may be positively moved in either direction, substantially as specified.

3. The combination of a bolting-sieve with an adjustable cut-off consisting of an apron located beneath said sieve and passing around a bearing adjacent to the discharge end of the same, a winding-drum located in advance of the apron, cords wound upon said drum and connected to the opposite ends of the apron, and inclined guides for the end of the lower run of the apron, whereby said lower run is directed at an angle the reverse of that of the upper run, substantially as specified.

4. The combination of the sieve-frame of a bolting-machine, with an eccentric serving as a support for the lower end of said frame, an eccentric-spindle passing through the sieve-casing and having outside the same a sliding handle whereby it may be turned, and a nut mounted on said spindle beyond the handle, substantially as specified.

5. The combination in an oscillating sieve or bolting-machine, of a pair of upright crank-shafts, brackets having boxes receiving the cranks of said shafts, a longitudinal bar carried by said brackets and a sieve-box secured to said bar, substantially as specified.

602,842. CAR-COUPLING. ISAAC LOW, East Fairfield, Ohio. Filed Oct. 27, 1897. Serial No. 656,533. (No model.)



Claim.—A car-coupling comprising a draw-head having an open upper side, a longitudinal slot in the lower wall thereof, bearings at the rear end of the draw-head for the support of the coupling-pin when raised, a pivoted bar resting in said bearings and provided with parallel arms, and a coupling-pin pivoted between said arms and provided with an enlargement 5 intermediate its ends, and pivots thereon for engagement with the parallel arms, said enlargement being formed integral with the pin and adapted to rest on the link when in place, for the purpose and substantially as described.

602,848. VALVE-GEAR. WILLIAM LOWE, Sydney, New South Wales. Filed Aug. 7, 1897. Serial No. 647,449. (No model.)



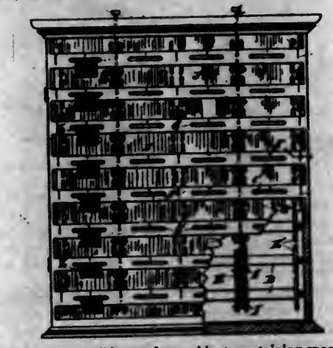
Claim.—1. A valve-gear, comprising a link for connection with the valve-stem, a slidable block pivotally connected with the said link, an adjustable guideway carrying the said block, a second link pivotally connected with the said block, and a rod pivotally connected with the said second link and having a forward-and-backward and swinging motion, substantially as shown and described.

2. A valve gear, comprising a link for connection with the valve-stem, a slidable block pivotally connected with the said link, a guideway in which the said block moves, means for adjusting the said guideway for reversing purposes, a second link pivotally connected with the said block, and an eccentric-rod pivotally connected with the said second link and mounted to swing on a slidable block, substantially as shown and described.

3. A valve-gear, comprising a link for connection with the valve-stem, a slidable block pivotally connected with the said link, a second link pivotally connected with the said block, an eccentric-rod pivotally connected with the said second link, and a second slidable block pivotally connected with the said eccentric-rod and moving parallel to the first-named slidable block, substantially as shown and described.

4. A valve-gear provided with an adjustable guideway, a block fitted to slide thereon and connected with the valve, a second block mounted to slide parallel with the first-named block, an eccentric-rod pivoted on the said second block, and a connection between the said eccentric-rod and the first-named block, substantially as shown and described.

602,844. LACE OR RIBBON CABINET. CHARLES H. MARTIN, Marshall, Ill. Filed Dec. 28, 1896. Renewed Oct. 20, 1897. Serial No. 656,242. (No model.)



Claim.—1. A ribbon or lace cabinet, containing spools arranged in vertical and horizontal columns, a rod passing between two adjacent columns of spools and provided with locking-arms normally in engagement with said spools and preventing the same from turning, a spring to hold said rod and arms in normal position, and a knob or handle upon said rod and by which it is depressed to simultaneously release the locking-arms from the spools, substantially as set forth.

2. A ribbon or lace cabinet, containing rows of spools for holding the goods, said spools having notches in the outer edge of one of their heads, a rod passing by the ends of the spools in the different tiers, pins carried by the rod and adapted to engage the notches in the spools to lock the same, a spring to hold the pins in engagement with the spools, and a knob or handle attached to said rod upon the outside of the case, substantially as described.

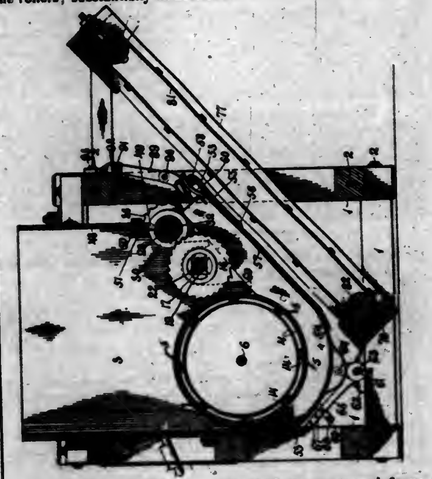
3. A ribbon or lace cabinet having a front composed of strips formed with slits, rows of spools for the goods and located in said cabinet in the rear of the slits through which the goods may be withdrawn, the heads of the spools having notches therein, a vertical rod located adjacent the notched heads and having locking-arms, a spring holding said arms normally in engagement with said notches, and a knob on said rod at the outside of said cabinet and by which said rod is depressed to disengage the arms from the notches, as and for the purpose set forth.

602,845. FEED-CUTTER. ANDREAS MATTIJETS, Los Angeles, Cal. Filed Aug. 11, 1897. Serial No. 647,875. (No model.)

Claim.—1. The combination of a supporting-frame, a hopper, a stepped frame, a feed-drum having rows of teeth at intervals around its periphery and a shaft journaled on the lowest step of the stepped frame, the circular saws having a shaft journaled on the intermediate step of the stepped frame, the disks having a shaft journaled on the highest step of the stepped frame, and means whereby the shafts are operated; substantially as described.

2. The combination of a supporting-frame, a hopper, a stepped frame, a feed-drum having rows of teeth and a shaft provided with a pulley and journaled on the lowest step of the stepped frame, the circular saws having a shaft provided with a pulley and journaled on the intermediate step of the stepped frame, the disks having a shaft provided with a pulley and journaled on the highest step of the stepped frame, the hanger secured to the supporting-frame, the lever having a head and pivoted to the hanger, the paired rollers mounted in the head of the lever, and the driving-belt working around the pulleys and over the rollers; substantially as described.

3. The combination of a supporting-frame, a hopper, a stepped frame, a feed-drum having rows of teeth and a shaft provided with a pulley and journaled on the lowest step of the stepped frame, the circular saws having a shaft provided with a pulley and journaled on the intermediate step of the stepped frame, the disks having a shaft provided with a pulley and journaled on the highest step of the stepped frame, the hanger secured to the supporting-frame, the lever having a head at one end and a catch engaging the rack-bar at the other end, and pivoted to the hanger, the paired rollers mounted in the head of the lever, and the driving-belt working around the pulleys and over the rollers; substantially as described.



4. The combination of a supporting-frame, a stepped frame, a feed-drum having rows of teeth at intervals around its periphery and a shaft journaled on the lowest step of the stepped frame, the circular saws having a shaft journaled on the intermediate step of the stepped frame, the disks having a shaft journaled on the highest step of the stepped frame, a hopper having a rear board provided with teeth fitting between the disks, and means whereby the shafts are operated; substantially as described.

5. The combination of a supporting-frame, a hopper, a stepped frame, a feed-drum having rows of teeth at intervals around its periphery and a shaft journaled on the lowest step of the stepped frame, the circular saws having a shaft journaled on the intermediate step of the stepped frame, the disks having a shaft journaled on the highest step of the stepped frame, a sieve-frame extending beneath the hopper and having its lower end in the form of a cradle, the sieve, means whereby the shafts are operated and means for vibrating the sieve-frame; substantially as described.

602,846. RUBBER-TIRED WHEEL. CHARLES A. MAYNARD, Springfield, Mass. Filed Jan. 10, 1898. Serial No. 666,196. (No model.)



Claim.—1. A felly, a rim arranged on the felly and provided with side flanges, a rubber tire seated in the rim, and a metal retaining-band combined with the tire by being embedded therein, and comprising two tubes lying within the rim-flanges on opposite sides of the vertical center of the tire and united by a web, means for coupling the ends of the retaining-band, and bolts passing through the web and clamping it to the rim and felly.

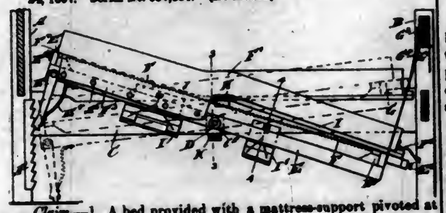
2. A felly, a rim arranged thereon and provided with side flanges, a rubber tire seated on the rim, a metal retaining-band combined with the tire and comprising two side tubes tied together by an intermediate web, said tubes inclosed by the tire on opposite sides of its vertical center, a coupling consisting of dowel-pins within the abutting tube ends and fast to both and forming a coupling maintaining a uniform and unbroken exterior to the retaining-band, and bolts for uniting tire, rim and felly.

3. A felly, a rim thereto provided with side flanges for seating the tire, a retaining-band for holding the tire to the rim, and comprising a metal band with its opposite edges turned over to form tubes and an intermediate portion left as a web between the tubes, and combined with the tire by having the tubes inclosed therein on opposite sides of its vertical center, means for coupling the ends of the retaining-band, and means for securing tire, rim and felly together.

4. The combination of a felly, flanged rim seated thereon, rubber tire seated in the rim, metal retaining-band comprising side tubes inclosed in the tire and intermediate web, bolt with its head bearing upon the web and stem passing through rim and felly, and elongated hole in the web beneath the bolt-head of greater diameter than the bolt-stem and of less diameter than its head, whereby the bolt may be slid under the rubber for adjustment as described.

5. The metal retaining-band comprising two side tubes and connecting-web, and adapted to be combined with a rubber tire to have the tubes inclosed therein on each side of its vertical center; and a joint for the band ends comprising pins received in both ends of the joined tubes and made fast to both, and a tongue from the web of one member adapted to rest against and be secured to the web of the other member.

602,847. BED. ELBERT R. MUSSER, Spencer, Iowa. Filed May 24, 1897. Serial No. 637,856. (No model.)



Claim.—1. A bed provided with a mattress-support pivoted at or near the middle, an adjustable seat under the mattress near the middle, two pivotally-attached limb-supports carried by the mattress-support and pivoted stops fixed in the top of the bedstead-rails, and serving to hold the seat.

2. A bed provided with a mattress-support pivoted at or near the middle, two hinged spring-actuated legs at its head end, notched plates fastened to the lower end of the bedstead-posts and engaged by the legs, and straps holding the foot end of the mattress-support.

3. A bed, provided with a mattress support mounted at or near the middle on a pivot resting on the inside of the bedstead-rails, a spring secured at its ends to the ends of the said mattress-support, a transversely-extending seat-board extending over the said spring and under the mattress at or near the middle of the mattress, and adapted to be sustained from the bedstead-rails, two limb-supports pivotally attached to the said transversely-extending seat-board, and adapted to support the divided parts of the mattress in any desired position, knobs fixed in the footboard of bedstead whereby to hold the limb-supports, legs pivotally attached to the head end of the mattress-support, springs actuating the legs notched plates on the lower ends of the head-posts of the bedstead with which plates the legs coact, and pivoted stops in gutters in the bedstead-rails, the stops serving to hold the seat-board.

4. A bed having a mattress-support legs attached to the head end of the mattress-support, springs actuating the legs and plates, having notches receiving the legs, substantially as described.

5. A bed having a mattress, a spring therefor, and a transversely-extending adjustable seat-board placed under the mattress and above the spring, at or near the middle of the mattress, and having its ends resting on the bedstead-rails, substantially as described.

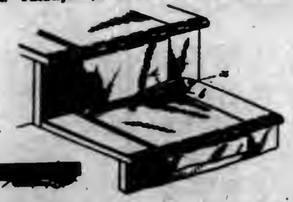
6. In a bed, the combination of a bed-frame, a mattress-frame mounted to swing within the bed-frame, the mattress-frame having a pivot located intermediate the ends of the mattress-frame, a seat-board mounted on the bed-frame and extending over the mattress-frame, a spring-pressed leg pivotally mounted on one end of the mattress-frame and engaging a portion of the bed-frame to hold the mattress-frame in tilted position, and a strap attached to the opposite end of the mattress-frame and to the bed-frame, the strap coacting with the leg.

7. The combination of a bed-frame, a mattress-frame mounted to swing therein, a leg pivoted to one end of the mattress-frame and engaging the bed-frame, a strap attached to the opposite end of the mattress-frame and to the bed-frame, a mattress held on the mattress-frame and having a split portion, a seat-board held by the bed-frame and located beneath the mattress, two limb-supports hinged to the seat-board and respectively beneath the split portions of the mattress, and means for supporting the free ends of the limb-supports.

8. The combination of a bed-frame, a mattress-frame mounted to rock on the bed-frame, a leg hinged to one end of the mattress-frame and capable of engaging the bed-frame to hold the mattress-frame in tilted position, a seat adjustably held by the bed-frame, two limb-supports hinged to the seat-board, and means for supporting the free ends of the limb-supports.

9. The combination of a bed-frame, a mattress-frame mounted to swing therein, a seat-board carried by the bed-frame, a mattress-spring carried by the mattress-frame and located beneath the seat-board, and a mattress rested on the spring and located above the seat-board.

602,848. STAIR-CARPET FASTENER. GEORGE F. MURDOCK, Wellsville, Ohio. Filed Apr. 26, 1897. Serial No. 633,901. (No model.)



Claim.—1. A fastening device for carpets, consisting of a bar having an engaging prong upon the under side thereof, and a slot therein, said bar being provided with a diagonally-arranged face at a point adjacent to the outer end of said slot, against which the head of the securing-screw is adapted to bear when the latter is being seated, as and for the purpose set forth.

2. A fastening device for carpets, consisting of a bar having a prong upon the under side thereof and a keyhole-slot therein, said bar being provided with a diagonally-arranged face at a point adjacent to the contracted end of said slot, against which the head of the securing-screw is adapted to bear when the latter is being seated, as and for the purpose set forth.

3. A fastening device for carpets, consisting of a bar having an engaging prong upon the under side thereof, and a slot therein through which a securing-screw is adapted to be passed, said bar being provided with a diagonally-arranged face at a point adjacent to the outer end of said slot, which lies at right angles to the shank of said screw, and against which the head of said screw is adapted to bear, and a plate slidingly mounted in said bar and adapted to cover the head of said screw, as and for the purpose set forth.

4. In a device of the character set forth, the combination with a wear-plate secured to the step at the angle between the horizontal and vertical portions thereof, of a bar having a keyhole-slot therein, a prong at the inner end thereof adapted to engage the top surface of the carpet, and a diagonally-arranged face adjacent to the contracted portion of said slot, and a screw passing through said wear-plate, diagonally, whose head is adapted to bear against the diagonally-arranged face of said bar, as and for the purpose set forth.

602,849. ABRADING MECHANISM. WILLIAM A. McCOOL, Beaver Falls, Pa. Filed May 13, 1897. Serial No. 636,412. (No model.) Patented in England Nov. 14, 1896, No. 25,686; in France Sept. 14, 1897, No. 270,462, and in Belgium Sept. 24, 1897, No. 130,827.

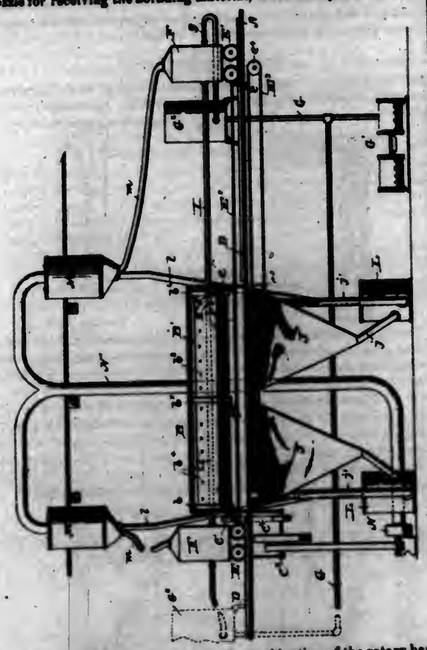
Claim.—1. In an abrading mechanism, the combination of the rotating barrel or cylinder adapted to have the articles to be abraded supported therein, a delivery-nozzle within said cylinder, and means for supplying said nozzle with a blast of air charged with abrading material, substantially as set forth.

2. In an abrading mechanism, the combination of a rotary barrel or cylinder adapted to support a series of articles to be abraded, a non-rotary tube or duct extending longitudinally of the interior of said barrel, a nozzle carried by said duct within the barrel, and means for supplying said duct with a blast of air charged with abrading material, substantially as set forth.

3. In an abrading mechanism, the combination of a rotary barrel or cylinder adapted to receive and loosely support the articles to be abraded, a nozzle arranged to reciprocate within the barrel, and means for supplying said nozzle with a blast of air charged with abrading material, substantially as set forth.

4. In an abrading mechanism, the combination of a rotary support or holder for the articles to be abraded, two oppositely-extending non-rotary nozzles, supported by said holder at one side of the articles to be abraded, and means for supplying a blast of air charged with abrading material to said nozzles, substantially as set forth.

5. In an abrading mechanism, the combination of a duct or tube, a nozzle carried by said duct, a holder for articles to be abraded adapted to rotate about the axis of the tube or duct, means for supplying a blast of air charged with abrading material to the nozzle, means for reciprocating the duct and nozzle, and means below said nozzle for receiving the abrading material, substantially as set forth.



6. In an abrading mechanism, the combination of the rotary barrel or cylinder adapted to receive a number of articles, a movable truck, the duct or tube extending from the truck to the interior of the cylinder and provided with a nozzle which travels with the truck longitudinally of the cylinder, and means for supplying abrading material to the duct and nozzle, substantially as set forth.

7. In an abrading mechanism, the combination of a support for the articles to be abraded adapted to impart rotation to said articles, a delivery-nozzle traveling longitudinally of the support, and means for supplying said nozzle with a blast charged with abrading material, substantially as set forth.

8. In an abrading mechanism, the combination of a holder adapted to support articles to be abraded, a delivery-nozzle, means for supplying said nozzle with a blast of air, a receptacle for abrading material, a duct for conveying the abrading material to the said nozzle, and means for moving both the holder and nozzle relatively to each other, substantially as set forth.

9. In an abrading mechanism, the combination of a support or holder, for the articles to be abraded, a receptacle adapted to contain air under pressure, a tube or duct leading from said receptacle and provided with a nozzle, means for moving said nozzle relatively to the holder when in use, an elevated receptacle for abrading material, means for delivering abrading material from said receptacle to said delivery duct or tube, a hopper arranged below the said holder or support, and a conveyer for conveying abrading material received in said hopper to the aforesaid elevated receptacle therefor, substantially as set forth.

10. In an abrading mechanism, the combination of a support or holder for the article to be abraded, a tube or duct, a delivery-nozzle connected with said tube and adapted to travel from end to end of the said holder, means for rotating the holder about the axis of the delivery-tube, a receptacle for abrading material, a flexible tube for conveying such material to said delivery-tube, means for supplying a blast of air to said tube, a hopper arranged below the holder to receive the abrading material escaping from the nozzle, and a pneumatic conveyer for conveying said material received in said hopper to the aforesaid receptacle therefor, substantially as set forth.

11. In an abrading mechanism, the combination of a rotary support or holder for the articles to be abraded, two oppositely-extending tubes or ducts each provided at one end with a nozzle, means for moving said tubes and nozzles longitudinally of the holder, means for supplying each of said tubes with a blast of air, elevated tanks or receptacles, M, for abrading material, means for conducting material from said receptacles to the aforesaid tubes, hoppers arranged below the holder or support, boots, L, at the lower ends of the hoppers, ducts, *l*, connecting the boots, L, and elevated receptacles, M, a fan, N, and ducts connecting the casing of said fan with the said elevated receptacles, M, substantially as set forth.

12. In an abrading mechanism, the combination of the rotary holder, the reciprocating truck, a receptacle on the truck for holding air under pressure, the duct leading from said receptacle, a nozzle carried by the duct, and means for supplying said duct with abrading material, substantially as set forth.

13. In an abrading mechanism, the combination of the rotary holder, the trucks arranged on opposite sides of the holder and traveling together, delivery-tubes extending from the trucks beyond the ends, respectively, of the rotary holder, and means for supplying said tubes with a blast of air charged with abrading material, substantially as set forth.

14. In an abrading mechanism, the combination of a rotary holder, the trucks arranged beyond the ends of the holder and traveling together in similar directions, delivery-tubes extending from the trucks beyond the adjacent ends, respectively, of the rotary holder, means connecting the adjacent ends of said ducts, and means for supplying a blast of air charged with abrading material to said ducts, substantially as set forth.

15. In a tube-cleaning machine, the combination with means for supporting and imparting rotation to one or more tubes, of a blast-nozzle, means for moving the said nozzle longitudinally of the said tube or tubes while rotating, and means for supplying said nozzle with a stream of abrading material, substantially as set forth.

16. In an abrading mechanism, the combination of a rotating barrel or cylinder adapted to receive a series of articles to be abraded, a delivery-nozzle within said cylinder, means for supplying said nozzle with a blast of air charged with abrading material, and means for supporting each of the articles within the barrel out of contact with the others therein; substantially as set forth.

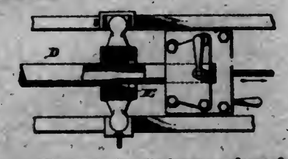
17. In an abrading mechanism, the combination of a rotatable support, a delivery-nozzle, means for supplying said nozzle with a blast of air charged with abrading material, and means for holding the article to be abraded out of contact with said support while moving therewith; substantially as set forth.

18. In an abrading mechanism, the combination of a rotatable cylindrical support, a delivery-nozzle arranged within and adapted to travel longitudinally of said support, means for supplying said nozzle with a blast of air charged with abrading material, and means adapted to engage the article to be abraded and hold the same out of contact with the wall of said rotatable support; substantially as set forth.

19. In an abrading mechanism, the combination of a holder for the article to be cleaned, blast devices, a nozzle for guiding and directing the blast against the article to be acted on, means for supplying abrading material to the blast in rear of the nozzle, and means for moving the nozzle longitudinally of the article to be cleaned to direct the blast against all points in the length thereof which it is desired to clean, substantially as set forth.

20. In a mechanism for removing scale from tubes, bars, or rods, the combination of a holder adapted to hold the article to be cleaned in a horizontal position, blast devices having a discharge-pipe extending parallel with the article to be cleaned, and having a nozzle for directing the blast against said article, means for supplying abrading material to said discharge-pipe, and means for moving said pipe longitudinally whereby the nozzle will direct the blast of abrading material against every point in the length of the exposed surface of the tube, bar, or rod which it is desired to clean, substantially as set forth.

602,850. METHOD OF MANUFACTURING COLD-DRAWN STEEL TUBING. WILLIAM A. McCOOL, Beaver Falls, Pa. Filed Dec. 3, 1897. Serial No. 660,671. (No specimens.) Patented in England Nov. 14, 1896, No. 25,686.

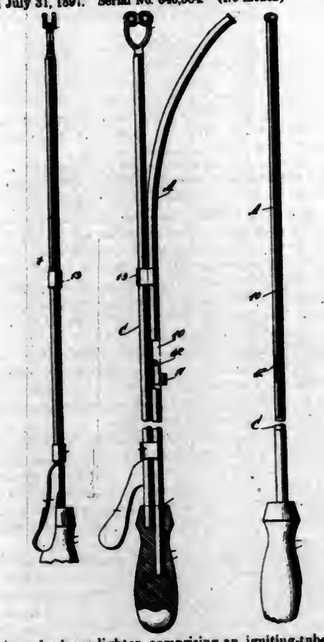


Claim.—1. The herein-described process of manufacturing seamless, drawn, steel tubing, which consists in first forming a plate of steel, heating said plate, bending it transversely, welding together its longitudinal edges, and then cold-drawing the tube thus produced through a die of a diameter slightly less than that of the tube and thereby mechanically dislodging the scale, silicates, &c., on the interior surface of the tube, subsequently cleansing the interior, and thereafter subjecting the tube to external and internal radial pres-

sure to reduce it in thickness and obliterate the seam, substantially as set forth.

2. The herein-described process of forming cold drawn steel tubing, which consists in subjecting a tubular blank having a weld extending along a longitudinal line, to the compressing action of a die slightly smaller in diameter than the tube, crushing or dislodging the scale and silicates from the interior surface by such die, and subsequently reducing the tube in thickness by external and internal compression, and obliterating the said weld, substantially as set forth.

602,351. GAS-LIGHTER. THOMAS N. McNISH, Kearny, N. J.
Filed July 31, 1897. Serial No. 646,584. (No model.)



Claim.—1. A gas-lighter, comprising an igniting-tube having a handle at one end and provided with external bearings, and a rod mounted to turn in the bearings of the igniting-tube and provided with a key at its upper end and a thumb-piece at its lower end said thumb-piece extending downwardly adjacent to the handle of the igniting-tube, substantially as described.

2. In a gas-lighter, the combination, with a handle, and an igniting-tube secured to the said handle, of a rod held to turn in guides carried by the igniting-tube and also held to turn in the said handle, a key attached to the upper end of said rod, and a thumb-piece extending from the lower end of the key-rod adjacent to said handle, for the purpose specified.

602,352. MUSICAL INSTRUMENT. FRANK G. MCPHERSON, Beaver Falls, Pa., assignor of one-half to George W. Miller, Rochester, Pa.
Filed Apr. 27, 1897. Serial No. 634,075. (No model.)



Claim.—1. In a musical instrument of the harp or cithern class, a shield or cover-plate arranged to cover the end portions of the strings tuned for sharps and flats, the natural strings being above this cover-plate.

2. An instrument of the harp or cithern class having at the front thereof a bridge provided with depressed portions for the strings tuned to sharps and flats, and a shield arranged to cover the end portions of such strings adjacent to the bridge.

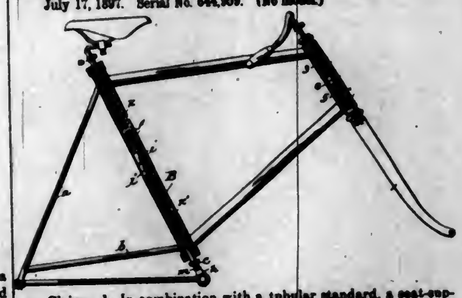
602,353. CANVAS-STRETCHER. JOHN W. HUBER, New York, N. Y.
Filed July 1, 1897. Serial No. 643,162. (No model.)



Claim.—1. A stretcher-key comprising a metallic plate provided with a right-angled, inturned flange, and with slots extending parallel with the flange, and ribs extending parallel with the slots, substantially as described.

2. The combination with a frame provided, at its corners, with grooves, of a key comprising a metallic plate provided with a right-angled, inturned flange, to bear against the inner walls of a corner of the frame, and with slots extending parallel with the flange, two ribs extending parallel with the slots for engaging the said grooves, and screws passed through the slots, substantially as described.

602,354. BICYCLE. GEORGE P. OHLHART, Baltimore, Md.
Filed July 17, 1897. Serial No. 644,969. (No model.)



Claim.—1. In combination with a tubular standard, a seat-supporting rod extending through the same, a spring sustaining the rod, reaches carrying the crank-box having pivotal connection with the rear axle and a freely-movable connection between the reaches and the lower end of the seat-supporting rod, substantially as described.

2. In a bicycle or the like a tubular standard, a spring-supported rod for the seat extending through the said standard, reaches carrying the crank-box pivotally connected with the rear axle and a double-jointed turning connection between the reaches and the lower end of the rod directly in line therewith, substantially as described.

3. In combination in a bicycle, a spring-supported rod, reaches connected thereto having forked ends pivotally connected to the rear axle, said axle being adjustable longitudinally of the forked ends within the same, substantially as described.

4. In combination in a bicycle, the rear axle, the sleeves carried by said axle adapted to have free turning movement, the reaches connected to said rod having forked ends fitted on said sleeves, said sleeves being flattened to prevent them from turning within said forks, and means for clamping said forks rigidly to said sleeves, substantially as described.

602,355. PENCIL. WILLIAM PAINTER, Baltimore, Md.
Filed Jan. 19, 1894. Serial No. 497,494. (No model.)



Claim.—1. A marking-point carrier or magazine for use in pencil-cases, provided with sockets having a yielding wall adapted to frictionally engage with marking-points for securely holding the same, and adapted as a whole to be inserted in and removed from a pencil-case substantially as described.

2. The combination with a suitable pencil-case having a suitable marking-point tip, of a readily-detachable magazine within the case provided with grooves or sockets having a yielding wall adapted to frictionally hold and control a reserve marking-point, substantially as and for the purposes specified.

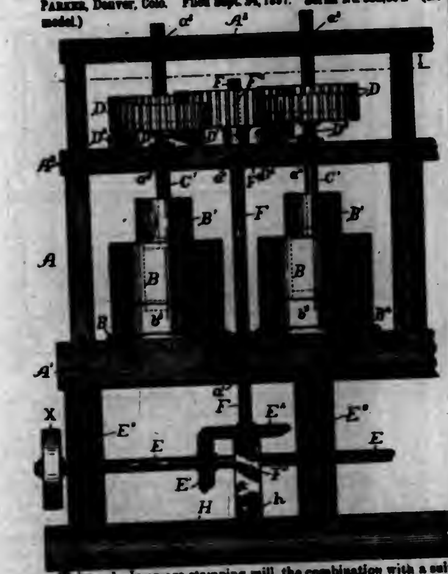
3. A marking point magazine or carrier for use in pencil cases, provided with longitudinal sockets or grooves having yielding or resilient sides, substantially as described, whereby marking-points may be held and maintained in said grooves under yielding pressure, as and for the purposes specified.

4. The combination substantially as hereinbefore described, of a suitable pencil-case, of a slidably-detachable interior stem provided with sockets serving as parts of a magazine for marking-points, each socket having a yielding wall adapted to frictionally hold and maintain control over a reserved marking-point, substantially as and for the purposes specified.

5. The combination with a pencil-case provided with a suitable tip, of an interior stem slidingly adjustable within the case and separable therefrom and provided with an end or piston which serves to keep a detachable marking-point socketed within the tip, substantially as described.

6. The combination substantially as hereinbefore described, of a suitable pencil-case provided with an internally-tapered tip, and an interior stem carrying one or more magazines embodying frictional sockets for the reception and control of tapered leads or other marking-points, and provided at its inner end with a piston which serves to keep the service marking point socketed within the tip, substantially as and for the purposes specified.

602,356. ORE STAMPING AND CRUSHING MILL. EDWARD F. PARKER, Denver, Colo.
Filed Sept. 24, 1897. Serial No. 652,894. (No model.)



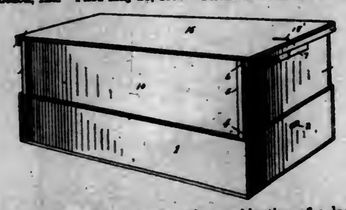
Claim.—1. In an ore-stamping mill, the combination with a suitable frame; a horizontal shaft journaled in said frame, and a pulley fixed thereon; a bevel-gear fixed on said shaft; a vertical shaft journaled in said frame; a bevel-gear fixed on said vertical shaft and meshing with the bevel-gear on said horizontal shaft; and a wide-faced cog-wheel also fixed upon said vertical shaft; of a plurality of vertical shafts journaled in said frame around said vertical shaft, and capable of vertical movement; cog-wheels fixed upon said vertically-movable shafts, and each having a cam on its under side; rollers mounted upon said frame beneath said cog-wheels and adapted to be struck by said cams as the wheels rotate; a plurality of shells for holding the ore while being stamped mounted in said frame, and plunger-heads connected to said vertically-movable shafts mounted in said shells, substantially as described.

2. In an ore-stamping mill, the combination with a vertical shaft and means for rotating the same; a wide-faced cog-wheel fixed on said vertical shaft and having a rotation constantly in the same horizontal plane; of a plurality of shells grouped around said vertical shaft; plunger-heads mounted in said shells; vertical shafts having screw-threaded ends engaging in said plunger-heads and working through openings in said shells; cog-wheels mounted upon said vertical shafts and meshing with said wide-faced cog-wheel; rollers journaled in brackets mounted upon the frame of the mill beneath the cog-wheels on said plunger-shafts; and cams D' on the under side of said wheels adapted to slide over said rollers as said wheels rotate, and to impart to said plunger-shafts a vertical movement in addition to the rotary movement imparted by the said wide-faced cog-wheel, substantially as described.

3. In an ore-stamping mill, the combination with a horizontal shaft, and means for rotating the same; a bevel-gear on said shaft; a vertical shaft, a bevel-gear fixed on said vertical shaft and gearing with the bevel-gear on said horizontal shaft; the wide-faced cog-wheel F^2 fixed on said vertical shaft and adapted to rotate constantly in the same horizontal plane; a plurality of shells grouped around said vertical shaft; plunger-heads mounted in said shells; vertical shafts having screw-threaded ends engaging in said plunger-heads and working through openings in said shells; cog-wheels mounted upon said vertical shafts and meshing with the cog-wheel F^2; rollers journaled in brackets mounted upon the frame of the mill beneath the cog-wheels upon said plunger-shafts; and cams D' on the under side of said wheels adapted to slide over said rollers as said wheels rotate, and to impart to said plunger-shafts a vertical movement in addition to the rotary movement imparted by the cog-wheel F^2, substantially as described.

4. In an ore-stamping mill, the combination with a suitable frame; a horizontal shaft journaled in said frame, and a pulley fixed thereon; a bevel-gear fixed in said horizontal shaft; a vertical shaft also journaled in said frame; a bevel-gear fixed on said vertical shaft and meshing with the bevel-gear on said horizontal shaft; and a wide-faced cog-wheel F^2 rigidly mounted upon said vertical shaft; a plurality of hollow shells B each having reduced cylindrical upper portions B' with central opening b^2 therein, mounted upon a solid metallic base B^2 seated upon said frame; a die seated in a recess in the upper face of said base B^2; a funnel-shaped wire-netting in each of said shells surrounding said die at its lower edge and adapted to receive the uncrushed ore at its top through an opening in the larger portion of said shell; a solid plunger-head provided with a hardened shoe at its lower end mounted in each of said shells; a vertical shaft having a screw-threaded end engaging in each of said plunger-heads; a cog-wheel fixed upon each of said shafts and meshing with said cog-wheel F^2; a roller journaled in a bracket mounted upon the frame beneath each of said cog-wheels; and a cam on the under side of each of said cog-wheels adapted to slide over said rollers, and impart to said shafts a vertical movement, substantially as described.

602,357. COLLAPSIBLE SHIPPING-CRATE. WILLIS O. PARKER, Leach, Ind.
Filed May 28, 1897. Serial No. 638,583. (No model.)



Claim.—In a shipping-crate, the combination of a lower body portion, detachable side and end pieces, the said end pieces having openings, staples and outer strips forming guides, and the sides provided with pins to engage the said openings, pairs of staples located on the inner portion of the said sides, a removable partition adapted to engage the said pairs of staples, and a removable lid or cover, substantially as and for the purposes specified.

602,358. GAME-BOARD. WILLIAM H. PERRY, Hamilton, Canada.
Filed July 15, 1897. Serial No. 644,603. (No model.)

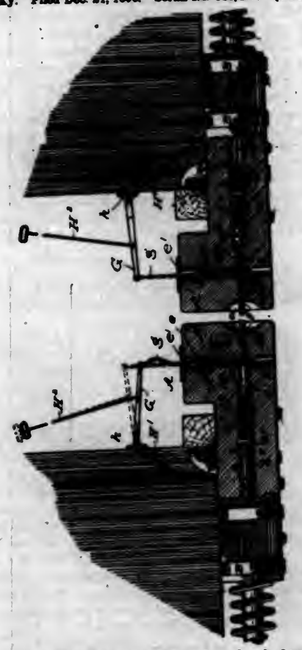
Claim.—1. A game-board having side and end rails, a series of holes located adjacent to an end rail, a triangular block at the center of said rail and projecting inwardly therefrom, and triangular blocks located in front of the holes and slightly separated, substantially as specified.

2. A game-board having side and end rails and a series of holes adjacent to one of the end rails, a triangular block extending inward from the end rail, triangular blocks located in front of the holes, and slightly separated, and rails or strips extending inwardly from the side rails and forming receptacles or pockets for the reception of balls designed to be employed in connection with the game-board, substantially as specified.

3. A game-board having side and end rails and a series of holes adjacent to one of the end rails, a transverse strip forming the bottom of the holes and having characters imprinted thereon, a triangular block extending inwardly from the end rail, triangular blocks located in front of the series of holes, and slightly separated, and rails extending inwardly from the side rails and forming receptacles or pockets for the balls, designed to be employed in connection with the game-board.



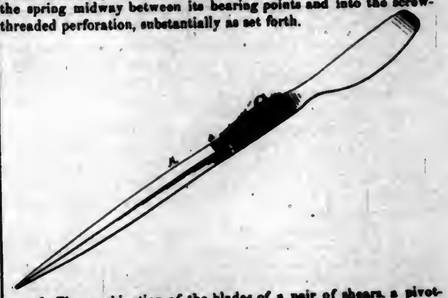
602,359. CAR-COUPLING. WILLIAM C. PERKINS, Rocky Hill Station, Ky. Filed Dec. 21, 1896. Serial No. 616,477. (No model.)



Claim.—A car-coupling comprising a draw-head of two sections divided horizontally and longitudinally, a groove in the meeting sides of each section, a plate secured to the upper section having a depending flange extending into the recess formed by the sections, a propeller-block located in the recess having a stem projecting through the depending flange, a spring encircling the stem and interposed between the flanges and the propeller-block, a vertical orifice in the draw-head, and a pin housed in the orifice, substantially as described.

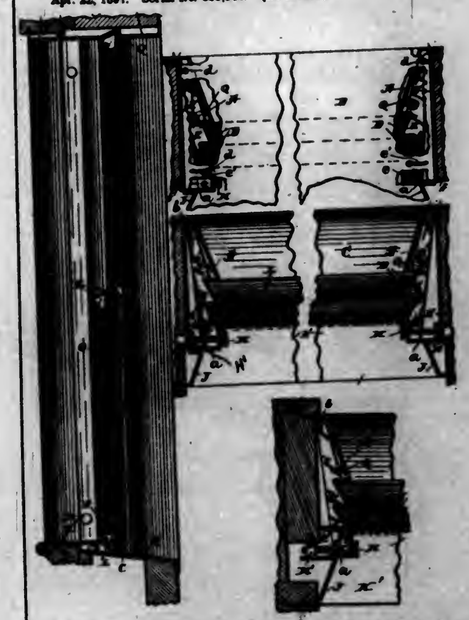
602,360. SHEARS. ANTON PROHASKA, Philadelphia, Pa. Filed Dec. 31, 1896. Serial No. 617,696. (No model.)

Claim.—1. The combination of the shear-blades, a pivot therefor, one of said blades having two perforations back of the pivot, one perforation being plain and the other screw-threaded, a block resting in the plain perforation and bearing upon the other blade, a spring-plate resting upon the block and upon the perforated blade back of the screw-threaded perforation, and a regulating-screw passing through the spring midway between its bearing points and into the screw-threaded perforation, substantially as set forth.



2. The combination of the blades of a pair of shears, a pivot-screw therefor, one of the blades being perforated back of the pivot, a bearing-block mounted in said perforation and resting upon the other blade, a spring-plate, a confining-screw therefor, said spring-plate resting upon the bearing-block and extending to the pivot-screw and engaging it so as to prevent it from turning, substantially as described.

602,361. WINDOW. BENJAMIN F. RICHARDS, Chicago, Ill. Filed Apr. 22, 1897. Serial No. 633,387. (No model.)



Claim.—1. An improved window-frame including side members formed of laterally-yielding material, means for securing the entire length of one vertical edge of each side to the building so as to seal the joints between said edges and the building, and devices operatively connected to the free portions of the yieldable frame sides for turning the same on their secured edges, substantially as shown and described.

2. A window-frame having its sides formed of yieldable material, the sides being secured at one edge and adapted to yield in swinging movement at said edge, the other edges of the frame being free, and adjusting means for swinging the sides, in combination with sashes adapted to be removably held in the frame by means of the adjustment, substantially as shown and described.

3. An improved window-frame, including fixed top and bottom members, laterally-adjustable side members arranged therebetween, and an adjustable connection between the sides and the top and bottom members respectively, substantially as shown and described.

4. In a window-frame having laterally-adjustable sides for the purpose of holding the sashes in place, the combination of top, bottom and side members, the side members being arranged between the top and bottom members, the last two members being slotted, screws extended through the slots for securing the sides, and adjusting means, substantially as shown and described.

5. In a window-frame, the combination of slotted top and bottom members, side members arranged between the top and bottom members, transversely-extended bars secured to the sides adjacent their ends, screws extended through the slots of the top and bottom and taking in the bars for adjustably securing the parts together, and adjusting means for the sides, substantially as shown and described.

6. A frame having its sides formed of spring metal or analogous material, in combination with bars fixed behind the sides, and adjusting devices carried by the bars for springing laterally the sides, substantially as shown and described.

7. A frame having its sides formed of spring material, in combination with bars fixed behind the sides, and screws adapted to be adjusted in the bars for springing the sides, substantially as shown and described.

8. A window-frame having its sides adapted to move laterally for removably holding the sashes in the frame, in combination with screws adapted to adjust the sides laterally, substantially as shown and described.

9. A window-frame having its sides adapted to move laterally for removably holding sashes in the window-frame in combination with screws rotatably mounted in the sides, and fixed nuts which the screws engage, substantially as shown and described.

10. A window-frame having the outer edges of its vertical sides formed with laterally-extending flanges, said flanges being adapted to be secured to the building or other structure, the sides having a springing or turning movement on said edges and adapted to removably secure the sashes in the frame, and devices for adjusting the sides laterally, substantially as shown and described.

11. The combination with a window-frame having fixed top and bottom members and laterally-adjustable side members, and a jamb-lining separate from the frame but adapted at its upper and lower ends to unite with the top and bottom members of the frame, the lining having no connection with the frame sides and in no way impeding their lateral movement, substantially as shown and described.

12. The combination with the window-frame having adjustable sides for the purpose described, of a jamb-lining detachably secured to the top and bottom of the frame, substantially as shown and described.

13. The combination with a window-frame, of a jamb-lining independent of but detachably secured to the frame, the bottom of the lining being formed with a projecting lip adapted to extend into the frame and overlap the bottom thereof, substantially as shown and described.

14. The combination of a window-frame having the edge of its top member formed with a vertically-extended flange, and a jamb-lining separate from the frame and having its top member formed with a loop-flange adapted to inclose the frame-top flange, substantially as shown and described.

15. In a window-frame, the combination of vertical side A formed of spring metal and having its longitudinal edges turned laterally, bars E arranged transversely behind the side and at their ends secured to laterally-turned edges thereof, and devices carried by the bars for springing laterally the sides, substantially as shown and described.

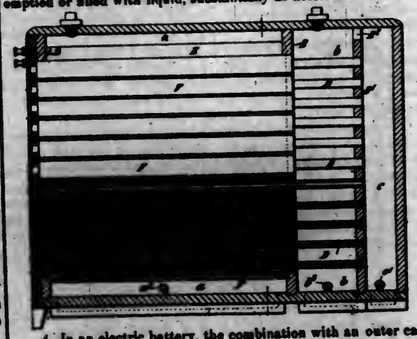
16. In a window-sash, the combination of the rails and stiles each formed of a single piece of sheet metal bent to tubular form with the edges slightly separated or open to admit the glass, and the angle-irons at the corners of the sash over which the rails and stiles fit and against which the glass bears and upon which the same is supported in proper position within the sash, substantially as shown and described.

602,362. GALVANIC BATTERY. WALTER ROWNTREE, Birmingham, England. Filed Dec. 16, 1896. Serial No. 615,986. (No model.)

Claim.—1. In a hermetically-sealed electric battery, the combination of the depolarizing-liquid compartment and the liquid expansion chamber located in juxtaposition to one another within the sealed battery, and tubular carbon elements communicating with said expansion-chamber, substantially as and for the purposes described.

2. In a two-fluid electric battery having a hermetically-sealed outer vessel, the combination with the depolarizing-liquid compartment and the liquid-expansion chamber located in juxtaposition to one another within the sealed vessel, of carbon elements communicating with the depolarizing-liquid compartment, and porous tubes surrounding said carbon elements and opening into the depolarizing-liquid compartment, substantially as described.

3. A two-fluid electric battery having a hermetically-sealed outer casing, a depolarizing liquid compartment and a liquid-expansion chamber arranged beside each other within said casing, an active-liquid compartment, a series of carbon tubes extending horizontally through the metal element compartment and opening into the liquid-expansion chamber, porous tubes surrounding said carbon tubes where they pass through the active-liquid compartment and communicating with the depolarizing-liquid compartment, and a means for enabling each series of the said compartments to be simultaneously emptied or filled with liquid, substantially as described.

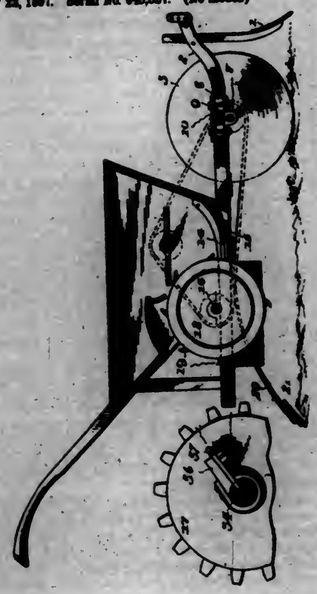


4. In an electric battery, the combination with an outer casing having a plurality of series of cells and passages connecting the bottom of each cell with the bottoms of the contiguous cells of the same series, of loose gravity closing-valves controlling said passages, the arrangement being such that the valves remain closed as long as the level of liquid in a series of the cells remains equal, but which are automatically displaced upwardly so as to open the said passages when the level of the liquid in which the said loose valves are situated falls below that of the liquid in an adjacent cell, substantially as described and for the purpose specified.

602,363. PROCESS OF MAKING FERTILIZERS. WILLIAM R. ROWLANDS, Sancombe, England. Filed Aug. 10, 1897. Serial No. 647,734. (No specimens.)

Claim.—The herein-described process of producing manure, consisting in fermenting waste leather, then mixing it with crude phosphate and finally agitating the mass with the addition of sulfuric acid in quantity sufficient to decompose the phosphate.

602,364. PLANTER. EUGENE M. ROUPE, Marshallville, Ga. Filed July 22, 1897. Serial No. 645,527. (No model.)

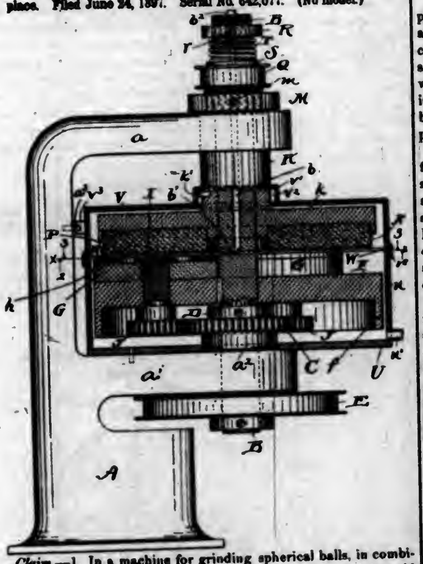


Claim.—1. In a machine such as described, means for throwing the shaft in and out of gear consisting of a recess made in the shaft, a longitudinally-movable bolt attached to the side of the wheel, said wheel being located on the shaft, a spring connected to said bolt and adapted to normally hold the end of the bolt in said recess, a means for securing the bolt in its outer position when the shaft is out of gear.

2. In a planter, a hopper having a suitable dropping device, a wind-board located on each side of said dropping device, a means for attaching said wind-boards to the planter consisting of a hinge fixed at one section to the framework, the other section being free and having protrusions, said wind-board adapted to rest under said free section, the protrusions of the section adapted to enter the wind-board, a device for securing the free end when the wind-board is located thereunder.

3. In a machine such as described a means for throwing the shaft in and out of gear consisting of a recess made in the shaft, a wheel located on said shaft, a perforated guide located on said wheel, a longitudinally-movable bolt located in the perforation of said guide, a set-screw located in said guide and adapted to impinge the said bolt, a spring connected to said bolt and adapted to normally hold the end of the bolt in said recess, the set-screw adapted to impinge the bolt and hold it in its outer position when the shaft is out of gear.

602,365. BALL-GRINDING MACHINE. ROBERT SCHULER and LEON F. SCHULER, Cleveland, Ohio, assignors to Frederick Schulze, same place. Filed June 24, 1897. Serial No. 642,077. (No model.)



Claim.—1. In a machine for grinding spherical balls, in combination, a rotating disk, a plurality of smaller disks carried by said first-mentioned disk and independently rotatable thereon, said smaller disks being adapted to carry balls to be ground, and a grinding-wheel adapted to contact with balls so carried, substantially as described.

2. In a machine for grinding spherical balls, a rotating disk F, a plurality of smaller disks G supported by said disk F and compelled to rotate therewith, means for giving said smaller disks an independent rotation about their own axes, and ball-races H carried by said smaller disks, in combination with a grinding-surface adapted to contact with balls in said races, substantially as described.

3. In a machine for grinding spherical balls, in combination, a disk F, means for rotating the same, a plurality of smaller disks supported by said disk and carried by it and also independently rotatable thereon, means for causing said independent rotation when said disk F rotates, ball-races carried by said smaller disks, a grinding-surface adapted to contact with balls in said races, and means for rotating said surface in the opposite direction to the rotation of the disk F, substantially as described.

4. In a machine for grinding spherical balls, a frame, a shaft B journaled therein, a disk F carried by said shaft B, a plurality of smaller disks carried by said disk F and adapted to carry balls, said smaller disks having axial shafts I journaled in said disk F, a stationary gear C, a gear J on each of said shafts I in mesh with said gear C, in combination with a grinding-surface adapted to contact with balls carried by said disks G, substantially as described.

5. In a machine for grinding spherical balls, in combination, a rotatable disk F, smaller disks G carried thereby, but adapted to rotate on their own axes, ball-races on said disks G, a rotating disk *k* carrying grinding material adapted to contact with balls in said races, the said disk *k* having the capacity for axial movement, and a stop for limiting said movement in the direction toward the ball-races, substantially as described.

6. In a machine for grinding spherical balls, in combination, a frame, a shaft B journaled therein, a disk F secured to said shaft, a plurality of smaller disks carried by said disk F and adapted to rotate about their own axes, ball-races on said smaller disks, a sleeve K surrounding said shaft B and journaled in said frame and capable of longitudinal movement through the same, a disk *k* secured to said sleeve and having a grinding-surface adapted to contact with the balls in said races, and a collar on said sleeve adapted to limit the movement of said disk in the direction toward said races, substantially as described.

7. In a machine for grinding spherical balls, in combination, a plurality of circular ball-races, means for causing the same to revolve about their centers, and means for giving the ball-races as a whole a circular translation, a grinding-ring adapted to contact with balls in said races, the outer corner of said grinding-ring being in contact with the highest point of the outermost balls in said races, and the inner corner being in contact with the highest point of the innermost balls in said races, substantially as described.

8. In a machine for grinding spherical balls, in combination, a plurality of circular ball-races, means for causing the same to revolve about their centers and means for giving the ball-races as a whole a circular translation, a grinding-ring adapted to contact with balls in said races, the outer corner of said grinding-ring being in contact with the highest point of the outermost balls in said races, and the inner corner being in contact with the highest point of the innermost balls in said races, and means for rotating said grinding-ring and for pressing the same against said balls, substantially as described.

9. In a machine for grinding spherical balls, in combination, a frame, a shaft B journaled therein, means carried by said shaft for supporting a plurality of circular ball-races and giving them rotation about their centers, and a circular translation about the axis of said shaft B, a sleeve K journaled in said frame and surrounding said shaft B, and grinding material connected with said sleeve K adapted to contact with balls in said races, means for rotating said sleeve, and a spring compressed between said sleeve, and an adjustable collar R on said shaft B, substantially as described.

10. In a machine for grinding spherical balls, in combination, a frame, a shaft B journaled therein, means carried by said shaft for supporting balls to be ground, a sleeve K surrounding said shaft B and journaled in said frame, a disk secured to said sleeve and carrying grinding material adapted to contact with said balls, said sleeve and grinding material being capable of movement toward or from said balls, a collar on said sleeve limiting its movement toward said balls, a collar R on said shaft B, and a spring T compressed between said collar and said sleeve and thereby pressing the grinding material toward said balls, substantially as described.

11. In a machine for grinding spherical balls, in combination, a frame, a shaft B journaled therein, means for rotating said shaft, a disk F carried by said shaft, a plurality of smaller disks G supported by said disk F and adapted to carry balls, shafts I axially secured to said disks G and journaled in said disk F, a stationary gear O surrounding said shaft B and secured to the frame, gears J secured to said shafts I and meshing with said gear C, a sleeve K journaled in the frame and surrounding the shaft B, a grinding-ring N adapted to contact with balls carried by the disks G, means for securing said grinding-ring to the sleeve K, said sleeve being capable of movement toward or from the balls being ground, a collar on said sleeve limiting its movement toward said balls, and a spring pressing said sleeve toward said balls, substantially as described.

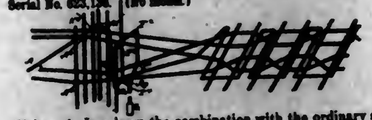
12. In combination, with a machine for grinding spherical balls, having ball rotating and grinding parts, of a casing surrounding said parts, and an entrance-pipe and an exit-pipe communicating with the interior of said casing, substantially as described.

13. In a machine for grinding spherical balls, in combination, a frame, a shaft journaled therein, means carried by said shaft for supporting balls and causing them to travel, a grinding-ring surrounding said shaft and adapted to contact with balls so carried, there being a tubular hole in said shaft having its exit near the balls so carried, a pipe or tube connected with said tubular hole, a casing surrounding said ball-supporting parts and said grinding-ring, and a tube or pipe communicating with the interior thereof, substantially as described.

14. In a machine for grinding spherical balls, in combination, a frame, a shaft B journaled therein, means carried by said shaft for supporting a plurality of circular ball-races, a grinding-ring surrounding said shaft and adapted to contact with balls in said races, a two-part stationary casing inclosing said ball rotating and grinding parts, said casing being separable upon a line near said ball-races, a tubular hole in said shaft B having its exit near said ball-races, a pipe or tube connected with said hole, and a pipe or tube connected with said casing, substantially as described.

15. In a ball-grinding machine, in combination, a frame, a shaft B journaled therein, ball-rotating mechanism carried by said shaft, one part of a stationary casing surrounding said ball-rotating mechanism and supported by said frame, a grinding-ring surrounding said shaft B and adapted to contact with balls carried by the ball-rotating mechanism and capable of movement toward and from said balls, a second part of said casing surrounding said ball-grinding ring and engaging with said first part, means for preventing the rotation of said second part and means whereby movement of said grinding-ring and its attached parts from said balls may compel said second part to move with them and thereby separate the two parts of the casing, and an entrance and an exit to said casing for allowing an in-and-out passage of fluid, substantially as described.

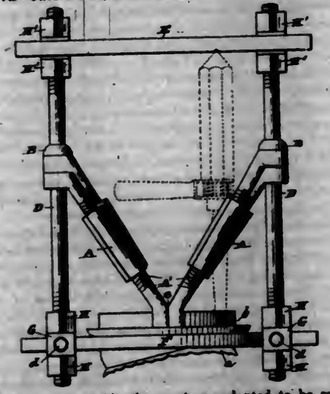
602,366. SELVAGE-WEAVING DEVICE FOR LOOMS. JOHANN K. SCHUMACHER, Wermelskirchen, Germany. Filed Feb. 12, 1897. Serial No. 623,136. (No model.)



Claim.—1. In a loom the combination with the ordinary shafts, carrying the warp-threads, of a dupe-shaft having a heddle longer than the distance of the bars of said shaft from each other, said heddle adapted to be held taut by a weight and surrounding a number of warp-threads and carrying a binding-thread in its eye to and fro around said warp-threads to form a true selvage when bound in by the wefts, substantially as described.

2. In a loom, the combination with the ordinary shafts, carrying the warp-threads, of a dupe-shaft having a heddle longer than the distance of the bars of said shaft from each other, provided with a weight adapted to glide on it freely, said heddle surrounding a number of warp-threads and carrying a binding-thread in its eye, an auxiliary heddle in one of the ordinary shafts through which the binding-thread is led and adapted to be carried with it to and fro and around said warp-threads and to form a true selvage when bound in by the wefts, substantially as described.

602,367. BRACE-HOLDER. STEPHEN SHANAHAN, Charleston, W. Va. Filed Dec. 30, 1897. Serial No. 664,531. (No model.)

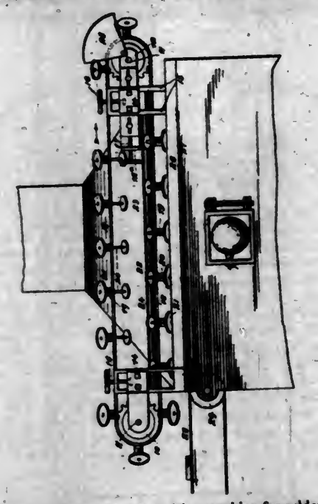


Claim.—1. In combination, a clamp adapted to be secured to the head of a valve or service box, a frame supported by said clamp, and braces carried by the frame and engaging the upper end of the valve or service box, substantially as described.

2. In combination, a clamp adapted to be secured to a valve or service box, a frame supported by said clamp, braces extending from said frame to the edge of the box, said braces being adjustable, and stops for limiting the upward movement of the braces, substantially as described.

3. In combination, a clamp adapted to be secured to a valve or service box, uprights or standards supported by the clamp, a cross-piece connected with the upper end of the standards and braces between the standards and the upper edge of the box, substantially as described.

602,368. SOLDERING-MACHINE. BERTRAND H. BROOT, Vancouver, Canada. Filed June 1, 1897. Serial No. 638,018. (No model.)



Claim.—1. In combination with a machine for soldering cans of uneven radii, having a solder-trough arranged longitudinally above a furnace and beneath a runway for cans, and sprocket-belt wheels adjustably arranged above and at either end of the said runway, shackle-links arranged at intervals upon a sprocket-belt taking round the said wheels, spindles 20 arranged to loosely journal in apertures fixed at an angle in said links 19, of self-adjusting can-receptacles 21 arranged on the depending ends of the spindles 20, and pinions 22 rigidly fixed near the opposite ends of the spindles and made to engage a fixed rack in their track, substantially as set forth.

2. In an apparatus for soldering cans of uneven radii, by means of rolling movement over a receptacle of heated solder, the combination of standards 15 having adjustable frames arranged thereon, said frames carrying wheels 10 having a sprocket-belt passing thereabout, shackle-links 19 inserted at regular intervals in said belt, the projecting portions of said links being turned laterally, of pinions or shafts passing through apertures therein, which apertures are at angles of approximately twenty degrees to the plane of the sprocket-belt, of can-receiving sockets 21 adjustably arranged on the ends of the shafts or spindles 20, of means for controlling said spindles from lateral movement and means for imparting rotary motion to the same while passing over a solder-trough, whereby the can-receptacles will be rolled along a common runway, as set forth.

3. In an apparatus for can-soldering, having wheels arranged at either side and a sprocket belt or chain passing over a common runway, spindles arranged along said chain, the same being provided with can-receptacles on their depending ends which receptacles are self-adjusting as to radius, pinions 22 rigidly fixed near the opposite ends of the said spindles, a rack 23 engaging the pinions in their lower path, a guide-rod 24 made to engage the upper portions of the projecting ends of the spindles 20 in proximity to the pinions, while engaging the rack 23, substantially as set forth.

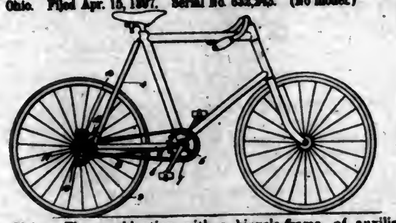
4. In a machine for soldering cans having sprocket belt-wheels and a belt taking round the same, and can-conveyers arranged at intervals along said belt, the combination of spindles passing through apertures therein, of can-receptacles adjustably arranged on the ends thereof and means for revolving the same at a uniform speed, as set forth.

5. In a machine for soldering cans, can-receptacles 21, spider-castings 21ª suitably secured thereto, the same having slots therein, spindles 20 having flat shanks passing through the said slots and collars arranged on either side of the said castings, and means for passing the said can-receptacles over a common runway by a rolling movement, substantially as and for the purposes set forth.

6. In a can-soldering machine having belt-wheels arranged at either side of a fixed trough, a frame adjustably arranged and made to support one of the belt-wheels, a sprocket-belt having can-conveyers thereon and having a fixed angle to the line of the said wheels,

a hood or guide 25 secured to the branches of the frame 12, the same being made to engage and prevent cans from being detached from the conveyer while taking round the arc of the wheel 10, as and for the purposes hereinbefore set forth.

602,869. BICYCLE-FRAME. AMOS B. SIMONDS, Youngstown, Ohio. Filed Apr. 15, 1897. Serial No. 632,243. (No model.)



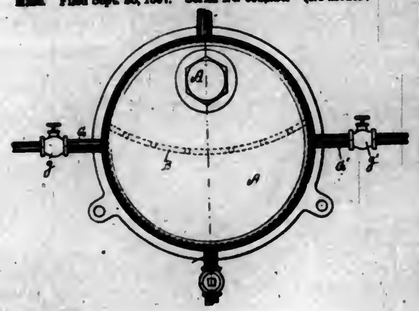
Claim.—The combination with a bicycle-frame, of auxiliary frames each having a curved guideway, a forwardly-projecting lug on each auxiliary frame by which it is attached to the back stay and the rear fork of the frame, forwardly-projecting lugs located respectively above and below the first-mentioned lug, braces attached to said lugs and connected with the main frame of the bicycle, a block fitted to slide in the curved guideway of each auxiliary frame, each block being formed at its ends with recesses capable of receiving portions of the auxiliary frame as the block slides therein, cushions mounted within the said recesses and adapted to engage with the corresponding portions of the frame, a stud attached to the upper portion of each block at the outer side, studs located at the lower outer portion of each auxiliary frame, an elastic band passing around the said studs and a wheel having the ends of its axle fitted in openings formed in the said blocks, substantially as described.

602,870. GARDEN-TOOL. LIZZIE B. SMITH, Belle Plain, Iowa. Filed Aug. 27, 1897. Serial No. 649,716. (No model.)



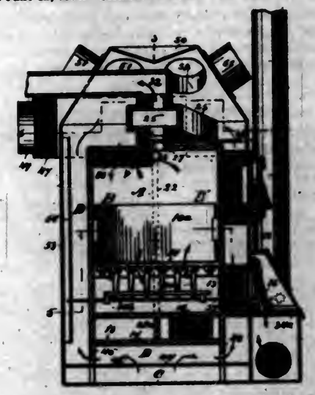
Claim.—A garden-tool having a handle, a head provided with a shank fitted to the handle, the head being flattened and provided with locking-teeth on its upper face adjacent to its upper edge, the head being also provided with two locking-pins projecting from its upper face, a clamping-plate having a recess at its inner end, the recess receiving a portion of the shank of the head, the clamping-plate also having two orifices respectively receiving the locking-pins of the head, a bolt passed between the head and clamping-plate to hold the two rigidly together, and a tool proper having two holes respectively receiving the locking-pins and having a shank portion provided with teeth coacting with the teeth of the head, such shank portion being pressed firmly between the head and clamping-plate.

602,871. HYDRAULIC LUBRICATOR. JOHN E. SPENCER, Salem, Mass. Filed Sept. 30, 1897. Serial No. 653,223. (No model.)



Claim.—The herein-described lubricator for hydraulic motors consisting of a hollow shell or casing having within the same a perforated diaphragm adapted to support a lubricant and dividing the interior of the casing into two compartments, the compartment below the diaphragm affording a sediment-chamber, one or more water-inlet pipes leading into the upper part of said sediment-chamber, a blow-off pipe leading from the bottom of the same, a water-delivery pipe leading from the top of the compartment above the diaphragm, a filling-orifice formed in the casing and a closing device therefor, substantially as described.

602,872. FURNACE. EMORY R. STARR, Bowling Green, Ohio. Filed June 12, 1897. Serial No. 640,489. (No model.)



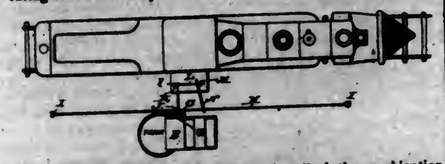
Claim.—1. In a furnace, the combination, with a fire-pot, and an air-supply for the fire connected with the said fire-pot near the bottom, of a casing surrounding the fire-pot, forming vertical and horizontal combustion conducting flues, each vertical flue having direct communication with the fire-pot near its upper portion, and each combustion-flue being provided with an outlet, exit-flues connected with the outlets of the combustion-flues, the exit-flues having a branch connected with the upper portion of the fire-pot, an offtake-flue connected with the exit-flues, and a damper located in the branch of the exit-flues between the said flues and the fire-pot, substantially as described.

2. In a furnace, the combination, with a fire-pot, an air-supply connected with the fire-pot beneath its grate, a casing for the fire-pot, forming upright and horizontally-connected flues for the products of combustion, the upright flues being provided with direct communication at their upper portions with the fire-pot, and being also provided at their tops with outlets, and a partition dividing the said upright and horizontal flues into two separate compartments, of a main outlet for the products of combustion, branch pipes connected with the said main outlet and with the outlets of the vertical sections of the combustion-flues at the sides of the fire-pot, a connection between the branch pipes and the interior of the fire pot at the top, a dome above the fire-pot, a flue for the air to be heated surrounding the fire-pot and its casing, and a fresh-air inlet connecting with the bottom portion of the air-heating flues, substantially as described.

3. In a furnace, the combination, with a fire-pot, an air-supply for the fire pot, fire-plates removably attached to the fire-pot, combustion-flues at the sides of the fire-pot, being in communication therewith, an offtake for the products of combustion, branch pipes from the offtake connected with the said combustion-flues, and a branch connection between the branch pipes and the fire-pot, of a casing surrounding the fire-pot, provided with outer box air-inlet flues, inner flues located between the box-flues and the fire-pot, also adapted to conduct air to be heated, bottom air-flues in connection with each other, one bottom flue being connected with the box-flues and the other with the inner air-flues, a dome located over the fire-box, receiving the heated air from the inner flues, and means, substantially as described, for introducing cold air into the said box-flues and permitting an egress of the heated air from the dome, as described.

602,873. WATER-TANK. WILLIAM M. STEVENSON and WILLIAM K. BAILEY, Honey Grove, Tex. Filed June 16, 1897. Serial No. 641,016. (No model.)

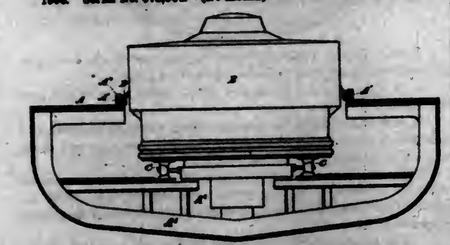
Claim.—1. An apparatus substantially as described comprising the pumping devices, the guide-line alongside the same, the posts at the ends of said guide-line, the pumping-cable having a ring sliding on the guide-wire and a second ring for connection with the locomotive, the locomotive having a bar for securing said second ring such bar being pivoted at one end, a pivoted link by which to secure the other end of the bar and a lever pivoted to the locomotive and arranged at one end to engage the posts at the end of the guide-line and at its other end to trip the link from engagement with the securing-bar substantially as described.



2. In an apparatus substantially as described, the combination with the locomotive of a cable-securing bar pivoted at one end and bent between its ends into hook shape forming a seat for the cable-ring, a link for securing the other end of said bar and a tripper for releasing said link substantially as described.

3. The combination with the locomotive and the pumping-cable having a ring, of the securing-bar on which the said ring is loosely fitted said bar being pivoted at one end, a latch for securing the opposite end of the bar, and a tripper for releasing said latch substantially as described.

602,874. TURRET-JOINT FOR NAVAL VESSELS. WILLIAM D. SEVERS, Jersey City, N. J. Filed June 4, 1896. Renewed Mar. 15, 1898. Serial No. 673,961. (No model.)



Claim.—1. In a war vessel having a turret arranged to turn horizontally, a diaphragm extending across the otherwise open space between it and the deck and held loosely between horizontal faces above and below on one of the parts so that such diaphragm bridges the space and is securely defended against displacement downward or upward, while allowing both a revolving and a bodily horizontal movement and maintaining a water-tight joint, as herein specified.

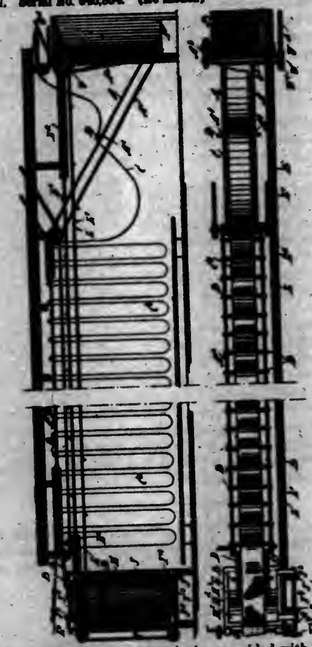
2. In a war vessel having a turret arranged to turn horizontally, a diaphragm extending across the otherwise open space between it and the deck and held loosely between horizontal faces above and below on one of the parts so that such diaphragm bridges the space and is securely defended against displacement downward or upward, which allows both a revolving and a bodily horizontal movement, with provisions for the parts to also yield vertically, all combined and arranged for joint operation, and maintaining a water-tight joint, substantially as herein specified.

3. In a war vessel having a turret arranged to turn horizontally, an annular diaphragm comprising a body D of rubber or analogous elastic waterproof material, and a metal shoe E fixed on the edge thereof and having its upper and lower faces plane and parallel, in combination with rigid parts A^4, A^5, fitting loosely to such faces both above and below, all arranged to serve substantially as herein specified.

4. In a war vessel having a turret arranged to turn horizontally, a series of segments M and bolts N, properly formed to fit together and apply around and tightly embrace the turret so as to hold reliably, and a diaphragm D connecting such segments with the deck of the ship and maintain a water-tight joint with liberty for the turret to turn and to move bodily, all substantially as herein specified.

5. In a war vessel, having a turret arranged to turn horizontally, an annular diaphragm comprising a body D of rubber or analogous elastic waterproof material made in segments firmly united, one edge of such diaphragm being faced above and below and received loosely between parallel annular parts so that the turret may revolve and be moved bodily horizontally by the sliding of such parts, and that liberty is afforded by the elasticity of the diaphragm for vertical movements relatively to each other and a water-tight joint be maintained, all substantially as herein specified.

602,875. LATH-CARRYING DEVICE FOR WALL-PAPER OR OTHER MACHINES. JOHN H. SNYDAM, Sr., New Brunswick, N. J., assignor of one-half to Irving B. Brown, same place. Filed June 15, 1897. Serial No. 640,834. (No model.)



Claim.—1. A lath-carrying device provided with a return lath-carrier, and a turning device arranged to give the sticks a quarter-turn, the said turning device receiving the sticks from the carrier and delivering them to the feed of the sticking-machine, substantially as shown and described.

2. A lath-carrying device provided with a return lath-carrier leading from the discharge end of a sticking-machine to the feed end, and a turning device receiving the sticks from the carrier and delivering them to the feed of the sticking-machine, the said turning device having a carved surface adapted to engage the end of a lath, substantially as shown and described.

3. A lath-carrying device, comprising a lath-receiver at the end of a sticking-machine, for receiving the sticks from the latter, a turning device within the said lath-receiver, for giving a quarter-turn to the sticks, an elevator receiving the turned sticks from the said receiver, a return carrier-chain receiving the sticks from the said elevator, a turning device receiving the sticks from the said carrier, and a feed-hopper receiving the sticks from the said turning device and delivering them to the carrier-chain of the sticking-machine, substantially as shown and described.

4. A lath-carrying device, provided with a lath-receiver at the end of a sticking-machine, the said lath-receiver being provided with a turning device for giving the stick a quarter-turn, substantially as shown and described.

5. A lath-carrying device, provided with a lath-receiver having an incline, and sets of inclined sticks at the lower end of said incline, for giving a lath a quarter-turn, the said sticks discharging the laths upon a delivery device forming part of the said receiver, substantially as shown and described.

6. A lath-carrying device, comprising a lath-receiver having a turning device, an elevator receiving the laths from the said receiver, and a return carrier-chain having lugs, and receiving said laths from the said elevator, substantially as shown and described.

7. A lath carrying device, comprising a lath-receiver having a turning device, an elevator receiving the lath from the said receiver, a return carrier-chain having lugs, and receiving said laths from the said elevator, and a transferring device intermediate of the said chain and elevator, and comprising inclines and guide-rails, substantially as shown and described.

8. A lath-carrying device, provided with a turning device comprising sets of inclined sticks, and stop-pins at the lower ends of the said sticks, substantially as shown and described.

9. A lath-carrying device, provided with a lath-turning device, comprising a carrier-chain having lugs, and a block having a curved edge adapted to engage the outer end of a lath, the other end being pressed on by a lug on the said chain, substantially as shown and described.

10. A lath-carrying device, provided with a lath-turning device, comprising a carrier-chain having lugs, and a block having a curved edge adapted to engage the outer end of a lath, the other end being pressed on by a lug on the said chain, the said block having a step-bottom, with the steps running diagonally, substantially as shown and described.

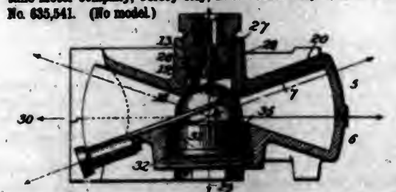
11. A lath-carrying device, provided with a lath-turning device, comprising a carrier-chain having lugs, a block having a curved edge adapted to engage the outer end of a lath, the other end being pressed on by a lug on the said chain, the said block having a step-bottom, with the steps running diagonally, and a roller mounted to revolve opposite the lowermost step, and forming a slot between the two for the lath to pass downward, substantially as shown and described.

12. A lath-carrying device, provided with two return lath-carrying chains traveling in unison, and a turning device at the adjacent ends of the said chains, for turning a lath delivered by one chain and placing the turned lath on the other chain, substantially as shown and described.

13. A lath-carrying device, provided with a lath-carrying chain having lugs, a trough in which travels the upper run of the said chain, and an adjusting device for the lath, and provided with an arm mounted to swing and extending into the said trough above the upper ends of the lugs, substantially as shown and described.

14. A lath-carrying device provided with a lath-receiver at the discharge end of a sticking-machine, the said lath-receiver being provided with a turning device for the sticks, a return lath-carrier, and a turning device, receiving the sticks from the return-carrier, substantially as shown and described.

602,376. MECHANISM FOR CONTROLLING ACTION OF OSCILLATING DISKS. JOHN THOMSON, Brooklyn, N. Y., assignor to the Neptune Meter Company, Jersey City, N. J. Filed May 7, 1897. Serial No. 635,541. (No model.)



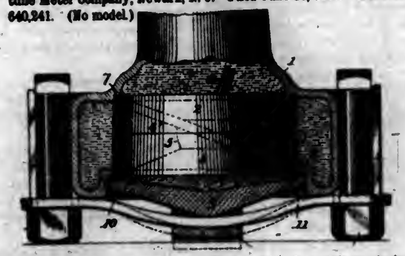
Claim.—1. The combination with the casing, disk and ball, of the thrust-block resting upon the ball, and having its base formed flat and to a right angle to the thrust-resisting surfaces.

2. The combination with the casing, disk, ball and conical thrust-block, of a bearing for said thrust-block capable of adjustment in the direction of the axis of the cone, substantially as set forth.

3. The combination with the casing, disk and ball, of the thrust-block and the adjustable bearing therefor, both of which are adapted to be removed from the exterior of the disk-chamber casing, substantially as described.

4. The combination with the casing, disk and ball, of the vertically-adjustable bearing having its exposed beveled face 35, set beneath the face of the frustum.

602,377. APPARATUS FOR PREVENTING DAMAGE TO WATER-METERS. JOHN THOMSON, Brooklyn, N. Y., assignor to the Neptune Meter Company, Newark, N. J. Filed June 10, 1897. Serial No. 640,241. (No model.)



Claim.—1. In a water-meter, the combination with a closing-head, of resilient means for holding the head in position.

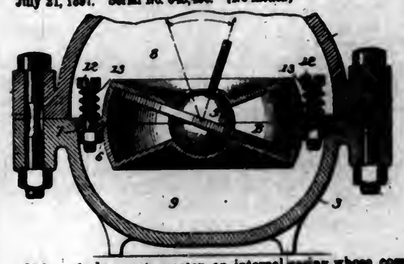
2. In a water-meter, the combination with the main casing, the disk-casing and the head, of a resilient clamp arranged to bear upon the head and maintain it in proper position.

3. The combination with the main casing, the disk-casing and the head, of a clamp comprising resilient material secured to the casing and pressing upon the head.

4. The combination with the main casing, the disk-casing and the head, loosely fitting the main casing and bearing against the disk-casing, of a resilient clamp comprising cross-strips secured to the main casing and pressing upon the head, substantially as described.

5. In a disk water-meter, the combination of a main casing, a separable disk-casing, a closing-head bearing against the disk-casing to secure it together and to its seat, and a resilient clamp attached to the main casing and impinging against the head, substantially as described.

602,378. WATER-METER. JOHN THOMSON, Brooklyn, N. Y., assignor to the Neptune Meter Company, Jersey City, N. J. Filed July 21, 1897. Serial No. 645,486. (No model.)



Claim.—1. In a water-meter, an internal casing whose component sections are secured together by resilient means.

2. In a water-meter, an internal casing attached to its seat in a main casing by resilient means.

3. In a water-meter, an internal casing whose component sections are secured together and also attached to a seat, or to a bearing, in a main casing by resilient means.

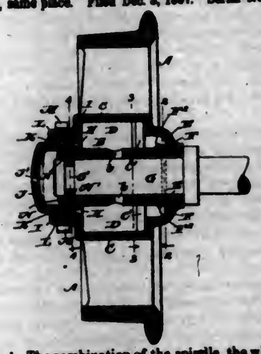
4. The combination with the disk-casing of a screw arranged to secure the sections of the disk-casing together, having a spring interposed between its head and one of the sections of the disk-casing; substantially as specified.

5. The combination with the disk-casing and a section of the main casing, of a screw arranged to secure the disk-casings together and also to a seat, or to a bearing, in the main casing, having a spring interposed between its head and the disk-casing; substantially as specified.

6. In a water-meter, the combination with the main casings, of elongated flange-bolts whose normal diameters are reduced to the form of a curve, in longitudinal section; substantially as described.

7. In a water-meter, the combination with the main casings, of elongated flange-bolts, having definitely-weakened sections, and a sleeve or tube interposed between the flange and the head or nut of the bolt; substantially as described.

602,379. SELF-OILING WHEEL. IVOR B. TITUS and JOHN W. EMMEN, Huntington, W. Va., assignors to the Emmen Manufacturing Company, same place. Filed Dec. 3, 1897. Serial No. 660,895. (No model.)



Claim.—1. The combination of the spindle, the wheel, the check-blocks engaging the spindle and abutting at their ends and having in their outer sides at such ends recesses, the recesses in the meeting ends of the adjacent blocks uniting in forming ports for the oil substantially as shown and described.

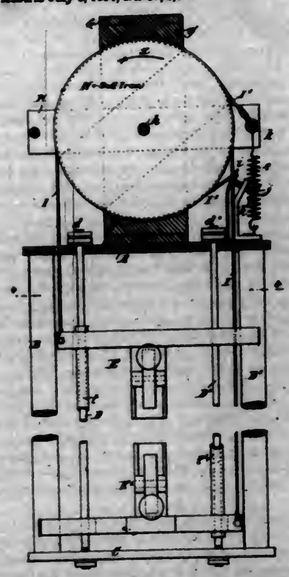
2. The improvement herein described comprising the spindle, the series of blocks engaging the spindle, abutting at their ends and having at their ends recesses forming ports for the oil, and means for securing the blocks in engagement with the spindle substantially as set forth.

3. A wheel having its hub formed with a shell and a journal-tube providing an intermediate oil-receptacle, the shell being extended inwardly beyond the journal-tube, spaced lugs connecting such inner extension of the shell with the inner end of the journal-tube and outwardly-extending arms in the oil-receptacle in advance of the said spaced lugs substantially as set forth.

4. The combination of a spindle having a groove the wheel, the check-blocks having each a wing fitting in the groove of the spindle and a wing which overlaps the end of the spindle and the cap overlapping such blocks at its inner end and secured to the wheel whereby to hold the blocks in place substantially as set forth.

5. A wheel having a journal-tube and a shell the latter being extended at its inner end beyond the inner end of the journal-tube and contracted in advance of said end forming a contracted passage, the spaced lugs connecting the ends of the shell and journal-tube at the inner end of said contracted passage, and the rib in advance of said lugs and operating as a guard whereby to limit the passage of oil to the openings or ports between the spaced lugs substantially as set forth.

602,380. ELECTRIC-ARC LAMP. EDGARD WERER, Paris, France, assignor to Paul Mersch, same place. Filed Sept. 11, 1897. Serial No. 651,361. (No model.) Patented in France Apr. 30, 1897, No. 266,669, and in Austria July 6, 1897, No. 47/3,570.



Claim.—1. In voltaic-arc lamps or regulators, having carbon-holders connected by a cord or small chain, one of which carbon-holders is heavier than the other so as to actuate them, the arrangement of a disk H, around which passes the said cord, of armatures J and J' mounted loose upon the spindle of this disk, and connected with a mechanical brake acting upon the disk and submitted to the action of a spring or of a counterweight, and of an electromagnet F F' arranged in shunt upon the main circuit, and between the polar masses *g* and *g'* of which is arranged the disk H and the armatures J J' above referred to; the object of the said arrangement being, when the voltage increases at the lamp-terminals and the electromagnet receives a proportional quantity of the current, to release the mechanical brake by the attraction of the armatures and to exert a magnetic braking upon the disk, in such a manner that the carbons approach each other slowly, regularly and without jerks, as above specified.

2. In an arc-lamp, the combination of a frame, two carbon-hold-

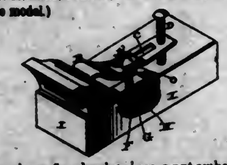
ers slidable thereon toward and from each other, a flexible connection attached to each carbon-holder, a disk over which said connections are wound, a brake-cord for the disk, a non-magnetic frame swinging loose on the axis of the disk and having connection with said brake-cord, an armature in connection with said frame, and an electromagnet with which the armature coacts, the electromagnet being in proximity with the disk, and the disk being magnetic for coaction with the electromagnet.

3. The combination of an electromagnet, a magnetic disk in the field thereof, a brake-strap for the disk, a non-magnetic frame swinging on the axis of the disk and connected with the brake strap, an armature in connection with the frame and coacting with the magnet, two carbon-holders, and connections between said carbon-holders and the disk.

4. The combination of an electromagnet having two pole-pieces arranged one above the other, a magnetic disk located between and in the field of said pole-pieces, a brake-strap for the disk, a non-magnetic frame swinging on the axis of the disk and connected with the brake-strap, a spring actuating said non-magnetic frame, two armatures attached to the frame and located one on each side of the disk and coacting with the pole-pieces, two carbon-holders, and a cord attached to each carbon-holder, the cord being wound oppositely over the disk.

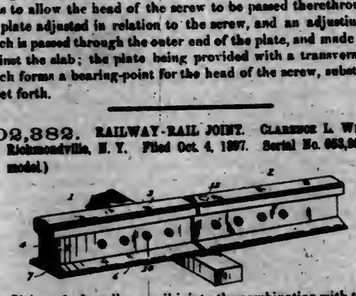
5. The combination with a frame, of an electromagnet, a magnetic disk in the field of said magnet, a brake for the disk, an armature coacting with the magnet and controlling the brake, the magnet serving to retard the revolution of the disk, and a carbon-holder having connection with the disk.

602,381. PLUMBER'S CLAMP. FRANK WHITE, New York, N. Y., and FRANK J. MURPHY, Pomona, Cal. Filed May 7, 1897. Serial No. 635,463. (No model.)



Claim.—In a clamp for plumbers' use, a nut embedded in the lead in the slab, and a headed screw which has its inner end passed down through the nut, combined with the clamping-plate which is slotted so as to allow the head of the screw to be passed therethrough and the plate adjusted in relation to the screw, and an adjusting-screw which is passed through the outer end of the plate, and made to bear against the slab; the plate being provided with a transverse raise, which forms a bearing-point for the head of the screw, substantially as set forth.

602,382. RAILWAY-RAIL JOINT. CLARENCE L. WITHERBEE, Richmondville, N. Y. Filed Oct. 4, 1897. Serial No. 653,957. (No model.)



Claim.—1. In railway-rail joints, the combination with the abutting ends of two adjoining rails hollowed or channeled longitudinally, and having a longitudinal tongue in the wall of said channel, of a bar provided with a longitudinal groove in the side thereof, said bar adapted to fit in said channel, to break joint with said abutting ends and to secure same in their proper relative positions, substantially as set forth.

2. In railway-rail joints, the combination of the abutting ends of two adjoining rails, said rails hollowed or channeled longitudinally in the web thereof, and a bar adapted to fit in said channel, to break joint with the said abutting ends, the said bar notched or serrated in its upper edge and adapted to be moved longitudinally out of engagement with either rail by means of a tool inserted through an orifice in the head of said rail, substantially as set forth.

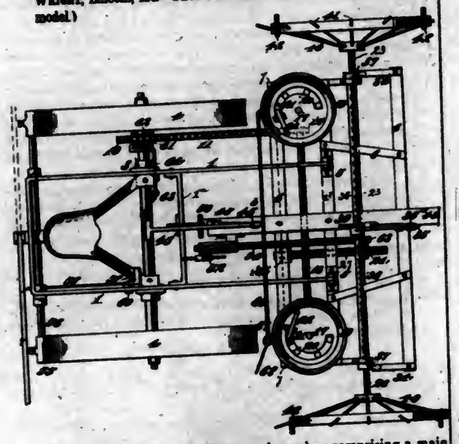
3. In rail joints, the combination with the channeled abutting ends of two adjoining rails, of a locking-bar fitted in the channels of said rails and connecting the same and adapted to be moved out of engagement with either rail by means of a tool inserted through an opening in the head of one of the rails, substantially as described.

4. In a rail-joint, the combination of the abutting ends of two adjoining rails provided with alined channels and locking-tongues, of a locking-bar fitted in the channels of said rails and connecting the

same and provided with a groove to receive said rail-tongues, substantially as described.

5. In railway-rail joints, the combination of the rails having their abutting ends channeled and one or both provided with an opening in the head thereof leading down thereinto, a locking-bar fitted in the said channels and connecting the rails, said bar adapted to be moved out of engagement with either rail by means of a tool inserted through the opening, and a plug adapted to be inserted in said opening to close the same, substantially as described.

602,888. COMBINED PLANTER AND MARKER. JAMES C. WRIGHT, Lincoln, Mo. Filed Oct. 11, 1897. Serial No. 654,757. (No model.)



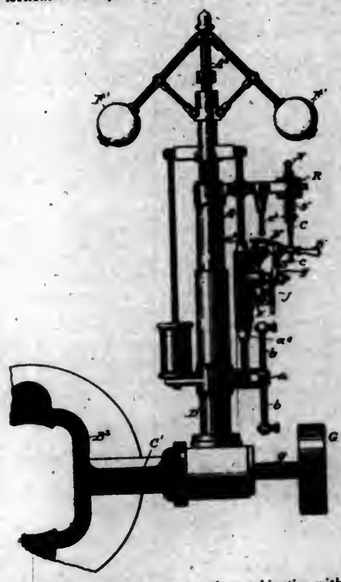
Claim.—1. A combined planter and marker comprising a main frame, an axle mounted in said frame, the supporting drive-wheels fixed to the axle, the second frame pivoted to the forward ends of the main frame, the hopper-plates having exits and mounted on the second frame, the seed-guides beneath the exits, the cam-shaft, having cams fixed thereto and mounted in the seed-guides, the dropping-levers pivoted to the seed-guides and having extensions bearing upon the cams, the marker-wheel shaft supported from the second frame, the furrow openers extending from the seed-guides to the second frame, the marker-wheels fixed to the marker-wheel shaft, means for connecting the hopper-plates with the axle and means for connecting the marker-wheel shaft with the cam-shaft; substantially as described.

2. A combined planter and marker comprising a main frame, an axle mounted in said frame, the supporting drive-wheels fixed to the axle, the second frame pivoted to the forward ends of the main frame, the hopper-plates having exits, the hopper-shaft mounted on the second frame and having bevel-pinions, the toothed circular plates having seed-openings and meshed by the bevel-pinions and rotating on the hopper-plates, the interposed washers, the hoppers secured to the circular plates, and having an outlet to the seed openings, the seed-guides beneath the exits of the hopper-plates, and connection between the axle and the hopper-shaft; substantially as described.

3. A combined planter and marker comprising a main frame, an axle mounted in said frame, the supporting drive-wheels fixed to the axle, the second frame pivoted to the forward ends of the main frame, the hopper-plates having exits and mounted on the second frame, the seed-guides beneath the exits, the cam-shaft having cams fixed thereto and mounted in the seed-guides, the dropping-levers pivoted to the seed-guides and having extensions bearing upon the cams, the marker-wheel shaft, the marker-wheels fixed to the marker-wheel shaft, the upright secured to the second frame, the hand-wheel mounted on the upright, means for connecting the hopper-plates with the axle, connections between the marker-wheel shaft and the cam-shaft, and connection between the hand-wheel and the marker-wheel shaft; substantially as described.

602,884. AUTOMATIC SAFETY STOP DEVICE. JAMES K. WRIGHT, New York, N. Y. Filed Mar. 15, 1898. Serial No. 673,913. (No model.)

Claim.—1. In an automatic safety device, the combination with the governor, of a rod or spindle made in two sections and independently movable with respect to each other, one of which sections is connected with the governor and the other with the valve operating mechanism, means for connecting the two sections together, and mechanism operated by the movement of the governor-balls away from the normal plane to release said connecting means, thereby separating the two sections of the spindle or rod, substantially as described.



2. In an automatic safety device, the combination with the governor, of a rod or spindle made in two sections, and independently movable with respect to each other, one of which sections is connected with the governor and the other with the valve-operating mechanism, means for connecting the two sections together, and mechanism operated by the rising of the governor-balls above the normal plane of operation for maximum speed to release said connecting means, thereby separating the two sections of the spindle or rod, substantially as described.

3. The combination with a divided governor-rod, a shell or casing carried by the upper section thereof, the lower section freely moving within said shell, a clutch-pin normally locking the two sections together, a stop, a connection between said stop and clutch-pin for retracting the pin when the governor-balls rise above the normal plane of operation for the maximum speed, and separating the two sections of the rod, substantially as and for the purpose set forth.

4. The combination of a divided governor-rod, the upper section provided with a shell, and a lower section having an enlarged head working in said shell and provided with a recess or groove therein, a pin slidably mounted on the shell and normally in engagement with the said recess or groove thereby locking the two sections together, a lever fulcrumed on the shell and connected to the pin, a stop adapted to engage one arm of the lever to operate the same and withdraw the pin when the governor rises above the normal plane of operation for the maximum speed, substantially as described.

5. The combination with a governor rod or spindle, having an upper and a lower section movable in respect to each other, a clutch device normally locking the two sections together, means for causing the clutch device to release the sections when the governor-balls move away from the normal planes of operation, and means for preventing the operation of said clutch device as the engine is stopped, when desired.

6. The combination with a governor rod or spindle, having an upper and a lower section movable in respect to each other, means for causing said clutch device to release the sections when the governor-balls move away from the normal planes of operation, and means for preventing the operation of said clutch device upon stopping the engine under ordinary conditions, and means for automatically resetting the device for emergencies, upon starting the engine.

7. The combination with a divided governor-rod consisting of an upper section having a shell or casing, a lower section working freely therein, a spring mounted in the shell and casing and connected with the lower section and normally tending to separate the sections, a clutch for locking the two sections together, a lever having one arm adapted to be connected to said pin, a stop adapted to engage the other arm of said lever when the governor-balls move away from the normal planes of operation, and means for separably connecting the lever and clutch pin so that they may be caused to move together or the pin allowed to remain stationary as the lever is moved.

8. The combination with a divided governor rod or spindle consisting of an upper section and a lower section, a pin for connecting the two together, two stops, and connections between said stops and pin for operating the same, when the governor-balls move away from the normal planes of operation, and means for rendering said connections inoperative when desired to stop the engine under ordinary running conditions.

9. The combination with a divided governor rod or spindle consisting of an upper section and a lower section, a pin for connecting the two together, two stops and connections between said stops and pin for operating the same, when the governor-balls move away from the normal planes of operation, means for rendering said connections inoperative when desired to stop the engine under ordinary conditions, and means for automatically resetting the device upon the starting of the engine.

10. The combination with the governor, and the valve-operating mechanism of the steam-engine, connections between said governor and valve mechanism, of mechanism for releasing said connections when the governor-balls move away from the normal planes of operation, and locking devices interposed between said releasing mechanism and valve connections, whereby said connections may be locked against release, when it is desired to stop the engine under normal conditions.

11. The combination with the governor and the valve-operating mechanism of a steam-engine, connections between said governor and valve mechanism, of mechanism for releasing said connections when the governor-balls move away from the normal planes of operation, a locking device interposed between the releasing mechanism and valve connections, and means for automatically releasing said locking device so as to set the releasing mechanism for action upon the starting of the engine.

12. In an automatic stop device for engines, the combination with the governor, of a divided rod consisting of two sections, one section being connected to the governor and the other section to the valve-operating mechanism of the engine, a clutch-pin for locking the sections together, a sleeve slidably mounted on said pin, a lever having an arm connected to said sleeve, a stop with which said arm is adapted to engage, a locking-pin for locking the sleeve and clutch-pin together, and a catch adapted to engage and hold said pin out of engagement with the clutch-pin, substantially as described.

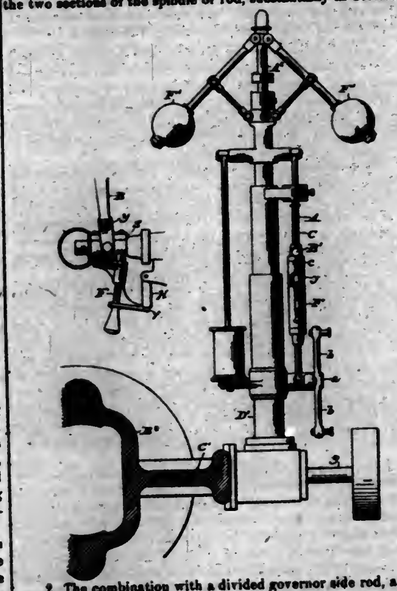
13. In an automatic safety stop device for engines, the combination with the governor, of a rod consisting of two sections, one of said sections being connected with the governor and the other to the valve mechanism, a clutch-pin for locking the two sections together, a sleeve slidably mounted on said clutch-pin, a lever having an arm connected to said sleeve, a stop with which said arm is adapted to engage, a locking-pin for locking the sleeve and clutch-pin together, a catch for holding said locking-pin out of engagement with the clutch-pin, and means for causing the locking-pin to engage the clutch-pin when the engine is started, substantially as and for the purpose set forth.

14. In an automatic safety stop device for engines, the combination with the governor, of a rod consisting of two sections, one of said sections being connected with the governor and the other with the valve mechanism, a clutch-pin for locking the two sections together, a sleeve slidably mounted on said clutch-pin, a lever connected to said sleeve, a spring normally pressing one arm of said lever upward, thereby normally locking the two sections of the rod together, and a stop adapted to engage said arm when the governor-balls rise above the plane of maximum speed, and thereby cause the clutch-pin to release the two sections, substantially as described.

15. In an automatic safety stop device for engines, the combination with the governor, of a rod consisting of two sections, one of said sections being connected with the governor and the other with the valve mechanism, a clutch-pin for locking the two sections together, a sleeve slidably mounted on said pin, a lever having one arm connected with said pin, a spring normally engaging the other arm of said lever and normally causing the clutch-pin to lock the two sections of the rod together, a stop-weight located above said spring-actuated arm, and means for releasing said weight as the rod rises above its normal position, whereby the weight falls upon said arm, substantially as described.

602,885. AUTOMATIC SAFETY-STOP FOR ENGINES. JAMES K. WRIGHT, New York, N. Y. Filed Dec. 3, 1897. Serial No. 660,669. (No model.)

Claim.—1. In an automatic safety device, the combination with the governor, of a rod or spindle made in two sections, and independently movable with respect to each other, one of which sections is connected with the governor and the other with the valve-operating mechanism, means for connecting the two sections together, and mechanism operated by the falling of the governor-balls below the normal plane to release said connecting means, thereby separating the two sections of the spindle or rod, substantially as described.



2. The combination with a divided governor side rod, a shell or casing carried by the upper section thereof, the lower section freely moving within said shell, a clutch-pin normally locking the two sections together, a stationary stop, a connection between said stop and clutch-pin for retracting the pin when the governor-balls fall below the normal plane, and separating the two sections of the rod, substantially as and for the purpose set forth.

3. The combination of a divided governor-rod, the upper section provided with a shell, and a lower section having an enlarged head working in said shell and provided with a recess or groove therein, a pin slidably mounted on the shell and normally in engagement with the said recess or groove, thereby locking the two sections together, a lever fulcrumed on the shell and connected to the pin, a stationary stop adapted to engage one arm of the lever to operate the same and withdraw the pin when the governor falls below the normal plane, substantially as described.

4. The combination with a governor rod or spindle, having an upper and a lower section movable in respect to each other, a clutch device normally locking the two sections together, means for causing the clutch device to release the sections when the governor-balls fall below the normal plane, and means for preventing the operation of said clutch device as the engine is stopped, when desired.

5. The combination with a governor rod or spindle, having an upper and a lower section movable in respect to each other, means for causing said clutch device to release the sections when the governor-balls fall below the normal plane, and means for preventing the operation of said clutch device upon stopping the engine under ordinary conditions, and means for automatically resetting the device for emergencies, upon starting the engine.

6. The combination with a divided governor-rod consisting of an upper section having a shell or casing, a lower section working freely therein, a spring mounted in the shell or casing and connected with the lower section and normally tending to raise the same upward, a clutch for locking the two sections together, a lever having one arm adapted to be connected to said pin, a stop adapted to engage the other arm of said lever when the governor-balls fall below the normal plane, and means for separately connecting the lever and clutch-pin so that they may be caused to move together or the pin allowed to remain stationary as the lever is moved.

7. The combination with a divided governor rod or spindle consisting of an upper section and a lower section, a pin for connecting the two together, a stop and connections between said stop and pin for operating the same when the governor-balls fall below the normal plane, and means for rendering said connections inoperative when desired to stop the engine under ordinary running conditions.

8. The combination with a divided governor rod or spindle consisting of an upper section and a lower section, a pin for connecting the two together, a stop and connections between said stop and pin for

operating the same, when the governor-balls fall below the normal plane, means for rendering said connections inoperative when desired to stop the engine under ordinary conditions, and means for automatically resetting the device upon the starting of the engine.

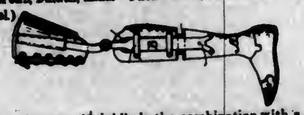
9. The combination with the governor, and the valve-operating mechanism of a steam-engine, connections between said governor and valve mechanism, of mechanism for releasing said connections when the governor becomes inoperative, and locking devices interposed between said releasing mechanism and valve connections, whereby said connections may be locked against release, when it is desired to stop the engine under normal conditions.

10. The combination with the governor and the valve-operating mechanism of a steam-engine, connections between said governor and valve mechanism, of mechanism for releasing said connections when the governor becomes inoperative, a locking device interposed between the releasing mechanism and valve connections, and means for automatically releasing said locking device so as to set the releasing mechanism for action upon the starting of the engine.

11. In an automatic safety stop device for engines, the combination with the valve mechanism and governor, of a rod comprising two sections, one connected to the governor and the other to the valve mechanism, connections between said sections normally securing them together, means for releasing said connections to separate the sections when it is desired to cut off the steam, a stop-rod adapted to engage said releasing mechanism to effect the release of said connections, a magnetic coil around a portion of said rod, and means for closing an electric circuit through said coil to energize the same and draw the rod within the field of force of said coil, substantially as described.

12. In an automatic safety stop device for steam-engines, the combination with the governor and valve mechanism, of a rod comprising two sections, one connected to the governor and the other to the valve mechanism, connections between said sections normally securing them together, means for releasing said connections to separate the sections when it is desired to cut off the steam, a stop-rod having a rope or chain connected thereto at its upper end and adapted to engage said releasing means to effect the release of said connections a magnetic coil around a portion of said rod, and means for closing an electric circuit through said coil.

602,886. **ARTIFICIAL LIMB.** MARTIN B. DOUALDSON and WILLIAM KEMPSH, Duluth, Minn. Filed Oct. 16, 1897. Serial No. 655,412. (No model.)



Claim.—1. In an artificial limb, the combination with a suitable lower supporting portion, of rigid side straps secured to said lower portion, a socket adapted to be suspended between said straps for supporting the stump, the said socket being provided with recesses upon opposite sides for receiving the said side straps, elastic supporting-straps secured to the inner surfaces of the rigid straps and adapted to engage and support the socket between the said rigid straps, whereby the elastic supporting-straps are completely surrounded and protected by the said socket and the said rigid straps, substantially as described.

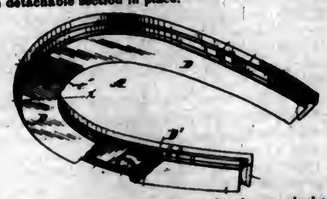
2. In an artificial limb, the combination with a suitable foot portion, of straps mounted thereon, a socket adapted to be supported between the said straps, and having side recesses formed on its outer surface for receiving the said side straps and latches secured to said socket and adapted to bridge the said recesses and extend transversely across the said straps to confine them within the recesses and prevent the buckling of the said straps, substantially as described.

3. In an artificial limb, the combination with a suitable foot-supporting portion, of straps mounted thereon, a movable socket adapted to be suspended between the said straps, elastic supporting-strips interposed between the socket and the straps for supporting said socket between the straps, and pivoted latches secured to said socket and adapted to extend transversely to hold them across the straps in position and prevent their buckling, substantially as described.

4. A socket for an artificial limb, comprising layers of rawhide and leather, caps or abutment-blocks secured to the upper end of the socket, strips of wood secured in place over the leather and abutting against the said caps or abutment-blocks and an outer covering of suitable material, substantially as described.

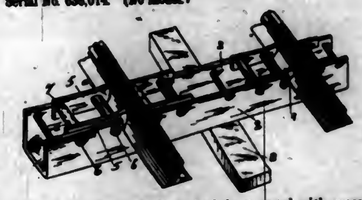
602,887. **CUSHIONED HORSESHOE.** PETER KRUMSIEK, Boston, Mass. Filed Apr. 23, 1897. Renewed Mar. 21, 1898. Serial No. 674,668. (No model.)

Claim.—1. In a horseshoe, a section adapted to be attached to the hoof, a detachable section consisting of a spring and a yielding substance inclosing said spring and adapted to be sprung into place on the attached section, and means on the attached section for holding the detachable section in place.



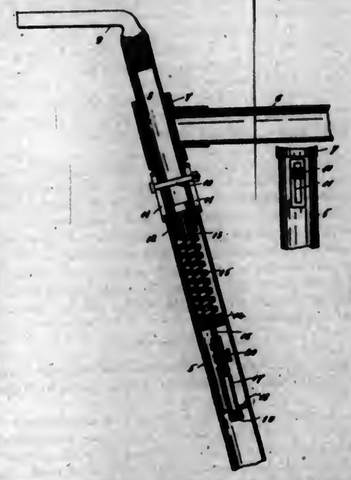
2. In a horseshoe, a section adapted to be attached to the hoof and provided with a recess on its under side, a detachable section consisting of a spring and a yielding substance inclosing said spring and adapted to be sprung into place on the attached section in said recess, and inwardly-turned flanges on the attached section for holding the detachable section in place in said recess.

602,888. **RAILROAD-TIE.** JOHN A. SCHNABEL, Fairman, Ill., assignor to Sarah Mathilda Schnabel, same place. Filed May 11, 1897. Serial No. 636,014. (No model.)



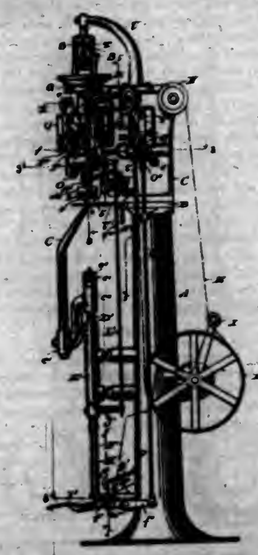
Claim.—A railway-tie formed of sheet metal with recessed, vertical, parallel side flanges integral with the bottom, in combination with through-bolts connecting said side flanges, sleeves on said bolts intermediate said flanges, parallel rail-clamping bars on the through-bolts at the opposite ends of the sleeves and on opposite sides of the rail, intermediate the ends of the sleeves and the side flanges of the tie, and clamped by said sleeves and through-bolts against the side flanges of the tie, and angle-iron chairs having pendent, vertical end flanges secured to the sides of the tie, said chairs extending from one side to the other under the recesses in the side flanges in the tie, substantially as described.

602,889. **SEAT OR SADDLE SUPPORT FOR BICYCLES, &c.** SAMUEL C. WHITLOW, Newburg, N. Y. Filed Feb. 26, 1897. Serial No. 624,955. (No model.)



Claim.—A seat or saddle support for bicycles, comprising the combination with a bicycle-frame of a tubular rod 8 having an arm 9; a bolt 10 mounted in said tubular rod and passing through slots 11 in the tubular rod 5, of the frame; a plug 12 mounted in the tubular rod 8; a shaft 13 adapted to pass therethrough; a head 14, connected therewith; a spring 15 mounted on said shaft; a rod 16 secured to said head; a tube 17 in which the rod 16 is slidably mounted; a set-screw 20 to engage the same; a cross-bar 19 mounted in the tubular rod 5 said tube 17 being provided with a pin 18, substantially as and for the purpose set forth.

602,890. **SHOE-NAILING MACHINE.** ORRELL ASHTON, Lawrence, Mass., assignor to John Ashton and James Derbyshire, same place, and James W. Brooks, principal trustee, Peterboro, and F. F. Stanley, associate trustee, Boston, Mass. Filed May 12, 1897. Serial No. 634,960. (No model.)



Claim.—1. In a shoe-nailing machine, in combination, a spindle, coacting rolls for feeding the wire through the spindle, and means for positively rotating each of said rolls independently of the other.

2. In a shoe-nailing machine, in combination, a spindle, coacting rolls for feeding the wire through the spindle, and a rack-bar for positively rotating each of said rolls independently of the other.

3. In a shoe-nailing machine, in combination, coacting rolls for feeding the wire through the spindle, a pinion connected to each of said feed-rolls, and a rack for positively engaging and rotating both said pinions.

4. In a shoe-nailing machine, in combination, coacting rolls for feeding the wire through the spindle, pinions connected to said feed-rolls, a rack for positively engaging and rotating each of said pinions, independently of the other, and a sleeve on which said rack is mounted.

5. In a shoe-nailing machine, in combination, coacting rolls for feeding the wire through the spindle, a pinion for each roll, pawls carried by said pinions for engaging the rolls and a double-toothed rack arranged between and engaging said pinions to rotate them.

6. In a shoe-nailing machine, the combination of the wire-guide spindle and wire-feed including coacting feed-rolls in connection therewith, a sleeve reciprocating on said spindle, a bar carried by the sleeve to positively operate said feed-rolls independently of each other, and an automatically-adjustable stop arranged to limit reciprocation of said sleeve.

7. In a shoe-nailing machine, the combination of the wire-guide spindle, and wire-feed mechanism in connection therewith, including feed-rolls, a sleeve reciprocative on said spindle, a bar carried by the sleeve to positively operate both feed-rolls of the wire-feed mechanism independently of each other, an automatically-adjustable stop arranged to limit reciprocation of said sleeve and suitable means for putting the aforesaid sleeve out of action without stopping the machine.

8. In a shoe-nailing machine, the combination of the wire-guide spindle having a depending housing provided with a wire-delivery nipple, transverse arbors in the housing, partial pinions and ratchet-sleeves loose on the arbors, pawls carried by the partial pinions and operative in conjunction with the ratchet-sleeves, feed-rolls for the wire fast to said ratchet-sleeves, and a sleeve loose on said spindle and provided with a depending rack-bar in mesh with said partial pinions.

9. In a shoe-nailing machine, the combination of the wire-guide spindle, a sleeve loose on said spindle and provided with means for feeding the wire through the spindle, a spring-controlled stem loose in suitable guides, means connecting the stem and spindle-engaging sleeve, a cam operative in conjunction with the stem, an automatically-adjustable stop arranged to limit reciprocation of said spindle-engaging sleeve in proportion to thickness of material being nailed, and a latch-bar for engagement with the aforesaid stem to hold the latter out of action.

10. In a shoe-nailing machine, the combination of the wire-guide spindle and wire-feed mechanism in connection therewith, a sleeve reciprocative on said spindle, a bar carried by the sleeve to operate in conjunction with the wire-feed mechanism, a lever disconnected from the sleeve and fulcrumed to the machine-head to operate as a stop for limiting the reciprocation of said sleeve, a yielding shoe-horn support, and a link connecting the shoe-horn support with the aforesaid lever.

11. In a shoe-nailing machine, a wire reel comprising heads having their inner sides provided with grooves struck on a circle, and a stationary segmental plate of sheet metal that is normally of greater radius than said grooves but has its edges forced therein, this plate constituting a frictional resistance to prevent turning of said reel except when wire is being drawn therefrom.

12. In a shoe-nailing machine, a pair of spring-controlled pivotal devices each provided with an offset arm having a branch, adjusting means in the arm branch, a clip mounted on said arm, a wire-cutting knife clamped in the clip to abut the adjusting means in said arm, branch, a lever connected with said pivotal devices, and a cam-disk operative to tilt the lever at predetermined intervals.

13. In a shoe-nailing machine, the combination of a pair of spring-controlled pivotal supports for knife-holding clips, a lever connected to said support, a contact-block in connection with said lever, a rotative disk and adjustable cam-lugs extending from the periphery of the disk to operate against said contact-block on the lever and adjustable about a concentric circle inside the periphery of the cam.

14. In a shoe-nailing machine, the combination of a yielding support, a bracket having a sleeve-arm thereon loosely engaging the support, a screw-plug in the upper end of the sleeve-arm at rest on said support to constitute a pivot, a set-nut for the screw-plug and a shoe-supporting horn connected to the bracket.

15. In a shoe-nailing machine, the combination with a wire feed mechanism, a wire-cutting mechanism and a shoe-horn supporting and adjusting mechanism; of a longitudinally-adjustable carrier, a ratchet-wheel mounted on and extended beyond the carrier to impinge a shoe on the horn, an oscillating arm mounted on the carrier and provided with a pawl engaging the ratchet-wheel, a detent for said ratchet-wheel, and means for oscillating said arm, a lever fulcrumed to the machine-head and having universal-joint connection with the link, a spring connecting the lever and machine-head, and a rotative cam exertive against said lever in opposition to the resistance of the spring.

16. In a shoe-nailing machine, the combination with a wire-feed mechanism, a wire-cutting mechanism and a shoe-horn supporting and adjusting mechanism, of a longitudinally-adjustable carrier, a ratchet-wheel loosely mounted on and extended beyond the carrier to impinge a shoe on the horn, an oscillating arm also mounted on the carrier and provided with a pawl engaging the ratchet-wheel, a detent for said ratchet-wheel, a lever fulcrumed to the machine-head and in link connection with the pawl-arm, a spring connecting the lever and machine-head, a rotative cam operative against said lever and resistance of the spring, and a stop in adjustable connection with the aforesaid lever to vary the time of action by the cam, whereby the throw of the pawl-arm is correspondingly regulated.

17. In a shoe-nailing machine, a horn, means for forcing nails into the work and a feeding device for engaging the edge of the sole, comprising an inverted frusto-conical wheel having a toothed periphery, and means for imparting an intermittent rotation to the wheel.

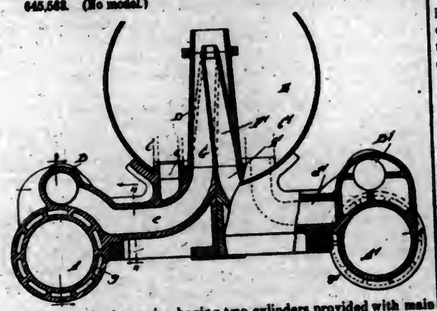
602,891. **COMBINED LAMP BURNER AND WICK.** VICTOR DÜRELER, New York, N. Y., assignor to John Hartjen, same place. Filed June 3, 1897. Serial No. 639,251. (No model.)

Claim.—A wick, consisting of a wick-body, an incombustible tip, a metallic sleeve connecting the body and tip, and a felt filling-piece interposed between the tip and the wick-body and cemented to the same and to the metallic sleeve, substantially as set forth.

602,891.



602,892. STEAM-ENGINE. WILLIAM F. CLEVELAND and ROBERT W. CLEVELAND, Rounthwaite, Canada. Filed July 22, 1897. Serial No. 645,563. (No model.)



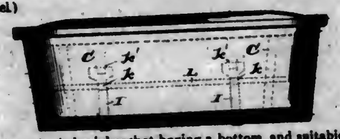
Claim.—1. An engine having two cylinders provided with main or piston exhausts, and auxiliary or valve exhausts, arranged in such a manner that the main exhaust of one cylinder produces a suction on the auxiliary exhaust of the other cylinder, substantially as shown and described.

2. A steam-engine comprising two cylinders provided with main or piston exhausts, a valve-chest for the said cylinders and having auxiliary or valve exhausts arranged relative to the said main or piston exhausts, so that the main exhaust of one cylinder produces a suction on the auxiliary exhaust of the exhaust-chest of the other cylinder, substantially as shown and described.

3. A steam-engine provided with two cylinders having main or piston exhausts, steam-chests for the said cylinders, and provided with auxiliary or valve exhausts, and a blast-pipe having a set of nozzles for the said main or piston exhausts, and a set of nozzles for the said auxiliary or valve exhausts, the nozzles being arranged in such a manner that the nozzle for the main exhaust of one cylinder is within the nozzle for the auxiliary exhaust of the other cylinder, substantially as shown and described.

4. A steam-engine provided with two cylinders having main or piston exhausts, steam-chests for the said cylinders, and provided with auxiliary or valve exhausts, a blast-pipe having a set of nozzles for the said main or piston exhausts, and a set of nozzles for the said auxiliary or valve exhausts, the nozzles being arranged in such a manner that the nozzle for the main exhaust of one cylinder is within the nozzle for the auxiliary exhaust of the other cylinder, and a partition for dividing the nozzle for the main exhaust of one cylinder and the nozzle for the auxiliary exhaust of the other cylinder from the corresponding set of nozzles on the opposite side of the partition, substantially as shown and described.

602,893. COFFIN. JOHN DONAHUE, Knoxville, Tenn., assignor, by direct and mesne assignments, to the Hall & Donahue Coffin Company, of Tennessee. Filed Apr. 8, 1897. Serial No. 631,275. (No model.)



Claim.—1. A burial-casket having a bottom and suitable walls connecting said bottom to an integral wooden top rim formed by shaping a board to conform to the exterior lines of the casket, and having the central portion of the board removed on lines conforming to the desired interior shape of the casket, the cut being in a plane through the board slanting inward, whereby the removed central portion when laid upon the rim portion will completely close the opening therethrough and serve as a cover for the casket, substantially as described.

2. A burial-casket having an integral wooden top rim and a wooden bottom whose external configuration and dimensions conform to the internal configuration and dimensions of the top rim, and walls connecting the rim and bottom, substantially as described.

3. A coffin comprising among its members the bottom, the integral wooden top rim, a metal sheathing surrounding the edges of the bottom and rim and secured thereto, an inner metal lining upon the bottom, and an inner metal lining to the sheathing secured to the upper surface of, and at a point removed from the edge of the bottom and also secured to the rim, substantially as described.

4. A burial-casket having an integral wooden top rim and wooden bottom, sheet-metal sides extending along the outer edge of the rim and the edge of the bottom, and a sheet-metal lining attached to the inner edge of the rim and the upper surface of the bottom at a point removed from the edge thereof, substantially as described.

5. A coffin comprising among its members a bottom, a rim whose internal configuration and dimensions conform to the size and shape of the bottom, whereby they may be formed from the same piece of material, and sheathing surrounding and directly engaging the edges of the bottom and rim, and vertically-disposed braces secured at their upper ends to the rim and at their lower ends to the bottom, said braces lying within said sheathing, substantially as described.

6. A coffin comprising among its members the bottom, the rim whose internal configuration and dimensions conform to the external configuration and dimensions of the bottom, whereby they may be cut from the same piece of material, vertically-disposed braces connected at their lower ends to said bottom, and at their upper ends to the rim, and sheathing surrounding and directly engaging the edges of the bottom and rim and surrounding said braces, a sheathing upon the upper side of the bottom, and a lining extending around the inner faces of the braces, said lining being secured to the bottom sheathing and to the inner edge of the rim, substantially as described.

602,894. NUT-LOCK. BUTLER EGGAR, Sunbury, Pa., assignor to Thomas M. Righter, trustee, Mount Carmel, Pa. Filed June 11, 1897. Renewed Mar. 9, 1898. Serial No. 673,147. (No model.)

Claim.—1. The combination with a threaded bolt or rod, a nut, and a part to be clamped, one of the opposing faces of the nut and clamping part having a tapering tangential groove opening at its larger end at the side of the nut, of a ball adapted to fit in said groove and to bear against the opposing face when the nut is screwed up to said part, and a keeper having a leg entering the larger end of the groove and bearing upon the ball, a spring tending to draw the leg into the groove, and means for connecting the keeper to the nut or part to be clamped, substantially as described.

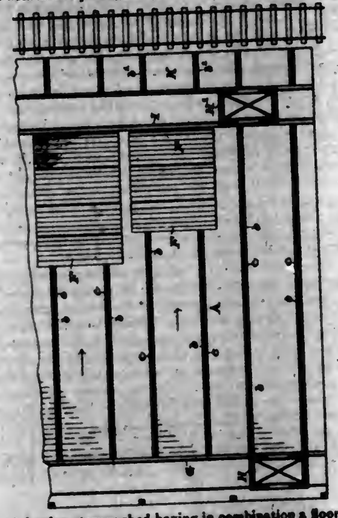
2. The combination with a threaded bolt or rod, a nut, and a part to be clamped, one of the opposing faces of the nut and clamped part having a tapering tangential groove opening at both ends at the sides of the nut, of a ball adapted to fit in the groove and to bear against the opposing face when the nut is screwed up to said part, and a keeper having a leg entering the larger end of the groove, a hook engaging the smaller end of the groove and an intermediate spring, substantially as described.

3. The combination of a threaded bolt or rod, a nut, and a part to be clamped, one of the opposing faces of the nut and clamped part having two tangential grooves inclined and tapered in opposing directions, said grooves opening at their larger ends at the sides of the nut, of balls adapted to fit in said grooves and to bear against the opposing face when the nut is screwed up to said part, whereby said nut is prevented from turning in either direction, substantially as described.

602,895. LUMBER-STORAGE PLANT. VICTOR L. BRUNNER, Baltimore, Md., assignor, by direct and mesne assignments, to the Baltimore Dry Kiln Company of Baltimore City, of Maryland. Filed June 23, 1897. Serial No. 642,617. (No model.)

Claim.—1. The herein-described method of storing lumber in sheds or yards consisting of piling the lumber in stacks or piles on bars which rest on freely-revoluble rollers mounted in bearings located over the floor area of the shed or yard—arranging said piles in compact or close ranks without intervening wagon or car avenues, and said piles being movable bodily.

2. The herein-described method of storing lumber in sheds or yards consisting in piling the lumber in stacks or piles on bars which rest on freely-revoluble rollers practically covering the entire floor area of the shed or yard—said piles being close together and in compact ranks extending from the receiving end to the delivery end of the shed or yard and said piles being movable bodily without handling the boards comprising the pile.



3. A lumber-storage shed having in combination a floor or horizontal support provided with freely-revoluble rollers projecting above its top surface, said rollers being arranged in a plural series of parallel lines, and movable bars which rest upon said rollers and adapted to support and carry lumber piled on said bars.

4. A lumber-storage shed having in combination a floor or support having freely-revoluble rollers projecting above its top surface, said rollers being arranged in a plural series of parallel lines; a crosswise track at the receiving end of said shed; a crosswise track at the delivery end; a transfer-car movable on said crosswise tracks, said car having at its top two series of rollers which revolve freely in a vertical plane at right angles with respect to the car-wheels, and said two series of rollers spaced apart to register with one series of said parallel-line rollers; and movable bars each having on its under side a longitudinal channel to fit on said rollers.

5. In a lumber-storage plant a transfer-truck having a frame mounted on wheels to traverse a rail-track; bars on top of said frame extending crosswise at right angles with respect to the track-wheel; and rollers mounted on said crosswise bars and revolving freely, said rollers serving for channel-bars to support the lumber.

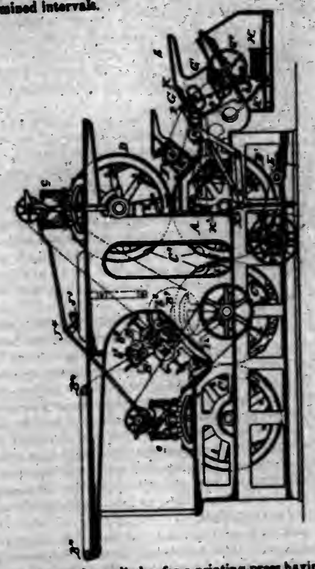
6. A transfer-truck for lumber-stora; e plants having parallel bars at opposite sides; track-wheels mounted between said parallel bars; end parallel bars resting on top of said side bars and crossing them; and freely-revoluble rollers mounted between said end cross-bars.

7. In a lumber storage plant the combination of a shed; freely-revoluble rollers fixed on the floor of said shed; lumber-supporting bars resting on said rollers; a crosswise track at each end of the shed; a longitudinal track at one side of the shed extending between and connecting the said crosswise tracks at the ends; and a car to operate on the longitudinal tracks—said car to transfer trucks with piled lumber on them.

602,896. PERFORATING PRINTING-PRESS. HENRY P. FOSTER, Philadelphia, Pa., assignor to the Foster Printing Company, of Pennsylvania. Filed Aug. 23, 1894. Serial No. 521,060. (No model.)

Claim.—1. Perforating-cylinders for a printing-press, consisting of two shafts, each having adjustably secured thereto at points intermediate of its length radially-adjustable L-shaped bars in which the bars of one of the cylinders is provided with grooves on diametrically opposite sides and the bars of the other cylinder with perforating cutters or blades, and a series of spring-fingers on each of the cylinders arranged upon each side of the grooves and perforating-blades, whereby the paper is held on each side of the line of perforations during the perforating operation and the distance between the perforations is adjustable.

2. An impression-cylinder for a printing-press having a series of impression-surfaces or beds arranged about its periphery, a series of nippers arranged at the forward end of each of the beds, and a series of pivoted adjustable transverse frames also arranged at the forward part of each of the beds and with which the nippers operate, in combination with power devices for operating the nippers at predetermined intervals.



3. An impression-cylinder for a printing-press having a series of impression-surfaces or beds arranged about its periphery, a series of nippers arranged at the forward end of each of the beds, and a series of pivotally-adjustable transverse frames also arranged at the forward part of each of the beds and with which the nippers operate and having pins projecting outwardly upon which the paper sheets are clamped by the nippers, and adjusting devices to adjust the position of the frames holding the said pins whereby all of the nipper-seats and pins are adjusted simultaneously.

4. An impression-cylinder for a printing press having a series of impression-surfaces or beds arranged about its periphery, in combination with a series of nippers arranged at the forward end of each of the beds, a series of laterally-adjustable parts or nipper-seats provided with outwardly-projecting pins with which the nippers operate, pivoted frame holding said nipper-seats and adjusting devices for adjusting the said frames to bring the pins in proper relative position with respect to the beds and nippers.

5. In an impression-cylinder, the combination of nippers arranged at the forward part of the bed or impression-surface thereof, a circumferentially-adjustable frame carried by the impression-cylinder also at the forward part of the bed and a series of laterally-adjustable nipper seats carried by the frame adapted to receive the rear or free end of the nippers.

6. In an impression-cylinder, the combination of nippers arranged at the forward part of the bed or impression-surface thereof, a circumferentially-adjustable frame carried by the impression-cylinder also at the forward part of the bed, a series of laterally-adjustable nipper-seats carried by the frame adapted to receive the rear or free-end of the nippers, pins projecting outward from the said adjustable frame, and adjusting devices for simultaneously adjusting the frame and all of its pins relative to the forward part of the bed.

7. In a perfecting printing-press, the combination of printing and impression cylinders with an assembling device for assembling the printed sheets, delivery devices for delivering the assembled sheets, a folding-machine for folding the assembled sheets delivered to the delivery devices, a frame structure for holding the several parts in fixed relation, and adjusting devices for adjusting the folding device relatively to the delivering devices whereby the line on which the sheets are folded may be varied as desired.

8. In a perfecting printing-press, the combination of printing devices for printing the sheets of paper on both sides, an assembling device for assembling the printed sheets one upon the other, delivery devices for delivering the assembled sheets from the assembling devices to folding devices, folding devices for folding the printed sheets, a frame structure supporting the printing device assembling device

and delivery devices, and means to adjust the frame of the folding devices relatively to the frame of the assembling and delivery devices.

9. A printing-cylinder for a printing-press consisting of a cylinder having a series of parallel circumferential dovetail-shaped or undercut grooves, transverse abutments secured to the surface of the cylinder against which the type-plates are adjusted, intermediate clamping-blocks adapted to the circumferential grooves to clamp the type-forms firmly to the surface of the type-beds of the cylinder, and means to apply pressure simultaneously upon the series of clamping-blocks and press them at the same time toward the transverse abutment whereby the several parts are adjusted simultaneously and held firmly in position.

10. A printing-cylinder for a printing-press consisting of a cylinder having a series of parallel circumferential dovetail-shaped or undercut grooves, transverse abutments secured to the surface of the cylinder against which the type-plates are adjusted, intermediate clamping-blocks adapted to the circumferential grooves to clamp the type-forms firmly to the surface of the type-beds of the cylinder, means to apply pressure upon the clamping-blocks and press them toward the transverse abutment consisting of a pivoted plate having its ends adapted to press upon the clamping-blocks, a shaft provided with cam projections adapted to press upon the clamping-plate at intervals in its length, and a device for adjusting the cam-shaft and locking it in position.

11. In a perfecting printing-press, devices for printing the sheets of paper successively upon both sides, assembling devices for assembling the sheets so printed consisting of a revolving cylinder having a series of projecting pins, a series of nippers working in connection with said pins, a rock-shaft adapted to operate the nippers simultaneously, a cam device to open the nippers at predetermined intervals to receive the sheets and press them upon the pins, cam devices for operating the nippers to remove them from the assembled sheets after a definite number of revolutions have been made, power devices for throwing the last mentioned cam into and out of operative position at specified intervals, and delivery devices for delivering the assembled sheets from the assembling devices after a given number of sheets have been assembled.

12. In a perfecting printing-press, devices for printing the sheets successively upon both sides, assembling device for assembling the sheets so printed consisting of a revolving cylinder having a series of projecting pins and nippers, a rock-shaft adapted to operate the nippers simultaneously, lever and roller devices for rocking the rock-shaft, cam devices operating upon one of the rollers to open the nippers at predetermined intervals to receive the sheets and press them upon the pins, laterally-adjustable cam devices working with the other roller for operating the nippers to remove them from the assembled sheets after a definite number of revolutions have been made, power devices for throwing the last-mentioned cam laterally into and out of operative position at specified intervals, and delivery devices for delivering the assembled sheets from the assembling device after a given number of sheets have been assembled.

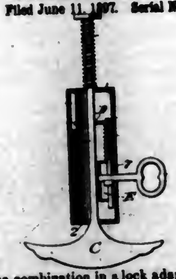
13. In a perfecting printing-press, devices for printing the sheets of paper successively upon both sides, assembling devices for assembling the sheets so printed consisting of a revolving cylinder having a series of projecting pins, a series of nippers working in connection with said pins, a rock-shaft adapted to operate the nippers simultaneously, a cam device to open the nippers at predetermined intervals to receive the sheets and press them upon the pins, cam devices for operating the nippers to remove them from the assembled sheets after a definite number of revolutions have been made, power devices for throwing the last-mentioned cam devices into and out of operative position at specified intervals, delivery devices for delivering the assembled sheets from the assembling devices after a given number of sheets have been assembled consisting of a revolving cylinder provided with nippers, cam devices operated by the power devices to open the nippers for the purpose of receiving the assembled sheets from the assembling devices, and a cam device to open the nippers for the purpose of liberating the assembled sheets from the delivery-cylinder.

14. In a perfecting printing-press, devices for printing the sheets of paper successively upon both sides, assembling devices for assembling the sheets so printed consisting of a revolving cylinder having a series of projecting pins, a series of nippers working in connection with said pins, a rock-shaft adapted to operate the nippers simultaneously, a cam device to open the nippers at predetermined intervals to receive the sheets and press them upon the pins, cam devices for operating the nippers to remove them from the assembled sheets after a definite number of revolutions have been made, power devices for throwing the last-mentioned cam devices into and out of operative position at specified intervals, delivery devices for delivering the assembled sheets from the assembling devices after a given number of sheets have been assembled consisting of a revolving cylinder provided with nippers, cam devices operated by the power devices to open the nippers for the purpose of receiving the assembled sheets from the assembling devices, a cam device to open the nippers for the purpose of liberating the assembled sheets from the delivery-cylinder, and a fly-frame adapted to receive the assembled sheets from the delivery-cylinder.

15. In a perfecting printing-press, devices for printing the sheets of paper successively upon both sides, assembling devices for assembling the sheets so printed consisting of a revolving cylinder having a series of projecting pins, a series of nippers working in connection with said pins, a rock-shaft adapted to operate the said nippers at predetermined intervals to receive the sheets and press them upon the pins, cam devices for operating the nippers to remove them from the assembled sheets after a definite number of revolutions have been made, power devices for throwing the last-mentioned cam device into and out of operative position at specified intervals, delivery devices for delivering the assembled sheets from the assembling devices after a given number of sheets have been assembled consisting of a revolving cylinder provided with nippers, cam devices operated by the power devices to open the nippers for the purpose of receiving the assembled sheets from the assembling devices, a cam device to open the nippers for the purpose of liberating the assembled sheets from the delivery-cylinder, a fly-frame adapted to receive the assembled sheets from the delivery-cylinder, and a folding device adapted to receive the assembled sheets from the fly-frame.

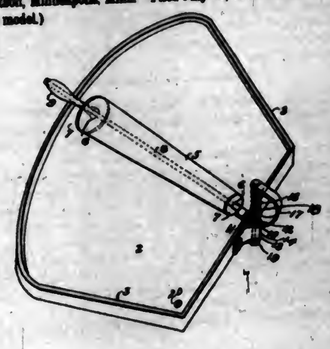
16. The combination of printing devices for printing sheets of paper having an impression-cylinder for delivering the printed sheets to the assembling devices, assembling devices for assembling said sheets of paper, folding devices for folding the assembled sheets of paper, creasing devices for imparting a pressure to the folded paper sheets when being folded, and means operated by a cam rotating with the impression-cylinder acting on the creasing devices for removing said pressure after the crease is made, whereby the folded sheets are fed through the folding-machines without blurring the printed portions thereof.

602,397. AUTOMATIC BICYCLE-LOCK. GEORGE L. GRASS, Kingston, Canada. Filed June 11, 1897. Serial No. 640,364. (No model.)



Claim.—The combination in a lock adapted to be inserted in the tubular framework of a bicycle or other vehicle, with a shaft passing through the lock-case bearing a plate adapted to be pressed against the tire of a wheel, of a movable disk having an aperture in which the shaft fits closely, springs exerting pressure upon the shaft and upon one edge of the disk in a direction away from the wheel, an inner lock-case adapted to allow a corresponding key to depress the disk and release the shaft, and a connecting device between the disk and the inner lock, substantially as and for the purposes described.

602,398. KNEADER. RUSSELL B. GRIFFIN, Mexico, Mo., assignor of one-half to Charles M. Amsden, Louis T. Watson, and Henry P. Watson, Minneapolis, Minn. Filed July 16, 1897. Serial No. 644,749. (No model.)



Claim.—1. The combination, with a suitable board or working surface, of a rod, having a freely-turning roller arranged thereon and adapted to rest upon and be moved over said board or working surface, a suitable handle provided at one end of the rod, and a spring device pivotally connecting the other end of said rod to said board to permit the vertical movement of said rod and to relieve the jar upon the hand or arm of the operator, substantially as described.

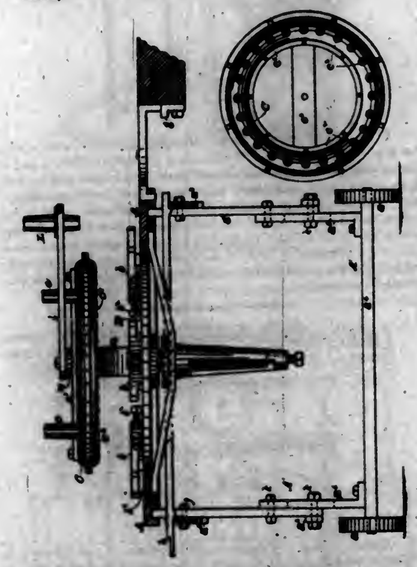
2. The combination, with a suitable board or working surface, of a rod, a roller moved thereon, a suitable handle provided upon the outer end of said rod, a spring device pivotally connecting the inner end of said rod to said board and holding said rod thereon with a yielding pressure, while permitting vertical movement of the same, and means permitting the outer end of said rod to be swung upward away from the surface of said board, substantially as described.

3. The combination, with a suitable board, of the block 10 provided with the hinge 11 and the slot 12, the rod 8 secured upon said block, the freely-turning roll 5 mounted upon said rod, said block 10 being secured to said board by a suitable spring connection, for the purpose set forth.

4. The combination, with the board provided with the post 14, of the bolt 16 passing through said post, the rod 8 pivotally supported upon said bolt, a suitable spring arranged upon said bolt and holding said rod with a yielding pressure, and a suitable roll arranged upon said rod, for the purpose set forth.

5. The combination, with the board, provided with the post 14, the slotted and hinged block 10 resting upon the upper end of said post, the bolt 16 passing through said block and post and provided with the springs 17 and 18, bearing upon said block, the rod 8 secured to said block, and the roll 5 mounted upon said rod and adapted to turn freely thereon, for the purpose set forth.

602,399. COOLING-TABLE FOR GLASS-MOLDS. WILLIAM HALEY, Beaver Falls, Pa., assignor to the National Mold and Casting Company, same place. Filed July 16, 1897. Serial No. 644,754. (No model.)



Claim.—1. A cooling-table for glass-molds comprising, in combination, a table supporting a movable surface adapted to receive a number of molds, means for moving the same to bring the molds successively in proximity to the press, and a blast-chamber arranged above said mold-carrying surface and having outlets adapted to continuously deliver a cooling-blast which impinges upon the molds on said surface, substantially as described.

2. A cooling-table for glass-molds, comprising in combination, a table having a fixed top or shelf, a movable top adapted to receive a number of molds, means for moving the same to bring the molds successively to the desired position adjacent to the press, and a blast-chamber supported above said mold-carrying surface and having outlets adapted to continuously deliver a cooling-blast which simultaneously impinges upon all the molds on said surface, substantially as described.

3. In a cooling-table for glass-molds the combination of a frame, a rotatable top adapted to receive a number of molds, ledges on said top to regulate the position of the molds thereon, and an air-blast chamber supported above said top and having outlets coinciding with the location of the molds, through which outlets a cooling-blast is continuously emitted, substantially as and for the purpose described.

4. In a cooling-table for glass-molds the combination of a frame, a fixed top, a rotatable top having ledges forming recesses in which the molds are placed, a stop on said fixed top projecting in the path of said molds, and an air-blast chamber supported above said top and having outlets coinciding with the position of the recesses on said rotatable top, substantially as described.

5. In a cooling-table for glass-molds the combination of a frame, a fixed top, a rotatable top having ledges thereon to guide the placing of the molds, an air-blast chamber supported above said table and having outlets corresponding with the position of the molds, and a shelf upon which to discharge the molded article before placing the mold on the rotatable top, substantially as described.

6. In a cooling-table for glass-molds the combination of a frame, a fixed top, a rotatable top having thereon ledges to guide the placing of the molds, an air-blast chamber supported above said table and having outlets corresponding with the position of the molds, and a leaf secured to the table and adapted to connect the same with a glass press, substantially as described.

7. In a cooling-table for glass-molds the combination of a frame, a fixed top, a rotatable top having thereon ledges to guide the placing of the molds, an air-blast chamber supported above said table and having outlets corresponding with the position of the molds, and a nozzle adapted to deliver an air-blast upon the fixed top, substantially as described.

8. In a cooling-table for glass-molds the combination of a frame, a fixed top, a rotatable top having thereon ledges to guide the placing of the molds, an air-blast chamber supported above said table and having outlets corresponding with the position of the molds, and a swinging arm carrying a nozzle adapted to deliver an air-blast upon various parts of the fixed top, substantially as described.

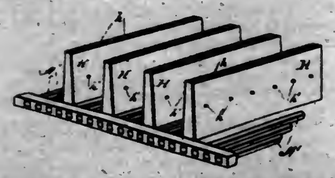
9. In a cooling-table the combination of the rotatable cooling-surface, an air-blast chamber supported above the same and emitting air thereon, ledges for guiding the placing of the molds, and adjusting-screws threaded through said ledges, substantially as described.

10. In a cooling-table the combination of a frame, a fixed top, a rotatable top adjustably supported therein, and an air-blast chamber supported above and emitting air upon said rotatable top, substantially as described.

11. In a cooling-table the combination of a frame adjustable for height, a fixed top, a rotatable top supported therein, and an air-blast chamber supported above and emitting air upon said rotatable top, substantially as described.

12. In a cooling-table the combination of a frame supported on trucks, a fixed top therein, a rotatable top supported in the fixed top, and an air blast chamber supported above and emitting air upon said rotatable top, substantially as described.

602,400. ORE-ROASTING FURNACE. HOWARD HARLAN, Richmond, Va., assignor of one-half to S. Dabney Crenshaw, Henrico County, Va. Filed Nov. 10, 1897. Serial No. 658,014. (No model.)



Claim.—1. In a roasting-furnace of the nature described, a closed heating or roasting chamber, bars underneath the same to support the ore and spaced apart to give openings to admit air from below, an outlet-flue at top for conducting the gas to a condensing-chamber, a series of hollow air-conduits resting on the bars over the openings, and consisting of vertical pyramidal-shaped casings with smooth sides provided with perforations, substantially as described.

2. In a furnace of the nature described, having bars to support the ore, and spaced apart to give openings from below, and a flue for conducting the gas to the condensing-chamber, hollow pyramidal conduits resting on the bars over the openings, extending vertically into said chamber, said conduits having smooth sides, a longitudinal opening at top, and perforations in their sides whereby air is admitted to the ore at top and sides of the conduits, substantially as described.

602,401. BOOKBINDING. JOHN R. HEWETT, Wilmington, N. C. Filed May 27, 1897. Serial No. 638,348. (No model.)



Claim.—1. In bookbinding, a pile of leaves or sheets held evenly together by cords cemented in end grooves, whereby they may be separated in sections as described.

2. The leaves of a round-back book held together by an endless cord cemented in end grooves thereof and passing across from top to bottom and from bottom to top as described.

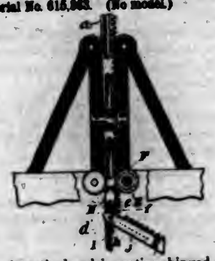
602,402. STAY-BOLT. JUSTUS JOHNSON and WILLIAM V. LUKENS, Philadelphia, Pa., assignors to Burnham, Williams & Co., same place. Filed Mar. 8, 1897. Serial No. 626,479. (No model.)



Claim.—1. As a new article of manufacture, a stay-bolt having a deep cavity in one end, the walls of said cavity being denser than the main body of the bolt, substantially as described.

2. A stay-bolt having a screw-threaded section at each end and also having a head at one end, and a deep cavity formed in one end of the stay-bolt, the walls of said cavity being denser than the main body of the bolt, substantially as described.

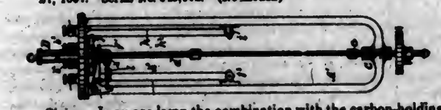
602,408. RACK AND PINION. FREDERICK J. KUNKEL, Baltimore, Md., assignor to John H. Kunkel & Son, same place. Filed Dec. 16, 1896. Serial No. 615,963. (No model.)



Claim.—1. A toothed rack in sections hinged or pivoted together and adapted to be moved relatively toward and from each other at the joint to a limited extent in a longitudinal direction, one section having a tongue with a beveled end and the other a groove corresponding with the tongue in size and shape, into which the tongue enters as the two sections are moved endwise together, substantially as specified.

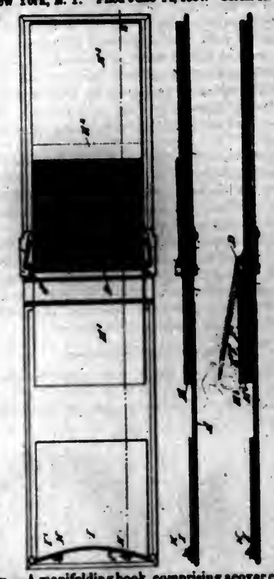
2. A section of toothed rack having a tongue with a beveled end and a slot immediately above the tongue, combined with another section provided with a groove adapted for the reception of the tongue and a hole which registers with the said slot, and a pin which enters the slot and hole to complete the union of the two sections, substantially as specified.

602,404. ELECTRIC-ARC LAMP. JOHN MUELLER, Cleveland, Ohio, assignor to the Duplex Hanger Company, same place. Filed Aug. 27, 1897. Serial No. 648,672. (No model.)



Claim.—In an arc-lamp the combination with the carbon-holding devices and a feeding-clamp having sliding engagement with the upper-carbon holder, of a lifting-lever adapted to engage and lift said clamp, a spring acting on said lever to cause it to engage said clamp, a cross-lever pivoted on the lamp-frame, auxiliary levers as i i^2, and thermo-expansive strips connecting the auxiliary levers respectively with the cross-lever and the lifting-lever, and with the cross lever and a binding-post to which the main circuit is connected, substantially as described.

602,405. MANIFOLDING CASH-SALES BOOK. JOHN H. MURPHY, New York, N. Y. Filed June 14, 1897. Serial No. 640,602. (No model.)



Claim.—A manifolding book, comprising a cover consisting of two parts of equal length and a flexible back connecting them, a pad of leaves held in said cover and extending across the back and on both parts of the cover, said leaves being adapted to form a plurality of slips, transfer-sheets secured to the pad at the same point as the leaves, said sheets being one less in number than the number of slips into which each leaf may be divided, and each transfer-sheet extending from the center or back of the cover to a point approximately midway between said center and the free edges of the leaves, substantially as specified.

602,406. BED AND CYLINDER PRINTING-MACHINE. GEORGE T. MURRAY, Corsicana, Tex., assignor of one-third to Gordon Phipps, same place. Filed Nov. 11, 1897. Serial No. 658,262. (No model.)



Claim.—1. In a printing-press, the combination with a bed-plate having at its sides racks, of a revolving cylinder provided at its ends with mutilated gears adapted to engage with said racks at intervals, to move the bed-plate beneath the cylinder, and means for returning the bed-plate to its initial position comprising a rack on the under side of the bed-plate, a mutilated shift-gear adapted to engage with said rack when the teeth of the mutilated gears carried by the cylinder have turned out of engagement with the teeth of their racks, and means for revolving the shift-gear in the same direction to that of the said mutilated gears, substantially as described.

2. In a printing-press, the combination with a bed-plate having at its upper sides racks and on its under side a rack, of a cylinder journaled in the frame, carrying at its ends mutilated gears adapted to engage with the upper racks at intervals, a gear-wheel fixed on the end of the cylinder-journal, a driving-gear journaled on the frame and meshing with said gear-wheel, a shaft journaled in the frame, carrying a mutilated gear adapted to engage at intervals with the under rack, and a gear-wheel fixed on the end of said shaft and meshing with said driving-gear, substantially as described.

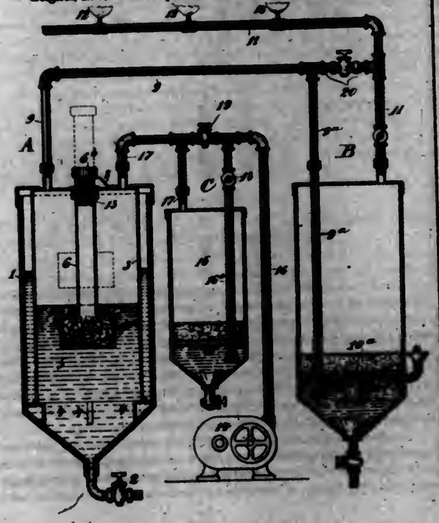
3. The combination with a plate having at its sides racks, and a rack on the under side of said plate, of a revolving cylinder provided at its ends with mutilated gears adapted to engage the racks at the side of said plate at intervals to move the plate in one direction, a mutilated shift-gear adapted to engage with the rack on the under side of said plate when the teeth on the mutilated gears carried by the cylinder have turned out of engagement with the teeth of their racks, and means for revolving the shift-gear and the mutilated gear in the same direction, substantially as described.

602,407. WOOL BOOT. EDWARD ROSS, Mishawaka, Ind., assignor to The Beatty Felting Co., same place. Filed Feb. 1, 1897. Serial No. 621,408. (No model.)



Claim.—In a wool boot the combination therewith of a palmated stay secured to the boot at the side of the ankle portion of the same, and having its separated fingers extending along the boot and independently secured thereto.

602,408. APPARATUS FOR MANUFACTURING CARBURETED HYDROGEN. WILLIAM H. RUSSELL and GEORGE R. RUSSELL, Hasbrouck Heights, N. J. Filed Sept. 14, 1897. Serial No. 651,897. (No model.)

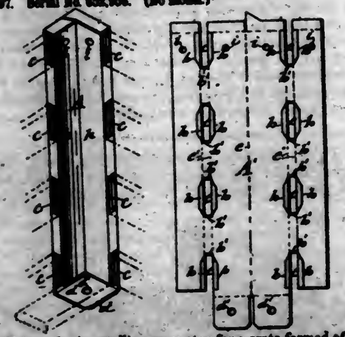


Claim.—1. In a gas apparatus the combination with the hydrogen-generator A, the carburetor B, the pipe 9, connecting said carburetor and generator, the carbureted-air-supply apparatus C, connected with the generator A, of a service outlet leading from the carburetor B, and a valved by-pass connecting said service outlet and said pipe 9, substantially as and for the purpose described.

2. In a gas apparatus, an electrical generator A, for decomposing the acidulated water forming the electrolyte of the generator, said generator comprising a vessel 1, a cup-like electrode 3, inverted in said vessel, a tube 6, mounted in the bottom of the inverted cup 3, and insulated therefrom, said tube being adapted to play longitudinally in its bearing, a foraminous holder or basket 6ª on the lower end of the tube 6, and containing an electrode 7, the said electrode, the liquid electrolyte, and means for producing an electrical connection between the tube 6 and the cup 3, substantially as set forth.

3. In a gas apparatus, the combination with an air-forcing apparatus for forcing air into the generator, of an electrical generator A, for decomposing the water in the electrolyte thereof, said generator comprising a vessel 1, a cup-like electrode 3, inverted in said vessel, a tube 6, mounted in the bottom of the inverted cup 3, and insulated therefrom, said tube being adapted to play longitudinally in its bearing, a foraminous holder or basket 6ª on the lower end of the tube 6, and containing an electrode 7, the said electrode, the liquid electrolyte, and means for producing an electrical connection between the tube 6 and the cup 3, substantially as set forth.

602,409. CRATE-CORNER. MEDARD C. RYAN, Oswego, N. Y., assignor to the Oswego Crate Company, of New York. Filed Sept. 25, 1897. Serial No. 653,056. (No model.)



Claim.—1. A metallic corner-stay for a crate formed of two hollow walls united at a right angle and each of said walls composed of continuous plates extending from the bottom to the top of the crate and forming between them pockets inclosing the ends of the slats, and a vertical strip uniting the free edges of said plates and provided with apertures for the insertion of the ends of the slats, as set forth.

2. A corner-stay for a crate formed of a prolonged paralled-edged sheet-metal blank bent at a right angle along a line at the center of its width and parallel with the longitudinal edges of the blank, and each half at opposite sides of said line bent twice at right angles in the same direction and on lines parallel with the aforesaid central line, and apertures between the two bends of each half for the insertion of the slats, as set forth.

3. As an improved article of manufacture, a corner-stay for a crate formed of a prolonged parallel-edged sheet-metal blank having extensions on its ends, said blank bent at a right angle along a line extending the entire length of the blank central of its width and parallel with the side edges, and each half at opposite sides of said central line bent twice at right angles in the same direction along two lines parallel with the central line and provided between said two lines with apertures for the reception of the ends of the slats and the aforesaid end extensions of the blank bent up at right angles and lapping one upon the other, as set forth and shown.

4. A corner-stay for a crate formed of a sheet-metal blank, and slat-receiving mortises formed by longitudinal slits terminating with divergent slits and the free slitted portions bent at right angles to the plane of the blank and forming the walls of the aforesaid mortises.

602,410. ANT-TRAP. CHARLES W. SELVIDGE, Menia, Tex., assignor of one-half to Joseph Benjamin Purnell, same place. Filed Aug. 10, 1897. Serial No. 647,731. (No model.)

Claim.—The herein-described ant-trap, consisting of the frusto-conical receptacle, exteriorly roughened, and having its top opening provided with a guard-flange, and which is formed at the bottom

with an exterior downwardly-projecting peripheral flange extension *a* which is adapted to be inserted into the ground for the purpose specified, and the interiorly-roughened ingress-tube which extends up through the bottom of the said receptacle, substantially as specified.

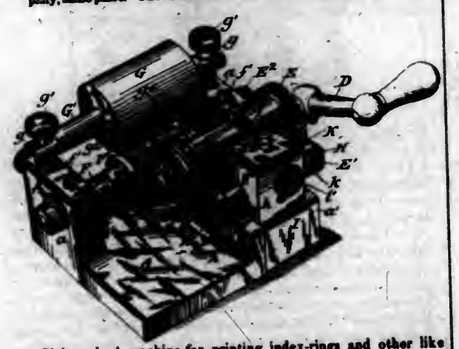


602,411. ENVELOP. SIMON B. STEINBOCH, New York, N. Y. Filed June 19, 1897. Serial No. 641,633. (No model.)



Claim.—An envelop comprising a body portion having wings arranged to fold toward the body portion and overlap and flaps arranged to fold toward the body portion and overlap the wings and one another, the said wings being provided with registering slots one of the said slots being provided with a projection on its wall, one of the flaps being provided with a slot adapted to register with the slots in the wings and the other of the flaps being provided with a tongue having resilient wings at its sides, the said tongue together with its wings being adapted to pass through the said registering slots to lock the envelop closed, substantially as set forth.

602,412. MACHINE FOR PRINTING INDEX-RINGS. CURTIS H. VEEDER, Hartford, Conn., assignor to the Veeder Manufacturing Company, same place. Filed Feb. 12, 1897. Serial No. 623,060. (No model.)



Claim.—1. A machine for printing index-rings and other like articles, said machine comprising a line of type, a carrier to support the same and a rotary shaft geared to the type-carrier to move therewith, said shaft having at its extremity a projection to center and support the ring and a recess or projection to engage a corresponding projection or recess of the ring and to rotate the same positively with the periphery of the ring in contact with the line of type whereby an absolute relation of the printed characters with the teeth or other parts of the ring or other article is secured and the ring may be readily applied to and removed from the shaft, substantially as shown and described.

2. A machine for printing index-rings and other like articles, said machine comprising a rotary shaft, a type-wheel mounted thereon to rotate therewith, a second rotary shaft and gearing connecting said shafts for rotation together, said second-named shaft having at its extremity a projection to center and support the ring and a recess or projection to engage a corresponding projection or recess of the ring and to move the same positively with the periphery of the ring in contact with the line of type, whereby an absolute relation of the printed characters with the teeth or other parts of the ring or other article is secured and the ring may be readily applied to and removed from the shaft, substantially as shown and described.

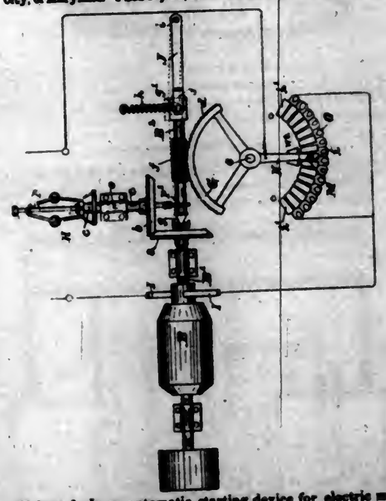
3. A machine for printing index-rings and other like articles, said machine comprising a line of type, a carrier to support the same, a rotary shaft geared to the type-carrier to move therewith, said shaft having at its extremity a projection to center and support the ring and a recess or projection to engage a corresponding projection or recess of the ring and to rotate the same positively, with the periphery of the ring in contact with the line of type, and a swinging bearing, in which said shaft is mounted to rotate, whereby the ring or other article may be moved toward or from a line of type, substantially as shown and described.

4. A machine for printing index-rings and other like articles, said machine comprising a line of type, a carrier to support the same, a rotary shaft geared to the type-carrier to move therewith, said shaft having at its extremity a projection to center and support the ring and a recess or projection to engage a corresponding projection or recess of the ring and to rotate the same positively with the periphery of the ring in contact with the line of type, a bearing-block for said shaft and a bearing-sleeve in which said shaft is mounted for rotation, said sleeve being adjustable longitudinally, substantially as shown and described.

5. A machine for printing index-rings and other like articles, said machine comprising a line of type, a carrier to support the same, a rotary shaft geared to the type-carrier to move therewith, said shaft having at its extremity a projection to center and support the ring and a recess or projection to engage a corresponding projection or recess of the ring and to rotate the same positively, with the periphery of the ring in contact with the line of type, and a brake supplied to said shaft to take up lost motion or backlash, substantially as shown and described.

6. The combination with a type-carrier and an inking-roll, of a shaft supported in proximity to said inking-roll and having a double reversed thread and an ink distributing roll mounted on said shaft, said ink-distributing roll having a recess, a sliding piece or plug supported in said recess and engaging said threaded shaft, a cap to close said recess and a pin parallel with the axis of the roll to secure said cap in place, substantially as shown and described.

602,413. AUTOMATIC DEVICE FOR REMOVING RESISTANCE IN STARTING ELECTRIC MOTORS. GEORGE H. WHITTINGHAM, Baltimore, Md., assignor to the Automatic Switch Company of Baltimore City, of Maryland. Filed Sept. 9, 1897. Serial No. 651,028. (No model.)



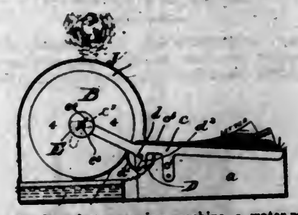
Claim.—1. In an automatic starting device for electric motors, the combination of a driving-shaft; a resistance included in the motor-circuit normally or when at rest; a toothed resistance-arm in engagement with said resistance; means adapted to engage said toothed arm when starting the motor but disengaged therefrom when the motor is not running; a centrifugal governor serving to effect the said engagement at the time of starting the motor, whereby the said resistance is cut out; and means for returning the resistance-arm to the point of greatest resistance when stopping the motor.

2. In an automatic starting device for electric motors, the combination of a driving-shaft; a resistance included in the motor-circuit normally or when at rest; a toothed resistance-arm in engagement with said resistance; a movable device to engage the teeth of said arm; and a centrifugal governor to cause the device to engage said toothed arm when starting the motor and to disengage therefrom when the motor is not running.

3. In an automatic device for removing resistance when starting electric motors, the combination of a driving-shaft; a resistance included in the motor-circuit normally or when at rest; a movable arm engaging the said resistance and when at rest free of connection with the driving-shaft; and a centrifugal governor which effects a connection between the driving-shaft and the movable arm, whereby, after such connection, each revolution of the driving-shaft shall impart to the said arm a movement in the direction of cutting out the resistance from the motor-circuit until it is entirely cut out, and then maintain said circuit at the lowest resistance during the run of the motor.

4. In an automatic device for removing resistance when starting electric motors, the combination of a driving-shaft; a resistance in the motor-circuit; a resistance-arm; mechanism for operating the resistance-arm and which when at rest is out of engagement with said arm; and a centrifugal governor which effects the engagement of said mechanism with the resistance-arm.

602,414. COPYING-PRESS. JOHN M. MOORE, Atlanta, Ga. Filed June 21, 1897. Serial No. 641,704. (No model.)



Claim.—1. In a letter-copying machine, a water-reservoir, a roller depressibly mounted thereover, a motor acting to rotate said roller, and a blanket secured to and adapted to be wound upon said roller and to be extended therefrom for copying purposes, for the purpose specified.

2. In a letter-copying machine, a water-reservoir, a roller depressibly mounted thereover, means for rotating said roller, a blanket secured to said roller and adapted to be wound thereon and to be extended for copying purposes and a roller mounted elastically and adapted to press said blanket against the periphery of said first-named roller, for the purpose specified.

3. In a letter-copying machine, a water-reservoir, a roller depressibly mounted thereover, means for rotating said roller, a blanket secured to said roller and adapted to be wound thereon and to be extended for copying purposes and a roller mounted elastically and adapted to press said blanket against the periphery of said first-named roller, and an absorptive covering for said pressure-roller, for the purpose specified.

4. In a letter-copying machine, a casing, a water-reservoir therein, a roller depressibly mounted therein over said water-reservoir, a motor adapted to rotate said roller, a blanket adapted to wind upon said roller, a rod in the free end of said blanket, and hooks secured to the frame at the limit of movement of the said thereof in winding upon and unwinding from the said roller, for the purpose specified.

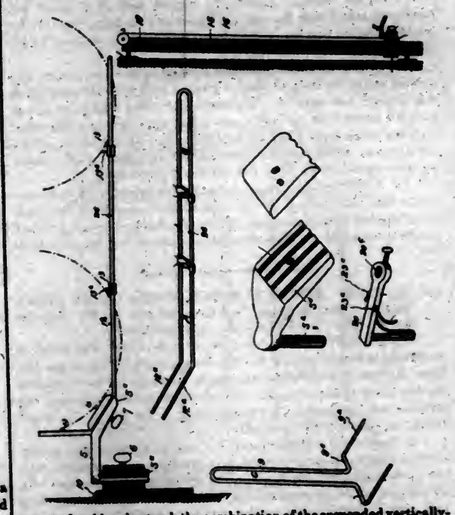
5. In a letter-copying machine, a casing, a pair of levers mounted thereon, a table secured to and between same, a roller journaled on their opposite ends, a motor mounted on one of said levers and operatively connected to said roller, a blanket adapted to be wound upon said roller and drawn therefrom onto said table, and a water-reservoir below said roller, for the purpose specified.

602,415. BICYCLE-STAND. JOSEPH B. MOORE, Denver, Colo. Filed Aug. 13, 1896. Serial No. 602,530. (No model.)

Claim.—1. In a bicycle-stand, the combination of the suspended bracket having a grooved inclined face, the shoe adapted to fit the inclined face of the bracket and provided with counterpart grooves, the horizontal and vertical racks, each composed of two parallel arms adapted to receive the wheels of the bicycle and support the latter in an upright position, said racks being adapted to engage the grooves in the bracket and shoe, and suitable means for connecting the bracket and shoe, substantially as described.

2. In a bicycle-stand, the combination of the suspended swinging bracket having a grooved inclined face, the horizontal and vertical racks each composed of two parallel arms adapted to receive the bicycle-wheels, and having bent extremities adapted to engage the grooves in the bracket and shoe, and suitable means for connecting the bracket and shoe, substantially as described.

3. In a bicycle-stand, the combination of a vertically-adjustable suspended bracket having an inclined face, a shoe adapted to fit the bracket, the horizontal and vertical racks each having parallel arms adapted to receive the bicycle-wheels, said racks being adapted to engage the bracket and shoe which embrace the rack extremities on opposite sides, and suitable means for connecting the bracket and shoe whereby the racks are held securely in place.



4. In a bicycle-stand, the combination of the suspended vertically-adjustable swinging bracket having an inclined face, a shoe adapted to fit said face, the horizontal and vertical racks adapted to receive the wheels of the bicycle and support the same in an upright position, said racks being adapted to engage the inclined face of the bracket, and suitable means for connecting the bracket and shoe which embrace the rack extremities on opposite sides.

5. A bicycle-stand, comprising a rack occupying substantially a horizontal position and composed of two separated arms adapted to receive the bicycle-wheels and provided with suitable stops to hold the wheel securely in place, and suitable means attached to one extremity of the rack for suspending the latter at any desired height above the ground or other surface.

6. In a bicycle-stand, the combination with a suitable socket, of the bracket having an inclined face provided with grooves, and a depending stem adapted to engage and turn in the socket which is located a suitable distance above the ground or other surface, the horizontal and vertical racks having bent extremities adapted to engage the grooves in the inclined face of the bracket, each of said racks being composed of two parallel arms adapted to receive the wheels of the bicycle, the horizontal arm being provided with stops engaging the wheels and holding the machine securely in place, a shoe adapted to engage the inclined face of the bracket and having counterpart grooves adapted to engage the rack extremities, and suitable means for fastening the shoe to the bracket and securing the racks in place, said means consisting of a screw passing through an aperture in the bracket and engaging threaded aperture in the shoe.

7. The combination with a suitable support, of a vertically-adjustable socket located a suitable distance above the ground or other surface, a bracket having a depending stem adapted to engage and turn freely in the socket, the horizontal and vertical racks, each rack having one extremity adapted to engage the bracket, a shoe adapted to engage the bracket and embrace one extremity of each rack, the said rack extremities being located between the bracket and shoe, and suitable means for fastening the shoe to the bracket and securing the rack in place, substantially as described.

8. In a bicycle-stand, the combination with an upright tube suitably supported, a socket-support having a collar surrounding said tube, the bracket having a stem adapted to engage the socket of said support, a rack detachably connected with said bracket, the rack having separated parallel arms adapted to receive the wheel or wheels of the bicycle, and having suitable stops attached to the arms of the rack for holding the wheel securely in place, and means for vertically adjusting the bracket consisting of a cord or chain having one extremity attached to the bracket, a pulley attached to the upper extremity of the tube over which the cord passes, and a weight at-

tached to the opposite extremity of the cord and adapted to move freely in the tube during the vertical adjustment of the bracket.

9. In a bicycle-stand, the combination with an upright tube or hollow bar, the socket-support movably attached to said tube, a bracket having a stem engaging the socket of said support, a rack detachably secured to the bracket, the rack consisting of parallel arms adapted to receive the wheels of the bicycle and having stops connecting the arms for holding the bicycle securely in place, and means connected with the socket-support and engaging the tube for maintaining the bracket and its attachment at any desired height above the ground or other surface.

10. A bicycle-stand comprising a swinging bracket, suitably suspended above the floor or other surface, a rack suitably attached to said bracket and adapted to engage the wheels of a bicycle and support the latter in an upright position, and suitable means connected with the bracket for limiting the swinging of the bicycle in a horizontal plane, said means being adapted to engage the wall or other upright support upon which the bracket is suspended.

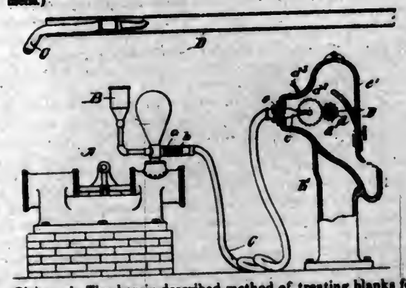
11. A bicycle-stand comprising a suitable suspended support, and a rack suitably attached to said support and comprising two separated parallel arms, and an adjustable stop attached to said arms and adapted to engage a wheel of the bicycle, as and for the purpose set forth.

602,416. METHOD OF MANUFACTURING DRAWN TUBING. WILLIAM A. MCCOOL, Beaver Falls, Pa. Filed Sept. 12, 1896. Renewed Mar. 24, 1898. Serial No. 675,098. (No specimens.)

Claim.—1. The herein-described method of drawing metal, it consisting in removing oxid or scale from a blank by the action of a blast charged with abrading material, in contradistinction to subjecting the blank to the action of an acid, washing the blank in a soda solution, and subjecting the cleaned blank to the action of a draw-bench, substantially as described.

2. The herein-described method of manufacturing drawn tubing, it consisting in removing scale from both the exterior and the interior surfaces of a tubular blank by the action of a blast charged with abrading material, in contradistinction to the use of acid, subjecting said cleaned blank to the action of a draw-bench, and closing the ends of the blank and annealing it, substantially as described.

602,417. METHOD OF MANUFACTURING COLD-DRAWN METALLIC ARTICLES. WILLIAM A. MCCOOL, Beaver Falls, Pa. Filed Oct. 24, 1896. Renewed Mar. 24, 1898. Serial No. 675,099. (No specimens.)



Claim.—1. The herein-described method of treating blanks for the manufacture of drawn tubing, it consisting in abrading the exterior surface of the blank, then compressing the blank radially, then abrading the interior surface of the blank, and then subjecting the blank to the action of the draw-bench, substantially as set forth.

2. The herein-described improvement in the manufacture of drawn tubing, it consisting in drawing a tubular blank through a die and compressing the metal of the blank radially, abrading the interior surface of the blank, and then drawing the blank over a mandrel or through a die, substantially as set forth.

3. The herein-described improvement in the method of manufacturing drawn tubing, it consisting in drawing a tubular blank through a die to compress the metal radially, then abrading the interior of the blank, then drawing the blank over a mandrel or through a die, then heating the blank, and then again abrading the blank to remove any "scale" that has formed thereon, substantially as set forth.

4. The herein-described improvement in the method of manufacturing drawn tubing, it consisting in abrading the exterior surface of a tubular blank, then drawing said blank through a die to compress the metal radially, then abrading the interior surface of the blank, then drawing the blank over a mandrel or through a die, and then heating the blank, substantially as set forth.

5. The herein-described improvement in the method of treating metallic blanks in drawing, it consisting in rotating the blank and while rotating exposing it to a stream of minute globular metallic shot, whereby its surface is uniformly cleaned in contradistinction from subjecting them to the action of acid or other chemical reagents, to remove scale and expose a surface of the pure metal, and then subjecting the blank to compression radially along the cleaned surface to elongate and condense the fibers, substantially as set forth.

6. The herein described method of manufactering blanks for drawn tubing from lap-welded or butt-welded tubes, it consisting in removing "scale" from the exterior of the tube, then compressing the blank radially to loosen the interior "scale," then removing said interior "scale," and then reducing the walls of the tube to uniform thickness by removing surplus metal on lines longitudinally of the blank, substantially as set forth.

7. The herein-described method of preparing blanks for the manufacture of drawn tubing from lap-welded or butt-welded tubes, it consisting in abrading the exterior of the tube, abrading the interior of the tube, and then removing surplus metal from the inner surface of the tube on lines longitudinal of the tube, substantially as set forth.

DESIGNS.

28,461. SKIRT-PROTECTOR. JOHN BAPTISTE POTEZ, Philadelphia, Pa., assignor to the Hensel, Colladay Company, of Pennsylvania. Filed Mar. 1, 1898. Serial No. 672,205. Term of patent 14 years.



Claim.—The design for a skirt-protector substantially as shown and described.

28,462. SKIRT-PROTECTOR. JOHN BAPTISTE POTEZ, Philadelphia, Pa., assignor to the Hensel, Colladay Company, of Pennsylvania. Filed Mar. 15, 1898. Serial No. 673,984. Term of patent 14 years.



Claim.—The design for a skirt-protector, substantially as shown and described.

28,463. SKIRT-PROTECTOR. OLIVER SKILTON PATTON, Philadelphia, Pa., assignor to the Hensel, Colladay Company, of Pennsylvania. Filed Mar. 19, 1898. Serial No. 674,532. Term of patent 14 years.



Claim.—The design for a skirt-protector substantially as shown and described.

28,464. PARASOL. OMAR H. ARNOLD, New York, N. Y. Filed Jan. 8, 1898. Serial No. 666,109. Term of patent 3½ years.



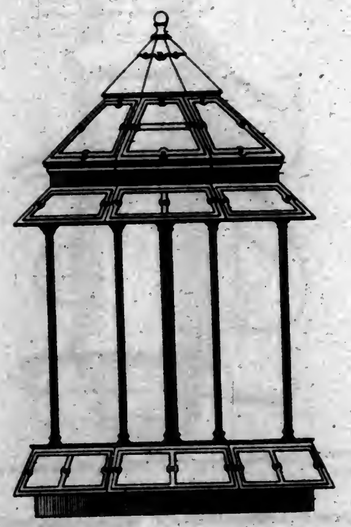
Claim.—The design for a parasol as herein shown and described.

28,465. UMBRELLA OR PARASOL CASE. JAMES L. BROWN, Lancaster, Pa. Filed Feb. 12, 1898. Serial No. 670,147. Term of patent 7 years.



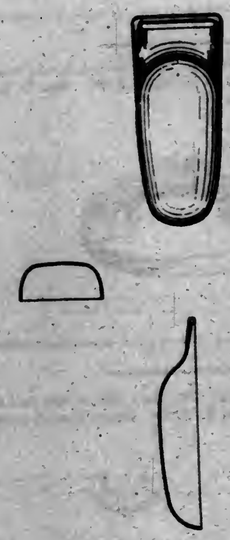
Claim.—The design for an umbrella and parasol case, substantially as shown and described.

28,466. UMBRELLA-STAND. HERBERT BLAWORTH, Cleveland, Ohio, assignor to William Neville, same place. Filed Apr. 27, 1895. Serial No. 547,422. Term of patent 7 years.



Claim.—A design for an umbrella-stand substantially as shown.

28,467. PLATE FOR GARMENT-SUPPORTERS. LOUISE DANA DRAPER, Boston, Mass. Filed Oct. 20, 1897. Serial No. 655,952. Term of patent 14 years.



Claim.—The design for the plate of a garment-supporter herein shown and described.

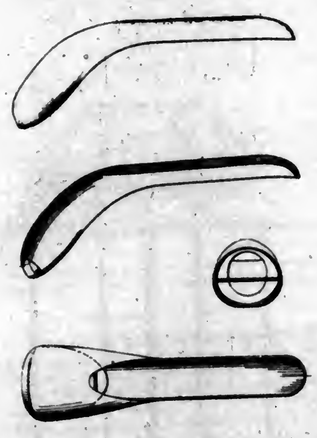
heating the blank, substantially as set forth.

5. The herein-described improvement in the method of treating

and described.

Claim.—The design for a skirt-protector substantially as shown

28,468. SHOE-HORN CLAMP. WILLIAM EDWARD GREGORY, Astoria, Oreg. Filed July 10, 1897. Serial No. 644,150. Term of patent 14 years.



Claim.—The design for a shoe-horn clamp herein shown and described.

28,469. METALLIC BORDER. DANIEL A. LOSSER, Wallingford, Conn., assignor to the R. Wallace & Sons Manufacturing Company, same place. Filed Mar. 7, 1898. Serial No. 673,017. Term of patent 7 years.



Claim.—A design for ornamental metallic border as herein shown and described.

28,470. SHADE-SUPPORT. CARTER H. PAGE, Jr., and ERNEST L. BRUNDRETT, Philadelphia, Pa. Filed Mar. 29, 1897. Serial No. 629,362. Term of patent 14 years.



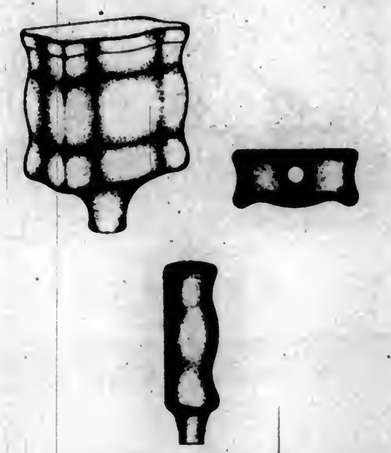
Claim.—The design for a shade-support, substantially as shown and described.

28,471. FUSE-CARRIER. WILLIAM J. NEWTON, New York, N. Y. Filed Apr. 29, 1897. Serial No. 634,471. Term of patent 3½ years.



Claim.—The design for a fuse-carrier, as herein described and shown.

28,472. FLUSH-TANK FOR WATER-CLOSETS. DAVID STEEL WALLACE, Kokomo, Ind. Filed Oct. 4, 1897. Serial No. 654,066. Term of patent 3½ years.



Claim.—The design for a flush-tank for water-closets herein shown and described.

28,473. SEWER'S TREE. WILLIAM HENRY ELLIOTT, Red Bank, N. J. Filed Jan. 18, 1898. Serial No. 667,115. Term of patent 14 years.



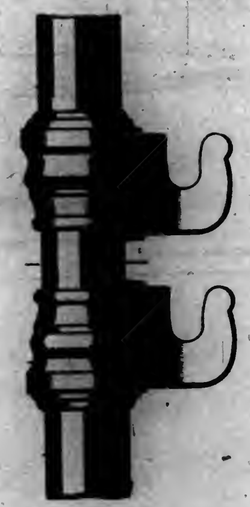
Claim.—The design for a sewer's tree, substantially as shown and described.

28,474. FENCE-POST. JOHN PETER MOHLER, Burlingham, Ohio. Filed Mar. 5, 1898. Serial No. 672,784. Term of patent 7 years.



Claim.—The design for a fence-post herein shown and described.

28,475. BEDSTEAD-POST. WILLIAM F. BOMBERGER, Philadelphia, Pa. Filed Jan. 20, 1898. Serial No. 667,261. Term of patent 14 years.



Claim.—The design for the post of a bedstead substantially as shown and described.

28,476. BEDSTEAD-POST. WILLIAM F. BOMBERGER, Philadelphia, Pa. Filed Jan. 20, 1898. Serial No. 667,262. Term of patent 14 years.



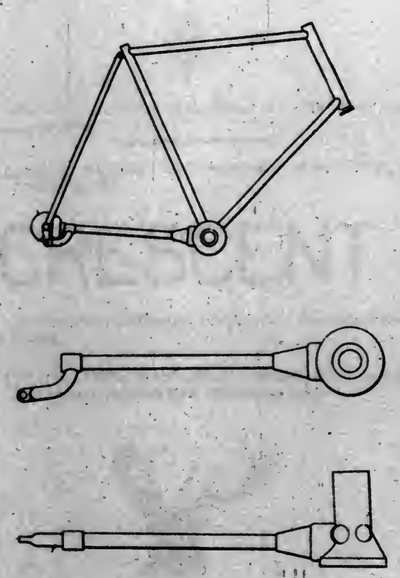
Claim.—The design for the post of a bedstead substantially as shown and described.

28,476.



Claim.—The design for the post of a bedstead substantially as shown and described.

28,477. FRAME FOR BICYCLES. JAMES S. COPELAND, Hartford, Conn. Filed Dec. 13, 1898. Serial No. 615,288. Term of patent 14 years.



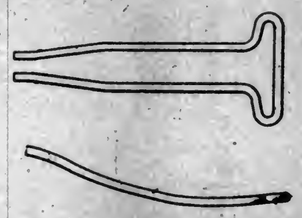
Claim.—The design for a bicycle-frame substantially as shown.

28,478. BICYCLE TOE-CLIP. DAVID RASCH, New York, N. Y. Filed Oct. 8, 1897. Serial No. 654,502. Term of patent 7 years.



Claim.—The design for a bicycle toe-clip herein shown and described.

28,479. SADDLE SPRING OR SUPPORT. JONATHAN A. HOWE, Westborough, Mass. Filed Aug. 1, 1898. Serial No. 691,304. Term of patent 7 years.



Claim.—A design for a saddle spring or support, substantially as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 12, 1898.

81,456. BOYS' OUTER CLOTHING. GOLDSMITH BROS. & Co., New York, N. Y. Filed Jan. 4, 1898.



Essential feature.—Grindstone, whether represented by a grindstone or by the word "GRINDSTONE" or by the representation and word combined. Used since July 1, 1897.

81,457. ARTIFICIAL FUR WITH A BODY OF KNITTED OR WOVEN FABRIC AND FUR ON BOTH FACES. CLARENCE W. GROSJEAN, New York, N. Y. Filed Feb. 9, 1898.



Essential feature.—The word "SABLINE," a wavy scroll, a picture of a child above and a pair of gloves below, and an inclosing circle. Used since February 3, 1898.

81,458. PREPARATION FOR THE PAINLESS TREATMENT OF IRRITATED PULPS. GUSTAV SCHARMANN, New York, N. Y. Filed Feb. 12, 1898.

JODO-FORMAGEN

Essential feature.—The compound word "JODO-FORMAGEN." Used since January 1, 1897.

81,459. MEDICAMENTS HAVING AS A BASE FLUID EXTRACT OF MALT. ALLEN & HANBURYS, LIMITED, London, England. Filed Feb. 15, 1898.

BYNO

Essential feature.—The word "BYNO." Used since April, 1892.

81,460. PREPARATION FOR ROUGH OR CHAPPED SKIN. LOVELAND PARSONS, Watertown, N. Y. Filed Oct. 7, 1897.



Essential feature.—The representation of a triangle and a bunch of three callas. Used since July, 1890.

81,461. FAMILY SOAP. ARMOUR & Co., Chicago, Ill. Filed Feb. 23, 1898.

LIGHTHOUSE

Essential feature.—The word "LIGHTHOUSE." Used since October 1, 1897.

81,462. SAFETY-MATCHES. AKTIEBOLAGET SÖDERTELJE TÄNDSTICKSFABRIK, Södertelje, Sweden. Filed Jan. 7, 1898.



Essential feature.—The representation of a tulip. Used since January 20, 1893.

81,463. MATCHES. THE DIAMOND MATCH COMPANY, Chicago, Ill. Filed Feb. 24, 1898.

CRESCENT

Essential feature.—The word "CRESCENT." Used since December 1, 1892.

81,464. PORTLAND AND SIMILAR CEMENTS. THE CEDARSHORE LIME COMPANY, Sandusky, Ohio. Filed Feb. 15, 1898.



Essential feature.—The representation of an elk's head. Used since January 2, 1898.

81,465. STEAM-GAGES. THE ASHCROFT MANUFACTURING COMPANY, Bridgeport, Conn., and New York, N. Y. Filed Feb. 13, 1896.



Essential feature.—The representation of a shield. Used since 1876.

81,466. PLOWS AND THEIR PARTS. SYRACUSE CHILLED PLOW COMPANY, Syracuse, N. Y. Filed Jan. 31, 1896.

78

Essential feature.—The representation of the figures "78." Used since 1876.

THE NORRIS PETERS CO.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE THE CAPITAL CITY DAIRY COMPANY.

Decided March 23, 1898.

1. TRADE-MARKS—"PURITY"—OLEOMARGARIN.
The word "Purity" refused registration as a trade-mark for oleomargarin as it belongs to a class of words which are descriptive or advertising in character and are not registrable as trade-marks.
2. SAME—SAME—SUGGESTIVE MEANING—DECEPTION.
While the word "Purity" is not an adjective in form and may not be commonly employed to describe a quality, nevertheless it cannot be successfully denied that it has a suggestive meaning. If the word is used in a fanciful sense, as contended by applicant's counsel, then it certainly has a tendency to deceive the ordinary buyer.

ON petition.

TRADE-MARK FOR OLEOMARGARIN.

Application for registration filed March 7, 1896, No. 51,008.

Messrs. Finckel & Finckel for the applicant.

DUELL, *Commissioner:*

Applicant appeals from the action of the Examiner of Trade-Marks refusing the registration of its alleged trade-mark for oleomargarin. The mark for which registry is sought consists of the word "Purity."

The Examiner very properly rejected the application for registry, stating that the word belongs to a class of words which are descriptive or advertising in character. While the word "Purity" is not an adjective in form and may not be commonly employed to describe a quality, nevertheless it cannot be successfully denied that it has a suggestive meaning. If the word is used in a fanciful sense, as contended by applicant's counsel, then it certainly has a tendency to deceive the ordinary buyer. Nine housewives out of ten, on seeing an article of food marked "Purity," would conclude that the word was used to indicate a quality claimed to be possessed by the article.

Any manufacturer of oleomargarin would have the right, if true, to mark his manufacture "Pure," and an article that is pure is purity itself.

My attention is called to the fact that the word in question has been heretofore registered by the Office as a trade-mark for bread, mineral waters, etc. Counsel for applicant frankly admits that there is no excuse for continuing a bad practice. In my opinion the Office erred in permitting the registry of the word in prior cases, and, while loath to disturb any well-settled practice of the Office, I shall not hesitate to do so when such prior practice is not, in my opinion, well founded in law.

Viewing the application as I do, the action of the Examiner in refusing registration is affirmed.

OZIAS v. STIMPSON.

Decided February 24, 1898.

APPEAL, LIMIT OF—INTERFERENCE—DECISION OF LOWER TRIBUNAL IN INTERLOCUTORY MATTERS BINDING.
Appeals upon interlocutory matters should not be accepted after the expiration of the limit of appeal. The decision of a lower tribunal in such matters should not be set aside except upon a clear showing of error.

ON motion.

COMPUTING-SCALE.

Application of Orange O. Ozias filed August 23, 1895, No. 560,271. Patent granted Walter F. Stimpson July 23, 1895, No. 543,323.

Messrs. Church & Church for Ozias.

Messrs. T. S. Sprague & Son and *Mr. L. S. Bacon* for Stimpson.

GREELEY, *Assistant Commissioner:*

On June 29, 1897, Stimpson filed a motion to take additional testimony. On November 8 that motion was denied by the Examiner of Interferences, the limit of appeal being fixed for November 18, 1897.

It seems that Stimpson intended to appeal from the decision of the Examiner of Interferences denying his motion, and it appears that his principal attorneys intended to direct the associate attorney to prepare and file such appeal. It further appears that the associate attorney did not understand that he was expected to prepare and file the appeal and became aware that such action was expected of him only after the limit of appeal had expired. He at once made an attempt to secure from the attorneys for Ozias their consent that an appeal should be considered as if filed within the limit of appeal. This consent was not given, and the attorney therefore filed the motion for extension of the limit of appeal. The motion for extension of the limit of appeal was dismissed by the Examiner of Interferences on the ground that he had no jurisdiction, and Ozias filed a motion to dismiss Stimpson's appeal. This motion is now before me.

While the circumstances are unfortunate for Stimpson, it is clear that his appeal, not having been taken within the limit of appeal, must be dis-

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missed. While there may be cases in which an appeal may be accepted after the limit of appeal has expired, I am satisfied that this should not be done in case of an appeal in an interlocutory matter. In such matters the decision of the lower tribunal should not be set aside except upon clear showing of error. Appeals from decisions in such matters should be promptly taken, and appellants will be held strictly to the limit of appeal set in the decision.

The motion to dismiss is granted.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

UNITED STATES EX REL. WEDDERBURN v. BLISS, SECRETARY OF THE INTERIOR.

Decided April 4, 1898.

1. ATTORNEYS PRACTICING BEFORE PATENT OFFICE — DISBARMENT — COMMISSIONER OF PATENTS HEARING CHARGES — SECTION 487, REVISED STATUTES, CONSTRUED.

Section 487, Revised Statutes, remits to the Commissioner of Patents the entire cognizance of cases of malpractice occurring before his Bureau and under it the hearing of such cases is to be by him and not by the Secretary of the Interior. It is eminently fitting that this should be so in view of the character of the duties, judicial or quasi-judicial, which are vested in him.

2. SAME—SAME—SUPERVISORY POWER OF THE SECRETARY OF THE INTERIOR OVER THE COMMISSIONER OF PATENTS IN DISBARMENT PROCEEDINGS—"SUBJECT TO THE APPROVAL OF THE SECRETARY OF THE INTERIOR" CONSTRUED.

By section 487, Revised Statutes, there is reserved to the Secretary of the Interior a supervising power over the action of the Commissioner of Patents; but this is no more than an executive or administrative proceeding. The provision that the judgment of the Commissioner shall "be subject to the approval of the Secretary of the Interior" does not make the Secretary a court for the trial of the case, nor does it make him in any proper sense an appellate tribunal before which it would be proper for a party in interest to demand and to be accorded a hearing.

3. SAME—SAME—SAME—SAME.

The meaning of such supervisory power is not that the Secretary must try or hear the cause, but that the judgment of the Commissioner is not to be carried into effect until it receives the approval of the Secretary, and in order to give it this approval, or conversely and by implication his disapproval, the Secretary is necessitated to go over the record of the proceedings that is made up for him according to law or regulation. This, as we have said, is a judicial or quasi-judicial duty on his part; but it is not the equivalent in any sense of the hearing of a cause.

4. SAME—SAME—OFFICER BEFORE WHOM CHARGES ARE TO BE HEARD—SECTION 487, REVISED STATUTES, AND ACT JULY 4, 1884, CONSTRUED.

When the act of July 4, 1884, and section 487, Revised Statutes, are compared and construed together, it is clear that it was not the intention of Congress to repeal section 487 by the enactment of the latter law, and if such was not the intention of Congress then the only reasonable construction of the act of 1884 was that the hearing therein provided to be given to the persons charged with malpractice was the hearing implied to be by section 487 of the Revised Statutes. So far, at least, as the Patent Office was concerned the act of 1884 made no substantial change in the law.

5. SAME—SAME—SAME—"AFTER NOTICE AND OPPORTUNITY FOR HEARING" IN ACT JULY 4, 1884, CONSTRUED.

The provision of the act of July 4, 1884, is not that the Secretary might exclude from practice after notice and hearing of the party charged, which would be the more natural form of expression if it was the intention that the hearing should be before the Secretary in person, but that he might exclude "after notice and opportunity for a hearing," meaning plainly a hearing before some proper officer in such reasonable mode as should be provided by regulation of the Department.

6. SAME—SAME—SAME—SAME.

The word "hearing" in law and in this statute means something more than oral argument. It means, also, the right to adduce testimony. If the sole hearing contemplated by the statute was to be had before the Secretary, the Commissioner of Patents could not hear it at all, and the only duty that could reasonably be imposed upon that officer was that of taking the testimony and reporting it to the Secretary; but this conclusion would be in direct contravention of the section 487 of the Revised Statutes, which explicitly provides that the Commissioner shall determine the matter, subject only to the approval of his action by the Secretary of the Interior.

7. SAME—SAME—SAME—WEIGHT TO BE GIVEN TO DEPARTMENT'S CONSTRUCTION OF STATUTE.

The construction placed by an executive department of the Government upon a statute enacted for its guidance and the regulation of its business must, unless it be plainly erroneous, receive due weight and consideration and should not be disregarded, except for cogent reasons. When, therefore, the Department, which was called upon to administer the act of 1884 and construe that act in connection with section 487 of the Revised Statutes, did so construe it that the notice and an opportunity for a hearing therein provided to be given should be given by the head of the proper Bureau and that the investigation should be conducted by such Bureau officer, subject to the approval of his findings by the Secretary of the Interior, it is not apparent that there was error in that construction.

8. SAME—SAME—MANDAMUS TO COMPEL THE SECRETARY TO GIVE A HEARING—JURISDICTION OF COURT TO ISSUE WRIT DOUBTFUL.

Assuming that mandamus is proper whenever an inferior court or a judicial officer charged with the exercise of discretionary or judicial functions either assumes to exercise jurisdiction when none exists, or refuses to entertain jurisdiction with which he is by law invested, without regard to the question whether there is any appeal from his judgment when rendered and when he has acted, *Held* that it is doubtful whether the refusal of the Secretary to accord to the relator the opportunity to make an argument, especially when it is not shown or in any manner intimated how or wherein the Secretary erred or was mistaken or misled, is to be regarded as a jurisdictional matter for which the writ of mandamus would be proper.

Mr. J. M. Wilson and *Mr. R. Ross Perry* for the appellant.

Mr. W. A. Megrath for the Secretary of the Interior.

OPINION.

This is an application by the appellant here, John Wedderburn, as relator, for a writ of mandamus to require the Secretary of the Interior to give him a hearing in respect of certain proceedings instituted against him for his exclusion from practice before that Department.

It appears from the record that prior to June 14, 1897, the relator was in the enjoyment of a large and apparently lucrative practice as an agent or attorney for the prosecution of claims for patents before the Patent Office Bureau of the Department of the Interior, duly recognized and admitted to practice under the rules of that Department, and that on the day mentioned he was served with a notice from the Commissioner of Patents to show cause, if any he had, why he should not be refused further recognition as such agent or attorney. With the notice charges were served upon him tending to show malpractice on his part, and with the charges were incorporated copies of documents and statements upon which the charges were founded. The relator in due time made answer to the charges, the substantial purport of which was a denial of their truth. Thereupon an extended

and elaborate investigation was had before the Commissioner and Assistant Commissioner of Patents, and a large amount of testimony, both for and against the relator, was taken and reduced to writing, and it seems that a complete record was kept of all the proceedings.

Finally the matter came to a hearing before the Commissioner and Assistant Commissioner. Oral argument was had on both sides before these officers, and written or printed briefs also were invited to be filed. There was a printed brief filed against the relator, but none on his behalf. Thereupon the Assistant Commissioner, at the request of the Commissioner, prepared a synopsis of the testimony and a report of his findings thereon and submitted it to the Commissioner. The Commissioner then, in a long and elaborate opinion in writing, reviewed the whole case and came to the conclusion that the relator had been guilty of malpractice and that he should be excluded from further recognition before the Department. This conclusion, together with his reasons therefor, he reported to the Secretary of the Interior, and the papers were all transmitted to the latter officer for his final action in the case.

As to the regularity of the proceedings thus far there is no complaint whatever by the relator, and it would seem, in view of the abundant opportunity for a hearing that had been afforded to him, that there was no ground for complaint. But he claims that when the Commissioner's conclusions were reported to the Secretary of the Interior he should have had notice of them and an opportunity for hearing before the Secretary, which under the circumstances would mean not an opportunity for the introduction of further testimony, which is not claimed, but an opportunity for argument, either oral or written, before the Secretary in person. This he did not have. He had no notice of the Commissioner's conclusions until after their approval by the Secretary, and he had no opportunity for argument before the Secretary, and this is the burden of his grievance, for which he now seeks the interposition of the courts.

The Secretary of the Interior seems to have examined with great care the decision of the Commissioner of Patents and the report of the proceedings made by the Assistant Commissioner, and he gave them his full approval. Thereupon the Commissioner of Patents issued an order excluding the relator from recognition as an agent or attorney.

The relator then addressed a communication to the Secretary of the Interior, in which he requested him to vacate the order of approval of the Commissioner's report and recommendation and to give the relator an opportunity for a hearing upon the matter before himself. This application was refused, and thereupon the present proceedings were instituted by the filing in the Supreme Court of the District of Columbia of a petition for a writ of mandamus to the Secretary to require the latter to give to the petitioner the opportunity for a hearing before that officer, to which he claimed to be entitled. With the petition were filed exhibits of all the proceedings had in the Department; and these were deemed so full and so fairly set forth that, on behalf of the Secretary of the Interior, as the respondent in the case, it was thought sufficient to file a demurrer in order to bring before the court all the questions of law involved. The Supreme Court of the District of Columbia sustained the demurrer, refused the writ, and dismissed the petition, and from the order of dismissal the present appeal has been prosecuted.

The question in the case is whether the apellant had in the Department of the Interior the hearing upon his case to which he was by law entitled. For, as to the character of the judgment to be rendered upon such hearing, there is of course no pretense that it can be controlled or directed in any manner by the courts of law or that it is subject to review by any other tribunal for any supposed error. The final determination upon such hearing is for the Secretary of the Interior, and not a matter for the consideration of the courts.

That the relator's office of agent or attorney before the Patent Office and the Department of the Interior was a valuable right of which he should not be deprived without due process of law, such as would be applicable to his case, is not controverted. Nor is there controversy as to what, in general, would constitute due process of law in such cases as that to which the relator was summoned to respond. Specific charges, due notice of such charges, an opportunity to make specific answer to them, an opportunity to cross-examine witnesses in support of them, an opportunity to adduce testimony in contradiction of them, and opportunity for argument upon the testimony and upon the law and the facts,—and all this before the proper tribunal, competent to render judgment, and which does, in fact, render judgment—this undoubtedly constitutes due process of law under ordinary circumstances to its fullest extent, and all this was had in the present instance, if it was competent for the Secretary of the Interior and the Commissioner of Patents to give the hearing in the mode to which it was actually given. Upon the claim of the appellant himself, no proper element of due process of law was wanting in the case except the opportunity of submitting the argument, oral or written, to the Secretary of the Interior in person, after such opportunity had been fully availed of before the Commissioner of Patents. But the right to submit argument is a valuable, although perhaps not always an essential, part of the hearing that constitutes due process of law. Whether the appellant was entitled to it in this case, and to the extent of his claim, depends upon the provisions of the statute law that has been enacted upon this subject.

Section 487 of the Revised Statutes of the United States, which substantially embodies the seventeenth section of the Act of Congress of July 8, 1870, consolidating the patent and copyright laws, is to the following effect:

For gross misconduct the Commissioner of Patents may refuse to recognize any person as a patent agent, either generally

or in any particular case; but the reasons for such refusal shall be duly recorded, and be subject to the approval of the Secretary of the Interior.

There had been a previous act of March 2, 1861, (12 Stats., 246,) which in its eighth section contained precisely the same provision, with the exception that the approval of the Commissioner's action was to be by the President of the United States instead of the Secretary of the Interior; but it is not apparent that the change has any significance in connection with the present controversy.

Subsequently by an act of Congress of July 4, 1884, (23 Stats., 98,) which had reference mainly to pensions, but which purported also to be "for other purposes," it was provided as follows:

Section 5. That the Secretary of the Interior may prescribe rules and regulations governing the recognition of agents, attorneys, or other persons representing claimants before the Department and may require of such persons, agents, and attorneys, before being recognized as representatives of claimants, that they shall show that they are of good moral character and in good repute, possessed of the necessary qualifications to enable them to render such claimants valuable service, and otherwise competent to advise and assist such claimants in the presentation of their claims; and such Secretary may, after notice and opportunity for hearing, suspend or exclude from further practice before his Department any such person, agent, or attorney shown to be incompetent, disreputable, or who refuses to comply with the said rules and regulations, or who shall, with intent to defraud, in any manner deceive, mislead, or threaten any claimant, or prospective claimant, by word, circular, letter, or by advertisement.

It seems to be conceded that this provision of law, although contained, as stated, in an act mainly relating to pensions, constituting in itself an independent section of the act, is sufficiently general to apply to all the Bureaus of the Department of the Interior and not alone to practitioners before the Pension Bureau, and it seems also to be conceded that it does not repeal the section 487 of the Revised Statutes which has been quoted, but that it is to be taken in connection with it as being *in pari materia* and that both acts are to be construed together.

In pursuance apparently of the power vested in him by this act of July 4, 1884, the Secretary of the Interior, among other rules, promulgated the following, under which it is understood the investigation of the charges against the relator was conducted:

Rule 9. Whenever an attorney or agent is charged with improper practice in connection with any matter before a Bureau of this Department, the head of such Bureau shall investigate the charge, giving the attorney or agent due notice, together with a statement of the charge against him, and allow him an opportunity to be heard in the premises. When the investigation shall have been concluded, all the papers shall be forwarded to the Department, with a statement of the facts and such recommendations as to disbarment from practice as the head of the Bureau shall deem proper, for the consideration of the Secretary of the Interior. During the investigation the attorney or agent will be recognized as such, unless for special reasons the Secretary shall order his suspension from practice.

The question recurs, did the appellant have the hearing to which he was entitled under these enactments?

If the determination of this inquiry depended exclusively upon the construction to be given to section 487 of the Revised Statutes, it seems to us that there would be no serious difficulty in reaching a conclusion. It is very clear that this section remits to the Commissioner of Patents the entire cognizance of cases of malpractice occurring before his Bureau and that under it the hearing of such cases is to be by him and not by the Secretary of the Interior. It is eminently fitting that this should be so in view of the character of the duties, judicial or quasi-judicial, which are vested in him. (*Butterworth* v. *Hoe*, 29 O. G., 615; 112 U. S., 50.) It is true, however, that by this section there is reserved to the Secretary of the Interior a supervising power over the action of the Commissioner of Patents; but this is no more than an executive or administrative proceeding. The provision that the judgment of the Commissioner shall "be subject to the approval of the Secretary of the Interior" does not make the Secretary a court for the trial of the case, nor does it make him in any proper sense an appellate tribunal before which it would be proper for a party in interest to demand and to be accorded a hearing. Such terms are nowhere in our legislation used for the creation of appellate judicial authority. They are most inapt terms for any such purpose, and they are equally inapt to constitute the Secretary the court of first instance, for which the findings of the Commissioner may serve as the findings of a referee or master in chancery. In the one case of our legislation in which similar or equivalent terms are used for the creation of supervising quasi-judicial authority—the provision for the review of sentences of courts-martial by the President of the United States or by a commanding officer—it has never been heard of that such supervisory authority implies any right on the part of the person in interest to a hearing *de novo* before such supervising power, notwithstanding that the exercise of the power is a quasi-judicial function.

It is very clear to us that under this section 487 of the Revised Statutes, if it stood alone, the Commissioner of Patents, and not the Secretary of the Interior, constitutes the tribunal for the determination of cases of alleged malpractice occurring before his Bureau, and that the hearing, to which an agent or attorney is entitled before exclusion from recognition, is to be had before the Commissioner. The authority of the Secretary is to review the record transmitted to him and to give or refuse his assent to the Commissioner's recommendations, as he may think proper, and for any reason satisfactory to him. In other words, it is for the Commissioner to pass judgment; but that judgment is not to be given effect until it is approved by the Secretary.

What change, if any, does the act of 1884 make in the proceedings? That act undoubtedly sought to place all the Bureaus of the Department of the Interior on the same basis in the matter of the recognition of agents and attorneys and in the matter of their exclusion from practice for misconduct, while section 487 of the Revised Statutes had reference only to the Patent Office. It provides for rules and regulations to be made by the Secretary to regulate the matter of recognition; but it does not in terms provide for any such rules and regulations in regard to the matter of disbarment. The act would seem to have been left intentionally vague in this regard; for, instead of providing that the Secretary might make rules to govern the matter of the exclusion of attorneys, as well as that of

their admission, it provides that, "after notice and an opportunity for a hearing," the Secretary might exclude such attorneys from practice. It leaves it undetermined how and before whom such hearing shall be had, and undoubtedly there is great plausibility in the theory that the hearing is to be had before the person who is authorized to take final action upon it. If we were dealing here with the action of judicial tribunals, we would have no hesitation whatever in so holding. A court authorized to decide necessarily is the court authorized to hear, and it may not delegate to any one its duty to hear any more than it can delegate its functions to decide.

But there is question here of the conduct of the affairs of a great executive department of the Government, and the character of its duties is not to be ignored in the construction of an act of Congress intended merely to regulate the performances of those duties to the best advantage of the people and with entire justice to all concerned. It is well-settled law and a fundamental rule of our governmental system that purely judicial functions cannot be conferred upon an executive officer; but of necessity executive officers are frequently vested with discretionary functions of quasi-judicial character, and these can no more be delegated than can strictly judicial authority. (*Runkle* v. *U. S.*, 122 U. S., 543.) But where it does not distinctly appear what officer is to exercise the quasi-judicial authority conferred by statute and where the tenor of legislation leaves the exercise of it to be determined in great measure by the executive regulation the presumption does not necessarily arise that the head of the department must himself in person exercise the authority so conferred. When we compare the act of Congress of 1884 and the section 487 of the Revised Statutes and construe them together, as it is justly claimed on behalf of the appellant that we should construe them, it is clear that it was not the intention of Congress to repeal section 487 by the enactment of the latter law, and if such was not the intention of Congress then the only reasonable construction of the act of 1884 was that the hearing therein provided to be given to the persons charged with malpractice was the hearing implied to be by section 487 of the Revised Statutes. So far, at least, as the Patent Office was concerned the act of 1884 made no substantial change in the law. It simply provided expressly for the notice and hearing, the right to which had been implied in the previous statute; and that this was the understanding also of the Department of the Interior is clear from Rule 9, which has been cited, for that rule is in entire accordance with section 487 of the Revised Statutes and serves as a construction of the meaning of the act of 1884 as it was understood by the Department.

Now it has been repeatedly held by the Supreme Court of the United States, and it must, therefore, be regarded as settled law, that the construction placed by an executive department of the Government upon a statute enacted for its guidance and the regulation of its business must, unless it be plainly erroneous, receive due weight and consideration and should not be disregarded, except for cogent reasons. (*United States* v. *Johnston*, 124 U. S., 136; *Heath* v. *Wallace*, 138 U. S., 573; *United States* v. *R. R. Co.*, 142 U. S., 615; *Pennoyer* v. *McConnaughy*, 140 U. S., 1; *United States* v. *R. R. Co.*, 148 U. S., 562; *Robertson* v. *Downing*, 127 U. S., 607.) When, therefore, the Department, which was called upon to administer the act of 1884 and construe that act in connection with section 487 of the Revised Statutes, did, by the adoption of its Rule 9, so construe it that the notice and an opportunity for a hearing therein provided to be given should be given by the head of the proper Bureau and that the investigation should be conducted by such Bureau officer, subject to the approval of his findings by the Secretary of the Interior, it is not apparent that there was error in that construction, and we find no reason to antagonize it. Indeed, so far as the intention of Congress in the premises can be inferred from the statute itself, it would seem that this was the only proper construction. For it will be noticed that the provision of the statute is not that the Secretary might exclude from practice after notice and hearing of the party charged, which would be the more natural form of expression if it was the intention that the hearing should be before the Secretary in person, but that he might exclude "after notice and opportunity for a hearing," meaning plainly a hearing before some proper officer in such reasonable mode as should be provided by regulation of the Department.

What Mr. Justice Field, speaking for the Supreme Court of the United States in the case of *Randall* v. *Brigham*, (7 Wall., 523,) said in reference to the general rule of law on this subject would seem to be appropriate here. He said:

All that is requisite for their validity (meaning the validity of proceedings for disbarment of an attorney) is, that, when not taken for matters occurring in open court, in the presence of the judges, notice should be given to the attorney of the charges made and opportunity afforded him for explanation and defense. The manner in which the proceedings shall be conducted, so that it be without oppression or unfairness, is a matter of judicial regulation.

We must conclude that the hearing contemplated by the act of 1884 was accorded to this appellant in this instance in the hearing which he had before the Commissioner of Patents and that the purpose of the statute was amply subserved by that hearing. We cannot hold that the relator was entitled to two hearings—one before the Commissioner and one before the Secretary. He himself does not claim this, at least in the fullest sense of the term "hearing." He does not claim that he had the right to adduce testimony and to go over the case *de novo* before the Secretary, and yet to this he was entitled if his construction of the statute be correct, for the word "hearing" in law and in this statute means something more than oral argument. It means, also, the right to adduce testimony. Now if the sole hearing contemplated by the statute was to be had before the Secretary the Commissioner of Patents could not hear it at all, and the only duty that could reasonably be imposed upon that officer was that of taking the tes-

timony and reporting it to the Secretary; but this conclusion would be in direct contravention of the section 487 of the Revised Statutes, which explicitly provides that the Commissioner shall determine the matter, subject only to the approval of his action by the Secretary of the Interior. The Commissioner does not act in the matter as a master in chancery or other officer whose duty it is simply to facilitate proceedings and to put them in shape for action thereon by the tribunal authorized to decide them. The Commissioner himself is the tribunal in this case. He is the person authorized by law to investigate and decide. He is therefore the person before whom a hearing can most properly and ought to be had before he formulates his conclusions.

The utmost that could be claimed in this connection is that the Secretary of the Interior acts as a kind of appellate tribunal over the Commissioner of Patents; but even if this be conceded—and we think it must be taken with some qualification—it does not follow that a party in interest is entitled to oral argument or to a hearing of any kind before him beyond what is involved in the examination of the record necessary for the exercise of supervisory power. Such argument might be allowed as matter of grace, but it cannot legally be claimed as matter of right. Even in proceedings purely judicial the right of appeal is not matter of absolute right, but is of statutory creation, and therefore may be regulated or limited by statute or by rules of court made in pursuance of statute and may even be taken away entirely; and if it may be so limited and regulated it is competent to exclude argument of any kind, except such as may have appeared in the court of original resort.

But, as we have already intimated, the words of the statute are not those that are usually in the creation of appellate tribunals. It is true that the supervisory power vested in the Secretary of the Interior over the action of the Commissioner is in this instance judicial in its nature and must be exercised by the Secretary himself in person, (*Runkle v. United States*, 122 U. S., 543;) but all usage and all precedent would be vain if we were to hold that he could not exercise it until he heard the party in interest in oral argument. The meaning of such supervisory power is not that the Secretary must try or hear the cause, but that the judgment of the Commissioner is not to be carried into effect until it receives the approval of the Secretary, and in order to give it this approval, or conversely and by implication his disapproval, the Secretary is necessitated to go over the record of the proceedings that is made up for him according to law or regulation. This, as we have said, is a judicial or quasi-judicial duty on his part; but it is not the equivalent in any sense of the hearing of a cause.

Entertaining the view of the case which we have here sought to express, it is unnecessary for us to determine whether, under the decision in the case of *Commissioner* v. *Whiteley*, (4 Wall., 522,) it would be proper in any event to issue the writ of mandamus in this case. In the case of *Commissioner* v. *Whiteley* the rule was laid down quite emphatically by the Supreme Court of the United States, through Mr. Justice Swayne, that the writ of mandamus is only applicable in two classes of cases—first, where there is a refusal to perform a ministerial act involving no exercise of judgment or discretion; second, where the exercise of judgment and discretion are involved and the officer refuses to decide, "provided that, if he decided, the aggrieved party could have his decision reviewed by another tribunal." Unless this decision has been modified by subsequent adjudications by the same tribunal, it would seem to be decisive of this case, for there is certainly no right of review by any tribunal of the decision of the Secretary of the Interior in the premises. It would seem, however, that the decision in the case of *Commissioner* v. *Whiteley* has been somewhat modified in subsequent cases. Certainly an exception was made to it in the case of *ex parte Bradley*, (7 Wall., 364,) in which it was broadly held, without reference to the theory of appellate jurisdiction to review the judgment that might be rendered by an inferior court, the action of such court might be restrained or constrained by the writ of mandamus whenever it undertook to proceed without jurisdiction or the case was one of irregularity against law or of flagrant injustice; but it may be questioned whether these very general expressions have not themselves been modified by subsequent decisions.

Assuming, however, for our present purpose that mandamus is proper whenever an inferior court or a judicial officer charged with the exercise of discretionary or judicial functions either assumes to exercise jurisdiction when none exists, or refuses to entertain jurisdiction with which he is by law invested, without regard to the question whether there is any appeal from his judgment when rendered and when he has acted, we may well doubt whether the present case is one proper for the writ. The purpose here sought is to compel the exercise of jurisdiction substantially denied to exist—the alleged right to a hearing or oral argument before the Secretary in person. But the only possible result of a hearing is ultimate action in the matter by the Secretary in the way of approval or disapproval of the conclusion reached by the Commissioner. Now that action has been had. The Secretary has given his approval to the Commissioner's recommendations, and upon application of the relator for the rescission of his action and for an opportunity to be heard before him he has reiterated his determination and refused to reopen the case. We greatly doubt whether under such circumstances the refusal of the Secretary to accord to the relator the opportunity to make an argument, especially when it is not shown or in any manner intimated how or wherein the Secretary erred or was mistaken or misled, is to be regarded as a jurisdictional matter for which the writ of mandamus would be proper.

But this question it is unnecessary here to decide. We prefer to base our decision on the broader ground that the relator has had the hearing to which he was by law entitled and that it was not an essential part of that hearing or of due process of law in the premises that he should have been permitted to make an argument, either oral or written, before the Secretary of the Interior in person. But we do this all the more readily in the hope and expectation that our decision may be reviewed by the court of last resort and that our error, if error there be, may be there corrected.

We are of opinion that the order of the Supreme Court of the District of Columbia refusing the writ of mandamus in this case was right and that it should be affirmed, with costs, and it is so ordered.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 3. TUESDAY, APRIL 19, 1898. PRICE—$5 per year.

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Amended Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 13, 1898.

The following rules of the Rules of Practice of the United States Patent Office (edition of June 18, 1897) are amended to read as follows:

RULE 135. Upon the filing of the appeal the same shall be submitted to the Primary Examiner, who, if he find it to be regular in form, shall, within *five* days from the filing thereof, furnish the Examiners-in-Chief with a written statement of the grounds of his decision on all the points involved in the appeal, with copies of the rejected claims and the references applicable thereto. The Examiner shall at the time of making such statement furnish a copy of the same to the appellant. If the Primary Examiner shall decide that the appeal is not regular in form, a petition from such decision may be taken directly to the Commissioner, as provided in Rule 145.

RULE 145. Upon receiving a petition stating concisely and clearly any proper question which has been twice acted upon by the Examiner, and which does not involve the merits of the invention claimed, or the rejection of a claim, and also stating the facts involved and the point or points to be reviewed, an order will be made fixing a time for hearing such petition by the Commissioner, and directing the Examiner to furnish a written statement of the grounds of his decision upon the matters averred in such petition within *five* days *after being notified of the order fixing* the day of hearing. The Examiner shall at the time of making such statement furnish a copy thereof to the petitioner. No fee is required for such a petition.

C. H. DUELL,
Commissioner.

Department of the Interior, April 13, 1898.
Approved:
C. N. BLISS,
Secretary of the Interior.

[CIRCULAR.]

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 14, 1898.

Rules 135 and 145 of the Rules of Practice have been amended to require Examiners to file their answers to appeals and petitions within five days after the appeals and petitions have been submitted to them.

In fixing the day of hearing, the docket clerk will give such time as may be necessary, having regard to the distance of parties and the time required by the mails.

The attention of Examiners is called to the requirement in Rule 64, and questions of form will be insisted upon only in applications found to present patentable subject-matter. In requiring division the Examiners will observe the decisions of the Commissioners, and furnish such references and other information as will enable the applicant to divide intelligently. (*Ex parte De la Sala*, 1898 C. D., 3; *ex parte Stearnes*, 1890 C. D., 49.)

C. H. DUELL,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 9, 1898.

SIR: The Secretary of the Interior has ordered that G. W. Chandler, of Norwood, N. Y., be not recognised after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Special Examination of Applications.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 15, 1898.

Applications for patents filed in this Office after April 30, 1898, will not be made special because the applicant has filed or caused to be filed in a foreign country an application for the same invention more than seven months prior to the date of filing the United States application.

C. H. DUELL,
Commissioner.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

CERTIFICATES OF REGISTRATION ISSUED APRIL 19, 1898.

Labels.

6,570.—Title: "THE GAME OF JACK AND THE BEAN STALK." *McLoughlin Bros.*, Brooklyn, N. Y. Application filed March 11, 1898.

6,571.—Title: "THE GAME OF KRIS KRINGLE'S VISITS." *McLoughlin Bros.*, Brooklyn, N. Y. Application filed March 11, 1898.

6,572.—Title: "DR. BENNETT'S MALARIAL CURE AND BLOOD TONIC." *Marshall R. Johnson*, Springfield, Mass. Application filed March 10, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 12, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between two and three months.			
200	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 17	Mar. 30	247
102	XIX. Stoves and Furnaces	Jan. 14	Mar. 30	414
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 24	Mar. 29	259
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 12	Mar. 29	258
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 13	Mar. 28	223
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 15	Mar. 23	263
	Between three and four months.			
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 29	Apr. 5	264
253	X. Carriages and Wagons	Dec. 30	Apr. 4	219
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 21	Apr. 2	309
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Dec. 13	Apr. 2	307
246	I. Tillage and Fences	Jan. 6	Apr. 1	248
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 6	Apr. 1	516
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Jan. 6	Mar. 30	464
38	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Dec. 14	Mar. 30	412
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 13	Mar. 29	246
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 31	Mar. 28	339
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 30	Mar. 28	307
248	XVIII. Steam-Engineering, etc	Dec. 22	Mar. 28	331
93	XXI. Textiles, etc	Dec. 18	Mar. 28	342
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 22	Mar. 26	536
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 21	Mar. 17	327
	Between four and five months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 13	Mar. 30	562
217	XXXIII. *Trade-Marks, etc., †Designs, Drafting, and Optics.	Dec. 10	Mar. 29	169
106	II. Farm Stock, Products, etc	Dec. 10	Mar. 29	545
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 6	Mar. 25	220
248	XXV. Artesian and Oil Wells, Mills, Thrashing, Vegetable Cutters and Crushers.	Nov. 26	Mar. 18	508
240	VII. Velocipedes	Dec. 10	Mar. 17	226
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Feb. 25	471
	Between five and six months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 10	Apr. 4	276
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 15	Apr. 4	516
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Nov. 1	Apr. 1	797
129	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 1	Mar. 31	451
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Nov. 3	Mar. 30	409

Applications Under Examination—Continued.

	Between seven and eight months.			
221	XXIII. Instruments of Precision, Acoustics, etc.	Sept. 9	Mar. 15	490
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 10	Dec. 8	556
	Total number of applications awaiting action			13,953
	Under one month.			
	†Designs	Mar. 12	Mar. 30	205
	Between one and two months.			
	*Trade-Marks	Mar. 5	Apr. 1	345

ISSUE OF APRIL 19, 1898.

Patents	399	No. 602,418 to No. 602,816, inclusive.
Designs	22	No. 28,480 to No. 28,501, inclusive.
Trade-Marks	13	No. 31,467 to No. 31,479, inclusive.
Labels	3	No. 6,570 to No. 6,572, inclusive.
Prints	None.	
Reissues	1	No. 11,660.
Total issue	438	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1		New Hampshire	1	
Arizona Territory			New Jersey	10	
Arkansas	2		New Mexico Territ'y		
California	17		New York	60	5
Colorado	5		North Carolina	2	
Connecticut	9		North Dakota		
Delaware			Ohio	30	
District of Columbia	4		Oklahoma Territory		
Florida	2		Oregon	1	
Georgia	4		Pennsylvania	28	1
Idaho			Rhode Island	4	
Illinois	37	2	South Carolina		
Indian Territory	1		South Dakota	2	
Indiana	25		Tennessee	5	
Iowa	7		Texas		
Kansas	4		Utah		
Kentucky	4		Vermont		
Louisiana	1		Virginia	6	
Maine			Washington	2	
Maryland	3	1	West Virginia	1	
Massachusetts	24	3	Wisconsin	14	
Michigan	12	1	Wyoming	1	
Minnesota	3	1	U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	11		Total to citizens of the United States	365	14
Montana	2				
Nebraska	6				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		
Australia			Mexico		
Austria-Hungary			Netherlands	1	
Barbadoes			Newfoundland		
Belgium			New South Wales		
Brazil			New Zealand	1	
Burmah			Norway		
Canada	4		Portugal		
Cape Colony			Queensland	1	
Chile, Republic of			Roumania		
China			Russia	1	
Colombia			Scotland	2	
Cuba			South African Republic	1	
Denmark			South Australia		
Egypt			Spain		
England	20	1	Sweden		
Finland			Switzerland	4	
France	4		Victoria	1	
Germany	15	1	Total to citizens of foreign countries	56	2
Hawaii					
Ireland	1				
Italy					

PATENTS

GRANTED APRIL 19, 1898.

602,418. STEAM-ENGINE. Otto Abraham, Pinthow, Germany. Filed July 30, 1896. Serial No. 601,047. (No model.) Patented in Germany Mar. 25, 1896, No. 89,609; in France Apr. 7, 1896, No. 255,396; in England June 17, 1896, No. 13,295, and in Belgium Apr. 7, 1897, No. 130,751.



Claim.—In combination with a cylinder, tight pistons operating in each end of the cylinder, a steam-piston working between the tight pistons, a piston-rod, cross-heads working in guides, guide-rods, stops on the guide-rods, and springs for controlling the action of the pistons, substantially as described.

602,419. WELL-DRILLING CABLE. Samuel Adams, Beaver, Pa., assignor to the Frick & Lindsay Company, Pittsburg, Pa. Filed Feb. 11, 1896. Serial No. 587,912. (No model.)

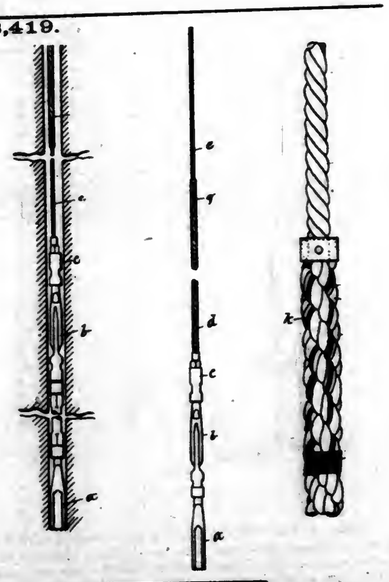
Claim.—1. A well-drilling cable composed of sections of wire rope and hemp rope connected together and adapted to extend between the power mechanism and drilling-tools, substantially as set forth.

2. A well-drilling cable composed of an upper section of wire rope and a lower section of hemp rope connected to the lower end thereof, and adapted to carry the drilling-tools, substantially as set forth.

3. A joint for a well-drilling cable composed of sections of wire rope and hemp rope, formed by inserting the wire rope in the end of the hemp rope and plaiting or splicing the wire strands between and over the hemp strands when the hemp strands remain in their ordinary "lay," substantially as set forth.

4. A joint for a well-drilling cable composed of sections of wire rope and hemp rope, formed by inserting the wire rope in the end of the hemp rope and plaiting or splicing the wire strands between and over the hemp strands when the hemp strands remain in their ordinary "lay," and a band surrounding the end of the hemp rope and holding it in "lay," substantially as set forth.

602,419.



602,420. PNEUMATIC-TIRE-REPAIRING DEVICE. William H. Amory, New York, N. Y. Filed June 19, 1896. Renewed Mar. 10, 1898. Serial No. 673,401. (No model.)



Claim.—1. As an article of manufacture, an elastic strap having fastening devices at its ends adapted to engage with each other and so fastened to said strap that, when it is stretched, a greater strain will be brought upon the edges of the strap than upon the middle thereof.

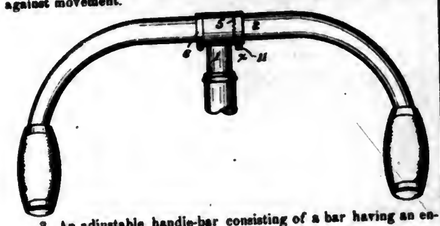
2. As an article of manufacture, an elastic strap provided at either end with interlocking fastenings, each of which is provided with a rounded portion to which the strap is secured so that when said strap is stretched a greater strain will be brought upon the edges than upon the middle thereof.

602,421. ADJUSTABLE HANDLE-BAR. Robert P. Ball, Bridgeport, Conn. Filed Oct. 21, 1896. Serial No. 610,064. (No model.)

Claim.—1. An adjustable handle-bar consisting of a head in which said bar operates, a collar upon said bar, fixed and movable clutch members, a spring-actuated key-lever pivoted to said movable member and adapted to engage the collar upon the bar aforesaid in a manner to lock said movable clutch member.

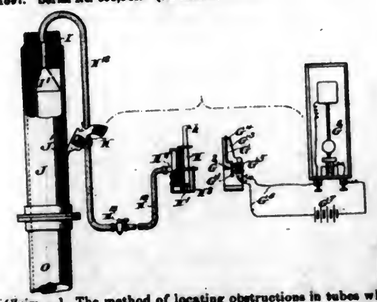
2. An adjustable handle-bar of the class described, consisting of a bar, a collar upon said bar, fixed and movable interlocking clutch members, a spring to permit of the disengagement of said movable member by the rotary movement of said handle bar, a spring-actu-

ated key-lever pivoted to said movable member and adapted to engage the collar upon the bar in a manner to lock said clutch member against movement.



3. An adjustable handle-bar consisting of a bar having an enlargement thereon, a head in which said enlargement operates, serrations upon said head and enlargement registering with each other, a spring-actuated serrated movable clutch member mounted upon the bar and adapted to engage the serrations of the head and enlargement, a key-lever pivoted to said movable member and adapted to operate through an orifice in said clutch member and engage a collar upon the bar in a manner to lock said clutch.

602,422. APPARATUS FOR LOCATING OBSTRUCTIONS IN TUBES. BERNET C. BATCHELLER, Philadelphia, Pa. Filed Sept. 28, 1897. Serial No. 653,340. (No model.)



Claim.—1. The method of locating obstructions in tubes which consists in connecting the tube to be tested with an apparatus for recording time intervals and sound-waves created in the tube, making a loud noise, as by an explosion, in the part of the tube to which the recording apparatus is attached partly closing the connection from the tube to the recording apparatus prior to the making of said loud noise therein so as to avoid an undue strain on the recording apparatus and immediately opening said connection after the sound impulse is created in the tube so as to afford a free passage to the recording apparatus for the sound impulse reflected from the obstruction in the tube.

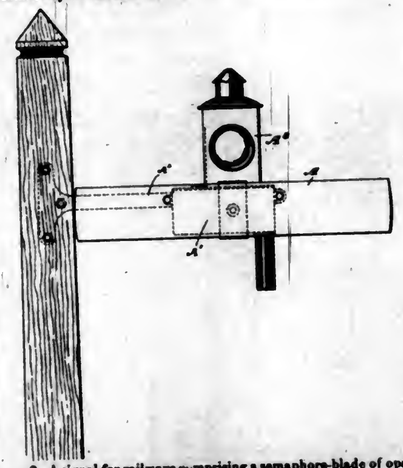
2. In an apparatus for locating obstructions in tubes—the combination with an apparatus for visually recording time intervals of means for coordinately recording sound-waves said means being connected with the tube to be tested as described and so that sound-waves created in said tube will be visually recorded, and means for wholly or partially interrupting the transmission of the sound-waves from the tube to the sound-recording device.

3. In an apparatus for locating obstructions in tubes consisting of a device for visually recording time intervals and means for coordinately recording sound impulses created in the tube to be tested, the combination of a tubular connection leading from the tube to be tested, a diaphragm open to sound impulses coming through said connection, a stylus actuated by said diaphragm to record the sound impulses and means for varying the opening through the tubular connection to the diaphragm.

4. In an apparatus for locating obstructions in tubes consisting of a device for visually recording time intervals and means for coordinately recording sound impulses created in the tube to be tested, the combination of a tubular connection leading from the tube to be tested, a diaphragm open to sound impulses coming through said connection, a stylus actuated by said diaphragm to record the sound impulses and a guard-plate situated in front of the diaphragm arranged to check its outward movement beyond a point of safety.

602,423. RAILWAY SIGNALING APPARATUS. HENRY BEHR, New Rochelle, N. Y. Filed Aug. 23, 1893. Renewed Sept. 3, 1897. Serial No. 650,534. (No model.)

Claim.—1. A signal for railways, comprising a semaphore-blade having a landscape-background adapted to make a series of continuous revolutions in a substantially vertical plane and to assume a defined predetermined position, means for continuously revolving said semaphore-blade to indicate one condition of the track and means for causing said semaphore-blade to automatically assume a defined predetermined position to indicate a different condition of the track, substantially as set forth.



2. A signal for railways comprising a semaphore-blade of opaque material adapted to make a series of continuous revolutions in a substantially vertical plane, and adapted to assume a defined predetermined position, a lantern located behind the said semaphore-blade, means for continuously revolving the semaphore-blade thereby flashing the light to indicate one condition of the track, and means for causing the semaphore-blade to automatically assume a defined predetermined position to indicate a different condition of the track, substantially as set forth.

3. A signal for railways, comprising a semaphore-blade having a landscape-background adapted to make a series of continuous revolutions in a substantially vertical plane and to assume a defined predetermined position, a motor operatively connected with the semaphore-blade for continuously revolving the semaphore-blade to indicate one condition of the track, and means for causing the semaphore-blade to automatically assume a defined predetermined position to indicate a different condition of the track substantially as set forth.

4. In mechanism for operating a signal, the combination of a primary rotatable shaft, provided with a pinion, a secondary rotatable shaft provided with a wheel having teeth around a portion of its periphery in operative connection with the pinion on the primary shaft and also provided with a spring-tooth in the otherwise toothless portion of its periphery, with means for rotating the primary shaft whereby when the primary shaft rotates the secondary shaft also rotates until its spring-tooth is engaged and whereby the secondary shaft then ceases to rotate in its initial direction, substantially as set forth.

5. In mechanism for operating a signal, the combination of a primary rotatable shaft, provided with a pinion, a secondary rotatable shaft provided with a wheel having teeth around a portion of its periphery in operative connection with the pinion on the primary shaft and also provided with a spring-tooth in the otherwise toothless portion of its periphery, with means for rotating the primary shaft whereby when the primary shaft rotates the secondary shaft also rotates until its spring-tooth is engaged and whereby the secondary shaft then ceases to rotate in its initial direction, and means for rotating the secondary shaft in reverse direction when the primary shaft ceases to rotate, whereby the primary shaft is restored to its normal position, substantially as set forth.

6. In mechanism for operating a signal, the combination of a primary rotatable shaft provided with a lug and with a pinion, a secondary rotatable shaft provided with a recessed disk adapted to engage the lug except when the recess and lug register and also provided with a wheel having teeth around a portion of its periphery in operative connection with the pinion on the primary shaft and also provided with a spring-tooth in the otherwise toothless portion of its periphery, with means for rotating the primary shaft, and means for rotating the secondary shaft in reverse direction when the primary shaft ceases to rotate, substantially as set forth.

7. In mechanism for operating signals, the combination of a primary shaft provided with a clutch, one member of which is loosely sleeved thereon, a pinion and lug fixed upon said primary shaft, a secondary shaft provided with a recessed disk adapted to engage the lug on the primary shaft except when the recess of the disk and the lug register, a wheel fixed on the secondary shaft having teeth around a portion of its periphery and a spring-tooth on the otherwise toothless portion of its periphery, engaging the pinion on the primary shaft, substantially as set forth.

602,424. BURNER FOR ACETYLENE GAS. JOHANN S. BILLWILLER, Unteraegeri, Switzerland. Filed Jan. 26, 1897. Serial No. 620,676. (No model.) Patented in Switzerland Nov. 28, 1896, No. 13,268.



Claim.—1. The combination with a gas-burner, of a hood or shield constructed of a material that is a good conductor of heat, arranged above the burner and provided with one or more apertures in line with and of greater diameter than the corresponding burner orifice or orifices, the material of said hood in the immediate vicinity of said aperture or apertures, being protected on the flame side by a material that is a bad conductor of heat, for the purpose set forth.

2. A burner constructed of a material that is a bad conductor of heat, in combination with a hood or shield constructed of a material that is a good conductor of heat arranged above said burner, and provided with one or more jet-apertures in line with and of greater diameter than the corresponding burner orifice or orifices, for the purpose set forth.

3. A burner constructed of a material that is a bad conductor of heat, in combination with a hood or shield constructed of a material that is a good conductor of heat, arranged above said burner and provided with one or more apertures in line with and of greater diameter than the corresponding burner orifice or orifices, the material of said hood in the immediate vicinity of the aperture or apertures being protected on the flame side by a material that is a bad conductor of heat, for the purpose set forth.

602,425. SHUFFLE-HOE. CHARLES M. BROWN, Ocala, Fla., assignor to Augusta F. Brown, Decatur W. Davis, and William Holder, same place. Filed July 6, 1897. Serial No. 643,674. (No model.)



Claim.—1. A shuffle-hoe comprising a head, hangers attached to said head, two series of horizontal cutters sharpened front and rear and carried by the hangers and arranged in alternate relation one to the other, and a suitable operating handle or staff attached to the head to move the head and cutters back and forth in the service of the implement, substantially as described.

2. A shuffle-hoe comprising a head, a series of double-armed hangers attached diagonally to the head, two series of horizontal cutters sharpened front and rear and attached to the front and rear arms of the hangers and with the cutters of one series in alternate relation to the cutters of the other series, and an operating staff or handle attached to the head and serving to reciprocate the head and cutters back and forth in the service of the implement, substantially as described.

3. A shuffle-hoe comprising a head, hangers attached to said head, the front and rear series of horizontal cutter-blades attached to the hangers with one series of cutter-blades in alternate relation to the other series of cutter-blades, each cutter-blade having working edges at the front and rear sides thereof, and a suitable operating-handle attached to the head and serving to reciprocate the implement back and forth in the service thereof, substantially as described.

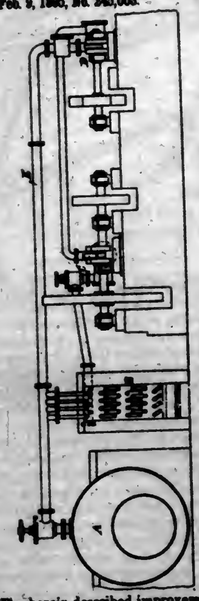
4. In a shuffle-hoe, the hangers each consisting of a single piece provided with parallel members and with a central attaching-shank, combined with a head to which the hangers are fastened, and cutters sharpened front and rear and attached to the parallel members of said hangers, as and for the purposes described.

5. A shuffle-hoe comprising a head, a series of hangers arranged diagonally to the head and fastened thereto, and two series of cutters attached to the hangers and arranged in alternate relation to each other, each cutter comprising a substantially square plate having cutting edges on each side thereof, as and for the purposes described.

6. A shuffle-hoe comprising a cross-head, hangers passed through said head diagonally thereto and carrying the two series of cutters, which are sharpened at their front and rear edges, and a common fastening-plate attached to said cross-head, as and for the purposes described.

7. A hand-operated shuffle-hoe comprising a longitudinal head, a handle, two series of horizontal cutters sharpened front and rear and arranged one in rear of the other and with the cutters of one row arranged in alternate relation to the cutters of the other row, and means for uniting the individual cutters rigidly to the head, substantially as and for the purposes described.

602,426. STEAM-ENGINE. SAMUEL CRAWOOD, London, and SAMUEL R. CRAWOOD, Bolton, England. Filed Dec. 28, 1897. Serial No. 664,072. (No model.) Patented in England Oct. 31, 1893, No. 20,583, and in France Feb. 9, 1895, No. 245,003.

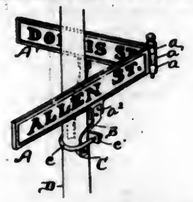


Claim.—1. The herein-described improvement in the art of obtaining motive power from high-pressure superheated steam, which improvement comprises the following steps, viz: first, working superheated steam expansively in an engine so as to reduce the temperature of the exhaust-steam below that of the water in the generator; second, compressing the resulting comparatively cool low-pressure steam as it escapes from the engine after doing its work to the initial pressure of the generator; third, returning this compressed steam without reducing its temperature to the generator; fourth, reheating this steam; fifth, passing it again through the superheater to heat it still further, and, sixth, reusing this reheated superheated steam in the engine.

2. The combination, substantially as hereinbefore set forth, of a steam boiler or generator, a superheater connected therewith, an engine connected with the superheater, a compressor directly connected with the exhaust-pipe of the engine and a return-pipe directly connecting the compressor and generator, for the purpose specified.

602,427. CORNER STREET-SIGN. GEORGE G. COCKBURN, Cleveland, Ohio, assignor to T. H. Brooks and W. H. Shepard, same place. Filed May 17, 1897. Serial No. 636,963. (No model.)

Claim.—A corner street-sign consisting of two sign-plates hinged together at their ends, and each plate lettered on both sides provided with an ear a^2 upon its lower edge, and which ear is recessed upon both of its sides, combined with the bent legs B which have their upper ends so shaped as to fit in the recesses in the ear, and their lower ends bent to bear vertically against a suitable support; and a clamp which surrounds the support and secures the lower ends of the legs rigidly thereto, substantially as shown and described.



602,428. IRONING-TABLE. SARAH J. COGGINS, Mount Morris, Ill. Filed June 4, 1896. Serial No. 594,273. (No model.)



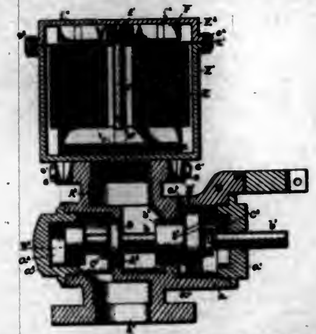
Claim.—1. In an ironing-table, the combination of the pairs of crossing legs, the continuous rod for pivotally connecting together said legs, the protecting or side boards with their lower converging edges hinged together and adapted to permit passing between them thereat of said pivoting-rod and having at their outer ends, near the upper edges, pins or projections entering coincident apertures in the upper ends of said legs, the ironing-board and means for supporting said ironing-board in position between said protecting-boards, near their upper edges, substantially as set forth.

2. In an ironing-table, the combination of the pairs of crossing legs, the continuous rod for pivotally connecting together said legs, the protecting or side boards with their lower converging edges hinged together and adapted to permit the passing between them thereat of said pivoting-rod and having at their end, near the upper edges, pins or projections entering coincident apertures in the upper ends of said legs or supports, the ironing-board having secured to its under side, at one end, a cross-bar and supported at its opposite end upon, but not attached to, a second cross-bar, said cross-bars having apertures in their ends engaging upstanding hooks on the inner sides of said protecting-boards, at their upper edges, said pivoting-rod having one end headed and a thumb or binding nut at its opposite end, and said ironing-board also having at the opposite end to that to which is secured its cross-bar, means for suspending that end upon one of the hooks upon one of said protecting-boards, substantially as described.

3. In an ironing-table, the combination of two pairs of legs, having openings therein at points adjacent to their upper ends, protecting-boards hinged together at their lower edges and having pins projecting outwardly from their upper outer edges fitting within the openings in said legs and engaging the inner surfaces thereof, a rod or bar having a screw-threaded nut at one end, connecting said pairs of legs at points intermediate of their ends, and lying between said boards at points adjacent to their lower edges, a head upon the other end of said rod, and means for supporting an ironing-board, substantially as specified.

602,429. VALVE-CONTROLLER. ARTHUR B. COLGATE, New York, N. Y., assignor to the Signal Control Company, Brooklyn, N. Y. Filed Sept. 19, 1896. Renewed Oct. 1, 1897. Serial No. 653,747. (No model.)

Claim.—1. The combination with a main valve designed to be held to its seat by the pressure from the inlet, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, another piston on said valve-stem working in a chamber to cushion the opening stroke of the main valve, a passage from the inlet to the chamber of the actuating-piston, and an auxiliary valve for controlling said passage, substantially as set forth.



2. The combination with a main valve designed to be held to its seat by the pressure from the inlet, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, another piston on said valve-stem working in a chamber to cushion the opening stroke of the main valve, a head or enlargement on the outlet side of said valve-stem, a passage from the inlet to the chamber of the actuating-piston, and an auxiliary valve for controlling said passage, substantially as set forth.

3. The combination with a main valve designed to be held to its seat by the pressure from the inlet, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, another piston on said valve-stem working in a chamber to cushion the opening stroke of the main valve, a passage from the inlet to the chamber of the actuating-piston, an auxiliary valve for controlling said passage, and an electromagnet for operating said auxiliary valve, substantially as set forth.

4. The combination with a main valve designed to be held to its seat by the pressure from the inlet, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, another piston on said valve stem working in a chamber to cushion the opening stroke of the main valve, a passage from the inlet to the chamber of the actuating-piston, an auxiliary valve for controlling said passage, said valve being held to its seat by the pressure from the inlet, and an electromagnet for opening said auxiliary valve, substantially as set forth.

5. The combination with a main valve designed to be held to its seat by the pressure from the inlet, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, means for permitting the operation of said main valve manually, a piston at the other end of the valve-stem working in a chamber to cushion the opening stroke of the main valve, a passage from the inlet to the chamber of the actuating-piston, and an auxiliary valve for controlling said passage, substantially as set forth.

6. The combination with a main valve, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, a passage from the inlet to said chamber, and an auxiliary valve for controlling said passage, said auxiliary valve being slightly overbalanced and held to its seat by pressure from the inlet, substantially as set forth.

7. The combination with a main valve, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open said valve, a passage from the inlet to said chamber, and an auxiliary valve for controlling said passage, said auxiliary valve having a surface upon which the pressure within the valve-chamber acts to produce a rapid closing of the auxiliary valve and located so as not to affect the opening movement of said valve, substantially as set forth.

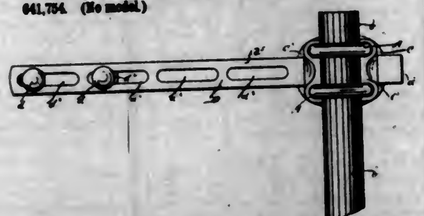
8. The combination with a main valve, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, a passage from the inlet to said chamber, and an auxiliary valve for controlling said passage, said auxiliary valve on the inlet side being slightly overbalanced to hold it to its seat, and having a surface on the outlet side which greatly overbalances the valve to produce a rapid closing thereof, substantially as set forth.

9. The combination with a main valve, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, a passage from the inlet to said chamber, an auxiliary valve for controlling said passage and whose valve-stem projects through the valve-casing, means engaging with said valve-stem to open the auxiliary valve, and a hood or thimble d^9 on said valve-stem, substantially as and for the purpose set forth.

10. The combination with a main valve, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, a passage from the inlet to said chamber, an auxiliary valve for controlling said passage and whose valve-stem projects through the valve-casing, means engaging with one end of said valve-stem to open the auxiliary valve, a hood or thimble d^9 on that end of the valve-stem, and a collar d^7 packing d^8 and packing-ring d^{10} through which the other end of said valve-stem works, substantially as and for the purpose set forth.

11. The combination with a main valve, of a valve-stem provided with an actuating-piston working in a separate chamber and adapted to be actuated by the pressure from the inlet to open the main valve, a passage from the inlet to said chamber, an auxiliary valve for controlling said passage, an electromagnet for operating said auxiliary valve, a practically water-tight casing for said magnet, a plate x' and connected tube x^2 through which extends a rod from the armature to the stem of the auxiliary valve, and a packing at the outer end of said tube x^2, substantially as and for the purpose set forth.

602,430. WEED-CUTTER ATTACHMENT FOR CULTIVATORS. PATRICK W. CONCORAN, Forest, Ill. Filed June 22, 1897. Serial No. 641,754. (No model.)



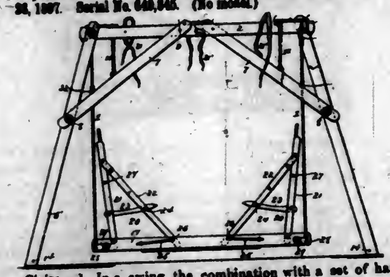
Claim.—A weed-cutter attachment for cultivators having the bar D with right angles d^1 d^2, parallel arms d^4 d^5 and the slots d^6 in the arm d^5 whereby it may be clamped to two standards of the cultivator and to the weed-cutter shank in the manner shown and described.

602,431. BRUSH. ARTHUR W. COULTER, London, England. Filed June 7, 1897. Serial No. 639,707. (No model.)



Claim.—In a brush a rigid detachable metallic bristle-plate, a series of cylindrical perforations, projecting burs at the back of said perforations having apertures of less diameter than the perforations, bristles inserted in the said perforations, retaining-wires securing the bristles, and means for readily securing the bristle-plate to the remaining portion of the brush.

602,432. SWING. JOHN G. J. DAVIS, Augusta, Ga. Filed Aug. 26, 1897. Serial No. 649,845. (No model.)



Claim.—1. In a swing, the combination with a set of hanger-rods, and a seat supported at their lower ends, of braces connecting these hanger-rods in pairs and bowing them outward between their ends whereby to afford ample clearance between the rods and the sides of the seat.

2. In a swing, the combination with a set of hanger-rods pivotally suspended at their upper ends, and a seat supported by them at their lower ends, of a pair of crossed braces connecting these rods in pairs these braces having a sliding pivotal connection at one end and a loose connection with the rods at the other end, and means for confining the ends of the braces in their relation to the hanging-rods whereby to spread the rods apart between their ends to clear the sides of the seats.

3. In a swing, the combination with hanging-rods having loops in their lower ends, of a platform having pins thereon adapted to enter the loops in the lower ends of the rods, and pivoted keepers for holding the loops upon the pins, substantially as set forth.

4. In a swing, the combination with a platform or bottom, of extensible hanging-rods, loops pivotally connected therewith, pins on the platform adapted to enter these loops, and means for holding the loops on the pins, substantially as set forth.

5. In a swing, the combination with a platform, of hanging-rods, and braces having a sliding pivotal connection with the rods, the free ends loosely embracing the rods, substantially as set forth.

602,433. VEIL-HOLDER. ELLEN DETWILER, Ironbridge, Pa. Filed Mar. 16, 1897. Serial No. 627,797. (No model.)



Claim.—1. The herein-described veil holder or clasp having flat-surfaced base, intermediate and outer veil-engaging leaves, a clamp connected with the base-leaf for securing the holder or clasp to a hat-crown, and yielding means for hingedly connecting said leaves, to allow swinging, and also longitudinal and transverse movement in parallel planes, thereof, substantially as specified.

2. The herein-described veil holder or clasp having flat-faced coextensive base, intermediate and outer veil-engaging leaves, a clamp carried by the base-leaf for engaging a hat, and yielding means for hingedly connecting said leaves in series to allow swinging, and also longitudinal and transverse movement in parallel planes, thereof, and adapted to normally maintain said leaves in registration with their corresponding edges flush with each other, said means consisting of springs, each having an intermediate and terminal spaced tongues, extending in parallel directions, and respectively engaged with the contiguous edges of adjoining leaves, and reversed open coils connecting the intermediate tongue respectively with the terminal tongues, and each consisting of a plurality of twists or members spaced apart to allow axial expansion and contraction of the coils, substantially as specified.

602,434. SIGNALING DEVICE FOR RAILWAY-CARS. FRANK W. DUNN, Detroit, Mich. Filed Sept. 26, 1897. Serial No. 653,210. (No model.)

Claim.—1. The herein-described circuit-closing device, comprising a casing adapted to be secured to the car above the heads of the passengers and provided with openings in the top and front, the insulated pivoted contact-lever having one end projected through the front opening, the insulated contact-plate secured inside the casing in the path of the movement of the lever, the insulated spring for normally holding the lever and plate apart, the circuit-wires entering the casing through the top opening and connected respectively to the lever

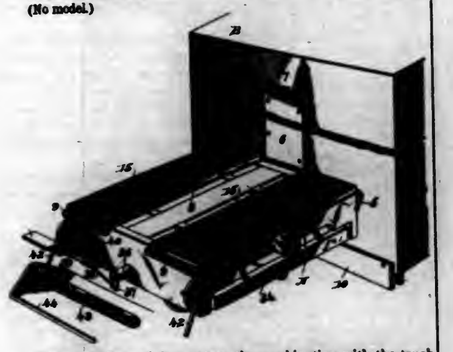
and contact-plate, and a cord attached to the projecting end of the lever and depending in reach of the passengers, substantially as described.



2. The herein-described circuit-closing device comprising a hollow metal casing provided with lugs or ears to receive screws to secure it to the wall of the car above the heads of the passengers, said casing being open in the rear and provided with an opening, C, in the front, an opening, D, in the top and openings in the sides, the lever, F, provided with insulated trunnions journaled in the openings in the sides of the casing and having a bent forward end projecting through the opening, C, in the front of the casing, a spring, M, secured in the block of insulating material in the interior of the casing, a stop-block, O, of insulating material engaging said spring, the contact-plate, L, secured in a block of insulating material in the interior of the casing in the path of movement of the lever, and the line-wires, Q and R, passing through the opening, D, in the top of the casing, the former connecting to the lever, F, and the latter to the contact-plate, L, substantially as described.

602,485. MINING-CAR AND RAILWAY SYSTEM THEREFOR.

JOHN DWYER, Butte, Mont. Filed Mar. 10, 1897. Serial No. 626,827. (No model.)



Claim.—1. In a mining system, the combination with the truck and body of the car, of plates spaced apart and rigidly secured to the truck and having knuckles at their opposite ends, a plate firmly attached to the car-body and fitting snugly between the spaced plates, and of a corresponding length therewith and having knuckles at its ends, and pins or rods removably fitted into the alining knuckles of the plates to secure the parts of the car together and form a support for the body to tilt upon, substantially as set forth.

2. In a mining system, the combination with the truck and body of a car, of plates spaced apart and firmly secured to the truck and having knuckles at their ends, a plate rigidly attached to the body and fitting snugly between the spaced plates and having knuckles at its ends to aline with the knuckles of the spaced plates, pins or rods passing through the alining knuckles of the plates to secure the body in place, and removable to admit of the body tilting from either end, and rubber strips applied to the top side of the spaced plates and thicker than the plate applied to the body, substantially as shown for the purpose set forth.

3. In a mining system, two or more separate and independent cars constructed for conjoint use placed side by side and having their contiguous portions intermatching, whereby the cars are held against vertical displacement and are free to separate, substantially as set forth for the purpose described.

4. In a mining system, the combination of two or more separate and independent cars constructed for conjoint use placed side by side, and strips overlapping the joint formed between contiguous portions of adjacent cars and rigidly secured to the opposite sides thereof, whereby the cars are prevented from independent vertical movement but are free to separate laterally under conditions, substantially as described.

5. In a mining system, the combination of two or more separate and independent cars arranged side by side and having vertical end pieces, and having the contiguous edges of their bottoms intermatching, keepers applied to an end of one car, and a bolt or rod slidably mounted in keepers applied to the end of the other car and adapted to engage with the keepers of the first-mentioned end, substantially as set forth for the purpose described.

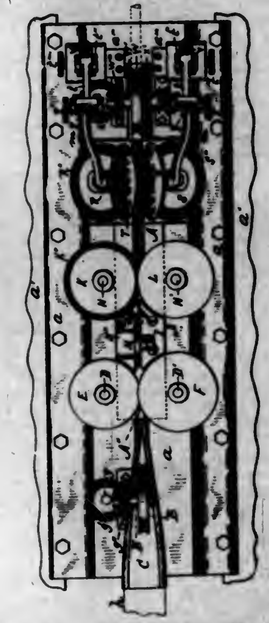
6. In a mining system, the combination of tracks extending parallel for a given distance, thence branching or diverging, and cars mounted upon the tracks side by side and having their contiguous portions intermatching and readily separable when the cars reach the diverging or branching portions of the tracks, substantially as set forth.

7. In a mining system, the combination of tracks extending parallel for a given distance, thence branching or diverging, cars mounted upon the tracks and having their contiguous portions intermatching and readily separable when the cars reach the diverging portions of the tracks, means for securing the cars prior to unloading, and provision for admitting of the car-bodies tilting, substantially as specified.

8. In a mining-car, the combination of a brake-beam, a shaft having connection with the brake-beam, a lever having one end connected with an arm of the said shaft, and a foot-lever mounted upon the same support with the lever and engaging with the free end thereof, and adapted to fold, substantially as and for the purpose set forth.

602,486. CIGARETTE-MACHINE.

JOHN O. HAYES, Fall River, Mass., assignor of one-fourth to John Marshall, same place. Filed June 3, 1897. Serial No. 638,821. (No model.)



Claim.—1. In a continuous-cigarette machine in which the strip or wrapper-tube is fed into the machine with its edges upturned and one higher than the other, the combination of the following mechanisms: mechanism arranged to turn the broader edge or flap of the wrapper-tube horizontally over and across the upturned narrower edge or flap; mechanism for folding said broader edge or flap down around and against the narrower edge or flap; mechanism for folding the two flaps thus formed down into a seam on opposite sides of the center or opening into the wrapper proper; and crimping mechanism entirely outside of the wrapper-tube arranged to unite the several thicknesses or plies of paper which compose the seam thereby produced.

2. In a continuous-cigarette machine, a bed provided with a trough or groove A′ for the reception of the tobacco rod and strip; the horizontally-arranged disk-wheels E and F having the under edges of their peripheries formed with curved grooves continuing and completing the circle of which said trough describes an arc, said disk-wheel F being provided with the peripheral lip F‴ arranged to overlap the edge of the disk-wheel E and thereby fold one edge or flap of the wrapper-tube horizontally over and across the opposite edge or flap; and mechanisms for feeding the tobacco rod and strip between said wheels and for rotating the latter, substantially as described.

3. In a continuous-cigarette machine, a bed provided with a trough or groove A′ for the reception of the tobacco rod and strip; the horizontally-arranged disk-wheels E and F having the under edges of their peripheries formed with carved grooves continuing and completing the circle of which said trough describes an arc, said disk-wheel F being provided with the peripheral lip F‴ arranged to overlap the edge of the disk-wheel E; the vertically-arranged disk-wheel H provided with the beveled periphery H′; the guide plate I formed with the groove I′; and mechanisms for feeding the tobacco rod and strip between said disk-wheels E, F and between the beveled disk-wheel H and guide I, whereby one edge or flap of the wrapper-tube is folded over the opposite edge or flap and down at an acute angle therewith, substantially as set forth.

4. In a continuous-cigarette machine, a bed provided with a trough or groove A′ for the reception of the tobacco rod and strip; mechanism arranged and adapted to operate therewith to turn the strip into tubular form and to fold one edge or flap of the wrapper-tube over the other edge or flap and down at an acute angle therewith; the shaping-block J secured to the bed in advance of said mechanism and provided with the inner vertical edge J′ arranged centrally over the tobacco rod, said edge being formed with the beveled surface J″ facing the advancing strip or wrapper; the guide-plate I set opposite the shaping-block J and having an inner vertical edge; and mechanism for feeding the tobacco rod and strip along said trough or groove, whereby one edge or flap of the wrapper-tube is folded over and down against the outer surface of the opposite edge or flap, substantially as described.

5. In a continuous-cigarette machine, a bed provided with a trough or groove A′ for the reception of the tobacco rod and strip; mechanism arranged and adapted to operate therewith to turn the strip into tubular form and to fold one of the edges or flaps of the wrapper-tube over and against the outer surface of the opposite edge or flap; the horizontally-arranged disk-wheels K and L provided with the carved grooves K′ and L′ on the under edge of their peripheries, said wheel K being formed with the peripheral tongue K″, and said wheel L being formed with the peripheral groove L″ the under wall of which extends approximately to a sharp edge L‴, said tongue K″ being adapted to extend into said groove L″; mechanism for feeding the tobacco rod and strip along said trough; and mechanism for imparting rotation to said disk-wheels, whereby the welt-seam above described is produced and formed to extend on opposite sides of the entrance to the body of the wrapper-tube, substantially as set forth.

6. In a continuous-cigarette machine, a bed provided with a trough or groove A′ for the reception and passage of the tobacco rod and strip; mechanism adapted to operate therewith to turn the strip into tubular form and to form a seam which extends on opposite sides of the center or entrance to the body of the wrapper-tube; the oppositely-inclined disk-wheels R, S formed on their under edges with the peripheral grooves R′ S′ and on their upper edges with the beveled crimping-surfaces R″ S″; the oppositely-inclined disk-wheels T, U formed with the peripheral crimping edges T′ U′ and arranged to press upon the upper side of the seam while the crimping edges of the wheels R, S press up against the under side of the seam between said seam and the body of the wrapper; mechanism for imparting rotation to the four said disk-wheels; and mechanism for feeding the tobacco rod and tube with the seam formed thereon along said trough, substantially as described.

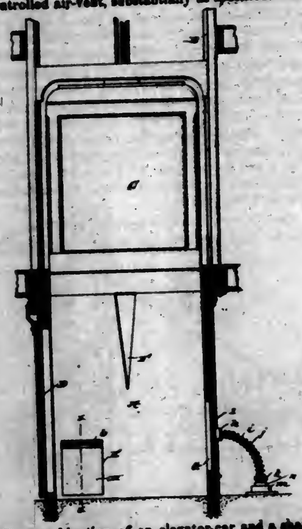
7. In a continuous-cigarette machine, the adjustable crimping mechanism, comprising the bed A provided with the trough A′; the oppositely-inclined lower disk-wheels R, S; the oppositely-inclined upper disk-wheels T, U; the gear-wheels *n* provided with the integral arms *m* supporting studs upon which the upper disk-wheels revolve; the disks *n′* adjustably secured to said gear-wheels by means of bolts and curved slots *n‴*; arms *l* extending from said disks *n′* and pivotally supported by standards *l″* adapted to be moved laterally on the base of the machine; worms *q* supported by said disks *n′* and engaging said gear-wheels *n*, and adjustable springs adapted to regulate the tension of the upper pair of crimping-disks upon the lower pair, substantially as set forth.

602,487. SAFETY APPLIANCE FOR ELEVATORS.

FREDERICK T. ELLINGWOOD, Newark, N. J. Filed Feb. 3, 1896. Serial No. 578,509. (No model.)

Claim.—1. The combination of an elevator-car and a shaft or well, an air-cushion at its bottom provided with two air-vents and also provided with suitable means for preventing the escape of air through one vent until the other vent fails to permit the air to escape with sufficient rapidity to prevent the sudden stop of a falling car, substantially as specified.

2. The combination of an elevator-car, and a shaft or well, an air cushion at its bottom provided with an inwardly-opening valve for the admission of air and also provided with an open air-vent and a valve-controlled air-vent, substantially as specified.



3. The combination of an elevator-car and a shaft or well, an air-cushion at its bottom provided with two air-vents and also provided with a downwardly and outwardly movable valve controlling one of said vents, substantially as specified.

4. The combination of an elevator-car, a shaft or well, an air-cushion chamber at the bottom of the shaft or well having two air-vents, and a spring-backed valve connected at its lower end in a hinged manner to the outside of one wall of the chamber below one air-vent whereby it is adapted to open outwardly and downwardly, substantially as specified.

5. The combination of an elevator-car, a shaft or well, an air-cushion chamber at the bottom of the shaft or well having two air-vents, a valve connected at its lower end in a hinged manner to the outside of one wall of the chamber below one air-vent whereby it is adapted to open downwardly and outwardly, a pedestal, a cup adjustably connected with the pedestal, a bowed guide-rod resting in the cup and extending loosely through an aperture in the valve, and a spring surrounding said rod and interposed between the cup and the valve, substantially as specified.

602,488. SHIPPING-BOX.

JACOB G. FOX, Bay City, Mich., assignor to Richard A. Smith, same place. Filed June 26, 1897. Serial No. 642,236. (No model.)

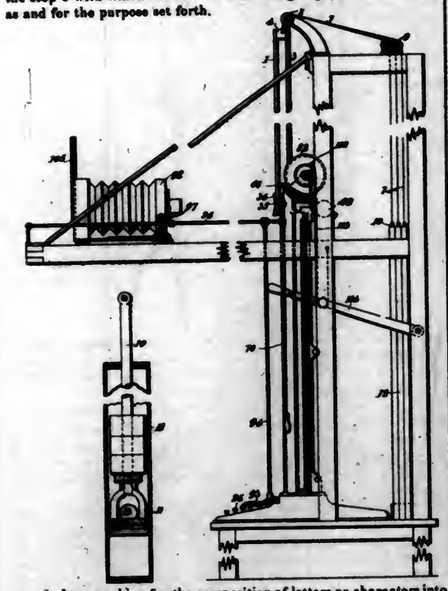


Claim.—In a shipping-box, the combination of the permanent lower box-section consisting of the bottom, end and side sections secured together, with the supplemental end sections hinged by their lower edges to the upper edges of the said permanent end sections, and provided on the inner sides of their lateral edges with the metal stripe 11, the supplemental side sections hinged by their lower edges to the bottom of the permanent box-section and provided on their ends with the outwardly-projecting metal hooks 10, adapted for engagement with the said stripe 11, when the supplemental sides are in a vertical position, and a cover having downwardly-projecting end sections for passing over the upper edges of the said hinged end sections and with side sections projecting downwardly for resting upon the upper edges of said hinged side sections, and means for retaining said cover in position substantially as set forth.

602,489. MEANS FOR COMPOSING CHARACTERS AND PRODUCING PHOTOGRAPHIC NEGATIVES THEREFROM.

WILLIAM FRIESE-GREENE, London, England, assignor to the Automatic Photo Printing Syndicate, Limited, same place. Filed Feb. 26, 1896. Serial No. 580,656. (No model.)

Claim.—1. In a machine for the composition of letters or characters into words or the like and having a number of movable character-bearing strips released successively from holding-up stops and arrested at the required heights by arresting-stops as set forth, the combination with such strips, and arresting-stops, of separately-movable holding-up stops, an engaging piece 34 withdrawing said holding-up stops successively, keys 26 representing the different characters, key-bars 23 operated by said keys, horizontal bar 27 with which the said key-bars are in contact, and connections between said horizontal bar and the engaging piece 34, whereby whenever any one of said keys 26 is operated the corresponding key-bar 23 depresses the horizontal bar 27 and the engaging piece 34 is pulled and withdraws the stop 6 with which it is for the time being engaged, substantially as and for the purpose set forth.



2. In a machine for the composition of letters or characters into words or the like and having a number of movable character-bearing strips released from holding-up stops and arrested at the required heights by arresting stops and having a set of keys and key-bars by means of which said holding-up stops and arresting-stops are operated and having also a traversing carriage which moves from one vertical row of arresting-stops to the next row of said stops at every manipulation of any of said keys, substantially as set forth, the combination with said keys, key-bars, holding-up stops, arresting-stops, and traversing carriage, of a "space-key" and corresponding key-bar inactive relatively to said holding-up stops, and the depression of which effects the feed of said traversing carriage but does not act upon any holding-up stop or any arresting-stop whereby one of the movable strips remains in its normal position substantially as and for the purpose set forth.

3. In a machine for the composition of letters or characters into words or the like and having a number of movable character-bearing strips released from holding-up stops and arrested at the required heights by arresting-stops and having a set of keys and key-bars by means of which said holding-up stops and arresting-stops are operated and having also a traversing carriage which moves from one vertical row of arresting-stops to the next row of said stops at every manipulation of any of said keys and having also a "space-key" and corresponding key-bar inactive relatively to said holding-up stops, and the manipulation of which effects the feed of said carriage but does not act upon any holding-up stop or any arresting-stop substantially as set forth, the combination with the movable character-bearing strips and said holding-up stops separately movable of means for simultaneously withdrawing all the holding-up stops that have not been withdrawn and simultaneously lowering the corresponding strips to any required extent whereby "spaces" are introduced between the words and the line is justified, substantially as and for the purpose set forth.

4. The combination with a machine for composing a line of letters or characters by means of a number of character-bearing strips which are moved into the respective positions to bring into alinement the characters required to make up a line, substantially as set forth, of a camera facing said machine and having its object-glass at the same height as that in which the line of characters is composed in said machine, a hand-operated device on said machine and connections between said device and said camera whereby when said device is operated the shutter of the camera is moved and causes an exposure, and the photographic plate or film is then moved and its next section thereby brought into line with the said slot substantially as and for the purpose hereinbefore described.

602,440. PROPELLING MECHANISM. CORNAVE L. GALBRAITH, New York, N. Y. Filed Apr. 20, 1897. Serial No. 634,469. (No model.)



Claim.—1. An improved propeller mechanism of the class described, comprising the upright standard or framework, the propeller-shaft carrying a sprocket wheel or gear, a sprocket drive-wheel or gear carried upon a shaft mounted at the top of the upright standard or framework, said shaft being provided with an opposite end crank, a sprocket chain or connecting mechanism extending between the gears, pitmen connected with the crank end of the drive-wheel shaft, and treadles extending from said pitmen rearwardly at each side the driving-gear mechanism, substantially as and for the purpose set forth.

2. An improved propeller mechanism of the class described, comprising the upright standard, the propeller-shaft having its front end bearing in the lower portion of said standard and provided with a sprocket-wheel, a sprocket drive-wheel mounted upon a shaft bearing on the top of the standard and provided with a rearwardly-projecting crank-arm or handle, the shaft of said drive-wheel being provided with a pedal-crank at its front end, a sprocket-chain connecting said gears, the pitmen respectively connected to said cranks at each side the mechanism and pivotally jointed, and the treadles connected with the pitmen and extending rearwardly at each side the driving mechanism, substantially as and for the purpose set forth.

602,441. REAPING-MACHINE. JOHN A. GORDON, Sharpsburg, Iowa. Filed June 17, 1897. Serial No. 641,189. (No model.)



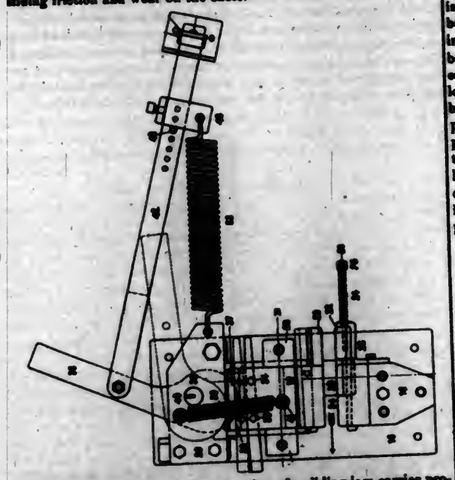
Claim.—1. In a reaping-machine or harvester, the combination, with a platform for supporting the cutting apparatus formed of two parts arranged end to end, each said part comprising a frame having longitudinal bars at its front and back and a bottom secured to the said bars; of arms pivoted to the said longitudinal bars and permitting one part to be folded up onto the other part, the arm at the front of the platform being arranged behind the front bars inside the frames, and the bottom portion of one of the said frames being provided with an opening *c* for the said arm to work in, substantially as described and shown.

2. In a reaping-machine, a platform for supporting the cutting apparatus, formed in two parts arranged end to end, the longitudinal bars of one part having projections on their end portions which engage with notches in the longitudinal bars of the other part, in combination with arms pivoted to each of the said parts and permitting one part to be folded up onto the other part, substantially as set forth.

3. In a reaping-machine, the combination, with a platform for supporting the cutting apparatus, formed in two parts arranged end to end and provided with longitudinal bars, the outer part of the platform having also a narrow opening *c*; of arms pivoted to the rear sides of the said longitudinal bars and permitting the outer part of the platform to be folded up onto the inner part, the front arm being arranged to work in the said opening *c*, substantially as set forth.

602,442. ROLLER-TOBOGGAN. CHARLES H. GRANT, Hull, Mass. Filed July 20, 1897. Serial No. 645,376. (No model.)

Claim.—1. In a cable-grip, the combination of jaw-carriers, jaws adapted to slide in said carriers, means for imparting a direct positive grip of the jaws upon the cable, and elastic cushioning devices for effecting an elastic connection between the cable and the car without sliding friction and wear on the cable.



2. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw, an operating-lever having an eccentric head, and spring-actuated mechanism for holding said lever normally in open position.

3. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier having a traveling and sliding jaw, and provided with a wear-adjusting key adjustably fastened thereto, an operating-lever having an eccentric head, said a filler-block disposed between said eccentric head and the adjusting-key.

4. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier having a traveling and sliding jaw, and provided with a wear-adjusting key adjustably fastened thereto, an operating-lever having an eccentric head, a filler-block disposed between said eccentric head and adjusting-key, and means for holding said filler-block in close contact with the eccentric head and adjusting-key.

5. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier having a traveling and sliding jaw, and provided with a wear-adjusting key adjustably fastened thereto, an operating-lever having an eccentric head, a bearing-plate for operating-lever, a filler-block disposed between said eccentric head and adjusting-key, and a spiral spring having one end thereof attached to said bearing-plate and the other end to said traveling and sliding jaw carrier for holding said filler-block in close contact with the eccentric head and adjusting-key.

6. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier provided with a traveling and sliding jaw, an operating-lever having an eccentric head, spring-actuated connecting mechanism connecting said traveling and sliding jaw carrier and said eccentric head, and a spring-actuated pull-back rod for said lever.

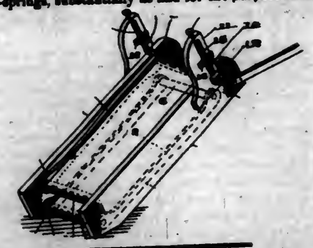
7. In a cable-grip, the combination of a sliding jaw, a traveling and sliding jaw, an operating-lever for said jaws, a pull-back rod for said lever having an adjustable block secured thereto, and a spiral spring connecting said adjustable block with the bearing-plate of said lever.

8. In a cable-grip, the combination of a sliding-jaw, a traveling and sliding jaw having a tongue interlocking with said sliding jaw, an automatically-operating lever for said jaws, and spring-actuated means for limiting the longitudinal movement of said jaws and for forcing them back into normal position.

9. In a cable-grip, the combination of a sliding jaw, a traveling and sliding jaw having a tongue interlocking with said sliding jaw, an automatically-operated lever for said jaws, a stop for limiting the longitudinal movement of said jaws, a stud passing through said stop and fastened at one end to said sliding jaw, and having a nut at its opposite end, and a spiral spring disposed between said nut and stop for drawing said jaws back into normal position.

602,443. BINDER. WILLIAM F. GRIMMY, Brucesville, Ind. Filed Feb. 3, 1897. Serial No. 621,737. (No model.)

Claim.—The combination with an elevator-frame, and a lower primary conveyer or apron supported therein, of an upper frame having its lower member fixed to the elevator-casing and its upper member hinged to said lower fixed member, a series of rollers journaled in said upper frame with certain rollers in the hinged section or member thereof, bracket-plates fixed to the elevator-frame at the upper end thereof and extending outwardly therefrom and provided with longitudinal slots coincident with slots in the elevator-frame, slidable bearings or boxes fitted and guided within the slots of the bracket-plates and receiving the journals of the upper terminal roller for the pressure apron or conveyer, pressure-springs arranged in the slots of the bracket-plates and bearing upon the slidable boxes or bearings, keepers fastened to the bracket-plates to span the slots therein and confine the pressure-springs in place, and the tension-screws supported in the bracket-plates and provided with followers that bear upon the pressure-springs, substantially as and for the purposes described.

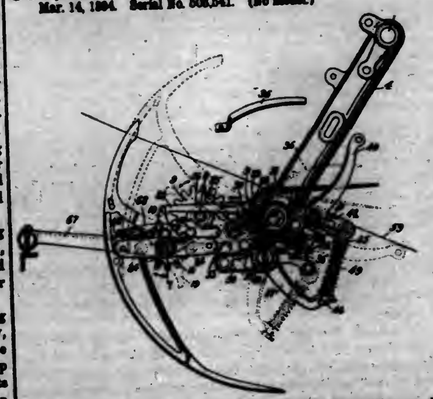


602,444. WIRE FENCE. JAMES F. HAFFEY, Tiffin, Ohio, assignor of one-half to Everett C. Frost, same place. Filed Sept. 20, 1897. Serial No. 652,448. (No model.)



Claim.—A fence having runners, a sheet-metal stay intersecting the runners and provided at its point of intersection with transverse crimps forming seats, of which the depth is greater than the diameter of the runners, and of which the mouths or open sides are contracted to a width less than the diameters of the runners to prevent accidental displacement thereof, the stay between its transverse crimps being longitudinally crimped upon the opposite side from the transverse crimps, substantially as specified.

602,445. GRAIN-BINDER. PAUL HARRIS, Chicago, Ill. Filed Mar. 14, 1894. Serial No. 503,541. (No model.)



Claim.—1. In a grain-binder and in combination with a needle-shaft and needle, of a pivoted compressor-bar, a compressor-hook carried thereby, a lever arranged beneath the binder-deck and pivoted intermediate its ends below and adjacent to said needle-shaft, connections between one arm of said lever and said compressor-bar,

a gear-wheel having a cam-flange adapted to engage the other arm of said lever, means for rotating said flanged wheel periodically, comprising a gear having pins adapted to engage teeth on said flanged gear, and means for locking said flanged gear during its period of rest; as and for the purpose set forth.

2. In a grain-binder and in combination with the needle-shaft and needles and gearing for operating the same, of a compressor-bar, a lever arranged beneath the binder-deck, and pivoted intermediate its ends below and adjacent to said shaft, spring connections between one arm of said lever and said compressor-bar for yieldingly supporting the latter, and means, also arranged beneath the binder-deck, for periodically engaging and releasing the other end of said lever, comprising a flanged wheel, a gear having spaced pins projecting from the face thereof, arranged to engage teeth on said flanged wheel, and formed with a flanged hub adapted to engage the periphery of the teeth on said flanged wheel to lock the same during its period of rest, and means for operating said pin-wheel; as and for the purpose set forth.

3. In a grain-binder a star-shaped gear having a cam-flange thereon, a drive-gear therefor and means for rotating the same, pins and a flanged hub carried by said drive-gear said pins adapted to engage the star-shaped gear and impart a step by-step rotary motion thereto, the periphery of the points of the star-shaped wheel adapted to engage said flanged hub and to be locked against rotation during the periods of rest thereof, in combination with a bell-crank lever, a pivoted compressor-bar and adjustable spring connections between said bar and lever as and for the purpose set forth.

4. In a grain-binder a packer shaft and means for rotating the same, a needle-shaft and gearing intermediate said shafts for rocking said needle-shaft, a tripping mechanism for periodically throwing said intermediate gearing into and out of action comprising a pivoted trip-lever and an auxiliary or supplementary finger secured to said trip-lever, as and for the purpose set forth.

5. In a tripping mechanism for a grain-binding machine a pivoted trip-lever provided with flanges in combination with an auxiliary finger adapted to be secured thereto between said flanges, as and for the purpose set forth.

6. In a grain-binding machine, a framework, a housing, gearing, packing, knotting and compressing mechanisms, said housing supported at one end by said framework, means for adjusting said housing along said framework, a support for the outer end of said housing, provided with an open face, constituting a saddle, a bracket pivotally supported on the harvester-framework and extending outwardly therefrom, and adapted to receive said open-faced saddle to support said housing, whereby said bracket may be rocked about its pivots and move in said saddle when said housing is adjusted in a straight line along said harvester-framework; as and for the purpose set forth.

7. In a grain-binding machine a framework, having a hinged bracket, a housing supported at one end by said framework, an open-sided casting carried by said housing at the opposite end thereof, adapted to rest on and be supported by said hinged bracket, whereby said hinged bracket may be rocked to permit adjustment of said housing upon said framework in a straight line; as and for the purpose set forth.

602,446. IDENTIFICATION-BUTTON. MARVIN A. D. HARRIS, Brooklyn, N. Y. Filed Apr. 24, 1897. Serial No. 633,670. (No model.)

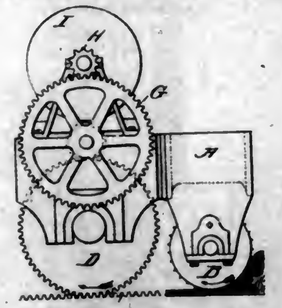


Claim.—In a button, the body A having the cavity *a*, and the flexible fastener C set therein and having the free ends C', C adapted to be folded upon and hold an identification-slip M, in combination with a removable cap B matching to said body and tightly closing said cavity, and means for detachably securing said body to a garment, all substantially as herein specified.

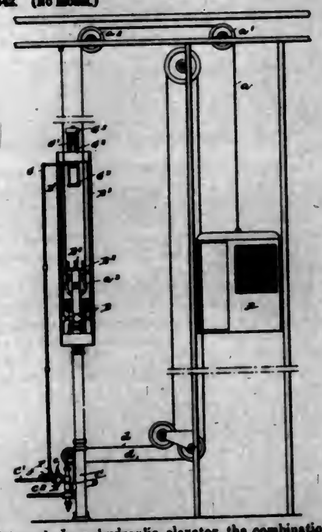
602,447. METHOD OF AND APPARATUS FOR ROLLING PLATE-GLASS. CHARLES C. HARTUNG, St. Louis, Mo., assignor to Edward Walsh, Jr., same place. Filed Sept. 3, 1896. Serial No. 604,706. (No model.)

Claim.—1. The herein-described method of making plate-glass, which consists, first, in forming the sheet of approximately the same thickness throughout its length, breaking up the upper surface of the sheet by forming indentations therein, which indentations run at right angles to the wavy lines of shrinkage, said indentations being formed while the sheet is being spread, permitting said indented upper surface to remain undisturbed for a short period, during which the molten glass flows, endeavoring to close said indentations, and finally smoothing said upper surface to entirely obliterate said indentations; substantially as described.

2. In an apparatus for rolling plate-glass, the combination with a table or bed having cog-racks arranged along its sides, of a carriage having a longitudinally-corrugated advance roller for initially spreading the molten glass into plate form, of approximately the same thickness throughout the length of the sheet of glass, a smooth following roller in said carriage having gear-wheels arranged at its ends for cooperating with the racks, said rollers moving in a plane parallel to the plane of the surface of the table; substantially as described.



602,448. AUTOMATIC STOP FOR HYDRAULIC ELEVATORS. FRANK B. HERRMAN, Winnetka, Ill. Filed Oct. 22, 1896. Serial No. 609,642. (No model.)



Claim.—1. In a hydraulic elevator, the combination with the elevator apparatus and the operating-cylinder, of a valve in connection with the operating-cylinder and a cylinder for the valve, a second cylinder connected with the valve-cylinder and containing liquid under pressure adapted to hold said valve open against a constant-pressure supply, and means operated by the moving part of the elevator mechanism adapted to relieve the pressure in the second cylinder and its connections, whereby the constant pressure becomes effective to shift said valve.

2. In a hydraulic elevator, the combination with the elevator apparatus and the operating-cylinder, of a valve in connection with the operating cylinder and a cylinder therefor, a piston connected with said valve, there being a constant pressure on one side of said piston tending to close the valve, a second cylinder and pipe connection between it and the part of the valve-cylinder opposite the other side of said piston, means for maintaining a pressure on the last-mentioned side of said piston normally in excess of the constant pressure tending to close said valve, and means operated by the moving part of the elevator mechanism adapted to relieve the pressure in the second cylinder and its connections, whereby the constant pressure becomes effective to shift said valve.

3. In a hydraulic elevator, the combination with the elevator apparatus, the operating-cylinder, of a valve in connection with the operating-cylinder and a cylinder for the valve, a second cylinder connected with the valve-cylinder and containing liquid under pressure adapted to hold said valve open against the means acting to close it, and devices operated by the moving part of the elevator mechanism adapted to relieve the pressure in the second cylinder and its connections, to permit the said means to act to close said valve.

4. In a hydraulic elevator, the combination with the elevator apparatus and the operating-cylinder, of a valve in connection with the operating-cylinder controlling the supply or discharge of the operating-cylinder, a cylinder for the valve, means tending to close the valve, a second cylinder connected with the valve-cylinder and containing liquid under pressure adapted to hold said valve open against the means acting to close it, and devices operated by the moving part of the elevator mechanism adapted to relieve the pressure in the second cylinder and its connections, to permit the said means to act to close said valve.

5. In a hydraulic elevator, the combination with the elevator apparatus, the operating-cylinder, and the main controlling-valve, of a second valve controlling the supply or discharge of the operating-cylinder, a piston connected with said valve, means tending to close the valve, a cylinder, a pipe connection between the cylinder and one side of said piston, a plunger in the second cylinder, means to cause the plunger to exert a pressure upon the liquid in the cylinder and its connections to hold said valve open against the means acting to close it, and devices operated by the moving part of the elevator-operating mechanism to withdraw said plunger and relieve said pressure, to permit the said means to act to close said valve.

602,449. BORING-TOOL. HUGH HILL, Anderson, Ind. Filed Apr. 15, 1897. Serial No. [illegible]. (No model.)



Claim.—1. A tool of the class described having a bar, a bar-holder provided with a bar-seat and means for securing the bar therein, said bar-holder being adapted to rest upon the transverse or cross slide of a tool-post, and a tongue pivotally mounted upon the bar-holder to engage a slot in the tool-post, substantially as specified.

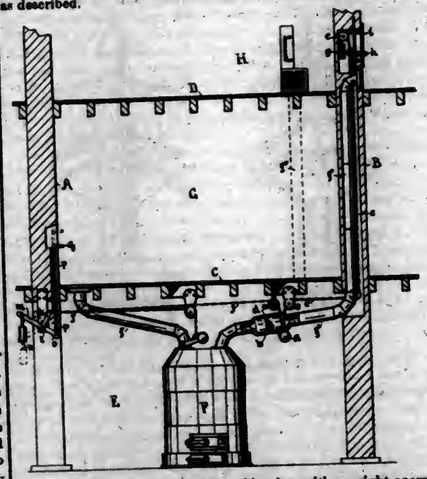
2. A tool of the class described, having a holder provided with extensions or feet adapted to rest upon the transverse or cross slide of a tool-post, and a tongue adapted to extend through a tool-post slot, and resting upon said extensions or feet, substantially as specified.

3. A tool of the class described, having a holder provided with horizontal extensions or feet adapted to rest upon the transverse or cross slide of a tool-post, the intervals between said extensions or feet being adapted to receive the tool-post, and said extensions or feet having opposite flat upper surfaces, and a tongue adapted to extend through a tool-post slot and bearing terminally upon said flat surfaces of the extensions or feet, substantially as specified.

4. A tool-holder of the class described, having a holder provided with extensions or feet adapted to be arranged upon the transverse or cross slide of a tool-post upon opposite sides of the tool-post, and a tongue adapted to extend through a tool-post slot and rest terminally upon the upper sides of said extensions or feet, said tongue being pivotally mounted at one end upon one of said extensions or feet, substantially as specified.

602,450. DAMPER-CONTROLLER AND AUTOMATIC INDICATOR. CYRUS S. HOOD, Corning, N. Y. Filed May 21, 1897. Serial No. 637,643. (No model.)

Claim.—1. In a heating system, the combination, with a regulating valve or damper, of two separate motion-transmitting connections, one of said connections leading to a central point of control and the other connection leading to a point of control remote from the first, means for holding the connections in tension whereby when either one of the connections is operated in either direction to adjust the valve or damper a corresponding movement is imparted to the other connection, and a wall-plate or other device at each point of control which by the relative position of the connection thereto forms an indicator to show the position of the valve or damper substantially as described.



2. In a heating system, the combination, with a weight-operated valve or damper, of two motion-transmitting connections, one of said connections leading to a central point of control and the other connection leading to a second point of control remote from the first, weights attached to the connections to hold them in tension, the combined effects of said weights being opposed to and approximately equal to the weight operating upon said valve or damper, operating-handholds on the connections at the points of control, and a wall-plate or other device at each point of control which by the relative position of the connection thereto forms an indicator to show the position of the valve or damper substantially as described.

3. In a heating system, the combination, with a weight-operated valve or damper, of two motion-transmitting connections, one of said connections leading to a central point of control and the other connection leading to a second point of control remote from the first, weights attached to the connections to hold them in tension, means for adjusting the pull of one of said weights whereby the combined effect of the two connection-weights is rendered approximately equal to that of the valve or damper weight and an equilibrium of the parts established for the purpose set forth, operating-handholds on the connections at the points of control, and a wall-plate or other device at each point of control which by the relative position of the connection thereto forms an indicator to show the position of the valve or damper substantially as described.

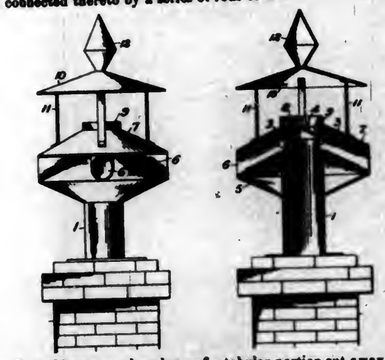
4. In a heating system, the combination, with a weight-operated valve or damper, of two motion-transmitting connections, one of said connections leading to a central point of control, and the other connection leading to a point remote from the first, weights attached to the connections to hold them in tension, a bell-crank lever in the line of one of the connections to the horizontal arm of which one of said weights is movably attached, a third arm on said lever, a rod coupled to said arm and extending upward to one of the points of control, operating-handholds on the connections at the points of control and a wall-plate or other device at each point of control which by the relative position of the connection thereto forms an indicator to show the position of the valve or damper substantially as described.

5. In a heating system, the combination, with a weight-operated valve or damper, of a motion-transmitting connection, said connection leading to a central point of control, a bell-crank lever in the line of said connection, to the horizontal arm of which a weight is movably attached, a third arm on said lever, a rod coupled to said arm and extending upward to the point of control, and an operating-handhold on the connection at the point of control substantially as described.

602,451. CHIMNEY-CAP. JOSEPH HOULE, Bradford, Mass. Filed Jan. 9, 1897. Serial No. 618,836. (No model.)

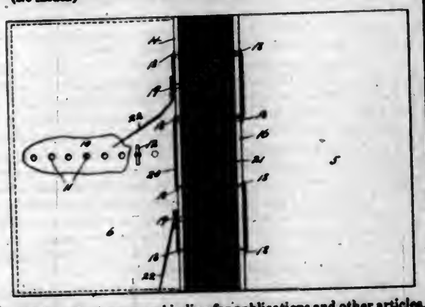
Claim.—1. A chimney-cowl made up of a tubular portion, cut away at its upper end, forming a series of openings, a cone-shaped cap fitting within the upper end of said tubular portion, a series of angularly-arranged air-conduits open at both ends, terminating at points adjacent to said cap and in line with the lower edges thereof and with said openings, a guide of sheet metal in the shape of the frus-

tum of a cone open at its upper end, secured to the upper side of said air-conduits, and a cone-shaped hood located above said guide and connected thereto by a series of rods or bars.



2. A chimney-cowl made up of a tubular portion cut away at its upper end, a cone-shaped cap secured to the upper end of said tubular portion, an enlargement on the outside of said tubular portion, having inclined upper and lower sides, angularly-arranged air-conduits supported upon said enlargement terminating at points adjacent to the upper end of said tubular portion in line with the lower edge of said cap and with said cut-away portion, a guide of sheet metal in the shape of the frustum of a cone open at its upper end, secured to the upper side of said air-conduits, and a cone-shaped hood located above said guide and connected thereto by a series of rods or bars.

602,452. COVER OR BINDER FOR MAGAZINES, &c. WLADYSLAUS JENDRIK, Brooklyn, N. Y. Filed Sept. 27, 1897. Serial No. 653,231. (No model.)

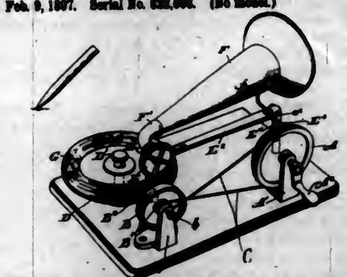


Claim.—1. A cover or binding for publications and other articles, consisting of two sides or boards one of which is provided with a space or chamber which opens backwardly, a flexible back connected with the other side, and adapted to be inserted into said space, and two flexible binding-strips one of which is secured to said flexible back, adjacent to the side with which it is connected, and the other being flexibly secured to the side in which said space or chamber is formed, substantially as shown and described.

2. A cover or binding for publications and other articles, consisting of two sides or boards one of which is provided with a space or chamber which opens backwardly, a flexible back connected with the other side, and adapted to be inserted into said space, and two flexible binding-strips one of which is secured to said flexible back, adjacent to the side with which it is connected, and the other being flexibly secured to the side in which said space or chamber is formed, and means for securing the flexible back in said space or chamber, and for adjusting the position thereof, substantially as shown and described.

3. A cover or binding for publications and other articles, consisting of two sides or boards one of which is provided with a space or chamber which opens backwardly, a flexible back connected with the other side, and adapted to be inserted into said space, and two flexible binding-strips one of which is secured to said flexible back, adjacent to the side with which it is connected, and the other being flexibly secured to the side in which said space or chamber is formed, and means for securing the flexible back in said space or chamber, and for adjusting the position thereof, and said binding-strips being provided with transverse perforations or openings, and a cord which is adapted to be passed therethrough, and through the publications or other articles, substantially as shown and described.

602,453. GRAMOPHONE-NEEDLE. JOSEPH W. JOHN, Philadelphia, Pa., assignor to himself and Joseph A. Vincent, same place. Filed Feb. 9, 1897. Serial No. 622,602. (No model.)



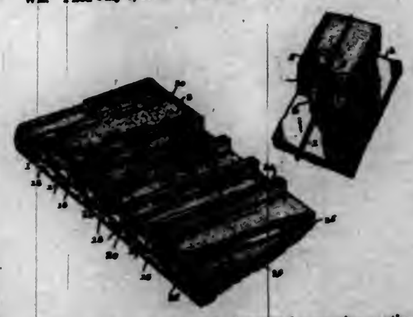
Claim.—1. A gramophone-needle having its working end reduced, said end being of the same diameter throughout its length, the same being adapted to the groove of the record.

2. A gramophone-needle having its working end reduced, said end being of the same diameter throughout its length and beveled at the point, the same being adapted to the groove of the record.

3. A gramophone-needle comprising a shank having one or more reduced ends of the same diameter throughout their length, the same being adapted to the groove of the record.

4. A gramophone-needle comprising a shank, F, a hub, F', pivotally secured thereto, provided with a plurality of points, said points being of the same diameter throughout their length the same being adapted to the groove of the record.

602,454. BOILER-COVERING. GEORGE KELLY, Mineral Point, Wis. Filed July 6, 1896. Serial No. 598,161. (No model.)



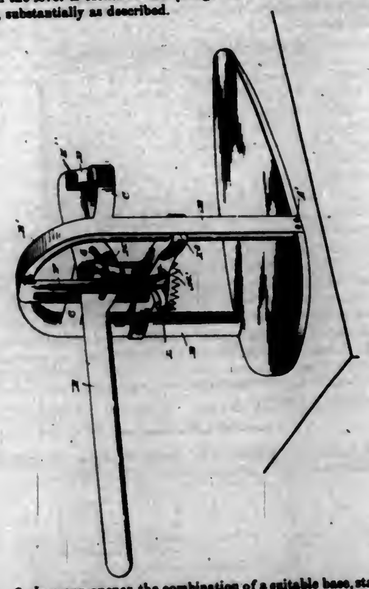
Claim.—1. The herein-described means for securing sections of lagging to steam-boilers and other surfaces to be protected, consisting of wires secured to the said boiler, hooks having their ends bent, the bent ends being right-angularly disposed to each other, and one of the bent ends adapted to engage with the said wires, and binding-wires arranged to lay over the lagging and engage with and be coiled around the other bent end of the hooks, substantially as shown and described.

2. A lagging composed of a layer of strips, a second layer of strips superposed on and breaking joint with the first layer and the strips of the second layer spaced apart from each other, and other strips fitted into the spaces between the strips comprising the said second layer and projecting beyond the surface thereof, substantially as shown for the purpose set forth.

602,455. CAN-OPENER. WILLIAM S. KIRK, Ada, Ind. Ter. Filed June 26, 1897. Serial No. 642,441. (No model.)

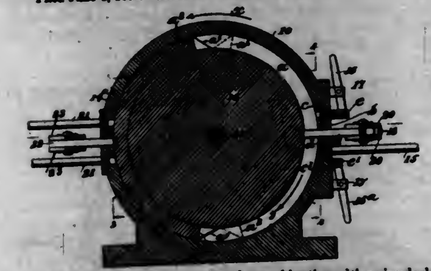
Claim.—1. In combination with the uprights, the plunger guided thereby, the lever pivoted to a rigid projection from the uprights and attached to the plunger, and guideways depending from the upright frame whereby they perform the double function of guideways for the lever and ejectors for the knife substantially as described.

2. In a can-opener, the combination of a base, standards secured on said base, a brace for said standards, a sliding plunger working on said standards, a knife carried by the plunger, and a lever pivoted at one end to said brace and connected with said plunger, whereby when the lever is oscillated the plunger and the knife will reciprocate, substantially as described.



3. In a can-opener, the combination of a suitable base, standards secured on said base, an arch connecting said standards, combined guides and ejectors carried by said arch, a plunger working on said uprights, a knife carried by said plunger, and an oscillating lever connected with said plunger for operating and working between said combined guides and ejectors, substantially as described.

602,456. ROTARY ENGINE. STEPHEN KERSHNER, Blue Hill, Nebr., assignor of one-fourth to Ferdinand Kershner, Marion, Iowa. Filed June 8, 1897. Serial No. 639,871. (No model.)



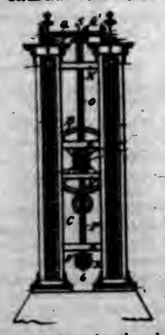
Claim.—1. In a rotary engine, the combination with a circularly-bored cylinder and a rotatably-supported cylindric piston-block therein, said piston-block having spaced circumferential channels extending partially around the piston-block at opposite sides thereof, said channels being of an equal depth throughout their length of abutment-bars adapted to work through the side of the cylinder, and alternately enter and leave the circumferential channels of the piston-block, as specified.

2. In a rotary engine, the combination with a circularly-bored cylinder having an inlet at one side and an exhaust at the opposite side, and abutment-bars pivoted on rocking bars, said latter bars pivoted on a projection from said cylinder, the inner ends of the abutment-bars working through apertures in the cylinder or chest thereon, of a cylindrical piston-block peripherally and laterally engaging the bore of the cylinder and the heads thereon, said piston-block having spaced peripheral channels extending partly around the piston-block at the opposite sides thereof, said channels having each a sloped terminal wall at each end thereof and adapted to alternately receive the inner ends of the slidable abutment-bars, substantially as specified.

3. In a rotary engine, the combination with a cylinder, a shaft rotatable centrally therein, a piston-block secured on the shaft and peripherally engaging the bore of the cylinder, said block having two spaced peripheral channels extending on opposite sides of the block partially around the same, and concentric on their bottoms with the axis of the shaft, each channel ending in an incline at each end, thus leaving cam formations intervening the ends of the channels, of two abutment-bars engaging their inner ends with the channels alternately, and slidable in the side of the cylinder, said bars being supported to reciprocate at their outer ends, an inlet supply-pipe for motive agent at one side of the cylinder, and an exhaust at the opposite side thereof, as specified.

4. In a rotary engine, the combination with a cylinder, a center shaft rotatable therein, a piston-block secured on said shaft, peripherally engaging the bore of the cylinder, said block having two spaced peripheral channels extending on opposite sides of the block and partially around the same, leaving cam formations intervening between ends of the channels, of two abutment-bars at each side of the cylinder, slidable in the walls thereof, and having their inner ends alternately engaged with the channels, both pairs of abutment-bars being supported to reciprocate at their outer ends, an inlet-pipe for motive agent at one side of the cylinder, two exhaust-pipes at the opposite side of said cylinder, and two spaced gate-valves adapted to control the direction of rotation had by the piston-block and center shaft, as specified.

602,457. LOWERING DEVICE. JOHN KRESSER, Duquesne, Pa. Filed May 3, 1897. Serial No. 634,572. (No model.)



Claim.—In a device for lowering the wheels from locomotives, the combination, with the columns located below the tracks on which the locomotive travels, the inclined brace-bars, the braces and the base-plates, of the vertical screws stepped in said base-plates, the shoulders, the balls, the movable nuts on said screws, the brackets, the I-beams, the rails secured thereto, the bevel-pinions secured to said screws, the shafts to which said pinions are secured, and the means for operating said bevel-pinions and shafts to rotate the screws and lower the tracks, substantially as described.

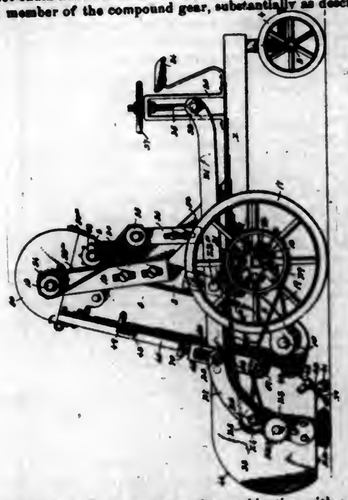
602,458. STREET-SWEEPER. SIMON D. LANYON and JOHN W. TRIPP, Sedalia, Mo. Filed Oct. 14, 1897. Serial No. 655,179. (No model.)

Claim.—1. In a street-sweeping machine, the combination with an upright casing, a wheeled carrying-frame, and an elevator within said casing, of the broom-carrying levers fulcrumed on the frame, a rotary broom mounted on the carrying-levers, driving mechanism for said broom, side fenders, 38, rigidly attached to the carrying-levers and arranged at the ends of the broom, a hood, 44, pivoted to the side fenders and extending from the upright casing rearwardly around the broom; said hood and side fenders forming an inclosure for the broom and adjustable with the carrying-levers to remain in the same relation at all times to said broom, substantially as described.

2. In a street-sweeping machine, the combination of a wheeled frame, an upright casing provided with a receptacle, 7, the broom-carrying levers, the side fenders and hood carried by said levers and forming an inclosure in rear of the casing, a broom mounted on the levers, a driving mechanism for the broom, an elevator, and an inclined plate 39, situated within the side fenders in advance of the broom, hinged at its upper edge to the receptacle, 7, and provided with the ground-rollers, substantially as described.

3. In a street-sweeping machine, the combination with a wheeled carrying-frame, an axle, and a driving-wheel, of the longitudinal carrying-levers fulcrumed on the machine, a broom having its shaft journaled in said levers and provided with a spur gear-wheel, a fixed plate on one side of a carrying-lever, a compound sprocket and gear wheel

journaled between one lever and the fixed plate and meshing with the gear on the broom-shaft, a sprocket-wheel on the driving-wheel, and a sprocket-chain fitted to said driving sprocket-wheel and to the sprocket member of the compound gear, substantially as described.



4. In a street-sweeping machine, the combination with a frame, a main axle and a broom-shaft, of a wheel mounted on the axle to rotate therewith and carrying a driving-sprocket, a counter-shaft geared to the broom-shaft and having a sprocket-pinion, a driving-chain operatively connected to the driving-sprocket and to the sprocket-pinion on the counter-shaft, a slidable tension-frame carrying a loose guide-roller arranged in contact with one strand of said chain, and a spring which normally lifts the slidable tension-frame and its roller, substantially as described, for the purposes set forth.

5. In a street-sweeping machine, the combination with the main carrying-frame, a driving-wheel, an axle and a broom-shaft, of longitudinal adjusting-levers fulcrumed to the carrying-frame and sustaining the broom-shaft, a driving-sprocket on the driving-wheel, a counter-shaft journaled in the adjusting-levers and geared to the broom-shaft; a driving-chain between the driving-sprocket and the counter-shaft, a horizontal bar rigid with one of said adjusting-levers, a slidable tension-frame mounted on said bar, an idler friction-roller journaled in said tension-frame and engaging with one strand of the driving-chain, and a spring seated against said fixed bar and against the slidable tension-frame, substantially as described.

6. In a street-sweeping machine, the combination with a carrying-frame, and a driving-axle provided with a clutch-controlled sprocket-wheel, of adjusting-levers fulcrumed on said carrying-frame, a broom having its shaft journaled in said levers and provided at one end with a gear-pinion, a plate or link arranged parallel to one of said levers and connected rigidly thereto by a spindle and a fixed bar, a pinion and sprocket-wheel journaled on said spindle and arranged for the pinion to gear with the broom-shaft pinion, a driving-chain operatively connected with said sprocket-wheel and with the clutch-controlled sprocket-wheel, a slidable tension-frame loosely mounted on said fixed bar and carrying at its lower end a tension-roller which engages with one strand of the driving-chain, a spindle passing through the head of the tension-frame and seated on the fixed bar, and a spring fitted at its respective ends against the spindle and the head of the tension-frame, substantially as described.

7. In a street-sweeping machine, the combination with a main frame, an upright elevator-casing and a broom, of a closure detachably fastened to the rear of said upright casing, side fenders situated in close lateral relation to the ends of the broom, a pivoted hood attached to the lower part of the upright casing, a trough-like receptacle situated in advance of the upper end of said casing, a hood hinged to the rear closure and arranged to close the upper end of the upright casing and the trough-like receptacle, an endless elevator within said upright casing, a transverse conveyer, and suitable driving mechanism for said elevator and the conveyer, substantially as specified.

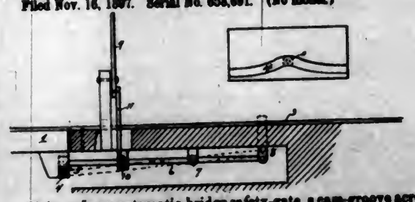
8. In a street-sweeping machine, the combination with a main frame, an upright casing and its trough-like receptacle, of the delivery spout or chute extending laterally from the trough-like receptacle and provided with a hinged delivery-section arranged to be fastened detachably to said spout or chute, a broom, an elevator, and a transverse conveyer, substantially as and for the purposes described.

602,459. CURTAIN-STRETCHER. MARCELLUS B. LANE and JOSEPH S. YOUNG, Pittsburg, Pa.; said Young assignor of his right to Anton Lutz, Allegheny, Pa. Filed Mar. 24, 1896. Serial No. 584,695. (No model.)



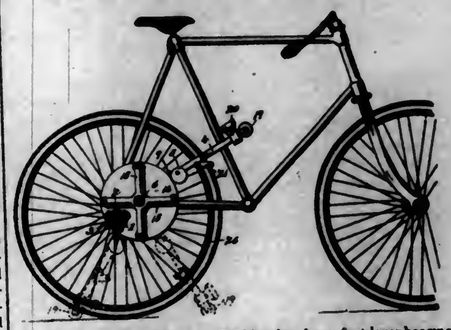
Claim.—As a new article of manufacture, a curtain-stretcher comprising a frame formed in two sections, hinged together, one end and one side of said frame having a series of clasps flexibly fastened thereto; rollers mounted respectively on the opposite end and side, the roller on the side being divided intermediate its length, and adapted to be connected at such point by a slidable collar; said rollers respectively having at one end a ratchet-wheel adapted to engage a spring-pressed pawl and having a series of cords the free ends of each of which are secured to a number of clasps, whereby said cords may be lengthened and shortened by the movement of said rollers, substantially as described.

602,460. SAFETY-GATE. EDRICK W. MASON, Cleveland, Ohio. Filed Nov. 16, 1897. Serial No. 658,691. (No model.)



Claim.—In an automatic bridge safety-gate, a cam-groove across the extremity of the bridge, having its highest point centrally located, in combination with a lever pivoted underneath the landing and extending longitudinally of the roadway, and provided with a forked extremity, vertically-sliding track-bumpers, pivotally secured to the forked extremities, and a transverse lever forked at its inner extremity to engage the longitudinal lever, a falling gate and a link connecting said gate at its outer extremity with the transverse lever, substantially as described.

602,461. BICYCLE. GEORGE C. MATHEWS, Jacksonville, Fla. Filed Jan. 20, 1897. Serial No. 619,924. (No model.)



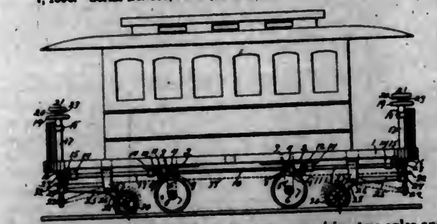
Claim.—1. In a drive-gear for bicycles, &c., a foot-lever bearing a pedal to receive the pressure by means of which the machine is propelled and of such relative length that when depressed a portion will be brought into contact with the surface over which the machine is advancing for the purpose of checking its speed, substantially as described.

2. In a drive-gear for bicycles, &c., a foot-lever bearing a pedal to receive the pressure, by means of which the machine is propelled and of such relative length that when depressed its end will be brought in contact with the surface over which the machine is advancing for the purpose of checking its speed, and having a roller to receive the impact and travel upon the said surface, substantially as and for the purpose specified.

3. In a drive-gear for bicycles, &c., the combination of a pinion secured to the axle of the drive-wheel, a stud secured at a distance from the drive-wheel axle, an internally-toothed wheel mounted upon the said stud and intermeshing with the aforesaid pinion, a dust-guard secured to the outer side of the power-transmitting wheel, a dust-guard independent of the said wheel and closing its inner side and having openings for the passage therethrough of the stud and drive-wheel axle, an annulus secured to the inner side of the internally-toothed wheel and overlapping the joint formed between it and the inner dust-guard, and a lever mounted upon the aforementioned stud and having a dog to intermittently grip the power-transmitting or internally-toothed wheel, substantially as and for the purpose set forth.

4. In a drive-gear for bicycles, the combination of plates, means for clamping the plates upon opposite sides of the frame-bars at the juncture of the rear braces and bottom runs, the drive-wheel having its axle mounted in the said plates and provided with a pinion, a stud applied to the plates, an internally-toothed rim and a foot-lever mounted upon the stud, the toothed rim intermeshing with the pinion, a spring for returning the foot-lever to a normal position, a stop for limiting the return of the foot-lever, and a dog carried by the foot-lever to grip the toothed rim, substantially as and for the purpose set forth.

602,462. CAR-TRUCK. JACOB MEHDEM, Hyson, N. Y. Filed Jan. 7, 1896. Serial No. 665,894. (No model.)



Claim.—1. A swinging truck for cars, comprising two axles and flat-faced wheels, said axles being pivotally connected with the car-platform and maintained in parallel relation to each other by means of parallel rods pivoted thereto, and means for swinging said truck, substantially as shown and described.

2. A swinging truck for cars, comprising two sets of flat-faced wheels and their axles, said axles pivotally connected to the car-platform and being connected with each other by means of the parallel bars, and projecting spurs carrying rollers adapted to roll upon the under side of the car-platform, substantially as shown and described.

3. A swinging truck for cars, comprising two sets of flat-faced wheels and axles, said axles pivotally connected to the car-platform and being connected with each other by means of parallel bars, projecting spurs carrying rollers and curved metallic plates fixed to the under side of the car-platform and upon which said rollers are adapted to work, substantially as shown and described.

4. A swinging truck for cars, comprising two sets of flat-faced wheels and axles, said axles pivotally connected to the car-platform and being connected with each other by means of parallel bars, projecting spurs carrying rollers adapted to roll on the under side of the car-platform and beveled gearing adapted to swing said trucks at the will of the operator, substantially as shown and described.

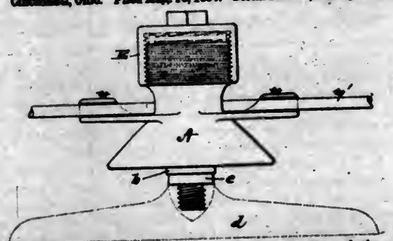
5. Trucks for cars of the class described, comprising two sets of flanged wheels and their axles, said axles adapted to be raised and lowered by means of levers operated by screws, means for connecting said operating-screws, and swinging trucks comprising two sets of flat-faced wheels and axles, said axles pivotally connected to the car-platform and being connected to each other by means of parallel bars, projecting spurs carrying shoulders adapted to roll on the under side of the car-platform, and means for swinging said trucks, substantially as shown and described.

6. A trolley or automobile car comprising a car-platform and superstructure, swinging trucks pivotally connected to said car-platform, said trucks maintained in parallel relation to each other by means of parallel bars, means for operating the same, and auxiliary trucks adapted to be raised and lowered from and to the rails, and means for operating same, substantially as shown and described.

7. A trolley or automobile car, comprising a platform and superstructure, swinging trucks pivotally connected to said platform and maintained in parallel relation to each other by means of parallel rods, beveled gearing adapted to operate said trucks and auxiliary trucks having flanged wheels and operating by means of a lever and screw, substantially as shown and described.

8. A trolley or automobile car, comprising a platform and superstructure, swinging trucks having flat-faced wheels pivotally connected to said car-platform and maintained in parallel relation with each other by means of parallel rods, beveled gearing adapted to operate said swinging trucks and auxiliary trucks having flanged wheels and being operated by means of levers and screws and sprocket-wheels, and an endless chain connecting said operating-screws, substantially as shown and described.

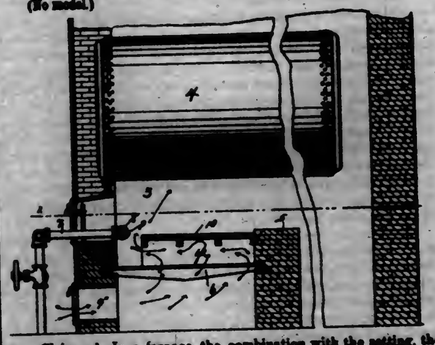
602,463. TROLLEY-WIRE HANGER. WILLIAM A. MCCALLUM, Cincinnati, Ohio. Filed Aug. 16, 1897. Serial No. 648,294. (No model.)



Claim.—1. In a line-hanger of the character indicated, the combination of the holder; the screw-cap having its inner face provided with teeth or corrugations adapted to engage by backward rotation of the screw-cap; the insulated bolt seated in the holder, and provided with teeth or corrugations corresponding with those of the cap; and the interposed compressible disk, substantially as set forth.

2. The combination of the holder, the insulated bolt seated therein and having a toothed or corrugated upper surface; the screw-threaded cap having a corresponding inner face; the suspending end of the bolt threaded oppositely from the cap; and the compressible washer interposed between the cap and the insulated bolt, substantially as set forth.

602,464. FURNACE. FRANK B. MCCLELLAND and BENJAMIN M. PARROTT, Indianapolis, Ind. Filed June 11, 1897. Serial No. 640,267. (No model.)



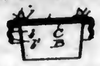
Claim.—1. In a furnace, the combination with the setting, the grate-bars thereof, and a burner mounted therein over the grate-bars, of a platform mounted over the grate-bars and extending from the fire-wall to within a short distance of and below the burner, the arrangement being such that the incoming air is discharged from beneath said platform at a point beneath and in front of the burner, substantially as described.

2. In a furnace, the combination with the setting and a burner mounted therein, of a platform mounted in said setting and extending forward from the fire-wall to within a short distance of and slightly below the burner, and a second platform extending from the front wall beneath the burner toward the rear to a point vertically beneath the forward end of the first platform, the arrangement being such that the incoming air is discharged from beneath the first-mentioned platform at a point beneath and in front of the burner, substantially as described.

3. In a furnace, the combination with the setting, the grate-bars thereof, and a burner mounted in said setting above the grate-bars, of a platform mounted above the grate-bars and slightly beneath the openings in the burner and extending from the fire-wall forward to a point a short distance from the burner, and a filling mounted in the openings between the forward ends of the grate-bars and extend-

ing toward the rear to a point vertically beneath the forward end of the platform, an air-passage being formed below the grate-bars and between the grate-bars and the platform, all combined and arranged to cooperate substantially as and for the purpose set forth.

602,465. SCREW-CAP SEALING-NOZZLE FOR CANS. EDWIN NORTON, Maywood, Ill., assignor to himself and Oliver W. Norton, Chicago, Ill. Filed June 19, 1896. Serial No. 596,194. (No model.)



Claim.—1. The combination with a screw-nozzle, its sealing-disk, and screw-cap provided with two holes in its flat top or disk portion to receive rivets, of a pair of rivets in separate pieces from the cap and projecting through the cap to form screwing or unscrewing lugs, and having heads and shoulders embracing the cap, the projecting stem or shank portion of said rivets being enlarged at their bases to form said shoulders and projecting above said shoulders to form said screwing or unscrewing lugs substantially as specified.

2. The combination with a screw-nozzle, its sealing-disk, and screw-cap provided with two holes in its flat top or disk portion to receive rivets, of a pair of rivets in separate pieces from the cap and projecting through the cap to form screwing and unscrewing lugs, and having heads and shoulders embracing the cap, said cap having countersinks to receive the heads of the rivets and permit the cap to fit flush upon the sealing-disk, the projecting stem or shank portion of said rivets being enlarged at their bases to form said shoulders and projecting above said shoulders to form said screwing or unscrewing lugs substantially as specified.

602,466. SHIPPING-PACKAGE. EDWIN NORTON, Maywood, Ill., assignor to himself and Oliver W. Norton, Chicago, Ill. Filed Feb. 6, 1897. Serial No. 622,252. (No model.)



Claim.—1. In a shipping-package, the combination with a sheet-metal body of a wood-veneer body with a sheet-metal bottom, having a folded rim, a wood-veneer bottom embraced by the folded rim of the sheet-metal bottom, the lower end of the sheet-metal body being folded over and around and embracing the sheet-metal and wood-veneer bottom so as to secure the combined bottom to the combined body, a sheet-metal cover having a folded rim and a wood-veneer cover embraced by the folded rim of the sheet-metal cover, said sheet-metal body having at its upper end an offset or flange forming a seat for said cover, clips secured to the sheet-metal body and adapted to be folded down upon the cover, screws and nuts for securing the clips to the cover, and wire bands surrounding the wood-veneer body, substantially as specified.

2. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, the lower end of said wood-veneer body abutting against the projecting rim of said wood-veneer bottom, substantially as specified.

3. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, the sheet-metal body having also an offset or flange against which the lower end of the wood-veneer body abuts on one side and against which the rim or margin of the combined bottom fits or abuts on the other side, the lower end of said wood-veneer body abutting against the projecting rim of said wood-veneer bottom, substantially as specified.

4. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and bands surrounding the wood-veneer body, the lower end of said wood-veneer body abutting against the projecting rim of said wood-veneer bottom, substantially as specified.

5. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange against which the lower end of the wood-veneer body abuts and upon which the rim of said cover rests, the ends of said wood-veneer body abutting against the projecting rim of said wood-veneer bottom and wood-veneer cover, substantially as specified.

6. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, wire bands surrounding the wood-veneer body and staples securing said bands and said sheet-metal and wood-veneer bodies together, the lower end of said wood-veneer body abutting against the projecting rim of said wood-veneer bottom, substantially as specified.

7. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having clips secured thereto and adapted to be folded down upon the cover and secured thereto, the ends of said wood-veneer body abutting against the projecting rims of said wood-veneer bottom and wood-veneer cover, substantially as specified.

8. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having clips secured thereto and adapted to be folded down upon the cover and secured thereto, said cover having nuts soldered thereto, and screws for securing said clips to said cover, substantially as specified.

9. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange against which the upper end of the wood-veneer body abuts and upon which the rim of said cover rests, the ends of said wood-veneer body abutting against the projecting rims of said wood-veneer bottom and wood-veneer cover, substantially as specified.

10. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange near its upper end against which the upper end of the wood-veneer body abuts and upon which the rim of said cover rests, and bands surrounding said wood-veneer body, the ends of said wood-veneer body abutting against the projecting rims of said wood-veneer bottom and wood-veneer cover, substantially as specified.

11. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange near its upper end against which the upper end of the wood-veneer body abuts and upon which the rim of said cover rests, and clips uniting the body and cover, the ends of said wood-veneer body abutting against the projecting rims of said wood-veneer bottom and wood-veneer cover, substantially as specified.

12. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange against which the upper end of the wood-veneer body abuts and upon which the rim of said cover rests, the ends of said wood-veneer body abutting against the projecting rims of said wood-veneer bottom and wood-veneer cover, substantially as specified.

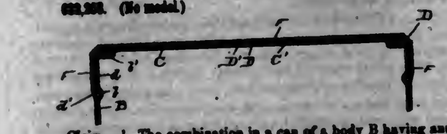
13. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange near its upper end against which the upper end of the wood-veneer body abuts and upon which the rim of said cover rests, said sheet-metal body also having an upright flange forming a seat surrounding the edge of said cover, and clips secured to the body and adapted to be folded down upon the cover, and screws and nuts for removably securing the clips to the cover, the ends of said wood-veneer body abutting against the projecting rims of said wood-veneer bottom and wood-veneer cover, substantially as specified.

14. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange near its upper end against which the upper end of the wood-veneer body abuts and upon which the rim of said cover rests, said sheet-metal body having also an upright flange forming a seat surrounding the edge of said cover, and clips secured to the body and adapted to be folded down upon the cover and screws and nuts for removably securing the clips to the cover, and wire bands surrounding the wood-veneer body, substantially as specified.

15. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having clips secured thereto and adapted to be folded down upon the cover and secured thereto, said sheet-metal cover having a bracing shoulder or flange fitting inside the upper end of said body, the ends of said wood-veneer body abutting against the projecting rims of said wood-veneer bottom and wood-veneer cover, substantially as specified.

16. In a shipping-package, the combination with a double or combined sheet-metal and wood-veneer body of a double or combined sheet-metal and wood-veneer bottom, the lower end of the sheet-metal body being folded over and embracing the rim or margin of said combined bottom, thus securing the combined or double bottom to the combined or double body, and a double or combined sheet-metal and wood-veneer cover, said sheet-metal body having an offset or flange near its upper end against which the upper end of the wood-veneer body abuts and upon which the rim of said cover rests, said sheet-metal body having also an upright flange forming a seat surrounding the edge of said cover, and clips secured to the body and adapted to be folded down upon the cover and screws and nuts for removably securing the clips to the cover, and wire bands surrounding the wood-veneer body, said sheet-metal cover having a bracing shoulder or flange fitting inside the upper end of said body, substantially as specified.

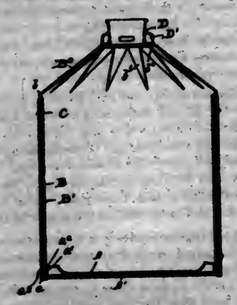
602,467. CAN. EDWIN NORTON, Maywood, Ill., assignor to himself, and Oliver W. Norton, Chicago, Ill. Filed Feb. 6, 1897. Serial No. 622,253. (No model.)



Claim.—1. The combination in a can of a body B having annular groove or bead *b*, of a permanent head C secured to said body and provided with a pouring-opening C' therein, a rotary slip-cover D having a pouring-opening D' therein and provided with a flange *d* fitting over the upper end of said body B and having its lower edge turned into said annular groove *b* to secure said cover D to the body while permitting it to rotate thereon, and a label F pasted upon the can and in part to said rotary slip-cover, to prevent the cover from being turned to open the can without mutilating the label, said label being pasted to the body of the can below said annular groove *b*, and to the flange *d* of said rotary slip-cover above said annular groove and adapted to be severed at said annular groove to enable said slip-cover to be rotated, substantially as specified.

2. The combination in a can of a cylindrical body B having annular groove or bead *b*, of a permanent head C, having pouring-opening C', a rotary cover D having a pouring-opening D' and provided with flange *d* fitting said body B and having inturned lower edge *d'* fitting in said annular groove *b*, and a seam *b'* uniting said body B and head C, and lying within the outer periphery of the body B and below the upper surface of the disk portion of said head C, to enable said cover D and head C to fit flat and close together while the flange *d* fits the periphery of the can-body, substantially as specified.

602,468. SHIPPING-CAN. EDWIN NORTON, Maywood, Ill., assignor to himself, and OLIVER W. NORTON, Chicago, Ill. Filed May 28, 1897. Serial No. 637,675. (No model.)



Claim.—1. A taper-breasted shipping-can comprising in combination the following parts: a sheet-metal body B having an integral tapering breast B^2 furnished with a series of tapering plaits or folds *b'* therein, and an externally-projecting shoulder or bead *b* at or near the junction of the body and its tapering breast; a sheet-metal bottom A having an upright flange or shoulder *a'* fitting within and soldered to the lower end of said sheet-metal body; a wood-veneer bottom A' having the rim or outer edge of said sheet-metal bottom folded over or around its rim or edge; a wood-veneer body B' surrounding said sheet-metal body and fitting at its lower end against the projecting rim of the combined wood-veneer and sheet-metal bottom, and at its upper end against said external shoulder *b* of the sheet-metal body; wire hoops C C surrounding said wood-veneer body; the upper contracted end of said tapering integral breast B^2 having a channel or seat b^2; and a pouring-nozzle comprising an outer shell *d*, an annular base plate or disk d^3 and a pouring or nozzle piece d^4, the lower edges of said outer shell *d* and of said annular disk d^3 fitting within and soldered to said seat b^2 at the upper end of said tapering breast, substantially as specified.

2. The combination with a sheet-metal can-body having an integral tapering breast formed by a series of tapering plaits or folds therein, and provided with an external bead or shoulder *b*, of a wood-veneer body surrounding the sheet-metal body and fitting at its upper end against said external bead or shoulder *b*, and at its lower end fitting against the projecting rim of the sheet-metal and wood-veneer bottom, and a sheet-metal and wood-veneer bottom having its rim projecting laterally under the end of said wood-veneer bottom, substantially as specified.

3. The combination with a sheet-metal can-body having an integral tapering breast formed by a series of tapering plaits or folds therein, and provided with an external bead or shoulder *b*, of a wood-veneer body surrounding the sheet-metal body and fitting at its upper end against said external bead or shoulder *b*, the upper contracted end of said tapering breast having an annular groove or seat formed therein, and a pouring-nozzle having its lower edge or rim soldered in said seat and serving to form a finish for and to strengthen the upper end of said tapering breast, substantially as specified.

4. A sheet-metal can-body B having an integral tapering breast B^2 formed by a series of straight tapering folds or plaits *b'* therein abutting together on radial lines on the outside to brace each other and give a smooth exterior conical surface and finish to the breast, substantially as specified.

5. A sheet-metal can-body B having an integral tapering breast B^2 formed by a series of tapering folds or plaits *b'* therein, the upper contracted end of said tapering and folded or plaited breast being provided with an annular seat to receive a nozzle, and a nozzle secured thereto and comprising an outer shell *d*, an annular flanged

base-disk b^3, and a pouring or nozzle piece d' to which the outer shell is secured at its upper edge and to which the inner flange of said annular disk is secured at the lower end thereof, the lower edge of said outer shell and the outer flange of said annular disk being secured in or to the seat formed in said tapering breast, substantially as specified.

6. A sheet-metal can-body B having an integral tapering breast B^3 formed by a series of tapering folds or plaits b' therein, the upper contracted end of said tapering and folded or plaited breast being provided with an annular seat to receive a nozzle, and a nozzle secured thereto and comprising an outer shell d, an annular flanged base-disk b^3, and a pouring or nozzle piece d' to which the outer shell is secured at its upper edge and to which the inner flange of said annular disk is secured at the lower end thereof, the lower edge of said outer shell and the outer flange of said annular disk being secured in or to the seat formed in said tapering breast, said annular disk and said nozzle-piece having vent-openings through the same, substantially as specified.

7. The combination with a can of a nozzle D furnished with an annular vent-chamber D', and comprising an outer shell d, a nozzle-piece d', and an annular base plate or disk d^3, said annular disk and said nozzle-piece having vent-openings communicating with said annular vent-chamber, substantially as specified.

8. The combination with a can of a nozzle D furnished with an annular vent chamber D', and comprising an outer shell d, a nozzle-piece d', and an annular base plate or disk d^3, said annular disk and said nozzle-piece having vent-openings communicating with said annular vent-chamber, the upper edge of said outer shell being secured to the nozzle-piece, and the annular disk having at its inner edge a flange fitting and soldered to said nozzle-piece, and at its outer edge a flange fitting within said outer shell, substantially as specified.

9. A shipping-package comprising in combination a sheet-metal bottom and a wood-veneer bottom, the rim of the former being folded over the latter, a sheet-metal body having an integral tapering breast formed by tapering plaits or folds therein, and provided with an external shoulder or bead at or near the junction of the upper end of the body with said tapering breast, and a wood-veneer body surrounding said sheet-metal body and fitting at its upper end against said external shoulder or bead and at its lower end against the projecting rim of the sheet-metal and wood-veneer bottom, the sheet-metal and wood-veneer bottom having its rim projecting laterally under the end of the wood-veneer body substantially as specified.

10. A taper-breasted jacketed shipping-can comprising in combination the following parts: a sheet-metal body and tapering breast having an external shoulder or bead at or near the upper end of the body; a combined sheet-metal and wood-veneer bottom having its rim projecting laterally beyond the sheet-metal body; and a wood-veneer body surrounding the sheet metal body and fitting between said projecting rim of the bottom and said externally-projecting shoulder at the upper end of the sheet-metal body, substantially as specified.

11. A taper-breasted jacketed shipping-can comprising in combination the following parts: a sheet-metal body and tapering breast, having an external shoulder or bead at or near the upper end of the body; a combined sheet-metal and wood-veneer bottom having its rim projecting laterally beyond the sheet-metal body; and a wood-veneer body surrounding the sheet-metal body and fitting between said projecting rim of the bottom and said externally-projecting shoulder at the upper end of the sheet-metal body, and wire hoops C C, substantially as specified.

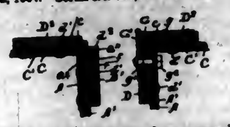
12. A taper-breasted shipping-can, having its breast and body made from a single piece of metal, provided with a pouring-nozzle and having a hollow projecting bead formed at the upper end of the body portion to stiffen and strengthen the can in place of the usual folds or seam uniting the can-body and its taper-breast, and a metal bottom secured to the body, a wood-veneer body and a wood-veneer bottom having its rim projecting laterally out under the end of the wood-veneer body for it to abut against substantially as specified.

13. A taper-breasted jacketed shipping-can, having its breast and body made from a single piece of metal, and provided with a pouring-nozzle soldered to the upper end of said taper-breast, a hollow projecting bead around the upper end of the body portion, a wood-veneer jacket secured by hoops or bands around the body portion, and a metal and wood bottom secured to the lower end of the can-body, the rim of the metal and wood veneer bottom projecting out laterally under the end of the wood-veneer body for it to abut against substantially as specified.

14. A taper-breasted shipping-can, provided at its upper portion with a pouring-nozzle surrounded by an annular chamber having openings d^6 d^6 between the side walls of said pouring-nozzle and the annular chamber, and having openings d^7 between the lower portion of said annular chamber and the can, whereby the said pouring-nozzle and can are strengthened and ventilated, substantially as specified.

602,469. SHIPPING BOX OR PACKAGE. Erwin Hoover, Maywood, Ill., assignor to himself, and Oliver W. Horton, Chicago, Ill.

Filed May 22, 1897. Serial No. 637,977. (No model.)



Claim.—1. A shipping box or package comprising in combination the following parts: a sheet-metal body and a wood-veneer body, the sheet-metal body having lateral flanges or offsets extending across the end or thickness of the wood-veneer body, a sheet-metal bottom and a wood-veneer bottom, the rim of the sheet-metal bottom being folded over and around the edge of the wood-veneer bottom, and the lower end of the sheet-metal body being folded over and around the combined sheet-metal and wood-veneer bottom to secure the body and bottom together, the wood reinforcing-strips D D' secured together at the corners by metal clips and surrounding the body at its upper and lower ends and provided with nails or fastenings extending through and securing firmly together said sheet-metal body and wood-veneer body and reinforcing-strips, the lower edge of said reinforcing-strips at the lower end of the body projecting below the lower end of the wood-veneer body to form a seat, protection or abutment for the marginal edge of the combined bottom, and a sheet-metal cover and a wood-veneer cover furnished with marginal wood reinforcing-strips D^2, the rim of said sheet-metal cover being folded over and embracing the rim of said wood-veneer cover, and nails or fastenings extending through and uniting said wood-veneer cover, sheet-metal cover and wood reinforcing-strips D^2, the upper edge of said upper reinforcing-strips D' on the body projecting above the upper end of said wood-veneer body and forming a seat or abutment for the edges of the combined cover to fit against, and hinge-straps and fastening-straps secured to the combined cover and combined body, substantially as specified.

2. In a shipping box or package, the combination with a sheet-metal body of a wood-veneer body, reinforcing-strips of wood surrounding the wood-veneer body, and fastenings extending through said strips and sheet-metal and wood-veneer bodies, a wood-veneer bottom and a sheet-metal bottom having its rim folded over the edge of said wood-veneer bottom, the lower end of said sheet-metal body being folded over the rim or edge of the combined bottom, the lower edge of said wood strips at the lower end of the body projecting below the lower end of the wood-veneer body and surrounding the edge of the combined bottom, substantially as specified.

3. In a shipping box or package, the combination with a sheet-metal body of a wood-veneer body, reinforcing-strips of wood surrounding the wood-veneer body, and fastenings extending through said strips and sheet-metal and wood-veneer bodies, a sheet-metal cover and wood-veneer cover furnished with reinforcing-strips D^2, said combined cover fitting and resting at its margin on the end of said wood-veneer body, and the reinforcing wood strips at the upper end of the body projecting above the upper end of the wood-veneer body to form a seat and protection for the edges of the cover, substantially as specified.

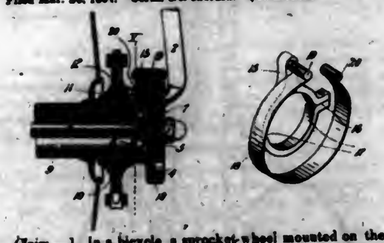
4. In a shipping box or package, the combination with a sheet-metal body of a wood-veneer body, reinforcing-strips of wood surrounding the wood-veneer body, and fastenings extending through said strips and sheet-metal wood-veneer bodies, a sheet-metal cover and wood-veneer cover furnished with reinforcing-strips D^2, said combined cover fitting and resting at its margin on the end of said wood-veneer body, and the reinforcing wood strips at the upper end of the body projecting above the upper end of the wood-veneer body to form a seat and protection for the edges of the cover, hinge-straps F F secured to the reinforcing-strips at the upper end of the body, and hinge-straps F F' secured to the reinforcing-strips on the cover, substantially as specified.

5. In a shipping box or package, the combination with a sheet-metal body of a wood-veneer body, reinforcing-strips of wood surrounding the wood-veneer body, and fastenings extending through said strips and sheet-metal wood-veneer bodies, a sheet-metal cover and wood-veneer cover furnished with reinforcing-strips D^2, said combined cover fitting and resting at its margin on the end of said wood-veneer body, and the reinforcing wood strips at the upper end of the body projecting above the upper end of the wood-veneer body to form a seat and protection for the edges of the cover, hinge-straps F F secured to the reinforcing-strips at the upper end of the body, and hinge-straps F F' secured to the reinforcing-strips on the cover, fastening-straps G secured to the cover having hinged straps G', and screws passing through said straps G' and entering threaded nuts secured to the body, substantially as specified.

6. A shipping-box comprising the following parts, a sheet-metal body A, wood-veneer body A', sheet-metal bottom B, wood-veneer bottom B', sheet-metal cover C, wood-veneer cover C', wood reinforcing-strips D D' D^2, hinge-straps F F', fastening-straps G G', screws g' and nuts g^2, all constructed, combined and cooperating substantially as specified.

602,470. BICYCLE-BRAKE. Robert S. Orr, Allegheny, Pa.

Filed Mar. 26, 1897. Serial No. 630,402. (No model.)

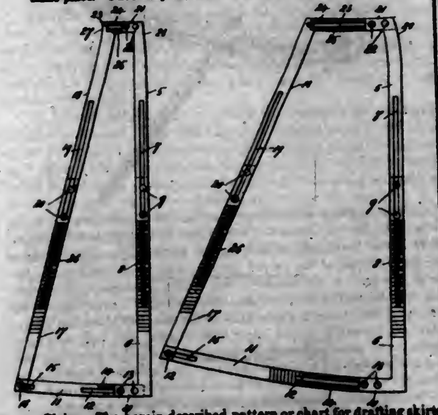


Claim.—1. In a bicycle, a sprocket-wheel mounted on the rear hub having a limited rotatory motion thereon, a band-wheel rigidly secured to the frame adjacent to the sprocket-wheel, a band-arm rigidly clamped to the hub between the band-wheel and the sprocket-wheel, and a brake-band secured to the band-arm and sprocket-wheel respectively and embracing the band-wheel, substantially as set forth.

2. In a bicycle-brake provided with a band-wheel rigidly connected with the main frame and a brake-band having one end secured to the sprocket-wheel and the other end secured to a band-arm rigidly clamped to the hub of the bicycle-wheel; the lost-motion mechanism for the sprocket-wheel consisting of a key 11 upon the hub 9 and an excessively wide keyway 12 in the hub of the sprocket-wheel, substantially as set forth.

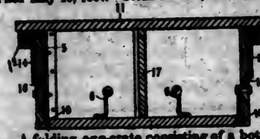
3. In a bicycle, the combination with a sprocket-wheel mounted on the rear hub having a limited rotatory motion, a band-arm rigidly clamped to the hub and a brake-band secured to the sprocket-wheel and band-arm respectively; a band brake-wheel mounted on a threaded axle-shaft having an integral ball-bearing extension and means for securing it in position, substantially as set forth.

602,471. ADJUSTABLE SKIRT-PATTERN. Almeda A. Pinkham, North Adams, Mass., assignor of one-half to Thomas J. Cassidy, same place. Filed July 22, 1897. Serial No. 645,536. (No model.)



Claim.—The herein-described pattern or chart for drafting skirts comprising a side consisting of two parts 5 and 6 one of which is provided with a longitudinal slot 7 and the other with a scale 8, set-screws 9 secured to said part provided with a scale and adapted to move in the said longitudinal slot 7, the lower end of said part 6 being provided with an angular extension 10, a bar 11, connected therewith, said bar 11 being provided with a longitudinal slot 12, set-screws 13 mounted in said extension 10 and adapted to engage said longitudinal slot 12, said bar being also provided with a scale 14, said bar 11 and extension 10 being so constructed that they will be slightly curved when connected, the outer end of said bar 11, being provided with a longitudinal slot 15; a side piece consisting of a bottom part 17, and an upper part 18 provided with a longitudinal slot 19, screws 20 mounted in said part 17 and adapted to move in the said slot 19, a set-screw 16, mounted in the lower end of said part 17 and adapted to engage said longitudinal slot 15 of the bar 11, the said part 5 being provided with an angular extension 21, at the upper end thereof, set-screws 22 mounted thereon, the said part 18 being provided with an angular extension 24 provided with a slot 23 which said set-screws are adapted to move, said extension 24 being provided with a scale 25, and the said part 17 being provided with a scale 26, substantially as and for the purpose described.

602,472. FOLDING EGG-CRATE. Douglas Reid, New Richmond, Wis. Filed May 19, 1897. Serial No. 637,163. (No model.)



Claim.—A folding egg-crate consisting of a bottom having cavities in its upper face in which suitable eyes are mounted, the side and end pieces of the crate hinged together and having hooks thereon which are adapted to engage the eyes of said bottom, the guide devices 18 mounted on the inner side of said side pieces, the partition adapted to be held in position thereby, the top or cover having rabbeted strips secured to its under face, leaf-springs secured in the rabbets of said strips, angled tongues 14 pivoted to said top in such position as to bear against said strips, said top and end pieces having notches 11' and 16 for the reception of the angles of said tongue, the spindles journaled to the outer sides of said end pieces, said spindles having angled ends, and the parts adapted to be operated, all substantially as and for the purpose set forth.

602,478. VALVE FOR AIR-COMPRESSORS. Frank Richards, New York, N. Y. Filed Jan. 18, 1897. Serial No. 619,637. (No model.)

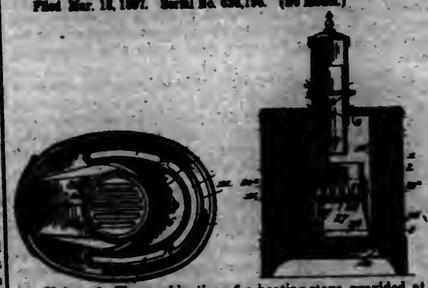


Claim.—1. In combination with the air-compressor base perforated and recessed as explained, the outer casing fitting the perforation and having a flange at the bottom for entering the recess, and the inner removable shell having the flange at the bottom, the latter being arranged to force the flange on the casing against its seat in the recess and to form a joint with the compressor-base, substantially as shown and described.

2. The herein-described appliance for air-compressors, the same being composed of the outer casing having the overhanging ring or projections and a flange at the bottom, the inner removable casing also having a flange at the bottom, the valve-disk, and means for securing the parts in place, the flange on the inner casing being arranged to force the one on the outer casing against its seat in the recess and to form a tight joint with the base of the compressor, substantially as and for the purposes set forth.

602,474. HEATING-STOVE. John L. Ritter, Shenandoah, and Lee H. Hazlewood, Richmond, Va., assignors, by direct and mesne assignments, to said Ritter and James G. Whitlock, Shenandoah, Va.

Filed Mar. 12, 1897. Serial No. 626,196. (No model.)

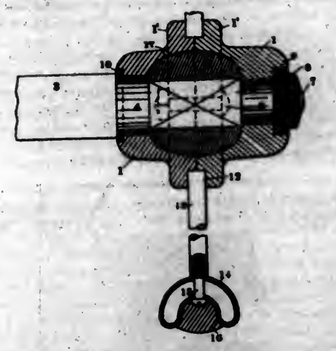


Claim.—1. The combination of a heating-stove provided at its bottom with a transverse stop-flange and having a door at its front,

a casing detachably arranged on the base of the stove and fitting against the said flange and adapted to be removed to permit the stove to be employed as a wood-burner, said casing forming an ash-pit and extending from the flange to the door, a fire-pot mounted on the casing, and a grate arranged at the bottom of the fire-pot in suitable ways of the casing, substantially as described.

2. The combination of a heating-stove provided at its bottom with a transverse stop-flange and having a door at its front, a detachable casing arranged on the base of the stove and fitting against the said flange and adapted to be removed to permit the stove to be employed as a wood-burner, said casing being provided at its top with an upwardly-extending annular flange 24ª and forming an ash-pit and extending from the flange of the bottom of the stove to the door, a removable fire-pot arranged within the annular flange of the casing, and a grate arranged at the bottom of the fire-pot in suitable ways of the casing, substantially as described.

602,475. WHEEL AND AXLE FOR VEHICLES. RICHARD SCHROEDTER, Chicago, Ill. Filed July 19, 1897. Serial No. 645,090. (No model.)



Claim.—1. In a wheel and axle for vehicles the combination of a hub consisting of the two separable parts 1, cut out to inclose the oval member 2, and having the flanges 1′ with recesses 12 therein which are enlarged toward the middle of the hub; an axle having thereon the member 2; and spokes having their inner ends enlarged to fit the recesses 12, substantially as described.

2. In a wheel for vehicles, the combination of a hub consisting of two separable parts 1, having the flanges 1′ with recesses 12 therein which are enlarged toward the middle of the hub; the tubular metal spokes, having their inner ends flared to fit said recesses and their outer ends interiorly threaded; and a rim having screws thereon engaging said interiorly-threaded parts, substantially as described.

602,476. PROCESS OF CURING HIDES OR SKINS FOR TRANSPORT. JOHN W. SCOTT, Allenville, Queensland. Filed Apr. 13, 1897. Serial No. 633,015. (No specimens.)

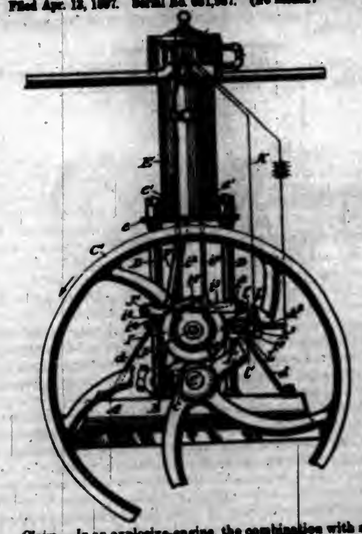
Claim.—1. The process of curing hides, skins or furs, whereby the fermentable matter present therein acts upon invert sugar to convert the latter into lactic or butyric acid by fermentation, and drying the hides, skins or furs, after fermentation ceases.

2. The process of curing hides, skins or furs, whereby the fermentable matter present therein acts, at normal temperature, upon invert sugar to convert the latter into lactic and butyric acid by fermentation, and drying the hides, skins or furs after fermentation ceases.

3. The process of curing hides, skins or furs, which consists in first freeing the same from blood and loose bits of skin, immersing them in a solution of a carbohydrate whereby the fermentable matter present in the hides, skins or furs acts upon such carbohydrate to convert it into lactic and butyric acid by fermentation, turning the hides or skins periodically in the liquor until fermentation ceases, and then drying them.

4. The process of curing hides or skins, which consists in first freeing the same from blood and loose bits of skin, immersing them in a solution of a carbohydrate whereby the fermentable matter present in the hides or skins acts upon such carbohydrate to convert it into lactic and butyric acid by fermentation, turning the hides or skins periodically in the liquor until fermentation ceases, then drying the same and treating the dried hides or skins with an oleaginous or fatty substance, substantially as and for the purpose set forth.

602,477. EXPLOSIVE-ENGINE. JOHN A. SIBON, Brooklyn, N. Y. Filed Apr. 13, 1897. Serial No. 631,967. (No model.)



Claim.—In an explosive-engine, the combination with a cylinder, piston, crank-shaft and connections, of an electric igniter having a normally open circuit, a switch to close said circuit and a finger pivoted upon said switch and movable to a limited extent with respect thereto, said finger projecting into the path of the moving part of the engine.

602,478. DOUBLETREE. JOHN W. SHEPPARD, Chariton, Iowa. Filed Aug. 12, 1897. Serial No. 647,903. (No model.)



Claim.—The combination with a pole, of a doubletree consisting of a metal bar pivoted to the upper face of the pole and having its ends curved rearward and laterally and provided directly in advance of the terminals of the curved portions with pivot-openings, singletrees arranged on the doubletree and having pivot-openings registering with the said pivot-openings, hammer-straps 9 extending across the space between the curved ends of the doubletree and the singletrees and arranged on the upper faces of said ends and the singletrees, pivots passing through the front ends of the hammer-straps and the perforations of the singletrees and the doubletree, fastening devices securing the rear ends of the hammer-straps to the curved ends of the doubletree, rearwardly-extending slotted ears arranged on the lower faces of the ends of the doubletree and secured to the same by the said fastening devices, and the brace 3 arranged on the lower face of the pole, connected to the same by the pivot of the doubletree and having its terminals bent upward and secured to the lower face of the doubletree at opposite sides of the pole, substantially as described.

602,479. WASHBOARD. JOSEPH W. SHEPPARD, St. Louis, Mo., assignor to the Mississippi Glass Company, same place. Filed Nov. 20, 1896. Serial No. 570,473. (No model.)

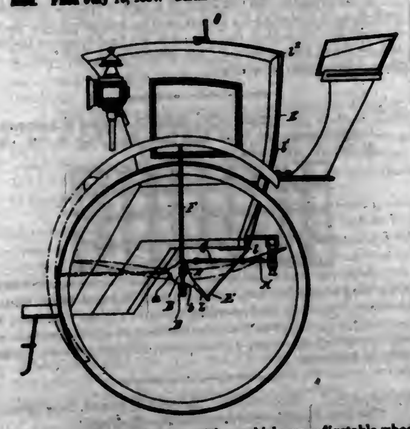
Claim.—1. A washboard consisting of a frame having grooved side rails, a rubbing-surface of friable material having its edges located in the grooves, holding-strips of a length substantially the length of the grooves and of a width less than the space between the rubbing material and side wall of the groove and loosely held in such

spaces between the rubbing-surface and groove-walls, and the securing-bar B having recessed ends in which the ends of the holding-strips are placed.



2. A washboard consisting of a frame having grooved side rails, a rubbing-surface of friable material having its edges located in the grooves, holding-strips of a length substantially the length of the grooves and of a width less than the space between the rubbing-surface and groove-walls, and means for loosely securing the holding-strips in place.

602,480. WHEEL-GUARD FOR VEHICLES. FREDERICK JULIA SPENCER and RAOUL ROUSSEL DE LA CHESNEVERIE, Hanley, England. Filed July 19, 1897. Serial No. 645,184. (No model.)

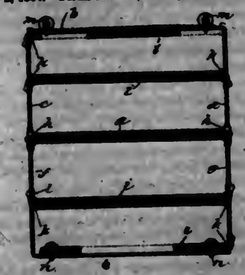


Claim.—1. In combination with a vehicle, an adjustable wheel-guard, a bar supporting the same, a transverse bar rigidly attached to the said bar, bearings supporting the transverse bar revolubly, a spring-controlled cam-plate fixed upon the transverse bar, a projecting arm secured to the said cam-plate, and a draw-line attached to the said projecting arm.

2. In combination with a vehicle-axle a transverse bar revolving in bearings secured on the said axle, bent levers secured to the ends of said bar, wheel-guards secured to said bent levers, a cam-plate fixed upon the said transverse bar, cams on said cam-plate limiting the revolution of said bar, a spring controlling the said cam-plate, and means for revolving the cam-plate against the tension of the spring.

3. In combination with the adjustable wheel-guard N, the bent lever E, the transverse revoluble bar A, the cam-plate B, the draw-spring G, the cam-plate lever I, and the draw-line E.

602,481. FOLDING RACK. JOSEPH H. BLAKE, Meriden, Conn. Filed June 2, 1897. Serial No. 638,132. (No model.)

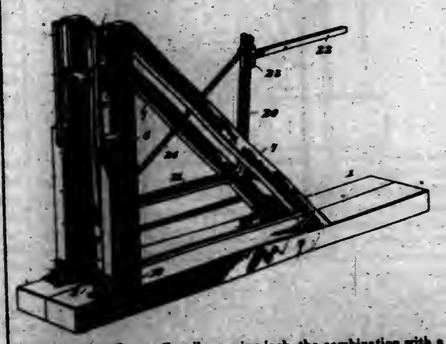


Claim.—1. A folding rack composed of two rectangular frames each having two side bars and an outer end bar, and both having an inner end bar in common: said frames being hinged together at the terminals of the inner end bar, and adapted to be hung by their outer end bars upon hooks *n n*, attached to a wall at any distance apart within the width of the said frames, substantially as specified.

2. A folding rack composed of two rectangular frames each having two side bars and an outer end bar, and both having an inner end bar in common, said frames being hinged together at the terminals of the inner end bar, in combination with movable cross-bars adjustably attached to the side bars on each side, and means for clamping said cross-bars in position on said side bars, substantially as specified.

3. In a folding rack, the rectangular frames each having two side bars and an outer end bar rigidly connected together, and a common inner end bar; said frames being hinged together at the terminals of the inner end bar, in combination with movable adjustable cross-bars *i*, provided with end sockets *k*, having perforated legs sliding upon said side bars, and clamping-cams *l*, adapted to press sidewise upon the side bars and hold the said cross-bars in fixed position, substantially as specified.

602,482. PUMPING-JACK. ORSON U. STANLEHAN, North Baltimore, Ohio. Filed Aug. 31, 1897. Serial No. 650,178. (No model.)



Claim.—1. In an oil-well pumping-jack, the combination with a sill provided with clamping means for engaging a well-casing, of a tilting frame hingedly mounted upon the sill remote from said clamping means, and having front uprights seated at their lower ends upon the sill contiguous to said clamping means, securing devices for detachably fastening the lower ends of the uprights to the sill to maintain the frame in its upright position, and pumping apparatus mounted upon the frame and provided with means for engaging a pump-rod, said pumping apparatus being removed from the path of the pump-rod when the frame is tilted rearwardly, substantially as specified.

2. In an oil-well pumping-jack, the combination with a sill, provided with a clamping means for engaging a well-casing, of a tilting frame having rearwardly and downwardly inclined braces hingedly mounted upon the sill remote from said clamping means, and front uprights seated upon the sill contiguous to said clamping means, and depending vertically from said braces, angle-brackets carried by the uprights and having slotted feet in contact with the sill, securing-bolts engaging the slotted feet to maintain the frame in its normal or upright position, and pumping apparatus carried by the frame for attachment to a pump-rod, substantially as specified.

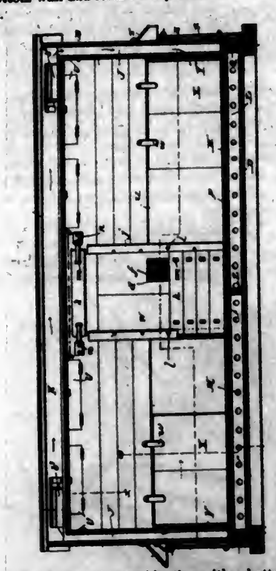
3. In an oil-well pumping-jack, the combination of a tilting frame, a cross-head mounted upon said frame for reciprocatory movement in the vertical plane of a pump-rod and having a clamp for engaging the pump-rod, and an oscillatory V mounted upon the frame and operatively connected with said cross-head, the frame being adapted to tilt rearwardly when the clamp on the cross-head is disengaged from the pump-rod, substantially as specified.

4. In an oil-well pumping-jack, the combination of a frame, a cross-head mounted for reciprocation in guides on the frame and provided with a clamp for engagement with a pump-rod, a V mounted for oscillatory movement upon the frame and provided at the extremity of one of its arms with means for attachment to an operating-rod, and at the extremity of its other arm with a bifurcated T-head having alined lateral trunnions, and connecting-links or pitmen, terminally mounted respectively upon said trunnions and journal portions of the cross-head, substantially as specified.

602,483. REFRIGERATOR-CAR. HENRY F. STARLEY, New Orleans, La. Filed May 26, 1897. Serial No. 638,503. (No model.)

Claim.—1. In a freight-car, the combination with a bottom wall, a false bottom wall provided with openings and arranged above the

bottom wall so as to serve in conjunction with the same to form a chamber, and the side and end walls having recesses *u*, in their inner sides; of imperforate bottom sections removably secured in the recesses of the side walls and adapted when let down to entirely cover the false bottom wall and form an imperforate bottom, substantially as specified.



2. In a freight-car, the combination with a bottom wall, a false bottom wall provided with openings and arranged above the bottom wall so as to serve in conjunction with the same to form a chamber, the side and end walls having recesses *u*, in their inner sides and the beveled sills at the base of the recesses *u;* of imperforate bottom sections removably secured in the recesses *u*, and having beveled edges engaging the beveled sills and adapted when let down to entirely cover the false bottom wall and form an imperforate bottom, and turning-buttons removably securing said sections in the recesses *u*, substantially as specified.

3. In a freight-car, the combination of the two bottom walls forming a chamber between them, the side walls, the end walls having openings coincident with and communicating directly with the chamber between the bottom walls, the vertical guides connected to the outer end walls at opposite sides of the openings therein, the plug-doors pivotally connected at their upper edges to rods mounted in bearings on the outer sides of said guides and adapted to close the openings in the end walls, and vertically-slidable doors arranged in the guides and having openings therein; the said slidable doors being adapted to rest over the openings in the end walls when the plug-doors are opened and being also adapted, in such position, to hold the plug-doors open, substantially as specified.

4. In a freight-car, the combination of the bottom wall and the false bottom wall having openings and serving in conjunction with the bottom wall to form an ice-chamber, the end walls having openings coincident with the ice-chamber for charging the same with ice, and suitable doors for closing said openings, substantially as specified.

602,484. CLOTHES-TONGS. ELBERT B. STEVENSON, Philipsburg, Canada. Filed Nov. 1, 1897. Serial No. 657,124. (No model.) Patented in Canada Nov. 11, 1897, No. 58,101.



Claim.—A clothes-tongs comprising two members pivotally connected the rear ends of said members forming handles, one of said members being provided at its front end with an offset portion having an inclined face against which the other member is adapted to abut, the meeting faces of said inclined face and the opposite member being arranged to fit one onto the other, substantially as and for the purposes set forth.

602,485. HORSESHOE-PAD. JOHN SWEENEY, New York, N. Y. Filed Jan. 6, 1898. Serial No. 665,733. (No model.)



Claim.—1. A horseshoe-pad composed of a leather plate, a rubber heel, a canvas backing vulcanized into the heel, and stitches that pass through the canvas backing and connect the heel to the plate, substantially as specified.

2. A horseshoe-pad composed of a leather plate, a circumferentially-flanged rubber heel, a canvas backing vulcanized into the heel, an outer line of stitches that connects the heel-flange to the plate, and an inner line of stitches that connects the heel-body to such plate, substantially as specified.

602,486. PNEUMATIC CUSHION. ANTON SHILESWSKI and JOSEPH SHILESWSKI, South Bend, Ind. Filed June 22, 1896. Serial No. 596,412. (No model.)



Claim.—As a new article of manufacture, a pneumatic cushion comprising a bulbular cover-section having the grained portions of gradually-increasing thickness from the crown to the base and a flat base section connected to the cover-section, and an inflation tube and valve for filling the spaces with air under suitable pressure, substantially as described.

602,487. BOX-LOUNGE. ROBERT R. THOMPSON, Bloomington, Ill. Filed June 21, 1897. Serial No. 641,568. (No model.)



Claim.—1. The combination with a box and a cover, of a lever pivoted to the cover and to the box forward of the cover-pivot, and a spring connected to the cover back of the cover-pivot and pulling said cover forward and downward; substantially as described.

2. The combination with a box, of a cover having its rear edge slidingly mounted upon the box, a series of springs tending to draw said rear edge forward, and a series of levers pivoted to the cover and the box, the box-pivots being forward of the cover-pivots; substantially as described.

3. The combination with a box having a cover, the rear edge of which is slidingly mounted upon the box, of a series of coiled springs connected at one end to the rear edge of the cover and supported at the other end under tension forward of said point, and a lever pivoted to the cover forward of the point at which the springs are attached and pivoted to the box forward of the point at which it is pivoted to the cover; substantially as described.

4. The combination with a box having a cover slidingly mounted at its rear edge thereupon and having in front of its rear edge means for raising it and preventing backward movement, of an inclined slide for the rear edge of the cover whereby the cover is raised bodily from the box as it slides forward; substantially as described.

5. The combination with the box, A, having the covir, B, mounted upon it, of a bent lever, D, pivoted to the cover and to the box in front of the cover-pivot, and the coiled spring, C, extending from the downwardly-projecting end of the lever to the cover in rear of the lever-pivot and there connected to said cover; substantially as described.

602,488. FILTER FOR RAIN-WATER. WILLIS M. TIER and LEVI TIER, Bethlehem, Pa. Filed June 26, 1897. Serial No. 642,308. (No model.)



Claim.—1. In a filter for rain-water, the combination with a casing interposed in the rain-water pipe and having a door in its side, of an outer strainer made of wire-netting detachably suspended within the casing and movable through the door, and a coarser, automatically-extensible strainer detachably suspended within the outer strainer, and movable therewith, substantially as described.

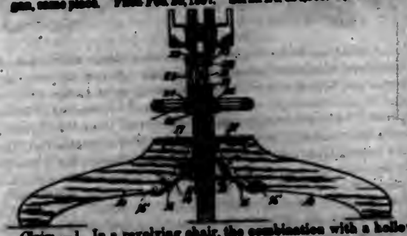
2. In a filter for rain-water, the combination with a casing interposed in the rain-water pipe and having a door in its side, of an outer strainer made of wire-netting detachably suspended within the casing and movable through the door, a coarser, automatically-extensible strainer detachably suspended within the outer strainer, and movable therewith, and a sponge or similar absorbent device supported on a grating in the lower end of the casing, substantially as described.

3. In a filter for rain-water, the combination of a casing provided with a sliding door and adapted to be connected to a rain-water pipe, an outer strainer made of wire-netting detachably suspended within the casing and an inner strainer consisting of a tapering coil of wire detachably suspended within the outer strainer, substantially as described.

4. In a filter for rain-water, the combination of a casing adapted to be connected to a rain-water pipe, and provided with an interior collar at its upper end, an outer strainer of wire-netting having a sleeve at its upper end adapted to be detachably connected to said collar by a bayonet-joint, a handle pivoted on the said sleeve, lugs projecting inwardly from the sleeve, and an inner strainer consisting of a tapering coil of wire having a flange at its upper end adapted to be supported on the said lugs, substantially as described.

5. A strainer for a rain-water filter composed of a tapering coil of wire, the coils at the upper end normally lying close together and the spaces between the lower coils gradually increasing toward the lower end of the strainer, substantially as described.

602,489. REVOLVING CHAIR. CARLOS C. TRAFT and FRANK TRAFT, Fort Washington, Wis., assignors of one-half to James H. Morgan, same place. Filed Feb. 20, 1897. Serial No. 624,263. (No model.)



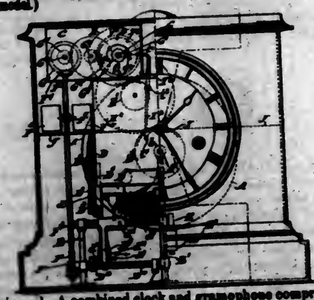
Claim.—1. In a revolving chair, the combination with a hollow screw-threaded standard fixed on supporting-legs, of a nut turning on the standard, a seat-carrying spindle revolvable in the standard, and a collar about the spindle and on which it is supported, said collar being provided with a leg having a wedge-formed surface bearing against a complementary wedge formed surface in the nut and adapted thereby by reason of the weight on the leg, to lock the nut in place on the standard.

2. In a revolving chair, the combination with a hollow screw-threaded standard fixed on supporting-legs, of a nut turning on the standard said nut being provided with a groove or aperture parallel with its axial bore, a seat-carrying spindle revolvable in the standard, a collar about the spindle and on which it is supported, a leg depending from the collar and provided with a beveled or wedge-formed bearing-surface arranged to bear and wedge against the wall of the groove or aperture in the nut and thereby by the weight thereon to be forced against the standard clamping the nut thereto.

3. In a revolving chair, the combination with a hollow screw-threaded standard fixed on supporting-legs, of a nut turning on the standard, a seat-carrying spindle revolvable in the standard, a collar about the spindle and on which it is supported, a leg depending from the collar and passing through the nut and provided with a wedge-formed surface bearing against a complementary wedge-formed surface in the nut, and a toe on the leg extending under and adapted when lifted to engage the nut.

4. In a revolving chair, the combination with a fixed hollow standard screw-threaded exteriorly and a nut turning thereon, of a seat-carrying spindle revolvable in the standard, a collar loose on and supporting the spindle, a leg depending from the collar at one side and passing through the nut, a toe on the leg arranged releasably to engage the nut, and a pin in the spindle below the collar adapted to prevent the spindle from escaping from the collar.

602,490. COMBINED CLOCK AND GRAMOPHONE. JOSEPH A. VERNEY, Philadelphia, Pa. Filed Feb. 11, 1897. Serial No. 623,206. (No model.)



Claim.—1. A combined clock and gramophone comprising a record-disk mounted upon a rotatable plate, spring mechanism for operating the same, a sound-box provided with a diaphragm and stylus which is adapted to traverse the face of the record, a screw operated by said spring mechanism for conveying the sound-box and stylus across the record-disk in one direction, a second screw for conveying the sound-box and stylus in the opposite direction, cams, one on each of said screws for shifting the parts carrying the sound-box and stylus out of engagement with one and into engagement with the other of said screws, the clock mechanism, a dog mounted upon a shaft of the clock mechanism, a lever controlled thereby, and a notched wheel operated upon by said lever and dog to unlock the spring mechanism of the gramophone.

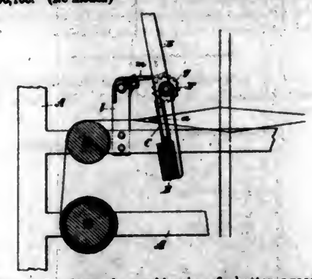
2. A combined clock and gramophone comprising the clock mechanism, spring means for operating the same, a lever controlled by said clock mechanism, a record-disk mounted upon a rotatable plate, spring means for operating the same, a sound-box provided with a diaphragm and stylus which is adapted to traverse the face of the record, a screw for conveying the sound-box and stylus across the record-disk in one direction, a second screw for conveying the sound-box and stylus in the opposite direction, cams one on each of said screws for shifting the parts carrying the sound-box and stylus from one to the other of said screws and a notched plate secured to the main shaft of the spring mechanism of the gramophone and operated upon by the above-mentioned lever for locking said spring mechanism.

3. A combined clock and gramophone comprising a record detachably secured to a rotatable plate mounted upon a horizontal shaft, a sound-box and stylus acted upon by said record, a lever depending from said sound-box, a screw for acting upon said lever to move the sound-box and stylus in one direction, a screw acting upon said lever to move it and its connecting parts in the opposite direction, pins upon said lever, a cam upon each of said screws for acting upon said pins to shift the lever from one to the other of said screws, a spring-motor connected to said screws through a train of gearing for operating the same, and in like manner to the shaft carrying the record, a disk carried by the main driving-shaft of said motor provided with a series of notches, a pivoted lever having one end adapted to the notches of said plate, the clock mechanism, a dog mounted upon the minute-hand shaft of the clock mechanism and adapted to act upon said lever, substantially as specified.

4. A gramophone comprising a disk containing the record secured to a plate mounted upon a rotatable shaft, a sound-box and a stylus controlled thereby, a traveling support for the sound-box and stylus flexibly connected to a sleeve guided upon a horizontal bar, said sleeve having an arm depending therefrom, a screw adapted to feed the traveling support in one direction, a cam mounted upon the screw and adapted to a pin upon the depending arm for disengaging said arm from said screw, a screw adapted to feed the traveling support in the opposite direction, a cam upon said screw for acting upon a pin on said arm to disengage the same from the last-mentioned screw and move said arm into engagement with the opposite screw,

and means controlling the bar upon which traveling support is sleeved for holding the depending arm into engagement with one or the other of the screws with a yielding tension.

602,491. LOOM. JACOB WALDER, Paterson, N. J.; Mary Walder executrix of said Jacob Walder, deceased. Filed July 23, 1896. Serial No. 600,103. (No model.)



Claim.—1. In a loom, the combination of a batten, a reed, a frame for said reed independent of the batten, said reed having movable dents and means for maintaining the dents spaced apart at top and bottom and for limiting the backward-and-forward movement as well as the lateral movement thereof, a removable pattern-cylinder carried by the batten and adapted to contact directly with said movable dents and limit their movement in one direction, means for operating said cylinder automatically and means for connecting the pattern-cylinder with and disconnecting it from the operating means, whereby the pattern-cylinder is rendered interchangeable, substantially as described.

2. In a loom, the combination of a batten, a reed, a frame for said reed independent of the batten, said reed having movable dents and means for maintaining the dents spaced apart and for limiting the backward-and-forward movement as well as the lateral movement thereof, a removable pattern-cylinder carried by the batten and adapted to contact directly with said movable dents and limit their movement in one direction, means carried by the said batten for connecting the pattern-cylinder to and disconnecting it from the batten whereby said pattern-cylinder is rendered interchangeable and means independent of said batten for cooperating with the cylinder-connecting means to operate said cylinder, substantially as described.

3. A reed for looms, comprising a reed-frame, dents movable in the direction of the planes thereof or at right angles to the length of the reed, each of which dents is pivoted at one end in the said reed-frame and free to vibrate at the opposite end and means carried by the reed-frame for limiting the forward-and-backward movement of the dents, said dents projecting at the free ends beyond the reed-frame, substantially as described.

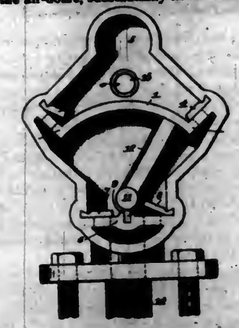
4. A reed for looms, comprising a reed-frame, independently-movable dents freely movable in the direction of their planes or at right angles to the length of the reed, and a spacing-reed carried by the reed-frame, the dents of which spacing-reed form spacing means for the movable dents of the reed proper, substantially as described.

5. A reed for looms, comprising a reed-frame, independently-movable dents freely movable in the direction of their planes or at right angles to the length of the reed, a single pivot upon which said dents are mounted and around which they are adapted to vibrate and a spacing-reed carried by the reed-frame, the dents of which form spacing means for the movable dents of the reed proper.

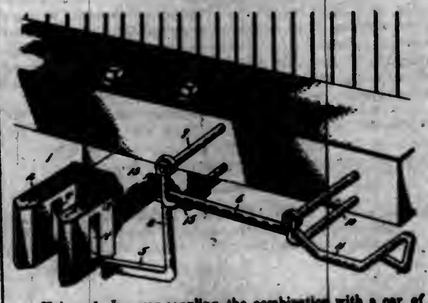
6. A reed for looms, comprising a reed-frame, independently-movable dents freely movable in the direction of their planes or at right angles to the length of the reed, a single pivot upon which said dents are mounted and around which they are adapted to vibrate, a coiled spring surrounding the said pivot for maintaining the movable dents properly spaced apart at one end, a spacing-reed carried by the reed-frame, the dents of which form spacing means for the movable dents at the free ends thereof, substantially as described.

602,492. PUMP. CHARLES G. WHITE, Woodland, Cal., assignor of one-half to J. P. Hink, same place. Filed Apr. 2, 1897. Serial No. 630,426. (No model.)

Claim.—A pump constructed substantially as shown and described, comprising a casing having its sides converging from an intermediate point toward its ends, a crown connecting the upper converging ends and forming an air-dome, an arcuate diaphragm having its end portions inclining upwardly and outwardly and joined to the sides at their point of convergence, inwardly and upwardly opening valves for controlling openings in the said inclined end portions of the diaphragm, a straight diaphragm connecting the lower converging sides, and having a central raised portion provided with a packing, upwardly and outwardly opening valves controlling openings in the ends of the horizontal diaphragm, a rock-shaft journaled in the heads of the casing and having its lower portion forming a tight joint with the said packing, and a straight piston projecting from the rock-shaft and having its free end constructed to work over and against the concave side of the arcuate diaphragm, the casing having an inlet below the straight diaphragm and an outlet above the arcuate diaphragm and below the air-dome, substantially as set forth.



602,493. CAR-COUPLING. LOUIS B. WHITING, Terrell, Tex. Filed Apr. 15, 1897. Serial No. 632,363. (No model.)



Claim.—1. In a car-coupling, the combination with a car, of a draw-head mounted thereon and provided with vertical jaws having transverse slots, a pair of rigid keepers mounted on the car at one side of the draw-head, and an operating-rod constructed of a single piece of rod metal, loosely arranged in the said keepers and provided at its inner end with an integral L-shaped portion adapted to engage the inner keeper and forming a horizontal coupling-pin 5, provided at its outer end with a depending leg to engage the draw-head, the outer end of the rod being bent to form a handle, substantially as described.

2. In a car-coupling, the combination with a car, of a draw-head mounted thereon and provided with a pair of vertical jaws having transverse slots, a pair of rigid keepers extending from the car at one side of the draw-head, and an operating-rod constructed of a single piece of rod metal and provided at its inner end with an integral L-shaped portion forming a coupling-pin and provided at the outer end of the latter with a depending leg to engage the draw-head, said rod being provided at its outer portion with a depending bend 11 forming opposite inner and outer inclined shoulders adapted to engage the outer keeper and capable of sliding readily over the same, substantially as and for the purpose described.

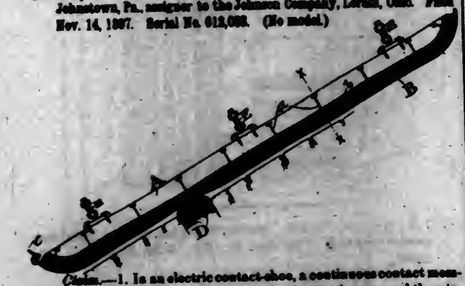
602,494. TRAVELER'S TOILET-CASE. EDWARD B. BRIGGS, Amesbury, Mass. Filed Mar. 26, 1897. Serial No. 629,206. (No model.)

Claim.—In a portable toilet-case, the combination of the hinged registering sections thereof and handle for carrying the same, a transverse diaphragm of the one section forming a water-fount and a compartment for toilet articles, the inlet and the bib of the said water-fount, the waste-reservoir of the other section with outlet therefor, the orifice in the top of the waste-reservoir, and the basin fitted into the said orifice, the said basin having a wasteway, substantially as and in the manner described.

602,494.



602,495. ELECTRIC CONTACT-SHOE. WILLIAM M. BROWN, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed Nov. 14, 1897. Serial No. 612,093. (No model.)



Claim.—1. In an electric contact-shoe, a continuous contact member in combination with a continuous elastic member secured thereto.

2. In an electric contact-shoe, a continuous piece of rubber tubing adapted to carry the contact portion of the shoe and afford the requisite yielding contact between said contact portions and the devices from which the electric current is delivered to the shoe.

3. In an electric contact-shoe, a flexible member secured longitudinally to the vehicle and composed substantially of a piece of rubber tubing, and a continuous contact-strip, secured to said tubing substantially as set forth.

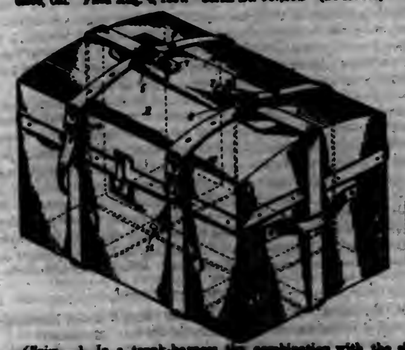
4. A contact-shoe for railway-vehicles comprising a flexible contact-strip, a supporting-frame comprising a bar parallel to said strip, and a cushion extending from end to end between said bar and strip.

5. In an electric contact-shoe, in combination, a continuous piece of flexible tubing, a plurality of rivets passing through one wall thereof, and secured upon the top of a continuous contact-strip, said rivets securing said strip tangentially to the tubing.

6. An electric contact-shoe comprising, in combination, a continuous rigid member, secured longitudinally to the vehicle, a continuous yielding member rigidly secured thereto and a flexible contact-strip secured to said yielding member.

7. A contact shoe for electric railways comprising the block A secured to the vehicle to be propelled, the hose B secured to one side of said block, and the contact-strip C secured to said hose.

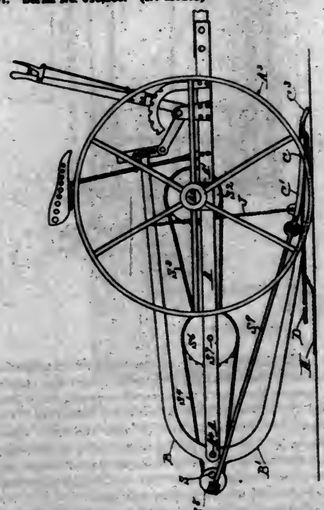
602,496. TRUNK-HARNESS. HENRY BRUNNER, Jr., San Francisco, Cal. Filed Aug. 4, 1897. Serial No. 647,114. (No model.)



Claim.—1. In a trunk-harness, the combination with the side straps provided with end buckles, the rings or loops secured to the opposite end of the side straps, and the end strap connected to the side straps at such points as to come beneath the trunk, the ends of said strap passing through the rings or loops and fastening to the end buckles of the side straps whereby the straps are made to embrace the top, bottom, sides and ends of the trunk.

2. In a trunk-harness, the combination with the side straps provided with end buckles, of the rings or loops secured to the opposite end of the side straps, the connecting-piece to which the side straps and rings or loops are attached, and of the end strap connected to the side straps at such points as to come beneath the trunk, the ends of said strap passing through the rings or loops and fastening to the buckles of the side straps whereby the straps are made to embrace the top, bottom, sides and ends of the trunk when the harness is secured thereto.

602,497. POTATO-DIGGER. JAMES A. BOSS, Crescent, N. Y., assignor of one-half to Le Roy Vermilyea, Cohoes, N. Y. Filed Jan. 7, 1897. Serial No. 618,282. (No model.)



Claim.—1. In a potato-digger, the combination with a truck and truck-supported plow-beam, of a two-winged plow superimposed upon and pivoted to the beam upon a vertical axis located intermediately of, and in approximately the same horizontal plane with, the wings, and a crank-and-pitman connection between the truck-wheels and each wing of the plow, whereby positive oscillating movements will be communicated to the pivoted plow, substantially as described.

2. In a potato-digger, the combination with a truck and truck-supported plow-beam, of a two-winged plow superimposed upon and pivoted to the beam upon a vertical axis intermediately of and in approximately the same horizontal plane with the plow-wings, operating connections between the truck-wheels and plow for oscillating the wings, and a series of rearwardly-projecting tines secured at their forward ends to the plow, substantially as described.

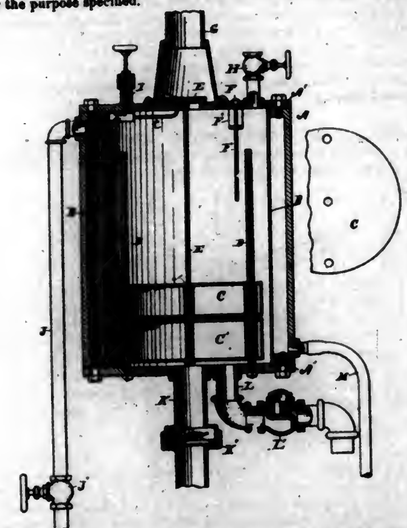
3. In a potato-digger, the combination with a truck and truck-supported plow-beam, of a plow pivoted upon a vertical axis, means for oscillating the plow upon its pivot, and supporting swing connections between the upper end of the plow-beam and the plow located approximately at the center of gravity of the plow, substantially as described.

4. In a potato-digger, the combination with a truck and truck-supported plow-beam, of a plow pivoted upon a vertical axis and comprising a tusk projecting forwardly of the pivot, a pair of diverging wings or shares projecting rearwardly of the pivot on opposite sides, and a plurality of rearwardly-projecting tines, supporting swing connections attached to the wings rearwardly of the pivot, a crank-operated pitman secured to each wing, and operating connections between the crank and the truck-wheels, substantially as described.

602,498. STEAM VACUUM-PUMP. FRED R. CHAMBERS, Meriden, Mich., assignor of one-half to Henry D. Cushman, Three Rivers, Mich. Filed June 1, 1897. Serial No. 638,908. (No model.)

Claim.—1. In a low-pressure steam vacuum-pump the combination of a pump-chamber; a water-jacket around the same; a supply

and delivery pipe at the bottom with suitable valves therein; a steam-inlet at the top with a suitable outwardly-opening valve therein; a float in the bottom of said pump-chamber connected to said valve of only sufficient size to raise the valve against the steam-pressure; an opening in the top of said chamber with an outwardly-opening valve to close the same; an independent float within the chamber to strike the valve to the vent-opening to open the same all coacting together for the purpose specified.



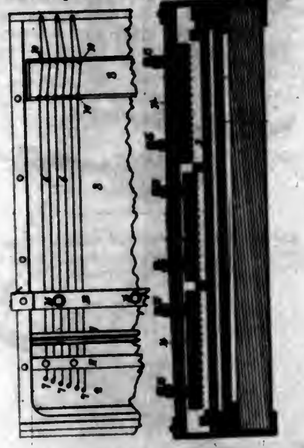
2. In a low-pressure steam vacuum-pump the combination of a pump-chamber; means of cooling the same; inlet and outlet valves therefor; a steam-inlet pipe with outwardly-opening valve therein; a float toward the bottom of said pump-chamber connected to the valve in said steam-inlet of sufficient size to raise the valve against the steam-pressure only; a vent-opening with a valve to close the same; an independent float in the pump-chamber guided to rise and open the vent to admit air and destroy the vacuum and allow the water to escape all coacting for the purpose specified.

3. In a low-pressure steam vacuum-pump the combination of a pump-chamber; inlet and outlet valves therefor; a steam-inlet pipe with outwardly-opening valve therein; a float toward the bottom of said pump-chamber connected to the valve in said steam-inlet of sufficient size to raise the valve against the steam-pressure only; a vent-opening with a valve to close the same; an independent float in the pump-chamber guided to rise and open the vent to admit air and destroy the vacuum and allow the water to escape all coacting for the purpose specified.

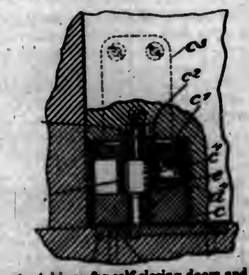
4. In a low-pressure steam vacuum-pump the combination of the outer and inner cylinders A, A, with heads A', A'', forming an inner pump-chamber with water-jacket around it; supply-pipe M, leading to said water-jacket; waste-pipe J, leading therefrom with valve J'; below the line of water-supply; supply-pipe K, with inlet-valve K', leading to the bottom of said pump-chamber; a delivery-pipe L, leading from the bottom of said pump-chamber; a steam-inlet pipe G, leading to the top of said pump-chamber; an outwardly-opening valve E', in the steam-passage having a lever *e*, with weight F', to counterbalance the valve; a spindle I, extending through the wall of the pump-chamber to actuate the lever to open the valve; a float C', in the bottom of said pump-chamber with a rod E, connecting it to valve E', the said float being only of sufficient size to open the valve against the steam-pressure alone; a vent F, with a valve F', to close the same suitably guided to place; an independent float C, to actuate the valve and open the vent in rising and suitable guide-rods D, engaging the floats C, C, to guide the same all coacting together substantially as described for the purpose specified.

602,499. APPARATUS FOR TUNING PIANOS. JOHN B DAYPOST, Cambridge, Mass., assignor to the Ivers & Pond Piano Company, Boston, Mass. Filed Sept. 28, 1897. Serial No. 653,963. (No model.)

Claim.—A mechanical device for stretching the strings of a piano, composed of a support adapted to be temporarily attached to the string-frame of such piano—a pressure bar capable of contact with a plurality of strings simultaneously and carried by said support, and adapted to rock or tilt transversely of said strings—and operating-screws or their equivalents, to vary the degree of pressure exerted by the bar upon the strings, substantially as described.



602,500. HINGE. MORGAN DOBBS and CHARLES J. MATHIAS, London, England. Filed Sept. 20, 1898. Serial No. 652,157. (No model.)



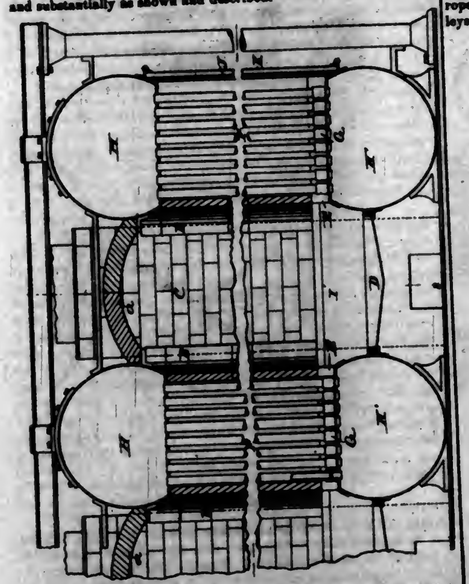
Claim.—1. A hinge for self-closing doors and shutters in which is combined an axial pintle providing an inner bearing for a spherical ball, the plug formed with an inclined plane and surrounding the pintle, the plunger formed with a correspondingly-inclined plane and surrounding the pintle, a loose rising-and-falling spherical ball located in the spiral runway formed by the inclined planes, and a cylindrical casing providing a housing for the plug and for the plunger and also an outer bearing for the spherical ball; substantially as described.

2. A hinge for self-closing doors and shutters in which is combined an axial pintle providing an inner bearing for a spherical ball, the plug formed with an inclined plane and with a sharp depression at the inner end of its inclined plane and surrounding the pintle, the plunger formed with a correspondingly-inclined plane and with a sharp depression at the inner end of its inclined plane and surrounding the pintle, a loose rising-and-falling spherical ball located in the spiral runway formed by the inclined planes, and a cylindrical casing providing a housing for the plug and for the plunger and also an outer bearing for the spherical ball; substantially as described.

3. A hinge for self-closing doors and shutters in which is combined an axial pintle, a cylindrical boss surrounding the axial pintle and providing an inner bearing for a spherical ball, the plug formed with two oppositely-inclined planes and with a sharp depression joining its inclined planes, the plunger formed with two correspondingly oppositely-inclined planes and with a sharp depression joining its inclined planes, a loose rising-and-falling spherical ball located in the spiral and diamond-shaped runway formed by the oppositely-inclined planes, the bush surrounding the pintle within the plug and a cylindrical case providing a housing for the plug and for the plunger and also an outer bearing for the spherical ball; substantially as described.

602,501. WATER-TUBE BOILER. ELLIS F. EDGAR, Woodbridge, N. J. Filed Mar. 20, 1897. Serial No. 628,041. (No model.)

Claim.—1. The combination in a water-tube boiler of a furnace, water-and-steam drums H, located one on either side of said furnace and above said furnace, said water-and-steam drums H, having means for supporting between said drums and above the line of tube sheet of said drums wall A, the said furnace being located directly under said wall A, as shown, and between water-tubes connecting said water-and-steam drums H, to water-drums H', all for the purpose set forth and substantially as shown and described.



2. The combination in a water-tube boiler of a furnace, wall A, over said furnace, water-and-steam drums H, and water-drums H', connected by water-tubes, located on each side of said furnace, and walls B, B, located between the water-tubes and combustion-chamber and grate, whereby the gases are forced to pass around walls B, B, at that end of walls B, B, next to the furnace door, between the water-tubes as described and for the purpose set forth, all substantially as shown and described.

3. The combination in a water-tube boiler of a furnace, wall A, over said furnace, water-and-steam drum H and water-drum H', connected by water-tubes, located on each side of said furnace, and walls B, B, draft-flue C, draft-exits L into said draft-flue C, all substantially as shown and described.

4. The combination in a vertical water-tube boiler of a series of water-tubes, located on either side of a furnace, said water-tubes being connected into water-drum H' as shown and described and protected by fire-clay bricks E, as shown and described, having outside casing K and J, and K' and J', as shown and described, walls B, B, as shown and described, draft-flue C and draft-exits L and fire-clay wall A, located over said furnace, all substantially as shown and described.

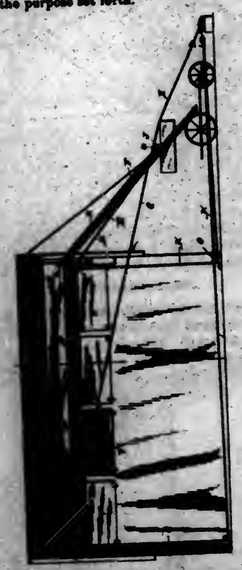
5. The combination in a water-tube boiler of a series of furnaces, divided by a series of water-tubes, with a deflecting-wall located above said furnaces, and a draft-flue or a series of draft-flues located between the series of water-tubes and at that end of the furnace opposite the fire-door all substantially as shown and described.

6. The combination in a water-tube boiler, of a series of furnaces, with a series of water-tubes located on either side of said furnaces, and a series of incombustible walls, located above said furnaces, with a draft-flue located between the said furnaces and between the series of water-tubes, with draft-openings into said flue and combustion-chambers on each side of said flue between the furnaces and said flue or flues, all substantially as shown and described.

602,502. APPARATUS AND BUILDING FOR UNLOADING AND STORING GRAIN. GEORGE S. FOSTER, Rock, Ill. Filed June 26, 1897. Serial No. 641,269. (No model.)

Claim.—1. A building for storing grain having horizontal tracks arranged centrally and longitudinally thereof, a wagon-body mounted on a truck traveling on said track, said body having a hinged bottom, bins arranged on each side of the track, doors opening outwardly from said bins and forming a chute with the bottom of the wagon, as and for the purpose set forth.

2. In combination, a building, horizontal tracks arranged therein, inclined tracks leading therefrom, the rails of said inclined track being double-flanged, one of the flanges being provided with gear-teeth, a truck carrying double-flanged wheels to run upon said rails, one of the flanges of each wheel being provided with gear-teeth which mesh with the teeth of the rail, grooved pulleys carried by the truck, and ropes secured to the building and arranged to pass around said pulleys, as and for the purpose set forth.



3. In combination, a building, horizontal tracks arranged therein, inclined tracks leading therefrom, a truck adapted to travel upon said tracks, two grooved pulleys carried by the truck, a dumping-bottom adapted to be attached to the truck, ropes arranged to pass around the grooved pulleys, a rope attached to the truck, and means for attaching said ropes to a team, whereby the body may be elevated and conveyed to the desired point, as shown and described.

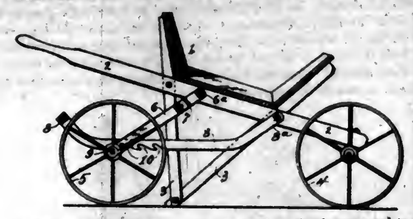
4. In combination with a building of the character described, horizontal tracks arranged therein, inclined tracks leading to the first-named tracks, the last-named tracks having gear-teeth formed upon one flange thereof, a truck adapted to travel upon the tracks, gear-teeth formed with the truck-wheels and adapted to mesh with the teeth of the inclined track, a dumping-body adapted to be attached to the truck, grooved pulleys carried by the truck, two ropes so arranged as to pass around said grooved pulleys and elevate the truck up the inclined track, and a rope leading from the truck over the pulleys, all of said ropes being adapted for attachment to the team whereby the body may be handled, substantially as and for the purpose set forth.

602,503. CORK-EXTRACTOR. GEORGE S. FOSTER, Rock, Ill. Filed June 26, 1897. Serial No. 642,478. (No model.)



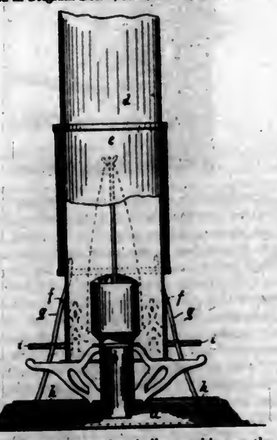
Claim.—A cork-extractor consisting of a strip of tape passed longitudinally around the cork the ends of said tape meeting above the cork an eyelet passed through the ends of said tape securing them together at such a distance from the cork as to prevent the tape from slipping laterally from off the cork, said opening also serving as an opening for the passage of a tool to be used as a handhold, substantially as set forth.

602,504. WHEELBARROW. MARTIN V. GARVER, Bryan, Ohio. Filed Dec. 27, 1897. Serial No. 663,502. (No model.)



Claim.—In a wheelbarrow, two supporting-wheels arranged tandem, a pair of bars, said bars at one end being pivotally connected to the barrow and at the other end having one of said wheels journaled therein, a spindle for said latter wheel having ends projecting beyond its bearings, a second pair of bars pivotally secured at one end to the barrow, at the other end connected, as a loop, and adapted to be raised by the foot of the operator, and a series of hook portions on said latter bars adapted to engage successively said projecting spindle ends, substantially as and for the purpose specified.

602,505. PROTECTOR FOR INCANDESCENT MANTLES. FRANZ A. P. GRANER, Hamburg, Germany. Filed June 24, 1897. Serial No. 642,092. (No model.) Patented in Germany Mar. 4, 1896, No. 85,308; in England Mar. 9, 1896, No. 5,308; in Austria June 20, 1896, No. 46/2,479, and in Belgium Dec. 9, 1896, No. 12/5,084.



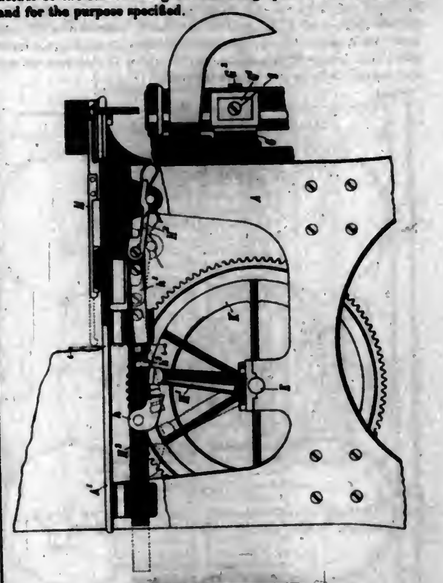
Claim.—The combination of a shell *c* reaching to the height of the mantle to be protected and serving as a guide to the lamp chimney, a base *a* and a centering-tube *b* therein for keeping in place the burner-tube, substantially as described.

602,506. BLANK THREADING AND POINTING MACHINE. JAMES H. HASKINS, Chicago, Ill. Filed May 28, 1896. Renewed Feb. 23, 1898. Serial No. 671,330. (No model.)

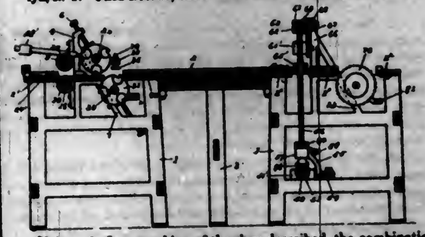
Claim.—1. In combination in a blank threading and pointing machine to form a feeding device for the blanks, a feed-slide, a reciprocating bar mounted in bearings upon the machine, pivoted dogs attached to this bar and the bar connected to the feed-slide, and a vibrating post extended into the path of the dogs on the feed-slide, substantially as and for the purpose specified.

2. In combination in a machine for threading and pointing blanks, to form a feeding device for the blanks, a feed-slide, a reciprocating bar mounted in bearings on the machine-frame, a vibrating post that is vibrated by a moving part of the machine, feed-dogs pivotally mounted on the sliding bar and projecting into the path of the vibrating post, the feed-dog which gives the forward advance of the bar being adjustable, substantially as and for the purpose specified.

3. In combination in a blank feeding and pointing machine, with devices for feeding the blanks, a pivoted spring-pressed blank-holder located beside and forming one wall of the feed-slot, at its delivery end, a pinch-lever that acts upon the pivoted spring-pressed slide at certain intervals in the operation of the machine, whereby the spring-pressed lever becomes not only a guide and a retainer, but also a holder of the blank during the threading operation, substantially as and for the purpose specified.



602,507. WOOD MOLDING AND SAWING MACHINE. FRANK M. KENNEDY, Celina, Ohio, assignor of one-half to James W. Stone, Brooklyn, N. Y. Filed Nov. 25, 1895. Serial No. 570,002. (No model.)



Claim.—1. In a machine of the class described, the combination of the revoluble shaft 9; the feed-roller 20 having in one end thereof a chamber 20' and provided with a shaft-opening of greater diameter than that of the contained supporting-shaft, for the purpose specified; a series of radial springs 19' arranged in said chamber as shown, whose inner end forms a bearing upon the said shaft; and a diametric pin 19 fixed in said shaft and having its opposite ends loosely mounted in suitable perforations in the reduced end of said feed-roller, all substantially as described.

2. A roller feed mechanism, comprising a horizontal revoluble shaft 9; a chambered roller having a corrugated periphery and a conical or tapering cylindrical extension whose central bore is of greater diameter than the said shaft on which it is fixed; a diametric pin fixed in said shaft and having its extremities loosely arranged in a radial perforation of greater diameter than said pin for the purpose specified; together with a plurality of radial springs loosely mounted in said roller, whose opposite ends form a bearing upon the said shaft and the chamber-face of said roller respectively, whereby the said roller is adapted for a yielding pressure against the hoop-bar with which it is contacted, all substantially as described.

3. In a hoop molding and sawing machine, the combination of a series of revoluble cutter-heads 25 arranged as shown; a horizontal transverse bar 33 fixed at each end to the supporting-frame and arranged at the rear of said cutter-heads and in close proximity thereto; a plurality of vertically-adjustable presser-bolts 34 mounted in said bar by a screw-threaded connection and rigidly secured in position by a proper jam-nut upon their upper end, and provided upon their lower extremity with a disk 35 adapted to engage the adjacent face of the hoop-bar; and a series of rotatable cutter-heads 31 arranged directly below said disks and adapted to cooperate therewith as described, all substantially as set forth.

4. In a hoop-making machine, a hoop-bar-tilting device comprising a block 48 provided with a rearwardly-tapering inclined face 48' adapted to receive and tilt the moving bar which is fed through said device as described, having a guide-plate 49 rigidly connected with said block in parallel arrangement, as shown, by the fixed cap or plate 47, and provided with a spring 50 fixed on said cap and having its free end adapted to form a yielding pressure upon the adjacent face of said bar for the purpose of holding it in contact with the supporting-table, whereby the said hoop-bar is tilted to an oblique position for the purpose specified, all substantially as described.

5. In a hoop-making machine a tilting device adapted to convert the bar from a horizontal to an oblique position for the purpose specified, consisting of a block 48 having its inner working face 48' adapted to tilt the bar as described, provided with an inclined guide-plate 49 rigidly connected with said block by a proper connecting-plate and having a spring 50 arranged thereon as shown, and adapted to form a yielding pressure upon the adjacent face of said bar for the purpose specified; together with means for feeding the said bar through said tilting device, all substantially as described.

6. The combination, in a hoop-making machine, of a transverse shaft 51 rotatably mounted in the supporting-frame and having a rigid bevel-gear 53 and the sprocket-wheel 52; the oblique shaft 56' having its upper and lower ends rotatably mounted in a fixed bearing 61' and 57' respectively, on said frame, having near its upper end a fixed roller 65' and upon its lower end a bevel-gear 58 meshing with the said gear 53; the oblique shaft 56 having its extremities rotatably mounted in the journal-boxes 57 and 61 on said frame, the former being pivoted on its support, and the latter being adapted for a limited play against the resistance of a resilient buffer, and provided with a fixed roller 65 in cooperative relation with said roller 65', and having a rigid gear-wheel 60 adapted for an actuating engagement with said gear-wheel 60'; the adjusting-screw 63 mounted in a supporting-bracket, as shown, having a holding-nut 63 and a recessed head 63'; and a rubber buffer 64 fixed in said head and adapted to bear against the face of said journal-box 61, for the purpose specified, all substantially as described.

7. The combination of the shaft 51 having the gear 53 and the sprocket-wheel 52; the oblique shaft 56' mounted as described in the bearings 61' and 57', on the supporting-frame, and having near its upper end a fixed roller 65' and upon its lower end a gear 58 meshing with the said gear 53; the oblique shaft 56 mounted as described in the journal-boxes 57 and 61 on said frame, the former being pivoted on its support and the latter being adapted for a limited play against the resistance of a resilient buffer, and provided with a fixed roller 65 in cooperative relation with said roller 65', and having a rigid gear-wheel 60 in mesh with said gear-wheel 60'; and means for imparting to the said feed-roller 65 a yielding pressure for the purpose specified, all substantially as described.

8. The combination of a supporting-shaft; a cylinder loosely mounted on said shaft and provided with a concentric annular recess; springs located in said recess; a pin or projection on said shaft engaging with perforations of larger diameter in said cylinder; and a weighted lever in contact with said cylinder, the whole constituting an adjusting or equalizing roller feed mechanism for feeding wood strips of unequal thickness, together with means for actuating said shaft, all substantially as described.

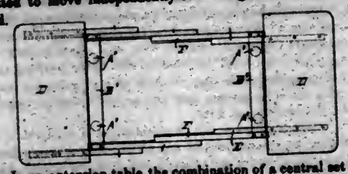
602,508. HARNESS-BUCKLE. LOUIS H. KIEBEL, Reedsville, Wis., assignor of one-half to F. O. Kiebel, same place. Filed Nov. 16, 1896. Serial No. 612,637. (No model.)



Claim.—A harness-buckle comprising a tongue-bearing member 2, provided with a side bearing-surface, and having a longitudinal keeper including a transverse fulcrum-bar 5 engaged with a strap-loop, whereby the keeper may be tilted to occupy a position perpendicular to the plane of the strap-loop, and a cap 1 pivotally mounted upon the member 2 and having a smooth inner surface spaced from and approximately parallel with the side bearing-surface of said member, the tongue of the member 2 projecting from its bearing-surface in a direction perpendicular to the plane of said keeper, and terminating contiguous to the inner surface of the cap, at a point approximately midway between the ends thereof, substantially as specified.

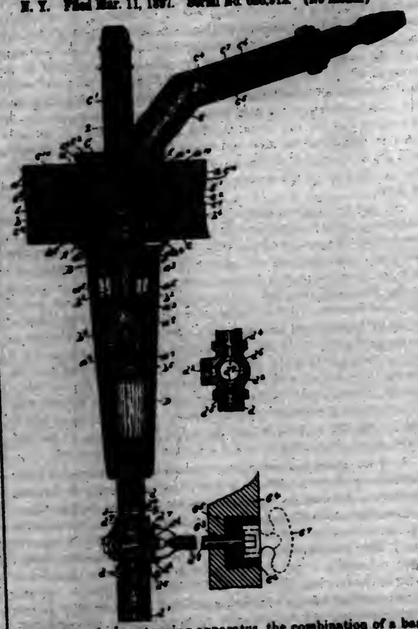
602,509. EXTENSION-TABLE. WILLIAM H. KLUG, Milwaukee, Wis., assignor to the Wisconsin Furniture Company, same place. Filed Aug. 28, 1897. Serial No. 649,148. (No model.)

Claim.—1. In an extension-table, the combination with the table-legs connected in pairs by cross-rails, of the horizontal connecting guide-bars uniting the pairs of table-legs, and a pair of permanent top boards adapted to meet when the table is closed and provided with bars rigidly attached thereto and slidably engaging the connecting guide-bars between the cross-rails, whereby the top sections are permitted to move independently of the legs, substantially as described.



2. In an extension-table, the combination of a central set of four legs rigidly united by connecting cross-rails and fixed horizontal guide-bars, movable legs connected in pairs by cross rails and provided with sliding guide-bars engaged by the fixed guide-bars of the central legs, and a pair of permanent top boards adapted to meet when the table is closed, and having bars rigidly attached thereto and slidably engaging said sliding guide-bars, whereby the outer legs are permitted to move independently of the central legs, and the top boards independently of any of the legs, substantially as described.

602,510. TAPPING APPARATUS. JOSEPH M. KNAPP, Syracuse, N. Y. Filed Mar. 11, 1897. Serial No. 626,912. (No model.)



Claim.—1. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having inlet and outlet fluid-passages, and an engaging shoulder, a movable key or valve-piece arranged within the tap or bushing at the inner side of the engaging shoulder and provided with inlet and outlet fluid-passages for communicating with the former passages, and means projecting within the tap or bushing and detachably interlocking with the shoulder of the tap or bushing and the key or valve-piece for moving said key or valve-piece, substantially as and for the purpose described.

2. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having inlet and outlet fluid-passages, a movable key or valve-piece arranged within the tap or bushing and provided with inlet and outlet fluid-passages for communicating with the former passages, and a plug formed with shoulders detachably interlocking with the tap or bushing and the key or valve-piece for moving said key or valve-piece, said plug having inlet and outlet conduits for communicating with said passages, substantially as and for the purpose specified.

3. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having a substantially central chamber formed with an engaging shoulder and inlet and outlet openings extending outwardly from the chamber to the exterior of the tap or bushing, a movable key or valve-piece arranged within the chamber at the inner side of the engaging shoulder and having inlet and outlet fluid-passages for communicating with said openings, and means projecting within the inner chamber of the tap or bushing and detachably interlocking with the shoulder of said chamber and the key or valve-piece for moving said key or valve-piece, substantially as and for the purpose set forth.

4. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having a substantially central chamber and inlet and outlet openings extending outwardly from the chamber to the exterior of the tap or bushing, and a movable key or valve-piece arranged in the chamber of the tap or bushing and provided with a conduit or groove opening from the periphery of the key or valve-piece and communicating at one end with the chamber of the tap or bushing and at its opposite end with the inlet-opening of said tap or bushing, said key or valve-piece being also provided with a substantially central chamber and an opening extending outwardly from the chamber to the exterior of the key or valve-piece for communicating with the outlet-opening of the tap or bushing, substantially as and for the purpose specified.

5. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having a substantially central chamber and an inlet conduit or groove and an outlet-opening communicating with the chamber, a movable key or valve-piece arranged in the chamber of the tap or bushing and provided with inlet and outlet fluid-passages for communicating with said inlet conduit or groove and outlet-opening, and a plug detachably interlocking with the tap or bushing and the key or valve-piece for moving the key or valve-piece, said plug having inlet and outlet conduits for communicating with the inlet-conduit of the tap or bushing and the outlet fluid-passage of the key or valve-piece, substantially as and for the purpose set forth.

6. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having a substantially central chamber and inlet and outlet openings extending outwardly from the chamber to the exterior of the tap or bushing, and an inlet conduit or groove opening from said chamber and extending toward the outer end of the tap or bushing, a key or valve-piece arranged in the chamber of the tap or bushing and provided with inlet and outlet fluid-passages for communicating with said openings and conduit or groove, and a plug projecting within the chamber of the tap or bushing and detachably interlocking with the tap or bushing and the key or valve-piece for moving the key or valve-piece, said plug being formed with inlet and outlet conduits for communicating with the inlet conduit or groove of the tap or bushing and the outlet fluid-passage of the key or valve-piece, substantially as and for the purpose described.

7. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having a substantially central chamber, inlet and outlet openings extending outwardly from the chamber to the exterior of the tap or bushing, and an inlet conduit or groove opening from said chamber and extending toward the outer end of the tap or bushing, a key or valve-piece arranged in the chamber of the tap or bushing and provided with a conduit or groove opening from its periphery for communicating with said inlet conduit or groove and inlet-opening, said key or valve-piece being also provided with a substantially central chamber and an opening exteeding outwardly from the chamber to the exterior of the key or valve-piece for communicating with the outlet-opening of the tap or bushing, and a plug secured within the chamber of the tap or bushing and formed with inlet and outlet conduits for communicating with the inlet conduit or groove of the tap or bushing and the substantially central chamber of the key or valve-piece, substantially as and for the purpose set forth.

8. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having a substantially central chamber provided with a circular engaging face, said tap or bushing being provided with inlet and outlet openings extending outwardly from the inner end of the chamber to the exterior of the tap or bushing, and an inlet conduit or groove opening from said chamber and arranged between the circular engaging face and the inlet and outlet openings, a key or valve-piece arranged in the chamber of the tap or bushing and formed with a circular engaging face, said key or valve-piece being provided with a conduit or groove opening from its periphery for communicating with the former inlet conduit or groove and said inlet-opening, and being also provided with a substantially central chamber and an opening extending outwardly from the chamber to the exterior of the key or valve-piece for communicating with the outlet-opening of the tap or bushing, a plug secured within the chamber of the tap or bushing and provided with annular engaging faces arranged adjacent to the former engaging faces, said plug being formed with inlet and outlet conduits for communicating with the inlet conduit or groove of the tap or bushing and the substantially central chamber of the key or valve-piece, and yielding washers interposed between said engaging faces, substantially as and for the purpose described.

9. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having inlet and outlet fluid-passages, a key or valve-piece arranged within the tap or bushing and provided with inlet and outlet fluid-passages for communicating with the former passages, and a plug projecting within the tap or bushing and detachably interlocking with the tap or bushing and the key or valve-piece for moving the key or valve-piece, said plug having inlet and outlet conduits communicating with said passages, and arranged at an angle with each other, substantially as and for the purpose specified.

10. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having inlet and outlet fluid-passages, a key or valve-piece arranged within the tap or bushing and provided with inlet and outlet fluid-passages for communicating with the former passages, a plug projecting within the tap or bushing and detachably interlocking with the tap or bushing and the key or valve-piece for moving the key or valve-piece, said plug having inlet and outlet conduits for communicating with said passages, and a valve arranged within the inlet-conduit of the plug, substantially as and for the purpose set forth.

11. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having inlet and outlet fluid-passages, a key or valve-piece provided with inlet and outlet fluid-passages for communicating with the former passages, a plug secured in the tap or bushing and having inlet and outlet conduits for communicating with said passages, said inlet-conduit being provided with an enlarged portion, a tubular valve arranged within the enlarged portion and formed with a yielding wall having a substantially lengthwise slit or slot, and a spiral spring arranged within the tubular valve, substantially as and for the purpose described.

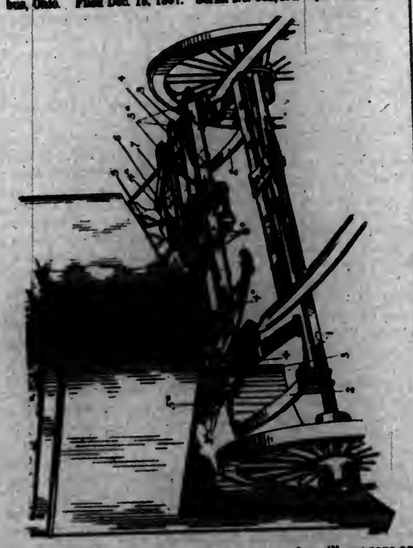
12. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having inlet and outlet fluid-passages, a key or valve-piece provided with inlet and outlet fluid-passages communicating with the former passages, and a plug secured in the tap or bushing and having inlet and outlet conduits for communicating with said passages, the lower end of the inlet-conduit consisting of a chamber surrounding the outlet-conduit, and an opening extending from the chamber to the exterior of the plug for communicating with the inlet fluid-passage of the tap or bushing, substantially as and for the purpose specified.

13. In a tapping apparatus, the combination of a barrel or receptacle provided with an aperture in one of its walls, a tap or bushing inserted into the aperture and provided with inlet and outlet fluid-passages, said tap or bushing having its inner face formed with opposite partially-circular grooves and opposite lengthwise grooves extending from the outer end of the tap or bushing to the partially-circular grooves, a key or valve-piece arranged in the tap or bushing and provided with inlet and outlet fluid-passages for communicating with the former passages and a plug for operating the key or valve-piece, said plug having inlet and outlet conduits for communicating with said inlet and outlet fluid-passages, and being formed with opposite laterally-projecting shoulders or lugs, for entering said lengthwise and partially-circular grooves of the tap or bushing, substantially as and for the purpose described.

14. In a tapping apparatus, the combination of a barrel or other receptacle having an aperture in one of its walls, a tap or bushing inserted into the aperture and having a substantially central chamber formed with an engaging face, a key or valve-piece arranged in the chamber and provided with a threaded inner end, means for partially rotating the key or valve-piece, a non-revoluble nut adjustable lengthwise of the threaded end of the key or valve-piece, and a spring interposed between said nut and the engaging face of the tap or bushing, substantially as and for the purpose set forth.

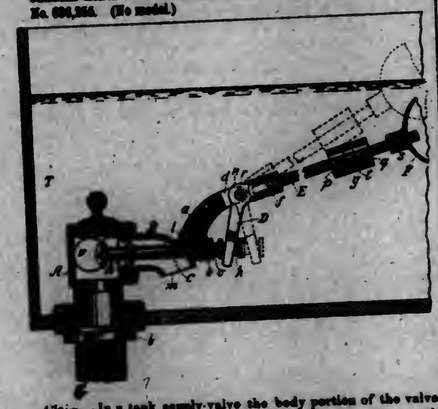
15. In a tapping apparatus, the combination of a barrel or other receptacle having apertures in two of its walls, a tap or bushing inserted into one of said apertures and provided with inlet and outlet fluid-passages, a key or valve-piece arranged in the tap or bushing and having inlet and outlet fluid-passages for communicating with the former passages, means for operating the key or valve-piece, a pipe or conduit communicating with the outlet fluid-passage, of the tap or bushing, said pipe or conduit being provided with a transversely-extending chamber interposed between its opposite extremities, and formed with openings in one end and in its upper and lower portions, a second valve-piece arranged in the chamber and formed with openings for communicating with the former openings, and an operating-piece arranged in the other of said apertures for actuating the second valve-piece, substantially as and for the purpose specified.

602,511. VEHICLE RUNNING-GEAR. FRANK C. LAND, Columbus, Ohio. Filed Dec. 18, 1897. Serial No. 662,403. (No model.)



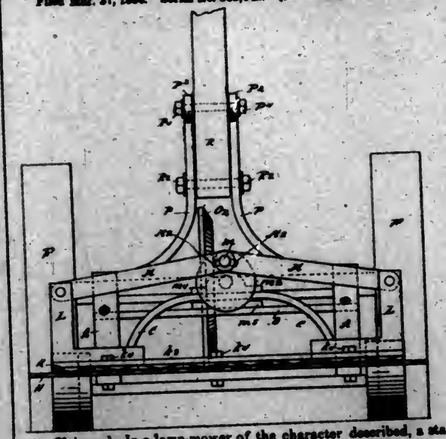
Claim.—The herein-described running-gear for milk-wagons and the like, consisting of a platform supported on the front axle, the lower part of the fifth-wheel secured upon said platform in combination with the king-bolt bar projecting considerably beyond the front of the wagon, the upper part of the fifth-wheel of similar shape and size as the lower part of the fifth-wheel secured to the under side of the forward end of the wagon and also projecting beyond the front of the wagon, and a king-bolt passing through the platform and the end of the king-bolt bar, substantially as described.

602,512. TANK SUPPLY-VALVE. HERMANN LOEBER and CHARLES KIESSLING, Milwaukee, Wis. Filed May 12, 1897. Serial No. 636,255. (No model.)



Claim.—In a tank supply-valve the body portion of the valve-casing having a spherical valve between an inlet and outlet port, said portion combined with a discharge-pipe, provided with a sleeve, the same having an opening or passage-way in center bearing a rod C with a removably-connected head *h*, said sleeve bearing a standard with a pivotally-connected disk *n*, the same having an arm D, engaged with the said head of the rod C, and the cap *f* of the disk provided with a socket bearing a detachably-connected stem E mounted with an adjustable float F and chambered weight *g*, said stem being immediately connected with the rod C, substantially as shown, all constructed and adapted for the purpose set forth.

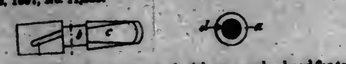
602,518. LAWN-MOWER. HENRY W. MORGAN, Brazil, Ind. Filed Mar. 27, 1896. Serial No. 585,042. (No model.)



Claim.—1. In a lawn-mower of the character described, a stationary cutting-blade, a movable blade mounted thereover, standards secured to said movable blades at each end thereof, pitman-rods connected with each of said standards, the inner ends of said pitman-rods being provided with longitudinal slots and both being mounted on the same crank and being so proportioned that one of said pitman-rods will be engaged during one half of the revolution of said crank and the other pitman-rod will be engaged during the other half of the revolution of said crank, substantially as and for the purpose described.

2. The herein-described lawn-mower comprising two drive-wheels, a main shaft on which the said drive-wheels are mounted, a large beveled gear-wheel mounted on said shaft, a ratchet-wheel mounted at each end of said shaft and a pawl mounted on each of the drive-wheels adapted to engage said ratchet-wheels, a shaft revolubly mounted in the frame which is mounted on said axle, and provided at the rear end with a beveled gear adapted to engage said beveled gear on the shaft of the drive-wheels, and the outer end being provided with a crank to which is secured a crank-pin, a movable cutter-bar mounted in the forward end of the frame and provided at each end with an upwardly-directed standard, pitman-rods pivotally mounted in each of said standards each of which is provided at the inner end with a longitudinal slot and each being mounted upon the said crank-pin, substantially as and for the purpose described.

602,514. TUNING-PIN. HENRY MÖLLER, London, England. Filed July 21, 1897. Serial No. 645,367. (No model.) Patented in England May 6, 1897, No. 11,262.

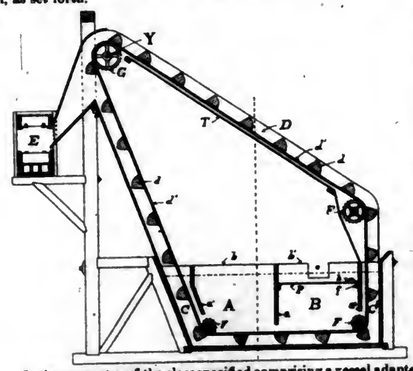


Claim.—A tuning-pin constructed with an angular head for turning the same, an intermediate cylindrical portion and a conical end portion of larger diameter than said intermediate portion and provided upon the side thereof with a groove, said groove extending diagonally a short distance toward the ends of said conical end portion, substantially as described.

602,515. SEPARATING APPARATUS. AUGUSTUS F. MCCLATCHEY, Aurora, and CHARLES L. KEEN, Chicago, Ill. Filed Sept. 3, 1896. Serial No. 604,156. (No model.)

Claim.—1. An apparatus of the class specified comprising a vessel adapted to hold the mixture, said vessel having an inlet and an outlet, and being provided with a number of settling-partitions, and also with a number of strainers, whereof each strainer is situated

above a settling-partition, and the inlet and outlet being arranged to direct the flow of mixture upward through the strainers; and power-driven conveying mechanism arranged to collect the sediment deposited upon the partitions, and to remove the same from the vessel, as set forth.



2. An apparatus of the class specified comprising a vessel adapted to hold the mixture, said vessel having an inlet and an outlet, and being provided with a number of settling-partitions, and a number of strainers less than the number of settling-partitions, whereof each strainer is situated above a settling-partitions, and the inlet and outlet being arranged to direct the flow of mixture upward through the strainers; and power-driven conveying mechanism arranged to collect the sediment deposited upon the partitions, and to remove the same from the vessel, as set forth.

3. An apparatus of the class specified comprising a vessel adapted to hold the mixture, said vessel having an inlet and an outlet, and being provided with a number of settling-partitions, and also with a number of strainers, whereof each strainer is situated above a settling-partition, and the inlet and outlet being arranged to direct the flow of mixture upward through the strainers, conveying mechanism arranged to collect the sediment deposited upon the partitions, and to remove the same from the vessel; and pressing means situated and connected to receive the sediment from the conveying mechanism, as set forth.

4. An apparatus of the class specified comprising a vessel adapted to hold the mixture, said vessel having an inlet and an outlet, and being provided with a number of settling-partitions, and also with a number of strainers less than the number of settling-partitions, whereof each strainer is situated above a settling-partition, and the inlet and outlet being arranged to direct the flow of mixture upward through the strainers; conveying mechanism arranged to collect the sediment deposited upon the partitions, and to remove the same from the vessel; and pressing means situated and connected to receive the sediment from the conveying mechanism, as set forth.

5. An apparatus of the class specified comprising a series of vats or tanks having an inlet and an outlet, and being arranged and connected to permit the flow of mixture through the entire series, a portion of the vats or tanks being provided with strainers and connected to direct the flow of mixture upward through such strainers; and power-driven conveying mechanism arranged to collect the sediment deposited in the vats or tanks, and remove the same, substantially as set forth.

6. An apparatus of the class specified comprising a series of vats or tanks having an inlet and an outlet, and being arranged and connected to permit the flow of mixture through the entire series; power-driven conveying mechanism arranged to collect the sediment deposited in the vats or tanks, and to remove the same; and pressing means situated and connected to receive the sediment from the conveying mechanism, as set forth.

7. An apparatus of the class specified comprising a series of vats or tanks having an inlet and an outlet, and being arranged and connected to permit the flow of mixture through the entire series, a portion of the vats or tanks being provided with strainers, and connected to direct the flow of mixture upward through the strainers; conveying mechanism arranged to collect the sediment deposited in the vats or tanks, and to remove the same; and pressing means situated and connected to receive the sediment from the conveying mechanism, as set forth.

8. An apparatus of the class specified comprising a series of vats or tanks having an inlet and an outlet, and being arranged in a plurality of rows and connected to permit the flow of mixture through the entire series; a number of conveyers, each of which is arranged to collect the sediment deposited in the vats or tanks composing a row, and to remove the same; a main conveyer arranged to receive the sediment from the first-mentioned conveyers; and pressing means situated and connected to receive the sediment from the main conveyer, substantially as set forth.

9. An apparatus of the class specified comprising a series of vats or tanks having an inlet and an outlet, and being arranged in a plurality of rows and connected to permit the flow of mixture through the entire series, a portion of said vats or tanks being provided with strainers and being connected to direct the flow of mixture upward through such strainers; a number of traveling conveyers, each of which is arranged to collect the sediment deposited in the vats or tanks composing a row, and to remove the same; a main conveyer arranged to receive the sediment from the first-mentioned conveyers; and pressing means situated and connected to take the sediment from the main conveyer, substantially as described.

10. A separating apparatus comprising a series of vats arranged in pairs, whereof one vat in each pair contains a strainer, said vats being provided with inwardly-inclined sides forming a trough extending the length of each pair, and being arranged and connected to permit the flow of mixture through the entire series and to direct such flow upward in the vats containing strainers and downward in the vats not so provided; a number of bucket conveyers, each of which is arranged to move in the trough formed at the bottom of each pair of vats, and to collect and remove the solid matter deposited there; a second or main conveyer situated to receive the contents of the bucket conveyer; and one or more roller-presses arranged to receive the solid matter from the main conveyer, substantially as described.

11. In an apparatus of the class specified, the combination with the settling vessel, of the pressing apparatus; a power-driven traveling conveyer leading thereto; a straining-chute connecting the pressing apparatus with the conveyer; and a pan or trough situated below the pressing apparatus, the connecting-chute, and the end of the conveyer, and connected with the vessel, as set forth.

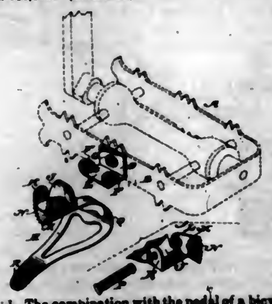
12. In an apparatus of the class specified, a number of vats arranged end to end; a couple of compartments one exterior to each end of the series of vats, the abetting walls of the vats and compartments being exteaded only part way to the bottom of the same; and a traveling conveyer arranged to traverse said vats below the edges of the dividing-walls, and to rise and descend in said exterior compartments, as set forth.

13. In an apparatus of the class specified, the combination with a series of vats, of a traveling conveyer or conveyers having straining means for holding the material collected; and a trough or troughs supported below the conveyer or conveyers and connected at their lower ends with the vats, whereby the drain may return to the latter, as set forth.

14. An apparatus for separating the solid or consistent matters from "distillers' slops" and the like, the same comprising strainers arranged for successively straining the slops and permitting the intercepted solid or consistent matters to gravitate from the same to suitable repositories; means for inducing a flow of the slops through the strainers; and power-driven means for collecting the solid or consistent matters intercepted by the strainers and gravitating therefrom.

15. An apparatus for separating the solid or consistent matters from "distillers' slops" or the like, the same comprising strainers for successively straining the slops; means for inducing a flow of the slops upwardly through the strainers; and power-driven means for collecting the solid or consistent matters intercepted by the strainers and gravitating reversely to the direction of flow of the slops.

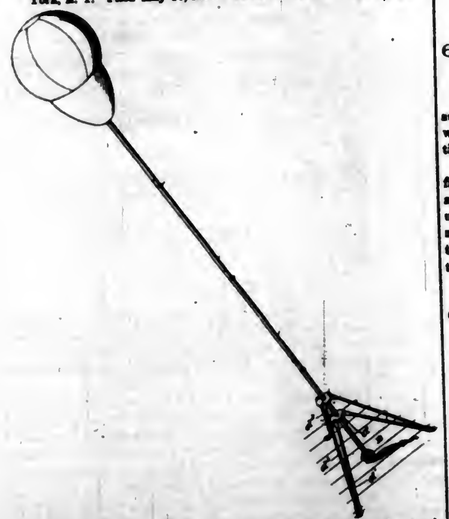
602,516. TOE-CLIP. WILLIAM D. MCDANIEL, Philadelphia, Pa., assignor of one-half to Luther S. Green, same place. Filed Oct. 27, 1896. Serial No. 610,190. (No model.)



Claim.—1. The combination with the pedal of a bicycle of a plate D having the member E attached thereto, ears projecting from said member, a toe-clip consisting of a suitable body portion, having ears projecting therefrom, means for holding the clip in position, and an arm or extension attached to one of said ears.

2. In combination with a foot-tread for a bicycle, bearings suitably attached thereto, a stem rotatably mounted on said bearings, a toe-clip which is rigidly secured to said stem, and an arm and teeth thereon, said arm being also rigidly secured to said stem and adapted to rotate the same.

602,517. EXERCISING-MACHINE. BERNARD A. MCFADDEN, New York, N. Y. Filed May 10, 1897. Serial No. 635,770. (No model.)



Claim.—1. In an exercising-machine, the combination of a standard carrying a bag at one end and connected to a suitable support at its other end, a set of non-elastic connections attached to said standard and to the support for maintaining said standard in an upright position, and a set of elastic connections attached to the support and to said standard, substantially as described.

2. A machine for exercising, comprising a standard, a bag arranged on one end of said standard, an attaching device on the other end of the standard adapted to be secured to the floor or ceiling, non-elastic connections adapted to be secured at one end to the floor or the ceiling and at the other end to said standard, and elastic connections also connected to the floor or ceiling and to the standard, whereby a very quick return movement of the bag and the standard may be secured, substantially as described.

3. An exercising-machine, comprising a resilient sectional standard, a bag arranged on one end of said standard, a universal-joint attaching device on the other end of the standard adapted to be secured to a suitable support, non-elastic connections secured at one of their ends to the standard and adapted to be secured at their other ends to the said support, and elastic connections also secured to the standard and to the support intermediate the bag and non-elastic connections, substantially as described.

4. An exercising-machine comprising a standard, a bag on one end thereof, and an attaching device on the other end of said standard adapted to be secured to a suitable support, a collar or disk secured to the standard intermediate the bag and the support, a series of plates adapted to be secured to the floor or fixture, and a series of connections extending from the said plates to the said collar, substantially as described.

5. In an exercising apparatus the combination of a punching-bag and its supporting-standard; with a protector mounted on the standard below the bag and comprising an inner pneumatic sack c' and an outer cover c^2, said protector being fitted closely to the bag and having a central tube for the passage of the standard, substantially as described.

602,518. LOCK. WILLIAM A. PRITT and REUBEN H. MILLER, Stephensport, Ky. Filed Mar. 11, 1897. Serial No. 627,015. (No model.)

Claim.—A lock, comprising a housing consisting of a bottom member having vertical upturned side flanges 4, horizontally-inturned flanges 6, at one end, the seat 9; and the seat 10, disposed between the flanges 4 and 8, said bottom having a hasp engaging lock devices held within the housing adapted to automatically open and close on the hasp, a cap-plate having angle ends adapted to engage the seats 9 and 10, and provided with a keyway, and a hasp all arranged substantially as shown and described.

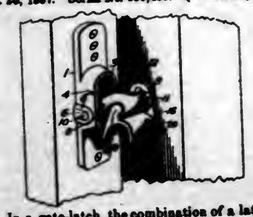


602,519. COMPOUND FOR CLEANING WOOD. CHARLES R. POSTLETHWAITE, London, England. Filed Mar. 24, 1897. Serial No. 629,064. (No specimens.) Patented in England July 4, 1895, No. 13,980.

Claim.—1. A compound for cleansing varnished or polished wood surfaces, resulting from the mixing of hydrochloric acid and glycerin with the addition of the flour of a cereal preferably wheat, substantially as herein described.

2. A compound for cleansing varnished or polished wood surfaces, resulting from the mixing of a mixture of hydrochloric acid and glycerin combined in about the proportions of three parts by volume of the former to one part by volume of the latter, and to which mixture is added a suitable cereal flour in about the proportions of thirty ounces by weight of the flour to seventy ounces by weight of the mixture, substantially as herein described.

602,520. GATE-LATCH. FRANCIS A. RAESHART, Helena, Ark. Filed Apr. 23, 1897. Serial No. 633,489. (No model.)



Claim.—In a gate-latch, the combination of a latch-plate having a flanged opening in its middle portion, recesses at each side of the said opening, spaced parallel grooves in the rear face of the plate communicating at their upper end with the said recesses, slots formed in said plate at each side of said opening to form continuations of said recesses and extending into the flange, a latch projecting through said opening and having pivot-pins seated in said slots, a wire spring having substantially parallel sides with coils therein to fit over the said pivot-pins and seat in said recesses, the outer end of the spring engaging the upper face of the latch and the parallel sides of the inner end portion seated in said parallel grooves, and a catch with which the latch engages, substantially as described.

602,521. WATER-HEATER OR CONDENSER. WILLIAM F. RAY, Cincinnati, Ohio. Filed Aug. 24, 1896. Serial No. 603,726. (No model.)



Claim.—A water-heater or steam-condenser embodying a vertical cylinder divided by horizontal partitions into three chambers, the

upper and lower being connected by tubes through the partitions and intermediate chamber; a vertical partition dividing the upper chamber and a similar partition dividing the upper portion of the central chamber to near the bottom; a steam inlet and outlet to the upper chamber entering at opposite sides of its partition and an outlet from the lower chamber; whereby the steam entering the upper chamber passes first downward and then upward through the central chamber; the water entering oppositely passes first downward and then upward around the central partition, and the condensed steam of the operation collects in and is drawn off from the lower chamber, substantially as set forth.

602,522. TENSION DEVICE. HUBERT P. RICHARDS, New Britain, Conn. Filed Aug. 15, 1896. Serial No. 602,861. (No model.)

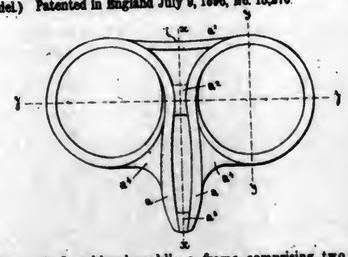


Claim.—1. A sewing-machine tension device consisting of a disk having a cut-away portion and an inwardly-inclined projection serving as a thread-guide adjacent thereto; a second disk having a cut-away portion opposed to the cut-away portion in the other disk; and means for holding said second disk against the first-named disk.

2. In a tension device the combination with a disk having a cut-away portion and an inwardly-inclined projection, serving as a thread-guide, adjacent thereto, of a complemental disk having a cut-away portion opposed to the cut-away portion in the other disk; means for holding said second disk with yielding pressure against the first-named disk; and means for directing the thread between said disks at the point where the cut-away portions and projection are located.

3. A sewing-machine supporting-arm having thread-tension means thereon comprising a supporting-stem; a fixed member of differential diameters, whereby it forms a pair of thread-bearing faces, said member having a projection or flange forming a thread-guide; a movable member having a cut-away part adjacent to said projection and a part thereof extending in parallelism with one of the bearing-faces of said fixed member; means for holding said members in operative positions relatively to each other; and a thread-guide disposed on said machine-arm below said fixed and movable members, for guiding the thread on its passage from its spool to the tension device, whereby the thread will enter intermediate said disks and at right angles to said flange or projection and have three of its sides in bearing engagement with said device, and thence pass therefrom and across the lower run of the thread adjacent to the entrance part thereof without frictional engagement therewith.

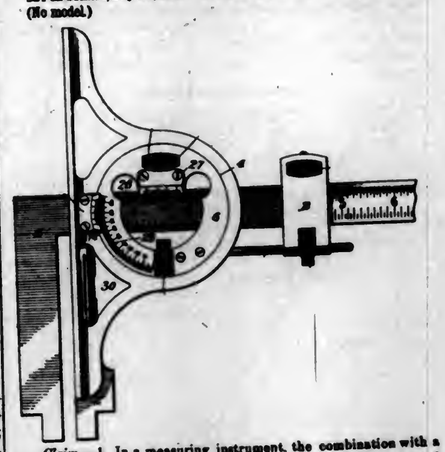
602,523. SADDLE FOR VELOCIPEDES. JOHN W. RICHARDSON, London, England. Filed Apr. 16, 1897. Serial No. 632,426. (No model.) Patented in England July 9, 1896, No. 15,376.



Claim.—1. In a bicycle-saddle, a frame comprising two strips bent around to form loops one end of each strip being secured to the body of the strip, and the other ends of the strips forming substantially parallel projections *a*, wedge-shaped blocks secured between the end portions of the said strips, and blocks secured between the said projections and between the rear parts of the said loops, the upper surfaces of the said loops, blocks and projections being curved to conform to the body of the rider, substantially as set forth.

2. In a bicycle-saddle, a frame comprising two strips bent around in opposite directions to form loops one end of each strip being secured to the body of the strip, and the other ends of the strips forming substantially parallel projections, and connections holding the said parts in position, the upper surfaces of the said parts being curved to conform to the body of the rider, substantially as set forth.

602,524. COMBINATION-TOOL. GLENDON M. ROCKEY and CHARLEY H. STRAIN, Dayton, Ohio. Filed June 14, 1897. Serial No. 640,636. (No model.)



Claim.—1. In a measuring instrument, the combination with a stock provided with a circular opening, of an expansible ring adapted to rotate in said opening, means for clamping the ring against movement, and an arm or bar secured to the expansible ring, substantially as described.

2. In a measuring instrument, the combination with a stock provided with a circular opening, of an expansible ring adapted to rotate in said opening, means for clamping the ring against movement, an arm or bar secured to the expansible ring and adapted to move longitudinally with respect thereto, and devices for holding the arm against such movement, substantially as described.

3. In a measuring instrument, the combination with a stock, of a part adapted to rotate thereon and means for holding said part against rotation, an arm or bar connected to the rotating part, a clamping-post mounted upon the arm, and adjustable connections between the clamping-post and rotating part, substantially as described.

4. In a measuring instrument, the combination with a stock having graduations, of a part rotatively mounted thereon and provided at its edge with a segmental degree-scale, the graduations of which register with those of the stock, devices for rotatively adjusting the rotating part, and an arm connected to said part, substantially as described.

5. In a measuring instrument, the combination with a stock having a circular opening, the edge of which is channeled, of an expansible ring having separated ends mounted in said opening and provided with an exterior flange for engagement with the channel in the edge of the opening, a screw connected to one end of the ring, a thumb-nut between the ends of the ring through which the screw passes, and an arm or bar secured to the expansible ring, substantially as described.

602,525. TANK-VALVE. CHARLES L. SCOTT, McIntire, Iowa. Filed Apr. 26, 1897. Serial No. 634,282. (No model.)



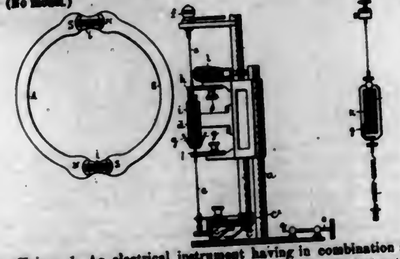
Claim.—1. In a valve for watering-troughs and stock-tanks, the combination of a casing having a raised valve-seat, a central guide-opening, and a series of escape-openings at the side of and communicating with the guide-opening, a valve for closing against the raised seat and having its stem operating in the guide-opening, and a float secured to the outer end of the valve-stem, substantially as set forth.

2. The herein-described valve for the purpose set forth, consisting of a casing having an offstanding nipple and open at its upper end, a cap secured to the open end of the casing and provided with a guide-opening and a series of discharge-openings at the side of and communicating with the guide-opening, and having a rib on its inner side, forming a raised valve-seat, a bolt or stem, a valve secured upon the stem between washers, a spacing-sleeve slipped upon the valve-stem and operating in the guide-opening of the cap, and a float secured upon the projecting end of the valve-stem between washers, substantially in the manner set forth.

602,526. COMPOSITION FOR EXTRACTING GOLD FROM REFRACTORY ORES. ALBERT G. STEPHENS, Colorado Springs, Colo., assignor of one-half to William Whelan, same place. Filed June 30, 1897. Serial No. 643,041. (No specimens.)

Claim.—The herein-described composition to be used to extract gold from refractory ore, causing the gold in the ore to form a chlorid of gold from which the gold in bullion can be readily and economically obtained by any suitable means, consisting of water, five hundred gallons; chlorid of lime, five hundred pounds; bromide of potassium, five hundred ounces; nitric acid, fifteen and five-eighths gallons; muriatic acid thirty-one and one-fourth gallons, as herein specified.

602,527. ELECTRICAL MEASURING INSTRUMENT. HERBERT W. SULLIVAN, London, England. Filed Nov. 6, 1896. Serial No. 611,208. (No model.)



Claim.—1. An electrical instrument having in combination an oscillating coil, a core therefor and magnets in whose field the coil oscillates, having poles with pointed extremities brought into close juxtaposition with portions of the core without interfering with the movement of the coil, substantially as set forth.

2. An electrical instrument having in combination an oscillating coil suspended from an insulating-support, a fixed core therefor, and magnets between which said coil oscillates, having poles with pointed extremities brought into close juxtaposition with the core without interfering with the movement of said coil about the core, substantially as set forth.

3. In an electrical instrument, the combination with an oscillating coil, of an adjustable weight permanently fixed to such coil, substantially as set forth.

4. In an electrical instrument, the combination of an oscillating coil, and an arm of diamagnetic material permanently fixed to said coil, substantially as set forth.

5. In an electrical instrument provided with a suspended oscillating coil, an adjustable mechanical damping device adapted to contact with the suspension wire or thread, substantially as set forth.

6. In an electrical instrument provided with a suspended oscillating coil, the combination therewith of a camel's-hair brush adapted to contact with the suspension wire or thread, substantially as set forth.

7. In an electrical instrument, the combination with a suspension-coil, of a frame sustaining the same, and means for adjusting the frame longitudinally, substantially as set forth.

8. In an electrical instrument, the combination with a suspension-coil, of a frame sustaining the same, and a standard upon which said frame is adapted to be moved vertically, substantially as set forth.

9. In an electrical instrument, a suspension-coil provided with a divided frame upon which the conductor is wound, and means for connecting the divided portions, substantially as set forth.

10. In an electrical measuring instrument, the combination of two suspended oscillating coils connected in series, substantially as set forth.

11. In an electrical measuring instrument, the combination of a permanent magnet, having poles with pointed extremities brought into close juxtaposition with portions of the core of an oscillating coil in such manner as not to interfere with the movement of such coil; a freely-oscillating coil suspended between the poles of said magnet, a core in position within said oscillating coil, a case for inclosing said magnet, coil and core, and means for adjusting the instrument from without the case, substantially as set forth.

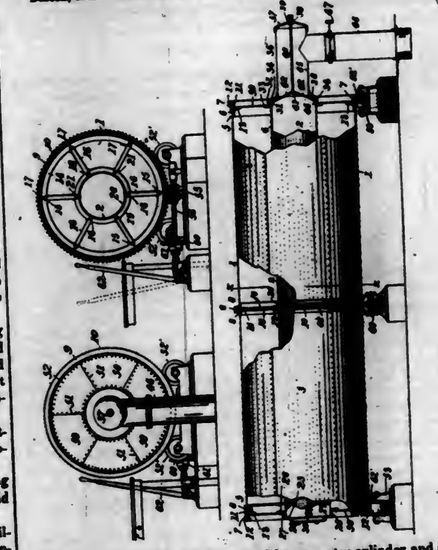
12. In an electrical measuring instrument, the combination of two suspended oscillating coils connected in series and having cores therefor, with magnets arranged so that their poles form two independent and oppositely-directed fields in one of which each of said coils is suspended, substantially as set forth.

13. In an electrical measuring instrument, the combination of two coils in series oscillating about cores, with magnets with poles arranged to form two independent and oppositely-directed fields in one of which each of said coils oscillates, said poles being cut away to permit the free oscillation of the coils while having their pointed extremities in close juxtaposition to the cores of the coils, for the purpose substantially as set forth.

14. In an electrical measuring instrument, the combination of a support with an oscillating coil suspended therefrom, having a pin projecting from top and bottom of said coil; and slotted arms above and below said coil receiving said pins in their slots, for the purpose substantially as set forth.

15. In an instrument for recording electrical measurement by the oscillation of a suspended coil, the combination of a coil and core therefor; a magnet insulated from its support, and having poles in whose field the coil oscillates, and an electrical connection between said coil and said magnets, for the purpose substantially as set forth.

602,528. PNEUMATIC-MALTING DRUM. JAMES A. TILDEN, Hyde Park, Mass., assignor to the Hersey Manufacturing Company, Boston, Mass. Filed Dec. 1, 1896. Serial No. 614,127. (No model.)



Claim.—1. A malting-drum comprising an outer cylinder and an inner perforated cylinder, a gear-ring constituting a part of the outer cylinder and arranged intermediate the ends thereof, and detachable radial arms connecting the gear-ring and the inner cylinder, substantially as described.

2. A malting-drum comprising an inner and an outer cylinder each formed of a series of plate-sections, a ring 7 at one end of the outer cylinder provided with a horizontal flange to which the plate-sections are secured and with a vertical inwardly-extending flange, a ring 24 at the end of the inner cylinder formed with inwardly and outwardly extending flanges 23, 28, and an intermediate horizontal body portion 26, plates 50 secured to the outwardly-extending flange of said ring and the interior flange of the outer ring, and an end plate 30 seated upon the inwardly-extending flange of the inner ring to close the end of the inner cylinder, the horizontal body portion of said inner ring constituting a bearing to which the plate-sections 4 of the cylinder are secured, substantially as described.

3. The combination with a malting-drum having at one end a ring, of an air-receiving head comprising a cylinder closed at one end, a conical ring united to the open end of the cylinder and having a chamfered or grooved edge in which the end ring of the cylinder is adapted to turn, and the bifurcated brace secured to the latter ring and having a movable bearing in the closed end of the said head, substantially as described.

4. A malting-drum, comprising an outer cylinder formed of connected plate-sections, an inner cylinder extending longitudinally through the outer cylinder, a gear-ring intermediate the ends of the

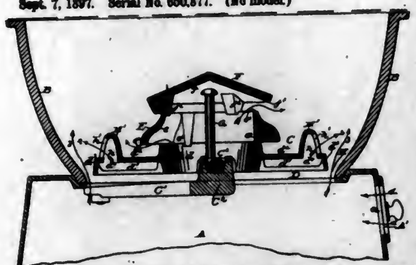
outer cylinder provided upon opposite sides with horizontal flanges to which the plate-sections are secured, and radial arms extending from the gear-ring and secured to the exterior of the inner cylinder, substantially as described.

5. A malting-drum, comprising an inner and an outer cylinder, each formed of connected plate-sections, a gear-ring intermediate the ends of the outer cylinder provided upon opposite sides with horizontal flanges to which the plate-sections are secured, and radial arms extending from the gear-ring and detachably connected to the inner cylinder to permit the removal of said cylinder from the outer one, substantially as described.

6. A malting-drum comprising an inner and an outer cylinder, each formed of connected plate-sections, a gear-ring intermediate the ends of the outer cylinder provided upon opposite sides with horizontal flanges to which the plate-sections are secured and with an internal flange, a flanged ring secured upon the exterior of the inner cylinder, and detachable radial arms connecting the said ring with the gear-ring, substantially as described.

7. A malting-drum comprising an outer cylinder formed of connected plate-sections, an inner cylinder extending centrally and longitudinally through the outer cylinder, a ring intermediate the ends of the outer cylinder provided upon opposite sides with horizontal flanges to which the plate-sections are secured, and radial arms extending from the said ring and detachably secured to the exterior of the inner cylinder to permit the removal of said cylinder from the outer one, substantially as described.

602,529. STOVE AND GRATE. JAPEW S. VAN BUREN, Albany, N. Y., assignor to the Rathbone, Sard & Company, same place. Filed Sept. 7, 1897. Serial No. 650,877. (No model.)



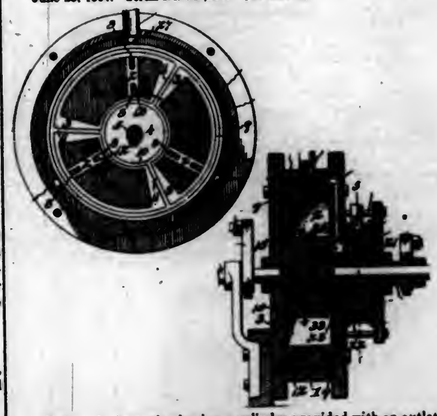
Claim.—1. In a grate-bed of a stove, the lower base section D having a central opening surrounded by the ring-form wall d, the series of fuel-supporting pieces d' d' projected radially from said ring-form wall, the series of fuel-supporting pieces d^3 d^3 alternating with said fuel-supporting pieces d' d' and on a plane above the latter and the annular vertical outer wall d^2, and openings, serving as air-outlets d^5, between the neighboring lateral edges of the said fuel-supporting pieces d' d^3, substantially as described for the purposes set forth.

2. In a grate-bed of a stove, the lower base-section D having a central opening surrounded by the ring-form wall d, the series of fuel-supporting pieces d' d' projected radially from said ring-form wall, the series of fuel-supporting pieces d^3 d^3 on a plane above the fuel-supporting pieces d' and alternating with the latter and provided each with an upwardly-projected air-heating cone H' having its chamber h communicating with a chamber d^4, beneath and provided with an air-outlet h', and the annular vertical outer wall d^2 integral with the respective fuel-supporting pieces d' d^3 in each series, substantially as and for the purposes set forth.

3. In a grate of a stove, the combination with the base-section D comprising the ring-form wall d, surrounding a central opening, the series of lower fuel-supporting pieces d' d', extended radially from said wall d and the series of upper fuel-supporting pieces d^3 d^3, having beneath each an air-chamber d^4 provided with outlets d^5, and the vertical outer wall d^2 connected with the outer ends of the fuel supporting pieces, d' d^3 of the respective series, of the middle section E of the grate-bed consisting of the wall e flaring outwardly all around as it runs downwardly, and supported by means, described, from the upper edge of the ring-form wall d of the section D, and the section F having a conical-form wall f, supported with its base edge f' extended outwardly all around past the upper edge of section E and above the plane of the latter edge, the said sections D E and F being suitably secured together, substantially as and for the purposes set forth.

4. In a stove the combination with fire-pot B, and ash-pit section A, below, of the grate-bed comprising the sections D, E and F, provided respectively with the elements described, and supported above the ash-chamber of the ash-pit section and within the lower end of the fire-pot, and the annular air passage or opening H all around between the outer wall d^4, of the section D and the wall of the fire-pot, substantially as and for the purposes set forth.

602,530. ROTARY ENGINE. CHARLES G. VANCE, Spencer, W. Va., assignor of two-thirds to J. R. Vance and L. S. Goff, same place. Filed June 26, 1897. Serial No. 642,296. (No model.)



Claim.—1. An engine having a cylinder provided with an outlet, a piston provided with radial heads or wings, and an annular rim connecting the heads or wings and spaced from the wall of the cylinder to form an exhaust-chamber, fixed abutments spanning the cylinder between the piston-heads and within said annular rim, to form piston-chambers, and valve mechanism, having duplicate feed-ports in communication with each piston-chamber, and exhaust-ports, one for each piston-chamber, in communication with the cylinder outside of the annular rim of the piston, said feed and exhaust ports terminating in a valve-seat, substantially as specified.

2. An engine having a cylieder, a rocking piston having a core, a connected concentric rim spaced from the annular wall of the cylinder to form an annular exhaust-chamber, and interposed piston heads or wings carried by the core and rim, a plurality of fixed abutments spanning the cylieder transversely between the surfaces of the core and rim in the spaces between the piston heads or wings, and valve mechanism having feed and exhaust ports in communication, respectively, with the intervals between said abutments and with said exhaust-chamber, substantially as specified.

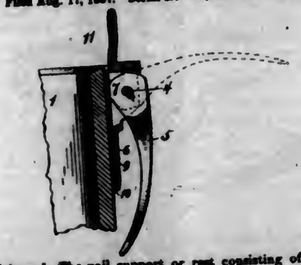
3. An engine having a cylinder, a rocking piston having a core, a concentric rim exteriorly spaced from the annular wall of the cylinder to form an intervening exhaust-chamber, and a plurality of wings interposed between and carried by the core and rim, a plurality of fixed abutments spanning the cylieder transversely in the spaces between the piston heads or wings to form piston-chambers bounded at their sides by the cylinder-heads, and valve mechanism having feed and exhaust ports, in one of the cylinder-heads, in communication with said piston-chambers and the exhaust-chamber, substantially as specified.

4. An engine having a cylinder provided with a plurality of fixed abutments, separating segmental concentric piston-chambers, a rocking piston having a plurality of heads or wings to oscillate respectively in said segmental piston-chambers, and also having a hub and a rim forming the inner and outer walls of the piston-chambers, the rim being spaced from the annular wall of the cylinder to form an exhaust-chamber, a valve-chamber concentric with the spindle of the piston, and having a valve-seat provided with an annular series of feed and exhaust ports, arranged in groups corresponding in number with the piston-chambers, each group comprising feed-ports, in communication with the piston-chambers upon opposite sides of the fixed abutments, and an interposed exhaust-port, communicating with the annular exhaust-chamber, a winged valve seated in the valve-chamber, concentric with the piston for controlling said ports, and operating connections between the piston and valve for communicating oscillatory movement to the latter, substantially as specified.

5. An engine having a cylinder, a rocking piston provided with an annular rim and a plurality of heads or wings, the cylieder being provided with a plurality of fixed abutments, for dividing its interior into a plurality of segmental piston-chambers in which said heads or wings operate, and the rim of the piston being spaced from the annular wall of the cylinder to form an intervening annular exhaust-chamber provided with an outlet-port, a valve-chamber arranged concentric with the piston-spindle and having a valve-seat provided with an annular series of ports arranged in groups, each group consisting of feed-ports in communication with the piston-chambers upon opposite sides, respectively, of a fixed abutment, and an intermediate exhaust-port in communication with the exhaust-channel in the cylinder-head, said exhaust-channel being in turn in communication with the annular exhaust-chamber of the cylinder, a valve for controlling said ports, and operating connections between the piston and the valve, for communicating motion to the latter, substantially as specified.

6. In an engine, the combination with a cylieder, of an oscillatory piston recessed to form a plurality of segmental chambers and interposed piston heads or wings, said chambers being bounded at their outer sides by a rim forming part of and carried by the piston, and being intercepted by transverse partitions connected and carried by the cylinder heads and forming fixed abutments, and valve mechanism for controlling the admission and exhaust of motive agent, substantially as specified.

602,531. MILK-PAIL REST. JOHN C. VOLLMER, Jr., Kingston, Ill. Filed Aug. 17, 1897. Serial No. 648,578. (No model.)



Claim.—1. The pail support or rest consisting of the base or bracket formed with a longitudinal open-ended socket, a spring adapted to be received therein, said bracket having a portion extending over the socket to hold the spring in position, and a hinged arm against which said spring presses, substantially as and for the purposes described.

2. The pail support or rest consisting of the base or bracket, a hinged arm, and a leaf-spring to bear against said arm, the base or support being formed with a longitudinal socket for the spring, said base or support being further provided with a vertical open-ended channel, between it and the spring, substantially as and for the purposes described.

602,532. ART OF PLATING SHEET METAL. WILLIAM J. WILSON, St. Louis, Mo. Filed Apr. 6, 1896. Serial No. 586,305. (No specimens.)



Claim.—1. In coating sheets of metal by immersing them in a bath of melted metal and then drawing them therefrom, with melted metal adhering thereto, causing melted metal drawn from the bath on both sides of the sheets to set and remain, by subjecting it to the action of artificial cooling means while on the sheets in a condition to flow, and forming a thicker coating on one side of each sheet than the other, by subjecting the side on which the thicker coating is desired, to the action of a more powerful cooling means than the other is subjected to.

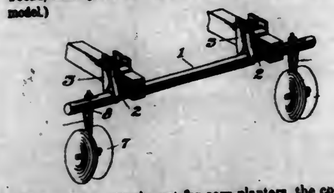
2. In coating sheet metal by immersing the sheets in a bath of melted metal and then drawing the sheets from the bath, applying artificial cooling means to the melted metal on both sides of the sheets as they are taken from the bath and wiping off the surplus metal along the side edges of said sheets before it hardens, substantially as described.

3. In coating sheet metal by immersing the sheets in a bath of melted metal, and then drawing them out again reducing the oxidation of the surface of the bath by protecting said surface from the outside air, except where the sheets are introduced; applying artificial cooling means to the melted metal on both sides of the sheets as the sheets are taken from the bath, and wiping off the surplus metal accumulated on the side edges of the sheets before it has time to harden.

602,533. METHOD OF PAINTING. JACOB WIESMANN, Chicago, Ill. Filed May 7, 1897. Serial No. 635,574. (No specimens.)

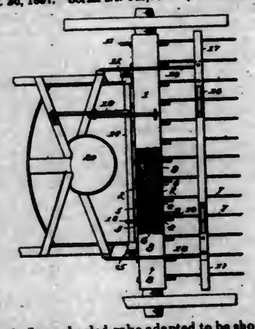
Claim.—The process of coloring metal, stone, wood, glass, &c., which consists in first covering the article so coated with a base of japan or oil and allowing the same to dry; second, in applying on the basic coating a coating of size composed of ten per cent. glue, five per cent. onion extract and eighty-five per cent. water, third, in sprinkling coloring matter carried by a suitable vehicle on said coating of size and finally after the before-mentioned coatings are dry finishing the same with a coat of varnish.

602,534. ATTACHMENT FOR CORN-PLANTERS. ALBA R. YOUNG, Murray, Nebr. Filed June 10, 1897. Serial No. 640,219. (No model.)



Claim.—In an attachment for corn-planters, the combination of a bar having reduced portions which are squared, metal loops or clips engaging the squared portion to provide for connecting the bar to a corn-planter, said bar having slots near its ends, hangers formed with shanks presenting shoulders which bear against the under side of the bar when the shanks are passed through the slots in said bar, the upper ends of said shanks being threaded, and nuts for securing the hangers in an adjusted position upon the bar; together with dished wheels or disks connected to axles supported in bearings at the lower ends of the hangers, substantially as shown and for the purpose set forth.

602,535. HORSE-RAKE. CLARENCE I. ALEXANDER, Como, Tenn. Filed Aug. 26, 1897. Serial No. 649,560. (No model.)



Claim.—1. In a wheeled rake adapted to be shortened, the long and short axle parts, one part having an end sleeve adapted to receive the end of the other axle part, the one part secured within the sleeve by the notted shanks of the spring-teeth passing through coincident holes in the sleeve and in the other axle part whereby to give full width to the rake.

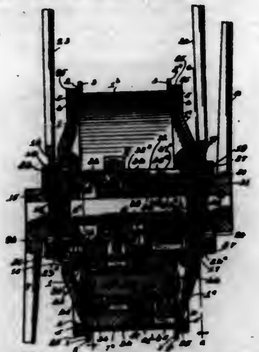
2. In a wheeled rake adapted to be shortened, the long and short axle parts, the longest part having an end sleeve whereby the axle parts are coupled and secured together by the rake-teeth shanks, the provision whereby the rake is shortened which consists in securing

the short axle part upon the sleeved part by the nutted shanks of the spring-teeth vertically passed through coincident holes in the lapped parts, and means for shifting the draft-rod of the shafts upon the longest axle part.

3. In a wheeled rake, the long and short axle parts, the longest part having an end sleeve whereby the two parts are coupled and secured together, by the nutted shanks of the spring-teeth, the means for shortening the rake which consists in securing the short part in the axle lapping upon the upper side of the sleeved part by the nutted shanks of the spring-teeth carried by said short axle part, and means for shifting the draft-rod of the shafts on the axle and means for shortening the clearing-bar of the teeth to conform to the shortened rake.

4. In a wheeled rake adapted to be adjusted in width, the long and short axle parts, having each a sleeve at its end adapted to receive and engage a corresponding end tenon of the coupled parts, in combination with the trailing spring-teeth the nutted shanks of which pass through and secure the coupled axle-sleeve parts.

602,536. BICYCLE. FRED H. RASSETT, Waterbury, Conn. Filed Dec. 16, 1896. Serial No. 615,851. (No model.)

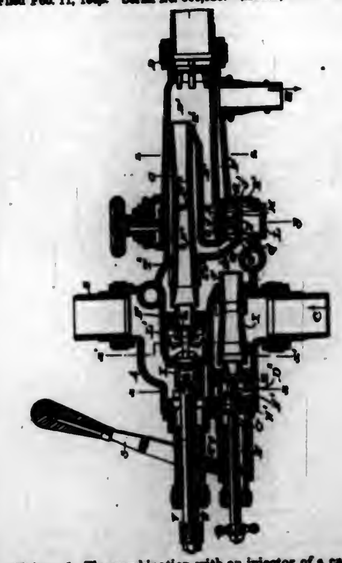


Claim.—1. The combination, in a bicycle having the crank-shaft centrally located with respect to the wheel, a driving-gear on said shaft, a ball-bearing rotatable hub surrounding the internal propelling mechanism, ball-bearing casings embracing said crank-shaft but not in contact therewith, and situated one on each side of said driving-gear, the projecting ends of which casings are supported to the forks of the bicycle, of a non-rotatable yoke-like structure rigidly embracing the inner ends of said casings so as to bind them together, the projecting part of said yoke carrying a pinion-shaft and ball-bearing casings, adjustable ball-bearing cones on said shaft, pinions on said shaft, one of which engages the driving-gear of the main shaft, while the other of said pinions engages a gear secured to the said rotatable hub, the casing on one side of the crank-shaft driving-gear being in two parts and interlocked so that the outer part may be removed without disturbing the inner part, a retaining-band embracing the hub portion of said divided casing, substantially as set forth.

2. The combination, in a bicycle having the crank-shaft centrally located with respect to the wheel, a driving-gear on said shaft, a ball-bearing rotatable hub surrounding the internal propelling mechanism, ball-bearing casings embracing said crank-shaft but not in contact therewith and situated on each side of the driving-gear, the projecting ends of which casings are supported to the forks of the bicycle, of a non-rotatable yoke binding said casings together, a projecting part of said yoke carrying a pinion-shaft and ball-bearing mechanism, adjustable ball-bearing cones on said pinion-shaft, pinions on said shaft, one of which engages the driving-gear of the main shaft, while the other of said pinions engages a gear secured to the said rotatable hub, substantially as set forth.

3. An improvement in bicycles having the motive power—comprising a crank-shaft and driving-gear—located at the center of the wheel, and a rotatable hub surrounding said propelling mechanism, of a casing surrounding said crank-shaft on one side of the driving-gear, ball-bearings between the inner end of said casing and the hub of said driving-gear, a two-part casing having interlocking hubs on the opposite side of said driving-gear with ball-bearing connection between the mouth of one of said casings and the hub of said gear, a band embracing said casing-hubs, to preserve their alinement, a yoke rigidly embracing the inner ends of the casings on each side of said gear, the outer projecting portion of said yoke carrying a ball-bearing pinion-shaft carrying pinions, one of which registers with the said driving-gear of the crank-shaft while the other of said pinions registers with a gear secured to the said rotatable hub, substantially as described and for the purpose set forth.

602,537. INJECTOR. JOSEPH W. GAMBLE, Philadelphia, Pa. Filed Feb. 11, 1898. Serial No. 669,995. (Model.)



Claim.—1. The combination with an injector of a cap, threaded rings attached thereto, a valve-seat engaging one of said rings, a check-valve movable on said seat, a piston movable in the other of said rings and connections common to said piston and valve.

2. In an injector, a casing, a lifting set and a forcing set of tubes, a device adapted to be inserted in said casing and consisting of a plug, threaded rings attached thereto, and adapted to engage suitable portion of said casing, a valve-seat adapted to engage one of said rings, a check-valve movable on said valve-seat, a piston closing the opening through one of said rings and connections common to said valve and piston.

3. In an injector provided with a lifting set and a forcing set of tubes, the combination of a differential check-valve and piston adapted to receive the pressure from the primary set of tubes on the under side of the piston and the pressure from the secondary set of tubes on the valve side of said differential valve and piston.

4. In an injector provided with a lifting set and a forcing set of tubes, the combination of a device consisting of a check-valve having a piston connected thereto, a communication on the valve side of said device with the delivery end of said forcing set and on the piston side of said device, with said lifting set and a communication provided, when said valve is raised, with a chamber closed by a check-valve which in turn communicates with the atmosphere.

5. In an injector provided with a lifting set and a forcing set of tubes, the combination of a differential valve and its adjuncts constructed substantially as described and a forcing combining-tube, the latter being provided with sufficient vents to enable the steam from the forcing steam-nozzle to pass away, thereby dispensing with all operating mechanism and rendering the injector automatic in its action.

6. In an injector provided with a lifting set and a forcing set of tubes, the combination of a differential valve for the purposes described and means whereby the leakage through the piston of said valve may be taken up by the suction produced by the forcing combining-tubes.

7. In an injector, a lifting set and a forcing set of tubes, a check-valve and a piston connected to said valve, said piston and valve being of different areas, and means for enabling the leakage through the said piston to be taken up by the suction created by the forcing combining-tubes.

8. In an injector, a casing, a lifting set and a forcing set of tubes, threaded rings engaging the interior of said injector, a check-valve and piston of different areas connected together and movable in said rings, means for conducting pressure from the primary set of tubes to the under side of said piston, and means for conducting pressure from the secondary set of tubes to the top of said valve.

602,538. HARROW. GEORGE E. GEDGE, Springfield, Ohio. Filed Aug. 27, 1897. Serial No. 649,684. (No model.)



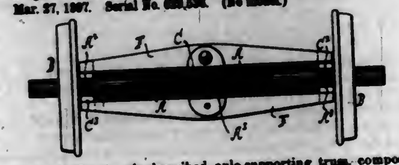
Claim.—1. The combination with a continuous walled tubular bar, of a harrow-tooth extending through the same, of a clamping device having portions above and below said bar and fitting around said tooth, said portions being adapted to substantially conform to and fit one side of said bar, and means for drawing said portions of the clamping device against said tooth, substantially as described.

2. A harrow formed with tubular bars, harrow-teeth extending through said bars, clamping devices for said harrow-teeth consisting of upper and lower portions formed with openings therein through which said harrow-teeth are adapted to pass, the respective portions of said clamping device being adapted to substantially conform to one side of said bar, and means for drawing said upper and lower portions together on the side to which they conform to said bar, substantially as specified.

3. The combination with a tubular bar, a tooth projecting through the same, a clamping device having a portion above and a portion below said bar and connected at one side by a yielding connection and on the opposite side by an adjustable bolt, said portions having parts which extend around and are adapted to substantially conform to one side of said bar, said portions having openings corresponding to said tooth, said portions being adapted to be clamped against said tooth substantially as specified.

4. The combination with the continuous walled bar *a*, harrow-tooth *b*, said tooth being adapted to pass through openings in said bar, clamping device *c* having openings for said tooth, the adjustable bolt c^3, and a connecting-piece c^4, substantially as and for the purpose specified.

602,539. CAR-AXLE. ROBERT M. HARBOUGH, New York, N. Y., assignor of one-half to George W. Thompson, Brooklyn, N. Y. Filed Mar. 27, 1897. Serial No. 629,536. (No model.)

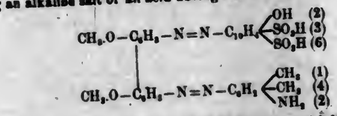


Claim.—The herein-described axle-supporting truss, composed of the continuous truss-bars extending the length of the axle, and of the sectional truss-heads one at the mid-length and one at each end of the axle, in combination with the divided axle with grooves at the required points to receive the truss-heads, for the purpose set forth.

602,540. VIOLET DYE. MYRTIL KAHN, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Dec. 14, 1897. Serial No. 661,965. (No specimens.) Patented in England May 18, 1893, No. 8,973; in France June 22, 1893, No. 231,087, and in Italy Dec. 31, 1893, XXVIII, 35,187, LXIX, 33.

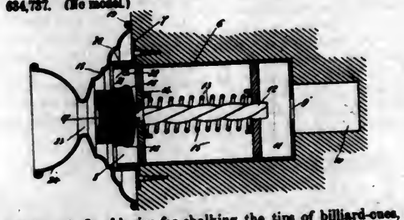
Claim.—1. The process for producing a new tetrazo dyestuff by combining one molecule of tetrazotized dianisidin with one molecule of 2, 3, 6 naphtholdisulfo-acid and further coupling the intermediate product thus obtained with one molecule of paraxylidin.

2. As a new article of manufacture the new tetrazo dyestuff being an alkaline salt of an acid having the formula



representing in the form of the sodium salt a brownish-black powder with a bronze-like luster soluble in water with a brownish-violet color, in concentrated sulfuric acid with a blue color, which changes into bluish-violet on the addition of a small quantity of ice while a blue flaky precipitate is obtained on adding a larger quantity of ice to the sulfuric-acid solution, dyeing unmordanted cotton violet shades.

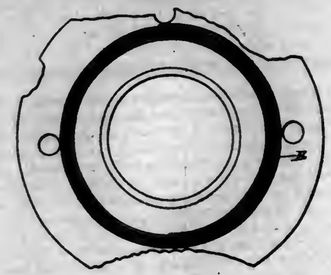
602,541. DEVICE FOR CHALKING TIPS OF BILLIARD-CUES. WILLIAM KNOLL, Jersey City, N. J. Filed May 1, 1897. Serial No. 634,737. (No model.)



Claim.—1. In a device for chalking the tips of billiard-cues, a casing adapted to be secured to a suitable support, a suitable guide secured to the outer end of said casing, said casing being provided with a partition arranged between the ends of said casing, having a screw-threaded opening, a screw-rod engaging said opening and provided with a reduced outer end, a spring-clip secured to said end and adapted to receive the chalk, a disk loosely sleeved about the reduced end of the screw-rod and a helical spring coiled about said rod and engaging the said diaphragm and said disk, substantially as described.

2. In a device for chalking the tips of billiard-cues, a casing provided with an annular flange whereby it is adapted to be secured to its support and having an extension beyond said flange, a cup-shaped guide having an inner annular flange adapted to embrace the said extension and secured thereto by a pin-and-slot connection, said casing being provided with a diaphragm located near the inner end and provided with a screw-threaded opening, a screw-rod engaging said opening and provided with a reduced outer end, a spring-clip secured to said end and adapted to receive the chalk, a disk loosely sleeved about the end of the screw-rod, and a helical spring coiled about said rod and interposed between said disk and the diaphragm, substantially as described.

602,542. METALLIC GASKET. PHILIP F. LEARY, Fall River, Mass. Filed Aug. 24, 1897. Serial No. 649,201. (No model.)



Claim.—A metallic packing or gasket comprising a flat ring made of close coils of wire of uniform cross-section lying in the same horizontal plane, said coils being continuous and securely soldered together, whereby any transverse leakage is prevented.

602,543. COIN-OPERATED VENDING-MACHINE. LOWELL M. MAYNARD, Boston, Mass. Filed Dec. 12, 1896. Serial No. 615,440. (No model.)

Claim.—1. The oscillatory reservoir, B, having rigid arm, E, in combination with the spring-bracket, F, having teeth adapted to engage said arm, and means for releasing said arm therefrom, for the purpose set forth.

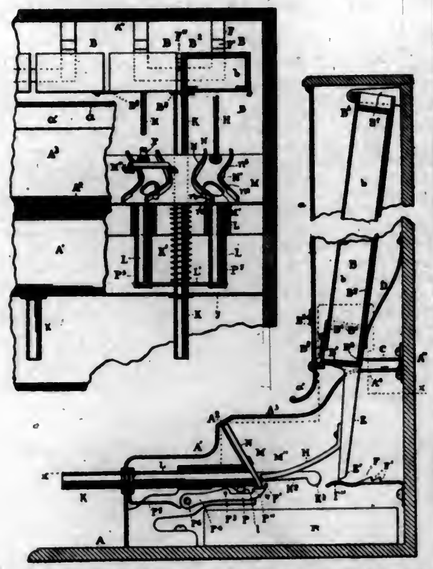
2. The combination of the reservoir, B, rigid arm, E, toothed spring-bracket, F, and the push-rod having the lug, K^2 for disengaging said arm and teeth, for the purpose set forth.

3. The combination of the coin-chute, the tubular push-rod, the pendulous reservoir, and the slender rod rigidly connected with said reservoir and terminating with its axis substantially coincident with that of said tubular push-rod, substantially as and for the purpose set forth.

4. In a coin-operated vending-machine, the combination of a reservoir, an arm and means whereby an article is removed from the reservoir when said arm is impressed; a toothed spring-bracket for detaining said arm, the tubular push-rod, the lug connected with said push-rod for disengaging said arm and spring-bracket, and the slender

rod rigidly projecting from said arm and terminating in line with said push-rod, substantially as and for the purpose set forth.

5. In a coin-operated vending-machine, the combination of the inclined plate, the casing having a coin-slot at the upper edge of said plate and parallel therewith, a push-rod at the lower edge of said plate, a detent normally engaging said push-rod, and chute-walls on said plate joining said slot and push-rod terminal and formed with lateral bends intermediate of their ends adapted to permit the unimpeded passage of a coin but to wholly prevent the insertion of a narrow strip by which said detent might be surreptitiously disengaged, substantially as and for the purpose set forth.



6. In a coin-operated vending-machine, the combination of the inclined plate adapted to receive a coin thereon, and having side walls for confining such coin laterally, the longitudinally-movable rod having its end normally flush with said plate and having the lug projecting from its under side, the detent pivoted in substantially the same plane as said lug and provided with the shoulder designed to normally intercept said lug, the upwardly-turned finger held beneath said plate and rod end, and said detent being further provided with the counterweighted arm so balanced that when a light coin or blank is received upon said finger the detent is not depressed, when a proper coin is received thereon the detent is depressed just far enough to release said lug from said shoulder, and when a blank is received exceeding the proper coin in weight the detent is depressed so far that the detent is thereby freed from such blank, substantially as and for the purpose set forth.

7. In a coin-operated vending-machine, the combination of the inclined chute-plate, M, the rod, L, having its end beveled to the same inclination, and the balanced detent having a finger beneath said beveled end, said inclination being such that a coin received upon said detent-finger shall lean lightly back against said beveled end of the push-rod, for the purpose set forth.

8. In a coin-operated vending-machine, the combination of the push-rod, K, having arms, L′, and spring, K′, the tubular rods, L, held by said arms, the chutes, the weighted detents, P having fingers, P′, and the cross-bar, P², rigidly uniting said detents, substantially as and for the purpose set forth.

9. In a coin-operated vending-machine, the combination with a plurality of pendulous reservoirs, of turn-buttons affixed thereto and adapted by being turned to cause more than one of the reservoirs to be oscillated when one actuating-coin is inserted, substantially as and for the purpose set forth

10. In a coin-chute, the inclined plate, M, and the chute-wall, N′, having slot, n², in combination with the chute-wall, N, adapted to be swept over the lower part of the chute when a coin is inserted at its upper end, substantially as set forth, and for the purpose set forth.

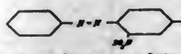
11. The coin-chute comprising the inclined plate, M, having opening, M′, the chute-wall, N′ having slots, n², n³, and the oscillatory chute-wall, N, substantially as and for the purpose set forth.

602,544. BLUE AZIN DYE. PHILIPP OTT and THILO KROENER, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Sept. 14, 1897. Serial No. 651,583. (Specimens.) Patented in Germany May 21, 1893, No. 79,159; in France June 8, 1893, No. 230,698; in England June 16, 1893, No. 11,893; in Italy Dec. 31, 1893, XXVIII, 35,068, and LXVIII, 490, and in Austria-Hungary June 15, 1894, No. 83,659 and No. 95,231.

Claim.—1. Process for producing new azin dyestuffs by condensing sulfo-acids of symmetrically-disubstituted 1.3 naphthylenediamins having the sulfo group in position 8 and having the general formula

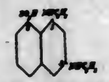


in which formula R and R_1 represent aromatic radicals such as phenyl, tolyl, with disubstituted amidoazo-benzene sulfo-acids of the following formula

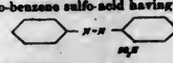


in which formula R_2 and R_3 represent fatty radicals, such as methyl, ethyl, substantially as described.

2. Process for producing a new azin dyestuff by heating in the presence of a suitable diluent, which may also act as a solvent, one molecular proportion of diphenyl 1.3 naphthylenediamin 8 sulfo-acid, having the formula:

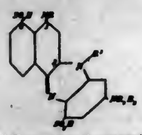


with one and a half molecular proportion of an alkaline salt of dimethyl-amidoazo-benzene sulfo-acid having the formula



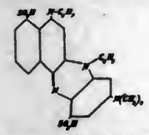
substantially as described.

3. As a new article of manufacture the new azin dyestuffs, obtainable from 8 sulfo-acids of symmetrically-disubstituted 1.3 naphthylenediamins having the sulfo group in position 8 and disubstituted amidoazo-benzene sulfo-acids, being alkaline salts of the acids of the general formula



in which formula R and R_1 represent aromatic radicals, and R_2 and R_3 fatty radicals, representing when dry and pulverized dark powders, dissolving in water yielding blue solutions, soluble in concentrated sulfuric acid with a green color, dyeing unmordanted wool in acid-baths bright and even blue shades which are fast to acids and alkalies and also pretty fast against the action of light, substantially as described.

4. As a new article of manufacture the specific azin dyestuff obtainable from diphenyl 1.3 naphthylenediamin 8 sulfo-acid and dimethyl-amidoazo-benzene sulfo-acid, being an alkaline salt of the acid of the formula



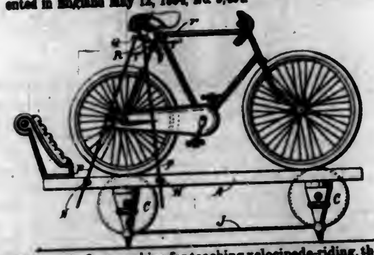
representing when dry and pulverized a dark powder soluble in water with a blue color dissolving in concentrated sulfuric acid with a green color which turns into violet on the addition of a small quantity of ice, while a dark-blue flaky precipitate is separated on adding a larger quantity of ice, insoluble in a ten-per-cent. solution of sodium carbonate and in strong soda-lye, dyeing wool in acid-baths bright blue even shades which are fast to acids and alkalies and also pretty fast against the action of light, substantially as described.

602,545. BICYCLE-CHAIN ADJUSTMENT. GEORGE C. SAVAGE, New York, N. Y., assignor to The Bernoon Manufacturing Company, same place. Filed Apr. 29, 1897. Serial No. 634,460. (No model.)

Claim.—In a hind-wheel bicycle-chain-adjusting device, the combination of solid-ring terminals of the hind-fork frames, an expanding disk tongued and grooved in each terminal, and means for expanding the disks within the terminals, the axle being mounted eccentrically in said disks substantially as described.



602,546. BICYCLE-TRAINER. GEORGE W. TARVER, London, England. Filed Jan. 4, 1897. Serial No. 617,955. (No model.) Patented in England May 12, 1894, No. 9,464.



Claim.—1. In a machine for teaching velocipede-riding, the combination of a frame, rollers supported therein, an endless band passing over said rollers, a supporting-frame for the velocipede secured to the said first-mentioned frame, and means for loosely coupling the supporting-frame to the rear portion of the velocipede so that the velocipede may have tilting and lateral movements relatively to the supporting-frame and rollers.

2. The combination of the supporting-frame, an endless carrier mounted therein, a velocipede-supporting frame secured to said first-mentioned frame, and means for loosely coupling the supporting-frame to the rear portion of the velocipede so that the velocipede may have tilting and lateral movements relatively to the supporting-frame and carrier.

3. The combination of the supporting-frame, an endless carrier mounted therein, a velocipede-supporting frame, devices for adjusting the velocipede-supporting frame vertically relatively to the frame that supports the endless carrier, and means for loosely coupling the supporting-frame of the velocipede to the rear portion of the velocipede so that it may have tilting and lateral movements relatively to the supporting-frame and endless carrier.

602,547. TUBE-WELL. SILAS W. TITUS, Brooklyn, N. Y., assignor to the Pneumatic Engineering Company, New York, N. Y. Filed July 31, 1897. Serial No. 646,581. (No model.)

Claim.—1. The improvement in the art of constructing tube-wells, which consists essentially in sinking a well-tube until the lower end thereof reaches a water-bearing stratum, then passing down through the tube a collapsible expansible shield, and finally expanding and filling said shield with gravel or other permeable material in substitution of the sand or fine material entering the shield from the water-bearing stratum, substantially as set forth.

2. The improvement in the art of constructing tube-wells, which consists essentially in providing a permeable expansible shield in the water-stratum below the lower extremity of the tubing, and then filling said shield with gravel or coarse material which takes the place of the sand in the water of such stratum, substantially as set forth.

3. The combination in a tube-well of an artificial filter-bed at the foot of said well, and a collapsible shield or umbrella, surrounding said artificial filter-bed substantially as specified.

4. A collapsible shield or umbrella adapted to be inserted through a well-tube to the foot thereof, the said shield being adapted to be opened when in position, and space inclosed thereby to be filled with gravel or coarse material constituting an artificial bed, substantially as specified.

5. A collapsible shield or umbrella adapted to be inserted through a well-tube to the foot thereof, the said shield being adapted to be opened when in position, and space inclosed thereby to be filled with gravel or coarse material constituting an artificial bed, and means whereby said shield may be emptied and withdrawn through the well-tube substantially as specified.



6. The combination in a tubular well of a well-tube, an interior tube, a collar carried by the interior tube at its lower end, a series of ribs pivoted to said collar, a flexible pervious covering carried by the ribs, the said ribs and pervious covering being adapted to close up for the purpose of insertion through the well-tube, and to open when at the foot of the well substantially as and for the purpose set forth.

7. The combination in a tubular well of a well-tube, an interior discharge-tube, an air-tube within said discharge-tube, a collar attached to said air-tube, a series of ribs pivoted to said collar, a flexible pervious covering carried by the ribs, a collar carried by said discharge-tubes, and links pivoted to said collar and said ribs, whereby a longitudinal movement of the discharge-tube relatively to the air-tube will cause the ribs to open or close, substantially as specified.

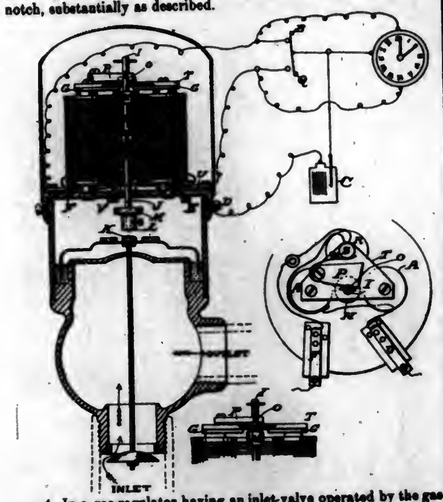
602,548. ELECTRIC CONTROLLER FOR GAS-REGULATORS. WILLIAM R. H. WILLIAMS and PAUL SEILER, San Francisco, Cal. Filed May 13, 1897. Serial No. 636,364. (No model.)

Claim.—1. In a gas-regulator, the combination of a valve for regulating the pressure, a movable partition actuated by the pressure and connected with the valve to adjust the same and regulate the pressure, a weight opposing the pressure of the gas on said partition, a supplemental weight, an electromagnetic device for removing the supplemental weight, an electric circuit to a distant point energizing the electromagnetic devices, and a switch in the circuit at the distant point, controllable at the will of the operator independently of the gas-pressure, substantially as described.

2. In a gas-regulator, the combination of a valve for regulating the pressure, a movable partition actuated by the pressure and connected with the valve to adjust the same and regulate the pressure, a weight opposing the pressure of the gas on said partition, a supplemental weight, an electromagnetic device for removing the supplemental weight, a catch arranged to retain the weight in its position when so removed, an electromagnetic device actuating said catch to release the weight, electric circuits to a distant point energizing the electromagnetic devices, and a circuit-closing switch at the distant point, controllable at the will of the operator and independently of the gas-pressure, substantially as described.

3. In a gas-regulator having an inlet-valve operated by the gas-pressure in the regulator, electromagnets connected with an electric circuit, a weight connected with an armature and adapted to be lifted by the magnets, a notch on the weight adapted to engage a pawl, which serves as an armature to a single-coil electromagnet when the weight is lifted, and an electric circuit connecting with said single-

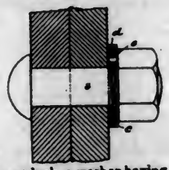
coil magnet whereby the pawl is withdrawn and released from the notch, substantially as described.



4. In a gas-regulator having an inlet-valve operated by the gas-pressure in the regulator, two independent sets of electromagnets electrically connected by separate circuits with a battery, one of said sets of magnets having an armature connected with a weight, which rests when free upon the float in the regulator; means for suspending said weight when lifted by the magnets, and an armature connected with the other set of magnets, by which the weight is released when the latter magnet or magnets are excited, substantially as described.

5. In a gas-regulator having an inlet-valve operated by a float inside the regulator, a supplemental weight adapted to be added to said float or removed therefrom by means of electromagnets being charged or discharged by electric currents, substantially as above described.

602,549. NUT-LOCK. BENJAMIN WOODALL, Wilkinsburg, and THOMAS R. ORR, Pittsburg, Pa. Filed Mar. 24, 1897. Serial No. 630,084. (No model.)



Claim.—1. In a nut-lock, a washer having a seat formed therein between the central opening and the periphery of said washer, a piece of spring metal bent to fit said seat, the ends of said piece of metal having oppositely-inclined projections extending out beyond the inner and outer faces of the washer, substantially as set forth.

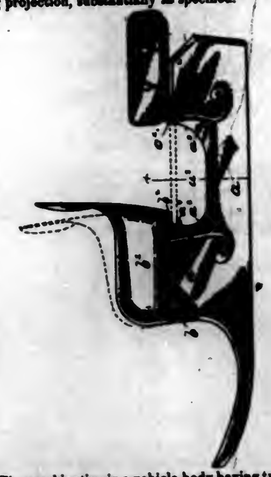
2. In a nut-lock, a washer having a seat formed therein between the central opening and the periphery of said washer, a piece of spring metal bent to fit therein, the ends of said piece of metal being cut obliquely and having oppositely-inclined projections extending out beyond the inner and outer faces of the washer, substantially as set forth.

602,550. VEHICLE-BODY. MORRIS WOODHULL, Dayton, Ohio. Filed Feb. 1, 1898. Serial No. 668,735. (No model.)

Claim.—1. The combination in a vehicle-body having two hinged seats each adapted to be swung forward and backward, the rear seat having hinged portions adapted, when in its forward position to lie outside of and substantially parallel to the sides of the body proper, as and for the purpose specified.

2. The combination in a vehicle-body having two hinged seats with a space between them, each adapted to be swung forward and backward, the rear seat being wider than the space between the seats, hinged ends on said rear seat adapted to lie outside of and at an angle to the body proper, and means for pressing said end pieces yieldingly against the body sides when the front seat is in position, substantially as specified.

3. The combination in a two-seated vehicle-body both seats being hinged in front, the rear seat being longer than the width of the body proper and wider than the distance between said seats, of hinged ends for said rear seat adapted to stand outside of the body and to be pressed in toward it when the front seat is down by means of an engaging projection, substantially as specified.



4. The combination in a vehicle-body having two seats one in the front and one in the rear, the rear seat being longer than the width of the body proper, of hinged ends for said seat, of a yielding projection on said front seat adapted to lie against said hinged ends when said seat is swung forward, substantially as specified.

5. The combination in a vehicle-body having a front and rear seat hinged as described said rear seat being longer than the width of the body proper, of end pieces for said seat hinged and adapted, when said seat is forward, to lie in close proximity to and outside of the body proper, of raised decorations on said body adapted, with said seat ends to form an ornamental design, as and for the purpose described.

6. In a vehicle-body having a hinged rear seat as described the combination with a box under said seat, of a beveled top for said box having a hinged door therein and a spring secured to said door to keep the same in a closed position, substantially as specified.

602,551. FRUIT-PICKER. ROBERT A. ANDERSON, Mount Lehman, Canada. Filed Nov. 20, 1897. Serial No. 659,206. (No model.)



Clrim.—1. A fruit-picker, comprising a fixed jaw having means for securing it to the upper end of the pole, the lower end of said jaw being deflected outward from the plane of the pole, and carrying hinge members, and braces connected with such pole, of a jaw pivotally hung in the hinge members of the fixed jaw, said hinged jaw having a lever-arm and an operating-rod connected with such lever-arm extended within convenient reach of the operator, substantially as shown and described.

2. As an improvement in fruit-pickers, the combination of a fixed jaw consisting of a single wire member bent to form a jaw portion proper, having hinge loops or eyes, brace members 12 and 13, and a socket 14, in combination with the jaw 16 pivotally hung in the hinge-eyes of the fixed jaw, said jaw 16 having a lever-arm 19 and means for operating such lever, substantially as shown and described.

3. In a fruit-picker, the combination with the pole 10, the fixed jaw 11, having integral hinge or eye members 15, and brace members 12 projected in a plane from the pole, one of said brace members 12, being formed with a spiral loop 14 terminating in a brace member 13 connected with the upper or cross bar of the jaw 11 proper, the other member 12 being secured to the pole 10, of the jaw 16, formed of a single wire member having one end terminating in an eye 17 engaging one of the loops 15, of the jaw 11, the other end of such jaw 16 passing through the fixed loop 15 of the jaw 11, bent into an eye 18 and engaging the lever member 19 and the operating-rod 21, all being arranged substantially as shown and for the purposes described.

602,552. BICYCLE-WHEEL. JOHN BROWN, Providence, R. I. Filed Aug. 27, 1897. Serial No. 649,750. (No model.)



Claim.—1. A wheel for cycles, having a single rim, a plurality of springs secured upon the outer surface thereof, the outer end of each being free and unconfined and overlapping adjacent springs, and rigid loops surrounding said springs near their fixed ends, substantially as set forth.

2. A wheel comprising a rim provided with a plurality of springs secured thereto at one end, loops secured to said rim and through which said springs pass, and enlarged end portions upon said springs overlapping the other ends of the adjacent springs.

3. A wheel comprising a rim provided with outwardly-extending lateral flanges, a plurality of springs, each of said springs having a shank fitting between said flanges and secured at its end to the rim by means of a bolt, a loop secured to the rim through which the shank passes, while the outer end of the spring is enlarged and curved on its outer face and overlaps the inner end of the adjacent spring.

602,553. WINDOW-SCREEN. WILLIAM H. CASSELBERRY, Williamsport, Pa. Filed Oct. 19, 1897. Serial No. 655,691. (No model.)

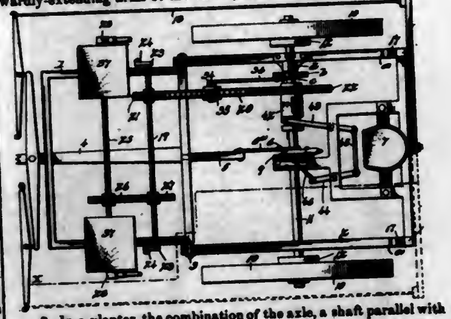


Claim.—The combination with a window-frame, a screen-casing, a screen-roller in the screen-casing, a screen secured to the roller, the upper sash, a bar extending inwardly from the upper sash, a catch pivoted to the upper sash, an operating-rod carried by the bar, and a link connecting the operating-rod to the catch, whereby said catch may be caused to engage the screen and draw it down in the act of lowering the upper sash, substantially as set forth.

602,554. CORN-PLANTER. WILLIAM D. CROSS, Climax, Kans. Filed July 7, 1897. Serial No. 643,731. (No model.)

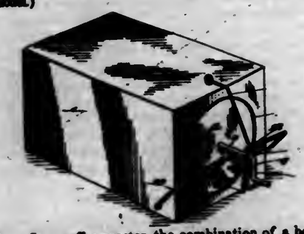
Claim.—1. In a planter, the combination with the runner and wheel frames pivotally connected, the runner-frame having a rear extension, a planting mechanism, a vertical lever fulcrumed upon the wheel-frame and having its lower end extended below the fulcrum, a rod connecting the upper end of the lever with the said rear extension of the runner-frame, and a clutch for throwing the planting mechanism into and out of gear, of a longitudinal lever having one end in direct engagement with the said clutch, a second longitudinal lever having one end connected with the other end of the clutch-lever, and a rod connecting the said second longitudinal lever at its opposite end with the lower end of the aforedescribed vertical lever, substantially as and for the purpose set forth.

2. In a planter, the combination of transversely-aligning hoppers, a seed-dropping mechanism in each hopper, a shaft mounted in line with and below the hoppers and having direct connection with the seed-dropping mechanism of each and having its ends extended, trips applied to the extended ends of the shaft, valves at the lower ends of the grain-spouts having rearwardly-extending arms, spring-actuated bell-crank levers fulcrumed to the grain-spouts and having one arm extending in the path of the trips to be actuated thereby, and links connecting the horizontal arms of the levers with the rearwardly-extending arms of the valves, substantially as set forth.



3. In a planter, the combination of the axle, a shaft parallel with the axle and in connection with the seed-dropping mechanism, gear-wheels upon the axle and shaft, a drive-chain connecting the said gear-wheels, a toothed segment mounted concentric with the axle, an arm secured to the said segment and bearing a roller which is brought forcibly into contact with a portion of the drive-chain to maintain a proper tension thereon, and a stop mounted in a bracket of the frame and adapted to engage with the toothed segment to hold the arm in an adjusted position, substantially as set forth.

602,555. COFFEE-ROASTER. WILLIAM J. DAVIS and ROBERT L. DAVIS, Hiddenite, N. C. Filed Aug. 14, 1897. Serial No. 648,282. (No model.)



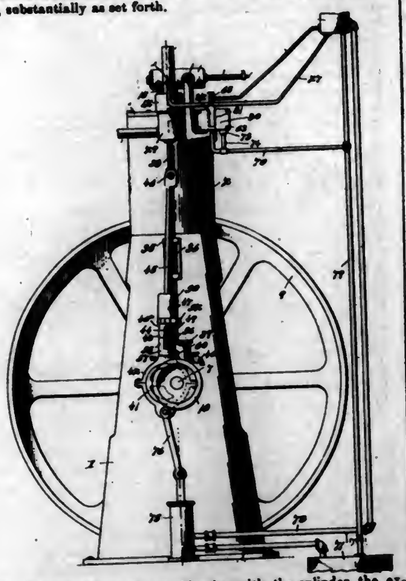
Claim.—In a coffee-roaster, the combination of a box or casing having an open bottom and an opening in one end, a cylinder mounted in the said casing and having a shaft projecting from one end, an adjustable frame or support carrying a bearing adapted to be brought in contact with the said shaft, and a movable hooked arm adapted to engage the said frame and hold the bearing against the said shaft, substantially as described.

602,556. GAS OR GASOLENE ENGINE. THOMAS M. DOYLE, Fort Madison, Iowa, assignor of one-half to Maurice Wahrer, same place. Filed June 3, 1897. Serial No. 639,576. (No model.)

Claim.—1. In a gas-engine, the combination with the engine-cylinder, the exhaust-valve seat and the drive-shaft carrying an eccentric, of a longitudinally-movable valve-stem carrying the exhaust-valve working on said seat, a telescopic pitman connection between the valve-stem and the eccentric, a pair of tappet-collars mounted on one of the pitman-sections, one of which collars is rotatable and bears against the other section of the pitman connection, and both of said collars having registering parts adapted to alternately engage, and a pawl-and-ratchet device rendered active by the swing or vibration of the said pitman connection and connected with the rotatable tappet-collar, substantially as set forth.

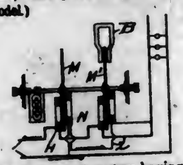
2. In a gas-engine, the combination with the cylinder, the exhaust-valve seat, and a drive-shaft carrying an eccentric, of the reciprocatory valve-stem carrying the exhaust-valve, a telescopic pitman connection between the valve-stem and the eccentric, a pair of tappet-collars mounted on one of the sections of the pitman connection and provided at their adjacent sides with a plurality of alter-

nating fingers or notches, one of said tappet-collars having a loose rotary movement and the other of said collars having a limited circular movement, and means for automatically rotating the rotatable collar, substantially as set forth.



3. In a gas-engine, the combination with the cylinder, the exhaust-valve seat, and the drive-shaft carrying an eccentric, of a longitudinally-movable valve-stem carrying an exhaust-valve working on said seat, a tubular pitman pivotally connected at one end with a valve-stem, an eccentric-rod sliding in said pitman and connected at one end with the eccentric-strap, a pair of tappet-collars mounted on said eccentric-rod and provided at their adjacent sides with an annular series of alternate fingers and notches, one of said collars being capable of a limited circular movement and having a spring connection with the eccentric-strap, and the other of said collars being rotatable and bearing against one end of the tubular pitman and provided with an annular series of ratchet-teeth, a suitably-arranged spring for holding the rotatable collar tightly against the tubular pitman, and a spring-actuated pawl pivotally mounted on the valve-stem and engaging with the ratchet-teeth of the rotatable collar, substantially as set forth.

602,557. ALTERNATE-CURRENT METER. CLARENCE P. FELDMANN, Cologne, Germany, assignor to the Helios Electricitäts Actien-Gesellschaft, same place. Filed Dec. 21, 1897. Serial No. 662,858. (No model.)

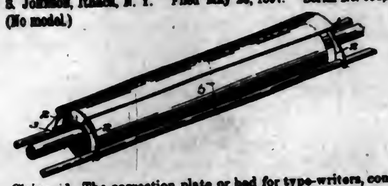


Claim.—In alternate-current meters having no direct supply of current to the movable armature, the combination of a thin layer of magnetic material with the armature of the brake-body connected to the same for the purpose of creating a differential effect of such dimensions that a fixed zero position is produced the sensitiveness of the meter remaining practically unaltered.

602,558. WATERPROOF PAPER. ALFRED HERSHEIM, Berlin, Germany, assignor to the Chemische Fabrik auf Actien, vormals E. Schering, same place. Filed June 7, 1897. Serial No. 639,729. (No specimens.) Patented in Germany July 27, 1895, No. 86,933; in England Nov. 26, 1895, No. 23,635; in France Dec. 16, 1895, No. 253,501; in Belgium Dec. 16, 1896, No. 118,877; in Hungary June 22, 1896, No. 8,310, and in Austria July 10, 1896, No. 46/3,756.

Claim.—The herein-described waterproof paper consisting of a body which is composed of the herein-described modified sulfite cellulose resembling hydrocellulose and a coating of pyroxylin permanently united therewith, substantially as set forth.

602,559. TYPE-WRITING-MACHINE ERASING-PLATE. ARDON S. JOHNSON, Ithaca, N. Y. Filed May 26, 1897. Serial No. 638,973. (No model.)



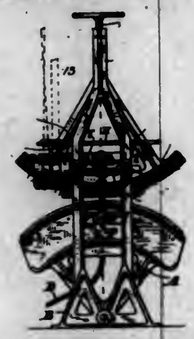
Claim.—1. The correction plate or bed for type-writers, consisting of the segment of a hollow metallic cylinder, and legs connected to said bed-plate extending to the bars of a type-writer carriage, whereby the plate may be supported in proximity to but out of contact with the roll and afford a convenient table for corrections, substantially as described.

2. The correction bed or plate for type-writers, consisting essentially of a thin plate to extend in proximity to the type-writer roll, and supporting-legs connected to said plate and adapted to bear on some part of the type-writer other than the roll, whereby a convenient correction-bed is afforded out of contact with the sheets carried by the type-writer roll, substantially as described.

3. The correction-bed for type-writers consisting of a curved metallic plate, and forked legs projecting from the corners thereof in position to bear on the parallel bars of a type-writer carriage, substantially as described.

4. The combination with the parallel bars of a type-writing machine, of an erasing-table consisting of a curved plate, and legs connected to said plate and resting on said bars to hold the plate in proximity to but out of contact with the upper surface of the type-writer roll, substantially as described.

602,560. EMBOSSING-MACHINE. CHARLES H. LEONARD, Indianapolis, Ind., assignor of one-half to William B. Dyer, same place. Filed May 4, 1897. Serial No. 635,042. (No model.)



Claim.—1. In an embossing-machine, the combination, of the frame, the platen, and a segment-shaped die structure formed hollow and containing the combustion-chamber, said structure being formed to bear the die on one side thereof and mounted to rock on bearings located on the opposite side thereof, substantially as set forth.

2. In an embossing-machine, the combination, with a suitable framework and platen and driving mechanism, of a segmental-die support containing a combustion-chamber and having a correspondingly-shaped burner arranged beneath the shell thereof and in close proximity thereto.

3. In an embossing-machine, the combination, of the frame, the platen, a segmental-die support carrying the die mounted to rock on bearings located on its side opposite its die-supporting face, said support being formed hollow and containing a combustion-chamber just below said die-supporting face, and mechanism for operating said platen and die-support uniformly, substantially as set forth.

4. The combination, in an embossing-machine, with a suitable frame and platen, of a segmental-die support mounted on a suitable rock-shaft, the segmental surface being of a length as great or greater than the desired length of die, substantially as shown and described, and a correspondingly-shaped burner also carried by said rock-shaft arranged beneath and in close proximity to its shell.

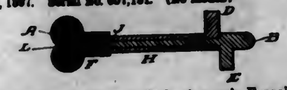
5. In an embossing-machine, the combination, of a frame, the platen, a segmental-die support mounted on bearings which are located at a point distant from the operating heated surface, said die-support being formed hollow and containing a burner located near said operating-surface, whereby said bearings are removed from danger of injury by heat, substantially as set forth.

6. In an embossing-machine, the combination, of the frame, a hollow segmental-die structure containing the heater and mounted to rock on bearings on its side opposite the operating-face, an opposing platen having a curved surface, and also mounted to oscillate on suitable bearings, and guide-bars carried by said frame and extended across below said platen on each side of the center thereof, whereby the material being embossed is guided and held to the proper position, substantially as set forth.

7. The combination, in an embossing-machine, of a suitable framework, a segmental-die support carrying a burner beneath its face, mounted on a rock-shaft or pivot therein, and provided with a rack on its edge, a segmental platen opposed to the die on said die-support and provided also with a rack on its edge, a shaft mounted in the framework alongside said die-support and said platen, and pinions thereon which engage with said racks and thus drive said die-support and platen uniformly, substantially as set forth.

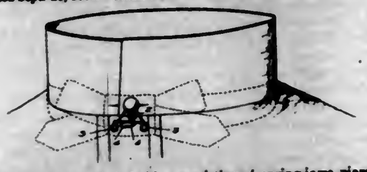
8. The combination, in an embossing-machine, of a suitable framework, a segmental-die structure, an opposing platen, mechanism for driving the same, and mechanism for reversing the motion of the driving mechanism consisting of a shaft having two tight and two loose pulleys, and a straight and a crossed belt, the two loose pulleys being between the two tight pulleys, and suitable shifting mechanism operated by a moving part, substantially as shown and described.

602,561. KEY. JOANNAH J. LOGUE, Los Angeles, Cal. Filed Nov. 3, 1897. Serial No. 657,181. (No model.)



Claim.—In a key, the stem, B, having web, E, projecting therefrom and being integral therewith, and having on either side of said half-web, E, square recesses, *b b*, formed therein; the said stem having removably attached thereto the thumb-piece, A; the thumb-piece being provided with cylindrical projection, F, forming housing for spring, J; the sleeve, H, having half-web, D, projecting therefrom and being integral therewith and having square catches, *h h*, projecting therefrom adapted to enter the recesses, *b b*, on the stem; and the spiral spring, J, all in combination substantially as shown and described.

602,562. NECKTIE-HOLDER. FRANK H. MAXAM, Princeton, Ind. Filed Sept. 20, 1897. Serial No. 653,515. (No model.)



Claim.—1. A necktie-holder, consisting of spring-jaws, piercing-points and handles which when compressed will separate the jaws, and the piercing-points, substantially as set forth.

2. A necktie-holder, consisting of the spring-jaws, the piercing-points, the handles for simultaneously separating the jaws and the piercing-points, and a hook at the rear of the spring-jaws, substantially as set forth.

3. A necktie-holder, consisting of the spring-jaws and the handles which are provided with cooeting piercing-points, and a hook arranged at the rear of the spring-jaws, the said parts being formed of a single piece of wire, substantially as set forth.

602,563. IRONING-BOARD. DENNIS McDONOUGH, Eau Claire, Wis. Filed Apr. 20, 1897. Serial No. 633,091. (No model.)

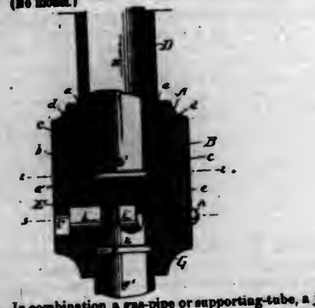
Claim.—1. In combination, an ironing-board, a leg having pivotal connection therewith, a brace pivoted at its upper end to the ironing-board and adapted to have its lower end engaged with the leg, and a dog having pivotal connection with the leg and provided with a series of notches forming shoulders to engage with the lower end of the brace and retain it in place, substantially as set forth.

2. In combination, an ironing-board having its rear end notched, longitudinal cleats secured to the bottom side of the ironing-board upon opposite sides of the notch therein, and having their rear ends notched, a leg provided with a series of transverse openings in its upper end, a pin adjustably connecting the leg with the cleats to admit of the ironing-board being secured against either the top or the bottom side of the table as described, a brace adjustably interposed between the ironing-board and leg, a foot having pivotal connection with the leg and formed with a series of openings, and a fastening for adjustably connecting the foot with the leg, substantially as and for the purpose described.



3. The combination with an ironing-board, and a leg having pivotal connection therewith and slotted at its lower end, of a foot of cam form having pivotal connection with the leg and located in the slot thereof, and having a series of openings, and a pin adapted to pass through one of the series of openings of the foot and corresponding openings in the slotted portion of the leg, substantially as and for the purpose set forth.

602,564. INSULATED PIPE-COUPLING. GEORGE PEIFFER, Philadelphia, Pa. Filed June 19, 1896. Renewed Oct. 5, 1897. Serial No. 654,147. (No model.)



Claim.—1. In combination, a gas-pipe or supporting-tube, a joint for the support of the electrolier, a cap or block for said pipe within said joint, insulating material between the sides of the cap or block and the joint, and between the top of the cap or block and the upper portion of the joint, and a tube of insulating material surrounding the gas-pipe from the joint to the point where the pipe emerges from the ceiling or wall, substantially as specified.

2. A joint comprising an upper section connected to but insulated from the gas-pipe and having notches in its lower end, a lower section having on its upper face a series of grooves or channels registering with said notches, and means for connecting the two sections together, substantially as specified.

3. The combination in a joint of the upper section A, having an angular opening therein, a cap or block B fitting within said opening and adapted to receive the gas-pipe, an insulating-ring *d* between the top of the block and the upper portion of the section A, insulating material between the side walls of the block and the walls of the opening in the section A, a lower section carrying the electrolier, and means for connecting the two sections to each other, substantially as specified.

4. The combination in a joint, of the upper section A, having an angular opening therein, a block or cap B fitting within said opening and adapted to receive the gas-pipe, a gas-pipe *x*, insulating-tube D extending around said pipe from the joint to the point where the pipe emerges from the wall or ceiling, an insulating-ring *d* between the top of the block and the upper portion of the section A, insulating material between the side walls of the block and the walls of the opening in the section A, a lower section, and means for uniting the upper and the lower sections, substantially as specified.

5. The combination in a joint, of the upper section A, having an angular opening therein, a block or cap B fitting within said opening and adapted to receive the gas-pipe, an insulating-ring *d* between the top of the block and the upper portion of the section A, insulating material between the side walls of the block and the sides of the opening in the section A, a disk *c* of insulating material below the

cap or block, a disk E jammed within the joint to hold the various parts in position, a lower section, and means for connecting the two sections together, substantially as specified.

6. An insulated joint for electroliers comprising an interiorly-screw-threaded metal block or cap for direct engagement with the house gas-pipe, an upper coupling-section comprising a metal shell surrounding and inclosing the block and completely insulated therefrom, a shoulder on the shell bearing through insulation directly on the block, and the lower metal coupling-section for the fixture-pipe joined to the upper coupling-section.

7. An insulated joint for electroliers comprising an interiorly-screw-threaded metal block or cap for direct engagement with the house gas-pipe, an upper coupling-section comprising a metal shell surrounding and inclosing the block and completely insulated therefrom, a shoulder on the shell bearing through insulation directly on the block, and the lower metal coupling-section for the fixture-pipe detachably joined to the upper coupling-section.

8. An insulated joint for electroliers comprising an interiorly-screw-threaded metal block or cap for direct engagement with the house gas-pipe, an upper coupling-section comprising a metal shell surrounding the block and completely insulated therefrom, an insulating-tube surrounding the house gas-pipe and furnishing an additional insulation between the shell and house-pipe, and a lower coupling-section for the electrolier-joint to the upper coupling-section.

9. An insulated joint for electroliers comprising an interiorly-screw-threaded cap or block angular in form and adapted to be screwed directly to the house gas-pipe, an upper coupling-section having an angular opening surrounding and inclosing the block and completely insulated therefrom, and the lower coupling-section for the fixture-pipe joined to the upper coupling-section.

602,565. BICYCLE-TIRE. JACOB REEPMAKER, Rotterdam, Netherlands. Filed Nov. 8, 1897. Serial No. 657,832. (No model.)



Claim.—1. A sheath for pneumatic tires comprising an outer rubber envelop, an inner quilted or reinforced canvas of greater width than the envelop and stitched thereto to form overlapping flaps which project on each side of the envelop and have their edges reinforced by whip-stitches, the reinforcing-strip 4 stitched to the outer of one of the flaps and having one of its edges abutting against one edge of the rubber envelop, the reinforcing-strip 7 secured to the under side of the other overlapping flap, a longitudinal row of eyelets formed through the reinforcing-strip 4 and the overlapping flap to which it is attached, a series of loops secured to the opposite overlapping flap, said loops projecting through said eyelets, and a lacing-cord passed through the ends of the loops to secure them in said eyelets, substantially as set forth.

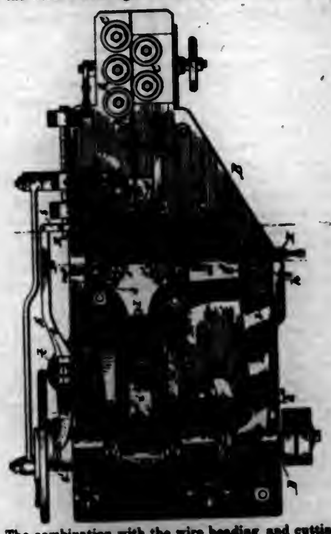
2. The combination with the rim of a wheel and the sheath of a pneumatic tire, and the lacing-cord for said sheath, said rim having orifices, of the bracket 13 having an orifice, the lever 12 fulcrumed on said bracket and provided with an orifice, and a short arm 10 adapted to clamp said lacing-cord in said bracket, the orifices in the bracket and the rim of the wheel registering, while the orifice in the lever is at one side of the registering-orifices, substantially as set forth.

602,566. NAIL-MAKING MACHINE. JULIUS C. RICHARDSON, Buffalo, N. Y., assignor of two-thirds to Ernest Wende and Lucas H. Van Allen, same place. Filed July 6, 1897. Serial No. 643,620. (No model.)

Claim.—1. The combination with a rotary chuck adapted to intermittently grasp the wire, of a wire-holding device arranged in front of the chuck and serving to hold the wire stock against turning, whereby the wire is twisted between the chuck and the holding device, substantially as set forth.

2. The combination with the wire-cutter, of an intermittently-rotating chuck arranged in front of the wire-cutter and provided with wire-holding jaws which move toward and from the wire for grasping or releasing the wire, and a holding device arranged in front of the chuck and serving to hold the wire stock against turning, substantially as set forth.

3. The combination with the wire heading and cutting devices, of a rotary chuck which is arranged in front of said heading and cutting devices and which intermittently grasps the wire and twists the same, and a bushing arranged in rear of the chuck and provided with a flat-sided seat or opening through which the wire passes and whereby the wire is held against turning, substantially as set forth.



4. The combination with the wire heading and cutting devices, of a rotary chuck-body which is arranged in front of the heading and cutting devices and through which the wire passes, gripping-jaws guided on said body and adapted to move toward and from the wire, a rotary cam-sleeve mounted on said body and provided with inclines engaging with said jaws, and a wire-holding device arranged in front of the chuck-body and cam-sleeve, substantially as set forth.

5. The combination with the wire heading and cutting devices, of a rotary chuck-body which is arranged in front of the heading and cutting devices and through which the wire passes, gripping-jaws guided on said body and adapted to move toward and from the wire, a rotary cam-sleeve mounted on said body and provided with inclines engaging with said jaws for projecting said jaws into an operative position, springs interposed between said jaws and the chuck-body and adapted to retract the jaws into an inoperative position, and a wire-holding device arranged in front of the chuck-body and cam-sleeve, substantially as set forth.

6. The combination with the wire heading and cutting devices, of a rotary chuck-body which is arranged in front of the heading and cutting devices and through which the wire passes, gripping-jaws guided on said body and adapted to move toward and from the wire, a rotary cam-sleeve mounted on said body and provided with inclines engaging with said jaws for projecting said jaws into an operative position, springs interposed between said jaws and the chuck-body and adapted to retract the jaws into an inoperative position, a stop or projection arranged on the chuck-body and engaging with a circumferential slot in the cam-sleeve, and a wire-holding device arranged in front of the chuck-body and cam-sleeve, substantially as set forth.

7. The combination with the wire heading and cutting devices, of a rotary chuck-body which is arranged in front of the heading and cutting devices and through which the wire passes, gripping-jaws guided on said body and adapted to move toward and from the wire, a rotary cam-sleeve mounted on said body and provided with inclines engaging with said jaws, a gear-rim arranged on the cam-sleeve and a reciprocating gear-rack engaging with said gear-rim, substantially as set forth.

8. The combination with the cutting device, of a wire-twisting device, a rock-lever whereby said twisting device is actuated and which is provided with a longitudinal slot, a pivot for the rock-lever arranged in the slot thereof, and an adjustable support carrying said pivot, substantially as set forth.

9. The combination with the wire-cutter, of an intermittently-rotating chuck arranged in front of the wire-cutter and provided with wire-holding jaws for grasping or releasing the wire, and a holding device arranged in front of the chuck and capable of longitudinal adjustment in the anvil, substantially as set forth.

10. The combination with the wire heading and cutting devices, of a wire-clamping device composed of two jaws one of which is

movable toward and from the other jaw, a slide carrying the movable clamping-jaw and provided with a notch or recess, a rock-lever provided in one of its arms with a notch or recess arranged adjacent to the notch or recess in the slide, and a coupling key or block arranged in the notches or recesses of the rock-arm and slide, substantially as set forth.

602,567. WASHING-MACHINE. HENRY B. ROACH, Paris, Tex., assignor of one-half to George F. Hicks, Frank O. Hicks, and Johnson Hale, Lamar County, Tex. Filed July 21, 1897. Serial No. 645,490. (No model.)

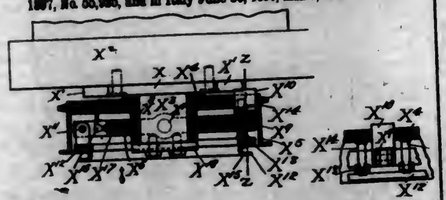


Claim.—1. In a washing-machine, the combination with a suds-box, of a pipe placed beneath the suds-box and inclined throughout its length, a vertical pipe connecting the inclined pipe about midway of its ends with the bottom portion of the suds-box and serving as an inlet and outlet, means for supplying water to the higher end of the inclined pipe, and a controlling-valve at the lower end of the inclined pipe to admit of the suds-water being drained from the suds-box when required, substantially as specified.

2. A washing-machine, comprising an oblong suds-box of approximately elliptical shape in transverse section, having a flattened bottom and provided with a longitudinal passage, and spaces or chambers at its sides and bottom upon opposite sides of the said passage, said spaces being in communication at their lower ends with the passage, and at their upper ends with the interior of the suds-box, perforated steam-pipes located in the lower portion of the spaces or chambers and connected at one end, an inclined supply-pipe located beneath the suds-box and in communication therewith, and provided at one end with a controlling-valve, a drum located within the suds-box, and a rolling top or cover, comprising similar sections slidably mounted in guideways at the ends of the suds-box, substantially as set forth

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602,568. CLUTCH-GEAR. EDWARD THUNDERCLIFFE, Carlton, Victoria. Filed Sept. 23, 1897. Serial No. 652,895. (No model.) Patented in England Mar. 22, 1897, No. 7,410; in France Mar. 27, 1897, No. 265,443; in Belgium Apr. 3, 1897, No. 127,370; in Canada May 13, 1897, No. 55,695, and in Italy June 30, 1897, XLIV, 411.



Claim.—1. In clutch mechanism for connecting a driving-shaft with a driven element, the combination with said driving-shaft, of a pulley or wheel rotatably sustained in proximity to said driving shaft, a lever pivoted to said pulley, a bolt connected to said lever and adapted to slide through an opening in said pulley or wheel, arms or stops carried by the shaft adapted to be engaged by said bolt, and an operating ring pivoted to the pulley and connected with the said lever, substantially as described.

2. Clutch mechanism for connecting and disconnecting a pulley or wheel to and from the driving-shaft, comprising a pulley or wheel X^{40} loosely mounted on the shaft, a lever X^{50} pivoted to said pulley, a bolt X^{101} connected to said lever and adapted to slide through an opening in said pulley or wheel, arms or stops X^{100} secured on the shaft and adapted to be engaged by said bolt, a spring-latch X^{110} to hold the said lever and bolt in position, and an operating-ring X^{115} pivoted to the said pulley X^{40} and connected to the lever X^{50}, substantially as described.

602,569. RELEASING DEVICE. DONALD L. TURNER, Wellington, New Zealand. Filed Aug. 24, 1897. Serial No. 649,204. (No model.)



Claim.—1. A releasing device comprising the clutch, the bolt held thereby, and a casing for holding the clutch closed, said clutch being movable relative to the casing and adapted to fly open when moved out of said retaining-casing, substantially as described.

2. In combination, the releasing-clutch, the bolt engaged thereby, the retaining-casing for holding the clutch closed on the bolt, the spring for holding the clutch within the casing under tension and the rope or draft device connected to the clutch, substantially as described.

3. In combination, a draft connection as a rope or the like, a movable clutch connecting the parts of said draft device and comprising the pivoted members, and a casing for holding the clutch to its work until a predetermined strain is reached, said clutch being located within the casing, substantially as described.

4. In combination, the clutch, comprising the pivoted members, the eyebolt engaged thereby, the spring connected with the eyebolt at one end, and the casing to which the other end of the spring is connected, said casing holding the clutch to its work, the said clutch and spring being arranged within the casing, substantially as described.

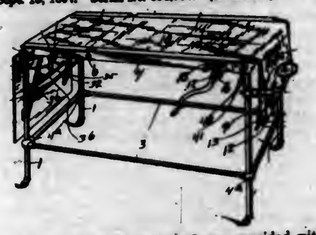
5. In combination, the clutch, comprising the pivoted clutch members, the bolt engaged thereby, the spring and the casing with means of adjustment for changing the amount of strain necessary to release the clutch from the casing, the said casing inclosing the clutch and the spring, substantially as described.

6. In combination, the clutch, the two-part casing engaging the same, the eyebolt engaged by the clutch, and the spring connected to the eyebolt and to the casing, the said parts of the casing being adjustable to vary the strain necessary to release the clutch from the casing, the said casing containing the said clutch, eyebolt and spring, substantially as described.

602,570.

Withdrawn.

602,571. SURGICAL TABLE. HIRAM G. BOWERS, Canton, Ohio. Filed Sept. 13, 1897. Serial No. 651,397. (No model.)



Claim.—1. In a surgical table, a frame provided with a top, rollers journaled to the frame and to the downwardly-extending portion of the top, the downwardly-extending portion and a covering connected to the rollers and movable longitudinally upon the top of the table, substantially as and for the purpose specified.

2. In a surgical table, the combination of a table-frame, table-sections hinged together, one of said sections provided with a downwardly-extending portion, a roller carried by said downwardly-extended portion, a roller located at the opposite end of the table, and below the hinged section 7, and the movable top connected to the rollers, substantially as and for the purpose specified.

3. In a surgical table, the combination of a hinged top formed in sections, a supporting-frame, rollers journaled to the frame and to one of the hinged top sections, flexible fabric connected to the rollers and resting upon the hinged table-top sections, and movable longitudinally upon the hinged sections, substantially as and for the purpose specified.

4. In a surgical table the combination of a supporting-frame, parallel bars 4, a shaft journaled to said bars and provided with a pinion, guide-bars loosely mounted upon the shaft carrying the pinion, a rack-bar pivotally connected to one of the hinged table-sections and meshing with the pinion, and one of said table-sections provided with a downwardly-extending portion, a flexible cover resting upon the hinged sections and movable longitudinally upon said hinged sections, rollers journaled to the parallel bars 4, and to the downwardly-extending portion, substantially as and for the purpose specified.

5. The combination of a table-frame, table-sections hinged to the frame, a flexible cover located upon hinged sections of the table and following the movements of the hinged sections and movable longitudinally upon said hinged sections and means for moving the hinged sections and the flexible cover, substantially as and for the purpose specified.

6. The combination of a frame, a table-top formed in sections and the sections hinged together, a flexible movable cover located upon the top of the table-sections, and movable longitudinally thereon and provided with the loops 44, substantially as and for the purpose specified.

602,572. SALIVA-EJECTOR. ARTHUR W. BROWNE and CHARLES M. KENNEDY, Prince's Bay, N. Y., assignors to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Aug. 19, 1897. Serial No. 648,750. (No model.)



Claim.—The combination in a saliva-ejector of the coupling-tube provided at one end with means for holding a mouth-tube, and at its opposite end with means for attachment of a flexible tube, and also provided with an enlarged portion consisting of detachable sections united by threaded connection, and forming a strainer-chamber, and a strainer detachably held in said chamber, substantially as and for the purpose set forth.

602,573. DOOR-KNOCKER AND ALARM. ROSCOE D. COCHRANE, Newport, R. I., assignor of three-fourths to J. D. Johnston, same place. Filed Aug. 27, 1897. Serial No. 649,622. (No model.)



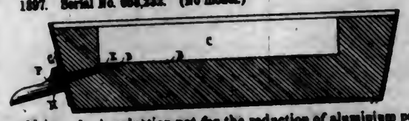
Claim.—A door knocker and alarm consisting of a stationary member secured to a door, a knocker pivoted to the stationary member, a bell, secured to the inside of the door, an enlargement formed on the inner surface of the bell, an arm formed on the bell-support and extending to one side thereof, a spring-striker secured to the arm and extending downward, the lower end thereof being enlarged to form a knob and terminating a short distance from the enlargement on the bell which it is adapted to strike, and a striker-pin pivoted to the striker and extending through the door fitting against the knocker and holding it normally away from the stationary member, as and for the purpose described.

602,574. CHAIR. THOMAS J. DALTON, Boston, Mass. Filed Nov. 10, 1897. Serial No. 657,897. (No model.)



Claim.—In a chair; a wooden arm; a wooden upright; a metal riser having an offset or foot seated on said upright and arm, and extended across the joint therebetween; and means to secure said riser in place, said means comprising a screw driven through said offset into said upright, and a bolt passed through said offset and arm and having a cooperating nut; and a combined brace and shield of wood inserted in the angle between said arm and upright.

602,575. ALUMINIUM-REDUCING POT AND MEANS FOR TAPPING SAME. ANDREW DICKEY, Niagara Falls, N. Y. Filed Nov. 12, 1897. Serial No. 658,232. (No model.)



Claim.—1. A reduction-pot for the reduction of aluminium provided with a taper tap-hole and a wooden or charcoal plug fitted to said taper, and means for excluding said plug from contact with air, substantially as and for the purposes set forth.

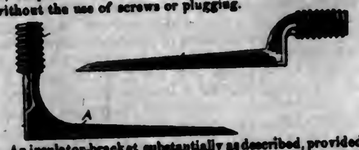
2. A reduction-pot for the reduction of aluminium provided with a tap-hole, a wooden or charcoal plug fitting into said tap-hole, and means for preventing oxidation of said plug, substantially as and for the purposes set forth.

3. In an aluminium-reduction pot, the combination of a pot provided with a tap-hole, with a wooden or charcoal plug removably inserted therein, and a coating of clay or equivalent material for excluding the exposed end of said plug from the air, substantially as and for the purposes set forth.

4. In an aluminium-reduction pot, the combination of a pot provided with a taper tap-hole, with a taper wooden or charcoal plug, a plastic cap covering the exposed portion of said plug, and a spout surrounding the exterior opening of said tap-hole, substantially as and for the purposes set forth.

602,576. BRACKET FOR INSULATORS, &c. JOHN B. FLETCHER, Dayton, Ohio. Filed Jan. 4, 1896. Renewed Feb. 2, 1898. Serial No. 668,890. (No model.)

Claim.—1. An insulator-bracket, substantially as described, provided with a head for the insulator or insulator-plug, and a blade having one flat side and two recessed sides and tapering from butt to point, adapted to be driven into a supporting-surface to secure same without the use of screws or plugging.



2. An insulator-bracket, substantially as described, provided with a head for the insulator or insulator-plug, and a blade having one flat side and two recessed sides and tapering from butt to point, with a square shoulder at the butt thereof, whereby the bracket may be driven into a supporting surface without injury to the head and without the use of screws or plugging.

602,577. STOVE. FRANK J. GOULD, Marion, Ind. Filed Dec. 7, 1896. Serial No. 614,722. (No model.)



Claim.—1. A heating-stove comprising a shell for containing fuel divided into two chambers by a false top or diaphragm having an opening, a damper for regulating the size of such opening, a grate extending across the lower end of the shell, the shell being imperforate between the diaphragm and grate, means for introducing fuel through such diaphragm, and means for permitting the introduction of air beneath the grate and into the upper chamber, substantially as described.

2. A heating-stove comprising a shell for containing fuel divided into two chambers by a false top or diaphragm having an opening, a damper that can partially but never completely close such opening, a grate extending under the lower end of the shell, the shell being imperforate between the diaphragm and grate, means for introducing the fuel through such diaphragm, and means for permitting the introduction of air beneath the grate and into the upper chamber.

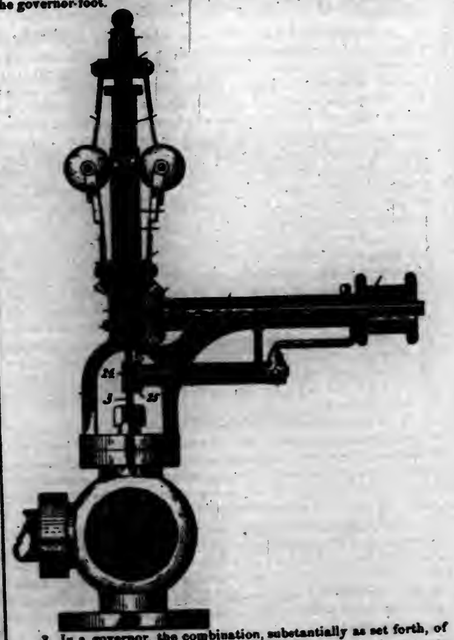
3. A heating-stove comprising a shell for containing fuel divided into two chambers by a false top or diaphragm having an opening, a damper for regulating the size of such opening, a grate extending across the lower end of the shell, the shell being imperforate between the diaphragm and grate, means for introducing fuel through such diaphragm, means for permitting the introduction of air beneath the grate, and an outlet pipe from the upper chamber, substantially as described.

4. In a stove or furnace, a shell for containing the fuel, a diaphragm that divides the shell into an upper and a lower chamber, said diaphragm having an opening through it, a damper to regulate said opening but which cannot be entirely closed, a funnel above and registering with the opening in the diaphragm, a check-damper above the funnel, an outlet-pipe from the upper chamber, and a grate at the lower end of the stove through which air is admitted, said shell being imperforate between the grate and diaphragm, substantially as set forth.

602,578. STEAM-ENGINE GOVERNOR. WILLIAM H. GUNTHER, Owensborough, Ky. Filed Oct. 7, 1897. Serial No. 654,330. (No model.)

Claim.—1. In a governor, the combination, substantially as set forth, with a governor-head and governor-foot mounted for rotation, of thin flat springs firmly secured to the governor-head and depending therefrom, a ball firmly secured at the lower end of each of said springs, and thin flat springs having their lower ends secured to the governor-foot and having their upper ends articulately connected with said balls through the medium of horizontal pivots.

2. In a governor, the combination, substantially as set forth, with a governor-head and governor-foot mounted for rotation, of thin flat springs firmly secured to the governor-head and depending therefrom, a ball firmly secured at the lower end of each of said springs, bifurcated yokes depending from said balls and articulated thereto by horizontal pivots, and thin flat springs having their upper ends firmly secured to said yoke and having their lower ends firmly secured to the governor-foot.



3. In a governor, the combination, substantially as set forth, of a housing having a vertical bearing in its top, a journal-tube concentrically disposed within said bearing and projecting above the same and having its foot firmly secured in the housing at the base of said bearing, a governor-foot mounted for rotation on said tube and having a journal fitting within said bearing and provided with a circumferential groove, a collar engaging said groove, a set-screw in the wall of said bearing and serving to hold said collar rigid in the bearing, a governor-head mounted to turn and move vertically upon the upper portion of said journal-tube, governor-balls connected with said governor-foot and governor-head, a spring to resist the outward movement of the balls, a valve-stem connected with the governor-head, and means for transmitting rotary motion to the governor foot and head and balls.

4. In a governor, the combination, substantially as set forth, of a housing, a journal-tube firmly supported thereby, a governor-foot mounted for rotation on said journal-tube, a governor-head mounted for rotation and for vertical movement on said journal-tube, governor-balls connected with the governor-head and governor-foot, a part surrounding said journal-tube and projecting from the governor-head toward the governor-foot, a helical spring surrounding the journal-tube and compressed between the foot of said last-mentioned part and a shoulder on the governor-foot, and a tube surrounding said spring and having its foot secured to the governor-foot and having its upper end surrounding the upper abutment of the spring.

5. In a governor, the combination, substantially as set forth, of a housing having a vertical bearing and a horizontal bearing with their axes intersecting, a journal-tube firmly supported by the housing concentric with said vertical bearing and projecting upwardly therefrom, a governor-foot mounted for rotation in said vertical bearing, a governor-head mounted for rotation and for vertical movement on said journal-tube, balls connected with the governor-head and governor-foot, a bevel-gear upon the governor-foot, a driving-shaft mounted in said horizontal bearing and having its inner end in bearing engagement within the exterior of said vertical bearing, and a bevel-gear upon the inner end of said driving-shaft with its hub abutting against the inner end of said horizontal bearing.

6. In a governor, the combination, substantially as set forth, of a governor-head arranged for rotation and for vertical movement, a valve-stem engaging upwardly against a surface on the governor-head and free to move downwardly with reference to the governor-head,

a spring serving to support the valve-stem in an upward position against the shoulder on the governor-head, centrifugal devices serving to move the governor-head downwardly, a centripetal device serving to move the governor-head upwardly, and mechanism for forcibly lowering the valve-stem against the resistance of the first-mentioned spring without disturbing the second spring or the governor-head.

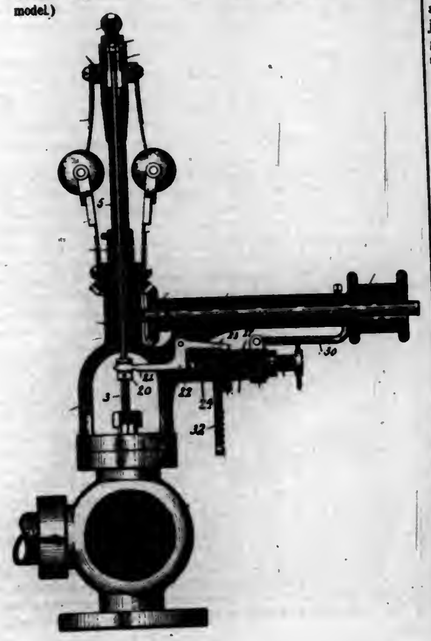
7. In a governor, the combination, substantially as set forth, of a housing, a journal-tube supported thereby, a governor-foot mounted for rotation on the journal-tube, a governor-head mounted for rotation and for vertical movement on the journal-tube, balls connected with the governor-foot and governor-head, a valve-stem within the journal-tube and projecting above the same, upwardly and downwardly presenting shoulders at the top of the valve-stem, a cap-nut upon the governor-head engaging the upwardly-presenting shoulder of the valve-stem, a spring compressed between the downwardly-presenting shoulder of the valve-stem and the upper end of the journal-tube, and mechanism for lowering the valve-stem with reference to the governor-head and against the resistance of said spring.

8. In a governor, the combination, substantially as set forth, of a housing, a journal-tube carried thereby, a governor-foot mounted for rotation on the journal-tube, a governor-head mounted for rotation and for vertical movement on the journal-tube, balls connected with the governor-foot and governor-head, a valve-stem engaging upwardly against a part of the governor-head so as to be forced downwardly as the governor-head moves downwardly, a spring supporting the valve-stem and yieldingly resisting its downward movement, a lip carried by the valve-stem, a cam-shaft mounted in the housing and having a cam engaging said lip, and devices for partially rotating said cam-shaft.

9. In a governor, the combination, substantially as set forth, of a valve-stem connected with the governing parts, a lip carried by the valve-stem, a cam-shaft mounted at right angles to the valve-stem and presenting its end over said lip, a double-lobed cam on said cam-shaft and engaging said lip, and an arm on said cam-shaft to serve in giving the cam-shaft a motion of partial rotation.

10. In a governor, the combination, substantially as set forth, of a housing supporting the governing parts and the driving-shaft, a lip carried by the valve-stem, a cam-shaft mounted in the housing parallel with the driving-shaft and presenting its end over said lip, a cam on said cam-shaft and engaging said lip, an arm projecting from said cam-shaft, and a pulley carried by said arm and adapted to rest upon the governor-belt.

602,579. STEAM-ENGINE GOVERNOR. WILLIAM H GUNTHER, Owensborough, Ky. Filed Oct. 7, 1897. Serial No. 654,340. (No model.)



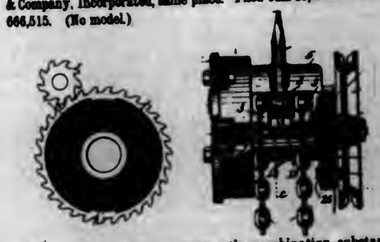
Claim.—1. In a steam-engine governor, the combination, substantially as set forth, of a tubular projection carried by the governor-housing and having its axis intersecting that of the valve-stem, a lever projecting from said tubular projection to and into engagement with the valve-stem and mounted on a pivot carried by the governor-housing above and at right angles to the axis of said tubular projection, said lever presenting a hip below its pivot and in the line of the axis of said projection, a spring disposed within said tubular projection and engaging the hip of said lever, and an adjusting-screw mounted in said tubular projection and engaging the opposite end of said spring.

2. In a steam-engine governor, the combination, substantially as set forth, of a tubular projection carried by the governor-housing and having its axis intercepting that of the valve-stem, a lever projecting from said tubular projection to and into engagement with the valve-stem and mounted on a pivot carried by the governor-housing above and at right angles to the axis of said tubular projection, said lever presenting a hip below its pivot and in the line of the axis of said projection, a spring disposed within said tubular projection and engaging the hip of said lever, an adjusting-screw mounted in said tubular projection and engaging the opposite end of said spring, a cam mounted on the exterior of said tubular projection, an arm for turning said cam, and an arm formed upon said hipped lever and projecting over and into engagement with said cam.

3. In a steam-engine governor, the combination, substantially as set forth, of a tubular projection carried by the governor-housing and having its axis intercepting that of the valve-stem, a lever projecting from said tubular projection to and into engagement with the valve-stem and mounted on a pivot carried by the governor-housing above and at right angles to the axis of said tubular projection, said lever presenting a hip below its pivot and in the line of the axis of said projection, a spring disposed within said tubular projection and engaging the hip of said lever, an adjusting-screw mounted in said tubular projection and engaging the opposite end of said spring, a two-lobed cam mounted on the exterior of said tubular projection, an arm for operating said cam, a second cam mounted on said tubular projection, an arm connected with said second cam, a pulley carried by the last-mentioned arm and adapted to rest on the driving-belt of the governor, and an arm formed upon said hipped lever and projecting over and into engagement with said two cams.

4. In a steam-engine governor, the combination, substantially as set forth, of a tubular projection carried by the governor-housing parallel with the driving-shaft of the governor and having its axis intersecting that of the valve-stem of the governor, a helical spring disposed within said tubular projection, a cam mounted on the exterior of said tubular projection, an arm projecting from said cam and carrying at its outer end a pulley adapted to rest upon the driving-belt of the governor, a hipped lever pivoted to the governor-housing above the axis of said tubular projection and having a portion projecting from said spring to and into engagement with the stem of the governor, and an arm formed upon said lever and engaging over said cam.

602,580. HOISTING APPARATUS. HARRY S. HASKINS and ZOBIMUS B. COMB, Philadelphia, Pa., assignors to the Edwin Harrington, Son & Company, Incorporated, same place. Filed Jan. 13, 1898. Serial No. 666,515. (No model.)



Claim.—1. In hoisting apparatus, the combination, substantially as set forth, of a spindle to be turned by the application of power in hoisting the load and to turn in the opposite direction as the load is lowered, a friction-brake element turning positively with said spindle, a brake-gear mounted concentric with and loose with reference to said spindle and adapted for frictional cooperation with said friction-brake element, a thread carried by said spindle, a hand-sheave screwed upon said thread and adapted to clamp the brake-gear to said friction-brake element when the hand-sheave is turned in load-hoisting direction, and an idle-pinion gearing with said brake-gear, the teeth of said idle-pinion and said brake-gear having curved or inclined faces to engage when the brake-gear turns in load-hoisting direction, the opposite faces of said teeth being formed so as to lock when the brake-gear starts to turn in load-lowering direction, the space between the teeth being greater than the thickness of the teeth.

2. In hoisting apparatus, the combination, substantially as set forth, of a spindle to be turned by the application of power in hoisting the load and to turn in the opposite direction as the load is lowered, a friction-clamp flange with a threaded hub secured to said spindle, a brake-gear loose upon the hub of the friction-clamp and adapted to frictionally cooperate with said friction-clamp, means for limiting the rotation of said brake-gear to the hoisting direction of motion, a hand-sheave screwed upon said threaded hub and forcibly impinging against the hub of said brake gear when the hand-sheave is turned in hoisting direction, and a bearing engaging the hub of said brake-gear between said brake-gear and hand-sheave.

3. In hoisting apparatus, the combination, substantially as set forth, of a spindle to be turned by the application of power in hoisting a load and to turn in the opposite direction when the load is being lowered, a friction-clamp flange secured to said spindle, a brake-gear loose with reference to said spindle, means for limiting the rotation of said brake-gear to the hoisting direction of motion, a friction-disk and washers interposed between the faces of said flange and brake-wheel, the frictional faces of said flange and friction-disk and brake wheel being provided with spiral grooves having such direction of spirality as to urge oil inwardly when the spindle turns in the load-lowering direction, and a hand-sheave connected with said spindle through the medium of a threaded part having a direction of helicity such as to cause the hand-sheave to press the brake-gear toward said flange when the hand-sheave is turned in the hoisting direction.

4. In hoisting apparatus, the combination, substantially as set forth, of a horizontal bearing and a vertical bearing rigidly united, a suspension-hook having its shank swiveled in said vertical bearing, an arbor having a journal portion engaging said horizontal bearing and having prismatic portions at the ends of said journal portion, a hoisting-sheave fitting upon the prismatic portion of said arbor against each end of said horizontal bearing, a gear fitting one of the prismatic portions of the arbor against one of said hoisting-sheaves, a spindle mounted in bearings having rigid connection with said horizontal bearing, a hand-sheave connected with said spindle, and gearing connecting said spindle with said gear on the arbor.

5. In hoisting apparatus, the combination, substantially as set forth, of a horizontal bearing and a vertical bearing rigidly united, a suspension-hook swiveled in said vertical bearing, a roof-piece rigidly connected with said bearings and carrying a horizontal bearing in line with the first-mentioned horizontal bearing, an arbor mounted in said horizontal bearings, hoisting-sheaves on said arbor, a gear on said arbor, a spindle mounted in bearings rigidly connected with the before-mentioned bearings, gearing connecting said spindle and arbor, and a hand-sheave connected with said spindle.

6. In hoisting apparatus, the combination, substantially as set forth, of a vertical bearing, a suspension-hook with its shank swiveled therein, a frame-roof rigidly connected with said vertical bearing, a horizontal bearing in a vertical wall rigidly carried by said frame-roof, an outwardly-open gear-case rigidly carried by said frame-roof, a bonnet closing said gear-case, a hoisting-arbor journaled in said bonnet and in one of said horizontal bearings, a spindle journaled in one of said horizontal bearings and in a bearing in said gear-case, gearing within said gear-case connecting said spindle and arbor, and a hand-sheave connected with said spindle.

7. In hoisting apparatus, the combination, substantially as set forth, of a frame having horizontal bearings and a vertical bearing and a gear-case, a suspension hook having its shank swiveled in said vertical bearing, a hoisting-arbor journaled in bearings supported by said frame, a gear on said arbor within the gear-case, a spindle journaled in the framing, a hand-sheave connected with the spindle, a stud crossing the gear-case, a gear on the arbor within the gear-case, a pinion on the spindle within the gear-case, a gear loose on said stud and engaging said pinion, and a pinion fast with the last-mentioned gear and engaging the first-mentioned gear.

8. In hoisting apparatus, the combination, substantially as set forth, of a frame, a suspension-hook having its shank swiveled in a vertical journal in said frame, a gear-case carried by said frame to one side of said hook, a hoisting-arbor journaled in the frame, a spindle journaled in the frame, gearing within said gear case and connecting said spindle and arbor, a hand-sheave connected with the spindle exterior to the frame, upon that side of the suspension-hook opposite said gear-case, and a lowering-brake on said spindle within the frame.

9. In hoisting apparatus, the combination, substantially as set forth, of a frame having a horizontal bearing, a horizontal bearing in line with the first bearing and of less diameter, a vertical bearing rigidly connected with the other bearings, a suspension-hook having its shank swiveled in said vertical bearing, a gear-case carried by said frame at the side opposite said smaller bearing, an arbor having journals fitting said horizontal bearings and having a prismatic portion between said bearings of a size adapted to pass through the first-mentioned horizontal bearing, a hoisting-sheave on the prismatic portion of said arbor, a bonnet closing said gear and having a bearing engaging a journal on said arbor, a spindle mounted in the frame, a hand-sheave connected with the spindle, and gearing disposed within the gear-case and connecting the spindle and arbor.

602,581. ARTIFICIAL TOOTH-CROWN. MERRILL W. HOLLINGSWORTH, Philadelphia, Pa., assignor to The S. S. White Dental Manufacturing Company, same place. Filed Nov. 24, 1897. Serial No. 659,985. (No model.)



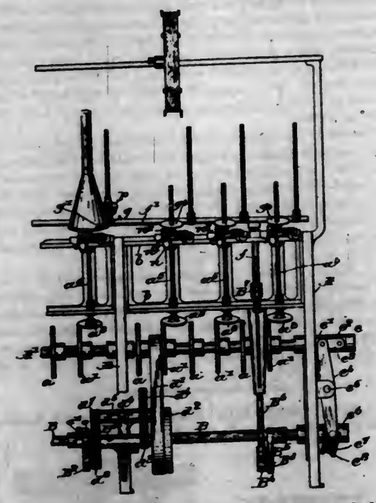
Claim.—An article of manufacture consisting of a crown-post adapted to be fitted in the canal of a natural tooth-root and provided at and near its end which projects outside the said root with an offset spline or feather arranged approximately parallel with the longitudinal axis of the post, for the purpose of making a direct sliding interlocking connection between said post and a porcelain tooth-facing provided with a groove corresponding in cross-section to said spline or feather, and also affording means for attachment of a slotted metallic backing which may be fitted between the said post and the said porcelain facing, substantially as and for the purpose described.

602,582. CROWN-POST FOR ARTIFICIAL TEETH. WOODBURY S. HOW, Philadelphia, Pa., assignor to The S. S. White Dental Manufacturing Company, same place. Filed Dec. 31, 1897. Serial No. 663,809. (No model.)



Claim.—A new and useful article of manufacture consisting of a crown-post provided with longitudinal edge flanges and a roughened or ribbed web between said flanges, substantially as and for the purpose set forth.

602,583. BOBBIN-WINDING MACHINE. WARREN D. HOSE, Laconia, N. H. Filed Feb. 23, 1897. Serial No. 624,570. (No model.)



Claim.—1. In a bobbin-winding machine, a main shaft provided with a series of friction-drivers, a set of spindles having at their lower ends friction-disks adapted to be rotated by said drivers, a driven pulley on said shaft, a second shaft parallel therewith and having loosely mounted on it a pulley provided with a pinion, a belt connecting said two pulleys, a third shaft also parallel to said shaft and provided with a gear and a pinion and operated from the pinion on said pulley, a gear and a cam fast on said second shaft and actuated from the pinion on said third shaft, and a rock-shaft having an arm actuated by said cam, and a second arm having a diagonal or inclined groove, a lever actuated by said groove and loosely connected with said main shaft, the rocking of the said rock-shaft effecting through said lever the sliding of the said main shaft, to vary the speed of rotation of the spindles, substantially as described.

2. In a bobbin-winding machine, a main shaft having two series

of friction drivers, two sets of diagonally-placed spindles having friction-disks cooperating with alternate drivers on the said shaft, a rock-shaft parallel with said shaft and having an arm provided with a diagonal groove c^7, means to rock said shaft, a lever c^4 operated by said groove c^7 and loosely connected at its upper end with said main shaft, to automatically reciprocate said main shaft longitudinally to vary the speed of rotation of said spindle, substantially as described.

3. In a bobbin-winding machine, an arm A^3, and the open-centered guide block A^4 notched to engage said arm, and slotted at one edge into said open center, combined with a slotted thread-guide A^5, and means to connect the said block to said arm either side up, whereby the open slot of the thread-guide may be presented either side up, substantially as described.

602,584. ELECTRIC RAILWAY. HOSEA W. LIBBEY, Boston, Mass. Filed Dec. 10, 1894. Serial No. 531,623. (No model.)



Claim.—1. In an electric railway, the combination, with a closed conduit, of two rows of parallel alternately-arranged metallic bars, insulatingly embedded in the top, and extending from the upper to the lower surface thereof, a supply-wire within the conduit, movable conductors between the wire and the bars, and a magnetic trolley, the free end of which is provided with two contact-points, side by side, and adapted to engage with the alternately-arranged bars, substantially as set forth.

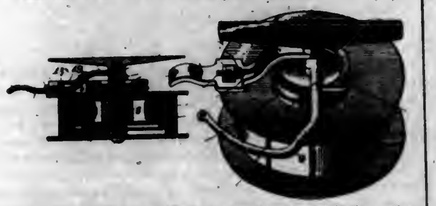
2. In an electric railway, the combination, with a conduit, of two rows of parallel alternately-arranged bars insulatingly embedded in the top thereof, and extending from the upper to the lower surface thereof, a supply-wire within the conduit, movable conductors upon the wire, each of which is provided with two contact-points, one for each row of bars, and a magnetic trolley, the free end of which is provided with two contact-points, one for each row of bars, substantially as set forth.

3. In an electric railway, the combination, with a conduit, of two rows of parallel alternately-arranged bars insulatingly embedded in the top thereof, and extending from the upper to the lower surface, a supply-wire within the conduit, bifurcated conductors upon the wire, the free end of each arm thereof being movable into and out of contact with the bars, a magnetic trolley, the free end of which is provided with two contact-points, one for each row of bars, substantially as set forth.

4. In an electric railway, the combination, with a conduit, of two rows of parallel alternately-arranged bars insulatingly embedded in the top thereof, and extending from the upper to the lower surface, a supply-wire within the conduit, bifurcated conductors upon the wire, a movable cap upon each arm of each conductor, said caps being movable into and out of contact with the bars, and a magnetic trolley, the free end of which is provided with two contact-points, substantially as set forth.

5. In an electric railway, the combination, with a conduit, of two rows of parallel alternately-arranged bars insulatingly embedded in the cover thereof, a supply-wire within the conduit, movable conductors between the wire and the bars, and a magnetic trolley, the free end of which is provided with two wheels, one upon each side thereof, and each in electrical connection therewith, substantially as set forth.

602,585. FISHING-REEL. ELISHA MOORE, Meductic, Canada. Filed Jan. 21, 1897. Serial No. 620,146. (No model.)



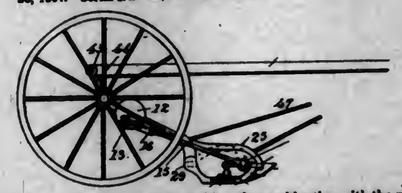
Claim.—1. In a fishing-reel, the combination with the spring-case, a sleeve integral with the same, of a drum provided with a cam-groove and rigidly secured to said sleeve, a swinging guide, and an arm integral with and extending from said guide adapted to engage said groove: substantially as described.

2. In a fishing-reel, the combination of the reel, the spring-case and automatic means for winding the reel, a drum carried by the spring-case provided with a suitable cam-groove, and a swinging guide on said reel having an arm in engagement with said groove, substantially as shown and described.

3. In a fishing-reel, the winding-reel, means for winding the same, a brake for said reel comprising a fixed flexible arm, a roller journaled in said arm and bearing on the reel, and means controlling said roller in one direction only, substantially as described.

4. In a fishing-reel, the combination of the reel, means for winding the same, and a brake for said reel consisting of a flexible arm, a roller journaled in said arm and bearing against said reel, ratchet-teeth provided on the roller, and a spring engaging the said ratchet-teeth, substantially as shown and described.

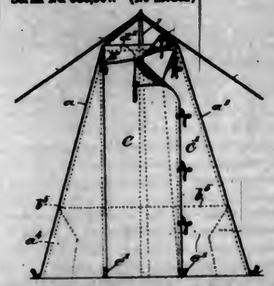
602,586. MOWING MACHINE. CASCO MORRIS, Red Canyon, Wyo., assignor of one-half to James Greatage, same place. Filed July 28, 1897. Serial No. 646,348. (No model.)



Claim.—1. In a mowing-machine, the combination with the main supporting-frame and cutting mechanism, the driving mechanism and a connection between the driving mechanism and the cutting mechanism, said connection comprising a pitman the rearward end of which is screw-threaded, a coupling consisting of a block having at one end a longitudinal central aperture to receive the pitman and allow it to rotate therein and prevent other movement thereof, the end walls of said longitudinal aperture being countersunk, nuts located upon said pitman and having rounded heads to fit the countersinks to afford an axial bearing for the pitman, set-nuts for locking the aforesaid nuts against longitudinal movement, thereby preventing swinging or lateral movement of the pitman with respect to the block, and means carried by the other end of the block for securing it to the driving mechanism, substantially as set forth.

2. In a mowing machine, the combination with the main supporting-frame and cutting mechanism, the driving mechanism and a connection between the driving mechanism and the cutting mechanism, said connection comprising a pitman the rearward end of which is screw-threaded, a coupling consisting of a block having at one end a longitudinal central aperture to receive the pitman and allow it to rotate therein and prevent other movement thereof, the end walls of said longitudinal aperture being countersunk, nuts located upon said pitman and having rounded heads to fit the countersinks to afford an axial bearing for the pitman, set-nuts for locking the aforesaid nuts against longitudinal movement, thereby preventing swinging or lateral movement of the pitman with respect to the block, said block being bifurcated at its opposite end to form clamping-jaws, and bolts and nuts for clamping said jaws to a part of the driving mechanism, substantially as set forth.

602,587. TENT. THOMAS C. PHELPS, Newton, Mass. Filed Apr. 6, 1896. Serial No. 586,307. (No model.)



Claim.—1. A tent comprising substantially triangular sides, a roof or back of rhomboidal shape to which said sides are secured, said back having its shortest edge at the highest point of the tent, a pocket adjacent said edge, a ridge-pole in said pocket, and means for supporting the tent, substantially as described.

2. A tent, comprising substantially triangular sides having their front edges approximately vertical, a back or roof of rhomboidal form secured to the rearwardly-sloping top edges of said sides, and having its shortest edge at the top of the tent adjacent the uppermost angle of said triangular sides, flaps for closing the entrance of the tent between said vertical edges, a short hood-piece extending from the top edge of the back and adapted to overhang and inclose the top ends of said flaps, and means for supporting the tent, substantially as described.

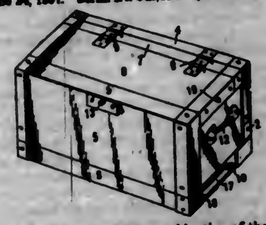
2. A tent, comprising substantially triangular sides having their front edges approximately vertical, a back or roof of rhomboidal form secured to the rearwardly-sloping top edges of said sides, and having its shortest edge at the top of the tent adjacent the uppermost angle of said triangular sides, flaps for closing the entrance of the tent between said vertical edges, a short hood-piece extending from the top edge of the back and adapted to overhang and inclose the ends of said flaps, a fly secured adjacent said hood-piece and adapted to extend rearwardly above said back of the tent, and means for supporting the tent, substantially as described.

4. A tent comprising substantially triangular sides having their front edges approximately vertical, a back or roof of rhomboidal form secured to the rearwardly-sloping top edges of said sides and having its shortest edge at the top of the tent adjacent the uppermost angle of said triangular sides, flaps for closing the entrance of the tent between said vertical edges, said back terminating short of the ground edge of the tent, a back piece depending from the lower end of said back and extending to said sides, and the sides having a projecting corner-piece lapping over and adapted to be secured to said back piece, substantially as described.

5. A tent comprising substantially triangular sides having their front edges approximately vertical, a back or roof of rhomboidal form secured to the rearwardly-sloping top edges of said sides and having its shortest edge at the top of the tent adjacent the uppermost angle of said triangular sides, flaps for closing the entrance of the tent between said vertical edges, a central aperture in said back to receive a supporting tent-pole, and a transverse ridge-bar adjacent and independent of said pole, whereby said bar may be removed without interference with said pole, substantially as described.

6. A tent comprising substantially triangular sides having their front edges approximately vertical, a back or roof of rhomboidal form secured to the rearwardly-sloping top edges of said sides and having its shortest edge at the top of the tent adjacent the uppermost angle of said triangular sides, flaps for closing the entrance of the tent between said vertical edges, said back having a ridge-bar removably contained in a pocket formed on said back and means to support the tent, substantially as described.

602,588. FOLDING BOX. EDWARD R. PRATT, Andover, S. D. Filed June 24, 1897. Serial No. 642,134. (No model.)

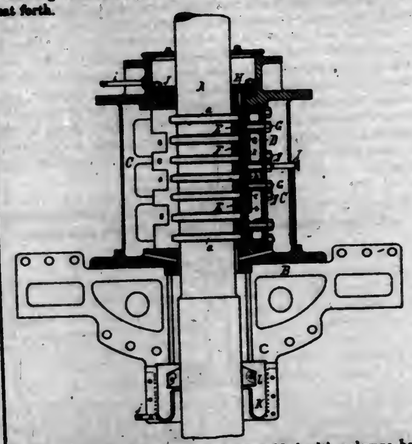


Claim.—In a folding box, the combination of the bottom 1 having end, front and back strips respectively secured rigidly thereto, the front and back hinged to said front and back strips, said front having a flanged portion 5' extending inward therefrom, the top strip 7 and cover 8 hinged to said back by means of a double hinge 9, the spring-metal tongue adapted to be depressed into the recess formed in the inner face of front 5, the bifurcated abutting piece extending over said tongue, the headed arm adapted to engage said tongue and abutting piece, and the parts adapted to be folded, substantially as shown and described.

602,589. THRUST-BEARING. COLEMAN SELLERS, Philadelphia, Pa., assignor, by mesne assignments, to the Niagara Falls Power Company, Niagara Falls, N. Y. Filed Oct. 4, 1897. Serial No. 654,005. (No model.)

Claim.—1. In a thrust-bearing, the combination of a frame and retaining-blocks secured thereto, with removable bearing-segments, and means for securing the same to said retaining-blocks, substantially as and for the purposes set forth.

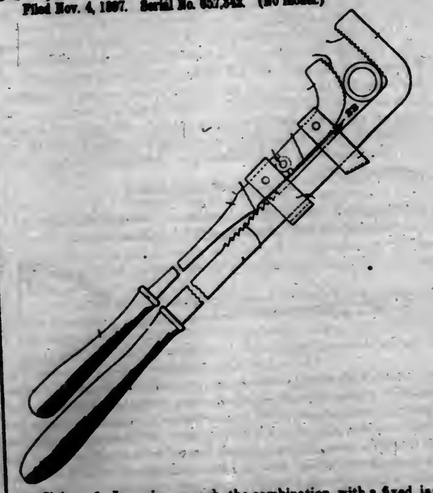
2. In a thrust-bearing, a frame, concave retaining-blocks secured thereto and concentric with the shaft, concavo-convex bearing-segments concentric therewith, and means by which said segments may be released or secured in removing or replacing the same, without removing the retaining-blocks, substantially as and for the purposes set forth.



3. In a thrust-bearing, a frame provided with columns having their inner faces parallel on planes tangential to a circle concentric with the shaft, concavo-convex segments concentric with said shaft secured to said retaining-blocks by means of bolts, and means by which said segments may be released or secured in removing or replacing the same, consisting of said bolts and a gland of equal diameter with said segments which is removably secured to the frame of the bearing, substantially as and for the purposes set forth.

4. A thrust-bearing consisting of a frame, retaining-blocks secured thereto and having their inner faces concave and concentric with the shaft, a shaft provided with annular projections or thrust-collars, concavo-convex bearing-segments removably secured to said retaining blocks and concentric with said shaft, there being annular recesses therein corresponding to said thrust-collars, and a bearing-metal facing secured thereto and held in place by recesses, substantially as and for the purposes set forth.

602,590. PIPE-WRENCH. LORIN C. SPRINGER, Chicago, Ill. Filed Nov. 4, 1897. Serial No. 657,342. (No model.)



Claim.—1. In a pipe wrench, the combination, with a fixed jaw having a shank having a stem or handle portion and provided with a ratchet, of a movable jaw, means for supporting and guiding said movable jaw on the shank of the fixed jaw, and a second shank pivoted to the movable jaw, provided with a loop or keeper loosely embracing the shank of the fixed jaw, and with a tooth to engage

the ratchet thereof, and having a stem or handle adjacent to and substantially parallel with the stem or handle portion of the shank of the fixed jaw, substantially as described.

2. In a pipe-wrench, the combination, with a fixed jaw having a shank having a stem or handle portion and provided with a ratchet, of a movable jaw provided with a loop or keeper loosely embracing the shank of the fixed jaw, and limiting its motion away from said shank, a spring to force said loose jaw normally toward the shank of the fixed jaw, and a second shank pivoted to the movable jaw, provided with a loop or keeper loosely embracing the shank of the fixed jaw, and with a tooth to engage the ratchet thereof, and having a stem or handle adjacent to and substantially parallel with the stem or handle portion of the shank of the fixed jaw, substantially as described.

602,591. VEHICLE-SPRING. ORVILLE A. TIBBENLAKE, Norwood, Ohio. Filed Feb. 8, 1897. Serial No. 622,425. (No model.)



Claim.—1. A coil-spring made from a single piece of steel, first bent to a U shape, each end of which is thereafter coiled right and left, and the extreme ends formed to fasten to the body, the end of the U-shaped portion, to wit: the junction of the branches of the portions G, being curved substantially as shown, and engaging a link adapted to receive this curved portion, and permit the arcal slide motion, a twist motion, and the direct movement resulting in the elongation of the spring, substantially as and for the purposes specified.

2. In a spring for vehicles, the combination of a spring having the outer arms G^3, a central U-shaped loop having the legs G^3, G^3, coils G^4, G^4, a coil between each leg G^3 and arm G^5, all integral, and a rigid shackle, and link K, having eye L, and the adjustable hook M having the lip M^4, and the concavo-convex conformation M^6, M^7 of the hook M, against which the loop rests, substantially as and for the purposes set forth.

3. In a spring for vehicles, the combination of a spring having the outer arms G^3, a central U-shaped loop having the legs G^3, G^3, coils G^4, G^4, a coil between each leg G^3 and arm G^5, all integral, and a rigid shackle, and link K, having eye L, and the adjustable hook M having the lip M^4, and the concavo-convex conformation M^6, M^7 of the hook M, against which the loop rests, and the recessed conformation M^4, M^5 in the eye, in which the loop plays, substantially as and for the purposes specified.

4. A spring having outer arms G^3 for attachment to the vehicle-body, and coils G^4 respectively connected to these arms, and the loop G located between the coils and having its ends connected to the adjacent ends of the coils, and having the looped end curved substantially as shown, the entire spring being substantially integral, in combination with a link having an arcal eye with enlarged ends adapted to embrace the loop, the curved end of the loop lying in the link, the link being connected to the running-gear, substantially as and for the purposes specified.

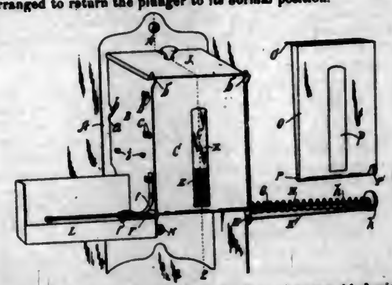
602,592. CLEANER. LAWRENCE J. WIDDISS, Brooklyn, N. Y. Filed Aug. 23, 1897. Serial No. 649,232. (No model.)



Claim.—In a bottle-cleaner, the combination with a shank formed centrally into a ring and angled so as to cross between said ring and the ends of the shank, of a tubular swab removably attached to the ends of said shank, said shank being outwardly curved whereby the swab will be brought into intimate contact with every portion of the bottle, and each end of the shank being doubled upon itself whereby said swab is securely retained in position, substantially as described.

602,593. MATCH-IGNITING DEVICE. CHARLES F. AXELSON, GUSTAVUS A. AXELSON, and ROBERT W. GUNN, Los Angeles, Cal. Filed June 1, 1897. Serial No. 638,052. (No model.)

Claim.—1. In a match-box the combination set forth of a base-plate provided with slots: a match-supply chamber formed of an integral strip of sheet metal returned upon itself and adapted to hold a single row of matches and provided upon its edges with projecting tongues: a bottom provided upon its sides with projecting tongues: side members or supports each provided upon its rear edge with tongues to fit within slots in the base member, and provided with slots to receive the tongues upon the side edges of the match-supply chamber, and the bottom: a cover for the top of the match-supply chamber and the match-box: an igniting-tube projecting from the bottom of one end of the match-supply chamber: a guide-tube projecting from the other end of such chamber: a plunger arranged to reciprocate in the guide-tube and to successively carry matches from the match-supply chamber through the igniting-tube: and a spring arranged to return the plunger to its normal position.



2. The combination set forth of a base-plate provided with the projecting supports having slots therein: a supply-chamber comprising an integral strip of sheet metal returned upon itself and provided at the bend with projecting tongues curved into a tubular shape to form upon one end a discharge-tube and upon the other end, a guide-tube for a plunger, and also provided upon its edges with projecting tongues, the tongues being passed through the slots in the supports and secured.

3. In a match-igniting device, the combination set forth of a sheet-metal base adapted for attachment to a wall and provided with slots: sheet-metal side members each provided with tongues to pass through the slots in the base and also provided with slots for the reception of tongues: a match-supply chamber adapted to hold a single row of matches: a discharge and igniting tube leading from one end of the bottom of such chamber: a guide-tube projecting from the other end of the bottom of such chamber: tongues projecting from the edges of the chamber and passed through the slots in the supports: a plunger arranged to reciprocate in the guide-tube: a coiled spring encircling the guide-tube and arranged to retract the plunger: a cord-guide secured to the support: a cord secured at one end of the outer end of the plunger, passed through the cord-guide and depending therefrom, substantially as set forth.

4. In a match-igniting device, the combination set forth of a base arranged for attachment to a wall: a match-supply chamber secured to the base and adapted to supply matches to a plunger: a discharge-tube leading from one end of the bottom of the supply-chamber: an igniting device projecting into the discharge-tube: a guide-tube projecting from the other end of the bottom of the supply-chamber: a plunger arranged to reciprocate in the guide-tube and adapted to carry matches from the bottom of the chamber out through the discharge-tube: and a receptacle arranged beneath the igniting-tube to receive the burned match ends.

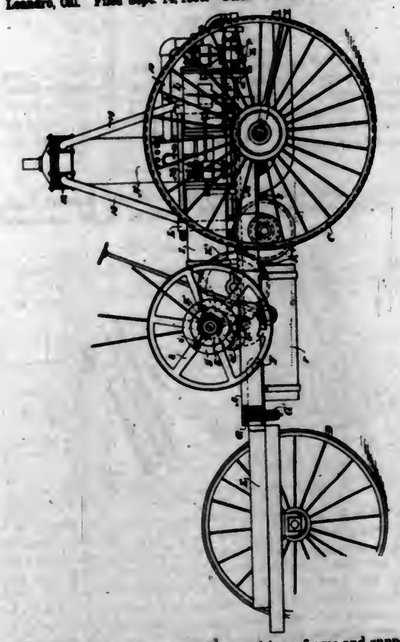
5. In a match-igniting device the combination set forth of a base arranged for attachment to a wall, a match-supply chamber secured to the base and adapted to successively supply matches to a plunger: a discharge and igniting tube projecting from one end of the bottom of such chamber: a guide-tube projecting from the other end of the bottom of such chamber: a plunger arranged to reciprocate in the guide-tube and to carry matches from the bottom of the chamber out through the discharge-tube: a spring arranged to retract the plunger: a cord-guide secured to the chamber: a cord attached at one end of the outer end of the plunger, passed through the cord-guide and depending from the igniting device.

6. In a match-igniting device, the combination set forth of a chamber provided at one end with an igniting-tube and at its other end with a projecting guide-tube: a plunger arranged in the guide-tube: and an auxiliary magazine adapted to contain a single row of matches and to fit within the supply-chamber, and provided with openings in its ends for the entrance of the plunger and the exit of the match.

7. In a match-igniting device, the combination of a match-supply chamber; an igniting-passage through which matches are successively forced from the supply-chamber; means for forcing matches through the igniting-passage; means arranged at the end of the igniting-passage to hold the ignited match; and a receptacle arranged below the match-holder to receive the ashes and match ends of the burned matches.

8. A match igniting device having a chamber provided in its front wall with a sight-slot, and a removable magazine adapted to fit within such chamber and provided in its ends with openings for the entrance of a plunger and the exit of a match, and having in one side a sight-slot corresponding to the sight-slot in the wall of the chamber.

602,594. OIL-VAPOR TRACTION-ENGINE. DANIEL BENZ, San Leandro, Cal. Filed Sept. 14, 1896. Serial No. 605,723. (No model.)



Claim.—1. A traction-engine comprising a frame and supporting and driving wheels upon which it is mounted, an engine consisting of two sets of cylinders mounted in pairs one behind the other and each cylinder having the top and bottom of its open end formed with longitudinal slots or channels, cross-heads or pins projecting from the pistons and slidable in said slots, detachable connecting-rods uniting said cross-heads whereby the cylinders of each pair may be used together or the rearmost piston disengaged and only one pair be employed, connections between the pistons of the foremost cylinders and a crank-shaft, and gearing intermediate between said crank-shaft and the driving-wheels whereby power is transmitted thereto, and a carbureter intermediate of the adjacent ends of the cylinders and connections between the same and said cylinders.

2. A traction-engine comprising in a single structure, pairs of horizontal engines with the cylinders of each pair independently coupled in line, pistons reciprocating in the cylinders, having pins or cross-heads extending from them and rods detachably connecting said rods with the cross-heads, a carbureter, vertically disposed in the space between the adjacent ends of the pairs of cylinders and means connecting said carbureter with each cylinder.

3. In a traction-engine, the main and engine frame mounted upon bearing and traction wheels, an engine supported thereon consisting of two pairs of horizontally-disposed cylinders, each pair having their pistons detachably connected, a vertical carbureter standing in the space intermediate between the adjacent ends of the four cylinders, connections between the carbureter and the inlet-passages, and between the exhaust-passages of each of the cylinders and the carbureter whereby the exhaust products of all the engines in operation are passed therethrough.

4. In a traction-engine, a main frame, bearing and traction wheels upon which it is supported, an engine consisting of two pairs of horizontally-disposed cylinders standing in line, pistons reciprocating therein, exterior connections between each of the lineal pairs of pistons and connections between the foremost pistons and a crank-shaft through which power is transmitted to the traction wheels, means for disengaging the rearmost pistons from the foremost whereby the power of only one pair of cylinders will be used, a vertical carbureter situated between the adjacent ends of the four cylinders, inlet and exhaust passages from the engines connecting with said cylinders and cam-actuated levers whereby the valves are alternately opened and closed at proper intervals.

5. In a traction-engine, a main frame, traction and steering wheels, and intermediate elastic supports between the frame and the wheels as shown, an engine consisting of four horizontal cylinders coupled together in pairs, one behind the other, with detachable connecting-rods between the pistons of the front and rear cylinders, a vertically-disposed carbureter standing between the adjacent ends of the cylinders, supply-pipes extending therefrom to the inlet-valve of each cylinder and passages from the exhaust-valves of the cylinders to the carbureter, supplemental exhaust-pipes connecting with the cylinders and leading therefrom to the exhaust-chamber above the carbureter whereby the hot exhaust products may be partially diverted so as not to pass through the carbureter.

6. In a traction-engine, a main frame, bearing and traction wheels upon which said frame is supported, a supplemental frame having its rear end hinged to the main frame and the front end carrying journal-boxes of a front steering-wheel, springs G and G' forming independent concentric coils and forming a fulcrum connection between the main and supplemental frames, substantially as described.

7. In a traction-engine, main bearing and driving wheels, a frame-work and propelling-engines mounted thereon, a gearing interposed between the engines and the driving-wheels whereby power is applied to advance the machine, a pinion eccentrically mounted so as to be engaged with or disengaged from the main gears, one of said gears being slidable upon a feather in the shaft so as to be indirectly connected with its fellow through the pinion whereby the direction of the machine may be reversed, and a friction-clutch consisting of disks fixed to the sleeve which carries the driving-gear, clamping-rings connecting with the crank-shaft which passes through said sleeve, and mechanism whereby the rings may be clamped to the disk to impart motion to it and the gears are disengaged therefrom to allow the gears to be shifted with relation to the pinion to reverse the engine.

8. In a traction-engine, a frame, driving and steering wheels upon which the frame is supported, a crank-shaft journaled upon the frame, and engines from which power is transmitted to said shaft, gear-wheels intermediate between the crank-shaft and the driving-wheels, and a pinion eccentrically mounted so as to be engaged with or disengaged from the main gears, one of said gears being also slidable upon a feather so as to be indirectly connected with its fellow through the pinion, whereby the movement of the machine may be reversed.

9. A reversing mechanism consisting of a gear-wheel fixed upon a shaft to which power is to be transmitted, a parallel shaft with a gear slidable upon a feather so as to engage the first-named gear to drive directly, a second gear upon the second shaft, and a pinion long enough to remain in mesh with these two gears when they are shifted, said pinion being mounted eccentrically upon a third shaft with a mechanism by which it may be turned to engage the gears upon the first and second shaft as an intermediate, whereby the mechanism is reversed.

602,595. DEVICE FOR FOLDING TOILET-PAPER. WILLIAM H. COOMBS, San José, Cal. Filed Aug. 6, 1897. Serial No. 647,322. (No model.)

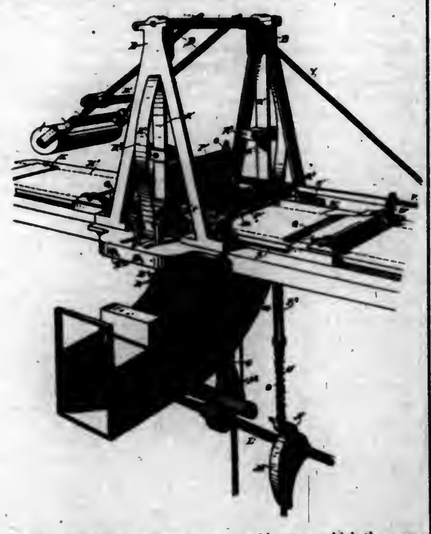
Claim.—1. A machine for folding and interlocking sheets of paper consisting of carriers by which two separate supplies of paper are brought toward each other from opposite ends, means for first raising the sheets and holding them vertically, means for severing the sheets at the top of this fold, and means for alternately folding the vertical severed portion down over the previously-folded opposite sheet.

2. A device for folding toilet-paper consisting of oppositely-moving severing and folding devices, sources of supply at opposite ends of the machine and means for alternately advancing the endless sheets toward the center, severing them and laying the severed sheets alternately over and interlocking with each other.

3. In a device for cutting and folding paper from endless sheets, means for supporting said sheets at opposite ends of the machine, clamps folding so as to press upon the portion of each sheet lying in the center of the machine, vertically-movable casings with means for elevating the same beneath the sheet of paper, whereby the paper is doubled upon itself in a vertical position above the central clamp, a cutter movable with relation to the casings so as to sever the paper on the line of its upper fold, means for returning the vertically-moving casings, and a roller with means for oscillating it alternately from end to end over the severed papers whereby the sheets are alternately folded and interlocked.

4. In a machine for folding paper, vertically-movable rods hav-

ing knives or cutters secured to the upper ends, casings within which said knives are normally retracted and concealed, said casings having guides through which the movable rods are slidable, and springs whereby the knives are normally retained within the casings, mechanism for raising the casings and knives beneath the sheets of paper as they approach the center, whereby that portion is lifted from the bed and a fold formed at the upper ends, stops whereby the upward movement of the casings is arrested, yielding springs surrounding the knife-carrying rods whereby the knives continue their upward movement after the movement of the casings has ceased, so as to sever the paper at the point in line above the casings.



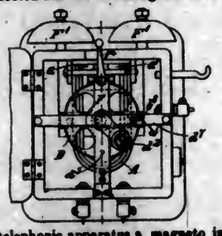
5. In a device for folding paper, a table over which the paper sheets are movable so as to meet from opposite directions, vertically-moving casings, mechanism by which they are alternately raised to form vertical folds in the sheets, cutters normally concealed within the casings, mechanism whereby they are advanced so as to sever the paper in line above the casings after it has been raised and the fold formed, a roller with frames suspending it from a rock-shaft above the central portion of the bed, mechanism whereby the roller is oscillated so as to sweep across the severed portion of the paper and fold the sheets thus severed alternately toward the center from opposite directions whereby the sheets are interlocked.

6. In a machine for folding paper, a horizontal bed, means for supplying paper in endless sheets from opposite ends, mechanism by which the paper is moved toward the center, folded and severed into sheets, swinging clamps movable so as to press upon the central portion of the sheets, vertically-movable casings and cutters by which the paper is folded at the top and afterward severed, mechanism by which the clamps are raised and separated after the sheets have been cut, a roller mounted so as to reciprocate from one side to the other between the separated clamps in contact with the cut sections so as to fold them alternately over across each other toward the center.

7. In a machine for folding paper, a horizontal bed, clamps adapted to press upon the central portion of the bed to hold the ends of the paper thereon, alternately-reciprocating and vertically-movable casings whereby the approaching bands of paper are folded upwardly from the central clamp and afterward severed at the upper fold, horizontally-reciprocating clamps adapted to seize the approaching portion of the sheet and move the exterior vertical portion raised by the casing toward the center.

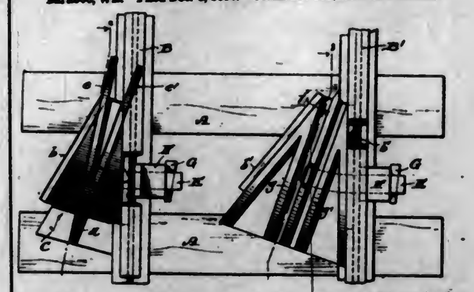
602,596. ELECTRICAL APPARATUS. HORACE H. ELDRED, Brooklyn, N. Y., assignor to Henry B. Metcalf, Pawtucket R. I. Filed Apr. 4, 1896. Serial No. 586,220. (No model.)

Claim.—1. In combination a magneto instrument made up of a magnet and an armature mounted on a shaft; a vibrating arm; means to connect and disconnect that arm with the shaft of the armature of the magneto instrument; mechanism to revolve the armature-shaft; and means to connect and disconnect that mechanism with the armature-shaft; whereby the magneto instrument may be caused to vibrate the arm, when the arm is connected and the revolving mechanism disconnected, and may be used as a generator when the arm is disconnected and the revolving mechanism connected.



2. In a telephonic apparatus a magneto instrument for signaling; a receiver; a signaling-circuit including the armature of the signaling instrument; a telephone-circuit; a switch as S to cut out the receiver and transmitter from the signaling-circuit; and a second switch as S' to bring the receiver into the signaling-circuit all substantially as described.

602,597. RAILWAY WRECKING-FROG. MICHAEL FARRELL, Baraboo, Wis. Filed Dec. 8, 1897. Serial No. 661,168. (No model.)



Claim.—1. An outside railway wrecking-frog comprising a horizontal triangular base provided with an upper inclined central rib having diverging branches extended beyond the forward narrow end of the base and so designed that the one innermost at any time may overlap the tread of a track-rail and terminate practically flush therewith, an inside railway wrecking-frog comprising a triangular base provided with upper acute-angle inclined ribs each having its inner side facing a parallel groove and its outer side flush with a longitudinal edge of the corresponding base, and suitable means for securing both frogs in position for service.

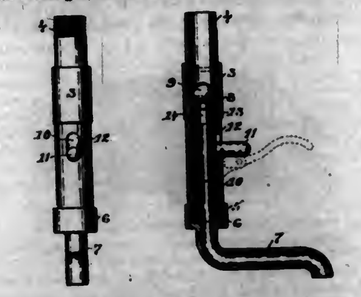
2. An outside railway wrecking-frog, comprising a horizontal triangular base provided with an upper inclined rib having diverging branches extending beyond the forward narrow end of the base and so designed that the one innermost at any time may overlap the tread of a track-rail and terminate practically flush therewith, an inside railway wrecking-frog comprising a triangular base provided with acute-angle inclined ribs each having its inner side facing a parallel groove and its outer side flush with a longitudinal edge of the corresponding base, longitudinal side flanges on each frog adapted to fit against webs of track-rails between treads and flanges of the same, a bar in pivotal connection with the under side of each frog, a track-rail clamp-block in sliding engagement with each bar, and a bar-engaging wedge-key arranged to hold each clamp-block in working position.

3. An outside railway wrecking-frog comprising a horizontal triangular base provided with an upper inclined center rib having diverging branches extended beyond the forward narrow end of the base and so designed that the one innermost at any time may overlap the tread of a track-rail and terminate practically flush therewith, an inside railway wrecking-frog comprising a triangular base provided with a longitudinal upper center rib having a taper-point extending beyond the forward narrow end of the base for snug alinement against a track-rail flange and acute-angle inclined ribs that have their inner sides parallel with the center rib in opposite directions therefrom at a predetermined distance, their outer sides being parallel to longitudinal edges of the corresponding base; and suitable means for securing both frogs in position for service.

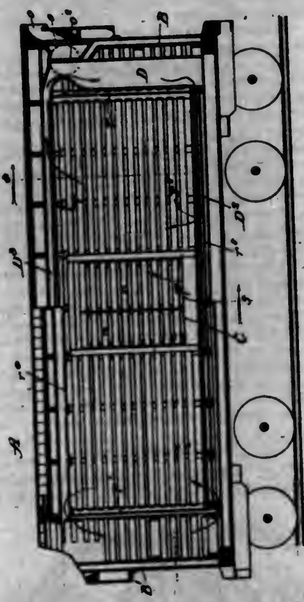
602,598. FAUCET. FREDERICK P. FIELD, Providence, R. I. Filed Mar. 20, 1897. Serial No. 629,736. (No model.)

Claim.—In a faucet, the combination with the pipe 3 screw-

threaded at the opposite ends, the contracted portion 8 forming a seat for the ball-valve, the slot 12 in said pipe, the curved outlet-pipe 7, the socket 6 on the pipe 7 whereby it is rigidly secured to the pipe 3 and forms a stop for the tube 10, of the tube 10, the slotted extension 13 of the tube, and the pin 11 whereby the tube 10 is supported in the socket and when raised lifts the ball-valve off from its seat and permits the fluid to pass through the slots and the tube to the outlet-pipe to be discharged, as described.



602,599. REFRIGERATOR. RICHARD D. GALLAGHER, Jr., Chicago, Ill. Filed May 14, 1896. Renewed Dec. 13, 1897. Serial No. 661,758. (No model.)



Claim.—1. In a refrigerator, the combination of a storage-chamber, and an external air-flue extending continuously about said chamber without communicating therewith and containing an ice-compartment, said flue having branches, at the sides of said chamber, closed where they meet the end portions of the flue and the inner walls of the flue being formed of sheet metal, or the like, and forming the end and side walls and top and bottom coverings of the storage-chamber, substantially as described.

2. In a refrigerator, the combination of a storage-chamber, an external air-flue extending about said chamber without communicating therewith and closed to the external atmosphere and containing an ice-compartment, and an internal air-flue, of which said chamber forms a part and having communicating with said chamber a vertical flue-section in contact with said ice-compartment, substantially as described.

3. In a refrigerator, the combination of a storage-chamber, an external air-flue extending about said chamber without communicating therewith and closed to the external atmosphere and containing an ice-compartment, and an internal air-flue consisting of said chamber and flue-sections D, D' and D², said sections D and D' being in contact with said ice-compartment, substantially as and for the purpose set forth.

4. In a refrigerator, the combination of a storage-chamber, an external air-flue extending about said chamber without communicating therewith and closed to the external atmosphere, and an internal air-flue consisting of the storage-chamber and the intercommunicating flue-sections D, D', D² and D³ communicating with said storage-chamber, said flue having valve-controlled openings at its opposite ends leading to the outside air, substantially as and for the purpose set forth.

5. In a refrigerator, the combination of a storage-chamber, an external air-flue extending continuously about said chamber without communicating therewith and having compartments B and B' in its opposite end portions, said flue having branches, at the sides of said chamber, closed where they meet the end portions of the flue, and the inner walls of the flue being formed of sheet metal, or the like, and forming the end and side walls and top and bottom coverings of the storage-chamber, and an internal air-flue, of which said chamber forms a part and having a section in each said compartments, a section extending along the top of the chamber and a section extending along the floor of the chamber and formed with a strip *p* expanded between the car-doors, substantially as and for the purpose set forth.

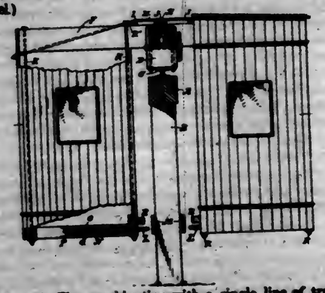
602,600. HANDLE-BAR FOR BICYCLES. GEORGE S. GREEN, Kalamazoo, Mich., assignor, by mesne assignments, to David A. Dangler, Cleveland, Ohio. Filed Feb. 19, 1895. Serial No. 539,008. (No model.)



Claim.—1. In a bicycle, the combination of the handle-bars, B, B, the inner ends of which are flattened into disk-like portions, B', B', having corrugations opposed to each other; the handle-bar post, C, flattened into the disk, C', corresponding in size to the disks, B', having corrugations upon both sides corresponding to the corrugations on the disk portions, B', B'; a bolt, D, extending through said disks to clamp the same together; and an eccentric cam, F, pivoted on said bolt operated by a suitable lever for adjusting the tension on the bolt to permit of quick adjustment of the handle bars, for the purpose specified.

2. In a bicycle, the combination of the handle-bars, B, B, the inner ends of which are flattened into disk-like portions, B' B' corrugated on their faces; the handle-bar post, C, the upper end of which is flattened into the disk C', and suitably corrugated to engage the handle-bars, corresponding in size to the disks, B'; an adjusting-bolt passing through said disks to clamp the same together to permit of an adjustment of the handle-bars, for the purpose specified.

602,601. SINGLE-TRACK RAILWAY AND CARS. JAMES HOPKINS, Oakland, Cal. Filed Aug. 17, 1897. Serial No. 648,509. (No model.)



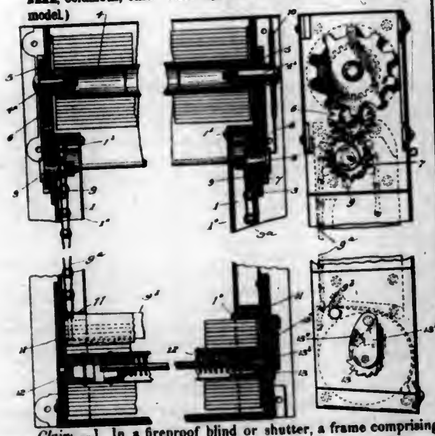
Claim.—1. The combination with a single line of track and a framework upon which it is supported longitudinally above the surface of the ground, of cars mounted in pairs upon opposite sides of

the track and framework, trucks having wheels journaled at opposite ends adapted to travel upon the rails, transverse timbers centrally swiveled upon the trucks extending through the opposite ends and upper part of each car, hangers supported from the transverse timbers extending downwardly upon the outer and inner sides of the cars respectively and nuts and washer-plates by which the weight of the cars is adjustably supported from said hangers.

2. The combination with a single line of rails, a continuous framework by which the track is supported above the surface of the ground, of cars disposed in pairs upon each side of the track and framework, trucks having wheels journaled at opposite ends and adapted to travel upon the rails, transverse timbers pivoted centrally upon said trucks extending through opposite ends of the upper part of the cars whereby the latter may be suspended therefrom, hangers extending through bridge-plates upon the timbers and through the bottom timbers of the car, wheels journaled horizontally to the lower part of each car in the transverse plane of the swivel-pins of the suspending-timbers, rails or stringers fixed to the supporting-posts of the structure in line with the peripheries of the horizontal wheels whereby the latter may contact with and travel upon said stringers whenever the cars oscillate to one side or the other.

3. The combination with a single line of track and a supporting-framework, of cars suspended in pairs from transverse timbers which pass through opposite ends of the upper parts of the cars, trucks having wheels at each end adapted to travel upon the rail, central pivots by which the transverse timbers are swiveled to the trucks between the wheels, horizontally-disposed wheels or rollers yieldingly journaled to the lower parts of the cars in the transverse planes of the pivot-points of the suspending-timbers, hangers or rods, the upper ends of which are passed through plates fixed upon the transverse timbers and the lower ends through the bottom longitudinal timbers of the cars upon the inside and outside respectively, those upon the inner side being diverged so as to embrace the horizontal rollers between the diverging pairs of rods, substantially as described.

602,602. FIREPROOF BLIND OR CURTAIN. William R. Kinnear, Columbus, Ohio. Filed Apr. 16, 1897. Serial No. 632,479. (No model.)



Claim.—1. In a fireproof blind or shutter, a frame comprising hollow side casings 1 1 having channels or guides for curtains, frames or extensions 3 3 secured to the upper ends of the casings, the curtain and roller 4 journaled in said extensions, gear-wheel 5 on the roller, idler-gear 6 meshing with gear 5, sprockets 9 9 within the casings, the gear 7 on the shaft of sprocket 9 and meshing with gear 6, the frames or extensions 11 11 secured to the lower ends of the casings, the curtain and roller 12 journaled in said frames or extensions 11 11, and chains connected with the lower curtain and passing over sprockets 9 9, substantially as shown and described.

2. In a fireproof blind or shutter, a frame comprising hollow side casings having channels or guides for curtains, rollers containing said curtains journaled in the upper and lower parts of said frame, the lower curtain being spring-actuated to roll said curtain thereupon, sprockets in said hollow sides or casings, chains connecting the lower curtain and said sprockets, and gearing for communicating motion of the upper curtains to the lower, substantially as described.

3. In a fireproof blind or curtain of the kind referred to, a roller and curtain thereon, combined with a hood or cover arranged to rise and fall with the rolling and unrolling of the curtain, substantially as described.

4. A fireproof blind or shutter comprising a frame with plates adjustable on said frame for fitting said shutter in a window.

5. In a fireproof blind or curtain, a frame including side casings for supporting the blind or curtain, bolts secured to the sides of said casings, substantially as described, and plates adjustable on said bolts so as to make the structure fit in the window-opening.

602,608. HOISTING APPARATUS. William G. Miller, Cambridge, Mass. Filed June 11, 1897. Serial No. 640,282. (No model.)



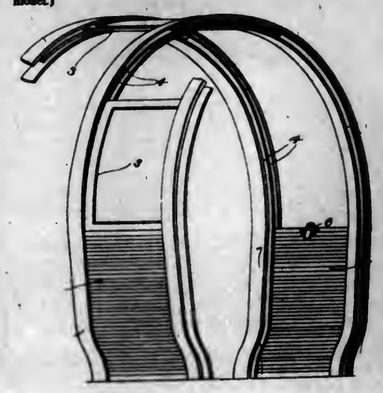
Claim.—1. In an apparatus of the class described, a driving-shaft provided with a medially-arranged clutch device; drums, one on each side of, and adapted to be actuated by, said device, said drums being each rotatable in both directions on said shaft, independently of one another; a flexible draft member and a flexible tension member, respectively connected operatively to one of said drums and adapted to be wound in opposite directions on and off across the periphery thereof; and means to control the operation of said clutch device.

2. In an apparatus of the class described, a plurality of drums mounted on, and respectively capable of actuation in opposite directions by, a common driving-shaft, each independently of the other, one of said drums having a flexible draft member provided with a load-carrier, and an auxiliary flexible member provided with means to maintain it constantly under tension, said flexible members respectively being connected operatively to said drum and adapted to be wound in opposite directions on and off across the periphery thereof, substantially as described.

3. In an apparatus of the class described, a power-shaft having a clutch member fixed thereon and rotatable in the same direction therewith, a friction device separate from said shaft but actuated thereby, a drum loosely mounted on said shaft intermediate said clutch member and friction device, and means to cause engagement between the drum and the clutch member to cause rotation of the former in one direction, and means to cause its engagement by the friction device to permit the latter to rotate the drum in reverse direction, substantially as described.

4. In a hoisting-engine, a power-shaft; a drum loosely mounted thereon and having a surface adapted to be frictionally engaged and driven; a clutch on the shaft, and means to cause engagement between said clutch and the driving-surface of the drum to cause rotation of the latter in one direction; an auxiliary shaft driven from the power-shaft and provided with a friction driving-cone, and means to effect engagement between said cone and the friction driving-surface of the drum to cause rotation of the latter in reverse direction, substantially as described.

602,604. CONVERTIBLE STREET-RAILWAY CAR. George Moore, Boston, Mass. Filed Sept. 14, 1897. Serial No. 651,655. (No model.)



Claim.—1. In a railway-car, the combination of grooved upright frames located in the sides and top of the car-body, the upper portions of said frames being curved in the arc of a circle and the grooves thereof extending across the top of the car, with movable side sections each consisting of a curved window-sash having its side edges fitted to the curved portions of said grooves and adapted to slide therein, and a flexible lower portion sliding in the same grooves with said sash below the latter and filling the space below the sash, substantially as described.

2. In a railway-car, the combination of grooved upright frames located in the sides and top of the car-body, the upper portions of said frames being curved in the arc of a circle and the grooves thereof extending across the top of the car, with movable side sections each consisting of a curved window-sash having its side edges fitted to the curved portions of said grooves and adapted to slide therein, and of a flexible lower portion sliding in the same grooves with the sash below the latter and filling the space below the sash, and having a spring-catch to connect the said sash and flexible portion together in a separable manner, substantially as described.

602,605. CAR-COUPLING. Ralph H. McCadney, Campbell, Cal. Filed Dec. 8, 1897. Serial No. 661,130. (No model.)



Claim.—1. In a car-coupling, the combination of draw-bars pivoted at the rear ends and adapted to be moved about their pivotal points, said bars having heads projecting about equally to each side of the longitudinal center and said heads having rear faces formed at an acute angle whereby when two heads come together said inclined faces interlock, said heads also having a longitudinal open channel d^2, a suspended weight back of each of the draw-bars and connections between the same and the draw-bar whereby when the bars are moved to one side the weight is lifted, said weight acting to return the bars and bring the heads into line.

2. In a car-coupling, draw-bars fulcrumed and movable to and from each other in a horizontal plane, diagonally-disposed meeting faces whereby the heads are separated to pass each other when they contact, hook-shaped projections upon the rear of said heads adapted to interlock when the bars are again brought into line after the heads have passed each other, bell-crank levers having the angles fulcrumed, a weight suspended from a horizontal arm of the lever and connections between the vertical arm of the lever and the hinged draw-bar whereby the weight is lifted when the bars are moved to one side for the purpose of coupling or uncoupling, and acts by gravitation to swing the draw bars and heads into line when the weight is released.

602,606. LATHE-DOG. William Sandford, Chicago, Ill., assignor of one-half to Peter M. Kimmey, same place. Filed June 14, 1897. Serial No. 640,627. (No model.)

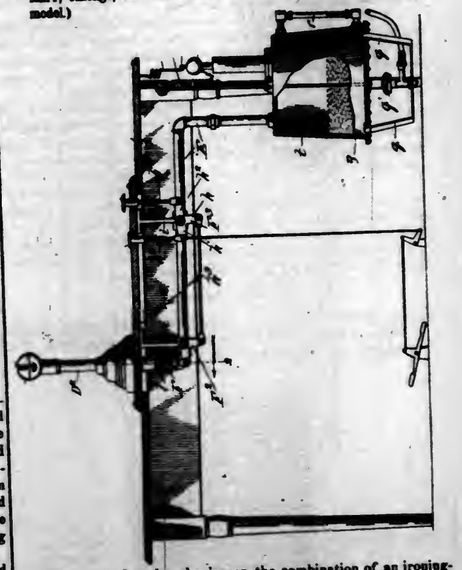


Claim.—1. In a lathe-dog, the combination with a body provided with extensions, of a U bolt or clip having its members arranged to operate in openings in said body and extensions, a locking-block supported and carried in the bend of said U bolt or clip and nuts operating on the threaded ends of the U bolt or clip and against the body of the dog, substantially as and for the purpose described.

2. In a lathe-dog, the combination with a body having side extensions and openings through said body and in semicircular form through the extensions, of a U-bolt having its members arranged to operate in the openings in the body and extensions, nuts adapted to operate on the threaded ends of said U-bolt and against the body of the dog and a locking-block supported by said U-bolt and provided with a peripheral groove to receive the same, substantially as described.

3. In a lathe-dog, the combination with a body having side extensions and an angular recess in its face to engage the work, of a U-bolt having its members arranged to operate in openings through the body and extensions, a locking-block supported in the bend of said U-bolt and a projection on said locking-block having a segmental face to engage the work, substantially as described.

602,607. LAUNDRY-IRONER. Alfred B. Smith and John G. Rapp, Chicago, Ill. Filed June 30, 1897. Serial No. 643,014. (No model.)



Claim.—1. In a laundry-ironer, the combination of an ironing-head provided with a chamber, steam-supplying means for said chamber, an outlet-passage from said chamber to the surface of the head, a valve at said outlet and means for opening and closing the valve to control the flow of steam from said chamber through the outlet, substantially as and for the purpose set forth.

2. In a laundry-ironer, the combination of an ironing-head provided with a chamber, steam-supplying means for said chamber, a series of outlets extending between said chamber and the outer surface of the head, a single valve device, controlling said outlets, and means for operating the same to control the flow of steam from said chamber through the outlets, substantially as and for the purpose set forth.

3. In a laundry-ironer, the combination of an ironing-head provided with an internal chamber, an external recess and a passage extending from said chamber to said recess, means for supplying steam to said chamber, and means for opening and closing said passage, substantially as and for the purpose set forth.

4. In a laundry-ironer, the combination of an ironing-head provided with an internal chamber, an external recess, a perforated cover for the recess and a passage extending from said chamber to said recess, means for supplying steam to said chamber, and means for opening and closing said passage, substantially as and for the purpose set forth.

5. In a laundry-ironer, the combination of a hollow standard, a support for the same, an ironing-head on the standard provided with an internal chamber, means for connecting the said chamber through the standard with a steam-supplier, a steam-outlet passage extending from said chamber to the surface of the head, and means for opening and closing said passage, substantially as and for the purpose set forth.

6. In a laundry-ironer, the combination of an ironing-head having a main chamber, a supplemental chamber, a passage between the chambers and an outlet from the supplemental chamber to the surface of the head, steam-supplying means for the main chamber, and opening and closing means for said passage, substantially as described.

7. In a laundry-ironer, the combination of an ironing-head formed of upper and lower sections separably secured together, a heating-chamber, in the lower section, a chamber in the upper section, and an outlet therefrom to the outer surface of the upper section, a pas-

sage between the chambers, means for opening and closing said passage, and steam-supplying means communicating with the heating-chamber, substantially as described.

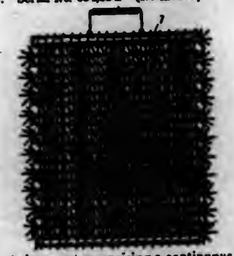
8. In a laundry-ironer, the combination of an ironing-head having an internal chamber, an outlet-passage from the chamber to the surface of the head, a hollow standard supporting the head and communicating with a steam-supplier to conduct steam to said chamber, a stuffing-box in the lower part of the standard, a stem passing through said stuffing-box and carrying a valve at said outlet-passage, and raising and lowering means for the stem operating to open and close said outlet-passage, substantially as described.

9. In a laundry-ironer, the combination of an ironing-head having an internal chamber, a steam-supplier, a passage from said supplier to said chamber, a moisture-outlet in the head, a valve governing said outlet, and lever-operating mechanism for the valve in position accessible to the operator, substantially as described.

10. In a laundry-ironer, the combination of an ironing-head having an internal chamber, a steam-supplier, means for controlling the pressure of steam from the supplier, a passage extending from the supplier to said chamber, a moisture outlet in said head and a valve governing said outlet, substantially as and for the purpose set forth.

11. In a laundry-ironer, the combination of an ironing-head having an internal chamber, a steam-generator, a safety-valve on the generator with means for regulating the same to raise and lower the generated steam-pressure, a passage extending from the supplier to said chamber, a moisture-outlet in said head, and a valve governing said outlet, substantially as and for the purpose set forth.

602,608. DOOR-MAT. JAMES W. SHEDEKER, Adrian, Mich., assignor to the Page Woven Wire Fence Company, same place. Filed Apr. 30, 1897. Serial No. 634,554. (No model.)



Claim.—1. A door-mat comprising a continuous coil folded upon itself to produce parallel coil lengths having intermeshing coils, and woof-wires binding the coil lengths together, substantially as described.

2. A door-mat comprising parallel wire coil lengths having intermeshing coils and bound together by woof-wires inserted longitudinally through the coils, and longitudinal stiffening-wires inserted through the coil lengths transversely thereof, substantially as described.

3. A door-mat comprising parallel wire coil lengths having intermeshing coils, woof-wires inserted longitudinally through the coil lengths to secure them together, and longitudinal stiffening-wires inserted through the coil lengths transversely thereof alternately above and below the woof-wires, substantially as described.

4. A door-mat comprising a continuous coil of wire bent upon itself to form parallel coil lengths, woof-wires binding said coil lengths together, stiffening-wires inserted through the coils crosswise thereof, and end guards inserted longitudinally through the end coil lengths, substantially as and for the purpose set forth.

602,609. BICYCLE. JOSEPH L. TATRO, New Bedford, Mass. Filed Jan. 20, 1897. Serial No. 619,917. (No model.)



Claim.—The combination in a bicycle, of a clutch mounted upon the pedal-shaft, said clutch comprising a wheel rigidly mounted on the said pedal-shaft and the sprocket having the clutches attached thereto, a chain passing around the said sprocket having one of its ends attached to a spring which is attached to the steering-head, the other end being secured to a cord or wire which is provided with a hook adapted to be fastened to suitable harness upon the rider's back.

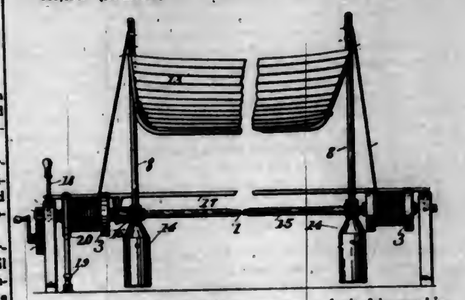
602,610. SINGLE-TRIGGER MECHANISM FOR GUNS. HENRY A. A. THORN, London, England. Filed Aug. 5, 1896. Serial No. 601,964. (No model.) Patented in England Mar. 15, 1895, No. 5,817.



Claim.—1. In a double-barreled firearm, the combination with the hammers each provided with a sear, of a single trigger, a switching trigger-blade pivotally connected with said trigger, a retaining device for holding said blade in operative relation with the sear of one hammer, having a part engaging the said hammer in its cocked position, a spring for forcing said blade into operative relation with the sear of the other hammer, when released by said retaining device, and a part located on the exterior of the lock and connected with said retaining device for withdrawing the same to allow the blade to shift, substantially as described.

2. In a double-barreled firearm the combination with the hammers, and a sear for each hammer, of a single trigger, a switching trigger-blade pivotally connected with said trigger and adapted to move transversely of the lock and said blade being provided with a slot, means for holding said blade normally in operative relation with the sear of one hammer, devices for moving said blade into operative relation with the sear of the other hammer, and the stationary time-stop located intermediate the two operative positions of said blade, and having a part in line with the slot in said blade, substantially as described.

602,611. BOAT HOISTING OR LOWERING APPARATUS. ROBERT H. AGNEW, New York, N. Y. Filed Dec. 10, 1896. Serial No. 615,126. (No model.)



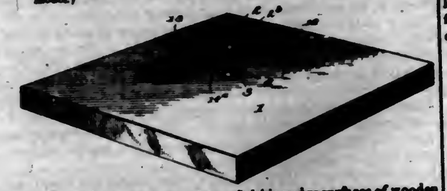
Claim.—1. In a boat-hoisting apparatus, a davit fulcrumed intermediate its ends and provided with a counterbalancing-weight, and means for operating said davit, substantially as described.

2. In a boat-hoisting apparatus, a davit fulcrumed on a horizontal axis intermediate its ends and provided, at one end, with means for suspending the boat and at its opposite end with a counterbalancing-weight, and means for operating said davit, substantially as described.

3. In a life-boat apparatus, the combination with a shaft having drums fast thereon and provided with operating means, of a hollow shaft surrounding the aforesaid shaft, a pair of davits fast on said hollow shaft and adapted to be operated in vertical planes, hoisting-cords running around said drums and passing through guides at the free ends of the davits, and connections between said davits and drums whereby the same means is employed for operating the davits, substantially as described.

4. In a boat-hoisting apparatus, a horizontal shaft, drums fast thereon, operating means for said shaft, a sleeve surrounding said shaft, spaced davits attached to said sleeve, means for causing said davits to swing simultaneously, hoisting-ropes wound on said drums and passing through guides at the free ends of the davits, a clutch cooperating with one of said davits for connecting the same to or disconnecting the same from said shaft, a shifting-rod connected to said clutch, and a lever for reciprocating said rod, substantially as described.

602,612. FINISHING-TOOL FOR WOOD-SHAPING MACHINES. ALEXANDER M. BAIRD, Opelika, Ala., assignor of one-half to W. A. Andrews, same place. Filed Aug. 7, 1897. Serial No. 647,494. (No model.)

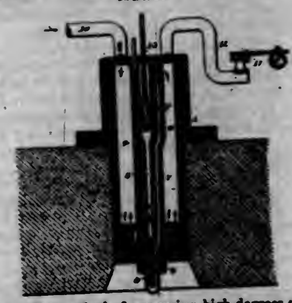


Claim.—1. A tool for dressing or finishing edge surfaces of wooden articles, comprising a cylindrical body provided with diagonal rows of teeth integral with the body and projecting outward therefrom, the teeth in each row being independent but arranged in close relation to each other, substantially as described.

2. A tool for dressing or finishing edge surfaces of wooden articles, having a cylindric body portion formed with a longitudinal opening, and having its outer face provided with diagonal rows of teeth, extending from one end and terminating short of the other end thereof so as to leave a smooth-surfaced face, the teeth in each row being independent, but arranged consecutively in close relation to each other, substantially as described.

3. A tool for dressing or finishing wood, comprising a cylindric body portion formed with an opening and provided on its periphery with diagonal rows of teeth, each tooth having a broad cutting edge e^6 and an upwardly curved or convexed body portion e^8, the edge e^6 of the opening at the base of said tooth being beveled and the opening below the cutting edge gradually increasing in depth from said edge e^6, said diagonal rows of teeth extending from a point adjacent one end of the tool and terminating short of the other end thereof, so as to leave a smooth-surfaced or untoothed face, substantially as described.

602,613. PYROMETER. DAVID BAIRD, Sparrow's Point, Md. Filed Jan. 7, 1897. Serial No. 618,344. (No model.)



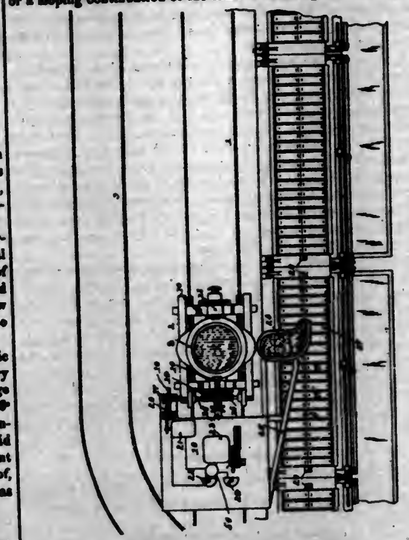
Claim.—The method of measuring high degrees of heat which consists in passing a current of saturated steam through a chamber exposed to the influence of the heat, thereby superheating said steam, maintaining said current at a uniform, unvarying pressure and temperature before it is superheated and determining the temperature of the superheated steam.

602,614. CASTING PLANT. DAVID BAIRD, Sparrow's Point, Md. Filed July 3, 1897. Serial No. 643,353. (No model.)

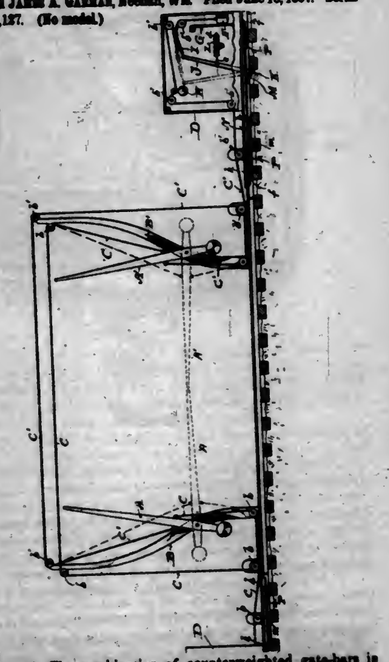
Claim.—1. In a casting plant the combination with a mold-bed, of a truck adapted to travel adjacent to the same, a ladle or receptacle for the molten metal mounted on said truck, a motor-car coupled to the truck and adapted to propel the same, and a pouring-spout sustained by the motor-car in position to receive the metal from the ladle and deliver the same to the molds.

2. In a casting plant the combination with a mold-bed of a truck adapted to travel adjacent to the same, a tilting ladle mounted on said truck, a motor-car coupled to the truck, mechanism located on the car for propelling the same, a second mechanism located on the motor-car independent of the propelling mechanism and suitable connections between the second mechanism and the tilting ladle whereby a single operator is enabled by the two mechanisms to move the ladle to any point of the mold-bed and to operate the tilting ladle independently to fill any desired mold.

3. In a casting plant the combination with a mold-bed and means for operating the same to discharge the casting, of means for filling the molds with molten metal, a downwardly-sloping platform in position to receive the castings from the mold-bed, a leaf hinged to the lower edge of the platform and mechanism for adjusting said leaf to form a trough in connection with the platform to retain the castings; or a sloping continuation of the same to discharge the castings.



602,615. RAILWAY-GATE MECHANISM. FREDERICK A. CRANE and JAMES A. GARNAN, Neenah, Wis. Filed June 10, 1897. Serial No. 640,127. (No model.)



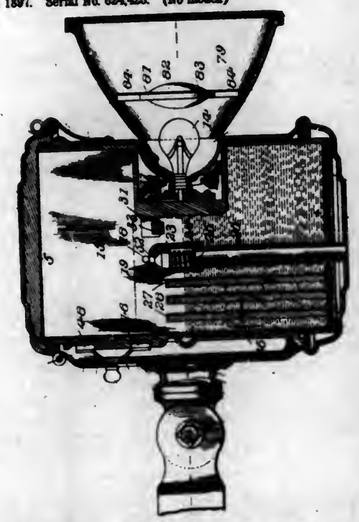
Claim.—1. The combination of counterweighted gate-bars in pivotal connection with posts at opposite sides of a railway-crossing, sheave-supported weight-controlled flexible runners that extend along

the railway-track in opposite directions from the crossing and have branches connecting opposite gate-bars, a slack-take-up operative in conjunction with each runner, a cranked rock-shaft arranged under the track-rails, a crank-shaft lever having spring connection with said runner, an air-cushion mechanism coöperative with the lever, and a spring-supported auxiliary rail of suitable length in spring-controlled laterally-adjustable connection with a track-rail over the rock-shaft crank, one end of the auxiliary rail being in the path of car-wheel flanges and the other end beveled upon its inner side to obtain clearance for said flanges.

2. The combination of counterweighted gate-bars in pivotal connection with posts at opposite sides of a railway-crossing, sheave-supported weight-controlled flexible runners that extend along the railway-track in opposite directions from the crossing and have branches connecting opposite gate-bars, a slack-take-up operative in conjunction with each runner, a cranked rock-shaft arranged under the track-rails, a crank-shaft lever having spring connection with said runner, and a spring-supported auxiliary rail of suitable length in spring-controlled laterally-adjustable connection with a track-rail over the rock-shaft crank, one end of the auxiliary rail being in the path of car-wheel flanges and the other end beveled upon its inner side to obtain clearance for said flanges.

3. The combination of counterweighted gate-bars in pivotal connection with posts at opposite sides of a railway-crossing, sheave-supported weight-controlled flexible runners that extend along the railway-track in opposite directions from the crossing and have branches in direct connection with opposite gate-bars, a lever mechanism and slack-take-up in connection with each flexible runner, and a spring-supported auxiliary rail of suitable length in spring-controlled laterally-adjustable connection with a track-rail and coöperative with the lever mechanism, one end of the auxiliary rail being in the path of car-wheel flanges and the other end beveled upon its inner side to obtain clearance for said flanges.

602,616. **INVERTIBLE FLUID-BATTERY.** PORTEUS R. CUNNINGHAM and CHARLES H. HOWLAND-SHERMAN, Washington, D. C. Filed Feb. 20, 1897. Serial No. 624,423. (No model.)



Claim.—1. In an invertible fluid-battery, the combination of a closed casing, electrodes, of less height than the interior of the casing, removably inserted therein and designed to be freed from the electrolyte, when the casing is inverted, and retaining means engaging with the tops of the said electrodes but insulated therefrom, and interlocking interiorly with the casing to secure said electrodes in a fixed position and against displacement when the casing is inverted.

2. In an invertible fluid-battery, the combination of a suitably-closed casing, provided with one or more cells, electrodes of less height than the interior of the casing, removably inserted therein and designed to be freed from the electrolyte, when the casing is inverted, and retaining means engaging with the tops of the said electrodes but insulated therefrom, and interlocking interiorly with the casing to secure said electrodes in a fixed position and against displacement when the casing is inverted

3. In an invertible fluid-battery, a suitable receptacle having an annular boss or bead on its rim, and a hermetic closure, comprising a top and a flexible lining secured therein and provided with a depending, annular portion or flange, adapted to tightly inclose the mouth of the receptacle and a circumferential enlargement upon the interior of the depending portion or flange, adapted to tightly flex into the circumferential groove below the bead on the receptacle, when the closure is pressed into place; in combination with electrodes, of less height than the interior of the casing, removably inserted therein and designed to be freed from the electrolyte when the casing is inverted, and non-conductive retaining means extending across the tops of the electrodes and fastening the same to the interior of the casing, whereby they are secured against displacement when the casing is inverted.

4. In an invertible fluid-battery, the combination of a closed casing, electrodes of less height than the interior of the casing, inserted therein and removably engaging with the interior walls of the casing, gates or openings for the free circulation of the electrolyte about the electrodes, and retaining means engaging with the tops of the said electrodes but insulated therefrom, and interlocking interiorly with the casing to secure said electrodes in a fixed position and against displacement when the casing is inverted to free the electrodes from the electrolyte.

5. In an invertible fluid-battery, the combination of a closed casing, electrodes, of less height than the interior of the casing, removably inserted therein and designed to be freed from the electrolyte when the casing is inverted, non-corrosive, conducting-plates removably secured to the said electrodes and electrically connected with a translating device on the outside of the casing, and retaining means engaging with the tops of the said electrodes but insulated therefrom, and interlocking interiorly with the casing to secure said electrodes in a fixed position and against displacement when the casing is inverted.

6. In an invertible fluid-battery, the combination of a closed casing, electrodes, of less height than the interior of the casing, inserted therein and removably engaging with the interior walls of the casing, gates or openings for the free circulation of the electrolyte about the electrodes, retaining means engaging with the tops of the said electrodes but insulated therefrom, and interlocking interiorly with the casing to secure said electrodes in a fixed position and against displacement when the casing is inverted to free the electrodes from the electrolyte, and electrical connections between said electrodes and a translating device on the outside of the casing.

7. In an invertible fluid-battery, the combination of a suitable closed casing, electrodes, of less height than the interior of the casing, removably inserted therein and designed to be freed from the electrolyte when the casing is inverted, and non-conductive clamps extending across the tops of the electrodes, and engaging removably with recessed lugs projecting from the interior surface of the casing, to secure said electrodes against displacement when the casing is inverted, substantially as described.

8. In an invertible fluid-battery, the combination of a closed casing, vertically-disposed spacing-ribs projecting from the interior thereof, electrodes, of less height than the interior of the casing, removably inserted therebetween, oppositely-disposed, recessed lugs projecting interiorly from the casing, and non-conductive retaining means engaging with the said lugs and with the said electrodes to secure them in position between the spacing-ribs and against displacement when the casing is inverted to free them from the electrolyte, substantially as described.

9. In an invertible fluid-battery, a suitable receptacle provided with one or more cells, and having an annular boss or bead on its rim, and a hermetic closure therefor, comprising a top and a flexible lining secured therein and provided with a depending, annular portion or flange, adapted to tightly inclose the mouth of the receptacle and a circumferential enlargement upon the interior of the depending portion or flange, adapted to tightly flex into the circumferential groove below the bead on the receptacle, when the closure is pressed into place; in combination with electrodes, of less height than the casing, removably inserted therein, and designed to be freed from the electrolyte when the casing is inverted and non-conductive retaining means extending across the tops of the electrodes and fastening the same to the interior of the cells, whereby the said electrodes are secured against displacement when the casing is inverted, substantially as described.

10. In an invertible fluid-battery, the combination of a closed casing, electrodes, of less height than the interior of the casing, removably inserted therein and designed to be freed from the electrolyte when the casing is inverted, non-conductive retaining means engaging with the tops of the electrodes and interlocking interiorly with the casing to secure the said electrodes against displacement, and an automatically-acting gas-vent, for the escape of accumulated gas.

11. In an invertible fluid-battery, the combination of a closed

casing, electrodes, of less height than the interior of the casing, removably inserted therein and designed to be freed from the electrolyte, when the casing is inverted, and non-conductive retaining means engaging with the tops of the said electrodes, and interlocking interiorly with the casing to secure said electrodes in a fixed position and against displacement when the casing is inverted and a lamp-bracket comprising pivoted clamping-arms, a locking device for said arms and a universal connection between the body of the closed casing to be supported and the said clamping-arms, substantially as described.

12. In an invertible fluid-battery, a suitable receptacle provided with one or more cells, and having an annular boss or bead on its rim, and a hermetic closure therefor, comprising a top and a flexible lining secured therein and provided with a depending, annular portion or flange, adapted to tightly inclose the mouth of the receptacle and a circumferential enlargement upon the interior of the depending portion or flange, adapted to tightly flex into the circumferential groove below the bead on the receptacle, when the closure is pressed into place; in combination with electrodes, of less height than the receptacle, removably inserted therein, and designed to be freed from the electrolyte when the receptacle is inverted, and non-conductive retaining means extending across the tops of the electrodes and fastening the same to the interior of the cells, whereby they are secured against displacement when the casing is inverted, substantially as described.

13. In an invertible fluid-battery, the combination of a receptacle, divided into cells, by means of one or more partitions, a hermetically-sealing, removable top therefor, electrodes, of less height than the receptacle, seated in the lower parts of the cells, and designed to be freed from the electrolyte, when the receptacle is inverted, and clamps extending across the tops of the electrode of each cell, and engaging removably with the retaining means, on the interior walls of the respective cells, to secure said electrodes against displacement when the receptacle is inverted, substantially as described.

14. In an invertible fluid-battery, a suitable receptacle provided with one or more cells, and having an annular boss or bead on its rim, and a hermetic closure therefor, comprising a top and a flexible lining secured therein and provided with a depending, annular portion or flange adapted to tightly inclose the mouth of the receptacle and a circumferential enlargement upon the interior of the depending portion or flange, adapted to tightly flex into the circumferential groove below the bead on the receptacle, when the closure is pressed into place; in combination with electrodes, of less height than the receptacle, removably inserted therein, and designed to be freed from the electrolyte when the receptacle is inverted, non-conductive retaining means extending across the tops of the electrodes and fastening the same to the interior of the cells, whereby they are secured against displacement when the casing is inverted, an opening between the cells for the circulation of gas and a gas-vent for the escape of the accumulated gas from the receptacle, substantially as described.

15. In an invertible fluid-battery, the combination of a receptacle having a boss or bead on its rim, and divided into cells, by means of one or more partitions, electrodes, of less height than the receptacle, secured in the lower parts of the cells and designed to be freed from the electrolyte, when the receptacle is inverted, a hinge-bracket, a swivel connection between it and the said receptacle, whereby it can be inverted, means for securing said hinge-bracket to a vehicle, and a hermetically-sealing, removable top therefor, comprising a flanged cover, and a lining secured therein and provided with an annular flange whose interior is epicycloidal in cross-section and designed to tightly adhere to the bead or boss of the receptacle when sprung over it, substantially as described.

16. A casing for an invertible fluid-battery consisting of a suitable receptacle, having a central partition and a boss or bead upon the outside of the rim, and a hermetically-sealing closure, comprising a hinged top and a permanent lining secured within said top and formed with a diametrically-disposed rib, parallel with the upper edge of the partition in the said receptacle, a depending annular flange, arc-shaped in cross-section to form a constriction, adapted when sprung over the bead or boss on the receptacle, to tightly adhere to the curvature of the same, substantially as described.

17. A casing for an invertible fluid-battery consisting of a suitable receptacle, having a central partition, and a boss or bead upon the outside of the rim, a hermetically-sealing closure, comprising a hinged top and a permanent lining, secured within said top and formed with a diametrically-disposed rib, parallel with the upper edge of the partition in the said receptacle, a depending annular flange, arc-shaped in cross-section to form a constriction adapted, when sprung over the bead or boss on the receptacle, to tightly adhere to the curvature of the same, and means for locking said cover to said receptacle, substantially as described.

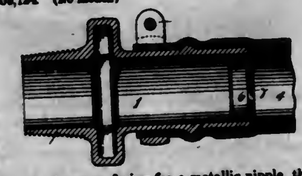
18. The herein-described gas-vent, comprising a valve-chamber having an opening in one end, oppositely-disposed channels or grooves in the sides of said opening, a conical valve-seat, and a spring-actuated valve, correspondingly shaped to fit said seat, a base to said valve slidably fitting within the said valve-chamber and having oppositely-arranged channels or grooves in its periphery, a projection on said valve, slidably fitting the opening in the valve-chamber, and a perforated disk, closing the opposite end thereof.

19. The herein-described gas-vent, comprising a valve-chamber having an opening in one end, oppositely-disposed channels or grooves in the sides of said opening, a conical valve-seat, and a spring-actuated valve correspondingly shaped to fit said seat, a base to said valve slidably fitting within the said valve chamber and having oppositely-arranged channels or grooves in its periphery, a projection on said valve, slidably fitting the opening in the valve-chamber, and a perforated disk at the opposite end of the valve-chamber, in combination with an inclosing receptacle and a pipe connection between the said valve-chamber and the exterior of the said receptacle, substantially as described.

20. In an invertible fluid-battery, the combination of a suitable receptacle provided with one or more cells, a hermetic closure therefor, vertically-disposed spacing-ribs projecting from the interior thereof, electrodes, of less height than the interior of the cells, removably inserted between said ribs, oppositely-disposed, recessed lugs projecting interiorly from the casing, non-conductive clamps extending across the tops of the electrodes and engaging removably with the said lugs and with the said electrodes to secure them in position between the spacing-ribs and against displacement when the receptacle is inverted, a passage between the cells for the circulation of gas, and a gas-vent for the escape of the same from the receptacle, comprising a valve-chamber having an opening in one end and projecting within said receptacle, oppositely-disposed channels or grooves in the sides of said opening, a conical valve-seat and a spring-actuated valve, correspondingly shaped to fit said seat, a base to said valve, slidably fitting within the valve-chamber and having oppositely-arranged channels or grooves in its periphery, a projection on said valve, fitting slidably into the opening in the valve-chamber, and a perforated disk located in the opposite end of the said chamber, substantially as described.

21. As a new article of manufacture, the herein-described battery-box, comprising an open, cylindrical vessel of non-conductive material, formed integrally with a central partition as 15, dividing the vessel into two compartments or cells, an inset chamber or recess as 11, opening exteriorly of the vessel, parallel and vertical spacing-ribs as 26, projecting interiorly from the walls of the partition and recess or chamber, electrodes fitting between said ribs, the diametrically opposite, undercut lugs, projecting from the walls of the partition and of the vessel, and clamps engaging with said lugs and with the tops of the electrodes to fasten them in place, substantially as and for the purposes specified.

602,617. **HOSE-NIPPLE.** CHARLES H. DALE, New York, N. Y., assignor to Jennie L. Dale, same place. Filed Nov. 12, 1897. Serial No. 658,124. (No model.)



Claim.—1. A cap or facing for a metallic nipple, the same consisting of a portion of soft yielding material extending over the end and exterior part of the nipple and a ring of hard inelastic material upon the interior of the nipple, whereby the soft yielding portion is secured and held in position, substantially as specified.

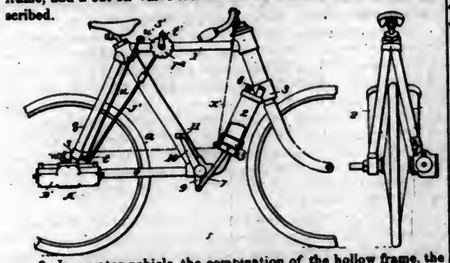
2. A cap or facing for a metallic nipple, the same consisting of a portion of soft rubber extending over the end and exterior part of the nipple, and a ring of hard inelastic material fitting the interior of the nipple, said soft-rubber portion being vulcanized to the ring of hard inelastic material, substantially as specified.

3. A cap or facing for a metallic nipple, the same consisting of a portion of soft rubber extending over the end and exterior part of the nipple, and a metallic ring coated with copper and located in the interior of the nipple, said soft-rubber portion being vulcanized to the metallic ring, substantially as specified.

602,618. **AIR-PROPELLED BICYCLE.** ELMER E. STUTZ, Indianapolis, Ind., assignor of one-half to Frank F. Rogers, same place. Filed June 10, 1897. Serial No. 640,295. (No model.)

Claim.—1. In a motor-vehicle, the combination of the combined motor and compressor having the positively-operated valves and the

pistons, the hollow frame supplying air under pressure through said valves to actuate the pistons, a connection between the combined motor and compressor and frame through which air is forced into the frame, and a cut-off valve located on the frame, substantially as described.



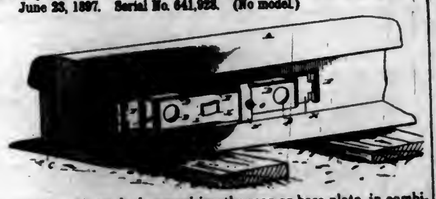
3. In a motor-vehicle, the combination of the hollow frame, the motor having the pistons and constructed with the upper and lower passages, ports leading from the lower passage to the spaces behind the pistons and provided with controlling-valves, similar ports leading from the upper passage and having valves, a check-valve between the upper passage and the frame, and a cut-off valve and a relief-valve, substantially as described.

4. In a motor-vehicle, the combination of air-compressors, the hollow frame constituting a reservoir for the compressed air, a separate motor receiving air from the reservoir, means for shutting off the air, connections whereby the motion of the machine may be made to operate said motor to force air into the reservoir, and means for controlling the admission of the air from the motor to the reservoir and thus make the motor act as a brake, substantially as described.

5. In a motor-vehicle, the combination with the compressors, of the pedal-cranks having a short arm connecting with the plunger-rods of said compressors, and an upper longer arm carrying the pedal, and means on each crank for independently restoring said cranks after depression, substantially as shown and described.

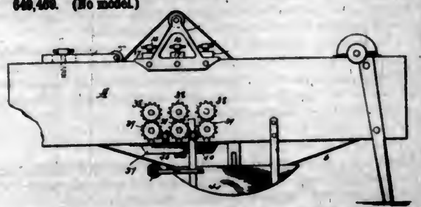
6. The combination with the pedal-cranks, and the crank-axle having the fluted end portions, of the sleeves fluted to fit said portions, and the springs having one end secured to the sleeves and their other ends secured to the cranks, substantially as shown and described.

602,619. NUT-LOCK. JAMES C. FERGUSON, Fayette, Mo. Filed June 23, 1897. Serial No. 641,928. (No model.)



Claim.—A nut-lock comprising the rear or base plate, in combination with the flaps or supplemental plates hinged to the ends thereof, an opening formed in one of said supplemental plates to receive the tongue projecting forwardly from the ends of the opposite supplemental plate, a sliding keeper adapted to be freely movable back and forth on said plates, and a fastening-pin adapted to be passed through said keeper and fastened on the rear sides of the supplemental plates to hold the same in a locked position against the sides of the nuts, substantially as described.

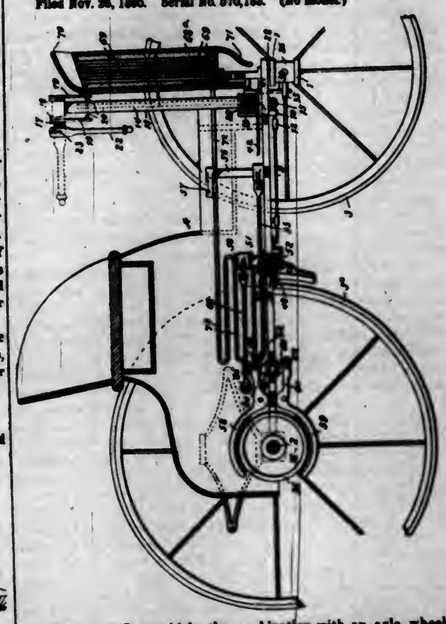
602,620. APPARATUS FOR EXPRESSING CIDER. ELI FLORY and TIMOTHY FLORY, Defiance, Ohio. Filed Aug. 25, 1897. Serial No. 649,469. (No model.)



Claim.—The combination with a frame, a set of rollers, journaled therein, vertically-movable journal-boxes, rollers journaled in these boxes and cooperating with the other set of rollers, and means for varying the spring-pressure upon the boxes, of belts passed around these sets of rollers, perforated blocks or bars interposed between the rollers of the lower set, and imperforate ones between the upper ones, said sets of boards having grooves and flanges at or near their ends whereby to prevent the passage of cider at that point.

2. In a motor-vehicle, the combination with the motor, its controlling-valves, the link pivoted to the motor midway between the valves, the screw carried by the link, and the adjustable connections extending in opposite directions from the screw to said valves, of an upright rod connected to turn the screw and having a small gear at its upper end, an enlarged gear-wheel engaging said small gear, a casing therefor having stops or notches, and a crank or handle carried by said large gear and provided with a catch for engaging said notches, substantially as described.

602,621. MOTOR-VEHICLE. WILLIAM W. GRANT, Brooklyn, N. Y. Filed Nov. 26, 1895. Serial No. 570,183. (No model.)



Claim.—1. In a vehicle, the combination with an axle, wheels, and means for clutching these wheels to the axle, of shaft having laterally projecting arms, pivoted levers having slots therein, pins projecting from the arms into the slots, bell-crank levers, and rods connecting the bell-crank levers with the slotted levers, substantially as set forth.

2. In a vehicle, the combination with a steering-wheel having an outwardly-projecting arm extending from its axle, of a pair of shafts extending at an angle to each other, one having a worm and the other a worm-gear intermeshed with each other, one shaft having a handle thereon by which it is turned and the other provided with an arm, and a rod extending from the latter to the arm on the wheel-axle.

3. In a vehicle, the combination with two steering-wheels, pivoted axles on which these wheels turn, and an arm projecting outwardly from each axle, of a pair of shafts disposed at an angle to each other, one provided with a worm and the other with a worm-gear, the two intermeshed, one of these shafts having a handle thereon whereby it is manipulated and the other provided with an outwardly-extending arm, and rod extending from this arm in both directions to the arms on the axles, whereby both steering-wheels are operated simultaneously by turning the handle in one direction or the other.

4. In a vehicle, the combination with a propulsion-axle drums thereon, and belts, ropes or chain extending from these drums to some propelling device, one of said belts crossed, of clutch mechanism for controlling these drums, and means for operating said mechanism from the operator's station on the vehicle, substantially as set forth.

5. In a vehicle, the combination with a hollow shaft, and a slide therein, of a removable handle for rocking or swinging one shaft and sliding the other, pivotally secured to its support in such manner that the handle may be raised or lowered without effecting necessarily, operation of the hollow shaft, or of the slide-shaft.

6. In a vehicle, the combination with a rock-shaft having brake-shoes thereon, and a worm-wheel on said shaft, of a shaft extending at right angles thereto and having a worm thereon which engages directly with the worm-wheel on the rock-shaft, substantially as set forth.

7. The combination with a vehicle, of an air-passaged cooling-tank serving also as a dash and provided to effect collection and circulation of air through the tank.

8. In a vehicle, the combination with a rock-shaft located in proximity to the operator to be operated in controlling the movements of the vehicle, of a removable handle pivoted to this shaft, and a catch for locking the handle, substantially as set forth.

9. The combination with a vehicle, of an air-passage cooling-tank, serving also as a dash and of a hood located at one end thereof, and an apron at the other end to provide for collection and circulation of air.

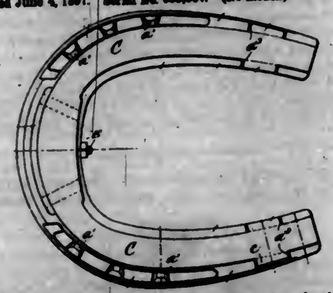
10. In a vehicle, the combination with a drive-axle, wheels and drums thereon, and screws meshing with collar, of a brake, having a slotted shank engaging with collar carried by screw, for forcing brake in or out of braking engagement.

11. The combination with a drive-shaft, drive-wheels loose thereon, and a controller, of levers provided with slots, having straight and curved sides, the latter in the arc of a circle whose center is the controller, and means connecting said levers with the controller and drive-wheel mechanism, to facilitate bringing of drive-wheel in or out of driving engagement.

12. In a vehicle, the combination with a propelling-shaft, drive-wheels loose thereon, and clutch mechanism for each wheel, of a controller, arms connected therewith, wrists on these arms, levers having curved slots therein, extending in one direction and in the arc of a circle whose center the controller is, and rods extending from these levers to the clutches.

13. In a vehicle, the combination with an axle, wheels loose thereon, steering-wheels, and a controller, of mechanism for operating with the loosely-mounted wheels and the steering-wheels and having worm-gear mechanism intersecting or interposed thereupon whereby to prevent unfavorable movement of the parts connectively concerned with the worm-gear mechanism, and to lock, hold, or effect retention of the said parts, in such position, or release therefrom as occasion may require.

602,622. ELASTIC-CUSHIONED HORSESHOE. GEORGE GRIMWOOD, Chicago, Ill., assignor of one-half to Frank B. Place, Peoria, Ill. Filed June 4, 1897. Serial No. 639,267. (No model.)



Claim.—1. The combination with a horseshoe, having downwardly-projecting flanges forming a continuous groove in the bottom of the shoe and open at the heels thereof, of a detachable elastic cushion seated in said groove and suitably secured therein, of means for engaging and protecting the forward end of the cushion consisting of a toe-clip extending around a portion of the cushion and suitably secured thereto, all substantially as and for the purpose described.

2. The combination with a horseshoe, having downwardly-projecting flanges extending around the inner and outer edges of the shoe from the toe to the heel or rear ends thereof, a groove formed by the flanges, of a detachable elastic cushion seated in said groove, means for retaining the same in the shoe by engagement at the toe and heels thereof, a toe-clip suitably secured to the toe of the cushion and extending a portion of the way around the same, all substantially as and for the purpose set forth.

3. A horseshoe having downwardly-extending flanges, forming a groove or recess in the bottom of the shoe, of a detachable elastic cushion held firmly therein, and a toe-clip secured to the toe or front end of the cushion, all substantially as and for the purpose described.

4. In a horseshoe consisting of a metal frame, provided with downwardly-projecting flanges extending around the inner and outer edges of the shoe from the toe to the heels thereof, and forming a continuous groove therein, of a detachable elastic cushion seated in said groove, a detachable bolt or clip for engaging the cushion at the forward end of the cushion, of laterally-extending lugs on the rear ends of the cushion, and suitable slots or recesses in the flanges adapted for receiving said lugs to hold the same against forward or backward movement in the shoe thereof, all substantially as and for the purpose described.

5. A horseshoe having downwardly-extending flanges, a groove formed in the bottom of the shoe, and a detachable elastic cushion seated therein, means for securing the same at the front or toe thereof, and means for engaging the same at the heels thereof, consisting of suitable lugs provided on the sides of the cushion adapted to be seated in slots or recesses in the flanges of the shoe, preventing forward or rearward motion of the cushion in the shoe, all substantially as and for the purpose described.

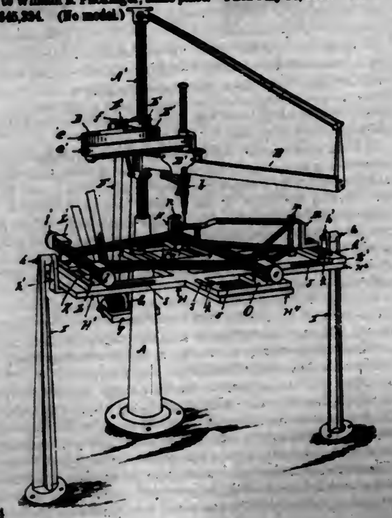
6. The combination with a metal shoe provided with apertures or nail-holes, and formed with downwardly-extended flanges around the outer and inner edges and provided with slots or recesses at the rear ends thereof, a groove or recess formed by the flanges around the shoe, of a detachable elastic cushion extending from one heel to the other and securely held in the groove by means of a detachable clip or bolt at the front or toe thereof, and against forward or backward motion at the rear ends by means of laterally-extending lugs adapted to be seated in the slots provided in the flanges of the shoe, all substantially as and for the purpose described.

7. The combination with a horseshoe having downwardly-projecting flanges around the inner and outer edges of the shoe from the toe to the heels, and provided with an aperture at the forward end and slots or recesses at the rear ends thereof, a groove formed by the flanges, of a detachable elastic cushion seated in said groove and extending somewhat below the edge of the flanges, a detachable clip or bolt passing through the aperture at the toe for securing the same therein, and of suitable lugs at the rear end of the cushion adapted to fit in suitable slots or recesses for securing the same at the heels thereof, all substantially as and for the purpose described.

8. The combination with a horseshoe, having downwardly-projecting flanges extending around the inner and outer edges of the shoe and open at the rear ends thereof, of a groove formed by the flanges, an elastic cushion detachably secured in said groove and a portion of the same extending somewhat below the flanges, of a toe-clip secured to the toe or front of the cushion, the cushion firmly secured in the groove of the shoe through and by means of the bolt at the front and by the clips formed by the flanges at the heels or rear ends, all substantially as described and shown.

9. In a horseshoe provided with a detachable elastic cushion, the combination with the elastic cushion, of a toe-clip made of suitable material, all substantially as and for the purpose described.

602,623. MACHINE FOR SETTING UP, DRILLING, AND FINISHING BICYCLE-FRAMES. HENRY KELLER, Erie, Pa., assignor of one-half to William B. Flickinger, same place. Filed July 21, 1897. Serial No. 645,294. (No model.)



Claim.—1. In a machine for setting up, drilling and pinning bicycle-frames, the combination of a radial drill mechanism, and a drill-table mounted upon trunnions secured to arms extending above the top of the table, plates adjustably mounted on the sides of said table, and clamping mechanism adjustably mounted on said plates, substantially as and for the purpose set forth.

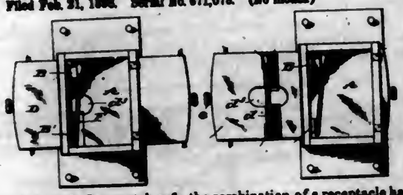
2. In a machine for setting up, drilling and pinning bicycle-frames, the combination of a drilling mechanism, comprising, substantially, a radially-moving arm, a drill-head mounted upon said arm and adapted to move in and out thereon, and driving mechanism for operating a vertical drill-stock in said drill-head, and a table under said arm, vertical arms secured to said table and extending above the top thereof, trunnions secured to said arms for supporting said table, plates adjustably mounted on the sides of said table, and clamping mechanism adjustably mounted on said plates, substantially as and for the purpose set forth.

3. In a machine for setting up, drilling and pinning bicycle-frames, a table, vertical arms secured thereto and extending above the top of the table, trunnions on the ends of said arms, upon which the table is supported and adapted to be reversed, adjustable plates on said table, clamping mechanism adjustable on said plates and adapted to engage and clamp a bicycle-frame between them, substantially as and for the purpose set forth.

4. In a machine for setting up, drilling and pinning bicycle-frames, a cross-shaped skeleton table, a plate adjustably mounted on each side or arm of said table, clamp mechanism adjustably mounted on each of said plates adapted to clamp a bicycle-frame between them, and trunnions on two opposite sides or arms of said table, whereby it is supported and upon which it can be rotated, substantially as and for the purpose set forth.

5. In a machine for setting up, drilling and pinning bicycle-frames, a drill-press mechanism comprising substantially a drill-press standard and column A A', a radially-moving arm B mounted on the column A', a drill-head B' carrying a vertically-operating drill-stock *b* mounted upon and adapted to be moved in and out on the arm B, belt mechanism F *e* and *d* for driving said drill-stock B, a cross-shaped table H under said radially-movable arm and mounted on trunnions *h h* so as to be reversible, slots J J in the arms of said table, longitudinally slotted plates K K' K^2 and K^3 adjustably secured to the arms of said table by bolts passing through the slots J J thereon, and clamping mechanism secured and adjustable in the longitudinal slots in said plates, substantially as and for the purpose set forth.

602,624. MATCH-SAFE. DALLAS KNOWLTON, Washington, D. C. Filed Feb. 21, 1898. Serial No. 671,072. (No model.)

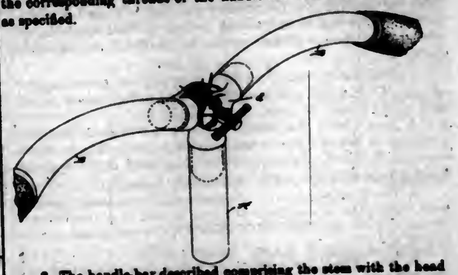


Claim.—1. In a match-safe, the combination of a receptacle having a transverse slide passing through slots in the walls of said receptacle and provided with a match-retaining groove rubber strips secured to the rear edge of said match-retaining groove and two rubber blocks secured to the inner wall of the receptacle and extending over the edge of the front slot.

2. In a match-safe the combination of a receptacle having a transverse slide passing through slots in the walls of said receptacle and provided with a match-retaining groove having enlarged ends for receiving the heads of the matches and provided with rubber strips secured to the rear edge of said match-retaining groove and two rubber blocks of different thicknesses secured to the inner wall of the receptacle and extending over the edge of the front slot thereby preventing the matches from becoming locked between the receptacle and the edge of the slot.

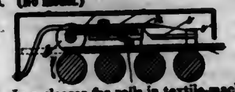
602,625. ADJUSTABLE HANDLE-BAR. JOSEPH H. LA FAVE, Toledo, Ohio, assignor of one-half to Ray Conklin, same place. Filed Dec. 31, 1897. Serial No. 664,356. (No model.)

Claim.—1. An adjustable handle-bar for bicycles comprising handle-bar sections provided with portions having clutch-faces and also having transverse apertures one with right-hand threads and the other with left-hand threads, a stem adapted to be connected with the steering-head of a bicycle and provided with a head interposed or sandwiched between the portions of the handle-bar sections and having clutch-faces meeting those of said portions and a transverse aperture coincident with the threaded apertures of the portions, and a connecting-bolt extending through the apertures of the stem and handle-bar sections and having right and left hand threads engaging the corresponding threads of the handle-bar sections, substantially as specified.



2. The handle-bar described comprising the stem with the head at its upper end having clutch-teeth on its opposite sides and also having a transverse aperture, the handle-bar sections terminating at their inner ends in portions disposed at opposite sides of the head on the stem and having clutch-teeth on their inner sides engaging those of the head and also having transverse apertures one with right-hand threads and the other with left-hand threads, the connecting-bolt extending through the apertures of the head and handle-bar sections and having right and left hand threads engaging the corresponding threads of the handle-bar sections and also having a circumferential groove at its middle, and a pin arranged in the head of the stem and extending into said groove, substantially as specified.

602,626. TEXTILE-ROLLER CLEARER. REUBEN S. MATTESON, Providence, R. I., assignor of two-thirds to Charles H. Field, same place, and Josiah A. King, Seekonk, Mass. Filed Feb. 6, 1897. Serial No. 622,304. (No model.)



Claim.—1. In a clearer for rolls in textile-machines, the combination with the rolls to be cleared of a plate bearing on the rolls, means for giving said plate a reciprocating motion in a direction at right angles or nearly so to the axis of the rolls, flanges on a stationary part, and studs on the plate to engage the flanges to guide the plate in the desired direction, substantially as described.

2. The combination in a clearer for rolls for the purpose specified, of a clearer-plate, a motor-frame, a shaft held in bearings attached to said motor-frame, wheels on said shaft receiving motion from the rolls, a worm-wheel fast on said shaft, a worm gear-wheel held on a stud fast in said motor-plate, and engaging with the worm-wheel, a stud in the worm-gear and arranged to push the clearer-plate in one direction by a ridge or projection fast on said plate, substantially as described.

602,627. COLLAPSIBLE EGG-CRATE. HILLARD F. PITCHFORK, Staunton, Va. Filed June 2, 1897. Serial No. 639,146. (No model.)



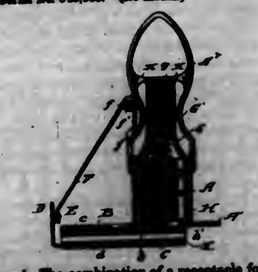
Claim.—1. A collapsible box comprising the bottom, sides and end pieces, one of the side pieces being hinged at its lower edge to the bottom and adapted to swing outwardly, the opposite side piece hinged to the opposite edge of the bottom and adapted to swing inwardly, the end pieces hinged to the bottom at its respective ends and adapted to swing inwardly, a lid hinged to the upper edge of the inwardly-swinging side and adapted to swing outwardly to rest upon the outer surface of said side, and securing means for uniting the ends and sides, substantially as set forth.

2. A collapsible box comprising the bottom, sides and end pieces, one of said sides being hinged to the bottom and adapted to swing outwardly, the opposite side piece hinged to the opposite edge of the bottom and adapted to swing inwardly, the lid hinged to the upper edge of the last-mentioned side piece and adapted to swing outwardly and rest upon the outer surface thereof, the end pieces hinged to the bottom and adapted to swing inwardly, a partition hinged to the inwardly-swinging side and adapted to fold against the inner surface of said side, and securing means for uniting the ends and sides, substantially as set forth.

3. A collapsible box comprising the bottom, sides and end pieces, one of the side pieces being hinged to the bottom and adapted to swing outwardly and rest against the outer side of the bottom when folded, the opposite side being hinged to the upper surface of the bottom and adapted to swing inwardly, a lid hinged to the upper edge of the last-mentioned side and adapted to swing outwardly and rest against the outer surface of said side, the end pieces being hinged to the upper surface of the bottom and adapted to swing inwardly and rest thereon, securing means adapted to unite the ends of the side pieces when the box is unfolded, said lid, side pieces and bottom having openings which are adapted to register when the crate is folded, and a bolt adapted to pass through said opening and receive a thumb-nut for securing the parts together, substantially as set forth.

4. A collapsible box comprising the bottom A, the ends D hinged thereto and adapted to fold inwardly thereupon, the side B hinged to the upper surface of the bottom and adapted to fold inwardly upon the end pieces, the hinges for said side pieces being so formed that when said side piece is folded inward it will rest flatly upon the ends D, side C hinged to the bottom and adapted to swing outwardly, lid E hinged to the upper edge of side B and adapted to swing outwardly against the outer face of said side, and fastening means adapted to unite the sides and ends when the box is unfolded, substantially as described.

602,628. GRATER. DAVID C. POWELL, Michigan City, Ind., assignor of one-half to Edward J. Powell, same place. Filed July 31, 1897. Serial No. 646,023. (No model.)



Claim.—1. The combination of a receptacle for the substance to be reduced, a grating-plate mounted to slide opposite one end thereof, a cap or cover closing the opposite end of the receptacle and adapted to move endwise therein, a handle secured to the receptacle and having a stop with which the cap or cover is adapted to engage, a plate adapted to bear upon the substance to be reduced, and a spring interposed between the plate and the cap or cover tending to force the plate toward the grating-plate, and the cap or cover against the stop in the handle.

2. The combination of a receptacle for the substance to be reduced, a grating-plate mounted to reciprocate opposite one end thereof, a recessed cap or cover closing the opposite end of the receptacle and adapted to move endwise therein, an open-sided handle secured to the receptacle and having inwardly-projecting legs or stops adapted to enter the recesses in the top of the cap or cover, a plate adapted to bear against the article to be reduced, a rod secured thereto and extending through the cap or cover, and a spring surrounding the rod and interposed between the cap and the plate and tending to move the cap in one direction against the stops and the plate in the opposite direction against the article to be reduced.

3. The combination with the frame having a hollow part constituting a receiving-chamber, a way or guide A', arranged at the front opening of the receiving-chamber, the bent plate, C, whose edges engage the way or guide and travel thereon, the grating-plate carried by the plate, C, and arranged to close the receiving-chamber, the thumb-piece for propelling the grating-plate across the open end of the receiving-chamber, the lug thereon and the spring secured upon the side of the handle and loosely engaging the lug on the thumb-plate, substantially as and for the purpose set forth.

602,629. ANGLE-GEARING. JAMES H. SAGER, Rochester, N. Y. Filed Dec. 30, 1897. Serial No. 664,602. (No model.)

Claim.—1. In angle-gearing, a pin-gear having pins with parallel axes, in combination with a gear-wheel having an axis at an angle to that of the pin-gear and provided with interdental spaces and with teeth whose working faces have warped limiting-surfaces whose positions and curvatures are those generated by the surface lines of the moving pins when the pin-gear and gear-wheel revolve together, whereby the contact between the pins and the teeth of the gear-wheel is line-contact.



2. In angle-gearing a pin-gear having a series of cylindrical pins having parallel axes arranged in a circle about the axis of rotation of said pin-gear and parallel thereto, in combination with a gear-wheel having an axis at an angle to that of the pin-gear and provided with interdental spaces and with teeth whose working faces have warped limiting-surfaces whose positions and curvatures are those generated by the surface lines of the moving pins when the pin-gear and gear-wheel revolve together, whereby the contact between the pins and the teeth of the gear-wheel is line-contact.

3. In angle-gearing a face pin-gear having pins with parallel axes, in combination with a gear-wheel having an axis at an angle to that of the pin-gear and provided with interdental spaces and with peripheral teeth whose working faces are warped surfaces generated by the surface lines of the moving pins when the pin-gear and gear-wheel revolve together and the pins of said pin-gear cross the periphery of the gear-wheel, whereby the contact between the pins and the teeth of the gear is line-contact.

4. In angle-gearing, a face-gear having a series of parallel cylindrical pins, in combination with a gear-wheel having an axis set at an angle to that of the pin-gear and provided with wedge-like teeth set transverse to the plane of rotation of the gear-wheel and whose working faces are warped surfaces which are curved in planes perpendicular to the axes of the pins when in contact therewith and which are straight lines in planes parallel to the axes of the pins when in contact therewith.

5. In angle-gearing, a face-gear, having a series of parallel cylindrical pins, in combination with a gear-wheel having an axis set at an angle to that of the pin-gear and provided with peripheral wedge-like teeth, set transverse to the plane of rotation of the gear-wheel and whose working faces are warped surfaces which are curved in planes perpendicular to the axes of the pins when in contact therewith, and which are straight lines in planes parallel to the axes of the pins when in contact therewith, and antifriction-rollers on said pins.

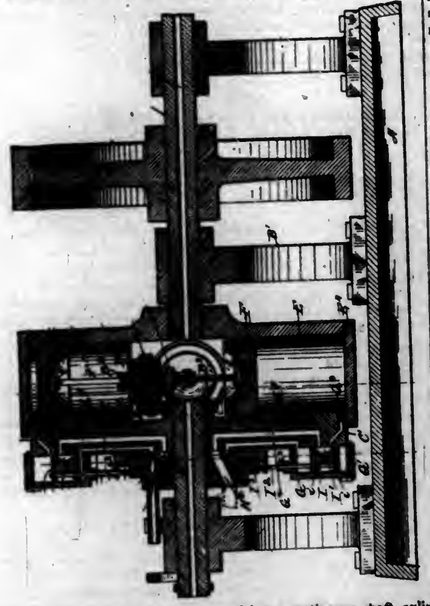
6. In angle-gearing, a face-gear, having a series of parallel cylindrical pins, in combination with a gear-wheel having an axis set at an angle to that of the pin-gear and provided with peripheral wedge-like teeth set transverse to the plane of rotation of the gear-wheel and whose working faces have warped limiting-surfaces whose positions and curvatures are those generated by the surface lines of the moving pins when the pin-gear and gear-wheel revolve together, whereby the contact between the pins and the teeth of the gear-wheel is line-contact.

602,630. ROTARY ENGINE. WILLIAM SMITH, Marietta, Ohio, assignor, by direct and mesne assignments, to Longfellow Rice and Robert Stephens, Marietta, Ohio. Filed Apr. 22, 1897. Serial No. 633,262. (No model.)

Claim.—1. A rotary engine comprising a stationary shaft, a cylinder, a piston in said cylinder provided with a piston-rod which is attached at its inner end to said shaft by means permitting revolution of the cylinder about the shaft, said cylinder being provided with an inlet-port and a slide-valve, an eccentric rigid with said shaft, a valve-stem connected at one end with said valve and engaging at its opposite end the periphery of said eccentric, said valve and stem being constructed and arranged to act as a centrifugal governor to cut off the supply of motive agent to said port when the cylinder revolves about the shaft at a greater than a predetermined speed.

2. A rotary steam-engine comprising a stationary shaft, cylinders located about said shaft, pistons in said cylinders provided with piston-rods which are attached at their inner ends to said shaft by means permitting revolution of the cylinders about the shaft, steam-chests on said cylinders provided with ports connecting the same with the cylinders, slide-valves in said steam-chests adapted to control the passage of steam through said ports, an eccentric rigid with said shaft, radially-extending valve-stems attached at their outer ends to said valves and independently engaging at their inner ends the periphery of said eccentric, said valves and valve-stems being arranged

so that each may be independently moved out of contact with the eccentric to cut off steam from the cylinder controlled thereby.



3. A rotary steam-engine comprising a stationary shaft, cylinders located about said shaft, pistons in said cylinders provided with piston-rods which are attached at their inner ends to said shaft by means permitting revolution of the cylinders about the shaft, steam-chests on said cylinders provided with ports connecting the same with the cylinders, slide-valves in said steam-chests, an eccentric rigid with said shaft, valve-stems attached at their outer ends to said valves and independently engaging at their inner ends the periphery of said eccentric, springs applied to said stems and means for regulating said springs to vary the tension thereof upon the stems.

4. A rotary steam-engine comprising a stationary shaft, cylinders located about said shaft, pistons in said cylinders provided with rods which are attached at their inner ends to said shaft by means permitting revolution of said cylinders about the shaft, steam-chests on said cylinders provided with ports connecting the same with the cylinders, slide-valves in said steam-chests, an eccentric rigid with said shaft, radially-extending stems attached at their outer ends to said valves and independently engaging at their inner ends the periphery of said eccentric, spiral springs on said stems engaging at their outer ends the inner ends of the steam-chests and each acting to independently control the valve to which it is attached, and means on said stems engaging the inner ends of the springs to regulate the tension thereof.

5. A rotary steam-engine comprising a stationary shaft, cylinders located about said shaft, pistons in said cylinders provided with piston-rods which are attached at their inner ends to said shaft by means permitting revolution of the cylinders about the shaft, steam-chests on said cylinders provided with ports connecting the same with the cylinders, slide-valves in said steam-chests, an eccentric rigid with said shaft, valve-stems attached at their outer ends to said valves, springs applied to said stems, means for regulating said springs to vary the tension thereof upon said stems, and antifriction-rollers interposed between the inner ends of the stems and the periphery of said eccentric.

6. A rotary steam-engine comprising a stationary shaft, cylinders located about said shaft, pistons in said cylinders provided with piston-rods which are attached at their inner ends to said shaft by means permitting revolution of the cylinders about the shaft, said cylinders being provided with steam-ports and with slide-valves for controlling said ports, an eccentric rigid with said shaft, valve-stems attached at their outer ends to said valves and independently engaging at their inner ends the periphery of said eccentric, springs applied to said stems, means for regulating said springs to vary the tension thereof upon the stems, and governor-weights removably secured upon said stems.

7. A rotary steam-engine comprising a non-rotative shaft, cylinders located about said shaft, pistons in said cylinders provided with piston-rods which are connected at their inner ends with said shaft by means permitting revolution of said cylinders about the shaft, steam-chests on said cylinders provided with ports connecting the same with the cylinders, steam supply and exhaust passages opening at their outer ends into said steam-chests, a steam-disk non-rotatively mounted upon the shaft and provided on its inner face with concentric annular grooves adapted to register with the inner ends of said steam supply and exhaust passages, supply and exhaust pipes opening through said disk and connected with said grooves, and valves in the steam-chest for controlling the supply of steam to and exhaust from the cylinders.

8. A rotary steam-engine comprising a non-rotative shaft, a casing having a solid end wall rotatively mounted on said shaft and provided with a circular recess concentric with said shaft, cylinders mounted on said end wall, pistons in said cylinders provided with piston-rods which are connected at their outer ends with said shaft by means permitting revolution of said cylinders about the shaft, steam-chests on said wall adjacent to said cylinders and connected therewith by means of ports through said wall, steam supply and exhaust ports in said end wall connected at their outer ends with the steam-chests and opening at their inner ends in said annular recess, a steam-disk fitted into said annular recess and provided on its inner face with concentric annular grooves adapted to register with said supply and exhaust ports opening into the recess, supply and exhaust pipes opening through said disk and connected with said annular grooves, and means for controlling the passage of steam from the steam chest to the cylinders.

9. A rotary steam-engine comprising a stationary shaft, a circular casing provided with a solid end wall rotatively mounted on said shaft, said wall being provided with a central annular recess in its outer face concentric with said shaft, cylinders in said casing, pistons in said cylinders provided with piston-rods which are connected at their inner ends with said shaft by means permitting revolution of the cylinders about the shaft, steam-chests mounted on said wall adjacent to said cylinders and connected therewith by means of passages through said wall, steam supply and exhaust passages in said end wall connected at their outer ends with the steam-chests and opening at their inner ends in said recess of the wall, a steam-disk non-rotatively mounted on the shaft and fitting in said recess of the wall, said disk being provided on its inner face with concentric annular grooves adapted to register with said supply and exhaust passages, steam supply and exhaust pipes opening through said disk and connected with said annular grooves, said exhaust-passages opening into the steam-chests adjacent to the passages leading from the cylinders and a valve for intermittingly connecting said exhaust and cylinder passages and opening said last-mentioned passage for the admission of steam to the cylinder.

10. In a rotary engine, the combination of a stationary shaft and a plate rotatively mounted thereon carrying a cylinder and having ports which lead to the cylinder, a disk removably and non-rotatively mounted on the shaft and provided on its inner face with annular concentric grooves registering with the ports in the plate, supply and exhaust pipes opening through said disk and connected with said grooves and a valve mechanism for controlling the supply of steam to the cylinder, said valve mechanism being engaged with and actuated by said disk.

11. In a rotary steam-engine, the combination of a stationary shaft, a casing rotatively mounted thereon provided with a solid end wall, a cylinder in said casing, a piston in the cylinder connected with said shaft, steam inlet and exhaust ports connected at one end with the cylinder and opening at their opposite ends adjacent to the shaft, a disk non-rotatively mounted on the shaft provided on its inner face with concentric annular grooves adapted to register with said supply and exhaust ports, steam supply and exhaust pipes opening through said disk and connected with said grooves, a valve for controlling the admission of steam to the cylinder provided with an inwardly-extending valve-stem, said disk being formed in its part remote from the annular grooves therein eccentric to the shaft and adapted to engage the inner end of said valve-stem to actuate said valve.

12. In a rotary steam-engine, the combination of a stationary shaft, a casing non-rotatively mounted thereon having an end wall provided with an annular recess or depression concentric with said shaft, a cylinder in said casing, a piston in the cylinder connected with said shaft, steam inlet and exhaust ports connected at one end with said cylinder and at their opposite ends with said recess or depression, a valve for controlling the admission of steam to the cylinder, a disk mounted on the stationary shaft and provided with an inwardly-extending annular flange engaging said recess or depression and on its inner face with concentric annular grooves adapted to register with said steam inlet and exhaust ports, supply and exhaust ports opening through said disk and connected with said annular grooves, the periphery of the part of said disk remote from said grooves being arranged concentrically to the shaft, and a radially-arranged valve-stem connected at its outer end with said valve and adapted to engage at its inner end the periphery of said eccentric.

13. In combination with a rotary steam-engine, embracing a cylinder, a steam-chest thereon, a port connecting the same with the cylinder and an eccentric non-rotatively mounted on the shaft of the engine, of a slide-valve in said steam-chest provided with a radially-extending stem which has engagement at its inner end with the periphery of said eccentric, a shoulder on the stem and a spring applied to said stem to hold the same yieldingly against the eccentric, said valve mechanism being constructed to move outwardly under centrifugal action of the engine to cut off the supply of steam to the said cylinder.

14. In combination with a rotary engine embracing a cylinder, a steam-chest mounted thereon provided with a port connecting the same with the cylinder and an eccentric non-rotatively mounted on the shaft of the engine, of a slide-valve in said steam-chest provided with a radially-extending stem which has engagement at its inner end with the periphery of said eccentric, said valve being adapted to move outwardly under the centrifugal action of the engine to cut off the supply of steam to the cylinder, a spiral spring surrounding said stem and engaging at its outer end the steam-chest, an adjustable collar on the stem engaging the opposite end of the spring whereby the tension of said spring may be varied as desired.

15. In combination with a rotary engine having a rotative but normally stationary shaft, said shaft being provided with a crank portion, cylinders located around said shaft, pistons in said cylinders provided with piston-rods which are operatively connected with said crank portion of the shaft, of means for turning the shaft so that the pistons will be shifted within the cylinders whereby upon the admission of steam to the cylinders the movement of the engine will be reversed.

16. In combination with a rotary engine having a rotative movement, a normally stationary shaft, said shaft being provided with a crank portion, cylinders located about said shaft and pistons in said cylinders provided with piston-rods which are operatively connected with said crank portion of the shaft, of means for turning the shaft so that the pistons will be shifted within the cylinders, whereby upon the admission of steam to said cylinders the movement of the engine will be reversed, comprising a lever rigidly attached to the shaft, and means for locking said lever to a stationary part of the engine.

602,681. TYPE-CASE. Hulbert Dyer, Youngstown, Ohio. Filed July 7, 1896. Serial No. 598,206. (No model.)



Claim.—1. In a type-case, a frame, a number of rows of boxes secured together, the rows being pivoted at the ends to the frame, a shaft journaled between the sides of the frame and suitable flexible connections between the shaft and the boxes, as and for the purpose described.

2. In a type-case, a row of boxes pivoted at its ends to the sides of the frame, a shaft journaled between the sides of the frame, straps wound on the shaft and secured to the backs of the boxes, a crank on the end of the shaft, a pin adapted to a number of holes in the side of the frame, as and for the purpose described.

3. In a type-case, the combination of the type boxes or compartments arranged in rows in the case, each row of the upper-case boxes overlapping each other, the second and third rows of the lower case being adjusted by means of a shaft in the casing, said shaft being retained at the desired position by a pin in the side of the frame, all boxes or compartments having scoop or inclined fronts, excepting those in the front row of lower case, all boxes or compartments in the upper or capital case and second and third rows of lower case being tapered toward the front, thereby making the side walls of said boxes lower in front than the rear, and the front wall lower than the rear wall, the boxes being inclined forwardly substantially as shown and described.

602,682. METHOD OF OBTAINING FREE AMORPHOUS SILICON. Guillaume de Chalmot, Holcomb Rock, Va. Filed Sept. 24, 1897. Serial No. 652,912. (No specimens.)

Claim.—1. In the process of reducing silica or silicates in the presence of copper, the method herein specified of reclaiming the silicon in a free condition, consisting in finely pulverizing the silicon-copper alloy and mixing the same with sulfur, heating the same in a closed vessel to a temperature preferably between 250° and 300° centigrade, in which the copper unites with the sulfur and the silicon of the silicid is set free as an amorphous powder, substantially as set forth.

2. In the process of reducing silica or silicates in the presence of copper, the method herein specified of reclaiming the silicon in a free condition consisting in finely pulverizing the silicon-copper alloy and mixing the same with sulfur, heating the same in a closed vessel to a temperature preferably between 250° and 300° centigrade, in which the copper unites with the sulfur and the silicon of the silicid is set free as an amorphous powder, the amount of sulfur being regulated so as to obtain the compound Cu_2S or the compound CuS, substantially as set forth.

3. In the process of reducing silica or silicates in the presence of copper, the method herein specified of reclaiming the silicon in a free condition, consisting in finely pulverizing the silicon-copper alloy and mixing the same with sulfur, heating the same in a closed vessel to a temperature preferably between 250° and 300° centigrade, in which the copper unites with the sulfur and the silicon of the silicid is set free as an amorphous powder, treating the mixture of sulfids and free silicon with acids to dissolve the copper and liberate the sulfur, decomposing the sulfids, washing out the copper salts, drying the residue and extracting the sulfur by carbon disulfid and treating the remainder with hydrofluoric acid to remove the silica, substantially as set forth.

602,688. CONNECTION FOR CYCLE-CHAINS. Frederic Boarbert, Brooklyn, N. Y. Original application filed Apr. 5, 1897, Serial No. 630,622. Divided and this application filed Dec. 10, 1897. Serial No. 661,341. (No model.)



Claim.—1. The combination with the chain-links, of a screw for connecting the links and forming a pivot and a spring-arm connected to and turning with the screw and a latch or projection for holding the spring and preventing the spring-arm and screw turning backward, substantially as set forth.

2. The combination with the chain-links, of a screw for connecting the end links and forming a pivot and a spring-arm connected to and turning with the head of the screw and having clips at opposite sides for forming latches that engage the edges of the link and prevent the screw turning until the arm is sprung back to disengage the latches, substantially as set forth.

602,634. BACK-PEDALING BRAKE. Frederic Boarbert, Brooklyn, N. Y., and Harold Serrell, Plainfield, N. J.; said Serrell assignor to said Boarbert. Filed June 1, 1896. Serial No. 593,730. (No model.)



Claim.—1. The combination in a vehicle driving mechanism, of a revoluble shaft or axle, a wheel and its support, friction devices constantly connecting the wheel and shaft, whereby the wheel is under constant friction while revolving with reference to the shaft, means for positively connecting the shaft and wheel to cause the wheel and shaft to revolve together in one direction, and means for releasing said positive connection when the wheel and shaft move relatively to each other, substantially as set forth.

2. The combination with the shaft and the wheel, of an adjustable frictional connection between the two, which connection is constant and continuously operative, and a clutch mechanism operative in one direction and automatically separable by lessening the movement of one part in relation to the other, so as to permit the frictional connection to operate as a brake, substantially as set forth.

3. In a bicycle, the combination with the devices for applying power and for driving the machine, of two rings in the same plane the one within the other, the inner ring having notches and inclines and devices therein adapted to act against the inner edge of the outer ring as a clutch to cause an engagement of the rings when the rotation is in one direction only, and means connected with the inner ring for applying a constant pressure and friction against the respective opposite faces of the outer ring for frictionally retarding the movement of the outer ring and stopping the same when the clutch is released, substantially as set forth.

4. In a bicycle, the combination with the devices for applying power and for driving the machine, of an exterior ring *c* having peripheral sprocket-teeth, and an internal ring *d* in the same plane, friction-rollers 3 in notches having inclines in the edge of the internal ring, disks upon the respective surfaces of the internal ring and connected thereto, and extending to receive between them the external ring, rings of leather or similar material between the side surfaces of the external ring and the inner surfaces of the disks for producing a friction to retard and stop the rotation of the external ring, substantially as and for the purposes set forth.

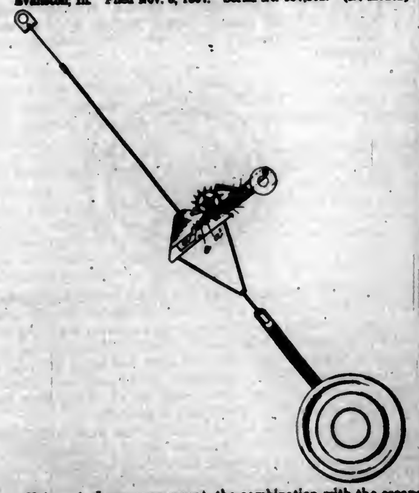
5. In a bicycle, the combination with the devices for applying power and for driving the machine, of an exterior ring *c*, having peripheral sprocket-teeth *c'*, a plain inner surface and recesses in its opposite faces, an internal ring *d* in the same plane with the ring *c*, and having equidistant notches and inclines in the outer edge, friction-rollers 3 in said notches and acting between the inclines and the inner surface of the ring *c* to connect said rings, disks upon the opposite sides of said rings connected to the inner ring, rings of leather or similar material in the recessed faces of the external ring and against which the said disks bear frictionally to retard and stop the rotation of the external disk when freed from the engagement of the rollers 3, substantially as and for the purposes set forth.

6. The combination with the ring, of a central shaft and clutch mechanism within the ring for operatively connecting the parts in one direction only, a plate or disk at each side of the ring connected with the shaft and intervening friction-rings of suitable material, and means for pressing the plates continuously toward each other and against the ring for applying a constant friction to the ring, substantially as specified.

7. The combination with the pedals and shaft in a cycle, of a wheel upon the shaft, a ring surrounding the wheel, friction-plates at opposite sides of the wheel and leather or similar material intervening, and screws for applying pressure and regulating the friction between the parts, substantially as set forth.

8. The combination in a vehicle with the driving-shaft and driven wheel, of a ring and a support for the same, plates at opposite sides of the ring and mechanism for tightening the plates upon the sides of the ring to produce a continuous uniform pressure and friction between the parts to operate as a brake to the vehicle when the movement of the driving shaft is arrested, substantially as set forth.

602,635. **PENDULUM-ESCAPEMENT.** LAURENCE ERICSON, Evanston, Ill. Filed Nov. 6, 1897. Serial No. 657,562. (No model.)



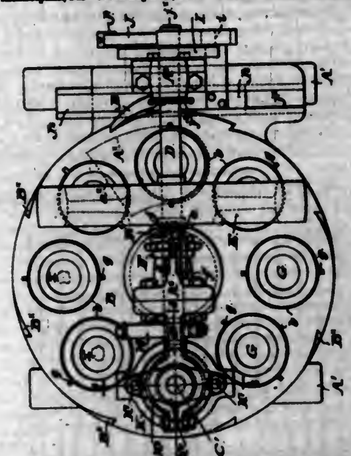
Claim.—1. In an escapement, the combination with the escapement-wheel, a pallet, a tappet, means connecting the pallet and tappet, of a pendulum having a cam-surface adapted to give impetus to and receive impetus from said tappet, and means for holding the escapement-wheel at rest while the cam-surface and tappet aforesaid are out of engagement with each other, substantially as set forth.

2. In an escapement, the combination with an escapement-wheel, a pallet, a tappet, and means connecting the pallet and tappet, of a pendulum having a cam-surface adapted to give impetus to and receive impetus from said tappet, and a rest carried by the pallet and adapted to engage said tappet for holding the pallet in engagement with the escapement-wheel, substantially as set forth.

3. In an escapement, the combination with an escapement-wheel, of a pallet having the lug *c* provided with a single surface adapted to engage the teeth of the escapement-wheel for holding it at rest, the lug *c'* having a single surface adapted to be engaged by the teeth of the escapement-wheel said surface being in the nature of a cam so disposed that the pressure of the escapement wheel thereon will oscillate the pallet, a pendulum, and means for transmitting movement from the pallet to the pendulum and from the pendulum to the pallet, substantially as set forth.

4. In an escapement, the combination with an escapement-wheel, a pallet, a tappet, means connecting the pallet and tappet, and means for counterbalancing them, of a pendulum having a cam-surface adapted to receive impetus from and impart impetus to said tappet, and means for holding the escapement-wheel at rest when the cam-surface and tappet aforesaid are out of engagement, substantially as set forth.

602,636. **GLASS-PRESSING MACHINE.** WILSON PEPPER, Philadelphia, Pa. Filed Sept. 20, 1897. Serial No. 652,248. (No model.)



Claim.—1. In a glass-press the combination with a fixed bed-plate, of a mold carrier mounted to rotate upon said bed-plate, mechanism to intermittently rotate said carrier, a series of sockets in said carrier, a series of molds pivoted in said sockets, and resting upon said bed-plate, a discharge-opening in said bed-plate, means to tilt said pivoted molds when over said discharge-opening, means to return said molds to normal position, a positively-actuated plunger, a second plunger in telescopic relation with said first plunger, an elastic medium between said two plungers, and a mold upon said second plunger adapted to successively register with said pivoted molds, substantially as set forth.

2. In a glass-press the combination with a fixed bed-plate, of a mold-carrier mounted to rotate upon said bed-plate, mechanism to intermittently rotate said carrier, a series of sockets in said carrier, a series of molds pivoted in said sockets, and resting upon said bed-plate, a discharge-opening in said bed-plate, means to tilt said pivoted molds, when over said discharge-opening, means to return said molds to normal position, a positively-actuated plunger, a mold comprising two concentrically-related relatively-movable members, adapted to successively register with said pivoted molds, and separate elastic mediums connective of said two mold members and said positively-actuated plunger, substantially as set forth.

3. In a glass-press, the combination with a fixed bed-plate, of a mold-carrier mounted for movement upon said bed-plate, a mold entered in said carrier adapted to rest upon said fixed bed-plate, means to shift said mold-carrier, and a second mold adapted to cooperate with the mold in said carrier, substantially as set forth.

4. In a glass-press, the combination with a fixed bed-plate, of a mold-carrier mounted for movement upon said bed-plate, a mold pivoted in said carrier, and adapted to rest upon said bed-plate, means to shift said mold-carrier, an opening in said bed-plate, means to tilt said pivoted mold when in registry with said bed-plate opening, and a second mold adapted to cooperate with said pivoted mold, substantially as set forth.

5. In a glass-press, the combination with a fixed bed-plate, of a mold-carrier mounted for rotation upon said bed-plate, a mold pivoted in said carrier, adapted to rest upon said fixed bed-plate, means to rotate said mold-carrier, an opening in said bed-plate, means to tilt said pivoted mold when in registry with said bed-plate opening, means to return said tilted mold to normal position by the rotation of said carrier, and a second mold adapted to cooperate with said pivoted mold, substantially as set forth.

6. In a glass-press, the combination with a fixed bed-plate, of a mold-carrier mounted for movement upon said bed-plate, a mold pivoted in said carrier, means to shift said mold-carrier, an opening in said bed-plate, means to tilt said pivoted mold when in registry with said bed-plate opening, to discharge the molded article through the latter, a table A^5, beneath said opening, and a second mold adapted to cooperate with said pivoted mold, substantially as set forth.

7. In a glass-press, the combination with a fixed bed-plate, of a mold-carrier mounted for movement upon said bed-plate, a mold pivoted in said carrier and adapted to rest upon said bed-plate, means to shift said mold-carrier, an opening in said bed-plate, means to tilt said pivoted mold when in registry with said bed-plate opening, to discharge the molded article through the latter, means to return said mold to normal position by the movement of said mold-carrier, a table A^5, beneath said opening, and a second mold adapted to cooperate with said pivoted mold, substantially as set forth.

8. In a glass-press, the combination with a fixed bed-plate, of a mold-carrier mounted for rotation upon said bed-plate, a mold pivoted in said carrier and adapted to rest upon said fixed bed-plate, peripheral notches in said carrier, a reciprocatory pawl to engage said notches and shift said carrier, an opening in said bed-plate, means to tilt said pivoted mold when in registry with said bed-plate opening, to discharge the molded article through the latter, means to return said mold to normal position by the movement of said mold-carrier, and a second mold adapted to cooperate with said pivoted mold, substantially as set forth.

9. In a glass-press, the combination with a positively-actuated plunger C, of a plunger L', mounted for relative movement upon the first-named plunger, a spring L^3, intermediate of said two plungers, and toggle-levers L^2 connective of said two plungers, substantially as set forth.

10. In a glass-press, a hollow plunger C, mounted for reciprocation, a second plunger L', mounted for reciprocation within said plunger C, a spring L^3, mounted within the plunger C, to bear upon the plunger L', and a pin *c*, entered through said plungers to limit their relative movement, substantially as set forth.

11. In a glass-press, a hollow plunger C, mounted for reciprocation, a second plunger L', mounted for reciprocation within said plunger C, a spring L^3, mounted within the plunger C, to bear upon the plunger L', a pin *c*, entered through said plungers to limit their relative movement, and a screw-threaded sleeve O^2, to adjust the pressure of said spring, substantially as set forth.

12. In a glass-press, a hollow plunger C, mounted for reciprocation, a second plunger L', mounted for reciprocation within said plunger C, a spring L^3, intermediate of said two plungers, a pin *c*, to limit the relative movement of said plungers, a threaded extension C', upon the upper extremity of said plunger C, a yoke K^3, mounted upon said extension C' and provided with an adjustable spring K^4, and rods K', connecting said yoke K^3 with the mold K, at the lower extremity of said plunger L', substantially as set forth.

13. In a glass-press, a hollow plunger C, mounted for reciprocation, a second plunger L', mounted for reciprocation within said plunger C, a spring L^3, intermediate of said two plungers, a pin *c*, to limit the relative movement of said plungers, a threaded sleeve O^2, to adjust the pressure of said spring L^3, a threaded extension C', upon the upper extremity of said plunger C, a yoke K^3, mounted upon said extension C', and provided with an adjustable spring K^4, and rods K', connecting said yoke K^3, with the mold K, at the lower extremity of said plunger L', substantially as set forth.

14. In a glass-press, a hollow plunger C, mounted for reciprocation, a second plunger L', mounted for reciprocation within said plunger C, a spring L^3, intermediate of said two plungers, a pin *c*, to limit the relative movement of said plungers, a sleeve O^2, in threaded engagement with the plunger C, the collar-wrench O^3, in engagement with said sleeve, a threaded extension C', upon the upper extremity of said plunger C, in threaded engagement with the sleeve O^2, a yoke K^3, mounted upon said extension C', and provided with an adjustable spring K^4, and rods K', connecting said yoke K^3, with the mold K, at the lower extremity of said plunger L', substantially as set forth.

602,687. **BASIC RED DISAZO DYE.** ERNST KÖNIG, Höchst-on-the-Main, Germany, assignor to the Farbwerks, vormals Meister, Lucius & Brüning, same place. Filed May 6, 1897. Serial No. 636,366. (Specimens.)

Claim.—As a new product, the scarlet-red dyestuff, obtained from diazotized meta-trimethyl ammonium phenyl-azo-meta-toluidin and beta-naphthol, being a brown-red powder, soluble in water with a blue-red color, soluble in alcohol, insoluble in benzene, ether or petroleum ether, and dyeing tanned and untanned cotton as well as half-wool scarlet red in an acid-bath, substantially as set forth.

602,688. **BASIC YELLOW DISAZO DYE.** ERNST KÖNIG, Höchst-on-the-Main, Germany, assignor to the Farbwerks, vormals Meister, Lucius & Brüning, same place. Filed May 6, 1897. Serial No. 636,367. (Specimens.)

Claim.—As a new product, the yellow dyestuff obtained from diazotized meta-trimethyl ammonium phenyl-azo-meta-toluidin and 1 phenyl 3 methyl 5 pyrazolon, being an orange-yellow powder, soluble in water, alcohol, ether and benzene; insoluble in petroleum ether, dyeing tanned and untanned cotton as well as half-wool yellow in an acid-bath, substantially as set forth.

602,689. **COPPERY-BROWN DYE.** ERNST KÖNIG, Höchst-on-the-Main, Germany, assignor to the Farbwerks, vormals Meister, Lucius & Brüning, same place. Filed May 6, 1897. Serial No. 636,368. (Specimens.)

Claim.—As a new product, the brown dyestuff obtained from diazotized meta-trimethyl ammonium phenyl-azo-meta-toluidin and chrysoïdin, being a black-green powder, easily soluble in water with a reddish-yellowish-brown color, soluble in alcohol, insoluble in ether, benzene and petroleum ether, and dyeing tanned and untanned cotton as well as half-wool a coppery brown, substantially as set forth.

602,640. **RED-VIOLET BASIC DISAZO DYE.** ERNST KÖNIG, Höchst-on-the-Main, Germany, assignor to the Farbwerks, vormals Meister, Lucius & Brüning, same place. Filed May 6, 1897. Serial No. 636,369. (Specimens.)

Claim.—As a new product, the reddish-violet dyestuff obtained from diazotized meta-trimethyl ammonium phenyl-azo-meta-amido-para-cresol-ethyl ether and beta-naphthol, being a brown powder, soluble in water with a cherry-red color, soluble in alcohol, ether, benzene and petroleum ether, and dyeing tanned and untanned cotton, as well as half-wool a reddish violet in an acid-bath, substantially as set forth.

602,641. **BROWN DISAZO DYE.** ERNST KÖNIG, Höchst-on-the-Main, Germany, assignor to the Farbwerks, vormals Meister, Lucius & Brüning, same place. Filed May 6, 1897. Serial No. 636,403. (Specimens.)

Claim.—1. The process of producing brown disazo and polyazo dyestuffs, which consists in diazotizing the amidoazo dyestuffs from diazotized aromatic amido-ammonium bases and primary alphylamins, and then combining them with phenols, alphylamins, oxy or amido azo dyestuffs, substantially as set forth.

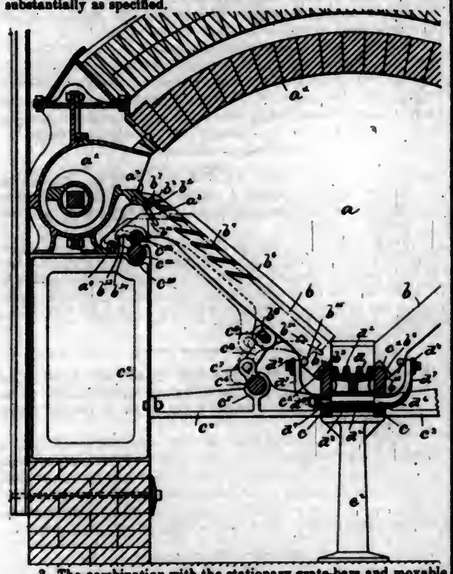
2. As a new product, the brown dyestuff obtained from diazotized meta-trimethyl ammonium phenyl-azo-alpha-naphthylamin and chrysoïdin, being a blackish-brown powder, easily soluble in water with a brown color, which solution is not changed either by alkalies or acids, dissolved by concentrated sulfuric acid with an olive-green color; insoluble in ether and benzene or petroleum ether, but soluble in alcohol, and dyeing tanned and untanned cotton, as well as half-wool, brown in an acid-bath, substantially as set forth.

602,642. **GRATE-BAR AND FURNACE.** GEORGE L. K. MORROW, Detroit, Mich. Filed Apr. 30, 1897. Serial No. 634,515. (No model.)

Claim.—1. In a furnace, a series of inclined grate-bars arranged on opposite sides of the furnace, each of said grate-bars being supported at its lower end on a bar-support having an angular projection fitted in a corresponding groove in said bar, an inclined supporting-plate at the upper ends of said grate-bars approximately in line with the plane of said bars, said plate having engaging lugs or projections adapted to engage in hook-shaped lugs on said bars to hold said bars against vertical displacement but permit a longitudinal and lateral adjustment of the same, substantially as specified.

2. The combination with the angularly-arranged grate-bars having the laterally-projecting shelves on the sides thereof, of the movable bars arranged between the ends of said shelves, said movable bars being supported at each end on operating parts adapted to move the same back and forth through the space between said grate-bars and shelves, the operating parts being so arranged that the movable bars when in any position of their movement shall tend to return by

gravity to their normal positions below the front of said grate-bars, substantially as specified.



3. The combination with the stationary grate-bars and movable bars arranged between the same, means for elevating and depressing the movable bars between the stationary grate-bars, a stationary longitudinal support arranged below said stationary bars, and a bearing-support on each of said movable bars adapted to engage said stationary support and thus hold said movable bars in alinement when in a position of rest, substantially as specified.

4. The combination with a side feeding device and central grate-bar supports, supporting-stands for said feeding device and brace connections from said supporting-stands to said grate-bar supports, inclined grate-bars extending from said fuel-feeding device to said supports, a rock-shaft journaled in bearings in said brace connections, and an oscillating beam or bar journaled in bearings in said supporting-stand, and movable bars fitted between said grate-bars and connected to said oscillating beam and rock-shaft at the respective ends thereof, substantially as specified.

5. The combination with the inclined grate-bars and the central supports therefor, of the clinker-crushers journaled between said supports, said clinker-crushers each consisting of toothed crushers arranged in pairs, the respective crushers of each pair having oppositely-projecting cranks, and vibrating bars connecting all the cranks on the respective sides of said supports, and an oscillating beam connected to said vibrating bars, and means for communicating power to said beam, substantially as and for the purpose specified.

6. The combination with the feeding device, inclined grate-bars extending therefrom inwardly and downwardly to the center of the furnace and supported on longitudinal supports, movable bars having oscillating devices connected thereto, said movable bars being arranged between said grate-bars, rotary crushers journaled between said supports, crank-shafts on said crushers extending in opposite directions, and vibrating bars connected to said crank-shafts, an oscillating beam connected to said vibrating bars, and connecting devices by which said feeding devices, said oscillating bars and said crushers are operated in unison, substantially as and for the purpose specified.

7. The combination with the inclined grates, of the central grate-supports, the rotary crushers arranged between said supports, crank-shafts extending in opposite directions from said crushers, said crank-shafts being of gradually-decreasing length from front to rear, vibrating bars connected to said crank-shafts, and means for alternately reciprocating said bars, substantially as and for the purpose specified.

8. The combination with the grate-bar supports, the crushers located between the same, the movable toothed plates arranged at the front and rear of said grate-bar supports and adapted to act in conjunction with said crushers, substantially as specified.

9. The combination with the rotary crushers, the vibrating bars connected to oppositely-arranged crank shafts on said crushers, and an oscillating beam connected to said bars, of a removable lever-arm connected to said oscillating beam, said lever-arm having a reduced area in cross-section adapted to break under undue strain, substantially as specified.

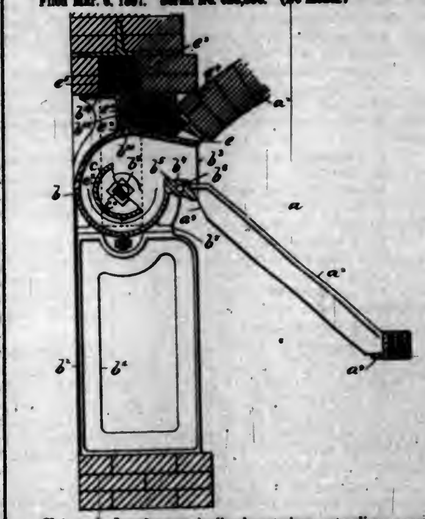
10. The combination with the inclined grates, the longitudinal grate-supports, the spacing and supporting block at one end of said supports, a stud in said supporting-block, an oscillating plate journaled on said stud, vibrating bars extending from said oscillating beam to oppositely-arranged crank-shafts extending in opposite directions from said crank-supports, clinker-crushers on said crank-shafts, and a hearth-plate arranged above said spacing and supporting block and said oscillating beam, substantially as specified.

11. The combination with the inclined grate-bars, an inclined supporting-plate for the upper ends thereof, said plate being provided with a series of projecting lugs alternating with a series of spaces, hook-shaped projections on said grate-bars adapted to be inserted in the spaces between said lugs and when moved laterally to engage said lugs and hold said grate-bars against vertical displacement while permitting longitudinal expansion and contraction thereof, substantially as specified.

12. The combination with the upper grate-bar supports and the supporting-stands, the longitudinally-extending ribs arranged on said grate-bar supports and below the same, the oscillating beam supported in bearings in said stands and having the circular rib connected thereto and arranged adjacent to said longitudinal stationary rib, in combination with the movable bars which are journaled on the rib of said movable beam and provided with bearings adapted to engage with said stationary rib, substantially as and for the purpose specified.

13. The combination with the stationary grate-bars and the movable bars between the same, oscillating devices connected at each end to said movable bars to cause the same to reciprocate between the stationary bars, and stationary projections or supports below the respective ends of said movable bars, said stationary supports and movable bars having intereugaging projections adapted to receive and support said bars in line in assembling said movable bars and their connecting parts, substantially as specified.

602,648. FURNACE. Gustave L. K. Meerow, Detroit, Mich. Filed Mar. 6, 1897. Serial No. 626,596. (No model.)



Claim.—1. In a furnace, inclined grate-bars extending upwardly and outwardly toward the sides of said furnace, a feeding device arranged on each side of said furnace on the outside of and adjacent to the upper ends of said inclined grate-bars, said feeding device consisting of a screw conveyer arranged in a conveyer-box extending longitudinally along said furnace, said conveyer being gradually increased in diameter to reduce the carrying capacity, while the conveyer-box is increased in diameter to form a substantially uniform clearance, and a coking shelf or chamber between said conveyer and grate-bars, substantially as specified.

2. The combination with the inclined grate-bars, of a feeding-conveyer having a central hub or sleeve of a gradually-increasing diameter and the conveyer flights or flanges of a uniform diameter, and a conveyer-box of gradually-increasing diameter, of a coking shelf or chamber arranged between said conveyer and said inclined grates, substantially as specified.

3. The combination with the inclined grates, and a screw conveyer, a conveyer-box in which said conveyer is located, a coking shelf or arch between said conveyer and the grates, a stationary rib or ledge on said shelf, and an opening adjacent to the end of said shelf or arch, substantially as and for the purpose specified.

4. In a furnace, the combination with a conveyer-box extending into or adjacent to said furnace, a hopper located on the outside of said furnace, a contracted neck or throat between said hopper and conveyer-box, said conveyer being formed with flights of a uniform carrying capacity at a point opposite the contracted throat, at which point the carrying capacity is reduced by reducing the diameter of said flights, the carrying capacity of said conveyer being further reduced by gradually increasing the diameter of the central hub or shaft of said central conveyer while the diameters of the flights remain uniform, substantially as specified.

5. The combination with a conveyer-box, a conveyer mounted therein, said conveyer having flights of a uniform diameter in said box, the central hub or shaft of said conveyer being gradually increased in diameter to reduce the carrying capacity, the conveyer-box being increased in diameter to form a substantially uniform clearance between the bottom of said conveyer-hub and the bottom of said conveyer-box, substantially as specified.

6. The combination with the conveyer and the conveyer-box, of a hopper as described, gear arranged on the end of said hopper for driving said conveyer, and a lid or door hinged to said hopper above said gear and adapted to turn down and form a cover for said gear, substantially as specified.

7. The combination with the conveyer and a conveyer-box, of an air-trunk, one wall of which constitutes a portion of said conveyer-box and the other wall a support for a fire-arch, the engaging surfaces of said air-trunk and conveyer-box being formed with intermeshing devices as described, and twyer-openings in said air-trunk arranged slightly above and in front of the discharge from said conveyer-box, substantially as specified.

8. The combination with the inclined grates, a conveyer-box arranged adjacent to the upper end of said inclined grates, a conveyer having a gradually-reduced carrying capacity in said conveyer-box, a coking shelf or chamber between said conveyer and said grates, a rib or ledge between said conveyer and shelf and opening adjacent to the end of said shelf, an air-trunk, one side of which forms a portion of said conveyer box or chamber and twyer-openings from said air-trunk immediately above and in front of said coking-chamber, substantially as specified.

9. In a furnace having inclined grates and a fire-arch as described, a feeding device arranged between said grates and arch, an air-trunk having twyer-openings adjacent to said arch, said air-trunk being adapted to support said arch and having the walls thereof cut away to form a heating connection between said arch and air-trunk, substantially as specified.

10. The combination with the feeding-conveyer and the conveyer-box, a shaft extending through said conveyer-box, a gear journaled on said shaft, a clutch-collar secured to said shaft adjacent to said gear and having ratchet-teeth as described, and a pawl adapted to engage and disengage said ratchet-teeth, substantially as and for the purpose specified.

11. The combination with the feeding-conveyer and its supports, a worm-gear journaled loosely on the conveyer-shaft, and a worm to engage said gear, a ratchet-wheel secured to said shaft, and a pawl to engage said ratchet, substantially as and for the purpose specified.

12. The combination with the feeding-conveyer and the coking-chamber adjacent thereto, an air-trunk having twyer-openings arranged adjacent to said coking-chamber, air-flues extending from the furnace-front and through the furnace-walls so as to communicate with the opposite ends of said air-trunk, and means at the furnace-front for regulating the openings to said flues, substantially as specified.

13. The combination in a furnace with the conveyer and the conveyer-box, an air-trunk arranged adjacent thereto having twyer-openings as described, an air-flue extending from the furnace-front through the furnace-walls and adjacent to said conveyer to an air-chamber formed at the rear of said conveyer-box, and an opening from said air-chamber into the air-trunk, substantially as specified.

14. The combination with a conveyer-box and a hopper as described, a conveyer extending through said box and into said hopper and having a shaft journaled at the respective ends in said conveyer-box and hopper, a gear mounted adjacent to said hopper and turning loosely on said shaft, a clutch-collar secured to said shaft adjacent to said gear and having ratchet-teeth as described, said clutch-collar being formed with polygonal sides to receive a wrench, a pawl on said gear to engage said ratchet-teeth, and means for rotating said gear, substantially as specified.

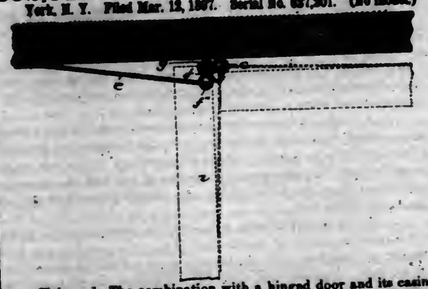
15. The combination with the conveyer and a conveyer-shaft, a worm-gear arranged loosely on said shaft, a ratchet-wheel secured rigidly to said shaft, and a pawl on said gear to engage said ratchet-wheel, a driving-shaft having a worm to engage said worm-gear, said worm being mounted loosely on said shaft, and a clutch splined to said shaft and adapted to be moved into or out of engagement with said worm, substantially as specified.

602,644. HANDLE FOR STOVE-DAMPERS. John J. Otaar, Eau Claire, Wis. Filed Mar. 13, 1897. Serial No. 627,351. (No model.)



Claim.—A device of the class described designed to be applied to a stove-damper after the handle thereof has been destroyed and comprising a body portion having a semisocket with a longitudinal frangible portion 10, and a removable section having a semisocket provided with a longitudinal frangible portion 11 arranged contiguous to the frangible portion 10, said body portion and removable section being recessed at 14 adjacent to the inner ends of the frangible portions 10 and 11 to reduce the device and enable the same to clear a stove when the frangible portions are removed, substantially as and for the purpose described.

602,645. DOOR SPRING AND CHECK. Henry Porter, New York, N. Y. Filed Mar. 12, 1897. Serial No. 627,301. (No model.)



Claim.—1. The combination with a hinged door and its casing, of a plate-spring fixedly secured to and having its free end projecting away from the door, and a link secured to the free end of the spring and to a relatively-immovable object, such as the door-frame, the arrangement being such that the free end of the spring passes over and behind the axial line of the hinges of the door, whereby the door is closed and is held open, substantially as described.

2. The combination with a hinged door and its casing, of a plate-spring fixedly secured to and having its free end projecting away from and above the top of the door, and a link secured to the free end of the spring and to a relatively-immovable object, as the door-frame, the arrangement being such that the free end of the spring passes over and behind the axial line of the hinges of the door, whereby the door is closed and is held open, substantially as described.

3. The combination with a hinged door and its frame, of a plate-spring having one end fixed on and movable with the door, and its free end projecting away from and beyond the edge of the door, a fastening device on the door-frame, a link having hooked ends connecting the free end of the spring with a fastening device, the parts being so relatively located that the free end of the spring passes behind the axial line of the hinges of the door, substantially as described.

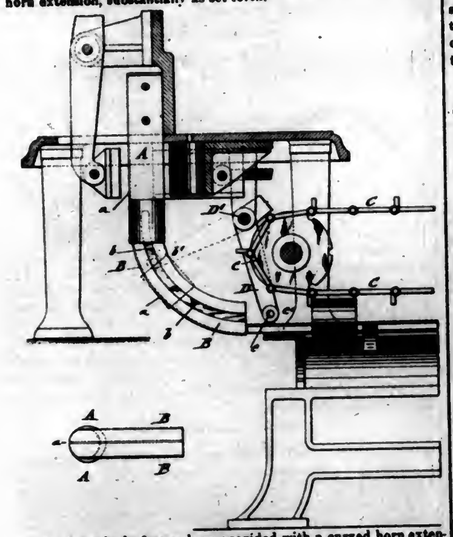
602,646. PROCESS OF MAKING ALKALINE ACETOSULFANILATE. Carl F. H. Schaeberle and Paul Schwabe, Basle, Switzerland, assignors to F. Hoffmann-La Roche & Co., same place. Filed Apr. 13, 1897. Serial No. 632,997. (Specimens.)

Claim.—The herein-described process for the preparation of a pure alkaline acetosulfanilate for use in medicine, which consists in first acetylizing an alkaline salt of sulfanilic acid by means of glacial acetic acid, and then freeing the product of reaction from free sulfanilic acid and alkaline acetate by means of water and alcohol.

602,647. BORN EXTENSION FOR CAN-BODY-FORMING MACHINES. Richard Strohmeier, New York, N. Y. Filed Mar. 31, 1897. Serial No. 630,110. (No model.)

Claim.—1. A can-body former-horn, provided with a curved horn extension of smaller size than the former-horn, so as to permit the

dropping of the can-body by gravity from the former-horn to the horn extension, substantially as set forth.



2. A can-body former-horn provided with a curved horn extension of somewhat smaller size than the former-horn and provided with flattened sides, substantially as set forth.

3. A can-body former-horn, provided with a curved horn extension of smaller size than the former-horn so as to permit the dropping of the can-body by gravity from the former-horn to the horn extension, the latter having a groove extending in line with the groove of the former-horn, along the outside edge of said horn extension, substantially as set forth.

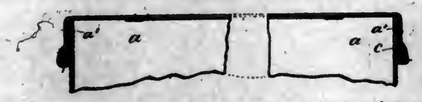
4. The combination with a can-body former-horn, of a curved horn extension made of smaller size than the former-horn so as to permit the dropping of the can-body by gravity from the former-horn to the horn extension, and a carrier mechanism for taking up the can-body from the lower end of the horn extension, substantially as set forth.

5. The combination, with a can-body former-horn, of a curved horn extension made of smaller size than the former-horn, and a transporting mechanism by which the can-body is moved over the lower part of said horn extension after it has moved over the upper part by gravity, substantially as set forth.

6. The combination, with a can-body former-horn, of a curved horn extension made of somewhat smaller size than the former-horn, a transmitting mechanism by which the can-body is moved over the lower portion of the curved extension after it has passed by gravity over the upper portion of the same, and a carrier mechanism by which the can-body is conveyed forward after being delivered by the transporting mechanism, substantially as set forth.

7. The combination, with a horizontal can body former-horn, of clearing-fingers for moving the can-body over said horn, a curved horn extension extending from said former-horn, an oscillating transmitting mechanism for conducting the can-body over the lower portion of the horn extension, and a carrier mechanism for conveying the can-body from the lower end of the horn extension to the side-seam-soldering machine, substantially as set forth.

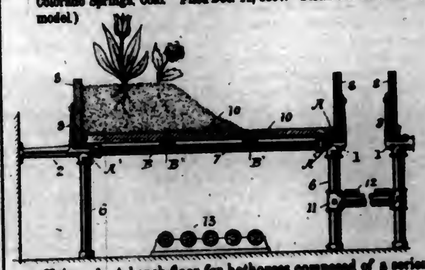
602,648. SHEET-METAL CAN. ARTHUR R. WALLER, Belleville, N. J., assignor to the Burger Manufacturing Company, Hoboken, N. J. Filed June 30, 1897. Serial No. 642,368. (No model.)



Claim.—1. The can-body having an upper edge turned over and flanged in combination with the cover having a rim and flange to set over the double upper edge and flange of the body, a wire in the space between the parts and the parts united by the flanges rolled together into a bead, substantially as set forth.

2. The can-body having an upper edge turned over and flanged in combination with the cover having a rim and flange to set over the double upper edge and flange of the body, and extend beyond said flange, a wire in the space between the parts with its end protruding, and said parts being rigidly connected by bending the edge of the cover-flange over the edge of the body-flange and then rolling the flanges together into a bead, substantially as set forth.

602,649. TILE BENCH FOR HOTHOUSES. WILLIAM P. WIGHT, Colorado Springs, Colo. Filed Dec. 11, 1897. Serial No. 661,490. (No model.)

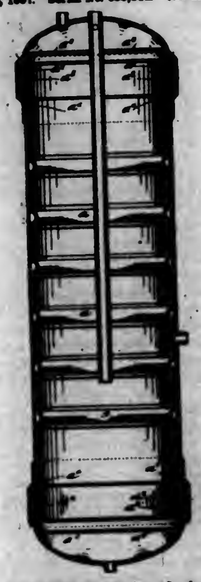


Claim.—1. A bench-floor for hothouses composed of a series of porous tile-sections made with a convex upper surface and with longitudinal corrugations on the under side, in combination with a suitable supporting structure.

2. In combination with the tile-bed, consisting in the rabbeted bars A', B', of the supporting-framework consisting in the detachable cross-bars 7 and standards 6, connecting corner-pieces 1, having integral braces 2, 3, and side pieces 8, substantially as described.

3. In combination with adjacent benches for hothouses, the interposed walk connected with the respective supporting standards or legs, and vertically adjustable thereon, substantially as and for the purpose set forth.

602,650. RANGE-BOILER. VALENTIN WILHELMI, Paterson, N. J. Filed Oct. 20, 1897. Serial No. 655,811. (No model.)



Claim.—A range-boiler, consisting of a body having a flattened ring portion offset therefrom and of greater diameter than the diameter of said body, the said ring portion being provided with an offset and terminating in a cylindrical rim of substantially the diameter of the body of the boiler and inclined and curved to conform to the shape of the head, a head having an offset rim forming a shouldered flange of greater diameter than the body thereof, the shouldered flange of the head overlapping said flattened ring portion, and an exterior band extending over the said ring portion and the overlapping portion of the head, the upper and lower edges of said band fitting over the shoulders on said ring portion and flange so as to form a three-ply joint, substantially as set forth.

602,651. SCREW-PROPELLER. JAMES M. ADAM, Glasgow, Scotland. Filed Sept. 15, 1896. Serial No. 605,909. (Model.)

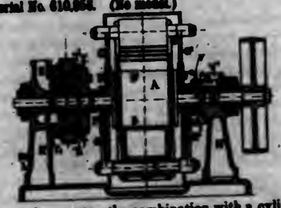


Claim.—1. A vane or propeller-blade having its body curved to conform to the surface of a conic figure attached to the hub about its perigee edge, said blade extending outward from the hub nearly parallel to the apogee edge of the figure according to pitch ratios determined substantially as set forth.

2. In combination the hub and blades carried thereby, said blades being each shaped to conform laterally to a conic surface which is inclined to the axis of its gyration and superficially to the outlines defined by the required pitch ratios determined substantially as described.

3. In combination the hub and the blade carried thereby, said blade being shaped to conform to the surface of a cone whose axis is inclined to the axis of rotation, and whose apex coincides with or touches the axis of said hub, substantially as described.

602,652. MOTOR. PAUL AUBRY, Paris, France. Filed Oct. 26, 1896. Serial No. 610,254. (No model.)



Claim.—1. In a motor, the combination with a cylinder, of a rotatable part actuated by said cylinder, a valve-disk located adjacent to said rotatable part and carrying a gear meshing with a gear located on the rotatable part, a stationary gear with which the gear on the valve-disk meshes, and valve-ports in said disk and rotatable part having communication with said cylinder, substantially as described.

2. In a motor, the combination with a cylinder, of a rotatable part actuated thereby and having communication with said cylinder, a bevel-gear carried by said rotatable part, a rotating valve-disk provided with inlet and exhaust ports and carrying upon its periphery a gear meshing with said bevel-gear, a stationary support abutting against said rotating disk and provided with inlet and exhaust ports, and a bevel-gear carried by said support and meshing with the gear on the valve-disk, substantially as described.

3. In a motor, the combination of a rotatable cylinder mounted upon a shaft adapted to rotate therewith, a reciprocating piston in said cylinder, a rotating valve mechanism provided with inlet and exhaust ports, a hollow extension from said cylinder to establish communication with said valve mechanism, an eccentric located upon a fixed support between said valve mechanism and cylinder, and means connecting said piston and eccentric, substantially as described.

602,653. BOX OR CAN. ALEXANDER CAMERON, Jr., Richmond, Va. Filed June 15, 1897. Serial No. 640,242. (No model.)



Claim.—1. A box or can comprising a body portion having studs or projections near its upper edge and a permanent tagger-tin cover, a removable outer cover provided with a knife or cutter and vertical slots having lateral extensions and a peripheral groove, substantially as described.

2. A box or can comprising a body portion provided with engaging means and a tagger cover, a removable outer cover provided with a knife or cutter having a shoulder or shoulders to engage the under side of the tagger tin, and means on the cover for engaging the engaging means on the body of the can, substantially as described.

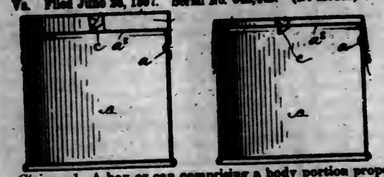
3. A box or can comprising in its construction a body portion having projections or studs near its upper edge and having a tagger top and a removable outer cover having a knife or cutter and provided with means engaging the studs for preventing the cover and the cutter carried thereby from coming in contact with the tagger cover during transportation, said means when engaging the said studs also locking the cover against being moved up and down longitudinally of the body of the can, substantially as described.

4. A box or can comprising in its construction a body portion proper provided with studs or projections on its outer surface near its upper edge having a permanent tagger top, and a removable outer cover having a cutter and provided on its flange with a peripheral groove and vertical slots having lateral extensions adapted to receive the said studs, substantially as described.

5. A box or can comprising a body portion having studs or projections on its outer surface near its upper edge and a permanent tagger cover or top, and a removable outer cover having a vertical flange and provided with a stationary knife or cutter, and on its vertical flange with means for engaging the studs on the body of the can and holding the cutter, during transportation, out of engagement with the tagger top, the construction and arrangement being such that, when desired, the cutter can be brought into contact with the tagger top and the cover revolved to cut out the tagger top, substantially as described.

6. A box or can comprising a body portion having studs or projections on its outer surface near its upper edge and a permanent tagger cover or top, and a removal outer cover having a vertical flange and provided with a stationary knife or cutter and on its vertical flange with a peripheral groove, and means for engaging the studs on the body of the can and holding the cutter, during transportation, out of engagement with the tagger top, the construction and arrangement being such, that, when desired, the cutter can be brought into contact with the tagger top and the studs caused to enter the peripheral groove, and by revolving the cover the tagger top will be cut out, the peripheral groove also serving with the studs, as a means of locking the removable cover on, after the tagger top has been cut out, substantially as described.

602,654. BOX OR CAN. ALEXANDER CAMERON, Jr., Richmond, Va. Filed June 26, 1897. Serial No. 642,443. (No model.)



Claim.—1. A box or can comprising a body portion proper and an outer cover, the body portion proper being provided with a permanent thin top and the outer cover being provided with spring-tongues, and one of the parts constituting the box or can being provided with a stud-engaging member and another part of the can with a receiving-recess member, one set of the engaging members being formed on the spring-tongues on the cover at suitable points, and the other set of engaging members being provided on the body proper of the can, the cover also being provided on its inside with a cutter or cutters, substantially as described.

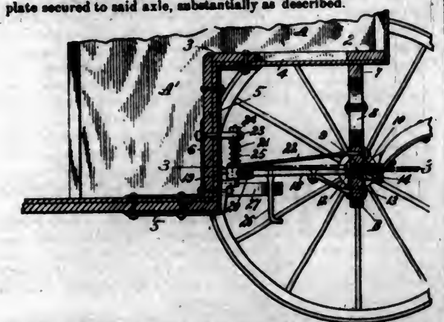
2. A box or can provided on its outer surface near its upper edge with sockets having a permanent thin top and a removable cover having a flange of greater depth than usual provided with spring-studs, and a cutter or cutters on the under side of the cover, said cutter or cutters being provided with a shoulder or shoulders, substantially as described.

602,655. VEHICLE RUNNING-GEAR. JAMES J. CASEY, Holyoke, Mass. Filed Dec. 20, 1897. Serial No. 664,022. (No model.)

Claim.—1. Running-gear for the front axle of vehicles having drop-down bodies, comprising an axle, a segment-shaped plate secured to said axle, a reach located at right angles to said axle and extending therefrom toward said wagon-body, a vertical king-bolt supported on said body with which bolt said reach engages and on which it has vertical movements coinciding with the vertical movement of said axle, in combination with a spring located between said

proximity to the said upturned edge and the said rail, and means for

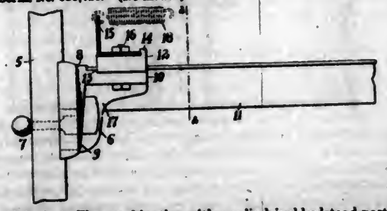
axle and the forward end of said wagon-body, a plate, a head-block to which said plate is secured in position to bear on said segmental plate secured to said axle, substantially as described.



2. In a vehicle having a drop-down body, running-gear for the front end thereof consisting of a spring, one side of which is secured to said body, a head-block to which the opposite side of said spring is secured, a plate on the under side of said head-block, a king-bolt supported in proximity to the end of the drop-down portion of said body, a brace extending from said head-block to said king-bolt, and having a sliding movement thereon, a spring between the upper end of said king-bolt and the top of said brace, combined with an axle, a segment-shaped plate secured thereto, a reach secured by one end to said axle and by its opposite end to said king-bolt on which it has a vertical sliding movement, and a hook on the plate secured to said head-block, for engaging the edge of said segment-shaped plate, substantially as described.

3. In a vehicle having a drop-down body, running-gear for the forward end thereof consisting of a king-bolt located on the end of said drop-down portion of said body, an axle, a segment-shaped plate secured to said axle, a reach extending between said axle and said king-bolt and engaging the latter, a head-block, a spring for supporting the forward end of said wagon-body, and interposed between said head-block and said body, a brace secured to and extending from said head-lock to said king-bolt and sliding freely thereon, a plate on said head-block for bearing on said segmental-shaped plate and suitable braces from the ends of said segment-shaped plate to said axle, substantially as described.

602,656. BEDSTEAD-BRACE. ADOLF G. DUWE, Brooklyn, N. Y., assignor to Oscar R. A. Wiesener, same place. Filed Nov. 26, 1897. Serial No. 659,729. (No model.)

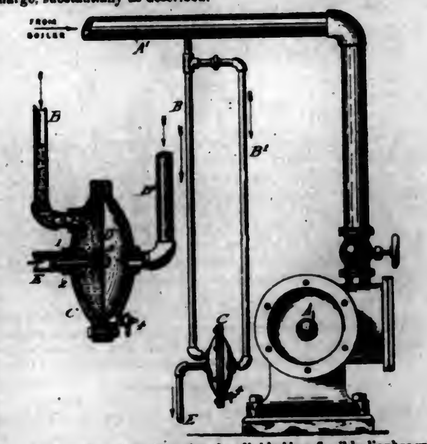


Claim.—1. The combination with a cylindrical bedstead-post, of a hook 6, projecting therefrom, a brace vertically grooved to fit said post and provided with a slot to receive the head of said hook and tapered downwardly at the point of engagement with the hook to create a wedging action thereon said slot being below the horizontal ledge 10, of said brace and said ledge being connected to the vertical portion by a web which serves to conceal the head of said hook, the angle-bar side rail 11, resting upon said ledge, the flanged corner-block 12, resting on the side rail, the end rail 15, resting on said block, and a bolt for securing the rails and corner-block rigidly to said brace, substantially as and for the purpose set forth.

2. The combination with the brace provided with the ledge 10, of the angle-bar side rail fitted thereto, the corner-block resting on said rail and having a flange bearing against the edge thereof and having an upwardly-projecting flange at right angles to the other flange, the angular cross-rail resting upon said block and against the upper flange, and a bolt passing through all of said parts, substantially as and for the purpose set forth.

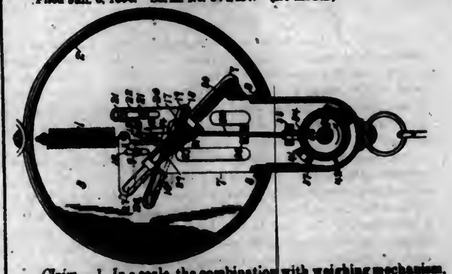
602,657. STEAM-TRAP. CHARLES E. FRANKLIN, San Francisco, Cal. Filed June 18, 1897. Serial No. 641,333. (No model.)

Claim.—1. In a steam-trap, the combination with a chamber having a flexible diaphragm which divides it into two parts, of a steam-inlet to one part of said chamber, and a steam and water inlet to the other part, a discharge-opening from said chamber, and a valve or stud carried by the diaphragm for opening and closing the said discharge, substantially as described.



2. In combination with a chamber divided by a flexible diaphragm, a steam-inlet to one side of said chamber, a steam and water inlet to the other side, a discharge-opening from said chamber having a hollow nipple projecting into said chamber, and a stud upon the diaphragm adapted to close and open the end of said nipple, substantially as described.

602,658. PRICE-SCALE. FREDERICK I. FULLER, Trenton, N. J. Filed Jan. 6, 1896. Serial No. 574,457. (No model.)



Claim.—1. In a scale, the combination with weighing mechanism, of a computing mechanism including a lever fulcrumed in the scale-frame, an actuator engaging said lever carried by and moving with the weighing mechanism, and means also carried by and moving with the weighing mechanism for adjusting said actuator, substantially as described.

2. In a scale, the combination with weighing mechanism, of a computing mechanism including a lever fulcrumed on the scale-frame, an actuator engaging said lever carried by and moving with the weighing mechanism, and means also carried by and moving with the weighing mechanism for adjusting said actuator along the lever to and from its fulcrum, substantially as described.

3. In a scale, the combination with weighing mechanism, of a computing mechanism including a lever fulcrumed in the scale-frame, said lever being upwardly inclined in the normal position of the weighing mechanism, an actuator engaging said lever carried by and moving with the weighing mechanism, and means also carried by and moving with the weighing mechanism for adjusting said actuator along the lever to and from its fulcrum, substantially as described.

4. In a scale, the combination with weighing mechanism including a rectilinearly-movable member, of a computing mechanism including a lever fulcrumed in the scale-frame, and an adjustable actuator therefor bodily mounted upon and movable with the rectilinearly-movable member, substantially as described.

5. In a scale, the combination with weighing mechanism including a rectilinearly-movable member, of a computing mechanism including a lever fulcrumed in the scale-frame, an adjustable actuator therefor bodily mounted upon and movable with the rectilinearly-movable member, and means for adjusting said actuator along the lever to and from its fulcrum, substantially as described.

6. In a scale, the combination with weighing mechanism, of a computing mechanism including a lever fulcrumed in the scale-frame, an actuating-pin engaging said lever carried by and moving with the weighing mechanism, and means also carried by and moving with the weighing mechanism for adjusting said actuating-pin along the lever to and from its fulcrum, substantially as described.

7. In a scale, the combination with weighing mechanism, of a computing mechanism including a lever fulcrumed on the scale-frame, said lever being upwardly inclined in the normal position of the weighing mechanism, an actuating-pin engaging said lever carried by and moving with the weighing mechanism, and means also carried by and moving with the weighing mechanism for adjusting said actuating-pin along the lever to and from its fulcrum, substantially as described.

8. In a scale, the combination with weighing mechanism, of a computing mechanism, an actuating-pin therefor carried by and moving with the weighing mechanism, and means also carried by and moving with the weighing mechanism for adjusting said actuating-pin, substantially as described.

9. In a scale, the combination with weighing mechanism, of a computing mechanism, an actuating-pin therefor carried by and moving with the weighing mechanism and means also carried by and moving with the weighing mechanism for adjusting said actuating-pin transversely to the line of movement of the weighing mechanism, substantially as described.

10. In a scale, the combination with weighing mechanism, of a computing mechanism including a lever fulcrumed in the scale-frame, a rack-bar carried by and moving with the weighing mechanism, said rack-bar being parallel with said lever in the normal position of the weighing mechanism, an actuating-pin carried by the rack-bar engaging said lever, and gearing for moving said rack-bar longitudinally to adjust the actuating-pin, substantially as described.

11. In a scale, the combination with weighing mechanism, of a computing mechanism including a lever fulcrumed in the scale-frame, a rack-bar carried by and moving with the weighing mechanism, said rack-bar being parallel with said lever in the normal position of the weighing mechanism, an actuating-pin carried by the rack-bar engaging said lever, and gearing also carried by and moving with the weighing mechanism for moving said rack-bar longitudinally to adjust the actuating-pin, substantially as described.

12. In a scale, the combination with weighing mechanism, of a price-indicator, a rack for rotating the same, a lever fulcrumed in the scale-frame and engaging said rack, an actuator carried by and moving with the weighing mechanism engaging said lever, and means also carried by and moving with the weighing mechanism for adjusting said actuator, substantially as described.

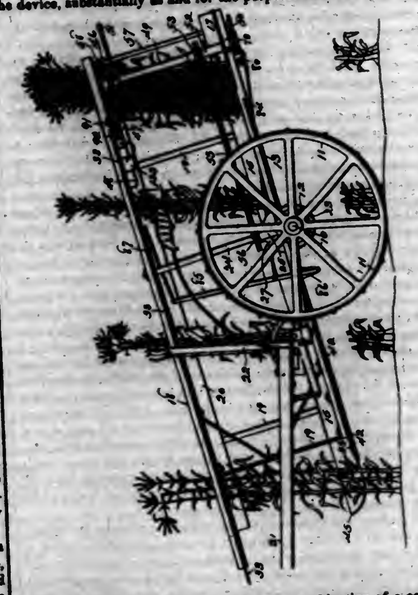
13. In a scale, the combination with weighing mechanism, of a price-indicator, a rack for rotating the same, a lever fulcrumed in the scale-frame engaging said rack, an actuator carried by and moving with the weighing mechanism engaging said lever, and means also carried by and moving with the weighing mechanism for adjusting said actuator along the lever to and from its fulcrum, substantially as described.

14. The combination with a computing mechanism, of rod 7, rack-bar 28 sliding on and carried by said rod, actuator 27 carried by said rack-bar and engaging the computing mechanism, and gearing carried by rod 7 for rotating the worm, substantially as described.

602,659. CORN HARVESTER AND BINDER. WILLIAM H. GRAY, Eddyville, Iowa. Filed Mar. 22, 1897. Serial No. 628,268. (No model.)

Claim.—1. In a corn-harvester, the combination with means for severing cornstalks, of a continuous hollow track, a flange projecting laterally from one side of the track, an upturned edge on the flange, a second like track above the first in a parallel plane, a guide-rail supported on the machine-frame directly above the upturned edge of the lower flange, and an endless conveyer in each of said tracks, laterally-projecting arms on the conveyer to extend through the tracks and in proximity to said flange and rail, and means for driving the conveyer by means of power derived from the traction-wheels of the machine.

2. In a corn-harvester, the combination with means for severing cornstalks, of a lower hollow track having a laterally-widened portion therein near its rear end, a flange projecting laterally from one side of the hollow track, an upturned edge on the flange, a second hollow track above the first, also having a widened portion therein near its rear end, a guide-rail supported adjacent to the upper track and directly above the upturned edge of the lower track, a conveyer-chain in each track of a length greater than the distance around the track, so that they must kink or fold at one point, laterally-projecting arms on the chain to project outwardly through the track into proximity to the said upturned edge and the said rail, and means for driving both chains by power derived from the traction-wheels of the device, substantially as and for the purposes stated.



3. In a corn-harvester or the like, the combination of a continuous hollow track, an inwardly-inclined portion 34 near the rear end of the track, a curved portion 35 at one end of the inclined portion 34, an endless conveyer within the track of a length greater than the distance around the track, and composed of a series of links, rollers at the ends of the links to approximately fill the narrow portion of the track, and a laterally-projecting arm on each alternate link to project outwardly through the outer edge of the narrow portion of the track, substantially as and for the purposes stated.

4. In a corn-harvester or the like, the combination of a continuous hollow track, an inwardly-inclined portion 34 near the rear end of the track, a curved portion 35 at one end of the inclined portion 34, an endless conveyer within the track of a length greater than the distance around the track, and composed of a series of links, rollers at the ends of the links to approximately fill the narrow portion of the track, and a laterally-projecting arm on each alternate link to project outwardly through the outer edge of the narrow portion of the track, and a stop 37ª fixed to the base of the interior of the track at a point adjacent to the incline 34.

5. In a corn-harvester, the combination with means for severing cornstalks, of a conveyer designed to carry the stalks to the rear of the machine in an upright position, and composed of two hollow tracks one above the other, each having a widened portion near its rear end, stationary guides supported in the machine-frame in substantially the same planes as the tracks, a platform adjacent to the lower track to receive stalks from the cutting mechanism, a conveyer-chain in each track of a length greater than the distance around the track, and composed of a series of links, rollers in the ends of the links to approximately fill the narrow portions of the tracks, a laterally-projecting arm on each alternate link of the conveyers, a shaft rotatably mounted to extend through the spaces within the hollow tracks, a wheel on its lower end bowed upwardly in its central portion and having its lower edge admitted into one side of the lower track and provided with pockets designed to engage the rollers of the conveyer a bevel gear-wheel fixed to the lower end of the said shaft within the said wheel, a second bevel gear-wheel meshed therewith and fixed to the axle of the traction-wheels, and a wheel fixed to the upper end of the said shaft and provided with pockets on its edge designed to engage the rollers on the upper conveyer, all arranged and combined substantially in the manner set forth and for the purposes stated.

6. In a corn-harvester, the combination with a hollow continuous track, and an endless conveyer-chain arranged for constant rotation therein during the advance of the machine, of a wheel rotatably mounted within the forward tarn of the track, a series of pockets formed on the top surface of the said wheel to engage the endless

conveyer and to be rotated thereby, a series of curved knife-blades fixed to the under surface of the said wheel to project beyond the track, and a stationary knife-blade fixed to the track to coact with the rotatable blades, substantially in the manner set forth and for the purposes stated.

7. In a corn harvester and binder or the like, a device for imparting motion to a binding-needle and a discharge-arm when a shock of corn has been gathered on the machine-platform, comprising an upright shaft rotatably mounted, a binding-needle fixed to its upper end, an arm fixed to its lower end, a sleeve rotatably mounted on the shaft, a discharge arm fixed to the upper end of the sleeve, a disk fixed to the lower end of the sleeve and having a cam-groove therein, a second sleeve rotatably mounted upon the first, means for rotating this second sleeve during the advance of the machine, a ratchet-wheel fixed to the lower end of the said sleeve, a spring-actuated pawl fixed to the upper surface of the said disk to be normally held by its spring in engagement with the said ratchet-wheel, a lever pivoted to a stationary support, a roller pivoted to the lever and inserted in the said cam-groove, a second lever pivoted to the first and arranged for engagement with the end of the said spring-actuated pawl, a spring connecting the said levers and arranged to hold the pawl-engaging lever in engagement with its pawl, sprocket-teeth on the periphery of the said disk, two idlers located adjacent to the said sprocket-teeth, a sprocket-wheel mounted on the said idlers to engage the said sprocket-teeth, and a link pivoted to the said sprocket-chain and also to the arm on the binding-needle shaft, a yielding pressure device fixed to a stationary support to engage the arm of the binding-needle when at rest, to thereby hold the said disk in such a manner as to overcome the force of the spring belonging to the said spring-actuating pawl, and thereby hold the spring-actuated pawl out of engagement with its ratchet, a supporting-shaft rotatably mounted, a stalk-supporting arm fixed to its upper end, an arm fixed to its lower end, and a spring fixed to the said arm and also to the pawl-engaging lever, all arranged and combined substantially in the manner set forth and for the purposes stated.

8. In a corn harvester and binder or the like, a device for imparting motion to a binding-needle and a discharge-arm when a shock of corn has been gathered on the machine-platform, comprising an upright shaft rotatably mounted, a binding-needle fixed to its upper end, an arm fixed to its lower end, a sleeve rotatably mounted on the shaft, a discharge-arm fixed to the upper end of the sleeve, a disk fixed to the lower end of the sleeve and having a cam-groove therein, a second sleeve rotatably mounted upon the first, means for rotating this second sleeve during the advance of the machine, a ratchet-wheel fixed to the lower end of the said sleeve, a spring-actuated pawl fixed to the upper surface of the said disk to be normally held by its spring in engagement with the said ratchet-wheel, a lever pivoted to a stationary support, a roller pivoted to the lever and inserted in the said cam-groove, a second lever pivoted to the first and arranged for engagement with the end of the said spring-actuated pawl, a spring connecting the said levers and arranged to hold the pawl-engaging lever in engagement with its pawl, sprocket-teeth on the periphery of the said disk, two idlers located adjacent to the said sprocket-teeth, a sprocket-wheel mounted on the said idlers to engage the said sprocket-teeth, and a link pivoted to the said sprocket-chain and also to the arm on the binding-needle shaft, a lever fulcrumed to a stationary support and curved first in the direction of the shaft of the binding-needle and then concentric with the binding-needle, a groove in the top surface of the said lever, a roller on the end of the arm of the binding-needle shaft to enter said groove, and a rod pivoted to the outer end of the lever arranged to actuate a slide, a yielding pressure device fixed to a stationary support to engage the arm of the binding-needle when at rest, to thereby hold the said disk in such a manner as to overcome the force of the spring belonging to the said spring-actuating pawl, and to thereby hold the spring-actuated pawl out of engagement with its ratchet, a supporting-shaft rotatably mounted, a stalk-supporting arm fixed to its upper end, an arm fixed to its lower end, and a spring fixed to the said arm and also to the pawl-engaging lever, all arranged and combined substantially in the manner set forth and for the purpose stated.

9. In a corn harvester or binder or the like, a device for imparting motion to a binding-needle and a discharge-arm when a shock of corn has been gathered on the machine-platform, comprising an upright shaft rotatably mounted, a binding-needle fixed to its upper end, an arm fixed to its lower end, a sleeve rotatably mounted on the shaft, a discharge-arm fixed to the upper end of the sleeve, a disk fixed to the lower end of the sleeve and having a cam-groove therein, a second sleeve rotatably mounted upon the first, means for rotating this second sleeve during the advance of the machine, a ratchet-wheel fixed to the lower end of the said sleeve, a spring-actuated pawl fixed to the upper surface of the said disk to be normally held by its spring in engagement with the said ratchet-wheel, a lever pivoted to a stationary support, a roller pivoted to the lever and inserted in the said cam-groove, a second lever pivoted to the first and arranged for engagement with the end of the said spring-actuated pawl, a spring connecting the said levers and arranged to hold the pawl-engaging lever in engagement with its pawl, sprocket-teeth on the periphery of the said disk, two idlers located adjacent to the said sprocket-teeth, a sprocket-wheel mounted on the said idlers to engage the said sprocket-teeth, and a link pivoted to the said sprocket-chain and also to the arm on the binding-needle shaft, a lever fulcrumed to a stationary support and curved first in the direction of the shaft of the binding-needle and then concentric with the binding-needle, a groove in the top surface of the said lever, a roller on the end of the arm of the binding-needle shaft to enter said groove, and a rod pivoted to the outer end of the lever arranged to actuate a slide, a yielding pressure device fixed to a stationary support to engage the arm of the binding-needle when at rest, to thereby hold the said disk in such a manner as to overcome the force of the spring belonging to the said spring-actuating pawl, and to thereby hold the spring-actuated pawl out of engagement with its ratchet, a supporting-shaft rotatably mounted, a stalk-supporting arm fixed to its upper end, an arm fixed to its lower end, and a spring fixed to the said arm and also to the pawl-engaging lever, all arranged and combined substantially in the manner set forth and for the purpose stated.

10. In a grain-binder, the combination of a shaft rotatably mounted, a binding-needle fixed to its upper end, an arm fixed to its lower end, a sprocket-wheel loosely mounted on its lower end, means arranged to be set in motion by the pressure of a shock of corn upon the binding-needle whereby the said sprocket-wheel will be clutched to a constantly-rotating part, two idlers mounted adjacent to the sprocket-wheel, a sprocket-chain passed around the idlers to engage a segment of the said sprocket-wheel, and a link pivoted to a part of the said sprocket-chain and also to the arm on the lower end of the needle-shaft, substantially in the manner set forth and for the purpose stated.

11. In a grain-binder, the combination of a shaft rotatably mounted, a binding-needle fixed to its upper end, an arm fixed to its lower end, a sprocket-wheel loosely mounted on its lower end, means arranged to be set in motion by the pressure of a shock of corn on the binding-needle whereby the said sprocket-wheel may be clutched to a constantly-rotating part, and means for rotating the said sprocket-wheel one revolution, and two idlers mounted adjacent to the sprocket-wheel, a sprocket-chain passed around the idlers to engage a segment of the said sprocket-wheel, and a link pivoted to a part of the said sprocket-chain and also to the arm on the lower end of the needle-shaft, a lever pivoted to a stationary support and extended first in the direction of the shaft of the binding-needle, and then in a direction concentric with the shaft, a groove in its top surface, a roller on the outer end of the arm on the binding-needle shaft to enter said groove, and a rod pivoted to the outer end of the said lever for actuating a slide, substantially as and for the purposes stated.

12. In a corn-binder, the combination of a binder-needle, means for moving it across the binding-platform and then returning it, a shaft rotatably mounted within the needle, a disk on the shaft within the needle, a fixed finger on the disk to project beyond the side of the needle, a movable finger pivoted to the fixed finger, a pinion on the shaft, a rack slidingly mounted within the needle and in mesh with the pinion, a pitman connected with the rack, a lever pivoted to the pitman, and means whereby said lever is moved relative to the needle to thereby rotate the shaft on which the knotter-fingers are fixed.

13. In a corn-binder, the combination of a binder-needle, means for moving it across the binding-platform and then returning it, a shaft within the needle, a knotter on the shaft to project through the side of the needle, a pinion connected with the said knotter, a rack slidingly mounted with the needle and in mesh with the pinion, a pitman connected with the rack, a lever pivoted to the arm of the binder-needle and extended through a slot in the needle proper, and having its free end connected with the said pitman, a roller on said lever a stop fixed to a stationary support arranged to engage the said lever when the binder-needle approaches the outer limit of its movement, to thereby force the lever rearwardly within the needle, and a cam-guide fixed to a stationary support, substantially segmental in shape, and having on its cam-surface a part concentric with the said shaft, an outwardly-inclined shoulder, a second concentric part flush with the said shoulder, a second like shoulder, and a third concentrically-arranged segment beyond it, said cam being designed to be engaged by the said roller to control the movement of the lever relative to the needle, substantially as and for the purposes stated.

14. In a corn-binder, the combination of a binder-needle, means for moving it across the binding-platform and then returning it, a shaft rotatably mounted within the needle, a disk on the shaft within the needle, a fixed finger on the disk to project beyond the side of the needle, a movable finger pivoted to the fixed finger, a pinion on the shaft, a rack slidingly mounted within the needle and in mesh with the pinion, having two notches in its upper surfaces separated by the distance of its length of movement, a leaf-spring fixed to the inner surface of the needle, and having a lug thereon to engage said notches to aid in limiting the movement of the rack, a pitman connected with the rack, a lever pivoted to the pitman, and means whereby said lever is moved relative to the needle to thereby rotate the shaft on which the knotter-fingers are fixed.

15. In a binding device the combination with a needle arranged to carry the twine and to be moved in the segment of a circle, of a knotting device carried by the needle to project from one side thereof, a plate fixed to the machine-frame, and having an opening therein through which the needle must pass, and also having a slot connected with the opening through which the twine may pass, an automatic twine-holder located adjacent to the needle when the needle is at the outward limit of its stroke to hold the twine, an arm pivoted to a stationary support, and having a hook on its end, a lug on the said arm arranged in the path of the end of the needle and so positioned that the needle will move the said arm laterally as it nears the end of its outer movement, and a spring for normally returning the arm, substantially as and for the purposes stated.

16. In a binding device, the combination with a binding-needle arranged to move in the segment of a circle, and also arranged to carry the binding-twine, of a rim fixed to a stationary support in position where the end of the binding-needle will pass through it when at the outer limit of its movement, two teeth on the axial surface of the said rim, a second rim rotatably mounted within the first, and having teeth on its axial surface, the said teeth on the rims being so arranged and disposed that the twine carried by the needle will enter the interdental spaces of the rims, and a device carried by the needle for moving the rotatable rim one tooth's space, to thereby clamp the twine between the teeth on the two rims, for the purposes stated.

17. In a binding device, the combination with a binding-needle arranged to move in the segment of a circle, and also arranged to carry the binding-twine, of a rim fixed to a stationary support in position where the end of the binding-needle will pass through it when at the outer limit of its movement, two teeth on the axial surface of the said rim, a second rim rotatably mounted within the first, and having teeth on its axial surface, the said teeth on the rims being so arranged and disposed that the twine carried by the needle will enter the interdental spaces of the rims, and a device carried by the needle for moving the rotatable rim one tooth's space, to thereby clamp the twine between the teeth on the two rims, an arm fixed to the stationary rim, a lever pivoted to the said arm to engage the rotatable rim, a yielding pressure device for holding the lever in engagement with the rotatable rim, and a knife fixed to the lower end of the said lever, substantially as and for the purposes stated.

18. In a binding device, the combination with a needle arranged for carrying the twine and for movement in the segment of a circle, of a stationary rim through which the end of the needle must pass, two or more teeth on the axial surface of the rim, a second rim rotatably mounted on the first, a series of teeth on the axial surface of the second rim having beveled edges, a yielding pressure device for holding the rotatable rim against the movable rim, a knife on the said yielding pressure device, and a bar having a pointed end pivoted to the under surface of the needle, a stop fixed to the under surface of the needle to limit the movement of the said bar, and a spring also fixed to the needle to engage the opposite end of the bar, all arranged and combined to operate in the manner set forth and for the purposes stated.

19 In a binding device, the combination of a binding-needle, twine carried by the needle and passed through an opening in the end thereof, a knotter carried by the needle, a rim having fixed teeth on its axial surface and in position to receive the twine carried by the needle when the needle is at the outward limit of its stroke, a second rim rotatably mounted with the first, teeth on its axial surface, a device carried by the needle for rotating the movable rim upon the passage of the needle through the rims, to thereby grasp the twine between the teeth on the rims, for the purposes stated.

20. A binding device, comprising a binding-needle arranged for movement in the segment of a circle, twine passed through the needle and through an opening in the outer end thereof, a knotter carried by the needle to project beyond one of its sides, a plate having an opening therein through which the needle must pass, and a slot connected with the opening through which the twine must pass, an arm pivotally mounted, and having a hook on its outer end designed to engage and support the twine in position so that the knotting device of the needle may engage the twine as the needle passes through the opening in the said plate, a lug on the said pivoted arm whereby the arm is pressed laterally so that the knotting device will not contact therewith when the needle has continued its movement and is at the outward limit of its stroke, a device for actuating the twine-engaging device carried by the needle, a twine-holder fixed to a stationary support and a twine-cutter located on the twine-holder, substantially as and for the purposes stated.

21. In a corn-harvester, the combination of an endless conveyer track 13, having vertical side pieces, and a slot in the outer one of the said side pieces, and also having at its rear end a widened portion, an inclined portion 34, and rounded portion 35 on the inner side piece of the track, and a series of links 31, having rollers 32, and the arms 33 on each alternate link, all arranged and combined substantially in the manner set forth and for the purposes stated.

22. In a corn harvester and binder, the combination of a binder-platform to extend rearwardly and upwardly and designed to support the butts of the stalks when the shock is being bound, two conveyer-tracks arranged one above the other above said platform, endless conveyers in said tracks, laterally projecting fingers on said conveyers, means for operating the conveyers, means for withdrawing the conveyer-fingers into the tracks at points in the same vertical plane, and means for confining the cornstalks laterally at the side opposite from the tracks.

23. In a corn harvester and binder, the combination of a binder-platform to extend rearwardly and upwardly and designed to support the butts of the stalks when the shock is being bound, two conveyer-tracks arranged one above the other and above said platform, endless conveyers in said tracks, laterally-projecting fingers on said conveyers, means for operating the conveyers, means for withdrawing the conveyer-fingers into the tracks at points in the same vertical plane, means for confining the cornstalks laterally at the side opposite from the tracks and means for causing the conveyer-fingers in the upper track to be withdrawn at certain intervals at a point in advance of their usual withdrawal position.

24. In a corn harvester and binder, the combination of a binder-platform to extend rearwardly and upwardly and designed to support the butts of the stalks when the shock is being bound, two conveyer-tracks arranged one above the other and above the said platform, endless conveyers in said tracks, laterally-projecting fingers on said conveyers, means for operating the conveyers, means for withdrawing the conveyer-fingers into the tracks at points in the same vertical plane, means for confining the cornstalks laterally at the side opposite from the tracks, and means for causing the conveyer-fingers in the upper track to be withdrawn at certain intervals at a point in advance of their usual withdrawal position, and a binding-needle arranged for movement in the same plane as the tracks, and means for causing the said fingers in the upper track to be withdrawn at their forward point of withdrawal during that period of time when the binding-needle is moving across the passage, and to withdraw at their rearward limit, that is, directly above the withdrawal point of the fingers on the lower track, at all other times.

25. In a corn harvester and binder, the combination of a binder-platform inclined from its forward end upwardly and designed to support the butts of the stalks when the shock is being bound, means for severing cornstalks and for placing their butt-ends thereon, means for conveying the cornstalks in a vertical position to the rear end of the platform, a binder-needle arranged for movement in the same plane as the platform, and mechanism for holding the tops only of the incoming stalks from passing to their rearward limit during that period of time when the binding-needle is being moved across the platform, and for again moving the tops of the said stalks rearwardly to a vertical position after the binder-needle has withdrawn, for the purposes stated.

26. In a corn-harvester, the combination of a hollow conveyer-track having no bottom at its forward turn, an endless conveyor therein means for driving the conveyer by power derived from the traction-wheels of the machine, a wheel loosely mounted in the forward turn of said track, a circular flange on the lower edge of the wheel, and a series of pockets on its top, said flange and pockets being designed to support the conveyer-chain, stationary cutters fixed to the track, and rotary cutters fixed to the said flange, substantially in the manner set forth and for the purposes stated.

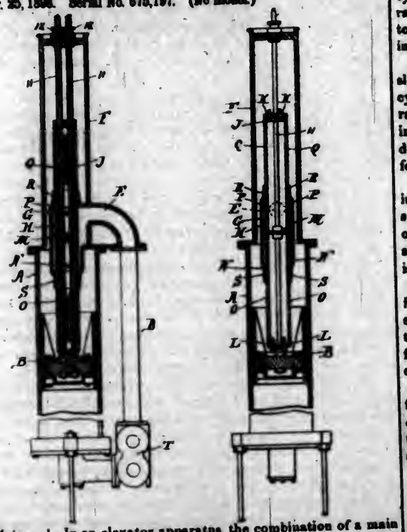
27. In a corn-harvester, a stalk-cutter, comprising in combination a sharp-edged knife fixed to the machine frame with its cutting edge diverging at an acute angle from a fore-and-aft line through the machine and in position to engage and cut cornstalks during the advance of the machine, and a rotary knife with its cutting edge inclined forwardly with relation to its direction of rotation, and forming with the fixed knife, and during its effective stroke, a narrow V-shaped opening with its apex forward and the angle of which constantly decreases, for the purposes stated.

28. A stalk-cutter for harvesters, &c., comprising a sharp-edged knife fixed to the machine-frame at an acute angle relative to the line of advance with its cutting edge forward and in position to engage and sever stalks with a drawing cut during the advance of the machine, in combination with a rotary knife mounted adjacent to the fixed one and inclined forwardly with relation to its line of rotation said incline being of such a degree that the cutting edge of the knife will during its rotation engage a standing stalk and slide relative thereto from its point toward its base, and said rotary knife being so positioned with relation to the fixed one as to form between the cutting edges thereof a narrow V-shaped opening with its apex forward, for the purposes stated.

29. A stalk-cutter for harvesters, &c., comprising a sharp-edged knife 43, fixed to the machine-frame at an acute angle relative to the line of advance with its cutting edge forward and in position to engage and sever stalks with a drawing cut during the advance of the machine and an auxiliary fixed blade 44 leading from the rear end of the blade 43 forwardly and away from the fixed blade 43 with its cutting edge on the side toward the blade 43, in combination with

a rotary knife inclined forwardly in relation to its line of rotation said incline being of such a degree that the cutting edge of the knife will during its rotation engage a standing stalk and slide relatively thereto from its point toward its base, and said rotary knife being of such a length that its point will overlap the rear end portion of the auxiliary fixed knife 44, said rotary knife also being so positioned with relation to the fixed one as to form between the cutting edges of the rotary knife and the knife 43 a narrow V-shaped opening with its apex forward, for the purposes stated.

602,660. AUTOMATIC STOP MECHANISM FOR ELEVATORS. THADDEUS W. HERRMANN, Chicago, Ill. Filed Nov. 4, 1895. Renewed Mar. 25, 1898. Serial No. 675,197. (No model.)



Claim.—1. In an elevator apparatus, the combination of a main cylinder and piston, and a plunger independent of said piston arranged to operate in said cylinder, and provided with port-openings arranged to control the admission to and from said main cylinder; as and for the purpose set forth.

2. In an elevator apparatus, a main cylinder and piston, in combination with a movable plunger independent of said piston arranged to operate in said cylinder, and provided with port-openings and means adapted to be actuated by said piston for displacing said plunger to control the admission to and exhaust from said main cylinder; as and for the purpose set forth.

3. In an elevator apparatus, a main cylinder and piston, in combination with a hollow plunger having closed ends and provided with port-openings through the shell thereof, arranged and adapted to control the admission to and exhaust from said main cylinder; as and for the purpose set forth.

4. In an elevator apparatus, a main cylinder and piston, a movable plunger independent of said piston and provided with port-openings of varying area, said plunger arranged to control admission to and exhaust from said main cylinder; as and for the purpose set forth.

5. In an elevator apparatus, a main cylinder provided with the usual port-opening, a main piston, a plunger independent of said piston arranged between said port-opening and said cylinder and provided with ports adapted to control the admission to and exhaust from said main cylinder, said plunger adapted to be actuated by said main piston; as and for the purpose set forth.

6. In an elevator apparatus, a main cylinder, provided with the usual port-opening, a main piston, a plunger independent of said piston arranged between said port-opening and said cylinder and provided with ports of varying area, and means actuated by said main piston for moving said plunger, whereby said ports are brought into communication with said port-opening thereby controlling the admission to and exhaust from said main cylinder; as and for the purpose set forth.

7. In an elevator apparatus, a main cylinder, a plunger provided with ports, means for normally maintaining said plunger in position for the ports therein to open communication between said cylinder and the exhaust and supply, and means for displacing said plunger, whereby the exhaust or supply may be cut off; as and for the purpose set forth.

8. In an elevator apparatus, a main cylinder, a plunger provided with ports of varying area, means for normally maintaining said plunger in position for the ports therein to open communication between said cylinder and its exhaust and supply, and means for displacing said plunger, whereby the exhaust or supply is gradually cut off; as and for the purpose set forth.

9. In an elevator apparatus, a main cylinder, an open-ended casing arranged in said cylinder in communication with the cylinder supply and exhaust, a plunger provided with ports arranged to travel through said casing and adapted to control communication between the casing and the cylinder; as and for the purpose set forth.

10. In an elevator apparatus, a main cylinder, an open-ended sleeve or casing arranged therein, and in communication with the cylinder supply and exhaust, a plunger provided with ports and arranged to travel back and forth in said sleeve or casing, and adapted to control communication between said casing or sleeve and the cylinder; as and for the purpose set forth.

11. In an elevator apparatus, a main cylinder, an open-ended sleeve or casing arranged therein and in communication with the cylinder supply and exhaust, a plunger provided with ports and arranged to move through said sleeve or casing, and means for displacing said plunger relative to said sleeve or casing, whereby the cylinder supply and exhaust are controlled; as and for the purpose set forth.

12. In an elevator apparatus, a main cylinder, an open-ended casing or sleeve formed therein and in communication with the cylinder supply and exhaust, a plunger arranged to move through said sleeve or casing, and provided with graduated ports, and means for moving said plunger relative to said sleeve, whereby the supply or exhaust is gradually cut off; as and for the purpose set forth.

13. In an elevator apparatus, a main cylinder, a casing or sleeve formed therein and in communication with the cylinder supply and exhaust, a plunger provided with closed ends and having ports formed through the shell thereof arranged in said sleeve or casing, and means for moving said plunger relative to said casing, thereby controlling the cylinder supply and exhaust; as and for the purpose set forth.

14. In an elevator apparatus, a main cylinder, a casing or sleeve formed therein and in communication with the cylinder supply and exhaust, a plunger provided with closed ends, and having ports formed through the shell thereof, means for moving said plunger through said sleeve or casing, whereby said ports are covered or uncovered and valves arranged in said plunger; as and for the purpose set forth.

15. In an elevator apparatus, a main cylinder, a casing or sleeve formed therein and in communication with the cylinder supply and exhaust, a plunger provided with closed ends and having ports formed through the shell thereof, means for moving said plunger through said sleeve or casing, whereby said ports are covered or uncovered, valves mounted in each end of said plunger, the valves at one end being arranged to open inwardly, and those at the other end arranged to open outwardly; as and for the purpose set forth.

16. In an elevator apparatus, a main cylinder, a plunger having closed ends arranged therein, and having a partition formed therein midway the length thereof, port-openings formed in each end of said cylinder, and means for covering and uncovering said port-openings; as and for the purpose set forth.

17. In an elevator apparatus, a main cylinder, a plunger arranged therein and having a partition formed therein midway the length thereof, port-openings formed in each end of said plunger, and relief-valves mounted in each end of said plunger; as and for the purpose set forth.

18. In an elevator apparatus, a main cylinder, a plunger provided with port-openings adapted to control the supply to and exhaust from said main cylinder, a piston and piston-rods, and means actuated by the movement of said rods for displacing said plunger; as set forth.

19. In an elevator apparatus, a main cylinder, piston and piston-rods, a plunger having port-openings, adapted to control the admission to and exhaust from said main cylinder, said plunger arranged to operate within said main cylinder, and means actuated by the movement of the main piston for displacing said plunger.

20. In an elevator apparatus, a main cylinder, piston and piston-rod, a plunger having port-openings, adapted to control the admission to and exhaust from said main cylinder, valves mounted in said plunger, and means actuated by the movement of said piston for displacing said plunger; as and for the purpose set forth.

21. In an elevator apparatus, a main cylinder, piston and piston-rod, a plunger arranged within said main cylinder, and having port-openings adapted to control the admission to and exhaust from said main cylinder, means for normally holding said plunger in position to open communication between said main cylinder and its supply and exhaust, and means arranged to be actuated at the limits of travel of said piston for shifting said plunger; as and for the purpose set forth.

22. In an elevator apparatus, a main cylinder and piston, a plunger arranged within said main cylinder and provided with port-openings, springs arranged to hold said plunger in position to open said main cylinder to its supply or exhaust, and means for displacing said plunger against the action of said springs at each limit of stroke of said piston; as and for the purpose set forth.

23. In an elevator apparatus, a main cylinder, piston and piston-rod, a plunger having port-openings adapted to control the admission to and exhaust from said main cylinder, rods mounted on said main cylinder, a follower-plate arranged to slide on said rods, rigid connections between said plate and said plunger, and a cross-head mounted on said piston-rods adapted to engage said follower-plate and move said plunger; as and for the purpose set forth.

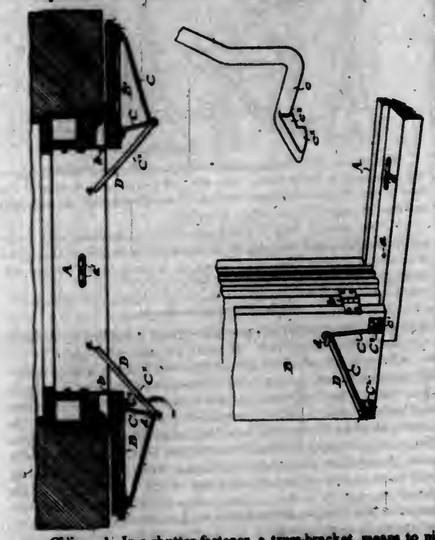
24. In an elevator apparatus, a main cylinder, piston and piston-rods, a plunger having port-openings adapted to control the supply to and exhaust from said main cylinder, stationary rods, a follower-plate mounted to slide thereon, rigid connections between said follower-plate and said rods, a cross-head carried by said piston-rods, adapted to engage said follower-plate and displace said plunger, and springs arranged to return said plunger-cylinder to its normal position; as and for the purpose set forth.

25. In an elevator apparatus a main cylinder, piston and piston-rods, a plunger having port-openings, adapted to control the supply to and exhaust from said main cylinder, shouldered stationary rods, a follower-plate mounted to slide thereon and rigidly connected to said plunger, rods loosely passing through said follower-plate, and rigidly secured to plates, other plates mounted upon said stationary rods and adapted to abut against the shoulders thereon, springs interposed between said last-mentioned plates, said follower-plate adapted to be moved at the limits of travel of the main piston; as and for the purpose set forth.

26. In an elevator apparatus, a cylinder constructed in sections, one of said sections forming the main operating-cylinder, and the other of said sections having a sleeve formed therein adapted to receive a plunger, said plunger provided with port-openings adapted to control the supply to and exhaust from said main cylinder; as and for the purpose set forth.

27. In an elevator apparatus, a plunger, having port-openings and inwardly-opening valves at one end thereof and port-openings and outwardly-opening valves at the other end thereof in combination with a cylinder and piston; as and for the purpose set forth.

602,661. SHUTTER-FASTENER. SAMUEL M. W. KOHL, Philadelphia, Pa. Filed Jan. 5, 1898. Serial No. 665,696. (No model.)



Claim.—1. In a shutter-fastener, a trun-bracket, means to pivotally secure said bracket upon a shutter, a strut-eye in said bracket, a strut, means to pivotally support one extremity of said strut in the eye of said bracket, and means upon the opposite extremity of said strut to engage a fixed support, substantially as set forth.

2. In a shutter-fastener, a trun-bracket, provided with end trunnions, bearing-plates for said trunnions, means to secure said plates upon a shutter, a stop member adapted to maintain said bracket in horizontal position, and a strut pivotally mounted in said bracket, to engage a fixed support, substantially as set forth.

3. In a shutter-fastener, a trun-bracket provided with end trunnions, bearing-plates for said trunnions, means to secure said plates upon a shutter, a stop member upon said bracket adapted to maintain the latter in horizontal position, a strut pivotally mounted in said bracket to engage a fixed support, and a latch-lug upon said stop member adapted to engage a fixed support, substantially as set forth.

4. In a shutter-fastener, a trun-bracket, means to singedly secure said bracket upon a shutter, a strut-eye in said bracket, a strut pivotally secured at one extremity in said eye, and adapted at its opposite extremity to engage a fixed support, and a latch member upon said bracket, adapted to engage a fixed support, substantially as set forth.

5. In a shutter-fastener, a trun-bracket provided with horizontal trunnions, bearings for said trunnions, means to secure said bearings upon a shutter in such relation therewith that said trun-bracket is retained in upright inoperative position, by its gravitation, substantially as set forth.

602,662. UMBRELLA SUPPORT. RICHARD MILLER, Appleton, Wis. Filed Nov. 13, 1897. Serial No. 658,951. (No model.)



Claim.—1. A rod or staff support comprising a plurality of clamping-blocks, a pair of plates having apertures to receive the same, one of said plates having formed therein a recess and the other a downwardly-projecting lug for engagement with the plate beneath and a bolt and nut for drawing the end of the upper plate toward the lower one so that the clamping-blocks will be forced together and upon the staff or rod which is passed therethrough, substantially as shown.

2. A holder or support for rods or staffs comprising a clamping-block made up of quadrant sections each provided centrally with a recess and a projecting portion which registers with the recess of the adjacent section, a base-plate having therethrough an aperture for the reception of the clamping-block, a plate similarly apertured and provided at one end with a depending lug for engagement with the under side of the base-plate the opposite end being engaged by a set-screw mounted on a bolt which passes through the base-plate, substantially as shown and for the purpose set forth.

602,663. CULTIVATOR. DAVID M. MOTHERWELL, Chicago, Ill., assignor to the Whitman & Barnes Manufacturing Company, Akron, Ohio. Filed Oct. 14, 1897. Serial No. 655,201. (No model.)

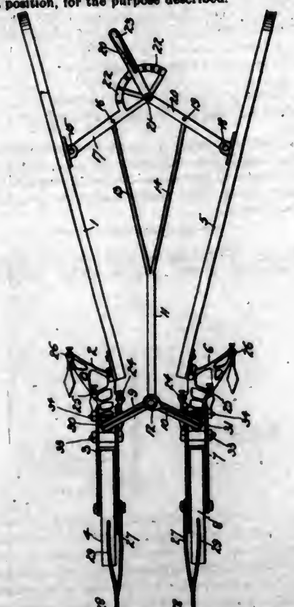
Claim.—1. A cultivator composed of two sections each consisting of a handle, a tool-frame and its wheel, an adjustable connection between said sections and means for adjusting said connection, adapted to be operated by the operator while standing in his usual working position between the handles, whereby the distance between said sections may be varied while maintaining parallelism, substantially as described.

2. In a cultivator the combination of two tool-carrying sections separable throughout their length, a spreading yoke adapted to extend over the row and to vary the distance between said sections and means adapted to be operated by the operator, while standing in his usual working position between the handles, for conjointly spreading said yoke and the handles of each section whereby said sections are adapted to be spread while maintaining their parallelism to the path of travel, for the purpose described.

3. A cultivator having two sections, each consisting of a handle, a tool-frame, means for fastening working-tools to said frame, a wheel and a guard attached to said wheel adapted to lift plants out of the way of said wheel, and an adjustable connection between said sections whereby the distance between them may be varied equally throughout their length and the guards and other working parts be brought to greater or less proximity at the will of the operator, while standing in his usual working position between the handles, substantially as described.

4. In a cultivator, two sections, each consisting of a handle and a tool-frame, a lever pivoted to each frame, said levers being pivoted together midway between said frames, a lever pivoted to each han-

dle, said second levers being pivoted together midway between said handles, means for pivotally connecting the central pivot of said first levers with said second levers whereby when the position of said levers is changed the distance between the sections may be varied and each part will at all times occupy a position substantially parallel with its first position, for the purpose described.



5. The combination in a cultivator of two sections, each having a handle and a tool-frame, levers pivoted to each frame and pivoted together midway between said frames, levers pivoted to each handle and pivoted together midway between said handles, means for connecting the central pivot of said first-mentioned levers with said last-mentioned levers, whereby when the position of said levers is changed the distance between the parts of the cultivator may be varied and each part will at all times occupy a position substantially parallel with its first position, and means for rocking said second levers about their central pivot and securing them in any desired position, substantially as described.

6. In a cultivator, in combination with the wheel thereof, a guide projecting in front of said wheel and adapted to lift a vine from the ground allowing the cultivator to work thereunder, substantially as described.

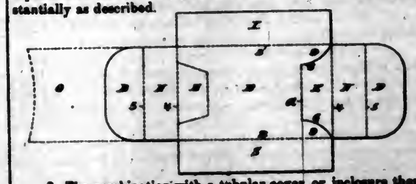
7. In a cultivator, in combination with the wheels thereof, a pair of guides projecting in front of said wheels and adapted to lift a vine from the ground allowing the cultivator to work thereunder, and means whereby the distance between said guards may be varied, substantially as described.

8. In a cultivator, the combination of the handles 1 and 5, tool-frames 2 and 6, the levers 9 and 10 pivotally connected together to rod 11, said lever 9 being pivoted to frame 2 and lever 10 being pivoted to frame 6, levers 17 and 20 pivotally connected together, said lever 17 being pivotally connected to handle 1 and to arm 13 of rod 11, and lever 20 being pivotally connected to handle 5 and to arm 14 of rod 11 and means for securing said levers 17 and 20 in any desired position when they are rocked about their common pivot whereby the distance between the tool-frames is adjusted, substantially as described.

602,664. PAPER BOX. HARVEY S. MUDGE, New Haven, Conn. Filed Mar. 23, 1897. Serial No. 628,064. (No model.)

Claim.—1. An end closure for paper boxes consisting of a tubular body from one ply of which projects a flap capacitated to cover the entire end of the body and overlap upon the opposite side of the box, said flap being partially disconnected from said ply by inward cuts 6, 6, that provide the opposite side walls with braces 9, 9, formed from said ply and uniting the side walls and said ply at the ends of said sides while admitting the turning back of said flap and a portion of said ply to expose the contents of the box, substantially as described.

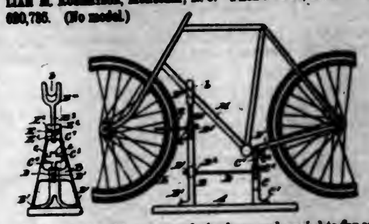
2. A container for slide-boxes, consisting of a flat blank creased on the fold-lines 2, 3 to provide the sides of a tray-like structure and upon the lines 4, 4 and 5, 5, to provide it with end flaps formed on the bottom ply and capacitated to cover the entire end of the body and overlap upon the opposite side of the box, and having its bottom ply divided on the lines 6, 6, at one or both ends to provide its opposite sides with braces 9, 9, uniting them to the bottom ply at the outer ends of said sides while permitting the turning back of the flap and a portion of the bottom ply to expose the contents of the box, substantially as described.



3. The combination with a tubular cover or inclosure therefor, of a container capable of sliding therein and consisting of a bottom ply to which sides and ends are united by folding-lines and to which ends tacking-flaps are connected by folding-lines, and which bottom is divided by cuts that provide braces 9, 9 connecting the bottom and opposite sides at the outer ends of the latter and render free a considerable portion of the end portion of the bottom, whereby it is capable of being turned back with the ends and tacking-flaps, substantially as described.

4. A box consisting of the tubular cover C and a container having the bottom B, sides I, S, closing means for one end, and at the opposite end having end N free from the sides and carrying flap D, and portion E of the bottom connected to the end N and partially separated from the rest of the bottom by cuts 6, 6 forming braces 9, 9 for the ends of the sides I, S and permitting the bottom portion E with end N and flap D to be turned back to expose the contents of the box, substantially as described.

602,665. BICYCLE-STAND. WALTER C. MCBURNEY and WILLIAM M. ROBERTSON, Montclair, N. J. Filed Jan. 26, 1897. Serial No. 620,726. (No model.)



Claim.—1. In a bicycle-stand, the base and uprights for supporting a bicycle, in combination with the yoke E turning in eyes on the face of one of said uprights, the loop E' and bends E², all arranged to serve substantially as herein specified.

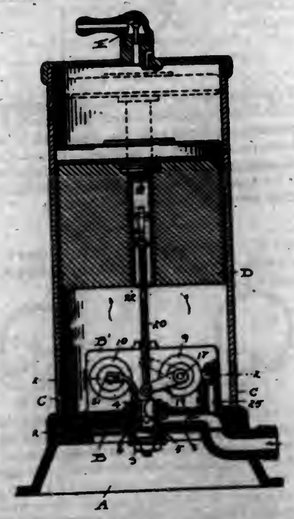
2. The yoke E, loop E' and bends E², in combination with a supporting-surface, and the eyes E³ set therein and receiving said yoke with liberty to turn therein, all arranged to serve with a bicycle substantially as herein specified.

602,666. HYDRAULIC PUMP. HENRY F. SCHROEDER, Cleveland, Ohio. Filed Dec. 17, 1896. Serial No. 615,969. (No model.)

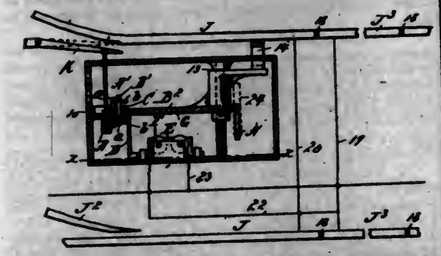
Claim.—1. In a pump having a removable casing, a main valve 4 having ports 5 and 6, a piston 10 to operate said main valve, an auxiliary valve 9 having a partition 18 dividing the same into two parts, and having ports 13 and 16 on one side and ports 14 and 15 on the other side of said partition, inlet and outlet ducts 7 and 8, respectively, in said casing, inlet-ducts 23, 25, and 26, communicating with ports 13 and 15 of valve 9 and outlet-ducts 24 and 27 communicating with ports 14 and 16 of valve 9, ducts 29 and 30 leading from the piston-chamber 10 to the auxiliary-valve chamber, and means connected to the plunger of the pump to operate the auxiliary valve, substantially as described.

2. In a hydraulic air-compressing pump, the outside casing, the removable valve-casing B set into said outside casing and having inlet and outlet water-passages through the same, a main valve with openings set into said base to control the direction of the flow of water, a piston set into said base and operatively connected with main valve, inlet and outlet water-passages in said base to opposite sides of said piston and an auxiliary valve to control the flow of water to said piston, substantially as described.

3. The pump having a removable casing in its bottom provided with two separate valve-chambers at right angles to each other and a piston-chamber and water-passages, in combination with a main valve 4 in one of said chambers and an auxiliary valve 9 in the other of said chambers, a piston and rod in said piston-chamber and an arm on said main valve engaged by said piston-rod, and a plunger in the pump connected with an arm of the auxiliary valve, substantially as described.



602,667. RAILWAY-SWITCH-OPERATING MECHANISM. CHARLES W. SOUDER, Springfield, Mass. Filed Nov. 8, 1897. Serial No. 657,723. (No model.)



Claim.—1. The combination with a switch-moving device, and an engagement member or actuator which has a bodily thrust movement and also reversing movements whereby to assume different positions relative to the switch-moving device for engaging, and on the thrust of the actuator, throwing the switch-moving device in opposite directions, of a shifter cooperating with the actuator to successively shift or reverse the position of the latter, and a shiftable part comprised in the mechanism relative to which the shifter has an approaching and withdrawing motion, whereby, in the approach and engagement, the shifter is successively reversed to assume different shifting relations to the actuator, and means for imparting said bodily movement of approach and withdrawal relatively between said shifter and the shiftable part which it engages, and by which it is shifted, for the purpose set forth.

2. The combination with a switch-moving device and an engagement member or actuator which has a bodily thrust movement, and also reversing movements whereby to assume different positions relative to the switch-moving device for engaging, and on the thrust of the actuator, throwing, the switch-moving device in opposite directions, and having separated abutments or projections *b b*, and the abutment *b'*, means for imparting a thrust movement to the actuator, a shifter cooperating with said abutments *b b* of the actuator and also arranged to engage said abutment *b'*, and means for imparting a bodily movement to the shifter, substantially as described.

3. The combination with the switch and a movable switch-moving device, and a housed-in reversible actuator or engagement member coacting therewith, of a shifter arranged to cooperate automatically in conjunction with said reversible actuator whereby the said actuator is successively reversed from its one position to the other relative to the switch-moving device, said actuator being adapted for a thrust movement, means for insuring the shifting action of the shifter, and a movable indicator device operating in conjunction with the shiftable mechanism for showing by its position, any existing relations of the actuator relative to the switch-thrower.

4. The combination with a switch-moving device and an engagement member or actuator adapted for a bodily thrust movement and also reversing movements relative to the switch-moving device, provided with the abutments *b b*, an electromagnet and an armature-lever carrying shiftably thereon, a shifter adapted to engage according to its position one or the other of said abutments *b*, current connections for said electromagnet and a shiftable abutment member relative to which the shifter in its bodily movement with the armature-lever successively engages, whereby it is each time reversed, substantially as described.

5. The combination with a switch-moving device, a car-wheel-operated lever, and an engagement member or actuator pivotally mounted on the lever, adapted for a bodily thrust movement with the lever and also reversing movements relative to the switch-moving device, provided with the opposite abutments *b b* and the abutment *b'*, an electromagnet and an armature-lever carrying shiftably thereon, a shifter adapted to engage according to its position one or the other of said abutments *b* and current connections for said electromagnet, each time reversed, substantially as described.

6. The combination with the switch-point and the switch-operating lever A pivotally mounted, connected with the switch-point, and having the two arms oppositely extending and provided with the contact-studs *a a*, a car-wheel-operated lever having a portion thereof adjacent the switch-operating lever and having pivotally mounted thereon, the engagement member or actuator provided with the two arms B B with the contact-studs *b b* and provided with the opposite hook members B' B' and having the median stud or abutment *b'*, of an electromagnet and current connections therefor, the armature-lever having the shifter C pivotally and shiftably mounted thereon comprising the opposing members *c c* arranged for operation, substantially as and for the purpose described.

7. The combination with the railway-track having the switch and the insulated track-section J³, the return-wire and a switch-operating device, of a reversible actuator or engagement member coacting therewith, an electromagnet and an armature-lever, a current-conductor in connection with said insulated track-section, and with a magnet, a current connection running from the magnet to connection with the return-wire, and the shifter movably mounted on the armature-lever, and bodily movable therewith, cooperating with the actuator to successively reverse it, and an abutment which the shifter engages each time it is reciprocated bodily by the armature-lever, whereby its own position is successively reversed, substantially as described.

8. In a switch-operating mechanism of the character described, the combination with the switch-operating device and a reversible actuator and means for reversing it, of the rock-shaft having an arm engaged with said actuator and having an indicator-arm visible at the road-bed, for the purpose set forth.

9. The combination with a switch-operating device, of a car-wheel-operating lever having a shiftable medium of engagement co-operating with said switch-operating device, said lever consisting of two articulated members, one being adapted to yield relative to the other and a spring interposed between these members for insuring normally their movements in unison, for the purpose set forth.

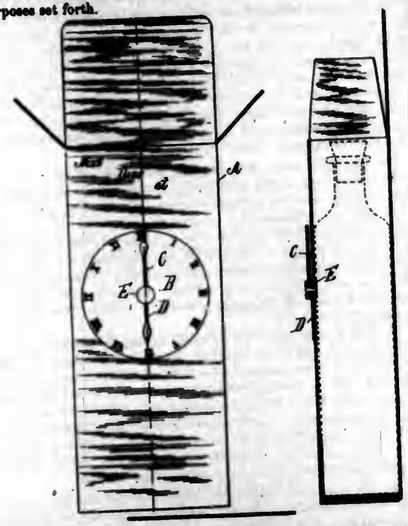
10. The combination with a switch-operating device, of a car-wheel-operated lever consisting of the two members 26 and 27 pivotally united, one thereof having the horn 28, a spring interposed between said horn and the other member, and means for varying the tension of the spring.

11. The combination with a switch-operating device, of a car-wheel-operating lever consisting of the two members 26 and 27 pivotally united, one thereof having the horn 28, a spring interposed between said horn and the other member, the bolt 25 pivoted to the one part adjacent the spring, and extended loosely through the other part, and having the nut 30, substantially as described.

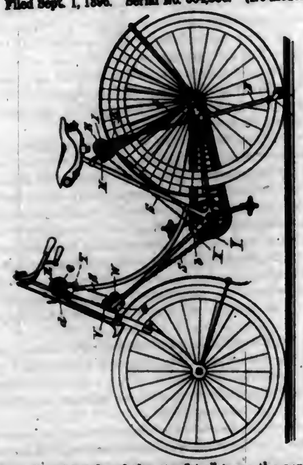
602,668. MEDICINE-CARTON. CHARLES R. SMITH, Chicago, Ill. Filed Nov. 26, 1896. Serial No. 613,228. (No model.)

Claim.—As a new article of manufacture, a carton formed to inclose a medicine-bottle and to hold the same in an upright position, having on one of its sides a time-dial and one or more movable hands on the outer face only of the carton pivotally secured at the center

of the dial and arranged to be moved over the same as and for the purposes set forth.



602,669. BICYCLE-SUPPORT. EDWARD A. TRAPP, New York, N. Y. Filed Sept. 1, 1896. Serial No. 604,538. (No model.)



Claim.—In a bicycle of the "safety" type, the supporting-rods extending downward and rearward on opposite sides of the rear wheel and from a point in rear of the saddle-post and adjacent to the top of the forward portion of the said rear wheel, and the sleeves swiveled to or pivotally mounted upon the rear portion of the bicycle-frame and at opposite sides of the latter, said sleeves receiving and guiding said rods and turning with the same during the oscillating movements of said rods created therein during their vertical movements, combined with the crank-shaft journaled to said frame adjacent to the upper ends of said rods and over said rear wheel and below the saddle, the cranks rigid with said shaft and pivoted to the upper ends of said rods for operating the latter from said shaft, means under the control of the rider for actuating said shaft to raise said rods, and means for positively locking said rods in their respective upper and lower positions; substantially as and for the purposes set forth.

602,670. BICYCLE-SUPPORT. EDWARD A. TRAPP, New York, N. Y. Filed Feb. 4, 1897. Serial No. 621,969. (No model.)

Claim.—1. In combination with a bicycle, the supporting-rods extending downward one on each side thereof, the crank-shaft carrying cranks pivotally connected with said rods, the sprocket-wheel on said shaft, the additional or locking sprocket-wheel, the chain connecting said sprocket-wheels, the foot-treadle connected with said chain for effecting the elevation of said rods and the latch for engaging the locking sprocket-wheel to prevent movement in said chain and wheels; substantially as set forth.



2. In combination with the bicycle, the supporting-rods extending downward one on each side thereof, the crank-shaft carrying the cranks pivotally connected with the upper ends of said rods, the sprocket-wheel on said shaft, the additional sprocket-wheel, the chain connecting said sprocket-wheels and the foot-treadle suspended by a link at its front end and at its rear end connected with said chain for actuating the same; substantially as set forth.

602,671. PNEUMATIC-TIRED WHEEL. JOHN T. TREDWAY, Kanmare, Ireland. Filed Dec. 20, 1897. Serial No. 662,610. (No model.) Patented in England Nov. 13, 1896, No. 25,563.



Claim.—1. In a pneumatic-tired wheel, the combination with a tubeless tire consisting of an outer or wearing part A having circumferential beads or enlargements *a a* at its edges and of an inner or lining part A' having internal circumferentially-arranged radial lips *a' a'*; of a wheel-rim B having inturned edges *b b* and a groove having a flat or approximately flat bottom and one or more circumferentially-arranged ridges *b'*, as and for the purpose set forth.

2. In a pneumatic-tired wheel, the combination with a tubeless tire consisting of an outer or wearing part A having circumferential beads or enlargements *a a* at its edges and of an inner or lining part A' having internal circumferentially-arranged radial lips *a' a'*; of a wheel-rim B having inturned edges *b b* and a groove with a convex-shaped bottom forming a central ridge *b'*, as and for the purpose set forth.

3. In a pneumatic-tired wheel, the combination of a tubeless tire consisting of an outer or wearing part A having circumferential beads or enlargements *a a* at its edges and of an inner or lining part A' having internal circumferentially-arranged radial lips *a' a'*, the two parts A and A' being vulcanized separately and subsequently made integral by cementation, and of a wheel-rim B having inturned edges *b b* and a groove having a flat or approximately flat bottom and one or more circumferentially-arranged ridges *b'*, as and for the purpose set forth.

4. In a pneumatic-tired wheel, the combination of a tubeless tire consisting of an outer or wearing part A having circumferential beads or enlargements *a a* at its edges and of an inner or lining part A' having internal circumferentially-arranged radial lips *a' a'* the two parts A and A' being vulcanized separately and subsequently made integral by cementation, and of a wheel-rim B having inturned edges *b b* and a groove with a convex-shaped bottom forming a central ridge *b'*, as and for the purpose set forth.

5. In a pneumatic-tired wheel, the combination with a tubeless tire consisting of an outer or wearing part A having circumferential beads or enlargements *a a* at its edges and of an inner or lining part A' having internal circumferentially-arranged radial lips *a' a'*, of a wheel-rim B having inturned edges *b*, and of a band B having a centrally-arranged circumferential ridge *b'* or its equivalents and so mounted in the wheel-rim as to give to its groove a flat or approximately flat bottom, as and for the purpose set forth.

602,672. DICE-BOX. ANDREW J. WELANDER, Omaha, Nebr. Filed Sept. 28, 1897. Serial No. 653,262. (No model.)



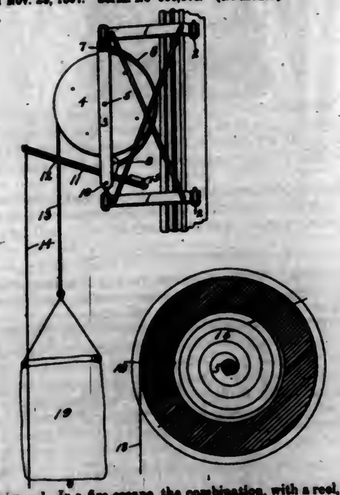
Claim.—1. A box or receptacle having one end closed the side wall being made up of a continuous thong of leather which is rectangular in cross-section, the same being spirally wound and cemented together.

2. A dice-box made up from a single piece of leather to present a bottom and cylindrical side, the side being made from a strip or thong of leather which is rectangular in cross-section and spirally disposed for the purpose set forth.

3. As an improved article of manufacture, a dice-box made of leather having a flat bottom from which springs a rectangular string or thong, said string or thong being cemented to the bottom and to each convolution of the thong, for the purpose set forth.

4. A dice-box made up of a single piece of leather, having a circular bottom and cylindrical convoluted side held together by cement and presenting smooth interior and exterior surfaces, substantially as set forth.

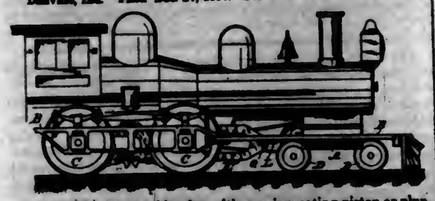
602,673. FIRE-ESCAPE. JOB R. WETHERS, Wellsborough, Pa. Filed Nov. 29, 1897. Serial No. 660,071. (No model.)



Claim.—1. In a fire-escape, the combination, with a reel, a flexible tape wound thereon and a receptacle for a person or baggage at the free end of the tape, of a brake adapted to control the unwinding of the tape, said brake consisting of a friction-band pivoted at its upper end to the reel-frame, and loosely following the circumference of the reel proper; a pair of links whose lower ends are pivoted to the reel-frame and to whose upper ends said band is pivoted; a brake-lever fixed between the links midway of their length, and a trip-rope fastened to the free end of the brake-lever.

2. A fire-escape consisting of a reel, adapted to be swung to a window-frame or other support; a band pivoted at its upper end to the reel-frame above the reel, loosely following the circumference of the reel; a pair of links whose lower ends are pivoted to the reel-frame below the reel and to whose upper ends said band is pivoted; a counterbalanced brake-lever fixed to the pair of links; a flexible tape wound on the reel; a receptacle for a person or baggage, and a coiled spring located within the reel, adapted to wind up as the reel unwinds.

602,674. POWER-TRANSMITTING DEVICE. GEORGE I. WHITE, Danville, Ind. Filed Dec. 27, 1897. Serial No. 663,895. (No model.)



Claim.—1. The combination with a reciprocating piston or plunger and a revolvable shaft, of a rack-bar provided with an oblong opening having two parallel internal straight engagement-faces connected at each end by a web having a semicircular engagement-face, and a continuous series of gear-teeth in said engagement-faces forming a continuous toothed rack, one end of said rack-bar being connected operatively to said piston; a circular toothed wheel secured rigidly to said shaft and of less diameter than the transverse distance between said parallel faces, said toothed wheel being in engagement with said toothed rack; guide-pins secured rigidly to said rack-bar and projecting from the side thereof at right angles to said side; and a guide suitably supported and having guide-channels in its face in which said guide-pins move, whereby said rack-bar and said toothed wheel are caused to maintain a constant contact while said rack-bar has a reciprocating motion and said toothed wheel has a revolving motion in one direction, substantially as shown and described.

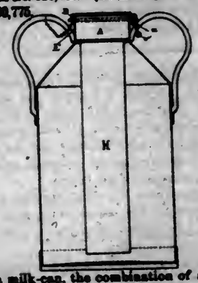
2. In a power-transmitting device, the combination of the reciprocating rod, the revolvable shaft, the toothed wheel secured to the shaft, the toothed rack-bar having an oblong opening of greater width than the diameter of said toothed wheel and adapted to pass over said wheel in engagement at all parts of its inner contact portion, means by which said reciprocating rod and said rack-bar may be operatively connected, guide-pins on said rack-bar, and a suitably-supported guide having guide-channels in its front adapted to receive said guide-pins, whereby said rack-bar is caused to maintain constant contact with said toothed wheel and its motion reversed at each end of said oblong opening, substantially as shown and described.

3. The combination of a revolvable shaft, a reciprocating piston or plunger, a rack-bar provided with an oblong opening having two straight parallel opposing sides and two semicircular connecting ends and said sides and said ends having a continuous series of gear-teeth forming a continuous internal toothed rack; a circular toothed wheel rigidly secured to said shaft and engaging said rack-bar; a guide having its working face adjacent to said rack-bar; suitable guide-channels in the said face, guide-pins rigidly secured to said rack-bar and engaging said guide-channels, whereby said rack-bar is caused to maintain constant contact with said toothed wheel and its reciprocating motion controlled; and means whereby said rack-bar and said piston may be connected, substantially as shown and described.

4. In combination with the locomotive-engines having the steam cylinder and valve and main axles, of toothed wheels secured to said axles by which power may be transmitted, rack-bars provided with continuous internal gear-teeth arranged in an oblong opening in said bar and adapted to provide a continuous engagement with said toothed wheels, guides by which said rack-bars are supported and maintained in contact with said toothed wheels and the contact changed from one side to the other of said opening at either end thereof, means by which said rack-bar may be connected operatively to the cross-head, with a cross-head and guides therefor, and means by which the main steam-valve may be operated in unison with the said rack-bars and the piston in the cylinder, substantially as shown and described.

5. The combination of the rack-bars suitably operated, the toothed wheel connecting said rack-bar, the axle attached to said wheel, said toothed wheel and said rack-bar being adapted to effect a rotative travel of said axle in excess of half a revolution during the travel of said rack-bar through one horizontal stroke, the cylinder and piston with means by which said piston and said rack-bar may be connected, the steam-valve for said cylinder, the auxiliary shaft suitably mounted with means by which said auxiliary shaft may operate said valve, and means by which said axle shall impart a uniform motion to said auxiliary shaft equal to half of a revolution during a stroke of said rack-bar in one horizontal direction, substantially as shown and described.

602,675. MILK-CAN. HENRY WIARD, Paris, France. Filed Mar. 20, 1897. Serial No. 628,782. (No model.) Patented in France Oct. 27, 1896, No. 262,775.



Claim.—In a milk-can, the combination of a cooler H provided with a wider upper part A, acting as a cover for the can, a cover B for the cooler, provided with a cross piece C and kept in place by a key D, said key when in place being sealed to a projection arranged at the neck of the can, substantially as described.

602,676. RAILWAY-SIGNAL. FILLMORE WILLIAMS, Columbus, Ohio, assignor to O. W. Aldrich and C. W. Critchfield. Filed Feb. 2, 1898. Serial No. 668,972. (No model.)



Claim.—1. In a railway-signal, the combination of a depressible lever adapted to be operated by the wheel of a car composed of two parts 1 and 1^a, one of said parts having a comparatively narrow slot 1^b and the other a similar slot with an enlarged recess or countersink 1^c, shaft 2, crank-arm 3 on said shaft, and pin 3^a on the crank-arm having a T-head adapted to pass through the aforesaid narrow slots and to stand transversely in the countersink, all constructed and arranged, substantially as shown and described.

2. In a railway-signal, the combination of a depressible lever adapted to be operated by the wheel of a car composed of two parts 1 and 1^a, one of said parts having a comparatively narrow slot 1^b and the other a similar slot with an enlarged recess or countersink 1^c, shaft 2, crank-arm 3 on said shaft, pin 3^a on the crank-arm having a T-head adapted to pass through the aforesaid narrow slots and to stand transversely in the countersink, a spring 5^a for holding the parts 1 and 1^a laterally in position, crank-arm 6 on shaft 2, and a spring 7 acting against arm 6 to hold the parts 1 and 1^a in elevated position, all constructed and arranged, substantially as shown and described.

602,677. APPARATUS FOR ANNEALING GLASSWARE. WILLIAM BUTTLER, Redkey, Ind. Filed Apr. 16, 1897. Serial No. 633,477. (No model.)



Claim.—1. In a glass plant, a finishing-station, an annealing-leer, an intermediate glass-heating furnace independent of any glass-finishing furnace and located adjacent to the finishing-station, and a series of pans or carriers arranged to be successively placed in the heating-furnace, and to be placed in an annealing-leer after receiving the finished glass articles in the heating-furnace.

2. In a glass plant, the combination with a finishing-station and an annealing-leer, of an intermediate glass-heating furnace independent of the glass-finishing furnace and adjacent to the finishing-station, said furnace containing a tray, a door at one side and a receiving-opening at the opposite side, the tray being arranged to receive the finished article and be deposited in the annealing-leer.

3. In a glass plant, a finishing-station, an intermediate glass-heating furnace adjacent thereto, an annealing-leer, and a series of pans or trays arranged to be successively placed in the heating-furnace and then placed in the annealing-leer after being filled with finished glass articles in said heating-furnace.

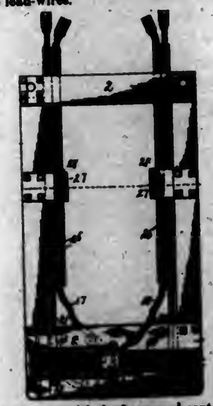
602,678. TRAVELING CONTACT FOR UNDERGROUND ELECTRIC RAILWAYS. GRIFFIN B. COLEMAN and JOSEPH W. DUGGAN, Washington, D. C. Filed Nov. 2, 1897. Serial No. 657,165. (No model.)

Claim.—1. The combination with a traveling contact or current-collector for underground electric-railway systems, of two pairs of lead-wires provided with independent couplings and independently connected to the contact-shoes of the device.

2. The combination with a traveling contact or current-collector of contact-shoes, recesses for the passage of the lead-wires, two pairs of lead-wires having independent connections with the shoes, and adapted to be used interchangeably.

3. The combination with the frame of the traveling contact, of double sets of lead-wires, insulating-tubes, clamped to the sides of the frame, said sets of wires being independently connected with the shoes and provided with means whereby the sets of lead-wires may be connected to the car-motor interchangeably.

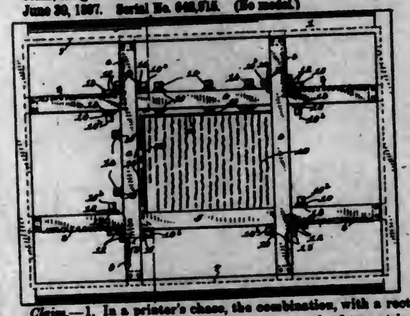
4. The combination with the frame and double sets of lead-wires, of the shoes recessed centrally and slotted longitudinally for the attachment of the lead-wires.



5. The combination with the frame and contact-shoes, of the fiber plates, and two pairs of lead-wires, one pair arranged outside of the fiber-plates, and the other pair extending down between the plates and extending through openings in said plates for attachment to the shoes.

6. The combination with the frame, of the clamps secured thereto, and lead-wires provided with insulating-tubes which latter are thickened and flattened within said clamps.

602,679. PRINTER'S CHASE. DANIEL J. DUNBAR, Bridgeport, Conn., assignor of one-half to Charles B. Sanford, same place. Filed June 30, 1897. Serial No. 643,515. (No model.)



Claim.—1. In a printer's chase, the combination, with a rectangular frame, of adjustable parallel bars composed of two strips of metal fastened together at their respective ends, so as to leave a free, unobstructed space between such ends, said bars yoked together, as shown, adjustable spring-locks carrying spring-actuated dogs to engage ratchet-teeth on said bars, clamping-bolts adjustably mounted on one or more of said bars, for the purpose set forth.

2. In a printer's chase, the combination, with a rectangular frame and adjustable parallel bars having ratchet-teeth, of spring-locks adjustably mounted on said bars, and carrying dogs to engage the teeth of said bars, for the purpose set forth.

3. In a printer's chase, the combination, with a rectangular frame and adjustable parallel bars having ratchet-teeth, of spring-locks adjustably mounted on said bars, and carrying dogs to engage the teeth of said bars, combined with clamping-bolts adjustably mounted on one or more of said bars, whereby the form is securely locked up after the parallel bars are locked, for the purpose set forth.

4. In a printer's chase, the combination, with a rectangular frame and adjustable parallel bars mounted thereon, each of said bars composed of two strips of metal parallel with each other and fastened together at their respective ends, in the manner substantially as shown, said bars adapted to be yoked together—as shown—locks carrying spring-actuated dogs to engage the teeth on said bars, said locks having a reduced central portion adapted to enter the space between the metal strips of said bars, and projections adapted to rest on both of said strips and on both edges thereof, combined with adjustable clamping-bolts mounted on said bars, for the purpose set forth.

5. In a printer's chase, the combination, with a rectangular frame and adjustable parallel bars mounted thereon and having ratchet-teeth formed on the edges thereof—as shown—of locks carrying spring-actuated dogs to engage with such ratchet-teeth, said teeth graduated—as shown—for the purpose set forth.

602,680. PIANO-TUNING-PIN HOLDER. JOHN DUNBORST, Indianapolis, Ind. Filed Oct. 4, 1897. Serial No. 654,294. (No model.)

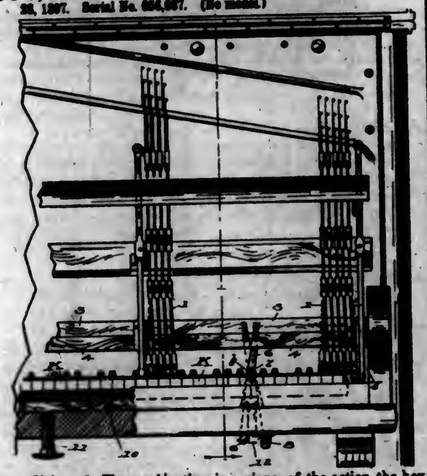


Claim.—1. The combination, in a piano, with the pin-block, the strings and the tuning-pins, of pin-holders consisting of disks E each formed with a V-shaped notch in the side thereof the sides of which notches are of an angle to frictionally hold the pins when drawn thereinto by the tension of the strings, said pins being in contact with the two angle-faces of said notches only, substantially as set forth.

2. The combination, in a piano, of a pin-block having tapered pin-holes, pin-holders E secured at the upper side of the pin-block and having suitable notches in their sides to receive and hold the pins, said tuning-pins, and the piano-strings connected thereto, all substantially as shown and described.

3. The combination, in a piano, of the strings, the tuning-pins, a pin-block having tapered pin-holes, and pin-holders consisting of disks having suitable notches in the sides thereof to receive the pins and secured at the upper side of the pin-block, whereby said pins are supported at and near their points and at a point where the strings are attached thereto, substantially as and for the purposes set forth.

602,681. PIANO. JOHN DUNBORST, Indianapolis, Ind. Filed Oct. 28, 1897. Serial No. 656,667. (No model.)



Claim.—1. The combination, in a piano, of the action, the keyboard, each lower member 1 of the action being connected at its upper end to the next member to swing laterally and near its lower end to a shifting bar, said lower member 1 being also somewhat inclined from a perpendicular when in operative position, and means for operating said shifting bar, substantially as set forth.

2. In a piano, the combination, of the action, the keyboard, the shifting bar 4 mounted to reciprocate in suitable supports on the frame of the piano, the levers 7 and 8 connected with said bar for operating the same, the lower members of the action being each connected to said shifting bar by a link and connected to the next member of the action by a joint which permits a sidewise swing of said lower member, said lower member being normally somewhat inclined from a perpendicular position, substantially as described and for the purposes specified.

3. The combination, in a piano, of the action, the keyboard, a shifting apparatus for the lower members of the action, a leveling-bar carrying a stop or lock and a push-pin for elevating said leveling-bar and throwing said stop or lock out of the path of the lever, while at the same time insuring the correct position of the keys for the shifting, so that the shifting operation shall not be interfered with thereby.

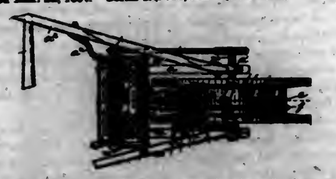
602,682. PROCESS OF PRODUCING ORTHOTOLUENE SULFONIC ACID. WILHELM DIETERLE, Feuerbach, Germany, assignor to The Firm of J. Hauff, same place. Filed May 7, 1897. Serial No. 636,557. (No specimens.)

Claim.—1. The process herein described of producing orthobenzene sulfonic acid, which consists in subjecting orthothiocresol continuously to the action of oxidizing substances, substantially as set forth.

2. In the art or process of producing orthobenzene sulfonic acid, the process of producing orthotoluene sulfonic acid by subjecting orthothiocresol to the action of oxidizing substances, substantially as set forth.

3. The process herein described of producing orthobenzene sulfonic acid, which consists in subjecting orthothiocresol to the continuous action of oxidizing substances in sufficient quantitative proportions so as to produce first the oxidation of the osthothiocresol into orthotoluene sulfonic acid, and then the oxidation of the latter into orthobenzene sulfonic acid, substantially as set forth.

602,683. SEED-SOWER. JOSEPH A. GLENDEN, Fair Haven, Pa. Filed Mar. 23, 1897. Serial No. 628,631. (No model.)



Claim.—1. In seed-sowers, the combination of a frame, a revolving cylinder within the frame having openings therein, spring-actuated pockets covering said openings and journaled on the exterior of said cylinder, a lug or finger on said frame for engaging with said pockets upon the revolution of the cylinder, whereby said pockets are raised, and projections on said cylinder for raising said lug or finger out of engagement with the pockets, substantially as and for the purposes set forth.

2. In seed-sowers, the combination of a frame, a revolving cylinder within the frame having openings therein, spring-actuated pockets covering said openings and journaled on the exterior of said cylinder, a slotted segmental lever on said frame, a slotted bar secured thereto, a lug or finger on said slotted arm for engaging with the pockets upon the revolution of the cylinder, whereby said pockets are raised, and a series of radial projections or lugs on said cylinder adapted to engage with a finger or lug on the slotted bar for raising said first-mentioned lug or finger out of engagement with the pockets, substantially as and for the purposes set forth.

3. In seed-sowers, the combination of a frame, a revolving cylinder having openings therein and provided with trunnions thereon journaled in the frame, spring-actuated pockets covering said openings and journaled on the exterior of the cylinder, a slotted segmental lever hinged to said frame, a slotted bar secured to said segmental lever and loosely mounted around one of the trunnions of the cylinder, a lug or finger on the slotted bar for engaging with the pockets upon the revolution of the cylinder, whereby said pockets are raised, and a series of radial projections or lugs on the side of the cylinder adapted to engage with a movable finger or leg on the slotted bar for raising said first-mentioned lug or finger out of engagement with the pockets, substantially as and for the purposes set forth.

4. In seed-sowers, the combination of a frame, driving-wheels journaled in the forward end of said frame, a revolving cylinder between said driving-wheels having openings therein, spring-actuated

pockets covering said openings and journaled on the exterior of said cylinder, mechanism for engaging with said pockets upon the revolution of said cylinder, whereby said pockets are raised, and mechanism for engaging with any one of said pockets to raise the same upon the revolution of the cylinder, substantially as and for the purposes set forth.

5. In seed-sowers, the combination of a frame, a revolving cylinder within the frame having openings therein, spring-actuated pockets covering said openings and journaled on the exterior of said cylinder, mechanism for engaging said pockets upon the revolution of the cylinder, whereby said pockets are raised, and a reversible chute secured on said frame provided with a roughened surface at one end and a smooth surface at the opposite end, substantially as and for the purposes set forth.

6. In seed-sowers, the combination of a frame, driving-wheels journaled in the forward end of said frame, lugs or flanges on the inner faces of the driving-wheels, a movable band curved in cross-section having openings therein resting on said lugs or flanges and adapted to form the face of a cylinder between the driving-wheels, spring-actuated pockets covering said openings and journaled on the exterior of the cylinder, and mechanism for engaging with said pockets upon the revolution of the cylinder whereby said pockets are raised, substantially as and for the purposes set forth.

7. In seed-sowers, the combination of a frame, driving-wheels journaled in the forward end of said frame, lugs or flanges on the inner faces of the driving-wheels, a movable band curved in cross-section having openings therein resting on said lugs or flanges and adapted to form the face of a cylinder between the driving-wheels, spring-actuated pockets covering said openings and journaled on the exterior of said cylinder, mechanism for engaging said pockets upon the revolution of the cylinder, whereby said pockets are raised, and a lug or bearing on said driving-wheels having a set-screw therein for engaging with the adjustable face of the cylinder to vary the size of the openings therein, substantially as and for the purposes set forth.

8. In seed-sowers, the combination of a frame, driving-wheels journaled in the forward end of said frame, lugs or flanges on the inner faces of the body portions of the driving-wheels, a movable band curved in cross-section having openings therein resting on said lugs or flanges and adapted to form the faces of the cylinder between the driving-wheels, spring-actuated pockets covering said openings and journaled on the exterior of the cylinder, mechanism for engaging said pockets upon the revolution of the cylinder, whereby said pockets are raised and posts on one of the body portions of the driving-wheels adapted to engage with pockets on the body portions of the opposite driving-wheels within the cylinder, substantially as and for the purposes set forth.

9. In seed-sowers, the combination of a frame, a revolving cylinder within the frame having openings therein, spring-actuated pockets covering said openings and journaled on the exterior of said cylinder, a slotted segmental lever on said frame, a slotted bar secured thereto and having a lug or finger thereon for engaging with the pockets upon the revolution of the cylinder, whereby said pockets are raised, and a lever having a rod connected thereto engaging with the segmental lever and the frame to raise the segmental lever and the lug or finger on the slotted bar out of contact with pockets, substantially as and for the purposes set forth.

10. In seed-sowers, the combination of a frame, a revolving cylinder within the frame, an opening in the side of said cylinder having a door therein for the introduction of seed or grain into the cylinder, flanges extending out on both sides of the inner face of said door, and a rod on the lower end of said door adapted to engage with the edges of the opening to hold the door when opened, substantially as and for the purposes set forth.

11. In seed-sowers, the combination of a frame, a revolving cylinder within the frame, an opening in the side of the cylinder having a door therein for the introduction of seed or grain into the cylinder, flanges extending out on both sides of the inner face of said door, and a slot in said door having a thumb-nut therein provided with a lug thereon for engaging with the edge of the opening, substantially as and for the purposes set forth.

12. In seed-sowers, the combination of a frame, a revolving cylinder within the frame having openings therein, pockets covering said openings and journaled on the exterior of said cylinder, mechanism for engaging said pockets upon the revolution of the cylinder whereby the pockets are raised, and a circular spiral spring fitting around the cylinder and engaging with the pockets to return them to their normal position when raised, substantially as and for the purposes set forth.

13. In seed-sowers, the combination with a frame having a revolving cylinder therein, of a box or hopper on said frame, a roll journaled in the box or hopper, and connections from said revolving cylinder to the roll to operate the same, substantially as and for the purposes set forth.

14. In seed-sowers, the combination with a frame having a revolving cylinder therein, of a box or hopper on said frame, a roll journaled in the box or hopper, connections from said revolving cylinder to the roll to operate the same, and spiral grooves around and within the face of said roll, substantially as and for the purposes set forth.

15. In seed-sowers, the combination with a frame having a revolving cylinder therein, of a box or hopper on said frame, a roll journaled in the box or hopper and provided with spiral grooves around and within its face, connections from the revolving cylinder to the roll to operate the same, and spring operated-shutters within said box or hopper, substantially as and for the purposes set forth.

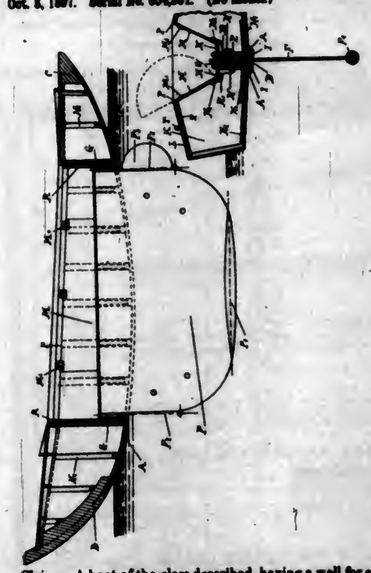
16. In seed-sowers, the combination with a frame having a revolving cylinder therein, of a box or hopper on said frame, a roll journaled in the box or hopper, connections from said revolving cylinder to the roll to operate the same, spring-operated shutters within the box or hopper, and a flexible apron secured to the box or hopper in front of the shutters, and adapted to bear against the roll, substantially as and for the purposes set forth.

17. In seed-sowers, the combination with a frame having a revolving cylinder therein, of a box or hopper on said frame, a roll journaled in the box or hopper, connections from the revolving cylinder to the roll to operate the same, spring-operated shutters within the box or hopper, and an eccentric or cam adapted to engage with the spring-operated shutters to regulate the opening of the same, substantially as and for the purposes set forth.

18. In seed-sowers, the combination with a frame having a revolving cylinder therein, of a box or hopper on said frame, a roll journaled in the box or hopper, connections from the revolving cylinder to the roll to operate the same, spring-operated shutters within the box or hopper, and a flexible strip in the front of the box or hopper adapted to engage with roll, substantially as and for the purposes set forth.

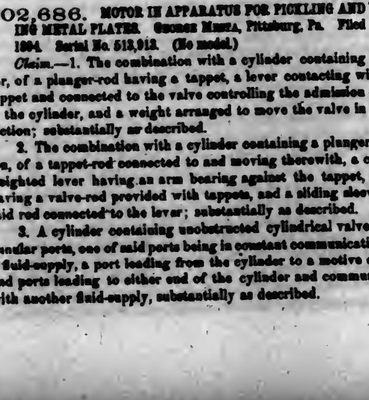
19. In seed-sowers, the combination with a frame having a revolving cylinder therein, of a box or hopper on said frame, a roll journaled in said box or hopper, connections from the revolving cylinder to the roll to operate the same, spring-operated shutters within the roll or hopper, an eccentric mounted on a shaft and adapted to engage with the spring-operated shutters to regulate the opening of the same, and mechanism connected to said shaft for regulating the amount of fertilizer dropped from the box or hopper around the roll substantially as and for the purposes set forth.

602,684. LIFE-BOAT. ALBERT HENRY, Rochefort, France. Filed Oct. 8, 1897. Serial No. 654,991. (No model.)



Claim.—A boat of the class described, having a well for a centerboard in communication with an open space inclosed by water-tight compartments on each side of the well, adapted to allow the water falling into the open space to run out through the well, in combination with a centerboard having at the bottom a weight formed by a metallic body in the shape of a cigar and having a rudder suitably hinged at its end, said rudder adapted to close against the side of the centerboard and to allow of the withdrawal of the latter substantially as described.

602,685. WATER SEAL AND VALVE-TRAP. ZACHARIAH LATSHAW, New York, N. Y., assignor to Charles R. Higgins, same place. Filed Nov. 19, 1897. Serial No. 658,093. (No model.)



Claim.—1. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined valve-seat upon the outlet branch, a joint-flange surrounding such seat, a cover secured permanently upon such joint and provided with the threaded socket K and cap L, as set forth, a bridge secured within the socket by the cap, and a valve fitted to the seat and jointed to the bridge by link F, as and for the purpose set forth.

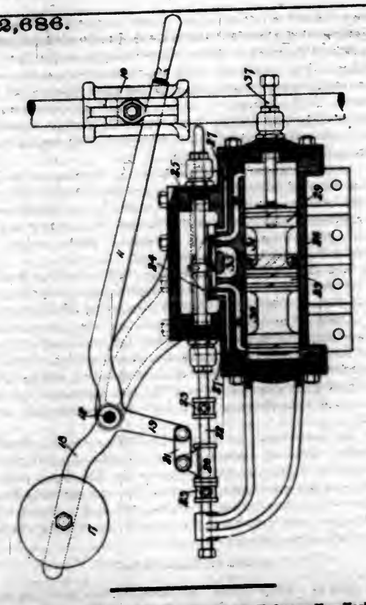
2. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined valve-seat upon the outlet branch, a cover secured over the valve-seat and containing the vent-pipe socket and a socket for a removable cap over the valve-seat, and a valve fitted to the seat with link having support held in place by such cap.

3. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined valve-seat upon the outlet branch, a joint-flange surrounding such seat, a cover secured upon such joint and containing the vent-pipe socket and a socket for a removable cap over the valve-seat, and a valve fitted to the seat with link to support it movably, substantially as herein set forth.

4. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined seat upon the outlet branch with the same diameter as the trap-passage, a chamber of greater diameter outside of said seat, with a valve fitted to said seat and movable within the chamber, and a cover secured over the valve-seat and containing the vent-pipe socket and a socket for a removable cap above the seat, such cap-socket being adapted to insert and remove the valve, substantially as herein set forth.

5. In a water seal and valve-trap, the combination, with the trap-elbow, of an outlet branch provided with an inclined valve-seat, a cover secured over the valve-seat and containing a socket with a removable cap above the valve-seat, the ring G secured within such socket and provided with the bridge or cross-bar *g* having suitable lugs, and a valve fitted to the seat with link pivoted to such lugs, substantially as herein set forth.

602,686.



602,687. DOOR-CHECK. FREDERICK H. OSDEN, New York, N. Y., assignor to Henry Ill and Charles Winckhofer, Newark, N. J. Filed June 19, 1897. Serial No. 641,434. (No model.)

Claim.—1. In a door-check, the combination, with a vertically-arranged working chamber, a piston arranged to move up and down therein, and operating devices therefor, of a liquid-reservoir separate from the working chamber but communicating therewith below the piston, valves arranged to permit free passage of liquid from said reservoir into the working chamber but to restrict the flow of liquid therefrom, a check-valve, opening downward in said piston, for automatically returning into action liquid which escapes to the upper side of the piston, and an air-passage connecting the upper portion of the working chamber with said reservoir, substantially as described.

2. In a door-check, the combination, with a casing containing a spring-chamber and a working chamber below the spring-chamber and adapted to contain a moving piston and mechanism for operating the same, suitable passages and valves, and a piston within the working chamber, of a plate separating the spring and working chambers, a horizontal shaft within said working chamber and suspended from said plate, mechanism operated by the revolution of said shaft for operating the piston, a vertical shaft projecting through said plate into the working chamber and connected by gearing to said horizontal shaft, means for connecting said vertical shaft and the door whereby as the door opens and closes said shaft rotates, and a spring for closing the door, substantially as described.

3. In a door-check, the combination, with a casing containing a spring-chamber and a working chamber below the spring-chamber and adapted to contain a moving piston and mechanism for operating

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602,686. MOTOR IN APPARATUS FOR PICKLING AND WASHING METAL PLATES. GEORGE MESTA, Pittsburg, Pa. Filed June 8, 1894. Serial No. 513,913. (No model.)

Claim.—1. The combination with a cylinder containing a plunger, of a plunger-rod having a tappet, a lever contacting with said tappet and connected to the valve controlling the admission of fluid to the cylinder, and a weight arranged to move the valve in one direction; substantially as described.

2. The combination with a cylinder containing a plunger or piston, of a tappet-rod connected to and moving therewith, a counterweighted lever having an arm bearing against the tappet, a valve having a valve-rod provided with tappets, and a sliding sleeve upon said rod connected to the lever; substantially as described.

3. A cylinder containing unobstructed cylindrical valve having annular ports, one of said ports being in constant communication with a fluid-supply, a port leading from the cylinder to a motive cylinder and ports leading to either end of the cylinder and communicating with another fluid-supply, substantially as described.

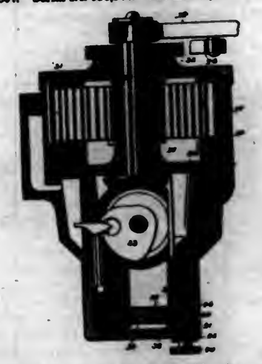
the same, suitable passages and valves, and a piston within the working chamber, of a plate separating the spring and working chambers, a cam-shaft within said working chamber and suspended from said plate, a cam upon said shaft acting upon the piston and adapted to reciprocate the same, an operating-shaft projecting through said plate into the working chamber and connected by gearing to said cam-shaft, means for connecting said operating-shaft and the door whereby as the door opens and closes said shaft rotates, and a spring for closing the door, substantially as described.

4. In a door check, the combination, with a casing containing a working chamber, and a piston therein, of a plate closing said chamber, a shaft within said chamber and suspended from said plate, mechanism operated by the revolution of said shaft for operating said piston, and a vertical operating-shaft connected by gearing to said first-mentioned shaft, substantially as described.

5. In a door-check, the combination, with a working chamber, and a piston therein having a piston-rod carrying a projecting cam-piece or stud, of a revolubly-mounted cam having shoulders, one of which is adapted to engage the stud and move the piston outward, and the other of which is arranged to bear against the end of the piston-rod for pressing the piston inward, said cam and cam-piece being so shaped that they disengage when the cam is in a position corresponding to a partly-open position of the door, and means for rotating said cam when the door opens and closes, substantially as described.

6. In a door-check, the combination, with a working chamber, of a piston within said chamber having a piston-rod working along and guided by a guide-rib projecting from the side of said working chamber and having a plane guide-face, the corresponding face of the piston-rod where it comes in contact with said guide-rib being also plane, whereby rotation of the piston in the working chamber is prevented, substantially as described.

602,688. DOOR-CHECK. FREDERICK H. OSBER, New York, N. Y., assignor to Henry Ill and Charles Winckhofer, Newark, N. J. Filed Sept. 4, 1897. Serial No. 650,577. (No model.)

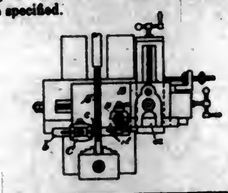


Claim.—1. In a door-check, the combination, with a working chamber, a piston therein, and means for reciprocating the same, of a check-valve adapted to permit free passage of a liquid or other fluid from one side of the piston to the other, a valve-plug in said piston adapted to restrict a passage therein through which reverse flow of the fluid may take place, an operating-rod projecting through the wall of the working chamber, and gearing connecting said valve-plug and operating-rod, by which said valve-plug may be adjusted, substantially as described.

2. In a door-check, the combination, with a working chamber, a piston therein, and means for reciprocating the same, of a check-valve adapted to permit free passage of a liquid or other fluid from one side of the piston to the other, a screw in said piston adapted to restrict a passage therein through which reverse flow of the fluid may take place, a gear-wheel upon the end of said screw, and an operating-rod projecting through the wall of the working chamber, and provided with teeth adapted to mesh with the teeth of said gear-wheel, by which said screw may be adjusted, substantially as described.

602,689. SCREW-CUTTING MACHINE. JAMES REYNOUD and ADOLPHE POCHERON, St. Imier, Switzerland. Filed July 6, 1897. Serial No. 643,565. (No model.)

Claim.—In a screw-cutting machine, a support or plate provided with two tool-holders, one integral therewith and the other movable thereon, said first tool-holder adapted to be adjusted parallel to the axis of the work-piece according to the pitch of the screw-thread required, and said second tool-holder capable of adjustment at right angles to the axis of the work-piece according to the diameter thereof, whereby the cutters are adapted to act separately upon the work-piece during the forward and return movement of the carriage, substantially as specified.



602,690. ACETYL DERIVATIVE OF PHENETIDIN. CARL F. M. SCHAEFFER and PAUL SEIWARD, Basle, Switzerland, assignors to F. Hoffmann-La Roche & Co., same place. Filed Oct. 19, 1897. Serial No. 655,741. (Specimens.) Patented in England June 14, 1897, No. 14,307.

Claim.—1. The process of preparing pharmaceutical products consisting in the preparation of phenetidin-sulfonic acid by treating phenetidin with concentrated sulfuric acid, as described.

2. The process of preparing pharmaceutical products consisting in the preparation of an acetyl derivative of a salt of phenetidin-sulfonic acid, by treating phenetidin with concentrated sulfuric acid, converting the phenetidin-sulfonic acid thus obtained into a salt and acetylizing this salt (phenetidin sulfonate) by means of glacial acetic acid and acetic anhydrid, as described.

3. As a new article of manufacture, the herein-described acetyl derivative of an alkaline phenetidin sulfonate, which consists of a reddish-white microcrystalline, hygroscopic body, which is easily soluble in water, less easily soluble in alcohol and insoluble in ether and has antipyretic properties.

602,691. TILING FOR FLOORS, WALLS, CEILINGS, FIRE-PLACES, &c. CHARLES C. ALEXANDER, Bayonne, N. J. Filed June 11, 1897. Serial No. 640,203. (No model.)



Claim.—1. A tiling composed of disks arranged in series of rows with the disks of each row in peripheral contact with the adjacent disks of such row and with the disks of each row in line with the spaces between the disks of the next row and in peripheral contact with two disks of such next row whereby to properly aline the disks in each row and to form triangular spaces between the contacting disks and a binding material filling the triangular spaces between the adjacent disks, the inner or base ends of said disks being flat, substantially as described.

2. A tiling composed of circular disks of uniform size and made in the form of a frustum of a cone with the large ends or bases of said cones inward and in peripheral contact with the adjacent disks, and the binding material filling the spaces between said disks and the interstitial openings between their contacting portions, substantially as shown and described.

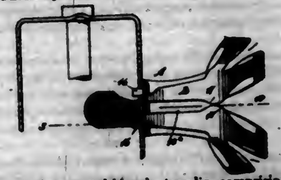
3. A tiling composed of circular disks of uniform size and made in the form of truncated cones with their large ends innermost, such disks being set with portions in peripheral contact with the similar adjacent disks leaving triangular spaces and interstitial openings between the adjacent disks and the cement-like binding below and between the disks and extended through the interstitial openings between the large ends of the disks tying the material below the disks to that between the same and keying the disks in place, substantially as shown and described.

4. A tiling composed of contrasting disks made alike in shape, and having their peripheral edges in contact with each other to form triangular spaces between adjacent disks, the top surfaces of the disks extending in the same plane, and a binding material in which the said disks are embedded, and which material fills the triangular spaces to bind the tile-disks at their edges, the top surface of the material being flush with the top surface of the disks and in contrast thereto to set off the contrasting disks, substantially as shown and described.

5. A tiling composed of the blocks made circular in cross-section and frusto-conical with their large inner ends flat, and the binding material in which said blocks are set with their inner flat ends in peripheral contact with the corresponding ends of the adjacent blocks, the interstitial spaces between the blocks being filled with the binding material and the flat inner ends of the blocks forming broad bases by which to prevent any tilting of the tile-blocks, substantially as shown and described.

6. A tiling substantially as described, comprising circular tile-disks having their peripheral surfaces in contact with each other to form intermediate spaces between the adjacent disks and binding material in which said disks are embedded and in the spaces between the disks and the edges thereof, the circular form of the disks permitting the shifting thereof in securing a regulation of the pattern in setting the tiles, substantially as set forth.

602,692. TOE-CLIP FOR BICYCLES. DAVID BAGH, New York, N. Y. Filed May 17, 1897. Serial No. 636,903. (No model.)



Claim.—A sheet-metal bicycle toe-clip, comprising the bottom, front, and top sections, divided into two parts by a longitudinal opening extending from the front of the bottom section, through the front section, and rearwardly to near the end of the top section, the walls of such opening where the front section merges into the top section being made to closely approach each other, forming lips which are capable of being bent vertically, as set forth.

602,693. ROCK OR LIKE DRILL. ERNEST P. BLACKMORE, Johannesburg, South African Republic, assignor of two-thirds to Richard Oliver Gardner Drummond and Edward John Way, same place. Filed Sept. 2, 1897. Serial No. 650,317. (No model.)



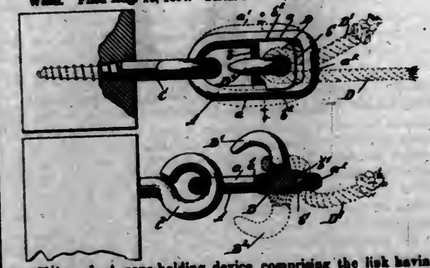
Claim.—1. In a rock-drill the combination with the frame, of the reciprocating drill-shaft mounted therein, the shell O mounted on said shaft and surrounding the same and formed with a spiral cam-surface, the stator Q mounted in the frame and also surrounding the drill-shaft, the rotor P mounted within the stator and surrounding the shaft, the shell C' fixed to the rotor and surrounding the drill-shaft beyond the shell O and formed with a spiral cam-surface abutting against the cam-surface on the shell O.

2. In combination, the drill-shaft A, the boss a formed thereon and forming the shoulders a' a^2, the cylindrical cam C, screwed onto the shaft A up to the shoulder a', the corresponding cylindrical cam C' screwed within the rotor P, the bush O screwed within the cam C' and forming the bearing for the rotating part of the motor, the rotor P and stator Q, comprising the electric motor mounted concentrically on the drill-shaft A, the spiral spring D inserted within the cylindrical casing B and bearing against the shoulder a^2 formed on the drill-shaft, the cylindrical casing B and its cover b' against which the spring D bears the cavity E formed in the inner extremity of the drill-shaft A, the rifle-nut F screwed therein, the rifle-bar G passing through the rifle-nut and projecting into the cavity E, the ratchet or leaf wheel H attached to the end of the rifle-bar G, the pawl J, the cup-shaped piece K attached to the cover b' of the cylindrical casing B for regulating the tension of spring D, the adjusting-screw M fitted with a locking device, operating-handle N, and the several parts L L' L^2, annular piece S and cap R of the exterior casing substantially as described and shown.

3. In a drill the combination with the frame, of the drill-shaft A, the concentric cylindrical cam C attached thereto near its rear end, the stator Q surrounding the drill-shaft near its forward end, the rotor P mounted within the stator, the rotor-shaft surrounding the drill-shaft and provided with a rearward extension T, the cylindrical cam C' fixed to said extension in rear of stator Q and abutting against the cam C, and the packing-ring V surrounding the cam C'.

4. In combination, the drill-shaft A, the boss a formed thereon and forming the shoulders a' a^2, the cylindrical cam C, screwed onto the shaft A up to the shoulder a', the corresponding cylindrical cam C' gearing therewith attached to the extension-piece or continuation T of the rotor-shaft U of the motor, the rotor P and stator Q mounted concentrically on the drill-shaft A the rotor-shaft U and the extension T thereof, the packing-ring V, the spiral spring D inserted within the cylindrical casing B and bearing against the shoulder a^2 formed on the drill-shaft, the cylindrical casing B and its cover b' against which the spring D bears the cavity E formed in the inner extremity of the drill-shaft A, the rifle-nut F screwed therein, the rifle-bar G passing through the rifle-nut and projecting into the cavity E, the ratchet or leaf wheel H attached to the end of the rifle-bar G, the pawl J, the cup-shaped piece K attached to the cover b' of the cylindrical casing B for regulating the tension of spring D, the adjusting-screw M fitted with a locking device, operating-handle N, and the several parts L L' L^2, of the casing of the drill, substantially as described.

602,694. ROPE-CLAMPING HOOK. ABNER R. BRADSHAW, Seattle, Wash. Filed Aug. 10, 1897. Serial No. 647,726. (No model.)



Claim.—1. A rope-holding device, comprising the link having its rear end arranged for attachment to a support, and a block fitted to slide between the side bars of said link and having a hook projecting therefrom, said hook being bent toward the rear end of said link and lying within the margin of said link, as and for the purpose set forth.

2. A rope-holding device, comprising the link formed with a rear end arranged for attachment to a support and two parallel side members connected at their forward ends by a lateral section, a block having its side edges concaved and by which it is held to slide between the sides of the link and its front edge concaved to fit the lateral section of said link, and a hook projecting from a face of said block and curved backward away from the lateral section of the link, whereby strain on a rope inserted between the concaved edge of the block and a lateral section of the link and around the hook will securely clamp the same, as and for the purpose set forth.

602,695. MUSICAL INSTRUMENT. PETER CASELLE, New York, N. Y. Filed Dec. 2, 1897. Serial No. 660,803. (No model.)



Claim.—1. A musical instrument, having a separable body and neck, the body having a recess with sloping or converging sides opening to one side of the body and adapted to receive the similarly-shaped end of the neck, a plate located at the bottom of said recess and having slots extending to the open edge of said recess, a plate on

the end of the neck, and bars attached to said plate by webs and adapted to fit in the slots in the plate at the bottom of the recess, substantially as described.

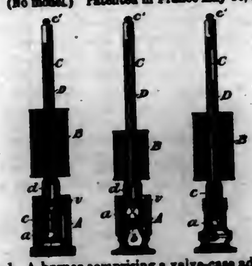
2. A musical instrument, having a separable body and neck, the body having a recess with sloping or converging sides opening to one side of the body and adapted to receive the similarly-shaped end of the neck, a plate located at the bottom of said recess and having slots extending to the open edge of said recess, a plate on the end of the neck, bars attached thereto by webs and adapted to fit in the slot in the plate at the bottom of the recess, one of said bars having a threaded hole in its ends, and a bolt mounted in the body and entering said threaded bar, substantially as described.

3. A musical instrument, having a neck and body, said neck being separable from the body, and a plate pivoted to the neck at its end and extending over the body when in use, or folded down against the end of the neck, as the parts are connected or separated, said plate carrying a portion of the frets, substantially as described.

4. A fastening for the strings of musical instruments, comprising a plate having a series of holes therethrough and a narrow slot extending from each hole and adapted to receive the strings, and a plate mounted to slide upon the first plate and adapted to cover or free said holes, and means for clamping the two plates together, substantially as described.

602,696. VALVE-CONTROLLING DEVICE FOR GAS-BURNERS.

JOSEPH D. C. CHATEAU, Paris, France. Filed Dec. 31, 1896. Serial No. 617,623. (No model.) Patented in France May 30, 1896, No. 256,734.



Claim.—1. A burner comprising a valve-case adapted to be connected to the gas-service piping; and having a gas-exit passage, a valve formed of magnetic material, arranged loosely on its seat, and adapted to control said exit-passage, a piece of soft iron arranged above said valve and adapted to lift the same when sufficiently excited, a permanent-magnet facing arranged so as normally to magnetize said piece of soft iron but not to a sufficient extent to lift said valve; and an electromagnet comprising a steel rod surrounded by a solenoid through which electric currents can be passed, said electromagnet serving when suitably excited to modify the magnetism of the armature produced by the first magnet and vary the effect thereof so as to depress or raise the same according as the magnetism of the electromagnet assists or is in opposition to the magnetism of the permanent magnet, substantially as hereinbefore described.

2. A gas-burner comprising a valve-case having a passage for exit of gas and a burner-stem C with burner proper, a valve *a* controlling said gas-exit passage, a soft-iron plunger *c*, a V-shaped part *d* of magnetic material, a magnet A surrounding said armature and V-shaped part, a solenoid B surrounding said burner-stem, and a steel rod D located within said stem, the whole constructed, arranged and operating substantially as described and shown for the purpose specified.

3. A burner comprising a valve-case having a gas-exit passage and a hollow stem with burner proper, a loose valve of magnetic material controlling said exit-passage, a magnetic part adapted when sufficiently magnetized to raise said valve, a solenoid surrounding said stem, and a rod of magnetic material arranged as a core to said solenoid and adapted to magnetize said magnetic part and raise said valve when the solenoid is traversed by a continuous current and to demagnetize said movable part and permit said valve to fall into its closed position when said solenoid is traversed by an alternating current of decreasing strength, substantially as herein described.

4. The combination of the valve-casing, the magnetic valve controlling a port in said casing, a steel rod aligning longitudinally with said valve, a solenoid or coil arranged to influence said steel rod magnetically, the valve being located without the coil, and a hollow permanent magnet surrounding the valve, substantially as described.

5. The combination of the valve-casing, the magnetic valve controlling a port in said casing, a tubular permanent magnet surrounding the valve and extending above the same, and a solenoid or coil located above said magnet and arranged to influence the same, substantially as described.

6. A gas-burner consisting of a valve-case *d'* with exit-passage *b'* and stem C carrying the burner proper *d'*, a valve *a* of magnetic material controlling said gas-exit passage, a soft-iron plunger located above said valve, a steel rod D located above said plunger and within the stem, and a solenoid surrounding said stem and rod, substantially as described.

7. The combination of a valve-casing, a valve capable of actuation by magnetism and operating within the valve-casing, an electromagnet, and a stationary magnetic member interposed between the valve and the core of the electromagnet and coacting with the magnet to operate the valve, substantially as described.

8. The combination of a valve-casing, a valve capable of actuation by magnetism and located within the valve-casing, an electromagnet, a magnetic member interposed between the valve and electromagnet and transmitting magnetism from the electromagnet to the valve, and a permanent magnet adjacent to the valve and influencing the same in conjunction with the electromagnet, substantially as described.

9. The combination of a casing, a valve capable of actuation by magnetism and located within the valve-casing, a magnetic member normally rested on the valve, a second magnetic member located above the first magnetic member, and an electromagnet with whose core the said second magnetic member is engaged, substantially as described.

10. The combination of a casing, a valve capable of actuation by magnetism and located within the valve-casing, a magnetic member normally rested on the valve, a second magnetic member located above the first magnetic member, a permanent magnet embracing the valve-casing and influencing but not entirely operating the magnetic parts therein, and an electromagnet coacting with the permanent magnet and operating the valve through the medium of the magnetic members within the valve-casing, substantially as described.

602,697. FORMALDEHYDE STARCH AND METHOD OF MAKING SAME.

ALEXANDER CLASSEN, Aix-la-Chapelle, Germany. Filed Aug. 20, 1896. Serial No. 603,207. (No specimens.)

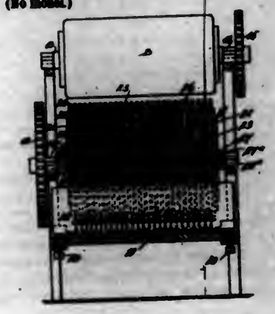
Claim.—1. The herein-described process for the manufacture of compounds of starch and starch-like substances with formaldehyde, which consists in causing said substances to react with formaldehyde and heating the products of the reaction for about twenty-four hours to a temperature of about 120° centigrade, the compounds obtained by such heating being again treated with formaldehyde and then freed by means of a solvent of formaldehyde, such as water, from the excess of formaldehyde, and dried.

2. The herein-described process for the manufacture of chemical compounds of starch and starch-like substances with formaldehyde, which consists in placing said substances in the presence of each other under pressure and heating them to a temperature above 100° centigrade, thereby causing a chemical reaction between the starch and the formaldehyde, whereupon the compound produced is dried and then freed from the excess of formaldehyde.

3. The herein-described compounds containing starch or starch-like substances in chemical combination with formaldehyde, said compounds presenting the following characteristics: when boiled with water, they do not give off any formaldehyde, nor does the starch or starch-like substance contained in them assume a pasty consistence; they may be heated up to 180° centigrade without giving off formaldehyde; when heated with dilute acids or alkalies, they are decomposed under liberation of formaldehyde; they are decomposed in a like manner by the action of organic tissues and secretions.

602,698. RAISIN-SEEDER.

CARY S. COX, Fresno, Cal., assignor to Lee L. Gray, same place, and the Phœnix Raisin Seeding and Packing Company, Fresno County, Cal. Filed Dec. 31, 1896. Serial No. 617,632. (No model.)



Claim.—1. In a raisin-seeding machine, a rubber-covered roller the covering of which is slitted circumferentially, substantially as described.

2. In a machine for seeding raisins, a carrying-drum for the raisins provided with pin-like projections from its periphery, and a composite drum comprising non-yielding body-disks and yielding material between the body-disks, the yielding material projecting beyond the disks, forming pockets for the reception of seed, the pin projections upon the carrying-drum being arranged to enter the spaces between the projecting portions of yielding material.

3. In a machine for seeding raisins, a drum for the reception of seed, comprising non-yielding body-disks and rings or gaskets of a yielding material held between the body-disks, extending beyond said disks, forming a series of pockets for the reception of seed, the said pockets having closed yielding walls.

4. In a machine for seeding raisins, a drum for the reception of seed, comprising non-yielding body-disks having openings therein, rings or gaskets of a yielding character held between the disks and extending beyond them, and means for drawing the disks together and forcing the yielding material into the openings of the said disks.

5. In a machine for seeding raisins, a carrying-drum for the raisins provided with pins on its periphery, a composite drum consisting of a non-yielding body and spaced yielding projections from the periphery of the body, between which the pins on the carrying-drum pass, and a division-plate located between the two drums at a point below their centers, as and for the purpose specified.

6. In a machine for seeding raisins, a carrying-drum having its periphery provided with rows of pins, a composite drum consisting of a body and annular projections from the body, made of a yielding material and between which the rows of pins on the carrying-drum pass, and combs located one beneath each of the drums and arranged to remove the material therefrom, substantially as described.

7. In a machine for seeding raisins, a carrying-drum having its periphery provided with rows of pins, a composite drum consisting of a body and annular projections from the body, made of a yielding material and between which the rows of pins on the carrying-drum pass, combs located one beneath each of the drums and arranged to remove the material therefrom, and a division-plate located between the combs and between the drums, extending upward to a point near where the drums come in contact, as and for the purpose set forth.

8. In a raisin-seeder, feed-rollers one of which is provided with a yielding surface, a raisin-carrying roller located beneath one of the feed-rollers and having pins located upon its peripheral surface, a composite drum consisting of a shaft and series of disks of a non-yielding material secured on the shaft, and gaskets or rings secured between the said disks and extending beyond their peripheral faces, the teeth of the carrying-drum being arranged to pass through the spaces between the gaskets or rings, and combs having their teeth arranged to enter in the spaces between the rings or gaskets of the composite roller and between the rows of teeth on the carrying-roller, as and for the purpose set forth.

9. In a raisin-seeder, feed-rollers one of which is provided with a yielding surface, a raisin-carrying roller located beneath one of the feed-rollers and having pins located upon its peripheral surface, a composite drum consisting of a shaft and series of disks of a non-yielding material secured on the shaft, and gaskets or rings secured between the said disks and extending beyond their peripheral faces, the teeth of the carrying-drum being arranged to pass through the spaces between the gaskets or rings, combs having their teeth arranged to enter in the spaces between the rings or gaskets of the composite roller and between the rows of teeth on the carrying-roller, and a division-plate located between the combs and between the carrying and the composite drums, the upper portion of the division-plate extending to a point near where the two said drums engage, substantially as shown and described.

602,699. HAIR-TIE BUTTON.

CHRISTOPHER C. DAVIS, Hopatcong, N. Y. Filed Jan. 24, 1898. Serial No. 667,737. (No model.)

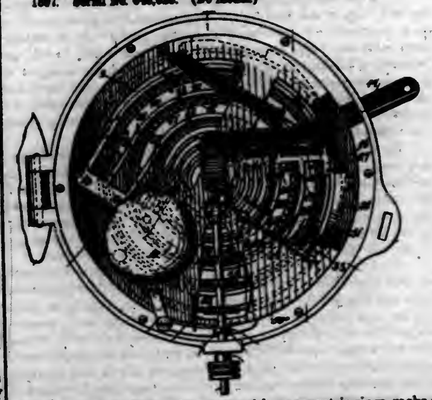


Claim.—1. A hair-tie button, comprising two opposing heads, a shank connecting the heads, the said shank being provided with a transverse opening and with a chamber communicating with the opening, and a tape, cord or rubber passing through said opening and having an enlargement larger than the opening and contained within the chamber of the shank, as set forth.

2. In a hair-tie button, the combination, with opposing heads having concaved opposing surfaces, and a shank connecting the concaved surfaces of the heads, the said shank being provided with a recess in its end close to the inner face of one of its heads, the shank being also provided with an interior chamber communicating with the recess, of a tape, cord or ribbon provided with an enlargement at its center, the tape, cord or ribbon being passed through said recess in the shank, the enlargement being contained within the chamber of the shank, whereby the tape, cord or ribbon cannot be withdrawn from the shank when the button is being applied, enabling the operator to readily manipulate the cord, tape or ribbon around the button and around the braid above and below the button, as set forth.

602,700. FARE-REGISTER.

EDWARD FIRMS, New York, N. Y., assignor to the New York Stencil Works, same place. Filed July 31, 1897. Serial No. 646,622. (No model.)



Claim.—1. A fare-register, comprising concentric rings, racks on the rings, a pivoted lever, dogs on said lever engaging the racks to move the rings, and means for raising the dogs wholly out of engagement with the rings on the return movement of the lever, substantially as specified.

2. A fare-register, comprising concentric rings, a pivoted lever, dogs carried by said lever for engaging with racks on the rings and imparting a step-by-step motion to said rings, a plate attached to a fixed support, and a finger attached to the dogs and adapted to ride upon the upper surface of said plate, to raise the dogs out of engagement with the rings on the return movement of the lever, substantially as specified.

3. A fare-register, comprising concentric rings, a pivoted lever, dogs mounted to swing on said lever, racks on the rings with which said dogs are designed to engage, a spring yielding plate mounted on a fixed support and having its free end curved downward, and a finger extended from the dogs and adapted to engage upon the upper side of said plate to raise the dogs out of engagement with the rings upon the return movement of the lever, substantially as specified.

4. A fare-register, comprising a series of concentric rings, a lever, dogs mounted to swing on said lever, the said dogs being of different lengths, notched racks on the rings, a notch in one rack being deeper than a notch in the other rack, means for moving the dogs out of engagement with the racks, on the return movement of the lever, stop-pins on certain of the rings, swinging dogs adapted to engage the stop-pins, and means carried by the lever for moving said stop-dogs out of the line of movement of the pins, substantially as specified.

5. A car-fare register, comprising concentric rings, a rack extended around each ring, means for moving said rings forward to disclose consecutive numbers, a swinging shaft, gear-wheels mounted on the swinging shaft to be engaged with the racks when the shaft is swung in one direction, a tubular locking-head on the outer end of said shaft, and a pin extended from said head into a groove formed longitudinally in the shaft, substantially as specified.

6. A car-fare register, comprising concentric rings, a rack extended around each ring, means for moving said rings forward to disclose consecutive numbers, a swinging shaft, gear-wheels mounted on the swinging shaft to be engaged with the racks when the shaft is swung in one direction, a tubular locking-head on the outer end of said shaft, a pin extended from said head into a groove formed longitudinally in the shaft, a nut engaging with the outer end of the shaft and movable within the head, and a spring in said nut and the shaft, substantially as specified.

7. A fare-register, comprising concentric rings, means for moving said rings forward to disclose numbers consecutively, racks extended partially around said rings, gear-wheels adapted for engagement with said racks, a swinging shaft on which said wheels are mounted, means for holding the shaft in either of its adjusted positions, a bell-hammer lever, and means carried by the swinging shaft for moving said bell-hammer lever out of operative position, substantially as specified.

8. A fare-register, comprising concentric rings, means for rotating said rings in one direction for disclosing numbers consecutively, a rack extended partially around each ring, gear-wheels for engagement with said racks, a swinging shaft on which said wheels are mounted, whereby the wheels may be moved into and out of engagement with the racks, means for holding the shaft in either of its adjusted positions, a bell-hammer lever designed to be swung by the outer one of said rings and means for moving said lever out of its operative connection with the ring when the swinging shaft is moved to engage the gear-wheels with the racks, substantially as specified.

9. A fare-register, comprising concentric rings, means for rotating said rings in one direction to disclose numbers consecutively, a rack extended partially around each ring, gear-wheels for engagement with said racks, a swinging shaft on which said wheels are mounted, a bell-hammer operating-lever adapted to be swung on its pivot by the outer one of the rings, a projection on said shaft, and an inclined lug on the bell-hammer operating-lever with which said projection is designed to engage, to move the lever out of its operative connection with the ring, substantially as specified.

10. A fare-register, comprising concentric rings, a pivoted lever, dogs mounted to swing on said lever, racks on the rings with which said dogs are designed to engage, stop-pins extended from certain of said rings, stop-dogs for engaging with said pins, a spring-pressed rod on which said stop-dogs are mounted, and an inclined lug carried by the lever and engaging with said rod to move the stop-dogs out of the line of movement of the pins, substantially as specified.

11. A fare-register, comprising a series of rings, a notched rack on each of said rings, a pivoted lever, dogs mounted to swing on said lever and adapted for engagement with the racks, a spring for holding the dogs yieldingly in engagement with the racks, a spring-plate mounted on a fixed support and curved toward the ring at its free end, and a finger carried by one of the dogs and adapted to move against the inner surface of said spring-plate when a ring is turned in one direction by the dog, and adapted to ride upon the outer surface of the plate as the dog is moved in the opposite direction, substantially as specified.

12. A fare-register, comprising a series of concentric rings for registering the number of trip-fares collected, a series of concentric rings within the first series, for indicating the total amount of fares collected, means for moving all of said rings forward, means for resetting the first-named series of rings and consisting of a shaft and gear-wheels mounted on said shaft for engaging with racks on the rings, means for resetting the inner series of rings, comprising a finger-piece having engagement with the innermost ring, and spring-pressed dogs carried by certain of the rings, for imparting motion to other rings, substantially as specified.

13. A fare-register, comprising a series of concentric rings for registering the number of trip-fares collected, another series of concentric rings within the first series, racks on said inner series of rings, a pivoted lever, dogs mounted to swing on said lever for engaging the racks of said inner series of rings, other dogs mounted to swing on said lever for operating the outer series of rings, and means comprising a fixed plate, and a finger having connection with the dogs for simultaneously moving all of the dogs out of operative position upon a return movement of the lever, substantially as specified.

14. A fare-register, comprising a series of concentric rings, a swinging lever for moving said rings in one direction, stop-pins on certain of the rings, swinging dogs adapted to engage with the stop-pins, and means carried by the lever for moving said swinging dogs out of the line of movement of the pins, substantially as specified.

15. A fare-register, comprising a series of concentric rings, a swinging lever for moving said rings in one direction, stop-pins on certain of said rings, spring-pressed swinging dogs adapted to engage the stop-pins, a rocking shaft on which said dogs are mounted, the said shaft having its inner end cranked, and an inclined lug on the inner end of the lever with which the cranked end of said shaft engages, substantially as specified.

602,701. BALL-BEARING. FRANK GUSTAVSON, Wabasha, Minn. Filed Sept. 24, 1897. Serial No. 652,814. (No model.)



Claim.—1. A cup for a ball-bearing, having a cupped flange extending inwardly from the ball-race and forming an oil receiving and retaining cup which is separate from the ball-race, substantially as described.

2. A cup for a ball-bearing, having a flange extending inwardly from the raceway, and cupped or decreased in diameter at its inner end, whereby an oil-receiving cup is formed, and a filtering-washer between said oil-cup and the ball-race, substantially as described.

3. A bicycle-bearing, comprising a hub having cups therein each provided with a flange or collar extending inwardly from the raceway and cupped or decreased in diameter at its inner end, whereby an oil-receiving cup is formed, an axle having cones thereon cooperating with the cups to form ball-raceways, balls between said cones and the raceways of the cups, and a tube surrounding the axle, with its ends entering the oil-receiving cups and constituting an oil-reservoir, substantially as described.

602,702. KNIT FABRIC FOR UNDERWEAR, &c. DAVID P. HALSTED, Brooklyn, N. Y. Filed Mar. 11, 1897. Serial No. 627,016. (No model.)



Claim.—A knit fabric for hosiery, blankets underwear and other knit goods, comprising a cotton fabric formed of a face-thread and a binding-thread in the rear of the face-thread and following the lines of the said face-thread, the successive courses of said face-thread and binding-thread being interlooped with each other, and a silk thread for each course of such face-thread and binding-thread, interlocked at intervals with the said binding-thread by the said silk thread passing through the bottom portions of some of the loops of the said binding-thread in each course, such loops being locked by the upper ends of the succeeding loops of both face and binding threads, substantially as shown and described.

602,703. ROTARY ENGINE. REUBEN P. JARVIS, South Centre, Kans. Filed May 6, 1897. Serial No. 635,925. (No model.)



Claim.—1. In a rotary engine, the combination with a cylinder, of a fixed shaft having a crank-arm in the cylinder, a piston mounted eccentrically in the cylinder and to turn loosely on the said shaft, said piston having its rim slotted, rocking bearings carried by the piston, a packing on the inner face of the bearing, said packing comprising a casing secured to the bearing and adjustable packing-plates in the casing, piston-heads sliding in the bearings and packings and having their inner ends pivotally connected with the crank-arm of the said shaft, and means for operating the piston, substantially as described.

2. In a rotary engine, the combination with a cylinder, provided with the ports *a*, *b*, *c*, *d*, *g*, *h*, *j* and *k* and a rotary piston having sliding heads, of the valves J, K, L, mounted to turn and having ports *e*, *f*, *i*, respectively, extending through them, the valve L being connected with the steam-inlet, and means for operating the said valves in unison, substantially as described.

3. In a rotary engine, the combination with a cylinder provided with the ports *a*, *b*, *c d*, *g*, *h*, *j k* and *l*, the port *l* connecting the ports *c d*, and a rotary piston having sliding piston-heads, of the valves J K L mounted to turn and having the ports *e f i* respectively extending through them, the valve L being connected with the steam-inlet N, and gearing between the said valves for turning them in unison, substantially as described.

4. In a rotary engine, the combination of a cylinder having in its upper part the ports *a b c d g h j k* and *l*, and the ports *n o* in its lower portion, a rotary piston having sliding piston-heads, the valves J K L mounted to turn and having the ports *e f i* respectively, the valve L being connected with the steam-inlet, the valves P Q having ports *p q* adapted to register with the ports *n o* respectively, and means for operating all of the said valves in unison, substantially as described.

5. A rotary engine, provided with a piston-head, a trunnion in which the piston-head is fitted to slide, and a packing for the said piston-head and comprising a casing secured to the said trunnion, packing-plates engaging the faces of the piston-head, bars engaging the said packing-plates, and a set-screw held in the casing and engaging the said bars to adjust the latter and the packing-plates, substantially as shown and described.

602,704. ROLLER-SKATE. SAMUEL L. KIMBERWEIN, Berlin, Germany. Filed Apr. 17, 1897. Serial No. 632,871. (No model.)

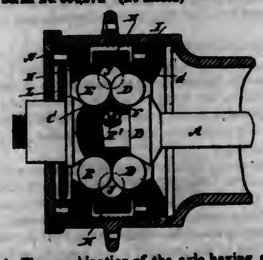


Claim.—1. The combination of the frame and the supporting-rollers, with the foot-support hinged to the frame, the crank-shaft journaled in the frame and operatively connected to one of the rollers, and a connecting-rod pivoted to the foot-support and to the crank of said shaft, substantially as described.

2. A roller-skate having a frame carrying rollers, a foot-support movable vertically in relation to said frame, a crank-shaft journaled in the frame, a connecting-rod pivotally attached to the foot-support and to the crank of the said shaft, said connecting rod having a longitudinal slot where it engages the crank-pin, and a driving connection between the crank-shaft and one of the rollers, substantially as described.

3. A roller-skate, comprising a frame provided with supporting-rollers, a foot-support movable up and down relatively to the frame, and a permanent positive connection between said foot-support and one of the rollers, so that the said support will remain in driving or controlling connection with the supporting-roller during the upward movement of the foot-support as well asduring the downward movement thereof.

602,705. BALL-BEARING. OLE LOUDE, Elgin, Ill. Filed Dec. 20, 1897. Serial No. 664,574. (No model.)

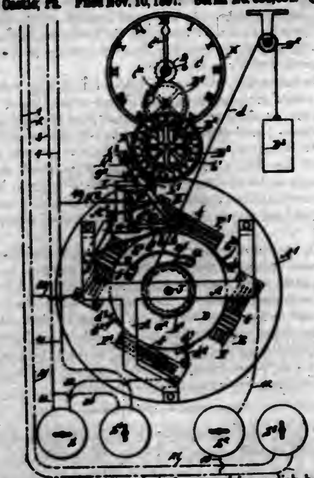


Claim.—1. The combination of the axle having spaced collars inclined toward each other, a ring slidable upon the axle between the collars yet held to rotate with the axle, the peripheral surface of said ring being inclined at each end toward the adjacent collar, balls engaging the collars and ring, and a hub engaging the outer surfaces of the balls.

2. The combination of the axle having spaced collars inclined toward each other, a ring slidable upon the axle between the collars, and having its peripheral surface inclined at each end toward the adjacent collar, balls engaging the collars and ring, and a hub engaging the outer surfaces of the balls.

3. The combination of the axle having a stationary collar and another collar adjustable longitudinally of the axle, the peripheral surfaces of said collars being inclined toward each other, a ring located between the collars and freely slidable upon the axle longitudinally, the peripheral surface of the ring being inclined at each end toward the adjacent collar, balls engaging the collars and ring, and a hub engaging the outer surfaces of the balls.

602,706. CLOCK-CONTROLLED SWITCH. FRANKLIN L. MAGINNIS, New Castle, Pa. Filed Nov. 10, 1897. Serial No. 658,091. (No model.)



Claim.—1. An automatic switch, comprising a disk having locking-stops spaced thereon and carrying switch-points, means acting on the said disk to rotate it, a pawl engaging the stops to hold the disk, fixed switch-points attachable to the circuit, and means operated by a clock to momentarily lift the locking-pawl, substantially as described.

2. An automatic switch, comprising a disk having locking-stops spaced thereon and carrying switch-points, means acting on said disk to rotate it, a pawl engaging said stops to hold the disk, fixed switch-points attachable to the circuit, a toothed bar or hook engaging said pawl to lift it, a link pivoted to said bar and forming a swinging pivot therefor, a spring attached to the bar to hold the hook thereof beneath the locking-pawl, and means operated by a clock to momentarily lift the locking-pawl, substantially as described.

3. An automatic switch, comprising a disk having locking-stops spaced thereon and provided with switch-points, means acting on said disk to rotate it, a pawl engaging said stops to hold the disk, fixed switch-points engageable with the moving switch-points, a bar connected to the pawl to lift it, an arm pivoted thereto and projecting from one side as a hook, pins limiting the side swing of said arm, a wheel having pins and mounted to revolve so as to engage said arm to lift the pawl, and a clock mechanism for rotating said disk, substantially as described.

4. An automatic switch, comprising a rotating disk having locking-stops thereon and carrying switch-points, means for rotating said disk, a pawl engaging said stops to hold the disk, fixed switch-points engageable by the moving switch-points, a bar connected to the pawl to lift it a clock-operated mechanism adapted to engage said bar to lift it and free the disk, and a pin upon the disk adapted to engage the bar to free the pawl as the disk revolves, substantially as described.

5. An automatic switch, comprising a rotatable disk having locking-stops and switch-points thereon, means acting on said disk to rotate it, a pawl engaging said stops to hold the disk, fixed switch-points adapted to be engaged by the moving switch-points, a bar having a tooth engaging the pawl to lift it, a link pivoted to said bar to form a swinging pivot therefor, a spring acting on said bar to draw it toward the disk and to swing it on its pivot, an arm pivoted to the end thereof opposite the tooth and projecting to the opposite side therefrom, pins upon the bar at opposite sides of the arm limiting its swing, a spring holding said arm normally toward the center, a disk having pins adapted when revolved to engage the swinging end of said arm to raise it and the bar, and a clock mechanism for revolving said disk, substantially as described.

6. An automatic switch, comprising a disk having switch-points thereon, means for rotating the disk, fixed switch-points consisting of spring-bars supported from one end and extending tangentially to the disk, said disk having lugs projecting therefrom, a pawl engaging the lugs to prevent forward rotation of the disk, a spring-pawl engaging the lugs to prevent backward rotation of the disk, and means operated by the clock mechanism to momentarily lift the first pawl, substantially as described.

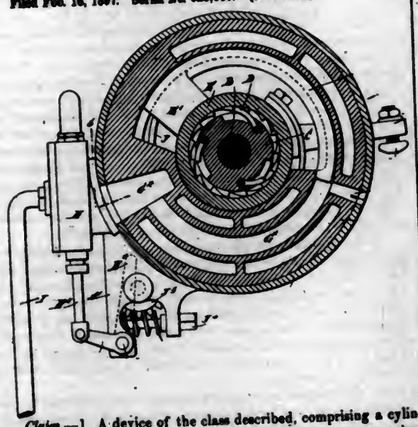
7. An automatic switch comprising a disk having switch-points thereon, means for rotating the same, fixed switch-points consisting of spring-bars supported from one end and extending tangentially to

the disk, said disk having lugs projecting therefrom, a pawl engaging the lugs to prevent forward rotation of the disk, a spring-pawl engaging the lugs to prevent backward rotation of the disk, means operated by a clock mechanism to lift the first pawl, and a pin upon the disk engaging the pawl-lifting means to free the pawl as the disk revolves, substantially as described.

8. An automatic switch, comprising a disk having switch-points thereon, means for rotating the same, fixed switch-points consisting of spring-bars supported from one end, said disk having lugs projecting therefrom, a pawl engaging the lugs to prevent forward rotation of the disk, a spring-pawl engaging the lugs to prevent backward rotation of the disk, a disk or wheel rotated by clock mechanism and having a series of holes therein, pins insertible in the holes, and a bar connected to the holding-pawl and engageable by said pins to free the pawl and permit rotation of the switch-disk, substantially as described.

9. An automatic switch, comprising a switch-disk having a rotating means connected thereto, switch-points attached to the disk, a locking-pawl, stops spaced upon said disk and adapted to be engaged by said pawl, a wheel or disk connected with a clock to rotate once for each cycle of time, and having a series of holes therein subdividing the same, pins insertible in said holes, a bar having a projection in the path of said pins and engaging the locking-pawl to lift it, and a pin on the switch-disk adapted to engage said bar to free it from the locking-pawl, substantially as described.

602,707. **EXPLOSIVE-ENGINE.** GEORGE A. NEWMAN, Cliff, Nebr. Filed Feb. 16, 1897. Serial No. 623,689. (No model.)



Claim.—1. A device of the class described, comprising a cylinder, a driving-shaft mounted in the cylinder, one or more spiral springs, a connection between the springs and driving-shaft for operating the latter from the former, and a piston in the cylinder and adapted to receive an impulse thereon to wind up the springs, substantially as described.

2. A device of the class described, comprising a pawl-and-ratchet mechanism connected with the main driving-shaft, one or more spiral springs attached by their inner ends to the ratchet-wheel of the said pawl-and-ratchet mechanism, and a piston moving in a cylinder and adapted to receive an impulse thereon, the said piston being secured to and carried by the said ratchet-wheel, substantially as shown and described.

3. A device of the class described, comprising a pawl-and-ratchet mechanism connected with the main driving-shaft, one or more spiral springs attached by their inner ends to the ratchet wheel of the said pawl-and-ratchet mechanism, a piston moving in a cylinder and adapted to receive an impulse thereon, the said piston being secured to and carried by the said ratchet-wheel, and a valve mechanism controlled by the said ratchet-wheel, as set forth.

4. A device of the class described, comprising a pawl-and-ratchet mechanism connected with the main driving-shaft, one or more spiral springs attached by their inner ends to the ratchet-wheel of the said pawl-and-ratchet mechanism, a piston moving in a cylinder and adapted to receive an impulse thereon, the said piston being connected with the said ratchet-wheel, and means substantially as described, for increasing or diminishing the tension of the said springs, as set forth.

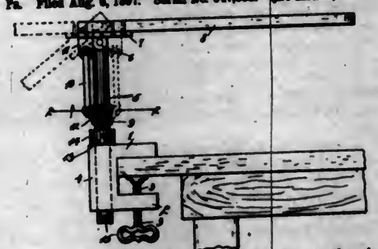
5. A device of the class described, comprising a cylinder, a driving-shaft mounted in the cylinder, one or more spiral springs, a pawl-and-ratchet mechanism between the springs and driving-shaft, and a piston in the cylinder and connected with the pawl-and-ratchet mechanism, said piston being adapted to receive an impulse thereon to move it in one direction to wind up the springs, substantially as described.

6. A device of the class described, comprising a cylinder, a driving-shaft mounted therein, a ratchet-wheel mounted loosely upon the shaft, pawls carried by the shaft and engaging the ratchet-wheels, spiral springs having one end secured to said ratchet-wheel, and a segmental piston secured to the ratchet-wheel and adapted to receive an impulse thereon to turn the said ratchet-wheel and wind the springs, substantially as described.

7. In a device of the class described, the combination of a cylinder having a segmental bore, a driving-shaft in the cylinder, a ratchet-wheel mounted loosely on the shaft, pawls carried by the shaft and engaging the ratchet-wheel, spiral springs having one end secured to the ratchet-wheel and their other ends to a movable support, means for adjusting said support, and a segmental piston in the cylinder and adapted to receive an impulse thereon to turn the ratchet-wheel and wind the springs, substantially as described.

8. In a device of the class described, the combination with a casing, a cylinder in the casing and having a segmental bore, an explosion-chamber and exhaust-port, and a driving-shaft mounted in said casing and cylinder, of a ratchet-wheel loosely mounted on the shaft, pawls carried by the shaft and engaging the ratchet-wheel, spiral springs having one end secured to the hubs of the ratchet-wheel and their other ends to the casing, a segmental piston secured to the ratchet-wheel and working in the bore of the cylinder, a valve mechanism for admitting the explosive mixture to the explosive-chamber of the cylinder, and means for operating the valve mechanism from the ratchet-wheel, substantially as described.

602,708. **PRESS-BOARD HOLDER.** LOUIS SCHUPPER, Easton, Pa. Filed Aug. 6, 1897. Serial No. 647,202. (No model.)



Claim.—1. The combination with a press-board, of a clamp, a post mounted to rotate and to move vertically in said clamp, the board being pivoted to the upper end of the post, a toothed clutch-section on the clamp and a toothed clutch-section on the post adapted for engagement with the first-named clutch-section, substantially as specified.

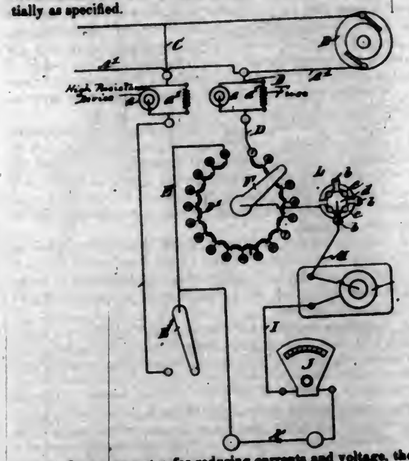
2. The combination with a press-board, of a clamp, a post mounted to rotate and to move vertically in said clamp, the board being pivotally attached to the upper end of the post so as to swing vertically, a clutch section on the clamp, a clutch-section on the post, a collar vertically adjustable on the post, means for holding the collar as adjusted, and a link connection between said collar and the board, substantially as specified.

3. A press-board holder, comprising a clamp, a post mounted to rotate and to move longitudinally in said clamp, a clutch-section on the clamp, a clutch-section on the post, adapted to engage with the first-named clutch-section, a collar movable vertically on the post, means for securing the collar as adjusted, a plate pivotally connected to the upper end of the post, and a link connection between the collar and plate, substantially as specified.

602,709. **APPARATUS FOR REDUCING ELECTRIC CURRENTS AND VOLTAGE.** ALEXANDER P. VETTER, Long Island City, N. Y., assignor, by mesne assignments, to the Maytowitz Manufacturing Company, Ridgefield, N. J. Filed Sept. 2, 1895. Renewed Nov. 12, 1897. Serial No. 658,436. (No model.)

Claim.—1. In apparatus for reducing currents and voltage, the combination with the supply-circuit, of resistance controlling the current strength, a second resistance placed in the supply-circuit, a shunt-circuit including translating devices, and means for transferring a portion of the second resistance of the supply-circuit to the shunt-circuit, substantially as specified.

2. In apparatus for reducing currents and voltage, the combination with the supply-circuit, of a current-reducing resistance, a sectional resistance placed in the supply-circuit, a shunt, including translating devices, and means for transferring one or more of the sectional resistances in the supply-circuit to the shunt-circuit, substantially as specified.



3. In an apparatus for reducing currents and voltage, the combination with the supply-circuit, of a current-reducing resistance and a sectional resistance placed in the supply-circuit, a shunt including the translating devices, means for transferring one or more sections of the sectional resistance of the supply-circuit to the shunt-circuit, and a rheostat and measuring instrument placed in the shunt-circuit, substantially as specified.

4. In an apparatus for controlling the voltage and amperage of currents, the combination of a volt-controller comprising a series of resistances, and means for putting one or more of the said resistances into the circuit, a rheostat connected in series with the said volt-controller, means whereby various points or resistances of the said rheostat and volt-controller may be connected with the working circuit, and a supply-circuit connected to both ends of the volt-controller and to one end of the rheostat, substantially as described.

5. In an apparatus for controlling the voltage and amperage of currents, the combination of a supply-circuit, a volt-controller comprising a series of resistances, the ends of the volt-controller being connected to the supply-circuit, an ampere-controller likewise consisting of a series of resistances, means whereby one end of one of the said controllers may be connected with any point or resistance of the other controller, and a working circuit located in a shunt and arranged so as to be in series with the ampere-controller and in parallel with the volt-controller, substantially as described.

602,710. **THILL-COUPLING.** XADOC L. WHEELER, Cedar Falls, Iowa. Filed Aug. 27, 1897. Serial No. 649,709. (No model.)

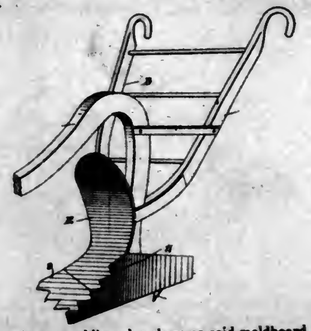


Claim.—A thill-coupling having a clip with two transversely-alined eyes thereon, a pin passed through the eyes and having a head with two upbent ends, one end forming an eye and the other end forming a hook, and a retractile spring one end of which is permanently engaged with the eye on the head of the pin and the other end of which has a loop capable of removable engagement with the hook on the head of the pin.

602,711. **PLOWSHARE.** FREDERICK WOLF, Quincy, Ill. Filed July 7, 1897. Serial No. 643,694. (No model.)

Claim.—1. A plow, having a series of forwardly-extending teeth at the front end thereof, and a series of teeth or blades arranged on the plow at a point along and extending forward beyond the upper edge or landside edge of the moldboard, substantially as specified.

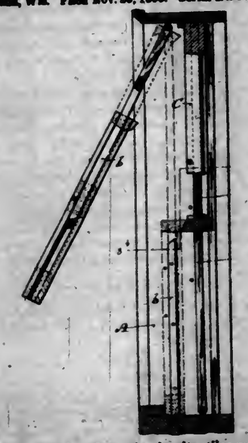
2. A plow, comprising a moldboard, and a series of teeth or blades arranged on the plow at a point along and extending forward beyond the upper or landside edge of the moldboard, substantially as specified.



3. In a plow, a moldboard, a share on said moldboard, the said share having forwardly-extending teeth, a bar at the rear of the moldboard, and teeth on said bar extending downwardly below the plane of the first-named teeth, substantially as specified.

4. In a plow, a moldboard, a share on the moldboard and provided with forwardly-projecting teeth, a landside having teeth or blades on its upper edge which extend forward of the moldboard, and a series of teeth rearward of and extended to cut the ground below the plane of the first-named teeth, substantially as specified.

602,712. **WINDOW.** JACOB APPELL, Milwaukee, Wis., assignor, by direct and mesne assignments, of one-half to Michael Lohnerer, Waukesha, Wis. Filed Nov. 20, 1895. Serial No. 570,442. (No model.)

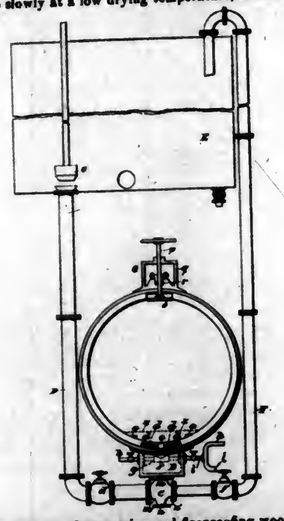


Claim.—A window-frame having its stiles provided with outside stops *d*, sash-guides in the form of strips each comprising two sections of unequal length, the short section being rigid and the long section pivoted to the upper end of a frame-stile, and other sash-guides in the form of strips each comprising two sections of unequal length, the short section being rigid and the long section pivoted to the lower end of the frame-stile; the meeting ends of all said strip-sections being at such elevation as to require bringing of sash a greater distance than full length out of normal position before either pair of the movable sections can be swung on their pivots, it also requiring that run-up lower sash be swung out before run-down upper sash can be swung out for removal.

602,718. **PRESERVED WOOD AND PROCESS OF PREPARING SAME.** MAX RAMSEIER, New York, N. Y., and DAVID W. O'NEIL, Newark, N. J., assignors to the Electric Fireproofing Company, New York, N. Y. Filed Mar. 1, 1898. Serial No. 672,104. (No specimens.)

Claim.—1. The herein-described method of saturating wood with preservatives, which consists in inclosing the same within a receptacle, enveloping the wood in an atmosphere surcharged with aqueous vapor at the temperature substantially as specified, to soften and open the same; removing the vapor or water from the chamber and contents; and then impregnating the wood uniformly through-

out with wood-saturating material under pressure; and finally drying the same slowly at a low drying temperature, as set forth.



2. The process of preserving and fireproofing wood, which consists in saturating or opening its very fiber and cell throughout with aqueous vapor at low pressure and temperature as specified; then removing the vapor or water from the wood; then impregnating the open fiber uniformly-through and through with a fireproofing solution under pressure, and finally drying the wood slowly at a low drying temperature, substantially as set forth.

3. The process of preserving and fireproofing wood which consists in enveloping the same within a closed receptacle with an atmosphere saturated with aqueous vapor maintained at about 110° to 200° Fahrenheit to soften and open the wood; then producing a vacuum and removing the vapor and water from the wood; impregnating the wood uniformly throughout with fireproofing solution under pressure, and finally drying the wood at a temperature ranging from 85° to 125° Fahrenheit, substantially as set forth.

4. The hereinbefore-described product, being fireproofed wood impregnated uniformly throughout, and retaining its natural color, elasticity and tensile strength, substantially as set forth.

602,714. APPARATUS FOR MAKING CHILLED IRON CASTINGS. ALFRED K. BARKER, Beonton, N. J. Filed Aug. 21, 1896. Serial No. 603,562. (No model.)



Claim.—1. A machine for making chilled castings, consisting of a horizontal rotating table carrying chill-molds, a central water-supply with branches leading to said molds, and a subjacent annular trough receiving the discharge-water from all of the chill-molds substantially as and for the purpose described.

2. In a machine for making chilled castings, the combination of a horizontal rotating table, a series of chill-molds mounted thereon and made in sections and having water-jacketed mold-cavities, radiating water-pipes leading to the several boxes and having a central hub, a main supply-pipe swiveling within said hub, flexible discharge-pipes from the several boxes, and an annular trough or water-receptacle arranged beneath the table and extending around its center and beneath all the drainage ends of the discharge-pipes from the boxes substantially as and for the purpose described.

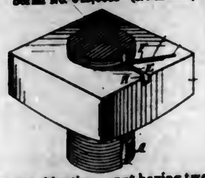
3. In a chill-mold, the combination of the lower half-box provided with a water-chamber having inlet and outlet openings, and having in its upper surface a mold-cavity with a gate as described, lugs on each side of said box having cams formed on the upper edges, upper box-sections having mold cavities in their under surfaces, said sections being formed in two halves and hinged to the sides of the lower box by lugs having elongated holes for receiving the pivot-pin of said hinges, and water-jacketed projections upon the adjacent edges of each upper box-section conical in form, one half in each box, and arranged when closed to form a water-cooled runner-opening, and a detachable water-protected shield to receive the first contact of the metal poured, said shield being fitted into the gate-cavity formed in the lower box and secured by screw-threads substantially as shown and described.

4. In a machine for making chilled castings, the combination with a horizontal rotary table, a series of mold-boxes fixed upon its periphery and having each its upper portion made in two hinged sections with lifting pins or handles projecting therefrom, and forked lifting-arms, and a lever operating the same to act upon the pins or handles of the mold-boxes and open the same substantially as and for the purpose described.

5. The combination with the horizontal rotating table, and its series of mold-boxes having a two-part hinged upper section provided with lifting pins or handles, the forked arms d^7 d^8 connected by spring c, the vertical slide-rod d^6, stand d and lever d^5, substantially as and for the purpose described

6. A machine for making chilled castings, comprising a circular frame D with track on its upper surface, a central pivot-standard C, a horizontal rotating table with central step-bearing, and subjacent rollers running on the track, water-cooled chill-boxes detachably fixed upon the outer periphery of the table, a central vertical water-supply pipe, a rotating hub moving with the table and swiveling about the lower end of the supply-pipe, radiating-pipes connecting said hub to the chill-boxes, and a subjacent annular water-trough to receive the waste water from the chill-boxes, substantially as and for the purpose described.

602,715. NUT-LOCK. NATHAN BARNES, Burlington, Mo. Filed July 17, 1897. Serial No. 645,008. (No model.)



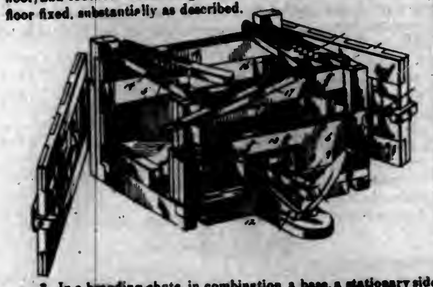
Claim.—1. In combination, a nut having two slots formed in one face thereof, one of said slots running radially from the middle of one side, the other extending diagonally joining the first-named slot at its junction with the central opening, a V-shaped spring arranged in the slots, with one arm fitting in the diagonal slot a portion of the walls of which are swaged, the remainder of the slot being of greater width than the spring, the other arm fitting in the radial slot and curved at its end, and a bolt having a V-shaped longitudinal groove formed therein, one wall of said slot being in a plane which extends through the longitudinal axis of the bolt, as and for the purpose described.

2. In combination with a bolt having a longitudinal V-shaped groove therein, one wall of which is in a plane which runs through the longitudinal axis of the bolt, a V-shaped spring having the end of one of its arms hooked, and a nut having a radial slot formed in one face thereof extending from the middle of one side, and a diagonal slot joining the first-named slot at its junction with the central opening said slots being of greater width than the spring said spring being arranged in the slots with the V portion thereof projecting into the central opening of the nut into engagement with the bolt, the arm in the diagonal slot being secured at its outer end to the nut, said arm fitting against the wall of the slot on the outside and a space formed between the arm and the wall of the slot on the inside, and a space formed on either side of the arm in the radial groove, whereby when the nut is tightened the spring will have sufficient play to move out of engagement with the groove of the bolt, but a movement to loosen the nut will cause the spring to abut the walls of the slot and enter into firmer engagement with the groove, substantially as set forth.

602,716. BRANDING-CHUTE. JOE BENNETT, Coleman, Tex. Filed Nov. 16, 1897. Serial No. 658,726. (No model.)

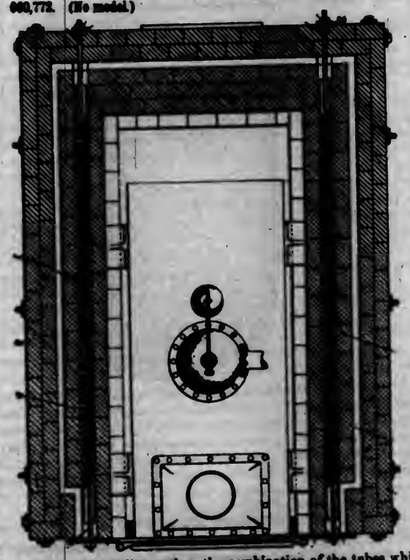
Claim.—1. In a branding-chute, in combination, a suitable base, a stationary side, a movable side, means for shifting the movable side toward and away from the stationary side, two slide-bars attached to the movable side, two bars pivotally connected to the stationary side and arranged to intermesh with the two side bars, and a spreading bar for holding the pivoted bars in engagement with the slide-bars, substantially as described.

2. In a branding-chute, in combination, a base, a stationary side connected thereto, a movable side, a movable floor connected to the movable side, an operating-lever for shifting the movable side and floor, and toothed interlocking bars for holding the movable side and floor fixed, substantially as described.



3. In a branding-chute, in combination, a base, a stationary side, a movable side, means for shifting the movable side, a pivoted catch or button on the movable side, an end gate hinged to the stationary side and a keeper-rod extending along the inner side of the gate and designed to remain in engagement with the catch during the shifting of the movable side, substantially as described.

602,717. BOILER-SETTING. LOUIS BERNHARD, Bridgeport, Conn., assignor to Charles Lee, same place. Filed Dec. 4, 1897. Serial No. 660,772. (No model.)

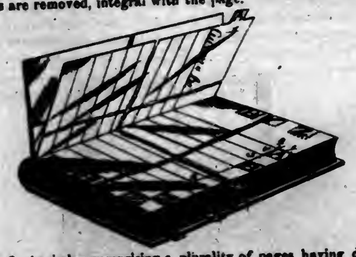


Claim.—In a boiler-setting, the combination of the tubes which extend within the brickwork of the setting, the stay-bolts having resilient coils throughout the greater portion of their lengths, said coils extending within said tubes while the extremities of the stay-bolts are straight and threaded, the vertical stays at the rear of the furnace through which said bolts pass, the nuts driven on the rear ends of said bolts against said stays, the iron face-plate at the front of the setting through which said bolts pass, and the nuts driven on said bolts against said plate, substantially as set forth.

602,718. INDEX. JOHN A. BEST, Augusta, Ga. Filed Aug. 14, 1897. Serial No. 648,308. (No model.)

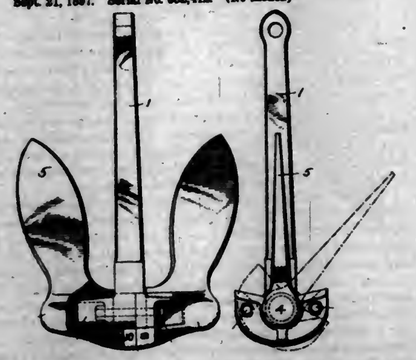
Claim.—1. An index comprising a plurality of pages having detachable portions along the margins thereof, upon which are placed indexing characters, spaces being left between said detachable portions which form projections when the detachable portions are removed, integral with the page.

2. An index comprising a plurality of pages having detachable portions along the margins thereof, upon which are placed indexing characters, the same indexing characters being placed upon each page and the corresponding indexing characters on each page being arranged opposite those on the others, the said detachable portions being formed by weakening or perforating the page, leaving the remainder of the page imperforate and forming spaces between said detachable portions which form projections when the detachable portions are removed, integral with the page.



3. An index comprising a plurality of pages having divisional indexing-tabs projecting outwardly from the edges of the pages, each of said pages being provided with subdivisional indexing characters placed upon the detachable portions thereof which are separated by spaces which form projections integral with the page when the detachable portions are removed.

602,719. ANCHOR. LA MONT M. BOWERS, Cleveland, Ohio. Filed Sept. 21, 1897. Serial No. 652,412. (No model.)



Claim.—1. In an anchor, the combination with the shank and cross-arm thereon, of a separable fluke-head composed of two duplicate sections, and provided with interlocking lugs at their point of juncture, whereby the sections are locked against torsional strain in relation to each other, and are interchangeable, substantially as described.

2. In an anchor, a shank provided with trunnions, in combination with a jointed or separable fluke-head, the sections of which are secured against pulling apart longitudinally, by bolts, and against torsional or lateral strain in relation to each other, by interlocking lugs, substantially as described.

3. An anchor comprising the usual shank having frusto-conical trunnions on which the fluke portion rocks, in combination with a separable fluke portion, the sections of which are secured together longitudinally by bolts, and held against turning laterally in relation to each other by interlocking lugs, substantially as described.

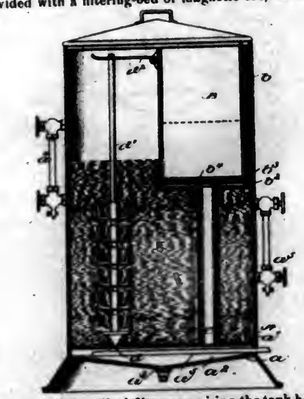
602,720. FILTER. JOHN D. BOWER, New York, N. Y., assignor to James L. Robertson, same place. Filed Aug. 3, 1897. Serial No. 646,897. (No model.)

Claim.—1. An oil-filter having a passage-way for the filtered oil, and a series of vertically-arranged magnets in juxtaposition to said passage-way, as and for the purpose stated.

2. An oil-filter having a heated chamber, a passage-way for the oil leading from said chamber, and a series of vertically-arranged magnets located directly above and in juxtaposition to said passage-way, substantially as set forth.

3. An oil-filter comprising a tank having an elevated filtering vessel located therein, a lower heated chamber with which said vessel is in communication, a passage-way leading from said chamber, and a vertically-arranged series of magnets suspended above said passage-way and arranged in juxtaposition thereto, substantially as set forth.

4. A filter comprising a tank having a lower chamber, an outlet leading therefrom into said tank, a vertically-arranged series of magnets located above said outlet in juxtaposition thereto, a heating-medium within said chamber, and a filtering vessel located in said tank and communicating with said heating-chamber, said filtering vessel being provided with a filtering-bed of magnetic ore, substantially as set forth.



5. The herein-described filter comprising the tank having a false bottom formed with an opening, a heating medium beneath said false bottom, a series of magnets in said tank in line with said opening, and a filtering vessel in the upper part of said tank connecting with the space beneath said false bottom, substantially as set forth.

6. The combination with the tank having an upper chamber, and a false bottom forming a lower chamber, a pipe connecting said chambers, a filtering vessel located in said upper chamber, a heating-pipe in said lower chamber, and a series of magnets in said tank above an opening in said false bottom, substantially as set forth.

7. The combination with the tank having an upper chamber, and a false bottom forming a lower chamber, a pipe connecting said chambers, a filtering vessel located in said upper chamber, a heating medium in said lower chamber, a series of magnets, and a rod in said tank on which said magnets are located, substantially as set forth.

8. The filter for oil, herein described, comprising the tank having an upper chamber and a lower chamber in communication therewith, a vessel fitted in said upper chamber having a foraminous bottom and a filtering-bed thereon, a heating-pipe leading into said lower chamber, said latter chamber being also in communication with said tank, a magnet, or series thereof, suspended within said tank in juxtaposition to the opening from said lower chamber, and gage tubes and cocks on the exterior of said tank, substantially as set forth.

602,721. PUNCHING-MACHINE. MARTIN BOYER, Bigler ville, Pa. Filed Dec. 28, 1897. Serial No. 664,063. (No model.)



Claim.—1. In a machine of the character described, the combination of a plunger carrying a punch, pivoted links, and a shaft rotatable in said links and having an eccentric which is adapted to engage and reciprocate the plunger, substantially as set forth.

2. In a machine of the character described, the combination of a plunger carrying a punch and having a head formed with a circular passage therethrough, pivoted links, and a shaft rotatable therein and having a disk secured eccentrically thereto and movable in the passage of the head, substantially as set forth.

3. In a machine of the character described, the combination of a base, a plunger movable thereon and carrying a punch, links pivoted at their lower ends to the base, a shaft rotatable in the upper end of said links and having an eccentric which engages and reciprocates the plunger, a die carried by the base, and the detachable operating-lever for the shaft, substantially as set forth.

602,722. RANGE-BOILER. DAVID W. BOYES and JAMES R. DENISON, Grand Rapids, Mich.; said Denison assignor to said Boyes. Filed May 31, 1895. Serial No. 551,320. (No model.)

Claim.—1. In a range-boiler, an outer and an inner chamber, a screened communication between the two and detachable heads, in combination with a coiled flue passing through the outer chamber, substantially as and for the purpose set forth.



2. In a range-boiler, an outer chamber, an inner chamber, detachable heads in said inner chamber, and the chamber interchangeable to a water-chamber or an air-flue, a communication between the two chambers, and a slide for opening and closing said communication, substantially as and for the purpose set forth.

3. In a range-boiler, an outer and an inner cylinder forming an outer and an inner chamber, a means of communication between said chambers, a slide for opening and closing said means of communication, a smoke-flue through the outer chamber, and a supply and drain pipes, substantially as and for the purpose set forth.

602,723. MAIL-BAG. FRANK A. BROWN, West Pike, Pa. Filed Mar. 13, 1897. Serial No. 627,201. (No model.)



Claim.—A mail-bag having the top opening, the side flaps, the tongues secured to the inner sides thereof, the brace-rods riveted to the upper portions of the tongues, the casing I secured to the upper portion G, an opening J formed within said casing, the opening K through the central part thereof, and a hook M formed integral with the upper edge of the plate L secured to the upper portion H of the bag, as and for the purpose set forth.

602,724. BOLT-NUT. WINFIELD H. BUTLER, Landenburg, Pa. Filed Apr. 26, 1897. Serial No. 633,963. (No model.)



Claim.—1. A nut having a recess intersecting the central aperture therein, hooked projections thereon, a locking-dog fitting within said recess and having lateral projections adapted to fit beneath said hooked projections, whereby said dog may be readily applied and removed, and a spring for normally urging said dog inwardly.

2. A nut having a smooth central opening, and a recess in one side thereof intersecting said central opening, a pair of lugs having hooked ends, one on each side of said recess, a pin engaged by the hooked ends of said lugs, a locking-lever fulcrumed to said pin and fitting within said recess, and a spring for normally urging the free end of said locking-dog inwardly.

3. A nut having a smooth central opening, and a recess in one side thereof intersecting said central opening, a pair of lugs having hooked ends, one on each side of said recess, a pin engaged by the hooked ends of said lugs, a locking-lever fulcrumed to said pin and fitting within said recess, and a spring for normally urging the free end of said locking-dog inwardly, constructed of a single piece of wire having two coils formed therein through which said pin passes, and a two-part arm leading from said coils and engaging the outer edge of said dog, substantially as and for the purpose described.

4. The combination with a bolt having a smooth shank with an annular groove therein, of a nut having a central smooth opening, a recess in one side thereof intersecting said central opening, a pair of parallel lugs having hooked ends located one on each side of said recess, a removable pin engaged by said hooked end, a locking-lever fulcrumed to said pin fitting within said recess and adapted to engage the annular groove in said bolt, a spring for normally urging the free end of said locking-lever inwardly, the said spring being formed with two coils through which said pin passes, and a two-part arm leading outwardly from said coils and engaging the outer edge of said lever, and a coil-spring engaging the side edge of said nut for holding the head of said bolt in close contact with the material through which it passes and thereby preventing rattling, substantially as described.

602,725. PROCESS OF RECOVERING GLYCERIN FROM TANK-WATER. DANIEL CAMERON and DAVIS S. CARRAWAY, Omaha, Nebr., assignors to the Cudahy Packing Company, Chicago, Ill. Filed Feb. 28, 1898. Serial No. 671,962. (No specimens.)

Claim.—1. The method of recovering glycerin from tank-waters which consists in separating and removing from the tank-water substantially all the nitrogenous matter contained therein, and removing from the residuary liquid the excess of moisture, substantially as described.

2. The method of recovering glycerin from tank-waters which consists in coagulating and removing substantially all of the nitrogenous matter contained therein, and evaporating the residuary liquid, substantially as described.

3. The method of recovering glycerin from tank-waters which consists in separating and removing from the tank-water substantially all the nitrogenous matter contained therein, and purifying and evaporating the residuary liquid, substantially as described.

4. The method of recovering glycerin from tank-waters which consists in boiling the tank-water with a suitable alkali, adding a suitable metallic salt, and neutralizing and separating the precipitated or coagulated matter from the supernatant liquid, substantially as described.

5. The method of recovering glycerin from tank-waters which consists in boiling the tank-water with a suitable alkali, adding a suitable metallic salt, neutralizing and separating the precipitated or coagulated matter from the supernatant liquid, treating the supernatant liquid with an alkali, separating the supernatant liquid from the precipitate, adding a suitable metallic salt, and neutralizing the solution, substantially as described.

6. The method of recovering glycerin from tank-waters which consists in boiling the tank-water with a suitable alkali, adding a suitable metallic salt, neutralizing and separating the precipitated or coagulated matter from the supernatant liquid, treating the supernatant liquid with an alkali, separating the supernatant liquid from the precipitate, adding a suitable metallic salt, neutralizing the solution, removing the last precipitate, and evaporating the supernatant liquid in vacuo to about 34° Baumé, substantially as described.

7. The method of treating tank-waters to render insoluble the nitrogenous matter therein contained, which consists in heating the tank-waters with a suitable alkali and adding a suitable metallic salt, substantially as described.

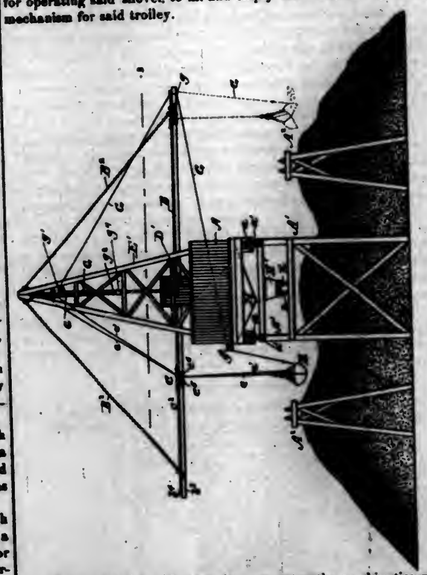
8. The method of treating tank-waters to render insoluble the nitrogenous matter therein contained, which consists in heating the tank-waters with a suitable alkali and then adding sulfate of iron or its equivalent, substantially as described.

9. The method of treating tank-waters to render insoluble the nitrogenous matter therein contained, which consists in boiling the tank-waters in the presence of lime and then adding sulfate of iron or its equivalent, substantially as described.

602,726. HOISTING AND CONVEYING APPARATUS. JEREMIAH CAMPBELL, Chelsea, Mass. Filed Dec. 4, 1897. Serial No. 660,853. (No model.)

Claim.—1. In a hoisting and conveying apparatus, the combination with the car or truck provided with a tower having an unobstructed opening through it from top to bottom, of a boom or tramway supported on said car or truck and extending outward horizontally on both sides of the latter, a trolley running on said boom or tramway, a shovel or bucket suspended from the upper part of said tower and controlled as to its horizontal position by said trolley, and means for operating said shovel and trolley; whereby the shovel or bucket supporting and controlling rope or ropes are adapted to swing through said tower as the shovel or bucket is moved from one side of said tower to the other by the trolley which travels on said boom or tramway.

2. In a hoisting and conveying apparatus, the combination with a car or truck provided with a tower having an unobstructed opening through it from top to bottom, of a boom or tramway extending outward on both sides of said car or truck, a trolley running on said boom or tramway, a shovel or bucket suspended from the upper part of said tower and controlled as to its position on said boom by said trolley, said boom being elevated above the bottom of said car or truck to leave an unobstructed space beneath for the passage of said shovel between said boom and the floor of the car-truck, and means for operating said shovel, to fill and empty the same, and operating mechanism for said trolley.



3. In a hoisting and conveying apparatus, the combination with a movable boom-support, of a boom extending across and on both sides of said support, a tower on said boom-support and having an unobstructed opening through it from top to bottom, a bucket or shovel suspended from the upper part of said tower, a trolley running on said boom and serving to control the horizontal position of said bucket or shovel, said trolley having two sets of sheaves with one of which the shovel rope or ropes are in contact when said shovel is on one side of said car or truck and with the other of which said ropes are in contact when the said shovel is on the other side of said car or truck, and means for operating said shovel and trolley.

4. The combination of the boom B extending across and from both sides of a support having an unobstructed space above and below the same, a trolley mounted upon said boom to be operated upon any part thereof and having the two sets of sheaves c^4, c^5 for alternate use with the said shovel, and its said operating-ropes.

5. The combination, in a hoisting and conveying apparatus, of a boom centrally supported and having an unobstructed space above it and below it, the shovel-trolley mounted thereon, the shovel, its operating-ropes and an automatic guy-rope extending from one end of the boom only to the shovel and operative upon both sides of the center of the boom, as and for the purposes set forth.

6. The combination, in a hoisting and conveying apparatus, of a boom centrally supported and having an unobstructed space above it and below it, the shovel-trolley mounted thereon, the shovel, its operating-ropes, and an automatic guy-rope extending from one end of the boom only to the shovel and operating upon both sides of the center of the boom, and the guy-rope sheave or guide g^3, as and for the purposes set forth.

7. The combination, in a hoisting and conveying apparatus, of a boom centrally supported upon a car or other movable support, said car or movable support, a trolley movable upon said boom throughout its operative length and having two sets of shovel-rope receiving and transferring sheaves, the steam-shovel, its operating-ropes, receiving and transferring sheaves therefor, the automatic guy-rope operative upon each side of the center of the boom and shovel-operating engines mounted upon said car or movable support.

8. The combination, in a hoisting and conveying apparatus, of a car or support, a tower extending therefrom, a boom extending crosswise the car or support and from each side thereof and having an unobstructed space below and above the same throughout its length,

the boom-stays B' and suspending-chains B³, and the trolley and steam-shovel movable thereon, as specified.

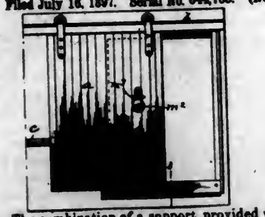
9. The combination, in a hoisting and conveying apparatus, of the boom centrally supported and having an unobstructed space above and below the same throughout its length, a trolley movable thereon, the steam-shovel, its operating rope or ropes passing over the trolley and means for actuating them, and a trolley-rope, winding drum or spool, and means for positively turning said drum or spool in both directions.

10. The combination, of the boom centrally supported and having an unobstructed space above and below the same, the trolley mounted thereon having two sets of shovel-rope-transferring sheaves, the trolley-actuating rope, its sheaves b^4, b^5, one at each end of the boom, the sheaves b^6, b^7 at or near the center of the boom and the trolley-rope-winding drum or spool, and means for positively turning it in both directions, as and for the purposes set forth.

11. The combination, in a hoisting and conveying apparatus, of a movable car or support, a boom mounted upon said car or support extending horizontally from each side thereof and having an unobstructed space above and below the same, a trolley-actuating engine at one end of said car or support, and a shovel-actuating engine at the other end of said car or support, said engines being separated from each other by an open space extending across the car, a trolley mounted upon said boom to be movable thereon throughout its operative length and governing the horizontal position of a steam-shovel, said steam-shovel and the said trolley and steam-shovel engines being connected with said trolley and with the shovel as specified.

12. The combination of the car, a boom supported by the same and extending from both sides thereof, the trolley and steam-shovel operative upon the boom as specified, and a hopper in the bottom of the car.

602,727. SLIDING-DOOR FIXTURE. CHARLES R. CASE, Allen's Hill, N. Y. Filed July 16, 1897. Serial No. 644,735. (No model.)



Claim.—1. The combination of a support, provided with a door-opening, a sliding door, means for supporting the door on the support, and means for guiding the door, said means consisting essentially of a device connecting the free part of the door to the support, said device having a sliding connection to the support and to the door, the sliding connection to the door being at an angle to that of the support and being in a substantially vertical plane, whereby the door may sag vertically without binding.

2. The combination of a support, a sliding door, and means for supporting the door on the support, a rail on the support, and a device slidingly connecting the door to said rail, said device having a sliding connection to the door at an angle to the rail, the sliding connection to the door lying in a substantially vertical plane, whereby the door may sag without binding.

3. The combination of a support, a sliding door, means for attaching the door to the support, a rail attached to the support to one side of the opening, a plate attached to the door in a substantially vertical plane, and a device connecting the rail to said plate and having a movable connection with each.

4. The combination of a support, a sliding door thereon, means for slidingly connecting the door to the support, said means consisting of a rail attached to the support at one side of the door-opening, a plate attached to the door and arranged in a substantially vertical plane, and a device connecting said rail to the plate, said device consisting of a pair of clips slidingly engaging respectively the rail and the plate and having a substantially vertical movement on the latter, substantially as described.

5. The combination of a support provided with a door-opening, a sliding door adapted to slide across said opening, a clip connected to the lower front corner of said door and having a substantially vertical movement thereon, and a flanged plate extending across the door-sill and having a sliding connection with said clip, substantially as described.

6. The combination of a support provided with a door-opening, a sill-plate provided with an inward-turned flange extending across said door-opening, a clip having a substantially vertical sliding connection to the lower front corner of the door and provided with a hook-like extension engaging said flange, substantially as described.

602,728. SLIDING-DOOR LATCH. CHARLES R. CASE, Allen's Hill, N. Y. Filed Sept. 4, 1897. Serial No. 650,639. (No model.)



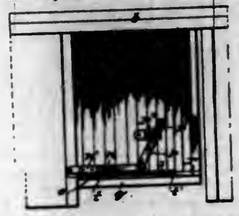
Claim.—1. The combination of a support and a sliding door, a latch-lever pivoted on said door and extending across the same, said lever being curved upward at one end and downward at its other end, the downward-turned end normally tending downward, and a pair of stops carried by the support and adapted to abut against the respective ends of said lever.

2. The combination of a support and a sliding door, a pivoted gravitating lever on said door, said lever curved upward at one end and downward at its other end, impinging stops between which said lever moves endwise, and a cam for disengaging said lever from said stops, substantially as described.

3. The combination of a support and a sliding door, a pivoted lever on said door, curved upward at one end and downward at its other end, stops between which said lever moves endwise, a rock-shaft journaled in the door and extending therethrough, a double cam on the inner end of the rock-shaft, for the purpose set forth, a swinging arm on the outer end of the rock-shaft, and means carried by the door for restricting the swing of the arm, substantially as set forth.

4. The combination of a support, a sliding door, a pivoted lever extending across said door, said lever being curved upward at one end and downward at its other end, stops between which the lever moves, said lever being constructed of endwise-adjustable sections, substantially as described.

602,729. SLIDING-DOOR FIXTURE. CHARLES R. CASE, Allen's Hill, N. Y. Filed Sept. 4, 1897. Serial No. 650,640. (No model.)



Claim.—1. The combination of a structure and a sliding door supported thereon and having a transverse flange on its free end, means for attaching the free end of the door to the structure, said means consisting of a stay or brace adapted to be projected into the door-opening when the door is closed, said stay being carried by the structure and having a sliding connection with the flange on the door, as and for the purposes set forth.

2. The combination with a structure and a sliding door thereon provided with a transverse flange, of a stay connecting the lower end of the door to the structure and means for folding or swinging said stay across the door-opening when the door is closed, the stay being carried by the structure and having a sliding connection with the flange at all times, for the purposes set forth.

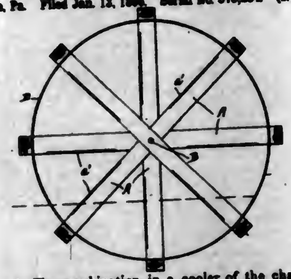
3. The combination with a structure and a sliding door thereon, of a stay pivoted to the structure at one side of the door-opening, and means for letting down said stay across the door-opening when the door is closed, means connecting the free end of the stay to the door when the stay is let down, as and for the purposes set forth.

4. The combination of a support and a sliding door suspended thereon, with a folding stay pivoted to the door-post at one side of the door-opening, a pivoted link connecting the stay to the door and adapted to raise the stay against the post and lower it across the door-opening as the door is moved back and forth, and means carried by the stay for slidingly engaging the lower end of the door for holding it to the support, for the purpose set forth.

5. The combination with a support provided with a door-opening, and a sliding door therefor, and means for holding the door to the support at its lower end, said means consisting essentially of a movable stay adapted to be projected across said door-opening when the door is shut, said stay being provided with a flange slidingly engaging a flange carried by the door, for the purposes set forth.

6. The combination with a support provided with a door-opening and a sliding door, of a movable stay carried by the support and adapted to be projected across the door-opening when the door is shut, said stay being provided with an extension rod or stay adapted to be projected beyond the end of the said stay, and means carried by the lower end of the door for slidingly engaging said extension-stay, substantially as set forth.

602,730. PIE OR CAKE COOLER. MARGARET M. CORBETT, Roseville, Pa. Filed Jan. 13, 1898. Serial No. 666,884. (No model.)



Claim.—1. The combination, in a cooler of the character described, of transverse bars, and sections struck up on the sides of said bars to form ribs, for the purpose specified.

2. The combination, in a cooler of the character described, of transverse bars, sections struck up on the sides of said bars to form ribs, and a rim around said cooler, the rim being higher than the ribs, for the purpose specified.

3. The combination, in a cooler of the character described, of transverse bars having the ends thereof turned down to form feet, a rim located adjacent to said feet, and sections struck up on the sides of said bars to form ribs between the point of intersection of said bars and the rim, substantially as and for the purpose specified.

602,731. SASH-FASTENER. WILLIAM A. COULSON, Moss Point, Miss. Filed May 26, 1897. Serial No. 638,198. (No model.)



Claim.—1. The combination of a window sash and frame, with a crescent-shaped cam-faced plate eccentrically pivoted to the sash and projecting therefrom in contact with the frame, the spring pressing the lower horn of the plate toward the sash, and a spring-bolt engaging an opening in the inner or upper horn and securing the eccentric in its locked position, substantially as set forth.

2. The combination of the window sash and frame with a lock-plate secured to the frame and provided with a suitable socket, a plate eccentrically pivoted to the sash and having a hook to engage in said socket and a spring-bolt adapted to engage in a socket in the eccentric to fasten it in its locked position, substantially as set forth.

602,732. BICYCLE-SADDLE. WARREN H. CRAIG, Lawrence, Mass. Filed Aug. 26, 1895. Serial No. 560,514. (No model.)



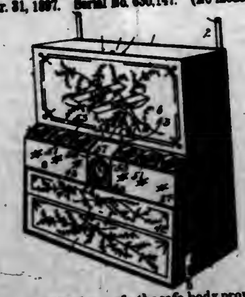
Claim.—1. A bicycle-saddle having a forward extension or steering portion and a seat portion at the rear of said steering portion, the surface of said seat portion being substantially above the surface of the steering portion to wholly support the weight of the rider and constitute the entire seat portion of the saddle, substantially as described.

2. A bicycle-saddle having a forward extension or steering portion and a seat portion at the rear of said steering portion, the surface of said seat portion being substantially above the surface of the steering portion to wholly support the weight of the rider and constitute the entire seat portion of the saddle, and a longitudinal space or opening along the middle of said seat portion extending rearward from the steering portion, substantially as described.

3. A bicycle-saddle comprising a rigid supporting-frame having a forward extension or horn to constitute a steering projection or guide, and a cushion-supporting portion of suitable shape to constitute a seat, and a cushion or pad supported thereon, and having its surface substantially above that of the horn, whereby the weight of the rider is wholly supported upon the surface of said cushion above said extension, substantially as described.

4. The combination of the main supporting-frame provided with an opening extending rearward into the body of the frame, and a web within said frame, and a horn extending forward therefrom, said frame projecting above said web at the front portion and being wholly below said web at the rear portion of the saddle, with a cushion supported on said web corresponding in shape with and bounded by said frame and provided with a flap overlapping and secured to the rear portion of the frame, substantially as described.

602,733. KITCHEN-SAFE. JESSE M. CURTICE, Kansas City, Mo. Filed Mar. 31, 1897. Serial No. 630,147. (No model.)



Claim.—1. In a kitchen-safe, the safe-body provided with a clock-receptacle, and a swinging clock-holder hinged at its upper edge to the safe-body and arranged to normally cover said receptacle, said clock-holder being provided with an opening snugly receiving therein a clock and adapted to be raised or swung upwardly on its hinge to expose the rear side of the clock for winding or setting, substantially as set forth.

2. In a kitchen-safe, the safe-body provided at the front with an offset portion having an inclined top panel and a centrally-located clock-receptacle, and a clock-holder detachably hinged at its upper edge to the front of the safe-body over said clock-receptacle and conforming to the shape of the front offset of the safe-body, said clock-holder being provided with an opening for receiving therein an ordinary clock, substantially as set forth.

602,734. CUTTING APPARATUS FOR MOWERS. SILAS S. DUNHAM and THOMAS F. THORN, Edina, Mo., assignors of one-half to Henry S. DUNHAM, same place. Filed July 10, 1897. Serial No. 644,060. (No model.)



Claim.—In cutting apparatus for harvesters, mowers and the like, the combination of a plate, guard-fingers having tangs secured to the lower side of the plate and formed with forwardly-convergent side flanges, and having rearwardly-divergent horns with their outer edges alining vertically with corresponding edges of the said side flanges, tapering ledger-plates secured to the guard-fingers and having their edges projecting beyond the edges of the side flanges and

horns and coming flush with the top side of the aforesaid plate, and having the front ends of the edges merging into the sides of the guard-fingers to avoid projecting shoulders, oscillating cutters pivoted to the said plate and projecting beyond the rear edge thereof, and having their projecting ends longitudinally slotted, and having their front ends normally intermediate of adjacent guard-fingers, their edge portions coming beneath the aforesaid horns, which prevent any upward movement of the cutters, irons secured to the bottom side of the aforementioned plate and having their rear ends bent vertically, and an operating-bar confined between the rear edge of the plate, the bent ends of the irons, and the rear ends of the oscillating cutters, and having pivot projections entering the slots of the said cutters, substantially as and for the purpose set forth.

602,785. PUZZLE. FRED H. DONALDSON, Garvanza, Cal., assignor to Nellie A. Donaldson, Lydia R. Williams, and Sylvia Allott. Filed Nov. 15, 1897. Serial No. 658,502. (No model.)



Claim.—1. As an improved article of manufacture, the puzzle herein described and shown, consisting of a board constructed with inner and outer grooves concentric with one another and the inner groove having a portion of its wall provided with an opening or gateway by which it is placed in communication with the outer groove, a boss located at the center of the inner groove, partitions arranged, respectively, in said grooves at one side of the said opening or gateway, and disks or men constructed to shift back and forth in the grooves and to move from one groove to the other through the opening or gateway, the partitions being located at such distance from the said opening or gateway as to permit one disk or man only to lie in each groove between the partition thereof and the opening or gateway, substantially as and for the purposes described.

2. In a puzzle, the combination with a board provided with two concentric grooves or ways communicating with one another by a passage or gateway, a partition arranged transversely in each of said grooves or ways on one side of said passage or gateway, and disks or men adapted to be shifted back and forth in said grooves or way and from one groove or way to the other, the transverse partitions being located at such distance from the said passage or gateway as to permit one disk or man only to lie in each groove between the partition thereof and the passage or gateway, substantially as described.

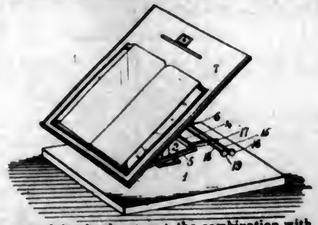
3. In a puzzle, the combination with a board provided with two concentric grooves or ways communicating with one another by a passage or gateway, a partition arranged transversely in each of said grooves or ways on one side of the passage or gateway, and a plurality of series of disks or men adapted to be shifted back and forth in said grooves or ways and from one groove or way to the other, the disks or men of one series being distinguished from the disks or men of another series, and the partitions being located at such distance from the said opening or gateway as to permit one disk or man only to lie in each groove between the partition thereof and the opening or gateway, substantially as described.

4. In a puzzle, the combination with a board provided with two concentric grooves or ways communicating with one another by a passage or gateway, a partition arranged transversely in each of said grooves or ways on one side of the passage or gateway, and two series of disks or men arranged in said grooves or ways and adapted to be shifted back and forth therein and from one groove or way to another, the size of the passage or gateway being such as to permit of the passage therethrough of but one disk or man at a time, and the said partitions being arranged at such points that one disk or man only may lie in each of the grooves between the partitions and said passage or gateway and leave the latter unobstructed for the passage therethrough of the remaining disks or men, substantially as described.

602,786. REVOLVING BOOK-REST. PERCY H. DE DUBOSAY, Tallulah, Ga. Filed May 5, 1897. Serial No. 635,294. (No model.)

Claim.—1. In a revolving book-support, the combination with a standard, of a frame revoluble thereon, a table or desk hinged to the frame, a depending rack-bar carried by said table, mechanism carried by the frame for actuating the rack-bar longitudinally to effect the tilting of the table, and mechanism independent of the actuating mechanism for locking the rack-bar in its adjusted positions, substantially as specified.

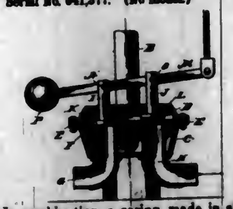
2. In a revolving book-support, the combination with a supporting-standard, of a frame revoluble thereon, a table or desk hinged to the frame and having a depending rod or arm with rack-teeth on one edge, a shaft carried by the revoluble frame and having a pinion in mesh with the arm of the table and a second shaft engaging a screw-threaded aperture and adapted to be moved into frictional contact with the arm or rack-bar, substantially as shown and for the purpose set forth.



3. In a revolving book-support, the combination with a hollow standard, of a frame having a spindle set within the hollow standard, a table or desk hinged to the frame and having a depending arm or rack-bar; together with a pinion supported by a shaft journaled in the revoluble frame, said pinion being in mesh with the rack-bar, and a second shaft also supported by the revoluble frame and threaded to engage a threaded aperture and bear against the rack-bar of the table or desk, and a screw in the standard to engage the spindle of the revoluble frame, substantially as shown and for the purpose set forth.

4. In a revolving book-support, the combination with a standard having a socket at its upper end, of a frame consisting of a cross-bar having forwardly-projecting members at its ends and centrally a rearwardly-projecting arm, said frame being mounted upon a standard and having a spindle which extends within the socket thereof, a table or desk hinged at its forward end to the outer ends of the side members of the revoluble frame, a rack-bar depending from the table, through an opening in the rearwardly-projecting arm of the frame; together with a shaft journaled in said arm and having a pinion in mesh with the rack-bar, a second shaft engaging a threaded opening in the arm to frictionally contact with the rack-bar, and a screw carried by the standard to engage the spindle of the revoluble frame, substantially as shown and for the purpose set forth.

602,787. ANTIFREEZING-VALVE. MICHAEL FARRELL, Buffalo, N. Y., assignor of one-half to J. L. C. Creaya, same place. Filed June 18, 1897. Serial No. 641,377. (No model.)

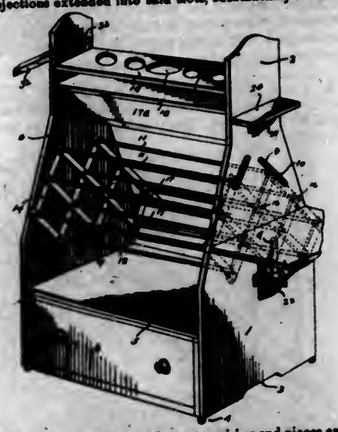


Claim.—In combination, a casing, made in an upper and lower section secured together by bolts passing through flanges surrounding the edges of the sections, a diaphragm secured between the flanges, plungers above the diaphragm having stems projecting through the top of the upper section, right-angled pipe-couplings of less diameter than the plungers threaded through the bottom of the lower section and projecting upward directly beneath the plungers, a supply-pipe connected to one of said couplings and a waste-pipe to the other, a valve-lever pivoted to the stems of the plungers above the casing, a weight secured on one end of the lever and a rod secured to the other end of the lever whereby one plunger will be depressed against the top of its coupling, the pivoting-point of the stem acting as a fulcrum for the valve-lever to elevate the other plunger from off of its coupling, as and for the purpose described.

602,788. CABINET. GONZAVO M. PISOTTI, Mission Hill, S. D. Filed May 13, 1897. Serial No. 636,219. (No model.)

Claim.—1. The herein-described cabinet comprising end pieces each having upper converging slots and a lower vertical slot, and a folding rack-bar having projecting portions extended into said slots, substantially as set forth.

2. The herein-described cabinet comprising end pieces each having upper inclined or converging slots and a lower vertical slot arranged in juxtaposition with said former slots, and a rack-bar having a series of pivotally-connected end bars, and provided with upper and lower projections extended into said slots, substantially as set forth.



3. The herein-described cabinet, comprising end pieces each having upper inclined or converging slots and a lower vertical slot arranged in juxtaposition with said former slots, and a rack-bar made up of a series of pivotally-connected parallel end bars, and yoke-bars connecting said end bars and having projecting ends extended into said slots, substantially as set forth.

4. The herein-described cabinet, comprising side pieces having upper converging slots and a lower vertical slot arranged in juxtaposition to said former slots, a folding rack-bar having projections extended into said slots, upper and lower shelves mounted between said side pieces, drawers located beneath said shelves, an arm or support pivotally mounted on one of said side pieces, and means for holding said arm in a horizontal position, substantially as set forth.

5. The combination with a cabinet, of a cleat secured to one side thereof, a shelf pivoted to said cleat, and a bracket pivotally secured to said side adjacent said cleat and formed of two pivoted members, said bracket having a cut-away portion adapted to receive said cleat, whereby said bracket may be folded flush against the side of said cabinet, substantially as set forth.

602,789. COMPOUND FOR DESTROYING VEGETATION. WILLIAM M. FLETCHER, Vicksburg, Miss. Filed Nov. 17, 1897. Serial No. 658,814. (No specimens.)

Claim.—1. A compound for exterminating vegetation, consisting of salt water, petroleum and carbolic acid.

2. A compound for exterminating vegetation, consisting of sea-water, petroleum and crude carbolic acid combined in substantially the proportions specified.

602,740. FENCE-POST. WILLIAM H. FRANK, Peabody, Mass. Filed July 28, 1897. Serial No. 645,997. (No model.)



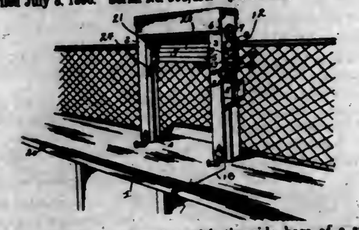
Claim.—1. A fence-post having cavities with grooves on a line therewith, in combination with retaining-plates having lugs which project into the cavities, said lugs engaging the fence-wires to press them within the cavity and form sharp bends, substantially as shown and described.

2. A fence-post having a cavity therein, in combination with a retaining-plate provided with a projecting lug which enters the cavity when the plate is secured in place, substantially as shown and described.

3. A fence-post having transverse recesses with central cavities and grooves extending from said cavities to the sides of the post, in combination with retaining-plates fitting within the recesses and having rearwardly-projecting lugs which enter the cavities, substantially as shown and described.

4. A fence-post having transverse recesses with a central cavity and grooves extending from said cavity to the sides of the post, in combination with retaining-plates provided with rearwardly-projecting lugs having notched ends, and means for securing the plates in the recesses of the post, substantially as shown and for the purposes set forth.

602,741. CASHIER-PROTECTOR. GEORGE B. FRY, Byron, Mont. Filed July 8, 1896. Serial No. 598,481. (No model.)



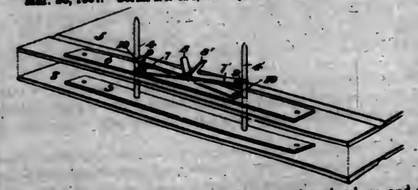
Claim.—1. The combination with the side bars of a suitable frame, of a shaft mounted to rotate therein, a screen secured to said shaft, a spring for normally urging said screen downward, a beveled wheel on said shaft, a slidingly-mounted shaft carrying a pinion upon its upper end in mesh with said gear-wheel, a spring for normally holding said pinion and gear-wheel in contact one with the other, and means for depressing said slidingly-mounted shaft, substantially as and for the purpose described.

2. The combination with the side bars of a suitable frame, of a shaft mounted to rotate therein, a screen secured to said shaft, a spring for normally urging said screen downward, a beveled gear-wheel upon the outer end of said shaft, a vertically-disposed, slidingly and rotatably mounted shaft carrying a pinion upon its upper end adapted to mesh with said gear-wheel, a spring for normally holding said vertical shaft in its raised position, and electromagnetic means for depressing said vertical shaft, substantially as and for the purpose described.

3. The combination with the side bars of a suitable frame, of a shaft mounted to rotate therein, a screen secured to said shaft, a spring for normally urging said screen downward, a beveled gear-wheel upon the outer end of said shaft, a vertically-disposed, slidingly and rotatably mounted shaft carrying a pinion upon its upper end adapted to mesh with said gear-wheel, a spring for normally holding said vertical shaft in its raised position, a lever fulcrumed in said frame and adapted to engage a stop on said vertical shaft, an electromagnet, and an armature mounted upon the free end of said lever, substantially as and for the purpose described.

4. The combination with the side bars of a suitable frame, of a shaft mounted to rotate therein, a screen secured to said shaft, a spring for normally urging said screen downward, a beveled gear-wheel upon the outer end of said shaft, a vertically-disposed, slidingly and rotatably mounted shaft carrying a pinion upon its upper end adapted to mesh with said gear-wheel, a spring for normally holding said vertical shaft in its raised position, a shoulder on said vertical shaft, a lever fulcrumed in the frame adapted to engage said shoulder, an electromagnet, an armature therefor attached to the free end of said lever, circuit-wires, and electric push-buttons located at different points therein, substantially as and for the purpose described.

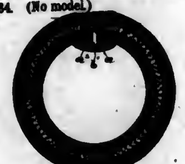
602,742. BINDER. JAMES J. GILMORE, Allegheny, Pa. Filed Mar. 20, 1897. Serial No. 628,635. (No model.)



Claim.—In a temporary binder, having clamping-bars and upright rods, the combination therewith of oppositely-extending clamp-

ing-arms, bearing on the rods and adapted to hold the clamping-bar, and a headpiece on each of said arms at a point between said rods, the headpieces of said arms being adapted to be moved simultaneously on compression by the hand and to release the pressure on said rods.

602,743. DEVICE FOR CLOSING PUNCTURES IN PNEUMATIC TIRES. GEORGE F. GLIDDEN, Watertown, Mass. Filed Feb. 7, 1898. Serial No. 669,384. (No model.)



Claim.—1. A puncture-closer for tubing, comprising a shank, a head hinged thereon, and a cooperating retaining-cap, substantially as described.

2. A puncture-closer for tubing, comprising a threaded shank, a head hinged thereon and having a concave back, and a retaining-cap threaded to engage the shank, substantially as described.

3. A puncture-closer for tubing, comprising a shank, a head, and a spring-hinge connecting the shank and head, substantially as described.

4. A puncture-closer for tubing, comprising a shank, a head hinged thereon, and a cooperating retaining-cap constructed and arranged to be engaged and held by the material of the tube, substantially as described.

5. A puncture-closer for tubing, comprising a threaded shank to extend through the material of the tube, a thin, substantially concavo-convex head hinged to the inner end of the shank, and a retaining-cap adapted to be screwed onto the shank, to clamp the tube between the head and cap, substantially as described.

6. A puncture-closer for tubing, comprising a head having a concave back, a threaded shank hinged to said head, and a cooperating retaining-cap having a tapered hub on its inner face, interiorly threaded to engage the shank, the head adjusting itself on the inner surface of the tube relatively to the shank, the latter extending through the hole or puncture, substantially as described.

7. In a puncture-closer for tubing, a threaded shank having a forked inner end, a head hinged to said forked end, said head having a slightly-convexed face and rounded periphery, and a retaining cap to engage the shank and peripherally notched, as and for the purpose described.

8. In a puncture-closer for tubing, a shank, a spring-controlled head hinged thereto, and means to retain said shank and head in place in the tubing, substantially as described.

9. In a puncture-closer for tubing, a shank threaded interiorly and exteriorly, a head hinged to the inner end of the shank, and a retaining-cap having an internally-threaded hole to engage the shank, the interior thread of the shank being adapted to be engaged by a holder when inserting the head in the tube, substantially as described.

10. A puncture-closer for tubing, comprising a metallic head, a threaded metal shank with which it is pivotally connected, whereby the head can be turned up against the shank, and a cap adapted to be screwed onto the shank and bear against the exterior of the tube, substantially as described.

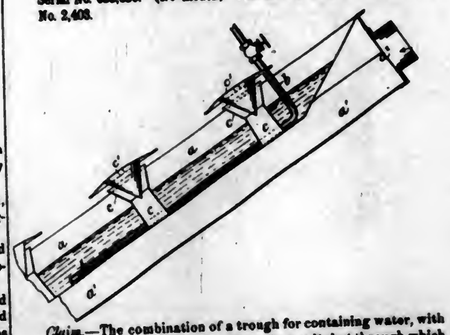
602,744. FENCE-POST. CHRISTIAN GROS and JOHN F. THOMAS, Delphi, Ind. Filed Feb. 28, 1898. Serial No. 671,997. (No model.)



Claim.—1. The combination of a base provided with a longitudinal opening, a fence-post extending into the opening of the base, a yoke forming a cap for the upper portion of the base and provided with a depending sleeve fitting in the opening of the base and receiving the fence-post and interposed between the same and the walls of the opening of the base, and a fastening device passing through the sides of the yoke, the base and the fence-post, substantially as described.

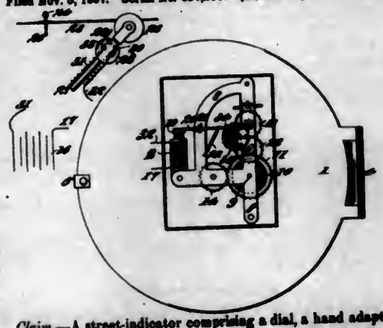
2. The combination of a base, provided with a longitudinal opening and having a transverse perforation, a fence-post arranged within the longitudinal opening and having a perforation registering with that of the base, a yoke comprising sides arranged on the exterior of the base and provided with perforations registering with the said perforations, the connecting top portion, and the depending sleeve fitting within the opening of the base and interposed between the latter and the fence-post and terminating above said perforations, and a fastening device passing through the said perforations and connecting the parts, substantially as and for the purpose described.

602,745. MEANS FOR HUMIDIFYING AIR. DANIEL HALL and JAMES H. KAY, Ashton-under-Lyne, England. Filed Feb. 16, 1897. Serial No. 623,650. (No model.) Patented in England Feb. 3, 1896, No. 2,403.



Claim.—The combination of a trough for containing water, with a suitable heater for the water, an air casing or jacket through which a current of air is passed, air-outlets therefrom, opening just above the water-level in the trough, and deflecting-plates above the air-outlet and above the sides of the trough, whereby the air is caused to spread and mix with the steam or vapor arising from the heated water in the trough and is discharged in all directions directly into the room.

602,746. STREET-INDICATOR. EDGAR J. HALL, St. Louis, Mo. Filed Nov. 3, 1897. Serial No. 657,230. (No model.)

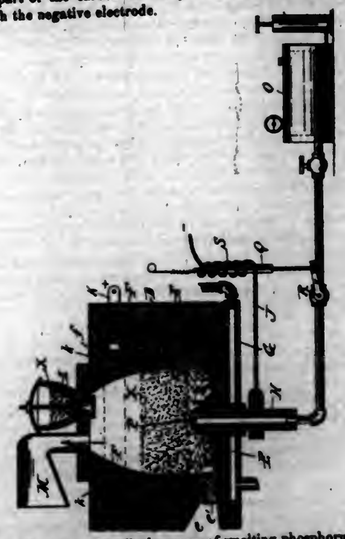


Claim.—A street-indicator comprising a dial, a hand adapted to travel over the dial, a sprig-gearing, a battery, a magnet connected with one pole of the battery, a spring-arm carrying an armature over the magnet, a notched disk controlled by the arm and operated by the gearing, a trolley-wire provided with a spur, a trolley-rod, a plate mounted on the trolley-rod, a contact-plate and spring-pawl mounted on the rod-plate and connected with the other pole of the battery and with the magnet; substantially as described.

602,747. PROCESS OF SMELTING PHOSPHORUS. CHARLES K. HARDING, Chicago, Ill. Filed Apr. 5, 1897. Serial No. 630,288. (No specimens.)

Claim.—1. The herein-described process of smelting phosphorus, consisting in first making from a phosphatic base a phosphoric oxid substantially free from lime, roasting the phosphoric oxid in the presence of carbon until the combustible impurities have been consumed and substantially two parts of the oxygen have been smelted out, and then subjecting the phosphorous oxid remaining, intermixed with granular carbon, to the action of an electric arc developed within the mass of the material to be treated and between a negative electrode and the said material in an atmosphere of hydrogen.

2. The herein-described process of smelting phosphorus, consisting in first making from a phosphatic base a phosphoric oxid substantially free from lime, roasting the phosphoric oxid in the presence of carbon until the combustible impurities have been consumed and substantially two parts of the oxygen have been smelted out, and then subjecting the phosphorous oxid remaining, intermixed with granular carbon, to the action of an electric arc developed within the mass of the material to be treated and between a negative electrode and the said material in an atmosphere of hydrogen, and supplying a part of the carbon necessary to the reaction in fluid form through the negative electrode.



3. The herein-described process of smelting phosphorus consisting in subjecting oxid of phosphorus intermixed with granular carbon to the action of an electric arc developed within the mass to be smelted, in an atmosphere of hydrogen and supplying a part of the carbon necessary to the reaction in fluid form through the arc.

4. The herein-described continuous method of smelting phosphorus consisting in treating phosphatic material with sulfuric acid to eliminate substantially all of the lime, roasting the material with carbon to eliminate the major part of the sulfur, then continuously smelting the remaining material in an electric furnace in the presence of hydrogen.

5. The herein-described continuous method of smelting phosphorus consisting in treating phosphatic material with sulfuric acid to eliminate substantially all of the lime, roasting the material with carbon to eliminate the major part of the sulfur, and smelting out a part of the oxygen, then continuously smelting the remaining phosphorous-oxid mixture in an electric furnace in the presence of hydrogen.

6. The herein-described process of smelting phosphorus from a fused bath of phosphatic material by maintaining an electric arc below the surface of the material in an atmosphere of hydrogen and continuously supplying the reducing agent through the fused mass.

7. The herein-described process of smelting phosphorus, consisting in first making from a phosphatic base a phosphoric oxid substantially free from lime, roasting the phosphoric oxid in the presence of carbon until the combustible impurities have been consumed and substantially two parts of the oxygen have been smelted out, then adding to the phosphorous oxid which remains sufficient granular carbon to combine with the residue of the oxygen and subjecting such mixture to the direct heat of an electric arc.

8. The herein-described continuous process of making phosphorus consisting in preparing from a phosphatic base an oxid of phosphorus substantially free from lime and sulfur, mixing the oxid with carbon, maintaining a body of the mixture at a temperature below the point at which the oxid of phosphorus vaporizes and quickly bringing into the field of action of an intense heating means successive portions of the mixture in such quantities that each portion is raised in a substantially inappreciable time to a smelting temperature.

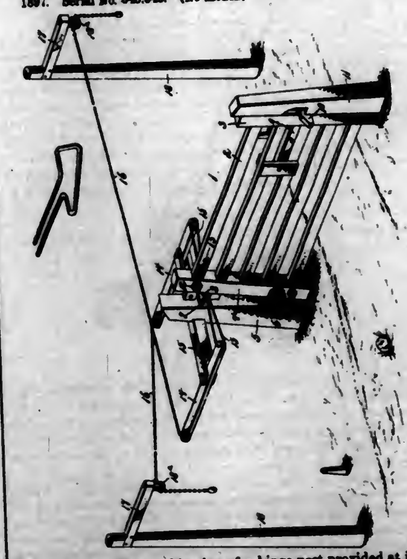
9. The herein-described continuous process of making phosphorus consisting in preparing from a phosphatic base a phosphoric oxid, roasting the oxid in the presence of carbon to eliminate the sulfur and a portion of the oxygen, and then mixing the resultant phosphorous oxid with granular carbon and raising the mixture in a substantially inappreciable period of time to a smelting temperature.

10. The improvement in the art of manufacturing phosphorus which consists in taking a phosphate of a base such as phosphate of lime, treating with an excess of sulfuric acid, eliminating all of said basic material, then roasting the phosphoric acid in an oxidizing atmosphere with carbon to eliminate all the sulfur, and continuously smelting in an electric furnace with carbon the material thus prepared.

11. The improvement in the art of smelting phosphorus which consists in first preparing a material for continuous smelting by taking a phosphate of a base, treating with sulfuric acid, removing all the basic material, roasting with carbon to eliminate all the sulfur, and then continuously smelting said material, thus freed from all deleterious and non phosphorus-yielding oxids by carbon, in a suitable electric furnace.

12. The method of making phosphorus consisting in taking a mixture of substantially pure oxid of phosphorus and carbon, maintaining the mixture at a temperature below the volatilizing temperature of the oxid, and bringing successive portions of such mixture quickly into the presence of an electric arc in such quantities that each portion is raised in a substantially inappreciable time to a smelting temperature.

602,748. GATE. WILLIAM I. HARP, Sparta, N. C. Filed July 24, 1897. Serial No. 645,843. (No model.)



Claim.—1. The combination of a hinge-post provided at its top with a horizontal triangular eye, a gate provided at its back with an adjustable end bar disposed at an inclination, pivoted at its lower end and adjustably secured at its top, whereby its degree of inclination may be varied, a hinge connecting the bottom of the gate with the hinge-post, an eye mounted on the upper portion of the gate and linked into the triangular eye, and operating mechanism connected with the back of the gate, substantially as described.

2. The combination of a hinge-post provided at its top with a triangular eye, a gate provided at its top with a series of perforations and having an inclined rear end bar pivoted at its bottom, a fastening device passing through the inclined end bar and through one of the said perforations, a hinge connecting the bottom of the gate with the hinge-post, an eye mounted on the gate near the top thereof and linked into the triangular eye, horizontal operating-levers located at opposite sides of the gate and connected at their front terminals with the same, and the crossed operating-ropes connected with the rear terminals of the levers and extending from opposite sides of the gate, substantially as described.

602,749. ROLLER-BEARING. REUBEN W. HAVILAND, Richmond, Ind. Filed Nov. 27, 1896. Serial No. 613,633. (No model.)

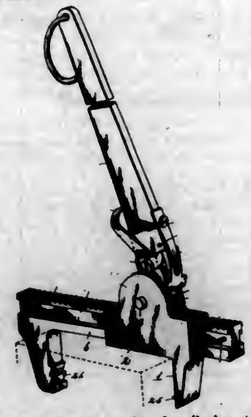
Claim.—1. An antifriction-bearing box comprising two sections one of which is provided with two oppositely-inclined upwardly-facing surfaces arranged slightly out of a horizontal plane, and the other with two downwardly-facing oppositely-inclined faces also arranged slightly out of a horizontal plane; the oppositely-inclined faces of the

respective sections being constructed and arranged to engage with one another and firmly lock the sections together against any longitudinal movement in either direction, substantially as described.



2. In an antifriction-bearing, the combination with a shaft, of a bearing-box surrounding the same and comprising two sections each having oppositely-inclined edges so constructed that when the two sections are applied together they will be firmly locked against any longitudinal movement, and antifriction-rollers mounted between said sections and the shaft, substantially as described.

602,750. HITCHING DEVICE. THOMAS M. HENDERSON and THOMAS R. FREEMAN, Portsmouth, Va. Filed Dec. 6, 1897. Serial No. 661,191. (No model.)



Claim.—1. In a device of the class described, a stationary jaw, a sliding jaw carried thereby, a lever pivotally connected to said stationary jaw, and suitably connected with the sliding jaw for actuating the latter, and means for engaging the operating-lever with the fixed jaw for locking said lever against reverse movement, substantially as described.

2. In a device of the class described, a stationary jaw, a sliding jaw carried thereby, an operating-lever pivotally connected to the stationary jaw, and suitably conneted to the sliding jaw for actuating the latter, means for locking the operating-lever against reverse movement, and means for actuating said locking means, substantially as described.

3. In a device of the class described, a stationary jaw, a sliding jaw carried thereby, a lever pivotally connected to said stationary jaw, and suitably connected with the sliding jaw for actuating the latter, and a locking-pawl carried by said operating lever and adapted to engage the stationary jaw for locking said operating-lever against reverse movement, substantially as described.

4. In a device of the class described, a stationary jaw, a sliding jaw carried thereby, an operating-lever for actuating said sliding jaw, a locking-pawl carried by said operating-lever and adapted to engage the stationary jaw to prevent reverse movement of said lever, and a lever carried by the operating-lever for actuating said locking-pawl for releasing the latter from engagement with the stationary jaw, substantially as described.

5. In a device of the class described, a stationary jaw, a sliding jaw carried thereby, an operating-lever for actuating said sliding jaw, a locking-pawl carried by said operating-lever and adapted to engage the stationary jaw to prevent reverse movement of said lever, and a lever carried by the operating-lever and provided with a cam-surface adapted to engage the locking-pawl to release the latter from engagement with the stationary jaw, substantially as described.

6. In a device of the class described, a stationary jaw having a series of parallel upwardly-extending ears provided with longitudinal ribs, a sliding jaw arranged between said ears and having each of its sides provided with a groove, said grooves being adapted to receive said ribs, whereby the sliding jaw is adapted to move on the ribs, an operating-lever pivoted between said ears for actuating the sliding jaw, and means thereon for engaging the fixed jaw for preventing reverse movement of the operating-lever, substantially as described.

7. In a device of the class described, a stationary jaw having a series of parallel upwardly-extending ears provided with longitudinal ribs, a sliding jaw arranged between said ears and having each of its sides provided with a groove, said grooves being adapted to receive said ribs, whereby the sliding jaw is adapted to move on the ribs, an operating-lever pivoted between said ears for actuating the sliding jaw, means for preventing reverse movement of the operating-lever, and means for releasing said locking means, substantially as described.

8. In a device of the class described, a stationary jaw provided with parallel upwardly-extending ears each of which is provided with a longitudinal rib, a sliding jaw disposed between said ears and having each of its sides provided with a groove, said grooves being adapted to receive said ribs, whereby the sliding jaw is adapted to move along the ribs, oppositely-disposed segments formed on said ears, and each provided with a series of peripheral teeth, an operating-lever pivoted between said ears and provided with a cam, peripheral teeth formed on said cam, a series of teeth formed on the sliding jaw adapted to be engaged by the teeth of said cam, whereby when said lever is operated the sliding jaw is adapted to move toward and away from the stationary jaw, a locking-pawl pivoted to the operating-lever and adapted to engage the teeth of the segments, whereby the operating-lever is locked against reverse movement, and a lever pivoted to said operating-lever and provided with a cam-surface adapted to engage the locking-pawl for releasing the latter from engagement with the stationary jaw, substantially as described.

602,751. VAGINAL SYRINGE. ABIJAH F. HENRY, Alamo, Ind. Filed Dec. 10, 1894. Serial No. 531,384. (No model.)



Claim.—A syringe-nozzle of the class described, consisting of a solid wooden body having a rounded front end adapted to be arranged at the mouth of the canal, and having a pair of divergent induction and eduction passages meeting at a point in rear of the rounded front end of the nozzle-body and combining at such point to form a common orifice 8 for both the inlet and outlet of fluid, said induction and eduction passages being of the same size or diameter, whereby a distention of the canal may be maintained when both passages are open to the circulation of fluid.

602,752. MORTISING-BIT. ROBERT HIRKI, Maple, Wis. Filed May 27, 1897. Serial No. 638,402. (No model.)



Claim.—1. In a mortising-machine, the combination of a bearing-block having a horizontal slot through the lower portion thereof communicating with a vertical slot at one side, a face-plate mounted over the said vertical slot, gear-wheels journaled in the said slots and meshing with each other, a bit or auger having the shank thereof secured to the horizontally-disposed gear-wheel, vertically-movable chisels surrounding the said bit or auger, a cylindrical guide surrounding the lower end of the bit or auger, supplemental guides for the said chisels, and means for operating the said chisels and bit or auger, substantially as described.

2. In a mortising-machine, the combination of a bearing-block, gearing mounted in said bearing-block, a bit or auger operated by said gearing, a crank-shaft to which said gearing is connected, rocking arms operated by said crank-shaft, and vertically-reciprocating chisels attached to said rocking arms and adapted to be operated thereby, alternately in pairs, substantially as and for the purposes specified.

3. In a mortising-machine, the combination of a bearing-block, having a transverse journal-bearing therein, a shaft mounted in said journal-bearing and provided with cranks, a gear mounted on said shaft, a bit-shank having a gear thereon, meshing with the aforesaid gear and provided with a lower bit, rocking arms attached to the lower portion of the bearing-block, vertically-reciprocating chisels movably attached to said rocking arms, and means for operating the said rocking arms, substantially as and for the purposes specified.

4. In a mortising-machine, the combination of a bearing-block having a transverse journal-bearing extending therethrough, a shaft mounted in said journal-bearing, and having cranks on opposite ends thereof, a gear on the shaft, a bit-shank adapted to be operated by said gear, and carrying a bit at the lower end thereof, rocking arms attached to the lower portion of the bearing-block, vertically-reciprocating chisels movably attached to said rocking arms, pitmen connecting the rocking arms to the cranks on the shafts, and means for operating the said shaft, substantially as and for the purposes specified.

5. In a mortising machine, the combination of a bearing-block having a transverse journal-bearing therein, a shaft mounted in said journal-bearing and provided with cranks on the opposite ends thereof, a gear mounted on the said shaft, a bit-shank having a gear thereon engaging the aforesaid gear and carrying a bit at the lower portion thereof, a cylindrical guide forming a shield for the bit, supplemental guides depending from the lower portion of the bearing-block, rocking arms attached to opposite sides of the lower part of the bearing-block, vertically-reciprocating chisels movably attached to said rocking arms and held in position by the said supplemental guides, pitmen attached to the said rocking arms and to the cranks of the said shaft, and means for operating the said shaft, substantially as and for the purposes specified.

602,753. LID-HOLDER. JOSEPH HILT, Marne, Ill. Filed July 22, 1897. Serial No. 645,569. (No model.)



Claim.—1. A lid-holder for boxes, consisting of a pair of elastic arms normally held apart, and a stem, bent at right angles to the plane in which the arms lie, the arms being adapted to lie against the end of the box and the stem on the lid thereof, substantially as described.

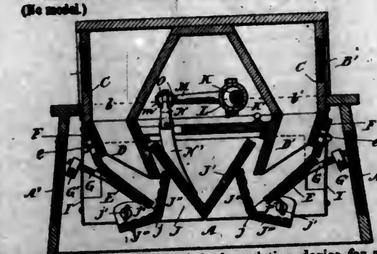
2. A lid-holder, consisting of a piece of elastic wire bent at about its mid-length and twisted to form a stem for attachment to the top of the box-lid, and bent at right angles at the inner end of the twisted stem to form two arms to lie against the end of the box and by their elasticity engage a stop thereon, substantially as described.

3. A lid-holder, consisting of a piece of elastic wire bent at about its mid-length and twisted to form a stem for attachment to the top of the box-lid, and bent at right angles at the inner end of the twisted stem to form two arms to lie against the end of the box, one of said arms being bent into undulatory form to engage a stop on the end of the box, substantially as described.

4. The combination with a box and a hinged lid thereon, the end of the box being provided with a staple, of a lid-holder attached to the top of the lid and formed into two elastic arms which lie against the end of the box and pass through said staple, said arms being normally pressed away from each other, thereby, by their contact with the staple, holding the lid open at any desired angle to the box, substantially as described.

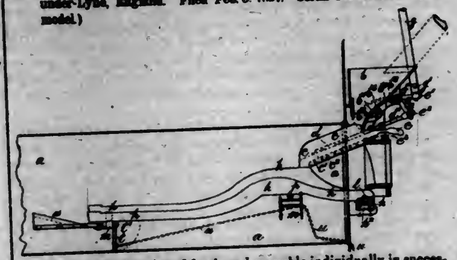
5. The combination of a box, a hinged lid thereon, and a staple in one end of the box, of a lid-holder consisting of a stem, lying upon and attached to the top of the lid, and two elastic arms bent at right angles to the stem, to lie upon the end of the box and pass through the staple, one of said arms being bent to form undulations to engage one leg of the staple and held in engagement therewith by the normal, outward pressure of the arms, substantially as set forth.

602,754. FEED FOR TOP ROLLS OF GRIST-MILLS. JOHN F. HIMES, Bearing Spring, Pa. Filed Aug. 26, 1897. Serial No. 649,616. (No model.)



Claim.—In a feeding and feed-regulating device for mills, the combination with the feed-box having the feed-chutes or hoppers, one at each end portion thereof, the hinged or pivoted counter-weighted valves at the bottoms of the said chutes, and the adjustable pieces to which said valves are attached, of the spring-supported shaker having the feed-plates J''', J''' at each end portion thereof, the plates J'' being curved and the plates J''' adjustable, the central drive or actuating shaft having an eccentric, the strap fitted thereto, and an adjustable connection between said strap and the central portion of the said shaker, substantially as specified.

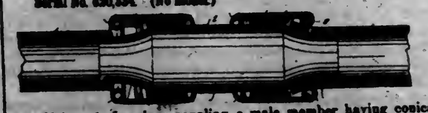
602,755. STEAM-BOILER FURNACE. THOMAS HIBBERT, Ashton-under-Lyne, England. Filed Feb. 3, 1897. Serial No. 621,861. (No model.)



Claim.—1. A series of fire-bars A movable individually in succession in the direction of their length, in combination with a multiple crank-shaft having its cranks arranged in different radial positions, in order that they may operate the said fire-bars one after the other, and a grate having its fixed bars arranged alternately with the said fire bars substantially as set forth.

2. A series of fire-bars A movable individually in succession in the direction of their length, in combination with a multiple crank-shaft having its cranks arranged in different radial positions, in order that they may operate the said fire-bars one after the other, a grate having its fixed bars arranged alternately with the said fire-bars, and an inclined coking-box and scraper substantially as set forth.

602,756. HOSE-COUPLING. MILO C. HOARD, Toledo, Ohio, assignor of one-half to S. E. Todd, Jr., same place. Filed Jan. 23, 1897. Serial No. 620,334. (No model.)



Claim.—1. In a hose-coupling, a male member having conical ends, marginal screw-threads, and sleeved sections upon the male member having concentric impinging portions with inner contracted ends.

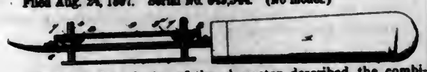
2. In a hose-coupling, a male member having conical ends, marginal screw-threads, and sleeved sections upon the male member having concentric impinging portions with inner contracted ends formed by compressible diaphragms.

602,757. CAN-OPENER. GEORGE R. HOWELL, Southampton, N. Y. Filed May 8, 1897. Serial No. 635,708. (No model.)



Claim.—A pair of can-opening shears comprising two blades and handles pivotally secured together, said blades being projected downwardly, forward and again downwardly from the pivot to the point, and also curved laterally to conform to the curvature of the body of the can, substantially as described.

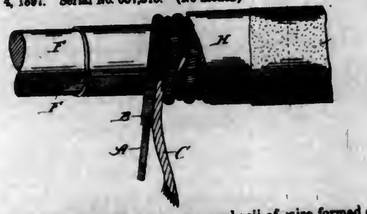
602,758. GAGE-KNIFE. GEORGE M. LANDERS, Brocton, Ill. Filed Aug. 24, 1897. Serial No. 649,344. (No model.)



Claim.—1. In a device of the character described, the combination with a gage provided upon one extremity with a handle and upon its opposite extremity with a spoon end, of a knife located upon one side of the gage, a guide-plate located upon the opposite side of the gage, knife-adjusting screws secured to the knife adjacent to its opposite end and extending through the gage and guide-plate respectively, and knife-adjusting disks carried upon the screws and located intermediate of the gage and guide-plate, substantially as specified.

2. In a device of the character described, the combination with a gage provided upon one extremity with a handle and upon its opposite extremity with a spoon end, of a knife located upon one side of the gage, a guide-plate located upon the opposite side of the gage and provided with angular ends fixedly secured thereto, adjusting-screws adjacent to opposite ends of the knife and passing through the gage and guide-plate respectively, and adjusting-disks internally screw-threaded and engaging threads upon the adjusting-screws, said disks being located between the gage and guide-plate and having their edges projecting beyond the sides of the latter, substantially as specified.

602,759. VEHICLE-TIRE. FRANK LAYTNER, Huntley, Ill. Filed Nov. 4, 1897. Serial No. 657,315. (No model.)



Claim.—1. In a vehicle-tire, a compound coil of wire formed of two primary coils in telescopic or tubular engagement with each other and wound around in the tire so as to form a compound helix, substantially as described.

2. In a vehicle-tire, the combination of a compound helix formed of two primary coils of wire in telescopic or tubular engagement with each other, a cord wound around between the coils of the compound helix so as to keep such coils out of physical contact with each other, substantially as described.

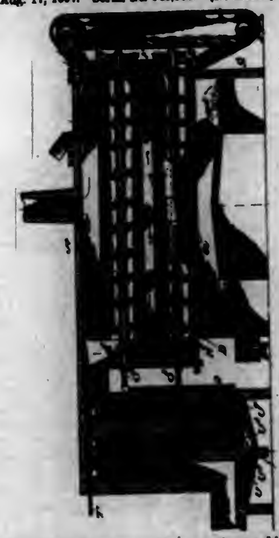
3. In a vehicle-tire, the combination of a compound helix formed of at least two primary coils of wire in telescopic or tubular engagement with each other, a cord wound around in a helical manner between the coils of the compound helix to keep such coils out of physical contact, and a body of rubber in which such coils are embedded or vulcanized so as to produce the complete tire and hold the parts in position, substantially as described.

602,760. UMBRELLA AND HOLDER. WILLIAM S. LEES, Warren, Ind. Filed Oct. 30, 1896. Serial No. 610,617. (No model.)



Claim.—The combination of a support adapted to be attached to the bicycle, a ball-and-socket joint upon the upper end of the support, braces hinged to the ball of said joint, clamps carried by the opposite ends of the braces, and a shade slidable upon said braces and adapted to be secured in the desired position by means of the clamps, substantially as set forth.

602,761. METALLURGICAL FURNACE. JAMES MAHR, Denver, Colo., assignor of one-fourth to Leonard Hanscom Flanders, same place. Filed Aug. 17, 1897. Serial No. 648,558. (No model.)



Claim.—1. In a metallurgical furnace, the combination of a heating-furnace, a pair of longitudinally-disposed parallel retorts extending through said furnace, a vertical passage at one side of the furnace into which both of said retorts open at one end and through which material passes from the upper to the lower retort, a feed-inlet in the opposite end of the upper retort and an outlet in the adjoining end of the lower retort, a closed casing communicating with the said inlet and outlet openings, and a conveyer in said casing adapted to elevate material discharged from the outlet of the lower retort back into the feed-inlet of the upper retort; a discharge door or slide in said passage, conveyers in said retorts for moving the ore therethrough in opposite directions, and means for injecting air or steam into the retorts, for the purpose and substantially as described.

2. In a metallurgical furnace, the combination of a heating-furnace, a pair of longitudinally-disposed parallel retorts extending through said furnace, a vertical passage at one side of and exterior to the furnace into which both of said retorts open at one end and through which material is directed from the upper to the lower retort, a feed-inlet in the opposite end of the upper retort and an outlet in the adjoining end of the lower retort, a closed casing communicating with the said inlet and outlet openings and a conveyer in said casing adapted to elevate the material discharged from the lower retort back into the upper retort, with a discharge-outlet in the lower end of said passage, a slide for closing said vertical passage, rotary conveyers in said retorts for moving the ore therethrough in opposite directions, and means for injecting air or steam into the retorts, through passages in the hollow conveyer shafts and blades, a fume-arrester communicating with the upper end of said passage having a perforated bottom and means for precipitating the fumes in said arrester, all substantially as and for the purpose described.

3. The combination of the furnace, the passage at one end thereof, the retorts in said furnace opening into said passage, the conveyers in said retorts, a feed-throat communicating with the feed end of the first retort, and a chute at the discharge end of the lowest retort, a conveyer-casing communicating with said throat and chute, and an endless conveyer for elevating material from the chute into said throat; with a fume-arrester connected to said passage, an outlet for calcined ores in said passage, and means for injecting air or steam into the retorts through passages in the hollow conveyer shafts and blades, all substantially as and for the purpose set forth.

602,762. COMPOSITION FOR DRESSING LEATHER. DAVID MADDEN, London, England. Filed Aug. 30, 1897. Serial No. 650,036. (Specimens.) Patented in England June 27, 1896, No. 14,267.

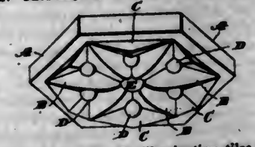
Claim.—1. A composition for dressing leather, or other flexible material, the said composition being made by mixing an elastic gum with the sap, or juice, of the *Rhus vernicifera*.

2. A composition for dressing leather, or other flexible material, the said composition being made by mixing india-rubber with the sap, or juice, of the *Rhus vernicifera*.

3. A composition for dressing leather or other flexible material, the said composition being made by mixing sulfur and elastic gum with the sap or juice of the *Rhus vernicifera*.

4. A composition for dressing leather or other flexible material, the said composition being made by mixing an elastic gum and silicate of magnesia with the sap or juice of the *Rhus vernicifera*.

602,763. LENS FOR ILLUMINATING TILES. JACOB MARX, New York, N. Y. Filed May 20, 1897. Serial No. 638,509. (No model.)



Claim.—1. A glass or lens for illuminating tiles having projections with adjacent inclined faces that converge to a common point, and a circular series of convex lenses that alternate with said projections, substantially as and for the purpose specified.

2. A glass or lens having a side formed of a series of convex lenses arranged in a circle and a series of projections with inclined sides also arranged in a circle, each convex lens being arranged in such relation to a projection, that a plane radial to the center of said circle, passes through the centers of lens and projection, substantially as and for the purpose specified.

3. A glass or lens for illuminating tiles having a series of projections radiating from a common point, with inclined or sloping sides, other projections with like sides disposed between adjacent ones of the first mentioned, and convex lenses placed at points where the sides of the other projections come together, substantially as specified.

602,764. MAIL-BAG LOCK. JOSEPH B. MAY, Lexington, Ky., assignor of one-fourth to George P. Ross, same place. Filed Sept. 25, 1897. Serial No. 653,041. (No model.)

Claim.—1. In a mail-bag lock, the combination of the sliding locking-bar carrying pivoted bolts or dogs having inclined lower portions, and keepers or housings arranged around the staple-receiving openings of the bag or pouch, and adapted to receive said lower portions of the bolts and to guide them into the staples, substantially as set forth.



2. In a mail-bag lock, the combination of the sliding locking-bar carrying pivoted bolts, having inclined lower portions and keepers or housings arranged around the staple-receiving openings of the bag or pouch and having upward inclined portions to engage the lower inclined portions of said bolts to elevate the forward ends of said bolts when said locking-bar is slid or moved rearward, substantially as set forth.

3. In a mail-bag lock, the combination of the sliding locking-bar carrying pivoted bolts having lower inclined portions, keepers or housings arranged around the staple-receiving openings of the bag or pouch, and adapted to receive said inclined portions of the bolts, and the clasp companing the edge of the bag or pouch and hinged at one edge to the base-plate and having a link connection with said sliding bar, substantially as set forth.

4. In a mail-bag lock, the combination of the sliding locking-bar carrying pivoted bolts having lower inclined portions, keepers or housings arranged around the staple-receiving openings of the bag or pouch and adapted to receive said inclined portions of the bolts, the clasp or hasp pivoted at one edge to the base-plate and having a link connection with one end of said locking-bar, said bar having at its opposite end a lateral arm provided with a pin, and a right-angled plate applied to the bag or pouch and having an aperture to receive said lateral pin, substantially as specified.

5. In a mail-bag lock, the combination of the sectional locking-bar carrying bolts, the housings or keepers arranged around the staple-receiving openings of the bag and adapted to receive said bolts, said housings or keepers also adapted to house the joints between the sections of said locking-bar when the latter is slid or moved rearward for the purpose set forth.

6. In a mail-bag lock, the combination of the locking-bar having pivoted bolts provided with lower inclined portions, the housings or keepers arranged around the staple-receiving openings of the bag and adapted to receive said inclined portions of the bolts, also having rabbeted forward edges to form a rest and guard for the free end of said locking-bar, substantially as set forth.

7. In a mail-bag lock, the combination of the locking-bar having at one end a hasp or clasp and at its other end a lateral arm provided with a pin, and the right-angled plate or bracket provided with an aperture to receive said pin, as the locking-bar is moved forward, substantially as specified.

602,765. OVERHEAD TRAVELING CRANE. WILLIAM H. MORGAN, Alliance, Ohio. Filed May 20, 1897. Serial No. 637,435. (No model.)

Claim.—1. In an overhead traveling crane, the combination with a bridge and a traveling trolley thereon, of a hoisting-chain carried by the trolley and carrying a ladle, a guide depending from the trolley between the bridge-girders, and a ladle bail or frame adapted to enter said guide and lock the bail against movement.

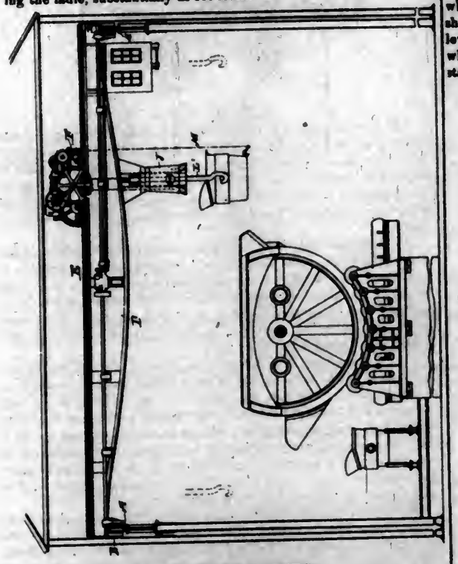
2. In an overhead traveling crane, the combination with a bridge and a traveling trolley thereon, the trolley having a flexible hoisting device, of guides depending from the trolley between the bridge-girders, a ladle having a bail or frame and devices carried by the bail and adapted to rest in the guides when the ladle is in its elevated position, substantially as set forth.

3. In an overhead traveling crane, the combination with a bridge and a trolley thereon, the trolley having a main hoisting-drum and an auxiliary hoisting-drum, and a chain on each drum, of guides depending from the trolley between the bridge-girders, a ladle bail or frame carried by the chain on the main hoisting-drum and antifriction-rollers mounted on the ladle bail or frame and adapted to engage the guides.

4. In an overhead traveling crane, the combination with a bridge and a traveling trolley thereon, of a main hoisting-chain and means for actuating same, an auxiliary or tilting chain and means for actuating same, guides depending from the trolley and resting adjacent to the inner faces of the bridge-girders and a bail or frame carried by the main hoisting-chain and adapted to be engaged by the guides when in an elevated position, substantially as set forth.

5. In an overhead traveling crane, the combination with a bridge, a traveling trolley thereon and guides depending from the trolley be-

tween the bridge-girders, of a main hoisting drum and chain, carried by the trolley, a ladle-bail comprising connected side arm, and cross-bars, suspended from said hoisting-chain, antifriction-rollers on said bail or frame, and independent chain carried by said trolley for tilting the ladle, substantially as set forth.



602,766. PNEUMATIC TIRE. PETER T. MCKAY, Toronto, Canada. Filed Feb. 1, 1898. Serial No. 668,702. (No model.)

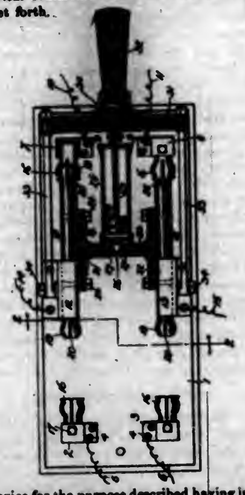


Claim.—In a bicycle or other wheel, in combination the rim, the tire provided with edge loops, the air-tube located within same and the wire chains extending through each edge loop circumferentially around the rim and comprising arc-shaped links connected at right angles whereby the links are projected at the joints against the rim and the main body of each arc-shaped link is held flat by the pressure of the air-tube as and for the purpose specified.

602,767. ELECTRIC SWITCH. ARTHUR G. MCPHERSON, Highland Park, Ill. Filed May 1, 1897. Serial No. 634,713. (No model.)

Claim.—1. A device for the purpose described having in combination two isolated contacts each adapted to be connected with one limb of an electric system, a longitudinally-shiftable contact-piece adapted to connect alternately with said contacts and being in electrical communication with another limb of said system, an oscillatory lever or handle pivoted at a point between said contacts, an elastic connection between said lever or handle and said shiftable piece, and means for retarding the movement of said shiftable piece while in electrical communication with either of said contacts, substantially as set forth.

2. A device for the purpose described having in combination two isolated contacts each adapted to be connected with one limb of an electric system, a longitudinally-shiftable contact-piece adapted to connect alternately with said contacts and being in electrical communication with another limb of said system, an oscillatory lever or handle pivoted at a point substantially midway between said contacts and having the axis of its pivot passing through said shiftable piece whereby said handle or lever may rest substantially parallel with said shiftable piece, an elastic connection between said shiftable piece and lever, and means for retarding the movement of said shiftable piece while in electrical communication with either of said contacts, substantially as set forth.



3. A device for the purpose described having in combination two pairs of isolated contacts each of which is adapted to be connected with one limb of an electrical system, a pair of longitudinally-shiftable contact-pieces adapted to be forced into electrical communication with said pairs of contacts alternately at opposite ends, means for holding said shiftable contacts each in electrical communication with one limb of said system, an insulated cross-head extending between said shiftable pieces, an oscillatory pivoted arm or lever having elastic connection with said cross-head, and means for retarding the movement of said shiftable pieces while in electrical communication with either of said contacts, substantially as set forth.

4. A device for the purpose described having in combination two pairs of isolated contacts each adapted to be connected with one limb of an electric system, a pair of shiftable contact-pieces adapted to be forced into connection with either pair of said contacts, a pair of blocks in which said shiftable pieces slide, each of said blocks being adapted to be electrically connected with another limb of said electric system, a two part cross-head extending between said shiftable pieces, means for forcing the parts of said cross-heads away from each other, an arm or lever pivoted between said pairs of contacts and having an elastic connection with said cross-head, and means for retarding the movement of said shiftable pieces while in electrical communication with either pair of said contacts, substantially as set forth.

5. A device for the purpose described having in combination two isolated contacts each adapted to be connected with one limb of an electric system; a longitudinally-shiftable contact-piece adapted to be reciprocated alternately into contact with said isolated contacts; a pivoted oscillatory lever and an elastic connection between said lever and shiftable contact-piece; the distance between the pivot of said lever and the point of connection of said lever with said elastic connection being greater than the distance between said point and the point of attachment of said elastic connection to the shiftable contact-piece when the elastic connection is in its retracted condition, substantially as set forth.

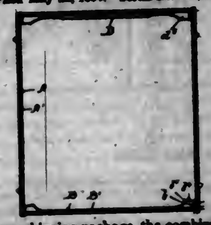
6. A device for the purpose described having in combination two isolated contacts each adapted to be connected with one limb of an electric system, a longitudinally-shiftable contact-piece adapted to connect alternately with said contacts and being in electrical communication with another limb of said system, an oscillatory lever or handle pivoted at a point between said contacts, an elastic connection between said lever and said shiftable piece, and means for retarding the movement of said shiftable piece while in electrical communication with either of said contacts; the point of connection between said elastic connection and said shiftable piece being normally at a point between the pivot of said lever and its free end, substantially as set forth.

7. A device for the purpose described having in combination two isolated contacts each adapted to connect with one limb of an electric system, a longitudinally-shiftable contact-piece adapted to connect alternately with said contacts and being in electrical communication with another limb of said system, an oscillatory lever or handle pivoted at a point between said contacts, and elastic connection between said lever or handle and said shiftable piece, and means for retarding the movement of said shiftable piece while in electrical communication with either of said contacts; the stretch of said elastic connection being less than the movement of said shiftable piece whereby the shiftable piece will be pulled away from the isolated contact with positive power, substantially as set forth.

8. A device for the purpose described having in combination two isolated contacts, a lever pivoted between said contacts, a longitudinally-shiftable piece arranged to connect with either of said contacts, the cross-bar 31 secured to said lever, an elastic connection secured to said shiftable piece and having the bolt 30 passing through said cross-bar 31, and the handle 32 composed of non-conducting material secured to said cross-bar and inclosing said bolt 30, substantially as set forth.

9. A device for the purpose described having in combination two isolated contacts each connected with one limb of an electric system, a longitudinally-reciprocating contact-piece 16 having electrical communication with another limb of said system, an oscillatory lever pivoted between said isolated contacts, a cylinder having pivotal connection at one end with said reciprocating piece, a piston in said cylinder having a piston-rod pivotally connected to said lever, the movement of said piston with relation to said cylinder being shorter than the movement of said reciprocating piece, substantially as set forth.

602,768. WOOD-VENEER-JACKETED SHIPPING-CAN. EDWIN HORTON, Maywood, Ill., assignor to himself, and OLIVER W. HORTON, Chicago, Ill. Filed May 22, 1897. Serial No. 637,676. (No model.)



Claim.—1. In a shipping-package, the combination with a combined sheet-metal and wood-veneer body of a combined sheet-metal and wood-veneer bottom, the sheet-metal bottom being provided with an interior flange or shoulder soldered to the sheet-metal body at the end thereof, and the rim of the sheet-metal bottom being folded or hemmed over the rim of the wood-veneer bottom, and the rim of the combined bottom projecting laterally under and abutting against the end of the combined body, substantially as specified.

2. In a shipping can or package, the combination with a combined sheet-metal and wood-veneer body, of a seamless ring having a depending flange soldered to the sheet-metal body at the end thereof, a horizontal flange extending across the end of the wood-veneer body and an upright flange, a sheet-metal cover having a shoulder or flange *b* fitting within said seamless ring and forming a tight frictional joint therewith, and a wood-veneer cover on top of said sheet-metal cover and having the upper edge of said upright flange of the seamless ring folded down upon the same, substantially as specified.

3. In a shipping-package, the combination with a sheet-metal body of a wood-veneer body a wood-veneer bottom, a sheet-metal bottom having an interior flange or shoulder fitting within the sheet-metal body, and having its rim folded over the wood-veneer bottom, the rim of wood-veneer bottom projecting laterally under the end of the wood-veneer body for it to abut against and a wire hoop surrounding the same, having integral bail-ears formed therein by twisted loops, the meeting ends of said wire hoop being twisted together substantially as specified.

4. In a shipping-package, the combination with a sheet-metal body of a wood-veneer body, a wood-veneer bottom, a sheet-metal bottom having an interior flange or shoulder fitting within the sheet-metal body, and having its rim folded over the wood-veneer bottom, the rim of wood-veneer bottom projecting laterally under the end of the wood-veneer body for it to abut against, and a wire hoop surrounding the same, and embedded in the wood veneer thereby holding it securely in place, the meeting ends of said wire hoop being twisted together substantially as specified.

5. In a shipping-package, the combination of a sheet-metal body and a wood-veneer body of a removable sheet-metal head having a depending flange or shoulder fitting in the mouth of the sheet-metal body and forming a tight frictional joint therewith, and a wood-veneer cover or head secured on top of said sheet-metal cover by an interned flange connected with the sheet-metal body, substantially as specified.

6. In a shipping-package, the combination of a sheet-metal body and a wood-veneer body of a removable sheet-metal head having a depending flange or shoulder fitting in the mouth of the sheet-metal body and forming a tight frictional joint therewith, and a wood-veneer cover or head secured on top of said sheet-metal cover by an interned flange connected with the sheet-metal body, said sheet-metal cover being smaller in size than said interned flange so that it may be removed after the wood-veneer cover has been split out, substantially as specified.

7. In a shipping-package, the combination of a sheet-metal body and a wood-veneer body of a removable sheet-metal head having a depending flange or shoulder fitting in the mouth of the sheet-metal body and forming a tight frictional joint therewith, and a wood-veneer cover or head secured on top of said sheet-metal cover by an interned flange connected with the sheet-metal body, said sheet-metal cover having an annular channel or depression to permit a pointed instrument to be inserted through the wood-veneer cover for removing the same, substantially as specified.

8. In a shipping-package, the combination of a sheet-metal body and a wood-veneer body of a removable sheet-metal head having a depending flange or shoulder fitting in the mouth of the sheet-metal body and forming a tight frictional joint therewith, and a wood-veneer cover or head secured on top of said sheet-metal cover by an interned flange connected with the sheet-metal body, said sheet-metal cover having an annular channel or depression to permit a pointed instrument to be inserted through the wood-veneer cover for removing the same, and a ring or handle attached to the sheet-metal cover in said depression, substantially as specified.

602,769. WAINSCOTING AND PARQUETRY FOR HARD-WOOD FLOORS, &c. CHARLES F. PARKER, Washington Court-House, Ohio. Filed Sept. 25, 1897. Serial No. 653,080. (No model.)



Claim.—1. The combination of a suitable backing or support, wooden blocks or strips provided with kerfs in their edges extending a short distance each side of the center of such edge between the corners, and suitable binding-plates adapted to enter said kerfs for holding the blocks together, substantially as set forth.

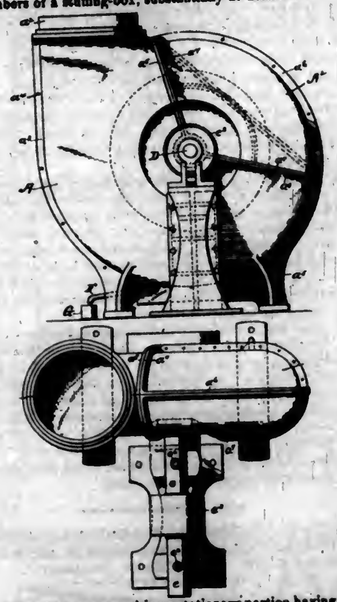
2. The combination of a suitable backing or support with wooden blocks provided with kerfs in their edges extending a short distance each side of the center of such edge and a cut-away portion or recess below said kerf, and suitable binding-plates adapted to enter said kerfs for holding the blocks together and a nail adapted to pass through said binding-plates thereby securing the whole to the backing or support, substantially as and for the purpose described.

602,770. EXHAUSTER. NATHANIEL P. PRATT, Atlanta, Ga. Filed Feb. 13, 1897. Serial No. 623,213. (No model.)

Claim.—1. An exhauster-casing comprising a stationary portion provided on one side with an entry-flue and at its periphery with an exit-flue, and a peripherally-removable portion extending to the axis of and impermeably secured to the stationary portion, the removable portion being of such size that, when removed, an opening is left, through which the blast-wheel and its shaft can be taken out without detaching either of the flues, substantially as described.

2. An exhauster-casing comprising a stationary portion provided on one side with an entry-flue and at its periphery with an exit-flue, and a peripherally-removable portion extending to the axis of and impermeably secured to the stationary portion, a blast-wheel mounted in the stationary portion opposite the entry-flue, and a stuffing-box arranged partly on the stationary portion and partly on the removable portion for preventing admission of air from without or escape of gas from within, the removable portion of the casing being of such size that, when removed, an opening is left, through which the blast-wheel and its shaft can be taken out without interference with either of the flues, substantially as described.

3. An exhauster comprising a stationary portion having an entry and an exit flue, and a removable portion, the sides of the two portions, opposite the entry-flue, being curved or bent inward to present two members of a stuffing-box, substantially as described.



4. An exhauster comprising a stationary portion having an entry and an exit flue, and a removable portion, the sides of the two portions, opposite the entry-flue, being curved or bent inward to present two members of a stuffing-box, a shaft running in the stuffing-box, and a blast-wheel supported on the shaft in juxtaposition to the stuffing-box, substantially as described.

5. An exhauster comprising a stationary portion having an entry and an exit flue impermeably secured thereto, and a removable portion, the removable portion being adapted to be separated from the stationary portion without interference with any of the parts of the latter, the sides of the two portions, opposite the entry-flue, being curved or bent inward to present two members of a stuffing-box, a blast-wheel mounted within the casing and having a shaft running in the stuffing-box; the end of the shaft, opposite the entry-flue, being unsupported, substantially as described.

6. An exhauster-casing comprising a stationary portion provided on one side with an entry-flue and at its periphery with an exit-flue, and a peripherally-removable portion extending to the axis of and impermeably secured to the stationary portion, the removable portion being of such size that, when removed, an opening is left, through which the blast-wheel and its shaft can be taken out without interference with either of the flues, and a drip-pipe connected with the casing, substantially as described.

7. In an exhauster, a shaft, a blast-wheel secured thereto by solder or the like, nuts secured on one end of the shaft for holding the wheel in place, and a non-corrosive cap or casing inclosing the nuts and the end of the shaft, substantially as described.

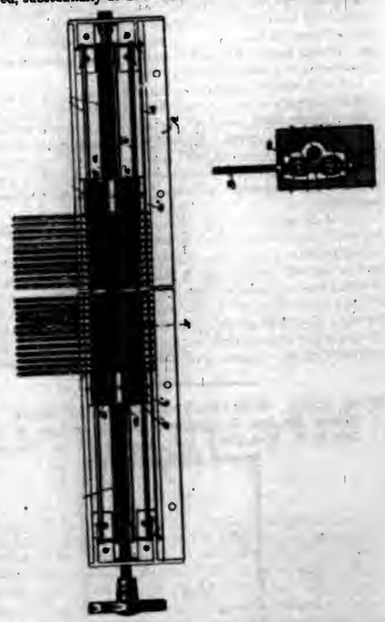
8. In an exhauster, the combination with a shaft, of a blast-wheel, a right and left hand threaded bushing secured to the hub of the wheel and to the shaft, and keys inserted between the bushing and shaft, substantially as described.

602,771. WARPER-COMB. ALONZO R. REOADES, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed July 23, 1897. Serial No. 645,663. (No model.)

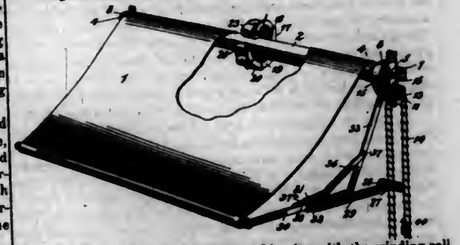
Claim.—1. In a warper-comb, a series of warp-guides having flattened shanks offset therefrom alternately in opposite directions, whereby the shanks are in alinement and the upper ends of the guides are staggered, substantially as described.

2. In a warper-comb, a series of warp-guides rounded in cross-sections at their upper ends, and having flattened shanks offset therefrom alternately in opposite directions, whereby the shanks are in alinement and the upper ends of the guides are staggered, substantially as described.

3. In a warper-comb, a supporting-stand having a longitudinal recess therein, a series of warp-guides having flattened shanks to enter said recess, and means to vary the distance between the guides, the flattened shanks of said guides being offset therefrom alternately in opposite directions, whereby while the shanks are in alinement in the longitudinal recess of the stand the upper ends of the guides are staggered, substantially as described.



602,772. AWNING. JOHN W. RICHARDS, Muscatine, Iowa. Filed Aug. 10, 1897. Serial No. 647,739. (No model.)



Claim.—1. In an awning, the combination with the winding-roll carrying the awning-sheet, of a main bracket supported intermediate the ends of the roll in a fixed position and having a pair of arms 19, with an open space therebetween, and arched under the roll and extending to a point in front thereof, a plurality of wooden rollers arranged parallel with the winding-roll and having their spindle extremities journaled in said arms 19, a separate bracket having a shank or base portion seated within the main bracket and also provided with a pair of forwardly-extending arms arched over the winding-roll, a single roller supported between said forwardly-extending arms of the upper bracket and disposed in substantial alinement with the vertical center of the winding-roll, and fastening means for detachably securing the two brackets together, substantially as set forth.

2. In an awning-frame, the combination of the front bar, an arm pivotally connected at one end to the building and carrying a slide at its other end, a second arm connected at one end to the end of the front bar and working through said slide, a lever pivotally connected at its upper end to the building and at its lower end to the inner end of the second arm, a second lever pivoted at one end to the first lever intermediate its ends and at its other end to the said slide, and a spring-actuated hook to engage the slide and lock the frame against folding, substantially as described.

3. In an awning-frame, the combination of the front bar, an arm 29 pivotally connected at one end to a building, a second arm 30 slidably connected with the arm 29, a lever 33 pivotally connected at its upper end to a building and at its lower end to the inner portion of the arm 30, and a bar or lever 36 pivoted at one end to an intermediate point of the lever 33 and at its other end to the slidable connection between the parts 29, 30, and means to lock the parts against folding, substantially as described.

602,773. CONVERTIBLE PIANO STOOL AND CHAIR. LEROY H. ROST and GILES C. ROST, Fostoria, Ohio. Filed Sept. 20, 1897. Serial No. 652,307. (No model.)



Claim.—1. In a convertible chair and stool, the combination of an extensible seat-frame, a back hinged to one member of the seat-frame, and means operatively connecting the hinged back to said extensible seat-frame, substantially as and for the purposes described.

2. In a convertible chair and stool, a sectional seat-frame consisting of a base member and an extensible member slidably fitted thereto, in combination with a back adjustably attached to the slidable member of the seat-frame, and operative connections between said adjustable back and sliding seat-frame member to sustain the back in its lowered position, substantially as and for the purposes described.

3. In a convertible chair and stool, the sectional seat-frame consisting of a base member and an extensible member slidably fitted thereto, in combination with a back hinged to the slidable member of the seat-frame, links operatively connected to the sliding seat-frame member and to the slidable back, and an attaching-spring attached to the respective members of the seat-frame, substantially as and for the purposes described.

4. In a convertible chair and stool, a sectional seat-frame consisting of a base member provided with inclines or cams and an extensible member slidingly fitted to the base member, in combination with an adjustable back hinged to the sliding member of the seat-frame, and links slidably attached to the adjustable back, connected with the sliding member of the seat-frame and provided with projections arranged to ride against the cams of the base member of the seat-frame in raising or lowering the back and extending or retracting the slidable member of the seat-frame, substantially as and for the purposes described

5. In a convertible chair and stool, a sectional seat-frame consisting of a base member and an extensible member slidably connected thereto, and locking devices for holding the slidable seat member in its retracted or projected positions, in combination with an adjustable back, and operative connections between said adjustable back and the seat-frame, substantially as and for the purposes described.

6. In a convertible chair and stool, the combination of a sectional extensible seat-frame, an adjustable back, means for sustaining said back in either its raised or lowered positions, and a vertically-adjustable seat carried by one member of said sectional seat-frame, substantially as and for the purposes described.

7. In a convertible chair and stool, the combination of a sectional seat-frame having one member thereof slidably connected to the other member, a vertically-adjustable seat carried by said slidable member of the seat-frame, means for locking said seat in its raised or lowered positions with relation to the seat-frame, an adjustable back, and means for sustaining said adjustable back in either its raised or lowered positions, substantially as and for the purposes set set forth.

8. The combination with a seat-frame and a vertically-movable seat, of the angularly-slotted plates carried by said seat and provided with offsets at right angles to vertical slots in said plates, rails attached to the seat-frame and provided with slotted keepers, a seat-lock having bars fitted in the slotted keepers and engaging with the angularly-slotted plates, lifting-springs for raising the seat, and a holding device for the seat-lock, substantially as and for the purposes described.

9. The combination with a seat-frame and a vertically-adjustable seat thereon, of fixed rails on the seat-frame, slotted keepers carried by said fixed rails, angularly-slotted plates rigidly attached to the vertically-adjustable seat, a seat lock having its cross-bars fitted in the keepers and the angularly-slotted plates and provided with a stem which protrudes beyond the seat-frame, and a spring to hold the seat-lock in engagement with the offsets of the angularly-slotted plates, substantially as and for the purposes described.

10. In a convertible chair and stool, the combination with a standard, of a two-part seat-frame having one member mounted on the standard and its other member slidably fitted to said first-named member, a seat-back mounted for adjustment to lie in substantially the horizontal plane of the seat-frame, means for locking the sliding seat-frame in fixed relation to the base member of the seat-frame, and means for sustaining the adjustable seat-back in its horizontal or upright positions, substantially as and for the purposes described.

11. In a convertible chair and stool, the combination of a standard, a two-part seat-frame, a hinged back, operative connections between the hinged back and one member of the seat-frame, and a vertically-adjustable seat mounted on the member of the seat-frame to which the hinged back is connected; substantially as described.

12. The combination with a base, of a seat-carrying standard provided with longitudinal channels, pivoted pawls within the channels, levers mounted on the standard within other channels thereof, a toothed adjuster connected loosely with said levers, and an adjusting-lever normally free from the toothed adjuster and adapted to engage therewith to turn the latter and move said levers to retract the pawls, substantially as and for the purposes described.

13. The combination with a base provided with holding-plates, of an angular non-rotatable standard fitted for vertical adjustment within said base, holding-pawls pivoted to the standard and arranged to engage with said holding-plates of the base, vertical levers fulcrumed to the standard and pivoted to said holding-pawls, a toothed adjuster loosely mounted on the standard and having pivotal connections with said levers, and a spring-controlled adjusting-lever arranged to be normally free from engagement with the toothed adjuster and having a prong which may be thrown into engagement with said adjuster, for the purposes described substantially as set forth.

14 The combination with a base having a lifting-spring and toothed holding-plates, of a seat-frame, a non-rotatable vertically-adjustable standard fitted in said base, a spindle passing through the standard and pivoted to the seat-frame, a casting having a clip attached to said standard and forming a bearing for the seat-frame, holding-pawls mounted on the standard to engage with the holding-plates of the base, an adjuster also mounted on the standard and on the spindle, levers operatively connected with said adjuster and with the holding-pawls, and an adjusting-lever carried by the seat-frame and arranged to engage with said pawl-adjuster, substantially as and for the purposes described.

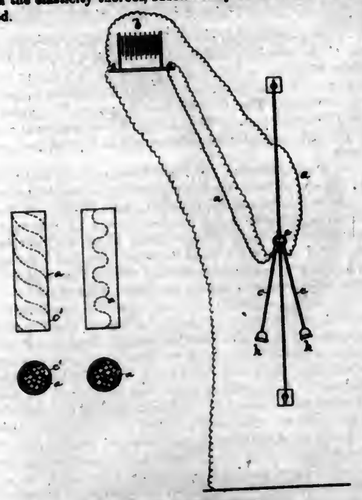
15. The combination with a seat-frame, of a vertically-adjustable seat, the plates having the vertical slots thereof provided with offsets and carried by the seat-frame, a seat-lock independent of the seat proper and slidingly confined on the seat-frame to normally lie in the horizontal plane thereof and engaging with said angularly-slotted plates to sustain the seat in its raised or lowered positions, and a holding-spring fitted against the seat-lock and the seat-frame, substantially as and for the purposes described.

16. The combination with a chambered base, and a vertically-adjustable seat-carrying standard, of the ratchet-teeth disposed in the base on opposite sides of the standard, the oppositely-acting pawls fitted on the standard to engage with the ratchet-teeth, the levers arranged longitudinally of the standard, fulcrumed thereto, and connected at their lower ends to the pawls, a pawl-adjuster pivoted on the standard and connected to the pawl-adjusting levers, and means for actuating said pawl-adjuster, substantially as described.

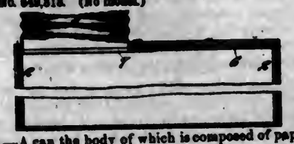
602,774. ELECTRIC MUSCULAR EXERCISER. ROBIN SANDOW, London, England. Filed Jan. 24, 1896. Serial No. 667,796. (No model.)

Claim.—The combination with an elastic-cord exerciser, of handles attached to the cords of the exerciser, wires attached to the cords and extending the length of the cords, being so united with the handles and extending the length of the cords, being so united with the cords as to be capable of extending with them so as not to inter-

fere with the elasticity thereof, substantially as and for the purpose described.

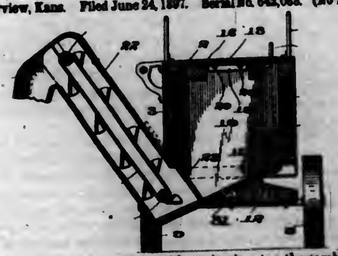


602,775. CAN. FRANK J. SCHLEICHER, St. Louis, Mo., assignor to the St. Louis Paper Box Company, same place. Filed Aug. 28, 1897. Serial No. 649,818. (No model.)



Claim.—A can the body of which is composed of paper, a lining within said body, a top composed of two sheets joined together, a neck projecting from said can-top, said neck having a flange secured between the sheets forming said top and said flange having lips struck therefrom and bent upwardly and outwardly against the uppermost of said top sheets, for the purpose of securing said neck in position, substantially as described.

602,776. PORTABLE GRAIN-ELEVATOR. THOMAS F. SCHMITT, Fairview, Kans. Filed June 24, 1897. Serial No. 642,083. (No model.)

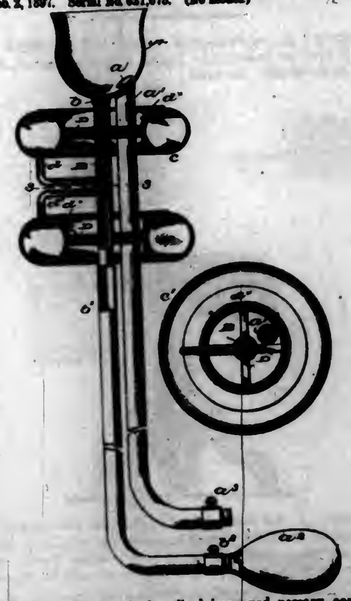


Claim.—1. In a wheeled portable grain-elevator, the combination with a body having a centrally-located hopper provided with inclined sides and a bottom inclining downwardly toward one side of the machine, of a tilting platform over the hopper and an elevator comprising a chute leading into the hopper at the bottom thereof, a gate for regulating the supply of grain to the chute, and an endless carrier operating in said chute, substantially as described.

2. In a portable wheeled grain-elevator, the combination with a body having a flat top provided with a central opening, of a tilting platform fitted in said opening, catch mechanism for holding the platform in horizontal position, a hopper located directly under said platform, an elevator leading from said hopper, fixed inclines leading up to the top of the hopper on opposite sides thereof, and supplemental hinged and folding extensions of said inclines, for the purpose and substantially as described.

3. In a portable grain-elevator, in combination with a body mounted on wheels, a hopper located centrally intermediate the front and rear wheels, a dumping-platform over said hopper, an elevator connected with said hopper, fixed or main inclines on opposite sides of the dumping-platform, and supplemental inclines hinged to the lower ends of the main inclines and adapted to be extended to the ground or folded upon said main inclines, substantially as described.

602,777. PESSARY. JOSEPH W. SIMMONS, Rogers, Ark. Filed Feb. 2, 1897. Serial No. 621,673. (No model.)



Claim.—1. The herein-described improved pessary, comprising a cup adapted to embrace the cervix and having a lower hole or opening therein, a tube leading from said hole or opening, a compressible bulb removably secured to the end of said tube, and coincident rings adapted to prevent lateral movement of said cup, as and for the purpose set forth.

2. The herein-described pessary, comprising a cup adapted to embrace the cervix, a supporting-stem therefor, coincident inflatable rings secured to said stem and encircling the same, means connected to said stem for inflating the rings, and a pneumatic attachment communicating with said cup, as and for the purpose set forth.

3. The herein-described improved pessary, comprising a cup adapted to embrace the cervix, a stem secured thereto, coincident inflatable rings adapted to support the same and of different degrees of elasticity, means for inflating said rings, and a pneumatic attachment communicating with said cup, as and for the purpose set forth.

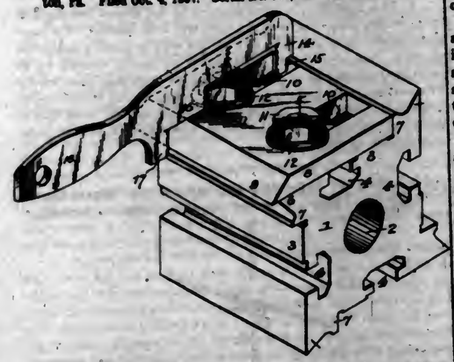
4. The herein-described improved pessary, comprising a cup adapted to embrace the cervix, a hollow stem supporting the same, inflatable rings connected to said stem, tubes leading from said stem to said rings, means for inflating said rings connected to said stem, and a pneumatic device connected to said cup, as and for the purpose set forth.

5. The herein-described improved pessary, comprising a cup adapted to embrace the cervix, a stem supporting the same, arms secured to said stem having overhanging flanges, inflatable rings secured thereto, means for inflating said rings, and a pneumatic device connected to said cup, substantially as and for the purpose set forth.

6. The herein-described improved pessary, comprising a cup adapted to embrace the cervix, a hollow stem, inflatable rings connected to said stem and having communication therewith, a tube leading from said stem having a stop-cock near one end thereof, a compressible bulb secured to the free end of said tube, and a pneumatic device connected to said cup, substantially as and for the purpose set forth.

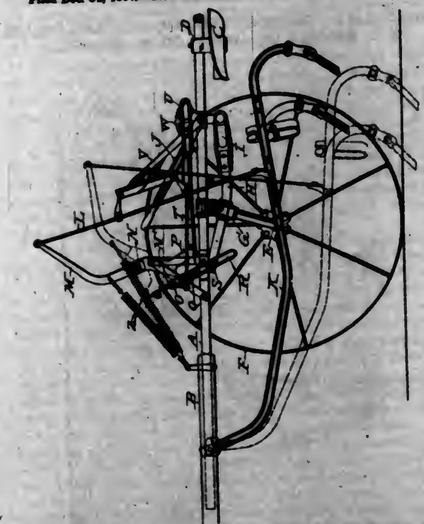
7. The herein-described improved pessary, comprising a cup adapted to embrace the cervix, and having a flexible tube leading therefrom, a hollow stem adapted to support said cup, inflatable rings carried by said stem and communicating therewith, a tube leading from said stem having a stop-cock near one end thereof, and a compressible bulb adapted to be secured to the end of either one of said flexible tubes, substantially as and for the purpose set forth.

602,778. GAGE FOR CUTTER-KNIVES. SAMUEL J. SHEARER, Milton, Pa. Filed Oct. 4, 1897. Serial No. 654,043. (No model.)



Claim.—As an improved article, a gage for the knives or cutters of rotary cutter-heads consisting in the plate cut away along one edge forming an arm with a notch in its end at the outer side, adapted to engage with a longitudinal shoulder on a cutter-head, and a shoulder opposite said arm adapted to engage with the upper side of a knife or cutter, and in rear of said shoulder formed with a lug or shoulder for determining the position of the cutting edge of the knife or cutter, substantially as described.

602,779. CULTIVATOR. BER G. SHARER, Madison, Wis., assignor to the Fuller & Johnson Manufacturing Company, same place. Filed Dec. 31, 1897. Serial No. 664,941. (No model.)



Claim.—1. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle; and a lever pivoted to the frame and connected to one end of said arm, substantially as described.

2. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle; a lever pivoted to the frame and connected to one end of said arm; a plow-beam pivoted to the frame; means for suspending said beam; and connections between said means and the opposite end of said arm for determining the position of the beams as the lever is raised or lowered.

3. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle extending forwardly and rearwardly thereof; a bell-crank lever pivoted to the frame and pivotally connected to one end of said arm; a plow-beam pivoted to the frame and extending beneath the axle; means for suspending the rear end of the beam pivotally supported upon the frame; and connections between said means and the forward end of the arm.

4. In a cultivator-plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle extending forwardly and rearwardly thereof and provided with an elongated slot or eye at its rear end; a lever J pivoted to the frame having its short arm in operative connection with said eye; a beam pivoted to the frame; and connections between said beam and the forward end of the arm.

5. In a cultivator or plow, the combination of a frame; an arched axle journaled thereon; an arm H secured to said axle and provided with an elongated eye I at its rear end; a lever J pivoted to the frame and provided at its short end with a stud or roller working in said eye; a plow-beam pivoted to the frame and extending rearwardly beneath said axle; a member N pivoted on the frame; lever M extending upwardly therefrom; rod L connecting said arm and the beam; link Q connected to said member N and provided with an elongated eye at its lower end; a connection between said eye and the forward end of arm H; and means for adjusting the member N.

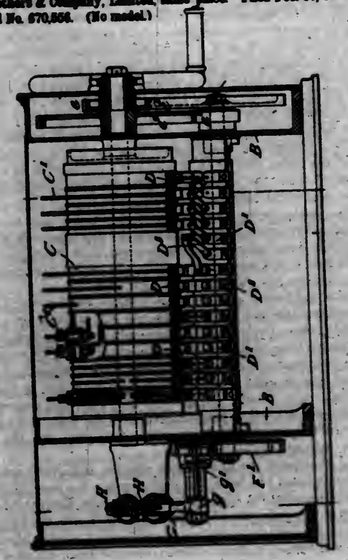
602,780. APPARATUS FOR DETERMINING FAT IN MILK. ALFRED W. STOKES, London, England, assignor to the R. A. Lister & Company, Limited, Dursley, England. Filed Oct. 27, 1897. Serial No. 656,567. (No model.) Patented in England June 24, 1895, No. 12,194.



Claim.—1. Apparatus for determining volumetrically the proportion of fat in milk, consisting of an open-ended straight glass tube having in the order named a terminal chamber, a contracted graduated length, a second chamber, a contracted portion, a third chamber and a contracted portion, said second and third chambers each of greater capacity than the first, in combination with means for closing the open ends of the tube, substantially as set forth.

2. Apparatus for determining volumetrically the proportion of fat in milk, consisting of an open-ended straight glass tube having in the order named a terminal chamber, a contracted graduated length, a second chamber, a contracted graduated portion of greater diameter than the first graduated portion, and a third chamber terminating in a contracted graduated portion, said third chamber of greater capacity than the first or second and said second chamber of greater capacity than said first, in combination with means for closing the open ends of the tube, substantially as and for the purpose set forth.

602,781. APPARATUS FOR CONTROLLING ELECTRIC MOTORS. ARTHUR J. STOPHER, London, England, assignor to the Siemens Brothers & Company, Limited, same place. Filed Feb. 16, 1898. Serial No. 670,556. (No model.)



Claim.—1. In an apparatus for controlling electric motors, the combination of a rotatable cylinder provided with contact-segments arranged circumferentially thereon, spring-contacts mounted on a fixed support and arranged to be periodically engaged by the contact-segments on the rotatable cylinder, means for rotating the cylinder, and a switch comprising two independent series of oppositely-arranged fixed spring-contacts, a pivoted switch-arm and a cam geared to revolve with the cylinder and operating to oscillate said switch-arm to alternately contact with said series of spring-contacts, substantially as described.

2. In an apparatus for controlling electric motors, the combination of a rotatable cylinder provided with contact-segments arranged circumferentially thereon, spring-contacts arranged to be periodically engaged by the contact-segments on the rotatable cylinder, means for rotating the cylinder, and a switch comprising two series of contacts, a pivoted switch-arm, and a cam geared to revolve with the cylinder and operating to oscillate said switch to cause the latter to alternately contact with said series of contacts, the relative arrangement of the contact-segments and the oscillating switch being such that the circuit for each succeeding operation on the motors is prepared but not completed till the switch has made a corresponding stroke, substantially as described.

602,782. PROTECTED RAIL-JOINT. James M. Trahes, Palestine, Tex. Filed Oct. 1, 1897. Serial No. 653,743. (No model.)



Claim.—1. In a rail-joint, the combination with the meeting ends of the two rails, of a base-plate seated under the same, provided with upwardly-projecting flanges, the fish-plates and bolts having nuts thereon, a subrail having an elevated tread portion overlapping the joint and polygonal recesses on its inner face adapted to embrace the nuts on the ends of the bolts and prevent the same from turning, and a key driven between the outer face of the said subrail and the inner face of one of the flanges of the base-plate, substantially as described.

2. In a rail-joint, the combination with the meeting ends of two rails, of a base-plate seated under the same provided with upwardly-projecting flanges, the fish-plates and securing-bolts having nuts thereon, a subrail having an elevated tread portion overlapping the joint and polygonal recesses on its inner face adapted to embrace the nuts on the ends of the bolts and prevent the same from turning, and a wedge-shaped key having a split end forming a lip turned down against the edge of the base-plate and locking the key in position, substantially as described

3. In a rail-joint, the combination with the meeting ends of two rails, the fish-plates and bolts and nuts securing the same together, of a base-plate having an upwardly-turned flange embracing the flange of one of the fish-plates on one side of the rail, and a flange extending upwardly from the other side of said base-plate provided with a beveled inner face, a nut-protector provided with recesses on its inner face shaped to fit the nuts and seated against the fish plate and a groove on its outer face, a locking key provided with a groove on its inner face corresponding with the groove on the outer face of the nut-protector when in position, and a soft-metal filling in said grooves for locking the key in place, substantially as described.

4. In a rail-joint, the combination with the ends of two meeting rails, the fish-plates and securing bolts and nuts therefor, of a base-plate seated under the joint having upwardly-projecting flanges on opposite sides of the rail, one of said flanges being provided with an extension resting between two adjacent bolt-heads and the other flange being beveled to form a wedge-shaped recess between its wall and the rails, a nut-protector having recesses in its inner face to fit the nuts, and a locking-key for holding the said nut-protector in place against the rail, substantially as described.

5. In a rail-joint, the combination with the ends of two meeting rails, the fish-plates and securing bolts and nuts therefor, of a base-plate seated under the joint having upwardly-projecting flanges, one of said flanges being provided with an extension resting between two adjacent bolt-heads, and the other flange being beveled to form a recess between its wall and the rails, a nut-protector having recesses in its inner face to fit the nuts and cylindrical holes or depressions in said recesses adapted to receive the ends of the bolts, and a locking-key driven between the flange of the base-plate and the nut-protector, substantially as described.

6. In a rail-joint, the combination with the ends of the meeting rails, the fish-plates and bolts and nuts securing the same in place, of a base-plate provided with upwardly-projecting flanges on opposite sides of the rails, one of said flanges embracing the flange of the rails, and a subrail having an elevated tread portion spanning the joint and locked in place between the rails and a flange of the base-plate, whereby the said subrail also serves as a nut-protector, substantially as described.

7. In a rail-joint, the combination with the ends of two meeting rails, the fish-plates and securing bolts and nuts therefor, of a base-plate seated under the joint having upwardly-projecting flanges on opposite sides of said rails, a nut-protector having recesses on its inner face adapted to fit the nuts, a flange projecting downwardly from said protector and resting on the base-plate, and a locking-key inserted between one of the base-plate flanges and the outer face of the nut-protector, whereby the latter is held against the fish-plate, substantially as described.

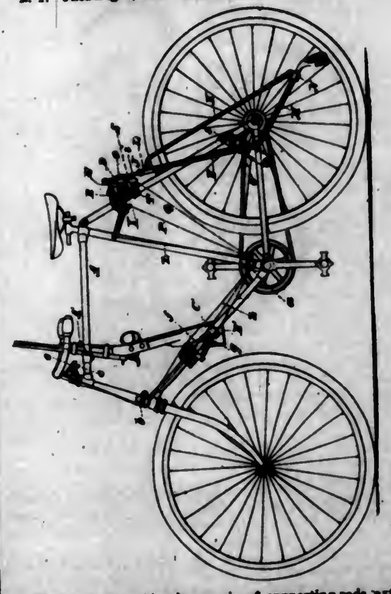
602,783. FASTENER FOR WIRE-STAYS. John G. Thomas, Lima, Ohio. Filed July 29, 1897. Serial No. 646,573. (No model.)



Claim.—1. As an improved article, a fastener for the stays of wire fences, comprising the plate formed with a central bend and the ends extended laterally outward and formed with apertures, and the opposite tongues in a line with the center of the plate, substantially as described.

2. The combination with the horizontal strands of a wire fence and the vertical stays, of the fastener consisting of the plate having a central bend in which said strands are seated, and formed with holes through which the stays pass, and the opposite integral tongues bent around the said strands, substantially as described.

602,784. BICYCLE-SUPPORT. Howard A. Trapp, New York, N. Y. Filed Aug. 6, 1897. Serial No. 647,204. (No model.)



Claim.—1. In a bicycle, a pair of supporting-rods extending downward and rearward one on each side of the rear wheel, and having the elongated spiral feathers I and the sleeves G, having the spiral grooves H and swiveled to the frame of the bicycle at opposite sides of the latter and receiving and controlling said rods both during their vertical movement and oscillatory motion along the sides of said rear wheel, combined with the crank-shaft operable by the rider and journaled below the bicycle-saddle and adjacent to the top of the forward portion of said rear wheel, crank connections intermediate said shaft and the upper ends of said rods for operating the latter from said shaft, and locking devices connected with said shaft and under the control of the rider for maintaining said rods in their upper and lower positions; substantially as set forth.

2. In combination with the bicycle, the supporting-rods extending downward one on each side of the bicycle, the crank-shaft to which said rods are connected for operating said rods, the lever operatively connected with said shaft for effecting the elevation of said rods, the recessed locking-wheel connected with said shaft, and the locking-dog engaging said wheel; substantially as set forth.

3. In combination with the bicycle, the supporting-rods extending downward one on each side of the bicycle, the crank-shaft to which said rods are connected for operating said rods, the lever operatively connected with said shaft for effecting the elevation of said rods, the recessed locking-wheel connected with said shaft and having the ratchet-teeth, and the locking-dog adapted to engage either the recesses or teeth of said wheel and lock said rods in their upper and lower positions; substantially as set forth.

4. In combination with the bicycle, the supporting-rods extending downward one on each side of the bicycle, the crank-shaft to which said rods are connected for operating said rods, the lever operatively connected with said shaft for effecting the elevation of said rods, the recessed locking-wheel connected with said shaft and having the stops adjacent to its recesses, and the locking dog adapted to engage the recesses of said wheel and to contact with said stops; substantially as set forth.

5. In a bicycle, the pair of supporting-rods, the crank-shaft to which the upper ends of said rods are connected, the recessed wheel on said shaft, and the locking-dog adapted to engage said wheel, combined with the bracket applied to the upper rear fork of the bicycle-frame and having the forwardly and rearwardly extending ears to form the bearings for said locking-dog and said crank-shaft; substantially as set forth.

6. In combination with the bicycle, the supporting-rods extending downward one on each side of the bicycle, and means for raising and lowering said rods and turning the same axially, said rods each having the tubular body portion, the upper threaded section freely entering said body portion, the sleeve revolubly on said upper section and engaging the sleeve upon the upper end of said body portion, and the nuts on said upper section at the upper and lower ends of said sleeve revolubly thereon; substantially as set forth.

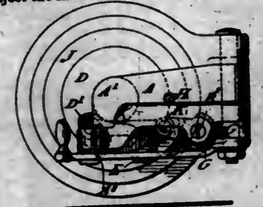
7. In combination with the bicycle, the supporting-rods extending downward one on each side of the bicycle, the crank-shaft to which said rods are connected for operating said rods, the sleeves swiveled to the frame of the bicycle and receiving and controlling said rods both during their vertical movement and oscillatory motion along the sides of the bicycle, the wheel on said crank-shaft, the foot-treadle lever *f* pivotally secured to the lower front portion of the bicycle-frame and connected with said wheel on said crank-shaft for elevating said rods, and locking devices connected with said shaft for maintaining said rods in their upper and lower positions; substantially as and for the purposes set forth.

8. In a bicycle of the "safety" type, the supporting-rods having the bent lower ends and extending downward on opposite sides of the rear wheel from a point in rear of the saddle-post and adjacent to the top of the forward portion of said rear wheel, and the sleeves swiveled to the rear portion of the bicycle-frame, said sleeves receiving and guiding said rods during their vertical and axial movements and turning with said rods during their oscillating movement along the sides of said rear wheel, combined with the crank-shaft journaled adjacent to the upper ends of said rods and over said rear wheel and below the saddle, the cranks rigid with said shaft and pivotally connected with the upper ends of said rods for operating the latter from said shaft, swivels in said rods above said sleeves and below said cranks for permitting said rods to turn axially, the foot-treadle operatively connected with said shaft for turning the latter and thereby through said cranks elevating said rods when pressure is applied on said treadle, the spiral on said swiveled sleeves for turning said rods axially during their vertical movements, and an automatic latch mechanism for locking said rods in their upward position, the relation of the parts being such that upon the release of said latch said rods will automatically descend; substantially as set forth.

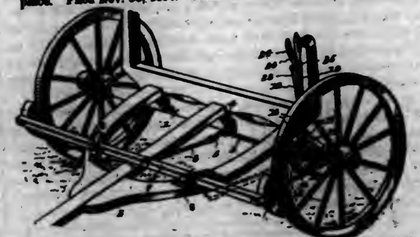
602,785. BREECH-LOADING ORDNANCE. Douglas Vickers and Sydney T. Buckham, Sheffield, England, assignors to Vickers Sons & Co., Limited, same place. Filed Oct. 4, 1897. Serial No. 654,004. (No model.) Patented in England Oct. 10, 1895, No. 19,026.

Claim.—1. In breech-loading ordnance, the combination with the breech-plug, and a pivoted carrier to which the breech-plug is pivotally attached, of a toggle-joint-lever mechanism working in a plane at right angles to the axis of the gun and composed of an arm pivoted on the plug-carrier and a link connecting said arm with the breech-plug, and gearing through which the said toggle-lever mechanism and plug-carrier are actuated, substantially as described.

2. In breech-loading ordnance, the combination with a pivoted breech-plug carrier, and a cam A^3 on the pivotal portion of said carrier, of a lever Q having an arm Q' to bear on the cartridge-rim, a wedge-piece T movable along the lever Q and its arm Q', a pivoted lever U engaged with said wedge-piece, and a spring-bolt Q^2 mounted on the lever Q and arranged to bear against the toe of the lever U, whereby on swinging the breech-plug outward the lever U is actuated by the cam A^3 so as to force the wedge-piece T along the lever-arm Q' thus starting the cartridge-shell from its seat so that in the last part of its movement the carrier A will strike the lever Q and cause it to eject the said shell, substantially as described.



602,786. WAGON-BRAKE. Isaac L. Wagner, Butler, Penn., assignor of one-half to D. J Farthing and William A. McGeean, same place. Filed Nov. 30, 1897. Serial No. 660,242. (No model.)



Claim.—1. The combination with a rod, and a wheel or disk, of a sectional lever having its parts united together by clips which are arranged in relation to the lever members to form a guideway, a slidable pawl fitted in said guideway, and a handpiece to which the pawl is connected, substantially as described.

2. The sectional lever comprising the handle-bar, the parallel plates, the clips which embrace said plates, and the bolts for uniting the parts together, combined with a rod to which the plates are loosely fitted, a wheel or disk fast with the rod and arranged between the plates, a pawl slidably fitted between the lever-plates and within the clips, and a handpiece to which the pawl is linked, substantially as described.

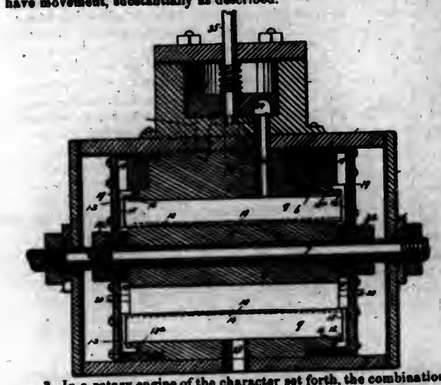
3. The combination with a rear axle, the running-gear, and a brake-beam carrying shoes, of the rod journaled on said axle and linked to the brake-beam, a wheel or disk fixed to said rod at a point outside of the running-gear, a lever fitted loosely on the rod which serves as the fulcrum for the lever and the latter adapted to turn independently of the rod and the disk so as to lie in rear of the axle when not in service, and locking devices for making the lever fast with the disk or wheel at any point within the range of adjustment of the lever, substantially as described.

602,787. ROTARY STEAM-ENGINE. Isaac Wertz, Bandon, Minn. Filed May 26, 1897. Serial No. 638,607. (No model.)

Claim.—1. In a rotary engine of the character set forth, the combination of an outer shell or casing supported upon a suitable base, an interior shell or casing having a circular piston-chamber formed therein, a shaft extending concentrically through said piston-chamber having a radially-slotted rotary piston thereon, valves or wings movably carried by the said piston and having lugs engaging the opposite ends of the piston-chamber, arms with outer angular ends fitted to the opposite ends of the said valves or wings, the latter being formed slightly concave at their back edges and provided with grooves adjacent to the opposite ends, and yielding rods seated in the back portions of the said valves or wings, and having the said arms connected to opposite ends thereof, substantially as described.

2. In a rotary engine of the character set forth, the combination of a body having a piston-chamber therein, a piston concentrically mounted in said piston-chamber, valves or wings movably carried by the said piston, and having grooves on their inner edges, arms embracing the opposite ends of the valves or wings having inwardly-extending ends standing over the outer portions of the said valves

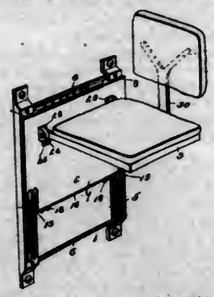
or wings, guides for engaging the inwardly-extending outer ends of the said arms, and radially-slotted end plates in which the said arms have movement, substantially as described.



3. In a rotary engine of the character set forth, the combination of a body having a piston-chamber therein, a rotary piston mounted in said body, valves or wings movably carried by the said piston, arms embracing the opposite ends of the said valves or wings, slotted end plates in which said arms have movement, clamping-plates engaging the said end plates, guides for the said arms and means set forth for controlling the ingress and exhaust of steam, substantially as described.

4. In a rotary engine of the character set forth, the combination of a rotary piston having a series of slots therein, valves or wings movably mounted in said piston, arms embracing the opposite ends of the said valves or wings, slotted end plates in which said arms have movement and clamping-plates engaging the said end plates, said clamping-plates and end plates being rotatable with the piston, substantially as described.

602,788. FOLDING SPRING-SEAT. FRANK G. WESTLAND, McCook, Nebr. Filed Mar. 31, 1897. Serial No. 630,047. (No model.)



Claim.—1. The combination with a supporting-frame, of a spring-pressed slide mounted on the same, a seat hinged on said slide so as to be turned up or down at will, and a back also pivotally mounted upon said slide and adapted to be turned out against the edge of the seat or flattened against the slide out of the path of the seat at will, substantially as described.

2. The combination with a suitable supporting-frame containing ball-runs, of a spring-pressed slide mounted on said frame and also formed with ball-runs, antifriction-balls applied in the ball-runs between the slide and frame a seat hinged on said slide so as to turn up or down at will, and a back also pivotally mounted on the slide so that it may be turned back flat against the slide out of the path of the seat, substantially as described.

3. The combination with a suitable supporting-frame, of a slide mounted thereon, a flange mounted on said slide, bolts passed through said flange, thumb-nuts applied on said bolts so as to engage said flange, a cross-bar connecting said bolts, springs connecting said cross-bar and the frame, and a seat mounted on said slide, substantially as described.

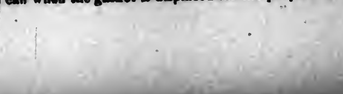
4. The combination with a supporting-frame containing ball-runs, of a slide mounted thereon also formed with ball-runs, springs connecting said slide and said frame, antifriction-balls in said ball-runs between the frame and slide, a seat hinged upon said slide so as to be turned up or down at will, a back-rest pivoted on said slide so as to be turned out against the seat, or back against the slide at will, and a catch mounted on the seat for holding the back in its operative position, substantially as described.

5. The combination with a supporting-frame, of a spring-pressed slide mounted thereon and formed with lateral apertures and apertured lugs in proximity to said apertures, a seat provided with brackets having elongated slots and a pivoted rod passed through the apertured lugs and said elongated slots; the construction being such that the said brackets may be passed through the slots of the slide when so desired to permit the same to be lowered, substantially as described.

6. The combination with a supporting-frame, of a slide mounted thereon, springs connecting said slide and said frame, adjusting-bolts connected to said springs, thumb-screws for moving said bolts longitudinally to increase or decrease the tension of said springs, and a seat hinged to said slide so that it may be turned up or down at will, substantially as described.

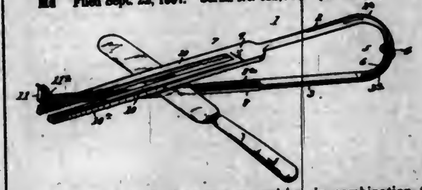
7. The combination with a supporting-frame, of a slide mounted thereon, springs connecting said slide and said frame, a seat pivoted on said slide so that it may be turned up or down at will, a back-support pivoted on said slide, a spring connecting said back-support and slide so that the former is normally held against the latter, and a catch mounted on the seat for securing the back-support in position thereon, substantially as described.

602,789. METALLIC RAILROAD-TIE. WILLIAM T. WILKINSON, Lafayette, Colo. Filed Dec. 4, 1896. Serial No. 614,508. (No model.)



Claim.—A railway-tie formed of two opposing, hollow one-piece sections overlapping at their edges to permit of vertical play, springs arranged between the sections, and vertical tie-bolts adjustably and detachably connecting said sections, substantially as described.

602,790. KNIFE-SHARPENER. JOHN R. WILLIAMS, Baltimore, Md. Filed Sept. 23, 1897. Serial No. 652,644. (No model.)



Claim.—1. A knife-sharpener comprising, in combination, two members, each consisting of a file-blade having a curved handle extension and one provided with a stop device against which the other is adapted to abut to hold it at an incline, said handle extensions being pivotally connected to form a bow-shaped handle, and a spring adapted to hold the abutting member against said stop device, substantially as described.

2. A knife-sharpener comprising, in combination, two members 2 3, each having a curved handle-section 2^a 3^a pivoted to form a bow-shaped depressible handle 5 and a file-blade 7 8, the former bifurcated to form the arms 10, and the latter provided with the lug 11 having the stop-pins 11^a under which said arms 10 are adapted to take, and a spring for normally holding said arms of the file-blade 7 against said stop-pins, substantially as described.

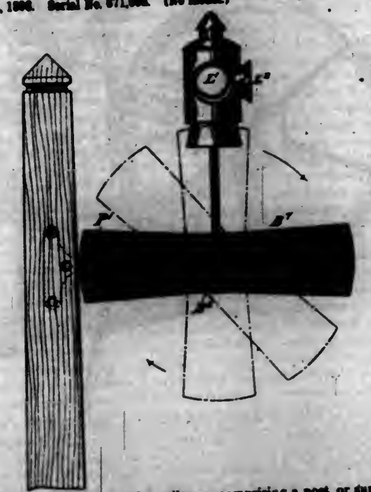
602,791. JAR OR OTHER RECEPTACLE FOR PRESERVES, &c. LUDWIG WURZBURG, London, England. Filed May 20, 1897. Serial No. 638,764. (No model.)



Claim.—1. In combination with a receptacle, a cap having an annular downward flange, fitting within the top of the same, and a compressible gasket interposed between the said parts, the said flange having a gate or way, *b'*, extending through the entire width of the flange and making communication with the interior of the can and the said space, in order that air may be admitted to the interior of the can when the gasket is displaced for the purpose set forth.

2. In combination with a receptacle, a cap having a flange that extends down into the latter, and a compressible gasket interposed between the under side of the said cap and the upper edge of the said receptacle, the said flange having a gate or way formed therein which makes communication with the interior of the can, in order that when the gasket is compressed air may be admitted to the interior of the can, substantially as, and for the purpose set forth.

602,792. RAILWAY SIGNALING SYSTEM AND APPARATUS. HENRY BAKER, New Rochelle, N. Y. Filed Dec. 8, 1896. Renewed Feb. 26, 1898. Serial No. 671,602. (No model.)



Claim.—1. A signal for railways comprising a post or support, an arm extending therefrom, a substantially straight semaphore-blade broader than the arm and fitted to rotate in a plane substantially vertical and substantially at right angles to the direction of traffic, and pivoted to the arm at such a distance from said post or support as to be substantially clear of the background of said post or support in all positions of a full revolution, and means for rotating said semaphore-blade and for stopping and holding at rest said semaphore-blade in one or more predetermined positions, substantially as set forth.

2. A block-signal for railways comprising a post or support, an arm extending therefrom, a substantially straight semaphore-blade broader than the arm and fitted to rotate in a plane substantially vertical and substantially at right angles to the direction of traffic, and pivoted to the arm at such a distance from said post or support as to be substantially clear of the background of said post or support in all positions of a full revolution, and means for rotating said semaphore-blade when changing from one position to another and for stopping and holding at rest said semaphore-blade in one position to indicate that a plurality of blocks in advance is clear and in a second position to indicate that the block in advance is clear and in a third position to indicate that the block in advance is occupied, substantially as set forth.

3. A signal for railways comprising a supporting-post, a semaphore fitted to rotate in a substantially vertical plane, and pivoted at such a distance from said post as to be substantially clear of the background of said post in all positions of a full revolution, a lantern fitted to rotate on a substantially vertical axis, said semaphore and lantern being connected so as to rotate together and give corresponding indications and said semaphore being located on the same side of said post as said lantern, and means for rotating said semaphore and lantern and for holding said semaphore and lantern at rest in one or more predetermined positions, substantially as set forth.

4. A signal for railways comprising a supporting-post, an arm extending therefrom, a semaphore-blade broader than the arm and fitted to rotate in a plane substantially vertical and substantially at right angles to the direction of traffic, and pivoted to the arm at such a distance from said post as to be substantially clear of the background of said post in all positions of a full revolution, and means for rotating said semaphore-blade and for stopping and holding at rest said semaphore-blade in one or more predetermined positions, and a lantern on the same side of the post as the semaphore-blade and arranged to give corresponding indications, substantially as set forth.

5. A signal for railways comprising a visual indicator giving signals by different positions thereof, a motor for the indicator, a locking device, a part at all times connected to and moving with the indicator, constructed to be engaged by the locking device in positions corresponding with the different positions of the indicator, and a commutator controlling the locking device so as to lock the indicator in predetermined positions to indicate the condition of the track, substantially as set forth.

6. A signal for railways comprising a visual indicator, an electromotor for said indicator, a locking device for the indicator having a locking-piece whereby the indicator is held at rest in one or more predetermined positions, and a circuit make and break combined motor starting and stopping device actuated by said locking-piece, the circuit of said motor having a single break therein controlled by said make-and-break device, substantially as set forth.

7. A signal for railways comprising a rotating visual indicator, a motor for rotating said indicator always in the same direction, a part moving with said indicator, a movable locking-piece engaging with said part to stop and lock the indicator in one or more predetermined positions of the indicator, a motor starting and stopping device controlled by the movement of said locking-piece so that the withdrawal of said locking-piece starts the motor and the engagement of said locking-piece stops the motor, and means for withdrawing the locking-piece and for putting the locking-piece in condition for engagement with said part moving with the indicator, substantially as set forth.

8. A signal for railways comprising a rotating visual indicator, a motor for rotating said indicator, a part moving with said indicator, a movable locking-piece engaging with said part to stop and lock the indicator in one or more predetermined positions of the indicator, an electromagnet for withdrawing said locking-piece, continuously-acting means tending to restore said locking-piece to engaging position, and a circuit make and break combined motor starting and stopping device actuated by said locking-piece and controlling the motor-actuating circuit, said motor actuating circuit having a single break therein, substantially as set forth.

9. A signal for railways comprising a visual indicator and a motor and locking device for the indicator, a motor starting and stopping device, and a commutator controlling the locking device and motor starting and stopping device so as to stop and lock the indicator in one or more predetermined positions to indicate the condition of the track, substantially as set forth.

10. A signal for railways comprising a visual indicator and a motor and locking device for the indicator, a motor starting and stopping device controlled by the movement of said locking device, and a commutator controlling the locking device so as to lock the indicator in one or more predetermined positions to indicate the condition of the track, substantially as set forth.

11. A block-signal for railways comprising a visual indicator adapted to assume three positions, indicating respectively "safety," "distant danger" and "home danger," said indicator being normally in the home danger position, a commutator connected at all times to the indicator, a circuit controlled at the track-section in rear of the indicator and adapted to be also controlled at the section guarded by the indicator for starting the movement of the indicator from the home danger position, and another circuit thrown into action by the movement of the indicator and commutator and adapted to be controlled a plurality of sections in advance, to carry said indicator past the distant danger position, and a circuit for continuing the motion of the indicator after it has been started from home danger to distant danger, independently of the first-named circuit, and for continuing the movement of the same from distant danger to safety after it has been carried beyond the distant danger position, independently of the last-named circuit, substantially as set forth.

12. In a block-signal for railways, in combination, an indicator and a commutator, means for actuating the indicator and commutator, and a locking device for the indicator controlled by a train to unlock the indicator, said actuating mechanism being relieved from the control of said train by the unlocking of the locking device and the initial movement of the indicator, and controlled by the commutator through circuits not under the control of said train to complete the movement of the indicator, substantially as set forth.

13. In a block-signal for railways, in combination, an indicator and a commutator connected to move together, a motor and locking device for the indicator and commutator, means under the control of a train for unlocking said locking device and starting the motor, and means under the control of the commutator independently of said train for controlling the motor and locking device to complete the movement of the indicator, substantially as set forth.

14. A signal for railways comprising an indicator and a commutator, means for moving and locking the indicator whereby said indicator may be moved into and locked in one or more predetermined positions, and a circuit make and break device controlling the moving and locking means to unlock and start the indicator, said circuit

make and break device being relieved from the control of the indicator by the unlocking and initial movement of the indicator, and said indicator being controlled by the commutator through circuits not under the control of said circuit make and break device to complete the movement of the indicator, substantially as set forth.

15. A signal for railways comprising a movable visual indicator free from tendency to movement while at rest, a circuit make and break device, an engaging device actuated by said circuit make and break device, whereby the signal is held in one or more predetermined positions, a motor for said indicator in a circuit controlled by said engaging device, whereby the movement of said engaging device actuates the motor to move the indicator, and a commutator connected to the indicator whereby the circuit of the engaging device is controlled while the indicator is passing its one or more indicating positions, the motor-actuating circuit being controlled by the engaging device while the signal is moving through all positions intermediate of its position or positions of indication, substantially as set forth.

16. A signal for railways comprising a visual indicator and means for moving the same, a single locking-piece for the indicator adapted to lock the indicator in different positions thereof to give different indications as to the condition of the track, and a commutator connected to and moving with the indicator and controlling the locking-piece, substantially as set forth.

17. A signal for railways comprising a movable visual indicator free from tendency to movement while at rest, a motor for the indicator, a movable locking device for the indicator, and a motor starting and stopping device controlled by the locking device to energize the motor after the indicator has been unlocked and to deenergize the motor when the indicator is locked, substantially as set forth.

18. In combination, an actuating electric circuit, two batteries, electromagnets in circuit with each battery, battery-contacts connected with each battery, and circuit-contacts for each battery, a contact for each battery being controlled by an electromagnet of the other battery, whereby either battery may be actively connected in the circuit until the current supplied falls below a predetermined point and will thereupon connect the other battery actively in said circuit, substantially as set forth.

19. In combination, an actuating electric circuit, two batteries, an electromagnet connected in a shunt-circuit with one of said batteries and another electromagnet connected in a shunt-circuit with the other of said batteries, and contacts controlled by said electromagnets, the contacts of each battery controlled by the electromagnet of the other battery, whereby either one of said batteries is maintained in the actuating-circuit until the current supplied by said battery falls below a predetermined point and then is cut out and the other battery connected in the actuating-circuit, substantially as set forth.

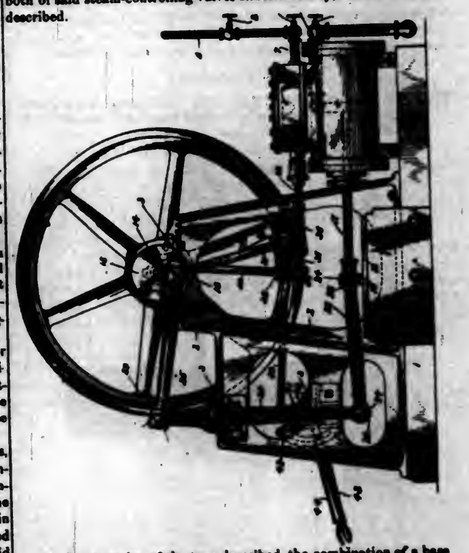
20. In combination, an actuating electric circuit, two batteries, an electromagnet connected in a shunt-circuit with one of said batteries and a make-and-break device in said shunt-circuit, an electromagnet connected in a shunt-circuit with the other of said batteries and a make-and-break device in the latter shunt-circuit, the make-and-break device in each shunt-circuit being controlled by the electromagnet in the other shunt-circuit, and other circuit make and break devices controlled by said electromagnets, whereby one of said batteries is maintained in the actuating-circuit until the current supplied by said battery falls below a predetermined point and then said battery is cut out and the other battery connected in the circuit, and the electromagnet in the circuit with the active battery breaks the shunt-circuit of the electromagnet of the cut-out battery, substantially as set forth.

602,793. PROCESS OF PRESERVING ALIMENTARY SUBSTANCES, &c. ALBERT L. LAWTON and ARTHUR W. LAWTON, New York, N. Y. Filed Dec. 31, 1897. Serial No. 665,180. (No specimens.)

Claim.—The process of preserving alimentary substances, which consists in subjecting them to the action of a gaseous mixture, composed of nitrogen carbonic oxid and oxygen in substantially the proportions specified.

602,794. ENGINE. JOSIAH PERRITT, San Francisco, Cal. Filed Dec. 31, 1896. Serial No. 617,613. (No model.)

Claim.—1. In an engine, the combination with a base and frame consisting of side plates or standards, of horizontally-disposed cylinders mounted on said base and arranged on opposite sides of the standards, pistons moving within said cylinders, valves directly over and controlling the supply of steam to said cylinders, piston-rods connected to the pistons, a vertical walking-beam mounted on a stub-shaft on the exterior side of each standard, side rods connecting the lower ends of the said beams with the piston-rods, a horizontal shaft mounted in bearings in the upper ends of the standards and located between the said cylinders and beams, a fly-wheel mounted on said shaft between the standards, connecting-rods attached to the upper ends of the walking-beams and to the said horizontal shaft and adapted to rotate said fly-wheel, and valve-operating mechanism connected to the opposite ends of the said horizontal shaft for operating both of said steam-controlling valves simultaneously, substantially as described.



2. In an engine of the type described, the combination of a base and frame consisting of two side plates or standards rising therefrom, horizontally-disposed cylinders mounted on said base at opposite sides of the standards, pistons reciprocating within said cylinders, rods attached to said pistons, a vertical walking-beam mounted on a stub-shaft on the exterior side of each standard and having arms of unequal length, side rods connected to the lower ends of the longer arms of the said walking-beams and to the piston-rods, a horizontal shaft located between the cylinders and beams and mounted in bearings in the upper ends of the standards and carrying intermediate of its length between said standards a fly-wheel, a crank-disk secured upon each end of the shaft and provided with crank-pins, and connecting-rods between the crank-disks and the upper ends of the short arms of the walking-beam, said crank-disks and connecting-rods being arranged exteriorly of each standard, substantially as described.

3. In an engine of the type described, the combination of a base and a frame comprising two side standards rising therefrom, a pair of horizontally-disposed cylinders mounted on said base at opposite sides of the standards, cross-heads carried by the piston-rods, horizontally-disposed cross-head guides in which the said cross-heads operate, a pair of vertical walking-beams arranged at opposite sides of the base and mounted on stub-shafts projecting from exterior sides of the frame-standards, valves controlling the steam-supply to said cylinders, side rods connecting said cross-heads and the lower ends of said walking-beams, a horizontal shaft mounted in the upper ends of said standards between the cylinders and beams, a fly-wheel on the said shaft between the standards, crank-disks on the opposite end of the said shaft, rods connecting the upper ends of the walking-beams with said crank-disks, eccentrics mounted on the horizontal shaft inside of the standards, a fly-wheel on the said shaft between the eccentrics, and means operatively connecting the said eccentrics and controlling-valves, substantially as described.

4. In an engine of the type described, the combination of a base and frame consisting of two side standards rising therefrom, a pair of horizontally-disposed cylinders mounted on said base at opposite sides of the standards, each cylinder being provided with a steam-chest, steam-supply pipes connecting the steam-supply chest with a common steam-supply, a piston in said cylinders provided with piston-rods, a valve operating within each steam-supply chest and adapted to control the supply of steam to the cylinders, said valves being provided with exteriorly-projecting stems or rods, cross-heads attached to the rods and moving in cross-head guides, a pair of vertically-disposed walking-beams having arms of unequal length and mounted on stub-shafts projecting from the opposite exterior sides of said standards, side rods connecting the longer lower arms of said beams and the cross-heads, a horizontal shaft rotatably mounted in bearings in the upper ends of said standards and located between the beams and cylinders, crank-disks attached to the ends of the shaft and arranged on the exterior sides of the standards, rods connecting said disks to the shorter upper arms of the walking-beams, a fly-wheel mounted on the horizontal shaft between said standards, a pair of eccentrics also mounted on said shaft between the frame and standards on opposite sides of the fly-wheel, a pair of depending eccentric-rods attached to each pair of eccentrics, links carried at the lower ends of said eccentric-rods, and connections between said links and valve stems or rods, substantially as described.

5. In an engine of the type described, the combination of a base, a frame consisting of two standards rising therefrom, a pair of horizontal cylinders mounted on said base at opposite sides of the frame, each cylinder being provided with a steam-chest, valves in said steam-chests provided with exteriorly-projecting valve-rods, a piston in each cylinder provided with a piston-rod carrying a cross-head movable in cross-head guides on the frame, a pair of vertical walking-beams having arms of unequal length and mounted on stub-shafts projecting from the exterior sides of the frame-standards, side rods connecting the lower or longer arms of said walking-beams with the cross-heads, a horizontal shaft mounted in bearings in the upper ends of the frame-standards and located between said cylinders and beams, crank-disks secured to the outer ends of said shaft, rods connecting said disks with the upper shorter arms of said walking-beams, a pair of eccentrics attached to said shaft between the frame-standards and provided with depending arms or rods arranged in pairs, a single link located on the exterior side of the frame-standards and connected to the lower ends of the arms or rods depending from the eccentrics, a link-block held to slide within each of said links, a rock-shaft mounted in the frame-standards and provided with bell-crank rocker-arms secured to the valve-stems, and means located between the said standards for shifting said links, substantially as described.

6. In an engine of the type described, the combination of a base, a frame consisting of two side standards rising therefrom, a pair of horizontally-disposed cylinders mounted on said base at opposite sides of said standards, said cylinders each being provided with a steam-chest and valves therein for controlling the supply of steam, a piston in each cylinder provided with a piston-rod, a cross-head secured to each piston-rod and operating in cross-head guides on the frame, a pair of vertical walking-beams at opposite sides of the engine and mounted on stub-shafts projecting from the exterior sides of each frame-standard, side rods connecting the lower arm of each walking-beam with the adjoining cross-head, a horizontal shaft rotatably mounted in bearings in the upper ends of said standards and located between the cylinders and said beams, cranks secured to the outer projecting ends of said shaft, rods connecting said crank-disks with the upper ends of said walking-beams, eccentrics mounted on the shaft between the said frame-standards and provided with depending eccentric arms or rods arranged in pairs on opposite sides, a single link located on the exterior side of each frame and connected to the lower ends of each pair of eccentric arms or rods, link-blocks sliding in said links, a rock-shaft arranged between the frame-standards and provided with rocker-arms rotatable thereon, radius-rods connecting the rocker-arms to said valves, a tumbling-shaft provided with a plurality of rocker-arms, saddles carried by said links, rods connecting said saddles to the rocker-arms upon the tumbling-shaft, a lever connected with said shaft between the frame-standards, and means to lock the lever for regulating the cut-off of the valves, substantially as described.

7. In an engine of the type described, the combination of a base, a frame consisting of side standards rising therefrom, a pair of horizontally-disposed cylinders mounted on said base at opposite sides of the standards, each cylinder being provided with a steam-chest and controlling-valve operating therein and also with a valve-stem, pistons operating in said cylinders and provided with rods connected to cross-heads movable in cross-head guides on the frame, a pair of vertical walking-beams having arms of unequal length, said beams being mounted on stub-shafts projecting from the exterior side of each frame-standard, side rods connecting the lower longer arms of the beams to said cross-heads, a horizontal shaft rotatably mounted in bearings in the upper ends of said frame-standards between the cylinders and said beams, crank-disks attached to the projecting ends of said shaft, rods connecting said crank-disks with the upper shorter arms of the walking-beams, a fly-wheel mounted on said horizontal shaft between the frame-standards, a pair of eccentrics also mounted on said shaft and on each side of the fly-wheel and between the same and the standards, crank-disks secured to the outer projecting ends of said walking-beams, eccentrics mounted on the shaft between the said frame standards and provided with depending pairs of eccentric arms or rods having a single link connected to the lower ends of each pair, link-blocks sliding in said links, a rock-shaft mounted between said standards and provided with rocker-arms, radius rods connecting said rocker-arms and valve-stems, a tumbling-shaft also provided with rocker-arms, saddles carried by the links, rods connecting said saddles with the rocker-arms of the tumbling-shaft, a lever adapted to rotate said rocker-shaft and arranged between said frame-standards, a segmental rack carried by one of said standards, and a pawl or latch carried by the lever adapted to engage with the teeth of said rack and thus regulate the cut-off valves, substantially as described.

602,795. PROCESS OF AND COMPOSITION FOR PRESERVING EGGS. FRANKLIN C. SMITH, Los Angeles, Cal. Filed Mar. 27, 1896. Serial No. 585,092. (No specimens.)

Claim.—1. The improvement in the art of preserving eggs which consists in treating the shells with gum held in solution in a suitable vehicle and mixed with gasolene, substantially as set forth.

2. The improvement in the art of preserving eggs which consists in treating the shells with gum and soap held in solution in a suitable vehicle and mixed with gasolene, substantially as set forth.

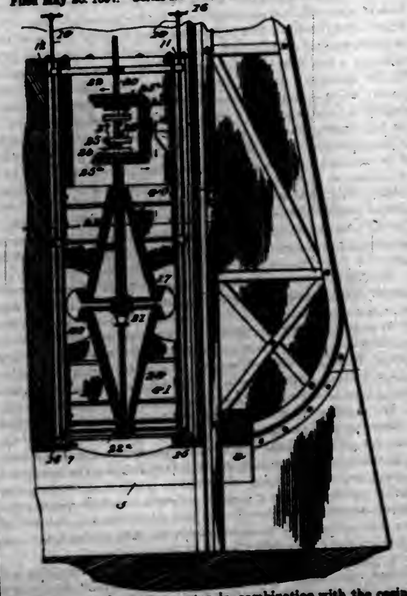
3. The improvement in the art of preserving eggs which consists in treating the shells with gum-arabic and borax soap held in solution in a suitable vehicle and mixed with gasolene, substantially as set forth.

4. The compound for preserving eggs consisting of gum-arabic dissolved in a suitable vehicle and mixed with gasolene, substantially as set forth.

5. The compound for preserving eggs which consists of gum-arabic, and soap, dissolved in a suitable vehicle and mixed with gasolene, substantially as set forth.

6. The compound for preserving eggs which consists of gum-arabic, and borax soap dissolved in a suitable vehicle and mixed with gasolene, substantially as set forth.

602,796. WAVE-MOTOR. HIRAM R. ALDEN, Portland, Oreg. Filed May 20, 1897. Serial No. 637,468. (No model.)



Claim.—1. In a wave-motor, in combination with the casing of an upright shaft supported therein, a sleeve loosely supported on said shaft, a water-wheel mounted on said sleeve, a gear fastened upon said sleeve, a train of loose gears cooperating with said fast gear and automatic clutches adapted to establish a variable connection between said water-wheel and its said shaft, so that the rotation of the shaft will be continuous and constant, whether the wheel itself be rotated to the right or the left, substantially as described.

2. In a wave-motor, in combination with the tunnel or waterway, of a gate and a hoisting device for lifting the same, and means whereby each gate will be automatically released, so as to enable it to drop by its own weight, and close the tunnels, in case of an abnormally large body of water being admitted through said tunnel, substantially as described.

3. In a wave-motor, in combination with the tunnel or waterway, of a gate and a hoisting device for lifting the same, and means whereby each gate will be automatically released, so as to enable it to drop by its own weight and close the tunnels in case of an abnormally large

body of water being admitted through said tunnel, and an escape being provided to discharge the excessive volume of water that may collect between the walls above the well-hole, substantially as described.

4. In a wave-motor, in combination with the casing, a vertical shaft supported therein and a water-wheel mounted thereon, adapted to be operated by the oscillations of a column of water, and suitable coöperative connections for said water-wheel and its shaft, of funnel-shaped sheds, 23, 24, to more effectively use the force generated by the water in its oscillations, by directing the same against the periphery of the radial blades of the water-wheel, substantially as described.

602,797. ART OF COATING FABRICS OR PERMEABLE MATERIALS WITH NITROCELLULOSE COMPOUNDS AND PRODUCT PRODUCED THEREBY. FREDERICK G. AMESBURY, London, England, assignor to the Publishing, Advertising and Trading Syndicate, Limited, same place. Filed Sept. 10, 1897. Serial No. 651,248. (No specimens.)

Claim.—1. The herein-described improvement in the art of applying surfaces of nitrocellulose compound to a flexible permeable base, which improvement consists, first, in impregnating the base with a solution of the compound sufficiently fluid to permeate it to a required depth to secure a firm hold thereon, surround the fibers and to an extent fill the interstices thereof; drying the same; superposing thereupon a solution of the compound thicker than the solution for the first coating but sufficiently fluid to be spread over the surface of the dried impregnating compound, thereby further filling the interstices of the base and partially dissolving the dried impregnating compound so as to coalesce or intimately unite therewith, whereby the coat as a whole is homogeneous and intimately united to, or anchored within, the body of the base.

2. The herein-described improvement in the art of applying surfaces of nitrocellulose compound to a flexible permeable base, which improvement consists, first, in impregnating the base with a solution of the compound sufficiently fluid to permeate it to a required depth to secure a firm hold thereon; surround the fibers and to an extent fill the interstices thereof; second, drying the impregnating compound; third, superposing upon the dried impregnating compound a coating of a solution of the compound thicker than the solution for the first coating but sufficiently fluid to be spread over the surface of the impregnating compound, thereby further filling the interstices of the base and partially dissolving the impregnating compound so as to coalesce or intimately unite therewith; fourth, drying the superposed coating; and fifth, applying one or more coatings of the such heavier solution and drying each in turn until a surface of the requisite body has been built up; whereby the coat as a whole is homogeneous and intimately united to or anchored within the body of the base.

3. The herein-described improvement in the art of applying surfaces of nitrocellulose compound to a flexible permeable base, which improvement consists, first, in impregnating the base with a solution of the compound sufficiently fluid to permeate it to a required depth to secure a firm hold thereon, surround the fibers and to an extent fill the interstices thereof; second, drying the impregnating compound; third, superposing upon the dried impregnating compound a coating or a solution of the compound thicker than the solution for the first coating but sufficiently fluid to be spread over the surface of the impregnating compound, further filling the interstices of the base and partially dissolving the impregnating compound so as to coalesce or intimately unite therewith; fourth, drying the superposed coating; and fifth, applying one or more coatings of such heavier solution and drying each in turn until a surface of the requisite body has been built up; whereby the coat as a whole is homogeneous and intimately united to or anchored within the body of the base; and then compacting the coat by heat and pressure.

4. The herein-described improvement in the art of applying surfaces of nitrocellulose compound to a flexible permeable base, which improvement consists, first, in impregnating the base with a solution of the compound sufficiently fluid to permeate it to a required depth to secure a firm hold thereon, surround the fibers and to an extent fill the interstices thereof; second, drying the impregnating compound; third, superposing upon the dried impregnating compound a coating of a solution of the compound thicker than the solution for the first coating but sufficiently fluid to be spread over the surface of the impregnating compound, further filling the interstices of the base and partially dissolving the impregnating compound so as to coalesce or intimately unite therewith; fourth, drying the superposed coating; and fifth, applying one or more coatings of such heavier solution, and drying each in turn, until a surface of the requisite body has been built up, whereby the coat as a whole is homogeneous and intimately united to or anchored within the body of the base; and then compacting the coat by heat and pressure and finally embossing it.

5. The herein-described improvement in the art of applying flexible surfaces of nitrocellulose compound to a flexible permeable base, which improvement consists in impregnating the base to the desired depth with a liquid solution of the compound; then drying the impregnating compound; then superposing thereupon one or more coatings of a heavier solution of the compound containing oil; then, upon the coating thus produced, applying one or more coatings of the compound containing less oil than is contained in the intermediate coatings, drying each in turn.

6. The herein-described process of coating a base with nitrocellulose compound, consisting in applying to the base a coating of a nitrocellulose compound containing little or no oil, and then applying thereto one or more coatings of nitrocellulose compound rich in oil, and then one or more coatings containing little or no oil, drying each coating in turn, substantially as described.

7. The herein-described improvement in the art of applying flexible surfaces of nitrocellulose compound to a flexible permeable base, which improvement consists in impregnating the base to the desired depth with a liquid solution of the compound containing little or no oil; then drying the impregnating compound; then superposing thereupon one or more coatings of a heavier solution of the compound rich in oil, drying each coat in turn; then, upon the coating thus produced, applying one or more coatings of the compound containing less oil than the immediately preceding coating; drying each coat in turn; and, finally, applying one or more finishing coatings of the compound containing materially less oil or none at all.

8. The herein-described improvement in the art of applying a surface of nitrocellulose compound to a flexible permeable base, which improvement consists in impregnating the surface of the base with a liquid solution of the compound free from pigment; then drying the impregnating coating; then superposing upon the dried impregnating coating a thin coating of a heavier solution of the compound containing coloring-matter and oil that is sufficiently fluid to intimately unite with the dried impregnating coating; then drying the superposed coating; and then successively applying coats of solution containing coloring-matter and oil, drying each in turn, until the coating has been built up to the desired thickness and color; and then superposing upon the last of said coats one or more coats of a solution of the compound free from coloring-matter, and drying the same.

9. The herein-described improvement in the art of applying a surface of nitrocellulose compound to a flexible permeable base, which improvement consists in impregnating the surface of the base with a liquid solution of the compound so as to permeate it to a required depth to secure a firm hold thereon; then drying the impregnating coating; then superposing upon the impregnating coating a thin coating of a solution of the compound containing oil and thicker than the solution for the first coating; then drying such superposed coating, and then successively applying coats of solution containing oil, drying each in turn until the coating has been built up to the desired thickness.

10. The herein-described improvement in the art of applying a surface of nitrocellulose compound to a flexible permeable base, which improvement consists in impregnating the surface of the base with a liquid solution of the compound; then drying the impregnating coating; then superposing upon the dried impregnating coating a thin coating of a heavier solution of the compound containing coloring-matter and oil; then drying such superposed coating; and then successively applying coats of solution containing coloring-matter and oil, drying each in turn, until the coating has been built up to the desired thickness and color.

11. The herein-described article of manufacture, consisting of a flexible permeable base, having a coat of nitrocellulose compound of the character described, consisting of successive intimately-united thin coatings, the first of which is of such fluidity as to impregnate the substance of the base to a required depth and secure a firm hold or anchorage to and within the substance of the base as described, and the succeeding coating or coatings of which are less fluid and are respectively coalesced with or intimately united to the preceding coating.

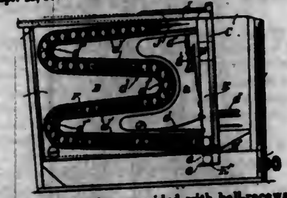
12. The product or article of manufacture herein described, consisting of a flexible permeable base having a coat of nitrocellulose compound of the character described, which coat has a central stratum relatively rich in oil and a stratum on either side of said central stratum deficient in oil, the outer stratum of which forms a continuous surface covering the face of the base, and the inner stratum of which is of such fluidity as to impregnate the substance of the base to the required depth so as to incase the fibers of the flexible base and anchor the coat firmly to and within the substance of the base, substantially as described.

13. The product or article of manufacture herein described, consisting of a flexible permeable base having a coat of nitrocellulose compound of the character described, which coat has a central stratum relatively rich in oil and a stratum on either side of said central stratum deficient in oil, the outer stratum of which forms a continuous surface covering the face of the base.

14. The article of manufacture herein described, consisting of a flexible permeable base having a coat of nitrocellulose compound of the character described attached thereto, which coat has an inner surface or stratum in contact with the base containing no oil, and a stratum rich in oil lying outside of said inner stratum; whereby the base is protected from the oil.

15. The herein-described article of manufacture, consisting of a flexible permeable base, having a built-up coat of nitrocellulose compound of the character described, consisting of successive intimately-united thin coatings as follows: a first coating which is of such fluidity as to impregnate the substance of the base to such a depth as to secure a firm hold or anchorage to and within the substance of the base as described, then a succeeding coat or coatings which are less fluid and are respectively coalesced with or intimately united to the preceding coating, and finally a finishing coating, oil being so used in the coatings that the resulting coat as a whole has a surface containing little or no oil and is rich in oil beneath its surface.

602,798. BALLOT-BOX. HENRY BRAASCH, Los Angeles, Cal. Filed Apr. 12, 1898. Serial No. 677,302. (No model.)



Claim.—1. A ballot-box provided with ball-raceways and with ball-dropping devices arranged to feed one ball at a time from the raceways, the box being adapted and arranged to tilt when the ball-dropping devices are actuated, substantially as and for the purpose set forth.

2. A ballot-box comprising a case open at the top; a frame arranged to fit loosely within such case; ball-raceways, ball-dropping devices arranged to feed one ball at a time from the raceways, and an alarm, all carried by such frame, such frame being adapted to tilt within the case when the ball-dropping devices are actuated to drop a ball, substantially as set forth.

3. A ballot-box provided with a head-receiving recess open at the top; ballot-recording devices arranged to record favorable and adverse ballots; two keys arranged within the recess and adapted to actuate the ballot-recording devices, one of such keys being arranged normally higher than the other key in order to adapt the keys for being actuated respectively by fingers of different lengths.

4. A ballot-box comprising a case open at the top; a removable frame arranged to fit within such case; ball-raceways carried by such frame and adapted to expose the balls to view when the frame is removed from the case; ball-dropping devices, one arranged to drop balls from each of said raceways; an alarm-ball; and suitable intermediate means connecting the ball-dropping devices with the alarm-ball and adapted to sound such ball when either of such ball-dropping devices is actuated.

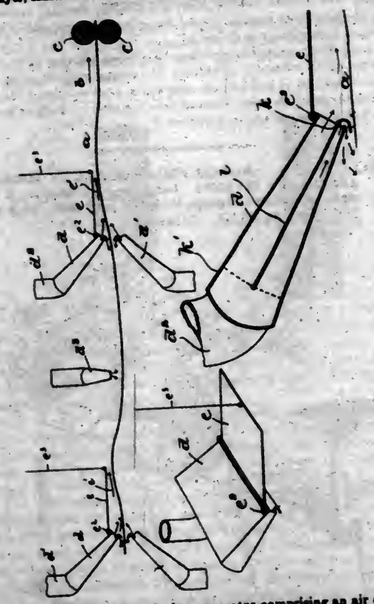
5. In a ballot-box, the combination set forth of the case open at the top and provided in its bottom with a removable drawer; a frame arranged to fit within the case and to close the top thereof, and provided with a partition; ball-raceways, one arranged upon each side of said partition, and having their outer sides closed by a transparent cover; reciprocating slides arranged to feed balls, one at a time respectively, from the raceways; keys arranged to actuate the reciprocating slides; springs arranged to return the slides to their normal position; and a suitable alarm arranged to be sounded when either of said slides is operated.

6. A ball-ballot box comprising the combination of the case; the removable frame comprising the cover adapted to partially cover the open top of the case, a partition depending from such cover, and an end depending from such cover transverse the partition and arranged to leave a recess at one end of the case; ball-raceways carried by the frame; ball-dropping devices carried by the frame and adapted to be actuated to discharge one ball at a time from said raceways respectively; keys projecting into the recess and adapted to actuate the ball-dropping devices; and a shelf arranged below the keys, substantially as set forth.

7. In a ball-ballot box, the combination set forth of the inclined ball-raceway; the vertically-reciprocating slide arranged to close the end of the raceway and provided with the ball-pocket, the lower wall of such pocket being inclined in a direction opposite the inclination of the raceway.

8. A ball-ballot box comprising a case, and a removable frame arranged to be chambered in the case and provided with a ball-raceway and a ball-feeding device arranged to feed one ball at a time from such raceway into the case, such raceway being adapted to expose all the balls to view when the frame is removed from the case.

602,799. PAPER-DRYING APPARATUS. GEORGE J. BUSH, Ayer, Mass. Filed June 18, 1897. Serial No. 641,241. (No model.)



Claim.—1. A paper-drying apparatus comprising an air delivering nozzle, a plate or air-guide adjacent to the delivering end of said nozzle and extending from the delivering end thereof, and means for feeding a web of paper along one side of the air-guide, the said guide and web forming opposite sides of an air-passage which receives a blast of air from the nozzle, the web being floated or sustained by atmospheric pressure caused by the current of air forced through said passage.

2. A paper-drying apparatus comprising an air delivering nozzle, a plate or air-guide forming one side of an air-passage which receives a blast of air from said nozzle, means for feeding a web of paper in such relation to the nozzle and air-guide as to cause the web to form the other side of said passage, and a second nozzle arranged to deliver a blast of air against the opposite side of the web.

3. A paper-drying apparatus comprising web-feeding means, an air-delivering nozzle arranged to deliver a blast of air obliquely against the web in approximately the direction of movement of the latter, and means for delivering a blast of air upon the web in substantially the opposite direction or backwardly with relation to the movement of the web immediately in advance of the point of impingement of the first-mentioned blast.

4. A paper-drying apparatus comprising web-feeding means, an air-delivering nozzle arranged to deliver a blast of air obliquely against the web in the direction of movement of the latter, and a longitudinal partition within the nozzle, formed to subdivide the blast of air passing therethrough into two parts, said partition having a deflector at one end arranged to deflect one of the parts of the blast.

602,800. TREATING RATAN. MAX P. O. DICKHUTH, Harburg-on-the-Elbe, Germany, assignor to The Firm of H. C. Meyer, Jr., same place. Filed July 16, 1898. Serial No. 686,545. (No specimens.) Patented in England Apr. 2, 1895, No. 6,790; in Belgium Aug. 31, 1895, No. 117,086; in France Dec. 10, 1895, No. 249,695; in Hungary Nov. 17, 1896, No. 7,232, and in Austria Dec. 5, 1896, No. 46/4,869.

Claim.—1. The herein-described process of removing the silicious coating of ratan, which consists in subjecting the cane before splitting to the action of a weak solution of hydrofluoric acid, substantially as described.

2. The herein-described process of removing the silicious coating of ratan, which consists in subjecting the cane before splitting to the action of a weak solution of hydrofluoric acid, washing it in water,

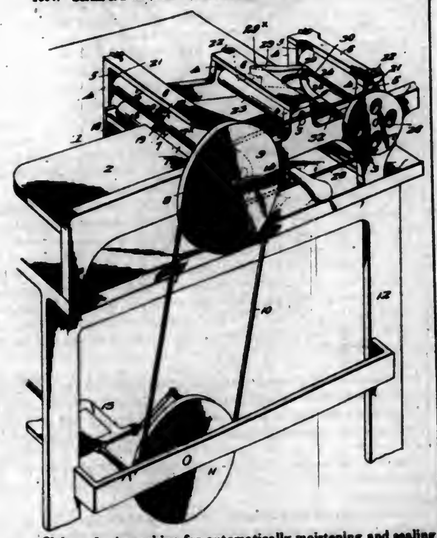
subjecting it to the action of a weak aqueous solution of an alkali, and finally washing it in water, substantially as described.

3. The herein-described process of removing the silicious coating of rattan, which consists in subjecting the cane to the action of a weak solution of hydrofluoric acid, substantially as described.

4. The herein-described process of removing the silicious coating from cane or ratan which consists in subjecting the cane successively to the actions of weakened solutions of hydrofluoric acid and of an alkali, substantially as described

5. The process of removing the silicious coating from cane or ratan which consists in subjecting the cane successively to an attenuated solution of hydrofluoric acid and a weak solution of an alkali the said chemicals being removed from the cane by washing the same in water, substantially as described.

602,801. MACHINE FOR AUTOMATICALLY MOISTENING AND SEALING ENVELOPS. JOSIAH DUPAW, Washington, D. C., assignor of one-half to Leander W. Gifford, same place. Filed May 7, 1897. Serial No. 635,546. (No model.)



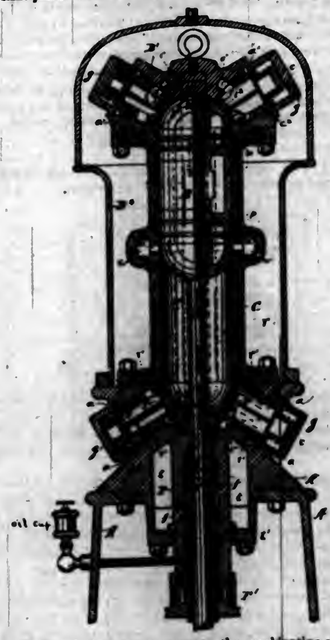
Claim.—1. A machine for automatically moistening and sealing envelops, consisting of a frame, a set of feeding-rollers, moistening devices, intermediate devices for receiving the moistened envelop and closing the flap thereof, said flap-closing devices being movable in and out to adjust them to various sizes of the envelops, and a set of rollers for receiving the envelop from the closing devices and sealing and delivering the same.

2. A machine for automatically moistening and sealing envelops, consisting of a horizontally-disposed frame, mechanism in one end of the frame for moistening and feeding the envelops in open condition, devices arranged intermediate of the frame for closing the moistened flap of the envelop, said flap-closing devices being movable in and out to adjust them to various sizes of envelops, devices in the other end of the machine for sealing and delivering the envelop, and mechanism for imparting motion to the feed-rollers, moistening devices and sealing devices.

3. A machine for automatically moistening and sealing envelops consisting of a frame having a feed table or platform, feed-rollers mounted in the frame contiguous to said platform, a moistening-roller adjacent to the feed-rollers, means for supplying moisture to said roller, intermediate devices secured to the frame for guiding the envelop and closing the moistened flap thereof, said flap-closing devices being movable in and out to adjust them to various sizes of the envelops, sealing-rollers which receive the envelop from said devices and mechanism for operating the moistening-roller, feed-rollers and sealing-rollers.

4. A machine for automatically moistening and sealing envelops, consisting of a frame having a horizontally-disposed feeding-platform, a pair of feed-rollers contiguous to said platform, a moistening-roller for moistening the flap of the envelop, said feed and moistening rollers being separated by a gap to permit the flap of the envelop to fall out of the path of the rollers, intermediate guiding and closing devices, and sealing-rollers for sealing the envelop after it leaves the guiding and closing devices, and mechanism for driving the moistening, feeding and sealing rollers.

602,802. AMMONIACAL-GAS COMPRESSOR. ARTHUR GIESLER, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Company, same place. Filed Oct. 3, 1896. Serial No. 564,502. (No model.)

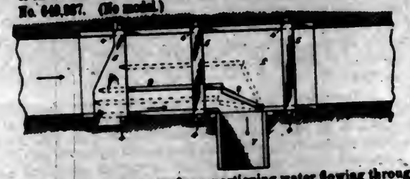


Claim.—1. In a gas-compressor, the combination of a head A', a cylinder mounted on said head, inlet and outlet valves at the upper and lower ends of said cylinder, passages *s* and *s'* in the wall of the cylinder communicating with the suction and discharge pipes through said head, and with the upper valves, and a central annular gas-chamber around the cylinder and communicating with said passages *s*, and with the cylinder through a series of ports *a* which are controlled by the piston, and through which, gas is admitted to the cylinder when the pressure behind the piston becomes less than the pressure at said ports, whereby the said piston may be maintained at a high rate of speed, substantially as described.

2. In a gas-compressor, a cylinder provided with an inlet and an outlet valve communicating with the upper end thereof, inlet and outlet passages *s* for said valves extending from the lower end of the cylinder, and a central annular gas-chamber communicating with the passages *s* and *s'*, and with the cylinder, in combination with a head upon which the cylinder is mounted, and through which, an inlet and outlet is afforded for the upper valves through the passages *s* and *s'*, and inlet and outlet valves in said head communicating with the lower end of the cylinder and having an inlet and outlet also through the head, substantially as described.

3. In a gas-compressor, the combination with a cylinder having inlet and outlet passages *s* and *s'* extending up the sides thereof, and an annular gas-chamber around the central part thereof communicating with the cylinder through a series of ports which are controlled by the piston and through which, gas is admitted to the cylinder when the pressure behind the piston becomes less than the pressure at said ports, inlet and outlet valves communicating with the upper ends of said passages *s* and *s'* and with the cylinder, and a water-jacket inclosing said cylinder and valves, of a head A' having an integral stuffing-box F, and upon which the said cylinder and water-jacket are mounted, and into which the main inlet and outlet pipes enter and communicate with the passages *s* and *s'*, inlet and outlet valves in said head communicating with the lower end of the cylinder and with the main inlet and outlet pipes, and a water-jacket in said head to cool the stuffing-box and lower valves and through which a circulation of water is maintained in water-jacket surrounding the cylinder and upper valves, substantially as described.

602,803. WATER-GATE. JOHN GREEN, Denver, Colo., assignor of one-half to Cesar Reuter, same place. Filed Aug. 30, 1897. Serial No. 649,967. (No model.)

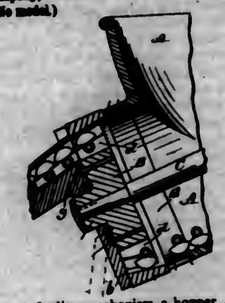


Claim.—1. In apparatus for apportioning water flowing through an irrigating-canal or other waterway, the combination of a water box or flume having a distributing-passage leading from the bottom thereof, and a separator or deflector extending from the bottom to the top of the box and from a margin of said distributing-passage into the flume-channel for deflecting a predetermined proportion of the entire stream through the lateral passage, substantially as described.

2. In apparatus for apportioning the water flowing through an irrigating-canal or other waterway, the combination of a water-box having a distributing-passage leading laterally from the bottom thereof, a lateral-swinging gate extending from the bottom to the top of the box, and from a margin of said distributing-passage into the flume channel, and means for locking the gate in a plurality of adjusted positions, substantially as described.

3. In water-distributing systems the combination of a water-box and a laterally-swinging gate composed of sections jointed together, substantially as described.

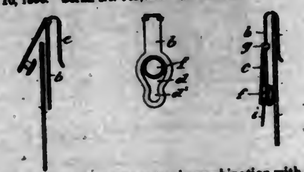
602,804. BUTTON-FEEDING MECHANISM. CHARLES H. HARDEMAN, Philadelphia, Pa., assignor to the Morley Button Sewing Machine Company, Boston, Mass. Filed Aug. 24, 1896. Serial No. 603,382. (No model.)



Claim.—1. A feeding mechanism, a hopper, a trough, and a rotating head provided with a series of notches in its outer edge to receive the shanks of the buttons, combined with a removable ring which surrounds the head, is interposed between the hopper and the trough, and is detachably connected to the hopper, substantially as and for the purposes hereinbefore set forth.

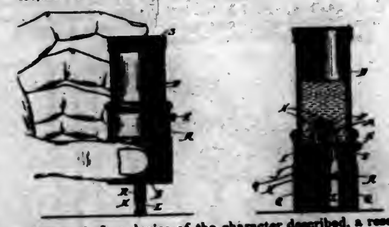
2. In a button-feeding mechanism, a button-hopper, a trough, a shaft and a button-receiving head placed upon the shaft and provided with a series of notches in its outer edge, which is beveled outwardly, combined with a surrounding ring correspondingly beveled upon its inner side, and a suitable mechanism for causing the head and the shaft to revolve, substantially as and for the purposes hereinbefore set forth.

602,805. GARMENT-SUPPORTER. WALTER B. HUMPHREY, Windsor, Conn., assignor to Ashmead G. Rodgers, same place. Filed Sept. 10, 1896. Serial No. 605,360. (No model.)



Claim.—In a garment-supporter, in combination with a body part having a keyhole-slot at the lower end, a clasp having a broadened head constructed to enter the broader part of the slot and to be held in the narrower part, integral arms on the clasp embracing the body part of the supporter, and a hook at the upper end of the supporter, the bend of the hook being of the same size as the shank of the body part of the supporter whereby the clasp is automatically swung outward is its upward sliding movement.

602,806. DEVICE FOR ATTACHING STAMPS, SEALING LETTERS, &c. WILLIAM F. JOHNSTON, Philadelphia, Pa., assignor of one-half to Roscoe Walton, same place. Filed June 5, 1897. Serial No. 639,821. (No model.)



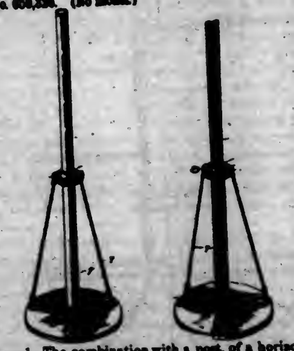
Claim.—3. In a device of the character described, a reservoir-tube having a passage-way leading therefrom, an inturned edge formed by one wall of the passage-way, a conveyer flexibly secured to the tube, a spring-plate formed with the conveyer and projecting into the passage-way, and an absorbent material secured in the conveyer, substantially as set forth.

2. In a device of the character described, a reservoir-tube, a conveyer, a spring-plate formed thereon and projecting upward through a passage leading from the reservoir, feed-strips running through the conveyer, an absorbent material confined between the strips, and means for holding the conveyer in place, substantially as described.

3. The herein-described combination of the presser-block A, a reservoir-tube fitted therein, means for forcing said tube upward, means for preventing the complete withdrawl of the tube from the block, a moistener consisting of a conveyer, a spring-plate projecting therefrom within a passage-way leading from the reservoir, feed-strips of fabric secured within the conveyer and projecting into the reservoir, an absorbent material arranged between the feed-strips, a foot formed by said strips, and a rubber tube stretched around the moistener, substantially as and for the purpose set forth.

4. In combination with a device of the character described, a moistener consisting of a conveyer, a spring-plate formed with said conveyer and projecting upward within a passage-way leading from the reservoir, an inturned edge formed by one wall of the passage-way, feed-strips running through the conveyer and projecting into the reservoir, absorbent material confined between the strips, and a rubber tube stretched around the moistener, substantially as and for the purpose set forth.

602,807. FENCE-POST. WILLIAM H. KIRBALL, Janesville, Mich., assignor of one-half to Derr Darling, same place. Filed Nov. 20, 1897. Serial No. 658,234. (No model.)

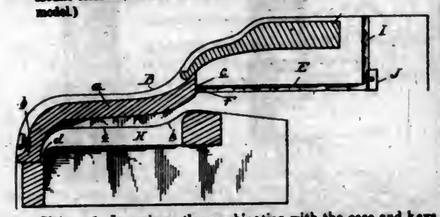


Claim.—1. The combination with a post, of a horizontal bottom plate having a socket in which is fitted the foot of the post, an upper plate fitted on said post independently of the lower plate and arranged parallel to said lower plate, and a series of stay-rods attached to the upper and lower posts, whereby the upper plate may be positioned on the post according to the ground-line and be held thereon in proper position by the stays, substantially as described.

2. The combination of a lower plate having a radially-notched socket, an upper plate also having a radially-notched aperture, an angular post fitted to said plates with its corners adapted to the notches therein, and means for holding said plates in rigid relation to said post and to each other, substantially as described.

3. The combination of a lower plate provided with a step-bearing, a post fitted to said bearing, an upper plate fitted to the post independently of the lower plate, a key fitted to the post and the upper plate to hold the latter firmly in place on the post, and stays attached to the plates, substantially as described.

602,808. FALL-BOARD FOR PIANOS. WILLIAM F. KRAGHT, Mount Clemens, Mich. Filed Apr. 21, 1897. Serial No. 633,105. (No model.)

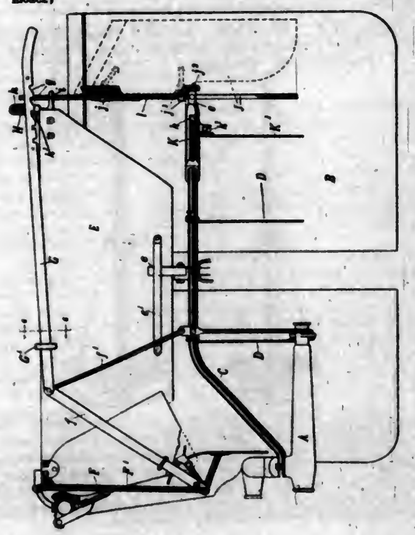


Claim.—1. In a piano, the combination with the case and keys, of a "fall-board" to cover the keys, guides in the ends of the case, in which bearings on the rear portion of the fall-board engage, and on which it may be slid into the case, and guides for the forward portion of the board, formed and arranged to permit of the downward movement of the forward edge of the board when the latter is in its forward position and to prevent said downward movement while the cover is being slid back to keep it clear of and above the keys in such sliding motion.

2. In a piano, the combination with the case, and keys, of a cover for the keys adapted to be slid backward into the case above the keys, said cover having the downwardly-projecting portion or flanges *b*, of a guide for the rear portion of the cover, and the guides H for the front portion, having the incline *h* for the purpose described.

3. In a piano, the combination with the casing and keys of the end boards or arms B, having the guide-slots E and the entering-slots I, of the fall-board having the top *a* and the front flange *b*, the roller-bearing F at the rear of the fall-board engaged in the guide-slots E of the end guides H having the horizontal guide portion *c* and the rear incline portion *h* the parts being arranged as and for the purpose described.

602,809. GRAIN-ADJUSTER FOR HARVESTERS. JOHN W. PRIDMORE, Chicago, Ill. Filed Dec. 23, 1896. Serial No. 616,700. (No model.)



Claim.—1. In combination to form the controlling device of an adjuster for use on an automatic binder to forward the butts of grain, a connection extending from the adjuster to a point convenient for adjustment by the driver, this connection consisting of two parts pivoted together, a rod uniting this connection with the adjustable grain-binder and means for locking the hand end of the connection to the harvester in different positions, substantially as and for the purpose specified.

2. In combination to form the controlling device of an adjuster for use on automatic grain-binders, a connection extending from the adjuster to the driver which connection consists of two bars that are pivoted together, a rod extending from the binder to this jointed connecting-rod, a lock upon a fixed part of the harvester, with means whereby the hand connection can be placed at different positions in the lock and the adjuster be prevented from yielding against the force of the grain but permitted to yield when the adjuster is struck by the binder.

3. In combination to form the controlling device of an adjuster for the butts of grain, a broken connection extending from the adjuster to a fixed point on the harvester convenient to the driver a rod uniting this connection with the binder and means for locking the connection in varying positions, which consists of notches in the connection, a stop on the harvester with which these notches engage and a spring pressing on the connection, and the rear notches having beveled front edges, substantially as and for the purpose specified.

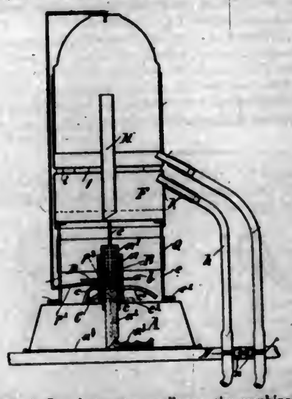
4. In combination with a grain-binder adjustable along the delivery end of the harvester, a bar connecting the binder with the harvester in a plane above that of the stream of grain, a board pivoted to this bar and means for preventing the board from swinging on its pivot, substantially as and for the purpose specified.

5. In combination with a binder adjustable along the delivery end of the elevator of a harvester, a bar connecting the binder with the harvester, one end of which slides through a fixed bearing, which bar is located in a plane practically parallel with that of the deck and above the stream of grain, a wind-board pivoted on the bar and means for locking the board in a vertical position to guide the heads of grain and to lock it in a position practically parallel with the deck, to allow long grain to freely pass beneath it.

6. In combination with a grain-binder adjustable along the delivery end of an elevator-harvester, a bar connecting the movable binder with the rear end of the upper elevator-frame, a wind-board pivoted upon this bar and extending from the head of the elevator down the deck of the binder, the delivery end of the wind-board being adjustably attached to the binder, whereby it can be positioned to and from the central line of the binder.

7. In combination with a binder adjustable along the delivery end of a harvester, a bar connecting the movable binder with the rear end of the upper elevator-frame, a wind-board pivoted on this bar, a lock to prevent the board from swinging, the lower end of the bar being connected to the binder by a sleeve, with means for adjusting the sleeve upon the binder, and a retaining-spring for the heads of the grain also attached to the adjustable sleeve, substantially as and for the purpose specified.

602,810. HOT APPLIANCE. CHARLES W. SPURR, Jr., Brooklyn, N. Y., assignor to the Hot Appliances Company, New York, N. Y. Filed Apr. 23, 1897. Serial No. 633,443. (No model.)

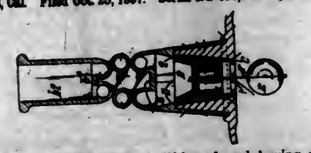


Claim.—1. In a hot-water appliance, the combination of an expansible water-chamber having an opening in its top, a burner beneath the same, a burner-regulator, a vertical connecting-rod having a lateral arm with a downward portion socketed in the expansion-chamber, and a lower arm engaging the burner regulator.

2. In a hot-water appliance, the combination of a burner, a flanged burner-regulator adapted to slide vertically upon the burner, a frictional contact-piece located near the burner, and a regulator-rod journaled near the burner having an arm or end portion rigid therewith to engage both the regulator-flange and the frictional contact-piece.

3. In a hot-water appliance, the combination of an expansible water-chamber, a burner beneath the same, a flanged burner-regulator adapted to slide vertically upon the burner, a vertical connecting-rod socketed in the expansion-chamber at the top, and having a yoke at the bottom which straddles the burner-regulator beneath its flange.

602,811. NON-REFILLING BOTTLE. GEORGE H. WILLIAMS, Los Angeles, Cal. Filed Oct. 25, 1897. Serial No. 656,300. (No model.)



Claim.—1. A flask having a coiled neck and having a liquor-intercepting device between the flask-body and the coil of the neck.

2. A flask having a portion of its neck composed of two tubular coils and having a liquor-intercepting device between the flask-body and the said coils.

3. The bottle set forth comprising the flask provided with a tapering passage leading therefrom, the tapering hollow stopper open at the top, seated in the passage and arranged to play axially therein; and the coiled neck leading from the tapering passage.

4. The bottle set forth comprising the flask provided with the nipple having the inwardly-tapering passage; the stopper consisting of the frustum of a cone seated in the tapering passage and adapted and arranged to play axially therein; and the separate coiled neck provided with a socket fastened upon the nipple substantially as set forth.

5. The bottle set forth comprising the flask provided with a tapering passage leading therefrom; the tapering hollow stopper open at the top and seated in the passage and arranged to play axially therein; the coiled neck leading from the tapering passage; and means for preventing the stopper from falling sufficiently to close the outlet through the neck when the bottle is inverted.

6. The combination of the flask provided with a nipple having an outwardly-projecting annular shoulder; an elastic packing around the nipple between the shoulder and the body of the flask; a neck provided with a socket fitted upon the nipple and provided with the inwardly-projecting shoulder; and the brace seated in the packing between the shoulders and extending diagonally through the packing and seated against the shoulders.

7. The combination of the flask-body with tapering passage leading therefrom; a tapering stopper seated in the passage and arranged to play axially therein; the neck comprising two tubular coils leading from the tapering passage; and a weight inside the flask-body and connected with the stopper by a flexible connection.

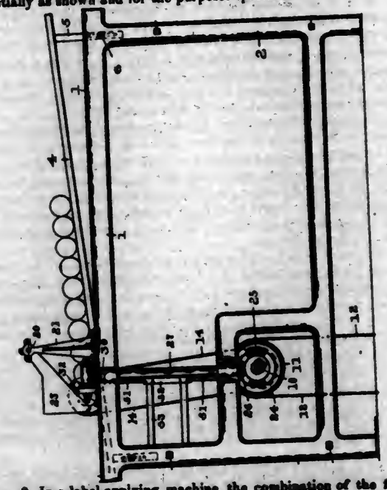
8. The combination of the flask-body with a nipple having a tapering opening therethrough; a valve-seat to seat in the tapering opening and provided with a cylindrical passage having a flaring mouth; a tapering stopper to fit the flaring mouth and having guides within the cylindrical portion of the passage; a weight inside the flask and connected with the stopper by a flexible connection; a guide at the inner end of the valve-seat for the flexible connection; and a neck comprising two tubular coils leading from the tapering passage.

9. The neck with a stopper-seat at one end; a nipple-socket at the other end and an intermediate portion formed of two tubular coils.

10. The combination of the flask having a nipple with flaring opening therein; a valve-seat having a cylindrical passage with flaring mouth and seated in the flaring opening; a neck having a stopper-seat at one end; a nipple-socket in the other end to fit the nipple; an intermediate portion formed of two tubular coils, and within the socket, legs to fit upon the valve-seat and a space between the valve-seat and the mouths of the coils for the play of the stopper; a weight inside the flask; a flexible connection connecting the weight with the stopper; and a support for said connection and to retain the weight in the flask.

602,812. LABEL-AFFIXER. FRANK W. WOERNER, Indianapolis Ind., assignor to James A. Henderson, Danville, Va. Filed Feb. 20, 1897. Serial No. 624,267. (No model.)

Claim.—1. In a label-applying machine, the combination of the frame, the bed-plate adjustably mounted, the guide-strips on said bed-plate one of which is adjustably secured, the swinging frame mounted above said bed-plate carrying the labels and adhesive substance, a pressure-roller carried on the lower end of said frame just in front of the label-applying point, the main shaft, a reciprocating arm operated by a cam on said shaft mounted with its upper end to project through an opening in said bed-plate just behind the position of the can to which the label is being applied, the can-holding mechanism, and the mechanism for operating said swinging frame, all substantially as shown and for the purposes specified.



2. In a label-applying machine, the combination of the frame, the bed-plate, the driving-shaft, the swinging frame carrying the label-receptacle and the receptacle for the adhesive substance mounted above said bed-plate, an arm on the end of the rock-shaft to which said frame is rigidly affixed, a cam on a counter-shaft with which said arm engages, whereby said frame is operated, suitable gearing connecting said counter-shaft and said operating or driving shaft, and the can-holding mechanism, substantially as set forth.

3. In a label-applying machine, the combination of the frame, the bed-plate, the label-applying device at one end of said bed-plate, means for retaining the can in position to be labeled, the bed-plate being formed with an opening behind a can when so positioned, the main shaft beneath, a cam thereon, a reciprocating arm operated thereby and projecting through said opening, whereby the other cans on said bed-plate are held back from the one being operated upon until it has been released, substantially as set forth.

4. In a label-applying machine, the combination of the frame, the can-feeding mechanism, the label-applying mechanism, a driving-shaft, a second shaft 16, journaled at one side of the point where the can receives the label, with its end adapted to rest against one end of said can, gear connecting the same with the driving-shaft, another shaft mounted to reciprocate in a bearing on the opposite side of the machine and provided with a revoluble end which is adapted to bear against the opposite end of said can, said reciprocating shaft being connected to a pitman and crank-wheel, and intermittent gear connecting the same with the driving-shaft, whereby said reciprocating shaft is operated to clamp the cans between its revoluble end and the end of the shaft on the opposite side to hold them while the label is being applied, and rotate them, and then release them, substantially as set forth.

5. In a label-applying machine, the combination of the frame, the operating mechanism and a frame carrying the label-receptacle and adhesive-applying device mounted to swing on a rock-shaft above the bed of the machine, substantially as set forth.

6. In a label-applying machine, the combination of the frame, the can-feeding mechanism, the label-applying mechanism, the main shaft, a shaft journaled with its inner end to bear against the end of the can being labeled and geared to said main shaft, a reciprocating shaft journaled in line with said last-named shaft on the opposite side of the path of said can and adapted to bear against its other end, a crank-wheel with the outer end of said reciprocating shaft connected to its crank-pin, and intermittent gear connecting said crank-wheel with said main shaft, whereby it is operated to impinge and hold, and release said can, as required, substantially as set forth.

7. In a label-applying machine, the combination, of the frame,

the holding device, a swinging frame hung above the bed-plate and carrying the receptacles for the labels and adhesive substance, and a roller on its lower end which is adapted to bear against the side of the can when being labeled, and the operating mechanism, substantially as set forth.

8. In a label-applying machine, the combination of the frame, the operating mechanism, and a can-holding device consisting of a rotary shaft adapted to impinge one end of the can, and a reciprocating shaft having a separate end mounted to rotate in a socket in its end, which is adapted to impinge the opposite end of said can, substantially as set forth.

9. In a can-labeling machine, the combination of the frame, the operating mechanism, and the can-holding mechanism consisting of the rotary shaft which is adapted to impinge on one end of the can, the reciprocating shaft formed with a socket in its end, a spring in said socket, and a separate clamping end 42 mounted to rotate in said socket on said spring, said clamping end being adapted to impinge the other end of said can, substantially as set forth.

10. In a labeling-machine, the combination of the frame, the can-feeding mechanism, the driving-shaft, the receptacle carrying the labels and adhesive substance mounted on a shaft above the label-applying point, the can-revolving shaft, a cam thereon, and an arm rigidly connected to the shaft carrying said receptacle and extending down to rest upon the face of said cam, whereby upon the completion of the labeling operation the receptacle is lifted to allow the can to escape, substantially as set forth.

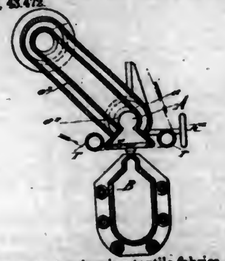
11. In a label-applying machine, the combination, of the frame, the can-feeding mechanism, the receptacle carrying the labels and adhesive substance mounted on a shaft above the label-applying point, a cam operated from the main shaft, and a connection between said cam and said receptacle, whereby it is lifted when required to release a can, substantially as set forth.

12. In a label-applying machine, the combination of the frame, the can-feeding mechanism, the frame mounted to swing and carrying a receptacle for the labels in which is mounted a spring-pressure plate to keep said labels straight and at the feeding-point, the adhesive holding and applying device, and the operating mechanism, substantially as set forth.

13. In a label-applying machine, the combination, of the frame, the can-feeding mechanism, the label-holding receptacle mounted to swing and carrying a pressure-roller on its lower end, the adhesive-applying mechanism, and the operating mechanism, substantially as set forth.

14. In a label-applying machine, the combination, of the frame, the can-feeding mechanism, the receptacle carrying the labels and adhesive substance in separate compartments, a roller for applying said adhesive, a pressure-roller also carried on said receptacle, the can holding and revolving device, gear for operating the same, and mechanism operated from the same gear for raising and lowering said receptacle, substantially as described and for the purpose specified.

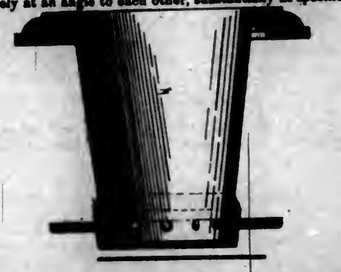
602,813. APPARATUS FOR SINGEING WOVEN FABRICS. FELIX BINDER, Moscow, Russia, assignor to the Société de la Manufacture d'Indiennes Emile Zundel, same place. Filed Nov. 6, 1897. Serial No. 657,673. (No model.) Patented in France Dec. 24, 1896, No. 262,542; in Belgium Dec. 24, 1896, No. 125,365, and in Italy Dec. 26, 1896, XXXII, 43,472.



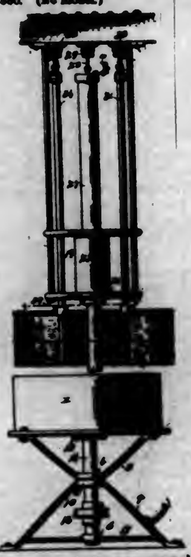
Claim.—An apparatus for singeing textile fabrics, consisting of a suction-tube provided with a flaring portion having a longitudinal aperture, a cooling-jacket extending around its upper part, a burner-tube below said aperture, and means for aspirating the flame through the textile fabric passing across the aperture of the suction-tube, substantially as set forth.

602,814. HOT-AIR ATTACHMENT FOR HEATING-STOVES. JOHN H. J. CLARE, Hammond, Ind., assignor to Louis H. Clare, same place. Filed Feb. 20, 1897. Serial No. 624,486. (No model.)

Claim.—The combination with a heating stove or furnace, of an attachment comprising a ring removably fitted to the upper end of the stove, a conico-cylindrical body of sheet metal having an outer flange at its upper end by means of which it is removably suspended from the said ring, a shallow cast-metal pan having its rim portion flaring and embracing the lower smaller end portion of the sheet-metal body and firmly attached thereto, and pipes having their outer ends extending through the sides of the stove-body and their inner ends passing through the rim of the pan and the lower portion of the body and projecting a short distance into the said body, and arranged relatively at an angle to each other, substantially as specified.



602,815. ELECTRIC FURNACE. GEORGE S. CLARK, Galveston, Tex., assignor to Sylvain Blum, Hillary Eldridge, and Daniel Johnson Clark, same place, and Sam Lazarus, Sherman, Tex. Filed Feb. 3, 1897. Serial No. 621,980. (No model.)



Claim.—1. In an electric furnace, a revoluble fusing-pot having an electrical connection therewith, a carbon electrode supported above the pot, and means for automatically drawing or feeding the material inward toward the carbon electrode as the fusing-pot revolves, substantially as set forth.

2. In an electric furnace, a horizontally-arranged revoluble fusing-pot having a flat bottom and an electrical connection therewith, a non-rotatable carbon electrode supported for vertical adjustment within the pot, and a stationary feeder for supplying material to the electric arc, said feeder having a support entirely independent of the non-rotatable carbon and being arranged in such position relatively to the latter, whereby the pot during its rotation will carry the material bodily or in bulk from a zone without the arc directly within the influence of the latter, substantially as described.

3. In an electric furnace, a revoluble fusing-pot having an electrical connection therewith, an electrode supported centrally above the pot, and a feeding device supported in a stationary position within the pot and constructed and arranged to draw the material inward toward the electrode as the pot revolves, substantially as set forth.

4. In an electric furnace, a fusing-pot having an electrical connection therewith, a carbon electrode supported centrally above the pot, a feeding device supported within the pot, and means for maintaining a relative movement between the pot and the feeding device whereby the latter will automatically draw the material in an inward direction toward the electrode, substantially as set forth.

5. In an electric furnace, a fusing-pot having an electrical connection therewith, a carbon electrode supported centrally above the pot, a spirally-curved plow plate encircling the carbon electrode, and means for maintaining a relative circular movement between the pot and the plow-plate, whereby the latter will serve to draw the material inward toward the electrode, substantially as set forth.

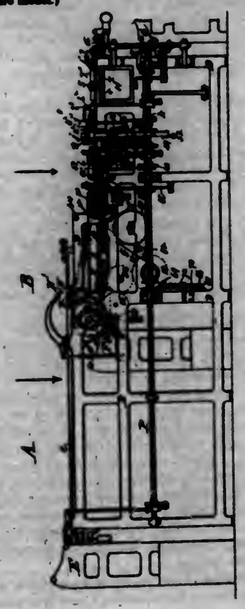
6. In an electric furnace, a stationary supporting-stand, a revoluble circular fusing-pot having a pendent bearing-bracket having a ball-bearing support on said stand, said pot also having an electrical connection therewith, a vertical drive-shaft journaled within the stationary supporting-stand and rigidly fastened at its upper end to the fusing-pot, a carbon electrode supported above the pot, and a stationary feeding device surrounding the electrode within the pot, substantially as set forth.

7. In an electric furnace, a horizontal revoluble fusing-pot having an electrical connection therewith, a stationary guide-frame supported in a plane above the fusing-pot, a vertically-movable carbon-holder slidably mounted in said guide-frame and carrying a carbon electrode, and a vertically-movable support carrying at its lower end a spirally-curved plow plate adapted to encircle the carbon electrode when adjusted within the pot, substantially as set forth.

8. In an electric furnace, a horizontal revoluble fusing-pot having an electrical connection therewith, a stationary guide-frame supported above the pot and having upper and lower guide-plates and a central vertical insulated guide-tube, a vertically-movable carbon-holder slidably working in said guide-tube and carrying a carbon electrode, a pair of supporting-rods slidably mounted in the guide-plates of the guide-frame, and a plow-plate secured to and between the lower ends of said supporting-rods and having a main circular portion and a tangential extension at one terminal, the main circular portion of the plate being concentric with the carbon electrode, and flexible adjusting connections with the upper ends of the carbon-holder and said supporting-rods, substantially as set forth.

9. In an electric furnace, a horizontal revoluble fusing-pot having an electrical connection therewith, a carbon electrode supported above the pot, a vertically-movable support carrying at its lower end a plow-plate adapted to encircle the carbon electrode when adjusted within the pot, a plurality of horizontal supporting-arms extended radially from said vertically-movable support above the plane of the plow-plate, and a protective hood arranged on said supporting-arms and having a pendent circular curtain portion, substantially as set forth.

602,816. PAPER ASSEMBLING AND STAPLING MACHINE. TALBOT C. DUTTON, Pearl River, N. Y. Filed Feb. 20, 1897. Serial No. 624,485. (No model.)



Claim.—1. The combination with a wire-stitching machine and a plurality of sets of traveling tapes conveying a plurality of sheets of paper simultaneously to said machine, of mechanism transmitting motion to the stitching-machine and controlled in its action automatically by the sheet in transit in either plane independently of the sheet or sheets carried in the other plane or planes.

2. The combination with a wire-stitching machine, conveyors carrying the paper to said machine and mechanism actuating the stitching-machine, stop mechanism controlling said actuating mechanism, means for controlling the stop mechanism by the paper in transit through the stitching-machine, and means for timing the action of the stop mechanism, as set forth.

3. The combination with a wire-stitching machine and a plurality of sets of traveling tapes conveying to said machine the component sheets of a pamphlet or book to be stitched, of an electric circuit, electromagnetically-controlled mechanism transmitting motion to said stitching-machine and in electric connection with said circuit, and a plurality of circuit-makers and breakers actuated respectively by the sheets in transit on the aforesaid different sets of tapes as set forth.

4. The combination with a wire-stitching machine and a plurality of sets of paper-conveying tapes leading to said machine to supply thereto a plurality of sheets simultaneously, bars disposed above and beneath each of said sets of tapes, an electric circuit, circuit making and breaking fingers supported on said bars and arranged in sets, each of which is normally in circuit-closing position and has the plane of one of the sets of tapes passing between the terminals to cause the passing paper to break the circuit, and an electromagnetically-controlled mechanism transmitting motion to the stitching-machine in electric connection with the aforesaid circuit as set forth.

5. The combination with the wire-stitching machine and a plurality of sets of paper-conveying tapes leading to said machine to supply thereto a plurality of sheets simultaneously, of an electric circuit, an electromagnetically-controlled mechanism transmitting motion to said stitching-machine, an automatically-operated circuit-closer timed to cause the motion of the stitching-machine to be arrested during the period in which said machine is out of stitching position as set forth.

6. In combination with the wire-stitching machine and a plurality of sets of paper-conveying tapes leading to said machine, an electric circuit, an electromagnetically-controlled mechanism transmitting motion to said stitching-machine, circuit makers and breakers actuated by the sheets in transit on the aforesaid tapes, a rotary cam, a pitman actuated by said cam, and a circuit maker and breaker actuated by said pitman, said cam timing the motion of the pitman to close the circuit during the period in which the stitching-machine is out of contact with the paper as set forth.

7. The combination with a wire-stitching machine and a plurality of sets of traveling tapes conveying a corresponding plurality of sheets simultaneously to said machine, of an electric circuit, electromagnetically-controlled mechanism transmitting motion to said stitching-machine and in electric connection with said circuit, and circuit makers and breakers actuated by the sheets in transit on the aforesaid conveyers.

8. In combination with a wire-stitching machine, a plurality of automatic paper-feeding machines, separate sets of conveyers carrying the sheets of paper from the respective feeding-machines to the stitching-machine, an intermittently-operating gage assembling the sheets in front of the stitching-machine, gages intermittently arresting the movement of the assembled sheets through the stitching-machine to receive the staples or stitches therefrom, an electric circuit, an electromagnetically-controlled mechanism transmitting motion to the stitching-machine, and a plurality of sets of circuit makers and breakers in the respective paths of the sheets to the assembling-gage as and for the purpose set forth.

9. In combination with a wire-stitching machine and a plurality of sets of sheet-conveyers carrying a plurality sheets simultaneously to said machine, an electric circuit, electromagnetically-controlled mechanism transmitting motion to the stitching-machine, a plurality of sets of circuit makers and breakers actuated respectively by the sheets in transit to the stitching-machine, and switches connected respectively with the sets of circuit makers and breakers to cut one or more of said sets out of the circuit as set forth.

10. In combination with a wire-stitching machine, a set of main-sheet conveyers, a set of insert-sheet conveyers and a set of cover-conveyers, all leading toward the stitching-machine, a gage assembling said sheets and cover in front of said machine, and automatic paper-folders folding respectively the main sheet and the insert sheet in their passage to the assembling-gage as set forth.

11. The combination with a wire-stitching machine and tapes conveying the paper to said machine, of a gage temporarily arresting said movement of the paper, a paper-registering device shifting the arrested paper into alinement with the stitching-machine, and inter-

mittently-operating drop-rollers imparting intermittent impulses to the travel of the registered paper to the stitching-machine as set forth.

12. The combination with a plurality of sets of sheet-conveyers disposed one over the other and leading in the same direction, a gage assembling the sheets delivered by said conveyers, and paper-registering devices over the respective sets of conveyers to aline the sheets on said conveyers as set forth.

13. In combination with a wire-stitching machine, a plurality of automatic paper-feeding machines, tapes conveying the sheets from said feeding-machines toward the stitching-machine, a gage assembling the sheets in front of the stitching-machine, and a plurality of paper-registering devices alining the assembled sheets in relation to each other.

14. In combination with a wire-stitching machine, a plurality of automatic paper-feeding machines, a corresponding plurality of sets of tapes conveying the sheets toward the stitching-machine, a gage assembling said sheets in front of the stitching-machine, paper-registering devices alining the assembled sheets in relation to each other, an electric circuit, electromagnetically-controlled mechanism transmitting motion to the stitching-machine, and circuit makers and breakers in the path of the sheets to the assembling-gage and actuated by the sheets in transit.

15. In a paper assembling and binding machine the combination with the stitching or stapling machine and a plurality of sets of tapes conveying sheets of paper simultaneously to said stitching or stapling machine, of a head at the side of the main frame and moving laterally to and from the same, and paper-registering devices over the respective sets of tapes and connected to the aforesaid head to partake motion therefrom as set forth.

16. In a paper assembling and binding machine the combination with the stitching or stapling machine and a plurality of sets of tapes conveying sheets of paper simultaneously to said stitching or stapling machine, of a head sustained at the side of the main frame and movable laterally to and from the same, mechanism imparting said motion to the head, bars mounted on the main frame and extending transversely over the respective sets of tapes and paper-registering devices carried on said bars and connected to the aforesaid head to partake motion therefrom as set forth.

17. In a paper assembling and binding machine the combination with the stitching or stapling machine and a plurality of sets of tapes conveying sheets of paper simultaneously to said stitching or stapling machine, of a reciprocating bar disposed at right angles to the line of travel of the paper, a head fastened to the end of said bar, bars mounted on the main frame and extending transversely over the respective sets of tapes and paper-shifting grippers sliding on said bars lengthwise thereof and connected to the aforesaid head to partake motion therefrom as set forth.

18. In a paper assembling and binding machine the combination with the stitching or stapling machine, a plurality of sets of tapes conveying sheets simultaneously to said stitching or stapling machine and a gage assembling the sheets preparatory to being stitched or stapled, guides mounted on the sides of the main frame, a bar extending across the main frame and sliding in the aforesaid guides, mechanism imparting intermittent reciprocating motion to said bar, a head attached to the end of said bar, guide-bars fixed to the main frame and extending transversely over the respective sets of tapes, paper-shifting grippers sliding on the latter bars, and rods connected to said head longitudinally adjustable and coupled to the grippers to transmit motion from the head to the grippers as set forth.

19. In combination with a plurality of sets of paper-conveying tapes disposed in planes successively one over the other, and a gage assembling the sheets of paper, a head movable laterally toward and from said sets of tapes, mechanism imparting said motion to the head, stationary bars disposed transversely over the respective sets of tapes, paper-shifting grippers sliding longitudinally on said bars and connected to the aforesaid head to partake motion therefrom, rock-shafts opening and closing the respective grippers, levers attached to said rock-shafts, rods coupling said levers together to impart synchronous motion to the rock-shafts, and mechanism imparting motion to said levers as set forth.

20. In combination with the stitching-machine, a plurality of paper-feeding machines, a corresponding number of sets of tapes conveying the sheets of paper from the respective feeding-machines toward the stitching-machine, automatic paper-folders folding the main sheet and insert sheet in their aforesaid travel, a gage assembling the sheets in front of the stitching-machine, paper-registering devices in the paths of the respective sheets to the assembling-gage, and tapes conveying the assembled sheets to the stitching-machine as set forth.

21. In combination with the stitching-machine a plurality of paper-feeding machines, a corresponding number of sets of tapes conveying the sheets from the respective feeding-machines toward the stitching-machine, automatic paper-folders folding the main sheet and insert sheet in their said travel, a gage assembling the sheets delivered thereto by the aforesaid tapes, paper-conveying tapes leading from the assembling-gage to the stitching-machine and intermittently-operating drop-rollers imparting impulses to the travel of the assembled sheets to the stitching-machine as set forth.

22. The combination with the wire-stitching machine a plurality of paper-feeding machines, a corresponding number of sets of tapes conveying the paper toward said stitching-machine and a gage assembling the sheets in their said travel, of paper registering devices each alining one of the assembled sheets, tapes conveying said sheets from the assembling-gage to the stitching-machine, and intermittently-operating drop-rollers imparting impulses to the sheets during the latter travel as set forth.

23. The combination with the wire-stitching machine, a plurality of paper-feeding machines, a corresponding number of sets of tapes conveying the paper toward the stitching-machine and a gage assembling the sheets in said travel, of paper-registering devices alining the assembled sheets, tapes conveying the alined sheets to the stitching-machine, intermittently-operating gages temporarily arresting said movement of the sheets to allow said sheets to be stitched or stapled, and drop-rollers imparting impulses to the sheets between their stoppages by the gages as set forth.

24. The combination with a wire-stitching machine, a plurality of paper-feeding machines, a corresponding number of sets of tapes conveying the paper toward the stitching-machine and a gage assembling the sheets in said travel, an electric circuit, electromagnetically-controlled mechanisms imparting motion to the stitching-machine, circuit makers and breakers in the respective lines of travel of the sheets to the assembling-gage and actuated by the sheets in transit, tapes conveying the assembled sheets to the stitching-machine, gages intermittently arresting said travel of the sheets, and drop-rollers imparting impulses to the sheets between their stoppages by the gages as set forth.

25. The combination with the stitching-machine, of three paper-feeding machines respectively for the main sheet, insert sheet and cover, separate sets of tapes conveying said sheets and cover toward the stitching-machine, the insert-sheet-conveying tapes being in a plane between those of the others of said conveying-tapes, a downward paper-folder over the path of the main-sheet-conveying tapes, an upward paper-folder under the path of the insert-sheet-conveying tapes, a gage assembling all of said sheets in front of the stitching-machine, tapes conveying the assembled sheets to the stitching-machine, gages intermittently arresting this latter movement of the sheets, and drop-rollers imparting impulses to the sheets between the stoppages by the gages as set forth.

26. In combination with the stitching-machine and tapes conveying the paper to said machine, a shaft actuating the stitching or stapling mechanism, a gear-wheel attached to said shaft, a counter-shaft, a positively-driven gear mounted loosely on said counter-shaft, a gear fixed to said shaft and transmitting motion to the gear of the stitching-machine shaft, a clutch for intermittently fastening the loosely-mounted gear to the counter-shaft, an electric circuit, electromagnetically-controlled mechanisms operating said clutch, and circuit makers and breakers actuated by the paper in transit to the stitching-machine and thereby controlling the action of the aforesaid clutch.

27. In combination with the stitching-machine and tapes conveying the paper to said machine, a shaft actuating the stitching or stapling mechanism, a gear-wheel attached to said shaft, a counter-shaft, a positively-driven gear mounted loosely on said counter-shaft, a gear fixed to the counter-shaft and transmitting motion to the stitching-machine shaft, a clutch for intermittently fastening the loosely-mounted gear to the counter-shaft, mechanism actuating said clutch, an electric circuit, a constantly-moving pitman, an electromagnet attached to said pitman, a catch connected to the pitman movably to engage and release the clutch-actuating mechanism and actuated by the armature of the aforesaid magnet, and circuit makers and breakers actuated by the paper in transit to the stitching-machine as set forth.

28. In combination with the stitching-machine, a plurality of paper-feeding machines, a corresponding plurality of sets of tapes conveying the sheets from said feeding-machines toward the stitching-machine, a gage assembling said sheets in front of the stitching-machine, tapes carrying the sheets from the assembling-gage to the stitching-machine, gages intermittently arresting the sheets in said latter movement, a gear-wheel attached to the stitching-machine shaft, a counter-shaft, a positively-driven gear mounted loosely on said counter-shaft, a gear fixed to said shaft and transmitting motion to the gear of the stitching-machine shaft, a clutch for intermittently fastening the loosely-mounted gear to the counter-shaft, an electric circuit, electromagnetically-controlled mechanisms operating said clutch, and circuit makers and breakers actuated by the sheets in transit to the stitching-machine and thereby controlling the action of the clutch as set forth.

29. In combination with the stitching-machine, a plurality of paper-feeding machines, a corresponding plurality of sets of tapes conveying the sheets toward the stitching-machine, automatic paper-folders folding the main sheet and inserting sheets in said transit, a gage assembling the sheets in front of the stitching-machine, tapes conveying the assembled sheets to the stitching-machine, gages intermittently arresting the movement of the sheets in said transit, drop-rollers impelling the sheets during their releases from the aforesaid gages, a gear-wheel on the stitching-machine shaft, a counter-shaft, a positively-driven gear mounted loosely on said counter-shaft, a gear fixed to said shaft transmitting motion to the gear of the stitching-machine shaft, a clutch for intermittently fastening the loosely-mounted gear to the counter-shaft, an electric circuit, electromagnetically-controlled mechanisms operating said clutch, and circuit makers and breakers actuated by the sheets in transit to the stitching-machine.

30. In combination with the stitching-machine provided with a driving-gear on its shaft and tapes conveying to said machine the paper to be stitched or stapled, a counter-shaft having affixed to it a gear for transmitting motion to the gear of the stitching-machine shaft, a positively-driven gear mounted loosely on said counter-shaft and having affixed to it a collar provided with a notch in its periphery, a collar fastened to the counter-shaft and provided with a corresponding notch, a dog pivoted to said fixed collar and provided at one end with a tooth for engaging both of said notches simultaneously, and formed with a heel extending beyond the pivot of the dog, a spring forcing said dog toward its engagement with the aforesaid notches, a rock-shaft, an arm on said shaft traversed by the dog during the rotation of the notched collars, an arm fixed to said shaft for actuating the same, a pivoted cam actuating the latter arm, an electric circuit, electromagnetically-controlled mechanism actuating said cam, and circuit makers and breakers actuated by the sheets in transit to the stitching-machine.

31. The combination with a machine provided with an actuating-gear, and conveyers supplying to said machine the material to be operated on, of a clutch for throwing said machine in and out of gear, a rock-arm actuating the clutch in one direction, a second rock-arm actuating the first rock-arm, a pivoted cam actuating the second rock-arm, a pinion attached to said cam, a reciprocating pitman, a rack carried on said pitman and movable longitudinally thereon and meshing with the aforesaid pinion, an electric circuit, an electromagnet carried on the pitman, the armature pivoted to the pitman and provided with a dog for engaging and releasing the rack, and circuit makers and breakers actuated by the material in transit to the aforesaid machine as set forth.

32. In combination with the stitching-machine provided with an actuating-gear on its shaft, a plurality of paper-feeding machines and a corresponding plurality of sets of tapes conveying the paper to said machine, gages intermittently arresting the movement of the paper to permit the stitching of the same, a counter-shaft having affixed to it a gear for transmitting motion to the gear of the stitching-machine, a positively-driven gear mounted loosely on said counter-shaft and having affixed to it a collar provided with a notch in its periphery, a collar fastened to the counter-shaft and provided with a corresponding notch, a dog pivoted to said fixed collar and provided at one end with a tooth for engaging both of said notches simultaneously and formed at the opposite end with a heel extending beyond the pivot of the dog, a spring forcing said dog toward engagement with the notches, a rock-shaft, an arm on said shaft traversed by the said dog, to actuate the same in opposition to its spring, an arm fixed to said shaft for actuating the same, a pivoted cam actuating the latter arm, a pinion attached to said cam, a reciprocating pitman, a rack carried on said pitman movable longitudinally thereon and meshing with said pinion, an electric circuit, an electromagnet attached to the pitman, the armature pivoted to the pitman and provided with a dog for engaging and releasing the rack-bar, and circuit makers and breakers in the paths of the sheets to the stitching-machine and actuated by the sheets in transit as set forth.

33. In combination with the stitching-machine, paper-feeding machines and tapes conveying the paper to said stitching-machine, gages intermittently arresting the movement of the paper to prevent the stitching of the same, a clutch for throwing the said stitching-machine in and out of gear, a spring forcing the clutch into gear, a rock-shaft having affixed to it an arm for forcing the clutch out of gear, an arm on said rock shaft for operating it, a pivoted cam actuating said arm, a pinion attached to said cam, a positively-actuated pitman, a rack carried on said pitman and movable longitudinally thereon and engaging the aforesaid pinion, an electric circuit, an electromagnet attached to the pitman, the armature pivoted to the pitman and formed with a dog engaging and releasing the rock-bar, circuit makers and breakers actuated by the paper in transit to the stitching-machine, and an automatically-operated circuit-closer timed to close the circuit during the period in which the stitching-machine is out of stitching position as set forth.

34. In combination with two stitching-machines disposed at opposite sides of and on a line at right angles to the central line of the travel of the paper-conveying tapes, a plurality of paper-feeding machines, tapes conveying the paper toward the stitching-machines and gages intermittently arresting the movement of the paper to permit the stitching thereof, gears on the shafts of the stitching-machines, a counter-shaft extending across the entire machine, gears fastened to the two end portions of the counter-shaft and transmitting motion to the gears of the stitching-machine shafts, a positively-driven gear mounted loosely on said counter-shaft and having affixed to it a clutch-collar, a corresponding clutch-collar fastened to the counter-shaft, a dog normally locking the clutch-collars to each other, an electric circuit, electromagnetically-controlled mechanism throwing the dog out of engagement, circuit makers and breakers actuated by the sheets in transit to the stitching-machines, and an intermediate circuit maker and breaker actuated by mechanism timed to close the circuit when the stitching-machines are out of stitching positions as set forth.

35. The combination with a stitching or stapling machine and conveyers carrying the paper to said machine, of a switch disposed to throw misfed sheets from said conveyers and prevent their passage through said machine, and means actuated by the paper in transit on said conveyers and controlling the action of the switch, as set forth.

36. In combination with the set of main tapes, a paper-cutter in the central line of travel of said tapes and two sets of paper-folders disposed to receive the severed sheets, a plurality of paper-feeding machines, a corresponding plurality of sets of tapes leading from said feeding-machines to the main tapes, a gage assembling the sheets at their delivery to the main tapes, and two stitching-machines between the assembling-gage and paper-cutter and adjustable laterally at opposite sides of the central line of travel of the main tapes as set forth.

37. The combination with a stitching or stapling machine, conveyers carrying the paper to said machine and a packing-box receiving the stitched or stapled papers, of a switch disposed to throw misfed sheets from said conveyers and exclude them from the said machine and from the packing-box, an electric circuit, electromagnetically-controlled mechanism actuating said switch, and circuit makers and breakers actuated by the paper in transit to the stitching or stapling machine.

38. The combination with the stitching or stapling machine a packing-box receiving the stitched or stapled papers and a set of main tapes conveying the sheets to said machine, tributary tapes delivering the sheets to said main tapes, a switch located between the main tapes and tributary tapes to divert misfed sheets from the stitching or stapling machine and from the packing-box, and drop-rollers over the delivery of the tributary tapes to facilitate the diversion of the misfed sheets from the main tapes.

39. The combination with the stitching-machine a packing-box receiving the stitched paper and a set of main tapes conveying the paper to said machine, tributary tapes carrying the paper toward the main tapes, a rock-shaft extending across the receiving ends of the main tapes and paper-guides on said rock-shaft to divert misfed sheets from the stitching-machine and exclude said sheets from the packing-box.

40. The combination with the stitching-machine and a set of main tapes conveying the paper to said machine, tributary tapes carrying the paper toward said main tapes, a rock-shaft extending across the receiving ends of the main tapes, paper-guides attached to said rock-shaft, an electric circuit, electromagnetically-controlled mechanism actuating said rock-shaft, and circuit makers and breakers in the places of the tributary tapes to be actuated by the paper in transit.

41. The combination with the stitching-machine and a set of main tapes conveying the paper to said machine, tributary tapes carrying the paper toward the main tapes, drop-rollers over the delivery ends of said tributary tapes, a rock-shaft extending across the receiving ends of the main tapes, paper-guides attached to said rock-shaft, an electric circuit, electromagnetically-controlled mechanism operating the rock-shaft, and circuit makers and breakers actuated by the paper in transit to the main tapes as set forth.

42. The combination with a machine designed to stitch or otherwise operate on paper a packing-box disposed to receive the paper from said machine and conveyers carrying the paper to said machine, of a switch in the path of the paper to said machine to divert misfed sheets from the same, and gripping devices drawing the switched paper from the aforesaid path and excluding said paper from the packing-box.

43. The combination with the stitching-machine, a packing-box disposed to receive the stitched paper and conveyers carrying the paper to said machine, of a switch in the path of the paper to divert misfed sheets from the stitching-machine, contiguously-disposed parallel rollers receiving the switched paper between them and geared to rotate and draw said paper from the aforesaid path and exclude it from the packing-box.

44. The combination with the stitching-machine and conveyers carrying the paper to said machine, of a rock-shaft extending across the receiving end of said conveyers, paper-guides attached to said

rock-shaft and moved thereby to and upwardly from the path of the paper and guides extending downward from said rock-shaft, and gripping devices receiving the downwardly-deflected paper and drawing the same from the aforesaid path.

45. The combination with the stitching-machine, main tapes carrying the paper to said machine, and tributary tapes delivering the paper to said main tapes, of drop-rollers over the delivery ends of the tributary tapes, a switch interposed between the tributary tapes and main tapes to divert misfed sheets from the stitching-machine, and gripping devices drawing the switched paper from the tributary tapes as set forth.

46. The combination with the stitching-machine, main tapes carrying the paper to said machine and tributary tapes delivering the paper to the main tapes, of a switch interposed between the tributary tapes and main tapes to divert misfed sheets from the stitching-machine and controlled by the paper in transit on the tributary tapes, and gripping devices withdrawing the switched paper from the tributary tapes.

47. The combination with the stitching-machine and main tapes carrying the paper to said machines, a plurality of paper-feeding machines, a corresponding plurality of sets of tapes carrying the paper from said feeding-machines to the main tapes, drop-rollers over the delivery ends of the tributary tapes, a sheet-assembling gage over the main tapes, a rock-shaft extending across the receiving ends of the tributary tapes and normally bridging the space between said tapes and main tapes and switching upward from its normal position, an electric circuit, electromagnetically-controlled mechanism actuating said rock-shaft, and circuit makers and breakers in the planes of the tributary tapes to be actuated by the paper in transit as set forth.

48. The combination with the stitching-machine and conveyers carrying the paper to said machine, of a switch disposed in the path of said paper to throw misfed sheets from the conveyers and prevent their passage to the stitching-machine, an electric circuit, electromagnetically-controlled mechanisms operating said stitching-machine and switch to arrest the action of the stitching-machine during the switching of the paper, and circuit makers and breakers actuated by the paper in transit to the switch.

49. The combination with the stitching-machine, main tapes carrying the paper to said machine, a plurality of paper-feeding machines, tributary tapes conveying the paper from said feeding-machines to the main tapes, drop-rollers over the delivery ends of the tributary tapes, a rock shaft extending across the receiving ends of the main tapes, paper-guides extending from said rock-shaft toward the tributary tapes and normally spanning the space between said tapes and main tapes and moving upward from said normal position, an electric circuit, electromagnetically-controlled mechanisms actuating simultaneously the stitching-machine and rock-shaft to arrest the action of the stitching-machine during the switching of the misfed sheets, and circuit makers and breakers in the places of the tributary tapes to be actuated by the sheets in transit as set forth.

REISSUES.

11,660. ALLOY. FRANCIS A. COTELLE, Ivry-Port, France. Filed Jan. 11, 1898. Serial No. 666,375. Original No. 564,094, dated July 13, 1897. Patented in France June 2, 1896, No. 256,852; in Belgium June 30, 1896, No. 122,223; in England June 30, 1896, No. 14,479; in Austria July 31, 1896, No. 46/3,443; in Italy July 31, 1896, No. 43,231; in Luxemburg July 31, 1896, No. 2,582, and in Spain July 31, 1896, No. 19,417.

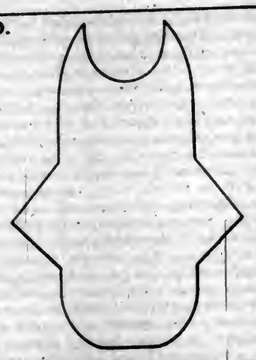
Claim.—1. The alloy described consisting of copper, eighty parts, tin one hundred and ninety parts, zinc five hundred parts and aluminium two hundred and thirty parts.

2. The process described, consisting in melting together copper and tin and cooling, adding thereto zinc and then remelting, allowing the mass to cool to a pasty composition, then adding aluminium and finally heating the mass to a high temperature, substantially as described.

DESIGNS.

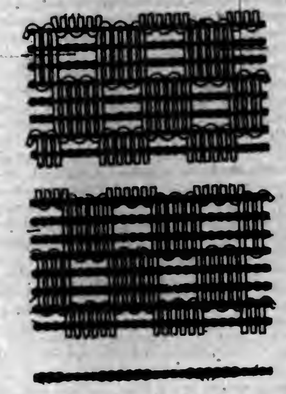
28,480. SHIRT-BOSOM. WILLIAM MUIR ANDREWS, Glasgow, Scotland. Filed Dec. 31, 1897. Serial No. 666,345. Term of patent 7 years.

28,480.



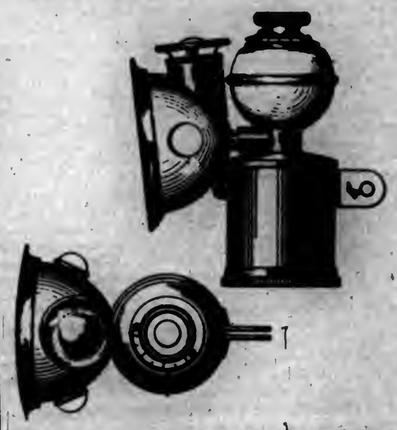
Claim.—The design for a shirt-bosom, substantially as shown and described.

28,481. FABRIC FOR HANGINGS. JOSEPH KOSS, Philadelphia, Pa. Filed Jan. 14, 1898. Serial No. 666,703. Term of patent 3½ years.



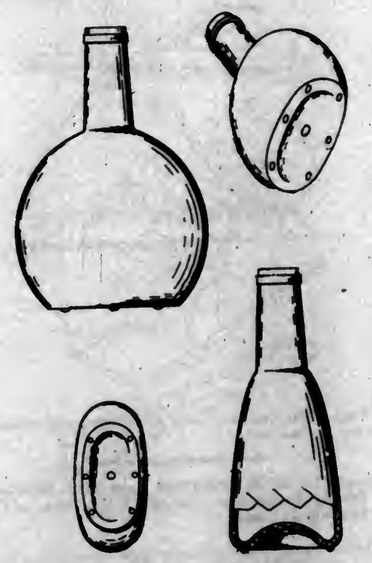
Claim.—The design for a fabric for hangings, as herein described and illustrated.

28,482. LAMP-BODY. FRED K. PHILLIPS, New York, N. Y., assignor to Felix Jollenik, trustee, same place. Filed Feb. 21, 1898. Serial No. 671,203. Term of patent 14 years.



Claim.—The design for a lamp-body as herein shown and described.

28,488. BOTTLE. EDWARD C. MOORE, Closes, Ind., assignor to the Hobbs Glass Company, same place. Filed Feb. 5, 1898. Serial No. 669,897. Term of patent 14 years.

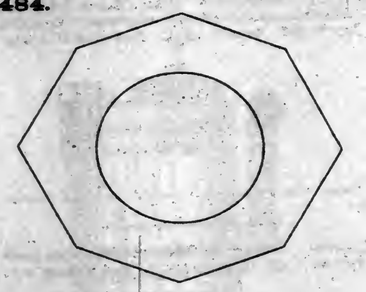


Claim.—The design for a bottle, substantially as herein shown and described.

28,484. TEAPOT OR LIKE ARTICLE. ASHER F. JACKSON, Taunton, Mass. Filed Dec. 3, 1897. Serial No. 660,864. Term of patent 14 years.

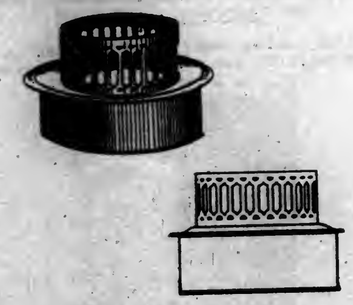


28,484.



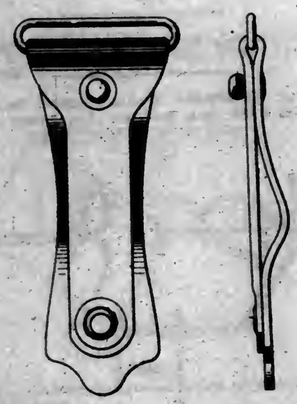
Claim.—The design for a teapot or like article having the shape and ornamentation as shown and described.

28,485. TOP OR COVER FOR LUNCH-BUCKETS. WILFRED M. ROSENBERG, San Francisco, Cal. Filed Dec. 8, 1897. Serial No. 661,304. Term of patent 14 years.



Claim.—The design for the top or cover of a lunch-bucket, as herein described and shown.

28,486. SUSPENDER-BUCKLE PIECE. WILLIAM BLOOMBERG, New York, N. Y. Filed Dec. 1, 1897. Serial No. 660,641. Term of patent 7 years.



Claim.—The design for a suspender-buckle piece herein shown and described.

28,487. WRENCH-JAW. HENRY J. MARTIN, Chicago, Ill., assignor to the Whitman & Barnes Manufacturing Company, Akron, Ohio. Filed June 23, 1897. Serial No. 643,313. Term of patent 14 years.



Claim.—The design for a wrench-jaw as herein shown and described.

28,488. DOOR-CATCH. CHARLES L. FROST, Grand Rapids, Mich. Filed Oct. 1, 1897. Serial No. 653,760. Term of patent 14 years.



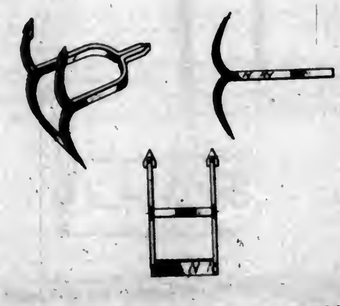
Claim.—The design for a door-catch herein shown and described.

28,489. LADDER-HOOK. GEORGE W. SLACK, Northville, N. Y. Filed Nov. 13, 1897. Serial No. 658,496. Term of patent 14 years.



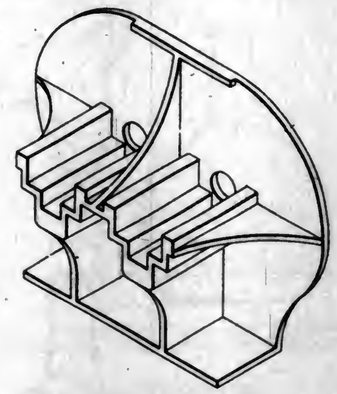
Claim.—The design for a ladder-hook as herein shown and described.

28,490. GARDEN-HOE. WILLIAM F. LUDWICK, Beaumont, Kans. Filed Feb. 3, 1898. Serial No. 669,015. Term of patent 14 years.



Claim.—The design for a garden-hoe herein shown and described.

28,491. HEAD FOR ROTARY PUMPS. RALPH C. BEVARY, Connersville, Ind., assignor to the P. H. & F. M. Roots Company, same place. Filed Mar. 3, 1898. Serial No. 672,463. Term of patent 14 years.



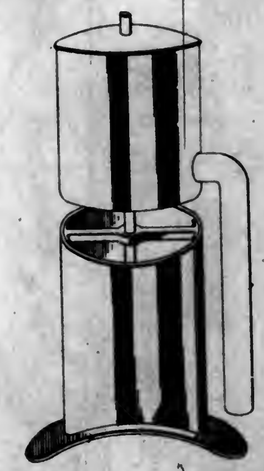
Claim.—The design for a head for a rotary pump, substantially as shown and described.

28,492. BATTERY-ELECTRODE. ZACK TAYLOR and MARTIN L. BRESHAM, Spokane, Wash. Filed Mar. 3, 1898. Serial No. 672,462. Term of patent 7 years.



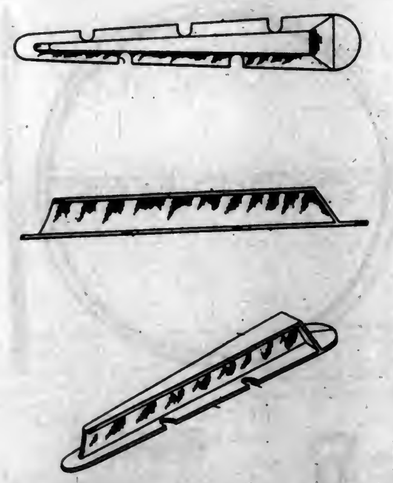
Claim.—The design for a battery-electrode as herein shown and described.

28,493. CASING FOR SPARK-ARRESTERS. HOBART H. BRIGGS, Tipton, Ind., assignor of two-thirds to Joseph F. Berig and James C. Carlisle, Fostoria, Ohio. Filed Aug. 2, 1897. Serial No. 646,122. Term of patent 14 years.



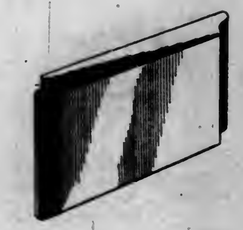
Claim.—The design for a casing for spark-arresters herein shown and described.

28,494. FOOT-GUARD FOR SWITCHES. JAMES DONOVAN, Three Rivers, Mich., assignor to the Roberts, Throp & Company, same place. Filed Mar. 7, 1898. Serial No. 673,015. Term of patent 14 years.



Claim.—The design for a foot-guard for switches, substantially as herein shown and described.

28,495. BRICK FOR HOT-BLAST STOVES. FREDERICK H. FOOTE, Chicago, Ill. Filed Nov. 30, 1898. Serial No. 670,711. Term of patent 7 years.



Claim.—The design for a brick for hot-blast stoves substantially as hereinbefore described.

28,496. HEATING-STOVE. HENRY HOHENFELD, Cincinnati, Ohio. Filed Dec. 23, 1897. Serial No. 664,123. Term of patent 14 years.



28,496.



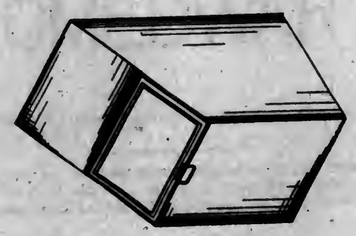
Claim.—The design for a heating-stove herein shown and described.

28,497. GAS-STOVE. HENRY ADLER, Allegheny, Pa. Filed June 19, 1897. Serial No. 641,519. Term of patent 14 years.



Claim.—The design for a gas-stove, substantially as herein shown and described.

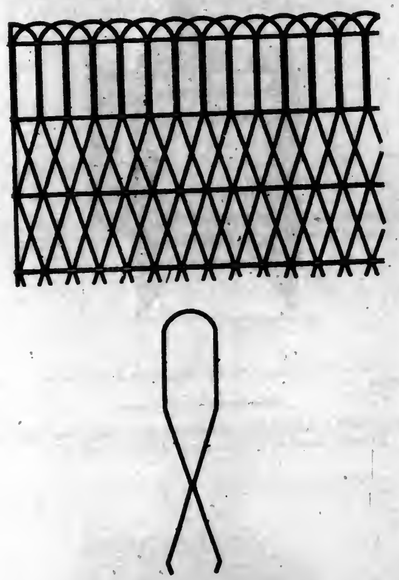
28,498. GROCER'S CABINET. CLARK H. WYMAN, St. Paul, Minn., assignor to Griggs, Cooper & Co., same place. Filed Dec. 6, 1897. Serial No. 660,960. Term of patent 14 years.



Claim.—The design for a grocer's cabinet, substantially as herein shown and described.

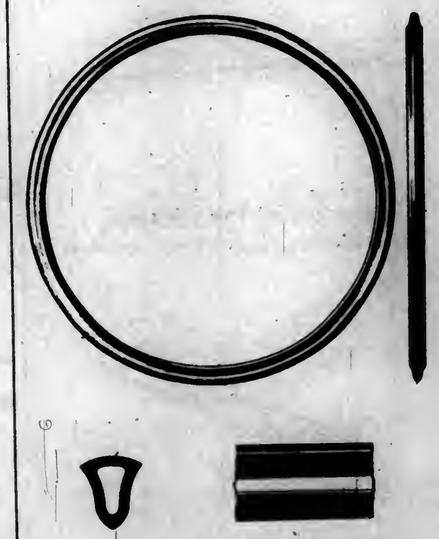
28,499. WITHDRAWN.

28,500. WIRE FENCE. JESSE H. SHOVE, Kokomo, Ind. Filed Dec. 7, 1897. Serial No. 661,112. Term of patent 7 years.



Claim.—The design for a wire fence as herein shown and described.

28,501. BICYCLE-TIRE. JOHN J. RAMSDELL, St. Louis, Mo., assignor to the American Tire Company, New York, N. Y. Filed Feb. 12, 1898. Serial No. 670,148. Term of patent 14 years.



Claim.—A design for a bicycle-tire, substantially as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 19, 1898.

81,467. CERTAIN NAMED STATIONERY. NATIONAL LEAGUE OF COMMISSION MERCHANTS OF THE UNITED STATES, Chicago, Ill. Filed Feb. 7, 1898.



Essential feature.—The representation of a six-pointed star bearing the letters "NLCMUS," with a central circular field upon which is printed the figure of Justice carrying a sword in one hand and a pair of scales in the other, said figure of Justice being shown as standing on a portion of the globe beneath which is arranged a pair of clasped hands. Used since January 7, 1898.

81,468. CHAMOIS LEATHER AND OTHER FINISHED LEATHER. EDWIN A. LAUDELL, Jr., Philadelphia, Pa. Filed Feb. 8, 1898.



Essential feature.—The representation of a fleur-de-lis. Used since January 19, 1898.

81,469. SHOES. V. K. & A. H. JOURS, Lynn, Mass. Filed Feb 24, 1898.



Essential feature.—The word "MIZPAH" and a heraldic display consisting of an escutcheon, upon which is capital letter "J," having griffin-supporters on each side and a crest-crown at the top of the escutcheon. Used since July, 1897.

81,470. CORSET-CLASPS, DRESS-SHIELDS, MACHINE SILK AND THREAD, HOOKS AND EYES, DRESS-STAYS, AND HOSE-SUPPORTERS. JORDAN, MARSH & Co., Boston, Mass. Filed Feb. 10, 1898.

ADELAIDE.

Essential feature.—The word "ADELAIDE." Used since January, 1891.

81,471. PLUM-TREES, SCIONS OF PLUM-TREES, AND PLUMS. THE JEWELL NURSERY COMPANY, Lake City, Minn. Filed Jan. 17, 1898.

AITKIN

Essential feature.—The word "AITKIN." Used since February 1, 1897.

81,472. CERTAIN LUMBER-MILL AND LOG PRODUCTS. THE HALL & HUBBEL COMPANY, Bay Mills, Mich. Filed Jan. 20, 1898.



STAG

Essential feature.—The representation of a stag's head and the word "STAG." Used since November, 1897.

81,473. PIANOS AND ORGANS. GEORGE P. BENT, Chicago, Ill. Filed Feb. 7, 1898.

CROWN

Essential feature.—The word "CROWN." Used since 1878.

81,474. GAS-STOVES. THE MORTON-PRINDLE GAS HEATING COMPANY, LIMITED, London, England. Filed Feb. 24, 1898.

OMEDWÂR

Essential feature.—The word "OMEDWÂR." Used since February 12, 1897.

81,475. PHARMACEUTICAL PRODUCT PREPARED FROM MILK AND USED AS MEDICINE. MAINZ & ROSSI, GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Grünau, Germany. Filed July 30, 1897.

Eucasin.

Essential feature.—The word "EUCASIN." Used since February 21, 1896.

81,476. WELDING COMPOUND. HENRY REBMANN, New York, N. Y. Filed Feb. 9, 1898.



Essential feature.—The representation of an elliptical wagon-spring within which are arranged the words "THE EUREKA WELDING COMPOUND." Used since January 21, 1898.

81,477. GELATINOUS COMPOUNDS. CHARLES P. WALLEY, New York, N. Y. Filed Feb. 2, 1898.

GLUEINE

Essential feature.—The word "GLUEINE." Used since August 1, 1892.

81,478. FARINACEOUS COMPOUND USED AS A DESSERT. WILLIAM PITT GLOVERSKEY, Baltimore, Md. Filed Apr. 5, 1897.

81,478.

TAPINE

Essential feature.—The word "TAPINE." Used since March 1, 1897.

81,479. ALE, BEER, AND PORTER. GRAEFER & GREGG BREWING COMPANY, Hudson, N. Y. Filed Aug. 13, 1897.

THE CHIEF



Essential feature.—The words "THE CHIEF" and the representation of a fireman in full uniform. Used since July 1, 1896.

PHOTO LITH. THE NORRIS PETERS CO. WASH. D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of Alabama.

WESTERN ELECTRIC COMPANY *v.* HOME TELEPHONE COMPANY *et al.*

Decided February 9, 1898.

1. SCRIBNER—MULTIPLE SWITCHBOARDS FOR TELEPHONE-EXCHANGES.

Claims 2 and 4 of Letters Patent No. 330,061, granted November 10, 1885, to Charles E. Scribner, for multiple switchboards for telephone-exchanges, construed in connection with the prior art and *Held* valid and infringed.

2. SAME—SAME—SAME.

Claim 6 of Letters Patent No. 330,061, granted November 10, 1885, to Charles E. Scribner, for multiple switchboards for telephone-exchanges, construed and *Held* not infringed.

Messrs. Barton & Brown and *Mr. George L. Roberts* for the complainants.

Messrs. Pillans, Torrey & Hanaw, Mr. Charles B. Tilden, and *Mr. James L. Norris* for the defendants.

TOULMIN, *J.*:

This is a suit in equity brought by the Western Electric Company, on Letters Patent of the United States No. 330,061, dated November 10, 1885, as the assignee of Charles E. Scribner, to whom the patent was granted, against the Home Telephone Company, Albert S. Lyons, and Adam Glass. The patent is for improvements in multiple switchboards for use in telephone central offices or exchanges. The complainant is a corporation under the laws of the State of Illinois and has been engaged in furnishing apparatus for telephone-exchanges, it appears, for some years past. The defendant company is an Alabama corporation, and the individual defendants are Albert S. Lyons and Adam Glass, citizens of Alabama, and residents of Mobile, and respectively the president and treasurer of this company.

The bill is of the usual form in patent infringement suits and charges the defendants with infringing the patent stated above by reason of the defendants' use, at their telephone-exchange in the city of Mobile, of certain apparatus called "multiple switchboards."

Originally it was charged that claims 2, 3, 4, and 6 of the Scribner patent were infringed. On the hearing claim 3 was withdrawn from such charge. This leaves before the court only claims 2, 4, and 6 of this Scribner patent, No. 330,061.

The nature and purpose of the invention embodied in this Scribner patent, and the patent itself, will need to be first stated in order to have a clear understanding of the issues involved. The patentee says:

My invention relates to multiple-switchboard signals, and is designed to enable the operators at the different boards to test to determine what lines are in use, while the circuits are so arranged that any two lines may be connected together upon any one of the boards without including in their circuit the resistance of the contact-points of the switches. * * * In all these systems heretofore used the contact-points of the switches have been included in the circuit of two lines when connected together.

My invention is designed to avoid the resistance of these contact-points by the use of circuits and apparatus more simple than any heretofore devised, while the operators are enabled to make the usual tests to determine whether any line wanted is already in use at another board. * * * * * *

It is evident that this arrangement of circuits may be used with various kinds of switches other than the spring-jacks having insulated frames, as described, and as shown in Fig. 1. In Fig. 2 I have shown simple connecting-bolts c' d' e' for making the line connections, means being provided, as shown, for breaking the circuit f' when a connection is made at either bolt. With circuits thus arranged any two lines may be connected directly on either of the boards without including the resistance of the contact-points of the spring-jacks in their circuit, while such signals and tests may be made as may be desired.

Scribner, the patentee, testifying for complainant, states the object of his patent, and, among other things, says:

The patent in suit, No. 330,061, is for a multiple switchboard. The result sought to be accomplished by the invention of this patent is the connection between any two subscribers' lines in a telephone-exchange, the exclusion of contact-points from the circuit of such connections, while, at the same time, the indicator-annunciators of such connected lines are temporarily cut off from their respectives lines.

In defining his invention as embodied in this patent, by way of aiding in an understanding of it, Scribner further testified:

The invention of the patent in suit provides a spring-jack switch upon each of the several switchboards for each line, the spring-jack switch being constructed to provide a contact-piece to which the plug made contact when introduced into the spring-jack, a spring normally resting upon a contact-point and circuits with which the line is to be connected. By this construction the line-wire is directly connected with a portion of each spring-jack, this portion being that with which the plug is designed to make contact. The line-wire is also connected with all the contact-points and all of its spring-jacks and thence through the indicating-annunciator and battery and to ground-return. The introduction of a plug into any spring-jack gave a contact between the plug and that portion of the spring-jack directly connected with the line-wire, while at the same time the contact-points of the jack in which the plug was inserted were open and the circuit to the indicating-annunciator interrupted, and this, too, no matter which spring-jack of the line was employed. A plug, when inserted in the spring-jack and having a conducting-cord leading to another plug, would serve, upon the introduction of the second plug into a spring-jack belonging to any line, to connect directly together the two lines without the contact-points and any of the spring-jacks being included in the connected circuit. This construction, with its results, is the principal feature of the patent in suit.

Minnis, a witness for defendants, in his twenty-second answer says:

Without going into any long dissertation upon the specification and claims of the patent in suit, and their interwoven relations one to the other, I think that I can safely boil this down into one specific combination claim, to wit: A multiple telephone-switchboard so arranged that talking-circuits can be established thereon without including in said talking-circuit any of the separable contacts of any of the jacks of either of the

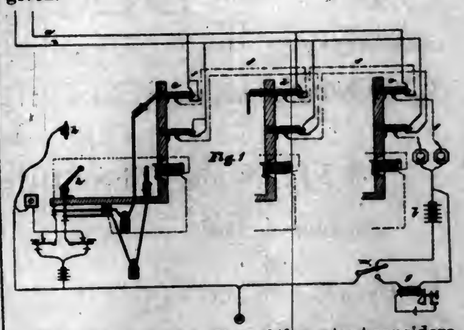
lines incorporated in said talking-circuits, and without preventing or interfering with the operation of the usual apparatus commonly employed for the production of what is generally known and described as a busy-test, substantially as described.

I do not perceive any substantial difference, if any difference at all, in the statement of the invention by these opposing witnesses. Lockwood, an expert witness for complainant, in speaking of the separable contact-springs and the defective operation resulting from the failure to cut them out of the talking-circuit, as made when subscribers are to talk over the line, (his reference being to the art as it existed prior to the advent of the Scribner patent,) says:

> When such separable spring-contacts are thus introduced into an electrical circuit it is a fact that at each pair a certain resistance or opposition to the perfect passage of the electrical current is introduced into the circuit; or, in other words, when two portions of the circuit-conductor are held in contact by pressure only their resistance is greater than if at such point of the circuit the metallic conductor, such as a wire, had been undivided. In many forms of applications of electrical circuit this additional resistance at each spring-contact makes no appreciable difference to the passage of the current, but the electrical current employed in speaking telephony is very delicate and very weak, and requires that the resistance of the circuit shall be as low as possible, in order that its passage through the said circuit from one subscriber's station to the other shall be facilitated.

Thus it will be seen that there were weighty objections to the multiple switchboards prior to the Scribner patent, because in them a talking-circuit composed of two subscribers' lines and their connections effected in the exchange office included the separable contacts of all the spring-jacks of the two lines embraced in such circuit. The several or perhaps numerous contacts, the evidence shows, were liable to and often did maintain poor electrical union, often filled between their touching points more or less with dust or other foreign substance, which impaired and even sometimes destroyed their contact, electrically speaking, and such several separable contact-points of each line at each board or board-section also constituted a series of breaks or breakable points in the talking-circuit depended upon by users of telephones for the transmission of speech. The evidence in this case is strongly persuasive, if not wholly convincing, that the invention embodied in the patent involved herein overcame and eliminated these difficulties and produced a substantial and meritorious advance in this useful art. By means of this invention, as expressed in the patent and as shown by the evidence, the series of separable contacts of each of any two lines to be brought together are cut out of the talking-circuit when any two of the spring-jacks on a board or board-section are electrically connected by a pair of plugs and their conducting-cords. Thus, referring to Fig. 1 of the patent, if the upper plug is inserted into the spring-jack or switch *c* in the upper left-hand part of the figure and then the lower plug is inserted into the spring-jack or switch on the same left-hand board the subscriber's line *a* and the subscriber's line *b* will become electrically connected for talking purposes. At the same time each of the upper spring-jacks or switches *d* and *e* of the line *a* will be cut out of the circuit, and each of the spring-jacks or switches of the line *b* lowest under *d* and *e* will also be cut out.

A representation of Fig. 1 of this patent is here given.



With this understanding of the patent consideration will now be given to the defenses urged by counsel for defendants. These are:

1. That there is such failure and insufficiency of proof adduced by the complainant to establish the charge of infringement that no proper determination of such issue is possible.

2. That the state of the art prior to the grant of the patent in suit was such as to preclude the allowance of any claims having the scope and capable of the construction that can be inferred from the terms of the claim and from the face of the patent.

3. That by the well-known construction of the statute no original patent should have been granted for the subject-matter covered or defined by the claims of the patent in suit, such subject-matter having been so far and so clearly disclosed by prior patents to the same grantee that the rights of the latter were thereby relegated to his remedy by reissue and not susceptible to protection by this patent.

4. That the patent on which this suit is founded is not infringed by defendants, even if it be admitted, tentatively, that said patent is valid and capable of a broad construction.

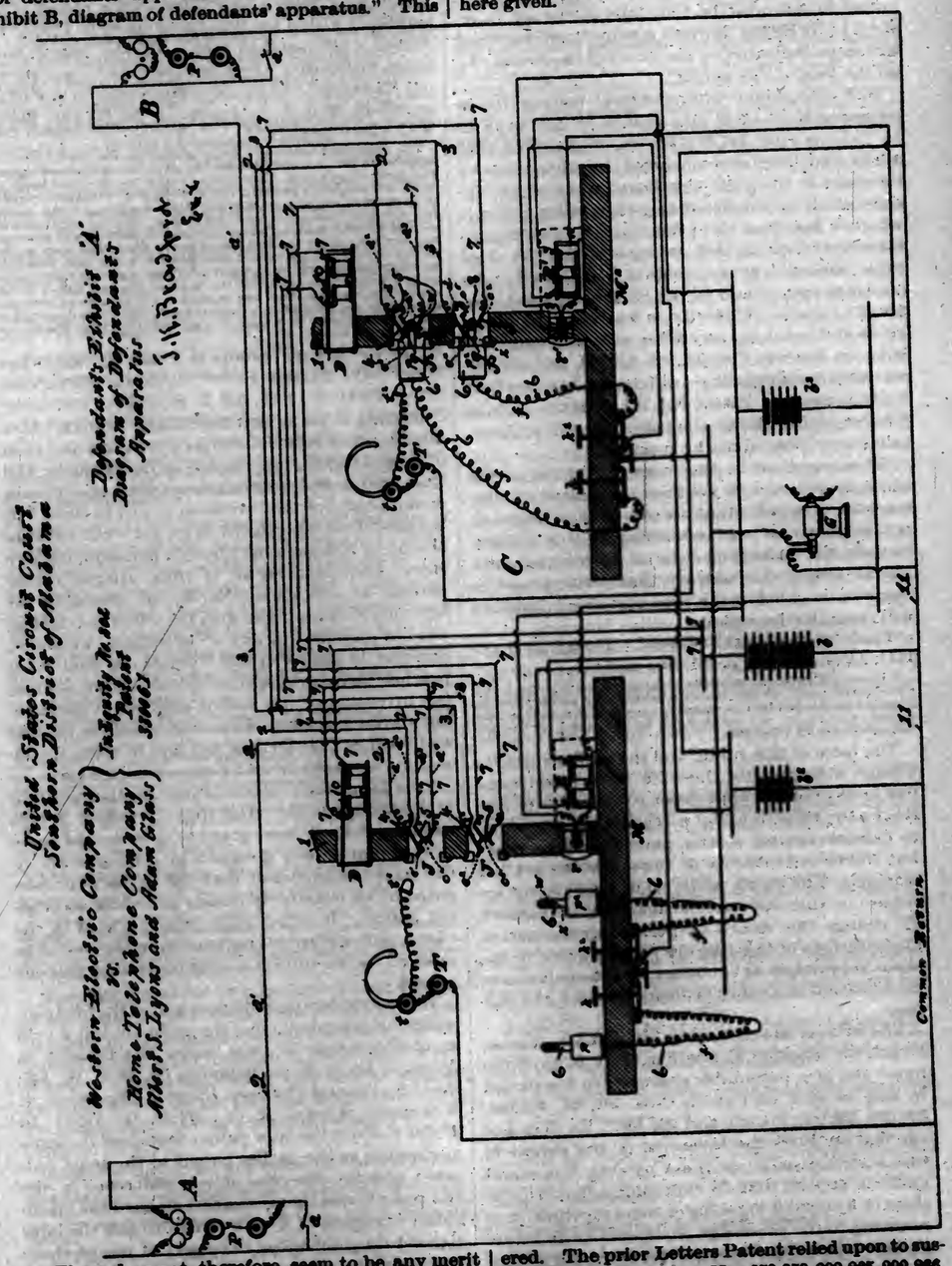
5. That the patent in suit is void as to the claims in issue, under the decision of the Supreme Court in *Miller* v. *Eagle Manufacturing Co.* (66 O. G., 845; 151 U. S., 201) and *Thomson-Houston* v. *Winchester Avenue Railroad Co.* (73 O. G., 2155) and authorities therein cited.

6. That if it be admitted for the sake of argument that the patent in suit has any legality whatever the claims in said patent can only be saved by the narrowest construction, rigidly restricting them to the precise form, construction, and arrangement shown and described.

The first objection indicated above seems to be based upon the position that the diagram drawing introduced by complainant, and marked "Complainant's exhibit diagram defendants' apparatus," was not a correct representation of the multiple switchboard admitted by defendants to be used by them in their exchange at Mobile. Aside from whether defendants are right in contending that such exhibit is not an accurate representation of said apparatus, the defendants themselves offered

in evidence as a correct representation of the apparatus alleged to be an infringement two diagram drawings marked "Defendants' exhibit A, diagram of defendants' apparatus" and "Defendants' exhibit B, diagram of defendants' apparatus." This drawing "A," described by defendants' witness as a correct illustration of defendants' apparatus.

A representation of defendants' "Exhibit A" is here given.



There does not, therefore, seem to be any merit in this first objection urged by defendants.

The second defense urged will next be considered. The prior Letters Patent relied upon to sustain this proposition are Nos. 252,259, 292,865, 293,866, 330,059, 330,060, 294,482, and 269,238. The last two

here named, although not found in defendants' brief, are nevertheless in the record and are referred to in complainant's brief. The point urged in this second defense is that in view of the above patents there is such an exhibition of the prior art that the patent in suit must be judicially construed in respect of its claims down to a scope narrower than the scope indicated by the terms of the claims and on the face of this patent.

But defendants' witness Clark, responding to cross-questions 48, 49, and 50, says he does not find in Patents Nos. 292,866, 330,059, and 330,060 that when two lines are connected together without reference to the particular board upon which the connection is completed there is a talking-circuit which is free from all of the separable switch-contacts of the spring-jack switches of the two lines thus connected, as such feature is exhibited in defendants' system and in the Scribner patent, No. 330,061, in suit. This witness was asked to distinguish and point out any differences that may exist between Patents Nos. 292,866, 330,059, and 330,060, and after detailing alleged differences he states that he finds that the Patent No. 292,866 is the same as the Patent No. 330,061, the patent in suit, with certain exceptions, which he specifies.

Whatever then be the merit or demerit or the accuracy or inaccuracy of these statements and discussions, it remains that the patents mentioned do not, as they now exist, according to this witness, contain the invention covered by complainant's patent, but, on the contrary, that changes must be made in them before it is even pretended that they will show this invention.

The Supreme Court in *Topliff* v. *Topliff* (59 O. G., 1257; 145 U. S., 156, p. 161) has said:

It is not sufficient to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such functions.

The force of this ruling and the similar ruling in *Clough* v. *Barker* (106 U. S., 166–175) is made manifest in its practical application to the rights of parties by the reflection that all earlier patents set up in defense against a later patent sued upon are but the record evidence of the status the art has reached. The rights under such later patent are subject to what this record evidence actually shows. To change this record by permitting theoretical modifications of these earlier patents would be the same in principle as to change by interpolation or modification any other evidence between the parties.

The witness Minnis (answer 24) discusses at great length the question of whether there is anything novel and of a patentable character in the patent in suit in view of Patents Nos. 292,865, 292,866, 330,059, 330,060, 294,482, and 269,438. He does not say that he finds the invention of the patent in suit in either or all of these patents, but would make it appear that by changing some or all of them or by combining some of them together, thus resorting to the process of modifications and reorganizations, he would then arrive at this invention. For instance, he says:

Thus it will be seen by means of these four patents we have been brought up step by step to an arrangement and combination almost identical with that shown in the patent in suit.

But this "almost," with its indefinite bounds, forms the missing link and, it is thought, brings this form of attack on complainant's patent substantially within the rule pronounced in *Topliff* v. *Topliff*, *supra*, and *Clough* v. *Barker*, *supra*, and is also within the objections to such a course pointed out by Judge Coxe in the case of *Johnson* v. *Forty-second St. M. & St. N. Avenue R. Co.*, (33 Fed. Rep., 500,) where he says:

The defendant assembles every similar device, description or suggestion in the particular art not only, but also in analogous and even remote arts. Everything which has the least bearing upon the subject is brought in and arranged by a skilful expert in an order of evolution which resembles most clearly the invention which is the subject-matter of attack. Having thus reached a point where but a single step, perhaps, is necessary to success, and knowing from the inventor exactly what that step is, the expert is asked if the patent discloses invention, and, honestly no doubt, answers in the negative. There is always the danger, unless care is taken to divest the mind of the idea added to the art by the inventor, that the invention will be viewed and condemned in the light of ascertained facts. With his description for a guide, it is an easy task to trace the steps from the aggregation to the invention.

"In the law of patents it is the last step that wins," says Justice Brown in *Barb Wire Fence Cases*, (58 O. G., 1555; 143 U. S., 275.)

Bearing in mind that defendants' witness Clark distinguishes between the patent in suit and such of these alleged prior patents as he considers, and that defendants' other witnesses, Paca and Minnis, do not point out the invention in suit in these earlier patents, it is pertinent to consider the rebuttal offered by complainant through Scribner, the patentee, who discusses all of these alleged earlier patents, as also Patent No. 306,669, offered by defendants in connection with the Clark deposition, but not discussed by any of defendants' witnesses. Scribner in answers 1 and 7 points out that these patents, three of which are his own, do not contain the invention of the patent sued on. Complainant's witness Haskins also considers these patents and testifies that he does not find in them the invention in question, and I concur in this view.

This discussion disposes of the third proposition of defendants to the effect that the patent in suit should not have been granted because the same subject-matter was disclosed in prior patents to the same patentee and that his rights were relegated to his remedy by reissue and not to an original patent. It is not clear from my view of the "prior patents" to this patentee how they could be reissued for the subject-matter covered by this one patent.

These considerations dispose also of the fifth contention of defendants that the patent in suit is void as to the claims in issue, under the decision in *Miller* v. *Eagle Manufacturing Co.* (66 O. G., 845; 151 U. S., 186) and *Thomson-Houston Electric Co.* v. *Winchester Avenue R. Co.*, (73 O. G., 2155.) In *Miller* v. *Eagle* the later patent contained the same mechanism as the earlier patent to the same patentee, and the essential or only difference in the two patents was that the earlier claimed the mechanism in respect of its two functions and the later claimed the mechanism in respect of one of those functions, the case presenting one in which there was no division of mechanism, but only a division

of functions, as between the two patents. There is nothing of that sort as between the patent in suit and any of the patents offered by the defendants.

In the additional brief filed on behalf of defendants considerable space is devoted to showing that Patent No. 321,390, dated June 30, 1885, issued upon an application filed October 25, 1879, contains a substantial disclosure of the separable-contact-cutting-out feature, defendants contending that everything disclosed by the patent in suit, except possibly the peculiar form of the apparatus and the particular form of the test-circuit, belongs to the patentee's earlier patent, No. 321,390, and say that the idea of excluding one set of contacts at the same time connection is made with another set is clearly set forth in this Patent No. 321,390, and that the patent in suit was therefore void or anticipated. This Patent No. 321,390 describes its spring-jacks thus:

One part, B', of the switch I term the "line" portion, and the other part, B, I term the "test" portion.

These portions are not used simultaneously, but each is used when occasion requires for its own particular purpose.

Defendants' witness Minnis, (answer 23,) speaking of these contacts in Patent No. 321,390, says that—

both of these contact-switches being of a separable character, the insertion of a plug would still leave in the circuit those contact-switches between the plug and the point of entry of the line into the switchboard.

It appears, then, that upon entering the plug of a connecting-cord into any of the series of switches there would still be left in the talking-circuit the separable contact-points of all the intervening switches located between the plugged switch and the point of entry of the talking-line into the switchboard. This statement accords with the testimony of the patentee, Scribner, in his answer to question 7, wherein he says:

In this Patent No. 321,390, instead of a single switch upon each multiple switchboard, there are two switches for each telephone-line, and these two switches are insulated from each other, and the contact-points of all the switches of a given telephone-line are included in the line-circuit of the telephone-line. A connection of any two lines of this system gives a talking-circuit through these contact-points, thus introducing an objectionable resistance—a defect which the patent in suit was designed to and does obviate. Neither the construction nor the result of the patent in suit can be possibly secured by any employment of the apparatus of my Patent No. 321,390.

The witness Haskins, for the complainant, in answering question 8, in his deposition says:

I will next consider Mr. Scribner's patent No. 321,390, of June 30, 1885. This patent also contains the same objectionable feature of including in the talking-circuit the contacts of the switches when two subscribers are connected for conversation, and accordingly has no significance.

Then Minnis in his twenty-third answer speaks of certain changes to be made in Patent No. 321,390 to make it accomplish the result effected by the patent in suit. For instance, he says that "a substitution of one bolt with two sets of contact-switches would be an absolute equivalent of the two bolts, each having a contact-switch."

Again he says:

Going a step further and substituting for this bolt with two sets of contact-switches [of] a bolt with one set of contact-switches and one solid switch-contact, and we have an arrangement under which the insertion of the plug in any switch would leave no separable contacts included in the circuit thus established.

If Patent No. 321,390 covers, broadly, the identical invention covered by the patent in suit, as is claimed by defendants' counsel, why the substitution or change of bolts and contact-switches as suggested by witness Minnis? Why any change of construction in the arrangement shown in Patent No. 321,390 if it possesses all the functions of the patent in suit?

The grant of Letters Patent is *prima facie* evidence that the patentee is the first inventor of the device described in the Letters Patent and of its novelty. The burden of overcoming the *prima facie* case made out by the production of the patent is upon the defendant, and the defense of want of novelty must be clearly established before a court will be justified in setting aside the patent on this ground. Not only is the burden of proof to make good this defense on the party setting it up, but it has been held that "every reasonable doubt should be resolved against him." (*Cantrell* v. *Wallack*, 35 O. G., 871; 117 U. S., 689; *Palmer* v. *Corning*, 70 O. G., 1497; 156 U. S., 342.)

This disposes of all of defendants' propositions, except the fourth and sixth, which go to the point that there is no infringement by defendants of the patent sued on and to the further point that the claims can only be saved by a narrow construction restricting them to the exact form, construction, and arrangement described by the patent in suit and illustrated therein. It does not seem to admit of doubt that this patent accomplishes a new result—namely, the direct connection of two subscribers' lines through the usual plugs and cords, at the same time cutting out of the talking-circuit thus formed all the separable contacts belonging to such lines and cutting out the conductors leading to the individual annunciators. The instrumentalities employed to accomplish this result are not, individually, new instrumentalities, but they are brought together in a new relation, combination, or organization, and thereby produce this advance in the art of telephony, and which, according to the evidence in this case, is meritorious in respect to its practical utility and the advantages it affords in the actual use of telephones by simplifying the apparatus in telephone-exchanges and by improving the tone and efficiency of talking-circuits through the elimination of objectionable resistance to the low current employed in such circuits.

As defendants' "Exhibit A" is accepted by both parties to the suit as a substantially correct representation of defendants' apparatus as used in their exchange, that exhibit has been adopted by me as the basis of comparison with the patent sued on. Defendants' witness Clark in answer 23 says:

The said defendants' "Exhibit A" represents correctly the apparatus as used in the switchboard at Mobile, Ala., by the Home Telephone Co. This is a correct drawing.

Clark was further asked:

In defendants' system the circuit of each telephone-line may be traced normally from the subscriber's station through the separable contact of the different spring-jack switches of the line and thence through the line-annunciator and thence back to the subscriber's station. Is not this correct?

A. Yes, sir. (Cross-answer 78.)

Referring to Fig. 1, for example, of the patent in suit, is not each spring-jack of each line provided with three contacts, one contact being normally open and the other contacts being normally touching each other or closed together?

A. Yes, sir. (Cross-answer 79.)

Is not the same true as to the spring-jacks of defendants' system?

A. Yes. (Cross-answer 80.)

When a connecting-plug is inserted in a spring-jack of the patent in suit, is not the normally open contact of the spring-jack switch closed to the plug to form a circuit to the telephone-line, while at the same time the separable contacts are disconnected so as to cut off the portion of the line or the branch which contains the line-annunciator?

A. Yes, sir. (Cross-answer 81.)

Is not the same true of defendants' system?

A. Yes, sir. (Cross-answer 82.)

In the case of the patent and in the case of defendants' system, when two lines are connected together, none of the sepa-

rable contacts of such lines are included in the united circuit of the two lines, that is, in the talking-circuit. Is this correct?

A. Yes, sir. (Cross-answer 86.)

And said witness Clark was further asked:

Referring to Fig. 1 of the patent in suit, do you not find a branch from the telephone-line connected with the normally open contact of the spring-jack switches of such line?

A. Yes, sir. (Cross-answer 87.)

Referring to defendants' apparatus, as illustrated in defendants' "Exhibit A," are not their contact-springs c' and c^3, of the spring-jack switches of the telephone-line of station A, and are not these contacts c' and c^3 both branched from the said telephone-wire, and are they not normally open?

A. Yes, sir. (Cross-answer 88.)

Paca, another of defendants' witnesses, stated that—

exhibits "A" and "B," diagrams of defendants' apparatus, correctly represent the arrangement of the circuits and apparatus at the exchange of the Home Telephone Co. in Mobile.

The patentee, Scribner, was asked:

Bearing in mind the prior state of the art and that testimony [the testimony in behalf of defendants] in so far as the same relates to claims 2, 4, and 6, please state whether this system, as used at Mobile, contains the invention of the patent as pointed out in said claims, giving your reasons at length for any opinions you may express.

A. The invention of the patent as set forth in claims 2, 4, and 6, to which you call my attention, is, in my opinion, realized in defendants' apparatus. In fact I think it will be apparent that the defendants have copied in their exchange the combination of devices described in each of the claims 2, 4, and 6. (Answer 6.)

Some distinction between the patent in suit and the defendants' apparatus is sought by counsel for defendants to be made in respect to the "open branch" in the patent (wire for connecting contacts of the several boards) and the wires a^3, a^3, and a^4 of defendants' apparatus; but their function is the same and the difference between such wires and their arrangement is one merely of form. The subject-matter, however, of this patent and the subject-matter of defendants' apparatus, for operative purposes, are not things whose essence is their form. Hence the rule of infringement laid down by the Supreme Court in *Union Paper Bag Machine Co.* v. *Murphy* (13 O. G., 366; 97 U. S., 120, 125) seems applicable here. In that case the Court says:

Except where form is of the essence of the invention, it has but little weight in the decision of such an issue, the correct rule being that, in determining the question of infringement, the court or jury, as the case may be, are not to judge of similarities or differences by the names of things, but are to look at the machines or their several devices or elements in the light of what they do, or what office or function they perform, and how they perform it, and to find that one thing is substantially the same as another, if it performs substantially the same function in substantially the same manner to obtain a like result, always bearing in mind that devices in a patented machine are different in the sense of the patent law when they perform different functions or in a different way, or produce a substantially different result. Nor is it safe to give much heed to the fact that the corresponding devices in two machines, organized to accomplish the same result, are different in shape or form the one from the other, as it is necessary in every special investigation to look at the mode of operation or the way the device works and at the result, as well as at the means by which the result is attained.

This patent was not "the mere carrying forward of new or more extended application of the original thought" shown in Patent No. 321,390, as claimed by defendants' counsel; nor was it "a change only in form, proportion or degree, doing substantially the same thing in the same way by substantially the same means" as Patent No. 321,390.

It is true that it was a patent for new combinations of what were old elements when considered by themselves; but—

a new combination, if it produces new and useful results, is patentable though all the constituents of the combination were well known and in common use before the combination was made. (*Palmer* v. *Corning*, *supra*.)

My opinion is that the patent in suit accomplished an absolutely new and useful result—that it was a pioneer invention.

The principle is well settled in the patent law that where an invention is one of a primary character, and the mechanical functions performed by the machine are, as a whole, entirely new, all subsequent machines which employ substantially the same means to accomplish the same result are infringements, although the subsequent machine may contain improvements in the separate mechanisms which go to make up the machine. (*Morley Machine Co.* v. *Lancaster*, 47 O. G., 297; 129 U. S., 263.)

I will now consider the claims specifically in connection with defendants' "Exhibit A" and interpolate numerals after the elements of the claims, placing the same numerals on what I find to be the corresponding elements in the said exhibit.

Thus claim 2 reads:

2. At a telephone-exchange central office, the combination of multiple switchboards [1] with telephone-lines [2 and 3] each permanently connected to a metallic portion of its switch upon each board, each telephone-line being also connected through the contact-points [5] of its switches and to ground, and means [6] whereby the circuit of the branch wire [7] of any given line is opened [as at 8] when a connection [contact 9] is made with the line [3] at any board, whereby any two lines [2 and 3] may be connected together [as at 9] upon either of the boards [1] without including in their circuits the contact-points [5] of either of their switches.

And claim 4 reads:

4. The combination, with a telephone-line [2 or 3] provided at each switchboard [1] of a multiple system with a connecting bolt or switch, [4 5,] of a portion [7] of said line connected through an annunciator [10] to ground, [11,] and means [6] for breaking said line [7] when a connection is made with the telephone-line [2 or 3] at either one of its bolts or switches, [4 5,] substantially as and for the purpose specified.

From this comparison of the patent in suit with the model or diagram of the apparatus shown to be in use by the defendants it seems clear to me that the defendant, the Home Telephone Company, has adopted substantially the invention alleged to be infringed.

In determining the question of infringement the court is not to judge about similarities or differences by the names of things, but is to look at the machines, or several devices or elements, in the light of what they do or what office or function they perform, and to find that one thing is substantially the same as another if it performs substantially the same function in substantially the same way to obtain the same result. (*Cantrell* v. *Wallack*, *supra*.)

There is no conflict in the testimony as to the fact that the invention covered by the patent in suit and the apparatus in use by defendants accomplish the same result, and there is no material conflict as to the construction and operation of the respective apparatus or devices shown by the patent and the admitted diagrams in the case, but there is a want of harmony in the conclusion of the witnesses on the conceded facts. There is a difference in their expert opinion on the question whether the two machines or devices are substantially identical and employ substantially the same means to obtain the result, which it is conceded is the same; but the comparison made brings me to the conclusion, agreeably also to the weight of the evidence, that claims 2 and 4 are infringed.

As to claim 6 I think that the construction or details of the spring-jacks as elements enter somewhat into the organization it sets forth, and as defendants' detail construction of spring-jacks is not clearly exhibited my decision as to this claim 6 is that infringement is not shown.

It is not shown in the evidence that defendants Albert S. Lyons and Adam Glass have in their individual capacity violated any of complainant's rights or that they have individually derived any profit or advantage from the patent sued on. No reason is shown why a decree should be rendered against them as individuals. As to them, therefore, the bill is dismissed at complainant's cost. (*Howard* v. *St. Paul Plow Co.*, 45 O. G., 1067; 35 Fed. Rep., 743; *Boston Woven Hose Co.* v. *Star Rubber Co.*, 50 O. G., 1450; 40 Fed. Rep., 167; *Consolidated Fastener Co.* v. *Columbia Fastener Co.*, 79 Fed. Rep., 795.)

The bill is sustained as to claims 2 and 4 and dismissed as to claim 6, and a decree will be entered accordingly and for an injunction and an accounting of the profits and damages in respect to claims 2 and 4, the injunction not to be operative until sixty days after the entry of the decree on account of the public inconvenience that might result in summarily enjoining the defendant, the Home Telephone Company, in the use of its switchboards.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 88—No. 4. TUESDAY, APRIL 26, 1898 PRICE—$5 per year.

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Amended Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 13, 1898.

The following rules of the Rules of Practice of the United States Patent Office (edition of June 18, 1897) are amended to read as follows:

RULE 135. Upon the filing of the appeal the same shall be submitted to the Primary Examiner, who, if he find it to be regular in form, shall, within *five* days from the filing thereof, furnish the Examiners-in-Chief with a written statement of the grounds of his decision on all the points involved in the appeal, with copies of the rejected claims and the references applicable thereto. The Examiner shall at the time of making such statement furnish a copy of the same to the appellant. If the Primary Examiner shall decide that the appeal is not regular in form, a petition from such decision may be taken directly to the Commissioner, as provided in Rule 145.

RULE 145. Upon receiving a petition stating concisely and clearly any proper question which has been twice acted upon by the Examiner, and which does not involve the merits of the invention claimed, or the rejection of a claim, and also stating the facts involved and the point or points to be reviewed, an order will be made fixing a time for hearing such petition by the Commissioner, and directing the Examiner to furnish a written statement of the grounds of his decision upon the matters averred in such petition within *five* days *after being notified of the order fixing* the day of hearing. The Examiner shall at the time of making such statement furnish a copy thereof to the petitioner. No fee is required for such a petition.

C. H. DUELL,
Commissioner.

Department of the Interior, April 13, 1898.
Approved:
C. N. BLISS,
Secretary of the Interior.

[CIRCULAR.]

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 14, 1898.

Rules 135 and 145 of the Rules of Practice have been amended to require Examiners to file their answers to appeals and petitions within five days after the appeals and petitions have been submitted to them.

In fixing the day of hearing, the docket clerk will give such time as may be necessary, having regard to the distance of parties and the time required by the mails.

The attention of Examiners is called to the requirement in Rule 64, and questions of form will be insisted upon only in applications found to present patentable subject-matter. In requiring division the Examiners will observe the decisions of the Commissioners, and furnish such references and other information as will enable the applicant to divide intelligently. (*Ex parte De la Sala*, 1898 C. D., 3; *ex parte Stearnes*, 1890 C. D., 49.)

C. H. DUELL,
Commissioner.

Attorneys.

(ORDER No. 1,197.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 21, 1898.

With the approval of the Secretary of the Interior, William C. Raymond, of Syracuse, N. Y., is hereby disbarred from practice before the United States Patent Office for gross misconduct, pursuant to the provisions of section 487 of the Revised Statutes.

C. H. DUELL,
Commissioner.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 15, 1898.

SIR: The Secretary of the Interior has ordered that William P. Gregg, of Ottawa, Ill., be not recognized as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof, as of date of March 16, 1898.

Department order of the 16th ultimo, disbarring William B. Gregg, of Ottawa, Ill., is hereby canceled and revoked.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

CERTIFICATES OF REGISTRATION ISSUED APRIL 26, 1898.

Labels.

6,573.—Title: "PILLSBURY'S IMPROVED SELF-RAISING PREPARED FLOUR." *Ulysses G. Pillsbury*, Derry, N. H. Application filed January 18, 1898.

6,574.—Title: "ROYAL CREST." (For Tea.) *Bohea Importing Company*, Baltimore, Md. Application filed March 29, 1898.

6,575.—Title: "PENNANT CHOP." (For Tea.) *Bohea Importing Company*, Baltimore, Md. Application filed March 29, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 19, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between two and three months.			
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 29	Apr. 8	257
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 20	Apr. 8	219
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 20	Apr. 5	263
102	XIX. Stoves and Furnaces	Jan. 20	Apr. 5	414
98	XXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 12	Mar. 26	257
	Between three and four months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 22	Apr. 15	242
253	X. Carriages and Wagons	Jan. 3	Apr. 13	333
248	XVIII. Steam-Engineering, etc	Dec. 27	Apr. 12	309
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 23	Apr. 9	360
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Dec. 20	Apr. 9	389
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 14	Apr. 8	535
217	XXXIII. *Trade-Marks, etc., †Designs, Drafting, and Optics.	Dec. 20	Apr. 8	198
38	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Dec. 21	Apr. 7	424
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 17	Apr. 6	236
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Jan. 8	Apr. 6	497
246	I. Tillage and Fences	Jan. 15	Apr. 5	206
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 30	Apr. 5	309
98	XXI. Textiles, etc	Dec. 20	Apr. 5	364
106	II. Farm Stock, Products, etc.	Dec. 20	Apr. 5	529
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 18	Apr. 4	206
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 27	Apr. 4	496
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 24	Mar. 31	353
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 31	Mar. 29	270
	Between four and five months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 6	Apr. 6	223
240	VII. Velocipedes	Dec. 13	Mar. 30	92
242	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	Mar. 25	503
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Mar. 5	471
	Between five and six months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 27	Apr. 8	516
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 10	Apr. 7	261
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 16	Apr. 6	561
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Nov. 3	Apr. 6	416
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 1	Apr. 4	493
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting; and Leather-Working Machinery.	Nov. 2	Apr. 1	503

Applications Under Examination—Continued.

	Between seven and eight months.			
221	XXIII. Instruments of Precision, Acoustics, etc.	Sept. 10	Mar. 19	474
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 10	Dec. 18	505

* Total number of applications awaiting action 14,127

Under one month.			
†Designs	Mar. 22	Apr. 6	185
Between one and two months.			
*Trade-Marks	Mar. 9	Apr. 8	330

ISSUE OF APRIL 26, 1898.

Patents	426	No. 602,817 to No. 603,242, inclusive.
Designs	18	No. 26,502 to No. 26,519, inclusive.
Trade-Marks	17	No. 31,480 to No. 31,496, inclusive.
Labels	3	No. 6,573 to No. 6,575, inclusive.
Prints	None.	
Reissues	1	No. 11,661.
Total issue	465	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	.....	New Hampshire	4	1
Arizona Territory	1	.....	New Jersey	20	.....
Arkansas	2	.....	New Mexico Territ'y	.....	.....
California	15	.....	New York	66	9
Colorado	7	.....	North Carolina	3	.....
Connecticut	15	.....	North Dakota	.....	.....
Delaware	.....	.....	Ohio	20	.....
District of Columbia	5	.....	Oklahoma Territory	.....	.....
Florida	1	.....	Oregon	.....	.....
Georgia	1	.....	Pennsylvania	53	2
Idaho	.....	.....	Rhode Island	1	.....
Illinois	26	1	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	2	.....
Indiana	9	.....	Tennessee	3	.....
Iowa	5	.....	Texas	6	.....
Kansas	7	1	Utah	2	.....
Kentucky	3	1	Vermont	.....	.....
Louisiana	3	.....	Virginia	6	.....
Maine	6	.....	Washington	3	.....
Maryland	7	2	West Virginia	5	.....
Massachusetts	25	1	Wisconsin	9	.....
Michigan	7	1	Wyoming	.....	.....
Minnesota	8	.....	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	.....	.....
Missouri	16	.....	Total to citizens of the United States	377	19
Montana	.....	.....			
Nebraska	2	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Italy	.....	.....
Australia	.....	.....	Mexico	1	.....
Austria-Hungary	2	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	3	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Burmah	.....	.....	Norway	1	.....
Canada	7	.....	Portugal	.....	.....
Cape Colony	.....	.....	Queensland	.....	.....
Chile, Republic of	.....	.....	Roumania	.....	.....
China	.....	.....	Russia	1	.....
Colombia	.....	.....	Scotland	1	.....
Cuba	1	.....	South African Republic	.....	.....
Denmark	.....	.....	South Australia	.....	.....
Egypt	.....	.....	Spain	.....	.....
England	17	1	Sweden	.....	.....
Finland	.....	.....	Switzerland	2	.....
France	1	.....	Victoria	.....	.....
Germany	25	.....	Total to citizens of foreign countries	67	1
Guatemala	1	.....			
India	1	.....			
Ireland	2	.....			

PATENTS

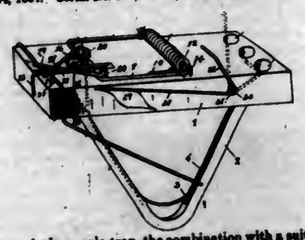
GRANTED APRIL 26, 1898.

602,817. SCRAP OR SAMPLE BOOK. EDWARD M. ANDERSON, Jersey City, N. J. Filed Sept. 7, 1897. Serial No. 650,708. (No model.)



Claim.—In a scrap-book, the binding-strips D, placed on the inside of the folds of the leaves A, the ends of said strips being formed over the edge of the several leaves, clamping them together, said leaves with clamp being secured to the back B, substantially as and for the purpose specified.

602,818. MOLE-TRAP. WILLIAM M. BALL, Auburn, Nebr. Filed Apr. 24, 1897. Serial No. 633,630. (No model.)



Claim.—1. In a mole-trap, the combination with a suitable block or base, of a snare-shield secured thereto at one end, a snare adapted to lie close to or within the shield, and means for actuating the opposite end of said snare, substantially as described.

2. In a mole-trap, the combination with a suitable block or base, of a snare-shield grooved to receive the snare, substantially as described.

3. In a mole-trap, the combination with a suitable block or base, of a snare-shield secured to the lower side thereof and having one of its edges grooved to receive the snare and its opposite edge sharpened, substantially as described.

4. In a mole-trap, the combination with a suitable block or base, of a snare-shield, a snare-wire, a spring for actuating said wire, and a trigger for holding and releasing said spring, substantially as described.

5. In a mole-trap, the combination with a suitable block or base, of a snare-wire, a spring for actuating said wire, a snare-shield, a trigger for said spring, and a trip for engaging and releasing the trigger, substantially as described.

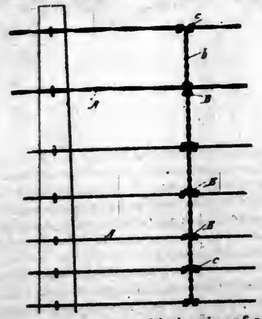
6. In a mole-trap, the combination with a suitable base or block, of a snare-wire fastened at one end and partially underlying the block and passing therethrough, a spring arranged above the block for drawing upon the other end of said wire, a trigger for holding said spring, a trip for engaging and releasing said trigger, and a safety-catch for holding the trigger, substantially as described.

7. In a mole-trap, the combination with a suitable block or base, of a snare-wire fastened at one end and passing therethrough and partially underlying the block, a spring on the upper side of the block for pulling the free end of said wire, a pivoted trigger for engaging said spring, and a trip pivotally mounted at one side of the block and having a short arm to engage said trigger, and a long arm to project across the mole-path, substantially as described.

8. In a mole-trap, the combination with a suitable block or base, of a snare-wire, actuating means therefor, and a movable flagstaff arranged to be actuated by the means which actuates the snare-wire, substantially as described.

9. In a mole-trap, the combination with a suitable block or base, of a snare-wire, an actuating-spring for said wire, and a flagstaff pivotally mounted on said block or base and having a portion thereof arranged in the path of the spring, substantially as described.

602,819. WIRE-FENCE STAY. WILLIAM C. BARRICK, New Midway, Md. Filed Dec. 3, 1897. Serial No. 660,696. (No model.)



Claim.—1. The combination, with the wires of a fence, of a series of stays each formed of a doubled and twisted wire shank having coils at one end encircling one of the wires and having a loop at its other end overlapping the next adjacent wire and engaging with the shank of the next stay, one of the end stays being inverted and reversed so that one of the fence-wires is held in position between two of the said loops, substantially as described and shown.

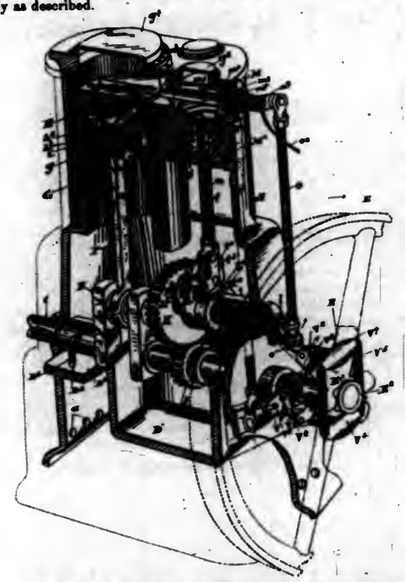
2. The combination, with the wires of a fence, of a stay comprising a shank of twisted wires, coils at one end of the shank engaging with the top wire of the fence, and a loop at the other end of the said shank and extending under the second fence-wire; and a second similar stay having its coils engaging with the third fence-wire and its loop extending over the second fence-wire, the shank of each said stay being passed through the loop of the other stay, substantially as set forth.

602,820. GAS-ENGINE. MILTON BUCK, Racine, Wis. Filed Mar. 1, 1897. Serial No. 625,665. (No model.)

Claim.—1. In combination the crank-shaft, cylinder, connecting-rod, hollow piston provided with a convex downwardly-depending head portion, pin extending through the piston on which the connecting-rod is journaled, saucer-shaped cap for the connecting-rod and holes in the center of the same and leading through the bushing to the pin as and for the purpose specified.

2. In combination, the casing, the cylinder and the piston, the explosion-chamber, and the igniter comprising a sleeve secured in the casing, a spring-blade extending therefrom into said explosion-chamber, a second sleeve within the first and insulated therefrom, a stem journaled in the second sleeve and extending inwardly past the end of the blade and provided with a lateral extension, a pin projecting laterally from the extension adapted to contact and break contact with said blade, a connection from said stem to a battery, means for operating the stem from a crank journaled to the casing, and the spring-finger secured to the casing and insulated therefrom adapted

to engage with said crank and to be disengaged therefrom, substantially as described.



3. In a machine of the class described, a vaporizer provided with a cylindrical casing with suitable upper internal head and open at the bottom, an oil-pipe leading into the casing above the head, a ring of perforations above the head in the periphery and a spiral groove extending from top to bottom of the cylindrical casing, perforations in the same and an outer casing therefor situated below the vapor-supply valve as and for the purpose specified.

4. In a machine of the class described, a vaporizer provided with a cylindrical casing with suitable upper internal head and open at the bottom, an oil-pipe leading into the casing above the head, a ring of perforations above the head in the periphery, a spiral groove extending from top to bottom of the cylindrical casing, perforations in the same, an outer casing therefor situated below the vapor-supply valve and a wrapping of wicking surrounding the cylindrical casing as and for the purpose specified.

5. In a machine of the class described, a vaporizer provided with a cylindrical casing with suitable upper internal head and open at the bottom, an oil-pipe leading into the casing above the head, a ring of perforations above the head in the periphery, a spiral groove extending from top to bottom of the cylindrical casing, perforations in the same, and a trough formed around the exterior of the cylinder at the bottom and a waste-pipe leading therefrom and an outer casing therefor situated below the vapor-supply valve as and for the purpose specified.

6. In combination the open-ended vaporizer, the perforations at the bottom of the casing to admit the air, the oil-supply pipe for the vaporizer, the cylindrical valve with longitudinal bottom ports, internal cylinder with corresponding ports, the ports in the outer supply-valve cylinder and inner cylinder leading into the supply-chamber and a valve connecting the supply-chamber with the explosion-chamber as and for the purpose specified.

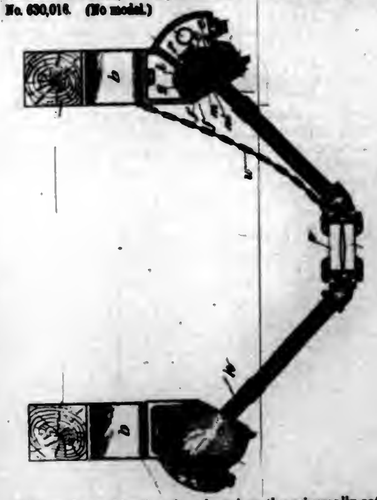
7. In combination, the casing, the cylinder and piston, the explosion-chamber, the igniter therein, and means for operating the same, a gas-inlet into the casing, a vaporizer below said inlet, a supply-chamber, and a three-way valve in communication with the gas and vapor inlets and adapted to control the supply of the same to the supply-chamber, the inlet from the supply-chamber to the explosion-chamber, and the valve for controlling the same, substantially as described.

8. In combination, the cylinder and piston, the explosion-chamber, the exhaust therefrom, the valve for controlling the same, the supply-chamber, the inlet therefrom to the explosion-chamber, the second valve for controlling said inlets, the main and counter shafts, the L-shaped levers pivoted at one end to a fixed support and having their opposite ends bifurcated, the valve-rods depending from the valves having their lower ends positively connected to said L-shaped levers, and the roller carried by the levers adapted to be operated upon by the cams, substantially as described.

9. The combination with supply-valve and internal cylinder thereof with suitable ports as specified, of the means for positively operating the same in its opening-and-closing action comprising the stem R^3 rod R^4, governor on the main shaft and means between the governor and the rod controlling the length of the upward movement of such rod as and for the purpose specified.

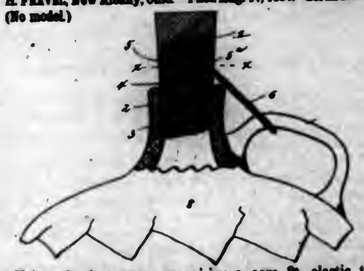
10. The combination with the supply-valve and internal cylinder thereof with suitable ports as specified, of the stem R^3 rod R^4 governor on the main shaft comprising the levers V^3 pivoted on the brackets V^2 secured to the hub of the fly-wheel and having weights V^4 at one end and bent arms at the other provided with pins V', the arm V pivotally connected to the rod R^4 and provided with a sleeve-shaped end swung on the main shaft, an annular groove in the sleeve-shaped end into which the pins V' extend, an obliquely-set pin v^5 secured in the arm V designed to coact with the oblique hole v^6 made in the casing as and for the purpose specified.

602,821. STEAM-PIPE COUPLING FOR RAILWAY-CARS. CHARLES B. BENSON, Wallingford, Conn. Filed Mar. 30, 1897. Serial No. 630,016. (No model.)



Claim.— In combination, the sphere-box, the universally-rotatable sphere hung in said box with fluid-tight joints between the two, the tube adapted to have reciprocation and rotation in said sphere with fluid-tight joints between the two, and means adapted for making said sphere and tube temporarily unrotatable as to each other, all substantially as described and for the purposes set forth.

602,822. STOPPER FOR JUGS. HERMAN G. BOTTON and CHAS. H. FRAVEL, New Albany, Ohio. Filed Aug. 17, 1897. Serial No. 648,561. (No model.)



Claim.—1. A stopper comprising a core 2^2, elastic thimbles placed thereon, an eye 9 swiveled in said stopper, and a ring 6 in said eye for connecting said stopper to the handle of a jug or similar vessel.

2. A stopper comprising a core 2^2, elastic thimbles $3\ 3^2$ secured to said core, a ring 5 loose on said core having a swiveled eye 9, and a link 6 in said eye for attaching the stopper to the handle of a jug or similar vessel.

3. A stopper for jugs and similar vessels comprising two parts with means for connecting those parts so as to form a channel or groove between them, a loose ring in said groove or channel, and a loop for connecting said ring with the handle of the jug.

4. A stopper for jugs and similar vessels comprising an upper part and a lower part of elastic material with means for connecting said parts so as to form a channel or groove between them, a loose ring in said channel or groove, and a loop for connecting said ring with the handle of the vessel.

602,823. WATER-FILTER. FRED BOOK and THEODORE HUSS, Saginaw, Mich. Filed July 14, 1897. Serial No. 644,502. (No model.)

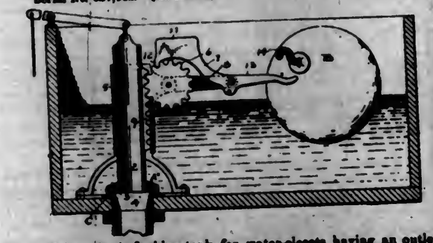


Claim.—1. A water-filter of the class described, comprising a filtering-stone, a metal cap secured on the discharge end of the stone and having a central threaded orifice, a cap for the casing inclosing the stone provided with a central orifice in line with the orifice of the metal cap of the stone, a drip-piece adapted to pass through the orifice of the casing-cap and engage the threaded orifice of the metal cap, a lug on the drip-piece adapted to press against the outside of the casing-cap and when the drip-piece is screwed in make a water-tight connection between the metal cap and the casing-cap, as described.

2. In a water-filter of the class described, the combination with a filtering-stone provided with a metal cap, as described, the casing-cap, and the drip-piece adapted to secure the casing-cap and the metal cap of the stone in water-tight connection, of the casing for the stone adapted to engage the casing-cap, means for making their connection water-tight, the casing provided with a central threaded bored lug upon its upper end, a coupling having one end adapted to engage the lug, the other end adapted to receive any size pipe smaller than the coupling, and means in the coupling for securing the coupling to a large or small pipe as specified.

3. In a water-filter of the class described, the coupling for securing the filter to the intake-pipe, comprising a tube adapted at one end to receive and engage the filter, the other end adapted to receive the intake-pipe of any size smaller than the coupling, a washer between the ends of the filter and intake-pipe, and means, such as set-screws, for securing the intake-pipe within the coupling, and means, such as turning the end of the filter into the coupling and against the washer for making a water-tight connection, as specified.

602,824. FLUSHING-TANK FOR WATER-CLOSETS. CHARLES P. CARROLL and JOHN I. GORMAN, Cleveland, Ohio. Filed Mar. 12, 1897. Serial No. 627,112. (No model.)



Claim.—1. A flushing-tank for water-closets having an outlet and a valve to close the same having a hollow stem, a rack on said stem and a gear engaging said rack, means to lift said valve and stem, a pawl to engage said gear and hold said valve in raised position, and a float having a projection constructed to release said pawl and allow said valve to drop to its seat, substantially as described.

2. A flushing-tank, and an outlet-valve therefor, having a hollow stem with a rack thereon supported in a casing, a pinion supported in said casing and engaging said rack, a pawl pivoted on said casing and having a counterweighted end engaging said gear, and its other end constructed to be engaged by a projection on a float to release said gear, and a float having a hook to engage said pawl when the float descends, substantially as described.

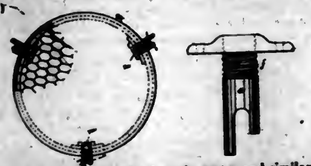
3. The tank and the tubular outlet-valve stem having a rack rigidly connected therewith, and means connected directly to said stem to raise said stem and rack together, in combination with a pinion engaging said rack and a member to engage and lock said pinion when the valve is raised and thereby hold the valve in suspended position, and a free float disconnected from said member and having a projection to engage and release said member when the float descends, substantially as described.

602,825. SPECTACLE OR EYEGLASS CASE. JOHN CASEY and MURRAY S. CHEEK, Philadelphia, Pa. Filed June 29, 1896. Serial No. 597,315. (No model.)



Claim.—A case consisting of a bulging body, a mouth having walls with diverging edges, and a lid hinged to said body, the sides of said lid converging from the outer edge of the same to the hinge of said lid, said hinge being straight.

602,826. FASTENER FOR BARRELS, CRATES, &c. GEORGE J. CAVE, Elizabeth, N. J. Filed Aug. 24, 1897. Serial No. 649,404. (No model.)



Claim.—1. In a fastener for barrels, crates and similar packing and storing vessels or containers, the combination with a tubular socket arranged on the said barrel or other container and having its outer end transversely slotted forming long and short lips, of a locking bolt normally lying between said lips, and having an arm entering into locking engagement with the cover of the barrel or other container, a second arm extending into the tubular socket and a spring within the said tubular socket fastened at one end to said socket and at the other end to the said bolt, substantially as set forth.

2. The combination with the package-body, of a tubular socket arranged on the walls of said body, a U-shaped locking-bolt, one prong of which is inserted into the open end of said socket and held by a spring allowing longitudinal movement of the bolt, the other prong lying outside of the package and being adapted to enter into locking relation with the cover, substantially as set forth.

3. The combination with a barrel or other package-body, of a tubular socket fitted within said package-body and threaded at its inner end, a plate correspondingly threaded to receive said tubular socket, and having means whereby it is fastened to the inner side of said package-body; the opposite end of said tubular socket being provided with long and short lips, a spring fastened within said tubular socket, and a locking-bolt having a U-shaped tongue with long and short prongs, the longer prong being arranged longitudinally within said tube and held by said spring, and the shorter prong lying outside of said tube, free to turn into and from locking engagement with the cover, substantially as herein set forth.

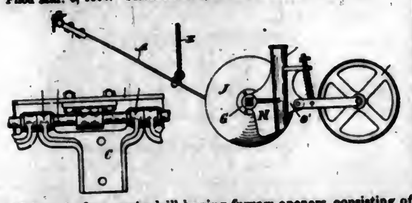
4. The improved fastener for barrels, &c., comprising a tubular socket projecting from the body of the barrel adjacent to the end thereof, and a bolt having an arm lying within said tubular socket and serving as a pivot upon which the bolt may be turned, and a second arm extending inward past the edge of the barrel-cover and preventing movement of the cover upward or laterally outward but allowing said cover to be opened upon the bolt as a hinge, said cover being suitably perforated near its periphery to receive said arm substantially as set forth.

5. In a fastener for barrels, the combination of a tube transversely slotted at one end forming lips, a locking-bolt lying normally in said slot between said lips and having an arm extending into locking engagement with the cover of the barrel, a second arm extending into the tube, and a spring within said tube fastened at one end to said tube and at the other end to said arm, substantially as set forth.

6. In a fastener for barrels, the combination with a tubular socket having one end transversely slotted forming lips, of a locking-bolt and a spring normally holding said bolt in said slot, the locking-bolt having an arm which extends into the tubular socket and serves as a pivot upon which the bolt may be turned when withdrawn from the slot against the power of the spring, one of said lips being longer

than the other to prevent turning of the bolt in that direction, and a second arm upon said bolt adapted to enter into locking engagement with the cover of the barrel, substantially as set forth.

602,827. SEEDING-MACHINE. EDWARD CRENSHAW, THOMAS BRENNAN, Jr., and LIVERETT W. HOMER, Louisville, Ky., assignors to the Brennan & Co. Southwestern Agricultural Works, same place. Filed Mar. 6, 1897. Serial No. 626,267. (No model.)



Claim.—1. In a grain-drill having furrow-openers consisting of concavo-convex disks rigidly attached to studs on the convex side of said disk, said stud passing through to the concave side and fitting within hubs, with drag-bars attached only to the concave side of said disks, substantially as and for the purpose described.

2. In a grain-drill, the furrow-openers consisting of concavo-convex disks attached rigidly to studs on the convex side of said disk, said stud passing through to the concave side and fitting within hubs, flat drag-bars attached only on the concave side of said disks, substantially as and for the purpose described.

3. In a grain-drill, flat spring-pressure bars attached to concavo-convex disks only on the concave side, said disks being rigidly attached to studs on the convex side, said stud passing through to the concave side of the disk, with a hub arranged for journaling same and supporting the grain-spout, substantially as and for the purpose described.

4. In a grain-drill or disk harrow, a single spring-pressure drag-bar attached to a hub receiving a stud to provide a journal for the disk on the concave side, said stud passing through to the convex side of the disk and rigidly attached thereto, substantially as and for the purpose described.

5. In a grain-drill having furrow-openers, consisting of concavo-convex disks rigidly attached to a stud on the convex side thereof, said stud passing through and entering a hub on the concave side of the disk, said hub attached to the single drag-bar, with the grain receiver or spout on the opposite or convex side of the disk, substantially as and for the purpose described.

6. In a grain-drill or disk harrow, a hub attached to the single drag-bar and receiving a stud attached to the convex side and passing through the disk and arranged to provide a journal for the disk on the concave side of said disk, a spacing-pin within said hub and rigidly clamped at one end of it to receive the stud on the concave side of the disk, substantially as and for the purpose described.

7. In a grain-drill the single drag-bar attached to a hub, a spacing-pin rigidly clamped at one end of said hub to receive the stud on the concave side of the revolving disk and to support the grain spout or receiver on the opposite or convex side of the disk, said disk rigidly attached to the stud on the convex side, substantially as and for the purpose described.

8. In a grain-drill the drag-bar attached to a hub, a spacing-pin fitting within said hub and rigidly clamped at one end, said pin being threaded at each end to receive clamping-nuts and having a small portion at each end square to hold it rigid and prevent it revolving, with a collar bearing against internal shoulders at one end of the hub, substantially as and for the purpose described.

9. In a grain-drill in combination with a hub attached to the drag-bar, a spacing-pin rigidly clamped within said hub and provided with a collar at one end to bear against the internal shoulders of the hub and a shoulder at the opposite end so as to hold the disk securely in place but permit it to revolve freely, substantially as and for the purpose described.

10. In a grain-drill furrow-opener consisting of a concavo-convex disk provided with a hollow stud on its concave side adapted to fit into a hub attached to the drag-bar and revolve freely therein, a clamping-bolt or spacing-pin passing through both the hub and the stud holding them firmly together but permitting the free revolution of the disk, substantially as and for the purpose described.

11. In a grain-drill a concavo-convex disk provided on its concave side with a hollow stud adapted to fit within a hub attached to the drag-bar, a grain spout or receiver on the opposite or convex side of the disk, all these parts held together by a clamping-pin passing through them and rigidly attached to the hub but permitting the free revolution of the disk, substantially as and for the purpose described.

12. In a grain-drill provided with furrow-openers consisting of concavo-convex revolving disks, with fixed or non-revolving scrapers or supports on the concave sides of the disks; bolted at one end to the hub attached to the drag-bar and at the other to the grain-spout carrier, substantially as and for the purpose described.

13. In a grain-drill or disk harrow the drag-bars attached to the hub of the disks by an adjustable attachment consisting of the elongated opening or slot to receive the rear bolt in combination with the washer for changing the angle of the disk, substantially as and for the purpose described.

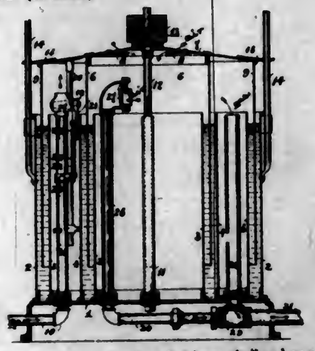
14. In a grain-drill or disk-harrow construction, a flat drag-bar under spring-pressure attached to a hub, said hub receiving a stud rigidly attached to the disk on the convex side and passing through to the concave side thereof, said drag-bar attached at one end to the hub on the concave side only of said revolving disk and at the other end pivotally attached to the frame, substantially as and for the purpose described.

15. In a grain-drill, the combination of a grain spout or receiver on the convex side of a revolving disk and attached thereto by a spacing-pin passing through the hub, a supporting-hub receiving a stud attached on the convex side of the disk on the opposite or concave side of said disk attached to the drag-bar and means for connecting said drag-bar pivotally to the frame of the drill, substantially as and for the purpose described.

16. In a grain-drill the combination of a concavo-convex disk or furrow-opener provided with a hollow stud on its concave side revolving within a hub attached to the drag-bar and on the convex side a grain spout or receiver having a forwardly-extending projection with a square or angular opening to receive the angular portion of a spacing-pin, which passes through the hub and the stud of the disk and holds the parts firmly together and in place, substantially as and for the purpose described.

17. In a grain-drill having furrow-openers consisting of concavo-convex disks carrying on the same journals grain receiver or spout, said spout provided with a lug on its rear side to which may be bolted a bracket to guide and control the pressure-wheels, substantially as and for the purpose described.

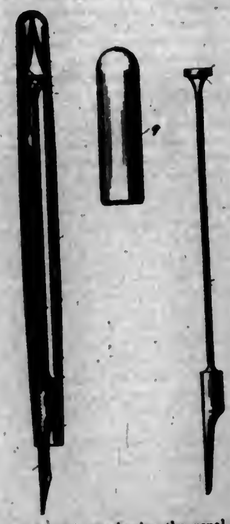
602,828. APPARATUS FOR MIXING AIR AND GAS. WILLIAM C. CLARKE, New York, N. Y., assignor to the Acetylene Apparatus Manufacturing Company, of West Virginia. Filed July 27, 1897. Serial No. 646,064. (No model.)



Claim.—1. The combination of an inner shell and an outer shell, an inner bell and an outer bell whereby are formed in connection with said shells a gas-chamber and an air-chamber, said bells adapted to be moved into and out of said shells, a gas supply for the gas-chamber, a valve for controlling said supply having means in connection with it for holding it normally open, air-valves automatically controlled for said air-chamber and adapted to be opened when the bells are moved out of the shells and a device carried by the bells for closing the valve against the means for holding it open when the bells are moved out of the shells whereby the gas-supply will be temporarily shut off and permit the bells to move into the shells again to force the air and gas out of their respective chambers to be mixed, substantially as described.

2. The combination of an inner shell and an outer shell, an inner bell and an outer bell whereby are formed a gas and an air chamber, said bells adapted to be moved into and out of said shells, a gas-supply pipe in the gas-chamber, a valve in said gas-pipe, a device supported from the dome of the gas-chamber for actuating the gas-valve, an air-eduction pipe in the air-chamber, a suction-valve therein, air-valves carried in the dome of the air-chamber opening to the atmosphere as the bells are moved out of the shells and adapted to close on the descent of the bells, which movement of the bells forces the air and gas from out their respective chambers to be mixed, substantially as described.

602,829. FOUNTAIN-PEN. WILLIAM P. COUPER, Washington, D. C. Filed Oct. 29, 1897. Serial No. 656,806. (No model.)



Claim.—1. A fountain-pen having the usual writing appliances at one end of the casing and having a filling-nozzle at the other end, and means for filling the reservoir through the nozzle, substantially, as described.

2. A fountain-pen having a pen-point and feeder at one end and having a nozzle at the opposite end, and having a piston within the casing for drawing the ink through the filling-nozzle and into the casing and a valve in the piston for permitting the ink to pass the piston, substantially, as described.

3. In a fountain-pen, the combination of a casing having a pen-point and feeder at one end, of a filling-nozzle at the opposite end of the casing, a stem secured to the feeder and extending substantially the length of the casing, a piston carried by the stem, and a valve in the piston and opening toward the stem, substantially, as described.

4. In a fountain-pen, the combination of a casing having a pen-point and feeder at one end, of a filling-nozzle at the opposite end of the casing, a stem secured to the feeder and extending substantially the length of the casing, a piston carried by the stem, a valve in the piston that opens toward the stem, a screw in the casing to limit the outward movement of the piston, substantially, as described.

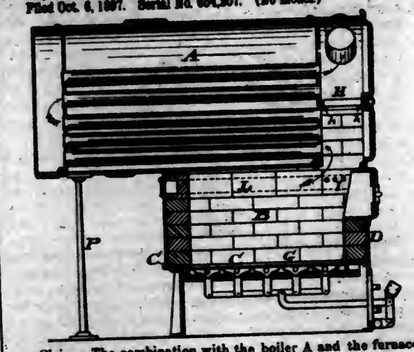
5. In a fountain-pen, the combination of a casing having a pen-point and feeder at one end, and having a filling-nozzle at the opposite end, of a stem formed on the feeder, a piston on the stem, a valve in the piston that opens toward the stem and a screw in the casing to limit the outward movement of the piston, substantially, as described.

602,830. REVERSING DEVICE. JOHN W. CRAW, New York, N. Y. Filed June 12, 1897. Serial No. 640,441. (No model.)



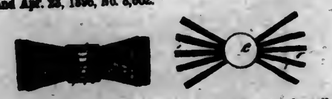
Claim.—In the combination of an automatic reversing mechanism, having a large friction-disk and two smaller friction-disks adapted to be moved into alternate conjunction with the said large disk, a horizontal cam secured to a horizontal lying worm-gear, two arms having rollers moving on the surface of the cam, two forked levers, a longitudinally-movable rod having the roller-arms and forked levers aforesaid attached to it, a hub forming part of each of the smaller friction-disks having a circumferential groove, which said forked levers engage, for the purposes specified, substantially as illustrated and described.

602,831. HEATING-BOILER. LEWIS S. DANIELS, Cleveland, Ohio. Filed Oct. 6, 1897. Serial No. 654,207. (No model.)



Claim.—The combination with the boiler A and the furnace B, inclosed in a sheet-metal casing and supported on a metal ash-pit, and the grate G, and having the air-flues L L in the side walls, of the horizontal partition H dividing the smoke-chamber at the front of the boiler, for directing the fire rearwardly through the lower flues, thence forwardly through the upper flues, substantially as described.

602,832. INSTRUMENT FOR PREVENTING DEPOSIT ON INTERIORS OF KETTLES, &c. WILLIAM L. DAHL, London, England. Filed Dec. 24, 1897. Serial No. 663,357. (No model.) Patented in England Apr. 23, 1896, No. 8,602.



Claim.—1. The new article or instrument herein described for preventing deposit in kettles and the like consisting of loofah strips connected together at one end by a wire or string whose ends are joined to form a ring with the loofah strips projecting radially from it.

2. The new article or instrument herein described for preventing deposit in kettles and the like consisting of loofah strips connected together at one end by a wire or string whose ends are joined to form a ring with the loofah strips projecting radially from it and held in place by buttons.

602,833. PROCESS OF BURNING ACETYLENE GAS. EDWARD H. DUKENMIER, New York, N. Y. Filed Dec. 31, 1895. Serial No. 573,884. (No specimens.)

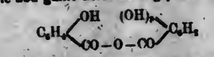


Claim.—The process of burning acetylene gas, which consists in superheating the same, before its delivery at the point of combustion, to a suitable temperature substantially as specified to prevent the deposition of carbon at the burner, substantially as described.

602,834. CONDENSATION PRODUCT FROM SALICYLIC AND GALLIC ACIDS. OSCAR DOEBNER, Halle-on-the-Saale, Germany, assignor to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 4, 1897. Serial No. 657,363. (Specimens.) Patented in Germany Mar. 3, 1896, No. 94,261.

Claim.—1. The process for producing a new condensation product from salicylic acid and gallic acid consisting in allowing phosphorous oxychlorid to react on a mixture of equimolecular proportions of salicylic and gallic acids which reaction may be carried out in the presence of a solvent and diluent, such as toluene, subsequently removing the formed metaphosphoric acid by pouring the mixture on ice-water, washing the thus-obtained solid mass, and drying the final product substantially as described.

2. As a new article of manufacture the new condensation product from salicylic and gallic acids having probably the formula:



being a white amorphous powder insoluble in water, ether, chloroform, soluble with readiness in caustic alkalies, being precipitated from its solution in cold caustic alkalies by the addition of acids, substantially as described.

602,885. ACETYLENE-GAS BURNER. EDWARD J. DELAR, Philadelphia, Pa., assignor, by mesne assignments, to the Acetylene House Lighting Company, of West Virginia. Filed Jan. 6, 1897. Renewed Mar. 19, 1898. Serial No. 674,535. (No model.)



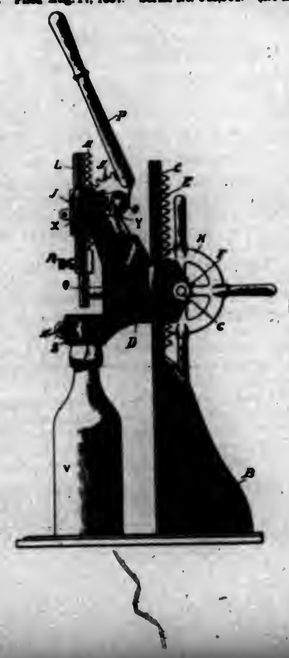
Claim.—A burner for acetylene gas, the same consisting in a body portion, having one of its ends provided with a conical tip, and radiating portions c^2, and its opposite end provided with arms, having shoulders, as described, the said body portion being provided with an internal chamber, contracted at the point of the top, and an external cap adapted to be fitted over the inner burner, said external cap being provided at its tip with an opening larger than the opening in the tip of the inner burner, and an air space or chamber between the tips of the inner and outer burners, substantially as shown and described.

602,886. BOTTLE-CAPPER AND CORK-PRESSER. ALPHONSE DOLLFUS, Philadelphia, Pa. Filed Aug. 10, 1897. Serial No. 647,712. (No model.)



Claim.—In a device of the character described, a base having ears projecting upward from the ends thereof, bridges having screw-holes therethrough extending across between the ears, a movable jaw pivoted between the ears at one end, said jaw having said pivoted end recessed, a spring coiled about the pivot-bolt, having one end bearing against the walls of the recess and the opposite end fitting against one of said bridges, means for operating said movable jaw, and dies formed in said jaws, substantially as described.

602,887. CORKING-MACHINE. ALPHONSE DOLLFUS, Philadelphia, Pa. Filed Aug. 17, 1897. Serial No. 648,501. (No model.)



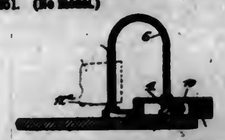
Claim.—1. A machine for corking bottles consisting of a base, a standard projecting upward therefrom, guideways formed upon the upper portion of said standard, a series of teeth formed upon the upper portion, a bracket adapted to slide upon the guideways, a spindle journaled in the rear portion of the bracket, a pinion carried by said spindle and meshing with the teeth, a hand-wheel for revolving the spindle, a spring for retaining the spindle against accidental rotation, a plunger-bar fitted to slide vertically in the bracket, teeth formed upon said plunger-bar, a segmental gear journaled in the bracket and meshing with the last-named teeth, an operating-handle formed with the segmental gear, a plunger carried by the plunger-bar, a housing formed with the bracket, and a flared bushing fitted within the housing, substantially as and for the purpose set forth.

2. In combination, a base, a standard, guideways formed upon said standard, teeth E also formed upon the standard, a bracket adapted to slide upon said ways, a pinion meshing with the teeth, means for operating said pinion, a plunger-bar, teeth M formed upon said bar, a segmental gear meshing with the last-named teeth, an operating-handle formed with the segmental gear, a gage-screw carried by the bracket and adapted to limit the downward movement of the operating-handle, a plunger detachably secured within the plunger-bar, a housing formed with the bracket, and a bushing having a flared opening therethrough secured within the housing, all arranged substantially as and for the purpose set forth.

3. A machine for corking bottles consisting of an upright standard, guideways formed on the upper portion thereof, a series of teeth also formed on said upper portion, a bracket adapted to slide on the guideways, a spindle journaled in the rear portion of the bracket, a pinion carried by said spindle meshing with the teeth, a hand-wheel for operating the spindle, a spring for retaining the spindle against accidental rotation, a plunger fitted in the bracket to slide vertically and means for raising and lowering said plunger independently of the bracket, substantially as set forth.

4. In a corking-machine, a bracket, a plunger-bar slidable vertically therein, a plunger secured to the plunger-bar, a rack-bar formed on the plunger-bar, a segmental gear journaled in the bracket meshing with said rack-bar, a handle on the gear, a lug on the side of the bracket, a set-screw threaded therethrough to strike the handle, a supporting-standard on which the standard is slidably mounted, and means for raising and lowering the bracket and holding it in position, substantially as set forth.

602,888. LETTER OR MILL FILE. SEMLE DESENBERG, Chicago, Ill., assignor to William Lumley, same place. Filed Mar. 1, 1898. Serial No. 672,251. (No model.)



Claim.—1. The combination with the impaling-wires, and the vertically-pivoted transfer-wires, of a bodily-movable normally-bowed combined spring and motion-transmitter connected at its ends to the pivoted portions of said transfer-wires, substantially as set forth.

2. The combination with the impaling-wires, and the vertically-pivoted transfer-wires, of separated arms or members projecting inwardly from the pivotal portions of said transfer-wires, and an intermediate bodily-movable spring connected at its ends to said arms or members and serving to transmit the motion from one transfer-wire to the other, substantially as set forth.

3. The combination with the impaling-pins and rotatable guard-wires, of crank-arms on said guard-wires projecting toward each other, and a coil-spring having its ends inserted over and crowded between the ends of and being held in place by said crank-arms, substantially as set forth.

4. The combination with impaling-pins and rotatable guard-wires, of crank-arms on said guard-wires turned toward each other, and having stems on their inner ends, and a coiled spring having its ends inserted over said stems, and tending to force said crank-arms apart, substantially as set forth.

5. The combination with impaling-pins and rotatable guard-wires, of a casting having the bosses 4, in which said wires are journaled, crank-arms on said wires having their free ends bent upward, and a spring crowded between and coiled up over said ends, substantially as set forth.

602,889. SADDLE FOR BICYCLES. CHARLES S. DESPENCER, London, England, assignor, by mesne assignments, to the Rumsey Cycle Saddle Company, New York, N. Y. Filed Dec. 28, 1896. Serial No. 617,189. (No model.)

Claim.—1. The combination with a saddle or seat, of suspending-links therefor pivoted on transverse axes, so as to give a longitudinal swinging movement to the seat, and pivoted also on longitudinal axes, so as to give a transverse or lateral swinging movement, substantially as described.



2. The combination with a saddle or seat, of suspending-links therefor pivoted at one end on transverse axes to extensions from the seat, and at the other end, pivoted on both transverse and longitudinal axes to a supporting-standard, substantially as described.

3. The combination with a saddle or seat, of suspending-links therefor in front and rear, pivoted at their lower ends on a transverse axis to extensions from the seat and at their upper ends pivoted on both a longitudinal and a transverse axis to a supporting-standard, the said longitudinal axis of the front and rear links being in alinement, whereby the seat itself has a capacity for movement about a single longitudinal axis and also a longitudinal movement constituting a combination of the movements of its respective ends due to the swinging of the links by which they are individually suspended, substantially as described.

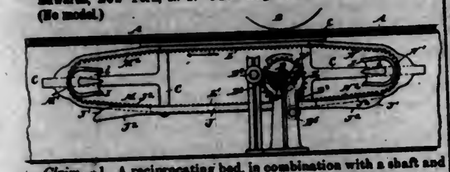
4. The combination with a saddle or seat, of extensions therefrom projecting downwardly on either side of the saddle-post, and U-shaped links jointed at their lower ends to the said projections and at their upper ends, jointed to a supporting-standard on both transverse and longitudinal axes, substantially as described.

5. The combination with a saddle or seat, of two downwardly-extending bars at each end, those at the rear being separated more widely than those at the front and suspending-links, one for each end of the seat, having their lower ends spread apart a distance corresponding to the distance between the said bars at the corresponding end of the seat and jointed thereto on transverse axes, and at their upper ends supported on a common longitudinal horizontal line about which they are free to swing laterally, and also jointed at the same ends so as to swing about transverse axes passing through their respective points of support, substantially as described.

6. The combination with a saddle or seat and bars extending downwardly therefrom, of the U-shaped links G and G' jointed at their lower ends to the said bars and at their upper ends, engaging with loops F F so as to swing freely on both horizontal and transverse axes, and wearing-pieces G^3 interposed between said links and loops, substantially as described.

7. The combination with saddle or seat A, of front and rear extensions B' and B^2, the latter being separated a wider distance apart than the former, and diagonal brace-bars B^3 joining the upper part of B' with the lower part of B^2 and curved or spread apart a distance corresponding to the separation of the bars B^2 at the rear end and the bars B' at the front end of the saddle or seat, substantially as described.

602,840. BED-MOTION FOR CYLINDER PRINTING-MACHINES. WILLIAM C. DURYEA, Mawmsburg, N. J., assignor to himself, and George Edwards, New York, N. Y. Filed Aug. 7, 1897. Serial No. 647,206. (No model.)



Claim.—1. A reciprocating bed, in combination with a shaft and two oppositely-inclined spiral gears thereon, and a rack comprising two inclined portions joined by a curved portion adapted to serve with said gears in slowing, stopping, and reversing the motion of said bed at the end of its stroke, all substantially as herein specified.

2. A reciprocating bed, in combination with a shaft, a spur-gear and two oppositely-inclined spiral gears thereon, a rack meshing with said spur-gear and serving to drive the bed through a portion of its stroke, and a rack comprising two inclined portions joined by a circular portion serving with said spiral gears in slowing, stopping, and reversing the motion of said bed at the end of its stroke, all substantially as herein specified.

3. A reciprocating bed, in combination with a shaft, a spur-gear and two oppositely-inclined spiral gears thereon, two horizontal racks, one above and the other below said spur-gear and serving with the latter to drive the bed through the middle portion of its stroke in either direction, racks comprising two inclined portions joined by a curved portion, arranged one at each end of the pair of said horizontal racks, serving with said spiral gears in slowing, stopping, and reversing the motion of said bed at each end of its stroke, all substantially as herein specified.

4. A reciprocating bed, in combination with a shaft and its bearings arranged to allow said shaft to rise and sink, a spur-gear and two oppositely-inclined spiral gears on said shaft, two horizontal racks, one above and the other below said spur-gear and serving with the latter to drive the bed through the middle portion of its stroke in either direction, racks comprising two inclined portions joined by a curved portion, arranged one at each end of the pair of said horizontal racks, serving with said spiral gears in slowing, stopping, and reversing the motion of said bed at each end of its stroke, all substantially as herein specified.

5. A reciprocating bed, in combination with a shaft, a spur-gear and two oppositely-inclined spiral gears thereon, two horizontal racks, one above and the other below said spur-gear and serving with the latter to drive the bed through the middle portion of its stroke in either direction, racks comprising two inclined portions joined by a curved portion, arranged one at each of the pair of said horizontal racks, serving with said spiral gears in slowing, stopping, and reversing the motion of said bed at each end of its stroke, and with a guide at each end serving to hold said spiral gears in proper relation to their racks, all substantially as herein specified.

6. A reciprocating bed, in combination with a shaft and its bearings arranged to allow said shaft to rise and sink, a spur-gear and two oppositely-inclined spiral gears on said shaft, two horizontal racks, one above and the other below said spur-gear and serving with the latter to drive the bed through the middle portion of its stroke in either direction, racks comprising two inclined portions joined by a curved portion, arranged one at each end of the pair of said horizontal racks, serving with said spiral gears in slowing, stopping, and reversing the motion of said bed at each end of its stroke, and with a guide at each end, an arm moving with said shaft, and a guide-rail engaged by said arm, serving with said guide to hold the shaft and its gears in proper relation to the racks, all substantially as herein specified.

7. The bed A arranged to be reciprocated in ways, in combination with the frame C carried by said bed, the horizontal racks L, L' and inclined and curved racks M, M', M^3 and N, N', N^3 mounted in said frame, the shaft D and bearing D', swinging arm D^3 supporting one end of said shaft, and the spur-gear E and spiral gears F and G carried by said shaft, all arranged to serve substantially as and for the purposes herein set forth.

8. The bed A arranged to be reciprocated in ways, in combination with the frame C carried by the said bed, the horizontal racks L, L' and inclined and curved racks M, M', M^3 and N, N', N^3 mounted in said frame, the shaft D and bearing D', swinging arm D^3 supporting one end of said shaft, and the spur-gear E and spiral gears F and G carried by said shaft, the roller H, and guide I having the groove i engaged by said roller, all arranged to serve substantially as and for the purposes herein set forth.

9. The bed A arranged to be reciprocated in ways, in combination with the frame C carried by the said bed, the horizontal racks L, L' and inclined and curved racks M, M', M^3 and N, N', N^3 mounted in said frame, the shaft D and bearing D', swinging arm D^3 supporting one end of said shaft, the spur-gear E and spiral gears F and G carried by said shaft, the roller H, guide I having the groove i engaged by said roller, the guide-rail J having inclined and curved faces J', J^3 thereon, and the roller D^4 on said swinging arm engaging said guide-rail, all arranged to serve substantially as and for the purposes herein set forth.

602,841. LACING-HOOK FOR SHOES. LEWIS F. EARL, Philadelphia, Pa. Filed May 12, 1897. Serial No. 636,167. (No model.)



Claim.—1. As a new article of manufacture, a lacing-hook consisting of a body part adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw of stamped sheet metal pivoted to and enveloping the upper and forward part of said post and presenting a nose which seats itself upon the body and having a shoulder or surface below the pivot to receive the lace and by which the hook is held closed.

2. As a new article of manufacture, a lacing-hook consisting of

a body part adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw pivoted to and enveloping the upper and forward part of said post and presenting a nose which seats itself upon the body and having a shoulder or surface below the pivot surrounding the forward part of the post to receive the lace and by which the hook is held closed, and the lace held out of contact with the post and a spring held to the body and acting upon the shoulder or lower edge of the lace-receiving surface of the jaw to hold it normally in an open position.

3. As a new article of manufacture, a lacing-hook consisting of a body part adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw of stamped sheet metal pivoted to the outer side of said post and presenting a nose which seats itself upon the body and having a shoulder or surface below the pivot formed by laterally-extended flanges directed toward each other in front of the post to receive the lace and by which the hook is held closed, and also clear of the post and a spring to hold the jaw normally open.

4. As a new article of manufacture, a lacing-hook consisting of a body part having an eyelet adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw pivoted to said post and presenting a nose which seats itself upon the body and having a shoulder or surface below the pivot to receive the lace and by which the hook is held closed, and a spring having a loop encircling the eyelet and a flat extension arranged above the body part to hold the jaw normally open.

5. As a new article of manufacture, a lacing-hook consisting of a body part adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw formed of stamped sheet metal bent into box shape to fit over the post and pivoted to said post on the outside and further presenting a nose which seats itself upon the body and having a shoulder or surface formed by the sides being bent inward below the pivot to surround the forward part of the post and receive the lace and by which the hook is held closed and the lace held clear of the post.

6. As a new article of manufacture, a lacing-hook consisting of a body part adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw formed of stamped sheet metal bent into box shape to fit over the post and pivoted to said post and further presenting a nose which seats itself upon the body and having a shoulder or surface formed by the sides being bent inward below the pivot to receive the lace and by which the hook is held closed, and a spring to hold the jaw normally open.

7. A lacing-hook consisting of the body E having the annular rim *c* and post G, in combination with the sheet-metal jaw H having its sides bent down to inclose the post and pivoted thereto and also having said sides bent inward as at I to form a surface against which the lace presses, and a spring K carried by the body and pressing upward against the part I to hold the jaw open.

8. In a lacing-hook, the combination of a body-post adapted for attachment to the garment or shoe having an upwardly-extending post, with a spring-actuated jaw extending around said post and pivoted thereto and having its nose adapted to press upon the body part when closed under the action of the shoe-lace.

9. In a lacing-hook, the combination of a body part adapted for attachment to the garment or shoe having an upwardly-extending post, with a jaw extending around said post and pivoted thereto and having a surface below its pivot for receiving the lace and having its nose adapted to press upon the body part when closed under the action of the shoe-lace, and a spring to normally hold the jaw open or in a raised position.

10. In a lacing-hook, the combination of a body part having means for attachment to the shoe or garment and an upwardly-extending post formed with pivot-pins extending from each side, with a box-shaped stamped sheet-metal jaw extending over or embracing the post and clamped in a pivoted condition upon the pins, and a spring to hold the jaw open.

11. In a lacing-hook, the combination of a body part adapted for attachment to the garment having an upright post, with a jaw formed of stamped metal enveloping and pivoted to the upper end of the post so as to shield it and having its sides extended downward to form shoulders to receive the lace at a point in front of the post and also rearward extensions to act upon the body part and limit the upward movement of the jaw.

12. In a lacing-hook, the combination of a body part adapted for attachment to the garment having an upright post, with a jaw formed of stamped metal enveloping and pivoted to the upper end of the post so as to shield it and having its sides extended downward to form shoulders to receive the lace at a point in front of the post and also rearward extensions to act upon the body part and limit the upward movement of the jaw, and a spring carried by the body part acting upon the shoulders of the jaw to normally hold it in position.

13. As a new article of manufacture, a lacing-hook consisting of a body part adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw pivoted to said post and presenting a nose movable to and from the body portion and having a shoulder below the pivot and forward of the post to receive and support the lace when the hook is closed, and a spring carried by the body part with the forward portion permanently held at a distance from the pivot of the jaw to permit the lace to freely pass above it under the movable nose and in front of its shoulder the said spring constantly acting upon the pivoted jaw to cause it to normally open when the tension on the lace is relieved or removed.

14. As a new article of manufacture, a lacing-hook consisting of a body part adapted for attachment to a shoe or garment and provided with an upwardly-extending post, in combination with a jaw pivoted to said post and presenting a nose movable to and from the body portion and having a shoulder below the pivot and forward of the post to receive and support the lace when the hook is closed and having an extended portion acting in connection with the body portion to limit the possible opening of the jaw under the action of the spring, and a spring carried by the body part constantly acting upon the pivoted jaw to cause it to normally open when the tension on the lace is relieved or removed.

602,842. LACING-HOOK FOR SHOES, GLOVES, &c. LEWIS F. EARL, Philadelphia, Pa. Filed July 20, 1897. Serial No. 645,294. (No model.)



Claim.—1. The combination with a garment, of a lacing-hook consisting of a primary part secured to said garment near its edge and having an arched portion hinged or jointed at one end to the primary part on an axis arranged obliquely to the edge of the garment and directed toward that part of the edge first to be acted upon when lacing the garment and having its opposite end bent over and under to form a hook-shaped recess whereby the arched and hinged or jointed portion may fall down and away from the edge of the garment under the action of gravity and when unlaced present the bent edge of the hook outward.

2. The combination of a garment, with a lacing-hook consisting of a primary part secured to said garment near its edge and having an arched portion hinged or jointed at one end to the primary part on an axis arranged obliquely to the edge of the garment and having its opposite end bent over and under to form a hook-shaped recess and further provided with a lateral tongue or extension about which the lace may be wrapped to move the hook during the lacing operation.

3. As a new article of manufacture, a lacing-hook consisting of a primary part adapted to be attached to a shoe or other garment, in combination with an arched portion hinged or jointed to the primary part at one end and having its other end bent over and under to form a hook-shaped recess and further provided with a lateral tongue or extension having a downwardly-projecting flange at its extreme outer edge about which tongue the lace may be wrapped to move the hook during the lacing operation.

4. As an article of manufacture a lacing-hook for shoes and other garments consisting of an eyelet D having the flange E, the two bearings F stamped upward thereon, and interposed tongue G at one side of the eyelet located between the bearings, in combination with the arch-shaped hook H having one end provided with outwardly-extending journal-pins A adapted to the bearings F and held therein by the interposed tongue and having its other or free end bent over and under to form the hook-shaped recess S and continued laterally as at I to form a tongue or lateral projection adapted to be received upon the flange E of the eyelet.

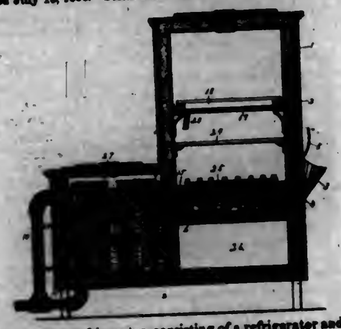
5. As an article of manufacture a lacing-hook for shoes and other garments consisting of an eyelet D having the flange E, bearings F, and interposed tongue G, in combination with the arch-shaped hook H having one end provided with journal-pins A adapted to the bearings F and having its other or free end bent over and under to form the hook-shaped recess S and continued laterally as at I to form a tongue or lateral projection adapted to be received upon the flange E of the eyelet and further having its extreme end bent downward as at *i* to extend over the edge of the said flange E of the eyelet.

6. The combination of a shoe or garment having two parts to be drawn together separated by a slit or opening the said parts being united at one end and separable toward the other and in which each part thereof is provided near its edge with a series of lacing-hooks each consisting of a primary part secured to the garment near the edge and a lacing-hook proper pivoted to the primary part on an axis arranged obliquely to edges of the garment to be drawn together and having its free end bent under to form a hook-shaped recess and also provided with a lateral extension or tongue directed obliquely away from the opening in the garment when the hook is closed.

7. The combination of a shoe or garment having two parts formed with parallel edges adapted to be drawn together at intervals from one end toward the other and in which each part thereof is provided near its edge with a series of lacing-hooks each consisting of a primary part secured to the garment and a lacing-hook proper pivoted to the primary part on an axis arranged obliquely to the edge of the garment to be drawn together and having its free end bent under to form a hook-shaped recess and also extended to form a lateral extension or tongue directed toward the portion of the opening to be finally closed and about which tongue the lace may be wrapped after being placed in the hook portion to draw the lacing-hook into locking position over the lace.

8. As a new article of manufacture, a lacing-hook consisting of a primary part furnished with means for attachment to the garment, in combination with an arched portion hinged or jointed to the primary part at one end and having its other end bent over and under to form a hook-shaped recess and further provided with a lateral tongue received directly upon the primary part to limit the movement of the said lateral projection toward the garment.

602,843. REFRIGERATOR. JOHN H. RHEES, Monmouth, Ill. Filed July 18, 1896. Serial No. 599,661. (No model.)



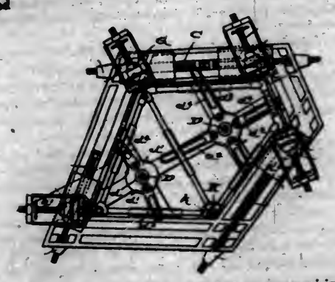
Claim.—In a refrigerator, consisting of a refrigerator and a deep-water compartment, the double, A-shaped pipe 7, connecting the refrigerator-compartment with the deep-water compartment, extending above the water, open at the top and provided with a lid, substantially as shown and described.

602,844. MACHINE FOR COMPOSING BICYCLE-FRAMES. REINHARD FELGNER, Magdeburg, Germany. Filed July 26, 1897. Serial No. 646,055. (No model.)

Claim.—1. A machine for constructing bicycle-frames comprising a base-plate, tubing-sleeves and fitting-clamps adjustably secured thereon and means for moving the clamps, substantially as described.

2. A machine for constructing bicycle-frames comprising a base-plate having ways upon the upper side, carriages sliding upon the ways and means for adjusting the same longitudinally of the sides of the base-plate, fitting-clamps adjustably secured upon the carriages, and tubing-sleeves adjustably secured upon the base-plate, substantially as described.

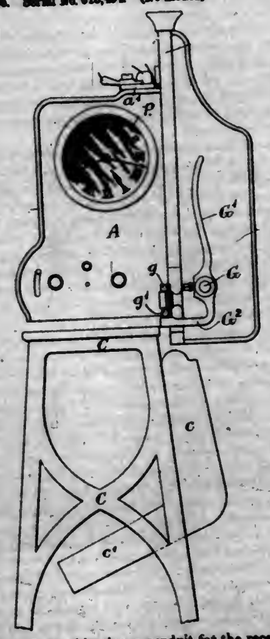
3. A machine for constructing bicycle-frames comprising a base-plate, ways upon the upper side thereof, carriages sliding upon the ways, fitting-clamps adjustably secured upon the carriages, standards projecting upwardly from the base-plate, disks secured upon the standards, arms pivotally secured to and projecting radially from the disks, and tubing-sleeves adjustably secured to the arms, substantially as described.



4. A machine for constructing bicycle-frames comprising a base-plate; ways upon the upper side thereof, carriages sliding upon the ways, a plate revolubly secured upon each carriage, a clamp slidingly secured upon the plate, a frame vertically adjustable in the clamp-frame, a pin arranged in the frame normally held in a projected position, a sleeve in which the pin moves and means for projecting the same independent of the pin, substantially as described.

5. A machine for constructing bicycle-frames comprising a base-plate, a stationary standard extending upwardly therefrom to receive the crank-hanger, standards projecting upwardly therefrom carrying tubing-sleeves adjustable in relation thereto, and fitting-clamps movable upon the base-plate and means for moving the same, substantially as described.

602,845. WORKMAN'S TIME-RECORDER. PETER G. GIROUD, Newark, N. J., assignor to James S. MacCoy, New York, N. Y. Filed Dec. 12, 1896. Serial No. 615,434. (No model.)



Claim.—1. In combination, a conduit for the reception of a record-slip, means for automatically placing type adjacent to the conduit, a printing-hammer in position to strike the record-slip against the type, a spring for actuating the hammer, an operating-shaft, a handle for operating the shaft, a cam for raising and discharging the hammer when the handle is moving in one direction, and a cam for partially raising the hammer when the handle is moved in the opposite direction, the said cams being under the control of the operating-shaft, substantially as set forth.

2. In combination, a conduit for the reception of a record-slip,

means for printing the slip, an adjustable stop for determining the position of the slip while being printed and an adjustable gage in an exposed position and connected with the said stop for adjusting the stop to its proper position with respect to the record-slip, substantially as set forth.

3. In combination, a conduit for the reception of a record-slip, means for printing the slip, a gate-stop for holding and releasing the slip, mechanism for retaining the gate open for a predetermined time, and means under the control of the printing mechanism for actuating the said gate-opening mechanism, substantially as set forth.

4. In combination, a conduit for the reception of a record-slip, means for printing the slip, a gate, a gate-opening device, a motor mechanism for actuating said gate-opening device and means under the control of the printing mechanism for actuating the motor mechanism substantially as set forth.

5. In combination, a conduit for the reception of a record-slip, a movable gate for stopping and releasing the slip, a rocking rod connected with the gate to open it, a spring for actuating the rod, a movable dog carried by the rod, a cam arranged to pass freely by said dog in one direction and engage the dog to operate the rocking rod when moved in the opposite direction, a printing mechanism, and means under the control of the printing mechanism for operating said cam, substantially as set forth.

6. In combination, a motor mechanism with an escapement, a conduit for the reception of a record-slip, a movable gate for stopping and releasing the slip, a gate-opening device, a cam under the control of the motor mechanism to operate the gate-opening device, a printing mechanism and means under the control of the printing mechanism for winding the motor mechanism when the printing mechanism is operated, substantially as set forth.

7. In combination, a conduit for the reception of a record-slip, a printing mechanism, an inking-ribbon, a ribbon-feeding device, an angle-lever located intermediate the printing mechanism and ribbon-feeding device and having one arm connected with the ribbon-feeding device and another arm connected with the printing mechanism, and means under the control of the printing mechanism for operating said lever when the printing mechanism operates, substantially as set forth.

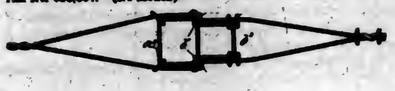
8. In combination, a conduit for the reception of a record-slip, a printing mechanism, an inking-ribbon, a ribbon-feeding device, comprising a supply-roller, a pair of feed-rollers, means for moving one of said rollers, one adapted to be rotated by the other into and out of engagement with the other roller and means for imparting a rotary movement to the feed-rollers when the printing mechanism operates, substantially as set forth.

9. In combination, means for retaining a record-slip in position to be printed, type for making the impression, a lever for forcing the record-slip against the type, means for raising the said lever at intervals, means for feeding an inking-ribbon comprising a ratchet-wheel, a pawl and a swinging arm carrying the pawl, means for releasing the pawl from the ratchet-wheel at a predetermined point in its movement, and a connection between the lever-operating mechanism and the arm carrying the pawl whereby the pawl works idly during a portion of the lift of the operating-lever and operates its ratchet-wheel during another portion of the lift of the operating-lever, substantially as set forth.

10. In combination, a casing comprising a fixed portion and a portion hinged to swing toward and away from the fixed portion, type-wheels and their actuating mechanism mounted in the fixed portion of the casing, an inking-ribbon mounted in the fixed portion of the casing, mechanism mounted in the fixed portion of the casing for feeding the ribbon, a swinging impression-platen mounted in the hinged portion of the casing, means for operating it and a connection of such form between said platen-operating means and the mechanism for feeding the inking-ribbon that the hinged portion of the casing may be swung away from the stationary portion of the casing without disconnecting operative parts, substantially as set forth.

11. In combination, a casing comprising a stationary and a hinged section, means for locking the sections in closed adjustment, a time-train and motor-train arranged one above the other within the stationary portion of the casing, type-wheels controlled by said time and motor trains arranged at the side of the casing adjacent to the hinged section, a conduit for the reception of a record-slip carried by the hinged section, a platen-operating lever mounted in said hinged section and means for operating said lever, substantially as set forth.

602,846. HINGE. HORACE D. GRADDEN, Avon, Conn., assignor of one-half to Edward Shelton, Hartford, Conn. Filed May 20, 1897. Serial No. 638,807. (No model.)



Claim.—The combination of the hinge-pin with the two hinge-halves each made of a single piece of round wire extended into a leaf, twisted into coils completely encircling said pin and also formed into a second leaf within said first-mentioned leaf and extending in the same general direction therewith, all substantially as described and for the purposes set forth.

602,847. DEVICE FOR DRAWING AIR-TUBES INTO PNEUMATIC-TIRE CASINGS. WILLIAM HERRON, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Feb. 7, 1898. Serial No. 669,213. (No model.)



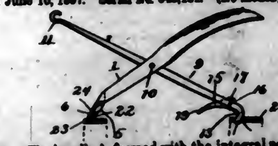
Claim.—1. A device for drawing inner air-tubes into pneumatic-tire casings, comprising a holder adapted to receive an end portion of an inner air-tube and further adapted to traverse the annular bore or passage within a pneumatic-tire casing; a hitch which can be extended from one end of the holder, and caused to take a hold upon an end portion of the inner air-tube and then drawn back so as to draw such end of the inner tube within the holder; and a cord by which the hitch can be thus drawn back, substantially as set forth.

2. A device for drawing inner air-tubes into pneumatic-tire casings, comprising a holder adapted to receive an end portion of an inner air-tube and further adapted to traverse the annular bore or passage of a pneumatic-tire casing; a hitch consisting of a loop adapted for taking hold of an end portion of an inner air-tube and arranged to be both drawn out from and drawn back within the holder for the purpose set forth; and a cord by which the loop can be drawn back within the holder, substantially as described.

3. A device for drawing inner tubes into pneumatic-tire casings comprising a holder adapted to traverse the annular bore or passage of a pneumatic-tire casing and recessed back from one end to receive an end portion of an inner air-tube; a hitch comprising a loop which is threaded to slide through the opposite end of the holder and arranged to be drawn out from the receiving end of the holder so as to permit it to engage an end portion of an inner tube, and also to be drawn within the holder so as to draw the end portion of the inner tube within such holder; and a cord formed or connected with a portion of the loop which extends from the end of the holder opposite the receiving end thereof, substantially as described.

4. A device for drawing inner tubes into pneumatic-tire casings comprising a cord B provided with a loop B', and a holder A provided with a recess extending back from one end and adapted to receive an end portion of an inner tube, and further provided with bores or passages *a*, through which the loop is threaded, substantially as described.

602,848. BUTTONER. CARL J. HOLMBERG, Minneapolis, Minn. Filed June 10, 1897. Serial No. 640,181. (No model.)



Claim.—The handle 1, formed with the integral parallel arms 4 4, terminating at their outer ends in an integral shoe 5, provided with an orifice 6 and a V-shaped recess 7, in combination with the lever 9, fulcrumed between said arms, and having one end provided with an integral toe 12, having a beveled edge 13, and the trigger 14, pivoted to said lever and having its parallel arms 15 15 extending on each side of said toe, substantially as shown and described.

602,849. POWER-FRAME FOR PUMPS. RICHARD J. HUSTER, Goodwill Hill, Pa. Filed Aug. 5, 1897. Serial No. 647,294. (No model.)

Claim.—The combination with the vertical shaft 1, the lower bearing-box 2, and the upper bearing-box 5 provided with a series of sockets 7, of the adjustable shoes 10 10 provided with the V-shaped notches 9, the diagonal brace-rods 8 8 extending from said shoes to said bearing-box 5, and the parallel brace-rods 19 and 20, also connecting said bearing-boxes with said shoes, and each provided with a turnbuckle 21, substantially as shown and described.

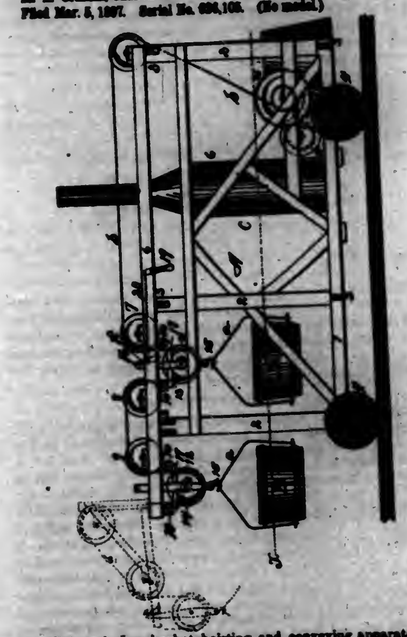


602,850. NON-REFILLABLE BOTTLE. GEORGE IVORY, Huntington, Utah. Filed Dec. 10, 1896. Serial No. 615,599. (No model.)



Claim.—A non-refillable bottle comprising the cylindrical neck 1, provided with the flange 2, an annular extension 3, projecting above and outwardly over the said flange, so as to form a recess between the flange and extension, said recess adapted to receive and retain an inflammable cord 5, the said extension 3 extending cylindrically within the mouth of said bottle parallel with the neck 1, and terminating in an annular shoulder 4, substantially as shown and described.

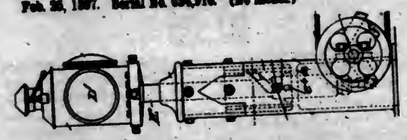
602,851. BUCKET HOISTING AND CONVEYING MACHINE. SAMUEL JACKSON, Syracuse, N. Y., assignor to George D. Granger, Martin B. Granger, Charles W. Granger, and Edwin Jackson, same place. Filed Mar. 5, 1897. Serial No. 626,105. (No model.)



Claim.—1. In a bucket hoisting and conveying apparatus, the combination of a frame mounted upon wheels, means upon said frame for rotating said wheels for the purpose of propelling the frame to and fro, buckets provided with bails, pulleys having downward-extending hooks adapted to engage with said bails, and upward-extending arms terminating in hooks, and laterally-extending arms for the purpose of limiting the upward movement of the pulleys, a rope or chain secured at one end to the forward end of the top sills of the frame, and its opposite end provided with means for winding it up, said rope or chain being adapted to engage with the pulleys for the purpose of raising and lowering them, and means for holding the said pulleys in their raised position as set forth.

2. In a bucket hoisting and conveying apparatus, the combination of a frame mounted upon wheels and having idlers suitably mounted upon top, buckets provided with bails, pulleys having downward-extending hooks adapted to engage with said bails, and upward-extending hooks adapted to engage with said bails, and arms 18 for the purpose of holding them in their raised position, a rope or chain secured at one end to the forward end of the top sill of the frame, its opposite end adapted to be wound upon a windlass and adapted to travel over said idlers and engage with the pulleys substantially as described for the purposes set forth.

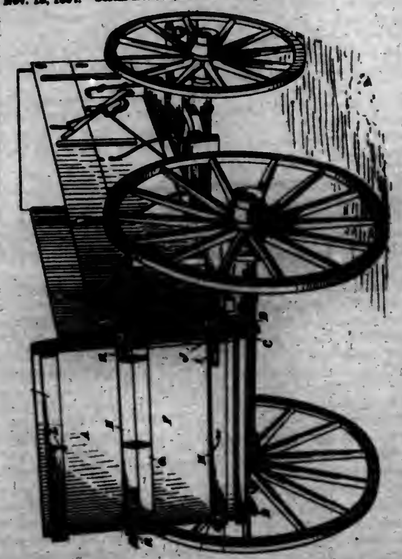
602,852. POT SIGNAL. HENRY JOHNSON, Rahway, N. J. Filed Feb. 25, 1897. Serial No. 624,910. (No model.)



Claim.—1. In a signal, a vertically-movable shaft, a signal-operating shaft having an arm connected at its free end to the vertically-movable shaft, an operating-wheel carried by the signal-operating shaft for actuating the arm to raise and lower the vertically-movable shaft and a stop-arm carried by the said wheel for determining the limit of the upward movement of the vertically-movable shaft and protecting the same from shocks, substantially as set forth.

2. The combination with the vertically-movable shaft and the means for elevating it, of a cylindrical shell fixed to the shaft-support and provided with a winding groove having a straight portion at its lower end and a laterally-projecting pin carried by the shaft in position to enter the groove to rotate the shaft, substantially as set forth.

602,858. RID-GATE. WALTER H. JUHT, Audubon, Iowa. Filed Nov. 13, 1897. Serial No. 658,451. (No model.)



Claim.—1. The combination with a wagon, of a swinging end-gate therefor, a sliding bar carried thereby having a screw-threaded

rear end adapted to pass through a strap on the end-gate, a hand-nut engaging said screw-threaded end for effecting the movement of the bar, a chain secured at one end to the wagon and at its opposite end to the sliding bar and adapted to be placed in engagement with said bar at a point adjacent its attachment to the wagon, substantially as described and for the purpose stated.

2. The combination with a wagon-bed, of a swinging end-gate therefor, fastening means for said end-gate comprising a chain, one end of which is secured to the wagon-bed, an enlarged link or ring interposed in said chain at a point adjacent the said secured end, a sliding bar carried by the sides of said gate to which the other end of the chain is fastened, having on its inner end a hook adapted to be engaged by the enlarged link of the chain and having its outer end screw-threaded and adapted to pass through a strap on the end-gate, and a hand-nut engaging said screw-threaded end, substantially as described and for the purpose stated.

602,854. LUBRICATING DEVICE. CHRISTIAN H. C. KOCH, Chicago, Ill. Filed Mar. 12, 1897. Serial No. 627,199. (No model.)



Claim.—1. A lubricating device for journals comprising two pads made of felt or the like, twisted around a supporting device, so as to form substantially cylindrical pads which present the edge or grain of the felt to the journal, the two pads twisted in opposite directions and placed in the journal-box so that the motion of the journal tends to tighten the folds of one pad and loosen the folds of the other.

2. A lubricating-pad for journals comprising two sheets of felt or the like bound together near their middle, and twisted so that the edges presenting the ends of the grain are exposed all along the surface of the pad, the pad being substantially cylindrical, and a binding device connected with said felt so as to hold the sheets in position.

3. A lubricating-pad for journals and the like, comprising one or more sheets of flexible material bound together near their middle and twisted so that the edges presenting the ends of the grain are exposed substantially along the entire surface of the pad, a binding device for holding said flexible pieces in their twisted position, the pieces adapted to be more tightly twisted so as to reduce the size and to allow the pad to be inserted in the journal-box, the tendency of said pad to untwist insuring contact of the pad with the journal.

4. A lubricating-pad for journals or the like, comprising two or more sheets of flexible material bound together near their middle and twisted so as to be formed into a cylindrical pad, the edges presenting the ends of the grain of the material being exposed and forming the surface of said pad, the parts so disposed that the size of the pad may be reduced before it is inserted in position by twisting the folds more tightly, said pad being kept in contact with the journal by the tendency of the folds to untwist.

5. A lubricating-pad for journals and the like, comprising a flexible pad made of flexible material, a holding device about which said flexible material is twisted, so that the edges of the material are presented to the journal, and a binding device for holding said flexible material in its twisted position.

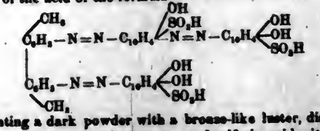
602,855. BLUE-BLACK TRISAZO DYE. KARL KRENKLER and AUGUST BLANK, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 4, 1897. Serial No. 657,213. (Specimens.)

Claim.—1. The process for producing new trisazo dyestuffs by first combining in an alkaline solution one molecule of a tetrazotized paradiamin, such as benzidin, tolidin, dianisidin, with one molecule of amidonaphtholsulfo-acid G, secondly rediazotizing the resulting intermediate product and finally coupling the intermediate product thus obtained with two molecules of alpha, alpha, dioxynaphthalene alpha, monosulfo-acid, substantially as described.

2. The process for producing a new trisazo dyestuff by first coupling equimolecular proportions of a tetrazoditolyl salt and of amidonaphtholsulfo-acid G, secondly diazotizing the intermediate product thus obtained and finally combining the resulting tetrazo body with two molecules of alpha, alpha, dioxynaphthalene alpha, sulfo-acid, substantially as described.

3. As new articles of manufacture the new trisazo dyestuffs derived from the diazotized intermediate product from one molecule of a tetrazotized paradiamin, such as benzidin, tolidin, dianisidin, with one molecule of amidonaphtholsulfo-acid G by combination with two molecules of alpha, alpha, dioxynaphthalene alpha, monosulfo-acid, representing dark powders, dissolving in water with a blue color, dyeing unmordanted cotton blue shades which when treated with solutions of chromium and copper salts change into blackish blue, substantially as described.

4. As a new article of manufacture the specific dyestuff derived from the diazotized intermediate product from tetrasoditolyl and amidonaphtholsulfo-acid G by combination with two molecules of alpha, alpha, dioxynaphthalene alpha, monosulfo-acid, being an alkaline salt of the acid of the formula



representing a dark powder with a bronze-like luster, dissolving in water with a blue color, in concentrated sulfuric acid with a greenish-blue color yielding on reduction with stannous chlorid in hydrochloric-acid solution a mixture of reduction products from which tolidin and a diamidonaphtholsulfo-acid can easily be isolated, substantially as described.

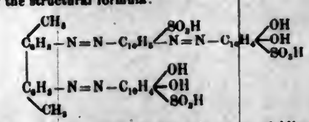
602,856. BLACK TRISAZO DYE. KARL KRENKLER and ADOLF ISRAEL, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 4, 1897. Serial No. 657,330. (Specimens.) Patented in Germany Sept. 15, 1891, No. 65,262; in England Dec. 23, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,233; in Italy June 30, 1892, XXVI, 32,191, and LXIII, 186, and in Austria-Hungary Oct. 3, 1892, No. 1,942 and No. 16,570.

Claim.—1. The process for producing new trisazo dyestuffs by first combining one molecule of a tetrazotized paradiamin such as benzidin, tolidin, or dianisidin with one molecule of a beta-monosulfo-acid of alpha-naphthylamin such as 1.6 and 1.7, secondly diazotizing the resulting intermediate product and finally combining the tetrazo compound thus produced with two molecules of 1.8 dioxynaphthalene, 4 sulfo-acid, substantially as described.

2. The process for producing a new trisazo dyestuff by first combining equimolecular proportions of a tetrazo-ditolyl salt and a beta-monosulfo-acid of alpha-naphthylamin such as 1.6 and 1.7, secondly diazotizing the intermediate product thus obtained and finally coupling the resulting tetrazo compound with two molecules of 1.8 dioxynaphthalene, 4 monosulfo-acid, substantially as described.

3. As new articles of manufacture the trisazo dyestuffs derived from the diazotized intermediate product from one molecule of a tetrazotized paradiamin, such as benzidin, tolidin, dianisidin, with one molecule of a beta-monosulfo-acid of alpha-naphthylamin by combination with two molecules of 1.8 dioxynaphthalene, 4 sulfo-acid, representing dark powders soluble in water with blue color and yielding on unmordanted cotton blue shades which when treated with solutions of chromium and copper salts change into black, substantially as described.

4. As a new article of manufacture the specific dyestuff derived from the diazotized intermediate product from one molecule of tetrazoditolyl with one molecule of a beta-monosulfo-acid of alpha-naphthylamin by combination with two molecules of 1.8 dioxynaphthalene 4 monosulfo-acid, being an alkaline salt of an acid having most probably the structural formula:



representing a dark powder dissolving in water yielding blue solutions, soluble in concentrated sulfuric acid with a blue color from which solution a blue flaky precipitate is separated on the addition of ice, dyeing unmordanted cotton blue shades which when treated with solutions of chromium and copper salts change into black fast to washing, substantially as described.

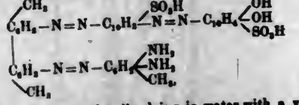
602,857. BLACK TRISAZO DYE. KARL KRENKLER, ADOLF ISRAEL, and AUGUST BLANK, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 4, 1897. Serial No. 657,276. (Specimens.) Patented in Germany Sept. 15, 1891, No. 65,262; in England Dec. 23, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,233; in Italy June 30, 1892, XXVI, 32,191, and LXIII, 186, and in Austria-Hungary Oct. 3, 1892, No. 1,942 and No. 16,570.

Claim.—1. The process for producing new trisazo dyestuffs by first combining one molecule of a tetrazotized paradiamin such as benzidin, tolidin, dianisidin, with one molecule of a beta-monosulfo-acid of alphanaphthylamin such as 1.6 and 1.7, secondly diazotizing the intermediate product thus obtained and finally coupling the resulting tetrazo compound thus obtained with one molecule of 1.8 dioxynaphthalene, 4 monosulfo-acid and finally combining the body thus produced, which contains still one free diazo group, with a metadiamin of the benzene series such as metaphenylenediamin, substantially as described.

2. The process for producing a new trisazo coloring-matter by first combining in equimolecular proportions a tetrazoditolyl salt and a beta-monosulfo-acid of alphanaphthylamin such as 1.6 and 1.7, secondly diazotizing the resulting intermediate product, thirdly coupling the tetrazo compound thus obtained with one molecule of 1.8 dioxynaphthalene, 4 monosulfo-acid and finally combining the body thus produced which contains still one free diazo group with meta-tolylenediamin, substantially as described.

3. As new article of manufacture the new trisazo dyestuffs derived from the diazotized intermediate product from a tetrazotized paradiamin such as benzidin tolidin, dianisidin, with one molecule of a beta-monosulfo-acid of alphanaphthylamin by combination with first one molecule of 1.8 dioxynaphthalene, 4 monosulfo-acid and subsequently with one molecule of a metadiamin of the benzidin series such as metaphenylenediamin, or metatolylenediamin, representing dark powders soluble in water with violet-gray to violet-black color and yielding on unmordanted cotton violet-black shades which, when treated with solutions of chromium and copper salts change into black fast to washing, substantially as described.

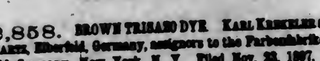
4. As a new article of manufacture the specific dyestuff derived from the diazotized intermediate product from one molecule of tetrazoditolyl with one molecule of a beta-monosulfo-acid of alphanaphthylamin by combination with first: one molecule of 1.8 dioxynaphthalene, 4 monosulfo-acid and subsequently with one molecule of metatolylenediamin, being an alkaline salt of an acid having most probably the formula:



representing a dark powder dissolving in water with a violet-gray color, soluble in concentrated sulfuric acid with a blue color from which solution a violet-black precipitate is obtained on the addition of ice, yielding on unmordanted cotton violet-black shades which when treated with solutions of chromium and copper salts change into greenish-black fast to washing, substantially as described.

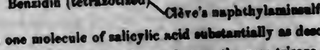
602,858. BROWN TRISAZO DYE. KARL KRENKLER and EDUARD MARTI, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 23, 1897. Serial No. 659,582. (Specimens.) Patented in Germany Sept. 15, 1891, No. 65,262; in England Dec. 23, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,233; in Italy June 30, 1892, XXVI, 32,191, and LXIII, 186, and in Austria-Hungary Oct. 3, 1892, No. 1,942 and No. 16,570.

Claim.—1. The process for producing new trisazo dyestuffs by combining the diazo derivatives of the diazo compounds hereinbefore defined such as the combination of one molecule of tetrazodiphenyl with one molecule of salicylic acid and one molecule of Clève's naphthylaminsulfo-acid, having the general formula



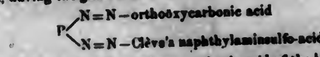
with one molecule of an orthooxycarbonic acid of the benzene series substantially as hereinbefore described.

2. The process for producing a new trisazo dyestuff by combining the diazo derivative of the body having the formula



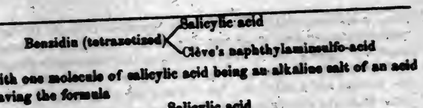
with one molecule of salicylic acid substantially as described.

3. As new articles of manufacture the new trisazo dyestuffs obtainable from the diazo derivatives of the diazo compounds, such as the combination of one molecule of tetrazodiphenyl with one molecule of salicylic acid and one molecule of Clève's naphthylaminsulfo-acid, having the general formula:

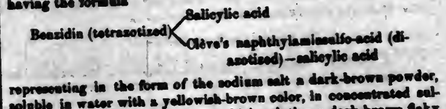


with one molecule of an orthooxycarbonic acid of the benzene series, being dark powders, soluble in water with a color varying from yellowish brown to brown, dyeing unmordanted cotton from yellowish-brown to brown shades which when treated with solutions of chromium and copper salts become more reddish brown and faster to washing and against the action of light, capable of dyeing wool in acid-baths shades similar to those produced on cotton substantially as described.

4. As a new article of manufacture the specific dyestuff obtainable from the diazo derivative of the body, having the formula:

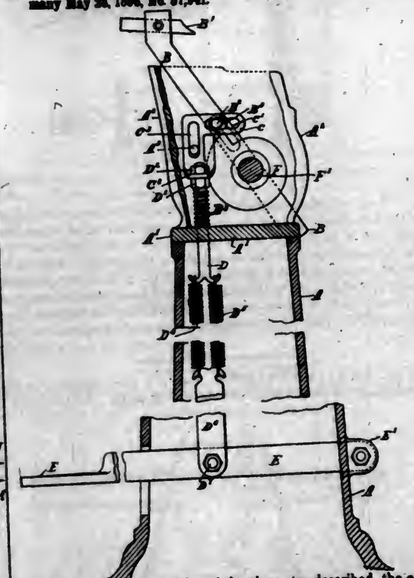


with one molecule of salicylic acid being an alkaline salt of an acid having the formula



representing in the form of the sodium salt a dark-brown powder, soluble in water with a yellowish-brown color, in concentrated sulfuric acid with a blue color from which solution a dark-brown flaky precipitate is obtained on the addition of a sufficient quantity of ice, dyeing unmordanted cotton yellowish-brown shades which when treated with solutions of chromium and copper salts become more reddish brown and faster to washing and against the action of light, yielding on wool in acid-baths yellowish-brown shades which on a treatment with chromium salts become fast against milling substantially as described.

602,859. STITCH INDENTING AND SEPARATING MACHINE. JOB LEE, Kettering, England. Filed June 22, 1896. Serial No. 596,460. (No model.) Patented in England Oct. 1, 1895, No. 18,909, and in Germany May 26, 1896, No. 87,941.



Claim.—1. In a machine of the character described, the combination with a vibrating bar, and a stitch-separating tool carried by said bar, of a treadle-lever, a yielding connection between the latter and the vibrating bar whereby a downward movement of the treadle-lever causes a similar movement of the bar but permits a movement of the latter in an opposite direction independently of the treadle-lever, a rotatable cam adapted to operate the vibrating bar as long as the treadle-lever is depressed to positively move the bar upwardly at each rotation of said cam and a spring applied and arranged to move and hold the said bar out of action when the treadle is released.

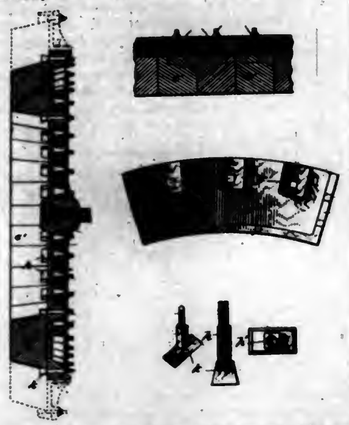
2. In a machine of the character described, the combination with a vibrating bar, and a stitch-separating tool carried thereby, of a treadle-lever, a link having a slot-and-pin connection with the vibrating bar, a yielding connection between the link and treadle-lever, a rotatable cam operating to vibrate the bar, and a spring arranged to move and hold the said bar and tool out of action when the treadle is released in the manner and for the purpose specified.

3. In a machine of the character described, the combination with a vibrating bar, and a stitch-separating tool carried thereby, of a link having a slot-and-pin connection with the bar, a rotatable cam operating to vibrate the bar as described, a treadle-lever, a yielding connection between the latter and the link, and a spring operating to raise the link and remove the bar out of operative relation with the cam when the treadle-lever is raised, all as and for the purpose specified.

4. In a machine of the character described, the combination with a vibrating bar and an indenting or separating tool carried thereby,

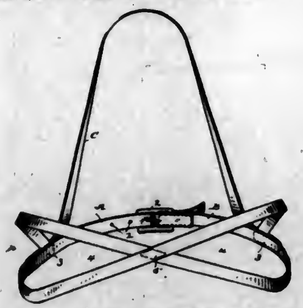
of a cam for moving said bar in one direction, a treadle and spring connection between the same and said bar for holding the latter to its operating-cam, the arrangement being such that said spring connection is put under tension by operating the treadle, and a spring for moving and holding the bar beyond the range of action of the cam when the treadle is released.

602,860. GRINDER. HERMANN LINDEMANN, Reichenbach, Germany. Filed May 21, 1897. Serial No. 637,502. (No model.)



Claim.—A grinder consisting of a radial disk formed with a central hub, a circumferential flange or rim extending around the outer periphery of the disk, a raised radial flange extending around the one disk, and is connected to the hub, a series of grinding-blocks secured in said disk, said blocks being held in position by wedges engaging the disk, an auxiliary disk formed in sections and adapted to be secured to the main disk to receive grinding-blocks, to increase the grinding-surface of the grinder, substantially as shown and described.

602,861. BABY-HARNESS. LUCY R. J. LYON, Bridgeport, Conn. Filed Nov. 1, 1897. Serial No. 657,006. (No model.)



Claim.—In a baby-harness, the combination with straps A and B crossing each other and secured together at the point 5 so as to form a double breast-strap, one end of each of said straps A and B being secured to its fellow at some distance from said fellow's other end so as to form apertures 4 through which the child's arms pass, a buckle 2 by means of which the free ends of straps A and B are adjustably connected, and a rein-strap or supporting-loop C having one end secured to the strap A and the other end to strap B on either side of the harness and in the rear of the arm-aperture 4, substantially as shown and described.

602,862. FINGER-GUIDE FOR MUSICAL INSTRUMENTS. PHILIP MARCUSSE, Baltimore, Md. Filed July 14, 1897. Serial No. 644,892. (No model.)

Claim.—1. A finger-board having curved lines inscribed thereon at various angles, said lines inclosing a numeral or other indicating characters, as and for the purpose described.

2. A finger-board having curved lines thereon adapted to register with the contour of the finger, when the finger is in proper position for producing a desired note.



3. A finger-board having a series of curved lines thereon adapted to register with the contour of the finger when the finger is in proper position and a second series of curved lines distinguishable from the first-named series, as and for the purpose described.

602,863. HOSE-COUPLING. FRANK H. MARSHALL, Marietta, Ohio. Filed June 3, 1897. Serial No. 639,209. (No model.)



Claim.—In a hose-coupling, the combination with a female member provided with a tabular extension adapted to be secured inside of a hose, and further provided with a conical recess therein, of a male member provided with a similar extension, a conical projection upon said male member, elastic packing carried upon said conical projection, a strap provided with convexly-curved lugs pivoted to one of said members, and lugs upon the opposing member adapted to engage said strap, substantially as described.

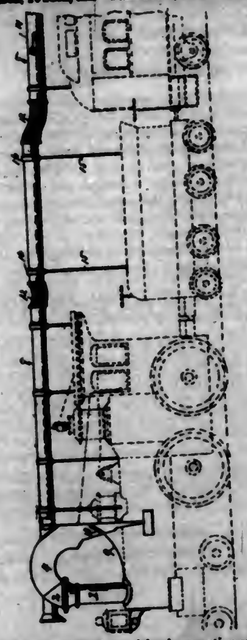
602,864. ROLLING-MILL. WATT D. MATTHEWS, Pittsburg, Pa., assignor of one-half to David H. Matthews, New Castle, Pa. Filed Sept. 18, 1897. Serial No. 652,204. (No model.)



Claim.—1. The combination of a journal-bearing, a housing therefor, provided with a threaded hole for a screw, and a wedge having a slot wider inside than at its edge, a screw whose end substantially fits said slot and works in said threaded hole, whereby the turning of the screw will either push in the wedge or retract it, substantially as described.

2. The combination in a rolling-mill of a foundation for the same provided with a series of chutes 5 below the rolls to deliver the scale therefrom, solid supports between said chutes arranged under the housings to sustain the sets of rolls, a perforated plate 3 running lengthwise over the foundation to bind the same, and a trough arranged beneath said chutes to receive the scale from said chutes and provided with an outlet for the water entering the trough with the scale, all substantially as described and shown.

602,865. DEVICE FOR CARRYING OFF CINDERS AND SMOKE. ARMSTRONG P. MILLER, Baltimore, Md., assignor of one-half to Charles Philip Lawrence, Towson, Md. Filed Oct. 4, 1897. Serial No. 654,491. (No model.)



Claim.—1. The combination, with a locomotive smoke-stack of a gooseneck pivotally secured thereto at its front end, a conductor, and two receptacles communicating with the rear portion of the gooseneck, substantially as set forth.

2. The combination, with the smoke-stack of a locomotive, of an extension and a gooseneck secured thereto, the extension being provided with a bell-mouth and the rear portion of the gooseneck being bifurcated, receptacles communicating with the bifurcations, and a conductor communicating with the gooseneck above the conduits and a screen in the conductor, adjacent to the gooseneck, substantially as set forth.

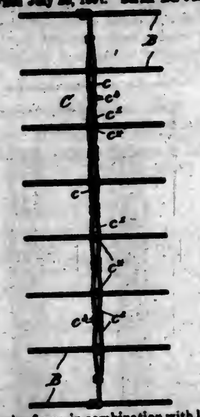
3. The combination, with the smoke-stack of a locomotive, of a gooseneck pivotally secured at its front end to the upper end thereof, the rear end of which is bifurcated, of a conduit communicating with each of the bifurcations, the upper end of each conduit being provided with a head extending substantially half-way around, a receptacle at the end of each conduit, and a guide from the upper ends of said conduits for supporting the end of the gooseneck, and a conductor, communicating with the gooseneck, substantially as set forth.

602,866. MEAT-PRESS. FLORENCE M. MCKOWN, Boothbay, Me. Filed May 20, 1897. Serial No. 638,716. (No model.)



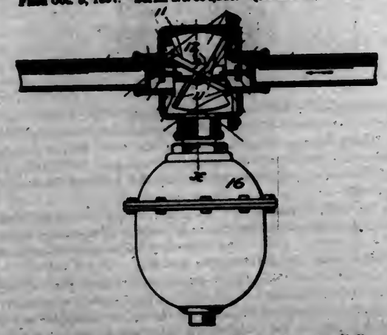
Claim.—In combination, a meat-press consisting of a receptacle for holding the meat and the pressing mechanism, said pressing mechanism consisting of a base-plate having lugs upon the under side thereof, a screw projecting upwardly therefrom, a follower-plate adapted to be placed within said receptacle, and having a hub F threaded to engage the screw, a winged nut 7 working upon said screw, and adapted to force the follower-plate downward, substantially as set forth.

602,867. WIRE FENCE. HERMAN HEIL and FRANK H. RUSSELL, Dayton, Ohio. Filed July 20, 1897. Serial No. 645,312. (No model.)



Claim.—In a wire-fence, in combination with longitudinal wires or runners, of a stay consisting of a series of linked members, of which each of the terminal members consists of a single strand having one end coiled around the upper or lower runner and the other end coiled about the body of the strand to form a loop, the complemental or intermediate links of the stay each consisting of a double-looped strand, the ends of the strand being coiled in opposite directions upon the body of the link, the links of the stays being coupled or looped together to form a substantially universal joint *e*, adapted to receive and retain an intermediate runner and to support the same in position and permitting of a vertical movement of said runner, substantially as shown and described.

602,868. STEAM-SEPARATOR. ELIS NELSON, Minneapolis, Minn. Filed Oct. 5, 1897. Serial No. 654,112. (No model.)



Claim.—1. The combination, with a series of radially-arranged inclined wings or blades, each provided with a flange 11 opposed to the passage of steam or water, of a suitable case wherein said blades are arranged and whereto the steam-pipe is connected, substantially as described.

2. The combination, with a cylindrical case, whereto the steam-pipe may be attached, of a series of inclined blades therein, and provided with deflecting-flanges 11, substantially as described.

3. The combination, with a suitable case, having a central outlet, of an annular flange arranged about the central outlet, and a series of inclined blades, provided with deflectors or flanges 11 to direct the water of condensation outward, and against the end of the case, substantially as described.

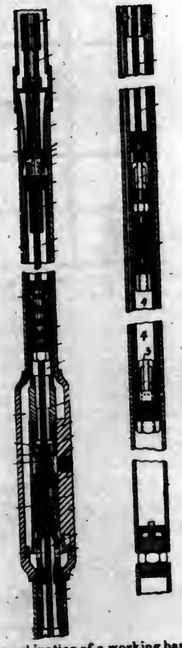
4. The combination, with a cylindrical case, of a series of rotating blades, inclined and arranged about a common axis, said blades provided on their farther edges with troughs or flanges, and said

flanges being extended from one blade to the other, as and for the purpose specified.

5. The combination, with a casing, of inclined blades arranged in said casing and provided on opposite edges with oppositely-inclined flanges 11, whereby water entering either end of the casing will be caught, substantially as described.

6. The combination, with a suitable case, of the pipe connections at opposite ends thereof, the fan-like device revoluble within said case and substantially concentric therewith, said device having inclined blades provided upon opposite edges with flanges or deflectors 11, raised flanges or troughs about said pipe connections, and a water-outlet intermediate between said pipe connections, substantially as described.

602,869. PUMP. JOSEPH O'NEIL, Taylorstown, Pa. Filed Feb. 17, 1897. Serial No. 623,793. (No model.)



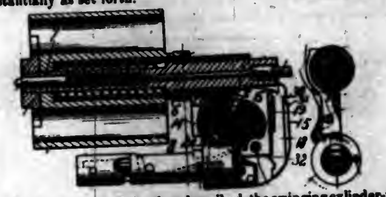
Claim.—1. The combination of a working barrel; a piston working therein; an auxiliary pump-barrel; a draft-piston working therein; a valve-rod connecting said pistons and a valve-vented chamber immediately below the draft-piston for the purpose of relieving the under side of said piston from pressure on the downward movement of the pump.

2. In pumps the combination of a double piston; a lower piston and an intermediate fluid-distributer provided with a passage to pass the fluid up the well and a valve-controlled discharge-passage to relieve the pressure beneath the upper piston.

3. In pumping devices, a lock, consisting of a base-piece; springs attached to said base-piece: a shoulder on the connecting-collar between the well-tubing and the pumping device, said shoulder engaging said springs when the pumping device is in position, and a cross-head, through which said springs pass, loosely mounted on the valve-stem, and fitted, to be forced up, and release said springs from engagement with said shoulders.

602,870. REVOLVER. GEORGE A. OWEN, Springfield, Mass. Filed Aug. 2, 1897. Serial No. 646,777. (No model.)

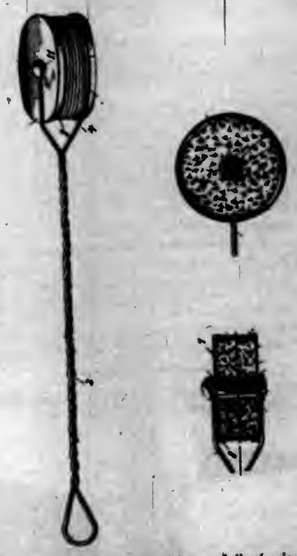
Claim.—1. In a revolver of the class described, the swinging cylinder-yoke and the ejector-piston, combined with a spring-actuated vibratory ejector-lever hung on said yoke, a pawl carried on said lever for engagement with said piston, means actuated by the swinging movement of said yoke in bringing the cylinder to firing position, whereby said lever is cocked and temporarily so held and said pawl is brought into engagement with said piston, and means set in action by the subsequent outwardly-swinging movement of said cylinder and yoke, whereby said lever is disengaged and said pawl is driven against, and imparts a shell-ejecting movement to said piston, substantially as set forth.



2. In a revolver of the class described, the swinging cylinder-yoke and the ejector-piston, combined with a spring-actuated vibratory ejector-lever hung on said yoke, an endwise-moving pawl carried on said lever for engagement with said piston, means actuated by the swinging movement of said yoke in bringing the cylinder to firing position, whereby said lever is cocked, and temporarily so held, and said pawl has said endwise movement imparted thereto, and is brought into engagement with said piston, and means set in action by the subsequent outwardly-swinging movement of said cylinder and yoke, whereby said lever is disengaged and said pawl is driven against, and imparts a shell-ejecting movement to, said piston, substantially as set forth.

3. In a revolver of the class described, the swinging cylinder-yoke and the spring-actuated ejector-piston, combined with a vibratory ejector-lever hung on said yoke, a sliding pawl carried on said lever for engagement with said piston, means actuated by the swinging-movement of said yoke in bringing the cylinder to a firing position whereby said lever is cocked, a spring-actuated latch pivotally attached to said yoke for automatic engagement with said lever when the same is cocked, and means for imparting said sliding movement to said pawl whereby it is brought into position for engagement with said piston, and mechanism set in action by the subsequent outwardly-swinging movement of said cylinder and yoke, whereby said lever is disengaged and said pawl is driven against, and imparts a shell-ejecting movement to, said piston, substantially as set forth.

602,871. FIRE-LIGHTER. FRANK H. FROEHLICH and STEPHEN F. DORR, Antigo, Wis. Filed Mar. 31, 1897. Serial No. 630,126. (No model.)



Claim.—A fire-lighter comprising a coil of wire, metal plates closing the ends of the coil, a fastening device connecting the plates and holding the same and the coil together, a handle provided with a forked end straddling the coil and connected to the terminals of the fastening device, a sleeve arranged on the latter and interposed between the plates, and a filling of refractory material arranged in the space between the sleeve and the coil, substantially as and for the purpose described.

602,872. PROCESS OF PRODUCING CHEMICAL COMPOUNDS BY ELECTROLYSIS. JOSEPH W. RICHARDS and CHARLES W. RENFEW, Bethlehem, Pa. Filed July 6, 1897. Serial No. 643,542. (No specimens.)

Claim.—1. The process of obtaining compounds electrolytically, which consists in passing an alternating current through electrodes of similar composition immersed in an electrolyte, one or more of whose constituents forms alternately at each electrode, by electrolytic attack thereon, a compound, partially derived from the consumption of that pole, which is insoluble in either the electrolyte or the products formed at the opposite pole for the time being, and which is precipitated from the electrode of consumption, substantially as described.

2. The process of obtaining compounds electrolytically, which consists in passing an alternating current through electrodes of similar composition immersed in an electrolyte, one or more of whose constituents forms alternately at each electrode by electrolytic attack thereon a compound, partially derived from the consumption of that pole, which is insoluble in the electrolyte, and which is precipitated from the electrode of consumption, while one product of the electrolysis at the opposite pole for the time being is a liberated gas, substantially as described.

602,873. PROCESS OF ELECTROLYTICALLY MANUFACTURING METALLIC SULFIDS. JOSEPH W. RICHARDS and CHARLES W. RENFEW, Bethlehem, Pa. Filed July 6, 1897. Serial No. 643,543. (Specimens.)

Claim.—The process of manufactering pure metallic sulfids which consists in employing an anode of or containing the metal or metals whose sulfid is desired in a solution containing a hyposulfite salt as an electrolyte in conjunction with any suitable cathode; passing a current of electricity therethrough; and precipitating the sulfid of the metallic base present in the anode, substantially as described.

602,874. PLUMB-LEVEL. THOMAS H. ROACH, Fort Wayne, Ind. Filed June 10, 1897. Serial No. 640,121. (No model.)



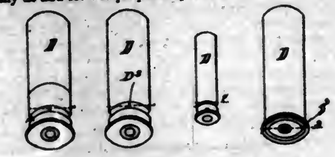
Claim.—1. A plumb-level having a stock with a central transverse opening through its sides; a reservoir having parallel sides of transparent material and a circular interior chamber, secured within said opening; a mobile liquid within said chamber having its upper surface coincident with the diameter of said chamber; a disk or ring having an interior circular opening and adapted to be secured over the said reservoir upon each side thereof and having a graduated scale upon the outer face of each disk; the orifice 8 for introducing the liquid within the reservoir, and means for hermetically sealing it therein; all arranged substantially as described and shown.

2. A plumb-level having a stock-body with a central transverse opening through its sides; a reservoir having parallel sides of transparent material and a circular interior chamber, secured within said opening by proper lugs; a mobile liquid within said chamber having its upper surface coincident with the diameter of said chamber; a disk having an interior circular opening secured on each side of the stock over the reservoir; a graduated scale upon the sides of the chamber within said disks; the orifice 8 and means for hermetically sealing the liquid in said chamber; all arranged substantially as described and shown.

3. A plumb-level, having a stock-body with a central transverse opening through its sides; a reservoir secured by proper lugs within said opening having parallel transparent sides and a circular interior chamber; a mobile liquid within said chamber having its upper surface coincident with the diameter thereof; a disk or rim having an interior circular opening adapted to be secured to the stock upon one side of the said reservoir, and having a graduated scale to indicate feet and inches of inclination of the stock by the registering of the liquid with the scale, and upon the other or reverse side another disk or rim having also a circular opening and adapted to be secured to the stock and having a graduated scale to indicate the inclination of the stock according to the metric system as the liquid registers therewith; the orifice 8 for introducing the liquid within the reservoir, and means for hermetically sealing it therein; all arranged substantially as described.

602,875. CARTRIDGE-SHELL. JAMES K. ROSS, Springfield, Ohio. Filed Oct. 16, 1895. Serial No. 565,945. (No model.)

Claim.—A shell having an annular depression located around the cylindrical portion of it, near to the rear end thereof, and provided with one or more passages D^2, located in said annular chamber, substantially as and for the purposes specified.



602,876. STOP-MOTION FOR SEWING-MACHINES. LOUIS SCHULTZ, New York, N. Y., assignor to Louise Schultz, same place. Filed Dec. 16, 1896. Serial No. 615,869. (No model.)



Claim.—1. The combination of a movable thread-feeler constructed to engage a thread, a lever arranged to engage the feeler, means for actuating said lever to hold the feeler stationary when the thread is slack, means for moving the feeler away from the thread when the latter breaks and disengages the feeler, a releasing or stop mechanism, and mechanism actuated by the feeler for throwing the releasing or stop mechanism into action upon the breakage of the thread, substantially as described.

2. The combination with a thread-feeler constructed to engage a thread and a releasing or stop mechanism, of a lever arranged to engage the feeler, means for throwing said lever into engagement with the feeler and hold the latter in the thread-path when the thread is slack and throw said lever out of engagement with the feeler and release the latter when the thread is taut, a spring operating to normally move the feeler away from the thread, and means engaged by the feeler when it moves away from the thread and constructed and arranged to actuate the releasing or stop mechanism, substantially as described.

3. A movable eye or thread-feeler combined with a lever or actuator for the feeler, a link and cam for causing the lever to intermittently move the feeler to the thread-path when the thread is slack and to release the feeler when the thread is tightened, a spring for moving the feeler in opposition to the lever, a releasing or stop mechanism toward which the feeler moves on being released by the lever, and means, substantially as described, for securing the cooperation of the feeler and stop mechanism.

4. A sewing-machine needle, and a thread-feeler, combined with a lever or actuator for moving the feeler to the needle-path, a stop mechanism toward which said feeler normally moves, means substantially as described for moving the lever to carry the feeler to and hold the same at the needle-path while the needle passes through said feeler and until the needle returns and clears the feeler and tightens the thread and for then moving the lever to release the feeler for allowing the latter to draw on the tightened thread so as to feel the latter substantially as described.

5. The combination with a sewing-machine, of a movable feeler having an eye for the passage therethrough of the needle and thread, a lever arranged to engage the feeler to move the same and bring its eye into coincidence with the needle, means for throwing said lever into and out of engagement with the feeler, means for retracting the feeler from the needle, a releasing or stop mechanism; and means, substantially as described, operated by the feeler when the latter is retracted for throwing the releasing or stop mechanism into action, substantially as described.

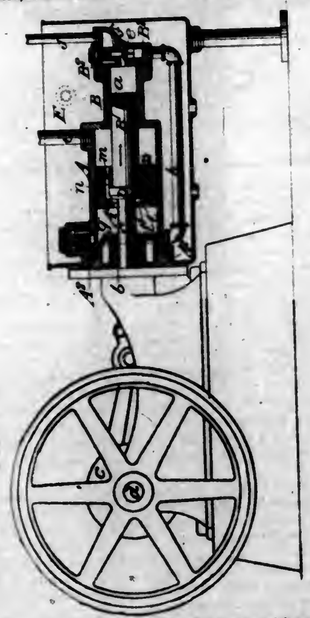
6. A sewing-machine provided with a needle shuttle-race and a shuttle, a movable eye or feeler, a lever or actuator for moving the feeler into position for the passage of the needle when the thread is slack and then releasing said feeler when the thread is tightened, a spring for moving the feeler away from the needle, a releasing or stop mechanism, and cooperating means substantially as described between the feeler and the stop mechanism substantially as described.

7. A sewing-machine provided with a shuttle, bars or guiding-rails forming a race for the shuttle, a thread eye or feeler having an arm guided by a shuttle-race rail, a lever or actuator and a spring for reciprocating the feeler-arm, and a releasing or stop mechanism and cooperating means substantially as described between the feeler-

arm and the stop mechanism, said shuttle-race rail having a throat for the passage or entrance of the needle substantially as described.

8. A sewing-machine comprising a needle, combined with a thread eye or feeler, a lever or actuator, a spring, and a releasing or stop mechanism toward which the feeler is moved by the spring, and co-operating mechanism substantially as described between the feeler and stop mechanism, said various parts being timed with relation to one another so that the lever moves the feeler into alinement with the needle and holds said feeler while the thread is slack and the point of the needle passes by and returns clear of the feeler, and the lever releases the feeler for actuation by the spring when the thread is drawn tight substantially as described.

602,877. COMPRESSOR FOR AIR, &c. HENRY C. SERGEANT, Westfield, N. J., assignor to the Ingersoll-Sergeant Drill Company, New York, N. Y. Filed June 4, 1897. Serial No. 639,417. (No model.)



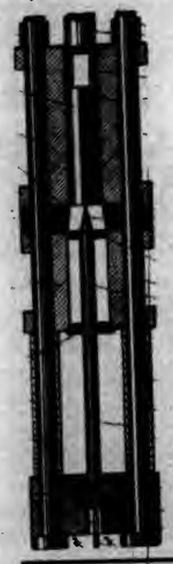
Claim.—1. In a compressor the combination with two compression-cylinders and corresponding pistons of unequal caliber arranged in line, of a valve affixed to the smaller piston for opening and closing passages through the larger one by a limited movement of the smaller one relatively to the larger one, substantially as herein described.

2. In a compound compressor the combination with two compression-cylinders of unequal caliber arranged in line with each other, of two pistons on one rod fitted to said cylinders respectively, the piston of smaller caliber being affixed to the said rod, and the piston of larger caliber having passages through it and containing a valve-seat and being so attached to the smaller piston as to permit an independent movement of the one relatively to the other, a valve affixed to said rod and smaller piston and adapted to said valve-seat for opening and closing the passages through the larger piston by the movement of the smaller one, substantially as herein described.

3. The combination with the low-pressure piston having passages through it and containing a valve-seat and a stop facing said seat, of the high-pressure piston passing freely through said low-pressure piston and having affixed to it a valve located between said seat and stop and serving to open and close said passages and also to transmit motion from the high-pressure piston in opposite directions to the low-pressure piston, substantially as herein described.

602,878. MACHINE FOR MANUFACTURING METAL TUBES. THOMAS B. SHARP and FREDERICK BILLING, Birmingham, England. Filed June 23, 1897. Serial No. 641,910. (No model.) Patented in England May 31, 1897, No. 13,326.

Claim.—In combination the die adapted to receive the blank, the removable end piece therefor, the guiding-cylinder, means for holding said parts together, the washers within the cylinder, the pointed piercer supported centrally of the cylinder by said washers, means for holding the piercer against longitudinal movement, and means for moving the blank against the point of the piercer, substantially as described.



602,879. CAR-COUPLING. GEORGE W. SHILLIS, Newark, N. J. Filed Apr. 20, 1897. Serial No. 633,019. (No model.)



Claim.—1. The combination with the draw-bar having the head *a'*, the knuckle fulcrumed thereon, said knuckle having an inward arm extending into said body to engage the pin and be locked thereby, of said pin having a lateral projection *g* and a lever for throwing the said knuckle to its outward or uncoupling position automatically when the pin is raised, the said lever having a limited independence of movement on its fulcrum while maintaining a constant engagement with the pin, substantially as set forth.

2. The combination with the draw-bar having a head and a knuckle fulcrumed therein, of a pin sliding in said head to and from coupling engagement with said knuckle, said pin having bearings for the knuckle-throwing lever at one side thereof, and said knuckle-throwing lever engaging both said pin and said knuckle to throw the latter open when the pin is raised, the said lever being slotted at its fulcrum to permit a limited sliding of said lever on said fulcrum and the bearings at the points of engagement of said lever with the pin being inclined to the direction of sliding movement of said pin, substantially as set forth.

3. The combination of a draw-bar, a knuckle fulcrumed thereon, a slotted lever for throwing the said knuckle outward to its uncoupled position, and a pin having a lateral projection, the upper face of which is upturned and a lever arranged on loose bearings, substantially as set forth.

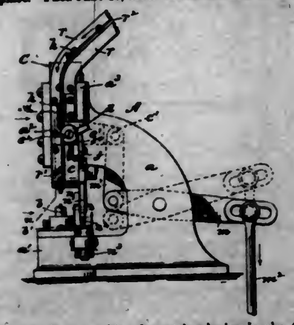
602,880. PLIERS. JOHN T. SMITH, Rock Fall, Conn.; Otis A. Smith administrator of said John T. Smith, deceased. Filed Feb. 12, 1897. Serial No. 623,068. (No model.)

Claim.—1. The combination with two handle-levers having inwardly-extending arms which are pivoted together, of two jaws pivotally attached to the outer ends of said handle-levers, said jaws each formed with differentially-spaced holes extending through their sides and fulcrum-plates adjustably secured to the opposite sides of said jaws by pins which may be passed through either of the holes in the said jaws, substantially as described.



2. The combination with two handle-levers having inwardly-extending arms which are pivoted together, of two jaws pivotally attached to the outer ends of said handle-levers, said jaws each formed with differentially-spaced holes extending through their sides, a fulcrum-plate also formed with a plurality of holes at each end, arranged in pairs and differentially spaced, and pins adapted to extend through said plates and jaws for engaging said plate with said jaws and whereby the fulcrum of the pliers may be changed, substantially as described.

602,881. MACHINE FOR SETTING LACING-HOOKS. STEPHEN N. SMITH, Providence, R. I., assignor to the Union Eyelet Company, same place. Filed June 13, 1896. Serial No. 595,268. (No model.)



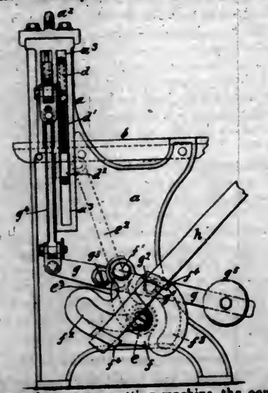
Claim.—1. In a machine for setting lacing-hooks, the combination with a fixed setting-die and a stationary runway for the hooks, of a vertically-reciprocating plunger provided with a hook-guide forming a continuation of said runway, an intermittingly-revoluble feed-wheel mounted in the plunger and communicating with the runway, means for actuating said plunger and feed-wheel, and an oscillating separator controlled by the plunger's movements for transferring the hooks singly and successively from the runway to the feed-wheel, substantially as described.

2. In a machine for setting lacing-hooks, the combination with the fixed setting-die *b*, a stationary die-holder having said die adjustably mounted therein and a stationary runway for the hooks, of the revoluble hook-feeding wheel *f*, a horizontal shaft *s* having said wheel secured thereto, a vertically-reciprocating plunger carrying said shaft and wheel, a vertically-movable runway arranged below and communicating with the said stationary runway and forming an anvil with the feed-wheel for resisting the force exerted in setting the hooks, and means substantially as described for intermittingly rotating the feed-wheel, substantially as set forth.

3. In a machine for setting lacing-hooks, the combination with the stationary setting-die *b* and the fixed runway *r*, along which the lacing-hooks slide, of the vertically-reciprocating plunger member *c* provided with an auxiliary lower runway adapted to communicate with and form a continuation of said fixed runway, a revoluble feed-wheel mounted in the lower end of the plunger provided with a series of peripheral recesses *f'* arranged to receive the heads of the hooks therein and coacting with the said lower runway to form a guide for the hooks, a separator device working in a plane parallel with the face of the runway for delivering the hooks singly to the feed-wheel, and yielding stops or holders for maintaining the feed-wheel and its bottom hook in position while the latter is being attached to the boot or shoe, or other material, substantially as hereinbefore described.

4. In a machine for setting lacing-hooks, the combination with the vertically-reciprocating plunger provided with a feed-wheel and lower runway member, of the spring-resisted check-lever *w* pivoted to the plunger for holding the bottom hook in position while it is being set, and the yielding stop or catch *l* in contact with the feed-wheel, substantially as hereinbefore described.

602,882. PAPER-CUTTING MACHINE. SWAN SMITH, Brooklyn, N. Y., assignor of one-half to George Everson and Joseph W. Masters, same place. Filed July 14, 1897. Serial No. 644,572. (No model.)



Claim.—1. In a paper-cutting machine the combination of a clamp-plate with a rock-shaft connected thereto, and having a crank-arm, an eccentric pivoted thereto, a lever engaging the eccentric, and a knife connected to the lever, substantially as specified.

2. In a paper-cutting machine the combination of a clamp-plate with a rock-shaft connected thereto, and having a crank-arm, a slotted eccentric pivoted thereto and guided upon the rock-shaft, a lever having a pin that engages the eccentric, and a knife connected to the lever, substantially as specified.

602,883. WATER-FILTER. EMIL TYDEN, Chicago, Ill., assignor to the Metropolitan Filter Company, same place. Filed June 21, 1897. Serial No. 641,610. (No model.)



Claim.—1. In combination with a filter, a reservoir connected with the filtered-water chamber of the filter adapted to receive filtered water from the latter and to deliver the same back thereinto, and a cock for drawing water from the filtered-water chamber.

2. In a filter, in combination with a filtered-water chamber hav-

ing a cock for drawing water therefrom at the bottom; a reservoir communicating with the filtered-water chamber at the top of the latter, whereby the filtered water from said chamber overflows into the reservoir and returns by the same passage when the water is drawn from the bottom of the chamber.

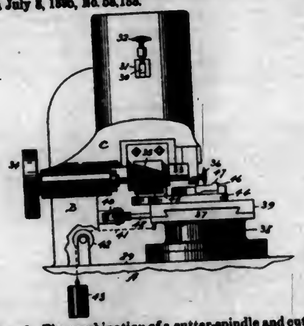
3. In a filter, in combination with the water-inlet pipe, a check-valve adapted to be seated by backflow through said pipe to prevent the emptying of the filter as described.

4. In a filter, in combination with the central supply-pipe G, the filtering-cylinder H outside the same and the outer cylinder O, whereby there are formed two annular chambers F and W located respectively between the inner pipe and the filtering-cylinder and between the filtering-cylinder and the outer cylinder; the cap V which closes the chamber F at the top having a waterway through it leading from the pipe G to the outer chamber W, and a faucet leading from the lower end of said outer chamber W, whereby the drawing of water from said faucet scours the outer surface of the filtering-cylinder.

5. In a filter, in combination with the water-inlet pipe, the filtering-cylinder and the outer cylinder, the cap which closes the upper end of the chamber between the inlet-pipe and the filtering-cylinder and which has a central waterway affording communication from the pipe to the space outside the filtering-cylinder; a reservoir communicating with the upper part of the space inside the filtering-cylinder and having no communication with the space outside the same; a drain-cock leading from the lower part of the space inside the filtering-cylinder, and a faucet leading from the lower part of the space outside the cylinder, all combined and operating for the purpose set forth.

6. In a filter, in combination with the central inlet-pipe G, filtering-cylinder H and outer cylinder O and their respecting intervening chambers F and W; the cap V which closes the upper end of the chamber F, said cap having a hollow hub constituting a valve-chamber having a lower support and connected at said support to the upper end of the pipe, said chamber having an upper port through the cap, and the valve U lodged in said chamber and adapted to seat downwardly at the lower port thereof, and having its stem extending up through the upper port, and the cap B of the outer cylinder arranged to stop the end of the stem when the valve U is intermediate the upper and lower ports of the valve-chamber.

602,884. MACHINE FOR MILLING VARIABLE GROOVES IN SCREW-DIES. ANTON URBAN, Vienna, Austria-Hungary, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Oct. 25, 1897. Serial No. 656,283. (No model.) Patented in Austria July 8, 1896, No. 58,188.



Claim.—1. The combination of a cutter-spindle and cutter mounted thereon for milling grooves, a carriage for holding the work to be milled, means for moving the carriage along relatively to the cutter and means for holding the cutter-shaft and middle line of the groove being milled at progressively-varying angles as the carriage is fed along, substantially as described.

2. The combination of a cutter-spindle and cutter mounted thereon, with a work-holding carriage, and an axis or pivot upon which the carriage and the cutter-spindle may swing relatively to each other to change the angle of the cutter-spindle to the line of the groove cut thereby, the said axis being in alinement with the junction of the spindle-axis and the edge of the cutter, substantially as described.

3. The combination of a cutter-spindle, and cutter mounted thereon with a work-holding carriage, an axis or pivot upon which the carriage and cutter-spindle may swing relatively to each other to change the angle of the cutter-spindle to the line of cut, and means for governing the distance between the axis of the cutter and surface of the die-block, substantially as described.

4. The combination of a cutter-spindle and cutter with a work-holding carriage, feeding mechanism for said carriage, an axis or pivot upon which the carriage and cutter-spindle may swing relatively to each other to change the angle of the cutter-spindle to the line of cut, driving mechanism for the cutter-spindle and feed, and flexible and sliding connections with the driving mechanism for the swinging member, substantially as described.

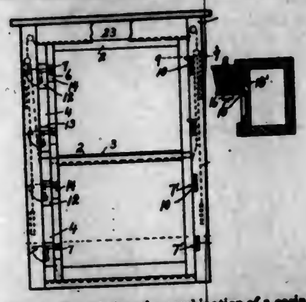
5. The combination of a cutter-frame, a cutter-spindle and cutter mounted thereon, a die-carriage bed mounted to swing on an axis which extends at right angles to the axis of the cutter-spindle, a carriage mounted to slide on said bed, a cam or wedge mounted on said carriage and a device engaging said wedge to govern the swinging movement of the carrier as it passes along under the cutter, substantially as described.

6. The combination of a cutter-frame, a cutter-spindle and cutter mounted thereon, a swinging carriage-bed, a carriage mounted to slide on said bed, feeding devices for feeding the carriage along on its bed, means for swinging the bed and carriage as the carriage is fed along, and a flexible and sliding connection between the feeding devices of the carriage and the pulley where the power is applied, substantially as described.

7. The combination of a cutter-frame, a cutter-spindle and cutter mounted thereon, a die-carriage bed mounted to swing on an axis which extends at right angles to the axis of the cutter-spindle, a carriage mounted to slide on said bed, means for swinging the carriage-bed and carriage as the carriage is fed along, and means for moving the cutter and carriage away from each other when the cutter is passing the ledge at the edge of the die-block, substantially as described.

8. The combination of a cutter-frame, a cutter-spindle and cutter mounted thereon, a die-carriage bed mounted to swing on an axis that is perpendicular to that of the cutter-spindle, the die-carriage mounted to slide on said bed, the cam or wedge mounted on said carriage, and a device for bearing on the face of said wedge or cam for swinging the bed and carriage on their axis, substantially as described.

602,885. WINDOW. FRANK VETTERS, Chicago, Ill. Filed May 26, 1896. Renewed Mar. 11, 1898. Serial No. 673,541. (No model.)



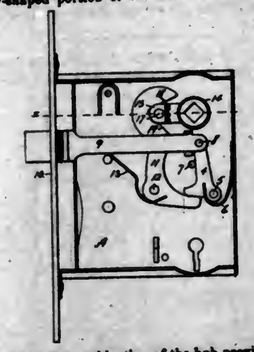
Claim.—1. In a window the combination of a casing, a sash having a side made of a fixed and a separable section, said casing and fixed sash side section having each a pin, and a hook pivotally supported in the separable section and adapted to fix the separable section either to the sash side or to the casing by means of said pins, the two sash-sections being horizontally separable, substantially as described.

2. In a window the combination of the casing, a sash having a side made of a fixed and a separable section, said casing and fixed sash side section having each a pin, a hook pivotally supported in the separable section and adapted to fix the separable section either to the sash side or to the casing by means of said pins, the two sash-sections being horizontally separable, and a hinge on the opposite sash side, substantially as described.

3. In a window the combination of the casing, a sash having a side made of a fixed and a separable section, said casing and fixed sash side section having each a pin, a hook pivotally supported in the separable section and adapted to fix the separable section either to the sash side or to the casing by means of said pins, the two sash-sections being horizontally separable, and sash-weights connected to the detachable section and adapted to hold the hooks engaged with the pin either on the fixed sash-section or on the casing, substantially as described.

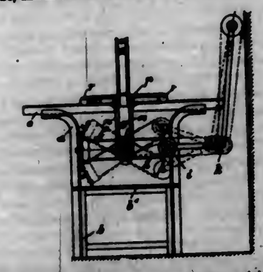
602,886. LATCH. HENRY G. VOIGT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Dec. 16, 1897. Serial No. 662,372. (No model.)

Claim.—1. The combination of the latch-bolt with the shorter lever 4 to which said latch-bolt is pivoted, a spring for said lever, the longer lever 11 acting on the lever 4 and having a V-shaped recess, a spring for said lever, and the latch-hub having a projection for engaging the V-shaped portion of the said lever 11, substantially as described.



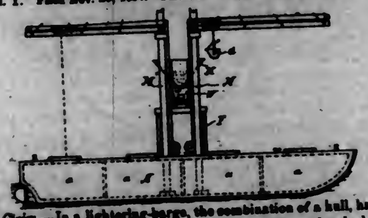
2. In a latch, the combination of the hub provided with a wing and operating projection, with the spring-lever 11 for moving the latch-bolt through the said hub, said lever having a V-shaped recess with its two sides inclined at different angles for being engaged by the said operating projection, substantially as described.

602,887. CARVING-MACHINE. ARNOLD WAGNER, Breslau, Germany. Filed Aug. 26, 1894. Serial No. 521,502. (No model.) Patented in France Aug. 17, 1894, No. 242,807; in Germany Sept. 23, 1894, No. 83,230, and in Austria Oct. 23, 1895, No 45/3,962.



Claim.—In a machine for copying plastic articles, the combination of a middle frame adjustable in vertical and horizontal direction and adapted to swing around its horizontal axis, with a frame pivotally connected to the middle frame, and tool-holders pivotally arranged in the said frame, substantially as and for the purpose set forth.

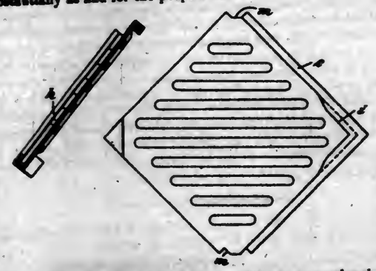
602,888. LIGHTERING VESSEL. JOHN H. WALSH, New York, N. Y. Filed Nov. 29, 1897. Serial No. 660,094. (No model.)



Claim.—In a lightering-barge, the combination of a hull, having partitions, a stationary frame centrally secured upon the deck and carrying a hopper and a weighing-machine, two masts, each having a boom or booms carrying travelers and extending in opposite directions from their respective masts toward each end of the barge, and means for operating the working parts of the booms, as and for the purposes herein shown and described.

602,889. ROOFING-TILE. ABRAHAM WEIL, Stuttgart, Germany. Filed May 5, 1896. Serial No. 590,703. (No model.) Patented in Germany Oct. 14, 1894, No. 83,870; in England Mar. 31, 1896, No. 7,698, and in Switzerland Oct. 15, 1896, No. 12,715.

Claim.—1. In roofing-tiles the combination of the upper overlapping fillets having notched grooves, with lower overlapping fillets provided at the point where they come together with short projecting tongues *i* being plane and taking into the upper overlapping fillets, substantially as and for the purpose set forth.



2. In roofing-tiles, the combination of the upper overlapping fillets having notched grooves, with lower overlapping fillets provided at the point where they come together with short projecting tongues being plane and taking into the upper overlapping fillets, and zigzag-shaped corners engaging with the zigzag-shaped corners of the adjacent tiles, substantially as and for the purpose stated.

602,890. MACHINE FOR CUTTING STONE. GRÉGOIRE WIDOUX and HUBERT MACHEPY, Soignies, Belgium. Filed Jan. 27, 1897. Serial No. 620,957. (No model.) Patented in Belgium June 9, 1896, No. 121,841, and in France Oct. 17, 1896, No. 248,008.



Claim.—1. In combination with a cutting-wire, basins containing liquid for causing the descent of the wire by gravity, a counterbalance for each basin and means for lessening the weight in the basins to elevate the wire, the said basins acting to depress the wire-supports while the counterweights tend to lift the same when the weight of the basins is lessened, substantially as described.

2. In combination with a cutting-wire, basins containing liquid for causing the descent of the wire by gravity, means for lessening the weight in said basins to elevate the wire, a counterbalance-weight for each basin and the tanks in which the same are immersed, said tanks acting to diminish the weight of the counterbalance-weight during the time the basins act for depressing the wire-supports, and permitting the use of sufficient counterweight to prevent the wire-supports from falling to the floor, in case the wire becomes broken at which time the counterweight rises out of the tank.

3. In combination with the cutting-wire, depressing-weights for causing the descent of the wire by gravity, a counterbalance-weight for each depressing-weight and tanks in which the counterweights are immersed, said tanks acting to diminish the weight of the counterweights when the depressing-weights act to depress the wire-supports and permitting the use of sufficient counterweight to prevent the wire-supports from falling to the floor should the wire break at which time the counterweight would rise out of the tank.

602,891. NUT-LOCK. JOHN BERRYMAN, Florissant, Colo., assignor to Henry C. Hamilton, Richard Gepson, Joseph Bowman, and Henry Trowbridge, Cripple Creek, Colo. Filed July 17, 1897. Serial No. 643,010. (No model.)



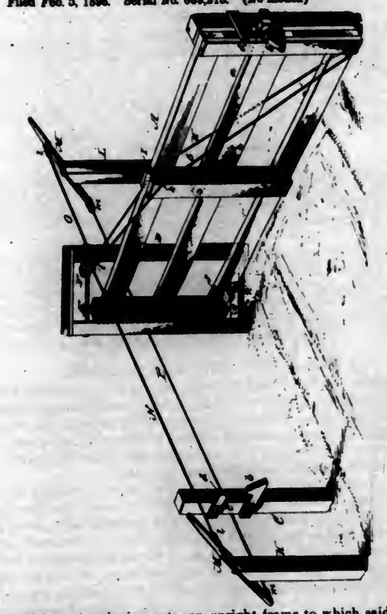
Claim.—1. A screw-bolt provided with a nut having an opening therein the walls of which converge longitudinally, and also laterally toward the bore of said nut, in combination with a key also tapering

longitudinally and laterally adapted to be inserted within said opening and be wedged between and against the sides of the screw-threads of said bolt, substantially as described.

2. A screw-bolt provided with a nut having an opening provided with a longitudinally and laterally tapering key therein, the inner face of which is plane and provided with engaging edges adapted to be wedged between and against the sides of the screw-threads of said bolt and thereby lock the nut thereon, substantially as described.

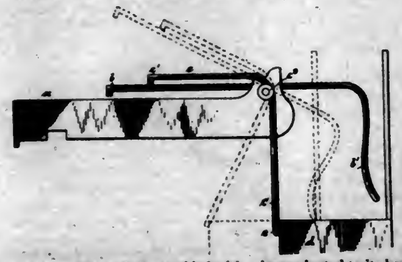
3. A screw-bolt provided with a nut having an opening therein, the walls of whic converge longitudinally from end to end, and also laterally toward the bore of the nut, in combination with a key tapering longitudinally from end to end, and also laterally, the inner edge of which is squared and serrated to provide serrated engaging edges, said key adapted to be inserted within the said opening in the nut and be wedged between and against the sides of the screw-threads of the bolt, substantially as described.

602,892. **FARM-GATE.** AUGUSTUS F. BRYA, Champaign, Ill. Filed Feb. 5, 1896. Serial No. 668,213. (No model.)



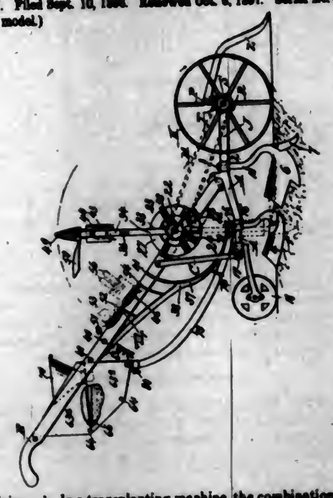
Claim.—A swinging gate, an upright frame to which said gate is pivoted and disposed at an acute angle thereto, a transverse and horizontal guide-rod connected to the frame, a grooved pulley engaging therewith, stay-rods connected to the gate and extending through eyes upon the end of a pivoted hanger and connecting with the pulley, and operating-levers, and wires connected to the levers and connecting with the pulley, substantially as and for the purpose specified.

602,893. **LOOM-FORK.** JOHN CATTERALL, New Bedford, Mass. Filed Oct. 7, 1897. Serial No. 654,476. (No model.)



Claim.—A loom-fork, provided with a lever pivoted to its body, having one of its ends adapted to bear upon the rear portion of the fork at certain times, and its opposite end projecting within the path of the "lay" of the loom, and adapted to be operated therewith, substantially as, and for the purpose described.

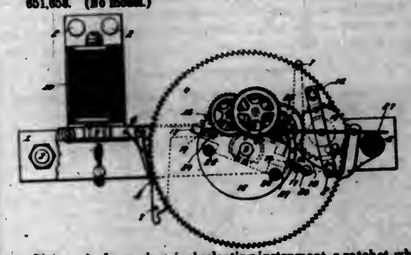
602,894. **TRANSPLANTER.** WILLIAM R. CHESSMAN, Freehold, N. J. Filed Sept. 10, 1896. Renewed Oct. 6, 1897. Serial No. 654,990. (No model.)



Claim.—1. In a transplanting-machine, the combination with the plant-wheel 23 the spring-fingers 34, the hollow band 27, the cap 32, the catch 31, the spokes 28 and the hollow sleeve 29 substantially as described.

2. In a transplanting-machine the combination with the plant-wheel constructed as described, the spring-fingers 34, the spreader 37, the clamp 43, the knife 44, the check-bridge 45, the bulge 46, the clamps 47, the dibber 49, the cover or scraper 50, the hollow plate or cup 51 and the needle 52 of the tank and plant-box 63 having false bottom 66, with an opening therein covered by the cap 68, the funnel 70, the rubber tube 73, the faucet 75, the suction-cap 76, the trip 79, cap 76 and spring 77 substantially as described.

602,895. **ELECTRICAL SELECTOR.** LOUIS W. CROFOOT and FRANK R. GRANGER, Aberdeen, S. D. Filed Sept. 14, 1897. Serial No. 651,658. (No model.)



Claim.—1. In an electrical selecting instrument, a ratchet-wheel, impelled by a succession of electrical impulses and provided with means for limiting its movement to one tooth at each electrical impulse, having mounted upon its surface in an eccentrical position a small gear-wheel with a coil-spring attached thereto, in combination with a partially-toothed gear-wheel mounted concentrically with, but revolving independently of, said ratchet-wheel provided with means for being held temporarily in a fixed position, with which the teeth of the small gear-wheel will engage as it is being carried around upon the ratchet-wheel, said partially-toothed gear-wheel having a sufficient number of teeth to wind up the coil-spring sufficiently to furnish the power to do the work required.

2. In an electrical selecting instrument, a ratchet-wheel impelled by a succession of electrical impulses and provided with a means for limiting its movement to one tooth at each electrical impulse, having mounted upon its surface in an eccentrical position a small gear-wheel with a coil-spring attached thereto, a partially-toothed gear-wheel, concentric with the ratchet-wheel but revolving independently, which has a hole or pocket in its surface, in combination with two trips hinged in diametrically opposite positions upon a fixed support and constantly pressed by springs against the surface of the partially-toothed gear-wheel, one or the other of said trips engaging with the hole or pocket in the partially-toothed gear-wheel for the purpose of holding it in one or the other of two diametrically opposite positions, while the small gear-wheel, as it is carried around by the ratchet-wheel, engages with its teeth and winds up the coil-spring sufficiently to furnish the power, when released, to impel the partially-toothed gear-wheel forward one-half a revolution, and a means for disengaging the trip from the hole or pocket in said partially-toothed gear-wheel whenever the ratchet-wheel reaches a point in its revolution which is when the coil-spring has been sufficiently wound up and before the teeth of the small gear-wheel escape from the teeth of the partially-toothed gear-wheel, substantially as set forth.

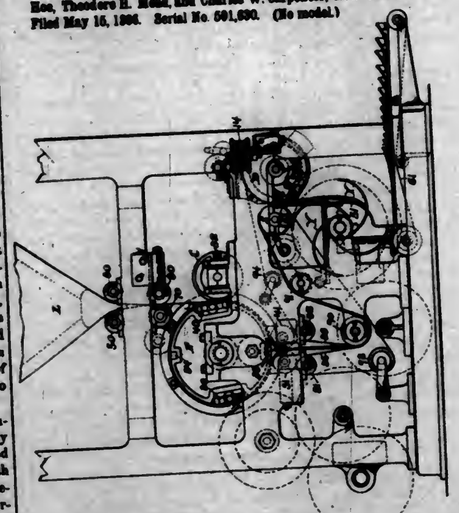
3. In an electrical selecting instrument, a ratchet-wheel, electrically impelled, provided with means for limiting its movement to one tooth at each electrical impulse, carrying upon its surface a small gear wheel, with coil-spring attached thereto which is wound up, as the ratchet-wheel revolves, by the engagement of the small gear-wheel with the teeth of a partially-toothed operating gear-wheel, mounted concentrically with said ratchet-wheel, but revolving independently thereof, two trips hinged to stationary supports, in diametrically opposite positions, constantly pressed by springs against the surface of said operating-wheel, and one or the other of said trips, by engagement with the operating-wheel, holding it temporarily in a fixed position, in combination with a tripping device carried upon the surface of said ratchet-wheel, which will engage with said trips, at two diametrically opposite points in its revolution, whereby said operating-wheel is released from the trip and permitted to be thrown forward one-half a revolution, by the unwinding of the coil spring, and is a series of like instruments, the ratchet-wheels of which move in unison by the same electrical impulse, the instrument selected being adjusted to operate at this particular point of the revolution of its ratchet-wheel, will perform its work without operating any of the other instruments in the circuit or system which are adjusted to operate at other points in the revolutions of their ratchet-wheels.

4. In an electrical selecting instrument, two trips hinged in diametrically opposite positions to stationary supports and constantly pressed by springs against the surface of an operating-wheel and holding the same temporarily in a fixed position, in combination with a ratchet-wheel electrically impelled, means for limiting its movement to one tooth at each electrical impulse, carrying a small gear-wheel upon its surface with coil-spring attached thereto which engages with said operating-wheel while it is held in a fixed position, and a means for engaging and disengaging with said trips at two diametrically opposite points in the revolution of said ratchet-wheel, whereby the operating-wheel is at first released from its fixed position, and a means for retarding the movement of said operating-wheel sufficiently to permit it to become reengaged with said trips when said trips are released from their engagement with said ratchet-wheel, and a means for returning said operating-wheel to its fixed position when it is disengaged from the small gear-wheel, and the coil-spring attached thereto unwinds, without the performance of any work by the selecting instrument.

5. In an electrical selecting instrument, an operating-wheel, temporarily held in a fixed position, carrying upon its surface a speed-governing mechanism which retards the revolution of said operating-wheel (when released from its fixed position) by means of a lever-arm which has one end attached to the main axis of said speed-governing mechanism and the other end has a bearing against one of two diametrically opposite fixed standards, actuating the speed-governing mechanism and retarding the revolution of said operating-wheel as it is being impelled forward, until said lever-arm passes off from its bearing; in combination with a small gear-wheel having a coil-spring attached thereto and mounted upon the surface of a ratchet-wheel electrically impelled one tooth at each electrical impulse, means for releasing said operating-wheel from its fixed position when said ratchet-wheel is stopped in its revolution at a point which will permit the selecting instrument to perform its work without affecting any other selecting instrument in the circuit or system.

6. In an electrical selecting instrument an operating-wheel temporarily held in a fixed position, carrying upon its surface a speed-governing mechanism which retards the revolution of said operating-wheel (when released from its fixed position) by means of a lever-arm which has one end attached to the main axis of said speed-governing mechanism and the other end has a bearing against one of two diametrically opposite fixed standards, actuating the speed-governing mechanism and retarding the revolution of said operating-wheel when it is impelled forward until said lever-arm passes off from its bearing; a ratchet-wheel with pawl and retractile spring attached to the main wheel and axis of the speed-governing mechanism, which will throw said lever-arm forward to its normal position when escaping from its outward bearing, and return the operating-wheel, with its mounted mechanism, to its normal position when said lever-arm does not escape from its outward bearing; in combination with a small gear-wheel with coil-spring attached thereto, and mounted upon the surface of a ratchet-wheel electrically impelled one tooth at each electrical impulse, means for temporarily releasing said operating-wheel from its fixed position and means for stopping and restoring said operating-wheel to its fixed position when said ratchet-wheel continues to revolve beyond the point of each release and the selecting instrument performs no work.

602,896. **MEANS FOR PROTECTING NEWSPAPERS AGAINST RESALE.** LUTHER C. CROWELL, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed May 15, 1896. Serial No. 591,690. (No model.)



Claim.—The combination with folding mechanism for imparting a fold to a printed sheet, of mechanism operating to pass a metallic device through the free edges or plies of said folded sheet and clench said metallic device in place to unite said edges or plies and seal the same from being spread open, substantially as described.

602,897. **SHOE DIP AND POLISHER.** NATHAN D. DABOLL, Plainfield, N. J. Filed Mar. 22, 1897. Serial No. 628,633. (No model.)



Claim.—1. The combination in a device for the purpose specified, of a rectangular block having a front pad of yielding material, and a facing-section composed of a fabric D having the long end tongues I and side wings I^2 perforated, and the short end tongues or tabs folded, all substantially as herein specified.

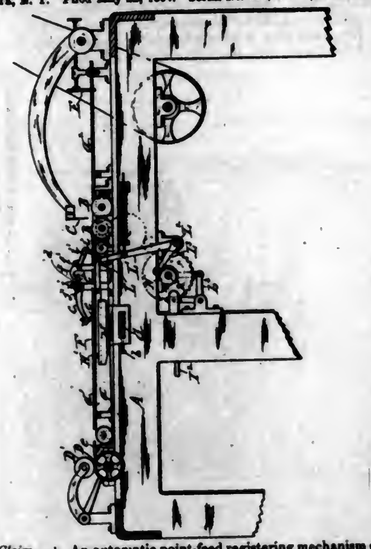
2. The combination with a brush-back, of a rectangular block having a series of pins *b*, removably engaging recesses in the back, a pad B', secured to the lower surface of the latter, a facing-section composed of the fabric D, secured upon said block by having its folded tongues I and wings I^2 engaged by the pins *b*, and means as the thumb-screw C, for detachably securing the brush-back and block together, all constructed and arranged substantially as herein specified.

3. The combination with a brush back, of a rectangular block having the pad B' secured to its lower surface, a facing-section composed of the fabric D, secured upon said block by tongues I wings I^2, the pad C adapted to be interposed between the brush-back and the block, and means as the thumb-screw C for detachably securing the brush-back and block together, all constructed and arranged substantially as specified.

4. The combination in a polishing-brush, of a brush-back, a rectangular block having a yielding pad secured upon its lower surface, a facing section of fabric adapted to cover said pad and having tongues

and wings extending over the upper surface of the block, means for securing said tongues and wings, another pad adapted to be interposed between the brush-back and the block, means as a thumb-screw for detachably securing to each other, the two last-mentioned portions, and an upper dip portion similar in construction to the polisher and secured to the brush-back by a clamping-screw, all substantially as herein specified.

602,898. PAPER-REGISTERING MACHINE. TALBOT G. DEXTER, Pearl River, N. Y., assignor to the Dexter Folder Company, New York, N. Y. Filed May 22, 1897. Serial No. 637,654. (No model.)



Claim.—1. An automatic point-feed registering mechanism comprising a longitudinally-movable bed receiving upon it the paper to be registered, means for moving the paper with said bed, and a registering instrument provided with a pin or point entering the slit in the paper directly over the aforesaid bed.

2. An automatic point-feed registering mechanism comprising longitudinally-movable beds moving the paper by frictional contact, registering-points entering the slits in the paper directly over said beds, and means for releasing the paper from friction of the beds simultaneously with the entering of the points into the slits.

3. In combination with conveyers carrying the sheet into position for registering it, beds receiving the delivered sheet upon them and provided with friction-surfaces to move the sheet, mechanism imparting longitudinal movement to said beds, and registering instruments pressing the sheet into frictional contact with the beds and provided with registering-pins entering the slits in the sheet, and thereby relieving said sheet from friction of the beds, as set forth.

4. In combination with the sheet-conveyers and sheet-arresting gage, a bed projecting intermittently above the plane of said conveyers and traveling longitudinally during said projection to carry the sheet with it, and a paper-registering instrument operating on the sheet while carried by said bed, as set forth.

5. In combination with the sheet-conveyers and sheet-arresting gage, a friction-bed projecting intermittently above the plane of the conveyers and traveling during said projection parallel with the lines of the travel of the aforesaid conveyers, and a paper-registering instrument over said bed and provided with means for engaging a slit made in the paper for that purpose, as set forth.

6. In combination with the sheet-conveying tapes, an end gage alternately advancing to and receding from its sheet-arresting position, longitudinally-movable beds receiving upon them the arrested sheet, means for moving the sheet with the beds, and registering instruments directly over the beds and provided with means for engaging slits made in the paper for that purpose, as set forth.

7. In combination with the folding-rollers, sheet-conveying tapes and sheet-arresting gage, beds projecting intermittently above the plane of said tapes and moving longitudinally during its projection, and registering instruments over said beds and moving to and from the same and provided with registering-pins inclined to enter into slits in the paper while moving with the beds and to release the paper during its passage through the bite of the folding-rollers.

8. In combination with the folding-rollers, sheet-conveying tapes and sheet arresting gage, longitudinally-movable beds projecting intermittently above the plane of the tapes, mechanism imparting reciprocating motion to said beds, registering instruments over said beds and movable to and from the same, registering-pins attached to said instruments, and mechanism lifting the registering instruments successively-increased distances from the beds to release the registered sheet and to permit free passage of the succeeding sheet.

9. In combination with the sheet-conveying tapes and sheet-arresting gage, longitudinally-moving slides beneath the plane of the tapes, elastic friction-beds mounted on said slides, mechanism shifting the planes of the tapes in relation to the slides and causing the latter to carry the beds intermittently above said plane, mechanisms moving the slides reverse from the travel of the tapes during the aforesaid projection of the beds, and registering instruments bearing on the sheet carried on the said projecting beds, as set forth.

10. In combination with the main frame and sheet-conveying tapes, a bar extending across the machine beneath the tapes and fastened to the aforesaid frame, shoes secured to said bar adjustably toward and from the central line of travel of the paper carried on the tapes, longitudinally-movable slides riding in said shoes, friction-beds mounted on said slides, mechanism shifting the plane of the paper in relation to that of the said beds and causing the latter to project intermittently above the aforesaid plane, mechanisms moving the slides reverse from the travel of the tapes during the aforesaid projection of the beds, and registering instruments bearing on the sheet carried on the projecting beds, as set forth.

11. In combination with the main frame and sheet-conveying tapes, a bar extending across the machine beneath the tapes and secured to the frame, shoes attached longitudinally adjustable to said bar, longitudinally-movable slides riding in said shoes, soft-rubber beds mounted on said slides, mechanisms shifting the plane of the tapes and causing the aforesaid beds to intermittently project above said plane, mechanisms moving the slides reverse from the travel of the tapes during the aforesaid projection of the beds, and registering instruments supported over the tapes adjustably to conform to the adjustment of the slides and movable to and from the beds, and mechanism actuating the registering instruments to bear on the sheet carried on the projecting beds, as set forth.

12. In combination with the main frame, sheet-conveying tapes and sheet-arresting gage, a transverse bar beneath said tapes and secured to the main frame, shoes mounted on said cross-bar adjustably in relation to the distance between the shoes, slides riding in said shoes, friction-beds mounted on said slides, mechanism intermittently raising and lowering the tapes to planes above and beneath the plane of the aforesaid bed, mechanism imparting to the aforesaid slides a longitudinal movement, a shaft extending across the machine above the plane of the beds, registering-arms mounted on said shaft adjustably to conform to the positions of the aforesaid beds and operating on the sheet directly over the beds, a rock-shaft parallel with the aforesaid shaft, cams secured to said rock-shaft adjustably to conform to the positions of the registering-arms and imparting oscillatory motion to said arms, and mechanism actuating said rock-shaft, as set forth.

13. In combination with the sheet-carrying bars and the gage alternately advancing to and receding from its sheet-arresting position, a bed immediately below the plane of the sheet-carrying bars and moving in unison with said gage, and a point-feed registering instrument operating upon the sheet directly over said bed, as set forth.

14. In combination with the alternately advancing and receding sheet-arresting gage, vertically-movable frames, tape-roller shafts pivoted to said frames to carry the tapes intermittently to and from their sheet-conveying position, longitudinally-movable beds immediately under the plane of the sheet-carrying bars and moving in unison with the aforesaid gage, and point-feed registering instruments operating on the sheet directly over said beds, as set forth.

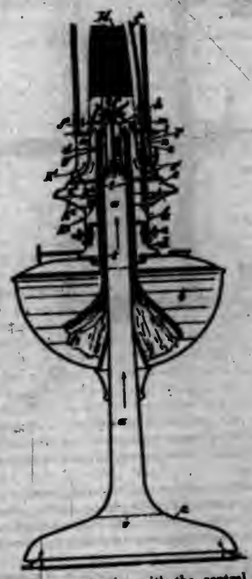
15. In combination with the main frame, alternately advancing and receding sheet-arresting gage and its supporting-bars moving correspondingly, a transverse bar secured to the main frame, shoes mounted on said transverse bar, longitudinally-movable slides supported on said shoes and connected to the aforesaid gage-supporting bars to move in unison therewith, friction-beds mounted on said slides, vertically-movable frames, and the tape-roller shafts pivoted to said frames to carry the tapes to and from their sheet-conveying position, as set forth.

602,899. MARSHMALLOW-RUNNER. RALPH W. DOUGLAS, St. Joseph, Mo. Filed Nov. 5, 1896. Serial No. 611,107. (No model.)

Claim.—The combination in a marshmallow-runner of the waterproof bag A, metal runner B having projections or flanges F and H and nozzles C C, strips J J having flanges K K, cut-off slide D having openings E E in bottom and turned edges L L to operate in the flanges K K, spring N and loop O and lever P pivoted on fulcrum R and engaging the loop T on slide of the runner and handle M, by which to operate said slide, substantially as, and for the purposes set forth.



602,900. PETROLEUM-LAMP FOR INCANDESCENT LIGHTS. ARTHUR DUFFEK, Vienna, Austria-Hungary, assignor of one-half to Johann Kahn, same place. Filed Apr. 15, 1897. Serial No. 632,203. (No model.)



Claim.—1. The combination with the central draft-tube contracted at its outlet, of a smaller tube arranged axially in and extending above the outlet of said draft-tube, and deflecting devices for deflecting the air issuing from the draft and smaller tubes laterally and downwardly, respectively, for the purpose set forth.

2. The combination with the central draft-tube contracted at its outlet, and a smaller tube arranged axially in and extending above said draft-tube and a deflector at the outlet of the smaller tube provided with perforations and having a convex upper face and diverging concave deflecting-surfaces on its under side, of the concave-convex auxiliary deflector *p*, substantially as and for the purpose set forth.

3. The combination with a central-draft wick-burner and means for dividing the body of air issuing from the central draft-passage and diverting a portion thereof laterally across the upper end, and another portion downwardly toward said burner; of a gallery provided with a conical cap of greater diameter than and projecting above the burner, said gallery provided with air-inlet ports below its cap and with radial air-passages opening into said cap near the upper open end thereof, for the purpose set forth.

4. The combination with a central-draft wick-burner, and means for dividing the body of air issuing from the central draft-passage and diverting one portion laterally across the upper end, and another portion downwardly toward said burner; of a gallery provided with air-inlet ports and with a conical cap of greater diameter than and projecting above the burner, an open-top air-chamber provided with air-inlet ports surrounding said cap and communicating with the gallery, and radial air-passages extending through said open-top air-chamber and leading to the aforesaid cap, for the purpose set forth.

602,901. SNOW-GUARD. HENRY M. HOLLIS, Boston, Mass. Filed Mar. 8, 1897. Serial No. 626,366. (No model.)



Claim.—1. A wire snow-guard having at one end a foot to extend and be held frictionally beneath the longitudinal edge of a slate or shingle, and bent to form a snow-stop laterally offset from said foot, the other end of the guard acting as a brace against torsion of the snow-stop, said ends cooperating to automatically lock the guard in place, substantially as described.

2. A snow-guard formed of a single piece of wire having one end flattened and turned laterally to extend and be held frictionally beneath the longitudinal edge of a slate or shingle, and bent to form a laterally-offset loop-like snow-stop, the other end of the guard entering between adjacent slates or shingles, the said ends acting to automatically lock the guard in place, substantially as described.

3. A wire snow-guard having at one end a foot to extend and be held beneath the longitudinal edge of a slate or shingle, and bent between its ends to form a snow-stop laterally offset from said foot, and oblique to the direction of pressure thereupon, the other end of the guard acting as a brace against torsion of the snow-stop, and automatically locking the guard in place, substantially as described.

4. A snow-guard made of a single piece of wire bent between its ends to form an upturned loop-like snow-stop, the ends of the wire being flattened and bent oppositely to extend beneath the longitudinal edges of adjacent slates or shingles, the snow stop being oblique to the direction of pressure, substantially as described.

5. A wire snow-guard bent between its ends to form an upturned loop-like snow-stop, the ends of the wire being flattened and bent oppositely to extend beneath the longitudinal edges of adjacent slates or shingles, the snow-stop acting to normally press the ends in opposite directions, substantially as described.

602,902. REVERSIBLE-BLADE PROPELLER. CHARLES W. PUSTER, New Haven, Conn. Filed Dec. 15, 1896. Serial No. 615,706. (No model.)

Claim.—1. In a reversible-blade propeller mechanism, a wheel-hub divided longitudinally into a plurality of sections, a blade piv-

otally supported in each of said sections, a screw-cap engaging the threaded outer end of said hub, and a spanner-nut, engaging the inner end thereof, substantially as and for the purpose described.

2. In a reversible-blade propeller mechanism, a wheel-hub divided longitudinally into a plurality of sections each of which sections is provided with a blade-opening and with a boss surrounding said opening at the outer side thereof, combined with a plurality of blades each of which is provided with a shank which enters one of the openings in said hub and with a flange which bears against the boss adjacent to said opening, substantially as described.

3. In a reversible blade propeller mechanism, the combination with a wheel-hub and a plurality of blades revolubly seated in said hub, of a propeller-shaft entering said hub and having a crank connection with each of said blades, a sleeve surrounding said shaft, means for locking said wheel-hub to said sleeve at its rear end, a thrust-bearing engaging said sleeve at its front end, and means for revolving said shaft and for imparting a longitudinal movement thereto to actuate said blades about their axes as a center, substantially as described.

4. The combination with a propeller-wheel having reversible blades and a propeller-shaft, of intermediate connection between said shaft and the blades of said wheel whereby longitudinal movement of the former will impart a rotary movement to the latter about their axes, an internally-threaded ring supported adjacent to the front end of said shaft, an exteriorly-threaded sleeve engaging the thread of said ring and having a portion thereof projecting between two stops on said shaft, and means for imparting a revolving movement to said sleeve, whereby a longitudinal movement will be imparted to said sleeve and the shaft to reverse the position of the propeller-blades, substantially as described.

5. The combination with a reversible-blade propeller and a longitudinally movable propeller-shaft operatively connected to the blades of said wheel, of an internally-threaded ring located adjacent to the front end of said shaft, an exteriorly-threaded sleeve engaging the thread of said ring, said sleeve carrying at one end a sprocket-wheel and having at its opposite end an internally-projecting portion which enters between two collars secured to said shaft, a shaft carrying a hand-wheel and a second sprocket-wheel, and a chain connecting said sprocket-wheels, arranged and operating substantially as described.

6. The combination with a reversible-blade propeller a propeller-shaft and intermediate connections between said shaft and the blades of said wheel whereby longitudinal movement of the former will impart a reversing movement to the latter, of a motor the crank-shaft of which carries a sleeve coupling the end of which embraces and has a spline-and-groove connection with the front end of said propeller-shaft, an exteriorly-threaded sleeve loosely embracing said sleeve-coupling and having a portion thereof swivelly connected to said shaft, an internally-threaded ring hung to a fixed support and engaging said threaded sleeve, and means for imparting a revolving movement to said sleeve, arranged and operating substantially as described.

7. The combination with a reversible-blade propeller and a propeller-shaft operatively connected with the blades of said propeller for reversing the movement thereof, of universally-supported bearings supporting said shaft adjacent to each of its ends, and means substantially as described for imparting both a revolving and a longitudinal movement to said shaft.

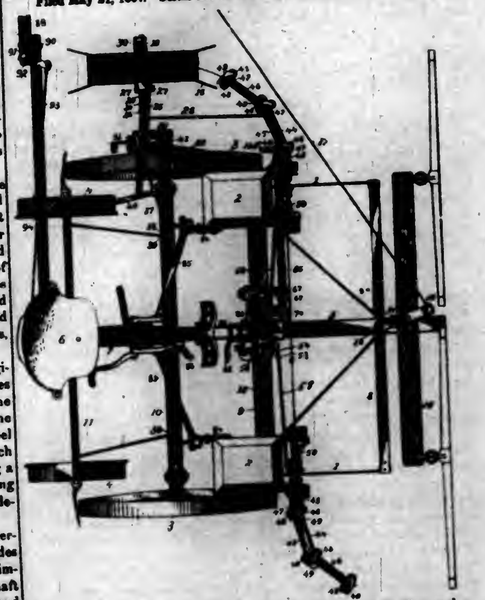
8. The combination with the wheel-hub composed of the longitudinal sections 5 6 having blade-openings surrounded by the bosses 10, of the blades 11 12 having shanks 13 and flanges 14, crank-disks 15 secured to said shanks within the hub, shaft 4 having the studs or pins 18 engaging notches or recesses in said disks and means for revolving said shaft and for imparting longitudinal movement thereto, substantially as described.

9. The combination with the hub composed of the sections 5 6 having the blades 11 12 revolubly seated therein, of the longitudinally-movable shaft 4 entering said hub and engaging said blades through an intermediate crank mechanism, sleeve 19 surrounding said shaft, screw-cap 8 inclosing the outer end of said hub, and spanner-nut 9 embracing the inner end of the hub and locking it to said sleeve, substantially as described.

10. The combination with the shaft 4, of the ring 44 hung upon horizontally-disposed pivots, interiorly-threaded ring 46 supported by vertical pivots within said ring 44, exteriorly-threaded sleeve 53 engaging the thread of said ring 46 and provided with the internal flange 54, collars 55 and 56 located on said shaft upon opposite sides of said flange, and means for revolving said sleeve, substantially as described.

11. The combination with the motor-shaft 3 having the sleeve 48 secured thereto, of shaft 4 entering said sleeve and having a spline-and-groove connection therewith, exteriorly-threaded sleeve 53 embracing the sleeve 48 and having sprocket-wheel 59 secured thereto at its front end and having the internal flange 54 at its rear end, internally-threaded ring 46 hung upon a universal joint and engaging said sleeve 53, collars 55 56 on shaft 4 at opposite sides of said flange 54, and shaft 61 carrying the hand-wheel 64 and a sprocket-wheel which has chain connection with said wheel 59, arranged and operating substantially as set forth.

602,908. CORN-PLANTER. George D. Haworth, Chicago, Ill. Filed May 21, 1897. Serial No. 637,639. (No model.)



Claim.—1. In a check-row planter the combination of a reel capable of translatory transposition from one side of the planter to the other, and check-row mechanism adapted to convey the wire to and from the reel.

2. In a check-row corn-planter, the combination of a reel adapted to be mounted on either side of the planter, and a guide to carry the wire across the planter in front of the reel, whereby the check-row mechanism of the planter may be actuated by the wire in act of reeling or unreeling.

3. In a check-row planter, the combination of a cross-wire check-rower having wire-receiving and wire-discharging guides on its ends, and a reel adapted to be mounted on either side of the planter in line with the guides of the check-rower, whereby the wire may pass to or from the reel through the check-rower.

4. In a check-row corn-planter, the combination of a reel, and check-row mechanism the wire-guides of which are swingable across the face of the reel, whereby the wire may be guided to the reel by swinging the wire-guides of the check-rower.

5. In a check-row planter, the combination of a laterally-shiftable reel, and check row mechanism forming a guide for the reel, substantially as set forth.

6. In a check-row corn-planter, the combination of a laterally-shiftable reel, and check-row mechanism the wire-guides of which are swingable across the face of the reel, whereby the shift of the reel and the swing of the guides may one complement the other, substantially as set forth.

7. In a check-row planter, the combination of a reel-shaft, a reel shiftable lengthwise of the shaft, a relatively stationary guide for the wire and a swingable lever on the reel-frame connected with the reel, whereby the wire may be distributed evenly on the reel by shifting the reel on its shaft, substantially as set forth.

8. In combination with a check-row wire-reel applicable to either side of a planter and driven by a chain running over a smooth pulley, a friction-developing arm, as 31, having chain bearing surfaces on opposite sides and a central finger to engage the pulley, substantially as set forth.

9. In a wheel-carried implement having a sidewise-extended member, as a planter and marker-bar, a horizontally-swingable draft-hitch at or near the normal center of draft of the implement, and a connection between the sidewise-extended member and the draft-hitch adapted to utilize the resistance of the side member in drawing the draft-hitch toward such resistance, substantially as set forth.

10. In a planter, the combination of a rotatable seed-disk having cells therethrough, a grain-dislodger swung in fixed bearings above the seed-disk in position to enter the cells thereof, and a fixed surface against which the dislodger strikes when it is forced from a cell, substantially as set forth.

11. In a planter, the combination of a rotatable seed-disk having cells therethrough, a finger pivoted in fixed bearings above the line of rotation of the cells, a weight tending to carry the swinging end of the finger into the cells, and a fixed surface against which the weight strikes when the motion of the seed-plate forces the finger out of a cell, whereby the rebound caused by the weight striking the surface is utilized to carry the finger into the next succeeding cell with a quick, forcible action.

12. In a planter, the combination of a rotatable seed-disk having cells therethrough, a finger pivoted in fixed bearings above the line of rotation of the cells, a weight tending to carry the swinging end of the finger into the cells, and a fixed elastic surface against which the weight strikes when the motion of the seed-plate forces the finger out of a cell, substantially as set forth.

13. In drill-gearing for corn-planters, the combination of a shaft adapted to be driven from a planter-wheel, a crank on the shaft, a pitman on the crank, and an L-lever connected at one end with the pitman and at the other end with the shake-bar of the planter, substantially as set forth.

14. In drill gearing for corn-planters, the combination of a shaft adapted to be driven from a wheel of the planter, a clutch member on the shaft making and breaking connection therewith by motion longitudinally thereon, a crank in the shiftable clutch member, an L-lever connecting from one end with the shake-bar of the planter, and a pitman on the crank having its extended end recessed in the direction of the motion of the clutch and engaged with the other end of the L-lever, substantially as set forth, whereby the pitman may move with the shiftable clutch member without disengaging the L-lever.

15. In drill-gearing for corn-planters, the combination of a shaft adapted to be driven from a wheel of the planter, a clutch member on the shaft making and breaking connection therewith by motion longitudinally thereon, a crank in the shiftable clutch member, an L-lever connecting from one end with the shake-bar of the planter, a pitman on the crank having its extended end recessed in the direction of the motion of the clutch and engaged with the other end of the L-lever, an obliquely-slotted swingable arm connected with the clutch member, and a finger extended into the slot and partaking of the tilting motion of the wheel-frame in act of raising the runners, whereby the drill-gearing is automatically disconnected from the shake-bar when the runners are raised.

16. In drill-gearing for corn-planters, the combination of a clutch, an upward extended vertically-swingable arm slotted obliquely and connected with the shiftable member of the clutch, and a finger extended into the slot of the arm and partaking of the tilting motion of the wheel-frame when the runners are raised, substantially as set forth.

17. In a corn planter, the combination of a rock-frame pivoted centrally and having a pedal at each end, an L-plate, a rod connecting the rock-frame with an arm of the L-plate and a rod connecting the other arm of the L-plate with the shake-bar of the planter, substantially as set forth.

18. A check-row arm for corn-planters, comprising a primary bar having a limited amount of horizontal swing on the planter, a secondary bar having a limited amount of horizontal swing on the primary bar and forming a continuation thereof, upward-extended rollers disposed in pairs at the pivots of the bars and the outer end of the secondary bar, and a horizontal wire-guard traversing the space between the upper ends of each pair of rollers and terminating out of contact with one of the rollers, whereby the check-row wire may be raised out of the arm, substantially as set forth.

19. A check-row arm for corn-planters comprising a bracket adapted to be attached to the planter-frame, a block pivoted on the bracket and having downward-extended studs to engage the bracket and limit its swing, a primary bar fixed at one end in the block on the bracket and having a similar block fixed on its swinging end, and a secondary bar pivotally connected with the swinging end of the primary bar in position to be controlled by the studs on the block thereof, substantially as set forth.

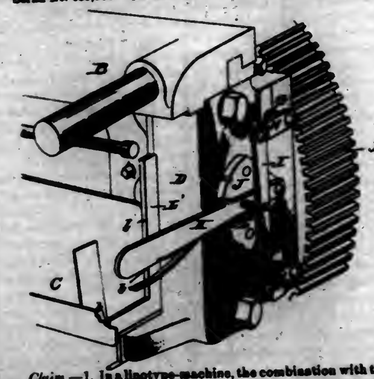
20. A check-row arm for corn-planters comprising a primary truss-bar composed of an upper member and a lower member, and a secondary bar pivotally connected with the primary bar and bearing on an extension of the lower member thereof, substantially as set forth.

21. In a corn-planter, the combination of a runner-frame, a wheel-frame having a central elevation, lifting mechanism for the runner located on the central elevation of the wheel-frame, and straps extending obliquely downward and sidewise from the lifting mechanism to the runner-frame, substantially as set forth.

22. A marker-bar for planters composed of two parts pivotally conjoined, an end of one of the parts being recessed and the other part having a swingable stop adapted to engage the recess, substantially as set forth.

23. In a marker-bar for planters, the combination of bar 95, bar 89 pivotally connected with a side of bar 95 and recessed in its end, U-bar 93 embracing bar 95 in position to engage the recess, and a line 98 connected with the U-bar and provided with a hook 94 between its ends, substantially as set forth.

602,904. ATTACHMENT FOR LINOTYPE-MACHINES. Frank A. Hill and William H. Sherar, St. Louis, Mo. Filed May 6, 1897. Serial No. 635,311. (No model.)

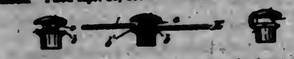


Claim.—1. In a linotype-machine, the combination with the knife-block, of the stationary and movable knives, and a plate yieldingly supported in the inner face of the knife-block for engaging the slug as it issues from the machine and smoothing down any fins or burs which may be present on the type edge of the slug, said plate being provided with a plurality of grooves arranged in line with the ribs on the slug whereby said ribs fit into the grooves and permit the body portion of the slug to fit close against the plate, as the slug is forced past the plate; substantially as described.

2. The combination with a knife-block, of a movable knife mounted therein, of a right and left hand screw which engages the movable knife and the knife-block at its differently-threaded portions respectively, arms on the ends of said screws, a link connecting said arms, a lever engaging said link for moving the same and the screws simultaneously, and a sector with which said lever cooperates; substantially as described.

3. The combination with a knife-block, of a stationary knife and a movable knife, screws G engaging the ends of the movable knife, arms H on the ends of screws G, a link I connecting the outer ends of arms H, a handle K connected to link I, a notched sector J, and a retaining-pawl on handle K which cooperates with the notches on the periphery of sector J; substantially as described.

602,905. SHOE-LACE FASTENER. John R. Kennedy, Montreal (Canada). Filed Apr. 16, 1897. Serial No. 632,570. (No model.)

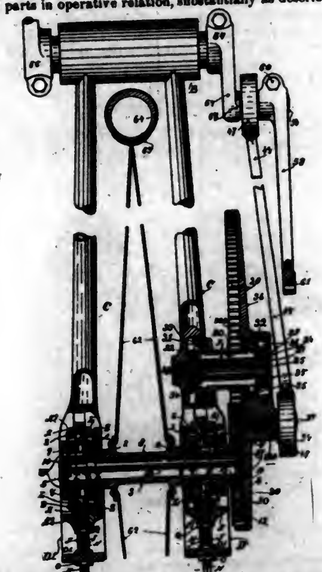


Claim.—A shoe-fastening hook open at its front and ends so that a lace can be slipped laterally into engagement with it, and provided with a projection *b'* at one end of its base, and a spring secured to the opposite end of the upper part of the hook with its free end bearing on the said base in front of the said projection, substantially as described and shown.

602,906. BICYCLE DRIVING-GEAR. Walter H. G. Kidd, Denver, Colo. Filed Aug. 30, 1897. Serial No. 649,960. (No model.)

Claim.—1. The combination of the rear-fork tubes, the cross-heads, having a ball-raceway the cross-head cups and the studs and check-nuts, and the blocks connecting the studs to the cross-heads, with the rear wheel's hub having a shoulder, a disk thereon bearing against said shoulder, a keyway in said hub; a steel ring keyed loosely to said hub and keyway; a felt dust-guard ring around

said steel ring; a cone on said hub loosely keyed to said keyway; a second cone threaded to said hub and opposed to the first-named cone, a second steel ring and felt dust-guard ring at the side of said threaded cone, a circular row of balls between said cones and the raceway of said cross-head, a nut threaded to the end of said hub and means for adjusting said threaded cone and nut to maintain the several parts in operative relation, substantially as described.



2. In a bicycle driving-gear a ball-bearing comprising a V-shaped ball-raceway, two independent opposing cones mounted on a hub, stud or axle, one of which is threaded to said hub or stud and adjustable relatively to the other, a steel ring at the outside of each cone, a felt ring dust-guard surrounding said steel ring and engaging the sides of said cone and said raceway, a circular row of balls between said raceway and said cones, a laterally-supporting disk or ring on the inner side of the cone and raceway and a nut threaded to the opposite side of said raceway from said lateral support and to said hub or stud and adapted with said threaded cone to secure the various parts of the ball-bearing in operative relation, substantially as described.

3. The combination in a bicycle driving-gear of the rear-fork tubes, the cages, the rear wheel, the hub of the rear wheel extending into and through said cages and adjustably supported therein by ball-bearings, a rawhide pinion secured to the end of said hub comprising a disk of rawhide clamped between two plates, an introverted hub on one plate provided with depending keys, keyways in the end of the said hub in which said plate-keys fit, an introverted hub on the opposite plate adapted to project into the hub of said rear wheel, a bolt extending through the hub of said plate and through the hub of said rear wheel and a nut and check-nut threaded to the end of said bolt and resting against the opposite end of said rear wheel's hub, substantially as described.

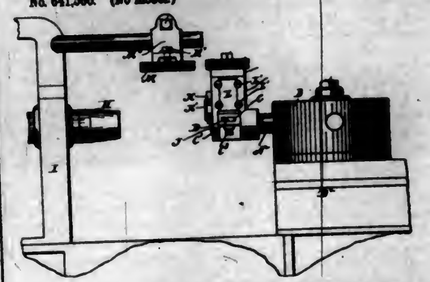
602,907. CUSHION-TIRE. JOHN P. KUHLE, Chicago, Ill. Filed Nov. 8, 1897. Serial No. 657,782. (No model.)

Claim.—1. A solid-cushion tire for vehicle-wheels having a flat base, with longitudinal ribs or projections formed therein, and a supporting-rim having side flanges arranged to support the tire against lateral displacement and having flat supporting-surfaces to receive the flat bearing-surfaces of said tire-base, and seats to receive said ribs or projections, in combination with binding-wires embedded longitudinally in said tire and located above the flat portions of the tire-base but in line with said ribs or projections, as and for the purpose set forth.

2. A solid-rubber tire having longitudinally-arranged binding-wires embedded therein, and having a flat base with longitudinal ribs or projections formed therein at points directly opposite said binding-wires, said binding-wires located above the flat surfaces or portions of the tire-base, a flat portion of such base being interposed between said ribs, in combination with a supporting rim or plate having flat portions and seats or depressions to receive the flat portions and ribs of said tire, the surface of said plate or rim located between the seats formed therein being slightly higher than the other portions of said surface, as and for the purpose set forth.



602,908. BOX-TOOL FOR SCREW-MACHINES OR LATHES. JOSEPH P. LAVIGNE, New Haven, Conn. Filed June 21, 1897. Serial No. 641,560. (No model.)



Claim.—1. A box-tool having a box, a tool-holder located therein and comprising an upwardly-extending stem, a horizontally-arranged head containing a horizontal opening for the reception of the tool which is held so as to cut by its forward end, and means for raising and lowering the said tool-holder by means of its upwardly-projecting stem.

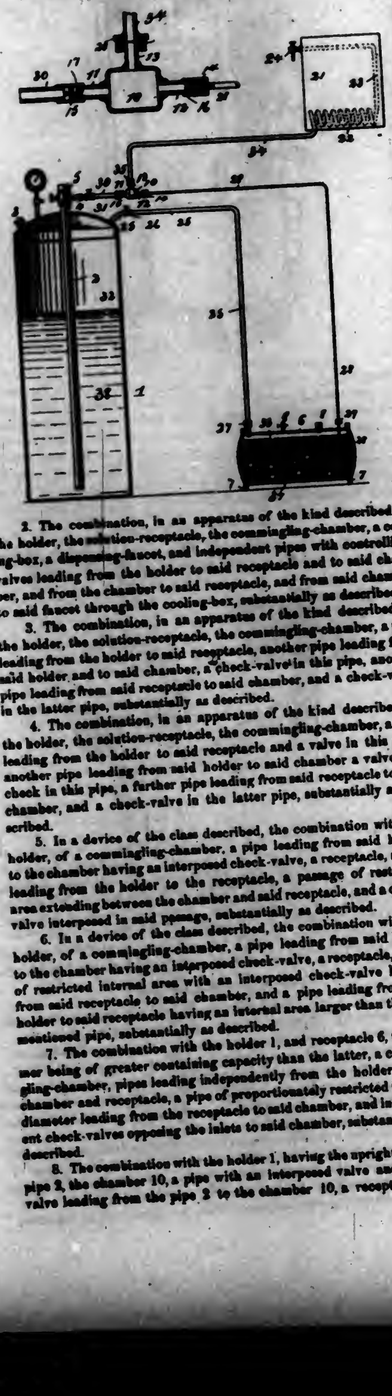
2. A box-tool having a box, a tool-holder located therein and comprising an upwardly-extending stem, a horizontally-arranged head containing a horizontal opening for the reception of the tool which is held so as to cut by its forward end, and a screw entering the upper end of the stem and projecting above the box, and providing for raising and lowering the tool-holder, as desired.

3. A box-tool having a vertically-movable tool-holder, and means for raising and lowering the same including a wheel located above and connected with it and exposed for being engaged by an independently-supported rack by means of which the wheel is turned in one direction or the other for raising and lowering the tool-holder as the work progresses, so as to change the character of the cut.

4. In a screw-machine or lathe, the combination with a box-tool having a vertically-movable tool-holder, and a wheel connected with the said holder for raising and lowering the same; of an adjustable horizontally-arranged rack located in position to be engaged by the said wheel which it actuates in rotation in one direction or the other as the machine operates, substantially as set forth.

602,909. APPARATUS FOR MAKING AND DISPENSING MINERAL WATERS. PETER B. MALMSTROM, New York, N. Y. Filed Feb. 26, 1897. Serial No. 625,127. (No model.)

Claim.—1. In an apparatus of the class described, the combination of the following instrumentalities, a holder containing carbonated water and having a top gas-pressure, a receptacle containing a mineral-salt solution, a commingling-chamber in which the carbonated water and mineral-salt solution is combined, a pipe leading from the carbonated-water holder to the said chamber, a pipe leading from the gas-space to the said receptacle, a pipe leading from the said receptacle to said chamber, and check-valves located at each of the entrances to said chamber and interposed in the line of the flow of said fluids, substantially as described.



2. The combination, in an apparatus of the kind described, of the holder, the solution-receptacle, the commingling-chamber, a cooling-box, a dispensing-faucet, and independent pipes with controlling-valves leading from the holder to said receptacle and to said chamber, and from the chamber to said receptacle, and from said chamber to said faucet through the cooling-box, substantially as described.

3. The combination, in an apparatus of the kind described, of the holder, the solution-receptacle, the commingling-chamber, a pipe leading from the holder to said receptacle, another pipe leading from said holder and to said chamber, a check-valve in this pipe, another pipe leading from said receptacle to said chamber, and a check-valve in the latter pipe, substantially as described.

4. The combination, in an apparatus of the kind described, of the holder, the solution-receptacle, the commingling-chamber, a pipe leading from the holder to said receptacle and a valve in this pipe, another pipe leading from said holder to said chamber a valve and check in this pipe, a further pipe leading from said receptacle to said chamber, and a check-valve in the latter pipe, substantially as described.

5. In a device of the class described, the combination with the holder, of a commingling-chamber, a pipe leading from said holder to the chamber having an interposed check-valve, a receptacle, a pipe leading from the holder to the receptacle, a passage of restricted area extending between the chamber and said receptacle, and a check-valve interposed in said passage, substantially as described.

6. In a device of the class described, the combination with the holder, of a commingling-chamber, a pipe leading from said holder to the chamber having an interposed check-valve, a receptacle, a pipe of restricted internal area with an interposed check-valve leading from said receptacle to said chamber, and a pipe leading from said holder to said receptacle having an internal area larger than the last-mentioned pipe, substantially as described.

7. The combination with the holder 1, and receptacle 6, the former being of greater containing capacity than the latter, a commingling-chamber, pipes leading independently from the holder to said chamber and receptacle, a pipe of proportionately restricted internal diameter leading from the receptacle to said chamber, and independent check-valves opposing the inlets to said chamber, substantially as described.

8. The combination with the holder 1, having the upright siphon-pipe 2, the chamber 10, a pipe with an interposed valve and check-valve leading from the pipe 2 to the chamber 10, a receptacle 6, a pipe 25 having a valve 26 between the holder and receptacle, and the restricted siphon-pipe 28 having an interposed check-valve extending to the chamber 10 and receptacle 6, substantially as described.

9. The combination with the upright holder 1, the upright siphon-pipe 2 extending to the bottom and through the top of the holder, the commingling-chamber 10, a pipe 30 extending between said chamber and pipe 2 and having an interposed valve 5 and a check-valve, a horizontally-disposed receptacle 6, a pipe 25 leading from the top of the holder 1 to the top of the receptacle and having a valve 26, and a smaller pipe 28 having an interposed check-valve leading from the bottom of the receptacle 6 to the chamber 10, substantially as described.

10. The combination with the holder 1, receptacle 6, and chamber 10, and the regulated passages between them, of the cooling-box, a pipe-coil therein, a dispensing-faucet, and pipes 23, 34 leading from the coil to the chamber 10 and faucet respectively, substantially as described.

11. The combination with the gas-holder 1, the stand-pipe 36, a series of separate receptacles as 6, a pipe with an interposed controlling-valve leading from each of the receptacles to the gas-space in the holder, the pipe 2 in the holder connecting the stand-pipe 36, a separate commingling-chamber for each receptacle, a pipe leading from each of the receptacles to its respective commingling-chamber, a series of pipes leading from the stand-pipe 36 to each of the commingling-chambers, and valves interposed in the pipes leading to the said commingling-chambers, substantially as described.

12. The combination with the gas-holder 1, the stand-pipe 36, a series of separate receptacles as 6, a pipe with an interposed controlling-valve leading from each of the receptacles to the gas-space in the holder, the pipe 2 in the holder, a separate commingling-chamber for each receptacle, a pipe leading from each of the receptacles to its respective commingling-chamber, a series of pipes leading from the stand-pipe 36 to each of the commingling-chambers, valves interposed in the pipes leading to the said commingling-chambers, a cooling-box and coils therein, a series of independent pipes 34 each leading from each of the commingling-chambers to a separate coil in the cooling-chamber, a series of dispensing-faucets and separate pipes leading from each of the cooling-coils to said faucets, each of the faucets being in connection with each of the independent commingling-chambers, substantially as described.

602,910. ROLLED-STEEL BOLSTER FOR CARS. JOHN M. MAHR, Chicago, Ill. Filed Dec. 9, 1897. Serial No. 661,393. (No model.)



Claim.—1. In a car-bolster, a rolled-steel truss-shaped beam having upper and lower flanges and an intermediate web, the web being longitudinally slitted at each end of the beam, and provided with shoulders and offset portions lapping past each other, and rivets or other devices inserted through the lapped portions of said web for securing the same together, the upper and lower flanges of the beam being bent or inclined, one or both, at an angle to each other, the two slitted edges of the web abutting against the two shoulders or offsets at the lapped portions of the slitted web, substantially as specified.

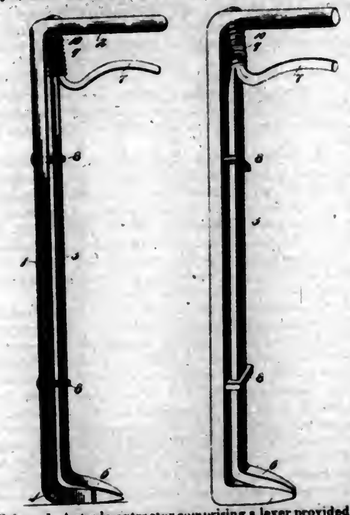
2. In a car-bolster, a rolled-steel truss-shaped beam having upper and lower flanges and an intermediate web, the web being longitudinally slitted at each end of the beam, and provided with shoulders and offset portions lapping past each other, and rivets or other devices inserted through the lapped portions of said web for securing the same together, the upper and lower flanges of the beam being bent or inclined, one or both, at an angle to each other, and said web having also a triangular or gore-shaped piece cut out on each side of the middle of the beam to enable said upper and lower flanges to be bent or inclined toward each other, and the slitted and shouldered portion of the web lapped, substantially as specified.

3. The combination in a car-bolster of a pair of truss-shaped rolled-steel beams placed side by side and secured together, and each having upper and lower flanges and an intermediate web, the web having a longitudinal slit at each end and provided with abutting shoulders and offset portions lapping past each other and rivets securing the lapped portions together, the upper and lower flanges of each beam being bent or inclined, one or both, at an angle to each other, substantially as specified.

4. The combination in a car-bolster of a pair of truss-shaped rolled-steel beams placed side by side and secured together, and each having upper and lower flanges and an intermediate web, the web having a longitudinal slit at each end and provided with abutting shoulders and offset portions lapping past each other and rivets securing the latter portions together, the upper and lower flanges of

each beam being bent or inclined, one or both, at an angle to each other, and said web having also a triangular or gure-shaped piece cut out at each side of the middle, substantially as specified.

602,911. STAPLE-EXTRACTOR. CLAUDE G. MITCHELL, Chrisman, Ill., assignor of one-half to Chandler Mitchell, same place. Filed July 8, 1897. Serial No. 643,878. (No model.)



Claim.—1. A staple-extractor comprising a lever provided at one end with a staple-engaging arm, and a spring-actuated clamping-bar slidingly mounted in suitable guides of the lever, and capable of a limited movement longitudinally thereof, said clamping-bar being provided with a clamping-arm arranged adjacent to the staple-engaging arm and adapted to clamp a staple to prevent the same from becoming separated from the device during the extracting operation, substantially as described.

2. A staple-extractor comprising a lever provided at one end with a handle and at its other end with an arm, said handle and arm extending from the same side of the lever, a clamping-bar disposed longitudinally of the lever in suitable guides thereof and capable of a limited sliding movement lengthwise of the same, said clamping-bar being provided at its ends with a handle and a clamping-arm arranged adjacent to the inner sides of the staple-engaging arm and the handle of the lever, and a spring for holding the clamping-arm in engagement with the staple, substantially as described.

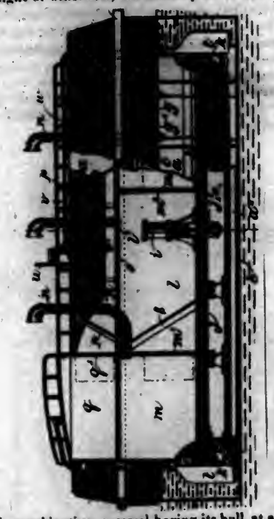
602,912. LIFE-BOAT. WILLIAM W. MCGWIRR, Dungarvan, Ireland. Filed Aug. 6, 1897. Serial No. 647,373. (No model.)

Claim.—1. In a life-boat or other vessel the combination of a hull of approximately triangular form in transverse section amidships, a protecting cage or frame inclosing or surrounding said hull, and ballast-weights outside said hull and located at the outer or extreme edge of the floor or base of said cage, substantially as set forth.

2. In a life-boat or other vessel, the combination, with the hull, of a protecting cage or frame, netting covering said frame at and above the water-line, ballast-weights outside said hull and located at the outer or extreme edge of the floor or base of said cage amidships or thereabout, and floats or air-bags at or above the normal water-line and lying between said hull and said cage, around the hull, substantially as set forth.

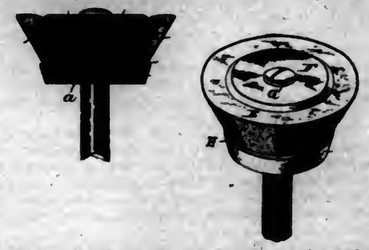
3. In a life-boat or other vessel, the combination, with the hull, of a protecting cage ortframe, ballast-weights outside said hull and located at the outer or extreme edge of the floor or base of said cage, floats or air-bags at or above the normal water-line and lying between said hull and said cage, and netting covering the sides of said frame and extending from such sides to the hull at or near the water-line substantially as set forth.

4. In a life-boat or other vessel, the combination, with the hull, of a protecting cage or frame, ballast-weights outside said hull and located at the outer or extreme edge of the floor or base of said cage amidships or thereabout, floats or air-bags at or above the normal water line and lying between said hull and said cage, around the hull, means for retaining said floats in position, and a flexible netting serving as a means to catch a person endeavoring to reach said vessel from a height or otherwise, substantially as set forth.



5. In combination, a vessel having its hull, at a point amidships, approximately triangular in transverse section the apex portion being uppermost, a protecting cage or frame inclosing or surrounding said hull, ballast-weights outside said hull and located at the outer or extreme edge of the floor or base of said hull, netting covering said frame at and above the water-line, floats or air-bags retained between said hull and said cage at or about the normal water-line, means for varying the value of the lever-weights amidships by inflation or deflation of air-floats, and means for propelling said vessel.

602,913. BUFFING-WHEEL. THOMAS A. HOBBS, Brockton, Mass. Filed Sept. 28, 1897. Serial No. 653,306. (No model.)

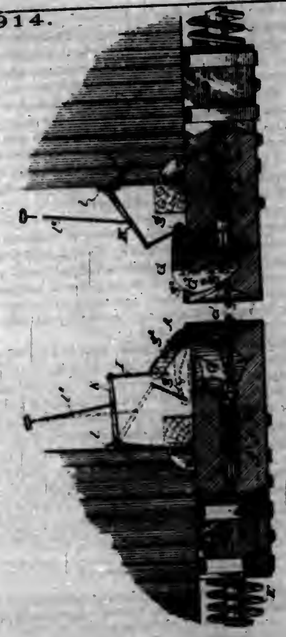


Claim.—A buffing-wheel made up of a shaft screw-threaded at one end; a cup loosely mounted upon the screw-threaded portion of that shaft; a stop on that shaft against which the cup abuts; a sleeve, with an internal screw-thread engaging the screw-threaded portion of the shaft; disks at each end of the sleeve; means to move one disk toward the other; a cushion clamped between the disks, and a band of sandpaper or the like upon the face of the conical cushion and clamped between the cup and the cushion, all substantially as described.

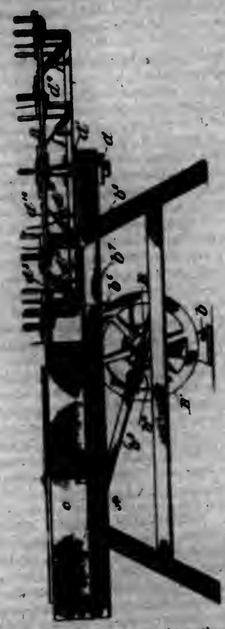
602,914. CAR-COUPLING. WILLIAM C. PERKINS, Rocky Hill Station, Ky. Filed Dec. 21, 1896. Serial No. 616,473. (No model.)

Claim.—A car-coupling comprising a two-part draw-head having a horizontal link-recess, a longitudinal propeller-recess, and a vertical recess, an elbow-shaped latch located in the vertical recess, and a spring-actuated propeller-block located in the longitudinal recess, the said propeller-recess extending part through the inner end of the link-recess and communicating at a point coincident with the vertical recess, forming a shoulder against which the propeller-block normally abuts to hold the same slightly in the rear of the path of travel of the latch, the draw-head section being divided horizontally in the line of the propeller and link-recess to admit of the removal and repair of the spring-actuated propeller-block substantially as described.

602,914.



602,915. BAG-STRINGING MACHINE. GEORGE S. PRICHARD and JAMES W. TAYLOR, Goldsborough, N. C., assignors of one-fifteenth to James Edgar Smith, Washington, D. C. Filed July 7, 1897. Serial No. 643,711. (No model.)



Claim.—1. In a bag-stringing machine the combination with a frame, of a needle-carriage, needles, a wheel, bag-standards secured to said wheel on its rim in line with the spokes thereof, a power-shaft connected with the needle-carriage by a crank-shaft, a lever pivoted to the frame having one leg engaged by a cam-groove on the power-shaft and having its other leg provided with a spring-latch, the said spring-latch extending into the path of the wheel-spokes and being adapted to pass said spokes when oscillated in one direction and to move said spokes with it when oscillated in the other direction, indentations upon the wheel in line with the standards and spokes thereof, and a spring-detent adapted to engage the said indentations and hold the bag-standards nearest thereto in line with the central line of reciprocation between the needles.

2. In a bag-stringing machine, a frame, ways secured to said frame, a needle-carriage adapted to reciprocate within said ways, needles secured to said carriage, a power-shaft, a crank-shaft pivoted to and connecting the said power-shaft and the needle-carriage, a wheel mounted upon the frame with its rim nearly touching the aforesaid ways, the said rim lying approximately in the plane of reciprocation of the needles, and within about one-half of their forward thrust, the said rim having indentations on its outer edge which are in radial alinement with the spokes of the wheel and have adjacent to them also in alinement with said spokes bag-holding standards, a spring-detent secured to the needle-ways and adapted to engage the indentations in the rim of the wheel, a cylinder secured upon the power shaft, a cam-groove in the said cylinder having its points of lateral departure lying within a plane approximately at a right angle to a plane passed through that diameter of the power-shaft which coincides with a line connecting the center of said shaft with the center of the crank-pin when the crank is at its greatest thrust, a lever pivoted to the frame having one end engaged by the said cam-groove, and having a spring-latch upon its other end, the said spring-latch projecting into the path of the spokes of the wheel, and adapted to move the wheel by said spokes in one direction through an arc equal to that measured between said spokes.

3. In a bag-stringing machine, a needle-carriage, needles secured thereto, means for reciprocating the same, in combination with a wheel mounted approximately in the plane of reciprocation of the said needles and within the path thereof, the said wheel being provided with bag-holding standards, gripping-hooks on either side of said standards, and means for revolving the said wheel by intermittent impulses through arcs equal to the distance between said bag-holding devices.

4. In a bag-stringing machine the combination with standards adapted to receive and hold the bags, of gripping-hooks adapted to enter the hem of the bag and stretch the same away from the said standards.

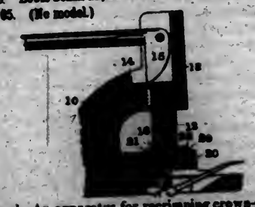
5. In a bag-stringing machine, the combination with bag-holding standards, of gripping-hooks pivoted eccentrically on both sides of said standards and adapted to move in a curve approaching the said standards until they nearly touch it and then to recede therefrom.

6. In a bag-stringing machine the combination with bag-holding standards of gripping-hooks pivoted on either side thereof, the said gripping-hooks being provided with needle-guides.

7. In a bag-stringing machine the combination with eccentrically-mounted gripping-hooks, one on either side of a bag-standard, of means adapted to move the said hooks toward the said standard at the same time.

8. In a bag-stringing machine the combination with a wheel, a power-shaft and a pair of reciprocating needles, of bag-standards secured upon the rim of the said wheel having eccentrically-mounted gripping-hooks on either side of them, means for holding the said standards in line between the said needles as they are thrust forward and retracted within the outer edge of the rim of the wheel, and means for moving said wheel over an arc equal to the distance between the standards upon it when the needles retract from the outer edge of its rim and before they enter it again.

602,916. APPARATUS FOR RECRIMPING CROWN-SEALS FOR BOTTLES. LOUIS SCHAFER, St. Louis, Mo. Filed Dec. 29, 1897. Serial No. 664,165. (No model.)



Claim.—1. An apparatus for recrimping crown-seals for bottles, consisting of a die, one part of said die adapted to receive used crown-

seals, and having a series of recrimping indentations, and the other part of said die having two sets of projections on circular parts of different diameters registering with the indentations of the other part of the die, to recrimp the crown-seals substantially as set forth.

2. In an apparatus for recrimping crown-seals, a nozzle for spraying the crown-seals when in the die to cleanse and purify the same and to soften the cork thereof, and a die for recrimping and refluring the edges of the crown-seals and for pressing out the indentations in the corks thereof.

3. In an apparatus for recrimping crown-seals, a die adapted to receive used crown-seals and having suitable recrimping projections and indentations, a plunger for forcing the parts of the die together to recrimp the crown-seals, a lever for operating said plunger, and a lever and suitable connections for ejecting the crown-seals from the die after they are recrimped.

602,917. SELF-RETAINING SPLINT. BERNARD SCHEINEMAN, New York, N. Y. Filed June 3, 1897. Serial No. 639,268. (No model.)



Claim.—1. The herein-described splint consisting of the plates 2 and 3 connected to each other at the ends; and the tubal sheath 9 for embracing and confining the plates; substantially as and for the purpose set forth.

2. The herein-described splint consisting of the plates provided with the recesses 7, 7, adjacent their free ends; and the tubal sheath having an elastic core 11 for holding the said sheath in position; substantially as described.

602,918. POCKET-REGISTER. CHARLES SEBASTIAN, St. Louis, Mo., assignor to Alexander S. Mann, same place. Filed May 24, 1897. Serial No. 637,941. (No model.)



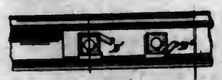
Claim.—1. In a pocket-register, a suitable chamber, a cent-wheel mounted in the same and adapted to be operated from the periphery of the chamber, a series of teeth along the outer edge of the wheel, numerals carried by one of the faces of the wheel and corresponding in number to the number of teeth, suitable plates forming the walls of the chamber, numerals indicating the amount of purchase formed on the outer surface of one of the plates, the number of numerals on the cent-wheel being a multiple of the number carried by the plate, a certain number of teeth of the cent-wheel projecting beyond the edge of the chamber and corresponding in number to the number of numerals carried by the plate of the chamber, a limiting peripheral shoulder formed on or carried by the walls of the chamber for indicating the limit of advance for the cent-wheel, and a suitable opening formed in the numbered plate or wall of the chamber for reading the numerals carried by the cent-wheel, substantially as set forth.

2. In a pocket-register, a suitable chamber, a dial-plate forming one of the walls of the same, central inward depressions formed in the walls of the chamber, a pivotal pin having bearings in the inwardly-depressed portions of the walls, a cent-wheel mounted on said pivotal pin, the opposite faces of the cent-wheel being adapted to bear frictionally against the inner surfaces of the depressed portions of the walls, a dollar-disk operated by the movement of the cent-wheel, and an annular depressed ridge formed on or carried by one of the walls of the chamber against which the dollar-disk is adapted to bear frictionally to prevent accidental displacement of the disk when the device has once been set or adjusted to indicate a certain purchase, numerals or equivalent characters being carried by the dial-plate to indicate the amount of purchase in cents, and means carried by the walls of the chamber for indicating the limit of advance for the cent-wheel in the act of recording a purchase, substantially as set forth.

3. In a pocket-register, a chamber, plates forming walls for the same, one of said walls forming a dial-plate, a cent-wheel rotatably mounted between the walls, a peg projecting from one of the faces of the cent-wheel, a dollar-disk mounted on the dial-plate and having a series of numbered lobes formed along the outer edge thereof, the peg of the cent-wheel being adapted to advance the said disk by entering the depressions formed between the lobes, a series of numerals being formed on the dial-plate for indicating the amount of purchase, and a corresponding series being also carried by the dial-plate for rectifying by subtraction any excess registered by the cent-wheel over the actual amount of purchase, a series of teeth formed along the outer edge of the cent-wheel, a number of teeth corresponding to the two series of numerals carried by the dial-plate projecting beyond the edges of the chamber within which the wheel is mounted, shoulders formed on the walls of the chamber to indicate the limit of any advance for the cent-wheel, and suitable openings formed in the dial-plate for reading the numbers carried by the cent-wheel and dollar-disk substantially as set forth.

4. In a pocket-register, a chamber, walls 1, 2 for the same, the wall 2 serving as a dial-plate, central depressions formed in said walls, a pivotal pin having outer or terminal heads or expanded ends located at the base of the depressions, an inwardly-depressed annular ridge formed on the dial-plate, a dollar-disk pivoted along the inner surface of the dial-plate and bearing against the annular depressed ridge formed in said plate, a cent-wheel carried rotatably on the pivotal pin and adapted to cooperate with the dollar-disk, characters being formed on the dial-plate to indicate the amount of purchase by cents, a series of teeth formed along the edge of the cent-plate, a certain number of said teeth corresponding to the number of characters on the dial-plate projecting beyond the edge of the chamber, the parts operating as and for the purpose set forth.

602,919. NUT-LOCK. HARRISON R. STADDAN and HENRY C. JONES, Cincinnati, Ohio. Filed Dec. 26, 1896. Serial No. 617,004. (No model.)



Claim.—1. In a nut-lock, a locking device formed in one piece, consisting of a key having a fixed clamp projecting at an angle therefrom, and a clamp adapted to be bent, in combination with the nut to be locked and a washer, beneath it to form a space to receive a portion of said device and be held by the nut from lateral disengagement, substantially as set forth.

2. In a nut-lock, a locking device formed in one piece, consisting of a key having a fixed clamp projecting at an angle from the key, and a clamp adapted to be bent, in combination with a nut cut away to form a space to receive a portion of said device and be held by the nut from lateral disengagement, substantially as set forth.

3. A nut-lock, formed in one piece, comprising two keys adapted to take against and fit between a nut and fish-plate, and a clamp adapted to take and be bent behind a portion of said nut whereby the keys are held in engagement with and the nut locked, substantially as set forth and for the purpose specified.

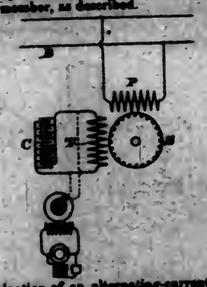
4. A nut-lock, formed in one piece, comprising a key adapted to bear against and fit between a nut and fish-plate, a fixed clamp adapted to take behind a portion of said nut when the key is inserted longitudinally between the nut and fish-plate, and a flexible clamp having a notch or lug adapted to form a base whereby said clamp is bent to lock or unlock said key, as desired, substantially as set forth and for the purpose specified.

5. A nut-lock, formed in one piece, comprising a key adapted to bear against and fit between a nut and a fish-plate, a fixed clamp adapted to take behind a portion of said nut when the key is inserted longitudinally between the nut and fish-plate, a clamp adapted to be bent behind a portion of said nut when the key is inserted between the nut and fish-plate to lock said key in engagement with the nut, substantially as set forth and for the purpose specified.

602,920. ALTERNATING-CURRENT INDUCTION-MOTOR. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 12, 1897. Serial No. 623,067. (No model.)

Claim.—1. The method of compensating for the self-induction and magnetizing current of an alternating-current motor, which consists in inducing from the secondary of the motor leading currents in a tertiary closed circuit in inductive relation to the secondary member.

2. The method of compensating for the self-induction and magnetizing current of an alternating-current induction-motor, which consists in balancing the lagging currents in the primary and secondary members by leading currents in a closed circuit in inductive relation to the secondary member, as described.



3. The combination of an alternating-current induction-motor, having primary and secondary circuits, with a tertiary circuit on the primary member, and means for causing the currents in the tertiary circuit to lead the electromotive force, as described.

4. The combination with the primary and secondary members of an induction-motor of a tertiary circuit receiving induced currents through the secondary of the motor and a condenser in the tertiary circuit, as set forth.

5. The combination of an alternating-current induction-motor having a primary winding connected or adapted to be connected across the mains of a single-phase circuit, a closed-circuit secondary member, a tertiary coil in inductive relation to the primary through the secondary member during the normal operation of the motor, and a phase-advancing device in the circuit of the tertiary coil, as set forth.

6. The combination with an induced winding of an alternating-current induction-motor, of a source of leading currents of a frequency independent of the speed of the motor, so connected to said induced winding as to compensate for the lagging current throughout the motor, substantially as described.

7. The combination of an alternating-current induction-motor and a tertiary closed circuit in inductive relation to the primary through the secondary member of the motor, during the normal operation of the machine, with a source of leading currents in the tertiary circuit, whose frequency corresponds to the frequency in the primary of the motor, and is independent of the speed of the secondary member, as set forth.

8. The combination in an alternating-current induction-motor having primary and secondary circuits, of a tertiary closed circuit arranged on the primary member of the motor at an angle of ninety degrees from the primary winding, a multiphase secondary, and a source of leading currents in the tertiary circuit.

9. In an alternating-current induction-motor, the combination of a source of leading currents of a frequency independent of the speed of the motor and an inductive connection between the motor-windings and the source of leading currents, the value of the leading current being so proportioned as to compensate not only for lag in the external circuit, but also for lag in the motor itself.

10. The combination with the two members of an alternating-current induction-motor and their circuits, of a tertiary circuit receiving current by induction from one member of the motor through the other member, and a source of leading current in the tertiary circuit.

11. The combination with the primary and secondary circuits of an alternating-current induction-motor, of a tertiary circuit on the primary member in inductive relation to the secondary member, and at an angle of ninety degrees from the primary circuit, and a condenser in the tertiary circuit, adjusted so as to compensate not only for lag in the external circuit, but also for lag due to the self-induction and magnetizing current of the motor.

12. The combination of an induction-motor having a winding connected across a single-phase circuit and supplied with current therefrom, a closed-circuit secondary member, a tertiary circuit closed upon a condenser, the capacity of which is proportioned so as to balance or substantially balance the self-induction and magnetizing current in the motor.

13. The combination of an induction-motor having primary and secondary windings, and a tertiary circuit in inductive relation to the primary through the secondary, with a source of leading currents, and a step-up transformer inductively closing the tertiary circuit through the said source, substantially as described.

14. The method of reducing the self-induction of an alternating-current motor which consists in generating leading currents in a tertiary winding, and reflecting back an advanced wave through the armature to the primary.

15. In an alternating-current motor the combination of a pair of single-phase mains, a field-winding fed therefrom, a secondary member, an additional field-winding receiving current by induction from said secondary, and a condenser in shunt to said additional winding.

16. The combination in an alternating-current motor of a primary winding, a relatively movable secondary winding, and a tertiary winding in inductive relation with the primary winding through the secondary during the normal operation of the motor, and a phase-advancing device in circuit with the tertiary winding.

17. The method of compensating for phase displacement in an induction-motor, which consists in generating, by the inductive action of the currents flowing in the induced member of the motor, an electromotive force in a tertiary circuit, and causing the current in said tertiary circuit to lead the electromotive force, and reflecting back an advanced wave through the secondary to the primary.

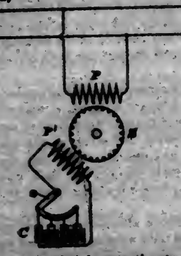
18. The method of compensating for phase displacement in an induction-motor, which consists in generating, by the inductive action of the currents flowing in the induced member of the motor, an electromotive force in a tertiary circuit, fixed with relation to the primary circuit of the motor, and causing the current in said tertiary circuit to lead the electromotive force, and reflecting back an advanced wave through the secondary to the primary.

19. The combination in an alternating-current motor of a primary winding, a relatively rotatable secondary winding, and a tertiary winding so arranged that the mutual induction between the said tertiary winding and the primary winding is small when the motor is at rest, and increases as the motor begins to move, and a source of leading current in the circuit with the tertiary winding.

20. The combination in an alternating-current motor of a primary, a tertiary, a phase-advancing device arranged to act upon the current in the tertiary, and a secondary capable of rotation with respect to the primary and tertiary, constructed in such a manner that the coefficient of mutual induction between the secondary and the primary or tertiary is substantially constant at all positions of the secondary.

21. The combination in an alternating-current motor of a primary, a tertiary so arranged that the coefficient of mutual induction between the primary and the tertiary is small when the motor is at rest, a phase-advancing device arranged to act upon the current in the tertiary, and a secondary capable of rotation with respect to the primary and tertiary, constructed in such a manner that the coefficient of mutual induction between the secondary and the primary or tertiary is substantially constant at all positions of the secondary.

602,921. ALTERNATING-CURRENT INDUCTION-MOTOR. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 12, 1897. Serial No. 623,068. (No model.)



Claim.—1. The method of giving starting torque to an alternating current induction-motor upon a single-phase circuit, which consists in producing and maintaining leading currents in a closed electric circuit in inductive relation to the primary and secondary circuits of the motor, as set forth.

2. The method herein described, which consists in maintaining leading currents in a closed circuit in inductive relation to the primary and secondary circuits of an alternating-current motor running on single-phase circuits to lend starting torque to the motor, and when the motor is at speed compensating for self-induction and magnetizing current by maintaining balancing leading currents in the motor through a source of capacity, as set forth.

3. The method of starting and running an alternating-current motor, which consists in passing alternating current through a primary winding, generating thereby a current in a secondary winding, inducing by the joint action of said primary and secondary windings an electromotive force in a tertiary winding, and causing the current in the tertiary winding to lend the said electromotive force.

4. The method of starting and running an alternating-current motor, which consists in passing alternating current through a pri-

mary winding, generating thereby a current in a secondary winding, inducing by the joint action of said primary and secondary windings an electromotive force in a tertiary winding, and causing the current in the tertiary winding to lead the said electromotive force, and reflecting back from the tertiary an advanced wave, to reduce the lagging currents in the machine.

5. The combination of an alternating-current motor for single-phase circuits, having primary and secondary windings, a tertiary circuit in inductive relation to both the primary and secondary windings, and means for causing the current in the tertiary to lead the electromotive force, as set forth.

6. In an alternating-current motor for single-phase circuits, the combination with a primary winding, of a tertiary winding displaced therefrom by an angular distance other than one-fourth of the polar pitch, a secondary winding capable of rotation relatively to said primary winding, and means for causing the current in the tertiary to become leading.

7. In an alternating-current motor for single-phase circuits, the combination with a primary winding, of a secondary winding capable of rotation relatively to said primary winding, and a tertiary winding in inductive relation with the primary winding both directly and through the secondary, and a phase-advancing device so connected as to advance the phase of the current in the tertiary circuit.

8. In an alternating-current motor for single-phase circuits, the combination with a primary winding of a secondary winding capable of rotation relatively to said primary winding, and a tertiary winding in inductive relation with the primary winding both directly and through the secondary, and an adjustable phase-advancing device so connected as to advance the phase of the current in the tertiary circuit.

9. The combination of an induction-motor, having a delta-wound primary member, one branch of which is connected across a single-phase circuit, and a condenser connected across a second branch of the primary winding and in inductive relation to the secondary member, as set forth.

10. The combination in an alternating-current induction-motor for single-phase circuits of a primary winding, a secondary winding, a tertiary winding wound on the primary member and displaced from the primary winding by an angular distance other than one-fourth of the polar pitch, a source of leading currents in the tertiary winding, and means for regulating the value of the leading current in the tertiary circuit.

11. The combination of an alternating-current motor for single-phase circuits, having primary and multiphase secondary windings, a tertiary circuit in inductive relation to both the primary and secondary windings, and means for causing the current in the tertiary to lead the electromotive force, as set forth.

12. The combination in an alternating-current motor of the single-phase type of a primary winding, a relatively-rotatable secondary winding so designed that the coefficient of mutual induction between the secondary winding and either of the other windings is substantially constant at any position of the secondary, and a tertiary in inductive relation with the primary both directly and through the secondary.

13. The combination in an alternating-current motor of the single-phase type of a primary winding, a relatively-rotatable secondary winding so designed that the coefficient of mutual induction between the secondary winding and either of the other windings is substantially constant at any position of the secondary, and a tertiary in inductive relation with the primary both directly and through the secondary, and a phase-advancing device arranged to act upon the tertiary.

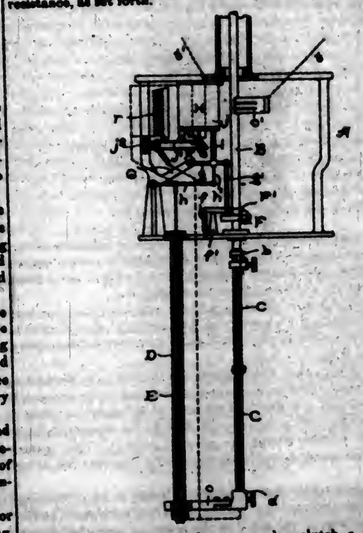
14. A single-phase alternating-current motor having its inducing member wound with windings displaced approximately one-third of the polar pitch, one of said windings being connected to a pair of single-phase mains, and one being shunted by a condenser.

602,922. ELECTRIC-ARC LAMP. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Nov. 4, 1897. Serial No. 657,434. (No model.)

Claim.—1. In an electric-arc lamp, the combination with carbon-feeding mechanism, of a thermo electric expansive device, and a series electromagnetic controlling apparatus, responsive to variations in the current passing through the lamp governing the operation of the thermo-electric expansive device, as set forth.

2. In an electric-arc lamp, the combination, with carbon-feeding mechanism, of a thermo-electric expansive device, an electromagnetic controlling apparatus in series therewith, and a resistance acting as a shunt to the thermo-electric expansive apparatus, the whole being so arranged that the electromagnet controls the circuit of the expansive device and of the shunting resistance.

3. In an electric-arc lamp, the combination with the carbon-feeding mechanism, of an expansion-wire connected therewith, an electromagnet in the lamp-circuit, yielding contacts, one of which is connected to the core of said electromagnet, and a resistance, the whole being so arranged and connected that in one position of the core of the electromagnet and contacts controlled thereby, the expansion-wire is included in circuit, but in a second position shunted by said resistance, as set forth.



4. In an electric-arc lamp, a carbon-clutch, a thermo-electric expansion-wire, a spring-controlled mechanism connecting said wire with said clutch for raising and lowering the latter, an electromagnet, a pair of spring-contacts normally closed, one of which is connected to the core of the electromagnet, and a resistance acting as a shunt to the expansion-wire, the whole being so arranged that the electromagnet controls the circuit of the expansion device of the shunting resistance.

5. The combination in an electric-arc lamp, of a carbon-feeding mechanism, a hot wire or equivalent expansion device for regulating the action of the feeding mechanism, and means arranged in series with and intermittently opening and closing the circuit of the expansion device upon comparatively small changes of the current in the lamp-circuit from the normal value, as set forth.

6. In an electric-arc lamp, the combination of a feeding mechanism, an expansion-conductor or equivalent device for regulating the action of the feeding mechanism, and means for automatically regulating or controlling the circuit of the expansion-conductor arranged in series with the expansion device so as to augment or intensify the variations of current in the expansion-conductor in comparison with variations of current in the lamp-circuit.

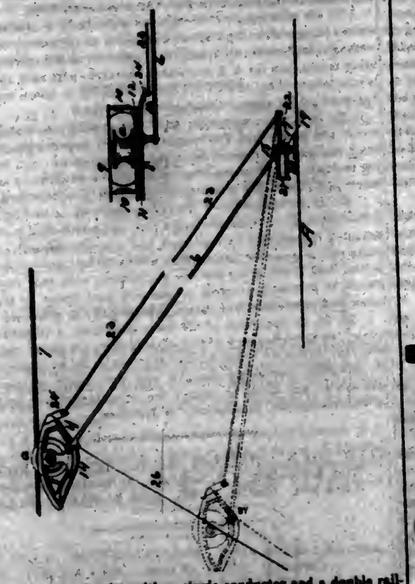
7. The combination in an electric lamp, of a feeding mechanism, an expansion-conductor or equivalent device for regulating the feeding mechanism, an electromagnet in series with the expansion-conductor, and a circuit controlling or changing device under control of said magnet and serving to intensify the variations of current in the expansion conductor in comparison with the current changes in the magnet, as set forth.

602,923. TROLLEY. JAMES E. WELLS, Syracuse, N. Y. Filed May 1, 1897. Serial No. 634,601. (No model.)

Claim.—1. In an electric trolley, a contact-frame comprising sides arching in opposite directions, cross-bars connecting them, one side having a longitudinal groove in its upper face or edge, and the other having a rigid longitudinal flange, and a rolling contact mounted between said sides, combined with a suitable trolley-arm upon which said frame is mounted.

2. In an electric trolley, the combination with a base provided with an arm and a suitable trolley-pole mounted upon said base, of a contact-frame mounted to swing upon said pole and comprising sides arching in opposite directions from a horizontal plane, cross-bars connecting them, one side having a grooved upper edge arching over from said plane, and the other a rigid flange arching below said plane, a contact mounted between said sides, and a rod connecting one end of said frame to said base-arm, whereby any vertical movement of said pole will not shift said frame out of a horizontal position although shifted vertically.

3. In an electric trolley, the combination with a base provided with an arm, a trolley-pole mounted upon said base, a contact-frame mounted to swing upon said pole, a contact in said frame, a fender upon one end of said frame, and a rod flexibly connecting one end of said fender to said base-arm whereby any vertical movement of said arm will swing said frame, fender and rod to keep said frame horizontal.



4. The combination with a single conductor and a double railway-track, of a pair of contact-frames carried by arms connected to cars moving in opposite directions, each comprising sides arched in opposite directions, one provided with a longitudinal groove and the other with a rigid flange and a contact mounted between said sides, whereby when two frames meet, while moving in opposite directions, the flange on one will enter the groove upon the other forcing one contact away from said conductor and guiding it into reëngagement therewith when said frames separate.

5. The combination with a single conductor, of a pair of contacts each mounted in a frame comprising sides, one of which is provided with a groove widened at one end, and the other being provided with a rigid flange, whereby the nose of the flange on one will enter the mouth of the groove on the other, and guide one frame away from and back into reëngagement with said conductor whereby said contact-frames moving in opposite directions meet and pass each other unassisted.

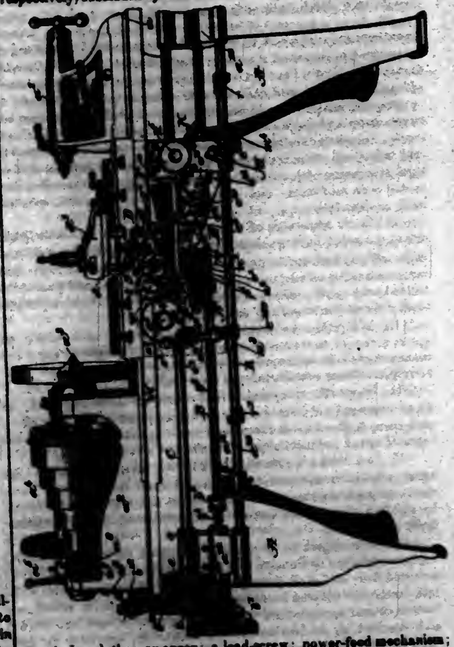
6. In an electric trolley, a contact-frame comprising rigid sides arching in opposite directions from a horizontal plane, beveled cross-bars in said plane connecting said sides and constituting pilots to guide either of two frames meeting from opposite directions into position to pass above or below the other by the engagement of the lower side of one frame, with the upper side of the other whereby the trolley-wheel of either is kept out of engagement with the frame of the other, during such passage.

602,924. REGRIND-LATHE. BENJAMIN A. WHEELER, Worcester, Mass., assignor to the Draper Machine Tool Company, same place. Filed Aug. 28, 1897. Serial No. 649,888. (No model.)

Claim.—1. In a lathe; a traveling tool-carrier; a lead-screw and power-feed mechanism adapted respectively to actuate said carrier, each independently of the other, and devices, under the control of the operator at the tool-carrier, to regulate the rate of longitudinal feed of said tool-carrier by said power-feed mechanism, substantially as described.

2. In a lathe; a traveling tool-carrier; its apron; a lead-screw and power-feed mechanism adapted respectively to actuate said carrier, each independently of the other, and means movable with said tool-carrier and continually under the control of the operator at said apron, to regulate the rate of travel of said tool-carrier and apron, when actuated by said power-feed mechanism, substantially as described.

3. In a lathe; a traveling tool-carrier: actuating mechanism therefor, including power-feed mechanism and a lead-screw adapted to operate independently of each other; and devices under the control of the operator at the tool carrier, to regulate the rate of actuation of said tool-carrier by said power-feed mechanism and lead-screw respectively, substantially as described.



4. In a lathe; an apron: a lead-screw; power-feed mechanism; and variable speed mechanism movable with, and to permit the actuation of, said apron by said lead-screw and power-feed mechanism respectively, at different rates of speed, substantially as described.

5. In a lathe; a traveling tool-carrier: actuating means therefor, including power-feed mechanism and variable-speed mechanism; and means, under the control of the operator at the tool-carrier to regulate the speed transmitted to the latter through said mechanisms, substantially as described.

6. In a lathe; a traveling tool-carrier; actuating means therefor, including power cross and longitudinal feed mechanism and variable-speed mechanism carried by said tool-carrier; and a selector device to govern the speed transmitted by said variable-speed mechanism and power cross and longitudinal feed mechanism to the tool-carrier, substantially as described.

7. In a lathe; the bed; a rotatable lead-screw extended in parallelism with said bed; a tool-carrier adapted to traverse said bed and screw longitudinally; and means movable with said carrier and operative during traversing movement of the same to rotate said lead-screw.

8. In a lathe; a rotatable lead-screw; an apron adapted to be actuated by rotation of said screw to traverse longitudinally; variable-speed mechanism carried by said apron; and means to permit rotation of said lead-screw at times by said mechanism, substantially as described.

9. In a lathe; a rotatable lead-screw; an apron adapted to traverse said lead-screw longitudinally; variable-speed mechanism carried by said apron and adapted to be operatively connected with said lead-screw at times to rotate the same and cause the apron to traverse; and a selector device for said variable-speed mechanism, substantially as described.

10. In a lathe; a rotatable shaft or screw; an apron adapted to traverse said shaft longitudinally; a plurality of different-sized gears surrounding said shaft coaxially, movable with said apron, and adapted respectively to be connected operatively with said shaft to rotate the same at times, substantially as described.

11. In an apparatus of the class described; a rotatable lead-screw; a stock of gears surrounding said screw coaxially and normally free to rotate independently thereof; an intermediate member adapted when rotated to rotate said lead-screw; and means to govern actua-

tion of said intermediate member by said gears, substantially as described.

12. In an apparatus of the class described; a lead-screw; a stock of connected, varnished gears surrounding said shaft coaxially; a clutch member adapted when actuated to operate said screw; a cooperating clutch member adapted to be driven by said stock; and means to operate said clutch, substantially as described.

13. In an apparatus of the class described, the frame; a lead-screw rotatably mounted in suitable bearings on said frame and an apron free to travel on the frame lengthwise of the screw; a quill mounted in suitable bearings on said apron and provided with a stock of varnished gears; said quill being of suitable internal diameter to receive said lead-screw and permit free relative axial movement between screw and quill, during travel of the apron lengthwise of said screw; an annular clutch member coaxially arranged with respect to said screw and connected rotatively therewith, but capable of free axial movement with said apron; a cooperating clutch member connected with said stock; and means to operate said clutch, substantially as described.

14. In an apparatus of the class described, a rotatable lead-screw; an apron having a device adapted to be operatively connected with said lead-screw, to permit the apron to be fed thereby; and means mounted on said apron, to engage and rotate said lead-screw to feed said apron; said means being arranged in close juxtaposition to said device, substantially as described.

15. In a lathe; a rotatable lead-screw; an actuating-shaft; an apron arranged to traverse said screw and shaft longitudinally; and means carried by said apron to connect said screw and shaft operatively, at times, substantially as described.

16. In a lathe; a rotatable lead-screw; an actuating-shaft; an apron arranged to be actuated by said screw; and means carried by said apron to permit rotation of said screw by said shaft, at different rates of speed, substantially as described.

17. In a lathe; a rotatable lead-screw; an actuating-shaft; an apron adapted to traverse said screw and shaft longitudinally; and means to permit actuation of said apron by said actuating-shaft both by rotation of said lead-screw, and independently thereof, substantially as described.

18. In an apparatus of the class described, an actuating-shaft; an apron adapted to traverse said shaft longitudinally; a lead-screw actuated from said shaft through the medium of means movable with said apron and adapted to actuate said apron; means to permit actuation of said apron by said shaft independently of said lead-screw; and interlocking devices to prevent concurrent operation by said shaft of said lead-screw and said independent means, substantially as described.

19. In a lathe; a lead-screw; an apron adapted to be actuated by said lead-screw and also by independent actuating means; controlling devices to govern respectively the actuation of said apron by said lead-screw and by said independent actuating means; and interlocking devices intermediate said controlling devices to prevent concurrent operation by said shaft of said lead-screw and said independent means, substantially as described.

20. A controller of the class described, comprising a disk, provided with a suitable handle and having slots to serve as actuating means for nut members; said disk being also provided with a projection to receive and cooperate with a slotted portion of an interlocking lever to actuate said lever directly, substantially as described.

21. In a lathe; a lead-screw; an apron adapted to be fed thereby and provided with power-feed mechanism; an open-and-shut nut for said lead-screw, and a nut-controller; a clutch device for said power-feed mechanism; and an interlocking lever or link connecting said nut mechanism and clutch, to permit the said clutch to be governed and operated by movement of said nut-controller, substantially as described.

22. In a lathe; an apron; power-feed mechanism and variable-speed mechanism both movable with said apron and adapted to be connected operatively at times to permit actuation of said power-feed mechanism at different rates of speed, substantially as described.

23. In a lathe; an apron, and power-feed mechanism carried thereby, including a worm; variable-speed mechanism also carried by said apron and adapted to be connected operatively with said worm at times to permit actuation of said power-feed mechanism at different rates of speed, substantially as described.

24. In a lathe; an apron; variable-speed mechanism and power-feed mechanism carried thereby; a clutch intermediate said mechanisms, and a controller for said clutch; and an actuating-shaft connected operatively with said variable-speed mechanism, substantially as described.

25. In a lathe; a rotatable lead-screw; an apron; variable-speed mechanism carried thereby and adapted to rotate said lead-screw at times; and actuating mechanism connected operatively with said variable-speed mechanism, and including cooperating cones of auxiliary multiple-speed gears, any cooperating pair of which may be made effective by the operator, at will, substantially as described.

26. In a lathe; an apron; a shaft; gears and independent separating-rings thereon; a feathered spline carried thereby; and a handle for said spline, said handle being extended toward and arranged to move near the path of said apron; all constructed and arranged to operate in the manner and for the purpose set forth.

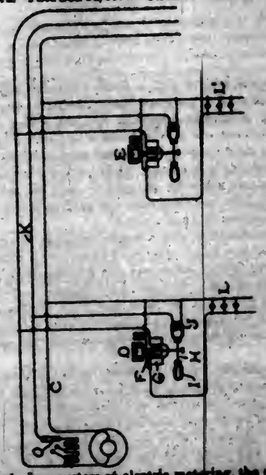
27. In an apparatus of the class described; a rotatable lead-screw; an apron having a device adapted to be operatively connected with said lead-screw, to permit the apron to be fed thereby; actuating mechanism for said lead-screw, movable with said apron, and means intermediate said device and mechanism to insure concurrent operation of the same, substantially as described.

28. In a lathe; an apron; an actuating-shaft; a rotatable lead-screw, and power-feed mechanism, actuated respectively from said shaft, and adapted respectively to actuate said apron; and interlocking means to prevent concurrent actuation of said apron by said lead-screw and power-feed mechanism, substantially as described.

29. In an apparatus of the class described; a tool-carrier; an actuating-shaft; a rotatable lead-screw, and power-feed mechanism, actuated respectively by said shaft, and adapted respectively to actuate said tool-carrier; controlling means for said power-feed mechanism; and interlocking devices cooperating with said controlling means, to prevent concurrent actuation of said apron by said lead-screw and power-feed mechanism, substantially as described.

30. In an apparatus of the class described; a rotatable lead-screw; an apron having a device adapted to be connected operatively with said lead-screw to permit said apron to be fed by rotation thereof; actuating mechanism movable with said apron, to rotate said lead-screw; and means to control the actuation of said lead-screw by said mechanism, substantially as described.

602,925. SYSTEM OF ELECTRIC METERING. HERBERT C. WIRT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 31, 1897. Serial No. 665,094. (No model.)



Claim.—1. In a system of electric metering, the combination of circuit-mains, a motor mechanism for registering the consumption of energy, and automatic means for varying the damping or retarding effect of the motor.

2. In a multirate electric meter, the combination of a motor mechanism, for registering the consumption of energy in an electric circuit, a retarding mechanism which governs the speed of the motor mechanism, and means for altering the retarding or braking effect to change the rate of registration during certain portions of the day.

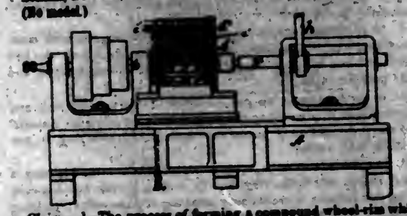
3. In a two-rate meter, the combination of a motor mechanism for registering the consumption of energy, a damping or retarding mechanism opposing the action of the motor mechanism, and a second retarding mechanism which assists the first when it is desired to give a discount to the consumer.

4. In a metering system, the combination of a number of meters located at various points in the system, each meter comprising a motor mechanism, a register and, retarding mechanism, and means for controlling the retarding mechanism of a number of the meters from a common point, as for example, a station or substation.

5. In a system of electric metering, the combination of a plurality of meters situated at the points of consumption, each meter consisting of a motor and retarding mechanism, a recording device, and an auxiliary retarding mechanism, the arrangement of the auxiliary retarding mechanism being such that it can be controlled from a distant point to change the rate of registration, independent of the energy passing through the meter.

6. In an electric meter, the combination of a motor mechanism, actuated by the energy consumed in the circuit, a retarding mechanism comprising a closed-circuit conductor moving within the field of a permanent magnet, an additional retarding device comprising an electromagnet, and means for controlling the action of the electromagnet.

602,926. MEANS FOR MAKING WHEEL-RIMS. JOHANN SEILER, Hawiel, Germany. Filed Feb. 4, 1897. Serial No. 622,615. (No model.)



Claim.—1. The process of forming a compound wheel-rim which consists in forming a cylinder with deep grooves, surrounding it by a second cylinder, forming the same with shallow grooves, subdividing the telescoped cylinders into rings, and uniting the edges of the rings, substantially as specified.

2. In a machine for forming wheel-rims the combination of a spinning-roll with a cylindrical former having a series of parallel grooves, and with a sectional disk *d*, adapted to reinforce the bottom of the work-piece and to constitute an abutment for the free end of the former, substantially as specified.

602,927. SAWMILL-CARRIAGE. ULRIK ANDERSON, Eau Claire, Wis. Filed Aug. 4, 1897. Serial No. 647,672. (No model.)

Claim.—1. In a device of the class described, the combination of a bracket designed to be mounted on a sawmill-carriage frame and provided with a depending stem, a longitudinal guide designed to be mounted on an axle and having longitudinal ways, and a longitudinally-reciprocating slide, mounted in the ways of the guide and provided with longitudinal flanges 22, spaced apart and receiving the said stem and having parallel inner faces, the end portions of the inner faces being disposed longitudinally of the sawmill-carriage, and the central portions being arranged diagonally of the same and adapted to force the stem laterally and offset and coact the sawmill-carriage frame, substantially as described.

2. In a device of the class described, the combination of a bracket provided with a recess and having transverse ways at opposite sides thereof, a guide having longitudinal ways and interlocked with the transverse ways of the bracket, whereby the latter is slidingly connected with the former, a stem mounted on the bracket, and a reciprocating slide mounted in the ways of the guide and provided with flanges forming offsetting and coacting ways and fitting in the recess of the bracket, said offsetting and coacting ways receiving the said stem, substantially as described.

3. In a device of the class described, the combination of a guide having longitudinal ways and designed to be mounted on an axle, a bracket designed to be secured to a sawmill-carriage frame, provided with transverse ways and interlocked with the guide, and a longitudinally reciprocating slide mounted in the ways of the guide and engaging the bracket to offset and coact the same, substantially as described.

4. In a device of the class described, the combination of a bracket having a central recess and provided with grooves at the end walls thereof, a guide having longitudinal ways and provided at opposite sides with recessed extensions forming projections fitting in the said grooves, antifriction-rollers arranged in seats of the projections and interposed between the latter and the bracket, a slide mounted in the ways of the guide and engaging the bracket to offset and coact the same, and antifriction-rolls interposed between the slide and the guide, substantially as described.

5. In a device of the class described, the combination of a bracket having a stem, a guide composed of upper and lower portions detachably connected and adapted to fit around an axle, the upper portion of the guide being sectional and provided with longitudinal ways, said guide being interlocked with the bracket, and a slide arranged in the ways of the guide and provided with offsetting and coacting ways to receive the stem, substantially as described.

6. In a device of the class described, the combination of a bracket having a central recess or depression and provided at its ends with L-shaped arms, a guide provided with longitudinal ways and interlocked with the bracket, and a reciprocating slide mounted in the guide and having its movement limited by the L-shaped arms, said slide being provided with offsetting and coacting ways and engaging the bracket, substantially as described.

7. In a device of the class described, the combination of a bracket, a guide having longitudinal ways, adjustable bars arranged at the sides and bottom of the ways, a slide mounted in the ways of the guide and provided with offsetting and coacting ways to engage the bracket, antifriction rolls interposed between the bars and the slide, and adjusting-screws mounted on the guide and engaging the bars to take up the wear, substantially as described.

8. In a device of the class described, the combination of a bracket designed to be secured to a sawmill-carriage, a guide interlocked with the bracket and designed to be mounted on an axle, a reciprocating slide mounted in the guide, extending beyond the same and provided with offsetting and coacting ways to engage the bracket, and an arched bracket-piece detachably connected to the ends of the slide, substantially as described.

9. In a device of the class described, the combination with a sawmill-carriage frame, an axle supporting the same, of offsetting devices located at the ends of the frame and each comprising a bracket secured to the frame and having transverse ways, a guide mounted on the adjacent axle, interlocked with the bracket and having longitudinal ways, and a reciprocating slide mounted in the guide, provided with offsetting and coacting ways and engaging the bracket, the depending curved bracket-piece connected with one of the slides and provided at its bottom with a sleeve, a pitman-rod having one end arranged in the sleeve, and a connecting-rod having one end secured to the curved bracket-piece and its other end attached to the slide of the other offsetting and coacting device, substantially as described.

10. In a device of the class described, the combination of a bracket having transverse ways, a longitudinal guide interlocked with the bracket, a reciprocating slide mounted in the ways of the guide and having offsetting and coacting ways engaging the bracket, and pivoted dogs mounted on the bracket and arranged to engage the slide, substantially as described.

11. In a device of the class described, the combination with a sawmill-carriage, of offsetting mechanism having a movable member provided with an opening, and a cushion adapted to abut against a fixed portion of the sawmill-carriage frame and comprising a spring arranged in said opening, a plunger fitting in the same and projecting therefrom, and an elastic disk interposed between the plunger and the spring and adapted to expand when the plunger is forced inward, whereby an air-cushion is formed, substantially as described.

12. In a device of the class described, the combination with offsetting mechanism of a brake-wheel, a brake-band arranged on the brake-wheel, and means connected with and operated by the offset-

ting mechanism for causing the band to engage the wheel during the offsetting and onsetting operations, substantially as described.

13. In a device of the class described, the combination with offsetting mechanism, of a brake-wheel, a band arranged on the wheel, a weighted lever connected with the band and adapted to cause the same to engage the wheel with the desired pressure, pawls interposed between the ends of the band, and connections between the pawls and the offsetting mechanism whereby when the latter is operated the band will be applied to the brake-wheel, substantially as described.

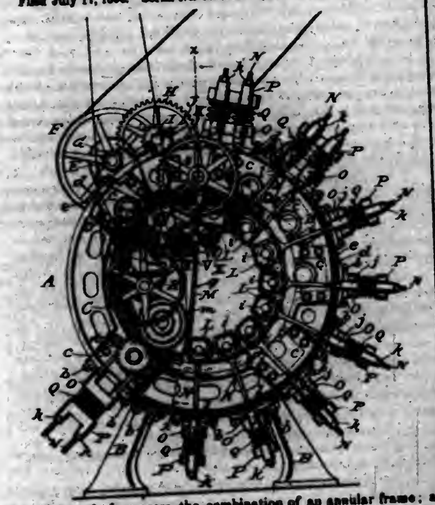
14. In a device of the class described, the combination with a saw-mill-carriage frame, and offsetting mechanism, of a brake-wheel, a band arranged on the wheel, a weighted lever fulcrumed on one end of the band, a link connected with the other end of the band and with the weighted lever, pawls interposed between the ends of the band and adapted to hold the latter normally off the wheel, and connections between the pawls and the offsetting mechanism, whereby the band will be released when the said mechanism is operated, substantially as described.

15. In a device of the class described, the combination with a saw-mill-carriage frame, and offsetting mechanism, of a brake-wheel, a band arranged on the brake-wheel, a weighted lever fulcrumed on one end of the band, a link pivoted to the lever and provided with an adjusting-screw engaging the other end of the band, and connections between the band and the offsetting mechanism, substantially as described.

16. In a device of the class described, the combination of a saw-mill-carriage frame, and a reciprocating offsetting-slide having a triangular recess and a socket, of a brake-wheel, a band arranged on the wheel, means for causing the band to engage the wheel, a pair of angularly-disposed pawls interposed between the ends of the band and engaging the same, and a rock-shaft journaled in suitable bearings, engaging the pawls and having a crank-arm fitting in the triangular recess of the slide and the socket of the same, substantially as described.

17. In a device of the class described, the combination with a saw-mill-carriage frame, a reciprocating offsetting-slide, and a guide, of a brake-wheel, a band arranged on the brake-wheel, a weighted lever connected with the band, a pair of angularly-disposed pawls interposed between and engaging the ends of the band, and a rock-shaft connected with the slide, journaled on the guide and arranged to engage the pawls, substantially as described.

602,928. PRESS. VALERIUS D. ANDERSON, Cleveland, Ohio. Filed July 17, 1896. Serial No. 599,538. (No model.)



Claim.—1. In a press, the combination of an annular frame; a ring or drum rotatable within said frame; a series of pressure-rolls arranged within the drum; and an endless flexible belt or chain, passing between the rollers and the ring or drum, substantially as described and shown.

2. In combination with a ring or drum, an endless flexible belt or chain within the drum; and pressure devices within the belt or chain, serving to press the same toward the inner surface of the ring or drum.

3. In combination with a rotatable ring or drum, a series of pressure-rollers within the drum; and a flexible belt or chain arranged to travel between the drum and the rollers, substantially as described and shown.

4. A press, consisting of an external frame; a ring or drum within said frame; supporting-rollers for said ring; an endless flexible belt or chain within the ring; a series of pressure-rollers within said belt or chain; pressure devices adapted to hold the rollers against the belt with a yielding pressure; and means for imparting motion to the ring, the belt, and the rollers.

5. In a press, an annular frame A provided with undercut circumferential grooves *a* to receive and permit adjustment of bolts; and bolts *b* having their heads seated in said grooves, substantially as set forth.

6. In a press, a chain belt composed of a plurality of independent chains arranged side by side and in close proximity to one another, substantially as set forth.

7. In combination with an outer ring or drum, and with inner supporting or pressing rollers; an intermediate chain belt, the belt and rollers being adapted to mesh or interlock substantially as and for the purpose explained.

8. In combination with ring or drum C, internal rollers L and interposed belt M, a crushing-roll arranged to act upon the material fed to the press, before it passes between the belt and ring, to prepare it for their action.

9. In combination with a press comprising a rotatable ring, a series of rollers within the ring, and an endless flexible belt between the ring and rollers; a preliminary crushing or gage roller; yielding supports for said roller; and a belt-shifting lever or device arranged in proximity to the yielding roll-supports and serving to shift the belt whenever the gage-roller is moved a predetermined distance by the passage beneath it of unyielding substances.

10. In a press, the combination of a frame, a ring rotatable therein; an endless flexible belt within the ring; pressure-rollers within the belt; a feed trough or hopper; and a worm or screw serving to deliver material from the trough or hopper to the pressing mechanism.

11. In combination with ring C, rolls L located within said ring; intermediate belt M; a rotary brush V bearing against one face of said belt; and a supporting-roll X bearing against the opposite face of said belt.

12. In combination with ring C; rolls L within said ring; belt M between the ring and rolls; scraper U bearing against the interior of the ring; brush V in contact with belt M; and hopper Y, provided with a worm or screw, and located within the ring, substantially as described and shown.

13. In combination with ring C; belt M within said ring; rollers L within the belt; hanger W; and scraper U, brush V, and roll X all adjustably mounted in said hanger and located within the ring.

14. In combination with a press substantially such as described and shown; hangers or supports W provided with slots; boxes movable in said slots and provided with clamping-nuts; and cleaning devices carried in said boxes; all substantially as described and shown.

15. In a press, the combination of an outer rim or drum; a series of pressure-rolls; and an endless belt, said belt passing between the rollers and the drum and being contained wholly within the latter.

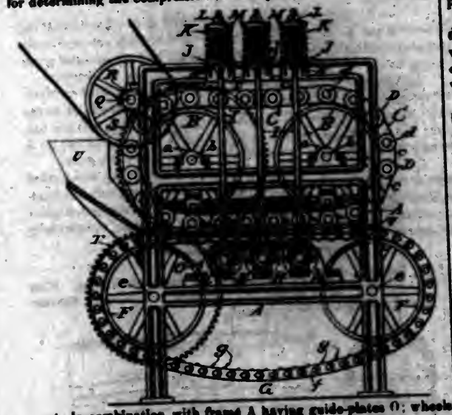
16. In combination with a hollow or annular drum, a chain belt arranged within the same; rolls for sustaining said belt and maintaining its outer face in proximity to the inner face of the drum; and a belt of fibrous or woven material interposed between the drum and belt, substantially as set forth.

602,929. PRESS. VALERIUS D. ANDERSON, Cleveland, Ohio. Filed Aug. 13, 1896. Serial No. 602,694. (No model.)

Claim.—1. In a press, the combination of a frame; wheels or drums mounted in said frame; an endless chain belt passing about said wheels or drums; supporting bars or rails within said belt to guide and support its working face; a second pair of wheels or drums; a second endless chain passing about said wheels or drums, composed of separate parallel chains, and having its face opposed to that of the first belt; and means substantially such as shown and described for pressing and holding the second belt against or close to the first, throughout an extended area.

2. In a press, the combination of a frame A, wheels or drums B B mounted therein; a chain belt C passing about said wheels; rollers D carried by said chain belt; tracks or bars E for said rollers; wheels or drums F, F, mounted in the frame A; endless chain belt G passing about said wheels and consisting of a series of separate parallel chains; and means substantially such as described and shown for pressing and holding belt G against or close to belt C, throughout an extended area.

3. The herein-described press, comprising a frame A; wheels or drums B B; endless chain belt C provided with rollers D; track-rails E E for said rollers; wheels or drums F, F; endless chain belt G; pressure-rollers H serving to press belt G toward belt C; saddles P located between the rollers H; draw-rods I; springs K; and means for determining the compression of said springs.



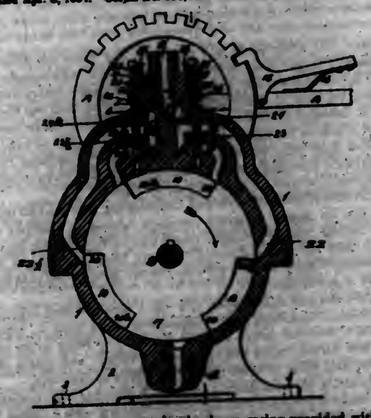
4. In combination with frame A having guide-plates O; wheels B B mounted in said frame; endless chain belt C passing about said wheels; supporting-bars E for said belt; wheels F F also mounted in frame A; endless chain belt G passing about said wheels; pressure-rollers H beneath the upper section of belt G; collars or boxes A applied to the journals of rollers H and guided by plate O; draw-rods I carrying the sleeves A, and springs K applied to said rods.

5. In combination with frame A; endless chain belts C and G and their supporting or carrying wheels; guide-plates O; sleeves or collars A adapted to support a series of rollers guided by said plates; draw-rods I carrying said sleeves; and springs K applied to said rods.

6. In combination with chain belt C and its supports; chain belt G, consisting of a plurality of parallel chains, one provided with teeth *g*; carrying wheels F F for said chain; pressure-rollers H for chain G; and a saddle P interposed between proximate rollers H to prevent sagging of belt F, the wheels F, rollers H and saddle P being all recessed to receive or permit the passage of teeth *g*; substantially as described and shown.

7. In a press, the combination of two endless belts arranged face to face through a portion of their length, one composed of separate parallel chains; carrying wheels or drums for said belts; and means substantially such as shown and described for pressing and holding the opposing faces of the two belts in close proximity.

602,930. ROTARY ENGINE. WILLIAM S. BATE, Brooklyn, N. Y. Filed Apr. 3, 1897. Serial No. 630,186. (No model.)



Claim.—1. A rotary engine having a casing provided with two ports leading to different parts thereof, a piston, and the plate-valve provided with two ports adapted to admit fluid alternatively to one or the other of two ports in the casing, substantially as described.

2. A rotary engine having a casing provided with two ports leading to different parts thereof, a piston, and the plate-valve provided with two ports for admitting fluid alternatively to one or the other of the ports in the casing and an inlet-port intersecting the casing-ports provided with a throttle-valve, substantially as described.

3. A rotary engine having a casing with two ports leading to different parts thereof on both sides of the casing, a piston, plate-valves each having two ports adapted to admit fluid alternatively to one or the other of said sets of ports according to the direction in which the engine is running, substantially as described.

4. A rotary engine having a casing provided with two ports leading to different parts thereof on both sides of the casing, a piston, two plate-valves each having two ports admitting fluid alternatively to either set of the ports according to the direction in which the engine is running, and an inlet-port leading to the casing-ports and a combined throttle and reversing-plug, substantially as described.

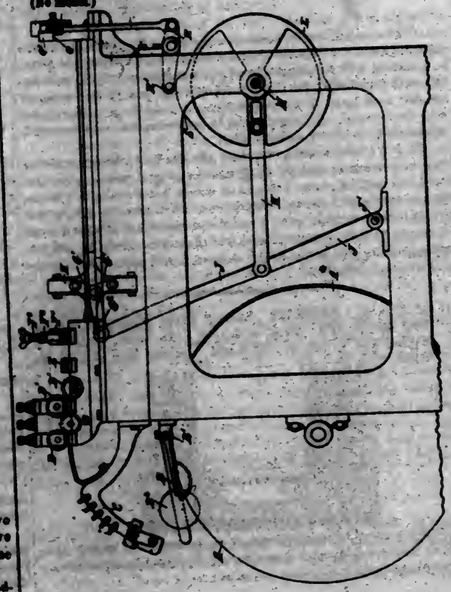
5. In the valve-casing 4, of a rotary engine, the combination of cylinder inlet-ports 21 and 22, with a slide-valve 23, having steam-ports 24 and 25 and m arranged in relation to said cylinder inlet-ports that the supply of steam or other motive agent through a valve-casing inlet-port 11, and throttle-valve plug 6, may be cut off from either one of said cylinder inlet-ports, while being admitted to the other, allowing the steam or other motive agent in the cylinder port and chamber to cut off to drive a piston 17.

6. In the valve-casing 4, of a rotary engine the combination of cylinder inlet-ports 21 and 22, and 21½ and 22½, with slide-valves 23 and 23½ having ports 24 and 25, and 24½ and 25½, and so arranged in relation to said cylinder inlet-ports that the supply of steam or other motive agent through a valve-casing inlet-port 11, and throttle-valve plug 6 may be cut off from either port of such pair of said cylinder-ports as may be in communication with the motive supply, (while being admitted to the other), allowing the steam or other motive agent in the cylinder port and chamber so cut off to drive a piston.

7. A rotary engine having a casing provided with two ports leading to different parts thereof, a plate-valve provided with two ports, a piston, a piston-shaft, a cam on said shaft and connecting mechanism to operate the valve to periodically admit to and cut off the supply of fluid to the piston, substantially as described.

8. The improved rotary engine herein described comprising the cylinder-casing with an inlet and an exhaust port, a piston, a throttle-valve, ports leading to different parts of the casing and plate-valves with two ports for controlling the flow of the steam or fluid to the piston and means for periodically opening and closing said valves, substantially as described.

602,931. MANUFACTURE OF WIRE SPOKES FOR WHEELS. JOHN BATEY, Dublin, Ireland. Filed Oct. 2, 1897. Serial No. 653,783. (No model.)



Claim.—1. The combination of a drum upon which the wire to be straightened is wound, a brake bearing on the wire, a curved surface with pins projecting from it in zigzag course over which the wire is first led to bend the wire in one direction, the rollers for subsequently bending the wire in the opposite direction, the gripper carried by a slide, the toggle-levers for actuating the gripper, the rod jointed to the central joints of the toggle-levers, and mechanism for giving a to-and-fro endway movement to this rod so as when the rod is moved in one direction to first close the gripper and then move the slide endwise to draw the wire forward through the straightening appliances, and when the rod is moved in the opposite direction to first open the gripper and then move the slide backward, and the cutter for cutting off a length of wire which projects beyond the gripper.

2. The combination of wire-straightening appliances, the gripper, the slide by which it is carried, the toggle-levers, the to-and-fro end-way-moving rod, jointed to the central joints of the toggle-levers, the cutter, and mechanism for causing the cutter to partially cut through the wire when the slide completes its forward movement and to complete the cut just before the slide commences its next forward movement.

3. The cutter formed of two rings held together, face to face, and capable of being moved one over the other, and both free to turn while in action, substantially as described.

4. The combination of the curved surface over which the wire is first led, the bending-rollers through which the wire next passes, and mechanism for first closing the gripper onto the wire and then moving it endwise to draw the wire forward and afterward to open the gripper and then move it backward.

5. The combination of the curved surface with pins projecting from it in a zigzag course, over which the wire is first led to bend the wire in one direction, the rollers for subsequently bending the wire in the opposite direction, the gripper, the slide by which it is carried, the toggle-levers, the to-and-fro end-way-moving rod jointed to the central joint of the toggle-levers, and the cutter for cutting off lengths of wire after they have been drawn forward by the gripper.

602,932. WIRE-FENCE TOOL. JOSEPH A. BRABENDER, Sykes, Pa. Filed Jan. 11, 1898. Serial No. 666,242. (No model.)



Claim.—1. A fence-tool comprising the handle 1 formed with the integral jaw 4, the crescent-shaped arms 2, 3 and the parallel plates 5, 6, formed with the longitudinal guide-shoulders 7, 7, in combination with the sliding bar 18 formed with the jaw 19 and recess 17 and the hand-lever 13 fulcrumed between said plates and provided with the integral right-angular toe 16 projecting into said recess 17, substantially as shown and described.

2. A wire-fence tool, comprising the handle 1, formed with the integral crescent-shaped arms 2, 3, and the integral right-angular jaw 4 and the parallel plates 5, 6, one of which is formed with the stationary cutting-jaw 10, in combination with the reciprocating bar formed with the angular jaw 19 and the recess 17, and the hand-lever 13 formed with the integral toe 16 and the cutting-blade 14, and fulcrumed on the bolt 12, removably secured in said plate, substantially as shown and described.

602,933. FIREPLACE. RICHARD BOWEN, Darlington, England. Filed Nov. 27, 1896. Serial No. 613,595. (No model.) Patented in England Nov. 1, 1893, No. 20,616, and in France June 14, 1894, No. 239,301.



Claim.—1. A household-fireplace consisting of a trough open only at its top and formed as regards all its sides of comparatively non-heat-conducting refractory material.

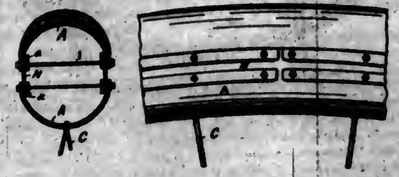
2. A household-fireplace consisting of a trough formed of comparatively non-heat-conducting refractory material and open at its top only; and a grate fixed at a point between the bottom and top of the trough.

3. In a household-fireplace, the combination of a fire-box having its bottom and all its sides closed and formed of thick comparatively non-heat-conducting and refractory material; and a removable grate resting on the sides of the box intermediate the top and bottom.

4. A fire-box formed entirely of comparatively non-heat-conducting refractory material made in the shape of a trough open at its top only; supports B formed at a point intermediate the top and the bottom; and a grating C resting on the supports, whereby an ash-pit is formed below the grate and a box for the fire above the grate.

5. The combination of a fire-box open only at its top, and formed both as regards its sides and bottom of thick comparatively non-heat-conducting refractory material carrying within it a suspended grate in combination with an iron frame inclosing the same, substantially as described.

602,934. TIRE. ROBERT BOWMAKER, Liverpool, England. Filed Apr. 12, 1897. Serial No. 631,794. (No model.) Patented in England June 1, 1896, No. 11,991.



Claim.—1. A tire comprising two annular metallic sections substantially semicircular in cross-section, said sections being formed with seats or grooves in their edges; annular rubber sections H extending across from the grooves and fitting therein; and means for securing said sections in place.

2. In a tire formed of a resilient metal tube, the combination therewith of brackets secured at intervals direct to the inside periphery of the tire, the brackets being so arranged as to receive and hold the spokes substantially as described, whereby the use of a wheel-rim is dispensed with.

602,935. TIRE. ROBERT BOWMAKER, Bootle, England. Filed Oct. 13, 1897. Serial No. 655,060. (No model.)



Claim.—1. A tire made of a metal rim and outer non-pneumatic tread of larger diameter than the rim so as to pass completely around it circumferentially and air cushions or springs interposed in the space between, in combination with spring-couplings, one end of which is fastened to the outer tread inside, and the other passed through a hole in the rim and tightened up by a nut on the outside, whereby a tight joint between the tread and rim is obtained while allowing for a movement of the tread in absorbing vibration when traveling along a road, substantially as described.

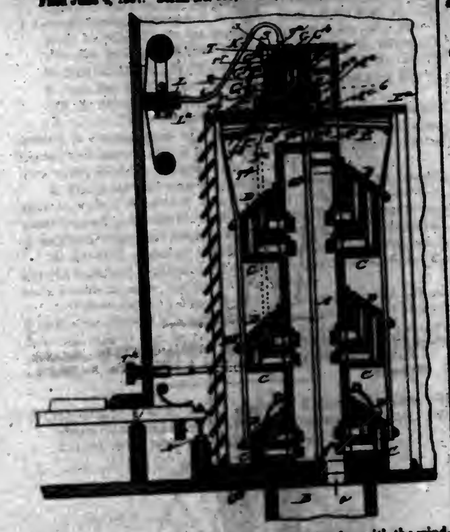
2. In tires of the kind described, coupling together the two parts of the tire by means of spring-couplings, located at intervals all around the tire, and so arranged that while holding the two halves together they will freely allow of vibration being absorbed by the air cushions or springs located between the two parts of the tube substantially as set forth.

3. In a tire, the combination of a rim A provided with concave seats *a;* tread B provided with oppositely-disposed seats *b;* inflatable tubes D mounted in said seats; a plate E extending across the seats *b* and bearing upon the upper sides thereof; and means for connecting said plate with the rim, substantially as described.

4. In a tire, the combination of a rim A provided with concave seats *a;* tread B provided with oppositely-disposed seats *b;* tubes D mounted in said seats; and an air-tube connecting the tubes D.

5. In a tire, the combination of a rim A provided with concave seats *a;* tread B having oppositely-disposed seats *b;* air-tubes D mounted in said seats; a plate E extending across the upper part of seats *b;* and a spring connection between said plate and the rim.

602,936. PNEUMATIC-ORGAN. MELVILLE CLARK, Chicago, Ill. Filed June 4, 1897. Serial No. 639,204. (No model.)



Claim.—1. In a pneumatic-organ, in combination with the wind-chest, the motor-pneumatic and the valve which controls the communication of the same with the wind-chest; the primary pneumatic to which such valve is attached, said valve having its stem extending through the port which the valve controls, and the guide O, made of wire coiled to encompass the stem and having its ends extended to bear against the sides of the port.

2. In a pneumatic-organ, in combination with the wind-chest and the primary pneumatic exterior thereto, a duct which leads therefrom terminating within the wind-chest; a tube connected into the duct and constituting a continuation thereof, such tube extending through the wind-chest, and a duct in the bottom wall of the wind-chest into which said tube is connected, said duct in the bottom wall leading to a port in the vicinity of the manual, and a valve operated by the manual to control said port.

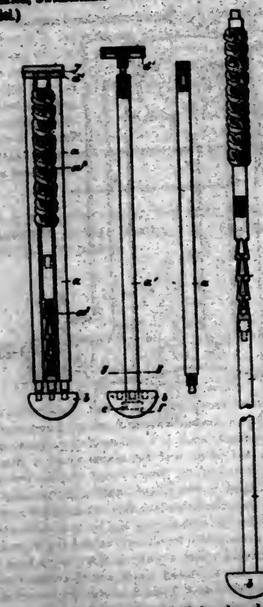
3. In a pneumatic-organ, in combination with an erect wind-chest having read-blocks mounted on its vertical walls, motor-pneumatics above the read-blocks and primary pneumatics above the motor-pneumatics adapted to control the latter, a duct from each primary pneumatic leading through the wall of the wind-chest at the upper part; a duct leading through the wall of the wind-chest at the lower part, and a valve actuated by the manual-key which controls the outer end of said duct, and a tube within the wind-chest connecting the duct at the upper part with the duct at the lower part.

4. In a pneumatic-organ, in combination with the primary pneumatics which have each a duct leading to a pair of ports located at a coupler-board seat, such coupling-board seat, and a coupling-board having ports arranged in pairs which correspond to and are adapted to register with the ports of the ducts which lead from the pneumatics respectively; ducts which connect one coupler-port of each pair with a coupler-port on octave above, and the other coupler-port with a coupler-port on octave below, and suitable means for moving the coupler transverse to ports to register or not register with the ports in the seat.

5. In a pneumatic-organ, in combination with primary pneumatics having each a duct leading to two ports at a coupling-board seat, all said ports constituting two sets, one of the ports pertaining to each pneumatic being in one set and the other port being in the other set, such coupling-board seat and coupling-boards pertaining to the several octaves respectively, each board having ports arranged in two sets corresponding to the two sets of the coupling-board ports, one set of the coupler-board ports being adapted to register with one set of the coupler-seat ports pertaining to a given octave, and the other set of the coupler-board ports being adapted to register with the other set of the coupler-seat ports pertaining to the next octave, and means for independently moving each coupler-board to cause its ports to register with the seat-ports.

6. In a pneumatic-organ, a coupling mechanism which consists of ducts connecting primary pneumatics pertaining to the several notes to be coupled, such ducts being grouped in octave sets, a part or section of each of the ducts of each octave group being formed in one and the same unitary part of the structure, said part being movable at will to disconnect and close all the ducts of the octave group.

602,937. CLEANING DEVICE FOR GUN-BARRELS. HANS W. BELL, Zurich, Switzerland. Filed Nov. 17, 1897. Serial No. 658,906. (No model.)



Claim.—1. In a cleaning device of the class described, the combination with a plurality of divisions arranged to be detachably connected end to end, of means secured to one of said divisions for receiving one end of each of the other divisions, and a securing device arranged to be detachably connected to one of said divisions at the end opposite said means and to engage the corresponding ends of the other divisions, substantially as described.

2. In a cleaning device of the class described, the combination with a terminal division having a handle secured at one end, of a securing device arranged to be detachably connected to the opposite end of said terminal division, a cleaning-division and a plurality of intermediate divisions arranged to be secured between the handle and the securing device and to be connected end to end in a detachable manner, substantially as described.

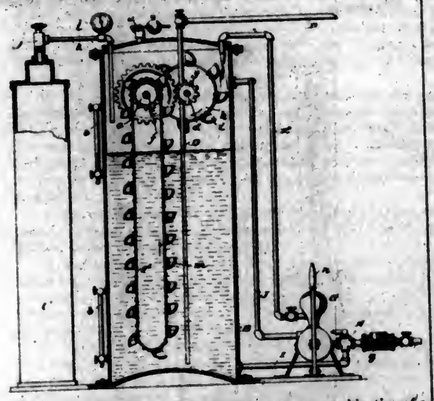
3. In a cleaning device of the class described, the combination with a terminal division having a handle provided with a plurality of recesses in its inner face, a plurality of intermediate divisions each provided with a threaded stud arranged to enter a socket in the corresponding opposite end of the adjacent division, and a cleaning-division arranged to be connected to the intermediate divisions, said cleaning and intermediate divisions being arranged to enter the recesses in the handle, of a securing device provided with a stud adapted to be threaded into one end of the terminal division and arranged to engage the intermediate and cleaning divisions whereby all the parts are held in a compact form.

4. In a cleaning device of the class described, the combination with a plurality of intermediate divisions and a terminal division provided with means for holding one end of each of the other divisions, of a pair of cleaning-divisions arranged to be detachably connected to each other, said cleaning-divisions when united being equal in length to each intermediate division and arranged to be held at one end by the handle, and a securing device arranged to engage one end of the terminal division and to hold the corresponding ends of the intermediate divisions and one end of the cleaning-divisions whereby all the parts are held in a compact form.

602,988. APPARATUS FOR CARBONATING LIQUIDS. CHARLES A. SAUNDERS, New Orleans, La., assignor to Charles Monselice, same place. Filed June 14, 1897. Serial No. 641,202. (No model.)

Claim.—1. In an apparatus for carbonating liquids, the combi-

nation of a closed vessel adapted to contain liquid and carbonic-acid gas, a liquid-elevator arranged in said vessel, a liquid-supply pipe leading from a source of supply into the closed vessel, and mechanism arranged to be operated by the stream of water from said supply-pipe and connected with the liquid-elevator so as to transmit motion to the same, substantially as specified.



2. In an apparatus for carbonating liquids the combination of a closed vessel, a pump, a conduit leading from the eduction-chamber of the pump to the closed vessel, a liquid-conduit connecting the induction-chamber of the pump and the closed vessel, a pipe J, connecting the upper portion of the closed vessel and the pump, and a water-elevator arranged in the closed vessel and operative by the stream of liquid from the first-named conduit, substantially as specified.

3. In an apparatus for carbonating liquids, the combination of a closed vessel adapted to contain liquid and carbonic-acid gas, a liquid-elevator arranged in said vessel, a pump, a pipe leading from the discharge of the pump into the closed vessel, and mechanism arranged to be operated by the stream of liquid from said pipe and connected with the liquid-elevator so as to transmit motion to the same, substantially as specified.

4. In an apparatus for carbonating liquids, the combination of a closed vessel adapted to contain liquid and carbonic-acid gas, a liquid-elevator arranged in said vessel, a pump, a pipe leading from the discharge of the pump into the closed vessel, mechanism arranged to be operated by the stream of liquid from said pipe and connected with the liquid-elevator so as to transmit motion to the same, and a pipe connecting the closed vessel and the induction-chamber of the pump, substantially as specified.

5. In an apparatus for carbonating liquids, the combination of a closed vessel adapted to contain liquid and carbonic-acid gas, a liquid-elevator arranged in said vessel, a pump, a pipe leading from the discharge of the pump into the closed vessel, mechanism arranged to be operated by the stream of liquid from said pipe and connected with the liquid-elevator so as to transmit motion to the same, a pipe I, connected with the closed vessel, a three-way cock connected with said pipe I, and also with a pipe leading from a source of liquid-supply, and a pipe leading to the induction-chamber of the pump, substantially as specified.

6. In an apparatus for carbonating liquids, the combination of a closed vessel adapted to contain liquid and carbonic-acid gas, a pump, a pipe leading from the discharge of the pump into the closed vessel and a water-elevator arranged and adapted to discharge in the closed vessel and operative by the stream of water from the pipe, substantially as specified.

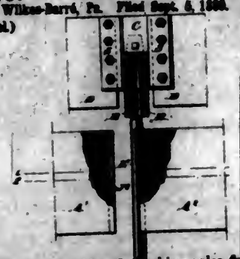
7. In an apparatus for carbonating liquids, a closed vessel forming part of a closed cycle, a pipe forming part of the closed cycle and having its discharge end arranged in the closed vessel, a water-elevator arranged in the closed vessel and operative by the stream of water from the pipe, and means for maintaining a circulation of liquid through the closed cycle, substantially as specified.

602,989. LEMONADE-SHAKER. JAMES L. GREEN and ZACK R. GREEN, Kansas City, Mo. Filed June 29, 1897. Serial No. 642,869. (No model.)

Claim.—The combination with a lemonade-shaker provided with a roughened cone or mound rising from the base, of a hollow cap or cone provided internally with pointed teeth 5 to be embedded in the skin of a lemon, and with a handle, substantially as shown and described.



602,940. MANUFACTURE OF CARRIAGE-AXLES. ORLANDO C. HALL, Wilkes-Barré, Pa. Filed Sept. 4, 1890. Serial No. 363,979. (No model.)



Claim.—1. The machine for making axles from a bar or blank provided with dies recessed to form both the tapering journal and the collar thereof, one of the dies constructed to receive the bar and hold it during the longitudinal movement of the other die, the journal-die having a tapering recess which except at the mouth is smaller in diameter than the axle-bar, substantially as described.

2. Forming the collar and journal of an axle simultaneously by subjecting the end of a bar to endwise pressure to impart the form to the journal and collar by upsetting the bar, substantially as described.

602,941. PROTECTOR FOR TREES. JOHN A. HARVEY, Hancock, Md. Filed Apr. 14, 1897. Serial No. 632,113. (No model.)



Claim.—1. A tree or vine guard consisting of a wire fabric having a rod at one end, said rod being in contact with the fabric at its end only and forming a narrow space between the rod and the fabric, as set forth.

2. A tree or vine protector consisting of a wire fabric having a rod at one end, said rod having curved ends whereby a narrow space is formed for the insertion of the fabric, and a spring to fasten the parts together, as set forth.

3. A tree or vine protector consisting of a wire fabric having overlaid edges, a rod with curved ends fastened to one end of the fabric, and a spring to fasten the parts together, as set forth.

4. A tree or vine guard provided with a rod 6 having curved ends, said rod being fastened to one end of the fabric of which the guard is composed, a layer of cotton or similar material on its upper part carrying an insecticide, and adjusting-springs, as set forth.

602,942. IODIN DERIVATIVE OF MENTHOL AND THIOL. LOUIS G. HELMING, Hamburg, Germany, assignor to Ichthyol Gesellschaft, Cordes, Hermanni & Co., same place. Filed Sept. 10, 1897. Serial No. 651,244. (No specimens.) Patented in Germany June 3, 1893, Nos. 70,139 and 80,860; in France Oct. 26, 1893, No. 233,033; in England Oct. 26, 1893, No. 20,949; in Belgium Oct. 26, 1893, No. 104,910; in Italy Dec. 31, 1896, No. 53,036, and in Austria-Hungary Mar. 17, 1893, No. 86,910 and No. 86,153.

Claim.—1. The process of rendering iodin soluble in water, which consists in reacting upon it with a sulfonic-acid compound of a sulfureted hydrocarbon that is soluble in water, such as may be derived from ichthyol or thiol, substantially as set forth.

2. The process of rendering soluble in water iodin by reacting upon it with a compound of a sulfureted hydrocarbon soluble in water consisting of sulfonic acid and sulfone like constituents such as may be derived from ichthyol and thiol, substantially as described.

3. An iodin compound that is soluble in water, consisting essentially of iodin and a sulfonic-acid compound capable of rendering the iodin soluble in water, for the purpose set forth.

4. The compound consisting of iodin and sulfonic acid and sulfone-like constituents of a sulfureted hydrocarbon combined with sulfuric acid such as may be derived from ichthyol or thiol in such proportions as to render the said iodin soluble in water, substantially as set forth.

602,943. SAW-GUIDE. GERMAN H. HINSLEY, Milwaukee, Wis., assignor of one-half to The Edward P. Allis Company, same place. Filed Aug. 24, 1896. Serial No. 603,702. (No model.)



Claim.—1. In combination with a saw-blade, a guide-support and a saw-guide carried by said support and free when in working adjustment to recede before an advancing body moving in the horizontal plane of the guide.

2. In combination with the blade and frame of a sawmill; a head carried by said frame; a bracket in sliding engagement with said head; and a saw-guide carried by said bracket and free to move away from the saw when subjected to predetermined pressure in that direction.

3. In combination with the frame of a sawmill, a gravitating bracket adapted to move to and to be held in operative position by gravity and free to be moved from operative position by a force acting in opposition to gravity; and a saw-guide carried by said bracket.

4. In a sawmill, the combination of a normally-fixed arm or support; an inclined plate or guide carried thereby; a bracket mounted upon said guide and adapted to move downward thereon by gravity; and a saw-guide carried by said bracket and serving when acted upon by the moving blade to draw or urge the bracket downward upon its guide.

5. In combination with the arm or support C of a sawmill provided with slotted head *a*; plate D; bolt E connecting said plate and head; bracket G provided with overhanging flanges or ribs to engage with plate D and free to recede under pressure; and a saw-guide upon said bracket.

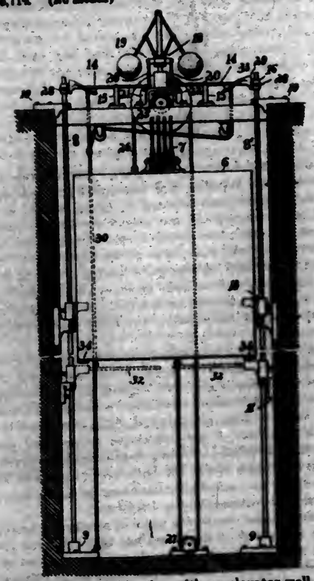
6. In combination with arm or support C and plate D carried thereby; bracket G adapted to engage with and to slide upon said plate; and a saw-guide carried by the bracket, and free to recede under pressure.

7. In combination with a normally-fixed arm or support, a bracket loosely connected therewith and provided with a saw-guide; and a supporting rope or band connecting the fixed support and the detachable bracket, and serving to sustain the latter when detached from the former.

8. In combination with arm or support C, loosely-attached bracket G provided with a spraying or jet device; a flexible supply-pipe K communicating with said spray or jet device; and a flexible band connecting the detachable bracket with the supporting-arm and serving to sustain the bracket when detached, and to prevent undue strain upon the hose or pipe.

9. In combination with arm or support C provided with head *a* having groove *b*; plate D provided with rib or tongue *c*; fastening-bolt E; bracket G loosely applied to plate D; and guide-arms *f* carried by the bracket G.

602,944. SAFETY-CHECK FOR ELEVATORS. JAMES HUSSELL and ROBERT W. HUSSELL, Brooklyn, N. Y. Filed Nov. 16, 1897. Serial No. 658,714. (No model.)



Claim.—1. The combination with an elevator-well, of horizontally-movable stops located at intervals throughout the length of the well and normally held out of the path of the car, and means for throwing said stops into the path of the car when it attains a dangerous speed.

2. The combination with an elevator well and car, of horizontally-swinging stops located at intervals throughout the length of the well, means for normally holding said stops out of the path of the car, and a tripping device for said stops actuated by the car when it attains a dangerous speed.

3. The combination with an elevator-well, of one or more vertical shafts located therein and carrying stops or feet adapted to project into the well and means for rotating said shafts to project said feet into the well.

4. The combination with an elevator well and car, of one or more vertical shafts located therein and having each a series of stops or feet projecting therefrom, means tending to throw said feet into the path of the car, a retaining device for holding them against such tendency, and means for tripping said retaining device for the purpose set forth.

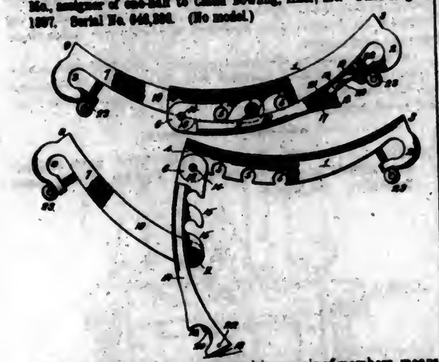
5. The combination with an elevator well and car, of vertical shafts located therein and having feet or stops thereon, means for rotating said shafts to throw the feet into the path of the car, a retaining device for normally holding said shafts against rotation, and a governor actuated by the car for tripping said retaining device when the car starts to fall.

6. The combination with an elevator-well, of vertical rotary shafts therein having bearings at intervals throughout their length,

foot or stops connected to said shafts and projecting laterally therefrom, and means for rotating said shafts and stops, as and for the purpose set forth.

7. The combination with an elevator-well, of a vertical rotary shaft located therein, stops or feet projecting from the shaft and having a spring connection therewith, as and for the purpose set forth.

602,945. HAME-FASTENER. (CARROLL H. JOHNSON, Oak Grove, Mo., assignor of one-half to Claud Bowing, Hiler, Mo. Filed Aug. 3, 1897. Serial No. 646,891. (No model.)



Claim.—1. A hame-fastener comprising a pair of members, means for connecting them together, said members being provided with hooks 2 and 8 at their outer ends and horns and shoulders 3 and 9 above said hooks respectively, and pins or keys 23 for closing the open ends of said hooks, the heads of said pins or keys being depressed below the hooks, said heads of the keys and the horns or shoulders on the hooks being adapted to limit the swing of the members when disconnected from each other, by striking the opposite sides of the links connecting the members and hames, said links being of a size to closely fit the shank of the hook, substantially as described.

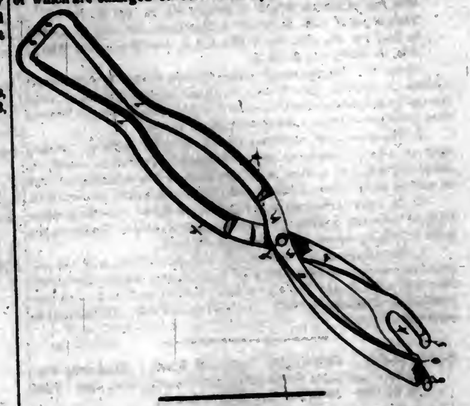
2. A hame-fastener, comprising a pair of members pivotally connected to the lower ends of the hames, one of them being grooved and provided with holes in the lower edge of said grooved portion, and the other being bifurcated to embrace externally the inner end of the first-named member and provided with a cross-pin at its inner end, and a lever pivoted to the first-named member and provided with a hooked rib projecting into the groove of the first-named member and registering with one of the holes of the same and holding the cross-pin of the last-named bifurcated member in said hole of the first named member, substantially as described.

3. A hame-fastener, comprising a pair of members pivotally connected to the lower ends of the hames, one of them being grooved and provided with holes in the lower edge of said grooved portion, and with a hole at its outer end, and the other being bifurcated to embrace externally the inner end of the first-named member and provided with a cross-pin at its inner end, a lever pivoted to the first-named member and provided with a hooked rib projecting into the groove of the first-named member and registering with the openings of the same and holding the cross-pin of the last-named bifurcated member in one of the holes of the first-named member, and a spring-catch carried by said lever and adapted to engage the hook at the outer end of the first-named member, substantially as described.

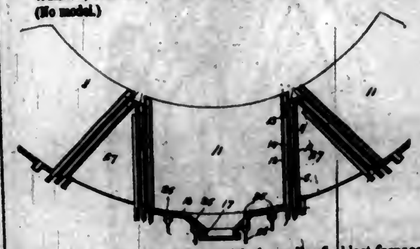
4. A hame-fastener, comprising a pair of members pivotally connected to the lower ends of the hame, one of them being grooved and provided with openings in the lower edge of said bifurcated portion, and the other being bifurcated to embrace externally the inner end of the first-named member, and provided with a cross-pin at its inner end, a lever pivoted to the first-named member and provided with a hooked rib projecting into the groove of the first-named member and registering with the openings of the same and holding the cross-pin of the last-named bifurcated member in one of the holes of the first-named member, a spring-catch fitted in the free end of the lever and adapted to engage the hook at the outer end of the first-named member, and a pin secured to the lever and adapted to limit the outward movement of said spring-catch, substantially as described.

602,946. FORCEPS. CARL E. JUSO, Bushong, Kans. Filed Aug. 17, 1896. Renewed Jan. 26, 1898. Serial No. 668,502. (No model.)

Claim.—The combination, substantially as hereinbefore described, to form an obstetrical forceps, of an arm 1, of compound-curve form, terminating at one end in an abutment 8, and at the other in a jaw 6, and a second arm, compound curve in form, which intersects and is pivoted to the first-named arm, and terminates at one end in an opposing abutment 8, and at its opposite end in a fork 4, the prongs of which are enlarged or bent lawardly at their inner sides.



602,947. BLAST-FURNACE. EDWARD KELLY and HARRY B. WEAVER, Port Oram, N. J. Filed Sept. 20, 1897. Serial No. 652,466. (No model.)

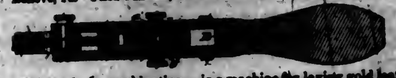


Claim.—1. The combination with the walls of a blast-furnace, of tuyers having parallel side walls arranged circumferentially thereof, the width of the several tuyers being such that their inner ends are nearly in contact so as to admit a circumferentially-continuous current of air to the furnace, said tuyers being composed of two chambers, whereby a water-space is formed, and being mounted in a casing which is fixed in the walls of the furnace, and which is also provided with a water-chamber, and the walls of the furnace being also provided with triangular casings which fill the spaces between said tuyers, and which are provided with means for circulating water therethrough, substantially as shown and described.

2. A blast-furnace constructed as herein described, and provided with tuyers which are arranged circumferentially therein, the side walls of the several tuyers being parallel, casings or blocks which are triangular in form and which are placed between said tuyers, the wider ends thereof being directed outwardly, and means for cooling said casings, substantially as described.

3. A blast-furnace provided with a circumferential row of tuyers having parallel side walls which are mounted in spaces between which are placed casings or blocks, said casings or blocks being triangular in form, and provided with means for circulating water therethrough, and cooling the same, and said tuyers being also provided with means for circulating water around the same, substantially as described.

602,948. TOOL FOR LAYING GOLD-LEAF. JOHN C. F. KNEELE, Reeves, Pa. Filed June 29, 1897. Serial No. 641,573. (No model.)



Claim.—1. In combination,—in a machine for laying gold leaf,—a handle provided with a carrying fork,—a delivery roll at the outer end of said carrying fork,—a package roll-frame pivotally applied within and at the inner end of said carrying fork, and formed with conical sockets and projecting bosses,—package roll removably applied to said package roll-frame and provided with an axial aperture,—and tension screws threaded through the side bars of the carrying fork and adapted to the conical sockets in the roll-frame,—substantially as and for the purpose set forth.

602,949. TOOL FOR LAYING GOLD-LEAF. JOHN C. F. KNEELE, Reeves, Pa. Filed Oct. 19, 1897. Serial No. 655,333. (No model.)



Claim.—1. In a hand tool for laying a strip of gold leaf, which is adapted to be manually moved over the surface to which the leaf is to be applied, the following elements in combination:—means for supporting a roll of foil-provided paper and for applying it to a surface to be decorated,—a receiving roll for the foil-denuded paper,—and a motor adapted to automatically occasion the rotation of said receiving roll,—substantially as set forth.

2. In a machine for laying gold-leaf, in combination with means for supporting a roll of foil-provided paper and for applying it to a surface to be decorated, a receiving roll for the foil-denuded paper, a spring motor adapted to occasion the rotation of said roll, and means for at will locking or releasing said motor, substantially as set forth.

3. In combination:—a main frame, devices mounted in said frame for supplying foil-provided paper and for presenting said foil-provided paper to a surface to be decorated, a paper-receiving core, a shaft upon which said core is mounted, a driven pinion mounted on said shaft, a spring controlled shaft, a spring mounted upon said shaft, a driving spur wheel loosely mounted upon said shaft and engaged with the driven pinion, a ratchet carried by said spring shaft, and a pawl carried by said spur wheel and engaged with said ratchet, substantially as set forth.

4. In a device for laying gold-leaf, in combination:—a pair of side plates, a package and delivery roll removably mounted between said plates, a receiving roll removably mounted between said plates, a motor adapted to rotate the receiving roll, and means for retarding the rotation of the package and delivery roll, substantially as set forth.

5. In a device for laying gold-leaf, in combination:—a pair of side plates, a package and delivery roll removably mounted between said plates, a receiving roll removably mounted between said plates, a motor adapted to rotate the receiving roll, means for retarding the rotation of the package and delivery roll, and a locking device which controls the rotation of the receiving roll, substantially as set forth.

6. In a device for laying gold-leaf, in combination:—the main frame, the package and delivery roll, the receiving roll, the spring motor engaged with a driven pinion mounted on the axle of the receiving roller, and the locking plate, substantially as set forth.

7. In combination:—the front and back frame plates rigidly connected together, the intermediate plate mounted in parallelism between said plates, means for moving said intermediate plate between and in parallelism with said plates, said a package and delivery roll and a receiving roll journaled between said intermediate plate and one of said frame plates, substantially as set forth.

8. In combination:—the front and back frame plates rigidly connected together, the intermediate plate mounted in parallelism between said plates, means for moving said intermediate plate between and in parallelism with said plates, a package and delivery roll and a receiving roll journaled between said intermediate plate and one of said frame plates, and guide prongs formed as extensions of said intermediate plate and one of said frame plates, substantially as set forth.

9. In combination:—the front and back plates rigidly connected together, the intermediate plate mounted in parallelism between said plates, means for moving said intermediate plate toward and from the back plate, the package and delivery roll and the receiving roll journaled between said intermediate plate and said back plate, and a motor mechanism, for occasioning the rotation of the receiving roll, disposed between the intermediate plate and the front plate, substantially as set forth.

10. In combination:—the front and back plates rigidly connected together, the intermediate plate mounted in parallelism between said plates, means for moving said intermediate plate toward and from the back plate, the package and delivery roll and the receiving roll journaled between said intermediate plate and said back plate, a motor mechanism, for occasioning the rotation of the receiving roll, disposed between the intermediate plate and the front plate, and a locking device which controls the operation of said motor mechanism, substantially as set forth.

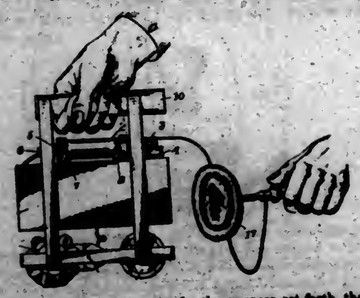
11. In combination:—the front and back plates rigidly connected together, the intermediate plate mounted in parallelism between said plates, means for moving said intermediate plate toward and from the back plate, the package and delivery roll and the receiving roll journaled between said intermediate plate and said back plate, a motor mechanism, for occasioning the rotation of the receiving roll, disposed between the intermediate plate and the front plate, a locking device which controls the operation of said mechanism, and a screw mounted in threaded engagement with a fixed portion of the apparatus and axially with respect to and against the package and delivery roll, and adapted to bear against the side face of the core of the package and delivery roll, substantially as set forth.

12. In combination:—the front and back plates, the receiving roll removably journaled between said front and back plates, a package and delivery roll having an axially-apertured core disposed between said front and back plates, and a screw-shaft in threaded engagement with the front plate, having its free end entered in the axial aperture of said core, and having a bearing plate adapted to bear against the side face of said core, substantially as set forth.

13. In combination:—the front and back plates, the receiving roll removably journaled between said front and back plates, a package and delivery roll having an axially-apertured core disposed between said front and back plates, a screw shaft in threaded engagement with the front plate, having its free end entered in the axial aperture of said core, and having a bearing plate adapted to bear against the side face of said core, and an intermediate plate supported between the front and back plates and adapted to be adjusted toward and from said back plate, and having openings through which the axle of the receiving roll and the screw shaft of the package and delivery roll freely extend, substantially as set forth.

14. In combination:—the front and back plates, means for securing said plates in parallelism, an intermediate plate adjustably secured to said front and back plates by screws which extend freely through said front and back plates but intermediately of their length are in threaded engagement with said intermediate plate, and a package and delivery roll and a receiving roll journaled between said intermediate plate and said back plate, substantially as set forth.

602,950. ELECTRIC MASSAGE APPLIANCE. FRED J. S. LAY, Kansas City, Mo. Filed July 22, 1897. Serial No. 645,093. (No model.)



Claim.—1. In an apparatus for the purpose set forth, the combination with a medical battery, of a frame supported below the same, a smooth roller, a fluted roller mounted within the same, a disk and a metal plate carried by the frame and having a sponge at its lower edge, said metal plate being connected to one wire from the battery, the other wire being connected to the disk, substantially as shown and described.

2. In an apparatus of the character described, the combination of a medical battery, a frame supported thereby, a plate therein, a disk, a smooth roller and a fluted roller mounted within the frame, the fluted roller presenting rubber projections, wires extending to the outer ends of the projections and electrically connected to the plate to which one wire from the battery is attached, the other wire being connected to the disk, substantially as shown and described.

3. In an apparatus for the purpose set forth, the combination of a medical battery, a frame secured thereto, a disk provided with a

handle, a fluted roller mounted within the frame, said fluted roller having wires which extend to the outer ends of the projections, and a plate to which said wires are electrically connected, one wire from the battery being attached to the plate and the other wire attached to the disk, substantially as shown and described.

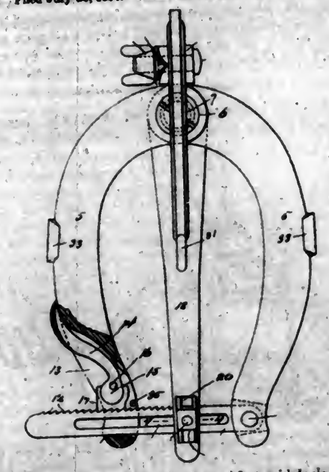
4. In an apparatus for the purpose set forth, the combination of a medical battery, a handle connected thereto, a frame supported by the battery, a smooth roller mounted within the frame, and fluted rollers also mounted within the frame; together with a plate interposed between the fluted rollers and carrying a sponge, and a separate disk, one wire from the battery being attached to the plate and the other wire to the disk, substantially as shown and described.

602,951. HARNESS-BUCKLE. JOHNSTON MEALEY, Howard Lake, Minn. Filed Jan. 13, 1897. Serial No. 619,095. (No model.)



Claim.—In a sliding harness-buckle, the combination, with the curved flat sides, of the cross-bars provided at the opposite ends of said sides and connecting the inner edges of the same, a second or middle pair of bars between said end bars connecting the outer edges of said sides, the space between said middle and end bars being sufficient to permit both ends of the loop to be passed one above the other through the buckle, said sides corresponding substantially in width to the thickness of said loop, the long and short stud provided upon said middle bars, one upon each, the longated extending through both the movable and stationary ends of the loop, and holding the former in position when in use and the short stud extending through the stationary end of the loop only, whereby the same is firmly secured within the buckle while the movable end is permitted to slide freely over the studs and through the buckle when it is desired to change the position of the same on the strap, and the cross-bar supporting said long stud being arranged near one of the bars at the end of said sides, for the purpose set forth.

602,952. DEVICE FOR LEVELING HORSES' FEET. FRANK A. MILLETT, Livermore Falls, Me., assignor to Millett & Brentham, same place. Filed July 23, 1897. Serial No. 645,962. (No model.)

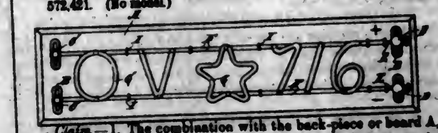


Claim.—1. A device for leveling horses' feet, said device consisting of a shoe-shaped frame consisting of two parts, pivotally connected at the toe, by means of a pivot screw or bolt, one of said parts being provided at the heel of the frame with a pivoted cross-bar which passes through a slot in the opposite part, and which is provided with a longitudinal slot, and at the front edge thereof with ratchet-teeth, a cam-lever mounted in the slot through which the said pivoted bar passes, and provided with a ratchet-block which operates in connection with said bar, a longitudinal bar which is held in place by said pivot screw or bolt, at the front end of the frame, and the rear end of which is provided with a slot, a pin or bolt passing through said slot and through the slot in the said cross-bar, said longitudinal bar being provided at its forward end with upwardly-curved jaws in which is pivoted a quadrant gage or frame, and said separate parts of the frame being provided at their outer sides with clamps or jaws, substantially as shown and described.

2. A device for leveling horses' feet, said device consisting of a shoe-shaped frame consisting of two parts, pivotally connected at the toe, by means of a pivot screw or bolt, one of said parts being provided at the heel of the frame with a pivoted cross-bar which passes through a slot in the opposite part, and which is provided with a longitudinal slot, and at the front edge thereof with ratchet-teeth, a cam-lever mounted in the slot through which the said pivoted bar passes, and provided with a ratchet-block which operates in connection with said bar, a longitudinal bar which is held in place by said pivot screw or bolt, at the front end of the frame, and the rear end of which is provided with a slot, a pin or bolt passing through said slot and through the slot in the said cross-bar, said longitudinal bar being provided at its forward end with upwardly-curved jaws in which is pivoted a quadrant gage or frame, and said separate parts of the frame being provided at their outer sides with clamps or jaws, substantially as shown and described.

3. A device for leveling horses' feet, said device consisting of a shoe-shaped frame consisting of two parts, pivotally connected at the toe, by means of a pivot screw or bolt, one of said parts being provided at the heel of the frame with a pivoted cross-bar which passes through a slot in the opposite part, and which is provided with a longitudinal slot, and at the front edge thereof with ratchet-teeth, a cam-lever mounted in the slot through which the said pivoted bar passes, and provided with a ratchet-block which operates in connection with said bar, a longitudinal bar which is held in place by said pivot screw or bolt, at the front end of the frame, and the rear end of which is provided with a slot, a pin or bolt passing through said slot and through the slot in the said cross-bar, said longitudinal bar being provided at its forward end with upwardly-curved jaws in which is pivoted a quadrant gage or frame, and said separate parts of the frame being provided at their outer sides with clamps or jaws, one of the jaws between which the quadrant gage or frame is pivoted being also provided with a pointer which operates in connection with said quadrant gage or frame, and the bolt by which said quadrant gage or frame is connected with said jaws being provided at one end with a thumb-nut, substantially as shown and described.

602,953. ELECTRIC LUMINOUS ALPHABET AND BOARD FOR SAME. DANIEL M. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Dec. 17, 1895. Serial No. 572,421. (No model.)



Claim.—1. The combination with the back-piece or board A, of the parallel wires F, stretched across said board and mounted adjustably thereon, suitable tension devices for said wires, and hollow vacuous receptacles provided with electrodes adapted to enter between the parallel wires for holding said receptacles in place, substantially as set forth.

2. The combination with the board or back-piece A, provided with parallel conductors F, adjustable laterally thereon, of illuminating characters consisting of translucent hollow vacuous receptacles provided with hollow rearwardly-extending projections surrounded by electrodes adapted to fit between the conductors F, and hold the receptacles in place, substantially as set forth.

3. An illuminating character consisting of a translucent hollow vacuous receptacle provided with hollow, lateral, rearwardly-extending projections in combination with separated terminals of an electric circuit adapted to removably hold one or more of said characters, substantially as and for the purpose set forth.

4. The combination with the apparatus-box, of a magnet located therein, and the interrupter secured to the cover of the box in a position such that when the cover is closed, the armature of the interrupter will be placed in the field of the magnet.

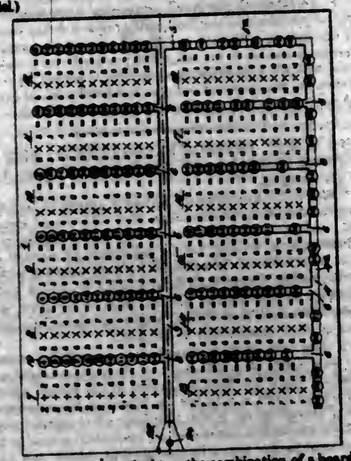
5. The combination with the apparatus-box, of an interrupter removably mounted on the cover thereof, two contacts mounted on said cover and electrically engaging or connecting with the terminals of the interrupter, and contact-plates located in the box to engage with said contacts when the cover is closed and complete the circuit through the interrupter.

6. The combination with the apparatus-box, of a clasp mounted therein, two contacts also mounted therein adjacent to the clasp, and an interrupter provided with exterior contacts connected to the terminals thereof and adapted to engage with the contacts in the box when the interrupter is inserted in the clasp.

7. The combination with the interrupter and the magnet operating on the armature thereof, of a supplemental armature controlled by said magnet but out of its normal field, a circuit-breaker one member of which normally rests against the latter armature in circuit-closing position but moves therefrom and opens circuit when an extra strem of current flows in the coil of said magnet, and means for simultaneously controlling the circuit of the magnet and said circuit-breaker.

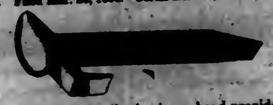
8. The combination with the interrupter and the magnet operating it, of another armature out of the normal field of said magnet, a circuit-breaker held normally closed by said armature but adapted to open when the armature is attracted, the key controlling the circuit of the magnet, and a projection on said key for restoring the circuit-breaker to the normal position.

602,954. MATHEMATICAL TOY. WILLIAM W. CROSIER, Kansas City, Mo., assignor of two-thirds to Frank B. Turner and David D. Looper, same place. Filed May 24, 1897. Serial No. 637,903. (No model.)



Claim.—In a mathematical toy, the combination of a board provided with a series of slots extending at right angles to each other, and all connected either directly or indirectly, and a double series of numbers to the left of each of the branch slots, separated by a mathematical sign and followed by the symbol of equality, and a series of numbered movable buttons occupying said slots, and provided with enlargements, whereby they cannot be accidentally displaced; the numbers of said buttons being adapted to correspond with the results obtained by the processes indicated by said mathematical signs, substantially as shown and described.

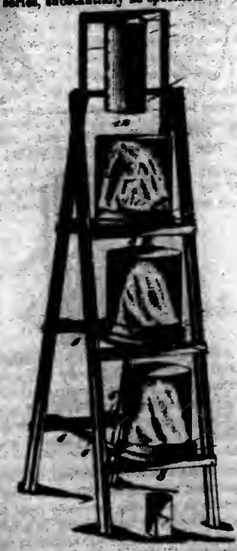
602,955. SPIKE. VAN B. PAGE, Hopkinton, N. H., assignor of two-thirds to Eliz. D. Pierce, Hillsborough, and Ezra K. Paige, Warner, N. H. Filed Mar. 26, 1898. Serial No. 674,906. (No model.)



Claim.—A railway-rail spike having a head provided with side flanges and a forwardly-extending lip the under side of which is inclined upwardly, a bridge integral with the spike, and a thin solid blade depending transversely from the extreme end of the bridge, the upper outer side of the blade being approximately at right angles to the bridge and the upper side of the latter being inclined on the line of inclination of the under side of the lip, whereby the outer sides of the bridge and blade are in conformity with the under side of the lip, substantially as and for the purpose described.

602,956. APPARATUS FOR COOLING MILK. LOUIS H. PORTER, Rockdale, Tex. Filed Aug. 27, 1896. Serial No. 604,144. (No model.)

Claim.—1. An apparatus of the class described, having a folding frame comprising pivotally-connected sections adapted to fold in a common plane and having side bars connected at corresponding intervals with cross-bars, a pivotal extension mounted upon the rear section and adapted to fold between the sides thereof, the forward-swinging movement of the extension being limited by a round forming the pivot of the sections, loose bars forming rests arranged upon said cross-bars, a reservoir for refrigerating liquid suspended upon said extension and provided with feeding devices, and receptacles arranged respectively upon said rests and each provided with means for dropping the surplus refrigerating liquid upon the next lower receptacle of the series, substantially as specified.



2. In an apparatus of the class described, the combination of a supporting-frame provided at different elevations with rests, shallow drip-pans supported by said rests, receptacles arranged within the drip-pans and provided with concave tops perforated adjacent to the outer edges, absorbent jackets arranged on the receptacles, and a reservoir located above the receptacles, substantially as specified.

602,957. HAND-STAMP. HENRY O. REICH and COLIN I. VAN DYKE, Lattimer Mines, Pa. Filed July 30, 1897. Serial No. 645,988. (No model.)



Claim.—In a hand-stamp, the combination with a casing formed of connected spaced plates, of a series of shafts secured in the plates, a series of drums mounted on each shaft to turn independently thereon, a series of bridge pieces removably seated between the plates and having means to engage the plates to prevent longitudinal movement of the bridge-pieces, and a series of elastic printing-bands mounted on the drums and bridge-pieces, said bridge-pieces being held in their seats by the elasticity of the printing-bands, and each band being formed from a strip having its ends detachably connected together, substantially as and for the purpose specified.

602,958. DRAWERS-SUPPORTER. HOWARD H. RIGGLEMAN, New London, Conn. Filed Mar. 9, 1897. Serial No. 626,979. (No model.)

Claim.—1. A clip for the purpose described, consisting of a single piece of sheet metal having one end recurved and toothed, and its opposite end apertured, the last-named end being bent in substantially V shape and the aperture therein being crossed by a bar or web, substantially as and for the purpose described.

2. A clip for the purpose described, formed from a single piece of sheet metal, having one end reserved and toothed, and the opposite end apertured, a cross-bar extending across said aperture, and an auxiliary cross-bar connected and extending substantially at right angles to said first-mentioned cross-bar, substantially as and for the purpose described.



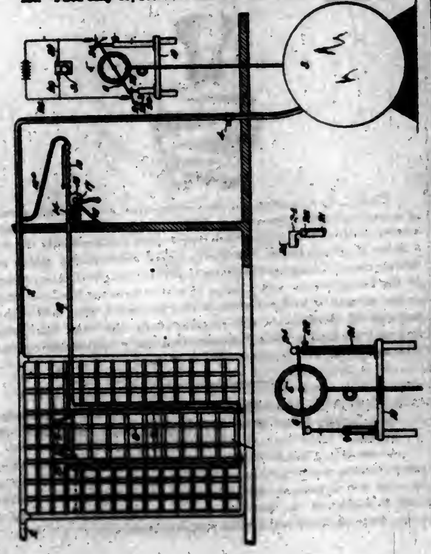
602,959. LUBRICATING JOURNAL-BOX. JOHN ROGERS, Kansas City, Kans. Filed July 1, 1897. Serial No. 643,094. (No model.)



Claim.—1. A lubricating journal-box, comprising a reservoir provided with a central slot or opening in its top wall, a depending flange at one end of the same, and a vertical longitudinal rib projecting upwardly from its bottom and centrally of said slot or opening, and a vertically-adjustable wick-tube fitting snugly in said opening and provided with a recess 16 into which said guide-rib projects, substantially as described.

2. In a device of the character described, the combination with a car-axle box provided with an opening in its front end below its door, and horizontal ribs projecting internally from its sides coincidentally with the upper edge of said opening, of a lubricating journal-box fitting snugly within and upon the bottom of the car-axle box and provided with a rounded end and flange closing the opening in the front end of the box, and provided with a central slot or opening, and with a central rib projecting upwardly from its bottom; a double wick-tube fitting snugly in the slot or opening and provided with a recess fitting on said rib; and springs bearing upon the bottom of said box and exerting a constant upward pressure upon said tube, substantially as and for the purpose described.

602,960. AUTOMATIC ALARM-CELL. JULIUS ROSTER, Weston, Mo. Filed May 15, 1897. Serial No. 636,576. (No model.)



Claim.—1. An automatic alarm cell or vault, comprising, in combination, substantially as hereinbefore described, a cell composed of communicating hollow pipes and provided with a door-opening, a reservoir containing a fluid under pressure and connected to said cell, a door closing the opening of the cell and also composed of communicating pipes, a pipe forming a part or extension of said door, and provided with a flexible tubular portion which communicates with the reservoir either directly or indirectly, a track for the door, hangers connecting the door with said track, and means to open or close the door, substantially as described.

2. An automatic alarm-cell, comprising, in combination, substantially as hereinbefore described, a cell proper, having a door-opening and inclosed or partially inclosed by a fluid-filled chamber or chambers, a fluid-reservoir in communication with said chamber or chambers, a door controlling said opening, and also containing a fluid-chamber connected to the reservoir, means to slide the door to uncover or cover the door-opening, and fluid-containing guard-pipes 11, connected to the fluid-passage of the cell and adapted to prevent the door moving outward, substantially as described.

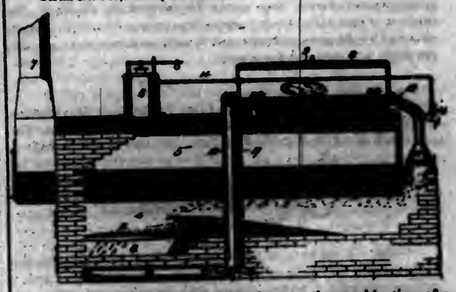
3. An automatic alarm-cell, comprising in combination, substantially as hereinbefore described, a cell proper, a sliding door controlling the opening of the cell, and formed with a fluid-chamber, a fluid-reservoir connected to the cell, a pipe provided with a rack-bar connected with the fluid-chamber of the door, a flexible pipe connection between the door-pipe and cell-pipe, and a worm-wheel engaging the rack-bar, substantially as and for the purpose described.

602,961. PROCESS OF MAKING ARTIFICIAL MUSK. CHARLES SCHEID, Brussels, Belgium. Filed Sept. 4, 1897. Serial No. 650,676. (No specimens.)

Claim.—1. The process for producing a musk-like substance consisting in subjecting to distillation with superheated steam certain fossil resins, such as copal, amber, or rotin resin, treating the products of distillation of wax-like or oily consistence by reagents of oxidation, such as a mixture of bichromate of potassium and sulfuric acid, neutralizing the filtered mass by ammonia and alcohol, heating the neutralized solution until all alcohol has been driven off, and finally extracting from the thus-obtained matter the musk-like substance by means of ether, substantially as described.

2. As a new article of manufacture, a musk-like substance derived from resins, thus differing from all known artificial musk-like substances which are nitro derivatives of compounds belonging to the aromatic series, and having the following characteristics: being a heavy orange-red oil, soluble in sulfuric ether, spirits colognes, and vegetable oils, such as cotton-seed oil, insoluble in petroleum benzene; it is colored darker brown by concentrated sulfuric and nitric acid and concentrated alkalies, substantially as described.

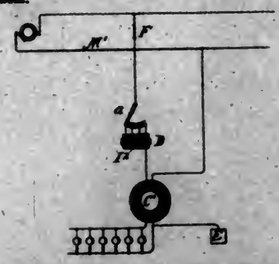
602,962. SMOKE-CONSUMING FURNACE. LEE A. SHARP, Nevada, Mo., and FRANK ESSE, Kansas City, Kans. Filed July 29, 1897. Serial No. 645,567. (No model.)



Claim.—In a smoke-consuming furnace, the combination of a reservoir 8 upon the rear end of the boiler, a pair of pipes 10, depending from the rear end of the reservoir and terminating in flared mouths or funnels 11, a pipe 13, extending through the wall of the furnace and arranged to discharge beneath the grate, a pipe 12, connecting the same with the reservoir, a pipe 14, connected to the dome of the boiler, and provided with branches, nozzles 15, and 16, for said branch pipes, projecting respectively into pipes 10 and 13, and valves controlling said nozzles, substantially as described.

602,963. DISTRIBUTION OF ELECTRIC CURRENTS. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Dec. 6, 1886. Renewed Feb. 26, 1898. Serial No. 671,203. (No model.)

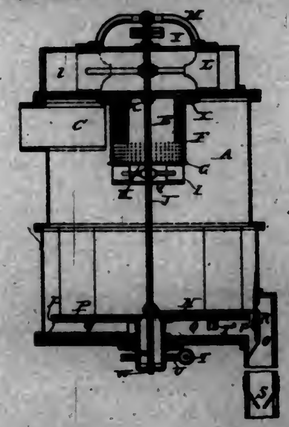
Claim.—1. The combination of a main or principal circuit carrying rapidly-varying electric currents derived from any desired source, induction-coils each having a continuous or closed magnetic circuit or core and whose primaries are connected to the main in multiple arc, translating devices connected in multiple arc to the secondary circuit, self-induction coils placed in the multiple-arc branches leading to the primaries of the induction-coils, and means for varying the number of coils in which the reaction is set up without short-circuiting them.



2. The combination of the main or principal circuit supplied with rapidly-varying currents, the local or independent circuits, induction apparatus having a continuous or closed magnetic circuit of iron placed between said main and local circuits and connected to the main in multiple-arc branches, self-inductive coils located in the multiple-arc connections to the induction apparatus, and means for varying the number of coils in which the reaction is set up without short-circuiting them.

3. The combination with the main or principal circuit supplied with rapidly-varying electric currents, of a local or independent circuit, an induction apparatus placed between the mains and the local or independent circuit, reaction-coils in the primary circuit of said apparatus, and means for varying the number of coils in which the reaction is set up without short-circuiting them.

602,964. MACHINE FOR SEPARATING DUST FROM AIR. PIERRE VAN GELDER, Sowerby Bridge, England, assignor to William Phillips Thompson, Liverpool, England. Filed Sept. 3, 1896. Serial No. 604,770. (No model.) Patented in France Dec. 9, 1891, No. 217,941.



Claim.—1. In combination with a substantially cylindrical outlet E of a dust-separating chamber; a terminal disk G extending somewhat beyond the dependent outlet, and finely perforated near the center, and closing the mouth of said orifice except for said perforations near the center, and fan I for discharging the dusty air in the chamber E through the perforations of the disk.

2. In combination with a dust-separating chamber in which the dusty air forms a vortex, a dependent outlet E caused to rotate with the revolving air, substantially as described.

3. The combination with a dust-separating chamber in which the dusty air forms a vortex of a dependent rotating outlet perforated only near the bottom and fenced with a perforated disk substantially as described.

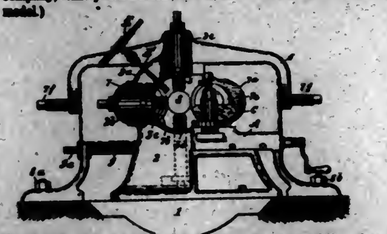
4. In a dust-separating chamber in which the dusty air forms a vortex, the combination of a rotatable dependent exit E with fan-blades I rotating with the effluent air and means for maintaining the axes of rotation in the vertical line.

5. In combination with a dust-separating chamber in which the dusty air forms a vortex, the combination of rotating outlet E perforated on its sides, a floor for said outlet perforated in the center, a fan below rotating with the outlet and the vortex of dusty air, and a disk below, preventing the uprising central current from entering.

6. In a dust-separating apparatus, a separating-chamber in which the dusty air forms a vortex formed cylindrical in its upper part and polygonal in its lower part, substantially as described.

7. In combination with a vortex dust-collector having a rotating scraper and exit-spout, a rotating tappet V' and valve R having an internal projecting surface V^3 whereby it is periodically opened.

602,965. ATTACHMENT FOR LATHES. THOMAS C. WALKER, Denver, Colo., assignor to the Midland Foundry and Machine Works Company, same place. Filed June 5, 1897. Serial No. 639,626. (No model.)



Claim.—1. In a lathe, in combination with the saddle, a housing attached to said saddle, adjustable roller-carriers within said housing, tapered rollers journaled to said carriers; and tool-holders, substantially as described.

2. In a lathe, in combination with the saddle, a housing adjustably and removably attached to said saddle, adjustable roller-carriers carried by said housing, and rollers journaled to said carriers, substantially as described.

3. In a lathe for turning, sizing and finishing shafting, a housing pivoted at one end to the carriage of the lathe and adjustably attached to said carriage at the opposite side, adjustable roller-carriers mounted on said housing, and tapered rollers journaled in said carriers, substantially as described.

4. In a lathe for finishing shafting, a housing adjustably attached to the saddle of the lathe, in combination with two adjustable roller-carriers mounted in said housing, and rollers having taper-faces journaled in said carriers, substantially as described.

5. In a lathe, the combination of a housing having an opening below and adjustably attached to the lathe-carriage and provided with two adjustable roller-carriers mounted therein, tapered rollers journaled in said carriers at their inner ends, and a collar-bolt passing through said housing in proximity to the said opening, substantially as described.

6. In a lathe, the combination, with the tool-holders and tools, of a yoke carrying adjustable steady-pins, and tapering rollers adapted to finish stock between them and facilitate the traverse of the lathe-saddle, substantially as described.

7. In a lathe, the combination, with a yoke carrying adjustable steadying-pins having non-abrasing ends, of a housing having therein adjustable roller-carriers, and tapering rollers carried by said carriers, substantially as described.

8. The combination of a bracket with yoke secured to the saddle of a lathe, steady-pins protruding inwardly from the yoke, and a roller-frame pivoted upon the saddle, said roller-frame carrying rollers having adjustment toward and from each other, substantially as described.

9. The combination of a bracket with a yoke secured to the saddle of a lathe, steady-pins projecting from the yoke toward its center, and a roller-frame pivoted upon the saddle, said roller-frame carrying rollers having adjustment toward and from each other, and a steady-pin carried by the roller-frame, substantially as described.

602,966. VACUUM-TUBE LANTERN. LEONARD WALLACE, New York, N. Y. Filed July 30, 1897. Serial No. 646,947. (No model.)

Claim.—1. A lamp or lantern consisting of parallel heads connected together by a rod and provided with a series of apertures, electric contacts located at said apertures and concealed within the heads, vacuum-tubes fitted to the apertures in said heads and provided with electrodes at their ends for engagement with the said con-

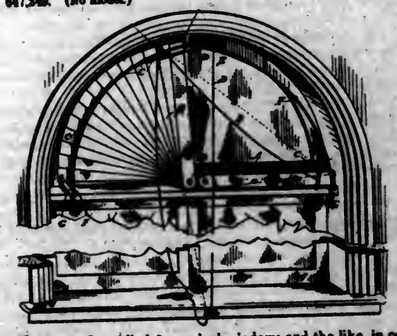
tacts, one electric conductor connected to the contacts in one head, the other conductor connected to the contacts in the other head, and caps covering the heads, the ends of the tubes and the electrical connections thereto, substantially as and for the purpose set forth.



2. The electric-light fixture consisting of the perforated plate B, the like perforated plate B', the supporting-plate C, the hollow rod D, connecting said plates together, the spring-contacts E, located above the plate B, and below the plate B', the vacuum-tubes A, inserted in said perforated plates with their electrodes in engagement with said contact, a conducting-wire branching from the lower contacts and the return conducting-wire branching from the upper contacts, passing through the rod D, and caps F and G, connected to said plates and cooperating therewith to conceal the electrodes, contacts and conductors.

602,967. COLLAPSIBLE BLIND FOR ARCHED WINDOWS.

GEORGE WELLS, Montreal, Canada. Filed Aug. 5, 1897. Serial No. 647,249. (No model.)



Claim.—1. In a blind for arched windows and the like, in combination a series of slats pivotally held in fan shape on a bolt substantially central to the arc of the arch and having their outer edges following such arc when open, a continuous band secured to the casing and looped successively around and attached to each slat and means for spreading the slats at their outer end as and for the purpose specified.

2. In a blind for arched windows and the like, in combination a series of slats pivotally held in fan shape on a bolt substantially central to the arc of the arch and having their outer edges following such arc when open, a continuous band secured to the casing and looped successively around and attached to each slat and a cord attached to an end slat and passing over a suitable pulley as and for the purpose specified.

3. In a blind for arched windows and the like, in combination a series of slats pivotally held in fan shape on a bolt substantially central to the arc of the arch and having their outer edges following such arc when open, a continuous band secured to the casing and looped successively around and attached to each slat, means for spreading the slats at their outer ends, and a slantingly-arranged arc-shaped guide-rod connected at both ends to the casing alongside the outermost ends of the slats as and for the purpose specified.

602,968. LAND-ROLLER. WILLIAM WILDMAN, Spadra, Cal. Filed Aug. 9, 1897. Serial No. 647,540. (No model.)

Claim.—1. In a land-roller composed of one or more hollow cylinders adapted to be filled with liquid, in combination with a motor-wheel located within the cylinder, substantially as described.

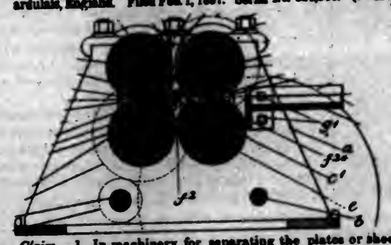
2. In a land-roller, a hollow cylinder provided with a central shaft fixed to revolve therewith, in combination with a motor-wheel fixed on the shaft intermediate of its ends, said wheel being provided with forwardly-curved fins or blades for the purposes substantially as described.



3. In a land-roller, the combination with a hollow cylinder, of a central shaft fixed within a cylinder, a motor-wheel fixed to revolve with the shaft and cylinder, said wheel being composed of a pair of separate circular disks having on their outer faces fins or blades, substantially as described.

4. In a land-roller, a hollow cylinder adapted to receive a liquid, in combination with a motor-wheel within a cylinder, whereby the level of the liquid is equalized during the revolution of the cylinder, substantially as described.

602,969. APPARATUS FOR SEPARATING METAL PLATES OR SHEETS. JOSEPH WILLIAMS, Gowerton, and GEORGE H. WHITE, Pontardulais, England. Filed Feb. 1, 1897. Serial No. 621,518. (No model.)



Claim.—1. In machinery for separating the plates or sheets of a pile, a waved or sinuous guide or channel formed of undulating plates or blocks, substantially as herein shown and described.

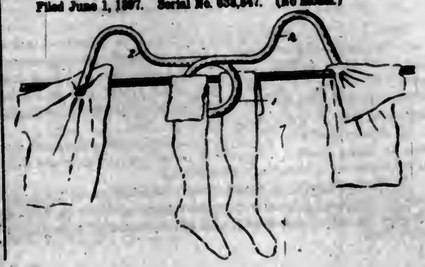
2. In machinery for separating the plates or sheets of a pile, the combination of a waved or sinuous guide or channel formed of undulating plates or blocks and means for forcing the pile through the guide substantially as herein shown and described.

3. In machinery for separating the plates or sheets of a pile the combination of a waved or sinuous guide or channel, a pair of feed or forcing rolls located in front of the waved guide for carrying the pile into the waved guide, a feed-table provided with a guide or guides for conducting the pile squarely to the feed-rolls, and a pair of drawing-rolls located at the rear of the waved guide for drawing the pile through the waved guide and assisting to flatten the plates substantially as herein shown and described.

4. In machinery for separating the plates or sheets of a pile the combination of a waved or sinuous guide or channel composed of two hollow plates or blocks, means for supplying water to the hollow blocks and means for forcing the pile through the guide substantially as herein shown and described.

5. In machinery for separating the plates or sheets of a pile the combination of a waved or sinuous guide or channel composed of two plates or blocks superposed one upon the other, means for separating the plates or blocks a given distance and means for forcing the pile through the waved guide substantially as herein shown and described.

602,970. CLOTHES-PIN. DAVID WILSON, Fort Gay, W. Va. Filed June 1, 1897. Serial No. 638,947. (No model.)



Claim.—A clothes pin or holder composed of a single piece of wire formed with a single central convolution of larger diameter as compared with the diameter of the clothes-line upon which it is to be placed, said convolution furnishing bearing-points between which and the clothes-line an article may be clasped and held, and having laterally-extending arms substantially in the same plane with the central convolution, the lateral extensions being bent upwardly to extend outside of or beyond the dimensions of the central convolution, and then downwardly and finally having their extremities turned or bent to form loops at right angles with the central convolution, the loops extending in opposite directions, substantially as described.

602,971. HAMMER. LELAND G. YOUNG, Muscatine, Iowa. Filed Aug. 6, 1896. Serial No. 601,861. (No model.)



Claim.—1. In a device of the class described, the combination of a magazine or tack-holder provided with a handle, and an oscillating bar mounted thereon and provided with a hammer-head arranged to swing freely transversely of the magazine or tack-holder, when the entire device is oscillated similar to an ordinary hammer, substantially as and for the purpose described.

2. In a device of the class described, the combination of a magazine or tack-holder provided with a longitudinal way, a reciprocating feed-bar mounted in the way and adapted to feed tacks to the outer end of the magazine or holder, an oscillating bar mounted on the magazine or holder and provided with a hammer-head adapted to swing freely transversely of the magazine or holder, when the entire device is oscillated similar to an ordinary hammer, and connections between the oscillating bar and the reciprocating feed-bar, whereby the latter will be operated by the independent movement of the former, substantially as and for the purpose described.

3. In a device of the class described, the combination of a stem or tack-holder provided with a longitudinal way, a reciprocating feed-bar mounted in the way, an oscillating bar mounted on the stem or holder and provided with a hammer-head, a link connecting the feed-bar with the oscillating bar, whereby the feed-bar will be reciprocated by the oscillating rod, and a spring interposed between the oscillating bar and the stem or holder for raising the hammer-head, substantially as described.

4. In a device of the class described, the combination of a magazine or tack-holder provided with a longitudinal way, a reciprocating feed-bar mounted in said way, oppositely-disposed pawls arranged in the way to engage the sides of a strip of tacks, one of the pawls being mounted upon the holder or magazine and the other pawl being carried by the feed-bar, an oscillating bar mounted on the magazine or holder and provided with a hammer-head arranged to swing transversely of the magazine or holder when the entire device is oscillated similar to an ordinary hammer, said hammer-head being provided with a cutting edge, and connections between the oscillating bar and the feed-bar, substantially as described.

5. In a device of the class described, the combination of a stem or holder having a longitudinal way and provided with a central longitudinal groove adapted to receive the shanks of tacks, a reciprocating feed-bar provided with side flanges, a resilient check-pawl mounted on the stem or holder and arranged in the way at one side thereof, a resilient actuating-pawl located at the opposite side of the way and carried by the feed-bar, and an oscillating bar carrying a hammer-head and connected with and actuating the feed-bar, substantially as described.

6. In a device of the class described, the combination of a substantially semicylindrical tubular stem or tack-holder provided with longitudinal parallel strips forming a central groove and having their outer longitudinal edges angularly bent to form L-shaped flanges, said L-shaped flanges connecting the strips and the sides of the stem or holder to provide shallow side grooves, a reciprocating feed-bar mounted on the stem or holder and having flanges fitting in the shallow side grooves thereof, pawls mounted on the stem or holder and on the feed-bar, and a movable hammer-head connected with and operating the feed-bar, substantially as described.

7. In a device of the class described, the combination of a magazine or tack-holder, a pair of parallel rods arranged at the front of the magazine, a flat spring disposed longitudinally of the magazine and secured at its inner end to the same, and an oscillating hammer mounted on the magazine and provided with a head and adapted to swing transversely of the magazine when the entire device is oscillated similar to an ordinary hammer to cause the head to pass between the rods, substantially as described.

8. A device of the class described, provided at its front with a resilient clip and having sockets at opposite sides, combined with rods removably fitted in the sockets and provided at their upper ends with hooks, substantially as described.

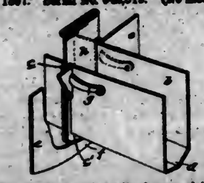
602,972. ARMOR-PIERCING PROJECTILE. HENRI A. BRESSLAIN, Unieux, France. Filed Dec. 16, 1897. Serial No. 662,128. (No model.) Patented in France Jan. 4, 1895, No. 244,105, and in England June 3, 1895, No. 12,200.



Claim.—1. A shell or projectile provided with a cap, the striking portion of which is of hard material and the portion in contact with the projectile of soft material.

2. A shell or projectile provided with a cap, the striking portion of which is of hard material and the portion in contact with the projectile of soft material, and the intermediate portion of graded hardness.

602,978. HEAD-GATE. JOHN H. BUTTERFY, Fort Collins, Colo. Filed June 28, 1897. Serial No. 642,519. (No model.)

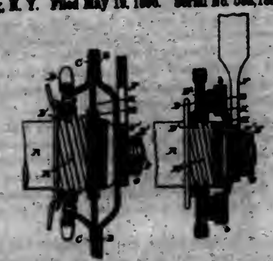


Claim.—1. The head-gate described comprising the trough having the grooves *c*, in its side walls and the seat *c'*, in its bottom wall, laterally and downwardly extending wings connected to the trough, and the vertically-movable, slide-gate arranged in the grooves *c*, and seat *c'*, substantially as specified.

2. The head described comprising the trough having its side and bottom walls bent to form grooves *c*, and a seat *c'*, and also having its bottom wall inclined downwardly to its longitudinal center, laterally and downwardly extending wings connected to the trough, and the slide-gate arranged in the grooves *c*, and adapted to control the passage of water through the trough, substantially as specified.

3. The head described comprising the trough having its side and bottom walls bent to form internal grooves *c*, and an internal seat *c'*, and external flanges, the lateral and downwardly extending wings formed in one piece, and the cam-pieces pivotally connected to the side and bottom walls of the trough and adapted to press and hold the wings against the external flanges of the trough, substantially as specified.

602,974. BACK-PEDALING BRAKE. ROBERT H. CANFIELD, Corning, N. Y. Filed May 12, 1896. Serial No. 592,165. (No model.)



Claim.—1. In a bicycle or analogous machine, the combination with the frame, of a rotary driving member mounted thereon, a fixed brake-surface mounted on the axis thereof, a laterally-acting brake-wheel movable along the axis of said member and adapted to coact with the fixed brake-surface, and an adjustable device situated between the fixed brake-surface and the movable brake-wheel, and serving to limit the lateral movement of the latter.

2. In a bicycle or analogous machine, the combination with the

driving-wheel and driving means, of a fixed brake-disk mounted on the axis of said wheel, a laterally-moving brake-wheel mounted on the hub of the drive-wheel, and adapted to coact with the fixed disk, and an adjustable nut screwed on the end of the hub between the fixed brake-disk and the movable brake-wheel and serving to limit the lateral movement of the latter.

3. In a bicycle or analogous machine the combination with a rotary driving member, of a fixed brake-surface, a laterally-acting brake-wheel movable along the axis of the rotary member, an adjustable stop-nut situated between the fixed brake-surface and the movable brake-wheel, and a cushioning device independent of said brake device and situated between the stop-nut and the movable brake-wheel.

602,975. SILICID OF IRON. GUILLAUME DE CHALMOT, Louisville, N. C., assignor, by mesne assignments, to the Wilson Aluminum Company, New York, N. Y. Filed Sept. 6, 1895. Serial No. 561,660. (Specimens.)

Claim.—1. The described new ferrosilicid having the formula Si_2Fe_3, and containing approximately twenty-five per cent. of silicon.

2. The described new product being ferrosilicid containing upward of twenty-five per cent. of silicon, and consisting of a mixture in variable proportions of Si_2Fe_3 and Si_2Fe.

602,976. PROCESS OF PRODUCING SILICIDS OF IRON. GUILLAUME DE CHALMOT, Holcomb's Rock, Va., assignor, by mesne assignments, to the Wilson Aluminum Company, New York, N. Y. Original application filed Sept. 6, 1895. Serial No. 561,660. Divided and this application filed Sept. 23, 1897. Serial No. 652,620. (No specimens.)

Claim.—1. The described process of producing ferrosilicids, which consists in subjecting a silicon compound with iron and carbonaceous matter to the heat of an electric furnace for a sufficient time to eliminate the carbonaceous matter, reduce the silicon compound, and form a substantially pure compound of silicon and iron, containing twenty-five per cent. or upward of silicon.

2. The described process of producing ferrosilicids of twenty-five to fifty per cent. or more of silicon, which consists in subjecting a silicon compound with iron and carbonaceous matter, the silicon compound being in excess, to the heat of an electric furnace until the carbonaceous matter is eliminated and the silicon compound is reduced, leaving a substantially pure compound of silicon with iron.

3. The described process of producing ferrosilicids, which consists in subjecting oxids of silicon and iron with carbonaceous matter and a flux, to the heat of an electric furnace, until the carbonaceous matter is eliminated and said oxids are reduced, leaving a substantially pure compound of silicon and iron.

4. The described process of producing ferrosilicids, which consists in subjecting silica and an iron containing silicon, with carbonaceous matter, to electric smelting until the carbonaceous matter is eliminated by reducing the silica, and the reduced silicon is alloyed with the iron to form a higher silicid.

5. The described new product, being ferrosilicid containing approximately fifty per cent. of silicon, and having the formula Si_2Fe.

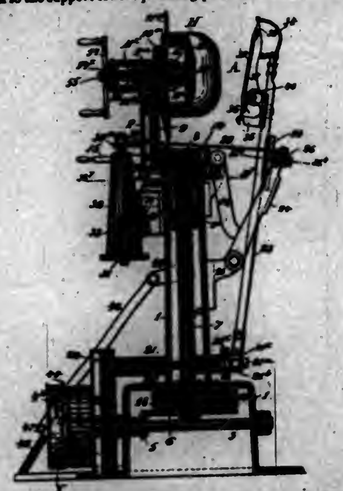
602,977. POUNCING-MACHINE. GEORGE R. CLARKE, Montell, Tex., assignor to Henry H. Turner and Albert Turner, Danbury, Conn. Filed Feb. 1, 1896. Renewed Oct. 1, 1897. Serial No. 653,745. (No model.)

Claim.—1. In a hat-pouncing machine, the combination with mechanism for holding and rotating the hat about the axis of its crown and mechanism for simultaneously turning the hat about an axis substantially at right angles to the axis of its crown, of a pouncing-pad; automatic means for keeping said pad pressed up to the hat with a yielding pressure, and mechanism for imparting motion to said pad in a closed, curved path, substantially as set forth.

2. In a hat-pouncing machine, the combination with mechanism for holding and rotating the hat under under the pouncing-pad, of the said pad, comprising a yielding strip of flexible material and a holder for said strip, automatically-operating mechanism for holding said pad up to the hat with a yielding pressure, and mechanism for imparting motion to said pad in a closed, curved path, substantially as set forth.

3. In a hat-pouncing machine, the combination with mechanism for holding the hat and rotating it under the pouncing-pad, of the rotating crank-shaft 21, provided with a crank, the arm 23, pivotally connected to the pin of the crank, the pouncing-pad mounted on the free end of said arm, the hinged frame 24, the rocker 27, pivoted to said frame, the grooved guide-block 29, pivoted to said rocker, in which block the arm 23 is guided, and automatic means, substantially as described, for holding the pouncing-pad up to the hat with a yielding pressure, substantially as set forth.

4. In a hat-pouncing machine, the combination with mechanism for holding the hat and rotating it under the pouncing-pad, the said pad, the arm carrying the pad, and mechanism substantially as described for imparting motion to the pad, of the conical spring 33, the rotatively-mounted shaft 31, in said spring and connected with one end thereof, the arm 30, carried by said shaft, and the link coupling said arm to the support for the pouncing-pad, substantially as set forth.



5. In a hat-pouncing machine, the combination with the pedestal, the head 2, rotatively mounted on the same, the block-carrier mounted rotatively, mechanism for rotating said hat-holder and head, the swinging frame carrying the pouncing-pad, the said pad, and means for pressing the pad up in a yielding manner to the hat, of a pusher carried by the head, and a lever between the pad-carrying frame and said pusher, whereby, at the termination of the pouncing operation the pouncing-pad is pushed out of contact with the hat, substantially as set forth.

6. In a hat-pouncing machine, the combination with the pedestal, the head 2, mounted rotatively on the same, the main driving-shaft, driving mechanism intermediate said shaft, the rotating head 2, and the block-carrier, a shifter for starting and stopping the machine, and its spring, of the elbow-lever 49, the link coupling the shorter arm of said lever to the shifter, the setting-stud 50 on the head and adapted to actuate said lever 49 and operate the shifter when the head is turned back, the elbow-link 51, the link 52, connecting one arm of the link 51 with the lever 49, said links 51 and 52 forming a toggle to hold the lever 49 against movement, the tripping-lever 53, adapted to break the toggle when the pouncing operation is completed, and the pendent stud 43, on the head 2, adapted to operate said tripping-lever, substantially as set forth.

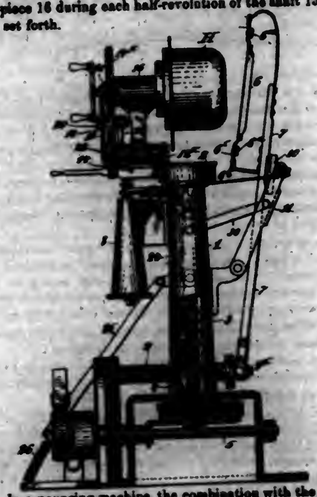
7. The combination with the arm carrying the pouncing-pad, of the upper hook 24, on said arm, the lower hook 25, mounted adjustably on said arm, the pouncing-pad coupled at its ends to said hooks, the reel 40, the strip of sandpaper on said reel, and means for clamping the strip of sandpaper on the pad, substantially as set forth.

8. The combination with the arm carrying the pouncing-pad, provided with hooks to hold said pad, and the reel for the strip of sandpaper, of the end plates 36, each having in it a slot for the passage of the strip of paper and provided with flat-faced clamping-rollers for said strip, and the flexible strip 37, secured at its ends to said end plates, substantially as set forth.

9. The combination with the pad-carrying arm, of a flexible pad coupled at its ends to supports on said arm and under longitudinal tension, said pad being loosely coupled to said arms whereby it is adapted to turn or rock about its longitudinal axis, substantially as and for the purposes set forth.

602,978. POUNCING-MACHINE. GEORGE R. CLARKE, Montell, Tex., assignor to Henry H. Turner and Albert Turner, Danbury, Conn. Filed Dec. 17, 1896. Renewed Oct. 1, 1897. Serial No. 653,746. (No model.)

Claim.—1. In a pouncing-machine, the combination with the head 2 and shaft 4, of mechanism for imparting to the hat an oval or elliptic rotary movement, said mechanism comprising the rocking bearing-piece 16, mounted on the head, the shaft 15 for carrying the hat mounted in said bearing-piece, gearing between the shafts 4 and 15, whereby the former drives the latter, and mechanism substantially as described for imparting an oscillatory movement to the said bearing-piece 16 during each half-revolution of the shaft 15, substantially as set forth.

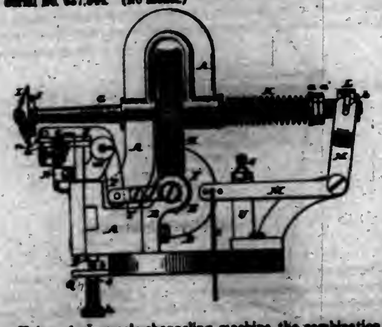


2. In a pouncing-machine, the combination with the head 2, the rocking bearing-piece 16, mounted thereon, and the shaft 15, rotatively mounted in the latter, of the rotating shaft 13, mounted in the head parallel with the shaft 15, gearing between the said shafts whereby the former drives the latter, an eccentric on the shaft 13, the fixed fulcrum-arm 18 on the head, the lever 19, fulcrumed adjustably on the arm 18, a connecting-rod which couples the upper arm of the lever 19 with the shaft 15, and a connecting-rod coupling the said eccentric with the lower arm of said lever, substantially as set forth.

3. In a pouncing-machine, the combination with the head 2, and the rotating shaft 13, mounted rotatively in bearings therein, of the rocking bearing-piece 16, mounted at its foot as shown, the shaft 15, which carries the hat, mounted rotatively in said bearing-piece and parallel with the shaft 13, the gear-wheels 14 and 14×, on the respective shafts 13 and 15, mechanism for rotating the shaft 13 and through it driving the shaft 15, a lever 19, fulcrumed on the head, an eccentric on the shaft 13, a connecting-rod coupling said eccentric with one arm of the lever 19, and a connecting-rod coupling the other arm of said lever with the shaft 15, substantially as set forth.

4. In a pouncing-machine, the combination with the arm which carries the pouncing-pad, and mechanism for imparting motion to said arm and pad, of a flexible pad coupled at its ends to the arm and under longitudinal tension, said pad being provided with collared journals at both of its points of attachment whereby it is adapted to turn about its longitudinal axis, as set forth.

602,979. MACHINE FOR CHANNELING SOLES OF BOOTS OR SHOES. HANFORD T. CROSBY, Boston, Mass. Filed May 24, 1897. Serial No. 637,844. (No model.)



Claim.—1. In a sole-channeling machine, the combination of a work-feeding mechanism: a cutter-carrying lever constructed and arranged to vibrate in a plane which is at substantially a right angle to the plane in which lies the line of direction of the feed; and a cutter carried by said lever and having a straight cutting end at a right angle to the plane of vibration of said lever.

2. In a machine for channeling boot and shoe soles, the combination of a feeding mechanism; a fixed cutter arranged with its cutting edges in a plane at substantially a right angle to the vertical plane in which lies the line of direction of the feed; and a cutter constructed and arranged to be vibrated in a plane substantially at a right angle to the plane in which lies the line of direction of the feed, and the plane in which lie the cutting edges of the fixed cutter.

3. In a machine for channeling boot and shoe soles the combination of a feeding mechanism; a fixed cutter constructed and arranged as set forth; a pressure-gage arranged and operating as described; and a movable cutter constructed and arranged to vibrate in a plane substantially at a right angle to the plane in which lies the line of direction of the feed.

4. In a sole-channeling machine, a feeding mechanism comprising the driving-shaft C; the worm-wheel H; the worm F mounted on said shaft C, and engaging said worm-wheel; the shaft G carrying said worm-wheel, and movable endwise therein; the feed-disk I mounted upon said shaft G and having its rear face roughened; and the revoluble gage roll O mounted upon a vertical stud or bearing, all combined and arranged to operate substantially as described.

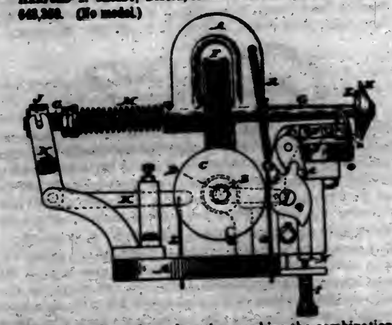
5. In a sole-channeling machine, the combination of the feed-disk I; the revoluble gage-roll O; the vertically-vibrating lever P; the cutter *n* adjustably mounted on said lever P to vary the angle of said cutter with relation to said lever P; and means for imparting a rapid vibration to said lever and cutter, in a plane substantially at a right angle to the plane in which lies the line of direction of the feed.

6. The combination of the shafts C and G; the worm F; the worm-wheel H; the feed-disk I; the revoluble gage-rolls J and O; the pivoted elbow-lever P; the cutter *n* adjustably secured to said lever; the crank-pin E; the link or connecting-rod T; the spring K on the shaft G; the nuts *a a* and the trunnioned collar L on said shafts; the lever M; means for moving said lever about its fulcrum; and a stop to limit its upward movement.

7. In a sole-channeling machine, the combination of a revoluble feed-disk; a vertically-movable slide; a rotary gage; a fixed horizontal cutter; a pressure-gage and a movable cutter-lever constructed and arranged to vibrate in a plane substantially at a right angle to the plane in which lies the line of direction of the feed, all mounted upon the head of said slide; a cutter carried by said vibrating lever; a spring to press said slide downward; means for raising said slide against the tension of said spring; and stops for limiting the upward and downward movements of said slide.

8. In a sole-channeling machine, the combination of a feed mechanism; and a channel-cutting blade constructed and arranged to vibrate in a plane substantially at a right angle to the plane in which lies the line of direction of the feed, and having a horizontal cutting edge at its lower end and an inclined cutting knife-edge on that edge thereof toward which the work is fed.

602,980. SOLE-CHANNELING AND FLAP-TURNING MACHINE. HANFORD T. CROSBY, Boston, Mass. Filed July 2, 1897. Serial No. 643,293. (No model.)



Claim.—1. In a channel-cutting machine the combination with a feeding mechanism of a vibratory lever made in two parts connected together and adjustable one upon the other by means of a pivot-pin, and a clamping-screw the latter passing through a slot in one of said parts concentric with the axis of said pivot-pin, and set in a fixed position in the other of said parts; a channel-cutting knife clamped to the movable end of said lever and adjustable in the direction of the length of said knife; and means for vibrating said lever in a vertical plane at right angles to the line of feed of the material.

2. In a channel-cutting and flap-turning machine the combination with a feeding mechanism and a fixed cutter arranged to cut a shallow incision in the material as it is fed past it, of a vibrating cutter moving in a vertical plane at right angles to the line of feed and adapted to cut a succession of incisions in the material at a slight angle to the face of material; and a flap-turning blade in close proximity to and movable with said vibrating cutter.

3. In a sole-channeling machine the combination with a feeding mechanism and a fixed cutter arranged to cut a shallow incision in the face of the material, as it is fed past it, of the vibratory lever P P' made in two parts pivoted together and adjustable one upon the other; the cutting-blade *h* and the turner *k k'* secured to the lever P P' and arranged relative to each other as set forth; and means for vibrating said lever in a vertical plane at right angles to the line of feed of the material to be acted upon.

4. In a sole-channeling machine the combination of the rotary feed-disk H; the revoluble gage-rolls I and O; the fixed pressure-gage *b*; the fixed cutter *a*; a vibratory lever movable in a vertical plane at right angles to the line of feed; the cutter *h* and the flap-turning blade *k* both carried by said lever; and means for imparting a short and rapid vibration to said lever. ..bstantially as described.

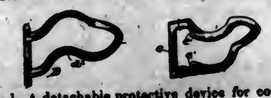
602,981. TRAVERSE-RING. WILLIAM DUNET, Brooklyn, N. Y. Filed Dec. 28, 1896. Serial No. 617,314. (No model.)



Claim.—1. A traverse-ring comprising a one-piece hollow ring *a* reduced in thickness at a plurality of places in its circumference to form journals *c*, and rings or rollers *f* surrounding and running upon the said journals *c* and comprising a plurality of sections secured together.

2. A traverse-ring comprising a one-piece hollow ring *a* reduced in thickness at a plurality of places in its circumference to form journals *c*, and rings or rollers surrounding and running upon the said journals, substantially as described.

602,982. PROTECTIVE DEVICE FOR METER-COUPLINGS. CHARLES ERBIS, Boston, Mass., assignor of one-half to Paul A. Mann, same place. Filed June 7, 1897. Serial No. 639,634. (No model.)



Claim.—1. A detachable protective device for couplings, comprising two separable members outwardly curved between their ends, and each having a straight, bar-like end, one of the members being increased in width and open adjacent said straight end to permit the passage therethrough of the other member, the latter member having projecting lugs at its straight end, to cooperate with and prevent withdrawal from the former member, substantially as described.

2. A detachable protective device for couplings, comprising two separable members, one of which is adapted to pass through the other and be pivotally interlocked at one end, and shaped to surround the coupling, the free ends of said members forming open loops adapted to be brought together substantially in the plane of the pivot to retain the device in place on the coupling, substantially as described.

3. A detachable protective device for couplings, comprising two open members bent outwardly between their ends, and each having a straight, bar-like end, one of the members being increased in width adjacent said straight end to permit the passage therethrough of the other member, the latter member having projecting lugs at its straight end, to cooperate with and prevent withdrawal from the former member, substantially as described.

602,988. SNOW-GUARD. GEORGE F. FOLSOM, Boston, Mass., assignor to Henry M. Rowson, manager, same place. Filed Sept. 20, 1895. Serial No. 563,138. (No model.)



Claim.—1. The combination with a snow-guard, of a roof-tile provided with a shoulder for engagement with and to hold said guard, the latter being arranged to engage said shoulder and be held thereby independent of the roof or tile support, substantially as described.

2. The combination with a roof-tile having a shoulder, of a snow-guard provided with a plurality of integral attaching-clamps adapted to embrace and be solely supported by said shoulder, and having an upright snow-stop portion to extend above the tile, substantially as described.

3. As an article of manufacture, a snow-guard provided with a plurality of integral attaching-clamps adapted to embrace and be solely supported by the shoulder of a tile, and having an upright snow-stop portion to extend above the tile, substantially as described.

4. A snow-guard adapted to be directly attached to and rigidly supported by an individual roof-tile, without preparatory alteration in the contour of said tile, substantially as described.

5. The combination with a roof-tile of usual contour, of a snow-guard attached directly thereto and retained in place solely by superficial contact therewith, substantially as described.

6. The combination with a roof-tile having a shoulder, of a snow-guard provided with an integral attaching-clamp adapted to embrace and be solely supported by superficial contact with said shoulder, and having an upright snow-stop portion to extend above the tile, substantially as described.

7. The combination with a roof-tile having a shoulder, of a snow-guard provided with a plurality of integral attaching-clamps adapted to embrace and be solely supported by superficial contact with said shoulder, and having an upright snow-stop portion to extend above the tile, substantially as described.

8. The combination with a roof-tile having a shoulder, of a snow-guard provided with resilient attaching means to receive and embrace said shoulder, substantially as described.

9. The combination with a roof-tile, of earthenware or other fragile material, of a snow-guard adapted to be positioned and retained in place on said tile without preparatory alteration in the contour of the latter, substantially as described.

10. A snow-guard for roofs composed of molded tiles; said guard consisting of a snow-stop portion adapted to extend above the roof, and an attaching portion adapted to enter the recessed portions in, or interstices between, said tiles, to engage and be supported by such salient portions of said tiles as the walls of said recesses or interstices, substantially as described.

602,984. GATE. JOHN W. GILBERT and HARRISS H. PARKER, Creek, Tex. Filed Jan. 27, 1897. Serial No. 620,822. (No model.)



Claim.—1. The combination with the post, the sheaves connected with the upper end thereof, the gate, the spring-hinges connecting

said post and gate, the latch pivoted to the gate, the post having a hook with which said latch engages, and the curved plate secured to said gate, of the weighted gravity-lever, the roller at the upper end thereof, the rope connecting said lever and the latch, the ropes passing over the said sheaves, and attached to the gravity-lever, the levers with which said ropes are connected, the posts to which said levers are pivoted, and the pulleys connected with said posts, substantially as described.

2. A gate mechanism, comprising a gate, a latch therefor, a pivoted weight-arm, cords coupling said weight-arm to the latch and gate and to actuating-levers, and uprights to which said actuating-levers are pivotally secured, combined with the arm 19 projecting from said weight-arm, and the roll 20 pivoted to said arm, in the manner and for the purpose described.

602,985. DEVICE FOR LAYING GOLD-LEAF. ROBERT R. HARTMAN, Philadelphia, Pa. Filed July 26, 1897. Serial No. 645,988. (No model.)



Claim.—1. In combination, an axially-apertured core for a roll of gold-leaf, a pair of shank-provided holding plates the shanks of which are entered from opposite ends within the aperture of the core, and a separating spring acting to separate the plates, substantially as and for the purpose specified.

2. In combination, an axially-apertured core for a roll of gold-leaf, a pair of shank-provided holding plates the shanks of which are entered from opposite ends within the aperture of the core, and a separating spring within said aperture normally acting against the inner end of the shanks to separate the plates, and a brake carried by the plates and acting upon the periphery of the roll, substantially as and for the purpose specified.

3. In combination, an axially-apertured core for a roll of gold leaf, a pair of shank-provided holding plates, the shanks of which are entered from opposite ends within the aperture of the core, a separating spring acting to separate the plates, and a brake connected with a holding plate, substantially as and for the purpose specified.

4. In combination, an axially-apertured core for a roll of gold leaf, a pair of shank-provided holding plates the shanks of which are entered from opposite ends within the aperture of the core, a separating spring acting to separate the plates, a brake shank movably connected to one of the holding plates and extending radially beyond the periphery of the core, and having a projection on its free end overhanging said periphery, substantially as set forth.

5. The combination with a core-provided roll of gold leaf, of a pair of holder plates provided with shanks adapted to be entered in the axial bore of the core of the roll, openings formed in said holding plates, brake shanks mounted in said openings and extending to the periphery of the roll, a brake shoe mounted upon the front extremities of said brake shanks, and a spring which operates to draw said brake shoe toward the core, substantially as set forth.

6. The combination, to form a device for holding and manipulating a roll of gold leaf, of a pair of holder plates having shanks and embodying openings, brake shanks mounted in said openings and arranged to extend to the periphery of the roll and bent toward each other to form an axle for a roller mounted on said inwardly turned ends, a roller, and a spring applied to the rear ends of said shanks between the holder plates and projections formed on said shanks, substantially as set forth.

602,986. DEVICE FOR LAYING GOLD-LEAF. ROBERT R. HARTMAN, Philadelphia, Pa. Filed Oct. 8, 1897. Serial No. 654,511. (No model.)



Claim.—1. In combination,—an axially-apertured core for a roll of gold-leaf,—a holding device for said core which embodies a transverse slot and is engaged in the aperture of said core to constitute an axle upon which the core-provided roll rotates,—and a brake consisting of a shoe provided with a bifurcated shank mounted in said slot, and adapted by its expansion against the wall of the slot to maintain itself and the shoe in selected positions of adjustment,—substantially as set forth.

2. In combination,—an axially-apertured core for a roll of gold-leaf,—a pair of shank-provided holding plates one of which embodies a slot and the shanks of which are entered from opposite ends within the aperture of the core,—a separating spring acting to separate the plates,—and a brake carried by one of the plates and acting upon the periphery of the roll, which consists of a shoe having a longitudinally split shank entered within the slot of the slotted plate,—substantially as and for the purpose specified.

3. In combination,—an axially-apertured core for a roll of gold-leaf,—a pair of shank-provided holding plates one of which embodies a slot and the shanks of which are entered from opposite ends within the aperture of the core,—a separating spring acting to separate the plates,—and a brake consisting of a shoe provided with a bifurcated shank of a normal diameter exceeding that of the slot, entered and compressed within said slot,—substantially as set forth.

602,987. SPINNING-SPINDLE. WILLIAM HIGHLIFFE, Huntsville, Ala., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Nov. 20, 1897. Serial No. 660,042. (No model.)



Claim.—1. A supporting-case having an oil reservoir, a spindle-retaining hook, and an independently-mounted cover for the reservoir, provided with a detent to prevent accidental withdrawal of the hook.

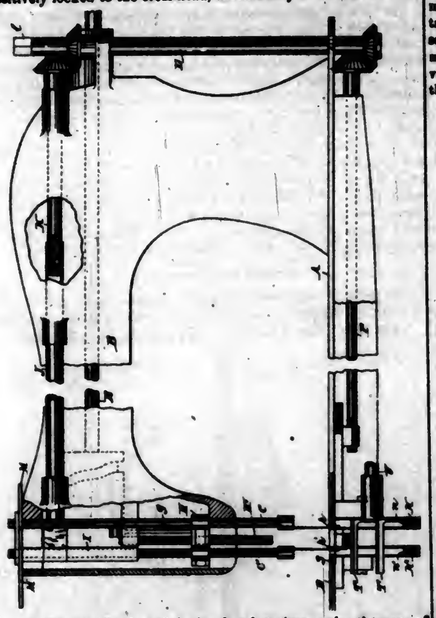
2. A spindle-supporting case having an upturned oil-reservoir provided with ears, a reservoir-cover and a spindle-retaining hook, independently fulcrumed on said ears, and a projecting lug on the cover back of the hook, whereby the latter cannot be withdrawn when the cover is shut.

602,988. SEWING-MACHINE. FREDERICK O. JUBEAN, Liverpool, England. Filed Apr. 7, 1893. Serial No. 469,690. (No model.) Patented in England Feb. 24, 1893, No. 4,169.

Claim.—1. In combination with a fixed head; a main needle-bar C and the horizontally-adjustable needle-bar C' mounted in said head; a slide-bar H'; a vertically-moving cross-head H mounted thereon with which needle-bar C is connected; a horizontally-sliding block A^2 for the lower end of the needle-bar C'; and means for moving said block laterally upon the cross-head.

2. The combination with the rotatable needle-bars C and C' provided with longitudinal and cross slots as described; of the cross-head H and means for imparting a reciprocating motion to said bars, said cross-head being provided with pins to engage the slots in the bars; said means comprising a crank-pin and connecting-rod for imparting

motion to the cross-head; and means for rotating the needle-bars about their axes, whereby one or more of the needle-bars may be positively locked to the cross-head, substantially as described.



3. The combination of the head and stationary pins thereon; of two needle-carrying bars C and C', the cross-head H, and means for releasing the said bars from the cross-head, and engaging the same with the stationary pins in the head, substantially as described.

4. In a sewing-machine, in combination with the fixed head and its pins; the needle-bars C C' having longitudinal slots *c c'* formed with cut-away portions as described, the cross-head H having feathers formed therein to enter the slots in the said bars, and means for rotating one or more of the needle-bars in an arc of forty-five degrees, whereby they can be released from or engaged by the fixed head and simultaneously engaged by or released from the cross-head, substantially as described.

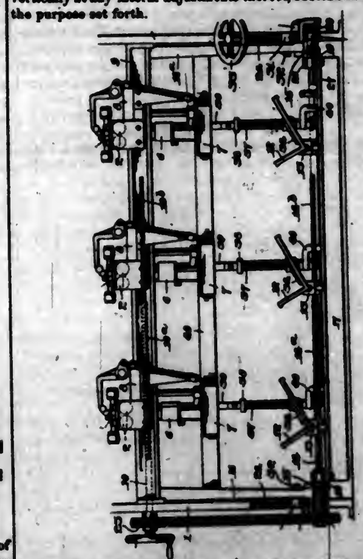
602,989. THILL-COUPLING. THOMAS P. KENNEY and EDWIN W. LEACH, Pulaski, Tenn. Filed June 8, 1897. Serial No. 639,873. (No model.)



Claim.—In a thill-coupling, the combination of an axle-clip having an enlargement provided at its front with a tapering dovetailed groove and at its sides with grooves, a coupling-frame provided with a tapering arm interlocked with the dovetailed groove and supporting the coupling-frame, the latter being provided with rearwardly-extending side arms having bosses engaging the side grooves of the enlargement, and a spring-catch mounted on the enlargement and having its engaging portion at the top thereof in position to be automatically depressed by the dovetailed arm in assembling the parts, substantially as and for the purpose described.

602,990. PAPER-FOLDING MACHINE. HOWARD K. KING, Philadelphia, Pa., assignor to the Chambers Brothers Company, same place. Filed May 1, 1897. Serial No. 634,726. (No model.)

Claim.—1. The combination of the sliding frames carrying the folding devices, the screw-threaded shaft for laterally adjusting said frames, a second similar threaded shaft, the pivoted hangers in which the latter shaft is journaled, the nut-brackets upon said shaft, the packing-troughs whose outer ends are supported by said brackets respectively, and whose inner ends are pivotally connected to said frames; means for adjusting said hangers in the arc of a circle; means for supporting and vertically adjusting the inner ends of the troughs together with the sprocket-chain or the like, connecting said screw-threaded shafts, whereby the said frames and packing-troughs may be adjusted laterally in concert, and the latter may be adjusted vertically at any lateral adjustments thereof, substantially as and for the purpose set forth.



2. In a folding-machine of the nature described, the combination of the sliding frames carrying the folding devices, the packing-troughs, means for laterally adjusting said frames and troughs in concert, simultaneously; means for supporting, and simultaneously adjusting the elevation of, the outer ends of the troughs, and means for supporting and adjusting the elevation of the rear or inner ends of said troughs, at any lateral adjustment thereof; said latter means consisting of the vertical screw-threaded shafts connected to the said sliding frames, the nuts on the said shafts respectively, to which nuts the ends of the troughs are pivoted; the horizontally-extending shaft, and the gear connections of said vertical shafts and horizontal shaft, all constructed, combined and adapted to operate substantially as and for the purpose set forth.

3. In a folding-machine of the class recited, the combination of the sliding frames, carrying the folding devices, the shoe-fly connected to said frames, respectively, the packing-troughs; means for supporting and adjusting said frames and adjuncts with relation to each other, and means for supporting and correspondingly adjusting said troughs, together with the bar adjacent to the shoe-fly tables and having its top in the same horizontal plane as that of the said tables, substantially as and for the purpose specified.

602,991. NURSING-BOTTLE HOLDER. ROBERT A. LAKE, Danbury, Conn. Filed Mar. 10, 1897. Serial No. 626,703. (No model.)

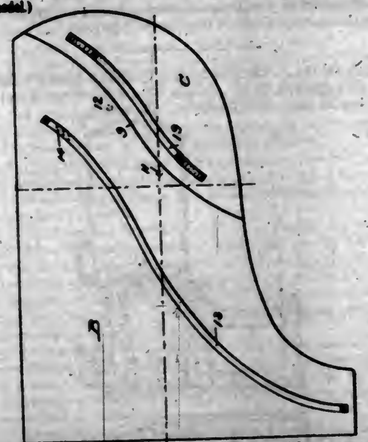


Claim.—1. In a device of the class described, the combination with a holder, of a tray located therein which is of greater length than the holder, said tray being provided with teeth at one end which are adapted to engage with the holder, and its other end being adapted to wedge against said holder, whereby to maintain the tray in inclined position.

2. In a device of the class described, the combination with a holder having an elongated slot through its side, of an adjustable tray located in the holder, and means for securing the tray at any point within the same, said tray being adapted to support the nursing-bottle inside of the holder and the slot to receive the neck of said bottle.

3. In a device of the class described, the combination with a box-like holder having a vertical slot through its side adapted to receive the neck of the nursing-bottle, of a nursing-bottle-holding tray of greater length than the holder and fitted therein, and prongs or teeth connected to the said tray at one end and adapted to engage with the end of the holder, the other end of the tray bearing directly against the other end of the holder, whereby said tray is rendered adjustable and adapted to maintain itself in inclined position.

602,992. SOUNDING-BOARD FOR PIANOS. WILLIAM F. LEONHARDT, Omaha, Nebr. Filed Nov. 8, 1897. Serial No. 657,868. (No model.)



Claim.—1. A sounding-board for pianos, comprising a supporting-frame, two sounding-boards arranged on parallel planes at different heights, the one sounding-board extending from one side of the frame and the other extending from the other side, respectively, with their free ends overlapping and extending diagonally across the frame, and supports projected from the frame to support the edge of the overlapping portion of the upper board.

2. A sounding-board for pianos, comprising a supporting-frame, two sounding-boards arranged on parallel planes at different heights, the one sounding-board extending from one side of the frame and the other sounding-board extending from the other side of the frame, with their free ends overlapping and extending diagonally across the frame, depending vertical flanges on the outer edges of each board to rest upon and be secured to the border-rail of the frame, supports for the free diagonal edge of the upper board, and string-bridges on the boards.

602,993. OVERSEAM SEWING-MACHINE. FRANK MALONE, Philadelphia, Pa., assignor to the Industrial Manufacturing Company, Camden, N. J. Filed Mar. 12, 1897. Serial No. 627,272. (No model.)



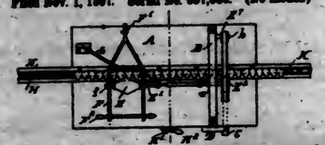
Claim.—1. In an overseam sewing-machine, having a reciprocating thread-carrying stitching-needle and its complemental actuating and feed mechanism, the combination with a thread-carrying looper and loop-spreader, of mechanism substantially as set forth for reciprocating said looper from the back of the needle and at an inclination to the travel of the work, and for reciprocating said loop-spreader from the front of the needle in an inclined path, that intersects the path of the said looper, whereby said looper and loop-spreader are caused to pass each other in close proximity, substantially as and for the purpose set forth.

2. In an overseam sewing-machine, having a reciprocating thread-carrying stitching-needle, its complemental actuating and feed mechanism and tongued presser-foot and throat-plate, the combination with a thread-carrying looper and loop-spreader having a crotched free end, of mechanism substantially as set forth for reciprocating said looper from the back of the needle and at an inclination to the travel of the work, and for reciprocating said loop-spreader from the front of the needle in a path that intersects the path of the said looper, whereby said looper and loop-spreader are caused to pass each other in close proximity, so that the free and crotched end of the loop-spreader engages the thread of the loop carried by the looper and carries the same over the top of the presser-foot, where it will be secured by the needle, substantially as and for the purposes set forth.

3. In a sewing-machine, in combination with a suitable feeding device, a reciprocating thread-carrying stitching-needle moving in the direction of and with the feed, a throat-plate and a presser-foot, a tongue on each of said throat-plate and presser-foot, of a thread-carrying looper, means for moving the said looper on one side of the stitching-needle only, said looper adapted to enter and hold a loop formed by the stitching-needle below the tongue of the throat-plate, a loop-spreader arranged independently of the said looper, means for moving the said loop-spreader in front of the stitching-needle, said loop-spreader adapted to engage the thread from the thread-carrying looper and bring it over the tongue of the throat-plate and presser-foot, so as to be fastened by the upper thread on top of the fabric, substantially as and for the purposes set forth.

4. In a sewing-machine, in combination with a main shaft, a suitable feeding device, a reciprocating thread-carrying stitching-needle moving in the direction of and with the feed, a throat-plate and a presser-foot each having a tongue, of a lower right-angular thread-carrying looper having its thread-carrying extremity moving in an arc and in back of the stitching-needle, a rock-shaft d^3 to which said looper is hinged, a loop-spreader arranged independently of the thread-carrying looper, a rock-shaft c^6 for said loop-spreader, and means such as eccentrics c^3 d^3 on the main shaft and eccentric-straps c^4 d^4 for actuating the said rock-shafts, and eccentrics c^5 d^5, straps c^6 d^6 and links c^7 d^7 for oscillating the thread-carrying looper and loop-spreader about their pivotal connection with their respective rock-shafts, substantially as and for the purposes set forth.

602,994. KNIFE-SHARPENER. FRANK R. MILLER, Springfield, Ill. Filed Nov. 1, 1897. Serial No. 657,008. (No model.)



Claim.—1. In a knife-sharpener the combination of a table, a standard on said table, a grinder-shaft turning on said standard, a pulley on said shaft, an idler-pulley on said standard, a belt traveling on said pulleys and driving said grinder-shaft, a knife-bar holder between the overrun and the underrun of said belt, a movable grinder-frame contiguous to said knife-bar holder, and a grinder on said grinder-frame and driven by said grinder-shaft, as set forth.

2. In a knife-sharpener, the combination of a table, a standard and a knife-holder on said table, a universally-movable grinder-frame, means for yieldingly supporting said grinder-frame, a shaft on said grinder-frame, a grinder on said shaft, a shaft on said standard, a universal coupling connecting said shafts, and means for rotating said shafts, as set forth.

602,995. TOILET-PAPER CABINET. JOHN H. MOSHER, Milwaukee, Wis., assignor of one-half to Lucas D. Dezonbeil, Chilton, Wis. Filed May 14, 1897. Serial No. 636,515. (No model.)



Claim.—1. The combination of a cabinet provided with a discharge-slot and adapted to contain a bound package of paper, an elastically-extensible belt located upon supporting-rollers within said cabinet and in relation to said discharge-slot, means for actuating one of said rollers and means for pressing the package of paper against said belt, whereby the movement of the latter, as actuated from the roller,

draws upon the paper with a slow movement, retarded by the stretching of the belt, followed by a quick positive movement due to the elastic reaction of the belt as the paper is released from its binding, substantially as described.

2. The combination of a cabinet, provided with a discharge-slot at one end, a removable frame located in the upper portion of said cabinet and provided with open-ended slots at each end, a pair of rollers provided with an elastically-extensible belt adapted to hold the same in the bearings formed by said slots, and means for raising the package of paper against said belt, substantially as described.

3. The combination of a cabinet, provided with a discharge-slot, an elastically-extensible belt located upon supporting-rollers within said cabinet and in relation to said discharge-slot, and means for pressing the package of paper against said belt, said rollers being tapered toward the ends so as to bear heaviest upon the paper at the center, substantially as described.

602,996. ROLLER-BRAKE. WILLIAM H. MORGAN, Peabody, Kans. Filed Mar. 24, 1897. Serial No. 629,105. (No model.)



Claim.—The combination in a brake-wheel of two rims, telescoping, one within the other, the rims tapering so that the closer they are adjusted together the greater the friction between them; means for thus adjusting them by nuts and check-nuts on the axle; a coiled spring, the inner rim being connected with the fixed or non-revolving axle by the said spring; the outer rim covered with a periphery suitable to engage the periphery of the wheel it is intended to retard, substantially as described.

602,997. COMBINED MAILING-SIGNAL AND DOOR-BELL. CHARLES P. NELSON, Galesburg, Ill., assignor of one-half to Joseph H. Bloomfield, same place. Filed Oct. 26, 1897. Serial No. 656,279. (No model.)



Claim.—1. In a combined mailing-signal and door-bell, and in combination, plates 6 and 9, having telescoping flanges 11 and 12 respectively, a tilting lid 14 hinged to the plate 6, a curved rack-bar mounted on said tilting lid, and a bell-pull with a rack-bar fixed thereon, whose teeth mesh with teeth of said curved rack-bar, substantially as described.

2. In a combined mailing-signal and door-bell, and in combination, plates 6 and 9, having telescoping flanges, 11 and 12 respectively, a tilting lid 14 hinged to the plate 6, a curved rack-bar mounted on said tilting lid, a hollow standard 23 with a stop or shoulder 25, a slotted hollow standard 20, and a bell-pull comprising a rack-bar 26 whose teeth mesh with the teeth of said curved rack and an adjustable knob 31, a spring 28, and adjustable pin 29, substantially as described.

3. In a combined mailing-signal and door-bell, and in combination, a hollow standard 23 with a stop or shoulder 25; a slotted standard 20, and a bell-pull comprising a rack-bar 26, an adjustable knob 31, a spring 28, adjustable pin 29, a set-screw 33, and circumferential grooves 34, substantially as described.

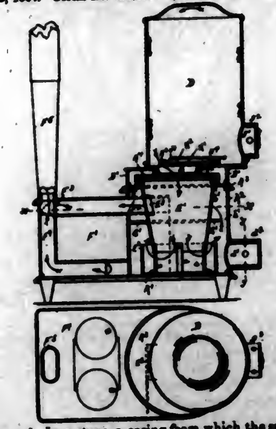
4. In a combined mailing-signal and door-bell, and in combination, a hollow standard 23 with a stop or shoulder 25, a slotted standard 20, and a bell-pull comprising a rack-bar 26, an adjustable knob 31, a spring 28, adjustable pin 29, a set-screw 33, and circumferential grooves 34, and a collar 35, substantially as described.

5. In a combined mailing-signal and door-bell, and in combination, a bell-pull, a tilting lid for a mail-receiving orifice, a rack on said bell-pull, a curved rack on the lid the teeth of which mesh with the teeth of the bell-pull rack, an alarm-bell comprising an arm connected with the axis of the escapement-anchor, and a detent connected with to be operated by said tilting lid and bell-pull, substantially as described.

6. In a combined mailing-signal and door-bell, and in combination, a bell-pull, a tilting lid or cover for a mail-receiving orifice, a rack on said bell-pull, a curved rack on said lid the teeth of which mesh with the teeth of the bell-pull rack, an alarm-bell, a detent connected with to be operated by said tilting lid, and means cooperatively connecting said detent and the train of mechanism of said alarm, whereby said train is released and free to move when the tilting lid is swung to open the mail-receiving orifice, substantially as described.

7. In a combined mailing-signal and door-bell, and in combination, a tilting lid or cover for a mail-receiving orifice, having a pivot-pin secured thereto, a detent secured to said pivot-pin, a bell-pull operatively connected to said tilting lid, and a motor-driven alarm-bell comprising an escapement, adapted to be released by said detent upon the opening of said lid or pull of said bell-pull.

602,998. COMBINED WOOD AND STRAW BURNING HEATING AND COOKING STOVE. SAMUEL B. PALMER, Lockhart, Minn. Filed May 25, 1897. Serial No. 638,153. (No model.)



Claim.—1. In a stove, a casing from which the smoke-flue leads, and with an opening in its top, a fuel-magazine supported upon said casing and with an opening in its bottom registering with the opening in said casing, and a conical combustion-chamber supported in said casing and down through and around which the products of combustion pass, substantially as and for the purpose set forth.

2. In a stove, a casing from which the smoke-flue leads and with an opening in its top, a fuel-magazine supported upon said casing and with an opening in its bottom registering with the opening in said casing, a conical combustion-chamber supported in said casing and down through and around which the products of combustion pass, and a deflecting-plate between said casing and combustion-chamber, to retard the products of combustion, and increase the radiating-surface, substantially as set forth.

3. In a stove, a casing having an opening in the top surrounded by an upwardly-projecting rim b', an annular plate A^4 surmounting said opening and with a flange on its lower side embracing said rim b', said annular plate having an upwardly-projecting rim b^2, a frame B' supported upon said casing, and a fuel-magazine supported upon said frame B', and with a bottom opening registering with said rim b^2, substantially as and for the purpose set forth.

4. In a straw-burning stove the fuel-magazine having an opening in the bottom, a wing-valve section H' pivoted to be moved to partially project across said opening, a wing-valve section H^3, pivoted to be moved to partially project across said opening, and means for coupling said wing-valve sections, whereby when one section has reached a certain predetermined point in its movement it will engage the other section and move it forward until the said opening is fully covered, substantially as and for the purpose set forth.

5. In a straw-burning stove, a casing, a fuel-magazine communicating therewith, a conical combustion-chamber supported removably in said casing, and an ash-pan suspended from and adapted to be removed with said conical combustion-chamber, substantially as and for the purpose set forth.

602,999. WHEEL. ANDREW J. VANDERCLIFT, St. Louis, Mo. Filed Feb. 8, 1897. Serial No. 622,804. (No model.)

Claim.—1. The combination in a wheel of a rim; a flexible tire; and a series of return-bend springs, each having one or more spirals between bearing-points, whose axes are substantially parallel with the nearest portion of the tire and said springs being arranged side by side between the rim and tire and said spirals answering as stops.



2. The combination of a flexible strip; and a series of return-bend springs for cushioning it arranged side by side with corresponding bearing-points alternating from one side to the other.

3. The combination of a strip of flexible material and a series of return-bend springs arranged transversely and inclined alternately first to one side thereof, then the other and forming a zigzag series.

4. The combination of a strip of flexible material and a series of laterally-inclined return-bend springs with zigzag arms between bearing-points, arranged side by side for cushioning the strip.

5. The combination of a strip of flexible material and a series of return-bend springs arranged transversely side by side and laterally inclined, for cushioning said strip, with corresponding bearing-points alternating from side to side.

6. The combination in a wheel, of a rim; a flexible tire, and a series of return-bend springs arranged transversely side by side between the rim and tire, with corresponding bearing-points of the members of the series alternating from one side of the wheel to the other; and said springs being laterally inclined alternately first to one side thereof and then the other, and forming a zigzag series attaching the rim and tire together.

7. The combination in a wheel, of a rim, a flexible tire; a series of return-bend springs having zigzag arms between bearing-points, arranged side by side, and laterally inclined, between the rim and tire; and means securing said springs to the rim and tire, substantially as described.

8. The combination in a wheel, of a rim; a flexible tire; and a series of return-bend-spring trusses arranged side by side between the rim and tire.

9. The combination in a wheel of a rim; a flexible tire; and a series of return-bend-spring trusses, arranged side by side transversely between the rim and tire and soldered to the rim.

10. The combination in a wheel, of a rim; a flexible tire; and a series of return-bend-spring trusses with the springs thereof inclining away from each other and joined at their tops by a rigid yoke, and said trusses being arranged transversely between said rim and tire, with their respective yokes toward the tire.

11. The combination in a wheel, of a rim; a flexible tire; and a series of return-bend-spring trusses with the springs of each truss inclining away from each other laterally from bottom to top and joined at their tops by a rigid yoke; and said tire resting upon the truss-yokes; and said trusses being soldered to the rim.

12. The combination in a wheel, of a rim; a flexible tire; and a series of spring-trusses arranged transversely between the rim and tire; each of said trusses consisting of two return-bend springs arranged oppositely, side by side in a triangular form and approaching closely and having their abutting arms surrounded at the apex of the triangle by a sheath to which and to each other they are soldered; and their outer arms at the base of the triangle being secured together by a rigid yoke to which they are soldered.

13. The combination in a wheel, of a rim; a flexible tire; and a series of return-bend-spring trusses each having a hook at each end at top and bottom; and said truss being arranged transversely between the rim and tire, with the top hooks of the trusses embracing the edges of the tire and the bottom hooks, the edges of the rim.

14. The combination in a wheel, of a rim; a flexible tire; and a series of return-bend-spring trusses, with the springs of each truss inclined away from each other laterally from bottom to top and joined together at top by a yoke; and each truss having a hook at each end at top and bottom; and said trusses being arranged transversely between the tire and rim with the tire supported by their springs and yokes and their top hooks embracing the edges of the tire and their bottom hooks the edges of the rim.

15. The combination in a wheel of a rim; a flexible tire; and a series of return-bend-spring trusses, with the springs of each truss inclined away from each other laterally from bottom to top and joined together at the top by a yoke; and each truss having a hook at each end at top and bottom and said trusses being arranged transversely between the tire and rim with the tire supported upon their springs and yokes and their top hooks embracing the edges of the tire and their bottom hooks embracing the edges of the rim and said bottom hooks being soldered to the rim.

16. The combination in a wheel, of a rim; a flexible tire; and a series of spring-trusses arranged transversely between the rim and tire and each having its springs inclined away from each other laterally and joined at their most widely separated parts by a yoke and each having a hook at each corner of the yoke, and at the opposite extremity of the truss, a hook at each end and the hooks at the bottom of the truss embracing the edges of the rim, and those at the top of the truss embracing the edges of the tire.

17. The combination of a pair of return-bend springs each having one or more spirals between bearing-points, with transverse openings and said springs being arranged side by side with their respective corresponding bearing-points at opposite ends; and means for connecting said springs together and holding them in position and said spirals answering as stops.

18. The combination in a wheel of a rim; a tire; and a series of return-bend supporting-springs each having a spiral whose axis is substantially parallel with the portion of the tire which it supports and which springs are arranged transversely side by side between the rim and tire, and each spring having its spiral at a side of the wheel opposite the side on which the corresponding spirals of the adjoining springs appear, and said spirals answering as stops.

19. The combination in a wheel of a rim; a tire; and a series of return-bend springs arranged between the rim and tire, transversely, side by side and inclined laterally to the right and left alternately, and said springs being attached to the rim and tire and holding the latter in position and each spring having at one end thereof a spiral whose axis is substantially parallel with the portion of the tire which such spring supports and said spirals acting as stops.

20. The combination of a pair of return-bend springs, arranged side by side, at an angle to a central vertical plane between them; and means for yoking them together at top and bottom and so forming a spring-truss, substantially as described.

21. The combination of a pair of return-bend springs arranged side by side, at an angle to a central vertical plane between them, means for yoking them together at top and bottom and so forming a spring-truss; a hook at the top, and a hook at the bottom of the truss substantially as described.

22. The combination of a pair of return-bend springs arranged oppositely side by side at an angle to a central plane; means for holding them in position at the top and bottom and four hooks where the springs are most widely separated substantially as described.

23. The combination of a spring-truss F, composed of a pair of return-bend springs arranged oppositely side by side at an angle to each other; a sheath embracing the apex of the truss and soldered thereto, and a yoke soldered to the springs at the base of the truss.

24. The combination in a spring-truss of a pair of return-bend springs arranged side by side at an angle to each other and each spring having its arms arranged between bearing-points in a zigzag manner.

25. The combination of a flexible article and a series of return-bend-spring trusses with the springs of each truss arranged side by side at an angle to each other and with their respective arms between bearing-points arranged in a zigzag manner.

26. The combination in a wheel, of a rim; a tire; and a series of return-bend springs arranged between the rim and tire, transversely, side by side and inclined laterally to the right, and left alternately; and said springs being attached to the rim and tire and holding the latter in position.

603,000. PRODUCE-CARRIER. REGA C. WELTNER, Bezaleel, W. Va., assignor of one-half to A. B. Jordan, Spencer, W. Va. Filed Feb. 12, 1897. Serial No. 623,056. (No model.)



Claim.—1. In a carrier of the kind specified, a frame having a winding-drum consisting of a shaft provided with radial spokes, cross-pieces connecting the ends of said spokes, outwardly-extending pins upon said cross-pieces, said pins being arranged in two rows and in the central portion of the cross-pieces, a crank for turning the shaft of the winding-drum, a cable connected with said winding-drum between the two sets of pins thereon and provided at its outer end with

means for attaching the same to a stationary part, and a tightening-cable connected with said winding-drum.

2. In a carrier, an inclined cable securely fastened at its opposite ends, and a traveling carrier mounted upon said inclined cable and consisting of a frame comprising two side pieces having a roller at their upper ends, a pivot-pin pivoted to the lower ends of one of said side pieces, and a pivoted latch secured to the other side of said pieces and provided at its lower end with a groove or shoulder to engage the free or swinging end of said pivoted pin, and one end of said pivoted latch extending outwardly and above the upper end of said frame.

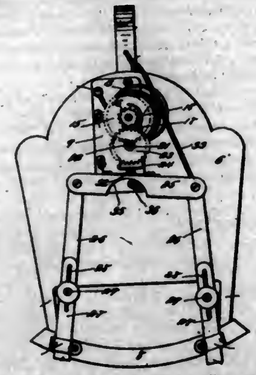
608,001. WATERPROOF FABRIC. WILLIAM H. WOOD, East Orange, and JOHN H. STEVENS, Newark, N. J., assignors to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 12, 1896. Serial No. 670,032. (No specimens.)

Claim.—1. A waterproof fabric having two or more successive coatings of a flexible pyroxylin compound, the under coating being more flexible than the upper coating or coatings, substantially as described.

2. The article of manufacture herein described, consisting of a flexible base permeated with a flexible pyroxylin compound and having a superposed flexible surface coating of a pyroxylin compound less flexible than the permeated base, substantially as described.

3. The article of manufacture herein described, consisting of a flexible permeable base, having a coat of nitrocellulose compound of the character described, which coating has an inner stratum rich in oil, and an outer stratum less rich in oil which forms a continuous surface covering the face of the base, substantially as described.

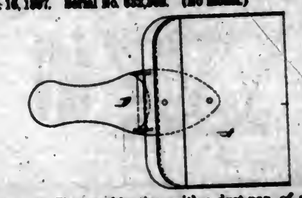
608,002. ROCKING CRADLE OR SIMILAR ROCKER. JOHN ALLRED, Rockingham, N. C. Filed July 20, 1897. Serial No. 644,773. (No model.)



Claim.—1. In a mechanism for rocking cradles or other rockers, the combination with a plate and a yoke adapted to be secured to the cradle or other rocker, of a revolvable shaft mounted in said plate and said yoke, a spring the ends of which are secured respectively to said shaft, and to said plate, a ratchet-wheel rigidly mounted on said shaft, a gear-wheel loosely mounted on said shaft, a pawl on said gear-wheel whereby it may be rotated in one direction only with said ratchet, a second shaft, a pinion mounted thereon, an escapement-wheel, a lever, an escapement whereby in conjunction with said escapement-wheel said lever is oscillated, legs pivoted to said lever whereby the energy of said spring may be exerted on the floor to oscillate the entire structure and means whereby the length of said legs may be increased or diminished to regulate the extent of oscillation of said structure, substantially as described.

2. In a mechanism for rocking cradles or other rockers, the combination with a plate and a yoke adapted to be secured to the cradle or other rocker, of a revolvable shaft mounted in said plate and said yoke, a spring, the ends of which are secured respectively to said shaft and to said plate, a ratchet-wheel rigidly mounted on said shaft, a gear wheel loosely mounted on said shaft, a pawl on said gear-wheel, whereby it may be rotated in one direction only with said ratchet, a second shaft, a pinion mounted thereon, an escapement-wheel, a lever, an escapement, whereby in conjunction with said escapement-wheel, said lever is oscillated, legs pivoted to said lever whereby the energy of said spring may be exerted on the floor to oscillate the entire structure, extensions to said legs, said legs and said extensions being provided with slots adapted to register, and a set-screw whereby the said legs may be lengthened or shortened, and the extent of oscillation of said structure regulated, substantially as described.

608,008. DUST-PAN. LAURA M. BLAKE, San Antonio, Cal. Filed Apr. 16, 1897. Serial No. 632,362. (No model.)



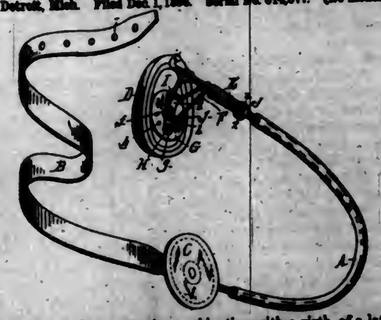
Claim.—1. The combination, with a dust-pan, of a slipper connected with and projecting rearwardly from the dust-pan, said slipper comprising a horizontal bottom plate and an upwardly-ranging toe-plate upon which the pan is mounted, and having a projecting member or portion arranged transversely at its bottoms and intermediately between the front and rear ends of the slipper portion, whereby the latter may be operated as a lever upon the fulcrum formed by said roller or projection to raise or lower the front edge of the dust-pan with relation to the floor, substantially as and for the purpose set forth.

2. The combination, with a dust-pan, of a slipper connected with the under rear part of the dust-pan, said slipper comprising a bottom plate and a toe plate or portion to which the pan is connected, and a projecting member or portion carried by and extending beneath the bottom plate of the slipper and relatively arranged to serve as a fulcrum upon which the slipper may be rocked to raise or lower the dust-pan with relation to the floor, substantially as and for the purpose set forth.

3. The combination with a dust-pan, of a slipper comprising a bottom plate and an upwardly-ranging toe-plate, said dust-pan being secured upon the top of the toe-plate whereby its rear end is elevated, and its front edge depressed, a roller mounted upon the under surface of the bottom plate, to serve as a fulcrum whereby the forward edge of the pan may be depressed or elevated, and a spring between the toe-plate and the dust-pan, against which the toe of the slipper is depressed, substantially as shown and described.

4. As an improved article of manufacture, a dust-pan, a slipper secured thereto adjacent to the rear end thereof, said slipper being projected under said pan whereby the rear portion is held in an elevated position, and a spring mounted between the toe of said slipper and the said dust-pan, substantially as and for the purpose described.

608,004. TRUSS. THOMAS W. BOOTH, Windsor, Canada, assignor, by direct and mesne assignments, to the Oscillating Truss Company, Detroit, Mich. Filed Dec. 1, 1896. Serial No. 614,077. (No model.)



Claim.—1. In a truss, the combination with a girth, of a lateral spring-arm connected to the girth, a pad hingedly secured to the end of the arm, and a brace having a loose connection with the girth and also having a loose connection with the pad.

2. In a truss, the combination with the girth, of a spring-arm extending laterally from said girth, a pad hinged to said arm, a brace hingedly connected to the girth and having a sliding connection with the pad.

3. In a truss, the combination with a girth, of a laterally-extending spring-arm connected to the girth, a pad hingedly connected to the end of said arm, and a bracing means for holding the pad in proper position at the end of the arm.

4. In a truss, the combination with the girth comprising the bent frame A and strap B, of a coil-spring sleeved upon the frame A and

secured thereto at one end, an arm projecting laterally from the other end of said coil-spring and movable relative to the frame A, and a pad hingedly secured to the end of said arm.

5. In a truss, the combination with the girth, comprising the C-shaped frame A and connecting-strap B, of the collar J longitudinally adjustably secured upon the forward arm of said frame, the coil-spring E sleeved upon said arm and rotatably adjustably secured to the collar J, the looped arm F formed at the opposite end of said coil, and the pad hinged to the end of said loop.

6. In a truss, the combination with the girth and the pad, of a lateral spring-arm movably secured to said girth and hinged to said pad and the folding brace I connecting said girth and pad.

7. In a truss, a girth comprising the C-shaped frame A having the hook K at the end of its forward arm, the part *a* longitudinally adjustably secured to the back arm of said frame, the back pad O swiveled upon said part and the strap B secured at one end to said pad and adapted to engage with the hook K.

8. In a truss, the back pad C comprising a disk of leather or similar material having the central aperture *c*, the front plate *c* secured to said disk, the transversely-apertured post *e* swiveled in the plate *c* and adapted to be sleeved upon the girth, and the set-screw *d* in said post in line with the aperture *c*.

608,005. BRAKE FOR CHILDREN'S CARRIAGES. FRANK R. CALDWELL, Brooklyn, N. Y. Filed July 16, 1897. Serial No. 644,709. (No model.)



Claim.—1. The combination with one of the wheels of a baby-carriage, of a brake comprising a spool carried by the hub of the wheel and a brake-band mounted in position to engage and disengage the said spool, an operating-clutch mounted to rotate upon the handle-bar of the carriage and connected with the said brake-band, whereby the rotation of the clutch serves to operate the brake and a pin-and-recess connection between the said clutch and the handle-bar for locking the clutch in any of its rotary positions, substantially as set forth.

2. The combination with a brake carried by the hub, of one of the wheels of a baby-carriage, of an operating-clutch connected therewith for operating the brake, comprising a stationary part and a movable part mounted at or near the handle-bar the one provided with a series of recesses and the other with a series of pins adapted to enter the series of recesses, the said movable part having a sliding movement toward and away from the stationary part and a spring for yieldingly holding the movable part in engagement with the stationary part, substantially as set forth.

3. A brake for baby-carriages, comprising a spool carried by the hub of one of the wheels of the carriage, the said spool having a corrugated periphery and a brake-band mounted in position to engage and disengage the said spool, the said brake-band having corrugations corresponding to the corrugations upon the periphery of the spool and means located at or near the handle-bar of the carriage connected with the said band for operating the brake, substantially as set forth.

608,006. SKETCH BLANK. DAVID T. DEHANEY, Alexandria, Va. Filed Apr. 28, 1897. Serial No. 633,555. (No model.)

Claim.—1. The herein-described blank for a bicycle-frame consisting of a single piece, having the end portions, intermediate side portions, connecting the end portions and separated from each other, and the central arm intermediate the side portions, substantially as described.

2. A bicycle having its frame consisting of the main bars, the side portions continuous therewith connecting the rear ends of said bars and bent to form the rear fork, the vertically-disposed central bar connected to one of said main bars and the sleeve secured to the forward ends of the main bars, said main bars, continuous side portions and central bar being formed of one piece, substantially as described.



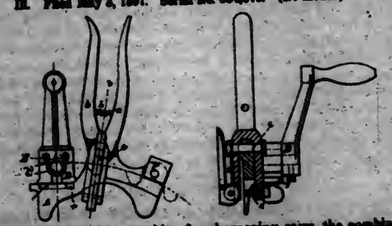
3. A bicycle having its frame consisting of the main bars, the side portions continuous therewith connecting the rear ends of said bars, separated from each other and bent to form the rear fork, the vertically-disposed central bar connected to the lower of said main bars, and having its upper end connected to the juncture of the upper main bar with said side portions, and a sleeve connected to the forward ends of said main bars, said main bars, continuous side portions and central bar being formed of one piece, substantially as described.

4. A bicycle comprising among its members, the main bars, the separated side portions continuous therewith, connecting the rear ends of said bars, and bent to form the rear fork the vertically-disposed central bar extending from the rear end of the lower main bar and secured to the juncture of the upper main bar with said continuous side portions, said main bars, continuous side portions and central bar, being formed of one piece, and a front fork having its steering-post pivotally connected to the forward ends of said main bars, substantially as described.

5. A bicycle comprising among its members the main frame-bars, the separated side portions continuous therewith connecting the rear ends of said main bars, bent to form the rear fork and provided with means for supporting the rear wheel the central bar extending from a point intermediate said side portions at one end of the same upwardly and connected to the juncture of the upper main frame-bar and the other ends of said side portions, said main bars, side portions and central bar being formed of one piece, a sleeve rigidly secured to the forward ends of said main bars and the brace-plate having portions secured to the lower main frame-bar, the lower end of said central bar and said side portions and provided with a crank-hanger, substantially as described.

6. A bicycle comprising among its members, the main frame-bars, the side portions continuous therewith connecting the rear ends of said main bars, separated and bent to form the rear fork, the central bar extending from the juncture of the lower main frame bar with said side portions, upwardly, and secured to the juncture of the upper main frame-bar with said side portions, said main bars, side portions and central bar being formed of one piece, said central bar having a sleeve on its upper end, and a reduced portion within said sleeve, the hollow saddle-post engaging said reduced portion, within said sleeve and means for clamping said hollow saddle-post to said reduced portion of the bar between said sleeve and said bar, substantially as described.

608,007. SAW-SHARPENER. CHARLES H. DOUGLAS, Chicago, Ill. Filed May 3, 1897. Serial No. 634,870. (No model.)



Claim.—1. In a machine for sharpening saws, the combination of a frame adapted to be clamped to a saw, with a sliding head, a filing-tool mounted thereon, said frame and head being provided respectively with a curved tongue and a corresponding curved groove upon their meeting surfaces, and means for clamping said head upon the frame in any required position, substantially as described and for the purpose specified.

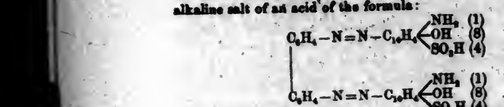
2. In a machine for sharpening saws, the combination with a main frame of a cutter O, plate E and movable handle *b*, pivoted to the main frame and provided with a forked end, one fork having a projection or screw *d*, and the other a cam, substantially as specified.

3. In a device of the character specified, the combination with a frame, and means for clamping the same to the saw, of a milling-cutter, its shaft, means for rotating said shaft, the head in which said shaft is journaled, and means for securing said head to the frame, said means being constructed and arranged so that the shaft may be set at any desired angle to the face of the saw, and so that the cutter will remain in the same relative position on the saw at whatever angle the shaft may be set, substantially as described.

608,008. VIOLET AZO DYE. MYRTIL KAHN, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 19, 1897. Serial No. 659,193. (Specimens.)

Claim.—1. The process for producing a new coloring-matter by combining in an acid solution one molecule of a tetrazodiphenyl salt and two molecules of 1.8 amidonaphthol and 4 monosulfo-acid substantially as described.

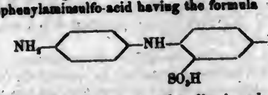
2. As a new article of manufacture the new dyestuff being an alkaline salt of an acid of the formula:



and which is a black powder of a bronze-like luster soluble in water with a violet color and in concentrated sulfuric acid yielding a blue solution from which a blue flaky precipitate is obtained on the addition of a sufficient quantity of ice, dyeing unmordanted cotton violet shades which when treated with solutions of diazotized parasitranilin and sodium acetate change into black shades fast to acids and to washing substantially as described.

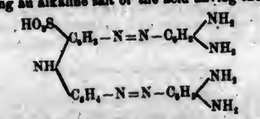
608,009. BLUISH-RED DYE. MYRTIL KAHN and FRIEDRICH RUSSER, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 19, 1897. Serial No. 659,197. (Specimens.) Patented in England Dec. 4, 1894, No. 23,584; in France Apr. 20, 1895, No. 246,760, and in Italy June 30, 1895, XXX, 36,754, LXXVI, 51.

Claim.—1. The process for producing a new tetrazo coloring-matter by combining one molecule of the tetrazo derivative of the diamidodiphenylaminsulfo-acid having the formula



with two molecules of metaphenylenediamin substantially as described.

2. As a new article of manufacture the new tetrazo coloring-matter obtainable from one molecule of the tetrazo derivative of diamidodiphenylaminsulfo-acid with two molecules of metaphenylenediamin being an alkaline salt of the acid having the formula



and which is a dark-brown powder, soluble in water yielding a red solution from which a black precipitate is obtained on the addition of dilute hydrochloric or sulfuric acid, soluble in concentrated sulfuric acid (66° Baumé) with a bluish-black color which turns into violet on the addition of a small quantity of ice while a black flaky precipitate is obtained on the addition of a larger quantity of ice to the sulfuric-acid solution, yielding on unmordanted cotton intense-bluish-red shades which when treated with a solution of diazotized parasitranilin and sodium acetate change into intense-brown shades fast against washing substantially as described.

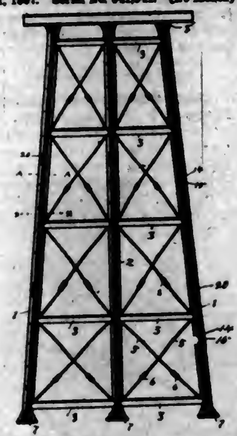
608,010. HYDROCARBON-OIL-GAS STOVE. HOSEA W. LIBBEY, Boston, Mass. Filed June 12, 1896. Serial No. 595,247. (No model.)



Claim.—1. A hydrocarbon-oil-gas stove comprising a reservoir, the bottom of which is provided with a segmental annular opening, three tubes secured to the bottom with the ends of the inner tubes lying adjacent to the walls of the opening, a passage leading through the outer tubes to the inner tube directly above the portion of the bottom between the ends of the opening, and a vaporizing-chamber at the upper end of the inner tube provided with a burner, said tubes being adapted to receive wicks the outer wick being so situated as to heat the chamber, substantially as set forth.

2. A hydrocarbon-oil-gas stove comprising a reservoir, three sets of tubes secured to the bottom thereof and projecting above the top of the reservoir, a passage leading through the outer tubes to the inner tube of each set, a vaporizing-chamber at the top of each set of tubes, a segmental burner for each chamber, said burners lying substantially end to end and forming a circle above the top of the reservoir, said tubes being adapted to receive wicks, the outer wick being so situated as to heat the chamber and means for admitting air to the space between the inner and the next adjacent tube, substantially as set forth.

608,011. TOWER. HERBERT H. MACARTHUR, Kendallville, Ind. Filed June 21, 1897. Serial No. 641,541. (No model.)



Claim.—1. In a metallic tower, the pillow-blocks provided on their upper faces with the integral cross-flanges 9, the angular lugs 11, and the angular lugs 10, substantially as shown.

2. In a metallic tower, the pillow-block 7 having formed integral therewith the vertically-rising but slightly-inclined cross-flanges 9, the upright angular lugs 11, and the angular lug 10, combined with the sectional uprights formed of four L-shaped angle-irons which are bolted to the cross-flanges 9, substantially as described.

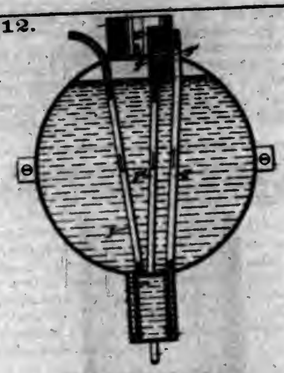
3. In a metallic tower, the pillow-blocks provided with cross-flanges 9, the uprights formed of four L-shaped angle-irons which are separated from each other and connected by the cross-plates 14 and 15, the longitudinal connecting-plates 20, bolts which are passed through the uprights and the plates, and the tie-rods having their lower ends placed between two of the L-shaped sections of the uprights and secured in position by means of bolts, combined with the struts 3 secured horizontally to the uprights, and the beams 4, the parts being arranged and constructed, substantially as shown and described.

608,012. DISINFECTING APPARATUS. FREDERICK J. MITCHELL, New York, N. Y. Filed Feb. 9, 1897. Serial No. 622,690. (No model.)

Claim.—1. In a disinfecting apparatus the combination of a supply-reservoir, a discharge-chamber at the bottom of said reservoir, a duct leading from said reservoir to the lower part of said chamber, a valveless opening between said duct and the bottom part of said chamber, a discharge-duct leading from the lower part of the discharge-chamber and an air-forcing device connected with the upper part of the discharge-chamber, substantially as shown and described.

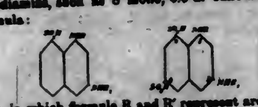
2. In a disinfecting apparatus the combination of a supply-reservoir, a discharge-chamber at the bottom of said reservoir, a connection between said supply-reservoir and the lower part of the discharge-chamber, a measuring-chamber, a discharge-duct leading from the lower part of the discharge-chamber to said measuring-chamber, a duct leading from the measuring-chamber to the point of application and an air-forcing device connected with the upper part of the discharge-chamber, whereby sufficient pressure may be created in the discharge-chamber to force a portion of the liquid therein into the measuring-chamber, substantially as shown and described.

608,012.



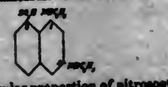
608,018. BLUE AZIN DYE. PHILIPP ORT and THEO KROSSER, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Sept. 14, 1897. Serial No. 651,982. (Specimens.) Patented in Germany Apr. 15, 1896, No. 78,497; in England May 8, 1896, No. 8,895; in France June 6, 1896, No. 250,666; in Italy Dec. 31, 1896, XXVIII, 36,622, LXVIII, 426; in Austria June 15, 1896, No. 46,699, and in Hungary June 12, 1896, No. 98,981.

Claim.—1. The herein-described process for producing new azin dyestuffs by condensing sulfo-acids of symmetrically-disubstituted 1.3 naphthylenediamins, such as 8 mono, 6.8 di sulfo-acid, having the general formula:

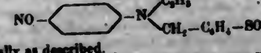


respectively, in which formula R and R' represent aromatic radicals, such as phenol, tolyl, with the sulfo-acids of paranitroso derivatives of secondary and tertiary aromatic amins, substantially as described.

2. The herein-described process for producing a new azin dyestuff, which process consists in condensing one molecular proportion of diphenylnaphthylenediamin sulfo-acid of the formula



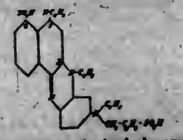
with one-and-a-half molecular proportion of nitrosoethylbenzylanilin-sulfo-acid, having the formula



substantially as described.

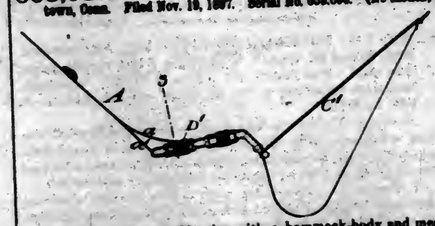
3. As new articles of manufacture azin dyestuffs obtainable from sulfo-acids of symmetrically-disubstituted 1.3 naphthylenediamins, such as 8 mono, 6.8 di sulfo-acid, with sulfo-acids of paranitroso derivatives of secondary and tertiary aromatic amins, representing when dry and pulverized dark powders, dissolving in water with a blue color, soluble in concentrated sulfuric acid with a green color, dyeing unmordanted wool in acid-baths bright-blue shades which are fast to acids and alkalies and also pretty fast against the action of light, substantially as described.

4. As a new article of manufacture the specific azin dyestuff obtainable from diphenyl 1.3 naphthylenediamin 8 sulfo-acid and nitrosoethylbenzylanilinsulfo-acid, being an alkaline salt of the acid, having the formula



representing when dry and pulverized a dark powder, soluble in water with a blue color, dissolving in concentrated sulfuric acid with a green color which turns into violet on the addition of a small quantity of ice, while a dark-blue precipitate is obtained on adding a larger quantity of ice, insoluble in a ten-per-cent. solution of sodium carbonate and in strong soda-lye, dyeing wool in acid-baths bright-blue shades which are fast to acids and to alkalies and also pretty fast against the action of light, substantially as described.

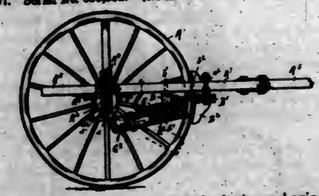
608,014. HAMMOCK ATTACHMENT. ISAAC R. PALMER, Middletown, Conn. Filed Nov. 19, 1897. Serial No. 659,096. (No model.)



Claim.—1. The combination with a hammock-body and means for suspending it, of a seat-frame for interrupting the natural curve of the body of the hammock and fastening devices located in position to secure the opposite edges of the hammock-body to the opposite side of the seat-frame to hold the frame in different adjustments longitudinally along the hammock-body, substantially as set forth.

2. The combination with the hammock body provided with tabs or flaps projecting from its opposite edges, of a seat-frame adapted to interrupt the natural contour of the body of the hammock, the said seat-frame being provided at its opposite sides with slots for the reception of the said tabs or flaps for holding the seat-frame in different adjustments longitudinally along the body of the hammock, substantially as set forth.

608,015. BRAKE FOR VEHICLES. HENRY E. ROLFE, St. Paul, Minn., assignor of one-half to John D. Burt, same place. Filed Nov. 23, 1897. Serial No. 659,552. (No model.)



Claim.—1. In a vehicle-brake, a brake-beam having shoes and adapted to be set against the wheels of the vehicle, a series of teeth upon one of the hubs of one of the wheels of the vehicle, a bar connected by one end to the brake-actuating mechanism and supported beneath the teeth upon said hub, a ball poised to hold said toothed bar out of engagement with said hub-teeth when the vehicle is moving on substantially level ground, and adapted to trip said toothed bar into engagement with said hub-teeth when the vehicle moves down a certain predetermined grade, substantially as set forth.

2. In an automatic vehicle-brake, a beam having shoes and adapted to be set against the wheels of the vehicle, a series of teeth upon one of the hubs of one of the wheels, a lever connected to said beam and pivoted by one end to the running-gear of the vehicle, an arm connected to said lever and extending beneath said series of teeth and with teeth adapted to be engaged by said hub-teeth, a rod journaled beneath the running-gear of the vehicle and with a crank extending beneath said arm and adapted to actuate said arm when revolved, a counterpoise associated with said rod, and means whereby said counterpoise is rendered effective to revolve said rod only when said vehicle runs down a certain predetermined grade, substantially as set forth.

3. In an automatic vehicle-brake, a brake-beam having shoes and adapted to be set against the wheels of the vehicle, a series of teeth upon one of the hubs of one of the wheels of the vehicle, a lever connected to said beam and pivoted by one end to the running-gear of the vehicle, an arm connected to said lever and extending beneath said series of teeth, and with teeth adapted to be engaged by said hub-teeth, a rod journaled beneath the running-gear of the vehicle and with a crank extending beneath said arm and adapted to actuate said arm when revolved, a tube coupled to said rod, and a ball within said tube, substantially as set forth.

4. In an automatic vehicle-brake, a brake-beam having shoes and adapted to be set against the wheels of the vehicle, a series of teeth upon one of the hubs of one of the wheels, a lever connected to said beam and pivoted by one end to the running-gear of the vehicle, an arm connected to said lever and extending beneath said series of teeth, and with teeth adapted to be engaged by said hub-teeth, a rod journaled beneath the running-gear of the vehicle and with a crank extending beneath said arm and adapted to actuate said arm when revolved, a tube coupled to said rod and a ball within

said tube, and a coiled spring within said tube, substantially as set forth.

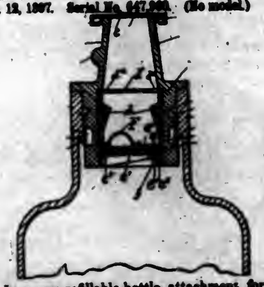
608,016. TRIPHENYLMETHANE-BLUE DYE. ARNOLD STRICKER, Basle, Switzerland, assignor to Chemische Fabrik, vormals Sandoz, same place. Filed June 29, 1897. Serial No. 642,800. (Specimens.) Patented in France July 4, 1896, No. 257,587, and in England Dec. 30, 1896, No. 30,015

Claim.—1. The process of producing violet to blue dyestuffs consisting in first combining the alkylated derivatives of phenyl-beta-naphthylamin with tetralkylated diamido-benzophene and afterward sulfonating the so-obtained compound substantially as described.

2. The process of producing violet to blue dyestuffs consisting in first combining the alkylated derivatives of phenyl-beta-naphthylamin with tetralkylated diamido-benzophenone next adding phosphorous oxychlorid and keeping an elevated temperature and finally sulfonating the obtained compounds substantially as described.

3. The sulfonated blue-violet dyestuff having the constitution of a triphenyl-methane coloring-matter and containing an alkylated derivative of phenyl-beta-naphthylamin, dissolving easily in concentrated sulfuric acid with a red-brown shade and in water and ethyl alcohol with a violet shade and the aqueous solution of which heated with caustic soda turns first blue and then almost colorless, and may have the unchanged dyestuff precipitated from it by acids, substantially as herein described.

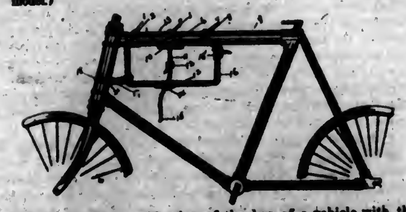
608,017. BOTTLE. DESIDERIO P. ARRILLAS, Santiago, Cuba. Filed Aug. 12, 1897. Serial No. 647,999. (No model.)



Claim.—1. In a non-refillable-bottle attachment for bottles, embodying an outer casing secured in the neck thereof, an interior casing comprising a chamber having zigzag side walls, outlet-passages in the top and a bottom passage leading into said chamber; a centrally-pivoted weighted valve having flanges on the upper side thereof seated in said passage, substantially as shown and described.

2. A non-fillable attachment for bottles, comprising a casing having a top extension, means for sealing the same and an indicating device thereon, lateral flanges extended from the walls thereof, recess in two opposite walls, spring-catches depending over said recesses, a valve and outlet mechanism secured in said casing forming a compartment and embodying zigzag side walls, a top part having passage-ways therein leading into the casing and a bottom part having an outlet communicating with the body of the bottle, a weighted valve pivoted in said outlet and a spring secured in the bottom part of the compartment bearing upon said valve, in combination with a bottle having internal flanges in the neck thereof, substantially as shown and described.

608,018. LUGGAGE-CARRIER FOR BICYCLES. CHARLES H. REED, Baltimore, Md. Filed May 18, 1897. Serial No. 637,112. (No model.)



Claim.—1. The combination of the bar of a vehicle with the clamps 2 and 8 securing a main adjustable strap to said bar, either of said clamps being movable along the bar when adjusting the said main strap; the clamp 5 securing the crosswise-adjustable strap 11 to said bar, said clamp 5 being also movable along the bar when adjusting the straps and means for adjusting and fastening the straps around the luggage, substantially as described.

2. The combination with the bar of a vehicle and a main adjustable strap longitudinally fastened thereto; of a crosswise-adjustable strap fastened by a clamp to said bar and provided with a buttonhole at one end; and a plate secured to said clamp provided with a button to engage said buttonhole; substantially as described.

608,019. BOTTLE. OSCAR V. BLAKER, Gillette, N. J., assignor of one-half to William A. Woodruff, Plainfield, N. J. Filed Feb. 18, 1897. Serial No. 623,370. (No model.)



Claim.—The coupon-holder having beveled edges and a central circular projection and a tubular cap fitting said projection, and a coupon held between the parts, and the holder secured in the bottle by the glass around the beveled edges, substantially as specified.

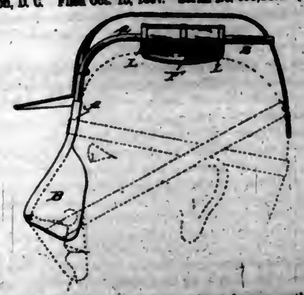
608,020. FRUIT OR OTHER JAR. REUBEN H. BOEHLHAHN, Newark, N. J., assignor of one-half to Herman Powell, same place. Filed May 26, 1897. Serial No. 638,316. (No model.)



Claim.—1. As a new article of manufacture a fruit or other jar and cover, said cover having a hole near its center, a plug fitting said hole, channel-cut corrugations on the under side of said cover and lugs, said jar being encircled near its top by a groove and shoulder, said groove containing a filling substance and adapted to admit and hold said lugs, substantially as described.

2. In a fruit or other jar a cover having a hole near its center, a plug fitting said hole, channel-cut corrugations on its under side and lugs, in combination with a jar, said jar encircled near its top by a groove and shoulder, said groove containing a filling substance and adapted to admit and hold said lugs, substantially as described.

608,021. THERMAL INSPIRATOR. CHARLES F. DOREY, Washington, D. C. Filed Oct. 15, 1897. Serial No. 655,249. (No model.)



Claim.—1. In combination, a cap adapted to cover the nasal passages and a chamber filled with heat-absorbing materials such as copper, a tube connecting said cap and chamber, said chamber having air-passages through it and opening to the air whereby the air may be exhaled and inhaled through said chamber, substantially as described.

2. In combination, a tube leading to a heat-storing chamber, and a lead strip connected to said tube and forming a frame on the side which bears against the face and a covering for said tube and frame, the whole forming a nasal cap, substantially as described.

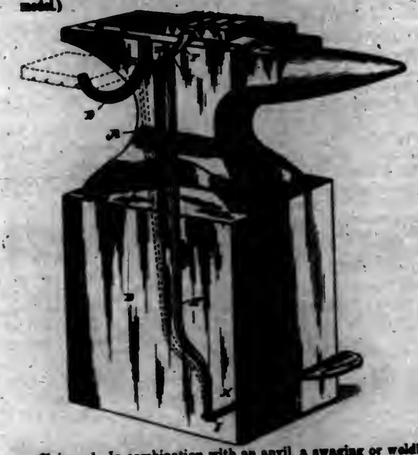
3. The chamber for storing heat consisting of the heat-retaining fillings such as copper with interstices, combined with an asbestos covering and case and with a nasal cap and a connecting-tube, substantially as described.

4. In combination, the cap, the heat-storing chamber, and the devices for supporting said chamber, adapted to be included in a hat, said device consisting of a flexible band lapping at its ends, and the band *x* having openings for the tubes with which it is combined, all substantially as described.

5. In combination, the cap, the storing-chamber adapted to be heated by the air exhaled and auxiliary heating means for said chamber consisting of a lamp, the inclosing walls, the gauze around the lamp-burner and the draft-tubes, all substantially as described.

6. In combination, the cap, the heat-storing chamber forming a passage for the inhaled and exhaled air and means for directing said exhaled and inhaled air through independent passages within said chamber, substantially as described.

608,022. WELDING OR SWAGING ATTACHMENT FOR ANVILS. OTIS G. DUNBAR and ATWELL M. IRELAND, Lewiston, Me. Filed Feb. 24, 1897. Renewed Jan. 14, 1898. Serial No. 666,716. (No model.)



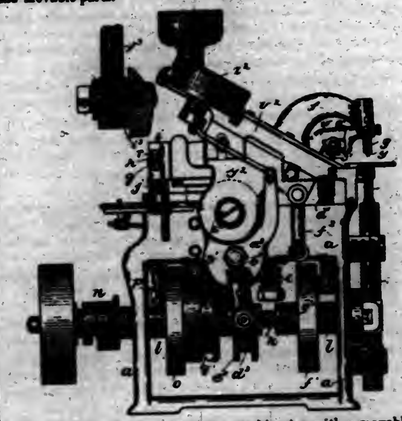
Claim.—1. In combination with an anvil, a swaging or welding block adapted to rest upon the upper surface of said anvil and having a series of grooves formed therein for the reception of the calk or clip, a shank projecting from said block, a support-rod to which the shank is pivoted, said rod having a support-top, a connecting-rod pivoted to the shank and a lever for operating the connecting-lever, substantially as described.

2. In combination with an anvil, a swaging or welding block having grooves formed in one surface thereof, a shank projecting from said block, a support-rod to which said shank is pivoted, a treadle, and a rod for connecting said treadle with the block, whereby the movements of the latter may be effected by the foot, as specified.

608,028. EYELETING-MACHINE. SEYMOUR FIELD, Quincy, Mass., assignor to the Power Eyeleting Machine Company, Boston, Mass. Filed July 27, 1896. Serial No. 600,673. (No model.)

Claim.—1. A machine for setting eyelets, comprising in its construction punching devices, a movable-set lever, a stationary set, means for moving the punching devices and the set-lever, for causing the work to be fed forward, means for changing the position of the set-lever and the punching devices relatively to the stationary set, to increase or decrease the path of movement of the said parts, and devices for simultaneously adjusting the last said means to vary the increased or decreased path of movement of the said parts.

2. A machine for setting eyelets, comprising in its construction punching devices, and a movable set lever journaled on the same vertical axis; a stationary set; means for moving the punching devices and the set-lever in unison about their axis, to cause the work to be fed forward to the stationary set after it is punched; means for increasing or decreasing the play of the said punching devices and set-lever; and a lever under the control of the operator for adjusting the last said means to vary the increased or decreased movement of the said movable parts.



3. In an eyeleting-machine, the combination with a movable-set lever, punching devices, a stationary set, means for moving said lever and punching devices in unison toward and from said stationary set, movable means for moving said punching devices and set-lever relatively to each other, and adjustable devices for simultaneously limiting the movement of the last said means.

4. In an eyeleting-machine, the combination with a movable-set lever, punching devices, and a stationary set, of means for moving said set-lever and said punching devices simultaneously toward and from the stationary set, movable means for moving said punching devices and said set-lever relatively to each other and to the stationary set, a lever for operating the last said means, and an adjustable gage for limiting the movements of the last said lever.

5. In an eyeleting-machine, the combination with an oscillating set-lever, oscillating punching devices, and a stationary set, of a rocking arm pivoted by a single pivot to said lever and to said punching devices, and means for moving said pivot toward and from the axis of the rocking arm, to vary the throw of said lever and devices.

6. In an eyeleting-machine, the combination with a set-lever, punching devices, a stud around which said lever and said punching devices oscillate, and a stationary set, of a slotted rocking arm, a pivot slidable in said slot to connect the arm to said lever and said punching devices and a lever for moving said pivot along said slot toward and from the axis of the rocking arm.

7. In an eyeleting-machine, the combination with a movable-set lever, and movable punching devices, of a rocking arm connected to the set-lever by a pivot, means for moving the pivot toward and from the axis of the rocking arm, and means for simultaneously moving the punching devices toward and from the movable-set lever.

8. In an eyeleting-machine, the combination with a movable-set lever, and movable punching devices both movable around the same axis, of a rocking arm having a slideway, a slide connected to said set-lever and said punching devices, and means for moving said slide along said slideway to increase or diminish the path of movement of said set lever and said punching devices about said pivot.

9. In an eyeleting-machine, the combination with a movable-set lever, and movable punching devices, both oscillating about the same axis, of a rocking slideway, a slide pivoted to the set-lever, a lever on the axis of said slideway, and a link connecting the slide with the lever.

10. In an eyeleting-machine, the combination with a stud having a head, a set-lever pivoted in said head, punching devices movable around said stud, a rocking arm, a plate movable along the head and pivoted to said rocking arm, a cam-and-pin connection between the said plate and said punching devices, and means for moving said pivot along the rocking arm, whereby the path of movement of the punching devices and the set-lever is varied, and the punching devices are moved relatively to the set-lever.

11. In an eyeleting-machine, the combination with a stud having a head, a set-lever pivoted in said head, punching devices movable around said stud, a rocking arm, a plate movable along the head and pivoted to said rocking arm, means for moving said pivot along the rocking arm, whereby the path of movement of the punching devices and the set-lever is varied and the punching devices are moved relatively to the set-lever, and a gage for limiting the movement of the last said means.

12. In an eyeleting-machine, the combination with a stud having an elongated head forming a guideway, a set-lever pivoted to said head, a movable plate slidable in said guideway and having a slot at an angle to the lever, a punch-lever and abutment-bar movable about said stud, said punch-lever and abutment-bar having a pin entering said slot in the movable plate, a rocking slideway, a slide pivoted to the plate, and a lever for moving said slide in said slideway.

13. In an eyeleting-machine, the combination with a movable-set lever, punching devices, a stationary set, a rocking arm pivoted to said lever and punching devices, and means for moving the pivot toward and from the axis of the rocking arm, of a lever under the control of the operator to actuate the said means for moving the pivot in one direction, and a spring to actuate the said means for moving the pivot in the other direction.

14. In an eyeleting-machine, the combination with the movable-set lever, the movable punching devices, means for moving them simultaneously, means for varying the play of the set-lever and the punching devices, and means connected therewith for adjusting the punching devices relatively to the set-lever, of a lever for operating the last two said means.

15. In an eyeleting-machine, the combination with the movable-set lever, the movable punching devices, means for moving them simultaneously, means for varying the play of the set-lever and the punching devices, and means connected therewith for adjusting the punching devices relatively to the set-lever, of a lever for operating the last two said means, and a gage for limiting the play in either direction, of said lever.

16. In an eyeleting-machine, the combination with the laterally-movable set-lever and punch, a rock-shaft having an arm, and a link connecting the arm with the said lever, of an eccentric-sleeve interposed between the link and the arm, whereby when the sleeve is turned the position of the link is changed relatively to the arm, or vice versa.

17. In an eyeleting-machine, the combination with a punch, a movable-set lever, a stationary-set lever, and means for varying the positions and play of the punch and set-lever to form small-spaced holes or larger-spaced holes, of a raceway for eyelets, means for bodily moving the raceway longitudinally to withdraw it when the parts are in the positions to make holes with said larger spaces between them, and a single lever for directly and positively operating the two said means simultaneously.

18. In an eyeleting-machine, the combination with two sets, of a raceway for delivering eyelets to said sets, a pivot for supporting the raceway upon the frame of the machine, a treadle, and means between said treadle and the pivot for adjusting the latter to move the raceway from the sets.

19. In an eyeleting-machine, the combination with the frame, a shaft, and a cam thereon, of two sets, a raceway for the eyelets, a lever in operative connection with the cam and connected with the raceway for reciprocating the raceway, a pivot for the raceway and means additional to the aforesaid parts for shifting said pivot to draw said raceway and bodily away from said sets.

20. In an eyeleting-machine, the combination with the sets, a raceway, a lever to which the raceway is pivoted, an eccentric-pivot for the said lever, and means for turning said pivot to move the raceway from the sets.

21. In an eyeleting-machine, the combination with the sets, a raceway, a lever to which the raceway is pivoted, a link pivoted to the frame of the machine and to the raceway, an eccentric-pivot for said lever, and a cam operating the free end of the said lever, of means under the control of the operator for rocking the eccentric-pivot.

22. In an eyeleting-machine, the combination with the sets, and a raceway pivoted upon the frame of the machine and movable toward and from the sets, of a link also connecting the raceway with the frame, and means for adjusting the link relatively to the frame.

23. In an eyeleting-machine, the combination with the sets, and a raceway pivoted upon the frame of the machine and movable toward and from the sets, of a link also connecting the raceway with the frame, and a pivoted eccentric interposed between the link and the frame to adjust the link vertically relatively to the frame.

24. In an eyeleting-machine, the combination with a movable-set lever, a stationary set, and punching devices, of means for increasing or decreasing the play of the movable set and the punching devices, a swinging lever for operating the said means, a sector-like plate having serrations, and a dog mounted in guides on said lever and adapted to engage the serrations on the sector-like plate.

25. In an eyeleting-machine, the combination with a top-set lever, a rock-shaft having a rocking arm, a movable pivot connected to the said top-set lever, a hand-lever connected to the said pivot and movable about the said rock-shaft as a pivot, a stationary sector-like plate, a movable dog in the hand-lever adapted to engage the plate, and a thumb-lever mounted on said hand-lever for operating the dog.

608,024. BELT. HENRY J. GARMAN, New York, N. Y. Filed June 30, 1896. Serial No. 597,519. (No model.)



Claim.—1. In a belt, a strap having one or more prongs or projections at its end, combined with a hollow cup-like frame having said prongs or projections laid within it, and its edge or edges pressed over and upon said prong or prongs, substantially as described.

2. In a belt, a strap having prongs at its end, combined with a hollow cup-like frame within which said prongs are placed, the metal at the inner and outer edges of the side walls of said frame being pressed upon said prongs, a space being left between said inner and outer edges so that the material of said prongs will be seen, as and for the purposes specified.

3. A frame having a concentric recess in one face and material within said recess, the metal at the inner and outer edges of said frame overlying said material, said overlying edges being spaced apart to allow the material within said recess to be seen between said edges, substantially as described.

4. A frame of cup-like shape having material within it and the metal at the inner and outer edges of said frame extended over said material, a space being left between the inner and outer edges of said frame to allow said material to be seen between said edges, substantially as described.

5. A frame of cup-like shape, and material therein, the metal at the inner and outer edges of said frame being extended over said material, a space being left between the inner and outer edges of said frame to allow said material to be seen, and a strengthening-frame within the first-mentioned frame and located behind said material, substantially as described.

6. A frame having a recess and material within said recess, part of the metal of said frame overlying the material within said recess, said overlying part of the frame covering a portion only of said material to permit the material within the recess to be seen, substantially as described.

608,025. WORK-HOLDER FOR METAL-WORKING MACHINES. ROBERT W. LOAR, Bath, Me. Filed Nov. 5, 1897. Serial No. 657,547. (No model.)



Claim.—1. A strap for holding work having a chock pivotally attached thereto, at one end, and means for clamping the other end of said strap upon the work, substantially as described.

2. A strap for holding work having a polygonal chock pivotally attached thereto, at one end, and means for clamping the other end of said strap upon the work, substantially as described.

3. A strap for holding work, in combination with a chock having sides affording supports of different heights for said strap, and means for clamping the other end of said strap upon the work, substantially as described.

4. A strap for holding work, having a bifurcated end, and a polygonal chock pivoted therein, and means for clamping the other end of said strap upon the work, substantially as described.

5. A strap for holding work having a polygonal chock eccentrically pivoted thereto, at one end, and means for clamping the other end of said strap upon the work, substantially as described.

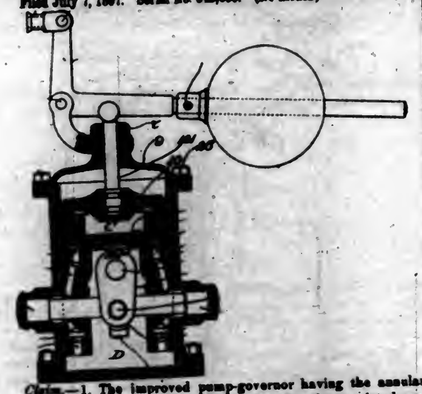
6. A strap for holding work having a polygonal chock pivoted thereto by a pin which passes through said chock at a point lying at different distances from the several sides of the polygon, and means for clamping the other end of said strap upon the work, substantially as described.

7. The combination with a chock, of a strap pivoted thereto on an axis offset from the plane of the body of the strap, substantially as described.

8. The combination with a chock, of a strap having eyes offset so as to lie substantially in the plane of one side of the strap, and a pin passing through said eyes and the chock, substantially as described.

9. The combination with a polygonal chock E, of a strap D having one end slotted, as at *d*, and the other end bifurcated and provided with eyes *d'*, and a pin F passing through the eyes *d'* and eccentrically through the chock E, substantially as described.

608,026. GOVERNOR FOR STEAM-PUMPS. WILLIAM H. MASON, Boston, Mass., assignor to The Mason Regulator Company, same place. Filed July 7, 1897. Serial No. 643,695. (No model.)

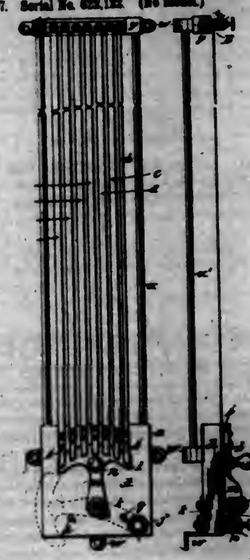


Claim.—1. The improved pump-governor having the annular pressure-chamber, the central dash-pot chamber, the restricted passage-way between the said chambers and the hollow piston inclosing said dash-pot chamber, the disk of said piston coacting with the contents of the said dash-pot chamber and the annular portion of said piston closing the said pressure-chamber, substantially as described.

2. The improved pump-governor having the annular pressure-chamber, the central dash-pot chamber, the restricted passage-way between the said chambers and the hollow piston, covering the said dash-pot chamber, coacting with the contents of its own interior and of the said dash-pot chamber and also provided with the annular portion closing or substantially closing the said pressure-chamber, substantially as described.

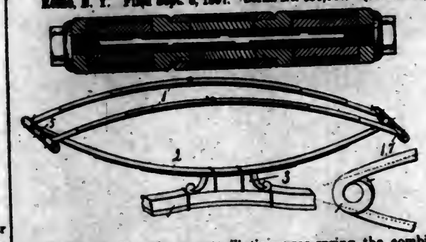
3. The improved pump-governor having the annular pressure-chamber, the central dash-pot chamber, a passage-way communicating between the pressure-chamber and the dash-pot chamber and formed in the fixed parts, a regulating-valve applied to the said passage-way, and the hollow piston, inclosing the said dash-pot chamber, coacting with the contents of its own interior and of the said dash-pot chamber and also provided with the annular portion closing or substantially closing the said pressure-chamber, substantially as described.

608,027. RHEOSTAT. ROSCOE W. HAY, New Rochelle, N. Y., assignor to the Zucker & Levett & Loeb Company, of New York. Filed Feb. 5, 1897. Serial No. 622,122. (No model.)



Claim.—In a rheostat, a suitable supporting-frame, end pieces, and two bars which connect the pieces together, a metallic strip secured to the upper end piece, and to which is attached a binding-post; and the resistance-strips, combined with suitable contact parts to which the ends of the resistance-strips are secured, but which contacts parts are electrically separated from each other; the binding-post as *j'*, and the connecting-strip as *k* connected to the post, and a switch which has its edge to pass under the ends of the contact parts, substantially as shown.

608,028. WAGON-SPRING. HENRY K. PELL and HENRY W. PELL, Rome, N. Y. Filed Sept. 6, 1897. Serial No. 650,967. (No model.)



Claim.—1. In a three-part elliptic wagon-spring, the combination of the three springs, having eyes at their ends, of three interlocking caps for receiving the eyes at each end, and of a bolt for securing the parts in position.

2. In a three-part elliptic spring, the combination of the three springs, having eyes at their ends, and three interlocking caps substantially cylindrical in form, and opening inwardly to receive the eyes of the springs, and bolts for securing the parts in position.

3. In a three-part wagon-spring, the combination of the three springs, having eyes at their ends, three interlocking caps at each end substantially cylindrical in form and having solid outer faces and openings on their inner faces for receiving the eyes of the springs into their hollow interiors, and bolts extending through said eyes, and interlocking caps for retaining the parts in position.

4. In a three part wagon-spring, the combination of the three springs, having eyes at their ends, three interlocking caps at each end for receiving the eyes, the outer caps correspondingly formed with extensions extending inwardly through openings in the inner cap to engage with the eyes of the inner spring, and of bolts for securing said parts in position.

5. In a three-part elliptic spring, the combination of the three springs having eyes at their ends, of three interlocking caps at each end for receiving the eyes of said springs, the inner caps having circular openings through their ends, and the outer caps correspondingly formed with circular extensions extending inwardly through said openings a short distance into the interior of said middle cap to engage with the eyes of the inner spring, and bolts passing through said caps and eyes for securing the parts together.

6. In a three-part elliptic spring, the combination of the three springs having eyes at their ends, of three interlocking caps substantially cylindrical in form, having solid outer faces and cut-outs on their inner faces to receive the eyes of the springs into their hollow interiors, the inner caps having circular openings through their ends, the outer caps correspondingly formed with circular extensions fitting said circular openings and extending inwardly therethrough a short distance into the interior of said middle caps to engage with the eyes of the inner spring and to prevent movement of said spring on the bolts, and of bolts securing the parts together.

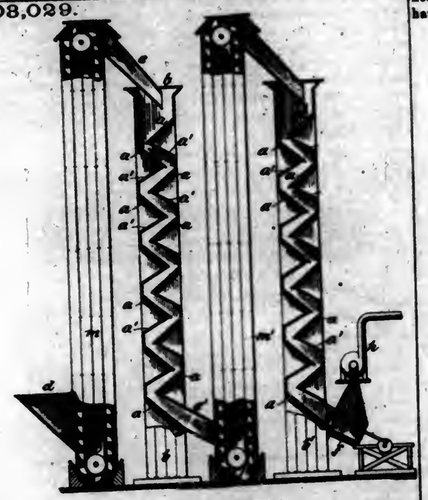
7. In combination of a three-part elliptic wagon-spring, the three springs having eyes at both ends of each, said eyes centering on the axis of the main plate of their respective springs, interlocking caps for receiving the eyes, and bolts passing through said caps and eyes.

8. In combination, in a three-part elliptic wagon-spring, the upper springs provided with eyes and formed with short downward bends adjacent to the eyes, the lower spring also provided with eyes on its ends and having short upward bends adjacent to said eyes, interlocking caps for receiving said eyes, and bolts for securing the parts in position.

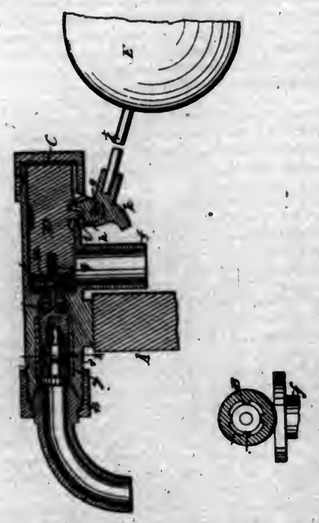
608,029. STEMMING AND CLEANING FRUIT. GEORGE PETTIT, Jr., Fresno, Cal. Filed June 9, 1897. Serial No. 639,973. (No model.)

Claim.—The process of detaching and separating the stems from fruit and cleaning the fruit which consists in causing the fruit under the action of gravity to move in a thin layer over an inclined elongated sieve-surface of sufficient fineness to exclude the whole fruit, substantially as set forth.

603,029.



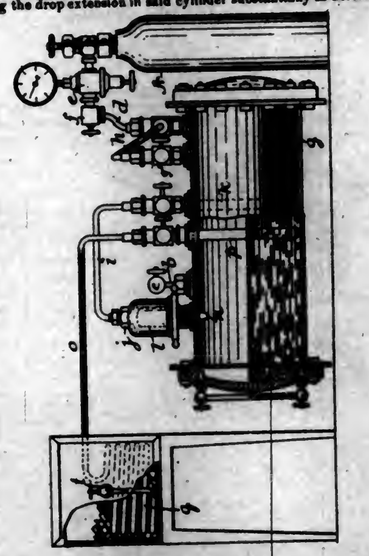
603,030. AUTOMATIC SHUT-OFF BALL-COCK. THOMAS W. RYAN, Concord, Mass. Filed Oct. 17, 1894. Serial No. 526,189. (No model.)



Claim.—An automatic float-valve comprising a casing provided interiorly with two valve-seats, and provided also at one end with exterior screw-threads and with a slot extending inward from the end, a valve on the inlet side, a valve on the discharge side having a projection entering the slot in the casing, and a screw-cap adapted to be placed on the screw-threaded end to retain in position the valve on the discharge side, substantially as described.

603,031. APPARATUS FOR CARBONATING LIQUIDS. OTTO W. ACKERMAN, New York, N. Y. Filed May 15, 1897. Serial No. 636,606. (No model.)

Claim.—The combination in carbonating apparatus, of the liquid and gas receiving cylinder, having suitable liquid and gas inlet connections, the cylinder for reception of the carbonated liquid, branch pipe for admitting gas to the latter cylinder, pressure-regulating cock in said branch pipe, porous percolator detachably mounted on the cylinder for reception of the carbonated liquid, and the pipe connecting the liquid-receiving cylinder with the percolator, said pipe having the drop extension in said cylinder substantially as described.

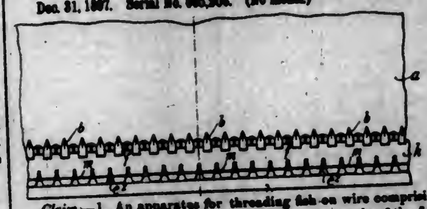


603,032. ALARM FOR BICYCLES. EARL C. AKERS, Port Huron, Mich., assignor of one-half to Ransom E. Moss, same place. Filed Mar. 16, 1897. Serial No. 627,742. (No model.)



Claim.—An audible alarm for vehicles, consisting of a bar bifurcated to form parallel arms, a toothed wheel journaled between the lower ends of said arms, and a spring-tongue having one end adjustably secured to the bar, whereby the volume of sound may be varied, said spring-tongue normally lying against the edges of the parallel arms and forming in conjunction with said arms a resonator, substantially as set forth.

603,033. APPARATUS FOR SECURING FISH UPON WIRES IN REGULAR ROWS. EDVARD ANDERSEN, Stavanger, Norway. Filed Dec. 31, 1897. Serial No. 665,206. (No model.)



Claim.—1. An apparatus for threading fish on wire comprising separable clamping members to hold and align the heads of the fish, said members having an aperture between them through which a wire may be passed, substantially as described.

2. In combination, the parts *d* and *h* adapted to be separated and having an opening between them for receiving a threading-wire for engaging the fish and the elastic ribbon *f* against which the fish bear when the parts are brought together, substantially as described.

3. In a fish-threading device, a table, a series of knobs projecting therefrom and means for holding the fish in the notches formed between the said knobs, apertures being left for the introduction of a wire, substantially as described.

4. A threading device for fish comprising the socketed part to receive the fish separately with their heads in line and apertured to receive a threading-wire, substantially as described.

603,034. BOTTLE-STOPPER. JOSEF BERENS, Langenbielau, Germany. Filed July 15, 1897. Serial No. 644,674. (No model.)



Claim.—In a bottle-closure the combination of a rubber cap having a closed end for insertion into the bottle, a separate cork or stopper placed in the said end, a ring around said cap at a point immediately above the stopper, a thick upper rim to the said cap and rings *c* and *d* to tighten the turned-down upper part of said cap above and below the bottle-neck bead, substantially as described.

603,035. SEALING DEVICE FOR BOTTLE-STOPPERS. JOSEF BERENS, Langenbielau, Germany. Filed Nov. 5, 1897. Serial No. 657,533. (No model.)



Claim.—A sealing device for bottle-stoppers thereby so characterized that the cork *a* is combined with a rubber sleeve *c*, being in engagement with a circumferential groove of the cork *a* and adapted to be held by means of a rubber ring *d*, arranged immediately above the stopper, said rubber sleeve being adapted to be turned over twice, downwardly and upwardly respectively, thus covering the rim of the bottle-neck *h*, whereby it is held in position by rubber rings *g* and *g'*.

603,036. RESILIENT TIRE. MICHAEL BERNDT, New York, N. Y. Filed Aug. 10, 1897. Serial No. 647,967. (No model.)



Claim.—1. A tubular spring for resilient tires, formed of spring-wire bent to have circular turns and the wire crossing each circular turn twice, on curved lines, substantially as herein shown and described.

2. A tubular spring for resilient tires, formed of spring-wire bent to form a series of continuous circular turns, the wire extending transversely across each turn on curved lines, which curved lines cross each other within the circle, substantially as herein shown and described.

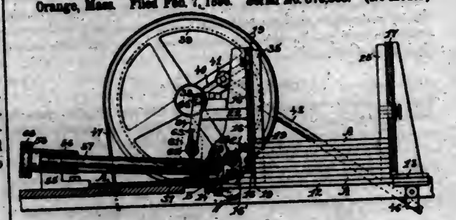
3. A tubular spring for resilient tires formed of a spring-wire bent to form a series of continuous circular turns, and forming two diametrically opposite loops within each circle and the wire of the circle extending across the same on curved lines between said loops, substantially as herein shown and described.

4. A tubular spring for resilient tires formed of a spring-wire bent to form a series of continuous circular turns the wire for each circular turn being bent to form a half-circle, then extending on a curved line across the open part of said half-circle, then forming the opposite half-circle and extending on a curved line across the open part of said second half-circle and so on, substantially as herein shown and described.

5. The combination with a tubular wire spring having continuous circular turns each circle having two opposite interior loops and the wire of the circle crossing the same on curved lines between said loops, a rod passed through one set of loops and a rubber tube through the other set and a tubular rubber tire enveloping said tubular spring, substantially as herein shown and described.

6. The combination with a helical spring having two diametrically opposite loops in each circular turn and the wires of the circular turn extending across the circle on curved lines between said loops, a wire passed through one set of loops, an externally circumferentially-corrugated rubber tube passed through the outer set of loops and a rubber tire surrounding the helical spring, substantially as herein shown and described.

603,037. WOODWORKING MACHINERY. JOHN R. CRAGG, Orange, Mass. Filed Feb. 7, 1896. Serial No. 578,208. (No model.)



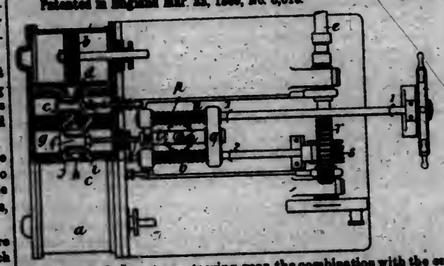
Claim.—1. In a thumb-hole machine, the combination with the frame 56 pivotally mounted in the brackets 55 and 55', the cutter-shaft journaled longitudinally in the frame, and the cutters on the free end of the shaft, of the feeding device and connections intermediate the same and the frame 56, whereby the cutter-frame is raised at the operation of the feeding device.

2. The combination with the screw-threaded shaft 29, and the guide-arms 32 and 33 having bearings engaged with the screw-shaft and provided with the vertical ways 34 and 35 and the tension-springs 36 and 37, of the vibratory cutting device, as described.

3. In a thumb-hole machine, the combination with the cutter-shaft frame pivotally mounted and operated by the pulley 39 through the link 64, the cutter-shaft journaled longitudinally in the frame, a pulley on one end of said cutter-shaft and the cutter on the opposite end thereof, of the driving-pulley, the shaft on which the driving-pulley is mounted, the guide-pulleys, a belt working over the driving-pulley, the guide-pulleys and the pulley 58, and a belt working over the pulley 39 from the drive-shaft, substantially as and for the purpose herein shown and described.

4. In a thumb-hole machine, the combination of the following instrumentalities: the hopper provided with adjustable guides, the guide-arms provided with vertical members and pressure-springs, the spring-finger 16', the shaft 26 for adjusting the guide-arms 32 33, the pivoted frame 56, the cutter-shaft supported in the pivoted frame and provided with the pulley 58 at one end and the cutter at the other end, the pulley 39 connected to the pivoted frame by the link, the reciprocal feed-block 13, and means, substantially as herein shown, for operating the pulleys 58 39 and the reciprocal feed-block 13, as and for the purpose described.

603,038. STEAM STEERING-GEAR. WILLIAM H. HARFIELD, London, England. Filed Oct. 29, 1897. Serial No. 656,793. (No model.) Patented in England Mar. 23, 1899, No. 5,013.



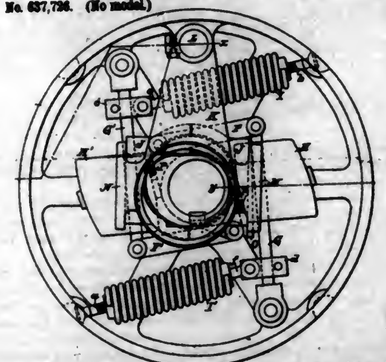
Claim.—1. In a steam steering-gear, the combination with the engine-cylinder, piston and driving-shaft, of a valve-chamber provided with a steam-inlet and ports communicating with said cylinder on both sides of the piston, of a controlling and reversing valve normally closing said ports, a valve-rod connected to said valve and provided with a worm-wheel, a worm shaft operated by the steering-wheel and provided with a worm engaging said worm-wheel, and a worm-shaft

operated by the engine-shaft provided with a worm engaging said worm-wheel for moving said valve back to its normal position, substantially as described.

2. In a steam steering-gear, the combination with the engine-cylinder, of a controlling and reversing valve therefor, a valve-rod connected with said valve and provided with a worm-wheel, a worm operated by the steering-wheel, engaging said worm-wheel for moving said valve in either direction, and a worm driven by the engine, engaging said worm-wheel for moving said valve back into its initial position, substantially as described.

3. In a steam steering-gear, the combination with the engine-cylinder, piston and driving-shaft, of a controlling and reversing valve, a longitudinally-movably bar connected to said valve, said bar being mounted in stationary guides, and provided with a worm-wheel, a worm engaging said worm-wheel on one side, and operatively connected with the steering-wheel, and a worm engaging said worm-wheel on the opposite side and operatively connected with the engine, substantially as described.

608,089. GOVERNOR. CHARLES O. HEDGES, Massillon, Ohio, assignor to the Russell & Co., same place. Filed May 23, 1897. Serial No. 637,736. (No model.)



Claim.—1. In a governor, the combination with the engine-shaft and a governor-casing fixedly secured thereto, a main and an auxiliary eccentric, lever connections between the latter eccentric and casing, weights carried by the levers, tension-springs normally retaining the weights in their innermost positions, and weight-starting devices, comprising springs interposed between the weights and the auxiliary eccentric, and acting simultaneously upon both, while under compression, for the purpose of setting said weights in motion before, or at the time, the engine reaches its maximum speed.

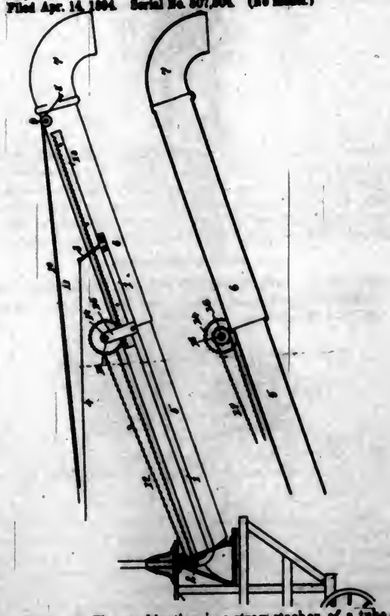
2. In a governor, the combination with the engine-shaft and the governor-casing fixedly secured thereto, a main eccentric, an auxiliary eccentric provided with ears E E', lever connections between the latter eccentric and the casing, weights carried by the levers, and provided with recesses formed within their inner edges adjacent to the ears or lugs, tension-springs normally retaining the weights in their innermost positions, and weight-starting devices, comprising coiled springs fixedly secured within the recessed weights and acting, while under compression, directly against said weights and against the ears of the auxiliary eccentric, substantially as described.

3. In a governor, the combination with the engine-shaft and the governor casing fixedly secured thereto, an auxiliary eccentric loosely sleeved upon the shaft outside the casing, a strap, said strap loosely mounted upon the auxiliary eccentric being provided with flat bearing-faces, *g* and *h*, a main eccentric having formed integral therewith T-shaped extension-pieces M and N, inwardly-extending flanges integral with each extension as described, adapted to fit over the flat faces of the strap, an inclined face *k* upon one of the flanges, and a key or wedge for securing the strap to the main eccentric, all as described and shown.

4. In a governor, the combination with an engine-shaft, and a governor-casing fixedly secured thereon, a main eccentric having a pivotal connection with the casing, an auxiliary eccentric carrying integral therewith a hub D and ears or lugs E and E', and lever connections between the lugs or ears and the casing, weights, recessed in the manner described, carried by the levers, tension-springs, and auxiliary spiral springs housed within the recessed weights, adapted to act, while under compression, simultaneously against the weights and the lugs of the auxiliary eccentric.

5. In a governor, the combination with an engine-shaft, of a governor-casing fixedly secured thereon, an auxiliary eccentric loosely sleeved upon the shaft, a strap loosely mounted upon the eccentric and provided with flat bearing-faces *g* and *h*, a main eccentric having a pivotal connection with the casing and carrying integral therewith T-shaped extensions M and N, inwardly-extending flanges projecting from the extensions as described and adapted to fit over the faces of the strap, and means for securing one of said flanges to one of the faces in the manner described and shown.

608,040. STRAW-STACKER. WILLIAM A. HINKLE, Forsyth, Ill. Filed Apr. 14, 1894. Serial No. 507,804. (No model.)



Claim.—1. The combination, in a straw-stacker, of a tube composed of a plurality of telescoping sections, a rack-bar on one of the sections, a pinion connected with another section and in mesh with the rack-bar, and means for rotating the pinion, substantially as set forth.

2. The combination of a track, a tube composed of two or more sections one telescoping on the other, a rack bar or bars, connected with the outer section and resting on the track, a pinion or pinions meshing with the rack bar or bars, and means for rotating the pinions in either direction, substantially as set forth

608,041. ELECTROSTATIC GENERATING-MACHINE. ADRIAN H. HOYT, Penacook, N. H. Filed Aug. 9, 1897. Serial No. 647,880. (No model.)



Claim.—1. In an electrostatic generator, the combination with the terminals for the working circuit, of spark-gap arms adapted for longitudinal and rotative adjustment within their posts, substantially for the purpose set forth.

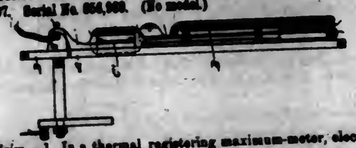
2. In an electrostatic generator, the combination with a horizontally-rotative standard carrying terminals for the working circuit, of spark-gap arms adapted for longitudinal and rotative adjustment within their posts, substantially for the purpose set forth.

3. In an electrostatic generator, the combination of stationary glass plates mounted in suitable insulated supports and having armatures composed of tin-foil secured to their adjacent faces, friction-plates adapted to revolve in contact with said glass plates, suitable means for driving said friction-plates at a high rate of speed, a horizontally-rotative standard carrying terminals for the working circuit, spark-gap arms electrically connected with suitable brushes forming contact with said friction-plates, the said brushes located at a point opposite one end of said armatures, and collectors formed of thin metal having one edge serrated and located at a point opposite that end of said armatures most remote from said brushes, substantially for the purpose set forth.

4. In an electrostatic generator, brush-holders comprising a suitable yoke-piece to the free ends of which the brushes are secured, and clamping-plates within and at the opposite end of said yoke, one of said plates being rigidly fastened to said yoke and the other being swiveled to a screw which is threaded to the yoke opposite to said rigid plate.

5. In an electrostatic generator, comprising Leyden jars or condensers, a circuit-breaker consisting of a perforated stud in electrical connection with each jar and a suitable rod fitting the perforations of said studs and adapted to connect or disconnect the said jars.

608,042. HINGE CONNECTION FOR ELECTRICAL MEASURING INSTRUMENTS. ADRIAN H. HOYT, Penacook, N. H. Filed Nov. 1, 1897. Serial No. 656,969. (No model.)



Claim.—1. In a thermal registering maximum-meter, electrical connections for the stationary and movable parts of the instrument consisting of flexible metal strips or ribbons.

2. In a thermal registering maximum-meter, a hinge comprising a stationary and movable portion, and a copper ribbon having one end electrically connected to the stationary and the other end to the movable part of the hinge, substantially for the purpose set forth.

3. An electrically-connected hinge comprising a stationary member composed of two blocks of metal joined by a hollow shaft or cylinder one of said blocks having a small perforation or socket near the opening leading to said hollow shaft, a movable member having an arm projecting from its edge adjacent to the stationary member provided near its outer end with a lateral projection fitting the small socket in said stationary member, a copper ribbon passing spirally around said hollow shaft and having its ends soldered or otherwise rigidly attached one to said shaft and the other to said movable member, and set-screws threaded to perforations in the stationary member and communicating with the opening in its shaft.

608,048. BLOW-OFF COCK. WILLIAM MCINTOSH, Winona, Minn. Filed Oct. 11, 1897. Serial No. 654,869. (No model.)



Claim.—1. In a blow-off cock, the combination of a valve-casing having communication with a boiler and the atmosphere, a fluid-pressure-actuated piston in the casing, a stem for the piston and a valve controlled by the piston and governing the passage through the casing from the boiler to the atmosphere, such valve being removably secured to the piston-stem and having a substantially universal adjustment thereon.

2. In a blow-off cock, the combination of a valve-casing having a passage from a boiler to the atmosphere, a fluid-pressure-actuated piston in the casing, a stem therefor, a valve controlling said passage and removably connected to the piston-stem and having a movement thereon, and a removable seat on which the valve seats.

3. In a blow-off cock for a boiler and the like, the combination of a valve-casing having a passage from a boiler to the atmosphere, and formed in two parts, a fluid-pressure-actuated piston in the casing, a valve controlled by the piston and governing said passage, means for clamping the parts of the casing together, and a removable inverted cup-shaped seat within the casing on which the valve seats, such seat being held in place by said clamping means.

4. In a blow-off cock for a boiler and the like, the combination of a hollow plug adapted to be secured in the blow-off port of a boiler, a casing having a passage from the boiler to the atmosphere, a removable valve-seat having an annular flange adapted to be held between the casing and plug, means for securing said parts together, a valve governing said passage and adapted to fit upon such seat and means for actuating said valve.

5. In a blow-off cock for a boiler and the like, the combination of a hollow plug 1 adapted to be secured to the blow-off port of a boiler, a casing 2 having a passage from the boiler to the atmosphere, a removable valve-seat 15 having an annular flange adapted to be held between the casing and plug, a clamping-ring 20 adapted to secure the plug, casing and annular flange together, a valve 14 governing the said passage and fitting upon said seat, a piston 17 having a stem 18 actuating said valve and a spring 27 for normally holding the valve seated.

6. A blow-off cock comprising a foundation-plug secured in the blow-off port of a boiler, a valve-casing providing, in conjunction with the plug, a passage-way from the boiler to the atmosphere through a discharge-port in the casing, valve mechanism governing such passage-way, a removable valve-seat and a ring for clamping the plug and casing together and permitting the casing to be adjusted and secured to the plug so as to discharge to the atmosphere in any desired direction.

7. In a blow-off cock, the combination of a casing, a valve therein for normally closing the blow-off port and having a depending stem, means for operating the valve, and a yoke or frame connected to the casing and having a guide to receive the depending valve-stem.

8. A blow-off cock comprising a foundation-plug secured in the blow-off port of a boiler, a valve-casing providing, in conjunction with the plug, a passage-way from the boiler to the atmosphere through a discharge-port in the casing, valve mechanism governing such passage-way, a removable valve-seat and means for clamping the plug and casing together and holding the removable valve-seat in place.

9. In a blow-off cock for a boiler and the like, the combination of a casing communicating with the boiler, a valve therein for governing such communication and having an extended stem 10, a yoke 5 connected to end of the casing within the boiler and provided with a central opening 6 adapted to receive and guide the stem 10 and means for actuating the valve.

10. In a blow-off cock, the combination of a casing in two sections, one section being secured in the blow-off port, a coupling-ring for clamping or connecting the sections together, a valve in the casing for normally closing the blow-off port and means for operating the valve.

11. In a blow-off cock, the combination of a valve casing in two sections, one being the outer section and the other the inner or foundation-plug, the casing having a passage from the blow-off port to the atmosphere and also having a cylinder, a piston therein having a stem, a valve for governing said passage, means for removably securing the valve to the stem, and a second valve governing the blow-off port and adapted to be unseated by contact with the first valve.

12. The combination of a valve, a stem therefor and means for removably securing the valve to the stem comprising flanges or extensions on the valve engaging the stem, and a bolt passing through the valve and contacting the stem for retaining the valve upon the stem.

13. The means for removably securing a valve to a stem comprising a shoulder on the stem, an extension on the valve for engaging the shoulder and a bolt passing through the valve and entering the stem.

14. The means for removably securing a valve to a stem comprising an end shoulder on the stem and having a central hole or recess in its end, two substantially semicircular flanges partially encompassing the stem and engaging the end shoulder and a screw-bolt passing through the valve-body and entering the hole in the end of the stem.

15. The means for removably securing a valve to a stem comprising an end shoulder 20 on the stem and having an end hole or recess, circular flanges 21 extending from the valve and whose inner faces are separated a distance equal to the diameter of the stem above

the end shoulder and a screw-bolt 22 having a reduced end or point 23 entering the hole in the end of the stem.

16. In a blow-off cock, the combination of a casing having a passage from the boiler to the atmosphere, a fluid-pressure-actuated piston in the casing, a stem therefor having an end shoulder, a valve controlling said passage and provided with an extension engaging the shoulder, and a screw-bolt passing through the valve-body and entering the stem.

17. In a blow-off cock, the combination of a casing having a passage from the boiler to the atmosphere, a fluid-pressure-actuated piston, a stem therefor having a shoulder and end recess, a valve controlling said passage and having flanges engaging the shoulder and a bolt with a reduced end, the bolt passing through the valve and entering the recess.

18. In a blow-off cock, the combination of a casing having a passage from a boiler to the atmosphere and also having a cylinder, a piston therein, a piston-stem integral therewith, a valve governing the blow-off port, a second valve removably connected to the stem for governing said passage and a removable valve-seat for such second valve.

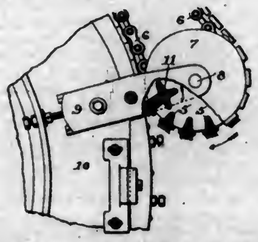
19. In a blow-off cock, the combination of a valve-casing secured in a blow-off port of a boiler and having a passage therefrom to the atmosphere, an inner valve in the casing and seated upon the blow-off port proper, means for guiding such valve, an outer valve also in the casing and governing said passage to the atmosphere, and fluid-pressure mechanism for operating the valves and comprising a piston and a stem removably connected with the outer valve said outer valve having a substantially universal movement on its stem.

20. In a blow-off cock, the combination of a valve-casing in two sections, one being the outer section and the other the inner or foundation-plug, the casing having a passage from the boiler to the atmosphere, and also having a cylinder, a piston located in the cylinder and having a stem, a valve removably secured to the stem and governing said passage, a second valve also governing such passage and adapted to be operated by the movement of the first valve, a yoke upon the plug within the boiler and having a central opening and a stem upon the second valve adapted to be received by the central opening in the yoke.

21. In a blow-off cock, the combination of a valve-casing having a passage from the boiler to the atmosphere and also having a cylinder, valve mechanism for governing said passage, fluid-pressure mechanism for actuating the valve mechanism, a removable end plate or head for the cylinder and a clamping-ring for securing the end plate to the casing.

22. The combination with a boiler and the like, of a foundation-plug secured in the boiler blow-off port, a casing communicating with the plug and forming therewith a passage from the boiler to the atmosphere through a discharge-opening at one side of the casing, valve mechanism within the casing for regulating said passage and means for securing the casing upon the plug in any adjusted position.

608,044. CLEARER-ROLL FOR CARDING-MACHINES. EPHRAIM H. ORRELL, Ware, Mass., assignor to the Whitin Machine Works, Incorporated, Whitinsville, Mass. Filed Sept. 30, 1897. Serial No. 653,594. (No model.)



Claim.—1. The combination with the top-flats of a revolving-flat carding-machine, of a clearer-roll provided with radial ribs, supported on the flats, disconnected from any part of the machine and free to tumble over the moving flats, whereby the rotation of the clearer-roll brings the radial ribs in contact with the surfaces of the top-flats and wipes the same, as described.

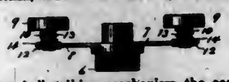
2. In a revolving-flat carding-machine, the combination with the chain, the top-flats secured to the chain, and the disks supporting the ends of the flats, of a tumbler consisting of a central core and radially-projecting ribs covered with clearer-cloth, disconnected from any part of the machine and free to tumble over the surfaces of the moving flats, whereby the tumbler may be readily inserted and removed and the flats cleaned, as described.

608,045. REPAIR DEVICE FOR PNEUMATIC TIRES. JOHN F. PALMER, Riverside, Ill. Filed Mar. 10, 1897. Serial No. 626,819. (No model.)



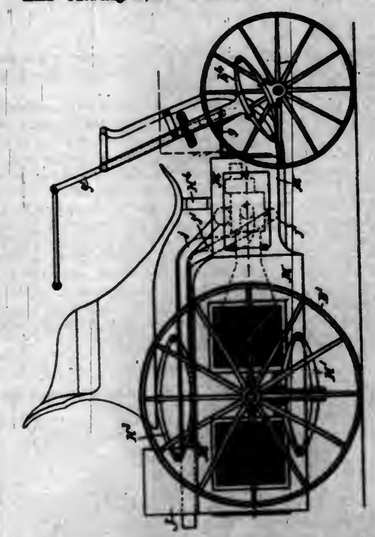
Claim.—A repair device for pneumatic tires comprising a cylinder and a piston movable therein, a flexible solution-tube within the cylinder, an outlet for the solution having a tapering end, elongated longitudinal apertures in said tapering end, and a cap covering the tapering end and serving to inclose the solution-tube and its outlet entirely within the cylinder, substantially as described.

608,046. STRIKING MECHANISM FOR BELLS. JOHN G. PIERSON, New Britain, Conn. Filed Nov. 20, 1897. Serial No. 659,204. (Model.)



Claim.—In a bell-striking mechanism, the combination of the revolving striker-carrier with the strikers having shanks 9 loosely mounted in said carrier, and springs arranged between the striker-heads and the broad side of the striker-carrier, the same being combined with the broad sides of the striker-heads and confronting side of the striker-carrier widely separated to permit the strikers to rock or tip freely on said carrier, substantially as described.

608,047. MOTOR-VEHICLE. WILLIAM H. PICKERING, Cambridge, Mass. Filed Aug. 31, 1896. Serial No. 604,361. (No model.)



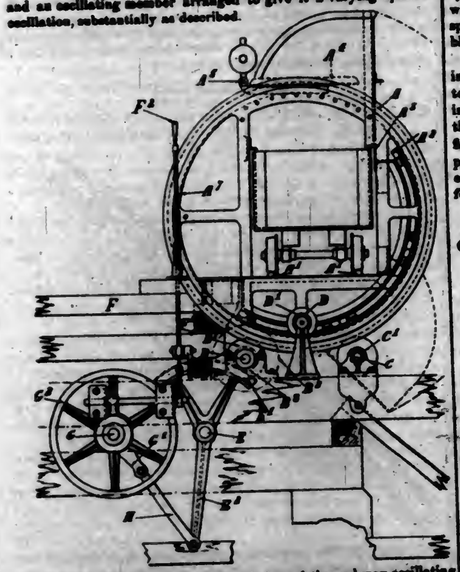
Claim.—1. In a motor-vehicle a clutch-operating mechanism consisting of the sliding bars, F F'; the clutch-levers *f f'*; and means under the control of the operator for moving either sliding bar endwise, all combined to operate substantially as described.

2. In a motor-vehicle the combination of the water-jacket of the motor; a reservoir to supply that jacket elevated above the jacket; supply-pipes *j'* from the reservoir to the jacket and a plurality of upflow-pipes *j* from the jacket to the reservoir, the pipes *j* arranged to form a radiator and thus facilitate the circulation of the water substantially as described.

3. In a motor-vehicle a motor with a casing M, with ventilating-apertures covered with a screen composed of small-mesh fabric *m*, between two sheets *m' m²* of fabric of a larger mesh, substantially as and for the purpose specified.

608,048. OSCILLATING TIPPLER. JAMES REES, London, England. Filed Aug. 13, 1897. Serial No. 648,190. (No model.)

Claim.—1. The combination with a tippler, of a crank, a link and an oscillating member arranged to give it a varying speed of oscillation, substantially as described.



2. An automatically-operating balanced throughway oscillating side tippler having a counterbalanced door the oscillation being controlled by a brake-wheel and spur or friction gear as shown.

3. An automatically-operating balanced throughway oscillating side tippler having a counterbalanced door the oscillation being controlled by a brake.

4. In combination with an oscillating tippler, a counterbalanced door carried thereby, substantially as described.

5. In combination with an oscillating tippler, a plate A^3 and a counterbalanced door, substantially as described.

608,049. COW-MILKER. REUBEN D. ROYE, Mummasburg, Pa. Filed Sept. 14, 1897. Serial No. 651,586. (No model.)



Claim.—1. In a cow-milker, the combination of a double series of yielding cylinders arranged a short distance apart in vertical lines, a pair of blocks adapted to be grasped in the hand of the operator, wires extending from the outer series to the first block, wires extending from the inner series through the first block and to the second block, and springs between the blocks to normally hold them and the series of cylinders apart, substantially as shown and described.

2. In a cow-milker, the combination of two series of short sections of flexible tubing arranged in vertical lines, two blocks adapted to be pressed together by the hand of the operator, a spiral spring in each of the sections of the tubing comprising the outer series having its ends extended and secured to the outer block, a spiral spring in each of the sections of tubing, comprising the inner series having its wires extended through the first block and secured to the second block, and springs for normally holding the blocks and series of sections of tubing apart, substantially as shown and described.

3. In a cow-milker, the combination of a series of short flexible cylinders arranged in a vertical line, two blocks adapted to be pressed together by the hand of the operator, a spiral spring in each of the flexible cylinders, the ends thereof being extended to and secured to the first block before being coiled to form a spring intermediate of the cylinder and the block, a second series of flexible cylinders arranged in a line parallel with the first-named series, a spiral spring in each of said cylinders, its ends being bent backward through the springs in the wires before described and coiled around said wires in the form of springs, and passing through the first block and secured to the second block, substantially as shown and described.

4. In a cow-milker, the combination of two series of flexible cylinders arranged in vertical lines, two blocks adapted to be pressed together by the hand of the operator, and spiral springs in each cylinder of each series, the ends whereof are extended toward the blocks, the extension of the springs in the first series being connected to the first block and the extension of the springs of the second series being passed through the first block and connected to the second, and springs encircling the extension of the second series of blocks to normally force them apart, substantially as shown and described.

608,050. NUT-LOCK. JUDITH B. SARGENT, West Lebanon, N. H. Filed Dec. 27, 1897. Serial No. 663,805. (No model.)



Claim.—1. In a nut-lock, the combination with the nut having a groove or grooves on the under face, of a plate having a lug to engage the groove and also having one end bent to engage the nut on its outer edge.

2. In a nut-lock, the combination of the nut having a groove or grooves on its under face, of the curved spring-plate having its ends bent in opposite directions to engage the nut and base-plate and having a lug for engaging the groove of the nut.

608,051. CIGAR-HOLDER. WALTER W. RAHAN, New York, N. Y., assignor of one-half to George W. Clark, same place. Filed Apr. 21, 1897. Serial No. 633,148. (No model.)



Claim.—1. In a holder for cigars or other articles, the combination with a bow-shaped band, of a cigar-carrying envelop separate from the band and arranged below a horizontal part of the same, and a single spring attached centrally to said band and connected to said envelop, whereby the envelop in its entirety is suspended by said spring from said band, as and for the purposes described.

2. In a holder for cigars, or the like, the combination with a supporting-band, of a carrying-envelop separate from the band, and an attaching-spring connected to said band and arranged in connection with said envelop to normally place the same under transverse tension, whereby the envelop is adapted, by frictional engagement with its contents, to hold the latter in place, as set forth.

3. In a holder for cigars or other articles, the combination with a supporting-band, of a carrying-envelop provided at its edge with a reinforcement wire or strip, and a single attaching-spring fastened to said band and detachably connected to said strip or wire of the envelop, whereby the envelop may be removed in its entirety from the band and said spring, as and for the purposes described.

4. A holder or case for cigars or other articles comprising a band to be arranged inside the hat, an envelop having a pocket to receive the cigars or other articles, and spring-arms carried by the band and connected at their ends to the edges of the envelop at opposite sides of the pocket thereof, said arms being arranged to hold the sides of the envelop under tension to retain the cigars or other articles in place therein, substantially as set forth.

5. In a holder for cigars, or the like, the combination with a supporting-band, of an open-ended envelop having it edges reinforced by a marginal wire, and attaching-springs fastened to said holder and engaging with said reinforcing-wires of the envelop to strain the latter transversely, as and for the purposes described.

6. A holder for cigars and the like comprising an envelop having a pocket for containing the cigars or other articles, a strip of spring material connected to the edge of the envelop on each side of said pocket, and means for securing said strip inside the hat, said strip being arranged to hold the sides of the envelop under tension to retain the cigars or other articles in the pocket, substantially as set forth.

7. As a new article of manufacture, a holder for cigars, and the like, comprising a supporting-band, an attaching-spring fastened, at

a point intermediate of its length, to said bar, and terminating, at its ends, in elastic arms which are free from engagement with said band, and an envelop separate from the band and engaged, at its side edges, with the elastic arms of said attaching-spring, as set forth.

8. As a new article of manufacture, a holder for cigars, and the like, comprising a continuous supporting-band provided with the transverse bar 5, a spring fastened centrally to the band and terminating in free, elastic arms, an open-ended envelop connected at its side edges to the free ends of said spring, and a clip 14 attached to the band at one side of the spring and the envelop, as set forth.

608,052. SHOE-FASTENER. GEORGE W. BURFORD, Verona, Pa. Filed Mar. 15, 1897. Serial No. 627,600. (No model.)



Claim.—1. A fastener for shoes or other articles, consisting of the plates bent one upon the other, each provided with a circular opening said plates being joined together, one of the plates being provided with a slot, the other being provided with a lip, and a staple attached to said lip for pivotally attaching the fastener to the shoe or other article, substantially as described.

2. A fastener for shoes or other articles consisting of the two plates joined together by a narrow strip and bent one upon the other, a centrally-located circular opening in each of said plates, one of said plates being provided with a lip, a staple attached to said lip whereby the fastener is pivotally attached to the shoe or other article, the other plate being provided with a slot in the periphery thereof, substantially as described.

608,053. CURTAIN-POLE. AXEL M. CHRISTIANSEN, Chicago, Ill. Filed June 26, 1897. Serial No. 642,444. (No model.)



Claim.—1. The curtain-hanger herein described, consisting of the horizontal portion I, having downward projections H, with eyes G, at the lower end thereof, and the points D, projecting from the angular portions E, of the cross-bar F, said cross-bar being pivotally secured in the eyes G, of the parts H, substantially as described.

2. A knob or end finish for curtain-poles consisting of a knob or sphere provided with a frusto-conical extension secured within the outer end of said frusto-conical extension having longitudinal slots forming spring-fingers to fit over the end of the pole, the outer ends of said fingers being bent inward and the inner ends thereof turned radially inward to serve as stops to prevent the knob or finish from being pressed too far upon the pole.

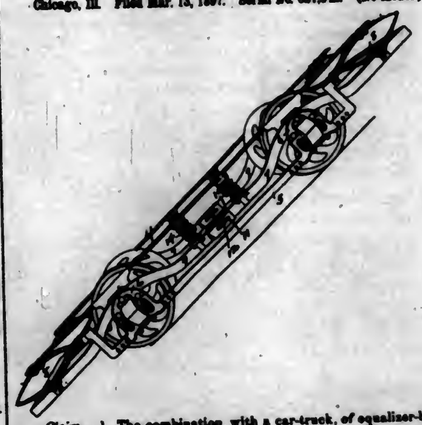
608,054. COMBINED SPROUT-PULLER AND WAGON-JACK. DAVID E. COFF, Woodstock, Va. Filed Dec. 31, 1897. Serial No. 665,009. (No model.)



Claim.—1. A sprout-puller comprising a base, the uprights or standards attached to said base, one of said standards being projected forwardly and then bent laterally at its projected end, a handle-bar pivoted between the uprights or standards and adapted to contact at its forward end with the laterally-bent end of the projected standard, and the plates attached to the sides of the handle-bar near the forward end, said plate projecting above and below the upper and lower face of the said handle-bar and provided with means for attaching a block above and a prop below said bar, substantially as described.

2. A sprout-puller comprising a base A, the upright B provided with horizontal flanges B' and bolted to the base, the upright C provided with a horizontal flange and bolted to the base a short distance from and parallel with the upright B, the forward extension D to the upright C having its outer end bent laterally and provided with teeth D^2 on its lower edge, the handle-bar F pivoted between the uprights B and C and projecting beyond the pivot, a metal plate H secured to the top of the handle-bar and having teeth H' in position to coact with the teeth D^2, and the plates J and K rigidly secured on opposite sides of the handle-bar F at an inclination to its upper and lower surfaces, projecting above and below the handle-bar and having holes adapted to receive the pins for attaching the block L and prop N when desired, substantially as described.

608,055. EQUALIZER FOR CAR-TRUCKS. EDMUND A. CURTIS, Chicago, Ill. Filed Mar. 13, 1897. Serial No. 627,342. (No model.)



Claim.—1. The combination, with a car-truck, of equalizer-bars pivotally mounted between their ends in the vertical plane of the axles and having their inner adjacent ends pivotally connected, each equalizer-bar having both of its ends free to move relatively to the car-body, and body-supporting springs mounted one at each end of each bar and interposed between said bar and the car-body, substantially as described.

2. In a car-truck, the combination, with a truck-frame, of equalizer-bars pivoted thereon between their ends in the vertical plane of the axles, the inner ends of said equalizer-bars having a sliding pivotal connection with each other, each equalizer-bar having both of its ends free to move relatively to the car-body, and body-supporting springs mounted on each end of said equalizer-bars and interposed between said bars and the car-body, substantially as described.

608,056. INCANDESCENT ELECTRIC LAMP. MARK W. DEWEY, Syracuse, N. Y., assignor to the Dewey Corporation, same place. Filed July 22, 1891. Serial No. 400,573. (No model.)



Claim.—1. In an incandescent electric lamp, the combination of a light-giving electric conductor, a receiver made entirely of glass and completely inclosing said conductor, and from which receiver the air is exhausted, and an electric conductor outside of said receiver and in inductive relation to the inclosed conductor.

2. The combination of a carbon filament, with a receiver made entirely of glass and completely inclosing said filament, and from which receiver the air has been exhausted, and a coiled electric conductor outside of said receiver and in inductive relation to the inclosed filament.

3. The combination of a closed electric circuit formed substantially entirely of carbon, with a receiver made entirely of glass and inclosing said circuit, and from which receiver the air has been exhausted, and an electric conductor in inductive relation to said electric circuit for the purpose described.

4. The combination of a closed electric circuit made entirely or substantially entirely of carbon, with a receiver made entirely of glass and inclosing said circuit, and from which receiver the air has been exhausted, and an electric conductor in inductive relation to the circuit or a portion thereof.

5. The method of causing incandescence in an electric glow-lamp, which consists in subjecting a ring or closed-coil filament inclosed in a substantially exhausted receiver to the inductive influence of the field produced by varying currents in an external electric conductor, substantially as described.

6. The method of causing incandescence in an electric glow-lamp, which consists in disposing the filament of said lamp as the secondary of an induction coil or transformer and causing a varying current to traverse the primary of said transformer, substantially as described.

7. The combination in an electric glow-lamp, of a filament in ring or closed-coil form, and a means of producing a varying field of force; the said filament being located in said field and receiving a current by induction therefrom, substantially as described.

8. The combination of an electric glow-lamp having filament in ring or closed-coil form, a coil and a source of varying electric current connected with said coil; the said filament and said coil being disposed in inductive proximity, substantially as described.

9. The combination in an electric glow-lamp, of a receiver of translucent material and a filament without leading-in wires in the form of a ring or closed coil inclosed therein, substantially as described.

10. In an electric illuminating apparatus, a support, a means of producing a variable field of force combined therewith, a glow-lamp receiver adapted to be held upon said support, and a filament in ring or closed-coil form inclosed within said receiver, the aforesaid parts being constructed and arranged so that when said receiver is held upon said support said filament shall be in said variable field, substantially as described.

11. In an electric illuminating apparatus, a primary coil, a glow-lamp receiver adapted to be supported thereon, and a filament in ring or closed-coil form inclosed within said receiver, the aforesaid parts being constructed and arranged so that when said receiver is supported on said primary coil, said filament shall become a secondary thereto and be caused to glow by the induced current, substantially as described.

12. In an electric illuminating apparatus, a primary coil, a glow-lamp receiver adapted to be supported thereon, a filament in ring or closed-coil form inclosed within said receiver with reference to said primary coil; the aforesaid parts being constructed and arranged so that when said receiver is supported on said primary coil said filament shall become a secondary thereto and be caused to glow by the induced current, and also so that by the movement of said receiver as aforesaid said induction effect, and hence the intensity of the glow, may be varied, substantially as described.

13. In an incandescent lamp, the combination of a light-giving conductor, a suitable receiver completely inclosing said light-giving conductor, and from which receiver air is exhausted, and an electric conductor outside of said receiver and in inductive relation to the light-giving conductor.

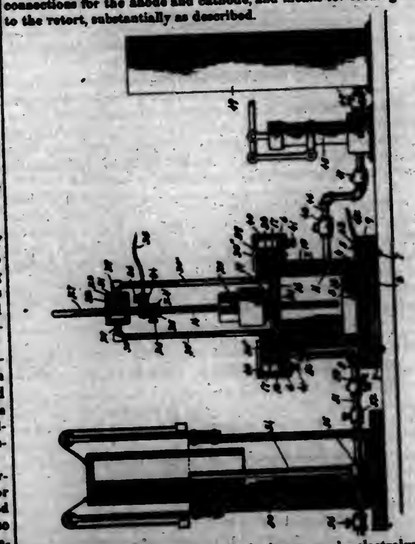
608,057. ADVERTISING DEVICE. MATTHEW DEFFNER, Allegheny, Pa. Filed Apr. 5, 1897. Serial No. 630,801. (No model.)



Claim.—As a new article of manufacture, a toy consisting of a shaft, a cross-piece a secured to one end, hemispherical bodies of unequal weight secured to the ends of said cross-piece, said hemispherical bodies being provided with openings a^2 in which are secured reeds, sleeve provided with an opening to receive the shaft, a central chamber, an opening through the side of the sleeve communicating with said chamber, an operating-string passing through said opening and secured to the shaft, a ball attached to the lower end of the shaft, said hemispherical bodies producing a noise when the operating-string is pulled.

608,058. ELECTRICAL REPEAT. HILLIARY ELDRIDGE, DANIEL J. CLARK, and SYLVAIN ELDE, Galveston, Tex. Filed June 30, 1897. Serial No. 642,701. (No model.)

Claim.—1. In a plant for manufacturing hydrogen gas by electrolysis, a retort having a closed chamber and a conducting-bottom, a base insulated electrically from said retort, a closure or head also insulated from the retort, a cathode seated in electrical contact with the conducting-bottom of said retort, and a packed insulating stuffing-box mounted on the head, in combination with an anode, electrical connections for the anode and cathode, and means for feeding water to the retort, substantially as described.



2. In a plant for manufacturing hydrogen gas by electrolysis, the retort having a conducting-bottom and closed chamber, a disk-like cathode seated on the conducting-bottom of the retort and in electrical contact therewith, an annular bottomless lining secured within the retort-chamber to surround the cathode and having the water-induction port and the gas-eduction port, a stuffing-box supported on the head or cover of the retort above the cathode and carrying the vertically-alined insulated bushings, an anode movable within said bushings of the stuffing-box and insulated thereby from electrical contact with said stuffing-box, a feed mechanism for the anode, and electrical conductors in contact with the retort and the anode, combined with a feed-pump connected with the water-induction port, a gasometer, and connections between the gasometer and the gas-eduction port from the retort and its refractory lining, substantially as and for the purposes described.

3. In a plant for manufacturing hydrogen gas by electrolysis, a retort comprising a metallic vessel having a head or cover, a two-part stuffing-box having one member rigid with said retort-head and the other member forming a removable gland, insulating-bushings fixed within the members of said stuffing-box and arranged in vertical alinement with each other, and a packing confined between the vertically-alined bushings, combined with an anode movable through the bushings and packing of the stuffing-box and insulated by said bushings from electrical contact with the stuffing-box, a cathode confined within the retort, and suitable electrical connections, substantially as and for the purposes described.

4. In a plant for manufacturing hydrogen gas by electrolysis, a retort having a head or cover, a stuffing-box having one member rigid with said head or cover and provided with an interior insulating-bushing, a stuffing-box gland coupled to the rigid stuffing-box member, another insulating-bushing secured within the stuffing-box gland and having a vertical opening in alinement with a similar opening in the rigid member of the stuffing-box, and a packing interposed between the insulating-bushings and confined by a gland within the stuffing-box, in combination with an anode movable through said alined bushings and insulated thereby from electrical contact with the stuffing-box, a cathode within the retort-chamber, and electrical connections, substantially as and for the purposes described.

5. In a plant for manufacturing hydrogen gas by electrolysis, a retort having a chamber and a cathode confined therein, a head or closure insulated from said retort, a two-part stuffing-box carried by said head or closure and containing vertically-alined insulating-bushings and a packing confined between said bushings, a supporting-frame insulated from the head or closure, and clamps for holding said closure on the supporting-frame rigidly upon the retort, combined with a

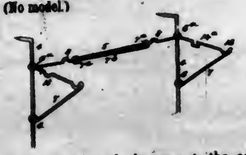
feed mechanism mounted in the supporting-frame, an anode passing through the bushings of and insulated from electrical contact with a stuffing-box, and suitable electrical connections for the retort and said anode, substantially as and for the purposes described.

6. The combination with a retort vessel having a closure, and a cathode therein, of a supporting-frame resting upon, but insulated from, the retort closure, a clamp embracing said retort vessel and the supporting-frame, but insulated from the latter, an anode, a carrier for said anode and provided with a guide-rack, a boxing supported on the frame, and a shaft carrying an adjusting-pinion, as and for the purposes described.

7. In a plant for manufacturing hydrogen gas by electrolysis, a retort having a tightly-closed chamber, and a two-part stuffing-box mounted on said retort and provided with insulating-bushings and a packing, combined with an anode movable through the stuffing-box and insulated by the bushings therein, a cathode within the retort, electrical connections for said cathode and anode, and means for feeding a liquid to said retort, substantially as described.

8. In an apparatus for manufacturing hydrogen gas by electrolysis, a retort having an insulated cover, an upright frame clamped to said retort and provided with a guide-head, and a stuffing-box mounted on the cover and having insulating-bushings in line with the guide-head, combined with an anode passing through the guide-head and stuffing box, a feed mechanism for said anode, a cathode, and electrical connections for said anode and cathode, substantially as described.

603,059. WINDOW-SHADE SUPPORTER. JAMES A. HILLMAN and HARRY M. REED, Homestead, Pa. Filed May 7, 1897. Serial No. 635,552. (No model.)



Claim.—1. In a window-shade support, the combination with the vertical guides 4 and the pulleys 11 9ª and 10ª arranged substantially as shown, of the supporting member, comprising two sections having a telescopic connection, whereby the sections can be extended laterally, each section having an eye 7ª, a bend 8 having one end bent outward at right angles to form a bracket 7, said bracket having a seat for the curtain-pintles and having eyes 6 and 6ª to engage the guides 4, and the cords 9 10 and 12, all being arranged substantially as shown and described.

2. The combination with the side guides, of the combined curtain and shade support, consisting of the wire frame composed of two sections each consisting of a single wire member having one end bent to form an eye 7ª, its opposite end being bent outward at right angles to form a horizontal bracket member and bent downward and backward to form a brace, the lower end of which terminates in the eye 6, said wire member being bent at an angle to form an eye 6ª and also bent to form a bend 8 at a point between the eyes 7ª and 6ª, all being arranged substantially as shown and described.

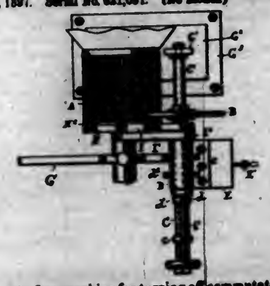
603,060. ELECTRIC RAILWAY. CHARLES F. HOLTHAUS and CHARLES BURGMANN, Pittsburg, Pa. Filed Aug. 5, 1897. Serial No. 647,212. (No model.)



Claim.—1. In an electric railway, a series of separated successively-arranged contact-boxes, a fixed interior metallic contact-plate arranged longitudinally within the bottom of each box and provided at its ends with upwardly-disposed contact lugs or projections, a normally spring elevated straight track-section arranged longitudinally above each box, each track-section being of a U shape in cross-section and carrying a depending connecting-post, and a horizontal contact-bar fitted between its ends to the lower extremity of said connecting-post and provided with oppositely-located pairs of keeper-plates adapted to engage with said contact lugs or projections, substantially as set forth.

2. In an electric railway, a series of successively-arranged contact-boxes provided with removable cover-plates and formed at their opposite ends with integral vertically-disposed spring casings or pockets, said cover-plate having a central and end insulated guide-openings, insulating-linings fitted within each contact-box and the spring casings or pockets thereof, a fixed interior metallic contact-plate fitted within the bottom of each contact-box and provided with separate oppositely-located contact lugs or projections, springs housed within said casings or pockets, a normally-elevated straight track-section arranged longitudinally above each box, and provided with a central depending connecting-post working through the central insulated guide-opening, and at its ends with depending stems working through the end guide-openings and having buffer-collars resting on the springs within said casings or housings, a horizontal straight contact-bar fitted centrally between its ends to the inner lower extremity of said connecting-post, and provided at each end with a pair of spaced keeper-plates adapted to work over and engage with the contact lug or projection therebeneath, and a feed-wire connection with said ieterior metallic contact-plate, substantially as set forth.

603,061. DEVICE FOR TURNING OFF COMMUTATORS OF DYNAMOS OR MOTORS. WILLIAM H. JORDAN, Brooklyn, N. Y. Filed Jan. 28, 1897. Serial No. 621,081. (No model.)



Claim.—1. In a machine for turning off commutators of dynamos or motors, the combination of a tool carried by a rotating and longitudinally-movable shaft, a bearing for said shaft adjustable toward and away from the commutator, a driving-wheel adapted to be journaled on either end of said bearing and by means of which the shaft is rotated and through which driving-wheel the shaft is longitudinally movable, and a driving connection between said wheel and the commutator, substantially as and for the purpose set forth.

2. In a machine for turning off commutators of dynamos or motors, the combination of a tool carried by a rotating and longitudinally-movable shaft, a bearing for said shaft adjustable toward and away from the commutator, a support for said bearing, a driving-wheel journaled on said bearing and by which the shaft is rotated and through which the shaft is longitudinally movable, a driving connection between said driving-wheel and the commutator, and an extra adjustable bearing for one end of the tool-shaft, substantially as set forth.

3. In a machine for turning off commutators of dynamos or motors, the combination of a tool carried by a rotating and longitudinally-movable shaft, a bearing for said shaft adjustable toward and away from the commutator, a driving-wheel adapted to be journaled on either end of said bearing and by means of which the shaft is rotated and through which driving-wheel the shaft is longitudinally movable, a driving connection between said wheel and the commutator, and means for limiting the longitudinal movement of the shaft through the bearing, substantially as and for the purpose set forth.

4. In a machine for turning off commutators of dynamos or motors, the combination of a tool carried by a rotating and longitudinally-movable shaft, said shaft being tubular at the one end, a bearing for said shaft adjustable toward and away from the commutator, a support for said bearing, a driving-wheel supported by said bearing and by which the shaft is rotated and through which the shaft is longitudinally movable, a driving connection between said driving-wheel and the commutator, and an adjustably-supported rod entering the tubular end of the shaft to form an additional bearing, substantially as set forth.

5. The combination with an apparatus for turning off commutators, of an adjustable support therefor adapted to be clamped to the base of dynamos or motors, said support comprising a clamping-plate G^3, a plate G^2 adjustable thereon, and a standard G' on said last-named plate, upon which the turning-off apparatus is adapted to be secured, substantially as set forth.

603,062. CAR-COUPLING. EDWARD B. JOY, Dexter, Kans. Filed Aug. 28, 1897. Serial No. 649,579. (No model.)

Claim.—1. A car-coupler, comprising a longitudinally-yielding draw-bar and a suitable frame for said bar, said draw-bar having its forward end bifurcated and provided with a slot in its forward end, a spring-pressed coupling-pin adapted to be passed through said slot, a lever pivotally supported from the draw-bar and adapted to be rocked to elevate the coupling-pin to uncouple the cars, a sliding spring-actuated member adapted to engage the pin and keep the same normally elevated, said member being provided at its rear end with an arm adapted to engage the frame when the cars come together, to release the pin and permit the same to be forced downwardly through the slots in the companion coupler, said draw-bar being also provided with the registering slots adapted to receive the coupling-pin of the companion coupler, and means for keeping the draw-bar normally forced upward, substantially as described.



2. A car-coupler, comprising a rearwardly-yielding draw-bar, a suitable frame for said draw-bar having stude passing through elongated slots in the rear portion thereof to limit the horizontal movement of the draw-bar, said draw-bar being provided with bifurcated forward end having vertical slots therein for the passage of the coupling-pin carried by the draw-bar, and the coupling-pin carried by the companion coupler, a spring-pressed coupling-pin in the slot in the forward end of the draw-bar, a lever pivoted upon the draw-bar and having its forward and connected with the coupling-pin, whereby the same is elevated, a spring-actuated sliding arm having its forward end in engagement with the coupling-pin, whereby the same is maintained in elevated position, said member having an arm at its rear end adapted to engage the draw-bar frame when the cars are brought together and thereby permit the coupling-pin to be forced downwardly, substantially as described.

603,063. RHEOSTAT. HARRY W. LEONARD, East Orange, N. J. Filed July 24, 1896. Serial No. 600,742. (No model.)



Claim.—1. The combination of a support covered by a layer of partially-vitrified insulating material, a layer of vitreous insulating material on said layer, and a conductor held to the insulated side of the support by a layer of non-vitrified insulating material.

2. The combination of a cast-iron support covered by a layer of partially-vitrified insulating material, a layer of vitreous insulating material on said layer, and a conductor held to the insulated side of the support by a layer of non-vitrified insulating material.

3. The combination with two plates or supports having a layer of partially-vitrified insulating material, and a covering-layer of vitreous insulating material, of a conductor held between said insulated plates.

4. The combination with two plates or supports having a layer of partially-vitrified insulating material, and a covering-layer of vitreous insulating material, of a conductor held between said insulated plates, and a filling of non-vitrified material between the adjacent sections of the condector.

5. The combination with two cast-iron plates or supports having a layer of partially-vitrified insulating material, and a covering-layer of vitreous insulating material, of a conductor held between said insulated plates.

6. The combination of a metal support, covered by a layer of insulating material, applied as a powder and made by heat into a coherent mass adhesive to the support, a glazing of vitreous material on said layer, and a conductor held to the support by a layer of non-vitrified insulating material.

7. The combination of a cast-iron support, covered by two layers of insulating material, the first layer being applied as a powder and made by heat into a coherent mass adhesive to the support, the second layer being applied in the form of powdered glass which by heat is caused to fuse and produce a glaze on the first layer, and a conductor held to the support by a layer of non-vitrified insulating material.

8. The combination of a metal support covered by a layer of vitreous insulating material, and a conductor held to the support by a layer of non-vitrified insulating material.

9. The combination of a metal support, covered by a layer of vitreous insulating material, and a conductor held to the support by a layer of cement.

10. The combination of a cast-iron support, covered by a layer of partially-vitrified insulating material, a layer of vitreous material on the first layer, and a conductor held to the support by a layer of cement.

11. The combination of a conductor carried by a support of insulating material and a metal plate placed in close proximity thereto, said plate being insulated from said conductor by a layer of vitreous material.

12. The combination of a conductor carried by a support of insulating material and a metal plate placed in close proximity thereto, said plate being insulated from said conductor by a layer of vitreous material, and a filling of non-vitreous material between adjacent sections of the conductor.

13. The combination of a conductor carried by a support of insulating material, and a cast-iron plate placed in close proximity thereto, said plate being insulated from said conductor by a layer of partially-vitrified material covered by a second layer of vitreous material, and a filling of non-vitreous material between the adjacent sections of the conductor.

14. The combination of a conductor carried by a support of insulating material, and two metal plates between which said support with the conductors is placed, the inner surfaces of said plates being insulated from said conductor by a layer of vitreous material.

15. The combination of a conductor carried by a support of insulating material, and two metal plates between which said support with the conductor is placed, the inner surfaces of said plates being insulated from said conductor by a layer of vitreous material, and a filling of non-vitreous material between the adjacent sections of the conductor.

16. The combination of a conductor carried by a support of insulating material, and two cast-iron plates between which said support with the conductor is placed, the inner surfaces of said plates being insulated from said conductor by a layer of partially-vitrified material covered by a second layer of vitreous material, and a filling of non-vitreous material between the adjacent sections of the conductor.

17. The combination of a metal support having upon its surface two layers of adherent insulating material, each separately applied as a powder and made adherent by heat, and a heating-conductor insulated from the metal support by said insulating-layers but free to expand without affecting the said insulating-layers.

18. The combination of a metal support, a ground coat applied as a powder and made adherent by heat, a glaze upon said ground coat and a conductor in contact with said glazed surface but free to expand without affecting the said glazed surface.

19. A conductor held in position by a thin layer of insulating material between two metal surfaces, each of the two surfaces being coated by an adherent layer of insulating material applied as a powder and made adherent to the surfaces by heat.

20. The combination of a box-like support coated on the inside with a layer of insulating material, a conductor arranged on said layer of insulating material, and a plate placed over said support and whose inner side is covered by a layer of insulating material.

21. The combination of a cast-iron box-like support coated on the inner side by a layer of partially-vitrified material, a coating of vitreous insulating material on said first layer, a conductor arranged on said vitreous layer, and a plate placed over said box-like support and coated on its inner side with a layer of insulating material.

603,064. GRINDING-MILL. JOHN G. MOLE, Batavia, Ill. Filed Aug. 20, 1896. Serial No. 603,235. (No model.)

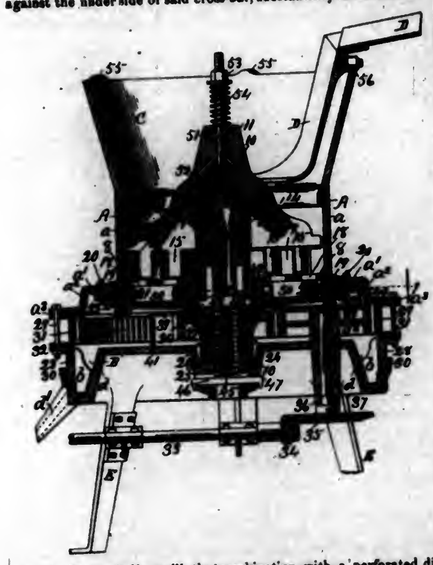
Claim.—1. In a grinding-mill, the combination with a revoluble casing, provided with a perforated diaphragm having breaker-teeth and a vertical bearing-sleeve formed integral therewith, of a base part, provided with a hollow stationary axial spindle extending up through said sleeve on the diaphragm, and a cap, mounted on said spindle and having laterally-projecting arms provided with breaker-teeth, arranged parallel to the corresponding teeth on said diaphragm, substantially as described.

2. In a grinding-mill, the combination with a revoluble casing, of the upper grinding-ring, secured therete, a rotatable carrier, the lower grinding-ring, secured to said carrier, the hollow axial spindle, a driving gear-wheel, loosely mounted thereon and having a frictional engagement with said carrier, and means for transmitting motion to said gear-wheel, substantially as described.

3. In a grinding-mill, the combination with a revoluble casing, of a ring, the lower edge of which extends down into the base part, and is connected to the lower flanged edge of said casing by a number of bolts and leaving a space between, a hubless gear-wheel clamped in between the casing and ring and filling said space, the wings, secured to said ring, and means, for transmitting motion to said hubless gear-wheel, substantially as described.

4. In a portable mill, the combination with the revolable casing and its perforated diaphragm, of a vertical sleeve, an axial spindle,

a ring 42, a cross-bar on which said ring rests, and a spring, bearing against the under side of said cross-bar, substantially as described.



5. In a grinding-mill, the combination with a perforated diaphragm, having an annulus formed on the under side thereof, of the grinding-rings, and the feed-arms, secured at their inner ends to said annulus, the outer ends stopping short of the edges of the grinding-rings, substantially as described.

6. In a grinding-mill, the combination with a revoluble hopper, provided around its upper edge with a number of ridges, of a feed-spout, and a friction-roller, journaled in said spout and adapted to have contact with said ridges, substantially as described.

608,065. FLY-TRAP. JOHN C. NIXON, Texarkana, Ark. Filed Sept. 8, 1897. Serial No. 650,866. (No model.)

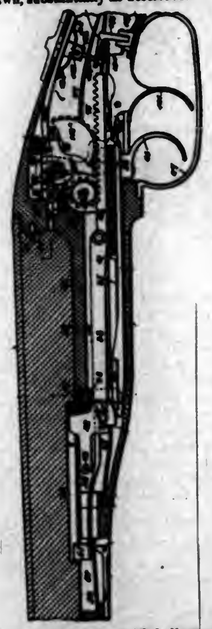


Claim.—1. A fly-trap comprising a base-plate, a motor inclosed in a casing at one end thereof, and a standard at the other end, a standard mounted centrally on the base and provided at its upper end with a curved plate, hooks projecting from the inner side of the casing and the top of the standard, a roller journaled in the standard and the side of the casing, one end of its shaft projecting into the casing and being connected with the motor, and a cylindrical cage having end rods with eyes, mounted upon the curved plate with the eyes of its end rods engaging the hooks before mentioned, substantially as described.

2. The cage herein described consisting of circular or disk-shaped end pieces having curved notches in one side, and the wire-netting secured on said ends, beginning at one edge of the curved notches and extending around the circular ends into the opposite side of the curved notches, leaving a space between the ends of the netting extending from end to end of the cage, substantially as described.

608,066. MAGAZINE-FIREARM. WILLIS H. OUTERBRIDGE, Boston, Mass. Filed Oct. 8, 1896. Serial No. 608,263. (No model.)

Claim.—1. In a gun, the combination, with the firing-triggers provided with extensions within the frame of the gun, of a barrel-releasing bar having sliding movement beneath the trigger extensions, the said bar when the barrels are locked being clear of the trigger extensions, permitting the triggers to have free movement, but wherein when the barrels are opened the said bar will intervene the trigger extensions and the bottom of the frame, preventing the triggers being drawn, substantially as described.



2. In a gun, the combination, with indicators having movement in the breech and having rack-surfaces, the indicators being provided with ejecting-carriers, a rack, moving barrels for operating the rack, a driving pinion engaging with the said rack, and shifting pinions adapted for driving connection with the driving-pinion and arranged for engagement with the rack-surfaces of the indicators, of shifting plates having sliding movement one upon the other, controlling the movement of the shifting pinions, latches controlling the movement of the shifting plates, tension devices exerting downward tension on the said latches, and crank-arms arranged to elevate the latches, being operated by the forward movement of the hammers of the gun, as and for the purpose set forth.

3. In a gun, the combination, with indicators having movement in the breech and having rack-surfaces, the indicators being provided with ejecting-carriers, a rack, moving barrels for operating the rack, a driving-pinion connected with the aforesaid rack, and shifting pinions adapted for driving connection with the driving-pinion and arranged for engagement with the rack-surfaces of the indicators, of shifting plates having sliding movement one upon the other, controlling the movement of the shifting pinions, latches controlling the movement of the shifting plates, tension devices exerting downward tension on the said latches, crank-arms arranged to elevate the latches, being operated by the forward movement of the hammers of the gun, and a spring-controlled wedge operated by the closing movement of the barrels and arranged when the barrels are closed to laterally separate the said shifting plates, as and for the purpose set forth.

4. In a gun, the combination, with a rack, and moving barrels for operating the rack, of a segment meshing with the said rack, crank-arms connected with the said segment, and hammers provided with shoulders for engagement by the crank-arms, the relation of the crank-arms to the shoulders of the hammers being such that at the forward movement of the barrels the hammers will be carried to a cocked position, as and for the purpose specified.

5. In a gun, the combination, with a frame, sliding barrels, the hammers and ejecting devices, of a driving-pinion operated by the movement of the barrels, a shifting pinion at each side of the driving-pinion, arranged for clutch engagement therewith, shifting plates connected with the shifting pinions, a wedge having its movement

controlled by the movement of the barrels, which wedge engages with the shifting plates, normally holding the shifting pinions from the driving-pinion, latches arranged for engagement one with each shifting plate, cranks connected with the latches, and projections upon the hammers arranged to engage with the cranks and lift the latches when the hammers are cocked, shoulders located on the hammers above the projections, and offsets upon the latches for engagement by said shoulders on the hammers when the said hammers have been thrown in firing, as and for the purpose set forth.

6. In a gun, the combination, with the frame, sliding barrels, the hammers and ejecting devices, of a driving-pinion operated by the movement of the barrels, a shifting pinion at each side of the driving-pinion, arranged for clutch engagement therewith, shifting plates connected with the shifting pinions, a wedge having its movement controlled by the movement of the barrels, the wedge being arranged for engagement with the shifting plates, normally holding the plates from connection with the driving-pinion, tension-controlled latches arranged one for engagement with each shifting plate, offsets secured upon the latches, having a crank-arm at each end, one crank-arm of each shaft being in lifting engagement with a latch, the other crank-arm having free movement near the opposite latch, projections upon the hammers, adapted to engage with the free crank-arms, and shoulders upon the hammers, arranged for sustaining engagement with the offsets on the latches, as and for the purpose set forth.

7. In a gun, the combination, with a frame, barrels held to slide to and from the frame, ejecting devices, and a driving-pinion operated by the movement of the barrels, of a shifting pinion at each side of the driving-pinion, arranged for clutch engagement therewith, shifting plates connected with the shifting pinions, a wedge having its movement controlled from the barrels, being arranged for engagement with the shifting plates, normally holding them disconnected from the driving-pinion, tension-controlled latches arranged for engagement with each shifting plate, offsets secured upon the latches, shafts journaled below the latches, having a crank-arm at each end, one crank-arm being in lifting engagement with each of the latches, the other crank-arm having free movement near the opposite latch, hammers for the gun, each provided with a pin and a shoulder, said pins being in lifting engagement with the free crank-arms when the hammers are cocked, the arrangement of the crank-arms, offsets upon the latches, the pins and shoulders upon the hammers being such that when the right-hand barrel is fired the shoulder of the right-hand hammer will hold the right-hand latch elevated, the pin upon the right-hand hammer at the same time releasing the lifting-crank from its lifting engagement with the left-hand latch, substantially as described.

8. In a gun, the combination, with ejecting devices, a driving-pinion, sliding barrels operating said pinion, a shifting pinion at each side of the driving-pinion, and shifting plates connected with the shifting pinion, of latches having offsets, lifting-cranks for the latches, hammers provided with shoulders and projections, the projections serving to hold the latches raised when the hammers are cocked, the shoulder of a hammer being adapted when the hammer is tripped to hold the latch raised at the same side of the frame at which the hammer is located, the pin of the tripped hammer at the same time releasing the latch of the opposite or cocked hammer, substantially as described.

9. In a gun, the combination, with a frame, the fore-end of the same, barrels mounted to slide on the fore-end, a limiting-bar, a rack connected with the limiting-bar and operated by the movement of the barrels, a releasing-bar, a trigger connected therewith, and guide projections upon the releasing-bar, causing said bar to move parallel with the movement of the barrels, of an arm operated by the releasing-bar, said arm being passed at one end through the limiting-bar and provided at its opposite end with teeth, a lock-latch pivoted in the fore-end, adapted for engagement with the barrels and having teeth arranged for engagement with the teeth of the said arm, a stop carried by the latch, adapted for engagement with the limiting-bar, a flexible extension for the forward end of the limiting-bar, a head-block upon said extension adapted to enter a slot in the fore-end and a slot between the barrels, a spring arranged to engage with the head, and a lever having a cam-head arranged to engage with said spring and maintain said head-block in engagement with the barrels, as and for the purpose specified.

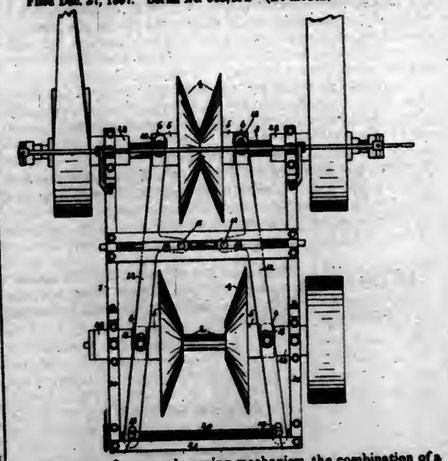
10. The combination, with the trigger of a gun having forward extensions, of a releasing-bar for the barrels of the gun, which releasing-bar at its releasing movement passes under the trigger extensions, as and for the purpose set forth.

11. The combination, with the triggers of a gun having forward extensions, of a releasing-bar for the barrels of said gun, a limiting-bar for the barrels cooperating with the releasing-bar, the rear portion of said releasing-bar when carried rearward to a position releasing the barrels being arranged to pass beneath the extensions of the triggers, preventing the triggers from being operated, as and for the purpose specified.

12. In a gun, the combination, with the sears, of a rocking lock extending over said sears, preventing the two triggers from being simultaneously thrown, the said rocking lock being operated by the elevation of the sears in firing, sliding barrels, a releasing-bar for the barrels, triggers having their forward inner ends extending beyond their pivots, beneath which inner forwardly-extending ends of the triggers the releasing-bar is carried when the barrels are released by said bar, as and for the purpose specified.

13. In a gun, the combination, with the sears, each sear being provided with an inwardly-extending flange, of a forked locking device mounted to rock in the frame of the gun, the members of the aforesaid fork extending over the flanges of the sears, whereby either of the sears may be raised, one after the other, but wherein both sears cannot be elevated at one and the same time, thereby preventing both barrels of the gun from being simultaneously discharged, a sliding safety-plate, and an arm projecting from said plate, terminating in a foot of a width for engagement with the flanges of both sears, as and for the purpose set forth.

608,067. SPEED-VARYING MECHANISM. MILTON O. REEVES, Columbus, Ind., assignor to the Reeves Pulley Company, same place. Filed Dec. 27, 1897. Serial No. 663,464. (No model.)



Claim.—1. In a speed-varying mechanism, the combination of a frame, two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft, the individual members of each pair adapted to slide toward or from each other upon their respective shafts; means for simultaneously sliding the approaching pair of disks at a gradually-decreasing speed, and the receding disks at a gradually-increasing speed, and a belt connecting the pairs of disks, substantially as and for the purpose set forth.

2. In a speed-varying mechanism, the combination of a frame, two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft, the individual members of each pair adapted to slide toward or away from each other upon their respective shafts; levers pivoted between the shafts and connected with the driving elements so as to simultaneously slide the approaching disks at a gradually-decreasing speed and the receding disks at a gradually-increasing speed; a belt connecting a pair of driving elements, and means for actuating the levers, substantially as and for the purpose set forth.

3. In a speed-varying mechanism, the combination of a frame, two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft, individual members of each pair adapted to slide toward or from each other upon their respective shafts; means for simultaneously sliding the approaching pair of driving elements at a gradually-decreasing speed and the receding elements at a gradually-increasing speed and arranged so as to slide the receding pair slower than the approaching pair through a part of their movement and slide the receding pair faster than the approaching pair through the remainder of their movement, and a belt connecting the disks, substantially as and for the purpose set forth.

4. In a speed-varying mechanism, the combination of a frame; two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs; levers pivoted between the shafts and connecting thrust collars, taking against the corresponding elements of each pair; said lever-pivots

being out of line, with the points of contact of the lever upon the thrust-collars, in the direction of the driving elements; substantially as and for the purpose set forth.

5. In a speed-varying mechanism, the combination of a frame; two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs; thrust-collars mounted on the shafts, taking against the driving elements and provided with diametrically-projecting lugs; levers provided with slotted openings taking over said lugs and having an inwardly-projecting toat or boss between the shafts adapted to pivot upon the frame; substantially as and for the purpose set forth.

6. In a speed-varying mechanism, the combination of a frame; two parallel shafts mounted therein; a pair of cone-shaped driving elements splined to each shaft; a belt connecting the pairs; thrust-collars mounted on the shafts, taking against the driving elements and provided with diametrically-projecting lugs; shoulders upon said thrust-collars and adjacent said lugs; levers provided with slotted openings taking over said lugs and resting upon said shoulders; caps secured to said lugs and taking over the levers and an inwardly-projecting toat or boss between the shafts, adapted to pivot upon the frame; substantially as and for the purpose set forth.

7. In a machine of the class described, a thrust-collar consisting of a cupped portion provided with diametrically-projecting lugs, a hardened track supported within said cupped portion, a second hardened track adapted to take against a driving element, and balls supported between said tracks and within the cupped portion; substantially as and for the purpose set forth.

8. In a speed-varying mechanism, the combination of two parallel shafts; boxes supporting said shafts; side rails connecting said boxes; bars parallel with the shafts and connecting the side rails; a pair of cone-shaped driving elements mounted on each shaft; levers pivoted between the shaft and adapted to actuate a pair of driving elements; extensions upon said levers; nuts 19, connected with said levers; a right and left hand threaded screw, 20, supporting said nuts, and bars, 21, taking over said levers and against said nuts; substantially as and for the purpose set forth.

608,068. APPARATUS FOR SPINNING TEXTILE FIBERS.

RICHARD TODD, Heaton Chapel, and JESSE A. STOTT, Manchester, England. Filed Nov. 10, 1896. Serial No. 611,649. (No model.) Patented in England Nov. 7, 1895, No. 21,056.



Claim.—1. In combination the spindle to carry the cop, the ferrule arranged about the spindle at a point below the position of the cop, and the whip-traveler attachably and detachably secured to the ferrule below the cop and extending up along the cop with its free end directed upwardly, the attachment between the traveler and the ferrule being rigid while the said whip is flexible and adapted to bend throughout its length.

2. In combination, the ferrule on the whip-traveler arm, said ferrule having an extended bearing or socket adapted to receive the lower end or butt of the arm and afford an extended bearing thereto, said arm-butt being formed as a spring to engage with and be easily disengaged from the extended bearing, substantially as described.

3. In combination with the rotary foot or ferrule with means for supporting the same, the arm extending laterally from said ferrule having a terminal-bearing part at its end, and the flexible arm or traveler arranged to turn about the spindle with said rotary ferrule, said arm being detachably connected with the terminal-bearing part of the said ferrule, substantially as described.

4. In combination, the ferrule having a socket, and the flexible arm or whip-traveler having a spring portion to fit therein, substantially as described.

5. In combination the ferrule having a socket with a lateral cavity, and a flexible arm or traveler having a laterally-extending portion fitting into said cavity, substantially as described.

6. In combination, the ferrule having a socket with a lateral cavity, a flexible arm or whip-traveler having a spring end provided with a laterally-extending portion to fit the cavity, substantially as described.

7. In combination, the ferrule having a laterally-extending arm with a terminal bearing, and a flexible arm or whip-traveler having a spring end detachably engaging the same, substantially as described.

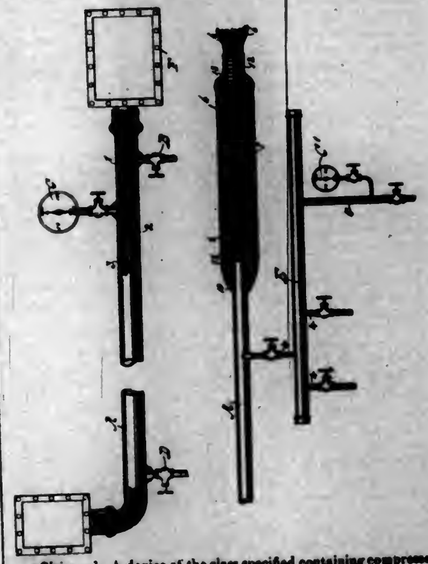
8. In combination with the socket-ring and its cover forming a race between them and the ferrule having the fingers adapted to the race and its sides recessed to permit the insertion or removal of the ferrule, substantially as described.

9. In combination, the socket, the cover, the whip-traveler and the ferrule, one of said parts, the cover or the ferrule being laterally recessed to permit the insertion or removal of the ferrule by tilting the same.

10. In combination, the socket-ring, the cover, and the clips J for holding the same in place, substantially as described.

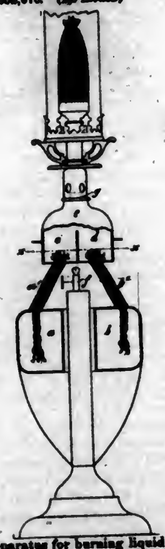
608,069. ELECTRIC CABLE.

NATHANIEL G. WARTH, Indianapolis, Ind. Filed Oct. 25, 1897. Serial No. 656,207. (No model.)


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securing the handle in place in said sleeve and brush-head, substantially as described.

608,072. APPARATUS FOR BURNING HYDROCARBON OILS WITH BLUE FLAME. FRITZ ALTHAUS, Berlin, Germany. Filed Sept. 22, 1897. Serial No. 652,670. (No model.)



Claim.—1. An apparatus for burning liquid hydrocarbons with a blue flame, the same consisting of two separate chambers, one being an oil-chamber and the other a water-chamber, placed in close proximity and constructed to provide a central space between them, separate retorts connected with said chambers, a mixing-chamber connecting and arranged above said chambers and retorts, and a source of heat arranged below and intermediate of said retort, whereby the retorts are heated so that the vapors and steam produced in the same are commingled in the mixing-chamber and conducted from the same to the burner, substantially as set forth.

2. An apparatus for burning liquid hydrocarbons with a blue flame, the same consisting of two separate chambers, one being an oil-chamber and the other a water-chamber placed in close proximity and constructed to provide a central space between them, separate retorts connected with said chambers, a partition separating the retorts, a mixing-chamber above the upper ends of the retorts, a burner above the mixing-chamber, and a source of heat for heating the retorts, substantially as set forth.

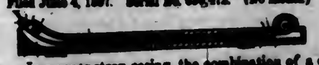
608,073. APPARATUS FOR GENERATING ACETYLENE GAS. ESTEBAN ARMANET, Mexico, Mexico. Filed Aug. 18, 1897. Serial No. 648,634. (No model.) Patented in Mexico Aug. 11, 1897, No. 1,069.



Claim.—1. In an apparatus for generating acetylene gas, a generator composed of an exterior vessel, an interior bell-shaped water-sealed vessel provided with transverse partitions having alternating inclined shelves at opposite sides, a charging-tube extending downwardly from the top of the bell-shaped vessel, a cover for said charging-tube, a screen-bottom between the transverse partitions and below the lower shelf, outlet-pipes at the upper part of the interior vessel and a discharge-pipe at the bottom of the exterior vessel, substantially as set forth.

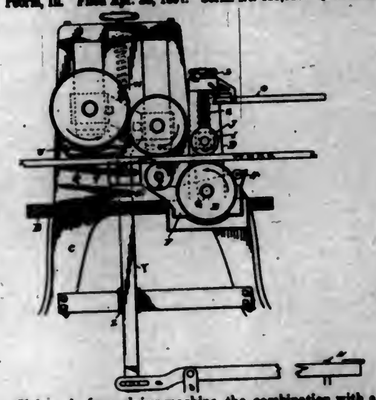
2. In an apparatus for generating acetylene, a generator consisting of an exterior vessel having a dished bottom, an interior bell-shaped and water-sealed vessel provided with a charging-opening in its top part, transverse partitions in said interior vessel, alternating inclined shelves extending from opposite sides of said partitions one below the other, a charging-tube connecting the charging-opening with the upper shelf, a screen at the bottom of the interior vessel between the partitions, openings in said partitions below each shelf and at the upper end of said partition, substantially as set forth.

608,074. RAZOR-STROP CASING. JOHN W. BROWN, Fort Wayne, Ind. Filed June 4, 1897. Serial No. 639,472. (No model.)



Claim.—In a razor-strop casing, the combination of a case having a length suitable to contain the strop; a spring-actuated drum mounted at the bottom of said case; a ribbon wound upon said drum; the said drum and ribbon being adapted to draw the strop within said case; and suitable means for connecting the strop to said ribbon, substantially as shown and described.

608,075. GLUE-SPREADING MACHINE. EDWARD F. COMPTON, Peoria, Ill. Filed Apr. 26, 1897. Serial No. 633,898. (No model.)



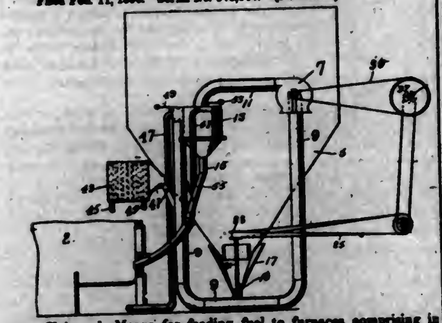
Claim.—1. In a gluing-machine, the combination with a series of lower stationary, power-driven rolls, and the frames D and A, of an upper, power-driven yielding pressure-roll journaled in said frame D, springs K K for regulating pressure of same, a lever O pivoted on the said frame for controlling the said roll, the upper spreading and supplying rolls P and R respectively, mounted in the frame A, the springs W W for controlling pressure of said rolls, a foot-power mechanism for raising the rolls from the work without the stopping of the machine, and means for automatically throwing same out of gear when in the raised position substantially as set forth and described.

2. In a gluing-machine, the combination with a table B with its legs C, of a glue-fount supported thereon, a steam-jacket surrounding the same, the supporting-frame D mounted on said table, a lower power-driven gluing-roll journaled on the table, a rolling scraper H in contact with said roll, a yielding adjustable power-driven pressure-roll above said gluing-roll, a hand-lever O pivoted on said frame D for controlling said pressure-roll, a supplying-frame A, a supporting-roll X journaled therein, a power-driven yielding gluing-roll P above said supporting-roll, a power-driven glue-supplying roll having contact with said glue-spreading roll, in fixed relation thereto, a steam-jacketed glue-receptacle located under said roll, a rolling scraper V journaled in said glue-receptacle in contact with the said supplying-roll, a foot-lever mechanism for raising the rolls P and R simultaneously, a catch *c* for holding the lever, springs W for regulating the pressure of the rolls upon the work and means for automatically throwing said rolls out of gear when raised out of position as set forth and described.

3. In a gluing-machine, the combination with the rolls P and R the vertical arms Y supporting the same, the lever *a* and catch *c*, for controlling the said vertical arms, the frame A a pin or lug *w*, on the said frame of the automatic gear-releasing mechanism consisting of the loose pulley *m* on the shaft of the roll P and having the apertures

s, the collar or sleeve *o* on said shaft, the pins *t* on said sleeve, the fork *r* straddling the said sleeve *o* and pivoted to the roll-bearing, and the spring *y* surrounding the shaft, all substantially as and for the purposes herein set forth and described.

608,076. FUEL-FEEDER. HENRY L. DAY, Minneapolis, Minn. Filed Feb. 11, 1898. Serial No. 670,067. (No model.)



Claim.—1. Means for feeding fuel to furnaces, comprising in combination, means for producing a continuous air-current or air-belt, means for directing the fuel into said air-current, and means for separating the fuel from said air-current and directing it into a suitable furnace.

2. Means for feeding fuel to furnaces, comprising in combination, mechanism for producing an air-belt or continuous air-current, means for feeding the fuel into said current, means for separating the fuel from said current and directing it into a suitable furnace, and means for supplying air to said air-belt to take the place of the air which passes into the furnace with the fuel.

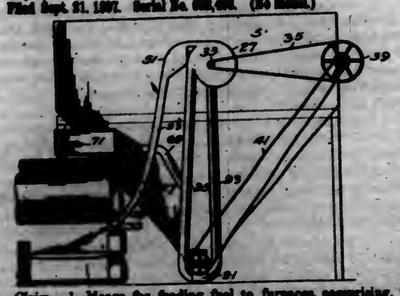
3. Means for feeding fuel to furnaces, comprising in combination, a fan or blower, a separator, pipes connecting said fan and separator, whereby a continuous air-current or air-belt may be produced, means for delivering fine fuel into one of said pipes, to be separated from said air-current by said separator, and means for conducting such fuel from said separator to said furnace.

4. The combination, with the fan of the separator, the pipes connecting said fan and said separator, whereby a continuous air-current may be produced, a pipe extending from said separator to the furnace, and means for feeding the fuel into one of the pipes connecting the fan and separator, for the purposes specified.

5. The combination, with the fan and separator, of the pipes connecting said fan and separator, means for supplying air to one of said pipes, a pipe connecting the separator with the furnace, and means for feeding the fuel into one of the pipes between the fan and separator.

6. The combination, with the fan and separator, of pipes connecting said fan and separator, whereby a continuous air-current may be formed, means for feeding the fuel from the separator to the furnace and means for supplying heated air to the pipe between the separator and the fan, to compensate for that which passes through the pipe into the furnace, and means for feeding the fuel into one of the pipes between the fan and the separator.

608,077. FUEL-FEEDER. HENRY L. DAY, Minneapolis, Minn. Filed Sept. 21, 1897. Serial No. 652,499. (No model.)



Claim.—1. Means for feeding fuel to furnaces, comprising, in combination, a suitable fan or blower, air-conductors connected to the inlet and outlet of the casing of said fan or blower and communicating with each other, means for directing fuel into said air-conductors, means located in said fan-casing for separating the fuel from the air-current, and means for directing said fuel into a suitable furnace, for the purpose set forth.

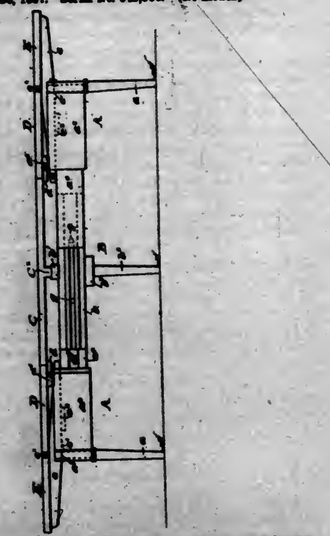
2. Means for feeding fuel to furnaces, comprising, in combination, a suitable fan or blower, a fan-casing provided with a spiral duct leading from its central portion and having an unbroken peripheral surface, a suitable wall dividing said duct into an outer and an inner part, a pipe or conductor connected to the inner part of said duct and communicating with a pipe or conductor leading to the inlet of the fan-casing, means for feeding fuel into said conductors and means for directing the fuel from the outer part of said duct into a suitable furnace.

3. Means for feeding fuel to furnaces, comprising, in combination, a suitable fan or blower, a fan-casing provided with a spiral wall 43 forming a spiral duct 45 having an unbroken peripheral surface divided by the wall 47 into an inner duct 50 and an outer duct 49, an air-conductor 25 connected to the duct 50, an air-conductor 23 with which the conductor 25 communicates, said conductor 23 leading into the inlet of the fan-casing, a pipe 53 connected to the outer duct 49 and arranged to conduct material received therefrom into a suitable furnace, and means for feeding fuel into the conductor 23, for the purpose set forth.

4. Means for feeding fuel to furnaces, comprising, in combination, a suitable fan or blower, a fan-casing provided with a spiral wall 43 forming a spiral duct 45, the transverse wall 47 dividing said duct into inner and outer ducts 50 and 49, the fuel hopper and pocket 21, the air-conductor 25 leading from the duct 50 to said pocket, the air-conductor 23 leading from said pocket to the inlet of the fan-casing, the expansion-chamber 51 with which the duct 49 communicates, and a pipe leading from said expansion chamber to a suitable furnace.

5. Means for feeding fuel to furnaces, comprising, in combination, a suitable fan or blower, a fan-casing provided with a spiral duct leading from its central portion and having an unbroken peripheral surface, a suitable wall dividing the said duct into an outer and inner part, an air-conductor connected to the inner part of said duct and communicating with another conductor that leads to the inlet of the fan-casing, means for feeding fuel into said conductors, an expansion-chamber with which said outer duct communicates, a return-pipe from said expansion-chamber to the inlet of the fan-casing, and a pipe leading from said expansion-chamber into a suitable furnace.

608,078. EXTENSION-TABLE. ADOLPH ECKHEIM, Philadelphia, Pa. Filed Aug. 26, 1897. Serial No. 649,560. (No model.)



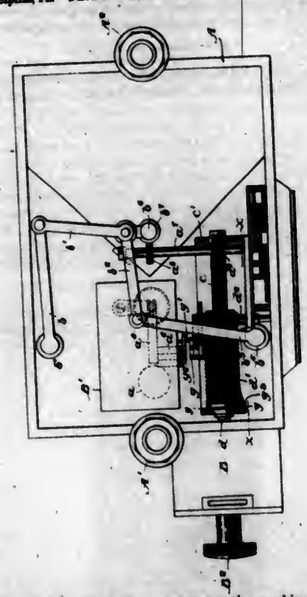
Claim.—1. An extension table consisting of an extensible supporting framework, composed of end pedestals, and an intermediate pedestal, said end pedestals having end rails embodying recesses, and being provided with guide bars having slots in their upper faces, and a table top comprising a vertically adjustable central section, two structurally independent intermediate sections, provided with locking blocks, and two structurally independent end sections, provided

with supporting arms, the locking blocks of the intermediate sections being, when the table top is extended to its full length, engaged in the guide bars of the pedestals, and the supporting arms of the end sections being engaged in the recesses of the end rails of the pedestals, substantially as set forth.

2. An extension table consisting of an extensible supporting framework, composed of end pedestals, and an intermediate pedestal, said end pedestals having end rails embodying recesses, and being provided with guide bars having slots in their upper faces, and a table top comprising a vertically adjustable central section, two structurally independent intermediate sections, provided with locking blocks, and two structurally independent end sections, provided with supporting arms, carrying stop blocks, the locking blocks of the intermediate sections being, when the table top is extended to its full length, engaged in the guide bars of the pedestals, and the supporting arms of the end sections being engaged in the recesses of the end rails of the pedestals, substantially as set forth.

3. An extension table consisting of an extensible supporting framework, composed of end pedestals, and an intermediate pedestal, said end pedestals having end rails embodying recesses, and being provided with guide bars having slots in their upper faces, and a table top comprising a vertically adjustable central section, two structurally independent intermediate sections, provided with locking blocks, and two structurally independent end sections, provided with supporting arms, said sections being capable of three arrangements, to wit, an extended position in which they are all placed side by side, an intermediate position in which the end sections are disposed beneath the intermediate sections, and a closed position in which the intermediate sections and end sections are all disposed beneath the central section,—the locking blocks of the intermediate sections being, when the table top is in its extended position, engaged in the guide bars of the pedestals, and when said top is in its intermediate position engaged in recesses in the inner edges of the end sections, the supporting arms of the end sections being engaged in the recesses of the end rails of the pedestals, substantially as set forth.

608,079. PREPAYMENT GAS-METER. EBENEZER P. GRIFFITHS, Philadelphia, Pa. Filed Oct. 13, 1897. Serial No. 655,041. (No model.)



Claim.—1. In a prepayment gas-meter, the combination of the disk *e*, notch e^2 and lip or extension e' thereon adjacent to said notch, mounted on a shaft and connected with mechanism for turning, with the oscillating finger *f*, provided with a concaved bearing-surface f^2 adapted to fit and rest upon the periphery of the disk *e*, and a finger or extension f'' located at one end of said concaved portion, and adapted to enter the notch e^2 in the disk *e* to instantly close the valve a^2 to which it is suitably connected, as set forth.

2. In a prepayment gas-meter, the combination of the disk *e*, having a suitable notch e^2 therein, and mounted on a suitable shaft and connected with mechanism for turning; with the oscillating finger *f* having a bearing-surface f^2 and a lip or extension f'' at one end of the said bearing-surface, said finger being secured upon a shaft and connected with means for imparting movement to the valve-operating mechanism, the disk *e* sliding in the bearing-surface f^2 to hold the valve positively open and the lip f'' entering the notch e^2 to instantly close the said valve, as set forth.

3. In a prepayment gas-meter, the disk *e*, shaft d^3, spur-wheel d^2, cylindrical rack d'', having on the end thereof the stop g^4, in combination with the oscillating finger *f*, having thereon the extending lip f'', support g^3, having thereon the projection g^4, against which the pin or projection g^3, will impinge, and the shaft f^3, connected with mechanism for opening and closing the valve a^2, substantially as shown and described.

4. In a prepayment gas-meter the combination of the disk *e*, having thereon the extending lip e', mounted on a shaft and connected with mechanism for turning the same, with the oscillating finger *f*, having thereon the lip or extension f'', the shaft f^3, suitably supported and having on one end thereof the crank *g*, and arm g', fitting into the forked arm or lever g^3, the shaft a^3, forked lever a^4, and valve a^2, having the extending valve-stem a^5, fitting into the arm a^4, and provided with the stop 11, substantially as shown and described.

5. In a prepayment gas-meter the disk *e* mounted on a shaft and having in the periphery thereof a notch e^2, an extended lip or projection e' to one side thereof and connected with suitable mechanism for turning, in combination with the oscillating finger *f*, mounted on a shaft and having the two ends thereof in contact with and resting upon the periphery of the disk *e* and lying upon opposite sides of a line joining the centers of said shafts, said finger being mounted on a shaft and connected with means for imparting movement to the valve-operating mechanism, as set forth.

6. In a prepayment gas-meter the combination of the disk *e*, mounted on a shaft and connected with suitable mechanism for turning, with the oscillating finger *f* mounted on a shaft and having the two ends thereof in contact with and resting upon the periphery of the disk *e* and lying upon opposite sides of a line joining the centers of said shafts, said finger being mounted on a shaft and connected with means for imparting movement to the valve-operating mechanism, as set forth.

608,080. MACHINE FOR MAKING LOOM-HEDDLES. GEORGE W. HARRIS and WILLIAM B. HARRIS, Lowell, Mass. Filed Apr. 27, 1895. Serial No. 547,357. (No model.)



Claim.—1. In a machine for making loom-heddles, the combination with means for holding the rig-bands, of knot forming and tightening devices arranged and operated to form the heddle-knots about and tighten the same directly upon the rig-bands, substantially as described.

2. In a machine for making loom-heddles, the combination with rig-band-holding devices between which the rig-bands are tightly held, and means for moving the said holding devices in unison, whereby the bands are held always under substantially the same tension, of knot forming and tightening devices arranged and operated to form the heddle-knots about and tighten the same directly upon the said rig-bands, substantially as described.

3. In a machine for making loom-heddles, the combination with means for holding the rig-bands, and the points about which and said bands the heddle-knots are formed, of the knot forming and tightening devices arranged and operated to form the knots about said points and bands, and thereafter slip said formed knots onto and tighten the same directly upon said bands above said points, substantially as described.

4. In a machine for making loom-heddles the combination with means for holding the rig-bands, and the points about which and said bands the knots are formed, of the knot-tying devices, and the nippers arranged on a level with or slightly above the tops of said points, whereby tightening of the knots causes the latter to be slid up from the points upon and to be tightened directly on the said bands, substantially as described.

5. In a machine for making loom-heddles, the combination with means for holding the rig-bands and tokening-thread mechanism for arranging a tokening-thread adjacent to a rig-band, of mechanism for tying the heddles around the rig-band and the tokening-thread.

6. In a machine for making loom-heddles, the combination with means for holding the rig-bands and tokening-thread mechanism for arranging a tokening-thread adjacent to a rig-band as desired, of mechanism for tying some of the heddles around the rig-band and tokening-thread, and other of the heddles around the rig-band alone.

7. In a machine for making loom-heddles, the combination with suitable means for holding the rig-bands, knot-forming points, and depressors, of the swans, their carriers, pins connecting the same, and means independent of said depressors to successively depress said pins to clear said depressors, substantially as described.

8. In a machine for making loom-heddles, the combination with suitable means for holding the rig-bands, knot-forming points, and depressors, of the swans, their carriers, pins connecting the same, and means independent of said depressors to successively depress said pins to clear said depressors and thereafter raise said pins, substantially as described.

9. In a machine for making loom-heddles, the combination with suitable means for holding the rig-bands, the knot-forming points, and depressors, of the swans, their carriers, pins connecting the same, and cams to depress and raise the said pins to clear said depressors, substantially as described.

10. In a machine for making loom-heddles, the combination with the rig-band posts, and the end and center depressors, of an eye-former having an enlarged portion, and means to force the heddle-eye upon said enlarged portion to thereby expand said eye and tighten the eye-knots, substantially as described.

11. In a machine for making loom-heddles, the combination with the rig-band posts, and the end and center depressors, of a stationary eye-former having an enlarged portion, and means to force the heddle-eye upon said enlarged portion, and thereby expand said eye and tighten the eye knots, substantially as described.

12. In a machine for making loom-heddles, the combination with the rig-band posts, and the end and center depressors, of an eye-former having an enlarged portion, and a lifter to raise the heddle-eye upon said enlarged portion to thereby expand the eye and tighten the eye-knot, substantially as described.

13. In a machine of the class described, the combination with an eye-former having an enlarged portion, of knot-tying devices to form an eye about a reduced portion of the said former and partially tighten the eye-knots, and means to subsequently force the said eye upon the enlarged portion of said former to expand the said eye and further tighten the knots, substantially as described.

14. In a machine for making loom-heddles, the combination with the rig-band posts, and the end and center depressors, of an eye-former having a reduced middle portion about which the eye is formed, and means to force the eye first upon the enlarged portion at one side said reduced portion and subsequently upon the enlarged portion at the opposite side thereof, substantially as described.

15. In a machine for making loom-heddles, the combination with the rig-band posts, knot-forming points, and depressors, of means to expand the completed eye to tighten the eye-knots for the purpose described.

16. In a machine for making loom-heddles, the combination with the rig-band posts, knot-forming points, and depressors, of the swans, their carriers, and movable switches for both the swans and their carriers, and means to positively shift the said switches, substantially as described.

17. In a machine for making loom-heddles, the combination with the rig-band posts, knot-forming points, and depressors, of the swans, their carriers, movable switches for both the swans and their carriers, and means to move some of the said switches, the remainder to be automatically moved by the swans and their carriers, substantially as described.

18. In a machine for making loom-heddles, the combination with the rig-band posts, the knot-forming points, and depressors, of the swans, their carriers, connecting-pins therefor, and movable switches having cam-surfaces to cause positive movement of said pins, substantially as described.

19. In a machine for making loom-heddles, the combination with the rig-band posts, the knot-forming points, and depressors, of the swans, their carriers, connecting-pins therefor, the movable switch-segments and racks to shift the same, substantially as described.

20. In a machine for making loom-heddles, the combination with the rig-band posts, knot-forming points, and depressors, of the swan-carriers, switches therefor, and pointed swans having concaved sides to provide at least three bearing-points to hold the swans in position, substantially as described.

21. In a machine for making loom-heddles, the combination with suitable means for holding the rig-bands, and the depressors, of the swans, their carriers, devices connecting the said swans and their carriers, and cams for raising the said devices after passing said depressors, substantially as described.

22. In a machine for making loom-heddles, the combination with the swans, and carriers therefor, of the swan-carrying spools or bobbins, and the string-delivering guides in front and to deliver the string in advance of the said spools or bobbins, substantially as described.

23. In a machine for making loom-heddles, the combination with the rig-band posts, knot-forming points, and depressors, of the swans, and carriers therefor, connecting-pins, the string-carrying spools located back of the swan-centers, and string-delivering guides arranged forward of the same and in advance of said spools, substantially as described.

24. In a machine for making loom-heddles, the combination with suitable means for holding the rig-bands, and the depressors, of the swans, their carriers, devices connecting the said swans and carriers, cams to raise the said devices after clearing said depressors, and a supporting-plate to act upon and positively hold the said devices in their elevated positions connecting the swans and their carriers during movements of the same between the depressors, substantially as described.

25. In a machine for making loom-heddles, the combination with suitable means for holding the rig-bands, and the depressors, of the swans, their carriers, devices connecting the same, springs to depress said devices, and means independent of said depressors and springs to raise the same after clearing the said depressors, substantially as described.

608,081. CAKE-MACHINE. PEMBROKE D. HARTON, Philadelphia, Pa. Filed Dec. 5, 1896. Serial No. 614,541. (No model.)



Claim.—1. In a machine for making layer-cakes or crackers, a chamber having an elongated, narrow bottom discharge-opening, a discharge-nozzle dividing the chamber and discharging centrally into said opening, an inlet into one side of the top of the chamber, said nozzle formed with transverse passages therethrough, substantially as and for the purpose described.

2. In a layer-cake or cracker machine, the combination of a chamber inclosing the discharge-opening of the hopper, said chamber having an elongated central bottom discharge-opening, a nozzle depending through and dividing said chamber with its discharge end within and dividing said opening and forming therewith three parallel discharge-slits, said chamber having an inlet on one side of said nozzle, the nozzle having a plurality of transverse passages for the passage of the material in the chamber to the opposite side of the nozzle, all substantially as and for the purposes set forth.

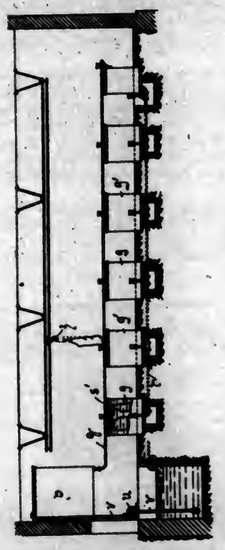
3. In a sheet-forming device for layer-cake machines, the combination of a chamber inclosing the discharge opening of the hopper, said chamber having a series of openings in its top communicating with one discharge-passage from said hopper, and a separate inlet communicating with a separate discharge from the same, separated nozzles from said series of openings merging into a single nozzle a distance below the same and depending through the chamber so that the openings one side of the chamber to the other, are formed between the nozzle, said nozzle having a bottom discharge between and opening into and dividing a bottom discharge-opening from the chamber from both sides of the nozzle, all substantially as and for the purposes set forth.

4. In a sheet-forming device for cake-machines, the combination of a chamber inclosing the discharge-opening of the hopper, said chamber having a bottom wall with a tapering opening across an intermediate portion thereof, and a top wall having an inlet-opening on one side and another inlet adjacent thereto, a nozzle from said last-mentioned inlet depending from the wall and dividing the chamber into two compartments and having its lower discharge end centrally arranged in the said tapered opening and dividing the same into two passages from said compartment, respectively, said nozzle formed to permit the material discharged into one compartment being forced laterally into the other compartment, all substantially as and for the purposes described.

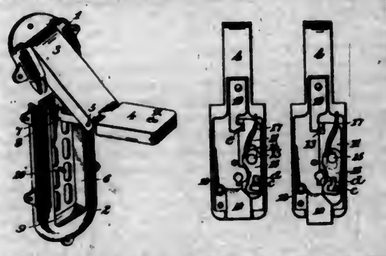
608,082. APPARATUS FOR PICKLING MEATS. GUSTAV HEINE, Cassel, and HERMANN VON ROH, Stuttgart, Germany. Filed June 28, 1895. Serial No. 554,221. (No model.)

Claim.—In a plant for pickling meat, the combination of a main pickle-tank, a series of vats, a distributing-pipe leading from the main tank to the vats, return-pipes leading from the vats to the main tank, a pump for establishing circulation from the vats to the tank and back to the vats, an overhead track, and means substantially as described for immersing and withdrawing the meat and for suspending

and moving it on the track, substantially as and for the purpose set forth.



603,083. TRUNK-FASTENING. ROSE A. HENRY, Portland, Me., administratrix of William John Henry, deceased. Filed Oct. 28, 1897. Serial No. 656,647. (No model.)



Claim.—1. A lock for trunks consisting of a swinging tongue attached to the lid, having on the under side thereof a lock consisting of a lock-bolt and shank and actuating-spring, tumblers and means for automatically locking them when the bolt is shot, a notch in said shank and a spring with projection suited to enter said notch when the bolt is withdrawn and a plate on said trunk having a pin suited to engage said last-named spring, substantially as described.

2. In combination with a trunk and lid, a plate attached to said lid having hinged thereon a tongue consisting of two parts hinged together, said tongue being provided with an arm capable of being inclosed in the upper part of said tongue and provided with a hook, a plate attached to the trunk having a hook adapted to receive the hook upon said tongue and a stud adapted to engage the spring controlling the lock-bolt of the lock in the lower part of said tongue, together with a locking device consisting of a spring and lock-bolt, whereby said lid is brought into position and said trunk locked automatically, substantially as described.

3. A fastening for trunks consisting of a swinging tongue attached to the lid having a lock provided with a bolt and an actuating-spring, means for locking the bolt when shot, means for holding the lock-bolt when withdrawn and a plate on said trunk having an aperture to receive said bolt and a pin or other means suitable to engage and release said means for holding the bolt when withdrawn, substantially as described.

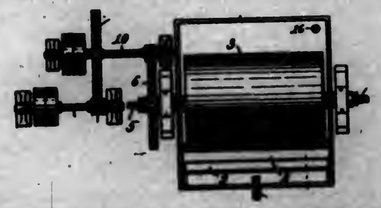
4. In combination with a trunk and lid the plate 1, the plate 2 with slot 6, the tongue consisting of the parts 3 and 4, the projection 8 on the part 4, the hook 7 and stud 20 in the plate 2, the latter being adapted to engage the spring 19 and the spring 19 provided with means for receiving and holding the lock-bolt 10, substantially as described.

608,084. TONGS. VERNON G. HOUGH, Waddington, O.L. Filed Feb. 20, 1897. Serial No. 624,202. (No model.)



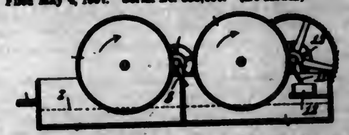
Claim.—A pair of tongs comprising a jaw having a slot extending longitudinally thereof, a screw seated in the rear wall of said slot and entering the slot, a gripping-surface upon the jaw extending at an angle to the portion provided with the slot, a second jaw lying across the slot of the first jaw and having a gripping-surface substantially parallel with the gripping-surface of the first jaw, a pivot-pin upon the second jaw passing through the slot of the first jaw, the before-mentioned screw being adapted to engage said pivot-pin, and handles extending from both jaws upon opposite sides of and substantially parallel with the screw; substantially as described.

608,085. MACHINE FOR THICKENING LIQUIDS. OMAR T. JOSLIN, New York, N. Y., and HERMAN B. SCHMIDT, Cincinnati, Ohio, assignors of one-half to the Black & Clawson Company, Hamilton, Ohio. Filed May 4, 1897. Serial No. 635,093. (No model.)



Claim.—In a machine for thickening liquids, the combination, substantially as set forth, of a vat to hold the liquid before, during, and after thickening, a hollow metallic cylinder mounted for rotation in said vat with its lower portion dipping into the liquid therein, inlet and outlet pipes for passing a thermic agent through said cylinder, a doctor in contact with the surface of said cylinder and disposed above the liquid in the vat and arranged to discharge its scrapings back into the liquid in the vat whereby the cylinder mixes said scrapings with said liquid and continues to act on the mixed mass, a driving mechanism arranged to turn said cylinder, and a second driving mechanism arranged to similarly turn said cylinder but at a lower rate of speed than said first-mentioned driving mechanism, whereby portions of the thin liquid are thickened into a film, the filmed matter returned to the thin liquid to form a somewhat thickened mixture in the vat, the somewhat thickened mixture still further thickened by returning to it portions withdrawn from it and thickened by filming, and finally thickened by filming at relative low rate of procedure to produce a film of excessive depth.

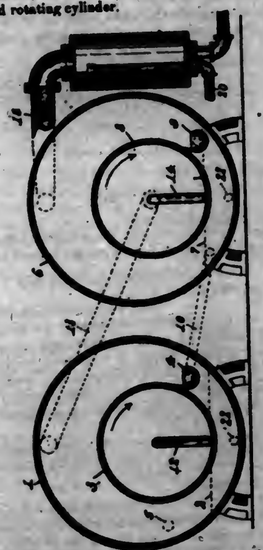
608,086. MACHINE FOR THICKENING LIQUIDS. OMAR T. JOSLIN, New York, N. Y., and HERMAN B. SCHMIDT, Cincinnati, Ohio, assignors of one-half to the Black & Clawson Company, Hamilton, Ohio. Filed May 4, 1897. Serial No. 635,096. (No model.)



Claim.—In a machine for thickening liquids, the combination, substantially as set forth, of a vat adapted to receive the liquid to be dealt with, a hollow metallic cylinder mounted for rotation in said vat with its lower portion dipping into the liquid therein, a second cylinder mounted to turn in said second vat at a lower speed than the first cylinder, a doctor engaging the first cylinder and arranged to scrape the coating therefrom and deliver it to the second vat, and a doctor engaging the second cylinder and arranged to deliver its scrapings to a suitable receiver.

608,087. MACHINE FOR THICKENING LIQUIDS. OMAR T. JOSLIN, New York, N. Y., and HERMAN B. SCHMIDT, Cincinnati, Ohio, assignors of one-half to the Black & Clawson Company, Hamilton, Ohio. Filed May 20, 1897. Serial No. 636,691. (No model.)

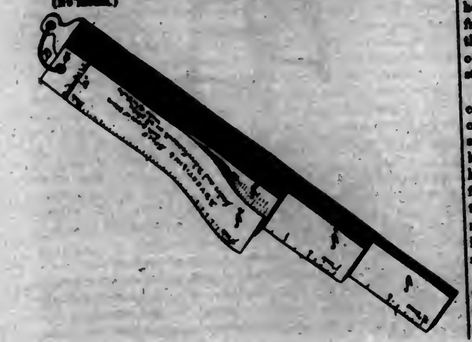
Claim.—1. In a machine for thickening liquids, the combination, substantially as set forth, of a vat adapted to receive the liquid to be dealt with, a hollow metallic cylinder mounted for rotation in said vat with the lower portion of its periphery dipping into the liquid in the vat, means for charging the interior of said rotating cylinder with a heating agent, a doctor engaging said rotating cylinder as it approaches the liquid in the vat and adapted to scrape the coating from the cylinder, and means for producing a partial vacuum in said vat over said rotating cylinder.



2. In a machine for thickening liquids, the combination, substantially as set forth, of a vat adapted to contain the liquid to be dealt with, a hollow metallic cylinder mounted for rotation within said vat and dipping the lower portion of its periphery into the liquid therein, means for charging the interior of said rotating cylinder with a heat-transferring agent, and a trough-shaped doctor engaging said cylinder as it approaches the liquid in the vat and having a discharge connection to the exterior of said vat.

3. In a machine for thickening liquids, the combination, substantially as set forth, of a vat adapted to receive the liquid to be dealt with, a hollow metallic cylinder mounted for rotation in said vat with the lower portion of its periphery dipping into the liquid therein, a doctor disposed within said vat and arranged to scrape said cylinder and discharge the scrapings exterior to said vat, means for producing a partial vacuum in said vat over said cylinder, a second vat, a cylinder therein, a doctor in the second vat, a conduit from the first-mentioned doctor to the second vat, and a conduit from the first vat to the second-mentioned cylinder.

608,088. TRANSFERRING STRIP AND SCALE. WILLIAM D. KENDALL, Milwaukee, Wis. Filed Nov. 25, 1896. Serial No. 613,269. (No model.)



Claim.—1. As an article of manufacture, a measuring and mark-transferring device, consisting of a plurality of strips of paper, or analogous material, arranged in sets, the strips of the different sets being of unequal length, but the strips of each set being of the same length and arranged together, and all of said several sets of strips blocked or fastened together at one end, and each strip throughout the series having a detaching-line or perforations across the blocked portion, said detaching-line or perforations being at the same point of each strip, to adapt each strip to be detached at the same point, and each strip also having a scale of measurements along one edge.

2. As an improved article of manufacture, a measuring and mark-transferring device, consisting of a plurality of strips of paper, or analogous material, arranged in sets, the strips of the different sets being of unequal length, but the strips of each set being of the same length and arranged together, and all of said several sets of strips blocked or fastened together at one end, and provided at said end with a suitable suspending device, and each strip throughout the series having a detaching-line or perforations across the blocked portion, said detaching-line or perforations being at the same point of each strip to adapt each strip to be detached at the same point, and each strip having a scale of measurements along one edge, and having the other edge of the scale-face of the strip and the longitudinal edges of the opposite face of the strip free from printing or other markings.

608,089. BOILER AND FURNACE. JOSEPH J. DE KINDER and ALBERT C. WOOD, Philadelphia, Pa. Filed Dec. 27, 1897. Serial No. 663,863. (No model.)



Claim.—1. In the combination of a boiler and furnace, a drum, a water-column leading downward from said drum, two or more superposed oppositely-inclined banks of ascending tubes having communication with said water-column and leading by constantly-ascending passages to said drum, and means for directing the gaseous products of combustion along the course of said banks of tubes and in a constantly-ascending direction, substantially as specified.

2. In the combination of a boiler and furnace, a drum, one or more water-columns leading downward from said drum, a water-leg or header, water-passages connecting said water column or columns and header, a second header and a bank of ascending tubes leading thereto from said first header, a third header and a bank of constantly-ascending tubes leading thereto from said second header, ascending water-passages connecting said third header and drum, and means for directing the gaseous products of combustion along the said ascending water-courses and in a constantly-ascending direction, substantially as specified.

3. In the combination of a boiler and furnace, a drum, water-columns leading downward from said drum, a horizontal water-box connecting said water-columns, a water-leg or header and water-passages leading thereto from said water box and columns, a second header and a bank of ascending tubes leading thereto from said first header, a third header and a bank of ascending tubes leading thereto from said second header, ascending water-passages connecting said third header and drum, and means for directing the gaseous products of combustion along the said ascending water-courses and in a constantly-ascending direction, substantially as specified.

4. In the combination of a boiler and furnace, a drum, water-columns leading downward from said drum, a horizontal water-box connecting said water-columns, a water-leg or header and water-passages leading thereto from said water box and columns, a second header and a bank of ascending tubes leading thereto from said first header, a third header and a bank of ascending tubes leading thereto from said second header, ascending water-passages connecting said third header and drum, water-columns leading upward to and communicating with said drum, and horizontal side-wall tubes connecting said downward water-columns with said upward water-columns, substantially as specified.

5. In the combination of a boiler and furnace, a drum, water-columns leading downward from said drum, a horizontal water-box connecting said water-columns, a water-leg or header, a grate comprising water-tubes leading from said water-box to said header, a

second header and a bank of ascending tubes leading thereto from said first header, a third header and a bank of ascending tubes leading thereto from said second header, ascending water-passages leading from said third header to said drum, and means for directing the gaseous products of combustion along the said ascending water-courses and in a constantly-ascending direction, substantially as specified.

6. In the combination of a boiler and furnace, a drum, water-columns leading downward from said drum, a horizontal water-box connecting said water-columns, a water-leg or header, a grate comprising water-tubes leading from said water-box to said header, a second header and a bank of ascending tubes leading thereto from said first header, a third header and a bank of ascending tubes leading thereto from said second header, water-columns leading upward to and communicating with said drum, and horizontal side-wall tubes connecting said downward water-columns with said upward water-columns, substantially as specified.

7. In the combination of a boiler and furnace, a drum, water-columns leading downward from said drum, a horizontal water-box connecting said water-columns, a water-tube grate, a water-leg communicating with said water-tube grate and forming a bridge-wall therefor, water-passages connecting said horizontal water-box with said water-tube grate and water-leg, a header connected with said water-tube grate, and ascending water-passages leading from said header to said drum, substantially as specified.

8. In the combination of a boiler and furnace, a drum, a water-tube grate and water-passages leading thereto from said drum, a water-leg communicating with said water-tube grate and forming a bridge-wall therefor, a header connected with said water-leg and one or more banks of ascending tubes leading therefrom to said drum.

9. In the combination of a boiler and furnace, a drum, an upper water-tube grate and water-passages leading thereto from said drum, a lower grate comprising water-tubes, water-passages leading to said lower water-tube grate from said drum, a header connected with said water-tube grates, and one or more banks of ascending tubes leading therefrom to said drum.

10. In the combination of a boiler and furnace, a drum, a water-tube grate, water-passages leading to said water-tube grate from said drum and water-passages leading therefrom to said drum, a bridge-wall for said grate, a lower grate comprising water-tubes, a water-leg communicating with said lower water-tube grate and forming a bridge-wall therefor, water-passages leading to said lower water-tube grate from said drum, and water-passages leading from said water-leg to said drum, substantially as specified.

11. In the combination of a boiler and furnace, a drum, water-columns leading therefrom, a water-box connecting said water-columns, a grate, a water-leg forming a bridge-wall for said grate, water-passages leading from said water-columns and water-box to said water-leg, a header and water-tubes leading to said header from said water-leg, a second header and a bank of tubes leading thereto from said first header, a third header and a bank of tubes leading thereto from said second header, and water-passages leading from said third header to said drum, substantially as specified.

12. In the combination of a boiler and furnace, a drum, one or more passages leading downward from said drum, a header communicating with said water passage or passages, a bank of ascending tubes having their lower ends connected with said header, a second header connected with the upper ends of said bank of tubes, a second bank of ascending tubes having their lower ends connected with said second header, a third header connected with the upper ends of said second bank of ascending tubes and located above said first header, passages connecting said third header with said steam-drum, means for directing the products of combustion into active contact with said tubes and headers, and an escape therefor located between the vertical planes of said second and third headers.

13. In the combination of a boiler and furnace, a header, a bank of ascending tubes having their lower ends connected with said header, a second header connected with the upper ends of said bank of ascending tubes, a second bank of ascending tubes having their lower ends connected with said second header, a third header located above said first header and connected with the upper ends of said second bank of ascending tubes, a passage between said first and third headers, means of directing the gaseous products of combustion into active contact with said tubes and headers, and an escape therefor located between the vertical planes of said second and third headers, as specified.

603,090. BROWN TRISAZO DYE. KARL KEHRMANN and EDUARD MARTI, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Nov. 23, 1897. Serial No. 659,583. (Specimens.) Patented in Germany Sept. 15, 1891, No. 65,362; in England Dec. 28, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,233; in Italy June 30, 1892, XXVI, 32,191, LXIII, 186, and in Austria-Hungary Oct. 3, 1892, No. 1,943 and No. 16,870.

Claim.—1. The process for producing new trisazo dyestuffs by combining one molecule of the diazo derivative of a tetrazo body of the general formula

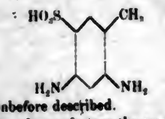
Parsdiamin (tetrazotized) { Orthooxycarbonic acid / Clève's naphthylaminsulfo-acid

with one molecule of a metadiamin of the benzene series such as metaphenylenediamin, metatolylenediamin or a sulfo-acid thereof substantially as hereinbefore described.

2. The process for producing a new trisazo dyestuff by combining the diazo derivative of the tetrazo body having the formula

Benzidin (tetrazotized) { Salicylic acid / Clève's naphthylaminsulfo-acid

with one molecule of the metatolylenediaminmonosulfo-acid having the formula



substantially as hereinbefore described.

3. As new articles of manufacture the new trisazo dyestuffs obtainable from the diazo derivative of the tetrazo body of the general formula:

Paradiamin (tetrazotized) { Orthooxycarbonic acid / Clève's naphthylaminsulfo-acid

by combination with a metadiamin compound of the benzene series, such as metaphenylenediamin, metatolylenediamin and sulfo acids thereof, being dark powders soluble in water with a color varying from reddish brown to dark brown, dyeing cotton from reddish-brown to dark-brown shades which when treated with solutions of chromium and copper salts become more yellowish brown and faster to washing and against the action of light.

4. As a new article of manufacture the specific dyestuff obtainable from the diazo derivative of the tetrazo body having the formula:

Benzidin (tetrazotized) { Salicylic acid / Clève's naphthylaminsulfo-acid

by combination with one molecule of metatolylenediaminmonosulfo-acid, being an alkaline salt of an acid having the formula:

Benzidin (tetrazotized) { Salicylic acid / Clève's naphthylaminsulfo-acid (diazotized) — metatolylenediaminsulfo-acid

representing in the form of the sodium salt a dark-brown powder soluble in water with a reddish-brown color being dissolved by concentrated sulfuric acid with a blue color from which solution a reddish-brown precipitate is obtained on the addition of a sufficient quantity of ice, dyeing cotton reddish-brown shades which when treated with solutions of chromium and copper salts become more yellowish brown and faster to washing and against the action of the light.

603,091. CHURN. ANDREW M. LARUE and FRANKLIN J. PLOUGH, Bellowsville, Pa. Filed Sept. 20, 1897. Serial No. 652,232. (No model.)



Claim.—1. An improved churn, including a base or track, a rocker-frame adapted to oscillate thereon, said frame consisting of rockers E, each having depending arms F, the corresponding arms of the rockers being connected by rods G, whereby a transversely-rigid frame is formed with unobstructed space between the rockers proper, and a churn-body removably seated between and sustained by the rockers, substantially as shown and described.

2. An improved churn, including a base or track portion, separated rockers adapted to oscillate on the base, a churn-body between the rockers, and brackets I on the outer sides of the body near the top adapted to embrace the upper edges of the rockers and removably support the churn-body therebetween, substantially as shown and described.

603,092. SIGN. CHARLES E. STARR, Jr., Camden, N. J., assignor to Walter E. Harrington, same place. Filed June 5, 1897. Serial No. 639,549. (No model.)



Claim.—In a car-sign the combination of two panels longitudinally joined together in planes forming an obtuse angle approximating one hundred degrees, whereby when one sign is in display position the other is lifted from all interference therewith, means for pivotally supporting said panels and means for securing same in the required position, substantially as described.

603,093. BLACK DISAZO WOOL-DYE. GEORG STEINKE and FRIEDRICH BONHOFF, Höchst-on-the-Main, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed July 22, 1899. Serial No. 451,222. (Specimens.) Patented in Germany Nov. 6, 1891, No. 73,170, and May 16, 1893, No. 79,644.

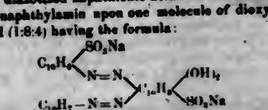
Claim.—1. The process herein described of producing black disazo dyestuffs for wool of the general constitution:

Dioxynaphthalene-sulfonic acid S { Diazotized naphthylaminsulfonic acid / Diazotized amin of the benzene or naphthalene series,

by the action of one molecule of a diazotized naphthylaminsulfonic acid and one molecule of a diazotized amin of the benzene or naphthalene series upon one molecule of dioxynaphthalenemonosulfonic acid S of the United States Patent No. 444,679, substantially as described.

2. As new products, the black disazo dyestuffs for wool, obtained by the action of one molecule of a diazotized alpha-naphthylaminsulfonic acid and one molecule of a diazotized amin upon one molecule of dioxynaphthalenesulfonic acid S of the United States Patent No. 444,679, being dark powders of bronze-like luster, soluble in water with a violet color, insoluble in benzene, soluble in concentrated sulfuric acid, and dyeing wool black in an acid-bath, substantially as set forth.

3. As a new product, the dyestuff obtained by the action of one molecule of diazotized naphthionic acid and one molecule of diazotized alpha-naphthylamin upon one molecule of dioxynaphthalenesulfonic acid (1:8:4) having the formula:

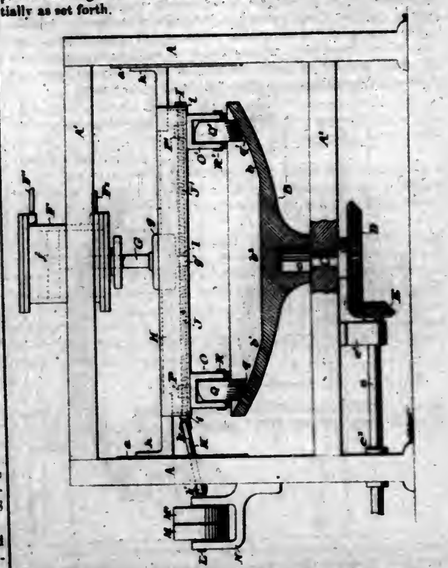


and forming a dark powder of bronze-like luster, easily soluble in water with a violet color, soluble with difficulty in alcohol with a reddish-blue color and insoluble in benzene, the aqueous solution of which turns redder on addition of ammonia, while in concentrated sulfuric acid the dyestuff is soluble with a pure-blue color and is separated on addition of water as a reddish-violet precipitate, and dyes wool blue-black in an acid-bath, substantially as set forth.

603,094. MACHINE FOR DISHING METAL. JOHN S. WORTH, Coatesville, Pa. Filed Oct. 19, 1897. Serial No. 655,697. (No model.)

Claim.—1. The combination, with a rotatable former provided with actuating mechanism, of a bodily-movable presser-beam arranged with relation to the former, substantially as set forth; actuating mechanism connected with said presser-beam, whereby the same may be shifted toward or from the former; a shaft mounted in said presser-beam and provided at different portions with oppositely-inclined screw-threads; actuating mechanism for said shaft; a pair of bodily-movable roller-carriers mounted on said beam to slide longitudinally thereon and directly engaging respectively with the threaded portions of said shaft; and forming-rollers mounted in said carriers, whereby, during the travel of said roller-carriers longitudinally upon said presser-beam, said rollers are directly thrust against the metal by the movement of the presser-beam with relation to the former, substantially as set forth.

2. The combination, with a rotatable former provided with actuating mechanism; of a bodily-movable presser-beam arranged with relation to the former substantially as set forth; vertical guides for said presser-beam; actuating mechanism for said presser-beam adapted to move the same in the direction of the axis of rotation of the former; a rotatable shaft mounted in said presser-beam, said shaft having portions threaded in opposite directions; a toggle-coupling connected with said shaft; a rotating driving-shaft connected with said toggle-coupling; a pair of traveling roller-carriers engaging operatively with the respective threaded portions of said shaft; and a pair of forming-rollers mounted in said carriers respectively, substantially as set forth.



3. The combination, with a rotatable former provided with actuating mechanism, of a bodily-movable presser-beam arranged with relation to the former, substantially as set forth; actuating mechanism connected with said presser-beam; an elongated open frame carried by said presser-beam and pivotally mounted at or near its longitudinal center upon an axis transverse to said presser-beam; and an elongated forming-roller rotatably mounted in said frame upon an axis transverse to the aforesaid pivotal axis of the frame, whereby, during the movement of the presser-beam with relation to the former, said roller may freely adapt itself to the desired configuration of the metal while positively dishing the same, substantially as set forth.

4. The combination, with a rotatable frame provided with actuating mechanism, of a bodily-movable presser-beam arranged with relation to the former, substantially as set forth; actuating mechanism connected with said presser-beam; a rotatable shaft mounted longitudinally in said presser-beam, said shaft having portions threaded in opposite directions; a pair of traveling roller-carriers freely movable longitudinally upon said beam and directly engaging respectively with the threaded portions of said shaft; a pair of swiveling frames pivotally mounted at or near their longitudinal centers upon said carriers and freely movable with relation thereto; and a pair of elongated forming-rollers rotatably mounted in said frames upon an axis transverse to the aforesaid pivotal axis of the frame, substantially as set forth.

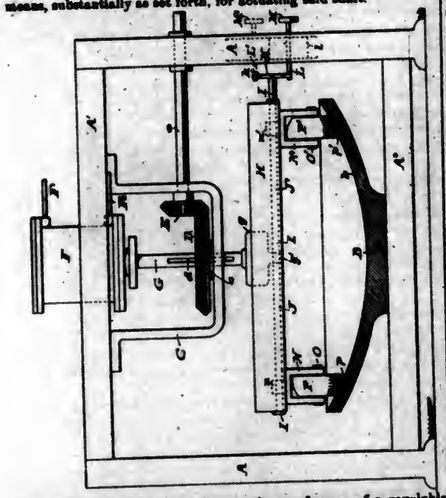
603,095. MACHINE FOR DISHING METAL. JOHN S. WORTH, Coatesville, Pa. Filed Oct. 20, 1897. Serial No. 655,773. (No model.)

Claim.—1. The combination, with a stationary former having a concave upper surface, of a revoluble presser-beam bodily movable toward and from said former; means substantially as described for effecting said movements of the presser-beam; a pair of forming-rollers journaled upon axes transverse to the direction of movement of the presser-beam; traveling carriages for said rollers; and means, substantially as set forth, for shifting said rollers in a direction transverse to the axis of revolution of the presser-beam.

2. The combination, with a stationary former, of a revoluble presser-beam, bodily movable toward and from said former; means, substantially as set forth, for affecting the described movements of the presser-beam; a longitudinal shaft carried by said presser-beam and having oppositely-threaded portions; a pair of roller-carriages engaging respectively with said threaded portions of the shaft; forming-rollers mounted in said carriages; and an actuating device for said shaft adapted to engage with a stationary member at intervals during the revolution of the presser-beam, whereby said shaft is automatically actuated and the travel of the roller-carriages effected during revolution of the presser-beam, substantially as described.

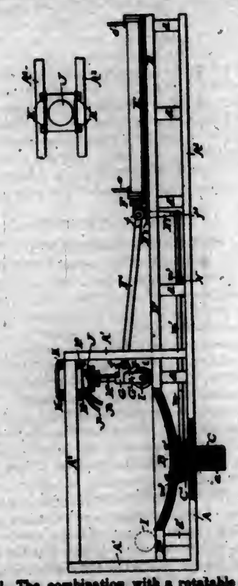
3. The combination, with a stationary former, of a hydraulic cylinder and plunger; a presser-beam carried by said plunger and

revoluble with relation to said cylinder; a gear-wheel operatively connected with said plunger to permit longitudinal movement thereof during rotation of said gear-wheel; driving mechanism for said gear-wheel; a pair of roller-carriages mounted on said presser-beam; forming-rollers journaled in said carriages; a shaft having oppositely-threaded portions engaging respectively with said carriages; and means, substantially as set forth, for actuating said shaft.



4. The combination, with a stationary former, of a revoluble presser-beam, bodily movable toward and from said former; means, substantially as set forth, for effecting the described movements of said presser-beam; a pair of swiveling roller-carriers mounted on said presser-beam, said carriers comprising a frame pivotally supported upon trunnions; and a pair of rollers mounted in said frames respectively, substantially as described.

603,096. MACHINE FOR DISHING OR FORMING METAL. JOHN S. WORTH, Coatesville, Pa. Filed Oct. 22, 1897. Serial No. 656,017. (No model.)



Claim.—1. The combination, with a rotatable former provided with actuating mechanism, substantially as set forth; of a roller-carrier and forming-roller; a track adapted to support said roller and arranged adjacent to said former; means, substantially as set forth, for shifting the roller diametrically with relation to said former and onto the said track; and means, substantially as set forth, for rotating said former in the described relation to the movements of the roller.

2. The combination, with a rotatable former provided with actuating mechanism, substantially as set forth; of an overhanging track; a roller-carrier and forming-roller; a roller-track adapted to support said roller when shifted clear of said former; means, substantially as set forth, for shifting the roller diametrically with relation to the former and onto said roller-track; and means, substantially as set forth, comprising mechanism carried upon the overhanging track, for shifting said roller in a direction substantially parallel to the axis of rotation of the former.

3. The combination, with a rotatable former provided with actuating mechanism, substantially as set forth; of an overhanging track; a hydraulic cylinder adapted to travel along said track; a vertical plunger for said cylinder; a roller-carrier mounted upon said plunger; a forming-roller journaled in said carrier; a hydraulic cylinder and horizontal plunger also connected with roller-carrier; a roller-track adapted to support said roller when shifted clear of said former; and a rod connected with said second hydraulic plunger and also with the rotating mechanism for the former, and adapted to actuate said mechanism in the described relation to the movements of the roller-carrier, substantially as set forth.

4. The combination, with a rotatable former supported upon a stem, of a ratchet-wheel intermediate between said stem and the body of the former; a pawl-carrier having a pawl adapted to engage with said ratchet-wheel; a connecting-rod and actuating mechanism for said pawl-carrier; a forming-roller; and means, substantially as set forth, for shifting said roller diametrically across and beyond said former in the described relation to the rotary movement thereof.

603,097. RESERVOIR ATTACHMENT FOR PENS. MARY C. WORTH, New York, N. Y. Filed Dec. 11, 1896. Serial No. 615,315. (No model.)



Claim.—1. A pen-reservoir comprising a tube adapted to receive the pen, and having an extended shank adapted to lie in contact with the pen and be inserted with the same into the holder, substantially as described.

2. In a pen-reservoir, the combination with a flattened tube adapted to receive the pen, and closed along a portion of its forward end so as to leave only a pen-point opening, of an extended split shank mounted on said tube and adapted to lie against the pen so as to be inserted with the latter into the holder, substantially as described.

3. A pen-reservoir comprising a tube adapted to receive the pen, and having an extended split shank adapted to lie in contact with the pen and be inserted with the same into the holder, substantially as described.

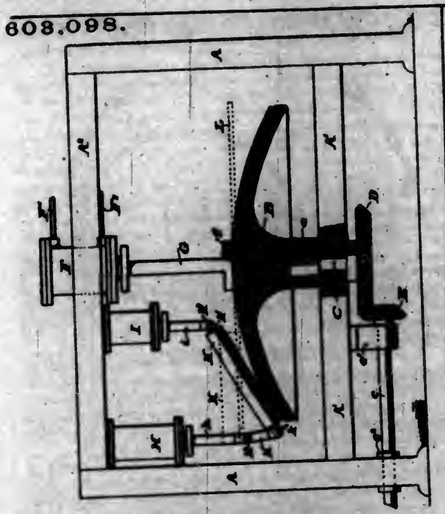
4. In a pen-reservoir, the combination with a tube adapted to receive the pen and closed along a portion of its forward end so as to leave only a pen-point opening, and having an extended shank mounted on said tube and adapted to lie against the pen so as to be inserted with the latter into the holder, substantially as described.

603,098. MACHINE FOR DISHING METAL. WILLIAM P. WORTH, Coatesville, Pa. Filed Nov. 9, 1897. Serial No. 657,987. (No model.)

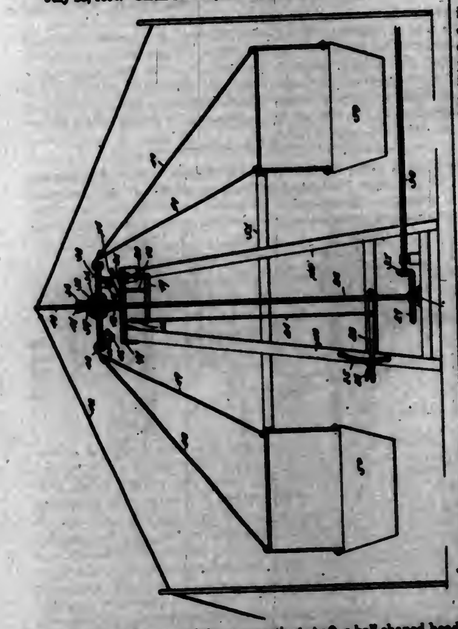
Claim.—1. The combination, with a rotatable former provided with suitable actuating mechanism; of a presser-block; means substantially as set forth for moving said block toward or from said former, while permitting the rotary movement of said block along with said former; a forming-roller arranged in the described relation to said former; and means substantially as set forth whereby the respective ends of said forming-roller may be independently moved toward or from the former, substantially as set forth.

2. The combination, with a rotatable former having a convex upper surface and provided with suitable actuating mechanism; of a presser-block; means substantially as set forth for shifting said presser-block toward or from said former while permitting the rotary movement of said block along with said former; a pair of plungers movable toward and from the surface of said former; a pivoted link connected with one of said plungers; a forming-roller supported at its respective ends upon the other plunger and said link; and means substantially as set forth for shifting said plungers independently of one another.

603,098.



603,099. ROUNDABOUT. JOHN ASHTON, St. Louis, Mo. Filed July 28, 1897. Serial No. 646,713. (No model.)



Claim.—1. In a roundabout, a vertical shaft, a ball-shaped head removably mounted upon said shaft, a rotating plate having a socket to receive said head, in which socket-wall are formed slots, pins projecting from said head into said slots, a second socket fixed to the ball-shaped head and extending upwardly through the first-mentioned socket, a center post removably seated in said second socket, guy-ropes attached to the upper end of said center post and carriages attached to and carried by the rotating plate, substantially as specified.

2. In a roundabout, the combination of a suitable framework, a shaft arranged to rotate vertically in said framework, a horizontal rotating plate, a ball-and-socket connection between said shaft and said plate, rollers carried by the under side of said plate, pins projecting from the ball into slots formed in the socket, a second socket seated in the ball and extending upwardly through the first-mentioned socket, a center post removably seated in said second-mentioned socket, guy-ropes attached to the upper end of said center post, and the vertically-adjustable track-plate secured to the frame below the rotating plate, substantially as specified.

3. In a roundabout, a vertical rotating shaft, a ball shaped head upon said shaft, a horizontal rotating plate, a socket attached to said plate to receive said head, a socket attached to said head and extending upwardly through the first-mentioned socket and a center pole mounted with its lower end in the last-mentioned socket, substantially as specified.

4. In a roundabout, a rotating plate, rollers under said plate, a track-plate pivotally mounted under said rollers, and means of raising and lowering one end of said track-plate, substantially as specified.

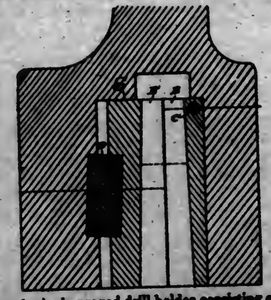
5. In a roundabout, a suitable frame, a track-plate pivotally mounted at one of its ends upon said frame, means of raising and lowering the free end of said track-plate, a vertical rotating shaft, a ball-shaped head upon said shaft, a plate mounted upon said head, connections between said head and said plate as required to allow the plate to rock and prevent the head from rotating independent of the plate, and rollers under said plate and engaging said track-plate, substantially as specified.

603,100. NEEDLE-GUARD FOR SEWING-MACHINES. OLIVIER BELLEMARE, Montreal, Canada. Filed Mar. 23, 1897. Serial No. 628,770. (No model.)



Claim.—The combination, with a curved needle having a groove in one side, of a needle-guard for the said needle to slide in, said guard comprising a hub provided with a projecting arm having a groove in its end fitting against the inner one-half of the needle, and a retaining-piece secured to the said arm and provided with a laterally-projecting cap bearing on the end of the said arm and having a groove opposite the said groove in the arm and a projection engaging with the said groove in the needle, substantially as described and shown.

603,101. ROCK-DRILL CHUCK. ERWIN H. ROSNER, Downieville, Cal. Filed July 6, 1897. Serial No. 643,897. (No model.)

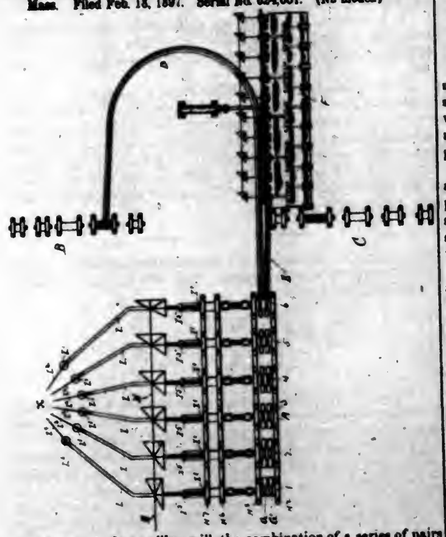


Claim.—1. An improved drill-holder consisting of a drill-socket, a segment in one side of said socket having an inclined or tapered inner wall and a straight outer wall to fit closely for its entire length the corresponding wall of the socket, a second segment in the opposite side of the socket, having an inclined or tapered inner wall and a straight outer wall, the inner ends of both segments abutting against an internal shoulder in the drill-socket, a pin driven transversely through the upper end of the first-named segment and the socket, and permanently securing said segment in place, and a single wedge-shaped key centrally placed behind the other segment and having a portion of reduced diameter which is adapted to be moved in line with the said movable segment to release the drill-shank, said movable segment and socket having adjacent faces channeled to receive said key whereby the segment will remain in place when the key is moved to bring its reduced portion behind the same, substantially as and for the purpose specified.

2. An improved drill-holder consisting of a drill-socket formed as a single integral structure and extended at one side of the center of its shank a greater distance than at the opposite side, to form a thickened portion, said socket having also an internal shoulder; opposing segments in said socket each having a tapering inner wall, one of

said segments being permanently secured in the socket and the other readily removable, a pin passing through one end portion of the permanent segment and a single wedge-shaped drive-key centrally located behind the movable segment and seated in corresponding recessed portions in the contiguous faces of the segment and the inner wall of the socket whereby the movable segment is secured and the drill locked in place.

603,102. ROLLING-MILL. VICTOR R. EDWARDS, Worcester, Mass. Filed Feb. 18, 1897. Serial No. 624,001. (No model.)



Claim.—1. In a rolling-mill, the combination of a series of pairs of rolls arranged to act successively upon a billet, means for the instantaneous separation of the rolls in one or more of said pairs during the operation of the mill and an adjustment-stop whereby the separation of the rolls is predetermined, substantially as described.

2. In a rolling-mill the combination of a series of pairs of rolls arranged to act successively in the reduction of a billet, means for the instantaneous raising or lowering of the lowermost roll in one or more of said pairs of rolls and an adjustable stop whereby the vertical movement of said roll is predetermined, substantially as described.

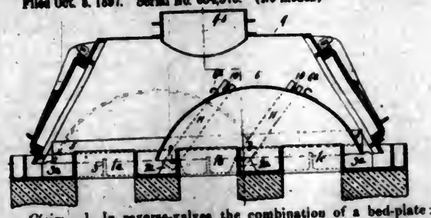
3. In a rolling-mill for rolling billets comprising a series of pairs of rolls arranged to act successively upon the billet, the combination with one or more of said pairs of rolls, of a series of sliding plates provided with inclined surfaces supporting the boxes of the lowermost rolls, means for the individual movement of said sliding plates whereby said lowermost rolls are simultaneously raised or lowered, substantially as described.

4. In a rolling-mill comprising a series of pairs of rolls arranged to act successively upon a billet, the combination with the pairs of rolls, of sliding plates having an inclined surface supporting the boxes at one end of the lowermost rolls in said pairs, wedges supported on said sliding plates and supporting the boxes at the opposite ends of said lowermost rolls, means for the adjustment of said wedges relatively to said sliding plates, means for the instantaneous movement of said sliding plates whereby said lowermost rolls are raised or lowered, and adjustable stops whereby the sliding movement of said plates is predetermined, substantially as described.

5. In a rolling-mill comprising a series of pairs of rolls arranged to act successively upon a billet, the combination with the lowermost rolls in said pairs of a mechanism for raising or lowering said rolls, a series of hydraulic cylinders connected with said raising and lowering mechanism, valve mechanisms connected with said hydraulic cylinders and placed in juxtaposition, and a series of hand-levers whereby the mechanisms for raising or lowering said rolls are controlled by a single attendant, substantially as described.

6. In a rolling-mill, the combination of two finishing-mills, a roughing-mill having rolls provided with two sets of circumferential grooves, means for conducting the billets from said roughing mill to either of said finishing-mills, mechanism for instantaneously raising or lowering the lowermost rolls of said roughing-mill, and a series of hydraulic cylinders by which said raising or lowering mechanisms are actuated, substantially as described.

603,103. REVERSE-VALVE. SAMUEL PORTER, New Castle, Pa. Filed Oct. 8, 1897. Serial No. 654,575. (No model.)



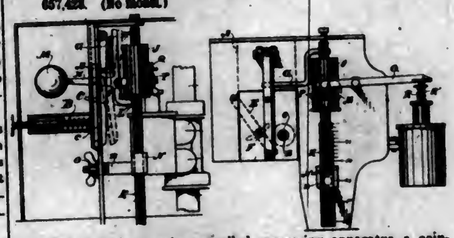
Claim.—1. In reverse-valves, the combination of a bed-plate; means for adapting said bed-plate to act as a water seal; ports in said bed-plate; projections on said bed-plate of less height than the walls of the water seal; a valve-shell resting on said projections; means for oscillating said valve-shell, and a casing resting on said projections.

2. In reverse-valves, the combination of a bed-plate; means for adapting said bed-plate to act as a water seal; ports in said bed-plate; projections on said bed-plate of less height than the walls of the water seal; a valve-shell resting on said projections; means for oscillating said valve-shell, and a casing resting on said projections, at an interval within the walls of said water seal.

3. In reverse-valves the combination of a bed-plate, means for adapting said bed-plate to act as a water seal; ports in said bed-plate; bearings erected on said bed-plate and of less height than the walls of the water seal; oscillating shafts resting on said bearings; ribs on said bed-plate of less height than the walls of said water seal; a valve-shell resting on said ribs; links operatively connecting said shell and said shafts; a reversing-lever connected to one of said links, and a casing resting on said ribs at an interval within the walls of the water seal.

4. In reverse-valves the combination of a bed-plate; means for adapting said bed-plate to act as a water seal; projections on said bed-plate of less height than the walls of the water seal; a valve-shell resting on said projections; means for causing said valve-shell to oscillate and a casing resting on said projections; said operating parts being removable through an aperture in said casing without disturbing the same.

603,104. COIN-CONTROLLED METER. JOSEPH HERBERT, Oakland, Cal. Filed Feb. 6, 1897. Renewed Nov. 4, 1897. Serial No. 657,428. (No model.)



Claim.—1. In a coin-controlled measuring apparatus, a coin-chute, an adjustable stop in the line of the chute, by which the coin is arrested, a gate movable transversely with relation to the coin-chute and having a hole made through it, a rod or stem standing in line with said hole, so that it operates upon the gate only when the coin is in position between the rod and the gate, an arm connected and movable with the gate, a vertical screw-threaded shaft having a loosely-slidable weight movable upon it, a lever-arm carrying a screw-threaded segmental nut adapted to engage the screw-threaded shaft and retain the weight in position, a contact portion of the lever against which the gate-actuated arm presses when the gate is moved, whereby the segmental nut is disengaged from the screw and the weight allowed to drop.

2. A coin-actuated measuring device, comprising a vertical screw, connections by which said screw is rotated by the passage of the fluid to be measured, a weight surrounding and loosely movable upon said screw, a weighted lever fulcrumed to the movable weight carrying at one end a segmentally-threaded nut which normally engages the screw and holds the weight in position with relation thereto, a vertical contact-bar connected with the weighted lever, an arm fixed to a swinging gate adapted to move the contact-bar and the lever when the gate is swung inwardly so that by said movement the segmental screw is disengaged and the weight allowed to drop, a stop by which the weight is arrested at the determined point and the segmental nut allowed to again engage the screw-threads whereby the rotation of the shaft will cause the nut and the weight to travel upward while the shaft continues its rotation.

3. A coin-controlled measuring device consisting of a vertical screw-threaded shaft and connections with the meter whereby the flow of the fluid to be measured through the meter will cause the revolution of the shaft, a weight loosely slidable upon the shaft, a weighted arm fulcrumed to the slidable weight, carrying at one end a segmental nut which engages the threads of the screw and at the other end a weight by which this contact is normally maintained and a vertical contact-bar fixed to the lever, a hinged swinging gate with an arm adapted to engage the contact-bar and move the weighted lever so as to disengage the segmental nut and allow the weight to drop until the gate arm has passed above the contact-bar and allowed the nut to again engage the screw, a coin-chute and means for arresting the coin at a determined point, a stem movable at right angles with the position of the coin whereby its action presses the coin to one side to move the gate and operating mechanism and at the same time allow the coin to drop into a receptacle beneath and a valve controlling the flow of the fluid, said valve being released by the dropping of the weight, and closed when the weight has been again returned to its normal position.

4. In a coin-controlled measuring apparatus, an inlet pipe or passage through which the fluid to be measured is adapted to flow, a vertically-movable valve with a spring by which the valve is normally retained in an open position, a lever-arm fulcrumed so that one end is adapted to act upon the valve-spindle, a vertical screw, means for rotating it by the action of the flow of gas through the meter, a weight with a disengaging nut, coin-controlled mechanism by the action of which the nut is disengaged to allow the weight to drop to a predetermined stop and a stop carried by and adjustable upon the weight so as to contact with the valve-actuating lever when the weight has reached a point determined by the amount of fluid passing through the meter whereby the valve is closed and the movement of the parts arrested.

5. In a coin-controlled measuring apparatus, an inlet pipe or passage through which the fluid to be measured is adapted to flow, a vertically-movable valve with a spring by which the valve is normally retained in an open position, a lever-arm fulcrumed so that one end is adapted to act upon the valve-spindle, a vertical screw, means for rotating it by the action of the flow of gas through the meter, a weight with a disengaging nut, coin-controlled mechanism by the action of which the nut is disengaged to allow the weight to drop to a predetermined stop and a stop carried by and adjustable upon the weight so as to contact with the valve-actuating lever when the weight has reached a point determined by the amount of fluid passing through the meter whereby the valve is closed and the movement of the parts arrested, said stop being adjustable to regulate the closure of the valve.

603,105. AIR DISTRIBUTER OR SPREADER. JOSEPH JAGOE, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed Oct. 11, 1897. Serial No. 654,811. (No model.)

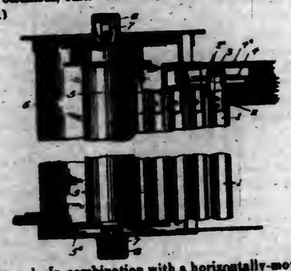


Claim.—1. In an air distributer or spreader, the combination with an inverted cup-like deflector having a perforated body and an imperforate flange, of an air-tube upon which the deflector is supported, which is enough smaller in external diameter than the internal diameter of the body of the deflector to form a downwardly-opening air-passage, and which is formed at its upper end with air-ports from which air taken at its lower end issues into the interior of the body of the deflector from which it is jetted through the perforations therein.

2. In an air distributer or spreader, the combination with an inverted cup-like deflector having a perforated body and an imperforate flange, of an air-tube upon which the said deflector is supported, and which is provided at its upper end with air-ports which open into an annular downwardly-opening air-passage formed between the upper end of the tube and the body of the deflector; and a screw passing through the body of the deflector and downward into the upper end of the tube for securing the deflector thereto.

3. In an air distributer or spreader, the combination with an inverted cup-like deflector having a perforated body formed with a centrally-arranged opening, and with an imperforate annular flange extending outwardly from its lower edge, of a tube having its upper end internally threaded, supporting the said deflector, and made smaller in external diameter than the internal diameter of the body of the deflector so as to form a downwardly-opening annular passage through which air rises into the said body from which it is jetted through the perforations therein, and a retaining-screw passing downward through the central opening in the body of the deflector, and entering the internally-threaded upper end of the said tube to which it secures the deflector.

603,106. METAL DOOR, PARTITION, &c. WILLIAM R. KINNEAR, Columbus, Ohio. Filed May 27, 1897. Serial No. 638,287. (No model.)



Claim.—1. In combination with a horizontally-movable, flexible curtain, a vertically-arranged roller having a disk at its lower end with an inclined upper surface, substantially as described.

2. In combination with a horizontally-movable, flexible curtain, having hangers, a track upon which said hangers run, a vertically-arranged roller having at its base a disk with an inclined upper surface upon which said curtain is supported when the curtain leaves the track, substantially as described.

3. In combination with a curtain-roller, a flexible curtain connected to said roller, wheels or supports for said curtain, a track upon which said wheels or supports run, consisting of a stationary part and a movable part near said curtain-roller for automatically guiding said wheels or supports onto the stationary part, substantially as described.

4. In combination with a curtain-roller, a flexible curtain connected therewith, wheels or supports for said curtain, a track upon which said wheels or supports run, consisting of a stationary part 4 and a flared mouth constructed to guide the curtain wheels or supports onto the track, substantially as described.

5. In combination with a curtain-roller, a flexible curtain connected therewith, wheels or supports for said curtain, a track consisting of a stationary part 4, and a mouth for guiding the wheels or supports onto the track having walls 9 and 9^a, wall 9^b and projecting edge 9^c, substantially as described.

6. In combination with a curtain-roller, a flexible curtain connected therewith, wheels or supports for said curtain, a track upon which said wheels or supports run, consisting of a stationary part 4, and a mouth adapted to guide said wheels or supports onto said track hinged or pivoted at the end of said track, substantially as described.

7. In combination with a casing having a guide or way 8, a roller and curtain thereon, said guide containing a bearing or support for the roller-spindle arranged and adapted to freely move in said guide or way, whereby the roller is automatically adjusted in its position with respect to the curtain inlet and outlet as the curtain wound or unwound, substantially as described.

8. In combination with a curtain-roller, a flexible curtain connected therewith, wheels or supports for said curtain, a track consisting of a stationary part 4, and a mouth for guiding the wheels or supports onto the track having wall 9^b with edge 9^d and a flaring wall 9^a, substantially as described.

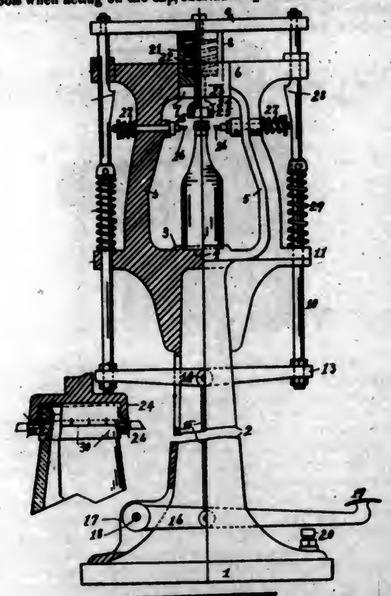
603,107. MACHINE FOR CAPPING BOTTLES. PHILIP LEBENHEIM, Baltimore, Md., assignor to the Monarch Manufacturing Company of Baltimore City. Filed Oct. 25, 1897. Serial No. 656,260. (No model.)

Claim.—1. In a machine for fastening caps upon bottles the combination of a die adapted to embrace a bottle-cap seated on and surrounding the bottle-head, mechanism for pressing said die upon the cap on a bottle, means for holding the bottle and die in suitable relation to each other, transversely-movable tools adapted to bend separate portions of the cap-flange into engagement with depressions in the bottle-neck, the intermediate portions of the cap-flange being held against the neck by the die, and mechanism for forcing said tools against the cap, substantially as described.

2. In combination, the main frame, the die, the die-operating frame comprising rods 10, and the transversely-movable tool-bars supported to slide in the main frame, said rods having cams to move the tools, and tool-retracting springs, substantially as described.

3. In combination, a die to press a cap upon a bottle-head, trans-

versely-movable tool-bars to force separate portions of the cap-flange into engagement with the bottle-head, and mechanism for operating the die and tools, said die having side openings to receive the ends of the tools when acting on the cap, substantially as described.



603,108. BOTTLE. PHILIP LINDMEYR, Baltimore, Md., assignor to the Monarch Manufacturing Company of Baltimore City. Filed Apr. 20, 1897. Renewed Mar. 24, 1898. Serial No. 675,042. (No model.)



Claim.—1. The combination of the frusto-conical cap with a bottle having a similarly-shaped top, said cap having a groove 7 in its vertex, and contiguous corrugations 10 surrounding its top below said groove, the exterior of said corrugations being situated within the greatest circumference of the cap to permit withdrawal of a die and providing receptacles for packing and an exterior holding-surface for the fingers in rotating the cap, substantially as described.

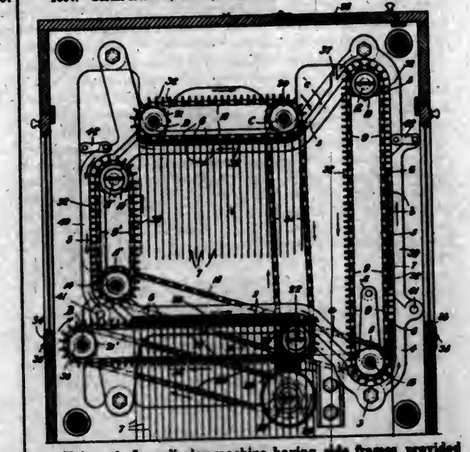
2. The combination of the frusto-conical cap with a bottle having a similarly-shaped top, said cap having a groove 7 in its vertex, and contiguous corrugations 10 surrounding its top below said groove, the exterior of said corrugations being situated within the greatest circumference of the cap to permit withdrawal of a die and providing receptacles for packing and an exterior holding-surface for the fingers in rotating the cap, a plastic packing, a paper cover for the same, said groove and corrugations affording communicating receptacles for the plastic packing, substantially as described.

3. The combination of the frusto-conical cap having vertical corrugations 10 and a horizontal communicating groove 7 situated directly over the bottle-lip and integral fingers 4, with the bottle having a frusto-conical top and grooves 6 terminating in transverse grooves 1, a packing situated in said groove and corrugations, and parchment or the like situated between the bottle-lip and the packing, substantially as described.

4. In a bottle the combination of a cap with a packing of plastic wax and a cover of parchment, prepared paper or the like, to prevent the cutting of said wax, the parchment being interposed between the wax and the bottle-lip, substantially as described.

5. The combination of a bottle provided with inclined shoulders thereon, a cap provided with a circumferential groove and with pendent spring-fingers adapted to engage under the shoulder, a packing of plastic wax, and a paper cover for the bottom of the packing and between it and the wax to obviate the cutting of the same, the cap being adapted in cooperation with the bottle-mouth to press the plastic material into the groove, said material remaining fixed in the groove, substantially as described.

608,109. DISPLAY-MACHINE. ALFRED F. C. LOUIS, Pittsburg, Pa., assignor of one-half to George Kurtz, same place. Filed Jan. 26, 1897. Serial No. 620,598. (No model.)



Claim.—1. In a display-machine having side frames provided with oppositely-located endless circulating grooves disposed in vertical, horizontal and inclined planes, with branch grooves leading therefrom, and apron-supporting rods having their ends inserted in such grooves: conveying-chains provided with pins for engaging the rods disposed in positions conforming to the horizontal and vertical grooves, and means for actuating the conveying-chains, substantially as set forth.

2. In a display-machine, the combination of side frames provided with oppositely-located endless circulating-grooves disposed in vertical horizontal and inclined planes, apron-supporting rods having their ends in constant engagement with such grooves, conveying-chains disposed in positions conforming to the horizontal and vertical grooves provided with projecting pins adapted to engage the ends of the rods, supporting sprocket-wheels and means for actuating the wheels and chains, substantially as set forth.

3. In a display-machine, the combination of side frames provided with oppositely-located endless circulating-grooves disposed in vertical, horizontal and inclined planes, apron-supporting rods having their ends in constant engagement with such grooves, conveying-chains disposed in positions conforming to the horizontal and vertical grooves provided with projecting pins adapted to engage the ends of the rods, supporting sprocket-wheels and means for actuating the wheels and chains at varying speeds, substantially as set forth.

4. In a display-machine, the combination of side frames provided with oppositely-located endless circulating-grooves having approximately vertical and horizontal directions with intervening gravity-inclines and branch grooves leading therefrom, apron-supporting rods having their ends inserted in such grooves, vertically-arranged display-chains coinciding with the vertical grooves, and horizontally-arranged storage-chains coinciding with the horizontal grooves provided with teeth for engaging the rods, and means for imparting motion to the chain at variable speeds, substantially as set forth.

5. In a display-machine, the combination of side frames provided with oppositely-located framework, endless circulating-grooves arranged therein disposed in vertical, horizontal and inclined planes, branch grooves leading therefrom, apron-supporting rods having their ends in engagement with the grooves, conveying-chains provided with projecting pins disposed in positions conforming to the horizontal and vertical grooves mounted on supporting sprocket-wheels and adapted to engage the rods by means of the pins and to advance them through the grooves, and a power-shaft with connecting gearing by which the vertical chains are driven at a given speed and gearing connected therewith by which motion is transmitted to the horizontal chains at a reduced speed, substantially as set forth.

608,110. NON-REFILLABLE BOTTLE. JOHN B. MARSHALL, Fresno, Cal. Filed June 9, 1897. Serial No. 640,081. (No model.)

Claim.—1. The combination of a bottle provided at its bottom with an annular recess and having a depending tube arranged within the same, threaded at its lower portion and provided with a smooth upper portion having a groove or gutter, and a sealing-cap interiorly threaded and arranged on the threaded portion of the tube, said cap being provided with a smooth extension arranged on the smooth portion of the tube and depressed exteriorly and forced into the said groove or gutter and permanently locking the cap on the tube, substantially as described.



2. The combination of a bottle provided at its bottom with an annular recess and having a depending tube arranged within the same, threaded at its lower portion and provided with a smooth upper portion having a longitudinal groove, a sealing-cap interiorly threaded and arranged on the threaded portion of the tube and provided with a smooth extension, the latter covering the smooth portion of the tube and being depressed into the groove thereof to lock the cap permanently thereon, and a sealing substance filling the said recess and concealing the cap and the tube, substantially as described.

603,111. COIN-OPERATED DEVICE. JOSEPH MASIN, New York, N. Y., assignor to the American Mutoscope Company, same place. Filed Dec. 10, 1896. Serial No. 615,113. (No model.)



Claim.—1. In a coin-operated device the combination of a rotatable spool, mechanism for rotating the same, a crank, a coin-chute and a clutch-operating mechanism adapted to be operated by the coin, the clutch connecting the crank with the spool-rotating mechanism, substantially as described.

2. The combination of a movable carrier, a series of resilient picture-cards mounted thereon and projecting therefrom, means for holding the outer end of each card momentarily for the purpose of exposing it to view, mechanism for moving said carrier at the option of the observer, and coin-controlled means for throwing said mechanism into gear, substantially as described.

3. The combination of a rotatable spool, a series of resilient picture-cards radially mounted thereon, means for holding the outer end of each card momentarily for the purpose of exposing it to view, mechanism for rotating said spool at the option of the observer, and coin-controlled means for throwing said mechanism into gear, substantially as described.

4. In a coin-operated device the combination of a driven shaft, a driving-shaft, a sliding clutch mechanism which may connect the two, and a coin-operated mechanism for throwing the clutch into gear, substantially as described.

5. In a coin-operated device the combination of a driven shaft, a driving-shaft, a sliding clutch mechanism which may connect the two, a skeleton worm mounted on the driving-shaft and adapted to receive a coin between two adjacent sections and inclosing within its coils a portion of a movable operating member of the clutch mechanism, whereby when the worm is rotated the coin is brought into contact with said clutch-operating member, and a chute which delivers the coin between two adjacent sections of the worm, substantially as described.

6. In a coin-operated device the combination of a driven shaft, a driving-shaft, a sliding clutch mechanism which may connect the two, a skeleton worm mounted on the driving-shaft and adapted to receive a coin between two adjacent sections and inclosing within its coils a portion of a movable operating member of the clutch mechanism, whereby when the worm is rotated the coin is brought into contact with said clutch-operating member, and a chute which delivers the coin between two adjacent sections of the worm, together with a guide-rib for retaining the coin in position till it has traveled a predetermined distance, substantially as described.

7. A clutch-tripping device composed of the following parts in combination: a driving-shaft, a driven shaft, a sliding clutch mechanism which may connect the two, a tripping-rod adapted to be forced forward a predetermined amount by the rotation of the driven shaft, a spring which returns the tripping-rod to its normal position, and a catch on the tripping-rod which withdraws the sliding clutch mechanism on such return motion, substantially as described.

8. A clutch-tripping device composed of the following parts in combination: a driving-shaft, a driven shaft, a sliding clutch mechanism which may connect the two, a worm on the driven shaft, a worm-wheel and cam operated by said worm, a tripping-rod operated by said cam, and a catch on the tripping-rod which withdraws the sliding clutch mechanism from engagement, substantially as described.

9. A clutch-tripping device composed of the following parts in combination: a driving-shaft, a driven shaft, a sliding clutch mechanism which may connect the two, a worm on the driven shaft, a worm-wheel and cam operated by said worm, a tripping-rod operated by said cam, and a catch on the tripping-rod which withdraws the sliding clutch mechanism from engagement, together with a stop which lifts said catch from engagement at the end of such withdrawal, substantially as described.

10. In a coin-operated clutching device the combination of a driven shaft with projections thereon, a driving-shaft, a clutch-piece which engages the projections and which slides on the driving-shaft but turns therewith, a coin-operated clutch-controlling piece, and a spring connection between said clutch-piece and such controlling-piece, substantially as described.

11. In a coin-operated device the combination of a rotating spool, a driving mechanism therefor, a driving-shaft, a coin-operated clutch which may convey motion from the driving-shaft to said spool-driving mechanism, and a clutch-shifting mechanism which permits the spool to make two or more revolutions before said clutch is disengaged, substantially as described.

12. A clutch-tripping device composed of the following parts in combination: a driving-shaft, a driven shaft, a sliding clutch mechanism which may connect the two, a worm on the driven shaft, a worm-wheel and cam operated by said worm, a tripping-rod operated by said cam, and a catch on the tripping-rod which withdraws the sliding clutch mechanism from engagement, together with a second worm rotated by said shaft, and a spool provided with a worm-wheel driven thereby the number of teeth of the first-mentioned worm-wheel being a multiple of the number of teeth of the second worm-wheel, substantially as described.

13. In a coin-operated mutoscope the combination of a spool bearing a series of picture-cards, a stop or detent which momentarily arrests the movement of the several cards, successively, mechanism for rotating the spool, a coin-controlled clutch for throwing said mechanism into gear, and an automatic clutch-tripping mechanism which simultaneously rotates the spool backward through an angle sufficient to relieve the picture-cards in proximity to the detent from strain and curvature and disengages said clutch, substantially as described.

14. In a coin-operated mutoscope the combination of a spool bearing a series of picture-cards, and a stop or detent which momentarily arrests the movement of the several cards, successively, mechanism for rotating the spool, a coin-controlled clutch for throwing said mechanism into gear, and an automatic clutch-tripping mechanism which simultaneously rotates the spool backward through an angle sufficient to relieve the picture-cards in proximity to the detent from strain and curvature, and disengages said clutch, said stop being pivoted and spring-actuated, to cause it to adjust itself tangentially to the adjacent card, substantially as described.

15. In a coin-operated mutoscope the combination of a spool bearing a series of picture-cards, a stop or detent which momentarily arrests the movement of the several cards, successively, mechanism for rotating the spool, a coin-controlled clutch for throwing said mechanism into gear, and an automatic clutch-tripping mechanism which

simultaneously rotates the spool backward through an angle sufficient to relieve the picture-cards in proximity to the detent from strain and curvature, and disengages said clutch, said stop being pivoted and spring-actuated, to cause it to adjust itself tangentially to the adjacent card, substantially as described.

16. A clutch-tripping device composed of the following parts in combination: a driving shaft, a driven shaft, a sliding clutch mechanism which may connect the two, a worm on the driven shaft, a worm-wheel and cam operated by said worm, a tripping-rod, operated by said cam, and a catch on the tripping-rod which withdraws the sliding clutch mechanism from engagement, together with a spool, and worm-wheel driving the same, a second worm which meshes therewith and is sleeved on the driven shaft, and connections from the tripping-rod to the sleeved worm which causes the latter to move back with the tripping-rod as the clutch is tripped and thereby rotate the spool backward through a fraction of a revolution, substantially as described.

17 In a coin-controlled mutoscope the combination of a spool carrying a series of picture-cards, a sleeve on which said spool is mounted, mechanism for rotating the sleeve, an adjustable arm removably mounted on said sleeve, and a driving-lug on the spool against which said adjustable arm rests, substantially as described.

18. In a coin-controlled mutoscope the combination of a spool, a sleeve on which said spool is mounted, said sleeve having its projecting end slotted, mechanism which rotates the sleeve, an adjustable arm which slips over said projecting end of the sleeve and which has a feather fitting into the slot, a nut which holds said arm in place, and a driving-lug on the spool against which the adjustable arm bears, substantially as described.

19. In a coin-operated device the combination of a driving-shaft, a skeleton worm mounted on and surrounding said shaft, and a stationary guide-rib so located with reference to the shaft that a given coin delivered to the worm will rest and slide upon said guide-rib and shaft under control of the worm, substantially as described.

20. In a mutoscope the combination of a spool and a series of resilient picture-cards carried thereby, means for rotating the spool, and a pivoted, spring-controlled stop which adjusts its working face tangentially to the face of the impinging card, substantially as described.

21. In an exhibiting apparatus an automatic shutter mechanism which consists of the combination of the following parts: a rotating member which gives motion to the objects to be exhibited, an actuating mechanism which gives said member a partial backward rotation at the end of each predetermined period of motion, a shutter carried by said rotating member, and a one-way clutch mechanism between the two, substantially as described.

22. In an exhibiting apparatus the combination of the following parts: a rotating sleeve, mechanism which gives said sleeve a partial backward rotation, at the end of each predetermined period of motion, a shutter carried by a radial arm which has a bearing on said sleeve, a portion of said bearing being cut away so as to leave a face eccentric to the sleeve, and a pin which rolls between said eccentric face and said sleeve and forms an eccentric friction-clutch adapted to be thrown into gear upon the beginning of said partial backward rotation of the sleeve, substantially as described.

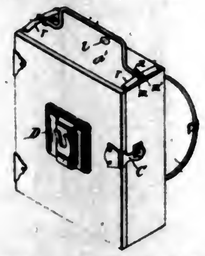
23. In a coin-operated device the combination of a driven shaft, a driving-shaft, a sliding clutch mechanism which may connect the two, a skeleton worm mounted on and surrounding the driving-shaft, and a guide-rib for retaining in position a coin inserted between two adjacent sections of the worm until it has traveled a predetermined distance, substantially as described.

24. In a coin-operated device the combination of a driven shaft, a driving-shaft, a sliding clutch mechanism which may connect the two, a skeleton worm mounted on and surrounding the driving-shaft, and a guide-rib for retaining a coin inserted between two adjacent sections of the worm in place until it has traveled a predetermined distance, said guide-rib having a portion of its face cut away to permit a coin of less than standard diameter to slip by, substantially as described.

25. In a coin-operated device the combination of a driven shaft, a driving-shaft, a sliding clutch mechanism which may connect the two, a skeleton worm mounted on and surrounding the driving-shaft, and a guide-rib for retaining a coin inserted between two adjacent sections of the worm in place until it has traveled a predetermined distance, said guide-rib having a portion of its face cut away to permit a coin of less than standard diameter to slip by, and said worm also having two or more adjacent sections opposite this cut-away part of the rib so disposed as to positively grasp the coin and push it through the cut-away portion of the rib, substantially as described.

608,112. ELECTRIC LAMP. DAVID MIRELL, New York, N. Y., assignor, by mesne assignments, to the American Electrical Novelty and Manufacturing Company, of New York. Filed Oct. 9, 1897. Serial No. 654,660. (No model.)

Claim.—1. An improved electric lamp, comprising a casing, a battery carried thereby, a lamp in connection with one pole of said battery, a conductor extending from said connection to a contact conductor or post exteriorly arranged upon the casing, a handle in connection with the other pole of the battery, and bowed spring-plates bearing with relation to the handle and operating to maintain it in either a normal upright position or in a horizontal position in contact with said pin or post, whereby the handle operates to make or break the circuit and is held in positive position for both purposes, substantially as and for the purpose set forth.



2. An improved electric lamp, comprising a casing, a battery arranged therein, a lamp in connection with one pole of said battery, a conductor extending from said connection to an exteriorly arranged contact pin or post, a handle journaled upon the casing and in connection with the other pole of the battery, said handle having rectangular-faced gudgeons, and bowed spring-plates bearing with relation to said gudgeons, whereby the handle is positively maintained in either normal upright position or in horizontal position in contact with the pin or post and serves to either make or break the circuit, substantially as and for the purpose set forth.

3. An improved electric lamp, comprising a casing, a battery carried thereby, an exteriorly-arranged contact pin or post in connection with one pole of said battery, and a lamp comprised in the circuit, in combination with a journaled handle in connection with the other pole of the battery, and means for retaining said handle in either normal upright position or in horizontal position in contact with said pin or post, whereby the circuit is automatically maintained in either opened or closed condition by the fixed position of the handle, substantially as and for the purpose set forth.

4. An improved electric lamp, comprising a casing, a battery carried thereby, an exteriorly-arranged contact pin or post in connection with one pole of the battery, and a lamp comprised in the circuit, in combination with a journaled handle in connection with the other pole of the battery, said handle adapted to be brought into contact with said pin or post, and spring devices for locking the handle in said contact position, whereby the handle serves as an automatic circuit-maker, substantially as and for the purpose set forth.

5. An improved electric lamp, comprising a casing, a battery carried thereby, a lamp in connection with one of the poles of said battery, a bowed-spring contact-plate in connection with the other pole of the battery, and a handle in operative connection with the lamp and said spring contact-plate, whereby a positive circuit connection against jarring or jolting is provided, substantially as and for the purpose set forth.

608,113. STOVE. JOEL H. MOORE, Oneida, Kans. Filed June 4, 1897. Serial No. 639,377. (No model.)

Claim.—1. In a heating-stove, the combination with the base, the top formed with holes or openings, the fire-box and the grate, of the outer drum seated on said base, the inner drum consisting of the semicircular hinged sections formed with interior grooves or depressions intermediate the ends, the perforated open ring having a flange engaging with said grooves or depressions, the damper and the depending posts at the lower end of said inner drum resting on the top of the base, substantially as described.

2. In a heating-stove, the combination with the base, the top with openings therein, the fire-pot, the rotatable grate, and the ring on said plate formed with corresponding holes and curved slots, of the outer drum seated on said base, the inner drum consisting of the semicircular hinged sections formed with interior grooves or depressions intermediate the ends, the open ring having openings therein and provided with a flange engaging with said grooves, the depending, supporting posts, and the perforated ring-diaphragm between said drums, substantially as described.

3. In a heating-stove, the combination with the base, the top plate having holes or openings therein, the fire-pot and grate, of the outer drum or shell the inner drum, the posts at the lower end thereof and the perforated openings, substantially as described.

608,118.



608,114. SAFETY-BOTTLE. JOHN J. MCCORMICK, New York, N. Y. Filed Apr. 13, 1897. Serial No. 631,999. (No model.)



Claim.—1. In a non-refillable bottle, a fragile rod having one end permanently secured to the neck of the bottle, and provided with a free projecting portion carrying an end disk or ball, adapted to bear upon the cork or stopper of the bottle, substantially as and for the purpose set forth.

2. In an improved safety-bottle, a fragile rod having its lower end secured to the bottle and embodying a free projecting portion connected with the secured end by an outward bend or curve of reduced diameter, the projecting portion of said rod carrying a disk or ball at the free end adapted to bear upon the cork or stopper, substantially as and for the purpose set forth.

3. As an improved safety device for a bottle, a fragile rod adapted to be attached to a bottle, having its lower end secured to the neck of the bottle and embodying a free projecting end, said rod embodying a distinctive design, whereby the said rod cannot be broken without destroying the integrity thereof, substantially as and for the purpose set forth.

608,115. CAR-VENTILATOR. JAMES NEELING and CHARLES E. JOHNSON, Chicago, Ill., assignors to George R. Robbins, Hinsdale, Ill. Filed Nov. 18, 1896. Serial No. 612,544. (No model.)



Claim.—1. In a car provided with an aperture, a hood B^2 formed at one side of the said aperture; a screen E adapted to slide into the said hood, and to be tilted upright when out of the same; side wings hinged to, and adapted to fold upon, the said screen; and a lid C adapted to swing down on top of the said side wings and screen into an inclined position, and hold the ventilator in place.

2. In a ventilator for refrigerator-cars, the combination, with a car having an ice-hole in its roof near the end thereof at one side of the median line of the car, of an insulating-cover permanently hinged to the edge of the ice-hole, a hood or pocket in the car-roof below the upper surface thereof, opening into the ice-hole below the said upper surface and extending in the plane of the roof longitudinally of the car, ways extending along the lateral portions of said hood or pocket and of the ice-hole, a screen having folding angular side wings hinged thereto and provided with lateral lugs engaging said ways, said screen being adapted to be inserted in said hood or pocket and to be swung upward into a vertical position on said lugs as pivots when withdrawn therefrom to form a support for the cover, and a shield or guard hinged to the mouth of the hood or pocket and adapted to close the same when the screen is inserted therein and to engage and hold in place the side wings when the screen is in operative position, substantially as described:

3. In a car provided with an ice-aperture, the hood B^2 formed at one side of said aperture; the screen E adapted to slide into said hood, and to be raised into a perpendicular position with its rearmost end downward and resting on the side of the aperture opposite the hood when withdrawn therefrom; side wings hinged to and adapted to fold upon the upper side of said screen; and the lid C hinged to said aperture at the hood side and adapted to swing down upon said side wings and screen when they are in their perpendicular position, substantially as described.

4. In a car provided with an ice-aperture B, the hood B^2 formed in the roof of the said car adjacent to the aperture, the sides of the said aperture and hood being provided with the guideway *b*; the screen E, provided with the lugs e^2; the side wings F hinged to the said screen; and the lid C adapted to swing down into an inclined position upon the said screen and side wings, when the same are in vertical position, and hold the same in place.

5. In a ventilator for refrigerator-cars, the combination, with a car having an ice-hole in its roof near the end thereof at one side of the median line of the car, of an insulating-cover permanently hinged to the edge of the ice-hole, a hood or pocket in the car-roof below the upper surface thereof, opening into the ice-hole below the said upper surface and extending in the plane of the roof longitudinally of the car, ways extending along the lateral portions of said hood or pocket and of the ice-hole, a screen having folding angular side wings hinged thereto and provided with lateral lugs engaging said ways, said screen being adapted to be inserted in said hood or pocket and to be swung upward into a vertical position on said lugs as pivots when withdrawn therefrom to form a support for the cover, and means for locking the cover to said screen when raised, substantially as described.

6. In a car provided with an ice-aperture B, the hood B^2 formed in the roof of the said car adjacent to the aperture, the sides of the said aperture and hood being provided with the guideway *b*; the screen E, provided with the lugs e^2; the side wings F hinged to the said screen; the pivoted shield D adapted to close the mouth of the hood; and the lid C adapted to swing down into an inclined position upon the said screen and side wings, when the same is in vertical position; and hold the same in place.

7. In a car provided with an ice-aperture B, the hood B^2 formed in the roof of the said car adjacent to the aperture, the sides of the said aperture and hood being provided with the guideway *b*; the screen E, provided with the lugs e^2; the side wings F hinged to the said screen; the pivoted shield D adapted to close the mouth of the hood; and the lid C provided with the strips C^2 and the cross-strip C^3.

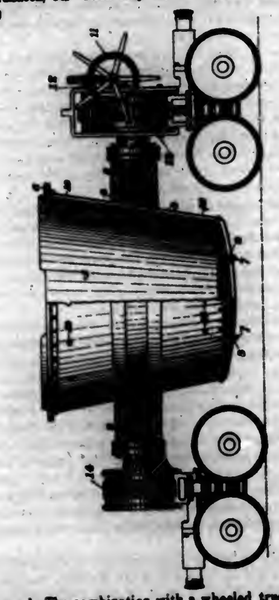
608,116. LAMP-BURNER. JAMES H. O'BRIEN, St. Louis, Mo. Filed Dec. 21, 1897. Serial No. 662,956. (No model.) Patented in England May 14, 1897, No. 11,205; in France May 15, 1897, No. 267,086; in Belgium June 16, 1897, No. 130,910, and in Austria Oct. 6, 1897, No. 3,492.



Claim.—In a lamp-burner, a pair of shafts mounted in horizontal parallel positions, a wick-tube mounted between said shafts, a toothed wheel upon one of said shafts and extending through a slot in one wall of said wick-tube near one of its edges and to the opposite wall of the wick-tube, a second toothed wheel upon the other one of said shafts extending through a slot in the opposite wall of the wick-tube near the opposite one of its edges and to the first-mentioned wall, said slots having each a long vertical slit 3 extending to the lower end of said wick-tube, and a shorter slit 4 extending to a point adjacent said lower end, whereby the metal 5 between said slits may be bent inwardly and permit the end of the said tube to be slipped over the said toothed wheels and then said metal may be bent outwardly again after the tube has been placed in position, and finger-wheels upon said shafts and upon opposite sides of the burner as required to raise and lower the corners of the wick independently of each other and as required to raise or lower the entire wick by manually

grasping one finger-wheel in each hand and exerting a twisting motion of the hands relative to each other, substantially as specified.

608,117. CINDER-CAR. EDWIN R. SLICK and THOMAS MORRISON, Braddock, Pa. Filed July 19, 1897. Serial No. 645,089. (No model.)



Claim.—1. The combination with a wheeled truck, of a tilting cinder vessel carried thereon and comprising an outer shell and a separable inner cinder-tight vessel removably supported upon the upper part of the outer shell, with an air-space surrounding the bottom portion of the inner vessel and having free communication with the outer air to permit a circulation and cooling of the inner vessel.

2. The combination with a wheeled truck, of a tilting cinder vessel carried thereon and comprising an outer shell, and a separate inner cinder-tight vessel having a lateral flange at its top which rests upon the upper end of the outer shell, with an intervening air-space surrounding the inner vessel and having free communication with the outer air.

3. The combination with a wheeled truck, of a tilting cinder vessel mounted thereon, said vessel comprising an outer shell having a closed bottom, and an inner cast vessel having a lateral flange resting upon the upper end of the outer shell, with an air-space surrounding the lower portion of the inner vessel, the outer shell having inlet and outlet openings to give an air circulation between the shells and produce a rapid cooling of the cinders.

4. The combination with a wheeled truck, of a tilting cinder vessel carried thereon and comprising an outer shell, and a separable inner cinder-tight vessel having a removable bottom connected with the vessel by a cinder-tight joint, said inner vessel being removably supported upon the upper part of the outer shell, with an air-space surrounding its bottom portion and having free communication with the outer air to permit a circulation and cooling of the inner vessel.

608,118. STAMP-MONEY AND LETTER PACKET. CHARLES A. THOMPSON, Washington, D. C., assignor to Miletus J. Wise, same place. Filed May 13, 1897. Serial No. 636,395. (No model.)



Claim.—1. An improved article of manufacture, comprising an oblong plate formed with a depression in one portion thereof to receive money or postage-stamps, a lid hinged to the plate to lie over the depression, a spring to hold the lid down, and a spring-clamp secured to the plate to lie across and hold articles on the plate.

2. An improved article of manufacture, comprising an oblong plate formed with a depression in one portion thereof, to receive money or stamps, a tablet in the depression, a lid hinged to the plate to lie over the depression, a spring to hold the lid down, and a spring-clamp secured to the plate to lie across the same and hold articles thereon.

608,119. WIND-WHEEL. ELIAS H. THOMPSON, Newark, Cal. Filed Aug. 4, 1897. Serial No. 647,095. (No model.)



Claim.—1. In a wind-wheel, the combination with the hub, spokes and rim thereof, of a series of buckets secured to said rim and each comprising a curved back and two sides, said sides differentiated in size and having their lower edges to which the backs are secured differentially curved, substantially as described.

2. In a wind-wheel, the combination with the hub, spokes and rim thereof, of a series of buckets each comprising a back and two sides, said sides differentiated in size and having their lower edges to which the backs are secured differentially curved, the smaller side secured to the said rim, a band surrounding said buckets, and bolts connecting said rim and band and supporting said buckets, substantially as described.

608,120. STRAINER. CHARLES C. WORTHINGTON, Irvington, N. Y. Filed June 10, 1897. Serial No. 640,118. (No model.)



Claim.—1. The combination with a chamber having an inlet and an outlet, of a strainer having a plurality of substantially vertical sections lying in planes oppositely inclined to the direction of flow of the fluid and forming a partition between the inlet and outlet, substantially as described.

2. The combination with a chamber having an inlet and an outlet, of a strainer having a plurality of substantially vertical sections lying in planes oppositely inclined to the direction of flow of the fluid, and the edges of the strainer embracing the inlet-opening, substantially as described.

3. The combination with a chamber having an inlet and an outlet and extending below said inlet and outlet, of a strainer having two or more substantially vertical sections lying in planes oppositely inclined to the direction of flow of the fluid and forming a partition between the inlet and outlet, substantially as described.

4. The combination with a chamber having an inlet and an outlet, of a strainer having two substantially vertical sections lying in planes oppositely inclined to the direction of flow of the fluid, and the edges of the strainer embracing the inlet-opening, substantially as described.

5. The combination with a vertical cylindrical chamber having an inlet and an outlet and extending below said inlet and outlet, of a strainer in said chamber having two substantially vertical sections lying in planes oppositely inclined to the direction of flow of the fluid, and the edges of the strainer embracing the inlet-opening, substantially as described.

6. The combination of a casing having an inlet and an outlet on opposite sides of the casing and said casing extending below the inlet and outlet, and the hollow-wedge-shaped strainer B, substantially as described.

7. The combination of the cylindrical casing A having an inlet and an outlet, the hollow-wedge-shaped strainer B, and guides 17 for said strainer, substantially as described.

8. The combination of the cylindrical casing A having an inlet and an outlet on opposite sides of the casing and said casing extending below said inlet and outlet and having a removable cover 12, and the hollow-wedge-shaped strainer B having the bottom 15, substantially as described.

9. The combination of a casing having an inlet and an outlet, and the strainer B formed of the perforated plates *b* and *b'*, bottom 15 and uprights 16, substantially as described.

10. The combination of a casing having an inlet and an outlet on opposite sides of the casing and said casing extending below said inlet and outlet, and the hollow-wedge-shaped strainer B having the bottom 15 provided with an upwardly-extending flange 17 on its edge corresponding with the open side of the strainer, substantially as described.

608,121. POULTRY-HOUSE. SAMUEL C. ARMSTRONG, Caledonia, Miss. Filed Feb. 26, 1897. Serial No. 626,192. (No model.)



Claim.—1. The combination, with an inclosed frame supported on upright posts, and having a roof thereon, and means for entering the inclosed structure, of pendent guard-doors inclining toward each other and forming a bottom wall for the structure, and roosts above said wall, substantially as described.

2. The combination, with an inclosed rectangular frame supported on upright posts, and having a roof thereon, and means for permitting entrance of fowls to the inclosed structure, of sets of pendent doors within the structure, normally inclined toward each other in pairs and secured together at their lower edges, and roosts between the sets of doors and above the upper set of doors, substantially as described.

3. A poultry-house provided with hinged guard-doors below the roosts, said guard-doors inclining toward each other and having their lower edges detachably connected together, substantially as and for the purpose set forth.

4. The combination, with a roosting-house, supported on posts and having a roof thereon, of a set of guard-doors hinged to the posts and normally inclined toward each other at their lower edges, means for detachably securing said edges of the doors together, and roosts in said house above the guard-doors, substantially as described.

5. The combination, with a roosting-house having hinged and inclined guard-doors as a bottom wall, and roosts above said doors, of troughs hung below the space between said doors, and a receptacle for excrement, arranged at the exits of the troughs, substantially as described.

6. The combination, with a frame supported on posts and having a roof thereon, of coops pendent from said frame and each having tiers of nests therein, sliding doors for protecting the lower tiers of said nests, galleries at the sides of the coops, and means of access for fowls to said galleries, substantially as described.

7. The combination, with a frame supported on posts, and having a roof thereon, and coops pendent from the frame and each having tiers of nests therein, of doors for the coops adapted to slide, keeper-bars for locking the doors, a locking-bar for the keeper-bars, and galleries at the sides of the coops, arranged to afford access to said coops, substantially as described.

8. The combination, with a frame supported on posts, of nesting and hatching coops hung at the sides of the frame, galleries at the sides of said coops, sliding doors on the coops, a securing device for said doors, and runways leading from the ground to the galleries, substantially as described.

9. The combination, with a frame supported on posts, of nesting and hatching coops pendent from the frame, sliding doors for said coops, a device arranged to secure all of said doors in closed adjustment, galleries at the sides of the coops and giving access to the nests, inclined runways leading to said galleries, each runway having a hinged section secured to a swinging gate, and a guard-trap connected with the lower ends of the runways, substantially as described.

10. In a poultry-house, substantially as described, the supporting-posts that sustain the structure removed from the ground, and sheet-metal guard-disks on said posts, each having a Z-shaped slit near its center to facilitate the attachment of said disk to a post, substantially as described.

11. In a poultry-house, the combination of hinged doors below the roosts and inclining toward each other, said doors being adapted to be locked together, and inclined troughs below the lower edges of the said doors, substantially as described.

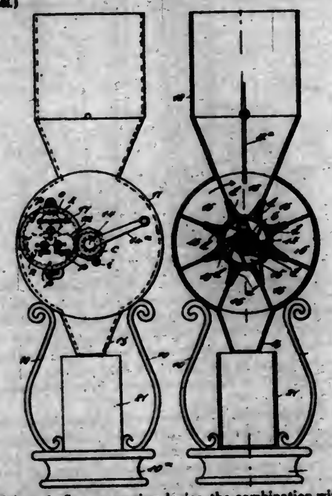
12. In a poultry-house, a nesting and hatching coop provided with nest-compartments and having a gallery, the top of which is contracted, and longitudinally-slotted doors leading from the gallery to the nest-compartments, and means for locking the said doors, substantially as described.

13. In a poultry-house, a nesting and hatching coop provided with nest-compartments and having a gallery with contracted top, said top being longitudinally slotted, doors leading from the gallery to the nests, gates for the gallery, and means for adjustably holding the gates in position, substantially as described.

14. In a poultry-house, a nesting and hatching coop provided with nest-compartments, doors for said compartments, keeper-bars provided with lugs projecting on opposite sides of the doors, and a locking-bar for the keeper-bars, substantially as described.

15. The combination with a poultry-house, of a trap having hinged gates adjacent to the house, and runways leading to the house, said runways being in sections, one of which is secured to the hinged gates of the trap, substantially as described.

608,122. WEIGHING AND MEASURING DEVICE. SHANKER A. BIJUR, Bombay, India. Filed Apr. 24, 1897. Serial No. 633,583. (No model.)



Claim.—1. In a measuring device, the combination with a series of radially-disposed rotatable receptacles, of an elastic bottom for each receptacle adapted to rise therein by its resilience, and means to simultaneously adjust said elastic bottoms for graduating the capacity of the receptacles, as specified.

2. In a measuring device, the combination with a series of radially-disposed rotatable receptacles occupying a vertical plane, of an elastic bottom in each receptacle, a flexible connection extending

from each elastic bottom, and means to simultaneously draw upon the flexible connections to move the elastic bottoms down in the receptacles, and similarly change their capacity, as specified.

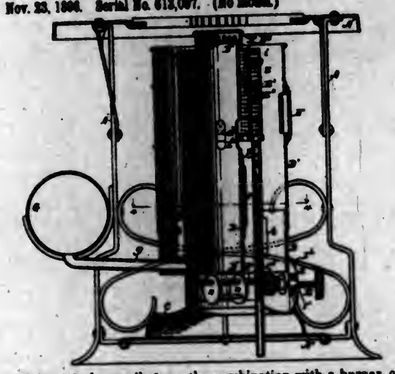
3. In a measuring apparatus, the registering and indicating device, comprising a gear-box, a centrally-pivoted spur-gear therein adapted for rotation by a main shaft of the measuring device, a series of indicating-wheels each having spaced radial projections thereon, and a changeable series of projections on the spur-gear, adapted to successively engage with the projections on one of the indicating-wheels, as specified.

4. In a device of the described construction, the combination with a measuring apparatus, comprising mainly a casing, and a series of receptacles radially disposed on a transverse rotatable shaft in the casing, of a registering and indicating device on said casing, comprising a main spur-gear, a pinion on the rotatable shaft meshed with the spur gear, a series of indicating-wheels each having spaced radial projections, and a series of changeable spaced radial pins that are projectable from the spur-gear, to successively engage with the radial projections on one of the indicating-wheels, whereby the indicator is adapted to denote partial or entire rotations of the shaft and the receptacles thereon, as specified.

5. In a measuring device, the combination with a supported cylindrical casing, having a receiving-aperture and a discharging-aperture therein, of a rotatable transverse center shaft, means to rotate said shaft, a series of radially-disposed receptacles held on the shaft, a bowed resilient bottom plate in each receptacle adapted to rise by its resilience in the receptacle, a sleeve on the center shaft, a securing device between said sleeve and the shaft, and a flexible connection between each resilient bottom plate and the sleeve, as specified.

6. In a measuring device, the combination with a supported cylindrical casing, having opposite receiving and discharging apertures therein, of a transverse rotatable center shaft, means to rotate said shaft, a series of radial receptacles held on the shaft within the casing, a bowed resilient bottom plate in each receptacle adapted to rise therein by its resilience, a sleeve on the center shaft rotatably adjustable thereon by means of a set-screw penetrating the outer end of the sleeve, and a flexible connection extending between each bottom plate and the adjustable sleeve, as specified.

608,123. OIL-STOVE. CHARLES H. BOSEK, Jackson, Mich., assignor to the Novelty Manufacturing Company, same place. Filed Nov. 23, 1896. Serial No. 613,097. (No model.)



Claim.—1. In an oil-stove, the combination with a burner, of a mixing-chamber arranged over said burner, and an inner draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages for supplying air to said air-chamber, said draft-tube having its inlet and outlet ends partially closed so as to limit the supply of air for supporting combustion, substantially as described.

2. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, a draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages whereby communication is established between the draft tube and the mixing-chamber; the upper end of said draft-tube being provided with means for directing air outwardly into the flame issuing from the mixing-chamber; said draft-tube having its inlet end partially closed so as to limit the supply of air for supporting combustion, substantially as described.

3. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, an inner draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages whereby communication is established between the draft-tube and the mixing-chamber, and a removable cap fitting over the end of said draft-tube and provided with passages for directing air outwardly into the flame issuing from the mixing-chamber; said draft-tube having its inlet and outlet ends partially closed so as to limit the supply of air for supporting combustion, substantially as described.

4. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner comprising concentric perforated tubes, a central draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with openings or passages whereby communication is established between the draft-tube and the perforations of the inner tube of said mixing-chamber; the upper end of said draft-tube being provided with means for directing air outwardly over the mixing-chamber; said draft-tube having its inlet and outlet ends provided with flanges or diaphragms extending inwardly to partially close the same and limit the supply of air for supporting combustion, substantially as described.

5. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, an inner draft-tube separated from the mixing-chamber and the burner by annular chambers and having passages affording communication between its interior and each of said chambers, the said draft-tube being partially closed at its ends, and closures for the ends of the annular chamber between the draft-tube and the mixing-chamber.

6. In an oil stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner comprising concentric perforated tubes, an inner draft-tube separated from the mixing-chamber and the burner by annular chambers, and means for closing the upper and lower ends of the chamber between said draft-tube and the mixing-chamber; said draft-tube being provided with passages connecting said annular chambers with each other and with the draft-tube and having its inlet end partially closed so as to limit the supply of air for supporting combustion, substantially as described.

7. In an oil stove, the combination with a central-draft burner, and a vertically-movable mixing chamber thereabove; of a central draft-tube fixedly connected with said mixing-chamber and depending within the burner and having a partially-closed lower end, said tube constituting a lifting member for the mixing-chamber; and lifting means engaging the partially-closed lower end of the central draft-tube and having a handle on the exterior of the burner.

8. In an oil-stove, the combination with a central-draft burner, and a vertically-movable mixing-chamber thereabove; of a central draft-tube fixedly connected with said mixing-chamber and depending within the burner, a cam device upon which the lower end of said tube rests at two diametrically opposite points each at one side of the air-inlet to the tube, and a rotary spindle carrying said cam device and projecting through the side of the burner and having a knob or handle on the exterior thereof.

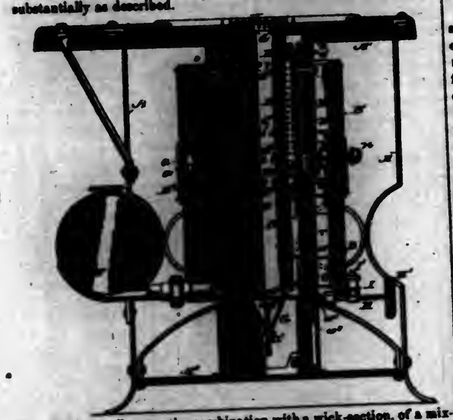
9. In an oil-stove the combination with a central-draft burner, and a vertically-movable mixing-chamber thereabove; of a central draft-tube fixedly connected with said mixing-chamber and depending within the burner and having a partially-closed lower end, said tube constituting a lifting member for the mixing-chamber; a pivotal cam or eccentric device engaging the partially-closed lower end of the central draft-tube, and means for turning the cam having a handle on the exterior of the burner.

10. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, an inner draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages communicating with the air-space so as to supply heated air to said mixing-chamber, and a cap arranged over the upper end of said draft-tube and provided with a suitable passage or passages for directing air into the flame issuing from the mixing-chamber; said draft-tube having its inlet end partially closed so as to limit the supply of air for supporting combustion, substantially as described.

11. In an oil-stove, the combination with a central-draft burner, of a mixing chamber arranged over said burner comprising concentric perforated tubes, a central draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with openings or passages for supplying air to said air-space, and a cap fitting the upper end of said draft-tube and having a suitable passage or passages to direct air into the flame issuing from the mixing-chamber; said draft-tube having its inlet and outlet ends provided with flanges extending inwardly to partially close the same and limit the supply of air for supporting combustion, substantially as described.

608,124. BLUE-FLAME OIL-STOVE. CHARLES H. BOSEK, Jackson, Mich., assignor to the Novelty Manufacturing Company, same place. Original application filed Aug. 10, 1896, Serial No. 602,262. Divided and this application filed Mar. 23, 1898. Serial No. 674,902. (No model.)

Claim.—1. In an oil-stove, the combination with a wick-section, of a mixing-chamber arranged over the same, an inclosed annular air-chamber adjacent to said mixing-chamber and communicating therewith by suitable passages for supplying heated air thereto, and means for supplying fresh air to said inclosed air-heating chamber, substantially as described.



2. In an oil-stove, the combination with a wick-section, of a mixing-chamber arranged over the same, and an internally-arranged draft-tube separated from the mixing-chamber by a suitable air-space and provided with a suitable passage or passages for supplying air to the air-space, substantially as described.

3. In an oil-stove, a central-draft wick-section, an annular mixing-chamber arranged over the same, and a draft-tube arranged centrally within the mixing-chamber and separated therefrom by an annular space or chamber adapted to supply heated air to said mixing-chamber, said draft-tube being provided with suitable openings or passages adjacent to the lower portion of the mixing-chamber for supplying air to the annular air-space, substantially as described.

4. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber suitably supported over the same, and a draft-tube arranged within the mixing-chamber and separated therefrom by a suitable space adapted to supply heated air thereto, said draft-tube being provided with a suitable passage or passages for supplying air from the interior of the burner to said air-space, and with an opening or openings at its upper portion for supplying air to the flame issuing from the mixing-chamber, substantially as described.

5. In an oil-stove, a central-draft wick-section, a mixing-chamber arranged over the same comprising concentric tubes provided with passages for air, and an inner draft-tube separated from the mixing-chamber by an air space or chamber closed at both ends and provided with passages for supplying air to said air space, substantially as described.

6. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber arranged over the same, an inner draft-tube separated from said mixing-chamber by a suitable air-space and provided with passages for supplying air to said space from the interior of the wick-section, and a cap fitting the upper end of the draft-tube and provided with a suitable passage or passages to direct air into the flame issuing from the mixing-chamber, substantially as described.

7. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber comprising concentric perforated tubes arranged over said wick-section, a central draft-tube, an annular space or chamber between the inner surface of the inner tube of the mixing-chamber and the draft-tube, and rings connecting said draft-tube to the mixing-chamber so as to close the ends of said air-space, said draft-tube being provided with air-passages for supplying air to the annular space or chamber, substantially as described.

8. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber, comprising concentric perforated tubes arranged over said wick-section, a central draft-tube separated by annular spaces or chambers from the wick-section and the mixing-chamber and provided with passages or openings communicating with said spaces so as to create a circulation within the wick-section and to supply air to the annular space between the mixing-chamber and draft-tube, together with means for causing a draft around the outer surface of the wick-section, whereby cold air may be caused to circulate both around the inner and outer surfaces of said wick-section to keep the latter cool, substantially as described.

9. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber arranged over the same, a central draft-tube and connections therewith for supplying air from the interior of the wick-section to the mixing-chamber, together with an open-ended outer casing for causing a draft or circulation of air around the outer surface of the wick-section to keep the latter cool, substantially as described.

10. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber provided with air passages arranged over said wick-section, and an inner draft-tube separated from the mixing-chamber by an air space or chamber closed at its ends and from the wick-section by a chamber or air-space having its lower end open and its upper end closed, said draft-tube being provided with a passage or passages communicating with the air space or chamber between the mixing-chamber and the draft-tube and with a passage or passages communicating with the upper portion of the chamber or space between said tube and the wick-section, whereby air may be caused to circulate against the inner surface of the wick-section and air supplied to the space between the draft-tube and mixing-chamber, substantially as described.

11. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber comprising concentric tubes arranged over said wick-sections, together with a central draft-tube separated from the mixing-chamber by an air space or chamber and provided with suitable passages for supplying air to said space from the interior of the wick-section, said outer tube of the mixing-chamber being taller than the inner tube and having its upper end flanged or turned inwardly to concentrate the heat, substantially as described.

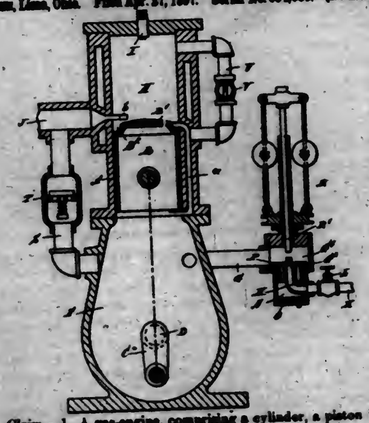
12. In an oil-stove, the combination with a suitable wick-section, of a mixing-chamber arranged over the same, an inner draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages for supplying air to said space, said draft-tube being attached to the mixing-chamber so as to move vertically therewith, together with means for raising said draft-tube and mixing-chamber to permit the wick to be lighted, substantially as described.

13. In an oil-stove, the combination with a central-draft wick-section, of a mixing-chamber arranged over the same, an outer casing having an opening or openings at the height of the wick-section, and a ring-damper for controlling said opening or openings, substantially as described.

14. In a blue-flame oil-stove, the combination of an annular wick-tube, a vertically-movable commingling-chamber situated thereabove, and a lifting and air-feeding tube extending within the commingling-chamber and forming between the latter and itself an air-heating chamber in communication with the commingling-chamber, said tube communicating with said air-heating chamber and depending within the wick-tube.

15. In a blue-flame oil-stove, the combination of an annular wick-tube, a vertically-movable commingling-chamber situated thereabove, and a lifting and air-feeding tube extending within the commingling-chamber and forming between itself and the latter an air-heating chamber in communication with the commingling-chamber, said tube communicating with said air-heating chamber and feeding air to the principal flame of the burner, substantially as described.

608,125. GAS-ENGINE. JOHN CARNES and CHARLES W. MCKINNEY, Lima, Ohio. Filed Apr. 27, 1897. Serial No. 634,093. (No model.)



Claim.—1. A gas-engine, comprising a cylinder, a piston in the cylinder, a working chamber at one end of the cylinder and provided with an igniting device at its end and with an exhaust-port, a com-

pressing-chamber at the other end of the cylinder, and connected with the working chamber by the port *a* in the wall of the cylinder, the lower end of the port entering the compressing-chamber below the end of the piston when the said piston is in its lowermost position, an air and gas mixing chamber connected with the compressing-chamber, and provided with a valve-seat, an upwardly-opening valve on the seat, an air-pipe connected with the valve-seat and provided with a register at its end, a gas-pipe projecting into the air-pipe through the side thereof and extending to the valve-seat, and a governor above the air and gas chamber and having its stem projecting down into the same, substantially as herein shown and described.

2. A gas-engine comprising a cylinder, a piston operating therein, a working chamber at one end of the cylinder, and a compressing-chamber at the other end thereof and connected with the supply and with its working chamber by a port, so that when the piston moves in one direction, the explosive mixture in the compressing-chamber is compressed, and when the piston nears the end of its working stroke the two chambers are connected with each other through said port to supply the working chamber with the explosive mixture from the compressing-chamber, and an equalizing-valve between the said chambers, substantially as shown and described.

3. A gas-engine comprising a cylinder, a piston operating therein, a working chamber at one end of the cylinder, a compressing-chamber at the other end thereof and connected with the supply, the chambers being connected with each other by a port adapted to be opened and closed by the said piston, a relief-valve for the compressing-chamber, and an equalizing-valve for the working chamber and in communication with the said port, substantially as shown and described.

4. In a gas-engine, the combination with a cylinder having a working chamber at one end and a compressing-chamber at the other end, the working chamber being connected with the compressing chamber by a port in the wall of the cylinder and provided with an exhaust-pipe, a piston in the cylinder, and means for admitting an explosive mixture to the compressing-chamber, of a pipe leading from the upper part of the compressing-chamber into the exhaust-pipe of the working chamber, and a spring-pressed relief-valve in said pipe, substantially as described.

608,126. TRUSS. EDWARD H. G. CLARK, Washington, D. C. Filed Oct. 1, 1897. Serial No. 653,706. (No model.)

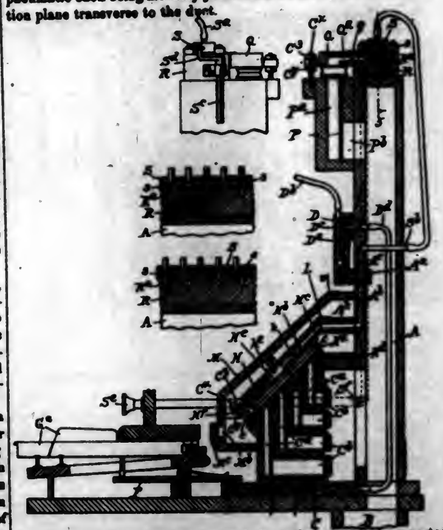


Claim.—As an improved article of manufacture a truss made up of textile fabric comprising tubular belt-sections A B, said sections carrying pads *a a*, the central portion of the belt-section B having centrally a filling-piece, tabs *b* secured to the belt-section A adjacent to the pads thereof, said tabs carrying below the belt buckles, straps C C having their ends secured adjacent to each other to the front portion of the belt B, a loop or pocket formed of a strip which is secured to the ends of the straps C C, and to the front portion of the belt, a filling positioned in said pocket and buckles secured to the strap B, substantially as shown and for the purpose set forth.

608,127. PNEUMATIC-ORGAN. MELVILLE CLARK, Chicago, Ill. Filed Dec. 30, 1897. Serial No. 663,561. (No model.)

Claim.—1. In a reed-organ in combination with the reed-chambers, motor-pneumatics or bellows whose moving sides constitute the valves for the reed-chambers, respectively, each bellows each having the back adapted to be fixed with respect to the seat of such valve (formed by the moving wall of the bellows) and releasable and movable at will away from the valve-seat to afford unobstructed access to the reeds and permit their removal.

2. In a reed-organ, in combination with the wind-chest, the reed-blocks mounted thereon having a plurality of reed-chambers corresponding to each note, all opening at a common face or valve-seat; a motor-pneumatic or bellows whose moving side constitutes the valve adapted to seat on such face to control all such reed-chambers; a primary pneumatic which controls such motor-pneumatic; the air-duct leading into such motor-pneumatic being formed in the back of the same and in a fixed portion of the wall of the wind-chest, said pneumatic-back being movably joined to such fixed portion at a junction plane transverse to the duct.



3. In combination with a wind-chest, the reed-block mounted thereon having a plurality of reed-chambers opening upward through an outer face of the reed-block; motor-pneumatics having their backs adapted to be fixed with respect to the faces of the reed-blocks and releasable and movable at will and their moving walls adapted to serve as valves to seat on said face; air-ducts leading to the motor-pneumatics respectively, having two mouths opening respectively into the wind-chest and to the outer air; primary pneumatics mounted outside the wind-chest carrying valves which control both said mouths; said primary pneumatics having suitable communication with the wind-chest, and suitable means for venting the same, substantially as set forth.

4. In a reed-organ, in combination with a wind-chest, a reed-block mounted exteriorly thereto having a plurality of reed-chambers opening upward through an outer face of such reed-block; a motor-pneumatic or bellows having its back fixed with respect to said face and releasable and movable at will and its moving wall adapted to advance and retreat bodily with respect to the face and to seat thereon to operate as a valve to close the mouths of the reed-chambers; a duct leading through such fixed back and communicating with the outer air and with the wind-chest, and a primary pneumatic to control both such communications.

5. In combination with the wind-chest, a reed-block mounted exteriorly thereto having a plurality of reed-chambers opening upward through an exterior face of such block; a motor-pneumatic having its back hinged to the wind-chest and adapted to swing toward said face of the reed-block and to be stopped relatively thereto, and having its moving wall adapted to seat on such face and operate as a valve over the mouths of the reed-chambers; an air-duct leading into such pneumatic through the back thereof from the hinged edge, and communicating at such hinged edge with a duct formed in the wall of the wind-chest, each duct leading to mouths which open respectively to the outer air and into the wind-chest, and a primary pneumatic carrying valves which control both said mouths.

6. In a reed-organ, in combination with the reed chambers, motor-pneumatics having bellows whose moving sides constitute the valves for the reed-chambers respectively, each bellows having the back adapted to be fixed with respect to such seat, and adjusting devices by which the back is secured and adjusted with respect to the seat to cause the moving wall to seat accurately thereon.

7. In combination with the wind-chest and the reed-blocks mounted exteriorly thereon having a plurality of reed-cells in each block opening through an outer face thereof; a motor-pneumatic having its moving wall adapted to serve as a valve, seating on such face, the back or fixed wall of such motor-pneumatic being hinged at one edge, and a threaded stud O adapted to engage the opposite edge of the back, and nuts on said bolt between which said edges engage, whereby said back may be adjustably secured at said edge.

8. In combination with a wind-chest, the primary pneumatics exterior thereto provided with suitable communication therewith and with the outer air, and means for venting the latter; the wall of the wind-chest having an aperture and the primary pneumatic carrying valves which seat at the opposite ends of said aperture respectively; sub-beam-reeds and the pneumatic-valves which control the same; ducts from said pneumatic-valves, and a slide-valve which is adapted to cover all the mouths of such ducts, said slide-valves having ports adapted to register with all said mouths, and flexible pipe connection from such ports leading to the primary-pneumatic-valve seats, and suitable means for moving the slide-valve to cause it to close or bring its ports into registration with the mouths of the pneumatic-valve ducts.

608,128. HACK-SAW. GEORGE H. CLEMENS, Middletown, N. Y. Filed Mar. 29, 1897. Serial No. 629,573. (No model.)



Claim.—1. A saw having spaced straight teeth and set teeth in the spaces between the straight teeth, said straight teeth being connected directly at like ends partly to set teeth merging tangentially into said straight teeth and projecting to one side of the saw, and partly to set teeth likewise merging tangentially into said straight teeth but projecting to the other side of the saw, the outer ends of the set teeth so connected all facing in a like direction, or toward the same end of the saw, substantially as described.

2. A saw having spaced straight teeth, set teeth arranged in pairs between said straight teeth, the teeth of each pair being set to opposite sides of the saw, and the forward teeth of adjacent pairs being likewise set to opposite sides of the saw, sundry of the set teeth being connected directly to the adjacent straight teeth, the free ends or outer ends of the set teeth so connected all facing in the same direction, or toward the same end of the saw, substantially as described.

3. A saw having spaced teeth all alike in size and shape and set as follows: first tooth set to the right, second tooth unset or straight, third tooth set to the right, fourth tooth set to the left, fifth tooth unset or straight, sixth tooth set to the left and following ones repeated in the same order, substantially as described.

4. A hack-saw having spaced straight teeth and pairs of set teeth, the free or cutting ends of the teeth all pointing in the same direction, and the teeth being alike in shape and size, the pairs of set teeth alternating with the straight teeth and the teeth of each pair of set teeth being set to opposite sides of the saw, the forward teeth of adjacent pairs of set teeth being also set to opposite sides of the saw, and the rear teeth of adjacent pairs of set teeth being also set to opposite sides of the saw, the said rear teeth being connected directly to the adjacent straight teeth, substantially as described.

608,129. TWINE HOLDER AND TAKE-UP. FREDERICK W. CORTZ, Brooklyn, N. Y., assignor of one-half to John H. Raymond, same place. Filed Nov. 11, 1897. Serial No. 658,176. (No model.)

Claim.—1. A twine holder and take up, comprising a pivoted lever having a cord-guide on one end, a stop located above and so as to be engaged by the other end, cord-guides located beyond each end of the lever, a weight adapted to be attached to the cord between the cord-guide on the lever and the adjacent fixed cord-guide, and a stop limiting the drop of said weight, substantially as described.



2. A twine holder and take-up, comprising a pivoted lever having a cord-guide on one end, a stop adapted to be engaged by the other end of the lever when it is swung upward, cord-guides located beyond each end of the lever, weight-guides between the cord-guides on the lever and the adjacent fixed cord-guide, a weight sliding thereon and having a cord-guide, and a stop limiting the fall of said weight, substantially as described.

3. A twine holder and take-up, comprising a pivoted lever having a cord-guide on one end, a stop adapted to be engaged by the other end of the lever when it is swung upward, cord-guides located beyond each end of the lever, said cord-guides being open on their upper sides, a weight and guides therefor between the cord-guide on the lever and the adjacent fixed cord-guide, and a stop limiting the fall of said weight, substantially as described.

4. A twine holder and take-up, comprising a pivoted lever having a cord-guide on one end, a stop adapted to be engaged by the other end of the lever to clamp the cord, fixed cord-guides located beyond each end of the lever, a weight having a pulley mounted thereon, the pivot of said pulley being supported from one end, an arm swinging upon the other end of said pivot and adapted to engage the weight, and a stop limiting the drop of said weight, substantially as described.

5. A twine holder and take-up, comprising a pivoted lever having a cord-guide on one end, a stop adapted to be engaged by the other end to clamp the cord, cord-guides located beyond each end of the lever, said cord-guides being open on their upper sides, weight-guides between the cord-guide on the lever and the adjacent fixed cord-guide, a weight having a pulley mounted thereon, the pivot of said pulley being supported from one end, an arm swinging upon the other end of said pivot and adapted to engage the weight, and a stop limiting the drop of said weight, substantially as described.

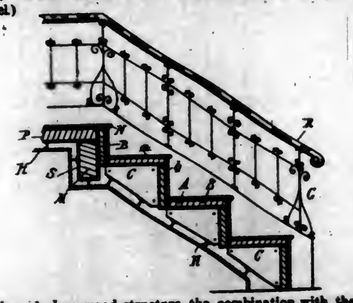
6. A twine holder and take-up, comprising a pivoted lever having a cord guide on one end, a stop adapted to be engaged by the other end of the lever to clamp the cord, a weight having a pulley mounted thereon, the pivot of said pulley being hollow and supported from one end, an arm swinging upon the outer end of said pivot, a spiral spring within the pivot, having one end fixed and the other engaging the swinging lever to throw it downward against the weight, a stop on the weight engaged by said arm, and a stop limiting the downward drop of the weight, substantially as described.

7. A twine holder and take-up, comprising a back having a projecting shelf at top and bottom, a lever pivoted to the back just beneath the upper shelf and having a cord-guide on one end thereof, the other end being adapted to engage a stop on the upper shelf, a cord-guide fixed beyond each end of the lever, weight-guides between the end of the lever having the cord-guide and the adjacent fixed cord-guide and connecting the top and bottom shelves, and a weight sliding on said guides and having a cord-guide thereon, substantially as described.

8. A twine holder and take-up, comprising a back having a projecting shelf at top and bottom, a lever pivoted to the back just be-

neath the upper shelf and having a cord-guide on one end thereof, the other end being adapted to engage the cord to clamp it, a cord-guide fixed beyond each end of the lever, wires extending between the upper and lower shelf, and located between the end of the lever having the cord-guide and the adjacent fixed guide and constituting a weight-guide, and a weight having eyes embracing said wires, a pulley mounted thereon by a pivot supported from one end, and a spring-held arm pivoted on the pulley-pivot and adapted to engage the weight or be swung upward, substantially as described.

608,130. **FIRE-RESISTING WOODEN STAIRS.** ALPHONSE DE MAN, Detroit, Mich. Filed Dec. 6, 1895. Serial No. 571,294. (No model.)



Claim.—1. In a wood structure, the combination with the various constituent members, of a non-combustible insulating wrapping for the members the wrapping of each member consisting of fibrous penetrable material entirely surrounding, covering and sealing the same, thereby forming a double course of insulating material at the points of union or contact of the various members, substantially as described.

2. In wooden fire-resisting stairs, the combination of wooden treads, risers and stringers independently insulated with fireproof material, covering all the faces, edges and ends to exclude air for combustion, with veneer or facings on the exposed parts all well secured together forming the body of a stairs.

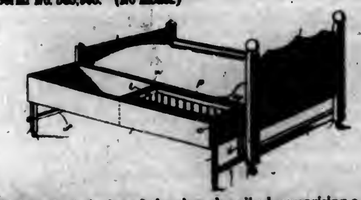
3. In connection with wooden fire-resisting stair-bodies composed of treads, risers and stringers insulated to prevent live combustion and covered on the exposed portions with facing, the metallic bracket-supports secured to the under side of the treads and to the back of the risers in the angle formed by these parts and securing these two parts together substantially and for the purpose set forth.

4. In connection with wooden fire-resisting stair-bodies, the stringers composed of a wooden core insulated with fireproof sheeting to exclude air for combustion, having facings *d d'* and insulated cleats C, so arranged as to leave a space between the cut-out edge of the facings *d d'* and the cleats C these spaces forming the gains J, which are intended to support and form a good connection between the treads and risers and the stringers.

5. In connection with wooden fire-resisting stair-bodies composed of treads, risers and stringers all insulated to prevent live combustion the wooden carriage-piece K and the vertical supporting-blocks both independently insulated with fireproof material to prevent live combustion.

6. The combination of insulated fire-resisting stair-bodies with the wooden newels, composed of a wooden core independently insulated by fireproof material enveloping it on all sides and ends to prevent access of air for combustion, and the exposed parts being faced with finishing material.

608,131. **BED.** JAMES O. DICKINSON, Atlanta, Ga., assignor of one-half to Edward L. C. Ward, Fulton County, Ga. Filed Apr. 2, 1898. Serial No. 505,905. (No model.)

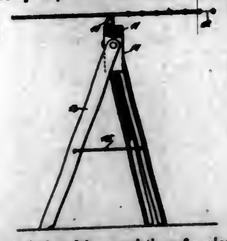


Claim.—1. A device of the class described comprising a major frame, slideways carried thereby, slides adapted to move in said slideways, uprights pivoted intermediate their extremities at the ends of the slides, additional uprights pivoted to the slides, and a supplemental frame carried by the uprights, the first-named uprights being adapted to engage the floor and support the outer ends of the slides.

2. A device of the class described comprising a major frame having slideways, slides adapted to move therein, uprights pivoted to the slides and adapted to project above and below the latter, the lower portion forming supports for the outer ends of the slides, additional uprights pivoted to the slides, and a supplemental frame pivoted to the uprights, the slides being adapted for withdrawal sufficiently to allow the supplemental frame to recline against the major frame.

3. A device of the class described comprising a major frame having slideways, slides adapted to move therein, supports for said slides pivoted thereto and projecting therebelow when in operative position, a supplemental frame pivoted to the supports, bearings in the supplemental frame and a cradle provided with trunnions adapted to work in the said bearings.

608,132. **CLOTHES-DRIER.** CHARLES DRAKE, Mannington, W. Va. Filed Apr. 24, 1897. Serial No. 633,616. (No model.)



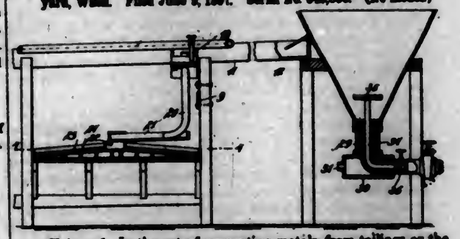
Claim.—1. A clothes-drier, consisting of a wire bent into a helix, the inner end thereof extending to the center and being bent to form an eye, lying in a plane perpendicular to the plane of the helix, then extending perpendicular to the plane of the helix, the extreme end thereof forming a pivot upon which the whole may revolve, substantially as described.

2. A clothes-drier, consisting of a wire bent into a helix, the inner end thereof terminating in a pivot which is perpendicular to the plane of the helix and is connected to the body of the helix by a laterally-extending eye which acts as a shoulder, and a series of radially-extending connectors attached to the coils of the helix and limiting their relative movements, substantially as described.

3. A clothes-drier, consisting of a wire bent into a helix, the inner end thereof extending to the center and being bent to form an eye lying in a plane perpendicular to the plane of the helix and then extending perpendicular to the plane of the helix, the extreme end thereof forming a pivot upon which the whole may revolve, and a folding stand having a socket in its upper end adapted to receive said pivot and to support the helix, substantially as described.

4. A clothes-drier, formed of a single wire bent into coils of successively-increasing size, the coils being joined by radial braces or connectors, and a central supporting-pivot formed upon the inner end of said wire, substantially as described.

608,133. **SEPARATOR FOR METALS.** WILLIAM J. DWYER, Hillyard, Wash. Filed June 9, 1897. Serial No. 640,000. (No model.)

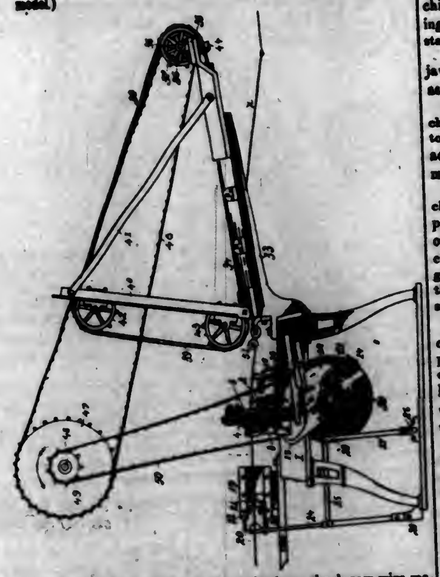


Claim.—1. In the art of separating metals from tailings or the like, a series of tables, a carrier-trough common to all of the tables, a grading-hopper at the feed end of said carrier-trough, a water-pipe extended into the bottom of said hopper said having outlet-perforations, another pipe surrounding the first-named pipe, and a boxing surrounding the last-named pipe and provided with an outlet, substantially as specified.

2. A separator for metals, comprising a series of inclined tables, a distributer at the upper end of each table, a carrier-trough common to all of the tables, a boxing secured to the trough over each table, the said boxing having a partition dividing it into upper and lower chambers, a valve for controlling an opening through the partition, a pipe leading from the lower of said chambers to the distributer, the upper chamber having communication with the trough, a water-pipe extended along the trough, and valve-controlled pipes leading from the water-pipe through the closed upper ends of the lower chambers, substantially as specified.

3. In the art of separating metals from tailings or the like, a series of inclined tables each having a canvas cover, a carrier-trough extended across the series of tables above their upper ends and having communication with the several tables, a hopper at the feed end of said carrier-trough, a pipe extended from the bottom of the hopper and terminating in a horizontally-disposed boxing having an outlet, a water-pipe leading into said boxing and through the pipe extended from the hopper, the said pipe being provided in its vertical portion with perforations, a valve for controlling said water-pipe, a smaller water-pipe in the first-named water-pipe and extended into the lower portion of the hopper, perforated cross-pipes upon the upper end of said water-pipe, and a valve at the lower end of said inner pipe, substantially as specified.

608,134. **MACHINE FOR MAKING CHECK-ROW WIRE.** ROBERT FARIES, Decatur, Ill., assignor to the Furies Manufacturing Company, same place. Filed June 26, 1897. Serial No. 642,606. (No model.)



Claim.—1. A shears for cutting wire in a check-row-wire machine, such shears having a wire-guide on its active jaw, substantially as set forth.

2. In a machine for making check-row wire, a guide-bar adapted to be moved into and out of the path of the incoming wire, whereby the end of such wire may be guided to knotting position, substantially as set forth.

3. In a shears for cutting wire in a check-row-wire machine, an active jaw adapted to cut the wire and push one of the severed ends out of the path of the wire through the machine, substantially as set forth.

4. In a shears for cutting wire in a check-row-wire machine, an active jaw adapted to cut the wire and push one of the severed ends out of the path of the wire through the machine, and a guide-bar on such jaw adapted to be moved into the path of the wire as such severed end is pushed aside, substantially as set forth.

5. In a shears for cutting wire in a check-row-wire machine, the combination of a relatively inactive jaw adapted to be moved to and from its work and an active jaw forming a wire-guide, substantially as set forth.

6. In wire-cutting mechanism for check-row-wire machines, the combination of a passive shears-arm pivoted to swing to and from the path of the wire, an active shears-arm pivoted on the passive arm, and a cam adapted to act first on the passive arm and then on the active arm, whereby the shears may be moved to position and the wire severed by the action of the cam, substantially as set forth.

7. In wire-cutting mechanism for check-row-wire machines, the combination of a passive shears-arm pivoted to swing to and from the path of the wire, an active shears-arm pivoted on the passive arm, a pair of bars each pivoted at one end and provided with a roller at the other end, rods connecting the bars one with each shears-arm, and a cam adapted to act on the rollers successively, substantially as set forth.

8. In mechanism for cutting wire in a check-row-wire machine, the combination of a passive shears-arm pivoted to swing to and from the path of the wire, an active shears-arm pivoted on the passive arm and having a guide-groove on its jaw, a feeder to advance the wire into the machine after the cutting operation is performed, and a cam to move the passive arm to position, to move the active arm to cut the wire, and to hold the arms in the positions they occupy immediately after the wire is cut until the incoming end is fed to coöperate with the outgoing end in the proper relative position, substantially as set forth.

9. Mechanism for feeding wire into a check-row-wire machine consisting of a slide having a fixed jaw and a swinging jaw, a rock-arm, a cam adapted to rock the arm, and a connection between the swinging jaw and the rock-arm whereby the swinging jaw may force the wire against the fixed jaw and the slide may be moved when motion is imparted to the rock-arm, substantially as set forth.

10. Mechanism for withdrawing wire from check-row-wire machines, comprising a primarily acting gripper and a secondarily acting tappet adapted to engage and adjust the knot last made, substantially as set forth.

11. Gripper-jaws for engaging knots of check-row wire, such jaws having lips adapted to extend beneath the wire, substantially as set forth.

12. Mechanism for withdrawing wire from check-row-wire machines, comprising an endless chain, a gripper on the chain adapted to give primary motion to the wire, and a tappet, also on the chain, adapted to engage the knot last formed and complete the withdrawal motion, substantially as set forth.

13. Mechanism for withdrawing wire from check-row-wire machines, consisting of an endless chain, a gripper on the chain composed of a pair of pivoted jaws, guide-walls adapted to force the jaws of the gripper together throughout a portion of the travel of the chain, whereby the wire may be carried by the gripper while the gripper is between the guide-walls, and a tappet adapted to engage the last-formed knot of the wire and complete the discharging action, substantially as set forth.

14. Mechanism for withdrawing wire from check-row-wire machines, consisting of an endless chain, a gripper on the chain composed of a pair of pivoted jaws, guide-walls to hold the gripper-jaws closed throughout a portion of the run of the chain, a tappet swung loosely on the chain and provided with guide extensions, and guideways to engage the tappet extensions at a certain locality in the travel of the chain and hold the tappet rigid, substantially as set forth.

15. In mechanism for withdrawing wire from check-row-wire machines, the combination of an endless chain, a gripper on the chain, a tappet swung loosely on the chain, a guideway to hold the tappet rigid with relation to the chain throughout a portion of its travel, and a trip to throw the tappet when it passes out of the control of the guideway, substantially as set forth.

16. In mechanism for withdrawing wire from check-row-wire machines, the combination of a gripper adapted to move the wire lengthwise, and a push-lever adapted to divert the wire laterally simultaneous with the initial action of the gripper, substantially as set forth.

17. In mechanism for cutting wire in check-row-wire machines and withdrawing it therefrom, the combination of a rotary cam, an endless chain adapted to make a trip in its travel while the cam makes a rotation, wire-cutting shears adapted to be actuated by the cam, and a wire-withdrawing gripper carried by the chain, substantially as set forth.

18. In mechanism for feeding wire into a check-row-wire machine, cutting it therein, and withdrawing it therefrom, the combination of a rotary cam, an endless chain adapted to make a trip in its travel while the cam is making a rotation, wire-cutting shears, a wire-feeder, and a gripper on the chain, the connections being such that the cam moves the shears to operative position, cuts the wire and operates the feeder, in the order named, and subsequently the gripper on the chain engages the wire, substantially as set forth.

608,135. **ELECTRICAL FOOT-GEAR.** José Gallegos, Guatemala, Guatemala. Filed Mar. 6, 1893. Serial No. 672,674. (No model.)

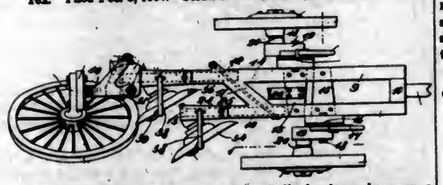
Claim.—1. An electrical generator for foot-gear, having an insulating-insole, and a generating-insole laid on the insulating-insole,

the generating-insole being formed of a fabric composed of woven strands covered with glass beads.



2. As a new article of manufacture, a static electrical generator for frictional contact with the human body, said generator consisting in a closely-formed fabric composed of strands covered with glass beads, the beads lying close to each other and forming the surfaces of the fabric.

608,186. GANG-PLOW. FREDERICK W. GORDON, Valley View, Tex. Filed Feb. 3, 1897. Serial No. 621,850. (No model.)



Claim.—1. The combination of a spindle having a keyway, a member to turn on the spindle and also having a keyway, and a key with two diagonally-disposed parts respectively capable of running in the keyways of the spindle and of the said member whereby to hold the said member in two positions with reference to the spindle, substantially as described.

2. The combination of a spindle, a member turning on the spindle, the spindle and member having keyways, and a key having portions respectively capable of fitting within the keyway of the spindle and of said member whereby to hold the member in two positions relative to the spindle, substantially as described.

3. The combination of a spindle having a keyway, a member capable of turning on the spindle, and also having a keyway, and a spindle with two parts of duplicate cross-sectional form and of angular relation to each other, the said parts of the key respectively running within the keyways, and the key being capable of holding the said member at various positions with reference to the spindle, substantially as described.

4. The combination of a spindle having a square keyway, a member mounted to turn on the spindle and also having a keyway, and a key the cross-sectional form of which is that of two squares with diagonal relation to each other, and the key being capable of having its squares respectively run in the keyways whereby to hold the said member in either of said two positions with reference to the spindle, substantially as described.

5. The combination of a frame, a plow-disk carried by the frame, a wheel forward on the frame, means for varying the position of said wheel with reference to the frame, and a guide-wheel rearward in the frame.

6. The combination of a frame having two rigidly-joined beams, a spindle projecting rearward from each beam, a disk for each spindle and means for holding the disks respectively at the sides of the spindles, the said means being adjustable axially on the spindles, to adjust the disks.

7. The combination of a beam, a spindle projected longitudinally from the beam, a wheel carried by the end of the spindle, and a disk carried at one side of and on the spindle.

8. The combination with a support, of two blocks, one of which is held on the support and the second of which is adjustable on the first, and a bracket one portion of which is pivotally mounted on the first block and a second portion of which is pivotally connected to the second block.

9. The combination of a frame formed of two longitudinal beams, means rigidly connecting the beams, a spindle projecting from the rear of each beam, a sleeve rockably mounted on each spindle at points rearward of the beams, cultivating-tools carried by the sleeves, and means for supporting the frame.

10. The combination of a frame, a spindle projecting from the rear of the frame, a sleeve rockably mounted on the spindle at a point rearward of the frame, a cultivating-tool carried by the sleeve, means for supporting the forward portion of the frame, a guide-wheel rearward of the frame, and means for mounting the guide-wheel on the spindle at a point rearward of the sleeve.

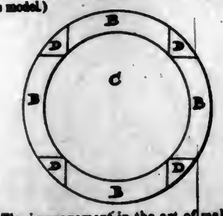
608,187. DEVICE FOR DECORATING TILES OR PLANE SURFACES. GEORGE H. GRIMBLY, Derby, and GEORGE A. LINGARD, Old Normanton, England. Filed Nov. 24, 1896. Serial No. 613,213. (No model.)



Claim.—1. The combination with a photocollotype printing-film for direct photocollotype printing on tiles or other plane hard surfaces, of an elastic support composed of two layers of vulcanized india-rubber of different qualities cemented together, one of which is a thin upper layer of dense non-elastic rubber and upon which the photocollotype-film is spread and the other being a thicker substratum of elastic rubber, and a smooth-surfaced rigid backing-plate for said elastic support, substantially as specified.

2. The combination with a photocollotype printing-film for direct photocollotype printing on tiles or other plane hard surfaces, of an elastic support upon which the photocollotype-film is spread, and a smooth-surfaced backing-plate, the elastic support being composed of two layers of vulcanized india-rubber of different qualities cemented together, namely, a thin upper layer upon which the film is spread and formed of dense non-elastic rubber, and a thicker substratum of elastic rubber cemented to the backing-plate, substantially as specified.

608,188. BUILDING CIRCULAR WOODEN STRUCTURES. RICHARD R. GUBBINS, London, England. Filed Nov. 13, 1896. Serial No. 612,004. (No model.)



Claim.—1. The improvement in the art of making wooden pulleys, rims or similar rings which consists in cutting the longitudinal edges of pieces of boards to constitute a composite cross-grained board, planing parallel the cross-grained edges of the said board and sizing the same and dividing the said board into segments each segment bounded longitudinally by concentric arcs and at the ends by the planed edges of the board and gluing the segments with interposed pieces together to form said rims.

2. The ring composed of circular segments, B, having parallel ends, planed and sized, set so that the adjacent ends of each pair of segments are at right angles to one another, combined with the corner-pieces glued in, filling the spaces, D, between the said ends of the said segments, B, for the purpose set forth.

608,189. ROAD-MAKING MACHINE. CHARLES R. HACKER, Brunswick, Me. Filed Aug. 23, 1897. Serial No. 649,196. (No model.)



Claim.—1. A road-making machine comprising a vehicle-body, a transversely-extending knife-blade carried by a frame fitted to slide vertically in suitable bearings, the said knife-blade being adapted to move below the said body to cut the bushes, weeds and other growth in the path of the vehicle-body, and a triangular scraper on the rear end of the vehicle-body for leveling the ground, the rear end of the scraper being provided with angular flanges, substantially as shown and described.

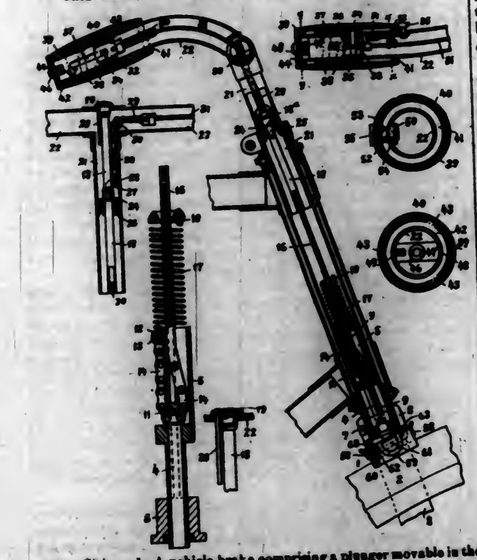
2. A road-making machine comprising a vehicle-body having runners connected with each other, cutters carried by the said runners, and a triangular scraper supported by the said body between the rear ends of the said runners, the lower ends of the scraper as well as the cutters extending below the body and edges of the runners, substantially as shown and described.

3. A road-making machine comprising a vehicle-body having runners connected with each other, cutters carried by the said runners, and a triangular scraper supported by the said body between the rear ends of the said runners, the lower ends of the scraper as well as the cutters extending below the body and edges of the runners, the said cutters and the apex of the scraper being in longitudinal alinement with each other, as set forth.

4. A road-making machine comprising a vehicle-body having runners connected with each other, cutters carried by the said runners, a triangular scraper supported by the said body between the rear ends of the said runners, the lower ends of the scraper as well as the cutters extending below the body and edges of the runners, and a grubbing-knife held vertically adjustable on the said runners, substantially as shown and described.

5. A road-making machine, comprising a vehicle-body having runners connected with each other, a transversely-extending grubbing-knife carried by a frame vertically adjustable in bearings at the inner side of the said runners, a triangular scraper supported by the said body and having its forward end extending between the rear ends of the said runners, the rear end of the said scraper being provided with angular flanges, and circular cutters carried by the said runners at the front and rear of the grubbing-knife, substantially as shown and described.

608,140. BICYCLE-BRAKE. EDWARD S. HALL, New York, N. Y. Filed Jan. 28, 1897. Serial No. 621,067. (No model.)



Claim.—1. A vehicle-brake comprising a plunger movable in the steering-wheel-fork stem, a brake device held to the plunger, a relatively-fixed plug or part at the fork, a support held to said plug, a pin held to the support and not entering the fork-stem, a flexible draft connection held at one end to the plunger and passing in a bight under said pin, a pulling connection at the other end of said draft connection, and means operating said pulling connection.

2. A vehicle-brake comprising a plunger movable in the steering-wheel-fork stem, a brake device held to the plunger, a relatively-fixed plug or part at the fork, a support held to said plug, a pin held to the support and not entering the fork-stem, a flexible draft connection held at one end to the plunger and passing in a bight under said pin, a pulling connection at the other end of said draft connection, means operating said pulling connection, and a retracting-spring held at opposite ends to the pin-support and plunger.

3. A vehicle-brake comprising a plunger 4 5 movable in the steering-wheel-fork stem, a brake device held to the plunger, a plug 6 fixed at the fork-crown, rods 9 held to plug 6, a cap 10 and pin 11 held to the rods, a flexible connection 14 held at one end to the plunger and passing in a bight under pin 11, a spring 17 held to parts 5, 10, a pulling connection attached to part 14, and means operating said pulling connection.

4. The combination, with the handle-bar, a brake-operating device thereon, a brake, means within the steering-wheel-fork stem operating the brake, and the two-part intermediate coupling having a shoulder and permitting vertical adjustment of the handle-bar, of a support 24, 25, on which the shoulder of the coupling rests, a laterally-curved yoke connected to the support, and a flexible draft device connecting said yoke with the brake-operating devices, substantially as described.

5. The combination, with the slotted handle-bar and draft devices in said bar actuating the brake, of an operating-handle surrounding the bar and having interior end rings bearing thereon, and also having an interior lining and a worm-screw plate within the lining; said lining and screw-plate both having larger diameter than the handle-bar and having no bearing thereon; and a slide and pin within the handle-bar connecting the worm with the draft devices of the brake.

6. The combination, with the handle-bar, of an operating-handle turning thereon and having an interior lining 39 and an end-ring bearing 42 provided with lugs 43 entering slots of the lining; an end plate 44 fitted within the lining and upon which the end parts of the lining are pressed down, and a headed screw 45 entering a stud 46 projecting from the handle-bar through an opening of plate 44, substantially as described.

7. The handle-bar having an end plug or part 47 provided with a stud 46, and having at one end a pin 48, entering the bar, and at the other end a threaded hole; a fastening-screw 49 in the bar fitting said hole, an operating-handle turning on the bar, and a headed screw 45 passing from the outer end of the handle into the stud 46, substantially as described.

8. The combination, with the handle-bar and the brake-operating handle turning thereon, of a spring-latch 50 held to and within the bar and having at its free end a boss 54 fitting an opening in the handle-bar and carrying a latch-stud 52 adapted to engage a recess of the operating-handle, substantially as described.

9. The combination, with the brake-spoon cap-plate having slots formed with wide and narrow parts, of a brake-shoe having headed keys adapted to enter the slots and lock outside the plate, and latch-fastenings held to the cap-plate and locking the keys in the narrow parts of the slots.

10. The combination, with the brake-spoon cap-plate having two pairs of slots formed with wide and narrow parts, of a brake-shoe made in two independent side parts or blocks each having two headed keys adapted to enter the cap-plate slots and lock outside the plate, and latches held to the cap-plate and locking the keys in the narrow parts of the slots.

608,141. LOOM-SHUTTLE. STEPHEN M. HAMBLIN, Taunton, Mass., assignor of three-fourths to William H. Goldsmith, Central Falls, R. I. Filed Oct. 16, 1897. Serial No. 655,428. (No model.)



Claim.—1. The combination with a shuttle-body, and the shuttle-spindle of the improved bobbin-retaining device consisting of the independent and freely-swinging bail or loop journaled at its ends and into which the bobbin-head is carried by the descent of the shuttle-spindle, the main part of said bail or loop hanging below the journals thereof, whereby the bail or loop is made self-adjusting to accommodate itself to the portion of the bobbin-head with which it coacts, substantially as described.

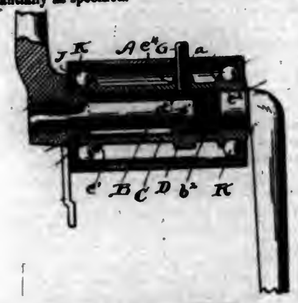
2. The combination with a shuttle-body and the shuttle-spindle, of the improved bobbin-retaining device consisting of the bail or loop journaled at opposite sides of the shuttle-spindle, and into which the bobbin-head is carried by the descent of the shuttle-spindle, the main part of said bail or loop hanging below the journals thereof, whereby the bail or loop is made free to conform itself to the position and movement of the portion of the bobbin-head with which it coacts, substantially as described.

3. The combination with the shuttle-body, and the shuttle-spindle, of the bobbin-retaining device consisting of the bail or loop, the yoke or frame 55 provided with the eye 56 and having the said loop or bail journaled in its arms, and also having the head of the shuttle-spindle fitted between the said arms, the rivet 23 passing through the said arms and the said head, and the screw passing vertically through the said eye and securing the parts in place, substantially as described.

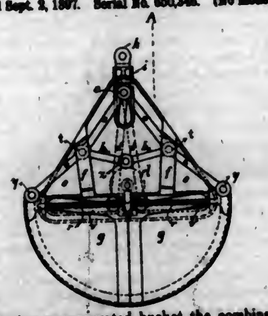
608,142. CRANK-SHAFT AND BEARING FOR BICYCLES. LOUIS R. HOFFMAN, Cleveland, Ohio. Filed Nov. 5, 1897. Serial No. 657,472. (No model.)

Claim.—1. The combination of a crank-hanger, a spool having bearings thereon, said spool having an internal shoulder and a threaded end, a nut in said spool engaging with said shoulder, a crank-shaft having a crank rigid with one end, an external shoulder on said end, and a threaded part which screws through said nut, a spider or crank which embraces the other end of said shaft and is screwed to said spool, and means for connecting said spider or crank and crank-shaft, substantially as specified.

2. The combination of a crank-hanger, a spool having bearings thereon, said spool having an internal shoulder and one internally-threaded end, a nut in said spool adapted to engage with said internal shoulder, a crank-shaft and a crank rigid therewith, said crank-shaft passing entirely through the spool, and having a threaded portion upon which the nut screws and an external shoulder adapted to engage with the end of the spool, a spider or crank which embraces the crank-shaft, and has a boss which screws into the threaded end of the spool, means for preventing the turning of the nut in the spool when the crank-shaft is being screwed in, means for preventing the rotation of the spool when the spider or crank is being screwed thereto, and means for connecting the spider or crank and crank-shaft, substantially as specified.



608,143. COAL OR ORE BUCKET. JAMES A. JOYCE, Cleveland, Ohio. Filed Sept. 2, 1897. Serial No. 650,346. (No model.)



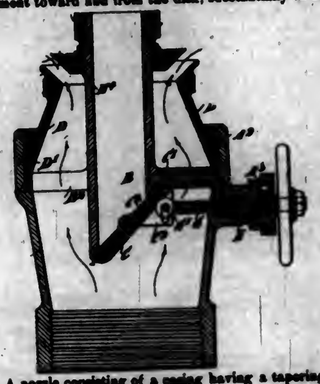
Claim.—1. A power-operated bucket the combination with a frame, the bucket-sections pivoted on beams *k* movable in guides in the frame, the beam *o* movable in guides in the frame, and the links *a* and *c* connecting the movable beam *o* with the bucket-sections, the links, *d*, connecting movable beams *k* and *o*, the links *b* connecting links *a* and *c* to the frame, of a power-shaft mounted in a frame, an electric motor or other motive power for driving said shaft, mechanism for raising and lowering beam, *o*, and moving beams *k* to or from the middle of the frame; substantially as described.

2. A power-operated bucket the combination with a frame, the bucket-sections pivoted on beams *k*, movable in guides in the frame, and the links *a* and *c* connecting the movable beam *o* with the bucket-sections, the links *d* connecting movable beams *k* and *o*, the links *b* connecting links *a* and *c* to the frame, of a power-shaft with right and left worm-screws *r'* at either end, mounted in the frame, and engaging worm-wheel *m* on screw-shaft *r*, an electric motor or other motive power for driving said power-shaft, substantially as described.

3. A power-operated bucket the combination with a frame, the bucket-sections pivoted on beams *k*, movable in guides in the frame, and the links *a* and *c* connecting the movable beam *o* with the bucket-sections, the links *d* connecting links *a* and *c* to the frame, of a pair of horizontal right and left screw-shafts *r* mounted in the frame and engaging threaded openings in beams *k*, an electric motor or other motive power for operating same substantially as described.

608,144. FIRE-HOSE NOZZLE. ELLSWORTH D. KELLERMAN and BENJAMIN C. CRANE, Montesano, Wash., assignors of one-half to R. C Story, same place, and W. I. Agnew, Olympia, Wash. Filed Jan. 26, 1898. Serial No. 668,256. (No model.)

Claim.—1. A nozzle having a casing, a portion of which is internally threaded, a threaded spider cooperating with the threads of the casing, a stream-pipe carried by the spider, the outer end of the stream-pipe projecting beyond the casing, a disk carried by the stream-pipe, and a nozzle proper having a threaded portion cooperating with the threads of the casing, the nozzle proper being capable of movement toward and from the disk, substantially as described.



2. A nozzle consisting of a casing having a tapering inner portion and a cylindrical inner portion, the cylindrical portion being internally threaded, a spider having threads cooperating with the threads of the cylindrical portion, a stream-pipe carried by the spider and projecting beyond the cylindrical portion of the nozzle, a disk carried by the outer end of the stream-pipe, a tapering nozzle proper having a screw-threaded portion cooperating with the threads of the cylindrical portion of the casing and being capable of movement toward and from the disk on the stream-pipe, and means for controlling the stream-pipe, substantially as described.

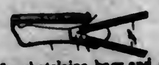
3. In a nozzle, the combination with a casing having a bearing and cap therefor, of a stream-pipe, a hinged valve capable of closing the stream-pipe, an internally-threaded sleeve having an annular collar, the sleeve being revolubly held within the bearing and the collar engaged with the cap thereof, and a belt connected to the valve and cooperating with the threads of the sleeve, substantially as described.

4. A nozzle having a casing, a portion of which is internally threaded, a threaded spider cooperating with the threads of the casing, a stream-pipe carried by the spider and projecting out of the casing, a disk held on the stream-pipe, a nozzle proper having adjustable connection with the casing and capable of movement to engage and disengage the disk, and a valve commanding the stream-pipe, substantially as described.

5. A nozzle having a casing, a stream-pipe held within the casing and having a diagonal inner end, a disk carried by the stream-pipe, a nozzle proper adjustable on the casing and capable of engaging and disengaging the disk, a valve pivotally mounted adjacent to the inner diagonal end of the stream-pipe and capable of moving to close or open the same, and means extending through the casing by which the valve may be operated, substantially as described.

6. A nozzle having a casing, a stream-pipe held within the casing and extending out of the same, a disk carried by the stream-pipe, a nozzle proper movable on the casing to engage and disengage the disk, a pivotally-mounted valve capable of movement to open and close the stream-pipe, and means extending through the casing by which the valve may be operated, substantially as described.

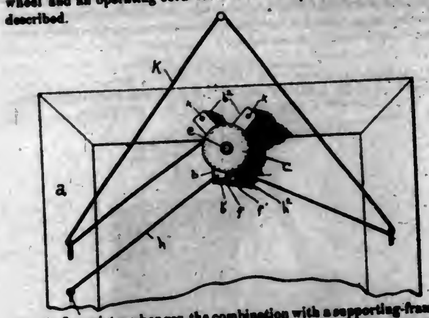
608,145. HOOK FOR CHATELAINE OR OTHER BAGS. JOHN KLEINSTUBER, New York, N. Y. Filed June 10, 1897. Serial No. 640,170. (No model.)



Claim.—A hook for chatelaine bags and similar articles, composed of sheet metal having a body portion provided with two recesses stamped therein near one end, with one end wall of each of said recesses removed forming holes adapted to receive suspending-straps, a narrow arm projecting from the opposite end and bent to form a hook, the outer edges of said hook being rolled over, and a fabric secured beneath said rolled edges, substantially as described.

608,146. PICTURE-HANGER. SIMEON LOEB, Philadelphia, Pa., assignor of one-half to Rhea Vurlenden, Darby, Pa. Filed Oct. 15, 1897. Serial No. 655,337. (No model.)

Claim.—1. In a picture-hanger, the combination of a spring-controlled winding-drum, a ratchet-wheel connected to said drum, with a frame on which to mount said drum and ratchet-wheel, a pawl pivoted on said frame and adapted to normally engage said ratchet-wheel and an operating-cord secured to said pawl, substantially as described.



2. In a picture-hanger, the combination with a supporting-frame, diverging arms extending from said frame, a right-angled portion integral with the lower end of said frame, a spring-controlled winding-drum mounted on said frame, a ratchet-wheel connected to said drum, a pawl pivoted to the frame and engaging said ratchet-wheel, a spring seated on the said right-angled portion under the pawl, and a cord or wire secured to the forward end of said pawl for operating the same.

608,147. PANEL. ARTHUR B. LORNEY, St. John, Canada. Filed Apr. 14, 1897. Serial No. 632,178. (No model.)



Claim.—1. In a panel, the combination of a wooden frame, the cross-rails of which have curved outer faces, a panel of artificial flexible fabric curved to correspond to the curvature of the rails fitted on the outer face thereof, and a series of wooden securing-strips on the outside of the panel, said strips being secured to the wooden frame, substantially as described.

2. In a panel, the combination of a wooden frame, the cross-rails of which have corrugated outer faces, a panel of artificial flexible fabric fitted on the outer face of said frame and being corrugated to correspond with the corrugations in the said rails, a series of wooden securing-strips on the outside of said panel, and means to secure the strips to the frame, substantially as described.

3. In a panel, the combination of a wooden frame, the cross-rails of which have curves on their outer faces, and the vertical posts of which are rabbeted to form a longitudinal shouldered recess, a panel of artificial flexible fabric bent to correspond to the curvature of the cross-rails and having its vertical edges engaging the shoulder of said recess, a series of wooden securing-strips arranged on the outside of said panel, the edges of the vertical strips and the ends of the horizontal strips abutting against the shoulders of said recesses, and means to secure said strips to the frame, substantially as described.

608,148. ADJUSTABLE SUPPORT FOR OPTICAL INSTRUMENTS. EMIL B. MEYROWITZ, Ridgefield, N. J., assignor to the Meyrowitz Manufacturing Company, same place. Filed Feb. 1, 1897. Serial No. 621,803. (No model.)

Claim.—In an adjustable support for optical instruments, a metallic stand of tripod or like form comprising upwardly-converging legs, a guide-forming collar between the upper ends of such legs, headed screws inserted from within outwardly to fixedly unite said legs and collar, and a bushing of Babbitt metal or the like within said collar which fastens said screws and forms a central guide-bore, substantially as hereinbefore specified



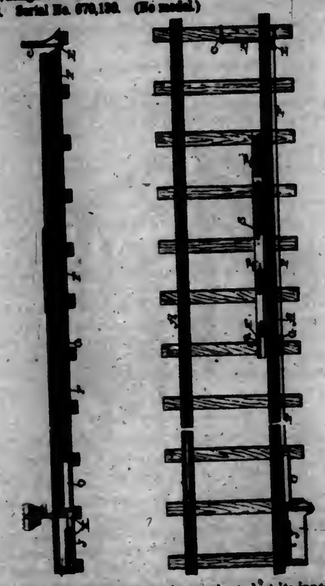
608,149. CRANK-HANGER FOR BICYCLES. THOMAS MIDDLEY, Columbus, Ohio, assignor of one-half to the Columbus Bicycle Company, same place. Filed Nov. 26, 1897. Serial No. 659,864. (No model.)



Claim.—1. A section for forming a built-up crank-hanger for a bicycle composed of a continuous piece of metal having a tubular body and a flat rectangular tang offset or projecting beyond the body on one side

2. A crank-hanger for bicycles composed of a tubular body or reinforcement and separate sections, each section having a tubular body and a flat rectangular tang overlapping the body of the adjacent section, in combination with semitubular reinforces on each side of the tangs and within the frame-tubes.

608,150. RAILROAD-SIGNAL. SAMUEL MILLS, Buckeye City, Ohio, assignor of one-half to James M. Mills, same place. Filed Feb. 12, 1898. Serial No. 670,193. (No model.)



Claim.—1. A slotted tread-lever, pivoted at its inner edges, and provided with a flange at its top where it bears against the rail, and a spring for returning the tread-lever to position after having been forced by the flanges of the wheels away from the inner edge of the

rail, combined with a pivoted lever which is operated by the endwise movement of the tread-lever when it is depressed by the flanges of the wheels, a connecting-wire, and a suitable signal connected to the forward end of the wire, substantially as described.

2. A tread-lever pivoted at its inner edges so as to be allowed to tilt or move away at its top beyond the inner edge of the rail, and which lever is provided with a flange which projects above the top of the rail, combined with a spring which is applied to the edge of the lever which is adjacent to the rail, for returning the lever to position, whereby the lever is given a tilting movement away from the rail when the train moves from one direction, substantially as set forth.

608,151. DEVICE FOR PREVENTING FRAUDULENT FILLING OF BOTTLES. BERNARD W. HORTON, Meriden, Conn. Filed Aug. 4, 1897. Serial No. 647,126. (No model.)

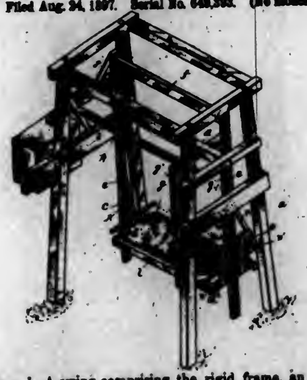


Claim.—1. The combination with the neck of a bottle formed with integral lugs projecting beyond its upper end, of a disk adapted to be set over the upper end of said neck, and formed with clearance-notches for said lugs, whereby said disk is held against rotation, said disk also formed with locking-fingers, and the cap also adapted to be set over the upper end of the said neck and interlocked with said cap through the instrumentality of said disk, substantially as described.

2. The combination with the neck of a bottle, of a cap adapted to be set over the upper end of said neck, one of said parts formed with frangible lugs and the other with grooves to receive them, of a disk also adapted to be set over the upper end of said neck upon which it is held against rotation, said disk formed with fingers for engagement with said cap, whereby the cap and neck are interlocked, substantially as described.

3. The combination with the neck of a bottle formed at its upper end with integral lugs, an external shoulder below the upper end of said neck, and notches in the sides of the neck above said shoulder, of a disk corresponding in diameter to the diameter of the upper end of said neck, and formed with notches, downwardly-turned fingers and upwardly-turned arms, and a cap adapted to be set over the upper end of said neck and formed at its lower edge with an inwardly-turned flange, in the opposite sides of which are notches, whereby the said cap may be interlocked with said neck through the instrumentality of said disk, substantially as described.

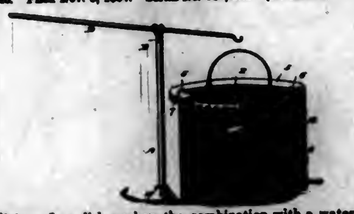
608,152. SWING. JOHN H. POUNCY, Quito, Tenn., assignor of one-half to Charles H. Pouncy and William D. Pouncy, Shelby County, Tenn. Filed Aug. 24, 1897. Serial No. 649,293. (No model.)



Claim.—1. A swing comprising the rigid frame, an oscillating frame pivoted therein, the movable chair-support pivoted at the top to said oscillating frame, a convertible chair carried by said support, an adjustable strap supporting the back of the chair, a movable seat carried by said back, a strap supporting said seat and a rigid foot-rest adapted to act as a support for said movable seat when the chair is converted into a couch, substantially as described.

2. A swing comprising the rigid frame *a*, carrying a motor *b*, the rock-shaft *d*, a swinging frame *e*, carried by said rock-shaft, a movable chair-support *f*, a convertible chair *g*, carried thereby, a strap *h*, supporting the back of said chair, a movable seat *m*, carried by said back, straps supporting said seat, a rigid foot-rest *o*, adapted to support the seat and the uprights *e*, to one of which the strap *h*, is secured, the other supporting the foot-rest *o*, when the chair is converted into a couch, substantially as set forth.

608,153. DISH-CLEANER. ADELLE ROBERTS, Monte Vista, Colo. Filed Nov. 8, 1897. Serial No. 657,831. (No model.)



Claim.—In a dish-washer, the combination with a water-receptacle, of a dish-cage supported in said water-receptacle to have a rotary motion therein, a rim secured to the upper end of said dish-cage and provided on its under side with gear-teeth, gear-wheels journaled to the side of the water-receptacle, one of said gear-wheels being in mesh with the teeth of the rim, substantially as set forth.

608,154. ELASTIC WHEEL FOR CARRIAGES. NIKOLAS ROSENBLATT and SIMEON ABRAMSOHN, St. Petersburg, Russia. Filed July 6, 1897. Serial No. 643,843. (No model.)



Claim.—1. In a vehicle-wheel, a tire of flexible yielding material having a series of perforations extending through the tire, each of said perforations terminating in an enlarged recess on the inner side of the tire, and a series of metallic plates projecting from the periphery of the tire and having shank portions extending through the said perforations, each of said shank portions having its end secured in the enlarged recess, substantially as specified.

2. In a vehicle-wheel, a cushion-tire having a series of radial perforations terminating in enlarged recesses in the inner side of the tire, and metal plates of less width than the tire and projecting beyond the periphery thereof, the said plates being provided with shanks extending through the said perforations and into the said enlarged recesses in the inner side of the tire, the shanks having their ends split and adapted to be bent outwardly to engage plates seated in said recesses, substantially as specified.

3. An elastic tire for wheels, comprising a rubber tire having shallow cavities formed on its external surface, a series of radial perforations extending through the tire and terminating on the inner side of the tire in an enlarged recess, and pins having shank portions extending through the said perforations, each pin having its shank end split and extending through a metallic ring held in said enlarged recess, the said pins having enlarged heads shaped to correspond with the shallow cavities on the external surface of the tire, the outer surface of said heads being slightly convex and projecting beyond the external surface of the tire, the split ends of the shanks being bent upon the said rings, substantially as shown and described.

4. In a vehicle-wheel, the combination with a tire of flexible yielding material and a metallic rim embracing the sides of said tire, the tire being provided with a series of radial perforations each terminating on the peripheral surface of the tire in a shallow cavity and on the inner surface adjacent to the rim in an enlarged recess, of a series of metal pins provided with approximately rectangular heads the inner surface of which corresponds to the shallow cavities in the peripheral surface of the tire, the outer surface of said heads being convex and projecting beyond the periphery of the tire, but terminating short of the sides thereof, the shank portions of said pins extending through the perforations in the tire and the inner end of each shank portion being secured in the said enlarged recess, substantially as specified.

608,155. FOOT-REST. ELDRIDGE J. SMITH, Washington, D. C., assignor to the Smith Flexible Chair Manufacturing Company of Virginia. Filed June 11, 1897. Serial No. 640,293. (No model.)

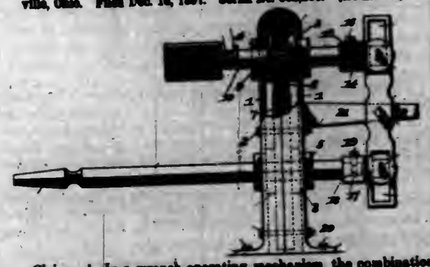
Claim.—1. As a new article of manufacture, a rocking foot-rest comprising the rockers 1, each having a pair of standards 2, rising upward therefrom, the standards of each pair meeting and joined at their upper ends, horizontal brace-rods 3, connecting said standards, a top or head pivoted to the upper ends of said standards and consisting of the side pieces 4, and series of cross-rods 5, said side pieces having downwardly-curved ends, a cushion or pad seated upon said cross-rods, and an upholstering-strip secured to the side pieces and extending downward over the curved ends whereby the cushion or pad is retained in position without other fastening means, substantially as described.



2. As a new article of manufacture, a foot-rest comprising a rocking frame, a top or head for said frame, a pair of angular brackets each having its horizontal portion secured to the under side of the top or head, and its vertical portion pivoted to the frame, a part of the vertical portion of each bracket being cut away to form stops, a pin projecting from each side of the frame in the path of the said stops to limit the oscillating movement of the head, and a spring secured to the frame and having its free ends acting upon the under side of the head on each side of its point of pivotal connection, substantially as described.

3. As a new article of manufacture, a foot-rest comprising a rocking frame, a top or head pivoted to said frame, and consisting of a pair of parallel side pieces and a series of horizontal connecting-rods, said side pieces having grooved inner edges and downwardly-curved ends, a cushion or pad seated upon said connecting-rods, and an upholstering-strip secured to the side pieces and having its side edges seated within the said grooves, said upholstering-strip being arranged to retain the cushion or pad in position without other fastening means, substantially as described.

608,156. WRENCH-WRENCH. CHARLES W. SPENCER, Jeffersonville, Ohio. Filed Dec. 14, 1897. Serial No. 662,200. (No model.)



Claim.—1. In a wrench-operating mechanism, the combination with an operating-shaft, and a wrench-carrying shaft both supported to have rotary and longitudinal movement, of gearing to transmit rotary movement from one shaft to the other, and a lever fulcrumed between its ends and pivotally connected with the shafts, whereby the shafts are simultaneously reciprocated in opposite directions, substantially as described.

2. In a wrench-operating mechanism, the combination with an operating-shaft, and a wrench-carrying shaft both supported to have rotary and longitudinal movement, of gearing to transmit rotary movement from one shaft to the other, and a yoke or lever fulcrumed between its ends and pivotally connected with the rear ends of the shafts, the pivotal connections being capable of movement longitudinally of the yoke or lever, substantially as described.

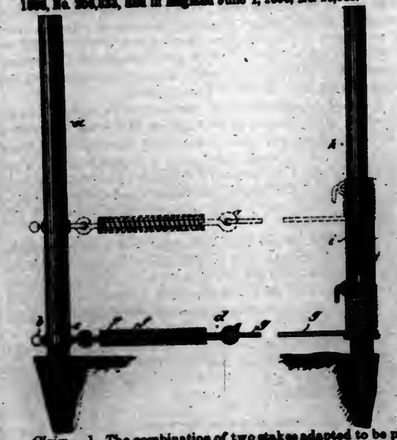
3. In a wrench-operating mechanism, the combination with a supporting-casing, of an operating-shaft and a wrench-carrying shaft both supported to have rotary and longitudinal movement in said casing, and each having a ball on one end, gearing to transmit rotary movement from one shaft to the other, an arm projecting horizontally from the casing, and a slotted tubular yoke pivoted intermediate its ends on said arm and in which the said balls are loosely fitted, substantially as described.

4. In a wrench-operating mechanism, the combination with an operating-shaft and a wrench-carrying shaft, both supported to have rotary and longitudinal movement, and each having a ball on one end and a neck portion connecting the ball to the body of the shaft, gearing to transmit rotary movement from one shaft to the other, a yoke comprising an open-ended tube having a slot extending from end to end, said yoke being pivoted intermediate its ends on a suitable support and the balls on the shafts being loosely seated in the tube on opposite sides of its pivot and the neck portions of said shafts extending through the slot, substantially as described.

5. In a wrench-operating mechanism, the combination with the wrench-head supported to have rotary and longitudinal movement, of a nut-ejector supported in the head to have longitudinal movement therein, substantially as described.

6. In a wrench-operating mechanism, the combination with the wrench-head supported to have rotary and longitudinal movement, of a nut-ejector comprising an angular block and a pair of arms extending rearwardly therefrom, said block being loosely supported in the nut-receiving opening in the head and the arms in ways in said head, and said arms projecting beyond the rear end of the head and adapted to be engaged with a fixed part, substantially as described.

608,157. MARKING-CORD. OTTO K. SITTENBERG, Thurandt, Germany. Filed Dec. 22, 1897. Serial No. 663,095. (No model.) Patented in Germany Sept. 26, 1895, No. 84,905; in Austria June 1, 1896, No. 46/2,431; in Hungary June 1, 1896, No. 6,095; in France June 1, 1896, No. 254,223, and in England June 1, 1896, No. 11,915.



Claim.—1. The combination of two stakes adapted to be planted vertically in the ground, a movable socket attached to one stake, a cylinder in connection with said socket, a rod slidable in the cylinder, a spring in connection with the cylinder and rod, whereby to normally draw the rod within the cylinder, a cord attached to the rod, a reel embracing the remaining stake and having the cord wound thereon, and a spring attached to the interior wall of the reel, the stake of the reel having a groove receiving the spring, whereby to hold the reel.

2. In a marking apparatus, the combination of a stake having a longitudinally-extending groove therein, a reel fitted on the stake and movable thereon and a spring attached to the reel and extending into the slot in the stake, whereby to adjustably hold the reel.

3. In a marking apparatus, the combination of two stakes, a tension device in connection with one of said stakes, a reel movable on and surrounding the other of said stakes, a spring attached to the reel and engaging the stake thereof, and a cord in connection with the reel and with the tension device.

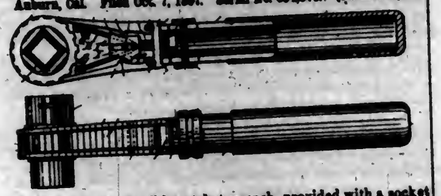
608,158. WAIST-BELT ATTACHMENT. CLEMENT L. STEPHENSON, New York, N. Y., assignor to Helen G. Stephenson, same place. Filed June 16, 1897. Serial No. 641,014. (No model.)



Claim.—A belt having an opening formed therein, an eye attached to the inner side of the belt and located adjacent to the opening, and a wire secured in the eye and having portions lying snugly against the inner side of the belt, the terminals of the wire being

passed through the belt and projected outwardly and upwardly to form hooks at the outer side thereof.

608,159. REVERSIBLE RATCHET-WRENCH. ELIAS M. TYLER, Auburn, Cal. Filed Oct. 7, 1897. Serial No. 654,573. (No model.)



Claim.—1. A reversible ratchet-wrench, provided with a socket having a ratchet-wheel, spring-pressed pawls engaging the said wheel at opposite sides, the pawls being provided on their inner faces with inclines, and a cam block mounted between and to slide longitudinally of the pawls to alternately engage them, and arms attached to the cam-block and engageable by the operator, substantially as described.

2. A reversible ratchet-wrench comprising a casing, a socket mounted to turn in the said casing and provided with a ratchet-wheel, spring-pressed pawls for engagement with the ratchet-wheel at opposite sides, the pawls being pivoted in the said casing and provided at their inner faces with inclines, a movable cam-block within the said casing and provided with cam-faces, for engagement with the said inclines to throw either of the said pawls out of mesh with the ratchet-wheel, and a ring slidable on the said casing and connected with the said block, substantially as shown and described.

3. A reversible ratchet-wrench, provided with a socket having a ratchet-wheel, spring-pressed pawls engaging said wheel on opposite sides, the pawls being provided in their inner faces with inclines, a cam-block between the pawls and having a longitudinal slot, a pin passing through said slot, a rearward extension of said block having guiding contact with the handle, a cross-pin fixed to said extension and projecting outside the handle, and a ring fixed to said pin and surrounding the handle.

4. A reversible ratchet-wrench provided with a casing comprising two plates spaced apart and formed with semicylindrical extensions, a handle screwing on the said extensions, a clamp engaging the plates at the extensions, the said clamp being provided with lugs projecting over part of the cylindrical extensions, substantially as shown and described.

5. A reversible ratchet-wrench provided with a socket having a square end formed with a recess, and an auxiliary socket fitted upon the said end and carrying a spring for engagement with the said recess, substantially as shown and described.

608,160. CYCLE-WHEEL. WILLIAM J. R. WATSON, Antwerp, Belgium. Filed Apr. 2, 1897. Serial No. 630,465. (No model.) Patented in England Mar. 4, 1897, No. 5,751.

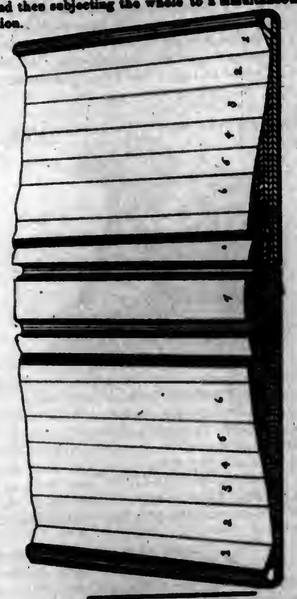


Claim.—1. The combination in a bicycle-wheel of the hub, the straight and dished disks, one arranged centrally on said hub, the spokes secured to said disk about midway between the rim and the hub, by which the strength of the wheel is maintained and the distance between the pedals is diminished for the purpose set forth.

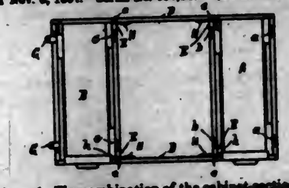
2. The combination in a bicycle-wheel of the axle, a sleeve or bushing to fit said axle, a concave or dished disk on said sleeve, and spokes extending to the rim from said dished portion and a straight side, all arranged to bring the drive-chain near the center of the hub, substantially as set forth.

608,161. MANUFACTURE OF RESILIENT OR PNEUMATIC TIRES. CHARLES F. A. H. BAGOT, London, England, assignor to the Bagot Pneumatic Tyre Company, Limited, same place. Filed June 22, 1897. Serial No. 641,831. (No model.)

Claim.—The manufacture and production of tires or tire-coverings by first preparing several mixtures of rubber and sulfur with varying proportions of sulfur and then forming them into layers or strips, then applying the said layers or strips of such different mixtures one upon the other to a mold or mandrel so that the layer or strip which, in the finished tire, is outermost, contains most sulfur the other layers or strips being applied in the order according to the amount of sulfur they contain that containing least sulfur being last applied, and then subjecting the whole to a simultaneous process of vulcanization.



608,162. DESK. WILLIAM H. BAKER, Parkersburg, W. Va., assignor to the Bentley & Gerwig Furniture Company, same place. Filed Nov. 8, 1897. Serial No. 657,845. (No model.)



Claim.—1. The combination of the cabinet-sections A B provided with mortises *a b c* and having vertical rails E provided at the top with mortises *b c* the knee-rails D having tenons *d* to engage the mortises *c* and hooks H to engage in the mortises *b*, and the top T having its under side provided with catches C to engage the mortises *a b c*, substantially as described.

2. In combination with the cabinet-sections A, B, provided with mortises *a, b, c*, and ears G, the top T, provided with catches C adapted to engage said mortises, and clamping-screws for securing said top to said ears, substantially as specified.

608,168. GATE. CHESTER BALL, Belleville, Kans. Filed Sept. 10, 1897. Serial No. 651,201. (No model.)



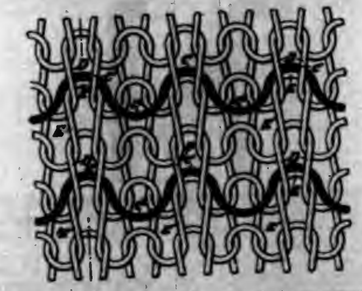
Claim.—1. In gates, the combination of the gate-posts carrying latch-keepers, a gate hinged to said posts to tilt down and rest upon the surface of the ground, an eyebolt on each fence-post contiguous to said gate-posts, a spring attached to the eye of each bolt, a cord, rope or cable connected at one end with said spring passed around pulleys on the gate-posts and connected at its other end with the gate, whereby the gate is adapted to close automatically, and a latch device to hold the gate open against the tension of said springs, substantially as described.

2. In a gate, the combination of the gate-posts, a gate hinged thereto at its lower end to tilt down and rest upon the surface of the ground, said gate having an end picket or bar provided with a trackway, a bar carrying a frictional roller traversing said trackway, an L-shaped lever having one arm thereof passed through an opening in one of the gate-posts and connected with said bar and its other end arranged to form a handle, and means for automatically closing the gate after passage of a person or vehicle thereover, substantially as described.

3. In gates, the combination of the gate-posts, the fence-posts adjacent thereto, a latch-post on one side of the gateway in line with one of the gate-posts, a gate hinged to said gate-posts and adapted to tilt down in opening and rest upon the surface of the ground, a spring-actuated latch on said latch-post adapted to engage the gate and hold it open, springs connected with the fence-posts, and cords or cables connecting the said springs and gate, substantially as described.

4. In a gate, the combination with the posts carrying hinge members formed with elongated loops, of a downwardly-tilting gate having hinge members consisting of pintles bifurcated to receive the loops of the hinge members carried by the posts, and carrying pintles which move in said loops, substantially as described.

608,164. RIBBED-KNIT PILE FABRIC. THEODORE S. RADEL and WILLIS A. INGALLS, Brooklyn, N. Y., assignors to Radel, Straus & Co., same place. Filed Jan. 29, 1896. Serial No. 577,985. (No model.)



Claim.—A ribbed-knit fabric having on its inner or wearing surface a pile-facing formed of extra or pile threads, said extra or pile threads being united with the inner wales or ribs of the fabric and floating over the intermediate outer wales or ribs, thus forming on the face of the fabric a projecting pile covering the outer wales, said extra or pile thread being secured to the inner wales by passing loosely behind the loops of said wales and lying intermediate the loops of the courses above and below, whereby the pile-threads will reinforce and protect the body of the fabric, and pile-threads of various thickness may be employed, and also whereby a pile may be made of loops of any desired thickness and length, and the pile may be conveniently fleeced, napped or sheared without liability of injury to the body of the fabric, substantially as described.

608,165. FOOD PRODUCT AND PROCESS OF MAKING SAME. ALEXANDER RAMSPERGER, Boston, Mass. Filed Dec. 13, 1897. Serial No. 661,720. (No specimens.)

Claim.—1. The process of obtaining a substitute for eggs from milk, which consists in coagulating both the casein and albumen of the milk, removing the liquid and then mechanically reducing the mixed curd to the consistency of paste, substantially as described.

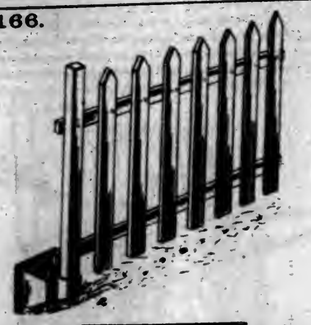
2. As an article of manufacture, a substitute for eggs, consisting of coagulated milk, albumen and fibrinaceous curd intermingled and in a finely-divided condition, substantially as described.

3. As an article of manufacture, a substitute for eggs consisting of coagulated milk albumen and uncooked casein intermingled and in a finely-divided condition, substantially as described.

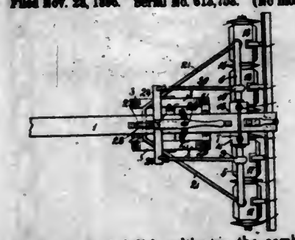
608,166. FENCE-POST. WILLIAM BOWMAN, Mill Grove, Mich. Filed Nov. 20, 1897. Serial No. 659,297. (No model.)

Claim.—A fence-post comprising a base having an independent socket on one side of the upper portion thereof, the said base being of cast metal and the socket of wrought metal, a post removably fitted in said socket, and bolts passed through the socket-post and the adjacent wall of the base and holding the several parts in removable relative position to each other, the said base being hollow and adapted to be filled with suitable weighting material, substantially as described.

608,166.



608,167. DISK CULTIVATOR. GEORGE K. BERENDS, Porterville, Kans. Filed Nov. 22, 1896. Serial No. 613,758. (No model.)



Claim.—1. In a wheeled disk cultivator, the combination with the draft-beam, of the disk-supporting frames pivotally connected therewith and having each a pendent rigid arm and a pendent arm, adapted to swing on the horizontal frame-arm the disk-shafts having a swiveling connection with said arms, an adjustable cross-bar connected with the pendent swinging arms for simultaneously swinging the disk-shafts on the rigid arms for adjusting the angle of presentation of the disks, and means for adjusting said cross-bar longitudinally upon the machine.

2. In a wheeled disk cultivator, the combination with the disk-shafts and disks carried thereby, of overhanging frames pivoted to swing in a vertical plane and having pendent rigid arms pivoted to the disk-shafts, supplemental suspending arms pivotally connected to the disk-shafts and also pivoted at points in alinement with the pivotal points of the suspending frames, means for swinging the suspending frames forwardly and upwardly, and independent means for swinging the supplemental arms independently of the suspending frames, whereby the disk-shafts can be simultaneously set at any desired inclination to a transverse line.

3. In a disk cultivator, the combination with depending frame-pieces adapted to swing upwardly, of supplemental pivoted members, sets of cultivator-disks carried by the main frame-pieces and the supplemental members, rods connected to the frame-pieces and movable longitudinally of the machine, a controlling-lever connected to said rods for operating said frame, a pivoted cross-bar, rods connecting the same to the supplemental members, a shifting lever adapted for lateral movement and to which the controlling-lever is pivoted, and means for locking the said shifting lever.

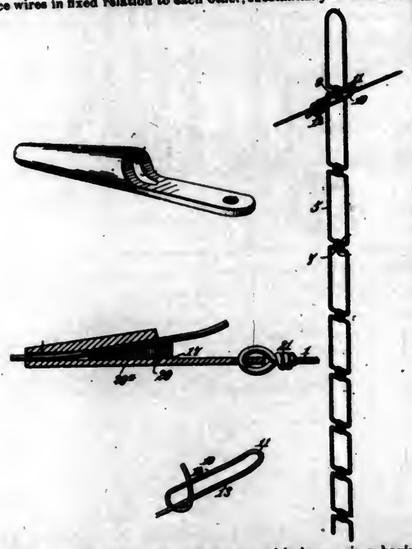
4. In a wheel disk cultivator, the combination with the pendent rigid arm of the supporting-frame pivoted to swing forwardly and upwardly, of supplemental members pivoted to the frame-piece and also adapted to swing forwardly and upwardly, disk-shafts pivoted to the frame-piece and to the supplemental members, disks carried by said shafts, a cross-bar pivotally connected with and movable longitudinally of the machine, a controlling-lever having its extremity pivoted to the main frame and which is also pivoted to the cross-bar, rods connecting the ends of said cross-bar and the supplemental members, a shifting lever secured to the cross-bar for adjusting the angle thereof, and means for locking said lever at any desired adjustment.

608,168. WIRE FENCE. DANIEL W. BRADLEY, Wilmore, Ky. Filed Dec. 31, 1897. Serial No. 666,111. (No model.)

Claim.—1. In a wire fence, the combination with brace-wires having inward-extending overlapping bends forming openings, of strand-wires passing through said openings and a locking-hoop securing said strand and brace wires in fixed relation to each other, substantially as described.

2. In a wire fence, the combination with brace-wires having

inward-extending overlapping bends forming openings, of strand-wires passing through said openings and having at their junction with said brace-wires a bend, and a locking-loop securing said strand and brace wires in fixed relation to each other, substantially as described.

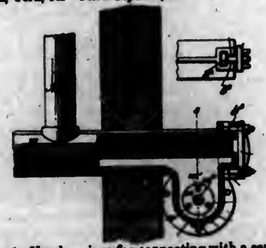


3. In a wire fence, the combination with brace-wires having inward-extending overlapping bends forming openings, of strand-wires passing through said openings and locking-wires passed under said bends on either side of the strand-wires and bent over said strand-wires on either side of said brace-wires and having each an end twisted around said locking and strand wires, substantially as described.

4. In a wire fence, the combination with brace-wires having inward-extending overlapping bends forming openings, of strand-wires passing through said openings and having at their junction with said brace-wires a bend, and locking-wires passed under said bends on either side of the strand-wires and bent over said strand-wires at the bases of the bends in said wires and on either side of said brace-wires, and having each an end twisted around said locking and strand wires, substantially as described.

5. A locking-loop for the strand and brace wires of a fence comprising a single piece of wire bent upon itself to form two parallel arms one of said arms having an end bent at right angles to itself and extending across the opposite arm, substantially as described.

608,169. MULTIPLE-TUBE WATER-HEATER. ALBERT P. BROMBELL, York, Pa. Filed Sept. 20, 1897. Serial No. 653,523. (No model.)



Claim.—1. Header-pipes for connecting with a series of circulating-pipes at right angles, said header-pipes having formed on their ends and on one side of their longitudinal axes short flanged sleeves in open communication with the header-pipes, the said sleeve of each header-pipe being offset to one side of said pipe and arranged at right angles to it, to form when joined together a continuous conduit, and the end of said header-pipe being provided with an opening and detachable cap giving direct access to the header along its longitudinal axis and outside the said sleeve, substantially as and for the purpose described.

2. The combination of a series of circulating-pipes, two sets of header-pipes joining onto their ends and having each a common conduit at right angles to the headers, formed by sectional offsetting sleeves arranged at right angles to the headers and bolted together, multiple valves arranged in these two conduits to close communication between the series of pipes alternately at opposite ends to direct the water through them, either without interruption, or with a winding and prolonged course, and detachable caps arranged at the ends of the lower headers above the valve-conduit, substantially as described.

3. The multiple valve comprising end disks connected by longitudinal parallel bars arranged at the periphery of the disks, said end disks being perforated centrally and connected by bolts; in combination with a conduit or casing having inwardly-projecting flanges containing said valve, substantially as and for the purpose described.

4. The header-pipes having at or near their ends offsetting sleeves whose longitudinal axes are at right angles to that of the headers, said sleeves having both external and internal flanges, and said external flanges being bolted together, and the internal flanges forming valve-seats, and the multiple valve having a series of disks connected in longitudinal alinement and arranged to be simultaneously adjusted between the flanges, or in the plane of the flanges, substantially as and for the purpose described.

608,170. CAR. JOSEPH P. CALDWELL, New Wilmington, Pa. Filed Apr. 22, 1897. Serial No. 633,205. (No model.)



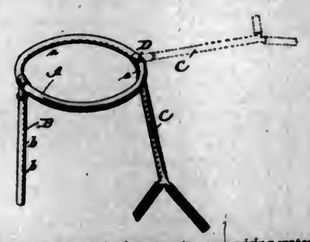
Claim.—1. The combination with a car, of towers built in the same adjacent one end, a chamber extending transverse the car and communicating with the towers, and doors for the chamber or compartment, substantially as described.

2. The combination with a car, of towers built within the same and projecting above the roof thereof, said towers also projecting below the car, port-holes therein, port-holes in the towers, an arch connecting the towers, and communications between the towers and car, substantially as described.

3. A car having towers projecting from the sides thereof and extending above the roof of the same, an arch connecting the towers and establishing communication therebetween at the top of the car, the towers opening to the interior of the car at their lower ends, substantially as set forth.

4. A car having towers projecting from the sides thereof, an arch connecting the towers within the car, partitions dividing the towers into upper and lower compartments, doors controlling openings through the partitions, the walls of the towers provided with port-holes, the towers communicating with the interior of the car at their lower ends, and doors controlling said communications, substantially as set forth.

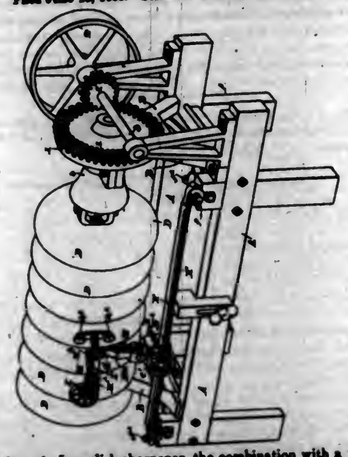
608,171. SHOWER-BATH APPARATUS. WILLIAM H. CALLAGHAN, Toronto, Canada. Filed Nov. 4, 1897. Serial No. 657,404. (No model.)



Claim.—1. A shower-bath apparatus comprising water-tap connections, a perforated head or ring adapted to be passed over the head and to rest upon the shoulders of the bather, said head or ring having a perforated pipe in communication also with said water-tap connections, and arranged to adapt itself to the size and form and to distribute the streams of water across the front of the body of the bather, substantially as set forth.

2. A shower-bath apparatus comprising flexible water-tap connections, a perforated head or ring adapted to be passed over the head and to rest upon the shoulders of the bather, a rigid perforated extension from the rear part of said head or ring adapted to maintain same in place and to direct the streams of water toward the back, and an adjustable perforated pipe in direct connection with the water-supply and with the head or ring, and arranged to adapt itself to the size and form and to distribute the streams of water across the front of the bather's body, all combined and arranged substantially as set forth.

608,172. DISK-SHARPENER. ARIE CHEESEWRIGHT, Canton, S. D. Filed June 18, 1895. Serial No. 553,249. (No model.)



Claim.—1. In a disk-sharpener, the combination with a frame, a shaft adapted to have mounted thereon the disks to be sharpened, bearings therefor, and means for rotating said shaft, of a supplemental shaft parallel to said main shaft, and distant therefrom more than the radius of the disk to be sharpened, a knife-support adjustably mounted thereon, and solely carried thereby and a sharpening-knife, substantially as described.

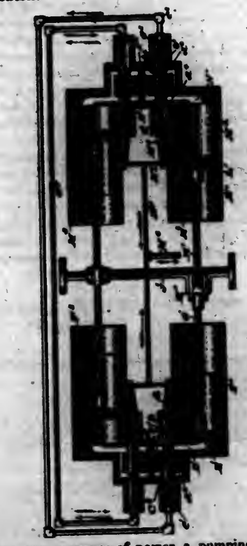
2. In a disk-sharpener, the combination with a frame, a shaft adapted to have mounted thereon the disks to be sharpened, bearings therefor, and means for rotating said shaft, of a supplemental shaft parallel to said main shaft and distant therefrom more than the radius of the disk to be sharpened, a knife-support consisting of two sections, one section being adjustably mounted on said supplemental shaft, and solely carried thereby and the other section, bearing the sharpening-knife, being pivotally connected to the outer end of the first section, a knife, and means for holding the same against the edge of the disk to be sharpened, substantially as described.

3. In a disk-sharpener, the combination with a frame, a main shaft adapted to have mounted thereon the disks to be sharpened, bearings therefor, and means for rotating said shaft, of a supplemental shaft parallel to said main shaft and distant therefrom more than the radius of the disk to be sharpened, said supplemental shaft being adjustable as to its distance from the main shaft, a knife-support consisting of two sections, one section being adjustably mounted on said supplemental shaft, and solely carried thereby and the second section bearing the sharpening-knife, and being pivotally connected to the outer end of the first, a knife, and means for holding the same against the edge of the disk to be sharpened, substantially as described.

4. In a disk-sharpener, the combination with a frame, a main shaft adapted to have mounted thereon the disks to be sharpened, bearings therefor, and means for rotating said shaft, of a supplemental shaft parallel to said main shaft but distant therefrom more than the radius of the disks to be sharpened, a knife-support adjustably mounted thereon, said knife-support being made in two parts hinged together, a knife, and a bracket H', angled arm H^3 bearing trolley-wheels A^3, screw I, and spring J for holding said knife against the disk to be sharpened, substantially as described.

608,173. MOTOR. HENRY CLAY, Pulwood, Pa., assignor to Joseph Johnson, trustee, Philadelphia, Pa. Filed Aug. 9, 1897. Serial No. 647,817. (No model.)

Claim.—1. In a motor, a reservoir, a plurality of cylinders, valve-chests therefor, ports in said chests leading into the ends of said cylinders, controlling-valves for said ports, pressure-chambers at the ends of said valves, the chamber located at one end of each of said valves being adapted to be thrown into communication with the adjacent cylinder, and the chambers at the other ends of the said valves having a connection common thereto, an exhaust connection from said cylinders to said reservoir, and means for conducting fluid-pressure to said valve-chests.



2. In a motor, a source of power a pumping device actuated thereby, a reservoir, a suction-pipe leading from said reservoir to said pumping device, a discharge-pipe leading from said pump to a reversing-valve, a discharge-pipe leading from said reversing-valve to said reservoir, a connection intermediate said discharge-pipes having a throttle-valve therein, cylinders oppositely arranged, a plurality of valve-chests, valves in the latter, ports common to said valves and cylinders and controlled by said valves, pressure-chambers at the ends of said valves, the chamber located at one end of each of said valves being adapted to be thrown into communication with the adjacent cylinder and the chambers at the other ends of said valves having connections common thereto and pipes leading from said valve-chests to said reversing-valve.

3. In a motor, a source of power, a pumping device actuated thereby, a reservoir, a suction-pipe leading from said reservoir to said pumping device, a reversing-valve, a discharge-pipe leading from said pump to said reversing-valve, a discharge-pipe leading from said reversing-valve to said reservoir, a plurality of cylinders oppositely arranged, pistons in said cylinders, a crank-shaft intermediate of said cylinders, connections common to said pistons and crank-shaft, a plurality of valve-chests, automatically-operated valves in said chests, ports common to said chests and cylinders and controlled by said valves, pressure-chambers at the ends of said valves, the chamber located at one end of each of said valves being adapted to be thrown into communication with the adjacent cylinder and the chambers at the other ends of said valves having connections common thereto, pipes common to each set of valve-chests and a connection from each of said pipes with said reversing-valve.

4. In a motor, a pumping device, means for actuating the same, a reservoir, a suction-pipe leading from said reservoir to said pumping device, a plurality of cylinders, valve-chests therefor, a discharge-pipe leading from said pumping device to said valve-chests, ports leading into the ends of said cylinders, controlling-valves for said ports, pressure-chambers at the ends of said valves, ports d' and M^3, common to each of said cylinders and its chest, said ports d and M^3 leading from said cylinders to the adjacent pressure-chambers, the pressure-chambers at the other ends of said valves having connections common thereto, and pistons in said cylinders, said pistons having a bridge therein, said bridge being adapted to enable a communication to be made from said ports d and M^3 to said reservoir.

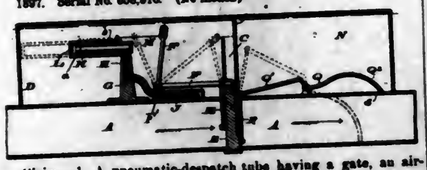
5. In a motor, a reservoir, a plurality of cylinders, valve-chests therefor, ports in said valve-chests leading into said cylinders, the inlet-ports of each adjacent set of cylinders being in communication, controlling-valves for said ports, passages in said valve-chests in communication with said inlet-ports, offset therefrom, and controlled by

said valves, pressure-chambers at the ends of said valves, the chamber at one end of each of said valves being adapted to be thrown into communication with the adjacent cylinder, and the chambers at the other ends of said valves, having a connection common thereto, an exhaust connection from said cylinder to said reservoir, and means for conducting fluid-pressure to said valve-chests.

6. In a motor, a reservoir, a plurality of cylinders, valve-chests therefor, ports in said chests leading into said cylinders, controlling-valves for said ports, pressure-chambers at the ends of said valves, the chamber located at one end of each of said valves being adapted to be thrown into communication with the adjacent cylinder, and the chambers at the other ends of said valves having a connection common thereto, an exhaust connection from said cylinders to said reservoir, pipes for conducting fluid-pressure to said valve-chests and a throttle and reversing-valve in said pipes.

7. In a motor, a plurality of cylinders, valve-chests therefor, ports in said chests leading into said cylinders, controlling-valves for said ports, pressure-chambers at the ends of said valves, the chamber located at one end of each of said valves being adapted to be thrown into communication with the adjacent cylinder, and the chambers at the other ends of said valves having a connection common thereto, and means for conducting fluid-pressure to said valve-chests.

608,174. PNEUMATIC-DESPATCH TUBE. HENRY CLAY, Fernwood, Pa., assignor to John Stinguff, Norristown, Pa. Filed Nov. 17, 1897. Serial No. 658,810. (No model.)



Claim.—1. A pneumatic-despatch tube having a gate, an air-chamber in direct and unobstructed communication with said tube in advance of said gate, a movable member fitted to said chamber and a connection common to said member and gate whereby the latter may be directly opened by the pressure of the air or fluid intermediate of said gate and the advancing carrier.

2. The combination of a pneumatic-despatch tube, a gate located therein, an air-chamber in communication with said tube, a movable element operated by air-pressure and supported by said chamber, a connection common to said gate and element, means connected with said gate for closing the same, one end of said means being adapted to enter said tube beyond said gate, a chamber located adjacent to the latter and inclosing said air-chamber and gate-closing means, and a partition intermediate of the latter and said gate.

3. The combination of a pneumatic-despatch tube, a gate located therein, an element operated by fluid-pressure, means for conducting said pressure directly to said element from a point in front of said gate, a connection common to said element and gate whereby the two latter operate in unison and mechanism connected with said gate for closing the same, said mechanism being positively operated by the progression of the carrier beyond said gate.

4. In a pneumatic-despatch tube, a gate and means for automatically opening the same by the air-pressure created by an advancing carrier, the conduit for said air having a direct and unobstructed communication with said tube in combination with mechanism connected to said gate for closing the latter and means for enabling said mechanism to be positively operated by the progression of said carrier beyond said gate.

5. A pneumatic tube having a sliding gate therein, a chamber above said tube, a standard with an air-passage therein, a pipe leading from said tube to said air-passage, an air-chamber supported on said standard and in communication with said air-passage, a member movable on said air-chamber, and adapted to close one end thereof, and a lever and link connecting said gate and member.

6. A pneumatic-despatch tube having a gate, an air-chamber communicating with said tube, a member movable on said chamber, means connecting the movable member on said chamber and the gate on one side of the latter, means connected with the other side of the gate for closing the same and having one end adapted to enter a slot in said tube in position to be struck by a carrier and a partitioned casing beside said pneumatic tube and in which the operating mechanisms are located.

7. A pneumatic tube having a gate with levers connected therewith on opposite sides, for opening and closing the same, an air-actuated member which is connected with the opening-lever, and an air-chamber and a pipe in communication with said member and tube, the closing-lever being adapted to enter a slot in said tube, so as to be in the path of the advancing carrier in the tube.

8. In a pneumatic-despatch tube system, a gate in the tube thereof, an air-chamber in communication with said tube, a movable member fitted to said chamber and a connection common to said member and gate, said chamber and member being respectively provided with ports which are adapted to be placed in communication when said member has been sufficiently operated.

9. In a pneumatic-despatch tube system, a main tube having a gate within the same, an air-chamber in direct and unobstructed communication with said tube in advance of said gate, a movable member fitted to said chamber, a connection common to said member and gate, whereby the latter may be directly opened by the pressure of the fluid intermediate of said gate and an advancing carrier, branches connected with said tube on opposite sides of said gate, one of said branches leading to an intermediate station at the end of a section, and the other branch being adapted to be connected with a new source of fluid or air supplying a new section at the beginning thereof, the continuity of said main tube being preserved.

608,175. MACHINE FOR FORMING SPRINGS. CHARLES COLLINS, Los Angeles, Cal. Filed Dec. 11, 1896. Serial No. 615,409. (No model.)



Claim.—1. The combination set forth of a forge provided with journal-bearings arranged upon opposite sides of the fire-bed; a spring-forming cylinder provided with a shaft or stem journaled in the bearings and adapted to travel axially across the fire-bed: means for clamping the end of a rod to the cylinder; and means for rotating the cylinder.

2. The combination set forth of a forge provided with journal-bearings arranged upon opposite sides of the fire-bed; a cylinder arranged above the fire-bed and provided with a shaft journaled in the bearings, one of such bearings being screw-threaded, and one end of the shaft being provided with screw-threads adapted to screw through the bearings; and suitable means for clamping the end of a rod to the cylinder.

3. The combination set forth of a spring-forming cylinder provided with a smooth shaft at one end and a screw-threaded shaft at the other end; a smooth bearing for the smooth end of the shaft arranged to allow the shaft to reciprocate axially therethrough; a screw-threaded bearing for the screw-threaded end of the shaft; the screw-threads being of the same pitch as the pitch of the spiral of the spring to be formed.

4. The combination set forth of a forge provided with journal-bearings arranged upon opposite sides of the fire-bed; a cylinder arranged above the fire-bed and provided with a shaft journaled in the bearings, such cylinder being provided with grooves, and one of the bearings being screw-threaded and one end of the shaft being screw-threaded and adapted to screw through the bearing, the pitch of the screw-thread of the shaft and of the grooves upon the cylinder being the same; and suitable means for clamping the end of a rod to the cylinder.

608,176. CAR-COUPLING. HENRY M. COX, Linden, Cal., assignor to the International Automatic Car-Coupler Company, San Joaquin County, Cal. Filed Nov. 13, 1897. Serial No. 658,490. (No model.)



Claim.—1. A car-coupler having a socketed head with vertical apertures therethrough, a slotted sliding plate on top of the head provided with a sleeve and which normally projects beyond the front face of the head, a coupling-pin supported in said sleeve with its lower end resting on the solid part of the head for automatic coupling, a wedge-shaped link and a vertical bolt passed through the head link and sliding plate, substantially as described.

2. A car-coupler having a socketed head with vertical apertures therethrough, a slotted sliding plate on top of the head provided with a sleeve and which projects normally beyond the front face of the head, a spring between the head of the sliding plate and a shoulder on the socketed head, a coupling-pin supported in said socket-sleeve with its lower end resting on the solid part of the head for automatic coupling, a wedge-shaped link, and an independent bolt which is passed through the head, link and the slot in the sliding plate, substantially as described.

3. A car-coupler having a socketed head with vertical apertures therethrough, a slotted sliding plate which normally projects beyond the front face of the head, a rod or bar on the head of the plate, a spring surrounding said rod and resting against a shoulder on the head, a sleeve on the sliding plate, a coupling-pin supported in said sleeve with its lower end resting on the solid part of the head for automatic coupling, a wedge-shaped link, and an independent bolt which is passed through the head, link and slot in the sliding plate, substantially as and for the purposes described.

608,177. BICYCLE HANDLE-BAR. EDWARD R. CROCKER, McKenzie, Tenn. Filed Aug. 31, 1897. Serial No. 650,107. (No model.)



Claim.—1. The combination with a bicycle-head, of a suitable casing mounted on the same, two intermeshing handle-bar sections pivotally mounted in said casing, a spring-pressed locking-pawl engaging one of said sections, an operating-handle pivoted on one of said sections, a bell-crank lever engaging said locking-pawl for operating the same, and means connecting said bell-crank lever and the operating-handle, substantially as described.

2. The combination of a bicycle-head, a suitable casing mounted on the same, two intermeshing handle-bar sections pivotally mounted in said casing, one of them provided with a plurality of openings, a spring-pressed locking-pawl attached to the casing opposite the section having openings, an operating-handle pivoted to the opposing handle-bar section, and intermediate connections between the operating-handle and pawl, substantially as described.

608,178. WRENCH. MERRITT H. COREY, North Pomona, Cal. Filed July 26, 1897. Serial No. 645,981. (No model.)



Claim.—1. A wheel-nut wrench, comprising a body having its forward end recessed for the reception of a nut and provided with longitudinal grooves, and levers fulcrumed to said body and adapted to fit within said grooves so that their outer surfaces may lie flush with the outer surface of said body, as and for the purpose set forth.

2. A wheel-nut wrench, comprising a body having its forward end recessed for the reception of a nut and provided with longitudinal grooves, levers fulcrumed to said body and adapted to fit within said grooves, so that their outer surfaces may lie flush with the outer surface of the body, and means for locking said levers, one to the other.

3. A wrench of the character described comprising a suitable body having a recess in the end thereof adapted to fit over the nut, and having longitudinal grooves therein, levers pivoted in said grooves, and provided at their forward ends upon the upper sides thereof with roughened surfaces adapted to engage the inner periphery of the rim of the hub when the levers are compressed, a plate secured to one lever and provided with a slot, a screw-threaded pin on the other lever adapted to pass through said slot, and a turn-button upon said pin adapted to be brought in close contact with said plate to lock the levers in contact with the hub-rim, substantially as and for the purpose set forth.

4. A wrench of the character described comprising a suitable body provided in its forward end with a recess adapted to engage the nut, said body being provided with longitudinal grooves opening into said recess, levers pivoted in said grooves, and provided at their forward ends with roughened surfaces adapted to engage the periphery of the hub-rim, a slotted plate secured to one lever, an exteriorly-screw-threaded pin secured to the other lever and passing through the slotted plate, said plate being provided with a roughened surface, a washer provided with a roughened under surface adapted to engage the roughened surface of the slotted plate, a turn-button upon said pin adapted to be forced downwardly upon said washer to lock the levers in contact with the inner periphery of the hub-rim, substantially as and for the purpose set forth.

608,179. TOOTH-FILLING. WILLIAM F. DAVISON, Richmond, Va. Filed Nov. 9, 1897. Serial No. 657,931. (No specimens.)



Claim.—A filling composed of cement for its base, strips having an anchorage in said base and gold over the cement and pressed or welded into union with the ends of said strips substantially as described.

608,180. PIPE-HANGER. THOMAS F. DWYER, Brooklyn, N. Y. Filed May 26, 1897. Serial No. 638,279. (No model.)



Claim.—1. The combination of an extensible rod adapted to be inserted between two adjacent beams, a clamp comprising two members, said members when secured together forming serrated passages between them through which the rod is adapted to extend, the opposite end of the clamping members forming a passage between them which extends at right angles to the first-named passage and in which the drop-pipe is adapted to be secured, and means for securing said members together, substantially as described.

2. The combination of an extensible rod adapted to be secured between two adjacent beams, a clamp comprising two members forming between them a passage when united, through which passage the rod is adapted to extend, said clamping members also forming at their opposite end a passage extending at right angles to the first-named passage for receiving and supporting the drop-pipe, a strip or plate secured to one of said clamping members and extending across the opposite member and having its extremity turned at right angles for the purpose of preventing the separation of said clamping members when united, and means for securing the clamping members together and in position upon the rod, substantially as described.

608,181. FURNACE-BLAST APPARATUS. JOHN A. FARRELL and WALTER DOUGLAS, Morenci, Ariz. Filed Nov. 12, 1897. Serial No. 658,352. (No model.)



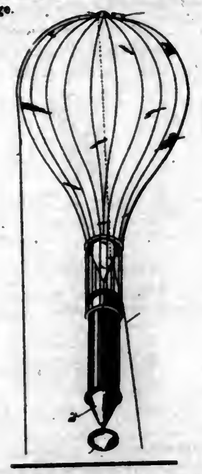
Claim.—1. In blast-furnaces, the combination with a furnace provided with a twyer-duct in its side wall, of a wind-chest having a peep-orifice in line with the duct, and a gravity-valve governing said orifice and consisting of a pivoted arm and a ball-valve mounted to freely rotate on an axis carried by said arm, substantially as described.

2. In blast-furnaces, the combination with the furnace provided in its wall with a twyer-duct, of a wind-chest having an orifice in its outer wall in line with said duct, and a valve device governing said orifice comprising a yoke, provided with an arm pivoted on the inner side of said wind-chest wall, and a ball-valve loosely mounted on an axis fixed in the arms of the yoke, said valve device being adapted to open inwardly to permit of a bar being inserted within the orifice and thrust through the twyer-duct into the furnace, and to close automatically by gravity upon the removal of said bar, substantially as described.

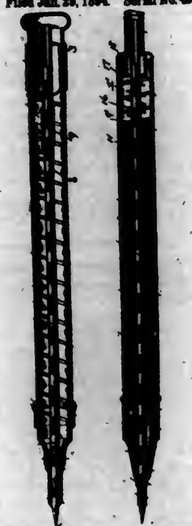
608,182. BALLOON-TORPEDO. MARSELLUS FRENCH, Houston, Va. Filed July 13, 1897. Serial No. 644,420. (No model.)

Claim.—An apparatus for delivering torpedoes to a point of attack, which consists in the combination of a balloon, a torpedo, supporting means between said balloon and said torpedo, an explosive

charge or disruptive member for destroying the balloon, and means for igniting the charge.



608,188. MAGAZINE LEAD-PENCIL. BYRON R. GOLDSMITH, New York, N. Y. Filed Jan. 29, 1894. Serial No. 498,347. (No model.)



Claim.—1. A lead-pencil comprising a mantle provided with a helical guide, a magazine carried by the mantle and adapted to receive a series of marking-points, and means actuated by the helix on the mantle for positively ejecting and renewing the points, substantially as described.

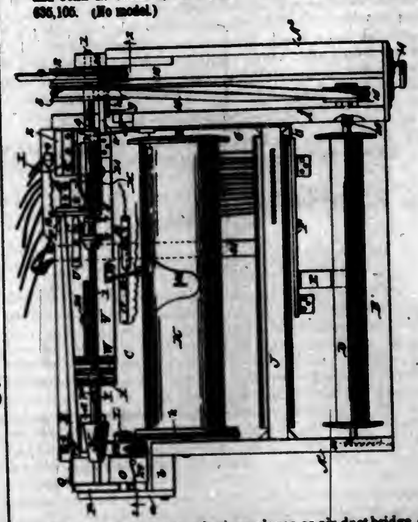
2. A lead-pencil provided with a magazine adapted to receive a series of marking-points, an ejector exterior to the magazine and provided with one or more spring-fingers entering the magazine, and a screw-feed for actuating the ejecting mechanism to positively expel and renew the points, substantially as described.

3. A lead pencil comprising a mantle provided with a helical guide, a magazine adapted to receive a series of marking-points, and an ejector engaged by the helical guide on the mantle, whereby the ejector may be actuated to positively expel and renew the points, substantially as described.

4. A lead-pencil comprising a mantle provided with a helical guide, a magazine adapted to receive a series of marking-points and having spring-jaws at its forward end, and an ejector engaged by the helical guide on the mantle and actuated thereby to positively expel and renew the points, substantially as described.

5. A lead-pencil comprising a mantle with an interior helical guide, a magazine adapted to receive a series of marking-points, and an ejector traveling on the magazine, and engaged by the helical guide, and having a stroke sufficient to expel and renew a number of points in succession, substantially as described.

608,184. ELECTROPNEUMATIC PIANO-PLAYER. FRED B. GOELMAN, Los Angeles, Cal., assignor of three-fourths to John Weber and John H. Goelman, same place. Filed May 5, 1897. Serial No. 636,105. (No model.)



Claim.—1. In an automatic piano-player, an air-duct bridge, comprising a block channeled with parallel air-ducts, each duct having a lateral opening terminating in an enlarged recess covered by a flexible diaphragm, and electrical contact-points arranged outside the diaphragm and adapted to be brought into electrical connection by the bulging or lateral movement of the diaphragm from pneumatic action substantially as described.

2. In an automatic piano-player, an air-duct bridge comprising a block channeled with parallel air-ducts, each duct having a lateral opening terminating in an enlarged recess covered by a flexible diaphragm, and also an independent lateral vent-opening, electrical contact-points arranged outside the diaphragm and adapted to be closed by the movement of the diaphragm from pneumatic action, and an inclosing board or casing covering said electrical contacts and also the lateral vent-holes of the channels, substantially as and for the purpose described.

3. In an automatic piano-player, an air-duct bridge comprising a block channeled with parallel air-ducts, each duct having a lateral opening w^3 terminating in an enlarged recess 37 covered by a flexible diaphragm 39 and also a vent-opening 72, contact-springs 38 pressing on the diaphragm, metal contact-frame 73, and an inclosing casing 43, substantially as and for the purpose described.

4. In an automatic piano-player, an air-duct bridge comprising a block channeled with parallel air-ducts and having on each side lateral openings terminating in enlarged recesses covered by flexible diaphragms, electrical contact-points arranged outside the diaphragms on each side, and arranged to be closed by them, an inclosing-case board 43 for each side, and communicating equalizing-pipe 42 for connecting the chambers on opposite sides of the channeled block substantially as shown and described.

5. In an automatic piano-playing device, the combination with the music-drums, and air-duct bridge, of a supporting-frame composed of bottom B and end boards A' A^3 A^5, the boards A^3 and A^5 forming an end chamber beyond the music-drums, a regulating-shaft with operating-knob and a rerolling-belt both extending through this end chamber to the back and combined with mechanism for operating the music-drums substantially as and for the purpose described.

6. In an automatic piano-playing device, the combination with the music-drums and air-duct bridge, of a main drive-shaft 1 arranged parallel with the drums and behind them, and having drive-pulley 2, sleeve 4 with rerolling-pulley 3 at one end and clutch mechanism for the shaft at the other, sleeve Y with collar X and cone-pulley N all connected to revolve with but slide on said shaft, gears connecting the cone-pulley to the winding-drum, a rerolling-pulley 15 and belt 16 for the music-roll, and a shifting device for the two sleeves substantially as shown and described.

7. The combination with the perforated music-sheet, of the tilting board F hinged at its lower end and carrying at its upper end the tripping-hook E adapted to engage with the perforated music-sheet, the thrust-bar G attached to the tilting board and extending back to the rear end of the device and arranged to operate on the music-roll-reversing mechanism, whereby the positive dragging action of the music-sheet is made to reverse the music-roll at any point along the music substantially as described.

8. In an automatic piano-playing device, the combination with the music-drums and air-duct bridge, of the main shaft 1 having drive-pulley 2, the sleeve 4 with pulley 3 on one end and clutch on the other end, shifting arm T for the clutch, latch H for the shifting arm, the sleeve Y with collar X and cone-pulley N all sliding on shaft 1 but locked to revolve with it; driving-gears connecting the cone-pulley to the winding-drums, the horizontal slide V carrying leg W, finger U, and notch 23, a regulating-shaft 13 for operating this slide, and an electrical switch-arm actuated by the slide, substantially as and for the purpose described.

9. In an automatic piano-playing device, the combination with the main actuating-shaft 1, of the longitudinally-adjustable cone-pulley N, the laterally-adjustable bearing P for the said shaft, the laterally-adjustable block O connected to bearing P by a pivot and spring and carrying the friction-pulley M and pinion L, and the winding-drums with gear k substantially as shown and described.

10. In an automatic piano-playing device, the combination of the main shaft 1 having friction cone-pulley N, the adjustable block O carrying friction-pulley M and gear L, the music-roll K with gears k, the bearing P pivoted to block O and carrying one end of the shaft 1, the lug r, springs Q, and s, rod R with inclined end bearing against the lug, and the hinged shifting arm T, for disengaging the rotating gears L k to allow the winding-drum to rotate backward during the rerolling of the music substantially as set forth.

11. In an automatic piano-playing device, the combination with the music-drums, the air-duct bridge, and the actuating devices for the drums as described, of means for rerolling the music at any point before the completion of the piece, comprising a reversing mechanism, a regulating-knob 14 and rod 13 with pin h, double crank g operated upon by said pin by an extreme adjustment of the rod, the tripping-rod G arranged to be lifted by said crank, and the releasing-latch H arranged to be lifted by the rod G for unlocking the clutch of the reversing mechanism substantially as shown and described.

12. The music-drawer of the piano-playing device having in one end a bearing composed of a plate 33 with flanged and curled bearing 34 and pivoted spring-latch 35, and having at the other end a short shaft 25 with revolving pulley and clutch connection for the music-roll drum as shown and described.

13. In a piano-playing device, the pneumatic and its chamber, comprising a valve-board 45, rabbeted frame 46 with air-duct 47 opening through its top, pneumatic-boards 49 bearing bellows B^2 and air-duct 50 and secured in the rabbet of the frame 46 substantially as shown and described.

14. In a piano-playing device the pneumatic, its chamber and valve, comprising a valve-board 45, rabbeted frame 46 with air-duct 47 opening through its top, pneumatic-boards 49 bearing bellows B^2 and air-duct 50 secured in the rabbet of the frame, valve 71 with armature back closing the air-duct 47 and resting on top of frame 46, and the electromagnet 70 operating upon said valve substantially as shown and described.

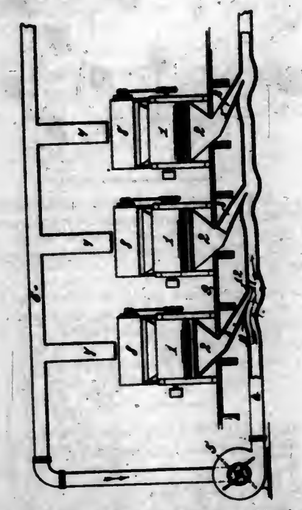
15. In a piano-playing device, the pneumatic, comprising board 49 with bellows on one side, an open channel 50 on the other side communicating with said bellows, and a separate closing-strip p^2 applied to the back of board 49 to close in channel 50 and having a vent-hole 75 through the same substantially as and for the purpose described.

16. In a piano-playing device, the construction and arrangement of the pneumatic its chambers and valves, consisting of valve-board 45, with holes through it rabbeted frame 46 with air-ducts 47 opening through the top pneumatics secured in the rabbets and communicating with said air-ducts, and valves B^2 placed upon the opposite side of the valve board and having pins 76 extending through the holes in the valve-board to contact with the pneumatics substantially as and for the purpose described.

17. In a pneumatic piano-playing device, the combination with the upright stanchions in the back of an upright piano, of a wind-chest 53, 54, 55 arranged between said stanchions flush with the backs of the same, pumping-bellows arranged therein and provided with compressing-springs 56 and pulleys, and distending-cords for the bellows passing around said pulleys and connecting with driving mechanism and working noiselessly substantially as described.

608,185. COTTON-SEED CONVEYER. HENRY W. GRADY, Dallas, Tex. Filed Aug. 19, 1897. Serial No. 648,813. (No model.)

Claim.—1. In a cotton-seed-conveyer system, the combination with a gin or lister, a fan, a seed-hopper to receive the separated seed from the gin, and a seed-chute leading from said hopper, of a horizontally-arranged seed-conveyer flue connected with the fan and with the seed-chute and having its bottom longitudinally arched adjacent to the seed-chute, the cross-sectional area of said flue being nowhere less than that of the discharge-opening from the fan, substantially as described.



2. In a cotton-seed-conveyer system, the combination with a gin or lister, a fan, a seed-hopper to receive the separated seed from the gin, and a seed-chute leading from said hopper, of a seed-conveyer flue connected with the fan and with the seed-chute, the said flue having its top longitudinally arched immediately in rear of the point where it connects with the seed-chute and provided in the bottom with an inverted arch arranged beneath the seed-chute outlet and extended longitudinally in advance of the same, substantially as described.

3. In a cotton seed-conveyer system, the combination with a gin or lister, a fan, a seed-hopper to receive the separated seed from the gin, and a seed-chute leading from said hopper, of a seed-conveyer flue connected with the fan and with the seed-chute, the said flue having both its top and bottom correspondingly arched in a longitudinal direction immediately in rear of the point where the flue connects with the seed-chute and provided in the bottom with an inverted arch arranged beneath and extended longitudinally in advance of the seed-chute outlet, substantially as described.

4. In a cotton-seed-conveyer system, the combination with a gin or lister, a fan, a seed-hopper to receive the separated seed from the gin, and a forwardly-inclined seed-chute leading from said hopper, of a seed-conveyer flue connected with the fan and with the seed-chute outlet, the said flue being longitudinally arched immediately in rear of the point where it connects with the seed-chute and having its bottom provided with an inverted arch beneath and in advance of the seed-chute outlet, substantially as described.

5. In a cotton-seed-conveyer system, the combination with a gin or lister, a fan, a seed-hopper to receive the separated seed from the gin, and a seed-chute leading from said hopper, of a seed-conveyer flue connected with the fan and with the seed-chute outlet and provided in its bottom with an inverted arch arranged longitudinally beneath and in advance of the seed-chute outlet, substantially as described.

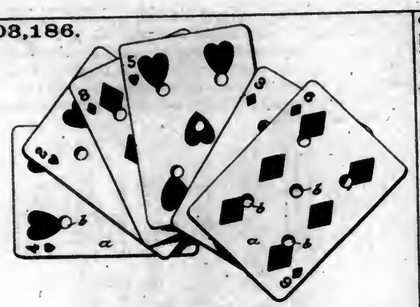
608,186. PLAYING-CARD. HENRY I. GRIFFIN, New Paltz, N. Y., assignor of one-half to Jacob Dayo, same place. Filed Mar. 20, 1897. Serial No. 628,002. (No specimens.)

Claim.—1. A playing-card provided with a plurality of transverse apertures through its body to admit the circulation of air, said apertures being arranged at the four corners of a quadrangle with one aperture in the middle thereof, substantially as described.

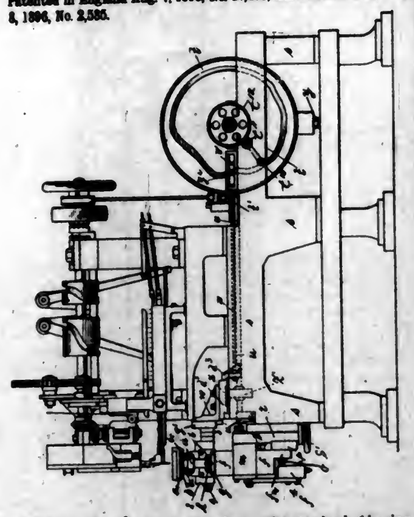
2. A set of playing-cards in which each individual member is provided with a plurality of regularly-disposed ventilating holes through its body, substantially as described.

3. A playing-card having a plurality of ventilating-holes distributed through its body portion, substantially as described.

608,186.



608,187. WORK-HOLDER FOR BRUSH-MACHINES. HUGO GROSMANN, Sobernheim, Germany, assignor to Carl Eduard Flemming, same place. Filed Dec. 10, 1896. Serial No. 615,295. (No model.) Patented in England Aug. 7, 1896, No. 17,491, and in Luxemburg Aug. 8, 1896, No. 2,585.



Claim.—1. In combination the frame, the standard *f* having a forked upper end, the transverse slide, the pin 3 and block 2 forming the connection between the slide and the upper forked end of the standard, the work-table, the forked block 6 depending therefrom into the forked end of the standard and engaging a portion of the block 2, the brackets *b* depending from the work-table alongside the standard, the slotted guides engaging the said brackets, the pivoted guide-block, the slotted guide for the standard *f*, and a second slide carrying the transverse slide with means for operating said slides, substantially as described.

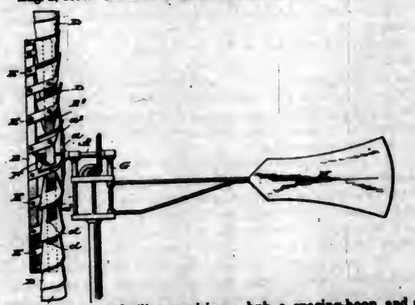
2. In combination the work-table, the swinging standard, the connection between the standard and table comprising the sliding block 2 in the standard, the table pivotally connected to the standard and engaging the block, the pin 3 engaging the block 2 and means for moving the pin longitudinally and laterally, substantially as described.

3. In combination, the standard carrying the work-table, the sliding and pivotal connection *m* for the standard to allow it to have vertical movement as it swings, the slotted guide-plate receiving a roller from the standard, and a vertically-adjustable support for the slotted guide-plate, said adjustable support carrying also the pivotal connection *m*, substantially as described.

4. In combination the work-table, the standard *f* carrying the same, the pivoted guide-block *m* through which the standard may slide, the slotted guide to cause the standard to have vertical sliding movement as it swings, and the spring-box having a bolt for pressing the standard upwardly to relieve pressure on the slotted guide-plate, the said spring-box being suspended from the pivoted guide-block to oscillate with the standard, substantially as described.

5. In combination the pivoted work-table, the pivoted standard carrying the same the slides $d^{\times}$, and d^{3}, for moving the said parts on their pivots, the grooved disk *t*, the gearing operated thereby and connected to the slide d^{4}, for operating the same, said gearing comprising an exchangeable portion, and the connections from the disk to the slide d^{3}, comprising an adjustable lever whereby the traverse of the slides may be changed to suit different brush-boards, substantially as described.

608,188. WINDMILL. NICHOLAS HEIN, Clifton, Wis. Filed Aug. 2, 1897. Serial No. 646,800. (No model.)



Claim.—A windmill comprising a hub, a spacing-hoop, and an outer stationary hoop rigid with relation to the hub, a rotatable hoop arranged in horizontal alinement with the outer hoop, blades loosely supported from the spacing-hoop and having slots through which the stationary hoop passes, links secured to the two outer hoops and to the blades, springs connecting the said hoops, bolts carried by the inner ends of the blades and passing through openings in the spacing-hoop, springs on the bolts, and nuts for placing the springs under tension, substantially as described.

608,189. MOTOR-GOVERNOR. MARTIN H. HERSHEY and BENJAMIN T. ALLEN, Harrisburg, Pa.; said Allen assignor to said Hershey. Filed June 1, 1897. Serial No. 638,607. (No model.)



Claim.—1. In an engine-governor, the combination with the rotary carrier and eccentric, of the governor-levers pivotally mounted on the carrier at diametrically opposite points, each of said levers extending on opposite sides of its pivot and having its opposite ends weighted, the mass of each of the levers and weights being so disposed that the center of gravity is at a point in alinement between the weights on opposite ends of the lever, within the path described by the pivotal center of the lever and to the forward side of a line intersecting said center and the axis of rotation of the carrier, and a connection between each of said levers and eccentric; substantially as described.

2. In a governor, the combination with the rotary carrier and eccentric, of the substantially straight governor-levers pivotally mounted on said carrier at diametrically opposite points, each of said levers extending on opposite sides of a line intersecting the axis of the carrier and lever pivot and each having its leading end provided with a major weight and its trailing end projecting and operating outside of the path traversed by the pivotal center of the lever and provided with a minor weight, the disposition of the mass of the lever being such that the center of gravity lies within the path described by the lever-pivot and forward of a line intersecting the pivot and axis of the carrier and a connection between the lever and eccentric; substantially as described.

3. In a governor, the combination with the rotary carrier and eccentric, of a governor-lever pivotally mounted on said carrier and extended on opposite sides of its pivot, the mass of said lever being so disposed that the center of gravity is located to one side of said pivot whereby the lever is acted on by centrifugal force and independent detachable differential weights adapted to be secured to opposite ends of said lever, whereby the weight of the lever may be increased at its extremities without shifting the position of the center of gravity; substantially as described.

4. In a governor, the combination with the rotary carrier and eccentric pivotally mounted thereon, of the governor-levers pivotally mounted on said carrier at diametrically opposite points, removable weights with means for attaching said weights to opposite ends of the levers, the proportions of said weights being such that the center of gravity of the levers is not changed by their attachment, links connecting the levers and eccentric and contrapotally-acting springs for holding the levers in normal position; substantially as described.

608,190. AUTOMATIC DUST-GUARD FOR TRAIN-PIPE COUPLINGS. MICHAEL J. HOEY, Columbus, Ohio. Filed Nov. 6, 1897. Serial No. 657,980. (No model.)



Claim.—1. In a train-pipe coupling, the combination with the half-coupling, of a collar provided with means for attachment to the pipe-section, a lever pivoted intermediate its ends to said collar and provided with a hood or cap arranged to cover the open end of said half-coupling, a housing provided on said collar, and a leaf-spring connected at one end to said lever and having its free end slidably supported within said housing, substantially as described.

2. In a train-pipe coupling, the combination with the half-coupling, of a collar provided with means for attachment to the pipe-section, a lever pivoted intermediate its ends to said collar and provided with a hood or cap arranged to fit over the open end of said half-coupling, and a spring comprising a plurality of resilient leaves rigidly attached at one end to said lever and having a movable bearing upon a support carried by the said collar, substantially as described.

608,191. RAIL-JOINT. FREDERICK V. JARDEN, Philadelphia, Pa. Filed Sept. 22, 1897. Serial No. 652,547. (No model.)



Claim.—1. A joint for the meeting ends of railway-rails comprising fish-plates interchangeable with each other and having depending portions with apertures therein having their lower faces on the same horizontal plane, a wedge-plate having beveled projecting members forming wedges adapted to enter the apertures in the depending portions of the fish-plates, and likewise having their acting faces in the same horizontal plane, and means for moving said wedge-plate laterally.

2. A joint for the meeting ends of railway-rails comprising fish-plates interchangeable with each other and having portions extending below the base of the rails with apertures therein having their lower faces in the same horizontal plane, a wedge-plate having beveled projecting members forming wedges adapted to said apertures and likewise having their acting faces in the same horizontal plane, with a bolt or bolts formed integral with the wedge-plate and a nut or nuts adapted thereto, whereby the wedge-plate may be moved laterally.

3. The combination of the rails, fish-plates therefor, a wedge-plate mounted under the rails, said wedge-plate having beveled projections at each side bearing on the fish-plates, and a bolt carried by the wedge-plate above the bearing-point, with a nut adapted thereto for moving the wedge-plate laterally, substantially as described.

4. As a new article of manufacture, a wedge-plate for the meeting ends of railway-rails consisting of a body having on each side one or more projecting members beveled on the under side, forming wedges, and having their acting faces in the same horizontal plane.

5. A joint for the meeting ends of railway-rails, comprising the fish-plates, and securing devices for holding said fish-plates to the rails, said securing devices comprising bolts and nuts with suitable nut-locks, the seats for the bolt-heads and nut-locks having portions of their faces formed in different planes, the bolt-heads and nut-locks fitting the same, whereby any rotative movement of the bolt is prevented.

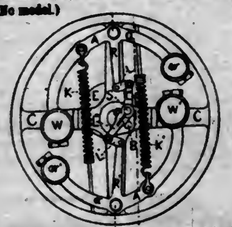
6. As a new article of manufacture, a nut-lock comprising an annular ring of spring metal having a single plane surface on one side of the same, and the other side composed of a number of surfaces offset from each other and in different planes.

608,192. HOISTING APPARATUS. ROBERT JOHNSTON, River Falls, Wis. Filed Mar. 26, 1897. Serial No. 629,401. (No model.)



Claim.—The combination with a mast or other supporting device, of a power mechanism embracing independent winding-shafts and a power-shaft common to both shafts and with shifting mechanism, a track-cable attached at one end to the mast or supporting device and at its other end to one of the winding-shafts, a carriage, and a haulage-cable attached at one end to the supporting device, thence running through sheaves on the carriage and supporting device, and connected to the other winding-shaft, substantially as described.

608,193. GOVERNOR FOR STEAM-ENGINES OR OTHER MOTORS. ERWIN C. KRAFT, Syracuse, N. Y. Filed July 8, 1896. Serial No. 598,403. (No model.)



Claim.—1. In a governor, the combination with the rotary carrier, and the governor-levers pivotally mounted at diametrically opposite points on said carrier, said governor-levers being each extended on opposite sides of its pivot and weighted at both ends, of the controlling-eccentric pivotally mounted on the carrier independent of the governor-levers and with a connection between said eccentric and the governor-levers; substantially as described.

2. In a governor, the combination with the rotary carrier and the governor-levers pivotally mounted on said carrier at diametrically opposite points each of said governor-levers extending on opposite sides of its pivot and having its opposite ends weighted, the arrangement being such that as said levers swing on their pivots the weights or centers of gravity of said levers are caused to move in diametrically opposite directions, thereby maintaining the balance of the governor-levers about the axis of the carrier, of an eccentric pivotally mounted on said carrier independently of the levers and a connection between said eccentric at a point diametrically opposite its center of oscillation and the governor-levers; substantially as described.

3. In a shaft-governor the combination of a rotary carrier, a pair of principal swinging centrifugal weights pivoted thereon at diametrically opposite points, a pair of secondary centrifugal weights, rigidly attached one to each of said principal weights and adapted to centrifugally oppose them, springs adapted to resist the resultant centrifugal action of said weights, and flexible connections to transmit the swing of said weights to the valve or controller operating mechanism.

4. In a shaft-governor the combination of a rotary carrier, an eccentric-pivot thereon, a pair of principal swinging centrifugal weights also pivoted thereon at diametrically opposite points, a pair of secondary centrifugal weights rigidly attached one to each of said principal weights on the opposite side of each pivot and adapted to centrifugally oppose them, springs adapted to resist the resultant centrifugal action of said weights, and flexible connections to transmit the swing of said weights to said eccentric.

5. In a governor, the combination with the rotary carrier and eccentric, of the governor-levers pivotally mounted on said carrier at

diametrically opposite points, each of said levers extending on opposite sides of its pivot and having its opposite ends weighted, the mass of each of the governor-levers being so disposed that the center of gravity lies within the path described by the pivotal center of the lever and to one side of a line intersecting said center and the axis of rotation of the carrier and a connection between each of said governor-levers and the eccentric; substantially as described.

6. In a governor, the combination with the rotary carrier and eccentric pivotally mounted thereon and oscillating transversely of the axis of the carrier, of independent governor-levers pivotally mounted on said carrier at diametrically opposite points, each of said governor-levers extending on opposite sides of its pivot and having its ends weighted, the disposition of the mass of each of said levers being such that the center of gravity is located to one side of a line intersecting the pivot of the lever and the axis of the carrier, and within the path described by the pivot of the lever in its traverse about the said axis, and a link connecting each of said levers and the eccentric; substantially as described.

7. In a governor, the combination with the rotary carrier and eccentric pivotally mounted on said carrier to move transversely of the axis of said carrier, of the governor-levers pivotally mounted on the carrier at diametrically opposite points, each of said levers extending on opposite sides of its pivot and the mass of each of said levers being so disposed that the center of gravity lies within the path of the pivot in its traverse around the axis of the carrier and to one side of a line intersecting the said pivot and axis and a contripetally-acting spring connecting each of said levers and the carrier; substantially as described.

8. In a governor the combination with a rotary carrier, of weight-supporting arms mounted thereon upon diametrically opposite pivots, unequal weights upon the free ends of each of said arms arranged so that the greater weight on one arm is opposite to the lesser weight upon the other, counteracting springs connected to said carrier and to said arms between their greater weights and their pivots, and an eccentric to which both arms are connected at a common point.

9. In a governor the combination with a rotary carrier, of swinging arms mounted upon diametrically opposite pivots at points intermediate their length at unequal distances from their extremities, a greater weight upon longer end of each arm, a lesser weight upon the shorter end of each, said weights being arranged so that the greater weight on each arm is opposite to the lesser weight on each arm, whereby said weights are substantially counterbalanced, force-counteracting springs connected to said arms between their greater weights and their pivots, an eccentric and means to connect both arms to it at a common point.

608,194. WRENCH. WILLIAM F. LAWLER, Anderson, Ind. Filed Feb. 11, 1897. Serial No. 623,008. (No model.)



Claim.—1. The herein-described improved wrench, comprising a shank having a chamber therein, a spring-pressed rack-bar located in said chamber, an upper jaw secured to the end of said shank and engaging one end of said rack-bar, and a movable jaw working on said shank, as set forth.

2. The herein-described improved wrench, comprising a shank having a chamber therein provided with an overhanging flange, a spring-pressed rack-bar having one end in engagement with said flange, an upper jaw secured to said shank and engaging the other end of said rack-bar, and a movable jaw working on said shank, as set forth.

3. The herein-described improved wrench, comprising a shank having a chamber therein provided with an overhanging flange, a rack-bar having reduced ends, one of which is in engagement with said flange, a spring in said chamber bearing against said rack-bar, an upper jaw secured to said shank and having a recess therein adapted to receive the other end of said shank, and a movable jaw working on said shank, substantially as set forth.

4. The herein-described improved wrench, comprising a shank having a chamber therein, a spring-pressed rack-bar located in said chamber, an upper jaw secured to the end of said shank and engaging one end of said rack-bar, and a movable jaw working on said shank and having an inclined groove adapted to receive said rack-bar, as set forth.

5. The combination with a wrench having recesses in its jaws, of a ring or body portion having opposite pins or lugs adapted to enter said recesses, side plates removably secured to said ring or body portion, a circular member mounted between said side plates and provided with peripheral teeth and a central opening, and a spring-pressed pawl mounted in said ring or body portion and engaging said teeth, substantially as set forth.

608,195. PROCESS OF PURIFYING ORTHOTOLUENESULFO-CHLORID. WILHELM MAJERT, Grunau-Berlin, Germany. Filed Mar. 27, 1897. Serial No. 629,515. (No specimens.)

Claim.—The process of separating orthotoluenesulfo-chlorid from a mixture of ortho and para toluenesulfo-chlorid, consisting in distilling out a quantity of orthotoluenesulfo-chlorid, cooling the residue to crystallize out paratoluenesulfo-chlorid, separating the crystals from the liquid and subjecting the latter to distillation, substantially as described.

608,196. THILL COUPLING-BOLT. ADDISON G. MAY, St. Charles, Mo. Filed June 9, 1897. Serial No. 640,043. (No model.)



Claim.—1. A coupling pin or bolt, in combination with a spring secured at one end to said pin and at the other to a cup engaging the other end of the pin, said spring being adapted to stride the parts coupled by said pin, substantially as described.

2. The combination with a coupling pin, of a spring secured at one end to the head of the pin, a cup secured to the other end of said spring to receive the point or free end of the pin, and a washer on the pin intermediate the axle-clip and the open end of the cup, adapting the latter to secure the pin in place and also to serve as a lubricating cup, substantially as described.

608,197. PAPER-MAKING MACHINE. SEBASTIAN H. MILLER, Piedmont, W. Va. Filed June 3, 1897. Serial No. 639,326. (No model.)

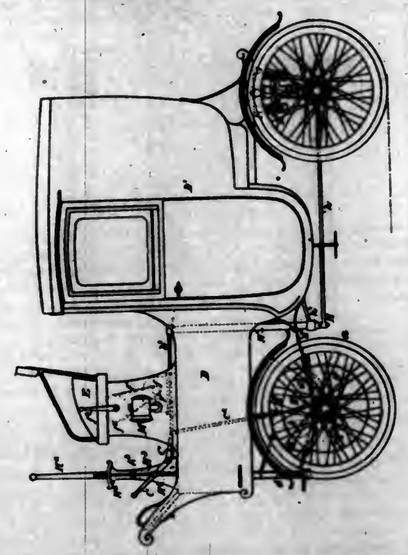


Claim.—1. The improvement in paper-machines herein described comprising the combination with the top couch-roll of the casing arranged above the top couch-roll and having in its under side a recess opening toward said roll and open at the end and unobstructed at each end whereby the guard-board strip may be inserted in and removed endwise from said casing, the guard-board strip, the pressure-screws engaging said strip, and a support for the said casing, which support forms no obstruction to the open end of the casing substantially as described.

2. The herein-described improvement in paper-machines consisting of the top couch-roll, the beam extending longitudinally above the said roll, the casing having in its under side a recess opening toward said roll and open at the end and unobstructed at each end whereby the guard-board strip may be inserted in and removed endwise from said casing, the guard-board strip, the pressure-screws engaging said strip, and fastenings securing said casing, at close intervals to the beam whereby to prevent any springing of the casing toward or from the roll and whereby the casing is secured in such manner that its open end is left unobstructed for the endwise insertion and removal of the guard-board strip substantially as shown and described.

3. The improvement in paper-machines herein described comprising the top couch-roll, the beam extended above said roll in the direction of length thereof, the casing having in its under side a recess open toward the top couch-roll and open at its end, said casing being provided in its top with openings for the set-screws and having above said recess and between the set-screw openings transverse holes for the fastening-bolts, the fastening-bolts securing the casing to the beam and passed through said transverse openings in the casing whereby the casing is secured at close intervals and its end is left unobstructed, and the guard-board strip and set-screws substantially as shown and described.

608,198. ELECTRICALLY-PROPELLED VEHICLE. HENRY G. MORRIS and PEDRO G. SALOM, Philadelphia, Pa. Filed Sept. 20, 1896. Serial No. 607,344. (No model.)



Claim.—1. The combination in an electrically-propelled vehicle, of a front axle, motor mounted thereon, a forward structure forming part of the vehicle-body and located directly above the front axle and carrying the battery, a rear axle, a carriage or wagon body trailing from the front structure and mounted upon the rear axle, substantially as described.

2. The combination in an electrically-propelled vehicle, of a front axle, its wheels, a motor mounted on the front axle, a rear axle, wheels thereon, a battery-carrying structure located directly above the front axle, a body mounted upon the rear axle and connected to the said battery-carrying structure, the motors being geared to the front wheels, and steering mechanism connected to the rear wheels, substantially as described.

3. The combination in an electrically-propelled vehicle, of a front axle, two independent wheels thereon, two motors on the axle, one motor geared to one wheel and the other motor geared to the other wheel, a rear axle, wheels thereon, a battery-carrying structure mounted above the front axle and motors carried thereby, and a body attached to the said structure and supported by the rear axle, with steering mechanism, substantially as described.

4. The combination in an electrically-propelled vehicle, of a front axle, its wheels, motors on the front axle, one motor geared to one wheel and the other motor geared to the other wheel, springs mounted on the axle, a battery-holding structure mounted above the front axle and supported by the springs, a rear axle and its wheels, springs carried thereby and a body attached to the battery-carrying structure and mounted on the springs of the rear axle, substantially as described.

5. The combination in an electrically-propelled vehicle, of a front axle, its wheels, an internal gear mounted on each wheel, two motors mounted on the front axle and having pinions, the pinion of one motor geared to the internal gear of one wheel and the pinion of the other motor geared to the internal gear of the other wheel, springs on the front axle, a battery-carrying structure mounted on the springs directly over the front axle so that the front wheels will sustain the weight thereof, a rear axle and its wheels and a body attached to the battery-carrying structure at its forward end and carried at the rear by the rear axle, substantially as described.

608,199. CUSPIDOR. HENRY C. MCRAE, Macon, Fla. Filed July 26, 1897. Serial No. 646,209. (No model.)



Claim.—1. A stationary cuspidor comprising the conical circular hopper 1 having ears 7 7, the annular ring 3 having the serrated edge 3', in combination with the vertical discharge-pipe 5 provided with the notched conical flange 6 adapted to engage said ears 7, substantially as shown and described.

2. A stationary cuspidor, comprising the conical circular hopper 1, having ears 7 and ribs 8, in combination with the annular ring-support 3 having serrated edge 3' and inclined edges 9 and the vertical discharge-pipe 5 provided with the notched conical flange 6, substantially as shown and described.

608,200. PROCESS OF EXTRACTING TIN FROM TIN-PLATE WASTE. JULIUS NEUBARE, New York, N. Y. Filed Sept. 10, 1897. Serial No. 651,243. (No specimens.)

Claim.—1. The process of regenerating an alkaline electrolyte charged with salts of tin, which consists in adding phosphoric acid to the electrolyte and, after the reaction which takes place is complete, adding calcium oxid to the electrolyte, substantially as and for the purposes hereinbefore set forth.

2. The herein-described process of recovering tin from tin-waste and the like, which consists in subjecting the tin-waste to the conjoint action of a current of electricity, and a bath consisting of a solution of caustic alkali, until the recovery of the tin is retarded or ceases, and the bath becomes charged with tin salts; then adding phosphoric acid to the bath, causing a precipitation of tin-oxid; then adding calcium oxid to the bath, causing a precipitation of calcium phosphate, and removing the precipitates of such reactions, substantially as and for the purposes hereinbefore set forth.

608,201. JEWELER'S STONE-SETTING INSTRUMENT. JOHN A. OWENS, Denham, Tex., assignor of one-half to John C. Saunders, same place. Filed July 22, 1897. Renewed Mar. 29, 1898. Serial No. 675,640. (No model.)



Claim.—1. An instrument for setting jewels or stones in studs and the like, consisting of a base-piece having a pendent, angular neck designed to be held by a vise, or other holder, an axially-rotating carrier journaled to the base-piece, constantly held upright thereby, and having two elastic jaws provided with inwardly-projecting lips for gripping the shank of the stud, or other article of jewelry, and means for operating the jaws, substantially as described.

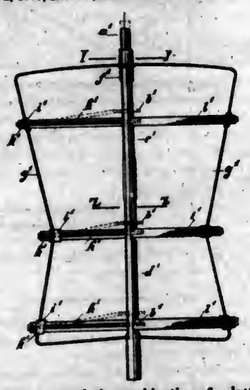
2. An instrument for setting jewels or stones in studs and the like, consisting of a cylindrical base-piece having a pendent flat-sided neck constructed to be held by a vise, or other holder, an axially-rotating cylindrical carrier having a journal or spindle mounted in the base-piece and two elastic jaws provided with inwardly-projecting lips for gripping the shank of a stud, or other article of jewelry, said carrier being constantly held upright by the base-piece, and a screw for operating the two elastic jaws, substantially as described.

608,202. FASTENER FOR GLOVES. CARL A. PFENNING, Barmen, Germany. Filed Apr. 20, 1897. Serial No. 634,402. (No model.)



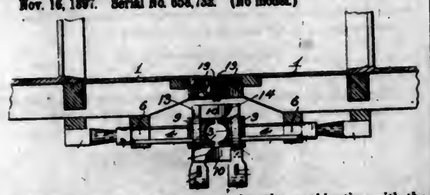
Claim.—A fastening device having two contacting parts, each part formed of two sections adapted to receive fabric between them, one of the sections having prongs adapted to pierce the fabric and to be bent by contact with the opposite section, the sections of the upper fastening part having their edges or circumferences inclined downwardly or toward the lower fastening part, and the sections of the lower fastening part having their edges or circumferences inclined upward or toward the upper fastening part to cause the flaps or cloth secured by the fastening to lie close upon or in contact with one another.

608,208. SHOW-STAND. MAX RAHR, Berlin, Germany. Filed May 31, 1895. Serial No. 551,276. (No model.) Patented in Germany Feb. 22, 1895, No. 87,930; in England Feb. 27, 1895, No. 4,266, and in France Mar. 2, 1895, No. 245,505.



Claim.—In a show-stand, the combination of a slotted tube, with a frame fixed to the slotted tube and having guide-pieces, a rod having pins and adapted to slide in the said slotted tube, pins passing freely through the guide-pieces, elastic strips connected to the outer ends of the pins of the guide-pieces, and links connecting the inner ends of the pins of the guide-pieces with the pins of the sliding rod, substantially as and for the purpose set forth.

608,204. CAR-COUPLING. FRANK R. RAFF, Easton, Pa. Filed Nov. 16, 1897. Serial No. 658,732. (No model.)

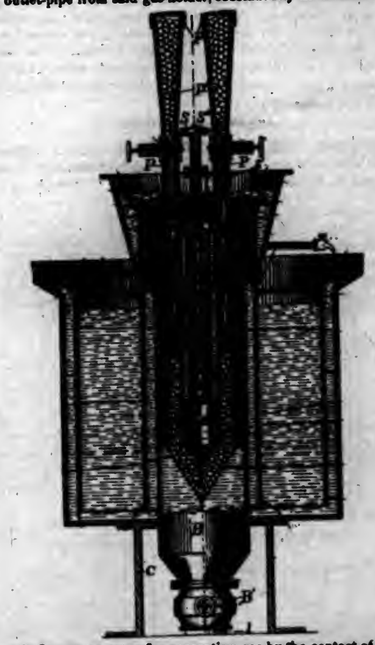


Claim.—In an automatic car-coupler, the combination with the hollow draw-bar, the heads at the inner and outer ends, the bearings and plate between which said draw-bar is located, and the pointed block engaging with the head at the inner end of the draw-bar, of the hook journaled on said draw-bar having oppositely-extending beveled lugs at the ends, the weight at the lower end of said hook, and means for actuating said hook to uncouple the cars, substantially as described.

608,205. ACETYLENE-GAS GENERATOR. JOHN M. RAYMOND, and LOUIS H. LESLEY, New Orleans, La., assignors of one-third to William Thomas Coats, same place. Filed Sept. 28, 1897. Serial No. 653,360. (No model.)

Claim.—1. In an apparatus for generating gas by the contact of a liquid with a solid material, the combination of an outer tank; a gas-holder within said tank; a liquid-reservoir within the center of said tank; an elevated reservoir on the outside of said tank; pipes leading from said elevated reservoir to the said reservoir within said tank; a valve in one of said pipes; means operated by the rising and falling of the gas-holder adapted to operate said valve; a receptacle for the gas-generating material carried in said gas holder; a gas-chamber above said receptacle; passages leading to said gas-chamber; a pipe leading from said gas-chamber to the lower portion of the gas holder; and an outlet-pipe from said gas-holder, substantially as described.

2. In an apparatus for generating gas by the contact of a liquid with a solid material, the combination of an outer tank; a gas-holder within said tank; a liquid-reservoir within the center of said tank; an elevated reservoir without said tank; pipes leading from said elevated reservoir to the reservoir within said tank; a valve in one of said pipes; an arm of said valve; a pivoted lever connected to said arm; devices mounted upon the gas-holder adapted to operate said pivoted lever so as to close said valve as the gas-holder rises and to open said valve as said gas holder falls; a receptacle for the gas-generating material carried in said gas-holder; a gas-chamber above said receptacle; passages leading to said gas-chamber; a pipe leading from said gas-chamber to the lower portion of the gas-holder; and an outlet-pipe from said gas-holder, substantially as described.



3. In an apparatus for generating gas by the contact of a liquid with a solid material, the combination of an outer tank; a gas-holder within said tank; a liquid-reservoir within said tank; an elevated reservoir without said tank; pipes leading from said elevated reservoir to said reservoir within said tank; a valve in one of said pipes; means operated by the rising and falling of the gas-holder adapted to operate said valve; a receptacle for the gas-generating material carried in said gas-holder; feeding-pipes entering the top of said gas-holder; valves in said pipes; gas-chambers above said receptacle; passages connecting said chambers; a pipe leading from said gas-chamber to the lower portion of the gas-holder; and an outlet-pipe from said gas-holder, substantially as described.

4. In an apparatus for generating gas by the contact of a liquid with a solid material, the combination of an outer tank; a gas-holder within said tank; a liquid-reservoir entering the bottom of said tank; a pipe leading to said liquid-reservoir; a cylinder entering the head of said gas-holder and inclosing said reservoir; another cylinder extending into said reservoir; a head fitting over the tops of both of said cylinders, the inner cylinder having a closed bottom; the carbid-basket mounted upon the bottom of the inner cylinder; feed-pipes leading through said head and the bottom of said inner cylinder to said carbid-basket; valves in said pipes; a gas-chamber in the upper portion of said inner cylinder; pipes leading from above said carbid-basket thereto; an outlet from said gas-chamber to the outer cylinder; a pipe leading from said outer cylinder to the gas-holder; and an outlet-pipe from said gas-holder, substantially as described.

5. In an apparatus for generating gas by the contact of a liquid with a solid material, the combination of an outer tank; a gas-holder within said tank; a liquid-reservoir entering the bottom of said tank; a pipe leading to said liquid-reservoir; a cylinder entering the head of said gas-holder and inclosing said reservoir; a second cylinder extending into said reservoir and having a closed bottom; a head fixed to the top of said inner cylinder and resting upon the top of the outer cylinder; a screw connected to said head and adapted to raise and lower the same; a carbid-basket attached to the bottom of said inner cylinder; carbid-pipes entering the top of said inner cylinder and leading through the bottom thereof above said carbid-basket; a chamber in the bottom of said inner cylinder, and a chamber in the top of said cylinder; pipes connecting said chambers; an outlet from said upper chamber; a pipe leading from said outlet to the gas-holder; and an outlet-pipe from said gas-holder, substantially as described.

6. In an apparatus for generating gas by the contact of a liquid with a solid material, the combination of an outer tank; a gas-holder within said tank; a liquid-reservoir within said tank; an elevated reservoir without said tank; a pipe leading from said elevated reservoir to said reservoir within the tank; a valve in said pipe; devices operated by the rising and falling of the gas-holder adapted to control said valve; a cylinder fixed in the head of said gas-holder and inclosing said reservoir within said tank; a second cylinder extending into said reservoir; a common head for said cylinders, and means for securing the same in place; a carbid-basket mounted beneath said inner cylinder; carbid-pipes extending vertically through said inner cylinder to said carbid-basket; gas-chambers above said basket in said inner cylinder; a pipe leading from said chambers to the gas-holder; and an outlet-pipe for said gas-holder, substantially as described.

608,206. METHOD OF PRODUCING HOLLOW INGOTS. JOHN T. ROWLEY, Beaver Falls, Pa. Filed May 27, 1897. Serial No. 638,355. (No model.)

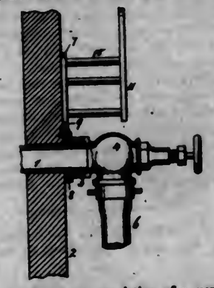


Claim.—1. The herein-described improvement in method for producing hollow ingots from solid bars or billets, which consists of heating the solid ingot, bar, or billet and subjecting the same to the friction or pressure of a plurality of surfaces parallel with the axis of the billet, the billet or bar being free to rotate on its axis and to elongate during the operation, substantially as described.

2. The herein-described improvement in method for producing hollow ingots from solid bars or billets, which consists of heating the bar or billet and subjecting the same to the friction or pressure of a plurality of surfaces, the said surfaces being parallel with the axis of the bar or billet and adapted to progressively increase the reduction of the ingot, the ingot or bar being free to rotate on its axis and to elongate during the operation, substantially as described.

3. The herein-described improvement in method for producing hollow ingots from solid bars or billets, which consists in first heating the solid ingot, subjecting the same to the pressure of a roll and a vertical concave die-plate, the billet or bar being free to rotate on its axis and to elongate during the operation, substantially as described.

608,207. HOSE RACK OR SUPPORT. CHARLES W. REBY, Brooklyn, N. Y. Filed Nov. 9, 1897. Serial No. 657,947. (No model.)

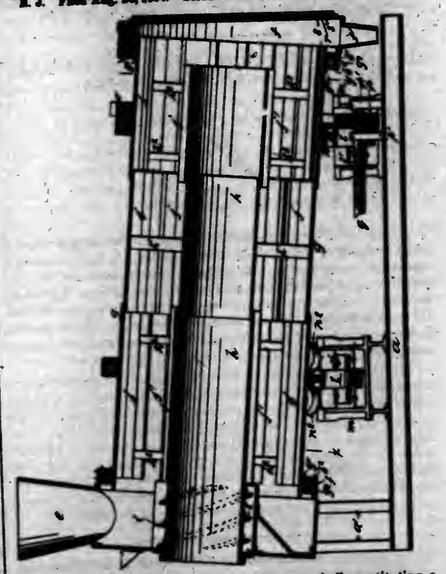


Claim.—1. A hose-support, consisting of a vertical back plate designed to rest against a wall, and having a pendent rigid eye at its lower portion, constructed to engage a water-supply pipe for the hose, a vertical front plate, connecting rods between said front and back plates, means for securing the eye on the water-supply pipe, and means for holding the hose-support and its eye against rotation on the pipe, substantially as and for the purposes described.

2. A hose rack or support comprising a front section, a rear section, and suitably-spaced cross-pieces made to connect the sections, the front section being made to rise above the rear section, and the rear section being dropped below the front section, each depending rear part having an eye or annular seat substantially as described.

3. A pipe threaded for the reception of a nut or valve, and a rack or support adapted to be slipped or coated about such pipe and to be held by such nut, said rack having prongs or holders at its rear face so that the prongs are brought into action as the rack with the nut are moved home substantially as described.

608,208. DRYING APPARATUS. WILLIAM B ROGERS, Bayonne, N. J. Filed Aug. 20, 1897. Serial No. 648,268. (No model.)



Claim.—1. In a drying apparatus, an inner shell constituting a flue or passage for a heated current, mounted concentrically in and communicating at one end with an outer shell; a feed-opening leading to the space between the shells, and a discharge-opening at the opposite end, substantially as described.

2. In a drying apparatus, an inner shell communicating at one end with a source of heat and constituting a continuous flue or conduit for a heated current; an outer shell extending beyond the opposite end of the inner shell and suitably concentrically mounted thereon; an exhaust communicating with the outer shell; a feed-opening directed upon the exterior of the inner shell at one end; a discharge-opening from the outer shell at the opposite end, and means for rotating said shells, substantially as described.

3. A front and a rear stationary head, the latter having a discharge-opening; an inner shell in communication, through the front head, with a suitable source of heat, and not extending to the rear head; an outer shell extending from the rear head to the front head, suitably connected to the inner shell and communicating with a front exhaust; a feed-opening through the front head, through which the material is fed between the shells, and means for rotating the shells, substantially as described.

4. An inner shell constituting a flue or passage for a heated current mounted by rigid and yielding braces concentrically in, and communicating at one end with an outer shell; a feed-opening between the shells, an opposite discharge-opening, and an exhaust communicating with the outer shell, substantially as described.

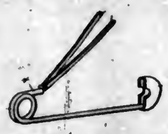
5. An inner shell constituting a flue or passage for a heated current; a spiral conveyer located about the exterior of the forward end of said shell; an outer concentric shell mounted upon the inner shell, and in communication with the latter at the rear thereof; a feed-opening above said conveyer and a stationary box or trough below the same; an opposite discharge-opening; an exhaust communicating with the outer shell and means for rotating said shells, substantially as described.

6. A stationary front head provided with an opening, an internal box or trough below said opening, a feed-chute above the same, and an exhaust; a rear stationary head having a discharge-opening; in combination with an inner shell journaled in the opening in the front head and having a spiral conveyer working in said box or trough; an outer shell extending from the rear head, and in communication at the rear with the inner shell, and at the front with the said exhaust; and means for rotating said shells, substantially as described.

7. A stationary front head provided with an opening; an internal box or trough below said opening; a feed-chute above the same, and an exhaust, a rear stationary head having a discharge-opening and a damper *d*; in combination with an inner shell journaled in the opening in the front head and having a spiral conveyer working in said box or trough; an outer shell extending from the rear head and

in communication at the rear with the inner shell and at the front with said exhaust; rigid and yielding connections between said shells, and means for rotating said shells, substantially as described.

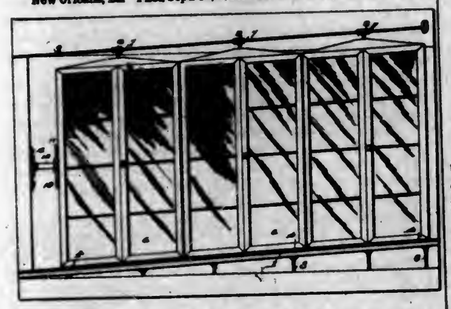
608,209. HAIR-CRIMPER. EDWIN A. SMITH, New York, N. Y. Filed Aug. 23, 1897. Serial No. 649,108. (No model.)



Claim.—1. The herein-described hair-curler constructed substantially in the form of a safety-pin and embodying a body member, a spring-coil at one end thereof, a guard at the opposite end, and two arms or finger pivotally connected to the extremity of the coil by knuckle-joints, the arrangement being such that the fingers will reach the limit of their free pivotal movement before they can be inserted in the guard, whereby the resiliency of the coil maintains the fingers in engagement with the guard, substantially as described.

2. The herein-described hair-curler, constructed substantially in the form of a safety-pin and embodying a body member, a spring-coil at one end thereof having a projecting extremity, a guard at the opposite end, and two independently-movable arms or fingers pivotally connected to the projecting extremity of the coil by knuckle-joints, the arrangement being such that the fingers will reach the limit of their free pivotal movement before they reach the guard, whereby the spring action of the coil is used to maintain the fingers in engagement with the guard, substantially as described.

608,210. TRANSFERABLE SHOW-CASE. JOHN C. SPRAGGINS, New Orleans, La. Filed Sept. 17, 1897. Serial No. 652,047. (No model.)



Claim.—1. In a device of the character described, the combination with an inclined track, of a show-case carried thereby, and a rotary stop adapted to engage said case for limiting the movement thereof having a segmental engaging portion.

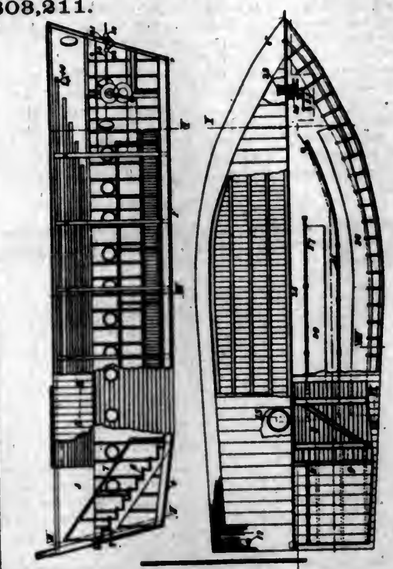
2. In a device of the character described, the combination with an inclined track, of a show-case carrying rollers upon the bottom thereof, designed to be supported by the track, and a stop adapted to engage said case and limit the movement thereof, the said stop consisting of a rotary shaft and a semicircular plate carried thereby.

3. In a device of the character described, the combination with a pair of inclined tracks, of a series of show-cases, casters upon the bottoms of the show-cases designed to be supported by the tracks, horizontal rollers carried at the upper ends of the cases, a track in contact with the horizontal rollers, a rotary stop consisting of a horizontal shaft mounted adjacent to the rear edges of the show-cases, and a semicircular plate secured to the shaft at the center of its straight edge, substantially as specified.

608,211. SURF-BOAT. LEWIS W. STEVENS, Los Angeles, Cal. Filed May 21, 1896. Serial No. 593,402. (No model.)

Claim.—In a surf-boat, the combination with the hull, enmounted by a rigid roof a part of its length, a section hinged to and forming a part of said roof and adapted to fold back upon the same, a removable member extending upward from the hull at the stern, and tightly closing the space between the hull and said hinged member, of sea and land lines connected to the boat and means connected to the respective lines to draw the boat to and from the shore, substantially as described.

608,211.



608,212. REVOLVING GATE. SYLVESTER G. STEVENS, Lincoln, N. Y. Filed Oct. 13, 1897. Serial No. 655,063. (No model.)



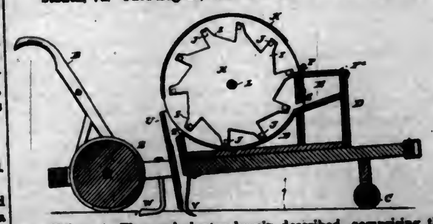
Claim.—1. An improved farm-gate having a wheel secured thereto of a diameter equal at least to the height of the gate, whereby in operation the gate will rotate with said wheel, substantially as set forth.

2. An improved farm gate having an elliptical wheel or hoop secured thereto with its shortest axis equal at least to the height of the gate and with its longest axis at right angles to said gate, whereby in operation the gate will rotate with said wheel and will automatically remain closed, substantially as set forth.

3. An improved farm-gate provided with a wheel at one end of a diameter at least equal to the height of the gate, and a hinge at the other end capable of universal movement, substantially as set forth.

4. An improved farm-gate provided with a wheel at one end equal at least to the height of the gate, with a hinge at the other end capable of universal movement, and with means for automatically maintaining the gate in its closed position, substantially as set forth.

608,213. SEED-PLANTER. ALEXANDER T. STEWART, Ream's Station, Va. Filed Aug. 21, 1896. Serial No. 603,513. (No model.)



Claim.—1. The seed-planter herein described, comprising the frame and handles, the front guide-wheel, the box on said frame having at one end a compartment with a feed-opening in its rear wall, a slide controlling said opening, the portion of said box in rear of the seed-compartment having inclined bottom below the axis of the planter-wheel and provided with vertical longitudinal partitions, a

hinged cover to said box and carrying said slide, a planter-wheel formed with fingers having depressions and mounted to revolve between said partitions, a semicircular cover for said wheel, a covered-wheel and connections substantially as described between the same and the shaft of the seed-distributing wheel, all substantially as herein shown and described.

2. In a seed-planter of the character described, the combination with the frame, the supporting-wheels and the planter-wheel and the feed-box, of a shoe having its upper end extended upward to a point above the lower edge of said wheel with an inclined spout communicating therewith, a curved bottom to the compartment in which the planter-wheel revolves, said bottom having one edge turned downward and rearward, and secured to a fixed portion of the frame to constitute the upper end of said shoe, a shovel on the lower free end of the shoe, and scrapers carried by the frame to the rear of said shoe, all substantially as herein shown and described.

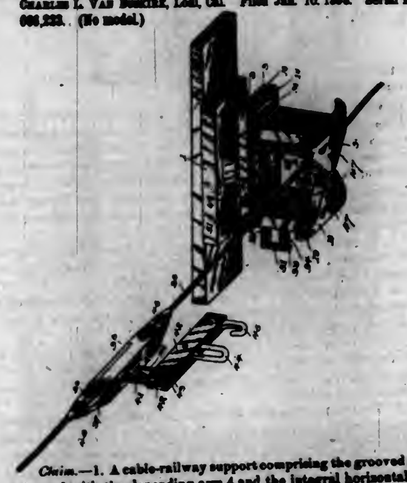
608,214. PRINTER'S CHASE. JAMES TONRAN, Little Rock, Ark. Filed May 8, 1897. Serial No. 636,736. (No model.)



Claim.—1. A set of similar bars for printers' use, each of said bars having at each of its ends an exteriorly-mitered hook which is of the same form as every other hook of the set, whereby any four bars of the set, of proper relative lengths, may be interlocked to form a chase or frame without exterior projections at the corners, substantially as specified.

2. The herein-described frame or chase bar for printers' use having at each end an interlocking portion consisting of a quarter-sock extending from a shoulder of the bar and terminating in a mitered hook of the full width and thickness of the bar, substantially as specified.

608,215. CONVEYER FOR ENDLESS-ROPE RAILWAYS. CHARLES L. VAN DOREEN, Lodi, Cal. Filed Jan. 10, 1898. Serial No. 666,223. (No model.)



Claim.—1. A cable-railway support comprising the grooved plate 2 formed with the depending arm 4 and the integral horizontal shoe 5 formed with the bearing-socket 7 and semicircular groove 8, in combination with the spring-actuated bracket 14 sliding on said plate and formed with the integral arm 17, shoe 18, bearing-socket 20 and semicircular groove 21, and the rollers 10, 23 provided at their outer ends with the collars 9 and 22, respectively, as and for the purpose set forth.

2. The combination with the grooved plate 2 formed with the depending arm 4 and the integral shoe 5 provided with the bearing-socket 7 and semicircular groove 8, the rollers 10, 9 journaled in said socket, and the vertical parallel rollers 6, 6, journaled between the plate and shoe, of the spring-actuated bracket 14 sliding on said plate and provided with the integral arm 17, shoe 18, bearing-socket 20 and groove 21, the roller 23, 23 journaled in said socket 20, the vertical parallel rollers 19, 19, journaled between the bracket 14 and shoe 18 and the longitudinal roller-sleeve 28 journaled between the arms 4 and 17, substantially as shown and described.

3. The combination with the grooved plate 2, its integral arm 4 and shoe 5, of the bracket 14 having a sliding movement in the grooves of said plate and formed with the integral arm 17 and shoe 18, the U-shaped bolt connecting said arms 4 and 17 and provided with the right-angular plate 31, and the spring 34 extending between said plate 31 and the arm 17, substantially as shown and described.

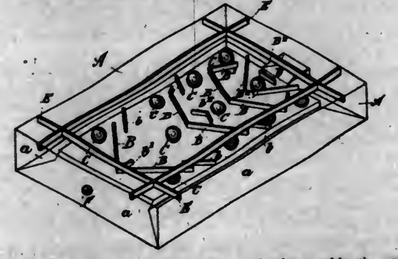
4. The combination with the plate 2 formed with the parallel grooves 3, 3, of the sliding bracket 14 formed with the parallel jaws 15, having the tongues 16 engaging said grooves, the bracket 48 adjustably secured to said plate and the roller 50 journaled in the free end of said bracket 48 and adapted to rest on the plane face of the sliding bracket 14, substantially as shown and described.

5. The conveyer-head 36 comprising the hinged jaws 37, 38 formed with the longitudinal grooves 40, 40, the convergingly-beveled faces 46, 46, and the integral parallel shanks 41, 41, the parallel bars 42, 42, arranged on the opposite sides of said shanks and means for simultaneously securing said bars, shanks and jaws together, substantially as shown and described.

608,216. PROCESS OF COLORING DOLL-HEADS. OTTO ZEH, Rudolstadt, Germany. Filed Sept. 30, 1896. Serial No. 607,472. (No specimens.)

Claim.—The method of creating the effect of burnt colors upon burnt white porcelain which consists in first applying to the said porcelain a thin coating of a water-color containing glue and glycerin; second, in applying to this coating of water-color a thin coating of transparent lac which sinks into and becomes a part of the said initial coating; third in allowing the before-mentioned coating to dry and subsequently applying to the same a thin coating of dull lac for the purpose of producing a dull instead of a glossy effect, substantially as described.

608,217. PUZZLE. JAMES ARCHIBALD, Buckie, Scotland. Filed Nov. 14, 1896. Renewed Dec. 2, 1897. Serial No. 660,894. (No model.) Patented in England Oct. 17, 1896, No. 23,080.

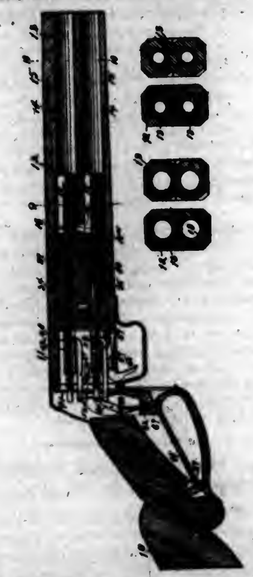


Claim.—1. In an improved ball-puzzle the combination with a box, a raised base in the said box forming channels at the sides, and a chamber serving as a goal, of divisions on the said base forming a number of compartments, ribs at the top and sides of the box protecting the side channels, balls placed within the compartments and free to roll within their respective divisions, and a small ball free to pass from one compartment to the other and to reach the goal, substantially as and for the purposes specified.

2. In a ball-puzzle the combination with a box side channels in the said box formed by a raised bottom and a chamber serving as a goal, of divisions on the base or bottom separating the box into four main compartments communicating at each end side ribs or strips at the top of the box protecting the side channels, balls placed in the compartments and free to move within their respective limits, and a small ball free to pass from one chamber to the other and to reach the goal substantially as and for the purposes specified.

3. In an improved ball-puzzle the combination with the base A, sloping or beveled edges a, and chamber D serving as a goal, of the main divisions B, B', and B^2 on the said base and the smaller divisions b, b', and b^2 the balls C placed in the compartments formed by the divisions the side strips or ridges E and the ball F free to pass from one compartment to the other, substantially as described and shown and for the purposes specified.

608,218. BREECH-LOADING FIREARM. JOHN D. COOK, Bethrop, Colo. Filed May 22, 1897. Serial No. 637,801. (No model.)



Claim.—1. The combination of a frame having a front extension and stock, which front extension is bored to receive a pair of barrels and is provided with a cavity opening to one side thereof and shaped and arranged to receive a breech-block, a breech-block pivoted on the front extension and arranged to swing in and out relative to the cavity aforesaid and abut the rear ends of the barrels, an extractor pivotally connected with the breech-block and arranged to be engaged thereby at the limit of outward movement of the block, an ejector fixed to the extractor, a spring fixed to the front extension and arranged for temporary engagement with the ejector, and guide-springs fixed to the front extension and within the cavity therein and arranged to receive cartridges from the ejector and guide the same out of the cavity.

2. The combination of a frame having a front extension bored to receive barrels and formed with a cavity at the rear of the barrels, a breech-block hinged to the front extension and arranged to enter the cavity therein, impact-pins mounted for reciprocation in said breech-block in alinement with the barrels and spring-pressed in one direction, extractor and ejector mechanism fixed to the breech-block and firing mechanism located in the frame at the rear of the breech-block and arranged for contact with the impact-pins, together with leaf-springs 32, 33 located in the cavity at the rear of the breech-block and so shaped and arranged as to direct the cartridges from said cavity.

3. The combination of a frame having a front extension with a laterally-opening cavity, a breech-block shaped for insertion in said cavity and hinged to the front extension, impact-pins mounted for reciprocation in said breech-block, and extractor 19 located in front of the breech-block and pivoted conjunctively therewith which extractor is actuated by contact with the breech-block upon opening the same, an ejector mounted on the extractor, a spring 30 seated in the left-hand wall of the extension and frailly restraining the ejector pending the operation thereof, and leaf-springs mounted in the cavity of the extension and shaped and arranged to guide and direct cartridges from said cavity subsequent to the operation of the extractor and ejector.

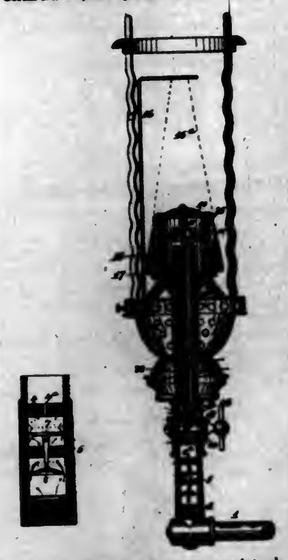
4. In a gun a pair of firing-pins one above the other, springs for establishing the firing function of said pins, ratchet-arms on said firing-pins, a sear engaging one of said ratchet-arms, a trigger for tripping said sear, a sear-nose engaging the other of said ratchet-arms and integral with a trigger for tripping the same, pins traversing the rear ends of the firing-pins and ratchet-arms, a vertically-sliding block in the frame, pivoted cams on said block arranged for engagement with the traversing pins in the upward movement of the block to move the firing-pins rearwardly and permit the engagement of the sear and sear-nose with the ratchet-arms, a handle pivoted to the stock and pivotal connections between the handle and the vertically-sliding block.

5. In a gun a firing-pin, a sear arranged for connection with said firing-pin at times, a trigger for tripping said sear, a guide-rod on said firing-pin, a safety locking-rod on said firing pin and a safety locking-pin arranged for manual operation to engage the locking-rod and restrain the firing function of the firing-pin.

6. In a gun a yoke apertured in its end portions and split from said apertures to the ends thereof, whereby a pair of cartridges may be connected and conjunctively inserted and ejected relative to a pair of gun-barrels.

7. In a gun a safety locking-pin mounted for travel in a slotted seat, a grooved head on said pin, a locking-rod arranged for reciprocation in said grooved head, a hook on said rod, a firing-pin connected with said rod, and a nut swiveled on said pin whereby said pin may be locked in a given position to engage the grooved head with said hook and restrain the firing-pin against premature operation.

608,219. GAS-BURNER. CHARLES A. HALL, New York, N. Y., assignor of one-half to George B. Dayton, same place. Filed Mar. 17, 1897. Serial No. 628,042. (No model.)



Claim.—1. The governor or pressure-regulator hereinbefore described, the same comprehending a tube having therein a diaphragm with a central valve-opening, a needle-valve working loosely in said opening with its pointed end toward the gas-supply and carrying at its lower end a concave-convex disk with the concavity facing toward the gas-supply and at its upper end a plane disk, and beyond said plane disk, beyond the range of movement thereof, a perforated diaphragm.

2. The combination with a burner of the character described, of a non-expansible exterior ring or jacket arranged and adapted to serve as a seat for the base of the incandescent mantle.

3. The combination of a burner, a luminous or incandescent mantle, and an exterior non-expansible ring or jacket on the burner, between the same and the base of the mantle.

4. The combination of a burner of the character described, a cone-shaped metal ring fitted thereon, a non-expansible jacket or covering on said ring extending to the top of the burner, and a luminous or incandescent mantle.

5. The combination with the burner, of a tapered or cone-shaped ring surrounding the same, and a non-expansible jacket or covering on said ring to form a base or support for an incandescent mantle.

608,220. ROAD GRADER. HORATIO K. LEHMAN, Mount Pleasant, Iowa. Filed Jan. 18, 1897. Serial No. 619,645. (No model.)

Claim.—1. In a road-grader, a truss, a circle-bar revolubly mounted in said truss, a scraper-blade carried by said circle-bar, a cross-bar mounted on said circle-bar and provided with a central angular aperture, a shaft journaled in the central portion of the truss and having an angular end portion engaging in the angular aperture of the cross-bar, a pinion on said shaft and a manually-operated worm engaging said pinion to oscillate the shaft, cross-bar, circle-bar and scraper-blade.



2. In a road-grader, the combination of a circle-bar, a lock therefor, a truss revolubly carrying said circle-bar, a shaft stepped in said truss, a cross-bar on the circle-bar engaged by said shaft, a pinion on said shaft, a worm horizontally positioned in the truss and engaging the pinion, a sleeve universally jointed to said worm, a shaft slidingly connected with said sleeve, a hand-wheel on said shaft and crank mechanism for oscillating the truss, as set forth.

608,221. APPARATUS FOR PURIFYING SEWAGE-WATER. JAMES B. MILLER, Reading, Pa. Filed July 10, 1897. Serial No. 644,102. (No model.)

Claim.—1. A water-purifying apparatus which is adapted for use in connection with a sewerage system, said apparatus consisting of a separating building or structure, and a filtering building or structure, said first-named structure being placed adjacent to a sewer, and being provided with separate compartments which are in communication with said sewer by means of pipes, said pipes being in connection with separating-troughs placed in said compartments below which is placed separating material, below which are formed slush-chambers, said separating structure being also provided adjacent to one side thereof, with a receiving-well, and also with a flush-well, said flush-well and said receiving-well being in communication with said slush-chambers; and said filtering structure being also provided with filtering-compartments, a conduit placed over said filtering-compartments and provided with pipes which discharge into each of said compartments, said filtering-compartments being also provided with filtering material in the bottom thereof, and said structure being provided with pure-water chambers beneath said filtering material, and means for pumping the water in said receiving-well adjacent to the separating structure into said conduit, substantially as shown and described.

2. A water-purifying apparatus which is adapted for use in connection with a sewerage system, said apparatus consisting of a separating building or structure, and a filtering building or structure, said first named structure being placed adjacent to a sewer, and being provided with separate compartments which are in communication with said sewer by means of pipes, said pipes being in connection with separating-troughs, placed in said sewer below which is placed separating material, below which are formed slush-chambers, said separating structure being also provided adjacent to one side thereof, with a receiving-well, and also with a flush-well, said flush-well and said receiving-well being in communication with said slush-chambers, and said filtering structure being also provided with filtering-compartments, a conduit placed over said filtering-compartments and provided with pipes which discharge into each of said compartments, said filtering-compartments being also provided with filtering material in the bottom thereof, and said structure being provided with pure-water chambers beneath said filtering material, and means for pumping the water in said receiving-well adjacent to the separating structure into said conduit, and devices in connection with said separating structure for pumping the water from the flush-well back into the separating-compartments, substantially as shown and described.

3. The herein-described water-purifying apparatus adapted for use in connection with a sewerage system, said apparatus consisting of two structures, namely a separating building or structure and a filtering building or structure, said separating structure being provided with separating-compartments below which are placed slush-chambers, said compartments being in communication with a sewer, and said filtering building or structure being provided with filtering-compartments above which is placed a conduit, and which is provided with distributing-pipes, and with fresh-water chambers beneath said filtering-compartments, and means for conveying the water from the slush-chambers in the separating structure into said conduit, substantially as shown and described.

4. The herein-described water-purifying apparatus adapted for use in connection with a sewerage system, said apparatus consisting of two structures namely a separating building or structure and a filtering building or structure, said separating structure being provided with separating-compartments below which are placed slush-chambers, said compartments being in communication with a sewer, and said filtering building or structure being provided with filtering-compartments above which is placed a conduit, which is provided with distributing-pipes, and with fresh-water chambers beneath said filtering-compartments, and means for conveying the water from the slush-chambers in the separating structure into said conduit, said separating structure being also provided with a well which is in communication with said slush-chambers, and means for pumping the water from said well back into said separating-compartments, substantially as shown and described.

5. In an apparatus for purifying sewage-water, a building or structure provided with a plurality of separate compartments, means for supplying sewer-water to each of said compartments, an inclined and perforated trough in each of said compartments to one end of which the sewer-water is delivered, separating material forming the floor of said compartments, and a slush-compartment beneath said separate compartments, substantially as set forth.

6. In an apparatus for purifying sewage-water, a building or structure provided with separating-compartments which are in communication with a sewer, by means of pipes, said compartments being also provided with trough-shaped separators with which said pipes communicate, and beneath which are placed separating material through which the water passes into slush-chambers, said separating material consisting of straw, corncobs, and wire-screening, substantially as shown and described.

7. In an apparatus for purifying sewage-water, a building or structure provided with separating-compartments which are in communication with a sewer, by means of pipes, said compartments being also provided with trough-shaped separators with which said pipes communicate, and beneath which are placed separating material through which the water passes, into the slush-chambers, said separating material consisting of straw, corncobs, and wire-screening, and said separating-compartments being also provided with means for removing said separating material, substantially as shown and described.

8. An apparatus for purifying sewage-water, consisting of a separating building or structure provided with separating-compartments below which are placed slush-water compartments, said separating-

compartments being provided with pipes which communicate with a sewer, and means for separating the coarser articles from the water, and another building or structure provided with filtering-chambers over which passes a conduit, and means for conveying the water from the slush-chambers of the separating structure into said conduit, said filtering-chambers being provided with means for filtering the water, substantially as shown and described.

9. In an apparatus for purifying water, a building or structure provided with separating devices whereby the bulky and coarser substances are removed from the water, and a filtering structure which is divided into separate filtering-chambers beneath which are pure-water chambers, said filtering-chambers being provided with filtering material in the bottom thereof, and with a conduit which extends longitudinally thereover, said conduit being provided with distributing-pipes which are perforated on their under sides, and said conduit being also in connection with devices for pumping the water from the separating-chambers thereinto, substantially as shown and described.

10. An apparatus for purifying sewage-water, adapted to be used in connection with a sewer, said apparatus consisting of two separate buildings or structures, the first of which is provided with means for separating the bulky and coarser substances from the water, and with filtering-compartments and means for filtering the water, and the second of which is provided with filtering-compartments, and devices whereby the water is conveyed from the first structure into the filtering-compartments of the second, substantially as shown and described.

11. An apparatus for purifying sewage-water, adapted to be used in connection with a sewer, said apparatus consisting of two separate buildings or structures, the first of which is provided with means for separating the bulky and coarser substances from the water, and with filtering-compartments and means for filtering the water, and the second of which is provided with filtering-compartments, and devices whereby the water is conveyed from the first structure into the filtering-compartments of the second, said devices for filtering the water consisting of thin layers of gravel and sand which are placed in the bottom of said filtering-compartments and below which are pure-water chambers which are in connection with water-pipes, substantially as shown and described.

12. An apparatus for purifying sewage-water, consisting of two buildings or structures one of which is placed adjacent to the sewer, and is provided with separating-compartments in which the bulky or coarser substances are separated from the water which passes into slush-chambers, a water-receiving well in communication with said slush-chambers, a flush-well in communication with said slush-chambers, and the other building or structure being provided with filtering-chambers, and means for conveying the water from said receiving-well into said filtering-chambers, substantially as shown and described.

13. An apparatus for purifying sewage-water, consisting of two buildings or structures one of which is placed adjacent to the sewer and is provided with separating compartments in which the bulky or coarser substances are separated from the water which passes into the slush-chambers, a water-receiving well in communication with said slush-chambers, a flush-well in communication with said slush-chambers, and the other building or structure being provided with filtering-chambers, and means for conveying the water from said receiving-well into said filtering-chambers, and devices for pumping the water in said flush-well back in said separating-compartments, substantially as shown and described.

14. An apparatus for purifying sewage-water, consisting of two separate buildings or structures, one of which is provided with means for separating the bulky or coarser articles from the water, and a receiving-well into which the water passes, the other building or structure being provided with filtering-compartments, and a conduit into which the water from said well is preferably conveyed, said conduit being provided with perforated distributing-pipes which open into said filtering-compartments, and said filtering-compartments being provided with filtering material, consisting of gravel and sand which is placed in the bottom thereof, and said last-named building or structure being provided with pure-water chambers beneath said filtering-compartments, and with means for conveying the water therefrom, said chambers being also provided with flush-pipes, substantially as shown and described.

603,222. HOSE-COUPLING. JOHN N. MCLEAN, New York, N. Y. Filed Jan. 4, 1897. Serial No. 617,900. (No model.)

Claim.—1. A coupling device for pipes, tubes, &c., consisting of a hollow body or shell having two elastic sockets for the reception of the ends of the members to be coupled, one of said sockets extending outward and the other inward into the chamber of the body.

2. A coupling device for pipes, tubes, &c., consisting of a hollow elastic body or shell having at one end and integrally therewith an outwardly-extending socket for the reception of the end of one of the members to be coupled, and at the opposite end an inwardly-extending socket or sleeve for the reception of the other member to be coupled, said inwardly-extending socket projecting into the chamber of the body, and having walls gradually diminishing in thickness toward the inner or free end.



3. A coupling for pipes, tubes, &c., consisting of an elastic hollow body or shell having integral sockets for the reception of the ends of the members to be coupled, one of said sockets extending outwardly from the body and the other inwardly into the chamber thereof, the walls of said inwardly-extending socket gradually diminishing in thickness toward the inner end.

603,223. STEAM-GENERATOR. ORIL D. ORVIS, St. Louis, Mo. Filed June 14, 1897. Serial No. 640,754. (No model.)



Claim.—1. In a steam-generator, the combination with a boiler and a pair of downdraft-furnaces spaced apart to form therebetween a flue, and a partition at the back of the furnaces and having an aperture in register with the said flue, of a bridge-wall back of the partition, water-tubes for the grate-bars of the furnaces and water-tubes forming parts of the adjacent side walls of the fire-boxes of the furnaces, both sets of such tubes extending backwardly to the bridge-wall, and service and return connection between such tubes and the boiler.

2. In a steam-generator, the combination with a boiler and a pair of downdraft-furnaces spaced apart to form therebetween a flue, and a partition at the back of the furnaces and having an aperture in register with the said flue, of a chambered bridge-wall back of the partition, water-tubes for the grate-bars of the furnaces and water-tubes forming parts of the adjacent side walls of the fire-boxes of the furnaces, both sets of such tubes extending backwardly to the bridge-wall and being in connection with the chamber thereof, a water-leg leading from the boiler to the chamber of the bridge-wall, and return connection between the forward end of the tubes and the boiler.

3. In a steam-generator, the combination with a boiler and the settings therefor including side walls and a transverse centrally-apertured partition, of a header back of the partition and constituting a bridge-wall, a header forming a part of the furnace-front, two sets of water-tubes connecting the headers and constituting grate-bars for a pair of downdraft fire-boxes, two sets of water-tubes connecting the headers and arranged in series leading from the plane of the grates toward the boiler and forming parts of the inner walls of the fire-boxes, such walls being spaced apart to form a flue registering with the aperture of the partition, and connection between the headers and the boiler.

4. In a steam-generator, the combination with a boiler and the settings therefor including side walls and a transverse centrally apertured partition, of a header back of the partition and constituting a bridge-wall, a header forming a part of the furnace-front, two sets of water-tubes connecting the headers and constituting grate-bars for a pair of downdraft fire-boxes, two sets of water-tubes connecting the headers and arranged in series leading from the plane of the grates toward the boiler and forming parts of the inner walls of the fire-boxes, such walls being spaced apart to form a flue registering with the aperture of the partition, a series of tubes connecting the headers and crossing the upper portions of the fire-boxes, and connection between the headers and the boiler.

5. In a downdraft-furnace, the combination with an upper set of water-tube grate-bars, of a lower set of water-tubes, the members of each set being vertically aligned, and mechanical connection between each of the lower tubes and the tube immediately above it, whereby the lower set aids in supporting the fuel.

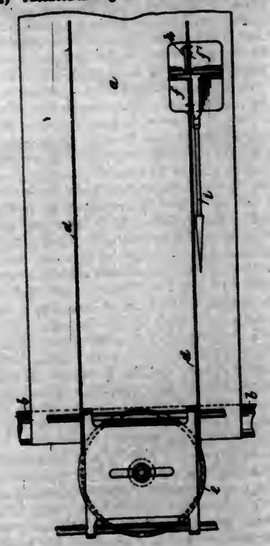
6. In a downdraft-furnace, the combination with an upper set of water-tube grate-bars, of a lower set of water-tubes, the members of each set being vertically aligned, masonry filling the interspace between the upper and lower members of each pair of tubes, whereby the lower set aids in supporting the fuel.

7. In a downdraft-furnace, the combination with an upper set of water-tube grate-bars, of a lower set of water-tubes, the members of each set being vertically aligned, the lower tubes being of less diameter than the upper tubes, and mechanical connection between each of the lower tubes and the tube immediately above it, whereby the lower set aids in supporting the fuel.

8. In a steam-generator, the combination with a pair of downdraft-furnaces spaced apart to form therebetween a flue-passage, and an updraft-furnace located below and intermediate of the downdraft-furnaces, of rotatable cylinders of refractory material at the sides of the updraft-furnace for receiving and delivering thereto material dropping from the downdraft-furnaces.

9. In a steam-generator, the combination with a boiler, and a furnace, of a bridge-wall combining a metallic chest, and an inverted arch of masonry resting upon such chest, and induction and eduction tubes connecting the chest with the boiler.

603,224. APPARATUS FOR CUTTING PILED FABRICS. JOHN PLATT, Warrington, England. Filed Nov. 10, 1897. Serial No. 658,093. (No model.) Patented in England Oct. 8, 1897, No. 23,063.

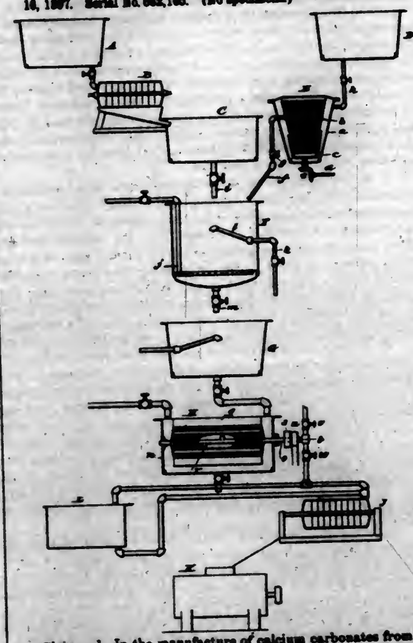


Claim.—1. The combination with a knife and guide, and means for actuating the same, of a frangible attachment to the actuating means, said frangible attachment being strong enough to actuate the knife when cutting under normal conditions, but weak enough to allow the knife to become detached when more than the normal resistance is encountered, substantially as and for the purposes herein-before set forth.

2. The combination with a knife and guide, knife-carriage, and means for reciprocating the same, of a frangible attachment connected at one end to the actuating means and at the other end to the traveling-knife carriage, substantially as and for the purposes herein-before set forth.

3. The combination with a traveling-knife carriage and means for actuating the same, of a frangible attachment connected at one end to the carriage and at the other end to the actuating means, substantially as and for the purposes hereinbefore set forth.

603,225. PROCESS OF PREPARING AMORPHOUS CARBONATE OF LIME FROM RESIDUES. HERMAN R. STURMER, Jamaica, N. Y., assignor to the Alkali Chemical Company, New York, N. Y. Filed Dec. 16, 1897. Serial No. 662,165. (No specimens.)



Claim.—1. In the manufacture of calcium carbonates from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in removing the insoluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, and in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, substantially as described.

2. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in removing the insoluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, and in subsequently drying said calcium carbonate, substantially as described.

3. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in subjecting the calcium oxid and alkali carbonate to the action of mechanical separators for removing the insoluble impurities therefrom, in causing these materials to react upon each other in the presence of water, and in then separating the calcium carbonate formed by

the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, substantially as described.

4. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in subjecting the calcium oxid and alkali carbonate to the action of mechanical separators for removing the insoluble impurities therefrom, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, and in subsequently dryiug said calcium carbonate, substantially as described.

5. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in filtering the alkali carbonate and in screening the calcium oxid for the removal of the soluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, and in subsequently drying said calcium carbonate, substantially as described.

6. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in removing the insoluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, and in subsequently subjecting the resulting calcium carbonate to the action of a mechanical separator, substantially as described.

7. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in removing the insoluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, in subsequently subjecting the resulting calcium carbonate to the action of a mechanical separator, and in finally drying the same, substantially as described.

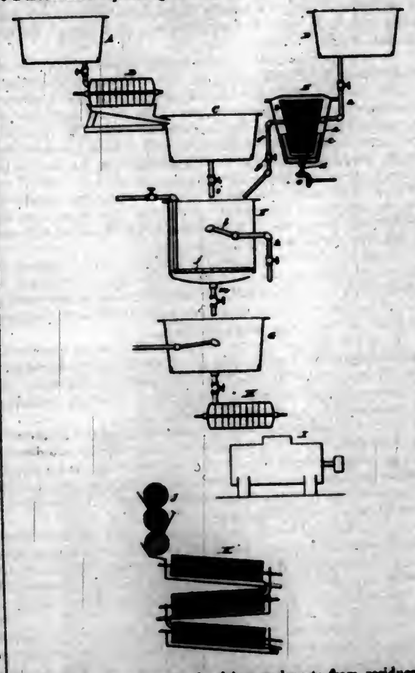
8. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in removing the insoluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, in mixing the resulting calcium carbonate with water, and finally in passing said mixture through a mechanical separating apparatus, substantially as described.

9. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in removing the insoluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, in mixing the resulting calcium carbonate with water, in passing said mixture through a mechanical separating apparatus, and finally in filtering the mixture, substantially as described.

10. In the manufacture of calcium carbonate from residues, the process of producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in removing the insoluble impurities from the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, in mixing the resulting calcium carbonate with water, in passing said mixture through a mechanical separating apparatus, in filtering the mixture, and finally in drying the filter-cake, substantially as described.

608,226. PROCESS OF PREPARING AMORPHOUS CARBONATE OF LIME FROM RESIDUUM. HERMAN R. STURGES, Jamaica, N. Y., assignor to the Alkali Chemical Company, New York, N. Y. Filed Dec. 16, 1897. Serial No. 662,169. (No specimens.)

Claim.—1. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in causing the calcium oxid and alkali carbonate to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, and in subjecting said dry powder to a mechanical separating action, substantially as set forth.



2. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in causing the calcium oxid and alkali carbonate to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, in drying the calcium carbonate, in reducing the dry calcium carbonate to powdered form, and in subjecting said dry powder to a mechanical separating action, substantially as set forth.

3. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in causing the calcium oxid and alkali carbonate to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali-hydrate solution, in mixing said calcium carbonate with water to dissolve the soluble impurities, including calcium hydrate, in passing the milk of calcium carbonate thus formed through a filter-press, thereby separating from the calcium carbonate the dissolved impurities, in drying the filter-cake, in grinding the dry cake, and in subjecting the powder thus obtained to a mechanical separating action, substantially as set forth.

4. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in causing the calcium oxid and alkali carbonate to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali-hydrate solution, in mixing said calcium carbonate with water to dissolve the soluble impurities, including calcium hydrate, in passing the milk of calcium carbonate thus formed through a filter-press, thereby separating from the calcium carbonate the dissolved impurities, in drying the filter-cake, in grinding the dry cake, and in subjecting the powder thus obtained to a mechanical separating action, substantially as set forth.

5. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in purifying the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, in drying the calcium carbonate, in reducing the dry calcium carbonate to powdered form, and in subjecting said dry powder to a mechanical separating action, substantially as set forth.

6. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in purifying the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali hydrate and practically from all soluble impurities, including calcium hydrate, in drying the calcium carbonate, in reducing the dry calcium carbonate to powdered form, and in bolting said dry powder, substantially as set forth.

7. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in purifying the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali-hydrate solution, in mixing said calcium carbonate with water to dissolve the soluble impurities, including calcium hydrate, in passing the milk of calcium carbonate thus formed through a filter-press, thereby separating from the calcium carbonate the dissolved impurities, in drying the filter-cake, in grinding the dry cake, and in bolting the fine powder thus obtained, substantially as set forth.

8. In the manufacture of calcium carbonate from residues, the process for producing from calcium oxid and alkali carbonate a pure amorphous and extremely-divided calcium carbonate, which consists in purifying the calcium oxid and alkali carbonate, in causing these materials to react upon each other in the presence of water, in then separating the calcium carbonate formed by the reaction from the alkali-hydrate solution, in mixing said calcium carbonate with water to dissolve the soluble impurities, including calcium hydrate, in passing the milk of calcium carbonate thus formed through a filter-press, thereby separating from the calcium carbonate the dissolved impurities, in drying the filter-cake, in grinding the dry cake, and in bolting the fine powder thus obtained, substantially as set forth.

608,227. ICE-CREAM FREEZER. JOHN A. R. ARMSTRONG, Indianapolis, Ind., assignor, by direct and mesne assignments, of two-thirds to William L. Higgins and Theodore O. Collis, same place. Filed May 25, 1897. Serial No. 637,995. (No model.)

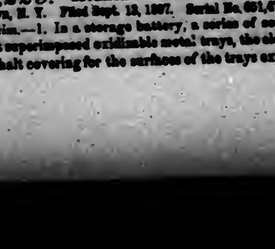
Claim.—1. The combination, in an ice-cream freezer, of a spindle having a shoulder, an outer receptacle or tank for the freezing mixture, an inner can or receptacle for the material to be frozen having a sleeve-like extension which passes through the bottom of the tank and is adapted to rest against the shoulder on the spindle and an overlapping upper edge adapted to engage with the upper edge of the outer casing, and a nut adapted to be placed on the sleeve-like extension outside the bottom of the tank and thus draw the parts tightly together, substantially as shown and described.

2. The combination, in an ice-cream freezer, of the tank forming the receptacle for the freezing mixture, the inner can for containing the material to be frozen formed with a sleeve-like extension which extends through the bottom of said tank to the outside and is secured thereto, a spindle mounted on a suitable base and passing through said sleeve-like extension to the interior, the sleeve E secured to the interior of said can at its bottom and surrounding said spindle for the greater portion of its length, the sleeve E^2 secured to the upper end of said spindle beyond the end of said sleeve E, which it surrounds, and scrapers secured to said sleeve E^2, the several parts being arranged and operating substantially as set forth.

3. The combination in an ice-cream freezer, of the base, the outer tank, the inner can, said tank and can being secured together and mounted to revolve on a spindle secured on said base and extending through the bottom of the structure into said can, a sleeve secured to the bottom of said can and surrounding said spindle for a greater portion of its length, another sleeve secured to the top of said spindle and extending down over said first sleeve, spring-arms and scrapers being secured to said outside sleeve and carried thereby, substantially as set forth.

4. The combination, in an ice-cream freezer, of a spindle carried by a suitable base, a revolving structure mounted thereon consisting of an outer tank or receptacle for the freezing mixture, an inner can or receptacle for the mixture to be frozen, an internal spring-mounted mechanism for removing the film of ice from the interior of the can, consisting of a sleeve mounted on said spindle, wings and scrapers, said sleeve having a slit across its upper end, and said spindle having a perforation therethrough which registers with said slit, and a pin adapted to be inserted in said perforation and engage with said slit and thus hold the said parts in the desired relation to each other, which relation may be changed from an operative to a non-operative position, substantially as shown and described.

608,228. NAIL-PULLING ATTACHMENT FOR CLAW-HAMMERS. SILAS R. ASHLEY, Centralia, Mo., assignor of one-half to Edward J. Schmidt, same place. Filed Dec. 11, 1897. Serial No. 661,493. (No model.)



Claim.—1. A bifurcated nail-pulling attachment for claw-hammers, provided near its front end with downwardly-disposed shoulders 10, and below the same with a cross-bar 7, said shoulders and cross-bar providing between them a recess or opening adapted to snugly receive the claw portion of the hammer, substantially as described.

2. A bifurcated arched nail-pulling attachment for claw-hammers, provided near its front end with downwardly-disposed shoulders 10, and below the same with a cross-bar 7, and at its rear end with downwardly-disposed shoulders to bear upon the head of the hammer, substantially as described.

3. A bifurcated arched nail-pulling attachment for claw-hammers, provided near its front end with downwardly-disposed shoulders 10, and below the same with a cross-bar 7, and at its rear end with depending arms to embrace the sides of the hammer-head, and shoulders upon said arms, to bear upon said hammer-head, substantially as described.

4. A bifurcated arched nail-pulling attachment for claw-hammers, provided near its front end with downwardly-disposed shoulders 10, and below the same with a cross-bar 7, and at its rear end with depending arms to embrace the sides of the hammer-head, shoulders upon said arms to bear upon said hammer-head, and a device for clamping said arms firmly against the opposite sides of the hammer, substantially as described.

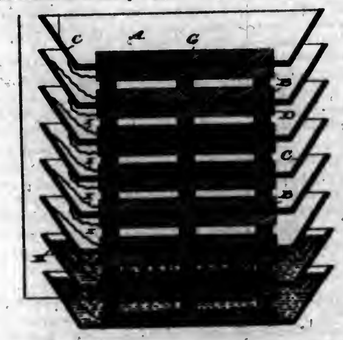
5. A nail-pulling attachment for claw-hammers, comprising a bifurcated arched portion having near its front end side arms adapted to embrace the shank of the hammer, and shoulders to bear upon the claw thereof; said arms being connected by a cross-bar adapted to fit in the crotch at the junction of the hammer claw and shank, substantially as described.

6. A nail-pulling attachment for claw-hammers, comprising a bifurcated arched portion having at its front end downwardly-disposed shoulders to bear upon the curved surface of a hammer-claw, depending side arms connected by a cross-bar below said shoulders so as to form a recess or opening to receive the hammer-claw, rearwardly-disposed arms formed integral with the first-named arms and adapted to embrace the sides of the hammer-shank, and provided with shoulders which bear against the front edge of said hammer-shank; said arched portion being provided also with depending arms which embrace the hammer-head, substantially as described.

608,229. STORAGE BATTERY. EDWARD A. BARBER, Watertown, N. Y. Filed Sept. 13, 1897. Serial No. 651,474. (No model.)

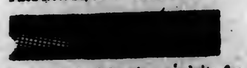
Claim.—1. In a storage battery, a series of separate and independent superimposed oxidizable metal trays, the electrolyte therein, the asphalt covering for the surfaces of the trays exposed to the elec-

trolyte, to prevent the trays from becoming gradually oxidized and destroyed, the positive and negative plates and the electrical connections between each of said plates, substantially as set forth.



2. In a storage battery, the series of superimposed metallic trays, the asphalt coverings for said trays as described, the independent positive plates resting on the bottom of the said trays, insulators across the positive plates, negative plates resting on the said insulators, combined with the independent metallic connection between each of the said plates and the side of the adjacent tray, which connections are wholly immersed in the electrolyte.

603,280. LINING FOR INTERIOR CONDUITS. SIGMUND BERGMANN, New York, N. Y., assignor to the Sprague Electric Company, same place. Filed Nov. 24, 1896. Serial No. 613,241. (No model.)

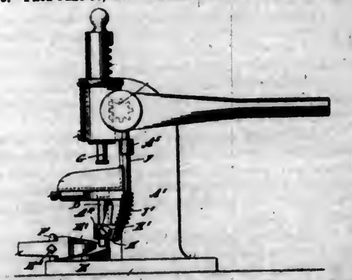


Claim.—1. The method of forming conduits for electric wires which consists in treating a tube made from an absorbent vegetable fiber in a bath of fireproof material, than treating it in a bath of drying-oil, and finally drying the tube so treated, substantially as described.

2. In a conduit for electric wires, a tube made from an absorbent vegetable fiber, a fireproofing material and a drying-oil in the pores of said fabric, substantially as described.

3. In a conduit for electric wires, a seamless tube made from an absorbent vegetable fiber in combination with tangstate of soda and a drying-oil in the pores thereof, substantially as described.

603,281. TABLET-MACHINE. JAMES CORNELIUS, Ridgewood, N. J. Filed June 30, 1897. Serial No. 642,973. (No model.)



Claim.—1. A tablet-machine comprising a die, an anvil adapted to pass into the said die, means for raising and lowering the said anvil to move the latter into the die and permit the same to pass out of the die, a plunger adapted to pass into and out of the die, to press the material therein into a tablet and to force the latter with the anvil out of the die for discharging the finished tablet, and a device for removing the tablet from the anvil on the receding of the said plunger from the die, substantially as shown and described.

2. A tablet-machine, comprising a die, an anvil adapted to pass into said die, means for raising and lowering the anvil, a reciprocating plunger for pressing the material in the die to form a tablet and force the latter with the anvil out of the die, and a swinging arm controlled by the plunger-operating means for removing the tablet from the end of the anvil, substantially as described.

3. A tablet-machine comprising a die, an anvil adapted to pass into the said die, means for raising and lowering the said anvil to move the latter into the die and permit the same to pass out of the die, a plunger adapted to pass into and out of the die, to press the material therein into a tablet and to force the latter with the anvil out of the die for discharging the finished tablet, and a device for removing the tablet from the anvil and controlled from the means for operating the said plunger, substantially as shown and described.

4. A tablet-machine provided with a die, an anvil adapted to pass into and out of the said die, and a manually-operated cam for controlling the movement of the said anvil, substantially as shown and described.

5. A tablet-machine provided with a manually-operated cam mounted to turn and formed with a spiral cam-surface, substantially as shown and described.

6. A tablet-machine provided with a cam mounted to be turned and formed with a spiral cam-surface, and adjustable means for limiting the turning motion of the said cam, as set forth.

7. A tablet-machine provided with a die, an anvil adapted to pass into and out of the said die, and a cam mounted below the anvil and having its axis eccentric to the axis of the said anvil, the said cam having a spiral face engaged by the end of the said anvil, substantially as shown and described.

8. A tablet-machine provided with a die, an anvil adapted to pass into and out of the said die, a cam mounted to be turned and having its axis eccentric to the axis of the said anvil, the said cam having a spiral face engaged by the said anvil, and an adjustable stop-pin for limiting the turning motion of the said cam, substantially as shown and described.

9. A tablet-machine comprising a die, a slidable plunger for the said die, an anvil adapted to pass into and form a bottom for the said die, and a cam mounted to be turned and engaging the said anvil to regulate the thickness of the tablet to be formed in the die, substantially as shown and described.

10. A tablet-machine provided with an arm mounted to swing for discharging the formed tablet from the machine, a spring-pressed rod connected with the said arm, and a cam for pressing the said rod to impart a swinging motion to the same in one direction, the return movement of the arm being accomplished by the spring of the arm, substantially as shown and described.

11. A tablet-machine provided with a slidable anvil, means for raising and lowering the said anvil, and a swinging arm adapted to swing over the same on lowering the anvil below the said arm, substantially as shown and described.

12. A tablet-machine, provided with an anvil, a bearing in which the anvil is fitted to slide, and a friction device for holding the anvil in place in the bearing, substantially as shown and described.

13. In a tablet-machine, the combination with a die, a plunger, means for operating the plunger, and a reciprocating anvil, of a swinging and spring-actuated arm controlled by the plunger-operating means for removing the tablet from the anvil, substantially as described.

14. In a tablet-machine, the combination with a die, a plunger, a plunger-operating lever having a cam-surface, and a reciprocating anvil, of a sliding and spring-pressed rod having one end engaging the said cam-surface, a bell-crank lever to one member of which the said rod is connected, and a pusher-arm secured to the other member of the bell-crank lever, substantially as described.

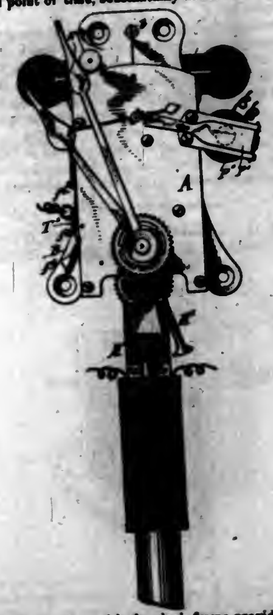
603,282. ELECTRIC CLOCK. SIGMUND FREUND, New York, N. Y. Filed June 28, 1897. Serial No. 642,806. (No model.)

Claim.—1. The combination, with the minute-hand arbor, of a synchronizing electromagnet, and an arm extending radially from the said arbor and provided at its outer end with an armature, adapted to be attracted by said magnet for moving the minute-hand forward or backward to a given point of time so as to synchronize with a master or other clock, substantially as set forth.

2. The combination, with the minute-hand arbor, provided with a minute-hand, of a synchronizing electromagnet, and an armature applied to the said arbor diametrically in line with the said minute-hand and acting as a counterpoise, said electromagnet being arranged in the circle described by the armature, substantially as set forth.

3. The combination, with the arbor of the minute-hand, of a synchronizing electromagnet located adjacent to the same, an armature extending radially from said arbor, and means for adjusting said armature longitudinally to and from the arbor and toward the pole of the electromagnet, said magnet and armature cooperating to produce the forward or backward motion of the minute-hand and the synchronizing of the same with a master or other clock, substantially as set forth.

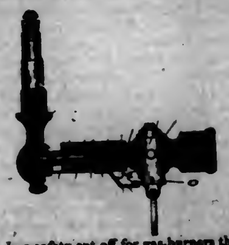
4. The combination, with the arbor of the minute-hand, of a synchronizing electromagnet located adjacent to the same, an arm extending radially from the said arbor, means for adjusting the arm around the arbor, an armature, and means for connecting the armature with said arm and longitudinally adjusting the said armature toward the pole of the electromagnet, said magnet and armature producing the forward or backward movement of the minute-hand to the desired point of time, substantially as set forth.



5. The combination, with the clock-frame provided with a supporting-bracket, of a synchronizing electromagnet attached to the bracket, a plate forming the outer clamping part of the bracket, and provided with bearings for the intermediate transmitting mechanism of the hour-hand, said bracket and plate providing a space between them, and an armature attached to the arbor of the minute-hand and adapted to move through said space, substantially as set forth.

6. The combination, with the seconds-hand arbor, provided with a friction-thimble having a tubular cam portion with converging cam-faces on its end, whereby the cam portion is formed with a point and with a notch on its opposite side, and means for applying said thimble to the seconds-hand arbor, of a synchronizing electromagnet, and an armature provided with means for engaging the cam-faces of said friction-thimble, substantially as set forth.

603,283. SAFETY CUT-OFF FOR GAS-COCKS. PHILIP C. PARDWELL, Toronto, Canada, assignor of two-fifths to George H. Locke and George Hambly, same place. Filed Apr. 24, 1897. Serial No. 633,796. (No model.)



Claim.—1. In a safety cut-off for gas-burners the combination of the main valve, a valve-case for the main valve, a cylinder connected to the valve-case, the burner, a piston connected to the burner working within the cylinder, a head for the piston, a valve-seat within the cylinder adapted to be engaged by the piston-head, means for holding the piston-head away from the valve-seat when the main valve is open, and means to move the piston-head against the valve-seat to close the passage to the burner when the main valve is closed, substantially as specified.

2. A safety cut-off for gas-burners consisting of a main valve, the burner, a cylindrical passage from the main valve to the burner, a spring-operated piston-valve to close the cylindrical passage after the main valve has been turned sufficiently to extinguish the light, substantially as specified.

3. In a safety cut-off for gas-burners the combination of the main valve, the burner, a passage from the main valve to the burner, a spring-operated piston-valve within the passage, a latch connected to the piston-valve, and a keeper connected to the main valve to engage the latch when the main valve is open, and to release the latch when the main valve is closed, substantially as specified.

4. In a safety cut-off for gas-burners, the combination of the main valve, a cylinder connected to the main valve, a valve-seat within the cylinder, the burner, a piston-valve to engage the valve-seat, and a hollow piston-rod connected to the piston-valve and burner, substantially as specified.

5. In a safety cut-off for gas-burners, the combination of the main valve, a cylinder connected to the main valve, a valve-seat within the cylinder, the burner, a piston-valve to engage the valve-seat, a hollow piston-rod connected to the piston-valve and burner, a guide-rod connected to the burner, a guide embracing the cylinder and guide-rod, a spring-latch connected to the guide-rod, and a catch connected to the main-valve plug, adapted to engage the latch, substantially as specified.

6. In a safety cut-off for gas-burners the combination of the main valve, the burner, a passage from the main valve to the burner, a spring-operated piston-valve within the passage, a latch connected to the piston-valve, a keeper connected to the main valve to engage the latch when the main valve is open, and to release the latch when the main valve is closed, and means for automatically moving the piston-valve to close the passage to the burner when the main valve is closed, substantially as specified.

603,284. CHECK-HOOK. FRED J. FROST, THEODOR SOURER, and CHARLES W. COOLIDGE, Grundy Centre, Iowa. Filed Mar. 16, 1897. Serial No. 627,870. (No model.)



Claim.—The combination of two sections forming respectively a checkrein-hook, and a terret, the sections being adapted for connection at right angles with each other and each section having an eye, one eye having an opening leading outward from the eye to permit the entrance and the removal of the other section, the sections further having respectively at the said opening in one section and at the coacting point of the other section, a mating rib and groove ranging in a direction outward from the eye, the rib and groove ranging in a direction outward from the eye of the opposite member and at respectively parallel with the eye of the opposite member and at right angles to the eye in conjunction with which it is formed, the grooved and ribbed formations thus offering obstructions to each other until the members are moved twice at right angles.

603,285. NON-REFILLABLE BOTTLE. GEORGE HIGHFIELD, Scranton, Pa. Filed Aug. 26, 1896. Serial No. 604,080. (No model.)

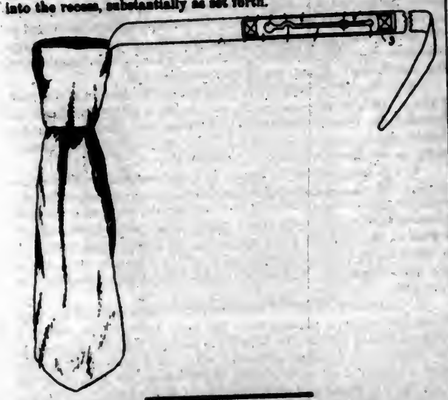


Claim.—In an antirefilling bottle, the combination with a bottle proper having a groove with annular beads formed in its neck, of a stopper comprising a sleeve having an annular flange at the upper end, annular beads upon its outer surface and a valve-seat, a cork packing applied over said sleeve and the beads formed thereon and adapted to be seated in the beaded groove of the neck, a valve mounted in said valve-seat, a ball stop suspended from said valve and an apertured protecting-cap for the upper end of said sleeve, substantially as described.

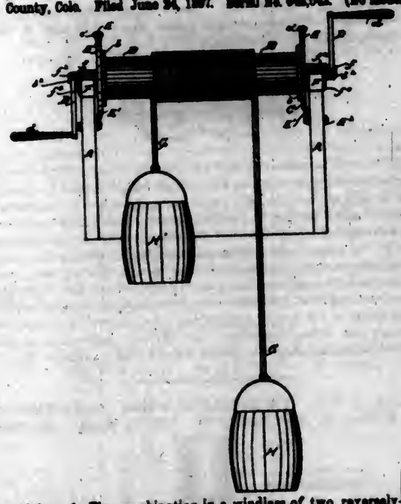
603,286. NECKTIE-FASTENER. ISAAC H. MALLIN, Chicago, Ill. Filed Sept. 27, 1895. Serial No. 563,590. (No model.)

Claim.—As a new article of manufacture, a necktie-fastener com-

prising a plate having a longitudinal parallel-sided slot formed therein, one end of the slot being provided with an enlarged opening, and one wall of the slot adjacent to the opening being provided with a recess and the opposite wall being provided with a stop projecting into the recess, substantially as set forth.



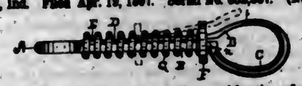
603,287. WINDLASS. CHESTER A. MORRISON and JOHN MORAN, Manitou, Colo.; said Moran assignor to, and said Morrison assignor of part to, Laura B. Morrison, same place, and William Whalen, El Paso County, Colo. Filed June 24, 1897. Serial No. 642,042. (No model.)



Claim.—1. The combination in a windlass of two reversely-set ratchets, and two pawls having the lips *e*, *e*, at their ends which engage the teeth, the joints *d* near the centers, and the eyes E^3 at their base ends, substantially as described and for the purpose set forth.

2. The combination in a windlass of two deeply-recessed, countersunk bases F, two caps *f* and bolts f^1, with the drum-shafts b^2 to which they are permanently attached, and adapted to slip over and rest loosely on the ends of the supporting standards A, substantially as described and for the purpose set forth.

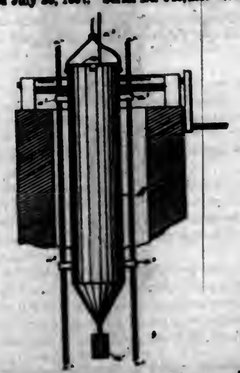
603,288. HAND SNAP-HOOK. JOHN NUERNBERGER, Jr., near Atherton, Ind. Filed Apr. 19, 1897. Serial No. 632,827. (No model.)



Claim.—1. In a hand snap-hook, the combination of a hook consisting of a loop A, a shank B, having shoulders *n*, and a hook C, with a spring-steel tongue D, riveted to said shank B, near the loop A, said tongue being adapted to spring outwardly when released; a flat sliding ring F, having a central opening *c*, to receive the shank B and tongue D; a coil-spring G, surrounding said shank B and tongue D, having its bearing at one end against the shoulders *h* of the loop A, and at the other end against the inner face of the flat ring F, thereby pressing said ring against the shoulders *n*, of the shank B, and normally securing the tongue D against the end *i*, of the hook C, all as shown and described.

2. In combination in a hand snap-hook of the class described, the hook consisting of the strap-eye A, the shank B, having the shoulders *n*, on each side at its front end, the hook C, having the free end *i*; the flat ring F, adapted to surround and slide upon the shank B, and tongue D, and in its forward position to normally lock said tongue; the outwardly-opening spring-steel tongue D, secured to the shank B, by the rivet E; and the coil-spring G, surrounding said shank B, and tongue D, and normally pressing said ring F, against the shoulders *n*, on said shank, thereby securing the free end of the tongue D, against the end *i*, of the hook C, as set forth.

608,289. COOLING VESSEL. HOMER J. REYNOLDS, Corning, Iowa. Filed July 20, 1897. Serial No. 645,495. (No model.)



Claim.—An oblong cylinder of good heat-conducting material, made water-tight, weighted at the lower end and having a hinged or removable cover at the upper end attached to rods to keep the same perpendicular, and containing a second cylinder open at the side with shelves, the whole adapted to be used in the manner and for the purpose set forth.

608,240. STORING-PACKAGE FOR LIQUIDS. JAMES TOMLINSON, Detroit, Mich., assignor to Elizabeth Tomlinson and William C. Duffus, same place. Filed Feb. 27, 1897. Serial No. 625,903. (No model.)



Claim.—In a package for liquids, in combination with a wooden foundation of veneer wound in coils, a metal jacket wound in a coil around said foundation, having the inner end engaged under the overlapping end of the wooden coil, and the outer end overlapping the wooden overlap, substantially as described.

608,241. RUNNING-GEAR. JOHN H. VAN SCHUYVER and GEORGE H. DOW, Salt Lake City, Utah. Filed June 12, 1897. Serial No. 640,543. (No model.)

Claim.—1. The combination with the front and rear bolsters and axles, and the reach, of draft-rods extending from the front end of the reach along its sides to and connected with the rear bolster the front ends of the rods being connected by a cross-bar, and the tongue pivoted to the front bounds and having a clevis at its rear end having a cross-piece engaging said cross-bar; substantially as described.



2. The combination with the front and rear bolsters and axles and the reach, of draft-rods extending from the front end of the reach along its sides and connected to the rear bolster, a curved cross-bar connecting the front ends of said rods, and the tongue pivoted to the front bounds and having a clevis on its rear extremity provided with a curved block engaging said cross-bar; substantially as described.

3. The combination with the reach and front and rear bolsters, the latter being adjustable, of rods extending alongside the reach from its front end and provided with adjustable blocks, engaging the rear side of the rear bolster, the front ends of said rods being connected by a cross-bar and the pivoted tongue having a clevis at its rear extremity engaging said cross-bar; substantially as described.

4. The combination with the reach, the front axle and bolster, and the adjustable rear axle and bolster, of the rods provided at the front end of the reach with a curved cross-bar and extending rearwardly through and beyond the rear bolster and there provided with recesses or notches, adjustable blocks on the rods and provided with keys to engage said recesses, and the pivoted tongue connected with the said curved cross-bar; substantially as described.

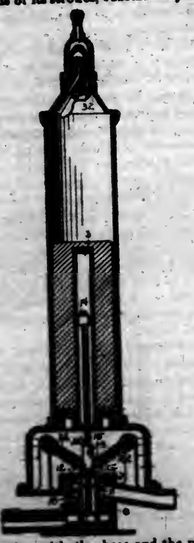
5. The combination with the running-gear and the draft-rods extending from the rear bolster to the front end of the reach and there connected by a curved cross-bar, of the tongue pivoted to the front hounds and provided at its rear end with a clevis containing a curved block engaging said curved cross-bar, the upper and lower clevis-straps extending along the tongue to the doubletree-bolt which passes through them, and a second bolt passing through the clevis-straps and tongue in rear of the doubletree-bolt; substantially as described.

6. The combination with the wagon running-gear, and the draft-rods extending from end to end of the reach and connected in front thereof by a curved bar, a cross-plate connecting said rods at the rear end of the reach, a plate at the rear side of the rear bolster and provided with an opening for the reach and notches for the rods, blocks on the rods, yielding washers on the rods between the plate and blocks, of the tongue connected with the front hounds and the front end of the draft-rods; substantially as described.

7. The combination with the wagon running-gear reach which has longitudinal side grooves, sleeves on the reach, and the draft-rods extending along said grooves and through the sleeves, the front ends of the rods being connected by a cross-bar and their rear ends being connected to the rear bolsters, of the pivoted tongue having a draft-connecting also with the front ends of said draft-rods; substantially as described.

603,242. HYDRAULIC AIR-COMPRESSING PUMP. EDWARD H. WEATHERHEAD, Cleveland, Ohio. Filed Apr. 11, 1896. Serial No. 587,091. (No model.)

Claim.—1. The combination with the base having inlet and outlet ports, the air-compressing chamber and the piston in said chamber, in combination with a combined inlet and outlet valve constructed to open one of said ports at a time and at the same time to close the other port, and mechanism between said piston and valve to actuate the valve, said mechanism comprising a rod loosely connected with said valve and piston, respectively, and spring-actuated mechanism located in the said base and engaging said rod to facilitate the action of the valve at the ends of its strokes, substantially as described.

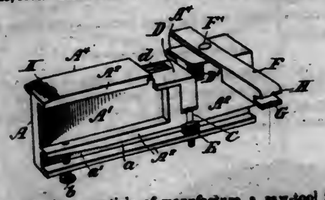


2. The combination with the base and the piston-cylinder and the piston therein, of valve mechanism in the base to control the flow of fluid to and from the pump, a rod connecting said valve mechanism and piston, spring-pressed rods pivotally connected to said rod and supports in which said spring-pressed rods are adapted to slide, substantially as described.

3. The casing having a fluid-pressure chamber and inlet and exhaust ports on different horizontal planes, and a perforated hollow valve between said ports and chamber, in combination with the piston, the valve-actuating rod entering said piston and said valve, and the spring-pressed rods connected with said rod above the valve, the said valve having packing about its side above and below the inlet-port and constructed to seat on the bottom of the base, substantially as described.

REISSUES.

11,661. SAW-TOOL. RICHARD BENNETT, Newark, N. J., assignor to the Bennett Combination Saw-Tool Company, of New York. Filed Feb. 26, 1898. Serial No. 671,712. Original No. 580,963, dated Oct. 27, 1896.



Claim.—1. As an article of manufacture, a saw-tool for side-dressing, comprising a suitable stock having one side or face thereof provided with an even bearing-surface, and with a recess in said face longitudinally graduated in depth, and a file adjustable in said recess and correspondingly tapered so as to have its outer face always parallel with the said bearing-surface of the stock, and means for holding the file in place, substantially as set forth.

2. As an article of manufacture, a saw-tool adapted for use in cutting down the raker-teeth of a saw, comprising a suitable stock, and an adjustable gage supported by the stock and having a slot

open at one end to receive a raker-tooth to be cut down, substantially as set forth.

3. As an article of manufacture, a saw-tool adapted for use in setting the cutting-teeth and cutting down the raker-teeth of a saw, comprising a suitable stock provided with a flange along one edge and having a recess therein, an adjustable raker-tooth gage working in said recess, a setting member movably secured to the flanged edge of the stock and having one of its ends provided with a setting-slot and normally resting in said recess above the said gage, the face of said flanged edge serving as an even bearing-surface for the side of the saw when the setting member is in use, and the lower side of said flange serving as an even bearing-surface for the points of the teeth when the gage is in use, substantially as set forth.

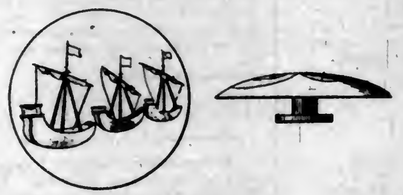
4. As an article of manufacture, a saw-tool comprising a stock or body portion having the even faces A^2, A^3, the face A^2 being provided with a recess or depression longitudinally graduated in depth, in which a tapering file may be adjustably seated for side-dressing saw-teeth and means for adjustably securing the file in said recess; said face having an independent and narrow recess *a*, within which the file may be held in position edgewise and sprung or bent for convenient use in jointing saw-teeth, a raker tooth gage vertically adjustable in the recess *D'* in the stock, the flange A^4, and the setting member F, combined and related, substantially as set forth.

5. As an article of manufacture, a saw-tool comprising a stock having the flat even sides A^2 and A^3, and flange A^4 extending from the flat even upper edge of the stock, the face A^2 having the recesses A' and *a* constructed as described, the tapering file, the recess D', gage D having the open slot *d*, and setting member F having slot G, substantially as set forth.

6. The herein-described combination-tool, the same comprising a stock or body portion having one of its faces provided with a tapering or graduated recess or depression A' within which a file may be adjustably seated, a set-screw for adjusting and securing the file in said recess, an independent narrow and tapering recess *a* within which the file is adjusted and held in position for convenient use in jointing saw-teeth, a raker-tooth gage D vertically adjustable within a recess in the stock as described, means for vertically adjusting the gage-block, and the swinging setting member F, pivoted at a point adjacent to one of its ends to the stock, and having its opposite end notched as described, substantially as described and for the purpose specified.

DESIGNS.

28,502. BADGE OR BUTTON. JOHN H. H. MCNAMEE, Cambridge, Mass. Filed Mar. 6, 1897. Serial No. 626,295. Term of patent 14 years.



Claim.—A design for a badge or button, substantially as shown and described.

28,503. BACK FOR BRUSHES OR SIMILAR ARTICLES. LOUIS W. PFEIFER, Attleborough, Mass., assignor to the James E. Blake & Company, same place. Filed Mar. 12, 1898. Serial No. 673,665. Term of patent 7 years.



Claim.—The design for the back of a brush or similar article, herein shown and described.

28,504. BORDER FOR SILVERWARE. PIERRE JOSEPH CRIBOU, New York, N. Y., assignor to Ferdinand Fuchs, Henry Fuchs, and Frederick Fuchs, Jersey City, N. J. Filed Dec. 8, 1897. Serial No. 661,307. Term of patent 3½ years.



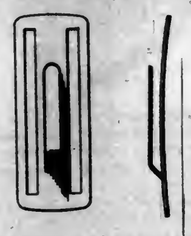
Claim.—The design for a border for silverware and similar articles substantially as herein shown and described.

28,505. BUCKLE. HOWARD C. HOSLE, New Britain, Conn. Filed Feb. 24, 1898. Serial No. 671,538. Term of patent 7 years.



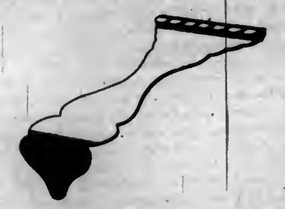
Claim.—The design for a buckle herein shown and described.

28,506. SKIRT-SUPPORTER. JOSEPH A. LEVISON, New York, N. Y. Filed Feb. 16, 1898. Serial No. 670,860. Term of patent 3½ years.



Claim.—The design for a skirt-supporter, herein shown and described.

28,507. TAILPIECE FOR STRINGED INSTRUMENTS. ELEANOR D. SOU, Utica, N. Y. Filed Feb 21, 1898. Serial No. 671,202. Term of patent 7 years.



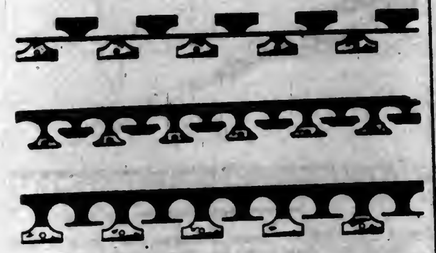
Claim.—The design for a tailpiece for stringed instruments, substantially as herein shown and described.

28,508. DOOR-BUTTON. WALTER LIPPINCOTT, Philadelphia, Pa. Filed Feb. 24, 1898. Serial No. 671,536. Term of patent 7 years.



Claim.—The design for a door-button substantially as herein shown and described.

28,509. CORNER-PROTECTOR STRIP. ROBERT E. DANIELS, Youngstown, Ohio. Filed Apr. 5, 1897. Serial No. 630,976. Term of patent 14 years.



Claim.—The design for a corner-protector strip for walls, herein shown and described.

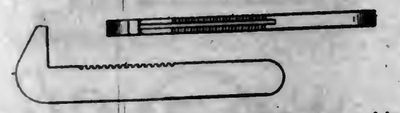
28,510. WITHDRAWN.

28,511. WASHER. FREDERICK W. HUMBERGER, Milwaukee, Wis. Filed Oct. 27, 1897. Serial No. 656,564. Term of patent 3½ years.



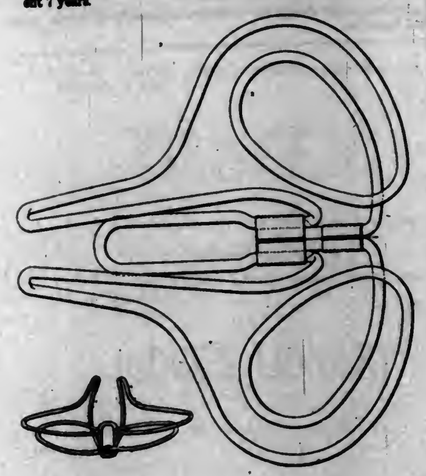
Claim.—The design for a washer, as herein shown and described.

28,512. WRENCH-FRAME. ROBERT CORBIN BLEECH, Southington, Conn., assignor to The Peck, Stow & Wilcox Company, same place. Filed Dec. 23, 1896. Serial No. 616,816. Term of patent 7 years.

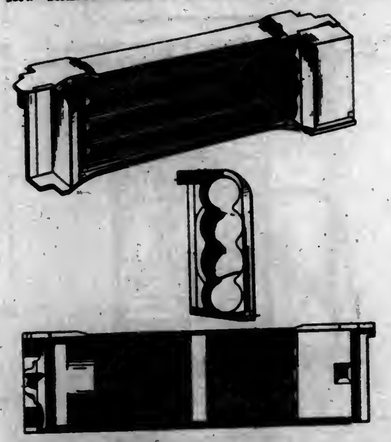


Claim.—The design for a wrench-frame herein shown and described.

28,513. BICYCLE-SADDLE SPRING. GEORGE PARKER HOLDEN, Kingston, N. Y. Filed Nov. 13, 1897. Serial No. 658,498. Term of patent 7 years.

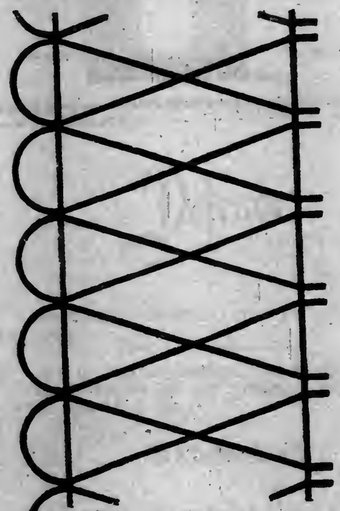


28,514. WATER-FRONT FRAME. ROBERT HARTLEY, Rochester, N. Y., assignor to the Sill Stove Works, same place. Filed Aug. 23, 1897. Serial No. 649,260. Term of patent 14 years.



Claim.—The design for a water-front frame, substantially as shown and described.

28,515. PATTERN FOR WIRE FENCING. DAVID M. KITSELMAN, Ridgeville, Ind. Filed Jan. 26, 1898. Serial No. 668,078. Term of patent 7 years.



Claim.—The design for a pattern for wire fencing, herein shown and described.

28,516. TEXTILE FABRIC. ISAAC H. GOODMAN, Philadelphia, Pa. Filed Feb. 4, 1898. Serial No. 669,153. Term of patent 3½ years.



Claim.—The design for a textile fabric, substantially as described and as shown in the accompanying drawing.

28,517. BADGE. WILLIAM H. HAYNES, Somerville, N. J. Filed Mar. 12, 1898. Serial No. 673,662. Term of patent 3½ years.



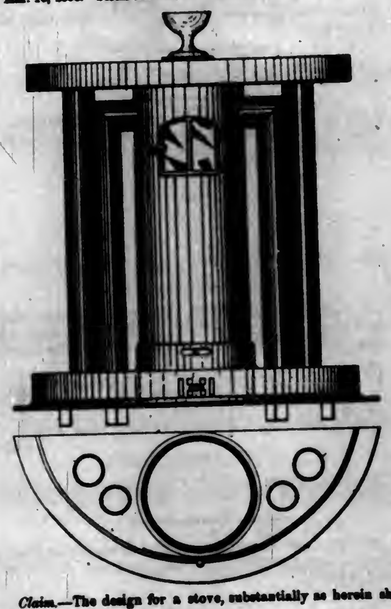
Claim.—The design for a badge as herein shown and described.

28,518. HANDLE FOR BUTTON-HOOKS, &c. FERDINAND THIMAN, Brooklyn, N. Y. Filed Mar. 12, 1898. Serial No. 673,663. Term of patent 3½ years.



Claim.—A design for a handle for button-hooks, and similar articles, substantially as herein shown and described.

28,519. STOVE. CHARLES STUMMBORN, New York, N. Y. Filed Mar. 10, 1898. Serial No. 672,494. Term of patent 7 years.



Claim.—The design for a stove, substantially as herein shown and described.

TRADE-MARKS

REGISTERED APRIL 26, 1898.

81,480. PHOTOGRAPHIC PRINTING-OUT PAPER AND PRINTS MADE THEREON. RESSEMBRAGH, MOREY & WILL COMPANY, Rochester, N. Y. Filed Mar. 2, 1898.

VELUTYPE

Essential feature.—The word "VELUTYPE." Used since November 15, 1897.

81,481. PHOTOGRAPHIC PRINTING-OUT PAPER. RESSEMBRAGH, MOREY & WILL COMPANY, Rochester, N. Y. Filed Mar. 2, 1898.

VICTOR

Essential feature.—The word "VICTOR." Used since May 15, 1897.

81,482. PHOTOGRAPHIC PRINTING-OUT PAPER. RESSEMBRAGH, MOREY & WILL COMPANY, Rochester, N. Y. Filed Mar. 2, 1898.

VERA

Essential feature.—The word "VERA." Used since May 15, 1897.

81,483. PAPER. HENRY LIEBMANN'S & SONS, New York, N. Y. Filed Feb. 26, 1898.

TRAFFIC

Essential feature.—The word "TRAFFIC." Used since July, 1897.

81,484. PERIODICALS. ARENA PUBLISHING COMPANY, New York, N. Y. Filed Jan. 31, 1898.

JUDGE'S · LIBRARY ·

Essential feature.—The words "JUDGE'S LIBRARY." Used since 1889.

81,485. PANTS, COATS, VESTS, AND OVERALLS. BRAY CLOTHING COMPANY, Louisville, Ky. Filed Nov. 19, 1897.



Essential feature.—The representation of a jackass in the attitude of braying. Used since January, 1897.

81,486. LEATHER BELTING. DETROIT OAK BELTING COMPANY, Detroit, Mich. Filed Feb. 26, 1898.

KING

Essential feature.—The word "KING." Used since April, 1898.

81,487. MEN'S SHIRTS. WOODWARD & BAILEY, New York, N. Y. Filed Feb. 26, 1898.

Defender

Essential feature.—The word "DEFENDER." Used since October 15, 1895.

81,488. CERTAIN ANTISEPTIC AND HEALING LOTION OR PREPARATION FOR THE SKIN. THEODORE H. BAYER, New York, N. Y. Filed Feb. 26, 1898.

BALM-ZOIN

Essential feature.—The compound word "BALM-ZOIN." Used since February 1, 1897.

81,489. PAINTS. LUCAS & SANFORD, New York, N. Y. Filed Feb. 26, 1898.

Toxanoy

Essential feature.—The word "TOXANOY." Used since September 15, 1897.

81,490. POLISHING AND DRESSING COMPOUNDS FOR LEATHER. I. D. SMITH & Co., Chicago, Ill. Filed Feb. 14, 1898.



Essential feature.—The representation of a single stem of clover and the letters "C. D. S." Used since January 15, 1897.

81,491. CHEWING-GUM. HARRY PEDER, New York, N. Y. Filed Feb. 3, 1898.

NERVO

Essential feature.—The word "NERVO." Used since January 17, 1898.

81,492. ALE, LAGER-BEER, AND PORTER. ALONZO G. VAN NOSTRAND, Boston, Mass. Filed Mar. 1, 1898.

P.B.

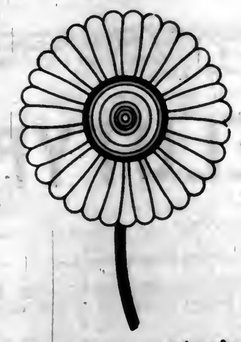
Essential feature.—The letters "P. B." Used since June, 1875.

81,498. WHISKY. MARTIN L. WOLF, Philadelphia, Pa. Filed Oct. 29, 1897.



Essential feature.—The signature of the registrant, "MARTIN L. WOLF." Used since August 17, 1897.

81,494. CRUMB HOME-MADE YEAST. SARAH A. YOST, Arkansas City, Kans. Filed Dec. 15, 1897.



Essential feature.—The representation of a sunflower. Used since January 30, 1892.

81,495. BICYCLES, TRICYCLES, VELOCIPEDES, AND PARTS THEREOF. THE BIRMINGHAM SMALL ARMS COMPANY, LIMITED, Birmingham, England. Filed Feb. 26, 1898.

B.S.A

Essential feature.—The letters "B. S. A." Used since 1894.

81,496. FOLDING BEDSTEADS. THE HALE & KILBURN MANUFACTURING COMPANY, Philadelphia, Pa. Filed Feb. 26, 1898.



Essential feature.—The pictorial representation of a telescope. Used since December, 1897.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE TYMESON AND BORLAND.

Decided March 17, 1898.

1. DIVISION—DIFFERENT PROCESSES—AGGREGATION.

Where the Examiner required division between a set of claims stated to be for the process of producing woven fabric and another set for the process of winding yarn and some of the claims of the first set included the step of winding yarn. *Held* that if the claims for producing the fabric, including the step of winding yarn, are for a legitimate combination division should not be required. If they are not for such a combination, they should be rejected for aggregation, leaving the question of division to be settled after the final determination of the question of aggregation. The practice announced in *ex parte Willcox and Borton*, (45 O. G., 455,) *ex parte Bullard*, (45 O. G., 1569,) and *ex parte Carter* (46 O. G., 1891) followed.

2. SAME—PROCESS—PRODUCT—APPARATUS.

A woven fabric, a process of producing the fabric and winding yarn, an apparatus for winding yarn on the spool, and a yarn-spool or bank-spool are each separate and independent inventions and should form the subject of separate applications.

ON petition.

ART AND MEANS FOR PRODUCING WOVEN FABRICS.

Application of Eugene Tymeson and Reuben Borland filed May 26, 1897, No. 638,216.

Messrs. Philipp, Phelps & Sawyer for the applicants.

DUELL, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring division.

The petitioners, after setting forth in their specification the nature and object of the invention, state:

The invention includes an improved fabric and improvement in the art of producing the same, a method of winding yarn for use in such art, a yarn-spool and a bank-spool as new articles of manufacture, and various features in winding apparatus, all of which will be fully described in the following specification and specifically pointed out in the claims.

The claims covering these improvements have been divided by the Examiner into four groups. Claims 1 to 6, which are for the improvement in the art of producing woven fabric, he puts in group 1; claims 7 to 10, for the method of winding yarn, in group 2; claims 11 to 13, for a woven fabric, in group 3, and claims 14 to 17, for a yarn-spool, and claims 18 to 21, for apparatus for winding yarn, in group 4.

An examination of claims 4, 5, and 6 shows that they include in one process the steps of weaving stated by claims 1, 2, and 3, and the steps of winding yarn stated by claims 7, 8, 9, and 10. If claims 4, 5, and 6 are for a legitimate combination, all of these claims should be included in one application. If, on the other hand, these claims are not for such a combination, they should be rejected for aggregations, and if the applicants acquiesce in this rejection or the Examiner's action is sustained on appeal claims 1, 2, and 3 should be made the subject of one application and claims 7, 8, 9, and 10 of another. The practice announced in *ex parte Willcox and Borton*, (45 O. G., 455,) *ex parte Bullard*, (45 O. G., 1569,) and *ex parte Carter*, (46 O. G., 1891,) should be followed.

The fabric covered by claims 11, 12, and 13 seems to be independent of the method covered by the preceding claims or the spool and apparatus of claims 14 to 21. These claims should, therefore, form the subject-matter of a separate application. While the Examiner has placed claims 14 to 21 in one group, I am of the opinion that the spools covered by claims 14 to 17 are independent of the apparatus covered by claims 18 to 21. The spools may be wound with yarn by other means than that covered by claims 18 to 21, or they may be wound by hand. Such spools are merchantable articles that may be placed on the market for use for other purposes than in such an apparatus as here described and claimed. The spools are also independent of the process or fabric of the other claims. Claims 18 to 21 cover winding apparatus that may be in one application.

Division on the line here indicated should be made. The petition is denied.

ROTH *v.* BROWN AND STILLMAN.

Decided February 25, 1898.

INTERFERENCE—MOTION TO DISSOLVE—RES ADJUDICATA—PRIOR SUIT IN COURT, EFFECT OF, ON OFFICE PROCEEDINGS.

Where it was moved to dissolve an interference for the reason that the question of the interference is *res adjudicata* as between the parties, that the question of priority having been determined by a court of competent jurisdiction could not be retried by the same parties in the Patent Office, and that one of the parties was estopped from asserting his right to the invention, *Held* that these questions should not be passed upon on an interlocutory motion, as they are such questions as relate to the merits of the interference and would more properly form the basis of a judgment of priority of invention than for the dissolution of the interference.

APPEAL on motion.

PNEUMATIC TIRES.

Application of Charles H. Roth filed July 8, 1893, No. 479,908. Patent granted Alexander T. Brown and Geo. F. Stillman December 20, 1892, No. 488,494.

Messrs. Philipp, Phelps & Sawyer for Roth.

Messrs. Kerr, Curtis & Page for Brown and Stillman.

GREELEY, *Assistant Commissioner:*

This is an appeal by the American Dunlop Tire Company, assignees of Brown and Stillman, from the decision of the Examiner of Interferences denying a motion to dissolve the above-entitled interference for the reason that the matter in issue is *res adjudicata* and that the parties in interest in behalf of Charles H. Roth, the New Brunswick Rubber Company, are estopped from asserting their rights to the invention as against the assignees of Brown and Stillman. The appellants also present a petition praying, among other things, that the Commissioner make an order dissolving the interference, or directing that it be dissolved, and rejecting the claim of Roth, or directing that it be rejected, upon the ground that the parties in interest in his behalf are estopped from asserting the same against the petitioners.

On July 17, 1896, the appellants presented a motion under Rule 122 that the interference be dissolved for the reason that Roth has no right to make the claim in issue and that he is estopped from asserting a claim of prior inventorship as against Brown and Stillman. This motion was duly transmitted to the Primary Examiner, who refused to dissolve the interference. The parties then proceeded to take testimony, and during the examination of Roth as a witness notice was given by the American Dunlop Tire Company that a motion would be made to dissolve the interference on the grounds here presented. After the close of Roth's testimony further taking of testimony was suspended by consent of counsel for the purpose of presenting to the Patent Office the motion now under consideration.

The motion was made by appellants and was heard by the Examiner of Interferences, who on June 8, 1897, rendered a decision denying the motion, substantially on the ground that consideration of the question by the Primary Examiner would involve the determination by him of the legal effect of a consent decree, and as this is a matter beyond his jurisdiction he refused to transmit the motion, under the authority of *Faure* v. *Bradley et al.*, (44 O. G., 945; C. D., 1888, 120,) holding that the grounds urged for dissolution may be presented at the hearing, as they would more properly form the basis of a judgment than for the dissolution of the interference.

It appears that on January 16, 1893, the American Dunlop Tire Company, as owners of the Brown and Stillman patent involved in this interference, filed a bill of complaint in the United States Circuit Court for the District of New Jersey against the Phelps & Dingle Manufacturing Company and Lucius J. Phelps, its president, for infringement of said Letters Patent. The defendants set up in their answer to the bill, among other defenses, that Brown and Stillman were not the first and original inventors of the matter in controversy, but that Charles H. Roth had previously invented and used the same. The complainant took proofs to support the bill, but the defendants failed to take any proofs. On motion of complainant a decree was entered, to which the defendants consented, decreeing, among other things, that claim 1 of Letters Patent to Brown and Stillman, the claim of the patent involved in this interference, is good and valid in law.

On July 1, 1893, during the pendency of this suit, the Phelps & Dingle Manufacturing Company, through an assignment, became the owner of the invention and the application of Roth involved in this interference, and continued as such owner up to and after this interference was declared. During the interference proceeding the Phelps & Dingle Manufacturing Company reassigned to Roth, who then assigned to the New Brunswick Rubber Company.

In view of these facts it is urged that the motion should be granted, for the reason that the question of the interference is *res adjudicata* as between the parties; that the question of priority of invention, which was essential to the finding of the decree and not a collateral question in the said suit, having been determined by a court of competent jurisdiction, could not be retried by the same defendants in the Patent Office; that Roth is the same defendant or was privy to the prior suit, so far as concerns any interest held by him at the time the interference was declared, because such interest was derived from the Phelps & Dingle Manufacturing Company, the defendant in that suit, during the pendency of the suit, and that he is now estopped from laying claim to prior inventorship.

The parties had a hearing before the Commissioner, and voluminous briefs have been presented in support of and against the motion, and while I have considered these briefs, yet, from the view I take of this case, it is not necessary at this stage to pass upon the questions raised by the motion, as they are such questions as relate to the merits of the interference and, as the Examiner of Interferences has held, would more properly form the basis of a judgment of priority of invention than for the dissolution of the interference.

In the case of *Ungar* v. *Saxlehner* (35 MS. Dec., 430) a motion was made to dissolve the interference on the ground that Ungar was estopped and bound by an award of priority in a former interference between Saxlehner and the P. Scherer Company. On appeal to the Commissioner from the decision of the Examiner of Interferences on said motion it was substantially held that this question related to the merits of the invention and the evidence of the estoppel went to establish the issue involved in the interference—namely, priority of invention; that on the final hearing on the question as to who is entitled to priority Saxlehner might have demanded an award of priority upon the conclusive effect of the prior determination; that if the interference were dissolved without determining the question of priority the applications involved would be restored to their original *ex parte* condition and the question of priority left

unsettled—in other words, that the Commissioner in the consideration of such an interlocutory motion is called upon to finally adjudge that Ungar was bound by the former adjudication and not entitled to an award of priority whereas such an adjudication by him should be had upon the merits only after the parties had taken evidence and submitted the case to the Examiner and appealed; that the party insisting upon the former adjudication could have introduced the record as evidence and relied upon that alone and demanded judgment, or he could in addition have taken evidence as to the actual priority; that in either event the case should have been submitted in the first instance to the Examiner of Interferences, and the defeated party could then have appealed upon the merits and the case have been properly tried before the Commissioner, and that the motion to dissolve the interference was not a proper method of presenting the question of former adjudication in such a case.

Although this case of *Ungar* v. *Saxlehner* was a trade-mark interference, I am of the opinion that the doctrine laid down therein applies equally as well to the case at bar and that this interference should not be dissolved, but should proceed to final determination on its merits.

In reaching this conclusion I have not overlooked the argument advanced by appellants that an interference between an applicant and a patentee should be dissolved without judgment of priority whenever it appears that the applicant is for any cause not entitled to a patent.

The decision of the Examiner of Interferences in denying the motion to dissolve is therefore affirmed, and the petition is dismissed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

WELSBACH LIGHT COMPANY v. THE SUNLIGHT INCANDESCENT GAS LAMP COMPANY.

Decided March 24, 1898.

RAWSON—PRODUCTION OF INCANDESCENT MANTLES—PIONEER INVENTION—INFRINGEMENT.

Claim 1 of Letters Patent No. 407,963, granted July 30, 1889, to Frederick L. and William S. Rawson, for the production of incandescent mantles, consisting in coating the complete mantle with paraffin or other suitable material, construed, *Held* to be for a pioneer invention and infringed by a process consisting in coating with a solution of collodion.

Mr. William Findlay Brown and *Mr. John R. Bennett* for the complainant.

Mr. Charles G. Coe for the defendant.

TOWNSEND, *J.:*

The questions herein presented at final hearing on bill and answer relate to the first claim of Patent No. 407 963, granted July 30, 1889, to Frederick Lawrence Rawson and William Stepney Rawson, for "Production of incandescent mantles" and assigned to complainant.

Prior to the discussion of the issues directly involved it will be necessary to briefly describe the Welsbach light.

In 1885 Dr. Carl Auer von Welsbach discovered or invented the mantle of the incandescent light which bears his name. Prior to that date it was known that certain rare earths when heated to incandescence were possessed of great luminosity. Dr. Auer von Welsbach, or, as he will hereinafter be called, "Welsbach," was the first to discover that by immersing a textile fabric in a solution of the salts of said rare earths and afterward applying heat and consuming the fabric the earthy salts would be left in a coherent condition, exactly reproducing the fabric consumed and capable of emitting the intense white Welsbach incandescent light. Great as was this scientific discovery it was commercially valueless. The resultant product was so light and fragile that although, as stated by the inventor, "it would remain effective as an illuminant for hundreds of hours" it would crumble to ashes if handled or even touched by a hard body.

In their specification the patentees, after speaking of the difficulty previously found in transporting these mantles without breakage, say:

> This difficulty our invention is designed to overcome by dipping the mantles, after they have been given their proper shape, into a liquid which will thoroughly penetrate the pores of the material and will afterward set to such a degree of hardness as to protect the material from danger of breakage in packing or handling, and which can afterward be removed without mechanical injury to the mantles or without leaving any objectionable residue.

The claim in suit is as follows:

> 1. The herein-described improvement in strengthening incandescent mantles, consisting in coating the completed mantle with paraffin or other suitable material, substantially as set forth.

The defenses are invalidity for lack of invention and denial of infringement.

Bright's British patent, No. 12,305, granted in 1848, for "Improvements in lamps, wicks, and covers for vessels for holding oil and other fluids," *inter alia*, describes a method of "manufacturing hollow cylindrical wicks in a stiffened state" to permit of their easy insertion into the lamp-burner "by inserting into them paper cases * * * or by dipping them (not partially but wholly) in wax or in any other suitable stiffening matter." It has not the same purpose nor mode of operation as the patent in suit and does not anticipate it.

Gwynne patent, No. 52,788, issued in 1866, for an "Improved process for saturating wood, cloth, paper, etc., with paraffin," and Toppan patent, No. 89,005, for "Improved water-repellent material," may be considered together. The patentee Gwynne says that—

> when the paraffin is thus combined with the substances they seem together to form a new substance inasmuch as it cannot be again expelled,

and that substances thus saturated acquire—

> greatly-increased tenacity, toughness, power of endurance and of resistance to the action of the elements.

Toppan describes a similar treatment with a solution of paraffin. Each of these patents describes a process for making wood, paper, and cloth waterproof by permanently combining them with paraffin. Neither of them attempts to effect the object of the Rawson patent; but defendant relies chiefly upon Patent No. 261,529, issued July 25, 1882, to Charles Clamond, for "Means and apparatus for

producing intense white light." Figure 9 of the drawings shows a burner composed of magnesian threads. These threads are made by forcing a wet plastic material through dies. While thus wet they are shaped into the form of a cone, which is then dried and baked. The resultant product is a fragile porcelain-like shell or basket of refractory material capable of use with a gas-burner to produce an incandescent light. In connection with this basket the patentee used small rods formed of the same material. It was not claimed that there was anything novel in Clamond's magnesium light which is relevant herein; but defendant contends that—

this patent shows that the strengthening of such fragile refractory cones to protect them against breakage in transporting and handling was not new.

This contention is founded upon the following statement in Clamond's specification:

The basket may be cased over with paper or other combustible material, so as to strengthen it for transport and handling, this casing being burned away when the jet is ignited.

In this chief reliance of defendant I find nothing to detract from the merit of the patented invention. There was no strengthening treatment of a refractory material having the form of a textile fabric, no combination with another substance by saturation in a protecting solution, and no process of hardening the protecting solution. In short, Clamond merely proposed to wrap up his porcelain cone in a piece of paper which would burn off when the cone was placed over a lighted flame. He protected his shell by an ordinary external wrapper, which could be removed in the ordinary way, leaving the shell as before. By the Rawson process the solution so penetrated the interstices of the Welsbach fabric that it became an integral part thereof.

But the expert and counsel for defendant claim that—

all the Rawsons have done is to apply the old Gwynne process of dipping porous articles into hot melted paraffin, or the Topan process of dipping porous articles in paraffin solutions with a volatile hydrocarbon, such as benzin or naphtha, without any difference in their mode of application, or the result obtained therefrom, to the old purpose of protecting fragile mineral cones in transport and handling set forth by Clamond.

I cannot assent to this proposition. The Clamond protecting-wrapper is not even remotely allied to the Rawson strengthening process. The result of the latter is new, distinct, and strikingly unexpected. To introduce these processes in this new art and to work out and apply the undeveloped possibilities of this use of paraffin in solution in connection with these earths, so as to place this light within the reach of the general public, was a most meritorious invention. Defendant says it does not infringe because it does not coat its mantles with paraffin or any of the equivalents mentioned in complainant's patent and relies upon certain limitations claimed to be disclosed by the file-wrapper.

After describing the use of paraffin in the specification it is there set forth that—

other materials may be employed as long as they set hard at ordinary temperatures and burn away without mechanical destruction to the mantle and without leaving any residue which would injure the light-giving properties of the mantle.

The Examiner required the patentee to insert a specific statement as to what other materials are used, and the following was thereupon added:

The materials referred to as being capable of use in lieu of paraffin may be any solid hydrocarbon of a high boiling-point and many resins and gums soluble in spirit, such as alcohol, etc. Shellac will serve the same purpose, but not quite as advantageously

The defendant insists that the patent cannot be infringed by the use of any materials other than those thus specified.

It is admitted—

that the defendant corporation herein has * * * and still is coating completed incandescent mantles or hoods for the purpose of strengthening them for purposes of transport and handling by dipping or immersing them in a solution composed chiefly of collodion with the addition of a small percentage of castor-oil, and in excess of five per cent. That such solution is a liquid which, after the mantle or hood is coated therewith by dipping or immersing said hood in such solution will afterward set at ordinary temperatures to such a degree of hardness as to strengthen the mantle or hood for the purpose of preventing breakage in transport and handling and of such a character that it can afterward be removed by burning away, without mechanical destruction to the mantle and without leaving any residue which would injure the light-giving properties of the mantle or hood.

Complainant contends that this collodion solution is included under the words "paraffin or other suitable material, substantially as set forth," in the first claim, notwithstanding the enumeration of equivalents in the patent.

The invention of the patent in suit transformed the Welsbach mantle from a laboratory experiment into an article of commerce. That it has successfully overcome the obstacles previously encountered and has accomplished results quite as important as the original Welsbach invention is admitted. The evidence as to Welsbach's understanding of the limitations upon the practical use of his light, and the graphic illustration at the hearing herein of the bold and unique treatment of the fragile mantle, and the success of the adaptations employed in producing the desired results, indicate not only the presence of inventive genius, but claim for the invention the rank of a pioneer.

For these reasons this patent should not be narrowly interpreted, but should be so construed as to cover a broad range of equivalents.

The undisputed testimony of Drs. Chandler and Morton shows that it was well known at the date of this invention that such a collodion solution would operate in the same way as a paraffin or shellac solution in the treatment of such substances and was therefore an "other suitable material." That in every other respect the defendant has appropriated the patented process appears from his admission. While collodion is not chemically an equivalent of a hydrocarbon resin gum and is not paraffin or shellac, it performs the same functions in the same manner and with the same result.

A patentee is not obliged in his specification to state all the known equivalents of the materials used by him. It is the patent as finally issued which the court is to construe and upon which the patentee must stand. In this case the patentees have claimed "paraffin or other suitable material, substantially as set forth." They have set forth that "other materials may be employed as long as they set hard at ordinary temperatures and burn away without mechanical destruction to the mantle." The defendant uses a suitable material known at the date of the invention to have all these properties and characteristics, and has thereby appropriated complainant's product.

Let a decree be entered for an injunction and an accounting.

U. S. Circuit Court of Appeals—Second Circuit.

THOMSON-HOUSTON ELECTRIC COMPANY *v.* UNION RAILWAY COMPANY *et al.*

Decided April 7, 1898.

VAN DEPOELE—ELECTRIC RAILWAY, TRAVELING CONTACT FOR—VOID—PREVIOUSLY PATENTED TO SAME INVENTOR.

Claims 2 and 4 of Letters Patent No. 495,443, for a traveling contact for electric railways, granted April 11, 1893, to the administrators of Charles A. Van Depoele, construed and *Held* to be void, as they are for the same invention which has been previously patented to the same inventor in Letters Patent No. 424,695.

Mr. William H. Kenyon and *Mr. Charles E. Mitchell* for the appellant.

Mr. Frederick H. Betts for the appellees.

PER CURIAM:

This appeal involves the question whether claims 2 and 4 of Letters Patent No. 495,443, for a "traveling contact for electric railways," granted April 11, 1893, to the administrators of Charles A. Van Depoele, assignors to the complainant, are void, because they are for the same inventions which had been previously patented in Letters Patent No. 424,695. The invention, to adopt the language of an expert witness for the complainant in a former suit brought upon the patent—

consists generally in an electric railway, having an overhead conductor, and a car for said railway provided with a contact device carried by the car so as to form a unitary structure therewith, and consisting of a trailing arm hinged and pivoted to the car so as to bridge the space between it and the conductor, and move freely both laterally and vertically, and said arm carrying at its outer end a contact device capable of being pressed upward by a suitable tension device into engagement with the under side of the conductor.

The essential features of construction involve the location of the supply-conductor above the track and line of travel of the car and contact with its under side, the arrangement of the contact device on a trailing arm, and the maintenance of a constant upward pressure by means of a tension device operating upon a hinged arm. The two claims in controversy are:

2. The combination of a car, an overhead conductor above the car, a contact device making underneath contact with the conductor, and an arm carried by the car and carrying the contact device, and pivoted so as to swing freely around a vertical axis.

4. The combination of a car, an overhead conductor above the car, a contact device making underneath contact with the conductor, and an arm on the car movable on both a vertical and a transverse axis and carrying the contact device.

The patent contains sixteen claims. The characteristics of the invention and the scope and validity of many of the claims were considered by this court in *Thomson-Houston Electric Company v. Hoosick Railway Company*, (82 Fed. Rep., 461; 80 O. G., 967,) where we held that claims 6, 7, 8, 12, and 16 were for the same inventions which had been previously patented, and a reference to the opinion in that case will dispense with the necessity for any extended discussion now. Referring to some of those claims we said:

It would be a waste of time to dwell upon the verbal differences in these claims. The changes in phraseology import nothing of substance into their respective combinations. They describe the same thing in different language.

It is insisted for the appellants that the two claims now in controversy are for the same combinations specified in some of the claims which were then held to be void. The appellee contends that they are not, because they omit to specify any means for holding the contact device in underneath contact with a conductor, and consequently can be construed as covering a subcombination in which such means are not employed, or if such means must be read into the claims by implication the claims are not limited to the means described in the specification, and that upon either construction they are not the claims of the earlier patent. The court below adopted this view. If the appellants are right, no other question need be considered. It will be seen that these claims are for identical combinations, except that the arm is differentiated in each by functional characteristics. The specification describes a traveling arm carried by a post on top of the car—

which is hinged and should in most instances be also pivoted to the top of the post, although a reasonable amount of looseness in the hinged joint will answer the purpose of the pivot.

When pivoted, "it swings freely around a vertical axis" and meets the terms of claim 2. When hinged and loosely jointed, it is "movable on both a vertical and transverse axis" and meets the terms of claim 4. We do not entertain any doubt that there must be incorporated into these claims, by implication, means for maintaining the contact device and the conductor in their normal working relations. Without them there is really no "traveling" contact device and no operative combination, and the claims would cover merely an aggregation of devices which do not coact unless assisted by some instrumentality which must be discovered and supplied. The function of the arm as constructed and arranged is to establish "moving contact" while maintaining a positive mechanical connection between the vehicle and the conductor. It was devised because as previously mounted the contact device was found to be deficient in capacity to follow the sinuosities and deflections of the conductor while the car was in motion. It can only perform this function by the aid of some instrumentality which holds it constantly in the proper relations to bridge the space between the car and the conductor and keep the contact device and the conductor in electrical connection. As pointed out in the specification, this consists of a tension device operating upon the arm and maintaining a constant upward pressure, thus holding the contact device to the conductor. This tension device or its equivalent is an indispensable element of the respective combinations.

That the proper construction of the claims is as thus indicated is evidenced by the proceedings upon interference in the Patent Office. Claim 2 is a literal statement of the issue defined and formulated by the Patent Office between what was then claim 1 of the application and the claims of two interfering applications. Claim 1 was as follows:

In an electric railway, the combination with a suitable contact and the supply-conductor suspended above the track, of a car provided with a swinging arm carrying a contact device in its outer extremity and means for imparting upward pressure to the outer portion of the arm and contact, to hold the latter in continuous working relation with the under side of the supply-conductor substantially as described.

In formulating the issue the Office omitted as unnecessary, because necessarily implied, the elements enumerated in claim 1 of the application which are not enumerated in claim 2 of the patent.

One of these elements was "means for imparting upward pressure to the outer portion of the arm and contact." This element was apparently thought to be as indispensable to the operativeness of the combination of the claim as was "a suitable track," an element also omitted.

The appellee concedes that the claims are for combinations specified in other claims of the patent, which by our former decision were held to be void if they require the construction which we have placed upon them. Indeed, claim 6, which we held to be void, is identical in terms with claim 1 of the interference proceedings, the claim which the Patent Office regarded as embodying the invention covered by present claim 2. The rule of construction which usually obtains, whereby the several claims of a patent are to be differentiated, so that effect may be given each, cannot be reasonably invoked in behalf of this patent, where so many of the claims are duplicated.

The order granting a preliminary injunction is reversed.

JAPAN.

PATENTS, DESIGNS, AND TRADE-MARKS.

The following treaty is republished from THE OFFICIAL GAZETTE *of March 16, 1897, together with the sections of the former treaty affected by it, as full information in regard to the rights of American citizens to procure Japanese patents.*

Convention Between the United States of America and the Empire of Japan.

PATENTS, TRADE-MARKS, AND DESIGNS.

Concluded at Washington January 13, 1897.
Ratification advised by the Senate February 1, 1897.
Ratified by the President February 2, 1897.
Ratified by the Emperor March 6, 1897.
Ratifications exchanged at Tokyo March 8, 1897.
Proclaimed March 9, 1897.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas a Convention between the United States of America and the Empire of Japan securing immediate reciprocal protection for patents, trade-marks and designs, was concluded and signed by their respective plenipotentiaries at the city of Washington on the thirteenth day of January, one thousand eight hundred and ninety-seven, the original of which Convention being in the English language is word for word as follows:

The President of the United States of America and His Majesty the Emperor of Japan, being desirous of securing immediate reciprocal protection for patents, trade-marks and designs, have resolved to conclude a Convention for that purpose, and have appointed as their plenipotentiaries:

The President of the United States, the Honorable Richard Olney, Secretary of State of the United States; and His Majesty the Emperor of Japan, Toru Hoshi, Jushii, His Majesty's Envoy Extraordinary and Minister Plenipotentiary near the Government of the United States;

Who, after having communicated to each other their respective full powers, found in good and due form, have agreed as follows:

Article XVI of the Treaty of Commerce and Navigation between the United States of America and Japan concluded at Washington on the twenty-second day, the eleventh month, the twenty-seventh year of Meiji, corresponding to the twenty-second day of November, eighteen hundred and ninety-four of the Christian era, shall have full force and effect from the date of the exchange of ratifications of this Convention.

The present Convention shall be duly ratified by the President of the United States of America, by and with the advice and consent of the Senate thereof, and by His Majesty the Emperor of Japan in the usual manner; and the ratifications shall be exchanged at Tokyo as soon as possible.

In witness whereof, the respective plenipotentiaries have signed this Convention and have thereunto affixed their seals.

Done, in duplicate original, at Washington, this thirteenth day of January in the one thousand eight hundred and ninety-seventh year of the Christian era.

RICHARD OLNEY. [SEAL.]
TORU HOSHI. [SEAL.]

And whereas the said Convention has been duly ratified on both parts, and the ratifications of the two Governments were exchanged at Tokyo on the eighth day of March, one thousand eight hundred and ninety-seven;

Now, therefore, be it known that I, William McKinley, President of the United States of America, have caused the said Convention to be made public, to the end that the same and every clause thereof may be observed and fulfilled with good faith by the United States and the citizens thereof.

In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this ninth day of March in the year of our Lord one thousand eight hundred and [SEAL] ninety-seven and of the Independence of the United States the one hundred and twenty-first.

WILLIAM McKINLEY.

By the President:
JOHN SHERMAN,
Secretary of State.

Extracts from a Treaty concluded between the Governments of Japan and the United States November 22, 1894.

ARTICLE XVI.

The citizens or subjects of each of the high contracting parties shall enjoy in the territories of the other the same protection as native citizens or subjects in regard to patents, trade-marks and designs, upon the fulfillment of the formalities prescribed by law.

ARTICLE XIX.

This Treaty shall go into operation on the 17th day of July, 1899, and shall remain in force twelve years from that date.

Either high contracting party shall have the right, at any time thereafter to give notice to the other of its intention to terminate the same, and at the expiration of twelve months after such notice is given this Treaty shall wholly cease and determine.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 5. TUESDAY, MAY 3, 1898. PRICE—$5 per year.

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Regulations in Relation to Mail-Matter.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of this city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.
Argentine Republic.
Belgium.
Brazil.
Costa Rica.
Denmark.
Haiti.
Honduras.
Italy.
Mexico.
Netherlands.
Norway.
Peru.
Portugal.
Russia.
San Salvador.
Servia.
Sweden.
Switzerland.

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Price of Printed Copies of Specifications and Drawings.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1898, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1898.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

CERTIFICATES OF REGISTRATION ISSUED MAY 3, 1898.

Labels.

6,576.—Title: "AMERICAN BAKING POWDER." *R. H. Lansing & Co.*, Chillicothe, Ohio. Application filed April 4, 1898.

6,577.—Title: "NIXEY NIT." (For Cigar-Boxes.) *American Lithographic Company*, New York, N. Y. Application filed March 12, 1898.

6,578.—Title: "SAN PABLO OLIVES." *Charles W. Gould*, New York, N. Y. Application filed March 22, 1898.

6,579.—Title: "ROSE LEAF BALM." (For the Complexion.) *Jane A. Tucker*, Boston, Mass. Application filed February 21, 1898.

6,580.—Title: "THE RANA FURNITURE POLISH." *Louisa N. Woolsey*, New York, N. Y. Application filed March 23, 1898.

6,581.—Title: "LYGIA HAIR BALSAM." *Samuel Worms*, New York, N. Y. Application filed March 21, 1898.

Prints.

61.—Title: "GOLDEN JUBILEE." (For Beer.) *Hudepohl & Kotte*, Cincinnati, Ohio. Application filed November 13, 1897.

62.—Title: "GOOD MEAL." (For Stoves and Ranges.) *Frederick Tettenborn*, Cincinnati, Ohio. Application filed October 15, 1897.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 26, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Between two and three months.			
355	XII. Mechanical Engineering, Store-Service, etc.	Jan. 29	Apr. 15	264
108	XIX. Stoves and Furnaces	Jan. 27	Apr. 12	387
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 3	Apr. 11	264
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 26	Apr. 11	281
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 26	Apr. 11	326
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 14	Apr. 9	271
	Between three and four months.			
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Dec. 27	Apr. 18	363
232	X. Carriages and Wagons	Jan. 6	Apr. 16	250
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 21	Apr. 15	507
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 31	Apr. 15	234
217	XXXIII. *Trade-Marks, etc., †Designs. Drafting, and Optics.	Dec. 30	Apr. 15	208
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Jan. 20	Apr. 13	491
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 27	Apr. 18	346
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 21	Apr. 12	232
246	I. Tillage and Fences	Jan. 20	Apr. 12	201
23	XXI. Textiles, etc	Dec. 28	Apr. 12	364
106	II. Farm Stock, Products, etc.	Dec. 28	Apr. 12	530
243	XVIII. Steam-Engineering, etc	Dec. 27	Apr. 13	311
358	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 27	Apr. 12	504
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 29	Apr. 9	351
238	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 30	Apr. 8	341
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 10	Mar. 29	287
	Between four and five months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 14	Apr. 13	222
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 29	Apr. 12	585
26	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Dec. 21	Apr. 7	494
240	VII. Velocipedes	Dec. 13	Apr. 2	952
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	Apr. 1	505
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Mar. 21	475
	Between five and six months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 6	Apr. 18	522
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Nov. 11	Apr. 13	404
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 10	Apr. 13	263
128	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 8	Apr. 12	500
105	XI. Boots and Shoes, Clasps, *Buckles and Buttons, Harness, *Hose and Belting, and Leather-Working Machinery.	Nov. 1	Apr. 11	801

Applications Under Examination—Continued.

	Between seven and eight months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 13	Apr. 8	498
221	XXIII. Instruments of Precision, Acoustics, etc.	Sept. 10	Mar. 21	472

Total number of applications awaiting action 14,300

Under one month.			
†Designs	Apr. 4	Apr. 14	171
Between one and two months.			
*Trade-Marks	Mar. 18	Apr. 15	288

ISSUE OF MAY 3, 1898.

Patents	374	No. 603,243 to No. 603,616, inclusive.
Designs	32	No. 28,520 to No. 28,551, inclusive.
Trade-Marks	18	No. 31,497 to No. 31,514, inclusive.
Labels	6	No. 6,576 to No. 6,581, inclusive.
Prints	2	No. 61 to No. 62, inclusive.
Reissues	1	No. 11,602.
Total issue	433	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3	.....	New Hampshire	3	.....
Arizona Territory	.....	.....	New Jersey	16	.....
Arkansas	.....	.....	New Mexico Territory	.....	.....
California	9	.....	New York	54	10
Colorado	5	.....	North Carolina	2	.....
Connecticut	19	.....	North Dakota	.....	.....
Delaware	.....	.....	Ohio	32	3
District of Columbia	2	.....	Oklahoma Territory	3	.....
Florida	1	.....	Oregon	3	.....
Georgia	3	.....	Pennsylvania	31	2
Idaho	.....	.....	Rhode Island	5	.....
Illinois	26	1	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	3	.....
Indiana	14	.....	Tennessee	6	.....
Iowa	8	.....	Texas	10	.....
Kansas	6	.....	Utah	.....	.....
Kentucky	6	.....	Vermont	4	.....
Louisiana	1	.....	Virginia	4	.....
Maine	2	.....	Washington	3	.....
Maryland	5	.....	West Virginia	1	.....
Massachusetts	23	3	Wisconsin	7	.....
Michigan	14	1	Wyoming	.....	.....
Minnesota	3	.....	U. S. Army	4	.....
Mississippi	4	.....	U. S. Navy	1	.....
Missouri	14	.....	Total to citizens of the United States	373	20
Montana	3	.....			
Nebraska	3	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Italy	1	.....
Australia	.....	.....	Mexico	.....	.....
Austria-Hungary	1	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	.....	.....
Brazil	1	.....	New Zealand	5	.....
Burmah	.....	.....	Norway	.....	.....
Canada	3	.....	Portugal	.....	.....
Cape Colony	.....	.....	Queensland	.....	.....
Chile, Republic of	.....	.....	Roumania	.....	.....
China	.....	.....	Russia	.....	.....
Colombia	.....	.....	Scotland	1	.....
Cuba	.....	.....	South African Republic	.....	.....
Denmark	.....	.....	South Australia	1	.....
Egypt	.....	.....	Spain	.....	.....
England	10	5	Sweden	.....	.....
Finland	.....	.....	Switzerland	.....	.....
France	3	1	Victoria	.....	.....
Germany	6	.....	Total to citizens of foreign countries	33	6
Guatemala	.....	.....			
India	1	.....			
Ireland	.....	.....			

PATENTS

GRANTED MAY 3, 1898.

603,243. BUNG FOR ALE-BARRELS. FREDERICK W. ALBRIGHT, Jr., Brooklyn, N. Y. Filed Nov. 11, 1897. Serial No. 658,144. (No model.)



Claim.—1. In a barrel-bung, the combination of a metal support arranged to be secured to the barrel, a spherical valve-seat provided with a port or opening, a spherical rotary valve arranged to open and close the port, a support therefor located on the side of the valve-seat opposite the actuating device, the arrangement of the support being such that no portion of it projects through the valve and an actuating device for imparting a rotary movement to the valve.

2. In a barrel-bung, the combination of a metal support arranged to be secured to the barrel, a spherical valve-seat, a self-centering spherical valve, a spring situated outside of the working parts of the valve forcing the valve against the seat, and an actuator arranged to impart a rotary motion to the valve, so arranged that it does not project through the valve.

3. In a barrel-bung, the combination of a screw-threaded plug which is secured to the barrel, a ground spherical valve-seat screw-threaded to the plug, a self-centering spherical valve, a strainer secured to the plug, and a spring located between the strainer and valve for holding the valve in place.

4. In a barrel-bung, the combination of a screw-threaded plug, a valve-seat provided with flat and spherical faces, disk and spherical valves, a clamping-ring for holding the disk-valve in place, a spring-support for the spherical valve, and an actuating device.

5. In a barrel-bung, the combination of a screw-threaded plug, a spherical valve-seat, a spherical valve mounted for rotary movement, a socket in the curved side of the valve, and an actuator which passes through the valve-seat and enters the socket in the valve.

6. In a barrel-bung, the combination of a screw-threaded plug, a valve-seat screw-threaded to the plug and provided with flat and spherical surfaces, ports in the valve-seat, disk and spherical valves, a socket in the spherical valve, a plug on the disk entering the socket, a spherical strainer screw threaded to the valve-seat, and a compression-spring which supports the spherical valve in place and permits it to automatically adjust itself.

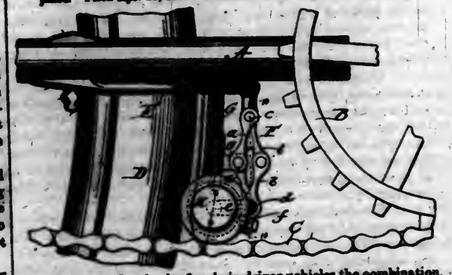
603,244. FLUSH JOINT FOR TUBULAR-FRAME CONSTRUCTIONS. FREDERICK C. AVERY, Toledo, Ohio. Filed June 26, 1897. Serial No. 642,663. (No model.)



Claim.—1. A flush joint for the angular connection of tubing consisting of a receiving member having a continuous circular kerfed seat cut entirely through the cylindrical side of the tube at two opposite points, and having grooved but uncut bridge-pieces at intermediate points; in combination with the tubular entering member having its end inserted throughout its entire circumference into the circular kerfed seat of the receiving member substantially as and for the purpose described.

2. A flush joint for the angular connection of tubing consisting of a receiving member having a continuous circular kerfed seat cut entirely through the cylindrical side of the tube at two opposite points, and having uncut bridge-pieces at intermediate points with acute angular grooves in them; in combination with the tubular entering member having its end beveled upon the inner side and inserted throughout its entire circumference into the circular kerfed seat of the receiving member substantially as and for the purpose described.

603,245. AUTOMATIC VEHICLE-BRAKE. HERBERT I. BAILEY, Chicago, Ill., assignor to the Bailey Manufacturing Company, same place. Filed Apr. 28, 1897. Serial No. 634,501. (No model.)



Claim.—1. In a brake for chain-driven vehicles the combination, with a toggle pivoted, at one end, to the vehicle-frame and arranged to be engaged, at its free end, by the driving-chain, of a brake-spoon secured to the toggle between its ends, substantially as described.

2. In a brake for chain-driven vehicles the combination, with a toggle pivoted, at one end, to the vehicle-frame and arranged to be engaged, at its free end, by the driving-chain, of a brake-spoon loosely mounted on the pivot connecting the toggle-arms, substantially as described.

3. In a brake for chain-driven vehicles the combination, with a toggle pivoted at one end to the vehicle-frame and a chain-engaging device adjustably secured to the free end of the toggle, of a brake-spoon secured to the toggle between its ends, substantially as described.

4. In a brake for chain-driven vehicles the combination, with a toggle pivoted at one end to the vehicle-frame and a chain-engaging device adjustably secured to the free end of the toggle, of a brake-spoon loosely mounted on the pivot connecting the toggle-arms, substantially as described.

5. In a brake for chain-driven vehicles the combination, with a toggle pivoted at one end to the vehicle-frame and a chain-engaging device secured to the free end of the toggle and vertically as well as horizontally adjustable thereon, of a brake-spoon secured to the toggle between its ends, substantially as described.

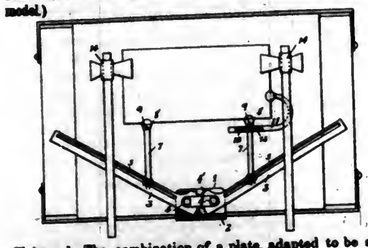
6. In a brake for chain-driven vehicles the combination, with a pair of toggles pivoted, at one end, to each other and to the vehicle-frame and, at their free ends, pivoted together and arranged to be engaged by the driving-chain, of a brake-spoon secured to one of said toggles between its ends, substantially as described.

7. In a brake for chain-driven vehicles the combination, with a pair of toggles adjustably pivoted, at one end, to each other and adjustably pivoted to the vehicle-frame and a chain-engaging device adjustably secured to the free ends of said toggles, of a brake-spoon secured to one of said toggles between its ends, substantially as described.

8. In a brake for chain-driven vehicles the combination, with a pair of toggles pivoted, at one end, to each other and adjustably pivoted to the vehicle-frame and a chain-engaging device adjustably secured to the free ends of said toggles, one arm of one of said toggles being rigid, of a brake-spoon secured to the other of said toggles between its ends, substantially as described.

9. In a brake for chain-driven vehicles the combination, with a toggle pivoted, at one end, to the vehicle-frame and arranged to be engaged, at its free end, by the driving-chain, of a brake-spoon secured to the toggle between its ends, and a spring bearing upon said toggle for normally holding the spoon out of contact with the wheel-tire, substantially as described.

603,246. FEED-GAGE FOR PRINTING-PRESSES. CLEMENT H. BALDING, Holton, Kans. Filed June 12, 1897. Serial No. 640,564. (No model.)



Claim.—1. The combination of a plate, adapted to be secured to the platen of a press, arms pivoted thereto, and carrying intermeshing cogs on their inner ends, secondary arms adjustable on said arms, and a marginal gage adjustable upon one of said secondary arms, substantially as set forth.

2. The combination of a plate having a flange which is adapted to be secured by the clamp of the platen, arms pivoted to the plate, and carrying intermeshing cogs on their inner ends; said arms having longitudinal slots, secondary arms adjustable in said slots, securing means carried by the outer ends of said secondary arms whereby they are attached to the tympan, seats formed upon the upper ends of said arms against which the sheet to be printed is adapted to rest, substantially as set forth.

3. The combination of a plate having a flange which is adapted to be secured by the clamp of the press, arms pivoted to said plate and carrying intermeshing cogs on their inner ends, said arms having longitudinal slots, secondary arms adjustable in said slots, securing means carried by the outer ends of the said secondary arms whereby they are attached to the tympan, seats formed on the upper ends of said arms against which the edge of the material is adapted to rest, whereby it is supported at the desired height, and a marginal gage adjustable on one of said secondary arms, substantially as set forth.

4. The combination of arms secured to the platen of a press and adjustable thereon, secondary arms adjustable upon the first-named arms, a marginal gage adjustable upon one of said secondary arms, plates adapted to be positioned upon the gripper-fingers of the press, and laterally-extending arms carried by said plates, said arms being bulged outwardly from the plates, so as to grip the opposite sides of the paper without interfering with the gage, substantially as set forth.

603,247. KEY-HOLDER. FREDERICK W. BECKER, Newark, N. J. Filed Jan. 3, 1898. Serial No. 666,080. (No model.)

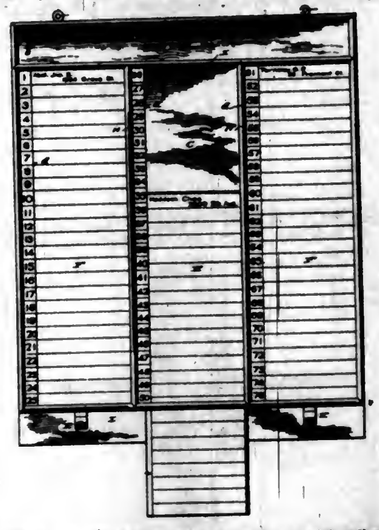


Claim.—1. A split ring, the convolutions of which lie closely together throughout the greater portion of their length, but separated at one or more points away from the free ends thereof, substantially as shown and described.

2. A key-holder composed of a single piece of wire the two ends of which overlap, the overlapping portions lying closely together at the tips or ends of the wire, but separated at a point between said tips or ends, substantially as and for the purposes described.

3. A key-holder composed of a single piece of wire bent to form two or more convolutions which lie closely together throughout the greater portion of their length, but separated at one or more points away from the free ends of the wire, substantially as and for the purposes described.

603,248. BULLETIN-BOARD. WILLIAM H. BENSON, Kansas City, Mo. Filed Jan. 24, 1896. Serial No. 576,696. (No model.)



Claim.—1. The bulletin-board herein shown and described comprising the stationary frame having a closed back, parallel guide-strips *c* fixed to said back and within the frame, number-plates attached to the guide-strips and inscribed with columns of figures in consecutive order, glass front or fronts fastened to said stationary frame and the guide-strips by suitable devices, a series of vertically-slidable cases confined edgewise between the guide-strips and laterally between the back and number plates, and name-slips removably fitted in said cases, a series of such name-slips being provided for each case and each slip arranged in alinement with one figure in a column on one number-plate, all arranged and combined for service as set forth.

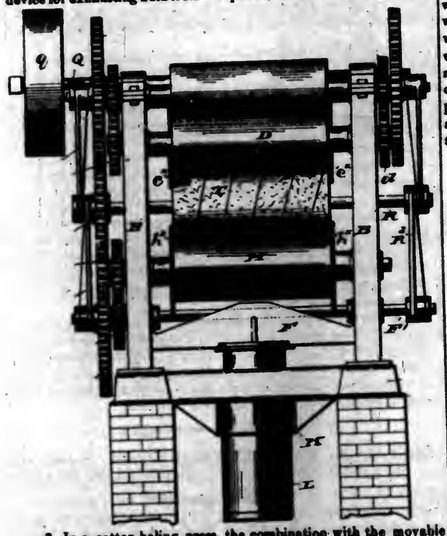
2. A bulletin-board comprising a back, a series of guide-strips attached thereto, a series of number-plates of greater width than the guide-strips and fastened to the latter to project beyond the edges thereof and serving, in connection with the back, to confine the sliding cases against lateral displacement, and the glass-front panes fastened to the number-plates, combined with a series of slidable cases fitted edgewise between the guide-strips and laterally between the back and the projecting edges of the number-plates, and name slips or cards fitted in the slidable cases, substantially as described.

3. A bulletin-board comprising a back, a series of guide-strips attached thereto, a series of number-plates of greater width than the guide-strips and projecting, at their edges, beyond the same to serve in connection with the back as guides to confine slidable cases against lateral displacement, the glass-front panes arranged over the number-plates, the molding-strips applied over the edges of the glass-front panes, and the fasteners passed between the edges of the glass-front panes and holding the moldings, the glass panes, and the number-plates on the back, combined with a series of slidable cases fitted edgewise between the guide-strips and laterally between the back and the projecting edges of the number-plates, means for locking said cases in a detachable vertical position, and removable cards or slips carried by the slidable cases, substantially as described.

603,249. BALING-PRESS. CHARLES L. BENNERETTE, Waco, Tex. Filed Mar. 9, 1896. Serial No. 582,422. (No model.)

Claim.—1. In a cotton-baling press the combination with the stationary compressing-rollers, of movable compressing-rollers, each disposed diametrically opposite with respect to the bale to one of said fixed rollers, of a hydraulic cylinder, a hollow piston in said cylinder operatively connected with said movable rollers having a communication between said cylinder and the interior of said piston, means for forcing air into said piston, and automatic devices for exhausting the air from the interior of said piston, substantially as described.

2. In a cotton-baling press, the combination with the movable and stationary compressing-rollers, of a hydraulic cylinder, a hollow piston in said cylinder for moving the movable compressing-rolls, having a communication between the interior of said piston and said cylinder, means for forcing a fluid into said piston and an automatic device for exhausting fluid from said piston, substantially as described.



3. In a cotton-baling press, the combination with the movable and stationary compressing-rollers, of a hydraulic cylinder, a hollow piston engaging said cylinder and having an aperture forming a communication between the interior of said piston and cylinder, a regulating-valve for said aperture, means for forcing a fluid in said piston and an automatic relief-valve for said piston, substantially as described.

603,250. PROCESS OF BALING COTTON. CHARLES L. BENNERETTE, Waco, Tex. Filed Mar. 9, 1896. Serial No. 582,423. (No specimens.)



Claim.—1. The herein-described process of baling cotton, which consists in first forming a bat, then forming a loosely-wound cushion-core from the bat, then compressing the cushion-core by winding the bat about the cushion-core in true helical form, under great pressure, to form binding-laps, then winding on the bat to form a substantial number of outer laps under reduced pressure, substantially as described.

2. As a new article of manufacture, a cotton-bale consisting of a compressed cushion-core, surrounded by greatly-compressed binding-laps of true helical form, said binding-laps being surrounded by a substantial number of less tightly wound helical laps, substantially as described.

603,251. ADVERTISING OR SIGN LAMP. SHANKER A. BUDE, Bombay, India. Filed May 27, 1897. Serial No. 638,477. (No model.)

Claim.—1. An advertising or sign lamp, provided with an outer stationary casing, and an inner revoluble casing said outer casing being provided with signs or advertisements, the words of which are cut therein, in vertical lines, and said inner casing being provided with a vertical row of colored transparent or translucent panels or panes which correspond with the number of the words in each sign, and with an equal number of transparent or translucent panels or panes arranged in the same circumferential line but diagonally of said casing, substantially as shown and described.

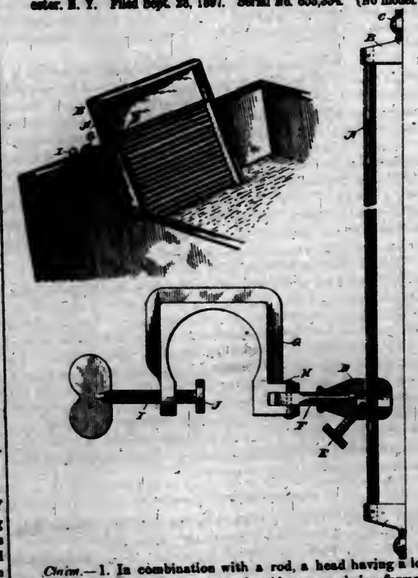
2. An advertising or sign lamp, comprising an outer cylindrical stationary casing, provided with a plurality of signs, the words of which are cut in vertical lines therein, and an inner revoluble casing which is provided with a vertical row of colored panels or panes which equal in number the words in each sign or advertisement, and with a diagonal row of colored panes or panels which also equal in number the words of each sign, substantially as shown and described.

3. An advertising or sign lamp, comprising an outer cylindrical stationary casing, provided with a plurality of signs, the words of which are cut in vertical lines therein, and an inner revoluble casing which is provided with a vertical row of colored panels or panes which equal in number the words in each sign or advertisement, and with a diagonal row of colored panes or panels which also equal in number the words of each sign, said inner revoluble casing being pivotally supported and provided at the upper end thereof, with propeller-fans which are formed integrally therewith, and which are adapted to be operated by the heated gases or products of combustion, substantially as shown and described.



4. An advertising or sign lamp, comprising an outer cylindrical stationary casing, provided with a plurality of signs, the words of which are cut in vertical lines therein, and an inner revolubie casing which is provided with a vertical row of colored panels or panes which equal in number the words in each sign or advertisement, and with a diagonal row of colored panes or panels which also equal in number the words of each sign, said inner revoluble casing being pivotally supported and provided at the upper end thereof, with propeller-fans which are formed integrally therewith, and which are adapted to be operated by the heated gases or products of combustion, and means for supporting a candle or other illuminating-sign in the bottom of the revoluble casing, substantially as shown and described.

603,252. WASHBOARD-FASTENER. HENRY S. BRIGGS, Rochester, N. Y. Filed Sept. 28, 1897. Serial No. 653,334. (No model.)

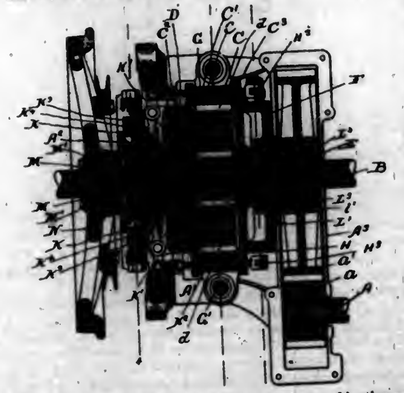


Claim.—1. In combination with a rod, a head having a longitudinal passage formed therethrough said passage being formed in

two sizes whereby a shoulder is produced, a spindle having a head formed thereon, said spindle having its body fitted in the small-sized portion of the passage and the head fitted against the shoulder a U-shaped clamp pivoted on the outer end of the spindle, said head having a second passage formed therethrough at right angles to the first and run through the large-sized portion thereof, said rod being passed through the last-named passage, as and for the purpose described.

2. The herein-described combination of a rod, brackets to which said rod is attached, a head adapted to slide upon said rod, a screw for holding said head in any adjustment upon the rod, a spindle swiveled within the head, a clamp pivoted to the outer end of the spindle, and a screw threaded through one end of the clamp for securing the device to a tub, as specified.

608,258. PLANET-GEAR MOTION-TRANSMITTING AND SPEED-VARYING MECHANISM. HAROLD P. BROWN, New York, N. Y. Filed Mar. 11, 1893. Serial No. 465,629. (No model.)



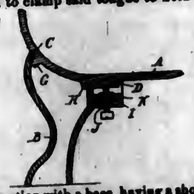
Claim.—1. In a planet-gear mechanism, the combination with shaft B of disk D, secured to said shaft, planet-gears *d d* carried by said disk, sleeve E loose upon said shaft and having pinion *d'* secured thereto and meshing with said planet-gears, internal gear C having friction-brake surface C' and a brake applicable thereto, a frame or support to which said brake is secured, supplemental friction-wheel F, and a supplemental friction device H mounted to revolve with said internal gear C, said internal gear C having a hollow shell C^3 C^3 furnished with bearing sleeves or hubs C^4 C^5, and means for operating said brake G and said supplemental friction device H, substantially as specified.

2. In a planet-gear mechanism, the combination with shaft B of disk D secured to said shaft, planet-gears *d d* carried by said disk, sleeve E loose upon said shaft and having pinion *d'* secured thereto and meshing with said planet-gears, internal gear C having friction-brake surface C' and brake C applicable thereto, a frame or support to which said brake is secured, supplemental friction-wheel F, and supplemental brake device H mounted to revolve with said internal gear C, said internal gear C having a hollow shell C^3 C^3 furnished with bearing sleeves or hubs C^4 C^5, said disk having a sleeve or hub D', said sleeves or hubs C^4 C^5 fitting one upon said hub D', and one upon said sleeve E, and means for operating said brake G and supplemental friction device H, substantially as specified.

3. In a planet-gear mechanism, the combination with shaft B of disk D secured to said shaft, planet-gears *d d* carried by said disk, sleeve E loose upon said shaft and having pinion *d'* secured thereto and meshing with said planet-gears, internal gear C having friction-brake surface C' and a brake applicable thereto, a frame or support to which said brake is secured, supplemental friction-wheel F, and supplemental brake device H mounted to revolve with said internal gear C, said internal gear C having a hollow shell C^3 C^3 furnished with bearing sleeves or hubs C^4 C^5, said disk D having a sleeve or hub D', said sleeves or hubs C^4 C^5 fitting one upon said hub D', and one upon said sleeve E, bushings *c c* at the bearings between said revolving parts, and means for operating said brake G and supplemental friction device H, substantially as specified.

608,254. LEG FOR BATH-TUBS. DAVID D. BUICK, Detroit, Mich. Filed Aug. 11, 1897. Serial No. 647,807. (No model.)

Claim.—1. The combination with a base having a shouldered seat formed thereon, and a strap or horizontal flange beside said seat, of a leg adapted to be engaged with said seat so as to be held thereby from lateral movement in any direction, a laterally-extending tongue on said leg adapted to be engaged above said strap by inclining the leg before engaging it with its seat and a set-screw in said strap adapted to clamp said tongue to hold the leg to its seat.



2. The combination with a base, having a shouldered seat formed thereon, of a leg adapted to engage with said seat and provided with a laterally-extending lug or tongue, a strap or flange on said base projecting beneath said lug or tongue, and a set-screw on said strap or flange adapted to clamp said lug or tongue against the base to secure the leg from displacement.

3. The combination with a base, having the lugs G and H formed thereon, of a leg having the shoulders E and F adapted to bear against the lugs G and H, and the lug or tongue D projecting from one side thereof; the strap or flange I on the base projecting beneath the lug or tongue D and the set-screw passing through said strap or flange, adapted to clamp said lug or tongue to the base.

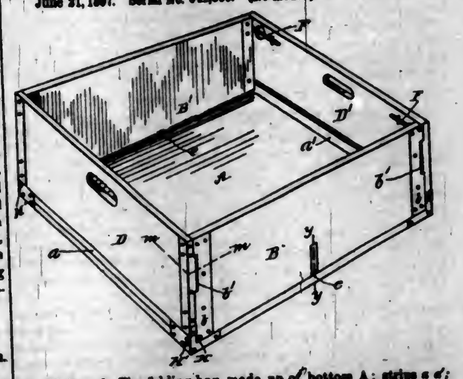
608,255. FIXTURE FOR CURTAIN-ROLLERS. AUGUST CAESAR, Butte, Mont. Filed Mar. 25, 1897. Serial No. 629,124. (No model.)



Claim.—1. A bracket for the purpose set forth made up of a single piece of wire which is looped upon itself to present parallel members forming a slot, the end portions of the wire being twisted upon themselves and one end extended to form a supporting-arm terminating in an eye, while the other is extended at an angle to form a pivot-pin, substantially as shown and for the purpose set forth.

2. In combination with a shade-roller having a drum and ratchet-wheel, of a bracket made of a single piece of wire which is looped upon itself centrally to present parallel members forming a slot, the end portions of the wire being twisted upon themselves at the end of the loop and one end portion extended to form a supporting-arm terminating in an eye while the other end portion extends at substantially right angles to provide a pivot-pin; together with a pawl made of a single piece of wire formed centrally into a number of coils to receive the pivot-pin of the bracket, while the end portions form the pawl proper and operating-arm therefor, the terminal of the latter being bent into a loop, substantially as shown and for the purpose set forth.

608,256. BOX. GEORGE W. CARVER, Brookline, Mass. Filed June 21, 1897. Serial No. 641,603. (No model.)



Claim.—1. The folding box made up of bottom A; strips *a a'*; ends D D' hinged to strips *a a'* and provided with strips of sheet metal secured to their ends and hooks *d'* formed integral with those strips; sides B B' hinged to bottom A and provided with strips of sheet material secured to their ends in which are cut slots *b'* all arranged so that the swinging of the ends and sides into an upright position will cause hooks *d'* to engage slots *b'* substantially as and for the purpose described.

2. The folding box made up of bottom A provided with staples *c'*; strips *a a'* provided with staples *c'*; ends D D' hinged to strips *a a'* provided with strips of sheet metal secured to their ends, hooks *d'* formed integral with those strips and hooks *c* secured to their lower edges; sides B B' hinged to bottom A provided with strips of sheet material secured to their ends in which strips are cut slots *b'* and with hooks *c* secured to their lower edges, all arranged so that when the sides and ends are swung into an upright position the hooks *d'* will engage slots *b'* and hooks *c* will engage staples *c'* substantially as and for the purposes described.

608,257. WHIFFLETREE-COUPLING. FRANK W. CHENEBRING, Cabot, Vt. Filed Dec. 3, 1897. Serial No. 660,566. (No model.)



Claim.—1. In a whiffletree-coupling, the whiffletree; the hard-metal lining D rigid in the bore therein and provided with the plate K extending under and secured to the under side of the whiffletree, said plate being formed with the downwardly-projecting annular flange or cup K'; the cross-bar; the hard-metal lining C rigid in the bore therein and provided with the flange or plate F extending over and secured to the upper surface of the cross-bar, said plate being provided with the integral metallic platform or circular block F' formed with the annular groove F'' for the reception of the balls H, said cup or flange extending down over the platform or block as described; the bolt E extending down through the said linings D and C; and a safety-spring one end of which is secured to the bolt between the head thereof and the upper surface of the whiffletree, and the other end is secured to the bolt below the cross-bar and held in such position by a suitable nut, substantially as described.

2. In a whiffletree-coupling, the whiffletree provided with the metal lining D secured thereto and formed with the plate K extending under the whiffletree, said plate being provided with the downwardly-extending flange or cup K'; the cross-bar provided with the metal lining C formed with the plate F extending over the surface of the cross-bar, said plate being provided with the circular platform or block F' extending up into the said cup; the bolt E extending through said linings in the whiffletree and cross-bar; the spring L provided at its lower end with the oppositely-extending spring-arms S, the upper end of said spring being secured to the bolt between the head thereof and the upper side of the whiffletree and the lower end being secured to said bolt below the cross-bar, said spring-arms being formed to hold the portion of the spring next the lower end of the bolt normally at a short distance below the cross-bar; and a nut adapted to regulate the tension of the spring at that point thereby holding the two parts of the coupling together and keeping the bolt rigid with the cross-bar, thus allowing the whiffletree to turn thereon, substantially as set forth.

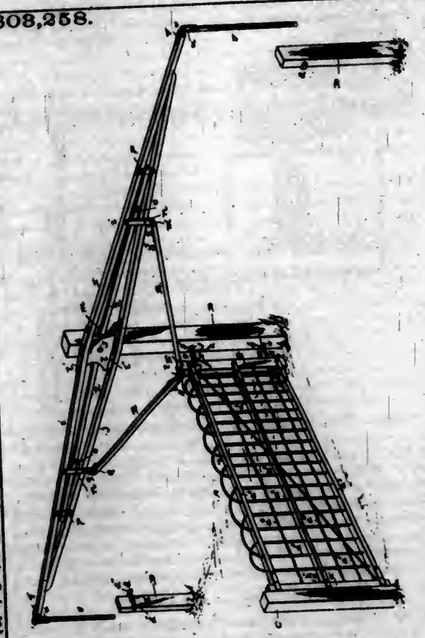
608,258. GATE. WILLIAM H. CLAY, Elizabeth, Ky. Filed June 17, 1895. Renewed Oct. 23, 1897. Serial No. 656,706. (No model.)

Claim.—1. The combination with a hinge-post, a gate, and a lower hinge, of an upper hinge having two pintle-hooks, connected by a perforated link, which is provided with a boss or seat between its perforations, substantially as and for the purposes described.

2. The combination with a hinge-post, a gate, and a lower hinge, of the upper hinge consisting of a bolt attached to the gate, another bolt attached to the hinge-post and provided with an eccentric face and with a vertical pintle situated in a vertical plane to one side of the plane of the pintle of the lower hinge, and a link having an eccentric boss or seat arranged to ride against the eccentric face of the hinge-bolt, as and for the purposes described.

3. A walking-beam for gates comprising the socketed central plate, the converging bars *i j* attached at their inner ends to the central plate and fastened together at their outer ends, the brace-plates *n, o*, attached to said bars at points between their ends, the back plate *m* arrranged opposite to the central plate, and the brace-bars *k* inclined laterally to the bars *i, j*, and fastened to the plate *m*, the brace-plate *n, o*, and to the bars *i, j* substantially as described.

608,258.



608,259. WHEEL. JAMES R. COMPTON, Lynn, Mass. Filed May 24, 1898. Serial No. 682,408. (No model.)



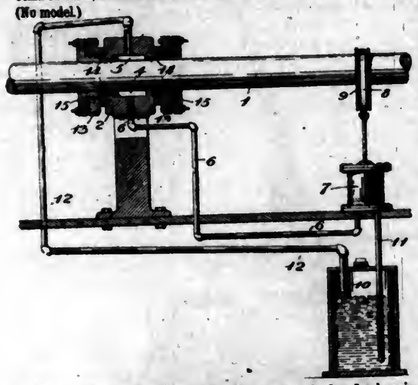
Claim.—1. In combination, the hub, a series of rocking levers supported by the hub, a series of arms engaged by one end with the levers, a rim engaged by the opposite ends thereof, and means connecting with the free ends of the levers, to be moved for rocking the levers whereby the arms are drawn together, substantially as described.

2. In combination, a hub, a series of rocking levers supported by the hub, a series of arms engaged by one end with the levers, a rim engaged to the opposite ends thereof, and means supported adjustably on the hub, in connection with the free ends of the levers, to be moved thereagainst for rocking the levers, whereby the arms are drawn for tightening the parts together, substantially as described.

3. In combination, a hub comprising the disk provided with flanges, a series of rocking levers fulcrumed on the disk against said flanges, a series of arms engaged by one end with the levers, a rim engaged by the opposite ends thereof, and means connecting with the free ends of the levers, to be moved thereagainst for rocking the levers, whereby the arms are drawn for tightening the parts together, substantially as described.

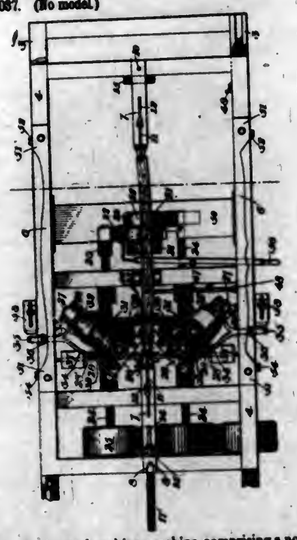
4. In combination, a hub, a series of rocking levers supported by the hub, a series of arms engaged by one end to the levers, a rim composed of voussoirs engaged by the opposite ends of said arms, and means connecting with the free ends of the levers to be moved for rocking the levers, whereby the arms are drawn for binding the voussoirs together, substantially as described.

608,260. MEANS FOR LUBRICATING SHAFT-BEARINGS. ORIN F. COOK, San José, Cal. Filed Oct. 12, 1897. Serial No. 654,967. (No model.)



Claim.—The combination with a horizontal shaft, of a bearing-box provided at its ends with stuffing-boxes and having formed respectively in the upper and lower sides of its bore, and in the same vertical plane, oil chambers or pockets disposed longitudinally of the shaft and of a materially less width than the diameter of the latter, whereby the shaft will form a loose closure for the open sides of said chambers or pockets, an oil-inlet pipe arranged to deliver oil under pressure to the lower of said chambers or pockets, and an oil-outlet pipe communicating with the upper of said chambers or pockets and of a greater diameter than said inlet-pipe, substantially as set forth.

608,261. WOODWORKING-MACHINE. DAVID P. COOPER, Struthers, Ohio. Filed Oct. 30, 1895. Renewed Oct. 4, 1897. Serial No. 654,037. (No model.)



Claim.—1. A woodworking-machine, comprising a non-rotatable frame carrying a blank and having a pattern thereon, a rotatory mandrel having a circular cutter, the axial line of the mandrel and cutter lying substantially in a plane passing through the center of the blank, a roller movable upon the pattern and connected to the cutter, and means for moving the cutter and the frame relatively to each other.

2. A woodworking-machine, comprising a non-rotatable frame, carrying a blank and having thereon oppositely-arranged patterns, rotary mandrels on opposite sides of the frame and having thereon circular cutters, the axial lines of the cutters lying substantially in a common plane which passes through the center of the blank, rollers movable upon the patterns and connected to the cutters, and means for moving the frame and cutters relatively to each other.

3. A woodworking-machine, comprising a non-rotatable frame carrying a blank and having oppositely-arranged patterns thereon, swinging standards having circular cutters thereon, said cutters being located oppositely to each other and having their axial lines lying substantially in a common plane which passes through the center of the blank, each cutting its edge of the blank independently of the other cutter, rollers movable upon the patterns and connected to the cutters, and means for moving the frame longitudinally past the cutters.

4. A woodworking-machine, comprising a non-rotatable frame arranged to carry a blank and having oppositely-arranged patterns thereon, a swinging standard having a rotatory mandrel carrying a circular cutter, the axial line of the cutter lying in a plane which passes through the center of the blank, a driven pulley having the same axis as the pivot of the swinging standard, a belt extending from the pulley to the shaft of the rotatory mandrel, and means for moving the frame longitudinally past the cutters.

5. A woodworking-machine, comprising a frame arranged to carry a blank and having oppositely-arranged patterns thereon, rotary cutters carried on shafts mounted in swinging standards, two driven shafts belted to the cutter-shafts, yokes connected to the standards and having rollers bearing upon the patterns, and a shaft arranged to move the frame past the cutters, said shaft having belt connections arranged to drive the same from either of the driven shafts; substantially as described.

6. A woodworking-machine comprising a frame having a pattern thereon, a blank-carrying bar removably secured thereto, said bar having clamps for holding the blank in place, a rotary cutter arranged to operate upon the blank, a roller movable upon the pattern and connected to the cutter, and means for moving the cutter and frame relatively to each other; substantially as described.

7. A woodworking-machine, comprising a frame having a pattern thereon, a blank-carrying bar removably secured thereto, said bar having clamps for holding the blank in place, a yielding roller arranged to press upon the upper face of the blank, a rotary cutter arranged to operate upon the blank, a roller movable upon the pattern and connected to the cutter, and means for moving the cutter and frame relatively to each other; substantially as described.

8. A woodworking-machine comprising a frame arranged to carry the blank and having a pattern thereon, a rotary cutter mounted upon a swinging standard and arranged to operate upon the blank, the cutter being so arranged that its axial line lies in a plane which passes through the center of the blank an adjustable bearing for said standard, and a roller bearing upon the pattern and having a support connected to the swinging standard, substantially as described.

603,262. WRAPPING-MACHINE. LUTHER C. CROWELL, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,060. (No model.)

Claim.—1. The combination of a core, a reciprocating member for advancing a paper longitudinally on the core, and means for winding a wrapper about the core and the paper on the core to form a spirally-wound wrapper-tube inclosing the core and the paper thereon, substantially as described.

2. The combination of a rotating core, a reciprocating member rotating with the core for advancing a paper longitudinally on the core, and means for guiding a wrapper to the core at an angle to form a spirally-wound wrapper-tube about the core and the paper thereon, substantially as described.

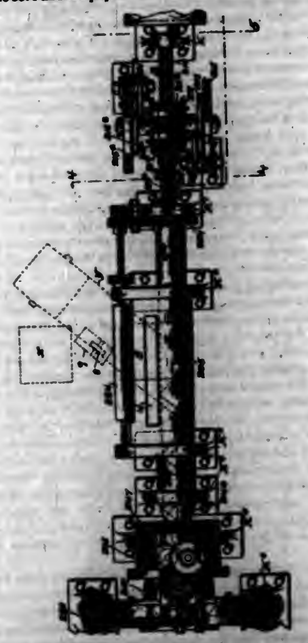
3. The combination of a rotating core, means for feeding papers successively to the core transversely to the axis of the core, a reciprocating member rotating with the core for advancing the papers longitudinally on the core, and means for guiding a succession of wrappers to the core at an angle to spirally wind the wrappers about the core and the papers thereon, substantially as described.

4. The combination of a core, a pusher moving longitudinally of the core to advance a paper on the core, and means for winding a wrapper about the core and the paper to form a spirally-wound wrapper-tube about the core and the paper thereon, substantially as described.

5. The combination of a rotating core, a pusher rotating with the core and moving longitudinally thereof to advance a paper on the core, and means for guiding a wrapper to the core to form a spirally-arms of the crank-axle with the cranks of the drive-wheel axle, an wound wrapper-tube about the core and the paper thereon, substantially as described.

6. The combination of a rotating core, means for feeding papers successively to the core, a pusher rotating with the core and moving longitudinally thereof to advance the papers on the core, means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

7. The combination of a rotating core, means for feeding papers successively to the core transversely to the axis of the core, a reciprocating pusher rotating with the core and engaging the successive papers to advance them longitudinally on the core, means for guiding a succession of wrappers to the core to spirally wind the wrappers about the core and the papers thereon, substantially as described.



8. The combination of a rotating core, means for feeding papers successively to the core transversely to the axis of the core, a reciprocating pusher rotating with the core and engaging successive papers to advance them longitudinally on the core, means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, feeding devices engaging the wrapper-tube beyond the wrapping-point, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

9. The combination of a rotating core, a reciprocating pusher carried by the core and spring-pressed to project outside the core, means for reciprocating said pusher to advance successive papers longitudinally on the core, and means for guiding a succession of wrappers to the core at an angle to spirally wind the wrappers about the core and the papers thereon, substantially as described.

10. The combination of means for supporting a succession of independent papers as they are longitudinally advanced, means for feeding the papers successively to said supporting means, a pusher engaging successive papers to advance them longitudinally, and means for winding a succession of wrappers spirally about the papers as they are advanced, substantially as described.

11. The combination of a rotating core, pushers 230, 230ª mounted within the core and spring-pressed to project outside the core, means for reciprocating said pushers alternately longitudinally of the core to advance alternate papers longitudinally on the core, means for guiding a succession of wrappers to the core at an angle to spirally wind the wrappers about the core and the papers thereon, substantially as described.

12. The combination of a rotating core, means for feeding papers successively to the core transversely to the axis of the core, pushers 230, 230ª mounted within the core and spring-pressed to extend outside the core, means for reciprocating said pushers alternately longitudinally of the core to advance alternate papers longitudinally on the core, means for guiding a succession of wrappers to the core at an angle to spirally wind the wrappers about the core and the papers thereon, substantially as described.

13. The combination of a rotating core, spring-pressed pushers 230, 230ª mounted to reciprocate within the core and extending outside the core, operating-rods 213, 213ª for reciprocating said pushers extending beyond the core, and means for reciprocating said rods alternately, substantially as described.

14. The combination of a rotating core, a casing extending about the core, means for advancing papers successively to the core through an opening in the casing, a reciprocating pusher rotating with the core and engaging the successive papers to advance them longitudinally on the core inside the casing, and means for guiding a succession of wrappers to the core at an angle through an opening in the casing to spirally wind the wrappers about the core and the papers thereon, substantially as described.

15. The combination of a rotating core, a casing extending about the core, means for advancing papers successively to the core through an opening in the casing, a reciprocating pusher rotating with the core and engaging the successive papers to advance them longitudinally on the core inside the casing, means for guiding a continuous wrapper-web to the core at an angle through an opening in the casing to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, feeding devices engaging the wrapper-tube beyond the wrapping-point, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

16. The combination of a core, means for advancing a paper longitudinally on the core, means for winding a wrapper about the core and the paper to form a spirally-wound wrapper-tube inclosing the core and the paper thereon, and means for flattening the wrapper-tube and inclosed paper as they are advanced from the core, substantially as described.

17. The combination of a rotating core, means for advancing a paper longitudinally on the core, means for guiding a wrapper to the core at an angle to form a spirally-wound wrapper-tube about the core and the paper thereon, and guides rotating with the core for flattening the wrapper-tube and inclosed paper as they are advanced from the core, substantially as described.

18. The combination of a core, means for advancing a succession of independent papers longitudinally on the core in line, means for winding a continuous wrapper-web spirally about the core and the papers on the core to form a continuous spirally-wound wrapper-tube inclosing the core and the papers thereon, means for flattening the wrapper-tube and inclosed papers as they are advanced from the core, and means for severing the flattened wrapper-tube between successive papers, substantially as described.

19. The combination of a rotating core, means for advancing a succession of independent papers longitudinally on the core in line as it rotates, means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, means for flattening the wrapper-tube and inclosed papers as they are advanced from the core, and means for severing the flattened wrapper-tube between successive papers, substantially as described.

20. The combination of a rotating core, means for advancing a succession of independent papers longitudinally on the core in line as it rotates, means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, guides rotating with the core for flattening the wrapper-tube and inclosed papers as they are advanced from the core, and a cutting-blade rotating with said guides for severing the flattened wrapper-tube between successive papers, substantially as described.

21. The combination of a rotating core, means for advancing a succession of independent papers longitudinally on the core in line as it rotates, means for guiding a continuous wrapper-web to the core to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, guides rotating with the core for flattening the wrapper-tube and inclosed papers as they are advanced from the core, and feeding and cutting rolls rotating with said guides for advancing the flattened wrapper-tube and inclosed papers and severing the wrapper-tube between successive papers, substantially as described.

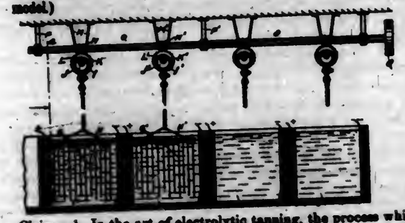
22. The combination of the rotating core 200, casing 205, means for advancing a succession of independent papers longitudinally on the core inside the casing, means for guiding a continuous wrapper-web to the core to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, feeding and cutting rolls 241 rotating with the core, and means for flattening the wrapper-tube and inclosed papers as they are advanced from the core to the cutting-rolls, substantially as described.

23. The combination of means for supporting and rotating a paper, means for applying a wrapper about the paper to form a wrapper-tube inclosing the paper, means for advancing the wrapped paper longitudinally, and means rotating with the paper-rotating means for flattening the wrapper-tube and inclosed paper, substantially as described.

24. The combination of a rotating core, means for applying a wrapper about the core and a paper thereon to form a wrapper-tube inclosing the paper and core, means for advancing the wrapped paper

longitudinally from the core, and means rotating with the core for flattening the wrapper-tube and inclosed paper, substantially as described.

603,263. PROCESS OF AND APPARATUS FOR ELECTROLYTIC TANNING. EDWARD DAVIS, Philadelphia, Pa., and HORACE R. MUSTARD, Smyrna, Del. Filed July 27, 1896. Serial No. 600,605. (No model.)



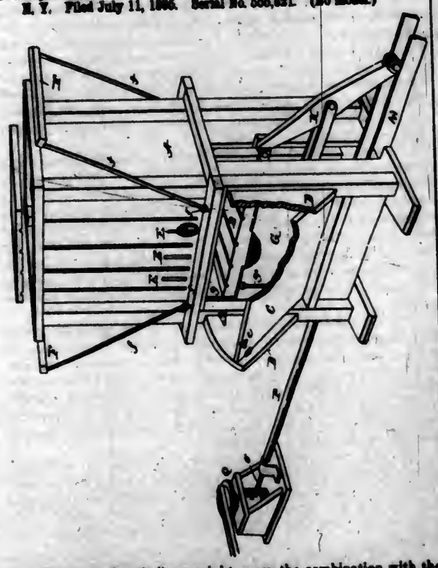
Claim.—1. In the art of electrolytic tanning, the process which consists in suspending skins and effecting their continuous vertical reciprocation in a solution of tanning liquor, simultaneously passing an electric current through said solution of tanning liquor perpendicular in direction to the surfaces of said skins, and intercepting the particles precipitated at the anodes or passing therefrom by the action of a screen, as specified.

2. In the art of electrolytic tanning, a journaled shaft, a worm fixed on said shaft and adapted to revolve therewith, a second journaled shaft and a gear-wheel fixed thereon adapted to engage said worm, an eccentric fixed on said second shaft, a tanning-vat, in combination with electrodes, a frame for suspending skins therefrom within the vat, and means for connecting said frame and eccentric, as specified.

3. In the art of electrolytic tanning, the process which consists in, first, purifying water by electrolysis, then leaching with said water, then electrolyzing the tanning liquor obtained from leaching, then suspending the skins to be tanned in said tanning liquor and subjecting them to the action of an electric current, as specified.

4. The combination of a tanning-vat, electrodes so arranged as to pass an electric current across the vat from electrode to electrode when the vat is supplied with tanning liquor and means for vertically suspending and vertically reciprocating the skins between the electrodes with the sides of the skins opposed to the direction of the electric current, as and for the purpose set forth.

603,264. BALING-PRESS. PETER K. DEDERICK, Londonville, N. Y. Filed July 11, 1896. Serial No. 598,631. (No model.)



Claim.—1. In a baling upright press, the combination with the press-case, having the open upper end, a feed-opening in the side wall, at or near the bottom of the same, the removable head with means of retaining the same in the open upper end of the press-case of the reciprocatory traverser working in the press-case, and the guard-door connected directly therewith, and having a movement relative thereto and bridging or closing the feed-opening when the traverser is elevated, substantially as described.

2. In a baling-press, the combination with the press-case, having the open upper end, a feed-opening in the side wall at or near the bottom of the same, and the removable head with means for retaining the same in the open upper end of the press-case, of the reciprocatory traverser working in the press-case, and the door-section loosely connected therewith, and bridging or closing the feed-opening when the traverser is elevated, whereby the traverser is permitted to drop to the bottom of the press-case, substantially as described.

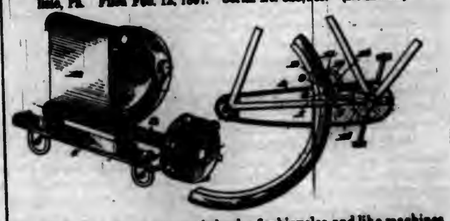
3. In a baling-press, the combination with the press-case having the open upper end, a feed-opening in the side wall, at or near the bottom of the same, and a removable head with means for retaining the same in the open upper end of the press-case, of a reciprocatory traverser working in the press-case, the door formed by the substantially flat piece of sheet metal working in guides in the press-case, and loosely connected with the traverser, whereby it is adapted to close the feed-opening when the traverser is elevated, and to permit of a movement of the traverser when the door is arrested; substantially as described.

4. In a baling-press, the combination with the vertical press-case having the feed-opening in the side wall, at or near the bottom, the feed-door for closing said opening, hinged at the lower edge to constitute a hopper when open, of the traverser reciprocating within the case, and a guard-door section loosely connected with the traverser for closing the feed-opening when the traverser is elevated, whereby the hopper may be filled without regard to the position of the traverser; substantially as described.

5. In a press, the press-frame and traverser adapted to work therein, of a straight power-arm pivotally connected to the traverser at one end and supported by the press-frame at the extreme opposite end, a toggle-lever pivotally connected with the traverser at one end and pivotally connected with the press-case at the opposite end, a link or links connecting the straight lever and toggle-lever for simultaneous movement in the same direction and the power applied in line with the lower end of the straight arm; substantially as described.

6. In a baling-press, the combination with the press-frame having the track in the lower portion thereof and the reciprocatory traverser working in the press-frame, of the toggle-lever pivotally connected to one end of the traverser and frame, the straight power-arm pivotally connected to the opposite end of the traverser and resting on the track at the opposite end and a link or links connecting said straight arm and toggle-lever for simultaneous movement in the same direction; substantially as described.

603,265. BACK-PEDALING BRAKE. CHARLES F. DUBLE, Carlisle, Pa. Filed Feb. 12, 1897. Serial No. 622,146. (No model.)



Claim.—1. In an automatic brake for bicycles and like machines, the combination with the drive-wheel, crank-axle, and connections between the drive-wheel and crank-axle embodying a clutch mechanism, whereby the machine may be impelled upon forward pedaling and the crank-axle may have its motion reversed or be held stationary without effecting the forward motion of the machine, of a shaft journaled in bearings parallel with the crank-axle, a brake secured upon an end portion of the shaft and normally held out of action when pedaling forward, gear elements applied to the said shaft and crank-axle, one of the said elements containing a clutch mechanism to permit of forward pedaling without setting the brake and to apply the brake upon back-pedaling, and means for connecting the said gear elements, substantially as described.

2. In an automatic brake for bicycles, &c., the combination of a shaft bearing a brake, sprocket-wheels applied to the crank and brake shafts, respectively, a sprocket-chain connecting the sprocket-wheels, an intermediate clutch mechanism for throwing the brake-shaft into active position upon the application of back pressure to the pedals and connections between the crank-axle and drive-wheel embodying a clutch mechanism, substantially as described.

3. In a brake mechanism for bicycles and the like, the combination with a ground-wheel, of a shaft, side pieces, means for adjustably connecting the shaft with reference to the side pieces, an end and a middle support, an endless band supported by the shaft and the end and middle supports, and means for turning the shaft in its bearing to set the brake, substantially as set forth.

4. In an automatic brake for bicycles, &c., the combination of a shaft, a brake secured to the shaft and disposed to automatically fall away from the drive-wheel, a gear-wheel mounted upon the said shaft and having clutched engagement therewith to cause the setting of the brake upon back-pedaling, a direct connection between the gear-wheel of the brake-shaft and the crank-shaft, and means for transmitting motion from the aforesaid shaft to the drive-wheel and embodying a clutch mechanism, substantially as and for the purpose set forth.

5. An automatic brake for bicycles, &c., comprising a plate having stub-arms, a shaft mounted in the said arms, curved side pieces secured to the shaft, an end and an intermediate support having connection with the side pieces, an endless band passing around the shaft and the said supports, a sprocket-wheel mounted upon the shaft and having a clutch engagement therewith to turn backward with the shaft and permit the shaft to turn forward independently thereof, means for imparting movement to the sprocket-wheel directly from the pedal-shaft and means for transmitting motion from the aforesaid shaft to the drive-wheel and embodying a clutch mechanism; substantially in the manner and for the purpose specified.

603,266. SAND-BOX. JAMES B. DOBLEY, Hartford, Conn., assignor of one-half to Halsey B. Philbrick, same place. Filed Dec. 4, 1897. Serial No. 660,796. (No model.)



Claim.—1. The combination, with a sand-box, of a discharge-pipe passing through said sand-box and having its inlet located above the level of the sand, and an air-blast pipe leading into said sand box and having an air-blast opening or openings situated below the inlet end of said discharge-pipe and above the level of the sand.

2. The combination, with a sand-box, of a discharge-pipe passing through and into said sand-box and flared at its upper end, and an air-blast pipe passing through the sand-box and one end surrounding the discharge-pipe, said surrounding portion having one or more air-escape openings.

3. The combination, with a sand-box, of a discharge-pipe passing through the bottom of the sand-box and having a flared inlet end located above the level of the sand, and an air-blast pipe passing through the sand-box and having an annular portion surrounding the discharge-pipe, said annular portion having one or more air-escape openings on its under side.

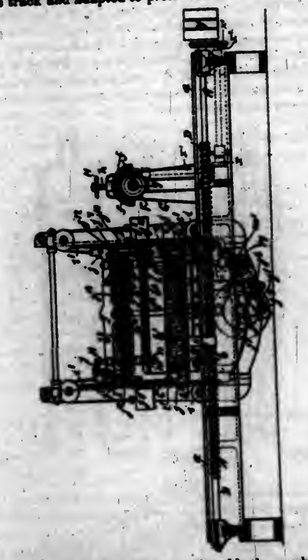
4. The combination, with a sand-box, of an air-blast pipe, and a sand-discharge pipe the delivery and receiving ends, respectively, of which are situated in the sand-box and are located above the level of the sand.

5. The combination, with a sand-box, of a discharge-pipe communicating therewith and having a flared inlet, a removable cap for covering the inlet of said pipe, a detachable cover for the sand-box, and an air-blast pipe leading into the latter.

6. The combination, with a sand-box, of a discharge-pipe communicating therewith and having a flared inlet above the level of the sand, and an air-blast pipe passing through a wall of the sand-box and having an air-escape opening or openings.

603,267. MACHINE FOR SAND-MOLDING. JOSEPH D. DUNKEY, Glasgow, Scotland, and WILLIAM RADDON, Rotherham, England. Filed Sept. 28, 1896. Serial No. 607,060. (No model.) Patented in England Dec. 12, 1896, No. 29,782.

Claim.—1. In a machine for making sand molds, the combination of a platform B carrying mold-boxes b', b^3, box b' being positioned on the platform, the other box being above box b' with means for moving it toward and from the same, means for raising both boxes from the platform, inverting and then lowering them, a machine-bed having rails on which said platform can travel under and out from under said means, a screw D in said bed, a nut engaging the screw and operatively connected to the platform, and a compression-roller above the track and adapted to press sand into the mold-boxes.



2. In a machine for making sand molds the combination of lifting-frames J actuated by crank-disks j' and connecting-rods, suspension-arms j^3 pivoted on said frames, and engaging trunnion-axles O formed on the parts of the mold-box to raise it, a worm-wheel e on one of said trunnions, and a transverse spindle k and worm K thereon and engaging worm-wheel e, to effect the turning of said box when it is desired to fill the other box part or parts with sand, substantially as described.

3. In a machine for making sand molds, the combination with the lifting-frames J of devices for separating the mold box parts and removing the pattern-plate b^4, said devices consisting of vertical shafts N in bearings on the lifting-frames J carrying levers n to which are pivoted horizontal shelves n' adapted to engage with the pattern-plate b^4 and upper box part or parts, substantially as described.

4. In a machine for making sand molds, the combination of a platform B carrying mold-boxes b', b^3, box b' being positioned on the platform, the other box being above box b', means for moving it toward and from box b', means for raising both boxes from the platform and turning them, a machine-bed having rails on which said platform can travel under and out from under said means, means for moving said platform and parts carried thereby on said track, a pneumatic roller above said track arranged to press the contents into said boxes when the platform and boxes are moved under it.

603,268. ELASTIC TIRE FOR VEHICLES. JAMES B. FORSYTH, Boston, Mass. Filed Sept. 7, 1897. Serial No. 650,705. (No model.)

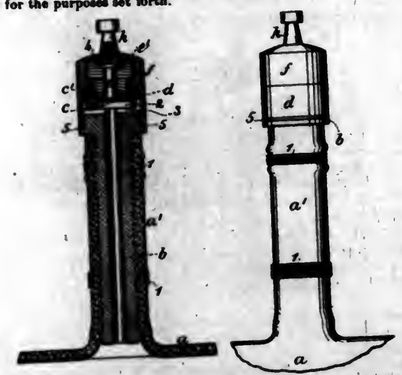


Claim.—1. A tire composed of a tread portion and a base portion, each of vulcanizable compound formed with tube-receiving grooves; and a contractile resilient tube (one or more) which the grooves in the tread and base portions fit, the tread portion, base portion and tube being united by vulcanization, substantially as described.

2. In a tire composed of tread and base portions with a contractile resilient tube (one or more) vulcanized in place between them, a spiral wire to strengthen the interior tube, substantially as described.

603,269. VALVE FOR PNEUMATIC TIRES. EMIL FRITSCHLE, New York, N. Y., assignor to himself and Joseph Schottmuller, same place. Filed Oct. 10, 1896. Renewed Sept. 8, 1897. Serial No. 650,981. (No model.)

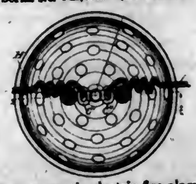
Claim.—1. In a valve for pneumatic tires, the combination with a tubular stem recessed at its outer end, of a perforated cover adapted to screw upon the end of the tubular stem, a disk within the recessed end of the tubular stem adapted to be seated against the end of said cover, a cap screwing upon the cover and perforated, and a device extending through and seated within the cap and acted upon by the disk to simultaneously shut off the escape of air at the opening in the cap with the closing of the opening in the cover, substantially as and for the purposes set forth.



2. In a valve for pneumatic tires, the combination with the tubular stem *b* recessed at 2 at its outer end and transversely slotted at 3, and a disk *c* received within the recessed end, of a cover *d* centrally perforated, and screwing upon the end of the tubular stem, a centrally-perforated cap *f* screwing upon the end of the cover *d*, the stem *c*, disk *c'* and washer 4, and the tapering head *h* passing through the opening in the cap and screwing upon the end of the stem *c*, said stem resting upon the disk *c* when the disk is seated upon the flat under side of the cover *d*, and the washer 4 being simultaneously pressed against the end of the cap *f* to form a double seal to prevent the escape of the confined air of the tire, and at the same time a means for providing, by the pressure of the finger against the head, for the escape of the air at pleasure, substantially as set forth.

3. In a valve for pneumatic tires, the combination with the tubular stem having a transverse slot, of a perforated cover screwed thereon and having a screw-thread to connect with a pump, a disk valve between the end of the stem and the under side of the cover, a removable perforated cap screwed on the cover, a valve adapted to close against the under side of the cap and its stem extending through the cap and nearly to the disk valve, so that the two valves can be opened by hand, substantially as specified.

603,270. AUTOMATIC ELECTRIC FIRE-ALARM. WALTER R. FROST, Lewiston, Me., assignor to Orland S. Ham, same place. Filed June 30, 1897. Serial No. 642,908. (No model.)

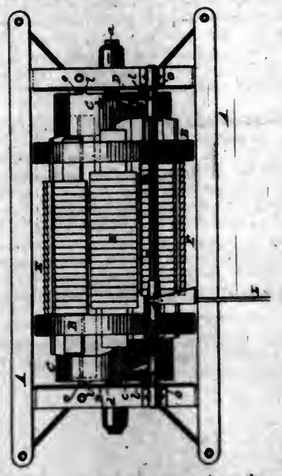


Claim.—1. In an automatic electric fire-alarm in combination a shell or case having an air-chamber and a concave or sunken drum-head or diaphragm, a movable float circuit-closer arranged centrally within said case or shell and loosely supported on said diaphragm a stationary electrode metallically connected to said case or shell and circuit-wires connected respectively to said electrode and float circuit-closer substantially as and for the purpose set forth.

2. In an automatic electric fire-alarm, in combination an inclosing shell or case having an air-chamber and a concave or sunken diaphragm, a circuit-closing float supported loosely on said diaphragm, a guide-ring of fiber or suitable material secured within said case or shell, a stationary electrode and circuit-wires connected respectively to said float circuit-closer and stationary electrode substantially as and for the purpose set forth.

3. In an automatic electric fire-alarm in combination an inclosing shell or case having an air-chamber and a concave or sunken diaphragm, a movable circuit-closing float resting on said diaphragm, a guide-ring secured within said shell, a stationary electrode secured within said shell, a flexible hair wire connecting the said float, and one of the circuit-wires and an electrical connection from the other circuit-wire to the stationary electrode substantially as and for the purpose set forth.

608,271. COTTON-THINNER. RICHARD J. GATLING, New York, N. Y. Filed Dec. 18, 1897. Serial No. 662,445. (No model.)



Claim.—1. In a machine for thinning plants, the combination of the rotatable wheels B having a series of cutters mounted loosely therein, disks engaging the projecting ends of said cutters with cams for operating the same, and means for raising the disks and cutters, substantially as and for the purpose set forth.

2. In combination with the movable disks, the cams F with means for adjusting the same, substantially as shown and described.

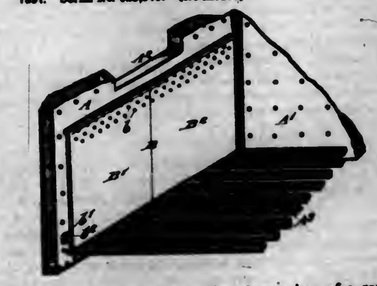
3. In a plant-thinning machine, the wheels B provided with slots adapted to permit a longitudinal and also a radial movement of cutters mounted therein, with means substantially such as shown and described for moving the cutters both longitudinally and radially in the slots of said wheels while in motion, as set forth.

4. In combination with the vertically-movable disks arranged to engage the ends of the cutters, the antifriction-rollers *r*, *r*, arranged to operate substantially as described.

5. In combination with the main frame and the vertically-movable disks, ribs or guides arranged to prevent lateral movement of the disks as set forth.

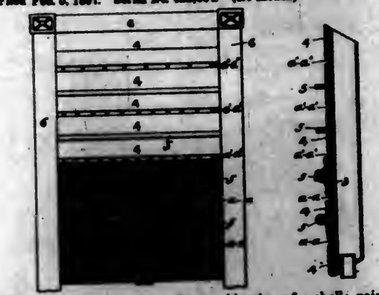
6. The combination in a plant-thinning machine, of the slotted wheels B, the cutters E mounted therein, the movable disks C provided with an annular recess to engage the ends of the cutters with cams located in said recesses, the rock-shaft *b* provided with a lever L, and arms *c* with rods *d* connecting said arms and disks, all constructed and arranged to operate substantially as herein described.

603,272. FURNACE. RAY GAUL, Brooklyn, N. Y. Filed Mar. 1, 1897. Serial No. 625,575. (No model.)



Claim.—The combination with a furnace-box, of a removable air-plate extending along one end of the same with its top in engagement with the end wall, the said air-plate being provided with hooks at its bottom adapted to engage studs or lugs projecting from the sides of the furnace-box for removably holding the bottom of the plate spaced from the end wall to form an air-space, the said plate being further provided with air-distributing openings near its top, substantially as set forth.

608,278. GAS-BURNER. JOSEPH F. HEWITT, Allegheny, Pa. Filed Feb. 6, 1897. Serial No. 622,604. (No model.)



Claim.—1. In gas-burners, the combination of a shell; pairs of transverse incombustible strips secured to the face of said shell; ribs of incombustible material secured between said strips and projecting at right angles to the face of the burner and gas-outlets between said pairs of transverse strips whereby the upper gas-jets are shielded from the blow-out effect of the lower gas-jets.

2. In gas-burners the combination of a shell; pairs of transverse strips of incombustible material secured to said shell; gas-outlets extending across said burner between adjacent pairs of said strips and incombustible material projecting horizontally intermediate of the pairs of the strips and shielding the gas-outlets.

608,274. FENCE. JOHN W. HOLLER, Van Buren, Ind., assignor of one-half to Charles D. Grandstaff, same place. Filed July 19, 1897. Serial No. 645,128. (No model.)



Claim.—1. A stay for wire-runner fences, provided with a plurality of runner-engaging eyes, projecting from one side surface of the stay, and arranged in a zigzag series alternately adjacent to opposite edges of the stay, each eye being closed and consisting of a loop having crossed sides, and diagonally-disposed connections between the eyes, arranged in contact with the opposite side of the stay, substantially as specified.

2. A stay for wire-runner fences provided in its opposite edges with a zigzag series of notches or seats, in combination with a zigzag tie-wire provided with spaced loops arranged respectively in said notches or seats, with the connecting portions between said loops arranged diagonally in contact with one side surface of the stay, all of said loops projecting perpendicularly beyond the opposite side surface of the stay to form runner-engaging eyes, substantially as specified.

3. A stay for wire-runner fences provided in its opposite edges with notches or seats arranged in a zigzag series, in combination with a continuous tie-wire provided with spaced loops arranged respectively in said notches or seats to project beyond a common side surface of the stay, and having the sides of the loops crossed, the connecting portions of the tire-wire lying in contact with the opposite side surface of the stay, substantially as specified.

4. In a fence, the combination with runners, of an intersecting stay provided in its opposite edges with notches or seats arranged in a zigzag series, and a continuous tie-wire terminally attached to the uppermost and lowermost runners, and provided at intervals with loops extending respectively through said notches or seats, and engaging the runners at the opposite side surface of the stay, substantially as specified.

5. In a fence, the combination of runners, the uppermost and lowermost runners being provided with crimps, a stay arranged at one side surface in contact with the runners, and having its extremities arranged contiguous to said crimps in the uppermost and lowermost runners, said stay being provided in its opposite edges with a zigzag series of notches or seats, and a continuous tie-wire terminally coiled around the crimped portions of said uppermost and lowermost runners, and provided with intermediate spaced loops arranged respectively in said notches or seats to form runner-engaging eyes, substantially as specified.

6. In a fence, the combination with runners, of an intersecting stay provided in its opposite edges with notches or seats arranged in a zigzag series and disposed respectively in the planes of the runners, and a tie-wire terminally attached to the uppermost and lowermost runners, extended transversely across the stay in the planes of said uppermost and lowermost runners, respectively, having its intermediate portion extended in a zigzag direction between said notches or seats, and provided at intervals with loops extending respectively through the notches or seats, and projecting beyond the opposite side surface of the stay, to form runner-engaging eyes, the intermediate eyes being loosely fitted upon the engaged runners, substantially as specified.

608,275. DUPLEX-WRITING APPARATUS. HOMER R. HOLMES, Burr Oak, Kans. Filed May 20, 1897. Serial No. 638,771. (No model.)



Claim.—1. A duplex-writing apparatus having a writing-plate provided at its front edge with a transverse guide, revoluble supports mounted upon the plate to traverse a stationary record-surface and support said plate in a position approximately parallel with, and with its front edge contiguous to the plane of, said surface, supply and receiving rollers mounted above and carried by the writing-plate, and one of them being operatively connected with said rolling supports for actuation thereby, and a record-strip terminally connected respectively to said supply and receiving rollers, traversing the upper and lower surfaces of the writing-plate, and extending around said transverse guide at the front edge thereof, substantially as specified.

2. A duplex-writing apparatus having a writing-plate, supporting-rollers mounted upon the writing-plate to traverse a record-surface, receiving and supply rollers mounted upon the writing-plate to carry a record-strip, the receiving-roller being carried by the common spindle of the supporting-rollers and adapted to receive rotary motion therefrom, and a handle projecting axially from one of the supporting rollers to provide for manually turning the same to advance the writing-plate and reel the record-strip, in combination with an inscribing medium having a plurality of inscribing-points to respectively traverse the record-strip and the record-surface, substantially as specified.

3. A duplex-writing apparatus having a writing-plate provided at its front end with a transverse guide, transversely opposite main supporting-rollers mounted upon the record-plate in rear of said transverse guide and adapted to traverse a record-surface, rear auxiliary rollers mounted upon the plate to traverse the record-surface in rear of the main supporting-roller, supply and receiving rollers mounted upon the writing-plate in rear of its transverse guide, the receiving-roller being carried by the spindle of said main supporting-rollers, and a record-strip terminally attached respectively to the supply and receiving rollers and extending around said guide, substantially as specified.

4. A duplex-writing apparatus having a writing-plate adapted to be advanced over a record-surface, a receiving-roller mounted upon the writing-plate for carrying a record-strip, a paper-clamp for engaging one extremity of the record-strip, and a flexible connection between the paper-clamp and the receiving-roller, substantially as specified.

5. A duplex-writing apparatus having a writing-plate adapted to be advanced over a record-surface and having a guide-slot parallel with its writing-surface, a receiving roller or drum mounted transversely above the plane of the writing-plate, a clamp comprising a bar having a slot for alinement with the slot of the writing-plate and a bail for engaging the inserted extremity of a record-strip, and a

flexible connection between said bar and the receiving-roller, substantially as specified.

6. A duplex-writing apparatus having a writing-plate provided with a slot parallel with its writing-surface, alined supporting-clips contiguous to the front edge of the writing-plate, a receiving-roller mounted transversely above the writing-plate, and a clamp flexibly connected with the receiving-roller for engaging the extremity of a record-strip, said clamp having a slotted bar adapted to be seated in said supporting-clips with its slot in registration with that of the writing-plate, and means for engaging the extremity of the strip inserted through the slot in the bar, substantially as specified.

7. In a duplex-writing apparatus, the combination with a writing-plate adapted to carry a record-strip and traverse a record-surface, of an inscribing medium having main and auxiliary inscribing-point holders, the auxiliary holder being mounted for lateral adjustment, and for adjustment toward and from the main holder, and means for securing the auxiliary holder in the desired position with relation to the main holder, substantially as specified.

8. In a duplex-writing apparatus, the combination with a writing-plate adapted to carry a record-strip and traverse a record-surface, of an inscribing medium having main and auxiliary inscribing-point holders, the auxiliary holder being mounted for lateral adjustment, and for adjustment toward and from the main holder, and common means for securing the auxiliary holder at the desired adjustment against movement in either direction, substantially as specified.

9. In a duplex-writing apparatus, the combination with a writing-plate adapted to carry a record-strip and traverse a record-surface, of main and auxiliary inscribing-point holders, the auxiliary holder being pivotally mounted upon the main holder for lateral adjustment with relation thereto, and being flexibly connected with said main holder for swinging movement in a plane perpendicular to said lateral movement, whereby the interval between the extremities of the holders may be varied, and means for securing the auxiliary holder at the desired adjustment, substantially as specified.

10. In a duplex-writing apparatus, the combination with a writing-plate adapted to carry a record-strip and traverse a record-surface, of main and auxiliary inscribing-point holders, the auxiliary holder having a spring-shank pivotally mounted upon the main holder to allow lateral adjustment of the free end of the auxiliary holder, and adjustment of said free end toward and from the corresponding end of the main holder, and means for securing the auxiliary holder at the desired adjustment with relation to the main holder, substantially as specified.

11. In a duplex-writing apparatus, the combination with a writing-plate adapted to carry a record-strip and traverse a record-surface, of main and auxiliary inscribing-point holders, the auxiliary holder being mounted upon the main holder for lateral and forward and rearward adjustment, a lateral ear on one of the holders provided with a plurality of threaded sockets, and an adjusting-screw swiveled upon the other holder and engaged with one of the sockets in said ear of the first-named holder, whereby the auxiliary holder may be secured at the desired adjustment in either of its planes of movement, substantially as specified.

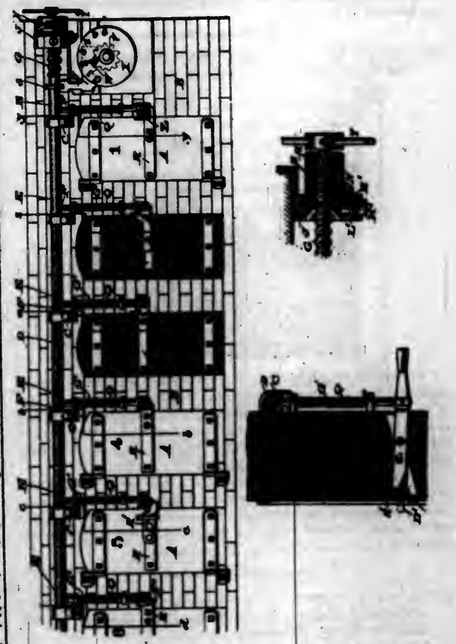
12. In a duplex-writing apparatus, the combination with a writing-plate adapted to carry a record-strip and traverse a record-surface, of main and auxiliary inscribing-point holders each having a barrel, the auxiliary holder being mounted upon the main holder for lateral swinging movement and forward and rearward swinging movement, means connecting the holders for securing the auxiliary holder in the desired position in both of its planes of movement, and flat inscribing-points having carriers revolubly fitted in said barrels for adjustment to vary the relative positions of said inscribing-points, substantially as specified.

603,276. PNEUMATIC TIRE. WILLIAM L. JOLLY, Arrowtown, New Zealand. Filed Jan. 22, 1898. Serial No. 667,606. (No model.)



Claim.—In combination, the rim, the plurality of independent inflatable sections having necks extending through the rim, the continuous air-tube located inside the rim and having nozzles corresponding to said necks and designed to be detachably connected therewith, the single plate extending in line with all of the necks on one side, the plurality of independent plates located on the opposite side, and screws for securing the independent plates of the continuous plate and thereby clamping the necks, substantially as described.

603,277. LOCK FOR PRISON-CELLS. GERRAUS F. KENDZ, Woodbury, N. J., assignor of one-half to Charles R. Van Stege, same place. Filed Jan. 28, 1898. Serial No. 668,264. (No model.)



Claim.—1. A rod or shaft having thereon a series of recesses the members thereof extending in a coincident line, and another series of recesses thereon having its members extending in an irregular line and bolts for doors, adapted to enter all of the first-named recesses at one time, or either bolt to enter only one of the second-named recesses under a different adjustment of said shaft.

2. A rod or shaft having thereon series of recesses, one series thereof having its members extending in a coincident line, and the other series having its members extend in an irregular line, bolts adapted to engage said recesses, under a different adjustment of said shaft, and a register connected with said shaft, whereby the latter may be set to cause the registration of the recesses with the respective bolts.

3. In a lock for cells, a shaft in combination with means for imparting both rotary and sliding motions thereto, said shaft being provided with different series of recesses, the members of one series extending in a coincident line and those of the other series extending in an irregular line.

4. In a lock for prison-cells, a rotatable shaft having a recess thereon, a screw on said shaft, a shifting collar in which said screw is mounted, a sleeve on which said collar is mounted, and a lever on said collar which is adapted to engage said sleeve.

5. In a lock for prison-cells, a rotatable shaft having a recess thereon, a screw on said shaft, a shifting collar in which said screw is mounted and means for locking said collar.

6. In a lock for a prison-cell, a rotatable shaft with recesses therein, means for shifting said shaft in longitudinal direction, a series of bolts adapted to enter said recesses and bars or latches for said doors connected with said bolts, said recesses being in different series, the members of one series extending in a coincident line, and those of the other series extending in an irregular line.

7. In a lock for a prison-cell, a rotatable shaft with recesses therein, means for shifting said shaft in longitudinal direction, a series of bolts adapted to enter said recesses and bars or latches for said doors connected with said bolts, in combination with a register of the number of cells having the axis of its index connected with said shaft by means of a sliding bar which engages with said axis and is freely connected with said rotatable shaft.

8. In a lock for a cell having outer and inner doors, a bolt, a shaft for controlling said bolt, and a latch operated by said bolt, in combination with locking-bars on said outer and inner doors engaged by said latch, the latter being provided with a shoulder which may

partially or entirely engage the bar of the inner door, said bolt thus serving to simultaneously lock both the outer and inner doors and unlock only the outer door or both doors.

9. In a lock for a prison-cell, a bolt, a recessed shaft for controlling said bolt, a shifting collar in which a threaded portion of said shaft is fitted, and a lock on the support of said collar, the latter having a keeper and said lock having a semicylindrical bolt which is adapted to enter said keeper.

10. In a lock for a prison-cell, the latch Z, the bolt Q, and the bar R with which said bolt is adapted to engage, and the bar B' in combination with outer and inner doors for said cell, said latch having a lug such as C for engagement with the bar of the inner door, said latch being adapted to release the outer door without necessarily raising the inner door.

603,278. BEER-TAPPING IMPLEMENT. AUGUST KOPP, Hamilton, Ohio. Filed July 26, 1897. Serial No. 646,163. (No model.)

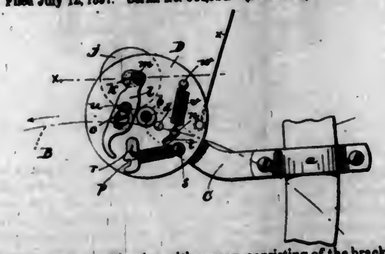


Claim.—1. In a beer-tapping implement, the combination, substantially as set forth, of a handle having an enlarged end formed with a dovetailed recess in its face, and a soft-metal block dovetailed in said recess and having its face forming the end extremity of said handle, said handle and block being provided with an open longitudinal groove.

2. In a beer-tapping implement, the combination, substantially as set forth, of a longitudinally-grooved handle provided with an enlarged end containing a socket at right angles to the axis of the handle and a socket at the end of the handle, a soft-metal block firmly seated in said last-mentioned socket and grooved in prolongation of the groove in the handle, and a wooden plug firmly seated in the first-mentioned socket.

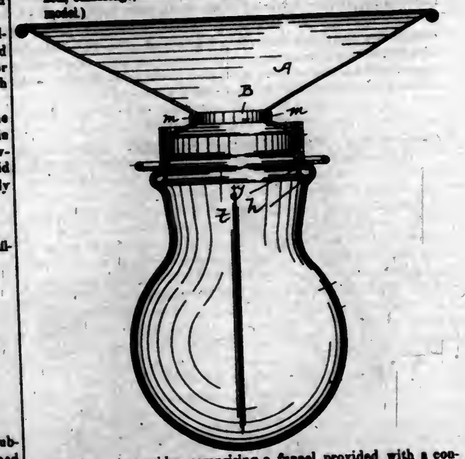
3. In a beer-tapping implement, the combination, substantially as set forth, of a longitudinally-grooved handle having at one end a pair of transverse claws and having at the other end a socket at right angles to the axis of the handle and a socket at the end of the handle, a soft-metal block firmly seated in the last-mentioned socket and grooved in prolongation of the groove in the handle, and a wooden plug firmly seated in the first-mentioned socket.

603,279. BICYCLE-BELL. HAROLD G. MARTIN, Providence, R. I. Filed July 12, 1897. Serial No. 644,234. (No model.)



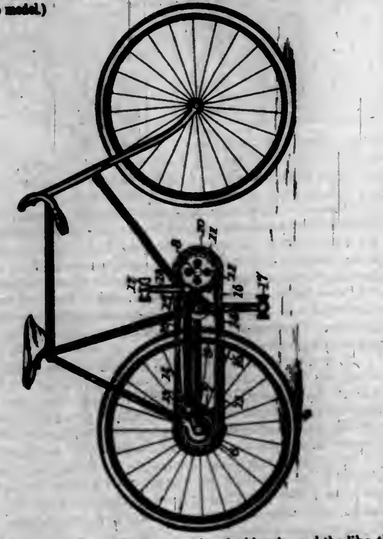
Claim.—In combination with a gong, consisting of the bracket C having a journal-stud *f* at its forward end, the oscillatory disk D eccentrically mounted upon said stud and having a centrally-projecting hub, integral with said disk, adapted to support the gong, the sleeve *g* projecting outwardly from the disk, and integral therewith, the shaft *i* loosely fitting in said sleeve and carrying the friction-roller, a crank *k* formed upon the inner end of said shaft, the claw-lever *l* attached to said crank and provided with an elongated slot *u*, the stud *o* fastened to the disk and loosely fitting in said slot, the spring-hammer *r* fastened to the disk and provided with a notch *p*, the slot *t* cut through the disk radially from the center of the journal-stud *f*, with a pin *n* fastened to the arm of the bracket and projecting through said slot, a pin *w* fastened to the disk, with the spiral spring *v* having its ends secured to each of said pins, respectively, adapted to turn the disk to throw and hold the friction-roller out of contact with the wheel, with means for turning the disk in the other direction to force the friction-roller into contact with the tire of the bicycle-wheel, substantially as shown and described.

603,280. CUSPIDOR FOR DENTAL CHAIRS. FRANK G. MCCLELLAN, Cambridge, Mass. Filed May 21, 1897. Serial No. 637,567. (No model.)



Claim.—A cuspidor comprising a funnel provided with a contracted neck, the lower end of said neck having an outward projection; a clamping-ring fitted to slide on said neck, and a rubber body adapted to be secured by its mouth between said neck and projection.

603,281. BICYCLE PROPELLING MECHANISM. THOMAS B. MCDERMOTT, Portland, Oreg. Filed May 25, 1897. Serial No. 638,123. (No model.)

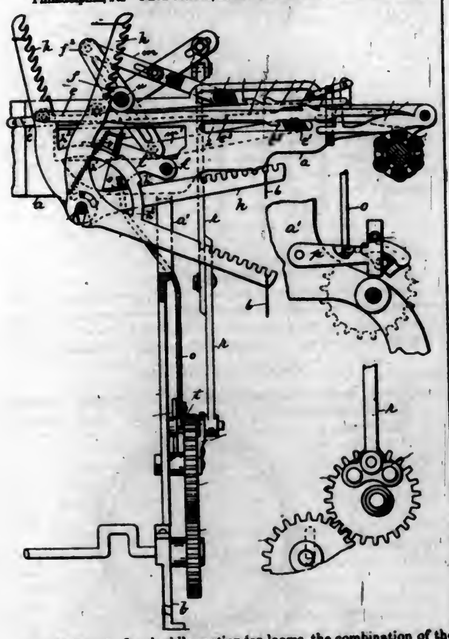


Claim.—1. In propelling mechanism for bicycles and the like, the combination of a drive-wheel, an axle mounted independently of and concentric with the drive-wheel, a crank-axle, means for connecting the crank-axle with the drive-wheel axle, an idle-shaft provided with differential gearing, and means for connecting the elementary parts of the differential gearing with the drive-wheel and its axle, substantially as set forth.

2. In propelling mechanism for bicycles and the like, the combination of a drive-wheel, an axle mounted independently of and concentric with the drive-wheel and provided at its ends with cranks, a crank-axle, pitmen connecting the cranks at the ends of the crank-axle with the cranks of the drive-wheel axle, an idle-shaft having differential gearing, and independent connections between the component parts of the said differential gearing and the drive-wheel and the drive-wheel axle, substantially as set forth.

3. In propelling mechanism for bicycles and the like, the combination of a fixed tubular bearing, a drive-wheel mounted upon the said bearing, an axle journaled within the tubular bearing and provided at its ends with cranks, a crank-axle, pitmen connecting the arms of the crank-axle with the cranks of the drive-wheel axle, an idle-shaft having differential gearing, and independent connections between the elements of the said differential gearing and the drive-wheel and its axle, substantially as described.

603,282. SHEDDING-MOTION FOR LOOMS. GEORGE OLDHAM, Philadelphia, Pa. Filed Jan. 14, 1895. Serial No. 534,804. (No model.)



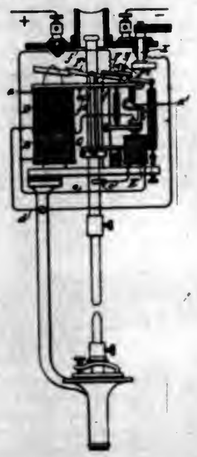
Claim.—1. In a heddle-motion for looms, the combination of the notched bell-crank levers or jacks constructed as described, notched draw-bars adapted to operate said jacks, transverse knives adapted to operate the draw-bars, and a locking-frame, with an eccentric gear adapted to operate the knives, an operating-rod adapted to raise and lower the locking-frame, a lever pivoted to the loom-frame and adapted to raise and lower the operating-rod, and a cam carried by the eccentric gear and adapted to operate the lever, substantially as and for the purposes described.

2. In a heddle-motion for looms, the combination of the jacks, a shouldered rib formed on said jacks radially to the point of support, notched draw-bars adapted to operate the jacks, transverse knives adapted to operate the draw-bars, and a locking-frame adapted to engage the shoulders of the rib of the jacks, with the eccentric gear adapted to operate the knives, an operating-rod adapted to raise and lower the locking-frame, a lever pivoted to the loom-frame and adapted to raise and lower the operating-rod, a roller carried by said lever, and a cam carried by said eccentric gear and adapted to bear against said roller to thereby raise the lever, substantially as and for the purposes described.

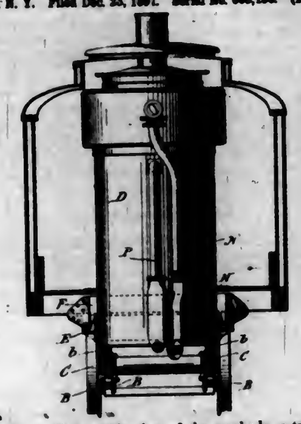
603,283. ELECTRIC-ARC LAMP. TIMOTHY H. PETTENGILL, Amsterdam, N. Y. Filed Sept. 7, 1897. Serial No. 650,795. (No model.)

Claim.—1. In an arc-lamp, the combination with the coarse and fine wire coils, the starting-coil, bridge-contacts and circuit connections, of the armature-lever, an insulated cut-out contact carried thereby, a circuit connection from said contact to the terminal of the coarse coil adjacent to the bridge-contacts, and a short-circuiting contact against which the first-named contact is drawn when the armature-lever is brought to its lowest position, substantially as and for the purpose set forth.

2. A cut-out device adapted to be inserted in a lamp of the character described, and consisting of the plate P having the slots p^1, a cut-out contact as p^3, the stud p, and an adjustable screw-contact p', in combination with the armature-lever F' upon which it is mounted, and from which it is insulated, the retaining-screws working in the slots p^1, the circuit connections, and the cut-out contact of the trimmer's switch X on the frame of the lamp against which the contact p^3 works, substantially as and for the purpose set forth.



603,284. STEAM-PROPELLED CAR. ALBERT J. PITKIN, Schenectady, N. Y. Filed Dec. 23, 1897. Serial No. 663,120. (No model.)



Claim.—1. The combination of the car-body, a truck, a boiler extending through the floor of the car-body resting on and supported directly by the truck, and having its axis coincident with the axis about which the truck turns, an annular casting concentric with the boiler surrounding it and secured to the car-body, an annular casting resting on and supported by the truck and sustaining the weight of the car-body, and having its axis coincident with the axis of the boiler, ball or roller bearings interposed between the two castings, a steam-engine mounted on the truck outside the car-body and rigid steam-pipes formed with flattened portions extending through an elongated opening in the lower casting and connecting the engine with the boiler and with the exhaust.

2. The combination of the car-body, the car-truck, a steam-boiler, an annular casting resting on the truck, another annular casting surrounding the boiler and secured to the car-body, ball or roller bearings interposed between the two castings and clips (such as J) permitting the castings to have a slight vertical movement relatively to each other but which prevent their separation.

3. The combination of a car-body, the car-truck, the boiler, a lower casting having an annular grooved flange containing balls or rollers and laterally-projecting brackets which rest on the frame of the truck, and an upper casting having a downwardly-projecting flange resting on the balls or rollers and secured to the car-body.

4. The combination of the truck-frame, the axle-boxes, the beams resting on the axle-boxes, springs secured to the beams and connected with the truck-frames, a boiler resting on the frames, a lower annular casting also resting on the truck-frames, an upper annular casting connected with the car-body, ball or roller bearings interposed between the two castings, steam-cylinders supported on the truck-frames, a steam-pipe extending through a vertical opening in the lower casting and connected with the boiler and with the steam-cylinders, and valve-gearing supported by the truck-frame.

5. The lower casting herein described, formed with a vertical annular portion adapted to surround a cylindrical boiler, and with a laterally-projecting flange having a vertical flanged portion formed with a ball-groove, said lateral flange being formed with elongated openings for steam-pipes, &c., substantially as described.

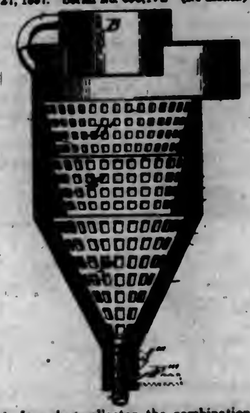
6. The herein-described lower casting formed with a circular opening to accommodate a cylindrical boiler, an annular ball-groove, an opening to accommodate a steam-pipe, and laterally-projecting brackets adapted to be connected with the truck-frame.

7. The combination of the truck-frame, the car-body, the boiler extending through the car-body, the upper casting secured to the car-body, the lower casting secured to the truck-frame, a steam-cylinder supported by the truck-frame, and a steam-pipe connected with the cylinder and with the boiler, said steam-pipe having a flattened portion extending through an elongated opening in the lower casting.

8. The combination of the wheels, axles, and axle-boxes of the side frames of the truck, the spring-supporting beams resting on the axle-boxes, spring carried by said beams and connected with the side frames of the truck, a cylindrical boiler resting on the side frames of the truck, a circular casting also resting on the side frames, another casting secured to the car-body and resting on the first-mentioned casting, steam-cylinders carried by the truck outside the car-body, valve-gearing supported by the lower casting, and a rigid steam-pipe connected with the cylinders and the boiler, and passing through an opening in the lower casting.

9. The combination of the car-body, the car-wheels, their axles, the axle-boxes arranged between the wheels, the spring-supporting beams resting on the axle-boxes, springs carried by said beams and connected with the side frames of the truck, a cylindrical boiler resting on the side frames of the truck, a circular casting also resting on the side frames, another casting secured to the car-body and resting on the first-mentioned casting, and steam-cylinders carried by the truck outside the car-body.

603,285. DUST-COLLECTOR. OTTO FORSECK, St. Louis, Mo. Filed Sept. 27, 1897. Serial No. 653,174. (No model.)



Claim.—1. In a dust-collector, the combination with an outer cylindrical casing, of a series of conical walls arranged in said casing, said walls forming a connected series of separating-chambers, the walls of the different cones being formed with different-sized perforations, and walls or partitions extending from the converging ends of the upper cones, to the casing, forming individual collecting-chambers, substantially as described.

2. The combination with the outer casing of a dust-collector, of a series of individual collecting-chambers within said casing, a connected series of perforated separating-chambers superimposed one above the other and cooperating with said individual collecting-chambers respectively, and means for adjusting the size of the perforations of the separating-chambers.

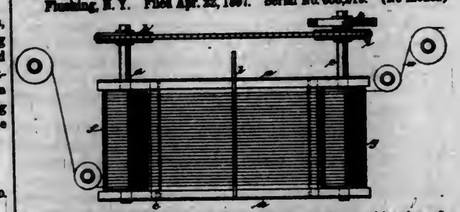
3. The combination with the outer casing of a dust-collector, of a series of individual collecting-chambers therein, and a superimposed series of connected separating-chambers cooperating with said collecting-chambers, said separating-chambers comprising conical side walls, having perforations therein, sleeves surrounding said side walls and formed with perforations adapted to register with the perforations in the side walls, and means for moving said sleeves to change the size of the perforations; substantially as described.

4. In a dust-collector, the combination with the outer casing, of a series of individual collecting-chambers having separate outlets, a series of connected separating-chambers cooperating with said collecting-chambers, said separating-chambers having adjustable perforations, means for individually adjusting said perforations in the different separating-chambers, said means extending to the outside of the casing, an air-outlet, and a pipe leading from a point in proximity to the air-outlet to the interior of the casing at a point above the uppermost separating-chamber; substantially as described.

5. In a dust-collector, the combination with the outer casing, of a series of individual collecting-chambers having separate outlets, a series of connected separating-chambers cooperating with said individual collecting-chambers, said separating-chambers having adjustable perforations, means for individually adjusting said perforations in the different separating-chambers, said means extending to the outside of the casing, an air-inlet, and a spiral way leading from the lowermost of said collecting-chambers to the outlet of said chamber; substantially as described.

6. In a dust-collector, the combination with the outer casing, of a series of connected separating-chambers, a series of individual collecting-chambers, and means for controlling communication between the several collecting-chambers, whereby the machine may be used as a general, or individual, collecting-chambered machine; substantially as described.

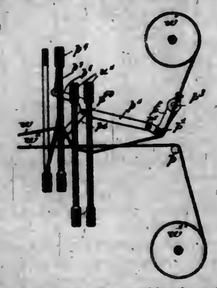
603,286. ELECTROPLATING APPARATUS. LOUIS POTTHOFF, Flushing, N. Y. Filed Apr. 22, 1897. Serial No. 633,219. (No model.)



Claim.—1. In an electroplating apparatus, the combination of a bath, a frame contained therein and comprising side bars *a*, bearings *b* and cross-bars *c*, a plurality of shafts, rollers *f* located on the shafts between the side bars of the frame, and one or more guiding combs of conducting material for guiding the wire, one or more anodes and circuit connections for the anodes and combs, substantially as described.

2. In an electroplating apparatus for electroplating wire, the combination of a framework carrying rollers, a conducting-comb carried by the framework for conducting current from the wires and for maintaining separate turns of the wires apart, a vat surrounding the said framework, comb and rollers, one or more anodes contained in the vat, and circuit connections to the anode or anodes and comb, substantially as described.

603,287. LOOM FOR CROSS-WEAVING. WILLIAM H. REDDING, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed May 15, 1896. Serial No. 591,606. (No model.)



Claim.—1. In a loom, the combination with a vibrating guide and actuating means therefor, of means to at times resist vibration of the said guide, substantially as described.

2. In a loom, the combination with a vibrating warp-guide, and actuating means therefor, of connections between said guide and the loom-frame to relieve said actuating means from the tension of the warp-threads on said guide, substantially as described.

3. In a loom, the combination with the warp-guide, a stationary support and jointed levers connecting said guide and support, of means to relatively move said jointed levers to thereby vibrate said guide, substantially as described.

4. In a loom, the combination with a warp-guide, a stationary support, and toggle-levers connecting said guide and support and normally receiving the tension of the warp threads on said guide, of means connected with a moving part of the loom to relatively move said toggle-levers to vibrate said guide, substantially as described.

5. In a loom, the combination with the harness-frames, a warp-guide, a stationary support, and toggle-levers connecting said guide and support, of a connection between said toggle-levers, and a harness-frame for moving the former by the latter, substantially as described.

6. The combination with a loom-frame, the harness-frames, the warp-beams, and the warp-guides, one of which is capable of vibration, of toggle-levers connecting said vibrating guide with said loom-frame, and connections between said toggle-levers, and a harness-frame for moving the former by the latter, substantially as described.

7. In a loom, the combination with a harness-frame, its harness-lever and an auxiliary harness-moving mechanism, of connections between said lever and frame and between the said moving mechanism and frame, for moving the latter by either the said lever or mechanism without necessary movement of the other, substantially as described.

8. The combination with a harness-frame, its harness-moving lever, and an auxiliary frame-moving mechanism, of a rigid connection interposed between the said frame and said lever and auxiliary mechanism, through which movement is transmitted to said frame by said lever and auxiliary mechanism, substantially as described.

9. The combination with a harness-moving lever, and the auxiliary frame-moving mechanism having an arm, of a rigid link device adapted to be engaged by either the said lever or arm, and when moved by either, having a sliding movement with relation to the other, the harness-frame and connections between the same and said rigid link device, substantially as described.

10. In a loom of the class described, the combination with a harness-actuator, a harness-frame, and harness connections engaging with the said harness-actuator, the said harness-actuator operating to transmit full-length movements to the harness-frame, of devices connected with the said harness connections, to communicate a half-and-return movement to the said harness-frame without imparting movement to said harness-actuator, substantially as described.

11. In a loom of the class described, the combination with a harness-actuator, a harness-frame, and harness connections having an elongated loop to engage with the said harness-actuator, the said harness-actuator operating to transmit full-length movements to the harness-frame, of a half-stroke lifting device engaging with the said harness connections to communicate a half and return movement to the said harness-frame, substantially as described.

608,288. SNAP-HOOK. ANDREW RYAN, Grand Rapids, Minn. Filed Mar. 24, 1897. Serial No. 628,943. (No model.)



Claim.—1. In a hook the combination with the hook proper and its shank and stem, of a spring-tongue secured thereto, a block secured to the spring-tongue and supported on the stem and movable transversely to a longitudinal plane including the hook proper and stem and adapted normally to close the opening between the hook and the stem, a lug on the block, and a stop on the stem against which the lug is adapted to strike to limit the side motion of the block in opening the hook.

2. In a snap-hook, the combination with the hook proper and its stem, of a spring-tongue secured on the side of the stem, a block secured to said spring-tongue and supported on the stem and movable transversely to a longitudinal plane including the hook proper and the stem and adapted normally to close the opening between the hook proper and the stem, a stop on the stem, a lug on the block adapted to strike against the stop on the stem, said block working beside said stop on the stem and constituting a protecting means therefor, substantially as described.

603,289. BICYCLE-FRAME. BENJAMIN F. RYDER, New York, N. Y. Filed Feb. 23, 1897. Serial No. 624,707. (No model.)



Claim.—1. In a bicycle-frame, a circular portion forming the center, and having secured thereto a head attachment for the handle-bars, an attachment for the seat-posts or rear fork, and an attachment for the crank-shaft, substantially as described.

2. In a bicycle frame, a central portion formed of a tube bent in circular form, and having secured thereto a clamp or bracket for union with the head attachment for the handle-bar, a clamp or bracket for the reception of the seat-post and rear-fork or saddle-post braces, and a clamp or bracket for the crank-shaft, substantially as described.

3. The combination in a bicycle-frame, having a steering-head, saddle-post brace or rear fork, and lower reaches, of a circularly-bent tube, a clamp or bracket secured to said tube and having a sleeve to receive the steering-head, a clamp or bracket having a saddle-post socket, and a clamp or bracket having a tubular crank-bearing and means for connection with the lower reaches, substantially as described.

4. The combination in a bicycle-frame, having a steering-head, saddle-post braces and lower reaches, of a circularly-bent tube, a clamp secured to said tube and having a sleeve to receive the steering-head, a clamp or bracket having a saddle-post socket, and means to clamp it about such post and the rear fork or stays, and a clamp having a tubular crank-bearing, and a rear extension by means of which the lower reaches are supported, substantially as described.

5. In a bicycle-frame, the central portion constructed of a tube, bent in the form of an arc of a circle, and having secured thereto a head attachment for the handle-bars, an attachment for the seat-post and rear fork or braces, and an attachment for the crank-shaft, substantially as described.

6 A frame, for a tandem bicycle, having the central portion made of two or more tubes bent in circular form and connected to one another, combined with head attachments for the handle-bars, attachments for the seat-posts and rear forks or braces, and attachments for the crank-shafts, substantially as described.

603,290. WRENCH. HUBERT M. SMITH, New York, N. Y. Filed June 9, 1897. Serial No. 639,974. (No model.)



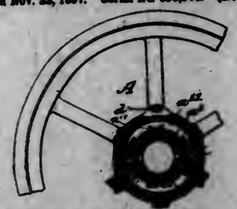
Claim.—1. A wrench, comprising a rod having a rack on the rear edge thereof, a fixed jaw extended at right angles to the rod, and a sliding apertured jaw mounted on said rod, said jaw having a toothed surface formed at the rear upper end thereof for engagement with the said rack, and a convex surface extended downwardly from the said toothed surface, whereby the teeth may be swung out of engagement with the rack, and a spring for maintaining the sliding jaw normally at right angles with the said rod, substantially as shown and described.

2. In a wrench, the combination of a rod having a fixed jaw extended at right angles therefrom, a rack formed upon the rear edge thereof, and a sliding jaw engaging with the said rod, said jaw having a toothed surface for normally engaging with the said rack and a convex surface extended from said toothed surface, and a spring in the shank adapted to engage the rod for maintaining the sliding jaw in operative position, substantially as shown and described.

3. In a wrench, the combination of a sliding jaw and a rod having a fixed jaw extended at right angles therefrom, said rod having a rack formed on the rear edge thereof, said jaw having a convex end portion provided with teeth on the upper part thereof and the lower part smooth, adapted for use as a bearing for the jaw when disengaged from the rack, the free end of the jaw having a beveled inner surface and a U-shaped spring connected to the said free end and bearing normally upon the said rod, whereby the jaw is normally maintained at right angles with the rod, substantially as shown and described

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608,291. SELF-LUBRICATING CAR-WHEEL. WILLIAM T. SNYDER, Catasauqua, Pa., assignor of one-half to James W. Fuller, same place. Filed Nov. 22, 1897. Serial No. 659,571. (No model.)



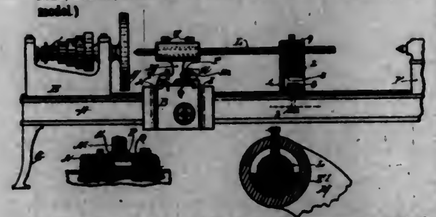
Claim.—In a self-lubricating wheel or pulley, a hub having an internal lubricating-chamber divided into two compartments, the points of junction of which are formed by converging or break walls, said hub having in its bearing-surface an irregular-shaped groove or duct, said duct communicating by two sets of perforations with the lubricating-chamber, one set of perforations leading to the points of junction of the two compartments of said chamber and the other set leading directly to each compartment, whereby during the rotation of the hub the lubricant is first conducted by the break walls into the groove or duct and thereafter by centrifugal force is conducted from said groove or duct directly to the compartments of the lubricating-chamber, substantially as and for the purposes described.

608,292. SELF-LUBRICATING CAR-WHEEL. WILLIAM T. SNYDER, Catasauqua, Pa., assignor of one-half to James W. Fuller, same place. Filed Nov. 22, 1897. Serial No. 659,572. (No model.)



Claim.—In a car-wheel, a hub having a transversely-chambered head A', provided with a vertically-arranged opening *d*, said head adapted to receive the thrust end of the axle or journal, a key adapted to be inserted in said opening *d*, and rigidly held therein, and a cap-plate or cover E, having a seat *e*, adapted to close the opening *d*, and to lock the key within said opening, substantially as and for the purposes described.

608,293. BORING-BAR DEVICE FOR LATHES. FREMONT STARRETT, Denver, Colo. Filed Dec. 21, 1897. Serial No. 662,981. (No model.)



Claim.—1. In a boring-bar for lathes the combination with the lathe-carriage of a bracket slidably dovetailed to the guideway of the carriage, means for clamping the bracket to the carriage at any desired part of the guideway, a sleeve portion to said bracket, a bore through said sleeve portion adapted to support a suitable boring-bar, in axial alinement with the lathe's centers, and a dowel-pin positioned in said bracket and extending into said carriage and arranged and adapted to key said brackets to said carriage in a position to bring its boring-bar supporting bore in exact alinement with the lathe's centers, substantially as described.

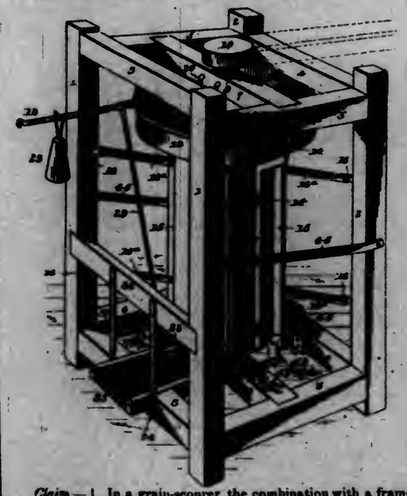
2. In a boring-bar for lathes, the combination with the lathe-carriage of the bracket fitted slidably to the slideway of said carriage to move transversely of the lathe's bed, means including a gib-key for securing said bracket at any desired part of the slideway, a bore through the upper end of said bracket in exact axial alinement with the lathe's centers, a boring-bar of smaller diameter than said bore, a suitable cutter in said bore, a semicircular sleeve fitting accurately said bore and supporting said bar and of a thickness to bring the axis of said bar in axial alinement with the centers of the lathe, and means including a bevel-pin for positively, accurately and quickly shifting and locking said bracket and bar in exact alinement with the center of the lathe, substantially as described.

3. In a boring-bar for lathes, the combination with the slideway of the lathe's carriage of the bracket, the downwardly-projecting integral guideway-rib, the loose opposing gib adapted to fit the opposite side of the slideway of said carriage, the tightening set-screws, the dowel-pin, the bore in the upper end of said bracket, the semicircular sleeve fitting said bore and the boring-bar having a double-ended cutter in its end arranged and adapted with its cutting edges extending beyond and clear of the body of said boring-bar, substantially as described.

4. In a lathe boring-bar, the combination of the cutter-bar having a cutter arranged with its cutting-lips extending forward beyond the body of the bar, a bracket adapted to be shiftably clamped to the transverse slideway of the lathe's carriage a bore through said bracket in exact horizontal alinement with the centers of the lathe, and of larger diameter than the said cutter-bar, a semicircular-shaped sleeve or seat-support fitting accurately said bore and said bar, and a taper-key for locking said bracket in exact alinement with the lathe's centers, with a rear rest for said bar comprising a bed-plate adapted to be clamped to the bed of the lathe, a slot or guideway in said bed-plate, a block arranged to slide transversely of the lathe's bed on said bed-plate and fitted to said guideway a bore in said block larger than said cutter-bar, a sleeve operatively fitting said bar and said bore, a lug and screw on said bed-plate for defining the center position of said bore and means for clamping said block to said bed-plate, substantially as described.

5. The combination of the boring-bar having a transverse slot therethrough adjacent to its end, the cutter fitting in said slot and projecting beyond the body of the bar, the wedge for securing said cutter in place, the bracket, means for securing the bracket shiftably to the lathe's carriage, the semicircular seat-supports arranged and adapted to fit said bracket and various sizes of boring-bars with the rear support comprising the bed-plate, the adjustable block and the interchangeable sleeves. substantially as described.

608,294. GRAIN-SCOURER. COLUMBUS STONE, Home, Tenn., assignor of one-sixth to James Armitage, Greenville, Tenn. Filed Aug. 12, 1897. Serial No. 647,902. (No model.)



Claim.—1. In a grain-scourer, the combination with a frame, of a cylinder supported within the frame to have limited vertical but no rotary movement, a vertical shaft supported to rotate in said cyl-

inder, a plurality of scouring-blades secured to the cylinder within it, a plurality of scouring-blades radiating from the shaft to work between the blades on the cylinder, and means to automatically control the vertical movement of the cylinder, substantially as described.

2. In a grain-scourer, the combination of the frame, a cylinder supported to have a limited vertical movement within the frame, and having a plurality of vertical series of horizontal scouring-blades firmly secured therein, a vertical shaft journaled to rotate in said cylinder, a plurality of vertical series of horizontal scouring-blades carried by said shaft to work between said fixed blades, each blade being wedge shaped in cross-section and provided with an abrading-surface on opposite faces, and the thin edges of the rotating blades opposing the thin edges of the fixed blades, and tie-bars connected to the cylinder and frame to prevent rotary movement of the cylinder, substantially as described.

3. In a grain-scourer, the combination with the frame, a cylinder supported to have limited vertical movement within the frame, said cylinder being provided with a series of fixed scouring-blades and with a discharge-opening at its lower end, and a shaft provided with a series of scouring-blades, journaled to rotate within said cylinder, of a scale-beam fulcrumed on the frame and connected at one end to the cylinder, a weight adjustable on the other end of the beam, a door to close the discharge-opening, and connections between the weighted end of the beam and said door, substantially as described.

4. In a grain-scourer, the combination with the frame, and a scouring-cylinder provided with a discharge-opening at its lower end, of parallel series of radiating links pivotally connected at their ends to the cylinder and frame, respectively, to permit a limited vertical movement of the cylinder within the frame, a scale-beam fulcrumed on the frame and connected at one end to the cylinder, a weight adjustable on the other end of the beam, a door to close the discharge-opening, and connections between the weighted end of the beam and said door, substantially as described.

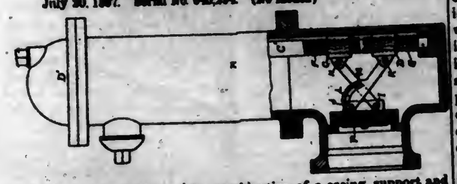
5. In a grain-scourer, the combination of a cylinder supported to have limited vertical movement but no rotary movement and having a plurality of vertical series of scouring-blades projecting inwardly toward its center, of a vertical shaft supported to rotate in the axial center of the cylinder, a plurality of vertical series of scouring-blades radiating from said shaft to work between the blades of the cylinder parallel thereto, each blade being wedge-shaped in cross-section and provided with an abrading-surface on its upper and lower sides, and the thin edges of the fixed blades opposing the thin edges of the moving blades, and means to automatically control the vertical movement of the cylinder, substantially as described.

6. In a grain-scourer, the combination with a frame, of a cylinder supported within the frame to have limited vertical but no rotary movement, and having a discharge-opening at its lower end, a movable door to close said opening, a vertical shaft supported to rotate in said cylinder, a plurality of series of scouring-blades secured to the cylinder within it, a plurality of series of scouring-blades radiating from the shaft to work between the blades on the cylinder parallel thereto, means to automatically control the vertical movement of the cylinder and also to operate the door of the discharge-opening, and a sifting device on which the grain is discharged, substantially as described.

7. In a grain-scourer, the frame, a weighted beam fulcrumed at the top of the frame, a self-adjusting vertically-movable scouring-cylinder suspended from one end of the weighted beam and having a discharge-opening, a movable closure for said opening, a connection between said closure and the weighted beam, and scouring devices arranged within the cylinder, substantially as set forth.

8. In a grain-scourer, the frame, an oscillatory weighted beam fulcrumed at the top of the frame, a scouring-cylinder suspended from one end of the beam and having a movable discharge-door and a plurality of pivotal link connections with the frame, a connection between said door and the weighted beam, and scouring devices arranged within the cylinder, substantially as set forth.

608,295. FIRE HYDRANT. CHARLES A. SULSMAN, Waterford, N. Y., assignor of one-half to John Knickerbacker, Troy, N. Y. Filed July 20, 1897. Serial No. 645,294. (No model.)



Claim.—In a hydrant the combination of a casing, support and actuator for the lever end supports, lever end supports, levers attached to said lever end supports and to the valve, a valve to close the inlet-opening in the casing, a pin on one of said levers arranged to work in a groove on the other lever, substantially as set forth.

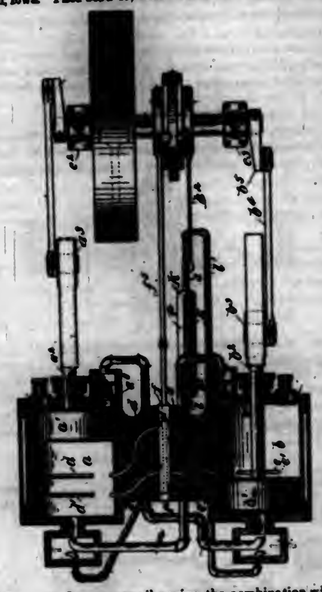
608,296. GILDING CHINA, EARTHENWARE, OR PORCELAIN ARTICLES. GEORGE W. TOOKER, New York, N. Y. Filed Aug. 7, 1897. Serial No. 647,402. (Specimens.)

Claim.—1. The process hereinbefore described of gilding plain-finished china, earthenware and porcelain articles, which consists in, first, applying precipitate of gold to the article, second, firing the article, third, burnishing the gold surfaces, fourth, applying the glaze substance to cover the gold decorations, and, fifth, again firing the article but at a lower temperature than the previous firing to fuse the glaze substance; substantially as set forth.

2. The process hereinbefore described of gilding plain-finished china, earthenware and porcelain articles, which consists in, first, applying the precipitate of gold to the article, second, firing the article, third, burnishing the gold surfaces, fourth, applying the grounding-oil and glaze substance to cover the gold decorations, and, fifth, again firing the article, but at a lower temperature than the previous firing to fuse the glaze substance; substantially as set forth.

3. As a new article of manufacture, a china, earthenware or porcelain article comprising as an integral structure the main body, the glaze substance covering and integral with said body, the decoration in precipitate of gold on said glaze covering, and the thin glaze substance over said gold decoration and integral therewith and with said glaze covering, the whole being of the character and construction described.

608,297. OIL OR GAS ENGINE. WALTER F. TROTTER, Marshalltown, Iowa. Filed Sept. 13, 1895. Serial No. 562,422. (No model.)



Claim.—1. In a gas or oil engine, the combination with two cylinders of a mixing or explosion chamber for each cylinder communicating with one end thereof by a constricted passage, an inlet-valve at the opposite or air-feeding end of each cylinder, a pipe or duct extending from the air-feeding end of each cylinder to the other cylinder and opening into the cylinder at the end which communicates with the mixing-chamber, means for maintaining said ducts open during the return stroke of the piston in the cylinder to which the air is fed, and closed during the forward stroke, a fuel-inlet for each of said mixing-chambers for supplying fuel directly thereto, an exhaust-port in each of said cylinders situated at an intermediate portion of the cylinder whereby the admitted air and the returning piston coact in ejecting the exploded gases from the cylinder, and means for closing the exhaust-port at a predetermined point in the return stroke, whereby air is drawn into the air-feeding end of each cylinder on the return stroke and on the forward stroke the air assists the working piston of the other cylinder in driving out the burned gases during part of the stroke and during the remainder of the stroke the pistons of both cylinders act in forcing fresh air into the combustion-chamber of the cylinder whose piston is next to make a working stroke, substantially as described.

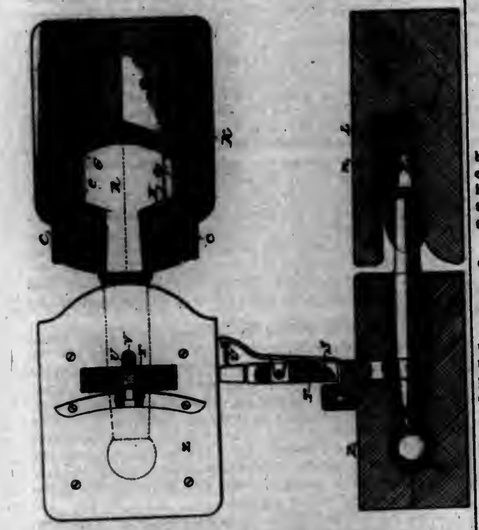
2. In a gas or vapor engine, the combination with a cylinder, of two exhaust-ports leading therefrom, and means for opening one or both of said exhaust-ports according as the load on the engine is great or small; substantially as described.

3. The combination with two cylinders, each provided at one end with a mixing-chamber communicating with the opposite end of the other cylinder, each of said cylinders being provided with two exhaust-ports, of means for opening one or both of said exhaust-ports according as the load on the engine is great or small; substantially as described.

4. In a gas or oil engine, the combination with two cylinders of two pumps, one provided in connection with each of said cylinders for feeding oil or other fuel thereto, the plungers of said pumps being arranged to alternately perform their working strokes, an eccentric for operating both of said pumps and a governor for varying the throw of said eccentric, substantially as described.

5. In a gas or vapor engine, the combination with a cylinder, of a pump for feeding the fuel thereto, an eccentric for operating said pump, said eccentric being mounted upon a pivoted or swinging arm and a governor for rocking said pivoted arm upon its pivot to vary the throw of the eccentric and thereby the stroke of the pump; substantially as described.

603,298. CAR-COUPLING. PETER ULLMAN, Stafford, Ohio. Filed Mar. 17, 1897. Serial No. 626,942. (No model.)



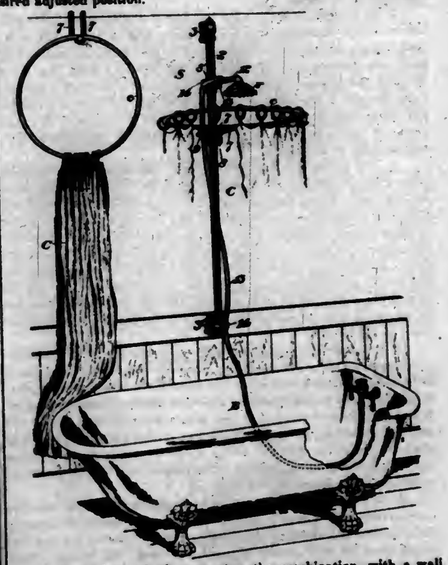
Claim.—1. The combination for automatically coupling moving cars consisting of a blunt arrow-head set at about forty-five degrees (45°) and moving through openings between flanges, and adapted to be caught above by one and below by two horizontal springs which press said arrow-head horizontal, and flanges with which the jaws of the arrow-head engage, substantially as set forth.

2. The contrivance for emergency release consisting of said blunt arrow-head, of said three (3) springs N, G, and H, located above and below in the opposing draw-head and adapted to be compressed by the pressure of overturning car on arrow-head, and of openings above and below said flanges from which openings the arrow-head escapes, substantially as set forth.

603,299. SHOWER-BATH APPARATUS. WILLIAM VANDERMAN, Willimantic, Conn. Filed Sept. 13, 1897. Serial No. 651,902. (No model.)

Claim.—1. In a shower-bath apparatus, the combination, with a carrier adapted to be secured to a wall and having a pair of parallel horizontal apertures therein, of a curtain-holder having a pair of parallel horizontal arms adapted to enter the apertures in said carrier.

2. In a shower-bath apparatus, the combination, with a carrier-rod adapted to be secured to a wall, of a clamp having a pair of parallel horizontal apertures therein; a curtain-holder having a pair of parallel horizontal arms adapted to enter the apertures in said clamp and adjustable therein; and means for securing said arms in any desired adjusted position.



3. In a shower-bath apparatus, the combination, with a wall bracket or fixture embodying carrying means, of a rose-head and a curtain-holder both adjustable in a vertical direction and also in a horizontal direction on said carrying means, and means for securing the rose-head and the curtain-holder in any desired adjusted positions.

603,300. PROCESS OF MAKING CARBOXYLATED PRODUCTS OF TRIPHENYLMETHANE. HENRI R. VIDAL, Paris, France. Filed July 24, 1897. Serial No. 645,859. (Specimens.) Patented in France Feb. 24, 1897, No. 264,234, and in England Mar. 2, 1897, No. 5,535.

Claim.—The process of making mono and di carboxylated products derived from phenolic and amidated compounds of triphenylmethane, by heating a mixture of phenol and the compound of triphenylmethane in presence of condensing agents such as oxalic and sulfuric acid, substantially as described.

608,301. MATCH-SAFE. JOHN VILLARD and JAMES P. HENDERSON, Bonham, Tex. Filed Oct. 18, 1897. Serial No. 655,605. (No model.)



Claim.—1. In a match-safe, the combination with an outer casing provided with a match-delivery slot in one of its sides, of a match-holding compartment within the casing, a slotted sliding plate to receive matches singly from the said compartment, a pivoted disk to receive the match from the plate and carry it to said slot, and means to reciprocate the sliding plate, and to turn the disk on its pivot, substantially as described.

2. In a match-safe, the combination with the outer casing provided with a match-delivery slot in one of its sides, of a match-holding compartment within the casing having a bottom formed of in-

clined sections with a space between their lower ends, a slotted plate supported to slide below the said compartment and to receive the matches singly therefrom in its slot, a pivoted disk to receive the match from the plate and carry it to said delivery-slot, and means to reciprocate the sliding plate and to turn the disk on its pivot, substantially as described.

3. In a match-safe having a delivery-slot in its side, the combination with a match-holding compartment having an opening in its bottom and a sliding plate having a slot to receive the matches singly from said compartment, of a pivoted disk having a fixed jaw and a movable jaw, means to rotate the disk and move the sliding plate to cause the slot in the latter to register with the said jaws and deliver the match between them, devices to actuate the movable jaw, and means to rotate the disk to present the match in the delivery-slot, substantially as described.

4. In a match-safe having a delivery-slot in its side, the combination with a match-holding compartment having an opening in its bottom, and a sliding plate having a slot to receive the matches singly from said compartment, of a pivoted disk having a fixed jaw and a spring-actuated movable jaw, a bar connected to the said movable jaw, means to rotate the disk and move the sliding plate to cause the slot in the latter to register with the said jaws, a stop to engage the bar on the movable jaw to separate the latter from the fixed jaw, to permit the match to fall from the slot between the jaws, and means to rotate the disk to present the match in the delivery-slot, substantially as described.

5. In a match-safe having a delivery-slot in one of its sides, the combination with a match-holding compartment, having an opening in its bottom and a sliding plate having a slot to receive the matches singly from said compartment, of a pivoted disk to receive the match from the plate and carry it to said slot, a lever pivoted within the safe and projecting through a slot in one of its sides, links pivoted to the lever and to the disk and sliding plates respectively, and a spring connected to the lever and safe to move the lever in one direction, substantially as described.

6. In a match-safe having a delivery-slot in one of its sides, the combination with a match-holding compartment having an opening in its bottom and a sliding plate having a slot to receive the matches singly from the said compartment, of a pivoted disk having a fixed jaw and a spring-actuated movable jaw, the opposing faces of said jaws being roughened, means to rotate the disk and move the sliding plate to cause the slot in the plate to register with said jaws and deliver the match between them, and means to rotate the disk and cause it to present the match in the delivery-slot, from which it may be withdrawn from between the roughened jaws and ignited during the withdrawal, substantially as described.

603,302. GIN-SAW-FILING MACHINE. JAMES H. WALTERS, Mooresville, N. C., and WILLIAM H. WALTERS, Waynesborough, Ga. Filed Oct. 28, 1897. Serial No. 656,664. (No model.)



Claim.—1. In a saw-filing machine, the combination with reciprocatory laterally-movable file-carriers, and operating devices, of a rocking plate, bearing in opposite directions against said carriers and adjustable means for yieldingly holding said plate in operative engagement with the carriers, substantially as specified.

2. In a saw-filing machine, the combination with reciprocatory laterally-movable file-carriers, and operating devices, of a fulcrumed plate bearing at its ends in opposite directions against said carriers, and a torsion-spring for actuating said plate, substantially as specified.

3. In a saw-filing machine, the combination with reciprocatory laterally-movable file-carriers, and operating devices, of a fulcrumed bearing-plate having its arms in contact with said carriers to yieldingly press them in opposite directions, a torsion-spring, for actuating said plate, provided with an adjusting-disk, and means for securing the said adjusting-disk at the desired adjustment, substantially as specified.

4. In a saw-filing machine, the combination with reciprocatory laterally-movable file-carriers, and operating devices, of a fulcrumed bearing-plate terminally arranged to bear in opposite directions against the file-carriers, a torsion-spring terminally connected to the bearing-plate, a revoluble adjusting-disk attached to the opposite end of the torsion-spring, and a clamping or jam nut arranged in operative relation with the adjusting-disk, substantially as specified.

5. In a saw-filing machine, the combination with reciprocatory laterally-movable file-carriers, and operating devices, of a fulcrumed bearing-plate arranged to bear at its extremity in opposite directions against the carriers, a coiled torsion-spring connected at one end to the bearing-plate, an adjusting-disk connected to the opposite end of the said spring and capable of revoluble and axial adjustment, and means for locking said disk at the desired adjustment, substantially as specified.

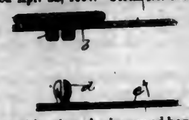
6. In a saw-filing machine, the combination with reciprocatory laterally-movable file-carriers, and operating devices, of a fulcrumed bearing-plate arranged to bear terminally in opposite directions against said carriers and capable of axial yielding movement approximately parallel with the paths of the carriers, an actuating-spring for holding said bearing-plate torsionally and axially in its normal position, and adjusting devices for said actuating-spring, substantially as specified.

7. In a saw-filing machine, the combination with reciprocatory laterally-movable file-carriers and operating devices, of saw-feeding mechanism including a slide or plunger mounted for reciprocation in a plane approximately parallel with the file-carriers, a spring for returning the slide or plunger and yieldingly holding it in its normal position, operating devices for periodically advancing the slide or plunger, and a trip-yoke pivotally mounted at an intermediate point for swinging movement, and having parallel arms arranged in operative relation, respectively, with diagonally-disposed surfaces of the file-carriers, and adapted, when actuated, to move said carriers laterally in opposite directions, said trip-yoke having a slotted connection with the slide or plunger, whereby the yoke is yieldingly held in its normal position by the return-spring of the slide, substantially as specified.

8. In a saw-filing machine, the combination with a supporting-frame, of a driving-gear, file-carriers operatively connected with the driving-gear, saw-feeding mechanism, including a spring-returned slide or plunger terminally arranged contiguous to the driving-gear, a cam mounted upon the driving-gear for radial and pivotal adjustment, and adapted for contact with the contiguous extremity of said slide or plunger, means for securing said cam at the desired adjustment to vary the extent and rapidity of throw of the slide or plunger, and a trip-yoke operatively connected with said slide or plunger and having arms arranged in operative relation with inclined surfaces on the file-carriers, substantially as specified.

9. In a saw-filing machine, the combination with a supporting-frame, of a driving-gear, file-carriers operatively connected with the driving-gear, saw-feeding mechanism, including a spring-returned slide or plunger terminally arranged contiguous to the driving-gear, a radially and pivotally adjustable cam carried by the driving-gear for contact with the contiguous extremity of said slide or plunger, and having a radially-disposed slot, a set-screw engaging said slot to secure the cam at the desired radial and pivotal adjustment, and a trip-yoke operatively connected with said slide or plunger and having arms arranged in operative relation with inclined surfaces on the file-carriers, substantially as specified.

603,303. GLOVE-FASTENER. JAMES V. WASHBURN, Waterbury, Conn. Filed Apr. 22, 1897. Serial No. 633,300. (No model.)



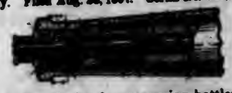
Claim.—1. In combination, the incurved band, the concave plate adapted to be forced into the grasp of said band with a pliable material between the two, and the part made integral with said plate and adapted for attachable and detachable cooperation with a corresponding member of a glove-fastener or the like, all substantially as described and for the purposes set forth.

2. In combination, the incurved band, the concave plate adapted to be forced into the grasp of said band with a pliable material between the two and the part made integral with said plate and forming a socket adapted for attachable and detachable cooperation with the stud of a glove-fastener or the like, all substantially as described and for the purposes set forth.

3. In combination, the incurved band, the slitted or notched plate adapted to be forced into the grasp of said band with a pliable material between the two, and the part made integral with said plate and adapted for attachable and detachable cooperation with a corresponding member of a glove-fastener or the like, all substantially as described and for the purposes set forth.

4. In combination, the incurved band, the slitted or notched plate adapted to be forced into the grasp of said band with a pliable material between the two and the part made integral with said plate and forming a socket adapted for attachable and detachable cooperation with the stud of a glove-fastener or the like, all substantially as described and for the purposes set forth.

603,304. BOTTLE-STOPPERING DEVICE. LE ROY C. WEBSTER, U. S. Navy. Filed Aug. 26, 1897. Serial No. 649,856. (No model.)



Claim.—1. In a device for stoppering bottles, jugs, and similar vessels, the combination with a stopper, and a hollow tube passing through an axial opening through said stopper and extending some distance below the said stopper, said tube being closed at its lower end and having a plurality of openings therein near said end; of a hollow plug inclosing the lower part of said tube and adapted to slide thereon; stops limiting the movement of said plug; a locking-disk encircling said tube beneath and near said stopper; and a flexible connection between said disk and said stopper, substantially as described.

2. In a device for stoppering bottles, jugs, and similar vessels, the combination with a stopper, and a hollow tube passing through an axial opening through said stopper and extending some distance below said stopper, said tube being closed at its lower end and having two non-communicating longitudinal chambers or passages therethrough with openings near the lower end of said tube leading to said chambers; of a hollow plug inclosing the lower part of said tube and adapted to slide thereon; stops limiting the movement of said plug; a locking-disk encircling said tube beneath and near said stopper; and a flexible connection between said disk and stopper, substantially as described.

3. In a device for stoppering bottles, jugs and similar vessels, the combination with a stopper, and a hollow tube, passing through an axial opening in said stopper and extending some distance below said stopper, said tube being closed at its lower end and having two non-communicating longitudinal chambers or passages therethrough, with an opening entering each chamber near the lower end of said tube, but the one being nearer said end than the other; of a hollow plug inclosing the lower part of said tube and having one or more ribs and grooves thereon, said hollow plug being adapted to slide on said hollow tube and to cover and uncover said opening therein; a locking-disk encircling said tube beneath and near said stopper and having an outer periphery similar to that of said hollow plug; and a flexible connection between said disk and stopper, substantially as described.

4. The combination with a bottle or jug, having a neck provided with a specially-formed contracted internal passage; of a stopper adapted to fit into said passage; a hollow tube passing through an axial opening in said stopper, and adapted to extend into the neck of the bottle or jug, said tube being closed at its lower end and having a plurality of openings near said end; a hollow plug inclosing the lower portion of said tube and adapted to slide thereon of its own weight and thus cover and uncover said openings; stops limiting the movement of said plug; a locking-disk having its periphery formed to correspond with the contracted passage in said neck; encircling said tube beneath and near said stopper; and a flexible connection between said locking-disk and said stopper: substantially as described.

5. The combination with a bottle or jug, having a neck provided with a specially-formed contracted internal passage; of a stopper adapted to fit into said passage; a hollow tube passing through said stopper and adapted to extend into the neck of the bottle or jug some distance, said tube being closed at its lower end and having a pair of openings therein near but at unequal distances from said end; a longitudinal partition dividing said tube into two non-communicating internal passages; a hollow plug inclosing the lower portion of said tube and adapted to slide thereon of its own weight, and thus cover and uncover said openings, stops limiting the movement of said plugs, a locking-disk having its periphery formed to correspond with the contracted passage in said neck encircling said tube beneath and near said stopper, and a flexible connection between said locking-disk and said stopper, substantially as described.

6. The combination with a bottle or jug, having a neck provided with a specially-formed contracted internal passage, of a stopper adapted to fit into said passage; a hollow tube passing through an axial opening in said stopper and adapted to extend some distance into the neck of the bottle or jug, said tube being closed at its lower end; a longitudinal partition in said tube dividing the latter into two non-communicating internal passages an opening in said tube communicating with one of said passages near the lower end of said tube; another opening communicating with the other of said passages at a greater distance from the end of said tube; a hollow plug having a periphery formed to correspond with the contracted passage in said neck, inclosing the lower portion of said tube and adapted to slide thereon of its own weight and thus cover and uncover said opening; stops limiting the movement of said plug; a locking-disk having its periphery formed to correspond with the contracted passage in said neck, encircling said tube beneath and near said stopper, and a spring-wire connection between said locking-disk and said stopper, substantially as described.

603,305. WRENCH. MARTIN WEBB, San Marcos, Tex. Filed May 15, 1897. Serial No. 636,667. (No model.)



Claim.—A device of the class described comprising a shank provided at one end with the laterally-offset integral handle portion 10 and having its other end reduced and threaded, said shank being provided between its reduced end and the handle portion 10 with screw-threads, the adjustable jaw slidingly mounted on the shank and provided with a transverse slot or bifurcation, an adjusting-nut fitting in the slot or bifurcation of the adjustable jaw and engaging the threads of the shank, the jaw 1 provided with an opening to receive the reduced end of the shank and adapted to be removed therefrom, whereby the movable jaw and the adjusting-nut may be placed on and removed from the shank, a nut engaging the reduced end of the shank and securing the jaw 1 to the same, and the member 12 pivoted to the shank adjacent to the inner end of the handle portion, substantially as described.

603,306. FACE AND NECK PROTECTOR. JACOB WEIL, Las Animas, Colo. Filed Nov. 6, 1897. Serial No. 657,673. (No model.)

Claim.—1. A face and neck protector, comprising a supporting-frame to fit over the head, neck and shoulders of the wearer and adapted to be sprung open on a vertical line at one side thereof said frame being formed in part of similarly-constructed strips pivoted at

their upper ends to each other and to a fixed part of the frame and having their lower ends connected to movable parts of the frame, a covering of wire-netting secured to the frame, and means applied to the said strips to lock the frame in its closed position, substantially as described.



2. A face and neck protector, comprising a supporting-frame to fit over the head, neck and shoulders of the wearer, said frame being formed in part of two strips of metal arranged one above the other on one side of the frame and pivoted together at their upper ends and to a fixed part of the frame, and connected at their lower ends to movable parts thereof, one strip having a series of headed pins and the other a series of loopholes to fit over said pins, and a covering of wire-netting to fit over said frame, substantially as and for the purposes specified.

3. A face and neck protector, comprising a skeleton frame adapted to fit over the head and neck of the wearer and having shoulder-yokes one of which is divided, said frame being formed of spring-wire and two superposed strips of spring sheet metal, connected at their lower ends to the respective sections of the divided shoulder-yoke, and pivotally connected together at their upper ends and to a fixed part of the frame, means to detachably lock the strips together, and a covering of wire-netting secured to the frame, said netting being divided on one side and secured to the respective metal strips, substantially as described.

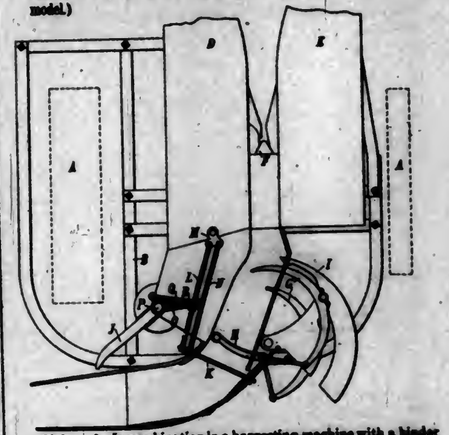
4. A face and neck protector, comprising a skeleton frame adapted to fit over the head and neck of the wearer, and having a covering of wire-netting secured thereto, said frame and covering being adapted to open on a vertical line on one side thereof, and the frame having a shoulder-yoke at each side, one of the yokes being separable, and side strips connecting the parts of the separable yoke with the upper fixed part of the frame and straps at the lower ends of the yokes to fit under the armpits of the wearer, substantially as described.

5. In a protector for the head and neck, the combination of shoulder-yokes, one of which is separable at a medial point, side pieces conforming to the outline of the head, neck and shoulders and having their lower ends secured to the middle portion of the fixed shoulder-yoke and to the separable ends of the other shoulder-yoke, and having their upper ends meeting and pivotally connected, fastening means applied to the separable or complementary members of the side strips having connection with the separable shoulder-yoke, and wire-netting secured to the shoulder-yokes and side pieces, substantially as set forth.

6. In a head and neck protector, the combination of a fixed and a separable shoulder-yoke, and a side piece conforming approximately to the outline of the head, neck and shoulder secured at its lower end to the fixed shoulder-yoke, and corresponding side pieces composed of complementary members pivotally connected at their upper ends to each other and to the upper end of the first-mentioned side piece and having their lower ends secured to the upper terminals of the parts of the separable shoulder-yoke, fastening means applied to the complementary members of the separable side piece, front and rear brace-bars connecting correspounding end portions of the shoulder-yokes, means for securing the lower terminals of the shoulder-yokes and the outer extremities of the front and rear brace-bars, and a wire-netting secured to the shoulder-yokes, front and rear brace-bars and to the side pieces, substantially as set forth.

7. The herein-described head and neck protector, comprising a fixed and a separable shoulder-yoke, a side piece conforming approximately to the outline of the head, neck and shoulder secured at its lower end to the upper portion of the fixed shoulder-yoke, a corresponding side piece composed of complementary members pivotally connected at their upper ends and to the fixed side piece and having their lower ends connected with the extremities of the parts of the separable shoulder-yoke, fastening means applied to the parts comprising the separable side piece, upper and lower horizontally disposed curved rods connected midway of their ends to the fixed side piece and at their extremities to the complementary parts of the separable side piece, front and rear horizontal brace-bars connected with corresponding lower terminals of the shoulder-yokes, means for connecting the extremities of the shoulder-yokes, and front and rear brace-bars, and a meshed covering secured to the shoulder-yokes, front and rear brace-bars and to the said side pieces and extending over the curved rods and held distended thereby, substantially as set forth.

608,807. MACHINE FOR HARVESTING CORN. CHARLES H. WITHERSEE, Schaumburg, Ill., assignor to the McCormick Harvesting Machine Company. Filed Apr. 26, 1897. Serial No. 634,194. (No model.)



Claim.—1. In combination in a harvesting-machine with a binder in which the gavel is received and formed into a bundle, a gate positioned across the passage-way of the outgoing bundle to support the heads of the grain, which gate is pivoted with two bars that are independently pivoted to the machine.

2. In combination in a self-binding harvester with a binder in which the gavel is accumulated, a gate to support the heads of the grain, which gate consists of an arm positioned in the path of the heads and pivoted to parallel bars that are independently pivoted to the machine, and means for actuating the gate whereby it is rapidly withdrawn from and projected across the grain passage-way.

3. In combination with a self-binding harvester a gate to support the heads of the grain while the gavel is being formed, consisting of an arm that is pivoted to parallel bars, which are in turn pivoted to the machine, an arm rigidly attached to one of these bars and extending when the gate is across the passage-way in proximity to the extended knotter-shaft, a crank on the knotter shaft and a link connecting the crank on the knotter-shaft with the fixed arm of the gate, substantially as and for the purpose specified.

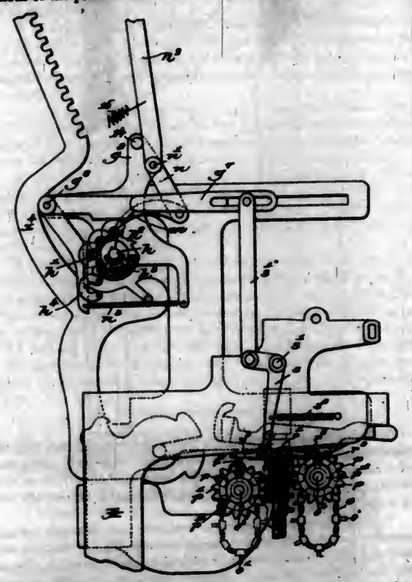
608,808. SHEDDING MECHANISM FOR LOOMS. ROLAND WYMAN and WILLIAM H. REBBINS, Worcester, Mass., assignors to the Crompton & Knowles Loom Works, same place. Filed May 13, 1896. Serial No. 591,378. (No model.)

Claim.—1. In a loom, a plurality of pattern-surfaces arranged respectively in fixed position and provided respectively with suitably-arranged projections, means to operate said pattern-surfaces singly, selecting-surfaces arranged to cooperate with the respective pattern-surfaces, and means to successively stop said pattern-surfaces each in position with its selecting-surface opposite the space between two projections of the pattern-surface, substantially as described.

2. In a loom, a plurality of pattern-surfaces provided respectively with suitably-arranged projections; means to continuously operate said pattern-surfaces singly, selecting-surfaces arranged to cooperate with the respective pattern-surfaces, and means to successively stop said pattern-surfaces each in position with its selecting-surface opposite the space between two projections of the pattern-surface, substantially as described.

3. In a loom, a plurality of pattern-surfaces provided respectively with suitably-arranged projections; means to operate said pattern-surfaces singly; rigidly-connected selecting-surfaces arranged to cooperate with the respective pattern-surfaces, and means to successively stop said pattern-surfaces each in position with its selecting-surface opposite the space between two projections of the pattern-surface, substantially as described.

4. In a loom, a plurality of pattern-surfaces provided respectively with suitably-arranged projections, means to operate said pattern-surfaces singly, selecting-surfaces arranged to move the same selecting-finger, arranged to cooperate with the respective pattern-surfaces, and means to successively stop said pattern-surfaces each in position with its selecting-surface opposite the space between two projections of the pattern-surface, substantially as described.



5. In a loom, a plurality of pattern-surfaces arranged in fixed position, drivers for the respective pattern-surfaces; means to successively connect said pattern-surfaces with and to be moved by their respective drivers, and the selecting-surfaces cooperating with said pattern-surfaces, substantially as described.

6. In a loom, a plurality of pattern-surfaces mounted to travel about fixed axes; selecting-surfaces; drivers mounted to rotate about axes coincident with said fixed axes, means to rotate said drivers, and clutch devices to successively connect said pattern-surfaces with their respective drivers, substantially as described.

7. In a loom, a plurality of pattern-surfaces mounted in fixed position; continuously-rotating worm-wheel drivers therefor, means to successively connect said pattern-surfaces with and to be moved by said drivers, and the selecting-surfaces, substantially as described.

8. In a loom, a plurality of pattern-surfaces mounted to travel about fixed axes, selecting-surfaces, drivers mounted to rotate about axes coincident with said fixed axes, a single worm arranged to rotate said drivers, and means to successively connect said pattern-surfaces with and to be moved by said drivers, substantially as described.

9. In a loom, a plurality of pattern-surfaces mounted upon shafts journaled in fixed bearings; worm-wheel drivers also mounted on said shafts but rotatable independently of said pattern-surfaces; clutch devices adapted to connect said drivers with their respective pattern-surfaces, sliding collars on said shafts adapted to engage and operate said clutch devices, and means to successively move said sliding collars, substantially as described.

10. In a loom, a plurality of pattern-surfaces, arranged in fixed position, means to successively move said pattern-surfaces, an auxiliary pattern-surface and means controlled thereby to govern the successive operations of said first-named pattern-surfaces, substantially as described.

11. In a loom, a plurality of pattern-surfaces, arranged in fixed position, rotary devices for the respective pattern-surfaces; clutch devices to connect said drivers with and to move their respective pattern-surfaces; and an auxiliary pattern-surface and clutch-actuating devices controlled thereby and governing the operation of said clutch devices, substantially as described.

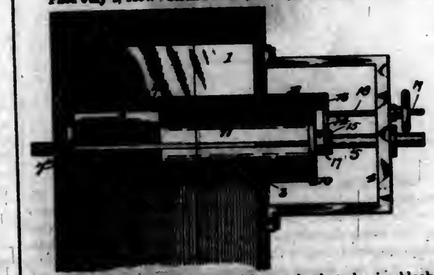
12. In a loom, the combination with a plurality of pattern-surfaces and means to operate the same, of selecting-surfaces for the respective pattern-surfaces, said selecting-surfaces being arranged substantially at right angles to each other, substantially as described.

13. In a loom, the combination with a plurality of pattern-surfaces and means to operate the same, of one or more selecting-fingers provided respectively with a plurality of arms each having a selecting-surface arranged to cooperate with a pattern-surface, substantially as described.

14. The combination in a loom-dobby, of two or more selecting-fingers, pattern-surfaces arranged in fixed positions in different levels, said pattern-surfaces cooperating with said selecting-fingers, and means to actuate said pattern-surfaces, substantially as described.

15. In a loom-dobby, a plurality of pattern-surfaces mounted in fixed bearings; selecting-surfaces, rotary drivers provided at their faces with projecting surfaces, clutch members connected with said pattern-surfaces and means to move the said clutch members into locking engagement with the projecting surfaces of their respective drivers, substantially as described.

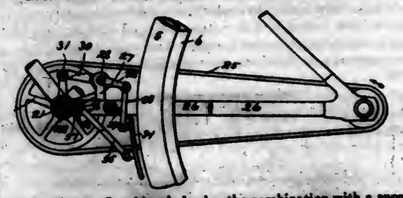
608,809. GRAIN-MEASURE. FRANK YEAGLEY, Lebanon, Pa. Filed July 1, 1897. Serial No. 643,060. (No model.)



Claim.—1. In combination with a grain-chute having blocks secured on opposite sides thereof, said blocks having concaved inner faces and slanting upper faces, a shaft journaled within the chute concentric with the concaved faces of said blocks, a measuring-receptacle having a number of compartments closed at one end and open at the opposite end, a face-plate splined on the shaft, said face-plate having an extension formed thereon, regulating-blocks on the face-plate slidably fitted in the compartments of the measuring-receptacle and forming the ends thereof, a cover having beveled sides to fit on the blocks in the chute, an arm secured at one end to the outer end of the cover and extending downward, said arm being notched to embrace the extension of the face-plate and fit in an annular groove formed therein, and an arm connected to said arm to draw the cover and blocks back and forth, as and for the purpose described.

2. A grain meter consisting of a chute, side blocks secured on the inner walls of the chute, said blocks having slanting tops and concaved faces, a rotary cylindrical measuring-receptacle journaled to be rotated between the blocks, movable blocks fitted in the compartments of the receptacle, and cover having beveled sides fitting on the slanting walls of the side blocks and connected to the movable blocks.

608,810. BACK-PEDALING BRAKE. APOLLO SWIROW, Hoboken, N. J. Filed June 30, 1897. Serial No. 643,060. (No model.)

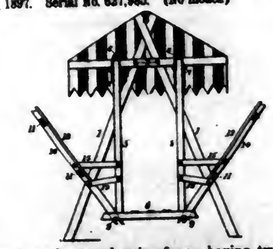


Claim.—1. In a bicycle-brake, the combination with a sprocket-wheel adapted to be thrown out of action by back-pedaling, of standards supported by the frame of the wheel, a shaft mounted in said standards, a hinged pawl connected with said shaft, a roller-bearing on said sprocket-wheel, a brake-shoe and connections between said brake-shoe and said shaft, whereby when said wheel is revolved backwardly, said roller-bearing in conjunction with said pawl will apply said brake-shoe to the tire of the wheel, substantially as described.

2. The combination with the hub or axle of the drive-wheel of a bicycle or similar vehicle, of a sprocket-wheel which is adapted to be thrown out of action by back-pedaling, and a brake device which is connected with the frame of the vehicle adjacent to the support of

the pedal-shaft, said brake device being adapted to operate in connection with the tire of the drive-wheel when the pedal-shaft is turned backwardly, and consisting of a roller mounted on, or connected with the sprocket-wheel on the pedal-shaft, a suitably-supported shaft which is provided at one end with a hinged pawl which is adapted to be operated by said roller, and centrally thereof, with a backwardly-directed arm which is pivotally connected with a rod which is pivotally connected with the brake-shoe, said brake-shoe being also pivotally connected with a rod which is pivotally connected with the frame of the vehicle adjacent to the support of the pedal-shaft, substantially as shown and described.

608,811. SWING. SAMUEL ANDREWS, Wadsworth, Ohio. Filed Mar. 17, 1897. Serial No. 627,985. (No model.)



Claim.—1. An improved swing-frame, having two pairs of uprights and a cross-bar each pair of uprights pivotally connected near one end to the cross-bar, each pair of uprights adapted to have their outer ends swing outward to cross their shorter ends, and a detachable bar adapted to rest in the fork of the shorter ends, and having notches to fit and engage said uprights substantially as shown and for the purpose specified.

2. The combination with a supporting-frame having two pairs of uprights and two cross-bars; each pair of uprights pivotally connected near one end to one of said cross-bars, and adapted to have their ends swing outward and to cross above said cross-bars, and a detachable bar adapted to rest in said uprights above their point of crossing, and two pairs of oppositely-disposed pendants; each pair of pendants connected by a cross-rod adapted to rest on said cross-bars, substantially as shown and described.

3. The combination with two pairs of uprights, and two cross-bars, each pair of uprights pivotally connected near one end to one of said cross-bars, and adapted to have their loose ends swing outward, and a detachable bar adapted to rest in said uprights above the point of crossing, and two pairs of oppositely-disposed pendants, each pair of pendants connected by a cross-rod adapted to rest on said cross-bars; of a floor detachably connected with said pendants, and backs detachably connected with said floor, and seats and arms pivotally connected with said backs and pendants, substantially as shown and described.

4. An improved swing-frame having two pairs of uprights each pair crossed near one end, a cross-bar to rest in said pairs above their points of intersection and horizontal bars pivotally attached to said uprights below their points of intersection to form with said cross-bar a support for a canopy-top substantially as shown and described.

5. In a swing-frame, the combination with the crossed uprights, the cross-beam resting in their crossed ends, and the horizontal bars pivotally connected with said uprights, and a canopy-top to rest on said cross-beam and horizontal bars substantially as shown and described.

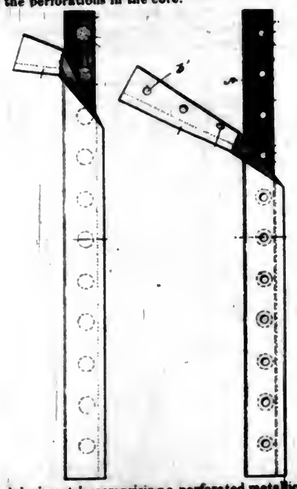
608,812. SHOW-CASE. FENIMORE C. BATA, Cleveland, Ohio. Filed May 20, 1897. Serial No. 637,478. (No model.)



Claim.—In a show-case the combination with the glass plates forming the top and front, of channeled protection binding-strip D, having lugs F, dowels *d*, and bolts *b'*, substantially as described.

608,818. LACING-STRIP. MOSES E. BORTREE and MARY H. BORTREE, Grand Rapids, Mich., assignors, by mesne assignments, to Enoch C. Bowling, Detroit, Mich. Filed Aug. 9, 1897. Serial No. 647,589. (No model.)

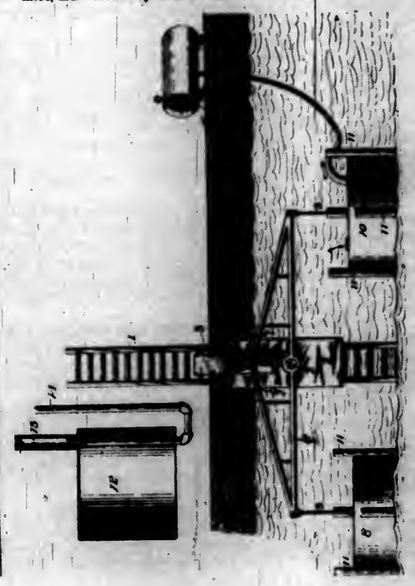
Claim.—1. A lacing-strip comprising a perforated core having fillings in its perforations, and a covering for said core intimately associated therewith and preventing the dislodgment of the filling material from the perforations in the core.



2. A lacing-strip comprising a perforated metallic core, non-corrosive fillings in the perforations thereof and themselves perforated, and a covering for the core intimately associated therewith so as to prevent dislodgment of the fillings and perforated to correspond with the perforations in the fillings.

3. A lacing strip comprising a composite core of metal and non-corrosive material, the latter covering metallic edges of the core with which the lacing would contact at various points throughout substantially the length of the strip; together with a textile covering closely applied over the composite core and having a free attaching-flap projecting from one longitudinal edge of the latter; said strip having openings at intervals extending through the textile covering and the non-corrosive material of the core, substantially as described.

608,814. TIDE AND WAVE MOTOR. AARON A. BROWN, Baltimore, Md. Filed July 8, 1897. Serial No. 643,841. (No model.)



Claim.—1. In a device of the character described, a walking-beam suitably pivoted, a float attached to one end thereof and a compressor-chamber attached to the other end, as and for the purpose described.

2. In a device of the character described, a walking-beam suitably pivoted, a float attached to one end thereof and an air-compressor having an open bottom attached to the other end, as and for the purpose described.

3. In a device of the character described, a walking-beam suitably pivoted, a float attached to one end thereof, a compressor attached to the other end and means for automatically raising and lowering the pivotal point of the walking-beam, as and for the purpose described.

4. In a device of the character described, a standard, a sleeve slidable thereon, a walking-beam carried by the sleeve, spring-pressed levers pivoted on the sleeve and adapted to engage the standard and means for operating the levers, as and for the purpose described.

5. In a device of the character described, a standard, a sleeve slidable thereon, spring-pressed levers pivoted to the sleeve and adapted to engage the standard, a walking-beam pivoted to the sleeve and cam-plates on the walking-beam to operate the levers, as and for the purpose described.

6. In a device of the character described, a standard having a number of rounds, a sleeve slidable thereon, spring-pressed levers pivoted to the sleeves, tapering noses on the levers to engage the rounds of the standard, a walking-beam pivoted to the sleeve cam-plates on the walking-beam to operate the levers, a float attached to one end of the walking-beam, a compression-tank attached to the other end of the walking-beam having an open bottom and an air inlet and outlet and guides for the float and tank, as and for the purpose described.

608,815. WHIFFLETREE ATTACHMENT. PETER BURGLAND, Dodge City, Kans., assignor of one-half to Fred R. Bowman, same place. Filed Sept. 28, 1897. Serial No. 653,333. (No model.)



Claim.—In a device of the class described, the combination of a whiffletree provided at its end with an inwardly-extending longitudinal bore, a trace-receiving loop mounted on the end of the whiffletree and provided with perforations registering with the bore, a casing mounted upon the whiffletree and provided at its outer end with a removable cap and having its inner end open, a rod having its outer end extended through the loop and fitting in the bore of the whiffletree, the body portion of the rod extending through the casing and passing through a perforation of the cap and having its inner end threaded, the stop 12 mounted on the body portion of the rod and arranged within the casing at the inner end thereof, a coiled spring housed within the casing and interposed between the removable cap and the stop 12, and the detachable head 14 threaded to engage the inner end of the rod, and provided with a substantially straight edge arranged contiguous to the top of the whiffletree, and adapted to slide longitudinally thereof, said head being prevented from accidentally unscrewing by the whiffletree, substantially as described.

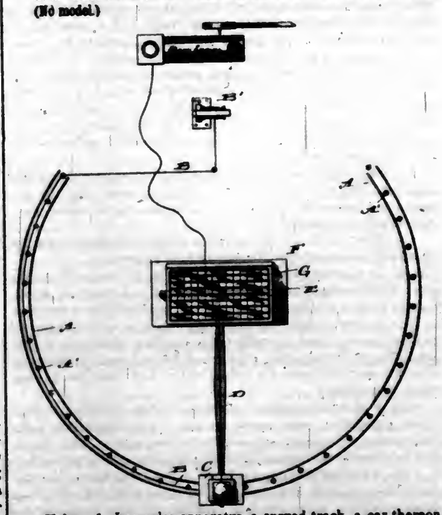
608,816. PAPER-HOLDING DEVICE. JAMES W. BUSH, Scioto-ville, Ohio. Filed Oct. 21, 1897. Serial No. 655,987. (No model.)



Claim.—1. The herein-described device for holding and permitting of the convenient use of alcohol and tissue-paper comprising a casing having a slot in its side wall, a lip at one side of said slot having its free edge sharpened, and a spring-pressed clamp at the opposite side of the slot impinging against the lip and serving to close the slot, a rotary spool arranged in the casing and having a central opening, and a suitably-supported receptacle for alcohol arranged in the central opening of the spool, substantially as specified.

2. In a device for the purpose described, the combination of the casing comprising the annular vertical wall having a slot and also having a lip at one side of the slot and a spring-pressed clamp at the opposite side adapted to impinge against the lip and close the slot, the bottom wall detachably connected to the annular wall and having antifriction-rollers on its upper side and also having a central pivot-post, and a top wall connected to the upper edge of the annular wall and having a central opening, a disk mounted on the pivot-post of the bottom wall, a spool supported by said disk and having a central opening, a frame resting in the opening of the spool and having a flange at its upper end bearing on the top wall of the casing and also having an inwardly-directed flange at its lower end, a receptacle for alcohol arranged in the frame and resting on the lower flange thereof and having a stopper provided with a brush of fibrous material, and a cap-plate bearing on the top wall of the case and the upper end of the receptacle and having a central opening for the passage of the receptacle-stopper, substantially as specified.

608,817. SOLAR APPARATUS. WILLIAM CALVER, Washington, D. C. Filed Oct. 23, 1896. Renewed Oct. 9, 1897. Serial No. 654,705. (No model.)



Claim.—1. In a solar apparatus, a curved track, a car thereon, a reflector within the space bounded by the track, and an object mounted upon the car to travel across the same and to receive the rays from the reflector, substantially as specified.

2. A reflector, a curved track, a car, and means positively connecting the car with the reflector for changing the position of the support of the reflector with relation to the car, substantially as specified.

3. A reflector, a curved track, a car, means positively connecting the reflector and the car, and mechanism for adjusting the relative position of the support of the reflector and the car by the movement of the car, substantially as specified.

4. A reflector, a curved track, a car, a truck mounted to travel across the car and means for adjusting the position of the truck, substantially as specified.

5. A curved track, a car, a rotatable reflector-supporting frame positively connected with the car, a reflector mounted in said frame, a gearing interposed between the reflector and a relatively-fixed part for receiving movement by the movement of the car upon the track, substantially as specified.

6. A curved track, a car, a reflector-supporting frame pivotally mounted, a positive connection of the car with the said frame so as to move the same upon or about its pivot, a fixed gear, an interposed gearing between the reflector and fixed gear for moving the reflector with relation to the movement of the car, substantially as specified.

7. A series of individual reflectors mounted in a common frame which is in turn pivotally mounted and devices for simultaneously adjusting said individual reflectors, substantially as specified.

8. A reflector composed of individual reflecting-surfaces mounted in a movable frame and each connected to a common adjusting device, and means for operating said device, substantially as specified.

9. A reflector composed of individual reflecting devices connected to a common adjusting device, means for regulating the latter, and a friction device for retaining said means in an adjusted position, substantially as specified.

10. A reflector composed of individual reflectors each connected with a common adjusting device, a rotary supporting-frame for said reflector, a fixed support for said frame, and gearing interposed between said fixed support and the common adjusting device for regulating the position of the individual reflectors, substantially as specified.

11. A rotatable reflector-supporting frame and a reflector mounted thereon, a fixed gear, rotatable gearing mounted on the frame, and a connection between the same and the reflector, substantially as specified.

12. A rotatable reflector-carrying frame, a fixed gear, rotatable gearing mounted on the frame and having means for disconnecting the gearing, substantially as specified.

13. A rotatable reflector-frame, a fixed gear, a rotatable gearing mounted on a crank-shaft carried by the frame, and means for disconnecting the crank-shaft from the gearing mounted thereon, substantially as specified.

14. A rotatable reflector-carrying frame, a reflector mounted therein composed of individual reflecting-surfaces with each connected with a common adjusting device, a disk connected with said device, and a rod connecting said disk with a crank-shaft, a rotatable reflector-frame carrying said crank, and gearing adapted to receive motion through the rotation of said frame, substantially as specified.

15. A rotatable reflector-frame, gearing receiving motion from the movement of said frame, a connecting-rod extending from said gearing to a disk provided with means for attaching said rod at different points on said disk, and an adjusting device operatively connected with said disk and with a series of individual reflectors, substantially as specified.

16. In a solar apparatus, a track-support consisting of a post for supporting the rail, an apertured bed-plate through which the post passes, and means for adjustably securing the post in the bed-plate, substantially as specified

17. The combination of the rail *a*, post A^9, bed-plate A^8 and the adjustable securing device A^4, substantially as specified.

18. In a solar apparatus, the car C having the tracks H^7 and the truck H^5 H^6 mounted to travel across the car and means for adjusting the position of the truck upon the car, substantially as specified.

19. In a solar apparatus, a curved track, a car, a truck mounted to travel across the car, a cable and a windlass, suitable cable-guiding pulleys, a car-propelling weight, and a time-measuring device operatively connected with the weight and with the windlass, substantially as specified.

20. In a solar apparatus, a reflector, a car, a curved track, a truck mounted to move across the car, a steam-producing boiler mounted upon the truck, steam-operated mechanism, and a connection between the boiler and said mechanism, substantially as specified.

21. In a solar apparatus, a reflector, a curved track, a car mounted to traverse the same and positively connected with the reflector, a steam-producing boiler mounted upon the car, and steam-operated mechanism flexibly connected with the boiler, substantially as specified

22. In a solar apparatus, a reflector, a car movable about the reflector, an elevated platform mounted on a truck constructed to travel across the car, and an object to be heated mounted on the platform, substantially as specified.

23. In a solar apparatus, a reflector, a car movable about the reflector, and an object to be heated by the reflector carried by and elevated above the car, substantially as specified.

24. In a solar apparatus, a car having an elevated platform and means for reaching the same and for exposing the object to rays from the reflector upon or above the platform, substantially as specified.

25. The combination with the car, of the truck H^5 H^6 the threaded shaft H° and nut H°, substantially as shown and described.

26. The combination of the car C, the truck H^3, the boiler H, the supply-pipe H′ and the delivery-pipe H^{11}, substantially as specified.

27. The combination with the reflector-frame E′ and its pivot E, of the base F, the gears J I^2 and crank-shaft I, the connecting-rod K and the frame G, substantially as shown and described.

28. The combination with the frame E E′ car C track A and connecting-rod D, of the frame G connecting-rod K and gearing I I^2 and J, substantially as specified.

29. The combination of the frame G carrying the reflectors L, the rods M M^2, spring M^3, disk M^4, connecting-rod K, and gearing I I^2 and J, substantially as specified.

30. The combination of the frame G, individual bars L having journals L′, the plate G^2 having aperture G^3 and slot G^4, and means for securing the plate adjustably to the frame G, substantially as specified.

31. A reflector consisting of a base, a reflecting-surface, bars for supporting the same movably mounted on the base, and means for adjustably connecting the bars with the base, substantially as specified.

32. A reflector consisting of the base L^2, grooved bars N, and devices as N′ for adjustably connecting the grooved bars with the base, substantially as specified

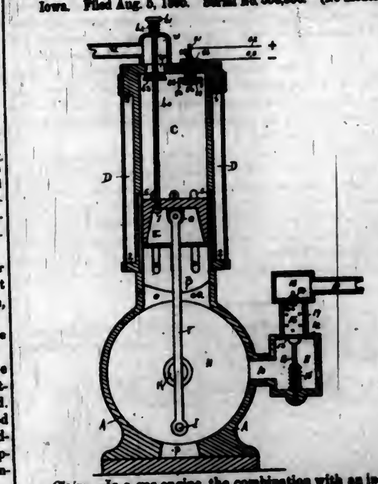
33. In a solar apparatus, a gear having removable devices constituting the cogs thereof, substantially as specified.

34. In a solar apparatus, a gear having removable and adjustable devices constituting the cogs thereof, substantially as specified.

35. In a solar apparatus, a gear provided with cogs adjustable to follow the irregular motion of the sun, substantially as specified.

36. In a solar apparatus, the combination with a reflector, a curved track, a car, and means positively connecting the car with the reflector, of a crank-shaft and its connecting-rod having means for adjustment to suit the different seasons of the year, substantially as specified.

608,818. OIL-GAS MOTOR. HOWARD K CLOVER, Council Bluffs, Iowa. Filed Aug. 5, 1896. Serial No. 552,260. (No model.)

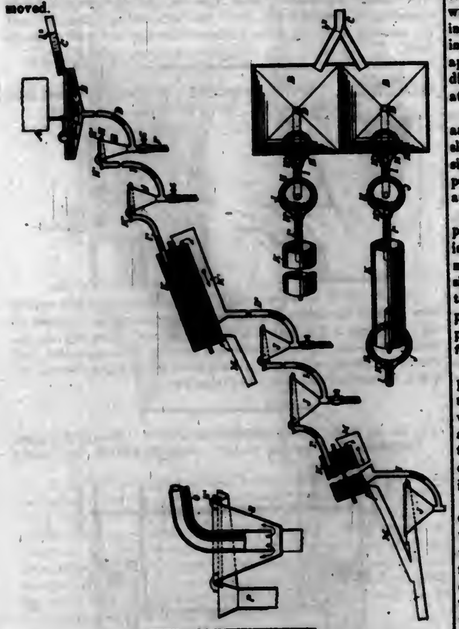


Claim.—In a gas-engine, the combination with an incasing shell, comprising the lower housing, *a*, the upper cylindrical section, C, and the intermediate section, B, said intermediate section being provided with the grooves, 5, 5, of the valved supply-chamber, 11, communicating with said chamber, *a*, the valve-seating, 30, within said upper cylinder, the housing, 31, covering said valve-seating, the escape-pipe, 32, extending from said housing, the rod, 40 working through said housing, 31, the valve, 34, secured to said rod and working into said seating 30, the spring, 42, to force said rod, 40, normally into an upward direction, the supporting-shaft, K, the disks, H, secured to said shaft, the crank-pin, I, securing said disks, H, H, the pitman, F, secured to said crank-pin, I, and the piston, E, said piston, E, being of a length less than the length of said grooves, 5, and reciprocating within said intermediate portion, B, and cylinder, C, said rod, 40, working loosely through said piston, E, in one direction and actuating said rod, 40, in an opposite direction said piston being secured to and actuated by said pitman-rod, F, in combination with a suitable igniter secured within said chamber, C, as and for the purpose set forth.

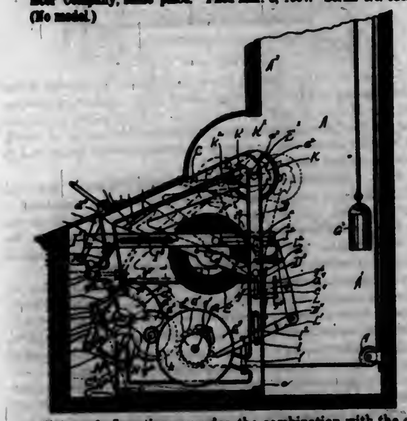
608,819. SEPARATOR AND CONCENTRATOR. CHARLES B. CROWELL, Stella, and MERRITT F. GALE, San Francisco, Cal.; said Gale assignor to said Crowell. Filed June 4, 1897. Serial No. 639,496. (No model.)

Claim.—An improved apparatus for separating and concentrating heavy valuable materials from lighter slimes, consisting of one or more series of hoppers situated one below the other so that the discharge from the uppermost will be delivered successively into the bottom of the next succeeding hopper, said hoppers being of gradually-increasing diameter and having upwardly-diverging sides, inclined overflow-directing lips surrounding the upper parts of the hoppers, annular troughs surrounding the hoppers into which the overflow-discharge is received and pipes connecting said troughs successively with the bottoms of the next succeeding hoppers whereby an upward flow at a gradually-decreasing rate takes place in each of the hoppers, inclined cylindrical rotary screens journaled intermediate between one or more of each series of hoppers adapted to receive the overflow from the next preceding hopper and deliver it into the following one, casings in which the screens rotate, having pipes leading therefrom to the next succeeding hopper, final discharge sluices, and preliminary water and pulp receivers with means for automatically, regulating the water-supply, a pipe extending to said

receiver with diverging branches leading to the two series of hoppers, and a gate at the junction of the branches whereby the supply is diverted alternately from one to the other series whenever the material collected in the discharge-pipe of the hoppers is to be removed.



608,820. TIME-RECORDER. JOHN W. DRUMMER, Chicago, Ill., assignor, by direct and mesne assignments, to the Chicago Time Register Company, same place. Filed Mar. 3, 1897. Serial No. 626,429. (No model.)



Claim.—1. In a time-recorder, the combination with the casing and the clock-controlled printing mechanism and recording-sheet therein, of means operable from without the casing for taking an impression from the printing mechanism, means enabling the individual effecting the impression to attach his identification-mark thereto, and a sight-opening through which the said impression may be viewed, whereby the individual is enabled to inspect for identification the record to which he attaches his identification-mark.

2. In a time-recorder, the combination of a casing, a clock-controlled printing mechanism, a normally stationary recording sheet or strip therein, and means for feeding the sheet step by step, means operable from without the casing for effecting the printing of a time-record, means enabling the individual making the time-record to mark the same for identification, and a sight-opening through which the time-record may be viewed, whereby the individual is enabled to inspect for identification the record to which he attaches his identification-mark.

3. In an autograph time-recorder, the combination of a casing clock-controlled time-printing mechanism, and a recording-sheet within the casing, means operable from without the casing for effecting the printing of a record on the recording-sheet, a slot in the casing through which the sheet is exposed for signature and a sight-aperture through which the record may be viewed, whereby the individual is enabled to inspect for verification the record to which he attaches his identification-mark.

4. In an autograph time-recorder, the combination with a casing and a recording mechanism and time-recording sheet therein, of a slot in the casing through which the recording-sheet is exposed for signature and a transparency adjacent to said slot through which the printed record to which the signature is affixed, may be viewed when affixing the signature thereto.

5. In an autograph time-recorder, the combination with a casing, provided with a slot and clock-controlled printing mechanism embracing printing-forms arranged within the casing, of a carriage pivotally mounted within the casing, a platen upon said carriage, a recording-sheet carried by the carriage and arranged to pass over the platen thereof and means for swinging the carriage about its pivotal support, said printing-forms being arranged directly in the path of the platen so that the latter is brought into printing contact with said forms by the swinging of the carriage.

6. In an autograph time-recorder, the combination of a casing provided with a slot and clock-controlled printing mechanism arranged within the casing, a movable platen-carrying carriage, mounted within the casing, a recording-sheet arranged to pass over the platen and adapted to be brought into position to receive a signature thereon through the slot and a sight-opening through which the printed record upon the recording-sheet may be inspected at the time of affixing the signature thereto.

7. In an autograph time-recorder, the combination of a casing clock-controlled printing mechanism and an oscillatory platen-carriage within the casing, a recording-sheet carried by said carriage, a slot within the casing through which the recording-sheet may be exposed for signature and means for oscillating the carriage to carry the recording-sheet into printing contact with the printing devices and to thereafter carry it into position to expose the recording-sheet through the slot.

8. In an autograph time-recorder, the combination of a casing clock-controlled printing mechanism, and an oscillatory platen-carriage within the casing, a recording-sheet carried by said carriage, a slot in the casing through which the recording-sheet may be exposed and means for oscillating the carriage to first carry the recording-sheet into printing contact with the printing devices and to thereafter return it to and beyond its normal position into position to expose the recording-sheet for signature to the slot.

9. In an autograph time-recorder, the combination of a casing, clock-controlled printing mechanism and an oscillatory platen-carriage within the casing, a recording-sheet carried by said carriage, a slot in the casing through which the sheet may be exposed and means for oscillating the carriage to first carry the recording-sheet into printing contact with the printing devices and to thereafter return it to and beyond its normal position into position to expose the recording-sheet for signature to the slot, said movement being effected by means of an oscillatory operating-bar arranged outside of the casing and suitable operative connections whereby both the forward and return movements of the carriage are caused by a single movement in one direction of said operating-bar.

10. In an autograph time-recorder, the combination of a casing, clock-controlled printing mechanism and an oscillatory platen-carriage within the casing, a recording-sheet carried by said carriage, a slot in the casing through which the sheet may be exposed means for oscillating the carriage to first carry the recording-sheet into printing contact with the printing devices and to thereafter return it to and beyond its normal position into position to expose the recording-sheet for signature to the slot, said movement being effected by means of an oscillatory operating-bar arranged outside of the casing and suitable operative connections whereby both the forward and return movements of the carriage are caused by a single movement in one direction of said operating-bar, and means operating to automatically return the carriage to a position rendering the recording-sheet inaccessible through the slot.

11. The combination in a time recorder having a casing provided with a slot through which the recording-sheet is adapted to be exposed and a printing mechanism and recording-sheet within the casing, of means for effecting the printing of a time-record and for bringing the sheet into position to receive a signature consisting of an operating-bar located outside the casing adjacent to the slot and arranged to normally stand in an upwardly-projecting position said operating-bar being adapted to accomplish the printing of a time-

record upon the recording-sheet and the bringing of the latter into position to receive a signature with the time-record exposed to view when depressed into or toward a horizontal position by resting the hand thereon when in writing position.

12. In an autograph time-recorder the combination of a casing provided in its upper side with a slot, an oscillatory carriage mounted within the casing adjacent to said slot, provided with a platen-bar and a impressing-bar and carrying receiving and supply rolls, a recording-sheet upon said rolls arranged to pass over the impressing bar and platen in its passage from the supply to the receiving roll, minute and hour type-wheels rotatably mounted in the path of the impressing-bar, mechanism for rotating said type-wheels to cause them to present printing characters representing the time of day at the printing-point, an inking device adapted to cooperate with the type-wheels and means operable from without the casing for oscillating the carriage to cause an impression upon the recording-sheet and to bring the latter into position to receive his signature thereon.

13. In an autograph time-recorder, the combination of a casing provided in its upper side with a slot, an oscillatory carriage mounted within the casing adjacent to said slot and consisting of two parallel triangular-shaped side or end frames rigidly secured together and pivotally mounted upon an axis extending longitudinally of the carriage adjacent to one of the outer angles of the same, a combined impressing bar and platen extending between said side frames at one of the other angles of the carriage having its impressing-surface arranged in a plane substantially radial to the pivotal axis of the carriage, receiving and supply rolls upon the carriage, a recording-sheet mounted upon said roll arranged to pass over the impressing and platen bar in its passage from the supply to the receiving roll, minute and hour type-wheels rotatably mounted in the path of the impressing bar, mechanism for actuating said type-wheels, an inking device adapted to cooperate with the type-wheels, and an operating-bar arranged outside the casing and provided with operative connections for oscillating the carriage to cause an impression upon the recording-sheet and to bring the platen into position to receive a signature upon the recording-sheet.

14. In an autograph time-recorder, the combination with a casing provided with a slot, through which the recording-sheet is adapted to be exposed, an oscillatory carriage provided with a platen and carrying supply and receiving rolls, a recording-sheet arranged to pass over said platen in its passage from the supply to the receiving rolls, mechanism for printing a time-record upon the sheet an automatic paper-feeding device adapted to feed the paper into position upon the platen to receive a signature thereon opposite the time-record as the platen is brought into register with the slot.

15. The combination in a time-recorder provided with printing-forms, of an inking device comprising an oscillatory arm carrying at its free end an inking-pad, a spring tending to hold said arm normally free from the type, a tappet-block mounted adjacent to the oscillatory arm and adapted to act upon the latter to depress the inking-pad into contact with the type and a radial arm upon the tappet-block arranged to project into the path of a reciprocatory part of the recorder mechanism, said reciprocatory part being adapted to oscillate the inking device into contact with the types and to thereafter permit it to spring back to its normal position.

16. In a time-recorder, the combination with a casing, provided with a slot and an oscillatory platen-carriage adapted to bring the recording-sheet into position to expose it through the slot, of means for actuating said carriage, comprising an oscillatory bar arranged outside the casing and provided with a rigid arm extending within the casing, a shift-bar pivotally connected with the arm at one end and having sliding support upon the machine-frame at its other end, a stud upon the shift-bar, an oscillatory lever pivoted between its ends upon the machine-frame and adapted to be engaged by the stud of the shift-bar, oscillated a limited distance thereby and released in the further movement of the bar, a stud upon the carriage-frame located in position to be engaged by the opposite end of the oscillatory lever to oscillate the carriage in one direction and a second stud upon the shift-bar adapted to directly engage the carriage-frame to oscillate it in an opposite direction, whereby the impressing movement and the returning of the platen-carriage into position to receive a signature upon the recording-sheet are effected by the movement in a single direction of the operating-bar.

17. In a time-recorder the combination with the recording mechanism, a motor for actuating the printing-forms, and an operating device arranged outside the casing for effecting the printing operation, of an automatic winding device, consisting of a ratchet-wheel arranged to act upon the winding-shaft of the motor, and a pawl arranged to act upon the ratchet-wheel and operatively connected with the printing mechanism whereby the ratchet-wheel will be operated each time an impression is taken from the printing-forms.

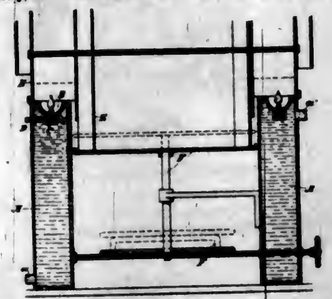
18. In a time-recorder, the combination with the recording mechanism, a motor for actuating the printing-forms, and an operating device arranged outside the casing for effecting the printing operation, of an automatic winding device, consisting of a ratchet-wheel arranged to act upon the winding-shaft of the motor, and a pawl arranged to act upon the ratchet-wheel and operatively connected with the printing mechanism whereby the ratchet-wheel will be operated each time an impression is taken from the printing-forms, and means operating to automatically throw the self-winding mechanism out of operation when the motor has been wound up to a predetermined limit.

603,821. WATERING-TROUGH. WILLIAM DEY, Golden Gate, Minn. Filed June 24, 1897. Serial No. 642,170. (No model.)



Claim.—In a watering-trough, the combination of the water-inlet, a valve for controlling the same, a cog or pinion provided on the valve-stem, a flap hinged to the trough and extending into the same, a rack-bar connected with said flap and in engagement with the cog or pinion, and a spring for returning the flap to normal position, substantially as shown and described.

603,822. SELF-FEEDING OIL-STOVE. EDWARD H. DRIGGS, Berkeley, Cal. Filed Aug. 23, 1897. Serial No. 649,176. (No model.)



Claim.—1. In an oil-stove, the combination of an annular jacket or shell having within it a cooling medium, an annular oil-chamber at or near the top of said annular jacket and extending within the same and into the cooling medium, a wick therein, and an oil supply pipe for said oil-chamber passing through said annular jacket and its contained cooling medium.

2. In a lamp-stove, the combination of an annular jacket or shell containing a cooling medium having its top wall depressed to form an annular wick-chamber extending into said annular jacket and into the contained cooling medium and a fuel-supply pipe for said wick-chamber through said annular jacket and its contained cooling medium.

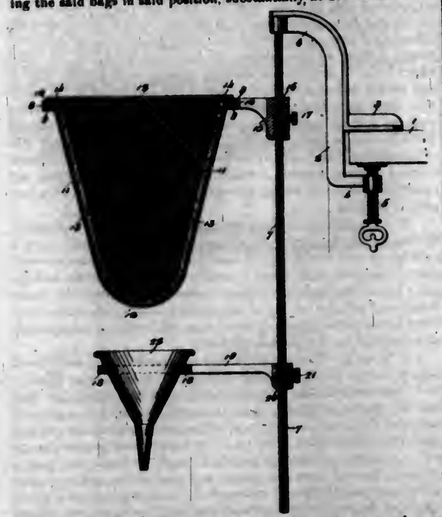
3. In a lamp-stove, the combination of an annular jacket or shell, containing a cooling medium, having its top wall annularly depressed to form an annular wick-chamber B an annular oil-groove in the bottom thereof both extending into said annular jacket and its contained cooling medium, a wick in said wick-chamber, and a fuel-supply for said wick-chamber, substantially as described.

4. In a lamp-stove, the combination of a water-jacket, a narrow shallow wick-chamber extending into said jacket, and a wick in said wick-chamber substantially filling said chamber, a fuel-supply connected with said wick-chamber, an automatic regulator for said supply, and adjusting means for said regulator.

5. In an oil-stove, the combination of a water-jacket a shallow oil-chamber for supplying the wick or burner extending into said water-jacket, a supply-reservoir for the oil-chamber, a float-chamber connected by said supply-pipe to said reservoir and oil-chamber, a float in said float-chamber, a regulator-valve in said supply-pipe, and an exposed adjustable connection between said float and valve, substantially as described.

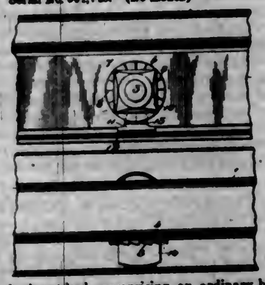
603,823. FILTER. JOHN H. BOKART, Joplin, Mo. Filed Oct. 21, 1897. Serial No. 655,945. (No model.)

Claim.—1. A filter comprising a suitable felt bag, a wire-gauze bag located within the same, leaving a space, and means for supporting the said bags in said position, substantially as described.



2. A filter comprising a clamp having a curved upper end, a rod depending therefrom, a support adjustably secured to said rod, an inner annular shoulder formed on said support, a felt bag supported on said shoulder, an inner wire-gauze bag located within the felt bag forming a space between said bags, an annular band secured to the upper edge of the wire-gauze bag, and resting on the upper edge of the felt bag, a second support also adjustably secured to the depending rod, a ring forming a part of said support, and a funnel carried by said ring substantially as described.

603,824. NUT-LOCK. JOHN H. BOKART, Joplin, Mo. Filed Dec. 13, 1897. Serial No. 661,745. (No model.)



Claim.—1. A nut-lock, comprising an ordinary bolt, a circular washer having a rear smooth surface, ratchet-teeth formed on the opposite surface of the same, a foot portion formed integral with said washer, a groove formed between the washer and foot portion, whereby the metal is reduced, and a nut having a ratchet formed on its engaging surface, and adapted to cooperate with the ratchet-teeth formed on the washer, substantially as described.

2. A nut-lock, comprising an ordinary rail and fish-plate, a bolt passing through the same, a circular washer having a central opening for receiving the bolt, radially-arranged ratchet-teeth formed on the outer surface of said washer, a foot portion formed integral with the washer and having a straight lower surface which comes in contact with the base of the rail, a groove formed in the metal between the washer and foot whereby the metal is reduced, and a nut having radially-arranged ratchet-teeth formed on one of its faces which cooperate with the ratchet-teeth formed on the washer, substantially as described.

603,825. RACK-PEDALING BRAKE. SILAS FADER, Vancouver, Canada, assignor of one-half to Adolphus Williams and John T. Carroll, same place. Filed Oct. 13, 1897. Serial No. 655,045. (No model.)

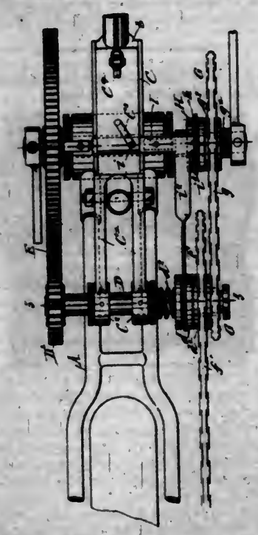
Claim.—1. In a bicycle brake mechanism, the combination with the drive-axle hub, having a clutch-face, a friction-disk detachably secured thereon and rotatable therewith, a sprocket-wheel having a clutch-face at one side and a friction-face at the other and loosely mounted on the hub, of a non-rotatable disk member interposed between the sprocket-wheel friction-disk and the hub friction-disk and adapted to be engaged on opposite sides by the said fixed disk and sprocket-disk when the movement of the sprocket-wheel is retarded, substantially as shown and for the purposes described.



2. In a bicycle brake mechanism, the combination with the drive-axle and the hub, said hub having a clutch-face, and a disk rotatable therewith but held from lateral movement, of a sprocket-wheel having a clutch-face and a friction-face, a friction member held between the sprocket-wheel and the rotatable friction-disk adapted to be engaged on its opposite sides by the said rotatable friction-disk and the sprocket-wheel friction-face, as the movement of such wheel is checked, as specified.

3. In a bicycle-brake of the class described, the combination with the drive-axle, the hub having wedge clutch members and a portion having left threads, the disk 8 fitted on such threaded portion, the laterally-movable sprocket having wedge clutches at one side and a fixed friction-disk 7 at the other, the disk 6, having a limited lateral movement on the hub and held between the disks 7 and 8, said disk 6, having a spring-hanger 11 connected with the machine-frame, and a stop 9 to engage a fixed portion of the machine, said disk having recesses on opposite sides, and the packing-rings held in the pockets of the disks 6, all being arranged substantially as shown and described.

603,826. ATTACHMENT FOR BICYCLES. LOUIS FRISCOLD, New York, N. Y. Filed Oct. 28, 1897. Serial No. 656,721. (No model.)



Claim.—1. The combination with a bicycle, of an attachment consisting of a driving sprocket-wheel loosely mounted upon the pedal-shaft and adapted to be thrown into fixed engagement therewith, a gear-wheel upon said pedal-shaft, a bed-plate provided with bearings, a shaft journaled in said bearings, a pinion fixed upon said shaft meshing with said gear-wheel, a large and small sprocket-wheel fixed upon a hub loosely sleeved upon said shaft, a sprocket-chain connecting the driving sprocket-wheel with the said small sprocket-wheel, a sprocket-chain connecting the said large sprocket-wheel with the rear wheel of the bicycle, and means substantially as described whereby the driving-sprocket may be thrown into or out of fixed engagement with the pedal-shaft and whereby the large and small sprocket-wheels may be thrown into or out of fixed engagement with said shaft, substantially as set forth.

2. The combination with a bicycle of an attachment consisting of a shaft geared to the pedal-shaft of the bicycle, a hub loosely sleeved upon said shaft and forming one member of a clutch mechanism, a large and small sprocket-wheel carried by said hub, a movable clutch member splined to said shaft and adapted to be thrown into and out of engagement with the clutch member carrying the sprocket-wheels, a driving sprocket-wheel loosely sleeved upon the pedal-shaft and adapted to be thrown into fixed engagement therewith, a sprocket-chain connecting the driving-sprocket with the said small sprocket-wheel, a sprocket-chain connecting the said large sprocket-wheel with the rear wheel, a hub splined to the pedal-shaft, means for operating said hub and said clutch mechanism, and a spring sleeved upon said pedal-shaft, whereby the said driving sprocket-wheel is thrown into engagement with the pedal-shaft, substantially as set forth.

3. The combination with a bicycle, of an attachment consisting of a bed-plate adapted to be secured to the frame of the bicycle and provided with forked arms having bearings at the extremities thereof, a shaft journaled in said bearings, a pinion fixed upon one end of said shaft, a clutch member loosely sleeved upon said shaft, a large and a small sprocket-wheel carried by said clutch member, a movable clutch member splined upon said shaft and adapted to be thrown into and out of engagement with the other clutch member, a gear fixed upon the pedal-shaft and meshing with the said pinion, a driving sprocket-wheel loosely mounted upon said pedal-shaft and provided with a grooved hub, a hub splined upon the pedal-shaft adapted to bear against one face of the hub of said driving sprocket-wheel, a spring coiled upon the said pedal-shaft and bearing against the other face of said hub whereby said driving sprocket-wheel is adapted to be thrown into engagement with the splines upon the pedal-shaft, a slide-bar carried by the said bed-plate and provided with an inclined slot, a clutch-bar provided with a pin adapted to engage the inclined slot of the slide-bar, a downwardly extending arm adapted to engage the hub splined upon the pedal-shaft, an arm carried by said slide-bar and extending parallel therewith, and adapted to engage the movable member of the said clutch mechanism, a sprocket-chain connecting said driving sprocket-wheel with the said small sprocket-wheel, and a sprocket-chain connecting the said large sprocket-wheel with the rear wheel of the bicycle, and an operating-lever pivoted to the frame of the bicycle and to the said slide-bar, substantially as set forth.

608,827. OIL-FILTER. AUGUST H. FRANKE, St. Louis, Mo. Filed Oct. 11, 1897. Serial No. 654,859. (No model.)



Claim.—1. In an oil-filter, an outer wall, a bottom attached to said outer wall, an inclosing or jacketing wall surrounding and attached to the outer side of said outer wall forming an inclosed air-chamber or air-jacket around the outer side of the said outer wall, one or more openings near the upper and one or more openings near the lower edge of, and in the said inclosing or jacketing wall and communicating with the upper and lower parts of the said inclosed air-chamber, an incasing wall of less width than the said inclosing or jacketing wall, surrounding and attached to the outer side of, and between the said upper and lower openings in the said inclosing or jacketing wall to form a steam-chamber around the outer side of said inclosing or jacketing wall, a steam-inlet fitting, an outlet-check and a relief-valve attached to said incasing wall and in suitable communication with the said steam-chamber, all for the purpose to adjustably reduce the intensity of the heat communicated to the oil within the said outer wall by the steam heat within the said steam-chamber, substantially as shown and for the purpose set forth and specified.

2. In an oil-filter, an upper tank resting on a lower tank or reservoir, said upper tank having an upward-flared bottom, an outer wall, attached to the said bottom, an inner wall having openings near its upper edge, a strainer resting on the upper edge of said inner wall, a deflecting-shield attached to said strainer and suspended in the chamber formed between said outer wall and said inner wall, said outer wall to have formed in and around it one swage near its lower edge and one swage near its upper edge for the purpose to strengthen these parts of said outer wall and for the purpose to form shoulders, an inclosing wall its upper edge and also lower edge are turned inwardly and form connecting-walls attached to and surrounding the outer side of the said outer wall and between the said upper and lower swage forming an air-chamber; to have one bead near the upper edge of, and in and around the said inclosing wall and one bead in and around and near the lower edge of the said inclosing wall, suitable openings above the said upper bead and in the said inclosing wall and suitable openings below the said lower bead and in the said inclosing wall, a casing attached to and surrounding the outer side of the said inclosing wall and between the said upper and lower beads, forming a steam-chamber, a steam-inlet opening, outlet-opening and relief-opening in said casing, substantially as shown and for the purpose as set forth.

3. In an oil-filter having a receptacle mounted upon a reservoir, said receptacle provided with an inclined or cone-shaped bottom, a cylinder or wall mounted upon said bottom, said cylinder provided near its top with perforations, a cone or hood placed within said cylinder and resting upon the inclined bottom, filtering material placed within said cylinder on top of said cone, a removable strainer provided with a deflecting-shield placed upon said cylinder, substantially as shown and for the purpose set forth.

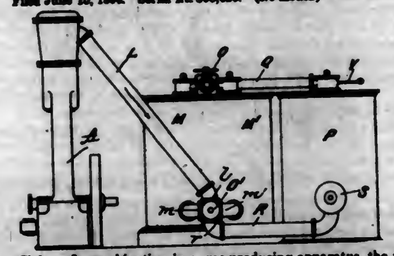
4. In an oil-filter composed of a receptacle having an inclined bottom, a tube or nipple placed in said bottom at the apex thereof, said nipple used for the purpose of delivering the oil from the filter into the reservoir, a cone or hood removably mounted upon said bottom over the nipple, said cone provided with perforations and covered with fibrous cloth which is for the purpose of preventing any part of the filtering material passing through the perforated cone, a cylinder mounted upon said bottom and surrounding said cone, said cylinder provided with perforations which are for the purpose of allowing the oil to pass into said cylinder and into filtering materis placed therein, a removable strainer placed upon said cylinder, a deflecting-shield carried by said strainer and extending downwardly into and around into the refining or settling chamber, said deflecting-shield acting as a division-wall preventing the dirty oil from passing through the perforations in the cylinder until it is settled or refined, and reaches the lower end of said deflecting-shield, an air-jacket formed on the outer surface of and surrounding said receptacle and a steam-jacket mounted on the outer surface of and surrounding the air-jacket which is for the purpose of communicating a low degree of heat to the oil in the receptacle, substantially as shown and for the purpose set forth.

5. In an oil-filter having a receptacle provided with a steam-jacket, an air-jacket interposed between the steam-jacket and receptacle and surrounding said receptacle, the air-jacket provided with means for regulating the heat in said air-jacket by increasing or decreasing the circulation of air within said air-jacket by increasing or decreasing the air inlet and outlet openings, said steam-jacket being of shorter width than the air-jacket, and is provided with steam through its inlet, a cylinder secured to the bottom of said receptacle a cone placed in said cylinder, said cone provided with perforations and covered with fibrous material, filtering material packed in said cylinder and over the cone, and held compressed by a compressing-plate, a removable strainer provided with a perforated side or wall and solid bottom placed and resting upon the said cylinder, said strainer supporting a deflecting-shield secured to the bottom, and extending downward acting as a division-wall in the refining chamber for the purpose as shown and described.

6. In an oil-filter having a receptacle provided with an inclined bottom designed for strength and provided at its apex with a tube or nipple, a division-wall or cylinder secured to said bottom and extending upwardly and provided with perforations, said division-wall or cylinder forming a refining or settling chamber between it and the wall of the receptacle, faucets secured to said receptacle in communication with the lower or bottom edge of the settling chamber, an air-jacket formed on the side of said receptacle and interposed between the steam-jacket and receptacle, the steam-jacket adapted for the purpose to heat the air in said air-jacket which air if freely circulating will communicate low heat to the oil in the refining-chamber, a deflecting-shield extending into said refining-chamber and secured to a strainer, said strainer removably mounted upon the cylinder substantially as shown and for the purpose set forth.

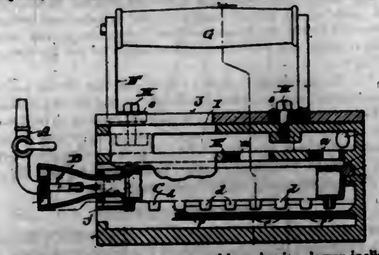
7. In an improved oil-filter, having a receptacle provided with an air and steam jacket on its side, said air-jacket interposed between the steam-jacket and receptacle, said air-jacket being of greater width than the steam-jacket and provided with means to regulate the circulation of air through said air-jacket, said steam-jacket coated on its inner surface with an asbestos cement or other coating, for the prevention of deterioration and for the purpose of decreasing the intensity of heat through its walls, said receptacle provided with an inclined bottom having an outlet at its apex, a division-wall or cylinder secured to said bottom, and provided with perforations, a perforated cone movably mounted in said cylinder and resting on the bottom, a cloth or fibrous material placed over said cone, filtering material tightly compressed in said cylinder and over the cloth-covered cone, a compressing plate placed upon said material, a movable strainer mounted upon said cylinder, said removable strainer having a solid bottom and perforated wall, a deflecting-shield carried by said strainer, and extending into the refining-chamber, substantially as shown and for the purpose set forth.

603,828. GAS-PRODUCER. JAMES FRASER, London, England. Filed June 15, 1896. Serial No. 595,220. (No model.)



Claim.—In combination in a gas-producing apparatus, the producer P, an air and steam supply leading thereto, a pair of regenerators, a connection between the same and the producer P, the gas-engine, a connection between the same and the regenerators and a reversing-valve for controlling the connections between the regenerators and the gas-producer and between the gas-engine and the regenerators so that the exhaust-gases from the engine are sent alternately through the regenerators to heat them for the passage of the partially-formed producer-gas, said valve also sending the producer-gas alternately through the regenerators, the said gas-engine being of sufficient size to use all or nearly all the gas produced at full load.

603,829. SAD-IRON. JOSEPH GRESS, Milwaukee, Wis. Filed Sept. 20, 1897. Serial No. 652,947. (No model.)



Claim.—1. A hollow open-rear sad-iron having lower inclined side apertures deflecting toward its bottom and an apertured horizontal partition dividing the sad-iron into upper and lower compartments, the upper one of which has side and front draft-openings, together with a fuel-gas burner having support in the lower one of said compartments and comprising a tube, an expansion-chamber forming a transversely-enlarged continuation of the tube at the forward end of same, a series of nipples depending from the expansion-chamber, and a gas-cock supported in said tube.

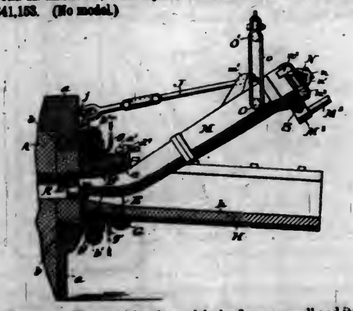
2. A hollow open-rear sad-iron divided by an apertured horizontal partition into upper and lower compartments, the upper one of which has side and front draft-openings, a recess in the point end of the sad-iron inside the latter below said partition, and a fuel-gas burner comprising a forward expansion-chamber having a lip that engages said recess, a series of nipples depending from the expansion-chamber, a rear tube leading into said expansion-chamber, lateral angle-wings extending in opposite directions from the tube, and a gas-cock supported in said tube; rear ledges inside the sad-iron constituting rests for said angle-wings, and set-screws detachably connecting said sad-iron and angle-wings.

3. A hollow open-rear sad-iron divided by an apertured partition into upper and lower compartments, the upper one of which has side and front draft-openings; together with a fuel-gas burner having support in the lower one of said compartments and comprising a tapered tube, an expansion-chamber forming a transversely-enlarged continuation of the tube at the forward end of same, a series of nipples depending from the expansion-chamber, and a gas-cock supported in said tube to have its outlet in the smaller diameter of same.

4. A hollow sad-iron divided by an apertured partition into upper and lower compartments, the upper one of which has side and front draft-openings, rear ledges inside the lower compartment, a fuel-gas burner comprising a forward expansion-chamber, a series of nipples depending from the expansion-chamber, a rear tube leading into said expansion-chamber, a gas-cock supported in the tube, and lateral angular wings extending in opposite directions from said tube to rest on said ledges and have detachable connection with the sad-iron.

5. A hollow open-rear sad-iron divided by an apertured partition into upper and lower compartments, the upper one having side and front draft-openings and the lower one inclined apertures that deflect toward the bottom, together with a fuel-gas burner having support in the lower one of said compartments and comprising a tapered tube, an expansion-chamber forming a transversely-enlarged continuation of the tube at the forward end of same, a series of nipples depending from the expansion-chamber, and a gas-cock supported in said tube to have its outlet in the smaller diameter of same.

603,830. BLAST-FURNACE IRON-NOTCH AND APPLIANCE. JOHN M. HARTMAN, Philadelphia, Pa. Filed June 17, 1897. Serial No. 641,153. (No model.)



Claim.—1. The combination, with the furnace-wall and its jacket, said wall containing an opening in the usual region for the iron-notch; of a removable door suspended from said jacket and fitting snugly within said opening, said door being also provided with an opening; and an iron-notch fitting within the opening in the door itself, substantially as set forth.

2. The combination with the furnace-wall and its jacket, said wall containing the usual opening for the iron-notch, of the door D, having a surrounding flange d; water-pipes arranged to deliver water within the channel formed by said flange; and a pivoted support for said door, whereby the same may be swung laterally to permit access to the notch-opening, substantially as set forth.

3. The combination with the furnace-wall and its jacket, said wall containing an opening in the usual region of the iron-notch; of the door D, fitting snugly in said opening, said door itself containing an opening; the iron-notch supported in said opening within the door, said door having lateral projections D^3, D^4; the swinging yokes F, F', pivoted to the furnace-jacket on each side of the notch-opening; and devices, such as keys, f^6, f^6, whereby said door is detachably secured on each side to said yokes, substantially as set forth.

4. The combination, with the iron-notch, of the gun M, having a curved muzzle adapted to reach said notch; the lateral stays J; the leg m', adapted to freely engage with said stays; and a swinging support for said gun, whereby the same may be lowered into position and quickly secured, substantially as set forth.

5. The combination with the tubular, pistonless gun having a curved muzzle and adapted to contain a large mass of plastic clay stopping; of an inlet-nozzle for the admission of fluid under pressure to the interior of said gun, said nozzle being arranged at the lower side of the gun's bore near the rear end thereof and opening in the direction of the muzzle, substantially as set forth.

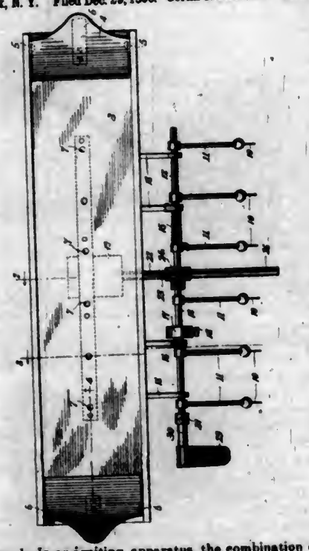
608,831. BICYCLE-BRAKE. FREDERICK H. HEATH, Tacoma, Wash. Filed Jan. 19, 1897. Serial No. 619,716. (No model.)

Claim.—In combination, a housing pivoted to the fork-crown of a bicycle, said housing having flared sides, said sides having indentations cut in their lower edges, spring-arms secured to the sides and projecting below and beyond said indentations, a hollow cylinder to fit within the housing, conical ends formed of sheet metal, of a slant corresponding to the slant of the sides, secured on the ends of the cylinder, hubs formed at the apex of the cones by curving the walls outward and downward to form a groove, said hubs resting on the spring-arms, means for depressing said housing substantially as described.

603,331.



603,332. FLASH-LIGHT APPARATUS. ARTHUR R JOHNSTONE, New York, N. Y. Filed Dec. 29, 1896. Serial No. 617,420. (No model.)



Claim.—1. In an igniting apparatus, the combination of a perforated holder for the ignitible compound, one or more movable igniters arranged to strike upwardly from below the holder, and mechanism for operating said igniters, substantially as described.

2. In an igniting apparatus, the combination of the trough or holder provided with the through-slot or perforations in the bottom thereof, the upwardly-striking igniters 10, arranged below the holder, and mechanism for operating said igniters, substantially as described.

3. In an igniting apparatus, the combination of the holder provided with the through-slot or perforations in the bottom thereof, the upwardly-striking igniters pivoted below and to one side of the holder, and mechanism for operating said igniters, substantially as described.

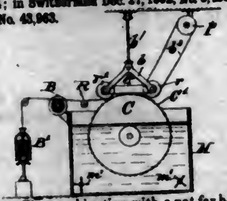
4. In an igniting apparatus, the combination of the perforated holder for the compound, the igniter 10, an air-engine, the shaft 12, the pulley 24 on said shaft, the ligament connecting said pulley with the rod of the air-engine, the spring 15, and connections between said shaft and said igniter, substantially as described

5. In an igniting apparatus, the combination of the perforated holder for the compound, the igniter 10, an air-engine for operating said igniter, and mechanism having an adjustable member for connecting said engine and said igniter 10, substantially as described.

6. In an igniting apparatus, the combination of the perforated holder for the compound, the pivoted upwardly-striking igniter, an air-engine and connections for causing the igniter to strike upwardly, and a retracting-spring for the igniter, substantially as described.

7. In an igniting apparatus, the combination of the foraminous holder for the compound, the rock-shaft 12 below and to one side of the holder, the igniters carried by said shaft and arranged to move through more than ninety degrees, an air-engine and connections for moving the igniters upwardly, and a retracting-spring, substantially as described.

603,333. APPARATUS FOR PREPARING CELLULOSE FOR MANUFACTURING SPUN FABRICS. CARL KELLNER, Vienna, Austria-Hungary. Filed Jan. 4, 1892. Serial No. 417,015. (No model.) Patented in Germany Nov. 20, 1891, No. 73,601; in England Nov. 20, 1891, No. 20,225; in Sweden Nov. 20, 1891, No. 4,042; in Norway Nov. 20, 1891, No. 2,509; in Austria-Hungary Mar. 1, 1892, No. 54,382 and No. 85,064; in Switzerland Dec. 27, 1892, No. 6,458, and in Canada Aug. 18, 1893, No. 43,963.



Claim.—1. The combination with a vat for holding fibrous material in suspension in water, and a cylinder revoluble in said vat and surrounded by a foraminous fabric kept in motion by such cylinder, of means coöperating with said fabric for rolling or rubbing the fiber deposited thereon into roving, for the purpose set forth.

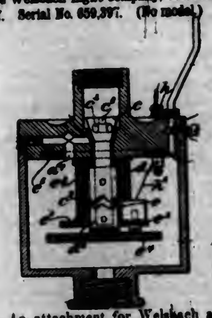
2. The combination with a vat for holding fibrous material in suspension in water, and a cylinder revoluble in said vat and surrounded by a fabric composed of continuous foraminous and like non-foraminous or substantially non-foraminous portions kept in motion by said cylinder, and means coöperating with said fabric for rolling or rubbing the fibrous material deposited on the foraminous portions of said fabric into rovings, for the purpose set forth.

3. The combination with a vat for holding fibrous material in suspension in water, a cylinder revoluble in said vat and clothed with a foraminous fabric; of means coöperating with said cylinder for rolling or rubbing the fibers deposited thereon into roving, for the purpose set forth.

4. The combination with a vat for holding fibrous material in suspension in water, a cylinder revoluble in said vat and clothed with a foraminous fabric; of one or more rolls adapted to reciprocate in the plane of the axis of rotation of said cylinder and coöperating therewith to roll the fibrous material into a roving, and means for reciprocating said roll or rolls, substantially as and for the purpose set forth.

5. The combination with a vat for holding fibrous material in suspension in water, a cylinder revoluble in said vat and clothed with a foraminous fabric; of one or more rolls adapted to reciprocate in the plane of the axis of rotation of said cylinder and coöperating therewith to roll the fibrous material into a roving, and means for revolving and reciprocating said roll or rolls independently of said cylinder, substantially as and for the purpose set forth.

603,334. ELECTRICAL ATTACHMENT FOR GAS-LIGHTS. FRANKLIN L. KELLNER and GEORGE S. BARROWS, Philadelphia, Pa., assignors to the Welsbach Light Company, Gloucester City, N. J. Filed Nov. 22, 1897. Serial No. 659,397. (No model.)



Claim.—1. An attachment for Welsbach and other gas-lights comprising the combination of a gas-admission valve and its complemental seat respectively provided with gasways and adapted to be lifted and turned in respect to each other, a zigzag groove and its complemental pin for effecting rotation of the valves to position said gasways for the admission and exclusion of gas, and electromagnets and their armature and connections for lifting and dropping the valve whereby it is rotated with a step-by-step motion in the same direction, and lifted and dropped at each rotation, substantially as described.

2. An attachment for Welsbach and other gas-lights comprising the combination of a two-part gas-chamber to which gas is supplied, a valve-seat and gasway in the upper part of said chamber, said gasway communicating within the interior thereof and through said seat, a valve provided with lateral gasways opening through its top and with a depending spindle, crown-wheels mounted on the shank of said spindle, an armature on the end of said spindle, electromagnets, a fixed pin coöperating with said crown-wheels, and circuit connections for the electromagnets, substantially as described.

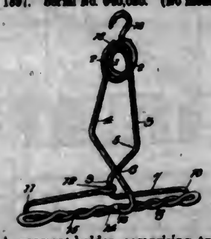
3. In an attachment for Welsbach and other gas-lights, a chamber to which gas is supplied, a valve and its complemental gasways for controlling the admission of gas to the main light, electrical and mechanical devices for operating said valve, a section of a by-pass tube extending from said chamber, means carried by said chamber for controlling the by-pass tube, a section of by-pass tube carried by the burner, and a sleeve or coupling for detachably connecting the said sections of by-pass tube, substantially as described.

4. In an attachment for Welsbach and other gas-lights, a valve provided with a gasway, a seat provided with a gasway, and electrical and mechanical devices, substantially as described, for rotating said valve in one direction with a step-by-step motion and for unseating and reseating said valve to facilitate the described rotation thereof.

5. In an attachmet for Welsbach and other gas-lights, the combination of a rotary and endwise-movable valve provided with gasways, a valve-seat provided with gasways, a plate-like armature attached to said valve, electromagnets, a zigzag groove on said valve, and a pin coöperating with said groove, whereby the valve is intermittently rotated in the same direction for the admission and exclusion of gas and cleared from and returned to its seat to prevent sticking and facilitate its rotation.

6. In an attachment for Welsbach and other gas-lights, the combination of a valve provided with a gasway and adapted to be lifted and turned to position its gasway, a plate-like armature connected with the valve, electromagnets, and means for lifting, rotating, and quickly dropping the valve, substantially as described.

603,335. GARMENT-HOLDER. ALBERT L. LINCOLN, Bethel, Vt. Filed June 9, 1897. Serial No. 640,095. (No model.)



Claim.—1. A garment-holder, comprising two spring-actuated arms crossed near their lower ends, jaws at the lower ends of the arms normally and yieldingly engaging each other, one of said jaws being in the form of an open link and the other consisting of a twisted or corrugated bar, and a suspending device connected to the upper end of the holder, substantially as described.

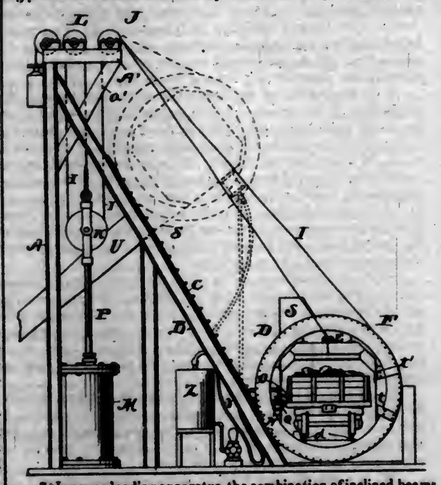
2. A garment-holder formed of a single piece of wire bent to form and comprising a series of coils, the middle coil being smaller than the outer ones, arms extending from said coils and bent at an obtuse angle to cross each other, jaws extending laterally from the arms on opposite sides and normally engaging each other, one of said jaws being in the form of an elongated open link and the other consisting of a twisted or corrugated bar of greater length than the link-jaw, substantially as described.

3. A garment-holder formed of a single piece of wire bent to form, and comprising a series of coils at its upper end, the middle coil being smaller than the outer ones, arms extending from said coils and clamping-jaws at the lower ends of the arms, combined with a metal plate secured to the outer coils and extending across above the middle coil, and a hook swiveled in said plate with its head supported on the middle coil, substantially as described.

603,336. CAR-UNLOADING APPARATUS. TIMOTHY LOWE, Cleveland, Ohio. Filed Feb. 11, 1896. Serial No. 578,965. (No model.)

Claim.—1. In a car-unloading apparatus, the combination of a car-holding cradle, and means for holding a car therein, with the rings G G within which the cradle is loosely mounted, mechanism for simultaneously raising and turning said rings, and stop-arms on the cradle and rings respectively, adapted to engage with each other, substantially as and for the purpose specified.

2. In car-unloading apparatus, the combination of a car-holding cradle and means for holding a car therein, with rings G G in which the cradle is loosely mounted, cables for simultaneously raising and turning said rings, whereby the cradle is raised without being turned, and mechanism for connecting the rings and cradle at the proper time, whereby the subsequent turning of the rings will correspondingly turn the cradle, substantially as and for the purpose specified.



3. In car-unloading apparatus, the combination of inclined beams, the rings G G adapted to ride thereon, and mechanism for rolling the rings up said beams, with a car-holding cradle loosely mounted in said rings, means for holding the car in the cradle, and stop-arms on said rings and cradle respectively, substantially as and for the purpose specified.

4. In car-unloading apparatus, the combination of the car-holding cradle provided with end rings E E, the outer rings G G having annular flange plates F F embracing the rings E, spaced friction-rollers H interposed between said outer and inner rings, cables for raising and turning said outer rings, and stop arms on the outer and inner rings respectively, substantially as and for the purpose specified.

5. In car-unloading apparatus, the combination of the car-holding cradle, and the vertical ratchet-bars W^2 secured therein, with the beams V, endwardly-movable ratchet-blocks V^2 mounted in the ends of said beams, and adapted to engage with the ratchet-bars, the wheel X journaled in the middle of the beam, spring-actuated rods r' connecting said ratchet-blocks with the wheel X on opposite sides of its axis, a rope Y attached to and wound on said wheel, and passing up over a sheave at the top of the trestle-tower, a weight attached to the free end of said rope, and a bracket W^3, substantially as and for the purpose specified.

603,337. MACHINE FOR JOINTING TUBES. WILLIAM A. MCCALLUM, Cincinnati, Ohio, assignor to Charles Andrew, same place. Filed Oct. 15, 1896. Serial No. 609,010. (No model.)



Claim.—1. In a tube-jointing machine embodying a longitudinally-extended bed or frame, operating-cylinders at or near the outer ends thereof, having plungers operating outwardly in opposite directions, draw-bars connecting said plungers, and a compression-die movable upon the bed or frame between the cylinders by attachment to the draw-bars, substantially as set forth.

2. In a tube-jointing machine, of the character indicated, the combination of a bed-frame, a fixed operating-cylinder at or near one end thereof, an adjustable withdrawing-cylinder at or near the opposite end thereof, draw-bars connecting the plungers of the cylinders, and an intermediate cross-head adapted to be attached adjustably to and be reciprocated by the draw-bars, and a hollow compression-die carried by the cross-head, substantially as set forth.

3. In a tube-jointing machine, of the character indicated, in combination with the bed-frame, operating and withdrawing cylinders, the draw-bars and intermediate cross-head, a supplemental cylinder and plunger in connection with the withdrawing-cylinder, said plun-

ger acting as an adjustable backing for the tube under treatment, substantially as set forth.

4. In a tube-jointing machine, the combination of the bed-frame, operating-cylinders, draw-bars and cross-head; the intervening removable carrying-rolls in bearings attached to the bed-frame, substantially as set forth.

5. In a tube-jointing machine of the character indicated, the combination of the bed-frame; oppositely-acting cylinders attached thereto; cross-heads attached to the plungers of the cylinders and moved upon the bed-frame as a support; draw-bars connecting the cross-heads; and a central cross-head or die-carrier adjustably attached to the draw-bars, substantially as set forth.

6. In a tube-jointing machine, of the character indicated, the combination of the opposite cylinders, bed-frame, draw-bars, and the cross-head or die-carrier adjustably attached to the draw-bars, and an annular die carried by said cross-head, substantially as set forth.

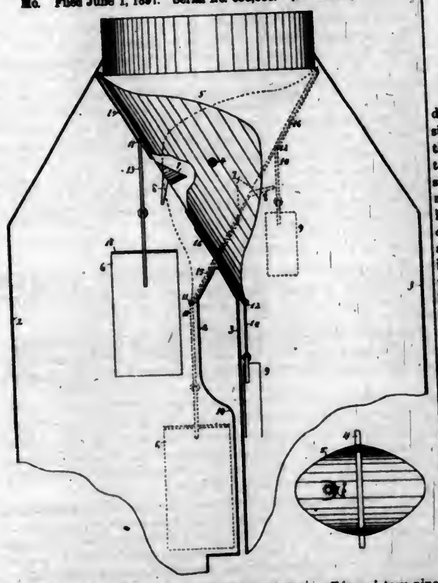
7. In a tube-jointing machine, of the character indicated, the combination of the bed-frame, opposite cylinders, draw-bars, and the intermediate cross-head adapted to move upon the bed-frame, and provided with lateral wings provided with slots to receive the draw-bars, and removable pins connecting the same with the cross head at any desired points, and an annular die carried by said intermediate cross-head, substantially as set forth.

8. In a tube-jointing machine of the character indicated in combination with the motor-cylinders for operating the die, a supplemental cylinder and plunger located at the back of the motor-cylinder with a perforated partition between the two and a take-up plunger operated by said supplemental cylinder against the end of the tube under treatment, to engage the same and accommodate any variations of length, substantially as set forth.

9. In a tube-jointing machine, the combination of the bed-frame, the opposite operating and withdrawing cylinders, the cross-heads and connections, and a pipe connecting the two cylinders, provided with two controlling-valves, and a supply connection entering between said valves, substantially as set forth.

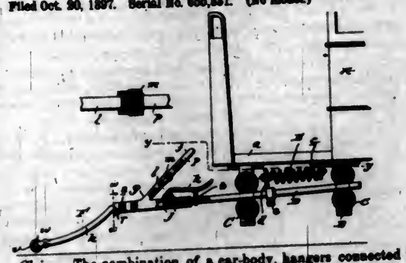
10. In a tube jointing machine of the character indicated, the cross-head or die-carrier constructed with an open vertical slot or socket for the insertion of dies and with lateral wings for connection with the draw-bars, and with bearing-rolls for support and guidance upon the bed-frame, substantially as set forth.

603,338. CISTERN CUT-OFF. JOSEPH MCCOY, Independence, Mo. Filed June 1, 1897. Serial No. 638,333. (No model.)



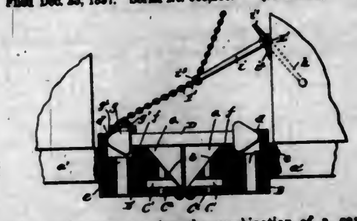
Claim.—The combination with a pivoted cut-off in a cistern-pipe of a weight connected with said cut-off, a vessel connected with said cut-off and means for filling and emptying said vessel, the construction and arrangement being such that as said cut-off changes its position the relation of said weight and vessel to the axis will correspondingly change, substantially as set forth.

603,339. CAR-FENDER. JOHN I. NEWSOME, Vicksburg, Miss. Filed Oct. 20, 1897. Serial No. 656,231. (No model.)



Claim.—The combination of a car-body, hangers connected to and depending from said body adjacent to each side thereof, the lower and upper wheels arranged in the hangers and disposed in the direction of the length of the car, the rods D arranged and adapted to move between the upper and lower wheels and having the vertically-disposed apertures *b* adjacent to their outer ends, coiled springs connected at one end with the car-body and at their opposite ends to arms on the rods, and the detachable fender proper having the frame comprising the section *g* provided with the tubular side bars *j* receiving the forward ends of the rods D and having their forward ends flattened and provided with lateral lugs *r*, the hooks *k* pivotally connected to the said side bars *j* and adapted to enter the apertures of the rods, and the section A connected in a hinged manner to the flattened ends of the side bars of the section *g* above the lugs *r* thereof and adapted to fold back on the same, and netting or other suitable textile arranged within and connected to the frame, substantially as specified.

603,340. CAR-COUPLING. JOHN I. NEWSOME, Vicksburg, Miss. Filed Dec. 23, 1897. Serial No. 663,200. (No model.)



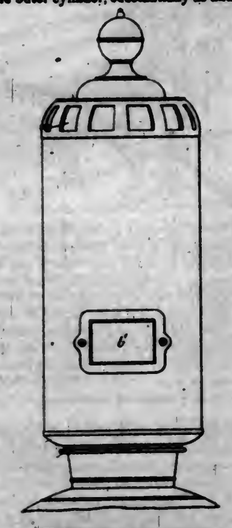
Claim.—In a car-coupler, the combination of a car-body, a draw-head formed in one piece and having the recess C in its upper side comprising the mouth *a* corresponding in width and height to the draw-head at the outer end thereof and having the inclined bottom wall of concave form in cross-section and also having the flaring side walls *c*, the pocket *d*, and the longitudinal central groove *f* connecting the mouth and the pocket; said draw-head also having the horizontal recess, at an intermediate point of its height, communicating at its outer end with the mouth *a*, and the vertically-disposed aperture intersecting said horizontal recess, the link having heads at its opposite ends; one of said heads being designed to rest in the pocket *d* of the draw-head, a clevis disposed longitudinally of the link, a bolt extending longitudinally through the outer head of the link and pivotally connecting the clevis thereto so as to enable the same to rock laterally on the link, the rock-shaft journaled in bearings on the end wall on the car-body and having the forwardly-extending arm i and also having the upper and lower stop-arms *l*, *l*, adapted to engage the end wall of the car-body, a chain connected at one end to the clevis on the outer head of the link and at its opposite end to the car-body, and a bolt detachably connecting the chain and the arm i of the rock-shaft, substantially as specified.

603,341. LAMP-STOVE. JOSEPH R. NICHOLS, Rochester, N. H. Filed July 23, 1897. Serial No. 645,685. (No model.)

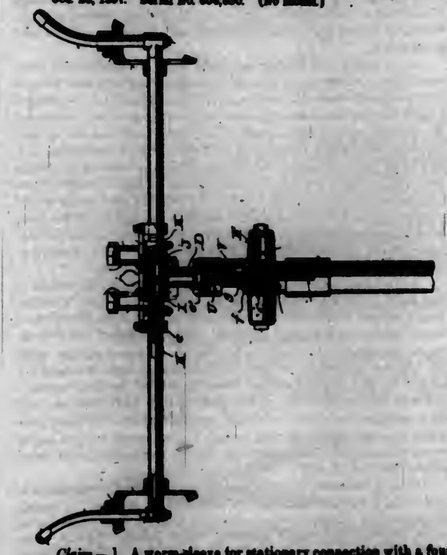
Claim.—1. In combination with a lamp, a metallic cylinder adapted to be removably attached to the upper end of the lamp; a head or cover secured to the top of said cylinder, and provided with apertures as described; and an inner approximately air-tight cylindrical body secured to said head or cover and projecting within the outer cylinder to a point near the burner, providing an annular space between the cylinders, said cylindrical body being practically non-conductive of heat, all substantially as and for the purposes set forth.

2. In combination with a lamp, a metallic cylinder adapted to be removably attached to the upper end of the lamp; a head or cover

secured to the top of said cylinder and provided with apertures as described, an inner cylinder concentric with the outer cylinder and approximately air-tight to preclude conductivity of heat, secured to said head or cover and projecting within the outer cylinder to a point near the burner, providing an annular space between the cylinders, said inner cylinder having a cone-shaped lower end; and an annular metallic shield removably interposed between the burner and the lower end of the outer cylinder, substantially as and for the purposes set forth.



603,342. FOUNTAIN. BERNHOF ORT, La Crosse, Wis. Filed Oct. 26, 1897. Serial No. 656,630. (No model.)



Claim.—1. A worm-sleeve for stationary connection with a fountain stand-pipe, a hollow stem having rotative engagement with the worm-sleeve, pipes extending laterally in opposite directions from the stem and having discharge-terminals at suitable angles, hollow stem-arms extending in opposite directions and having perforated horizontal shell-terminals, hollow perforated spigots in these arm-terminals, and worm-wheels made fast to the spigots to mesh with said worm-sleeve.

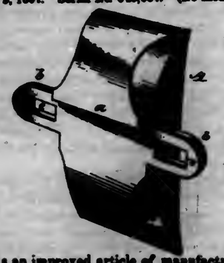
2. A worm-sleeve for stationary connection with a fountain stand-pipe, a hollow stem having rotative engagement with the worm sleeve, arms extending in opposite directions from the stem, worm-wheels in rotative connection with the stem-arms to mesh with said worm-sleeve, other wheels in rotative connection with stem-arm branches and having intermittent motion imparted thereto from the worm-wheels, pipes having hollow perforated spigot-terminals engaging perforated horizontal protuberances of said stem, the other terminals of these pipes being at suitable angles, pipe-supports in connection with the aforesaid stem, levers fast to the pipes, and links connecting the levers with the intermittently-driven wheels.

3. A worm-sleeve for stationary connection with a fountain stand-pipe, a hollow stem having rotative engagement with the worm-sleeve, arms extending in opposite directions from the stem, worm-wheels in rotative connection with the stem-arms to mesh with said worm-sleeve, other wheels in rotative connection with stem-arm branches and having intermittent motion imparted thereto from the worm-wheels, pipes having hollow perforated spigot-terminals engaging perforated horizontal protuberances of said stem, other pipes in ground-joint union with the ones aforesaid, bevel-pinions fast on the latter pipes and meshed with bevel gear-wheels fast on supporting-sleeves engaged by the former pipes, levers fast to the sleeve-engaging pipes, and links connecting the levers with the intermittently driven wheels.

4. A worm-sleeve for stationary connection with a fountain stand-pipe, a hollow stem having rotative engagement with the worm-sleeve, hollow arms extending in opposite directions from the stem and having perforated horizontal shell-terminals, hollow perforated spigots in these arm-terminals, worm-wheels made fast to the spigots to mesh with said worm-sleeve, other wheels in rotative connection with stem-arm branches and having intermittent rotation imparted thereto from the worm-wheels, pipes having hollow perforated spigot-terminals engaging perforated horizontal protuberances of said stem, the other terminals of these pipes being at suitable angles, pipe-supports in connection with the aforesaid stem, levers fast to the pipes, and links connecting the levers with intermittently-driven wheels.

5. A worm-sleeve for stationary connection with a fountain stand-pipe, a hollow stem having rotative engagement with the worm-sleeve, hollow arms extending in opposite directions from the stem, and having horizontal perforated shell-terminals, hollow perforated spigots in these arm-terminals, worm-wheels made fast to the spigots to mesh with said worm-sleeve, other wheels in rotative connection with the stem-arm branches and having intermittent motion imparted thereto from the worm-wheels, pipes having hollow perforated spigot-terminals engaging horizontal perforated protuberances of said stem, other pipes in ground-joint union with the ones aforesaid, bevel-pinions fast on the latter pipes and meshed with bevel gear-wheels fast on supporting-sleeves engaged by the former pipes, levers fast to the sleeve-engaging pipes, and links connecting the levers with the intermittently-driven wheels.

603,343. BRAKE-SHOE. JOHN H. PRIBBLE, Milledgeville, Pa. Filed June 9, 1897. Serial No. 640,007. (No model.)



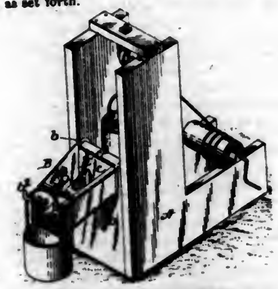
Claim.—As an improved article of manufacture, a metal brake shoe or block cast with a bearing-flange or overhanging shoulder extending across its outer side the entire width thereof and also cast with laterally-extending arms upon each side of the shoe or block which have elongated openings to admit of the adjustment of said shoe or block to the disk of the wheel when secured by bolts, substantially as and for the purpose set forth.

603,344. TROUGH FOR WELL-CURBS. JAMES R. G. REEVES, McComb City, Miss. Filed Nov. 13, 1897. Serial No. 658,208. (No model.)

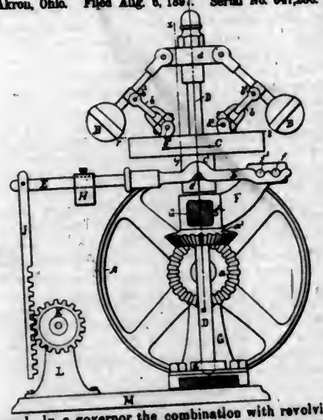
Claim.—1. A well-curb attachment, consisting of the rods, *b*, having the downturned ends, *b'*, and the upturned ends, *b²*, and the sheet-metal body, C, secured to such rods, as set forth.

2. A well-curb attachment, consisting of the rods, *b*, having the downturned ends, *b'*, and upturned ends, *b²*, the sheet-metal body, C, having one end open and the other closed and provided with a lip, *c²*, extending beyond the closed end, *c*, as set forth.

3. A well-curb attachment, consisting of the side rods, *b*, having the downturned ends, *b'*, and upturned ends, *b²*, the sheet-metal body, C, and the vertical pin, E, projecting upwardly from the bottom of the body, C, as set forth.



603,345. MECHANICAL SPEED-GOVERNOR. MARK A. REPLOGLE, Akron, Ohio. Filed Aug. 6, 1897. Serial No. 647,286. (No model.)



Claim.—1. In a governor the combination with revolving pendulums of a weight suspended from them by universal joints the said weight adapted to perform the operation required of the governor independent of a rise or fall of the pendulums by reason of retrogression or advancing of the said weight in its relation to the said pendulums.

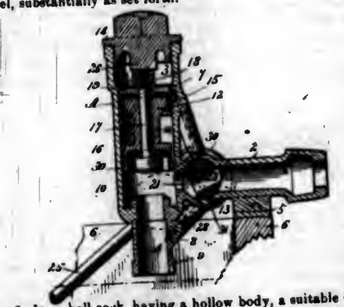
2. In a speed-governor, the combination of centrifugal weights, having suspended from them, by universally-jointed supports, an inertia weight, the said inertia weight being integrally made with a sleeve sliding on the spindle of the governor, and adapted to rise and fall in conjunction with the centrifugal weights, and also to rise and fall independently, in its relation to them, in the manner described, and for the purposes set forth.

3. In a mechanical speed-governor the combination of centrifugal weights or pendulums, designed to be affected by greater changes of speed, a weight suspended from them adapted to be raised or lowered in conjunction with said pendulums; and in addition thereto, adapted to be raised or lowered in its relation to said pendulums by minor changes in speed, by means as specified.

4. The herein-described mechanical governor consisting of a spindle, adapted to revolve centrifugal weights, centrifugal weights suspended therefrom, and an inertia weight suspended from said centrifugal weights, said inertia weight being integrally made or rigidly attached to a sleeve sliding upward and downward of said spindle, and attached to a lever intermediate of its fulcrum and operating end, for the purpose of amplifying the action of the governor, substantially as specified.

603,346. BALL-COCK. HARRY A. SEDGWICK, Athol, Mass. Filed Sept. 22, 1896. Serial No. 606,656. (No model.)

Claim.—1. In a ball-cock having a hollow body, a suitable outlet from said body, a water-supply branch communicating with said body, a cylindrical valve-barrel between said branch and body, water-passages 7 and 8, forming communication between the interior of said barrel, and the opposite ends of the interior of said body, combined with a moving valve within said body acting to close and open said outlet, a rotary valve acting in said barrel having a transverse water-passage 22, therethrough whose extremities communicate, simultaneously, with the extremities of said passages 7 and 8, within said valve-barrel, substantially as set forth.



2. In a ball-cock having a hollow body, a suitable outlet from said body, a water-supply branch communicating with said body, a cylindrical valve-barrel between said branch and body, water-passages 7 and 8, forming communication between the interior of said barrel, and the opposite ends of the interior of said body, combined with a moving valve within said body acting to close and open said outlet, a rotary valve acting in said barrel for controlling the water-supply to the ball-cock, having a transverse water-passage 22, therethrough whose extremities communicate, simultaneously, with the extremities of said passages 7 and 8, within said valve-barrel, and a main transverse water-passage 21, therethrough, substantially as set forth.

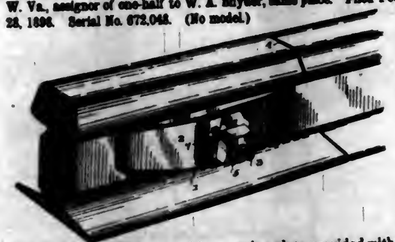
3. In a ball-cock having a hollow body, a suitable outlet from said body, a water-supply branch communicating with said body, a cylindrical valve-barrel between said branch and body, water-passages 7 and 8, forming communication between the interior of said barrel and the opposite ends of the interior of said body, combined with a moving valve within said body acting to close and open said outlet, a rotary valve acting in said barrel for controlling the water-supply to the ball-cock, having a main transverse water-passage 21, therethrough, and a passage 23, forming water communication between said passage 21, and the surface of said rotary valve, for communication with one extremity of said hollow body, through said passage 7, substantially as set forth.

4. In a ball-cock having a hollow body, a suitable outlet from said body, a water-supply branch communicating with said body, a cylindrical valve-barrel between said branch and body, water-passages 7 and 8, forming communication between the interior of said barrel and the opposite ends of the interior of said body, combined with a moving valve within said body acting to close and open said outlet, a rotary valve acting in said barrel for controlling the water-supply to the ball-cock having a transverse water-passage 22, therethrough whose extremities communicate, simultaneously, with the extremities of said passages 7 and 8, within said valve-barrel, a passage 23, forming water communication between said passage 21, and the surface of said rotary valve, for communication between one extremity of said hollow body and said passage 21, substantially as set forth.

5. In a ball-cock having a hollow body, a circular valve-seat in said body, a circular chamber 28, surrounding said seat, a water-supply branch communicating with said body, a cylindrical valve-barrel between said branch and body, water-passages 7 and 8, forming communication between the interior of said barrel and the opposite ends of the interior of said body, combined with the valve 12, having an inverted cup-shaped lower extremity for free entrance into said circular chamber, and a packing-disk 16, within said cup for engagement with said valve-seat, the rotary valve 13, having the water-passages 21 and 22, transversely therethrough at right angles to each other, and suitable ball-float devices connected to said valve, substantially as set forth.

6. In a ball-cock having a hollow body, a circular valve-seat in said body, a circular chamber 28, surrounding said seat, a water-supply branch communicating with said body, a cylindrical valve-barrel between said branch and body, water-passages 7 and 8, forming communication between the interior of said barrel and the opposite ends of the interior of said body, combined with the valve 12, comprising the body *a*, thereof, having an inverted cup-shaped lower end for free entrance into said chamber, a packing-disk 16, within said cup for engagement with said valve-seat, a "hat-brim" packing 15, inclosing the upper end of said valve-body, a metal washer lying upon said packing 15, and the bolt 17, having a head for entrance within said valve-seat, and a shank extending through said valve-body, packing-disk, packing, and washer, and means for securing said bolt in said valve, the rotary valve 13, having the water-passages 21 and 22, transversely therethrough, at right angles to each other, and suitable ball float devices connected to said rotary valve, substantially as set forth.

603,347. NUT-LOCK. HENRY A. THOMASON, Mount Hope, W. Va., assignor of one-half to W. A. Snyder, same place. Filed Feb. 28, 1898. Serial No. 672,048. (No model.)



Claim.—1. A nut-lock comprising a spring-plate provided with a locking-spring for engaging the nut, and having, adjacent to the free end of the spring, a socket adapted to receive the engaging end of the tool and formed by upsetting or bending the plate outward, substantially as and for the purpose described.

2. A nut-lock constructed of resilient material and consisting of a plate provided between its edges with an integral locking-tongue formed by splitting the plate, the latter being upset or bent outward at the outer side of the free end of the spring to form a socket to receive a tool, whereby the spring may be readily held in a depressed position, substantially as described.

603,348. REMOVABLE HEAD OR COVER FOR BARRELS, &c. GEORGE F. THOMPSON, Omaha, Nebr. Filed July 20, 1897. Serial No. 645,203. (No model.)



Claim.—A removable head or cover for barrels, casks, and vessels comprising a cover proper, having a metallic rim encircling and embracing the same and rigidly secured to the cover, depending hooks, at regular intervals, upon said rim, a rim of elastic material secured to the lower edge of the cover proper, a metallic hoop secured to the upper ends of the vessel's staves, having an inwardly-turned portion or edge, the extremity of the latter being driven into the staves, lugs having smooth lower surfaces inclined upwardly secured to the outside of the rim, at regular intervals, under which said hooks engage, rings upon the top of the barrel-cover, and a lever insertible therein to revolve the head or cover to secure the same upon the vessel, substantially as set forth.

603,349. COMBINATION CUTTER, CONNECTOR, AND PLIERS. CHARLES P. TOWARD, Worcester, Mass., assignor of one-half to E. Delmont Merrill and Frank D. Folsom. Filed May 26, 1897. Serial No. 638,181. (No model.)



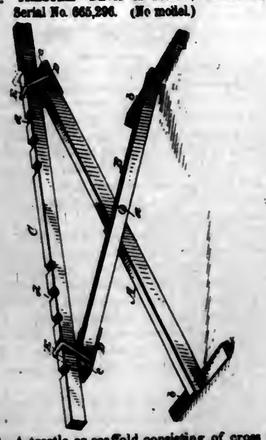
Claim.—In a tool of the kind described, the combination of the jaws and handles pivotally connected, said jaws having the transverse recesses or grooves upon both sides of the pivot, the forward portion of the jaws being recessed from both sides to provide central cutting-jaws, and also recessed from one side to provide a side cutting edge, substantially as shown and described.

603,350. BOTTLE. EDMUND TOWERS, Yonkers, N. Y., assignor of three-fourths to John Gibney and John C. S. Wells, Sing Sing, N. Y. Filed Jan. 12, 1897. Serial No. 618,974. (No model.)

Claim.—The combination of a bottle having a recess formed within the outer surface of the neck thereof and a recess formed within the inner surface of said neck, these said recesses being separated by means of a thin disk forming an integral part of the neck of the bottle, said neck also having a groove therein, located opposite to the said recess; with a bottle stopper having a tongue thereon for engagement with the groove of a bottle-neck, and a recess therein located opposite to said tongue for holding the bow-spring, the outwardly-extending arm of said bow-spring engaging with the inner recess of the neck of the bottle, said stopper also having a recess within the head thereof for receiving a tool for opening the bottle, substantially as shown and described.



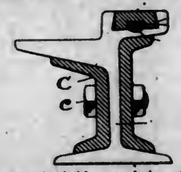
603,351. TRESTLE. DAVID R. TURPIN, Fairmount, Ill. Filed Jan. 3, 1898. Serial No. 665,296. (No model.)



Claim.—1. A trestle or scaffold consisting of cross feet or legs pivoted together, pivoted or swinging coupling-links upon the upper ends thereof, and a detachable notched beam adapted to rest upon the ends of the feet or legs, substantially as and for the purpose set forth.

2. A trestle or scaffold consisting of cross feet or legs pivoted together and provided with cross bars or supports at their lower ends and at their upper ends suitably beveled with wearing-plates secured thereto, coupling-links connected to the upper ends of the feet or legs, and a notched supporting-beam with which the links engage, substantially as and for the purpose described.

603,352. RAIL-JOINT BRIDGE. FRANK R. WAGNER and ANDREW W. FOOTE, Cleveland, Ohio. Filed Aug. 14, 1897. Serial No. 648,261. (No model.)



Claim.—1. A rail-joint bridge consisting of a metal block having parallel beveled side edges, which block is longitudinally bent to draw the lower side edges toward each other, substantially as specified.

2. A rail-joint bridge consisting of a metal block having parallel beveled side edges and having in its lower face a longitudinal groove, adapted to contain an electrical bond, substantially as specified.

3. In a rail-joint bridge, the combination of two contiguous rail ends, and a bridge-piece which is dovetailed into the tops of said rails and an electrical bond confined between said bridge-piece and rails, substantially as specified.

4. The combination of two alined rails, each having in its top

surface a longitudinal groove with parallel undercut sides, with a bridge-block which lies in and fits said grooves and bridges the space between the rail ends, and an electrical bond confined in a longitudinal groove between the bridge-block and both rails, substantially as specified.

608,853. SHAFT-ADJUSTING DEVICE. LEWIS R. WARNER, Northampton, Mass. Filed Aug. 4, 1897. Serial No. 647,115. (No model.)

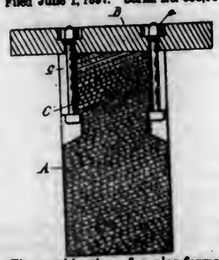


Claim.—1. Adjusting devices for the take-up roll of the drying-cylinder felt in paper-machines and analogous purposes, consisting of two parallel frames, a shaft located transversely between them, said frames being provided with slots through which the ends of said shaft protrude, operating-wheels pivotally supported on said frames in proximity to the ends of said shafts, there being a spiral-groove on the inner side of each of said wheels and means of engagement between the ends of said shaft and said spiral grooves whereby the rotation of the said wheel will cause a horizontal movement to said shaft in said slots, substantially as described.

2. Adjusting devices for the take-up roll of the drying-cylinder felt in paper-machines and analogous purposes, consisting of two parallel frames, a shaft located transversely between them, said frames being provided with slots, blocks in said slots in which the ends of said shaft are supported, operating-wheels pivotally supported on said frames in proximity to said blocks, there being a spiral groove on the inner side of each of said wheels, and means of engagement between said blocks and said grooves, whereby by the rotation of said wheels said blocks are given a horizontal movement in said slots, substantially as described.

3. Adjusting devices for the take-up roll of the drying-cylinder felt in paper-machines and analogous purposes consisting of two parallel frames, a shaft located transversely between them, said frames being provided with slots through which the ends of said shaft protrude, operating-wheels pivotally supported on the ends of said shaft, in proximity to the sides of said frames, there being a spiral groove on the inner side of each of said wheels, a stud on each of said frames adapted to engage the spiral grooves in said wheels, whereby the rotation of the latter will cause a horizontal movement to said shaft in said slots, substantially as described.

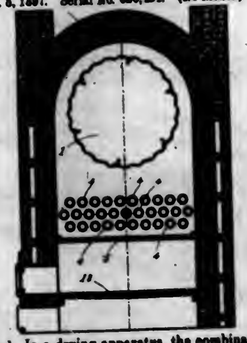
608,854. FOUNDATION-PIER. BENJAMIN F. WILLISTON, Jackson, Mich., assignor of one-half to H. D. Miles and W. P. Harris, Detroit, Mich. Filed June 1, 1897. Serial No. 638,989. (No model.)



Claim.—1. The combination of a pier formed with recesses in opposite sides thereof, the cap extending over the sides containing such recesses and the bolts located in said recesses detachably securing it to the pier.

2. The combination of the concrete pier *a* provided with quak panels G and recesses *c* upon opposite sides respectively, the wooden cap B extending over the sides containing the recesses and the headed bolts C detachably engaging into the recesses *c* and uniting the pier and cap detachably together.

608,855. ROTARY DRIER. HERBERT H. WING, Buffalo, N. Y. Filed Mar. 8, 1897. Serial No. 626,431. (No model.)



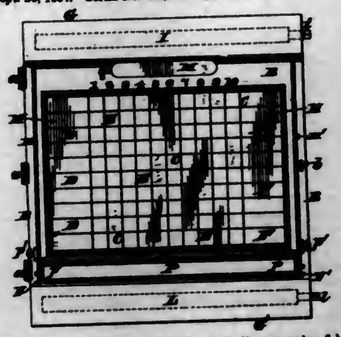
Claim.—1. In a drying apparatus, the combination of a rotary drying-shell mounted in suitable bearings, a furnace, a series of air-circulating pipes located near said drying-shell, a perforated metal diaphragm located between said pipes and the furnace, and means for rotating said drying-shell.

2. In a rotary drying apparatus, the combination of a rotary drying-shell, means for rotating it, means for insulating the interior of the drying-shell from the products of combustion, a series of air-circulating pipes communicating with the rotary shell and the outside air-having their interiors insulated from the surrounding products of combustion, and a perforated metal diaphragm located between said air-circulating pipes and the combustion-chamber.

3. In a drying apparatus, a rotary drying-shell connected to its supporting and operating shafting by an expansible universal joint.

4. In a drying apparatus, an inclosed rotary drying-shell having its greatest length exposed to the furnace-chamber and in open communication with a chamber separated from the furnace chamber, and communicating with radiating-pipes which pass through said furnace-chamber and are in open communication with the air outside of said drying apparatus and a perforated metal diaphragm located between said radiating-pipes and the source of heat.

608,856. SCORING DEVICE FOR GAMES. ADOLPH ZENTERMANN, Cincinnati, Ohio, assignor of one-half to Carl Fritze, same place. Filed Sept. 20, 1897. Serial No. 652,340. (No model.)



Claim.—1. A game score device including a pair of horizontal drums or shafts; a single record-sheet that is uncoiled from one shaft and wound around the other; and a reticulated front behind which said sheet is caused to pass; said front being free from a glass, in order that a pencil may be inserted directly through an opening and inscribe said sheet, in the manner described, and for the purpose stated.

2. A game score device including the back A, having bearings H, H', K, K', horizontal drums or shafts I, L, journaled in said bearings; a single record-sheet M, coiled around said shafts; a frame B having a grating C attached to it; and boxes G, G', secured to this frame and inclosing said drums, the frame being free from a glass, in order that a pencil may be inserted directly through an opening and inscribe said sheet, in the manner described, and for the purpose stated.

3. In a game score device provided with a reticulated front, a roller O journaled below said front, a screen P coiled around said roller, a cross-bar *p* secured to the upper margin of said screen, and means

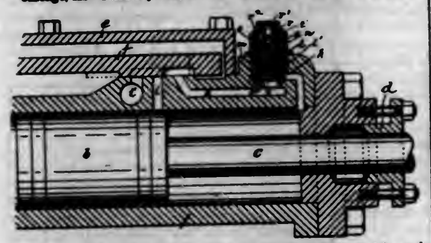
for fastening said rod at any desired elevation, so as to conceal more or less of said front, all as herein described, and set forth.

608,857. ROTARY BUFFING-ROLL. PRESTON A. BAGLEY, Peabody, Mass. Filed July 26, 1897. Serial No. 645,912. (No model.)



Claim.—In a buffing-roll in combination a metal body, an annular rubber cushion or cover secured to the former, said body and rubber covering being longitudinally slitted, an abrasive covering having crimped or creased lips or edges adapted to be inserted through said slit, and a segmental locking-spindle journaled in a longitudinal cavity *a*, in said roll-body and having one of its edges F' made rounded or cam-shaped for guiding the edges of the abrasive covering into locking position within the cavity *a*, and having its opposite edge F'' made pointed for expelling the lips of the abrasive covering substantially as and for the purpose set forth.

608,858. DIRECT-ACTING ENGINE. ALBERT BALL, Claremont, N. H., assignor to the Sullivan Machinery Company, same place and Chicago, Ill. Filed Sept. 23, 1897. Serial No. 652,685. (No model.)



Claim.—1. In a direct-acting engine, the combination with a cylinder having inlet and exhaust ports, of a main valve controlling same, a piston working in said cylinder, an auxiliary valve located so as to control the inflowing air to the front end of said cylinder, and means for regulating the movement of said auxiliary valve by the cushioned air, substantially as set forth.

2. In a direct-acting engine, the combination with a cylinder having inlet and exhaust ports, of a main valve controlling same, a piston working in said cylinder, an auxiliary valve located so as to control the inflowing air to the front end of said cylinder, said auxiliary valve having an air-chamber back of same, and said chamber communicating with said cylinder, substantially as set forth.

3. In a direct-acting engine, the combination with a cylinder having inlet and exhaust ports, of a main valve controlling same, a piston working in said cylinder, an auxiliary valve located so as to control the inflowing air to the front end of said cylinder, said auxiliary valve having an air-chamber back of same, said chamber communicating with said cylinder, and means for reducing the pressure in said chamber, substantially as set forth.

4. In a direct-acting engine, the combination with a cylinder and a piston working therein, of a check-valve controlling the inlet-port of said cylinder, said valve having an air-chamber back of same, said check-valve having a port forming communication between said cylinder and said chamber, substantially as set forth.

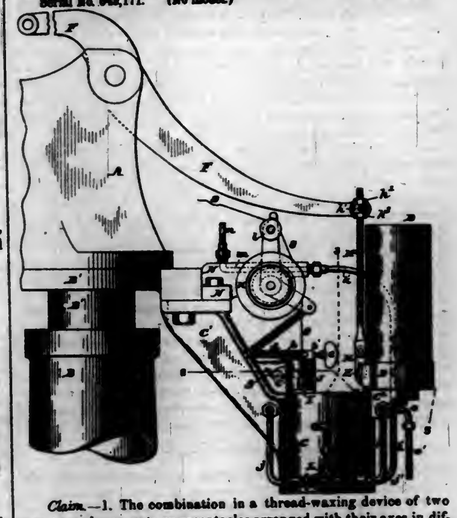
5. In a direct-acting engine, the combination with a cylinder and a piston working therein, of a check-valve controlling the inlet-port of said cylinder, said valve having an air-chamber back of same, said check-valve having a port forming communication between said cylinder and said chamber, and said port having a contracted opening, substantially as set forth.

6. In a direct-acting engine, the combination with a cylinder and a piston working therein, of a check-valve controlling the inlet-port of said cylinder, said valve having an air-chamber back of same, a stem, said valve having a port formed therein and in the stem, said port forming communication between said cylinder and chamber, substantially as set forth.

7. In a direct-acting engine, the combination with a cylinder and a piston working therein, of a check-valve controlling the inlet-port of said cylinder, said valve having an air-chamber back of same, said chamber communicating with said cylinder, and a packing-cup on said valve engaging the walls of said chamber, substantially as set forth.

8. In a direct-acting engine, the combination with a cylinder and a piston working therein, of a check-valve controlling the inlet-port of said cylinder, said valve having an air-chamber back of same, said chamber communicating with said cylinder, and a packing-cup inserted between said valve and a head on the stem thereof and engaging the walls of said chamber, substantially as set forth.

608,859. THREAD-WAXING DEVICE FOR SEWING-MACHINES. JOSEPH R. BERTRAND, Boston, Mass., assignor to the Bay State Shoe Machinery Company, Portland, Me. Filed Aug. 23, 1897. Serial No. 649,171. (No model.)



Claim.—1. The combination in a thread-waxing device of two open-topped wax pots or receptacles arranged with their axes in different vertical planes, and with the bottom of one pot above the top of the other, the more elevated of said receptacles being provided near its bottom with a lateral discharge-orifice through which wax melted in said receptacle may be discharged into said lower receptacle: means for applying a limited amount of heat to said upper receptacle to melt the lower portion of the wax contained therein without melting the bulk thereof, means for applying sufficient heat to said lower wax-pot to maintain the wax contained therein at the desired working temperature and means for intermittently and automatically opening and closing said discharge-orifice.

2. The combination in a thread-waxing device of two wax pots or receptacles located at different levels and with their axes in different vertical planes, the more elevated of said receptacles being provided with a lateral discharge-orifice near its bottom and on its side toward the lower receptacle through which wax may be discharged from the upper into the lower receptacle both of said receptacles having open upper ends; means for intermittently opening and closing said discharge-orifice automatically; means for conducting the thread to be waxed into and out of the wax in said lower receptacle through its open end; and means for applying steam heat to both of said receptacles, and regulating the same, whereby a greater degree of heat is applied to the lower receptacle than to the upper.

3. In a thread-waxing device the combination of two wax-pots located at different levels and with their axes in different vertical planes, the more elevated of said pots being provided with a lateral discharge-orifice near its bottom and on its side toward the lower pot; a pivoted and vertically-movable gate for opening and closing said orifice; a pivoted lever; a cam for vibrating said lever; and a rod or link connecting said lever to the free or movable end of said gate.

4. In a thread-waxing device the combination of the wax-pot C provided with the steam-passage *i* through its bottom and having the brackets C' and C² formed integral therewith and each provided with steam-passages therethrough; the pot D mounted upon the bracket C² and provided with the discharge-orifice *a*; the vertically-vibrating gate E; the steam-pipes *n*, *m*, *l'*, *k*, *j*, *j'*, *o*, and *o'* the T's M and M' and the valves L and L' all constructed, arranged, and operating substantially as described.

608,360. REMOVABLE CALK FOR HORSESHOES. WILLIAM J. BROWNING, Bayonne, N. J. Filed Dec. 31, 1897. Serial No. 664,904. (No model.)



Claim.—1. In a calk for horses' shoes, a strap A having secured thereto metal plates B, having side laps *c* which hold a wire *f*, which forms a suitable hinge for a plate E provided with spurs and adapted to be secured to a center strip C, substantially as shown and described.

2. In a removable calk for horses' shoes, a strap A having secured thereto plates B, plates E hinged thereto and provided with spurs and held in place by a center strip C, substantially as shown and described.

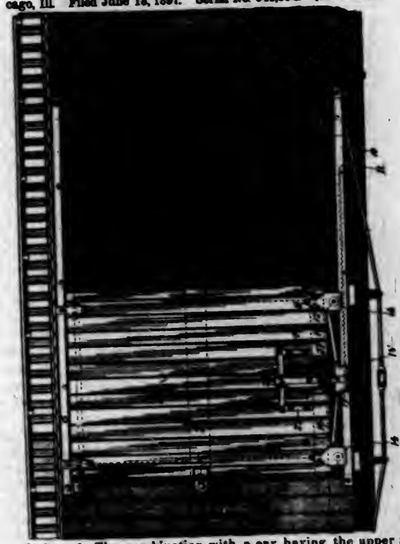
3. The combination, in a removable calk for horses' shoes, of a strap A held together by a threaded screw D operated by a thumb-screw F, and side plates B secured to the strap A and having hinged thereto plates E carrying spurs *b* and finding support through a fastening to a metal center strip C adapted to fit into the frog of a horse's foot, substantially as shown and described.

4. In a device of the sort described, a strap adapted to be tightened by a thumb-screw, operating a threaded screw, which holds the ends of the strap together, side plates secured to the strap, spur-carrying plates hinged thereto and adapted to be secured to a metal center strip fitting into the hoof of the horse's foot, substantially as shown and described.

608,361. PROCESS OF MAKING PEROXID OF LEAD FOR GALVANIC BATTERIES. JAMES D. DARLING, Philadelphia, Pa., assignor to the Harrison Bros. & Company, Incorporated, same place. Filed Dec. 23, 1896. Serial No. 616,775. (No specimens.)

Claim.—The hereinbefore-described process of making elements of peroxid of lead, which consists in compressing a mass of peroxid of lead containing free acid, and then exposing said mass to electrolytic action as a cathode in a neutral electrolyte until the superficial layer of the mass has been rendered coherent by the production of inherently-formed binding material, substantially as set forth

608,362. CAR-DOOR FASTENING. WILLIAM O. DAVIES, Jr., Chicago, Ill. Filed June 18, 1897. Serial No. 641,334. (No model.)



Claim.—1. The combination with a car having the upper and lower tracks of a sliding door; and locking means for said door consisting of the series of teeth in connection with the lower track, the dog 17 having teeth, the bar 19, the strap 24, and the rectangular levers 20, having handles 22; in substance as set forth.

2. The combination with the car, having upper and lower tracks, of a sliding door supported and guided by said tracks, the lower track being located directly beneath the lower edge of the door; shoes having edges 14 overlapping the lower track; and a reciprocating locking bar and dog on the door, said dog engaging teeth on the lower track and also overlapping the upper edge of the same when dropped, thereby preventing the displacement of the door; in substance as set forth.

3. The combination with a car and sliding door supported and guided by lower and upper tracks on the car, of a reciprocating locking bar and dog carried by the door; said lower track supporting teeth to be engaged by the dog, and said dog having a tip 18 which serves in connection with the teeth 18, when the dog is dropped, to prevent an outward displacement of the door; in substance as set forth.

4. The combination with a car and sliding door of locking means consisting of a series of teeth on the car; a reciprocating locking bar and dog on the door; and lever-arms 20 having handles, said levers being pivoted to the bar 19 and to the door; in substance as set forth.

5. The combination with a car, having upper and lower tracks, of a sliding door supported on the lower track by sheaves journaled in shoes; a series of teeth on the car below the door; and a reciprocating locking bar and dog supported on the door and guided by a strap having a staple adapted to receive a perforated bar carried by the reciprocating bar; in substance as set forth.

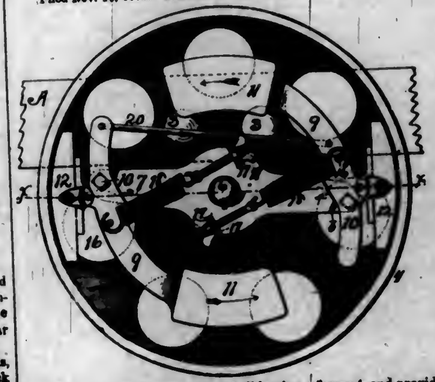
6. The combination with a car, having upper and lower tracks, of a sliding door supported on the lower track by sheaves journaled in shoes; a series of teeth located on the inside of the lower track and out of the path of the shoes; a reciprocating locking bar and dog on the door; and bars, as 16, pivoted to the said shoes and dog; in substance as set forth.

7. The combination with a car-body having an upper guide-track and a lower track, of a sliding door located beneath the upper track and provided with hangers at the top edge thereof, said door supported on the lower track by sheaves journaled in shoes having edges 14 overlapping the said lower track on each side; a series of teeth on the car below the door; a reciprocating locking bar and dog normally under the action of gravity engaging the teeth; and two levers each pivoted to the door and locking-bar; in substance as set forth.

8. The combination with a car-body having an upper guide-track and a lower track, of a sliding door located beneath the upper track, said door provided at its upper edge with guide-hangers, as 8, loosely engaging the said upper track, and at its lower edge with shoes carrying sheaves which support the door on the lower track; a series of teeth on the car below the lower edge of the door; a reciprocating bar and dog actuated by gravity and guided by a strap on the door; and a lever pivoted to the door and locking bar for raising the latter and the dog; in substance as set forth.

9. The combination with a car-body having an upper guide-track and a lower track, of a sliding door located in the same perpendicular plane as the upper track and beneath said track, said door provided at its top edge with guide-hangers loosely engaging the upper track, and at its lower edge with shoes carrying sheaves which support the entire weight of the door on the lower track; a series of teeth on the car below the lower edge of the door; and a reciprocating locking bar and dog carried by the said door and normally under the action of gravity engaging the teeth below the door and locking the same in any desired position on the lower track; in substance as set forth.

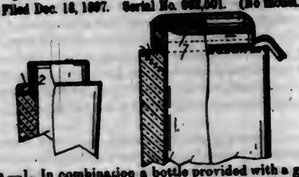
608,363. GOVERNOR. A BERTELL IRELAND, Greene, N. Y. Filed Nov. 11, 1897. Serial No. 658,131. (No model.)



Claim.—1. In a governor, a shell having a flange 4, and provided with a central boss by means of which the shell is secured to the driving-shaft, a governor bar secured upon the end of the driving-shaft, and two pivoted weighted levers pivoted upon the rabbeted ends of the governor-bar, and the two spiral springs 17 having their inner ends secured to the governor-bar, and their outer ends attached to the weighted levers at a short distance beyond their pivotal points, combined with the brackets pivoted upon the outer edges of the levers, also beyond the pivotal points, and the shoes which are secured to the brackets, and which shoes are moved outwardly in contact with the flange 4, of the shell when the levers are moved outwardly, substantially as shown and described.

2. In a governor, a shell provided with the flange 4, and a central boss 5, a driving-shaft to which the shell is secured by means of the boss, a governor-bar secured upon the end of the shaft, and which bar has rabbeted ends and stop-shoulders to limit the movement of the levers, and is provided with ears 17; and the two curved weighted levers 9 which are pivoted upon the outer ends of the bars, and which are adapted to strike against said stop-shoulders, and which levers are provided with ears or hooks 16, combined with the two springs 18, one of which is secured to each of the levers, a suitable adjusting device for each spring, a rod 20 for connecting the short end of one of the levers with the long end of the other, the two brackets 13 pivoted upon the levers, and the shoes 12 secured in said brackets, substantially as shown and described.

608,364. BOTTLE-STOPPER. PHILIP LINDENSTEIN, Baltimore, Md., assignor to the Monarch Manufacturing Company of Baltimore City. Filed Dec. 18, 1897. Serial No. 662,501. (No model.)



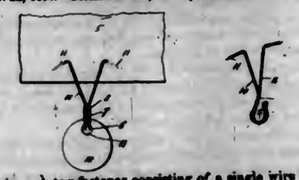
Claim.—1. In combination a bottle provided with a groove having a vertical wall outside the circumference of the neck, a cap having a flange extended below the mouth and laterally embracing the bottle-neck on its exterior, said flange being provided with fingers sprung into the groove and having their outer ends bearing against the outer vertical wall of the same and their inner ends against the opposite wall of the groove, substantially as described.

2. In combination a bottle provided with a groove having a vertical wall outside the circumference of the neck, a cap having a flange extended below the mouth and laterally embracing the bottle-neck on its exterior, said flange being provided with fingers sprung into the groove and having their outer ends bearing against the outer vertical wall of the same and their inner ends against the opposite wall of the groove, and a packing covering the mouth of the bottle substantially as described.

3. In combination a bottle provided with a groove having a vertical wall outside the circumference of the neck, a cap having a flange extended below the mouth and laterally embracing the bottle-neck on its exterior, said flange being provided with fingers sprung into the groove and having their outer ends bearing against the outer vertical wall of the same and their inner ends against the opposite wall of the groove, said groove being formed in a wire secured to the bottle-neck, substantially as described.

4. In combination a bottle provided with a groove having a vertical wall outside the circumference of the neck, a cap having a flange extended below the mouth and laterally embracing the bottle-neck on its exterior, said flange being provided with fingers sprung into the groove and having their outer ends bearing against the outer vertical wall of the same and their inner ends against the opposite wall of the groove, and a stripping-wire, substantially as described.

608,365. TAG-FASTENER. JOSEPH B. RICHARDS, Thomson, Ga., assignor of one-half to Louis Emil Steinmann, New York, N. Y. Filed Mar. 22, 1897. Serial No. 628,093. (No model.)



Claim.—A tag-fastener consisting of a single wire bent upon itself midway of its length to form two legs, the resultant double end being bent upon itself to form a hook having an outturned extremity, one of the legs being bent outwardly midway of the termini of the hook portion whereby it may be crossed over the other leg and will play laterally through the mouth of the hook, the extremities of the legs being bent in opposite directions in the planes of their respective movements when crossed.

608,366. HOSE-COUPLING. PETER RIEHL, Jr., Pittsburg, Pa. Filed Oct. 16, 1897. Serial No. 655,362. (No model.)



Claim.—1. In a hose-coupling, the combination with the tubular connections, of a lever pivoted to one of said connections, and a spring-bail secured to the other connection and releasably engaging said lever, substantially as set forth.

2. In a hose-coupling, the combination with the tubular connections, of a lever pivoted to one of said connections, a spring-bail secured to the other connection and releasably engaging said lever, said bail having its looped end bent at an angle to the main portion thereof, substantially as set forth.

3. In a hose-coupling, the combination with the tubular connections, of a lever pivoted to one of said connections, a spring-bail secured to the other connection and releasably engaging said lever, said bail having its looped end bent at right angles to the main portion thereof, substantially as set forth.

4. In a hose-coupling, the combination with the tubular connections, of a lever pivoted to one of said connections, said lever having a recess formed therein, a spring-bail secured to the other connection and engaging said recess in said lever, said bail having its looped end bent at an angle to the main portion thereof, substantially as set forth.

5. In a hose-coupling, the combination with the tubular connections, of a lever pivoted to one of said connections, a spring-bail, a swivel-ring on the other connection, said bail having its ends secured to said ring, said spring-bail being releasably connected at its looped end to said lever, substantially as set forth.

6. In a hose-coupling, the combination with the tubular connections, of a lever pivoted to one of said connections, a spring-bail having hooks formed on its ends, a swivel-ring on the other connection, projections on said ring with which said hooks engage, said spring-bail being releasably connected at its looped end to said lever, substantially as set forth.

7. In a hose-coupling, the combination with the tubular connections, of a lever pivoted to one of said connections, a swivel-ring on the other connection, and a connecting member between said lever and said ring adapted to engage said ring and hold said connections together, substantially as set forth.

608,367. SHANK FOR BOOTS OR SHOES. WATSON H. SPRAGUE, Greenwich, N. Y., assignor to Sprague & Co., Middle Falls, N. Y. Filed June 14, 1897. Serial No. 640,673. (No model.)



Claim.—1. The combination with a shank for boots, shoes, &c., of a stiffener composed of a metallic strip having a portion folded to embrace the sides of the shank and clenched thereon to retain the stiffener in place, substantially as set forth.

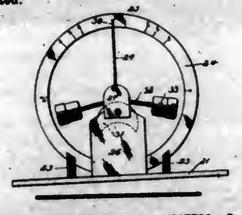
2. The combination with a shank for boots and shoes having a notch in one end, of a stiffener composed of a metallic strip having a portion folded to embrace the sides of the shank and clenched thereon and fitted in the said notch, substantially as set forth.

3. In combination, a shank having a notch in its heel, and a stiffener composed of a metallic strip concavo-convex in transverse section doubled upon itself and clenched upon the opposite sides of the shank, and having the folded end entering the aforesaid notch, substantially as set forth.

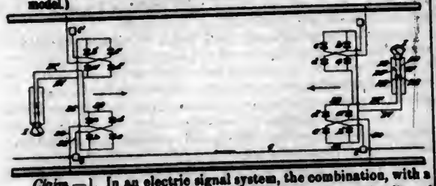
608,368. PLUMB-LEVEL. FRANK C. VREDENBURGH and CHARLES F. LATHROP, Atlantic, Iowa. Filed Mar. 1, 1897. Serial No. 625,444. (No model.)

Claim.—A plumb-level, comprising a suitable stock having a con-

tral opening, a plate 21 detachably secured to the stock within its central opening, two uprights 23 having their upper ends bifurcated, a circular scale rim mounted in said bifurcated ends, a support 26 secured to the plate 21 and extending upwardly on both sides of the scale-rim and having openings therein arranged concentrically with the rim, plates 27 covering said openings, a journal mounted in said openings, an indicating-arm 29 fixed to the said journal, wings 30 attached to the upper end of the indicating-arm and overlapping the rim, a weight 26 attached to the lower end of the indicating-arm, two screw-threaded rods 32 fixed to the indicating-arm and extending downwardly at an angle relative thereto, and internally-screw-threaded weights 33 designed to be screwed on the said rods 32, all arranged and combined to operate in the manner set forth and for the purposes stated.



608,869. ELECTRIC SIGNAL SYSTEM. LOUIS C. WERNER, Broad Brook, Conn. Filed June 12, 1897. Serial No. 640,436. (No model.)



Claim.—1. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a vehicle movable along said track; a source of electric energy; an electrical pole-changing switch connected to send current in either direction through the indicator on said vehicle; circuit-controlling means between the source of energy and the two sides of the indicator; a traveling current-collector carried by said vehicle and adapted to make contact with said conductor; means for closing the circuit between the conductor and the track at a point distant from the vehicle; and a visual electrical indicator carried by said vehicle and in circuit with said current collector and responsive to every variation in the length, and hence in the resistance, of the conductor between said vehicle and such distant point, within the range of the indicator, and having an indicator-hand movable at either side of a normal, idle, central position, in accordance with the direction of movement of the vehicle, and adapted to indicate every variation in the distance between the vehicle and such distant point, as the former approaches the latter, and also to show changes in the direction of movement of the vehicle.

2. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; vehicles movable along said track; traveling current-collectors carried by said vehicles and adapted to make contact with said conductor; a source of electric energy for each vehicle; electrical pole-changing switches connected to send current in either direction through the indicators on said respective vehicles; circuit-controlling means between the source of energy and the two sides of the indicator on each vehicle; and visual electrical indicators carried by said vehicles and in circuit, respectively, with said current-collectors and responsive to every variation in the length, and hence in the resistance, of the conductor between said vehicles, within the range of such indicators, and each having an indicator-hand movable at either side of a normal, idle, central position, in accordance with the direction of movement of the vehicle and adapted to indicate every variation in the distance between said vehicles and also to show changes in the direction of movement of each vehicle.

3. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; vehicles movable along such track; automatically-reversible traveling current-collectors carried by said vehicles and adapted to make traveling contact with said conductor and automatically reversible by the reversal of the movements of said vehicles; a source of electric energy connected to send current in either direction through the indicators on said respective vehicles; visual electrical indicators carried by said vehicles and in circuit, respectively, with said current-collectors and adapted to indicate the direction of movement of said vehicles; and pole-changing switches carried by said current-collectors and controlling the circuits through the indicators.

4. The combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a source of electric energy; a vehicle movable along said track; and a current-collector automatically reversible, while in contact with said conductor, by the reversal of the movement of the vehicle, and comprising a carrier-arm pivotally connected with the vehicle, and a triangular sliding contact-shoe pivoted to said carrier-arm and reversible, on the reversal of the movements of the vehicle, to bring its different sides into engagement with the conductor.

5. The combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a source of electric energy; a vehicle movable along said track; a spring-pressed carrier pivotally connected with the vehicle; and an automatically-reversible current-collector trailing at an acute angle to the conductor while in contact therewith, and reversible to an opposite trailing position, while in contact with said conductor, by the reversal of the movement of the vehicle, and comprising a spring-pressed carrier-arm pivotally secured to said carrier and a contact-maker pivoted to said carrier-arm and movable therewith toward and from the vehicle and said conductor.

6. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a vehicle movable along such track; a signaling device on said vehicle; a source of electric energy connected to send current in either direction through said signaling device; an automatically-reversible traveling current-collector carried by, and controlled by the reversal of the movement of, said vehicle and adapted to make traveling contact with said conductor; and an automatic pole-changing switch controlled by the current-collector and controlling the direction of flow of the current through said signaling device.

7. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a vehicle movable along such track; a signaling device on said vehicle; a source of electric energy connected to send current in either direction through said signaling device; an automatically-reversible traveling current-collector carried by, and controlled by the reversal of the movement of, said vehicle and adapted to make traveling contact with said conductor; and an automatic pole-changing switch carried by, and reversible with, the current-collector and controlling the direction of flow of the current through said signaling device.

8. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a traveling current-collector carried by said vehicle and adapted to make traveling contact with said conductor; means for closing the circuit between the conductor and the track at a point distant from the vehicle; a source of electric energy; a pair of relays connected in a normally-closed local circuit with the source of energy, and also connected with opposite sides of the main circuit, and oppositely operative, on the passage of a current through either side of the main line, to send current in a corresponding direction through the indicator on the vehicle; circuit-controlling means between the source of energy and the relays; and a visual electrical indicator carried by said vehicle and in circuit with said current-collector and adapted to indicate variations in the distance between the vehicle and such point.

608,870. SLIDE-RULE. JAMES R. C. YALDEN, New York, N. Y. Filed Mar. 2, 1896. Serial No. 672,265. (No model.)

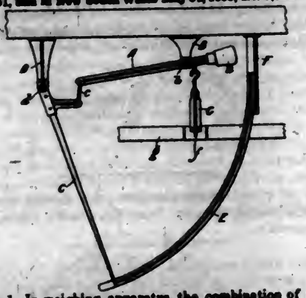


Claim.—1. A slide-rule provided with two helices carrying scales, the threads of one helix being revoluble between the threads of the other helix, substantially as specified.

2. A slide-rule provided with two cylindrically-wound helices of like pitch carrying scales, the threads of one helix being revoluble between the threads of the other helix, so that one helix is movable along the other, substantially as specified.

3. A slide-rule composed of a transparent tube provided with a helical scale, and of a cylindrical core movable longitudinally within the tube and provided with a helical scale of like pitch, the threads of one helix being revoluble between the threads of the other helix, substantially as specified.

608,871. AUTOMATIC WEIGHING APPARATUS. CHARLES ARMSTRONG, Christchurch, New Zealand. Filed Sept. 2, 1896. Serial No. 604,773. (No model.) Patented in New Zealand Feb. 7, 1895, No. 7,414; in England May 4, 1895, No. 8,080; in Victoria May 20, 1895, No. 12,231, and in New South Wales May 31, 1895, No. 6,894.



Claim.—1. In weighing apparatus, the combination of a track having a movable section, a rock-shaft at right angles to the track provided at one end with an arm projecting from one side thereof and at its opposite end with a lever projecting from the opposite side thereof, a connection between the arm and the movable track-section, a pivoted pointer, connections intermediate the projecting lever and the pointer, and a curved dial-plate adapted to be traversed by the pointer, substantially as described.

2. In weighing apparatus, the combination of a track having a movable section, a rock-shaft at right angles to the track provided at one end with an arm projecting from one side thereof and at its opposite end with a lever projecting from the opposite side thereof, a connection between the arm and movable track-section, a pointer pivoted at its end and having an arm, centering devices for the pointer, a link connecting the projecting lever and the arm of the pointer, and a dial-plate adapted to be traversed by the pointer, substantially as described.

3. In weighing apparatus, the combination of a track having a movable section, a rock-shaft at right angles to the track provided with V-shaped ends and having an arm near one end and a projecting lever near its opposite end, said arm and lever projecting from opposite sides of the rock-shaft, a connection between the arm and the movable track-section, a pointer pivoted at its end between centering devices and having an arm, a link connecting the arm and the projecting lever and a dial-plate adapted to be traversed by the pointer, substantially as described.

608,872. RAILWAY-SWITCH. WILLIAM C AYERS, Plymouth, N. C. Filed Sept. 9, 1897. Serial No. 651,202. (No model.)



Claim.—1. The combination with the pivoted switch-throwing disk, of train-operated switch-throwing levers at opposite sides of the switch and connected with said disk for turning it in opposite directions, a bolt for locking the disk, and train-operated bolt-operating levers adjacent to said switch-throwing levers; whereby the disk will first be unlocked and then turned to throw the switch, substantially as set forth

2. The combination with the pivoted switch-throwing disk, of centrally-pivoted horizontal switch-throwing levers at opposite sides of the switch and connected to the disk for turning it in opposite directions, a bolt for locking said disk, bolt-operating levers under both ends of said switch-throwing levers, crank-shafts under said bolt-operating levers, and rods connecting said crank-shafts with the bolt or locking mechanism, substantially as set forth.

3. The combination with the notched switch-throwing disk, of a bolt for engaging either disk-notch, a cam-slide for operating the bolt from either direction, and springs engaging the ends of the bolt-operating slide and holding it in its normal position, substantially as set forth.

4. The combination with the switch-throwing disk having locking-notches, of the bolt for engaging said notches, and provided with a transverse slot, c', having flaring ends forming V-shaped lugs, c^2 c^3, the train-operated slide, F, passed through said slot and having a notch, f^2, receiving lug, c^2, and notches, f^3, for lug, c^3, and springs for holding the slide in its normal position, substantially as set forth.

5. In a train-operated switch mechanism, a centrally-pivoted switch-actuating lever formed of a transmitting member having a longitudinal slot, an operating member extending through said slot for operation at either end by the train devices, and springs centering the operating member within the transmitting member, substantially as set forth.

6. The combination with a lever-box having parallel longitudinal channels open from end to end for the passage of the train rods or devices, of a transverse centrally-pivoted two-part lever, the members of which have a yielding or spring connection; the ends of the transmitting-lever member projecting into said channel, a rock-shaft within the box and having cranks within said channels and an end transmitting-crank, and levers formed of two members pivoted together above the said cranks and at their ends pivoted in the ends of the box-channels, substantially as set forth.

7. The combination with the box and centrally-pivoted notched switch-throwing disk, D, having a pin, D', extending through a curved slot in the box-bottom, of a bolt, E, for engaging the disk-notches, and a longitudinal bolt-operating slide, F, having springs bearing on its ends, substantially as set forth.

8. The combination with the rock-shaft having a hand-lever and cross-head, means for locking said lever, and rods depending from the ends of the cross-head and extending down adjacent to the road bed, of a switch throwing disk provided with a locking mechanism, lever-boxes beyond and at opposite sides of the switch-operating disk, and each having a pair of parallel channels for the lower ends of said rods, centrally-pivoted levers in the lever-boxes with their ends projecting into said channels, rods connecting the levers at opposite sides of their pivots with the disk at opposite sides of its pivot, longitudinally-extending lock-operating levers within the said channels, crank-shafts having an operating-crank under every lock-operating lever, and a transmitting-crank connected to the ends of the lock or bolt operating device, substantially as set forth.

608,873. HOOK AND BUSHING FOR SAME. JOSHUA W. GARNER, Fort Worth, Tex., assignor to Sabina J. Carder, same place. Filed Jan. 2, 1897. Serial No. 617,755. (No model.)



Claim.—1. A bushing for hame-hooks consisting of a solid body portion having heads on both ends thereof, said heads having bearings for chain-links, said bushing being adapted to repair hame-hooks partly worn by the friction of chain-links.

2. The combination of a hook provided with an eye at the bearing-point and the bushing comprising a solid piece of metal which is provided with a head on each end thereof and which is fitted in said eye.

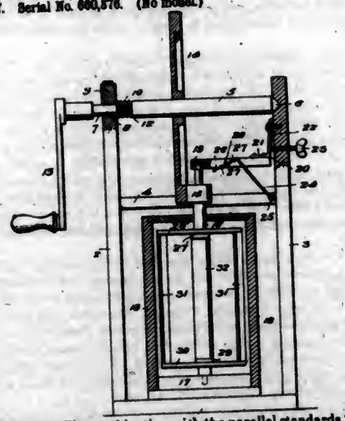
608,874. PNEUMATIC TIRE. CLARA COLLA, Beaconwood Burnt Green, England. Filed Dec. 16, 1896. Serial No. 615,986. (No model.)

Claim.—In combination, the rim, the wires C extending about the edges thereof with a space between said edges and wires, the balls having the flanges projecting laterally in relation to the rim.

and through the circumferential space between the rim edge and the wire, and the cross-wires D extending between the balls over the rails or wires C and having their ends bent down and under the edges of the rims, substantially as described.



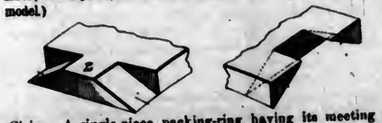
608,875. CHURN. JAMES P. DUNN, Hadley, Ga. Filed Dec. 6, 1897. Serial No. 660,576. (No model.)



Claim.—1. The combination with the parallel standards 2 and 3, the driving-shaft 5 journaled therein, and the friction-disk 14 fixed on said shaft, of the dasher-shaft, the friction-hub fixed on said shaft so as to bear against the face of the friction-disk and the bracket 19 hinged to the standard 3 and forming a bearing for the upper end of said dasher-shaft and means for longitudinally adjusting said bracket, as and for the purpose set forth.

2. The combination with the standards 2 and 3, the latter being formed with a conical thrust-bearing, the driving-shaft 5 journaled in said standards, its inner end being formed with a conical thrust-journal 6, the spring 10 encompassing said shaft between its shoulder 12 and the inner face of the standard 2, and the friction driving-disk 14 fixed to said shaft, the horizontal bracket 19 adjustably hinged to the inner face of the standard 3 and provided at its under face with a conical bearing, the dasher-shaft 16 provided at its upper end with a corresponding conical thrust-bearing, the hub 15 fixed to said dasher-shaft and the thumb-screw 23 adjustably secured in the standard 3 and adapted to adjust the dasher-shaft with reference to said driving-disk 14, substantially as shown and described.

608,876. PACKING-RING. SAMUEL F. FIELD and WILLIAM T. HECK, Findlay, Ohio. Filed Sept. 27, 1897. Serial No. 653,180. (No model.)



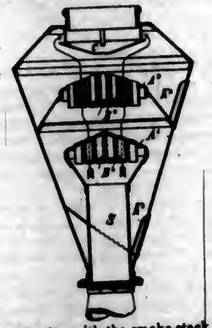
Claim.—A single-piece packing-ring having its meeting ends united by a double beveled joint, one end of said ring being provided with a protruding lug having the transverse bevels on opposite sides of the flat central face thereof, and the other end of the ring having a central notch and the under bevels lying on opposite sides of the notch and inclined reversely to each other; said ring having its ends joined together by the lug fitting in the recess and with the beveled faces in contact with each other, and the inner and outer faces of the ring lying flush at the joint, substantially as described.

608,877. RATCHET-WHEEL WRENCH. JOHN H. FITCH, Wesley, Mich. Filed Nov. 12, 1897. Serial No. 658,236. (No model.)

Claim.—The combination with the handle having at one end two concentric rings and a transversely-elongated socket, a head journaled in said rings and provided with ratchet-teeth, a dog pivoted to said handle and provided with two operating-toes and provided with a lug having a reduced stem, a pin having a rounded head seated in said transversely-elongated socket and a coil-spring having its upper end embracing the reduced stem and abutting against the lug, and having its lower end embracing the pin and abutting against the head of the same, substantially as shown and described.

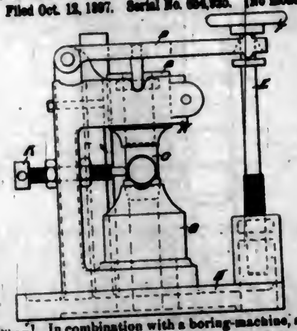


608,878. SPARK-CATCHER. PAUL HAGEMANN and HEINRICH PAHLER, Stettin, Germany. Filed Feb. 25, 1897. Serial No. 625,066. (No model.)



Claim.—In combination with the smoke-stack of inverted-cone shape, the pipe S extending up within the same and having an enlarged closed hood, a series of pipe-sections passing through the hood and forming a plurality of discharge-openings equaling in total area the area of the pipe S, the partition above said hood having a plurality of pipe sections arranged out of line with the lower pipe-sections, the contracted opening in the upper end of the stack and the deflector-plate beneath the same, substantially as described.

608,879. JIG FOR SECURING CYCLE PARTS, &c., WHILE BEING BORED OR MACHINED. FREDERICK J. T. HASKEW, Stourbridge, England. Filed Oct. 12, 1897. Serial No. 654,925. (No model.)



Claim.—1. In combination with a boring-machine, a sliding bush engaging the work to be machined, an operating-lever, and a seat-block below the said bush, substantially as described.

2. In combination, the standard, the bush movable through the same to engage the work, and a mandrel arranged to one side of the standard and projecting toward the same to receive the work upon its end and to hold it in line with the bush, substantially as described.

3. In combination, the standard, the sliding bush with operating-lever, the seat-block below the said bush and a sliding locating and steadying plug mounted on an adjustable holder and bracket, substantially as described.

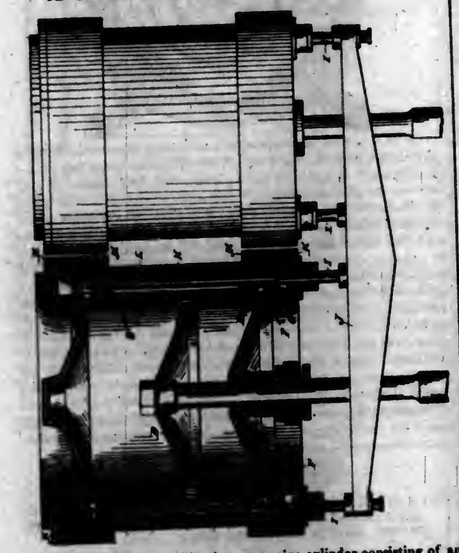
4. In combination, the standard, the hollow bush for engaging the work arranged in said standard, a seat-block below the bush and a mandrel arranged to one side of the standard and projecting laterally in between the seat-block and bush to hold the work, substantially as described.

5. In combination, the standard, the bush for holding the work arranged in said standard, the boss a projecting laterally from the standard and the mandrel adjustably secured to the face of said boss and projecting laterally with relation to the standard and having its inner end below the bush to hold the work in the line of boring, substantially as described.

6. In combination, the standard, the bush in said standard to hold the work, the mandrel to one side of the standard and projecting laterally with relation to the same with its end below the bush to form a support for the work and a steadying-plug arranged on the opposite side from the mandrel and projecting laterally in relation to the standard to engage the work, substantially as described.

7. In combination, the standard, the means therein for holding the work including the movable bush, and a steadying-plug projecting laterally with relation to the standard with its inner end in a position to engage the work, and a bracket for supporting the steadying-plug, said bracket being vertically adjustable to the standard while the plug is laterally adjustable in the bracket, substantially as described.

608,880. ENGINE-VALVE. ALEXANDER G. HAY, Philadelphia, Pa. Filed June 21, 1897. Serial No. 641,736. (No model.)



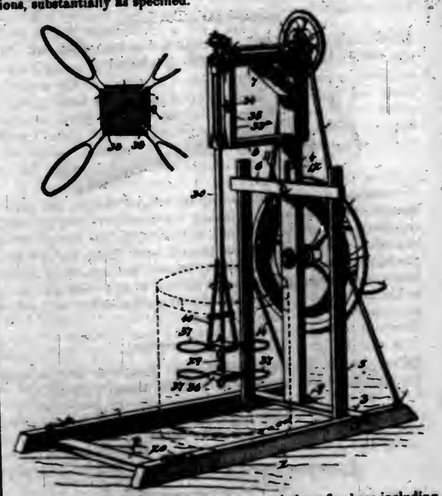
Claim.—1. In combination, an engine-cylinder consisting of an outer casing, and an inner lining so arranged that a space is formed between them, bearings formed at each end of said members, and a valve composed of two sections each section consisting of two plates adapted to fit in the space between the cylinder and lining, and a packing-ring between the plates and a bolt and nut for adjusting the packing-ring, as and for the purpose described.

2. In combination, a cylinder having two outwardly-projecting flanges at its ends forming a space between them serving as an induction-passage, a lining concentric with the cylinder and at such a distance therefrom as to leave a space, bearings formed on the inner flange and at the ends of the lining, valves composed of two sections each section consisting of two annular plates placed one above the other in the space between the bearings, packing-rings placed between the plates and a nut and bolt for adjusting the packing-rings, and rods connecting the sections, as and for the purpose described.

608,881. CHURN. FLAVIUS J. HOSS, Birchwood, Tenn. Filed July 9, 1897. Serial No. 643,991. (No model.)

Claim.—1. A churn-power having a frame consisting of a base including parallel side bars, a standard hingedly connected to the base at a point between the side bars of the base and adapted to fold therebetween, a brace-frame pivotally mounted upon the side bars of the base to fold therebetween, and having a sliding connection with the standard, said brace-frame being mounted eccentrically with relation to the hinge of the standard, and means for clamping the standard and brace-frame together, to secure them in their desired relative positions, substantially as specified.

2. A churn-power having a frame consisting of a base including parallel side bars, a standard having a detachable hinged connection with the base, between said side bars, and adapted to fold in the plane thereof, a brace-frame having side bars pivotally connected to the side bars of the base to fold therebetween, and having a cross bar provided with a guide-pin operating in a slot of the standard, and a clamping device consisting of a thumb-nut engaging said guide-pin to clamp the brace-frame and standard in the desired relative positions, substantially as specified.



3. A churn-power having a frame consisting of a base including parallel side bars, a standard hingedly connected with the base between said side bars, and adapted to fold in a plane therewith, a brace-frame having side bars pivotally mounted on the inner sides of the side bars of the base, and connected by a cross-bar having a sliding connection with the standard, and brace-rods for securing the brace-frame in its upright position, substantially as specified.

4. A churn-power having a supporting-frame, including a folding standard and means for securing the same in its upright position, operating mechanism including a driving-shaft, a driving-wheel, and a belt connection between the driving shaft and wheel, a sectional bearing on the frame having a movable member, and means for securing the same in its operative position, and dashers having concentric spindles mounted in said sectional bearing and provided with gears meshing with a gear on the driving-shaft, whereby the dashers and spindles may be dismounted for removal from the churn-receptacle preparatory to folding the frame, substantially as specified.

5. A churn mechanism having concentric dasher staffs or spindles and means for rotating the same, dashers, of which one is secured to the inner dasher staff or spindle, said dashers having body portions or collars and wings or blades, arms carried by the tubular dasher staff or spindle, and provided with interned lower extremities to engage sockets in opposite sides of the body portion or collar of its dasher, and a slide-ring fitted upon said arms for normally maintaining their interned extremities in engagement with a dasher, substantially as specified.

6. A churn mechanism having concentric dasher staffs or spindles and connected dashers, and means for communicating rotary motion to the dasher staffs or spindles, one of the dashers having a collar removably fitted upon the inner dasher staff or spindle, and provided with locking devices to secure it thereon, and the other dasher being secured to the tubular dasher staff or spindle by means of arms, carried by the latter and provided with interned lower extremities forming studs to engage sockets in the body portion of said dasher, and a ring fitted to slide upon said arms normally maintain the interned extremities or studs in engagement with said sockets, substantially as specified.

7. The combination with a dasher-spindle, and a dasher having its body portion provided with opposite sockets, spring-arms carried by the dasher-staff and having interned extremities forming studs to engage said sockets in the body portion of the dasher, said spring-arms having an outward tendency adapted to remove their studs from the sockets of the dasher, and a sliding ring mounted upon the arms and adapted, when moved in one direction, to contract the arms to cause engagement of their studs with said sockets, substantially as specified.

8. A churn mechanism having concentric dasher staffs or spindles, and means for rotating the same, dashers, of which one is secured to the inner dasher staff or spindle and the other of which is loosely mounted upon said spindle, said dashers having body portions or collars and attached wings or blades, radially-swinging arms carried by the tubular dasher staff or spindle and terminally having a pin-and-socket connection with the collar of the loosely-mounted dasher, and means for maintaining the arms with their extremities in interlocking engagement with said loosely-mounted dasher, substantially as specified.

603,882. TOY GUN. WILLIAM H. HOLLOWAY, Brazil, Ind. Filed Aug. 17, 1897. Serial No. 648,556. (No model.)



Claim.—A toy gun comprising the integral barrel 1, and stock 2, formed with the orifice 5, guide-slot 4, and notch 11, and the retaining-spring 15, fixed in said stock and having its free end projecting into the breech-chamber, in combination with the spring 6, fixed to the butt of said stock, and having its free end extending through said guide-slot, and the trigger 13 pivoted to said stock and having its free end projecting across the path of the free end of the spring 6, substantially as shown and described.

603,883. ELECTRIC-ARC LAMP. ALFRED W. KNUTSON, Galesburg, Ill. Filed Apr. 30, 1897. Serial No. 634,584. (No model.)



Claim.—1. A clutch for electric-arc lamps having a clutch-arm formed with an obliquely-disposed rod-opening piercing one side of the arm to permit of the carbon rod passing laterally into said opening, one of the inclined walls of said opening being provided with a clutch-notch.

2. A clutch for electric-arc lamps having a clutch-arm provided with a rod-opening, and a movable auxiliary grip-jaw supported on said arm and normally moved in an inward direction, substantially as set forth.

3. A clutch for electric-arc lamps, having a clutch-arm provided with a rod-opening therein, and a movable auxiliary grip-jaw supported on said arm at one side of the opening therein and provided with a head portion normally moved in an inward direction.

4. A clutch of the class described, comprising a hanger-bar, and a clutch-arm pivotally hung from said bar and provided with a clutch-collar having an obliquely-disposed rod-opening piercing one side thereof, said rod-opening being formed with opposite inclined side walls, the inner of which walls is formed in its upper edge with a V-shaped clutch-notch, and the outer wall being formed at its lower edge in a plane below such notch with a curved contact-cavity, substantially as set forth.

5. A clutch of the class described comprising a hanger-bar, a clutch-arm pivotally hung from said bar and provided at its free end with a clutch-collar having a rod-opening therein, and an auxiliary grip-jaw pivotally supported on said collar at the outer side thereof and provided with an inner forked head normally moved in an inward direction, substantially as set forth.

6. A clutch of the class described, comprising a hanger-bar, a clutch-arm pivotally hung from said bar and provided at its free end with a clutch-collar, an auxiliary grip-jaw pivotally supported between its ends on said collar at the outer side thereof and provided with an inner forked head, an adjusting-rod slidably mounted at one side of the clutch-arm and loosely connected at its outer end with one extremity of said grip-jaw, a collar adjustably fitted on said rod, a link pivotally suspended from the clutch-arm and pivotally connected with said collar, and a spring connected at one end with the link and at its other end with the clutch-arm, substantially as set forth.

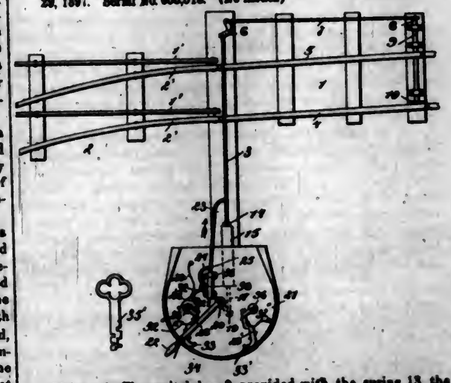
603,884. STEAM-ENGINE. CHARLES A. MAURER, Cedar Bluff, Iowa. Filed Feb. 1, 1897. Serial No. 621,491. (No model.)

Claim.—1. In a rotary engine, the combination of a cylinder, a piston operating in the cylinder, means for admitting and exhausting a motive medium from the cylinder, brackets independent of each other and the cylinder and having the shaft of the piston journaled therein, foot-bars extending parallel with each other and the shaft of the piston and connecting the lower ends of the brackets, and provided with longitudinal slots, and feet secured to the sides of the cylinder and having their outer ends tenoned and secured in the slots of the foot-bars, and having shoulders above and below the tenons to engage with the inner sides of the foot-bars, substantially as shown and described.



2. A rotary engine constructed substantially as set forth, the same comprising a piston having a rib midway of its sides projecting beyond its peripheral surface, and having a corresponding number of similarly-formed pockets alternately disposed upon opposite sides of the rib, whereby the portions between the pockets upon one side of the rib come opposite and in transverse alinement with the pockets upon the other side of the said rib, the ends of the pockets being curved in opposite directions, forming shoulders or abutments, a cylinder composedof parts comprising heads having inner rims formed with a groove between their meeting portions to receive the aforesaid rib, and having oppositely-disposed inlet-ports and a chamber at its lowest point forming a common exhaust-port, and having chambers in advance of the inlet-ports with their inner ends inversely curved to the curved ends of the pockets, each port communicating with the cylinder upon opposite sides of the said groove and rib to supply the motive medium to the two sets of pockets, concentric grooves and ribs between the ends of the piston and the heads of the cylinder, and means for controlling the admission of steam to either of the inlet-ports, substantially as and for the purpose set forth.

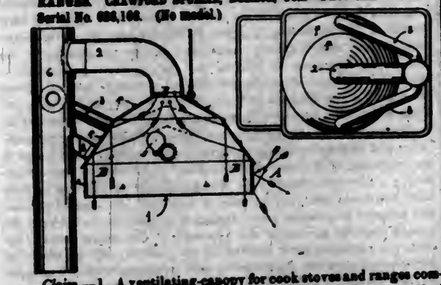
603,885. AUTOMATIC SWITCH-LOCK FOR RAILWAYS. WILLIAM A. SLOCUM, Lansing, Mich. Filed July 20, 1896. Renewed Sept. 29, 1897. Serial No. 653,513. (No model.)



Claim.—1. The switch-bar 3 provided with the spring 13, the tube 15, and the rod 17 connected to the crank 19 secured to the switch-shaft 20 mounted in the switch-stand 21, and provided with a switch-lever 22 having a stud 34, in combination with the spring-bolts 28 28', having integral curved arms 33, 33', substantially as shown and described.

2. An automatic railway-switch comprising the switch-bar 3, the spring 13 mounted on one end of said bar; a tube incasing said spring and connected to the crank 19 on the shaft 20, having a lever 22 provided with a stud 34, the spring-bolt 28 having the curved arm 33, the beveled head 27, the arm 23 rigidly secured to the switch-bar 3 and provided with the pivoted trigger 24 and lug 30, adapted to travel over the path of the stationary lug 31, in combination with the bell-crank lever 6, one arm of which is secured to the switch-bar and the other arm pivoted to one end of a connecting-rod 7, the transverse shaft 9, provided with the lever 10, arranged contiguous to one of the rails of the main track, and having a crank 8, the outer end of which is pivoted to the opposite end of said rod 7, substantially as shown and described.

603,886. VENTILATING-CANOPY FOR COOK STOVES OR RANGES. CRAWFORD STUBLIN, Denton, Tex. Filed Mar. 18, 1897. Serial No. 628,168. (No model.)



Claim.—1. A ventilating-canopy for cook stoves and ranges composed of a dome built with intersecting surfaces and of a vertical flange fitted around the lower part of the dome; such dome being directly connected with the smoke pipe or flue of the stove or range by an upper pipe 2 and lower side pipes 3 leading from the dome to the smoke pipe or flue of the stove or range; substantially as described and for the purposes set forth.

2. In a ventilating-canopy for cook stoves and ranges, the combination with the ventilating-pipes connecting the dome with the smoke pipe or flue of the stove or range at top and sides of the canopy of pivotal disks 5 placed at the openings of said connecting pipes inside of the dome and adapted to close them partially or totally to regulate the draft; substantially as described and for the purposes set forth.

603,887. TONGUE-SUPPORT. CHARLES H. SWANK, Linville, Va. Filed Nov. 18, 1897. Serial No. 658,980. (No model.)



Claim.—1. The combination with a tongue, a caster-wheel provided with a standard, and a brace extending from the standard to the tongue, of a tubular housing depending from the tongue and receiving the standard and capable of upward-and-downward movement thereon, said housing being provided on its interior with a horizontal bearing-ridge and being enlarged above and below the same at its back and front to permit the standard to move backward and forward and prevent any lateral movement, and means for confining the tubular housing and the tongue, substantially as described.

2. The combination with a tongue, of a tubular housing depending therefrom, a caster-wheel having a standard arranged within the housing, and a coiled spring interposed between the upper end of the standard and the tongue and arranged within the tubular housing, substantially as described.

3. The combination with a tongue, of a tubular housing having its upper end enlarged and recessed to receive the tongue and arranged against the lower face thereof, a plate engaging the upper face of the tongue and having a recess to receive the same, bolts located at opposite sides of the tongue and passing through the plate and the upper end of the housing, a caster-wheel having a stem arranged within the tubular housing, and a coiled spring interposed between the standard and the tongue and located within the housing, substantially as described.

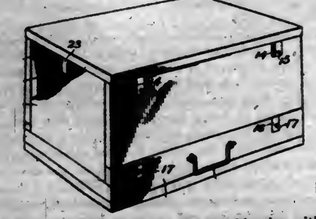
4. The combination with a tongue, of a tubular housing depending therefrom and having an interior shoulder located between its ends and formed by enlarging the upper portion of the bore or opening, said housing being provided at the lower portion of the bore or opening with an annular bearing-rib and being enlarged above and below the same at its front and back, a standard fitting within the housing and having its upper end reduced, a disk or plate having an enlarged opening to receive the upper end of the standard and detachably connected therewith and adapted to engage the said shoulder, and a coiled spring interposed between the upper end of the standard and the tongue, substantially as described.

5. The combination of a tongue, a caster-wheel provided with a standard, means for connecting the tongue and the standard whereby the tongue will be capable of vertical movement on the standard, an oscillating brace disposed at an inclination in advance of the caster-wheel and having its lower end connected with the standard at the bottom thereof, and an adjustable sleeve arranged at the upper end of the brace and hinged to the tongue, said sleeve being adapted to vary the length of the brace, substantially as described.

6. The combination with a tongue of a caster-wheel having a standard and provided at the bottom thereof with a depending stud, means for mounting the standard on the tongue, an inclined brace having its upper end threaded and provided at its lower end with an eye detachably secured to the depending stud of the standard, a bracket secured to the tongue and provided with depending ears, and a sleeve having an eye detachably hinged to the perforated ears, said sleeve being interiorly threaded and engaging the upper end of the brace, substantially as described.

7. The combination of a tongue, a standard connected therewith and provided with an arm having ratchet-teeth at opposite sides thereof, the adjustable side pieces provided at their upper ends with similar ratchet-teeth and having at their lower ends annular flanges extending inward from the side pieces and forming bearings, a bolt passing through the arm of the standard and the upper ends of the side pieces, arranged centrally and forming a pivot for the same, and a caster-wheel journaled in the bearings between the side pieces, substantially as described.

603,888. SHIPPING-CRATE. ROBERT L. TEMPLEMAN, Tackett's Mills, Va. Filed Aug. 7, 1896. Serial No. 602,002. (No model.)



Claim.—1. In a shipping-crate, the combination with a rectangular bottom piece having side and end strips secured thereto, one of said side strips being slightly higher than the other, of end pieces hinged to said end strips and adapted to fold inwardly, side pieces hinged to said side strips and adapted to fold inwardly, said side pieces and the strips to which they are hinged being unitedly of the same height as said end pieces and the strips to which they are hinged, both of said side pieces being cut away along their inner surfaces adjacent to their outer ends forming shoulders, against which said end pieces are adapted to bear, and having grooves in their inner surfaces adjacent to their vertical centers, a partition hinged to said bottom piece adapted to fit within said grooves when it is in its raised position, and adapted to fold down in close contact with said bottom piece, pins or projections on the outside of said side strips, and of said side pieces, a lid or cover for said crate having guides or stop-pieces at each end, against which the upper ends of said end pieces are adapted to bear, and strips of metal secured to the under side of said lid or cover adjacent to its outer ends having downwardly-projecting flanges thereon with openings therein, into which said pins or projections on said side strips and said side pieces are adapted to fit when said lid or cover is in place, substantially as and for the purpose described.

2. In a shipping-crate, the combination with a rectangular bottom piece having side and end strips secured thereto, one of said side strips being slightly higher than the other, and having a bail or handle pivoted to the outside thereof, of end pieces hinged to said end strips and adapted to fold inwardly, side pieces hinged to said side strips and adapted to fold inwardly, said side pieces and the strips to which they are hinged being unitedly of the same height as said end

Claim.—1. In a rotary engine, the combination of a cylinder, a piston operating in the cylinder, means for admitting and exhausting

and described.

2. An automatic railway-switch comprising the switch-bar 3, the

pieces and the stripe to which they are hinged, both of said side stripe being cut away along their inner surfaces adjacent to their outer ends forming shoulders against which said end pieces are adapted to bear, and having grooves in their inner surfaces adjacent to their longitudinal centers, a partition hinged to said bottom piece adapted to fit within said groove when it is in its raised position and adapted to fold down in close contact with said bottom piece, pins or projections on the outside of said side stripe, staples secured to said side pieces and hooks pivoted to said end pieces, and to said partition, adapted to engage said staples, substantially as and for the purpose described.

603,389. THREAD HOLDER AND CUTTER FOR SPOOLS.

MARY A. L. THOMAS, Springfield, Tenn. Filed May 15, 1897. Serial No. 637,019. (No model.)



Claim.—1. A thread holder and cutter consisting of a divided clamping-band adapted to engage the end flange of a spool, and provided with a tangential extension formed with a thread holding and cutting surface, substantially as set forth.

2. A thread holder and cutter consisting of a divided clamping-band adapted to engage the end flange of a spool, and provided with a tangential extension formed with a thread-clamping surface, and having an inwardly-projecting cutting-lip, substantially as set forth.

603,390. ELECTRIC SIGNAL SYSTEM.

LOUIS C. WERNER, Broad Brook, Conn. Filed June 17, 1897. Serial No. 641,172. (No model.)



Claim.—1. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a source of electric energy; a train movable along such track; a current-collector carried by said train and adapted to make traveling contact with said conductor; means for closing the circuit between the conductor and the track at a point distant from the train; a visual electrical indicator carried by said train and in circuit with said current-collector and responsive to every variation in the length, and hence in the resistance, of the conductor between said train and such distant point within the range of the indicator, and having an indicator-hand movable at either side of a normal, idle, central position in accordance with the direction of movement of the train, and adapted to indicate every variation in the distance between the train and such point; a reversing-lever carried by the locomotive of the train; and an electrical pole-changing switch controlled by said reversing-lever and adapted to send a current in either direction through the indicator.

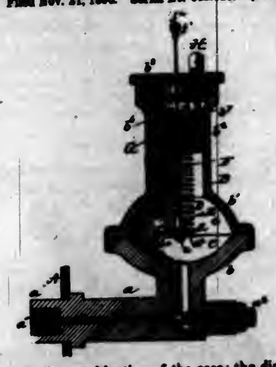
2. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a source of electric energy; a train movable along such track; a current-collector carried by said train and adapted to make traveling contact with said conductor; means for closing the circuit between the conductor and the track at a point distant from the train; a visual electrical indicator carried by said train and in circuit with said current collector and responsive to every variation in the length, and hence in the resistance, of the conductor between said train and such distant point within the range of the indicator, and having an indicator-hand movable at either side of a normal, idle, central position in accordance with the direction of movement of the train, and adapted to indicate every variation in the distance between the train and such point; a reversing-lever carried by the locomotive of the train; and an electrical pole-changing switch connected with, and controlled by, the operation of said reversing-lever and adapted to send current in either direction through the indicator.

3. In an electric signal system, the combination, with a track of a line of way, of a conductor extending along the line of way and insulated from said track; a source of electric energy; a train movable along such track; means for closing the circuit between the conductor and the track at a point distant from the train; a visual electrical indicator carried by said train and responsive to every variation in the length, and hence in the resistance, of the conductor between said train and such distant point within the range of the indicator, and having an indicator-hand movable at either side of a normal, idle, central position in accordance with the direction of movement of the train, and adapted to indicate every variation in the distance between the train and such point; a traveling current-collector carried by said train and adapted to make contact with said conductor; a reversing-lever carried by the locomotive of the train; an electrical pole-changing switch controlled by said reversing-lever and adapted to send current in either direction through the indicator; and an automatic spring-released circuit-breaker controlled by the current-collector and controlling the circuit to the indicator.

4. In an electric signal system, the combination, with track-rails and switch-rails of a line of way, of a conductor extending along the line of way and insulated from said rails and having a relatively long section in advance of the switch disconnected from the main portion of the conductor; a source of electric energy; switch-operating means; circuit-closing means controlled by the opening of the switch and operative for closing the circuit between the rails at the switch and such disconnected section; a vehicle movable along the track; a traveling current-collector carried by said vehicle and adapted to make contact with said conductor; a visual electrical indicator carried by said vehicle and in circuit with said current-collector and responsive to every variation in the length, and hence in the resistance, of the conductor between said vehicle and such circuit-closing means within the range of the indicator, and having an indicator-hand movable at either side of a normal, idle, central position and adapted to indicate every variation in the distance between the vehicle and the switch on the approach of the former toward the latter; a reversing-lever carried by the vehicle; and an electrical pole-changing switch controlled by said reversing-lever and adapted to send current in either direction through the indicator.

603,391. PRESSURE-RECORDER.

FRANK L. WOLFE, Medford, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Nov. 21, 1896. Serial No. 612,923. (No model.)



Claim.—1. The combination of the case; the diaphragm within it; the spring secured to one end of the diaphragm; the hollow plug in which the upper end of the spring is secured and means for raising and lowering said plug without opening the case or separating the parts, as set forth.

2. The combination of the case, B; the diaphragm, C, within it; the spring, D; the plug, G; the spring being secured to the diaphragm and plug; and the regulating-screw, H, as set forth.

3. The combination of the pencil-lever with the post, L; the hollow screw-plug, *l*; the check-nut, l^3; and the head of the case, B, as set forth.

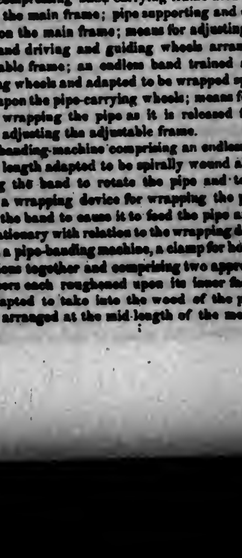
603,392. WOODEN-PIPE-BANDING MACHINE.

WALTER J. WOODWARD, National City, Cal., assignor to Hattie I. Woodward, same place, and D. P. H. Little, C. W. Sanders, and Emma A. Harrington, Los Angeles, Cal. Filed Feb. 16, 1897. Serial No. 623,541. (No model.)

Claim.—1. In a pipe-banding machine, the combination of means for removably securing together, axially, end to end, independent sections of pipe; means for compressing and rotating the pipe thus secured together; means for applying a continuous band to the compressed pipe; and means for maintaining a tension on the band.

2. A pipe-machine comprising a frame; an endless band adapted to have a portion of its length wound spirally around a length of pipe; guide-wheels for the band; a tension for the band; a bearing-wheel adapted to support the pipe against the pull of the band;

means for driving the band; and a wrapping device adapted to wrap the pipe as it is released from the band.



3. In a banding-machine, the combination set forth of a frame; an endless band adapted to be wound spirally around a pipe; suitable guiding-wheels for the band; a bearing-wheel adapted to take the pull of the band; a tension for holding the band taut; means for driving the band; and a wrapping device adapted to wrap the pipe with a permanent wrapping as it is released from the band.

4. In a pipe-banding machine, the combination set forth of a main frame; pipe guiding and supporting wheels arranged upon the main frame; band driving and guiding wheels secured in the frame at one side of the pipe guiding and supporting wheels; a compression and driving band trained around the guiding and supporting wheels, and adapted to be wound spirally around a pipe arranged upon the supporting and guiding wheels; a tension device adapted to hold the band taut; and a wire-wrapping device adapted to wrap the pipe as it is released from the spiral compression and driving band.

5. In a banding-machine, the combination set forth of a main frame; pipe-carrying wheels arranged on the main frame; a band-shifting frame arranged on the main frame and adapted to be adjusted transverse such frame; pipe guiding and supporting wheels arranged on the main frame; suitable band driving and guiding wheels arranged in the main frame at one side of the adjustable frame; an endless band trained around such wheels and adapted to be wound spirally about a pipe arranged upon the pipe-carrying wheels; a tension device for holding the band taut; means for driving the band; a wrapping device adapted to wrap the pipe as it is released from the traveling band; and suitable means for adjusting the band-adjusting frame.

6. In a banding-machine, the combination set forth of a main frame; a compressing band-carrying frame arranged to be adjusted transverse the main frame; pipe supporting and carrying wheels arranged upon the main frame; means for adjusting the band-carrying wheels; band driving and guiding wheels arranged at one side of the adjustable frame; an endless band trained around the driving and guiding wheels and adapted to be wrapped spirally about a pipe arranged upon the pipe-carrying wheels; means for driving the band; means for wrapping the pipe as it is released from the band; and means for adjusting the adjustable frame.

7. A banding-machine comprising an endless cable having a portion of its length adapted to be spirally wound about a pipe; means for driving the band to rotate the pipe and to cause it to travel forward; a wrapping device for wrapping the pipe; and means for adjusting the band to cause it to feed the pipe axially forward or to remain stationary with relation to the wrapping device while rotating.

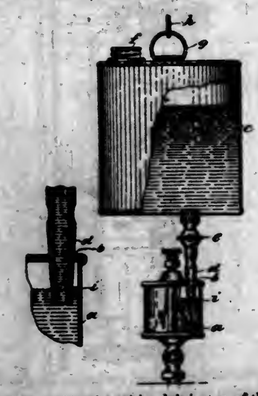
8. In a pipe-banding machine, a clamp for holding the ends of the pipe-sections together and comprising two approximately semicircular members each roughened upon its inner face at each end with points adapted to take into the wood of the pipe, and screw-bolts centrally arranged at the mid-length of the members to hold them together.

9. In a pipe-banding machine, a clamp for holding the ends of the pipe-sections together and comprising two plates to fit upon the outside of the pipe and provided with points to take into the pipe and respectively reinforced at the mid-length, and screw-bolts centrally arranged and passing through the reinforced portion to draw the members together.

10. In a pipe-banding machine, a clamp for holding the ends of the pipe-sections together and comprising two approximately semicircular members to fit upon the outsides of two sections of pipes, one member being provided with a screw-threaded bolt-hole, and the other member with a countersunk bolt-hole; and a clamp-bolt passed through the countersunk bolt-hole and screwed into the screw-threaded bolt-hole and passing through the axis of the cylinder formed by the two members while thus held together.

603,393. AUTOMATIC FILLER FOR LUBRICATORS.

NICHOLAS ZOSS, New York, N. Y. Filed Dec. 23, 1896. Serial No. 617,213. (No model.)



Claim.—The combination with a lubricator, of the continuously-feeding automatic filler consisting of a can or tank adapted to be closed air-tight, and the nozzle adapted for discharging liquid from the can through its open lower end, and having a vent-orifice in the side near but above the lower end admitting the air for venting directly into the discharge-passage for the liquid, said end and the lubricator adapted for inserting said end in the upper part of the lubricator which is open to the atmosphere, and in the liquid contents thereof, and the nozzle having a stop-cock between the vent-orifice and the can, substantially as described.

603,394. WIRE-THREADING MACHINE.

ORRELL ASHTON, Milwaukee, Wis. Filed Sept. 24, 1897. Serial No. 652,800. (No model.)

Claim.—1. In a wire-threading machine, threading-rollers, each adjustable toward and from the wire, and each having its axis after adjustment parallel with the position it occupied previous to adjustment, and means for positively driving said rollers.

2. In a wire-threading machine, positively-driven threading-rollers, and adjustable mechanism for constantly maintaining each of the rollers at the same angle of contact with the wire.

3. In a wire-threading machine, threading-rollers, brackets for said rollers, and pivots for said brackets which are substantially parallel to the line of feed of the wire.

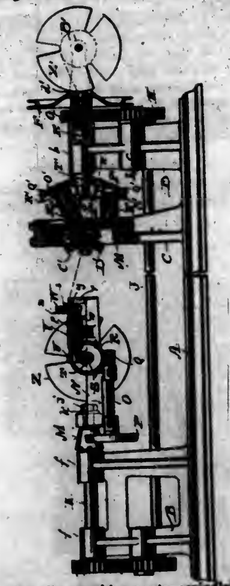
4. In a wire-threading machine, a fixed apertured support, pivot-studs extending from said support in lines substantially parallel to the line of feed of the wire, wire-threading rollers, and brackets for said rollers fulcrumed on said pivot-studs.

5. In a wire-threading machine, a fixed support, pivot-studs extending from said support in lines substantially parallel to the line of feed of the wire, wire-threading rollers, brackets for said rollers fulcrumed on said pivot-studs, and means for adjusting said brackets with relation to the wire.

6. In a wire-threading machine, a support, having pivot-studs arranged substantially parallel to the line of feed of the wire, brackets fulcrumed on said pivot-studs, and having inclined bearings, shafts in said bearings, wire-threading rollers on said shafts, and mechanism for imparting rotary motion to said shafts.

7. In a wire-threading machine, a rotary spindle, rotary wire-threading rollers arranged obliquely to the wire, adjustable mechanism for maintaining said rollers at the same angle of contact with the wire irrespective of their movement toward and from the same, and mechanism for transmitting movement from said spindle to said rollers.

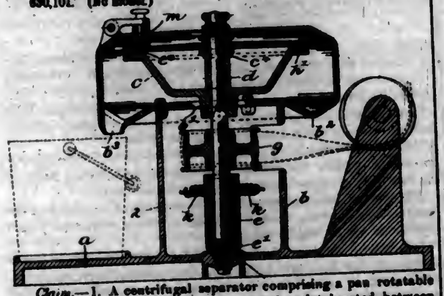
8. In a wire-threading machine, a rotary spindle, rotary wire-threading rollers arranged obliquely to the wire, adjustable mechanism for maintaining said rollers at the same angle of contact with the wire irrespective of their movement toward and from the same, mechanism for transmitting an intermittent movement from said spindle to said rollers.



9. In a wire-threading machine, a rotary spindle, wire-threading rollers, and mechanism actuated by the spindle for imparting a step-by-step movement to said rollers.

10. In a wire-threading machine, a rotary spindle, wire-threading rollers and mechanism including pawls and ratchets for transmitting a step-by-step motion from the spindle to the rollers.

608,895. CENTRIFUGAL MACHINE. SAMUEL A. BAKER and MELVIN F. COLBY, Springfield, Vt. Filed Mar. 31, 1897. Serial No. 630,101. (No model.)



Claim.—1. A centrifugal separator comprising a pan rotatable on a vertical axis and having a contracted outlet located between surfaces which are formed to arrest relatively coarse fragments or particles, and an external fibrous filter adapted to arrest the relatively fine particles that escape through said outlet with the centrifugally-expelled liquid and to permit the outward passage of said liquid, said fibrous filter being clamped between opposing annular supports adjacent to said contracted outlet.

2. A centrifugal separator comprising a pan rotatable on a vertical axis and having a contracted outlet located between surfaces which are formed to arrest relatively coarse fragments or particles, external clamping members at opposite sides of said outlet, one of which members is formed by a projecting rim or flange of the cover of the pan and a fibrous filter held by said clamping members in the path of liquid expelled centrifugally through said outlet, said filter being adapted to arrest the relatively fine particles that escape through the outlet, and to permit the outward movement of said liquid.

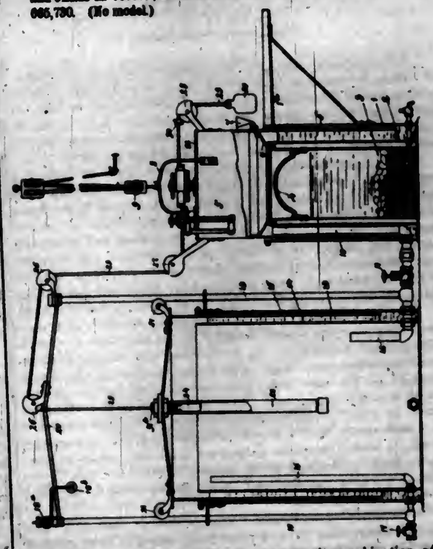
3. A centrifugal separator comprising a pan and cover rotatable on a vertical axis and having a contracted outlet located between surfaces which are formed to arrest relatively coarse fragments or particles, one of said surfaces being the inner side of the cover resting on the margin of the pan, said cover being extended outwardly as a clamping member beyond the margin of the pan, a complemental clamping member or ring detachably connected with the cover, and a fibrous filter interposed between said clamping members.

608,896. CUFF-BUTTON. WILLIAM S. BUCHTOLD, Newark, N. J. Filed Feb. 25, 1897. Serial No. 625,067. (No model.)



Claim.—A cuff-button having its heads concaved or recessed on their backs, attaching-eyes of square or like cross-section secured to the heads and lying wholly within the cavities of the same so as not to interfere with the passage of the heads through the buttonholes, an S-shape link having overlapping ends slidably secured with respect to the central limb of the link, and passed through the attaching-eyes of the heads; said link acting as a spring at its points of connection with the attaching-eyes to hold the heads either at right angles to the link or in planes substantially parallel to the same, substantially as described.

608,897. ACETYLENE-GAS GENERATOR. THOMAS A. BRYAN and JAMES H. COOPER, Baltimore, Md. Filed Jan. 6, 1896. Serial No. 625,790. (No model.)



Claim.—1. In an acetylene-gas generator the combination, of a water-tank and carbid-receptacle with a gasometer; the carbid-receptacle having means through which it may be charged or filled and being divided into compartments, all except one, which is permanently closed, having hinged bottoms which rest upon a support provided with an open section so located as to permit the hinged bottoms of the compartments to fall and dump their contents into the tank as they pass over it, means for closing this open section in the support so arranged and connected with the means for charging or filling the carbid-receptacle that when the means for charging or filling the carbid-receptacle is open or active the opening in the support below the carrier will be closed, and vice versa, substantially as shown.

2. In an acetylene-gas generator the combination, of a water-tank and a carbid-receptacle, with a gasometer, the carbid-receptacle consisting of a carrier divided into compartments, each having a hinged bottom, except one which is solid, said bottoms being provided with rollers, a permanent support below the carrier provided with a track upon which the rollers of the bottoms rest, and by which they are supported, the support and track having a movable section which, when open will permit the bottom of one of the said car-

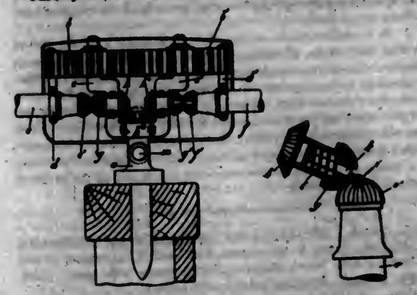
partments to fall as it passes over said section and dump its contents of carbid into the water, the charging-hole in the top of the gasometer for charging carbid into the receptacle provided with a cover, means for connecting the cover with the movable section of track of the support adapted to maintain the movable section of track in place and support the bottoms of all of the compartments when the cover of the charging-hole is open and to drop the section of track and leave the open section for dumping when the cover of the charging-hole is closed, substantially as described.

3. In an acetylene-gas generator the combination, of a water-tank and a carbid-receptacle, with a gasometer, the carbid-receptacle consisting of a carrier, divided into compartments, each having a hinged bottom, except one, a permanent support below said carrier supporting said bottoms, said support being provided with an open section adapted to permit the bottom of one of said compartments to fall as it passes over it and thus dump its contents into the water, the carrier being mounted upon a rotating shaft which passes through the generator and is provided upon its exterior with a ratchet and lever, the ratchet being rigidly secured and the lever journaled upon the shaft and carrying a pawl which engages and operates the ratchet, said lever being connected at its extremity to a cord which passes over a series of pulleys, and each end of which is provided with a weight, one being heavier than the other, a stop upon the cord to limit its motion under the influence of the heavier weight and means connecting the other end of the cord with the bell of the gasometer whereby as the said bell descends it will pull the cord and operate it and the lever and carrier against the pull of the heavier weight.

4. In an acetylene-gas generator the combination of a gasometer, having an opening through which the carbid for charging the generator is supplied, said opening having a removable cap, a carbid-carrier contained within the gasometer, and a support under the carrier, said support having a movable section connected to the cap in such a way that the act of opening the cap closes the movable section of the support, and the act of closing the cap opens the movable section of the support.

5. In an acetylene-gas generator, the combination of a gasometer having an opening in the top through which the carbid for charging the generator is supplied, said opening having a removable cap, a carbid-carrier contained within the gasometer, said carrier being divided into a number of compartments having hinged bottoms except one which is permanently closed, rollers attached to the bottoms, and a support under the carrier having a track upon which the rollers rest, a section of the track being hinged and connected by a system of levers to the removable cap on the top of the gasometer, so that the act of removing the cap closes the track, and the act of closing the cap opens the track, all arranged and constructed substantially as and for the purposes set forth.

608,898. BOW-FACING GAR. ADOLPH BALLMER, Kiel, Germany. Filed Apr. 15, 1897. Serial No. 632,303. (No model.)



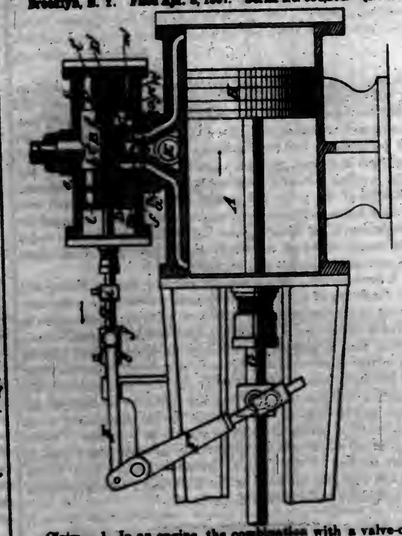
Claim.—1. In oars and rowlocks for boats, the combination with the handle and oar-stem independent of one another, of gearing supported on bearings independent of said handle and stem, connections between said gearing and the handle and stem respectively, whereby the movements imparted to the handle will be transmitted to the gearing and thence to the oar-stem, and a working feathering connection, independent of said gearing, between the handle and stem, whereby the movements imparted to the handle upon its axis will be transmitted to the oar-stem and the blade thereof may be turned or feathered.

2. In rowlocks and oars for boats, the combination with the handle and oar-stem independent of one another, of a frame, gears *b*, *b'* carried by said frame on bearings independent of the handle and stem, connections between the handle and stem and said gears *b*, *b'* respectively, with freedom for the handle and stem to turn therein, semispherical gearings on the ends of the handle and stem, and a working feathering connection between said semispherical gearings.

3. In rowlocks and oars for boats, the combination with the handle and oar-stem independent of one another, of a frame, gears *b*, *b'* carried by said frame on bearings independent of the handle and stem, connections between the handle and stem and said gears *b*, *b'* respectively, with freedom for the handles and stem to turn therein, the hemispherical gears *d*, *f'*, on the ends of the handle and stem respectively, the hemispherical gears *g g'* meshing therewith, and a working feathering connection between the gears *g*, *g'*.

4. In rowlocks and oars for boats, the combination with the handle and oar-stem independent of one another, a frame, gears *b*, *b'* carried by said frame on bearings independent of the handle and stem, connections between the handle and stem and said gears *b*, *b'* respectively, with freedom for the handle and stem to turn therein, the hemispherical gears *d*, *f'*, on the ends of the handle and stem respectively, the hemispherical gears *g g'* meshing therewith and jointed thereto, and a working feathering connection between the gears *g*, *g'*.

608,899. VALVE-OPERATING DEVICE. WILLIAM A. DREWETT, Brooklyn, N. Y. Filed Apr. 8, 1897. Serial No. 631,201. (No model.)



Claim.—1. In an engine, the combination with a valve-chest, a two-headed piston therein and a single valve interposed with a lost motion between the piston-heads, of a main exhaust-port in the chest controlled by the valve, and two supplemental exhaust-passages each communicating with the valve-chest by two ports so located that one of them is opened and closed to the main exhaust-port by the passage by it of the valve and the other of them is opened and closed to the space between the adjacent end of the chest and the piston by the movement over it of the piston itself, substantially as herein described.

2. The combination of a valve-chest and a valve therein for controlling the induction and the eduction of the motive fluid to and from an engine and a two-headed piston working within said chest and between the heads of which said valve works with a lost motion, the said chest being provided with external passages each of which has ports communicating with the interior thereof at two points in its length, the said piston having in each head a lateral port in communication with the space between the said head and the adjacent end of the chest, and the valve itself having two lateral exhaust-ports one for each of said passages, each of said lateral exhaust-ports being capable of communicating with one end of its respective passage while the other end of said passage is in communication with the said lateral port in one of the piston-heads, substantially as herein described.

3. In an engine, the combination of a cylindrically-bored valve-chest to which there is an inlet for the motive agent and within the bore of which is a valve-seat having ports communicating respectively with the ends of the engine-cylinder and with an exhaust-outlet, a piston having two heads fitted to the bore of said chest with an intermediate space which includes said inlet and ports, the two heads having passages through them which form constant communi-

cation from said intermediate space to the spaces between the piston and the ends of the chest and having also lateral ports communicating with the last-mentioned spaces, a D-valve fitted to said seat in the bore of the chest and capable of a lost motion between the two piston-heads and containing lateral exhaust-ports, and two passages outside of the valve-chest each of said passages having two terminal ports communicating with the valve-chest, one of said terminal ports being within range of one of the lateral ports of the valve and the other of said terminal ports being within range of the lateral ports in one of the piston-heads, substantially as herein described.

608,400. LATHE ATTACHMENT. ALBERT J. FARMER, Hartford, Conn. Filed Dec. 27, 1897. Serial No. 663,467. (No model.)



Claim.—1. A portable lathe attachment for grinding, drilling, boring and turning, consisting of a yoke with a shank whereby the yoke may be secured to the tool-post of a lathe and a tapering perforation in each branch of the yoke, a tapering split bushing located in each perforation, nuts turning on the bushings for adjusting and holding them in correct position, a sleeve rotarily supported by the bushings, a pulley mounted upon and secured to the sleeve between the branches of the yoke, and a shaft extending through and connected by a spline with the sleeve and having one end arranged for the attachment of an operating-tool and having at the other end a head by means of which the longitudinal movements of the shaft may be controlled, substantially as specified.

2. A portable lathe attachment for grinding, drilling, boring and turning, consisting of a yoke with a shank whereby the yoke may be secured to the tool-post of a lathe and a tapering perforation in each branch of the yoke, a tapering split bushing located in each perforation, nuts turning on the bushings for adjusting and holding them in correct position, a sleeve rotarily supported by the bushings, a pulley mounted upon and secured to the sleeve between the branches of the yoke, a shaft extending through and connected by a spline with the sleeve and having one end arranged for the attachment of an operating-tool and having at the other end a head by means of which the longitudinal movements of the shaft may be controlled, a bracket removably secured to the yoke, a feed-screw rotarily held by the bracket and engaging the head on the shaft, and a handle for rotating the feed-screw, substantially as specified.

608,401. CLASP. JOSEPH FORSHEIM, New York, N. Y. Filed Sept. 8, 1897. Serial No. 650,901. (No model.)

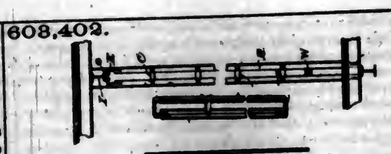


Claim.—A clasp comprising a blank forming a back plate having inclined edged wings bent inwardly therefrom, the said wings being provided with securing-tongues and a stop bent inwardly from the blank thereby forming a strap retaining loop, a second blank forming a front plate which front plate is provided with notches for the reception of the said tongues carried by the back plate for securing the front plate thereto and a locking-roller interposed between the said plates, substantially as set forth.

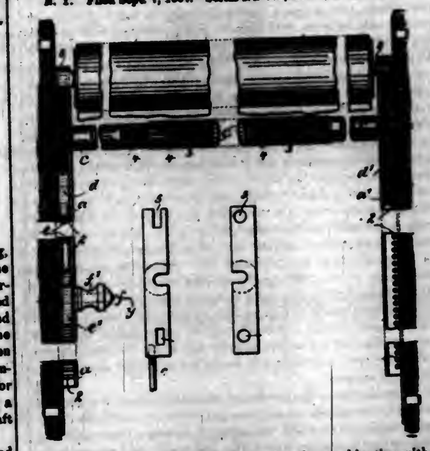
608,402. PARTITION-FRAME. WILLIAM P. KRAMER, Boston, Mass. Filed Oct. 20, 1897. Serial No. 656,754. (No model.)

Claim.—A partition-frame comprising in its construction parallel angle-iron side strips separated and connected by cross-pieces and a U-shaped strap with slot-and-pin connection with the side strips constituting an adjustable end piece, substantially as described.

608,402.



608,408. WINDOW-SHADE CARRIER. HERBERT L. KEYES, Hackensack, N. J., assignor to himself, and Harry C. Horton, Newburg, N. Y. Filed Sept. 7, 1897. Serial No. 650,715. (No model.)



Claim.—1. In a window-shade carrier, the combination with the slotted bars and their racks, of pinions engaging the racks, bearing-blocks within the slotted bars and receiving the journals of the pinions, an extensible cross-bar upon whose respective ends are the pinions, said bar being made of two telescoping tubular portions of the same and coinciding sectional configuration, and a clamp for holding the bearing-block at one side of the window, substantially as set forth.

2. In a window-shade carrier, the combination with the slotted bars and their racks, of pinions engaging the racks, bearing-blocks within the slotted bars and receiving the journals of the pinions, an extensible cross-bar upon whose respective ends are said pinions, the same extending across the window between the slotted bars and a clamp for holding the bearing-block at one side of the window, substantially as set forth.

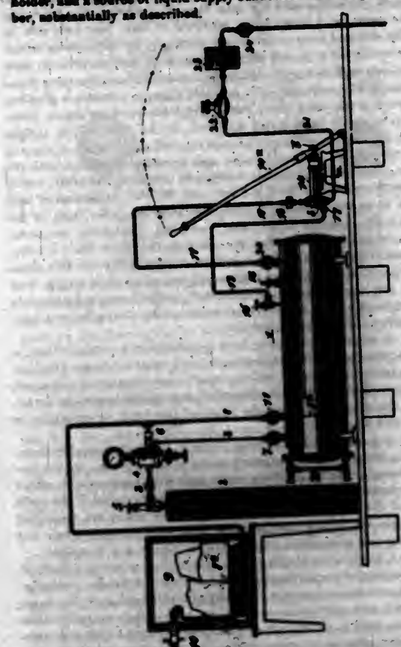
3. In a window-shade carrier, the combination with the slotted bars and their racks, of pinions engaging the racks, bearing-blocks within the slotted bars receiving the journals of the pinions and having openings or notches above and below said journals adapted to receive the fixtures upon the ends of the window-shade roller, an extensible cross-bar upon whose ends are said pinions and extending across the window and by which the pinions are rotated and the respective bearing-blocks moved uniformly and parallel to one another, and a clamp for holding the bearing-block at one side of the window, substantially as set forth.

608,404. APPARATUS FOR CARBONATING AND DISPENSING LIQUIDS. PETER H. MALLERSON, New York, N. Y., assignor to the Diamond Soda Water Manufacturing Company, same place. Filed Nov. 30, 1896. Serial No. 613,912. (No model.)

Claim.—1. In an apparatus for carbonating liquids, a cylinder or vessel connected by a pipe with a gas-holder, a pump exterior to and connected with said cylinder by two pipes, both of said pipes being independent of the pipe from the gas-holder, means for supplying said pump with a liquid, and valves to control the passage of gas from said cylinder to said pump through one pipe, and to control the passage of the same gas and a liquid from said pump to said cylinder through the other pipe, substantially as described.

2. The combination of a cylinder or vessel, a pump, a pipe connecting them for the passage of gas to the pump, a pipe connecting said cylinder with said pump for the passage of liquid from the latter to the former, valves to control the passage through said pipes, and a nozzle connected with the second-mentioned pipe within said cylinder, said nozzle having its end closed and slits in its side arranged to converge toward a point exterior thereto, substantially as described.

3. The combination with the gas-holder 2, a force-pump having a compression-chamber, the cylinder 1, pipes and controlling devices connecting the gas-holder with the pump-chamber through the gas-space of cylinder 1, a return-pipe connecting the pump and gas-space of cylinder 1 independently of the latter's connection with the gas-holder, and a source of liquid-supply connected with the pump-chamber, substantially as described.



4. The combination with the detachable gas-holder 2, a force-pump having a compression-chamber, the cylinder 1, pipes and devices controlling the passage of the gas from the holder through the gas-space of the cylinder to the pump-chamber, a return-pipe connecting the pump-chamber and gas-space of the cylinder, and a source of liquid-supply connected with the pump-chamber, a dispensing faucet, the cooling-chamber, a coil in said chamber, and pipes connecting the liquid-space of the cylinder 1 with the coil and the latter with the faucet independently of the before-mentioned pipes, substantially as described.

5. The combination with the gas-holder 2, a force-pump, the cylinder 1, pipes and devices controlling the passage therethrough, said pipes connecting the gas-holder with the pump through the cylinder, a return-pipe connecting the pump and cylinder, and a source of liquid-supply connected with the pump, a dispensing-faucet, the cooling-chamber, a coil in said chamber, and pipes connecting the cylinder 1 with the coil and the latter with the faucet, substantially as described.

6. The combination with the gas-holder 2, the cylinder 1, a force-pump, a pipe connecting the inlet of the pump with the cylinder 1, a water-supply connected with said inlet, a pipe leading from the outlet of the pump to said cylinder 1, a pipe connecting the gas-holder and cylinder 1, and, means for equalizing the water and gas pressure at the pump-inlet, substantially as described.

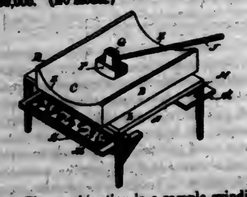
7. The combination with the gas-holder, the cylinder 1, the pipe 12 leading to the fluid-space in said cylinder and extending exteriorly of the cylinder by a pipe 8 to a suitable dispenser, a pipe 3 extending between the gas-holder 2 and the gas-space in cylinder 1, a pipe 13 leading from the gas-space in the cylinder to a force-pump, a pipe 21 leading to the pump from a fluid-supply, and a pipe 18 leading from the pump and terminating in the split nozzle 28 extending into the gas-space of the cylinder 1, substantially as described.

8. In a device for carbonating liquids the combination with the longitudinally-disposed cylinder 12, the gas-holder 2, the valve-regulated pipe 3 leading from the holder to the gas-space of said cylinder, a pump having a compression-chamber, a pipe 21 leading from a liquid-supply to the inlet of said chamber, a pipe 13 leading from the gas-space of said cylinder to said pump-chamber, a pipe 18 leading from said pump-chamber to the gas-space in said cylinder, a pipe 12 leading from the bottom of said cylinder, a cooling-box, a pipe-coil in said box, a pipe 8 leading from the pipe 12 to one end of said coil and having a valve 11, and a faucet 10 exterior to said box and in communication with the other end of said coil, substantially as described.

9. In a device for carbonating liquids, the combination with the horizontally-disposed cylinder 12, the gas-holder 2, the valve-regulated pipe 3 leading from the holder to the gas-space of said cylinder, a pump having a commingling and compression chamber comprising two separate and valve-controlled compression-compartments, a barrel having a plunger in communication with one of the compartments, and a by-pass in communication with the barrel and the other compartment, inlet and outlet compartments above and below the compression-compartments, a pipe 21 leading to the inlet-compartment, a pipe 13 leading from the gas-space of cylinder 12 to said inlet-compartment, a pipe 18 leading from the outlet-compartment to the gas-space of said cylinder, and means for operating said plunger, substantially as described.

10. In a device for carbonating and dispensing liquids, the combination with the horizontally-disposed cylinder 12, the gas holder 2, the valve-regulated pipe 3 leading from the holder to the gas-space of said cylinder, a pump having a compression-chamber, a pipe 21, leading from a liquid-supply to the inlet of said chamber, a pipe 13 leading from the gas-space of said cylinder to said pump-chamber, a pipe 18 leading from said pump-chamber to the gas-space in said cylinder, a pipe 12 leading from the bottom of said cylinder, a cooling-box, a pipe-coil in said box, a pipe 8 leading from the pipe 12 to one end of said coil and having a valve 11, and a faucet 10 exterior to said box and in communication with the other end of said coil, substantially as described.

608,405. SAMPLE GRINDING AND PULVERIZING APPARATUS. JAMES A. MCCLURE, Denver, Colo. Filed June 1, 1897. Serial No. 639,005. (No model.)

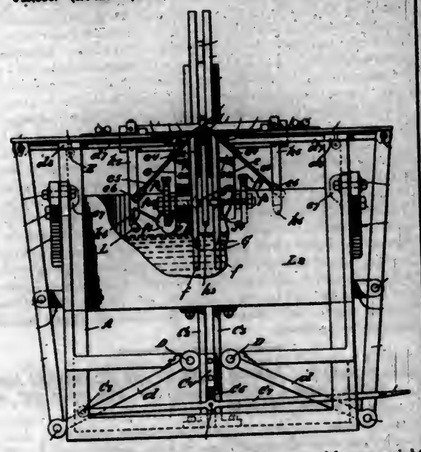


Claim.—1. The combination in a sample grinding and pulverizing apparatus of a mortar-plate having a transverse, concaved grinding-surface with open terminal ends; a receding stepped recess at each end at its bottom edge adapted to form an overhanging lip at the delivery ends of said mortar-plate, with a muller comprising a block-shaped member having its bottom curved with a curve of slightly less radius than the transverse curve of the mortar-plate and having all its bottom edges rounded, a handle-eye in said muller and a curved handle in said eye curved to extend upward from said eye above the sides of said mortar-plate and then curved to extend outward beyond said mortar-plate in a plane substantially parallel and horizontal to the horizontal plane of said muller, substantially as described.

2. The combination in a sample grinding and pulverizing apparatus of a mortar-plate having a transverse concaved grinding-surface and open ends flush with its grinding-surface at the terminal ends of its length and having its ends at the terminus of its length project beyond the bottom of said mortar-plate and arranged to form a recess under said ends high enough to allow the side of a pan to be placed therein, a muller comprising a block-shaped member having a curved bottom adapted to the curve of the transverse curve of the grinding-surface of said mortar-plate and having its bottom sides and end edges rounded, a centrally-located, vertically-projecting member on the top of said muller, a handle-eye in said projection and a curved handle in said eye extending above and beyond the borders of said mortar-plate, with a supporting table or bench shorter than the length of said mortar-plate, a shelf supported between the legs of said table or bench at the ends of its length and under the ends of the length of said mortar-plate, and pans on said shelves under the overhanging ends of said mortar-plate, substantially as described.

3. The combination in a sample grinding and pulverizing apparatus for assayers and chemists of a rectangular-shaped mortar-plate having a transversely-concaved grinding-surface and having both of the terminal ends of its length open, with a muller comprising a rectangular block-shaped member having a curved bottom surface curved to operatively engage the grinding-surface of said mortar-plate and having its bottom side and end edges rounded and adapted to be manually reciprocated up and down said transverse-curved surface of said mortar-plate, a handle-eye in said muller and a curved handle extending a short distance beyond the mortar-plate and curved from said eye to diverge upward over the transverse-curved sides of said mortar-plate and then extending substantially parallel to the plane of the curved base of said muller, substantially as described.

608,406. BOOKBINDING-MACHINE. JAMES MCCLELLAN, Brooklyn, N. Y., assignor, by direct and mesne assignments, to himself, George Henry McClellan, Arlington, N. J., and Gilbert Hunt McKibbin and Boyd Everett, New York, N. Y. Filed July 3, 1897. Serial No. 643,333. (No model.)



Claim.—1. A machine for binding books, comprising an upright main frame, levers pivotally connected with the sides of the main frame, and projecting in front thereof, plates or supports connected with the rear ends of said levers and adapted to move vertically in the main frame, a glue box mounted in said main frame, a book-carrying frame connected with said vertically-movable plates or supports, and suspended over said glue-box, transversely-movable table-plates mounted on the main frame and in operative connection with said vertically-movable plates or supports, hangers connected with said transversely-movable table-plates, revoluble plates mounted in said hangers and adapted to turn in the glue-box, and means for operating said parts, substantially as shown and described.

2. A machine for binding books, said machine consisting of a main frame, levers pivotally connected with the sides of the main frame, and projecting in front thereof, vertical plates or supports connected with the rear ends of said levers, a book-carrying frame connected with said supports, transversely-movable table-plates mounted on the main frame and in operative connection with said plates or supports, hangers connected with the inner ends of said table-plates, revoluble plates connected with said hangers, means connected with said book-carrying frame for operating said revoluble plates, and a treadle connected with the front end of said levers, substantially as shown and described.

3. A machine for binding books, comprising a main frame, a glue-box mounted therein, levers pivotally connected with the sides of the main frame, and projecting in front thereof, vertically-movable plates or supports connected with the rear ends of said levers, transversely-movable table-plates mounted on said main frame and in operative connection with the lower ends of said plates or supports, a book-carrying frame adjustably mounted in said plates or supports, and projecting forwardly over the glue-box, hangers connected with the inner ends of said transversely-movable table-plates, revoluble glue-plates connected with said hangers and suspended in the said glue-box, said glue-plates being provided with shafts which pass through said hangers, ratchet-wheels mounted on said shafts, ratchet arms also mounted on said shafts, and provided with pawls which operate in connection with said ratchet-wheels, devices connected with the book-carrying frame for operating said ratchet-arms, and means for operating said levers, substantially as shown and described.

4. A machine for binding books, comprising a main frame, levers pivotally connected with the sides thereof, and projecting forwardly of the frame, said levers being provided at their rear ends with inwardly-directed arms or extensions, vertically-movable plates or supports connected with said arms or extensions and provided at their lower ends with forwardly-directed extensions, a book-carrying frame connected with said vertically-movable plates or supports, a glue-box mounted in the main frame below said book-carrying frame, transversely-movable table-plates mounted on the main frame, upright levers connected with the outer ends thereof, and pivotally connected with the sides of the main frame, rods pivotally connected with the lower ends of said last-named levers, and extending inwardly, and in operative connection with the inwardly-directed extensions of said plates or supports, hangers connected with the inner ends of the transversely-movable table-plates, revoluble glue-plates connected with said hangers and devices for operating said parts, substantially as shown and described.

5. A machine for binding books, comprising a main frame, levers pivotally connected with the sides thereof, and projecting forwardly of the frame, said levers being provided at their rear ends with inwardly-directed arms or extensions, vertically-movable plates or supports connected with said arms or extensions, and provided at their lower ends with forwardly-directed extensions, a book-carrying frame connected with said vertically-movable plates or supports, a glue-box mounted in the main frame below said book-carrying frame, transversely-movable table-plates mounted on the main frame, upright levers connected with the outer ends thereof, and pivotally connected with the sides of the main frame, rods pivotally connected with the lower ends of said last-named levers, and extending inwardly, and in operative connection with the inwardly-directed extensions of said plates or supports, hangers connected with the inner ends of the transversely-movable table-plates, revoluble glue-plates connected with said hangers and devices for operating said parts, the inwardly-directed extensions at the lower ends of said vertically-movable plates or supports being provided with a supplemental plate or arm with which said upright levers are connected, and said supplemental plate or arm being also in operative connection with a treadle-lever, substantially as shown and described.

6. A machine for binding books, comprising a suitable frame, a glue or paste pot mounted therein, a book-carrying frame provided with a horizontal support which projects over the glue or paste pot, and from which the book is suspended, and operative devices for applying the glue or paste to the sides of the book, substantially as shown and described.

7. In a machine for binding books a vertically-movable book-carrying frame, and transversely-movable table-plates, said table-plates being provided at their inner ends with hangers with which are connected revoluble glue-plates, a glue-box mounted in the main frame of the machine in which said revoluble plates are suspended and means for raising and lowering said book-carrying frame and revolving said glue-plates, substantially as shown and described.

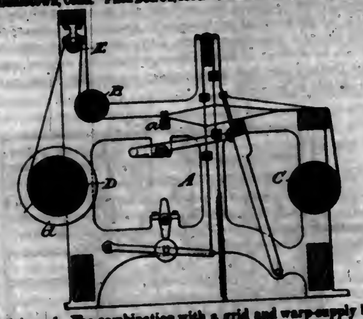
8. A machine for binding books constructed as herein described, and consisting of a main frame, a glue-box mounted therein, vertically-movable plates or supports, a vertically-movable book-carrying frame connected with said plates or supports, transversely-movable table-plates mounted on the main frame, hangers connected with said table-plates and adapted to move therewith, glue-plates revolubly connected with said hangers and suspended in said glue-box, ratchet-wheels connected with the shafts of the glue plates, operative devices connected with the vertically-movable book-carrying frame, and with said ratchet-wheels, and means for operating said vertically-movable plates or supports, and said transversely-movable table-plates, substantially as shown and described.

9. A machine for binding books constructed as herein described, consisting of a main frame, levers pivotally connected with the sides of the main frame, and projecting forwardly thereof, a treadle connected with the forward ends of said levers, vertically-movable plates or supports connected with the rear ends of said levers and provided at their lower ends with forwardly-directed extensions, transversely-movable table-plates mounted on the main frame and in operative connection with the extensions at the bottom of said vertically-movable plates or supports, a glue-box mounted in the main frame, hangers connected with the inner ends of said transversely-movable table-plates, revoluble plates connected with said hangers, a vertically-movable book-carrying frame connected with said vertical plates or supports, ratchet-wheels connected with said glue-plates and devices connected with the book-carrying frame for operating said ratchet-wheels, substantially as shown and described.

10. A machine for binding books comprising a main frame, a glue-box mounted therein, transversely-movable table-plates mounted on the main frame, and provided with hangers at their inner ends, revoluble glue-plates connected with said hangers and suspended in the glue-box, a vertically-movable book-carrying frame supported above the main frame of the machine, and means for raising and lowering said book-carrying frame and for operating said transversely-movable table-plates and for revolving said glue-plates, substantially as shown and described.

11. A machine for binding books comprising a main frame, a glue-box mounted therein, transversely-movable table-plates mounted on the main frame over said glue-box, hangers connected with the inner ends of said table-plates, revoluble glue-plates connected with said hangers and suspended in the glue-box, a vertically-movable book-carrying frame supported above the main frame of the machine, and adapted to be lowered between said glue-plates, operative devices connecting said book-carrying frame and said glue-plates, means for operating said book-carrying frame and said transversely-movable table-plates, substantially as shown and described.

608,407. MEANS FOR FORMING WIDE SHEDS OF WARP FROM NARROW OR SHORT SUPPLY-BEAMS. ISAAC E. PALMER, Middletown, Conn. Filed Dec. 31, 1896. Serial No. 617,804. (No model.)



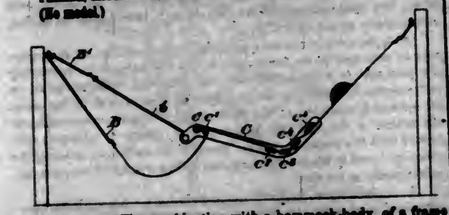
Claim.—1. The combination with a grid and warp-supply beam, of mechanism for distributing warp as it extends from the supply-beam to form a shed wider than the length of the supply-beam, comprising a distributing device located intermediate of the grid and the supply-beam, said distributing device being provided with a warp-bearing surface which gradually approaches the axis of the warp-beam as it extends from a point opposite a central portion of the warp-beam toward its extremities and means for holding the warp in engagement with the surface of the distributing device and directing it to the grid, substantially as set forth.

2. In combination a warp-supply-beam, distributing-rollers having their axes inclined to the axis of the warp-supply beam for distributing the warp as it extends from the beam and means for holding the warp in engagement with the distributing-rollers, substantially as set forth.

3. In combination a warp-supply beam, a grid, distributing-rollers having their axes inclined to the axis of the warp-supply beam for distributing the warp as it extends from the beam and means for further distributing the warp after it leaves the said inclined distributing-rollers and before it reaches the grid, substantially as set forth.

4. The combination with an arched spindle and means for holding it in fixed position, of a roller of flexible material mounted on the arched spindle and means for directing warp along the surface of said roller in engagement therewith for distributing the warp, substantially as set forth.

608,408. SEAT ATTACHMENT FOR HAMMOCKS. ISAAC E. PALMER, Middletown, Conn. Filed Feb. 11, 1897. Serial No. 622,997. (No model.)

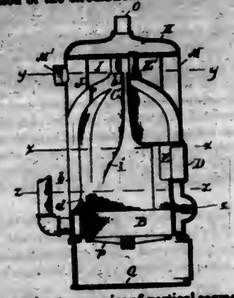


Claim.—1. The combination with a hammock-body, of a frame engaged therewith, said frame being provided with bearings so located as to interrupt the natural curve of the hammock-body to form a seat, the body of the hammock being folded back into engagement with one of the bearings to lock one end of the body in its adjustment and suspension-cords leading respectively from one end of the hammock-body and from the seat-frame, substantially as set forth.

2. The combination with a hammock-body, of a frame engaged therewith, said frame being provided with bearings so located as to interrupt the natural curve of the hammock-body to form a seat, the body of the hammock being folded back into engagement with one of the bearings to lock one end of the body in its adjustment, main suspension-cords leading respectively from one end of the hammock-body and from the seat-frame and an auxiliary suspension-cord leading from the opposite end of the hammock-body, substantially as set forth.

608,409. WATER-HEATER. JOHN A. RATHBONE, Detroit, Mich., assignor to the United States Heater Company, same place. Filed July 6, 1897. Serial No. 643,888. (No model.)

Claim.—1. A water-heater composed of a series of vertical sections, each section comprising a segmental water-shell having converging walls whereby it contracts toward the top, lobes overhanging the fire on the inner face of the shell and having free communication with the interior of the shell, the shells and lobes converging to a common point, uptake-pipes from this point, this arrangement of shell and lobes forming corresponding converging smoke-flues whereby the heat is concentrated at the point of greatest speed of the circulation of the heater and the products of combustion move along with the direction of the circulation.

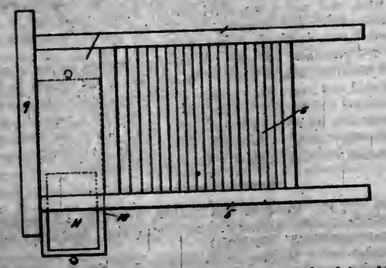


2. In a water-heater, a series of vertical segmental sections, each comprising a water-shell contracting and overhanging at the top separated at the inner ends to form a smoke flue or flues, a series of lobes springing (with inclined lower walls) from the shell-sections and merging into a discharge common to the discharge from the contracted end of the shell-sections, thereby forming a series of contracting flues between the lobes, a series of uptake-pipes from the upper inner ends of the sections, a common dome, or chamber into which they connect, and a smoke-chamber between this dome and the heater-body.

3. In a water-heater comprising sections each segmental ring-shaped, contracting into a dome shape at the top, the inner wall of the section having the curved faces c d, at the sides and bottom to the outside wall, the central lobes C, having the lower inclined walls x x and the extensions A, into which the contracting ends of the shell-sections merge, and the exit-pipes E' from these extensions.

4. In a water-heater, the combination of sections forming ring-segments curved inward at the top both outside and in and with converging sides, inwardly-projecting lobes at the upper part of each section terminating at the inner edge of the top of the section, the water-exit for the sections at the top of the lobes and smoke-flues formed through the tops of the sections between and beside the lobes.

608,410. WASHBOARD. LEWIS RITCHIE, Patchogue, N. Y. Filed Aug. 11, 1897. Serial No. 647,812. (No model.)



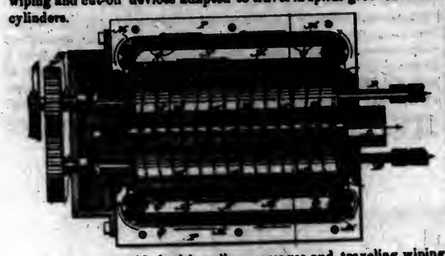
Claim.—A washboard provided with a crown-head in which is formed a chamber which is open at both ends, and a soap-holder placed in said chamber and provided at its opposite ends with chambers or receptacles which open in opposite directions, substantially as shown and described.

608,411. MACHINE FOR PLOTTING SOAP. FRANCIS S. RETTENMAIR, Philadelphia, Pa. Filed May 27, 1897. Serial No. 638,243. (No model.)

Claim.—1. An apparatus for the purpose described consisting of a case and hollow cylinders therein, said cylinders having spiral grooves thereon and provided with hollow journals, said case having traveling wiping and cut-off devices which are adapted to successively enter said spiral grooves and freely close the same.

2. An apparatus for the purpose described having cylinders and

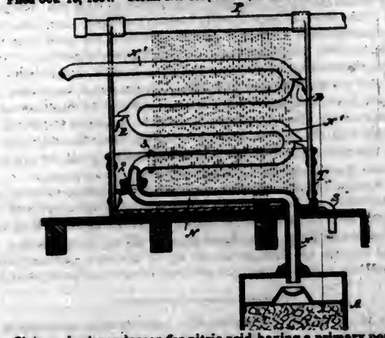
wiping and cut-off devices adapted to travel in spiral grooves in said cylinders.



3. A case provided with endless passages and traveling wiping and cut-off devices occupying said passages, in combination with cylinders having spirally-grooved peripheries, portion of said wiping and cut-off devices freely entering said grooves and another portion entering the portions of the passages between the cylinders and walls of the case.

4. A case having endless passages in the walls thereof, movable wiping and cut-off devices adapted to travel in said passages and cylinders having peripheries with spiral grooves thereon, into which latter said devices successively enter to close the same at the adjacent part of the case.

608,412. CONDENSER FOR NITRIC ACID. JEAN V. SKOGLUND, Bayonne, N. J., assignor to himself, and Albert Winter, New York, N. Y. Filed Oct. 19, 1897. Serial No. 655,656. (No model.)



Claim.—1. A condenser for nitric acid having a primary portion of acid-proof material, such as glass or pottery that is not injured by the weak acid, and a secondary portion directly connected to the primary portion and composed of lead, and means for cooling the exterior of the condenser, substantially as set forth.

2. A condenser for nitric acid having a primary portion of acid-proof material, such as glass or pottery that is not injured by the weak acid, and a secondary portion directly connected to the primary portion and composed of a lead pipe bent to form a vertical range of horizontal pipes and a water-supply vessel above the condenser for allowing cooling-water to trickle down over the vertical range of substantially horizontal pipes, substantially as set forth.

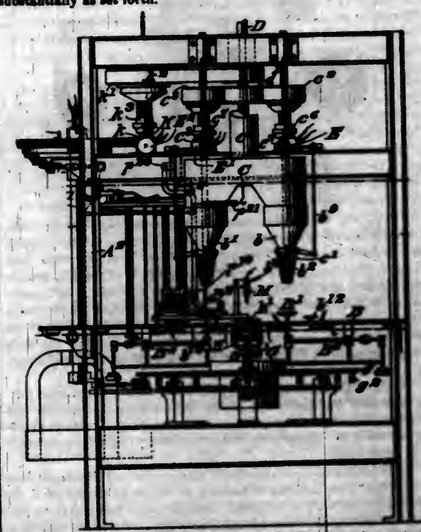
608,413. MACHINE FOR FILLING, WEIGHING, AND ASSORTING PACKAGES. ALBERT STEARNS, Trenton, Mich. Filed Nov. 1, 1895. Serial No. 567,663. (No model.)

Claim.—1. A plurality of discharging mechanisms, a movable support for packages and means under the control of the packages for operating the discharging mechanisms, the particular discharging mechanism to be operated being determined by the weight of the package, substantially as set forth.

2. A plurality of discharging mechanisms, a movable support for conducting packages to the discharging mechanisms and means under the control of the packages which enable each package to select the discharging mechanism which is to operate upon it, substantially as set forth.

3. A plurality of discharging mechanisms, a rotary support, scales carried by the support and adapted to receive packages and convey them to the discharging mechanisms, devices carried by the scales for operating the discharging mechanisms, and means for guiding the discharge-operating device to different discharging mechanisms, according to the weight of the package on the scale, substantially as set forth.

4. A plurality of discharging mechanisms, means located in different planes for setting the different discharging mechanisms in operation, package-supports constructed to assume different levels according to the weight of the package and provided with devices for setting the discharging mechanisms in operation and means for conveying the said package-supports into position where they will engage one or another of said discharge-operating devices according to the planes which they assume under the weights of the packages, substantially as set forth.



5. A plurality of discharging devices, landings for the reception of the articles which they discharge, a rotary package-support for conveying packages opposite said landings, scales carried by said rotary support and adapted to receive the packages to be discharged, guide-fingers carried by the scales, a series of guides with which the guide-fingers engage, means for operating the discharging mechanisms located at different heights and devices carried by the scales for operating the discharge mechanisms, the said guides in conjunction with the guide-fingers serving to direct the said discharge-operating devices of a particular scale to that discharge mechanism only where the package carried by that scale is intended to be landed, substantially as set forth.

6. A plurality of discharging mechanisms, landings for the reception of packages to be discharged, a movable support for conveying the packages to positions opposite the landings, scales mounted on said support for receiving the packages, devices carried by the scales for operating some one of the discharging mechanisms according to the weight of the package, dash-pots, and pistons or plungers connected with the scales in position to enter the dash-pots to bring the scales to a rest at the level determined by the weight of the package, substantially as set forth.

7. A plurality of discharging mechanisms, a rock-shaft for operating said mechanisms, clutches for locking the said mechanisms in and releasing them from operative connections with the shaft, devices located in different planes for throwing the clutches into and out of position to lock the discharging mechanisms to the shaft, means for conveying the packages in position to be discharged and means under the control of the package for engaging some one of the clutch-operating devices according to the weight of the package, substantially as set forth.

8. The combination with the rotary table, the package-carrying scales mounted thereon and means for discharging the packages, of braces carried by the rotary table and means for throwing the braces into position to steady the scales during a portion of the revolution of the table, substantially as set forth.

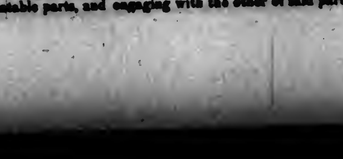
9. The combination with the package-discharging mechanisms and the rotary table for conveying the packages to the discharging mechanisms, of the scales carried by the table and forming supports for the packages, devices carried by the scales for operating the discharging mechanisms, weights for partially counterbalancing the scales, springs for completing the counterbalance of the scales, and dash-pots for steadying the scales in the positions which they assume, substantially as set forth.

10. In combination, a package-filling hopper, a scale forming a support for the package, a solenoid for starting the feed, said solenoid being under control of the scale which supports the package for stopping the feed-discharging mechanisms, means for conveying the package with its load to the discharge mechanisms and means under the control of the package for operating some one of the discharging mechanisms according to the weight of the package, substantially as set forth.

11. Several discharging mechanisms, a rotary table for conveying packages to the discharging mechanisms, means for imparting to the table a step-by-step movement, a solenoid for starting the table-operating mechanism and an electric circuit under the control of the table-operating mechanism for energizing the solenoid to stop the movement of the table, substantially as set forth.

12. In combination, several discharging mechanisms, one for discharging packages of correct weight and others for discharging packages of underweight and overweight, those for discharging packages of underweight and overweight being located upon the opposite sides of the mechanism for discharging packages of correct weight, a rotary table for conveying the packages to be discharged to the discharging mechanisms, scales carried by the said table for receiving the said packages and means under the control of the scales for selecting that discharging mechanism corresponding to the weight of the package carried by the scale, substantially as set forth.

608,414. WINDOW-WASHER. PETER DUNBAR, Toronto, Canada. Filed Aug. 17, 1897. Serial No. 648,598. (No model.)



Claim.—The combination with a brush of a spray-tube provided with plugs in its upturned ends, a tubular drier of frictional material, and a spring-wire extending through the drier and projecting from its opposite ends, said wire designed to be inserted in the plugs in the upturned ends of the spray-tube, substantially as specified.

608,415. SCALE. JESSE H. DUNBAR, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed Mar. 12, 1897. Serial No. 627,627. (No model.)

Claim.—1. The combination of a rotatable scale member and means for rotating it proportionately to the load, with an independently-rotatable dial mounted in axial line with said member, a yielding-spring retractor connecting said dial and member, and acting to return the dial to approximately its proper relative position, and a yielding-spring latching device carried by the dial or one of said independently-rotatable parts and engaging with the other, and acting to cause the dial to come to rest always in the same position relative to the said member, substantially as specified.

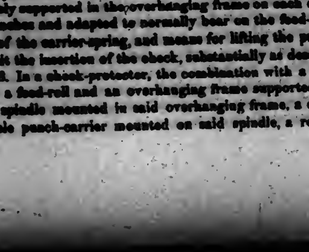
2. The combination of a rotatable scale member and means for rotating it proportionately to the load, with an independently-rotatable dial, a yielding-spring retractor which connects said two parts, and a plurality of spring latching-arms secured to one of them and bearing under constant tension upon a plurality of flattened surfaces on diametrically opposite parts of the other of said parts, substantially as specified.

3. The combination of a rotatable scale member and means for rotating it proportionately to the load, with an independently-rotatable dial in the same axial line with the said member, a spiral spring connected at its ends respectively to the dial-frame and member, and a yielding-spring latching device carried by one of said independently-rotatable parts, and engaging with the other of said parts, whereby the dial is always brought to rest in the same relative position, substantially as specified.

4. In a scale, the combination of a rotatable scale-spindle, an indicator rigidly attached thereto, a pinion loosely mounted upon said spindle, and means for rotating the pinion proportionately to the load upon the scale-pan, a yielding-spring device serving as the connection between the indicator and pinion, and a spring latching device which brings the indicator and pinion to rest in the same relative position at all times, substantially as specified.

5. In a scale, the combination of a rotatable scale member, means for rotating it proportionately to the load, an independently-rotatable indicator in axial line with said member, a yielding spring which is rigidly connected at its ends respectively with the said member and the indicator, and a spring latching device for bringing the member and indicator to rest in the same relative position at all times, substantially as specified.

608,416. CHECK-PROTECTOR. LOUIS T. WEBB, Brooklyn, N. Y. Filed June 26, 1896. Serial No. 596,945. (No model.)



Claim.—1. In a check-protector, the combination of a base, an overhanging frame supported on said base and provided with a vertical spindle affixed thereto, a punch-carrier mounted to turn and to reciprocate on said spindle, a spring adapted to force the punch-carrier upwardly, a lever for depressing the punch-carrier, a feed-roll mounted in the base, pressure-rolls placed in operative relation to said feed-roll, and an operative connection between the punch-carrier and said feed-roll for rotating the feed-roll, substantially as described.

2. In a check-protector, the combination of a frame, a depressible punch-carrier mounted on a spindle carried by said frame, a spring placed in engagement with said punch-carrier for lifting the same, pressure-rolls supported in the frame and held normally depressed by the action of the carrier-spring, and means for lifting said pressure-rolls, substantially as described.

3. In a check-protector, a feed and inking roll provided with an absorbent material whereby there is afforded a constantly-changing surface to receive the penetrating-needles.

4. In a check-protector, a feed and inking roll comprising a cylindrical absorbent pad and two metallic caps secured to the ends of the hub of the pad, the said absorbent pad affording a constantly-changing surface for the penetrating-needles and the metallic caps serving as a support for the check.

5. In a check-protector, the combination of a base, a frame attached to said base, a feed-roll mounted in said base and having an absorbent surface, a depressible punch-carrier, and a pair of pressure-rolls mounted on independent pivots and supported in the frame and adapted to bear on the feed-roll at the sides of the absorbent pad, substantially as described.

6. In a check-protector, the combination of a base, an overhanging frame supported on said base, and a feed-roll mounted in the base and provided with an absorbent pad, of a spindle mounted in said overhanging frame, a depressible, rotatable punch-carrier mounted on said spindle, a rock-frame supported by the overhanging frame, pressure-rolls mounted on independent pivots carried by said rock-frame and adapted to bear on the feed-roll at the sides of the absorbent pad, and means for lifting said pressure-rolls, substantially as described.

7. In a check-protector, the combination with a base provided with a feed-roll and an overhanging frame supported on said base, of a spindle mounted in said frame, a punch-carrier mounted on said spindle, a spring tending to force said carrier upwardly, an operating-lever pivoted to the spindle and engaging the carrier, pressure-rolls suitably supported in the overhanging frame on each end of the line of punches and adapted to normally bear on the feed-roll by the action of the carrier-spring, and means for lifting the pressure-rolls to permit the insertion of the check, substantially as described.

8. In a check-protector, the combination with a base provided with a feed-roll and an overhanging frame supported on said base, of a spindle mounted in said overhanging frame, a depressible, rotatable punch-carrier mounted on said spindle, a rock-frame sup-

ported in the overhanging frame, pressure-rolls carried by said rock-frame in operative relation to said feed-roll, one on each side of the line of punches, and a connection between the punch-carrier and the feed-roll shaft for turning the latter when the punch-carrier is reciprocated.

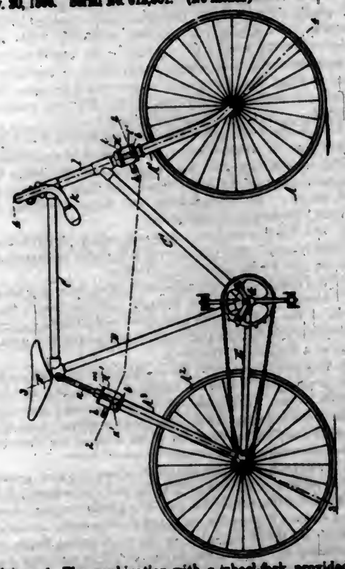
9. In a check-protector, the combination with a base provided with a feed-roll and an overhanging frame supported on said base and provided with a web in its bottom, of a spindle mounted centrally in said web, a depressible punch-carrier mounted on said spindle and provided with notches in its periphery, a spring and guide adapted to engage said notches, pressure-rolls supported in the overhanging frame and adapted to normally bear on said feed-roll, a lever adapted to raise said pressure-rolls and a connection between the depressible carrier and the shaft of the feed-roll, substantially as set forth.

608,417. LAMP-BURNER. JAMES H. WHITE, Brooklyn, N. Y., assignor to the Manhattan Brass Company, New York, N. Y. Filed Sept. 13, 1897. Serial No. 651,402. (No model.)



Claim.—The combination in a lamp-burner with the chimney-holding arms secured to the burner, of separate globe-holding arms formed with integral clips 3, and 4, that are bent around and embrace the spring chimney-holding arms at a point above the chimney-support, substantially as set forth.

608,418. VELOCIPEDE. CORNELIUS P. ARRIANS, Ilion, N. Y., assignor of one-half to Hamit D. Ramsey, Cattaraugus, N. Y. Filed Nov. 20, 1896. Serial No. 612,801. (No model.)

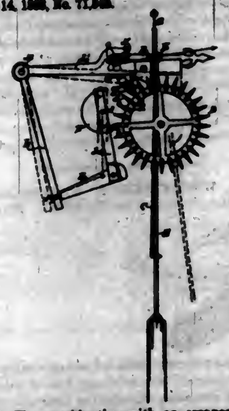


Claim.—1. The combination with a wheel-fork provided at its upper end with a platform, of a vertically-movable seat-carrying frame provided with a corresponding platform and guide-stems having a telescopic connection with the arms of the wheel-fork, a cushion interposed between said platforms for checking the downward movement of said frame, and an auxiliary spring or cushion arranged to check the upward movement of said frame, substantially as set forth.

2. In a velocipede, the combination with the front and rear forks having hollow arms and each provided at its upper end with a platform, of a seat-carrying frame provided at opposite ends with followers arranged above said platforms, respectively, and with guide-rods which slide in the hollow fork-arms, springs applied to said guide-rods and checking the upward movement of the same in the fork-arms, and air-cushions interposed between said platforms and followers, substantially as set forth.

3. In a velocipede, the combination with the front and rear forks having hollow arms provided at or near their upper ends with internal stops or shoulders, platforms arranged at the upper ends of said forks, a seat-carrying frame provided at its front and rear ends with follower-plates and with guide-rods sliding in the hollow fork-arms and provided within the fork-arms with heads or shoulders, springs applied to said guide-rods between their heads and the internal shoulders of the fork-arms, and cushions interposed between said platforms and said follower-plates, substantially as set forth.

608,419. PENDULUM-ESCAPEMENT. FERDINAND RADEMEL, Allenstein, Germany, assignor to Henry H. Keeling, San Francisco, Cal. Filed Oct. 27, 1897. Serial No. 656,610. (No model.) Patented in Germany Nov. 14, 1888, No. 77,948.



Claim.—1. The combination with an escapement-wheel of the oscillatory pendulum-carrier having the transverse arm fixed to and movable therewith, a pin carried by said arm adapted to alternately engage with and disengage from the teeth of the escapement-wheel, an independent weighted bell-crank arm or lever fulcrumed with relation to the escapement and pendulum, a segment having a projecting point adapted to engage with and disengage from the teeth of the escapement-wheel in alternation with the movement of the first-named point, said point being connected by a link with the bell-crank lever and actuated thereby.

2. The combination with a toothed escapement-wheel of an oscillatory pendulum and a carrier having an arm fixed transversely and movable with it, a pin carried by said arm adapted to alternately engage with and disengage from the teeth of the escapement, a second point also adapted to engage with and disengage from the escapement and alternately with the corresponding engagement of the first-named point, a weighted bell-crank lever fulcrumed and connected by a link with the carrier of the second point, said lever having a hook or arm projecting in the plane parallel with the plane of movement of the arm carried by the pendulum, a pin projecting from said arm and engaging with the hook or projection whereby the movements of the two parts are made in unison.

3. In an escapement mechanism, a toothed escapement-wheel having pins projecting from the side of its periphery, an oscillatory pendulum and a carrier having a transverse arm movable with it, a pin carried by said arm adapted to engage with and disengage from the teeth of the escapement-wheel by the oscillations of the pendulum, a second oscillating escapement-point adapted to engage with and disengage from the teeth of the escapement-wheel in alternation with the movements of the first-named point, a weighted bell-crank lever fulcrumed, having one arm connected with the second escapement-point whereby the latter is oscillated in conjunction with the movement of the bell-crank lever, a hook or projection from the other arm of said bell-crank lever, a pin projecting from the arm carried by the pendulum and adapted to engage said hook whereby the movements of the pendulum-arm and the bell-crank lever are made in unison, a beveled or inclined lug or projection upon said arm of the bell-crank lever adapted to be engaged by the pin upon the escapement-wheel at each release of said wheel whereby the impulse is given to continue the movement of the pendulum.

608,420. HOLDBACK DEVICE. OLIVER P. BAKER, Pleasant Ridge, N. Y. Filed Oct. 30, 1897. Serial No. 656,572. (No model.)

Claim.—As an improved article of manufacture, a holdback device for harness composed of links, each of which comprises side arms having eyes, parallel arms, a vertical rigid jaw, separated vertical spring-jaws parallel with the rigid jaw, a swiveled fastening device at one end of the connected links, and a hinged fastening device at the other end, substantially as specified.



608,421. WHEELED DUMPING SCRAPER AND GRADER. WALKER C. BRADFORD, Arbuckle, Cal. Filed June 18, 1897. Serial No. 641,262. (No model.)



Claim.—1. A wheeled dumping-scraper having a bisected pan fastened to a frame carrying a scraper or cutter at its forward end, a spring-pressed lever fulcrumed on the axle of the machine and connected with the forward portion of the pan by a link, and jointed arms connecting the rear and front portions of the pan, a shaft journaled on the machine forward of and parallel to its axle, crank-levers fixed to each end of said shaft and connected with the pan-frame, a spring-pressed lever rigidly fastened to said shaft to raise and depress the front of the pan, and curved segments turnable upon the shaft with chains passing therefrom over guide-pinions to the rear portion of the pan-frame.

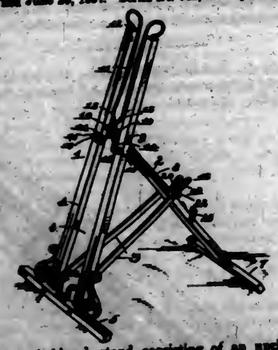
2. A wheeled dumping-grader having a bisected pan secured to a containing-frame carrying a scraper or cutter, a spring-pressed lever fulcrumed to the axle of the machine, and having a link connection with the forward portion of the pan, sprocket-wheels on each end of said axle, a shaft journaled on said machine in front of and parallel to said axle, sprocket-segments on said shaft in line with said sprocket-wheels and provided with lugs near their rear ends, chains fastened to the rear ends of said pan-frame and passing over and engaging the teeth of said sprocket-wheels and segments, a spring-controlled hand-lie-bar or lever fulcrumed to said shaft and engaging with a curved notched rack fastened in front of said shaft and extending backward to said axle, cranks and links connecting with the shaft and the forward ends of the pan-frame, and means for rigidly connecting said sprocket-segments and cranks.

3. A combined wheeled dumping scraper and grader having a bisected pan fastened to a containing-frame carrying a scraper or cutter, a spring-pressed lever fulcrumed to the axle of the machine and having a link connection with the forward portion of the pan, a shaft journaled on the beam or pole of the machine forward of and parallel to said axle, crank-levers fixed to each end of said shaft and connected with the pan-frame, a spring-pressed lever rigidly fastened to said shaft, a notched curved rack engaging with a lug on said lever, a brace-bar connecting at its apex with a hook bolted near the forward end of the beam or pole of the machine and pivotally connected at its ends with the forward ends of the pan-frame, sprocket-segments at each end of said shaft having lugs near their rear ends, sprocket-wheels on the axle in line with the said segments, chains fastened to the rear ends of said pan-frame and passing over and engaging the teeth of said sprocket-segments and wheels, a spring-controlled hand-lie-bar or lever fulcrumed to said shaft and engaged with a notched curved rack, cranks and links connecting with the shaft and the forward ends of the pan-frame, a pin-and-hole connection between the cranks and links for adjustably connecting them together, braces extending from the beam or pole of the machine to the axle-cranks provided with steps with which the lugs on the sprocket-segments may contact, and guide-bars on the axle-cranks extending below the top of the pan-frame, to prevent side motion thereof.

4. A dumping scraper and grader consisting of a two-part pan, a frame suspended from the axle of bearing-wheels, hinges by which the two parts of the pan are suspended from said frame and about which they are turnable, lever-arms having their lower ends fixed to the two parts of the pan and their upper ends pivotally united at one side of the pan, a lever fulcrumed upon the machine having a link connecting with the forward edge of one of the pans whereby the movement of the lever acts to separate the pans and dump the load.

5. In a compound grader and scraper, a frame having a share or cutter at the front and a receiving and dumping pan behind said share, a crank-axle to the end of which bearing-wheels are journaled, sprocket-wheels turnable upon said shaft, chains connecting with the rear end of the scraper-frame passing over the sprocket-wheel, segments loosely turnable upon a shaft fixed in front of the main axle and having attachments whereby the chains may be connected therewith so that the turning of the sprockets will raise or depress the rear end of the scraper, movable latches fixed to the sprocket-segments and stops upon the segment-shaft crank-arms with which the latches are engaged when the segments are turned to raise the rear end of the scraper, crank-arms upon the shaft on which the segments are turnable and links connecting said crank-arms with the front of the scraper and a latch-lever and segmental rack for holding the same whereby the shaft may be turned independently of the sprockets to regulate the height of the front end of the scraper.

608,422. BICYCLE-STAND. CHARLES F. BURKHARDT, Buffalo, N. Y. Filed June 30, 1897. Serial No. 643,705. (No model.)



Claim.—1. A bicycle-stand, consisting of an upright or main frame, a brace for supporting the same, and a flexible or self-adjusting clamping device secured to or near the upper end of said upright, said clamping device passing down upon the same some distance from its upper end so as to embrace or clamp the upper and lower members of the bicycle-frame, substantially as set forth.

2. A bicycle-stand, consisting of an upright or main frame, a folding brace having a combined sliding and swinging movement attached thereto, stays or links connecting the brace and the upright, a self-adjusting clamping device secured to the upper portion of said upright, and a self-adjusting clamp secured to the outer face of the brace, substantially as set forth.

3. A bicycle-stand, consisting of an upright or main frame, a brace for supporting the same, and a self-adjusting clamping device secured to the upper portion of said upright, said clamping device having a clamping portion at its upper end to retain or hold the frame of the bicycle and a clamping portion at its lower end to clamp the tire of the wheel, substantially as set forth.

4. A bicycle-stand, consisting of an upright or main frame, a brace for supporting the same, and a self-adjusting clamping device formed of two pieces of resilient wire, the upper ends of said wires being secured to or near the upper end of the upright, then bent or curved downwardly and offset or bent to contact and form a seat, said contacting portions being bent downwardly and outwardly and secured to the upright, substantially as set forth.

5. A bicycle-stand, consisting of an upright or main frame, a brace for supporting the same, and a flexible or self-adjusting clamping device secured to or near the upper end of said upright, said clamping device having a flaring entrance and passing down upon the upright some distance from its upper end so as to embrace or clamp the upper and lower members of the bicycle-frame, substantially as set forth.

6. A bicycle-stand, consisting of an upright or main frame, a brace for supporting the same, and a clamping device secured to the brace to embrace the upper or lower member of the bicycle-frame, said clamping device being formed of resilient wire and having a central portion 39, laterally-bent portions 40, and upwardly-bent portions 41, said upwardly-bent portions having a flaring entrance, substantially as set forth.

7. A bicycle-stand, consisting of an upright or main frame composed of a base and a pair of upright bars separated by an intervening space said base being offset or set in advance of said bars, a folding

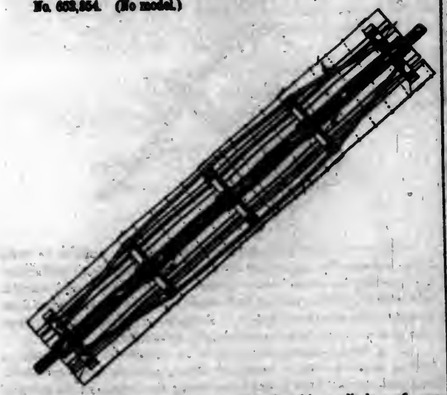
brace or support having a combined sliding and swinging movement and a base or horizontal bar at its outer end, and a link or stay connecting said brace with the upright, substantially as set forth.

603,423. MOLDING-MACHINE. WILLIS R. BURNS, Syracuse, N. Y. Filed June 14, 1897. Serial No. 640,630. (No model.)



Claim.—In a molding apparatus, a reciprocating piston, the toggle-segment 14, pivoted to its upper end, the toggle-segment 15, the two segments being provided with teeth upon their engaging surfaces, the connecting-links by which the two segments are kept in gear with each other, the operating-shaft 16, which passes through the upper end of the segment 15, and a weighted operating-lever, connected to one end of the shaft, combined with a suitable inclosing frame that is provided with doors, and the slotted guide 20, secured to the side of the frame, substantially as shown and described.

603,424. THRESHING-MACHINE. WILLIAM H. BUTTERWORTH and JOHN BUTTERWORTH, Trenton, N. J. Filed Sept. 24, 1897. Serial No. 653,354. (No model.)



Claim.—1. The combination, with a threshing-cylinder; of a continuous spiral band wound on the periphery of the cylinder and comprising series of close adjacent coils and separated coils arranged alternately, substantially as set forth.

2. The combination, with a threshing-cylinder; of a continuous spiral band wound on the periphery of the cylinder and comprising series of close adjacent coils and separated coils arranged alternately, and threshing-plates secured to the cylinder over the said band and provided with flanges having broad notches and narrow notches fitting over the coils of the band, substantially as set forth.

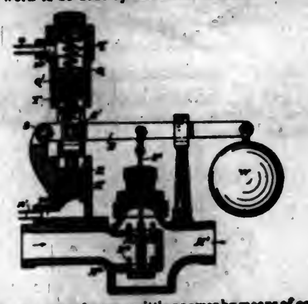
3. The combination, with a threshing-cylinder, of means for supporting the same comprising close adjacent metallic coils and separated metallic coils wound spirally upon the periphery of the cylinder, substantially as set forth.

4. The combination, with a threshing-cylinder, of means for supporting the same comprising metallic coils wound spirally on the periphery of the cylinder, and plates secured to the cylinder and provided with notched flanges engaging with the said coils, substantially as set forth.

608,425. GOVERNOR FOR AIR-COMPRESSORS. CHARLES CORNISH, Oakland, Cal., assignor to the Pneumatic Power Company, San Francisco, Cal. Filed Oct. 29, 1896. Serial No. 610,440. (No model.)

Claim.—1. In an apparatus for transmitting power by means of compressed air or other gas or fluid circulating in a closed system at two unequal pressures, both above normal atmospheric pressure, a means for automatically keeping an arithmetical ratio or a constant difference of pressure between the two unequal pressures, said means varying the speed of the compressor so that it will generate, as required, more or less energy for the work to be done by the driven machine.

2. In an apparatus for transmitting power by means of compressed air or other gas or fluid circulating in a closed system at two unequal pressures, both above normal atmospheric pressure, the combination of a compressor, a machine to be driven thereby, air-conduits between the compressor and the machine and containing air at the unequal pressures, and a means for automatically keeping an arithmetical ratio or a constant difference of pressure between the two unequal pressures, said means varying the speed of the compressor in proportion to the work to be done by the driven machine.



3. In an apparatus for transmitting power by means of compressed air or other gas or fluid circulating in a closed system at two unequal pressures, both above normal atmospheric pressure, a governor for keeping an arithmetical ratio or a constant difference of pressure between the two unequal pressures, and regulating the speed of the compressor in proportion to the work to be done by the driven machine, said governor comprising connected pistons of equal pressure areas, acted upon by the unequal pressures, means for counterbalancing the difference in pressure and holding the pistons in equilibrium and means operated by said connected pistons for controlling the compressor-driving medium.

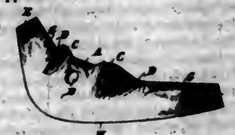
4. In an apparatus for transmitting power by means of compressed air circulating in a closed system at two unequal pressures, a governor for keeping an arithmetical ratio, or a constant difference of pressure between the two unequal pressures, and regulating the speed of the compressor in proportion to the work to be done by the driven machine, said governor having two pistons connected and moving in unison, the pistons being of equal pressure areas, said pistons receiving respectively the pressures of the high and low air-pressures, a weight connected with the pistons for counterbalancing the difference in pressure and holding the pistons in equilibrium, and a valve controlling the supply-pipe leading to the motor which actuates the compressor, said valve being regulated by the movement of the governor-pistons.

5. In an apparatus for transmitting power by means of compressed air circulating in a closed system at two unequal pressures, a governor for keeping an arithmetical ratio or a constant difference of pressure between the two unequal pressures and regulating the speed of the compressor in proportion to the work to be done by the driven machine, said governor having two pistons connected and moving in unison, the pistons being of equal pressure areas, said pistons receiving respectively the pressures of the high and low air-pressures, a weighted lever connected with and operated by the pistons for counterbalancing the difference in pressure and holding the pistons in equilibrium, and a valve controlling the supply-pipe leading to the motor which actuates the compressor, said valve being connected with the weighted lever and regulated by the movement of the governor-pistons.

6. In an apparatus for transmitting power by means of compressed air circulating in a closed system at two unequal pressures, the combination of a compressor, a suitable motor for actuating it, a machine to be driven by the power of the compressed air, two air-conduits between the compressor and the driven machine and containing air at unequal pressures, a governor having two pistons connected and moving in unison and whose pressure areas are equal, a pivoted lever connected and operated by the movement of said pistons and carrying a weight to balance said pistons and hold them in equilibrium, a valve controlling the supply-pipe leading to the motor which actuates the compressor and a valve-stem connecting the valve with said lever whereby it is operated, a low-pressure pipe running from the low-pressure conduit to the low-pressure end of the governor, and a high-pressure pipe running from the high-pressure conduit to the high-pressure end of the governor.

608,426. COTTON-SCRAPER. GABRIEL P. DOWLING, Court, Ala. Filed July 7, 1897. Serial No. 643,720. (No model.)

Claim.—The cotton-scraper herein described, consisting of a central portion A provided with a hole for attachment to the plow-stock and, properly inclined to fit the same, a curved upward and outward projection C on each side of said central portion extending only partially across the scraper, and the rings G beginning at and extended rearwardly in curved lines from said projection, the cutting edge H being arranged in a horizontal plane and formed in crescent shape, the lower half of the scraper between its central longitudinal line and its edge being curved from end to end and presenting a smooth uninterrupted upper surface, substantially as described.



608,427. CANDLE-LAMP FOR PHOTOGRAPHIC DARK ROOMS. EMIL F. GEISSER, New York, N. Y. Filed Feb. 10, 1896. Serial No. 578,638. (No model.)



Claim.—1. The herein-described pocket-lamp for photographers, consisting of a candle-containing tube, a lower baffle thereon, a cap fitted to the upper end of said tube, said cap being expanded at its upper end and reduced contiguous to said expanded portion and also having a projecting lower end, a chimney-holder supported between said lower baffle and expanded top by said projecting portion of the cap, said chimney-holder having openings in its side wall and being formed with a ledge at its lower end, a chimney supported on said ledge, a cap at the top of said chimney, and a baffle secured to said cap and so located with respect to the same as to provide an air-space in the cap around and above the baffle, substantially as described.

2. The herein-described knockdown pocket-lamp for photographers, consisting of a candle-containing tube, a lower baffle for reflected light-rays secured to said tube, a cap secured to the upper end of said tube and having an expanded upper end to form a combined grease-cap and baffle and formed with a shoulder at its lower end, a chimney-holder removably supported between said baffles on said shoulder, said chimney-holder having a ledge at its bottom and openings in its side wall, a chimney supported on said ledge, a removable cap at the top of said chimney, a baffle secured to said cap and so located with respect to the same as to provide an air-space in the cap around and above the baffle, said chimney-holder and chimney being removable together from said tube and adapted to be inserted over the same in inverted position, and a base having an annular recess to receive the end of the chimney when said parts are inverted, substantially as described.

3. In a knockdown photographic lamp, the combination with a illuminant-containing tube, and a base having an annular recess, of a chimney-holder, a chimney attached thereto and a removable cap at the top of said chimney, said chimney-holder and chimney being arranged and constructed to be removed from said tube and slipped over the same in inverted position with the end of the chimney in said recess, substantially as described and for the purposes specified.

4. In a knockdown pocket-lamp, the combination with the illuminant-containing tube having an enlarged supporting-base, of a chimney-holder removably supported on the upper portion of the tube, and a chimney fitted at one end in the holder, said holder and chimney being adapted to be jointly removed from the tube, inverted and fitted over the tube with the other end of the chimney supported on said base, substantially as described.

5. In a knockdown photographic lamp, the combination with the illuminant-containing tube having an enlarged supporting-base, of a chimney-holder adapted to be removably supported on the upper portion of the tube, a chimney fitted at one end in the holder, and a cap removably supported on the other end of the chimney, the construction being such that the cap may be removed from the chimney, the holder and chimney inverted and slipped over the tube and supported by said base, and the cap be inverted and supported in the inverted holder, substantially as described.

603,428. TEMPORARY BINDER. LOUIS M. LESLIE, New York, N. Y., assignor to the William Mann Company, Philadelphia, Pa. Filed Jan. 28, 1897. Serial No. 620,462. (No model.)



Claim.—1. In a binder, the combination of the back pieces, with the levers forming an expansible connection between said back pieces, the single cable cooperating with sheets or leaves to hold them in place, and means for adjusting said cable to hold any desired number of sheets or leaves.

2. In a binder, the combination of the back pieces, with expansible connection between said back pieces, and a single cord for retaining the sheets or leaves in position, and mechanism for tightening said cord uniformly throughout its length, for the purpose described.

3. In a binder, the combination of the back pieces, with the single cable or cord connecting said back pieces and passing through one of them, and means for effectually shortening said cord.

4. In a binder, the combination of the apertured sheets or leaves, of the back pieces, the single cord or cable connected to one of said back pieces and passing through the apertures in said sheets, and means for effectually shortening said cord whereby the back pieces will be drawn together and the sheets clamped thereby.

5. In a binder, the combination of the back pieces and the apertured spindle, with means for turning said spindle, a catch to hold the spindle in any position to which it may be turned, and a cord passing through the aperture in said spindle.

6. In a binder, the combination of the back pieces and the rotatable spindle, with a cord cooperating therewith and wound up by the rotation of said spindle, and connections between said cord and spindle so as to permit the movement of the cord relative to the spindle in order to automatically adjust the cord until the strain on the ends of said cord is uniform.

7. In a binder, the combination of the back pieces, and the cord or cable, attached at its ends to one of said back pieces with the other back piece movable relative to the first back piece, and connections between said second back piece and the cord, the continued operation of which first adjusts said cord so that the tension is uniform throughout its length and then effectually shortens it so as to cause said back pieces to approach each other, substantially as described.

8. In a binder, the combination of the back pieces, with means for connecting said back pieces and holding them in parallelism, a cable connected at its ends to one of said back pieces and passing through the other back piece, and tautening mechanism on said other back piece through which said cable passes, substantially as described.

9. In a binder, the combination of the back pieces, with means for connecting said backs and holding them in parallelism, a cable connected at its ends to one of said back pieces and passing through the other back piece, and tautening mechanism for said cable comprising the spindle *r* and the diagonal aperture Q, all located and operating substantially as and for the purpose described.

10. In a binder, the combination of the back pieces, with means for connecting said back pieces and holding them in parallelism, a cable connected at its ends to one of said back pieces and passing through the other back piece, and tautening mechanism for said cable comprising the spindle *r*, carrying the ratchet disk R and having the diagonal aperture Q with the dog S, all cooperating substantially as described.

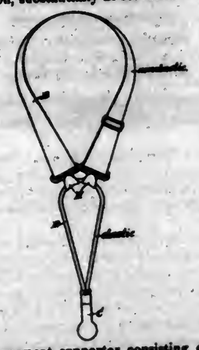
11. In a binder, the combination of the back pieces, with the levers forming an expansible connection between said back pieces, a single cable cooperating with sheets or leaves to hold them between said backs, and means for adjusting said cable to hold any desired number of sheets and said backs unyieldingly, substantially as described.

12. In a binder, the combination of the back pieces, with the single cable or cord connecting said back pieces and passing through one of them, and means for effectually shortening said cable to hold unyieldingly said back pieces and any desired number of sheets, substantially as described.

608,429. WITHDRAWN.

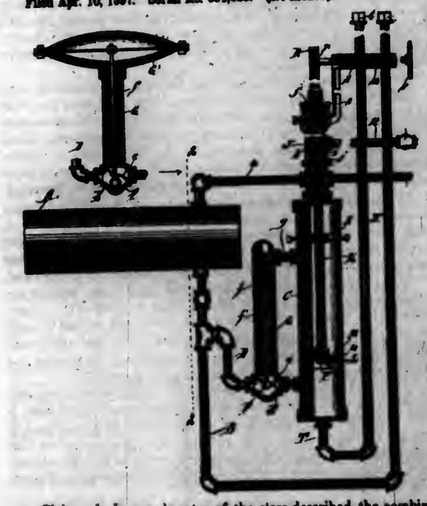
608,430. HOSE-SUPPORTER. JOHN J. HEALEY, Bayonne, N. J., assignor, by direct and mesne assignments, to Mary J. Healey, same place, and Harold Blaney, New York, N. Y. Filed Dec. 28, 1894. Serial No. 532,264. (No model.)

Claim.—1. A hose or garment supporter, consisting of the non-elastic band portion B, the clasp or retaining device, and the elastic loop or cord secured thereto and adjustably connected to the ends of the said band portion, substantially as set forth.



2. A hose or garment supporter consisting of the non-elastic band portion, the elastic loop or triangle secured to the two ends of the said non-elastic band portion and forming an elastic continuation of the said band at *d'* in the interval between the two ends of the said band, and the clasp or retaining device secured to the two ends of the said elastic loop and thereby secured by a yielding connection to each of the two ends of the said non-elastic band B, substantially as set forth.

608,431. CARBURETER. WILLIAM H. PINKNEY, Chicago, Ill. Filed Apr. 10, 1897. Serial No. 631,823. (No model.)



Claim.—1. In a carbureter of the class described the combination with a carbureting-cylinder, of a casing projecting upwardly from the cylinder, and having a pair of stuffing-boxes spaced apart, a vertically-adjustable vapor-induction pipe entering the cylinder through such stuffing-boxes and having lateral apertures located between said boxes, and a service-pipe entering such casing between the stuffing-boxes.

2. In a carbureter of the class described, the combination with a carbureting-cylinder, of a casing projecting upwardly from the cylinder and having a pair of stuffing-boxes spaced apart, of a vertically-adjustable vapor-induction pipe entering the cylinder through the lower stuffing-box and being open to the interior of the casing thereabove and having a stem extending through the upper stuffing-box, and a service-pipe entering such casing between the stuffing-boxes.

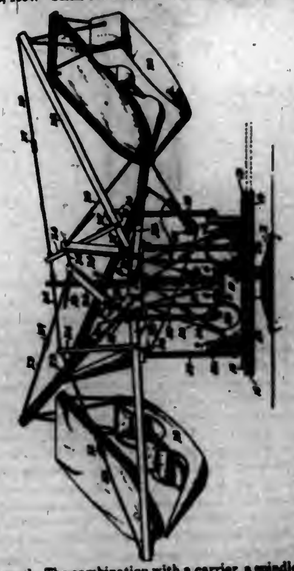
3. In a carbureter of the class described, the combination with a carbureting-cylinder, and a vapor-induction pipe entering the cylinder, of an imperforate radial disk at the inner end of the tube and having a pendent annular perforated flange.

4. In a carbureter of the class described, the combination with a carbureter-cylinder, and a vapor-induction pipe entering the cylinder and arranged to have its discharge end submerged within the liquid, of an imperforate radial disk at the inner end of the tube and having a pendent annular flange, and a pendent spiral flange within the annular flange.

5. In a carbureter of the class described, the combination with a carbureter-cylinder, and a vapor-induction pipe entering the cylinder, of a radial disk at the inner end of the tube and having a pendent annular flange, a pendent spiral flange within the annular flange, and pendent baffle-plates crossing the upper portion of the convolute passage inclosed by the turns of the spiral flange.

6. In a carbureter of the class described, the combination with a carbureting-cylinder, a reservoir and a passage connecting the two, of a valve for controlling the passage, means for automatically actuating such valve to maintain the liquid in the cylinder at a uniform level, and a vertically-adjustable vapor-induction tube entering the cylinder.

608,432. CAROUSEL. FRANK C. PRESCOTT, Canton, N. Y. Filed July 20, 1897. Serial No. 645,503. (No model.)



Claim.—1. The combination with a carrier, a spindle and a head, of a series of mast-arms pivoted to the head, a series of carriages or boats each suspended at opposite ends from an adjacent pair of mast-arms, and mechanism substantially as described for reciprocating adjacent mast-arms in opposite directions to impart pitching motion to the boats or carriages, substantially as described.

2. The combination with a carrier, a spindle and a head, of a series of mast-arms fulcrumed in said head to rotate therewith in a horizontal direction, a series of carriages or boats arranged end to end in relation to each other outside of the carrier and each suspended at opposite ends from two adjacent arms of the series of mast-arms, and means substantially as described for giving reciprocating motion in a vertical direction to the mast-arms, said mast-arms being so arranged and combined with each other and the driving mechanism that adjacent arms reciprocate vertically in opposite directions, for the purposes described, substantially as set forth.

3. The combination with a spindle, a carrier and a revoluble head, of a series of mast-arms fulcrumed on the head to reciprocate in vertical planes, a series of carriages or boats arranged in endwise relation to each other outside of the carrier and each loosely suspended at its respective ends from adjacent pairs of mast-arms to sway transversely thereon and to move in vertical directions therewith, and a driving mechanism independent of the spindle and operatively connected with the mast-arms to reciprocate adjacent arms in opposite directions, whereby the carriages or boats are given a pitching motion by the arms and are free to sway horizontally thereon, substantially as described.

4. The combination with a non-rotatable spindle, of a revoluble carrier, a head fitted idly on the spindle, a series of shafts arranged radially on the carrier, a single master-gear common to all the radial shafts and fixed to the spindle to mesh with gears on all of said radial shafts, a series of mast-arms fulcrumed on the head, crank-disks fixed to the outer ends of said radial shafts, vertically-disposed pitmen attached to the crank-disks and to the mast-arms at points beyond their fulcra to sustain the weight of said arms and to impart vertical reciprocating movement thereto, and a series of carriages or boats suspended from the mast-arms, substantially as described.

5. The combination with a non-rotatable spindle, of a revoluble head fitted idly on the spindle, a series of mast-arms fulcrumed on the head and provided with upwardly-extending braces, the brace-rods attached to the mast-arms and their braces, the series of coupling-rods attached to the braces of the mast-arms and connecting the latter in pairs, a revoluble carrier, means connecting said head and carrier to insure simultaneous movement of the head with said carrier, a driving mechanism for imparting reciprocating motion to the mast-arms, and carriages or boats suspended from said mast-arms, substantially as described.

6. In a roundabout or carousel, a non-rotatable spindle, a revoluble carrier independent of said spindle, a revoluble head mounted idly on said spindle, and stays or rods attached to the head and the carrier to couple the parts together and insure simultaneous movement of the head with the carrier, combined with mast-arms pivoted to the head, radial shafts journaled on the carrier and operatively connected to the mast-arms, and means for driving said radial shafts, as and for the purposes described.

7. In a roundabout or carousel, a revoluble carrier comprising a driving rim or wheel, a base-plate, the inner and outer rings, and radial spokes united rigidly to all of said parts, combined with a non-rotatable spindle, a foot-base in which the spindle is fixed and supporting said carrier, a revoluble head coupled to the carrier to turn therewith and mounted idly on the spindle, mast-arms pivoted in the head, radial shafts operatively connected to the mast-arms, and means for driving said radial shafts, as and for the purposes described.

8. The combination with a non-rotatable spindle, of a revoluble carrier, a revoluble head mounted on said spindle to rotate idly thereon, a series of mast-arms fulcrumed on the head, a series of upright posts 39, stepped on the carrier and attached to the head outside of the fulcra connection between the latter and the mast-arms to sustain said head against the weight or load thereon, a series of stays joined to the head and carrier, the carriages or boats suspended from the mast-arms, and means for reciprocating said mast-arms, substantially as described.

9. In a roundabout or carousel, the revoluble head flanged and slotted to receive the mast-arms, and bearing-blocks united to said head, within the slotted flange thereof combined with mast-arms fitted in the slotted flange of the head and pivoted to the bearing-blocks thereof within the slotted flange to rest thereon when lowered, a revoluble carrier, and means mounted on said carrier for imparting reciprocating motion in a vertical direction to the mast-arms, substantially as described.

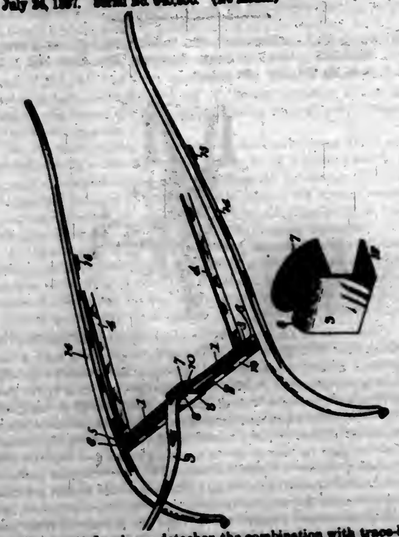
10. In a roundabout or carousel, the combination of a fixed spindle, a revoluble carrier having a ball-bearing on the spindle, a revoluble head also having a ball-bearing on a shouldered part of the spindle to rotate idly thereon, means for uniting the head and carrier together to insure simultaneous rotation to said parts, a series of mast-arms pivoted to the head, boats or carriages suspended from the mast-arms, a master-gear fixed to the spindle, a series of radial shafts journaled on the carrier and geared directly to the master-gear, and pitmen connecting the radial shafts and the mast-arms, for the purposes described, substantially as set forth.

608,433. DRAFT-EQUALIZER. BENJAMIN F. RUSSELL, Pandora, Kans. Filed Nov. 6, 1897. Serial No. 657,894. (No model.)



Claim.—In a draft-equalizer, the combination of a draft-beam, the front transverse bar secured to the draft-beam near one end and extending from both sides of the same, the rear transverse bar extending from one side of the draft-beam and terminating at its outer end in rear of the center of the front transverse bar, pulleys mounted on the ends of the front transverse bar and on the outer end of the rear transverse bar, a draft-chain arranged on the pulleys, double-trees connected with the ends of the chain, the brace 15 arranged at an angle to the draft-beam and extending rearward from one side of the same and designed to be connected with the frame of a binder, and the brace 16 crossing the draft-beam and extending from the outer end of the rear transverse bar to the brace 15, substantially as described.

608,434. HORSE-DETACHER. JAMES SEALEY, Scottsborough, Ala., assignor of one-half to Robert H. Shelton, same place. Filed July 24, 1897. Serial No. 645,800. (No model.)



Claim.—1. In a horse-detacher, the combination with trace-bars loosely connected at their outer extremities to a whiffletree, of a trace-bar holder having an open-ended seat for the reception of the trace-bars, said seat being provided with a rearwardly and upwardly inclined front wall, and a forwardly and upwardly inclined rear wall terminating shortof the plane of the front wall, and having a rounded upper edge forming a bearing, and a flexible releasing-strap extending to slide over said bearing, under the contiguous extremities of the trace-bars and over the elevated upper edge of the front wall, and terminally attached at a point in front and outside of the seat, substantially as specified.

2. In a horse-detacher, the combination with trace-bars loosely connected at their outer extremities to a whiffletree, of a trace-bar holder, constructed of a flat blank of metal and having an open-ended seat for the reception of the contiguous alined extremities of the trace-bars, said seat having an upturned rearwardly-inclined front wall consisting of a terminal extension of the blank, and an upwardly and forwardly inclined rear wall consisting of a doubled intermediate portion of the blank and having a rounded upper edge forming a bearing, said rear wall being rearwardly convexed and terminating below the plane of the upper edge of the front wall, and a flexible releasing-strap extending forwardly over the bearing at the upper edge of the rear wall, under the contiguous extremities of the trace-bars, over the upper edge of the front wall and to a point of attachment in front and outside of the seat, substantially as specified.

3. The herein-described sheet-metal holder for trace-bars, the same consisting of a blank of flat metal doubled upon itself at an intermediate point to form the rear wall 8 of the trace-bar seat, having the front arm of the doubled portion extended horizontally forward to form the trace-bar-seat floor, and then terminally upturned to form the rearwardly-inclined front wall 7 of the trace-bar seat, said front wall extending above the plane of the rear wall; and having the rear arm of its doubled portion extended vertically downward and terminally forward to form a horizontal ear, said ear and the floor of the seat having alined openings for the reception of the pivot-bolt of a whiffletree, substantially as specified.

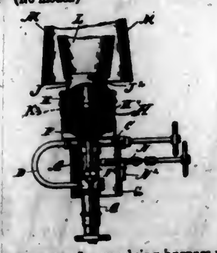
608,485. SKATE. JOHN B. STEELE, Sandy Valley, Pa., assignor of one-fourth to Mathew Smith, same place. Filed Mar. 13, 1897. Renewed Jan. 20, 1898. Serial No. 667,497. (No model.)

Claim.—In a skate, the combination of the heel-piece, the threaded rod passing through the same having adjusted nut behind

the heel-piece and rack-teeth in front of the heel-piece, the toe-clamp secured to the front end of the threaded bar, the slidable upright bar on the threaded rod having its point engaging the front of the heel, and the pawl pivoted in said upright bar and engaging the rack-teeth of the threaded bar, all substantially as set forth.



608,486. APPARATUS FOR CONVEYING AIR AND VAPOR TO BURNERS. Joseph Stubbes, Covington, Ky. Filed Feb. 5, 1897. Serial No. 622,139. (No model.)



Claim.—1. In an apparatus for supplying burners with fuel, the combination with a generator, of means for heating the same, a tube adapted to receive commingled air and vapor, an upwardly-extending service-pipe adapted to receive the discharge of air and vapor from said tube, and means for heating said pipe, substantially as described.

2. The combination with a gasolene-burner and a generator adapted to be heated thereby, of a commingling-tube, an upwardly-extending service-pipe for conveying the commingled air and vapor, a tube surrounding said service-pipe and adapted to receive heated products of combustion from said burner and to conduct said heated products in contact with the said service-pipe whereby the contents of said service-pipe become heated and rise and are prevented from condensing, substantially as described.

3. In an apparatus for supplying burners with fuel-vapor and air, the combination with a generator and means for heating the same, a service-pipe leading upward from above said generator and adapted to convey the commingled air and vapor, a tube surrounding the service-pipe, located over the generator-heater and adapted to receive the surplus heat from said heater, and to convey it in contact with the exterior of said service-pipe, for heating the contents of said service-pipe, substantially as described.

4. The combination of a generator, means for heating the same, a receiver, and a tube having an orifice located therein for forcibly delivering commingled air and vapor to the receiver, means for heating the receiver, a service-pipe mounted vertically over said receiver and communicating therewith, and a tube inclosing the said service-pipe and adapted to convey heat from said heating means along the outside of said service-pipe, substantially as described.

5. In an apparatus for supplying burners with fuel-vapor and air, the combination with a generator and means for heating the same, of a service-pipe substantially upright and adapted to convey the hydrocarbon vapor from said generator commingled with air, a tube surrounding the said service-pipe, means whereby heat from said generator is caused to pass through the said tube and heat the contents of the service-pipe to cause them to rise and prevent condensation, substantially as described.

6. The combination of a gasolene-generator having a needle-valve whose chamber is connected with said generator and means for heating said generator, a commingling-tube, means for separating the products of combustion of said generator-heater from the contents of said commiagling-tube, a delivery-pipe leading upward from said commiagling-tube and means for conducting heat from the generator-heater along the exterior of said delivery-pipe, heating the same and causing the mixture in said delivery-pipe to rise and preventing condensation, substantially as described.

7. The combination with a gasolene-generator having a subburner for heating the same, of a needle-valve whose chamber is connected with said generator, a commingling-tube adapted to commingle air with the vapor from said valve, a delivery-pipe leading upward and adapted to convey the air and vapor from said commingling-tube and means whereby the heat from the subburner is caused to heat the contents of the delivery-pipe for causing them to rise and preventing condensation, substantially as described.

8. In an apparatus for supplying burners at a higher level than the needle-opening with vapor and air, a vapor-generator, and means for supplying a subflame thereto, the receiver H, located above the generator, and receiving at its lower part vapor under pressure from the delivery-orifice F, and also having a direct communication with the fresh external air whereby this fresh air may enter for mixture with the vapor from the generator the receiver H being exposed to the subflame, and an exit for commingled air and vapor, from the receiver to the service-pipe system, substantially as and for the purposes specified.

9. In an apparatus for supplying burners with illuminating vapor and air, a vapor-generator, means for supplying a subflame thereto, the receiver H, located so as to be heated from the subflame, and adapted to receive at its lower portion a stream of vapor directed vertically upward, the receiver H having an opening for receiving air to be commingled with the vapor, and a tube K, located over the inlet F, and establishing communication between the receiver H and the service-tube L, substantially as and for the purposes specified.

10. The combination of the generator, means for supplying a subflame thereto, receiver H, exposed to the subflame, vapor-delivery pipe to the receiver, at the lower portion thereof, the service-pipe L, with which the receiver is in communication and the auxiliary tube M, surrounding the service-tube L, and extending approximately to the receiver, said tube M being open at the bottom and receiving the heated air and products of combustion of the subflame, substantially as and for the purposes specified.

11. The combination of the generator, means for supplying a subflame thereto, receiver H, exposed to the subflame, vapor-delivery pipe to the receiver, at the lower portion thereof, and the tube K in the receiver above vapor discharge or supply orifice F, and the tube L, above the receiver, and receiving the commingled vapor and air from the latter, for the service-pipes, and the tube M, and the service-tube L, the tube M receiving the heated air and products of combustion from the subflame, and conveying them into contact with the service-pipe, substantially as and for the purposes specified.

12. The combination of a generator, means for heating the same, a receiver H above, and having a direct communication with fresh external air whereby this air may enter for mixture with the vapor from the generator and a tube having orifice F located therein for forcibly delivering under pressure vapor to the receiver, means for heating the receiver H, and a connection between the receiver and the service-pipe, substantially as and for the purposes specified.

13. In an apparatus for supplying burners with fuel-vapor and air, a generator, means for heating the latter, a delivery vapor-pipe having a small orifice F, a receiver, through which the forcibly-ejected vapor passes, and adapted to supply air thereto, means for heating the receiver, a receiving-pipe in line with the stream of vapor and adapted to receive this vapor and heated air from the receiver, and a service-pipe connected with said receiving-pipe, substantially as and for the purposes specified.

608,487. PLOW ATTACHMENT. Reuben Whitman, Vernon, La. Filed July 13, 1897. Serial No. 644,413. (No model.)



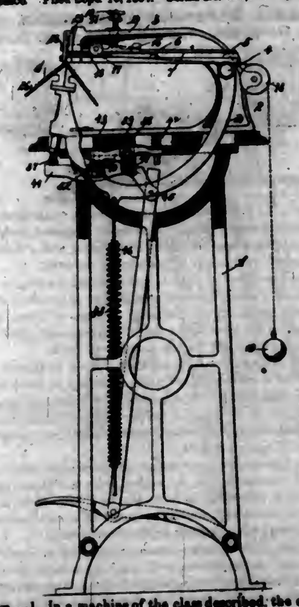
Claim.—1. In combination with a standard or foot provided with a shovel, a clamp having vertical and lateral adjustable connection with the standard, a vertical blade, and means for adjustably connecting the blade with the clamp, substantially as described.

2. In combination with a standard or foot bearing a shovel, a clamp having vertical and lateral adjustable connection with the standard, a vertical blade tapering from its upper to its lower end and having its front edge sharpened, and means for adjustably connecting the blade with the clamp, substantially as set forth.

3. An attachment for plows and cultivators, comprising a clamp having a longitudinally-slotted plate, a blade having a tang at its upper end, and a bolt passing through an opening in the tang and through the aforesaid slotted plate and adapted to secure the blade in an adjusted position, substantially as set forth.

4. An attachment for the purposes set forth, comprising front and rear longitudinally-slotted plates, a clamp-bolt passing through the slots of the said plates, a blade, and means for adjustably connecting the blade with one of the aforesaid slotted plates, substantially as described.

608,488. STAPLE DRIVING AND CLENCHING MACHINE. Valentine Zwiesler, Philadelphia, Pa., assignor to Samuel J. Yarger, same place. Filed Sept. 10, 1897. Serial No. 651,174. (No model.)



Claim.—1. In a machine of the class described, the combination with a staple driving mechanism, of an upwardly-moving table, mechanism for raising the table, a staple-clenching mechanism located below the table, and means for actuating the staple-clenching mechanism after the table has ceased its upward movement actuated by the continued movement of the table-raising mechanism, substantially as shown and described.

2. In a machine of the class described, the combination with a moving or vibrating magazine for holding the staples, of a stationary staple-driver or plunger, an upwardly moving or vibrating table, mechanism for raising the table, and means for clenching the protruding ends of the staples after they are driven actuated by the continued movement of the table-raising mechanism, the driving of the staples being accomplished by the upward movement of the table and the clenching by positively-actuated clenching mechanism, substantially as shown and described.

3. In a machine of the class described, the combination with a magazine or means for holding the staples to be driven, of a staple-driver or plunger, a moving or vibrating table, mechanism for moving the table, and means for clenching the staples actuated by the continued movement of the table-moving mechanism, substantially as shown and described.

4. In a machine of the class described, the combination with a magazine or means for holding the staples to be driven, of a staple-driver or plunger, a moving or vibrating table, mechanism for moving the table, and means for clenching the staples after being driven located below and carried by the table and actuated by the continued movement of the table-raising mechanism, the driving being accomplished upon the upward movement of the table, and the clenching by positive action of the clenching means or mechanism, substantially as shown and described.

5. In a machine of the class described, the combination with a suitable supporting-frame having a bar B secured thereto, of a pivoted staple-carrying magazine-bar C, a pivoted bar D, carrying a table, and means carried by the bar D, for clenching the staples substantially as shown and described.

6. In a machine of the class described, the combination with a suitable supporting-frame, of a staple carrying magazine-bar C and a pivoted bar D carrying means for clenching the staples after being driven, the magazine-bar C and the bar D being pivoted upon the same point, substantially as shown and described.

7. In a machine of the class described, the combination with a suitable supporting-frame, of a bar B provided at the free end with a staple-driving plunger 25, a staple-carrying magazine-bar C pivoted to the bar B and provided with a slotted face-plate 30, means for normally forcing the free end of the magazine-bar C away from the free end of the bar B, a bar D pivoted to the bar B and provided with clenching mechanism for clenching the staples after being driven, and means for moving the bar D so as to drive the staples by the forcing upward by the bar D of the bar C and for clenching the staples after they are driven, substantially as shown and described.

8. In a device of the class described, the combination with a suitable supporting-frame, of a staple-carrying magazine-bar C pivoted thereto, and a screw 10 for limiting the downward movement of the bar C, substantially as shown and described.

9. In a device of the class described, the combination with a bar B provided with a staple-driving plunger 25, of a staple-carrying magazine-bar C, a pivoted bar D, a table and a staple-clenching mechanism carried by the bar D, means for forcing the bar D upward so as to compress the book or pamphlet to be bound between the table and the end of the bar C, and for continuing the upward movement of the table so as to force the free end of the bar C upward and drive the staple, and means for clenching the staples when driven, substantially as shown and described.

10. In a device of the class described, the combination with a bar B provided with a staple-driving plunger 25, of a pivoted bar D, a table and a staple-clenching mechanism carried by the bar D, a pin 52 in the bar D, a lever 44 having the slide-face 49, the entrant hollow 50, and hammer-face 51, and means for actuating the lever 44, substantially as shown and described and for the purposes set forth.

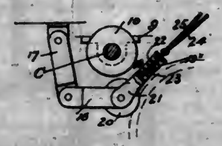
11. In a device of the class described, the combination of a bar B having a staple-driving plunger 25, of a pivoted staple-carrying magazine or bar C, a pivoted bar D, a table and a staple-clenching mechanism carried by the bar D, an adjustable lever 40 and a lever 44 pivoted to the lever 40, substantially as shown and described and for the purposes set forth.

12. In a device of the class described, the combination of a bar B provided with a staple-driving plunger 25, a pivoted bar D, a table and a staple-clenching mechanism carried by the bar D, means for clenching the staples after being driven, and means for regulating the point of the upward movement of the table at which the staples are clenched, substantially as shown and described and for the purposes set forth.

13. In a machine of the class described, the combination with a stationary staple-driving plunger, of a moving staple-carrying magazine-bar, a moving table and staple-clenching mechanism, and means for locking the moving staple-carrying magazine-bar and staple-driving plunger in the extreme clenching position so as to prevent accidental feeding of the staples, substantially as shown and described.

14. In a device of the class described, the combination with a stationary driving-plunger, of a moving staple-carrying device or magazine, a bar D, a bar 27 reciprocating in the bar D and provided with a flattened portion 34' registering with a slot or opening 35' in the end of the bar D, substantially as shown and described and for the purposes set forth.

608,489. CAR-BRAKE. Augustus H. Bowley, South Williamsport, Pa. Filed Dec. 28, 1897. Serial No. 663,907. (No model.)

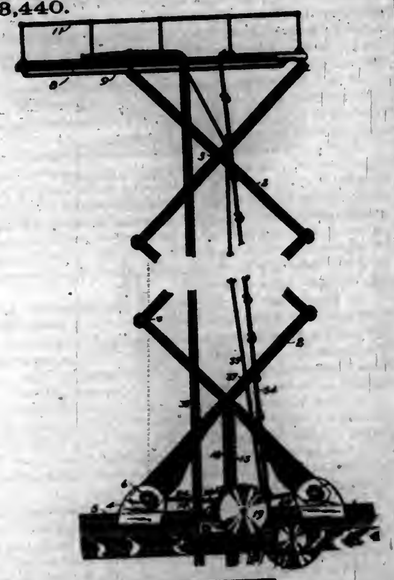


Claim.—In a car-brake, the combination with the car-wheel and its tread-face, and the shaft journaled under the car, and provided with a friction-pulley and the brakes connected to said shaft, of the jointed arms 17, 18, the friction-roller 20, and means to move the friction-roller into contact with the friction-pulley and the car-wheel.

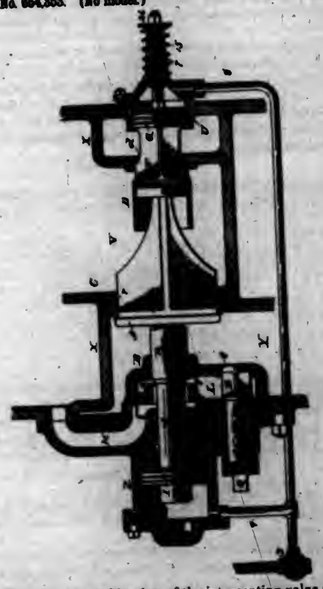
608,440. FIRE-ESCAPE. Salvatore Catapano and Nicholas Tacconi, Birmingham, Ala. Filed Sept. 4, 1896. Serial No. 604,507. (No model.)

Claim.—In a fire-ladder, the combination with sets of lazy-tongs adapted for vertical extension, of guiding devices adapted to permit a sliding movement of the lower ends of the lowermost levers of the lazy-tongs, rack-bars connected to the central pivotal points of the lowermost pairs of levers of said lazy-tongs, said rack-bars having grooves, fixed ribs received loosely in said grooves, winding-drums, cables connecting one winding-drum with the sliding ends of the levers on one side of the lazy-tongs, a cable connecting the other drum with the other levers, and gearing meshing with the rack-bars and connected to the winding-drums whereby the pivotal points of the levers of the lazy-tongs are pushed upward simultaneously with the drawing together of the sliding ends of said levers.

608,440.



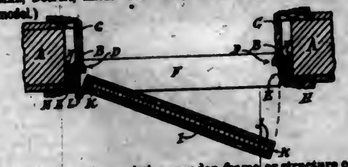
608,441. COMPOUND-ENGINE VALVE DEVICE. BENJAMIN F. C. DAVIS, Richmond, Va., assignor to the Richmond Locomotive and Machine Works, same place. Filed Apr. 14, 1894. Renewed Oct. 7, 1897. Serial No. 654,353. (No model.)



Claim.—1. The combination of the intercepting-valve and actuating-piston independent of said valve and of the admission-valve, and the valve E controlling the flow of live steam to the low-pressure section of the receiver, and provided with means for locking it in its closed position, substantially as set forth.

2. The combination of the live-steam passage H, a chamber L communicating therewith through a port, a piston controlling said port and arranged to actuate an intercepting-valve, and a reducing-valve controlling a port communicating with the chamber L, said valve consisting of the piston E having differential faces, and adapted to be closed by overbalancing pressure in chamber y, substantially as described.

608,442. FIRE-RESISTING FRAME AND DOOR. ALPHONSE DE MAN, Detroit, Mich. Filed July 3, 1896. Serial No. 598,047. (No model.)



Claim.—1. A fire-resisting wooden frame or structure consisting of an interior wooden core, a covering of fireproof material inclosing it to prevent access of air for combustion, and a finishing-facing on the exposed portions of the insulating material.

2. The combination with a fireproof wall, having a door-opening therein, of a wooden door-frame, formed of a core of wood, a fireproof insulating-sheathing inclosing the core of wood, an exterior wood finish on the core, and a practically fireproof door within the frame, substantially and for the purpose set forth.

3. The combination with a fireproof wall, having a door-opening therein of a wooden door-frame, consisting of the core B, B', B'', formed of wood, inclosed within a fireproof insulating-sheathing, and the face-jambs, D E vessored on the core admitting, to match any kind of wood, and a practically fireproof door therein, substantially, and for the purpose set forth.

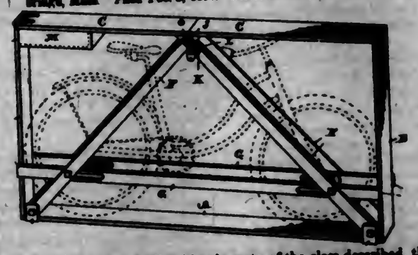
4. In a fire-resisting door-frame composed of an insulated wooden core, and a wooden facing, the rabbet-strips E *e* vessored on a fire-protected core, admitting to let in the hardware without damaging the fireproof sheathing, also to accommodate any variation of the door by altering the thickness of the rabbet-strips.

5. Wooden, fire-resisting, doors, comprising in combination an insulated core made of wood, inclosed by a fireproof insulating-sheathing extending unbroken over the faces, and the edges to exclude air for combustion, and a wooden finishing-facing thereon.

6. In a fire-resisting door, the combination with a wooden core, an insulating-sheathing inclosing the core (to the exclusion of air for combustion) a wooden facing on the faces of the core, and the strips K, (on the edges) admitting of letting in the hinges, and to fit and refit the door without disturbing the fireproof sheathing.

7. In a fire-resisting door, composed of an insulated wooden core, covered with wooden facing on each side the wooden strip K, running all around the door, covering the edges, and admitting of the door being adjusted, without affecting the fireproof sheathing of the core.

608,443. FOLDING BICYCLE-CRATE. MILES H. DUNBAR, Stockbridge, Mass. Filed Feb. 3, 1897. Serial No. 621,613. (No model.)



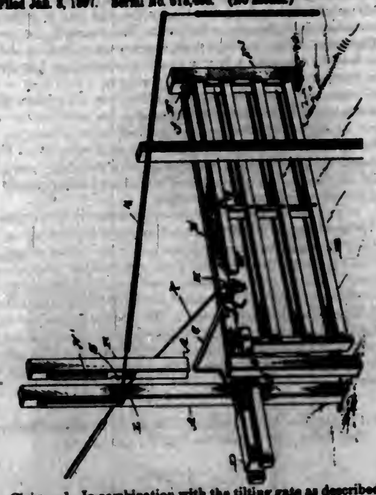
Claim.—1. In a folding bicycle-crate of the class described, the combination with the main frame, of foldable braces hinged thereto and fitted against and secured to the under side of the top, a side bar upon either side of said crate movably connected to said braces and having its ends detachably extended to overlap the edge of the vertical end pieces of the main frame.

2. In a folding bicycle-crate, the combination of folding sections and side braces, vertically-disposed interlocking parts D as shown, secured to the under side of said sections, a bolt adapted to pass through said interlocking parts and side braces in a manner to lock them together.

3. In a bicycle-crate of the class described, the combination with the uniting section, of a bolt to secure them together, a nut for said bolt and provided with a hinged hasp, means to prevent the removal of said nut or bolt.

4. In a bicycle-crate of the class described, the combination with the uniting sections, of a bolt to secure said sections together, a nut provided with a hasp to secure said bolt in position, means for engaging and locking said hasp to prevent the turning and detaching of the nut or bolt.

608,444. TILTING GATE. WILLIAM T. FOSTER, Bozeman, Mont. Filed Jan. 8, 1897. Serial No. 618,468. (No model.)

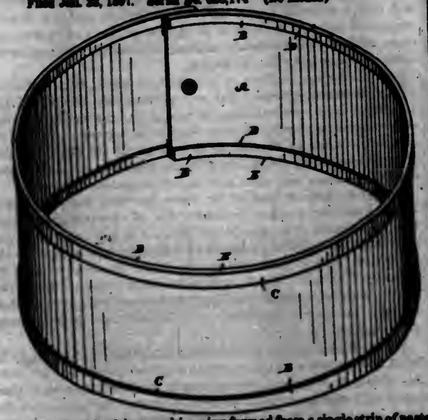


Claim.—1. In combination with the tilting gate as described, the crank-lever, mounted between the upper rails thereof, a latch-rod connected to one of the crank portions, an angle-lever having one end secured to the second crank portion, its other end secured to the upper stripe of the gate, the pivoted operating-lever, the rod K secured to one end thereof, and the link carrying a pulley journaled therein, adapted to travel on the said angle-lever, and having connection with the rod K, whereby the gate may be raised or closed, substantially as described.

2. In combination with the gate, the angle-lever having recesses, one at its angle, and one at its forward end, the shouldered link, and friction-pulley mounted therein, and the operating-lever for raising the link, substantially as shown and described.

3. In combination with the tilting gate, mounted as described, the pivoted catch carried on the gate-post, the angle-plate pivoted to said catch, one of the angles of the said plate extending behind the rear edge of the gate-post, and the operating-lever having a hooked end and connected to the gate-lifting mechanism, the said hook adapted to raise the angle-plate to tilt the catch, as the outer end of the operating-lever is pulled down, substantially as shown and described.

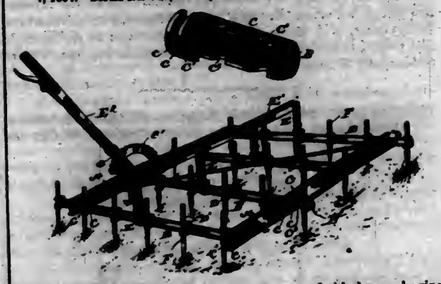
608,445. HAT-PACKING RING. LIBBY T. HALLOCK, Danbury, Conn. Filed Jan. 20, 1897. Serial No. 620,174. (No model.)



Claim.—1. A hat-packing ring formed from a single strip of pasteboard, the upper and lower edges of which are reinforced by turning the stock over flat upon both the in and out side thereof, substantially as shown.

2. A hat-packing ring or stay, the edge of which is laid over flat upon one side, and then said flat doubled edge turned backward to form a flat top surface, as shown.

608,446. HARROW. JOHN I. HOLT, South Bend, Ind. Filed May 7, 1897. Serial No. 635,580. (No model.)



Claim.—1. The combination in a harrow of side beams having circular openings and transverse U-shaped tooth-bars passing loosely through said openings; with grooved plugs C fitted in the channels of the transverse tooth-bars and having enlarged heads C' on one end provided with flanges *c*, *c*, adapted to embrace the edges of the openings in the beam and prevent longitudinal movement of the plug and bar, and means for securing the plugs in the bars, all constructed and arranged to operate substantially as and for the purpose described.

2. The combination in a harrow, of the perforated and notched side beams, and transverse tooth-bars adapted to rotate in openings in said side beams; with rotatable retaining-plugs as C having flanged heads C' fitted in said openings and to said tooth-bars and having notches *c* in their bodies adapted to coincide with notches in the beam, and tooth engaging the coincident notches in the beams and plugs, and secured thereto, all substantially as and for the purpose set forth.

3. In a harrow the combination of the tooth-bar U-shaped in cross-section; and the harrow-tooth; with a clip extending above and below said bar, one part of said clip being bent and terminating in a bolt which is threaded on its outer end and the other part of said clip being provided with a lip d^{11} on its rear end, all substantially as and for the purpose described.

4. In a harrow the combination of a tooth-bar provided with a series of teeth; of the two-part clips extending above and below the harrow-bar, each of said clips having eyes in its rear ends to receive said teeth and provided at their front ends with inner curved surfaces adapted to engage the tooth-bar, and one part of the clip having a threaded end adapted to engage an eye on the other part of the clip, all substantially as described.

5. The herein-described clip consisting of the lower part D having eye *d*, and upturned threaded front end D^4; and the upper part D' having rear eye *d'* and a front eye for the passage of end D^4, and a depending lug d^{11}, and the nut D^5, all substantially as described.

6. In a harrow the combination of the side beams A, A, and transverse parallel notched tooth-bars B passing loosely through openings in said beams; with the retaining-plug C fitted to the tooth-bars, provided with head C', and flanges *c*, *c*, which embrace the edges of the opening in the side beams; the harrow-tooth F secured in coinciding notches in the tooth bars and plugs and the clip D, D', for securing the teeth in place, all constructed and arranged substantially as and for the purpose described.

608,447. APPARATUS FOR DRAINING STARCH. JOHANNES HOMMARSUM, Hamm, Germany. Filed June 10, 1896. Serial No. 594,970. (No model.)

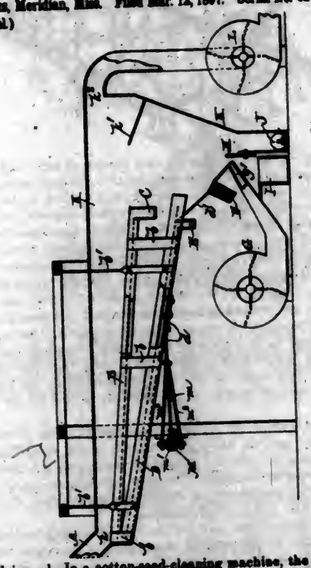


Claim.—1. In combination in a filtering apparatus, the trough, a band extending therein to receive the sediment, said band being attached at its ends, a carriage movable along the trough and having an elevated support for the band to lift the same on one side and to deposit the sediment on the other side of said support, and the conveyer on the carriage for moving the material away, substantially as described.

2. In combination the trough, the band extending therein and fixed at its ends, the carriage having a roller over which the band passes, a roller O to grip the band in connection with the carriage-roller, the conveyer on the carriage, a scraper for removing the sediment from the band and to deposit the same at the conveyer, and means for rotating the roller, substantially as described.

3. In combination the trough, the band fixed at its ends and extending along the trough, the carriage movable along the trough, the roller on the carriage, the chain and chain-wheels on the carriage and trough, the scraper for removing the sediment from the band and for depositing it at the conveyer, and the conveyer on the carriage, said roller and conveyer being rotated by the chain and chain-wheels, substantially as described.

608,448. MACHINE FOR CLEANING COTTON-SEED. JOHN A. LEWIS, Meridian, Miss. Filed Mar. 12, 1897. Serial No. 627,168. (No model.)



Claim.—1. In a cotton-seed-cleaning machine, the combination with an inclosing casing, of a pair of screens arranged one above the other, the upper screen being of coarse mesh to allow the cotton-seed to drop upon the lower screen while the bolls or husks will be retained by the upper screen, a transverse receptacle or trough at the lower end of the upper screen and connected thereto for collecting the bolls and conveying them outside the casing, the lower screen being of fine mesh to support the cotton-seed and to permit the grit and other foreign substance to fall through the said screen, an inclined floor immediately beneath the lower screen and connected thereto to receive said grit, and a transverse trough or receptacle at the lower end of said floor and connected thereto to collect the said grit and convey it outside the casing, means for shaking the said screens, floor and troughs to facilitate the separating operation, a stationary inclined floor to receive the cotton-seed directly from the lower end of the lower screen, a magnet in said floor to attract and remove any metallic particles, a blast-fan adapted to deliver a blast across the path of the cotton-seed at the lower end of the said floor, an adjustable slide opposite the said blast, a conveyer for receiving the cotton-seed carried over the said slide by the blast, an exhaust-fan for withdrawing dust-laden air from the casing and a baffle-plate to prevent the possibility of cotton-seed being carried off by the suction, substantially as described.

2. In a cotton-seed-cleaning machine, the combination with an inclosing casing, of a pair of screens arranged one above the other, the upper screen being of coarse mesh to allow the cotton-seed to drop upon the lower screen while the bolls or husks will be retained by the upper screen, a transverse receptacle or trough at the lower end of the upper screen for collecting the bolls and conveying them outside the casing, the lower screen being of fine mesh to support the cotton-seed and to permit the grit and other foreign substances to fall through the said screen, an inclined floor immediately beneath the lower screen to receive the said grit, and a transverse trough or receptacle at the lower end of said floor to collect the said grit and convey it outside the casing, means for shaking the said screens and floor to facilitate the separating operation, said means comprising a flat spring-bar bolted at one end to the said screens, a yoke secured at its other end, an eccentric engaging said yoke, the said yoke being provided with lateral projections, rods secured at one end to said lateral projections upon the yoke and fastened at their other ends to said flat spring-bar whereby the said bar is stiffened and strengthened at the end adjacent to the eccentric, the bar being sufficiently flexible to allow it to accommodate itself to the movements of the eccentric, a floor to receive the cotton-seed directly from the lower end of the lower screen, a magnet in said floor to attract and remove any metallic particles, a blast-fan adapted to deliver a blast across the path of the cotton-seed at the lower end of the said floor, an adjustable slide opposite the said blast, a conveyer for receiving the cotton-seed carried over the said slide by the blast, an exhaust for withdrawing dust-laden air from the casing, and a baffle-plate to prevent the possibility of cotton-seed being carried off by the suction, substantially as described.

3. In a cotton-seed cleaner, the combination with a suitable outer inclosing casing, of vibrating screens mounted therein, means for vibrating the same comprising a flat spring-bar bolted at one end to the said screens, a yoke secured at its other end, an eccentric engaging said yoke, the said yoke being provided with lateral projections, rods secured at one end to the said lateral projections upon the yoke and fastened at their other ends to the said flat spring-bar whereby the said bar is stiffened and strengthened at the end adjacent to the eccentric, the bar being sufficiently flexible to allow it to accommodate itself to the movements of the eccentric, substantially as described.

608,449. DISK HARROW. DAVID R. LIVINGSTON, Tacitus, Tex. Filed July 8, 1897. Serial No. 643,814. (No model.)



Claim.—1. The combination with the harrow-tongue and the doubletree pivotally secured thereto, of a caster-wheel secured to the tongue at a point in advance of the doubletree, said wheel having a bearing-face adapted to engage the front face of the doubletree, substantially as shown and described.

2. The combination with the tongue and the doubletree, of the caster-wheel and a supporting-bracket, said bracket having a shank provided with a series of apertures vertically adjustable in the tongue at the point in front of the doubletree, said bracket having inner faces held to bear against the front face of the doubletree, a retaining-pin 14, all being arranged substantially as shown and for the purposes described

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608,450. ELECTRIC PROGRAM-CLOCK. JAMES O. LYNAH, Waterbury, Conn. Filed Apr. 26, 1897. Serial No. 633,916. (No model.)

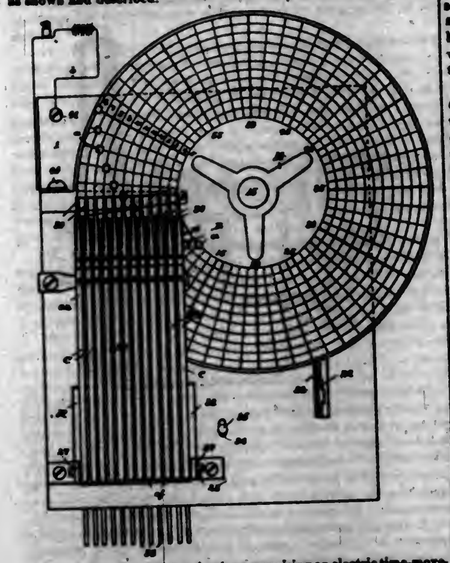
Claim.—1. In a program-clock of the class described, the combination with a rotatable perforated dial, of a contact-plate behind said dial, a series of fingers pivoted below said dial, and bearing weights 33 and arm 34, a series of cams to engage and operate said arms, means for intermittently rotating said cams in a manner to successively lower and raise the fingers.

2. In a program-clock of the class described, the combination with a rotatable perforated dial, of a contact-plate behind said dial, a series of fingers pivoted adjacent to said dial and having their free ends adapted to operate thereon, weights to normally hold said fingers in contact with the dial, arms attached to the fingers, a series of cams upon which the free ends of said arms ride, means for intermittently rotating said cams in a manner to operate the fingers.

3. In a program-clock of the class described the combination with a frame and a rotary perforated dial, of a contact-plate behind said dial, a series of fingers pivoted adjacent to said dial and having their free ends adapted to operate thereon, an arm secured to the frame and bearing guide-pins for the fingers aforesaid, weights for normally holding the fingers against the dial, a series of independent cams adapted to operate said fingers against the action of their weights, connections for intermittently rotating said cams in a manner to operate the fingers.

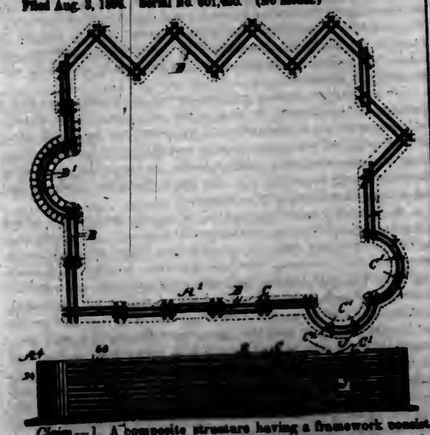
4. A program-clock mechanism comprising, a rotatable perforated dial, a series of fingers pivoted adjacent to said dial and bearing weights to hold them into engagement therewith a series of cams adjacent to said fingers and adapted to control the position of the latter, connections for operating said cams comprising a pawl and ratchet, a link connected therewith, lever 16 attached to said link, a cam 5 for operating said lever, and means for operating said cam.

5. A program-clock mechanism comprising, a rotatable perforated dial, a series of fingers pivoted adjacent to said dial and bearing weights to hold them into engagement therewith, a series of cams mounted upon a shaft adjacent to said fingers and adapted to control the position of the latter, a pawl and ratchet mounted on said shaft, an arm on said pawl to permit of the independent operation of said ratchet and cam-shaft, connections with said pawl and ratchet whereby the latter is operated by an electric time-movement substantially as shown and described.



6. A program-clock mechanism comprising an electric time-movement A, cam 5 upon the minute-shaft thereof, a lever 16 operated by said cam, connections with said lever for operating a cam-shaft, a series of cams upon said shaft, a series of fingers bearing arms to engage said cams and provided with weights to insure said engagement, a dial provided with suitable perforations and upon which the free ends of said fingers are designed to operate, a contact-plate behind said dial and in line with the free ends of the fingers aforesaid.

608,451. FORTIFICATION. JAMES A. MILLER, New Haven, Conn. Filed Aug. 3, 1896. Serial No. 601,455. (No model.)



Claim.—1. A composite structure having a framework consisting of several series of bars with overlapping and interlocking ends, and arranged with openings or spaces between the bars, and a body of cast metal, cast around such framework, so as to surround and penetrate between the bars, substantially as described.

2. A composite structure having a framework consisting of several series of wrought-iron bars, with the ends of one series overlapping and interlocking with the ends of an adjoining series, the bars of each series being arranged so as to have spaces or openings extending through between them and a body of cast-iron, cast so as to surround the bars and fill the spaces between them, substantially as described.

3. A composite structure having a framework consisting of a series of bars, another series of bars between the bars of the other series, and arranged transversely thereto, the bars of the different series being arranged as that there are spaces extending through between them and a body of cast material, cast around such framework, so as to surround the bars thereof and fill the spaces between them, substantially as described.

4. A composite structure having a framework consisting of several series of bars arranged with the ends of one series overlapping the ends of an adjoining series, bars transverse to and between the other bars, and a cast body, cast around such framework, so as to surround the bars thereof and fill the spaces between such bars, substantially as described.

5. A composite structure having a frame consisting of a series of bars, a series of bars at right angles to the other bars, and a body of cast metal surrounding the bars of the first series and portions of the bars of the other series, substantially as described.

6. A composite structure having a series of substantially horizontal bars and two series of upright bars, on the opposite sides of the horizontal bars, a body of cast metal surrounding the horizontal bars and a portion of each of the vertical bars, so as to tie such latter bars to the horizontal ones, substantially as described.

7. A composite structure having a framework consisting of a series of parallel bars, I-shaped in cross-section, and a body of cast metal covering such bars and filling the spaces between them and between their flanges, substantially as described.

8. A composite protective structure having a protective covering formed of a series of layers of parallel bars, in which the bars of one layer run transverse to those of an adjoining layer, bars extending between the bars of the several layers, in a direction at right angles to such layers, and a body of cast-iron cast upon and around the bars, substantially as described.

9. A composite protective structure having an opening surrounded by one or more channel-bars, bent to make the opening, and having their flanges on their outer sides and a body of cast material, cast around such bar or bars, so as to enter the space between the bar-flanges, substantially as described.

10. A composite protective structure having an opening with a frame encircling it made of one or more bars of wrought-iron bent to inclose the opening and having flanges on their outer sides, a body of cast-iron, cast around the opening-casing, composed of such bar or bars, so as to make the same project between the bar-flanges, substantially as described.

11. A composite structure having an opening surrounded by a frame made of one or more bars bent to inclose the opening, each having flanges in its outer side and openings in its web, and a body of cast metal, cast around such frame, so as to inclose it and enter between the flanges on the bar or bars, substantially as described.

12. A composite protective structure having a series of bars to form a framework, and an opening inclosed by one or more channel-bars, bent to inclose the opening, and having their flanges turned outward, and arranged so that the ends of the framework-bars project in between them, and a body of cast metal, cast upon and around the framework-bars, and into the spaces between the flanges on the bar or bars inclosing the opening in the structure, substantially as described.

13. A composite structure having an opening inclosed by one or more channel-bars bent to surround the opening and having their flanges turned outward, series of framework-bars having their ends projecting into the spaces between the flanges of the respective channel-bars, and a body of cast metal, cast upon and around the series of bars, and around the outside of the channel bar or bars, so as to surround the outer side of the opening-frame formed of the latter bar or bars and enter the spaces between the flanges thereof, substantially as described.

14. A composite protective structure having an opening with a frame inclosing it, made of one or more channel-bars with their flanges turned outward, series of bars having their ends projecting in between the flanges of the bar or bars, series of bars arranged between and at right angles to the bars of the other series and a body of cast metal, cast upon and around the two series of bars and around the frame of the opening so as to extend into the space between the flanges of each channel-bar forming such frame, substantially as described.

15. Composite armor for defensive structures consisting of a framework of longitudinal tiers or rails or beams of wrought metal arranged one above the other and resting upon and separated by transverse bars in the straight or non-angular portions of the wall,

and at the sides of the ports, having their ends intermeshing at the angles thereof, and vertical bars placed adjacent the port, in combination with a body of metal cast around and integrally inclosing the said framework substantially in the manner and for the purpose specified.

16. In a fort or turret the combination of a framework or interlacery of wrought-metal bars, beams or rails, a body of cast-iron or other suitable metal cast around and integrally inclosing the framework, and a surface plating of wrought-metal sheets or bars having engaging parts or projections inserted and embedded within the cast metal of the structure, substantially in the manner and for the purpose specified.

17. In a defensive structure of wrought-metal interlacery embedded in a cast-metal body, the combination therewith of the port, combining one or more frames of channel-iron bent to the form of the cross-section of the port, and having the cast metal cast around the frames and engaging the flanges thereof, substantially as and for the purpose specified.

18. In a fortification or defensive structure of wrought-metal interlacery embedded in cast metal cast around and between the parts thereof, the construction of the embrasure, combining one or more frames of channel-iron bent to the form of the cross-section of the embrasure, and having the cast metal cast around the frames and engaging the flanges thereof, the horizontal rails of the wrought-metal interlacery projecting into the spaces between the flanges of the channel-iron frames, and being reinforced by auxiliary vertical rails adjacent the sides of the embrasure, substantially as and for the purpose specified.

19. In a defensive structure of wrought-metal interlacery or framework embedded in a cast-metal body, the construction of the embrasure consisting of the combination of the channel-iron frames lining the port, with flanges projecting outwardly, the horizontal rails having their ends terminating at or near the channel-iron frames, and a series of vertical beams or bars, arranged at the sides of the port and between the horizontal rails, the cast metal being cast around and between the wrought-metal parts, and interlocking therewith, substantially in the manner and for the purpose specified.

20. In fortifications or structures for military defense, the herein-described mechanism for closing the embrasures comprising in combination a shield or stopper supported on the ends of carrying braces or beams, a vertical composite post or pivotal structure mounted and journaled in the fortification and having the supporting-beams of the stopper secured thereto, the post being adapted to be turned by suitable mechanism to swing the stopper into position to open or close the embrasure, substantially in the manner and for the purpose specified.

21. In a protective structure having an embrasure in combination with a shield to cover the inside of the embrasure, an upright post pivoted in suitable bearings so as to be rotatable and having one or more arms attached to the embrasure-closing shield so as to support the same, substantially as described.

22. In a protective structure having an embrasure in combination with a shield for closing the embrasure, an upright rotatable post journaled in suitable bearings and a series of inclined arms carried by the post and supporting the shield, and means for rotating the post, substantially as described.

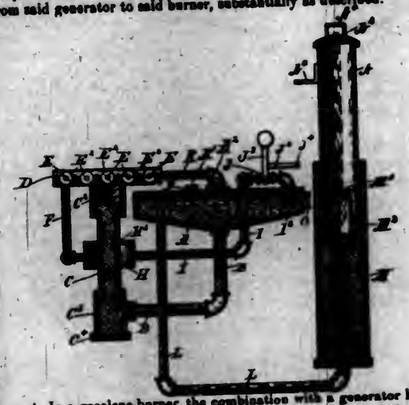
23. In fortifications the herein-described mechanism for closing the port comprising in combination a composite shield or stopper having supporting braces or beams embedded in it, a vertical composite post or pivotal structure of wrought and cast metal mounted and journaled in the fortification and having the supporting-beams of the stopper embedded in it, the post being adapted to turn by suitable mechanism to swing the stopper into position to open or close the port, substantially in the manner and for the purpose specified.

608,452. GASOLENE-STOVE. Gamaliel B. Mussell, Newport, Ky. Filed Aug. 10, 1896. Serial No. 602,344. (No model.)

Claim.—1. In a gasolene-burner, the combination of a tank and generator, connections between the tank and the generator adapted to convey gasolene from the tank to the generator, said tank and generator being so arranged relatively to each other that the gasolene stands at the same level in both, connections from the upper part of the generator to the upper part of the tank, and means for heating said generator, substantially as described.

2. In a gasolene-burner, the combination with a gasolene-tank, of a generator, a duct adapted to convey gasolene from said tank to said generator, the said generator being so situated relative to said tank that the gasolene maintains the same level in both, vapor-outlets mounted on said generator and communicating with the interior thereof, a duct leading from the upper portion of said tank to the upper portion of said generator and a burner adapted to heat said generator, with means for supplying vapor from said generator thereto, substantially as described.

3. In a gasolene-burner, the combination with a gasolene-tank, of a generator situated on a level with said tank, a duct leading from the lower portion of said tank to the lower portion of said generator and adapted to convey liquid gasolene from said tank to said generator, a duct leading from the space above the liquid in the tank to the space above the liquid in the generator, vapor-outlets carried by said generator and adapted to receive vapor therefrom, a burner adapted to heat the said generator and means for conveying vapor from said generator to said burner, substantially as described.



4. In a gasolene-burner, the combination with a generator having vapor-outlets, a gasolene-tank located on the same level with said generator, a duct adapted to conduct the liquid gasolene from said tank to said generator, a duct leading from the space above the gasolene in said tank to the space above the gasolene in said generator, a burner adapted to heat the said generator, means for conveying vapor from said generator to said burner and means for producing pressure upon the gasolene in said tank, substantially as described.

5. In a self generating gasolene-burner, the combination with a generator, of a chamber communicating therewith, valves communicating with said chamber, commingling-tubes for said valves, a subburner for heating said generator, one of the said commingling-tubes supplying the said subburner with fuel from the generator, a gasolene-tank located on a level with said generator and duct connecting the top and bottom of said tank respectively with the said chamber and generator, substantially as described.

6. In a self-generating gasolene-burner, the combination with a generator of a chamber mounted thereon and communicating therewith, needle-valves carried by said chamber, commingling-tubes for said valves, a subburner for heating said generator, one of the aforesaid commingling-tubes supplying said subburner with fuel from said generator, a gasolene-tank located on a level with said generator, the space above the liquid gasolene in said tank communicating with the space above the gasolene in said generator, a duct adapted to conduct the liquid gasolene from said tank to said generator and means for producing air-pressure on the gasolene in said tank, substantially as described.

7. In a self-generating gasolene-burner, the combination with a generator, of a subburner for heating the said generator, an oil-tank and carbureter connected with said generator, the said tank being located on a level with said generator and having the top and bottom thereof connected to the said generator, an aerometer, and a duct connecting said aerometer with the space above the liquid in said gasolene-tank, substantially as described.

8. In a self-generating gasolene-burner, the combination with a generator, of a subburner for heating said generator, a gasolene-tank and carbureter, said tank being located on a level with said generator, said tank connected with said generator so that the gasolene maintains the same level in both generator and tank, an aerometer consisting of a chamber adapted to slide vertically in a water-tank, a valve in the upper part of said chamber, a duct leading from the air in said aerometer with the space above the liquid in said gasolene-tank, and a valve carried by said duct, substantially as described.

9. In a self-generating gasolene-burner, the combination with a generator, of a subburner for heating the same, a gasolene-tank and carbureter, said tank being located on a level with said generator and having the top and bottom thereof communicating with the said generator, an aerometer, a water-tank in which said aerometer is adapted to slide vertically, a valve in the upper part of said aerometer, a duct leading from the air in said aerometer to the space above the gasolene in the gasolene-tank, a valve carried by said duct, and means whereby the said aerometer stops the operation of said carbureter, substantially as described.

10. In a self-generating gasolene-burner, the combination with a generator, having a subburner for heating the same, and a gasolene-tank having a carbureter connected with said subburner, ducts connecting the top and bottom of said tank with said generator, a valve carried by said carbureter, of an aerometer, a water-tank in which the said aerometer is adapted to slide vertically, a valve in the upper part of said aerometer, a pipe leading from the air in said aerometer to the space above the liquid in said gasolene-tank, a valve carried by said pipe within said aerometer, the said aerometer adapted to engage and close the valve of the carbureter, substantially as described.

11. In a self-generating gasolene-burner, the combination with a generator and a subburner for heating the same, a gasolene tank located substantially on the same level and communicating with the said generator, a pipe connecting the space above the liquid in said gasolene-tank with said burner and provided with wicking over it mouth within said gasolene-tank, a valve carried by said pipe, an aerometer, a water-tank in which said aerometer is adapted to slide vertically, a valve in the upper part of said aerometer, a pipe connecting the air-space in said aerometer with the space above the liquid in said gasolene-tank, a valve carried by said pipe within said aerometer, the said aerometer being adapted to engage and close the valve of the carbureter, substantially as described.

12. In combination with gasolene-generator the tank A, generator-pipe C, needle-valve openings at a higher level than gasolene in tank A, subburner H adapted to heat generator from the level of the bottom of the tank to the top of generator, pipe K, pipe B, pipe L, air-pressure device M, substantially as and for the purpose specified.

13. The combination of needle-valves, and commingling-tubes, a generator for supplying the needle-valves with vapor, a subflame-burner contiguous to the generator, a commingling-tube from one of said valves to the burner, a gasolene-tank for supplying gasolene to the generator, a pipe I from the subflame-burner to the upper portion of said gasolene-tank and there provided with wicking over its mouth absorbing gasolene from the tank, and an aerometer sliding vertically in a water-tank, and having a valve in its upper part, and a pipe in the tank connecting the air in the aerometer with the space above the liquid in the gasolene-tank, and having a valve at its end in the aerometer, a valve J provided with an arm located in the pipe I, and a projection of the aerometer for enabling the descent of the latter to trip the valve and close the passage through pipe I, substantially as and for the purposes specified.

14. The combination of needle-valves, and commingling-tubes, a generator for supplying the needle-valves with vapor, a subflame-burner adapted to heat the generator, a commingling-tube from one of said valves to the burner a gasolene-tank for supplying gasolene to the generator, a pipe I from the subflame-burner to the upper portion of said gasolene-tank and there provided with wicking over its mouth absorbing gasolene from the tank, and an aerometer sliding vertically in a water-tank, and having a valve in its upper part, and a pipe in the tank connecting the air in the aerometer with the space above the liquid in the gasolene-tank, and having a valve at its end in the aerometer, a valve J located in the pipe I and provided with the arm J^3, and pin J^4, and weighted arm J^5, substantially upright when the valve is open, and a projection N^2 on the aerometer, for depressing the arm J^3 and closing the valve as the aerometer descends, substantially as and for the purpose specified.

15. The combination of needle-valves, and commingling-tubes, a generator for supplying the needle-valves with vapor, a subflame-burner adapted to heat the generator, a commingling-tube from one of said valves to the burner, a gasolene-tank for supplying gasolene to the generator, a pipe I from the subflame-burner to the upper portion of said gasolene-tank and there provided with wicking over its mouth absorbing gasolene from the tank, and an aerometer sliding vertically in a water-tank, and having a valve in its upper part, and a pipe in the tank connecting the air in the aerometer with the space above the liquid in the gasolene-tank, and having a valve at its end in the aerometer, a valve J located in the pipe I, and means for enabling the aerometer to close the valve, substantially as and for the purpose specified.

16. The combination of needle-valves, commingling-tubes, generator-pipe, subflame-burner adapted to heat the generator from bottom of tank to the top of generator, a commingling-tube from one of the needle-valves to the subflame-burner, a gasolene-tank, the gasolene in same being at a lower level than the needle-valves, a gasolene-pipe B from the tank to the generator, a conduit from the space above the gasolene in tank to the space above the gasolene in the generator, a pipe I leading from space above the gasolene in tank A to a subflame-burner and adapted for primary heating of generator, a valve in pipe I, a pipe L for supplying air to the space above the liquid in said tank, and a device for supplying air under pressure to pipe L, and means for closing the valve of pipe I by the movement of the air-pressure device, substantially as and for the purpose specified.

17. The combination of the needle-valves, commingling-tubes, generator-pipe, subflame-burner contiguous to generator-pipe, a gasolene-tank on a level with the generator, a gasolene-pipe B from the tank to the generator, a pipe I to the subflame-burner chamber from the space above the liquid in the tank and having a wicking at its mouth adapted to absorb gasolene from the tank, a valve in said pipe, a pipe L for supplying air to the said space above the liquid in the tank, and a device for supplying air under pressure to the pipe L, and a pipe K, connected to the said space in the tank A, and the pipe D connecting the upper end of the generator to the pipe K, substantially as and for the purposes specified.

18. The combination of needle-valves, commingling-tubes, generator-pipe, a subflame-burner adapted to heat the generator, a gasolene-tank on a level with the generator, a gasolene-pipe B from the tank to the generator, a pipe I to the subflame-burner chamber from the space above the liquid in the tank and having a wicking at its mouth adapted to absorb gasolene from the tank, a valve in said pipe, a pipe L for supplying air to the space above the liquid in the tank, and a device for supplying air under pressure to the pipe L, and a pipe K, connected to the said space in the tank A, and the pipe D connecting the upper end of the generator to the pipe K, and means for closing the valve of pipe I, substantially as and for the purpose specified.

19. The combination of the needle-valves, and their commingling-tubes, and a generator, a subflame-burner adapted to heat the generator, a gasolene-tank substantially on a level with the generator, a pipe therefrom to the generator to supply the latter with gasolene, a pipe having wicking at its mouth, adapted to absorb gasolene from the tank, at the upper part of the gasolene-tank, and connected to the subflame-burner, a pipe for supplying air under pressure to the gasolene-tank, and means substantially as described for preventing the gasolene in the generator from rising to a higher level than that in the tank, substantially as and for the purposes specified.

20. The combination of the needle-valves, and their commingling-tubes, and a generator, a subflame-burner adapted to heat the generator, a gasolene-tank on a level with the generator, a pipe therefrom to the generator to supply the latter with gasolene, a pipe having wicking at its mouth adapted to absorb gasolene at the upper part of the gasolene tank, and connected to the subflame-burner, a pipe for supplying air under pressure to the gasolene-tank, and a pipe arranged to communicate with the upper part of the generator and the space above the liquid in the tank, for keeping the gasolene in the tank and generator at a common level, substantially as and for the purposes specified.

21. The combination of needle-valves, and commingling-tubes, a generator for supplying the needle-valves with vapor, a subflame-burner contiguous to the generator, a commingling-tube from one of said valves to the burner, a gasolene-tank for supplying gasolene to the generator, a pipe I from the subflame-burner to the upper portion of said gasolene-tank and there provided with wicking over its mouth absorbing gasolene from the tank, and an aerometer sliding vertically in a water-tank, and having a valve in its upper part; and a pipe in the tank connecting the air in the aerometer with the space above the liquid in the gasolene-tank, and having a valve at its end in the aerometer, a valve J located in the pipe I, and an arm of the valve, and a projection of the aerometer for enabling the descent of the latter to trip the valve and close the passage through pipe I, and the pipe K, establishing connection between the spaces above the liquid in the generator and the gasolene-tank, substantially as and for the purposes specified.

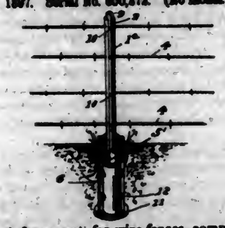
608,453. DRAFT-SUPPLY APPARATUS. William H. Page, Santa Cruz, Va. Filed May 17, 1897. Serial No. 636,918. (No model.)



Claim.—1. The combination with a stove, of a horizontally-disposed tube projecting therefrom, a swinging draft-supply member carried upon the tube and adapted to be swung vertically thereon, and an aperture near the extremity of the draft-supply member opposite the tube, substantially as set forth.

2. The combination with a stove, of a horizontally-disposed tube projecting therefrom, a swinging draft-supply member carried upon the tube and adapted to be swung vertically thereon, a fender located within the tube adapted to prevent access of ashes from the stove to the draft-supply member, and an aperture near the extremity of the draft-supply member opposite the tube, substantially as set forth.

603,454. FENCE-POST. JAMES H. PIERSON, Worthington, Ind. Filed Sept. 7, 1897. Serial No. 650,572. (No model.)

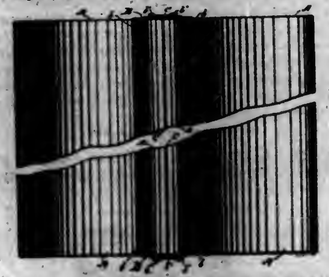


Claim.—1. A fence-post for wire fences, comprising a metallic post proper having a continuous longitudinal bore, a continuous longitudinal slot through its wall communicating with said bore, and guides for the wires, and a subpost provided with a continuous drain and post-receiving bore merging into a flaring annular face at the top thereof adapted to gradually contract the lower end of the said post proper when it is inserted into said subpost-bore, substantially as described.

2. A fence-post for wire fences, having a longitudinal bore, a continuous slot through its wall communicating with said bore, a series of alined orifices for passage of the fence-wires, and a wedge inserted into the bore of the post adapted to clamp the wires, and a subpost having a continuous longitudinal bore, longitudinal flanges with segmental lugs on either side thereof and an annular flange at the base of said subpost, substantially as described.

3. A fence-post, comprising a post proper, and a subpost or socket member having a bore adapted to receive said post proper and to serve as a drain-inlet, said subpost provided with longitudinal flanges 6, an annular flange 11 on the base of said subpost, segmental lugs 12 on each side of the flanges 6 and integral therewith and with the body of said subpost, as and for the purpose set forth.

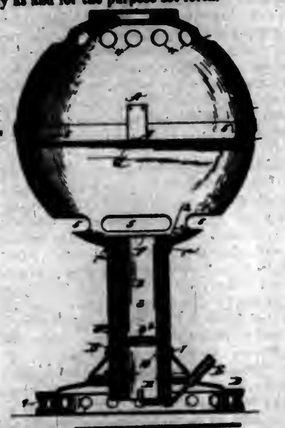
603,455. PIPE-BINDER. CHARLES L. PIERSY, Los Angeles, Cal. Filed May 26, 1897. Serial No. 638,305. (No model.)



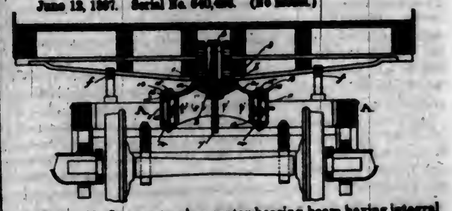
Claim.—A fastening device, for the purpose of holding pipes in bundles, consisting of the plates B with peripheral lugs *b* and tongues *b'*, and the central wires C adapted to be secured about said tongues as shown and described.

603,456. GAS-STOVE. ALBERT L. PITNEY, Washington, D. C., assignor to the Calvert Heating Company. Filed July 14, 1896. Serial No. 599,113. (No model.)

Claim.—In a gas-stove, the combination of a perforated base or support, a chamber of smaller diameter than the base, a perforated wall in said chamber dividing the same into a mixing and a mixing and heating chamber, a gas-supply opening into the mixing-chamber, a burner located at the upper end of the mixing and heating chamber, a heating or radiating chamber surrounding the burner, and a spreader-plate located in the radiating-chamber above the burner, substantially as and for the purpose set forth.



603,457. CAR-TRUCK. MORRIS R. SCHAFFER, St. Louis, Mo. Filed June 12, 1897. Serial No. 640,498. (No model.)



Claim.—1. In a car-truck, a center-bearing beam having integral therewith the center plate and at the ends the columnar enlargements 10 formed with bearings 11 and 12.

2. In a car-truck a transverse center-bearing beam having integral therewith the center plate and at the ends the columnar enlargements 10 formed with bearings 11 and 12, combined with the longitudinal arch-bars and the adjusting-plates in said bearings.

3. In a six-wheel passenger-car truck, the combination with the spring-beam having the side bearings secured thereto, of a center-bearing beam having its center plate integral therewith, and having integral therewith at its ends columnar enlargements formed with bearings, and the center bearing arch-bars engaging said bearings and connected with the spring-beams.

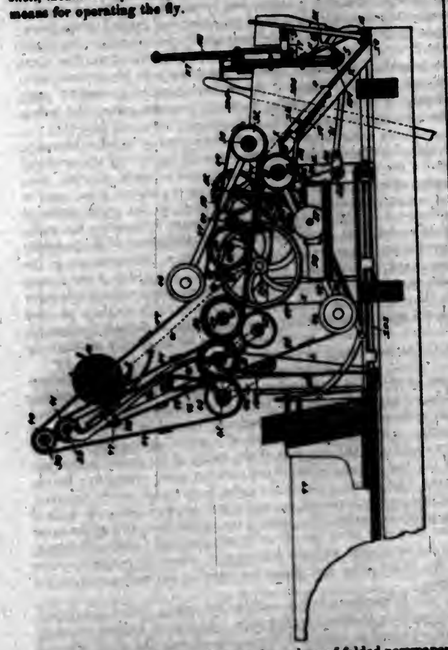
603,458. MACHINE FOR SEALING NEWSPAPERS. HERMAN T. SUNDERMAN, Galveston, Tex. Filed June 10, 1897. Serial No. 640,130. (No model.)

Claim.—1. For sealing the free edges of folded newspapers the combination, of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts arranged in upper and lower sets whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, an advancing device for receiving the papers, means for operating said device for delivering the papers to the belts, and a fly and means for operating it to deliver the papers to the advancing device.

2. For sealing the free edges of folded newspapers, the combination, of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts arranged in upper and lower sets, by which the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, an advancing device for receiving the papers, and means for operating the device for delivering the papers to the belts.

3. In a machine for sealing the free edges of folded newspapers, the combination, of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts arranged in upper and lower sets, by which the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a slide device for advancing the paper to the belts, means for operating said device, and a shelf or ledge for receiving the paper, and means for operating the shelf for transferring the paper therefrom to the said slide.

4. In a machine for sealing the free edges of folded newspapers, the combination of mechanism for pasting, sealing and delivering sealed paper, with a system of endless traveling belts arranged in upper and lower sets, by which the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a slide device for advancing the paper to the belts, a shelf or ledge pivotally mounted for receiving the paper and transferring it to said slide, a fly arranged to push the paper from said shelf, means for operating the shelf by connections with the fly, and means for operating the fly.



5. In a machine for sealing the free edges of folded newspapers, the combination of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts arranged in upper and lower sets, whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a slide device for advancing the paper to the belts, a shelf or ledge for receiving the paper and transferring it to said slide, a fly arranged to push the paper from said shelf, means for operating the shelf by connections with the fly, a packer for the sealed papers at the rear of the belts and means connecting the slide, the fly, the packer and the power-driven shaft for simultaneous operation in the way described.

6. In a machine for sealing the free edges of folded newspapers, the combination, of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts arranged in upper and lower sets, whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a device having detents for advancing the paper to the belts, a packer for the sealed papers at the rear of the belts and means for connecting the slide, the packer, the driven belt-pulley shafts and the driven power-shaft, whereby the several devices are actuated in unison in carrying the papers through the machine.

7. In a machine for sealing the free edges of folded newspapers, the combination of mechanism for pasting, sealing and delivering the sealed papers, with a system of endless traveling belts arranged in upper and lower sets, by which the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a device having detents for advancing the paper to the belts, a pivotally-mounted shelf or ledge for receiving the paper and transferring it to said slide, a fly arranged to push the paper from said shelf, the said shelf having an arm, and the said fly having a stud for engaging said arm, a spring connecting said shelf and a stop for controlling the normal position of said shelf, whereby the movement of the fly automatically operates the shelf.

8. In a machine for sealing the free edges of folded newspapers the combination of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts, arranged in upper and lower sets, whereby the paper is seized and between which it is carried and supported in the operation of pasting, sealing and delivering it, a slide for advancing the paper to the belts, a device for depositing paste upon the paper, consisting of a pair of spring-sustained pasters adapted to rotate in the direction of the travel of the paper and to seize and impress paste upon its opposite sides, means for supplying paste to the pasters and means for effecting the movements of the slide and the pasters whereby the paper will be advanced so that its free edges will arrive at the point where they will be embraced and compressed between the surfaces of the pasters.

9. In a machine for sealing the free edges of folded newspapers, the combination of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts arranged in upper and lower sets, whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a device having detents for advancing the paper to the belts, a pivotally-mounted shelf having the arms 11 and 16, a guard-rail 17, a stop-arm 14, and a spring 8, whereby the shelf is caused to be tilted forward with the laying movement of the fly and returned to its normal position to receive and support a paper, and means connecting the power-driven shaft for actuating said fly.

10. In a machine for sealing the free edges of folded newspapers, the combination of mechanism for pasting, sealing and delivering the sealed paper, with a system of endless traveling belts arranged in upper and lower sets, whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a slide device for advancing the paper to the belts, a pivotally-mounted shelf, and a fly connecting and operating said shelf, a packer at the rear of the machine, and connections for conjointly operating the slide, the shelf, the fly and the packer, consisting of the cranks 29 and 23 and the rods 28, 21 and 102, and the crank 36, on the power-driven shaft, the rod 25 and the crank 24 on the rock-rod 23, the said cranks being arranged to operate the said devices in the order and relation stated.

11. For sealing the free edges of folded newspapers, the combination of mechanism for pasting, sealing and delivering the sealed paper, with devices for advancing the papers, of a system of endless traveling belts arranged in upper and lower sets upon driving and loose pulleys whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, the receiving ends of the upper belts extending in front of and overhanging the lower belts, whereby the paper is caused to enter the belts free from pressure by the overhanging pulleys, and devices for pasting and sealing the papers as they are carried by and between said belts.

12. In a machine for sealing the free edges of folded newspapers, the combination of mechanism for pasting, sealing and delivering the sealed paper, with devices for advancing the papers, a system of endless traveling belts arranged in upper and lower sets whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, the receiving and the terminal ends of the upper belts being mounted upon loose pulleys and driven by an intermediate pulley, and the receiving ends of the lower belts mounted upon loose pulleys and the terminal ends of said belts mounted upon driven pulleys arranged between the driving and the loose pulleys of the upper belts for operation in the way described.

13. For sealing the free edges of folded newspapers, the combination, with devices for advancing a folded newspaper, devices for pasting its free edges, devices for feeding a sealing-ribbon, devices for severing a sealing-strip from the ribbon, of a system of endless traveling belts whereby the paper is seized from the advancing devices, supported and carried between the belts to and between a pair of pasters, to devices which present to the paper a severed ribbon strip, and is reversed in the direction of its travel and delivered from between the belts.

14. For sealing the free edges of folded newspapers a carrying device for the papers consisting of a system of endless belts arranged in upper and lower sets, by which the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, the combination therewith of a device for reversing the direction of the travel of the paper located and arranged above the driving-pulleys of the lower sets of belts and between the oppositely-moving sides of the upper sets of belts and mechanism for pasting, sealing and delivering the sealed paper.

15. For sealing the free edges of folded newspapers an advancing and carrying device for the paper consisting of two or more sets of endless belts arranged as an upper set and a lower set, the upper belts mounted upon loose initial and terminal pulleys and intermediate driving-pulleys, the lower belts mounted upon initial loose and fixed driving terminal pulleys, the upper and the lower belts moving in contact from the loose initial pulleys to and up between the driving-pulleys, the upper belts extended upward over the fixed terminal driving-pulleys of the lower belts terminating upon the loose pulleys in com-

bination with mechanism for pasting, sealing and delivering the sealed paper, at the rear of the terminal driving-pulleys, whereby without leaving the belts, the paper is seized, and in its travel is supported and has its free edges pasted and sealed in that part of its travel between the initial and the driving pulleys and is delivered from the machine.

16. An advancing, carrying and controlling device in a machine for sealing the free edges of folded newspapers, consisting of a system of endless traveling belts arranged in an upper and lower set by which the paper is sealed, and between which it is supported and carried in the operation of pasting, sealing and delivering it, the combination therewith of mechanism for pasting, sealing and delivering the sealed paper, a device for reversing the direction of the travel of the paper, located and arranged, above the driving-pulleys of the lower belts, and between the oppositely-moving sides of the upper belts, the said reversing device consisting of fixed fingers standing back of the delivering-passage of the terminal pulleys of the belts, and a pivoted spring-controlled arm normally standing in front of the said delivering-passage for coöperating with the belts in the way described.

17. For sealing the free edges of folded newspapers an advancing and carrying device for the papers consisting of a system of endless belts arranged in upper and lower sets, by which the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, the combination therewith, of mechanism for pasting, sealing and delivering the sealed paper, a device for reversing the direction of the travel of the paper located and arranged above the driving-pulleys of the lower belts and between the oppositely-moving sides of the upper sets of belts, and weights for the upper and lower sets of belts, whereby the system of belts is maintained under proper tension for operation in the way described.

18. The combination, with devices for advancing a folded paper, devices for pasting its free edges, devices for feeding a sealing-ribbon, devices for severing a sealing-strip from the ribbon, of a system of endless traveling belts arranged upon loose and driving pulleys in upper and lower sets, the upper sets extending above and returning downward over and in rear of the terminal driving-pulleys of the lower sets, and means located and arranged between the oppositely-moving sides of the upper belts, whereby the paper having emerged from between the belts is caused to be again seized by them for delivery.

19. An advancing, carrying and controlling device, in a machine for sealing newspapers, consisting of upper and lower sets of endless traveling belts, the upper sets of belts mounted upon the loose pulleys 32, 40, 41 and 43, and the driving-pulleys 36, the lower sets of belts mounted upon the loose pulleys 33, and the fixed pulleys 37, the weighted roll 46 for each belt, the driving-pulleys of the lower belts being between the driving and loose pulleys 36 and 43 of the upper belts, in combination with the fixed and spring-controlled fingers 48 and 95 arranged between the oppositely-moving sides of the upper belts and coöperating with the upper and the lower belts for operation in the way described.

20. For sealing the free edges of folded newspapers the combination with devices for advancing the papers, of a system of endless traveling belts arranged in upper and lower sets whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, means whereby the belts are maintained under yielding tension in advancing the paper between them, and devices for pasting and sealing the papers as they are carried by and between said belts.

21. For sealing the free edges of folded newspapers, the combination with devices for advancing the papers, of a system of endless traveling belts arranged in upper and lower sets whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, means whereby the belts are maintained under yielding tension in advancing the paper between them and a pair of pasters adapted to meet in their rotation and transfer under pressure paste on both sides of the paper as it is carried between and with the rotation of the pasters, and mechanism for sealing and delivering the sealed paper.

22. For sealing the free edges of folded newspapers, the combination with devices for advancing the papers, of a system of endless traveling belts arranged in upper and lower sets whereby the paper is seized and between which it is supported, and carried in the operation of pasting, sealing and delivering it, devices for pasting and for sealing the papers as they are carried by and between said belts, means for rendering certain the transfer of the paper over the driver pulleys 37 and between the belts at their terminal meeting between the pulleys 37 43, consisting of the fixed fingers 48 and the pivoted spring-sustained finger 45 and the spring-sustained catches of the said driven pulleys, arranged for coöperation with the upper and the lower sets of belts as set forth.

23. In a machine for sealing the free edges of folded newspapers, the combination with endless traveling belts arranged in upper and lower sets, of means for advancing the paper to and between the belts, pasters arranged to rotate whereby one receives paste and transfers it to the other and both to the opposite sides of the paper, means for applying an unpasted sealing-strip to the pasted sides of the paper, means for applying pressure to the sealing-strip and means whereby the belts are extended upward and returned downward whereby to reverse the direction of the travel of the paper in the way and for the purpose stated.

24. In a machine for pasting folded newspapers and applying thereto a sealing-strip, the combination, with a system of endless traveling belts, arranged in upper and lower sets whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, of a pair of pasters rotating in the direction of the travel of the paper in the path of the free edges to be sealed and timed to meet under pressure on the opposite sides of and at the free edges of the advancing paper, to impress paste thereon, means for supplying paste to the under paster, and means for applying the sealing-strip to the paper in the way described.

25. In a machine for sealing the free edges of folded newspapers, a pair of spring-sustained pasters, mounted upon shafts arranged one above the other, whereby the pasters will in their rotation, meet under pressure, means for causing the lower paster to take paste in its revolution, and transfer therefrom, paste to the upper paster as they meet in contact with each other, means for causing the paper to be sealed to be carried between the meeting faces of the pasters to receive paste therefrom on its opposite sides, the movement of the paper and the rotation of the pasters being so timed that the pasters will meet in contact with each other whereby one will transfer paste to the other and make a second revolution to cause them to meet on the opposite sides of the advancing paper to deposit the paste at the open edges to be sealed, and means for applying a sealing-strip to the pasted sides of the paper.

26. In a machine for pasting newspapers and applying a sealing-strip thereto, the combination, with a system of endless traveling belts arranged in upper and lower sets whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing, and delivering it, of a pair of spring-sustained pasters rotating in the direction of the travel of the paper, in the path of the free edges to be sealed and meeting under pressure on the opposite sides of the paper at the point to be sealed, shafts for carrying said pasters arranged one above and the other below the path of the paper and gearing for rotating the pasters consisting of the equal gear 50, a gear 49 on the power-driven shaft and a pinion 60 engaging the equal gear with the driving-gear, means for supplying paste to the under paster and means for applying the sealing-strip to the paper.

27. In combination in a machine for pasting folded newspapers and applying thereto a sealing-strip, a system of endless traveling belts arranged in upper and lower sets whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, the pasters 50 rotating in the direction of the travel of the paper and adapted to meet and deposit paste on the opposite sides thereof under pressure, a sealing device consisting of plates 77 forming a passage between them, means for feeding a ribbon through said passage, a transverse slot 78 in one of said plates, a rest 90 below said slot for supporting a sealing-strip freely in the path of the paper, a clamp and a knife above said slot and a pair of spring-fingers extending back from the edges of said slot, for operation in the way described.

28. In a machine for sealing the free edges of folded newspapers, a pair of rotating arms, each having socketed or connected therewith a spring-sustained grooved or channeled surface, adjusted so that in rotating the said channeled surfaces will meet under pressure, in combination with means for advancing a newspaper between said pasters, means for supplying one or both of said pasters with paste, and means whereby the paper and the pasters are caused to meet to transfer paste from the pasters to the opposite sides of the paper, and means for applying to the latter a sealing-strip.

29. In a machine for sealing the free edges of newspapers, the combination, with mechanism for carrying a newspaper through the machine, of a pair of rotating pasters adapted to meet under pressure in their rotation in the path of the paper, a pasting device whereby paste is transferred to one of the pasters, which transfers paste to the other when meeting, the movement of the carrying mechanism being timed to cause the pasters to meet under pressure with each other whereby paste is transferred from one to the other in advance of the paper and to meet in their succeeding revolution on the opposite sides of the advancing paper to transfer the paste thereto at the edges to be sealed, mechanism for presenting a sealing-strip across the path of the pasted paper, and mechanism for applying said sealing-strip to the free edges of the paper to be sealed.

30. For sealing the free edges of folded newspapers, the combination with a suitable device for feeding a sealing-ribbon, a clamp and a knife operating to hold the ribbon and to sever a strip therefrom, and a rest on which the strip is freely supported at its lower end, means for feeding a newspaper to receive said strip, means for applying paste to the opposite sides of the paper, and means for applying and sealing the strip to the pasted paper.

31. For sealing the free edges of folded newspapers, the combination with a suitable device for feeding a sealing-ribbon, a clamp and a knife operating to hold the ribbon and sever a strip therefrom, a rest on which the strip is freely supported at its lower end, means for feeding a newspaper to receive said strip, means for applying paste to the opposite sides of the paper and means for applying and sealing the strip to the pasted paper consisting of the spring-fingers 79 79 and the pulleys 91, 92, between which the paper with the adhering strip passes, whereby the strip is folded and laid and then subjected to pressure between rolling surfaces.

32. For sealing the free edges of folded newspapers, the combination with suitable means for feeding a sealing-ribbon, means for severing a strip therefrom, means for feeding a newspaper to receive said strip, and means for applying paste to the opposite sides of the paper, of means for applying and sealing the strip, consisting of spring-fingers, and a pair of pulleys one of which is driven and the other is loose and sustained under pressure upon the sealing-strip.

33. For sealing the free edges of a folded newspaper, having its opposite sides provided with paste, a feed device for the ribbon consisting of the positively-geared rolls 63 64, a passage vertically in alinement with the meeting surfaces of said rolls, formed by plates 77, one of which has a slot 78 and below it a hook or rest 90 crossing the line of the passage and freely supporting the strip at its lower end, a clamp for holding the ribbon while being severed, a knife for severing the ribbon at the clamp, and means for intermittently actuating the geared feed-rolls, and for pasting the opposite sides of the paper.

34. For sealing the free edges of a folded newspaper having its opposite sides provided with paste, a feed device for the ribbon consisting of the roll 63 having the circumferential groove 67, the roll 64 engaging said groove, said rolls having engaging gear whereby they are positively rotated, and the roll 60, the said rolls 64 and 60 being on opposite sides of the roll 63 and maintained in contact therewith under a yielding pressure, a way or passage for the ribbon descending in alinement with the meeting surfaces of said geared rolls, a clamp and a knife for holding and severing a strip from the ribbon, a hook or rest for supporting the severed strip, the spring-fingers 79 79 for folding and applying the sealing-strip, and means for intermittently rotating said geared rolls.

35. For sealing the free edges of a folded newspaper, the combination, with the geared rolls 63 and 64 for feeding a sealing-ribbon, a severing, holding and folding device for a sealing-strip, consisting of a bracket or plate having a slot 78 transverse to the feed of the ribbon, spring-fingers extending horizontally back from the edges of said slot, a passage or way in alinement with the meeting surfaces of said rolls, a clamp and a knife crossing said passage between the rolls and the said slot, and a rest for the severed sealing-strip below said slot and means for pasting the free edges of the paper as it is advanced against the sealing-strip.

36. In a machine for sealing the free edges of folded newspapers, a feeding device for a sealing ribbon or strip, consisting of a roll having a circumferential guide groove or recess 67 for the ribbon, a roll 64 engaging the ribbon in said recess, both said rolls being geared together, and a roll 60, the pivoted spring-connected arms carrying said rolls and means for intermittently rotating said geared rolls.

37. In a machine for sealing the free edges of folded newspapers, the combination of the geared rolls one driving the other for feeding a sealing-ribbon, means for intermittently actuating said rolls consisting of a ratchet-wheel 73 on the driving-roll shaft, a knife for severing a strip from the ribbon, and a clamp for said ribbon, with means for actuating these parts, consisting of an eccentric 82 on the power-driven shaft, an arm and a pawl 74 connecting the strap and the ratchet-wheel, a spring 84 for withdrawing the knife, a spring 89 for forcing the clamp upon the ribbon and a spring 98 for retaining said clamp.

38. In a machine for sealing the free edges of folded newspapers and in combination with endless traveling belts arranged in upper and lower sets, whereby the paper is seized and between which it is supported and carried in the operation of pasting, sealing and delivering it, a device for advancing the paper to the belts, a fly device for laying the paper upon the slide, a pair of rotating pasters between the meeting surfaces of which the paper is caused to travel and is pasted, mechanism for feeding and severing a strip from a ribbon and a device for freely supporting the severed strip across the path of the paper, and having spring-fingers through which the paper and the strip are carried for folding the strip upon the pasted paper, pressure-pulleys between which the sealing-strip is carried to reinforce the sealing, and mechanism whereby the operation of these several devices is conjointly effected.

39. The combination with a holder and feeding mechanism for advancing on edge the front paper from a standing pile, and means for supporting the paper singly while being fed, of a shelf or ledge for receiving and holding the paper on its edge, means for tilting the shelf to deliver the paper, and means for carrying, pasting and sealing the edges of the papers.

40. The combination with a holder and feeding mechanism for advancing on its edge the front paper from a pile standing on edge, of a raceway formed by vertical walls between and by which the paper is supported on edge, and a shelf or ledge at the end of and in alinement with said raceway for receiving and holding the paper, means for tilting said shelf to deliver the paper, and means for carrying, pasting and sealing the edges of the papers.

41. In a machine for sealing the free edges of folded newspapers, the combination with mechanism for carrying the paper, means for feeding a sealing-strip, and applying the same, a device for advancing the paper to the carrying mechanism, and a device for receiving the paper, edgewise in vertical position, and delivering it upon said advancing device, of mechanism for feeding the papers vertically on their folded edges from a pile and transferring them in succession upon said receiving device in standing position, and means for conjointly connecting the several parts to effect the operations described.

42. The combination in a machine for sealing the free edges of paper, of mechanism for carrying, pasting, sealing and delivering the sealed paper, with a holder adapted to receive a pile of papers standing on edge, devices for feeding a sealing-strip, devices for feeding the papers vertically edgewise and at right angles to the line of travel of the carrying mechanism, and means for connecting the said feeding devices with the said carrying and strip-feeding mechanism, timed to feed the papers in unison with the travel of the carrying mechanism, and mechanism for applying the sealing-strip.

43. In a machine for sealing the free edges of folded newspapers, the combination with mechanism for carrying the paper, means for feeding, and for applying the sealing-strip, a slide for advancing the paper to the carrying mechanism, a pivotally-mounted shelf for receiving the paper edgewise in vertical position, and means for tilting said shelf to transfer said paper to the advancing slide, of a holder for holding the papers in pile standing edgewise, mechanism for feeding the papers vertically on their folded edges from the pile and transferring them in succession upon said receiving-shelf, and means for actuating said feeding mechanism in unison with the movements of the shelf, and with the carrying, pasting and sealing mechanism.

44. The combination with a holder adapted to receive a pile of papers standing on their edges, and a feeder or guard at the feed end of said pile whereby the papers are supported in vertical position, of a slide having catches 112 movable in the same plane and arranged to engage and move the paper by successive steps from and free of the pile, a raceway formed by parallel inclosing walls adapted to receive and support the paper as it is moved by the said catches, a separate and independent movable catch adapted to engage the paper at the point where it was left by the intermediate catch, a shelf device arranged to receive the paper from the last catch in position for delivery, the pivoted connections 118, 120 whereby the said several catches are connected and means for operating said catches independently of each other.

45. In a device for feeding papers from a pile, a vertical raceway having walls adapted to hold two papers on edge side by side, the combination with said raceway, of three catches two of which are adapted to engage each a separate paper and simultaneously move them from the pile, a third catch movable independently of the others and having a greater stroke, and adapted to engage and move the paper left by the intermediate catch, whereby three papers are in movement simultaneously in the operation of delivering them, the travel of each paper being so timed as to cause the independent catch to move a paper from the raceway while two other papers are being moved simultaneously into the raceway.

46. In a machine for sealing the edges of papers, the combination with means for carrying, pasting and sealing the papers, and a shelf or ledge and means for tilting it, of devices for feeding and delivering the papers to said shelf, consisting of a holder for a pile of papers, means for maintaining the pile under pressure, the catches 112 arranged to act in succession horizontally across the holder to engage and move the papers edgewise from the box, one in advance of the other intermittently, a raceway arranged in alinement with said catches, having a bottom and adapted to receive and support two of the papers side by side, one in advance of the other as they are fed from the holder, an independently-acting catch 115 arranged to act horizontally within said raceway and engage and deliver the papers therefrom in succession and means for operating said catches simultaneously and in succession.

47. In a device for feeding papers from a pile, a vertical raceway having walls adapted to hold two papers on edge side by side, the combination with said raceway, of a catch 114 adapted to engage and deliver a paper, and catches 112 112 movable together independent of the raceway-catch, for engaging each a paper and delivering it into said raceway whereby three papers are in movement at the

same time, the said raceway-catch having a greater stroke than the catches for moving the papers from the pile.

48. The combination with a holder adapted to maintain a pile of papers under pressure standing on edge, a fender closing the feed end of said holder, and a laterally-extending raceway in alinement with the inner wall of said fender and having a bottom trough 109, of catches 112 arranged to slide horizontally along the inner walls of said fender and adapted to engage the same paper by successive steps to carry it from said box into the raceway, a terminal catch 114, arranged to slide horizontally within the raceway and means for separately operating the said catches consisting of the pivotally-connected arms 118, 120, 121 and the crank 122, whereby three papers will be separately moved by successive steps from the pile to deliver each in succession from the raceway, and means for actuating the said crank.

49. The combination with a holder adapted to receive a pile of papers standing on edge, and a fixed fender or guard at the feed end of said pile, whereby the papers are supported in vertical position, of a multiple of feed catches or ledges arranged in separate and independent sets each set adapted to reciprocate and separately and independently engage the vertical edge of separate papers and slide them by successive steps from the pile; means for actuating said catches whereby the terminal catch will have a greater throw and greater speed of movement than the initial catch and means for maintaining the pile under pressure toward its feed end.

50. The combination with a holder adapted to receive a pile of papers, and a fixed fender or guard at the feed end of said pile, of feed-catches arranged in separate and independent sets each set adapted to reciprocate and separately engage the vertical edge of separate papers and slide them from the pile, and inclines arranged upon the floor of the holder, up which the papers ride and drop off into the way and for the purpose stated.

51. For feeding papers from a pile, a feed-box closed at its feed end by a fender or fence, and having a spring-pressed follower between which and the said fender, the pile of papers is supported on their folded edges, a series of inclines fixed in the bottom of the box in the line of the feed of the pile, whereby in advancing the pile over and upon the edges of the inclines the front paper will pass off the inclines at their highest edges and settle by gravity to the floor between the inclines and the fender, and means for feeding the paper edgewise out from the pile in contact with the vertical wall of the fender and the vertical ends of the said wedges.

52. For feeding papers from a pile standing on edge one by one edgewise from the pile, a feed device consisting of a box, having its feed end closed by a fender or fence formed of horizontal bars, a raceway extending from one side of said box opening therein and having its vertical walls formed of horizontal bars, catches adapted to reciprocate horizontally upon the inner vertical wall of the fender, a catch adapted for independent reciprocation horizontally within the raceway, means for independently actuating said catches whereby the papers are fed from the pile into the raceway, supported therein and slid therefrom upon their edges, and means for feeding the standing pile of papers broadside against the fender.

53. The combination, with a holder adapted to receive a pile of papers standing on their edges, a feeder or fence at the feed end of said holder consisting of horizontal fixed bars 107, a carrier 111 mounted upon said fence, catches 112 standing on the inner vertical wall of said carrier, a raceway formed of vertical walls extending from the side of said holder, having its outer wall in vertical alinement with the inner wall of the fender, the other wall of the raceway forming a junction with the feed-space of said holder, a carrier 15 mounted upon ways of the raceway-wall and having a catch standing on the inner side of said raceway, means for reciprocating the said catches, the raceway-catch independently of the feeder-catches, and a spring-pressed follower for feeding the pile of papers broadside into engagement with the fender-catches.

54. For feeding papers from a pile standing on edge one by one edgewise from said pile, the combination with a holder adapted to contain a pile of papers standing on edge, and a fender against which the pile of papers is fed broadside on, of a raceway opening into the holder at its side, the outer wall of the raceway being an extension crossing the path of the feed of the pile and supporting it, and a series of catches, certain of the catches movable together for engagement with separate papers within the chamber of the box, the other catch separately movable within the raceway and engaging a paper therein, whereby the papers are slid in succession upon their edges from the pile into the raceway and from the latter they are slid free from pressure one at a time.

55. The combination in a machine for sealing the free edges of papers, of mechanism for carrying, pasting, sealing and delivering the sealed paper, with a holder having a fender and a spring-pressed follower for maintaining a pile of papers standing on edge under pressure against said fender, a raceway for the paper formed vertically at the side of said holder as a prolongation of its fender, devices movable on the inner wall of the fender and devices movable on the inner wall of the raceway for feeding the papers vertically edgewise from the holder and from the raceway, and means arranged between the carrying mechanism and the raceway operated and timed to receive the paper from the raceway and deliver it to the carrying mechanism in a direction at right angles to the travel of the feeding mechanism.

56. In combination, with the endless traveling belts arranged and operating to seize, support and carry the articles to be pasted and sealed between them, of pasters arranged and timed to operate to meet in contact with and on opposite sides of the article as its edges to be sealed are carried between the pasters, and means for applying a sealing-strip to the pasted edges.

57. For sealing the free edges of folded newspapers, the combination with mechanism whereby the article to be sealed, is seized, supported and carried in the operation of sealing and delivering it, and means for advancing and severing a sealing-strip in position to be engaged by the advancing paper, of means for applying paste to the opposite sides of the edge of the paper during its advancing movement to receive the sealing-strip.

58. For sealing the free edges of folded newspapers, the combination with mechanism whereby the article to be sealed, is seized, supported and carried in the operation of sealing and delivering it and means for advancing and severing a sealing-strip in position to be engaged by the advancing paper, of mechanism whereby paste is applied to both sides of the paper at its open edges and during its advancing movement to receive the sealing-strip, the said pasting mechanism consisting of the shafts 52, 53, one above and the other below the path of the paper, and each carrying a pasting-arm arranged to revolve in the same vertical plane in advance of the strip-supplying means, the gear 59, 59 and intermediate gear connecting the power-driven shaft whereby the pasters are caused to rotate at the same speed in the direction of the travel of the paper and to meet in engagement on the opposite sides of the paper, and suitable means for supplying the pasters with paste in their movements within a space between the rear edge of one paper and the advancing edge of the next paper.

59. For feeding papers from a pile standing edgewise, the combination, with a holder adapted to contain a pile of papers standing on edge, a fence or feeder against which the pile of papers is fed broadside on, and a vertical walled raceway at the side of and opening into the holder, of the carrier 111 mounted to slide upon the feeder, and having the catches 112, 112, the crank connections 121, 122 for actuating said carrier, the raceway-carrier 115 having the catch 114, the separate connections for actuating the raceway-carrier and means for actuating the said crank connections whereby to operate the said independent catches.

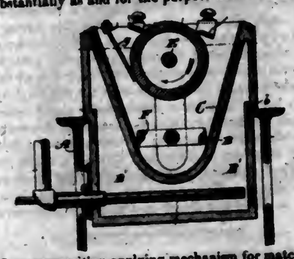
60. In a machine for sealing papers, the combination with means for carrying, pasting, and sealing the papers, and a tilting shelf or ledge for receiving and delivering the papers to the carrying mechanism, of a vertical raceway arranged in longitudinal alinement with said shelf and adapted to receive two papers side by side on edge, a feed device of three catches two of which are adapted to engage each a separate paper and simultaneously move them side by side from the pile, the third catch movable independently of the others and having a greater stroke than the two others, whereby three papers are in movement simultaneously in their delivery one at a time upon said shelf, means for actuating the catch of greater stroke relatively with the catches of less stroke, and means for actuating the shelf, the movements of which are timed in proper sequence with the movements of the catch of greatest stroke, in the way and for the purpose stated.

61. In a device for feeding papers from a pile, a vertical raceway adapted to receive two papers side by side on edge, the combination with said raceway, of a tilting shelf arranged in longitudinal alinement with said raceway and presented to receive the paper on its edge, a feed device of three catches, two of which are adapted to engage each a separate paper and simultaneously move them from the pile, the third catch movable independently of the others within the raceway and with a greater stroke, and means for actuating the several catches in unison with the tilting of the shelf in the way and for the purpose stated.

608,459. MATCH-MAKING MACHINE. JACOB P. WEBSTER, New Haven, Conn., assignor to the Diamond Match Company, Chicago, Ill. Filed Dec. 22, 1896. Renewed Oct. 7, 1897. Serial No. 654,577. (No model.)

Claim.—1. In a composition-applying mechanism for match-making machines, in combination with the receptacle for the composition and a moving feeder moving partly in and partly above the composition, a clearer extending down into the composition, with its lower end close to the feeder, and having a series of narrow openings for the passage of the composition, substantially as and for the purpose specified.

2. In a composition-applying mechanism for match-making machines, in combination with the receptacle for the composition, the rotary roller partially submerged in the body of the composition in the receptacle, and the clearer having a series of fingers with their ends submerged in the composition close to the periphery of the roller, substantially as and for the purpose described.



3. In a composition-applying mechanism for match-making machines, in combination with the receptacle for the composition, the rotary roller partially submerged in the body of the composition in the receptacle, and the clearer having a series of fingers, with narrow spaces between them, extending down into the body of the composition, with their lower ends close to the periphery of the roller, substantially as and for the purpose set forth.

4. In a composition-applying mechanism for match-making machines, in combination with the receptacle for the composition and the rotary roller partially submerged in the body of the composition, the clearer consisting of a bar suitably supported and extending across the space within the receptacle and a series of fingers extending downward and inward toward the roller, to a point below the top of the body of composition, and having their lower ends close to the periphery of the roller, substantially as and for the purpose shown.

608,460. HOSE-COUPLING. FREDERICK A. WOODERLIN, Brooklyn, N. Y. Filed July 22, 1897. Serial No. 645,494. (No model.)



Claim.—1. In hose-couplings the bushing as A, adapted to be secured within a rubber tube, having an annular seat in its interior as a in combination with a plunger as B provided with a shoulder as *b*, the shank *b'* passing through and extending beyond the bushing A, and the threaded connecting-nipple as C fastened to the free end of shank *b'* substantially as shown and described.

2. A hose-coupling consisting of the following three parts, namely: a hollow body-bushing adapted to be secured within a rubber tube, a plunger consisting of a piston and shank, the plunger being centrally positioned within the bushing so as to permit a free sliding and revolving movement, and a threaded nipple soldered or secured on the projecting end of the shank, substantially as shown and described.

3. In a hose-coupling the combination of a bushing as A adapted to be secured within a rubber tube, said bushing having one end portion of a smaller internal diameter than the other end, the difference in these two diameters forming an internal annular seat; of a hollow plunger as B provided with a shoulder and having a shank which passes through and extends beyond the smallest internal diameter end of bushing A and of a threaded nipple as C secured to the said shank, all combined in the manner set forth and described.

608,461. APPARATUS FOR PREVENTING KETTLES BOILING DRY. FREDERICK G. VETTER, Greenfield, Mass. Filed Jan. 6, 1898. Serial No. 665,796. (No model.)



Claim.—In an apparatus for preventing kettles or steamers boiling dry, consisting of the tank described provided with the well and tubing extending through its bottom and the float, combined with the cover having an enlarged aperture therein on which cover the tank is designed to rest, and through which aperture the said tubing and well pass, the tubing and the valve mounted therein, the lever pivoted to the upper end of the extension of the wall, and connections between the same and the valve and float, as shown and for the purpose set forth.

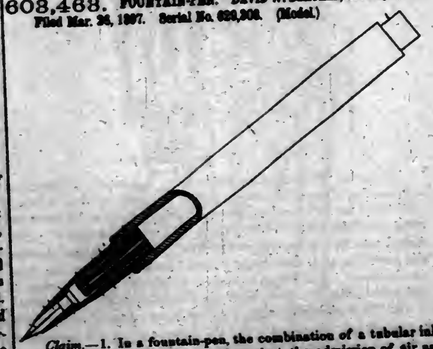
608,462. MEANS FOR MANUFACTURING TWIST-DRILLS. ROBERT L. RAMSAY, Plattekill, N. Y. Filed June 8, 1896. Serial No. 594,770. (No model.)



Claim.—1. In means for use in making a twist-drill, the rolls A, A, for forming at one pass the flutes or grooves in the blank, said rolls each having a die-face *a*, convex in cross-section and corrugated or wavy in the direction of its length, substantially as set forth.

2. In means for use in making a twist-drill, the rolls A, A, for forming the longitudinal flutes or grooves in the opposite faces of the blank, said rolls having each a die-face *a*, convex in cross-section and corrugated or wavy in the direction of its length, said corrugations running out at the lateral edges of the die-face in order that the cutting edges z^2 of the drill along the margins of the flute therein may be formed straight and true, substantially as set forth.

608,468. FOUNTAIN-PEN. DAVID W. BRAUNER, Brooklyn, N. Y. Filed Mar. 26, 1897. Serial No. 629,908. (Model.)



Claim.—1. In a fountain-pen, the combination of a tubular ink-reservoir closed at its upper end against the admission of air and open at its lower end, an open-ended tubular nozzle mounted upon the open end of said reservoir and formed at its outer end with a comparatively small-sized bore for retarding the free outflow of ink from the nozzle, and a comparatively small-sized slit writing-pen having its body mounted within and across the said bore of the nozzle and dividing the same longitudinally throughout the length of the body of the inserted pen into upper and lower passages adjacent the pen, the nibs projecting from the mouth of the nozzle with the slit thereof extending within the bore thereof and the said passages themselves constituting the means for feeding the ink from the reservoir to the nibs of the pen, substantially as and for the purpose set forth.

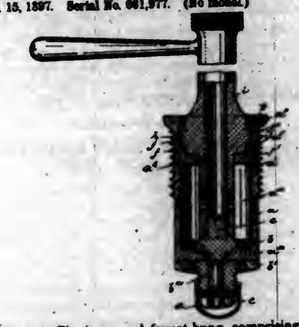
2. In a fountain-pen, the combination of an ink-reservoir closed at its upper end, an ordinary tubular nozzle mounted upon the lower end of said reservoir, a writing-pen provided with nibs and set in the bore of said nozzle with the nibs thereof projecting from the mouth of the nozzle and extending inwardly within the bore thereof, said pen dividing said bore longitudinally whereby there is constituted above and below said pen a free passage to the heel thereof and in communication with the reservoir, and a plug provided with air and ink passages mounted in the bore of said nozzle at the inner end thereof for regulating the flow of ink from the reservoir to the pen, substantially as and for the purpose set forth.

3. In a fountain-pen, the combination of an ink-reservoir closed

at its upper end, an ordinary tubular nozzle mounted upon the lower end of said reservoir, and a writing-pen provided with nibs and set in the bore of said nozzle with the nibs thereof projecting from the mouth of the nozzle and extending inwardly within the bore thereof, said pen dividing said bore longitudinally whereby there is constituted above and below said pen a free passage to the heel thereof and in communication with the reservoir, and a plug channeled or cut away longitudinally to provide air and ink passages throughout its length and set in the bore of said nozzle at the inner end thereof, said plug being capable of being turned on its axis to change the angular position of the ink-passages thereof and vary the relation of the same to the plane of the pen, substantially as and for the purpose set forth.

4. In a fountain-pen, the combination of a tubular ink-reservoir closed at its upper end against the admission of air and open at its lower end, an open-ended tubular nozzle mounted upon the open end of said reservoir and having the diameter of the bore at its outer end comparatively small and less than that at the inner end, the diameter of the bore at said inner end of the nozzle being less than that of the said ink-reservoir, and a comparatively small-sized slit writing-pen mounted in the outer end of the nozzle within the smaller bore thereof and dividing the same into upper and lower passages adjacent the writing-pen, the nibs of the writing-pen projecting from the mouth of the nozzle with the slit thereof extending within the bore and the said passages themselves constituting the means for feeding the ink to the nibs of the writing-pen, substantially as and for the purpose set forth.

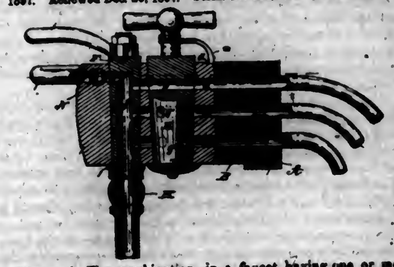
608,464. FAUCET-BUNG. DILLON BERRY, Newark, N. J. Filed Dec. 15, 1897. Serial No. 661,977. (No model.)



Claim.—1. The improved faucet-bung, comprising a cylindrical body having exterior threads at or near its upper or outer ends and a valve-seat at its lower or inner end, the said body at its outer end being provided with an enlarged chamber and shoulder a^4, a cup-shaped seat for the key-spigot fitting within said enlarged chamber and providing an inward flange f', semicircular grooves j, and opposite openings g, and valves arranged to engage said valve-seat, all said parts being arranged and combined, substantially as set forth.

2. The combination with a faucet-bung body, of a cylindrical key-spigot seat arranged within the outer end of said faucet-bung body and providing an inward flange f', and opposite openings g, and semicircular grooves j, on the inside, the said seat being imperviously fixed within said body, substantially as set forth.

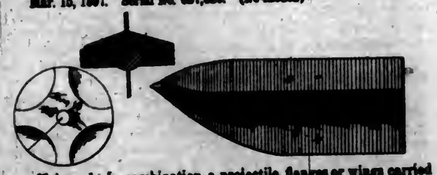
608,465. LIQUID-DISTRIBUTING FAUCET AND PIPE-CLEANER. JOSEPH F. DREDGE and JOHN DOYLE, Connersville, Ind. Filed Mar. 9, 1897. Renewed Dec. 29, 1897. Serial No. 664,445. (No model.)



Claim.—1. The combination, in a faucet having one or more supply-inlets, and a single discharge, of a discharge-valve having a central longitudinal outlet with openings which register at certain positions of the valve with the supply inlet or inlets, a cock for closing the valve, a water-supply pipe emptying into the longitudinal outlet of the discharge-valve and a cock for turning the water-supply on or off, substantially as described and for the purposes specified.

2. The combination, in a faucet having a plurality of supply-inlets and a single discharge, of a discharge-valve having a central longitudinal outlet, communicating in the open or discharging position of the valve with all of the supply-passages, a cock for closing the valve, and a second valve parallel with the discharge-valve intersecting the inlet-passages before they reach the discharge-valve, said second valve having transverse, diametrically-placed openings, one for each supply-passage and registering therewith successively when brought into alinement by rotating the valve, whereby liquids from a plurality of tanks can be discharged through a single outlet, and a water-supply pipe emptying into the longitudinal outlet of the discharge-valve, and a cock for turning the water-supply on or off, all substantially as shown and described and for the purposes specified.

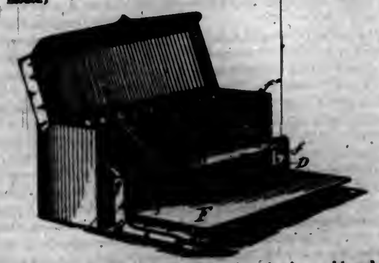
608,466. PROJECTILE. JOHN H. HANNER, Allegheny, Pa. Filed Mar. 15, 1897. Serial No. 627,620. (No model.)



Claim.—1. In combination, a projectile, flanges or wings carried by said projectile, a protecting-jacket surrounding said flanges or wings and engaging the same, a removable head provided with a lug engaging and opening in the end of the projectile, substantially as shown and described.

2. In combination, a projectile provided with wings or flanges, a protecting-jacket engaging said flanges, and a removable head engaging the rear end of the projectile, substantially as shown and described.

608,467. MEDICINE-CASE FOR PHYSICIANS. MARGARET HOYT, Brooklyn, N. Y. Filed Dec. 15, 1897. Serial No. 661,988. (No model.)



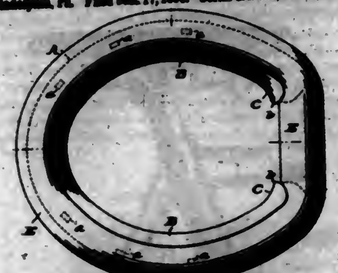
Claim.—1. The combination of a box, having a hinged front wall, bracket-supports attached to the inside of said front wall, and a bottle-carrying leaf pivoted only to the ends of and freely swinging on said supports and adapted to be folded parallel with the said front wall or supported in rearward forwardly-inclined position, substantially as set forth.

2. The combination of a box, having a hinged front wall, bracket-supports attached to the inside of said front wall, a freely-swinging leaf pivoted only to said supports, and a second freely-swinging leaf provided with arms pivoted to said supports, said leaves being adapted to support bottles or the like and to swing parallel with the front wall in its inward or outward position, and said second leaf being adapted to be folded over onto the other leaf, so that each leaf may be exposed separately, substantially as set forth.

3. The combination of a box having a hinged front wall, a row of bottles supported on the rear wall, bracket-supports attached to the inside of said front wall, and a leaf pivoted to the said supports, said leaf being adapted to carry a row of bottles and to be supported by its free edge on said first row of bottles, substantially as set forth.

4. The combination of suitable supports, a leaf pivoted at its opposite ends to said supports only, and a second leaf provided with arms pivoted at their outer ends only to the supports, said leaves being adapted to be separately moved into and be supported in rearwardly and upwardly inclined position, substantially as set forth.

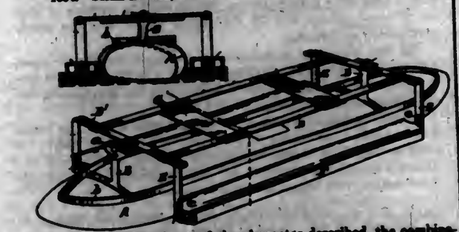
608,468. ELASTIC-TREAD HORSESHOE. WILLIAM B. HOPKINS, Philadelphia, Pa. Filed Jan. 17, 1898. Serial No. 667,247. (No model.)



Claim.—1. The combination, with the base-plate, of a concave retaining-wall arranged around the inner periphery thereof; and a rubber ring having a normal diameter less than the diameter of said wall and adapted to be sprung into position over the latter and retained thereon by its own tension without the use of positive holding devices, substantially as described.

2. The combination, with the base-plate, of a concave retaining-wall arranged around the inner periphery thereof, said wall diverging inwardly at its extremities and terminating in rounded lips arranged with relation to one another, substantially as set forth; and a rubber ring having a normal diameter less than the diameter of said wall, and adapted to be sprung into position and retained thereon by its own tension without the use of positive holding devices, substantially as described.

608,469. BOAT. JOSEPH KAUFF, Detroit, Mich. Filed Sept. 30, 1897. Serial No. 653,203. (No model.)



Claim.—1. In a boat of the character described, the combination with the hull, of the supporting-frame mounted on the hull and carrying the seats for the occupants of the boat, the hollow ballast-floats open at each end pivoted to the bars depending from said supporting-frame and adapted to revolve.

2. In a boat of the character described, the combination with the hull, the standards rising from the deck thereof, the supporting-frame pivotally mounted on said standards and having the four depending bars provided with slots in their lower ends, and the hollow ballast-floats having an opening therethrough and journaled in said slots.

608,470. FURNACE FOR HEATING RIVETS OR FOR SIMILAR USES. ANDREW H. LAIMBEER and FRED J. LAIMBEER, New York, N. Y. Filed Jan. 17, 1898. Serial No. 667,014. (No model.)



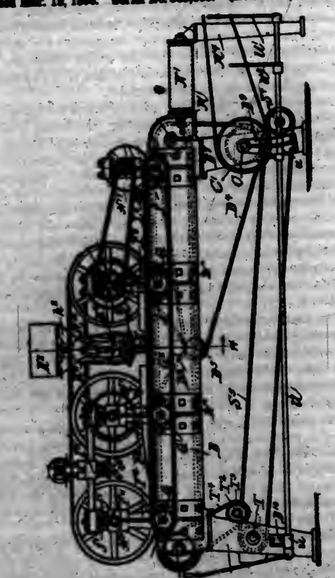
Claim.—1. In a furnace for heating rivets, &c., the combination with a metal floor-plate, of a metallic box having a permanently-closed bottom, an open front, an opening at its outer side, and a perforated arched top or crown serving as the grate or the fuel-support, such box being inserted in the brick-work of the furnace and resting on said floor, a door on the furnace for closing the front of the box, and an opening in the side of the brick-work coinciding with the said opening in the box, and communicating with a blast-pipe adapted for discharging compressed air horizontally and directly into the box under the whole surface of its crown, as shown and described.

2. In combination with the air-box 7, having the closed bottom, open front, apertured side and arched perforated crown, the described combustion and heating chambers, the bottom plate 2 beneath them, the low wall between them, the guideways or uncoupled counter-weighted swing-doors 12, 13ˣ at front and rear of the heating-chamber and arranged to freely swing outward by the pressure of internal gases, all as shown and described.

3. A portable furnace having a combustion-chamber and a heating-chamber 5, provided with a bottom plate 2, and with the metal box located underneath the combustion-chamber and side by side with but a co plane lower than that of the heating-chamber, and having a low brick wall between said chambers, and counterweighted doors at the ends of such chambers, adapted under undue internal pressure automatically to swing outward, and also to slide vertically without guideways, and serving by their own gravity to swing back to place and to hug tightly against the furnace to close its end openings, all as set forth.

4. The described rivet-heating furnace, having a skeleton angle-iron frame, a metal floor and brick-work supported thereon, the parallel chambers 4 and 5, the arched roof over both, the low bridge-wall, the air-box 7, inserted in an opening at the bottom of the combustion-chamber 4, and made with an open front, a thick and perforated arched crown or top, serving as a bed for the fuel, a closed bottom, an opening in its side, and a blast-pipe discharging into the box through such opening, and counterweighted swing-doors at front and rear of the heating-chamber, these parts being combined and operating as set forth.

608,471. PAPER-BOX MACHINE. JOHN W. LOW, Chicago, Ill. Filed Mar. 19, 1898. Serial No. 673,898. (No model.)



Claim.—1. A machine for folding and pasting box-blanks comprising stationary tracks or ways, crom-slats pivotally connected with each other to form an endless traveling carrier and provided with rollers which run on said ways, feed belts and pulleys located above said carrier, stationary folders located at opposite sides of the carrier for bending the marginal part of the blank, pasting mechanism acting on one of the bent margins of the blank after the same has been acted upon by the folders, means for folding the marginal parts of the blanks to bring their edges together, and pressing mechanism for pressing together the pasted edges.

2. A machine for folding and pasting box-blanks comprising an endless traveling carrier, a traveling pressure device located over the same, stationary folders located at the side of said traveling pressure device for bending the edges of the blank upwardly, means located

in position to act on the blank after it has passed said folders, for applying paste to one of the upwardly-bent edges of the blank, said means embracing a paste-applying roller, and guide-rollers for holding the edge of the blank in contact with the paste-applying roller, means for folding the parts of the blank to bring the edges thereof together, and pressing mechanism for pressing together the pasted edges.

3. A machine for folding and pasting box-blanks comprising an endless traveling carrier, a traveling pressure device located over the same, stationary folding-guides located at the sides of said traveling pressure device, a pasting mechanism located in position to act on the blanks after they have passed the said folders and comprising a paste-applying roller, and guide-rollers adapted to hold the edge of the traveling blank in contact with the paste-applying roller, means for folding together the pasted edges of the blank, and a pressing mechanism for pressing together the said pasted edges.

4. A machine for folding and pasting box-blanks comprising feed mechanism for giving movement to the blanks, means for folding the marginal parts of the blank at right angles to the central part, and means for folding said marginal parts to bring their edges together comprising pulleys turning on vertical axes at the sides of the path of the blank, other pulleys mounted on horizontal axes and overhanging the path of the blank, and belts trained over said pulleys.

5. A machine for folding and pasting box-blanks comprising an endless traveling carrier, a traveling pressure device located over the carrier, stationary folding-guides located at the sides of said traveling pressure devices, and means for folding down the marginal parts of the blanks comprising pulleys mounted on vertical axes at the sides of the carrier, other pulleys mounted on horizontal axes and located over the carrier, and belts trained over said pulleys.

6. A machine for folding and pasting box-blanks comprising a machine-frame, an endless traveling carrier, a traveling pressure device comprising shafts located over the carrier-belt, pulleys on the shafts, and belts on said pulleys, the pulleys at one side of the carrier being movable laterally on the shaft, standards for supporting the shafts, which are at one side of the carrier, constructed to slide laterally on the machine-frame, connections between said standards and the laterally-movable pulleys by which the pulleys are moved with the standards when the latter are shifted on the frame, and folding-guides for the blank of which those at one side of the carrier are attached to and move with the said standards.

7. A machine for folding and pasting box-blanks comprising a machine-frame, an endless traveling carrier, a traveling pressure device comprising shafts located over the carrier-belt, pulleys on the shafts, and belts on said pulleys, the pulleys at one side of the carrier being movable laterally on the shaft, standards for supporting the shafts, which are at one side of the carrier, constructed to slide laterally on the machine-frame, connections between said standards and the laterally-movable pulleys by which the pulleys are moved with the standards when the latter are shifted on the frame, and folding-guides for the blank, of which those at one side of the carrier are attached to and move with the said standards, and actuating devices attached to the several standards whereby the same may be moved at one time.

8. The combination with feed mechanism and folding mechanism, embracing folders which are laterally adjustable to correspond with the width of the blank, of pasting mechanism embracing a paste-applying roller, and means for supplying paste thereto, said pasting mechanism being vertically adjustable to correspond with the width of the folded margin of the blanks.

9. The combination with folding devices of pasting mechanism comprising a paste-receptacle, a paste-receiving roller located beneath the discharge-opening of the paste-receptacle and turning on a horizontal axis, a paste-conveying belt, two supporting-pulleys for the belt, one of which is mounted on a vertical axis and the other on a horizontal axis, and guide-pulleys engaging said belt between the two pulleys last mentioned.

10. The combination with an endless traveling carrier of means for folding inwardly the marginal parts of a blank resting on the carrier comprising two pulleys mounted on vertical axes at either side of the carrier, two pressure-pulleys mounted on horizontal axes over the carrier, belts trained over said pulleys, and two guide-pulleys mounted on horizontal axes in the same plane with the pressure-pulleys.

603,472. SADDLE-POST. ALBERT E. MCGILL, Chicago, Ill. Filed Nov. 27, 1896. Serial No. 613,578. (No model.)

Claim.—1. In a saddle-post for vehicles, the combination of a saddle-post made in two plano-convex wedge-shaped portions, and means for operating the parts to cause the proper engagement or disengagement, substantially as described.

2. In a saddle-post for vehicles, the combination of a post formed of two plano-convex wedge-shaped portions, a head on one of such portions, a rod on the other of such portions, and a lever arranged on the head and in contact with the rod so that its operation tends to move the parts and cause the proper engagement or disengagement, substantially as described.



3. In a saddle-post for vehicles, the combination of a saddle-post formed of two plano-convex wedge-shaped portions, a head on one of such portions, a rod on the other portion extending above the head, the head portion arranged and adapted to receive the spring or springs of a saddle, a projection on such head portion, a cam-lever straddling such projection and arranged to contact the rod and to grasp the saddle-spring between its cam-shaped portions and the head portion so that its operation tends to cause the engagement or disengagement of the saddle-post with a vehicle-frame and a saddle with the saddle-post, substantially as described.

603,473. MANTLE FOR INCANDESCENT GAS-BURNERS. HIERICH P. D. OELRAVER, Hamburg, Germany. Filed July 15, 1897. Serial No. 644,705. (No model.)

Claim.—1. A mantle or the like for incandescent burners, composed of thorium and cerium oxid, containing silicic acid for the purpose of improving the duration of illumination, the emission of light, the fireproof quality, and the strength of resistance of the mantle substantially as described.

2. The process of manufacturing mantles or the like for incandescent burners, consisting in impregnating a fabric with a solution of thorium, cerium and silicic acid and burning the impregnated fabric, substantially as set forth.

3. The process of manufacturing mantles or the like for incandescent burners, consisting in precipitating silicic acid within the fibers of the fabric, impregnating the fabric with a solution of thorium and cerium salts, and then burning out the fabric, substantially as set forth.

603,474. IRONING-TABLE. JOHN G. SEIBOLD, New York, N. Y. Filed June 10, 1897. Serial No. 640,208. (No model.)



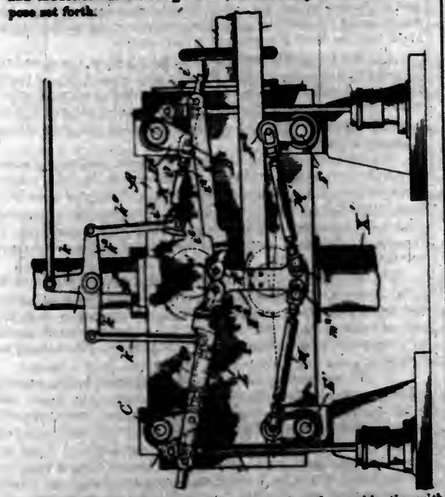
Claim.—1. The combination with an ironing-board, of the two sets of tubular, telescopic legs, both of which are hinged to the board and in one of which the legs converge and unite in a perforated lug having a detachable connection with the board.

2. The combination with an ironing-board, of the tubular legs, telescopic extensions of said legs, permanent connections between one set and the board, the legs of another set converging and uniting in a perforated lug, a member secured to the board, and a removable pintle passing through said lug and member.

603,475. CUT-OFF MECHANISM FOR STEAM-ENGINES. JOHN STUMPF, Chicago, Ill. Filed Oct. 23, 1896. Renewed Feb. 9, 1898. Serial No. 669,712. (No model.)

Claim.—1. In a cut-off mechanism for steam-engines the combination with the steam-cylinder and piston, of a vibratory bar movable under the action of the piston and having an impact-piece pivotally attached thereto, an induction-valve-opening device in position to be engaged, moved and released by said impact-piece, an engine-governor operatively connected with said device, to adjust it in the path of said impact-piece and thereby regulate the time of engagement of the impact-piece with said device, and induction-valve-closing means, substantially as and for the purpose set forth.

2. In a cut-off mechanism for steam-engines the combination with the steam-cylinder and piston, of a vibratory bar having impact-pieces pivotally attached thereto at opposite sides, induction-valve-opening devices in position respectively, to be engaged alternately and moved and released by the respective impact-pieces, an engine-governor operatively connected with said devices to adjust them simultaneously in the paths of the said impact-pieces and thereby regulate the time of engagement of the impact-pieces with the devices, and induction-valve-closing means, substantially as and for the purpose set forth.



3. In a cut-off mechanism for steam-engines the combination with the steam-cylinder and piston, of a vibratory bar having an impact-piece pivotally attached thereto and movable at said piece about an endless course under the action of the piston, an induction-valve-opening device adjustable as to length and in position to be engaged at its end, moved and released by said impact-piece, an engine-governor operatively connected with said device to adjust it at its end more or less into the path of said impact-piece and thereby regulate the time of engagement of the impact-piece with said device, and induction-valve-closing means, substantially as and for the purpose set forth.

4. In a cut-off mechanism for steam-engines, the combination with the steam-cylinder and piston, of a rotary induction-valve provided with returning means for moving it normally to one position, a vibratory bar movable under the action of the piston and having an impact-piece pivotally attached thereto, a device eccentrically connected with said valve and extending into the path of said impact-piece to be engaged and moved thereby, to turn said valve from normal position, and then release, to permit the valve-returning means to act, and an engine-governor operatively connected with the cut-off mechanism to regulate the time of engagement between the said impact-piece and device in each operation, substantially as described.

5. In a cut-off mechanism for steam-engines the combination with the steam-cylinder and piston of a rotary induction-valve provided with closing means, a vibratory bar movable under the action of the piston and having an impact-piece pivotally attached thereto, a valve-opening device eccentrically connected toward one end with the valve and provided at its opposite end with a face at which it projects into the path of the said impact-piece to be engaged, moved and released thereby, and an engine-governor operatively connected with said device to adjust the end face thereof in the path of said impact-piece and thereby regulate the time of engagement of the said impact-piece and end face in each operation, substantially as and for the purpose set forth.

6. In a steam-engine, the combination with the steam-cylinder, its induction-valves, the piston and governor, of closing means for the said valves, a vibratory bar having impact-pieces pivotally attached thereto adjacent to the cylinder and actuated from the piston to travel an endless course and operatively connected with the induction-valves, induction-valve-opening devices in position, respectively, to be engaged alternately and moved and released by the respective impact-pieces, and a governor actuated from the piston and operatively connected with the said devices to adjust them in the paths of said impact-pieces and thereby regulate the time of engagement of the impact-pieces with the devices, substantially as and for the purpose set forth.

7. In a steam-engine the combination with the steam-cylinder, piston and governor, of a rotary induction-valve at the said chamber, valve-closing means, a vibratory bar, operatively connected at one end with the piston to travel an endless course at its opposite end adjacent to the cylinder and having at the latter end an impact-piece pivotally attached thereto, a valve-opening bar eccentrically connected with said valve toward one end and extending at its opposite or free end into the path of said impact-piece, to be engaged and moved longitudinally thereby, to open the valve, and then released, and suspending means for the bar connected with the free end portion thereof, and operatively connected with the governor to adjust the bar in the path of said impact-piece, under the action of the governor, and thereby regulate the time of engagement between said impact-piece and bar, substantially as and for the purpose set forth.

8. In a steam-engine the combination, with the piston-chamber, piston and governor, of a rotary induction-valve at the said chamber, valve-closing means, a valve-opening bar eccentrically connected with the valve, a head operatively connected with the piston to travel an endless course, a plunger pivotally connected at one end with said head and movably supported at the other end, and provided with an impact-face to engage, move and release said bar, the bar being operatively connected with the governor to be adjusted thereby in the path of said impact-face to regulate the time of engagement of the said face with the bar in each operation, substantially as and for the purpose set forth.

9. In a steam-engine, the combination, with the piston-chamber, piston and governor, of a rotary induction-valve at the said chamber, valve-closing means, a valve-opening bar eccentrically connected with the valve, a head operatively connected with the piston to travel an endless course, a plunger pivotally connected at one end with said head and sliding upon said bar and provided with an impact-face to engage, move and release said bar, the bar being operatively connected with the governor to be adjusted thereby, in the path of said impact-face, to regulate the time of engagement of the said face with the bar in each operation, substantially as and for the purpose set forth.

10. In a steam-engine, the combination, with the piston-chamber, piston and governor, of a rotary induction-valve at the said chamber, valve-closing means, a valve-opening bar eccentrically connected with the valve, a head operatively connected with the piston to travel an endless course, a plunger pivotally connected at one end with said head and sliding upon said bar and provided with an impact-face to engage, move and release said bar, suspending means for the bar operatively connected with the governor and movable under the action thereof to adjust the bar in the path of said impact-face and thereby regulate the time of engagement of the face and bar in each operation, substantially as and for the purpose set forth.

11. In a steam-engine, the combination with the piston-chamber, piston, shaft, governor, induction-valve and induction-valve-closing means, of a vibratory bar eccentrically connected at one end with the shaft, having an impact-piece pivotally attached thereto toward its opposite end adjacent to the cylinder and pivotally and shiftingly supported between its ends, an induction-valve-opening device in position to be engaged, moved and released by said impact-piece, and operatively connected with the governor to be adjusted thereby in the path of said impact-piece and thus to regulate the time of engagement of the impact-piece with the said device in each operation, substantially as and for the purpose set forth.

603,476. DISTRIBUTER FOR SEEDS AND FERTILIZERS. SAMUEL L. ALLEN, Moorestown, N. J. Filed May 10, 1897. Serial No. 636,958. (No model.)

Claim.—1. In a seed-sowing machine, a movable seed-discharge shutter having a fixed range of movement, means for operating the same, a hopper, and means for adjusting the hopper relatively to the shutter to regulate the quantity of seed to be discharged at each opening of the shutter.

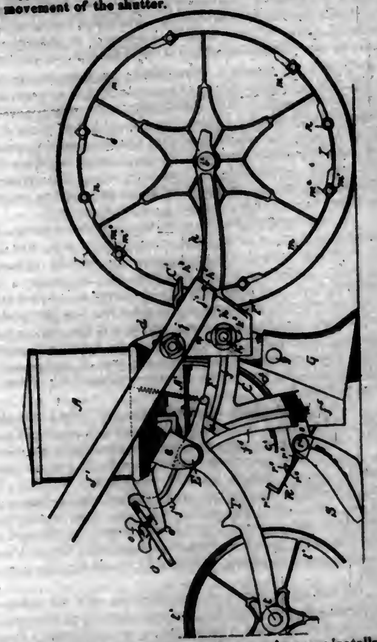
2. In a seed-sowing machine, a pivotally-movable hopper, a discharge-orifice in said hopper, means for opening and closing said discharge-orifice for regulating the discharge of the seed, and means for adjusting the position of the hopper to govern the area of the discharge-orifice.

3. In a seed-sowing machine, a movable hopper, a movable seed-discharge shutter, means for operating said shutter, and means for adjusting the position of said hopper to regulate the quantity of seed to be discharged at each opening of the shutter.

4. In a seed-sowing machine, a frame, a hopper pivoted thereto having a bottom discharge-opening, a shutter normally closing said opening, means for reciprocating said shutter, and means for adjusting the position of the hopper.

5. A seed-sowing machine having an adjustable hopper, a movable shutter at the bottom of said hopper, devices for operating said shutter to discharge the seed, and means for adjusting the position

of the hopper to regulate the area of the discharge-opening effected by the movement of the shutter.



6. In a seed-sowing machine, a frame, a hopper pivotally connected thereto and having at its bottom a seed-discharge opening, a movable shutter normally closing said opening, means for operating said shutter to discharge the seed, and means for adjusting the position of the hopper to regulate the area of the discharge-opening effected by the movement of said shutter.

7. In a seed-sowing machine, a frame, a hopper having a lower seed-discharge channel terminating in a V-shaped end, and a movable discharge-shutter arranged under the seed-discharge channel and having a recessed or slotted end portion, the ends of the seed-discharge channel and the shutter coacting to form a diamond opening for the discharge of the seed.

8. In a seed-sowing machine, a hopper having at its point of discharge a recessed or V-shaped opening, a shutter having a recessed or V-shaped opening adapted to be moved to alternately close and open the hopper discharge-opening, and means for actuating said shutter.

9. In a seed-sowing machine, a hopper recessed at the point of discharge, in combination with a shutter having a recessed end adapted to be moved to close or open the hopper-discharge.

10. In a seed-sowing machine, a hopper having a lower seed-discharge channel, a movable shutter forming one wall of the channel, and means for actuating said shutter to form a seed-discharge opening between the end of the shutter and the end of the seed-discharge channel.

11. In a seed-sowing machine, a hopper having a lower seed-discharge channel, a movable shutter forming one wall of said channel, means for actuating said shutter to form a seed-discharge opening between the end of the shutter and the end of the seed-discharge channel, and a regulating-cam for adjusting the area of the discharge-opening.

12. In a seed-sowing machine, a hopper having a seed-discharge channel provided at its lower end with an inclined cross-bar, in combination with a seed-discharge shutter having at its end a recess or slot and adapted to be moved across said inclined bar to alternately open and close the seed-discharge opening.

13. In a seed-sowing machine, a hopper having at its lower end a seed-discharge channel formed partly by the hopper-walls and partly by a movable shutter, with means for actuating said movable shutter to form between the fixed walls of the channel and the end of the shutter a seed-discharge opening.

14. In a seed-sowing machine, a hopper having at its lower end a seed-discharge channel having two fixed walls and two movable walls, one of each movable walls forming a seed-discharge shutter with means for actuating said shutter, substantially as specified.

15. In a seed-sowing machine, a hopper having a seed-discharge channel, a movable shutter forming one wall of the channel, means for actuating said shutter to form a seed-discharge opening between the end of the shutter and the end of the discharge-channel, the upper end of said shutter projecting within the hopper and forming a seed-stirrer.

16. In a seed-sowing machine, a hopper having a seed-discharge channel, a movable shutter forming one wall of such channel, means for actuating said shutter to form a seed-discharge opening between the end of the shutter and the end of the discharge-channel, and means for adjusting the positions of both the hopper and the shutter and for regulating the limit of movement of such shutter.

17. In a seed-sowing machine, a frame, a hopper, A, a pivot-bolt, E, connecting the hopper to the frame, a seed-channel formed partly by the lower walls of the hopper and partly by sliding plates, c', c^2, the end of the lower plate, c^2, having a slot or recess, c^4, adapted to form a seed-discharge opening and means for actuating said plate, c^2, substantially as specified.

18. The combination of the frame, a hopper, side bars, b, formed on said hopper, an inclined bar, b', connecting said side bars, a seed-discharge shutter comprising sliding plates, c', c^2, adapted to reciprocate on said side bars, the lower plate, c^2, being provided at one end with a slot or recess, c^4, which in connection with the said bar, b', forms a seed-discharge opening, and means for actuating said shutter, substantially as specified.

19. In a seed-sowing machine, a frame, a hopper having at its lower portion a seed-discharge channel, a combined discharge-shutter and seed-stirring device comprising plates, c', c^2, arranged on either side of and forming movable walls for the seed-channel, and means for reciprocating said shutter and stirring device, substantially as specified.

20. In a seed-sowing machine, a frame, a hopper having a lower seed-discharge channel formed partly by the walls of the hopper and partly by movable plates, c', c^2, which extend up into the hopper and serve to agitate the seed therein, a shutter-frame, C, embracing and surrounding the seed-channel and to which said plates, c', c^2, are secured, a projecting finger, C', secured to or formed integral with the shutter-frame, means for guiding said frame and finger, and means for raising the finger to effect the reciprocation of the shutter, substantially as specified.

21. In a seed-sowing machine, a frame, a hopper having a lower seed-discharge channel formed partly by bars, b, b', integral with the hopper and partly by sliding plates, c', c^2, a shutter-frame and finger, C, C', carrying said plates, a slotted guide, d, projecting from the hopper a pin, d', carried by the shutter structure and extending through said slot, an actuating-wheel, and a series of pins on said wheel adapted to operate on said finger to effect the reciprocation of the shutter, substantially as specified.

22. In a seed-sowing machine, a frame, a hopper pivoted thereto and provided with a lower seed-discharge channel, a movable shutter, means for reciprocating said shutter to form at the end of the seed-channel a discharge-opening, and a cam, O, for moving said hopper on its pivot to adjust the relative positions of the end of the seed-channel and the end of the shutter, substantially as specified.

23. In a seed-sowing machine, a frame, a hopper pivoted thereto, a cam pivotally secured to the frame and adapted to coact with a fixed portion of the frame to effect the pivotal adjustment of the hopper, a seed-discharge channel at the lower end of the hopper formed partly by fixed side and end walls, b, b', and partly by sliding plates, c', c^2, adapted to reciprocate on said side bars, the lower plate, c^2, being provided with a slot or recess, c^4, which in connection with the end bar, b', forms a seed-discharge opening, and means for actuating said shutter, substantially as specified.

24. In a seed-sowing machine, having a hopper pivotally connected to the frame of the machine and adapted to be raised or lowered at will upon the frame, mechanism for automatically closing the seed-discharge opening when the hopper is raised to its full extent upon the frame.

25. In a seed-sowing machine, a frame, handles thereon, a seed-hopper pivoted to said frame, a discharge-shutter provided at the bottom of the hopper, a driving-wheel adapted to operate the said shutter, and a covering-roller hung to the rear end of the frame and adapted on the raising of the handle to disconnect the driving-wheel and the discharge-shutter.

26. A seed-sowing machine, comprising a frame, a driving-wheel carried thereby, a seed-hopper pivoted to the frame, a discharge-shutter carried by the hopper and adapted to be operated by the driving-wheel, a covering-roller pivotally hung to the frame and adapted to elevate the hopper when the handles are raised and thereby disconnect the shutter-operating mechanism.

27. In a seed-sowing machine, a frame, a seed-hopper pivoted thereto, a discharge-shutter for governing the discharge of the seed, a driving-wheel adapted to operate upon said shutter, a covering-roller hung to the rear end of the frame, and lever-arms extending beyond the pivot-point of the covering-roller frame and adapted to raise the hopper and its shutter from contact with the shutter-actuating mechanism when the handles are raised.

28. In a seed-sowing machine, a frame, a hopper pivoted thereto, projections as d', extending laterally from the sides of the hopper, seed-discharge mechanism comprising a movable shutter and a driving-wheel having projections adapted to engage with and actuate the same, a covering-roller, a frame, T, pivoted to the frame and carrying said roller, arms, t', secured to or formed integral with the roller-frame and extending beyond its pivot-point, said arms being adapted to engage with the projections, d', when the handles are raised.

29. In a seed-sowing machine, a hopper, means for discharging the seed therefrom, a guide-box arranged below the seed-discharge opening and an inclined plate adapted to be moved into or from the path of the seed falling through said guide-box.

30. In a seed-sowing machine, a hopper, means for discharging the seed therefrom, a guide-box situated below the seed-discharge opening and having a slotted rear wall, and an inclined plate, R, movable through said slot into or from the path of the falling seed.

31. In a seed-sowing machine, a hopper, means for discharging the seed therefrom, a guide-box provided below the seed-discharge opening and having a slotted rear wall, a plate, R, and a holding-spring, r^3, for retaining said plate in an operative or inoperative position, substantially as specified.

32. In a seed-sowing machine, a hopper, means for discharging the seed therefrom, a guide-box below the seed-discharge opening, and inclined plate adapted to be moved into or from the path of the seed falling through said guide-box, and a second plate below and inclined in a direction opposite to the first plate said second plate forming a stationary portion of the machine and being normally out of the path of the falling seed.

33. In a seed-sowing machine, a hopper, means for discharging the seed therefrom, a guide-box, f^3, situated below the seed-discharge opening, an adjustable inclined plate, R, having on its under side a recess, r^4, and a spring, r^3, adapted to hold said adjustable plate in operative or inoperative position, substantially as specified.

34. In a seed-sowing machine, a hopper, a seed-discharge shutter therefor, a driving-wheel having an internal ring in which are formed a series of threaded openings, and removable shutter-actuating studs adapted to be screwed into said openings from either side of said ring.

35. In a seed-sowing machine, a seed-discharge-actuating mechanism comprising a driving-wheel having in a ring concentric with the periphery of the wheel a series of threaded openings extending entirely through said ring, and studs having threaded ends adapted to be screwed into said openings from either side of the ring, substantially as specified.

36. In a seed-sowing machine, a seed-discharge-actuating mechanism comprising a driving-wheel having an internal ring, m, provided with a series of threaded openings, n, and double-ended studs, m', adapted to said threaded openings, substantially as specified.

37. In a seed-sowing machine, a frame, a discharge-shutter having a fixed range of movement, a movable hopper carried in the frame, and a cam-plate pivoted to the frame and adapted to adjust the position of the hopper, substantially as specified.

38. In a seed-sowing machine, a frame, a movable hopper carried thereby, a movable discharge-shutter at the lower end of the hopper, means for operating said shutter, and a pivoted cam plate for regulating the discharge of seed from the hopper, the obverse and reverse sides of said cam-plate being provided with different series of indicating-marks.

39. A cam-plate for regulating the discharge of seed from a seed-sowing machine, said cam-plate being reversible and having on its obverse and reverse sides indicating-marks which when moved to a predetermined position regulate the area of the discharge-opening, each side of the plate being adapted for the sowing of seeds of different classes and sizes, substantially as specified.

40. In a seed-sowing machine, a frame having at or near its rear end a finger, f^3, a hopper pivoted to the frame and provided with a yoke, o, surrounding said finger, a movable discharge-shutter at the bottom of the hopper, means for operating said shutter, a cam-plate, O, adapted to make contact with the finger, f^3, and effect the adjustment of the hopper and a screw or pin, o, forming a pivot for said cam-plate, substantially as specified.

41. In a seed-sowing machine, a two-part frame comprising forward and rear sections, a driving-wheel carried by the forward part of the frame, a hopper and seed-distributing mechanism carried by the rear part of the frame, one portion of each frame having a series of recesses arranged at different levels, and the connecting portion of the opposite section having a web or flange adapted to any one of such recesses, and a securing-bolt for connecting such sections, substantially as specified.

42. In a seed-sowing machine, a frame comprising a forward section and a rear section adjustably connected to each other, a driving-wheel carried by the forward section, a seed-hopper and distributing mechanism carried by the rear section, one of such sections being provided with a series of horizontally-arranged parallel recesses and a vertically-arranged slot and the opposite section being provided with a web or flange adapted to enter any one of such recesses and a projecting lug adapted to enter the slot of the opposite section, and a securing-bolt adapted to secure the sections together, substantially as specified.

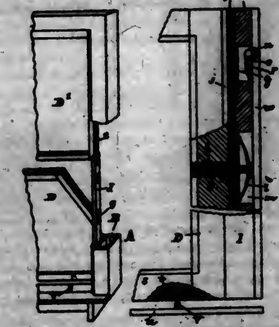
43. An adjustable connection for the two sections of an agricultural-implement frame, comprising in one section a series of recesses, l, extending in a horizontal plane and a vertical slot, l^2, extending entirely through such section, and in the opposite section a web or flange, k, adapted to any one of the recesses, l, and projecting lugs, k^2, adapted to the vertical slot, l^2, with a securing-bolt for fastening the two sections to each other, substantially as specified.

608,477. DOOR-FASTENER. HENRY B. BUTTS, St. Louis, Mo., assignor to Lucinda Butts, same place. Filed Dec. 17, 1897. Serial No. 662,202. (No model.)



Claim.—A door-securer comprising an engaging plate formed with marginal notches 12, 13, a bifurcated retaining-plate entering said notches and straddling the engaging plate, and shoulders arranged in series on the retaining-plate, whereby the device is accommodated to the clearance of the jamb, one arm of the retaining-plate terminating in the overhanging tongue 20.

608,478. REVERSIBLE WINDOW-SASH. FRANK CRANDALL, Baltimore, Md. Filed Apr. 27, 1897. Serial No. 634,373. (No model.)



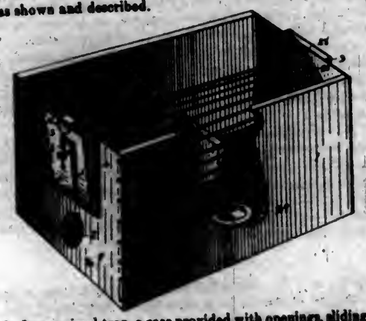
Claim.—1. In a window, the combination of the window-frame, A, having the usual guide-strips and a vertical groove, x; a sash; a vertical strip at opposite sides of the sash and sliding in said guides, the sash being pivoted to said strips, and the latter provided with a tongue, w, extending vertically—said tongue having position in the said window-frame groove; and springs on the face side of said sliding strips to traverse the window-frame, as set forth.

2. In a window, the combination of the window-frame, A, having the usual guide-strips and a vertical groove, x; a sash; a vertical strip at opposite sides of the sash and sliding in said guides, and said strips provided with a tongue extending vertically, said tongue having position in the said vertical groove; an elastic packing-strip in the joint between the sash and sliding strips; a bowed plate-spring in a recess on the outer face of the strip; and a pivot-bolt at each side connecting the sash and strip and the end of said bolt attached to said bowed spring, as set forth.

608,479. TRAP. WILLIAM T. HENRY, Oakland, Pa. Filed Apr. 8, 1897. Serial No. 631,304. (No model.)

Claim.—1. In an animal-trap, a case, a revolving cage mounted in said case carrying tripping mechanism, sliding doors carried by said case and provided with lugs engaging the tripping mechanism,

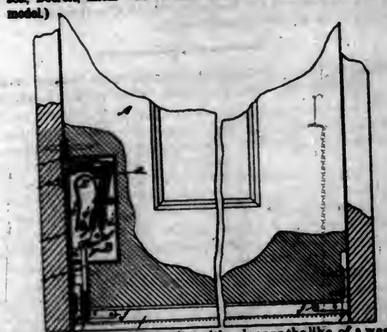
and means for closing the openings in said revolving cage, substantially as shown and described.



2. In an animal-trap, a case provided with openings, sliding doors secured to the outside of said case and provided with lugs, a revolving cage provided with openings, mounted on the inside of said case, carrying tripping means adapted to engage lugs carried by the sliding doors, sliding doors carried by the cage and adapted to close the openings, substantially as shown and described.

3. In combination, a case provided with openings, shields secured to said case, carrying sliding doors, a revolving cage, provided with openings, and carrying tripping means adapted to engage lugs carried by said sliding doors, and means for closing the openings in said cage, substantially as shown and described.

603,480. DUST AND COLD GUARD FOR DOORS. GEORGE EVERSON, Detroit, Mich. Filed June 6, 1896. Serial No. 594,602. (No model.)



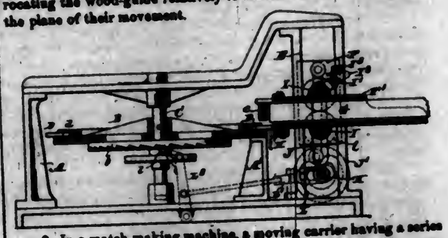
Claim.—1. The combination with a door or the like, of a weather-strip rotatively mounted thereon, a pinion on said weather-strip, a rack slidably mounted in the door and meshing with said pinion, a spring-pressed bolt mounted in the door and connections between said bolt and rack whereby a movement of the bolt causes the rack to rotate said strip.

2. The combination with a door or the like provided with a groove or channel in its edge, of a weather-strip rotatively mounted in said groove or channel, a sliding bolt adapted to project from the door and engage the jamb when the door is closed, a pinion on said weather-strip, a sliding rack engaging said pinion, a spring-pressed lever against which said bolt abuts, and an operative connection between the rack and the lever, substantially as described.

3. The combination with a door or the like, of a weather-strip rotatively mounted in a groove or channel in the lower edge thereof, a pinion on said strip, a sliding bolt projecting from the door and adapted to strike the door-jamb when the door is closed, a spring-pressed lever against which the bolt abuts pivoted in a mortise or recess in the door, and provided with a bifurcated end, a bent lever F fulcrumed in said mortise and having an arm engaging in the bifurcation of said lever, a rack meshing with said pinion and connected to the other arm of said bent lever F, substantially as described.

603,481. MATCH-MAKING MACHINE. HENRY P. FENSTER, Philadelphia, Pa. Filed Mar. 24, 1897. Serial No. 628,960. (No model.)

Claim.—1. In a match-making machine, a moving carrier having a series of splint-cutters rigidly secured to the carrier, in combination with means to intermittently move the carrier always in the same direction, a wood-guide for supporting the block of wood from which the match-splints are to be cut, and power devices for reciprocating the wood-guide relatively to the cutters and transversely to the plane of their movement.



2. In a match-making machine, a moving carrier having a series of splint-cutters rigidly secured thereto, in combination with means to intermittently move the carrier, a wood-guide for supporting the block of wood from which the match-splints are to be cut, power devices for reciprocating the wood-guide relatively to the cutters and transversely to the plane of their movement, and means for applying paraffin to the splints while retained in the custody of the cutters.

3. In a match-making machine, a moving carrier having a series of splint-cutters rigidly secured thereto, in combination with means to intermittently move the carrier, a wood-guide for supporting the block of wood from which the match-splints are to be cut, power devices for reciprocating the wood-guide relatively to the cutters and transversely to the plane of their movement, and means for applying the detonating composition to the splints while rigidly held by the carriers through the agency of the cutters.

4. In a match-making machine, a moving carrier having a series of splint-cutters rigidly secured thereto, in combination with means to intermittently move the carrier, a wood-guide for supporting the block of wood from which the match-splints are to be cut, power devices for reciprocating the wood-guide relatively to the cutters and transversely to the plane of their movement, and a thrust table or anvil for sustaining the thrust of the carrier during the cutting operation of the splints.

5. In a match-making machine, a moving carrier having a series of splint-cutters rigidly secured thereto, in combination with means to intermittently move the carrier, a wood-guide for supporting the block of wood from which the match-splints are to be cut, power devices for reciprocating the wood-guide relatively to the cutters and transversely to the plane of their movement, means for applying the detonating composition to the match-splints while in the custody of the cutters, and automatic discharging devices for discharging the finished matches from the cutters.

6. In a match-making machine, the combination of a circular carrier provided about its periphery with a series of cutters, guides to support and guide the carrier whereby it may revolve, power devices for rotating it, and a transversely-reciprocating guide for the wood from which the splints are to be made.

7. In a match-making machine, the combination of a circular carrier provided about its periphery with a series of cutters, guides to support and guide the carrier whereby it may revolve, power devices for rotating it, a transversely-reciprocating guide for the wood from which the splints are to be made, and automatic devices for feeding the wood toward the cutters with each reciprocation of the guides.

8. In a match-making machine, the combination of a circular carrier provided about its periphery with a series of cutters, guides to support and guide the carrier whereby it may revolve, power devices for rotating it, a transversely-reciprocating guide for the wood from which the splints are to be made, and a stationary anvil or support under the periphery of the carrier to receive the thrust thereof when cutting the splints.

9. In a match-making machine, the combination of a circular carrier provided about its periphery with a series of cutters, guides to support and guide the carrier whereby it may revolve, power devices for rotating it, a transversely-reciprocating guide for the wood from which the splints are to be made, and means arranged near the periphery of the carrier for applying the composition to the match-splints while in the custody of the cutters.

10. In a match-making machine, the combination of a circular carrier provided about its periphery with a series of cutters, guides to support and guide the carrier whereby it may revolve, power devices for rotating it, a transversely-reciprocating guide for the wood from which the splints are to be made, means arranged near the periphery of the carrier for applying the composition to the match-splints while in the custody of the cutters, and automatic discharging devices for removing the complete matches from the cutters prior to their passing in position to receive the block from which new splints are to be made.

11. In a match-making machine, the combination of an endless series of clamps, a series of detachable cutters held by each clamp, power devices for intermittently rotating the endless series of clamps and their cutters, a reciprocating holder for the wood from which the splints are to be made, guides for the reciprocating holder for causing it to move transversely to the plane of the cutters, and power devices to reciprocate said holder in timed relation to the movement of the series of clamps whereby they operate alternately.

12. In a match-making machine, the combination of an endless series of clamps, a series of detachable cutters held by each clamp, power devices for intermittently rotating the endless series of clamps and their cutters, a reciprocating holder for the wood from which the splints are to be made, guides for the reciprocating holder for causing it to move transversely to the plane of the cutters, power devices to reciprocate said holder in timed relation to the movement of the series of clamps whereby they operate alternately, and a fixed or stationary table or anvil adapted to receive the thrust of the clamps and cutters when cutting the splints and over which the series of clamps are caused to pass.

13. In a match-making machine, a rotary disk, combined with a series of independent clamping-sections arranged about the outer part of said disk, and a series of sets of cutters clamped rigidly upon the disk by said clamping-sections and extending radially outward from the periphery of the rotary disk in planes at right angles to the axis of rotation, whereby any series of cutters may be removed or adjusted without disturbing another series.

14. In a match-making machine, a rotary disk or wheel shaped carrier provided with a series of clamps adjacent to its periphery, combined with a series of separate sets of independent cutters clamped rigidly relatively to each other and upon the disk by said clamps and lying in planes at right angles to the axis of rotation.

15. In a match-machine, a rotary disk or carrier combined with a series of radially-projecting cutters extending outward from its periphery, a stationary support in planes at right angles to the axis of rotation, and ball-bearings between the said support and disk adjacent to the cutters to directly receive the thrust.

16. In a match-making machine, a circular carrier combined with a series of projecting cutters about its periphery, a stationary support, ball-bearings between the said support and carrier, a circular guide for guiding the carrier in a circle, and a transversely-movable wood-guide for moving the wood across the plane of the cutters.

17. In a match-making machine, the combination of a movable carrier provided with a series of sets of cutters adapted to be brought into cutting position successively, power devices for moving the carrier and its cutters intermittently in the same direction to bring the series of sets of cutters successively before a wood-guide, a reciprocating wood-guide movable transversely to the line of travel of the cutters, power devices to reciprocate the wood-guide so as to move the wood held thereby over the cutters of a set when held stationary, and connecting devices between the devices for moving the carrier and the power devices for reciprocating the wood-guide whereby the cutters are held stationary while the wood-guide is moved transversely to cause the wood to pass over the cutters, and when the wood-guide is moved out of cutting position the carriers and cutters are moved to bring the next set of cutters into operative cutting position.

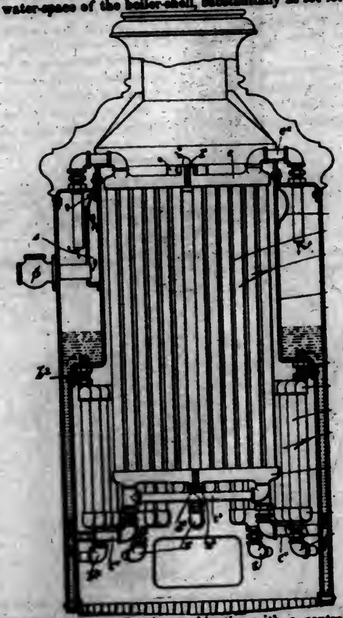
603,482. STEAM-BOILER. CHARLES H. FOX, Cincinnati, Ohio. Filed Oct. 11, 1897. Serial No. 654,757. (No model.)

Claim.—1. In a steam-boiler of the character indicated in combination with the steam and water jacketed shell a system of vertical detachable manifolds with headers arranged within the shell, consisting of two independent sets or series each manifold having connection to the steam-space of the shell at the top, and a connection below to the water-space of the boiler, substantially as set forth.

2. In a steam-boiler of the character indicated, two series of manifolds with headers arranged end to end, in combination with the fixed top supporting-bar to space and support the system and the independent steam connections extending outward in opposite directions radially as ties to hold the system rigid in relation to the shell, substantially as set forth.

3. In a steam-boiler of the character indicated two series of manifolds with headers arranged end to end, and supported by a top brace, in combination with a spacing-bar interposed between the series at the lower end, and water connections arranged to tie each two opposite manifolds to the spacing-bar and a single extension to the water-leg as a tie-brace for both and a common communication to the water-space of the boiler-shell, said extensions being carried to opposite sides of the water-leg, alternately in series, substantially as set forth.

4. In a steam-boiler of the character indicated two series of manifolds with headers arranged end to end and supported by a top brace, in combination with a spacing-bar interposed between the series at the lower end, and water connections arranged to tie each two opposite manifolds to the spacing-bar and a single extension to the water-leg as a tie-brace for both and a common communication to the water-space of the boiler-shell, substantially as set forth.



5. In a steam-boiler, in combination with a central and supported system of manifolds of the character indicated, the combination of a spacing-bar provided with projections engaging perforated lugs of the lower headers, tie connections, c^2, extending across to secure opposite manifolds to the spacing-bar, and connections, c^4, extending in various radii to opposite sides of the water-leg, to secure the system to the shell against displacement in any direction, substantially as set forth.

6. In a steam-boiler of the character indicated, a concaved strip of metal arranged as shown at the top of the inner shell forming a conduit adjacent to the shell, said conduit being provided with a number of relatively minute receiving-orifices at the otherwise closed receiving end, and terminating at the discharge end in the steam-supply exit, substantially as set forth.

603,488. FILTERING PLANT FOR WATER-WORKS. TOBEY C. HEWES, Muncie, Ind., assignor of one-half to Charles H. Raney, same place. Filed July 19, 1897. Serial No. 645,120. (No model.)

Claim.—1. In a water-filtering plant, a filtering-basin having an inlet and outlet, one or more layers of filtering material placed therein, and porous pipes arranged on the bottom of the filter connected with the outlet.

2. A water-filtering plant consisting of filtering-basins connected to and communicating with each other, each bed having one or more layers of filtering material placed in them, the bottom of each basin being covered with rows of soft drain-tile, as and for the purpose set forth.

3. A water-filtering plant having stationary and portable flush-pipes connected and arranged in the filter-beds and a sewer or drain tile arranged and connected by a valve to form an outlet or drain for the said filter-beds, as and for the purpose set forth.

4. A water-filtering plant having two or more filtering-basins, the said basins connected together by pipes, steam admitted in the said pipes for heating the water as it passes through from one filter-bed to another, all as and for the purpose set forth.

5. A water-filtering plant having two or more filtering-basins the said basins being connected together by pipes, and means for heating the water in the pipes as it passes from one basin to another.

6. In a water-filtering plant having two or more filtering-basins, the said basins being connected together by pipes, an elbow in the pipes, and a perforated steam-pipe in the connecting-pipes.

7. A water-filtering plant having a filtering-basin, flush-pipes arranged in the basin, a drain-pipe leading from the bottom of the basin, a valve for controlling the drain-pipe provided with a stem leading

to the outside of the basin and a screen surrounding and protecting the valve.



8. A water-filtering plant having a series of filtering-basins arranged on different planes, a drain-pipe leading from the lower portions of the basins, a vat beneath the basin into which the drain-pipe leads, a pump arranged in the vat, and connecting means extending to the outside of the basin for operating the pump.

9. A water-filtering plant having a filtering basin, an arch arranged at the rear end of the basin and provided with a manhole and porous pipes arranged in the basin having one of their ends leading into the arch.

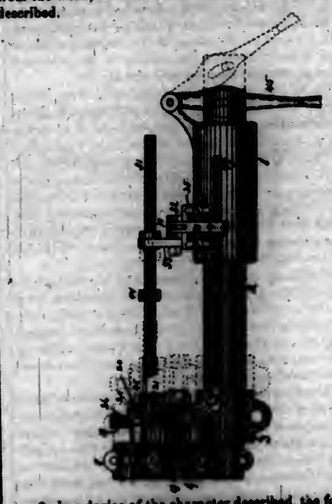
10. In a filtering plant, the combination with a filtering-basin, a second filtering-basin arranged on a lower horizontal plane than the first basin, a settling-basin arranged on a lower horizontal plane than the first basin and interposed between the two filtering-basins, and a pipe leading from the bottom of the first filtering-basin to a point adjacent the bottom of the settling-basin.

11. In a filtering plant, the combination with a filtering-basin, a second filtering-basin arranged on a lower horizontal plane than the first basin, a clear-water basin arranged on a lower horizontal plane than the second filtering-basin, a settling-basin interposed between the two filtering-basins and on a horizontal plane lower than the first filtering-basin, a pipe leading from the bottom of the filtering-basin to a point adjacent the bottom of the settling-basin, a settling-basin interposed between the second filtering-basin and the clear-water basin and on a horizontal plane lower than the said filtering-basin and a pipe leading from the bottom of the said filtering-basin to a point adjacent the bottom of the settling-basin.

608,484. AUTOMATIC TURRET-HEAD FOR LATHES. ANDREW J. JOHNSON, Cleveland, Ohio, assignor of one-half to Walter Kennard, same place. Filed May 10, 1897. Renewed Feb. 21, 1898. Serial No. 671,300. (No model.)

Claim.—1. The combination, with the tail stock and spindle of a lathe, of a bracket secured to said tail-stock, a spring-jaw upon said bracket, a puppet-head upon said spindle carrying a rotatable turret-head, a register-pin slidingly engaging said puppet and turret heads, a spring-actuated lever engaging said register-pin, and an actuating-rod connected to said lever and slidingly engaging said spring-jaw upon said bracket, in the manner and for the purpose, substantially as described.

2. The combination, with the tail stock and spindle of a lathe, of a bracket upon said tail-stock, an adjustable arm upon said bracket, a puppet and turret head removably secured to said spindle, a rigid bevel-gear upon said turret-head engaging with a rotatable gear in said puppet-head, a ratchet, a spring-actuated lever and pawl, and an actuating-rod secured to said lever and slidingly engaging said arm upon the bracket, and provided with a stop-collar, as a means for partially turning said turret-head, automatically, as it is retracted from the work, in the manner and for the purpose substantially as described.



3. In a device of the character described, the following elements in combination: a puppet-head 3, adapted to be secured to the tail-spindle 2, a turret-head 4, rotatably secured to the face of said puppet-head, a register-pin 13, slidingly engaging said puppet and turret heads, a lever 12, fulcrumed to said puppet-head, one end of said lever engaging the register-pin 13, and actuating-rod 17, connected to the opposite end of said lever 12, and a proper stop upon the tail-stock for compelling the withdrawal of said register-pin from said turret-head as the latter is retracted from the work, in the manner and for the purpose, substantially as set forth.

4. In a device of the character described, the following elements in combination: a puppet-head 3, adapted to be secured to the tail-spindle 2, of a lathe, a turret-head 4, rotatably secured to the face of said puppet-head, and provided with a series of tool-sockets 8, a rigid bevel-gear 10, in the inner face of said turret-head, a rotatable bevel-gear 21, in the puppet-head engaging said gear 10, a ratchet 22 upon the gear 21, a spring-actuated lever 23, having a pawl 27 engaging said ratchet, an actuating-rod 31, one end of which is connected to said lever, a stop-collar 44 upon said rod 31, the opposite end of said rod slidingly engaging a suitable bracket-arm 33, upon the tail-stock, in the manner and for the purpose, substantially as specified.

608,485. DEVICE FOR TESTING METERS. FRANK LAMBERT, Brooklyn, N. Y., assignor of one-half to Joseph W. Kay, same place. Filed Apr. 14, 1896. Serial No. 587,569. (No model.)



Claim.—1. In a fluid-meter having a nutating-disk valve a spindle therefor, and a valve-chamber, a record-surface supported in proximity to said spindle end and adapted to be marked by said spindle during the nutation of said valve to record the various angles of nutation, substantially as described.

2. In a fluid-meter having a nutating-disk valve a spindle therefor, and a valve-chamber, a record-surface supported in proximity to said spindle end and adapted to be marked by said spindle during the nutation of said valve and means for adjusting said spindle in said valve with reference to said record-surface, whereby the various angles of nutation of the disk are recorded, substantially as described.

3. In a fluid-meter having a nutating-disk valve, a spindle therefor, and a valve-chamber, a record-surface supported in proximity to said spindle end and adapted to be marked by said spindle during the nutation of said valve and means for adjusting said spindle in said valve with reference to said record-surface, whereby the various angles of nutation of the disk are recorded, substantially as described.

4. In a fluid-meter having a nutating-disk valve, a spindle therefor, and a valve-chamber, a record-surface supported in proximity to said spindle end and adapted to be marked by said spindle during the nutation of said valve and means for adjusting said record-surface with reference to said spindle, whereby the various angles of nutation of the disk are recorded, substantially as described.

4. In a fluid-meter having a nutating-disk valve, a spindle therefor, a valve-chamber and an inclosing casing, a record-surface supported within said casing and in proximity to said valve-spindle and adapted to be marked by said spindle to record the various angles during the nutation of said valve, substantially as described.

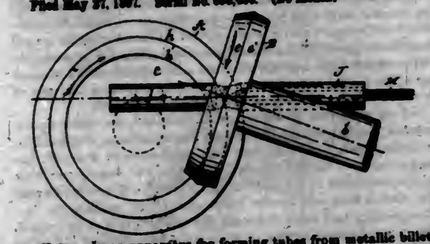
5. In a fluid-meter having a nutating-disk valve, a spindle therefor, and a valve-chamber, a record-surface supported in a plane at right angles to the axis of the valve chamber and also in proximity to said valve-spindle and adapted to be marked by said spindle to record the various angles during the nutation of said valve substantially as described.

6. In a fluid-meter having a nutating-disk valve, a spindle therefor and a valve-chamber, a record-plate supported in a plane at right angles to the axis of the valve-chamber, and means acting upon said record-plate to hold it in contact with the extremity of said spindle, substantially as specified.

7. In a fluid-meter having a nutating-disk valve, a spindle therefor and a valve-chamber, a record-plate supported in a plane at right angles to the axis of the valve-chamber and a spring acting upon said record-plate to hold it in contact with the extremity of said spindle whereby the various angles of nutation of the disk are recorded, substantially as described.

8. In a fluid-meter having a nutating-disk valve, a spindle therefor and a valve-chamber, a concave record-plate—said concavity conforming to the path of said spindle end in nutating supported with its periphery in a plane at right angles to the axis of the valve-chamber and with its center in line with said axis, and disposed in proximity to said spindle end so as to be marked by said spindle during the nutation of the valve, substantially as described.

608,486. TUBE-MAKING MACHINE. JOHN B. MOZINGO, Auburn, Pa., assignor to the Auburn Bolt and Nut Works, same place. Filed May 27, 1897. Serial No. 638,401. (No model.)



Claim.—In an apparatus for forming tubes from metallic billets or blanks, two disks, rotating shafts carrying said disks, said shafts located with reference to each other in such a position that the vertical planes of their axial lines are at right angles, the axial line of one of said shafts being also arranged in a horizontal plane, the axial line of the other shaft being inclined to the horizontal, said disks adapted to embrace a billet between their working faces, and a mandrel arranged on the axial line of said billet, substantially as and for the purpose set forth.

608,487. WATER-PIPE OR HOSE NOZZLE. EDWARD G. CHESWELL, Bennington, Vt. Filed May 14, 1897. Serial No. 636,465. (No model.)

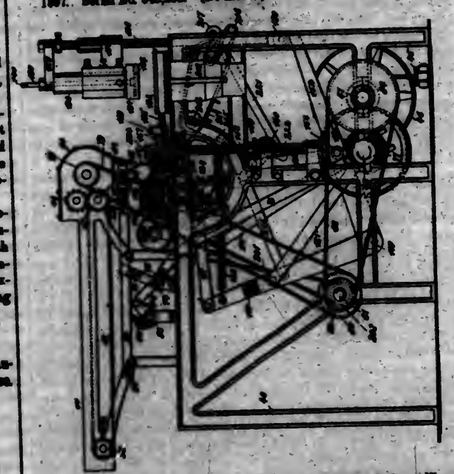


Claim.—1. A hose-nozzle A with its exterior screw-thread *b c*; a screw-nut L turning thereover, a yoke C, a stream-spreading device D secured thereto and a collar to which the yoke is pivoted, combined and constructed to operate substantially as specified.

2. In combination, a pipe or nozzle, a stream-spreading device, a yoke formed with pieces *e*, *f*, a divided collar H having its portions secured together and to which the yoke is pivoted, constructed and arranged to operate as described.

3. In combination with a pipe or nozzle, a stream-spreading device, a yoke to which it is secured, a collar surrounding the pipe or nozzle and to which the yoke is pivoted, and a means for holding the yoke when adjusted relatively with the collar, substantially as set forth.

608,488. CIGARETTE-MAKING MACHINE. JULIUS H. SCHMIDT, Bayonne, N. J., assignor to John C. Eyer, same place. Filed July 20, 1897. Serial No. 645,292. (No model.)



Claim.—1. In a machine of the character described, the rolling-apron, the pressure-roller therefor, mechanism for feeding the filler-tobacco, the charge-box for conveying the charges of filler-tobacco from said feeding mechanism to said rolling-apron, and means for moving said charge-box between said feeding mechanism and said apron, said charge-box having the converging sides one of which constitutes the door 98, combined with the shaft 99 carrying said door, the crank-arm 102 on said shaft, the spring 100 flexed against said door, the cam 105 for acting upon said crank-arm 102 to open said door when said charge-box is arriving at its lower position, means for maintaining said door in its open position during the ascent of said charge-box, and means for closing said door when said charge-box is arriving at its upper position; substantially as set forth.

2. In a machine of the character described, the rolling-apron, the pressure-roller therefor, mechanism for feeding the filler-tobacco, the charge-box adapted to move between said feeding mechanism and said apron to deliver the charges of filler-tobacco to the latter, and means for effecting the movement of said charge-box between said feeding mechanism and said apron, said charge-box having the door 98, shaft 99 carrying said door, the spring 100 flexed against said door, the notched plate 106 on said shaft, the spring 107 engaging said notched plate, and the crank-arm 102 on said shaft, combined with the cam 105 to engage said crank-arm 102 when the charge-box is in its lower position, and the stationary arm 101 to engage said crank-arm when said charge-box is in its upper position; substantially as set forth.

3. In a machine of the character described, the rolling-apron, the pressure-roller therefor, mechanism for feeding the filler-tobacco, and the charge-box for conveying the charges of filler-tobacco from said feeding mechanism to said rolling mechanism, said charge-box having downwardly-converging sides, one of which constitutes a door, combined with the arm 90 carrying said charge-box and pivotally secured at its rear end, the rock-shaft 93 below said arm 90, the cam 92 carried on said rock-shaft and upon which said arm 90 rests, and means intermediate said rock-shaft 93 and the driving-shaft for actuating said cam 92 to raise and lower said arm 90 with the charge-box carried thereby; substantially as set forth.

4. In a machine of the character described, the rolling-apron, the pressure-roller therefor, and feed mechanism for feeding the filler-tobacco, said mechanism comprising the endless feed-belt mounted

upon rollers, the pressure-roller 61, the revoluble picker-roller 62, the hood 63 covering said rollers 61 and 62, and the chute 64 extending downward from said hood, combined with the charge-box adapted to receive the filler-tobacco from said chute and deliver the same to said rolling-apron and provided with a hinged door, the longitudinal arm 90 extending below the feed-belt for filler-tobacco and pivoted at its rear end, the transverse rock-shaft 93 below said arm 90, the cam 92 secured upon said rock-shaft and directly receiving said arm 90, the crank-arm 94 on said rock-shaft and means intermediate said crank-arm 94 and the driving-shaft for operating said rock-shaft and said cam to effect the movement of the arm 90 and said charge-box; substantially as set forth.

5. In a machine of the character described, the rolling-apron, the pressure-roller therefor, mechanism for feeding the filler-tobacco, the charge-box for conveying the charges of filler-tobacco from said feeding mechanism to said rolling-apron, and means for moving said charge-box between said feeding mechanism and said apron, said charge-box having the converging sides, one of which constitutes the door 98 and the other of which is provided with the downwardly-projecting flange 97 to form the pocket in said rolling-apron, combined with the spring acting to hold said door closed, means for opening said door when said charge-box is arriving at its lower position, means for retaining said door open during the ascent of said charge-box, and means for closing said door when said charge-box is arriving at its upper position: substantially as set forth.

6. In a machine of the character described, the rolling-apron, the bed 104 for said apron, the rod 110 located in the rear of said bed 104 and over which the said apron passes, side frames 114 at opposite sides of said bed 104, the slides 115 moving along said side frames 114, the pressure-roller 112 carried by said slides 115 and means for moving said slides from the driving-shaft, said slides first moving to close the pocket or loop in the rolling-apron, then temporarily stopping and then resuming their forward movement to roll the cigarette, combined with means connected with said apron for drawing the pocket or loop therein down to size after said pressure-roller has closed said pocket or loop and temporarily ceased to move, the wrapper-carrier adapted to receive the cut wrapper, means for moving said carrier inward to the forward edge of the pocket in said rolling-apron, means for turning said carrier to project the lower inner edge of the wrapper into the forward edge of the pocket in the rolling-apron prior to the closing of said pocket by said pressure-roller, the charge-box for feeding the charges of filler-tobacco to said apron, and means operated from the driving-shaft for moving said charge-box and causing the latter to descend into the space between the said rolling-bed 104 and rod or shaft 110 to form the pocket or loop in said apron; substantially as set forth.

7. In a machine of the character described, the driving-shaft, the punch operable therefrom, the platen within said punch, means for driving said platen downward below said punch when the latter has cut the wrapper and is at its lowest position for the purpose of delivering said wrapper in smooth condition upon the wrapper-carrier, and the open die receiving the leaf and coöperating with said punch in the cutting of the wrapper, combined with the wrapper-carrier, the rolling mechanism, means for maintaining said carrier below said open die and at a suitable elevation to receive the cut wrapper when driven downward by said platen, and means for moving said carrier from below said open die to the rolling-apron to deliver the cut wrapper to said apron; substantially as set forth.

8. In a machine of the character described, the driving-shaft, the punch operable therefrom, the platen within said punch, means for driving said platen downward below said punch when the latter has cut the wrapper and is at its lowest position for the purpose of delivering said cut wrapper in smooth condition upon the wrapper-carrier, and the open die receiving the leaf and coöperating with said punch in the cutting of the wrapper, combined with the rolling mechanism, the wrapper-carrier movable from said die to the rolling-apron for conveying the cut wrappers to said apron, means for moving said carrier, and means for tilting the carrier for projecting the edge of the wrapper overhanging said carrier into the pocket of said apron; substantially as set forth.

9 In a machine of the character described, the rolling-apron, the pressure-roller therefor and means connected with said apron for drawing the pocket or loop therein down to proper size, combined with the wrapper-carrier, the clips at the opposite ends of said carrier for holding the wrapper thereon, means for operating said clips, means for moving said carrier inward to the upward forward edge of the pocket or loop in said apron, and means actuated by the rolling mechanism for tilting the carrier for projecting the overhanging edge of said wrapper into said pocket during the movement of said pressure-roller to close said pocket; substantially as set forth.

10. In a machine of the character described, the rolling-apron, the pressure-roller therefor, means connected with the end of said apron for drawing the pocket or loop therein down to size, and means for operating said pressure-roller from the driving-shaft, combined with the oscillating wrapper-carrier arm 156, the wrapper-carrier 136 upon said arm, the clips at the opposite ends of said carrier 136 for holding the wrapper, the shafts 185 and 186 carrying said clips, the plates 188 and 190 carried by said shafts, the rod 191 connecting said plates, the spring 192 maintaining said clips in their closed position, the cam 193 for opening said clips to receive the wrapper, and means for moving said wrapper-carrier inward to deliver the wrapper to said rolling-apron; substantially as set forth.

11. In a machine of the character described, the rolling-apron, the pressure-roller therefor and means for actuating said roller from the driving-shaft, combined with the horizontally-oscillating wrapper-carrier arm 156, the wrapper-carrier 136 on said arm, the sleeve 157 in which said arm is loosely mounted, the roller 167 on said arm, the cam 166 engaging said roller, the roller 170 also on said arm, the tramway 171 receiving said roller 170 whereby the carrier is inclined, and means for actuating said sleeve 157 to oscillate said arm 156 and carrier 136; substantially as set forth.

12. In a machine of the character described, the rolling-apron, the pressure-roller therefor, and means for operating said roller from the driving-shaft, combined with the wrapper-carrier arm 156, the wrapper-carrier 136 on said arm, the sleeve 157 receiving said arm, means for causing said arm to move inward to deliver the wrapper to the rolling-apron, and means for turning said arm within said sleeve in order to incline said carrier 136 and project the lower edge of the cut wrapper into the pocket of the rolling-apron; substantially as set forth.

13. In a machine of the character described, the rolling-apron, the pressure-roller therefor, and means for actuating said roller from the driving-shaft to roll the cigarette in the apron, combined with the wrapper-carrier arm 156, the wrapper-carrier 136 on said arm, means for oscillating said arm to move said carrier 136 inward to the pocket of the rolling-apron, and means for then turning said arm 156 axially and projecting the lower edge of the cut wrapper into said pocket; substantially as set forth.

14. In a machine of the character described, the rolling-apron 103, the pressure-roller therefor and means for actuating said pressure-roller from the driving-shaft, combined with the wrapper-carrier arm 156, the wrapper-carrier 136 on said arm, the sleeve 157 loosely receiving said arm, means connected with said sleeve for moving said arm and said carrier 136 inward to the rolling-apron, means for maintaining said wrapper-carrier in an inclined position during its inward travel to the pocket of the rolling-apron and means for imparting an axial motion to said arm 156 when the carrier 136 is at the forward edge of the pocket in said apron and thereby projecting the edge of the wrapper into said pocket; substantially as set forth.

15. In a machine of the character described, the rolling-apron, the pressure-roller therefor, and means for actuating said roller from the driving-shaft, combined with the wrapper-carrier arm 156, the wrapper-carrier 136 on said arm, the sleeve 157 loosely receiving said arm, the roller 170 on said arm, the tramway 171 over which said roller travels with said carrier 136 in an inclined position, the bar 173 supporting said roller 170 when the carrier 136 is at its inward position and means for removing the support from said bar 173 when said carrier is over the forward portion of the pocket in the rolling-apron and it is desired to close said pocket; substantially as set forth.

16. In a machine of the character described, the rolling-apron, the pressure-roller therefor, the slides 115 carrying said roller, the support 175 carried by one of said slides, and means for operating said slides from the driving-shaft, combined with the oscillating arm 156, the wrapper-carrier 136 on said arm, the sleeve 157 in which said arm is loosely mounted, means for oscillating said sleeve to effect the movement of said arm 156 and carrier 136 to the apron, the roller 170 on said arm 156, the tramway 171 supporting said arm 170, the bar 173 receiving said roller 170 after the latter leaves said tramway 171, and the stop 176 for said bar 173 when the latter is relieved of its support 175 by the inward motion of said pressure-roller; substantially as set forth.

17. In a machine of the character described, the rolling-apron, the pressure-roller therefor, and means for actuating said roller from the driving-shaft, combined with the horizontally-oscillating arm 156, means for horizontally oscillating said arm 156, the wrapper-carrier 136 on said arm, means for maintaining said carrier 136 in a horizontal position when said carrier is at its outward position, means for inclining said carrier 136 during its inward travel to the rolling-apron, and means for projecting said carrier downward to deliver the overhanging edge of the wrapper into the pocket of the rolling-apron when said carrier is at its extreme inward position; substantially as set forth.

18. In a machine of the character described, the punch for cutting the wrappers and operable from the driving-shaft, the die below said punch, the wrapper-carrier below said die to receive the cut wrappers, the clips at the ends of said carrier, means for maintaining said clips in an open position when the carrier is below said die, and means for closing said clips upon the opposite ends of the wrapper when said carrier leaves said die, combined with the rolling-apron, the pressure-roller therefor, means for reciprocating said roller, and means for moving said carrier from the die to the pocket of the rolling-apron in order to deliver the cut wrapper to the latter; substantially as set forth.

19. In a machine of the character described, the punch for cutting the wrappers and operable from the driving-shaft, the platen within said punch, the rod supporting said platen and extending upward through the plunger-rod of said punch, the pivoted lever connected to the upper end of the platen-rod, the spring imparting an upward tension to said platen-rod, the support for said lever connected with the punch-rod, the stop to engage the outer end of said lever upon the descent of the punch for the purpose of driving the platen below the punch, and the die below said punch, combined with the rolling-apron, the pressure-roller therefor, the wrapper-carrier adapted to travel from said die to said apron to deliver the cut wrappers to the latter, and means for moving said carrier; substantially as set forth.

20. In a machine of the character described, the punch for cutting the wrappers and operable from the driving-shaft, and the open die below said punch and through which the cut wrappers are driven, combined with the rolling-apron, the reciprocating roller therefor, the wrapper-carrier adapted to convey the cut wrappers from said die to said apron, and means for moving said carrier from said die to said apron, said means arresting said carrier on its inward movement at the front edge of the pocket in the rolling-apron and on its outward movement in a position with respect to said die to permit one edge of the wrapper to overhang the edge of said carrier; substantially as set forth.

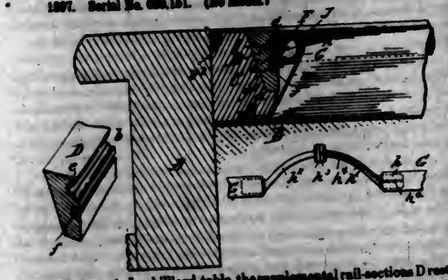
21. In a machine of the character described, the rolling-apron, the reciprocating roller therefor, means for reciprocating said roller, the wrapper-carrier adapted to convey the cut wrappers inward to said rolling-apron, and means for actuating said carrier, combined with the passing-brush, and the shaft upon which said brush is mounted and which is pivotally secured at one end, combined with the gear-wheel on said shaft, the vertical rod having teeth to engage said gear-wheel when said brush is at its inward position over the rolling-apron, and means for moving said rod against said gear-wheel for the purpose of revolving said brush while at its inward position; substantially as set forth.

603,489. MILK-CAN LOCK. JOHN G. STAUDENMAYER, Allegheny, Pa. Filed Jan. 27, 1897. Serial No. 620,949. (No model.)



Claim.—In a lock of the character described, a plate secured within the lid of the can, a lock-bar secured to said plate, an operating-plate, a slotted sleeve provided with an angular head, said angular head held normally out of engagement with the operating-plate by the spring b^5, the slotted sleeve to be engaged by the key to draw the angular head into engagement with the operating-plate, and turn the same to release the bars g and g'; substantially as shown and described.

603,490. PNEUMATIC CUSHION FOR BILLIARD OR POOL TABLES. WILLIAM P. STEBBINS, Springfield, Mass. Filed Mar. 29, 1897. Serial No. 630,151. (No model.)



Claim.—1. In a billiard-table, the supplemental rail-sections D resting on the rails C, each set of said rails on the four sides of the table having squared ends, which ends abut each other only on their inner edges at each of the corners of the table, whereby a recess or pocket is formed at each of said corners, combined with the inflatable tubes which rest upon the rails D, and suitable couplings for connecting the ends of the tubes, the couplings being located in the pocket or recesses formed between the ends of the rails, substantially as shown.

2. The combination with the rail C of a billiard-table having the seat *a*, of the supplemental rail-section D fitted in said seat, and having the longitudinal groove *e f* in its forward edge, the rubber tube seated against the supplemental rail-section D, and a strip of textile material overlying said tube and having its edge portions confined in said grooves, and having secured, as one thereto, the triangular strip J of elastic rubber, and the outer cushion-covering cloth, substantially as described.

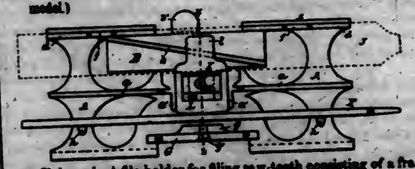
3. In a billiard-table the combination with the main rail C having the recess or depression in its inner upper corner whereby the stepped seat is formed of the supplemental rail D fitted in said seat, and having on its inner face the rest *b*, the inflatable tube G, the textile binder-strip J having connected on its front face the triangular section J of elastic rubber, said binder-strip having its edge portions confined to said supplemental rail, substantially as and for the purpose set forth.

4. In a billiard-table, the main rails C, C having seats formed along their upper and inner edges, and the supplemental rail-sections D fitted within said seats, said rails and rail-sections having square ends and said ends meeting only at their inner corners, thereby forming pockets O at the corners of the table, combined with the inflatable tubes confined along their front edges, and the rails and couplings for the adjacent tubes, the couplings being located within the pockets, substantially as shown.

5. In a billiard or pool table, the combination with rails of inflatable cushion-tubes confined along the front of the rails, and several thereof having at their ends tubular stems, end-flanged and facewise abutted, the separate wire bars *n* having the ring-eyes n^3 encircling the stems behind their end-flanges, and having the angularly-turned members n^2 endwise abutted, and the slide-ring *o* adapted, being moved on said bars toward the ring-eyes to contract the latter against the coupling-flanges, substantially as described.

6. In a billiard or pool table, the combination with rails, of inflatable cushion-tubes confined along the front thereof, one of said tubes having its end closed and another having a valved passage therethrough and several of the tubes having at their ends, the tubular stems, end-flanged and facewise abutted, the separate wire bars *n* having the ring-eyes n^3 respectively encircling the stems behind their end flanges, and having the angularly-turned members n^2 endwise abutted, the sleeve *f* inclosing said members *n* and the slide-ring *o*, all arranged substantially as and for the purposes explained.

603,491. COMBINATION SAW-TOOL. HERMAN L. TREMLOOD, Indianapolis, Ind. Filed Sept. 13, 1897. Serial No. 651,420. (No model.)



Claim.—1. A file-holder for filing saw-teeth consisting of a frame having ribs, flanges and dowels for the file to rest against, all made integral therewith, a sliding jaw, a guide and means to secure said jaw, a diagonally-ribbed locking-bolt having a suitable finger projection and mounted on said holder and engaging with said jaw to secure a file placed in a vertical position when moved in one direction and to hold a file in a flat position when moved in the opposite direction, in combination with a bracket secured and inserted in the holder, said bracket having a suitable slit and with the filing-surface of the same placed slightly below the inner edge of the flange of the holder and adjacent thereto for the purpose of filing the drag-teeth of saws, substantially as shown and described

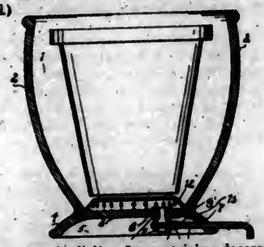
2. In a combination saw-tool, the frame A having the flanges *c c* and *i i*, the ribs *a a*, the dowels *h h* and the bracket G set into a recess of the frame at the edge opposite said flanges *c c*, the base *a'* at the central front of said frame, the rectangular pillar x' on said base, the vise-jaw L working on said base and provided with the shoulders P P and groove *l*, and the locking-bolt B adapted to actuate said jaw, substantially as shown and described.

3. In a jointing file-holder, the combination with the frame having the flanges *c c* and rests *f f*, of the base *a'* and the pillar x' thereon, the vise-jaw L working on said base and provided with the shoulders P P and groove *l*, the locking-bolt B provided with the diagonal

rib *b* engaging said groove, and the dowels A situated as shown, substantially as shown and described.

4. In a tool-holder, the combination with the frame, having the flanges *e* and the ribs *a a* thereon, of the base *d'* and rectangular pillar *n'* thereon, the vise-jaw L on said base and provided with the shoulders P P and groove *l*, the locking-bolt B adapted to actuate said jaw, and the bracket G having the slit g^2 and flanges *i* forming a tooth-gage, substantially as shown and described.

603,492. JARDINIÈRE. HOSEA WATERS, Philadelphia, Pa. Filed Mar. 29, 1897. Renewed Jan. 20, 1898. Serial No. 667,357. (No model.)



Claim.—1. In a jardinière for containing decorative plants in pots, a vessel having a chamber 1, a bottom 3, and a chamber 5, inclosed by a rim 4, having an opening therein, adjacent to an opening 6, in the bottom, in combination with a faucet inserted in the opening 6, and a tube adapted to enter the opening 7, and act as a key to said faucet, substantially as set forth.

2. In a jardinère a flat-bottomed chamber, having an opening in the bottom adjacent to one side, a lower supporting-rim inclosing a bottom chamber with a perforation in said rim adjacent to said opening, and a faucet inserted in the bottom opening in combination with a ductile metallic stand provided with a rim resting on or near the circumference of the bottom for the purpose of supporting the flower-pot and protecting the jardinère from shock and breakage as set forth.

3. In a jardinière a flat-bottomed chamber having an opening therein adjacent to one side in combination with a faucet having a vertical receiving branch, and a downwardly-inclined discharge branch, through the plug, with a discharge-tube fitting detachably the inclined discharge branch, and provided with pins and notches arranged to turn the plug by means of the discharge-tube as set forth.

603,493. REGISTER FOR POCKET-BOOKS. SAMUEL L. WHITE, Philadelphia, Pa. Filed Apr. 16, 1897. Serial No. 632,496. (No model.)



Claim.—A pocket-book registering device comprising a metallic disk-containing pocket open at one edge only and having flat face-plates *b*, *b'*, provided with rounded ends, the lower of said face-plates being provided at its opposite ends with integral fingers *d*, forming spring-clamps adapted to partly embrace the edge of the flap of the pocket-book, a series of headed pins *p*, extending across the pocket and arranged to slightly draw the face-plates *b*, *b'*, toward each other, and a series of overlapping disks, *c*, c', c^2, c^3, bearing on their faces numerals from "0" to "9," said disks being mounted centrally upon the pins, *p*, and having their edges slightly protruding beyond the mouth of the pocket, substantially as specified.

603,494. WRENCH. FRANK AARON and JAMES R. G. HUFFMAN, Lansing, Kans. Filed Sept. 28, 1897. Serial No. 652,564. (No model.)

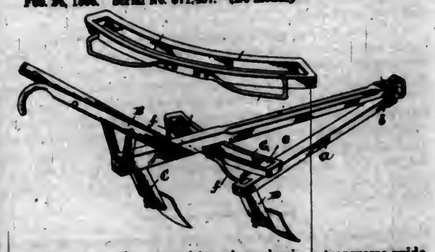


Claim.—1. A wrench consisting of the member carrying one jaw and having teeth upon its upper side, the member carrying the other jaw and having a lever secured in the body portion thereof, and carrying a toothed portion to engage the teeth on the other member to hold the jaws in a more rigid position, and a locking-lever pivotally secured to the handle end of the first-mentioned member adapted to engage teeth on the lower side of the last-mentioned member to rigidly hold the jaws of the wrench in place.

2. In a wrench, the combination with a fixed jaw, its shank and handle, of a toothed dog carried by the shank, and a pivoted dog-actuating lever, a movable jaw, a shank extending therefrom provided with a series of teeth designed to cooperate with the dog, and a pivoted locking-handle upon the lower extremity of the movable shank and provided with an eccentric toothed face designed to co-operate with teeth upon the fixed shank, said teeth being disposed oppositely upon the movable shank, substantially as specified.

3. The combination with a fixed head, of a shank, and handle extending therefrom and provided with a longitudinal recess, of a fixed jaw, a shank extending therefrom and movable within the recess in the fixed shank, oppositely-disposed teeth upon the contiguous faces of the two shanks but out of coincidence, a toothed dog movable within a recess in the fixed shank and designed to engage the teeth upon the movable shank, a dog-actuating lever pivotally connected to the dog, and a pivoted locking-handle at the lower extremity of the movable shank provided with an eccentric toothed locking face designed to engage the teeth upon the fixed shank, substantially as specified.

603,495. PLOW. WILLIAM ARNER, Shelbyville, Ky. Filed Feb. 24, 1898. Serial No. 671,687. (No model.)



Claim.—1. A plow comprising a beam having a transverse guideway, a plow-stock supported by the guideway and movable thereupon from side to side, and means for holding the stock upon the plate at opposite sides of the beam, substantially as described.

2. A plow comprising a main beam, an auxiliary beam pivoted at its forward end to the main beam and carrying a plow-stock at its rear end, a transverse way carried by one of the beams, and one of the beams provided with a member moving in the said way, substantially as described.

3. A plow comprising a main beam, an auxiliary beam situated below the main beam and pivoted at its front end thereto, the auxiliary beam carrying at its rear end a plow-stock, a way carried by one of the beams for supporting the auxiliary beam, and means for holding the auxiliary beam in its reversed or opposite position, substantially as described.

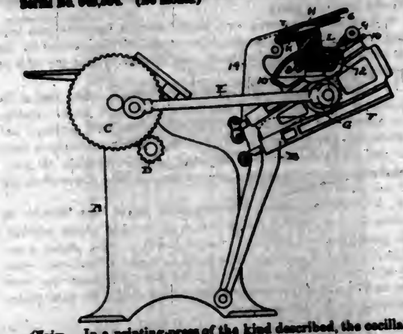
4. A plow comprising a main beam, an auxiliary beam situated therebelow having its outer end pivotally connected to the main beam, the free end of the auxiliary beam carrying a plow-stock, the auxiliary beam being free to move automatically from side to side, and means for locking the auxiliary beam in its opposite or reversed position respecting the main beam, substantially as described.

5. A plow comprising a main beam, an auxiliary beam therebelow and pivoted at its front end to the main beam, the free end of the auxiliary beam carrying a plow-stock, the main beam having secured thereto at its under side a guide-plate, and the auxiliary beam having a stud projecting within the guideway, substantially as described.

6. A plow comprising a main beam, an auxiliary beam pivoted at its forward end to the main beam and situated therebelow, a slotted guideway attached to the under side of the main beam, the main beam cut away for the said plate, and the auxiliary beam having a stud projecting within the plate and movable therein freely from side to side, substantially as described.

7. A plow comprising a main beam, an auxiliary beam situated below the main beam and pivoted at its front end to the main beam, the free end of the auxiliary beam provided with a plow-stock, the under side of the main beam having a curved plate with inclined walls and open from end to end, the auxiliary beam having a stud projecting within the said plate and correspondingly-tapered walls whereby the beam is supported and guided by the said plate and freely movable from end to end of the said guide-plate, substantially as described.

603,496. MEANS FOR ACTUATING INK-DISKS IN PLATEN PRINTING-PRESSES. FRANK A. DURHAM, Cleveland, Ohio, assignor to the Chandler & Price Company, same place. Filed July 22, 1897. Serial No. 645,554. (No model.)



Claim.—In a printing-press of the kind described, the oscillating ink-roller frame and a cam thereon, and a bell-crank lever pivoted on the press-frame and having a roller on one branch of said lever to travel on said cam and a segmental gear on the other branch, in combination with the ink-disk having a flange on its bottom, an arm pivotally supported beneath said disk and provided with teeth engaged by said segmental gear to actuate the arm, and a pivoted cam on said arm to engage the flange on the ink-disk and thereby rotate said disk, substantially as described.

603,497. BICYCLE. DANIEL W. CASWELL, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Apr. 10, 1897. Serial No. 631,897. (No model.)



Claim.—In a combination tandem bicycle with its forward portion dropped, the following elements in combination: a steering-head, a front saddle-supporting bar having the forward crank-hanger at its lower end, a rear crank-hanger, an under inclined bar attached to the steering-head and to the forward crank-hanger, a horizontal bar connecting the forward and rear crank-hangers, an upper inclined bar attached to the steering-head above the under inclined bar and connecting with the front saddle-supporting bar, and a brace extending from said connection to the rear crank-hanger, substantially as set forth.

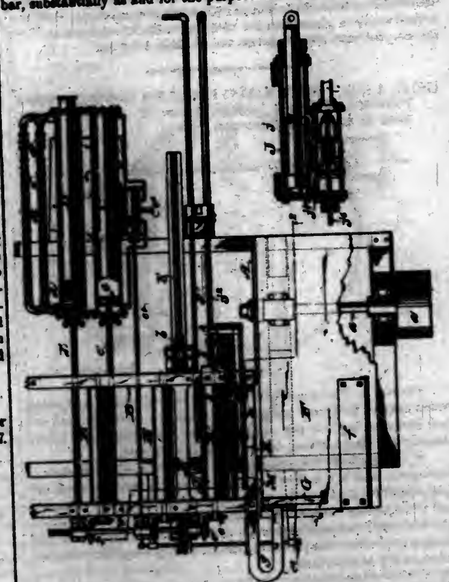
603,498. CUT-OFF MACHINE. FRANK CHALLONER, Oshkosh, Wis. Filed Dec. 14, 1894. Serial No. 531,512. (No model.)

Claim.—1. In a cut-off machine the combination with the saw, of a reciprocating carriage provided with a vertically-movable clamp and a horizontally-movable arm or part constructed and arranged when the carriage moves forward to press and hold the timber against the front side of the carriage, and means for operating said clamp controlled by said arm, substantially as and for the purposes set forth.

2. In a cut-off machine the combination with a saw and reciprocating carriage, of a vertically-movable clamp connected with and overhanging the carriage, a cylinder attached to the carriage, provided with a piston which is connected with said clamp and having a telescoping fluid-pressure-supply connection, a trip mounted upon the carriage and connected with the valve controlling the admission of the fluid-pressure medium to said piston, substantially as and for the purposes set forth.

3. In a cut-off machine the combination with the saw and a reciprocating carriage, of a clamp connected with said carriage, a cylinder attached to said carriage and provided with a piston which is connected with said clamp, a valve controlling the admission and exhaust ports of said cylinder, a vertically-movable bar hinged or pivoted to the carriage parallel with its line of travel and connected with the stem of said valve, and a trip movably mounted upon said carriage and having a sliding connection with said bar, substantially as and for the purposes set forth.

4. In a cut-off machine the combination with the saw and a reciprocating carriage, of a clamp connected with said carriage, a cylinder attached to the carriage and provided with a piston which is connected with said clamp, a valve controlling the admission and exhaust ports of said cylinder, a rod or bar hinged to said carriage in a line parallel with its travel and connected with said valve, a trip mounted and movable on said carriage parallel with its travel, and having a retarding connection operating in opposition to the advance movement of the carriage, and a sliding connection with said hinged bar, substantially as and for the purposes set forth.



5. In a cut-off machine the combination with the saw and a reciprocating carriage provided with clamping mechanism for holding material thereon in position to be sawed, and comprising a cylinder, piston and controlling-valve, of trip mechanism comprising a bar or rod hinged to the carriage parallel with its line of travel, and connected with said valve, an arm mounted and movable upon said carriage parallel with said rod or bar and connected by a cable or chain passing over a sheave with a weight which opposes its advance movement, and a lever fulcrumed to said arm and having a yielding connection therewith, and a sliding connection with said rod or bar, substantially as and for the purposes set forth.

6. In a cut-off machine the combination with the saw and a reciprocating carriage, of an angular lever fulcrumed to a suitable support at one side of the carriage, a clamp pivoted to the end of said lever overhanging the carriage, a cylinder attached to said carriage and provided with a piston which is connected with the other arm of said lever, and a valve controlling the admission and exhaust ports of said cylinder and having telescoping supply and exhaust connections, substantially as and for the purposes set forth.

7. In a cut-off machine the combination with the saw and a reciprocating carriage, of a vertically-movable clamp connected with and overhanging said carriage adjacent to the plane of the saw, a cylinder attached to said carriage and provided with a piston which is connected with said clamp, a valve controlling the operation of said piston, a trip mounted and movable upon said carriage parallel with its line of travel, and having actuating connections with said valve and a retarding connection operating in opposition to the advance movement of the carriage, and a stop arranged to arrest said trip in its return movement with the carriage at the desired point, substantially as and for the purposes set forth.

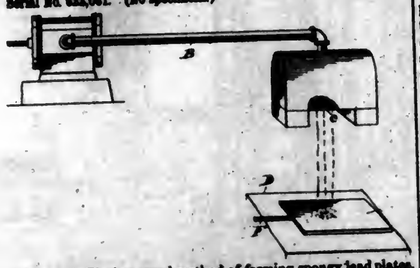
8. In a cut-off machine the combination with a reciprocating carriage, of an actuating-cylinder and piston connected therewith, and a retarding-cylinder provided with a piston also connected with said carriage and having by-passages between its opposite ends provided with oppositely-opening check-valves and with regulating-valves, substantially as and for the purposes set forth.

9. In a cut-off machine the combination with a reciprocating carriage and its actuating mechanism, of a controlling-cylinder containing a suitable retarding fluid and provided with a piston which is

connected with said carriage, and by-passages connecting the ends of said cylinder and provided with oppositely-closing check-valves and with regulating-valves, substantially as and for the purposes set forth.

10. In a cut-off machine the combination with the saw, of a reciprocating carriage provided with a vertically-movable clamp, an arm or part movable horizontally upon said carriage in a direction parallel with its travel, means tending to hold said arm or part from advancing with the carriage, a stationary stop arranged to engage and arrest said arm or part when the carriage approaches its starting-point in its return movement, and means for operating said clamp controlled by said arm, said arm and clamp cooperating to hold the timber firmly in place upon the carriage while it is being cut off by the saw, substantially as and for the purposes set forth.

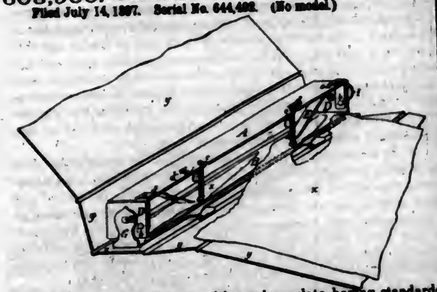
608,499. ART OF MAKING PLATES FOR ELECTRIC-BATTERY PURPOSES. ALFRED C. CROSTAR, Chicago, Ill. Filed Feb. 5, 1897. Serial No. 622,061. (No specimens.)



Claim.—1. The improved method of forming spongy lead plates, which consists in forcing molten lead through a series of small orifices and allowing it to pile up just before solidifying upon a horizontally-vibrating surface; substantially as described.

2. The method of forming spongy lead plates, which consists in forcing the lead in a molten condition through a series of small orifices, receiving it at a temperature intermediate between a running and a congealing temperature upon a horizontally-vibrating support and afterward compressing certain portions of the spongy mass thus formed to produce comparatively solid strengthening ribs or frames, substantially as described.

608,500. TEMPORARY BINDER. NATHAN ESSEX, Boston, Mass. Filed July 14, 1897. Serial No. 644,402. (No model.)



Claim.—1. A binder comprising a base-plate having standards at its ends and adapted to be secured in a cover, top and bottom plates pivoted together and also pivoted in the upturned end standards of the base-plate, and means carried by said top and bottom plates for receiving and retaining loose sheets.

2. A binder comprising a base-plate having upturned ends, top and bottom plates pivoted together, pins projecting from the bottom plate to receive loose sheets, and means for pivoting the top and bottom plates in the upturned ends of the base-plate.

3. A binder comprising a top plate and a bottom plate having overlapping ends, a base-plate having upturned ends, and studs for pivoting the top and bottom plates together and also in the upturned ends of the base-plate.

4. A binder comprising a top plate and a bottom plate having overlapping ends, a base-plate having upturned ends, studs for pivoting the top and bottom plates together and also in the upturned ends of the base-plate, and a nut threaded on one of the studs for holding the said parts against movement.

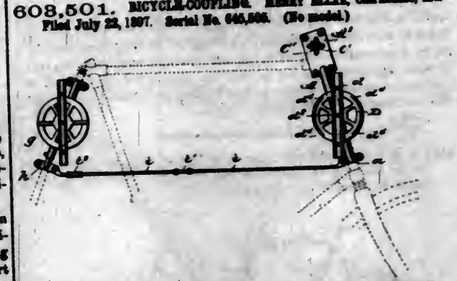
5. A binder comprising two elongated plates each having both ends bent at an angle so as to overlap the bent ends of the opposing plate, pivots passed through said overlapping ends and arranged longitudinally of the said plates, a nut on one of said pivots to hold the plates against movement relatively to each other, and pins carried by one plate to receive loose sheets, said sheets being retained thereon by the opposing plate.

6. A binder comprising two plates pivoted together, pins projecting from one plate to receive loose sheets, springs carried by the other plate to bear upon the sheets, and catches to hold the ends of the springs when raised.

7. A binder comprising two elongated plates, each bent at its ends into U form, so that the said ends of the said plates overlap, pivots passed through said ends longitudinally of said plates, a nut threaded onto one of said pivots to hold said plates relatively to each other, and pins secured in one plate and adapted to slide in open-ended slots extending from the edge of the opposing plates when the latter are parallel.

8. A binder comprising two elongated plates, each bent at its ends into U form, so that the said ends of the said plates overlap, pivots passed through said ends longitudinally of said plates, a nut threaded on one of said pivots to hold said plates stationary relatively to each other, pins carried by one plate for receiving loose sheets, and one or more tongues carried by one of the said plates for securing the binder in a cover.

608,501. BICYCLE-COUPLING. HENRY HILLS, Carbondale, Mo. Filed July 22, 1897. Serial No. 645,808. (No model.)



Claim.—1. In a coupling for bicycles, the combination with a longitudinally-expansible coupling-bar, of steering-heads having miter-gears attached thereto, miter-gears for engagement therewith and universal couplings between the gears and the ends of the expansible coupling-bar, substantially as shown.

2. In a coupling for connecting two bicycles side by side, a pair of divided or two-part frames each pair of frames being connected so that they may have a vertical and pivotal movement, clamps for connecting the same to the frames of the bicycles, in combination with steering-posts having miter-gears thereon and a telescopic connecting-bar having at its ends universal joints provided with miter-gears to engage those on the steering-post, housings or boxes in which sections of the universal joints are journaled, so as to hold the miter-gears thereof in mesh with the gears on the steering-heads, substantially as shown.

3. The combination with the coupling-frames for connecting two bicycles side by side, so that one may have a vertical movement independent of the other, a telescopic bar, universal joints and miter-gears connected thereto, of steering-posts having miter-gears with which the miter-gears connected to the telescopic bar mesh, substantially as shown.

4. In combination with the steering-posts of a pair of coupled bicycles, mitered gears secured thereon, of a telescopic connecting-bar, universal joints connected thereto and journaled in housings which engage the steering-heads of the bicycles and miter-gears connected with the universal joints so as to engage with the gears on the steering posts, substantially as set forth.

5. A coupling for bicycles, comprising cross-frames, the outer ends thereof having clamps for engagement with the frames of the bicycles, said frames also carrying disks or plates with lugs or projections thereon, slide-bars which engage pivotally with the disks and means for holding the same in sliding engagement with each other, substantially as shown and for the purpose set forth.

608,502. STEAM-GENERATOR. CHARLES H. FOX, Cincinnati, Ohio. Filed Nov. 30, 1896. Serial No. 613,910. (No model.)

Claim.—1. In an upright boiler, the combination of inner and outer shells forming an annular water and steam space, an annular series of circulating tubes or tube-sections below the normal water-level and communicating above and below with the water-space, and an independent central system of tubes or tube-sections extending from the top of the boiler down within the series of circulating tubes or sections, said central tube sections connected with the steam-space of the boiler above and with the water-space of the boiler below, substantially as set forth.



2. In a steam-generator, in combination with a vertical open-ended water and steam jacketed shell, of a plurality of independent, detachable steam-generating units each consisting of a number of parallel vertical tubes in a common axial plane, opening into headers above and below, arranged within the inclosing shell in parallel series extending from side to side, each unit having a central connection at the top, to the steam-space of the shell, and opposite end connections from the bottom, to the water-space of the shell, substantially as set forth.

3. In a steam-generator, in combination with a vertical water and steam jacketed inclosing casing, of a plurality of independent detachable generating-units, each consisting of a number of parallel vertical tubes in a common axial plane, connected by headers, and communicating with the casing above and below the water-level, respectively, each of said tubes being provided with means for circulation of water in opposite directions within the same below the normal water-level, substantially as set forth.

4. In a steam-generator, in combination with a vertical open-ended steam and water jacketed inclosing shell, of a plurality of independent detachable generating-units each consisting of a number of vertical tubes in a common axial plane, connected by headers communicating with the shell below and above the water-line, in combination with a corresponding plurality of independent superheating-coils arranged above the generating-units in the inclosing shell, and constituting the steam connections of said units respectively with the inclosing shell, substantially as set forth.

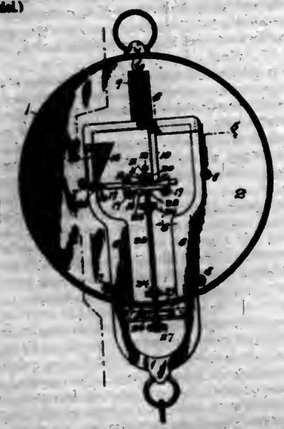
5. In a steam-generator, in combination with an open-ended cylindrical water and steam jacketed inclosing casing, of a plurality of independent detachable steam-generating units arranged in parallel series from side to side, each consisting of a series of vertical tubes united by a common top header, having a central connection thence with the steam-space of the inclosing casing, and two independent bottom headers, each connected with the water-space of the inclosing casing, substantially as set forth.

6. A steam-generator embodying in combination, a vertical open-ended casing consisting of a plain cylindrical outer shell and an inner shell contracted above the immediate fire-box giving an enlarged annular steam-space; a concentric series of tube-manifolds arranged within and contiguous to the lower part of the inner shell and opening above through the connecting-shoulder of the shells into the enlarged annular space below the normal water-line, and opening below into the fire-box water-leg; a series of vertical manifolds within the circular space thus inclosed, and extended above the normal water-line connecting below with the fire-box water-leg and above with the annular steam-space of the casing, substantially as set forth.

7. In a boiler of the character indicated, in combination with the vertical tubes of a tube-manifold extending from a point above to a point below the normal water-level, a shorter open-ended tube in each and concentric therewith extending from the lower header upward to a point below the water-level, and constituting an annular circulating-partition, substantially as set forth.

8. In combination with the upper and lower headers of a tube-manifold, and tubes connecting the same, of inner concentric tubular partitions, extending in each tube upwardly from the lower header to a point below the normal water-level, closed below by inclined surfaces and having lateral lower openings above said surfaces, substantially as set forth.

608,508. INDICATING OR LIKE MECHANISM FOR PRICE-SCALES OR OTHER MACHINES. FREDERICK I. FULLER, Trenton, N. J. Filed Jan. 5, 1897. Renewed Aug. 9, 1897. Serial No. 647,647. (No model.)



Claim.—1. An indicating or like mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

2. An indicating or like mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, and manually-operated means for effecting such adjustment, substantially as described.

3. An indicating or like mechanism comprising an inclined member and a member coacting therewith and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

4. An indicating or like mechanism comprising an inclined member and a member coacting therewith and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, and manually-operated means for effecting such adjustment, substantially as described.

5. An indicating or like mechanism comprising an inclined actuator and a member actuated thereby, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

6. An indicating or like mechanism comprising an inclined actuator and a member actuated thereby, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, and manually-operated means for effecting such adjustment, substantially as described.

7. An indicating or like mechanism comprising an inclined actuator and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

8. An indicating or like mechanism comprising an inclined actuator and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, and manually-operated means for effecting such adjustment, substantially as described.

9. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, one of said members being movable

past the other to actuate said computing mechanism in accordance with the weight of the article, substantially as described.

10. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, and manually-operated means for effecting such adjustment, one of said members being movable past the other to actuate said computing mechanism in accordance with the weight of the article, substantially as described.

11. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member and a member coacting therewith and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, one of said members being movable past the other to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

12. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member and a member coacting there with and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment and manually-operated means for effecting such adjustment, one of said members being movable past the other to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

13. The combination with weighing mechanism, of price-computing mechanism comprising an inclined actuator and a member actuated thereby, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, said actuator being movable past the other member to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

14. The combination with weighing mechanism, of price-computing mechanism comprising an inclined actuator and a member actuated thereby, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment and manually-operated means for effecting such adjustment, said actuator being movable past the other member to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

15. The combination with weighing mechanism, of price computing mechanism comprising an inclined actuator and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of such adjustment, said actuator being movable past the other member to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

16. The combination with weighing mechanism, of price-computing mechanism comprising an inclined actuator and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of such adjustment and manually-operated means for effecting such adjustment, said actuator being movable past the other member to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

17. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, one of said members being carried by a movable part of the weighing mechanism, substantially as described.

18. The combination with weighing mechanism, of price-computing mechanism comprising an inclined actuator carried by a movable part of the weighing mechanism, and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

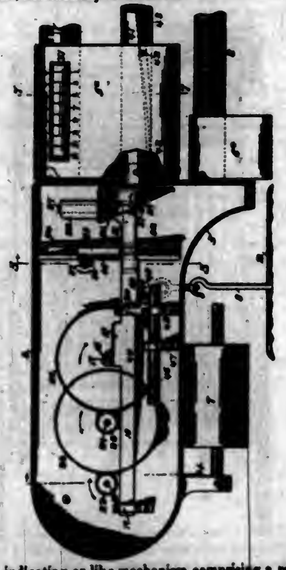
19. The combination with weighing-rod 6, of the inclined actuator 16, the inclination whereof varies progressively in a transverse direction, rack-bar 17, adjustable carriage 18 in which said rack-bar is mounted, and means for adjusting said carriage, substantially as described.

20. The combination with weighing-rod 6, of the inclined actuator 16, the inclination whereof varies progressively in a transverse direction, rack-bar 17, adjustable carriage 18 in which said rack-bar is mounted, means consisting of rack and pinion 25, 22 and rod 23, for adjusting the carriage, substantially as described.

608,504. INDICATING OR LIKE MECHANISM FOR PRICE-SCALES.

FREDERICK I. FULLER, Trenton, N. J. Filed Sept. 14, 1897. Serial No. 651,573. (No model.)

Claim.—1. An indicating or like mechanism comprising a rotary member and a member coacting therewith, one of which is inclined, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.



2. An indicating or like mechanism comprising a rotary actuating member and a member actuated thereby, one of which is inclined, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, substantially as described.

3. An indicating or like mechanism comprising a rotary inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, substantially as described.

4. An indicating or like mechanism comprising a rotary inclined member and a member coacting therewith and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

5. An indicating or like mechanism comprising a rotary inclined actuator and a member actuated thereby, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, substantially as described.

6. An indicating or like mechanism comprising a rotary inclined actuator and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

7. The combination with weighing mechanism, of price-computing mechanism comprising a rotary member and a member coacting therewith, one of which is inclined, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, one of said members being movable past the other to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

8. The combination with weighing mechanism, of price-computing mechanism comprising a rotary actuating member and a member actuated thereby, one of which is inclined, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, and connections between a movable part of the weighing mechanism and said actuating member for rotating the latter, substantially as described.

9. The combination with weighing mechanism, of price-computing mechanism comprising a rotary inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, one of said members being movable past the other to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

10. The combination with weighing mechanism, of price-computing mechanism comprising a rotary inclined member and a member coacting therewith and adjustable transversely to the incline, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

11. The combination with weighing mechanism, of price computing mechanism comprising a rotary inclined actuator and a member actuated thereby, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, and connections between a movable part of the weighing mechanism and said actuator for rotating the latter, substantially as described.

12. The combination with weighing mechanism, of price-computing mechanism comprising a rotary inclined actuator, and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, and connections between a movable part of the weighing mechanism and said actuator for rotating the latter, substantially as described.

13. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary member and a member coacting therewith, one of which is inclined, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, one of said members being movable past the other by the poise to actuate the computing mechanism, substantially as described.

14. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary actuating member and a member actuated thereby, one of which is inclined, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, and connections between the poise and actuating member for rotating the latter, substantially as described.

15. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, one of said members being movable past the other by the poise to actuate the computing mechanism, substantially as described.

16. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary inclined member, and a member coacting therewith and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, one of said members being movable past the other by the poise to actuate the computing mechanism, substantially as described.

17. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary inclined actuator, and a member actuated thereby, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, and connections between the poise and actuator for rotating the latter, substantially as described.

18. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary inclined actuator and a member actuated thereby and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, and connections between the poise and actuator for rotating the latter, substantially as described.

19. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary actuating member axially parallel to the beam and a member actuated thereby, one member being inclined concentrically to the axis of the rotary member and the other member adjustable radially thereof, the inclination of the inclined member varying progressively in the direction of adjustment, and connections between the poise and actuating member for rotating the latter, substantially as described.

20. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary actuating member axially parallel to the beam and a member actuated thereby, one member being inclined concentrically to the axis of the rotary member and the other member adjustable radially thereof, the inclination of the inclined member varying progressively in the direction of adjustment, and a spiral cam connection between the poise and actuating member for rotating the latter, substantially as described.

21. The combination with a scale-beam and its poise, of price-computing mechanism comprising a concentrically-inclined rotary actuator axially parallel to the beam and a member actuated thereby and adjustable radially thereof, the inclination of the actuator varying progressively in the direction of adjustment, and connections between the poise and actuator for rotating the latter, substantially as described.

22. The combination with a scale-beam and its poise, of price-computing mechanism comprising a concentrically-inclined rotary actuator axially parallel to the beam and a member actuated thereby and adjustable radially thereof, the inclination of the actuator varying progressively in the direction of adjustment, and a spiral cam connection between the poise and actuator for rotating the latter, substantially as described.

23. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary concentrically-inclined actuator axially parallel to the beam, a rack actuated thereby and having a part adjustable radially thereof, the inclination of the actuator varying progressively in the direction of adjustment, indicating devices geared to said rack, and connections between the poise and actuator for rotating the latter, substantially as described.

24. The combination with a scale-beam and its poise, of price-computing mechanism comprising a concentrically-inclined rotary actuator axially parallel to the beam, a rack actuated thereby and having a part adjustable radially thereof, the inclination of the actuator varying progressively in the direction of adjustment, indicating devices geared to the rack, and a spiral cam connection between the poise and actuator for rotating the latter, substantially as described.

25. The combination with a beam scale and its poise, of price-computing mechanism comprising a rotary actuator operated by the poise, a member on the opposite side of the beam-fulcrum actuated thereby and movable thereby to and from said fulcrum, and a compensator movable reversely to said member, substantially as described.

26. The combination with a beam-scale and its poise, of price-computing mechanism comprising a rotary actuator operated by the poise, a rack-bar on the opposite side of the beam-fulcrum and movable thereby to and from said fulcrum, and a compensator rack-bar gearing therewith and movable thereby in the reverse direction, substantially as described.

27. The combination with a scale-beam and its poise, of shaft 41, spiral cam 43 thereon engaged by the poise, inclined member 21, rack-bar 18 and indicating devices geared therewith, substantially as described.

28. The combination with a scale-beam and its poise, of shaft 41, spiral cam 43 thereon engaged by the poise, inclined member 21, rack-bar 18, indicating devices geared therewith, transversely-adjustable bar 27 and means for adjusting it, substantially as described.

29. The combination with a scale, of a beam supporting price-indicating devices on one side of its fulcrum, a poise on the opposite side of the fulcrum, and adjustable connections between the poise and indicating devices for operating the latter in accordance with the weight and unit price of the article weighed, substantially as described.

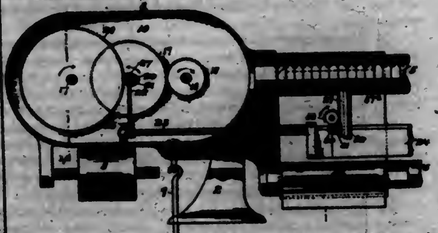
30. The combination with a scale-beam and its poise, of price-indicating devices mounted on the beam in rear of its fulcrum, and adjustable connections, also mounted on the beam, between the poise and indicating devices for actuating the latter in accordance with the weight and unit price of the article weighed, substantially as described.

31. The combination with a scale-beam and its poise, of price-indicating devices mounted on the beam in rear of its fulcrum, connections, also mounted on the beam, between the poise and indicating devices for actuating the latter and adjusting mechanism also mounted on the beam for regulating the movement of the indicating devices, substantially as described.

32. The combination with a scale-beam and its poise, of price-indicating devices mounted on the beam in rear of its fulcrum, adjustable connections also mounted on the beam between the poise and indicating devices for actuating the latter in accordance with the weight and unit price of the article weighed, and a casing on the beam for inclosing the indicating devices, substantially as described.

608,505. INDICATING OR LIKE MECHANISM FOR PRICE-SCALES.

FREDERICK I. FULLER, Trenton, N. J. Filed Sept. 14, 1897. Serial No. 651,578. (No model.)



Claim.—1. An indicating or like mechanism comprising an inclined member, and an actuator therefor, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

2. An indicating or like mechanism comprising a pivoted inclined

member, and an actuator therefor, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

3. An indicating or like mechanism comprising a pivoted wing inclined in the direction of its axis, and an actuator therefor, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

4. An indicating or like mechanism comprising an inclined member, and an actuator therefor adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

5. An indicating or like mechanism comprising a pivoted inclined member, and an actuator therefor adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

6. An indicating or like mechanism comprising a pivoted wing inclined in the direction of its axis, and an actuator therefor adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

7. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member and an actuator therefor, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, one of said members being movable past the other to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

8. The combination with weighing mechanism, of price-computing mechanism comprising a pivoted inclined member and an actuator therefor, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment one of said members being movable past the other to actuate the computing mechanism in accordance with the weight of the article, substantially as described.

9. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member, and an actuator therefor adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, said actuator being movable past the inclined member to actuate the latter, substantially as described.

10. The combination with weighing mechanism, of price-computing mechanism comprising a pivoted inclined member, and an actuator therefor adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, said actuator being movable past the inclined member to actuate the latter, substantially as described.

11. The combination with weighing mechanism, of price-computing mechanism comprising a pivoted wing inclined in the direction of its axis, and an actuator therefor adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, said actuator being movable past the inclined member to actuate the latter, substantially as described.

12. The combination with a scale-beam, of price-computing mechanism comprising an inclined member, and an actuator therefor, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, one of said members being movable along the beam past the other to actuate the inclined member, substantially as described.

13. The combination with a scale-beam, of price-computing mechanism comprising a pivoted inclined member and an actuator therefor, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, one of said members being movable along the beam past the other to actuate the inclined member, substantially as described.

14. The combination with a scale-beam, of price-computing mechanism comprising an inclined member, and an actuator therefor movable along the beam, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

15. The combination with a scale-beam, of price-computing mechanism comprising a pivoted member and an actuator therefor movable along the beam, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

16. The combination with a scale-beam, of price-computing mechanism comprising a pivoted wing inclined in the direction of its axis, and an actuator therefor movable along the beam, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, substantially as described.

17. The combination with a scale-beam and its poise, of price-computing mechanism comprising an inclined member, and an actuator therefor movable by the poise along the beam to actuate the inclined member and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

18. The combination with a scale-beam and its poise, of price-computing mechanism comprising a pivoted inclined member, and an actuator therefor movable by the poise along the beam to actuate the inclined member and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

19. The combination with a scale-beam and its poise, of price-computing mechanism comprising a pivoted wing inclined in the direction of its axis, and an actuator therefor movable by the poise along the beam and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, substantially as described.

20. The combination with a scale-beam, of price-computing mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, one of said members being movable along the beam past the other to actuate the computing mechanism, substantially as described.

21. The combination with a scale-beam, of price-computing mechanism comprising a rotary inclined member and an actuator therefor movable along the beam, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, indicating devices, and worm-gearing connecting said inclined member and indicating devices, substantially as described.

22. The combination with a scale-beam, of price-computing mechanism comprising a pivoted wing inclined in the direction of its axis, and an actuator therefor movable along the beam, said members being adjustable one relatively to the other transversely to the incline and said incline varying progressively in the direction of adjustment, indicating devices, and worm-gearing connecting said wing and indicating devices, substantially as described.

23. The combination with a scale-beam and its poise, of price-computing mechanism comprising a rotary inclined member and an actuator therefor movable by the poise along the beam to actuate the inclined member and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, indicating devices, and worm-gearing connecting said inclined member and indicating devices, substantially as described.

24. The combination with a scale-beam and its poise, of price-computing mechanism comprising a pivoted wing inclined in the direction of its axis, and an actuator therefor movable by the poise along the beam and adjustable transversely to the incline, said incline varying progressively in the direction of adjustment, indicating devices and worm-gearing connecting said wing and indicating devices, substantially as described.

25. The combination with weighing mechanism, of price-computing mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other, indicating devices and worm-gearing connecting the actuated member with said indicating devices, substantially as described.

26. The combination with weighing mechanism of price-computing mechanism comprising an inclined member and a member coacting therewith, said members being adjustable one relatively to the other transversely to the incline, and said incline varying progressively in the direction of adjustment, indicating devices, and worm-gearing connecting the actuated member with said indicating devices, substantially as described.

27. The combination with the scale-beam and its poise, of the wing 24 pivoted in the scale-beam in line with the poise, indicating devices actuated thereby, actuator 29 and pinion 33 for adjusting said actuator, substantially as described.

28. The combination with the scale-beam and its poise, of the wing 24 pivoted in the scale-beam in line with the poise and on one side of its fulcrum, indicating devices on the opposite side of said fulcrum actuated by said wing, actuator 29 carried by the poise and pinion 33 for adjusting said actuator, substantially as described.

29. The combination with the scale-beam and its poise, of the wing 24 pivoted in the scale-beam in line with the poise, indicating devices, worm-gearing connecting said wing and indicating devices, actuator 29 and pinion 33 for adjusting said actuator, substantially as described.

30. The combination with the scale-beam and its poise, of the wing 24 pivoted in the scale-beam in line with the poise and on one side of its fulcrum, indicating devices on the opposite side of said fulcrum actuated by said wing, worm-gearing connecting said wing and indicating devices, actuator 29 carried by the poise and pinion 33 for adjusting said actuator, substantially as described.

608,506. ACETYLENE-GAS GENERATOR. CLARENCE E. GILLETT and OTTO S. HELLWIG, Chicago, Ill.; said Hellwig assignor to said Gillett; said Gillett assignor to The Gillett Generator Company, same place. Filed Sept. 13, 1897. Serial No. 651,513. (No model.)



Claim.—In gas-generators, the combination with the retort and its controllable outlet, of the separate water-tank, the percolator interposed between said retort and tank discharging at one side of its obstructive wad into the retort and at its opposite communicating with the tank beneath the water-level therein and the closed cushion-trap for gas joined to the percolator on the tank side of its wad and above the water-inflow to the percolator, substantially as described.

608,507. TROUSERS-PROTECTOR. PETER C. GOLDEN, Brockton, Mass. Filed Mar. 6, 1897. Serial No. 626,307. (No model.)



Claim.—1. As an article of manufacture, a wear-protector for the lower edge of a garment, consisting of a strip to be secured against the garment material, and having a flange at its lower edge to lap under the edge of the garment material, and securing-prongs extending up from said flange parallel to said strip, said prongs extending above the upper edge of the strip, substantially as described.

2. As an article of manufacture, a wear-protector for the lower edge of a garment, consisting of a strip to be secured against the garment material, and having a flange at its lower edge to lap under the edge of the garment material, and securing-prongs extending up from said flange parallel to said strip, said prongs extending above the upper edge of the strip, and said strip having a slot for stitches adjacent its upper edge, substantially as described.

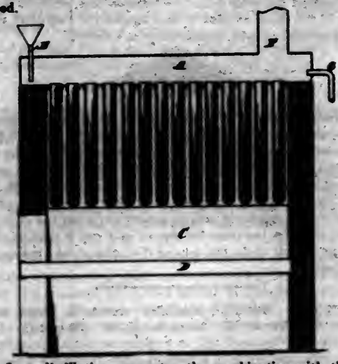
608,508. APPARATUS FOR DISTILLING ACIDS. EDWARD HART, Easton, Pa., assignor to the Baker & Adamson Chemical Company, same place. Filed June 16, 1896. Serial No. 595,766. (No model.)

Claim.—1. A distillation apparatus having a receiver, a series of small distillation-tubes depending from said receiver and providing extended heating-surfaces, said tubes being closed at the bottom but open at the top to receive liquid from the receiver, a vapor-outlet at the top of the receiver, and an outlet from the receiver for the undistilled liquid, substantially as described.

2. A distillation apparatus for acids and other corrosive substances having a receiver, and a series of small distillation-tubes of fragile material closed at the bottom and depending from and having their open ends removably connected to said receiver, substantially as described.

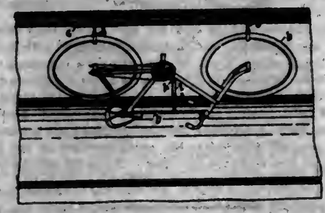
3. A distillation apparatus for acids and other corrosive substances having a receiver, a series of small distillation-tubes of fragile material closed at the bottom and depending from and having their open ends removably connected to said receiver, a vapor-outlet at the top of the receiver, and an outlet from the receiver for the undistilled liquid, substantially as described.

4. In a distillation apparatus, the combination with the main boiler-tube or receiver, A, of the small tubes B arranged along said receiver and depending therefrom, an inlet at one end of the receiver for the liquid to be distilled, an outlet G for the undistilled liquid at the opposite end of the receiver, and a vapor-outlet, substantially as described.



5. In a distillation apparatus, the combination with the main boiler-tube or receiver A, of the small tubes B of fragile material arranged along said receiver and depending therefrom and having their open ends removably connected to the receiver, an inlet at one end of the receiver for the liquid to be distilled, an outlet G for the undistilled liquid at the opposite end of the receiver, and a vapor-outlet, substantially as described.

608,509. BICYCLE-SUPPORT FOR RAILWAY-CARS. GEORGE I. KAHLE, Council Bluffs, Iowa, assignor to Frank W. Whitcher, Boston, Mass. Filed May 24, 1897. Serial No. 637,979. (No model.)



Claim.—1. A bicycle-support for railway cars or coaches in the combination of three hooks fastened to the roof and side of the car or coach, and constructed and arranged to hold the wheels and frame of a bicycle as near as possible in a plane parallel to the roof of the car or coach, and directly beneath the same; all substantially as set forth and described.

2. The combination in a support for bicycles in railway cars and coaches, of a symmetrical double hook, *c*, fastened to the middle of the car-roof; a hook *d*, hinged to the bracketed bar, *e*, which bar *e* is fastened to the roof of the car, one on each side of the middle line of the said roof; and the hook, *j*, attached by the strap, *i*, and the screw-eye *h*, one to each side of the car; together and in conjunction forming a support for two bicycles; all substantially as set forth.

3. The combination in a bicycle-support for railway cars or coaches, of a series of hooks, in which the hook, *d*, is hinged on the bracketed bar, *e*, so it may at the same time be slid along said bar and turned thereon; all substantially as set forth and described.

4. The combination in a bicycle-support for railway cars or coaches of a series of hooks, of which the hook, *j*, is connected to a screw-eye, *h*, by means of the strap, *i*, in such manner that the hook engages the frame of the bicycle when the screw-eye, *h*, is screwed to the side of the car; all so arranged for operation and use as described.

5. A bicycle-support for railway cars or coaches in the combination of three hooks covered with soft material, fastened to the roof and side of the car or coach, and arranged and adapted to hold the wheels and the frame of a bicycle as near as possible in a plane parallel to the roof of the car or coach, and directly beneath the same; all substantially as set forth and described.

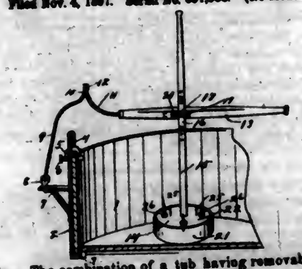
608,510. INFLATION-TUBE. JOHN G. MACFARLANE, St. Joseph, Mo. Filed June 30, 1897. Serial No. 643,269. (No model.)

Claim.—1. The combination of a pneumatic or inflatable tire, a threaded inflation-tube secured in the tire and having its outer end threaded to engage the inflation-tube and having the flat inner side arranged closely adjacent to the exterior of the tire, and the cap with the recess therein and the packing arranged in said recess and bearing against the outer end of the inflation-tube, whereby the inner flat side of the cap is enabled to bear against the outside of the tire around the inflation-tube, substantially as specified.



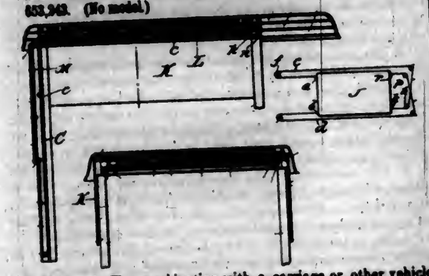
2. The combination of a pneumatic or inflatable tire, a threaded inflation-tube secured in the tire with its outer end closely adjacent to the exterior of the tire and so arranged that, when the tire is placed on a wheel-rim, it will rest entirely outside said rim, and the cap or convex-plano form in cross-section threaded to engage the inflation-tube and having the recess in its inner side and the packing arranged in said recess and bearing against the outer end of the inflation-tube, whereby the inner flat side of said cap is enabled to bear against the outside of the tire around the inflation-tube, substantially as specified.

608,511. WASHING-MACHINE. JOSHUA D. MOORE, Orrville, Ohio. Filed Nov. 4, 1897. Serial No. 657,208. (No model.)



Claim.—The combination of a tub having removably attached thereto the bar 2, provided at its bottom or lower end with the hook 3, and the elongated slot 4, the adjustable clamp 5, connected to the bar 2, and to the tub, the arm 7, provided with the swivel-eye 8, connected to the bar 2, the rod 9, provided with the integral curved portion 10, the rod 11, having connected thereto the operating-lever 13, the pounding-head 14, provided with the handle 15, the flat connecting-bar 16, pivotally attached to the operating-lever 13, and the L-shaped bolt 17, provided with the collar or flange 19, and the nut 18, substantially as and for the purpose specified.

608,512. CURTAIN FOR VEHICLES. CHARLES J. ROSEBROOK and SHEPARD BERNHAM, Dixon, Ill. Filed Sept. 27, 1897. Serial No. 653,943. (No model.)



Claim.—1. The combination with a carriage or other vehicle, having false roofs, thereby forming pockets or chambers, of side and end curtains or flaps adapted to be received or stored respectively in such chambers and operating-cords for each of such curtains or flaps, said cords being connected at the respective ends thereof to the top and bottom edges of such curtains, whereby said curtains may be raised and lowered and constantly maintained in stretched condition, as and for the purpose set forth.

2. The combination with a carriage or other vehicle top having false roofs or partitions, thereby forming chambers or recesses in the roof thereof, of side and end curtains or flaps arranged to be received and stored respectively in said chambers or recesses and cords connected at the respective ends thereof to the bottom and top ends of each of said curtains, and guides arranged in said roof over which said cords operate, whereby said curtains may be raised and lowered and constantly maintained in stretched condition, as and for the purpose set forth.

3. The combination with a carriage or other vehicle top having partitions, thereby forming independent chambers or recesses in the roof thereof, of side and end curtains or flaps arranged to operate and to be stored respectively in said chambers or recesses, means for guiding said curtains or flaps and operating-cords connected at the respective ends thereof to the bottom and top edges or ends of each of said curtains or flaps, and guides arranged in the respective chambers in said roof over which said cords operate, as and for the purpose set forth.

4. The combination with a carriage or other vehicle, of slidable curtains and means for operating said curtains, and constantly maintaining the same in stretched condition, comprising operating-cords connected at the respective ends thereof to diagonal corners of said curtains or flaps and guides over which said cords operate, as and for the purpose set forth.

5. In a carriage or other vehicle, corner supports or standards, slidable curtains or flaps, operating-cords connected at the ends thereof to the top and bottom edges of said curtains at diagonally opposite points, and a support or guide arranged adjacent to the ends of said standard over which said cords operate, as and for the purpose set forth.

6. In a carriage or other vehicle, tubular corner standards or supports, said supports being slitted longitudinally, slidable curtains or flaps, guides connected to the edges of said curtains or flaps and arranged to project through said slits or openings and into said tubular standards, operating-cords arranged within said tubular standards and connected at the ends thereof to the edges or ends of said curtains or flaps, guides arranged in said standards and over which said cords operate, as and for the purpose set forth.

7. In a carriage or other vehicle, a roof having partitions, thereby forming independent pockets or chambers, corner-standards for supporting said roof, slidable end and side curtains or flaps, guides arranged adjacent to the lower ends of said standards, other guides arranged within the chambers in said roof, and operating-cords connected at the respective ends thereof to the top and bottom edges or ends of each of said curtains and arranged to pass around said guides, as and for the purpose set forth.

8. In a carriage or other vehicle, a roof having pockets or chambers, tubular corner standards or supports therefor, guides arranged within the lower ends of said tubular standards, slidable curtains, operating-cords connected at the respective ends thereof to the bottom and top ends of the curtain, said cords arranged within said tubular support and adapted to pass over said guides, and other guides arranged in the chambers in said roof and over which said cords are arranged to pass, as and for the purpose set forth.

608,513. MEANS FOR MAKING WEDGES FOR SPLITTING STONE, &c. EDWARD B. ROTH, St. Louis, Mo. Filed Aug. 19, 1897. Serial No. 648,796. (No model.)



Claim.—1. A pair of dies for forming wedges and the like, having a pair of opposing inclined faces, a pair of opposing concave faces, and a pair of opposing flat faces preventing the other faces from coming in contact.

2. A pair of dies for forming wedges and the like, having a pair of opposing inclined faces, a pair of opposing convex faces, a pair of opposing concave faces, and a pair of flat faces preventing the other faces from coming in contact.

3. A pair of dies for forming wedges and the like, having a pair of opposing inclined faces, a pair of opposing faces each having two depressions corresponding to the form of head desired on the tool, and a pair of flat faces preventing the other faces from coming in contact.

4. A pair of dies for forming wedges and the like, having a pair of opposing inclined faces, a pair of opposing convex faces, a pair of opposing concave faces, a pair of faces having formed thereon two depressions corresponding to the form of head desired on the tool, and a pair of flat faces preventing the other faces from coming in contact.

608,514. GAME-COUNTER. JOSEPH SCHNEIDER, San Francisco, Cal., assignor of one-half to William Wolf, same place. Filed Dec. 2, 1896. Serial No. 614,373. (No model.)

Claim.—1. In a game coasting or scoring board, the combination with the open frame-plate divided into sections by a central rib or division-strip, of a score-plate located in each section, the communicating ways at each side of the score-plates, of the sockets or slots for the scoring-pegs formed in each side of the score-plates, said sockets or slots communicating with the side ways, and of the scoring-pegs fitted to move within the side ways and sockets of the score-plates.



2. In a game-counter or scoring-board, the combination with an open frame-plate divided into sections by an intermediate strip or rib, of a score-plate located in each section provided on two opposite edges with sockets or slots for the scoring-peg said sockets on each edge of the score-plate communicating with a way which ways communicate only at the ends of the score-plates, and a scoring-peg adapted to move in said sockets and ways.

3. In a game-counter or scoring-board, the combination of a base-board having its face countersunk or recessed and provided with three parallel longitudinal partitions, an open frame-plate secured on said base-board and projecting inwardly beyond the edge of the countersink or recess, a central strip or rib secured on the central partition and overhanging the same, and a score-plate secured to the remaining partitions on each side of the central strip intermediate the frame and central strip and intermediate the ends of the open frame, said score-plates having portions overhanging the partitions to which they are secured and provided with notches or slots, and non-removable pegs adapted to be moved in the spaces between the frame and score-plates.

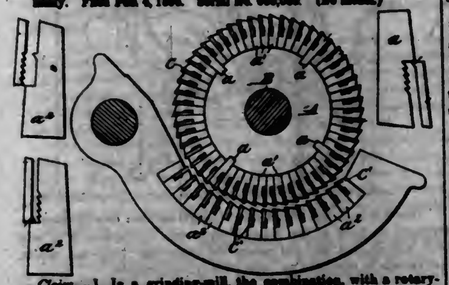
608,515. ELECTRICAL APPARATUS. WILLIAM STANLEY, Pittsfield, Mass., assignor to the Stanley Instrument Company, of Massachusetts. Filed Jan. 25, 1897. Serial No. 621,057. (No model.)



Claim.—1. In an electrical apparatus, two coils in series with each other, and with a source of alternating current, in combination with two shunts, one of low, the other of greater time-constant than the coils which they respectively shunt, and a closed circuited armature in direct inductive relation to the fluxes produced by both coils, substantially as described.

2. In an electric meter, two coils in series with each other and with a source of alternating current, in combination with two shunts, one of low, the other of greater time-constant than the coils which they respectively shunt and a closed circuited armature in direct inductive relation to the fluxes produced by both coils, together with suitable retarding and registering devices, substantially as described.

608,516. GRINDING-MILL. FRIEDRICH STELLE, Langerfeld, Germany. Filed Feb. 4, 1893. Serial No. 668,502. (No model.)



Claim.—1. In a grinding-mill, the combination, with a rotary-grinder hub, having a plurality of channels, an abutment cutter-holder firmly secured in each channel, and a plurality of cutter-holders arranged around the periphery of the grinder-hub and fitting tightly between the abutment cutter-holders, all the cutter-holders being wedge shape in cross-section and having the homologous points in their outer faces equidistant from the axis of the grinder-hub, and each provided with a rabbet extending inward along one face of the respective cutter-holder and provided with a series of notches, of cutters arranged to fit snugly in the rabbets, each cutter being provided with a tooth arranged to enter any desired one of the series of notches, substantially as described.

2. In a concave for grinding-mills, the combination, with a series of cutter-holders wedge shape in cross-section and arranged to fit closely against each other, said cutter-holders each having a rabbet provided with a series of notches of a cutter fitting snugly in each rabbet and provided with a tooth arranged to enter any desired notch of its respective series, substantially as described.

608,517. BUTTON. CHARLES W. STIMSON, New York, N. Y. Filed May 20, 1897. Serial No. 638,709. (No model.)



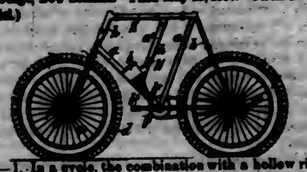
Claim.—1. In a button for button-and-loop clasps, the combination, with a base-plate, of washers of elastic material forming the neck or shank and the head of the button, and a fastening device securing said washers to the base-plate and to each other, substantially as described.

2. In a button for button-and-loop clasps, the combination, with a base-plate, of washers of elastic material forming the neck or shank and head of the button, and a rivet uniting said washers to the base-plate and to each other, substantially as described.

3. In a button for button-and-loop clasps, the combination, with a base-plate, a washer or washers of felt forming the neck of the button, and a washer of similar material of larger diameter forming the head, of a headed rivet passing through said washers and secured to the base-plate, thereby securing said washers to each other and to the base-plate, substantially as described.

4. In a button for button-and-loop clasps, the combination, with a base-plate, and washers forming the neck or shank and head of the button, of a rivet secured to the base-plate and securing said washers thereto and to each other, and a sleeve surrounding said rivet, substantially as described.

608,518. MECHANISM FOR PROPELLING VEHICLES. HENRY STIMS, Otago, New Zealand. Filed May 15, 1897. Serial No. 636,613. (No model.)



Claim.—1. In a cycle, the combination with a hollow rigid tire, of a plurality of pump-barrels extending radially across said tire and projecting outside of the same, and secured to the tire at each end, pistons in said pump-barrels, spring-valves in said pistons, and piston-rods projecting radially beyond the pump-barrels, substantially as described.

2. In a cycle, the combination with a hollow rigid tire, having in its periphery a series of screw-threaded openings, of a plurality of pump-barrels screwed into said openings, pistons in said barrels, spring-valves in the pistons, piston-rods extending beyond the periphery of the tire, and springs for keeping the piston-rods normally projected, substantially as described.

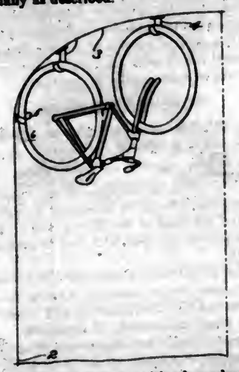
3. In a cycle, the combination with a hollow metallic tire, having a plurality of openings in its periphery, of screw-threaded bosses secured to the tire at said openings, a plurality of pump-barrels having screw-threaded collars to screw into said bosses, plates inside the tire to receive the inner ends of the pump-barrels, valved pistons in the pump-barrels, and spring-actuated piston-rods projecting beyond the outer ends of the pump-barrels, substantially as described.

4. In a cycle, the combination with a hollow tire, of a pump-barrel secured radially thereto, having its outer portion of larger diameter than its inner portion, a piston in the inner portion, a spring-valve in said piston, a piston-rod having a collar fitting in the outer portion of the barrel, a helical spring housed in said outer portion and acting against said collar, and an annular cap on the outer end of the barrel to limit the outward movement of the piston-rod, substantially as described.

5. In a cycle, the combination with a hollow rigid tire, of a pump-barrel secured radially thereto, having inlet-ports in its inner end, an elastic band surrounding and covering said ports, a valved piston in the pump-barrel, and a piston-rod projecting beyond the periphery of the tire, substantially as described.

608,519. BICYCLE-SUPPORT. GEORGE H. WILLIAMS, Newton, Mass. Filed Apr. 22, 1897. Serial No. 633,263. (No model.)

Claim.—1. The combination with a car, of hooks or hangers applied to the ceiling and adapted to support a bicycle in inverted position depending from the said ceiling, and a retainer engaging with the bicycle to prevent swinging or oscillating movement thereof, substantially as described.



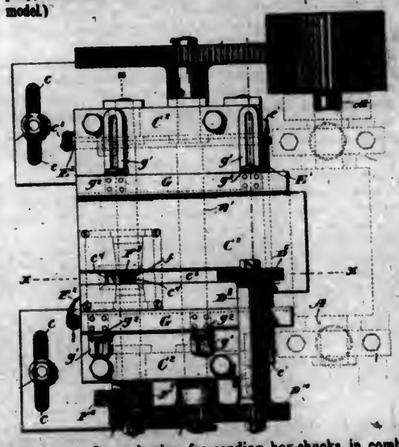
2. The combination with a car, of hooks or hangers applied to the ceiling and adapted to engage with the rims of the wheels of a bicycle to hold the bicycle in inverted position depending from the ceiling, and a retainer also engaging with one of the said wheels to prevent the bicycle from swinging or oscillating, substantially as described.

3. The combination with a car, of hooks or hangers applied to the ceiling and adapted to engage with the rims of the wheels of a bicycle to hold the bicycle in inverted position depending from the ceiling, and the retainer applied to one of the vertical sides of the car, and also engaging with one of the said wheels to prevent the bicycle from swinging or oscillating, substantially as described.

4. The combination with a car, of hooks or hangers applied to the ceiling of a car, arranged in a diagonal line crosswise of the car, the said hooks or hangers being adapted to engage with the rims of the wheels of a bicycle to hold the bicycle in inverted position depending from the ceiling, and the retainer applied to one of the vertical sides of the car and also engaging with one of the said wheels to prevent the bicycle from swinging or oscillating, the said wall-retainer having its fork disposed in an inclined position, substantially as described.

5. The herein-described ceiling hook or hanger having the elongated base disposed at an angle to the hook portion to facilitate the application of the hook or hanger to the surface of a curved ceiling, substantially as described.

608,520. MACHINE FOR SANDING BOX-SHUCKS. JACOB P. WEBER, New Haven, Conn., assignor to the Diamond Match Company, Chicago, Ill. Filed Dec. 22, 1896. Serial No. 616,811. (No model.)



Claim.—1. In mechanism for sanding box-shucks, in combination with the shuck-supporting table having a groove in its upper face, an opening for the glue-applying device, in line with such groove, and a second opening in the bottom of the groove beyond the first opening, a glue-applying device to apply glue to the shucks through the first opening, and means for applying sand to the glued part of the shucks through the second opening, substantially as and for the purpose specified.

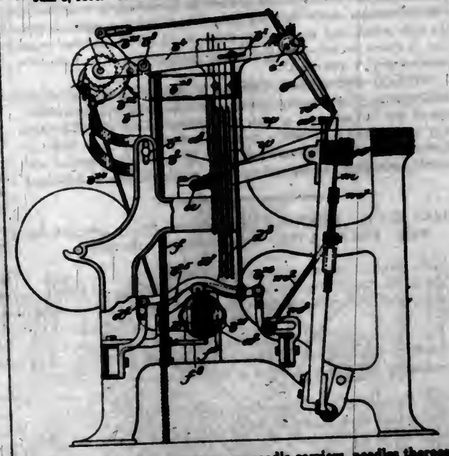
2. In mechanism for sanding shucks, in combination with the shuck-supporting table, provided with a groove, the glue-applying wheel projecting up through an opening in the table, in line with the groove in the latter, means for supplying glue to such wheel, a sand-containing box or receptacle, and means for delivering sand therefrom, through an opening in the bottom of the groove in the table, against the glued part of the shucks, brought over such opening by the feeding of the shucks over the table, substantially as and for the purpose shown.

3. In combination with the table provided with the opening for the passage of the glue-applying device, a groove extending from such opening, and a second opening in the bottom of the groove, the glue-applying wheel projecting up through the first opening, means for supplying such wheel with glue, a sand-containing box below the second opening in the table, a sand-throwing wheel in the box, adapted, as it revolves, to throw the sand up through the opening in the table, and means for rotating the glue-applying and sand-throwing wheels, substantially as and for the purpose set forth.

4. In combination with the table, having an opening for the glue-applying wheel, a groove extending out along the table in line with such opening, and a second opening in the bottom of such groove having its sides undercut, the glue-applying wheel projecting up through the first opening in the table, means for supplying it with glue, the sand-containing box below the second opening, the sand-throwing wheel revolving in such box and having arms or blades to engage the sand in the box and throw it up through the opening above the box, and means for rotating the two wheels, substantially as and for the purpose described.

5. In combination with the box for containing sand, the sand-throwing wheel rotating therein, having blades or arms to engage and throw the sand, the shaft carrying such wheel, and the tubular bearing for the shaft extending in around the latter, from the walls of the sand-box, to the sides of the sand-throwing wheel, substantially as and for the purpose specified.

608,521. LAPPET-LOOM. ISRAEL WYMAN, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Jan. 6, 1896. Serial No. 574,625. (No model.)



Claim.—1. A lay, one or more needle-carriers, needles thereon arranged in front of the lay and supported independently of and from behind said lay, and means for imparting rising and falling movements to said needles, substantially as described.

2. A loom containing the following instrumentalities, viz: a lay provided with a reed, shedding mechanism, one or more needle-carriers arranged in front of the lay and supported independently of the latter, a needle or needles on the respective carriers, and means to impart to said carriers vertical forward-and back, and laterally-progressive movements, substantially as described.

3. A loom containing the following instrumentalities, viz: a lay provided with a reed, shedding mechanism, one or more needle-carriers and a needle or needles on the respective carriers, a swinging support in which said carrier or carriers is or are swingingly mounted, means to move said carrier or carriers in their respective supports, and a source of thread-supply mounted upon said carriers, substantially as described.

4. In a loom, a combination with the frame, a lay provided with a reed, shedding mechanism, one or more needle-carriers arranged in front of said reed and supported from the back of said lay and independent of the latter, needles on the said carriers, means to impart to said needle-carriers rising and falling movements, and also a forward-and-back movement, following the movements of the lay, and the rising and falling shuttle-guide pins mounted on said lay, substantially as described.

5. In a loom, a frame, a lay provided with a reed, and a shedding mechanism, combined with one or more needle-carriers, and needles for the same, swinging needle-carrier supports fulcrumed above and independent of said lay and in which the said carriers are swingingly mounted, and means to actuate the said carriers, substantially as described.

6. In a loom, the combination with the frame, a lay provided with a reed and the shedding mechanism, of one or more depending needle-carriers fulcrumed above and behind said lay and means to swing said carriers forward and back to clear said lay, needles on the said carriers, and means for actuating the same and their carriers, substantially as described.

7. In a loom, a frame, a lay having a reed and shedding mechanism, combined with one or more needle-carriers mounted independently of the lay and in front of the reed thereon, needles on the said carrier or carriers, a cam for determining the movements of the said carrier or carriers, and means to move the said carrier or carriers independently of said cam, substantially as described.

8. In a loom, a frame, a lay provided with a reed and shedding mechanism, combined with a needle-carrier arranged in front of said reed, a needle-carrier support fulcrumed above and at the back of said lay, a cam determining the movements of said carrier, and means to vibrate the said carrier independently of and within limits fixed by said cam, substantially as described.

9. In a loom, a frame, and a lay provided with a reed, combined with one or more needle-carriers and needles thereon, swinging supports independent of the lay, and means both to rotate and slide said needle-carriers therein, substantially as described.

10. In a loom, a frame, a lay provided with a reed, and a shedding mechanism, combined with one or more needle-carriers and needles on the same, swinging supports in which the said needle-carriers are mounted to vibrate, one or more cams on the said swinging supports and connected with and to determine the movements of the said carrier or carriers, and means on the said swinging supports to move said carrier or carriers independently of said cam or cams, substantially as described.

11. In a loom, a frame, a lay provided with a reed, and a shedding mechanism, combined with a needle-carrier, mounted independently of the lay, and having a swinging movement following the movements of said lay and such that the length of thread from the needle to the fell of the fabric, when the needle is in each of its extreme positions, shall be substantially the same, substantially as described.

12. In a loom, a frame, a lay provided with a reed, and a shedding mechanism, combined with a needle-carrier, one or more needles mounted therupon, means to vibrate said needle-carrier, a cam, and a lever straddling said cam, and coöperating therewith to determine the movement of the said carrier and the pattern produced by the said needles, and means to move said carrier in opposite directions independent of and within limits fixed by said cam, substantially as described.

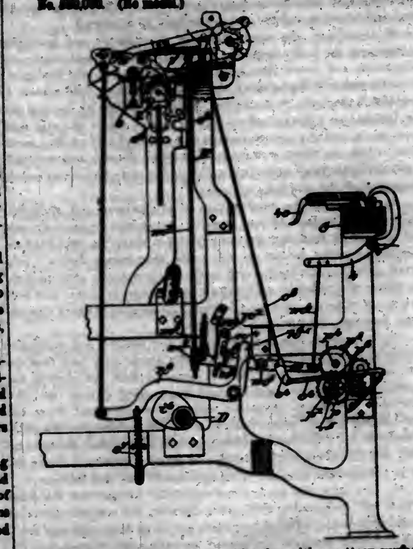
13. In a loom, a frame, a lay provided with a reed, and a shedding mechanism, combined with a needle-carrier, one or more needles mounted therupon, a cam, a lever to vibrate said carrier forked at one end to straddle said cam, means to vibrate said lever within limits determined by said cam, and means to vary the said vibratory movement relatively to the said cam, substantially as described.

14. In a loom, a frame, a lay and a harness mechanism, combined with a plurality of needle-carriers, needles arranged thereon, and cams for the respective carriers, and actuating-levers for the respective carriers having forked ends straddling the cams therefor, and means to vibrate said levers within the limits determined by said cams, substantially as described.

15. In a lappet-loom, lappet-needles, carriers therefor, and means to move the said needles such that the length of thread from the needles to the fell of the fabric during the insertion of the weft and during the beating up of the lay is substantially the same to obviate slackening of the thread, substantially as described.

16. In a lappet-loom, the needles, carriers therefor, thread-guides to conduct the threads to the needles, and means to move said needles such that the threads conducted thereto by said thread-guides shall be held under suitable tension during the laying in of said threads and during the beating up of the same.

608,522. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. ISRAEL WYMAN, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Feb. 20, 1896. Serial No. 580,020. (No model.)



Claim.—1. In a loom, the combination with a pattern-surface and its feed device, a multiplier and its feed device and a disengaging device, of an automatic stop mechanism, connections between said stop mechanism and said disengaging device and operating through the latter to throw both the said feed devices out of action on automatic stopping of the loom by the said stop mechanism, and means to retain said feed devices out of action after release of the same by said automatic stop mechanism, substantially as described.

2. In a loom, the combination with a pattern-surface and its feed device and a multiplier and its feed device, of an automatic stop mechanism, connections between said stop mechanism and said pattern and multiplier feed devices for throwing both the latter out of action on automatic stopping of the loom by the former, a holding device and means to operate it to retain the said feed devices out of action for one or more picks of the loom after starting the latter, substantially as described.

3. In a loom, the combination with pattern and multiplier mechanisms and feed devices therefor, and actuating means to alternately operate the said feed devices, of an automatic stop mechanism for said loom, a disengaging device and connections between the same and said stop mechanism whereby the former is automatically moved to disengage said feed devices on automatic stopping of the loom by the latter, and means operable independent of said actuating means to retain said alternately-acting feed devices out of action through one or more picks of the loom, substantially as described.

4. In a loom, the combination with the pattern and multiplier ratchets, feed-pawls therefor, and means to actuate the latter, of an automatic stop mechanism and connections between the same and said feed-pawls for automatically disengaging the latter from their respective ratchets on automatic stopping of the loom by the former, and means to retain said feed-pawls in their disengaged positions through one or more picks of the loom, substantially as described.

5. In a loom, the combination with the pattern and multiplier mechanisms, and the feed devices therefor, of a single disengaging device operable independent of but coöperating with both said mechanisms to move the said feed devices out of action, an automatic stop mechanism and connections between the same and said disengaging device to move the latter by or from the former.

6. In a loom, the combination with the pattern and multiplier mechanisms, feed-wheels therefor, the oppositely-acting feed-pawls coöperating therewith, and a common actuator for the said feed-pawls, of an automatic stop mechanism, means actuated thereby for lifting said feed-pawls out of engagement with their respective feed-wheels on automatic stopping of the loom, and means to retain said feed-pawls in their lifted disengaged positions, through one or more picks of the loom, substantially as described.

7. In a loom, the combination with the pattern and multiplier mechanisms; ratchet-wheels therefor; the feed-pawls; the common

actuator for the same; and the lifters for the respective pawls, of the disengaging-device for simultaneously-disengaging both pawls; the lever to which said disengaging device is connected; the automatic stop mechanism for operating said lever; the holding device for said lever and means to release it, substantially as described.

8. In a loom, the combination of the pattern and multiplier mechanisms, the feed-wheels and feed-pawls therefor, automatic stop mechanism, and connections between the latter and said feed-pawls for automatically disengaging the latter and their feed-wheels on stopping of the loom by the former, means controlled by the said pattern mechanism automatically to throw out of action the said feed-pawls at the end of a predetermined movement of said pattern mechanism; a take-up roller, and means controlled thereby automatically to put said feed-pawls again into action at the end of a predetermined movement of the said take-up roller.

9. In a loom, the combination of the pattern and multiplier mechanisms; the feed devices therefor; a common actuator for said feed devices; a feed-disengaging device for throwing said feed devices out of action, a lever to which said disengaging device is connected, a holding device for said lever; the automatic stop mechanism, means controlled by said pattern mechanism to throw said feed devices out of action; a take-up roller, and means governed thereby to put said feed devices again into action.

10. In a loom, the combination of the pattern and multiplier mechanisms, the feed devices therefor, the actuator for said feed devices, a feed-disengaging device for throwing said feed devices out of action, a lever for operating said disengaging device, the automatic stop mechanism connected with and to move said lever, the lever-holding device, means controlled by the pattern-surface automatically to move said lever to disengage said feed devices, the take-up roller, and means controlled thereby to move said lever-holding device to release said lever for reengagement of the feed devices.

11. In a loom, the pattern and multiplier mechanisms, the feed-ratchets and cooperating feed-pawls therefor, the common actuator for said feed-pawls, a feed-disengaging device to disengage said feed-pawls and their ratchets, a lever for actuating said disengaging device, the lever-holding device and means to release it, the automatic stop mechanism to move said lever, a lever moved by the pattern-surface, a rod connecting said last-mentioned lever with and to move the lever for operating said disengaging device, the take-up roller, and means operated thereby to release said rod from engagement with said last-mentioned lever.

12. In a loom, the combination with the pattern and multiplier mechanisms, and the feed ratchets and pawls therefor, of means controlled by the pattern mechanism automatically to move said pawls out of engagement with said ratchets, a take-up roller, and means operated thereby automatically to move said pawls again into engagement with said ratchets.

13. In a box mechanism for looms, two alternately-acting feed devices and parts fed by the same, and means for disengaging the active feed device from the part fed thereby while insuring retention of the inactive feed device out of engagement with the part fed thereby.

14. In a loom containing a box mechanism, two alternately-acting box-mechanism feed devices and parts fed thereby, an automatic stop mechanism for the loom, and means controlled thereby for disengaging the active feed device from the part fed by it while insuring retention of the inactive feed device out of engagement with the part fed by it.

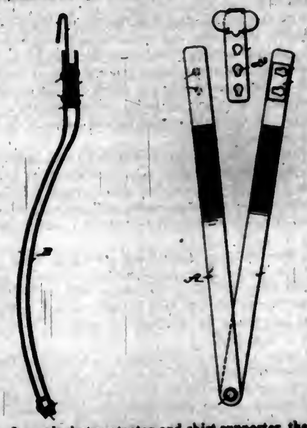
15. In a loom, containing a box mechanism, a plurality of box-mechanism feed devices, means to throw said feed devices temporarily out of action on stopping of the loom, and means to hold said feed devices out of action after the starting of the loom until such time as they can be again set in operation in the same order or sequence as when stopped, substantially as described.

16. In a loom, the combination with the pattern and multiplier mechanisms and the respective feed devices therefor, of means controlled by the pattern mechanism automatically to cause disengagement of both said feed devices from their respective mechanisms, a take-up roller and connections automatically to cause reengagement of said feed devices with their respective mechanisms at the end of a predetermined length of movement of said take-up roller, substantially as described.

17. In a loom, the combination of the pattern and multiplier mechanisms, feed devices therefor, disengaging means to cause said feed devices to be simultaneously disengaged from their respective mechanisms, and means controlled by the pattern-surface automatically to operate said disengaging means, substantially as described.

608,523. PLACKET-PROTECTOR AND SKIRT-SUPPORTER. WILLIAM H. CARR and JOHN G. WOLF, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,059. (No model.)

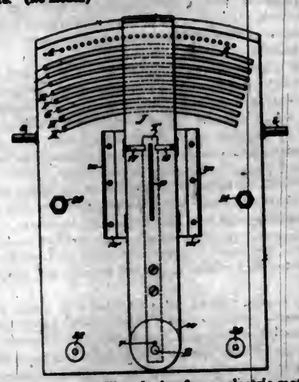
Claim.—1. A placket-protector and skirt-supporter, comprising two members pivoted together at their lower ends to overlie one another and having an interlocking engagement at their upper ends, and a hook adjustably secured to the upper end of one of the said members, substantially as described.



2. In a placket-protector and skirt-supporter, the combination, with pivotally-connected members, one of the members being provided with a keeper and the other with devices to enter said keeper, of a hook adjustably carried by said members and adapted for engagement with a bolt, for the purpose set forth.

3. In a placket-protector and skirt-supporter, the combination with two members pivoted together at their lower ends, one of the members being provided at its upper end with a keeper having key-hole-slots, and the other with pins to enter said slots, of a hook having a plurality of openings in its shank through which the said pins are adapted to project, substantially as herein shown and described.

608,524. ELECTRIC DENTAL-ENGINE CONTROLLER. JAMES J. CRAGHEAD, Rio Janeiro, Brazil. Filed Aug. 31, 1897. Serial No. 649,013. (No model.)



Claim.—1. A controlling device for an electric motor, comprising in connection with an electric circuit, a series of contact-strips, a pedal movable over the same and carrying contacts, a resistance-coil, a contact-point carried by the pedal for engaging with the resistance-coil, and a pole-changer electrically operated, substantially as specified.

2. A controller for an electric motor, comprising a base, a pedal mounted to swing on said base, a series of contact-plates on said base, contacts carried by the pedal for engaging with the plates, a resistance-coil secured to the base, a contact carried by the pedal for engaging with said resistance-coil, a spring carried by the pedal and in the electrical circuit, and contact-plates normally in engagement with said spring, substantially as specified.

3. In a controller for an electric motor, the combination with a base and contact devices thereon, of a pedal mounted to swing on the base and carrying contacts, a circuit-closer mounted on the pedal, and hinged wings carried by the pedal for shifting said circuit-closer, substantially as specified.

4. In a controller for an electric motor, the combination with an electric circuit and a resistance, of a controlling-pedal having a circuit-closer on its under side, and having its ends extended beyond the edges of the pedal, and wings hinged to the pedal and adapted to be operated to shift the circuit-closer, substantially as specified.

5. A controller for an electric current, comprising a base, a resistance on the under side thereof, a pedal mounted to swing on the base, a contact on said pedal for engaging with the resistance, pole-changing solenoids, and a pole-changing lever having connection with the core of the solenoids, substantially as specified.

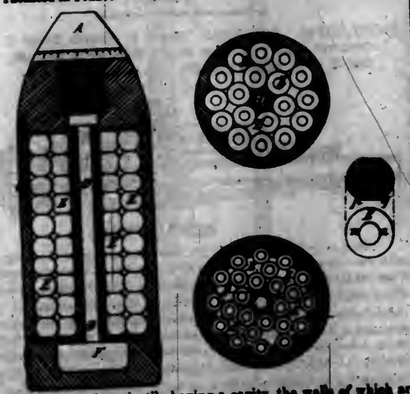
6. A controller for an electric circuit, comprising in combination with a circuit, a base, a pedal mounted to swing on said base, a series of contact-plates on the base concentric with the pivotal point of the pedal, a resistance on said base, a lever mounted to swing relatively to the base, and push-pins extended through the base engaging with said lever at its opposite ends, and an electrically-operated pole-changer, substantially as specified.

7. A circuit-controller, comprising a base, a pedal mounted to swing thereon, a series of contact-strips on the base and concentric with the pivotal point of the pedal, contacts carried by the pedal for engaging with said contact-strips, a resistance-coil mounted on said base, a contact carried by the pedal for engaging with said resistance-coil, two solenoids in the circuit of the resistance-coil, a pole-changing lever, an arm extended from said pole-changing lever to a connection with the core of the solenoids, and a circuit-closer operated by said arm, substantially as specified.

8. A controller for an electric motor, comprising a base, a series of concentric contact-strips on said base, a pedal mounted to swing on the base, contacts carried by said pedal and engaging with the strips, a resistance on the base, means for connecting the resistance and pedal, a spring yielding contact-plate secured to the pedal and having engagement with the pivot of the pedal, said pivot being in the electrical circuit, and a rib on said spring-plate passing upward through an opening in the pedal, substantially as specified.

9. A controller for an electric motor, comprising a base, a pedal mounted to swing on said base, a series of concentric contact-strips on the base, contact-points carried by the pedal and engaging the said strips, a resistance having connection with a contact on the pedal, a spring yielding contact carried by the pedal and having connection with the pivot of the pedal, said pivot being in the electrical circuit, a pole-changing lever, solenoids for and operating said pole-changing lever, a circuit-closer operated by the movements of the pole-changing lever, and another circuit-closing lever having pins extended upward through the base, substantially as specified.

608,525. SHRAPNEL PROJECTILE. MESSRS. DARMANSENS, St. Chamond, France. Filed Nov. 5, 1897. Serial No. 657,514. (No model.) Patented in France Dec. 6, 1894. No. 242,427.



Claim.—1. A projectile having a cavity, the walls of which are provided with a series of longitudinally-extending grooves, and the projectile also having a central tube with longitudinally-extending grooves in its outer surface and with a disk at its inner end, each disk having its periphery serrated to match the grooves of the projectile.

2. A projectile having a cavity, the walls of which are provided with longitudinally-extending grooves, and a tube run centrally through the cavity and having longitudinally-extending grooves in its outer surface.

3. A projectile having a cavity, the walls of which are provided with longitudinally-extending grooves, a tube run centrally through the cavity and having longitudinally-extending grooves in its outer surface, and a series of balls contained within the cavity and arranged in rows lying in said grooves.

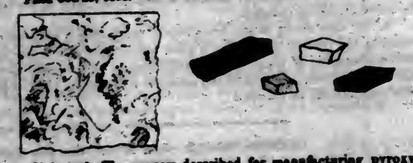
4. A projectile having a cavity, the walls of which are provided with longitudinally-extending grooves, a tube running centrally through the cavity and having grooves in its outer surface, the lower end of the tube having a disk with a serrated periphery conforming to the grooves in the walls of the cavity, and balls arranged within the cavity and lying in the said grooves.

5. A projectile, having a cavity, the walls of which are provided with longitudinally-extending grooves and a member run centrally through the cavity and held rigidly therein, said member having longitudinally-extending grooves formed in its outer surface, the grooves being adapted to contain balls stored within the cavity.

6. A projectile having a cavity formed therein, the cavity being provided with longitudinal grooves, a member held rigidly in the cavity and centrally with reference thereto, said member being provided with longitudinal grooves similar to those in the walls of the cavity, and a fuse-holder secured to one end of the projectile to close the cavity and engaging said centrally-disposed member, the cavity being adapted to contain a series of separate balls packed in the grooves.

7. A projectile having a cavity, a tube extending centrally through said cavity and provided with a disk at its lower end, the disk resting on the bottom of the cavity, and a fuse-holder secured to one end of the projectile to close the cavity and having connection with the tube, the cavity being adapted to receive balls packed therein and around the tube.

608,526. METHOD OF MANUFACTURING PYROXYLIN COMPOUNDS IN IMITATION OF MARBLE. JOSEPH B. FRANKE, New York, N. Y., assignor to the Arlington Manufacturing Company, same place. Filed Oct. 20, 1896. Serial No. 567,579. (No specimens.)



Claim.—1. The process described for manufacturing pyroxylin compounds in imitation of marble, said process consisting in forming pyroxylin compounds of suitable solid colors into fragments or pieces, dipping said pieces in a dye dissolved in a solvent of pyroxylin, and calendering the dipped fragments or pieces together to form sheeting, substantially as described.

2. The process described for manufacturing pyroxylin compounds in imitation of marble, said process consisting in producing pyroxylin compounds of different colors following the colors of the marble to be imitated, forming said compounds in fragments or pieces, dipping pieces of each solid color in a dye dissolved in a solvent of pyroxylin, calendering the whole number of pieces together to form a sheeting, compressing the sheeting into blocks and cutting the latter, substantially as described.

3. As a new article of manufacture a sheet of pyroxylin compound in imitation of marble consisting of fragments or pieces of pyroxylin compounds of one or more solid body colors following the colors of the marble to be imitated, said pieces having had applied to them an external coloring which when the pieces are blended together to form a sheet appear in irregular streaks and lines variously arranged and intermingled in the sheet and running through the body color or colors, substantially as described.

608,527. BOTTLE. WILLIAM A. FRIES, Sr., Brooklyn, N. Y. Filed May 21, 1897. Serial No. 637,081. (No model.)



Claim.—1. A bottle, having a channel in the interior of its neck, a valve-casing in the neck, a valve in the casing, and locking means for the casing comprising a plate substantially ovate in contour, the said plate being movable in an opening in the casing and adapted to engage in the channel of the neck and to engage its inner end against a wall of the opening, substantially as specified.

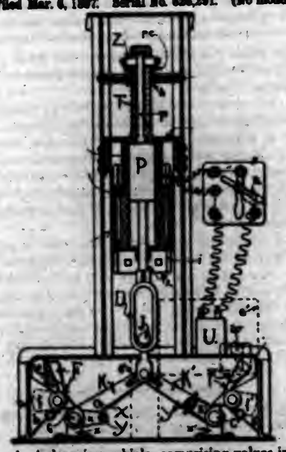
2. A bottle, having its neck portion provided with an interior annular shoulder and an interior annular channel, a valve-casing consisting of a lower tubular portion having a flange at its upper end and a valve-seat, an upper portion provided with outlet-ports and having legs, the lower ends of which are inclined outward and downward to engage against the bottom walls of inclined notches formed in the top of the flange of said tubular portion, a ball valve in the casing adapted to engage in the valve-seat, a cork bushing surrounding the tubular portion of the valve-casing, the said bushing being somewhat longer than said tubular portion and resting on a shoulder formed in the neck of the bottle, and locking means carried by the upper portion of the valve-casing and adapted to engage in the annular channel in the neck of the bottle, substantially as specified.

3. A bottle, having a neck portion provided with an interior channel, a glass-valve casing consisting of two detachable portions, the lower portion having a valve-seat, the upper portion having downwardly-extended legs to engage in notches formed in the upper end of said lower portion, the said upper portion having a space or chamber connected by means of ports between the legs with the opening through the lower portion of the valve-casing, and also communicating with the central opening or outlet through the head of the upper portion, and glass keys substantially ovate in contour and having lugs at their inner or larger ends, the said keys being movable in openings or seats formed in the head portion of the valve-casing, and adapted to engage in the channel formed in the neck of the bottle, substantially as specified.

4. A bottle, having its neck portion provided with an interior annular channel, a valve-casing in said neck portion having outlet-ports, a valve in said casing, and locking devices consisting of flat pieces of glass substantially ovate in contour and having lugs formed at the larger or inner end, the said locking devices being engaged in lateral openings extended from the central outlet of the valve-casing and movable into the annular channel formed in the neck of the bottle, substantially as specified.

5. An obstructing device for a bottle, comprising a glass-valve casing in the neck of the bottle, a glass valve therein, and locking devices consisting of glass, substantially ovate in contour, and movable to extend from openings in the casing to a channel in the bottle-neck substantially as specified.

603,528. DUMPING-VEHICLE. JOHN M. GOODWIN, New York, N. Y. Filed Mar. 6, 1897. Serial No. 626,291. (No model.)



Claim.—1. A dumping-vehicle, comprising valves in its bottom portion, a shaft upon which said valves are mounted to swing, struts on the lower sides of said valves, rotary shafts below the valves, detents on said shafts to engage with the struts and support the valves, levers loosely mounted on said shafts, means for locking the levers to the shafts, a vertically-movable piston, a cylinder in which the piston operates, and a connection between said piston and the levers, substantially as specified.

2. A dumping-vehicle, comprising valves in its bottom portion, the said valves being mounted to swing one independently of the other, shafts arranged below the valves, detents on said shafts, struts on the valves having rollers to engage with said detents, levers loosely mounted on the shafts, means for locking the levers to the shafts, means for locking the shafts from rotation, a cylinder, a piston operating in said cylinder, and a connection between the piston and levers, substantially as specified.

3. A mechanism for operating the valves of a dumping-vehicle, comprising a cylinder, a piston operating in said cylinder, a connection between said piston and devices for supporting the valves, a stem extended upward from the piston, an exteriorly-screw-threaded sleeve provided with opposite longitudinal slots, a collar movable on the sleeve and having connection with the stem, and a hand-wheel having an interiorly-threaded hub engaging with the thread of the sleeve, substantially as specified.

4. A dumping-vehicle having valves in its bottom, shafts extended longitudinally of the vehicle below the valves, struts on the valves, detents on the shafts for engaging with said struts, levers loosely mounted on the shafts, means for locking the levers to the shafts, pivoted dogs for locking the shafts from rotation, swinging doors on the casing in which said levers and dogs are located, lugs on the doors for holding the dogs in their locking position, and means for moving the levers vertically, substantially as specified.

5. A dumping-vehicle having swinging valves in its bottom, shafts arranged longitudinally of the vehicle below the valves, detents carried by the shafts, struts on the lower sides of the valves having rollers for engaging with said detents, levers mounted to swing on the shafts, lugs on the shafts, means for locking the lugs to the levers, and means for raising and lowering the levers, substantially as specified.

6. A dumping-vehicle having swinging valves in its bottom, struts on said valves, shafts extended longitudinally of the vehicle below the valves, detents on the shafts for engaging with the struts and supporting the valves, levers loosely mounted on the shafts, lugs rigidly secured to the shafts, means for locking the lugs to the levers, pivoted dogs for engaging with the lugs, and locking the shafts from rotation, and means for raising and lowering the levers, substantially as specified.

7. A dumping-vehicle having swinging valves in its bottom, struts on said valves, shafts extended longitudinally of the vehicle, detents on the shafts for engaging with the struts to support the valves, a cylinder, a piston operating in the cylinder, electrical connections whereby the piston may be operated in the cylinder, and connections between said piston and the shafts, whereby the valves may be lowered, substantially as specified.

8. In a dumping-vehicle, the combination with center valves, of swinging side valves, links movable in said side valves, hooks for engaging with said links, rollers on the hooks, and means for raising and lowering the hooks with the said side valves, substantially as specified.

9. In a dumping-vehicle, a valve mounted to swing in its lower portion, struts on the lower side of the said valve, a rotary shaft below the valve, detents on said shaft to engage with the struts and support the valve, a lever loosely mounted on the shaft, means for locking the lever to the shaft, and means for raising said lever to rock the shaft, substantially as specified.

603,529. ROCK-DRILL. HENRY B. HANCOCK, HENRY L. HANCOCK, and LIBERT G. HANCOCK, Mounts Mines, South Australia. Filed Sept. 2, 1897. Serial No. 650,201. (No model.)



Claim.—1. In a rock-drill, the combination with a working cylinder provided with a cylindrical valve-chamber and passages leading from said valve-chamber to opposite ends of the working cylinder, of a hollow cylindrical valve working in said valve-chamber, said valve being provided with ports which register with the aforesaid passages, a fluid-supply opening leading into one end of the hollow valve, a double-headed piston in the working cylinder, and a spindle fixed to the hollow valve and depending into the working cylinder between the two piston-heads so as to be alternately acted upon by said heads, substantially as described.

2. In a drill or similar machine, the combination with a working cylinder provided with a cylindrical valve-chamber and passages leading from said valve-chamber to opposite ends of the working cylinder, an opening in the top of the said chamber, and a screw-cap for said opening, of a hollow cylindrical valve working in said valve-chamber, said valve being provided with ports which register with the aforesaid passages, and provided also with an opening A^7, in its top, a spindle F, tapped through an opening E^4, in the lower wall of the valve, a fluid-supply opening leading into one end of the hollow valve, and a piston in the working cylinder, said piston being arranged to operate the valve-spindle, substantially as described.

3. In a rock-drill, the combination with a cylindrical valve-chamber formed in the body of the machine and provided with oppositely-disposed side openings A^3, A^4, and a cap A^5, adapted to close either of said openings, of a hollow cylindrical valve having open ends registering with said side openings in the valve-chamber and provided also with passages which have communication with opposite ends of the working cylinder, a piston in the working cylinder, and a connection between said valve and piston, for the purpose specified.

4. In a rock-drill or similar machine, the combination with a working cylinder provided with a cylindrical valve-chamber and passages leading from said valve-chamber to opposite ends of the working cylinder, of a hollow cylindrical valve working in said chamber and provided with ports which register with the aforesaid passages, a fluid-supply opening leading into the hollow valve, a piston in the working cylinder, and exhaust-openings in the cylinder so disposed that the working fluid exhausts at either end of the stroke of the piston, substantially as described.

5. In a rock-drill or the like, the combination with a working cylinder provided with a cylindrical valve-chamber and passages leading from said valve-chamber to opposite ends of the working cylinder, of a hollow cylindrical valve working in said chamber, said valve being provided with ports which register with the aforesaid passages, a valve-operating spindle tapped into the hollow valve and depending into the working cylinder, a removable lining for the working cylinder, said lining being provided with openings I^2 I^3, at its opposite ends which register with the passages leading from the valve-chamber, and provided also with a slot I^1, for the valve-spindle, and a piston in the working cylinder, said piston being arranged to engage and operate the valve-spindle, substantially as described.

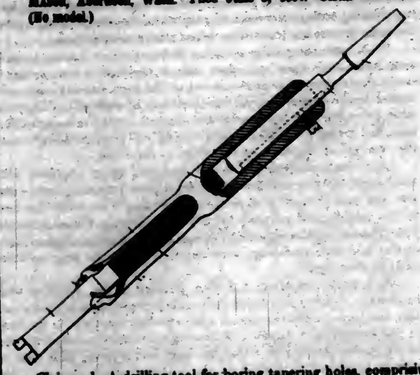
603,530. WRENCH. EDWIN HERWOOD, Hermansville, Mich. Filed July 7, 1897. Serial No. 643,701. (No model.)



Claim.—1. A wrench, comprising a fixed jaw having a plain rectangular shank, a sliding jaw loosely fitting upon the said shank and provided with a spur engaging the said shank, said spur serving both as a fulcrum and a gripping-surface for the jaw, and a grip-lever mounted in the sliding jaw in alinement with the said spur and provided with an angular head for engagement with said shank, whereby the sliding jaw will be first rocked and then locked to the shank, substantially as described.

2. A wrench, consisting of a fixed jaw having a plain rectangular shank, a sliding jaw provided with spaced strap extensions, through which the shank of the fixed jaw loosely extends, the portion of the jaw connecting the said strap extensions being provided within the rear strap extension with a spur, which serves both as a fulcrum and gripping-surface for said sliding jaw, and a grip-lever pivoted in the rear strap extension in alinement with the said spur and provided with an angular head forming a sharp contact-point for engagement with the shank of the fixed jaw, substantially as herein shown and described.

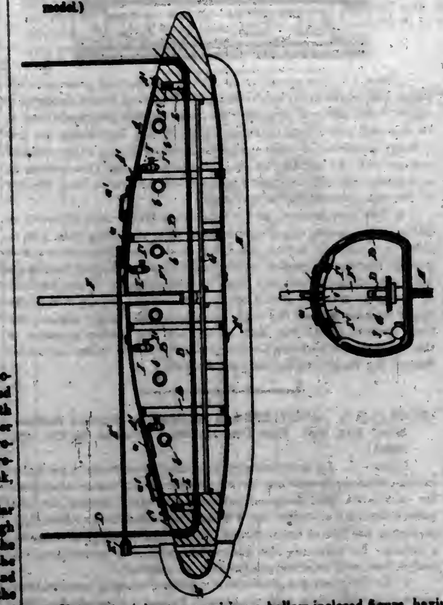
608,531. TOOL FOR BORING TAPERING HOLES. IRVING W. MASON, Aberdeen, Wash. Filed June 3, 1897. Serial No. 638,967. (No model.)



Claim.—1. A drilling-tool for boring tapering holes, comprising a tapering center or spindle adapted to be held in a fixed position and formed with a screw-rod, a bit having a body into which screws the said screw-rod, the said bit being also provided with flexible arms, and cutters held on the free ends of the said arms and engaging the tapering surface of the said spindle, substantially as shown and described.

2. A drilling-tool for boring tapering holes, comprising a tapering center or spindle adapted to be held in a fixed position and formed with a screw-rod, a bit having a body into which screws the said screw-rod, the said bit being also provided with flexible arms, cutters held on the free ends of the said arms and engaging the tapering surface of the said spindle, and a shank for the said body, and fitted to slide in the said body and adapted to engage the upper end of the said screw-rod, the said shank having connection with the said body for turning the latter, upon turning the shank, substantially as shown and described.

608,532. LIFE-BOAT. JAMES MITCHELL, Sr., Arrow River, Canada. Filed Apr. 24, 1897. Renewed Apr. 2, 1898. Serial No. 676,256. (No model.)



Claim.—1. A boat, comprising a hollow inclosed figure, having a rope-guiding passage through each end thereof, and a slide adapted to close said passage when the rope is removed therefrom, substantially as described.

2. A boat, comprising a hollow inclosed figure having pointed ends, and a rope-guiding passage through each end, and a slide having a spring acting thereon and adapted to close said passage when the rope is removed therefrom, substantially as described.

3. A boat, comprising a hollow inclosed figure having pointed ends, hatchways upon the upper side of the boat, a mast-socket in the boat, a rudder pivoted at one end of the boat, steering-ropes connected to the rudder, and a rope-guideway at each end of the boat communicating with the interior and adapted to receive a suspending-rope, and means for automatically closing said rope-guideways upon the removal of the rope, substantially as described.

4. A boat, comprising a hollow inclosed figure, provided with hatchways, lighting port-holes, ventilator-pipes extending to the outside, and rope-guideways at each end extending from within the boat to the outside, and adapted to receive a common suspending-rope which passes lengthwise within the boat, and means for automatically closing said rope-guideways upon the removal of the rope, substantially as described.

5. A boat, comprising a hollow inclosed figure, provided with hatchways, lighting port-holes, ventilator-pipes extending to the outside, and rope-guideways at each end extending from within the boat to the outside, and adapted to receive a common suspending-rope which passes lengthwise within the boat, and a spring-held slide in said guideways adapted to close the guideway when the rope is removed, substantially as described.

608,533. PROCESS OF PRODUCING COPIES OF OIL-PAINTINGS. GIUSEPPE MORA, Milan, Italy. Filed Feb. 21, 1896. Serial No. 580,571. (No specimens.) Patented in Italy Aug. 8, 1896, No. 39,230, and in Germany Dec. 13, 1897, No. 96,154.

Claim.—The herein-described process of producing copies of oil-paintings, consisting in laying on the main or basal paints by means of stencils corresponding in number to the number of single paints in the original, whereby a rugged surface is obtained, then printing the surface paints on top of the said rugged base formed by the main or basal paints by means of a yielding printing-surface, and finishing the picture in the manner specified.

608,534. NUT-LOCK. CHARLES J. MCCUE, La Veta, Colo. Filed Aug. 4, 1897. Serial No. 647,095. (No model.)



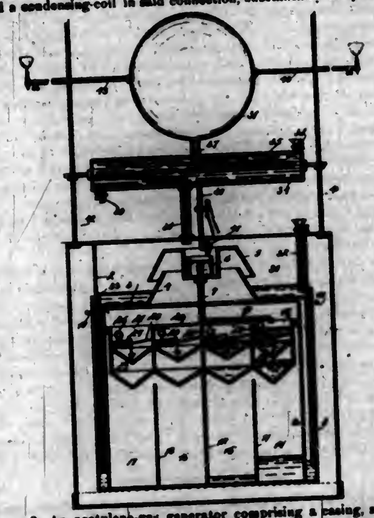
Claim.—1. The combination with a nut having grooves in opposite side edges at its inner face of a fastening device comprising upper, lower and end members, the upper member being provided at its free end with a head to engage with an end face of the nut and a flange projected at right angles to pass over the top of the nut and engage with the end face of the nut, the said flange thus serving as a fastening and also serving to indicate the member to be at the top of the nut, substantially as specified.

2. The combination, with a lock-nut provided with a groove or channel in opposing edges at its inner face, extending from side to side, of a locking device, consisting of an upper member, a lower parallel member of greater width, and an end-connecting member, a head extending downwardly from the inner portion of the free end of the upper member of said device, and a flange projected from the upper member beyond the head, being at a right angle thereto, the inner surfaces of the free ends of the top and bottom members of the fastening device being beveled, and likewise the under outer surface of the flange, for the purpose set forth.

608,535. ACETYLENE-GAS GENERATOR. WILLIAM MCGRAW, Mount Airy, Ohio. Filed June 28, 1897. Serial No. 642,279. (No model.)

Claim.—1. An acetylene-gas generator comprising a casing, a carbid-container therein and having a series of cells, water-cells above the carbid-cells and designed to discharge water therein, the said water-cells communicating one with another, means for automatically governing the flow of water through the bottom openings of the cells, a cylinder for receiving the generated gas, and a burner pipe extended from said receiver substantially as specified.

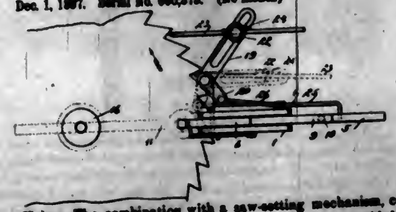
2. An acetylene-gas generator comprising a casing, a carbid-container supported from said casing and having a number of carbid-cells, water-cells supported in the container and adapted to overflow one into another, the said cells having funnel-shaped bottom walls provided with an outlet at the apex for discharging water into the carbid-cells, means for automatically closing said outlets, a gas-receiving cylinder, a pipe connection between said cylinder and the casing, and a condensing-coil in said connection, substantially as specified.



3. An acetylene-gas generator comprising a casing, a double-walled carbid-container, a wall suspended from the upper wall of the casing and extended between the walls of the container and supporting the same, carbid-cells in the container, water-cells supported in the container and having outlets for discharging water into the carbid-container, means for automatically closing said outlets, a horizontal partition at the upper portion of the supporting-wall, a trap-section in said partition another trap-section above the first-named trap-section, a water-cup supported by said other section, a pipe extended from the upper portion of said cup downward through its bottom and discharging into one of the water-cells, a condensing-box supported above the casing, a valve-controlled tube extended from said box through the top wall of the casing and having a trap-curve at its inner end discharging into the water-cup, a condensing-coil in the condensing-box and having communication with the interior of the casing, a gas-cylinder having communication with said condensing-coil, and a gas-burner pipe or pipes also having connection with said cylinder, substantially as specified.

4. An acetylene-gas generator, comprising a series of carbid-containers, water-cells above the containers and adapted to discharge therein means for automatically closing said discharge and connections between the cells whereby water may flow from one cell into another, substantially as specified.

608,536. SAW-SET. HENRY HEINGARDT, Brooklyn, N. Y. Filed Dec. 1, 1897. Serial No. 660,275. (No model.)



Claim.—The combination with a saw-setting mechanism, comprising a pressure-lever of a rock-shaft, an arm mounted on said shaft, a block adjustable on said arm, a rod adjustable through the block, a spring connection between the arm and block and connections between the rock-shaft and pressure-lever whereby the shaft will be rocked by a downward movement of the lever, substantially as specified.

608,537. FEED-MIXER. WALTER S. PEARSON, Newburyport, Mass. Filed July 17, 1897. Serial No. 644,947. (No model.)

Claim.—In a feed-mixer, the combination of a frame, a shaft revolubly mounted therein, a cylinder forming a chamber, the cylinder being mounted axially on the shaft so that its walls will be concentric thereto, a series of arms fixed to the shaft and located within the chamber, the arms being connected to the shaft at their middles so that each end of each arm will be in proximity with the inner sides of the said chamber, each end portion of each arm having its sides beveled in opposite directions so as to cause a portion of the material to be thrown by one side of the arm in one direction, and a second portion of the material to be thrown by the other side of the arm in an opposite direction, and a knife carried by each end of each arm, the knives lying flat against the inner sides of the chamber so as to scrape the feed therefrom.



608,538. SWORD-SLINGING HOOK. JAMES PETTIGREW, Cincinnati, Ohio. Filed Oct. 11, 1897. Serial No. 654,804. (No model.)



Claim.—1. A sword-fastening device, consisting of an upper hook member A, provided with a central recess *c*, a lower hook member B, pivoted to the said upper member and having a guard extension D, which normally lies upon the under side of the hook portion of the upper member, said extension of the lower hook playing in the recess in the upper hook member, substantially as described.

2. A sword-fastening device, consisting of an upper hook member A, provided with a central recess *c*, and a strap-opening *e*, below said recess, a lower hook member B, pivoted to the said upper member and having an extension which lies in the recess *c*, in the upper member, and a guard D, at the end of said extension, which normally presses upon the under side of the hooked portion of the upper member.

3. A sword-fastening device consisting of the upper and lower hook members A, B, pivoted together by means of a pin supported upon the upper hook member, said lower hook member having an extension beyond the pivot-point lying within a recess in the upper hook member, and a spring connecting said upper and lower hook members and adapted to press the guard against the upper hook member, substantially as specified.

4. A sword-fastening device consisting of the upper hook member A provided with a recess *c*, a lower hook member B centrally pivoted to said upper member, the upper extension D of the lower hook member lying within said recess and provided with a pressure device adapted to strain the guard member D against the upper hook member, substantially as specified.

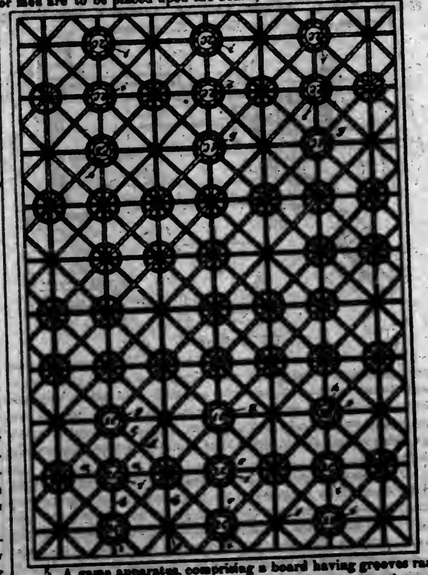
608,539. GAME APPARATUS. HENRY T. PYCROFT, Parnell, New Zealand. Filed Apr. 19, 1897. Serial No. 633,231. (No model.)

Claim.—1. A game-board having vertical and horizontal lines crossing each other at right angles forming squares, and diagonal lines crossing each other at right angles in the squares formed by the vertical and horizontal lines and at the points of intersection of the said vertical and horizontal lines, sundry of the points of intersection of the several lines having characters indicating the manner in which counters are to be placed upon the board, substantially as described.

2. A game-board having vertical and horizontal lines crossing each other at right angles forming squares, and diagonal lines crossing each other at right angles in the squares formed by the vertical and horizontal lines and at the points of intersection of said vertical and horizontal lines, circles being produced at sundry of the points of intersection of the several lines, and spots at other points of intersection of said lines, substantially as described.

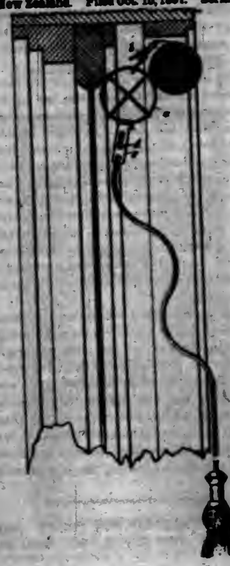
3. A game-board having vertical, horizontal and diagonal lines intersecting each other, the diagonal lines crossing each other at right angles in the squares formed by the vertical and horizontal lines, marks having characters indicating the starting-points for the men or counters being produced on sundry of the points of intersection of the lines at each end of the board, and marks serving to regulate the movement of the men or counters being produced on other points of intersection of said lines, substantially as described.

4. A game-board having vertical and horizontal lines crossing each other at right angles forming squares, and diagonal lines crossing each other at right angles in the squares formed by the vertical and horizontal lines and at the points of intersection of said vertical and horizontal lines, circles being produced upon sundry of the points of intersection of the said lines, sundry of the circles at each end of the board having characters indicating the manner in which counters or men are to be placed upon the board, substantially as described.



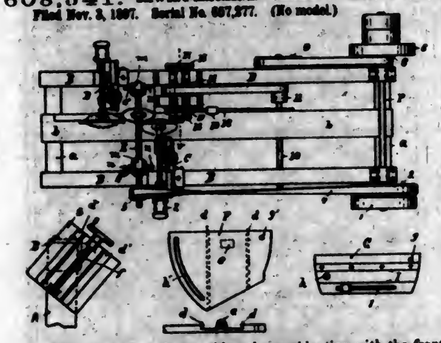
5. A game apparatus, comprising a board having grooves ranging in vertical, horizontal and diagonal lines and intersecting each other, the diagonal grooves crossing each other at right angles, in the squares formed by the vertical and horizontal grooves, circular depressions being formed at the intersections of the said lines, and counters provided with projections on the under faces to fit in the said grooves, substantially as described.

608,540. CURTAIN-TASSEL ATTACHMENT. HENRY T. PYCROFT, Auckland, New Zealand. Filed Oct. 15, 1897. Serial No. 655,201. (No model.)



Claim.—A shade attachment having a series of rings secured to each other to form a globular structure, a hook attached to one of the rings, and a plate bent over one of the rings at a point removed from the hook, the plate having two portions lying against each other, and said portions being perforated to receive a cord.

608,541. SAWING-MACHINE. CHARLES F. ROOD, Ford, Ky. Filed Nov. 3, 1897. Serial No. 657,277. (No model.)



Claim.—1. In a sawing-machine, the combination with the front and rear arbors C and D, and their saws arranged in planes at an angle to one another, of means for adjusting said arbors longitudinally, angularly and vertically, an intermediate arbor and its saw, and means for vertically and angularly adjusting said intermediate saw-arbor independently of the front and rear arbors, substantially as described.

2. In a sawing-machine, the combination with the machine-frame, of the fixed plates *c* secured to the frame and having straight, vertically-inclined ways, the ways of one plate converging toward the ways of the other plate, the plates F arranged to slide longitudinally in said ways, the plates G pivotally mounted at one end on the plates F, means for fastening the free ends of the plates G to the plates F, pillow-blocks arranged to move longitudinally in ways on the plates G and provided with journal-boxes, and saw-arbors journaled in said boxes and provided with saws, substantially as described.

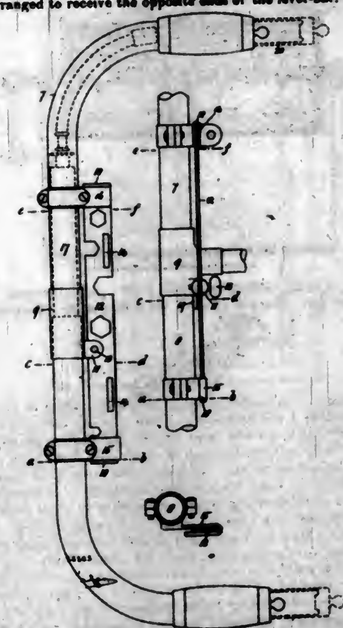
3. In a sawing-machine, the combination with the machine-frame, of the fixed plates *c* secured to the frame and having straight, vertically-inclined ways, the ways of one plate converging toward the ways of the other plate, the plates F arranged to slide longitudinally in said ways, means for adjusting the plates F in their ways, plates G pivotally attached to the plates F and provided with ways, means for adjusting the plates G about their pivots, pillow-blocks arranged to move longitudinally in the ways on the plates G and provided with journal-boxes, saw-arbors journaled in said boxes, saws mounted on the arbors, and means for adjusting the pillow-blocks in their ways, substantially as described.

4. In a sawing-machine, the combination with the machine-frame, of the fixed plates *c* secured to the frame and having straight, vertically-inclined ways, the ways of one plate converging toward the ways of the other plate, the plates F arranged to slide longitudinally in said ways and having threaded ears *e*, screws *f* journaled in bearings on the plates *c* and engaging said ears to adjust the plates F vertically, plates G pivotally attached to the plates F and having studs *h* arranged to travel in segmental slots *h'* in the plates F and hold the plates G in their adjusted positions, pillow-blocks arranged to slide longitudinally in ways on the plates G, adjusting-screws carried by the plates G and engaging ears carried by the pillow-blocks for adjusting the latter in their ways, saw-arbors journaled in bearings carried by the pillow-blocks, and saws mounted on the saw-arbors, substantially as described.

5. In a sawing-machine, the combination with the machine-frame, of the fixed plates *c* secured to the frame and having straight, vertically-inclined ways, the ways of one plate converging toward the ways of the other plate, the plates F arranged to slide longitudinally in said ways, the plates G pivotally mounted at one end on the plates F, means for fastening the free ends of the plates G, pillow-blocks arranged to move longitudinally in ways on the plates G and provided with journal-boxes, saw-arbors C D journaled in said boxes and provided with saws, an intermediate arbor E and its saw, and means for vertically and angularly adjusting the saw-arbor E, substantially as described.

608,542. HANDLE-BAR FOR CYCLES. JOHN F. SARSHAFF, Bracknell, England. Filed July 19, 1897. Serial No. 645,103. (No model.)

Claim.—1. In a handle-bar for cycles and like vehicles, the combination with the steering-head, of the divided handle-bar composed of two hollow sections, one of which is rigidly attached to the said steering-head, and the other telescoped therein so as to be detached therefrom, a clamp for securing said detachable handle-section to the steering-head, a screw for said clamp, a lever-bar pivoted intermediate its ends to the said screw and arranged when turned to operate the latter, and keepers or clamps carried by the handle-bar sections and arranged to receive the opposite ends of the lever-bar.



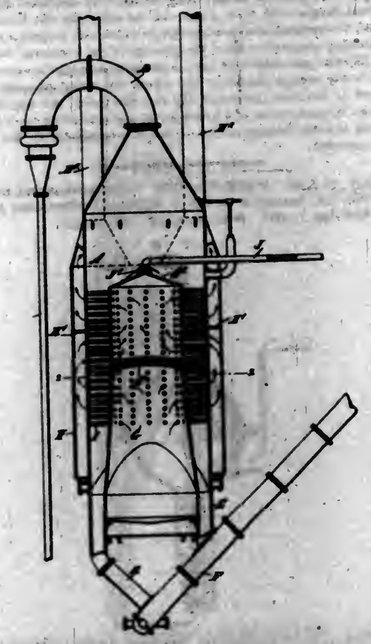
2. In a handle-bar for cycles and like vehicles, the combination with the steering-head, of a divided handle-bar composed of two hollow sections, one of which is rigidly attached to the steering-head, and the other detachably secured thereto, a clamp for securing the said detachable handle-section to the steering-head, and a lever-bar pivoted to the clamp and having its ends secured to the handle-bar sections to hold the latter in position, said lever-bar being provided with rectangular openings to serve as a wrench, and also provided with elongated strap-openings, substantially as described.

608,543. EVAPORATING APPARATUS. WALTER H. UNDERWOOD, Hutchinson, Kans. Filed July 9, 1897. Serial No. 644,068. (No model.)

Claim.—1. An evaporator for brine and the like, comprising three concentric chambers, the inner chamber constituting a fire-box and being closed at the top by a conical dome and having a partition across the same central its ends, the intermediate chamber constituting the evaporating or brine-containing chamber and extending above the fire-box, and the outer chamber constituting a smoke-flue or breeching and having a partition located above the partition in the fire-box and dividing the same into two parts, the fire-box and smoke-flue being connected above and below both partitions by horizontal flues curved in an S shape and extending through the evaporating-chamber, and a brine-supply pipe discharging upon the apex of the fire-box dome whereby the same is kept free of salt deposits, substantially as described.

2. An evaporator for brine and the like, comprising three concentric chambers, the inner chamber constituting a fire-box and being closed at the top, the central chamber constituting an evaporating or brine-containing chamber and extending above the fire-box, and the outer chamber constituting a smoke-flue or breeching, the fire-box and smoke-flue being connected by horizontal flues curved in an S shape and extending through the evaporating-chamber, substantially as described.

3. An evaporator for liquids containing salts in solution, comprising an evaporating or liquid-containing chamber having a fire-box within the same, the upper end of the fire-box being sloping, and a liquid-supply pipe having nozzles discharging the fresh brine upon and arranged to entirely cover the upper surface of the fire-box whereby the fire-box top is covered with fresh brine under circulation and the formation of salt deposits thereon is prevented.



608,544. HOLDER FOR HATS, COATS, UMBRELLAS, &c. FRANK WAGENKLANE, New York, N. Y. Filed Oct. 1, 1897. Serial No. 653,733. (No model.)

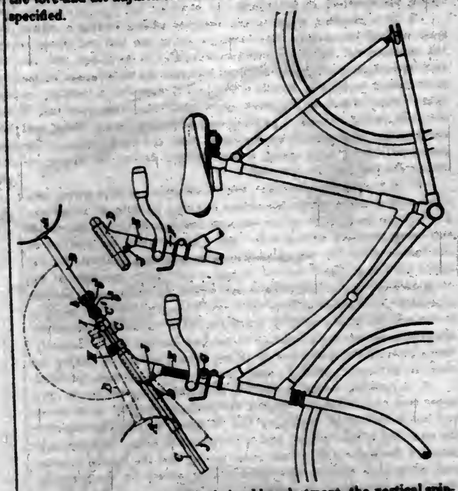


Claim.—1. A holder for hats and the like, comprising a bar or plate having on its front face lugs at one end and a hook at the other end, a hat-ring provided with oppositely-projecting arms, one of which is hinged to the lugs of the bar or plate, the other arm being provided with an offset, and a lock for locking the offset arm of the ring to the hook of the bar or plate, substantially as described.

2. A holder for hats and the like, consisting of a bar or plate having on its front face lugs at one end and a hook at the other end, said hook being formed with a keeper, a hat-ring provided with oppositely-projecting arms, one of which is provided with an offset, the ring being hinged by means of the other arm to the lugs of the back, and a lock carried by the offset end of the arm of the ring and adapted to engage with its bolt the keeper of the hook, substantially as described.

608,545. BICYCLE OR TRICYCLE. WILLIAM F. WILLIAMS, London, England. Filed Dec. 7, 1896. Serial No. 614,770. (No model.) Patented in England June 12, 1896, No. 12,997.

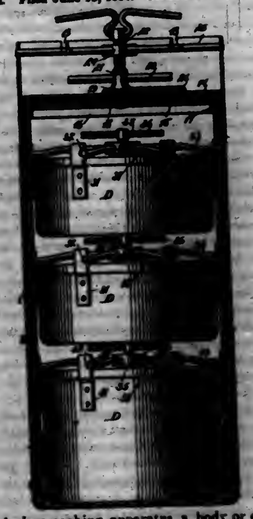
Claim.—1. In the herein-described shoulder-abutment, consisting of a shoulder-crutch-carrying fork jointed to an inclined fore-and-aft rod by a knee-joint so that it may fold and yet be supported rigidly in operative position, the rack-rod fitted to slide without turning in a socket, in combination with a self-locking adjusting-pinion mounted in a casing on said socket so as to gear with the rack but free to slide endwise in its journal-bearings and with a fixed clutch at one end adapted to be engaged by the pinion, and a spring at the other end adapted to force the pinion into engagement with the clutch and to permit its disengagement therefrom for the purpose of effecting the fore-and-aft adjustment of the inclined rack-rod, substantially as specified.



2. In the herein-described shoulder-abutment, the vertical spindle of the guide-socket for the inclined fore-and-aft rack-rod free to slide and turn in a socket in the handle-bar spindle and formed as a cylindrical rack, in combination with a self-locking adjusting-pinion mounted in a casing on the handle-bar spindle so as to gear with said cylindrical rack, the pinion being free to slide endwise in its journal-bearings and being combined with a fixed clutch at one end adapted to be engaged by the pinion, and with a spring at the other end adapted to force the pinion into engagement with the clutch and to permit of its disengagement therefrom for the purpose of effecting the vertical adjustment of the rack-rod, substantially as specified.

3. The combination with a bicycle, of a post thereon, a socket pivoted to the post, a rack sliding in the socket, a pinion mounted on the socket and engaging the rack, a forked frame having a knuckle-joint connection with the rack, and a shoulder-support attached to each arm of the forked frame.

608,546. DRY VACUUM-COOKER. HERMANN A. WOLFF, New Haven, Conn. Filed June 16, 1897. Serial No. 640,997. (No model.)



Claim.—1. In a cooking apparatus, a body or casing having a water-space around the same, a cover-casing open at one end and

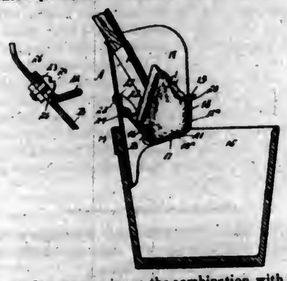
closed at the opposite end, the said cover-casing being arranged to enter the water-space of the main casing to form a double water-jacket within the body or casing, and a locking device for the cover-casing, substantially as described.

2. In a cooking apparatus, a body or casing having a water-space around the same, a cover-casing open at one end and closed at the opposite end, being provided with a valve in its closed end, the said cover-casing being also adapted to enter the water-space of the main casing to form a double water-jacket therefor, a packing located in the bottom of the water-space, with which the open end of the main casing engages, a packing carried by the closed end of said cover-casing, arranged for engagement with the upper edge of the inner wall of the main casing, and a locking device for the cover-casing, for the purpose specified.

3. In a cooking apparatus, the combination, with a casing provided with a surrounding water-space having a packing at its bottom, and a cover-casing open at one end and closed at the other, the closed end being provided with a valve and with packing, the packing at the closed end of the casing being arranged for engagement with the upper portion of the inner wall of said water-space, the sides of the cover-casing being arranged to extend within the water-space to form a double water-jacket and its open end to engage with the packing in the said space, of a locking device for the cover-casing, and vessels adapted to receive the articles to be cooked, located within the body-casing beneath the closed portion of the cover-casing, and locking devices for the covers of said vessels, as and for the purpose specified.

4. A cooking utensil, comprising an outer casing having an open upper end, and an interior spaced annular wall secured at its lower end to the bottom of the casing and its upper end terminating near the open end of the casing, and a cover-casing fitted telescopically between the inner wall of the outer casing and the spaced annular wall, whereby a double water-jacket is provided for the cooking-chamber, substantially as described.

608,547. MOP-WRINGER. HERMANN A. WOLFF, New Haven, Conn. Filed Sept. 23, 1897. Serial No. 652,764. (No model.)



Claim.—1. In a mop-wringer, the combination, with a body portion open at the front and provided with supporting-ledges, of a perforated mop-receptacle arranged to have bearing upon said ledges, and a stop carried by the mop-receptacle, which stop extends over the bottom of the said receptacle, and is adapted for engagement with a mop-head, for the purpose set forth.

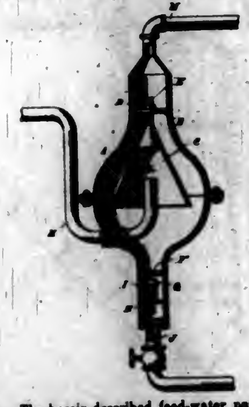
2. In a mop-wringer, the combination, with a body comprising a back and side wings, of a perforated mop-receptacle, means for securing the said receptacle in the said body between its wings, and a stop attached to the back portion of the mop-receptacle, the stop being of angular formation, one of its members extending in direction of the bottom of the mop-receptacle, for the purpose specified.

3. In a mop-wringer, the combination, with a body comprising a back section and wing-sections, the wing-sections being provided with horizontal bottom flanges and vertical flanges at the front, of a perforated mop-receptacle arranged for locking engagement with the flanges of the wings, the mop-receptacle comprising a back forwardly and downwardly inclined, a bottom portion and a front portion, the bottom and front portions of the mop-receptacle being provided with means for locking engagement with the said flanges of the wings, and a stop secured to the back portion of the mop, a member of the stop extending over the bottom portion of the said mop-receptacle, for the purpose specified.

4. In a mop-wringer, the combination, with a body comprising a back and side wings, the back portion being provided with clamps for engagement with a vessel, of a mop-receptacle provided with perforations, and comprising an inclined back, a slightly inclined bottom and an inclined front, a locking engagement between the mop-receptacle and the said body, and a stop attached to the body, a member of the said stop extending forwardly over the bottom portion of the said mop-receptacle, for the purpose specified.

5. In a mop-wringer, the combination, with a body comprising a back and side wings, horizontal flanges secured to the bottom portions of the wings of the body, and vertical flanges attached to the vertical edges of the said wings, connecting with the horizontal flanges, the horizontal flanges being formed with apertures and the vertical flanges with slots, and means for attaching the body to a vessel, of a perforated mop-receptacle provided with projections from its bottom, arranged to enter the openings in the horizontal flanges, and likewise provided with lugs at its front, arranged to enter the slots in the vertical flanges of the wings, and a stop adjustably attached to the back portion of the mop-receptacle, the stop being angular in cross-section and a member of said stop being carried forwardly over the bottom portion of the mop-receptacle, for the purpose specified.

608,548. WATER-PURIFIER. CLARENCE APPLEGATE, Evansville, Ind., assignor of one-half to McDonald Brothers, same place. Filed Aug. 11, 1897. Serial No. 647,866. (No model.)



Claim.—The herein-described feed-water purifier, consisting of the chamber, A, provided with a cross-bar, B, near its upper end, the inverted cone, C, adjustably suspended from said cross-bar, the inlet-pipe from a water-supply under pressure entering the chamber, A, below the cone, bent upward and discharged at L at about the middle of the cone, a discharge-pipe leading from the top of the chamber to the boiler, the diaphragm, F, below the cone, perforated to form a valve-seat, the upward-closing spring-valve, G, normally engaging said seat, and the sediment-discharge pipe, J, leading from the bottom of the chamber, substantially as described.

608,549. AIR-GUN. ELMER E. BAILEY and THOMAS A. MOHR, Philadelphia, Pa. Filed June 29, 1897. Serial No. 642,927. (No model.)

Claim.—1. In an air-gun, the combination with the magazine, having an apertured disk at its front end, and the lock-frame having a socket in its front extension, of the firing-tube having its front end held in said disk and provided with an enlarged head which fits in said socket, substantially as shown and described, for the purpose specified.

2. In an air-gun, the firing-tube having a head made of suitably-hardened material and constructed with a circumferential interior shoulder, or rib, which is of less diameter than the firing-tube, substantially as and for the purpose specified.

3. In an air-gun, the firing-tube having a hardened or steel head whose longitudinal passage is tapered as shown, there being an angular shoulder formed at the inner end of each passage, which shoulder abuts the firing-tube and is of less diameter than the latter, as and for the purpose specified.

4. In an air-gun, the combination with the magazine and firing-tube, having a head provided with a tapered passage as specified, of the air-jet tube, the piston attached to the latter, piston-rod, air-cylinder, and means for reciprocating the piston, as shown and described.

5. In an air-gun, the combination, with the air-jet tube and piston-rod, each threaded as specified, of the head for each tube, having alined and threaded bores, and air-passages opening at the front as shown and described.

6. In an air-gun, the air-jet having an enlarged head provided with lateral passages opening on the front side and the soft-metal piston proper cast on and around said head, as shown and described.

7. In an air-gun, the combination with the lock-frame, having the flexible hook as specified, the fixed air-compression cylinder, the piston sliding therein, the piston-rod, and link, of the pivoted guard-lever having a hook on its shorter arm, and the spiral spring attached to the hooks, as shown and described for the purpose specified.



6. In an air-gun, the combination with the lock-frame having a tapered guide-passage formed by opposing longitudinal projections on one side of said frame as specified, of the piston-rod having its rear end tapered, or conical, to adapt it to enter and be guided in said passage, as shown and described.

9. In an air-gun, the combination, with the piston-rod and sear, of the pivoted trigger having a curved lug or arm, which passes through said sear, and the spiral spring engaging said lug, as shown and described.

10. In an air-gun, the combination with the lock-frame made in two longitudinal parts, the piston-rod and sear, of the trigger, connected with said sear, and a screw which passes through the trigger and lock-frame and thus serves to pivot the one and secure the parts of the other together, as shown and described.

11. In an air-gun, the lock-frame formed of two longitudinal parts, one having a lateral apertured lug on its front extension, and the other extension having a corresponding recess to receive said lug, the magazine fitting on the cylindrical extension, and a screw passing through the magazine and lug, for securing the parts together, as shown and described.

12. In an air-gun, the combination with the lock-frame having a front extension, and apertured lug, the magazine fitting on said extension and having a shot-hole, a slidable sleeve on said magazine, and a round-headed screw passing through one of the holes in the magazine and entering the lug on the lock-frame, whereby it serves to unite the magazine and frame and also as a stop for the sleeve, as shown and described.

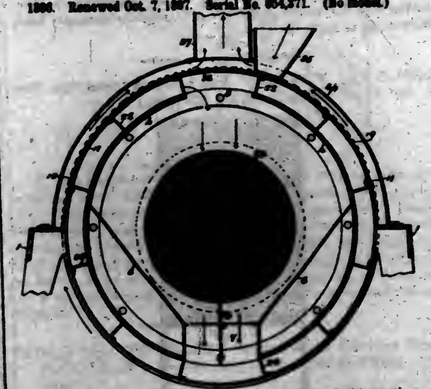
608,550. HANDLE FOR HOES, RAKES, &c. ALBERT L. BOYER, Otis, Ind. Filed Sept. 27, 1897. Serial No. 653,253. (No model.)

Claim.—1. In a handle for hoes, rakes, &c., a pin located at the end of the handle, an eye formed at the end of said pin, a washer located on the pin, a nut located on the pin behind the washer, said washer having on its outer face horizontal recesses adapted to receive the sides of the eye and perpendicular recesses, the hoe or rake having a shank adapted to pass through said eye, the perpendicular recesses of the washer adapted to come in contact with said shank and impinge the shank in the eye.

2. In a handle for hoes, rakes, &c., a pin fixed to the end of the handle, an eye located at the end of the pin, said pin being externally threaded, a washer located on the pin, a nut located on the pin behind the washer, said washer having in its outer face horizontal recesses adapted to receive the sides of the eye and perpendicular recesses, the hoe or rake having a curved shank, said shank adapted to pass through said eye, the recesses of the washer adapted to receive said shank and impinge the shank in the eye.



608,551. COFFEE-ROASTER. GEORGE BUSH, St. Louis, Mo., assignor of one-third to Frank W. Gibson, same place. Filed July 28, 1896. Renewed Oct. 7, 1897. Serial No. 654,371. (No model.)



Claim.—1. In a coffee-roasting apparatus, a suitable stationary roaster adapted to receive the products of combustion from a suitable heater, means for delivering the coffee into the roaster and causing the same to pass through the products of combustion as they pass through the roaster, and subsequently carrying the coffee over the roasting-surface of the roaster, substantially as set forth.

2. In a coffee-roasting apparatus, a stationary roaster adapted to receive the products of combustion from a suitable heater, a drum surrounding the roaster, means forming a part of the drum for carrying the coffee about the outer roasting-surface of the roaster, and for causing the coffee to subsequently pass through the roaster and through the products of combustion passing through the same, substantially as set forth.

3. In a coffee-roasting apparatus, a suitable stationary roasting-cylinder having an opening cut at the top of its peripheral walls, a discharge-opening opposite said first-named opening, a suitable opening formed at one end of the cylinder for the admission of products of combustion from a suitable heater, a revolving drum surrounding the roaster-cylinder, a sufficient space being left between the peripheral walls of the cylinder and the drum, a series of division-plates formed along the inner peripheral surface of the drum and extending across the space between the drum and cylinder, means for rotating the drum, and means for introducing the coffee into the cylinder, the parts operating substantially as and for the purpose set forth.

4. In a roasting apparatus, a suitable roaster having a stationary head, a funnel carried along the inner surface of the head, a discharge-opening at the base of the funnel leading to the outside of the head, a second funnel disposed under said discharge-opening on the outside of the head, and a discharge-opening at the base of said second funnel leading to the inside of the roaster, the whole serving as a "sampler" for the berry, substantially as set forth.

5. In a coffee-roasting apparatus, a suitable roaster having a discharge-opening for the coffee, a heater for the roaster, a valve controlling said opening, a drum adapted to revolve about the roaster, said drum having a slide or valve in the peripheral wall thereof, and adapted to be brought in alinement with the discharge-opening of the roaster, and means forming a part of the drum for carrying the coffee about the outer roasting surface of the roaster, substantially as set forth.

6. In a coffee-roasting apparatus, a suitable roaster adapted to receive products of combustion from a suitable heater, and means for delivering the coffee into the roaster and causing the same to pass through the products of combustion as they pass through the roaster, and subsequently carrying the coffee over a roasting-surface heated from any suitable source, but keeping the said coffee out of contact with the combustion products, substantially as set forth.

7. In a coffee-roasting apparatus, a suitable roaster adapted to receive products of combustion from a suitable heater, a stationary head forming a part of said roaster, means for delivering the coffee into the roaster and causing the same to pass through the products of combustion as they pass through the roaster, and subsequently carrying the coffee over the roasting-surface of the roaster, and an exhaust-pipe communicating with the interior of the roaster through the stationary head, substantially as set forth.

8. In a coffee-roasting apparatus, a stationary roaster adapted to receive products of combustion from a suitable heater, a stationary head forming a part of the roaster, a drum surrounding the roaster, means forming a part of the drum for carrying the coffee about the outer roasting-surface of the roaster, and for causing the coffee to subsequently pass through the roaster and through the products of combustion passing through the same, and an exhaust-pipe communicating with the interior of the roaster through the stationary head, substantially as set forth.

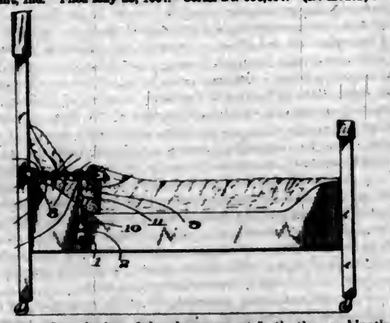
608,552. WASHBOARD. JAMES R. CLAYTON, London, Ohio. Filed Sept. 23, 1897. Serial No. 652,700. (No model.)



Claim.—1. The combination in a washboard of a base-plate, with a series of central wires, sloping downward from their inner ends and a series of curved outer wires having their inner ends set lower than their opposite ends, all arranged in the manner described for the purpose set forth.

2. As a new article of manufacture the within-described washboard consisting essentially of a base-plate A, backing B, side pieces *b*, *b*, central wires *c*, *c*, sloping downward from their inner ends, and outer curved wires *g*, *g*, all arranged as described and for the purpose set forth.

603,553. BEDCLOTHES-HOLDER. IRVING D. CRIMSON, Crown Point, Ind. Filed May 25, 1897. Serial No. 638,057. (No model.)



Claim.—In a device of the character set forth, the combination of securing devices adapted to be attached to the headboard and side rails of a bed, a yielding member including a spring having a ring attached thereto, a clasp attached to the opposite side of the ring, and a vertically-adjustable retaining-strap having its upper end secured to the ring and its lower end movably connected to the securing device for attachment to the adjacent side rail of the bed.

608,554. STRAINER AND FILTER FOR CONDUCTOR-PIPES. ELLIS CULVER, Huntington, Ind. Filed June 9, 1897. Serial No. 640,044. (No model.)



Claim.—1. The combination with a conductor-pipe of a filtering-chamber, consisting of a pipe-section having an opening in one side thereof, and a deflector adapted to close over the said opening, a bracket mounted in the lower portion of said chamber and having a loop therein, and a conical strainer removably positioned in said chamber and having its lower reduced end engaging the loop of the bracket, substantially as and for the purposes specified.

2. The combination with the conductor-pipe of a filtering-chamber, consisting of a cylindrical section having an opening in one side thereof with a deflector adapted to close thereover, an upper inwardly-extending flange, a lower bracket with a loop therein, and a conical strainer movably retained in position between the said flange and the bracket and having the lower reduced end thereof seated in the said loop, substantially as and for the purposes specified.

3. The combination with the conductor-pipe of a filtering-chamber, consisting of a cylindrical section having an opening in one side with a deflector closing thereover, a bracket comprising a loop and having arms extending outwardly therefrom in lateral directions and forming pivots for the said deflector, and a conical strainer removably supported by the said bracket and having its lower reduced end removably mounted in the said loop, substantially as and for the purposes specified.

608,555. WHISTLE. ABRAM B. DAVIS, Jersey City, N. J. Filed July 14, 1897. Serial No. 644,669. (No model.)



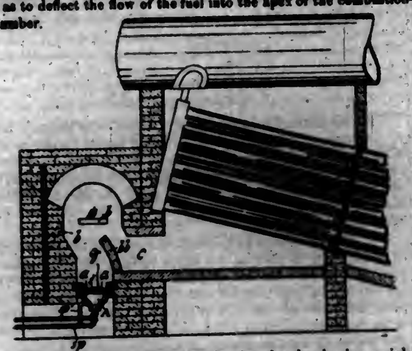
Claim.—1. In a whistle, the combination with a barrel having a vent and a mouth at one end and its other end provided with a gage-opening, of a piston movable in said barrel, a piston-rod movable through the apertured end, and a gage connected to the piston and having a portion adapted to abut against the end of the barrel and another portion adapted to be loosely received in the opening in said end.

2. In a whistle, the combination with a barrel having a vent and a mouth at one end and its other end provided with a gage-opening, of a piston movable in said barrel, a piston-rod having a knob at its outer end which is adapted to abut on the end of the barrel when the piston is pushed in sufficiently, and a gage pivoted to the knob and having a portion projecting therefrom toward the apertured end and adapted to abut thereon, and a free end projecting beyond said portion and adapted for loose reception in the aperture.

3. In a whistle, the combination with a barrel provided with a vent and mouth at one end, and a cap at the other end having a key-hole-slot, of a piston movable in the barrel, a piston-rod working through the head of the keyhole-slot and having a knob on its outer end, and a gage consisting of a piece of wire having its ends pivoted to the sides of the knob and its intermediate portion bent into members that project beyond the knob toward the end of the barrel and on opposite sides of the piston-rod being adapted to tightly straddle the same, and bent into an abutment adapted to strike the cap, and a guide projecting beyond the abutment and adapted to loosely fit the straight part of the keyhole-slot.

608,556. FURNACE AND LIQUID-FUEL BURNER. OTTO W. DEBES, New York, N. Y. Filed Mar. 5, 1897. Serial No. 626,074. (No model.)

Claim.—1. A furnace comprising a combustion-chamber having an inlet for fluid fuel in its bottom, an outlet connecting the combustion-chamber with the apparatus where the heat is to be applied and a bridge-wall partly closing the outlet and extending over the inlet so as to deflect the flow of the fuel into the apex of the combustion-chamber.



2. A furnace comprising a combustion-chamber having an inlet for fluid fuel in its bottom, an outlet connecting the combustion-chamber with the apparatus where the heat is to be applied, air-flues arranged to produce a current having rotary motion in the upper part of the combustion-chamber, and a bridge-wall partly closing the outlet and extending over the inlet so as to deflect the flow of the fuel into the apex of the combustion-chamber.

3. An apparatus for producing fluid fuel from crude oils, comprising a main supply-pipe provided with perforations near its outlet, a shallow pan set upon the outlet, branch pipes communicating with the perforations of the main supply-pipe, shallow pans set upon their outlets, steam-coil located underneath the pans, means for conveying crude oil into the apparatus, means for heating and means for disintegrating them.

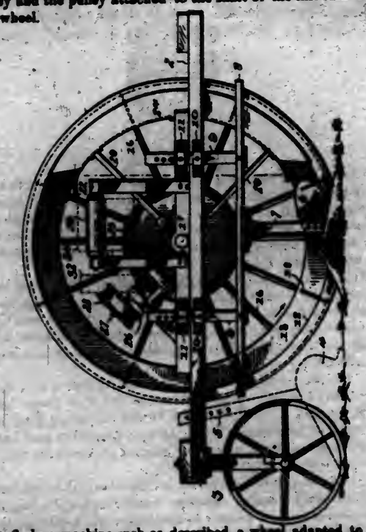
4. An apparatus for producing fluid fuel from crude oils, comprising a main oil-supply pipe provided with perforations near its outlet, a shallow pan set upon the outlet, a steam-pipe set within the main oil-supply pipe, a nozzle, set on the steam-supply pipe, and discharging into the oil-supply pipe underneath the perforations, branch oil-pipes communicating with the perforations of the main oil-supply pipe, shallow pans set upon their outlets, steam-coil located underneath the pans, and nozzles set in the steam-coil and discharging into the throats of the branch supply-pipes.

5. An apparatus for producing and diffusing fluid fuel from crude oils, comprising a main oil-supply pipe provided with perforations near its outlet, a shallow pan set upon the outlet, a steam-pipe set within the main oil-supply pipe, a nozzle, set on the steam-supply pipe and discharging into the oil-supply pipe underneath the perforations, branch oil-pipes communicating with the perforations of the main oil-supply pipe, shallow pans set upon their outlets steam-coil located underneath the pans, and nozzles set in the steam-coil and discharging into the throats of the branch supply-pipes, a bearing supported by webs in the mouth of the main oil-supply pipe, a shaft rotating in the bearing, a propeller and a fan secured to the shaft, and air-flues arranged around the pans.

6. A furnace comprising the combination with a combustion-chamber having an inlet for fluid fuel in its bottom, of an apparatus for producing and diffusing of fluid fuel from crude oils, comprising a main oil-supply pipe provided with perforations near its outlet, a shallow pan set upon the outlet, a steam-pipe set within the main oil-supply pipe, a nozzle, set on the steam-supply pipe and discharging into the oil-supply pipe underneath the perforations, branch oil-pipes communicating with the perforations of the main oil-supply pipe, shallow pans set upon their outlets, steam-coil located underneath the pans, and nozzles set in the steam-coil and discharging into the throats of the branch supply-pipes, a bearing supported by webs in the mouth of the main oil-supply pipe, a shaft rotating in the bearing, a propeller and a fan secured to the shaft, air-flues surrounding the apparatus and a screen set above the fan and separating the combustion-chamber from the apparatus.

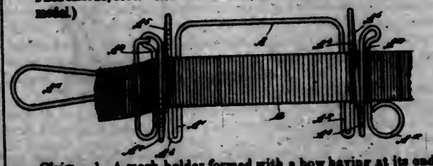
608,557. DITCHING-MACHINE. JOHN G. DELLAHAY, Austin, Tex., assignor of one-half to Charles G. Lund and George W. Thompson, same place. Filed June 16, 1897. Serial No. 641,594. (No model.)

Claim.—1. In a machine such as described, a wheel adapted to elevate earth, a beveled gear attached to said wheel, a beveled gear attached to a shaft journaled in the framework of the machine, said beveled gears meshing with each other, a pulley attached to the shaft of the last said beveled gear, a pulley located within the wheel, a pulley located to one side of the wheel, a conveying-belt surrounding the last said pulleys, a pulley attached to the last said outer pulley, and a belt surrounding the pulley attached to the conveying-belt pulley and the pulley attached to the shaft of the last said beveled cog-wheel.



2. In a machine such as described, a wheel adapted to elevate earth, said wheel having on the inner side of its rim suitable elevators, a short flange located at one edge of the wheel-rim, a longer flange located at the opposite edge of the wheel-rim, a guide adapted to coact with the wheel-rim in elevating the earth, said guide having at one edge a flange terminating in the vicinity of the edge of the shorter flange of the wheel-rim, said guide having at its upper and lower ends inwardly-bent sections adapted to press and deliver the earth.

608,558. WORK-HOLDER. CARLY D. HARRIS, Worcester, Mass. Filed Mar. 22, 1897. Renewed Mar. 30, 1898. Serial No. 676,630. (No model.)



Claim.—1. A work-holder formed with a bow having at its ends spring clamping devices each consisting of side bars and an adjacent spring by which the material to be held is clamped to said side bars, substantially as described.

2. A work-holder comprising the bow and the clamping devices at the ends thereof bent in the form of loops extended laterally to the direction of the length of the bow, substantially as described.

3. A work-holder, comprising a bow, and clamping devices depending from the ends thereof and composed of spring-loops forming clamps which are arranged practically at right angles to the bow, and are open at their bent lower ends to permit convenient insertion and removal of the work held stretched parallel to the bow proper, as shown and described

4. The work-holder herein described formed of a length of wire bent at one end to form a handle, bent adjacent to said handle to form a clamp device, extended from said handle to form a bow and bent at the opposite ends of said bow to form clamping devices, substantially as described.

5. A work-holder composed of a bow and clamps arranged practically at right angles to such bow and composed of inner bars, clamping-bars arranged exterior to such inner ones, and a third portion A^5, A^6, arranged adjacent to, but in the rear of, the aforesaid inner and clamping bars, as shown and described, whereby the work is drawn around parts A^5, A^6, and passes between the other adjacent parts, for clamping and stretching it, as specified.

6. A work-holder comprising a bow and clamps at the ends thereof comprising bars between which the work is passed and returned and a bar around which the work is passed between said first bars whereby the latter will be spread apart to release the work when longitudinal stress is exerted on the said work substantially as described.

608,559. SAFETY-SEAL FOR BOTTLES. AMY L. BLISS, Aspen, Colo. Filed May 28, 1897. Serial No. 638,604. (No model.)



Claim.—1. In a non-refillable bottle, the combination with a neck having two diametrically-disposed openings therein, with seats surrounding the same, of a wire adapted to pass through said openings, and having one end formed of separable parts adapted to be upset, and a seal to receive and cover the upset parts of said wire, substantially as described.

2. In a non-refillable bottle, the combination with a neck having diametrically-disposed openings therethrough, of a flange formed around the said neck, a frangible portion formed below said flange, seats surrounding said openings, a headed split pin adapted to pass through said openings, and means for securing said pin in said openings, substantially as described.

3. In a non-refillable bottle, the combination with a neck having diametrically-disposed openings therethrough, of a flange formed around said neck, a frangible portion formed below said flange, seats surrounding said openings, a headed split pin adapted to pass through said openings, and a soft-metal seal adapted to secure the split end of said pin, substantially as described.

4. In a non-refillable bottle, the combination with a neck having two diametrically-disposed openings therethrough and a breaking-groove thereround, of a flange formed above said breaking-groove, seats formed around said openings, a pin provided with a split end adapted to pass through said openings, a head formed upon said pin provided with an extended strip having an opening near the end thereof, and a seal comprising two similar portions one of which has a central opening adapted to fit the split end of said pin, substantially as described.

608,560. MEAT-HOLDER. JAMES H. FIRTH and JOSEPH T. FIRTH, Newburg, N. Y. Filed Dec. 14, 1897. Serial No. 661,881. (No model.)



Claim.—1. In a meat-holder, the combination of the base provided with slots arranged in parallel lines and having enlargements, of movable jaws adapted to slide in said slots and to be held by said enlargements, a movable jaw provided with teeth and arranged opposite to the previously-mentioned jaws, and a screw provided with a handle arranged to engage the lower part of said movable jaw, substantially as described.

2. In a meat-holder, the combination with a base A, provided with elongated, parallel slots *a* having enlargements *a'*, jaws B adapted to slide in said slots and to be held in said enlargements, the bases of said jaws being provided with transverse ribs at the end running the whole width of the base, and a longitudinal central rib, a movable jaw arranged opposite to the jaws B, and means for moving said jaw, substantially as described.

3. In a meat-holder, the combination of the base provided with parallel slots having enlargements, movable jaws adapted to slide in said slots and to be held in said enlargements, a movable jaw arranged opposite to the previously-mentioned jaws, said jaw being provided with a perforated extension, a screw provided with a handle passing said extension, and a piece of boot metal engaging said extension and said screw, substantially as described.

608,561. SIDEWALK-CURB AND CULVERT-COVER. GEORGE P. GREEN, Rockaway Beach, N. Y. Filed May 27, 1897. Serial No. 638,269. (No model.)

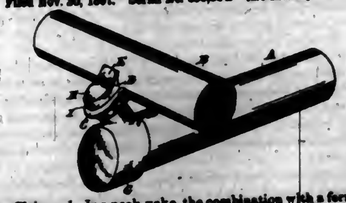
Claim.—1. A combined sidewalk-curb and culvert-cover, comprising a flanged manhole-frame, having the flange on one side separated from the flanges of the adjoining sides, and provided with dowel-pins projecting therefrom, a cover fitted between the connected flanges and provided with dowel-pins on its disengaged edge; and a hollow curb-piece provided with holes in position to receive the dowel-pins of the separated flange of the frame and of the cover, and with lugs for securing to it the curbstones on both ends thereof.



2. The combination of frame *a*, provided with flanges *b*, *d* and *f*; dowel-pins *r*, integral with flange *f* with hollow curb-piece *g*, set upon the frame provided with holes in corresponding positions to engage dowel-pins *r*, and cover *c*, fitted between the flanges and provided with dowel-pins *g* in position to enter corresponding holes in the curb-piece, thereby locking the cover and the curb-piece in position and with the frame.

3. The combination with a manhole-frame having flanges adapted to hold a cover in position, one flange being provided with dowel-pins; and with a cover, snugly fitted upon the flanges of the frame and having one edge provided with dowel-pins, of a removable curb-piece, fitted between the edge of the cover and the opposite flange of the frame and provided with holes in position to receive the dowel-pins projecting from the flange and from the edge of the cover.

608,562. NECK-YOKE. WILLIAM H. HARDY, McMinnville, Oreg. Filed Nov. 20, 1897. Serial No. 659,504. (No model.)



Claim.—1. In a neck-yoke, the combination with a ferrule adapted to be fitted to the end of the pole, a forwardly-extending head formed integral with said ferrule, a reduced neck for said head, a two-part bushing adapted to embrace the said neck, grooves formed in the outer surface of the said bushing and a staple adapted to embrace grooves in the bushing, and pass through the yoke, substantially as set forth.

2. In a neck-yoke, the combination with a ferrule adapted to be fitted on the end of the pole, an upwardly and forwardly projecting head formed integral with said ferrule having a reduced neck, a two-part bushing adapted to embrace said neck, the rear section of said bushing provided with a curved face adapted to bear against the outer surface of the yoke, a semicircular groove provided on the outer surface of the said bushing, a staple adapted to fit in said groove and embrace the bushing and pass through the yoke, and a retaining-plate on the opposite side of the yoke to which the free ends of the staple are riveted, substantially as shown and described.

608,563. GAGE-ADJUSTING TIE-PLATE. ALEXANDER R. R. HARRIS, Bristol, Tenn. Filed July 24, 1897. Serial No. 646,703. (No model.)



Claim.—1. A spike of substantially uniform transverse dimensions having beneath its head a recess reducing the thickness of the spike substantially as and for the purpose described.

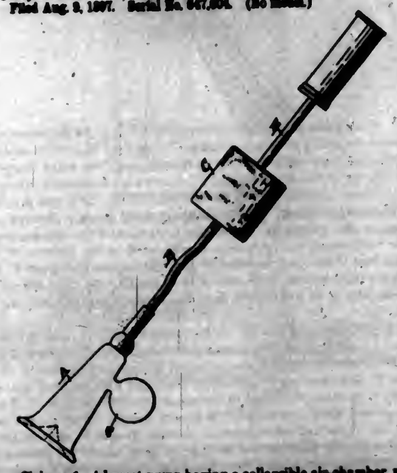
2. A spike of substantially uniform transverse dimensions having a recess under its head formed by a detachable gib or key *h* having a flange or toe *f* at its lower end substantially as and for the purpose described.

3. A rail and tie fastening, comprising a tie-plate having on its under side integral spike-tongues as described and two expanding-plug spikes, one having a straight shank, and the other having a recess just beneath its head that reduces the thickness of the spike, said two spikes being arranged to go upon opposite sides of the rail and to be interchangeable to correct the gage of the rail substantially as and for the purpose described.

4. The combination of a spike having two circular edges and two alternating flat sides, and a tie-plate having on opposite sides of its spike-holes two downwardly-extending tongues, thicker at their lower ends than they are at their upper ends, and having their inner faces flat and corresponding to the flat faces of the spike, to completely fill a bored hole in the tie substantially as described.

5. A railroad-tie plate having a flat horizontal middle portion beneath the rail, and downwardly-inclined side portions with spike-braces *s* on their upper surfaces, and spike-tongues on the under side at the junction of the horizontal and inclined portions substantially as and for the purpose described.

608,564. BREAST-PUMP. JOSEPH H. HOOVER, Waterloo, Iowa. Filed Aug. 9, 1897. Serial No. 647,804. (No model.)



Claim.—1. A breast-pump having a collapsible air-chamber, normally distended by a spiral spring placed within said air-chamber between the heads of said chamber, interposed between the milk tube and receptacle and an air-exhaust pump, substantially as shown and described.

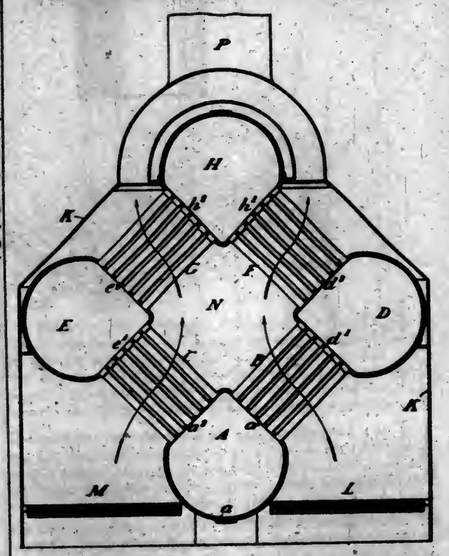
2. A breast-pump consisting of a flared tube having a milk-receptacle formed on its circumference; a perforated nipple-shield secured on the flared end of said tube; a collapsible air-chamber connected with said flared tube, said collapsible air-chamber being normally distended by a spiral spring interposed between the heads of said air-chamber; and an air-exhaust pump distinct from but connected with said air-chamber, substantially as shown and described.

3. A breast-pump consisting of a flared tube having a milk-receptacle formed on its circumference; a perforated nipple-shield secured on the flared end of said tube; a flexible tube attached, at one end, to the small end of said flared tube and, at the other end, to a collapsible air-chamber; a collapsible air-chamber normally distended by a spiral spring interposed between the heads of said air-chamber; a rigid tube connecting said air-chamber and an air-exhaust pump; and an air-exhaust pump distinct from but connected with said air chamber, substantially as shown and described.

4. In a breast-pump, the combination with a perforated nipple-shield and a milk-receptacle, of a collapsible air-chamber, normally distended by a spiral spring interposed between the heads of said chamber, and an air-exhaust pump distinct from but connected with said air-chamber, substantially as shown and described.

5. In a breast-pump, the combination with a tube provided with a milk-receptacle and having a perforated nipple-shield attached to said tube, of a collapsible air-chamber, normally distended by a spiral spring interposed between the heads of said air-chamber, said air-chamber being connected with said tube, and an air-exhaust pump distinct from but connected with said air-chamber, substantially as shown and described.

608,565. WATER-TUBE BOILER. JOHN H. HOWSON, Hull, England, assignor of one-half to Ross, Downs & Thompson, Limited, same place. Filed Dec. 20, 1897. Serial No. 662,690. (No model.)



Claim.—1. The combination in a boiler-furnace of the opposite fire-chambers, a smoke-outlet above each fire-chamber communicating with a common take-off; and a series of four similar water-drums, each having a rounded portion and two opposite flattened sides standing substantially at right angles to each other, the drums being arranged equidistant with the apexes of their inclined sides pointing to a common center, one drum being at the bottom and interposed between the fire-chambers, another drum at top and between the smoke-outlets; with four series of tubes each series connecting the opposite flattened sides of adjoining drums, and a casing inclosing the drums, tubes and fire-chambers, all substantially as and for the purpose described.

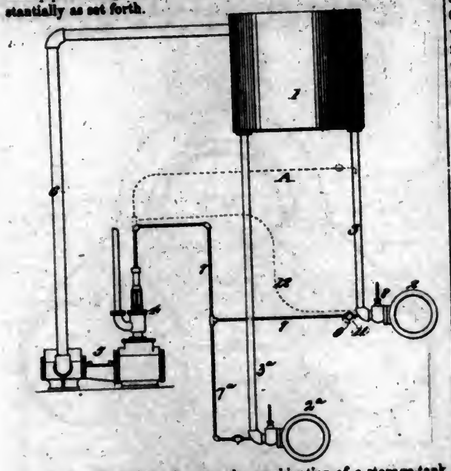
2. The combination in a boiler-furnace of the opposite fire-chambers M, L, a smoke-outlet above each fire-chamber communicating with a common take-off; and a series of similar water-drums A, E, D, H, each having a rolled portion and two opposite flattened sides standing substantially at right angles to each other, the drums being arranged equidistant with the apexes of their inclined sides pointing to a common center, and the bottom drum A being interposed between the chambers M, L, and drum H being at top and interposed between the smoke-outlets; with a series of tubes C connecting the opposite flattened sides of drums A, E; as a series of tubes F connecting the opposite flattened sides of drums D, H; and a series of inclined tubes G connecting the opposite flattened sides of drums D and H, all of said tubes having one end enlarged at its point of connection with one of the drums so that the tubes can be withdrawn into the drums when necessary to repair the same, substantially as and for the purpose described.

608,566. HYDRAULIC ELEVATOR. LOUIS KRAMER, St. Louis, Mo. Filed May 3, 1897. Serial No. 634,666. (No model.)

Claim.—1. In a hydraulic elevator, the combination of a storage-tank, a hoisting-cylinder, a pump provided with a governor, a pipe forming a connection between the tank and the hoisting-cylinder, and a pipe forming a connection between the pump-governor and said tank-pipe and provided with a check-valve, means for applying said fluid-pressure in the tank or tank-pipe to the governor to stop the pump when the desired pressure is reached, substantially as set forth.

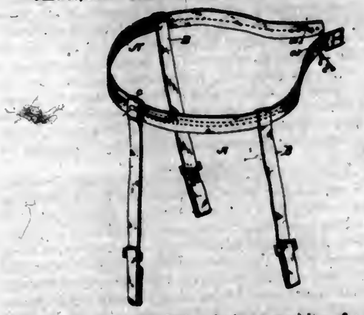
2. In a hydraulic elevator, the combination of a storage-tank, a hoisting-cylinder, a pipe forming a connection between the storage-tank and the hoisting-cylinder, a pump provided with a governor, a pipe forming a connection between the pump-governor and said tank-pipe, and a check-valve in the last-mentioned pipe; said pump-governor pipe connecting with said tank-pipe in close proximity to the valve that controls the passage of water from the latter pipe to the hoisting-cylinder, means for applying the fluid-pressure in the tank or

tank-pipe to the governor when the desired pressure is reached, substantially as set forth.



3. In a hydraulic elevator, the combination of a storage-tank, hoisting-cylinders, pipes forming connections between said tank and cylinders, a pump provided with a governor, pipes forming connections between said pump-governor and said tank-pipes, and check-valves provided with grooves or passages 10 and located in said governor-pipes, substantially as set forth.

608,567. SKIRT-LIFTER. MARY R. LUCAS, Omaha, Nebr. Filed June 30, 1897. Serial No. 643,906. (No model.)



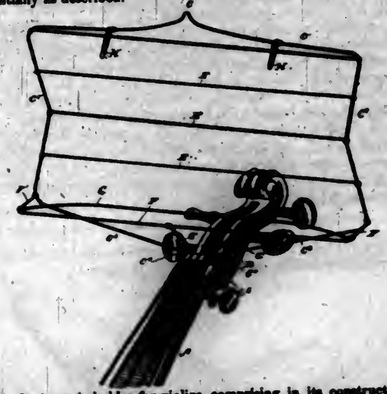
Claim.—1. A skirt-lifting device comprising of a hollow belt, having a slot in rear portion, a supporting-strap secured to said belt over the slotted portion, supporting-straps depending from the sides of said belt, securing devices upon the lower ends of said straps, and means to adjust the rear strap laterally from the front of the belt, substantially as described and set forth.

2. The combination in a skirt-supporting device of a belt having a horizontal slot in its rear portion, a supporting-strap secured to said belt over the slotted portion, supporting-straps secured to the sides of said belt, folding clasps secured to the lower ends of the supporting-straps, and means to adjust the rear strap in a vertical and lateral direction from the front of the belt, as and for the purposes set forth.

608,568. MUSIC-HOLDER FOR VIOLINS. SOPHIA V. LUNDQUIST, Upsala, Fla. Filed Sept. 8, 1897. Serial No. 650,979. (No model.)

Claim.—1. A music-holder for violins, comprising in its construction a frame consisting of a top cross-bar, C', side bars, C², bottom wires, C³, extending from the lower ends of the side bars C² to reach the edges of the top of the violin-head at C⁴, thence bent downward, curved at C⁴ to form a circular clamp for the head of the violin, and provided with vertical flanges, C⁵, the clamping-screw passing through said flanges, and the cross-wire C⁶ to connect the wires C³ across the top of the violin-head, substantially as described.

2. A music-holder for violins, comprising in its construction a frame consisting of a top cross bar C', side bars C², bottom wires C³, extending from the lower ends of the side bars C² to reach the edges of the top of the violin-head at C⁴, thence bent downward, curved at C⁴ to form a circular clamp for the head of the violin and provided with vertical flanges C⁵, the clamping-screw passing through said flanges, the cross-wire G² to connect the wires C³ across the top of the violin-head, the cross-wire F, connected at the junction of the side bars C² and bottom wires C³ by right-angled end bends F', substantially as described.



3. A music-holder for violins, comprising in its construction a frame consisting of a top cross-bar C', side bars C², bottom wires C³, extending from the lower ends of the side bars C² to reach the edges of the top of the violin-head at C⁴, thence bent downward, curved at C⁴ to form a circular clamp for the head of the violin and provided with vertical flanges C⁵, the clamping-screw passing through said flanges, the cross-wire G² to connect the wires C³ across the top of the violin-head, the cross-wire F, connected at the junction of the side bars C² and bottom wires C³ by right-angled end bends F', and an inwardly-curved, horizontal wire connecting the two ends of the cross-wire F at its junction with the bends F', substantially as described.

4. A music-holder for violins, comprising in its construction a frame consisting of a top cross-bar C', side bars C², cross-bars E connecting the side bars C², spring-fingers H mounted on the top cross-bar C', bottom wires C³, extending from the lower ends of the side bars C² to reach the edges of the top of the violin-head at C⁴, thence bent downward, curved at C⁴ to form a circular clamp for the head of the violin and provided with vertical flanges C⁵, the clamping-screw passing through said flanges, the cross-wire G² to connect the wires C³ across the top of the violin-head, the cross-wire F, connected at the junction of the side bars C² and bottom wires C³ by right-angled end bends F', substantially as described.

5. A music-holder for violins, comprising a main frame of wire substantially rectangular in outline, a bottom shelf or ledge for the music to rest upon, composed of wires C³ in continuation of the side bars of the main frame, the cross-wire F, angular ends F', and horizontal curved wire G, and a clamp, consisting of continuations of wires C², a cross-wire G² to connect them at the top of the head of the violin and a screw to draw their lower ends together below the head, braces G', connecting eyes wires F and G², and spring-fingers H, mounted on the upper cross-bar of the main frame, to engage over the upper edge of the music sheet or book, substantially as described.

608,569. WELL-BUCKET. WILLIAM D. MARTIN, Sr., Jackson, Tenn. Filed Nov. 13, 1897. Serial No. 658,430. (No model.)

Claim.—1. In combination with a well having a rectangular curbing, a plurality of buckets, each bucket in its cross-section being in the shape of a right-angle triangle, each bucket having in its bottom a valved water-inlet and a suitable means for operating the buckets.

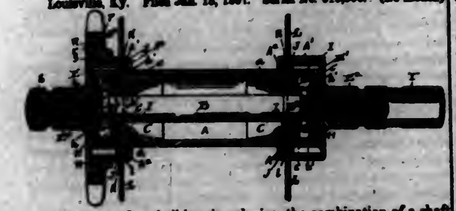
2. In combination with a well having a square curbing, a plurality of buckets, each bucket being in the shape of a right-angle triangle, each bucket having in its bottom a suitable valved water-inlet, the upper end of each bucket having converging sections, a suitable means for operating the buckets.

3. In combination with a well having a squared curbing, a plurality of buckets, each bucket in its transverse section being in the shape of a right-angle triangle, each bucket having in its bottom a valved water-inlet, each bucket having at its upper end converging sections, the upper ends of said sections terminating into an opening into the interior of the bucket, a ball passing through said opening and being secured to the inner surfaces of the bucket a suitable means for operating the buckets.

608,569.



608,570. BALL-BEARING DEVICE. JOSEPH MEYERS, Jr., Louisville, Ky. Filed Jan. 18, 1897. Serial No. 619,893. (No model.)

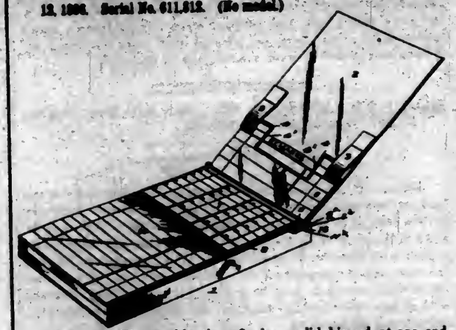


Claim.—1. In a ball-bearing device, the combination of a shaft or axle having a threaded portion at each end, a hub or shell having enlarged chambers at each end, a shouldered cone fixed within each end portion of said hub or shell between the said chambers and having an externally-reduced outwardly-beveled bearing portion which extends into the respective chamber, a hollow ball-cup screwed upon each end portion of said shaft or axle and seated within the said chambers, the balls within said cups, and ball-retaining devices at both ends of the said cups whereby the balls are held within the cups when the latter are removed, together with the annular packing or dust-guard rings, one at each side of the bearing, and seated between the inner wall of the said chambers and the shoulder of the cone and the inner end of the cup and the ring therein substantially as specified.

2. In a wheel-hub, the combination with the hub proper having enlarged end portions formed each with a series of spoke-receiving apertures or openings, of the shouldered bearing-cones fixed within the said hub between the said enlarged portions and extending into the same, the axle passing loosely through the said cones, the ball-bearing cups or cups threaded upon said axle and extending into said enlarged portions, the balls seated within the said cups and upon the said cones, a retaining-ring seated in the outer or bottom wall of each cup, a second retaining-ring seated in the inner end of said cup, and a packing-ring or dust-guard seated upon the shoulder of each of the cones and against the inner end of each cup and filling completely the space into which the spoke-holes open, substantially as specified.

3. In a wheel-hub, the combination with the hub proper having the enlarged end portions, the shouldered cones permanently fixed within said hub, the axle, the ball-cups threaded upon said axle and extending within the said enlarged portions, and the balls therein, there being a space between the inner end of each of said cups and the shoulder of the adjacent cone, said enlarged portions having each a series of spoke-holes opening into said space, substantially as specified.

608,571. SALES-RECORDING CHECK-BOOK. WILLIAM H. NORTHALL and FREDERICK W. SHERPHAN, Evansville, Ind. Filed Nov. 12, 1896. Serial No. 611,812. (No model.)



Claim.—1. The combination of a box, a lid hinged at one end thereof, clamps secured on the under side of said hinged lid, means for releasing said clamps also held on the under side of said lid, a leaf hinged at the opposite end of said box forming a writing-surface, a guide secured near the end of the box near the end of said hinged leaf, and the wire secured in the guide, substantially as described.

2. The combination of the box having the hinged lid, the spring-clamp carried by said lid, the carbon and clerk's record-slip retained by said clamp and extending over the box when the lid is raised and the cashier's and purchaser's checks arranged in the box.

3. The combination of the box or case having the hinged lid, the clerk's record-slip carried by the lid and extending over the box when the lid is raised, the transferring-carbon under said slip, the additional hinged leaf on said box, the carbon and clerk's-slip retaining clamps carried by the hinged cover or lid, the guide secured across the box in the corner thereof, and the continuous cashier's and purchaser's record-slips passing around the said guide and inclosed in the box.

4. The combination of a box, a lid hinged at one end thereof, clamps secured on the under side of said lid, means to release said clamps from engagement and hold in place on the under side of said lid, a leaf hinged at the opposite end of said box forming a writing-surface, a clerk's record-slip and carbon secured to the under side of said lid by said clamps, two continuous slips located in the box below the said hinged leaf, a guide in the box near the end of said hinged leaf secured to separate and regulate the said slips, a carbon placed between the two continuous slips, and a wire to hold the carbon in place located in said guide.

608,572. WRENCH. FREDERICK CLARK, New York, N. Y. Filed Aug. 13, 1897. Serial No. 648,127. (No model.)



Claim.—1. In a wrench, the combination with a handle; a head thereon provided with a pair of intersecting grooves; of a pair of jaws adapted to slide in said grooves, and provided with teeth thereon; and a screw engaging the teeth on said jaws, for sliding the latter, substantially as described.

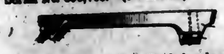
2. In a wrench, the combination with a handle; a head thereon provided with a pair of intersecting grooves; and a pair of jaws having toothed bars thereon extending into said grooves; of a screw having threads thereon engaging the teeth on said bars, and adapted to cause said jaws to slide in said grooves when said screw is turned, substantially as described.

3. In a wrench, the combination with a handle; a head thereon provided with a pair of intersecting grooves; a pair of jaws having toothed bars thereon extending into said grooves and guides for said bars; of a screw having threads thereon engaging the teeth on said bars, and adapted to cause said jaws to slide in said grooves when said screw is turned, substantially as described.

4. In a wrench, the combination with a handle; a head thereon provided with a pair of intersecting grooves; a pair of jaws having toothed bars thereon extending into said grooves; of a screw having conical threads thereon engaging the teeth on said bars, and adapted to cause said jaws to slide in said grooves when said screw is turned, substantially as described.

5. In a wrench, the combination with a handle; a head thereon provided with a pair of intersecting grooves; a pair of jaws having toothed bars thereon extending into said grooves; of a double-conical screw having right and left hand screw-threads thereon engaging the teeth on said bars, and adapted when turned, to cause said jaws to slide in said grooves, substantially as described.

608,573. HORSESHOE. NEIL L. OLSON, Butte, Mont. Filed May 15, 1897. Serial No. 636,705. (No model.)



Claim.—1. The horseshoe described, having thickened toe and heel portions and sockets therein, the socket or sockets in the toe portion ranging at an incline approaching an angle of forty-five degrees to the plane of the shoe, and provided at the inner ends of said sockets with seats for the calk-keys, the calks having stems fitted to the shoe-sockets and grooved and notched heads, and the keys having at their inner ends portions to engage the seats of the shoes and at their outer ends heads to enter the notches or sockets in the calks, substantially as described.

2. A horseshoe-calk having a tapered head provided in its tapered sides near its upper end with sockets for the fastening-keys, and having said tapered sides grooved forming a central web, and ribs projecting therefrom, substantially as described.

608,574. BICYCLE-WHEEL. MOSHEIM C. OVIATT, Traverse City, Mich. Filed Aug. 31, 1897. Serial No. 650,145. (No model.)



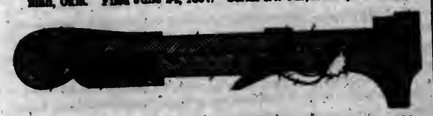
Claim.—1. A vehicle-wheel, comprising inner and outer rims, a flexible band interposed between the two rims but not touching them, and adapted to move toward and from the rims, devices connecting the band with both the rims, and means for adjusting the tension of the band by moving it radially at different points throughout its length toward or from the center of the wheel.

2. A vehicle-wheel, comprising inner and outer rims, a flexible band interposed between the two rims but not touching them and free to move radially toward and from the rims, radial bolts or rods for holding the band in place, and means applied to the bolts for moving the band at different points throughout its length radially to adjust the tension thereof.

3. A vehicle-wheel provided with inner and outer rims, a flexible band interposed between the two rims, bolts passing inward from the outer rim to connect it with the band, curved washers on said bolts inside the band, and nuts on the bolts bearing on said washers, substantially as described.

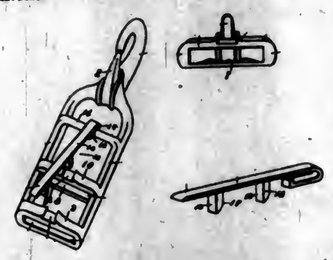
4. A vehicle-wheel, comprising inner and outer rims, a flexible band interposed between the two rims, bolts connecting the band with the outer rim, curved washers on the ends of the bolts, nuts secured to the bolts and holding the washers against the band, bolts connecting the flexible band with the inner rim, curved washers against which the heads of the bolts bear, nuts on the screw-threaded ends of said last-mentioned bolts, and elastic washers interposed between the nuts and the inner rim.

608,575. ADJUSTABLE WRENCH. WALLACE G. PARKER, Norman, Okla. Filed June 24, 1897. Serial No. 642,133. (No model.)



Claim.—The combination in an adjustable wrench, of a rigid bar carrying a jaw at its outer end and provided with a toothed rack on its inner surface, with a sliding bar also provided with a jaw at its outer end, a pinion pivoted in a chamber of said sliding bar projecting beyond both surfaces thereof, a pawl pivoted to the sliding bar and engaging with the pinion, and yokes on the sliding bar embracing the rigid bar and holding the pinion and rack in engagement, substantially as set forth.

608,576. COMBINED BUCKLE AND SNAP HOOK. JACOB POLKA, Smith Centre, Kans. Filed Feb. 24, 1897. Serial No. 624,760. (No model.)

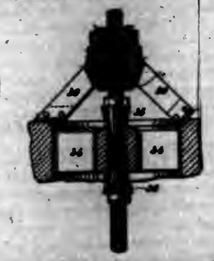


Claim.—1. A buckle comprising transverse bars forming a strap-loop, one of said bars being provided with an inclined-sided recess, a pivoted clasp capable of longitudinal movement and having a portion of its sides inclined to permit its engagement within the recess, and a tongue extending from the clasp and designed to engage with a strap passed through the loop, substantially as specified.

2. A buckle comprising a strap-loop, the upper bar of which is provided with an inclined-sided recess, a longitudinally-movable pivoted clasp having a portion of its sides inclined, a tongue extending from the clasp and designed to engage a strap passing through the strap-loop, and means for locking the clasp against longitudinal movement, substantially as specified.

3. In a combined snap-hook and buckle, the combination with a snap-hook provided with rearwardly-extending side bars, transverse bars extending between the side bars and constituting strap-loops, the upper bars of said loops being recessed, and the recess in one of the bars having inclined sides, a transverse clasp-bar, a clasp having loose pivotal connection with said clasp-bar whereby it is capable of longitudinal and pivotal movement, said clasp having a portion of its sides inclined to permit its engagement with the inclined-sided recess in one of the loop-bars, tongues extending from the clasp designed to engage a strap passed through the strap loops, and a movable locking-leg at the extremity of the clasp designed to be bent down to lock said clasp against longitudinal movement, substantially as specified.

608,577. APPARATUS FOR REMOVING VALVES, BORING CYLINDERS, &c. PERCIVAL J. PERRY, Manchester, England. Filed Mar. 21, 1898. Serial No. 674,647. (No model.)



Claim.—1. In an apparatus for repairing valve-seats, in which the proper center is determined by the hole for the valve-stem, the combination of a threaded spindle, oppositely-cut nuts for holding said spindle in position, a hollow stem or casing through which the spindle passes, cutting-arms carried on said stem, and means for feeding said cutters down said spindle, substantially as described.

2. In an apparatus for repairing valve-seats, in which the proper center is determined by the hole for the valve stem, the combination of a threaded spindle, oppositely-cut conical nuts for holding said spindle in position, an internally-threaded hollow stem or casing engaging said spindle, a boss provided with cutting-arms mounted on said stem, cutters on said arms, the upper part of said stem or casing being externally screw-threaded, a nut engaging said screw-threads, and means for securing the nut, stem, and spindle together, substantially as described.

608,578. CLICHÉ FOR PRINTING PATTERNS. ERNEST GUEDON, Lille, France, assignor to Henri Menard Constenoble, same place. Filed Dec. 3, 1895. Serial No. 570,994. (No model.) Patented in France Dec. 6, 1894, No. 242,310; in Belgium Mar. 6, 1895, No. 114,208, and in Austria May 4, 1895, No. 45/1,502.



Claim.—A cliché for printing patterns on garments or the like, composed solely of a thin flexible sheet or band of a single layer of material and adapted to be rolled up and having the outlines of the pattern pressed up in relief thereon, substantially as set forth.

608,579. STEP-LADDER. CHRIS ERICKSON, Clipper Gap, Cal. Filed July 2, 1897. Serial No. 643,994. (No model.)



Claim.—1. In a step-ladder, a step-frame, a supporting-leg pivoted thereto, a supporting-frame for the step-frame, whose members are pivotally connected one to the other, and means for locking said supporting-frame and said step-frame together.

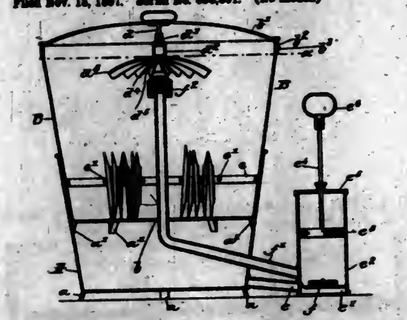
2. In a step-ladder, a step-frame having converging side bars, a supporting-leg pivoted thereto, a supporting-frame for the step-frame, and a projection on said supporting-frame adapted to fit between the side bars of the step-frame, and be engaged thereby, as and for the purpose set forth.

3. In a step-ladder, a step-frame having converging side bars, a supporting-leg pivoted thereto, a supporting-frame for the step-frame comprising legs and cross-bars pivotally connected together, and a projection on one of said cross-bars adapted to fit between the side bars of the step-frame and to be engaged thereby, as and for the purpose set forth.

4. In a step-ladder, a step-frame having converging side bars, and a supporting-leg pivoted thereto, a supporting-frame for the step-frame made up of legs and cross-bars pivoted one to the other, a projection on one of said cross-bars adapted to fit between the side bars of the step-frame and to be engaged thereby, and means for moving said step-frame and said supporting-frame longitudinally with respect to each other, as and for the purpose set forth.

5. In a step-ladder, a step-frame having converging side bars, a supporting-leg pivoted thereto, a supporting-frame for the step-frame made up of legs and cross-bars pivotally connected to each other, a circular disk or plate secured to the upper of said cross-bars fitting between the side bars of the step-frame and adapted to be engaged thereby, a guide-bar on said step-frame having an elongated slot therein, a pin on one of the side bars of the supporting-frame fitting and moving in said slot, and a cam-lever fulcrumed to said step-frame and adapted to engage one of the cross-bars on said supporting-frame, as and for the purpose set forth.

608,580. DISH-CLEANER. EDGAR SHAW, Swampscott, Mass. Filed Nov. 18, 1897. Serial No. 658,801. (No model.)



Claim.—1. In a dish-washing apparatus, a reservoir, a dish-pan sustained therein revolubly and having means for holding dishes on edge, combined with the cover, and the spreader supported thereby, a pump having outlet and discharge pipes, the said discharge-pipe being extended through the said reservoir and centrally through the bottom of said dish-pan and provided with a nozzle, the dish-pan being revolubly about the said discharge-pipe, substantially as described.

2. The reservoir A having rests *a'*, the dish-pan B inserted in said reservoir and sustained by said rests, said dish-pan having a perforated bottom and a closed cover, and having means for sustaining plates on edge, combined with a spreader suspended from the lower side of said cover, a pump located outside the reservoir and pan having an inlet *c*, and a discharge-pipe *f'* extended through there servoir and centrally up into the dish-pan and provided with a nozzle, substantially as described.

608,581. WINDOW-WASHER. SARAH URMSTON, Indianapolis, Ind. Filed July 14, 1897. Serial No. 644,548. (Model.)



Claim.—1. In a window-washing appliance, the combination of a wiper, a scrubbing-brush, a sponge or mop, and a vibrating spring-loop adapted to grasp the substance of the mop and to hold the scrubbing-brush in its position, substantially as described.

2. In a window-washing appliance having a wiper, a scrubbing-brush, and a mop, the combination of a swinging loop having an eccentric shank, a spring for throwing and holding the loop in its operative or inoperative position, and a sleeve or ferrule for holding and locking the spring-loop in its operative position, substantially as described.

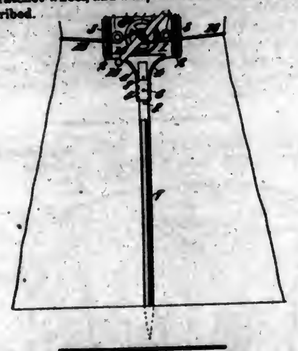
608,582. CORN-SHOCK COMPRESSOR. HARMON VAN PELT, New Athens, Ill. Filed Nov. 15, 1897. Serial No. 658,548. (No model.)

Claim.—1. In a shock-compressor, the combination of a standard, a plate attached to said standard, a ratchet-wheel mounted on said plate, a reel carried by said ratchet-wheel; said reel comprising a web having inwardly-inclined edges and handle-arms extending at angles from said web, and a rope attached to said reel, substantially as described.

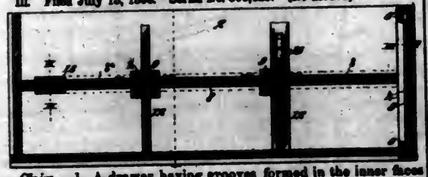
2. In a shock-compressor, the combination of a standard, a plate attached to said standard, a ratchet-wheel mounted on said plate, a detent-dog, a reel carried by said ratchet-wheel; said reel comprising a web having inwardly-inclined edges and handle-arms extending at angles from said web, and a rope attached to said reel, substantially as described.

3. In a shock-compressor, the combination of a plate, a sleeve carried by said plate, a standard adjustably attached to said sleeve, a ratchet-wheel and a detent-dog mounted on said plate, a reel car-

ried by said ratchet-wheel, and a rope attached to said reel, substantially as described.



603,583. HARDWARE-DRAWER. JOHN D. WARREN, Chicago, Ill. Filed July 13, 1896. Serial No. 599,023. (No model.)

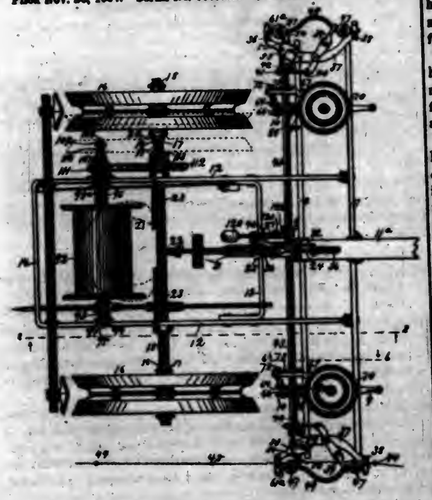


Claim.—1. A drawer having grooves formed in the inner faces of the sides, slides having tenons fitting in said grooves, partitions fitting in grooves formed in the slides, and springs 16 secured to the partitions; substantially as set forth.

2. A drawer having dovetail grooves formed in the inner faces of the sides, slides having dovetail tenons fitting in said grooves, partitions fitting in grooves in the slides, and springs 16 secured to the partitions; substantially as set forth.

3. In a drawer having dovetail grooves formed in the inner faces of the slides and provided with enlargements 13, slides having dovetail tenons fitting in said grooves, partitions fitting in grooves formed in the slides, and springs 16 secured to the partitions, substantially as set forth.

603,584. CHECK-ROW CORN-PLANTER. LEWIS R. WATERMAN, Moline, Ill., assignor to the Deere & Manzur Company, same place. Filed Nov. 20, 1897. Serial No. 659,263. (No model.)



Claim.—1. In a planter the combination with a rear frame supported on wheels, and a forward frame having runners or furrow-openers and seeding mechanism, of a hand-lever pivotally mounted on said rear frame, connected with the forward frame, and provided with a locking-dog, a rack-bar with which said dog engages, a foot-lever pivotally mounted on said rear frame, a link connected at one end with one end of said lever and its other end adapted to disengage said dog from the rack-bar, substantially as described.

2. In a planter, the combination with a rear frame mounted on wheels, and a forward frame having furrow-openers or runners and seeding mechanism, of a hand-lever mounted on said rear frame and connected with the forward frame, a spring-actuated locking-dog carried by said hand-lever, a rack-bar, a foot-lever pivotally mounted on said rear frame, a link connected at one end with one end of said foot-lever, and its other end adapted to engage with said dog to disengage it from the rack-bar, and a projection laterally from said foot-lever, which projection engages with the hand-lever when the foot-lever is operated, and is removed therefrom by said spring which actuates the dog, substantially as described.

3. In a planter, the combination with a rear frame mounted on wheels, and a forward frame having runners or furrow-openers, and seeding mechanism, of a hand-lever mounted on said rear frame and connected with the forward frame, a spring-actuated locking-dog carried by said hand-lever and having a laterally-projecting pin or lug, a rack-bar, a foot-lever mounted on said rear frame, a link connected at one end with one end of said foot-lever and its other end having a slot which engages with said pin or lug, and a pin or lug projecting laterally from one end of said foot-lever, adapted for engagement with the hand-lever, substantially as described.

4. In a check-row planter, and in combination, a check-row head, a forked lever mounted on said head, a tilting bar hinged or journaled to said head, carrying guide-pulleys and a projecting arm, a spring-actuated detent-lever pivotally mounted on said head and adapted for engagement with the upper side of said arm, and another for engagement with its lower side, and a stop-pin, for said detent-lever, and a check-row line, substantially as described.

5. In a check-row planter, and in combination, a check-row head, a forked lever, a tilting bar carrying guide-pulleys and a projecting arm, a spring-actuated detent having a lug for engagement with the upper side of said arm, a stop-pin, and a check-row line, substantially as described.

6. In a check-row planter, and in combination, a check-row head, a forked lever, a tilting bar carrying guide-pulleys and a projecting arm, a spring-actuated detent having a lug for engagement with the upper side of said arm, and a series of holes for a stop-pin, a stop-pin, and a check-row line, substantially as described.

7. In a check-row planter, and in combination, a check-row head, a forked lever, a tilting bar carrying guide-pulleys and a projecting arm, a stop to limit the movement of said tilting bar when it is turned up into position for operation, a spring-actuated detent having a lug, with a cam-shaped or inclined upper side, for engagement with the upper side of said arm, a stop-pin, and a check-row line, substantially as described.

8. In a check-row planter, and in combination, a check-row head, a forked lever, a tilting bar carrying guide-pulleys loosely mounted on said head, whereby it may yield rearwardly and return forwardly, substantially as described.

9. In a check-row planter, and in combination, a check-row head, a forked lever, a tilting bar carrying guide-pulleys loosely mounted on said head, whereby it may yield rearwardly and return forwardly, a spring for imparting such forward movement thereto, and a check-row line, substantially as described.

10. In a check-row planter, and in combination, a check-row head, a forked lever, a tilting bar carrying guide-pulleys, mounted on said head to yield rearwardly and return forwardly, a spring for imparting the forward or return movement to said tilting bar, a check-row line, and means for limiting the forward and backward movements of said tilting bar, substantially as described.

11. In a check-row planter, and in combination, a check-row head, a detent mounted on said head, a forked lever, a tilting bar carrying guide-pulleys and a lateral arm projecting therefrom for engagement with said detent, said tilting bar mounted on the check-row head to yield rearwardly and return forwardly, a spring for imparting the forward or return movement to said tilting bar, and a check-row line, substantially as described.

12. In a check-row planter, and in combination, a check-row head, a forked lever, a spring-actuated detent pivotally mounted on said head and provided with a stop-pin hole, a stop-pin, a tilting bar carrying guide-pulleys and a lateral arm projecting therefrom for engagement with said detent, said tilting bar mounted on the check-row head to yield rearwardly and return forwardly, a spring for imparting the forward or return movements to said tilting bar, stops for limiting the forward and return movements of said tilting bar, and a check-row line, substantially as described.

13. In a planter, and in combination with a valve in the seedbox, a seed tube or duct, a discharging-valve pivotally mounted in the seed-tube with its lower seed-discharging end or valve proper near the lower end of said tube and its upper end near the upper end thereof, and an intermediate valve, fixed at one end to the discharge-valve, and its other end bent to form the intermediate valve proper, which is spring-yielding to delay its opening, substantially as described.

14. In a planter, and in combination with a valve in the seedbox, a seed tube or duct having a front wall with a longer inclined upper part and a substantially vertical lower part, a recess in said lower part, a shelf beneath said recess, a seed-discharging valve having a projecting plate which enters said recess, and a seed-cup which seats over said shelf as a bottom therefor, and an intermediate valve fixed to said discharge-valve, which intermediate valve is spring-yielding to delay its opening, substantially as described.

15. In a planter, and in combination with a valve in the seedbox, and a removable seed-discharging valve, a seed tube or duct having a front wall with a substantially vertical part at its lower end, a shelf at the lower end of said vertical part adapted to retain the seed in said valve, and having a long inclined upper part whereby the seed will be discharged free of said shelf when the seed-discharging valve is removed, substantially as described.

16. In a check-row planter, and in combination with a planter-frame, an axle, supporting-wheels, a reel, a bifurcated open bearing for one journal of said reel, means for securing the journal in said bearing, and a rotatable head in which said other journal of the reel is removably seated, substantially as described.

17. In a check-row planter, and in combination, substantially as described, a planter-frame, axle, supporting-wheels, a reel, a journal fixed to one end of said reel, a bearing for said journal, a bearing mounted on said frame, a head journaled in said bearing, and a shaft projecting from the other end of said reel, removably seated in said head said shaft and head of such form that the shaft and reel will be rotated with the head, while the shaft may be withdrawn endwise from the head.

18. In a check-row corn-planter, and in combination with a planter-frame, an axle, and supporting-wheels, one of which wheels is adjustable on the axle, a sprocket-wheel loosely mounted on the axle to gear by a clutch with said adjustable wheel, a reel, a bearing for one journal thereof, a head journaled to the frame, a shaft fixed to the reel and removably seated in said head, a sprocket-wheel with a cone-shaped hub, a cup-shaped cone, a spring, a threaded bolt, a nut, and a sprocket-chain, all constructed and arranged to operate substantially as and for the purpose specified.

19. In a check-row planter, and in combination, a frame, supporting-wheels, a reel journaled in bearings on said frame, a driver's seat, supporting-bars for said seat, an anchor for the check-row line, having a bent end for a guide for said line in reeling it, and a hook fixed to the anchor for pivotally engaging it with the support, substantially as described.

20. In a check-row planter, and in combination, a frame, supporting-wheels, a reel journaled in bearings on said frame, an anchor for the check-row line, a brake-shoe fixed to said anchor, whereby the anchor may be used as a brake for the reel, substantially as described.

21. In a check-row planter, and in combination, a seedbox, rotatable seed-cup plates or disks mounted in said box, a rock-shaft, a seed-tube standard with seed duct or channel, a pawl for actuating said seed-cup plates, a seed-discharging valve pivotally mounted in said duct or channel, and its upper end pivotally connected with said pawl, and a radius-arm projecting from the rock-shaft, said radius-arm having a slot in its outer end through which a pin projects from the upper end of said seed-discharging valve, substantially as described.

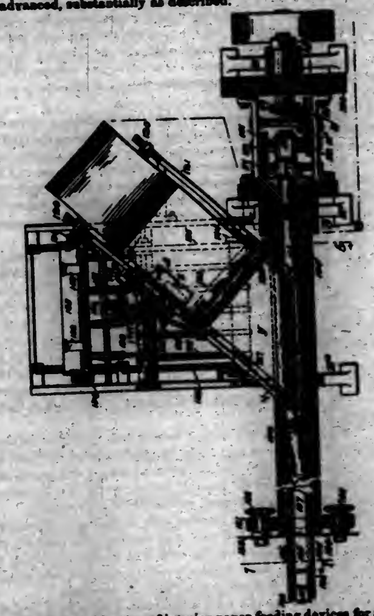
22. A combined anchor for planter check-row lines, comprising an anchor for said lines, a reel-brake, and a guide for the check-row line in reeling it or taking it up by the planter, substantially as described.

23. A combination comprising a locking hand-lever, and a foot-lever pivoted to move independently of said hand-lever, and means interposed between said levers, whereby the hand-lever may be locked, unlocked, and adjusted by the foot-lever alone, substantially as described.

24. In a check-row planter, and in combination, substantially as described, a planter-frame, a reel, a journal fixed to one end of said reel, a bearing for said journal, a bearing mounted on said frame, a head journaled in said bearing and having a tapered outer end, a shaft projecting from the other end of said reel and removably seated in said head, a sprocket-wheel journaled on the tapering end of said head, a belt connected with said head, a cup-shaped washer, a spring coiled on and a nut screw-threaded onto said bolt, whereby the washer, cup-shaped cone and head may be held in such frictional contact, as desired.

603,585. WRAPPING-MACHINE. LOUDEN C. CROWELL, Brooklyn, N. Y., assignor to Robert Ilsa, Theodore H. Head, and Charles W. Carpenter, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,049. (No model.)

Claim.—1. The combination of interior paper-feeding devices for advancing a succession of independent papers, and means for winding a succession of wrappers spirally about the papers as they are advanced, substantially as described.



2. The combination of interior paper-feeding devices for advancing a succession of independent papers, means for delivering the papers successively to said feeding devices transversely to the direction in which they are advanced by the feeding devices, and means for winding a succession of wrappers spirally about the papers as they are advanced, substantially as described.

3. The combination of interior paper-feeding devices for advancing a succession of independent papers, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally-wound wrapper-tube inclosing the papers, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

4. The combination of interior paper-feeding devices for advancing a succession of independent papers, means for delivering the papers successively to said feeding devices, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally-wound wrapper-tube inclosing the papers, pasting devices for applying a line of paste to one edge of the wrapper-web for securing together the successive windings of wrapper forming the wrapper-tube, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

5. The combination of interior paper feeding and rotating devices for advancing a succession of independent papers, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

6. The combination of interior paper feeding and rotating devices for advancing a succession of independent papers, means for guiding a continuous wrapper-web to the rotating and longitudinally-advancing papers at an angle to form a continuous spirally-wound wrapper-tube about the papers, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

7. The combination of interior paper feeding and rotating devices for advancing a succession of independent papers, means for delivering the papers successively to said feeding and rotating devices transversely to the direction in which they are advanced by said feeding and rotating devices, means for guiding a continuous wrapper-web to the rotating and longitudinally-advancing papers at an angle to form a continuous spirally-wound wrapper-tube about the papers, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

8. The combination of a core, means for advancing a paper lon-

gitudinally on the core, and means for winding a wrapper about the core and the paper to form a spirally-wound wrapper-tube inclosing the core and the paper thereon, substantially as described.

9. The combination of a core, means for advancing a succession of independent papers longitudinally on the core, means for winding a continuous wrapper-web about the core and the papers on the core to form a continuous spirally-wound wrapper-tube inclosing the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

10. The combination of a core, means for advancing a succession of independent papers longitudinally on the core, means for feeding the papers successively to the core transversely to the axis of the core, means for winding a continuous wrapper-web about the core and the papers on the core to form a continuous spirally-wound wrapper-tube inclosing the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

11. The combination of a rotating core, means for advancing a paper longitudinally on the core as it rotates, and means for guiding a wrapper to the core at an angle to form a spirally-wound wrapper-tube about the core and the paper thereon, substantially as described.

12. The combination of a rotating core, means for advancing a succession of independent papers longitudinally on said core as it rotates, means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

13. The combination of a core, a feeding-belt forming a portion of the surface of the core and moving longitudinally of the core to advance a paper on the core, and means for winding a wrapper about the core and the paper to form a spirally-wound wrapper-tube inclosing the core and the paper thereon, substantially as described.

14. The combination of a rotating core, a feeding-belt forming a portion of the surface of the core and moving longitudinally of the core to advance a paper on the core, and means for guiding a wrapper to the core to form a spirally-wound wrapper-tube about the core and the paper thereon, substantially as described.

15. The combination of a core, a feeding-belt forming a portion of the surface of the core and moving longitudinally of the core to advance a succession of independent papers, means for winding a continuous wrapper-web about the core and the papers on the core to form a continuous spirally-wound wrapper-tube inclosing the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

16. The combination of a rotating core, and moving longitudinally of the core to advance a succession of independent papers, means for guiding a continuous wrapper-web to the core to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

17. The combination of a rotating core, a feeding-belt forming a portion of the surface of the core and moving longitudinally of the core to advance a succession of independent papers, means for feeding the papers successively to the core transversely to the axis of the core, means for guiding a continuous wrapper-web to the core to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

18. The combination of a rotating core, a casing extending about the core, means for advancing a paper longitudinally on the rotating core inside the casing, and means for guiding a wrapper to the core at an angle to form a spirally-wound wrapper-tube about the core and the paper thereon, substantially as described.

19. The combination of a rotating core, a casing extending about the core, means for advancing a succession of independent papers longitudinally on the rotating core inside the casing, means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

20. The combination of a rotating core, a casing extending about the core, means for advancing a succession of independent papers longitudinally on the rotating core inside the casing, means for feeding the papers successively to the core transversely to the axis of the core through an opening in the casing, means for guiding a continuous wrapper-web through an opening in the casing to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

21. The combination of a rotating core, feeding-belts forming a portion of the surface of the core and moving longitudinally of the core to advance a succession of independent papers, a casing extending about the core, means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

22. The combination in a severing device, of a plurality of segmental rotary severing-blades arranged about the path of the article to be severed and mounted to rotate in a plane transverse to the longitudinal axis of the article to be severed, and means for giving the article to be severed and the severing-blades a relative movement of rotation about the axis of the article, substantially as described.

23. The combination in a severing device, of feeding devices for the article to be severed, a plurality of segmental rotary severing-blades arranged about the path of the article to be severed and mounted to rotate in a plane transverse to the longitudinal axis of the article to be severed, means for giving the article to be severed and the severing-blades a relative movement of rotation about the axis of the article, and means for reciprocating the severing-blades longitudinally of the direction of movement of the article to move with the article when they are rotating in severing position and to return when they are rotating out of severing position, substantially as described.

24. The combination in a severing device, of feeding and rotating devices for the article to be severed, a plurality of segmental rotary severing-blades arranged about the path of the article to be severed and mounted to rotate in a plane at right angles to the longitudinal axis of the article to be severed, and means for reciprocating the severing-blades longitudinally of the direction of movement of the article to move with the article when they are rotating in severing position and to return when they are rotating out of severing position, substantially as described.

25. The combination with paper feeding and rotating devices for advancing a succession of independent papers, and means for guiding a continuous wrapper-web to the rotating and longitudinally-advancing papers at an angle to form a continuous spirally-wound wrapper-tube about the papers, of a plurality of segmental rotary severing-blades arranged about the path of the wrapper-tube and inclosed papers and mounted to rotate in a plane at right angles to the axis of the wrapper-tube, and means for reciprocating the severing-blades longitudinally of the direction of movement of the wrapper-tube to move with the wrapper-tube when they are rotating in severing position and to return when they are rotating out of severing position, substantially as described.

26. The combination of the rotating frame 101, core 100 carried by said frame, feeding-belts 107, 107ª forming a portion of the surface of the core and turning on rolls 106, 106ª carried by said core and on driving-rolls 108, 108ª mounted in said frame, means for driving the rolls 108, 108ª as the frame rotates, means for feeding a succession of independent papers to the core, and means for guiding a continuous wrapper-web to the core at an angle to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, substantially as described.

27. The combination of the rotating core 100, feeding-belts 107, 107ª forming a portion of the surface of the core and moving longitudinally of the core to advance a succession of independent papers, means for guiding a continuous wrapper-web to the core to form a continuous spirally-wound wrapper-tube about the core and the papers thereon, means for severing the wrapper-tube between successive papers as the tube and inclosed papers are advanced on the core, and guards 165 and 165ª for depressing the feeding-belts at the point where the wrapper-tube is severed, substantially as described.

28. The combination of the rotating core 100, feeding-belts 107, 107ª forming a portion of the surface of the core and moving longitudinally of the core to advance a paper on the core, and means for guiding a wrapper to the core to form a spirally-wound wrapper-tube about the core and the paper thereon, substantially as described.

29. The combination in a severing device, of feeding devices for the article to be severed, a segmental rotary severing-blade mounted to rotate in a plane transverse to the longitudinal axis of the article to be severed, means for giving the article to be severed and the severing-blade a relative movement of rotation about the axis of the article, and means for reciprocating the severing-blade longitudinally of the direction of movement of the article to move with the article when it is rotating in severing position and to return when it is rotating out of severing position, substantially as described.

30. The combination of a core, and means for advancing a paper longitudinally on the core and simultaneously applying a wrapper about the core and paper to form a wrapper-tube inclosing the core and the paper thereon, substantially as described.

31. The combination of a rotating core, and means for advancing a paper longitudinally on the core as it rotates and simultaneously applying a wrapper about the core and paper to form a wrapper-tube inclosing the core and the paper thereon, substantially as described.

32. The combination of a rotating core, a feeding-belt forming a portion of the surface of the core and moving longitudinally of the core to advance a paper on the core, and means for applying a wrapper about the core and paper to form a wrapper-tube inclosing the core and the paper thereon, substantially as described.

603,586. ROLLER-BEARING. EDWIN W. DAVIS, Geneva, Minn. Filed June 8, 1897. Serial No. 640,084. (No model.)



Claim.—In a sectional hub, the combination, with the central portion formed with a central opening and with peripheral recesses, the disks secured thereto formed with corresponding openings, the rings secured to said disks having enlarged central openings, the end disks formed with openings corresponding with those of the other disks and the screw-bolts for securing said disks and rings to each other, of the cylindrical rollers loosely inserted in said rings and projecting beyond the openings in said disks, and the axle-spindle of a diameter less than the openings in said disks and against which said rollers abut, substantially as described.

603,587. OIL-FILTER. CHRISTIAN DOHM, Philadelphia, Pa., assignor to Harlan P. Moss, Easton, Pa. Filed July 26, 1897. Serial No. 646,044. (No model.)

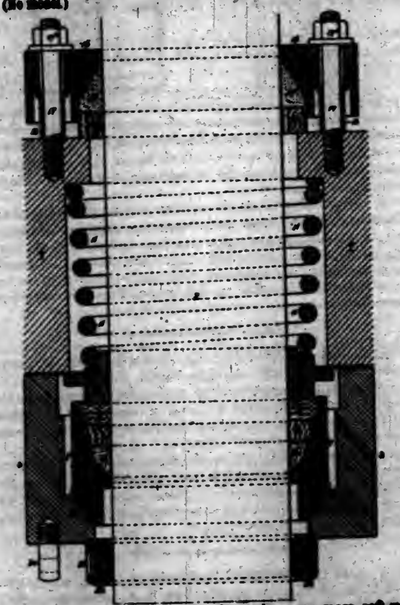


Claim.—1. In an oil-filter, the combination with a chamber A^m, a filter in the lower part of the said chamber, and means for introducing the oil beneath the said filter; of a second chamber A^9, means for introducing water in the said second chamber A^9, a sight-glass opening into the said chamber A^9 at two points, a pipe extending from the chamber A^m through the said chamber A^9, a valve adapted to open the said pipe into the said sight-glass, and means for drawing the oil off from the water, substantially as described.

2. In an oil-filter, the combination with a chamber, a filter in the lower part of the said chamber, a funnel in the upper part of the said chamber, and a pipe from the said funnel extending through the said filter; of a second chamber A^9, means for introducing water in the said second chamber A^9, a sight-glass opening into the said chamber A^9 at two points, a pipe extending from the chamber A^m through the said chamber A^9, a valve adapted to open the said pipe into the said sight-glass, and means for drawing the oil off from the water, substantially as described.

3. An oil-filter comprising two chambers; a filter in the lower portion of one of said chambers; an inlet-pipe entering said chamber and discharging beneath said filter; a drain-cock to said chamber; a downwardly-inclined pipe leading through the second chamber from said first chamber, and opening outside of said second chamber; a plug in the outer end of said pipe; a second plug communicating with said second chamber above said first plug; a glass tube connecting said plugs; a third plug communicating with said second chamber below said first plug and also with said plug; an inlet-pipe to said second chamber; a cock for drawing off the oil from said second chamber; and a sight-glass for showing the amount of oil in said chamber, substantially as described.

603,588. ROD-PACKING FOR STEAM-ENGINES. CHARLES LOMBARDI, Yeadon, Pa., assignor to the United States Metallic Packing Company, Philadelphia, Pa. Filed Nov. 2, 1897. Serial No. 657,722. (No model.)



Claim.—1. The combination of a rod, one or more soft-metal packing-rings surrounding the same, a casing having a recess which receives said ring or rings and has an outer wall presenting different degrees of bevel, the forward bevel being the more abrupt, and provision for pressing the packing ring or rings forwardly in said recess, the forward ring being of considerably greater width than the abruptly-inclined portion of the wall of the casing substantially as specified.

2. The combination of a cylinder and piston-rod with an outer set of packings for said rod, and an inner packing which is pressed against a forward seat by the impact of water in the forward end of the cylinder, substantially as specified.

3. The combination of a cylinder and piston-rod, with packing for the latter located within the cylinder and consisting of a ring or rings surrounding the rod, and a spring-supported casing surrounding said rings and having a beveled face for compressing the same when it is moved forwardly against the action of the spring-support, substantially as specified.

4. The combination of a cylinder and piston-rod, with an outer set of packing-rings for the said rod, and an inner packing bearing against a forward seat and contained in a beveled recess in a sleeve which is acted upon by the impact of water in the forward end of the cylinder, whereby packing-rings are pressed both against the forward seat and against the rod.

5. The combination of a rod and a cylinder-head or other structure having a recess therein, a series of casings contained within said recess and each containing a series of packing-rings, a ring whereby pressure is transmitted from each casing to the packing-rings contained in the casing in advance, a spring-actuated follower for pressing upon the inner ring of the inner casing, and a follower for pressing upon the outer casing of the series, substantially as specified.

608,589. MERRY-GO-ROUND. WILLIAM R. HEMMING, Rockaway Beach, N. Y. Filed May 20, 1897. Serial No. 638,093. (No model.)

Claim.—1. In a merry-go-round, the combination with a central post and a frame mounted to rotate around the same, of rotative ornamental sleeves on the frame, two united cog-rings, mounted to turn around said central post, means for rotating the above-mentioned sleeves from one of said cog-rings and a driving-shaft for rotating the other cog-ring, substantially as herein shown and described.



2. In a merry-go-round, the combination with a central post and a frame mounted to rotate around the same, of hanger-rods on said frame, a circular platform suspended from said hanger-rods, ornamental sleeves mounted to rotate on said hanger-rods and means for rotating said sleeves from the central post, substantially as herein shown and described.

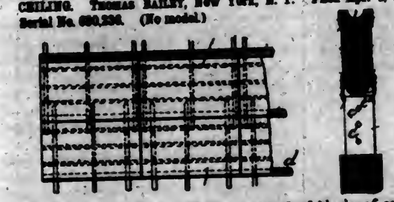
3. In a merry-go-round, the combination with a central post and a frame, mounted to rotate around the same, of hanger-rods on said frame, a circular platform suspended from said hanger-rods, ornamental rotative sleeves on said hanger-rods, ornamental rotative sleeves between the hanger-rods, gearing for rotating the several sleeves and means for operating said gearing from the central post, substantially as herein shown and described.

608,590. COPPER-SMELTING. GEORGE W. RENNE, Kittanning, Pa. Filed Aug. 3, 1897. Serial No. 646,902. (No specimens.)

Claim.—1. In a copper-smelting process, first separating part of the copper from the ore while the ore is in a molten state, and then subjecting the resultant slag to the application or addition thereto of manganese, for the purpose described.

2. A copper-smelting process consisting in first separating part of the copper from the ore while in a molten state, subjecting the resultant slag to the addition of manganese and then removing the bottom portion of the slag and subjecting it to a second smelting process, substantially as described.

608,591. FIREPROOF PARTITION OR OTHER WALL AND CEILING. THOMAS BAILEY, New York, N. Y. Filed Apr. 1, 1897. Serial No. 630,236. (No model.)



Claim.—1. In walls or ceilings composed of blocks of cement or burnt clay, the combination with the edges of said blocks to be joined, of flanged metallic stiffening-strips confined on the edges of said blocks respectively by their flanges overlapping the sides of the blocks, and being tongued and grooved along the middle for interlocking to stiffen the walls or ceilings laterally substantially as described.

2. In walls or ceilings composed of blocks of cement or burnt clay, the combination with the edges of said blocks to be joined, of flanged metallic stiffening strips, confined on the edges of said blocks respectively by their flanges overlapping the sides of the blocks, and being tongued and grooved along the middle for interlocking and bedded on said edges with plaster substantially as described.

3. In walls or ceilings the combination of prepared blocks of cement or burnt clay, said blocks tongued and grooved on the edges to be joined, and a correspondingly tongued-and-grooved metallic laterally-stiffening strip placed between the layers of blocks and said tongued-and-grooved edges and said strips having marginal surfaces in angular relation to the tongues and grooves substantially as described.

4. In walls or ceilings composed of blocks of cement or burnt clay, the combination with said blocks, of metallic strips in the joints adapted for stiffening said joints laterally, and at the ends fastened to the posts, or to sills and floor-beams substantially as described.

5. In walls or ceilings composed of blocks of cement or burnt clay, the combination with said blocks tongued and grooved on the edges to be joined, of a correspondingly tongued-and-grooved metallic laterally-stiffening strip interposed between and interlocking said edges, and fastened at the ends to posts substantially as described.

6. In walls or ceilings composed of blocks of cement or burnt clay, the combination with said blocks tongued and grooved on the edges to be joined, of a correspondingly tongued-and-grooved longitudinal metallic laterally-stiffening strip interposed between the blocks at each joint, and like transverse strips between the end joints of the blocks and being tongued and notched at the ends to match the longitudinal strips substantially as described.

7. In walls or ceilings composed of blocks of cement or burnt clay, having tongued-and-grooved interlocking edges, the combination with said blocks, of interposed stiffening-bars, and a tongued-and-grooved metallic laterally-stiffening strip, interposed between the blocks at the joints, said stiffening-bars projecting at the edges of the blocks and through the stiffening-strips into the adjacent blocks substantially as described.

8. In ceilings composed of blocks of cement or burnt clay having tongued-and-grooved interlocking edges, the combination with said blocks of interposed stiffening-bars, a tongued-and-grooved metallic laterally-stiffening strip interposed between the blocks at the joints, and suspending hanger-rods connected with the interposed stiffening-bars substantially as described.

608,592. VALVE. REXWELL H. DOUGHERTY, Evanston, Ill. Filed Oct. 7, 1897. Serial No. 654,621. (No model.)

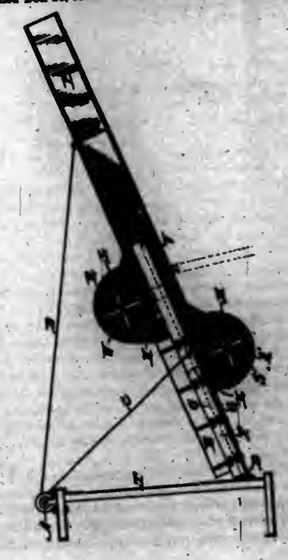


Claim.—1. In a gas-meter valve in combination with the shaft E, the flexible surface G, cushion H, and metallic back K, substantially as described.

2. In a gas-meter valve in combination with the shaft E, provided with the nuts F F' and washers *f f'* the flexible surface G, cushion H, and metallic back K, substantially as described and for the purpose set forth.

3. A double valve for gas-meters, consisting of the combination of the shaft E, the flexible surfaces G G, cushions H H, and metallic plate K, substantially as described.

608,593. PNEUMATIC STACKER. WILLIAM H. COOK, Winfred, S. D., assignor to The Indiana Manufacturing Company, Indianapolis, Ind. Filed Dec. 28, 1896. Serial No. 617,255. (No model.)



Claim.—1. A pneumatic pipe conveyer, combined with an endless apron and two fans one located above and the other below the end of the elevator-apron substantially as and for the purpose described.

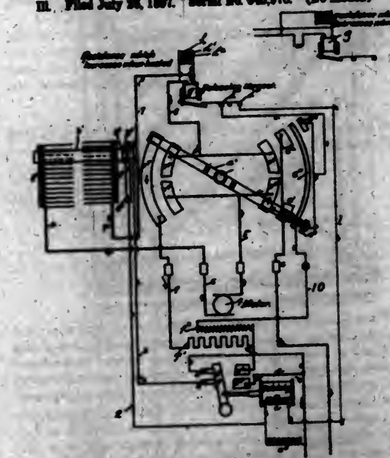
2. A pneumatic straw-stacker having an endless elevator-apron, a pneumatic pipe conveyer, and a rotary fan delivering a current of air into the same said fan having a ratchet-clutch connection with its driving mechanism to permit the fan to continue its revolution unimpeded by the retardation of the driving mechanism substantially as described.

3. A pneumatic pipe conveyer, combined with an endless elevator-apron, two rotary fans, one located above and the other below the outer end of the elevator-apron, gears connecting the two fans, and a fly-wheel regulating their motion substantially as and for the purpose described.

4. The combination with a hinged trough-shaped frame, of an endless-apron elevator, a pipe conveyer, and fans and fan-casings arranged at the outer end of the trough-shaped frame, and means for sustaining and adjusting these devices as to inclination substantially as described.

5. The combination of the trough-shaped frame, and its endless-apron elevator, the double fan-casings R S having inlet-openings next to the elevator-apron, a pipe conveyer communicating with the opposite side of said casings, and two rotary fans arranged one above and the other below the end of the revolving apron substantially as and for the purpose described.

608,594. TIME-LIMIT CUT-OUT. HENRY H. CUTLER, Chicago, Ill. Filed July 26, 1897. Serial No. 645,970. (No model.)



Claim.—1. In combination the active coil of a cut-out and a time-limit controlling the same and comprising a section of an electric circuit the resistance of which varies with rise of temperature due to the current, substantially as described.

2. In combination the active coil, of a cut-out and a time-limit comprising a section of an electric circuit the resistance of which increases with rise of temperature due to the current, said section being in shunt with said active coil, substantially as described.

3. In combination the active coil of a cut-out and a time-limit comprising a section of circuit the resistance of which increases with rise of temperature, placed in shunt with said active coil and a section of circuit the resistance of which decreases with rise of temperature in series with said active coil, substantially as described.

4. In combination a retaining-electromagnet for a cut-out, a releasing-electromagnet therefor, and a time-limit controlling the releasing-magnet and comprising a section of an electric circuit the resistance of which varies with rise of temperature due to the current, substantially as described.

5. In combination a retaining-electromagnet for a motor cut-out included in a shunt-circuit, a releasing-electromagnet in the armature-circuit, and a time-limit controlling the releasing-electromagnet and comprising a section of an electric circuit the resistance of which varies with rise of temperature due to the current, substantially as described.

6. In combination an electric motor operating an elevator-car, an elevator-controlling switch a cut-out therefor and a time-limit for controlling the cut-out, and comprising a section of an electric circuit the resistance of which varies with rise of temperature due to the current whereby the cut-out permits the momentary flow of a large starting-current while responding to a small prolonged current, substantially as described.

7. In combination an electric motor operating an elevator-car, an elevator-controlling switch, a cut-out therefor and a time-limit for controlling the cut-out and comprising a section of an electric circuit the resistance of which varies with rise of temperature due to the current, substantially as described.

8. The combination with a circuit to be controlled, of a circuit-controlling arm or element therein, an electromagnet for controlling said arm or element and a time-limit cut-out operated by the heating effect of the current and controlling the circuit through said electromagnet to thereby control said circuit-controlling arm, substantially as described.

9. The combination with a circuit to be controlled, of a circuit-controlling arm or element therein, a retaining-electromagnet for normally holding said arm or element in position to close said circuit, means for moving said arm or element when released to open said circuit and a time-limit device operated by the heating effect of the current and controlling the circuit through said electromagnet to effect the release of said circuit-controlling arm, substantially as described.

10. The combination with a circuit to be controlled, of a circuit-controlling arm or element therein, a retaining-electromagnet for normally holding said arm or element in position to close said circuit, means for moving said arm or element when released to open said circuit, a releasing-electromagnet for controlling said retaining-electromagnet, and a time-limit device operated by the heating effect of the current and controlling the circuit through said releasing-electromagnet, substantially as described.

11. The combination with an electric motor, of a cut-out having a circuit-controlling arm or element a retaining-electromagnet for normally holding the arm in position and included, in a circuit in shunt with the motor-armature, and a releasing-electromagnet included in series with the motor-armature, and a time-limit device operated by the heating effect of the current and acting upon the releasing-electromagnet to effect the release of the arm after an excessive current has flowed for a predetermined interval of time, substantially as described.

12. In an elevator-controller, the combination with a series of rheostat-terminals arranged equidistant in a straight line and situated in a vertical plane, of a contact arm or bar movable vertically across said terminals and descending by gravity, and a heart-shaped cam arranged to raise the contact-bar through equal distances for substantially equal angles through which the cam is rotated, substantially as described.

13. In an elevator-controller the combination with a series of rheostat-terminals arranged in a vertical plane on one face of a rheostat-box, of a vertically-moving gravity contact-bar, a shaft extending through said box, a heart-shaped cam thereon for raising said contact-bar, and a reversing-switch on the opposite face of said box operated by the rotation of said shaft, substantially as described.

14. In a cut-out, a retaining-electromagnet included at starting in a local circuit through a pair of separable contacts and a switch arranged to be closed only when the rheostat resistance is in circuit, means for separating said separable contacts upon the energizing of said magnet and for closing the motor-circuit and including a resistance in the circuit of said magnet, and a releasing-magnet for de-energizing said retaining-magnet, substantially as described.

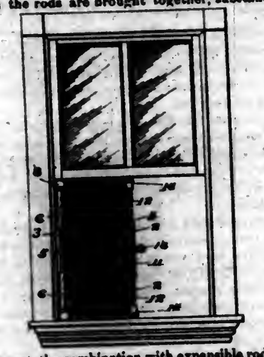
15. The combination with an electric motor, of a rheostat in circuit with the armature thereof, a switch in the circuit of said motor, a magnet for controlling said switch placed in a circuit in shunt with said armature, and a switch in the circuit of said magnet operated by the movable element of the rheostat and arranged to be closed only when the starting resistance of the rheostat is in the armature-circuit, substantially as described.

608,595. FLY-SCREEN. SARA C. HARZ, Galveston, Tex. Filed Mar. 30, 1897. Serial No. 629,431. (No model.)

Claim.—1. The combination with a rod comprising two cylindrical portions containing springs, and an intermediate rod portion movably mounted in said tubular portions and engaging said springs, of another rod comprising a tubular portion containing a spring, rods mounted in said tubular portion with their ends bearing against said spring, antifriction-rollers on the ends of said latter rods, and a flexible netting connecting said rods, substantially as described.

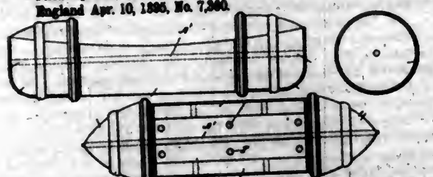
2. The combination with a rod comprising two spaced tubes containing springs and having flexible caps at their outer ends, of a rod having its ends movably mounted in said tubes and engaging said springs, another rod comprising a central tubular portion containing a spring, rods having their opposite ends mounted in said tubular portion and engaging said spring, antifriction-rollers mounted on the

outer ends of said latter rods, a flexible netting connecting said rods, and elastic contracting means mounted on said netting for contracting the same when the rods are brought together, substantially as described.



3. In a fly-net, the combination with expansible rods one of said rods having antifriction-rollers mounted upon its opposite ends, of a flexible netting connecting the said rods, substantially as described.

608,596. LIFE-BOAT. EDWARD J. HOUSE, London, England. Filed Apr. 21, 1897. Serial No. 633,161. (No model.) Patented in England Apr. 10, 1895, No. 7,360.



Claim.—In a life-boat, the combination with conical buoyant end sections provided with outwardly-extended flanges adapted to roll as wheels on the deck of the vessel; of a shaft rigidly mounted in said sections and extended between the same; and a boat-body adapted to hold passengers and pivotally suspended from said shaft so as to be lifted above the bottom of the said end section substantially as described, whereby the boat may be rolled off the vessel as on wheels while containing passengers.

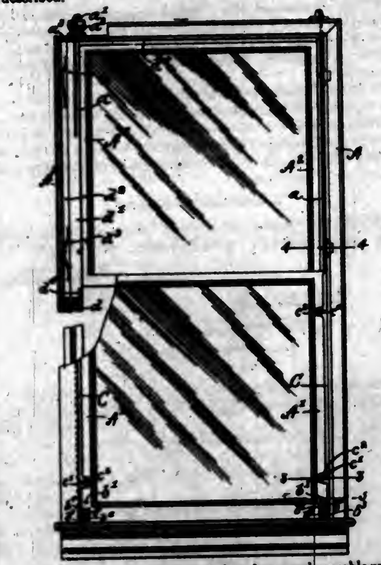
608,597. WINDOW FRAME AND SASH. ELLA M. KITTREDGE and MICHEL WALKER, Chicago, Ill. Filed July 22, 1897. Serial No. 645,608. (No model.)

Claim.—1. The combination with a movable window-sash, of drums revolubly mounted in said sash, sash-cords, one end of each of which is attached to said drums, traction-wheels secured to said drums which run in contact with the window-casing, whereby movement of said sash will impart rotation to said drums, and means to secure said drums against rotation, substantially as described.

2. The combination with movable window-sashes, of shafts revolubly mounted in said sashes, drums secured to said shafts, traction-wheels likewise secured to said shafts, which run in contact with the window-casing, sash-cords, one end of each of which is secured to the upper sash and the other ends of which are attached to the drums mounted in the lower sash, the ends of said shafts projecting from said sash and being squared, and slotted, longitudinally-movable plates secured to said window-sash, in such position that movement thereof in the proper direction will cause the slots therein to engage the squared heads of said shafts and secure said shafts against rotation, substantially as described.

3. The combination with a window-frame and movable upper and lower window-sashes, of grooves formed in the sides of said window-frame, strips or stop-plates secured to the lower sash by means of clamping or binding screws, which pass through transverse slots formed in said strips or stop-plates, said strips or stop-plates being adapted to be moved outwardly into engagement with said grooves and to be retracted out of engagement therewith, the parting-strips of said window-frame comprising upper sections, fitted to and adapted to be depressed into grooves or slots formed in the sides of said window-frame, springs applied to the rear sides of said movable sections of said parting-strips and adapted to maintain the same normally advanced or extended, and stops to limit the movement of said movable sections under the influence of said springs, substantially as described.

4. The combination with a window-frame and movable upper and lower window-sashes, of grooves formed in the sides of said window-frame, strips or stop-plates secured to the lower sash by means of clamping or binding screws, which pass through transverse slots formed in said strips or stop-plates, said strips or stop-plates being adapted to be moved outwardly into engagement with said grooves and to be retracted out of engagement therewith, the parting-strips of said window-frame comprising upper sections fitted to and adapted to be depressed into grooves or slots formed in the sides of said window-frame, springs applied to the rear sides of said movable sections of said parting-strips and adapted to maintain the same normally advanced or extended, stops to limit the movement of said movable sections under the influence of said springs and sash cords attached adjacent to the bottoms of said upper and lower sashes, substantially as described.

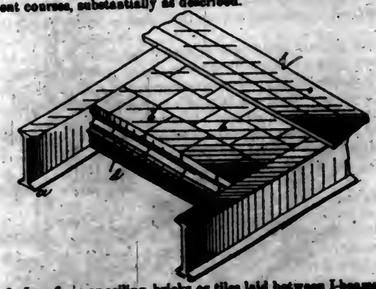


5. The combination with a window-frame and movable upper and lower window-sashes, of guide-grooves formed in the sides of said window frame or casing, stripe or stop-plates secured to the lower window-sash and adapted to be moved outwardly into engagement with said grooves and adapted to be withdrawn from engagement therewith, the parting-strips of said window-frame comprising upper sections fitted to and adapted to be depressed into grooves or slots formed in the sides of said window-frame, springs applied to said movable sections of said parting-strips and adapted to maintain the same normally advanced or extended, stops to limit the movement of said movable sections of said parting-strips under the influence of said springs and bolts or pins adapted to secure said movable sections of said parting-strips in depressed position, substantially as described.

6. The combination with a window frame or casing and movable upper and lower sashes, of grooves formed in the sides of said window frame or casing, strips or stop-plates secured to the lower window-sash and adapted to be moved outwardly into engagement with said grooves and to be retracted from engagement therewith, the parting-strips of said window-frame comprising upper sections fitted to and adapted to be depressed into grooves or slots formed in the sides of said window-frame, means to secure said movable sections of said partisg-strips in advance or extended position, drums revolubly mounted in the lower sash, traction-wheels secured to said drums, which run in contact with the window-casing and impart rotary movement to said drums when said sash is raised or lowered, sash-cords, the corresponding ends of each of which are attached to the drums mounted in said lower sash, and the opposite ends of which are attached to the upper sash, and pulleys supported at the top of said window-frame over which said sash-cords pass, substantially as described.

608,598. FIREPROOF FLOOR AND CEILING. GUSTAV LEBIAN, Maurer, N. J. Filed Sept. 3, 1896. Serial No. 605,108. (No model.)

Claim.—1. In a floor or ceiling, bricks or tiles laid between I-beams having side recesses adapted to coincide with the recesses in the tiles of the next course, in combination with metallic ties located in the dividing-line of said course above and out of contact with the lower flange of the I-beams and entering the recesses in the tiles on adjacent courses, substantially as described.

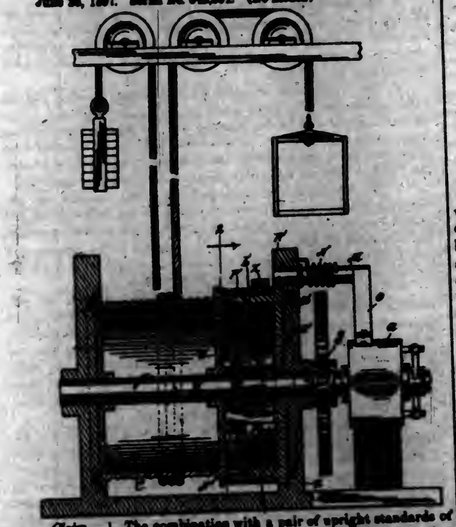


2. In a floor or ceiling, bricks or tiles laid between I-beams and having appropriately-shaped side recesses adapted to coincide with the recesses in the tiles of the next course, in combination with T-iron ties located within the coincident recesses and above and out of contact with the lower flanges of the I-beams, substantially as described.

3. In a floor or ceiling, bricks or tiles laid between flanged floor-beams and having side recesses adapted to coincide with the recesses in the tiles of the next course, in combination with metallic ties embedded in mortar and located in the dividing-line of said courses above the lower flanges of the floor-beams, and entering the recesses of two adjacent courses, substantially as described.

4. A floor or ceiling composed of bricks or tiles having appropriately-shaped side recesses between the upper and lower surfaces of said bricks or tiles, and a metal tie located wholly within said recesses above and out of contact with the support for said ceiling or floor, substantially as set forth.

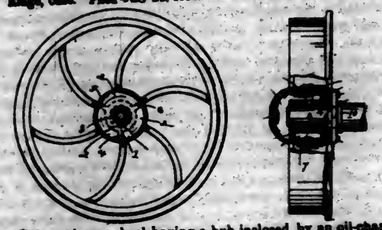
608,599. DRUM-WIRE ELEVATOR. ALEXANDER B. ROBEY, Chicago, Ill., assignor to himself, and James Robey, Pittsburg, Pa. Filed June 30, 1897. Serial No. 643,201. (No model.)



Claim.—1. The combination with a pair of upright standards of a driving-shaft journaled in said standards, a winding-drum mounted loosely on said shaft and having one end adapted to bear against one of said standards, a spiral cam projecting from the opposite end of said drum, the spiral of said cam ending in a shoulder, lugs projecting from said drum and adapted to be engaged by said radial arms, a cam loose on said shaft and having a spiral end facing the spiral end of said drum and ending in a shoulder, said cam having its opposite end adapted to bear against one of said standards, the shoulders of said spirals being adapted to engage each other, a series of antifriction-balls between said spirals, said series forming a complete, continuous circuit extending around said shoulders, and lugs on said cam adapted to be engaged by said radial arms, substantially as described.

2. The combination with a pair of upright standards of a driving-shaft journaled in said standards, a winding-drum and a cam, both loosely mounted on said shaft adjacent to each other, means whereby said drum and cam are separated and made to bear against said standards when the rotation of the driving-shaft is stopped and are brought together and released from said standards when said shaft is rotated in either direction, and a brake adapted to bear on said cam when the rotation of said shaft is stopped, substantially as described.

608,600. CAR-WHEEL. WILLIAM W. ROSSITER, Mineral Ridge, Ohio. Filed July 21, 1897. Serial No. 645,304. (No model.)



Claim.—A car-wheel having a hub inclosed by an oil-chamber, and a seat in the inner face of the hub, in combination with the wheel-axle provided with two collars, one of said collars being adapted to be fitted in the said seat in the hub, and a pair of key-plates adapted to enter between the two collars, said key-plates being attached to the car-wheel by means of screws, substantially as shown and described.

608,601. ENGINE. WILLIAM H. BEEMAN, Ashland, Wis., assignor of one-half to George B. Rinehart, same place. Filed Feb. 18, 1897. Serial No. 624,074. (No model.)



Claim.—1. The combination of a valve-chamber having a seat with a number of equidistant admission-ports and a number of equidistant exhaust-ports arranged in circular series, the exhaust-ports being nearer to the admission-ports on one side than on the other, and a rotary valve having a number of equidistant ports arranged and spaced to correspond with the admission and exhaust ports in the valve-seat, said valve consisting of an expansible ring severed on one side through one of its ports, substantially as and for the purposes set forth.

2. The combination of a cylindrical valve-seat having admission and exhaust ports, a rotary ring-shaped valve severed on one side and having ports in its periphery arranged to register with the ports in the valve-seat, a spindle fitted to turn in the wall of the valve-chamber through which it projects and provided with a projection which loosely engages with said valve and means for turning said spindle, substantially as and for the purposes set forth.

3. The combination of a cylindrical valve-seat having a number of admission-ports equidistant from each other and communicating with a common supply-passage, and a number of similarly-spaced exhaust-ports and a ring-shaped valve having a number of ports extending completely across its periphery and spaced to correspond with the admission and exhaust ports in said seat, one of the valve-ports severing the ring and rendering it contractible and expansible, and the parts of said ring between its other ports being connected by inwardly-projecting bridge-pieces, substantially as and for the purposes set forth.

4. The combination with an engine-cylinder, of a cylindrical valve-seat inserted therein and having a number of admission and exhaust ports communicating respectively with supply and exhaust passages encircling said seat, a rotary annular valve fitted to turn in said seat and formed in its periphery with a number of equidistant ports spaced to correspond with the spacing of the admission and exhaust ports respectively in the valve-seat, the exhaust-ports in the

valve-seat being nearer the admission-ports on one side than on the other, and so arranged that all the exhaust-ports will register with ports in the valve at every fourth stroke of the piston, and all the admission-ports will register with ports in the valve on the next succeeding stroke of the piston, and means for turning said valve continuously in one direction, substantially as and for the purposes set forth.

5. The combination with an engine-cylinder provided with a cylindrical valve-seat and supply and exhaust passages encircling said seat, and each communicating with the cylinder through a number of equidistant ports in said seat, of an expansible annular valve fitted to turn in said seat and having a number of ports in its periphery arranged to register alternately with the admission and exhaust ports in said seat, means for turning said valve continuously in one direction, the exhaust-ports in the valve-seat being nearer the admission-ports on one side than on the other, and so arranged that all the exhaust-ports will register with valve-ports at every fourth stroke of the piston, all the admission-ports will register with valve-ports on the next succeeding stroke of the piston, and both exhaust and admission ports will be closed during two intervening strokes of the piston, and a passage around the cylinder communicating on one side thereof with the supply-passage to the admission-ports and having at its ends on the opposite side of the cylinder air and gas or vapor supply connections, substantially as and for the purposes set forth.

6. The combination with an engine-cylinder or valve-chamber provided with a cylindrical valve-seat and supply and exhaust passages, each communicating with said cylinder or chamber through a number of ports in said seat, of a rotary annular valve having a number of ports in its periphery arranged to register with the admission and exhaust ports alternately opening the exhaust-ports on every fourth stroke and the admission-ports on the next succeeding stroke of the piston, a spindle loosely connected with said valve and having a conical enlargement fitting a corresponding recess in the inner wall of the cylinder-head or valve-chamber, a spring tending to hold said conical enlargement snugly seated in said recess, and means for turning said spindle, substantially as and for the purposes set forth.

7. The combination with an engine-cylinder provided with a cylindrical valve seat and supply and exhaust passages each communicating with said cylinder through ports in said seat, a piston and a crank-shaft, of an expansible annular valve fitted to turn in said seat and having ports in its periphery arranged to register alternately with the admission and exhaust ports in said seat, said valve being severed through one of its ports, a spindle passing through the cylinder and having a self-adjusting connection with said valve, whereby the valve is turned and allowed to adapt itself to its seat by expansion or contraction, and a lay-shaft connected with said spindle by gears and with said crank-shaft by a worm and worm-gear, substantially as and for the purposes set forth.

8. The combination with an engine-cylinder, piston and crank-shaft of an annular valve-seat having a number of admission and exhaust ports, the spaces between the several admission-ports and between the several exhaust-ports being alike, while the space between the adjacent admission and exhaust ports is different, a rotary valve fitted to said seat and having a number of ports equidistant from each other and spaced to correspond with the spacing of the admission and exhaust ports in the valve-seat, and actuating connections between said valve and crank-shaft whereby a number of revolutions of the crank-shaft equal to twice the number of ports in the valve produce one revolution of the valve, substantially as and for the purposes set forth.

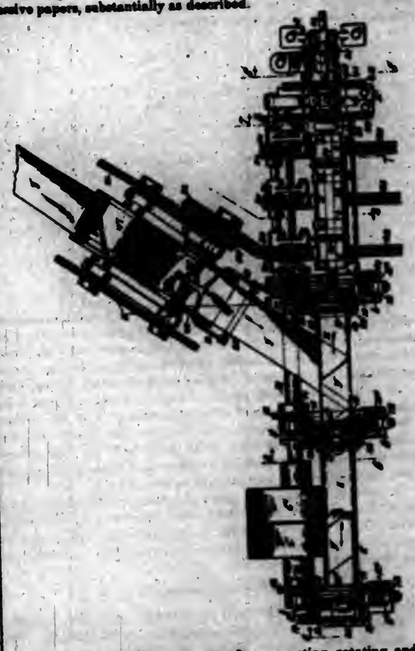
608,602. WRAPPING-MACHINE. LUTHER C. CROWELL, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Aug. 13, 1897. Serial No. 648,098. (No model.)

Claim.—1. The combination of means for supporting and advancing a succession of independent papers, and means for winding a succession of wrappers spirally about the successive papers as they are advanced, substantially as described.

2. The combination of means for supporting and advancing a succession of independent papers, means for delivering the papers successively to said supporting and advancing means, and means for winding a succession of wrappers spirally about the successive papers as they are advanced, substantially as described.

3. The combination of means for supporting and advancing a succession of independent papers, means for winding a succession of wrappers spirally about the successive papers as they are advanced, and pasting devices for applying a line of paste to one edge of the wrappers for securing together the successive windings of the wrappers, substantially as described.

4. The combination of means for supporting and advancing a succession of independent papers, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally-wound wrapper-tube inclosing the papers, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.



5. The combination of means for supporting, rotating and advancing a succession of independent papers, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

6. The combination of means for supporting, rotating and advancing a succession of independent papers, means for guiding a continuous wrapper-web to the rotating and longitudinally-advancing papers at an angle to form a continuous spirally-wound wrapper-tube about the papers, and means for severing the wrapper tube at or near the junction between successive papers, substantially as described.

7. The combination of means for supporting, rotating and advancing a succession of independent papers, means for delivering the papers successively to said supporting, rotating and advancing means, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

8. The combination of means for supporting, rotating and advancing a succession of independent papers, means for delivering the papers successively to said supporting, rotating and advancing means, means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, and pasting devices for applying a line of paste to one edge of the wrappers for securing together the successive windings of the wrappers, substantially as described.

9. The combination of means for supporting, rotating and advancing a succession of independent papers, devices for advancing the papers in a direction transverse to the direction in which they are fed by said supporting, rotating and advancing means and delivering the papers successively to said supporting, rotating and advancing means, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

10. The combination of means for supporting, rotating and advancing a succession of independent papers, a rotary pocket from which the papers are delivered longitudinally to said supporting, rotating and advancing means, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

11. The combination of means for supporting, rotating and advancing a succession of independent papers, a rotary pocket, feeding devices for advancing the papers successively into said pocket transversely to the axis of rotation of the pocket, means for advancing the papers longitudinally of said axis from the pocket to said paper supporting, rotating and advancing means, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

12. The combination of means for supporting, rotating and advancing a succession of independent papers, a rotary pocket, feeding devices for advancing the papers successively into the pocket transversely to the axis of rotation of the pocket, a pusher for advancing the papers longitudinally of said axis from the pocket to said paper supporting, rotating and advancing means and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

13. The combination of means for supporting, rotating and advancing a succession of independent papers, a rotary pocket, feeding devices for advancing the papers successively into the pocket transversely to the axis of rotation of the pocket, a pusher for advancing the papers longitudinally of said axis from the pocket to said paper supporting, rotating and advancing means and advancing the papers faster than they are advanced by said paper supporting, rotating and advancing means, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

14. The combination of means for supporting, rotating and advancing a succession of independent papers, a rotary pocket from which the papers are delivered to said supporting, rotating and advancing means, feeding devices for advancing the papers successively to the pocket transversely to the axis of rotation of the pocket, feeding-tapes for completing the feeding of the papers into the pocket, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

15. The combination of a rotary pocket, feeding devices for advancing papers successively into the pocket transversely to the axis of rotation of the pocket, and means for advancing the papers longitudinally of said axis from the pocket, substantially as described.

16. The combination of a rotary pocket having a long side *f* and a short side *e*, feeding devices for advancing the papers successively into the pocket transversely to the axis of rotation of the pocket, and feeding-tapes 24 engaging the paper on the side of the pocket having the short side *e* to complete the feeding of the papers into the pocket, substantially as described.

17. The combination with a pair of feeding-rolls *a* mounted in a rotating frame, of a rotary pocket whose axis of rotation coincides with the axis of rotation of said frame, and a rotary pusher for advancing a paper longitudinally of said axis from the pocket to said feeding-rolls, substantially as described.

18. The combination of the rotary pocket 25, feeding-tapes 23 and 24 running transversely to the axis of rotation of the pocket, the feeding-tapes 24 being extended beyond the pocket to complete the feeding of papers into the pocket, and means for advancing the papers longitudinally of said axis from the pocket, substantially as described.

19. The combination of the rotary pocket 25 formed in sections, feeding devices for advancing papers into the pocket transversely to the axis of rotation of the pocket, feeding-tapes 24 extending between the sections of the pocket to complete the feeding of the papers into the pocket, and means for advancing the papers longitudinally of said axis from the pocket, substantially as described.

20. The combination of the rotary pocket 25, feeding devices for advancing papers into the pocket transversely to the axis of rotation of the pocket, a guide 27, and means for advancing the papers longitudinally of said axis from the pocket, substantially as described.

21. In a machine for wrapping newspapers and similar articles, the combination of exterior paper feeding devices for advancing a succession of independent papers, and means for winding a succession of wrappers spirally about the successive papers as they are advanced, substantially as described.

22. In a machine for wrapping newspapers and similar articles, the combination of exterior paper-feeding devices for advancing a succession of independent papers, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally-wound wrapper-tube inclosing the papers, and means for severing the wrapper-tube at or near the junction between successive papers, substantially as described.

23. In a machine for wrapping newspapers and similar articles, the combination of rotating exterior paper-feeding devices for advancing a succession of independent papers, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers at an angle to spirally wind the wrappers about the papers, substantially as described.

24. In a machine for wrapping newspapers and similar articles, the combination of a set of rotating exterior feeding devices for advancing a succession of independent papers to the wrapping-point, a set of rotating exterior feeding devices for advancing the wrapped papers from the wrapping-point, and means for guiding a succession of wrappers to the rotating and longitudinally-advancing papers between said feeding devices and at an angle to spirally wind the wrappers about the papers, substantially as described.

25. The combination of paper-feeding devices for advancing a succession of independent papers, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally-wound wrapper-tube inclosing the papers, and means for perforating the wrapper-web on lines diagonal to the length of the web and at right angles to the line of movement of the papers to form perforated lines in the wrapper-tube at or near the junction between successive papers, substantially as described.

26. The combination of paper-feeding devices for advancing a succession of independent papers, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally-wound wrapper-tube inclosing the papers, means for perforating the wrapper-web on lines diagonal to the length of the web and at right angles to the line of movement of the papers to form perforated lines in the wrapper-tube at or near the junction between successive papers, and means for severing the wrapper-tube on said perforated lines, substantially as described.

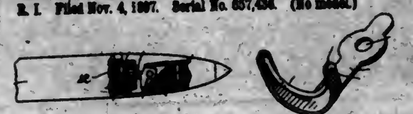
27. The combination of paper-feeding devices for advancing a succession of independent papers, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally-wound wrapper-tube inclosing the papers, pasting devices for applying a line of paste to one edge of the wrapper-web for securing together the successive windings of wrapper forming the wrapper-tube, means for perforating the wrapper-web on lines diagonal to the length of the web and at right angles to the line of movement of the papers to form perforated lines in the wrapper-tube at or near the junction between successive papers, and means for severing the wrapper-tube on said perforated lines, substantially as described.

28. The combination of paper-feeding devices for advancing a succession of independent papers, means for winding a continuous wrapper-web about the papers as they are advanced to form a continuous spirally wound wrapper-tube inclosing the papers, means for perforating the wrapper-web on lines diagonal to the length of the web and at right angles to the line of movement of the papers to form perforated lines in the wrapper-tube at or near the junction between successive papers, and feeding devices feeding the wrapped papers at an increased speed to break the wrapper-tube on the perforated lines, substantially as described.

29. The combination of paper feeding and rotating devices for advancing a succession of independent papers, and feeding-rolls 47 and 48 for advancing a continuous wrapper-web to the rotating and longitudinally-advancing papers at an angle to form a continuous spirally-wound wrapper-tube about the papers, one of said rolls being provided with a diagonal perforating-strip for perforating the wrapper-web in a line at right angles to the line of feed of the papers to form perforated lines in the wrapper-tube at or near the junction between successive papers, substantially as described.

30. The combination of paper feeding and rotating devices for advancing a succession of independent papers, and feeding-rolls to the rotating and longitudinally-advancing papers at an angle to form a continuous spirally-wound wrapper-tube about the papers, and a tension and take-up device engaging the wrapper-web as it advances to the papers, substantially as described.

608,603. LOOM-SHUTTLE. STEPHEN M. HAMLIN, Taunton, Mass., assignor of three-fourths to William H. Goldsmith, Central Falls, R. I. Filed Nov. 4, 1897. Serial No. 657,436. (No model.)

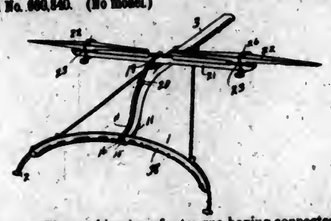


Claim.—1. The improved bobbin-retaining device consisting of the depending bail or loop, combined with the support consisting of the strip fitted for application to a shuttle-body and provided with the opposite vertically-projecting arms to which the opposite ends of the said bail or loop are journaled or pivoted to render it self-adjusting and capable of conforming itself to the position and movement of the portion of the bobbin-head with which it coacts, substantially as described.

2. The improved bobbin-retaining device consisting of the depending bail or loop, combined with the support consisting of the strip fitted for application to a shuttle-body, provided with the opposite vertically-extending arms to which the opposite ends of the said bail or loop are journaled or pivoted to remove the bail or loop self-adjusting and capable of conforming itself to the position and move-

ment of the portion of the bobbin-head with which it coacts, the said strip having the hole therethrough for the passage of a securing-screw, substantially as described.

603,604. CARRIAGE-TONGUE. JOHN HOWELL, Canton, Ohio, assignor of one-third to Urban B. Benner, same place. Filed Dec. 6, 1897. Serial No. 660,840. (No model.)



Claim.—1. The combination of a tongue having connected to its rear end a bow, brace-rod 6, pivotally connected at their front and rear ends, stay-braces 8, provided with slotted ends, a strap-iron secured to the rear end of the tongue, a bar 12, provided with an angled portion and a screw-threaded bolt connected to the angled portion of the bar 12, substantially as and for the purpose specified.

2. The combination of the doubletree 21 having pivotally attached thereto the whiffletrees 22, a clevis having one of its members connected to the strap-bar, and the other member to the doubletree, substantially as and for the purpose specified.

3. The combination of the tongue 3, having connected thereto the iron strap 11, the hammer-strap adjustably connected to the upper member of the strap 11, a bow connected to the rear end of the tongue, and the bar 12, seated in a recess at the rear end of the tongue, substantially as and for the purpose specified.

603,605. PNEUMATIC TIRE. LEANDER D. JUNKINS, Somerville, Mass. Filed Mar. 16, 1897. Serial No. 627,866. (No model.)



Claim.—1. A pneumatic tire comprising an inner, endless, inflatable tube of rubber, a half-tube of leather exteriorly thereof, and an outer tube of rubber, or rubber compound formed with grooves and lips on its rim side, within its outer circle and united by stitches passed through the lips, substantially as described.

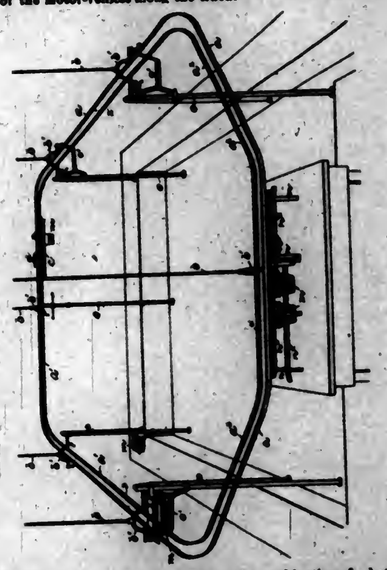
2. A pneumatic tire comprising an inner, endless, inflatable tube of rubber, an exterior half-tube of leather on the outer surface thereof, and united thereto, and an outer tube or cover of rubber or rubber compound formed with grooves and lips on its rim side within its outer circle and united by stitches passed through the lips, substantially as described.

3. A pneumatic tire, comprising an inner, endless, inflatable tube of rubber, a half-tube of leather on its outer surface, the leather half-tube having its ends united by a seam covered with rubber and vulcanized, and an exterior cover, substantially as described.

608,606. ELECTRIC CONVEYING SYSTEM. ALVARO S. KNOTS, Springfield, Ohio, assignor to Oliver S. Kelly, same place. Filed Dec. 2, 1897. Serial No. 660,541. (No model.)

Claim.—1. In an electric conveying system, the combination of a battery or other source of electrical supply, track conductors, one connected with one pole of the latter, a plurality of terminals stationed along a continuous stretch of the other track conductor and all connected with the other pole of the battery, and automatically-opening circuit-closers to connect said terminals respectively with said latter track conductor.

2. In an electric conveying system, the combination of a battery or other source of electrical supply, track conductors, one connected with one pole of the latter, a plurality of terminals stationed along a continuous stretch of the other track conductor and all connected with the other pole of the battery, circuit-closers to connect said terminals respectively with said latter track conductor, and means for effecting automatic displacement of said circuit-closers by the traverse of the motor-vehicle along the track.



3. In an electric conveying system, the combination of a battery or other source of electrical supply, track conductors, one connected with one pole of the latter, a plurality of terminals stationed along a continuous stretch of the other track conductor and all connected with the other pole of the battery, automatically-opening circuit-closers to connect said terminals respectively with said latter track conductor, and an additional connection between the same and the battery having a manually-controlled switch, substantially as and for the purpose described.

4. In an electric conveying system, the combination of a battery or other source of electrical supply, track conductors, one connected with one pole of the latter, a plurality of terminals stationed along a continuous stretch of the other track conductor and all connected with the other pole of the battery, circuit-closers to connect said terminals respectively with said latter track conductor, means for effecting automatic displacement of said circuit-closers by the traverse of the motor-vehicle along the track, and an additional connection between the same and the battery having a manually-controlled switch, substantially as and for the purpose described.

5. In an electric conveying system, the combination of a continuous track conductor, a sectional track conductor, a rheostat whose end contact-points are independently connected with sections of the sectional track conductor, a battery or other source of electrical supply, and connections between the poles of the latter and the rheostat and continuous track conductor respectively.

6. In an electrical conveying system, the combination of a track composed of a rail or member which is a continuous conductor of electricity, and a rail which is in sections insulated from each other, a battery or other source of supply of electricity, an electrical connection between one pole of said battery and the continuous rail, with an interposed switch, a rheostat, an electrical connection between the other pole of the battery and the movable member of the rheostat, separate electrical connections between the end contact-points of the latter and the sections of the sectional rail, one or more cut-outs at one or more stations along the track, and a conveying-motor traveling in electrical contact with both track-rails.

7. In an electrical conveying system, the combination of a track composed of a rail or member which is a continuous conductor of electricity, and a rail which is in sections insulated from each other, a battery or other source of supply of electricity, an electrical connection between one pole of said battery and the continuous rail, with an interposed switch, a rheostat, an electrical connection between the other pole of the battery and the rheostat, separate electrical connections between the latter and the sections of the sectional rail, one or more cut-outs at one or more stations along the track, an electrical connection between the rheostat and the sectional rail independent of said cut-outs and itself having a cut-out, and a conveying-motor traveling in electrical contact with the track-rails.

8. In an electrical conveying system, the combination of an elevated track conductor of electricity, a conveying-motor running in electrical contact therewith, an electric circuit embracing the track conductor and motor, one or more elevators stationed along the track and having means for closing said circuit, and one or more carriers for transfer between the elevator and the motor.

9. In an electrical conveying system, the combination of a track composed of a rail or member which is a continuous conductor of electricity, and a rail which is in sections insulated from each other, a battery or other source of supply of electricity, an electrical connection between one pole of said battery and the continuous rail, with an interposed switch, a rheostat, an electrical connection between the other pole of the battery and the rheostat, separate electrical connections between the end contact-points of the latter and the sections of the sectional rail, including terminals at stations along the track, one or more elevators having circuit-closers to make contact with said terminals, and a conveying-motor running on the track in electrical contact therewith.

10. In an electrical conveying system, the combination with a track or way, a traveling motor thereon and an electric circuit embracing the same; of an elevator having means for closing said circuit, and a carrier adapted to lodge in said elevator, or on said motor, the motor and carrier having provisions for engagement whereby the latter may be sustained and conveyed by the former, and suitable stop and trip devices being provided whereby the carrier may be automatically transferred between the motor and elevator.

11. In an electrical conveying system, the combination with a track or way, a traveling motor thereon, and an electric circuit embracing the same; of an elevator having means for closing said circuit, and a carrier adapted to lodge in said elevator, or on said motor, the motor and carrier having provisions for engagement whereby the latter may be sustained and conveyed by the former, and suitable stop and trip devices being provided whereby the carrier may be automatically transferred between the motor and elevator, and also lodged at a receiving-station having stop and trip devices.

12. In an electrical conveying system, the combination with a track conductor, a conveying-motor in electrical contact therewith, and an electric circuit embracing the track conductor and motor and having terminals at one or more stations along the track; of one or more elevators at such stations and carrying circuit-closers for contact with the said terminals when the elevator is raised, and one or more carriers adapted to be automatically transferred between the conveying-motor and the elevator or elevators, suitable stop and trip devices being provided for this purpose.

13. In an electric conveying system, the combination of a normally open track-circuit having terminals in one or more pairs, one or more elevators having circuit-closers to contact with the said terminals, detent mechanism to sustain the elevator in circuit-closing position, a track, a motor-vehicle thereon having means for tripping said detent mechanism, and a holder for transfer between the vehicle and the elevator.

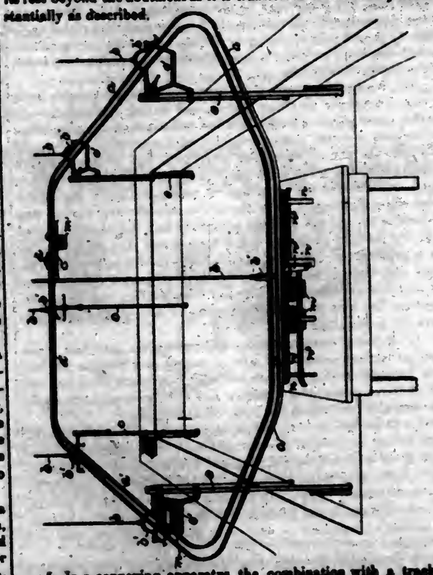
608,607. CONVEYING APPARATUS. ALVARO S. KNOTS, Springfield, Ohio, assignor to Oliver S. Kelly, same place. Filed Feb. 5, 1898. Serial No. 669,261. (No model.)

Claim.—1. In a conveying apparatus, the combination with a track or way, a conveyor on said track, and propelling means; of an abutment, a carrier adapted to lodge on said conveyor in position to encounter said abutment, a holder for said carrier adapted to support the same in a position different from that it occupies on the conveyor, the latter and the carrier having provisions for engagement when the carrier is thus lodged in the holder, to shift the carrier clear of the abutment as it is transferred to the conveyor.

2. In a conveying apparatus, the combination with a track or way, a conveyor on said track, and propelling means; of a pendent abutment, a carrier adapted to lodge in said conveyor in position to encounter said abutment, a holder for said carrier adapted to support the same in a position lower than that it occupies on the conveyor, the latter and the carrier having provisions for engagement when the carrier is thus lodged in the holder, to move the carrier beyond the abutment as it is transferred to the conveyor.

3. In a conveying apparatus, the combination with a track or way, a conveyor on said track, and propelling means; of an abutment, a carrier adapted to lodge on said conveyor in position to encounter said abutment, a holder for said carrier adapted to support the same in a position different from that it occupies on the conveyor, said holder having an elongated rest for the carrier and suitable stops, and the conveyor and the carrier having provisions for engagement when the carrier is thus lodged in the holder, to shift the carrier clear of the abutment as it is transferred to the conveyor.

4. In a conveying apparatus, the combination with a track or way, a conveyor on said track, and propelling means; of a pendent abutment, a carrier adapted to lodge in said conveyor in position to encounter said abutment, a holder for said carrier adapted to support the same in a lower position than it occupies on the conveyor, said holder having an elongated rest for the carrier and suitable stops, and the conveyor and the carrier having provisions for engagement when the carrier is thus lodged in the holder, to move the carrier on its rest beyond the abutment as it is transferred to the conveyor, substantially as described.



5. In a conveying apparatus, the combination with a track, a conveyor thereon, and propelling means; of one or more pendent abutments, a carrier adapted to lodge on the conveyor in position to encounter said abutments, the carrier having a plurality of projections at opposite sides, and a holder for said carrier having elongated rests or ways for the said projections of the carrier to lodge upon, the holder adapted to support the carrier in a lower position than it occupies in the conveyor and the latter and the carrier having provision for engagement to advance the carrier on the ways of the holder to clear the abutments in transferring the carrier to the conveyor.

6. In a conveying apparatus, the combination with a track, a conveyor thereon, and propelling means; of one or more pendent abutments, a carrier adapted to lodge on the conveyor in position to encounter said abutments, a carrier having a plurality of projections at opposite sides, and an elevator for holding said carrier in position to be taken by the conveyor, but in a lower position than the carrier occupies on the conveyor, the latter and the carrier having provisions for engagement to advance the carrier clear of the abutments in its transfer to the conveyor from the elevator.

7. In a conveying apparatus, the combination of a suitable track or way, a conveyor traveling thereon and having a carrier-rail with a beveled end, a carrier adapted to lodge on said rail, an abutment for said carrier to encounter when on the conveyor, and a holder between which and the latter the carrier is transferred, said holder adapted to support the carrier in a different position than it occupies on the conveyor, the beveled end of the carrier-rail of the latter operating to shift the carrier from such different position, and sufficient friction being engendered between the conveyor and the carrier to cause the latter to be carried beyond the abutment before it is shifted into line with the same.

8. In a conveying apparatus, the combination of a suitable track or way, a conveyor traveling thereon and having a carrier-rail with a beveled upper side at one end, a carrier adapted to lodge on said rail, a pendent abutment for the carrier to encounter when on the conveyor, and a holder between which and the latter the carrier is transferred, said holder adapted to support the carrier in a lower position than it occupies on the conveyor, the beveled upper side of the carrier-rail of the latter operating to lift the carrier from such lower position, and sufficient friction being engendered between the conveyor and the carrier to cause the latter to be carried beyond the abutment before being lifted into line therewith.

9. In a conveying apparatus, the combination of a suitable track or way, a conveyor traveling thereon and having carrier-rails with beveled upper edges at the forward end, a carrier having front and

rear hooks to take over said rails and also one or more stop projections, one or more pendent abutments for the latter to encounter when the carrier is on the conveyer, and a holder having elongated rests upon which the carrier drops when disengaged from the conveyer, said rests having stop projections beyond the pendent abutments and the carrier adapted to be slid forward on said rests and against said stop projections by the engagement of the carrier-rails of the conveyer with the rear hooks of the carrier, the beveled upper sides of the said rails operating to lift the carrier and bring its stop projections into line with the pendent abutments beyond the same, substantially as described.

10. In a conveying apparatus, the combination of a suitable track or way, a conveyer traveling thereon and having carrier-rails with beveled upper edges at the forward end, and outstanding spring-strips on the sides, a carrier having front and rear hooks to take over said rails and also one or more stop projections, one or more pendent abutments for the latter to encounter when the carrier is on the conveyer, and a holder having elongated rests upon which the carrier drops when disengaged from the conveyer, said rests having stop projections beyond the pendent abutments and the carrier adapted to be slid forward on said rests and against said stop projections by the engagement of the spring-strips on the carrier-rails of the conveyer with the rear hooks of the carrier, the beveled upper sides of the said rails operating to lift the carrier and bring its stop projections into line with the pendent abutments beyond the same, substantially as described.

11. In a conveying apparatus of the character described, a conveyer or carriage comprising rails to engage and support the carriers, frames extending between said rails, a forward truck horizontally swiveled to one of said frames, and a trailer-truck horizontally and vertically swiveled to the other of said frames.

12. In a conveying apparatus, the combination with a suitable track or way, a conveyer thereon, and means for propelling the conveyer along the track; of guide-rails at a receiving-station, movable manipulative stop mechanism intermediate the ends of said guide-rails, and a carrier adapted to lodge in and be carried by the conveyer or to lodge on the guide-rails at the receiving-station by coming against an abutment or abutments presented by the said stop mechanism.

13. In a conveying apparatus, the combination with a suitable track or way, a conveyer thereon, and means for propelling the conveyer along the track; of horizontal guide-rails at a receiving-station, vertically-movable spring-sustained stop-pieces adjacent said rails intermediate the ends thereof, means for depressing said stop-pieces, and a carrier adapted to lodge on and be carried by the conveyer or to lodge on the guide-rails at the receiving-station by coming against an abutment or abutments presented by the said stop mechanism.

14. In a conveying apparatus, the combination with the track, the conveyer traveling thereon, propelling means, and a carrier having means of engagement with the conveyer and also lateral projections; of front and rear rails at a receiving-station adapted to support the carrier by the lateral projections thereon, one of said rails being in a lower plane than the other to facilitate removal of the goods from the carrier, and devices, whereby transfer of the carrier between the conveyer and the station may be automatically effected.

15. A holder or carrier for a conveying apparatus of the character described, said carrier comprising a body portion, rods extending lengthwise thereof and projecting beyond its ends and connected with the body by suspension-rods, hook-shaped projections fixed on said longitudinal rods, and stop projections on one of said latter rods.

16. In a conveying apparatus, the combination of a track, a conveyer thereon, inclined ways extending transversely of the track at a receiving-station, a holder on said ways, and a spring-held catch to engage the said holder when the latter is at the high end of the ways, the conveyer having provision for displacing said catch.

17. The combination of the track, the conveyer thereon, and the receptacle or carrier adapted to lodge on said conveyer, the conveyer and carrier having stop pieces or catches adapted for engagement to prevent separation thereof and one of said catches being movable relative to the other to permit separation of the carrier and conveyer at a predetermined station; abutments being provided on the carrier and at such station one movable with respect to the other and that on the carrier adapted to encounter that at the station; and the movable abutment coacting with the movable catch to displace the same, substantially as and for the purpose described.

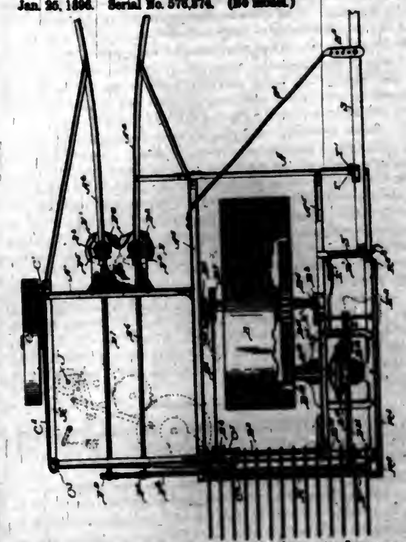
18. The combination of the track, the conveyer thereon, and the receptacle or carrier, adapted to lodge on said conveyer, the conveyer and carrier having stop pieces or catches adapted for engagement to prevent separation thereof, and one of said catches being movable relative to the other to permit separation of the carrier from the conveyer at a predetermined station, and an abutment at that station, for the carrier to encounter, provisions existing for displacement of the movable catch by coaction with the carrier.

19. The combination of the track, the conveyer thereon, and the receptacle or carrier adapted to lodge on said conveyer, the conveyer and carrier having stop pieces or catches adapted for engagement to prevent separation thereof and one of said catches being movable relative to the other to permit separation of the carrier and conveyer at a predetermined station; and an abutment at such station in the form of a pivoted arm normally standing in the path of a projection on the carrier and having associated with it a projection adapted to enter the path of the movable catch and effect the displacement thereof when the abutment-arm is displaced, substantially as described.

20. The combination of the track, the conveyer thereon, and the receptacle or carrier adapted to lodge on said conveyer, the conveyer having a trip-lever normally standing behind a projection on the carrier and the latter having an abutment projection; and a lever located at a station where the carrier is deposited, an arm of said lever normally standing in the path of the said abutment projection on the carrier and another arm of said lever having a projection to effect the displacement of the trip-lever, substantially as described.

21. In a conveying apparatus of the character described a fixed abutment-arm for the carrier to encounter, and a spring-strip fastened to the arm and extending in front of the portion thereof encountered by the carrier, said spring-strip adapted to be displaced by the latter and having a shoulder to prevent rebounding of the same after striking the arm.

603,608. CORN-HARVESTER. DAVID F. LEHMAN, Whitewater, Wis., assignor to Adolphus Strassman, same place, Ledyard V. Lewis, Sun Prairie, Wis., and Stephen S. Allen, Rockton, Ill. Filed Jan. 26, 1896. Serial No. 576,574. (No model.)



Claim.—1. The combination with a corn-harvester frame mounted to rock upon the axes of two supporting-wheels, of a tongue attached to the frame, means for moving the tongue bodily from side to side while so attached, and means for adjustably fixing, in all positions of the tongue, the angle made by it with the plane of the frame.

2. The combination with a suitable frame, of a binding mechanism supported by said frame and arranged for binding standing stalks, a binding-platform in position to support the stalks during such binding, and platform-supporting devices supporting the platform at heights depending upon variation in the weight that may rest upon it.

3. The combination with suitable binding devices, of a binding-platform arranged below said devices to move vertically, and springs arranged to afford yielding resistance to the depression of the platform.

4. In a corn-harvester, the combination with a binding-platform hinged at its front end to swing vertically, of devices for supporting its free rear end, a pair of endless coacting stalk-conveying chains located above the platform, and sprocket-wheels guiding the rear portions of said chains and supported from the platform to swing therewith.

5. The combination with the binder-frame, of vertically-extensible needle, knotter, packer and compressor shafts mounted therein, means for actuating said shafts, a plurality of needles mounted upon the needle-shaft, corresponding knotters mounted upon the knotter-shaft, suitable arms borne by the packer and compressor shafts, a binder-platform supported by devices permitting it to descend automatically under unusual weight of stalks, and means for equally and synchronously extending all said shafts; whereby a plurality of bands may be applied at automatically-adjusted distances from the butts of the stalks.

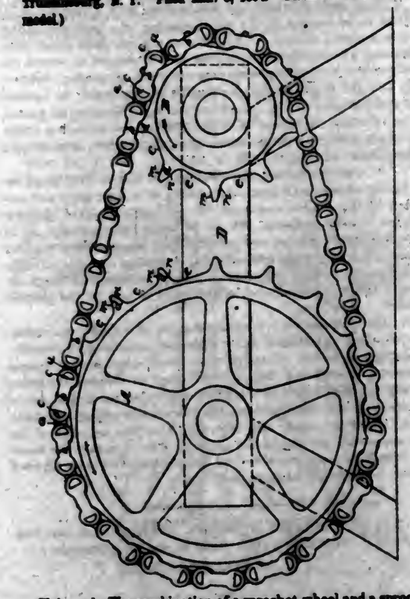
6. In a corn-harvester, the combination with cutting devices, of chains adjustable in height arranged to carry the butts of the stalks rearward, a vertically-adjustable platform arranged to support the stalks so carried, and protecting-walls arranged to rise and fall with said chains and platform, substantially as set forth.

7. The combination with the frame and the vertical knife-shafts, of the inclined gathering members supported from said frame and provided with central bearings for the upper ends of the knife-shafts, the gathering-chains lying within said members, the inclined shafts mounted upon said members, and gearing connecting the ends of the inclined shafts with the chain-driving shafts at their upper ends and with the knife-shafts at their lower ends, respectively.

8. In a corn-harvester, the combination with a rigid frame bearing all the guiding and primary driving mechanism, of a secondary frame detachably fixed to the first and bearing all the cutting and binding mechanism, and a drive-chain forming the sole operating connection between the two mechanisms, for the purpose set forth.

9. In a corn-harvester, the combination with two suitably-mounted parallel knife-shafts, of the knife fixed to one of said shafts and having the distinct cutting edges, a similar knife mounted upon the other shaft in position to overlap and coact with the first, and means for adjustably fixing the latter knife to the stationary support for its shaft.

603,609. SPROCKET-AND-CHAIN GEAR. EVERETT F. MORSE, Tremansburg, N. Y. Filed Mar. 3, 1894. Serial No. 502,172. (No model.)



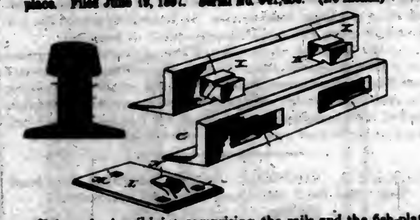
Claim.—1. The combination of a sprocket-wheel and a sprocket-chain composed of open and solid links, the solid links entering between the teeth and the wheel having seats for the alternate links to rest upon, arranged around its periphery, said seats being inclined at an angle to a circle passing through them and described about the center of the wheel, as described.

2. The combination of a sprocket-wheel and a sprocket-chain composed of open and solid links, the solid links entering between the teeth, and the wheel having seats between its teeth for the alternate links of said chain, said seats being inclined to a circle passing through them and concentric with the wheel, the ends of said seats adjacent to the working faces of the teeth being more remote from the center of the wheel than the opposite ends, substantially as described.

3. The combination of a sprocket-wheel and a sprocket-chain composed of open or side and solid or center links, the solid links entering between the teeth, and the wheel being cut or formed between each two teeth with a peripheral supporting-surface for the end of the solid link adjacent to the working face of the tooth, and a peripheral cut-away or relatively lower portion under the other or idle end of the solid link whereby the said idle end will lie in a straight line joining the working faces of the said two teeth, and out of frictional contact with the periphery of the sprocket, as set forth.

4. The combination of a sprocket-wheel and a sprocket-chain composed of open or side and solid or center links, the solid links entering between the teeth, and the wheel being formed or provided with raised bearing-surfaces adjacent to the working faces of the teeth, which support the working ends of the solid links and maintain their opposite or idle ends out of contact with the periphery of the wheel and prevent rubbing friction between the sprocket and the chain, as set forth.

603,610. RAIL-JOINT AND TIE-PLATE. JOHN A. MCCAIN, Decatur, Ga., assignor of one-half to Washington J. Houston, same place. Filed June 19, 1897. Serial No. 641,459. (No model.)



Claim.—1. A rail-joint comprising the rails and the fish-plates, one of said fish-plates being provided with the longitudinal slots having one end larger than the other, and the smaller end dovetailed, the opposite plate being provided on its inner face with studs or projections formed integral therewith having the dovetailed ends to be inserted through the larger portions and locked in the smaller dovetailed portions of the slots of the opposite plate, substantially as shown and described.

2. A rail-joint comprising the rails and the fish-plates, one of said plates being provided with the longitudinal slots having one end larger than the other which is dovetailed, the opposite plate being provided on its inner face with studs or projections formed integral therewith and having the dovetailed ends to be inserted and locked in the smaller or dovetailed portions of the slots of the opposite plate, in combination with the tie-plate having the openings, and a lip formed integral with the upper face thereof, said lip being curved on its under side so as to embrace the flange of the rail, as and for the purpose set forth.

603,611. EAVES-TROUGH. BENJAMIN F. ITE, Quincy, Mich. Filed June 30, 1896. Serial No. 597,349. (No model.)



Claim.—An eaves-trough, having its inner wall carried upward above said trough, thence outward over said trough, and backward to the line of attachment of the roof, all in gentle curves, substantially as described.

603,612. DRYING APPARATUS. BENJAMIN B. SNYDER and JESSE J. SELLNER, Baltimore, Md., assignors to the Nitrogen Processing Company, New York, N. Y. Filed Sept. 25, 1897. Serial No. 653,089. (No model.)



Claim.—1. In a drier, the combination with the elongated casing, of a trough in the lower part of the casing, a shaft having paddles operating in the trough, a vertical longitudinal partition in the

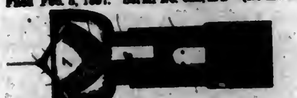
upper part of the casing having its lower edge adjacent to the paddles, means for forcing air down upon one side of said partition and an outlet for the moistened gases from the compartment on the opposite side of the partition, substantially as described.

2. In a drying apparatus, the combination of a casing having a trough, the conveyer-shaft adapted to move materials along said trough, a central longitudinal partition above said conveyer shaft, a furnace, means for producing a forced draft for said furnace and directing the hot gases down upon one side of said partition, and an outlet to the chamber on the other side of the partition whereby said hot gases may be circulated with the material through the trough, substantially as described.

3. In a drier, the combination with the elongated casing, of a trough in the lower part of the casing, the conveyer-shaft having paddles operating in the trough, a vertical partition dividing the casing into two compartments above the conveyer, steam-coils in one of said compartments, means for blowing air or gases over said steam-pipes, and a vent for the moistened gases in the other compartment, said air or gas being directed from the steam-coils around the conveyer-shaft along with material, substantially as described.

4. In a drier, the combination of one section thereof provided with a conveyer, steam coils, a furnace, and means for blowing heated gases through the furnace over the coils and around the conveyer, of a second drier-section provided with a conveyer, with steam-coils supplied with superheated steam from the first section, and with means for blowing air over said coils, substantially as described.

608,613. GAS-BURNER. CLARENCE S. STEWARD, Chattanooga, Tenn. Filed Feb. 5, 1897. Serial No. 622,494. (No model.)



Claim.—1. A gas-burner comprising an outer shell, a bowl within the shell, a gas-cavity between the walls of the shell and the bowl, closed at the top by the meeting of such walls, and oppositely-discharging orifices extending from the cavity through the wall of the bowl, and defined by isolated tips projecting from the wall of the bowl, substantially as set forth.

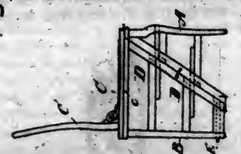
2. A gas-burner comprising an outer shell, a bowl within the shell, a gas-cavity between the walls of the shell and of the bowl closed at the top by the meeting of the said walls, and isolated, adjustable burner-tips projecting toward each other from the wall of the bowl, the orifices through the tips communicating with the gas-cavity, substantially as set forth.

3. A gas-burner comprising an outer shell, a bowl within the shell, a gas-cavity between the walls of the shell and of the bowl, closed at the top by the meeting of such walls, and oppositely-discharging gas-orifices from the said gas-cavity, extending through the wall of the bowl and discharging above the bottom of its concavity, whereby there is a free open space below the flame, and any carbon which may be deposited from the flame will collect in the bowl, substantially as set forth.

4. A gas-burner composed entirely of steatite, comprising an outer shell, a bowl contained therein, a gas-cavity between the shell and the bowl, closed at its upper end by the meeting of the walls of the bowl and the shell, and means for egress of the gas through the wall of the bowl, substantially as set forth.

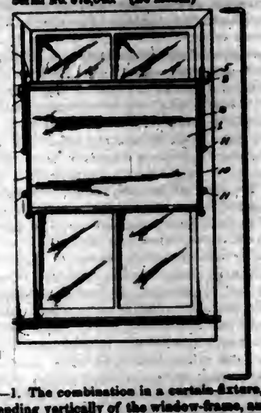
5. A gas-burner composed entirely of steatite, comprising an outer shell, a bowl within the shell, a gas-cavity between the shell and the bowl, closed at its upper end by the meeting of the walls of the bowl and the shell, and oppositely-discharging orifices for the gas, defined by isolated tips projecting from the wall of the bowl, substantially as set forth.

608,614. COMBINATION CHAIR, WASHBENCH, &c. JOSEPH VAN MELSE, Cleveland, Ohio. Filed Oct. 22, 1896. Serial No. 609,760. (No model.)



Claim.—A convertible chair consisting of two hinged base portions A, B, provided with suitable vertical and inclined legs between the latter of which is secured a series of steps D, in combination with a seat portion C hinged to the top of the portion A, as and for the purpose set forth.

608,615. CURTAIN-FIXTURE. WILLIAM J. WALTERS and WILLIAM W. ROSSER, Guthrie, Okla. Filed Oct. 24, 1896. Renewed Mar. 24, 1898. Serial No. 675,040. (No model.)



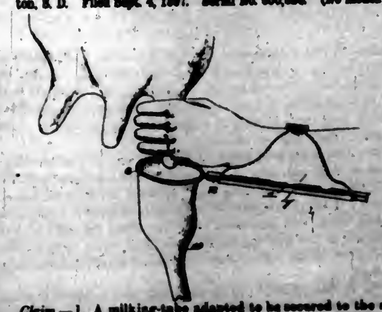
Claim.—1. The combination in a curtain-fixture, of a guide rod or wire extending vertically of the window-frame, and an adjustable bracket slidingly mounted thereon and provided with reversely-disposed flaps or rests located in close proximity to the window-casing and adapted to bear against the same for preventing the canting of the bracket to either side, substantially as described.

2. In a curtain-fixture, the combination with a vertical guide adapted to be secured to the window-casing, of a vertically-sliding bracket mounted thereon and formed from a single sheet-metal blank comprising a forwardly-projecting ear portion adapted to receive the curtain-roller journal, reversely-disposed rests projecting substantially at right angles to the ear portion and adapted to operate against the window-casing, spaced eye-bearings embracing the guides, and an adjusting-rod connected to said bracket and extending within convenient reach of a person standing at the window, substantially as described.

3. In a curtain-fixture, the combination with a vertical guide-rod having its terminals bent substantially at a right angle and embedded in the window-casing, of an adjustable bracket slidingly mounted on said guide-rod, and an adjusting-rod connected at its upper end to said bracket and provided with lateral crimps forming stops, the free end of the said adjusting-rod being movable laterally to engage or disengage either of said lateral crimps with the lower inturned end of the guide-rod, substantially as and for the purpose specified.

4. The combination in a curtain-fixture, of a guide-rod extending vertically of the window-frame, a bracket comprising a forwardly-projecting ear portion to receive the curtain-roller journal, spaced eye-bearings embracing the guide-rod, ears or recesses extending laterally at a right angle to the roller supporting ear in the rear of the guide-rod and adapted to engage the window-casing, an adjusting-rod having its upper end bent to fit over the top edge of the roller-supporting ear and having also a shoulder to engage the lower edge of said ear, and means to hold the adjusting-rod in its adjusted position, substantially as described.

608,616. MILKING APPARATUS. OLE R. HARMEN, Lake Preston, S. D. Filed Sept. 4, 1897. Serial No. 650,698. (No model.)



Claim.—1. A milking-tube adapted to be secured to the arm of the operator, and provided with means whereby the position thereof may be adjusted.

2. A milking-tube provided with means whereby it may be attached to the wrist or forearm of the operator, and means whereby it may be adjusted longitudinally and laterally.

3. In a device of the character set forth, the combination of a frame, means for securing said frame to the arm of the operator, a ring attached to said frame, a milking-tube supported by said ring, and means for adjusting the relative positions of said ring and frame, substantially as and for the purpose described.

4. In a device of the character set forth, a hollow casing adapted to be attached to the arm of the operator, a longitudinally and laterally movable rod in said casing, a ring attached to one end of said rod, and a milking-tube supported by said ring.

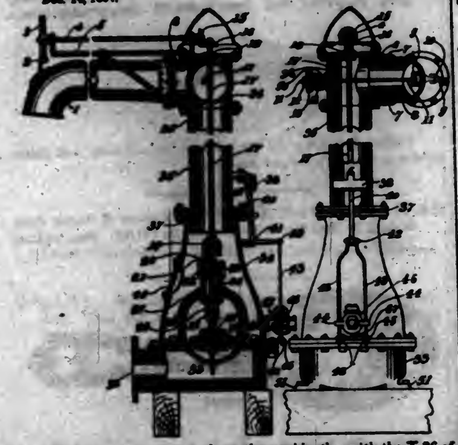
5. In a device of the character set forth, a hollow casing, means for attaching said casing to the arm of the operator, a jointed rod longitudinally movable in said casing, a ring attached to one of the sections of said rod, and a milking-tube supported by said ring, as and for the purpose described.

6. In a device of the character set forth, a hollow casing, a strap for attaching said casing to the arm of the operator, a longitudinally-movable jointed rod in said casing, one of the sections of said rod having grooves in its outer edges, a ring having laterally-extending arms thereon fitting within said grooves, a band for securing said arms to said rod, and a milking-tube supported by said ring, substantially as and for the purpose described.

7. In a device of the character set forth, a casing having an opening extending longitudinally therethrough which is smaller at one end than at the other, a strap for securing said casing to the arm of the operator, a jointed rod, one section of which fits tightly the contracted portion of said opening, and the other section having longitudinal grooves in the opposite edges thereof, a ring having laterally-extending arms thereon fitting within said grooves, a band for securing said arms to said rod, and a milking-tube supported by said ring, substantially as and for the purpose described.

REISSUES.

11,662. WATER-COLUMN. BENJAMIN D. GALE, Weatherby, Mo. Filed Jan. 20, 1898. Serial No. 667,893. Original No. 595,957, dated Dec. 14, 1897.



Claim.—1. In a water-column the combination with the T 36 of the discharge-spout 1 arranged to have its delivery end raised and lowered and its elbow 8 to rotate in joint 6 said joint being provided with packing 7 and held in place and elastically tightened by swivel 9, spring 50 and intermediate parts, substantially as set forth and described.

2. The combination in a water-column of a discharge-spout 1 with inside elbow 8 rotating in swing-joint 6 with packing 7, swivel 9 engaging rod 11, spring 50 for the purpose of automatically taking up the wear on joint 6 and packing 7, together with wheel 3 and hook 2 for disengaging the delivery end of spout 1, bracket 5 and shaft 4 carrying miter-gear 15 engaging miter-gear 16 and driving vertical shaft 17 passing through stuffing-box 18 and having square socket-wrench 19 rotating nut 20, driving valve-stem 21 held in place by shoulder 22 rotating in bonnet-nut 23, the threaded end of valve-stem 21 engaging perforation 25 in the square valve-nut 26, square perforation 27, yoke 28, seat 31 and valve 30, ball-joint 29, valve-chamber 34 and the upright main pipe 35 and T 36, substantially as described and for the purpose specified.

3. In a water-column a horizontal discharge-spout with delivery end that may be raised or lowered at will in combination with T 36, main pipe 35 and valve-chamber 34, and check 47 with connecting mechanism for automatically controlling the drainage, substantially as described and for the purpose specified.

DESIGNS.

28,520. COVER FOR MEMORANDUM-BOOKS. CHARLY W. HUPSCHMIDT, Prairie du Chien, Wis. Filed Feb. 24, 1898. Serial No. 671,537. Term of patent 7 years.



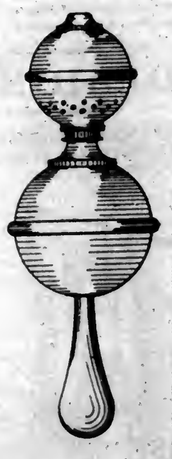
Claim.—The design for a cover for memorandum-books, substantially as herein shown and described.

28,521. PRINT OR PATTERN FOR CIGAR-BOXES. CHARLES ARTHUR SPRAKMAN, New York, N. Y., assignor to the American Lithographic Company, same place. Filed Mar. 2, 1898. Serial No. 672,334. Term of patent 7 years.



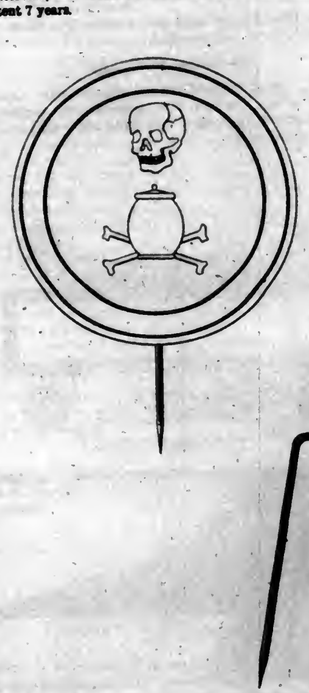
Claim.—The design for an ornamental print or pattern for cigar-boxes substantially as shown and described.

28,522. BODY FOR CIGAR-LIGHTERS. EDWARD SCHAEFER, St. Louis, Mo., assignor to the Missouri Lamp and Manufacturing Company, same place. Filed Jan. 15, 1898. Serial No. 666,823. Term of patent 3½ years.



Claim.—The design for a body for a cigar-lighter as herein shown and described.

28,523. BADGE OR SIMILAR ARTICLE. FREDERICK J. COBBER, Waterville, Me. Filed Feb. 4, 1898. Serial No. 669,152. Term of patent 7 years.



Claim.—The design for a badge or similar article, substantially as shown and described.

28,524. HANDLE FOR SPOONS, FORKS, &c. HENRY L. WALLACE, Wallingford, Conn., assignor to the R. Wallace & Sons Manufacturing Company, same place. Filed Feb. 8, 1898. Serial No. 669,501. Term of patent 7 years.



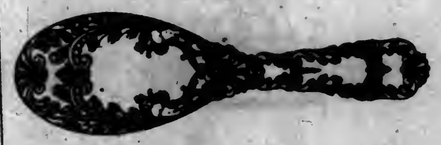
Claim.—A design for a handle for spoons, forks and similar articles as herein shown and described.

28,525. HANDLE FOR SPOONS, FORKS, &c. JOHN CARLIN, Wallingford, Conn., assignor to the Simpson Hall Miller & Company, same place. Filed Feb. 8, 1898. Serial No. 669,502. Term of patent 7 years.



Claim.—The design for the handle of spoons, forks, and similar articles as herein shown and described.

28,526. BACK FOR BRUSHES, &c. THEODORE W. FOSTER, Providence, R. I. Filed Mar. 31, 1898. Serial No. 676,008. Term of patent 7 years.



Claim.—The design for the back of a brush or similar article herein shown and described.

28,527. COVER FOR PUFF-BOXES. THEODORE W. FOSTER, Providence, R. I. Filed Mar. 31, 1898. Serial No. 676,009. Term of patent 7 years.



Claim.—The design for the cover of a puff-box or similar article herein shown and described.

28,528. HANDLE FOR MANICURE OR SIMILAR ARTICLES. THEODORE W. FOSTER, Providence, R. I. Filed Mar. 31, 1898. Serial No. 676,004. Term of patent 7 years.



Claim.—The design for the handle of manicure and similar articles herein shown and described.

28,529. HANDLES FOR SCISSORS. THEODORE W. FOSTER, Providence, R. I. Filed Mar. 31, 1898. Serial No. 676,005. Term of patent 7 years.



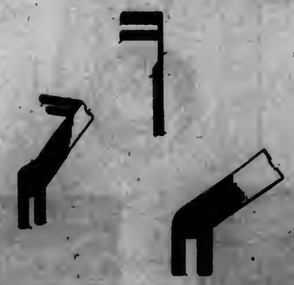
Claim.—The design for the handles of scissors or similar articles herein shown and described.

28,530. KNIFE. WILLIAM G. MEYER, Boston, Mass. Filed Mar. 14, 1898. Serial No. 673,572. Term of patent 14 years.



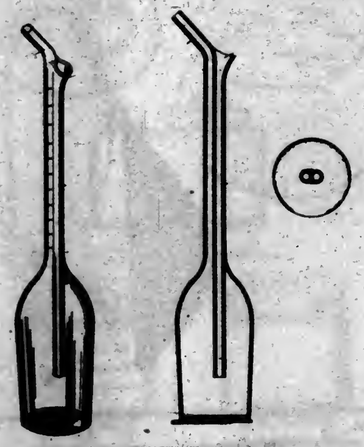
Claim.—The design for a knife as herein shown and described.

28,531. BOX-LID HOLDER. JOSEPH LAMBAR CONWAY, Sioux City, Iowa. Filed Mar. 22, 1898. Serial No. 674,267. Term of patent 14 years.



Claim.—The design for a box-lid holder herein shown and described.

28,532. BOTTLE. CONSTANTINE WAGNER, New York, N. Y. Filed Jan. 20, 1898. Serial No. 668,264. Term of patent 7 years.



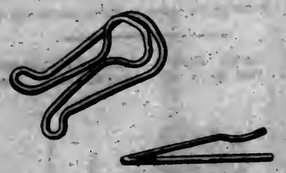
Claim.—The design for a bottle, as herein shown and described.

28,533. SPRING FOR GLOVE-FASTENERS. EDWIN J. SCOVILLE, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Feb. 12, 1898. Serial No. 670,189. Term of patent 14 years.



Claim.—The design for a spring for a glove or clothing fastener, substantially as shown and described.

28,534. FASTENING-EYE. JAMES THOMSON, Glenside, Pa. Filed Mar. 19, 1898. Serial No. 673,697. Term of patent 7 years.



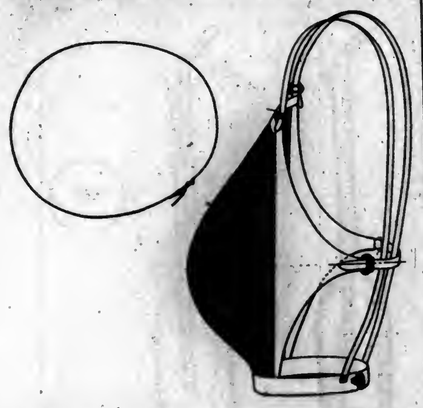
Claim.—The design for a fastening-eye, as herein shown and described.

28,535. HOOK FOR GARMENT-FASTENERS. ALBERT BOERTER, New York, N. Y. Filed Mar. 22, 1898. Serial No. 674,353. Term of patent 14 years.



Claim.—The design for the hook of a garment-fastener, as shown and described.

28,536. WAIST-FRONT DISTENDER. ROSE SAHLIS, Chicago, Ill. Filed Oct. 28, 1897. Serial No. 656,712. Term of patent 3½ years.



Claim.—The design for a waist-front distender herein shown and described.

28,537. SHOE-PLATE. MANSFIELD M. WISE, Cleveland, Ohio. Filed Oct. 6, 1897. Serial No. 654,304. Term of patent 14 years.



Claim.—The design for a shoe-plate herein shown and described.

28,538. SEAL. HARRY S. SHILA, North Baltimore, Ohio. Filed Feb. 28, 1898. Serial No. 671,302. Term of patent 7 years.



Claim.—The design for a seal, as herein shown and described.

28,539. CLAMP. HENRY L. AMBLER and WILLIAM AMBLER, Cleveland, Ohio. Filed Mar. 5, 1897. Serial No. 626,140. Term of patent 7 years.



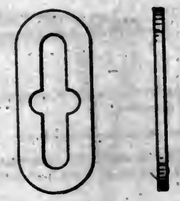
Claim.—The design for a clamp, as herein shown and described.

28,540. DOOR-LATCH. RUDOLPH H. MARTENS, Colfax, Wash. Filed Feb. 2, 1898. Serial No. 668,803. Term of patent 14 years.



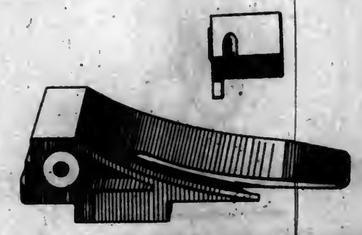
Claim.—The design for a door-latch, as herein shown and described.

28,541. SHACKLE-BOLT LINK. BENJAMIN C. BROWN, Groton, Iowa. Filed Oct. 27, 1897. Serial No. 656,008. Term of patent 7 years.



Claim.—The design for a shackle-bolt link, substantially as shown.

28,542. BRAKE-SHOE. OLIVER BOOKLEY WHITNEY, Marlborough, N. Y. Filed Jan. 12, 1898. Serial No. 666,466. Term of patent 3½ years.



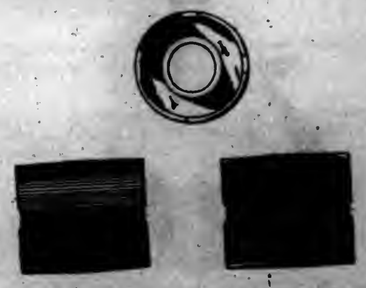
Claim.—The design for a brake-shoe, as herein shown and described.

28,543. TOOTH FOR CYLINDERS AND CONCAVES OF THRESHING-MACHINES. WILLIAM SEVERS, Richmond, Ind., assignor to the Gaar, Scott & Company, same place. Filed Jan. 31, 1898. Serial No. 668,679. Term of patent 14 years.



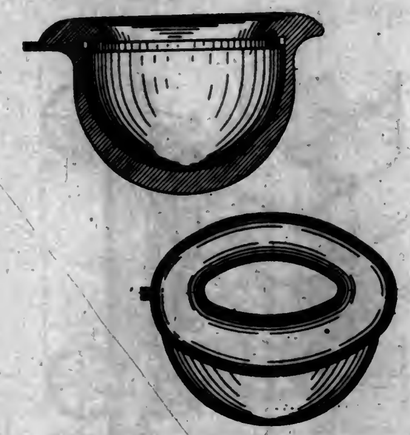
Claim.—The design for a tooth for the cylinders and concaves of threshing-machines, substantially as shown.

28,544. HOSE-MENDING DEVICE. MARK A. LEVERING, Atlantic City, N. J., assignor of one-half to Wm. F. Dill and Howard R. Miller, Philadelphia, Pa. Filed Mar. 17, 1898. Serial No. 674,208. Term of patent 14 years.



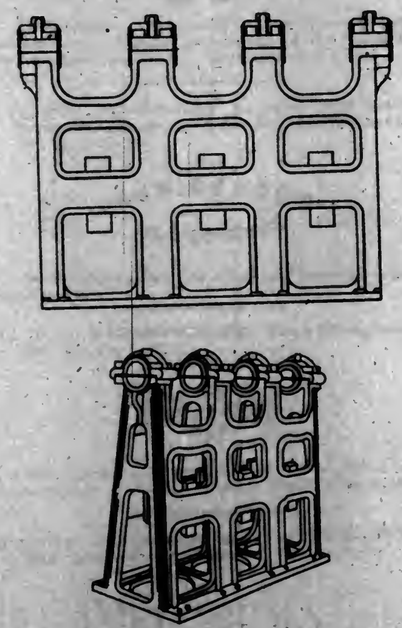
Claim.—The design for a hose-mending device, as herein shown and described.

28,545. WATER-CLOSET BOWL. FRANCIS J. MCCORMICK, Jr., and FRANCIS J. MCCORMICK, Dayton, Ohio. Filed Dec. 1, 1897. Serial No. 660,444. Term of patent 14 years.



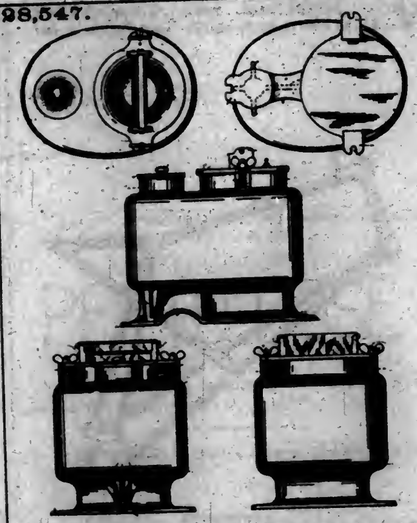
Claim.—The design for a water-closet bowl substantially as herein shown and described.

28,546. PUMP-HOUSING. HOSE W. KERR, Dayton, Ohio, assignor to The Stillwell-Bierce & Smith-Vaile Company, same place. Filed Feb. 7, 1898. Serial No. 669,455. Term of patent 14 years.



Claim.—The design for a pump-housing, as herein shown and described.

28,547. CEMENT-RECEPTACLE. JOHN R. HARAWAY, Brockton, Mass., assignor to the Gem Flexible Insole Company, Boston, Mass. Filed Jan. 4, 1898. Serial No. 666,893. Term of patent 14 years.



Claim.—The design for a cement-receptacle, substantially as shown and described.

28,548. BEARING-BRACKET FOR BICYCLES. GEORGE JOHN STEVENS, London, England. Filed Dec. 20, 1897. Serial No. 662,753. Term of patent 3½ years.



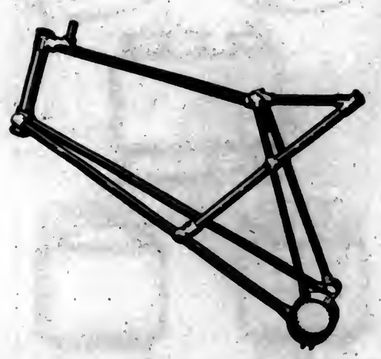
Claim.—The design for a bearing-bracket for bicycles, substantially as shown and described.

28,549. BICYCLE-CRANK. DANIEL G. STOVER, Freeport, Ill., assignor to the Stover Bicycle Manufacturing Company, same place. Filed Feb. 19, 1898. Serial No. 670,973. Term of patent 7 years.



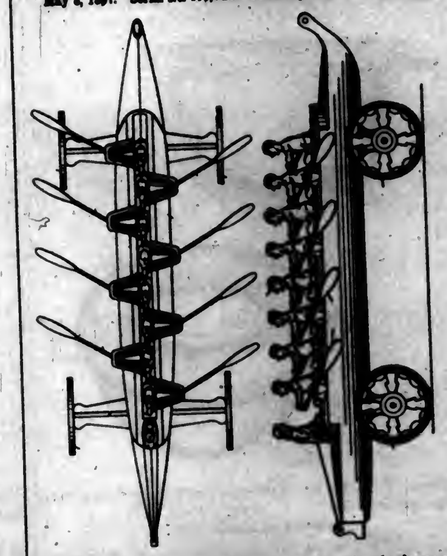
Claim.—The design for a bicycle-crank herein both shown and described.

28,550. BICYCLE-FRAME. GEORGE I. K. MORROW, Detroit, Mich. Filed Nov. 22, 1897. Serial No. 659,522. Term of patent 14 years.



Claim.—The design for a bicycle-frame, substantially as herein shown and described.

28,551. TOY. GRANVILLE W. WEBBER, New Haven, Conn., assignor to the United States Hardware Company, same place. Filed May 4, 1897. Serial No. 636,749. Term of patent 3½ years.



Claim.—The design for a toy substantially as herein shown and described.

TRADE-MARKS

REGISTERED MAY 3, 1898.

31,497. CIGARS. ALLEN & HANBURY, Philadelphia, Pa. Filed Mar. 3, 1898.



Essential feature.—The words "YUKON GIRL" and the representation of an Alaskan Indian girl. Used since January 31, 1898.

31,498. WINES. BARTON & GUESTIER, Bordeaux, France. Filed Feb. 19, 1898.



Essential feature.—The representation of two shields, one emblazoned with a spread-eagle and crescents and the other emblazoned with boars' heads and a rosette. Used since January 1, 1875.

31,499. FRICTION-MATCHES. THE DIAMOND MATCH COMPANY, Chicago, Ill.; Wilmington, Del.; Detroit, Mich., and Westville, Conn. Filed Mar. 4, 1898.

DRAWING ROOM MATCHES.

Essential feature.—The words "DRAWING ROOM MATCHES." Used since 1870.

31,500. POLISHING PREPARATION. KATE G. RADEMAN, Jackson, Mich. Filed Feb. 9, 1898.



Essential feature.—The words "DELIGHT OF THE HOME" and the representation of a female in medallion. Used since July 15, 1897.

31,501. SOAPS, COSMETICS, SALVES, AND LOTIONS FOR THE SKIN. LAIRD & CRITCH, New York, N. Y. Filed Feb. 17, 1898.

VELCREMA

Essential feature.—The word "VELCREMA." Used since January 1, 1898.

31,502. PROPRIETARY ARTICLES. CENERAL CHEMICAL COMPANY, New York, N. Y. Filed Feb. 18, 1898.

PEPTO-ROSE

Essential feature.—The compound word "PEPTO-ROSE." Used since February 1, 1896.

31,503. LINIMENT. JOHN TARRANT SUSSE, New York, N. Y. Filed Feb. 3, 1898.

TOWNSEND'S
OLD
LINIMENT.

Essential feature.—A facsimile of the signature of "V. P. D. TOWNSEND" and the initials "V. P. D." in parentheses, the same being used in connection with the words "TOWNSEND'S LINIMENT." Used since 1875.

31,504. COMPOUND OF MALT AND COD-LIVER OIL. ALLEN & HANBURYS, LIMITED, London, England. Filed Feb. 15, 1898.

BYNOL

Essential feature.—The word "BYNOL." Used since December, 1898.

31,505. MEDICINAL PREPARATIONS AND MEDICATED FOODS. ALLEN & HANBURYS, LIMITED, London, England. Filed Feb. 15, 1898.



Essential feature.—The representation of a plow. Used since 1884.

31,506. MEDICINAL PREPARATIONS AND MEDICATED FOODS. ALLEN & HANBURYS, LIMITED, London, England. Filed Feb. 15, 1898.

ALLENBURYS

Essential feature.—The word "ALLENBURYS." Used since November, 1895.

81,507. CERTAIN FOODS AND RELISHES. CHARLES RICHARD VALENTINE, Lee, England. Filed Aug. 14, 1897.



Essential feature.—The representation of two hands and forearms, one above the other, the lower hand holding a cup and saucer and the upper hand in the act of dropping a globule or tablet into the cup. Used since February, 1897.

81,508. CERTAIN FOODS AND RELISHES. CHARLES RICHARD VALENTINE, Lee, England. Filed Aug. 14, 1897.



Essential feature.—The pictorial representation of a side bust view of a woman holding in one hand a box of tablets or globules, the other hand being in the act of raising a tablet or globule to her mouth. Used since February, 1897.

81,509. ORGANS. FREDERICK G. SMITH, New York and Saratoga Springs, N. Y.; Washington, D. C.; Jersey City, Newark, and Paterson, N. J.; Chicago, Ill., and St. Louis and Kansas City, Mo. Filed Mar. 7, 1898.

BRADBURY.

Essential feature.—The word "BRADBURY." Used since February, 1874.

81,510. PIANOFORTES. FREDERICK G. SMITH, New York and Saratoga Springs, N. Y.; Washington, D. C.; Jersey City, Newark, and Paterson, N. J.; Chicago, Ill., and St. Louis and Kansas City, Mo. Filed Mar. 7, 1898.

Bradbury

Essential feature.—The word "BRADBURY." Used since 1860.

81,511. TUBULAR CHEESE-CLOTH BANDAGES. WEST BOYLSTON MANUFACTURING COMPANY, West Boylston, Mass. Filed Dec. 27, 1897.

GIANT

Essential feature.—The word "GIANT." Used since July 1, 1896.

81,512. CABLES, ROPES, CORDS, AND TWINES. O. F. SEIZ COMPANY, Philadelphia, Pa. Filed Mar. 4, 1898.

ROPOLEUM

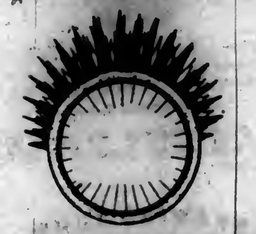
Essential feature.—The word "ROPOLEUM." Used since December 4, 1896.

81,513. SAWS AND SAW-TOOLS. REMEDY COMBINATION SAW-TOOL COMPANY, New York, N. Y. Filed Feb. 8, 1898.



Essential feature.—The simulation of a deer's head. Used since January 15, 1896.

81,514. BICYCLES AND SIMILAR VEHICLES. MARY ELIZABETH JOHNSON, Fitchburg, Mass. Filed Nov. 9, 1897.



Essential feature.—The representation of an annular band having flame-like projections extending from the upper half of its periphery. Used since January 1, 1897.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

HAMMOND v. HART.

Decided April 25, 1898.

1. INTERFERENCE—CONSTRUCTION OF RULE 96.

Rule 96 means that when the formal requirements of an application—such, for example, as the requirement for a new drawing or for an amended oath or for further action upon rejected claims which are not involved in the interference or for analogous changes—have not been complied with the interference shall be declared, so that the party whose application is in proper form shall not be unnecessarily delayed in the further prosecution of his application.

2. SAME—RULES 96, 94, 95, AND 98.

Rule 96 does not mean that the Examiner declaring the interference can ignore the requirement that the *claims* of the party in fault must be put in such condition that they will not require alteration. If Rule 96 means that, then Rule 95 means nothing. The two rules should be construed in connection with Rules 96 and 94, so as to give vitality to all.

3. SAME—INTERFERENCE BETWEEN ALLOWED AND REJECTED CLAIMS.

Under a proper interpretation of the rules there is no justification for the declaration of an interference between the *allowed claims* of one application and the *rejected claims* of another application. Two applications do not interfere in such a case.

4. SAME—GENERIC AND SPECIFIC CLAIMS.

A generic and a specific claim do not interfere, and it does not conflict with public interest to send a generic claim to issue after a specific claim has been patented. (*Drawbaugh* v. *Blake*, 68 O. G., 1681; *Reed* v. *Landman*, 85 O. G., 1275, cited.)

5. SAME—SCOPE OF CLAIMS—EX PARTE UPTON.

So far as the case of *ex parte Upton* (87 O. G., 99) holds that an interference should be declared between two applications or between an application and a prior patent whose claims are not substantially identical in tenor and scope it is not well founded in law, and this decision is overruled.

6. SAME—INTERFERENCE IN FACT—APPLICATIONS—APPLICATION AND PATENT.

There is no different rule of law applicable to an interference when it is declared between two applications than when it is declared between an application and an unexpired patent. The same principles which determine whether there would be an actual interference must apply alike in each of the conditions in which the cases are when before the Patent Office to determine whether they would interfere. (*Kingon* v. *Carter*, 66 O. G., 813, overruled.)

7. SAME—SAME.

An interference can only be instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention; that of necessity there must be allowed claims to all parties before an interference can be declared, and that not only a patent and an application must claim in whole or in part the same invention, but also two applications must claim in whole or in part the same invention before an interference can be declared.

8. SAME—EXAMINER SUGGESTING CLAIMS TO APPLICANTS.

Where two applications are concurrently pending having claims of different scope drawn on the same structure, there is no good reason why the Examiner should not give the applicant making the specific or narrow claim an opportunity, by suggestion, if necessary, to make the broader claim. If the suggestion is followed, then the parties would be making a claim identical in tenor and scope, and an interference will properly and naturally follow. To this extent *ex parte Weeden* (60 O. G., 1191) overruled.

APPEAL on motion.

ENGINE.

Application of Isaac B. Hammond filed January 23, 1897, No. 620,424. Application of Henry C. Hart filed June 11, 1896, No. 595,192.

Messrs. Barton & Brown for Hammond.

Mr. Ellis Spear and *Mr. Elliott J. Stoddard* for Hart.

DUELL, *Commissioner:*

This is an appeal from the decision of the Primary Examiner denying Hart's motion for dissolution of the interference. The following are the points of appeal: first, no interference in fact; second, no interfering claims; third, non-patentability of the claims of Hammond involved in the interference, and, fourth, irregularity in the declaration, preventing proper determination of the question of priority.

The third point will not in this case be considered by me in determining whether or not an interference exists.

The first and second points can ordinarily be considered as one, and, broadly stated, can be summed up in the one question, do the claims of the parties interfere?

The fourth point will in this case be first separately considered.

A review of the proceedings in the two cases involved in this interference shows that Hart filed his application for patent and that his claims were rejected by the Primary Examiner and appealed to the Examiners-in-Chief, where the action of the Examiner was affirmed, but with certain recommendations, under which Hart's application was amended, new claims being inserted, which were allowed by the Examiner. At this point Hammond was directed by the Examiner to place his application in condition for a probable interference. Thereafter his application was amended, which resulted in an allowance of two claims and the rejection of nine claims. At this point the Primary Examiner declared the interference under two counts, which will hereinafter be considered. Certain of Hart's claims were declared to be involved

88 O G 5-4

in the interference. Neither of the claims allowed to Hammond was placed in the interference, which was declared as embracing Hammond's rejected claims.

It appears that Hammond after the declaration of the interference moved, under Rule 109, for leave to file an amendment consisting of two claims, which are the issues of the interference. The motion was transmitted to the Primary Examiner, but so far as I can discover the motion was not passed upon by him. As the interference was not redeclared, as required by the rule, I take it that the amendment was not admitted.

In order to determine the propriety of this action and whether or not the interference was irregularly declared, reference must be had to the rules of this Office relating to interferences. Rule 93 states:

An interference is a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention.

Rule 94 states that interferences will be declared in certain cases, the following being the only one applicable in this case:

Between two or more original applications containing conflicting claims.

The interference having been declared by the Examiner between the two applications, one of which (Hammond's) contained no allowed or even allowable claims conflicting with the allowed claims of Hart, if the action of the Examiner be correct, the declaration of the interference was clearly irregular unless justification for the same can be found in other rules of the Office relating to interference proceedings. Such justification cannot be found under Rule 95, because that rule expressly states that before the declaration of an interference all preliminary questions must be settled by the Primary Examiner and the issue must be clearly defined, the invention which is to form the subject of the controversy must be decided to be patentable, and the *claims* of the respective parties must be put in such condition that they will not require alteration after the interference shall have been finally decided unless the testimony adduced upon the trial shall necessitate or justify such change. No allowed claim made by Hammond has been embraced in this interference, and therefore the requirements of Rule 95 have not been complied with. Nor is it believed that justification can be found under Rule 96, which reads as follows:

96. When, however, a party who is required to put his application in a condition proper for an interference fails to do so within a reasonable time specified, the declaration of interference will not be delayed. After final judgment of priority the application of such party will be held for revision and restriction, subject to interferences with other applications.

Upon the face these two rules seem to conflict; but when Rule 96 is properly construed there is no conflict between the two, and Rule 96 does not overrule the requirements of Rule 95. As I understand Rule 96 and as I believe it should be interpreted it simply means that when the formal requirements of an application—such, for example, as the requirement for a new drawing or for an amended oath or for further action upon rejected claims which are not involved in the interference or for analogous changes—have not been complied with the interference shall be declared, so that the party whose application is in proper form shall not be unnecessarily delayed in the further prosecution of his application. The rule does not mean that the Examiner declaring the interference can ignore the requirement that the *claims* of the party in fault must be put in such condition that they will not require alteration, etc. If Rule 96 means that, then Rule 95 means nothing. The two rules should be construed in connection with Rules 93 and 94, so as to give vitality to all.

Under the above interpretation there is no conflict between the rules, and I think that in declaring interferences this interpretation of the rules should be followed. I can see no justification for the declaration of an interference between the *allowed claims* of one application and the *rejected claims* of another application. Two applications do not interfere in such a case.

Applying to the facts in this case the natural and obvious construction to be placed upon the rules, I find that there was an irregularity in the declaration of the interference which prevents a proper determination of the question of priority, for the reason that Hammond's application contains no *allowed* claims said to be embraced within the issues, and therefore he is not claiming in whole or in part the same invention as is Hart.

Ordinarily I should not consider the other points of appeal; but this seems to be an opportune time to pass upon some other points here raised and which are constantly arising in interference proceedings. There seems to be a lack of uniformity in the Office relative to the question whether applications or applications and patents interfere, in view of which a review of the rulings of the courts and conflicting Patent Office decisions may not be amiss at this time.

That mere *infringing* claims are not *interfering* claims is evident throughout the whole list of decisions of the courts.

The courts have uniformly decided that under the statutes applicable to interferences two patents do not interfere within the meaning thereof when they do not *claim* in whole or in part the same invention. The decisions of this Office unfortunately have not been uniform in deciding the question whether or not two applications interfere within the meaning of the statutes and rules of the Office applicable to this subject.

In the case of *Gold and Silver Ore Separating Co.* v. *U. S. Disintegrating Ore Co.* (3 Fish., 489) the court held that—

two patents interfere within the meaning of section 16 only when they claim, in whole or in part, the same invention.

The section referred to was section 16 of the act of July 4, 1836, which corresponds to section 4918 of the present Revised Statutes.

In *Nathan Co.* v. *Craig*, (58 O. G., 1093,) which was a suit brought under section 4918 of the Revised Statutes, Judge Colt in deciding the case said:

Upon suits brought under this section it has, therefore, been

repeatedly held, until it has become well-settled law, that two patents interfere within the meaning of this section only when they claim in whole or in part the same invention.

Many cases are cited to sustain this finding.

In *Stonemetz Printer's Machinery Co.* v. *Brown Folding Machine Co.*, (64 O. G., 1135,) a suit brought under the same section, Judge Acheson in deciding the case said:

* * * Patents interfere only when they claim the same invention in whole or in part. * * * And in a proceeding under section 4918 the court cannot go beyond the claims and consider generally the two patents as a whole. It has been held that an interference does not exist within the meaning of the statute between a patent having a dominant broad claim and a junior patent having a subordinate specific claim. * * * Here the claim of Brown's patent, No. 321,762, is not coextensive with any of the claims of the Stonemetz patent; but it is a very specific subservient claim.

In *Dederick* v. *Fox*, (63 O. G., 1963,) which was a suit brought for alleged infringement of certain Letters Patent, but wherein the pleadings raised the question of interference of patents under section 4918, Judge Buffington in considering the case said:

Interference and infringement are essentially distinct. The question of interference is determined by the claims, not by the general appearance and functions of the machine shown but not claimed. The elements of Wickey's first claim are, first, an encircling hoop, and, secondly, devices for tightening the hoop, neither of which appears in any of Dederick's claims.

The second claim is still more limited, for it includes, besides the two named, a number of others, and what is said of the first applies the more to it. The fifth claim is for a specific form of construction. It is not for the same invention Dederick made, but is subordinate thereto.

An examination of this case shows that there were two species. Dederick claimed the genus and his species and Wickey claimed his species. Although Dederick's genus dominated Wickey's species, the court held that there was no interference of claims.

Reference might be made to many other cases; but the rulings of the courts that unless claims are of the same tenor and scope they do not interfere and that dominating and dominated claims cannot interfere have been so uniform that it seems useless to multiply authorities. So far as the courts are concerned it appears that the only question which they consider in determining whether an interference in fact exists between claims is whether the *claims* interfere and that in considering this question it is unnecessary to determine the question of patentable novelty or the question whether the claims are patentably different.

In proceeding to discuss the decisions of the Patent Office relating to this matter I have no doubt that if the principles adopted by the courts are put into practice in the Office there will be fewer interferences declared, and when declared there will not be as many motions made to dissolve for lack of interference in fact.

In considering the decisions of the Commissioners of Patents upon the question when is there an interference in fact I have only given heed to such decisions as have been made since 1879. On January 1, 1880, revised rules of practice took effect. In these rules appeared a new rule defining an interference proceeding in the Patent Office. That rule has remained unchanged to this day. It then read and still reads in part as follows:

An interference is a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention.

The decisions to which I shall make reference have all been made under that rule.

The first reported case which I find decided under the new rule is that of *Drawbaugh* v. *Blake*, (23 O. G., 1221.) In substance this case holds that the question is whether the claims of the parties cover substantially the same invention; that formal and non-essential differences should be disregarded; that a broad or generic claim and a limited or specific claim do not interfere, and that it does not conflict with public interest to send a broad or generic claim to issue after a narrow or specific claim has been patented. To my mind this case is well reasoned and is founded on the statute (section 4904) and the rules of practice applicable thereto.

Just a year later the decision was practically reversed by *ex parte Upton*, (27 O. G., 99,) which holds, among other things, that if the claim of one party will include that of the other there is an interference in fact. This finding is unsupported by any cited authority and is clearly opposed to the decisions heretofore cited and to those cited in *Drawbaugh* v. *Blake*.

The case also finds that it should be settled in the Patent Office who is entitled to the broad claim, and this should appear as the result of an interference proceeding. I do not think that it is the province of the Patent Office to settle who is entitled to any claim, broad or narrow, unless an applicant first makes the claim. It is the well-settled rule of practice in *ex parte* proceedings that where an applicant fails to make a claim as broad as he is entitled to his application is sent to patent. It appears in the Upton case that the patentee, Dodge, had but one very limited claim to the construction shown and described, while the applicant, Upton, made broad claims to the genus. The rules in force when the Upton case was decided contained one similar to present Rule 75, and it seems to me that the patent to Dodge, being a proper reference to the broad claim of the Upton application, under the rules, Upton, if he claimed to have made the invention before the date of the application for the Dodge patent and having made the necessary affidavit overcoming the patent as a reference, should have had his application passed to issue and should not have been placed in interference with the Dodge patent. Such I believe to be the proper practice, and it should be followed.

The Upton case further holds that—

neither the spirit of the law nor public policy sanctions the granting of patents with specific claims while applications with generic claims which include the specific claim allowed are still pending, the objection being that whether the application with the generic claim pending belongs to the same party who has a specific claim under the genus, or is an application of a different party, a patent covering by a generic claim, if a subsequent patent, improperly extends the monopoly.

It is evident that the gist of the Upton decision is that to fail to put into interference claims which have the relation of broad and narrow or generic and specific is error. The first reason for the ruling, as above stated, is that such course is contrary to "the spirit of the law." The answer to this is

that the spirit of the law can be determined only by its language and by the decisions of the courts construing this language. The second reason is that "public policy" does not sanction such a course. It is not stated what public policy is violated, unless it is meant that thereby a monopoly is extended. If it means that, it is not well founded. It is unsafe to conclude that what the law requires is contrary to public policy. To obey the law is certainly not contrary to public policy. To promote the useful arts subserves public policy. They are promoted by the disclosure of an invention through the speedy issue of the patent. The third reason adduced in support of the conclusion is that the action "improperly extends the monopoly." I do not think this reason is well founded. It cannot be presumed that a patentee who has gone out with a narrow claim made the broad invention. The presumption is that he claimed all that he invented. Another applicant, having made a broad claim, is entitled to his patent. If a patent with a narrow claim has meanwhile issued, the applicant with the broad claim, having given sufficient proof that he made the broad invention before the application for the patent for the narrow invention was filed, is entitled to his patent. The two patents being issued the long line of reported cases proves conclusively that the courts would undoubtedly hold that the two patents were not interfering patents. If the patentee holding the first patent containing the narrow claim proved that he was the first inventor of the subject-matter of the broad claim contained in the second patent, such claim of the second patent would, in proper proceedings in the courts, be held to be void and invalid. Again, a monopoly is extended only when two patents claim the same thing in the same breadth. In order to extend the monopoly, two coexistent patents must each have the same claims. The two patents must be coextensive in the number of the elements and in the breadth of each element. The reasons stated for requiring an interference between two applications differing in the breadth of the claims are of no force, for the reason that whether the two coexisting patents are obtained as the result of or without an interference proceeding there is no extension of any monopoly. I do not think that the question whether an extension of a monopoly will result from the institution of or failure to institute an interference proceeding in the Patent Office can properly be considered. It is not the province of the Patent Office to make law. The law as it stands should be obeyed, and such wrongs as result from the law should be corrected by legislation, not by forced judicial construction. So far as the Upton case holds that an interference should be declared between two applications or between an application and a prior patent whose claims are not substantially identical in tenor and scope it is not well founded in law.

The decision in the Upton case seems to have been in the main followed until the decision in the case of *Reed* v. *Landman*, (55 O. G., 1275.) This case overruled *ex parte Upton* in its holding that when one claim included another there is an interference. It practically revived and affirmed the decision in *Drawbaugh* v. *Blake*, *supra*. In one respect, however, it made an exception to the decision in the earlier case in that it held that an interference should be declared between a generic or broad claim and a specific or narrow claim when both claims are drawn on the same structure. The Commissioner said:

> Of course generic and specific claims, based upon the same structure of invention, conflict, because the invention is one and the same, whether generically or specifically stated.

The reason for the exception made by the Commissioner is not given. On principle it does not seem to me to be well founded. Neither claim would sustain a separate patent. The existence of both patents does not extend the monopoly of either claim. One patentee may reissue to make an interference with the patent of the other. Even if one has lost the right of reissue there is but one monopoly running. It cannot run more than seventeen years. It may be terminated by the result of a suit in court. It is not essential to the decision of this case to assert that this exception is clearly erroneous, and the necessity for its application to any given case hereafter can easily be avoided. Where two applications are concurrently pending having claims of different scope drawn on the same structure, I see no good reason why the Examiner should not give the applicant making the specific or narrow claim an opportunity, by suggestion, if necessary, to make the broader claim. If the suggestion is followed, then the parties would be making a claim identical in tenor and scope, and an interference will properly and naturally follow.

In giving approval to such practice I have considered the case of *ex parte Weeden*, (60 O. G., 1191,) and to this extent that case may be considered as overruled.

The case of *Reed* v. *Landman* also holds that the rule which determines the existence of an interference in the courts applies in the Patent Office, and in support of that finding reference is made to the case of *Gold and Silver Ore Separating Co.* v. *U. S. Disintegrating Ore Co.*, *supra*, and attention is called to the fact that section 8 of the act of 1836 corresponds to section 4904 of the Revised Statutes relating to interference proceedings in the Patent Office.

The rule laid down in *Reed* v. *Landman* was followed in *Edison* v. *Stanley, Jr.*, (57 O. G., 273;) *Zettinger* v. *Reynolds*, (57 O. G., 1279;) *Searle* v. *Frumveller*, (58 O. G., 804;) *Dodd* v. *Reading*, (58 O. G., 1413,) and in other cases with scarcely an exception until in *Kinyon* v. *Carter* (66 O. G., 513) it was held that the rule of *Reed* v. *Landman* did not apply where both parties were *applicants*, and it was asserted that an interference properly exists where different specific forms are shown by the two applicants, both capable of being covered by a broad claim, although but one of the applicants makes the broad claim, while the other makes a claim limited to his species. No authority is cited in *Kinyon* v. *Carter* to sustain the holding that

there is a different rule to be applied in an interference between two applications than in an interference between an application and a patent. In both cases an interference does not and cannot legally exist unless the claims are coextensive. The courts have clearly held that the interference proceeding intended and carried on under former section 16 of the act of 1836, now section 4918 of the Revised Statutes, is the same as the proceeding contemplated in section 8 of the same act, now section 4904 of the Revised Statutes. (*Gold and Silver Ore Separating Co.* v. *U. S. Disintegrating Ore Co.*, *supra*.) The difference between the two simply rests in the fact that the forum is different. The Examiner or Commissioner treating the question of interference should put himself in the place of a judge of the United States circuit court. He should in deciding whether or not an interference should be declared treat the applications or the patent and the application the same as though they were both issued patents pending before the court. I fail to see any good ground for the conclusion arrived at in *Kinyon* v. *Carter* that there is any different rule of law applicable to an interference when it is declared between two applications than when it is declared between an application and an unexpired patent. The same principles which determine whether there would be an actual interference must apply alike in each of the conditions in which the cases are when before the Patent Office to determine whether they would interfere.

Reviewing the uniform decisions of the courts and the conflicting decisions of the Patent Office, giving due weight to the reasons adduced for arriving at the various conclusions, and noting the authorities sustaining the various conclusions, whenever authorities have been cited, I am of the opinion that an interference can only be instituted for the purpose of determining the question of priority of invention between two or more parties *claiming* substantially the same patentable invention; that of necessity there must be allowed claims to all parties before an interference can be declared, and that not only a patent and an application must claim in whole or in part the same invention, but also two applications must claim in whole or in part the same invention before an interference can be declared.

The subject-matter involved in the interference is stated by the Examiner to be as follows:

> 1. The combination with a wheeled vehicle of an explosive-engine mounted thereon, and operatively connected with a wheel of the vehicle, an apparatus independent of the explosive-engine, arranged to be worked by the exertions of the operator, for forcing the explosive mixture at will into the explosion-chamber of the engine, and means actuated by a part of such forcing apparatus for exploding the charge, whereby, at the will of the operator, the intervals between the explosions of the charges can be controlled.
>
> 2. The combination with a wheeled vehicle of an engine operatively connected with a wheel of the vehicle, a controllable apparatus worked by the exertions of the operator for introducing at will varying quantities of explosive mixture into the engine and compressing the mixture therein, a power-spring mechanism connected with a working part of the engine and adapted to receive and store the energy of the engine and subsequently apply the same to the propulsion of the vehicle, and means actuated by a part of said controllable apparatus for exploding the charge, whereby, at the will of the operator, the quantity of the charge and time of explosion can be controlled.

The first count is stated to be substantially claim 5 and to embrace claims 1, 2, and 6 of the Hart application, and the second count is stated to be substantially claim 4 and to embrace claim 3 of the same application.

Claims 4 and 5 of the Hart application read as follows:

> 4. The combination with a wheeled vehicle, of an engine operatively connected with a wheel of the vehicle, a controllable apparatus worked by the exertions of an attendant for introducing at will varying quantities of explosive mixture into the engine and compressing the mixture therein, a power-spring mechanism connecting a working part of the engine with the body of the vehicle, and means actuated by a part of said controllable apparatus for exploding the charge, whereby, at the will of the attendant, the quantity of the charge and time of explosion can be controlled, substantially as described.
>
> 5. The combination with a wheeled vehicle, of an explosive-engine mounted thereon, and operatively connected with a wheel of the vehicle, an apparatus independent of the explosion-engine, arranged to be worked by the exertions of the operator, for forcing the explosive mixture at will into the explosion-chamber, and means actuated by a part of such forcing apparatus, for exploding the charge, whereby, at the will of the operator, the intervals between the explosions of the charges can be controlled.

Claims 1, 2, 3, and 6 are all narrower than claims 4 and 5.

No claim allowed to Hammond is placed in interference. His rejected claims are not similar to Hart's allowed claims. Some of Hammond's rejected claims are far broader than Hart's and not patentable in the opinion of the Examiner.

Comparing Hart's claims with the issues it will be seen that the issues are not his claims. The Examiner has constructed the issues out of Hart's claims 4 and 5. In other words, the Examiner has made two new issues, neither of which is an allowed claim made by either party. I believe this to be bad practice. The applicants should make the issues by their claims. If an Examiner for any reason desires the issues to be different, he should arrive at that result by requiring the claims to be amended by the applicants.

The applications contain no interfering claims, and for that reason also the interference should be dissolved.

Furthermore, the weight of authority and reason clearly warrant a finding that no interference in fact exists, because the parties do not claim, in whole or in part, the same invention.

The decision of the Primary Examiner is reversed.

EX PARTE BRAND.

Decided December 13, 1897.

1. DESIGN—DIVISION.

The requirement of the Examiner that applicant restrict the application to one or the other design for castings for a bedstead rail-joint affirmed.

2. SAME—SAME—ARTICLES USED TOGETHER—UNITARY DESIGN—AGGREGATION.

The fact that two articles are used together does not make them, when so used, constitute a unitary design, but the result is merely an aggregation of the two designs. (*Ex parte Pullis*, 35 O. G., 980; *ex parte Haggard*, 60 O. G., 1126.)

3. SAME—SAME—SAME.

The fact that the parts are specially designed for detachment it cannot be held that the two together constitute a unitary design merely because they may be used together.

4. SAME—SAME—DETACHABLE PARTS.

A design must be a single unchangeable article of manufacture and must not be made up of independent detachable parts.

ON petition.

DESIGN FOR A RAIL-JOINT FOR IRON BEDSTEADS.

Application of George Brand filed October 22, 1896, No. 609,767.

Messrs. Townsend & Decker for the applicant.

GREELEY, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner requiring the applicant to restrict his application to the design for one or the other of his castings for a bedstead rail-joint.

The application discloses a casting on the side rail of a bedstead and another adapted to be attached to the frame of the bedstead, which castings are adapted to interlock and form a joint.

The claim is as follows:

The design for the parts of a joint for bedstead-rails, substantially as shown and described.

It is apparent from the above statement that the application is not limited to a single article of manufacture, as provided in section 4929 of the Revised Statutes, but covers two separate and distinct articles, which bear no resemblance to each other in shape or configuration and are in no way connected except in being used together. The fact that two articles are used together does not make them, when so used, constitute a unitary design, but the result is merely an aggregation of the two designs. (*Ex parte Patitz*, 25 O. G., 980; *ex parte Haggard*, 80 O. G., 1126.) A design must be a single unchangeable article of manufacture and must not be made up of independent detachable parts. As stated in *ex parte Brower*, (C. D., 1873, 151:)

It is arbitrary and unchangeable, either by the separation or the rearrangement of its features.

In the present case the parts are not only detachable, but the shape or configuration of the parts is designed for the very purpose of attachment and detachment from each other, and it seems to have no other purpose. In view of the fact that the parts are specially designed for detachment it cannot be held that the two together constitute a unitary design merely because they may be used together.

The Examiner's requirement was proper, and therefore this petition is denied.

EX PARTE ELDON.

Decided April 11, 1898.

1. DESIGN—MISLEADING STATEMENT IN SPECIFICATION AS TO MODIFICATIONS.

The specification contained this paragraph: "While the drawings illustrate the cylindrical body of the grip as being provided with circular rows of the perforations or holes and continuous circular ribs or beads alternating with the rows of perforations or holes, it will be understood that this specific arrangement may be modified to some extent without departing from the spirit or principle of the present invention, the essential feature of which is a cylindrical body provided with annular rows of perforations, and exterior circumferential ribs arranged between the rows of such exterior perforations." On appeal from the requirement of the Examiner that this statement be canceled *Held* that this statement was evidently intended to make the application cover some other form or modification of design than that shown in the drawing; that it either has this effect or is unnecessary and misleading and should be canceled.

2. SAME—SAME—EFFECT OF BROADENING CLAIM.

Held, further, that such statement does not and cannot have the effect of broadening the claim so as to cover other modifications not shown, as it purports to do, and it is therefore misleading and should be canceled.

3. SAME—SAME—TESTING MODIFICATIONS BY INFRINGEMENT.

Held, further, that, while under the test laid down by the Supreme Court in the case of *Gorham Co. v. White* (14 Wall., 511) as to modifications, the modifications which applicant had in mind in introducing such statement may be held infringements, yet neither the applicant nor the Office can settle this question in advance, and therefore the statement purporting to do so is misleading and should be canceled.

4. SAME—SAME—MODIFICATIONS NOT SHOWN.

If a party cannot cover two modifications by disclosing them, he should not be permitted to do so by a bare statement that his application is intended to cover them, although they are not shown.

ON petition.

DESIGN FOR A HANDLE-BAR GRIP FOR BICYCLES.

Application of Charles E. Eldon filed August 27, 1897, No. 649,784.

Messrs. C. A. Snow & Co. for the applicant.

GREELEY, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner requiring the applicant to cancel the following paragraph contained in the specification:

While the drawings illustrate the cylindrical body of the grip as being provided with circular rows of the perforations or holes and continuous circular ribs or beads alternating with the rows of perforations or holes, it will be understood that this specific arrangement may be modified to some extent without departing from the spirit or principle of the present invention, the essential feature of which is a cylindrical body provided with annular rows of perforations, and exterior circumferential ribs arranged between the rows of such perforations.

This statement was evidently intended to make the application cover some other form or modification of the article than that shown in the drawings. It either has that effect or is unnecessary and misleading. The practice of the Office on the question as to the right of a party to disclose more than one modification of his design was announced in the recent case of *ex parte Coe*, (81 O. G., 2086,) wherein it was said:

When an inventor has produced a design, he has produced a single shape or configuration and not a duality or plurality of such shapes or configurations. He may make additions, but he cannot make modifications without destroying the identity of the design as such.

In the later case of *ex parte Hill and Renner*, (82 O. G., 1988,) also, it was said:

There is abundant authority for the holding that modifications of designs do not exist and should not be shown and described in one patent.

If a party cannot cover two modifications by disclosing them, he certainly should not be permitted to do so by a bare statement that his application is intended to cover them, although they are not shown.

It is held, however, that the statement referred to does not and cannot have the effect of broadening the claim so as to cover other modifications, as it purports to do, and that it is therefore misleading.

It is well settled that the question of infringement of designs is determined by the similarity of appearance in the eye of the ordinary observer. If the resemblance is such as to deceive such an observer, giving ordinary attention to the matter, so that he mistakes one for the other, there is infringement. This is the test recognized by the Supreme Court, (*Gorham Co. v. White*, 2 O. G., 592; 14 Wall., 511,) and the applicant cannot change it in any way by the ideas which he may express as to what would be an infringement. The eye of the ordinary purchaser and not the opinion of the inventor governs in such case. Under this test the modifications which the applicant had in mind in introducing this statement may be held infringements; but neither the applicant nor the Office can settle this question in advance, and therefore the statement purporting to do so is misleading.

This rule does not apply to mechanical patents, since the test of infringement of such patents is not the same as of a design patent.

The petition is denied.

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OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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(ORDER No. 1,901.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 6, 1898.

It is hereby ordered that on and after July 1, 1898, the date of the filing of the application be printed in the heading to the drawings of the printed copies of patents in addition to the matter now appearing thereon.

C. H. DUELL,
Commissioner.

Notice to Show Cause.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 7, 1898.

The following notice to show cause is published in the OFFICIAL GAZETTE for the reason that it has been found impracticable to serve notice in the usual way, a registered letter containing notice to the same effect, mailed to Mr. Holgate at his last-known address, having been returned with the report that it could not be delivered.

To George H. Holgate, doing business under the name of the Association American Inventors, last known address Betz Building, Philadelphia, Pennsylvania, present address unknown:

SIR: Copies of charges filed against you as representative of the Association American Inventors by the following-named persons were sent you on the dates mentioned below, and you were given until February 12, 1898, to answer the same, if you desired to do so:

I. N. Fickes, of Holland, Kans.....January 21, 1898.
Nathan Lloyd, of Greenbrier, Mo.....January 22, 1898.
J. L. Zeiger, of Cleveland, Ohio.....January 22, 1898.
John McWilliams, of Egypt Mills, Mo..February 5, 1898.

You were informed in the letters accompanying the charges of McWilliams, Lloyd, and Fickes that, inasmuch as you were not registered as a patent attorney, disbarment proceedings would not be instituted. It has been determined, however, that inasmuch as you still represent a number of applicants before this Office in applications filed before the 1st of January, 1898, as is shown by a list of such cases filed by your representative on January 14, 1898, and in which registration was waived, said list numbering 171 cases, you are practicing before the Office and within the provisions of the statute you are subject to disbarment proceedings. In view of this fact and in view of the fact that in some of the foregoing cases the filing of the answer was made optional with you you are hereby required to show cause on or before the 15th day of June, 1898, in each of these cases, why you should not be disbarred from practice and why the Commissioner of Patents should not refuse to recognise you as patent agent in accordance with the statutes in such cases made and provided.

C. H. DUELL,
Commissioner.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

CERTIFICATES OF REGISTRATION ISSUED MAY 10, 1898.

Labels.

6,892.—Title: "PEPSIN CREAM BAKING-POWDER." *The Pepsin Cream Baking Powder Company*, Cleveland, Ohio. Application filed March 26, 1898.

6,893.—Title: "RANNEY'S GOLDEN GATE BITTERS." *The H. S. Lincoln Co.*, Boston, Mass. Application filed March 26, 1898.

6,894.—Title: "RAYNOR'S BUG MEAL." *George A. Raynor*, New York, N. Y. Application filed March 26, 1898.

6,895.—Title: "MILK OF WILD OLIVES." (For a Lotion for the Skin.) *Lauren E. Bishop* and *Harry L. Halliday*, Elmira, N. Y. Application filed April 1, 1898.

6,896.—Title: "DIANA." (For Whisky.) *Christian J. Wahmann*, New York, N. Y. Application filed February 28, 1898.

6,897.—Title: "CHIRA." (For a Medicine.) *John Frick*, Louisville, Ky. Application filed March 26, 1898.

6,898.—Title: "SOUTHERN COMFORT." (For a Beverage.) *Martin Wilkes Herron*, Memphis, Tenn. Application filed April 16, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 3, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Between two and three months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 10	Apr. 19	258
102	XIX. Stoves and Furnaces	Feb. 4	Apr. 19	304
255	XII. Mechanical Engineering, Steam-Service, etc.	Feb. 9	Apr. 18	256
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Feb. 3	Apr. 18	261
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 4	Apr. 14	229
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 26	Apr. 9	225
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252	X. Carriages and Wagons	Jan. 10	Apr. 25	237
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 20	Apr. 23	226
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 21	Apr. 22	509
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Jan. 3	Apr. 20	354
246	I. Tillage and Fences	Jan. 26	Apr. 19	273
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Jan. 26	Apr. 19	515
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Feb. 2	Apr. 18	230
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 10	Apr. 14	282
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 14	Apr. 13	341
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236	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 30	Apr. 28	266
217	XXXIII. *Trade Marks, etc.; †Designs, Drafting, and Optics.	Dec. 31	Apr. 20	217
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248	XVIII. Steam-Engineering, etc	Dec. 30	Apr. 18	316
93	XXI. Textiles, etc	Dec. 28	Apr. 18	346
103	II. Farm Stock, Products, etc	Dec. 28	Apr. 18	548
88	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Dec. 21	Apr. 18	471
86	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 3	Apr. 18	503
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 30	Apr. 16	267
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 20	Apr. 15	215
240	VII. Velocipedes	Dec. 13	Apr. 2	935
	Between five and six months.			
211	XV. Plastics, Paper-Making, Paring, Glass, Fuel, Bread-Making, etc.	Nov. 13	Apr. 25	513
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	Apr. 21	493
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Nov. 15	Apr. 20	841
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 27	Apr. 19	508
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 17	Apr. 18	263
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Nov. 19	Apr. 15	309
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Mar. 25	476

Applications Under Examination—Continued.

	Between seven and eight months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 18	Apr. 14	535
221	XXIII. Instruments of Precision, Acoustics, etc.	Sept. 23	Mar. 21	467

Total number of applications awaiting action 14,133

Under one month.			
†Designs	Apr. 15	Apr. 22	126
Between one and two months.			
*Trade-Marks	Apr. 2	Apr. 19	255

ISSUE OF MAY 10, 1898.

Patents	304	No. 603,617 to No. 604,010, inclusive.
Designs	78	No. 28,528 to No. 28,694, inclusive.
Trade-Marks	30	No. 31,515 to No. 31,544, inclusive.
Labels	7	No. 6,582 to No. 6,588, inclusive.
Prints	None.	
Reissues	None.	
Total issue	504	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			New Hampshire	2	
Arizona Territory	1		New Jersey	14	1
Arkansas			New Mexico Territory		
California	10	2	New York	71	3
Colorado	3		North Carolina		1
Connecticut	18	1	North Dakota	1	
Delaware			Ohio	21	3
District of Columbia	2		Oklahoma Territory	1	
Florida	2		Oregon	1	
Georgia	3	1	Pennsylvania	45	5
Idaho			Rhode Island	8	
Illinois	35	2	South Carolina		
Indian Territory	1		South Dakota	3	
Indiana	10	1	Tennessee	5	3
Iowa	7		Texas	9	
Kansas	3		Utah	2	
Kentucky	4	1	Vermont	1	
Louisiana	1		Virginia	2	
Maine	3		Washington	2	
Maryland	3		West Virginia	2	
Massachusetts	42	5	Wisconsin	13	
Michigan	13		Wyoming		
Minnesota	8		U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	11				
Montana	2		Total to citizens of the United States	405	34
Nebraska	2				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia			Mexico		
Austria-Hungary	2		Netherlands		
Barbadoes			Newfoundland		
Belgium	2		New South Wales	1	
Brazil			New Zealand		
Burmah			Norway		
Canada	13		Portugal		
Cape Colony			Queensland		
Chile, Republic of			Roumania		
China			Russia		
Colombia			Scotland	1	
Cuba			South African Republic	1	
Denmark			South Australia		
Egypt			Spain	1	
England	17		Sweden	2	
Finland			Switzerland	1	
France	5	1	Victoria		
Germany	15	1			
Guatemala			Total to citizens of foreign countries	60	3
India	1	1			
Ireland					

PATENTS

GRANTED MAY 10, 1898.

603,617. PIANO-STOOL. HENRY B. RAMM, Bristol, Pa. Filed May 20, 1897. Serial No. 638,503. (No model.)



Claim.—1. The combination of a spiral ratchet-rod, a pawl adapted to engage therewith, laterally-movable means of supporting and guiding the ratchet-rod and supporting the pawl, a seat supported by said ratchet-rod and laterally movable thereon and means adapted normally to restrain and to be manually operated to permit the said lateral movement of the seat upon the ratchet-rod.

2. The combination of a spiral ratchet-rod, a pawl adapted to engage therewith, means of manually operating the pawl to disengage it from the ratchet-rod, the pawl adapted normally to restrain the downward rectilinear movement and to permit the upward rectilinear movement of the rod and to permit the upward-and-downward rotating movement of said rod.

3. The combination with a supporting-base of a spiral ratchet-rod, a pawl adapted to engage therewith, means, laterally movable with respect to the supporting-base, of supporting and guiding the ratchet-rod and supporting the pawl, a rotatably-mounted shaft adapted to actuate the pawl by its rotation but to permit the lateral movement of the pawl upon it, substantially as described.

4. The combination with a support of independently vertically adjustable seat portions movable laterally thereon and an automatic self-releasing bolt for preventing the independent rotation of the seat portions when the same are together but adapted to release the same when they are moved apart either vertically or laterally, substantially as described.

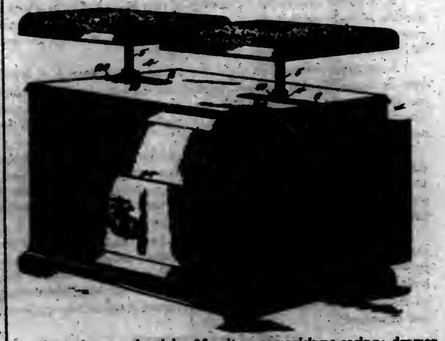
5. The combination with a support, of independently vertically adjustable seat portions, movable laterally thereon, and an automatic self-releasing bolt for preventing the independent rotation of the seat portions, but adapted to release same when they are moved vertically or laterally, substantially as described.

6. The combination of the casing, drawer-compartments formed therein and forming a way therebetween, a flanged socket movable in said way, with the flanges thereof engaging, and moving upon the upper walls of the drawer-compartments, an elevating-rod adjustable vertically in said socket and a seat portion carried by said elevating-rod, substantially as described.

7. The combination with a support, of a socket movable therein, an elevating-rod movable in said socket and provided with a ratchet, a shaft rotatably mounted upon the support, a pawl carried by the socket, and adapted to engage the ratchet, said pawl being slidable upon the shaft but locked from rotation thereon, whereby when the said shaft is operated, the pawl is disengaged from the ratchet, and a seat portion carried by the elevating-rod, substantially as described.

603,618. CABINET AND DUMB-STOOL. HENRY B. RAMM, Bristol, Pa. Filed May 5, 1897. Serial No. 634,897. (No model.)

Claim.—1. An improved article of furniture comprising a casing; drawer-compartments formed therein, said compartments forming between them a way which extends longitudinally of the casing, a sleeve movable in said way, a board secured to the casing above the top of the drawer-compartments and slotted in a line with the way, the walls of the slot of said board provided with flanges, flanges upon the sleeve adapted to move between the flanges of the slotted board and the tops of the drawer-compartments, a stop formed on said board for limiting the movement of the sleeve in one direction, an elevating-rod within the sleeve, a seat portion upon the elevating-rod, and means for retaining the elevating-rod at the proper elevation, substantially as described.



2. An improved article of furniture comprising a casing; drawer-compartments formed therein, said compartments forming between them a way which extends longitudinally of the casing, a sleeve movable in said way, a board secured to the casing above the top of the drawer-compartments and slotted in a line with the way, the walls of the slot of said board provided with flanges, flanges upon the sleeve adapted to move between the flanges of the slotted board and the tops of the drawer-compartments, a step formed on said board for limiting the movement of the sleeve in one direction, an elevating-rod within the sleeve, a seat portion upon the elevating-rod, and means for retaining the elevating-rod at the proper elevation, substantially as described.

3. An article of the class described comprising a base, sleeves movable longitudinally in the same, elevating-rods movable in the sleeves, blocks carried by the upper ends of the elevating-rods, flanges upon the said blocks, seat portions provided with flanged strips upon their under sides which engage the flanges of the blocks whereby the same may be moved thereon, and bolts adapted to project through suitable supports upon the bottom of the seat portions and engage the slots in the blocks whereby the seat portions may be adjusted and secured in their adjustment upon the blocks, substantially as described.

4. An article of the class described, comprising a base, sleeves movable therein, elevating-rods movable in the sleeves, a means for retaining the elevating-rods at the desired elevation, blocks secured to the upper ends of the elevating-rods, flanges formed on the blocks extending transversely the base, flanged strips upon the upper side of the seat portions which are adapted to engage the blocks whereby the same may be moved upon the blocks and bolts carried by the seat portions and adapted to engage the blocks for securing the seat portions in proper adjustment upon the blocks whereby the seat portions may be adjusted transversely the base and by revolving the same can be adjusted longitudinally the base, substantially as described.

5. In an article of furniture the combination of a casing with compartments therein, a way extending longitudinally the casing, a socket movable in said way, means of supporting and guiding said socket, an elevating-rod supported by said socket, a seat portion supported by said rod and having an independent horizontal movement

thereon, locking means of normally restraining said horizontal movement until manually operated and adjustable means of supporting the rod at any desired elevation in said socket, substantially as described.

608,619. PAPER DECORATION. RUDOLF BURGER, Port Richmond, N. Y. Filed Sept. 9, 1897. Serial No. 651,011. (No model.)



Claim.—1. A paper decoration consisting of an upper base and a lower base with layers of fine tissue-paper between them, pasted on each other, once in the center, and once at the edge, or near the edge, or at edge positions, and a string or wire passing through them, fastened with one end to the lower base and having a ring at the other end substantially as shown and described.

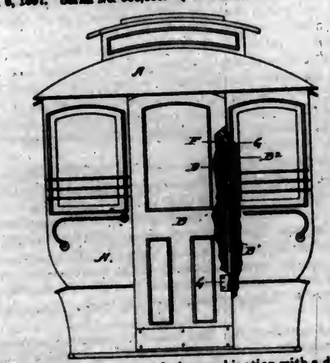
2. A paper decoration consisting of two bases between which a number of tissue-papers are pasted together consecutively once in the center and once at the corners and a string passing through the center, substantially as shown and described.

3. A paper decoration consisting of an upper base A, a lower base B, tissue-papers C pasted together alternately, once in the center and once at the edge or at edge positions, a design F stamped throughout the layers and a string D, substantially as shown and described.

4. In a decoration the combination of the two bases A and B, the tissue-papers C pasted on one another, once in the center, and once at the edge, or near the edge, or at edge positions, and the string D and one "cut-out design" stamped through the layers alone or through the article as a whole, substantially as shown and described.

5. The arrangement of tissue layers between two bases the tissue layers pasted together once in the center, and once at the edge, or near the edge, or at edge positions, and artistically stamped out, a string passing through the layers, fastened at one base, and ending on the other end with a ring or its equivalent, substantially as shown and described.

608,620. DOOR-GUARD. JOHN B. BURTON, Boston, Mass. Filed Dec. 6, 1897. Serial No. 660,839. (No model.)



Claim.—1. In a door-guard, the combination with a door and its frame, of yielding means on the front edge of said door for preventing injury to the hand upon the closing of said door.

2. In a door-guard, the combination with a door and its frame, of yielding means on the front edge of said door for preventing injury to the hand upon the closing of the door, and a groove in the door-frame adapted to receive said means upon the closing of the door.

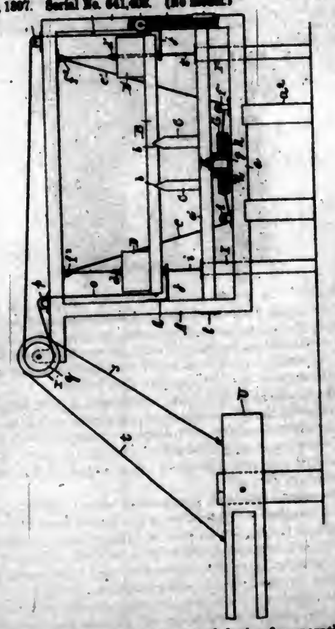
3. In a door-guard, the combination with a door and its frame, of a rubber tube, a groove on the front edge of said door in which said tube is located, and means for holding said tube in position in said groove.

4. In a door-guard, the combination with a door and its frame, of a rubber tube, a groove on the front edge of said door in which said tube is located, means for holding said tube in position in said groove, and a groove in the frame for receiving said tube upon the closing of said door.

5. In a door-guard, the combination with a door and its frame, of a rubber tube, a groove on the front edge of said door in which said tube is located, a rod passing through said tube and secured to the door for holding said tube in position in said groove, and a groove in the frame for receiving said tube upon the closing of said door.

6. In a door-guard, the combination with a door, and its frame, of a rubber tube, a groove on the front edge of said door in which said tube is located, a rod passing through said tube and secured to the door for holding said tube in position in said groove, a groove in the frame for receiving said tube upon the closing of said door, and holding clamps at the top and bottom of said tube.

608,621. DEVICE FOR OPERATING RAILROAD-GATES. JOHN D. CAMPBELL and MELLROY R. CORNELIUS, Paris, Me.; said Campbell assignor of one-eighth to Foster M. Haskell, Boston, Mass. Filed June 10, 1897. Serial No. 641,402. (No model.)



Claim.—1. The herein-described device for operating railroad-gates consisting of a pivoted lever adapted to be struck by a passing train, a horizontal beam weighted at each end, a pair of pivots for supporting said beam, one on each side of the center, mechanism connecting said lever with the ends of said beam for lifting the same alternately by a movement in opposite directions and mechanism connecting the ends of said beam with the gate whereby the latter is opened by the lowering of one end of said beam and closed by the lowering of the other end.

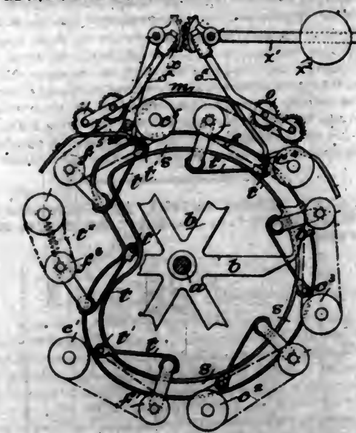
2. The herein-described device for operating railroad-gates consisting of a pivoted lever adapted to be struck by a passing train, a horizontal beam weighted at each end, a pair of pivots for supporting said beam, one on each side of the center, mechanism connecting said lever with the ends of said beam for lifting the same, operating mechanism connecting the ends of said beam with the gate and a dash-pot beneath each end of said beam to retard its downward movement.

3. The herein-described device for operating railroad-gates consisting of a pivoted lever adapted to be struck by a passing train, a horizontal beam weighted at each end, a pair of pivots for supporting said beam, one on each side of the center, flexible cords or guides connecting said lever with the ends of said beam for lifting the same, and flexible cords or guides connecting the ends of said beam with the gate so arranged that the falling of one end of said beam opens and the other closes said gate.

4. In a device for operating railroad-gates, the combination of a disk journaled in a horizontal position, ball-bearings for supporting the same, a lever pivoted to said disk and connected therewith by a yielding connection, a horizontal beam weighted at each end, a pair of pivots for supporting said beam, one on each side of the center, flexible cords or guides connecting said disk with the ends of said beam for lifting the same and mechanism connecting the ends of the said beam with the gate.

5. In a device for operating railroad-gates the combination of a pivoted lever adapted to be struck by a passing train, a horizontal beam weighted at each end, a pair of pivots for supporting said beam, one on each side of the center, mechanism connecting the ends of the said beam for lifting said ends, mechanism connecting the ends of said beam with the gate, a dash-pot and a piston and piston-rod therefor beneath each end of said beam for retarding its downward movement and means for keeping said piston-rod pressed upward against the end of said beam.

608,622. APPARATUS FOR SIZING AND DRESSING HANK-YARN. BERNHARD CORNEIL, Grevenbruch, Germany. Filed Dec. 21, 1897. Serial No. 662,893. (No model.) Patented in Italy June 27, 1896, No. 275; in France Sept. 21, 1896, No. 260,451; in Belgium Sept. 26, 1896, No. 117,634; in Austria-Hungary Nov. 2, 1896, No. 20,666 and No. 20,669; in Germany Nov. 5, 1896, No. 96,794, and July 24, 1897, No. 92,427, and in England Oct. 26, 1896, No. 23,962.



Claim.—1. In a hank-sizing machine comprising the tank, the rotary frame, the set of cylinders journaled in said frame, the second set of cylinders journaled in movable bearings and adapted to be moved toward and from the first set to permit the insertion and removal of the hanks, and means for intermittingly rotating the frames and for rotating the cylinders when the frames are stationary, substantially as described.

2. In combination, the tank, the rotary frame, the set of cylinders journaled in said frame, the second set of cylinders journaled in bearings movable toward and from the first set of cylinders, means for intermittingly rotating the frame, and for rotating the first set of cylinders during the period when the frames are stationary, and means for holding the movable cylinders away from the first set of cylinders during the major portion of the rotation of the frame and for bringing them into proximity to permit the removal of the sized hanks and the supplying of fresh ones to the cylinders, substantially as described.

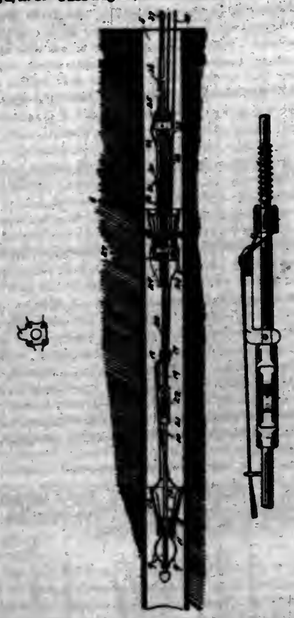
3. In combination, the tank, the rotary frame, the set of cylinders journaled therein, the sprocket-wheels carried by the shafts of said cylinders, the sprocket-chain passing over said wheels and over an idler-wheel serving to hold the chain removed at one point in the path of said sprockets as the frame rotates, the second set of cylinders movable toward and from the first set, means for driving said sprocket-chain to rotate the frame, and means for holding the frame stationary while the movement of the chain continues whereby the cylinders are rotated, substantially as described.

4. In combination, the tank, the rotary frame, the set of cylinders journaled therein, the second set of cylinders journaled in bearings movable toward and from the first set, said first and second sets being arranged in pairs to carry the hanks to be sized, means for intermittingly rotating the frame and for rotating the cylinders when the frame is stationary, the carding-rolls arranged to lie normally in the path of the hanks, and means for automatically moving said carding-rolls out of said path as each cylinder approaches in the rotation of the frame, substantially as described.

5. In combination, the tank, the rotary frame, the set of cylinders journaled therein, the second set of cylinders journaled in bearings movable toward and from the first set, said first and second sets being arranged in pairs to carry the hanks to be sized, means for intermittingly rotating the frame and for rotating the cylinders when the frame is stationary, the rocking arms carrying carding-rolls, quadrants carried by the shafts of said rocking arms to cause their simultaneous movement, an arm carried by one of said shafts, and cams carried by the rotary frame adapted to lift said arm to remove the carding-rolls from the path of the cylinders, substantially as described.

6. In combination, with the tank and the rotary frame carrying a series of cylinders arranged in pairs and adapted to receive the hanks to be treated, with means for rotating the frame and cylinders, a roller covered with spirally-arranged points or projections adapted to engage the material and be frictionally driven thereby, substantially as described.

608,628. CONDUIT-WIRING MACHINE. WILLIAM R. COWAN, Brooklyn, N. Y. Filed Aug. 27, 1897. Serial No. 649,781. (No model.)



Claim.—1. In a conduit-wiring machine, a guide-section, runners thereon a rope-carrying section, a rod and clutches whereby each of the aforesaid sections may be rigidly attached to the interior of a conduit, and means whereby the sections may be alternately introduced within said conduit, by means of said rod, and means whereby said clutches can be withdrawn from contact with the conduit, substantially as shown and described.

2. In a conduit-wiring machine, a guide-section, runners thereon, a rope-carrier, a rod carrying said guide and said runners, clutches on said guide and said carrier respectively, and means whereby said guide and said carrier may be forced alternately within a conduit, substantially as described.

3. In a conduit-wiring machine, a guide-section, runners thereon a rope-carrier section, a rod carrying said guide-section, clutches consisting substantially of fingers pivoted to said guide and rope-carrier sections respectively, means whereby said fingers automatically expand into contact with the conduit, and means whereby said guide and rope-carrier sections may be forced alternately within said conduit, substantially as described.

4. In a conduit-wiring machine, a guide-section, runners thereon a rope-carrier section, a rod carrying said guide-section, clutches consisting substantially of fingers pivoted to said guide and rope-carrier sections respectively, springs whereby said fingers automatically expand into contact with the conduit, and means whereby said guide and rope-carrier sections may be forced alternately within said conduit, substantially as described.

5. In a conduit-wiring machine, a guide-section, runners thereon a rope-carrier section, a rod carrying said guide-section, clutches consisting substantially of fingers pivoted to said guide and rope carrier sections respectively, means whereby said fingers automatically expand into contact with the conduit, and means whereby said guide and rope-carrier sections may be forced alternately within said conduit, sliding collars, connections between said collars and the said

fingers, and means whereby when said guide and said rope-carrier sections are brought together, said collars will slide to compress said fingers, substantially as shown and described.

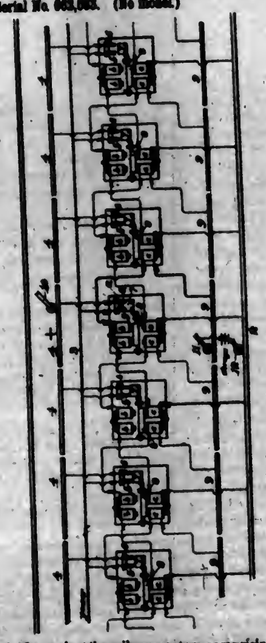
6. In a conduit-wiring machine, a guide-section, runners thereon a rope carrier section, a rod carrying said guide-section, clutches consisting substantially of fingers pivoted to said guide and rope-carrier sections respectively, means whereby said fingers automatically expand into contact with the conduit, and means whereby said guide and rope-carrier sections may be forced alternately within said conduit, sliding collars, connections between said collars and the said fingers, a rod attached to one of said collars and projections on the rope-carrier, substantially as shown and described.

7. In a conduit-wiring machine, a guide-section, runners thereon a rope-carrier section, a rod carrying said guide-section, clutches consisting substantially of fingers pivoted to said guide and rope-carrier sections respectively, means whereby said fingers automatically expand into contact with the conduit, and means whereby said guide and rope-carrier sections may be forced alternately within said conduit, sliding collars, connections between said collars and the said fingers, and means whereby when said guide and said rope-carrier sections are brought together, said collars will slide to compress said fingers, and means whereby said collars automatically release said fingers when said sections are separated, substantially as described.

8. In a conduit-wiring machine, a guide-section, runners thereon a rope-carrier section, a rod carrying said guide-section, clutches consisting substantially of fingers pivoted to said guide and rope-carrier sections respectively, means whereby said fingers automatically expand into contact with the conduit, and means whereby said guide and rope-carrier sections may be forced alternately within said conduit, sliding collars, connections between said collars and the said fingers, and means whereby when said guide and said rope-carrier sections are brought together, said collars will slide to compress said fingers, and springs whereby said collars automatically release said fingers when said sections are separated, substantially as described.

9. In a conduit-wiring machine, a guide-section, runners thereon a rod carrying said section, a pulley thereon, a rope-carrier section, a pulley thereon, clutches on said guide and said rope-carrier sections, and means as ropes 28, 36, attached respectively to said rope-carrier and said rod, and passing over said pulleys respectively, whereby said sections may be alternately forced within the conduit, substantially as described.

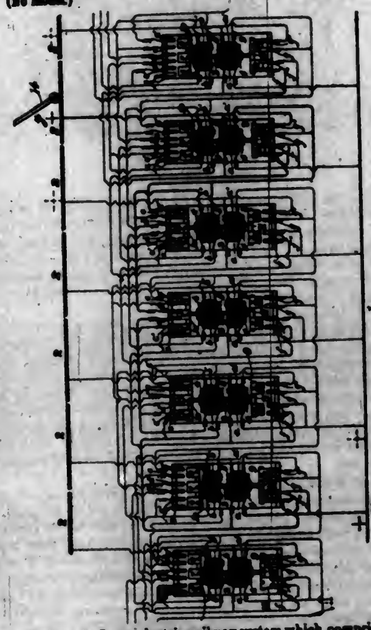
603,624. ELECTRIC RAILWAY. ERNST C. CROCKER, Bridgeport, Conn., assignor of one-half to Edwin C. Howe, same place. Filed Sept. 17, 1897. Serial No. 652,053. (No model.)



Claim.—1. In an electric-railway system comprising a power-collector carried by the car, insulated power-collecting sections, a supply-conductor, and the rails on which the car travels, the combination of a second series of insulated rail-sections, the series of single magnets and the series of pair magnets arranged opposite each other, the armatures within the fields of these oppositely-arranged magnets and carrying switches, the contact-points connected respectively with the power-collecting sections and the supply-conductor, and the storage battery carried by the car and provided with a shoe capable of traveling on said second series of sections, said magnets being in separate branch circuits comprising one of the single magnets and two single magnets from the pair magnets immediately succeeding and preceding the single magnets, the terminals of these circuits being connected respectively with said second series of sections and one of the car-rails, substantially as set forth.

2. In an electric-railway system comprising a supply-conductor, insulated power-collecting sections, and a power-collector carried by the car, the combination of the two series of magnets composed respectively of single magnets and pair magnets arranged opposite to each other and connected in separate branch circuits comprising one of the single magnets and two magnets selected from the pair magnets which immediately succeed and precede the single magnet in each instance, the insulated sections 9 and the car-rail 2 with which the terminals of said circuits are connected, the armatures within the fields of the oppositely-arranged magnets and carrying switches, the insulated contacts connected respectively with the power-collecting sections and with the supply-conductor, and the storage battery carried by the car and operating through the sections 9 to energize said magnets whereby the switches are operated, substantially as set forth.

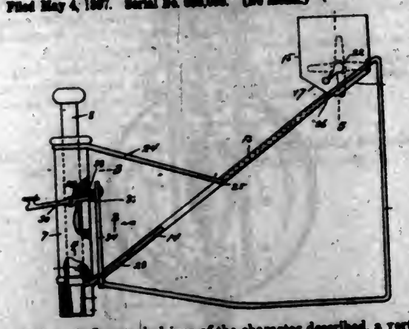
603,625. ELECTRIC RAILWAY. ERNST C. CROCKER and EDWIN C. HOWE, Bridgeport, Conn. Filed Sept. 17, 1897. Serial No. 652,045. (No model.)



Claim.—1. In an electric-railway system which comprises a supply-conductor, insulated third-rail sections, and a power-collector carried by the car, the two series of magnets each series comprising pairs of separate magnets arranged opposite each other, single magnets selected from each quarternate couplet of one series being connected in circuit with single magnets selected from alternate couplets of the other series intervening between said quarternate couplets, whereby branch circuits are formed, and connections with said conductor and sections through intermediate circuit closers and breakers operated by said magnets whereby the section having contact with the collector is in closed circuit while the sections immediately succeeding and preceding are in circuits capable of being closed by the collector, substantially as set forth.

2. In an electric-railway system which comprises a supply-conductor, insulated third-rail sections, and a power-collector carried by the car, the two series of magnets each series comprising pairs of separate magnets arranged opposite each other, single magnets selected from each quarternate couplet of one series being connected in circuit with single magnets selected from alternate couplets, whereby branch circuits are formed, connections with said conductor and sections through intermediate circuit closers and breakers operated by said magnets whereby the section having contact with the collector is in closed circuit while the sections immediately succeeding and preceding are in circuits capable of being closed by the collector, and shunt devices tapped into connection with the coils of said magnets and automatically operated by said circuit closers and breakers whereby the current is shunted from said magnets after the latter have performed their function and is directed in practically a straight course between the supply-conductor and the various insulated sections, substantially as set forth.

603,626. TACK-DRIVER. CHARLES W. KAHER, Denver, Colo. Filed May 4, 1897. Serial No. 635,998. (No model.)



Claim.—1. In a tack-driver of the character described, a vertically-movable plunger provided at the upper end with a head, a lever pivotally mounted on the casing in which said plunger is mounted and provided with a cross-bar adapted to engage a pin secured to said plunger whereby the same may be elevated, a plate secured to said pin of the plunger and adapted to move therewith, said plate being suspended in a way and being provided with an opening adapted to permit the passage of tacks from said way when the said plate is in a predetermined position, and means for placing tacks in said way, substantially as and for the purpose described.

2. In a tack-driver, the combination with a driver, of a receptacle having the bottom inclined toward said driver, and a slot therein open at one end only, a shaft revolubly mounted in said receptacle, means for revolving the same, a plurality of push-arms mounted on said shaft and adapted to project through said slots successively, and an inclined way in the same straight line with the bottom of said slot, having a slot therein adapted to register with the open end of said first-named slot whereby a passage-way for tacks is formed connecting said receptacle and said driver, substantially as described.

603,627. AXLE-BEARING. CLAY FAULKNER, McMinnville, Tenn. Filed Dec. 17, 1897. Serial No. 662,515. (No model.)



Claim.—1. The combination with a support, and revoluble axles extending from a point at or near the longitudinal center of the vehicle outward in opposite directions, of bearing-sleeves having ball-and-socket connection with the support, in which the axles turn.

2. The combination with a support and an axle, of a collar secured to the end of the support and having depending ears, a bearing-sleeve having an adjustable bearing between said ears, a pin projecting from said bearing-sleeve, a brace secured to said collar and having a hole for the reception of said pin, substantially as set forth.

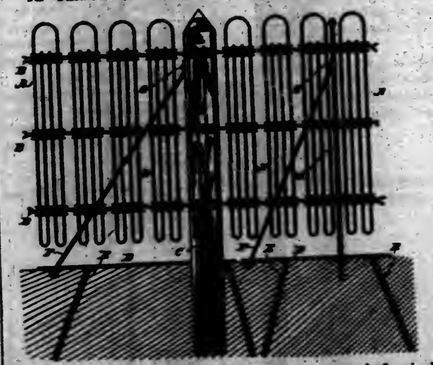
3. The combination with a support and an axle, of a collar secured to the end of said support, ears depending from said collar and having notches in their free ends, a bearing-sleeve having an adjustable bearing between said ears, a brace having its end disposed in the notches in the ears, and a yoke securing said brace to the collar, substantially as set forth.

4. The combination with a support and an axle, of a collar on said support provided with depending ears and having a curved recess between said ears, a bearing-sleeve for the axle, a curved enlargement between the ends of said bearing-sleeve and having a bearing in said curved recess in the collar, a brace secured to the ends of said ears and having a hole and a pin projecting from said curved enlargement and entering said hole in the brace, substantially as set forth.

5. The combination with a support and a revoluble axle, of separable blocks secured to the support near its center, each block having a curved recess in its inner face, and a bearing-sleeve for the inner end of the axle, having a spherical enlargement disposed in said recessed blocks, substantially as set forth.

6. The combination with a support and a revoluble axle having an annular recess at or near its inner end, of recessed blocks secured to the support and a sectional bearing-sleeve having a spherical enlargement to cooperate with the recessed blocks to form a ball-and-socket joint, said sectional bearing-sleeve being disposed in the annular recess in the axle, substantially as set forth.

603,628. FENCE. THOMAS B. FREEMAN, Jr., Waynesborough, Pa. Filed Oct. 5, 1897. Serial No. 654,562. (No model.)



Claim.—1. In combination, a fence-picket composed of a single length of wire bent to form a number of parallel strands more than two in number, and clips of sheet metal passed upon the strands during the formation of the picket, in the manner described.

2. A fence-picket composed of a single length of wire bent to produce a number of strands parallel with each other and more than two in number, and clips of sheet metal having side flanges with holes therethrough, said strands being passed through said holes in the manner described.

3. A fence-picket composed of a single length of wire bent to produce a number of strands parallel with each other and more than two in number, and clips of sheet metal E-shaped in cross-section producing flanges, through which said strands are passed in the manner described, and means for preventing a longitudinal movement of the clips, substantially as set forth.

4. In combination with a picket of the character described, a clip composed of sheet metal so bent as to provide flanges through which the strands of said picket are adapted to pass, said clip having slots formed therein, with which bent portions of the picket-strands may be engaged, and end strips formed with the clip in engagement with the side strands of the picket, as shown and described.

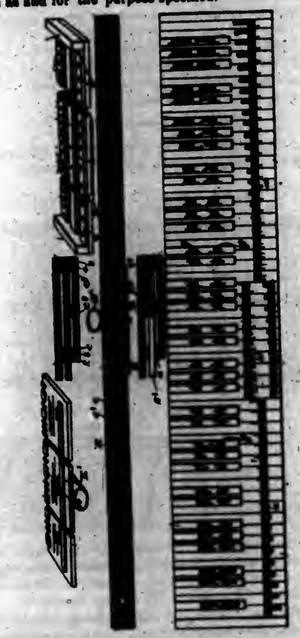
5. As a new article of manufacture, a picket consisting of a single length of wire so bent as to form a number of strands lying parallel with each other, a series of clips formed of sheet metal and passed upon the picket during its formation, and so secured as to hold the elements of the picket rigid relative to each other, as specified.

6. A fence-picket composed of a single length of wire bent to produce a number of strands parallel with each other and more than two in number, and clips of sheet metal E-shaped in cross-section producing flanges, said clips being slotted, said strands being passed through said flanges and bent or bulged into the slots, as and for the purpose set forth.

603,629. SEPARABLE OBJECT-LESSON KEYBOARD. EUSTACE A. FLEMMING, Toronto, Canada. Filed Apr. 13, 1897. Serial No. 631,988. (No model.)

Claim.—1. A device for teaching pianoforte comprising the separable white and black keys having the staves and notes of the musical notation inclined thereon, depending projections on the white keys, a base, longitudinal strips thereon with holes to receive the depending projections, depending projections on the black keys, the rear strip provided with holes between the white keys designed to receive the projections on the black keys and a longitudinal strip supported on the base and designed to form a rest for the front ends of the black keys at and for the purpose specified.

2. In combination the separable white and black keys, the base for supporting the same, a cover-board provided with intervening blocks to fit between the black keys and rest upon the white keys at the rear and a longitudinal strip attached to the cover designed to rest upon the white keys immediately in front of the black keys and means for holding the cover to the keyboard so as to retain the keys in position as and for the purpose specified.



3. In combination the separable white and black keys, the base for supporting the same constructed in two parts and hinged together, a cover-board formed in two parts, a flexible elongated loose connection between the parts designed to allow of the two parts of the base being folded on each other and fastening devices for connecting the free ends of the cover and base together as specified.

608,680. ELECTRIC-ARC LAMP. FREDERICK A. GILBERT, Brookline, and EMIL O. LEUDER, Beaumont, Mass. Filed July 1, 1897. Serial No. 643,123. (No model.)

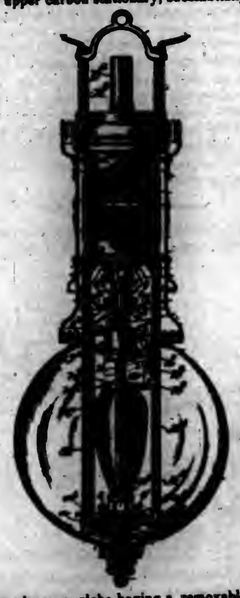
Claim.—1. In an arc-lamp, a feed-controlling clutch including rotatable members to directly engage the carbon, rocking carriers for said members, brakes mounted on the carriers to prevent rotation of and press said members against the carbon, and an actuator to operate the carriers and control the brakes to thereby raise and lower the clutch bodily, substantially as described.

2. In an arc-lamp, a feed-controlling clutch including rotatable members adapted to directly engage the carbon, rocking carriers for said members, brakes mounted on the carriers, and an actuator to throw the operation of the brakes and thereby throw the clutch into and out of operation and also to raise and lower the same bodily, combined with an adjustable stop to effect release of the carbon at a predetermined point, substantially as described.

3. In an arc-lamp, a feed-controlling clutch comprising rotatable contact members, rocking carriers therefor, brakes mounted on said carriers, to press the contact members against the carbon and prevent their rotation, a tubular actuator in which the upper carbon is freely movable, and connections between said actuator and carriers, to operate the latter and thereby regulate the feed of the carbon, substantially as described.

4. In an arc-lamp, the lamp-body, a depending guide having a longitudinally-slotted, tubular extension through which the upper carbon is loosely extended, combined with a controlling-clutch for said carbon, comprising rotatable contact members, rocking carriers therefor, a support for said carriers, adapted to slide on the tubular extension, brakes on the carriers to act upon and press the contact members against the carbon, a clutch-actuator, and connections between it and the carriers, to operate, substantially as described.

5. In an arc-lamp, a globe having a removable cover, through which the carbon passes, and means to lift the cover and retain it lifted from the globe for trimming, the cover when lifted engaging and holding the upper carbon stationary, substantially as described.



6. In an arc-lamp, a globe having a removable cover through which the carbon is normally adapted to freely pass, a lifting-arm to which said cover is pivotally jointed, and a detent to retain said arm and cover lifted, the cover when lifted inclining to the horizontal and engaging the upper carbon to prevent its downward movement, substantially as described.

7. In an arc-lamp, a globe cover having a central upturned hub exteriorly threaded at its upper end, a disk having an opening in which the carbon snugly fits, and a downturned, outwardly-bent flange on said disk, threaded to engage the hub of the cover, the bent portion of the flange permitting lateral movement of the disk after separation of the said threaded portions, substantially as described.

8. In an arc-lamp, a globe-cover having a central upturned hub, a cooperating disk having an opening in which the carbon snugly fits, and means to retain the disk on the cover while permitting free lateral movement about the hub, substantially as described.

9. In an arc-lamp, a globe-cover having a central opening through which the carbon loosely passes, a cooperating disk apertured to snugly receive the carbon, and a detachable connection between the cover and disk, permitting relative lateral movement thereof without separation, substantially as described.

10. In an arc-lamp, a controlling-clutch for and to directly engage the carbon, a longitudinally-movable tubular actuator therefor in which the carbon is freely movable, a cut-out circuit in which said actuator is included, and a circuit-controller one member of which is fixed and the other mounted on the actuator, movement of the actuator to separate the carbons in starting the lamp breaking the cut-out circuit, substantially as described.

11. In an arc-lamp, an open cylindrical body, series-wound and shunt coils inclosed therein, and a resistance-coil wound upon the exterior of said body and insulated therefrom, whereby said resistance-coil is supported independently of the series and shunt coils, substantially as described.

12. In an arc-lamp, a cylindrical body, series-wound and shunt coils inclosed therein, a resistance-coil wound upon the exterior of said body and in shunt with the series coil, and a sliding regulator to adjust the resistance, substantially as described.

13. A contact device for electric-lamp carbons, comprising a supporting member, and a plurality of independent gravity contact members mounted to rock about their lower ends, said lower ends resting on the bottom of the supporting member, the upper portions of said members having enlargements on their inner faces adapted to rest against the surface of the carbon, substantially as described.

14. A contact device for electric-lamp carbons, comprising a tubular support having a centrally-apertured base, a plurality of independently-movable gravity contact members, mounted at their lower

ends on said base and radially disposed around the aperture therein, adapted to rock on their lower ends and move their upper portions into contact with the carbon, and a stop to engage the upper ends of said contact members and limit their inward movement, substantially as described.

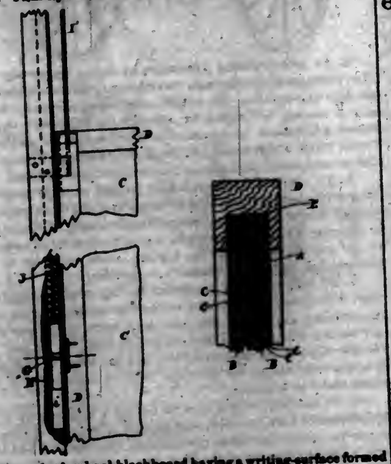
15. A contact device for electric-lamp carbons, comprising a tubular support having a centrally-apertured base, and a series of radially-disposed gravity contact members mounted on said base and normally moved by gravity toward the longitudinal axis of the support, the lower ends of said members resting on the base adjacent the tubular support, substantially as described.

16. In an arc-lamp, a main body portion, depending arms connected at their lower ends, clamp-screws on said connection, and a lower-carbon holder provided with oppositely-turned, hooked ears to engage and be held in place by said clamp-screws, substantially as described.

17. In an arc-lamp, a detachable lower-carbon holder having a globe-socket and oppositely-turned hooked ears, combined with a support having clamp-screws to be engaged by said ears, to retain the holder in place, substantially as described.

18. In an arc-lamp, the main body portion, depending arms connected at their lower ends by a cross-bar, a hub thereon longitudinally slotted at one side, and a lower-carbon holder detachably mounted on the cross-bar, substantially as described.

608,681. BLACKBOARD. GOTTFRIED GLASHAGEN, Remo, Germany. Filed Apr. 20, 1897. Serial No. 633,214. (No model.)



Claim.—1. A school-blackboard having a writing-surface formed by a mixture of Japan lacquer and reduced kieselguhr rubbed or polished, substantially as herein specified.

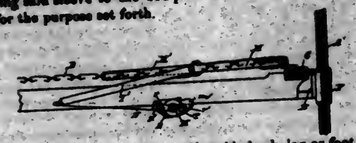
2. A school-blackboard comprising a section of wood or cork felt having a layer of leather-board cemented thereto by soluble glass and faced with a mixture of Japan lacquer and reduced kieselguhr in two or more layers, rubbed or polished, substantially as herein specified.

3. In a school-blackboard, the combination of a plate A of wood-felt or cork-felt, which is covered with two leather-boards cemented thereto by means of water-glass under the application of pressure, upon which boards B, B, the writing-surfaces C C are formed of layers of Japan lacquer and kieselguhr, the whole being firmly fixed in a wood frame D, substantially as herein specified.

4. In a blackboard, the within-described board A B, D, mounted by means of the pins G, in bearings H, which latter are guided in grooves i of the stand I, and suspended by means of contractile helical springs J, whereby the weight of the board is approximately balanced and its raising and lowering is more easily effected, in combination with the hooks and toothed racks for engaging said board, all arranged for joint operation, substantially as herein specified.

608,682. INVALID-BEDSTEAD. ARABEL J. GOODWIN, Brooklyn, Mass. Filed Feb. 16, 1894. Renewed Oct. 11, 1897. Serial No. 654,877. (No model.)

Claim.—1. In a bedstead a tubular metal bed-post and a metal casing surrounding said bed-post combined with an adjustable non-divided sleeve fitting around said casing and means for adjustably securing said sleeve to the bed-post and bed-frame substantially as and for the purpose set forth.

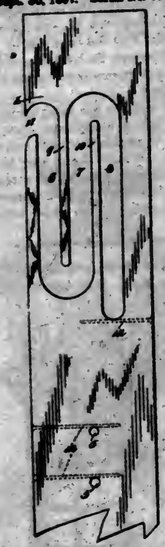


2. In a bedstead having an adjustable back, leg or foot support and a lifting-frame pivoted to said support combined with a spring for automatically causing the said lifting-frame to be folded beneath the bed when the support is fully lowered substantially as and for the purpose set forth

3. In a bedstead an adjustable back leg or foot support and a lifting frame pivoted to said support combined with an adjusting-shaft connected to the lifting-frame a ratchet secured to said shaft and pivoted pawl engaging said ratchet and an adjustable friction device arranged on said shaft and adapted to be used as a locking device independently of the pawl-and-ratchet locking device substantially as and for the purpose set forth.

4. In a bedstead a main mattress combined with a leg or seat supporting adjustable mattress pivoted or connected to the former and a leg or seat supporting frame attached in one end to said adjustable mattress and pivoted at its other end to the side rails of the bed-frame substantially as and for the purpose set forth.

608,683. CLOTHES-LINE SUPPORT. JERRY S. GREEN, Maquoketa, Iowa. Filed Sept. 30, 1897. Serial No. 653,614. (No model.)



Claim.—1. In an extensible clothes-line prop, the combination with the relatively-slidable parts or members held together and directed in their movements, one of the sections being provided with a series of openings, of a catch applied to the other section to engage with any one of the openings to hold the parts in an adjusted position, and nails or pins driven into the section having the series of openings so as to come to one side of the said openings to reinforce them and receive the wear and strain of the catch, substantially as and for the purpose set forth.

2. A clothes-line support having a line-receiving slot of a zigzag or serpentine form, comprising inner and outer slots separated by an intermediate part, the inner slot being closed at its lower end and the outer slot having communication with the upper end of the inner slot and having a passage extending through the edge of the support, substantially as specified.

3. A clothes-line prop having a series of straight parallel slots in communication at opposite ends, the outermost slot having a passage communicating with its upper end, substantially as and for the purpose set forth.

4. An extensible clothes-line prop constructed substantially as herein specified, comprising relatively-slidable strips, the one having a series of openings and a line-receiving slot, the latter consisting of

a series of straight parallel slots in communication at opposite ends, and having a passage leading from the upper end of the outermost slot through the edge of the strip in a downwardly and outwardly inclined direction, nails or pins driven into the edge of the said strip to reinforce the series of openings thereof and the inner closed end of the line-receiving slot, loops or guides spaced apart and secured to the upper end portion of the other strip, and a spring-catch applied to the last-mentioned strip and located between the loops or guides to engage with the openings of the first-mentioned strip to hold the strips in an adjusted position substantially as set forth.

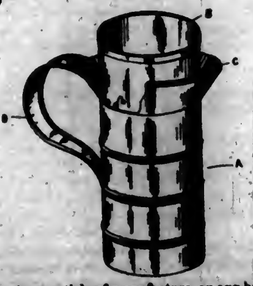
608,634. PUMP FOR INFLATING PNEUMATIC TIRES. AUGUSTUS GROSS, Sydney, New South Wales. Filed Nov. 26, 1897. Serial No. 659,913. (No model.)



Claim.—1. In an apparatus for automatically inflating tires the combination with the tire-tube, the valve-casing V connected with said tube and having an open end, the tire-pump having an open end adapted to be connected with the open end of the valve-casing, the pump-piston playing through the opposite end of said pump and means for reciprocating the pump-piston as the bicycle-wheel rotates, substantially as described.

2. In combination with the tire-tube, the valve-casing connected therewith, said casing having an enlarged open end, a pump having an open end threaded to engage the open end of the valve-casing, the plug threaded into the valve-casing and having grooved lower edge and central passage, the flexible band extending across the passage and having its ends secured to said grooved edges and means for operating the pump-piston as the wheel rotates, substantially as described.

608,635. EGG-BREAKING AND MEASURING UTENSIL. CARL M. HAGER, Worcester, Mass. Filed Aug. 14, 1897. Serial No. 648,232. (No model.)



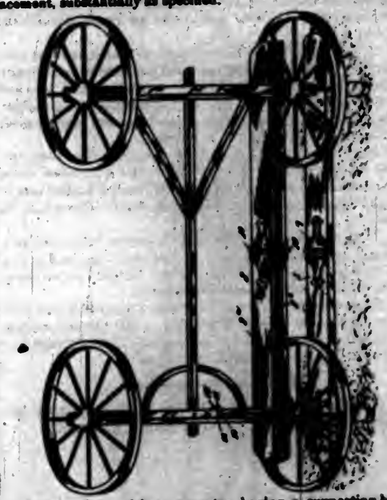
Claim.—1. As an article of manufacture, an egg-breaking utensil comprising a breaking-collar and an upwardly-flaring drip-flange, said breaking-collar being perforated, substantially as described.

2. As an article of manufacture, an egg-breaking utensil, comprising a breaking-collar, an upwardly-flaring drip-flange of less height than said breaking-collar, said breaking-collar being perforated around a portion only of its periphery, substantially as and for the purpose set forth.

3. As an article of manufacture, an egg-breaking utensil comprising a graduated body portion A, an upwardly-extending breaking-collar B formed integrally therewith, and a flaring drip-flange C of less height than said breaking-collar, said breaking-collar having perforations located at its rear side, substantially as and for the purpose set forth.

608,636. AXLE-REPAIRING APPARATUS. WILLIS A. HARNER, Fairlie, Tex. Filed Sept. 13, 1897. Serial No. 652,154. (No model.)

Claim.—1. An axle-repairing apparatus, having a supporting-bar provided with spaced caps for supporting the extremities of the front and rear axle-spindles, in combination with means for securing the wheels which are mounted upon said spindles from accidental displacement, substantially as specified.



2. An axle-repairing apparatus, having a supporting-bar provided with spaced spindle-seats for supporting the extremities of front and rear axle-spindles, one of said seats being adjustable longitudinally of the bar, and means for securing the adjustable seat at the desired adjustment, in combination with means for clamping the wheels which are mounted upon said front and rear axle-spindles, to prevent accidental displacement, substantially as specified.

3. An axle-repairing apparatus, having a supporting-bar provided with seats to receive the extremities of the front and rear axle-spindles, one of which is adjustable longitudinally of the bar, means for securing the adjustable spindle-seat at the desired adjustment, and pivotal sills mounted upon the bar for lateral extension to prevent displacement thereof, substantially as specified.

4. An axle-repairing apparatus, having a supporting-bar provided with spaced seats to receive the extremities of front and rear axle-spindles, and pivotal sills fulcrumed in the transverse planes of said seats and adapted to be extended laterally to project beyond the side edges of the supporting-bar, said bar being of sectional construction and having its members hingedly connected for folding, substantially as specified.

5. An axle repairing apparatus having a wheel-clamp provided with means for simultaneously engaging front and rear vehicle-wheels to prevent rotary movement thereof upon their spindles and also prevent pivotal movement of the front-wheel axle, in combination with means for seating the axles of the wheels when in an upright position, substantially as specified.

6. An axle-repairing apparatus having a wheel-clamp comprising sectional coöperating clamp-bars, the members of which are hingedly connected for folding in opposite directions, and adjusting devices for securing said bars in frictional contact with opposite sides of front and rear vehicle-wheels, in combination with means for seating the extremities of the axles of said wheels when said axles are in an upright position, substantially as specified.

7. In an axle-repairing apparatus, the combination with axle-supporting and wheel-clamping devices, of a plumb for indicating the vertical position of the wheel-axles, and means for attaching said plumb to an axle, substantially as specified.

8. In an apparatus of the class described, the combination with axle-supporting and wheel clamping devices, of a plumb having a clip provided with front and rear arms connected by an expansion coiled spring and adapted to bear respectively upon opposite side surfaces of a wheel-axle, substantially as specified.

608,637. DIE FOR ROLLED FORGINGS. FRED H. HATHORN, Brewer, Me., assignor to the Eastern Manufacturing Company, same place. Filed Feb. 12, 1897. Serial No. 623,245. (No model.)

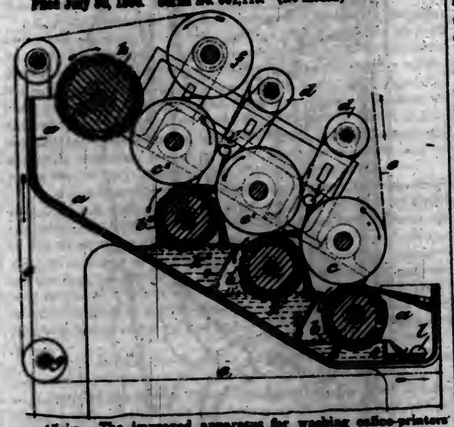
Claim.—1. In a device of the character described, a die consisting of a base-plate, cutting edges formed on the base-plate and diverging slightly and increasing in height, then extending horizontally and parallel to the end of the base, said cutting edges inclosing a groove gradually increasing in depth from the beginning to the end of the diverging edges, a raised surface formed at one side of the ridge having indentations and forming at the reduced end a plane surface between the ends of the indentations and raised portion, said plane surface tapering with the diverging wall, as and for the purpose described.



2. In a device of the character described, a base having cutting edges, serrations formed along the side of the base, and a smooth surface between the cutting edges and the serrations of equal height with the serrations, for the purpose described.

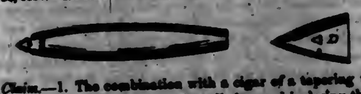
3. In a device of the character described, a base having the initial cutting edges starting separately a short distance back of the forward end of the base, serrations on the side of the base and a smooth surface of equal height with the serrations between said serrations and the cutting edges, as and for the purpose described.

608,638. APPARATUS FOR WASHING PRINTERS' BLANKETS. JOHN HAWORTH and JOHN P. LEMERA, Howtown, New Hills, England. Filed July 30, 1896. Serial No. 601,119. (No model.)



Claim.—The improved apparatus for washing online-printers' blanketing consisting of the inclined casing *a*, furnished with overflow compartments or pools, swilling and scrubbing brushes dipping into the said compartments, backing and guiding rollers to carry the blanketing, spout-pipes to supply water or other cleansing fluid, and a moisture-removing brush, all arranged combined and acting substantially as hereinbefore set forth and as illustrated.

608,639. CIGAR-TIP PROTECTOR. FREDERICK B. HARRIS, Louisville, Ky., assignor of one-half to Curran Pope, same place. Filed Jan. 14, 1897. Renewed Mar. 26, 1898. Serial No. 675,202. (No model.)



Claim.—1. The combination with a cigar of a tapering tip-protector having one end closed, and applied to and inclosing the small end of the cigar, said protector having points extending into the cigar between the closed end and the mouth of the tip-protector, and serving by the removal of the protector to break the tip from the cigar, substantially as described.

2. The combination with a cigar of a metallic tip of conical form, bent from sheet metal, and having points struck from its body between the large end and point, said points projecting into the cigar, substantially as and for the purpose stated.

3. In combination with a cigar, a metallic tip-protector of conical form embracing the cigar-tip, said protector having openings in its sides and having points or projections at the end of such openings and projecting into the body of the cigar, substantially as and for the purpose set forth.

608,640. BOTTLE OR JAR STOPPER. JOHN H. HENDERSON and RANDOLF P. KERSON, Bridgeton, N. J., assignors to Clement W. Shoemaker and Robert H. Shoemaker, same place. Filed Dec. 20, 1897. Serial No. 662,267. (No model.)

Claim.—1. In combination with a bottle or the like having a circumferential bead near its mouth, a cap having integral hooks S engaging the bead and a swinging bar pivoted to the cap near said hooks and in groove 4 and having at its free end a hook 13 directly engaging the bead to hold the cap upon the bottle-mouth, and a peak engaging seated in the cap and sealing the pivot-hole, substantially as described.

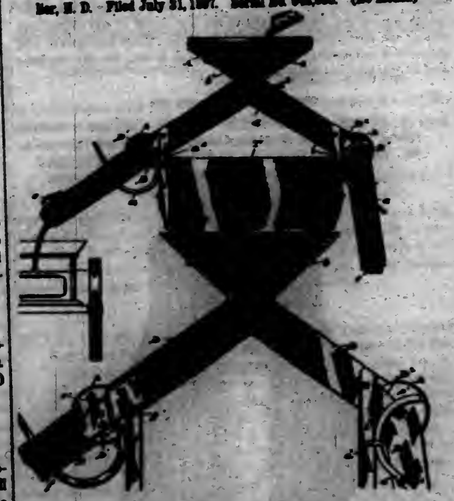


2. In combination with a bottle or the like having a circumferential bead near its mouth, a cap having integral hooks S and a horizontally-swinging bar pivoted to the cap near said hooks and having at its free end a hook, all said hooks engaging the bead directly to hold the cap upon the bottle-mouth, and said cap having a notch at its periphery opposite the cap-hooks and near the end of the bar to receive and hold the bar, substantially as described.

3. In combination with a bottle or the like having a circumferential bead near its mouth, a cap having integral hooks S and a swinging bar pivoted to the cap near said hooks and having at its free end a hook, all said hooks engaging the bead to hold the cap upon the bottle-mouth, and said cap having a notch opposite the cap-hooks to receive and hold the bar, substantially as described.

4. In combination with a bottle or the like having a circumferential bead near its mouth, a cap having integral hooks S and a swinging bar pivoted to the cap near said hooks and having at its free end a hook, all said hooks engaging the bead to hold the cap upon the bottle-mouth, and said cap having an inclined rib provided with a notch opposite the cap-hooks to receive and hold the bar, substantially as described.

608,641. MACHINE FOR LOADING GRAIN FROM THRESHING-MACHINES INTO WAGONS OR SACKS. JOHN HETROCK, Chester, N. D. Filed July 31, 1897. Serial No. 646,686. (No model.)



Claim.—1. In a grain-loader, the combination of the reservoir, the diverging chutes connected thereto, and the spouts hinged to the lower end of said chutes; with the hinged plates closing the space between the bottoms and tops of the chutes and spouts, respectively, for the purpose and substantially as described.

2. In a grain-loader, the combination with a thresher or separator, of a reservoir, and the opposite chutes connected thereto all adapted to be supported upon the top of the thresher so that the chutes lead to opposite sides thereof, and a valve for directing grain from the reservoir into either chute; with adjustable swinging spouts attached to the lower end of said chutes, and means for holding said spouts in the positions to which they may be adjusted, for the purpose and substantially as described.

3. The combination of the chute and the plates *c* attached to the lower end thereof, with the spout having circular enlargements on the ends of their sides hinged to said plates *c* and the swinging plate *g* hinged to the lower end of the chute, closing the space be-

tween the bottom of the chute and the spout, for the purpose and substantially as described.

4. The combination of the chute and the plates attached to the lower end thereof, with the spouts having circular heads on their ends hinged to said plates, the swinging plate hinged to the lower end of the chute closing the space between the bottoms of the chute and spout, and the curved plate hinged to the top of the chute and closing the space between the tops of the chute and spout, for the purpose and substantially as described.

5. The combination in a grain-loader, of a swinging spout, with the adjustable curved supporting-levers pivoted to the sides of the spout, for the purpose and substantially as described.

6. The combination in a grain-loader, of a chute, and a spout hinged to the lower end thereof; with the adjustable curved supporting-levers *a* pivoted to the sides of the spout, for the purpose and substantially as described.

7. In a grain-loader, the combination of a reservoir, the opposite chutes connected thereto and adapted to be supported upon the top of a thresher and lead to opposite sides thereof, and a valve for directing grain from the reservoir into either chute; with the swinging spouts hinged to the lower end of said chutes, the curved levers for holding said spouts in the positions to which they are adjusted and the valves for closing said spouts, for the purpose and substantially as described.

8. The combination in a grain-loader, of a reservoir, the diverging chutes communicating at their upper ends with said reservoir, and the spouts hinged to said chutes, with the plates hinged to the lower end of the chutes, closing the space between the bottoms of the chutes and spouts, and the plates hinged to the lower end of the chutes and closing the opening between the tops of the chutes and spouts, for the purpose and substantially as described.

9. In a grain-loader adapted to be mounted on a thresher or separator, the combination of a reservoir, diverging chutes communicating at their upper ends with said reservoir, the valve for directing grain from the reservoir into either chute, the plates attached to the lower ends of the chutes and projecting therefrom, and the spouts pivoted to said plates, with the plates hinged to the lower end of the chutes, closing the space between the bottoms of the chutes and spouts, the curved plates hinged to the lower end of the chutes and closing the opening between the tops of the chutes and spouts, and the curved supporting-levers pivoted to the spouts, for the purpose and substantially as described.

603,642. ANTIFRICTION-BEARING. CHARLES B. HOBSON, Boerne, Tex., assignor of one-third to Samuel S. Hyland, Philadelphia, Pa. Filed Apr. 7, 1897. Serial No. 631,132. (No model.)

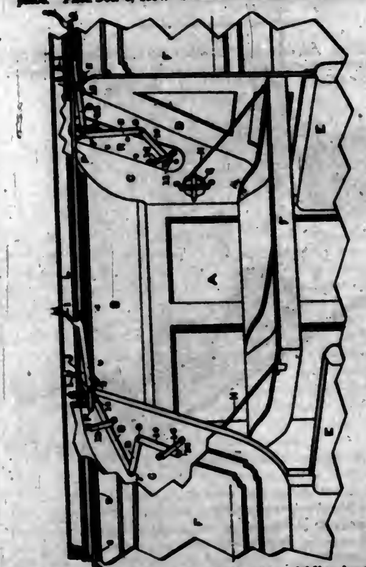


Claim.—1. An antifriction-bearing, having at one end an end piece or cap formed on its outer face with an undercut ball-groove and with a passage for the insertion of balls leading to the periphery of the cap and formed on its inner face with an annular flange having a grooved edge to accommodate a series of balls, and balls arranged in said undercut groove.

2. An antifriction-bearing, having at one end an end piece or cap formed on its outer face with an undercut ball-groove and an annular rib surrounding said groove, and balls arranged in said undercut groove.

3. The combination with an axle-arm, of a hub, a sleeve secured within the hub, a series of rows of balls interposed between the axle-arm and the sleeve, a series of rings interposed between the rows of balls, and a cap at each end of the hub formed on its outer face with an undercut groove, and a passage for the insertion of balls leading to the periphery of the cap and formed on its inner face with an annular flange having a grooved edge to accommodate a series of balls interposed between the cap and one of the rings within the hub, and balls arranged in the undercut groove of the caps.

608,643. BERTH CURTAIN-ROD FIXTURE. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed Dec. 4, 1897. Serial No. 660,982. (No model.)



Claim.—1. For use in connection with a folding berth, a pair of brackets or arms, a curtain-rod secured to the outer ends thereof and adapted to be moved out into the deck-space when the berth is to be made up for use, and a receptacle formed on the adjacent car structure, the receptacle being in open communication with the deck-space to receive the rod and in which the latter is concealed from view when the berth is not in use.

2. In a berth curtain-rod fixture for sleeping-cars, a pair of brackets, slotted bushings fixed to the car structure and forming communication between the interior berth-space and the deck-space, and in which bushings the said brackets slide and have bearings, a curtain-rod secured to and movable with the brackets out into the deck-space when the berth is to be made up for use and when the berth is not in use adapted to be moved back out of the deck-space, in combination with a receptacle attached to or forming part of the woodwork of the deck for receiving and concealing the rod from view.

3. In a berth curtain-rod fixture, a curtain-rod secured to the outer ends of a pair of brackets adapted to slide through the apron-piece adjacent to the deck-rail, and whose inner ends are in pivotal connection with arms which are pivoted to the berth-partitions, whereby the said brackets with the attached rod may be drawn out into the deck-space when the berth is to be made up for use, and moved back out of the deck-space when the berth is not in use.

4. In a berth curtain-rod fixture, a curtain-rod secured to the outer ends of a pair of brackets whose said outer ends terminate in one or more hooks upon which clothing may be hung, and which brackets are adapted to slide through suitable openings in the car structure, and whose inner ends are in pivotal connection with arms pivoted to the berth-partition, whereby the said rod and the said brackets, together with the hooks formed thereon, may be drawn out into the deck-space when the berth is to be made up for use, and moved back out of the deck-space when the berth is not in use.

5. In a berth curtain-rod fixture, a pair of brackets, each of which is mounted on the inside of one of two berth-partitions and adapted to slide through suitable opening, cut through the apron-piece adjacent to the deck-rail, guides for said brackets, a curtain-rod secured at each end thereof to the outer ends of the brackets, whereby the said rod may be drawn out into the deck-space when the berth is to be made up for use, and a receptacle formed on the adjacent car structure: the receptacle being in open communication with the deck-space to receive the rod, and in which the latter is concealed from view when the berth is not in use.

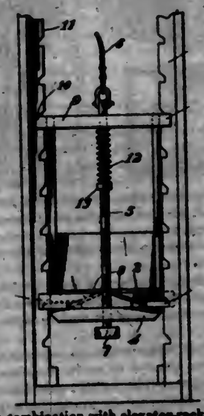
6. In a sleeping-car having a plurality of folding berths arranged in horizontal line with and separated from each other by suitable partitions, a pair of movable brackets arranged in each berth and connected together at their outer ends by a curtain-rod secured thereto, thus enabling the said brackets to be moved in unison, one or more hooks formed on the outer end of each of said brackets, and upon which to hang clothing, whereby each of said rods and its adjacent hooks may be separately drawn out into the deck-space when the berth is to be made up for use, and the rod moved back against the car structure when the berth is not in use, and whereby when the rod is in the latter position its accompanying hooks will cooperate with the hooks at the adjoining ends of the next fixtures to present the appearance of a group or cluster of such hooks mounted on the car structure.

7. As an improvement in berth curtain-rod fixtures for sleeping-cars, fixed end walls of a folding berth, a pair of brackets each of which is mounted on or adjacent to one of said walls on the inside thereof, slotted bushings secured to the car structure, and in which the said brackets have bearings and are adapted to slide, a curtain-rod secured to said brackets and connecting the same together at the outer ends thereof, whereby the brackets may be moved in unison and the rod drawn out into the deck-space, in combination with a suitable receptacle formed on the adjacent car structure and in which the rod may be stored when the berth is not in use.

8. As an improvement in berth curtain-rod fixtures for sleeping-cars, fixed end walls of a folding berth, a pair of brackets pivotally connected with said walls by folding arms, slotted bushings secured to the car structure and in which the brackets have bearings and are adapted to slide, a curtain-rod secured to said brackets and connecting the same together at the outer ends thereof, whereby the brackets may be moved in unison and the rod drawn out into the deck-space, in combination with a suitable receptacle formed on the adjacent car structure and in which the rod may be stored when the berth is not in use.

9. In a sleeping-car having a folding berth adapted to close against the under side of the deck-rail or apron-piece adjacent thereto, a receptacle formed on the car structure above the berth, in combination with a curtain-rod for supporting curtains in front of the berth when the same is made up for occupancy and adapted to be stored in the receptacle when the berth is closed and not in use.

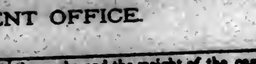
608,644. SAFETY ATTACHMENT FOR ELEVATORS. DAVID W. KNEPP, Bowman, Ill. Filed July 21, 1897. Serial No. 645,370. (No model.)



Claim.—The combination with elevator-racks, and a cage or car, of a slidable rod having a head at its lower end to limit its vertical movement with relation to the car, a spring acting against said rod, the dogs adapted for engagement with the racks, and the links attached to the rod and the dogs, the rod and dogs arranged to be moved by the spring for the dogs to have slight engagement with the racks and the weight of the cage acting on said links to force the dogs into complete engagement with the racks, substantially as described.

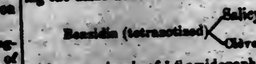
608,645. GREEN TRIBASO DYE. KARL KEHRMANN and EDUARD MARES, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Dec. 14, 1897. Serial No. 661,998. (Specimens.) Patented in Germany Sept. 15, 1891, No. 68,998; in England Dec. 28, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,253; in Italy June 30, 1892, XXVI, 28,191, LXIII, 136, and in Austria-Hungary Oct. 3, 1892, No. 1,949 and No. 16,870.

Claim.—1. The process for producing new triazo dyestuffs by combining the diazo derivatives of the diazo compounds hereinbefore defined of the general formula



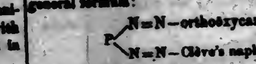
with one molecule of a mono or di sulfo acid of 1.8 amidonaphthol, substantially as hereinbefore described.

2. The process for producing a new triazo dyestuff by combining the diazo derivative of the diazo body having the formula



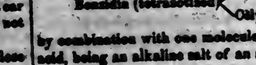
with one molecule of 1.8 amidonaphthol 2.4 disulfo-acid substantially as hereinbefore described.

3. As new articles of manufacture the new triazo dyestuffs obtainable from the diazo derivatives of the diazo compounds of the general formula:

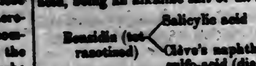


by combination with one molecule of a mono or di sulfo acid of 1.8 amidonaphthol, being black powders, soluble in water with green color, dyeing unmordanted cotton green shades substantially as described.

4. As a new article of manufacture the specific dyestuff obtainable from the diazo derivative of the diazo body having the formula



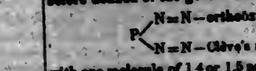
by combination with one molecule of 1.8 amidonaphthol 2.4 disulfo-acid, being an alkaline salt of an acid having the formula



representing in the form of the sodium salt a black powder, soluble in water with a green color, in concentrated sulfuric acid with a dark-blue color from which solution a greenish-black precipitate is obtained on the addition of a sufficient quantity of ice, dyeing unmordanted cotton green shades substantially as described.

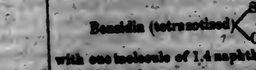
608,646. GRAY TRIBASO DYE. KARL KEHRMANN, EDUARD MARES, and ADOLF ISSAIS, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Dec. 14, 1897. Serial No. 661,958. (Specimens.) Patented in Germany Sept. 15, 1891, No. 68,998; in England Dec. 28, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,253; in Italy June 30, 1892, XXVI, 28,191, LXIII, 136, and in Austria-Hungary Oct. 3, 1892, No. 1,949 and No. 16,870.

Claim.—1. The process for producing new triazo dyestuffs by combining the diazo derivatives of the diazo compounds hereinbefore defined of the general formula



with one molecule of 1.4 or 1.5 naphtholmonosulfo acid, substantially as described.

2. The process for producing a new triazo dyestuff by combining the diazo derivative of the body having the formula



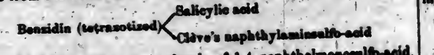
with one molecule of 1.4 naphtholmonosulfo-acid substantially as described.

3. As new articles of manufacture the new triazo dyestuffs obtainable from the diazo derivatives of the diazo compounds of the general formula:

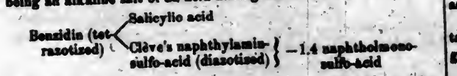


by combination with one molecule of 1.4 or 1.5 naphtholmonosulfo-acid, being dark powders, soluble in water with greenish-gray color dyeing unmordanted cotton greenish-gray shades substantially as described.

4. As a new article of manufacture the specific dyestuff obtainable from the diazo derivative of the body having the formula



by combination with one molecule of 1.4 naphtholmonosulfo-acid, being an alkaline salt of an acid having the formula

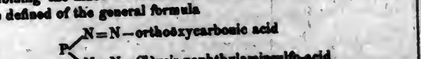


representing in the form of the sodium salt a dark-brown powder, soluble in water with a greenish-gray color, in concentrated sulfuric acid with a blue-black color from which solution a black flaky precipitate is obtained on the addition of a sufficient quantity of ice, dyeing unmordanted cotton greenish-gray shades substantially as described.

608,647. GREEN TRISAZO DYE. KARL KEHRMANN, EDUARD MAERTZ, and ADOLF ISRAEL, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y.

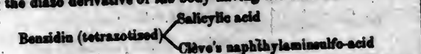
Filed Dec. 14, 1897. Serial No. 661,856. (Specimens.) Patented in Germany Sept. 15, 1891, No. 65,262; in England Dec. 26, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,223; in Italy June 30, 1892, XXVI, 32,191, LXIII, 186, and in Austria-Hungary Oct. 3, 1892, No. 1,948 and No. 16,570.

Claim.—1. The process for producing new trisazo dyestuffs by combining the diazo derivatives of the diazo compounds hereinbefore defined of the general formula



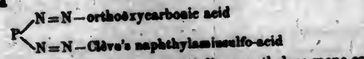
with one molecule of a 1.8 dioxynaphthalene mono or di sulfo acid substantially as hereinbefore described.

2. The process for producing a new trisazo dyestuff by combining the diazo derivative of the body having the formula



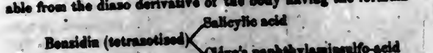
with one molecule 1.8 dioxynaphthalene 4 sulfo-acid, substantially as described.

3. As new articles of manufacture the new trisazo dyestuffs obtainable from the diazo derivatives of diazo compounds of the general formula

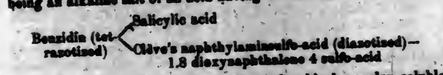


by combination with one molecule of a 1.8 dioxynaphthalene mono or di sulfo acid being black powders, soluble in water with green color dyeing unmordanted cotton green shades, substantially as described.

4. As a new article of manufacture the specific dyestuff obtainable from the diazo derivative of the body having the formula



by combination with one molecule 1.8 dioxynaphthalene 4 sulfo-acid being an alkaline salt of an acid having the formula



representing in the form of the sodium salt a black powder, soluble in water with a green color which on the addition of alkalies turns into greenish black, in concentrated sulfuric acid with a blue-black color, from which solution a greenish-black flaky precipitate is obtained on the addition of a sufficient quantity of ice; dyeing unmordanted cotton green shades, substantially as described.

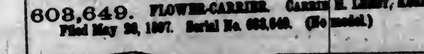
608,648. BROWN TRISAZO DYE. KARL KEHRMANN, EDUARD MAERTZ, and ADOLF ISRAEL, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, New York, N. Y.

Filed Dec. 14, 1897. Serial No. 661,857. (Specimens.) Patented in Germany Sept. 15, 1891, No. 65,262; in England Dec. 26, 1891, No. 22,641; in France Apr. 28, 1892, No. 221,223; in Italy June 30, 1892, XXVI, 32,191, LXIII, 186, and in Austria-Hungary Oct. 3, 1892, No. 1,948 and No. 16,570.

Claim.—1. The process for producing new trisazo dyestuffs by combining the diazo derivatives of the diazo compounds hereinbefore defined of the general formula

with one molecule of alpha-naphthylamin or of a monosulfo-acid thereof, substantially as hereinbefore described.

2. The process for producing a new trisazo dyestuff by combining the diazo derivative of the diazo body having the formula

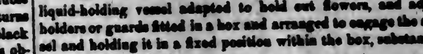


with one molecule of Clève's naphthylaminsulfo-acid, substantially as hereinbefore described.

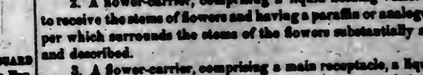
3. As new articles of manufacture the new trisazo dyestuffs obtainable from the diazo derivatives of the diazo compounds of the general formula

by combination with one molecule of alpha-naphthylamin or of a monosulfo-acid thereof, being dark powders, soluble in water with dark-brown color, dyeing unmordanted cotton dark-brown shades which when treated with solutions of chromium and copper salts become faster to washing and against the action of light, capable of dyeing wool in acid-baths shades similar to those produced on cotton, substantially as described.

4. As a new article of manufacture the specific dyestuff obtainable from the diazo derivative of the diazo body having the formula



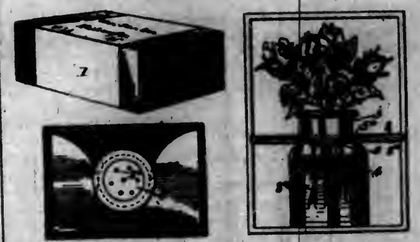
by combination with one molecule of Clève's naphthylaminsulfo-acid being an alkaline salt of an acid having the formula



representing in the form of the sodium salt a dark-brown, nearly black, powder, soluble in water with a violet-brown color, in concentrated sulfuric acid with a bluish-black color from which solution a violet-black precipitate is obtained on the addition of a sufficient quantity of ice, dyeing unmordanted cotton violet-brown shades which when treated with solutions of chromium and copper salts become a dark brown with a yellowish hue and faster to washing and against the action of light, yielding on wool in acid-baths dark-brown shades, substantially as described.

608,649. FLOWER-CARRIER. GARRIE H. LIBBEY, Keuka, Fla.

Filed May 26, 1897. Serial No. 638,649. (No model.)



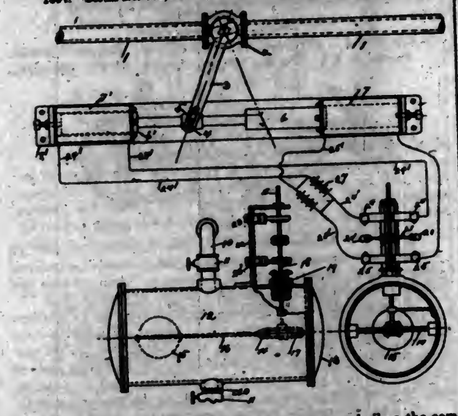
Claim.—1. A flower-carrier, comprising a main receptacle, a liquid-holding vessel adapted to hold cut flowers, and adjustable holders or guards fitted in a box and arranged to engage the said vessel and holding it in a fixed position within the box, substantially as shown and described.

2. A flower-carrier, comprising a liquid-holding vessel adapted to receive the stems of flowers and having a paraffin or analogous stopper which surrounds the stems of the flowers substantially as shown and described.

3. A flower-carrier, comprising a main receptacle, a liquid-holding vessel held therein adapted to receive the stems of the flowers, said vessel having a neck provided with a paraffin or analogous stopper, the body of the main receptacle having grooves in line with the base of the neck of the vessel, a holder or guards detachably held in such grooves having a concave seat to engage the neck of the vessel at a point just above the bulge or body of the bottle or vessel, designated as the base of the neck, and a lid for covering the box and keeping the holders more securely in place, substantially as shown and described.

608,650. AUTOMATIC ELECTRIC FEED-WATER REGULATOR. ANDREW E. MACOMBER and JOHN BERRY, Braddock, Pa.

Filed Dec. 2, 1897. Serial No. 660,669. (No model.)



Claim.—1. In a feed-water regulator for steam-boilers, the combination with a cylinder connected with a boiler, a float arranged in said cylinder upon one end of a lever, a vertically-movable rod secured to the other end of said lever and carrying a pair of contact-points and a standard mounted upon the top of the cylinder carrying two pairs of contact-points and having arms in which said rod is guided, of the two solenoids having electrical connection with the two pairs of contact-points and adapted to operate to close or open a feed-water-pipe valve.

2. In a feed-water regulator for steam-boilers, the combination with a cylinder connected with a boiler, a float and rod movably mounted therein, a standard secured to the top of the cylinder and carrying two pairs of contact-points, and a vertically-movable rod mounted in said standard having its lower end connected to one end of the float-rod and carrying a pair of contact-points located thereon between the pairs of contact-points on the standard, of the two solenoids each of which has a separate electrical circuit between each pair of contact-points of the standard, said electrical circuits being operated by the float to open or close a valve in a feed-water pipe.

3. In a feed-water regulator, the combination with a cylinder secured on a pipe leading from a boiler to indicate the amount of water in the boiler, means therein operated by the rise and fall of the water, a rod carried by said means and carrying a pair of contact-points and adapted to be raised or lowered by said means, a bracket carrying two pairs of contact-points, said pairs each being on opposite sides of the pair carried by said movable rod and each pair adapted to cause an electric circuit when contacted by said single pair on the movable rod in its ascent or descent, of a pair of oppositely arranged and operated solenoids which move in the same direction simultaneously when the circuits are completed by the regulating means to open or close a valve in a feed-water pipe as the water is needed in the boiler.

608,651. ADJUSTABLE BED. HENRY H. HARTH, Howard, Ohio.

Filed Nov. 20, 1897. Serial No. 659,141. (No model.)

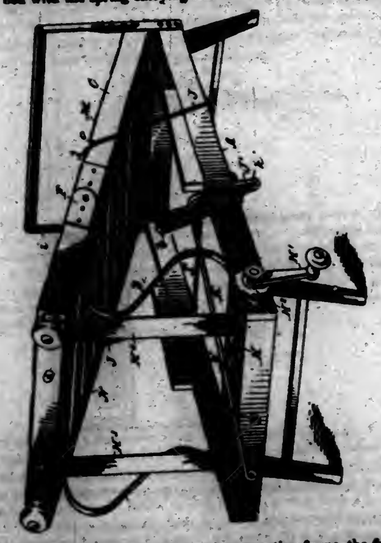
Claim.—1. The combination of the main supporting-frame, the frame of the adjustable bed hinged to the main supporting-frame, a hinged head portion, means for locking the hinges to rigidly connect the head portion with the foot portion of the bed, and springs for elevating the entire frame of the adjustable bed placed beneath the head portion thereof and attached to the main supporting-frame.

2. The combination of a main supporting-frame, a hinged adjustable bed-frame having a hinged head portion, and sliding bolts movable across the hinge of the head portion for locking the hinges, in combination with springs of sufficient strength to support the entire frame of the bed, and also the occupant thereof, placed beneath the head portion of the adjustable frame, and secured to the main supporting-frame.

3. The combination of the main supporting-frame, the vertically-adjustable bed and the spring-supporting frame detachably connected therewith.

4. The combination of the main supporting-frame, the vertically-adjustable bed, means for holding it at the desired elevation, a frame provided with a series of rows of bed-springs, and means for detachably connecting the spring-carrying frame with the frame of the adjustable bed.

5. The combination of the main supporting-frame, the frame of the vertically-adjustable bed hinged thereto at the foot, a spring-carrying frame hinged to the frame of the adjustable bed at the foot thereof, a series of rows of bed-springs carried by said spring-carrying frame and bolts for connecting the frame of the vertically-adjustable bed with the spring-carrying frame.



6. The combination of the main supporting-frame, the frame of the vertically-adjustable bed provided with a hinged head-piece, sliding bolts for locking the hinges thereof, springs for elevating and supporting the bed, and also the occupant thereof, placed under the adjustable frame and secured to the main supporting-frame, a spring-carrying frame hinged at its foot to the frame of the vertically-adjustable bed, spring-bolts for connecting the spring-carrying frame at its opposite end to the head of the frame of the vertically-adjustable bed, a series of rows of springs carried by the spring-supporting frame, a windlass connected with said adjustable frame and ratchet mechanism for controlling the windlass.

7. The combination of the main supporting-frame, the hinged legs, the slotted frame at the foot of the bed provided with vertical rows of notches, studs or pins secured to the side rails of the frame, and adjustable in said notches means for elevating and depressing the bed at the head, the hooked arms adapted to engage notches on the side rails of the adjustable bed, the cross-rod to which they are connected, the crank on said cross-rod and a longitudinal operating-bar connected with said crank.

8. The combination of the main supporting-frame, the vertically-adjustable bed, the slotted notched frame secured to the foot end of the main supporting-frame, studs or pins on the foot of the vertically-adjustable bed extending into said slots and notches, and vertically adjustable thereto, a spring-carrying frame hinged to the foot end of the frame of the vertically-adjustable bed, a series of rows of springs carried by said frame, means for connecting the spring-carrying frame with the adjustable frame, supporting-springs carried by the main supporting-frame and arranged beneath the head of the adjustable frame, and windlass mechanism for controlling the elevation of the head of the bed.

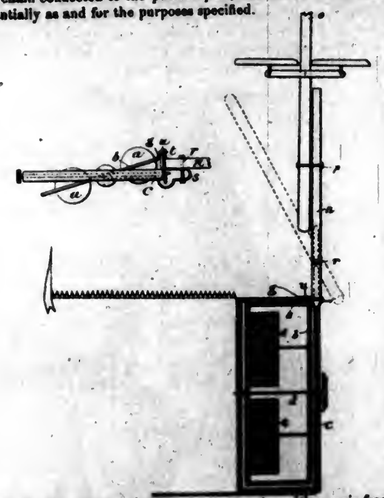
608,652. HARVESTING-MACHINE. JOHN C. MOORE, Eastbourne, England.

Filed Oct. 15, 1896. Serial No. 609,093. (No model.) Patented in France June 11, 1896, No. 257,168; in Germany June 16, 1896, No. 91,295; in Sweden June 20, 1896, No. 5,313; in Italy June 27, 1896, LXXXII, 279; in Norway July 3, 1896, No. 5,395; in Canada Sept. 25, 1896, No. 50,831, and in Spain Nov. 21, 1896, No. 19,981.

Claim.—1. In a harvesting-machine, the combination of a main frame, a wheel-frame pivoted thereto on an axis transverse to the line of draft, wheels mounted on transverse axles in the wheel-frame, and means for lifting one end of the wheel-frame around one of the axles as a fulcrum, substantially as described and for the purposes specified.

2. In a harvesting-machine, the combination with a main frame, a wheel-frame pivoted thereto on an axis transverse to the line of draft, wheels mounted on transverse axles in the wheel-frame, of a

draft-pole, an additional pivoted pole to which the draft-pole is hinged, and a chain connected to the pivoted pole, and to the wheel-frame, substantially as and for the purposes specified.

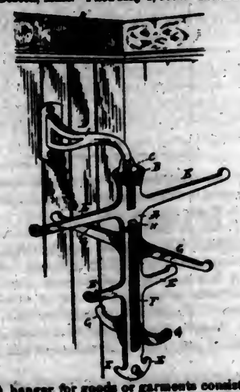


3. In a harvesting-machine, the combination with a main frame, a wheel-frame carrying centrally thereof two wheels connected pivotally to the main frame, a seat carried by the main frame at one side of the ground-wheels and a counterbalance-wheel at the other side of a draft-pole, a pivoted pole to which the draft-pole is hinged and a chain connected to the pivoted pole and to the wheel-frame and causing it to tilt when the draft-pole is turned, substantially as and for the purposes specified.

4. In a harvesting-machine, the combination of a main frame and a wheel frame pivoted thereto and contained within the main frame, said wheel-frame having pivoted therein two or more carrying-wheels on axes which are not coincident, of a driving-spindle, a rod or shaft driven from the said spindle, a clutch connected to the shaft throwing the mechanism in or out of operation, wheels on the shaft driving the cutting-knife and other parts of the apparatus and means by which the wheel-frame may be tilted around the axle of one of the wheels when the machine is turned, substantially as and for the purposes specified.

5. In a harvesting-machine, the combination with a main frame, a wheel-frame pivoted thereto and contained within the main frame, and a shaft forming the pivot and driving the mechanism of the machine, of a draft-pole, a pivoted pole hinged to the same, a chain connected to the pivoted pole and to the wheel-frame and pulleys in the main frame over which the chain passes, substantially as described and shown in the accompanying drawings and for the purposes specified.

603,653. HANGER FOR GOODS OR GARMENTS. FREEMAN HENDERSON, Boston, Mass. Filed May 1, 1897. Serial No. 634,735. (No model.)



Claim.—A hanger for goods or garments consisting in combination, a bracket or support, a pronged member A pivotally connected to said support, and having a vertical slot *a* and a pronged detachable auxiliary member F inserted through the slotted portion of the member A and adapted to be secured thereto when in use, substantially as and for the purpose set forth.

603,654. ATTACHMENT FOR BICYCLES. EDWARD H. HOBBS, Providence, R. I. Filed Mar. 15, 1897. Serial No. 627,675. (No model.)



Claim.—1. An attachment for bicycles comprising two arms 2 2 arranged to be clamped to a bicycle-frame and to receive the sprocket-chain between them, and a brush mounted to rotate between said arms and support said sprocket-chain, for the purpose set forth.

2. An attachment for bicycles comprising two arms 2 2 arranged to be clamped to a bicycle-frame and to receive the sprocket-chain between them, keyhole-slots in said arms having their narrow portions pointing away from the sprocket-chain, an axle having grooved ends held in said keyhole-slots, and a brush mounted to rotate on said axle and support said sprocket-chain, for the purpose set forth.

3. An attachment for bicycles comprising two arms 2 2 arranged to be clamped to a bicycle-frame and to receive the sprocket-chain between them, a brush mounted to rotate between said arms and support said sprocket-chain, and a lubricating device held between said arms and arranged to bear against the inner surface of the sprocket-chain, for the purpose set forth.

603,655. ACETYLENE-GAS GENERATOR. CALVIN OSBURN, Phœnix, Ariz. Filed July 19, 1897. Serial No. 645,188. (No model.)



Claim.—1. In an acetylene-gas generator, the combination with a tank, and a vertically-movable bell carrying a carbid-receptacle, of the storage and condensing chamber of conical form substantially from its lower end to the discharge-apex thereof, a condensing-pipe coupled at its lower end to said condensing and storage chamber to discharge directly into the same and with its upper end extended above the water-line in the tank, and an outlet-pipe leading from the lower part of said condensing-chamber and having a branch attached to the apex of said conical condensing and storage chamber, whereby the gas as it passes from the enlarged lower end to the discharge-apex of said chamber is checked and thereby compressed and also caused to impinge against the converging walls of the chamber, substantially as described.

2. In an acetylene-gas generator, the combination with a tank, and a bell carrying a carbid-receptacle, of a conical storage and condensing chamber united to the bottom of said tank and immersed in the water contained therein, a condensing-coil occupying the space between the tank and said conical chamber in compact relation thereto and coupled at one end directly to said chamber near the bottom thereof and having its other end extended above the water-line in said tank, an outlet-pipe coupled to the chamber and having a branch connection coupled to the discharge-apex of said chamber, and a draw-off cock from said chamber, substantially as described, for the purposes set forth.

3. In a gas-generator, the combination with a tank, and a vertically-movable bell, of a conical condensing-chamber situated in the tank below the water-level therein, a condensing-coil having its lower end connected to said condensing-chamber and its upper end terminating above the water-level, and a gas-outlet pipe attached to the apex of the condensing-chamber and leading therefrom through the tank, whereby the gas as it passes upward through the conical condensing-chamber impinges against the walls of said chamber and the watery vapor is eliminated from the gas and precipitated to the bottom of said tank, substantially as described.

603,656. CONDUIT FOR RAILROADS. FRED S. PEARSON, Boston, Mass. Filed Sept. 14, 1897. Serial No. 651,534. (No model.)

Claim.—1. In a conduit for railroads, in combination, a trap in the top of the conduit; mechanism by which the trap is opened and closed; and an actuator arranged to be depressed by the car-wheel, whereby the trap mechanism is operated, substantially as described.



2. In a conduit for railroads, in combination, the trap 3 in the top of the conduit; levers 5 by which the trap is held in place and raised and lowered; mechanism whereby the levers are actuated in opening and closing the trap; and an actuator 12, arranged and adapted to be depressed by the car-wheel and to operate the mechanism for actuating the levers, substantially as described.

603,657. PROCESS OF MAKING ALKALINE ALUMINATES. DOMINIQUE A. PERRARDOT, Dolmuts, Belgium. Filed Dec. 15, 1897. Serial No. 662,068. (No specimens.) Patented in France Nov. 16, 1896, No. 261,786; in England Nov. 16, 1896, No. 28,032; in Germany Nov. 20, 1896, No. 98,038, and in Belgium Apr. 1, 1898, No. 139,067.

Claim.—1. The process of producing aluminates which consists in mixing aluminous matter and a sulfate with such an amount of carbon that only one-fourth of the oxygen present in the sulfate will be combined therewith, and calcining the mixture.

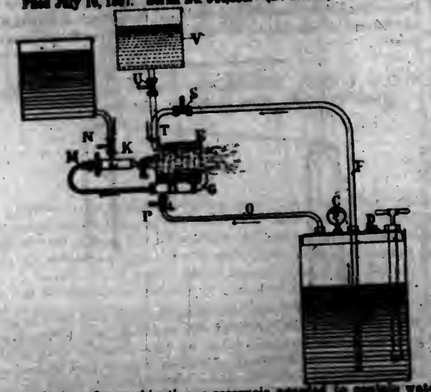
2. The process of producing aluminates which consists in calcining a mixture of an aluminous earth and a sulfate together with sufficient carbon to just reduce the ferric oxid and moisture plus one-fourth the amount of carbon necessary to combine with the oxygen in the sulfate in forming carbon dioxid.

3. The process of producing aluminates which consists in mixing aluminous matter with an alkaline sulfate with such an amount of carbon that only one-fourth of the oxygen in the alkaline sulfate will be combined therewith, and then calcining the mixture.

4. The process which consists in mixing bauxite with an alkaline sulfate and carbon in the proportions indicated by the formula $2(4Al_2O_3.Fe_2O_3)+6Na_2SO_4+5C$ and calcining the mixture.

5. The process which consists in mixing finely-comminuted aluminous matter, and alkaline sulfate and carbonaceous matter, the proportions of the carbonaceous matter being such that only one-fourth the amount of carbon necessary to combine with the oxygen of the sulfate is added, then heating the mixture to read heat, and finally extracting the resultant aluminate by lixiviation.

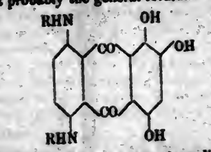
603,658. APPARATUS FOR HEATING BY MEANS OF LIQUID HYDROCARBONS. JEAN A. RAMBAUD, Paris, France, assignor to the Compagnie Internationale des Procédés Adolphe Saigle, same place. Filed July 16, 1897. Serial No. 644,880. (No model.)



Claim.—In combination, a reservoir adapted to contain water and air, a pump for maintaining constant or substantially so the air under pressure in said reservoir, a retort connected with said water and air reservoir, a hydrocarbon-fluid reservoir, a sprayer or atomizer in connection with said hydrocarbon fluid reservoir, a receiver wherein steam from said retort and air from said reservoir are adapted to be stored, and valves whereof one is in the pipe leading to said receiver and whereof the other is in the pipe leading from said water and air reservoir, substantially as and for the purposes described.

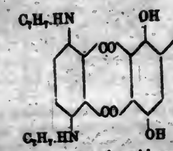
603,659. DARK-GREEN ALIZARIN DERIVATIVE. ROBERT R. SCHMIDT, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, New York, N. Y. Filed Dec. 14, 1897. Serial No. 661,571. (No specimens.) Patented in Germany Oct. 14, 1894, No. 84,989; in France Dec. 3, 1894, No. 242,316; in England Dec. 6, 1894, No. 22,927, and in Italy Dec. 31, 1894, XXIX, 37,890, LXXIV, 304.

Claim.—1. The process for producing new dyestuffs being sulfo-acids of the condensation products obtainable from one molecule of alizarin pentacyanin and two molecules of a primary aromatic amin and having most probably the general formula



in which formula R represents an aromatic radical, such as phenyl, tolyl, xylyl, naphthyl, which process consists in sulfonating the said condensation products substantially as hereinbefore described.

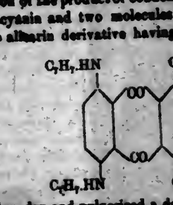
2. The process for producing a new dyestuff being a sulfo-acid of the condensation product obtainable from one molecule of alizarin pentacyanin and two molecules of paratoluidin and having most probably the formula:



which process consists in treating the said condensation product with sulfonating agents such as sulfuric monohydrate substantially as hereinbefore described.

3. As new articles of manufacture the new alizarin dyestuffs obtainable by sulfonation of the condensation products from one molecule of alizarin pentacyanin and two molecules of a primary aromatic amin; representing when dry and pulverized dark powders dissolving in water with a green color yielding loose alizarin pentacyanin if they are reduced by means of zinc-dust and diluted acetic acid and if the reduction products are heated with dilute sulfuric acid, dyeing unmordanted and chrome-mordanted wool green shades, yielding on chrome-mordanted cotton beautiful green shades fast to light, substantially as described.

4. As a new article of manufacture the specific dyestuff obtainable by sulfonation of the product of condensation from one molecule of alizarin pentacyanin and two molecules of paratoluidin, being a sulfo-acid of the alizarin derivative having most probably the formula:



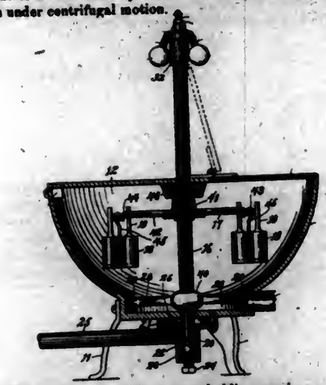
representing when dry and pulverized a dark-green powder dissolving in water with a green color, which changes into yellow on acidulating and adding zinc-dust, the filtered solution separating loose alizarin pentacyanin after heating with a small quantity of sulfuric acid, dyeing unmordanted and chrome-mordanted wool green shades fast to light, yielding on chrome-mordanted cotton green shades which are distinguished by their brightness and fastness against the action of light, substantially as described.

603,660. STEAM-MOTOR. FRED SEAVER, Lake Mills, Wis., assignor to the F. E. Fargo & Company, same place. Filed Mar. 3, 1897. Serial No. 625,627. (No model.)

Claim.—1. The combination with a large chambered case and a shaft-bearing member affixed to the bottom of the case and provided with an independent steam-chamber, of a shaft disposed vertically in and centrally through the case and footed in the shaft-bearing member said shaft having a short axial steam-chamber provided with a port registering with the steam-chamber in the shaft-bearing member and with hollow radially-disposed arms in the chamber of the large case said arms leading from the axial steam-chamber in the shaft and being provided at their extremities with orifices discharging tangentially into said case-chamber.

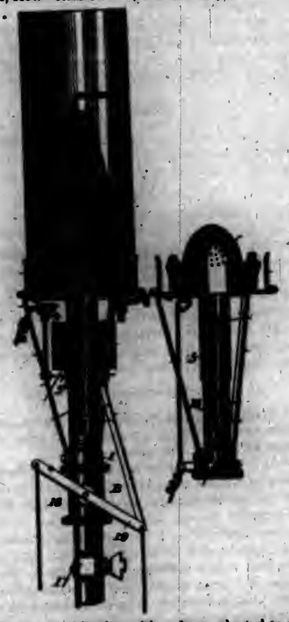
2. The combination with a hollow revolvible shaft having an in-

duction and an eduction port at a distance apart longitudinally of the shaft, of a hollow piston-valve extending past said induction and eduction ports, and having ports conformable with said induction and eduction ports in the shaft, said valve being movable endwise in the shaft, a valve-stem extending along in the shaft, gravity-weights on swinging levers pivoted on the shaft, the inner ends of which levers act on a collar on the stem, and a spring adapted to lift the stem and valve but to be overcome by the action of the governor or gravity-weights under centrifugal motion.



3. The combination with a steam-holding carriage-case having an eduction-port, of a shaft-bearing member at the bottom of the case and provided with a steam-chamber having an induction-port, a hollow carriage-shaft closed at its ends journaled in the case and having a steam-port registering with said chamber, hollow radial arms in the case on the shaft and leading therefrom and discharging tangentially into the steam-holding case, a chambered sliding valve in the shaft having ports registering normally with its induction and eduction ports, a valve-stem, a spring lifting the stem and the valve, and weighted levers pivoted on the shaft and disposed to depress the stem and valve when raised by centrifugal action.

603,661. GAS-BURNER. WILLIAM W. SEELEY, Brooklyn, N. Y. Filed July 20, 1897. Serial No. 646,407. (No model.)



Claim.—1. The combination with a base adapted to support a chimney and provided with a vertical tube having an air-opening, of a tubular slide carrying a burner and movable longitudinally upon the tube and a second slide adapted to control the air-opening, substantially as described.

2. The combination with a base supporting a chimney, of a burner normally surrounded by the chimney, said burner and base being relatively movable to bring the burner without the chimney and an igniter arranged to light the burner when it is brought without the chimney, substantially as described.

3. The combination with a base supporting a chimney and provided with a vertical tube, of a tubular slide carrying a burner and movable longitudinally upon the tube, said slide constituting an electrode, and a second electrode supported upon the frame in position to make contact with the first electrode during the movement thereof upon the vertical tube, substantially as described.

4. The combination with a base supporting a mantle and a chimney surrounding the mantle, of a burner normally projecting within the mantle, said burner and base being relatively movable to bring the burner without the mantle and an igniter arranged to light the burner when it is brought without the mantle, substantially as described.

5. The combination with a base adapted to support a chimney and provided with a vertical tube, of a tubular slide carrying a burner and movable longitudinally upon the tube, a cock and a by-pass valve controlling the passage through the vertical tube, an operating-arm for the valve, and connections intermediate said arm and the tubular slide for lowering said slide simultaneously with the closing of the valve, substantially as described.

603,662. PIPE OR TUBE CUTTER. CHARLES H. SHERRICK, Reisterstown, Md., assignor of one-half to John F. Kuehn, same place. Filed June 28, 1897. Serial No. 641,982. (No model.)



Claim.—1. A pipe-cutter comprising a rigid jaw having cutting-disks mounted therein, a movable jaw carrying a cutting-disk, said rigid jaw having a transversely-extending dovetailed slot formed therein at a point between the cutting-disks, and a bur-cutter consisting of a block beveled to form a central cutting-point, said cutter being removably secured in the dovetailed slot, substantially as set forth.

2. A pipe-cutter comprising the handle portion having the screw-threaded upper end, a rigid jaw curved at its upper part substantially as described, a semicircular slot within said upper curved portion, the disks mounted therein, a dovetail groove arranged on the space between said disks, a bur-cutter adapted to be fitted within said groove provided with the beveled sides, and the central point or trimmer, a sliding jaw carrying the cutting-disk, said sliding jaw being adapted to be freely slidable back and forth within a longitudinal slot formed on one side of the rigid jaw, as and for the purpose set forth.

603,663. BOOK-HOLDER. MARY H. SPIELMAN, Alma, Kans. Filed July 3, 1897. Serial No. 643,498. (No model.)

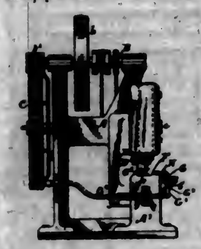


Claim.—A book-holder comprising two clasps each having a pair of parallel, elastic arms provided with oppositely-bent, interned, angular shank-arms adjustable one on the other, means for holding said shanks with the parallel clamping-arms set at the desired adjustment, and a flexible non-elastic connection between the two clasps for permitting them to engage, one the parts of one side and the other the parts of the other side of an open book for holding said parts, substantially as described.

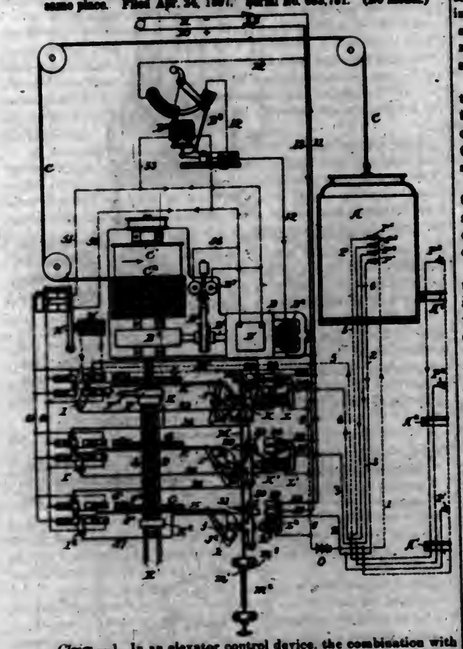
603,664. PUNCHING-MACHINE. JOHN J. SULLIVAN, Troy, N. Y. Filed Feb. 10, 1898. Serial No. 669,851. (No model.)

Claim.—In combination with the frame of a punching-machine, its punches, and the dies thereof having a shoulder c^3, a guide-plate secured to said frame, clamp-plates F passing under said guide-plate,

arms G having their upper ends pivoted to said clamp-plates and their lower ends pivoted to the rocking shaft G^2, the arms-connecting bar, the branched arm S rigidly secured to the rocking shaft, a bolt adjustably uniting the arms connection with the arm S, and adjusting-screws passing through the branching arms and bearing against the arms G of the clamp-plates substantially as described.



603,665. CONTROL APPARATUS FOR ELEVATORS. ADOLF SUBRY, New York, N. Y., assignor to the Otis Brothers & Company, same place. Filed Apr. 24, 1897. Serial No. 633,781. (No model.)



Claim.—1. In an elevator control device, the combination with the motor and working circuit therefor, of local circuits operated from the car or floor, and a non-interfering locking device operated by a local circuit and released by the motor, substantially as described.

2. In an elevator control device, the combination with the motor and working circuit therefor, of local circuits operated from the car or floor, relays in said circuits, and a non-interfering device operated by a relay in a local circuit and released by the motor, substantially as described.

3. In an elevator control device, the combination with a motor and working circuits therefor, of local circuits including relays, a non-interfering locking device operated by the armatures of the relays, and pull-off devices for the locking devices operated by the motor, substantially as described.

4. In an elevator control device, the combination with a motor and working circuits, of local circuits including relays, a non-interfering locking device, pull-offs, and reversing devices, the pull-offs and reversing devices being operated by the motor, substantially as described.

5. In an elevator control device, the combination with the motor and working circuits therefor, of reversing devices for the motor, and a non-interfering locking device, the latter being released and the reversing devices being set by the motor, substantially as described.

6. In an elevator control device, the combination with the motor, of reversing devices, non-interfering locking devices, relays and local circuits operated from the car or floor, a stop or cut-out, and connections for operating it from the car, substantially as described.

7. In an elevator control device, the combination with the motor, of a direct armature-circuit therefor, a reversing field-magnet circuit therefor, reversing-levers controlling said circuit, and mechanism for operating said reversing-levers connected with the motor, substantially as described.

8. In an elevator control device, the combination with the motor, reversing devices, and non-interfering locking devices, of a traveling device connected to be operated by the motor and arranged to operate the reversing devices and locking devices in succession, substantially as described.

9. In an elevator control device, the combination with the motor, reversing devices, and non-interfering locking devices, of a traveling device connected to be operated by the motor, and connections between the respective reversing devices and locking devices whereby they are operated together to set the parts in position to permit the elevator moving up or down from any prior position, substantially as described.

10. In an elevator control device, the combination with the motor and main circuit for operating the motor, of non-interfering locking devices, relays, and local circuits connected with the relays and arranged so that when the relay is operated by the local circuit the main circuit is completed through the relay, substantially as described.

11. In an elevator control device, the combination with the motor and main circuit therefor, of relays and local circuits therefor the armatures of the relays being connected to the main circuit for closing the same, and non-interfering locking devices connected with the armatures to prevent the operation of more than one at a time, substantially as described.

12. In an elevator control device, the combination with the motor and main circuit therefor, relays and local circuits therefor, of armatures for the relays arranged to close the main circuit, and pull-off devices connected with the armatures for breaking the main circuit, substantially as described.

13. In an elevator control device, the combination with the motor and main circuit therefor, relays and local circuits therefor, of armatures for closing the main circuit, non-interfering locking devices for the armatures, and pull-off devices for breaking the main circuit, substantially as described.

14. In an elevator control device, the combination with the motor and main circuit therefor, relays and local circuits therefor, of armatures for the relays for closing the main circuit, pull-off devices for breaking the main circuit, reversing-switches connected with the pull-off devices, and means for operating the same from the motor, substantially as described.

15. In an elevator control device, the combination with the motor and main circuit therefor, relays and local circuits therefor, of means for closing the main circuit, non-interfering locking devices therefor, pull-off devices, reversing-switches, and means for operating the same connected with the motor, substantially as described.

16. In an elevator control device, the combination with the motor and main circuit therefor and relays and local circuits therefor, of means controlled by the relays for closing the main circuit, and a non-interfering locking device consisting of a band and stops therefor, substantially as described.

17. In an elevator control device, the combination with the main-circuit-closing devices, of a flexible band and stops therefor, and stops on the circuit-closing devices arranged so that when one of said circuit-closing devices is operated none of the others can be operated, substantially as described.

18. In an elevator control device, the combination with the main-circuit-closing devices, of a flexible band and stop devices therefor arranged to permit the operation of but one of the circuit-closing devices at a time, and pull-off devices arranged to operate the circuit-closing devices, substantially as described.

19. In an elevator control device, the combination with the motor and circuits therefor, of reversing-levers, a screw connected to be operated by the motor, a traveling nut on the screw, and connections whereby the nut operates the reversing-levers, substantially as described.

20. In an elevator control device, the combination with the motor and circuits therefor, of reversing-levers, a screw operated by the motor, a traveling nut on the screw, shifting rods, and connections between the nut and shifting rods whereby the reversing-levers are operated, substantially as described.

21. In an elevator control device, the combination with the motor and main circuit therefor, of relays and local circuits therefor,

armatures connected to close the main circuit, non-interfering locking devices connected with the armatures, pull-offs for operating the armatures to break the circuit, circuit-reversing levers, a screw operated by the motor, a nut traveling on the screw, and connections between the screw and reversing-levers and pull-offs, substantially as described.

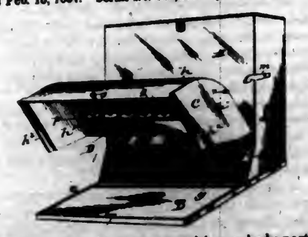
603,666. COMPOSITION FOR MAKING MATCHES. ADOLPHE TACHAUER, Marseilles, and LOUIS BRALY, Lyons, France. Filed Dec. 14, 1897. Serial No. 661,849. (No specimens.) Patented in France Mar. 30, 1897, No. 265,487.

Claim.—1. A composition for manufacture of matches, consisting of an adhesive substance and a mixture in suitable proportions of the plumbates of calcium and strontium, metallic aluminium, and monosulfid of calcium, substantially as and for the purposes described.

2. A composition for manufacture of matches, consisting of a liquid adhesive substance and a powdered mixture of hyposulfite of lead, plumbates of calcium and strontium, metallic aluminium, sodium chlorid and monosulfid of calcium, in suitable proportions, substantially as and for the purposes described.

3. A composition for manufacture of matches, consisting of an adhesive substance, a powdered mixture of glass, hyposulfite of lead, plumbates of calcium and strontium, sodium chlorid, metallic aluminium, monosulfid of calcium, in suitable proportions, and potassium chlorate at defined temperature and proportion, substantially as and for the purposes described.

603,667. KITCHEN-CABINET. JAMES R. TATE, Cincinnati, Ohio. Filed Feb. 13, 1897. Serial No. 623,279. (No model.)



Claim.—A kitchen-cabinet comprising a body portion having vertical bins therein with outlet-openings at their lower ends, arms projecting forwardly from the ends of said body portion below said outlet-openings, a board supported between said arms, a cover hinged to the body portion and cooperating with said board to close the outlet-openings of the bins, a trough for the reception of canisters and secured within said cover so as to be disposed horizontally when the cover is closed and so as to be disposed in an upright position when the cover is raised to expose the outlets of the bins.

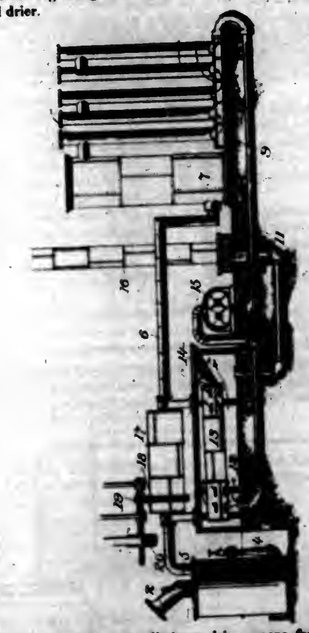
603,668. PROCESS OF AND APPARATUS FOR RECOVERING AMMONIA AND WASTE PRODUCTS FROM GARBAGE. JOSEPH B. TAYLOR and HENRY V. WALKER, Brooklyn, N. Y. Filed Aug. 23, 1897. Serial No. 649,278. (No model.)

Claim.—1. The method of garbage or refuse disposal which consists in dividing the garbage or refuse into sections for successive treatment, drying one section and burning the same in a thick layer in the presence of a supply of air, leading off the resulting products, burning the combustible portion of said products in the presence of the next successive section, for drying the same, and repeating this cycle with further sections in succession.

2. The method of garbage or refuse disposal which consists in dividing the garbage or refuse into sections for successive treatment, drying one section and burning the same in a thick layer, leading off the resulting products, dividing the ammonia from the combustible gases in said products, burning said combustible gases after separation of ammonia in the presence of the next successive section, for drying the same, and repeating this cycle with further sections successively.

3. The method of garbage or refuse disposal which consists in dividing the garbage or refuse into sections for successive treatment, drying one section and burning the same in a thick layer, leading off the resulting products over another section of the garbage for preliminary drying, dividing the ammonia and moisture from the combustible gases in said products, burning said combustible gases in the presence of another section of the garbage or refuse, for final drying and repeating this cycle with further sections successively.

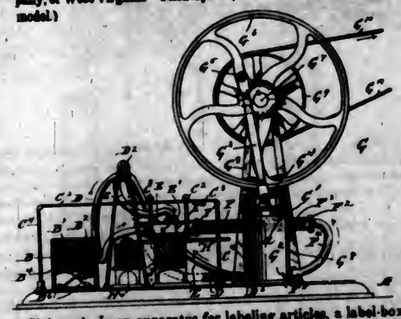
4. A gas-producer, a preliminary drier, means for leading the gas from the producer to said preliminary drier, a condenser for separating the ammonia and moisture from said gas, a final drier, and means for burning said gas after passage through said condenser near said final drier.



5. A gas-producer, a preliminary drier, means for leading the gas from the producer through said drier, means for agitating the contents of said drier, a condenser for separating ammonia and moisture from said gas, a final drier and means for burning said gas after passing through said condenser near said final drier.

6. A gas-producer, a preliminary drier, means for rotating the latter, cooling-chambers for separation of ammonia, a final drier and furnace around the same; in combination with pipes leading from said producer through said preliminary drier and ammonia-separator to said final drying-furnace, and a suction device for drawing the gases through a portion of their total path.

603,669. PNEUMATIC LABELING-MACHINE. CHARLES F. TEBBETS, Boston, Mass., assignor to the Tebbetts Labeling Machine Company, of West Virginia. Filed Apr. 22, 1897. Serial No. 633,897. (No model.)



Claim.—1. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for moving the label-carrier from the label-box to the article to be labeled, a device located in the line of travel of the label-carrier for applying adhesive material to the label as the under side of said label passes over and in contact with said device on the travel of said label from the label-box to the article to be labeled, and means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled.

2. In an apparatus for labeling articles, a label-box for holding

the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to move the label-carrier from the label-box to the article to be labeled, a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label in its travel from the label-box to the article to be labeled, and means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled.

3. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to move the label-carrier from the label-box to the article to be labeled, a device located in the line of travel of said label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled; and means for returning the label-carrier to the label-box

4. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box to the label-carrier and to move the label-carrier with the label to the article to be labeled, and means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled.

5. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from a label-box to the label-carrier and to move the label-carrier with the label to the article to be labeled, means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled, and means for returning the label-carrier to the label-box.

6. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from said label-box to the label-carrier and to move the label-carrier with the label to the article to be labeled, and means for producing an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

7. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box to the label-carrier and to move the label-carrier with the label to the article to be labeled, a device located in the line of travel of said label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, and means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled.

8. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box to the label-carrier and to move said label-carrier with the label to the article to be labeled, a device located in the line of travel of said label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, and means for producing an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

9. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box to the label-carrier and to move the label-carrier with the label to the article to be labeled, a brush located in a box in the line of travel of said label-carrier and containing adhesive material and adapted to be rotated by the movement of the label-carrier to apply adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, and means for producing an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

10. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled and provided with a bottom plate having a group of perforations corresponding in shape to the label to be transferred, means for producing a vacuum in the label-carrier to lift a label from said label-box and to hold it over said perforations during its travel to the article to be labeled, means for moving said label-carrier from said label-box to the article to be labeled, a device located in the line of travel of the label-carrier for applying adhesive material to the label as the under side of said label passes over and in contact with said device on the travel of said label from the label-box to the article to be labeled, means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled, and means for returning said label-carrier to said label-box.

11. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled and having a perforated bottom, means for producing a vacuum to lift a label from said label-box and to hold it over said perforations and to move the label-carrier with the label to the article to be labeled, and means for producing an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

12. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled and having a perforated bottom, means for producing a vacuum to lift a label from said label-box and to hold it over said perforations and to move the label-carrier with the label to the article to be labeled, a device located in the line of travel of said label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, and means for producing an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

13. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled and provided with a removable bottom plate having a group of perforations corresponding in shape to the label to be transferred, means for producing a vacuum to lift a label from said label-box and to hold it over said perforations and to move said label-carrier with the label to the article to be labeled, and means for producing an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

14. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, a support for the carrier in its travel, and an air-pump adapted to produce, during its forward stroke, a vacuum to lift a label from said label-box to the label-carrier and to move said label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

15. In an apparatus for labeling articles, a label-box for holding the labels, a receptacle for holding the articles to be labeled, a label-carrier for transferring a label from the label-box to the article to be labeled in said receptacle, a support for the carrier in its travel, and an air-pump adapted to produce, during its forward stroke a vacuum to lift a label from said label-box to the label-carrier and to move said label-carrier with the label from the label-box to the article to be labeled in said receptacle, and adapted during its return stroke to produce an air-pressure upon its arrival over the article to be labeled in said receptacle to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box

16. In an apparatus for labeling articles, a label-box for holding the labels having an opening smaller than the size of the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box through said opening to the label-carrier and to move the label-carrier with the label to the article to be labeled, and means for producing an air-pressure in said label-carrier to apply the transferred label to the article to be labeled.

17. In an apparatus for labeling articles, a label-box for holding the labels having an opening smaller than the size of the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box through said opening to the label-carrier and to move the label-carrier with the label to the article to be labeled, and means for producing an air-pressure to apply the transferred label to the article to be labeled and to return the label-carrier to the label-box.

18. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, and an air-pump having its piston-rod connected directly to a driving-wheel and adapted to produce during its forward stroke a vacuum to lift a label from said label-box to the label-carrier and to move said label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

19. In an apparatus for labeling articles, a label-box for holding the labels, a hollow label-carrier for transferring a label from the label-box to the article to be labeled, a support for the carrier in its travel, an air-pump, a conduit connecting said label-carrier with said pump, a piston-chamber, a piston adapted to reciprocate in said chamber and having its piston-rod connected to the label-carrier, a conduit connecting said piston chamber with said air-pump, and a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, said air-pump being adapted during its forward stroke to produce a vacuum in the label-carrier

to lift a label from the label-box to the label-carrier and to produce a vacuum in said piston-chamber to move the label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure in the label-carrier to apply the transferred label to the article to be labeled and to produce an air-pressure in said piston-chamber to return said label-carrier to said label-box.

20. In an apparatus for labeling articles, a label-box for holding the labels, a hollow label-carrier for transferring a label from the label-box to the article to be labeled, a support for the carrier in its travel, an air-pump having its piston-rod connected to a driving-wheel, a conduit connecting said label carrier with said pump, a piston-chamber, a piston adapted to reciprocate in said chamber and having its piston-rod connected to the label-carrier, a conduit connecting said piston-chamber with said air-pump, means for moving the labels in the label-box upwardly toward the top of said box, and a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, said air-pump being adapted during its forward stroke to produce a vacuum in the label-carrier to lift a label from the label-box to the label-carrier and to produce a vacuum in said piston-chamber to move the label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure in the label-carrier to apply the transferred label to the article to be labeled and to produce an air-pressure in said piston-chamber to return said label-carrier to said label-box.

21. In an apparatus for labeling articles, a label-box for holding the labels, a hollow label-carrier for transferring a label from the label-box to the article to be labeled, a support for the carrier in its travel, an air-pump having its piston-rod connected directly to a driving-wheel, a conduit connecting said label-carrier with said pump, a piston-chamber, a piston adapted to reciprocate in said chamber and having its piston-rod connected to the label-carrier, a conduit connecting said piston-chamber with said air-pump, means for moving the labels in the label-box upwardly toward the top of said label-box, and a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, said air-pump being adapted during its forward stroke to produce a vacuum in the label-carrier to lift a label from the label-box to the label-carrier and to produce a vacuum in said piston-chamber to move the label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure in the label-carrier to apply the transferred label to the article to be labeled and to produce an air-pressure in said piston-chamber to return said label-carrier to said label-box.

22. In an apparatus for labeling articles, a label-box for holding the labels, a hollow label-carrier for transferring a label from the label-box to the article to be labeled and having a perforated bottom, a support for the carrier in its travel, an air-pump having its piston-rod connected directly to a driving-wheel, a conduit connecting said label-carrier with said pump, a piston-chamber, a piston adapted to reciprocate in said chamber and having its piston-rod connected to the label-carrier, a conduit connecting said piston-chamber with said air-pump, means for moving the labels in the label-box upwardly toward the top of said box, and a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, said air-pump being adapted during its forward stroke to produce a vacuum in the label-carrier to lift a label from the label-box to the label-carrier and to hold it over said perforations and to produce a vacuum in said piston-chamber to move the label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure in the label-carrier to apply the transferred label to the article to be labeled and to produce an air-pressure in said pistou-chamber to return said label-carrier to said label-box.

23. In an apparatus for labeling articles, a label-box for holding the labels having an opening smaller than the size of the labels, a hollow label-carrier for transferring a label from the label-box to the article to be labeled and having a perforated bottom, a support for the label-carrier in its travel, an air-pump having a piston-rod connected directly to a driving-wheel, a conduit connecting said label-carrier with said pump, a piston-chamber, a piston adapted to reciprocate in said chamber and having its piston-rod connected to the label-carrier, a conduit connecting said piston-chamber with said air-pump, means for moving the labels in the label-box upwardly toward the top of said box, and a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, said air-pump being adapted during its forward stroke to produce a vacuum in the label-carrier to lift a label from the label-box to the label-carrier through said opening and to hold it over said perforations and to produce a vacuum in said piston-chamber to move the label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure in the label-carrier to apply the transferred label to the article to be labeled and to produce an air-pressure in said piston chamber and to return said label-carrier to said label-box.

24. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, a device located in the line of travel of the label-carrier for applying adhesive material to the label as the under side of said label passes over and in contact with said device in the travel of said label from the label-box to the article to be labeled, a power-shaft, a driving-wheel fast on said power-shaft, and an air-pump having its piston-rod connected directly to said driving-wheel and adapted during its forward stroke to produce a vacuum in said label-carrier to lift a label to said label-carrier and to hold it thereon, and adapted during its return stroke to produce an air-pressure in said label-carrier to apply the transferred label to the article to be labeled.

25. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, a device located in the line of travel of to the article to be labeled, a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, a power-shaft, a driving-wheel fast on said power-shaft, and an air-pump having its piston-rod connected directly to said driving-wheel and adapted during its forward stroke to produce a vacuum in said label-carrier to lift a label to said label-carrier and to hold it thereon and to move said label-carrier with the label to the article to be labeled and adapted during its return stroke to produce an air-pressure in the said label-carrier to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

26. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, a support for the carrier in its travel, a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, and an air-pump adapted during its forward stroke to produce a vacuum in said label-carrier to lift a label to said label-carrier and to hold it thereon and to move said label-carrier with the label to the article to be labeled, and adapted during its return stroke to produce an air-pressure in the said label carrier to apply the transferred label to the article to be labeled and to return said label-carrier to said label-box.

27. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box to the label-carrier and to move the label-carrier with the label to the article to be labeled, and means for applying the transferred label to the article to be labeled.

28. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum to lift a label from the label-box to the label-carrier and to move the label-carrier with the label to the article to be labeled, means for applying the transferred label to the article to be labeled, and a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled.

29. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for lifting a label from the label-box and for holding it on the label-carrier, means for moving the label-carrier from the label-box to the article to be labeled, a device located in the line of travel of the label-carrier for applying adhesive material to the label as the under side of said label passes over and in contact with said device on the travel of said label from the label-box to the article to be labeled, and means for applying the transferred label to the article to be labeled.

30. In an apparatus for labeling articles, a label-box for holding the labels, a label-carrier for transferring a label from the label-box to the article to be labeled, means for producing a vacuum in the label-carrier to lift a label from the label-box and to hold it on the label-carrier during its travel to the article to be labeled, means for moving the label-carrier from the label-box to the article to be labeled, a device located in the line of travel of the label-carrier for applying adhesive material to the under side of the label on its travel from the label-box to the article to be labeled, means for producing an air-pressure in the label-carrier to apply the transferred label to the article to be labeled, and means for returning the label-carrier to the label-box.

603,670. NUT-LOCK. JOHN F. TITUS, Boone County, Ind. Filed Apr. 9, 1896. Serial No. 586,516. (No model.)

Claim.—The combination with a bolt having a slit extended across its end, of a nut having a plurality of notches on its outer face and a recess or cavity, and a spring having a plurality of coils adapted to be received in said cavity, one end of the spring being turned across the center of said coils and adapted to be received in the slit in the end of the bolt, and the other end of said spring extended outwardly and at an angle to the first-mentioned end and adapted to engage the notches of the nut, all substantially as herein shown and described.



603,671. HANDLE-BAR. THOMAS VANTUYL, Hinhole, Iowa. Filed Sept. 2, 1896. Serial No. 604,603. (No model.)



Claim.—1. A handle-bar provided with a transversely-extending fitting formed at its ends with longitudinal bearings, handle-arms engaging with their inner ends the said bearings and a handle-bar stem having a head in which the said fitting is mounted to be turned and secured after adjustment, and a key held in the said fitting and adapted to lock the latter to the head and the handle-arm ends to the said bearings, substantially as described.

2. A handle-bar, comprising a handle-bar stem formed with a head having internal notches, a fitting mounted to turn in the said head, and formed at its ends with bearings, handle-arms engaging with their inner, longitudinal ends the said bearings, and a key held in the said fitting and engaging notches in the handle-arm ends and notches in the said head, substantially as shown and described.

3. A handle-bar, comprising a handle-bar stem formed with a head having internal notches, a fitting mounted to turn in the said head and formed at its ends with bearings, handle-arms engaging with their inner, longitudinal ends the said bearings, a key held in the said fitting and engaging notches in the handle-arm ends and notches in the said head, and a clamping-screw for the split end of the said head, substantially as shown and described.

603,672. TROLLEY DEVICE FOR ELECTRIC-RAILWAY CARS. LOUIS R. WALKER, Springfield, Mass., assignor of one-half to Francis W. Dickinson, same place. Filed Apr. 14, 1897. Serial No. 632,116. (No model.)

Claim.—1. The combination with an overhead support or conduit having upper and lower ways or conductors, of a trolley having a wheeled body running on the lower conductor or way and having a spring-supported shoe to run with an upwardly-bearing pressure on and along the upper conductor, the car having the upright arms g g^3, one in advance of the other, each pivotally connected on the car for a fore-and-aft vibration, and each having adjacent its pivot an angular arm g^4, cushions above and below said arms g^4 and the connections m between the arms g g^3 and the ends of the trolley-body, substantially as described.

2. The combination with the body of the trolley having the journals for the trolley wheels or trucks which are mounted thereon and having at its sides the upper and lower laterally-extending apertured flanges 13, 14, the shoe d having the stems 16 playing through said flanges and each provided with a shoulder and the springs encircling the stems and exerting an upward pressure against said shoulders, substantially as described.

3. The combination with a motor-car, of an overhead inverted conduit A composed of insulated material, provided at its under central portion with the longitudinal slot, provided therewithin, adjacent the opposite margins of said slot, with the upstanding conductor-tracks b b, and provided at its central upper wall with the longitudinal depending conductor, a, the trolley or carriage having wheels running on, and in electrical connection with, said track conductors, b b, and carrying at its top the spring-supported shoe, d, insulated from the wheels of the trolley, and in bearing contact with an upward pressure on said upper central conductor, a, the arms, g g^3, upwardly extended above the car and entering through said conduit-slot into the conduit in advance and to the rear of said trolley, and horizontal connections, m m, between said arms and the front and rear ends of the trolley-carriage, substantially as described.



603,673. STRAINER FOR MILK-PAILS. FRANK ASHLEY, Medical Lake, Wash. Filed July 19, 1897. Serial No. 645,094. (No model.)



Claim.—A removable tray and strainer for milk-pails, comprising in combination with the tray proper, having a screen located in the bottom thereof and a guard about the same, a supplemental cooling-tray E, having a centrally imperforated portion, the screen-openings E about the outer margin of said tray E, which tray is pivoted to the under side of the tray proper, the eye E' pivoted to the free swinging edge of the said tray E, and the pin A' for engagement with said eye, whereby the bottoms of the trays may be held parallel to each other with a slight space intervening between same, substantially as and for the purpose set forth.

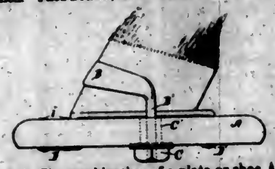
603,674. FASTENER FOR BAGS. ALFRED ARKELL, Headingly, Canada. Filed Apr. 5, 1897. Serial No. 630,771. (No model.) Patented in Canada Dec. 4, 1896, No. 54,374.



Claim.—The herein-described bag-fastener consisting essentially of the lever B, bifurcated and provided with hooks f, at one end and having the slot h, at an intermediate point of its length, the strap C,

permanently connected to the lever B, the hook A, interposed between and pivotally and permanently connected with the hooks *f*, of the lever B, and having a shank and also having the staple *i*, on said shank adapted to take through the slot *h*, of the lever, and the strap *h*, permanently connected to the shank of the hook and terminating in the eye or loop *e*, adapted to receive the hook end of the lever B, and the hook A, all as and for the purpose specified.

608,675. MARSH-HORSESHOE. WILLIAM H. BORDNER, Burt Oak, Mich. Filed Dec. 21, 1897. Serial No. 662,908. (No model.)

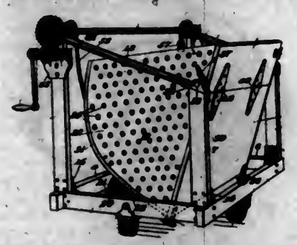


Claim.—1. The combination of a plate or shoe A, with suitable depressions to receive the calks of the horseshoe; a clamp B bent forward to conform to the hoof of an animal and having vertical end portions B' projecting through the shoe or plate A; and screw-threaded nuts C, shouldered and having a shank portion C' fitted in suitable holes in the plate to engage the vertical portion of the clamp, for the purpose specified.

2. The combination of a plate or shoe A, a clamp B bent forward to conform to the hoof of an animal and having vertical end portions B' projecting through the shoe or plate A; and screw-threaded nuts C, shouldered and having a shank portion C' fitted in suitable holes in the plate to engage the vertical portion of the clamp for the purpose specified.

3. The combination of a plate or shoe A; a clamp conformed to the hoof of an animal having vertical end portions projecting through said shoe; screw-threaded nuts C, shouldered and having shanks C' in holes in the plate, and means of preventing a hoof from slipping on the shoe, as specified.

608,676. STOCK-TRUCK. GEORGE P. CLARK, Windsor Locks, Conn. Filed July 20, 1897. Serial No. 645,200. (No model.)



Claim.—1. A stock-truck consisting of a frame and a body supported for tilting movement by the frame and having a reticulated side or sides.

2. A stock-truck consisting of a frame; a body supported for tilting movement by the frame and having a reticulated side or sides; and manually-operated means connected with the body for tilting the same.

3. A stock-truck consisting of a frame; a body supported for tilting movement by the frame and having a reticulated side or sides; a shaft having a sprocket-wheel; a sprocket-chain passed around the sprocket-wheel and connected with the body; and means for rotating said shaft.

4. A stock-truck consisting of a frame; a body supported for tilting movement by the frame; a shaft mounted in the frame and having sprocket-wheels; sprocket-chains passed around the sprocket-wheels and connected at one end with the body; weights secured to the free ends of the chains; a shaft having a crank-arm; and gearing between said shafts.

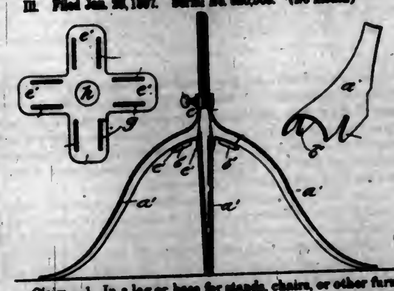
5. A stock-truck consisting of a frame composed of a base portion and a series of vertical posts rising therefrom; tie-bars secured to the posts and having bearings at one end; a body having reticulated sides provided with projecting journals working in bearings in the tie-bars; a shaft rotatively carried by the frame and having a sprocket-wheel; a sprocket-chain passing around the sprocket-wheel and secured at one end to the body; a worm-gearing one member of which is connected with said shaft, the work-shaft being provided with a crank-arm.

6. A stock-truck consisting of a frame; a tilting body having projecting trunnions working in bearings on the frame, the front side of the body having a tilting flap and the opposite side of said body being reticulated; a shaft mounted on the frame, having a sprocket-wheel; a sprocket-chain passed around the sprocket-wheel and secured at one end to the body; and means for rotating said shaft.

7. A stock-truck consisting of a frame; a tilting body having projecting journals working in bearings on the frame, the front wall of the body consisting of two sections, one hinged to the other, and the side walls of the body being reticulated; a shaft supported by the frame, having a sprocket-wheel; a sprocket-chain passed around the sprocket-wheel, one end being secured to a projection on the body; a weight secured to the opposite or free end of the sprocket-chain; worm-gearing one member of which is secured to said shaft; a bracket on the frame, for supporting the worm-shaft; and a crank-arm fixed to said worm-shaft.

8. A frame consisting of a plurality of members having squared ends abutting against each other, and a bracket having a substantially L-shaped main portion secured to two of the members of the frame, said main portion having a flange secured to the other member of the frame, the flange in turn being provided with a second flange also secured to said last-mentioned member.

608,677. STAND OR CHAIR BASE. JAMES W. COULTAS, Chicago, Ill. Filed Jan. 28, 1897. Serial No. 620,968. (No model.)



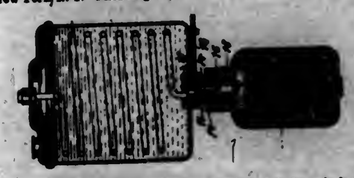
Claim.—1. In a leg or base for stands, chairs, or other furniture, a sheet-metal blank for the leg, having spurs at the edges of the blank, a foot portion of the blank on one side of the spurs, and a stem portion of the blank on the opposite side of the spurs from said foot portion, substantially as described and shown.

2. In a leg or base for stands, chairs, or other furniture, a sheet-metal blank for the leg, said blank having a foot portion at one end of the blank, and a stem portion at the other end of the blank, and a fulcrum-hold between said stem portions and foot portions, substantially as described and shown.

3. In a base for stands, chairs, and other furniture, the combination of a central standard or tree, a locking-plate attached to or surrounding the standard and provided with slits corresponding to the attaching-points on the legs and having the incline of the legs, and a plurality of legs each provided on each side with a downwardly-projecting spur portion, said spur portion being located between the foot and stem portions of the legs and being adapted to engage with or hook into and draw upon the locking-plate to lock the parts firmly together, substantially as described and shown.

4. The combination of the sheet-metal leg *a*, having its inclined lower edge spurred on both sides and a slitted locking-plate, *c*, inclined parallel with the said lower edge of the legs, substantially as described and shown.

608,678. ACETYLENE-GENERATOR. EDWARD H. DAMEREL, New York, N. Y. Filed Aug. 12, 1897. Serial No. 647,956. (No model.)



Claim.—1. The calcium-carbid cartridge, consisting of a laterally-extensible air-tight vessel provided with a pierceable air-tight film covering its opening, substantially as described.

2. The combination in an acetylene-gas generator, of a pierceable air-tight cartridge, having a screw-cock provided with a pierceable film, a water chamber connected therewith, and a screw connection between the water-chamber and said neck for making a gas connection, substantially as described.

3. The combination in an acetylene-gas generator of the water-chamber, the laterally-expansible carbid-receptacle, and means for detachably connecting the same, substantially as described.

4. The combination in a carbid cartridge, of a pierced water-tube located at an angle within said cartridge, substantially as described.

5. The combination of the laterally-expansible metallic cartridge 6, having screw connection 7, and pierced paper tube 19, substantially as described.

608,679. ROTARY ENGINE. DUDLEY DRAKE, Newark, N. J. Filed May 7, 1897. Serial No. 635,559. (No model.)



Claim.—1. A rotary engine having an eccentric piston, an abutment provided with a laterally-extending flange, and angular edges extending beyond the foot, grooves in the heads of the cylinders and packing-strips in said grooves, in combination with a wedge for adjusting the abutment.

2. A rotary engine having an eccentric piston provided with a diagonal peripheral packing and angular end packing-rings engaging said peripheral packing with their inclined surfaces, in combination with an abutment having a laterally-extending foot or flange supporting a packing to engage the piston, and means for adjusting the abutment.

3. A rotary engine having an eccentric piston, an abutment provided with a laterally-extending foot or flange and angular edges extending beyond said foot, in combination with grooves in the ends or heads of the cylinder and angular packing-strips in said grooves.

4. A rotary engine having an abutment provided with a laterally-extending foot or flange, a fixed central packing-piece and laterally-movable end packing-pieces supported in the extension of said foot.

608,680. VAPOR GENERATOR AND BURNER. JAMES G. W. HUTCHELS, FRED STARR, ORRIN P. TALLEY, and HENRY R. LORIANCE, Chicago, Ill. Filed Nov. 20, 1896. Serial No. 613,057. (No model.)



Claim.—1. In a vapor generator and burner, the combination with a centrally-apertured plate having an annular chamber substantially coextensive with its body, of a laterally-apertured shell secured to the lower side of the plate to form therewith a combustion-chamber, an induction-tube entering the chamber of the plate, and a burner-nipple leading from each plate-chamber, remote from the induction-pipe, to the combustion-chamber and being directed away from the aperture of the shell.

2. In a vapor generator and burner, the combination with a centrally-apertured plate having an annular chamber substantially coextensive with its body, of a laterally-apertured shell secured to the lower side of the plate to form therewith a combustion-chamber, an induction-tube entering the chamber of the plate, and a burner-nipple leading from each plate-chamber, remote from the induction-pipe, to the combustion-chamber, a rotatable sleeve fitted within the central aperture of the plate, and a finger attached to the sleeve and adapted to frictionally sweep the lower surface of the plate.

3. The combination with a vapor generator and burner, of a service-pipe having a swiveled joint, comprising a centrally-apertured cap having segmental slots and being attached to one section of the pipe, and a centrally-apertured disk fitted rotatably within the cap and fixed to the cooperating section of the pipe, a pair of headed pins passing through the segmental slots and fixed within the disk, and a nipple leading from the aperture of the disk through the cap and being of less capacity than the pipe-section to which the cap is attached.

608,681. THROW-OFF SWITCH FOR TELEPHONES. NATHAN FALLEK, San Francisco, Cal., assignor of thirty-one sixtieths to Frederick Hess, Jr., Albert K. Andriano, and Isidore Harris, same place. Filed Aug. 17, 1897. Serial No. 648,581. (No model.)



Claim.—The combination with the pivotally-attached switch-lever A; of the spring E, the ratchet-toothed bar F, the sliding dog G, spring-arm $g^{\times}$, pivoted lever H, pivoted piece I on the end of said lever and the arm on the telephone-hook having the inclines A^3 on the end to engage the inclines on the said piece I, constructed for operation as set forth.

608,682. ALDEHYDE-LAMP. BOUDET FOURNIER, Paris, France. Filed Apr. 10, 1897. Serial No. 631,561. (No model.) Patented in France Mar. 26, 1897, No. 266,297; in Belgium Mar. 25, 1897, No. 127,319; in England Mar. 26, 1897, No. 7,867; in Italy Mar. 27, 1897, 44/294; in Austria Apr. 30, 1897, No. 1,857, and in Spain May 3, 1897, No. 20,033.



Claim.—1. In an aldehyde-vapor lamp a disk of platinum wires adjustably mounted over the wick-tube by means of a bent rod as J provided with a rack K in a guide-support N and an adjusting-nut L substantially as described.

2. An aldehyde-vapor lamp consisting of a liquid-container as A and wick-tube E provided with an air-supply pipe as P in combination with a disk of platinum wires H adjustably supported in the vessel by means of a bent lever I rack K support N and nut L, and a cup Q and clip R, S, T, the whole being inclosed in a casing X provided with a cover Z substantially as described and illustrated in the accompanying drawings.

3. An aldehyde-vapor lamp consisting of a liquid-container as A and wick-tube E provided with an air-supply pipe as P in combination with a disk of platinum wires H adjustably supported on the vessel by means of a bent lever I rack K support N and nut L and a cup Q' containing absorbent material and provided with a cover Q^6 the cup being carried on a bent lever R' S^5 adjustably secured in a tube S^6 by a set-screw S^7 substantially as described and illustrated in the accompanying drawings.

4. An aldehyde-vapor lamp consisting in the combination with a liquid-container and burner-tube and wick, of a platinum disk adjustable in height, and a cup arranged above the said disk and adapted to be adjusted relatively to the latter.

5. An aldehyde-vapor lamp consisting in the combination with

a liquid-container and burner-tube and wick, of a platinum disk adjustable in height, and a cup arranged above the said disk and adapted to be adjusted horizontally relatively to the disk.

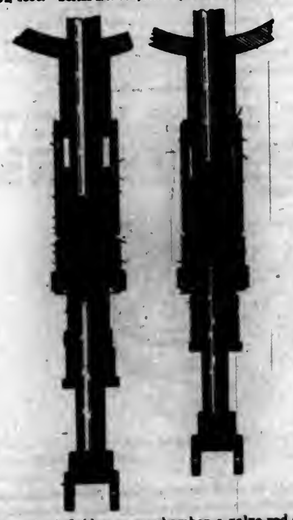
608,683. LOCK-NUT. HARRY F. GARDNER and FRANK J. BENSCOTER, Mackville, Kans. Filed Sept. 16, 1897. Serial No. 651,870. (No model.)



Claim.—1. An automatic lock-nut, comprising the nut proper, provided with a recess having a fulcrum-point, a lock seated in said recess upon said fulcrum-point, and having an extension that projects beyond the base of the nut and threads which form a continuation of the threads of the nut, whereby when the nut is screwed home, the lock will be rocked upon its fulcrum-point, thus clamping the threads of the bolt to which the nut is applied, substantially as set forth.

2. An automatic lock-nut, comprising the nut proper provided with a recess, the end wall of which is provided with a fulcrum-point intermediate the breadth of the recess, a lock seated in said recess and provided with an extension that normally projects beyond the base of the nut, and provided with threads that form a continuation of the threads of the nut, and with a recess at one side of the threads, a lip for permanently holding the lock in said recess, and a lip to be bent down over the lock when screwed up against a solid object, substantially as set forth.

608,684. THROTTLE. JOHN P. GRIGER, Orwigsburg, Pa. Filed Dec. 24, 1896. Serial No. 616,572. (No model.)



Claim.—1. A fluid-pressure chamber, a valve-rod extending into said chamber and a casing for the rod connected to the wall of the chamber and provided with a valve-chamber in combination with a valve within said valve-chamber and surrounding the valve-rod; and a packing-chamber surrounding the stem of said valve.

2. A valve-rod and an inclosing casing connected to the wall of a fluid-pressure chamber, in combination with means for locking the valve-rod and means within the casing for preventing fluid from said chamber entering the casing.

3. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber having two seats, in combination with a valve having two faces and surrounding the valve-rod, and a packing-chamber surrounding the stem of said valve.

4. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber, in combination with a valve surrounding the valve-rod and movably secured thereto.

5. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber, in combination with a valve surrounding the valve-rod and longitudinally movable thereon.

6. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber having valve-seats at both ends thereof, in combination with a valve surrounding the valve-rod and having a working face at each end.

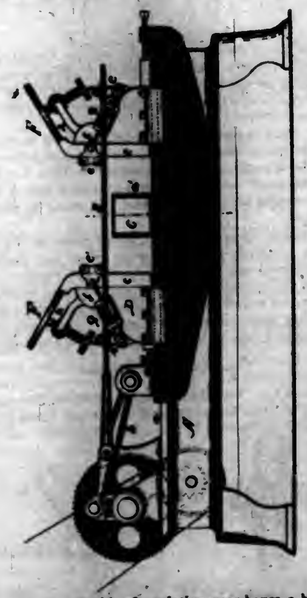
7. A steam-dome, a valve-rod having a screw-thread thereon and an annular valve having a tubular stem engaging said screw-thread, in combination with an inclosing casing connected to the exterior of said dome.

8. A fluid-pressure chamber, a valve-rod, a casing for the rod outside of said chamber and an annular valve having a tubular stem and revolubly mounted on said rod to move longitudinally thereon, in combination with a valve-chamber; and a packing-chamber surrounding the tubular stem of said valve.

9. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber, in combination with a valve surrounding said valve-rod and having a rod-packing chamber at the end of its tubular stem and a packing-chamber for the stem of the valve.

10. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber having a valve-seat at each end thereof, in combination with a valve having a face at each end, surrounding the valve-rod, longitudinally movable thereon and constructed to lock the valve-rod in one of its positions.

608,685. BOX-PRINTING MACHINE. JAMES F. GILLILAND, Adrian, Mich., assignor to the Adrian Box Company, same place. Filed Aug. 6, 1897. Serial No. 647,207. (No model.)



Claim.—1. In a machine for printing upon boxes, a base having a stationary mandrel mounted thereon, and a sliding table and means for reciprocating said table upon said base, printing-plates mounted upon said table, and adapted to be brought alternately into engagement with the sides of the box as set forth.

2. In a machine for printing upon boxes, a base having a stationary mandrel mounted thereon, a sliding table on said base and means for reciprocating said table, printing-plates mounted on said table and means for adjusting their position, so as to bring them into contact with the face of the box-body, as set forth.

3. In a machine for printing upon boxes, a base suitably mounted and having a stationary mandrel mounted thereon, a reciprocating table mounted on said base, and means for reciprocating the same, printing-plates mounted on said table, and means for automatically inking said plate with the movement of the table, substantially as described for the purposes set forth.

608,686. LUBRICATOR. EDWARD O. NOBS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Dec. 13, 1897. Serial No. 661,635. (No model.)

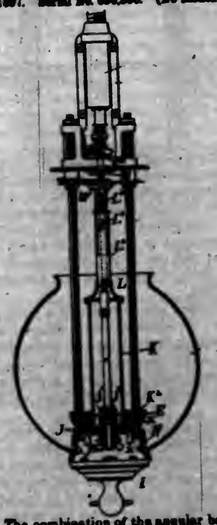
Claim.—1. A lubricator, comprising an integral oil-cup, having one or more projecting ducts, a normally-closed valve, and an external screw-thread, said cup being adapted to be projected through an opening in the body to which it is applied, and a clamping-nut for securing the same in position, substantially as described.



2. A lubricator, comprising an integral valved oil-cup, having an external shoulder, and a projection of reduced diameter, externally screw-threaded and adapted to be projected through an opening in a body to which it is applied, so as to bring its shoulder into contact with the body adjacent to said opening, an externally-applied nut for clamping it in place, and one or more ducts for conveying the lubricant to the desired object or place, substantially as described.

3. A lubricator, for use in a hollow hub or similar object having a hole or opening to receive it, consisting of an oil-cup, having a duct or ducts leading therefrom, an internal, normally-closed valve, an external shoulder, and an externally-screw-threaded projection adapted to guide the operator in applying the lubricator to the hole or opening in the object to which it is applied, and a nut for application to such screw-threaded portion outside of the object to which the lubricator is applied, substantially as described.

608,687. ELECTRIC-ARC LAMP. JOHN H. J. HAINES, New York, N. Y., assignor to the Haines Electric Company, Jersey City, N. J. Filed May 27, 1897. Serial No. 639,208. (No model.)



Claim.—1. The combination of the annular base-plate, the outer globe supported thereon, the removable ring for sustaining the globe, the arc-inclosing chamber mounted directly upon said plate over the opening therein, and a removable plate closing said opening and carrying the lower-carbon holder.

2. The combination with the base-plate suspended directly from the upper framework of the lamp and having an opening through the center, of the lamp-globe supported upon said base, the arc-inclosing globe also supported upon said base-plate, the cap for the arc-inclosing globe secured to the upper framework of the lamp, the plate removably fitted to the opening in the base plate, the lower-carbon holder mounted thereon, and the upper-carbon carrier removable through the base-plate, substantially as and for the purpose set forth.

3. The combination with the carbon-carrying rod and the plate F, through which it passes, of the cap portion of the arc-inclosing chamber having at its upper end an enlargement which is secured to the under side of said plate and thereby forms the chamber M, an asbestos packing in said chamber about the rod, and plates on either side of the asbestos to insure its engagement with the rod.

4. In an arc-lamp, a dash-pot having a central tube concentric with the outer wall, and having a piston consisting of concentric tubes working in the space between said central tube and the outer wall, and a hollow piston-rod, as and for the purpose set forth.

5. The combination with the dash-pot and its piston, of the solenoids on either side thereof, the yoke connecting the cores of the solenoids and embracing the stem of the piston and spring-seated thereon, and the feeding-clutch operatively connected to said piston.

6. In an alternating-current arc-lamp, the combination with the feeding mechanism, of a cut-out cooperating therewith to stop the feeding and adapted to be thrown into operation by the tremor of the lamp, substantially as set forth.

7. The combination with the carbon-carrying rod, provided with a nick or projection, of an inclined plate mounted to slide into engagement with said nick or projection to stop the feeding of the rod.

8. The combination with the tilting clutch and the nicked rod, of a plate carried on said clutch, and adapted to slide into said nick.

9. The combination with the tilting clutch, of a plate mounted movably thereon, and the nicked rod having a rounded shoulder below said nick for the purpose set forth.

10. The combination with the carbon-carrying rod and its feeding-clutch, of a supplemental clutch or brake wholly independent of the feeding-clutch and consisting of a perforated plate embracing the carbon-carrying rod but out of engagement therewith during feeding and adapted to be tilted to bite the rod and hold the same up during trimming.

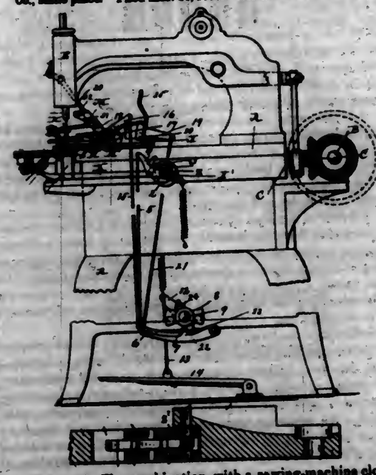
11. The combination with the carbon-carrying rod, of the perforated tilting plate or brake embracing the same but out of engagement therewith during feeding, and means for holding the said plate in a tilted position to clutch the rod and retain it against movement during trimming.

12. A thermostatic clamp, consisting of a split tube surrounded by a bimetallic ring.

13. The combination with the carbon-carrying rod, of a socket upon its lower end, a split tube located therein, and a thermostatic device for decreasing the diameter of said tube.

14. In an arc-lamp, the combination with the carbon, of a thermostatic clamp embracing a bimetallic ring, as and for the purpose described.

608,688. THREAD-TRIMMING DEVICE FOR SEWING-MACHINES. HERBERT R. HAWES, Brooklyn, N. Y., assignor to Colby & Co., same place. Filed Mar. 16, 1897. Serial No. 627,746. (No model.)



Claim.—1. The combination, with a sewing-machine cloth-plate, of a winged thread-cutting piece mounted to revolve therein unidirectionally across the needle-hole, so as to cut the under thread, and a finger or pawl and its operating means to intermittently engage and rotate the wings of the thread-cutting piece in the cloth-plate.

2. The combination with the work-clamp and the cloth-plate of a two-thread sewing-machine, of rotatable thread-cutting pieces mounted in said cloth-plate and having wings designed to move between the needle holes of both said work-clamp and cloth-plate, a rotatable shaft having cams mounted thereon, arms engaging said cams and adapted to operate said thread-cutting pieces, and means for operating said shaft, substantially as set forth.

3. The combination with the presser-foot of a sewing-machine and a thread-cutting device, of a cam, cam-follower, and connections to operate the presser-foot, another cam, cam-follower and connections to operate the thread-cutting device, and a primary operator, as a treadle, and connections to cause said cams to actuate their followers and hence the presser foot and thread-cutting device in alternation.

608,689. SEVERING MECHANISM FOR AERIAL TORPEDOES. JAMES A. HILL, Ravenswood, W. Va., assignor of one-half to A. E. Cole, A. D. Cole, and W. T. Cole, Maysville, Ky.. Filed Oct. 7, 1896. Serial No. 608,189. (No model.)



Claim.—1. A destructive engine of war, comprising a balloon member, an explosive-receptacle, a rope connecting same, a block mounted upon said rope carrying an arm provided with a cutting member for severing said rope, and suitable means for operating said arm, substantially as and for the purpose set forth.

2. A device of the class described, comprising a balloon member, an explosive member, a rope connecting same, and means for disconnecting said members, consisting of a block mounted upon said rope and carrying a cutting-blade operated by suitable clock mechanism to sever the rope, whereby the explosive is dropped from the balloon, substantially as shown and described.

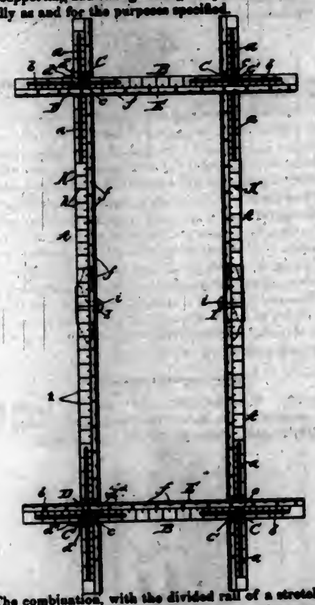
3. A device of the class described, comprising a balloon member, a rope suspended from said member, carrying at its lower extremity an explosive, and means for disconnecting the balloon and explosive, consisting of a block having a groove in the face thereof, along which the rope passes, a cutting-blade arranged across said groove and means for operating the knife-blade to sever the rope, substantially as shown and described.

4. A device of the class described, comprising a balloon member, and explosive members, means for connecting the same, comprising a circular or other suitably-shaped support connected horizontally with the balloon-netting and at the lower end thereof, a suspending-yoke connected with said support at diametrically opposite points, from which said explosive members are suspended, and means for automatically severing the connection between the balloon member and the explosive members, substantially as and for the purpose set forth.

608,690. CURTAIN-STRETCHER. REUBEN HOFFHEIMS, Chicago, Ill. Filed Jan. 9, 1897. Serial No. 618,512. (No model.)

Claim.—1. The combination, in a stretcher, of a frame having side and end rails or pieces with adjusting-slots, a clamping-bolt for each corner of the frame passing through the slots of the side and end rail or piece, and a plate mounted and swinging on and moving with the clamping-bolt and having on one face two flanges forming a corner with side faces at right angles to each other fitting the frame-pieces at the outer corner, with the right-angle faces of the corner engaging the edge faces of the frame-pieces in every adjustment of the frame for squaring the frame and maintaining the rigidity at the corners, substantially as specified.

2. The combination, with the divided rail of a stretcher-frame, of a clamping-hinge consisting of two companion plates each having a projecting clamp end, each clamp end overlapping onto the body of the opposite plate and extending over the abutting ends of the rail on each side of the joint, for each clamp end and the body of the adjacent plate and the rail end to be rigidly clamped together and to each other when the rail is opened out for use, thereby engaging each other and supporting and strengthening the joint of the divided rail, substantially as and for the purposes specified.



3. The combination, with the divided rail of a stretcher-frame, of a fastening-hinge consisting of two companion plates, each having a clamp end overlapping onto the body of the opposite hinge-plate on each side of the rail-joint, and clamps common to the clamp end, the body of the hinge-plate and the rail end, whereby the adjacent and overlapping parts can be drawn tightly together, rigidly uniting the hinge and the rail one to the other, thereby supporting and strengthening the joint of the divided rail, substantially as and for the purposes specified.

4. The combination, in a stretcher, of a frame having side and end rails or pieces with adjusting-slots, a clamping-bolt for each corner of the frame passing through the slots of the side and end piece, a plate mounted on the clamping-bolt and having flanges standing at right angles to each other, and a guide or stop on the plate entering the slot of a frame-piece, substantially as and for the purpose specified.

5. The combination, in a stretcher, of a frame having side and end pieces, each provided with an inclined face on the inner edge, terminating in a slot or groove on each side, and a series of attaching or retaining pins, each pin formed integral with its support or base by bending a piece of wire on itself to furnish a rectangular base or support with side arms or pieces free at one end and having an outward spring for the side arms or pieces to enter the side slots or grooves of the face and engage the wall of such slots or grooves of the inclined face, and hold the pins in position when adjusted, substantially as and for the purposes specified.

6. The combination of a frame-piece having at the inner edge a supporting-face terminating in a slot or groove on each side, and an attaching or retaining pin formed integral with its support or base from a single piece of wire bent to produce a support or base having independent side arms or pieces free at one end and having an outward spring for the side arms or pieces to enter the slots or grooves of the supporting-face and lock and retain the pin in an adjusted position by the spring action, flexing the side arms or pieces in contact with the wall of the slot or groove, substantially as and for the purposes specified.

7. An attaching or retaining pin for a stretcher, consisting of a single piece of wire bent to form the pin and a support or base therefor having free arms or side pieces, wider at the open than at the closed end to give a spring action for holding the pin in an adjusted position, substantially as and for the purposes specified.

8. The combination, in a stretcher, of a frame having divided side pieces, a hinge connection for joining the side pieces, consisting of plates attached to the abutting ends of the side pieces, one on each side of the joint, each plate having a clamp end extending over onto the body of the opposite hinge-plate and the rail end each side of the joint and each plate having a slot in its edge, a pivot for the two plates, and stationary clamping pins or bolts common to the clamp end, the hinge-plate and the rail end, and entering the slots of the clamp ends for drawing the clamp end, the hinge-plates and the body of the rail firmly and rigidly against each other, substantially as and for the purposes specified.

9. The combination, in a stretcher, of a frame having divided side pieces, a hinge connection for the side pieces consisting of a plate attached to one part of the side piece with a projecting inner end having a slot in its edge and a flange on the side, a second plate attached to the other part of the side piece with a projecting inner end and having a slot in its edge, and pins or bolts entering the slots and having locking-nuts, substantially as and for the purposes specified.

10. The combination, in a stretcher, of a frame having divided side pieces, a hinge connection for the side pieces consisting of a plate attached to one part of the side piece with a projecting inner end having a slot in its edge, a second plate attached to the other part of the side piece with a projecting inner end having a slot in its edge, and having on the outer edge of the plate and its projecting end a ledge or head engaging the face of the companion plate at its outer edge, substantially as and for the purposes specified.

11. The combination, in a stretcher, of a divided side piece for the frame, and a hinge consisting of a plate attached to one part of the divided side piece, and a second plate attached to the other part of the divided side piece and having a ledge or head on its under face engaging the upper face of its companion plate, substantially as and for the purposes specified.

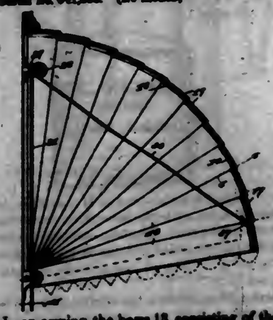
12. The combination of two companion plates forming a hinge, each plate having a clamp end, each clamp end overlapping onto the body of the opposite plate at the joint of the hinge, and clamping-bolts one on the body of each rail end, each bolt common to the clamp end, the hinge-plate and the rail end, for locking the clamp end, the body of the hinge-plate and the rail rigidly together, substantially as and for the purposes specified.

13. The combination, in a stretcher, of a frame having divided and hinged side rails or pieces each connected by a locking-hinge at the point of division and end rails or pieces, with adjusting-slots in such rails or pieces, clamping-bolts passing through the slots of the rails or pieces and squaring-plates mounted and swinging on and carried by the clamping-bolts for enabling the end pieces to be folded straight or crossed at one end, without removal of any of the parts, substantially as and for the purposes specified.

14. The combination, in a stretcher-frame, of a rail or piece having an inclined face on its inner edge, a longitudinal slot or groove on each side of the inclined face with the front or lower groove below the plane of the rear or upper groove for strengthening the rail or piece at the inner edge, and a series of sliding pins engaging the slots or grooves of the rail or piece, substantially as and for the purpose specified.

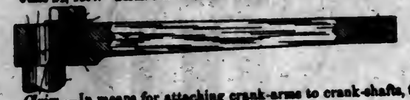
15. The combination, in a stretcher-frame, of hinged slotted side rails or pieces, slotted end rails or pieces, each rail or piece having on its inner edge a receiving-face with a longitudinal slot or groove in each side, clamping-bolts passing through the slots of the side and end rails or pieces, a series of adjustable pins each having a base movable in the slots or grooves of the receiving-face with the points of the pins below the face of the frame, and a corresponding scale or measure on the side and end rails or pieces, for securing the adjustment of the frame and a correct and perfect alinement of the pins by one and the same scale, substantially as specified.

608,691. AWNING. JOHN D. HOGAN, St. Louis, Mo. Filed June 18, 1897. Serial No. 641,220. (No model.)



Claim.—In an awning, the bows 13, consisting of the side pieces 15 and 16 and the cross-pieces 17, and the casting 18 connecting the ends of the cross-pieces 17 to the ends of the side pieces 15 and 16; each of said castings consisting of the portions 19 and 20 formed at right angles to each other, the lug 22 projecting outwardly from the upper ends of said portions, and the lugs 23 and 24 closing the ends of the trough formed by said portions, the lug 22 of one casting extending into the trough of the next outer casting and the lugs 23 and 24 forming stops for said lug 22, substantially as specified.

608,692. MEANS FOR ATTACHING CRANK-ARMS TO CRANK-SHAFTS. THOMAS H. HOYT and JOSEPH GILLET, Milwaukee, Wis., assignors to the Milwaukee Manufacturing Company, same place. Filed June 21, 1897. Serial No. 641,542. (No model.)

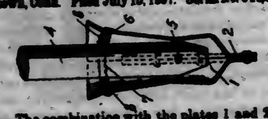


Claim.—In means for attaching crank-arms to crank-shafts, the combination, of a crank-shaft having the end thereof provided with a flat beveled side, a crank-arm provided with an opening to receive the end of the crank-shaft, and with another branching opening in communication, and in longitudinal alinement, with the first-named opening, a nut fitting said branching opening, said nut provided with a beveled side registering with and engaging the flat beveled side of the end of the crank-shaft, and a screw-bolt passing into the branching opening of the crank-arm to engage the threads of the nut, said bolt being in longitudinal alinement with the crank-shaft.

608,693. FIREPROOF CALCIMINE. STANISLAU KALAMAJKOWSKI, New York, N. Y. Filed Apr. 23, 1896. Renewed Aug. 23, 1897. Serial No. 649,941. (No specimens.)

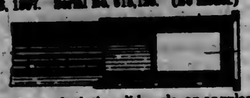
Claim.—The herein-described composition to be used as calcimine or coating, consisting of water, borax, boracic acid, sulfate of ammonia, muriate of ammonia, carbonate of lime, oxid of zinc, and glue in about the proportions specified.

608,694. FLEXIBLE BROOM-HANDLE. GEORGE H. KAVANAUGH, Middletown, Conn. Filed July 15, 1897. Serial No. 644,695. (No model.)



Claim.—The combination with the plates 1 and 2, provided with the vertical conical semicircular flanges 3 3, and a handle 4, pivoted upon said rod, of the curved rod 6 fixed in said flanges and extending through said handle, and the springs 8 8 encompassing said rod on each side of said handle, substantially as shown and described.

608,695. SLIDE-RULE. WILLIS I. R. KNIFFIN, Hoboken, N. J. Filed Jan. 6, 1897. Serial No. 618,126. (No model.)



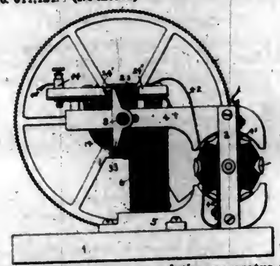
Claim.—1. In a calculating slide-rule, an angular rule having an interior chamber and a plurality of faces provided with longitudinal cut-out portions communicating with said chamber and having its opposite edges logarithmically graduated, external guards on the ends of said rule, and a prismatic slide inclosed by said rule and working within said chamber, the ends of said slide being projected beyond the ends of said rule, said slide displaying suitable logarithmic graduations, the interior angles of the rule and exterior angles of the slide forming means for accurately adjusting said slide within said rule, substantially as set forth.

2. In a calculating slide-rule having a plurality of faces provided with longitudinal cut-out portions and having its opposite edges logarithmically graduated, external guards on the ends of said rule, a prismatic slide inclosed within said rule and displaying suitable logarithmic graduations, and an indicator or runner adapted to slide longitudinally over said rule and provided with a plurality of fins or pointers located over said slide, and extended in opposite directions, substantially as set forth.

3. In a calculating slide-rule having a plurality of faces provided with longitudinal cut-out portions and having its opposite edges logarithmically graduated, external guards on the ends of said rule, a prismatic slide inclosed within said rule and displaying suitable logarithmic graduations, and an indicator or runner entirely or partly encircling said angular rule and having a plurality of fins or pointers

extending over the exposed faces of said slide in opposite directions, substantially as set forth.

603,696. AUTOMATIC TEMPERATURE-REGULATING APPARATUS. WALTER B. LORING, Worcester, Mass. Filed Nov. 5, 1896. Serial No. 611,121. (No model.)



Claim.—1. In a temperature-regulating apparatus, the combination with a heat-controlling damper or other device, and connections to a motor, of said motor operated by electricity, and consisting of a revolving armature, a field-coil, a shaft operated by the armature through a gear loose on said shaft, but adapted to be clutched thereto to turn the same, said shaft adapted to revolve in either direction, and to be positively stopped at the end of each movement, a switch mechanism adapted to be operated automatically by the revolution of said shaft, to automatically cause the electric current to pass in one direction or the other through the field-coil, to operate the armature and the shaft in one direction or the other, and move the damper, and electrical connections from said motor to a generator or electric source, substantially as set forth.

2. In a temperature-regulating apparatus, the combination with a heat-controlling damper or other device, and connections to a motor, of said motor operated by electricity, and consisting of a revolving armature a field-coil, a shaft operated by the armature through a gear loose on said shaft, but connected therewith to turn the same, said shaft adapted to revolve in either direction, and to be positively stopped at the end of each movement, a switch mechanism adapted to be operated automatically by the revolution of said shaft, to automatically cause the electric current to pass in one direction, or the other through the field-coil, to operate the armature and the shaft in one direction, or the other, and move the damper, and electrical connections from said motor to a generator, or electric source, substantially as set forth.

3. In a temperature-regulating apparatus, the combination with a heat-controlling damper or other device for controlling the passage of air, and connections to a motor, of said motor operated by electricity, and consisting of an armature, a field-coil, a shaft operated by the armature, through a gear loose on said shaft, but connected therewith to turn the same, said shaft adapted to revolve in either direction, and to be positively stopped at the end of each movement, by a lever or finger on said shaft engaging with a stop, or switch in the path of said lever, a switch mechanism adapted to be operated automatically by the revolution of said shaft, to automatically cause the electric current to pass in one direction, or the other, through the field-coil, to operate the armature and the shaft in one direction or the other, and move the damper; and electrical connections from said motor to a generator: and a thermostat, substantially as set forth.

4. In a motor operated by electricity, the combination with a shaft adapted to revolve in either direction, and operated by a revolving armature, and having an arm or lever fast thereon, to engage and move a switch, and stop the rotation of the shaft and said switch, and a disk fast on said shaft, of a gear or pulley loose on said shaft, and two clutch members pivoted on said gear, said clutch members adapted to extend upon the periphery of said disk, and a spring connecting the ends of said clutch members, to cause the disk to be held and turned with said gear, and allow the gear to be turned independently of said disk, when the shaft is stopped, substantially as set forth.

5. In a heat-regulating apparatus, the combination with a thermostat, connections therefrom to a motor, and said motor, operated by electricity, and adapted to operate a heat-controlling damper or dampers, and said damper or dampers, and connections therefrom to the motor, of mechanism for controlling the operation of said motor, and connected therewith, comprising an operating-lever, and means for automatically moving the same in one direction to break the circuit and stop the motor, and a clock-movement for controlling the reverse movement of said lever, to close the circuit, substantially as set forth.

6. In a motor operated by electricity, the combination with a shaft adapted to revolve in either direction, and to be positively stopped at the end of a predetermined movement, and a gear or pulley loosely mounted on said shaft, but connected therewith to turn said shaft, of a switch, or switch mechanism operated by the revolution of said shaft, substantially as set forth.

7. In a motor operated by electricity, the combination with a shaft adapted to revolve in either direction, and to be positively stopped at the end of a predetermined movement, and a gear or pulley loosely mounted on said shaft, but connected therewith to turn said shaft, of a switch or switch mechanism, substantially as set forth.

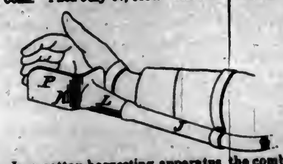
8. In a heat-regulating apparatus, the combination with an electric motor or device for controlling the movement of dampers or valves, a shaft operated by said motor to revolve in either direction, of means for controlling the operation of said shaft, comprising an operating lever or device, and means for automatically moving the same in one direction to break the circuit and stop the shaft, and means for controlling the reverse movement of said lever, substantially as shown and described.

9. In a heat-regulating apparatus, the combination with an electric motor or device for controlling the movement of dampers or valves, a shaft operated by said motor to revolve in either direction, of means for controlling the operation of said shaft, comprising an operating lever or device, and means for automatically moving the same to open or close the circuit, substantially as shown and described.

10. In a heat-regulating apparatus, the combination with an electric generator, connections to an electric motor, and said motor, consisting of a revolving armature, a field coil or coils, a shaft operated by the armature and adapted to revolve in either direction, of means for controlling the operation of said shaft, comprising an operating-lever, and means for automatically moving the same in one direction to break the circuit and stop the shaft, and means for automatically controlling the reverse movement of said lever to close the circuit, substantially as set forth.

11. In a heat-regulating apparatus, the combination with a motor or device for controlling the movement of dampers or valves, a shaft operated by said motor to revolve in either direction, of means for controlling the operation of said shaft, comprising an operating lever or device, and means for automatically moving the same, substantially as shown and described.

603,697. COTTON-COLLECTING APPARATUS. CHARLES J. LOUD, Niantic, Conn. Filed July 17, 1897. Serial No. 644,948. (No model.)



Claim.—In a cotton-harvesting apparatus, the combination with means for exhausting air, and a flexible pneumatic tube, of a funnel thereon, and means for attaching it to the wrist of the operator adjacent to the palm of the hand, and a guard projecting from one side of the mouth of the funnel in a position adapted to become substantially opposite to the palm of the hand when the funnel is attached, leaving the fingers and thumb of the operator free to pick the cotton and feed it upon said guard toward the mouth of the funnel.

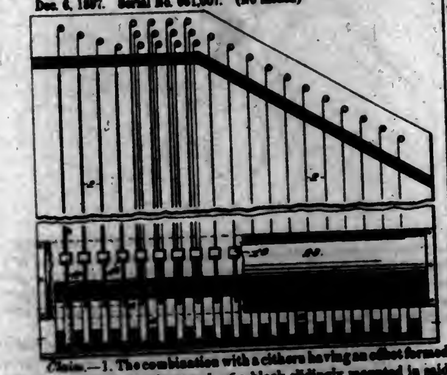
603,698. ATTACHMENT FOR TRUNKS OR BOXES. CHARLES G. MAXWELL, West Winsted, Conn. Filed Apr. 22, 1897. Serial No. 633,304. (No model.)



Claim.—1. In combination, the box, the cover hinged to the rear of the box, the doubly-perforated plates respectively hinged to front of box and cover, and the strap removably attached to the doubly-perforated plates and of a length which adapts it to be drawn taut when the cover is shut, all substantially as described and for the purposes set forth.

2. In combination, the box, the cover hinged to the rear of the box, the doubly-perforated plates respectively hinged to front of box and cover, and the strap provided with buckle and buckle-holes and removably attached to the doubly-perforated plates and of a length which adapts it to be drawn taut when the cover is shut, all substantially as described and for the purposes set forth.

603,699. CITHERN. CHARLES T. MEYER, St. Louis, Mo. Filed Dec. 6, 1897. Serial No. 661,607. (No model.)



Claim.—1. The combination with a cithern having an offset formed in the top side of its front end, of a block slidingly mounted in said offset, which block is provided with keys for sounding the strings of the cithern, substantially as specified.

2. The combination with a cithern having an offset formed in the top side of its front end, of a block mounted to slide in said offset, spring-actuated keys operating in said block, spring-arms extending upward and rearward from the rear ends of said keys, and hammers carried by said spring-arms for striking the strings of the cithern, substantially as specified.

3. A cithern constructed with an offset in the top side of its front end, a block arranged to slide in said offset, parallel ears formed integral with and extending upward from said block, spring-actuated keys operating in the recesses between said ears, spring-arms extending upward and rearward from the rear ends of said keys, and cushioned hammers located upon the ends of said spring-arms and arranged to strike the strings of the cithern, substantially as specified.

4. A cithern constructed with an offset in the top side of its front end, a section of flexible material located in the bottom of said offset, a block arranged to slide in said offset, ears formed integral with and extending upward from said block, spring-actuated keys pivoted to operate in the recesses between said ears, a cushion located below the forward ends of said keys, cushions located in the recesses between the ears beneath the rear ends of the keys, spring-arms extending upward and rearward from the keys, hammers located upon the ends of said spring-arms, and cushions located upon said hammers, substantially as specified.

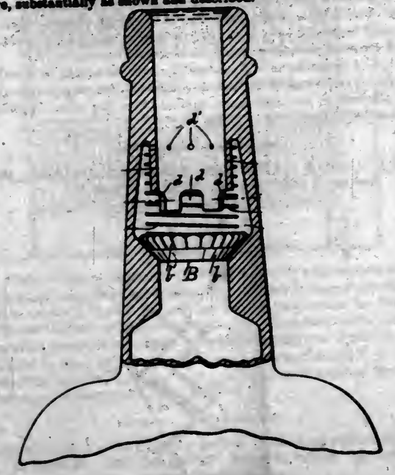
603,700. COFFEE-POT. HERBERT L. MITCHELL, Pittsburg, Pa. Filed Oct. 27, 1897. Serial No. 656,613. (No model.)



Claim.—In an apparatus for brewing coffee, the combination with a coffee-pot, of an infuser comprising an annular conical section A, provided with the flange E, and perforated partition D, and openings F, of an annular conical section E, provided with a flange G and perforated partition C, said sections being adapted to be locked together by means of the flanges B and G, substantially as described.

603,701. NON-REFILLABLE BOTTLE. ARTHUR F. MOTT and HENRY S. DUNN, Jr., Brooklyn, N. Y. Filed Aug. 28, 1897. Serial No. 649,991. (No model.)

Claim.—An improvement in bottles, comprising an annular recess in the neck and a conical valve-seat formed in the lower portion thereof, a conical grooved valve for engagement with said seat, an annular flange extended downwardly in said recess having apertures therethrough for draining liquid from the bottle, and having grooves in the lower edge thereof to facilitate the outflow of liquid from the bottle, and a spring coiled around said flange and bearing upon the valve, substantially as shown and described.



603,702. TOBACCO-PIPE. WILLIAM HAY, Philadelphia, Pa. Filed Jan. 30, 1897. Serial No. 621,263. (No model.)



Claim.—In a pipe a tube adapted to be secured to the inner end of the mouthpiece and communicating therewith and having an opening in its periphery, and in its forward end, and an elongated sleeve partly fitted on said tube and having an opening adapted to register with that in the tube, a chamber being provided between the ends of said tube and sleeve and communicating with said tube.

603,703. PROPELLER. JAMES V. O'CONNOR, Brockton, Mass. Filed July 3, 1897. Serial No. 643,411. (No model.)



Claim.—1. A propeller having oppositely-situated triangular wings or vanes arranged in parallel planes and supported by a common center, the one side and base of each wing or vane being open,

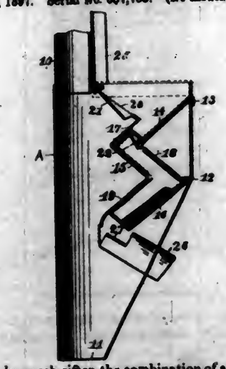
and the bases positioned to direct the propulsive medium into the open side of the next succeeding wing, substantially as described.

2. A propeller having wings or vanes supported by a common central web or partition and arranged in parallel planes in alternation on opposite sides of said partition, substantially as described.

3. In a propeller, a blank consisting of a disk slitted inwardly toward the center to form triangular sections and having the corners in alternation bent in opposite directions and carried over the reverse and obverse sides of the blank to form triangular wings or vanes arranged in parallel pairs and each of which has an open side and base, and a carved wall, substantially as described.

4. A propeller having a common center, consisting of a web or partition and wings or vanes on opposite sides of said center arranged in alternation, and each series separate from the other in parallel planes, substantially as described.

608,704. ASH-SIFTER. JOSEPH PAYETTE, Worcester, Mass. Filed Nov. 8, 1897. Serial No. 657,735. (No model.)



Claim.—1. In an ash-sifter, the combination of a casing A, a frame 12 carrying screenwork-sections 15 and 16, and cover-sections 18 and 19, said sections forming inclined sifting-passages, screenwork-sections 14 and 20 forming a hopper in the upper part of the casing A, a covered spout 26 extending into the casing A to receive the sifted coal, while ashes which pass through the meshes of the screenwork-sections are retained inside the casing, and a cut-off door 22 for temporarily retaining the material to be sifted in the hopper, substantially as and for the purpose set forth.

2. In an ash-sifter, the combination of a casing A, a frame 12 carrying screenwork-sections 15 and 16 and cover-sections 18 and 19, said sections forming inclined passages, screenwork-sections 14 and 20 forming a hopper in the upper part of the casing A, a covered spout 26 extending into the casing A to receive the sifted coal, and a cut-off door 22 for temporarily retaining the material to be sifted in the hopper, the framework 12 being provided at its upper end with hooks 13, extending through sockets in the casing A to detachably support the hopper, screenwork and cover sections in position in said casing, substantially as described.

3. In an ash-sifter, the combination of a casing A, inclined, screenwork-sections 14 and 20 forming a hopper in the upper part of the casing, and inclined sifting-passages leading down from the hopper, the screenwork-section 20 being hinged so as to permit material to be introduced into the casing without causing the same to pass through the sifting-passages, substantially as described.

4. In an ash-sifter, the combination of a casing A, a frame 12 detachably secured in said casing, screenwork-sections 14, 15 and 16, and cover-sections 17, 18 and 19 carried by the frame 12 to form inclined sifting-passages, a hinged screenwork-section 20 arranged to coöperate with the screenwork-section 14 to form a hopper, or to be turned back to allow material to be introduced into the casing without causing the same to be passed through the sifting-passages, and a shut-off door 22 for the sifting-passages, a hinged cover 25 for the casing, substantially as described.

608,705. ELECTRIC INCANDESCENT LAMP. WILLIAM J. PHELPS, Chicago, Ill. Filed Sept. 7, 1897. Serial No. 650,870. (No model.)

Claim.—1. An electric incandescent lamp comprising a vacuum-bulb, two sections of incandescing material, one of said sections serving as a resistance to modify the current for the other section when in series therewith, but being of too low resistance to be independently subjected to the full voltage of the electric supply, and connections whereby current may be passed to both sections in series or through the section of higher resistance alone, but not through the section of lower resistance alone.



2. A constant-potential electric lamp comprising a vacuum-bulb and two incandescing filaments, differing in resistance per unit of length, connected to receive current in series but not otherwise or separately, the resistance of said filaments being such that one glows while the other serves as a relatively dark and dead resistance to modify the current.

3. In constant-potential electric lighting the combination in one vacuum-bulb of two or more incandescent filaments or sections, the relative resistance of said filaments being such that when current is passed through two or more filaments in series one at least of said filaments glows while one at least of said filaments serves as a relatively dark and dead resistance to modify the current.

4. A constant-potential electric lamp comprising an exhausted globe, a main incandescing filament, an auxiliary filament of higher resistance per unit of length than the main filament, but having too low total resistance to be independently subjected to the full voltage for which the main filament has been designed, and connections whereby current may be passed to the main filament alone or to the auxiliary filament in series with the main filament but not otherwise.

5. An electric incandescent lamp comprising a vacuum-bulb, two sections of incandescing material, one of said sections serving as a resistance to modify the current for the other section when in series therewith, but being of too low resistance to be independently subjected to the full voltage of the electric supply, and a shunting device actuated by the longitudinal movement of the lamp in its socket, effected in screwing the same into place, whereby current may be passed to both sections in series or through the section of higher resistance alone but not through the section of lower resistance alone.

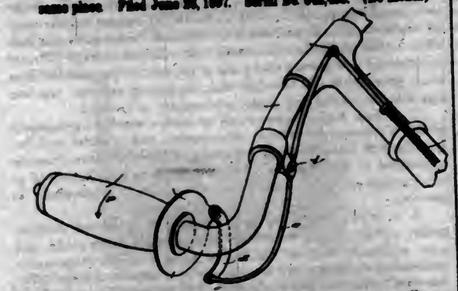
6. In constant-potential electric lighting, the combination with a vacuum-bulb, of two or more filaments or sections the relative resistance of which is such that when current is passed to two or more of the filaments in series, one at least of said filaments glows while one at least of said filaments serves as a relatively dark and dead resistance to modify the current, a base or part adapted to screw into a socket, or support and mechanism for shunting or disconnecting one or more of the filaments, actuated by the longitudinal movement of the lamp in its socket effected in screwing the same into place.

7. An incandescent lamp comprising a vacuum-bulb, two incandescing filaments therein, a base or part adapted to screw into a socket or support, a central stationary terminal constituting the point of electrical connection of one of the leading-in wires, and a movable contact adapted to engage said stationary terminal, said movable contact being rigidly attached at one part to the lamp-base.

8. An incandescent lamp, comprising a vacuum-bulb, a plurality of filaments therein, leading-in wires for said filaments, and a shunting device consisting of a movable bridge-piece adapted to connect two of the terminals and supported from a relatively stationary base, said base constituting the point of electrical connection of one of the leading-in wires.

9. An electric incandescent lamp comprising an exhausted globe, a main incandescing filament adapted to withstand the full electromotive force of the electric circuit for which the lamp has been designed, an auxiliary filament having too little resistance to be directly connected to such circuit, three conducting-wires leading from the filaments (one end of each filament being electrically connected within the vacuum) a base containing the terminal of the conducting-wires normally insulated from each other and a rod or part situated on or within the base and actuated by the progressive longitudinal movement effected in screwing the base into a socket or support; in the normal position, the said rod or part carries the electric current to the main and auxiliary filaments in series when partly screwed into a socket; when screwed in somewhat farther the circuit is broken and when screwed into the socket to the utmost extent the current is turned through the main filament burning alone.

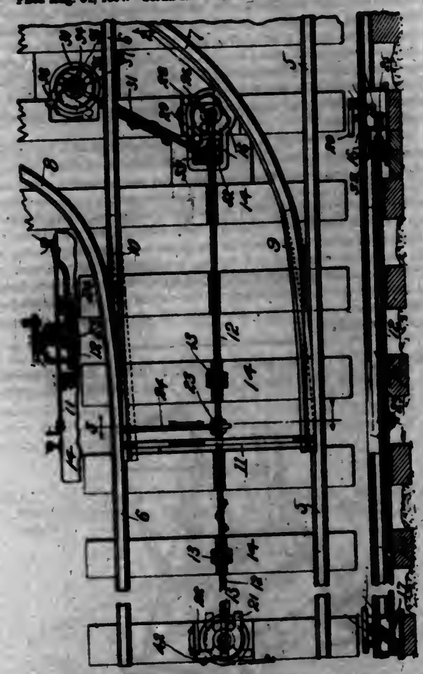
608,706. BICYCLE-BRAKE. RUDOLF RAISER, Vienna, Austria-Hungary, assignor of two-thirds to Fritz Kohn and Ludwig Reuther, same place. Filed June 26, 1897. Serial No. 642,483. (No model.)



Claim.—1. In a bicycle-brake, a handle-bar having a handle revolubly secured thereon, a brake-lever pivotally secured to the handle-bar, a link connecting the revolvable handle and the brake-lever, and connections between the brake-lever and brake-shoe, substantially as described.

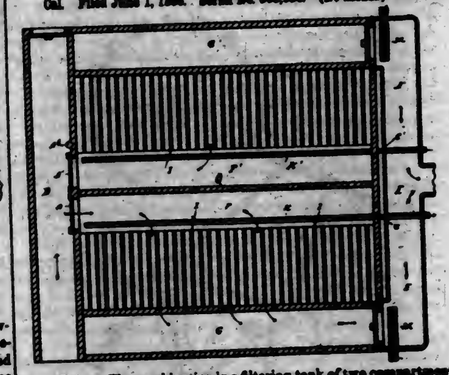
2. In a bicycle-brake, a handle-bar, a handle revolubly secured thereon, a disk arranged upon the inner end of the handle having a projection extending therefrom upon one side, a brake-lever pivotally secured to the handle-bar, a link connecting one end of the brake-lever and the projection upon the disk, and connections between the opposite end of the brake-lever and the brake-shoe, substantially as described.

608,707. RAILWAY-SWITCH. JOHN F. RUBLAND, Weimton, Mo. Filed Aug. 31, 1897. Serial No. 650,166. (No model.)



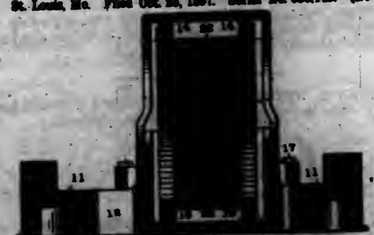
Claim.—In a switch, a rock-shaft mounted parallel with the main-line rails, a second rock-shaft mounted parallel with the side-track rails, a beveled-gear connection between said shafts, a connection between the first-mentioned shaft and the movable switch-rails whereby the switch-rails are moved, shafts mounted at angles relative to the first and second mentioned shafts, beveled-gear connections between the last-mentioned shafts and the first and second mentioned shafts, and arms attached to the last-mentioned shafts for operating the same, substantially as specified.

608,708. WATER-FILTER. GEORGE SCHUMANN, San Francisco, Cal. Filed June 1, 1898. Serial No. 682,956. (No model.)



Claim.—The combination in a filtering-tank of two compartments and a supply-chamber with a series of stationary V-shaped filtering-screens arranged in each compartment, a spraying system for cleaning the said screens, a common inlet-duct for said compartments, gates controlling severally the supply from said duct thereto, drains F, F, arranged to carry off the cleaning-water, additional drains G, G', for conducting the filtered water and a common duct supplied by the latter drains substantially as set forth.

608,709. DYNAMO OR MOTOR. FERDINAND SCHWEINHART, St. Louis, Mo. Filed Oct. 23, 1897. Serial No. 656,163. (No model.)



Claim.—1. In a dynamo or motor, a suitable casing or housing for the field-magnet core cast in one piece, a laminated field-magnet core inserted in said casing from the bottom, and means for rigidly securing said core in said casing.

2. In a dynamo or motor, a suitable casing or housing for the field-magnet core cast in one piece, a base formed integral with said casing, a laminated field-magnet core inserted in said casing from the bottom and means for rigidly securing said core in said casing.

3. In a dynamo or motor, a suitable casing for the field-magnet core cast in one piece, a laminated field-magnet core inserted in said casing from the bottom and a core-retaining member entering said casing and securing said core in position.

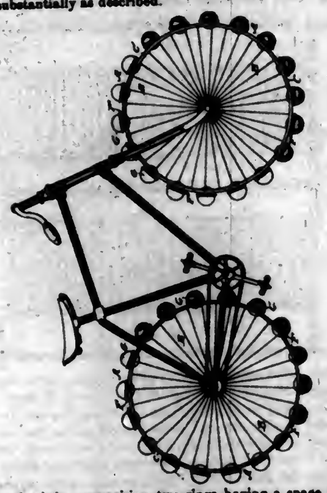
4. In a dynamo or motor, a suitable cast casing, a core-retaining member adapted to be secured in said casing, annular ribs on said casing and core-retaining member, a laminated field-magnet core, and annular members holding the laminæ of said core in position and adapted to make contact with said annular ribs.

5. In a dynamo or motor, a suitable casing cast in one piece, a core-retaining member adapted to be inserted in said casing from the bottom, annular ribs on said casing and core-retaining member, a laminated field-magnet core, and annular members holding the laminæ of said core in position and adapted to make contact with said annular ribs.

608,710. PNEUMATIC TIRE. WILLIAM H SEWELL, Coleraine, Ireland, assignor of one-half to James Allen, Gowdenbeath, Scotland. Filed July 13, 1896. Serial No. 599,091. (No model.) Patented in England June 26, 1894, No. 13,287; in Belgium May 1, 1895, No. 118,891; in France May 1, 1895, No. 247,698; in Austria May 30, 1895, No. 45/1,915, and in Canada May 7, 1897, No. 55,963.

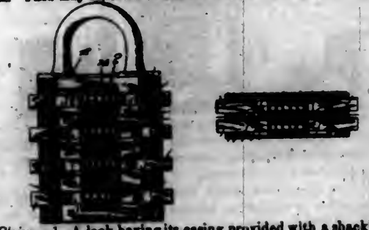
Claim.—1. A wheel-tire comprising two rings having a space between them and providing a rim, the series of bottomless cups or pockets located in the said space between the said rings at a suitable distance apart; and the balls or spheres having centering retaining lower flanges, and seated in the cups or pockets and projecting there-

through with their flanges engaging the lower edges of the cups or pockets; substantially as described.



2. A wheel-tire comprising two rings having a space between them and providing a rim, the series of bottomless cups or pockets located in the said space between the said rings at a suitable distance apart; the balls or spheres having encircling retaining lower flanges, and seated in the cups or pockets and projecting therethrough with their flanges engaging the lower edges of the cups or pockets, and the encircling retaining upper flanges seated on the upper edges of the cups or pockets: substantially as described.

608,711. PERMUTATION-PADLOCK. JOHN A. L. SNYDER, Scenic, Cal. Filed May 28, 1897. Serial No. 638,635. (No model.)



Claim.—1. A lock having its casing provided with a shackle-leg guide intersected by transversely-disposed tumbler-guides, a shackle-leg having tumbler-seats spaced to correspond with the intervals between the tumbler-guides, and tumblers reciprocably mounted in their guides and yieldingly held at intermediate points in their paths of movement, said tumblers having shackle-leg seats for registration with the shackle-leg guide, and being movable in either direction from their intermediate points of rest, substantially as specified.

2. A lock having a shackle-leg-engaging tumblers reciprocably mounted and yieldingly held in their normal positions at intermediate points in their paths of movement, whereby each tumbler is movable in either direction from its point of rest, substantially as specified.

3. A lock having shackle-leg-engaging tumblers reciprocably mounted in guides and capable of end for-end reversal, said tumblers being provided with shackle-leg seats for registration with a shackle-leg guide, and being yieldingly held at intermediate points in their paths of movement, whereby they are movable in either direction from their points of rest, substantially as specified.

4. A lock having shackle-leg-engaging tumblers reciprocably mounted and yieldingly held in their normal positions at intermediate points of rest, said tumblers being terminally exposed at opposite sides of the casing for movement by pressure in opposite directions, substantially as specified.

5. A lock having a casing provided with a shackle-guide intersected by transversely-disposed open-ended tumbler-guides, a shackle-leg having tumbler-seats spaced to correspond with the intervals between the tumbler-guides, and tumblers mounted for reciprocation in their guides, and exceeding the same in length, for exposure at both ends thereof, and yieldingly held at intermediate points of their paths of movement, said tumblers having shackle-leg seats for registration with the shackle-leg guide, substantially as specified.

6. A lock having its casing provided with a shackle-leg guide and intersecting tumbler-guides, a shackle-leg having tumbler-seats for registration with the tumbler-guides, and reciprocable tumblers fitted in their guides and transversely reversible to arrange different sides thereof contiguous to the plane of the shackle-leg, said tumblers being provided in different sides with shackle-leg seats for registration with the shackle-leg guide, substantially as specified.

7. A lock having transversely-reversible shackle-leg-engaging tumblers mounted for endwise reciprocation, and provided in different sides with shackle-leg seats spaced at different distances from the extremities of the tumblers, said tumblers being yieldingly held at intermediate points of their paths of movement, substantially as specified.

8. A lock having its casing provided with open-sided tumbler-guides, movable means for closing the open sides of the guides, and cross-sectionally-angular shackle-engaging tumblers reciprocably mounted in the guides and transversely reversible to arrange different sides thereof in operative position, said tumblers being yieldingly held in their normal positions, and being provided in different sides with shackle-leg seats arranged in different relative positions, substantially as specified.

9. A lock having its casing provided with open-sided tumbler-seats, and an intersecting slot or longitudinal opening, and shackle-leg-engaging tumblers reciprocably mounted in said guides and carrying coiled springs in terminal engagement with spaced shoulders on the tumblers, and arranged terminally contiguous to the walls of said slot or longitudinal opening for bearing thereon, whereby the tumblers are movable in opposite directions from their points of rest, said tumblers being provided with shackle-leg seats, substantially as specified.

10. A lock having its casing provided with shackle-leg guides intersected by transverse tumbler-guides, a shackle having its legs fitted in the shackle-leg guides and provided with tumbler-seats for registration with tumbler-guides, tumblers reciprocably mounted in the tumbler-guides and provided with shackle-leg seats for registration with the shackle-leg guides, and yieldingly held out of registration therewith, and a check-latch reciprocably mounted in one of the shackle-leg guides in the path of a shackle-leg, provided with seats for registration with the tumbler-guides, and yieldingly actuated to throw its seats out of registration with the tumbler-guides, substantially as specified.

11. A lock having its casing provided with shackle leg guides and intersecting transverse tumbler-guides, a shackle having long and short legs respectively fitted in said guides and provided with tumbler-seats for registration with the tumbler-guides, spring-actuated tumblers reciprocably fitted in the tumbler-guides and having shackle-leg seats for registration with the shackle-leg guides, a reciprocable check-latch fitted in the shackle-leg guide in which the short leg of the shackle is arranged, and having tumbler-seats for registration with the tumbler-guides, and an actuating-spring for the check-latch to maintain the latter terminally in the path of the short shackle-leg with its seats out of registration with the tumbler-guides, substantially as specified.

608,712. SWINGING HAMMOCK-CHAIR. ANTON STRAMBEY, Gravesville, Wis. Filed Dec. 31, 1897. Serial No. 663,834. (No model.)



Claim.—A swinging hammock-chair having in combination with the standards, the strips D and D', the back strips to which said strips are pivoted, the supporting-bars pivoted to the strips D near their longitudinal centers, the braces M, the foot-rest, the pivoted strips connecting the ends of the foot-rest with the outer ends of the strips D' and with the strips D, and the strips E pivoted at their upper ends to the extreme outer ends of the strips D, while their lower ends are pivoted between the ends of the foot-rest and its angles, all arranged substantially as shown and for the purpose set forth.

608,718. PHOTOGRAPHIC-PRINTING FRAME. EMANUEL W. SWINGARD, Chicago, Ill. Filed Aug. 30, 1897. Serial No. 648,914. (No model.)



Claim.—1. The combination with a printing-frame and pressure-board, of a series of cross-bars adapted to hold the board in place, said bars being hinged at one end to one side of the frame and being provided at the other end with a series of clamping and locking latches adapted to engage with suitable devices at the other side of the frame and both draw the bars toward and lock them to the frame; substantially as described.

2. The combination with a frame and pressure-board of cross-bars hinged to one side of the frame and adapted to swing across the same, pivoted links upon the opposite side of the frame and swinging levers pivoted to the free ends of the cross-bars and provided with hooks adapted to engage the links and draw the same above and past the lever-pivots, whereby the cross-bars are forced down upon the pressure-board and the downward pull of the links tends to hold the levers against unlocking; substantially as described.

3. The combination with a printing-frame and its pressure-board, of a series of clamping cross-bars adapted to hold down the pressure-board, said cross-bars being hinged at one end to one side of the frame, a series of links pivoted to the opposite side of the frame and having a limited movement outward therefrom, a series of locking-levers pivoted to the free ends of the cross-bars said provided with handles adapted to strike upon the links as the cross-bars are thrown downward and also with hooks adapted to engage the links and draw them upward above and past the lever-pivots as the levers are thrown about said pivots, whereby the striking of the lever-handles upon the links may automatically operate the locking-levers and clamp the cross-bars in place: substantially as described.

608,714. POCKET CIGARETTE-FORMER. JACOB VEITH, Kansas City, Kans. Filed Mar. 16, 1897. Serial No. 627,322. (No model.)



Claim.—A cigarette-former having a tube terminating at one end in a communicating axially-aligned hopper, of which the wall is outwardly bulged or offset to form a narrow channel 3 extending from the outer edge of the hopper to and communicating with the contiguous end of the tube and constituting a seat or guide for a packing-tool, whereby the tool operates exteriorly of the interior contour of the hopper, and projects terminally into the upper end of the tube, substantially as specified.

608,715. CONVERTIBLE SHELVES AND TABLE. EDWARD B. WESTON, Dayton, Ohio. Filed Apr. 15, 1897. Serial No. 632,197. (No model.)



Claim.—1. In a convertible shelf and table, the combination, with a series of pivoted shelves, a fixed shelf, and suitable supports therefor, of single side bars pivoted on the supports and to the shelves at or near the middle of the sides thereof, and a rear bar, pivoted to the shelves at or near the middle of the back portion thereof, with means for locking said pivoted parts, whereby the pivoted shelves may be swung in alinement with the fixed shelf and locked in any desired position, substantially as shown and described.

2. In a convertible shelf and table, the combination, with suitable supports, of a series of shelves, with bars pivoted thereto and to the supports, radially-toothed plates on the supports, with corresponding tooth-plates on the bars at their pivotal connection therewith and a rod, with means for tightening same, passing through said locking-plates, whereby same may be drawn together for locking the device in any desired position, substantially as shown and described.

3. In a convertible shelf and table, the combination, with suitable supports, of a series of shelves with bars pivoted thereto and to the supports, said shelves carrying lugs at the rear, to receive and serve as a rest for the next succeeding shelf, with locking device therefor, whereby said shelves may be converted into a rigid and secure horizontal table, substantially as shown and described.

4. In a convertible table and shelf, the combination, with suitable supports, of a series of shelves with side bars pivoted thereto, and a rear bar pivoted to the shelves, said shelves carrying lugs at the rear corners and a lug at or near the center of the rear edges thereof to which said rear bar is pivoted, said lugs forming stops or rests for the next succeeding shelf, substantially as shown and described.

5. In a convertible shelf and table, the combination, with suitable supports, of a series of shelves with bars pivoted thereto and to the supports, catches pivoted to said bars at the meeting-point of the two lowest shelves, shaped to catch under the lowest shelf when adjusted as a table to hold the same rigidly in place, substantially as shown and described.

608,716. COMBINED TRACK AND WHEEL BRAKE FOR STREET-CARS. FRED W. WOELFLEBERG, Chicago, Ill. Filed July 26, 1897. Serial No. 646,060. (No model.)



Claim.—1. A combination wheel and track brake for street-cars actuated by means of the levers and bars shown and described, consisting of a body portion 20, channeled out at its bottom to receive a track-shoe, and having formed upon one side the hinge-lugs 27 and upon the opposite side the projection 23, the slide-bearing 25 and the cheek 26, and having the recess 31 across and through one end thereof, the wheel-shoe 21, having the projecting hinge portion 28 and the integral projecting portion 30 with the extension 37, the track-shoe consisting of a block of wood or other like material and the detachable shoe-clamping plate 32, whereby the track-shoe is secured to the body portion, all substantially as set forth.

2. The combination in a combined track and wheel brake for street-cars, of the track-frame 1, having the supporting-braces 3, and the downwardly-extending oblique shoe-guides 4 provided with the central slot 6, with the brake-operating mechanism consisting of the levers 7, 8, 10, 15 and 16, the adjustable connecting-levers 9 and 11, the adjustable clamps 36, the clamping-bar 13, the adjustable bar 14, and the brake-rods 18 and 19, all substantially as shown and described.

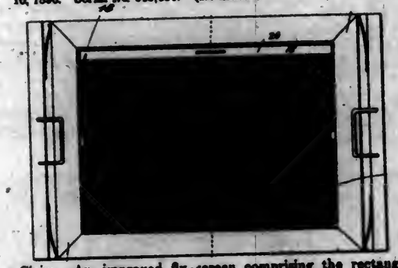
3. In a combined track and wheel brake for street-cars, the combination of the brake-operating mechanism consisting of the levers 7, 8, and 10, the adjustable connecting-levers 9 and 11, said levers 9 having the squared portions 35, the adjustable clamps 36, the clamping-bar 13, the adjustable bar 14, the levers 15 and 16 pivotally connected to the bar 14, said lever 15 secured at one end to a fixed pivot 17, the free ends of said levers pivotally connected with the brake-rods, and the brake-rods 18 and 19, with the brake-shoes consisting of the body portion 20, having the integral hinge-lugs 27 upon one side, and the projection 23, the slide-bearing 25 and the cheek 26 upon the opposite side, the bottom thereof channeled out to receive the removable track-shoe, the clamping-plate 32 adapted to close one side of the channel, and clamp the track-shoe therein, the bolts 33 and 34 for securing said clamping-plate, the track-shoe 22 adapted to enter the channel in the body portion, the wheel-shoe 21, having the projecting portion 30 adapted to be hinged between the lugs 27, by means of the pin 29, the rearwardly-projecting portion 30 having the extension 37, across the rear face of said wheel-shoe, and into-

gral with the projecting portion 28, all substantially as shown and described.

4. In a combined track and wheel brake for street-cars, the combination with the body portion or shoe holder 20, having the integral lugs 27 formed upon one side thereof, and the projection 23, the slide-bearing 25 and the cheek 26 upon the opposite side, the recess 31 across and extending through one end thereof and having its lower portion channeled to receive the track-shoe, the clamping-plate 32 adapted to secure the track-shoe, the bolts 33 and 34 for securing the clamping-plate, of the hinged wheel-shoe 21, having the projecting portion 28 and the rearwardly-projecting portion 30 with the extension 37, extending across the back of said wheel-shoe and integral with the projecting portion 28, said portion 30 and extension 37 adapted to enter the recess 31 in the end of the body portion 20, and the track-shoe 22, adapted to be secured in the channeled portion of the body 20, by means of the clamping-plate 32, substantially as set forth.

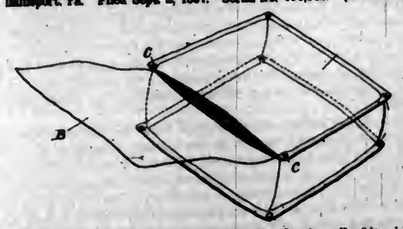
5. The combination in a brake for street-cars of the class described, of a combined brake-shoe whereby the brake may be applied to the wheel and track simultaneously, with the operating mechanism consisting of the levers 7, 8 and 10, the adjustable connecting-levers 9 and 11, provided with the turnbuckles 12, and said levers 9 having squared portions 35, the adjustable clamps 36, the clamping-bar 13, the adjustable bar 14, the pivotally-mounted levers 15 and 16, said lever 15 secured at one end to the fixed pivot 17, and the brake-rods 18 and 19, substantially as set forth.

603,717. FLY-SCREEN. JOHN G. ZOOK, Lititz, Pa. Filed Dec. 10, 1896. Serial No. 615,159. (No model.)



Claim.—An improved fly-screen comprising the rectangular frame, the reticulated netting fixed at the sides and bottom of said frame so as to form a transverse passage 15 between the top rail of the frame and the parallel upper edge of the netting, the longitudinal strip 16, pivoted between the sides of said frame, contiguous to its top rail and formed with the plane faces 20, 21, arranged at right angles to the axis of said strip and at a right angle to each other, in combination with the vertical spring 18, secured to one of the side rails and having its free end projecting into the paths of the faces 20, 21, so as to alternately engage said faces when the bar is moved to open or close the passage, substantially as shown and described.

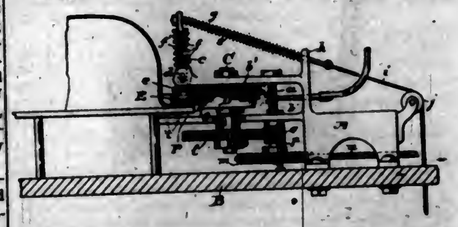
603,718. SECTIONAL MATTRESS. WILLIAM F. ADE, Jr., Williamsport, Pa. Filed Sept. 2, 1897. Serial No. 650,316. (No model.)



Claim.—1. A mattress or mattress-section having all of its sides permanently united with its top and bottom except a slit-like opening along one edge between the top and one of the sides, said mattress having a flap on one of the fixed sides opposite said slit-like opening, said flap being passed through said opening and normally held by pressure of the filling against the top of the mattress for closing the opening.

2. A mattress or mattress-section having all of its sides permanently united with its top and bottom except a slit-like opening along one edge between the top and one of the sides, and a flap forming an extension of one of the vertical sides of the section and adapted to be tucked into the mattress through said opening and be finally held by the pressure of the filling against the fixed outer covering and serving to securely close said opening.

603,719. HAT-BRIM-CURLING MACHINE. JOHN AGAR, East Orange, N. J. Filed Apr. 20, 1896. Serial No. 588,467. (No model.)



Claim.—1. In a hat-brim-curling machine, the combination with the frame or housing, of a shaft journaled vertically therein; a flanged wheel rigidly mounted upon said shaft, a gear-wheel rigidly connected with said flanged wheel, a vertically and laterally movable shaft mounted in the housing, a wheel E, having a convex periphery mounted upon the lower end of said shaft, a gear-wheel secured to said wheel E, meshing with the gear of said flange-wheel, means for rotating said flange-wheel and means for operating said shaft vertically and laterally as described, and for the purposes set forth.

2. In a hat-brim-curling machine, the combination with the frame or housing thereof, of a shaft journaled vertically therein; a flanged wheel rigidly mounted upon said shaft; a gear-wheel rigidly connected with said flanged wheel; a slotted shaft vertically mounted in the housing, a pin in the housing through the slot whereby the shaft is capable of a vertical and lateral movement; a wheel E having a convex and serrated periphery mounted upon the lower end of said shaft; a gear-wheel secured to said wheel E, meshing with the gear of said flanged wheel and means for operating said shaft vertically and laterally as described and for the purposes set forth.

3. In a hat-brim curling machine, the combination with the flanged wheel and the wheel having a convex periphery of an adjustable guide P, arranged beneath the flange of said flanged wheel, and having a concaved way or passage p', corresponding with the concavity on the periphery of the said flanged wheel, the wheel having the said convex periphery being arranged to press the felt against both said guide and flanged wheel, and means for operating said wheels, substantially as set forth.

4. In a hat-brim-curling machine, the combination with the flanged wheel and the wheel having a convex periphery and means for operating said wheels, of a guide to operate in conjunction with said wheels to receive the curled hat-brim and to fix the curve thereof, a curler supplemental to said flanged and curved wheels to receive the hat-brim as it passes through said guide and to increase and perfect said curve thereth and means for adjusting said guide and curler relative to each other and to the wheels as described, and for the purposes set forth.

5. In a hat-brim-curling machine, the combination, with the flanged wheel and the wheel having a convex periphery and means for operating said wheels, of a two-part curler q, having a curved passage-way through which the felt is forced by the wheels and screws for holding said parts together, whereby the parts may be separated to a greater or less extent for adjusting the size of the passage-way, as described and for the purposes set forth.

6. In a hat-brim-curling machine, the combination, with the frame provided with a housing, of a vertically and laterally movable shaft mounted in the housing, the lower end of which is provided with a wheel having a convex periphery and the intermediate portion of which is provided with a pin, a coiled spring upon the shaft, one end of which engages with the housing and a portion of the remainder of the spring engages with the pin, whereby the rotation of the spring around the shaft changes the tension of the spring and mechanism cooperating with said wheel to curl the brim and means for operating said parts as described, and for the purposes set forth.

7. In a hat-brim-curling machine, the combination, with a frame, provided with a housing and a perforated portion, of a grooved wheel mounted in the frame, a shaft pivotally secured in the housing, the lower end of which is provided with a convex wheel, means for operating said wheels, a rod extending from the upper end of the shaft through the perforated portion of the frame, a spring between the end of the shaft and the perforated portion, and a cord for moving the rod, as described and for the purposes set forth.

8. In a hat-curling machine, the combination with the flanged and convex wheels and means for operating and heating the same, of a curler q, adapted to receive the partly-curled felt after it leaves the said wheels, said curler comprising an upwardly-curved part q'', and a downwardly-bent part extending from the upper part of said part q'', whereby the bent brim is given a downward bend at its edge, substantially as set forth.

9. In a hat curling machine, the combination with the flanged and convex wheels, and means for operating and heating the same, of a curler, q, arranged adjacent to said wheel and adapted to receive the partly-curled hat-brim after leaving said wheels, said curler comprising an upwardly-bent part q'', and a downwardly and inwardly bent part q''', whereby the partly-curled brim is given a downward and inward bend approaching a spiral shape at its edge, after leaving said wheels, substantially as set forth.

10. In a hat-curling machine, the combination with the flanged and convex wheels, and means for operating and heating the same, of a curler q, arranged adjacent to said wheels and adapted to receive the partly-curled hat-brim after leaving said wheels, said curler comprising an upwardly-bent part q'', and a downwardly, inwardly and upwardly turned part or extension q''', adapted to give to the partly-curled edge of the brim, a spiral twist or bend after it passes from between said wheels, substantially as set forth.

11. In a hat-curling machine, the combination with the flanged and convex wheels, and means for operating and heating the same, of a spiral and tapering curler, q, adapted to give a spiral twist or bend to the edge of the hat-brim after it passes from said wheels, substantially as set forth.

12. In a hat-curling machine, the combination with the flanged and convex wheels, and means for operating and heating the same, of a curved and tapering curler, adapted to receive the partly-curled brim after it passes from the said wheels and gradually increase and tighten the curl, substantially as set forth.

13. In a hat-curling machine, the combination with the curling parts D, E, consisting of concave and convex members adapted to give a partial curl to the brim, and means for heating the same, and moving the felt therebetween, of a curler q, curved and tapering in plan, and spiral in end view, substantially as and for the purposes set forth.

14. In a hat-curling machine, the combination with a concavously-flanged wheel, and means for operating the same, the rotary shaft having the convex wheel, means for forcing the said convex wheel toward the flanged wheel with a yielding pressure of a guide fixed adjacent to said flanged wheel, the convex wheel operating between said fixed guide and flanged wheel, substantially as set forth.

15. In a hat-curling machine, the combination with the concavously-flanged wheel, and means for operating the same, the rotary convex wheel and means for operating the same, heating means and means for forcing said convex wheel toward said flanged wheel, of a guide having a C-shaped part extending close to said flanged wheel, and presenting its concave surface to the convex wheel which supplements said flanged wheel in resisting the pressure of said convex wheel in curling the brim, substantially as set forth.

16. In a hat-curling machine, the combination with the concavously-flanged wheel, and means for operating the same, the rotary convex wheel, and means for operating the same and heating means, of a fixed guide having a C-shaped part extending underneath the flange of said flanged wheel into close relation to said flanged wheel, the convex wheel lying opposite the joint between said parts to press the felt against both parts, substantially as set forth.

17. In a hat-curling machine, the combination with the concavously-flanged wheel, and means for operating the same, the rotary convex wheel, and means for operating the same, and heating means, of a guide having a flaring mouth extending into close adjacency to said flanged wheel, and supplementing the trowing and curling surface thereof, the convex wheel lying opposite both said parts and pressing the felt against the two, substantially as set forth.

18. In a hat-curling machine, the combination with the flanged wheel, and convex wheel, and means for operating the same and heating means, of a guide extending beneath the flange of the flanged wheel opposite the convex wheel, and a curler curved and tapering in plan and spiral in end view, and receiving the partially-curled brim, substantially as and for the purposes set forth.

19. In a hat-curling machine, the combination, with a concavously-flanged wheel, of a convex wheel beneath said flange, a fixed guide adjacent to the periphery of the flanged wheel, the convex wheel operating between said fixed guide and the flanged wheel, and operating devices, substantially as set forth.

603,720. PIPE-COUPLING. ANDREW J. AVERY, Dunkirk, N. Y. Filed Aug. 17, 1891. Serial No. 402,570. (No model.)

Claim.—A pipe-coupling having in combination a sleeve screw-threaded at one end to receive a screw-threaded pipe and adapted to have a pipe telescoped into the other end, a collar or ring entering this end, screws for forcing said collar or ring into said sleeve, a rib on the inside of said sleeve, a packing-ring between said rib and collar, a jacket for said coupling forming a chamber adapted to be filled with a fluid and packing-rings and collars for said jacket to prevent the escape of said fluid, substantially as set forth.



603,721. PIPE-COUPLING. ANDREW J. AVERY, Dunkirk, N. Y. Original application filed May 23, 1891, Serial No. 394,363. Divided and this application filed Dec. 2, 1896. Serial No. 492,573. (No model.)



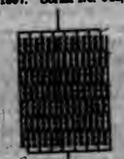
Claim.—1. In a pipe-coupling, the combination with the adjoining pipe-sections provided with ends tapered toward the extremity by a gradual reduction in the thickness of the pipe though not of the interior diameter thereof, said tapered part being provided with screw-threads of substantially equal depth, of a rigid non-expanding collar connecting such pipe ends and provided with screw-threads of substantially equal depth, substantially as set forth.

2. In a pipe-coupling, the combination with the adjoining pipe-sections provided with ends tapered toward the extremity by a gradual reduction in the thickness of the pipe though not of the interior diameter thereof, said tapered part being provided with screw-threads of substantially equal depth, of a rigid non-expanding collar connecting such pipe ends and tapering outwardly toward the ends by a gradual reduction in the thickness of the collar though not of its exterior diameter, the tapering ends of said collar being provided with screw-threads of substantially uniform depth, substantially as set forth.

3. In a pipe-coupling, the combination with the adjoining pipe-sections provided with ends tapered toward the extremity by a gradual reduction in the thickness of the pipe though not of the interior diameter thereof, said tapered part being provided with screw-threads of substantially equal depth, of a rigid non-expanding collar connecting such pipe ends and provided with screw-threads of substantially equal depth, and calking-grooves in the ends of the collar beyond the screw-threads, substantially as set forth.

4. In a pipe coupling, the combination with the adjoining pipe-sections provided with ends tapered toward the extremity by a gradual reduction in the thickness of the pipe though not of the interior diameter thereof, said tapered part being provided with screw-threads of substantially equal depth, of a rigid non-expanding collar connecting such pipe ends and tapering outwardly toward the ends by a gradual reduction in the thickness of the collar though not of its exterior diameter, the tapering ends of said collar being provided with screw-threads of substantially uniform depth, and calking-grooves in the ends of the collar beyond the screw-threads, substantially as set forth.

603,722. ELECTRIC CONDENSER. CHARLES S. BRADLEY, Avon, N. Y. Filed July 20, 1897. Serial No. 646,330. (No model.)



Claim.—1. An electric condenser having as a dielectric stearate of lead.

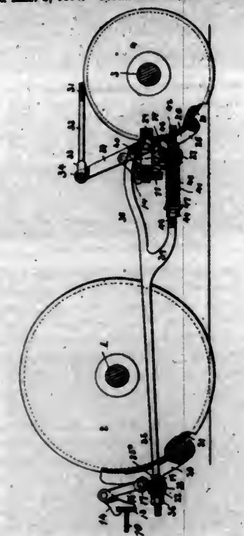
2. An electric condenser having between its several plates a layer of stearate of lead of uniform thickness.

3. An electric condenser having its several plates separated by a fibrous insulating material the pores and meshes of which are filled with stearate of lead.

4. An electric condenser having between its several plates a spacing insulating material containing a plurality of transverse openings filled with a material of higher specific inductive capacity whereby part of the inner space between the plates is filled solely with the latter material.

5. An electric condenser having between its several plates a spacing insulating material having a plurality of transverse openings filled with stearate of lead.

603,723. DIFFERENTIAL BRAKE MECHANISM. JOHN A. BRILL and WALTER S. ADAMS, Philadelphia, Pa.; said Adams assignor to said Brill. Filed Mar. 3, 1897. Serial No. 625,891. (No model.)



Claim.—1. In a brake mechanism for a truck of the maximum-traction class having large and small wheels, and means for differentiating the brake-pressure exerted upon the large and small wheels, comprising shoes, and connecting means therefor for each of the sets of wheels, a primary lever supported on the truck, a connection between the primary lever and the shoes for the large wheels whereby said shoes are applied directly to the large wheels through the operation of said lever, a movable connection between said primary lever and the shoes of the small wheels, and a spring or springs interposed in said last-mentioned connection to oppose the application of pressure to said smaller wheels, substantially as described.

2. In a brake mechanism for a truck of the maximum-traction class having large and small wheels, of means for applying a differentiated braking pressure on the large and small wheels, comprising shoes, and connecting-beams for each of the sets of wheels, a primary lever supported on the truck, an inflexible connection between said lever and the beam of the large wheel-shoes, an inflexible arm leading from said lever to the beam of the small wheel-shoes, and a spring interposed between said arm and latter beam, substantially as described.

3. The combination with a truck of the maximum-traction class having large and small wheels, of the brake mechanism comprising a primary lever pivoted on the truck, brake-shoes, of beams for connecting the shoes in pairs, a rod connecting said primary lever and the shoe-beam for the large wheels, a supplemental rod between said first-mentioned rod and the shoe-beam for the small wheels and movably connected with said latter beam, both rods moving in the same direction, a spring between the supplemental rod and its beam, and an abutment on said supplemental rod on the other side of the beam, substantially as described.

4. In a brake mechanism, the combination with the shoes and means for operating the shoes in the same direction, beams connecting the shoes in pairs, a pair of operating-levers, rods connecting each lever with proximate end of one beam, and a spring between each of said rods and the other beam, said springs being located in advance of the last-mentioned beam, substantially as described.

5. In a brake mechanism, the combination with the shoes, and paired beams connecting the shoes, a brake-rod engaging one beam, an extension 39 from said rod movably engaging the opposing beam, a nut 45 on the end of the extension outside of the latter beam, a spring on the extension abutting against said beam on the side opposite said nut, and a nut 44 on the extension abutting against the opposite end of the spring, substantially as described.

6. In a brake mechanism, the combination with the shoes, and paired beams connecting the shoes, a brake rod engaging one beam, an extension 39 from said rod movably engaging the opposing beam, a nut 45 on the outer end of the extension, a spring on the extension abutting against said beam on the side opposite said nut, and means on the extension for altering the tension of said spring, said means abutting against the inner end of the spring, substantially as described.

7. The combination with the brake-shoes, of the beams connecting the shoes in pairs, an operating-lever, a brake-rod extending between said beams and movably engaging both of said beams, a connection between the rod and said lever, and a spring interposed between one of the said beams and said rod to oppose the application of its shoes to the wheels, substantially as described.

8. In a brake mechanism, the combination with the shoes and beams connecting said shoes in pairs, of a primary lever fulcrumed at its end, rods extending between one of said beams and secured to said primary lever between its power end and fulcrum, a thrust-bar operated by said lever, and a spring or springs interposed between said thrust-bar and the opposing beam, said bar and beam having a movable connection, substantially as described.

9. In a truck brake mechanism, the combination with the shoes adapted to be moved in the same direction, opposing beams connecting the shoes in pairs, one of said beams being located between the wheels, the other outside of the wheels, a brake-rod passing loosely through the beams, means for moving the rod, abutments on the rod, one of the abutments being between the wheels and the other outside of the wheels, and a spring between one of the beams and one of said abutments, substantially as described.

10. The combination with the shoes and beams, of the upright lever fulcrumed at its end upon the car-truck, the inflexible brake-rod secured to one beam at one end and to the primary lever at its other end between the power end and fulcrum of said lever, an extension of said rod movably engaging the other beam, an abutment on said extension, and a spring between said abutment and said beam, substantially as described.

11. The combination with the shoes, and beams connecting them, of the primary lever, the brake-rod extending between one of said beams and pivotally secured to said lever, an extension of said rod movably engaging the other beam, an abutment on said extension, a spring interposed between said abutment and said beam, and an abutment on said extension for said beam, substantially as described.

12. The combination of the primary lever, the shoes, and the beams connecting said shoes in pairs, a rod extending between one of said beams and said primary lever, and an extension of said rod movably connected with the other beam, substantially as described.

13. In a brake system, the combination of the brake-shoes, beams, and operating means therefor, of the brake-rod connected at one end with one beam, and at the other with said means, and an extension from said rod connected with another beam of said system, substantially as described.

14. In a brake mechanism, the combination of the brake-shoes, beams, and operating means therefor, of the brake-rod connected at one end with one beam, and at the other with said means, an extension from said rod movably connected with another beam of said system, and a spring interposed between the extension and the latter beam, substantially as described.

15. The combination of the primary lever, the shoes and beams connecting said shoes in pairs, rods extending between one of said beams and said primary lever, and an extension of said rod movably connected with the other beam, a spring on said extension, one end of which abuts against said beam, and the nuts 44, 45 respectively forming an adjustable abutment for said spring and said beam, substantially as described.

16. The combination with the shoes, beams connecting said shoes in pairs, the primary lever, a rod extending between one of said beams and said primary lever, an extension from said rod movably engaging the other beam, a spring on said extension abutting against said beam, and further means on said extension for contesting with said beam, said means being held away from said beam by said spring, substantially as described.

17. The combination with the shoes, and the beams connecting said shoes in pairs, of the primary lever, a brake-rod extending between said lever and one of said beams, an extension from said rod movably engaging the other beam, a shoulder formed on said extension and adapted to engage said beam; an abutment on said extension, and a spring extending between said abutment and said beam, substantially as described.

18. The combination with the cross-bar 11, the hanger 29 extending therefrom, the upright lever 28 fulcrumed at its end to said hanger, the brake-shoes 20 and connecting-beam 23, the shoes 26 and connecting-beam 27, the hanger for supporting said last-mentioned shoes from said cross-bar, a brake-rod 35 secured at one end to the beam 23, said brake-rod having a bifurcated end 36, 39, the upper arm 36 being secured to said brake-lever adjacent the latter's fulcrum, the lower arm 39 movably engaging the beam 27, an abutment on said arm 39, and a spring interposed between said abutment and said beam, substantially as described.

19. The combination of the shoes 20, a brake-beam movably connected to said shoes at its ends, the upright lever 28, the shoes 26, and connecting-beam 27, the forked connecting-rod, one end of which is connected with the beam 23, the upper fork connecting the primary lever, the lower fork movably connected with the beam 27, an abutment on the lower fork, and a spring between said abutment and said beam 27, substantially as described.

20. The combination with the shoes 20 and beam 23, the upright levers 28, the equalizing-bar 31 and extensions 32 pivotally secured to the upper end of said upright levers, forked rods, each of which is secured at one end to the beam 23, the upper fork of each of said rods being secured to one of said upright levers above the latter's fulcrum, the lower fork movably engaging the beam 27, an abutment on said lower fork, and a spring between said abutment and said beam, substantially as described.

603,724. BOTTLE-STOPPER. LEWIS H. BROOKS, Jersey City, N. J. Filed Feb. 6, 1897. Serial No. 622,367. (No model.)

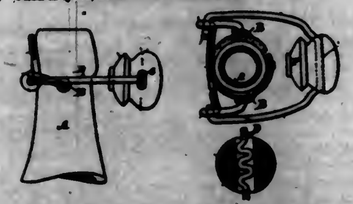


Claim.—1. The combination with the stopper having a peripheral groove, of an integral bail-wire having a curved portion to pass around the stopper in such groove and bent to extend down at each side of the stopper and the neck and a binding-wire extending from one bend to the other to hold the bail and stopper rigidly together, substantially as specified.

2. The combination with the stopper and a bail-wire rigidly connected thereto, of a lever to which the lower ends of the bail-wire are pivoted, and a bail-turning lever for swinging the bail and stopper and for supporting them when the bottle is open, substantially as set forth.

3. The combination with the stopper and the bail-wire, of a binding-wire for holding the bail-wire and the stopper rigidly together, a neck-band and a lever pivoted upon the neck-band and pivoted to the bail-wire, a bail-turner having eyes at its ends sliding upon the bail-wire and a pivot at the neck-band for the bail-turner, whereby the stopper is brought into position above the mouth of the bottle by the action of the bail-turner, substantially as set forth.

603,725. BOTTLE-STOPPER. LEWIS H. BROOKS, Jersey City, N. J. Filed May 18, 1897. Serial No. 637,003. (No model.)



Claim.—1. The combination with the stopper having a transverse horizontal mortise, of a bail-wire having several horizontal corrugations fitting the horizontal mortise, the bail-wire at the ends of the mortise being vertical at the sides of the stopper and extending down to the pivots of the lever, substantially as specified.

2. The combination in a bottle-stopper with the neck-band and lever, of a stopper and a bail, one end of the wire of which bail, beyond the pivoted connection to the lever, forms a stop for holding the stopper with the bail substantially horizontal, substantially as set forth.

3. The combination in a bottle-stopper with the neck-band and lever pivotally connected, of a bail and a stopper having a mortise through which passes the bail-wire, the same being corrugated at this place to hold the stopper from turning upon the bail-wire, there being a projecting end of the bail-wire beyond the pivotal connection to the lever for forming a stop to hold the bail substantially horizontal, as set forth.

608,726. ELASTIC WHEEL-TIRE. ALBERT L. CODET, Brouville, France. Filed Dec. 28, 1897. Serial No. 663,122. (No model.) Patented in France Oct. 15, 1896, No. 260,464.

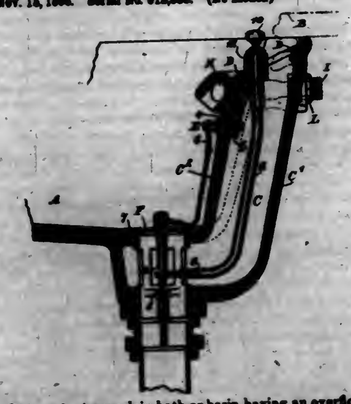


Claim.—1. As a new article of manufacture, a card-fillet having the card-teeth embedded in elastic material to form a material suitable for the tread of an elastic wheel-tire, or for making boot-soles &c., substantially as specified.

2. An elastic tire for wheels formed of a card-fillet in combination with a covering mass of india-rubber in which the card fillet and teeth are embedded substantially as specified.

3. An elastic tire for wheels formed of a card-fillet in combination with a covering mass of india-rubber in which the card fillet and teeth are embedded, and with backing-strips of metal and india-rubber substantially as specified.

608,727. BASIN-FIXTURE. EDWARD HANNABS, Brooklyn, N. Y., assignor to The J. L. Mott Iron Works, New York, N. Y. Filed Nov. 18, 1896. Serial No. 612,836. (No model.)



Claim.—1. A porcelain bath or basin having an overflow-waterway at one side terminating with an open upper end below the top of such bath or basin, and having a perforation through the wall of such waterway, in combination with a removable perforated plate or strainer covering the upper end of such waterway, and a projection extending down from such plate within the waterway, and a metallic connection extending through the hole and engaging the downward projection for holding the strainer-plate firmly in position upon the porcelain but allowing for its easy removal for cleaning the parts, substantially as set forth.

2. The porcelain bath or basin having an overflow-waterway at one side and a perforation in the wall thereof and a waste-waterway at the bottom, in combination with a valve for closing the waste-waterway, a plate on the upper end of such waterway forming a guide, a removable valve-lifter extending down through the strainer-plate and through the waterway and acting upon the valve, a rigid connection passing through the perforation in the waterway for removably holding the guide for the valve-lifter to the porcelain, substantially as set forth.

3. The porcelain bath or basin having a waste-opening in the bottom, and an overflow-waterway at one side, with an open upper end below the top of the bath or basin, in combination with a valve for closing the waste-opening, a strainer-plate at the upper end of the overflow and a removable lifter passing through such strainer-plate and waterway and extending laterally to the valve, there being a guide upon the strainer-plate through which the lifter passes, means for sustaining the lifter and valve when raised, and means for securing the strainer-plate within the upper end of the overflow-waterway, substantially as set forth.

4. The porcelain bath or basin having a waste-opening in the bottom and an overflow-waterway at one side with an open upper end below the top of the bath or basin, in combination with a valve for closing the waste-opening, a strainer-plate at the upper end of the overflow-waterway and a removable lifter passing vertically through the strainer-plate and waterway and extending laterally to the valve

whereby the strainer-plate forms a guide for the lifter and also sustains the same and the valve when raised, and a metallic connection passing through a hole in the wall of the waterway for rigidly but removably connecting the support for the valve-lifter, substantially as set forth.

5. The bath or basin having an overflow-waterway at one side with the top edge thereof below the top edge of the bath or basin and over which edge the water passes freely into the overflow, and an integral tube extending around the overflow-waterway and having an opening for the discharge of water into the bath or basin, and an opening at the other end outside the bath or basin for a connection to the water-supply pipe, substantially as set forth.

6. The combination with a bath or basin having an integral overflow-waterway at one side and an opening at the bottom for the waste water, of a plug or valve for closing the waste opening, a strainer-plate at the upper end of the overflow-waterway, a projection extending down into the waterway and a securing device for the same passing through a hole in the inner wall of the waterway, a lifter passing through such strainer-plate and connected at its lower end with the valve for lifting such valve, substantially as set forth.

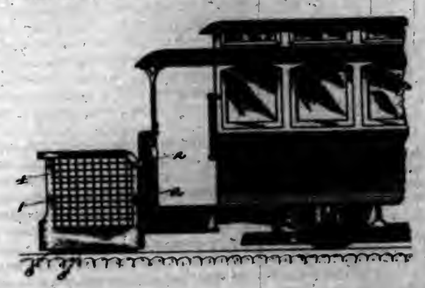
7. The bath or basin having an overflow-waterway at one side with the top edge thereof below the top edge of the bath or basin and forming the dam for the overflow, and an integral tube extending around the edge of the dam, an opening through the bath or basin for the reception of hot and cold water connections, there being a discharge-opening near the middle of such integral tube, substantially as set forth.

8. The bath or basin having an overflow-waterway at one side and an opening in the bottom for the waste water, in combination with a plug or valve for closing the waste-opening and a guide for the same, a strainer-plate at the upper end of the overflow-waterway and means for securing the same firmly in position, a lifter passing down through the strainer-plate and having an opening at the lower end through which the valve-stem passes, there being a shoulder upon the valve-stem against which the lifter acts, substantially as set forth.

9. The porcelain basin or bath having an opening in the bottom for the waste water and an integral overflow-waterway at one side, the inner wall of which projects within the basin and the upper end terminates below the top of the basin, in combination with a removable strainer-plate at the upper end of such waterway, means for securing the same permanently in position, a lifter passing through the strainer-plate and terminating at the lower end in an eye, means for sustaining the lifter in an elevated position upon the strainer-plate, a valve at the waste-water opening having a shoulder and a stem passing through the hole in the lower end of the lifter, and a guide for said stem, substantially as set forth.

10. A bath or basin having a waste-opening and an integral overflow-waterway at one side with an inclined upper end below the top edge of the bath or basin, in combination with a strainer-plate at the upper end of such waterway, a projection extending from the strainer-plate down within the waterway, a screw passing through a hole in the inner wall of the waterway and engaging the said projection for holding the strainer-plate permanently in position, a valve at the waste-opening, a lifter passing through the strainer-plate and bent near the lower end so as to extend to the valve and terminating as an eye through which the valve-stem passes, substantially as set forth.

603,728. CAR-FENDER. ELIZA M. JOHNSON, Brooklyn, N. Y. Filed Sept. 9, 1897. Serial No. 651,040. (No model.)



Claim.—A car-fender of V shape having a rigid base of two flanges 6 and 7 which support a strip of rubber or other yielding material 5 beneath them, in combination with vertically-arranged walls of lacing material, together with hooks for attaching the fender to a car and braces 11, 11 located in the rear of and near the base of the fender, substantially as described.

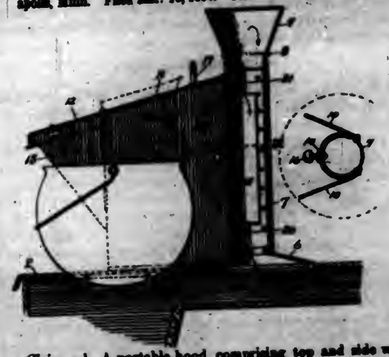
603,729. LETTER-PRESS BOOK. ABRAHAM KAHN, Frankfort-on-the-Main, Germany, assignor of one-half to Hofbuchdrucker Opferbunker Fabrik C. Holzwarth, Hofbuchdruck, Germany. Filed Sept. 15, 1897. Serial No. 651,734. (No model.)



Claim.—1. A copying-book having hinged covers, one cover having a short break therein and the other cover having a long flexible break therein, substantially as described.

2. A folding copying-book having leaves contained between covers, one of said covers having a break whereby it can be folded upon itself and the other of the said covers having a long flexible break embracing the bend of the folded leaves when the book is folded.

603,730. PORTABLE STOVE-HOOD. LOUIS P. KELLER, Minneapolis, Minn. Filed Mar. 16, 1897. Serial No. 627,702. (No model.)

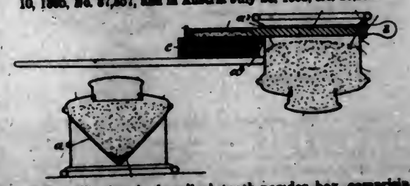


Claim.—1. A portable hood, comprising top and side walls, in combination, with the down pipe or flue, open at its lower end and having a condenser at its upper end, said down-pipe provided with an opening in its inner side, substantially as described.

2. A portable stove-hood, comprising top and side walls, in combination, with the down-pipe open at its lower end and having a flange or base to cover a stove-hole, said pipe being formed within the side walls and having a slot or opening in its inner side and a slide provided in said slot, as and for the purpose specified.

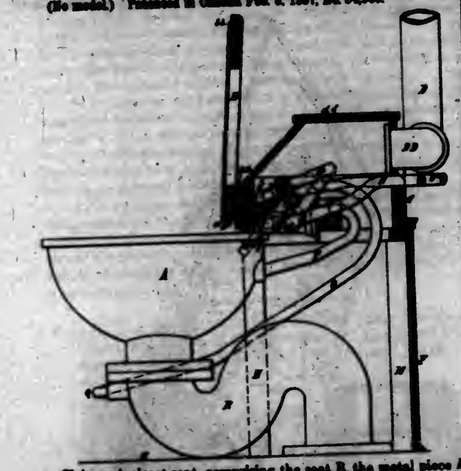
3. A portable stove-hood, comprising an inclined top and diverging side walls, said side walls together forming a V, in the opening of which a utensil may be placed, a down pipe or flue vertically arranged in the angle between the side walls, said pipe having a slot or opening in its inner side and provided with a flaring base of a size to cover a stove-hole, and said top slanting downwardly from the upper end of said pipe, substantially as described.

603,731. TOOTH-POWDER BOX. CHARLES MILLERTON, Clifford, England. Filed Jan. 30, 1897. Serial No. 621,345. (No model.) Patented in England Nov. 22, 1894, No. 22,573; in France July 10, 1895, No. 248,801; in Belgium July 10, 1895, No. 116,496; in Germany July 10, 1895, No. 87,857, and in Austria July 22, 1895, No. 30,226.



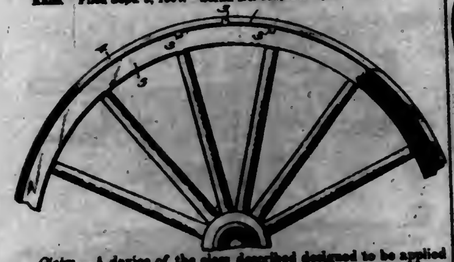
Claim.—The herein-described tooth-powder box, comprising a casing having inclined or V-shaped walls, the apex of which is at the lower end of said casing, a slide projecting through the sides of said casing adjacent to the lower edge thereof and adapted to engage the lower end of the V-shaped walls, said slide being longer than the width of said casing and being provided at one end with a knob or handle and at the opposite end with shoulders or flanges, and adjacent thereto with a longitudinal recess on the upper side thereof, the portion of said slide containing said recess being adapted to be projected beyond the side of the said casing when the end containing the handle is pushed inwardly, said casing being provided with a closed cover, substantially as and for the purpose described.

603,732. COMBINATION WATER-CLOSET, SEAT, &c. PHILIP NICHOLS, Toronto, Canada. Filed Mar. 31, 1897. Serial No. 630,179. (No model.) Patented in Canada Feb. 6, 1897, No. 54,969.



Claim.—A closet-seat, comprising the seat B, the metal piece A, the india-rubber *c c*, the box C, the flushing-valve L, its screw-head B^2, the branch and its three-way branch junctions M on each side of said valve, the cold-water-supply pipe N and hot-water-supply pipe O^2 provided with a tap R, the flushing-pipe P and closet bowl A, the flushing-pipe Q and trap R, the waste-water branch T of said valve and said closet-bowl, the chair V its hinged rear leg and support H, its detached rear leg W and support H, the chair-seat and back closet-seat curtain and said bowl, and the chain, all arranged and combined substantially as and for the purpose hereinbefore set forth.

603,733. TIRE-TIGHTENER. JAMES H. COFER, White City, Kans. Filed Sept. 9, 1897. Serial No. 651,067. (No model.)



Claim.—A device of the class described designed to be applied to a wheel after the same has become worn and adapted to tighten the tire, and comprising a strip of metal designed to be driven between the tire and the felly and adapted to extend longitudinally of the same and provided at one side with a longitudinally-disposed beveled edge 2, forming a wedge-shaped portion to enable the device to be readily forced into position, and the lips 3 arranged at intervals throughout the length of the strip at each of its side edges and adapted to be bent in opposite directions to engage the opposite faces of the wheel, the lips at the beveled edge of the strip being beveled or wedge-shaped, substantially as described.

603,734. BICYCLE-SEAT. ARTHUR B. PECK and CHARLES C. HAWLEY, Minneapolis, Minn.; said Hawley assignor to said Peck. Filed Jan. 14, 1896. Serial No. 575,681. (No model.)



Claim.—1. The combination, in a bicycle-seat, of a rear or main section, with pivoted auxiliary sections, and a pivoted lever provided between said sections and upon the ends of which said sections rest and are freely movable, the depression of either auxiliary section being adapted through the medium of said lever to raise the other auxiliary section, substantially as described.

2. The combination, in a bicycle-seat, of a rear or main section, with the independent reciprocating forward sections forming extensions thereof, and a single pivoted lever forming the reciprocating connection between said parts and whereon said forward sections rest, substantially as and for the purpose specified.

3. The combination, in a bicycle-seat, with a suitable support, of independent sections pivoted thereon, a pivoted lever arranged transversely between said sections and whereon the same rest and are freely movable, substantially as and for the purpose specified.

4. The combination, in a bicycle-seat, of a rear or main section, with the forward hinged or pivoted sections, a pivoted lever, and rolls 25 provided upon said forward sections and bearing upon said lever, substantially as and for the purpose specified.

5. The combination, in a bicycle-seat, of the main section, with the independent sections hinged thereto and provided with rolls 25, a stud 17 secured to the main section, a lever 15 pivoted upon said stud and whereon said rolls 25 bear, substantially as described.

6. The combination, in a bicycle-seat, of a main section, with two independent reciprocating sections provided at the forward edge thereof, a centrally-pivoted lever transversely arranged between said sections and upon the ends of which the same bear, and said lever being longitudinally adjustable to relatively raise and lower said independent sections, substantially as described.

7. The combination, with the main section, of the hinged sections, the stud 17 provided upon the main section, a lever 15 pivoted on said stud and whereon said hinged sections rest, and a stop 18 provided on said stud to limit the movement of said lever, substantially as described.

603,735. BICYCLE-SEAT ATTACHMENT. HORATIO A. PORTER, Holyoke, Mass. Filed Mar. 31, 1897. Serial No. 630,127. (No model.)



Claim.—1. A seat attachment for a bicycle comprising a vertically-disposed fork member pivoted at its lower end to the rear axle of the bicycle, a horizontally-disposed member rigidly connected to the upper end of the fork member and carrying at its rear end the seat, and ears pivotally connected at their upper ends to the seat-post of the bicycle and at their lower ends to the front end of the horizontally-disposed member, substantially as described.

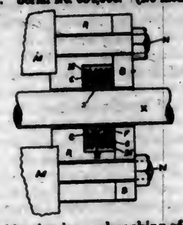
2. A seat attachment for a bicycle comprising a vertically-disposed fork member pivoted at its lower end to the rear axle, a horizontally-disposed member connected to the upper end of the fork member and carrying at its rear end the seat, said horizontal member consisting of two tubes adjustably connected together, a clamp to lock the two tubes in their adjusted position, and ears pivotally connected at their upper ends to the seat-post of the bicycle and at their lower ends to the front end of the horizontally-disposed member, substantially as described.

3. A seat attachment for a bicycle comprising a horizontally-disposed member pivotally connected at its front end to the seat-post of the bicycle and carrying the seat at its rear end, a short fork rigidly connected to said horizontal member intermediate its ends, tubes pivoted at their lower ends on the outer ends of the driving-wheel axle, tubes hinged at their upper ends to the fork on the horizontal member and their lower ends fitting within the tubes on the driving-wheel axle, springs within the lower tubes to engage the ends of the upper tubes, and a slot-and-pin connection between the upper and lower tubes to permit limited vertical movement between them, substantially as described.

4. A seat attachment for a bicycle comprising a vertically-disposed fork member pivoted at its lower end to the rear axle of the bicycle, a horizontally-disposed member rigidly connected intermediate its ends to the upper end of the vertically-disposed member, a seat supported on the rear end of the horizontal member, said horizontal member consisting of two tubes fitting one within the other,

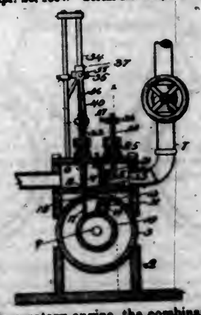
the outer tube being split and provided with a clamping-collar, a collar rigidly connected to the front end of said horizontal member and provided with an upwardly-extending lug, and ears pivotally connected at their upper ends to the bicycle seat-post and at their lower ends to the lug on said collar, substantially as described.

603,736. METALLIC PACKING. WILLIAM H. PRENDERGAST, Savannah, Ga., assignor of one-half to Charles D. Kline, same place. Filed Oct. 12, 1897. Serial No. 654,998. (No model.)



Claim.—The combination in a rod-packing of three sets of rings, all of the same external diameter; one that is simple, divided into three segments and encircled by a spring, which is situated nearest the cylinder; and the other two double, consisting of one larger inclosing ring of one piece of metal with one open joint, encircled by a spring, and a smaller inclosed ring divided into three segments with open joints, the inner ring of one of the double rings having a greater external diameter than the other with all the joints broken inclosed in a casing or gland whose internal diameter is greater than external diameter of the rings substantially as specified.

603,737. ROTARY ENGINE. FRANK PRESSLEY, Sioux Rapids, Iowa. Filed Apr. 26, 1897. Serial No. 633,970. (No model.)

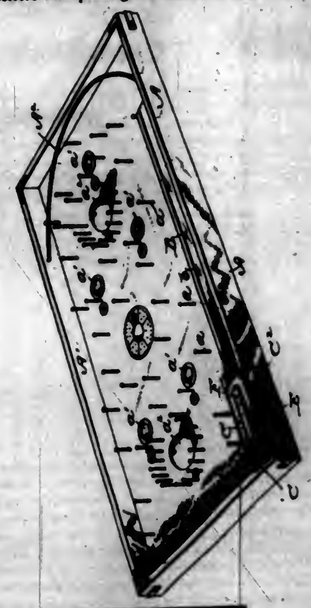


Claim.—1. In a rotary engine, the combination, with a concentrically-located piston provided with a wing, of a gate provided with a head, two vertical rods, the head of the gate engaging with one of said rods, a collar adjustably secured upon each of said rods, a spring on one of the rods between the collar and the head of the gate, a sleeve on the rod, a latch pivotally secured to the sleeve one part of which is provided with a catch and is adapted to engage with the head of the gate, and another part is adapted to engage with the collar on the other rod, and means for moving the sleeve, substantially as set forth.

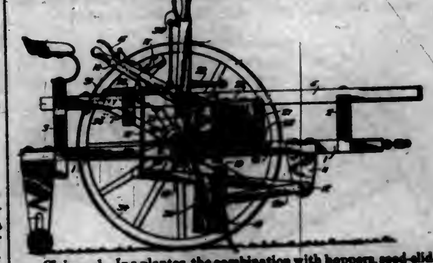
2. In a rotary engine, the combination, with a cylinder, of a piston journaled concentrically therein, a steam-chest, a partition therein provided with ports, a valve for the ports provided with a longitudinal slot, a stem, the lower end of which is provided with a cross-head that fits within the slot, a guide-post, a head adjustably secured to the top of the stem and provided with a sleeve to fit upon the guide-post, and an eccentric connected with the head, substantially as set forth.

603,738. BAGATELLE-BOARD. MONTAGUE REDGRAVE, Jersey City, N. J. Filed Nov. 12, 1897. Serial No. 658,370. (No model.)

Claim.—In combination with the bagatelle-board, A, having the wall, *b*, parallel with one side so as to leave an alley, B, between them, a plate, C, covering the rear or lower end of the said alley at the lower right-hand corner of the board and provided with a depressed part, C^3, having a longitudinal slot, C′, a plunger, D, arranged in the said alley under the said plate and a spring behind the said plunger, the said plunger being provided with a knob which slides in the said depressed part of the plate, the top of the said knob being flush with the higher part of the plate and practically with the rim, that there may be no part appreciably above or in any way outside of the said rim to interfere with packing the boards together, substantially as set forth.



603,739. CORN-PLANTER. HARRISON REES, Farmington, Iowa. Filed Dec. 9, 1897. Serial No. 661,260. (No model.)



Claim.—1. In a planter, the combination with hoppers, seed-slides for the hoppers, a bar connecting the seed-slides, and an axle provided with tappets for actuating the said bar and the slides connected therewith, of grain-spouts, means for adjusting the grain-spouts vertically, flap-valves applied to and carried by the grain-spouts and having vertical extensions to come in contact with the aforesaid bar connecting the seed-slides, and means positively and loosely connecting the vertical extensions of the flap-valves with the said bar, substantially as and for the purpose set forth.

2. In a planter, the combination with a hopper, a seed-slide, a spring for moving the seed-slide rearwardly, and an axle or rotating part provided with tappets for operating or moving the seed-slide in opposition to its actuating-spring, of a grain-spout, means for adjusting the grain-spout vertically, a flap-valve applied to the grain-spout and having a vertical extension slotted at its upper end, and a headed fastening connecting the slotted extension of the flap-valve with the seed-slide, substantially as and for the purpose specified.

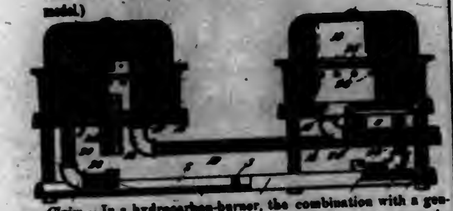
3. In a planter, the combination with hoppers alining transversely, seed-slides for the hoppers, a bar connecting the seed-slides, springs connected to the hoppers and having their rear ends bent and engaging with the seed-slide-connecting bar, and pins or stops projecting from the seed-slide-connecting bar and operating in slots of the frame to limit the rearward movement of said bar and the seed-slides connected therewith, of an axle or rotating part provided with tappets to engage with the seed-slide-connecting bar, grain-spouts, means for adjusting the grain-spouts vertically, and flap-valves applied to the grain-spouts and having adjustable connection with the aforesaid seed-slide-connecting bar, substantially as set forth.

4. In a planter, the combination with a hopper, a spring-actuated seed-slide therefor, and means for reciprocating the seed-slide in the direction of motion of the machine, of a lever having a portion projecting across the path of the seed-slide, and means for securing the lever in an adjusted position, whereby the rearward movement of the seed-slide is limited, substantially as set forth.

5. In a planter, the combination of transversely-alining hoppers, seed-slides therefor, a bar connecting the seed-slides, springs normally tending to move the seed-slide-connecting bar rearwardly, a lever having a portion extending across the path of the seed-slide-connecting bar to limit its rearward movement, and means for securing said lever in an adjusted position, substantially as set forth.

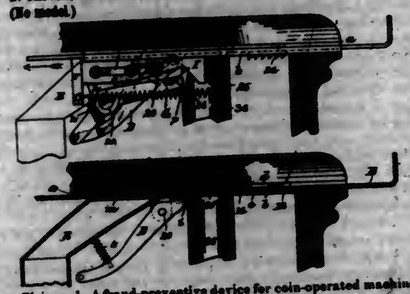
6. In a planter, the combination of a hopper, a seed-slide, actuating mechanism therefor, a lever, a hooked rod having connection with the lever, a plate having a series of openings to receive the bent end of the hooked rod, and a hand-latch applied to the lever and having connection with the hooked rod, substantially as and for the purpose described.

603,740. HYDROCARBON-BURNER. JOHN REINEHAGEN, Marion, Ohio, assignor of one-half to Edward C. Drasher and John T. Monnett, same place. Filed May 17, 1897. Serial No. 636,931. (No model.)



Claim.—In a hydrocarbon-burner, the combination with a generating-chamber and burner, of a commingling-chamber between the burner and the generating-chamber, an external annular spreader on the wall of the commingling-chamber below the generating-chamber, and an independent series of apertures through the wall of the commingling-chamber above and below the spreader, substantially as and for the purpose specified.

603,741. FRAUD-PREVENTING DEVICE FOR COIN-CONTROLLED MACHINES. JOHN G. W. REGANS, Weymouth, and ALBERT D. GROVER, Malden, Mass. Filed Dec. 14, 1897. Serial No. 661,836. (No model.)



Claim.—1. A fraud-preventive device for coin-operated machines or apparatus, comprising a slide having an opening to receive a coin of predetermined size, a spring-pressed feeling-lever arranged to bear against the under surface of said slide and adapted to contact with the coin as the slide is pushed in, and a locking pawl-lever operated by the feeling-lever and adapted to engage the coin-slide to lock the same and arrest its inward movement when the feeling end of the feeling-lever is permitted to rise, substantially as described.

2. In a coin-operated machine or apparatus, the combination with a slide having an opening for the reception of a coin, of a spring-pressed feeling-lever bearing against the under surface of said slide and adapted to contact with the coin as the slide is pushed in, and a locking pawl-lever operated by the feeling-lever and adapted when so operated to engage the coin-slide, said levers being so fulcrumed with respect to each other that a slight inward or upward movement of the feeling end of the feeling-lever will produce a sufficient movement of the pawl-lever to cause it to engage the coin-slide and thereby prevent its further inward movement, substantially as described.

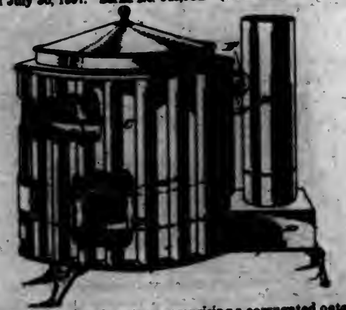
3. In a coin-operated machine or apparatus, the combination with a slide having an opening for the reception of a coin, of a spring-pressed feeling-lever bearing against the under surface of said slide and adapted to contact with the coin as the slide is pushed in, and a locking pawl-lever operated by the feeling-lever and adapted when so operated to engage the coin-slide, said feeling-lever being provided at its feeling end with a sharp-edged antifriction-roll adapted to contact with and cut into any soft substance placed within the coin-opening of the slide, whereby a sufficient movement of the feeling-lever is produced to actuate the pawl-lever and cause it to engage the slide to prevent its further inward movement, substantially as described.

4. In a coin-operated machine or apparatus, the combination with the coin-slide, the spring-pressed feeling-lever and the pawl-lever operated by the said feeling-lever to lock the slide, of a cam-slide operated by the coin-slide when the latter has nearly reached the limit of its inward movement and acting to withdraw the pawl-lever and the feeling-lever out of contact with the coin-slide to relieve the latter of the friction of said levers during its outward movement, substantially as described.

5. In a coin-operated machine or apparatus, the combination with the coin-slide having an opening of slightly-greater diameter than the coin required to operate the machine, of a plate arranged directly over said slide and provided with an aperture of the exact diameter of the proper coin and registering with the coin-opening in the slide when the latter is drawn out, whereby the retention of a coin in the coin-slide after the latter has been pushed in is prevented, substantially as set forth.

6. In a coin-operated machine or apparatus, the combination with a slide having an opening for the reception of a coin, of a plurality of independently-operating spring-pressed feeling-levers bearing against the under surface of said slide and adapted to contact with the coin as the slide is pushed in, and the pawl or slide locking-lever adapted to be actuated by any one of said feeling-levers to lock the slide, substantially as described.

603,742. HEATING-STOVE. ALFRED G. RILEY, Memphis, Tenn. Filed July 30, 1897. Serial No. 646,514. (No model.)



Claim.—1. A heating-stove comprising a corrugated outer cylinder closed at its opposite ends, an inner cylinder open at its upper end and supported in contact with said corrugated cylinder above the lower end thereof, and an outlet-flue communicating with the space below the inner cylinder, substantially as specified.

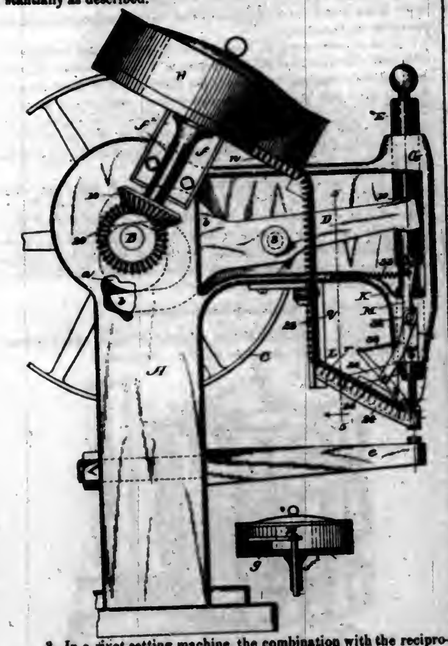
2. A heating-stove comprising a corrugated outer cylinder closed at its opposite ends, an inner cylinder open at its upper end and supported in contact with said corrugated cylinder above the lower end thereof, and an outlet-flue communicating with the space below the inner cylinder and provided with vertical walls extending beneath the same, substantially as specified.

603,748. RIVET-SETTING MACHINE. LOUIS H. SOMERSEN, Brooklyn, N. Y. Filed Sept. 7, 1897. Serial No. 650,956. (No model.)

Claim.—1. In a rivet-setting machine, the combination with the reciprocating plunger-bar carrying the punch and provided with a sleeve sliding thereon and encircling its lower end, of a raceway composed of an upper stationary portion and a lower movable inclined portion rigidly connected to the sliding sleeve and located on one side of the stationary portion, said two portions of the raceway being each provided with a covering-plate overlapping the rivet slot or track therein, and the covering-plate of the lower inclined portion being bent at an angle and extending upward beyond the lower end of the covering-plate of the upper portion to overlie the lower portion of its track or slot on the descent of the lower portion of the raceway, substantially as described.

2. In a rivet-setting machine, the combination with the recipro-

cating plunger-bar carrying the punch and provided with a sleeve sliding thereon, and encircling its lower end and a raceway composed of an upper stationary portion and a lower inclined portion moving thereon, and rigidly connected to the sliding sleeve and provided at its lower end with an aperture for the passage of the punch and rivet driven thereby, of a lever pivoted to the sleeve and actuated in one direction by a spring and in the opposite direction by a roll or projection on the plunger-bar, a spring-actuated escapement-finger pivoted to said lever and provided with a pointed or beveled lower end adapted to pass between the two lowermost rivets in the raceway, a guide cam or incline on the cover of the lower portion of the raceway and a roll on the escapement-finger held in contact with said cam by the spring connected therewith, whereby as the plunger-bar is reciprocated the escapement-finger is guided as it is moved up and down to cause it to enter between the rivets and hold the lower rivet with a spring-pressure against the punch as the latter ascends, substantially as described.



3. In a rivet-setting machine, the combination with the reciprocating plunger-bar and punch and a raceway having an aperture at its lower end for the passage of the punch and rivet driven thereby, of a spring-actuated pivoted escapement-finger having a narrow pointed lower end adapted to enter the slot at the lower end of the raceway and pass between the two lowermost rivets and hold the lower rivet with a spring-pressure against the punch while the latter is rising within the aperture at the bottom of the raceway, the point of the escapement-finger while passing between the two rivets serving to force back the line of rivets in the raceway and after carrying the lower rivet into position beneath the punch, bearing against the side of the latter on its descent above the rivet to prevent undue pressure of the finger thereon, substantially as described.

608,744. FAUCET. ELIJAH U. SCOVILLE, Manlius, N. Y. Filed Jan. 21, 1897. Serial No. 620,017. (No model.)



Claim.—1. The combination of the faucet-body *a* formed with a valve-seat in its receiving portion *a'* and with screw-threads on the exterior of said portion, the outwardly-opening valve *e*, the coupling *c* provided with an internally screw-threaded portion and connected thereby to said body portion and provided in its interior with shoulders *f* and *f'*, the packing-ring *g* interposed between the shoulder *f* and end of the body portion *a'*, the spring *e* interposed between the shoulder *f'* and exterior of the valve and a manipulative valve-opener connected to the faucet and forcing the valve outward from its seat as set forth.

2. The improved faucet consisting of the body *a*, having the inlet portion *a'* provided with the inwardly-tapering valve-seat *b* and with the shoulder *b* and screw-threads on the exterior, the coupling *c* provided with screw-threads *d'* and shoulders *f f'*, the outwardly-opening valve *e*, the packing *g*, spring *e*, the shaft *c* journaled in the faucet-body at right angles to the inlet, and the lever *d* and handle *h* attached to said shaft substantially as set forth and shown.

608,745. UNDERGROUND CONDUIT FOR ELECTRIC CONDUCTORS. CHARLES H. SEWALL, Chicago, Ill. Filed May 5, 1896. Serial No. 542,613. (No model.)



Claim.—1. As a conduit for electrical conductors a plurality of inverted channels made in separate and single sections, said sections resting upon a flat foundation-floor, which, with the inverted channels, form duct-openings; and the said channels supporting other floors each one sustaining its complement of inverted channels whereby the conduit can be made of any width or height and contain any number of ducts.

2. A conduit for drawing in and drawing out electrical conductors consisting of an inverted channel made in sections laid end to end and resting upon a flat floor which forms the lower side of said duct, the said floor being composed of a material plastic when first made but setting to hardness, plastic setting material being also used to form supporting sides and a covering-top whereby the floor, sides and top become an integral support for the sectional channel which serves to hold it rigidly in position.

3. A conduit for electrical conductors consisting of a foundation having a floor formed on the surface thereof, and an inverted channel-section superimposed upon said floor which completes the duct, said channel being composed of material plastic when first made but which sets to hardness and an open frame or binder incorporated into the material of said inverted section and conforming to the shape of the inner wall thereof, substantially as described.

4. A conduit for electrical conductors consisting of a smooth flat floor of indefinite width upon which are placed side by side a plurality of ducts, each duct being formed by superimposing upon said floor inverted channels in sections placed end to end, the said sections of each duct being rigidly and permanently joined at their ends as well as with the sections of other ducts at their sides whereby the whole structure is bonded together.

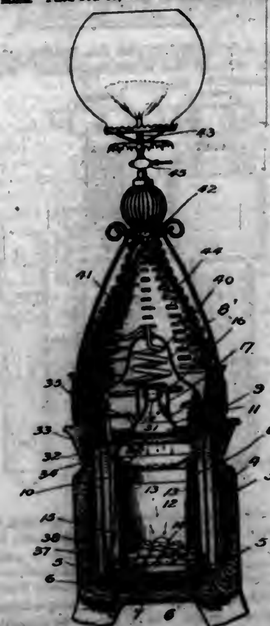
5. As a conduit for electrical conductors the section G laid end to end upon a flat floor and joined at ends by bridges F; the sections G, bridges F and floor being all joined by a setting cement whereby the metallic frameworks *g* are anchored and caused to contribute tensile strength to the structure as a whole.

6. A conduit-duct for electrical conductors consisting of a smooth flat floor of indefinite length, said floor being a composite made by embedding a metallic frame in cement, concrete or other like plastic material whereby the concrete acts as a resistance to compressive strain and the iron wires as resistance to tensile strain; and upon which are superimposed in sections inverted channels placed end to end.

7. In an underground conduit, the combination with a foundation of concrete, or similar material, having a floor formed on the surface thereof, of an inverted channel resting upon said floor whereby the floor forms the bottom of the conduit, and a body of concrete, or similar material, inclosing and surrounding said inverted channel and formed integral with the concrete constituting the foundation, substantially as described.

8. In an underground conduit, the combination with a foundation of concrete, or similar material, having a floor formed on the surface thereof, of an inverted channel placed upon said floor so that the floor forms the bottom of the conduit, a body of concrete, or similar material, inclosing and surrounding said inverted channel and formed integral with the concrete constituting the foundation, said second body of concrete having a floor formed on the surface thereof, a second inverted channel resting thereon, and a third body of concrete, or similar material, inclosing and surrounding said second inverted channel and formed integral with said second body of concrete, substantially as described.

608,746. ACETYLENE-GAS LAMP. OLIVER G. SEWARD, Minneapolis, Minn. Filed Oct. 15, 1896. Serial No. 608,994. (No model.)



Claim.—1. In an acetylene-gas lamp, the combination, with a water-tank, of a carbid holder or cartridge to be submerged in the water in said tank, a valve in the upper part of said holder or cartridge and through which water is admitted from the tank to the interior of the holder or cartridge, a suitable chamber above the surface of the water in said tank, and into which the gas from the holder or cartridge is conducted therefrom, and automatic means actuated by the pressure of gas to open and close said valve, substantially as described.

2. In an acetylene-gas lamp, the combination, with a water tank or receptacle, of a carbid holder or cartridge arranged in said tank to be submerged by the water therein, and having a water-inlet opening whereby water is admitted to the holder from said tank, a valve for said inlet-opening, said holder having a port or gas-outlet projecting above the surface of the water in the tank, a movable gas-holder arranged in said tank and inclosing said holder and into which the gas from the latter is delivered, and means in connection with said gas-holder for operating the valve at the said inlet-opening to regulate the flow of water into the holder or cartridge, in accordance with the quantity of gas in the gas-holder, substantially as described.

3. In an acetylene-gas lamp or generator, the combination, with the water-tank, of a carbid-holder, a gas-holder arranged in said water-tank to rise and fall therein, the gas being held in the upper part of said gas-holder, a gas or burner pipe arranged above said gas-holder and a condenser arranged in the upper part of said gas-holder and carried thereby, the gas having to pass through said condenser to escape from the gas-holder and enter said pipe, and said condenser being so arranged that the liquid of condensation flows downwardly therein, substantially as described.

4. In an acetylene-gas lamp, a body comprising a lower base portion and an upper part, said upper part bearing a burner and said lower part provided with a water tank or receptacle and with a carbid-holder, a gas-holder in said tank to rise and fall therein and in the upper part of the body, and a detachable connection between said gas-holder and said burner, substantially as described.

5. In an acetylene-gas lamp or generator, the combination, with the water-tank or carbid-holder, of a cartridge provided in the said tank, means for locking the same therein, said holder or cartridge being submerged by the water in said tank and having an opening to admit water from the tank, a valve-lever, a movable gas-holder to actuate said lever, and a gas-outlet from said carbid holder or cartridge substantially as described.

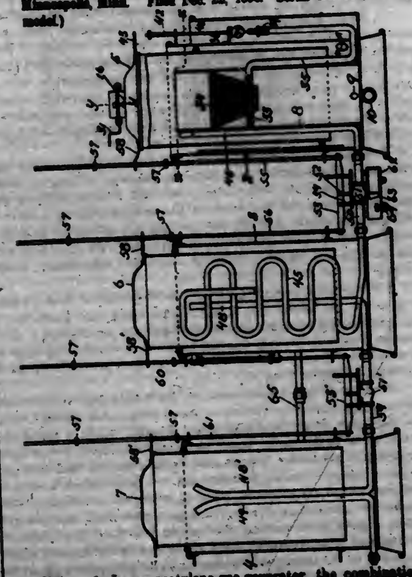
6. In an acetylene-gas lamp or generator, the combination, with a carbid-holder or tank surrounded or submerged by water and whereby it is kept cool, means for supplying water to the interior of said holder or cartridge, a gas-chamber into which the gas is delivered from said holder or cartridge, and the downwardly or backwardly turned deflector 17 arranged at the gas-outlet of the said holder and in the said chamber, and by which the moisture in the gas is caught and condensed, substantially as described.

7. In an acetylene-gas lamp, the combination, with a water-containing tank, of a stationary generator or cartridge almost submerged therein and removable therefrom, a gas-containing chamber or portion, said cartridge comprising upper and lower parts, making a water-tight joint between them, a basket provided in the lower part, said upper part having gas-outlet openings and a deflector surrounding the same, said upper part also provided with a water-inlet opening, and a valve therefor, and means for distributing the water entering said opening, substantially as described.

8. The combination, with a suitable base, of an upper removable part carrying a burner, a water-tank provided in the lower part, a stationary cartridge or generator almost submerged therein, a movable gas-holder, means for regulating the flow of water from the tank into said generator, and a flexible connection from said gas-holder to the burner-pipe, said connection, the gas-holder and the generator being readily accessible upon the removal of said upper part of the base or body of the lamp, substantially as described.

9. The gas-generator inclosed in a suitable chamber or holder and comprising the lower portion 8 to contain the gas-producing material, the upper portion secured upon the top of said portion 8 and provided with the spreading or distributing diaphragm and with the perforated neck or top, means for admitting water above said diaphragm, and the downwardly-turned deflector 17 arranged upon said top or neck and whereby moisture in the gas is condensed, substantially as described.

608,747. ACETYLENE-GAS GENERATOR. OLIVER G. SEWARD, Minneapolis, Minn. Filed Dec. 22, 1896. Serial No. 616,627. (No model.)



Claim.—1. In an acetylene-gas generator, the combination, of an annular water-chamber surrounding a chamber or space for gas-producing material, with an independent movable gas-holder adapted to rise and fall in said water-chamber, means in the top of said movable gas-holder for dropping gas-producing material into the chamber or space therefor without the escape of gas from the gas-holder, an inlet for water from the water-chamber to said space containing

the gas-producing material, and automatic means governed by the production of gas for regulating the entrance of water from the water-chamber to the chamber or space containing the gas-producing material, substantially as described.

2. In an acetylene-gas chamber the combination of an open-topped chamber for calcium carbid with a water-tank surrounding the same, a movable gas-holder in said tank and inclosing said chamber, a water-pipe communicating between said tank and said chamber to admit water from one to the other, a valve in said pipe, a float-lever whereby said valve is normally closed, and means whereby upon the fall of said holder said valve is opened, substantially as described.

3. The combination with the top of a gas-generator, of an open-sided cylinder revoluble therein, a casing or dome therefor and means on the exterior thereof to revolve said cylinder, to expose its open side to the interior or exterior of the gas-generator, and a top for said dome conforming to said cylinder, means for binding the same thereon, and suitable packing interposed between the cylinder and the parts of the dome, substantially as described.

4. In an acetylene-gas generator the combination of a suitable water-tank, with a chamber or space for calcium carbid, therein and surrounded thereby but having an open top, and an independent movable gas-holder, a water-pipe leading from said tank into said chamber or space, an exterior water-pocket, a float-valve provided therein, to control the entrance of water to said chamber or space, a float-rod and a lug upon said gas-holder to engage the same upon the fall of the gas-holder, whereby said valve is opened, substantially as described.

5. In an acetylene-gas generator, the combination, of a suitable tank, with a chamber or space for carbid arranged within said tank and having an open top which projects above the surface of the water in the tank, a gas holder arranged in said tank to rise and fall therein and surrounding or covering said chamber or space to receive the gas therefrom, regulable means for jetting water into the upper part of said chamber or space and upon the material therein, a clean-out hole at the bottom of said chamber or space, a valve or slide to close the same, and a flush-pipe leading into the lower part of said chamber or space, substantially as described.

6. In an acetylene-gas generator, the combination of a water-tank and a gas-holder, with a carbid-holder and means for supplying water thereto, an independent tank and gas-holder, provided with a suitable condenser, a gas-pipe communicating between the first-mentioned gas-holder and the said condenser, a gas-valve provided in said pipe, and means in connection with each gas-holder for automatically opening and closing said valve, substantially as described.

7. In an acetylene-gas generator, the combination with a suitable tank and gas-holder, provided with means for holding and dampening calcium carbid, of an independent tank and gas-holder, a gas-pipe forming a connection between the two gas-holders, a valve in said pipe, a valve-lever, upright rods, connected therewith, suitable guides for said rods, and means whereby the extreme movements of either of said gas-holders will actuate said rods and said valves, substantially as described.

8. In an acetylene-gas generator, the combination with a suitable tank and gas-holder, provided with means for holding and dampening calcium carbid, of an independent tank and gas-holder, a gas-pipe forming a connection between the two gas-holders, a valve in said gas-pipe, means whereby the extreme movements of said gas-holders operate said valve, and condensation-pockets connected with said gas-pipe, on opposite sides of said valve, substantially as described.

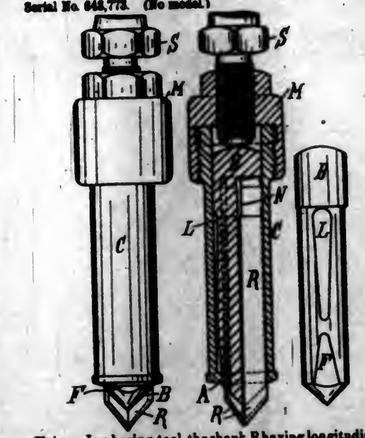
9. In an acetylene gas generator, the combination with a water-tank and a gas-holder, of a separate water-tank, and gas-holder, a gas-pipe forming a communication between said gas-holders, a valve therein, a valve-lever, rods having guides, and also having stops to be engaged and operated by said gas-holders, to actuate said valve, substantially as described.

10. In an acetylene-gas generator, the combination with a water-tank and a gas-holder, of means for introducing calcium carbid, without the escape of gas from said holder, a carbid-holder, a water pipe and valve, to supply water to the carbid in said holder, means operated by said gas-holder to open said valve, a second tank and gas-holder, a gas-pipe, leading between the two gas-holders, a valve in said pipe, means whereby the extreme movement of either of said gas-holders, actuates said valve, in the gas-pipe, a third tank and gas-holder, a gas-pipe connecting the second and third gas-holders, a valve in said pipes, means whereby the extreme movements of either the second or the third gas-holder actuate said valve, and a gas-outlet from the third gas-holder, substantially as described.

11. In an acetylene-gas generator, the combination, with the water-tank 2, of the interior open-topped chamber 8 arranged therein, the gas-holder 5 to rise and fall in the tank, the water-pipe 35 leading from the tank into said chamber 8, the coil of said pipe within the upper part of said chamber 8, the valve for controlling the flow of water through said pipe, means whereby said valve is operated by said gas-holder, and the projection 34 arranged in the chamber 8 to prevent the lodging of material upon said coil or the stoppage of the openings therein, and means whereby said chamber 8 may be cleaned from the bottom, substantially as described.

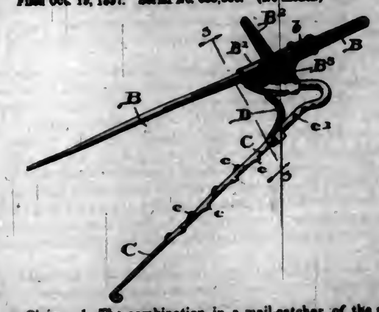
12. In combination with the carbid receptacle or holder of an acetylene-gas generator, the pipe 10 leading from the bottom thereof, and having an opening 11 through the bottom of said receptacle, the gas and water tight cap, 14, for the outer end of said pipe, the slidable tube, 12, arranged in said pipe to close said opening 11, and rod or handle, 13, whereby said tube may be drawn out of the pipe, when the cap 14 is removed, as and for the purpose specified.

608,748. TOOL-HOLDER FOR BORING AND SHAPING MACHINES. WILLIAM TRAU, Gundenfeld, Germany. Filed Aug. 19, 1897. Serial No. 648,773. (No model.)



Claim.—In a boring-tool, the shank B having longitudinal grooves communicating with each other to form elastic sides, the cutters in said grooves, the casing C having the bearings or guides A at the end the said shank B having the tapered guide-surfaces F engaging the guides A, and having also the weak casing-faces L extending longitudinally of the shank B, the said casing being substantially cylindrical and the said guides A being formed by inwardly-extending projections at the end of the cylinder, substantially as described.

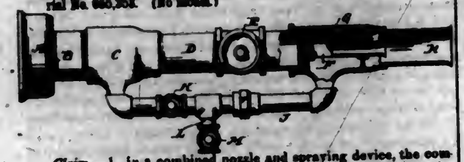
608,749. MAIL-CATCHER. JAMES R. WHITE, Indianapolis, Ind., assignor of one-half to George C. Hitz and Harry S. How, same place. Filed Oct. 19, 1897. Serial No. 655,008. (No model.)



Claim.—1. The combination in a mail-catcher, of the shaft B, the handle, the catcher-arm C mounted in a suitable hub thereon and formed with a bend or elbow at its extremity, and a spring-strip secured rigidly on one side of said elbow and extending across and loosely connected to the member on the opposite side, whereby it is adapted to receive the impact of the mail-sacks and prevent them from being jammed in said elbow, substantially as set forth.

2. The combination, in a mail-catcher, of the shaft, the handle, the catcher-arm mounted in a suitable hub on said shaft, being formed with a bend or elbow at its extremity, and the spring-strip D secured rigidly to one part on one side of the bend a distance from its extreme point and extending across and formed with ears on its other end which embrace the other part of said arm and are adapted to slide thereon, the outer member of said arm being formed with a series of protuberances throughout its length which incline on their outside faces and have abrupt faces adjacent to the elbow, substantially as set forth.

608,750. COMBINED HOSE-PIPE NOZZLE AND SPRAYING DEVICE. WILLIAM P. WILSON, Trenton, N. J. Filed Oct. 15, 1897. Serial No. 655,358. (No model.)



Claim.—1. In a combined nozzle and spraying device, the combination with a pipe-section, of a main delivery-pipe, an injecting-nozzle at the end thereof, a coupling surrounding the injector-nozzle, a by-pass extending from the pipe to the coupling, valves for controlling the by-pass and delivery-pipe, and a removable discharge end on the coupling, substantially as described.

2. In combination with a pipe-section, of a delivery-section leading therefrom of smaller diameter, an injector at the end of the delivery-section, a by-pass extending from the pipe-section to a point adjacent to the injector, a casing for the injector into which the by-pass leads, an air-inlet for the by-pass, a removable discharge end in advance of the injector, and a valve for controlling the air-inlet, by-pass, and the main delivery-section, substantially as described.

608,751. CHARGING-BUGGY. WILLIAM B. WOODS and LYMAN HENRY, Bridgeport, Ohio. Filed Sept. 2, 1897. Serial No. 650,413. (No model.)



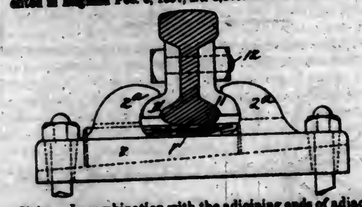
Claim.—1. A charging-buggy for annealing-furnaces, consisting of a traveling truck-frame, a box-support hinged to the main frame at a point in advance of the front truck said support having a rearwardly-extending handle, and mechanism held on the truck-frame for elevating and lowering the handle as specified.

2. A charging-buggy comprising a main frame having trucks at the front and rear end, a box-support hinged to the main frame at a point in advance of the front truck, said support consisting of forwardly-extending horns, and a rearwardly-extending portion projected over the main frame and terminating in a handle, and devices for raising and lowering the handle all being arranged substantially as shown and described.

3. A charging-buggy for annealing-furnaces, consisting of a frame substantially of a length equal to the depth of the furnace, having supporting-trucks, said frame having horns projected forwardly beyond the front truck, hinged to the main frame, said horns merging into a handle-bar extended over the main frame to the rear end thereof, and elevating and lowering devices mounted on the rear end of such frame connected with the end of the handle-bar, and means for moving the buggy in and out of the furnace as shown and for the purposes set forth.

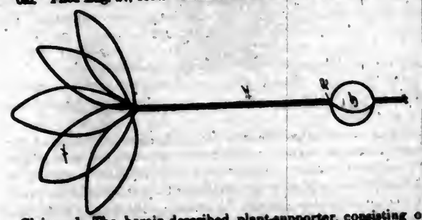
4. In a machine for the purposes described, the combination with the main or trunk frame, the hinged horns and the handle-bar, of the standard at the rear end, a support for the rear end of the handle held to slide on such standard, and hand-operated gear mechanism for raising and lowering such support all being arranged substantially as shown and for the purposes described.

608,752. RAIL-JOINT. SAMUEL YOUNG, Pool Green Patriercft, England. Filed Sept. 21, 1897. Serial No. 652,479. (No model.) Patented in England Feb. 6, 1897, No. 3,175.


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operating-cords having one end secured to the said bar and the opposite ends passed over pulleys on the gate-posts and secured to the gate to permit the latter to be opened from either side of the gateway, a ball-shaped catch device pivoted to the inclined track-terminals and adapted to engage the latch-hook to hold the gate open, and releasing-cords passed over pulleys on the cross-bar and through the loop or eye of the said standard or bracket and secured to the said pivoted ball-shaped catch, whereby the said catch may be released from engagement with the latch-hook to permit the gate to close by its own gravity, substantially as described.

608,754. PLANT-SUPPORT. CLARA I. BALDWIN, National City, Cal. Filed Aug. 27, 1897. Serial No. 649,749. (No model.)



Claim.—1. The herein-described plant-supporter, consisting of wires twisted together to form an upright stem, an ornamental top to said stem formed by bending the wires into loops or rings, and an anchoring device at the lower end of said stem formed by bending or deflecting the wires in opposite directions and bringing the same together and again uniting them, substantially as described.

2. A plant-support, consisting of wires twisted together to form a stem, an ornamental top formed by bending the wires into loops, rings, &c., and an anchor formed by deflecting or bending the wires at the base of the stem in various directions, substantially as described.

608,755. BROWN SULFUR DYE. ROBERT DENUTE, New York, N. Y., assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Oct. 16, 1896. Serial No. 609,162. (Specimens.) Patented in Italy Jan. 13, 1896, XXXI, 40,694, LXXIX, 407, and in France Jan. 15, 1896, No. 253,213.

Claim.—1. The process of producing a new coloring-matter in the form of alkaline salts capable of dyeing vegetable fiber or fabrics at ordinary temperatures fast brown shades, which process consists in subjecting cresols and sulfur in strong alkaline liquid to temperatures above 200° centigrade, substantially as described.

2. As a new article of manufacture the brown coloring-matter producible from cresols and sulfur in alkaline solution at temperatures above 200° centigrade, being in the form of its alkaline salts a black mass easily soluble in water with a greenish-black or bluish-black color capable of dyeing cotton fabrics at ordinary temperatures fast brown shades, and having when precipitated with acids, the characteristics of a brownish-black powder insoluble in water, sodium carbonate, ammonia, and alcohol, soluble with difficulty in dilute soda-lye at ordinary temperature, more easily soluble in hot soda-lye with a greenish-brown color, insoluble or soluble with difficulty in concentrated sulfuric acid (66° Baumé), easily soluble with a greenish-brown color in alkaline sulfids, thus affording solutions which dye cotton at ordinary temperatures in fast brown shades substantially as described.

608,756. INVALID-REST. JESSIE DRAWE, Marine City, Mich., assignor of three-fifths to John Drawe and William Perren, same place. Filed Aug. 7, 1897. Serial No. 647,445. (No model.)

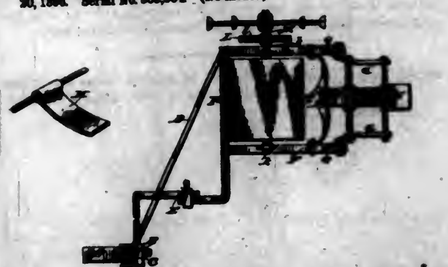


Claim.—1. In an invalid-rest, comprising a bottom frame 1, a rest-frame 3, of greater width than the bottom frame, means for supporting such frame at different inclines, side arms vertically adjusted to the said rest-frame, and a wire bail having portions extended through the meeting ends of the rest and the bottom frame and having vertical members adapted to form supports, of the side arms and a food-rest held upon such side arms, all being arranged substantially as shown and for the purposes described.

2. The combination with the bottom frame 1, having rack members 2, at the inner edges thereof, the hinge-frame of a greater width than the bottom 1, having side members adapted to close down over the sides and end of the bottom member, said side members having vertical slots, and the bail 5 hinged to the frame to engage the racks 2 of the side arms 9 having their inner ends connected to the rest-frame provided with racks on their under faces and eyes or loops, a wire bail having portions extended through the meeting ends of the bottom and rest frame to form hinges therefor, and having vertical members to engage the racks of the side arms 9, and a food-rest consisting of a cross member adapted to rest upon the said side arms 9, and having wire side extensions to fit the loops on such arms 9, all being arranged substantially as shown and for the purposes described.

3. An invalid-rest, comprising a bottom frame 1, having racks 2, a rest-frame 3 of greater width than the bottom frame hinged to such bottom frame and held spaced apart therefrom, means for holding such rest-frame to its different inclines, a cross-bail 11 having portions extended through the bottom and the rest frame to form hinged members therefor, and vertical members, arms 9 vertically adjustable on and connected to the rest-frame and sides, and a food-supporting table adapted to be supported longitudinally on such arms 9, all being arranged substantially as shown and described.

608,757. PLANTER. JOHN L. DURHAM, Seneo, Tex. Filed Aug. 20, 1896. Serial No. 603,364. (No model.)

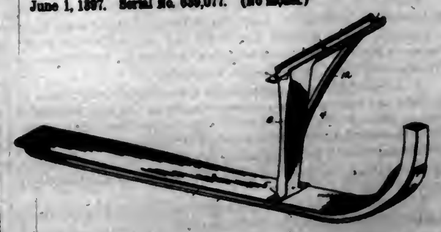


Claim.—1. The combination with the plow-stock, of a bearing, a vertical standard rising therefrom, the planter-frame, a flexible brace adjustably connected to said standard and frame, and a right-angled beam reversibly and detachably connected with the planter-beam and stock, substantially as and for the purpose specified.

2. The combination with the planter-frame and the coverer pivoted to the end thereof, of a presser-head detachably hinged to the rear end of said planter-frame, a presser-wheel journaled therein, the hopper with its feed mechanism, the furrow-opener, the screw-regulators for adjusting the same, and the chute connected with said opener, all substantially as herein shown and described.

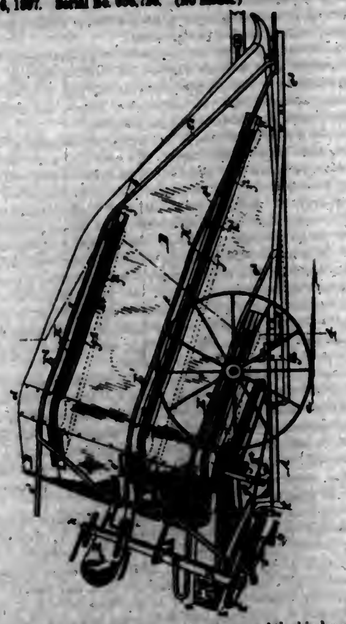
3. The combination with the planter-frame, the presser-wheel mounted therein, the pivotally-mounted presser-plate in line with said wheel, the opener and the coverer, plates secured to opposite sides of the planter-frame and bent backward and inward behind the opener, all substantially as herein shown and described.

608,758. SLED. WILLIAM S. EVANS, Point Rock, N. Y. Filed June 1, 1897. Serial No. 639,077. (No model.)



Claim.—The combination with a sleigh, of the runners thereof, the metal shoes upon the bottom thereof, the snow-shoes resting on the top of the said runners, and the integral knees of metal, comprising each a standard, a flange at the bottom thereof bolted to the snow-shoe and also to the runner and to the runner-shoe, and a transverse channeled flange at the top of the said standard, and the bracket, all substantially as described.

608,759. GRAIN-HARVESTER. GEORGE A. FARRALL, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed Nov. 16, 1897. Serial No. 658,736. (No model.)



Claim.—1. The combination with the cutter and the binder mechanism, of a platform arranged lengthwise with reference to the line of draft and upright but inclining toward the stubbleward side, so that its bearing-surface faces grainward and upward, and a longitudinal conveyer which moves the grain along the inclined face of the platform, substantially as set forth.

2. The combination with the cutter and the binder mechanism, of a platform arranged lengthwise with reference to the line of draft and upright but inclining toward the stubbleward side, so that its bearing-surface faces grainward and upward, a binder-deck extending stubbleward from the rear end of the platform, and a longitudinal conveyer which moves the grain along the bearing-faces of the platform and binder-deck, substantially as set forth.

3. The combination with the cutter and the binder mechanism, of a platform arranged lengthwise with reference to the line of draft and upright but inclining toward the stubbleward side, so that its bearing-surface faces grainward and upward, and a binder-deck extending stubbleward from the rear end of the platform and inclining forwardly, the inclination of the platform and binder-deck being at the same angle, substantially as set forth.

4. The combination with the cutter and the binder mechanism, of a platform arranged lengthwise with reference to the line of draft and upright but inclining toward the stubbleward side, so that its bearing-surface faces grainward and upward, a binder-deck which extends stubbleward from the rear end of the platform, and conveying-belts running rearwardly along the bearing-face of the platform, thence stubbleward along the bearing-face of the deck and thence forwardly to the front end of the platform, substantially as set forth.

5. The combination with the cutter and the binder mechanism, of a platform arranged lengthwise with reference to the line of draft and upright but inclining toward the stubbleward side, so that its bearing-surface faces grainward and upward, a binder-deck extending stubbleward from the rear end of the platform and inclining forwardly, conveyer-belts passing lengthwise of the platform and binder-deck and supported on wheels or rollers, and needle and knotter shafts arranged adjacent to the binder-deck, said platform and binder-deck, the pivots of the conveyer-wheels, and the needle and knotter shafts being arranged at the same angle, substantially as set forth.

6. The combination with the cutter and the binder mechanism, of a platform arranged lengthwise with reference to the line of draft and upright but inclining toward the stubbleward side, so that its bearing-surface faces grainward and upward, and a vertically-adjustable bottom arranged along the lower portion of the platform and adapted to support the butts of the stalks, substantially as set forth.

7. The combination with the cutter and binder mechanism, of a platform arranged lengthwise with reference to the line of draft and upright but inclining toward the stubbleward side, so that its bearing-surface faces grainward and upward, a binder-deck which extends stubbleward from the rear end of the platform, belt conveyers which run rearwardly along the bearing-face of the platform, thence stubbleward along the bearing-face of the deck and thence forwardly to the front end of the platform, and guide-bars which are arranged grainward opposite the belt conveyers, substantially as set forth.

8. The combination with the upright longitudinal platform, the upright binder-deck extending stubbleward from the rear end of the platform and the binder mechanism, of a conveyer-belt arranged lengthwise of the platform and binder-deck and provided with teeth which are pivoted to the conveyer-belt to fold back on the same when unsupported, a tooth-supporting guide arranged in the binder-deck and extending stubbleward from the junction of the platform and binder-deck, said guide being pivoted at its front end and capable of swinging forwardly at its rear end, and connections between said guide and the binder mechanism whereby the guide is swung forwardly to release the teeth when they are not required to feed, substantially as set forth.

9. The combination with the upright longitudinal platform, the upright binder-deck extending stubbleward from the rear end of the platform and the binder mechanism, of a conveyer-belt arranged lengthwise of the platform and binder-deck and provided with teeth which are pivoted to the conveyer-belt to fold back on the same when unsupported, a sprocket-wheel arranged at the junction of the platform and binder-deck and a stubbleward sprocket-wheel arranged in the binder-deck for supporting the rear portion of said conveyer, a tooth-supporting guide pivoted in front of said first-mentioned sprocket and extending toward the stubbleward sprocket-wheel, and connections whereby said guide is shifted from the binder mechanism, substantially as set forth.

10. The combination with the longitudinal platform, the binder-deck extending stubbleward from the rear end of the platform and the binder mechanism, of a conveyer-belt arranged lengthwise of the platform and binder-deck and provided with pivoted feeding-teeth, a rock-shaft arranged near the junction of the platform and binder-deck and provided with a guide-bar adapted to hold the teeth in their operative position in passing along the binder-deck, and a rod attached to an arm on the needle-shaft and having a sliding connection with an arm of said rock-shaft, substantially as set forth.

608,760. SKIRT-SUPPORTER. MARIE GAIR, New York, N. Y. Filed Apr. 21, 1897. Serial No. 633,116. (No model.)



Claim.—The combination of the belt having devices for fastening its overlapping ends together, and a longitudinal slot in one of its ends; with a sliding keeper on the slotted end of the belt formed of a single piece of metal bent to fit around the belt with its ends meeting at one side thereof opposite said slot, the ends of said keeper being bent at right angles so as to enter the slot and thus retain the keeper on the belt and limit its movement thereon, for the purpose and substantially as described.

608,761. FLEXIBLE ROTARY WHEEL OR BRUSH. CHARLES H. GRAHAM, Swampscott, Mass., assignor to George H. P. Flagg, trustee, Boston, Mass. Filed Dec. 9, 1897. Serial No. 661,273. (No model.)



Claim.—1. As an article of manufacture, an annular brush composed of radiating strips compressed and glued together at their inner portions and provided with an internal stiffening device, their

outer portions being free and flexible and constituting sections of a yielding rubbing or brushing periphery.

2. An appliance of the character specified, comprising a hub, an annular brush thereon composed of radially-arranged strips rigidly connected at their inner portions to form a continuous rigid annular base, and free at their outer portions, which constitute sections of a yielding rubbing or brushing periphery, and clamping devices on the hub, engaged with the sides of the brush.

603,762. TUBE-CLEANER. SHELTON J. GUNN, Grand Rapids, Mich. Filed Nov. 1, 1897. Serial No. 657,095. (No model.)

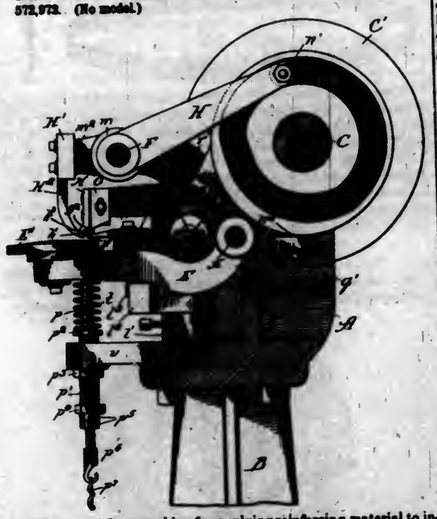


Claim.—1. In a tube-cleaner, a motor having spiral buckets, in combination with a shaft, serrated rotary cutter driven by said shaft, pivotal links connecting said cutters with permanent bearings on said shaft, the links at one end of the cutter-heads being closely pivoted both to the bearing and the head and the links at the other end being adjustably connected so that each head is capable of lateral adjustment independent of the others to permit the cutters to adjust themselves to the surface of the tubes, substantially as and for the purpose set forth.

2. In a rotary tube-cleaner, a motor having spiral buckets and a back and peripheral walls to prevent backward or radial escape of water, arms connecting the inner edges of the buckets with the propelling-shaft, a propelling-shaft, rotary serrated cutters connected at one end to said shaft by pivotal links, and the opposite ends connected by pivotal links to an adjustable link so that it may adapt itself to bent tubes, substantially as and for the purpose set forth.

3. In a rotary tube-cleaner, a rotary motor, a shaft propelled by said motor, a series of shafts each supporting a series of independently-rotating cutters, links for pivotally connecting said cutter-shafts to the propeller-shaft, and a jacket open at the front end and having lateral ports at the back end for the free passage of water, substantially as and for the purpose set forth.

603,763. INSOLE-REINFORCING MACHINE. JOHN R. HADAWAY, Brockton, Mass., assignor, by mesne assignments, to the Gem Flexible Insole Company, of Maine. Filed Dec. 23, 1895. Serial No. 572,972. (No model.)



Claim.—1. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a former or anvil to sustain the free edge portion of the reinforcing material on the insole, a beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, and means for actuating said beader or crimper, substantially as described.

2. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a former or anvil to sustain the free edge portion of the reinforcing material on the insole, a beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, and means for actuating said beader or crimper, substantially as described.

3. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a reciprocating beader or crimper having a yoke-shaped head for beading or crimping the reinforcing material upon the insole, and means for actuating said beader or crimper, substantially as described.

4. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a former or anvil to sustain the free edge portion of the reinforcing material on the insole, an oscillatory presser-tool cooperating with said former or anvil, a reciprocating beader or crimper cooperating with said former or anvil to bead or crimp the reinforcing material, and means for actuating the presser-tool and beader or crimper, substantially as described.

5. In a machine for applying the reinforcing material to insoles, the combination with a work-support, of a vibratory former or anvil to sustain the free edge portion of the reinforcing material on the insole and feed the work, a reciprocating beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, and means for actuating said beader or crimper and former or anvil, substantially as described.

6. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a vibratory former or anvil to sustain the free edge portion of the reinforcing material on the insole, an oscillatory vibrating presser-tool cooperating with said former or anvil to hold and feed the work, a reciprocating beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, and means for actuating the presser-tool and beader or crimper, substantially as described.

7. In a machine for applying reinforcing material to insoles, the combination with a yielding work-support, of a vibratory work-gaging former or anvil to sustain the free edge portion of the reinforcing material on the insole, an oscillatory vibrating presser-tool cooperating with said former or anvil to hold and feed the work, a reciprocating beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, and means for actuating the presser-tool and former or anvil alternately with the beader or crimper, substantially as described.

8. In a machine for applying reinforcing material to insoles, the combination with a yielding work-support, of a vibratory former or anvil to sustain the free edge portion of the reinforcing material on the insole, a gage on said former or anvil in position to bear against the edge of the insole, an oscillatory vibrating presser-tool cooperating with said former or anvil to hold and feed the work, a reciprocating beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, and means for actuating the presser-tool and former or anvil alternately with the beader or crimper, substantially as described.

9. In a machine for applying reinforcing material to insoles, the combination with a yielding work-support, of a vibratory former or anvil to sustain the free edge portion of the reinforcing material on the insole, a gage for guiding the work on its support with relation to the bead formation on the work, an oscillatory vibrating presser-tool cooperating with said former or anvil to hold and feed the work, a reciprocating beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, and means for actuating the presser-tool and former or anvil alternately with the beader or crimper, substantially as described.

10. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a reciprocating beader or crimper having a yoke-shaped head for beading or crimping the reinforcing material upon the insole, a cutter for trimming off the surplus from the edge of said material, and means for actuating said beader or crimper and cutter, substantially as described.

11. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a vibratory former or anvil to sustain the free edge portion of the reinforcing material on the insole, a gage for guiding the work on its support with relation to the bead formation of the work, a lower cutter adjacent to said former or anvil, an oscillatory vibrating pressure tool, cooperating with said former or anvil to hold and feed the work, a reciprocating beader or crimper cooperating with said former or anvil to bead or crimp the said reinforcing material, an upper cutter, and means for actuating the presser-tool and former or anvil alternately with the beader or crimper and upper cutter, substantially as described.

12. In a machine for applying reinforcing material to insoles, the combination with a frame, of a work-support, a rotary drive-shaft carrying cams, a lever I fulcrumed to oscillate horizontally and engaging at one end one of said cams, a former or anvil I' supported on the opposite end of said lever to extend over said work-support, a lever H fulcrumed to oscillate vertically and engaging at one end another of said cams, a presser-tool H³ supported over said work-support and connected with said lever H to oscillate therewith, a lever M fulcrumed to oscillate vertically and engaging at one end another of said cams, a beader or crimper N on the opposite end of said lever M adjacent to said former or anvil I', substantially as described.

13. In a machine for applying reinforcing material to insoles, the combination with the frame, of a work-support, a rotary drive-shaft carrying cams, a lever I fulcrumed to oscillate horizontally and engaging at one end one of said cams, a former or anvil I' supported on the opposite end of said lever to extend over said work-support and having a head A^5, a lever H fulcrumed to oscillate vertically and engaging at one end another of said cams, a presser-tool H³ supported over said work-support and connected with said lever H to oscillate therewith, a lever M fulcrumed to oscillate vertically and engaging at one end another of said cams, a beader or crimper N, having a yoke-shaped head A' and supported on the opposite end of said lever M adjacent to said former or anvil I', substantially as described.

14. In a machine for applying reinforcing material to insoles, the combination with the frame, of a work-support, a rotary drive-shaft carrying cams, a lever I fulcrumed to vibrate horizontally and engaging at one end one of said cams, a former or anvil I' supported on the opposite end of said lever to extend over said work-support, a cutter L adjacent to said former or anvil, a lever H fulcrumed to oscillate vertically and engaging at one end another of said cams, a presser-tool H³ supported over said work-support and connected with the lever H to oscillate therewith, a lever M fulcrumed to oscillate vertically and engaging at one end another of said cams, a beader or crimper N on the opposite end of said lever M adjacent to said former or anvil I', and a cutter O on the lever M, substantially as described.

15. In a machine for applying reinforcing material to insoles, the combination with a frame A, of a work-support F on a spring-controlled frame E, a drive-shaft C carrying a pulley C^5 having formed on one face a cam-groove D, and a cam-drum having formed on its outer faces, respectively, the cam-grooves D' and D^2 and a cam-groove D^3, a longitudinally-reciprocating shaft F, a lever G fulcrumed to engage at one end the cam D, and carrying at its opposite end a cam G^2 in engagement with a roll d' on the shaft F, a lever I fulcrumed to vibrate horizontally and engaging at one end the cam D^3, a former or anvil I' supported on the opposite end of the lever I, a cutter L adjacent to said former or anvil, a lever H fulcrumed to engage at one end the cam D' and carrying at its opposite end a sleeve m surrounding the shaft F, a collar m' surrounding said sleeve and carrying a head H^2 supporting the presser-tool H^3, a lever M fulcrumed to engage at one end the cam D^2, and carrying at its opposite end the beader or crimper N, and a cutter o on said lever M, the whole being constructed and arranged to operate substantially as described.

16. In a machine for applying reinforcing material to insoles, the combination with a work-support, of bead-forming tools and mechanism to actuate said tools to cause them to form a bead or crimp in said reinforcing material, substantially as described.

17. In a machine for applying reinforcing material to insoles, the combination with a work-support, of work-feeding and bead-forming tools, and actuating mechanism therefor, adapted to feed the work and form a bead or crimp in the reinforcing material, substantially as described.

18. In a machine for applying reinforcing material to insoles, the combination with bead-forming mechanism for forming the bead or crimp in the reinforcing material, of edge-trimming mechanism for trimming the edge of said reinforcing material, substantially as described.

19. In a machine for applying reinforcing material to insoles, the combination with a work-support, of bead-forming mechanism, acting to form a bead or crimp in the reinforcing material, and to secure said reinforcing material to an insole, substantially as described.

20. In a machine for applying reinforcing material to insoles, the combination with a work-support, of bead-forming mechanism, operating automatically to form a bead or crimp in the insole-reinforcing material, substantially as described.

21. In a machine for applying reinforcing material to insoles, mechanism operating automatically to form a bead or crimp in said reinforcing material, and to secure said reinforcing material to an insole, substantially as described.

22. In a machine for applying reinforcing material to insoles, the combination with a vibrating anvil or former arranged to project under the edge of the reinforcing material, of a presser-tool and means to impart a simultaneous lateral movement to the anvil or former and the presser-tool, substantially as described.

23. In a machine for applying reinforcing material to insoles, the combination with an anvil or former and a beading or crimping tool, of a presser-tool, means to move said tool toward and from the work, and means to laterally reciprocate said tool in the direction of the feed of the work, substantially as described.

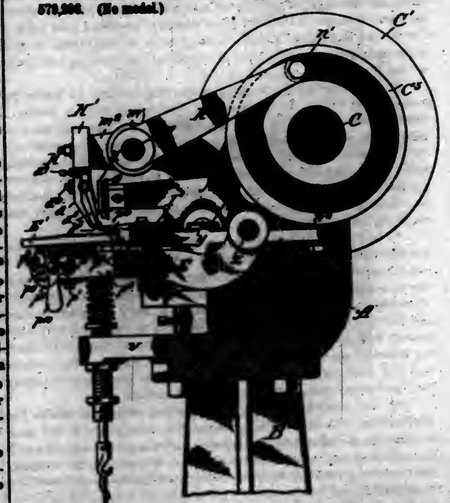
24. In a machine for applying reinforcing material to insoles, the combination with a beading or crimping tool, of an anvil or former arranged to project beneath the reinforcing material, and to engage and feed the work, and means to actuate said anvil or former, substantially as described.

25. In a machine for applying reinforcing material to insoles, the combination with a beading or crimping tool, of an anvil or former having a bead-molding head and a shoulder to bear against the lip of the insole, substantially as described.

26. In a machine for applying reinforcing material to insoles, the combination with a beading or crimping tool, of an anvil or former having a bead-molding head projected therefrom, substantially as described.

27. In a machine for applying reinforcing material to insoles, the combination with a beading or crimping tool, of an anvil or former having a bead-molding head and a finger projecting laterally from said head, substantially as described.

608,764. INSOLE-REINFORCING MACHINE. JOHN R. HADAWAY, Brockton, Mass., assignor, by mesne assignments, to the Gem Flexible Insole Company, of Maine. Filed Feb. 14, 1898. Serial No. 670,208. (No model.)



Claim.—1. In a machine for applying reinforcing material to insoles, the combination of a rotating work-support having circular and radial grooves crossing each other upon its surface, an anvil or former to sustain the free edge portion of the reinforcing material on the insole, a beading or crimping tool cooperating with said anvil or former to bead or crimp the said reinforcing material, and means for actuating said tool, substantially as described.

2. In a machine for applying reinforcing material to insoles the combination with a work-support, of an anvil or former, an oscillatory presser-tool, and a spring-controlled auxiliary pressing and smoothing tool, cooperating with said anvil or former, a reciprocating beading or crimping tool, also cooperating with said anvil or former to bead or crimp the said reinforcing material, and means for actuating the presser-tool and beading and crimping tools, substantially as described.

3. In a machine for applying reinforcing material to insoles, the combination with a work-support, of an anvil or former, an oscillatory presser-tool having a bent finger, and a spring-controlled auxiliary pressing and smoothing tool pivotally supported on said presser-tool, said presser-tool cooperating with said anvil or former, a reciprocating beading or crimping tool also cooperating with said anvil or former to bead or crimp the said reinforcing material, and means for actuating the presser-tool and beading or crimping tool, substantially as described.

4. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a vibratory anvil or former, an oscillatory presser-tool comprising a bent finger d adjustably secured upon its oscillatory support and carrying a set-screw d^7, an auxiliary pressing and smoothing tool d^3 pivotally supported on a head d^5 carried by a set-screw d^4 in a slot in said presser-tool and a spring d^6 engaging the set-screw d^7, said presser-tool cooperating with said anvil or former, a reciprocating beading or crimping tool cooperating with said anvil or former to bead or crimp the said reinforcing

material, and means for actuating the presser-tool, and beading or crimping tools, substantially as described.

5. In a machine for applying reinforcing material to insoles, the combination with a work-support, a former or anvil, a beading or crimping tool, and a presser-tool to bear against the inner side of the lip on the insole, of a gage device independent of the former or anvil arranged to bear against the edge of the insole, and adjustable to force the insole in opposition to said presser-tool, substantially as and for the purpose set forth.

6. In a machine for applying reinforcing material to insoles, the combination with a work-support and a presser-tool to bear against the inner side of the lip of an insole, of a gage device adjustably supported to bear against the edge of the insole and having an operating-lever for moving it to force the insole in opposition to said presser-tool, and an adjustable abutment for the lever, substantially as and for the purpose set forth.

7. In a machine for applying reinforcing material to insoles, the combination with a work-table on a yielding support, and a presser-tool to bear against the inner side of the lip of an insole, of a gage device P comprising a slide p adjustably confined in a recess in said support and carrying a roller p', and a finger p^4 to extend over said table and bear against the edge of said insole, a plate p^2 for confining said arm in place and having an extension p^3 provided with holes p^5 for the adjustment of a stud p^6 and a lever p^{10} fulcrumed on said plate and having a slotted head p^{11} engaging said roller, substantially as and for the purpose set forth.

8. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a vibratory anvil or former, a lower cutter adjacent to and extended beneath the said anvil or former, an oscillatory vibrating presser-tool coöperating with said anvil or former to hold and feed the work, a beading or crimping tool coöperating with said anvil or former to bead the said reinforcing material, an upper cutter, and means for actuating the beading or crimping tool, upper cutter, presser-tool and anvil or former, substantially as described.

9. In a machine for applying reinforcing material to insoles, the combination with a work-support, of a vibratory anvil or former I' cut out on its under side, a lower cutter L having a head l^3 and supported to extend said head under the said anvil or former, an oscillatory vibrating presser-tool coöperating with said anvil or former to hold and feed the work, a reciprocating beading or crimping tool coöperating with said anvil or former to bead or crimp the said reinforcing material, an upper cutter, and means for actuating the presser-tool and anvil or former alternately with the beading or crimping tool, and upper cutter, substantially as described.

10. In a machine for applying reinforcing material to insoles, the combination with bead-forming mechanism arranged to form a bead or crimp in the reinforcing material, of a presser-tool, and an auxiliary pressing and smoothing tool to press and smooth the reinforcing material to cause it to lie smoothly upon the insole, substantially as described.

11. In a machine for applying reinforcing material to insoles, the combination with an anvil or former and the bead-forming tool, of a presser-tool and an auxiliary pressing and smoothing tool, substantially as described.

12. In a machine for applying reinforcing material to insoles, the combination with an anvil or former and the bead-forming tool, of a presser-tool and a yielding auxiliary pressing and smoothing tool, substantially as described.

13. In a machine for applying reinforcing material to insoles, the combination with a presser-tool and an anvil or former, of a beading and crimping tool and an auxiliary pressing and smoothing tool carried by the presser-tool, substantially as described.

14. In a machine for applying reinforcing material to insoles, the combination with the bead-forming tool, of a presser-tool, and a pressing and smoothing tool arranged to have a movement toward the work with the presser-tool and a movement across the work independent of said tool, substantially as described.

15. In a machine for applying reinforcing material to insoles, the combination with bead-forming mechanism comprising an anvil or former, adapted to form a bead or crimp in the reinforcing material, of a movable guide or gage to position the work relatively to such anvil or former, substantially as described.

608,765. PHOTOGRAPHIC RETOUCHING-TABLE. WILLIAM H. HARDING, South Framingham, Mass. Filed Dec 6, 1897. Serial No. 660,899. (No model.)

Claim.—1. In a negative-retouching apparatus, a movable frame, as B, means to support it, a mirror pivotally mounted with relation to said frame and a support mounted upon said pivoted frame, said support containing movable slides having notched or cut-away ends and adapted to overlap one the other, the adjustment of said movable slides controlling the light-opening between them, and a hinged screen mounted upon said support, substantially as described.

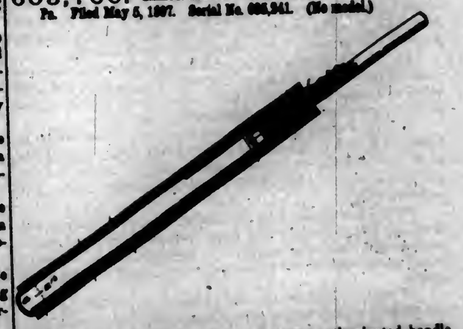


2. A table having an opening cut in its top, a frame pivoted at one end below said top and having pivoted within it a mirror-frame, combined with a support having movable slides adapted by their change of position to make a larger or smaller space as f, and a screen connected with said support, the said frame, support and screen when folded up entering the space in the table and being held concealed in the table-frame with the exception of the screen, substantially as described.

3. A pivoted frame, as B, having a mirror pivotally mounted within it, and a support hinged to said movable frame, and provided with movable slides notched at their edges, as at f', f^3, to leave a space between them, a rest for a negative, a screen, and means to adjust said support into any desired position with relation to said frame and to adjust the screen with relation to said support, substantially as described.

4. In a negative-retouching frame, a support made as a frame having slotted side bars and provided with glass at its center, combined with notched sliding plates overlapping one the other and adapted to be slid transversely in said support to thereby control the size of the space presented between said sliding plates for the passage of light through said support, substantially as described.

608,766. RAZOR-STROP. THOMAS G. HOLLAND, Philadelphia, Pa. Filed May 5, 1897. Serial No. 634,541. (No model.)



Claim.—1. A razor-strop having a permanently-pivoted handle movable laterally and longitudinally of the strop-body, substantially as described.

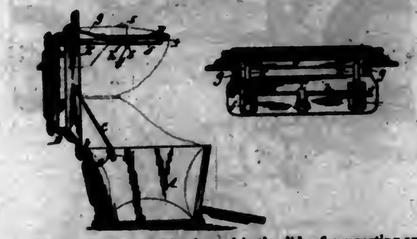
2. A razor-strop having its body portion provided with a recess, in combination with a permanently-pivoted handle adapted to be moved into engagement with the recess and to be held firmly in place therein by frictional contact with the walls of the recess substantially as described.

3. A razor-strop comprising a back and a front plate each provided with a suitable stropping-surface, cleats secured to the back plate, a handle provided with a slotted plate, and a rivet for holding the back and front plates assembled and passing through the slot of the handle-plate, substantially as and for the purpose specified.

4. A razor-strop comprising a rigid back plate and a resilient front plate, the two plates being provided each with a suitable stropping-surface, one end of the front plate being bent to form a flange by which it is secured to the back plate, a rivet securing the other end of the face-plate and back plate together, cleats secured to the back plate, and a handle provided with a slotted plate, the plate being held against separation from the strop-body by the said rivet, substantially as described.

5. A razor-strop, comprising a front and a back plate, cleats secured to the back plate, a rivet for holding the front and back plates assembled, said rivet being located adjacent to the inner ends of the cleats, thereby leaving a clear space between the cleats and the face-plate, a reinforcing-plate secured to the cleats beneath the face-plate, a handle having a slotted plate held in place by the said rivet, the handle being adapted to be pushed between the cleats, whereby to be held firmly in place for use, substantially as described.

608,767. BURIAL-CASKET. JOSEPH JAEHN and EDWARD HARNY, Buffalo, N. Y. Filed Feb. 16, 1898. Serial No. 670,507. (No model.)



Claim.—1. The combination with the lid, of supporting-arms hinged or pivoted to the under side thereof, a canopy mounted on said arms and capable of sliding on the same toward and from the lid, and a supporting device extending from the projected canopy upwardly to the lid, substantially as set forth.

2. The combination with the lid, of supporting-arms hinged or pivoted to the under side thereof, a canopy mounted on said arms and capable of sliding on the same toward and from the lid, a supporting device extending from the projected canopy upwardly to the lid, and a locking device whereby the canopy is interlocked with the supporting-arms when projected, substantially as set forth.

3. The combination with the lid, of supporting-arms hinged or pivoted to the under side thereof, a canopy provided with slideways in which said arms engage, spring locking-bolts mounted on the canopy and adapted to engage with said arms when the canopy is projected, and a supporting device which extends from the projected canopy upwardly to the lid, substantially as set forth.

608,768. MOISTENING DEVICE. JULIUS J. KAEMER, Kansas City, Mo. Filed Mar. 5, 1897. Serial No. 626,120. (No model.)



Claim.—1. In a moistening device, the combination with a cushioned pad, of a non-absorbent covering for the pad, and a filamentous device of absorbent material upon the said covering, there being a liquid-supply below the pad with which the filamentous device has communication, substantially as described.

2. In a moistening device, the combination with a cushioned pad, of a non-absorbent covering for the pad, there being a liquid-supply below the pad, and a cloth strip upon the covering and communicating with the liquid-supply, substantially as described.

3. In a moistening device, the combination with a suitable receptacle adapted to contain a liquid-supply, of a cushioned support having a non-absorbent covering and located within the receptacle, and a filamentous device upon the support and extending below the same, substantially as described.

4. In a moistening device, the combination with a suitable receptacle adapted to contain a liquid-supply, of a cushioned support having a non-absorbent covering and located within the receptacle, and a cloth strip upon the support and extending below the same, substantially as described.

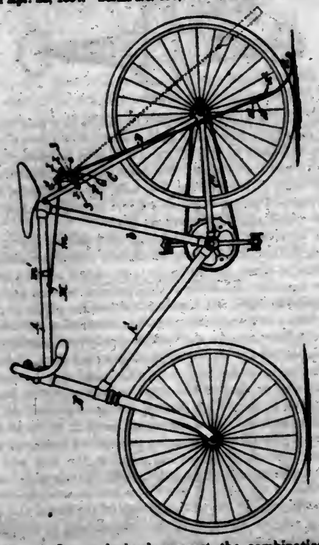
5. In a moistening device, the combination with a support of non-absorbent material, of a filamentous absorbent covering for the support, a non-absorbent plate upon the said covering, a filamentous covering for the said plate and an absorbent connection between the two coverings, substantially as described.

6. In a moistening device, the combination with a support of non-absorbent material, of a filamentous absorbent covering for the support, a non-absorbent plate upon the said covering, a filamentous covering for the said plate and means for conveying moisture from one covering to the other, substantially as described.

7. In a moistening device, the combination with a non-absorbent support, of an absorbent covering for the same, a plate having a foraminated upper surface upon the said covering, an absorbent covering for the said plate, and means for conveying moisture from one covering to the other, substantially as described.

8. In a moistening device, the combination with a non-absorbent support, of an absorbent covering for the same, a curved plate upon the said covering, an absorbent covering for the said plate, and means for conveying moisture from one covering to the other, substantially as described.

608,769. BICYCLE-SUPPORT. MICHAEL KELLY, Buffalo, N. Y. Filed Apr. 23, 1897. Serial No. 633,371. (No model.)



Claim.—1. In a velocipede-support, the combination with the supporting-leg adapted to be movably connected with a velocipede-frame, of a bearing-shoe pivoted on said leg and provided with a locking-arm, and a locking-sleeve sliding on said leg and adapted to engage with said arm, substantially as set forth.

2. In a velocipede-support, the combination with the supporting-leg adapted to be movably connected with a velocipede-frame, of a bearing-shoe pivoted to said leg and provided on opposite sides of its pivot with locking-arms, and a locking-sleeve sliding on said leg and adapted to engage with either of said locking-arms, substantially as set forth.

3. In a velocipede-support, the combination with a rock-shaft adapted to be mounted on a velocipede-frame, of a spindle journaled transversely on said shaft, a supporting-leg journaled in said spindle so as to turn at an angle to the axis of the spindle and a laterally-projecting shoe arranged on the supporting-leg, substantially as set forth.

4. In a velocipede-support, the combination with a rock-shaft adapted to be mounted on a velocipede-frame, of a spindle journaled transversely on said shaft, a supporting-leg journaled in said spindle so as to turn at an angle to the axis of the spindle, a laterally-projecting shoe arranged at the lower end of the supporting-leg, a flat-sided arm arranged at the upper end of the supporting-leg, and a cam with which said arm engages, substantially as set forth.

5. In a velocipede-support, the combination with the supporting-legs, of transverse rock-shafts carrying said legs, bearings in which said shafts are journaled and which are adapted to be mounted on a velocipede-frame, and a coupling which connects the adjacent ends of the rock-shafts but permits each shaft to turn independent of the other, substantially as set forth.

6. In a velocipede-support, the combination with the supporting-legs, of transverse rock-shafts carrying said legs, bearings in which said shafts are journaled and which are adapted to be mounted on a velocipede-frame, and a rock-arm pivoted concentric with the shafts but loosely connected therewith, substantially as set forth.

7. In a velocipede-support, the combination with the bearings adapted to be mounted on a velocipede-frame, of hollow transverse

rock-shafts journaled in said bearings and having their abutting inner ends provided with external annular flanges and with segmental recesses, supporting-legs arranged on the outer ends of the rock-shafts, a coupling-sleeve provided with internal shoulders which bear against the outer sides of the flanges of the rock-shafts, an arbor arranged with its ends in the inner ends of the hollow rock-shafts, and a rock-arm arranged in the recesses of both rock-shafts and in an opening in the coupling-sleeve and secured with its inner end to said arbor, substantially as set forth.

608,770. WATER-WHEEL. AUGUSTUS KENNEY, Los Angeles, Cal., assignor of one-half to John R. Wilson, same place. Filed Mar. 9, 1897. Serial No. 626,626. (No model.)



Claim.—1. A water-wheel body consisting of a pair of convex or conical plates, the hub and rings to which such convex or conical plates are attached by rivets, the said convex or conical plates approaching toward or touching each other at their circumferences, and having notches or recesses cut into said circumferences, each such notch or recess forming a seat or support for each bucket or cup of the water-wheel, substantially as set forth.

2. A water-wheel body consisting of a pair of convex or conical plates, the hub and rings to which such convex or conical plates are attached by rivets, the said convex or conical plates approaching toward or touching each other at their peripheries, and having a ring riveted between them, the edges of such conical plates or disks and the ring between them having recesses or notches cut into each of them to constitute seats for the buckets or cups, substantially as hereinbefore described and shown upon the annexed sheet of drawings.

3. The improved buckets or cups for water-wheels, consisting of a cup-body into or against the front portion of which each jet of water impacts, or pair of jets impact, and having a pair of wings or lugs reaching backward from the impact portions which bind or support the rim of the wheel, also having two curved discharge-passages, one on each side of the rim of the wheel at the rear part of each bucket, the said buckets being attached by the wings or lugs to the circumference of the body of the wheel and so as to fit into the recesses or seats cut into the circumference of the wheel and attached outside the convex disks or plates, substantially as described and shown upon the annexed drawings.

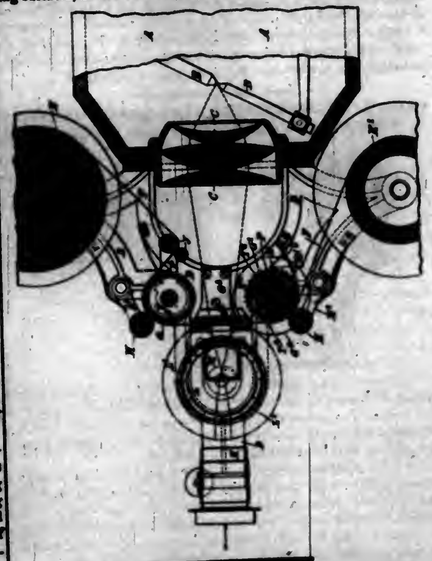
4. The improved water-wheel consisting of the combination of a pair of convex or conical circular plates, the hub to which said conical or circular plates are riveted, the ring between the plates at their circumferential portions, the recesses constituting seats in the circumference of the wheel for receiving the rear portions of the buckets, the wings or lugs on the said buckets whereby the buckets are attached by rivets to the body of the wheel, the buckets being constructed with the blade or fin like portion at the center of the back and with the double discharge at the back or sides thereof, all operating together in the manner and for the purposes substantially as set forth.

608,771. PROJECTING KINETOSCOPE. JOHN H. MACKENZIE, Jr., London, England. Filed Apr. 17, 1897. Serial No. 632,611. (No model.)

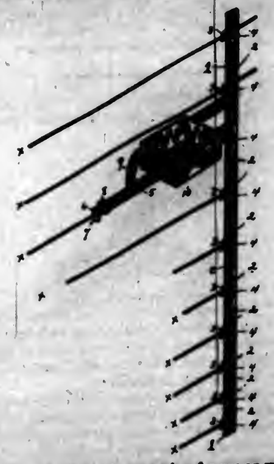
Claim.—1. Apparatus for securing, or for exhibiting in series, records of successive phases of movement, consisting of a body, of the nature of a magic lantern, a condenser, an objective, and a source of light, a series of transparent pictures, means for giving a continuous movement to the pictures, a series of continuously-moving refracting-surfaces, means for moving the same simultaneously with the pictures, and a series of fixed lenses, all substantially as and for the purpose set forth.

2. In an apparatus for producing the effect of what are termed "animated pictures," the combination of a series of pictures and means for continuously moving the same, with a rotary prism of refractive material and means for rotating the same to correspond with the movement of the film substantially as herein described, whereby there are presented to each successive picture a pair of oppositely-refracting surfaces whose inclination to the plane of the film varies in accordance with the various positions of the picture as herein set forth.

3. In apparatus for producing the effect of what are termed "moving pictures" in which a film or moving series of transparent pictures, a stationary objective and a moving series of refracting-surfaces between the objective and the condenser are employed, the combination with the film or series of pictures and means for carrying the same, of means for moving the film and the refracting-surfaces simultaneously and means for moving the film independently of the refracting-surfaces, as and for the purpose herein set forth.



608,772. SPACER-BAR FOR WIRE FENCES. GEORGE H. HILLIS, Norwalk, Ohio. Filed Jan. 10, 1898. Serial No. 666,166. (No model.)



Claim.—1. An adjustable spacer-bar for use on wire fences, consisting of a perforated vertical bar provided with a number of hooks, a horizontal arm having a bifurcated end and held on said bar, combined with a catch on said arm; substantially as described.

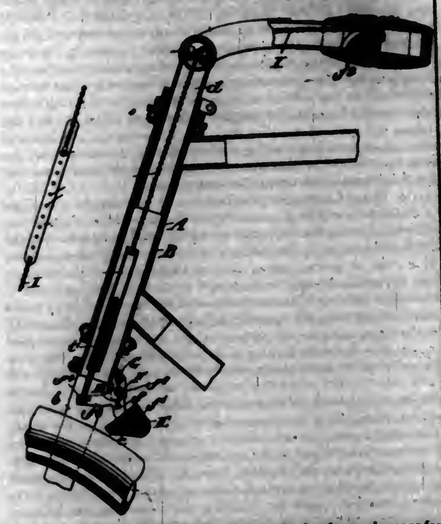
2. An adjustable spacer-bar for use on wire fences, consisting of a perforated vertical bar provided with a number of hooks adjusted as described, a horizontal arm having a bifurcated end and held on said bar, combined with a pivoted catch and a brace; substantially as described.

608,773. DRESS-SHIELD ATTACHMENT. FRANK H. MITCHELL, New York, N. Y., assignor of one-third to Charles T. Rost, East Orange, and Charles G. Phillips, Montclair, N. J. Filed July 15, 1897. Serial No. 644,691. (No model.)

Claim.—An attachment for dress-shields consisting of two separable members one comprising two flexibly-connected jaws in the exteriors of which are indentations and the other comprising a spring-clasp having its ends turned inwardly to enter the said indentations, the said jaws being further provided with external projections at the ends of the indentations for preventing the accidental longitudinal displacement of the two members relatively to each other, substantially set forth.

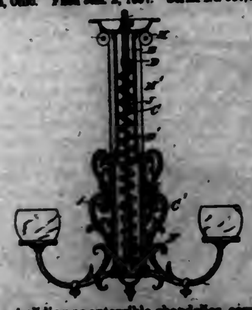


608,774. BICYCLE-BRAKE. CHARLES HEILENTHAL, New York, N. Y. Filed Aug. 17, 1897. Serial No. 648,512. (No model.)



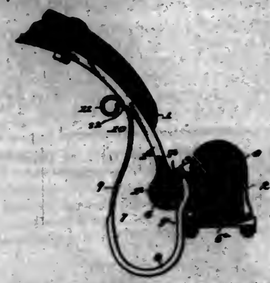
Claim.—A bicycle-brake comprising a brake-shoe and means for operating it consisting of a grip composed of two sections, one being mounted permanently upon the handle and the other being hinged to the permanent section and normally in line therewith, the said hinged section being connected with the brake-shoe, whereby, as the section is rocked, the shoe will be operated, substantially as set forth.

608,775. EXTENSION GAS-CHANDELIER. JAMES T. REES, Cleveland, Ohio. Filed Jan. 2, 1897. Serial No. 617,713. (No model.)



Claim.—A sliding or extensible chandelier, comprising a supply-pipe and upper stationary casing surrounding said supply-pipe, a delivery-pipe connected centrally to a lower movable casing and depending therefrom, a coiled flexible pipe connected at one end to the supply-pipe and at the other end to the delivery-pipe, and rods projecting from said supply and delivery pipes, around which the coils of the flexible pipes are coiled so that said rods serve as guides for said flexible pipe, substantially as shown and described.

608,776. COMBINED THILL-SUPPORT AND ANTIRATTLER. JOSEPH SHEFFER, Rensselaer, N. Y. Filed June 20, 1897. Serial No. 642,262. (No model.)



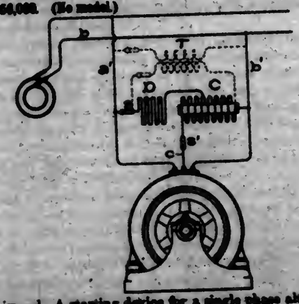
Claim.—In shaft attachments, the combination with the fore axle and shaft, of a coupling comprising a clip 4 engaging the axle and provided with the forwardly-projecting arms 5 and bottom clamping-plate 5ª, a shaft-iron having an eye swiveled to the arms 5 and a guide-loop 12, and a combined antirattler and shaft-support 7 comprising a strip of spring metal having a U-shaped body portion 8 provided with a straight limb 8ª bearing against the clamping-plate 5ª and having a segmental extremity 8ᵇ bearing against the shaft-iron eye and clamped thereby against the clip, and a curved limb 9 extended to form a spring-arm 10 having its free end projecting through the guide-loop 12 and formed with a stop-coil 11, substantially as described.

608,777. MEANS FOR CARRYING VELOCIPEDES IN RAILWAY-CARS. FREDERIC H. SERINE, London, England. Filed Nov. 19, 1897. Serial No. 658,186. (No model.)



Claim.—The means for carrying and protecting velocipedes in railway-cars, consisting in the combination of bars, rods or fillets placed on the floor of the car to receive the wheels, attaching devices on the walls of the car, covers for the velocipedes provided with openings, and cords passing through the velocipedes and through the openings in their covers and attached to said devices for at the same time securing the velocipedes in place and securing the covers thereon, all substantially as herein described.

608,778. STARTING DEVICE. JOSEPH P. STORK, Schenectady, N. Y., and SAMUEL R. BOARD, Marlborough, Mass., assignors to the General Electric Company, of New York. Filed Oct. 23, 1897. Serial No. 656,002. (No model.)



Claim.—1. A starting device for a single phase alternating-current motor, comprising two phase-displacing devices in series across the mains, and in shunt to the motor, one of the phase-displacing devices consisting of a step-up transforming device designed to deliver from a point between the phase-displacing devices to a third terminal of the motor a higher than normal voltage.

2. In combination, a motor having three terminals, two of which are connected to a source of single-phase current directly or induct-

ively, and the third terminal of which is connected to the mains through phase-displacing devices consisting of a resistance and step-up transformer in series across the mains, the third terminal of the motor being connected between the phase-displacing devices.

3. As a means of starting a single-phase alternating-current motor, a resistance and a compensator in series across the main circuit, the resistance being connected at one end to one side of the main circuit and at the other end to an intermediate point of the compensator, the latter being connected at one end to the other side of the circuit and at the other end to the third terminal of the motor.

608,779. RAIL-JOINT. JAMES WATLAND, Newark, N. J. Filed Jan. 22, 1898. Serial No. 667,540. (No model.)



Claim.—1. A bed-plate for an insulated rail-joint having a plane floor, vertical longitudinal side ribs of different height integral therewith and projecting lateral flanges notched to receive spikes, an insulating-shim confined between the ribs, and a coupling-block bearing on the shim and overlapping the low rib.

2. A reversible insulating-shim for a rail-joint having secured in one end of the same one or more metal blocks to receive the impact of a train, whereby the shim and blocks may be handled as a single piece.

3. An insulating-shim for a rail-joint having mounted in or secured thereto one or more metal blocks, and provided with means for locking it to a bed-plate symmetrically placed with respect to its ends whereby it may be reversed end for end for the purpose described.

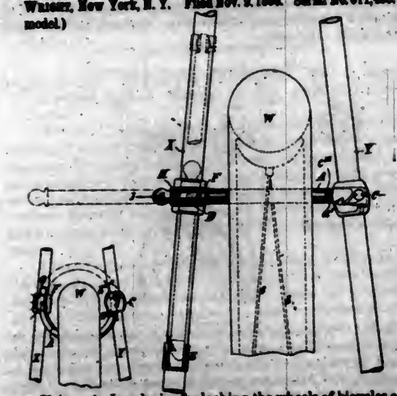
4. In an insulated railway-joint the combination of a bed-plate provided with ribs at its sides, bolt-holes symmetrically placed with respect to its ends, and a reversible shim having one or more metal blocks at one end and bolt-holes to register with those of the bed-plate.

5. An insulated railway-joint comprising a bed-plate with vertical ribs at its sides of unequal height, a reversible shim having one or more blocks in one end thereof, and coupling-blocks at the sides of the rail ends bolted together and to the bed-plate, one of said blocks resting on the lower rib and removable therefrom, the other block bearing against the high rib.

6. In an insulated rail-joint the combination of a bed-plate spanning adjacent cross-ties and provided with notched edges and vertical side ribs, a reversible shim held against lateral displacement by the side ribs, coupling-blocks at the sides of the rails, vertical bolts passing through one of the coupling-blocks, the shim and bed-plate, and horizontal bolts passing through the rail and coupling-blocks.

7. A railway-joint comprising a bed-plate and an insulating-shim of substantially the length of the floor of the bed-plate having metal blocks therein at a point between its ends.

608,780. LOCKING DEVICE FOR BICYCLES. FRANCIS H. WRIGHT, New York, N. Y. Filed Nov. 9, 1896. Serial No. 611,495. (No model.)



Claim.—1. In a device for locking the wheels of bicycles or other vehicles, the combination of a lock-bar as A, a pivoted sleeve, as B, open at both ends, through which the bar passes and projects and is free to be drawn backward and forward from either end, secured at one side of the wheel, and a lock-box, as C, secured at the opposite side of the wheel, containing locking devices which are adapted to engage the end of the lock-bar when inserted in the box and hold the same so that it cannot be withdrawn until released from the locking devices by means of a key or other equivalent device as above described, substantially as set forth and described.

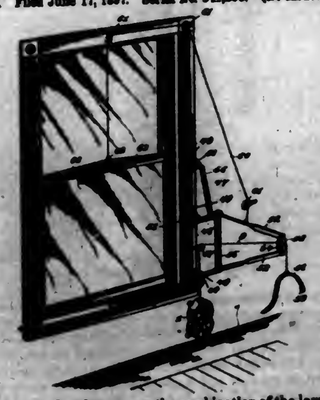
2. In a device for locking the wheels of bicycles and other vehicles, the combination of a lock-bar as A, a pivoted sleeve, as B, open at both ends, through which the bar passes and projects and is free to be drawn backward and forward from either end, a lock-box, as C, containing locking devices which are adapted to engage the end of the lock-bar when inserted in the box and hold the same so that it cannot be withdrawn until released from the locking devices by means of a key or other equivalent device as above described, and means for attaching the sleeve and the lock-box respectively to the frame or other parts of the bicycle or vehicle, substantially as set forth.

3. Means for attaching the sleeve to the frame or other part of the bicycle or vehicle; consisting in the combination of a base to which the sleeve is secured by means of a pivot passing through the wall of the sleeve and a spring-collar partially encircling the frame or other part of the bicycle or vehicle and secured to the base by a tongue-and-groove joint and by a screw or screws passing through the base into the collar, arranged and adapted so that the hollow sleeve which is pivoted to the base and through which the lock-bar passes will cover the head of the screw whenever the lock-bar is in the locked position and will uncover the head of the screw when the lock-bar is in the unlocked position, substantially in the manner and for the purposes above described and set forth.

4. Means for attaching the lock-box to the frame or other part of the bicycle or vehicle; consisting in the combination of a lock-box with a projecting shoulder, and a spring-collar partially encircling the frame and secured to the lock-box by a tongue-and-groove joint and by a screw or screws passing through the shoulder of the lock-box into the collar, arranged and adapted so that the lock-bar when in the locked position will cover the head of the screw and when in the unlocked position, will uncover the head of the screw, substantially in the manner and for the purposes above described and set forth.

5. In a device for locking the wheels of bicycles and other similar vehicles, the combination of a lock-bar, a pivoted sleeve open at both ends through which the bar passes and projects and is free to be drawn backward and forward from either end, secured at one side of the wheel, a lock-box, secured at the opposite side of the wheel, containing locking devices which are adapted to engage the end of a lock-bar when inserted in the box and hold the same so that it cannot be withdrawn until released from the locking devices by means of a key or other equivalent device as above described, and the above-described means for attaching the sleeve and the lock-box respectively to the frame, adapted and operating to cover and lock the devices by which the sleeve and lock-box respectively are attached to the frame so that they cannot be removed from the frame whenever the lock-bar is in the locked position, and to expose the attaching devices so that they can be removed from the frame whenever the lock-bar is in the unlocked position, substantially in the manner and for the purposes above described and set forth.

608,781. FIRE-ESCAPE. WILLIAM H. ANDERSON, Frewsburg, N. Y. Filed June 17, 1897. Serial No. 641,200. (No model.)



Claim.—1. In a fire-escape, the combination of the lowering rope or cable and a reel therefor located to the inside of the window, a swinging bracket mounted to the inside of the window and swinging on a vertical axis, said bracket being provided with a vertically-arranged hinge-joint and adapted to fold upon itself, whereby the bracket may be swung around the window-casing so as to project outwardly beyond the same, a guide mounted on the end of said bracket and over which said rope or cable is passed, and a vertically-arranged antifriction-roller having its axis coincident with the axis of said hinge-joint of the bracket, substantially as and for the purpose set forth.

2. In a fire-escape, the combination of the lowering rope or cable, a swinging bracket provided with a guide over which said rope or cable is passed, said bracket being mounted upon a stationary support to the inside of the window and normally swung inwardly out of the way, a flexible connection attached by its respective ends to the lower window-sash and to the swinging bracket and one or more guides over which said connection passes between its points of attachment, whereby the said flexible connection serves as a stay for the swinging bracket when the latter is swung into position out of the window, substantially as and for the purpose set forth.

3. In a fire-escape, the combination of the lowering rope or cable and a reel therefor, a brake-shoe for said reel, a pivoted arm and a pivotal link connecting said arm and shoe, a lever connected with said pivotal arm and engaging with and actuated by said lowering-rope, and a spring for returning said parts to their normal positions after the brake-shoe has been applied, substantially as and for the purpose set forth.

4. In a fire-escape, the combination of the lowering rope or cable and a reel therefor, a brake-shoe for said reel, a pivoted arm and a pivotal link connecting said arm and shoe, the said arm and link being adjustably connected with each other to vary the leverage, a lever connected with said pivotal arm and engaging with and actuated by said lowering-rope, and a spring for returning said parts to their normal positions after the brake-shoe has been applied, substantially as and for the purpose set forth.

5. The combination of a wheel and a sectional brake-shoe provided with arc-shaped sections loosely attached to each other by a link and having an interposed spring, an operating-bar for the brake-shoe and a lowering-rope engaging with and actuating said bar, one of said brake-shoe sections being pivoted to a stationary point and the other being pivoted to the operating-bar, substantially as and for the purpose set forth.

6. In a fire-escape, the combination of the lowering rope or cable and a reel therefor, a brake-shoe comprising independent sections yieldingly connected together, a brake-lever engaging with and actuated by said rope and connections between said lever and one of the brake-shoe sections, the other of said brake-shoe sections being pivotally mounted on a stationary point, substantially as and for the purpose set forth.

7. In a fire-escape, the combination of a lowering rope or cable and a reel therefor, a brake-shoe for the reel actuated by the tension of the lowering-rope, a lever engaging with and actuated by said lowering-rope and connections between said lever and brake-shoe, and adjustable means for regulating the range of movement of the lever to regulate the power with which the brake-shoe is applied in accordance with the tension on the rope.

8. In a fire-escape, the combination of a lowering rope or cable and a reel therefor, a brake-shoe, a brake-lever actuated by said rope or cable, and connections between said brake-shoe and lever, and a sliding gage having stepped rests adapted to be engaged by said brake-lever for varying the stroke of said lever and operating means for said gage, substantially as and for the purpose set forth.

9. In a fire-escape, the combination of a lowering rope or cable and a reel therefor, a brake-shoe for the reel actuated by the tension of the lowering-rope, a lever engaging with and actuated by said lowering-rope and connections between said lever and brake-shoe, adjustable means for regulating the range of movement of the lever to regulate the power with which the brake-shoe is applied in accordance with the tension on the rope, and a visual indicator connected with and controlling the movement of said adjustable means and provided with a scale of weights, whereby the setting of the indicator at a certain weight on the scale serves to regulate the range of movement of said lever so as to apply the brake-shoe with a force in accordance with said indicated weight, substantially as and for the purpose set forth.

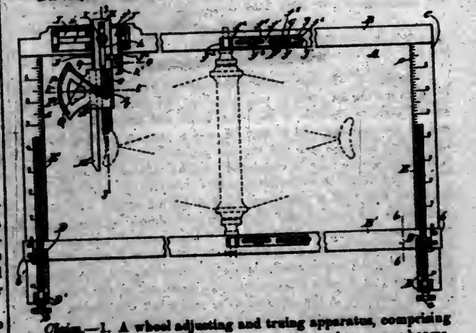
10. In a fire-escape, the combination of a window provided with a movable sash, a swinging fire-escape normally lying within the window and adapted to be swung out through the opening of the window, and connections between said window-sash and fire-escape, whereby upon swinging the latter around to adjust it out of the window, the sash is automatically opened, substantially as and for the purpose set forth.

11. In a fire-escape, the combination of a window provided with a movable sash, a fire-escape provided with a lowering-rope and having a swinging bracket carrying said rope, and connections between said sash and swinging bracket, whereby upon swinging the bracket out of the window to adjust the rope for lowering, said sash is automatically opened, substantially as and for the purpose set forth.

12. In a fire-escape, the combination of a lowering rope or cable and a reel therefor, a fast pinion 38 and loose gear 42 mounted upon the shaft of the reel, idle-gears 39 and 41 connecting said fast pinion and loose gear, whereby the rotation of the one actuates the other, and a spring 44 for rotating the reel backwardly to wind up the rope, said spring being connected with said shaft and loose gear respectively and wound by said loose gear, substantially as and for the purpose set forth.

13. In a fire-escape, the combination of a window provided with a movable sash, an adjustable fire-escape and connections between the same and said window-sash, whereby upon adjusting the fire-escape for use the sash is automatically opened by the adjusting movement, substantially as and for the purpose set forth.

608,782. AUTOMATIC INDICATOR FOR TRUING WHEELS. GEORGE BROWN, Long Island City, N. Y. Filed Feb. 25, 1897. Serial No. 624,712. (No model.)



Claim.—1. A wheel adjusting and truing apparatus, comprising a framework consisting of a longitudinal beam and two cross-beams, and an adjustable beam mounted upon the said cross-beams, said cross-beams having graduations upon the upper surfaces thereof and said longitudinal beams having clamps secured respectively to their upper surfaces, and means for adjusting the movable beam, substantially as shown and described

2. As a wheel adjusting and truing apparatus, the combination of the framework, comprising a longitudinal beam having two cross-beams extended from the ends thereof and an adjustable longitudinal beam mounted upon the said cross-beams, and means for adjusting the movable beam, and oppositely-located clamps comprising sliding plates and converging jaws mounted respectively upon the longitudinal beam of the framework and the adjustable beam and graduated scales upon the cross-beams and an indicator mounted upon the rigid beam of the framework, said indicator having a spring-actuated piston therein with a wheel mounted in its outer end, and said piston connected to a pointer which registers with a protractor, substantially as shown and described.

3. In a wheel adjusting and truing apparatus, the combination of the framework, comprising a longitudinal beam and two oppositely-located beams extended at right angles thereto and having scales marked upon their upper surfaces, and an adjustable beam mounted upon the said beams by means of an adjusting-screw engaging respectively with projections or lugs extended from the movable beam and the cross-beams, and clamps mounted respectively upon the beam of the framework and upon the adjustable beam, said clamps comprising fixed plates and sliding plates and screw for adjusting them, and converging jaws or projections extending from the said plates and an indicator comprising a fixed plate and adjustable plates located at right angles thereto, and means for adjusting the plates; said a box having a spring-actuated piston therein which engages with a needle which registers with a protractor projected from the said box, substantially as shown and described.

4. An automatic indicator adapted for use in connection with a wheel-truing apparatus, comprising a fixed plate having a slot therein, a sliding plate arranged at right angles therewith and an auxiliary slotted plate arranged parallel with the said sliding plate and a screw connecting the parts to each other, the said sliding plate having a scale thereon which registers with a pointer of the auxiliary sliding plate, and a box projected from the auxiliary sliding plate and having a spring-actuated piston engaging therewith, which piston

engages with a forked pointer which registers with a protractor extended from the said box, the said piston having a wheel journaled in the outer end thereof for engagement with the edge of a wheel-rim to be adjusted, the said box also having a removable blade extended therefrom for the purpose of maintaining a wheel in position, substantially as shown and described.

5. A wheel adjusting and truing apparatus, comprising a longitudinal beam having cross-beams extended from each end thereof, and an adjustable beam engaging with the cross-beams, and means for locking the adjustable beam to the cross-beams; in combination with an automatic indicator, mounted upon the said stationary longitudinal beam, comprising a lower plate and an upper slotted plate arranged parallel with each other and means for locking them to each other, the lower plate having a scale thereon which registers with a pointer upon the upper plate, and a box connected to the upper plate and having a spring-actuated piston therein which engages with a needle and has a wheel upon the outer end thereof, and a protractor for registering with the said needle, substantially as shown and described.

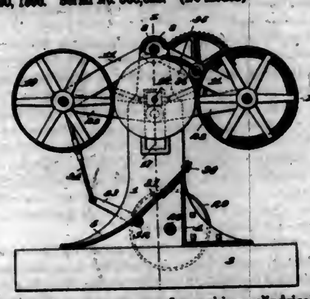
608,783. SASH-HOLDER. HOWARD W. DEHEAN, Bronson, Fla., assignor of one-half to H. Benjamin Lloyd, same place. Filed Dec. 20, 1896. Renewed Aug. 23, 1897. Serial No. 649,242. (No model.)



Claim.—1. The herein-described sash-holder, consisting of a base or plate having an offset or projection on one side, a spring secured to said plate at one side of said offset or rib and projecting at its free end on the opposite side of said rib, and a fastener passing through said spring between one end thereof and said rib, whereby the tension of the spring may be regulated, substantially as described.

2. The herein-described sash-holder, comprising a plate provided upon one side with a transverse rib and having spaced nibs or projections at the ends of said rib forming shoulders for engaging the side edges of a spring, a spring secured at one end of said plate upon one side of said rib and projecting at its free end on the opposite side of said rib, and a screw passing through said spring and into the plate and located at a point intermediate the fixed end of the spring and said rib, whereby in the adjustment of said screw the tension of the spring may be regulated, substantially as described.

608,784. COTTON-PRESS. FRANK L. DYER, Washington, D. C., assignor to the American Cotton Company, New York, N. Y. Filed Feb 20, 1896. Serial No. 580,083. (No model.)



Claim.—1. In a cotton-press for making cylindrical bales, the combination of two baling-rolls, each carried solely in swinging arms pivoted at or near a common point, so that said arms may be swung apart as the bale enlarges and a support for the bale, substantially as set forth.

2. In a cotton-press for making cylindrical bales, the combination of two baling-rolls, each carried solely in swinging arms pivoted at or near a common point, so that said arms may be swung apart as the bale enlarges, a support for the bale and means for driving said baling-rolls, substantially as set forth.

3. In a cotton-press for making cylindrical bales, the combination of two baling-rolls, each carried solely in swinging arms pivoted at or near a common point, so that said arms may be swung apart as the bale enlarges a support for the bale, means for driving said baling-rolls, and means for keeping the faces of said baling-rolls parallel with each other, substantially as set forth.

4. In a cotton-press for making cylindrical bales, the combination of two baling-rolls, each carried solely in swinging arms pivoted at or near a common point, so that said arms may be swung apart as the bale enlarges a support for the bale, means for driving said baling-rolls and means for effecting pressure on said baling-rolls, substantially as set forth.

5. In a cotton-press for making cylindrical bales, the combination of two baling-rolls, each carried solely in swinging arms pivoted at or near a common point, so that said arms may be swung apart as the bale enlarges, means for driving said baling-rolls, and a core mounted between said baling-rolls on which the bale is formed, substantially as set forth.

6. In a cotton-press for making cylindrical bales, the combination of a core on which the bale is formed, a baling-roll normally in substantially the same horizontal plane as the core, two swinging arms pivoted in a plane above the core and carrying said baling-roll at their lower ends, a second baling-roll pressing on the other side of the bale, and means for driving said baling-rolls, substantially as set forth.

7. In a cotton-press for making cylindrical bales, the combination of two baling-rolls arranged in the same horizontal plane, and each carried in swinging arms, a horizontal shaft from which said swinging arms are hung, whereby said swinging arms may be swung apart as the bale enlarges and a support for the bale, substantially as set forth.

8. In a cotton-press for making cylindrical bales, the combination of two baling-rolls arranged in the same horizontal plane, and each carried in swinging arms, a horizontal shaft from which said swinging arms are hung, whereby said swinging arms may be swung apart as the bale enlarges, a support for the bale and means for driving said baling-rolls, substantially as set forth.

9. In a cotton-press for making cylindrical bales, the combination of two baling-rolls arranged in the same horizontal plane, and each carried in swinging arms, a horizontal shaft from which said swinging arms are hung, whereby said swinging arms may be swung apart as the bale enlarges a support for the bale, means for driving said baling-rolls, and means for effecting pressure on said baling-rolls, substantially as set forth.

10. In a cotton-press for making cylindrical bales, the combination of two baling-rolls arranged in the same horizontal plane, and each carried in swinging arms, a horizontal shaft from which said swinging arms are hung, whereby said swinging arms may be swung apart as the bale enlarges, means for driving said baling-rolls, and a core mounted between said baling-rolls and on which the bale is formed, substantially as set forth.

11. In a cotton-press for making cylindrical bales, the combination of two baling-rolls arranged in the same horizontal plane, and each carried in swinging arms, a horizontal shaft from which said swinging arms are hung, whereby said swinging arms may be swung apart as the bale enlarges, means for driving said baling-rolls, a core mounted between said baling-rolls on which the bale is formed, and means for elevating the core as said baling-rolls are moved upward, whereby said core will be always maintained substantially in line with the horizontal axis of the baling-rolls, substantially as set forth.

12. In a horizontal two-roll baling-press, the combination of the two baling-rolls, a core mounted between said baling-rolls and on which the bale is formed, a bar beneath and parallel with said core when the baling-rolls are at their innermost positions, and means for withdrawing said bar as the baling-rolls separate, substantially as set forth.

13. In a horizontal two-roll baling-press, the combination of the roll on which the bat is received, the core, the other roll, a scraper carried upon or adjacent to the latter roll for the purpose mentioned, and means for elevating the scraper as the bale enlarges, substantially as set forth.

14. In a horizontal two-roll baling-press, the combination of the side frames 1, 1, a horizontal bearing 7 at the upper part of each side frame, swinging arms 11 supported by said bearing, baling-rolls carried at the lower ends of said swinging arms a bale-support, a shaft 8 mounted in said bearings, and connections between said shaft and said baling-rolls for driving the latter, substantially as set forth.

15. In a horizontal two-roll baling-press, the combination of the side frames 1, 1, a horizontal bearing 7 at the upper part of each side frame, swinging arms 11 supported by said bearing, baling-rolls carried at the lower ends of said swinging arms a bale-support, a shaft 8 mounted in said bearing, a pinion keyed to said shaft, another pinion loose on said shaft, a clutch 15 for connecting said loose pinion with said shaft, and connections between said pinions and said baling-rolls for driving the latter, substantially as set forth.

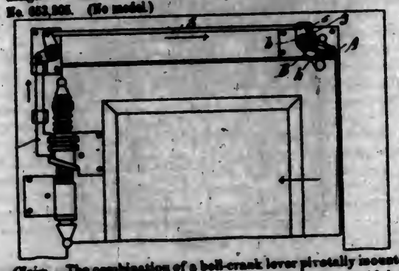
16. In a horizontal two-roll baling-press, the combination of the side frames 1, 1, a horizontal bearing 7 at the upper part of each side frame, swinging arms 11 supported by said bearings, baling-rolls carried at the lower ends of said swinging arms, means for driving said baling-rolls a bale-support, arms 23 connecting with the lower ends of said swinging arms, said arms 23 converging together at their lower end, a rack 25 connected with the lower end of each pair of converging arms 23, a pinion 27 engaging with each of said racks, and a shaft 28 extending across the machine and to which said pinions are keyed, substantially as set forth.

17. In a horizontal two-roll baling-press, the combination of the side frames 1, 1, a horizontal bearing 7 at the upper part of each side frame, swinging arms 11 supported by said bearings, baling-rolls carried at the lower ends of said swinging arms, means for driving said baling-rolls, a bearing-box 18 sliding vertically in each side frame, links 21 connecting said bearing-boxes with the swinging arms 11, and a core-supporting device in each bearing-box, substantially as set forth.

18. In a horizontal two-roll baling-press, the combination of the two baling-rolls, a core mounted between said baling-rolls on which the bale is formed, a plate 31 mounted in the side frames, a bar 30 at the upper end of said plate arranged beneath the core at the starting of the bale, and means for moving said plate 31 so that when the bale is formed, said plate will constitute a guide or chute for receiving the bale, substantially as set forth.

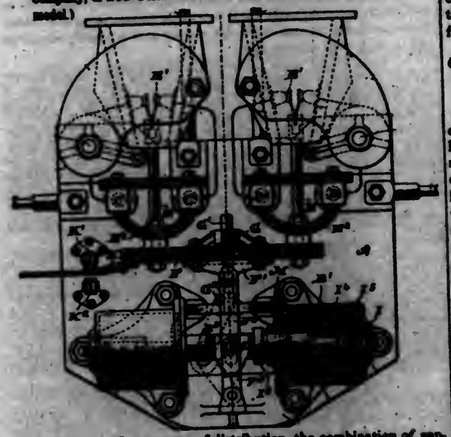
19. In a cotton-press for making cylindrical bales, the combination of a main driving-shaft to which power is applied, a pair of baling-rolls movable toward and away from said shaft for effecting compression of the bale, connections between said driving-shaft and rolls for driving the latter, flanges for the ends of the bales, and connections between the flanges and rolls, whereby the flanges will be movable with the rolls toward and away from said driving-shaft, substantially as set forth.

608,785. DOOR-BUFFER. JULIUS F. PÖSCHEL, Leipsic, Germany, assignor to Emil Oscar Beyer, same place. Filed Oct. 2, 1897. Serial No. 653,905. (No model.)



Claim.—The combination of a bell-crank lever pivotally mounted on the door-frame in proximity to the door, a slide-pin in said bell-crank-lever end, having mounted thereon a spring-pressed buffer, a catch-lever pivoted to the said bell-crank-lever arm and having one end connected to the slide-pin aforesaid, a cam mounted in proximity to the opposite end of said catch-lever, means for lowering the buffer-arm of the bell-crank lever into the path of the door when the latter is opened and means for releasing the catch mechanism and raising the said arm immediately the door has struck the buffer substantially as described.

608,786. ELECTRICALLY-CONTROLLED SWITCH. HOWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 23, 1897. Serial No. 620,311. (No model.)



Claim.—1. In a system of distribution, the combination of supply and branch mains, a single auxiliary main extending from the point of control, as for example, a supply or sub station, to a switch for opening and closing the circuit between the supply and branch mains, an electromagnetically-controlled switch, comprising a pair of electromagnets, each having a coil permanently connected to a supply-main at one end, and alternately connected to the auxiliary main by an automatic switch.

2. In a system of distribution, the combination of positive and negative circuit-mains, branch mains leading therefrom, a single auxiliary main, an electromagnetically-controlled switch for making and breaking the circuit of the branch mains, comprising a pair of magnets each having coils permanently connected to separated mains at one end, and so arranged that one coil is always open-circuited, an automatic switch for alternately connecting the coils to the auxiliary wire, and a manually-actuated switch for including the auxiliary main in circuit with either the positive or negative supply-main.

3. The combination of supply-mains, branch mains adapted to be connected to and disconnected from the supply-mains, two solenoid-magnets acting upon a core common to both, a toggle connected to the core, contacts actuated by the toggle for making and breaking the circuit between the supply and branch mains, and a switch in the circuit of the solenoids controlled by the toggle.

4. In a switch, the combination of fixed contacts, solenoid-magnets, a toggle acted upon by the magnet-core, contacts actuated by the toggle, and a spring acting on both sides of a dead-center and connected with the toggle.

5. In a switch, the combination of fixed contacts, solenoid-magnets, cores for the magnets, contacts actuated by the core, a single auxiliary contact also actuated by the cores for controlling the circuit of both solenoid-coils, and means whereby a certain interval of time is allowed to elapse between the operation of the main and auxiliary contacts.

6. In a switch, the combination of stationary contacts, a plurality of moving contacts, solenoid-magnets, a core common to the magnets for actuating the toggle, a guide for the toggle, a spring acting on both sides of a dead-center to assist the core, an auxiliary contact also operated by the core, means permitting a certain amount of movement of the core independent of the auxiliary contact, and means for supplying current to the solenoid-coils for operating the switch.

7. In a switch, the combination of a solenoid, an iron casing surrounding it, a hollow core secured to one end of the casing, a plate secured to the opposite end of the casing, a core provided with parts differing in their cross-section, a shoulder on the core adapted to engage with the plate on the end of the casing, and a buffer for lessening the effect of the hammer-blow at the end of the movement of the core.

8. In a switch, the combination of a solenoid-magnet, a core, a toggle actuated thereby, an energizing-coil on the magnet, a contact connected with the coil, an arm actuated by the core, a contact carried by the arm, a cam for insuring a quick break between the moving and stationary contacts, and means permitting a predetermined amount of movement of the core independent of the arm.

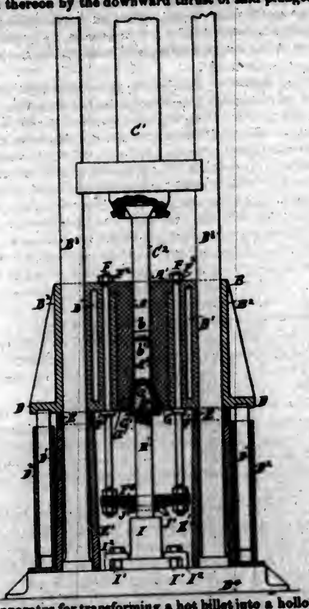
9. In a solenoid-magnet, the combination of an inclosing casing and energizing-coil, a cylindrical straight-bored core, a removable cap having a central opening, the metal surrounding the opening having an increased cross-section to provide a good magnetic circuit, a cylindrical movable core comprising two parts differing in their cross-section, and a piece of non-magnetic material arranged to guide the movable core within the stationary hollow core and prevent them from sticking.

608,787. TUBE-FORMING APPARATUS. EMIL F. HOLINGER, Mollenport, Pa., assignor to the National Tube Works Company, Boston, Mass. Filed Dec. 6, 1897. Serial No. 660,886. (No model.)

Claim.—1. In apparatus for transforming hot billets into hollow objects by forcing the exudation of the hot metal through an annular orifice, the combination, as herein set forth, of a stationary upright core having at its upper end a conoidally-pointed cylindrical core-head; a vertically-reciprocable hollow die and means for holding said hollow die stationary for feeding a billet in axial alignment with said core; means for imparting vertical movement to said die; a hydraulic plunger for forcing said billet downwardly through said die; a flaring mouth for said hollow die surrounding a prescribed portion of said conoidally-pointed core-head, and a centering-ring dislodgably seated in a bearing at the lower end of said hollow die and having a sliding fit upon the cylindrical portion of said core-head, for centralizing said core-head with relation to said flaring mouth during the initial part of the billet-transforming operation.

2. The combination, as herein set forth, of a stationary upright core having a conoidally-pointed cylindrical head; a vertically-reciprocable hollow die having a flaring mouth concentrically surrounding said conoidally-pointed core-head at a prescribed distance therefrom; a hydraulic plunger for forcing a hot billet downward through said hollow die against and around said core; means for imparting vertical motion to said hollow die, and a stripper connected to and

moving with said hollow die for stripping from said core the hollow object formed thereon by the downward thrust of said plunger upon said billet.



3. In apparatus for transforming a hot billet into a hollow object by forcing the hot metal through a hollow die against and around a conoidally-pointed cylindrical core-head; a hollow die composed of an upper portion corresponding in the shape of its cross-section to the cross-sectional shape of said billet and in a slight degree progressively increasing in cross area in a downward direction, and of a lower portion composed of a spheroidally-flaring section concentrically surrounding the conoidal part of the head of said core at a prescribed distance therefrom, and below said flaring section a cylindrical section concentrically surrounding the cylindrical part of the said core-head at a prescribed distance therefrom.

4. In apparatus for transforming a hot billet into a hollow object by forcing the hot metal to exude from an annular orifice, a stationary upright conoidally-pointed core; a hollow die arranged in appropriate alinement with said core; a vertically-reciprocable carriage for carrying said hollow die; a stripper arranged at a prescribed distance below and connected to and moving with said hollow die and carriage; means for imparting vertical movement to said carriage; a reciprocable plunger arranged at a prescribed distance above said hollow die in appropriate alinement therewith and adapted to enter said hollow die, and means for imparting endwise reciprocating movements to said plunger, as and for the purposes set forth.

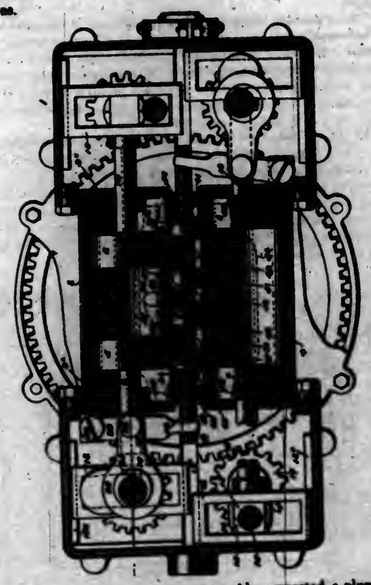
608,788. ENGINE. JULIUS KELLER, Philadelphia, Pa. Filed Sept. 29, 1897. Serial No. 653,482. (No model.)

Claim.—1. In an engine, a plurality of cylinders, a valve-chamber provided with alining valves intermediate of and in communication with said cylinders, a plurality of pistons in each cylinder, a main gear rotatably supported in proximity to said cylinders, a plurality of crank-shafts, means for rotating the same by the reciprocation of said pistons, and mechanism operated by said shafts for rotating said main gear.

2. In an engine, a plurality of cylinders, each having a pair of pistons therein, a valve-chest intermediate of and in communication with said cylinders, a plurality of alining piston-valves in said chest, shafts rotated by the reciprocation of said pistons, pinions mounted on said shafts, a main gear in mesh with said pinions and connections from said shafts for operating said valves.

3. In an engine, a plurality of cylinders, each having a pair of pistons therein, an alining valve-chest located in proximity with said cylinders, a plurality of valves in said chest, yokes suitably supported and connected to the piston-rods attached to said pistons, crank-shafts on which said yokes are mounted, pinions carried by said crank-shafts, a main gear in mesh with said pinions, and mechanism intermediate said shafts and valves for reciprocating the latter.

4. In an engine, a pair of cylinders arranged side by side, a valve-chest intermediate said cylinders, valves in said chest and pistons in said cylinders working oppositely to each other, a plurality of crank-shafts, a plurality of yokes, a piston-rod for each piston being secured to one of said yokes, boxes common to said yokes and shafts, slides and guides for supporting said yokes, an eccentric mounted on a pair of said shafts arranged diagonally to each other, connections from said eccentrics for operating said valves, pinions mounted on said shafts and a main gear rotatably supported and in mesh with said pinions.



5. In an engine, a main gear rotatably supported, a plurality of cylinders located adjacent to said gears, each cylinder having a pair of pistons therein moving in opposite directions, a valve-chest containing a pair of valves, means for moving the latter in opposite directions, ports leading from said valve-chest to substantially the middle of each cylinder and also to the ends of the latter, said ports serving alternately as inlet and exhaust ports, and a series of pinions rotated by the reciprocation of said pistons, said pinions meshing with said main gear.

6. In an engine, a pair of cylinders arranged side by side, a pair of pistons in each cylinder, a valve-chest connected with said cylinders, valves in said chest controlling the reciprocation of said pistons, a plurality of crank-shafts, a plurality of yokes, a rod for each piston secured to each of said yokes, boxes common to said yokes and shafts, an eccentric mounted on a pair of said shafts arranged diagonally to each other, connections from said eccentrics for operating said valves, pinions mounted on said shafts and a main gear rotatably supported and in mesh with said pinions.

7. In an engine, main gears of different diameters rotatably supported, a plurality of cylinders located above said gears, each of said cylinders having a pair of pistons therein moving in opposite directions, a valve-chest containing a pair of valves, means for moving the latter in opposite directions, ports leading from said valve-chest to substantially the middle of each cylinder, and also to the ends of the latter, said ports serving alternately as inlet and exhaust ports, a plurality of crank-shafts, rods connecting said pistons with said shafts, a plurality of gears, and a plurality of pinions of different diameters mounted on said shafts and adapted to mesh with said gears.

8. In an engine, an inclosing casing, a plurality of cylinders, a valve-chest intermediate of said cylinders and in communication therewith, alining valves in said chest, crank-shafts rotatably mounted and having their bearings in said casing, connections common to said crank-shafts, pistons and valves, a plurality of pinions mounted on each of said crank-shafts, and revolving in unison therewith, a plurality of gears meshing with said pinions, and a plurality of spindles rotatably mounted in said casing.

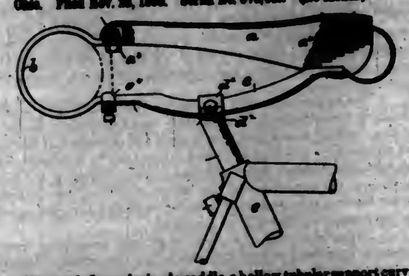
9. In an engine, an inclosing casing, a chamber supported thereon in which the motive fluid is initially received, an inlet for said fluid, a seat or passage extending transversely to said inlet, a throttle-valve longitudinally movable in said passage past said opening, a spring for retaining said throttle-valve in position, means for actuating said valve from the exterior, a plurality of cylinders located in said casing, a plurality of pistons in each of said cylinders, a valve-chest adjacent the latter and communicating therewith, a plurality of valves in said chest, means for operating said valves, crank-shafts rotatably mounted in said casing, and means for transmitting power from said shafts to a drill or tool.

10. In an engine, a plurality of cylinders, a plurality of pistons in each cylinder, valves for controlling said pistons, a plurality of main gears of varying diameters, rotatably supported in proximity to said cylinders, a plurality of crank-shafts, means for effecting the rotation of said shafts by the reciprocation of said pistons, a plurality of pinions of different diameters mounted upon each of said shafts and rotating in unison therewith, said pinions meshing with said gears and spindles actuated by the latter, said spindles rotating simultaneously and at different speeds.

11. In an engine, the combination of a plurality of cylinders, a plurality of pistons in each cylinder, a valve-chest intermediate of said cylinders, and in communication therewith, a plurality of valves in said chest, said valves being located in each end thereof, a chamber located above said chest, an inlet for the motive fluid leading into said chamber, a passage extending transversely to said inlet, a throttle-valve consisting of a plug movable in said passage and adapted to be moved past said inlet so as to wholly or partially close the latter, a spring for holding said throttle-valve in position, means for operating said valve from the exterior, a main gear rotatably supported in proximity to said cylinders, a plurality of crank-shafts, means for rotating the same by the reciprocation of said pistons and mechanism operated by said shafts for rotating said main gear.

12. In an engine, the combination of an inclosing casing, crank-shafts rotatably mounted in said casing, a plurality of cylinders in the latter, pistons in said cylinders actuated by fluid-pressure, valves for controlling the movement of said pistons, a valve-chest for said valves, a chamber located adjacent said valve-chest in which the motive fluid is initially received, a throttle-valve of the piston type, adapted to reciprocate in said chamber, for enabling the operator to gradually admit the motive fluid to said cylinders, pinions on said shafts, a main gear rotatably supported in said casing and meshing with said pinions, a main-gear bushing, a thrust-washer, a stud against which said bushing and washer are adapted to contact, and means for operating said valves.

608,789. CYCLE-SADDLE. THOMAS J. KIRKPATRICK, Springfield, Ohio. Filed Nov. 22, 1897. Serial No. 659,442. (No model.)

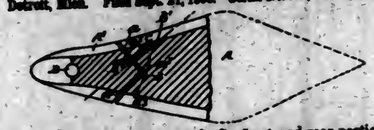


Claim.—1. In a velocipede-saddle, a hollow tubular support curved at the center and formed at the ends with flattened sockets as described, independent front and rear springs each of a substantially circular form with projecting ends, the projecting ends of each spring being extended laterally and parallel to each other on a line which forms a secant to the inner circle of said spring, each of said springs being fitted at one end to the sockets in said base, and a seat connected to the remaining ends of said springs with the points of attachment in line with or outside of the inner circles of said springs extended, substantially as and for the purpose specified.

2. The combination with a seat, of independent front and rear springs for said seat, a hollow tubular support flattened at the ends and formed with sockets to receive the ends of said springs which are also formed flattened to correspond with said sockets, each of said springs being formed on the arc of a circle with the ends of the body on lines forming secants to said circle with the points of attachment of each of said springs to the base and seat respectively substantially over each other and on the outside or tangent to said circle, substantially as specified.

3. The combination with a hollow tubular base circular in cross-section and curved in the center as described, said base being expaged and flattened at the ends to form rectangular sockets, independent supporting-springs having circular bodies and laterally-projecting ends, one end of each of which is fitted to said sockets, a seat connected at each end to the ends of said supporting-springs with both of the supporting connections of each of said springs on lines forming secants to the circular bodies of said springs and substantially vertical over each other at the point on the outside of said circle, and a clamp fitted to the circular portion of said base, substantially as specified.

608,790. LAST. EDWIN O. KEMPLER and GEORGE A. KEMPLER, Detroit, Mich. Filed Sept. 21, 1896. Serial No. 606,504. (No model.)



Claim.—1. A last constructed of a front and rear portion having a movable engagement the one with the other, the meeting edge of one of said portions formed with diverging kerfs cut into the body of said portion toward the opposite end of said portion, and the meeting edge of the other portion provided with corresponding tongues having a movable engagement in said kerfs, and means to limit the movement of the front and rear portions the one with the other and to prevent their disengagement, substantially as described.

2. A last formed of a front and a rear portion, having a movable engagement the one with the other, one of said portions formed with laterally-diverging grooves, and the other portion with laterally-diverging tongues having a movable engagement in said grooves, substantially as described.

3. A last constructed with front and rear portions having a movable connection one with the other, one of said portions formed with diverging grooves, and the other portion provided with plates B^2, B^2, formed with diverging tongues to enter said grooves, and one of said plates formed with a recess b^2, for the purpose set forth.

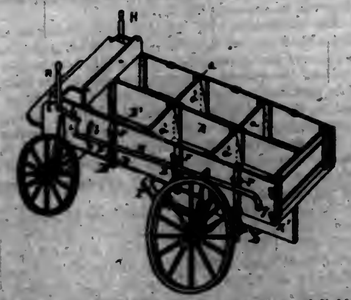
4. A last constructed with front and rear portions having a movable connection one with the other, one of said portions formed with grooves and the other portion provided with plates B^2, B^2, one of said plates formed with an orifice, and with a recess b^2, the other of said portions formed with a tongue projecting through said orifice, for the purpose set forth.

5. A last consisting of front and rear portions, constructed with corresponding V-shaped meeting faces in cross-section, the meeting faces of one of said portions provided with plates having projecting tongues, and the meeting faces of the other of said portions having grooves to receive said tongues, substantially as described.

6. A last consisting of front and rear portions, having corresponding angular meeting faces in cross-section, the meeting faces of one of said portions provided with plates having projecting tongues, and the meeting faces of the other of said portions having grooves to receive said tongues, said grooves being formed in line with the plane of said meeting faces, substantially as described.

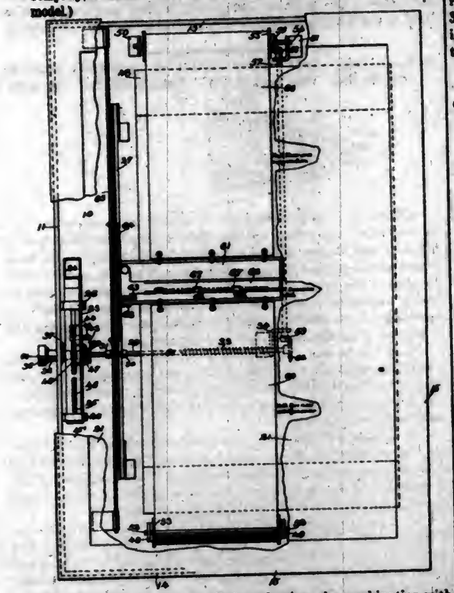
7. A last severed into front and rear portions by intersecting kerfs extending past the point of their intersection to form grooves in one of said portions, the opposite portion being provided with tongues movably engaged in said grooves, substantially as described.

608,791. DUMPING-WAGON. EDWARD P. LAMPSON, Harwich, Canada. Filed Sept. 22, 1897. Serial No. 652,771. (No model.) Patented in Canada July 16, 1897, No. 56,632.



Claim.—The combination with a wagon-box subdivided, each compartment having a hinged door or bottom A', the strap C, the link D, the bar B, and the link F, the long lever G pivoted by the bolt g, the oscillating link L, engaging with the forward end of the lever G, and the lower end of the arm A of the lever H its pivoted connection at N, the bracket b, the slot f, substantially as specified and hereinbefore set forth.

603,792. COIN-CONTROLLED MECHANISM. HORACE A. MARLEY, Boston, Mass., assignor to the Universal Advertising Machine Company, of Maine. Filed Mar. 19, 1896. Serial No. 583,892. (No model.)



Claim.—1. In a coin-controlled mechanism, the combination with a traveling plate, having a viewing-slot, and a shutter for closing the slot, of a coin-controlled device mounted in fixed bearings for actuating the shutter.

2. In a coin-controlled mechanism, a swinging rail on which a portion of the mechanism to be actuated is traversable and means for swinging the rail.

3. In a coin-controlled mechanism, the combination with a traveling mechanism provided with a portion to be actuated, and a swinging rail or gate with which such portion is engaged, of a coin-controlled mechanism, having means for swinging the gate.

4. In a coin-controlled mechanism, band-rollers, a band mounted thereon, a plate having a viewing-slot carried by the band, a shutter pivotally mounted on the plate, a swinging gate adapted to engage and operate the shutter, a coin-controlled device connected with one of the rollers for the purpose of transmitting rotation thereto, and connected with the gate to cause the same to swing, when desired.

5. The combination with a case containing matter to be viewed, band-rollers rotatable at the upper and lower portions of the case, a continuous band mounted on said rollers and including a portion having a viewing-slot, and a shutter working before said slot, of means for operating the belt, and a coin-controlled mechanism mounted in fixed bearings for actuating the shutter.

6. The combination with the band-rollers 53 and 55 rotatably mounted, a bevel-gear on the roller 55, the vertical shaft 57 mounted in bearings and having the gear 58, meshing with the gear on the roller 55, and the gear 59 at the lower portion of the shaft, and a rotatable shaft having a gear meshing with the gear 59, of a band mounted on the band-rollers and furnished with a viewing-slot, a shutter for closing the slot, and means for operating the shutter.

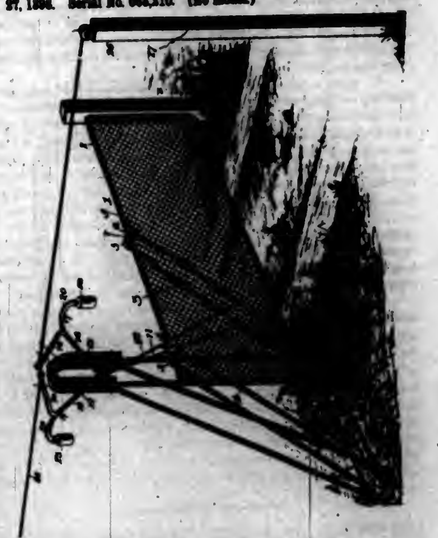
7. The combination with a door-frame 15 having the flange 16 furnished with the slot 17, and a pin 18, fitting said slot, and having the enlargements 19 and 20, of a panel adapted to be secured in place in the door-frame by said pin.

8. The combination with the shutter-plate 61 having viewing-slots and the opening 63, the yoke 64 secured to said plate, the vertical guide 65 on which the yoke is movable, and the shutter 66 pivoted on the shutter-plate, and having the member 68 working through the opening 64, and furnished with the slot 69, of the track 27, pivotally mounted within the case, the edge of which is engaged in the notch 69, and a coin-controlled mechanism adapted to swing said track.

9. The combination with the case, the shaft 29 rotatable in bearings and adapted to reciprocate, and having the members 30 and 31, the gate or rail 27 pivotally mounted and engaged by said members, the shaft passing through an opening in the gate, and a mechanism adapted to be operated by the swinging of the gate, of a coin-controlled mechanism for locking the shaft 29 from reciprocation.

10. The combination with the shaft 29 mounted to rotate and reciprocate, and having the members 36 and 39 with their portions 37 and 40, of the counterweight 44 pivoted above the shaft and having the locking-bolt 45, and the coin-lever 46, secured to the counterweight and having the bent portion 47.

603,798. GATE. DAVID MILLER, Garden City, Mo. Filed Jan. 27, 1896. Serial No. 577,210. (No model.)



Claim.—1. The combination with a gate, of oscillating bars arranged in pairs and supporting the gate, the converging guides arranged within one pair of the oscillating bars, converging downwardly and supporting the lower portion of the gate to hold the latter in proper position for closing, and operating mechanism, substantially as described.

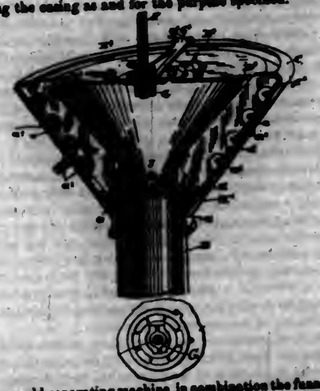
2. The combination of a supporting-frame comprising vertical standards connected at their upper ends by a substantially U-shaped portion, inclined braces arranged in pairs and connected at their upper terminals by a U-shaped portion secured to the standards, and a substantially U-shaped horizontal base portion connecting the lower portions of the standards and the braces, oscillating bars mounted on the frame, a gate connected with the oscillating bars, and operating mechanism, substantially as described.

3. The combination of a supporting-frame comprising vertical standards connected at their upper ends by a substantially U-shaped portion, the inclined braces connected at their upper terminals by a vertical U-shaped portion secured to the standards and spaced therefrom to form guides, and the U-shaped piece 16 located at the opposite side of the standards and spaced from them to form guides, an oscillating gate, oscillating bars supporting the gate, and the levers fulcrumed on the supporting-frame, extending across the same and arranged in the said guides, said levers being connected with the oscillating bars, substantially as described.

603,794. GOLD-SEPARATING MACHINE. ARCHIBALD F. PERRY, Port Hope, Canada, assignor of one-half to Warren R. Sullivan, Alma, Mich. Filed May 10, 1897. Serial No. 635,926. (No model.)

Claim.—1. A gold-separating machine comprising an upper casing, cylindrical intake-pipe at the bottom thereof, a plurality of wings within the casing extending inwardly, a supplemental casing located and supported within the outer casing and forming an inner bounding end for the wings and an annular outlet at the top of the casing, and a shaft in the center of the casing and deriving a rotary movement from any suitable source of power as and for the purpose specified.

2. A gold-separating machine comprising an upper casing, cylindrical intake-pipe at the bottom thereof, a plurality of wings within the casing extending inwardly, a supplemental casing located and supported within the outer casing and forming an inner bounding end for the wings, an annular outlet at the top of the casing, and means for rotating the casing as and for the purpose specified.



3. In a gold-separating machine, in combination the funnel-shaped casing and intake-pipe extending upwardly below the bottom thereof, the receptacle formed in the casing around the top of the intake-pipe, the riffles extending around the interior of the funnel-shaped casing, the wings, the central hollow cone, the annular outlet between the cone and the outer casing and means for securing the cone to the outer casing and means for rotating the casing as and for the purpose specified.

4. In a gold-separating machine, in combination a funnel-shaped casing and intake-pipe extending from the bottom thereof, the riffles extending around the interior of the funnel-shaped casing, the wings, the central hollow cone, the annular outlet between the cone and the outer casing, the inwardly-extending flange at the top of the funnel-shaped casing and means for rotating the casing as and for the purpose specified.

5. In a gold-separating machine, in combination a funnel-shaped casing and intake-pipe extending from the bottom thereof, the riffles extending around the interior of the funnel-shaped casing, the wings, the central hollow cone, the annular outlet between the cone and the outer casing, the grooved passage-way extending from the apex to the base of the cone, the inwardly-extending flange at the top of the funnel-shaped casing and means for securing the cone to the outer casing and means for rotating the casing as and for the purpose specified.

6. In a gold-separating machine, in combination a funnel-shaped casing and intake-pipe extending from the bottom thereof, the riffles extending around the interior of the funnel-shaped casing, the wings, the central hollow cone, the annular outlet between the cone and the outer casing, the grooved passage-ways extending from the apex to the base of the cone, the inwardly-extending flange at the bottom of the funnel-shaped casing, the guiding screens at the top of the intake-pipe, and means for securing the cone to the outer casing and means for rotating the casing as and for the purpose specified.

7. In a gold-separating machine, in combination a funnel-shaped casing and intake-pipe extending from the bottom thereof, the riffles extending around the interior of the funnel-shaped casing, the wings, the central hollow cone, the annular outlet between the cone and the outer casing, the inwardly-extending flange at the top of the funnel-shaped casing, the copper ring extending around the top of the casing underneath the flange and means for securing the cone to the outer casing and means for rotating the casing as and for the purpose specified.

8. In combination the outer casing, the intake-pipe, the riffles extending around the interior of the casing, the wings, the openings at the outer edges of the wings, the conical central portion of the casing, the annular outlet formed at the top of the casing and means for securing the cone to the outer casing and means for rotating the casing as and for the purpose specified.

9. In combination the outer casing, the intake-pipe, the riffles extending around the interior of the casing, the wings, the conical central portion of the casing, the annular outlet formed at the top of the casing, the shaft secured in a suitable sleeve, the arms extending outwardly therefrom and secured to the outer top edge of the casing and means for rotating such shaft as and for the purpose specified.

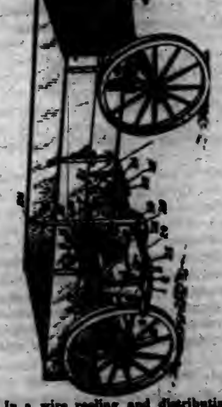
10. In combination the outer casing, the intake-pipe, the riffles extending around the interior of the casing, the wings, the conical central portion of the casing, the annular outlet formed at the top of the casing, means for connecting the central portion of the casing to the outer portion and openings in the apex and base of the central cone as and for the purpose specified.

603,795. SELF-SEALING BOTTLE. THOMAS W. EVAN, Cosford, Mass., assignor of one-half to James H. Walsh, Boston, Mass. Filed Mar. 6, 1897. Serial No. 626,202. (No model.)



Claim.—The bottle herein described provided with the seat, H, its neck, the vertical ribs, G, above said seat, and the shoulder, *p*, above said ribs in combination with the ball, F, engaging said seat and guided by said ribs; the hollow seal provided with the solid escalloped head, ports, C, a leg, E, and flange, *v*, for engaging said shoulder all being arranged to operate substantially as specified.

603,796. WIRE-REEL. ELI I. GRISWELL and JAMES BEERS, both of Davis City, Nebr. Filed May 17, 1897. Serial No. 636,970. (No model.)



Claim.—1. In a wire reeling and distributing apparatus, the combination with a revoluble spool-spindle, and means for operating the same, of a radially-armed stop revolubly fitted upon the spindle and having adjustable clutch-faces for frictionally engaging the surface of the spindle, adjusting devices for the clutch-faces, and a spool removably and revolubly fitted upon the spindle and provided with a terminal projection extending in a direction parallel with the spindle and engaging the armed stop exteriorly, substantially as specified.

2. In a wire-reeling apparatus, the combination with a spool and means for imparting rotary motion thereto, of guiding devices consisting of a pivotal arm of elastic or yielding construction adapted at its free end for yielding movement in a plane perpendicular to the axis of the spool, and a guide-pulley carried by the free end of said

arm and adapted to be traversed by a wire approaching the spool, whereby excessive strain upon the wire causes movement of the guide-pulley in a plane transverse to the axis of the spool, substantially as specified.

3. In a wire-reeling apparatus, the combination with a spool and means for imparting rotary motion thereto, of guiding devices having a movable arm constructed to yield in a plane perpendicular to the axis of the spool, a guide-pulley, and a swiveled frame 23 carried by the extremity of said arm and supporting the pulley for yielding movement substantially as specified.

4. In a wire-reeling apparatus, the combination with a base, fixed and movable standards mounted upon the base and supporting a spool-spindle, means for securing the movable standard at the desired adjustment, to expose the desired length of spool-spindle, and a spool removably fitted upon the spindle, of guiding devices including a pivotal yielding arm mounted upon the base, a guide-pulley supported by said arm, and adjustable stops arranged in the path of said arm, to limit its swinging movement to correspond with the length of the spool supported by the spindle, substantially as specified.

5. In a wire-reeling apparatus, the combination with a base, fixed and movable standards mounted upon the base and supporting a spool-spindle, means for securing the movable standard at the desired adjustment, to expose the desired length of spool-spindle, and a spool removably fitted upon the spindle, of guiding devices, including a pivotal yielding arm supporting a swiveled guide-pulley, a guide in which said arm operates contiguous to its pivot-point, stop-blocks arranged in said guide in the path of the arm and provided with longitudinal slots, bolts engaging said slots and adapted when tightened to secure the blocks at the desired adjustment, and thereby limit the swinging movement of the arm to suit the length of the spool, and means, including a hand-lever, pivotally mounted upon the fixed standard, for communicating oscillatory movement to said arm, substantially as specified.

608,797. PROCESS OF EXTRACTING NICKEL FROM NICKEL ORES. THOMAS SCOBIE, Glasgow, Scotland. Filed June 12, 1897. Serial No. 640,574. (No specimens.)

Claim.—The process of treating New Caledonia nickel ores, and ores of similar composition, containing silicates or hydrated silicates of nickel, so as to obtain nickel salt in solution and a bright-red iron-oxid pigment, the said process consisting in mixing the ore with a solution of ferric chlorid, and heating the mixture in a closed vessel to a temperature of about 370° Fahrenheit under corresponding pressure, substantially as described.

608,798. HARROW. JOSEPH C. STUBBS, Aurora, Ill. Filed Sept. 20, 1897. Serial No. 652,277. (No model.)



Claim.—In a harrow the combination with a triangular frame provided with a central frame-bar, a circular tooth-frame provided with a hub and with radiating tooth-carrying arms and a concentric circular track provided with a series of apertures, a stud carried by the rotary tooth-frame and extending through the central frame-bar, and antifriction-rollers intermediate of the relatively-movable parts and means for securing them in their adjustable position, substantially as specified.

608,799. ILLUMINATING-LENS FOR SIDEWALKS. ROBERT J. SULLIVAN, River Forest, Ill., assignor to the Brown Brothers Manufacturing Company, Chicago, Ill. Filed Apr. 5, 1897. Serial No. 630,265. (No model.)

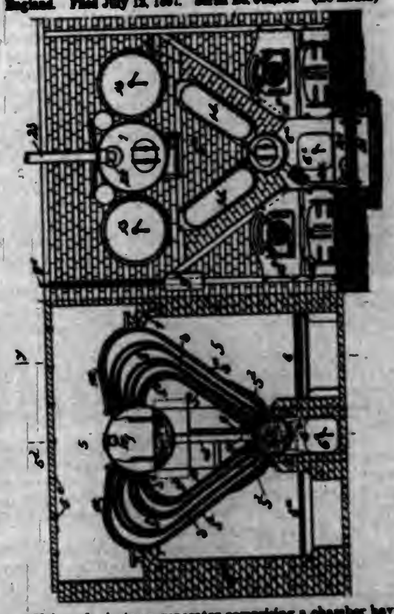


Claim.—1. An illuminating-lens comprising a hexagonal body portion and a leg projecting from the inner side thereof, said leg having a front flat face perpendicular or nearly so to the plane of the body portion which extends between two opposite side angles of the body portion with its center at a distance from the intermediate front angle of said body portion, the side surfaces of said leg being parallel with each other and in the same plane with the sides of the body portion while the rear surface of said leg is formed of a plurality of oblique facets which reach to the rear margins of said body portion, said body portion being provided between said front face of the leg and said front angle of the body portion with a flat surface parallel with the outer face of said body portion whereby rays of light may pass perpendicularly through the latter in front of the leg into the inclosed space to be illuminated.

2. An illuminating-lens comprising a body portion and a leg projecting from the inner side thereof, said leg having a flat front face perpendicular or nearly so to the plane of the body portion and, at its rear side, a central and two lateral, triangular facets, the central rear facet being arranged to extend across the leg the full width thereof and to intersect the front, flat face of said leg, at its outer extremity with its side margins converging upwardly and meeting midway between the side faces of the leg and the lateral triangular facets being arranged to intersect the central, triangular facet with its side margins converging toward and meeting at points at the side edges of the leg at the extremity of the same.

3. An illuminating-lens comprising a body portion and a leg projecting from the inner side thereof, said leg having a flat, front face perpendicular or nearly so to the plane of the body portion, two parallel, flat side faces, also perpendicular to the plane of the body portion and at its rear side, a central and two lateral, oblique, triangular facets; the side faces of the leg being of triangular form with their side margins converging to a point at the outer extremity of the leg, the central rear facet being arranged to extend across the leg the full width thereof and to intersect the front flat face of said leg at its outer extremity with its side margins converging upwardly and meeting midway between the side faces of the leg, and the lateral triangular facets extending between and intersecting the flat, triangular side faces of the leg and the said central triangular facet on lines which converge toward and meet at the extremity of the leg at the side edges of the same.

608,800. STEAM-GENERATOR. JOHN I. THORNYCROFT, London, England. Filed July 12, 1897. Serial No. 644,208. (No model.)



Claim.—1. A steam-generator comprising a chamber having its side, front and rear walls of solid refractory material and provided internally with a lower central setting or support, two upper and lateral closures, and two fire-grates arranged between the lower central setting and the side walls, a steam-drum extending through and carried by the front and rear walls of the chamber, a water vessel arranged below said steam-drum and carried by the lower central setting or support, two series of bent tubes 3 connecting the steam-drum and water vessel and arranged to form with these parts and the rear wall of the chamber a smoke-box and with the side walls of said chamber two fire-boxes located above said fire-grates, and downtake-tubes connecting said steam-drum and water vessel, the part of the rear wall of the chamber opposite the smoke-box being formed with an exit-passage for hot gases, substantially as described.

2. A steam-generator comprising a chamber having its side, front and rear walls of solid refractory material and provided with a lower central setting or support, two fire-grates located between opposite sides of said support and the side walls of said chamber, two upper removable closures carried by the said side walls, and an exit-opening in its rear wall, a steam-drum and water vessel arranged one above the other and transversely of the chamber, two series of bent tubes connecting said steam-drum and water vessel and inclined to each other so as to form with the steam-drum, water vessel and the front, back and side walls and roof of said chamber a central smoke-box opposite the exit-opening in the rear wall, two lateral fire-boxes above the fire-grates and an air or clearance space above the tubes and steam-drum, and downtake-tubes connecting said steam-drum and water vessel, substantially as described.

3. A steam-generator comprising a chamber or casing of solid refractory material, an upper steam-drum, lower water vessel and two series of bent connecting-tubes 3 extending transversely of said chamber and forming therewith a central smoke-box and two lateral fire-boxes, a lower central support for said water vessel and two fire-grates arranged at opposite sides thereof, said central support having a passage-way extending therethrough from the front of the generator to the rear of the smoke-box and provided with removable doors or closures, substantially as and for the purpose described.

4. A steam-generator comprising an upper steam-drum, a lower water vessel and two groups of bent tubes 3 connecting said steam-drum and water vessel, and a chamber or casing of solid refractory material surrounding said parts and forming therewith a central smoke-box and lateral fire-boxes, the front wall of said chamber being formed with openings arranged opposite the groups of tubes and normally closed by removable doors, substantially as and for the purpose described.

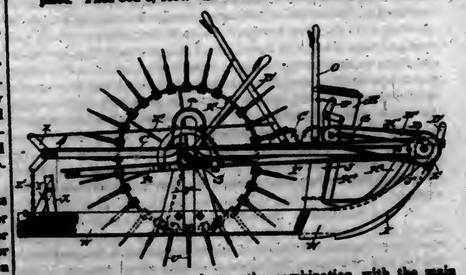
5. A steam-generator comprising a chamber or casing having its walls of solid refractory material, a steam-drum located in the upper part of said chamber or casing, a water vessel located in the lower part thereof, two series of bent tubes arranged to connect said water vessel to the upper part of said steam-drum separator and to form in conjunction with said steam-drum water vessel, and front and rear walls of said chamber or casing, a central smoke-box, some of the tubes of each series of tubes being arranged close together for the greater portion of their length to form inner and outer close tubulous walls of flues within which the other tubes of the series are placed and the tubes forming said outer wall being bent at their lower ends to form inlets to the bottoms of said flues and the tubes forming said inner wall being bent at their upper ends to form outlets from the top of said flue into said smoke-box, the front wall of said chamber or casing being formed with openings opposite the upper and lower portions of each of the flues formed by said tubes and provided with removable covers or doors that normally close said openings, substantially as and for the purpose described.

6. A steam-generator comprising an upper steam-drum, a lower water vessel and two groups of bent tubes 3 connecting said steam-drum and water vessel, and a chamber or casing of solid refractory material surrounding said parts and forming therewith a central smoke-box and lateral fire-boxes, the front wall of said chamber being built up of a metal frame 5°, filled in with brickwork 5ª and formed with openings located opposite the upper and lower portions of the groups of tubes and with firing and ash-pit openings, detachable covers or doors 13 and 14 normally closing the first-mentioned openings and secured to the metal frame 5°, and plates 15ª 16ª also secured to said metal frame and provided with doors 15 and 16 respectively for closing the firing and ash-pit openings, substantially as described.

7. Steam-generating plant comprising a structure of solid refractory material formed with a plurality of chambers and with a flue that is common to all the chambers and is connected to each of them by an exit-passage in the rear wall thereof, each chamber being provided with a lower central support, two fire-grates at opposite sides thereof, and upper lateral closures, a plurality of steam-generating units arranged one in each of said chambers and comprising a steam-drum and water vessel arranged one above the other and two series of bent tubes connecting said steam-drum to said water vessel, touching said upper lateral closures and inclined to each other so as to form with these parts and the sides, front and rear walls of the surrounding chamber a central smoke-box and two lateral fire-boxes, dampers adapted to control said exit-passages, means for separately operating said dampers, a main steam-supply pipe common to all the steam-drums, branch pipes with stop-valves between said steam-pipe and each of said steam-drums, a main blow-off pipe common to all the water vessels, and branch pipes with valves between said blow-off pipe and each of said water vessels, substantially as described.

8. Steam-generating plant comprising a brickwork structure formed with a number of independent chambers 5 arranged in a straight row, a longitudinal flue 9ª at the back of said chambers and having its roof arranged to form a platform behind the upper portions of said chambers, and a number of openings 9 connecting said flue with the rear ends of said chambers, each of said chambers being provided with a lower central support 6 having a normally-closed passage extending therethrough from the exterior of the chamber to the inner rear end thereof, two fire-grates arranged at opposite sides of said central support, and upper removable lateral closures 7, 7ª, a plurality of steam-generating units located in said chambers and each comprising an upper steam-drum, a lower water vessel resting on said central support and two series of bent tubes 3 connecting said steam-drum and water vessel, in contact with said lateral closures and arranged to form with the steam-drum and water vessel and the walls of the chamber in which they are placed, a central smoke-box and two lateral fire-boxes, a main steam-pipe, separate branch pipes with valves connecting said steam-pipe to each of the steam-drums, a main blow-off pipe, and branch pipes with valves connecting said blow-off pipe to each of the water vessels, all substantially as described and shown.

608,801. CORN-PLANTER. JOSEPH URBANEK, Schuyler, Nebr., assignor of two-thirds to Thomas B. Molesek and Morris Palmer, same place. Filed Oct. 9, 1897. Serial No. 654,653. (No model.)



Claim.—1. In a corn-planter, the combination, with the main frame, of a hinged or floating frame flexibly connected thereto, a toothed wheel mounted in said floating frame, a shoe or runner extending longitudinally of the machine and serving to support said hinged frame, and a driving connection between said toothed wheel and the dropping devices of the machine, substantially as described.

2. In a corn-planter, the combination, with the main frame of the machine, of a hinged or floating frame within the main frame and flexibly connected thereto, a runner or shoe extending longitudinally of the machine beneath said hinged frame and serving to support the latter, a toothed wheel mounted in the hinged frame and having its teeth projecting through said shoe or runner to engage the ground beneath the same, and a driving connection between said toothed wheel and the dropping devices of the machine, substantially as described.

3. In a corn-planter, the combination, with the main frame of the machine, of a floating frame within said main frame and flexibly connected thereto, a rotary shaft journaled in said floating frame, a shoe or runner hung upon said shaft beneath said floating frame and extending from front to rear of the machine, a toothed wheel fast upon said shaft, and a driving connection between said shaft and the dropping devices of the machine, substantially as described.

4. In a corn-planter, the combination, with the main frame of the machine, of a hinged or floating frame connected thereto, a toothed wheel mounted in said floating frame, a shoe or runner extending longitudinally of the machine beneath said frame and serving to support the latter, means for adjusting said wheel and runner vertically in relation to each other, to permit the teeth of the wheel to project a greater or less distance below the runner, and a driving connection between said wheel and the dropping devices of the machine, substantially as described.

5. In a corn-planter, the combination, with the main frame of the machine, of a hinged or floating frame connected thereto, a toothed wheel mounted in said floating frame, a shoe or runner hung to said frame beneath the same and extending longitudinally of the machine and serving to support said frame, means upon the main frame for adjusting the floating frame and runner vertically in relation to the main frame, and a driving connection between the toothed wheel and the dropping devices of the machine, substantially as described.

6. In a corn-planter, the combination, with the main frame of the machine, of a hinged or floating frame connected thereto, a toothed wheel mounted in said floating frame, a shoe or runner extending longitudinally of the machine beneath said frame and hung to the latter

at a point beneath the axis of the toothed wheel, and having its forward end left free for limited vertical movement independently of the floating frame, and a driving connection between the toothed wheel and the dropping devices of the machine, substantially as described.

7. In a corn-planter, the combination, with the main frame, and the seedbox and runner-frame hinged thereto and the draft-tongue rigidly connected to such seedbox and runner-frame, of a hinged or floating frame located in rear of the seedbox and runner-frame and flexibly connected to the main frame, a toothed wheel mounted in said floating frame, and a driving connection between said toothed wheel and the dropping devices of the machine, a shoe or runner extending longitudinally of the machine beneath said floating frame and hung to the latter at a point beneath the axis of the toothed wheel, a connection between the front end of said shoe or runner and the draft-tongue of the machine which permits limited vertical movement of the front end of the shoe independently of the tongue, and means upon the main frame for lifting the seedbox and runner-frame and thereby causing the draft-tongue to lift the front end of said shoe or runner, and for also lifting the rear end of said runner or shoe, to elevate said runner and the toothed wheel above the surface of the ground, substantially as described.

8. In a corn-planter, the combination, with the main frame and the seedbox and runner-frame hinged thereto and the draft-tongue rigidly connected to such seedbox and runner-frame, of a hinged or floating frame located in rear of the seedbox and runner-frame and flexibly connected to the main frame, a toothed wheel mounted in said floating frame, and a driving connection between said toothed wheel and the dropping devices of the machine, a shoe or runner extending longitudinally of the machine beneath such floating frame and hung to the latter at a point beneath the axis of the toothed wheel, a connection between the front end of such shoe or runner and the draft-tongue of the machine which permits limited vertical movement of the front end of the shoe independently of the tongue, a lever and connections upon the main frame for lifting the seedbox and runner-frame and thereby causing the draft-tongue to lift the front end of said shoe or runner, and a second lever and connections for lifting the rear end of said shoe or runner, substantially as described.

9. In a corn-planter, the combination, with the main frame, of a hinged or floating frame flexibly connected thereto, a shoe or runner extending longitudinally of the machine beneath such floating frame and serving to support the latter, a toothed wheel mounted in the floating frame, a driving connection between said wheel and the dropping devices of the machine, and adjusting means in said driving connection for regulating the action of the dropping devices, substantially as described.

10. In a corn-planter, the combination, with the main frame of the machine, of a floating frame flexibly connected thereto, a shoe or runner extending longitudinally of the machine beneath said floating frame and serving to support the latter, a rotary shaft mounted in the floating frame, a sprocket-wheel upon said shaft, driving connections between said sprocket-wheel and the dropping devices of the machine, and a clutch between the sprocket-wheel and shaft whereby the wheel may be disconnected from the shaft and adjusted about the latter and reconnected to it at will to regulate the action of the dropping devices, substantially as described.

11. In a corn-planter, the combination, with the main frame of the machine, of a floating frame flexibly connected thereto, a shoe or runner extending longitudinally of the machine beneath said floating frame and serving to support the latter, a rotary shaft mounted in the floating frame, a sprocket-wheel upon said shaft, driving connections between said sprocket-wheel and the dropping devices of the machine, a friction-clutch intermediate the sprocket-wheel and shaft, and a lever controlling said clutch, substantially as and for the purpose described

12. In a corn-planter, the combination, with the main frame A having the front rod B, of the floating frame R hung at its front end upon the rod B, the shoe or runner W extending from front to rear of the machine along the middle line thereof beneath the floating frame R and serving to support the latter, the wheel T mounted in the frame R and having the teeth U projecting through the runner W, and a driving connection between the wheel T and the dropping devices of the machine, substantially as described.

13. In a corn-planter, the combination, with the main frame A having the front rod B, of the floating frame R hung at its front end upon the rod B, the shoe or runner W extending from front to rear of the machine along the middle line of the latter beneath the frame R and serving to support said frame, the rotary shaft S journaled in the frame R, the sprocket F upon said shaft, the two sprockets J' L' turning together upon the rod B, the chain I' connecting the sprockets F' and J', the rotary shaft O' having the sprocket N' fast upon it, the chain M' connecting the sprockets L' and N', and the dropping devices of the machine actuated by the shaft O', substantially as described.

14. In a corn-planter, the combination, with the main frame A having the front rod B, of the floating frame R hung at its front end upon the rod B, the shoe or runner W extending from front to rear of the machine along the middle line of the latter beneath the frame R and serving to support said frame, the rotary shaft S journaled in the frame R, the sprocket F' upon said shaft, the clutch O' between the sprocket F' and shaft S and the lever E' controlling said clutch, the sprocket J' L' turning together upon the rod B, the rotary shaft O' sprocketed J' L' turning together upon the rod B, the rotary shaft O' sprocketed J' L' turning together upon the rod B, the rotary shaft O' sprocketed

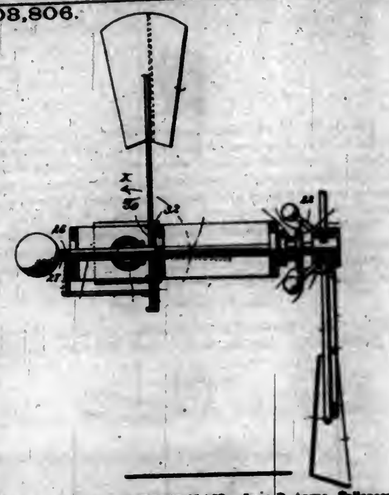
7. In a rotary pump, the combination with the gas-chamber, of gas-compressing devices, an actuating-shaft therefor, a bearing for said shaft in one wall of said chamber having a countersunk or tapered mouth adapted to cooperate with an annular tapered shoulder or enlargement on the said shaft, a bearing for the said shaft in the opposite wall of said chamber, an oil-chamber inclosing said bearing and itself provided with a packed supplemental bearing for the said shaft, the sectional area of said shaft where it passes through said supplemental bearing being less than the sectional area thereof at the main bearing, whereby a certain area is subjected to unbalanced pressure of gas which may have escaped into the oil-chamber, said pressure tending to move the said shaft longitudinally and bring the annular shoulder thereof into engagement with the annular mouth of the bearing at the opposite end, substantially as and for the purpose described.

8. The combination with a casing having an interior closed gas-chamber, of an annular gas-chamber formed in said casing and surrounding the said interior chamber, a series of plunger-chambers extending from one of said gas-chambers to the other, a plunger adapted to reciprocate in each plunger-chamber, a shaft extending through the interior gas-chamber and having an eccentric mounted thereon, a ring or float surrounding the said eccentric and adapted to cooperate with the plungers aforesaid to produce the reciprocatory movement thereof, antifriction devices interposed between said eccentric and said ring, a valve in each plunger adapted to be open during the movement of said plunger in one direction and to be closed during the movement thereof in the opposite direction, and a valve interposed between each plunger-chamber and one of the said gas-chambers adapted to be open during the movement of the plunger toward the same and to be closed during the movement of the plunger in the opposite direction, substantially as described.

9. In a rotary pump, the combination with a cylindrical shell having a longitudinal opening through the middle, of an annular closed chamber formed in the said shell and surrounding the said opening, a series of plunger-chambers extending from the said opening to the said annular chamber, a plunger in each plunger-chamber, a valve in each plunger to permit gas to pass in one direction but not in the other, a valve controlling communication between the plunger-chamber and the gas-chamber toward which the plunger moves in its operative stroke, a shaft having an eccentric cooperating with said plungers, the said shaft extending through the opening in the shell, bonnets for the ends of the shell having bearings for the shaft, the said bonnets closing the opening in the shell so that the said opening and bonnets constitute a closed gas-chamber; and gas-passages communicating respectively with said closed gas-chamber and the annular chamber aforesaid, substantially as described.

10. In a rotary pump, a casing having an interior closed gas inlet chamber, of a gas-outlet chamber surrounding the said inlet-chamber and also formed in the casing, a bore or opening extending from the outside of the casing through the gas-outlet chamber to the gas-inlet chamber, a bushing inserted in said bore, an annular valve-seat in said bushing, an opening in said bushing above said valve-seat to afford communication with the gas-outlet chamber, a valve cooperating with said seat, a bonnet secured to the outside of the casing to hold the said bushing in place, a spring interposed between said bonnet and said valve, a plunger fitting said bushing, the face of said plunger being adapted to engage and lift the said valve, means for reciprocating said plunger, an opening in said plunger controlled by a valve adapted to be open during the movement of said plunger toward the inlet-chamber and closed during the movement thereof toward the outlet-chamber, an inlet to the inlet-chamber and an outlet from the outlet-chamber, substantially as described.

608,806.

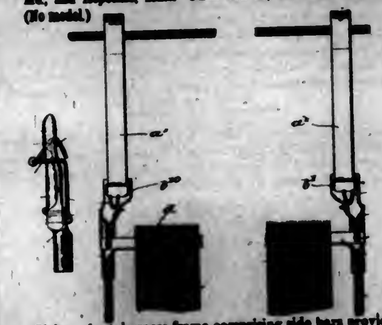


608,807. BUDDING-CLASP. JOHN D. ABELL, Tallapoosa, Ga. Filed Sept. 24, 1897. Serial No. 652,881. (No model.)



Claim.—The herein-described budding-clasp, consisting of a strip of metal flattened at its central portion to form a wide bearing-surface for covering the scion or bud, the end portions of said clasp being adapted to have their extremities interlocked or hooked together, substantially as described.

608,808. LOCKING-CLAMP FOR HEDDLE-BARS. MIRIAM J. ARMSTEAD, Lowell, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Oct. 18, 1897. Serial No. 655,594. (No model.)



Claim.—1. A harness-frame comprising side bars provided with seats, a detachable heddle-bar adapted to be supported by the seats, and locking-clamps to retain said bar in place, said clamps having each an open body to embrace the side bar, a flexibly-attached retaining-tongue to engage the heddle-bar, and a spring-latch pivotally mounted on the body of the clamp to engage the side bar.

2. A harness-frame comprising side bars provided each with a transverse open seat and an adjacent aperture, a detachable cross-bar having registering openings and adapted to be supported on said seats, combined with locking clamps having open bodies to loosely embrace the side bars, retaining-tongues fixed on said bodies to enter the openings in the side and cross bars, and retain the cross-bar in place, and a pivotally-mounted latch on each clamp-body, to hold the latter in place on its side bar.

3. A harness-frame comprising upright, apertured side bars provided with stirrups at their upper ends, a clamp mounted on each and including an open body provided with a retaining-tongue, and an oppositely-turned hook-shaped spring-latch pivotally mounted on the body, and a detachable heddle-bar having apertures to register with the apertures of the side bars, the tongues of the clamps entering the apertures of the side bars and heddle-bar, and being held in place by the latches extended into the stirrups.

4. A harness-frame comprising upright side bars having upper and lower openings therein, a detachable heddle-bar having apertures to register with the lower openings of the side bars, and a clamp removably mounted on each side bar, each clamp comprising a body having a bent tongue at its lower end to enter the registering openings of the side and heddle bars, and a spring-latch pivotally mounted on the upper end of the body, to enter the upper opening of the side bar and thereby hold the clamp in position and prevent withdrawal of the tongue.

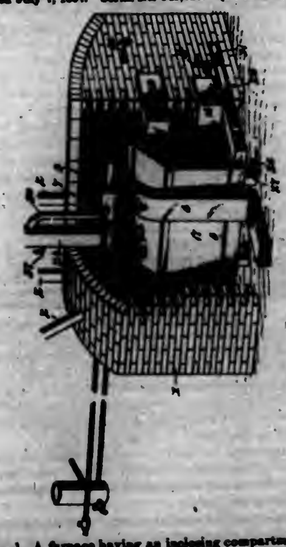
608,806. WINDMILL. ANTON SWIEBEL, Burlington, Wis. Filed June 13, 1896. Serial No. 596,225. (No model.)

Claim.—1. In a windmill having its wheel-shaft geared with a vertical operating-shaft, the combination with the turn-table, of a vane extending at right angles to the wheel-shaft with its edge to the wind, and means whereby the "creeping" of the turn-table will turn said vane-face to the wind, substantially as described.

2. In a windmill having its wheel-shaft geared with a vertical operating-shaft, the combination with a pivoted main vane lying normally in alinement with the wheel-shaft, of an auxiliary vane at right angles thereto edgewise to the wind, and connections between the two vanes for causing pressure on one side of the main vane to turn the auxiliary-vane face to the wind, substantially as described.

3. In a windmill having its wheel-shaft geared with a vertical operating-shaft, the combination with the pivoted main vane normally in alinement with the wheel-shaft, of an auxiliary vane at right angles thereto with its edge to the wind, crank-arms on the shafts of said vanes and link connecting them whereby undue wind-pressure on one side of the main vane will turn the auxiliary-vane face to the wind, substantially as described.

608,809. HOT-AIR FURNACE. ALFRED R. BLAIR, Prostburg, Md. Filed July 7, 1897. Serial No. 643,726. (No model.)



Claim.—1. A furnace having an inclosing compartmental casing interiorly divided by a transverse vertical partition 3, the furnace, proper, extending in front and in rear of the plane of said partition, and having its fire-box in communication directly and indirectly with a flue extending through the rear compartment of the casing, and said furnace also having a dome covering its fire-box, an air-supply conductor extending from a point outside of the casing contiguous to the bottom of the furnace, and terminating in an outlet located within the casing contiguous to and in front of said partition, and an open-topped moisture-distributing reservoir arranged above the furnace in rear of and contiguous to the plane of the partition and between the same and said flue, and provided with suitable supply and relief conductors, the reservoir being located above the rear portion of the furnace, proper, contiguous to the dome thereof, substantially as specified.

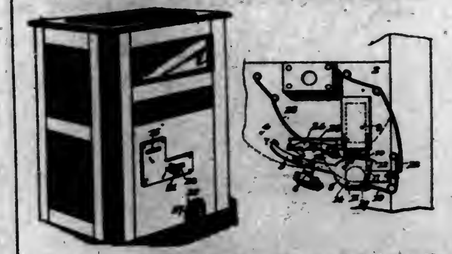
2. A furnace having an inclosing casing forming air-chambers and distributing-pipes in communication therewith, the furnace, proper, being provided with side and bottom radiating-surfaces, and means for supplying air, including a conductor entering the casing at its bottom, extending upward out of contact with said radiating-surfaces and discharging above the furnace, proper, substantially as specified.

3. A furnace having an inclosing casing provided with supply and distributing conveyers, the furnace, proper, comprising a combustion-chamber and an inclosing drum communicating directly and indirectly with a smoke-flue, said drum having a domed shell forming radiating-surfaces, a base and a spaced subbase forming connected conductors in communication with a smoke-flue, and draft-spaces between the walls of the combustion-chamber and the walls of the shell, substantially as specified.

4. A furnace having an inclosing casing provided with supply and distributing conveyers, the furnace, proper, comprising an open-topped fire-box, a drum having a base supporting the fire-box and forming the floor of an ash-pit under the fire-box, a drum-shell supported by the said base and surrounding the fire-box with its walls spaced therefrom, the interior of the shell being in communication by a direct-draft opening with a smoke-flue, and said drum also having a subbase spaced from the base and divided by interior partitions to form a central conductor, in communication with the smoke-flue below said direct-draft opening, said side conductors in communication with the side spaces between the fire-box and the walls of the shell, and connected with the central conductor at points remote from the smoke-flue, substantially as specified.

5. A furnace having an inclosing casing provided with supply and distributing conveyers, the furnace, proper, comprising an open-topped fire-box, a base supporting the fire-box and forming the bottom of the ash-pit therefor, said base being of greater area than the fire box, a subbase spaced from the base and having the intervening interval divided by partitions to form a central conductor and side conductors communicating with the central conductor at their front ends, a shell supported by the base with its sides spaced from the walls of the fire-box, to form chambers communicating through openings in the base with said side conductors, a smoke flue communicating with the rear end of the central conductor, a dampered direct-flue opening connecting the interior of the shell above the fire-box with the smoke-flue, a draft-damper in the smoke-flue above the plane of the direct-draft opening, and a gas-escape tube connecting the interior of the shell with the smoke-flue above the draft-damper, substantially as specified.

608,810. COIN-OPERATED VENDING APPARATUS. JAMES R. BOWLING and GEORGE W. GILLILAND, Herodosia, Ill. Filed Oct. 23, 1897. Serial No. 656,165. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a casing, a wheel journaled within the same and provided at its periphery with pockets adapted for the reception of cigars, coin-operated mechanism for actuating the wheel, and a frame resting upon the wheel, and guided in the casing and adapted to direct cigars into the pockets, substantially as and for the purpose described.

2. In an apparatus of the class described, the combination of a casing, a wheel journaled within the same and provided at its periphery with pockets adapted for the reception of cigars, coin-operated mechanism for actuating the wheel, and an oblong frame resting upon the wheel, provided at one end with a rigid inclined wall and having at its other end a hinged wall disposed at an inclination, said oblong frame being guided in the casing, substantially as described.

3. In an apparatus of the class described, the combination of a wheel having pockets and provided at one of its faces with projecting pins, a lever fulcrumed between its ends, having one end engaging the pins of the wheel and adapted to have its other end engaged by a coin to release the wheel, and a push-bar adapted to engage the coin and carry the same into engagement with the lever, said push-bar being provided with means for actuating the wheel when the lever is thrown out of engagement with the same, substantially as described.

4. In an apparatus of the class described, the combination of a wheel provided at one of its faces with projecting pins, a lever engaging one of the pins of the wheel and provided with a lateral projection arranged to be engaged by a coin, whereby the lever is swung away from the wheel, and a push-bar adapted to actuate the wheel and provided with a pin or projection for engaging the coin to carry the same into contact with the projection of the lever, substantially as described.

5. In an apparatus of the class described, the combination of a wheel provided with pockets, a lever engaging the wheel and locking the same against rotation, and a push-bar provided with means for actuating the wheel and arranged to carry a coin into engagement with the lever, whereby the latter is carried away from the wheel to release the same, substantially as described.

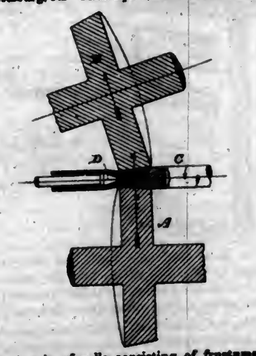
6. In an apparatus of the class described, the combination of a casing having a coin-chute, a wheel mounted within the casing and provided with pockets, a push-bar mounted at the lower end of the coin-chute and provided with a pawl for engaging the wheel, and a lever fulcrumed between its ends, engaging the wheel at one end and having its other end arranged at the lower end of the coin-chute, adjacent to the push-bar, to receive a coin between it and the same,

said lever being provided with means for throwing it out of engagement with the wheel when it is engaged by a coin, substantially as described.

7. In an apparatus of the class described, the combination of a casing, a wheel provided with pins at one of its faces, a coin-chute, a lever fulcrumed between its ends, engaging one of the pins and provided at its other end with a projection adapted to be engaged by a coin, a push-bar spaced from the lever and adapted to carry a coin into engagement with the said projection, springs for returning the push-bar to its initial position and for holding the lever normally in engagement with the wheel, and a spring-pressed pawl pivotally mounted on the push-bar and engaging one of the pins of the wheel for rotating the latter, substantially as described.

8. In the apparatus of the class described, the combination of a casing, a coin-chute, a wheel, a plate arranged at the bottom of the coin-chute and provided with a horizontal flange for supporting a coin, a push-bar adapted to engage the wheel and provided with means for advancing the coin, and a lever locking the wheel against rotation, provided with a projection to be engaged by a coin and having a stop normally bearing against the plate, substantially as described.

608,811. TUBE-MAKING MACHINE. JOHN A. CHARNOCK, Cleveland, Ohio, assignor, by mesne assignments, to the Shelby Steel Tube Company, Pittsburg, Pa. Filed Apr. 5, 1897. Serial No. 630,732. (No model.)



Claim.—1. A pair of rolls consisting of frustums of cones, arranged on opposite sides of a pass and revolving in the same direction, the larger diameter of each roll being opposed to the smaller diameter of the other roll substantially as set forth.

2. A pair of rolls consisting of frustums of cones arranged on opposite sides of a pass and revolving in the same direction, the larger diameter of each roll being opposed to the smaller diameter of the other roll, the rolls being so located that the pass between their opposed faces gradually diminishes in width toward its exit side as set forth.

3. A pair of rolls consisting of frustums of cones arranged on opposite sides of a pass and revolving in the same direction, the larger diameter of each roll being opposed to the smaller diameter of the other roll, the axes of the rolls being oppositely inclined relatively to the axis of the pass substantially as and for the purpose set forth.

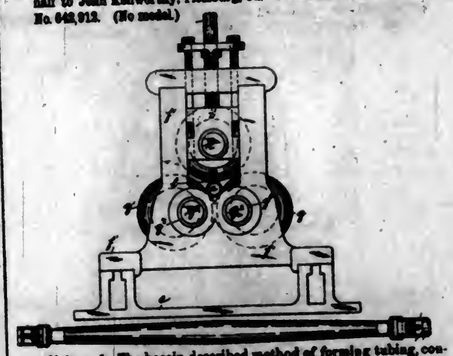
4. A pair of rolls consisting of frustums of cones arranged on opposite sides of a pass and revolving in the same direction, the larger diameter of each roll being opposed to the smaller diameter of the other roll, the pass between the rolls gradually diminishing in width toward its exit end and the axes of the rolls being oppositely inclined relatively to the axis of the pass substantially as and for the purpose set forth.

5. The combination of a pair of rolls consisting of frustums of cones arranged on opposite sides of a pass and revolving in the same direction, the larger diameter of each roll being opposed to the smaller diameter of the other roll, the axes of the rolls being oppositely inclined relatively to the axis of the pass and the pass gradually diminishing in width toward its exit side, a conical piercing-mandrel located in the axial line of the pass with its point at or near the exit side thereof, substantially as set forth.

6. The combination of a pair of rolls consisting of double frustums of cones arranged on opposite sides of a pass and revolving in the same direction, the entrance side of the pass being gradually diminished in width and bounded by sections of the rolls in which the larger diameter of each is opposed to the smaller diameter of the other, the exit side of the pass being gradually increased in width and bounded by prolongations of the rolls consisting of frustums of cones, a conical piercing-mandrel located in the exit side of the pass and in axial line therewith with its point at or near the narrowest part of the pass, with the axes of the rolls oppositely inclined relatively to the axis of the pass substantially as and for the purpose set forth.

7. A pair of rolls arranged on inclined axes and each having an inclined working surface with a pass between them, the larger diameter of the working surface on each roll being opposed to a smaller diameter of the working surface on the other roll, substantially as set forth.

608,812. METHOD OF AND APPARATUS FOR MANUFACTURING TUBING. THOMAS COATES, Youngstown, Ohio, assignor of one-half to John Kenworthy, Pittsburg, Pa. Filed June 30, 1897. Serial No. 643,913. (No model.)



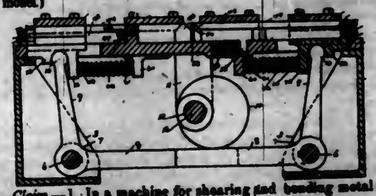
Claim.—1. The herein-described method of forming tubing, consisting in filling a blank or section of tubing with fluid air under pressure, and then applying pressing means to the blank or tubing to reduce or taper the same, substantially as described.

2. The herein-described method of forming tubing, consisting in filling a blank or section of tubing with fluid air under compression, and then rolling the blank or tube in rolls to reduce or taper the same, substantially as described.

3. In apparatus for making tubing, the combination of a blank or section of tubing having fluid air therein under pressure, and a check-valve on the end of said blank or tubing, substantially as and for the purposes set forth.

4. In apparatus for making tubing, the combination of a blank or section of tubing having fluid air therein under pressure, a check-valve on one end of said blank or tubing, and a safety-valve on the opposite end thereof, substantially as and for the purposes set forth.

608,813. MACHINE FOR SHEARING AND BENDING METAL. ROBERT B. DANIELS, Youngstown, Ohio, assignor of one-half to Hiram Hulbert, same place. Filed July 30, 1897. Serial No. 645,573. (No model.)



Claim.—1. In a machine for shearing and bending metal as described, the former-blocks, the dies and clamps, means for actuating the said dies and clamps intermittently, and means for feeding the material between the said dies and clamps and said former-blocks intermittently, substantially as and in the manner described.

2. In a machine for shearing and bending metal, the former-blocks and the dies and clamps arranged in diagonal pairs, means for actuating the said dies and clamps intermittently, and means for intermittently feeding the material between the said former-blocks and the said dies and clamps, substantially as and in the manner described.

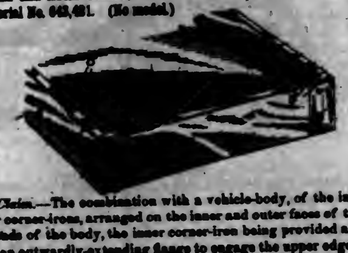
3. In a machine for bending and shearing metal strips, former-blocks secured oppositely diagonal upon a table, the sliding carriages mounted upon said table, means for reciprocating the said carriages, the dies and hammer-blocks secured to said carriages, the reciprocating clamping-bar actuated by the said hammer-block, the feed-wheels adapted to feed the material between the dies and the former-blocks, combined with means for intermittently actuating the said feed-wheels, substantially as described.

4. In combination with a bed, the sliding carriages mounted thereon, the dies and hammer-bars secured in said carriages, the reciprocating clamping-bar actuated by the said hammer-bar, the former-blocks secured to the table, the cranks journaled to a rocking shaft and actuating the said carriages, the cams actuating the said bell-cranks, the feed-wheels, the ratchet of one of the said feed-wheels, the pawl engaging the said rack, the pitmen and crank-arm actuating the said pawl, the said crank-arm being keyed to the before-mentioned rocking shaft and means for rotating the cams, all substantially as and for the purpose described.

5. In combination with the bed, the carriages, the dies and hammers thereof, the clamping-bars, the former-blocks, means for reciprocating the said carriages, means for adjusting the said dies, the hammer-bars and the former-blocks, and mechanism for feeding the material to the said dies and former-blocks, substantially as and for the purpose described.

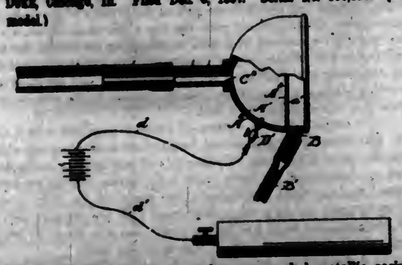
6. In combination with the bed, the carriages, the dies and hammers thereof, the clamping-bars, the former-blocks, means for reciprocating the said carriages, means for adjusting the said dies, the hammer-bars, and the former-blocks, and means for feeding the material comprising feed-wheels, a spring impinging one of said wheels upon the other, the ratchet of the latter wheel, the pawl engaging the said ratchet, the box in which said pawl is pivoted and the spring of said box, the pitmen pivoted to the said box, and pivoted to a crank-arm, the said crank-arm, and means for intermittently actuating the same, substantially as and for the purpose described.

608,814. CORNER-IRON FOR VEHICLE-BODIES. JOHN W. DURHAM and ADAM RILLIE, North Baltimore, Ohio. Filed July 3, 1897. Serial No. 643,491. (No model.)



Claim.—The combination with a vehicle-body, of the inner and outer corner-irons, arranged on the inner and outer faces of the sides and ends of the body, the inner corner-iron being provided at its top with an outwardly-extending flange to engage the upper edges of the body, and the outer corner-iron being provided at its lower end with an inwardly-extending flange to fit against the bottom of the body, said inner and outer corner-irons being vertically adjustable to vary the distance between the said flanges to suit wagon-bodies of different heights, and means for connecting the corner-irons, substantially as described.

608,815. ELECTROTHERAPEUTIC APPARATUS. GERVASE G. DUKE, Chicago, Ill. Filed Dec. 6, 1897. Serial No. 660,857. (No model.)

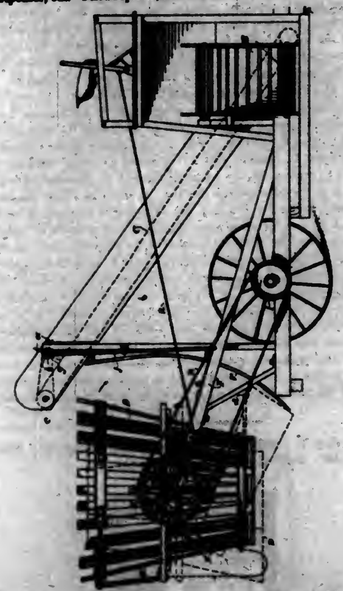


Claim.—1. The combination of an open-ended metallic casing provided with a jet or jets or orifices and with a marginal flange of insulating material, an outlet-tube leading from said casing inside of said flange and a primary battery or other source of electrical supply, one terminal of which is electrically connected with said metallic casing and the other terminal of which is provided with an electrode.

2. The combination with a metallic casing provided with a perforated diaphragm and an insulated marginal flange, an outlet-passage opening from said casing outside of said diaphragm, and a primary battery or other source of electrical supply, one terminal of which is connected with said metallic casing and the other terminal of which is provided with an electrode.

3. An open-ended casing provided adjacent to its open end with a perforated diaphragm, with an inlet-tube opening into said receptacle behind said diaphragm, and with an outlet-tube leading therefrom between said diaphragm and the outer margin of the casing.

608,816. HAY-COCKING MACHINE. WILLIAM H. FRAMER, Montpelier, Cal. Filed Sept. 13, 1897. Serial No. 651,441. (No model.)



Claim.—1. The combination in a hay-cocking machine of the sickle-carrying belts or drapers and a normally vertically disposed basket suspended upon trunnions so as to receive the grass discharged from the carrying-belt, said basket having a side loosely pivoted at the top whereby the bottom is allowed to press upon the contents of the basket by gravitation as the basket revolves, a pulley loosely mounted upon the trunnion-shaft, a ratchet-wheel carried by the pulley, a spring-pressed lever-arm connected with the trunnion-shaft having a lug adapted to engage with the ratchet, a latch whereby the lever is raised and the lug maintained normally out of engagement with the ratchet-teeth, and a device within the control of the driver by which the lever may be disengaged from the latch and allowed to engage the ratchet whereby it and the trunnion-shaft are rotated and the basket reversed and discharged.

2. A vertically-disposed basket mounted upon a trunnion-shaft and adapted to receive grass which is delivered from the sickle of a mowing-machine, said basket having a side loosely pivoted at the top whereby the bottom is allowed to press upon the contents of the basket by gravitation as the said basket revolves, a pulley loosely turnable upon the trunnion-shaft and continuously rotated by connection with a movable part of the main machine, a ratchet-wheel carried by said pulley, an arm extending across and connected with the basket-trunnion, a spring-pressed lever having one end hinged to said arm and a lug upon the lever adapted to engage with the ratchet, a latch by which the free end of the lever-arm is normally raised and the lug held out of engagement with the ratchet, with a device within the reach of the driver whereby the latch may be disengaged and the lever dropped to allow the lug to engage the ratchet whereby the basket is revolved and discharged, said latch upon its release being returned into the path of the lever so as to again raise it and disengage the lug when the basket has reached its upright position.

3. A basket suspended upon a trunnion-shaft and adapted to receive cut grass from the conveying-belt of a mowing-machine, a continuously-rotating pulley and ratchet-wheel carried thereby mounted upon the trunnion-shaft, an arm supported upon the outer end of said shaft with lugs to which one end of a spring-pressed lever is fulcrumed, a lug upon said lever adapted to engage the teeth of the ratchet, a movable latch by which the lug is normally held out of engagement with said teeth, means for disengaging the latch to allow the lug to engage the teeth whereby the trunnion-shaft and basket are revolved, a hub fixed upon the trunnion-shaft having an arm extending across it from side to side, a corresponding arm fixed to the

lever-supporting bar extending parallel with the first-named arm, a spring between said two parallel arms whereby the basket is allowed to oscillate when brought to a state of rest after its revolution is completed, and the strain upon the parts is relieved.

4. A basket mounted upon trunnions adapted to receive cut grass from the carrying-belt of a mowing-machine, mechanism for rotating the basket, an arc-shaped rack fixed to the machine so that the open mouth revolves against the arc and the contents are prevented from escaping until the basket is entirely reversed, said basket having the side opposite to the rack loosely pivoted at the top whereby as the basket revolves said side presses upon the contents by gravitation and assists in forcing said contents out of the basket.

5. The basket suspended upon trunnions adapted to receive grass from the carrying-belts of a mowing-machine, mechanism by which said basket is periodically revolved to discharge its contents and return to a vertical position, a side of said basket being hinged at the top whereby its opposite end is permitted to swing inwardly and is adapted to press upon the contents thereof by gravitation when the basket is reversed whereby the heap is smoothed and pressed into shape, and means for limiting the swinging movement of said side.

6. A basket mounted upon trunnions and adapted to receive the cut grass from the carrying-belts of a mowing-machine, mechanism by which the basket is periodically revolved so as to discharge its contents and return it to its normal upright position, an essentially vertically disposed fixed arc or segment against which the mouth of the basket moves during the first half of its rotation until it is in position to discharge upon the ground, and a side of the basket loosely pivoted at the top whereby the bottom is allowed to press upon the contents of the basket by gravitation as the basket revolves from the upright to the reverse position, and to be returned to its normal position as the basket leaves it and returns to its upright position.

608,817. CAN. ERNST M. HALLBAUER, Chicago, Ill. Filed May 15, 1897. Serial No. 636,630. (No model.)



Claim.—1. A can having the head B formed with a circumferential depression *r* and a nozzle about the opening, said nozzle having an outward-projecting bead *m* presenting to the inner surface of the cover-flange, for engagement therewith, practically a mere circumferential line, substantially as and for the purpose set forth.

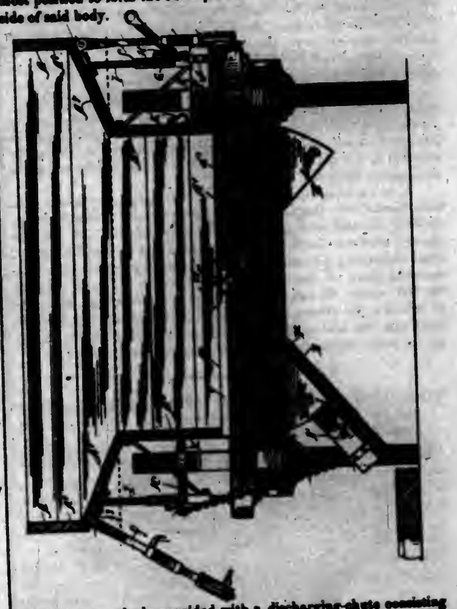
2. A can having the head B formed with a circumferential depression *r* and a nozzle about the opening, said nozzle having an outward projecting bead *m* presenting to the inner surface of the cover-flange, for engagement therewith, practically a mere circumferential line, and provided with an inturned reinforcing-flange *l*, substantially as and for the purpose set forth.

3. In a can, the combination with the can-body of a head formed with a circumferential depression *r* and a nozzle about the opening, said nozzle having an outward-projecting circumferential bead *m* presenting about its greater circumference practically a mere line, and a cover C having the shoulder *k* and flange *i* to surround said nozzle and engage with said bead substantially as and for the purpose set forth.

4. In a can, the combination with the can-body of a head formed with a circumferential depression *r* and a nozzle about the opening, said nozzle having an outward-projecting bead *m* about its edge, presenting about its greater circumference practically a mere line and an inturned reinforcing-flange *l* on said nozzle, and a cover C having the shoulder *k* and flange *i* to surround said nozzle and engage with said bead at the inturned end of said shoulder, substantially as and for the purpose set forth.

608,818. WAGON. CHESTER HOYT, Chicago, Ill. Filed May 28, 1897. Serial No. 638,138. (No model.)

Claim.—1. A wagon provided with a discharge chute consisting of a flap which forms part of the bottom of the body and side plates depending from said body, said flap being extended beyond the side wall of the body and fitting at its side edges at its part inside of said wall against said side plates to form the inner part of the chute and being provided outside of the body with lateral upwardly-extending flanges which supplement said side plates when the flap is in its lowermost position to form the outer part of the chute which extends outside of said body.



2. A wagon-body provided with a discharging-chute consisting of a hinged flap which forms part of the bottom of the body and is located flush with said bottom when in its closed position, depending side plates, and means for locking the flap in its elevated position, comprising a detent hinged to the body above the end of the flap and a movable locking-hook connected with the detent and adapted to engage a stationary holding part of or upon the body.

3. In combination with a wagon-body, a hinged flap which forms part of the bottom of the body, depending side plates at the side edges of the flap, a detent hinged to the body above the free end of the flap and a sleeve sliding on the detent and provided with a rigid hook, said hook being adapted to engage a stationary part of or upon the body.

4. In combination with a wagon-body having overhanging side walls, a hinged flap which forms part of the bottom of the body, depending side plates forming with the flap a discharge-chute, a vertical standard connected with said overhanging portion of the side wall on one side of the body and means for lifting the free end of the flap consisting of a shaft mounted transversely in said standard and provided with a hand-crank and chains attached to the side margins of the flap and engaging said shaft.

5. A wagon-body the bottom of which is provided with a central, transverse opening, a central, longitudinal connecting-bar which joins the parts of the body on either side of said opening and is flush with the bottom of the body, said body having discharge-chutes formed by flaps which are hinged at the center of the body to said connecting-bar and form when their outer ends are elevated part of the bottom of the body and having continuous side pieces by which longitudinal strength or stiffness is given to the body.

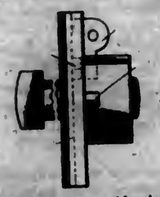
6. A wagon-body embracing continuous longitudinal side pieces, two parallel cross-pieces forming central openings for discharging-chutes, a central, longitudinal bar extending between and connecting said cross-pieces with its top surface flush with the bottom of the body and flaps hinged to said bar between the cross-pieces and constructed to lie flush with and form when closed parts of the bottom of the wagon-body.

7. In combination with a wagon-body, having parallel cross-pieces forming chute-openings and hinged flaps located between said cross-pieces, of a central metal connecting-bar attached at its ends to the cross-pieces and provided with centrally-arranged pivot-pins engaged by the hinge members of both flaps to pivotally support the same, the said bar being so located as to support said flaps flush with the bottom of the body when the latter are in their closed position.

8. In combination with a wagon-body, having parallel cross-pieces forming chute-openings and hinged flaps located between said cross-pieces, of a central metal connecting-bar attached at its ends to the cross-pieces and provided with centrally-arranged pivot-pins engaged by the hinged members of both flaps to pivotally support the same, said bars being made of cast metal and provided with lateral flanges and with transverse webs through which said pivot-pins are inserted.

9. A wagon-body comprising parallel cross-pieces, between which are formed openings for discharging-chutes, hinged flaps located between the said cross-pieces and serving when elevated to close said openings, depending side plates attached to the inner faces of said cross-pieces and forming the side walls of the discharging-chute when the flaps are lowered and braces for the said depending plates secured to the lower parts of said plates and extending upwardly to and outside of the cross-pieces.

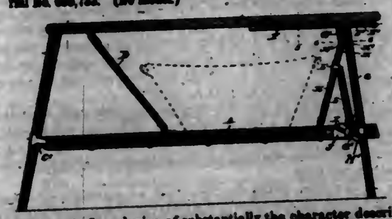
608,819. NUT-LOCK. PERRY B. KENYON, Westerly, R. I. Filed June 3, 1897. Serial No. 639,205. (No model.)



Claim.—1. In a nut-lock, the combination with a slotted plate, said slot intersecting the bolt-aperture therein, ratchet-teeth provided in the side walls of said slot, a nut having in the inner face slots directed toward the center thereof, a key adapted to enter and occupy the recess formed by the slot in said nut registering with the slot in said plate after the backward rotation of the nut on the bolt which engages the ratchet-teeth on the key with the ratchet-teeth on the plate, thereby maintaining the engagement of said key with the plate and nut and preventing rotation of the nut.

2. An improved nut-locking device having combined therein a slotted plate, a nut having its inner surface slotted, a key adapted to enter and occupy the recess formed by the registering of the slot in the plate and one of the slots in the nut, teeth formed in the slot in said plate, and ratchet-teeth upon said key which are engaged with ratchet-teeth on said plate by the backward rotation of the nut on the bolt, the whole constructed and adapted for operation, substantially as herein set forth.

608,820. COMBINATION STEP-LADDER AND IRONING-BOARD. ANDREW SANDERSON, Chicago, Ill. Filed May 3, 1897. Serial No. 636,723. (No model.)



Claim.—1. In a device of substantially the character described, the combination of the step-ladder, the hinged top thereof having the supporting-legs secured thereto, hinged guides secured to the side pieces of the ladder through which the supporting-legs pass, the supporting-legs for the free end of the ironing-board, and a catch carried by one of the ladder-steps and adapted to engage the cross-bar of the supporting-legs of the hinged top when the device is used for a ladder, substantially as shown and described.

2. In a device of substantially the character specified, the combination of the step-ladder having the hinged top, the supports therefor, an ironing-board hinged to said top, the hinged supporting-legs for the free end of the ironing-board, suitable slotted guides secured to the side pieces of the step ladder, and projections carried by said supporting-legs adapted to engage in the slots of said guides, substantially as shown and described.

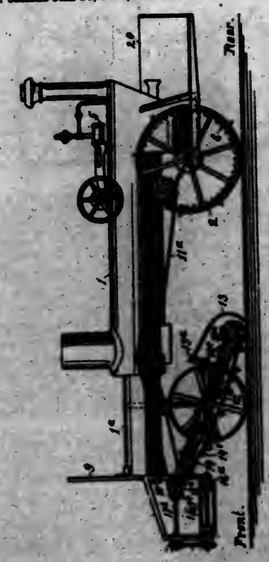
3. In a device of substantially the character specified, the combination of the step-ladder having the hinged top, the supporting-legs therefor, an ironing-board hinged to said top, the supporting-legs for the free end of said board provided with suitable projections near their lower ends, slotted guides carried by the side pieces of the step-ladder in which said projections fit, a brace-rod hinged at one end to the step-ladder and having its other end engaging the supporting-legs, and a bolt carried by the said legs for engaging said end, substantially as shown and described.

4. In a device of substantially the character specified, the combination of the step-ladder having the hinged top, the supporting-legs therefor, brace-rods hinged at one end to the side pieces of the step-ladder, and at their other ends to the hinged top, an ironing-board hinged to said top and supporting-legs for the free end of the ironing-board, substantially as shown and described.

5. In a device of substantially the character described, the combination of the step-ladder having a hinged top, an ironing-board hinged to said top and having at one end a longitudinally-grooved projecting strip, and a bolt, supporting-legs for the free end of said ironing board secured by the bolt when the parts are folded and the device used as a step-ladder and projections at their upper ends which slide in the grooves of said strip, a brace-rod hinged to the cross-piece of said legs, a brace-rod hinged to one of the steps of the step-ladder, said rods having a sliding and hinged connection with each other at their free ends, substantially as shown and described.

6. In a device of substantially the character described, the combination with a step-ladder, having a hinged top, of an ironing-board hinged thereto, suitable supports for the free end of said board for holding it in horizontal position, means for locking the supports to the board when the device is used as a step-ladder, and the sliding-brace-rods pivotally connected to the ladder and to the supports, substantially as described and for the purpose stated.

608,821. TRACTION-ENGINE. WILLIAM STEPHENSON, Morris, Canada. Filed Mar. 17, 1897. Serial No. 628,099. (No model.) Patented in Canada Jan. 28, 1896, No. 51,157.



Claim.—The combination with a wheeled platform, of a straw-burning engine mounted thereon and imparting motion thereto, a transverse shaft projecting from one side of the platform and driven by the engine, a frame pivoted at its forward end to the said shaft, rake-teeth and supporting-wheels upon the depending end of the said frame, an apron mounted on the said frame and passing over the said shaft and driven thereby, a longitudinal apron upon the opposite side of the engine, a sprocket-chain extending across the front of the engine, driven by the transverse shaft and driving the transverse and longitudinal aprons, substantially as described.

608,822. SPLIT NEEDLE. EDWIN STRAIN, Melrose, Mass., assignor of one-half to Helen A. Blanchard, New York, N. Y. Filed Feb. 5, 1898. Serial No. 669,401. (No model.)

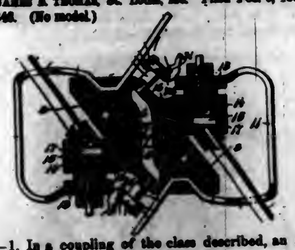
Claim.—1. A needle having an enlarged shank, a longitudinal slot extending through the needle from the eye thereof to and into the lower portion of the shank, and partially dividing the needle into

thicker and thinner portions which are integral with and united by the point end of the needle, a lateral opening from said slot through one side of the shank, said thinner portion being apart from the thicker portion at its upper end and forming a spring and having a groove in the face of its upper end, such upper end having the same conformation as the outer surface of the parts of the shank at the same height, a groove formed in one side of the shank, and a pin secured in said groove and provided at its lower end with a pointed guard arranged to lie in the groove in the free end of the spring, substantially as described.



2. A needle having an enlarged shank, a longitudinal slot extending through the needle from the eye thereof to and into the lower portion of the shank, and partially dividing the needle into thicker and thinner portions which are integral with and united by the point end of the needle, a lateral opening from said slot through one side of the shank, said thinner portion being apart from the thicker portion at its upper end and forming a spring having an inclined inner surface at its upper end and having a groove in the outer face of its upper end, such upper end having the same external conformation as the outer surface of the parts of the shank at the same height, a groove formed in one side of the shank, and a pin secured in said groove and formed at its lower end as a pointed guard arranged to cross the lateral opening and lie in the groove in the free end of the spring, substantially as described.

608,823. COMBINED AUTOMATIC CAR AND AIR-BRAKE COUPLING. JAMES B. THOMAS, St. Louis, Mo. Filed Feb. 6, 1897. Serial No. 622,348. (No model.)



Claim.—1. In a coupling of the class described, an automatic air-brake coupling head or shoe carrying a clamp formed with a slot therein, said head or shoe being provided with an interior passage communicating with separated orifices formed in the inner side of the head or shoe, and a train-pipe fitted in one of the orifices and extended through the slot of said clamp, substantially as set forth.

2. In a coupling of the class described, an automatic air-brake coupling head or shoe having an interior fluid-passage communicating with separated coupling and train-pipe orifices, and a rigid interchange coupling-nipple fitted directly to the head or shoe and having communication with the interior fluid-passage through an orifice independent of the coupling and train-pipe orifices, said coupling-nipple being adapted to interlock with an unlike air-brake coupling, substantially as set forth.

3. In a coupling of the class described, an automatic air-brake coupling head or shoe having an interior fluid-passage communicating with separate coupling and train-pipe orifices, an interchange coupling-nipple fitted to the head or shoe and communicating with the interior fluid-passage, said nipple being provided at its outer end with a coupling-head, a dust-cap fitted to said coupling-head, and fastening means for securing the dust-cap over the orifice in said coupling-head of the nipple, substantially as set forth.

4. In a coupling of the class described, an automatic air-brake coupling head or shoe having an interior fluid-passage with communicating orifices, an interchange coupling-nipple fitted to the head or shoe and communicating with the interior fluid-passage, said nipple being provided at its outer end with a coupling-head formed with coupling flanges or lugs, a dust-cap pivoted to the coupling-head of the nipple and provided at one edge with a hook for engagement with one of said flanges or lugs, and a hooked locking-dog pivoted to the coupling-head of the nipple and adapted to engage with either said dust-cap or an unlike air-brake coupling, substantially as set forth.

5. In a coupling of the class described, an automatic air-brake coupling head or shoe having a train-pipe connection and formed with a transverse fluid-passage terminating in oppositely-located orifices, and dust-guards arranged to cover said oppositely-located orifices to dispense with a cut-off cock for the train-pipe connection, substantially as set forth.

6. In a coupling of the class described, an automatic air-brake coupling head or shoe having an interior fluid-passage and a coupling-orifice in its inner coupling-face, a pivotal dust-shield arm having a vertically-movable pivotal connection at one end with the coupling head or shoe at the lower edge of the latter, said pivotal dust-shield arm being provided intermediate its ends with a cap projection and at its free end with a locking-hook adapted to engage with the top edge of the coupling head or shoe, substantially as set forth.

608,824. AUTOMATIC COMBINED CAR AND AIR-BRAKE COUPLING. JAMES B. THOMAS, St. Louis, Mo. Filed May 13, 1897. Serial No. 634,991. (No model.)



Claim.—1. In a coupling of the class described, the combination with the car coupling-head, and the air-brake coupling head or shoe arranged therebelow, of a pair of pivotally-supported bracket-arms, and movable link connections between the forward ends of said arms and the inner or rear end of the air-brake coupling head or shoe, substantially as set forth.

2. In a coupling of the class described, the combination with the car coupling head and draw-bar, and the air-brake coupling head or shoe arranged therebelow, of a pendent hanger-post provided at its upper end with a pair of T-shaped locking-heads secured in correspondingly-shaped recesses or sockets formed in the draw-bar, a pair of connected swinging bracket-arms pivoted to said hanger-post, and pivotal link connections between the forward ends of said bracket-arms and the rear end of the air-brake coupling head or shoe, substantially as set forth.

3. In a coupling of the class described, the combination with the car coupling-head, of the air-brake coupling head or shoe arranged below the car coupling-head and provided at its rear end with a pair of perforated ears, a pair of connected pivotally-supported bracket-arms, and pivotal segmental link-blocks provided with bifurcated ends and pivotally connecting the forward ends of said arms with the ears of the air-brake coupling head or shoe, substantially as set forth.

4. In a coupling of the class described, an automatic air-brake coupling head or shoe provided at its forward end with an inner beveled side portion and at its front upper corner with a beveled bill, an offstanding guide or guard tongue normally lying opposite and beyond said front beveled side portion, and a clamp mounted on the head or shoe and adapted to engage with the outer side of a companion head or shoe, substantially as set forth.

5. In a coupling of the class described, an automatic air-brake coupling head or shoe, a laterally-movable rigid clamp-yoke loosely embracing the rear end portion of the head or shoe, and means for tightening said clamp-yoke against the companion head or shoe, substantially as set forth.

6. In a coupling of the class described, an automatic air-brake coupling head or shoe, a laterally-movable rigid clamp-yoke slidably embracing the rear end portion of the head or shoe, and means for tightening said clamp-yoke against a companion head or shoe by the air-pressure of the air-brake system, substantially as set forth.

7. In a coupling of the class described, an automatic air-brake coupling head or shoe, a rectangular laterally-movable clamp-yoke slidably embracing the rear end portion of the head or shoe and provided with a forwardly-extending rigid clamping-arm projected centrally from the inner side portion of the yoke and adapted to engage against the outer side of the companion head or shoe, and a pressure-adjusted connection between the outer side of said yoke and the coupling head or shoe, substantially as set forth.

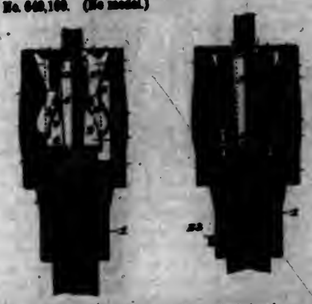
8. In a coupling of the class described, an automatic air-brake coupling head or shoe, having an interior fluid-passage and an orifice in its coupling-face, and a dust-shield arm pivotally supported at the inner side of the coupling head or shoe and carrying an offstanding guide-tongue for receiving the impact of the companion head or shoe, substantially as set forth.

9. In a coupling of the class described, an automatic air-brake coupling head or shoe having an interior fluid-passage and an orifice in its coupling-face, and a swinging dust-shield arm adapted to work over said orifice and pivoted at its lower end to the inner side of the coupling head or shoe, said dust-shield arm being provided at its upper end with a laterally-disposed hook adapted to straddle and engage with the top edge of the coupling head or shoe, and carrying at a point intermediate of its ends an offstanding forwardly-disposed guide or guard tongue, substantially as set forth.

10. In a coupling of the class described, an automatic air-brake coupling head or shoe having an interior fluid-passage and an orifice in its coupling-face, a swinging shield-arm adapted to work over said orifice and carrying at a point intermediate its ends an obtuse-angled offstanding guide or guard tongue, said shield-arm being provided at its upper end with a hook having a beveled upper side and engaging with the top edge of the head or shoe, and an adjusting-hook having a swiveled support at one end on the head or shoe and provided at its free end with a beveled beak or nose adapted to be engaged with the beveled upper side of the shield-arm hook of the companion head or shoe, substantially as set forth.

11. In a coupling of the class described, an automatic air-brake coupling head or shoe having an interior fluid-passage and an orifice in its coupling-face, and a movable dust-shield arm supported at the inner side of the head or shoe and carrying a tongue for receiving the impact of the companion head or shoe, substantially as set forth.

608,825. BIT-STOCK. MELVIN RAMSEY, Oklahoma, Okla., assignor of one-fourth to I. B. Johnson, same place. Filed Aug. 28, 1897. Serial No. 649,169. (No model.)



Claim.—1. The combination with a shaft having a slotted head, of fulcrum-pins extending across the slot in the head near its edges, clamping-jaws fulcrumed on the pins with their outer faces projecting beyond the periphery of the head, a sleeve slidably fitted over the head to open and close the jaws by its movement, and springs interposed between said sleeve and an adjustable support on the shaft to normally force the sleeve outwardly to close the jaws, substantially as described.

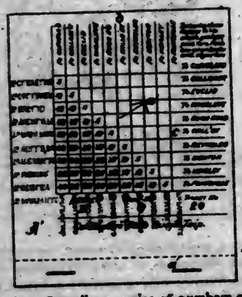
2. The combination with a shaft having a slotted head, the jaws supported to rock on fulcrums in said slot, the outer faces of said jaws being curved outwardly above and below their fulcrums, a sleeve slidably fitted over the head and having an internal shoulder to engage the curved outer faces of the inner ends of the jaws, and a flaring bore at its outer end to engage the curved outer faces of the outer ends of the jaws, and springs interposed between said internal shoulder and an adjustable support on the shaft, to normally force the sleeve outwardly, substantially as described.

3. The combination with a shaft having a slotted head, of jaws supported to rock on fulcrums in said slot, the outer faces of said jaws being curved outwardly above and below their fulcrums, a sleeve slidably fitted over the head and having an internal shoulder to engage the curved outer faces of the inner ends of the jaws, and a flaring bore at its outer end to engage the curved outer faces of the outer ends of the jaws, a collar slidably supported on the shaft to extend within said sleeve, springs interposed between the said shoulder and the end of the collar, and means to lock the collar on the shaft, substantially as described.

4. The combination with a shaft having a slotted head, the opposing faces of said slot being provided with V-shaped grooves extending longitudinally thereof, of jaws supported to rock on fulcrums in said slot, the outer faces of said jaws being curved outwardly above and below their fulcrums, and their inner faces having overhanging lips at their outer ends, and V-shaped grooves extending longitudinally from said lips, and said lips having curved recesses in their opposing faces, a sleeve slidably fitted over the head and having an internal shoulder to engage the curved outer faces of the inner ends of the jaws, and a flaring bore at its outer end to engage the curved outer faces of the outer ends of the jaws, and springs interposed between said internal shoulder and an adjustable support on the shaft to normally force the sleeve outwardly, substantially as described.

5. The combination with a shaft having a slotted head, of fulcrum-pins extending across the slot in the head near its edges, clamping-jaws fulcrumed on the pins with their outer faces projecting beyond the periphery of the head, a sleeve slidably fitted over the head to open and close the jaws by its movement, said sleeve having an internal annular shoulder, and the head and sleeve having registering semicircular grooves extending outwardly from said shoulder, coiled springs seated in said grooves and abutting at one end against said shoulder, a collar slidably supported on the shaft to engage the other ends of the springs, and means to lock the collar on the shaft, substantially as described.

608,826. FARE-RECEIPT SLIP. FRED S. BOSTON and CHARLES F. BATES, Cleveland, Ohio. Filed Feb. 9, 1897. Serial No. 622,654. (No model.)



Claim.—1. In a fare slip, a series of numbers on one side indicating the amount of fare between two stations, said numbers arranged in lines forming numerical progressions, a series of names of stations, suitable means for identifying each number with two stations between which said number indicates the amount of fare, each number having opposite on the other side of said slip, the number next below it in the progression of which it is a member, substantially as set forth.

2. In a fare-receipt slip, a series of numbers on one side indicating the amount of fare between two stations, said numbers arranged in lines in two directions and forming numerical progressions in both said directions, a series of names of stations, each name appearing twice in said series, and suitable means for identifying each number with two stations between which said number indicates the amount of fare, each number having opposite it on the other side of said slip, the number next below it in the progression of which it is a member, substantially as set forth.

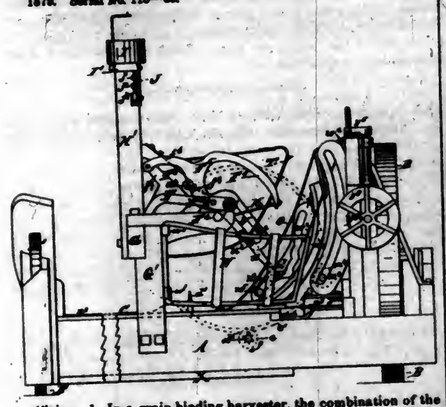
3. In a fare-receipt slip a series of numbers on one side indicating the amount of fare between two stations, said numbers arranged in lines in two directions and forming numerical progressions in both said directions, each number having opposite it on the other side the number next below it in the progression and having opposite it in the direction of each line the name of one of the two stations between which it indicates the fare, substantially as set forth.

4. A fare-receipt slip having an obverse and a reverse side, and provided on the obverse side with a column of names of the stations arranged in sequence along one side of a parallelogram, and a similar column arranged along an adjacent side of said parallelogram, and having the amount of fare between any two stations indicated at the junction of a line drawn from the name of one of said two stations in one column parallel with the adjacent side of the parallelogram and another line drawn from the name of the other station in the second-named column and parallel with the side of the parallelogram adjacent to its side, the reverse side being similarly arranged with respect to the same parallelogram, but having one column shifted a distance substantially equal to the distance between two successive names on the obverse side, substantially as set forth.

5. A fare-receipt having an obverse and a reverse side, and provided on the obverse side with a column of names of stations arranged in sequence along one side of the parallelogram and a similar column arranged along an adjacent side of said parallelogram and having the amount of fare between any two stations indicated at the junction of a line drawn from one of said stations as one column, parallel with the adjacent side of the parallelogram and another line drawn from the name of the other station in the second-named column and parallel with the side of the parallelogram adjacent to its side, the reverse side having similar columns arranged along the other two adjacent sides of the same parallelogram and having the

fare amounts arranged in the same manner as on the obverse side, one of said columns on said reverse side being shifted a distance substantially equal to the distance between two successive names, substantially as set forth.

603,827. BINDING REAPING-MACHINE. WILLIAM W. BURSON, Rockford, Ill., assignor, by direct and mesne assignments, to the McCormick Harvesting Machine Company, Chicago, Ill. Filed May 22, 1879. Serial No. 115—83.



Claim.—1. In a grain-binding harvester, the combination of the platform, a raking mechanism, an upwardly-inclined deck on which the grain received from the raking-platform is bound, and a binding mechanism adapted to travel with and bind the grain while moving on said deck.

2. In a grain-binding harvester, the combination of the platform, a raking mechanism, an upwardly-inclined deck on which the grain received from the raking-platform is bound, mechanism to elevate the grain on the deck, and binding mechanism adapted to travel with and bind the grain while being elevated.

3. In a grain-binding harvester, the combination of the platform, a raking mechanism, an upwardly-inclined deck on which the grain received from the raking-platform is bound, mechanism for separating and compressing the grain into bundles and elevating it on the deck, and binding mechanism adapted to travel with and bind the grain while being elevated.

4. In a binding mechanism, the combination with a cord tier or knotter, of a receptacle for holding the balls of cord, said receptacle having expansible and adjustable walls.

5. A cord-holder consisting of a receptacle to contain the ball, with means whereby its capacity can be varied by adjusting the sides to and from the center for different-sized balls.

6. In a cord-holder for grain-binders, a bottom, sides to retain the balls on the bottom, and a device whereby the sides of the holder may be adjusted to and from the center for large and small balls.

7. In combination, to form a cord-holder, a bottom or support for the balls, an envelop to retain the balls thereon, said envelop being composed of a sheet of metal attached to the bottom of the holder at its lower edge, and having its upright edges overlapping, and means whereby the meeting edges of the metal sheet may be adjusted and secured with respect to each other so as to enlarge or decrease the diameter of the holder.

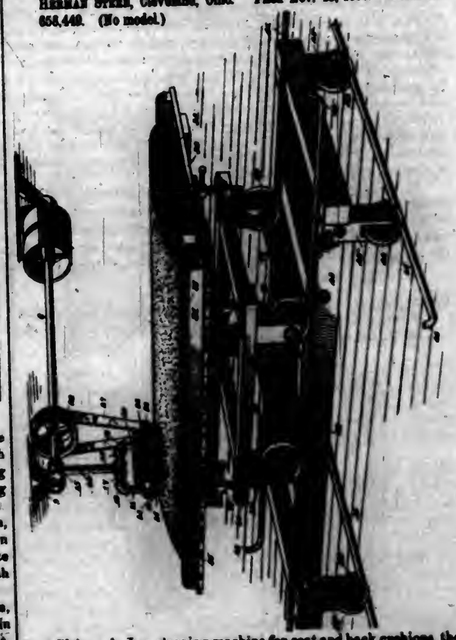
8. In a cord tying or knotting mechanism, the combination of a rotary hook having a pivoted latch, with a latch-opener, the latter adapted to engage the latch forward of its pivot as the hook rotates, so as to open said latch.

9. In a harvester, the combination of the main supporting-wheel supported and adjusted in guides on the main frame, the grain-wheel, a shaft mounted in bearings on the machine-frame, said shaft having different diameters, and connections between the said shaft and the main and grain wheels, that leading to the main wheel being connected with the larger diameter of the shaft.

10. In a harvester, the combination of the main supporting-wheel, the grain-wheel, a winding-shaft mounted in bearings on the machine-frame, said shaft having winding portions or drums of different diameters, and flexible connections between said shaft and the main and grain wheels, that leading to the main wheel being connected with the larger diameter of the shaft.

11. In a harvester, the combination of the main supporting-wheel, gear-racks on the machine-frame with which pinions on the wheel-axle engage, the grain-wheel journaled on an arm pivoted to the machine-frame, a winding-shaft having winding portions or drums of different diameters, a flexible connection extending from the larger diameter of said shaft to the main-wheel axle, and a similar connection leading from the smaller diameter of the shaft to the arm of the grain-wheel.

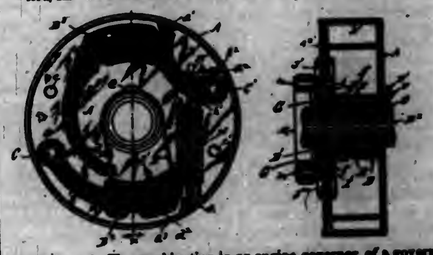
603,828. CUSHION-CLEANING MACHINE. GEORGE H. DOW and HERMAN STEER, Cleveland, Ohio. Filed Nov. 13, 1897. Serial No. 658,449. (No model.)



Claim.—1. In a cleaning-machine for seat and back cushions, the combination with a bottom frame mounted on transverse rails and carrying longitudinal rails on its top, of an upper frame mounted upon longitudinal rails, a table adjustably mounted upon said upper frame, and adjusting side and end clamps upon said table, substantially as described.

2. The combination with a line-shaft, of a T-fitting mounted looseiy thereon, a pipe or rod secured in said fitting at right angles to the shaft, a T-fitting at the outer end of said pipe or rod, branch lateral pipe-sections or rods secured in the outer T-fitting, elbows secured at the outer ends of the lateral branches, pipe-sections extending forward from the elbows, T-fittings upon the outer ends of said sections, a shaft journaled in said T-fittings, and a rotary brush upon said shaft, substantially as described.

603,829. ENGINE-GOVERNOR. CHARLES M. GEISSLER, Rockford, Ill. Filed Jan. 18, 1897. Serial No. 619,861. (No model.)



Claim.—1. The combination in an engine-governor, of a governing-eccentric, concentric with the shaft upon which the governor is mounted, weight-and-spring mechanism communicating with and rotating said governing-eccentric, a fixed disk or plate adjacent to and in substantially the same plane with the governing-eccentric, and a valve-rod eccentric mounted on guides supported by said disk or plate and actuated by said governing-eccentric, substantially as and for the purpose set forth.

2. The combination in an engine-governor, of a disk or plate adapted to be secured to an engine-shaft and adapted to form one side of an inclosed case, weights mounted on studs on said disk adapted to be moved outward by centrifugal force and inward by a spring or springs, means connecting said weights so that they will move in and out in unison, a governing-eccentric adapted to be rotated around the shaft by the movement of said weights, a plate or cover adapted to be secured to said first-named plate or disk in substantially the same plane as the governing-eccentric and forming the other side of an inclosed case, guides in said plate or cover, a valve-rod eccentric supported by and operating on said guides, and means connecting said governing-eccentric with said valve-rod eccentric, and moving it back and forth across the shaft according to the movement of said governing-eccentric, substantially as and for the purpose set forth.

3. The combination in an engine-governor, of a disk or plate adapted to be secured to an engine-shaft, so as to form one side of an inclosed case, an annular rim thereon forming the periphery of such inclosed case, a plate or disk A^1 adapted to be secured to said first-named plate or disk and the rim thereof so as to form the other side of such inclosed case, a governing-eccentric in substantially the plane of the plate or disk A^1, centrifugal weights, springs within said inclosed case for actuating said governing-eccentric, guides on said disk or plate A^1, a plate or frame operating on said guides, a valve-rod eccentric mounted on said plate or frame, and a separable eccentric-strap on said governing-eccentric having flat faces on opposite sides of its periphery which contact with the valve-rod-eccentric plate or frame, substantially as and for the purpose set forth.

4. The combination in an engine-governor, of a governing-eccentric, governing mechanism actuating said eccentric, a reciprocating plate or frame traveling on guides substantially in the same plane with the governing-eccentric and actuated by said eccentric-governing mechanism, and a valve-rod eccentric adapted to be adjusted on said reciprocating plate or frame, and secured thereto so as to adapt the governor to the varying travel and lap of the valves of different makes of engines, substantially as and for the purpose set forth.

5. In an engine-governor, a governing-eccentric, a disk or plate having a rectangular opening therein, on substantially the same plane with the governing-eccentric, guide-rods babbitted in the sides of said opening, a sliding plate or frame reciprocating on said guide-rods, and means for adjusting said plate or frame to said guide-rods so as to take up wear, substantially as and for the purpose set forth.

6. In an engine-governor, a disk or plate A^1 having a rectangular opening therein, a sliding plate or frame reciprocating in said opening and supporting a valve-rod eccentric, a governing-eccentric connected with and operating the plate carrying the valve-rod eccentric, and mounted in substantially the same plane with the disk or plate A^1, centrifugally-operating governing-weights, a flexible connection between said weights and said governing-eccentric, substantially as and for the purpose set forth.

7. The combination in an engine-governor, of centrifugally-operating weights, an adjustable arm d on one of said weights, and a flexible connection E between said arm and the outer end of the other weight, substantially as and for the purpose set forth.

8. The combination in an engine-governor, of a centrifugally-actuated weight, a spring for moving said weight inward, a sector-block adapted to be moved inward and outward on the weight-arm consisting of two sections, one of which is adjustable upon the other, and a flexible connection between said spring and the adjustable section of said sector-block, substantially as and for the purpose set forth.

9. The combination in an engine-governor, of a centrifugally-actuated weight, a spring for moving said weight inward, a sector-block, one section of which is adapted to be moved back and forth on the weight-arm for adjusting the speed of the governing mechanism, a flexible connection between said spring and said sector-block, an adjustable quadrant-clip operating against the flexible connection between the spring and sector-block, and a means for adjusting said quadrant-clip, substantially as and for the purpose set forth.

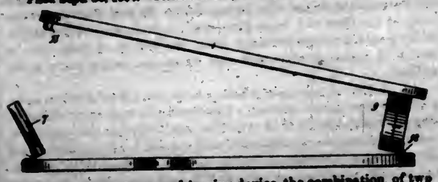
603,830. HAT-PIN SECURER. WILLIAM P. KNERSONE, Honeybrook, Pa. Filed Jan. 4, 1898. Serial No. 665,894. (No model.)

Claim.—1. A clamp or securer for hat-pins, comprising two jaws substantially semicylindrical in form, each end being slightly tapered and one end smaller than the other, the two diameters being joined by a shoulder, a ring adapted to be slipped upon the smaller diameter, a threaded rod inserted between the jaws, bearing upon the ring and projecting beyond the rear ends of the jaws, and a tapered nut engaging the projecting end of the threaded rod for forcing the rear ends of the jaws apart, substantially as described.

2. The combination of the jaws, B and C, each provided with recesses, D and E, which, when the jaws are placed together, form a central bore with an increasing diameter from the middle to the ends, each jaw being formed with a shoulder, H, on its outside, the ring, L, adapted to embrace the smaller ends of the jaws and resting against the shoulder, H, the threaded rod, I, forked at J and provided with outwardly-projecting toes, K, and the tapering nut, M, adapted to be inserted in the larger end of the central recess and to engage the threaded end of the rod, I, substantially as described.



603,831. IRONING-BOARD. ALMA A. POST, Waukesha, Wis. Filed Sept. 20, 1897. Serial No. 652,263. (No model.)



Claim.—In an improved ironing device, the combination, of two longitudinally-arranged boards, a leg hinged to one of said boards and adapted at its free end to support one end of the other board, and said other board provided at its corresponding end with a projecting lug adapted to fit in front of the free end of the hinged leg, and another leg fixed at one end to and extending from, one of the boards, and hinged at its opposite end to the other board.

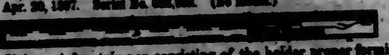
603,832. BLOCK OR SMOOTHING PLANE. PATRICK BREA, Boston, Mass. Filed Sept. 20, 1897. Serial No. 652,271. (No model.)



Claim.—1. A block or smoothing plane comprising in its construction a planer-iron or bit and bit-support; a bow-spring constructed to bear at its ends upon the forward and rear ends of the bit; and a headed stud, the bow-spring having a centrally-arranged keyhole-slot to engage the head of the stud as set forth.

2. In a device of the class described the combination with a walled base-piece having a projection on its upper face, of a headed stud mounted in the projection, a slotted bit slidably arranged on the stud, shoulders arranged diagonally of the side walls of the base and forming supports for the bit, a thumb-screw having bearings in said projection of the base and the rear wall, a screw-threaded traveler upon the thumb-screw, having connection with the bit and a bow-spring engaging the head of the stud and bearing at its ends upon the ends of the bit to secure the latter in position and provided with a toot upon its upper face.

603,833. FOUNTAIN-PEN. GERRY A. SPIRE, Irwin, Pa. Filed Apr. 20, 1897. Serial No. 633,102. (No model.)



Claim.—A fountain-pen consisting of the holder proper forming the main reservoir and closed at the outer end by means of a plug c, an exteriorly-screw-threaded tip d provided with an opening, formed on the opposite end of the holder, a sleeve engaging the screw-threaded tip and provided with an interior flange and provided with an aperture, a feed-rod passing through the opening in the screw-threaded tip, said rod secured in the aperture of the sleeve and en-

engaging the pen, said rod having a valve adapted to close the opening in the screw-threaded tip, and a cap for protecting said pen, substantially as shown and described.

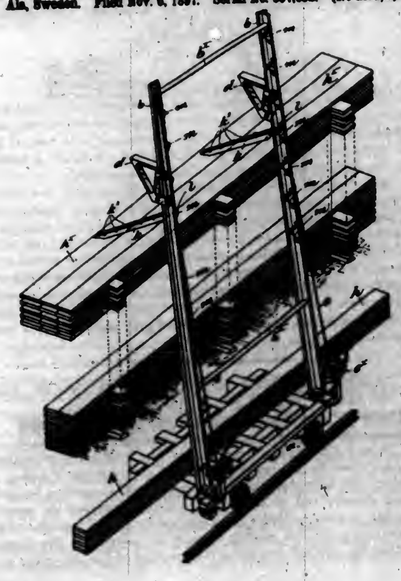
603,884. FILTER. ARCHIBELL M. SPRAGUE, Westfield, Mass. Filed Nov. 6, 1897. Serial No. 657,641. (No model.)



Claim.—1. A filter consisting of a hollow body, a filtering-disk in said body and abutting against a shoulder therein dividing said body into two chambers, screw-threads in one of said chambers, a threaded ring engaging said screw-threads for removably locking said disk in said filter-body, a valve-body located on said body, a valve therein, means for rotating said valve, a chamber in said valve-body at each end of said valve, inlet and outlet ports in said valve-body, a series of ports in said valve for establishing communication alternately between said inlet and outlet ports and either of said chambers in the valve-body, passages from the said chambers in the body of the filter to a waste-pipe, and a multiple-way valve for controlling said passages, whereby either one or both of them may be placed in communication with said waste-pipe, substantially as described.

2. A filter consisting of a hollow body one side of which is open, a disk for closing said opening, a filtering-disk in said body, and abutting against a shoulder therein dividing said body into two chambers, means for removably securing said disk therein, a valve-body located on said filter, a valve therein, a stem for operating said valve, a chamber in said valve-body at each end of said valve, inlet and outlet ports in the valve-body, a series of ports in the valve, whereby, by the operation of the latter water from said inlet may be directed through said disk in either direction to a common outlet or across either face of said disk, a waste-pipe communicating with said two chambers in the filter-body, and a valve for controlling said waste-pipe, substantially as described.

603,885. LIFT FOR PILING LUMBER. ANDERS STENDAHL, Ala, Sweden. Filed Nov. 6, 1897. Serial No. 657,653. (No model.)

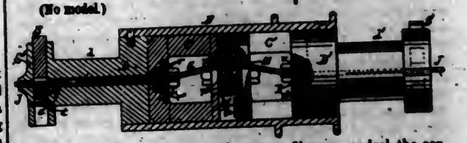


Claim.—1. A lift for lumber comprising a wheeled base with upright posts *b* thereon, means mounted on said posts for raising and lowering the lumber and a platform on the wheeled base in front of said posts and hoisting means, on which lumber may be piled for transportation from point to point, substantially as set forth.

2. A lift for lumber, comprising a wheeled base, posts *b*, erected on the said base near one side thereof and inclined over the platform of the base, and means mounted on said posts for raising and lowering the lumber, substantially as set forth.

3. A lift for lumber comprising a wheeled base, uprights or posts *b* thereon, lifting means mounted on said posts, and brackets arranged at different levels on said posts on which to hook detachable skids, of the said skids provided with hooks to engage the brackets on the posts, substantially as set forth.

603,886. ROTARY STRAIGHTENER AND POLISHER. WILLIAM G. ALGEO, Jr., Beaver Falls, Pa. Filed May 6, 1897. Serial No. 634,902. (No model.)



Claim.—1. In combination, the rotary flier or mandrel, the centrifugally-controlled movable guide or die mounted therein, the axial or central dies mounted therein, the polishers and centrifugally-controlled movable holders therefor, and means for rotating the said flier or mandrel and for feeding the material to be straightened through it, substantially as set forth.

2. The rotary flier or mandrel, provided with the two centrally-located dies and the intermediate adjustable die which is adjusted transversely to the axial line by the motion of the said flier or mandrel, substantially as set forth.

3. In a rotary straightener, a wire-guide carried by a support which is loosely mounted in the said straightener and free to move therein under an adjusting force, substantially as set forth.

4. The rotary straightener provided with the movable die, free to move from the central position, under the action of centrifugal force a limited distance, and one or more stops for checking its motion in the opposite direction at the central position, substantially as set forth.

5. In the rotary portion of a straightener, the centrifugally-controlled slide M', movable from the central position, and the die M carried thereby, substantially as set forth.

6. In a rotary straightener, and in combination with the two axial or central wire-guides, the intermediate wire-guide M loosely mounted and free to move under influence of adjusting forces to and from its central or axial position, and stops limiting its motion between the central position in one direction and the maximum eccentricity in the other direction.

7. In a rotary wire-straightener, the perforated wire-guide provided with two ball-races, the supporting-plates suitably mounted in the said straightener and each provided with a cooperating ball-race, and the balls in the said ball-races, substantially as set forth.

8. In combination in a rotary straightener and with guides for giving a lateral bend to the wire or tube therein, the said guides being normally in alinement when the flier or mandrel is at rest, means for automatically displacing one of the guides from the central position when the said mandrel or flier is rotating, substantially as set forth.

9. The rotary centrifugal polisher, consisting of a polishing device V mounted and movable with the rotating centrifugal holder S, substantially as set forth.

10. The rotary centrifugal polisher, consisting of a polishing device V mounted and movable with the rotating centrifugal holder S, and a stop *t* for limiting the movement of the said holder in one direction to the central position of the holder, substantially as set forth.

603,887. DRY-HOUSE FOR LUMBER, &c. CARL J. BERGSTRÖM, Finnbyttan, Sweden. Filed Aug. 18, 1897. Serial No. 648,281. (No model.)

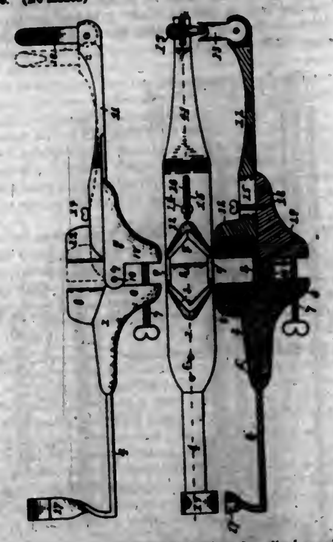
Claim.—1. A dry-house for lumber and the like, having a hot-air passage or room B and drying-rooms arranged at the sides of said passage with means of communication between said rooms and between each of them and said passage, and having also a condensing-room A for the moisture in the air coming from the drying-rooms, said condensing-room being situated alongside of the several drying-rooms and having controllable communication therewith, whereby the condensing-room may be put in direct communication with the several drying-rooms, substantially as set forth.

2. A dry-house for lumber and the like comprising two series of drying-rooms situated at opposite sides of and abutting on a central space which is divided by a floor forming a hot-air passage B, above, and a condensing-room A, below, apertures *d*, connecting the passage B with each of the drying-rooms, apertures *c* connecting the room A with each of the drying-rooms, means for closing said apertures at will, a heater C, in the passage between the drying-rooms, means for causing a circulation of the air in the dry-house and means for condensing the moisture in the air, substantially as set forth.



3. A dry-house having a plurality of drying-rooms arranged side by side and separated by partitions each having an opening *f* near its bottom for the passage of air and a partition-screen *g* near said partition, which screen extends from the floor up part way to the ceiling of the room, whereby a flue or conduit is formed for the air coming in from the bottom of one room, said air being thus compelled to rise through said flue and flow over into the upper part of the adjacent room, substantially as set forth.

603,888. VEHICLE-WRENCH. GRANVILLE DAVIS, North Salem, Ind., and JAMES M. DAVIS, Henry, Ill., assignors of one-third to David D. Thomson, North Salem, Ind. Filed Oct. 11, 1897. Serial No. 654,769. (No model.)



Claim.—1. A vehicle-wrench of the class described, consisting of the jaw-base 1, having the lug 2, the extended portion 6, carrying the thumb-screw 7, and the jaw 3, and having a spring-arm 4, fixedly secured thereto, said spring-arm terminating in a right-angled hook 17, a jaw-support 8, having lugs 9, and a projection 18, an adjustable arm 11, slidingly secured to said support 8, by means of a thumb-nut 14, passing through a slot 15, said arm having the jaw 12, at one end and the pivotally-secured hook 13 at the other end, all substantially as set forth.

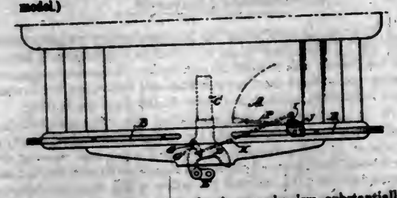
2. A vehicle-wrench composed of two oppositely-disposed members, pivotally hinged together, each of said members provided with a nut-engaging jaw upon one side, one of said members provided with a spring-arm terminating in a right-angled hook adapted to engage a vehicle-spoke, and the other member composed of two portions, the jaw portion being slidably adjustable upon the hinged portion and adapted to be regulated by means of a thumb-screw working in a slot in said member, said member terminating in a pivotally-mounted hook-engaging spoke, all as shown and described.

3. In a vehicle-wrench of the class described, the combination with the member 1, having the jaw 3, and the extended portion 6, carrying the thumb-screw 7, and the spring-arm 4, pivotally secured to the member 1, and terminating in a flat hook 17, integral with and at right angles to said arm 4, of the jaw-support 8, pivotally connected with the base 1, and having an extended face 18, adapted to engage the thumb-screw 7, the sliding arm 11, adjustably secured upon the jaw-support 8, by means of the thumb-screw 14, said arm having the jaw 12, upon its inner end and the pivotally-secured hook 13, upon its outer end, all substantially as shown and described.

4. The combination in a vehicle-wrench of the class described, of an adjustable sliding arm 11, having a spoke-engaging hook 13, pivotally secured at its outer end and a nut-engaging jaw integral with its inner end, and the jaw-support 8, having hinged lugs 9, and threaded openings 16, with the jaw-base 1, having the nut-engaging jaw 3, and an extended portion 6, carrying a thumb-screw 7, and having a spring-arm 4, terminating in a hook 17, fixedly secured thereto, as shown and described.

5. In combination in a vehicle-wrench of the class described, the jaw-base 1, having the lug 2, the extended portion 6, carrying the thumb-screw 7, and the jaw 3, the spring-arm 4, fixedly secured thereto, said spring-arm terminating in a hook 17, disposed at right angles to said arm, a jaw-support 8, having a screw-engaging depending portion 18, and provided with openings 16, to receive the said thumb-screw 14, the adjustable arm 11, having the slot 15, and the jaw 12, the pivotally-mounted hook secured to the end of the arm 11, the thumb screw 14, securing said arm upon the support 8, the jaw-base 1, being pivotally connected by means of the bolt 10, passing through the lugs 2, and 9, all as set forth.

603,889. COUPLING-RELEASING MECHANISM. ULYSSES G. DETWILER, Altoona, Pa. Filed Jan. 26, 1898. Serial No. 667,989. (No model.)



Claim.—1. In a coupler-releasing mechanism, substantially as specified, the combination with a vertical rock-shaft, as J, and a rail, as B, of a car-platform, of a bracket or brackets secured to the rail and forming a top bearing for the shaft, a yoke-piece as N extending out from the shaft below the top bracket, a lever as P, pivotally secured to said yoke-piece so as to be movable from a position substantially parallel to the shaft to one substantially perpendicular thereto, and an extension of the top bracket arranged to cover the end of said lever.

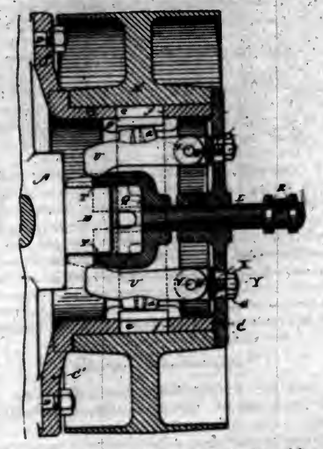
2. In a coupler-releasing mechanism, substantially as specified, the combination with a vertical rock-shaft, as J, and a rail, as B, of a car-platform, of a bracket or brackets secured to the rail and forming a top bearing for the shaft, a yoke-piece as N extending out from the shaft below the top bracket, a lever as P, pivotally secured to said yoke-piece so as to be movable from a position substantially parallel to the shaft to one substantially perpendicular thereto, and an extension of the top bracket having a cavity L^3 formed in it and arranged as described to permit the lever to swing on its pivot in one position of the shaft only.

3. In a coupler releasing mechanism, substantially as specified, the combination with a vertical rock-shaft as J and a rail, as B, of a car-platform, of a bracket K secured on the under side of the rail and forming a bearing for the upper end of the shaft, a yoke-piece N secured to the shaft above said bearing, a lever P pivotally secured to the shaft to one perpendicular thereto, and a bracket L secured to the top of the rail so as to extend over the top of the shaft and over the yoke-piece extending out therefrom, said bracket L having a cavity L^3 formed in it to receive the upper end of the lever and permit it to turn down in and only in one position of the shaft.

4. In a coupler-releasing mechanism, substantially as specified, the combination with a vertical rock-shaft, as J, and a rail, as B, of a car-platform, of a bracket K, secured on the under side of the rail and forming a bearing for the upper end of the shaft, said bracket having a stop-lug K^3 arranged to stop the motion of the yoke-piece as described; a yoke-piece N secured to the shaft above said bearing, a lever P pivotally secured to said yoke-piece so as to turn from a position substantially parallel to the shaft to one perpendicular thereto, and a bracket L secured to the top of the rail so as to extend over the top of the shaft and over the yoke-piece extending out therefrom, said bracket L having a cavity L^3 formed in it to receive

the upper end of the lever and permit it to turn down in and only in one position of the shaft.

603,840. POWER-PULLEY. CHARLES F. REUTER, Springfield, Ohio. Filed Sept. 11, 1897. Serial No. 651,288. (No model.)



Claim.—1. In a power-pulley, the combination with a rotatable body and a hollow bearing secured thereto and extended beyond said body to one side thereof, of a pulley loosely mounted upon such bearing, and a clutch mechanism within said hollow bearing to alternately clutch and unclutch the pulley to and from the bearing.

2. In a power-pulley, the combination with a rotatable body and a hollow bearing secured thereto and extended beyond said body to one side of it, of a pulley loosely mounted upon such bearing and clutch mechanism mounted within and supported by said bearing and adapted to clutch and unclutch the pulley to and from said bearing.

3. In a power-pulley, the combination with a rotatable body and a hollow bearing secured thereto and extended beyond said body to one side of it, of a pulley loosely mounted upon such bearing, a cap secured to the bearing, pivoted dogs supported by the bearing, a clutch-shaft mounted in the cap and having a clutch-head adapted to engage with such dogs, and a friction-ring between the bearing and pulley and adapted to be operated by said dogs.

4. In a power-pulley, the combination with a rotatable body and a hollow bearing secured to it and extending to one side of it, said bearing having an annular groove and an interior slotted web, of a pulley loosely mounted on said bearing, a divided friction-ring in said groove and next to said pulley, a cap secured to said bearing, a clutch-shaft mounted in said cap and having a clutch-head, and pivoted dogs supported by said bearing and having contact-blocks adapted to enter the slots in the web and engage with the ends of the divided ring for the purpose described.

5. In a power-pulley, the combination with a rotatable body and a hollow bearing secured to it and extending to one side and having an annular groove and slotted web, a cap secured to said bearing, pivoted dogs adjustably secured to said cap and having contact-blocks adapted to pass through the slots in the web, a divided ring in said annular groove adapted to be engaged by said contact-blocks and a clutch-shaft having a clutch-head and mounted in said cap.

6. In a power-pulley, the combination with a hollow bearing, and a pulley loosely mounted upon it, and a cap secured to said bearing, of clutch mechanism carried by the bearing and cap and adapted to clutch and unclutch the pulley to and from the bearing.

603,841. BLOTTER-BATH AND ABSORBENT COMPOSITION THEREFOR. FRED I. FAIRBANK and THEODORE H. CANTRIL, Des Moines, Iowa. Filed Oct. 26, 1896. Serial No. 610,169. (No model.)

Claim.—1. The herein-described composition of matter, comprising plaster-of-paris, charcoal, sulfur, salt, cement and water in about the proportions stated, substantially as and for the purpose set forth.

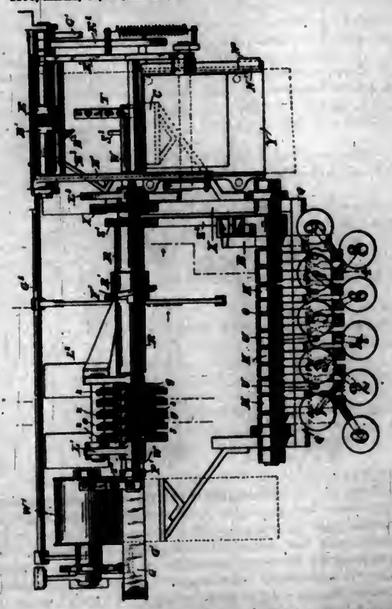
2. A blotter-bath comprising a pan having a transverse partition near one end, an absorbent composition having a flat top surface placed in the pan, a metal cover for the pan having a heavy absorbent filling that has a smooth surface and is adapted to overlie the absorbent in the pan, and the cover, and absorbent therein, adapted to stand on end in the vacant end of the pan, as and for the purpose stated.



3. An absorbent composition for blotter-bath consisting of plaster-of-paris, charcoal and water in about the proportions stated.

4. A blotter-bath, comprising a pan, an absorbent composition having a flat top surface placed in the pan and a cover fitted to the pan and an absorbent composition having a flat surface combined with the cover, for the purposes stated.

603,842. CASH-REGISTER. ADOLF FRAENKEL, Berlin, Germany. Filed July 11, 1896. Serial No. 598,594. (No model.) Patented in Germany Sept. 19, 1894, No. 86,849; in Switzerland Jan. 17, 1896, No. 11,601; in Belgium Feb. 18, 1896, No. 119,494, and in Italy Mar. 31, 1896, XXXI, 49,707, LXXX, 9.



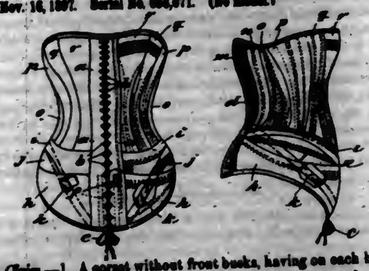
Claim.—1. In a cash-register, the combination of a shaft mounted to turn and to move longitudinally, a numeral-segment mounted on said shaft, means for turning said shaft and for moving the same longitudinally to bring the respective numeral into the printing-line and to place the numerals side by side on the strip beginning with the units, and a counter or totalizer operated by the movements of the shaft, substantially as described.

2. In a cash-register, the combination of a shaft mounted to turn and to move longitudinally, means for turning said shaft and for moving the same longitudinally, a counter or totalizer composed of a series of numeral-disks placed side by side, and operative connections between said shaft and said numeral-disks for operating the latter to add the individual amounts, substantially as described.

3. In a cash-register, the combination of a shaft mounted to reciprocate and to move longitudinally, a numeral-segment attached to said shaft, a series of keys, and operative connections between said keys and the shaft for turning the same and for moving the same longitudinally to bring the respective numeral into the printing-line and to place the numerals side by side on the strip, substantially as described.

4. In a cash-register, the combination of a shaft mounted to turn and to move longitudinally, a numeral-segment mounted on said shaft, a record-segment mounted on the same shaft, means for turning said shaft and for moving the same longitudinally to bring the respective numeral into the printing-line and to place the numerals side by side on the strip beginning with the units, and a counter or totalizer operated by the movements of the shaft, substantially as described.

603,843. CORSET. JOSEPH A. GARNEAU, St. Roche, Canada. Filed Nov. 16, 1897. Serial No. 658,671. (No model.)



Claim.—1. A corset without front busks, having on each half or section an upright, flexible, marginal band *a* at its front edge, provided with a short and normally stiff curved steel *f*, at its lower part only and terminating above at about the point of greatest projection of the corset to the front, said steel fitting about the lower portion of the abdomen, substantially as set forth.

2. A corset having in each half a hip portion formed of the pieces *h* and *i*, extending over the hip from rear to front, and the intermediate gore *j*, of spindle shape, as shown, between and secured to the pieces *h* and *i*, said double-pointed or spindle-shaped gore being in position to rest on and fit over the point of the hip, substantially as set forth.

3. A corset having in each of its halves a hip portion composed of the pieces *h* and *i*, and the intermediate spindle-shaped gore *j*, all secured together, said hip portion extending over the hip from rear to front, and an elastic band *k*, under said hip portion, said band extending from the waist-line at the back to the bottom of the corset in front, passing over the hip, and being free to stretch, substantially as set forth.

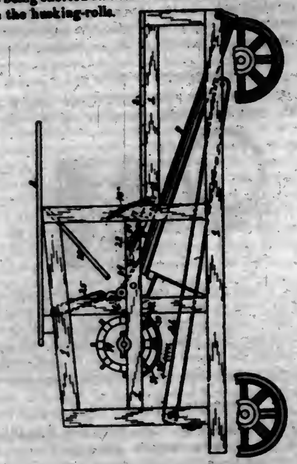
4. A corset having in each of its halves an upright marginal band *a*, in front having in its lower part a short steel *f*, with a set curvature, an upright marginal band *d*, at the back, having steels *g*, with a set curvature, extending their entire length, a hip-piece *h*, widest at its ends and extending from one to the other of said marginal bands, a piece *i*, over the hip and extending from one to the other of said bands, a spindle-shaped intermediate gore *j*, between the pieces *h* and *i*, and these pieces and the gore secured together at their edges, the upright pieces *m*, *n*, *o*, *p*, *q* and *r*, of the contour shown, forming the body above the waist, and means for closing the corset at the front and back, substantially as set forth.

603,844. CORN-HUSKING MACHINE. GILBERT S. GREGORIUS, Dayton, Ohio. Filed May 4, 1896. Serial No. 590,266. (No model.)

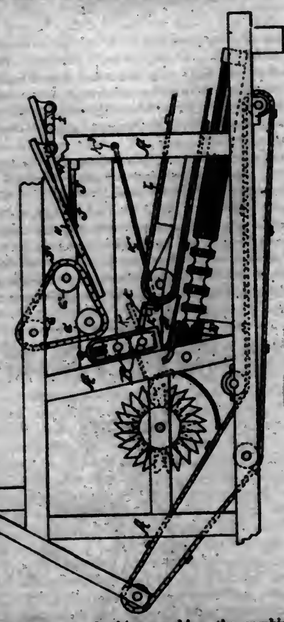
Claim.—1. In a corn-husker, a mapping-roll provided with a series of annular grooves and a series of rings having flat peripheries, and a transverse rib in each of said grooves, in combination with a companion roller of similar construction arranged parallel with the first-named roll and in a reversed position so that the grooves on one roll will be in line with the rings on the other.

2. In a corn husker and shredder, the combination of mapping-rolls having a series of annular grooves intersected by ribs that are placed spirally around said roll, and a series of intervening rings with flat peripheries, a companion roll of similar construction placed in a reversed position to the first-named roll so as to bring the grooves of one roll opposite the rings of the other, whereby a zigzag opening and a corresponding straight surface are provided throughout the length of said rolls, and means for enabling the feeder to feed stock to said rolls from a central part of the machine.

3. In a corn-husking machine, the combination with husking-rolls, of husk-loosening rolls provided with teeth, and flexibly mounted above and parallel with the husking-rolls, the said husk-loosening rolls being rotatable in opposite directions so as to simultaneously remove the husks from two sides of the ear, and thereby prevent undue pressure being exerted on one side of an ear of corn to remove it from between the husking-rolls.



603,845. CORN-HUSKING MACHINE. GILBERT S. GREGORIUS, Middletown, Ohio. Filed Oct. 11, 1897. Serial No. 654,770. (No model.)



Claim.—1. In a corn-husking machine, the combination with mapping-rolls mounted across the machine, of a rotary feeding-apron mounted above said rolls, reciprocating feed-boards mounted on an incline in front of said feed-apron, the lower ends of said feed-boards being movable below the lower end of the feed-apron, springs upon which said feed-boards are held, and a crank-shaft to which the feed-boards are connected, and whereby said feed-boards are given an alternately-reciprocating motion, substantially as and for the purposes specified.

2. In a corn-husking machine, the combination with mapping-rolls mounted across the machine, of a rotary feed-apron mounted above said mapping-rolls with its lower end surrounding two rollers

so as to provide a substantially broad working surface, reciprocating feed-boards mounted on an incline in the front of said feed-apron, the lower ends of said boards being movable below the lower end of the apron, springs to apply a yielding pressure to said boards, and a crank-shaft to which said boards are connected, and whereby they are driven alternately in opposite directions to feed in a continuous manner the stock to the snapping-rolls, as herein shown and described.

603,846. PATCH FOR PNEUMATIC TIRES. JOHN R. HARR, Baltimore, Md. Filed June 10, 1897. Serial No. 640,193. (No model.)



Claim.—In a hose-patch, a flexible band having at one end a curved plate with hooks at its extremity, and at the other end a link, and a curved plate with lugs to which the said link is pivoted, the inner end of the second plate being adapted to engage with the hooks on the first, whereby the second plate is made to perform the function of a lever in the application of the device to a hose, substantially as specified.

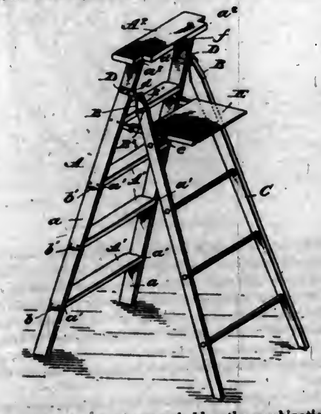
603,847. POCKET-KNIFE. JOHN F. HARVEY, Johnsonburg, Pa. Filed June 2, 1897. Serial No. 639,160. (No model.)



Claim.—1. In a pocket-knife as specified, the combination with the body 1 having a central division 1^c, the knife-blades held in the upper face of such body, said blades and central member having pintle-apertures provided with lateral notches 5^c 5^c, a body having sockets 1^a and 6^a and the pintle 6 having lugs 6^c 6^c and meahs for holding such pintle normally in a locked engagement with the blades as shown and described.

2. The combination with the body member having a knife-socket in its upper edge, a lateral socket 1^a and 6^a, blades 3 and 4 having a pintle-aperture provided with lateral notches 5^c 5^c, of the pintle, said pintle-aperture having a lug 6^c adapted to engage the notches in the blade 4 and a lug 6^c of greater width than the blade 3, whereby it will normally project into the socket 1^a and hold the pintle from turning, said pintle having endwise movement in the blade and in its bearings in the body 1, the spring for holding such body to its normal position, all being arranged substantially as shown and for the purposes described.

603,848. EXTENSION STEP-LADDER. PHILIP HERDER, Cleveland, Ohio. Filed Sept. 20, 1897. Serial No. 652,396. (No model.)



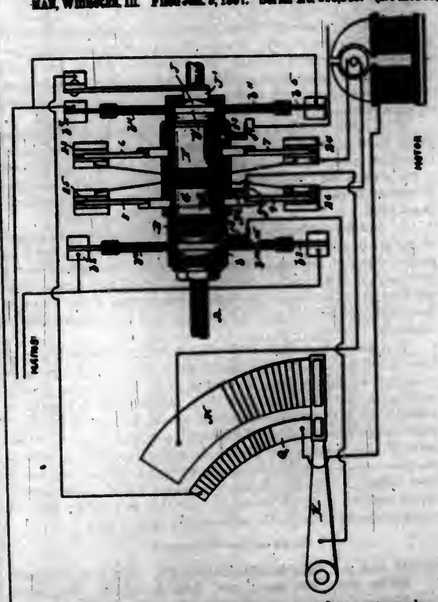
Claim.—1. In an extension step-ladder, the combination with a section A having a platform which extends beyond and over the side pieces of the ladder, said platform being cut away to provide shoulders, a ladder-section C pivotally attached to the section A, a shelf pivotally attached to the section A and provided with lugs for engagement with the upper rung of the section C, and a turn-button on said platform which is adapted to engage with the shelf and with the upper rung of said section, substantially as shown and for the purpose set forth.

2. In an extension step-ladder, the combination with the section A fixtures attached thereto the same having projecting portions which engage with the edges of the side pieces and rearwardly-extending portions with apertures, of the prop-section the side bars, and with fixtures which embrace the ends thereof, and bolts for holding the fixtures in pivotal engagement, substantially as shown.

3. In an extension step-ladder, the combination with the step and prop sections, of fixtures carried by said sections, one of the fixtures having members *d d* which lie over the edges of the step-section and an apertured member which projects rearward therefrom, the fixture on the other section each having a flange which lies over the upper end thereof, said fixture having cross-bars; together with the connecting-bolts, substantially as shown and for the purpose set forth.

4. The combination in a step-ladder having a step-section and a prop-section connected to each other at a point midway between the upper step of the step-section and the platform thereof, a shelf pivoted to the ladder-section and provided with fixtures for engagement with the upper rung of the prop-section, said upper rung being so positioned that when the prop-section is turned upon its pivots upward, said rung will lie over the platform and a turn-button carried by the platform, substantially as shown and for the purpose set forth.

603,849. SWITCH FOR ELECTRIC MOTORS. FRANK R. HERRMAN, Winnetka, Ill. Filed Jan. 9, 1897. Serial No. 618,512. (No model.)



Claim.—1. The combination with a source of current-supply and an electric motor, of a switch interposed between the source of current-supply and the motor, one portion of said switch being adapted to make electrical connection with the source of current-supply, the other portion being adapted to make electrical connection with the armature, and both portions of said switch being adapted to make electrical connection with the field, means to operate said switch to move the portion of the switch connecting with the current-supply to and from central position without moving the other portion of said switch.

2. The combination with a source of current-supply and an electric motor, of a switch interposed between the source of current-supply and the motor, one portion of said switch being adapted to make electrical connection with the source of current-supply, the other portion being adapted to make electrical connection with the armature, and both portions of said switch being adapted to make electrical connection with the field, the first-mentioned part of said switch being loosely connected to the last-mentioned part of the switch, so that the first-mentioned part has a movement to and from central position independent of the other part.

3. The combination with a source of current-supply and an electric motor, of a shaft, a switch interposed between said source of current-supply and the motor, consisting essentially of a hub upon said shaft, switch mechanism connected to said hub adapted in its movement to make and break connection with the source of current-supply, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to the said hub, connection between said cam and said forks, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

4. The combination with a source of current-supply and an electric motor, of a shaft, a switch interposed between said source of current-supply and the motor, consisting essentially of a hub upon said shaft, switch mechanism connected to said hub adapted in its movement to make and break connection with the source of current-supply, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to the said hub, loose connection between said cam and the shaft-fork and said forks, the connection between said cam and the shaft-fork being in the lead of the connection between said cam and the hub-shaft, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

5. In combination with a source of current-supply and an electric motor, of a switch interposed between the source of current-supply and the motor, consisting of two portions, one portion of which is loosely connected to the other portion, whereby the first-mentioned portion may be moved a predetermined distance independent of the other portion, the first-mentioned portion being adapted in its movement to make and break connection with the source of current-supply, the other portion being adapted in its movement to make and break and reverse the electric connection with the armature of the motor and electrical connection between the field and both portions of the switch.

6. In combination with a source of current-supply and an electric motor, a switch interposed between the source of current-supply and the motor consisting of two portions, one portion of which is loosely connected to the other portion, whereby the first mentioned portion may be moved a predetermined distance independent of the other portion, the first-mentioned portion being adapted in its movement to make and break connection with the source of current-supply, the other portion being adapted in its movement to make and break and reverse electric connection with the armature of the motor, and electrical connection between the field and both portions of the switch, a shaft upon which said switch is loosely mounted, a hub upon said shaft to which the switch mechanism is connected, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to the said hub, connection between said cam and said forks, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

7. The combination with a source of current-supply and an electric motor, of a switch interposed between the source of current-supply and the motor consisting of two portions, one portion of which is loosely connected to the other portion, whereby the first-mentioned portion may be moved a predetermined distance independent of the other portion, the first-mentioned portion being adapted in its movement to make and break connection with the source of current-supply, the other portion being adapted in its movement to make and break reverse electric connection with the armature of the motor, and electrical connection between the field and both portions of the switch, a hub to which said switch mechanism is connected, a shaft upon which said hub is loosely mounted, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to said hub, connection between said cam and said forks, the connection between said cam and the shaft-fork being in the lead of the connection between said cam and the hub-shaft, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

8. A source of current-supply, an electric motor, a switch consisting of two parts having a loose connection, one part controlling the connection of the source of current-supply and the field directly and the connection of the source of current-supply and the armature through the medium of the second part, the second part controlling the electrical connection with the armature, the first-mentioned part having a predetermined movement independent of the second part.

9. A switch for an electric device consisting essentially of two parts having a loose connection, a shaft upon which said switch is loosely mounted, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to one part of said switch, loose connection between said cam and said forks, the connection between said cam and the shaft-fork being in the lead of the connection between said cam and the hub-shaft, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

10. A switch for an electric device consisting essentially of two parts having a loose connection, a shaft upon which said switch is loosely mounted, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to one part of said switch, loose connection between said cam and said forks, the connection between said cam and the shaft-fork being in the lead of the connection between said cam and the hub-shaft, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

11. In combination, a source of current-supply, a reversing-switch, an electric motor and electric connection between the source of current-supply and the field and armature of the motor, an electrical circuit including the field and armature of the motor through the reversing-switch, and means to make and break connection between the motor and source of current-supply and maintain a single circuit through the reversing-switch including the field and armature.

12. In combination, a source of current-supply, a reversing-switch, an electric motor and electric connection between the source of current-supply and the field and armature of the motor in shunt, an electrical circuit including the field and armature of the motor in series through the reversing-switch, and means to make and break connection between the motor and source of current-supply and maintain a single circuit through the reversing-switch including the field and armature.

13. The combination with a source of current-supply and an electric motor, of a shaft, an interposed switch consisting of a hub loose upon said shaft having two portions insulated from each other, sleeves as F and G upon and loosely connected to said hub, the sleeve F being in electrical connection with one portion of said hub, but insulated from the sleeve G, the sleeve G being insulated from the hub, blades as b b' connected with the hub, fingers or equivalent contact, as b^3 and b^4, in electrical connection with one pole of the source of current-supply, said fingers coacting with the blade b, fingers or equivalent contact, b^1, b^2, in electrical connection with the other pole of current-supply, said fingers coacting with the blade b', a blade as 14 connected with the portion of the hub carrying the blade b, a finger 15 contacting with said blade, blades 6 and 7 connected to sleeve F, brushes 23 and 24 adapted to contact with blades 6 and 7 respectively, blade f^6 connected to said sleeve F, and finger f^4 contacting with said blade, brushes as 8 and 9 connected to said sleeve G, blade g^6 connected to said sleeve, and finger g^4 connecting with said blade g^5, electric connection between contact 15 and one side of the field and finger g^4 in shunt, electric connection between the other side of the field and finger f^4, electric connection between brushes 23 and 26, and brushes 24 and 25 and electrical connection between said brushes and the armature.

14. The combination with a source of current-supply and an electric motor, of a shaft, an interposed switch consisting of a hub loose upon said shaft having two portions insulated from each other, sleeves as F and G upon and loosely connected to said hub, the sleeve F being in electrical connection with one portion of said hub but insulated from the sleeve G, the sleeve G being insulated from the hub, blades as b b' connected with the hub, fingers or equivalent contact as b^3 and b^4 in electrical connection with one pole of the source of current-supply, said fingers coacting with the blade b, fingers or equivalent contacts as b^1 b^2 in electrical connection with the other pole of current-supply, said fingers coacting with the blade b', a blade as 14 connected with the portion of hub carrying the blade b, a finger 15 contacting with said blade, blades 6 and 7 connected with sleeve F, brushes 23 and 24 adapted to contact with blades 6 and 7 respectively, blade f^6 connected to said sleeve F, and finger f^4 contacting with said blade, brushes as 8 and 9 connected to said sleeve G, blade g^6 connected to said sleeve, and finger g^4 connecting with said blade g^5, electric connection between contact 15 and one side of the field and finger g^4 in shunt, electric connection between the other side of the field and finger f^4, electric connection between brushes 23 and 26, and brushes 24 and 25, and electrical connection between said brushes and the armature, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to said hub, loose connection between said cam and said forks, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

15. The combination with a source of current-supply and an electric motor, of a shaft, an interposed switch consisting of a hub loose upon said shaft having two portions insulated from each other, sleeves as F and G upon and loosely connected to said hub, the sleeve F being in electrical connection with one portion of said hub but insulated from the sleeve G, the sleeve G being insulated from the hub, blades as b, b' connected with the hub, fingers or equivalent contact as b^3 and b^4 in electrical connection with one pole of the source of current-supply, said fingers coacting with the blade b, fingers or equivalent contact as b^1 b^2 in electrical connection with the other pole of

current-supply, said fingers coacting with the blade *b'*, a blade as 14 connected with the portion of hub carrying the blade *b*, a finger 15 contacting with said blade, blades 6 and 7 connected to sleeve F, brushes 23 and 24 adapted to contact with blades 6 and 7 respectively, blade f^3 connected to said sleeve F, and finger f^4 contacting with said blade, brushes as 8 and 9 connected to said sleeve G, and blade g^3 connected to said sleeve, and finger g^4 connecting with said blade g^3, electric connection between contact 15 and one side of the field and finger g^4 in shunt, electric connection between the other side of the field and finger f^4, electric connection between brushes 23 and 26, and brushes 24 and 25, and electrical connection between said brushes and the armature, a cam having high and low points loose upon said shaft, forks between which said cam rests, one of said forks being secured to said shaft, the other to said hub, loose connection between said cam and said forks, the connection between said cam and the shaft-fork being in the lead of the connection between said cam and the hub-shaft, a roller resting upon said cam, and a spring or equivalent device acting upon said roller.

16. In combination, a source of current-supply, an electric motor, an interposed switch controlling the admission of current from the source of supply to the motor, a brush carried by said switch in electrical connection with one side of said field, and a contact in electrical connection with the other side of the field, the contact being of length sufficient to maintain contact with the brush during the movement of said switch and break contact when the switch has closed connection between the source of current-supply and motor.

17. The combination with a source of current-supply and an electric motor, of switch-operating mechanism, a switch interposed between said source of supply and the motor, consisting of switch mechanism adapted in its movement to make and break connection with the source of current-supply, a cam having high and low points, a device pressed against said cam, means between the switch-operating mechanism and the cam whereby a movement of the switch-operating mechanism causes the high point of said cam to move against said device, a loose connection between said cam and the switch mechanism.

18. The combination with a source of current-supply and an electric motor, of a shaft, a switch interposed between said source of supply and the motor, consisting of a hub upon said shaft, switch mechanism connected to said hub adapted in its movement to make and break connection with the source of current-supply, a cam having high and low points loose upon said shaft, a tension device resting upon said cam, means between the shaft and the cam whereby a movement of the shaft will move the cam into position to be actuated by said tension device, and a loose connection between said cam and said hub.

19. The combination with a source of current-supply and an electric motor, of switch-operating mechanism, a switch interposed between said source of supply and the motor consisting of switch mechanism adapted in its movement to make and break connection with the source of supply, a cam having high and low points, a tension device resting against said cam, means between the switch-operating mechanism and the cam whereby a movement of the switch-operating mechanism will move the cam into position to be actuated by said tension device, and a loose connection between the cam and the switch mechanism whereby the cam when actuated will move a determinate distance before throwing the switch mechanism into action to make or break the circuit from the source of supply.

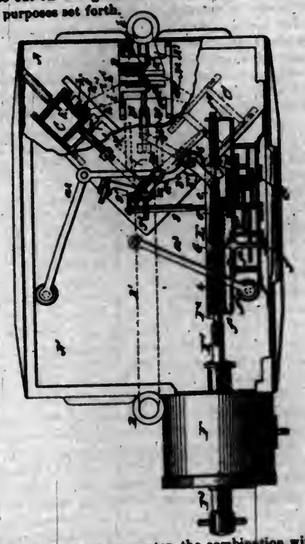
608,850. PREPAYMENT GAS-METER. CHARLES W. HISHAM, Boston, Mass. Filed Sept. 8, 1896. Renewed Nov. 11, 1897. Serial No. 658,205. (No model.)

Claim.—1. In a prepayment gas-meter, the combination with coin-controlled mechanism, and supply-controlling mechanism, of a valve operating to cut off the gas in the frog-chamber, and arranged to be closed by the supply-controlling mechanism; substantially as described.

2. In a prepayment gas-meter, the combination with coin-controlled mechanism, and a supply-controlling mechanism, of a valve operated in the valve-chamber by the supply-controlling mechanism and arranged to cut off the gas in the frog-chamber; substantially as described.

3. In a prepayment gas-meter the frog-chamber provided with a partition, and with two ports or slots one on each side of said partition opening into the valve-chamber, in combination with a valve arranged to control said ports and supply-controlling mechanism connected to operate said valve, substantially as described.

4. In a prepayment gas-meter, the combination with coin-controlled mechanism and supply-controlling mechanism, of a valve adapted to cut off the gas in the frog-chamber, a carrier adapted to move in one direction when one of said mechanisms is actuated and in the opposite direction when the other of said mechanisms is actuated, and means whereby said carrier, upon reaching the extreme of its movement by operation of the supply-controlling mechanism, moves said valve to cut off the gas in the frog-chamber; substantially as and for the purposes set forth.



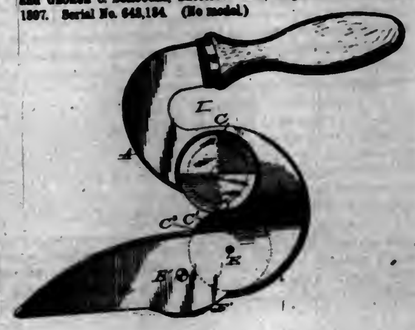
5. In a prepayment gas-meter, the combination with coin-controlled mechanism and supply-controlling mechanism of a valve adapted to cut off the gas in the frog-chamber and to let it on again, a carrier adapted to move in one direction when one of said mechanisms is actuated and in the opposite direction when the other of said mechanisms is actuated, means whereby said carrier upon reaching the extreme of its motion by operation of the supply-controlling mechanism moves said valve to cut off the gas in the frog-chamber, and means whereby said carrier upon receding from said extreme by operation of the coin-controlled mechanism moves said valve to let on the gas again in the frog-chamber; substantially as and for the purposes set forth.

6. In a prepayment gas-meter, the valve-chamber A, and frog-chamber, A^2 A^3, separated by a partition *d*, and connected by passages *d'* in combination with the valves C C' and slide-valve D arranged to control the passages *d'* and connected to be operated by supply-controlling mechanism, substantially as described.

7. In a prepayment gas-meter the valve-chamber A provided with valves C C' and formed with passages *d'* *d'* to the frog-chamber, and provided with a two-way race d^3, in combination with a partition *d*, in the frog-chamber intermediate of said passage *d'*, and a slide-valve D, for controlling said passages and connected to be operated by the supply-controlling mechanism; substantially as described.

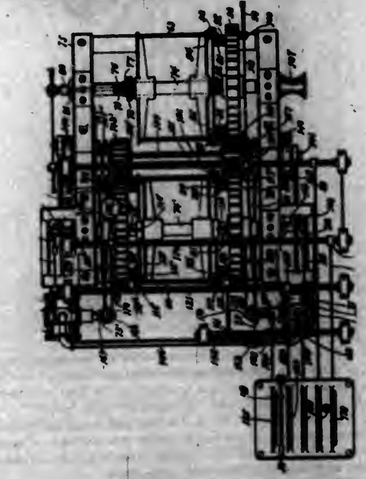
8. The combination in a gas-meter of the valve-chamber A, slide-valves C, C', therein, the frog chamber A^2, A^3, below the floor B^2, the partition *d*, slots or ports *d'* *d'* in said floor one each side of the partition and a valve arranged to control said slots or ports, substantially as described.

608,851. APPARATUS FOR CUTTING CLOTH. JOHN JACKSON and GEORGE C. BONCOMPS, Battersea Rise, England. Filed Aug. 13, 1897. Serial No. 648,184. (No model.)



Claim.—In an apparatus for cutting cloth, the combination with a suitable frame, a thumb-screw arranged therein and having a hollow shank, conically-pointed journal-pins one of the same being fixed and the other arranged movably in the hollow shank of said screw, and a helical spring also arranged in the hollow shank of said screw and acting on said movable journal-pin, of a driving-wheel, cutter-disks having conical bearings receiving the conically-pointed journal-pins, and suitable gearing between the driving-wheel and one of said cutter-disks, substantially as set forth.

608,852. APPARATUS FOR ELEVATING, TRANSPORTING, AND DISCHARGING MATERIAL. OLE JOHNSON, Milwaukee, Wis. Filed July 12, 1897. Serial No. 644,103. (No model.)



Claim.—1. In an apparatus for elevating, transporting and delivering material, the combination, of a cable or track, a carriage adapted to travel on said track, a bucket, cables connected, to the bucket and extending to the carriage, and thence from said carriage in opposite directions, shafts having drums slidingly mounted thereon, and to which drums the respective cables are connected, a gear-wheel loose on one of said shafts, clutch mechanism whereby the drum of this shaft may be connected to the gear-wheel, gear-wheels loose on the other shaft, clutch mechanisms for connecting the drum of this latter shaft to either of the loose gear-wheels, a main driving-shaft having pinions mounted thereon, one of said pinions engaging a gear-wheel on each of the drum-shafts, and an intermediate pinion with which the other pinion of the driving-shaft meshes, said intermediate pinion meshing with the second gear-wheel on one of the drum-shafts.

2. In an apparatus for elevating, transporting and delivering material, the combination, of a cable or track, a carriage adapted to travel on the track, a cable connected to the forward end of the carriage, and thence extended for connection to the rear end of the carriage, pulleys around which the cable is wound a plurality of times, a lever mounted on a shaft, a brake-band surrounding one of the pulleys, said brake-band having its opposite ends secured to the shaft, mechanism engaging the lever, and when operated in one direction adapted to turn the shaft so as to normally hold the brake-band out of engagement with one of the pulleys, and when operated in the opposite direction adapted to turn the shaft so as to release the brake-band, cables connected to the bucket, drums to which the opposite ends of the cables are connected, driving mechanism, a clutch mechanism between the drums and the driving mechanism, whereby said drums may be both put into clutch with the driving mechanism, or one separately, or one or both drums thrown out of clutch.

3. In an apparatus for elevating, transporting, and delivering material, the combination, of a cable or track, a carriage adapted to travel on said track, a bucket, a cable connected to the bucket and extending to the carriage, and thence from said carriage, a shaft provided with a tubular portion extending inwardly for a desired distance, a drum mounted loosely on said shaft, and to which the cable is connected, a driven wheel mounted on the shaft, a screw-rod passing through a fixed nut and adapted at its inner end to bear against the drum, means for turning the screw-rod so as, when turned in one direction, to cause said rod to slide the drum longitudinally on its shaft, clutch mechanism between the drum and the gear-wheel, and a coiled spring encircling the shaft and confined between the gear-wheel and the drum, said spring adapted, when the screw-rod is turned in the opposite direction, to force the drum out of engagement with the clutch.

4. In an apparatus for elevating, transporting, and delivering material, the combination, of a cable or track, a carriage adapted to travel on said track, a cable connected to the bucket and extending upwardly to the carriage, and thence from said carriage, a shaft provided with a tubular portion extending inwardly for a desired distance, a drum mounted loosely on said shaft and to which the cable is connected, a driven wheel mounted on the shaft, a screw-rod passing through a fixed nut and adapted at its inner end to bear against the drum, an arm connected to the screw-rod, a rock-shaft, an arm mounted medially thereon, a rod connecting one end of this arm with the screw-rod, whereby when the rock-shaft is turned the arm medially mounted thereon will, through the connecting-rod, cause a rotation of the screw-rod, which when rotated in one direction, will bear against the drum and slide said drum longitudinally on its shaft, clutch mechanism between the drum and the driven wheel, a brake-band surrounding the drum, one end of said band being connected to a fixed point, a rocking arm to which the opposite end of the band is connected, and a rod connecting said arm with the other end of the arm which is medially mounted on the rock-shaft.

5. In an apparatus for elevating, transporting, and delivering material, the combination, of a cable or track, a carriage adapted to travel on said track, a bucket, a cable connected to the bucket and extended upwardly to the carriage, thence forwardly from the carriage, a shaft having opposite ends tubular for a desired distance inwardly, a drum loosely mounted on said shaft, gear-wheels mounted on the shaft, screw-rods passing through fixed nuts and entering the tubular ends of the shaft, means for turning said screw-rods, so as to threw one or the other into engagement with the drum, in order to slide said drum longitudinally in either direction on its shaft into engagement with either of the gear-wheels, a driving-shaft, pinions mounted thereon, one of said pinions adapted to mesh directly with one of the gear-wheels of the shaft, another pinion on a separate shaft, which pinion meshes with the other gear-wheel, and also with the other pinion of the driving-shaft.

6. In an apparatus for elevating, transporting, and delivering material, the combination, of a cable or track, a carriage adapted to travel on said track, a bucket having a pivoted bottom, cables connected to the bucket, one of said cables connected to a fixed point of the bucket and extending upwardly to the carriage and thence rearwardly, and the other cable connected to the bucket so as to operate on the pivoted bottom thereof to effect the opening and closing of the pivoted bottom, said cable extending upwardly from the bucket to the carriage, and thence forwardly from the carriage, shafts, one of said shafts having one end tubular for a desired distance inwardly, and the other of said shafts having both ends tubular for a desired distance inwardly, drums mounted loosely on said shafts, and to which the respective cables are connected, a gear-wheel mounted on one of the shafts, two gear-wheels mounted on the other of said shafts, a rod screwing through a fixed nut and entering the tubular end of one of the shafts, and adapted to bear against the end of the drum, means for turning said rod so as to slide the drum longitudinally on its shaft, clutch mechanism between this drum and the gear-wheel, rods screwing through fixed nuts and entering the tubular ends of the other shaft, means for turning said rods, so as to cause one to be screwed inwardly to bear against the inner end of the drum and slide said drum longitudinally on its shaft, and the other to be simultaneously screwed outwardly, clutch mechanism between the opposite ends of the drum and the gear-wheels, a driving-shaft having pinions mounted thereon, one of said pinions meshing with the single gear-wheel of one shaft and one of the gear-wheels of the other shaft, and the other pinion meshing with an intermediate pinion between it and the other gear-wheel, a cable connected to the forward end of the carriage, and thence extended for connection to the forward end of the carriage, and means for preventing the movement of said cable, in order to hold the carriage in adjusted position.

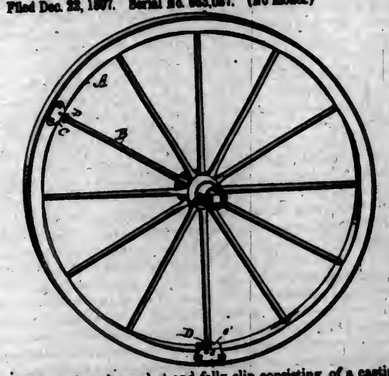
7. In an apparatus for elevating, transporting and delivering material, the combination, of a cable or track, a carriage adapted to travel on said track, a bucket having a pivoted bottom, cables connected to the bucket, one of said cables connected to a fixed point of the bucket and extending upwardly to the carriage and thence rearwardly, and the other cable connected to the bucket so as to operate on the pivoted bottom thereof to effect the opening and closing of the pivoted bottom, said cable extending upwardly from the bucket to the carriage, and thence forwardly from the carriage, shafts, drums mounted loosely on said shafts and to which the respective cables are connected, a gear-wheel mounted on one of the shafts, means for clutching and unclutching the drum to and from this gear-wheel, two gear-wheels mounted on the other of said shafts, means for clutching and unclutching the drum of this shaft with either of

the two gear-wheels of said shaft, a driving-shaft having pinions mounted thereon, one of said pinions meshing with the single gear-wheel of one shaft, and one of the gear-wheels of the other shaft, and the other pinion of said shaft meshing with an intermediate pinion between it and the other gear-wheel, said intermediate pinion being in mesh with the other gear-wheel, a cable connected to the forward end of the carriage and thence extended for connection to the rear end of said carriage, and means for preventing the movement of the cable in order to hold the carriage in adjusted position, the construction adapting the bucket to be lowered and the pivoted bottom opened and subsequently closed when the bucket is filled, and also adapting said bucket to be raised in a vertical line to a certain height, and thence the carriage caused to travel longitudinally, and the bucket to be simultaneously elevated at an angle, and when elevated to a desired height, the two to travel together longitudinally, and said construction also adapted to permit the bucket to be lowered either in a straight line or at an angle, and the pivoted bottom to be opened for the discharge of the material, and the longitudinal travel of the carriage to be reversed after final discharge and subsequent elevation of the bucket.

8. The combination, of a driving-shaft, sets of eccentrics mounted thereon, a double engine mechanism, a rotatable valve for controlling said engine mechanism, crank-arms extending from the valve-rods of the double engine mechanism, frames provided with elongated slots, blocks fitting in said slots, pins extending from the crank-arms of the valve-stems and passing into apertures in the blocks, rods extending respectively from the eccentrics to upper and lower pins of the slotted frames, a rock-shaft, arms mounted medially thereon, weights on said arms, rods connecting the arms with the slotted frames, another arm mounted on a rock-shaft, an operating-lever, and a rod connecting said operating-lever with the other arm of the rock-shaft.

9. In an apparatus for elevating, transporting and delivering material, the combination, of a tower, a boom pivoted to the tower so as to swing upwardly and downwardly, a cable or track, a carriage adapted to travel on the track, a cable connected to the forward end of the carriage and thence extended forwardly and around a grooved pulley at the outer end of the pivoted boom, thence upwardly over a pulley at the upper end of the tower, and finally connected to the rear end of the carriage, cables connected to the bucket and extended upwardly to the carriage, and from said carriage in opposite directions, one of said cables passing over a pulley at the end of the pivoted boom, and thence upwardly and around a pulley at the upper portion of the tower, and drums to which the ends of said cables are connected.

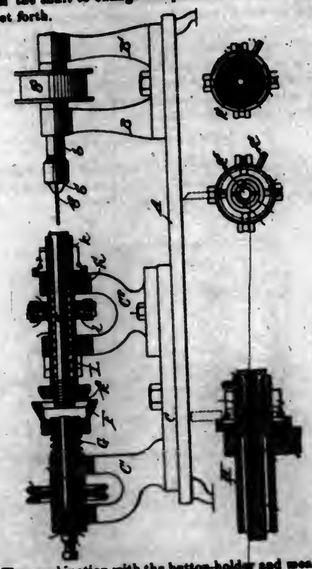
608,853. SPOKE-SOCKET. WILLIAM O. JONES, Marcy, N. Y. Filed Dec. 22, 1897. Serial No. 663,037. (No model.)



Claim.—A spoke-socket and felly-clip consisting, of a casting or forging having side flanges to embrace the felly, a connecting-web with an aperture, one of the side walls of which is inclined and a half-section of a spoke-embracing socket, a separate casting or forging, having a socket-section and lug adapted to fit within the aperture in the web of the other section, the parts having registering perforations through which bolts or rivets pass in order to connect the portions to each other and to the spoke and felly, substantially as shown.

608,854. BUTTON-BORING MACHINE. WILLIAM H. LEHMAN and GEORGE W. LEHMAN, New York, N. Y. Filed Jan. 13, 1896. Serial No. 666,220. (No model.)

Claim.—1. The combination with the holder and means for reciprocating it in a longitudinal direction, of a continuously-rotating shaft and means for temporarily clutching the holder to and releasing it from the shaft to change the position of the button, substantially as set forth.



2. The combination with the button-holder and means for rotating it, of stop-dogs for arresting the rotary movement of the holder and means for bringing different numbers of the dogs into operative position relative to the holder, substantially as set forth.

3. The combination with the holder and means for rotating it, of stop-dogs pivoted in position to swing into and out of operative position and a spring-band for holding them in and out of operative position, at pleasure, substantially as set forth.

4. The combination with the holder and means for rotating it, of a stop-dog having a beveled end, a cam, stops on the shaft in position to coact with the beveled end of the dog and with the cam to free the shaft from the dog and means for reciprocating the receiving-holder to bring the stops into engagement with the dog and cam to free the shaft from the dog and permit it to rotate, substantially as set forth.

5. The combination with the holder and means for reciprocating it in a longitudinal direction, of a stop on the shaft, a cam with which the stop engages and a slot for receiving the stop as it leaves the cam to lock the holder against a rotary movement during the boring operation, substantially as set forth.

6. The combination with the longitudinally-reciprocating and rotary holder, a rotary shaft and means for clutching the holder to and releasing it from the rotary shaft, of an adjustable stop seated in the rotary shaft for moving the holder relative to its support to release the button, substantially as set forth.

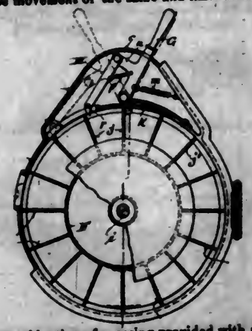
7. In a button-boring machine, the combination with the expansible and contractible holder, of an ejector seated within the holder, comprising a spring and a disk carried thereby, the said disk being adapted to press against the button when the holes are being bored to prevent the chipping of the button, substantially as set forth.

608,855. PASSENGER-CAR APPURTENANCE. ELIAS F. MATHENY, Milwaukee, Wis., assignor to David D. Matheny, Cuba, Ill. Filed Jan. 22, 1898. Serial No. 667,547. (No model.)

Claim.—1. The combination of an open-side casing provided with an inlet-aperture, a closure-plate for the casing, means for locking the plate to the casing, a pocket-wheel mounted in said casing, a lever mechanism operative to impart intermittent rotation to the wheel, and a detent operative in conjunction with said wheel to check reverse movement of same and limit its revolution.

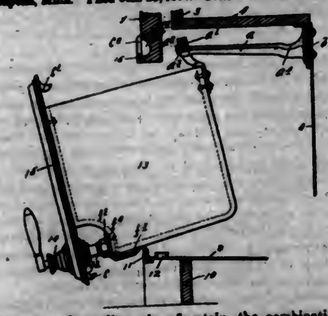
2. The combination of an open-side casing provided with an inlet-aperture and an observation-aperture, a closure-plate for the casing, means for locking the plate to the casing, a pocket-wheel mounted in the casing, and provided with an indicator having display through said observation-aperture, a lever mechanism operative to impart intermittent rotation to the wheel, and a detent operative in conjunction with said wheel to check reverse movement of the same and limit its revolution.

3. The combination of an open-side casing provided with an inlet-aperture, a housing surmounting the casing, a closure-plate for said casing means for locking the plate in place, a pocket-wheel mounted in the casing and provided with an indicator having display through an opening in the aforesaid casing, a spring-controlled lever fulcrumed in the housing and extended through a slot in the same, a dog in spring-controlled pivotal connection with the lever and extended through a slot in the casing periphery to operate against radial partitions of said wheel, dog-lugs arranged to ride on said casing periphery, and a detent operative in conjunction with said wheel to check reverse movement of the same and limit its revolution.



4. The combination of a casing provided with an inlet-aperture and an observation-aperture, a series of radial pockets within the casing, means for obtaining successive registration of the pockets with said inlet-aperture, and an indicator having display through said observation-aperture to tally the registrations of said pockets and inlet-aperture.

608,856. SODA-WATER FOUNTAIN. ROBERT B. MOWRY, Minneapolis, Minn. Filed Jan. 25, 1897. Serial No. 620,603. (No model.)



Claim.—1. In a dispensing-fountain, the combination with a syrup-can, of an overhead or top support for the can, and a hanger suspending the can from said support, with said parts constructed and arranged to permit the can to travel, on said support, and to permit the can to tilt downward when in its outermost or filling position, substantially as described.

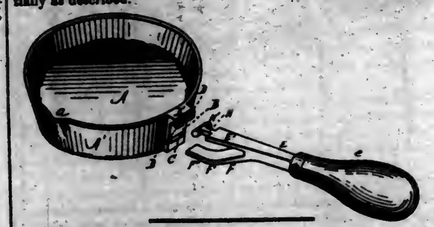
2. The combination with the syrup-can 13, of the overhead or top support *a*, provided with the outer-end depression a^3 and the inner-end depression a^4, the hanger *a'*, secured to the back of the can and embracing said support, and the roller a^5 secured to said hanger and traveling on said support, substantially as described.

3. The combination with the syrup-can 13, having the hanger *a'* with roller a^5, of the overhead or top support *a* having the depressions a^3 and a^4, and the face-plate 15 secured to the front wall of the can and provided with the lock-lugs *c'*, engageable over the plates 11 and 16, substantially as described.

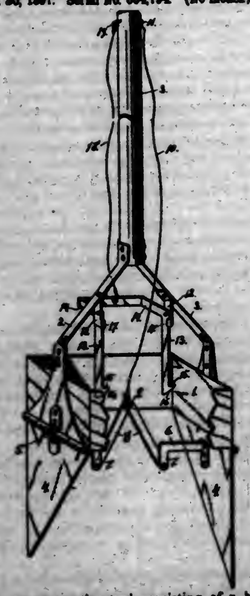
4. In a dispensing-fountain, the combination with the syrup-can, of a draft device having the parts *f' f'' f'' f''' f''* which operate as a rigid pipe-coupling and clamping device for securing the draft device to the can, substantially as described.

608,857. FRYING-PAN AND LIFTER. BENJAMIN PIERCE, Sandwich, Mass. Filed Jan. 30, 1896. Serial No. 627,128. (No model.)

Claim.—In combination, the pan A, A' formed on the outer surface of its side with the thickened outwardly-projecting portion B, the lower part of said portion being provided with the recess C and the upper part with the outwardly-overhanging hook-shaped lugs D separated by the notch *D'*; and the bifurcated lifter E comprising the arm E' extending at its ends into the neck H formed with the wings or T-shaped end H', and the lower arm F, F'', the outer end of said lower arm being adapted to fit into the recess C, the said T-shaped end or wings being adapted to fit under said lugs, and the said neck being adapted to extend into the notch *D'* between the lugs, substantially as described.



608,858. EXCAVATING-TOOL. HARMON RAKOV, Buffalo, N. Y. Filed Dec. 30, 1897. Serial No. 664,794. (No model.)

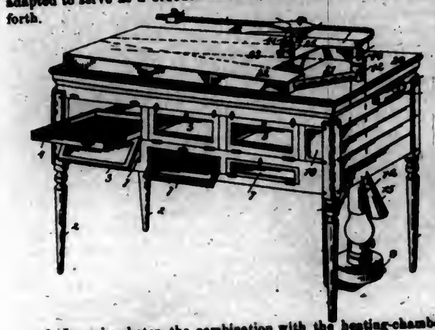


Claim.—An excavating-tool consisting of a box or receptacle mounted in an open frame, carrying an elongated handle, hinged triangular box-bottom sections, provided with suspending devices, rigid arms pivoted to the suspending devices and to each other and provided with an attached cord or chain extending to the upper end of the tool-handle for closing the box-bottom sections, an angular frame pivoted to the open box-frame, one section of which is provided with shoulders for removable engagement with the suspending devices on the hinged box-bottom sections and the other section having an attached cord or chain extending to the upper end of the tool-handle for effecting the release of the hinged box-bottom sections and stops upon the box-frame for limiting the play of the hinged box-bottom sections and the pivoted engaging and releasing frame.

608,859. INCUBATOR. JOHN R. ROBERTS, Homer City, Pa. Filed Jan. 30, 1897. Serial No. 621,312. (No model.)

Claim.—1. In an incubator, the combination with the egg-chamber, cleats therein above its bottom, the egg-tray mounted directly thereon and smaller in one direction than the transverse distance across the chamber so as to leave a clear chick-space at one side of the tray from the space below to that above it, and the heating mechanism entirely out of contact with the tray; of glass-paneled doors in the front of the body opposite and above the tray, and sim-

ilar doors below it, the space within the body beneath the tray being adapted to serve as a brooder-chamber, as and for the purpose set forth.



2. In an incubator, the combination with the heating-chamber having holes through top and bottom, and a source of heat; of an upright tube extending loosely through the lower hole and closely fitting the upper hole in the chamber and conveying heat internally from said source, and transversely-curved deflectors secured to the exterior of said tube at their upper ends and diverging outward therefrom toward their lower ends, their bodies having perforations near their upper extremities, as and for the purpose set forth.

3. In an incubator, the combination with a heating-chamber having holes through top and bottom, a plate covering one hole and itself having a central hole and surrounding perforations within the periphery of the hole in the chamber, and a source of heat; of an upright tube passing through the hole in the plate and through the remaining hole in the chamber, and deflectors secured at their upper ends to said tube with their lower ends diverging outward therefrom and perforations in their bodies, as and for the purpose set forth.

4. In an incubator, the combination with the heating-tube projecting to the exterior of the body; of pipes leading therefrom, a pair of outwardly-extending side flues connected with said pipes, an interposed return-flue connected with the outer ends of the side flues, all the flues standing against the body, an exit in the inner end of the return-flue, and a valve for adjustably restricting the size of said exit, as and for the purpose set forth.

5. In an incubator, the combination with the body having an egg-chamber and a heating-chamber, and means for leading the heat from the latter to the top of the former; of a perforate ventilator-tube extending along the bottom of the egg-chamber, an upright valved tube leading from one end thereof and opening near the top of the body, and another tube leading from the other end of the perforate tube through the heating-chamber upward and opening to the exterior of the body, as and for the purpose set forth.

6. In a thermostat, a body-strip of one metal attached at one end to a fixed support, narrow strips of another metal having a different coefficient of expansion secured upon opposite faces of said body in X shape, and a cross-strip attached to the free end of the body; combined with a heating-tube, a damper therefor, and connections between said cross-strip and damper, as and for the purpose set forth.

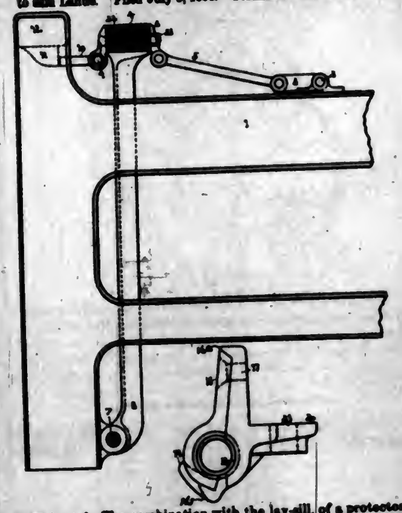
7. In a thermostat, a body-strip attached at one end to a support, a cross-strip of one metal secured to the other end of the body and bent upward in an elbow and thence outward in a horizontal finger, and narrow strips of another metal having a different coefficient of expansion secured upon one face of the body-strip, elbow, and finger along their edges; combined with a heating device, a damper therefor, and connections between the finger and damper, as and for the purpose set forth.

8. In a thermostat, a body-strip of one metal attached to a support, a cross-strip of the same metal secured to one end of the body and bent upward in an elbow and thence outward in a finger at right angles to the length of the body, and narrow strips of another metal having a different coefficient of expansion secured on opposite faces of the body in X shape and longitudinally along the outer face of the cross-strip, elbow, and finger; combined with a heat-regulating damper, and connections between said finger and damper, as and for the purpose set forth.

9. In an incubator, the combination with the egg-chamber, means for imparting heat to its top, and an egg-tray supported within the chamber between its top and bottom and having an opening at one side; of a thermal bar having one part below the tray and another part above it, and an interposed elbow passing through said opening, both said parts standing out of a vertical line through the opening so as to leave a clear chick-passage therethrough, and heat-regulating devices operated by said bar, as and for the purpose set forth.

10. In an incubator, the combination with the egg-chamber, means for imparting heat thereto, and an egg-tray within the chamber and having an opening at one side; of a thermal bar L-shaped in plan view, one arm extending from front to rear of the chamber beneath the tray, the other arm extending at right angles to the first and above the tray, and an interposed upright elbow extending through said opening and connecting the two arms, and heat-regulating devices operated by said bar, as and for the purpose set forth.

608,860. PROTECTOR STOP MECHANISM FOR LOOMS. CHARLES A. SAWYER and MOSES M. LABUR, Lowell, Mass.; said Sawyer assignor to said Labur. Filed July 9, 1896. Serial No. 598,535. (No model.)



Claim.—1. The combination with the lay-sill, of a protector-rod stand consisting of a bed formed with a socket to receive the protector-rod and with a lip 161 and offset 162, together with a cap formed with a socket to inclose the protector-rod, an edge engaging with the said lip and held in place thereby, and an opposite edge engaging said offset, and a screw securing said bed and cap together, and also holding the stand to the lay-sill, substantially as described.

2. The combination with the lay-sill, of a protector-rod stand consisting of a bed formed with a socket, with a channel 16, and with a retaining-lip 161 adjacent to the said channel, a bushing located in the said socket, a cap 15 having one edge thereof fitted into the said channel and engaged by the said retaining-lip, the said cap engaging with the bushing to hold the latter in place, and a screw securing said cap in place upon the stand, substantially as described.

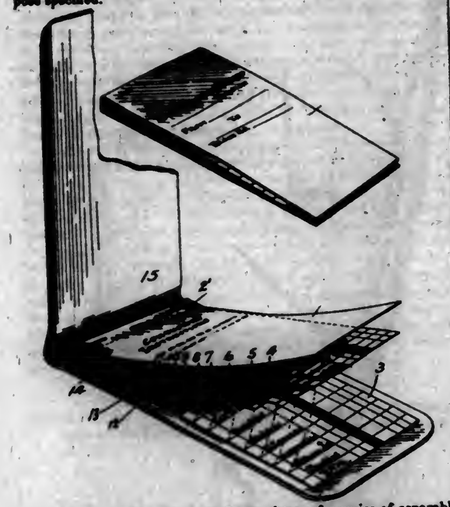
3. A protector-rod stand consisting of a bed formed with two sockets with space for the dagger of the rod between them, bushings fitting said sockets, and caps clamping said bushings and means for securing said parts to said bed.

4. A protector-rod stand consisting of a bed formed with two separated sockets and with an intermediate portion constituting a backing for the dagger and protector-rod against thrusts received by the dagger, bushings fitting the said sockets, and means to secure said bushings in place in said sockets, substantially as described.

608,861. FARE REGISTER AND RECORD. GRANT D. HRAPP, St. Paul, and HENRY HAYS, Minneapolis, Minn.; said Hrapp assignor of his right and said Hays assignor of one-fourth of his right to Charles G. Hawley and Peter R. Gross, Minneapolis, Minn. Filed May 14, 1897. Serial No. 636,513. (No model.)

Claim.—1. The combination, in a fare register or record, of a record-sheet, with a series of register-sheets devoted each to a particular station, and arranged in regular order, each register-sheet bearing the names of the stations between its particular station and the terminus or last station, and said record-sheet having the names of the stations in order, and the same appearing beneath the lower edges of respective register-sheets as and for the purpose specified.

2. The combination, in a fare register and record, of a record-sheet bearing the names of all of the stations in order, with a series of sheets devoted to particular stations and of varying lengths in regular order, each register-sheet bearing the names of the stations between its particular station and the terminus or last station, and said sheets being divided into vertical columns, as and for the purpose specified.



3. The combination, in a fare-register, of a series of separable sheets of varying lengths, each devoted to a particular station and bearing the names of all stations between said particular station and the terminus or last station, and said sheets being divided into columns marked according to the kind of fares.

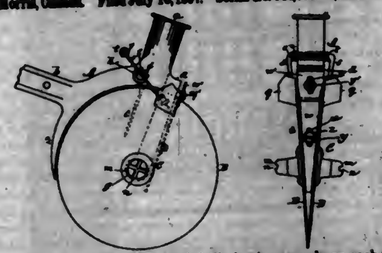
4. The combination, in a fare register and record, of record and register sheets, each having a heading substantially as described and divided into vertical columns marked with the names of the kinds of fare, said record-sheet bearing the names of all of the stations, said register-sheets being each devoted to a particular station and bearing the names of all the stations between said particular station and the terminus or last station named upon the record-sheet, and the names upon the record-sheet arranged to appear beneath the lower edges of register-sheets devoted to respective stations, substantially as described.

608,862. SEED-DRILL. WILLIAM SCRIVENER, Morris, Canada. Filed Mar. 26, 1896. Serial No. 584,467. (No model.)



Claim.—In a seed-drill, the combination of a grain-spout, revolving disks mounted upon the opposite sides thereof, and a tapered scraper adjustably mounted upon the grain-spout and between the disks, the said disks revolving in intersecting planes, whereby the adjustment of the scraper vertically regulates the bearing of the scraper on the inner faces of both of the said disks, substantially as described.

608,863. SEED-DRILL-DISK SHOE. WILLIAM SCRIVENER, Morris, Canada. Filed July 10, 1897. Serial No. 644,068. (No model.)



Claim.—1. A casting for seed-drills, having an axle on each side thereof, a grain-guide in front of the axles, and a shield in front of the guide, the whole being cast integral and being provided with a grain-spout between the axles and the grain-guide, substantially as described.

2. A casting for seed-drills, having a hollow axle on each side thereof, and a grain-guide and a draw-bar connection in front of the axles, and provided with a grain-spout in front of the axles and an oil-conduit, in the rear of the grain-spout, communicating with the central cavity of the axles, the said casting having lugs on the rear of the grain-spout, the whole being cast in one piece, substantially as described.

3. The combination, with a casting, having an axle on each side thereof, a draw-bar connection and a shield depending from the draw-bar connection, and provided with a grain-spout in front of the axles, the said parts being cast integral, of disks mounted upon the axles and behind the shield, substantially as described.

4. The combination with a casting having a hollow axle on each side thereof, and a grain-guide and a draw-bar connection in front of the axles and provided with a grain-spout in front of the axles and an oil-conduit, in the rear of the grain-spout, communicating with the central cavity of the axles, the said casting having lugs on the rear of the grain-spout, the whole being cast in one piece, of disks upon the axles, and a scraper adjustably secured between the disks upon the said lugs, substantially as described.

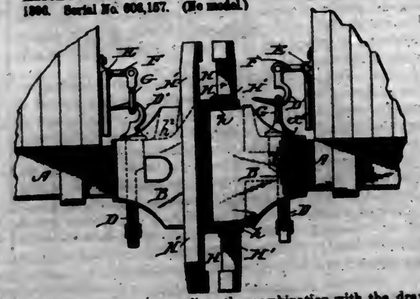
5. The combination with a casting, having a hollow axle on each side thereof and a draw-bar connection, a shield and a grain-guide in front of the axles, and provided with a grain-spout between the axles and grain guide, and with an oil-conduit in rear of the grain-guide, communicating with the cavity of the axles, and having lugs on the rear of the said oil-conduit, of disks mounted upon the said axles in the rear of the said shield, and a plurality of scrapers adjustably mounted in relation to each other and to the axles, upon the said lugs and between the disks, substantially as described.

6. The combination with diverging axles, of disks mounted thereon, and having the inner sides of their edges beveled, and two scrapers, mounted between the disks and adjustable in relation to each other, the one scraper cleaning the plane surfaces of the disks and the other scraper cleaning the beveled surfaces thereof, substantially as described.

7. The combination with disks, of pivoted levers *a a*, scrapers *g g* pivoted to one end of the said levers, and a spring connecting the opposite ends of the said levers, whereby the scrapers are forced against the disks and accommodate themselves to the inclination thereof, substantially as described.

8. The combination with hollow axles, serving as an oil-reservoir, of disks provided with hubs, mounted upon the said axles, means for retaining the hubs in place, and screw-threaded caps upon the hubs forming auxiliary oil-chambers upon the exterior of the axles, the said auxiliary chambers being in communication with the said oil-reservoir in the interior of the axles, substantially as described.

608,864. COMBINED DRAW-HEAD, RIGGING, COUPLING, AND LATCH DEVICE. HAMILTON R. WELLS, Columbia, Pa. Filed Sept. 17, 1896. Serial No. 606,157. (No model.)



Claim.—1. In a car-coupling, the combination with the draw-head, its coupling device, and the latch-pin for said device, said pin having at its upper end a hook which is open at the back, of the operating shaft or lever having an eye designed to loosely engage the said hook, and hooks secured to the upper and lower portions of the said head and projecting inwardly over and below the same, substantially as and for the purpose specified.

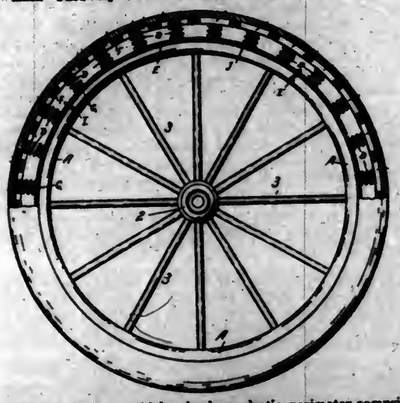
2. In a car-coupling of the class recited, the combination with the opposing draw-heads, their coupling-knuckles, the latch-pins for said knuckles, the operating devices for said pins, and means whereby said operating devices are automatically disengaged from the coupling-pins in the event of the draw-bar becoming detached from the car, of a device carried by each of said heads above and below the

same and adapted to engage the knuckles of the opposing head to support either draw-bar when detached from the car, substantially as specified.

3. In a car-coupling of the class recited, the combination with the draw-head, and its pivotal knuckle, of the latch-pin having the opening D^6 and the overhanging portion d^3, the auxiliary latch D^4 having the curved arm which engages loosely the opening D', said arm having the latch-head D^5 at its lower end and the detachable clevis-head D^4 at its upper end, and means for operating said auxiliary latch device to retract said latch-head when the pin is raised to release the coupling, substantially as specified.

4. In a car-coupling of the class recited, the combination with a draw-head and with a coupling-knuckle having the bearing d^4 for the latch-pin in its full coupled position, and the rearward projection C^3 having the beveled notch c^3, of the latch-pin having a reduced portion, and a beveled shoulder above said reduced portion and arranged to engage the notch c^3 and thereby temporarily lock the knuckle in partly-coupled position, substantially as specified.

603,865. VEHICLE-WHEEL. CHARLES G WHITAKER, Westfield, Mass. Filed July 9, 1897. Serial No. 643,945. (No model.)



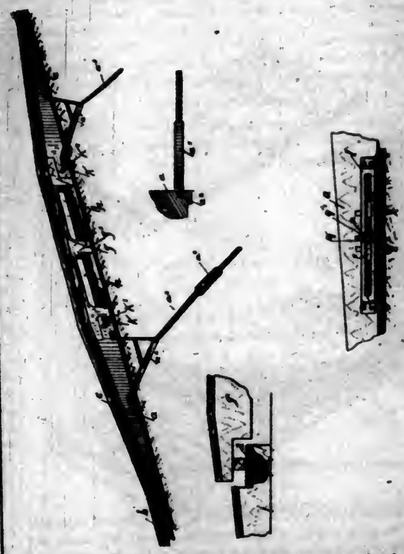
Claim.—1. In a vehicle-wheel, an elastic perimeter comprising a sectional rim, links and pins connecting said sections, coiled springs interposed between said rim-sections and the felly of the wheel, and a flexible tread enveloping said sections and springs, and by its borders engaging the said felly, substantially as described.

2. In a vehicle-wheel, an elastic perimeter comprising a series of rim-sections, each section having a spring-engaging base and depending borders on the opposite edges of said base, links and pins connecting said sections, a spring interposed between each of said rim-sections and the felly of the wheel, and a flexible tread enveloping said sections and springs, and by its borders engaging said felly, substantially as described.

3. In a vehicle-wheel, a felly therefor having spring-holding projections on its face and an elastic perimeter comprising a series of rim-sections, each section having a base and depending borders on the opposite edges of said base, and a spring-holding projection on said base, a spring interposed between each of said rim-sections and said felly and having said spring-holding projections entering the ends thereof, fibrous washers interposed between the ends of said springs and said perimeter and felly, connections between the adjoining ends of said sections consisting of links and pins, whereby one or more sections may move independently toward and from said felly, and a flexible tread enveloping said sections and springs, and by its borders engaging said felly, substantially as set forth.

603,866. HOSE-BRIDGE. WILLIAM H. WOLF, Pittsburg, Pa. Filed June 11, 1897. Serial No. 640,314. (No model.)

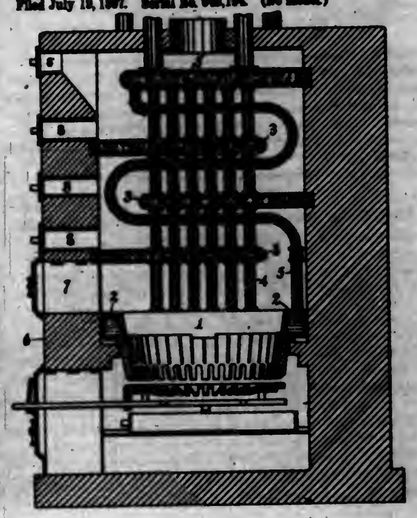
Claim.—1. In a hose-bridge, the inclined end pieces provided with cut-away portions, a central section provided with openings on its lower face to receive the hose, said central section engaging in the cut-away portions formed in the inclined end pieces, a tongue engaging in a recess formed in said end pieces said end pieces and central section provided with a track throughout their length, braces engaging the end sections, and adjusting-rods connected to said braces to support the bridges on each rail, longitudinal slotted bars secured to the end pieces and provided with downwardly-projecting wedges, whereby said hose-bridge is secured to the track, said slotted bars permitting the longitudinal adjustment of the wedges, substantially as shown and described.



2. In a hose-bridge the inclined end pieces chamfered on the lower edge to conform to the shape of the rail, and provided on its inner end with a cut-away portion and having a recess formed therein, a central section provided on its underneath side with cut-away portions to receive the hose, the ends of said central section are provided with a cut-away portion adapted to fit the cut-away portion of the inclined ends, a tongue formed on the end of the central section, adapted to engage the recess in the end pieces, said end pieces and central section provided with a track throughout their length, braces engaging the end sections, and adjusting-rods connected to said braces to support the bridge on each rail, longitudinal slotted bars secured to the end pieces and provided with downwardly-projecting wedges, whereby said hose-bridge is secured to the track, said slotted bars permitting the longitudinal adjustment of the wedges, substantially as shown and described

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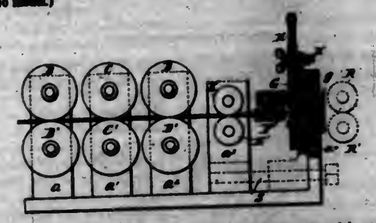
603,867. WATER-HEATER. ARTHUR W. ACHARD, Saginaw, Mich. Filed July 19, 1897. Serial No. 645,194. (No model.)



Claim.—1. In a hot-water heater, the system of heating the water comprising the boiler, vertical pipes connected with the boiler and extending upward through the heating-chamber, a series of hollow partitions extending into the heating-chamber from opposite sides thereof and partly across the same, and connected to the vertical pipes extending from the boiler whereby the water will circulate through the boiler-pipes and partitions, and a series of coiled pipes connected to the boiler and extending upward zigzag through the heating-chamber between and around the ends of the partitions and terminating in the upper hollow partition, and the pipes 10 extending from the upper partition, substantially as described.

2. In a hot-water heater, the combination with the fire-pot, a heating-chamber above the fire-pot having extending into it two or more hollow horizontal partitions, the partitions extending from opposite sides and nearly across the chamber, whereby the heat will be deflected from one side of the chamber to the other through the flues between the partitions, a boiler surrounding the fire-pot, a series of vertical pipes extending upward from the boiler and connected to the hollow partitions whereby the water will circulate from the boiler through the pipes and partitions, and coiled pipes extending upward from the boiler around the inner ends of the partitions and through the spaces between the partitions, back and forth through the heated chamber to the top thereof and connected to the upper partition, and the discharge-pipes extending from the upper partition, and the return-pipes, substantially as specified.

603,868. WIRE STRAIGHTENING AND TWISTING MACHINE. JAMES ATKIN, Montclair, N. J. Filed Nov. 30, 1897. Serial No. 660,167. (No model.)



Claim.—1. A machine for twisting prismatic wire comprising two sets of rolls having their peripheries formed and arranged to present between them spaces which conform to the shape of the wire, and means for supporting and fixing said rolls so that said spaces have different angular positions in the two sets of rolls, so that as the wire passes from one set of rolls to the other it is twisted in conformity to said spaces.

2. A wire-twisting machine comprising two sets of rolls conforming to the wire and arranged in line with one another so that the wire can pass through them in succession, means for varying the angular relation of one of said two sets of rolls, to the other, and means for clamping and fixing the two sets of rolls in definite angular relation.

3. A twisting-machine for prismatic wire comprising two sets of rolls, conforming to the wire and adapted to pass it successively between them, a fixed support for one of said sets of rolls, and a support for the other set of rolls which is angularly adjustable around the line of motion of the wire as a center, and means for fixing said support in any desired angular position.

4. A straightening and twisting machine, for prismatic wire, comprising three sets of rolls arranged in line so as to pass the wire successively between them and so straighten it, the peripheries of said rolls being formed and arranged to conform to the shape of the wire in different angular positions of same in the successive rolls and means for holding the said sets of rolls in such relative positions.

5. A straightening and twisting machine for prismatic wire comprising three sets of rolls arranged in line so as to pass the wire successively between them and so straighten it, the peripheries of each set of rolls conforming to the wire, and means for holding two of the sets in such angular relation that the peripheries of said sets conform to the wire in a different angular position of the wire so that the wire is twisted in passing from one to the other.

6. A machine for forming, straightening and twisting prismatic wires consisting of a series of forming-rolls having their peripheries formed to successively act on a round wire to change it to prismatic form, and two or more sets of twisting-rolls, one at least of which has its peripheries formed to conform to the prismatic wire in a different angular position to that which is given it by the forming rolls, so as to twist the wire, each sets of rolls being arranged in line, so as to straighten the wire and means for holding the said sets of rolls in such relative positions.

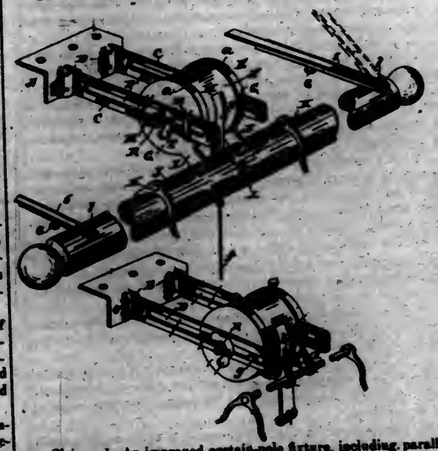
603,869. ROLLER-BEARING. WILLIAM F. RAHM, Springfield, Ohio, assignor to the Warder, Bushnell & Glessner Company, same place and Chicago, Ill. Filed Dec. 14, 1897. Serial No. 662,104. (No model.)



Claim.—1. In a roller-bearing, a cradle or bracket comprising end rings, and connecting-rods cast integrally therewith, one of said end rings provided with cylindrical seats and the other of said rings provided with seats having flared lips, in combination with rollers having one end adapted to be received endwise in the cylindrical seats in one of said rings and the other end adapted to be passed between said flared lips into the seat formed in the other of said rings, whereby, when said lips are hammered down said rollers are held in said cradle, as and for the purpose set forth.

2. In a roller-bearing, a cradle or basket comprising end rings and connecting-rods cast integrally therewith, one of said end rings provided on the inner face thereof with cylindrical seats, and the other of said rings provided on the inner face thereof with seats having flared lips, in combination with plane cylindrical rollers of a diameter greater than the radial thickness of said rings, one end of said rollers arranged to be received endwise in said cylindrical seat, and the other end arranged to be passed laterally between the flared lips of the corresponding seat in the other ring, whereby the peripheries of said rollers extend slightly beyond the inner and outer peripheries of said rings, said rollers being held in place by forcing said lips down and partially around the end of said rollers, as and for the purpose set forth.

603,870. CURTAIN-POLE BRACKET. JOSEPH BOLAND, Pittsburg, Pa., assignor to Charles H. Lloyd and Ella E. Boland, same place. Filed Oct. 20, 1897. Serial No. 655,844. (No model.)



Claim.—1. An improved curtain-pole fixture, including, parallel extending arms, a casing adjustable longitudinally therebetween, an extensible pole-containing device, a drum within the casing upon which the device is wound, and a bolt extending transversely through the casing and drum and forming a bearing for the latter, the bolt extremities engaging the arms and holding the casing in proper adjustment therebetween, substantially as shown and described.

2. An improved curtain-bracket, comprising an outwardly-extending support adapted to be secured centrally to the top of a window-frame, a vertically-extensible pole-supporting device sustained by the centrally-positioned support, and an elongated pole-embracing member extending transverse the support for holding the pole against vertical tilting when in raised position, substantially as shown and described.

3. A curtain-pole fixture comprising a supporting-arm, a cylinder longitudinally adjustable thereon, the cylinder provided with a transversely-elongated pole seat or socket, and a pole-supporting member carried by the said cylinder, at a point intermediate the ends of the elongated pole socket or seat, substantially as described.

4. A curtain-pole fixture comprising a supporting-arm, a cylinder

longitudinally adjustable thereon, the cylinder carrying a spring-actuated drum, a tape attached to the drum and extending through the cylinder, and a transversely-elongated pole seat or socket extending laterally beyond opposite sides of the said tape-opening, whereby the pole is held by the single bracket against tilting, substantially as and for the purpose described.

3. A curtain-pole fixture comprising a supporting-arm, a cylinder carrying a spring-actuated drum, a tape connected with the drum, the cylinder provided with an outwardly-extending arm or arms, and an elongated pole seat or socket carried by the arms, substantially as described.

6. A curtain-pole fixture comprising a supporting-arm, a cylinder adapted to be supported thereby, the cylinder provided with outwardly-extending arms, a rod carried by the arms and extending longitudinally of the cylinder, and pole-sockets carried by the said rod, substantially as described.

7. A curtain-pole fixture comprising parallel extending arms provided with longitudinal slots, a cylinder situated therebetween and provided with elements engaging the said brackets or arms to prevent the rotation of the cylinder in respect to the arms and a clamping means extending from the cylinder to the said slots, substantially as described.

8. A center curtain-pole bracket having an elongated pole-seat, and a supporting element attached to the pole and adapted to hold it in engagement with said seat at a point intermediate the ends of the pole, substantially as described.

9. In a curtain-bracket, a support including two longitudinally-slotted parallel arms, a cylinder between the arms provided with a tubular axial shaft, a clamping-rod extended through the tubular shaft and the arm-slots for making rigid the cylinder and arms and holding the former in desired adjustment, a spring-actuated drum on the tubular shaft within the cylinder, and a pole-sustaining tape wound upon the drum, substantially as shown and described.

10. An improved curtain-bracket, including parallel supports, cylinder-heads mounted upon the supports, a cylinder-body rotatably secured between the heads and means for holding same in adjustment, the cylinder being provided with an opening, a spring-actuated drum within the cylinder, and a pole-sustaining extensible tape upon the drum and passing outward through the cylinder-opening, substantially as shown and described.

11. A curtain-pole fixture comprising a supporting bracket or arm, a cylinder, a spring-actuated drum within the cylinder, a shaft passing through the cylinder and supporting the drum, the said shaft engaging and adapted to clamp the said supporting-arm whereby it performs the double function of providing a clamp for the cylinder and the arm and a bearing or support for the spring-actuated drum, and a pole socket or seat, substantially as described.

12. In a curtain-pole fixture, a cylinder adapted to be supported upon an arm or bracket having its central portion movable independently of its end portions, the central portion carrying a pole socket or seat, and a clamping and releasing means for the independent parts of the cylinder whereby the pole-seat may be adjusted as described.

13. The combination with a curtain-pole, of an inwardly-extending arm pivotally connected to the outer face of the pole, whereby it is adapted to swing around in a plane outside of the plane of the outer face of the pole, substantially as described.

14. The combination with a curtain-pole, of an inwardly-extending arm adjustable longitudinal of itself and transverse the pole, substantially as described.

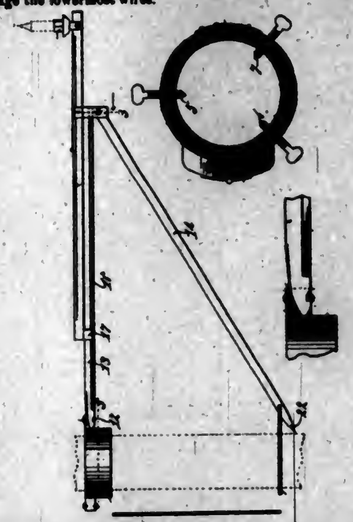
15. In a curtain-pole fixture, the combination of an adjustable pole-bracket, a pole supported thereby, and inwardly-extending horizontally-adjustable arms attached to the ends of the pole, substantially as described.

16. The combination with a curtain-pole, of an inwardly-extending laterally-swinging and longitudinally-adjustable arm attached to the pole, substantially as described.

608,871. CANDLE-HOLDER. FREDERICK J. DUBLIN, Friedheim, Ind. Filed Aug. 3, 1896. Serial No. 601,672. (No model.)

Claim.—1. In a device of the kind specified, a ring composed of sections hinged together and adapted to be locked by a spring-catch, devices for securing said ring around the trunk of a tree, projections adjacent the upper edge of said ring, wires secured to the outer ends of the upper and lower edges of said projections, and arms provided at their inner ends with devices adapted to engage said wires and having pivotal braces adapted to engage the trunk of the tree.

2. In a device of the kind specified, a ring composed of hinged sections adapted to be secured around the trunk of a tree, projections on said ring-sections, wires mounted upon the upper and lower faces of said projections and passing over recesses between the same, and arms adapted to be secured at their ends in said recesses and provided on their upper faces with bent springs adapted to engage the uppermost wires and on their lower faces with notches adapted to engage the lowermost wires.



608,872. CIGARETTE-BOX. JOHN R. BUCKLE, Washington, D. C., assignor to Arthur C. Moses, same place. Filed Feb. 15, 1898. Serial No. 670,400. (No model.)



Claim.—A closure, consisting of two sections, each complete in itself and adapted to contain the articles, the side pieces of one section adapted to overlap the side pieces of the other section when brought together, and a wrapper passing completely around said sections and pasted or otherwise secured thereto, said wrapper forming a connecting-hinge for the two sections at their bottoms and extended into a closing-flap for the same at their tops, substantially as set forth.

608,873. FOLDING BASKET. SARAH O. BURKEFIELD, Pittsburg, Pa. Filed Nov. 24, 1896. Serial No. 613,040. (No model.)

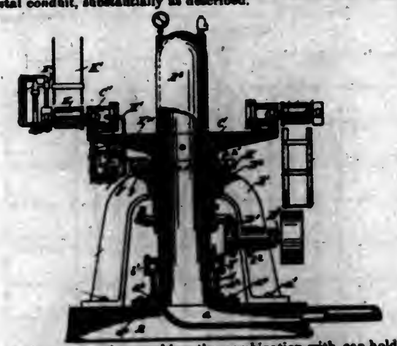


Claim.—In a folding basket, side and end pieces hinged together; a base formed in two pieces hinged together, said base being hinged to the rear side piece, hasps carried by said base, said hasps engaging staples secured in the front side, a securing-rod having a swiveled dart in one end and fastened to the front piece by a spring at the other and a detachable handle secured to the front and rear side pieces, substantially as shown and described.

608,874. TESTING APPARATUS. LOUIS C. CHESNEY, San Francisco, Cal. Filed June 5, 1895. Serial No. 551,202. (No model.)

Claim.—1. In a can-testing machine, the combination with means for clamping the can in place, an air-supply to the interior of the can, an indicating device, a connection between the air-supply and indicating device, and a separate connection between the indicating device and interior of the can, substantially as described.

2. In a can-testing machine, the combination with can-holding means, a source of air-supply, a pipe leading therefrom and discharging into the can, a supplemental conduit communicating with the air-supply and the said pipe in advance of the discharge end thereof, and an indicator controlled by the air-pressure through the supplemental conduit, substantially as described.

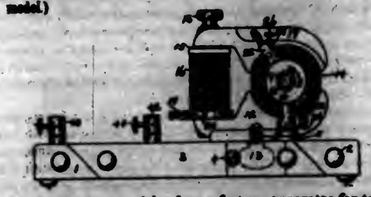


3. In a can-testing machine, the combination with can-holding mechanism, of an air-conductor arranged to communicate with the interior of the can, an indicator communicating with the conductor and actuated by the air passing therethrough during its passage to the can, and an air-supply from which the conductor leads, substantially as described.

4. In a dry testing apparatus, the combination with the vessel-clamping mechanism, of the air-cylinder, a piston working in said cylinder, a piston-rod connecting said piston with one of the clamping-heads, connection between the air-cylinder and a source of air-supply for conveying air within the air-cylinder so as to force the piston outward in order to cause the clamp-head operated thereby to clamp the vessel, devices for breaking the air-pressure within the cylinder, and of the spring located within the air-cylinder which forces the piston inward to release the clamped vessel the moment the air-pressure is released, substantially as described.

5. In a testing apparatus, the combination with the vessel-clamping and air-filling mechanism for the vessels, of the valve-box divided into an air-inlet and an air-outlet chamber, connection between the said clamping and filling mechanism and the air inlet and outlet chambers, an indicator communicating with the filling and the air inlet and outlet chambers, the slide-valves controlling the ports of the air inlet and outlet chambers, and of devices for operating said slide-valves to open and close the said ports, substantially as described.

608,875. ELECTRICAL APPARATUS FOR SCHOOLS. MELVIN H. CROWELL, Indianapolis, Ind., assignor to the Crowell Apparatus Company, same place. Filed Nov. 23, 1896. Serial No. 613,054. (No model.)



Claim.—1. As an article of manufacture, apparatus for teaching electricity comprising a base-plate, a pillow-block with a sleeve extending therefrom, an armature-shaft mounted in such pillow-block and sleeve, a driving-pulley mounted on such shaft, an armature adapted to be removably mounted on such shaft, a lower pole-piece with a pair of posts extending therefrom, a pair of coils that fit over such posts and have suitable binding-screws, an upper pole-piece detachably secured to the said posts on the lower pole-piece, a commutator, commutator-brushes removably mounted on the pillow-block sleeve, an L-shaped bar with one end secured to a sleeve adapted to be carried loosely on the armature-shaft and having a key at its free end and a binding-screw at its other end, a clamping-collar adapted to be mounted on the pillow-block sleeve, a spiral spring surrounding the sleeve to which the L-shaped bar is attached and secured at one end to such collar and at the other end to the bar, an armature secured to the bar over the poles of the magnet, a bell mounted on the base-plate, and a hammer removably secured to the free end of the bar and extending into close proximity with the bell, whereby a telegraph-sounder or electric bell may be made as desired.

2. As an article of manufacture, apparatus for teaching electricity comprising a base-plate, a pillow-block with a sleeve extending therefrom, an armature-shaft mounted in such pillow-block sleeve, a driving-pulley mounted on such shaft, an armature adapted to be removably mounted on such shaft, a lower pole-piece with a pair of posts extending therefrom, a pair of coils that fit over such posts and have suitable binding-screws, an upper pole-piece detachably secured to the said posts on the lower pole-piece, a commutator, commutator-brushes removably mounted on the pillow-block sleeve, an L-shaped bar with one end secured to a sleeve adapted to be carried loosely on the armature-shaft and having a key at its free end and a binding-screw at its other end, a clamping-collar adapted to be mounted on the pillow-block sleeve, a spiral spring surrounding the sleeve to which the L-shaped bar is attached and secured at one end to such collar and at the other end to the bar, an armature secured to the bar over the poles on the lower pole-piece, a post mounted in the base-plate having two parallel arms one above and one below such L-shaped bar with a set-screw in the upper one, a bell mounted in the base-plate, and a hammer detachably secured to the free end of such L-shaped bar and extending in close proximity with the bell, whereby a dynamo, telegraph-sounder or electric bell may be made as desired.

3. As an article of manufacture, apparatus for teaching electricity comprising a base-plate, a pillow-block with a sleeve extending therefrom, a shaft mounted in such block and sleeve, an electric magnet mounted on the base-plate and having suitable binding-screws, a post mounted in the base-plate having two parallel arms with a set-screw in the upper one and the lower one insulated, a bar secured at one end to a sleeve that is loosely carried on the shaft having a key at its free end and a binding-screw at the other end, a clamp-collar mounted on the pillow-block sleeve, a spiral spring surrounding the sleeve to which the bar is secured with one end attached to such collar and the other end to the bar, an armature secured to the bar over the poles of the magnet, a bell mounted on the base-plate, and a hammer removably secured to the free end of the bar and extending into close proximity with the bell, whereby a telegraph-sounder or an electric bell may be made as desired.

4. As an article of manufacture, apparatus for teaching electricity comprising a base-plate, a pillow-block with a sleeve extending therefrom, an armature-shaft removably mounted on such pillow-block, an armature adapted to be mounted on such shaft, a lower pole-piece with a pair of posts extending therefrom, a pair of coils removably mounted on such posts and having suitable binding-screws, an upper pole-piece detachably secured to the posts on the lower pole-piece, a commutator, commutator-brushes removably mounted on the pillow-block sleeve, a spool adapted to be secured to the base-plate having a secondary coil wound thereon and with an opening longitudinally through it large enough to admit the coils 16, a core adapted to extend through such coils, a post secured to the base-plate having an arm extending therefrom and provided with a regulating set-screw, and a circuit-breaker connected to such arm and extending into close proximity with the end of the core, whereby a dynamo or induction-coil may be made as desired.

5. As an article of manufacture, apparatus for teaching electricity comprising a base-plate, a pillow-block with a sleeve extending therefrom, a shaft removably mounted in such block and sleeve, an electric magnet mounted on the base-plate with removable coils and having suitable binding-screws thereon, a bar secured at one end to a sleeve that is loosely carried on the shaft having a key at the free end and a binding-screw at the other end, a clamp-collar mounted on the pillow-block sleeve, a spiral spring surrounding the sleeve to which the bar is secured with one end attached to the collar and the other end to the bar, an armature secured to the bar over the poles of the magnet, a post mounted in the base-plate having two parallel arms with a set-screw in the upper one and the lower one insulated, a spool adapted to be secured to the base-plate having a secondary coil wound thereon and with an opening longitudinally through it large enough to admit the coils of an electromagnet, a core adapted to extend through such coils, a circuit-breaker connected to the insulated arm of such post and extending into close proximity with the end of the core, and a screw extending through such post to regulate the circuit-breaker, whereby a telegraph-sounder or induction-coil may be made.

6. As an article of manufacture, apparatus for teaching electricity comprising a base-plate, a pillow-block with a sleeve extending therefrom, a shaft removably mounted in such pillow-block and sleeve, an electromagnet mounted on the base-plate with removable coils and having suitable binding-screws thereon, a bar secured at one end to a sleeve that is loosely carried on the shaft having a key at the free end and a binding-screw at the other end, a clamp-collar mounted on the pillow-block sleeve, a spiral spring surrounding the sleeve to which the bar is secured with one end secured to such collar and the other end to the bar, an armature secured to the bar over the poles of the magnet, a post mounted in the base-plate hav-

ing two parallel arms with a set-screw in the upper one and the lower one insulated, a spool adapted to be secured to the base-plate having a secondary coil wound thereon and with an opening longitudinally through it large enough to admit the coils of the electromagnet, a core adapted to extend through such coils, a circuit-breaker connected to the arm on such post and extending into close proximity with the end of the core, a screw extending through such post to regulate the circuit-breaker, and a bell mounted on the base-plate where the circuit-breaker when mounted on the free end of the telegraph-sounder bar will engage such bell, whereby the telegraph-sounder, electric bell or induction-coil may be made as desired.

7. As an article of manufacture, apparatus for teaching electricity comprising a base-plate, a pillow-block with a sleeve extending therefrom, an armature-shaft removably mounted in such pillow-block and sleeve, a driving-pulley mounted on such shaft, a lower pole-piece removably secured to the base-plate with a pair of posts extending therefrom, a pair of coils mounted on such posts and having suitable binding-screws, an upper pole-piece detachably secured to the said posts on the lower pole-piece, a commutator, commutator-brushes removably mounted on the pillow-block sleeve, an L-shaped bar with one end secured to a sleeve adapted to be carried loosely on the armature-shaft and having a key on its free end and a binding-screw at its other end, a clamping-collar adapted to be mounted on the pillow-block sleeve, a spiral spring surrounding the sleeve to which the L-shaped bar is attached and secured at one end to said collar and at the other end to the bar, an armature secured to the bar over the posts on the lower pole-piece, a post mounted in the base-plate, a spring-plate detachably secured to the free end of such L-shaped bar and extending in close proximity with the bell, a spool adapted to be secured to the base-plate having a secondary coil wound thereon and with an opening through it large enough to admit the coils 16, a core adapted to extend through such coils to a point next said post, and a set-screw extending through said post for regulating the circuit-breaker, whereby a dynamo, telegraph-sounder, electric bell or induction-coil may be made as desired.

8. In a dynamo, the combination of an armature provided with a central tubular extension, a bracket secured on such extension with a hole and binding-screw near its free end for each coil in the armature, and a commutator that slips on said tube and is provided with pins to connect it up with said bracket by means of the binding-screws.

9. In apparatus for teaching electricity, a base-plate, a bar pivoted between its ends to the base-plate at one side thereof, legs or extensions extending from said side of the base-plate of the same thickness as said bar, whereby when the bar is turned at right angles to the base-plate, it together with the legs or extensions on the base-plate will support the base-plate in a vertical position.

608,876. ELECTRIC HEADLIGHT. FREDERICK W. DRESSEL, New York, N. Y. Filed Oct. 6, 1897. Serial No. 654,209. (No model.)



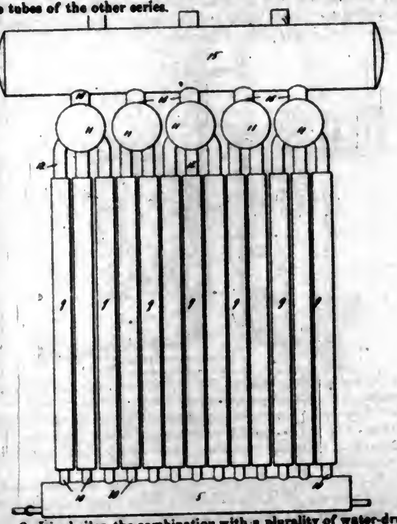
Claim.—1. An electric headlight, in which are comprised a flanged ring for securing within a car-dash, said ring carrying the lamp-bracket and lamp; a glass secured within said ring, and the body of the headlight hinged to the fixed ring and arranged to swing inward, substantially as shown and described.

2. In a headlight of the character herein specified, a ring secured within a car-dash, said ring being wider at the bottom than at the top, in combination with the body of the headlight hinged to said ring, substantially as shown and described.

3. In a headlight of the character herein specified, a ring secured within a car-dash, said ring being wider at the bottom than at the top, and having a rabbet at its inner edge, in combination with the body of the headlight hinged to the fixed ring, arranged to lap thereover and be held in place, substantially as shown and described.

608,877. BOILER. FRED A. GARDINER, Dedham, Mass. Filed Dec. 31, 1897. Serial No. 665,075. (No model.)

Claim.—1. In a boiler, the combination with a plurality of water-drums of a series of vertical columns connected with each drum in a common plane, a plurality of separating-drums arranged above and transversely of the said columns and water-drums, the columns of each series being connected alternately in pairs and trios with the adjacent ends of their respective separating-drums, the middle column of each trio having vertical connection with the lowest point of the drum to drain the latter, the remaining columns of each trio having bent connections with the sides of their respective drums, the columns of each pair having vertical connection with the adjacent ends of their respective drums, a plurality of angular tubes extending outwardly from each column and upwardly in the plane of its column, the tubes from the columns of one series extending between the tubes of the other series.



2. In a boiler, the combination with a plurality of water-drums, of a series of columns connected with each drum, a plurality of separating-drums arranged above and transversely of the water-drums, the columns of each series being connected alternately in pairs and trios with their respective separating-drums, a series of water-tubes extending from each column and connected with the separating-drum of its respective column, and a steam-drum connected with the separating-drums.

3. In a boiler, the combination with a plurality of water-drums, of a series of water-columns connected with each drum, a plurality of separating-drums arranged above and transversely of the water-drums, the columns of each series being connected in pairs and trips with their respective separating-drums, each separating-drum having a trio of one series connected with one end thereof and a pair of the opposite series connected with the other end, a series of tubes leading from each column to the separating-drum to which said column is connected, and a steam-drum connected with the separating-drums.

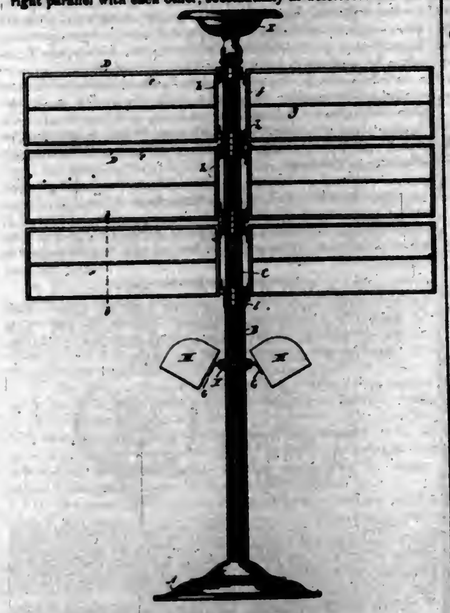
4. In a boiler the combination with a plurality of water-drums, of a series of water-columns connected with each drum, a plurality of separating-drums arranged above and transversely of the water-drums, the columns of each series being connected in groups with their respective separating-drums, said groups being alternately equal and successively different in number, each separating-drum having a larger group of one series connected with one end and a smaller group of the other series connected with the other end thereof and a series of tubes leading from each column and connected with the separating-drum with which its column is connected.

5. In a boiler the combination with a plurality of water-drums, of a plurality of separating-drums, water-columns connected with each water-drum and connected in groups with the separating-drums, water-tubes leading from the columns to the separating-drums with which their respective columns are connected, and a steam-drum connected with the separating-drums.

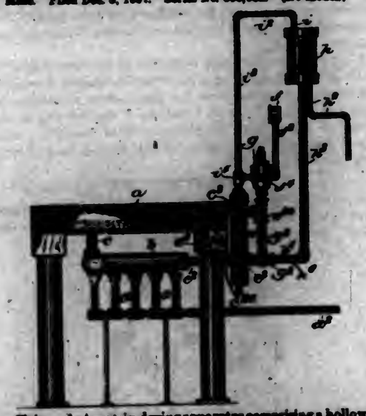
6. In a boiler, the combination with a plurality of water-drums, of a plurality of separating-drums, a series of water-columns connected with each water-drum and connected in groups with the separating-drums, said groups being alternately equal and successively different in number, each drum having a larger group of one series connected with one end and a smaller group of the other series with the other end thereof, water tubes leading from the columns and connected with the separating-drums with which their respective columns are connected, and a steam-drum connected with the separating-drums.

608,878. PHOTOGRAPH-HOLDER. LOUIS B. HERMAN, New Haven, Conn. Filed June 21, 1897. Serial No. 641,587. (No model.)

Claim.—In a photograph-holder the combination with a base, an upright post arranged thereon and having an annular shoulder, of rings on the upper portion of said upright and each formed with outwardly-extending internally-threaded lugs and a plurality of frames, each comprising two sides connected by a lower bar having parallel longitudinal grooves in its upper edge and two upper bars parallel with each other and with the lower bar, two arms fixed to the inner side members of each of the frames and formed with offset screw-threaded fingers for engagement with the lugs on the said rings whereby the said frames are pivotally mounted on the said upright parallel with each other, substantially as described.



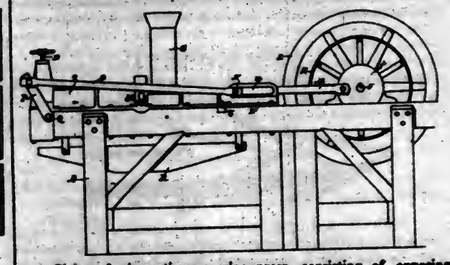
608,879. MATRIX-DRYING APPARATUS. BENJAMIN F. JACKSON, Cambridge, Mass., assignor of three-fourths to Ada M. Child, Boston, Mass. Filed Dec 3, 1897. Serial No. 660,682. (No model.)



Claim.—1. A matrix-drying apparatus comprising a hollow steam-tight table having a flat top to receive the matrix; a steam-generator of substantially less capacity than that of said table; one or more connecting-ducts for said generator and table; a burner or burners arranged to deliver heat against the walls of said generator; a closed water-supply reservoir above the table; and means for equalizing the pressure in said reservoir and said table to permit water to flow by gravity from said reservoir to said table; all of the said parts being arranged to form a complete self-contained apparatus; substantially as and for the purpose described.

2. The herein-described matrix-drying apparatus which comprises the table *a*, the generator *b* consisting of a single casting mounted below said table, the pipes *c* leading from said generator into said table through the bottom thereof, the water-supply reservoir *A* having a passage leading from the top thereof to the top of the steam-table, and a passage from the bottom thereof leading to the generator, and the water-gage, pressure-gage, and safety-valve arranged in said pipe system, substantially as and for the purpose described.

608,880. CONTINUOUS WINE-PRESS. CHARLES K. KIRBY, San Francisco, Cal. Filed Sept. 14, 1897. Serial No. 651,622. (No model.)



Claim.—1. A continuous wine-press, consisting of opposing pressor-plates or jaws with positive means for effecting their approach and separation to alternately press and relieve the layer of grapes lying in the space between them, a supply device to present the grapes in line with the rear end of said space, and a reciprocating plunger or feed-plate adapted to force the grapes, in successive charges, into the rear end of said space, whereby a section of the pressed layer is successively discharged from the front end thereof.

2. A continuous wine-press consisting of opposing pressor-plates or jaws, adapted to receive the grapes in the space between them, a supply device to present the grapes in line with the rear end of said space, a reciprocating plunger, adapted to force the grapes, in successive charges, into the rear end of said space, and a positive means for effecting the approach and separation of said jaws substantially synchronously with the withdrawal and feed, respectively of the plunger, whereby the layer of grapes between the jaws is alternately pressed and relieved, and sections thereof discharged from the front end, as successive charges are fed to the rear end.

3. A continuous wine-press, consisting of opposing pressor-plates or jaws, one of which is adapted to move or swing toward and from the other, to alternately press and relieve the grapes lying in the space between them, a supply device to present the grapes in line with the rear end of said space, a reciprocating plunger, adapted to force the grapes, in successive charges, into the rear end of said space, and a positive mechanism for directly swinging the movable pressor-plate or jaw and reciprocating the plunger, in such time, that as the jaw presses the layer of grapes, the plunger is withdrawn for a fresh charge, and as the jaw relieves the layer, the plunger advances and forces the fresh charge into the rear end of the space between the jaws thereby advancing the whole layer and discharging a portion from the front end of the space.

4. A continuous wine-press, consisting of an upper fixed jaw or pressor-plate, an opposing lower swinging jaw or pressor-plate, apertured, to permit the flow through it of the expressed must, a hopper back of the fixed jaw and a fixed grating below the hopper and back of the swinging jaw, said hopper and grating forming a means for presenting the grapes in line with the rear end of the space between the jaws, and a reciprocating plunger or feed-plate operating between the hopper and grating and adapted to force the grapes lying in the plane of its movement into said space, whereby they are continuously pressed and discharged from the front end thereof, as successive charges are fed to the rear end.

5. A continuous wine-press consisting of a fixed jaw or pressor-plate, an opposing swinging jaw or pressor-plate, a supply device comprising a hopper and underlying support, adapted to present the grapes in line with the rear end of the space between the jaws, a reciprocating plunger or feed-plate, adapted to force the grapes in successive charges into said space, and a hinge connection for the swinging jaw, passing below and swung from a pivotal center back of said supply device.

6. A continuous wine-press, consisting of opposing pressor-plates or jaws, means for swinging one of said jaws, to press the grapes in the space between them, means for adjusting the other jaw, to regulate the depth or thickness of said space, a supply device to present the grapes in line with the rear end of said space, and a reciprocating plunger or feed-plate, adapted to force the grapes, in successive charges, into the rear end of said space, whereby they are continuously pressed and discharged from the front end thereof, as successive charges are fed to the rear end.

7. A continuous wine-press, consisting of opposing presser-plates or jaws, relatively movable and adjustable, to press and to relieve the grapes lying in the space between them and to regulate the depth of said space, a supply device to present the grapes in line with the rear end of said space, a reciprocating plunger adapted to force the grapes, in successive charges, into the rear end of said space, whereby they are continuously pressed and discharged from the front end thereof, as successive charges are fed to the rear end, and means for operating the movable jaw and the plunger, comprising a cross-head actuated from a driving-shaft, a rock-shaft with cams under the jaw, and connections from the rock-shaft to the sliding cross-head, and connections from said cross-head to the plunger.

603,881. CHIMNEY-COWL. OTTO KUPRAI, New York, N. Y. Filed Feb. 20, 1897. Serial No. 625,115. (No model.)



Claim.—1. A chimney-cowl formed of a plurality of hollow cones arranged with the vertex of each cone except the top one extending into the cone above it, said cones having openings near their vertexes, substantially as described.

2. A chimney-cowl formed of a plurality of hollow cones arranged with the axes of alternate cones set obliquely in opposite directions and with the vertex of each cone except the top one extending into the cone above it, and said cones having openings near their vertexes in the sides nearest parallel with the general axis of the series, substantially as described.

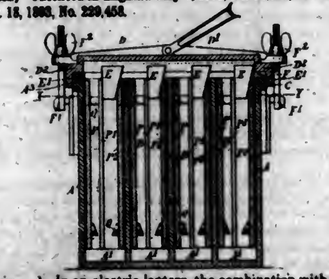
3. A chimney-cowl formed of three hollow cones arranged with the axes of alternate cones set obliquely in opposite directions and with the vertex of each cone except the top one extending into the cone above it, and said cones having openings near their vertexes in the sides nearest parallel with the general axis of the series, substantially as described.

4. A chimney-cowl formed of a plurality of hollow cones arranged with the axes of alternate cones set obliquely in opposite directions and with the vertex of each cone except the top one extending into the cone above it, and said cones except the top one, having openings near their vertexes in the sides nearest parallel with the general axis of the series, said top cone having its vertex cut off in a horizontal plane, substantially as described.

5. A chimney-cowl formed of a plurality of hollow cones arranged with the axes of alternate cones set obliquely in opposite directions and with the vertex of each cone except the top one extending into the cone above it, and said cones having openings near their vertexes, the openings in one or more of the cones being in the sides of the cones nearest parallel with the general axis of the series, substantially as described.

6. A chimney-cowl formed of a plurality of hollow oblique cones arranged with their bases parallel and their axes extending alternately in opposite directions and with the vertex of each cone except the top one extending into the cone above it, and said cones having openings near their vertexes, the openings in one or more of the cones being in the sides nearest parallel with the general axis of the series, substantially as described.

603,882. ELECTRIC LANTERN. FREDERICK G. W. J. ADAMS, London, England. Filed Apr. 24, 1897. Serial No. 633,684. (No model.) Patented in England July 7, 1891, No. 11,536, and in France Apr. 18, 1893, No. 229,458.



Claim.—1. In an electric lantern, the combination with a casing A having partitions B, of blocks A' A^2 at the bottom of the casing electrodes with insulating-stops, wedges E for securing the electrodes, overlapping cover D provided with metal strap D', contact-pegs O, conductors and sliding front G covering the conductors and carrying the lamp and fittings substantially as set forth.

2. In an electric lantern a battery consisting of the casing A having partitions B, blocks A', A^2 at the bottom and rim A^3 all integral therewith, two electrodes in each cell of which the negative consists of two members, one negative member being fixed, while the other and the positive electrode are held in position by wedges, overlapping cover D provided with metal strap, D', contact-pegs O and means for securing the cover, substantially as described.

3. In an electric lantern a battery-casing consisting of the case A having integral therewith partitions B blocks A', A^2 at the bottom rim A^3 and grooves H in front, for receiving a sliding plate G overlapping cover D provided with metal strap D' with longitudinal recess B', means for securing the cover to the case and a handle, substantially as described.

4. In an electric lantern the combination with a casing A having ridges H' and grooves H of a sliding front G, base-piece L attached to the sliding front and provided at its center with piece L' of insulating material, the conductors L^2 passing through said piece L', an electric lamp M, a reflector M^2 and lens N, substantially as described.

603,883. SAFETY INCANDESCENT ELECTRIC LAMP. FREDERICK G. W. J. ADAMS, London, England. Filed May 10, 1897. Serial No. 635,799. (No model.) Patented in England July 7, 1891, No. 11,536, and in France Apr. 18, 1893, No. 229,458.

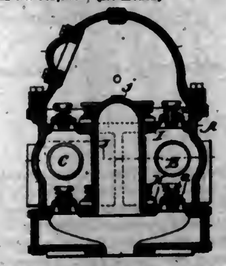


Claim.—1. An electric safety-lamp consisting of the lamp proper which is provided with a glass chamber inclosing the lamp and joined thereto by the fusion of the glass and an automatic circuit-breaker becoming active upon breakage of the inclosing chamber, substantially as described.

2. An electric safety-lamp consisting of the lamp proper which is provided with an inclosing glass chamber integral therewith and joined thereto by the fusion of the glass, a lamp-support forming two chambers one of which communicates with the chamber formed by the lamp-inclosing glass envelop, two conductors, one passing through the glass envelop uninterruptedly into the lamp, the other passing through the support being formed of two parts and forming the circuit-breaker, as specified.

3. An electric safety-lamp consisting of the lamp proper which is provided with an inclosing glass chamber integral therewith and joined thereto by the fusion of the glass and an automatic circuit-breaker becoming active upon breakage of the inclosing envelop in combination with a parabolic lens having faces coming to a common apex and provided with a holder or shield formed integral with the lens, as specified.

603,884. PUMP. LOUIS D'AURIA, Philadelphia, Pa., assignor to the d'Auria Pumping Engine Company, Camden, N. J. Filed Apr. 17, 1897. Serial No. 632,578. (No model.)



Claim.—1. The herein-described improvement in pumps, consisting in the combination with the suction-chamber, of a relieving chamber located within the liquid end of the pump, substantially in line with the general direction of flow of the incoming liquid from the suction-pipe, said chamber having its inlet substantially in the same plane with the openings to the suction-valves, substantially as and for the purpose set forth.

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2. The herein-described improvement in pumps, consisting in the combination with the suction-chamber, of a relieving-chamber located within the liquid end of the pump, substantially in line with the general direction of flow of the incoming liquid from the suction-pipe and formed integral with the pump-body, the inlet to the said chamber being in substantially the same plane as the openings to the suction-valve, substantially as and for the purpose set forth.

3. The herein-described improvement in duplex pumps, consisting in the combination with the suction-chambers, of a relieving-chamber located centrally between the pump chambers, and having an inlet opening substantially in line with the general direction of flow of the incoming liquid from the suction-pipe, and located substantially in the same plane as the openings to the suction-valves, substantially as and for the purposes set forth.

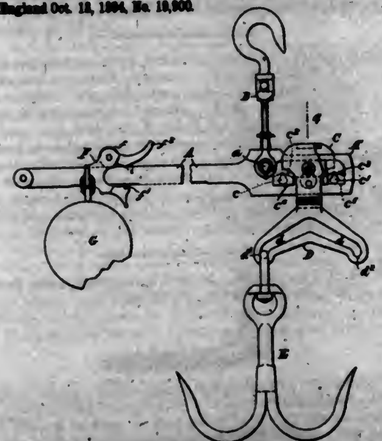
4. The herein described improvement in duplex pumps, consisting in the combination with the suction-chambers of the pump, of a relieving-chamber located centrally within the liquid end of the pump between the pump-chambers and substantially in line with the general direction of flow of incoming liquid from the suction-pipe, the inlet to said chamber being located substantially in the same plane as the openings to the suction-valves, substantially as and for the purpose set forth.

5. The herein-described improvement in duplex pumps, consisting in the combination with the suction-chamber, of a relieving-chamber formed integral with the liquid end of the pump and located centrally therein between the pump-chambers, the inlet to said chamber being located substantially in the same plane with the openings to the suction-valves, substantially as and for the purposes set forth.

6. The herein-described improvement in duplex pumps, consisting in the combination with the suction-chamber and the valve-decks, of a relieving-chamber located centrally within the suction-chamber, with webs integrally uniting the said relieving-chamber with the valve-decks and pump-body, the inlet to said chamber being located substantially in the same plane with the openings to the suction-valves, substantially as and for the purposes set forth.

7. In a pump, the combination with the suction-chamber and the suction and discharge valve decks thereof, of a relieving-chamber located substantially in line with the general direction of flow of the incoming liquid from the suction-pipe, having its inlet substantially in the same plane with the openings to the suction-valves, and formed integral with the pump-body, and a cored discharge-passage in the pump-body opening in the discharge-valve deck, substantially as described.

603,885. STEELYARD. CHARLES H. RADELEFF, Bristol, England. Filed Dec. 22, 1897. Serial No. 663,013. (No model.) Patented in England Oct. 13, 1894, No. 19,900.



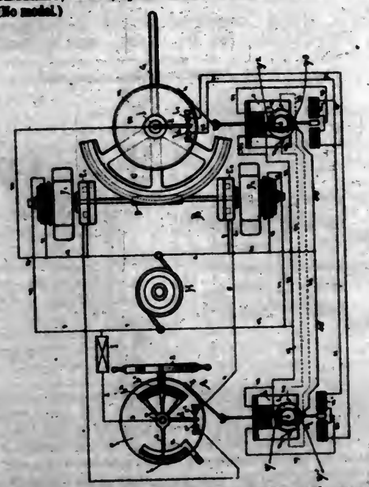
Claim.—1. The combination, with the short arm of a steelyard, of two sets of knife-edge centers at different distances from the center of suspension, and of a single hanger provided with two sets of bearings adapted to rest on either set of centers indifferently, and having a shifting connection with the load-suspension device whereby the load may be caused to bear through the hanger entirely upon the one or other set of centers, as and for the purpose specified.

2. The combination, with the short arm of a steelyard, of two sets of knife-edge centers at different distances from the center of suspension and of a single hanger provided with two sets of bearings adapted to rest on either set of centers indifferently, and provided with a rigid yoke or link adapted to permit of a shifting connection with the load-suspension shackle, the yoke or link extending beyond the knife-edge centers so as to cause the load-suspension hook, when at the one or other end of such link, to bear, through the hanger, entirely upon the one or other set of centers, substantially as and for the purpose specified.

3. The combination, with a steelyard having notches in its lower edge, of a carriage for the adjustable weight adapted to act as a lever having its fulcrum movable upon the upper edge of the steelyard and having a nib which is caused to engage with the notched lower edge by the gravity of the weight, substantially as and for the purpose specified.

4. The improved steelyard herein described, consisting of a steelyard provided with two sets of knife-edge bearings and a hanger self-adjusting thereon, as described, in combination with an adjustable weight-carriage adapted to engage with the notched lower edge of the steelyard and provided with indexes referring to two scales upon the same face of the steelyard, as specified.

603,886. ELECTRICAL STEERING APPARATUS. HARRY O. F. BURNHAM, Madrid, Spain. Filed June 4, 1897. Serial No. 639,401. (No model.)



Claim.—1. The combination with the rudder, and motors rotating in opposite directions, of electromagnetic clutches for operatively connecting the rudder with either of said motors, a switch-arm under the control of the operator, movable contact devices adapted to cooperate with said switch-arm, electrical connections adapted to form a circuit from said switch-arm and contact devices to the electromagnetic clutches, a switch-arm constructed to move with the rudder, movable contact devices adapted to cooperate with said switch-arm, synchronously-operated motors arranged to move the contact devices of the controlling switch-arm and of the rudder switch-arm, and electrical connections adapted to form a circuit from the rudder switch-arm and either of its contact devices to the said synchronously-operated motors, substantially as described.

2. The combination with the rudder, motors rotating in opposite directions, and clutches for operatively connecting the rudder with either of said motors, of an axle or pivot adapted to be turned by the man at the wheel, a switch-arm capable of a limited rotary movement relatively to said pivot, and having an inclined surface, a pin projecting from the pivot and engaging said inclined surface, a spring for keeping the pin against the inclined surface, contact devices arranged to be engaged by the said switch-arm and electrically connected to the said clutches, and means for holding the rudder stationary after it has reached the desired position, substantially as described.

3. The combination with the rudder, motors rotating in opposite directions, clutches for operatively connecting the rudder with either of said motors, and an actuating device under the control of the operator, for operating one clutch or the other, of a switch-arm capable of a limited rotary movement relatively to the pivot of the rudder and having an inclined surface, a pin projecting from the the pivot and engaging said inclined surface, a spring for keeping the pin against the inclined surface, contact devices adapted to be engaged by said switch-arm, synchronously-operated motors in circuit with said contact devices and switch arms, and operative connections from

said motors to move the contact devices and to disconnect the rudder from the clutch-controlled motors, substantially as described.

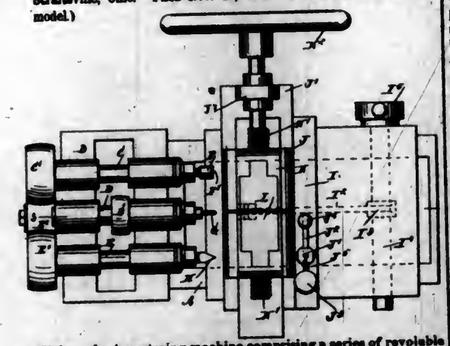
608,887. ROCK-DRILL SHARPENER. THOMAS H. BRADBURY, Johannesburg, South African Republic, assignor to the Bradbury's World Patent Drill Sharpener Company, Limited, London, England. Filed Dec. 16, 1895. Serial No. 572,236. (No model.) Patented in South African Republic Mar. 1, 1894, No. 612.



Claim.—In a drill-sharpening apparatus the combination with cutting and shaping dies, of the gaging-dies comprising the upper and lower dies having the grooves I formed with parallel sides and tapering with respect to each other on their upper and lower surfaces, for the purpose of centering and gaging the sharpened drill

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608,888. CENTERING-MACHINE. JACOB H. BREWER, New Straitsville, Ohio. Filed Nov. 12, 1897. Serial No. 658,229. (No model.)



Claim.—1. A centering-machine comprising a series of revolvable spindles adapted to carry a squaring-tool, a drill, and a reamer arranged in the same plane, a carriage mounted to slide toward and from the said tools, a cross-slide movable on the said carriage at right angles to the movement thereof, a holding device on the said cross-slide, for holding the work in the same plane as the said tools, means for moving the carriage forward and backward, to carry the work to and from the tools, and means for adjusting the cross-slide, to carry the work successively in alinement with the said tools, and for locking the slide to the carriage after it has been adjusted, substantially as shown and described.

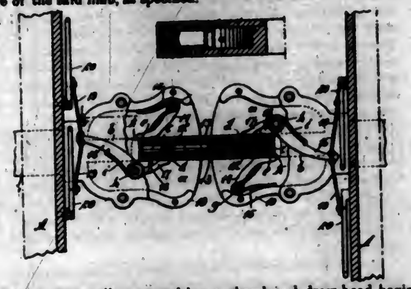
2. In a centering-machine, the combination with a tool-carrying head-stock, a carriage, and means for moving the carriage toward and from the head-stock, of a work-carrier sliding transversely on the carriage, and a lever engaging said carrier and carriage to move the said carrier and lock it to the carriage, substantially as described.

3. In a centering-machine, the combination with a head-stock carrying a plurality of tools, a carriage provided with a plurality of openings corresponding to the number of tools carried by the head-stock, and means for operating the carriage, of a work-carrier sliding transversely on the carriage and provided with an opening adapted to register with either of the openings of the carriage, and a pivoted lever provided with a pin at one end engaging the opening of the carrier and adapted to engage any one of the openings of the carriage, substantially as described.

4. A centering-machine, comprising a head-stock provided with a series of revolvable spindles carrying a squaring-tool, a drill, and a reamer, a carriage mounted to slide toward and from the tools and provided with openings corresponding in number to that of the tools, a slide mounted to slide transversely on the carriage and provided with an opening, a pivoted lever provided at one end with a pin entering the opening of the slide and adapted to enter any one of the openings of the carriage, a two-part chuck mounted on the slide and adapted to hold dies, and a right and left hand screw for operating the chuck, substantially as herein shown and described.

608,889. CAR-COUPLING. JAMES M BROWN and LEO D. PEAK, Exeter, Ill. Filed Aug. 26, 1897. Serial No. 649,458. (No model.)

Claim.—1. A car-coupling, comprising a chambered draw-head, an elongated coupling-link having a laterally-hooked outer end, and a twist at the side rearward of the hook, said link being pivoted near its rear end at the rear of the draw-head chamber, a limb pivoted at the side of the coupling-link and spring-pressed thereon opposite from the hook, and means to rock the link laterally against the pressure of the said limb, as specified.



2. A car-coupling, comprising a chambered draw-head having an abutment-wall extending forwardly therein, a spring-pressed limb pivoted in the draw-head at one side of the abutment-wall and normally pressing thereon, a link having a hooked outer end and pivoted by the opposite end in the draw-head, the free end of the limb contacting with said link; a rockable tripping-arm spring-pressed toward the limb, and a finger actuated by the arm to laterally move the coupling-link on its pivot when said tripping-arm is rocked away from the pivoted limb, as specified.

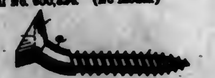
3. A car-coupling comprising a chambered draw-head, a spring-pressed limb pivoted in said draw-head near one side thereof, a coupling-link having a hooked outer end and pivoted near the opposite end of the draw-head, said link having a twisted side intermediate of its ends, adapted to interlock with a like side on a similar link when the latter is inserted in the draw-head, and a rockable tripping-arm adapted to actuate a tripping-finger which will press on the coupling-link for its release from a coupling-pin when said arm is rocked, as specified.

4. In a car coupling of the character described, a coupling-link comprising a bar flattened near each end, and notched at the side of one end to form a hook, the opposite end having a pivot-hole therein, and the ends of the links being held in parallel planes by a diagonally-disposed intermediate portion, said intermediate portion having one side twisted and the opposite side cylindric, as specified.

608,890. PRIMARY ELEMENT WITH REGENERABLE NEGATIVE ELECTRODE. OSKAR ROTHERED EDLER VON DOBOWALL and LEOPOLD OPPENHEIMER, Vienna, Austria-Hungary. Filed Dec. 9, 1896. Serial No. 615,064. (Model.) Patented in Germany Oct. 26, 1896, No. 92,627, and in Austria Nov. 9, 1896, No. 46/4,821.

Claim.—The process of manufacturing negative electrodes for primary batteries consisting in first preparing a peroxid plate of porous peroxid of lead on a lead frame then freeing this plate of air and moisture, then impregnating the peroxid with a water soluble concentrated electrolyte and then partially drying the electrodes so that they present dry surfaces, substantially as described.

608,891. SCREW. PHILIP W. CAMEL, Garner, Iowa. Filed Sept. 7, 1897. Serial No. 650,234. (No model.)

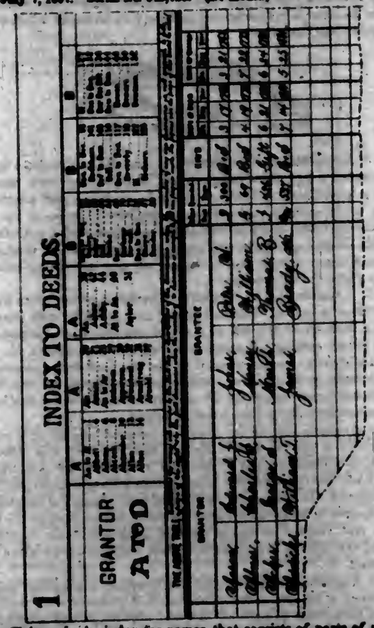


Claim.—1. As a new article of manufacture, a screw having its plain or unthreaded portion bent or curved and provided in its head with a slot, the bottom of which is at an angle to the face of the head, and perpendicular to the longitudinal axis of the body of the screw, as set forth.

2. As a new article of manufacture, a screw having the end of its shank next to its head bent or curved, and provided in its head with a transverse slot, tapering gradually from one end to the other, and having one end extending into the bent or curved shank, as and for the purpose set forth.

3. As a new article of manufacture, a screw having its plain or unthreaded portion bent or curved and provided in its head with a slot extending partially across the same, the bottom of the said slot being at an angle to the face of the head and perpendicular to the longitudinal axis of the body of the screw, as set forth.

608,892. INDEX. WARREN R. CLARK, Culpeper, Va. Filed July 7, 1897. Serial No. 643,720. (No model.)



Claim.—1. An index for names that consists of parts of names with means to indicate where the names are to be found, and full names, with means to indicate where such are to be found, full names of the same initial being in groups and parts of names being placed contiguous to a group of full names of the same initial letters, said parts being those of the first and last names of a group of names and having letters, after the initial letter, which, in alphabetical order, include the letters of like position in said group of full names, the said group of full names and parts of names being on the same page substantially as and for the purpose specified.

2. An index-book having on each record-receiving page, a table formed of parts of names, with means to indicate where the names are to be found, and full names, with means to indicate where such are to be found, the parts of names and full names being grouped together according to their initial letters, said parts of names of each group being those of the first and last of a group of names, and having letters after the initial letter, which, in alphabetical order, include the letters of like position in the full names of a group, substantially as and for the purpose described.

3. An index-book having at the top of each record-receiving page, a table formed by parts of names, with means to indicate where the names are to be found, and full names, with means to indicate where such are to be found, the parts of names and full names being arranged in columns and grouped according to their initial letters, said parts of names of a group being those of the first and last of a group of names, and having letters after the initial letter, which in alphabetical order, include the letters of like position in the full names of a group, substantially as and for the purpose set forth.

608,893. ASH-SIFTER. JAMES H. COMPTON and EDWARD W. COMPTON, Camden, N. J. Filed June 4, 1897. Serial No. 639,268. (No model.)



Claim.—1. In an ash-sifter, a sieve or screen, a chute located at one side of said screen, and a dumping-platform located at the opposite side of said screen, the platform and chute being arranged to move in concert and oppositely, substantially as described.

2. In an ash-sifter, a casing provided with a screening-surface and an outlet adjacent to said screening-surface, a dumping-platform located below the screening-surface, a supply-chute located above the screening-surface, and a door operated by the movement of the chute, the chute being also arranged to control the movement of the dumping-platform.

3. In an ash-sifter, a casing, a gravity supply-chute, a screening-surface below the supply-chute, a door adapted to control the opening through which the cinders are ejected, the door being connected with said chute and opened and closed by the movement thereof, a dumping-platform below said screening-surface, and a connection between the dumping-platform and chute, whereby the movement of one compels a movement of the other.

4. In an ash-sifter, the combination, with a casing provided with a screening-surface, of a dumping-platform, a supply-chute, and a door arranged to cover the opening through which the ashes are to be ejected, the movement of the supply-chute regulating the movement of the door and platform.

5. In an ash-sifter, the combination, with a casing having an opening in its bottom and an opening in its side, and a screen having a diagonal position in the casing, extending from its closed to its open side, of a dumping-platform located beneath the screening-surface, a pivoted chute located above the screening-surface, a door connected with the said chute, and a rod connecting the platform with the chute, the chute being of such length as to extend from side to side of the casing, and the connection between the chute and platform being such that when the chute is closed the platform will be opened to discharge its load.

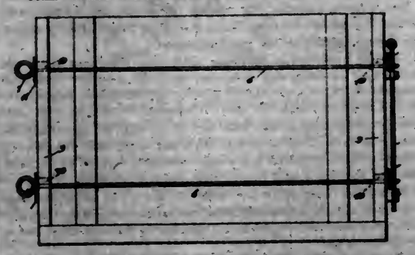
6. In a sieve, a casing, a chute located above the screening-surface, pivoted in said casing and normally separating the upper from the lower portion of the casing, and a door connected with said chute, adapted to close the outlet of the casing, the door being opened and closed by the movement of the chute.

7. In an ash-sifter, a counterbalance-chute, and a door arranged to cover the outlet-opening of the sifter, and controlled by the said counterbalance-chute, and a sieve located between the two.

8. In an ash-sifter, a counterbalance-chute, and a door arranged to cover the outlet-opening of the sifter, and controlled by said counterbalance-chute, the said door being constructed in sections having a hinged connection, and a sieve located between the two.

9. In an ash-sifter, the combination, with a casing having an inclined screening-surface, a counterbalance-chute located above the screening-surface, extending from side to side and from front to rear, a door adapted to close the central outlet in the casing, the door being connected with the counterbalance-chute, and a dumping-platform located below the screening-surface and connected with the counterbalance-chute, the connection being such that when the chute is in normal position the platform will be in dumping position.

608,894. END-GATE FASTENING. JOHN S. COURT, Memphis, Tenn. Filed Dec. 15, 1897. Serial No. 662,003. (No model.)



Claim.—1. An end-gate fastening having a bolt provided at one end with a hand-ring and at the other end with an eye, two wear-plates provided with vertically-elongated slots through which the eyes of the bolts may pass, the bolt being capable of being turned to place the eye in horizontal position, and a rod running through said eye.

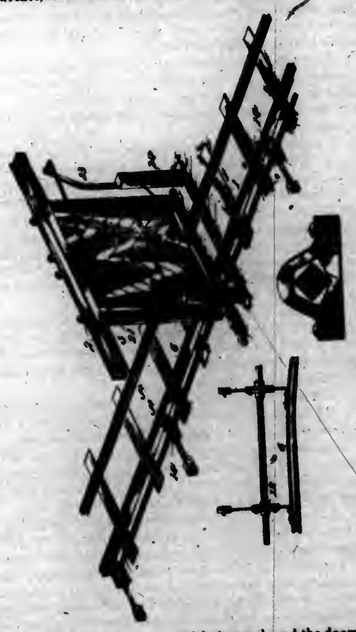
2. An end-gate fastening having two eyebolts, a wear-plate through which the eye of each bolt may be passed, the wear-plates having vertically-elongated slots therein and the bottom wear-plate having an internally-threaded socket, and a rod passed through the eyes of said bolts and having a threaded portion working in the socket.

3. An end-gate fastening having two eyebolts, a wear-plate for each eyebolt, each wear-plate having a vertically-elongated slot through which the eyes may be passed and each wear-plate also having a socket with vertically-extending interior walls, the lower socket being internally threaded, and a rod passed through the eyes and

through the sockets and having its lower portion threaded to coact with the threads of the lower socket.

4. A wear-plate for end-gate fastenings, having an opening or slot therein, and a socket adjacent to said opening, the socket having its interior walls extending parallel with the plane of the wear-plate.

608,895. DOOR-OPERATING MECHANISM. AUGUST DITTMAR, Lawrence, Ohio. Filed Dec. 16, 1897. Serial No. 662,105. (No model.)



Claim.—1. The combination, with the track and the doors above the track, of a rock-shaft formed in a plurality of lengths and secured together by coupling-boxes, lever mechanism connecting the doors and rock-shaft, means for operating the rock-shaft in one direction to open the doors, and weight-levers for operating the rock-shaft in the opposite direction for closing the doors, said weight-levers passing through the coupling-boxes and being longitudinally adjustable therein, as and for the purposes stated.

2. The combination with the track and the doors above the track, of an operating-bar alongside the track, a square rock-shaft alongside the track and connected to the operating-bar, bearings for the rock-shaft in which the latter is adapted to rock on edge, said bearings comprising a base-plate having an angular depression the meeting surfaces of which are at a greater angle than the meeting surfaces of the rock-shaft and a cap removably secured to the base-plate, the portion of said cap coming into contact with the edge of the rock-shaft being on an arc similar to the arc of the upper edge of the rock-shaft in movement, lever mechanism connecting the rock-shaft and doors, and weight-levers secured to the rock-shaft and to the operating-bar.

3. The combination, with the track and the doors above the track, of a rock-shaft alongside the track, an operating-bar adjacent to one rail of the track, an angle-lever secured to the rock-shaft and connected at one end to the operating-bar, a lever pivoted in the door-frame and having its lower end connected to the angle-lever, its upper end being connected to one of the doors, another lever also pivoted in the door-frame opposite the first lever and having its lower end connected to the remaining door, and a horizontal bar connecting the upper ends of said levers, substantially as and for the purposes stated.

608,896. COMBINED CHAIR AND BEDSTEAD. JOSEPH DIXON, London, England. Filed Dec. 28, 1897. Serial No. 663,963. (No model.) Patented in England July 9, 1896, No. 15,305, and Sept. 9, 1897, No. 20,750.

Claim.—1. A combined folding chair and bedstead, comprising a legged seat-frame, a back pivoted to the said seat-frame, and a brace pivoted on the said back, and provided with pivoted legs adapted to form extension-legs for the said brace, and legs for the said back when the latter is in an extended position for a bedstead, substantially as shown and described.



2. A combination folding chair and bedstead, comprising a legged seat-frame, a leg-rest slidable thereon and provided with separate legs, a back-frame pivoted on the said seat-frame, and adapted to form a bed extension therefor in an opposite direction to the said slidable leg-rest, a brace pivoted on the said back-frame, and adapted to fold thereon to support the frame, and extension-legs pivoted on the said brace, and adapted to engage the said back-frame, substantially as shown and described.

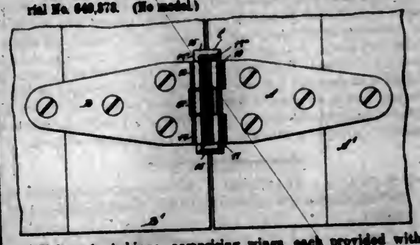
3. A combination folding chair and bedstead, comprising a legged seat-frame, a leg-rest slidable thereon, and provided with separate legs, a back-frame pivoted on the said seat-frame, and adapted to form a bed extension therefor in an opposite direction to the said slidable leg-rest, a brace pivoted on the said back-frame, extension-legs pivoted on the said brace, and adapted to engage the said back-frame, and means for locking the said brace in place on the said back-frame, substantially as shown and described.

4. A combination folding chair and bedstead, comprising a legged seat-frame, a leg-rest slidable thereon, and provided with separate legs, a back-frame pivoted on the said seat-frame, and adapted to form a bed extension therefor in an opposite direction to the said slidable leg-rest, a brace pivoted on the said back-frame, and adapted to fold thereon to support the frame, extension-legs pivoted on the said brace, and adapted to engage the said back-frame, and means for locking the said leg in place on the brace, substantially as shown and described.

5. A combination folding chair and bedstead, comprising a legged seat-frame, a leg-rest slidable thereon, and provided with separate legs, a back-frame pivoted on the said seat-frame, and adapted to form a bed extension therefor in an opposite direction to the said slidable leg-rest, a brace pivoted on the said back-frame, and adapted to fold thereon to support the frame, extension-legs pivoted on the said brace, and adapted to engage the said back-frame, and means for locking the said brace-leg in place at its fulcrum end on the said back-frame, substantially as shown and described.

6. A combination folding chair and bedstead, comprising a legged seat-frame, a leg-rest slidable thereon, and provided with separate legs, a back-frame pivoted on the said seat-frame, and adapted to form a bed extension therefor in an opposite direction to the said slidable leg-rest, a brace pivoted on the said back-frame, and adapted to fold thereon to support the frame, extension-legs pivoted on the said brace, and adapted to engage the said back-frame, substantially as shown and described.

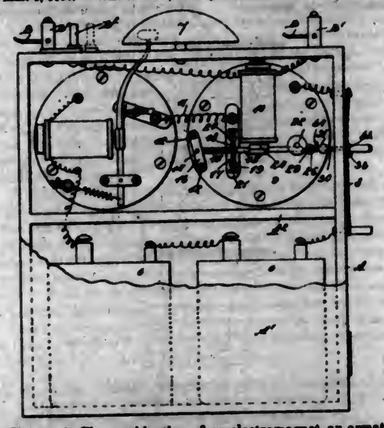
608,897. HINGE. JOHN J. FARRAR, Rapid City, S. D., assignor of one-half to George C. Hunt, same place. Filed Aug. 26, 1897. Serial No. 649,578. (No model.)



Claim.—1. A hinge, comprising wings, each provided with a plurality of knuckles, one of the knuckles of one of the wings being out of alinement with the other knuckles thereof and extending between the knuckles of the other wing, and two connected pintles extending through alining knuckles, substantially as described.

2. A hinge, comprising two wings, one of said wings being provided with two knuckles spaced apart, and the other wing with three knuckles, the central one of which projects beyond the end of the wing and in front of the other knuckles thereof, said central knuckle extending between the knuckles of the other wing, and a link-plate, the side members of which pass through alining knuckles, substantially as described.

608,898. ALARM. IRA R. FRAMER, Rainbotown, Iowa. Filed Mar. 6, 1897. Serial No. 626,573. (No model.)



Claim.—1. The combination of an electromagnet, an armature-arm pivotally mounted adjacent to the electromagnet, an arm pivotally mounted above and bearing on the armature-arm, and a spring-pressed block bearing against one edge of the armature-arm and capable of engaging either side of the armature-arm according to the position to which said arm moves, substantially as described.

2. The combination of an electromagnet, an armature-arm pivotally mounted adjacent to the electromagnet and having each side of its free end reduced to form a plate, a tubular post, a block-spring pressed and sliding within the post, the block having a pin carried at its outer end and normally engaging one edge of the plate, the pin being capable of moving to either side of the plate according to the position to which the armature moves, and means for moving the block within the tubular post and against the tension of the spring, substantially as described.

3. The combination with a base-plate, of two posts carried by the base-plate, a plate carried by the posts, a pin rockably mounted in the plate and in the post-plate an armature-arm fixedly carried by the pin, a contact-plate carried by the pin and running parallel with the arm, a plate carried on and insulated from the base-plate, two posts rising from said insulated plate, a contact-screw carried by each post, the contact-screws being located respectively above and below the contact-plate and a magnet coactive with the armature-arm, substantially as described.

4. The combination with an armature-arm, of a tubular post, a block sliding in the post, a spring pressing the block, a pin carried by the block and movable through a slot in the tubular post, a rock-shaft mounted adjacent to the tubular post and a cam carried by the rock-shaft and capable of engaging the pin in the block, substantially as described.

5. The combination of a magnet, an armature pivotally mounted adjacent to the magnet to swing toward and from the same, a spring-plate carried by the armature, and extending in the plane thereof, two contact devices between which the spring-plate is poised and a lead for the armature, the lead being pivoted to bear against the armature in opposition to the magnet, and the pivot of the lead being at an angle to the pivot of the armature.

6. The combination of a magnet, an armature arranged in front of the same, a device acting upon the armature for opposing the attractive influence of said magnet on its armature, and a steadying device acting against the armature and holding it in the plane of the neutralized forces, substantially as and for the purpose described.

7. The combination with an electromagnet arranged in a normally-closed main-line circuit, a subjacent armature-lever, a hinged and adjustably-weighted arm arranged at right angles to and resting upon the armature-lever to balance the attractive influence of the magnet, and two contact-posts arranged upon opposite sides of the armature-lever and both out of contact with the same when in its balanced position, and an alarm-circuit arranged to be closed by the movement of the armature-lever in either direction, substantially as and for the purpose described.

608,899. GARMENT-SUPPORTER. ROBERT GORTON, Newton, Mass. Filed May 15, 1897. Serial No. 636,805. (No model.)

Claim.—1. A garment-supporter device, comprising a metal frame having at one end means for attaching it to a garment, and provided with a cross-bar bridging the space between the upper and lower ends of the frame, and formed with flexible or bendable teeth pointing in the same general direction, and which are adapted to extend into and be turned inwardly upon the webbing, in combination with webbing, one end of which is attached to the cross-bar by the teeth which are turned down upon it.

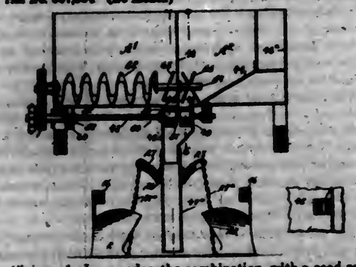


2. A garment-supporter device, comprising a frame bridged by a cross-bar having teeth pointing in the same general direction crosswise of the bar, in combination with webbing one end of which is attached to the teeth and which is passed through the frame above and below the cross-bar and covers the front and rear faces and both longitudinal edges thereof.

3. A garment-supporter device, adapted to be attached to webbing, comprising a frame, a sheet-metal cross-bar whose ends are bent tightly around the sides of the frame, and which has teeth located opposite the face or inside the longitudinal edges of the cross-bar, and a bent-over lip at the edge of the bar adjacent to the end of the teeth, all substantially as and for th purpose set forth.

4. A garment-supporter device adapted to be attached to webbing, consisting of a frame made of wire and having its opposite sides, *c*, *c*, set in, a sheet-metal cross-bar having its ends bent around and secured to the set-in sides of the frame, and also having teeth located opposite the face or inside the longitudinal edges of the cross-bar, and a bent-over lip at the upper edge adjacent to the ends of the teeth, all substantially as and for the purpose set forth.

608,900. COMBINED COTTON-SEED PLANTER AND FERTILIZER-DISTRIBUTER. WALTER G. GRAY, Martynsburg, Tenn., assignor to himself, and THOMAS P. ALLEN, Elma, Ky. Filed Jan. 20, 1898. Serial No. 667,894. (No model.)



Claim.—1. In a seeder, the combination, with a seed-receptacle, a conveyer, means for driving the conveyer, and an agitator located over the outlet of the said receptacle and connected with the conveyer, of a grating located at the outlet of the seed-receptacle, and a seed-distributing cylinder mounted to revolve below the said grating and provided with teeth arranged to extend upward between the bars of the grating, as and for the purpose specified.

2. In a planter, a seed-receptacle provided with an outlet, a grating located at the outlet, means for feeding the seed toward said outlet, an agitator located over the outlet, and a seed-distributing cylinder mounted to revolve below the grating and provided with spirally-arranged teeth adapted to enter the spaces between the bars of the grating, for the purpose set forth.

3. The combination with a hopper divided into a seed compartment and a compartment for fertilizing material, the compartments being each provided with an outlet, a screw conveyer located in the seed-compartment and having a shaft at one end extending into the fertilizing compartment, an agitator located in each compartment over the outlet and secured to the said shaft on the screw conveyer, a distributing-cylinder located below the outlet of each compartment, a shaft upon which the said cylinders are mounted and a driving connection between the said shaft and the said conveyer, as and for the purpose specified

4. The combination with a receptacle provided with an outlet, a screw conveyer located in the receptacle and having a shaft at one end, an agitator secured to the said shaft and located over the outlet, a distributing-cylinder located below the outlet, a shaft upon which

the said cylinder is mounted, a sprocket-wheel loosely mounted on the outer end of the said shaft and provided with clutch-teeth on its inner face, means for driving the said sprocket-wheel, a sleeve held to slide on the said shaft and carrying a clutch adapted for engagement with the clutch-surface of the sprocket-wheel, the said sleeve also carrying a pinion adapted to mesh with a gear on the outer end of the screw conveyer, for the purpose set forth.

5. In a planter or like machine, a hopper divided into a seed-compartment and a compartment for fertilizing material, each compartment being provided with an outlet, a chute surrounding both of said outlets, an agitator in each compartment and mounted to revolve over the outlet thereof, a distributing-cylinder located below the outlet of each compartment and within the said chute, and a slide located within the compartment for fertilizing material and arranged to extend within the outlet thereof, the said slide being adjustable to and from the distributing-cylinder, for the purpose specified.

6. The combination, with a hopper divided into a seed-compartment and a compartment for fertilizing material, each compartment being provided with an outlet, the outlet in the seed-compartment being provided with a grating, of a screw conveyer located in the seed-compartment, an agitator located in each compartment over the outlet therefor, a distributing-cylinder located below the outlet of each compartment, the distributing-cylinder below the outlet of the seed-compartment being provided with pins arranged to enter the space between the bars of the grating, a feed-shaft upon which the said cylinders are mounted, and a driving connection between the said shaft, the conveyer and agitators, as and for the purpose specified.

7. The combination with a support and plow-beams carried by the said support and adjustable laterally and vertically, of a shifting lever having its pivot-pin secured thereto, the said lever being pivoted on a support between the said plow-beams, links connected with the plow-beams, and a connecting-bar attached at its ends to the said links, the pivot-pin of the said shifting lever being attached to the central portion of the connecting-bar, substantially as described.

8. The combination, with a support, and plow-beams carried by the said support, being adjustable laterally and vertically, of a beam between the plow-beams, provided with a ridge opener, a shifting lever, and a shifting connection between the said lever and the said plow-beams, for the purpose specified.

9. The combination, with a wheeled support, plow-beams pivotally attached to the said support, being capable of vertical and lateral movement, and a beam likewise pivoted to the support between the plow-beams, of a ridge-opener secured to the central beam, a shifting lever located on said central beam, links attached to the plow-beams, and a connecting-bar attached to said lever and to said links, as and for the purpose specified.

10. The combination, with a wheeled support, plow-beams pivotally attached to said support, being capable of vertical and lateral movement, and a beam likewise pivoted to the support between the plow-beams, of a ridge-opener secured to the central beam, a shifting lever located on said central beam, links attached to the plow-beams, and a connecting-bar attached to said lever and to said links, means for raising and lowering the beams, and a drag located at the rear of said frame, all combined for operation, as set forth.

11. The combination with a support, plow-beams pivotally attached to said support and capable of vertical and lateral movement, and a beam likewise pivoted to the support between the plow-beams, of a ridge-opener secured to the intermediate beam, a spring-lever pivoted on said intermediate beam and provided with a pin upon its under face adapted to engage one of a series of openings in a rack secured to the said intermediate beam, links connected with the plow-beams, a connecting-bar attached at its central portion to the pivot-pin of said lever and at its ends to the said links, and means for raising and lowering the beams, substantially as set forth.

12. The combination with a support, a hopper carried by said support and means for delivering the material from the hopper, of plow-beams provided with plows and also carried by said support, the said plow-beams being adjustable laterally and vertically, a beam also carried by said support and located between the plow-beams, a ridge-opener carried by said intermediate beam, a shifting device, a connection between the shifting device and the plow-beams, and means for closing the trench, substantially as described.

608,901. FENCE. THOMAS R. GREENE, Milburn, Ky. Filed Jan. 24, 1898. Serial No. 667,662. (No model.)

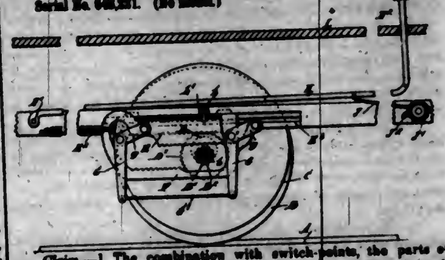
Claim.—1. In a fence or the like, a line-support, a master-picket rotatable upon said support, a guy-cable secured to said master-picket, and a projection upon said master-picket directly engaging the line-support for holding the master-picket against rotation; substantially as described.

2. In a fence or the like, a line-support having an opening therein, a master-picket rotatable in said opening, a guy-cable wound upon said master-picket, and a staple in said picket and over the line-support for holding the master-picket against rotation by the guy-cable; substantially as described.



3. In a fence or the like, a line-support comprising two strands having an opening between them, a master-picket rotatable in said opening, a guy-cable wound upon said master-picket, and a staple in said picket and over one of the line-strands for holding the master-picket against rotation by the guy-cable; substantially as described.

608,902. RAILWAY-SWITCH. WILLIAM HAREN, Bellebridge, Pa., and WILBUR J. HAREN, Mount Pleasant, Ohio. Filed July 26, 1897. Serial No. 646,221. (No model.)



Claim.—1. The combination with switch-points, the parts of which are immovable and which comprise an auxiliary deflecting-rail alongside the track-rail, of a wheel mounted to turn upon an eccentrically-journaled shaft mounted on the car, and means for rotating said shaft to raise or depress the wheel, said wheel when in its lower position engaging the deflecting-rail to move the car sidewise, and in its upper position passing over the rails, substantially as described.

2. A car-switching device, comprising an auxiliary deflecting-rail alongside of the track-rails, a disk or cylinder eccentrically journaled on the car, a wheel journaled on the disk or cylinder, and adapted when depressed, to engage the deflecting-rail, means connected to the eccentric disk to rotate it, and an actuating connection from the disk to the car-axle, substantially as described.

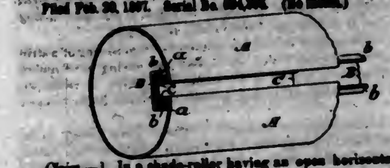
3. A car-switching mechanism, comprising a deflecting rail, a cylinder or disk eccentrically journaled on the car, a wheel mounted on said cylinder or disk and adapted when lowered, to engage the deflecting-rail, a gear-wheel attached to said disk and concentric with its journals, a pinion mounted upon the car-axle, and means for temporarily connecting said gear and pinion when desired, substantially as described.

4. A car-switching mechanism, comprising a deflecting-rail, a cylinder or disk eccentrically journaled on the car, a wheel mounted on said cylinder or disk and adapted when lowered, to engage the deflecting-rail, a gear-wheel attached to said disk and concentric with its journals, a reciprocable rack engaging said gear, a pinion upon the axle, a second reciprocable rack adjacent to said pinion, means for moving said second rack into and out of engagement with the pinion, and connections between the two racks, to reciprocate them together, substantially as described.

5. A car-switching mechanism, comprising a deflecting-rail, a cylinder or disk eccentrically journaled on the car, a wheel mounted on said cylinder or disk and adapted when lowered, to engage the deflecting-rail, a gear-wheel attached to said disk and concentric with its journals, a rack mounted to move horizontally and engaging said gear, a spring connected to said rack to hold and return it in one direction, a pinion upon the car-axle, a second rack adjacent to said pinion, means for moving said second rack into and out of engagement with the pinion, and link connections between the two racks, substantially as described.

6. A car-switching mechanism, comprising a deflecting-rail, a rotatable eccentric journaled upon the car, a deflecting-wheel journaled on the eccentric, a gear fixed to the eccentric and concentric with its journals, a rack engaging said gear and mounted to slide, a spring connected to the rack to hold it in one direction, a pinion mounted upon the car-axle, a second rack engageable with said pinion and having a recess at one end of its toothed portion adapted to engage the pinion to lock the rack, link connections between the two racks, an operating-lever, and sliding connections from the lever to the second rack by which said rack may be raised or lowered, substantially as described.

608,903. SHADE-ROLLER. BENJAMIN F. HARRISON, Newark, N. J., assignor to the Stewart Hardware Company, of New Jersey. Filed Feb. 20, 1897. Serial No. 624,204. (No model.)

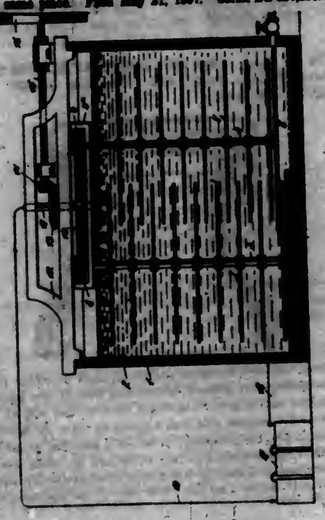


Claim.—1. In a shade-roller having an open horizontal groove for securing the shade to the roller, a tube, a separate, detached groove-piece adapted to be attached to the edges of the tube; and means whereby the edges of the tube and open groove are joined and secured, substantially as described.

2. In a shade-roller having an open horizontal groove for securing the shade to the roller, in combination the tube A; detached groove-piece B; and means whereby the groove-piece is attached to the edges of the tube to form the open groove, substantially as described.

3. In a shade-roller having an open horizontal groove for securing the shade to the roller, in combination, the tube A; detached groove-piece B; and fastener C; whereby the groove-piece is attached to the tube and held open, substantially as described.

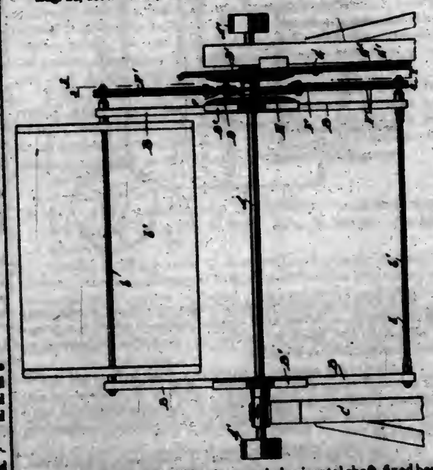
608,904. APPARATUS FOR EXTRACTING PRECIOUS METALS. JOSEPH R. HERAM, Butte, Mont., assignor of one-half to Frederick P. Gurney, same place. Filed May 21, 1897. Serial No. 637,599. (No model.)



Claim.—1. An apparatus for extracting precious metals from their ores comprising a tank having an amalgamated copper lining forming a cathode and a multiplicity of agitators each rotating on its own axis and at the same time traveling around the tank, the said agitators forming an anode, and an electric circuit, substantially as specified.

2. The tank having a conducting-plate adapted to form a cathode, a rotatable frame, a conducting-agitator mounted rotatably on the frame and upon an axis eccentric to that of the frame, means for connecting the agitator and plate to a source of electric current, and means for rotating the agitator and frame, substantially as specified.

608,905. WINDMILL. SETH K. HUMPHREY, Boston, Mass. Filed Aug. 26, 1897. Serial No. 649,880. (No model.)



Claim.—1. A windmill having a main horizontal shaft, fixed bearings for said shaft, arms carried on said shaft, vanes carried by said arms on horizontal journals, crank-arms fixed to the vane-journals, an eccentric mounted to rotate about the main shaft at one-half the speed thereof, a strap surrounding said eccentric, and connections from said strap to the crank-arms upon the main journals, substantially as described.

2. A windmill having a main horizontal shaft, fixed bearings for said shaft, arms carried on said shaft, vanes carried by said arms on horizontal journals, crank-arms fixed to the vane-journals, an eccentric mounted to rotate about the main shaft at one-half the speed thereof, a strap surrounding said eccentric, connections from said strap to the crank-arms upon the vane-journals, and means for shifting the angular position of the said eccentric to throw the vanes into an inoperative position, substantially as described.

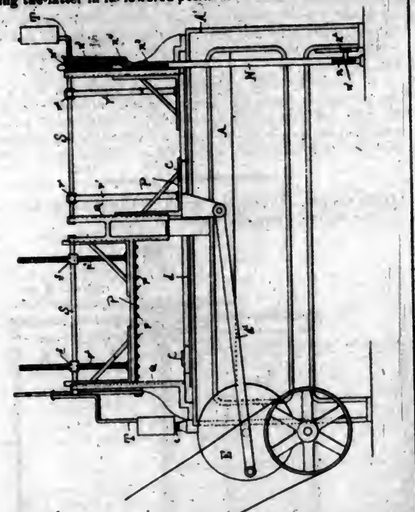
3. A feathering device for windmills of the class herein described, comprising a frame pivoted concentric with the windmill-shaft and carrying three or more rollers, said rollers being tangent to a circumscribed eccentric circle, a ring surrounding said rollers, connections from said ring to the vanes for oscillating them, a bevel-gear attached to the wheel-shaft, and a similar wheel fixed to the mill-supports and facing the first-named wheel, and a bevel-pinion carried by the eccentric-frame and engaging both gears, substantially as described.

4. A feathering device for windmills of the class herein described, comprising a frame pivoted eccentric to the windmill-shaft and carrying three or more rollers, said rollers being tangent to a circumscribed eccentric circle, a ring surrounding said rollers, connections from said ring to the vanes for oscillating them, a bevel-gear attached to the wheel-shaft and a similar gear fixed to the supports and facing the first gear, said latter gear being adapted to have a limited oscillation, arms connected thereto, cords or similar connections from said arms for operating them from a distance, and a bevel-pinion carried by the eccentric-frame and engaging both gears, substantially as described.

608,906. MACHINE FOR SIZING HAT-BODIES. CHARLES E. KEATOR, Brooklyn, N. Y., assignor of one-half to the Dunlap & Company, same place and New York, N. Y. Filed Nov. 20, 1897. Serial No. 659,272. (No model.)

Claim.—1. A hat-sizing machine comprising a water-tank, a re-

ciprocating bed therein, a vertically-adjustable presser and means for locking the latter in its lowered position.



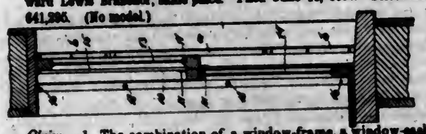
2. A hat-sizing machine, comprising a water-tank, a reciprocating bed therein, a presser, fixed vertical guides on which said presser is adjustable, and means for locking the presser in its lowered position, substantially as described.

3. A hat-sizing machine, comprising a water-tank, a bed therein and means for reciprocating the bed in the tank, in combination with a presser, means for locking the latter in the lowered position and a counterweight to automatically raise it when released, substantially as described.

4. A hat-sizing machine comprising a water-tank, a bed therein, and means for reciprocating the bed in the tank, in combination with a presser, vertical guides for the latter, means for locking the presser in the lowered position, a counterweight to automatically raise it when released and releasing devices controlled by a treadle, substantially as described.

5. A hat-sizing machine, comprising a water-tank, a bed therein, horizontal guides on which the bed may slide and means for reciprocating the bed on its guides in combination with a presser, fixed vertical guides on which the presser is adjustable, and means for locking the presser in its lowered position, substantially as described.

603,907. SASH-HOLDER. JOHN LEASK and THOMAS W. LEASK, Gore Bay, Canada, assignors of two-thirds to Herman Carrie and Edward Lewis Brannor, same place. Filed June 16, 1897. Serial No. 641,295. (No model.)

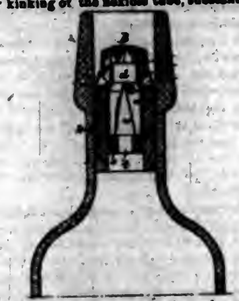


Claim.—1. The combination of a window-frame, a window-sash movable therein, and a plate having an edgewise spring, the plate exerting its edgewise pressure between the sash and frame whereby to hold the sash.

2. The combination of a window-frame, a window-sash sliding therein, and a plate forming a window-head, the plate having each end rigidly secured to the window-frame and having at its intermediate portion an edgewise spring toward the window-sash, one edge of the plate at the said intermediate portion thereof bearing against the sash to hold the sash.

603,908. BOTTLE-STOPPER. EDWIN I. LLOYD, Philadelphia, Pa. Filed May 6, 1896. Renewed Apr. 6, 1897. Serial No. 631,318. (No model.)

Claim.—1. A bottle-stopper having a projecting valve consisting of a tube of flexible material secured at one end and provided at the free end with a weight, whereby the tube will be straightened when the bottle is held with the mouth downward, the weight falling by gravity when the bottle is held with the mouth upward, so as to cause the folding or kinking of the flexible tube, substantially as specified.



2. A bottle-stopper having a projecting valve with flexible lipped outlet, one or more air-inlet openings being formed in the valve behind said outlet, substantially as specified.

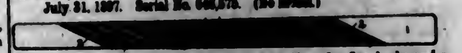
3. A bottle-stopper having a projecting valve with flexible lipped outlet, said valve also having formed in it one or more air-inlet openings with flap-valve for closing the same, substantially as specified.

4. A bottle-stopper having a projecting valve consisting of a strip of flexible waterproof material folded upon itself and having the edges united throughout a part of its length, the edges at and near the fold being free so as to form lips, substantially as specified.

5. A bottle-stopper having a projecting valve consisting of a strip of waterproof material folded upon itself and having overlapping edges throughout a portion of its extent, the portion in which the edges are not overlapped forming opposite lips, substantially as specified.

6. A bottle-stopper consisting of a tubular block having an external label visible through the bottle neck, a detachable cap having projecting lugs, and depending wires hung to said lugs and engaging with the label, substantially as specified.

603,909. SAW-FILE. Parnell Lord, Worcester, Mass. Filed July 31, 1897. Serial No. 646,578. (No model.)



Claim.—1. The combination in a saw-file, of a flat body and a series of pointed, file-like ribs on said body arranged with spaces between said ribs equal in width to two adjacent saw-teeth and greater in depth than the length of said teeth, substantially as and for the purpose set forth.

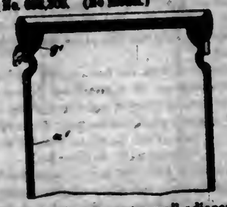
2. The combination in a saw-file, of a flat body and a series of pointed, file-like ribs on the same arranged at an angle corresponding to the bevel of the cutting edge of saw-teeth, said ribs having spaces between them equal in width to two adjacent saw-teeth and greater in depth than the length of said teeth, substantially as and for the purpose set forth.

603,910. JAR AND TEMPORARY CLOSURE THEREFOR. JULIAN P. LYON, Detroit, Mich. Filed Aug. 21, 1897. Serial No. 648,035. (No model.)



Claim.—A jar, the upper portion or neck of which is provided with a rabbet-groove located in the inner wall of said upper portion or neck, the rabbet-groove having a bottom wall and an upwardly and outwardly inclined side wall running up from the bottom wall, a jar having a cap, the periphery of which is provided at its lower portion with a rabbet-groove having a top and an inner side wall, the rabbeted portion of the cap being capable of projecting into the rabbet-groove of the jar, and the lower face of the cap being capable of bearing upon the bottom wall of the rabbet-groove in the jar, and the jar having a ring-gasket lying in the rabbet-groove of the cap, the gasket bearing against the top and side walls of the rabbet-groove in the cap, and the gasket being crowded firmly into the space between the side walls of the rabbet-grooves of the jar and in the cap, as the cap is moved downward, whereby to hermetically seal the jar, and the upper wall of the rabbet-groove in the cap being located out of contact with the jar when the cap is in closed position to permit access to the gasket for breaking the vacuum held thereby.

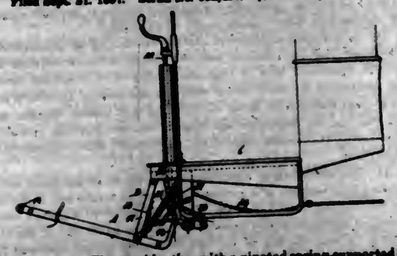
603,911. JAR. JULIAN P. LYON, Detroit, Mich. Filed Sept. 20, 1897. Serial No. 652,208. (No model.)



Claim.—1. A jar having its outer wall adjacent to the mouth disposed perpendicularly and having an annular rib run around its outer side at the base of said perpendicular wall, and the rib having a recess at one point, the recess extending into the rib toward said perpendicular wall, and a cap having a web or main portion extending over the mouth of the jar to close the same, the cap having at its edges a downwardly-projected flange extending into proximity to the outer portion of the rib on the jar, and the inner side wall of the flange being disposed diagonally downward and outward, said wall extending from the upper edge of the perpendicular wall of the jar downward to the outer portion of the upper face of the rib, and beyond the inner wall of the recess in said rib, the space between the said perpendicular wall of the jar and the inner wall of the flange serving to accommodate a gasket.

2. A jar having its outer wall adjacent to the mouth disposed perpendicularly, the jar also having an annular rib running around said perpendicular wall and projecting out therefrom, the rib having a recess therein which extends inward to the perpendicular wall so as to completely cut away the rib at the point of the recess, and a cap having a web or main portion extending over the mouth of the jar to close the same, and a cap having at its edges a downwardly-extending flange running into proximity with the outer portion of the rib, and the flange having its inner side wall disposed diagonally and extending from the upper edge of the said perpendicular wall of the jar downward and outward to the outer portion of the upper face of the rib, the space between the said perpendicular wall of the jar and the inner wall of the flange serving to accommodate a gasket.

603,912. CAR-FENDER. ISAAC MACOWEN, New York, N. Y. Filed Sept. 21, 1897. Serial No. 652,467. (No model.)



Claim.—1. The combination with a pivoted spring-supported fender of a brake-shaft and frictional connection between the same and the fender by which the fender is depressed when the brake is applied.

2. The combination, with the brake-shaft of a car, a clutch carried by the shaft, and a drum operated by the said clutch, of a fender capable of being raised and lowered, and a flexible connection between the fender near its fulcrum and the said drum on the brake-shaft, as specified.

3. The combination, with the brake-shaft of a car, a clutch secured to the shaft, a drum loosely mounted on the shaft, and a spring holding the said drum in engagement with the said clutch, of a pivoted fender, a flexible connection between the drum and fender at the rear of its pivot, and springs attached to a fixed support and to the said fender at its sides in front of its pivot, the springs serving to normally hold the fender in an upper position, for the purpose specified.

4. The combination, with hangers, and a rock-shaft journaled in the said hangers, of a fender consisting of a body portion provided with upwardly and rearwardly extending arms at its rear end, which arms are secured to the said rock-shaft, a back pivoted upon the body, and a tension device normally holding the back at an angle to the body, and springs attached to the body at its sides forward of the rock-shaft, the said springs being adapted for attachment at their opposite ends to a fixed support, and a friction connection from the brake-shaft to the fender from which it is automatically depressed when the brake is applied for the purpose specified.

5. The combination, with the platform of a car, hangers projected from the platform, and a rock-shaft journaled in the said hangers, a fender attached to the said rock-shaft, and a crank-arm projected rearwardly from the rock-shaft, of a brake shaft for the car, a clutch secured to the brake-shaft, a drum loosely mounted on the said shaft, a spring holding the said drum in engagement with the said clutch, and a chain attached to the said drum and to the crank-arm of the rock-shaft for the purpose set forth.

6. The combination with a pivoted fender having a yielding supporting means with a brake-shaft, a drum mounted to rotate and having a chain or similar flexible connection to the fender and frictional connections from said drum to the brake-shaft whereby the fender is depressed when the brake is applied.

603,918. LACQUER AND LACQUERING. DAVID MARCUS, London, England. Filed Aug. 30, 1897. Serial No. 650,054. (No specimens.)

Claim.—1. The process of lacquering or covering surfaces by applying thereto a mixture of the juice of the *Rhus vernicifera* and permanganate of potash and then a mixture of the said juice with drop-black or chrome thinned with methylated spirit and then a mixture (thinned with absolute alcohol), of the said juice, with a substance obtained by passing the vapor arising from heated copal and camphor through litharge.

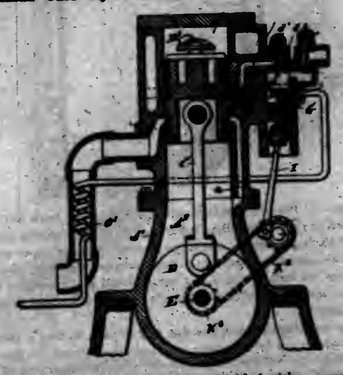
2. The process of lacquering or covering surfaces by applying thereto a mixture of the juice of the *Rhus vernicifera* and permanganate of potash and then a mixture (thinned with absolute alcohol) of the said juice with a substance obtained by passing the vapor arising from heated copal and camphor through litharge.

3. For lacquering or covering surfaces, a material formed by the mixture of the juice of the *Rhus vernicifera* with the product of condensation of vapor from heated copal and camphor passed through litharge, the mixture being thinned with absolute alcohol.

4. For lacquering or covering surfaces, a material formed by the mixture with the juice of the *Rhus vernicifera* of from five to ten per cent. of the product of condensation of the vapor from heated copal and camphor passed through litharge, the mixture being thinned by the addition of from three to seven per cent. of absolute alcohol.

5. For lacquering or coating surfaces, the mixture of the juice of the *Rhus vernicifera* with a product obtained by passing the vapor from heated copal and camphor through litharge.

603,914. GAS OR OIL ENGINE. FRANK S. MEAD, Montreal, Canada. Filed July 26, 1886. Serial No. 650,750. (No model.)



Claim.—1. A gas or oil engine, provided with a spraying device adjacent to the working chamber, and an air-compression pump whose valved delivery-port is connected to said spraying device, the delivery-valve being controlled directly by the movement of the pump-

piston, for injecting a spray of liquid fuel into the working chamber after the exhaust is closed, substantially as described.

2. A gas or oil engine, provided with two tubes or channels leading into the working chamber and of which one surrounds the other, and an air-compression pump whose valved delivery-port is connected to one of said tubes or channels, the delivery-valve being controlled directly by the movement of the pump-piston, for injecting a spray of liquid fuel into the working chamber after the exhaust is closed, substantially as described.

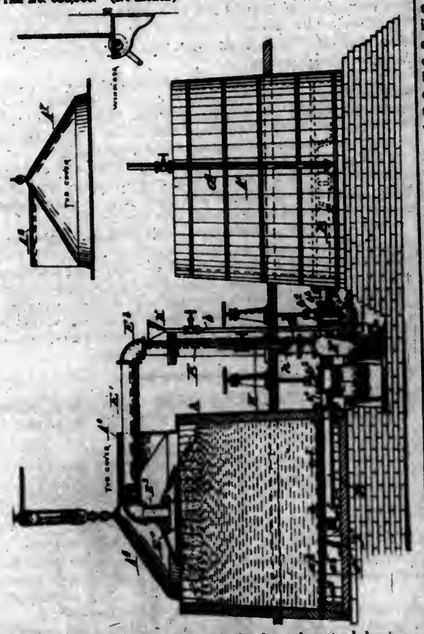
3. In a gas or oil engine, a power-cylinder, a channel for the supply of compressed air, a channel for the supply of liquid fuel, a passage leading from both the said channels to the cylinder, and a movable body, such as a piston, actuated by the engine and so arranged as to control the admission of both air and fuel to the cylinder, substantially as shown and described.

4. In a gas or oil engine, a power-cylinder, an air-compression pump adjacent thereto, a supply-channel for liquid fuel and a passage therefrom to the cylinder, and a groove or cross-passage in the plunger of said pump for controlling the passage of said fuel to the said cylinder, substantially as shown and described.

5. In a gas or oil engine, an air-compression pump, the plunger of which is arranged to control its air-delivery port, said plunger having a groove or passage for controlling the supply of fuel to the engine, substantially as shown and described.

6. An explosive-engine whose piston is provided on its working face with a vaporizer having a series of spaced ridges, in combination with a fuel-injector arranged to discharge the fuel in a direction parallel to said ridges, substantially as described.

608,915. APPARATUS FOR DYEING. ALEXANDER F. MELROSE and HENRY B. VAN DUSEN, Pittsfield, Mass. Filed Sept. 8, 1897. Serial No. 650,908. (No model.)



Claim.—1. The combination with the dye tub or tank having a foraminated or reticulated false bottom, of circulation-piping for the dye liquor having a central discharge-sprayer over the upper end of the tub, and a central suction-box in the space between said false bottom and the tub-bottom: said box being closed at its top and open below to permit the liquid to flow therein from all directions, substantially as described.

2. The combination with the dye tub or tank having a foraminated or reticulated false bottom, of circulation-piping for the dye liquor having a central discharge-sprayer over the upper end of the tub and a suction-box in the space between the false bottom and tub-bottom: said box being closed at the top, open at the bottom and there provided with a depending flange the lower edge of which is located above the tub-bottom, substantially as described.

3. The combination with the tub or tank having a foraminated or interstriced false bottom, of a suction-box below having an inlet-opening in its bottom at the center of the tub, a steam-head on the said box and having its discharge at the center of the tub, a supply-pipe for the head and a circulation-piping connected to said suction-box and provided at its discharge end with a spraying or distributing device over the tub; substantially as described.

4. The combination with a tub or vat and its foraminated or reticulated false bottom, of valved piping extending from the bottom of the tub over the upper end thereof and there provided with a spraying or distributing device, a pump for forcing the liquor through the piping, a valved cold-water pipe connected to the circulation-piping at the suction side of said pump, a steam-pipe discharging into the circulation-piping to heat the contents (liquor or cold water) and a steam-pipe discharging into the tub below its false bottom; substantially as described.

5. The combination with the tub or tank having a foraminated or reticulated false bottom, of a pump and piping for drawing the liquor from the bottom of the tub and distributing it over the upper end thereof, and a steam-pipe discharging forwardly into said piping at the discharge side of the pump to assist it as an injector and also heat the liquor; substantially as described.

6. The combination with the tub or tank having a reticulated or foraminated false bottom, valved circulation-piping extending from the bottom of the tub over the top thereof, and provided between its ends with a liquid-forcing device to cause a continuous circulation through the pipe and tank, and a dye-receptacle K having a valved connection *k* at its lower end with the circulation-pipe at the suction side of the forcing device to permit the dye to flow down into the pipe and be thoroughly mixed with the liquor by said forcing device; substantially as described.

7. A dyeing apparatus comprising a tank having a perforated or reticulated false bottom, a valved steam-pipe discharging into the tank below said false bottom, a circulation-pipe exterior to the tank, in communication therewith at the top and bottom and operating separately and independently thereof, a forcing device between the ends thereof, and a dye vessel K having a valved outlet *k* secured at its lower end to the circulation-pipe just in advance of the forcing device, the dye being adapted to flow by gravity from vessel K into the circulation-pipe and be mixed with the liquor by the forcing device; substantially as described.

8. A dyeing apparatus comprising a plurality of tubs having false bottoms, valved suction-pipes leading from the bottoms of said tubs, a pump to the inlet side of which said suction-pipes are connected, a discharge-pipe leading from the pump and provided with a vertical member having a horizontally-swinging section adapted to be swung over all of the tubs and there provided with a sprayer or distributer, steam-pipes discharging into the bottoms of the tubs to heat the contents, a valved cold-water pipe connected to the piping at the suction side of the pump, a steam-pipe discharging forwardly into the piping at the discharge side of the pump and a dye-supply communicating with the piping at the suction side of the pump; substantially as described.

9. In a dyeing apparatus, a suction-box having an inlet-opening at the inner end of its bottom, and a steam-head on the inner end of the box and having upwardly-discharging outlets at opposite sides of said suction-box inlet; substantially as described.

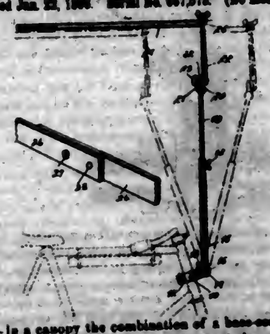
10. In a dyeing apparatus a suction-box having an inlet-opening at the inner end of its bottom and provided on the outer sides of said end with apertured ears or lugs, and a forked or branched steam-head embracing the inner end of said box and having apertured ears or lugs registering with those on the box and bolted thereto, said head also having discharge openings or nozzles opening upwardly and inwardly at opposite sides of the suction-box inlet; substantially as described.

11. The combination with the tub having a foraminated or reticulated false bottom, of a suction-box secured to the tub under the false bottom and provided at the center thereof with a bottom inlet-opening, a circulation-pipe extending from the outer end of the suction-box up over the top of the tub, a forcing device between the ends of the circulation-pipe, a steam-head on the inner end of the suction-box and having discharge-nozzles opening upwardly and inwardly at opposite sides of the suction-box inlet, and a steam-pipe connected with said head; substantially as described.

12. A dyeing apparatus comprising a tub or vat, having a foraminated or reticulated false bottom and a suspended vertically-movable cover provided with a hooded side opening, a circulation-pipe extending from the bottom of the tub and provided with a horizontally-swinging member extending through said hooded top opening, a forcing device for the liquid in the circulating-pipe, and a steam-pipe discharging into the bottom of the tank to heat its contents; substantially as described.

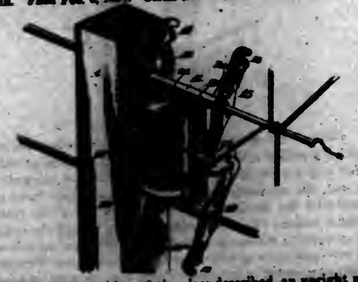
13. The combination with the tank having a foraminated or reticulated false bottom, of a circulating-pipe connected with the bottom of the tank and having a horizontal section extending over the top of the tank and there provided with a depending pipe E^3, a spray-plate suspended under the end of pipe E^3 and a hood E^4 secured to said pipe and extending out beyond the periphery of said spray-plate; substantially as described.

608,916. BICYCLE-CANOPY. JAMES J. MEEHAN, Cleveland, Ohio. Filed Jan. 22, 1898. Serial No. 667,573. (No model.)



Claim.—In a canopy the combination of a base-section capable of being attached to the stem of a bicycle, a tubular standard supported on the base-section, a rod adjustably held in the tubular standard, a block located at the upper end of the rod, a thumb-screw adjustably holding the block on the rod, two pivotally-connected members mounted on the block and forming a fork, the arms of which extend upward and outward in opposite directions, and a canopy proper having the upper ends of the said members attached thereto, whereby to sustain the canopy proper adjustably in place.

608,917. WIRE-FENCE MACHINE. OLIVER A. MORROW, Whitehall, Ill. Filed Feb. 6, 1897. Serial No. 622,262. (No model.)



Claim.—1. In a machine of the class described, an upright provided with weaving devices and with rollers, a winding-drum mounted upon said upright and connected with a cable or wire having a clutch, a pivoted lever and pawl for rotating said winding-drum, and a device for adjusting the movement of said pivoted lever.

2. In a machine of the kind specified, an upright provided with weaving devices and with rollers, a winding-drum having a cable and clutch, a pawl upon said upright to engage a ratchet-wheel carried by said winding-drum, a pivoted lever having a pawl to engage said ratchet-wheel, and an adjustable stop situated in the path of said pivoted lever.

3. In a machine of the kind specified, an upright provided with devices for moving the same, a plurality of hollow rotatable spindles geared together to rotate in the same direction, a pair of arms carried by each of said spindles and having jaws, and spools provided with trunnions adapted to enter said jaws.

4. In a machine of the kind specified, an upright provided with devices for moving the same, a plurality of hollow rotatable spindles geared together to rotate in the same direction, a pair of arms carried by each of said spindles, jaws upon said arms, and spools provided with trunnions adapted to enter said jaws, said trunnions being provided with shoulders or ribs.

5. In a machine of the kind specified, an upright provided with devices for moving the same, a plurality of hollow rotatable spindles geared together to rotate in the same direction, arms carried by said spindles and provided with jaws, the corresponding jaws on the arms of adjacent spindles being set in opposite direction, and spools provided with trunnions adapted to enter said jaws.

6. In a machine of the kind specified, the combination with two adjacent rotatable hollow spindles geared together to rotate in the same direction, of arms mounted upon said spindles, said arms being arranged in pairs and situated diametrically opposite upon said spindles, the arms on adjacent spindles being situated a little out of alinement whereby they can pass one another, and spools provided with trunnions to enter said jaws.

7. In a machine of the kind specified, the combination with two adjacent hollow rotatable spindles geared together to rotate in the same direction, of diametrical oppositely-arranged pairs of arms mounted upon each of said spindles, each of said arms being provided with a pivoted outer end section, and a spring for holding said outer end section normally in alinement with the main portion of the arms.

8. In a machine of the kind specified, a hollow rotatable spindle having oppositely-arranged pairs of arms, each of said arms having an outer pivoted section, and a spring for holding said section normally in alinement with the main portion of the arm, said section being provided with a jaw across which said spring extends.

9. In a machine of the kind specified, a hollow rotatable spindle having oppositely-arranged pairs of arms, each of said arms having an outer pivoted section, and an adjustable spring for holding said section normally in alinement with the main portion of the arm, said section being provided with a jaw across which said spring extends.

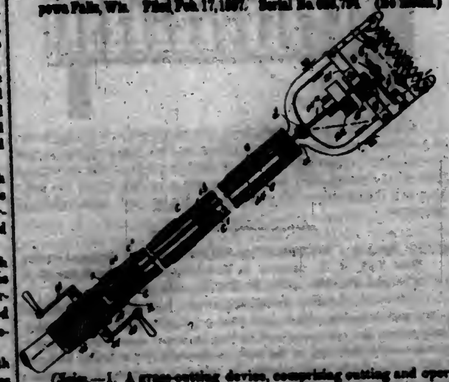
10. In a machine of the kind specified, a hollow rotatable spindle having a pair of arms, each of said arms having an outer pivoted section, a spring for holding said sections normally in alinement with the main portion of the arms, said section being provided with a jaw across which said spring extends, and a second spring bearing at its opposite ends against said pivoted section and the main portion of said arm.

608,918. FRUIT-PICKER. PATRICK HOURE, Easthampton, Mass. Filed Aug. 13, 1897. Serial No. 648,119. (No model.)



Claim.—A fruit-picker comprising, in combination, a handle 1 provided with a socket 2 having an arm 3 carrying a guide-collar 4 provided with a set-screw 5, a fixed rod 6 fitted in said socket and guide-collar and carrying a guide-collar 8, an extensible rod 7 sliding in said collar 8 and forked or bifurcated at its outer end, a stationary jaw consisting of an approximately triangular-shaped frame formed at its lower end with a pivot-eye fitted in the bifurcation of said rod and at its upper end with oppositely-disposed eyes and a semicircular-shaped, outwardly-flaring jaw, a set-screw on the rod engaging said pivot-eye, a semicircular movable jaw provided with pintles having bearing in said eyes and a crank-arm, a fruit-receiving sack attached at its open end to both jaws and at its lower end to the frame of the stationary jaw, a reel on the handle, and a cord connecting between said reel and crank-arm of the movable jaw, substantially as described.

608,919. GRASS-CLIPPING DEVICE. JOHN MCCALLUM, Chippewa Falls, Wis. Filed Feb. 17, 1897. Serial No. 623,784. (No model.)



Claim.—1. A grass-cutting device, comprising cutting and operating mechanisms, a guiding-handle formed in two parts screw-threaded on each other, each part having one of said mechanisms attached thereto, and an arm mounted upon one part having a locking-pin thereon, the adjacent end of the other part having a series of holes

arranged on a spiral corresponding to the thread of the connection and adapted to receive said locking-pin, substantially as described.

2. A grass-cutting device, comprising a reciprocating cutter-bar, a frame for the cutting mechanism, a joint of the operating-shaft mounted thereon and provided with a fly-wheel, a controlling-handle secured thereto so as to be adjustable in a vertical angle, an operating mechanism mounted on the handle above the said adjustable connection, and a power connection therefrom to the fly-wheel shaft by a universal or tumbling joint, substantially as described.

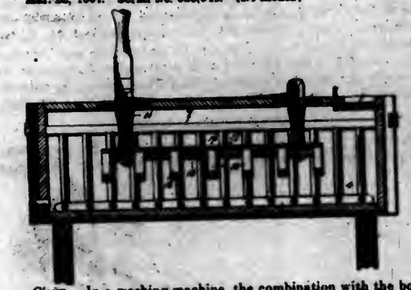
3. In a grass-clipping implement, of the character described, the tubular handle-bar composed of sections that are joined together by threaded connections, two sections being adjustably held at a desired point of rotatable adjustment by a detent-finger secured on one handle-bar section, and having a toe that may engage with any one of a series of perforations formed in the other handle-bar section, substantially as described.

603,920. PROCESS OF PASTEURIZING LIQUIDS. JOHN H. W. OETMANN, Hamburg, Germany, assignor to Herman Leonhardt, same place. Filed Oct. 28, 1896. Serial No. 610,373. (No specimens.) Patented in Norway Mar. 21, 1896, No. 4,576; in Germany June 10, 1896, No. 82,470; in Sweden Feb. 13, 1896, No. 6,635; in Denmark May 13, 1896, No. 537; in Belgium Oct. 25, 1896, No. 123,700; in Austria Jan. 28, 1897, No. 47/305; in Canada Mar. 10, 1897, No. 55,230; in Hungary Apr. 23, 1897, No. 8,104, and in England June 5, 1897, No. 1,208.



Claim.—The herein-described process of pasteurizing beer and other carbonated liquids consisting in passing the liquid through a lengthy system of connected horizontal pipes with vertical undulations, said system being heated at one end and cooled at the other end, the liquid being admitted into the heated part of said pipes so as to pasteurize it, and said liquid being then passed on through the undulations of the pipes, whereby any gas freed from the liquid is retarded in its flow by the bends and divided into numerous small portions which are trapped in the upper part of the undulations of the pipes and therein subjected to and commingled with the liquid flowing through the pipes, until the gas is reabsorbed by the liquid and the latter cooled, substantially as and for the purpose described.

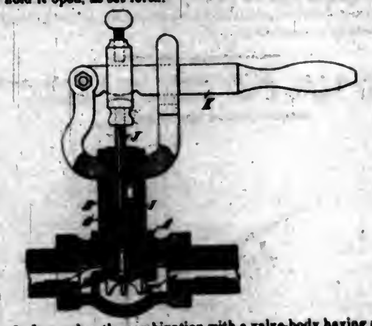
603,921. WASHING-MACHINE. PETER PETRI, Peoria, Ill. Filed Mar. 22, 1897. Serial No. 628,641. (No model.)



Claim.—In a washing-machine, the combination with the body, of a slotted cover therefor, a leaf spring secured intermediate its ends to said cover, levers pivoted to the respective ends of said spring and depending through said slotted cover, and a rubber within the body to which the opposite ends of the levers are pivoted, substantially as described.

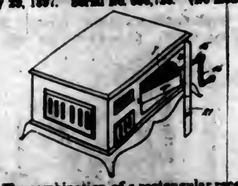
603,922. DIFFERENTIAL-PISTON VALVE. NICHOLAS POWER, New York, N. Y., assignor to Philip Brandes, White Plains, N. Y. Filed Feb. 21, 1896. Serial No. 580,221. (No model.)

Claim.—1. A valve, comprising a valve-body having an inlet and outlet and provided with a valve-seat, a cylinder secured to the valve-body above the valve-seat and having its lower open end in communication with the inlet of the body, a piston in the cylinder and provided with a loosely-sliding stem by which it is operated and with a stem projecting from its lower end, and a valve loosely mounted on the stem projecting from the lower end of the piston and adapted to rest upon the valve-seat, the area of the top of the valve being greater than that of the piston, whereby the valve is held to its seat and when raised from its seat, the pressure of the fluid on the lower end of the piston will cause it to slide upward to wholly open the valve and hold it open, as set forth.



2. In a valve, the combination with a valve-body having an inlet and outlet and provided with a valve-seat, and a cylinder secured to the body above the valve-seat and in communication with the inlet of the body, of a piston in the cylinder, a stem adjustably secured to the lower end of the piston, a valve mounted to turn on the lower end of the stem and adapted to rest upon the valve-seat, a stem secured to the upper end of the piston and freely sliding in the cap of the cylinder, and an operating-lever to which the last-named stem is secured, areas of faces of the valve and piston being so proportioned that the valve will be normally held to its seat and that on slightly lifting the valve, the fluid-pressure will entirely open the valve and hold it open, substantially as herein shown and described.

603,923. COFFEE-ROASTER. WILLIAM R. RAMSEY, Kane, Oreg. Filed May 29, 1897. Serial No. 638,736. (No model.)



Claim.—The combination of a rectangular receptacle, one end of which is provided with a bearing and the opposite end of which is provided with a downwardly horizontally and thence upwardly extending slot, the upwardly-extending portion of which forms a bearing alined with the bearing in the first-named end of the receptacle, a cylinder located within the receptacle, one head of the cylinder having an opening therein, a hingedly-mounted plate capable of swinging over said opening to close the same, a shaft run through the cylinder and mounted in the aforesaid bearings, the shaft being connected and disconnected with the receptacle through the medium of the slot in one head thereof, and a handle attached to the shaft whereby the shaft may be revolved.

603,924. PIPE-HANGER. THEODOR B. GABER, Oberrollnberg, Germany. Filed Feb. 16, 1897. Serial No. 623,302. (No model.)



Claim.—1. The combination of two clamping-sections, a spike secured to the first of said sections and capable of holding the same in position, the said first section being curved and provided at one end with an outwardly-extending hook and at the other end with a notch forming an inwardly-turned projection, the second section being curved and having a recess at each end, the recesses respectively receiving the ends of the first-named section, and the hook of the said first named section engaging with the said remaining section, and a lock-plate having an opening capable of receiving the end of the first-named section which end has the projection, and the lock-plate being also capable of receiving the adjacent end of the second-named section and of engaging under the projection of the first-named section whereby to hold the two sections engaged.

2. The combination of two sections capable of embracing a pipe, the first section having a hook at one end and a projection at the other end, and the second section having a recess in each end, the recesses of said second section respectively receiving the ends of the first-named section, and the hook of the first-named section engaging the adjacent end of the second section to hold the same, and a lock-plate having an opening therein, the opening being capable of receiving the end of the first-named section which has the projection and the adjacent end of the said second section, the lock-plate being capable of engaging beneath the projection.

3. The combination of two sections capable of embracing a pipe, the sections being also capable of connection with each other at one end, the remaining end of one section having a projection, and the remaining or corresponding end of the other section having an opening through which the said projection passes, and a lock-plate capable of connection with the last-named ends of the sections and of engaging beneath the projection to hold the sections together.

603,925. PNEUMATIC ELEVATOR. JAMES B. SHERMAN, Columbia, Ind., assignor to the Pneumatic Elevator and Weigher Company, Indianapolis, Ind. Filed Oct. 7, 1897. Serial No. 654,653. (No model.)



Claim.—1. The combination, in a pneumatic elevator, of a tube through which the material to be elevated is to pass, a duplex wheel-receptacle at the lower end of said tube arranged to receive two revolving devices, a delivery-wheel mounted in the lower wheel-receptacle and adapted to throw the material up said tube, and a blast-fan mounted in the upper wheel-receptacle and communicating with said tube above the point where the material is discharged therefrom.

2. The combination of a tube, a "boot" containing two wheel-receptacles, a material throwing or delivery wheel in one receptacle, said wheel consisting of suitable supporting sides and throwing-wings between said sides and formed with an open center into which the material may pass and thus be admitted centrally to said wheel, and a blast-fan located in the other wheel-receptacle and adapted to supply an additional current of air and accelerate the movement of the material being elevated.

3. The combination, of an elevating-tube, a boot containing the elevating and blast wheels, a spout for loading the material to the elevating-wheel, a gate to said spout for controlling the flow of material, a wind-gate mounted in the elevating-tube, and a connection between said wind-gate and said spout-gate, whereby the flow of material is governed in proportion to the speed of the blast apparatus and force of the blast, substantially as set forth.

4. The combination, in an elevator, of the blast apparatus, including the boot, the delivery-wheel, and the blast fan, an elevating-spout, a flaring hood on the upper end of said spout, an inverted cone within said flaring head, and a deflector secured to said flaring head and curved over the edges of said inverted cone, substantially as set forth.

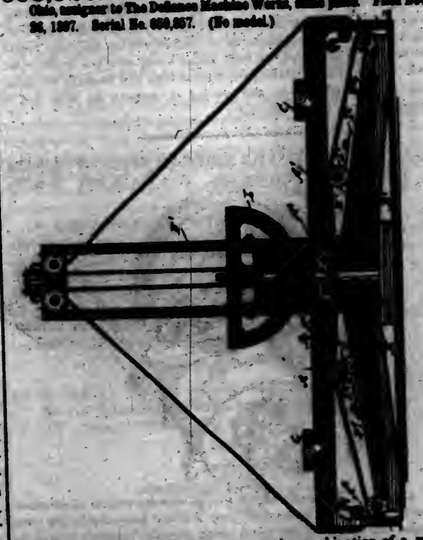
5. The combination in a grain-elevator of the blast-fan, the tube leading from the fan-casing constituting the elevating-spout, a flaring hood on the upper end of said spout, an inverted cone within said hood, an annular opening being left between the two, a deflector extending above said opening and over and down into said inverted cone, the floor-plate and discharge-spout leading therefrom through the side of said inverted cone, substantially as set forth.

6. The combination in an elevator, of the blast apparatus, the elevator-tube provided with a flaring upper end, an inverted cone within said flaring end, there being a discharge-space between the two, and a deflector covering said space and curved down within said inverted cone, said deflector being mounted to be adjusted to extend different distances within said cone, substantially as set forth.

7. The combination, in an elevating and weighing apparatus, of the elevator-tube, the blast apparatus connecting with the lower part of said tube, a separating-head on the upper end of said tube, a weigher the receptacle whereof is positioned adjacent to said separating-head, and a tube whereby the heavier material is conveyed from said separating-head to said weigher-receptacle, the upper portion of said tube being perforated or reticulated, substantially as and for the purposes set forth.

8. The combination, in an elevating and weighing apparatus, of a pneumatic elevator-tube, a boot at the lower end thereof containing a grain-delivering and blast apparatus, a separating-head at the upper end thereof whereby the grain is separated from the dust and air, a weigher positioned suitably in respect to said separating-head, and a conveyer-spout for conveying the separated grain from said separating-head to the receptacle of said weigher, the upper portion of which is provided with air-escape openings, said several parts being arranged and operating substantially as set forth.

603,926. BENDING-MACHINE. CHARLES SEYMOUR, Defiance, Ohio, assignor to The Defiance Machine Works, same place. Filed Nov. 26, 1897. Serial No. 659,857. (No model.)



Claim.—1. In a bending apparatus the combination of a main frame or bed, standards mounted thereon, a form carried on the standards, two bending-arms located below the form, means in connection with the outer ends of said arms to swing the same, a master-strap extending from one arm to the other, a rope run below the arms, pulleys on which the rope is carried, a spring respectively in connection with the ends of the rope and serving to hold the rope taut, the rope forming a support for the inner ends of the arms and serving to thrust the arms toward the form.

2. In a bending apparatus the combination of a frame, a form supported on the frame, two bending-arms mounted below the form, a master-strap extending from one arm to the other, means for swinging the arms, a rope run beneath the arms, pulleys over which the rope is rolled, the pulleys being carried by the frame, and springs serving to draw the rope taut beneath the arms, the rope forming a yielding support for the inner ends of the arms and serving to thrust the arms toward the form.

3. In a bending apparatus the combination with a frame, of a form, two bending-arms mounted below the form, means for swinging

said arms, and a yieldingly-sustained rope run below the arms and serving to support the inner ends thereof and to thrust the arms toward the form.

4. In a bending apparatus the combination of a form, two bending-arms in line with each other and having contiguous ends, means for swinging the arms, and a yieldingly-sustained rope run beneath the arms and forming a support for the inner ends thereof, and serving to thrust the arms toward the form.

5. In a bending apparatus the combination with a frame, of two bending-arms mounted thereon, the arms being in line with each other and having contiguous inner ends, means for swinging the arms, and a yieldingly-sustained rope run beneath the inner ends of the arms and serving to yieldingly support the same.

6. In a bending apparatus the combination of a frame, two bending-arms in line with each other and having their inner ends contiguous, means attached to the outer end of each arm by which to move the same, and a yieldingly-sustained rope run beneath the inner ends of the arms and serving to yieldingly support the arms.

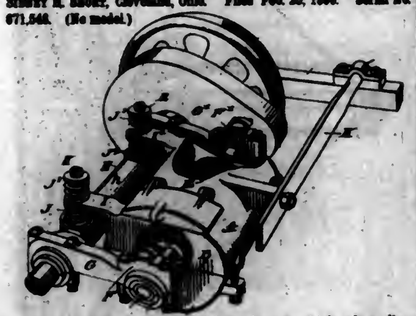
7. In a bending apparatus the combination of a form, two bending-arms in line with each other, and having their inner ends contiguous, a master-strap running along the arms and connected with each means attached to the outer end of each arm, by which to move the arms, and a yieldingly-sustained rope run in proximity with the inner ends of the arms and serving to support the arms and to thrust the arms toward the form.

8. In a bending apparatus the combination of a form, bending devices mounted adjacent to the form and coacting therewith, and a yieldingly-sustained rope serving to support said bending devices and to thrust them toward the form.

9. In a bending apparatus the combination of bending devices, and a rope yieldingly sustained in proximity with the bending devices and serving to support the same.

10. In a bending apparatus the combination with a frame having standards thereon, of a form held by the standards, two bending-arms in line with each other and having their inner ends contiguous, the bending-arms being mounted on the frame below the form, means for lifting the bending-arms, such means being attached to the outer ends thereof, and a yieldingly-sustained rope run beneath the inner ends of the bending-arms and serving to support the same and to thrust the arms toward the form.

603,927. MEANS FOR SUSPENDING MOTORS ON VEHICLES. HENRY H. SWOBE, Cleveland, Ohio. Filed Feb. 25, 1898. Serial No. 671,548. (No model.)



Claim.—1. The combination with a wheeled vehicle of an alinement-frame mounted on a driven axle, a motor journaled in the arms thereof, the weight of the motor being partially borne by springs interposed between the same and said alinement-frame, and by a rigid support extending to the truck-frame and inelastically supported thereby, substantially as described.

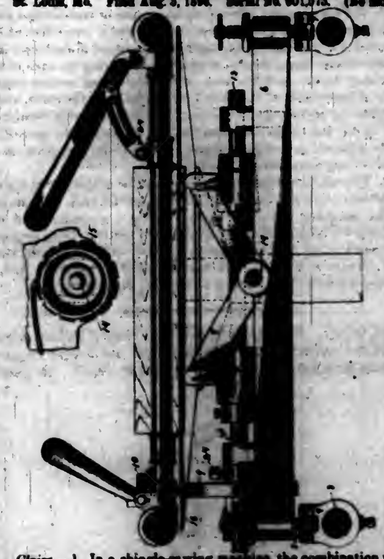
2. The combination with a wheeled vehicle, of an alinement-frame mounted on a driven axle, a motor journaled therein having projections, and partially supported by springs interposed between said projections and said frame, and a rigid support connecting said motor with the truck-frame, substantially as described.

3. The combination with a wheeled vehicle of an alinement-frame mounted on the driven axle, an electric motor journaled in the arms of said frame, projections from the field-magnet of said motor engaging with springs bearing on said alinement-frame, and a rigid support for the part of the motor remote from said projections, substantially as described.

4. The combination with a wheeled vehicle of an alinement-frame, a motor journaled therein and free to turn relatively thereto, springs interposed between a portion of said motor and said frame, a rigid cross-bar to which the upper part of said motor is directly connected, substantially as described.

5. The combination with a wheeled vehicle of an alinement-frame, a motor journaled therein, springs between a portion of said motor and said frame, a cross-bar to which the upper portion of said motor is rigidly connected, and bearings in which said cross-bar is mounted, so as to be free to turn, substantially as described.

608,928. SHINGLE-SAWING MACHINE. GEORGE F. STREHLAU, St. Louis, Mo. Filed Aug. 3, 1896. Serial No. 601,573. (No model.)



Claim.—1. In a shingle-sawing machine, the combination with a suitable frame, of the slidable carriage mounted thereon, a saw, a tilt-table, mechanism for tilting the table, means for operating said mechanism, and a laterally-extending handle on said carriage immovable in the direction of movement of the carriage, said handle being movable at an angle to the line of movement of the carriage, and the handle thus moved operating to throw the means for operating the table-tilting mechanism into operative or inoperative position.

2. In a shingle-machine, the combination with a suitable frame, of a carriage mounted thereon, a tilt-table, a supporting-frame therefor, a shaft provided with fixed longitudinally-inclined cams cooperating with said tilt-table when said shaft is rotated, means for rotating said shaft upon the movement of the carriage, and suitable devices for adjusting said shaft and its cams relative to the tilt-table; substantially as described.

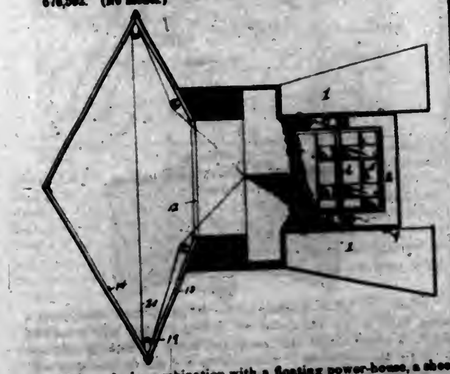
3. In a shingle-machine, the combination with a suitable frame, of a sliding carriage mounted thereon, a tilt-table, longitudinally-inclined cams for cooperating with said tilt-table, a shaft on which said cams are fixed, means for adjusting said shaft and its fixed cams relative to said tilt-table and for locking said shaft in its adjusted position, a star-wheel mounted on said shaft and provided with devices for locking the same to said shaft and preventing independent rotary movement on the shaft, a pawl on the carriage for operating said star-wheel, and a pivoted handle on the carriage having connections with said star-wheel pawl; substantially as described.

4. In a shingle-machine, the combination with a suitable frame, of a carriage mounted thereon, a tilt-table, a supporting-frame therefor, a shaft mounted in said supporting-frame and provided with longitudinally-inclined fixed cams cooperating with said tilt-table when said shaft is rotated, a star-wheel arranged on said shaft for rotating the same upon the movement of the carriage, suitable devices for lengthwise adjusting said shaft and its cams relative to the tilt-table, without destroying the register between the star-wheel and its operating medium, and means for throwing said operating medium into or out of operative relation to the star-wheel at will; substantially as described.

5. In a shingle-machine, the combination with a suitable frame of a carriage mounted thereon, a tilt-table, a supporting-frame therefor, longitudinally-inclined ways on which said supporting-frame is mounted, means for moving said frame and its carried tilt-table, along said cams to effect a vertical adjustment of said moving parts, a shaft mounted in said supporting-frame and provided with longitudinally-disposed fixed cams cooperating with said tilt-table when said shaft is rotated, a star-wheel arranged on said shaft for rotating the same upon the movement of the carriage, suitable devices for lengthwise adjusting said shaft and its cams relative to the tilt-table without destroying the register between the star-wheel and its operating medium, and means for throwing said operating medium into or out of operative relation to the star-wheel at will; substantially as described.

6. In a shingle-sawing machine, the combination with a suitable frame, of a movable carriage mounted thereon, a saw, a tilt-table, means for tilting said table, a frame in which said tilt-table is mounted, screws arranged at the corners of said frame for adjusting said frame and its carried tilt-table vertically, means cooperating with said screws for vertically raising or lowering said frame and its carried tilt-table, a lever located outside the main framing of the machine for actuating said raising or lowering mechanism, and means for adjusting a connection between said lever and said tilt-frame, substantially as described.

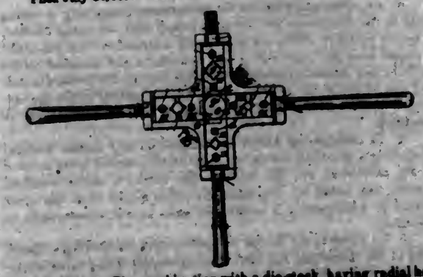
608,929. FLOATING POWER-HOUSE. JAMES SPICER, Williamsport, Pa. Filed Nov. 14, 1895. Renewed Apr. 5, 1898. Serial No. 676,502. (No model.)



Claim.—1. In combination with a floating power-house, a sheer consisting of a supporting-beam, formed of duplicate members, suitably-connected arms hinged to the supporting-beam, connecting-rails 14, hinged together and to the arms, downwardly-extending strips secured between the members of the arms, suitable pulleys and a rope for varying the width of the sheer, as and for the purpose described.

2. In combination with a floating power-house, a frame in front thereof, arms hinged to the frame and having depending partitions extending into the water and an inverted-V-shaped screen hinged or pivoted to the arms and floating on the surface of the water, pulleys secured to the arms and screen and a rope for adjusting the arms as and for the purpose described.

608,930. DIE-STOCK. WILLIAM H. SWEITZER, Danville, Ill. Filed July 31, 1897. Serial No. 646,021. (No model.)



Claim.—1. The combination with a die-stock, having radial hexagonal die-bars, and radial recesses for dies in opposite faces of the stock, of a plurality of thread-cutting dies engaging the recesses of the stock, a central die occupying the recesses on one side and the other dies being disposed about the center and in the recesses on the other side of the stock, each die comprising a fixed section and a movable section, and a set screw bolt for adjusting each movable die-section, said bolts each having a threaded engagement with the die-stock, as specified.

2. The combination, with a die-stock, comprising a stock-body having four spaced blades longitudinally channeled to receive thread-cutting dies, and four pairs of thread-cutting dies in said channels, one die-section of each pair being longitudinally slotted and the other die-section thereof perforated, of set-screw bolts engaging in the said holes and slots and screwing into tapped holes in the die-stock, said stock having an orifice opposite the cutting ends of each pair of dies, and set-screw bolts screwed through tapped ears on the stock-body and pressing on the outer slotted section of each pair of dies, as specified.

3. The combination with a die-stock channeled on one side to produce four radial channels or recesses therein, and on the opposite side to receive one pair of thread-cutting dies which lie between the four radial recesses, of four pairs of thread-cutting dies in the radial recesses, the die-stock being circularly apertured opposite the cutting edges of each pair of dies, and means for adjustably holding all the dies on the stock, as specified.

4. The combination with a die-stock having on one side thereof four die-receiving recesses alined in pairs, each pair of recesses being at right angles with the other pair, said stock being also provided with a single die-receiving recess on the opposite face thereof, which recess lies diagonally between the pairs of recesses in the opposite face of the die-stock, of five thread-cutting dies each comprising a fixed die-section and a movable die-section, means to hold the pairs of die-sections in respective recesses, and a set-screw bolt for each pair of dies projecting through a tapped ear on the die-stock, and adapted to press upon the movable die it is opposite, as specified.

5. A die-stock, comprising a central plate or body having a central pipe-receiving hole passing therethrough and a series of other pipe-receiving holes disposed about the same, thread-cutting dies and means for securing them to the central body to register with said holes, the central die being upon one side of the body and the other dies being upon the opposite side thereof.

6. A die-stock, comprising a central plate or body having a central pipe-receiving hole passing therethrough and a series of other pipe-receiving holes disposed about the same, recesses in the face thereof adapted to receive thread-cutting dies and hold them in register with said holes, and dies in said grooves, the central die being upon one side of the body and the other dies being upon the opposite side thereof.

7. A die-stock, comprising a central plate or body having a central pipe-receiving hole passing therethrough, and a series of other pipe-receiving holes disposed about the same, recesses in the face thereof adapted to receive thread-cutting dies and hold them in register with said holes, dies in said grooves formed of pleral members and set-screws mounted in the recess-walls and adjusting said die members.

8. A die-stock, comprising a central body having a central pipe-receiving hole passing therethrough, and a series of other pipe-receiving holes parallel therein and disposed about the same, recesses in the face thereof adapted to receive thread cutting dies and hold them in register with said holes, dies in said grooves formed of pleral members, the central die being upon one side of the body and the other dies being upon the opposite side thereof and set-screws mounted in the recess-walls and adjusting said die members.

608,931. RIPPING ATTACHMENT FOR SEWING-MACHINES. MAURICE TALBE and GEORGE H. CRAFT, Geneseo, Ill. Filed Nov. 26, 1897. Serial No. 659,031. (No model.)



Claim.—1. A ripping attachment for sewing-machines, comprising a base-plate separate from and attachable to the sewing-machine table, and having two pulleys supported therefrom and adapted to receive the sewing-machine belt between them, and a ripping-disk connected with one of said pulleys, substantially as described.

2. A ripping attachment for sewing-machines, comprising a base-plate separate from and attachable to the machine-table, and having two pulleys supported therefrom at different elevations and adapted to receive the belt between them by distorting the belt, one of said pulleys being movable horizontally, and a cutting-disk connected to one of the pulleys, substantially as described.

3. A ripping attachment for sewing-machines, comprising a base-plate separate from and attachable to the machine-table and having a pulley mounted thereon, a plate adjustable horizontally upon the base-plate and having a pulley mounted thereon above the other pulley, and a cutting-disk connected to one of the pulleys, substantially as described.

4. A ripping attachment for sewing-machines, comprising a base attachable to the machine-table and having a pulley mounted thereon, a plate adjustable horizontally upon the base and having a pulley mounted thereon above the other pulley, said plate having its upper portion curved over to form a shield for the edge of the cutting-disk, and a cutting-disk mounted upon the shaft of the second pulley, substantially as described.

5. A ripping attachment for sewing-machines, comprising a base attachable to the machine-table and having a pulley mounted thereon, a plate adjustable upon the base and having a pulley mounted thereon above the other pulley, said plate having its upper portion curved over to form a shield for the edge of the cutting-disk, and its front edge bent laterally and slotted to embrace the disk and form a work support or guide, substantially as described.

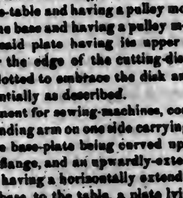
6. A ripping attachment for sewing-machines, comprising a base having an upwardly-extending arm on one side carrying a roller thereon, the same edge of the base-plate being curved upwardly and inwardly to form a guide-flange, and an upwardly-extending flange or web upon the other side having a horizontally extending slot therein, means for securing the base to the table, a plate lying alongside of the slotted web of the base and having a base flange engaging beneath the guide-flange of the base, a pulley and connected cutting-disk journaled on said plate above the other pulley, said plate also having its upper edge rolled over the edge of the disk to form a guard therefor, and a recess at one side exposing a section of the disk, substantially as described.

7. A ripping attachment for sewing-machines, comprising a base having an upwardly-extending arm on one side carrying a roller, the same edge of the base-plate being curved upwardly and inwardly to form a guide-flange, and an upwardly-extending flange or web upon the other side having a horizontally-extending slot therein, means for securing the base to the table, a plate lying alongside of the slotted web of the base and having a base-flange engaging beneath the guide-flange of the base and a leg engaging the machine-table beyond the belt, a pulley and connected cutting-disk journaled on said plate above the other pulley, said plate having a recess at one side exposing a section of the disk, and a bolt passing through the slot in the base-plate and entering the sliding plate whereby the two may be adjusted, substantially as described.

8. A ripping attachment for sewing-machines, comprising a base having an upwardly-extending arm on one side carrying a roller, said base being bent upwardly and inwardly to form a guide on the same side of the base, and an upwardly-extending flange or web upon the other side having a horizontally-extending slot therein, a clamping-arm extending downward from said base and adapted to pass through the bolt-hole in the machine-table, a plate lying alongside of the slotted web of the base and having a base-flange engaging beneath the guide-flange of the base, and a leg engaging the machine-table beyond the belt, a bolt passing through the slot in the base-plate and into the sliding plate, a pulley and connected cutting-disk journaled in said plate above the other pulley, said plate also having its upper edge rolled over the edge of the disk to form a guard therefor, a recess at one side exposing a section of the disk, and a side extending flange at the lower part of the said recess, said flange being slotted to embrace the disk and forming a work guide or support, substantially as described.

9. The combination in a ripping device, of a base-plate, two pulleys mounted to rotate thereon and adapted to receive a belt between them, and a cutting-disk connected with one of said pulleys, with a sewing-machine having a table-top, means for securing the base-plate thereto with its pulleys in line with the belt, the belt-pulleys, and their operating means, substantially as described.

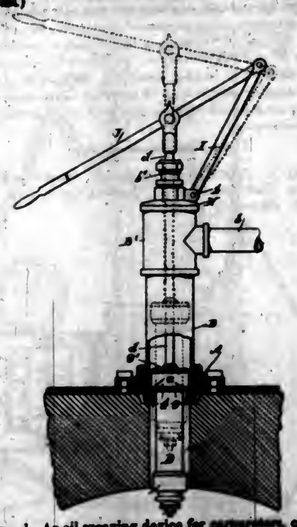
603,932. TRUSS-PAD. SMITH TUCKER, Medina, N. Y., assignor of one-half to George Arnold, same place. Filed Sept. 11, 1897. Serial No. 651,336. (No model.)



Claim.—1. A tram-pad formed of rigid material, and having one face provided with a rib run around the edge thereof, and with parallel ribs located in the space inclosed by the edge rib, the lower ends of the parallel ribs abutting against the edge rib, and the upper ends of the parallel ribs being run through the edge rib to the very edge of the pad.

2. A tram-pad formed of rigid material, provided with an edge rib, and with parallel ribs abutting against the edge rib, the pad having openings therein, the openings extending from the spaces between the parallel ribs.

603,988. SPRAYING DEVICE FOR CARBURETERS. GEORGE H. WEBER, New York, N. Y. Filed Oct. 28, 1897. Serial No. 656,162. (No model.)



Claim.—1. An oil-spraying device for carburetors, comprising a casing fixed to the carburetor and having a supply-pipe connected thereto, a nozzle within said casing, and means for entering said nozzle within the carburetor or withdrawing it within the casing, at will, substantially as described.

2. An oil-spraying device for carburetors, comprising a casing fixed to the carburetor and having a supply-pipe connected thereto, a hollow cylinder within said casing and adapted to close the same, a nozzle upon the inner end of said cylinder, and means for reciprocating said cylinder within the casing, at will, substantially as described.

3. An oil-spraying device for carburetors, comprising a casing fixed to the carburetor and having an outwardly-facing valve-seat within the same and an oil-supply connection, a hollow cylinder within said casing, having a nozzle upon its inner end, and a head or projecting ring upon its outer end having a valve-surface adapted to engage the said valve-seat, and means for reciprocating the cylinder to seat the valve and project the nozzle into the carburetor or to withdraw the cylinder into the casing, at will, substantially as described.

4. An oil-spraying device for carburetors, comprising a casing fixed to the carburetor and having a supply-pipe connected thereto, a hollow cylinder within the said casing adapted to close the same, a nozzle upon the inner end of said cylinder, a rod attached to the cylinder and extending outside the casing, and a lever pivoted to said rod and by which the cylinder-nozzle may be entered within the carburetor or be withdrawn into the casing, as desired, substantially as described.

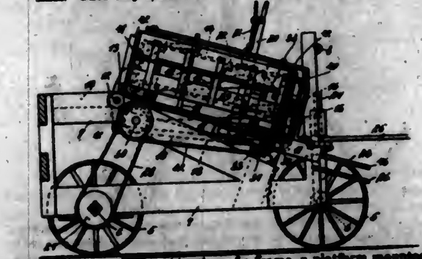
5. An oil-spraying device for carburetors and similar devices, comprising a telescopic casing, the outer section thereof being secured to the carburetor and the inner section having a nozzle attached thereto, and means for projecting the inner section from the outer section or withdrawing it within the same at will, substantially as described.

6. An oil-spraying device for carburetors, comprising a casing fixed to the carburetor and having an outwardly-facing valve within the same, and an oil-supply connection, a hollow cylinder within said casing, having a nozzle upon its inner end and a perforated cap upon its outer end, the inner edge of said cap forming a valve to engage the seat, a rod attached to said cap, a stuffing-box for the exit of said rod, and means for engaging said rod and moving the cylinder, to project the cylinder into the carburetor or withdraw it into the casing, substantially as described.

7. A nozzle for carburetors, comprising two telescopic members, a hollow cap secured to the end of one member, a perforated disk or partition extending across the cap, a stem supported from said disk, and a cone upon said stem and entering the hole in the cap, substantially as described.

8. An oil-spraying device for carburetors, comprising a casing fixed to the carburetor and having a supply-pipe connected thereto, a hollow cylinder within this casing adapted to close the inner end thereof, a nozzle upon the inner end of said cylinder, a rod attached to the cylinder and extending outside the casing, a lever pivoted to the outer end of said rod, and a link pivoted to said lever as a fulcrum, whereby the cylinder and nozzle may be entered within the carburetor or withdrawn into the casing, substantially as described.

603,934. CORN-HEADER. WILLIAM A. WILSON, Centropolis, Kans. Filed May 3, 1897. Serial No. 635,673. (No model.)



Claim.—1. The combination of a frame, a platform mounted to swing thereon, a lever fulcrumed on the axis of said platform and having its upper portion extended forwardly beyond said axis, a standard fixed to the platform and having sliding connection with the upper end of the lever, a link pivoted to the lower end of the lever and extending forwardly, a hand-lever mounted on the frame and connected with the link, and a bell-crank lever also mounted on the frame and connected with the link, the bell-crank lever being within reach of the driver's foot.

2. The combination with a frame, of a platform mounted to swing thereon, a standard fixed to the platform, a lever fulcrumed on the axis of the platform and having sliding connection with the standard at the upper end of the lever, a link pivoted to the lower end of the lever and extending forwardly, and means in connection with the forward end of the link, whereby to reciprocate the same.

603,935. TIME-LOCK. CORNELIUS M. BALL, Oliveilla, Ky. Filed July 29, 1896. Serial No. 600,962. (No model.)



Claim.—1. In a time-lock of the character described the combination of the main bolt, a time mechanism connected therewith for operating the same at a predetermined time, and a coöperating locking-latch, and means for operating the same, substantially as specified.

2. In a time-lock of the character described, the combination with the main bolt, having a shoulder and a stem at the rear or outer end and coiled spring encircling said stem, of the locking-drum, the spindle on which it is mounted the wrist-plate the pin secured thereto, the toothed slide, with which said pin is adapted to engage and the notched leg with which said drum is adapted to engage and a clock mechanism for retracting said bolt, substantially as specified.

3. In a time-lock of the character described, the combination with the main bolt having a shoulder and a stem at the rear or inner end, the coiled spring encircling said stem, the detent near the front end of said bolt, the locking-drum the wrist-plate and pins, the toothed slide having a notched leg and an operating-knob and the pivoted dog engaging with the detent of the bolt and provided with a projection, of the slide having a series of notches, the front ones of which are adapted to be engaged by a connection from a clock-movement and the rear ones by one of the pins of said wrist-plate, and the clock mechanism for operating said main bolt and said last-mentioned slide, substantially as specified.

4. In a time mechanism of the character described, the combination with the main bolt, having a shoulder and stem at the inner end, a coiled spring encircling said stem and a clock mechanism for retracting said bolt, of the toothed latch-bolt, the pinion engaging therewith and its operating-spindle the detent on said latch-bolt and the pivoted spring-dog engaging therewith and operated by the retraction of the main bolt, substantially as specified.

5. In a time mechanism for time-locks the combination with striker-shaft, extending through the casing, the cam loosely mounted thereon, the pins connected with said cam, the swivel-bearing to which said pins are secured, the pawl carried by said cam and the ratchet-wheel secured to said shaft engaging therewith, of the sleeve loose on said shaft, the wheels formed integral therewith, the segment-wheel on said sleeve the coiled spring, the master-wheel on said striker-shaft, the trundle-shaft, the gear-pinion thereon meshing with one of the wheels of said shaft, the pinion engaging with said segment-wheel, the pinion and bevel-wheel, the shaft extending through the casing, provided with an index, the graduated segment, and the jigger-hooks for releasing the striking mechanism substantially as described.

603,936. PHOTOGRAPHIC OPAQUE NEGATIVE AND PROCESS OF PRINTING THEREFROM. HERS BOUVARD, Rockford, Ill. Filed Oct. 30, 1897. Serial No. 656,895. (Specimens.)



Claim.—1. A new process of photography, consisting in producing a negative by spreading a sensitive emulsion upon the reflecting-surface of a substantially opaque substance, exposing the prepared surface, as in a camera and causing the light to be reflected from the reflecting-surface of the negative thus produced to a sensitized surface, to produce the positive print.

2. A new process of photography, consisting in producing a negative by spreading a sensitive emulsion upon the pure-white glazed surface of a substantially opaque substance, exposing the prepared surface, as in a camera, developing and fixing the negative, and causing the light to be reflected from the white glazed surface of the negative to a sensitized surface to produce the positive prints.

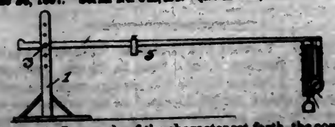
3. A new process of photography consisting in producing a negative by spreading a sensitive emulsion upon the pure-white filled and glazed surface of paper, exposing the prepared surface, as in a camera, developing and fixing the negative, and causing the light to be reflected from the white glazed surface of the negative to a sensitized surface to produce the positive prints.

4. As a new article of manufacture, an opaque backing having a light-reflecting surface, having thereon a photographically-prepared film negative of an original object.

5. As a new article of manufacture, an opaque backing, having a pure-white glazed surface, having thereon a photographically-prepared film negative of an original object.

6. As a new article of manufacture an opaque backing having a pure-white filled and glazed surface, having thereon a photographically-prepared film negative of an original object.

603,937. WAGON-SCALE. ALLEN BRADLEY, Floris, Va. Filed June 26, 1897. Serial No. 642,491. (No model.)



Claim.—1. In a scale of the character set forth, the combination of a supporting-standard, a beam adjustably held by said standard and having a scale-bar depending from the outer end thereof with a dial on the lower portion thereof, and a spring-scale also depending from said beam and comprising a pointer with a spring-actuated stem having a stirrup at the lower end thereof, said stem being provided with teeth to engage the operating devices of the dial, substantially as described.

2. In a scale, the combination of a standard having a series of openings therethrough, a scale-beam adjustably mounted upon said standard and having a balance-weight thereon, a spring-scale comprising a pointer and a stirrup at the outer end of the said scale-beam, the said pointer and stirrup being connected to each other, and a scale-bar over which said pointer has movement and having at the lower end thereof a dial, of a rotary scale adapted to be actuated by the movement of the connection between the pointer and the stirrup, substantially as described.

603,938. PORTABLE FENCE. WILLIS J. BROOK, Tamaha, Ind. Ter. Filed Aug. 28, 1897. Serial No. 649,494. (No model.)



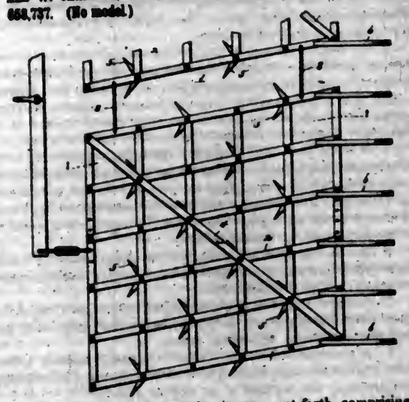
Claim.—1. A fence-panel composed of flat metal stringers provided at their ends with post-sockets, stays secured to said stringers to hold them in fixed relative position, and panel-wires secured to the stays, substantially as shown and described.

2. In a fence-panel, the combination with a pair of stringers, provided with serrated edges and with terminal post-sockets, of vertical stays connecting the stringers, clips upon the stays, and panel-wires secured to the clips, substantially as described.

3. In a fence-panel, the combination with a pair of stringers having serrated edges and provided with terminal post-sockets, of vertical stays secured to the stringers and having their lower ends bent at right angles, clips cut from the stays and panel-wires secured to said clips, substantially as described.

4. A fence panel consisting of flat metal stringers, vertical stays secured thereto to hold them in relative position, and panel-wires secured to said stays, the stays having their lower ends bent at right angles and the bent portions of adjacent stays extending laterally in opposite directions.

603,939. APPARATUS FOR EXTERMINATING WEEDS. RICHARD W. CAMPBELL, Warren, S. D. Filed Nov. 16, 1897. Serial No. 658,737. (No model.)

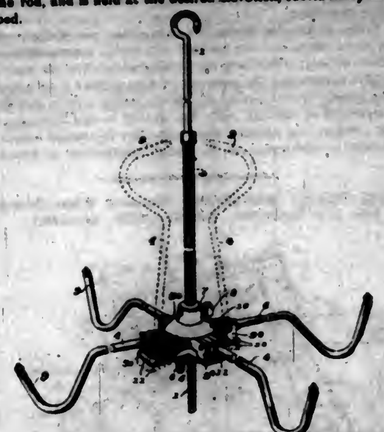


Claim.—An apparatus for the purpose set forth, comprising a frame with a series of straight teeth, alternately arranged pairs of forwardly-extending oblique-pointed forks, and rear hinged curved spring-teeth, substantially as described.

603,940. HANGER FOR HARNESS. CHARLES S. CARRIE, Hinsdale, N. H. Filed Sept. 9, 1897. Serial No. 651,060. (No model.)

Claim.—1. A harness-hanger, comprising a suspension-rod, a vertically-movable sleeve slidingly mounted on the rod and provided at its bottom with ears, harness-supporting arms pivoted to the ears and adapted to swing upward in folding, an adjustable collar engaging the rod and located beneath and supporting the sleeve, whereby the sleeve and the harness-supporting arms may be readily rotated on the rod, and a fastening device mounted on the sliding sleeve and adapted to engage the rod for locking the sleeve against rotary movement, when it is desired to hold the same rigid with the rod, substantially as described.

2. A harness-hanger, comprising a suspension-rod, a vertically-movable sleeve slidingly mounted thereon and having its lower portion enlarged, perforated ears arranged in pairs and projecting from the lower portion of the sleeve, harness-supporting arms pivoted between the perforated ears and adapted to swing upward in folding, a flange extending around the lower portion of the sleeve, located above the ears and arranged to be engaged by the inner ends of the harness-supporting arms, to hold the latter in a horizontal position, and an adjustable collar secured to the rod and located below and supporting the sleeve, whereby the latter is permitted to rotate freely on the rod, and is held at the desired elevation, substantially as described.



3. A harness-hanger, comprising a suspension-rod, a vertically-movable sleeve mounted on the rod and provided at its bottom with ears, harness-supporting arms pivoted to the ears and adapted to swing upward in folding, an adjustable collar secured to the rod and located beneath and supporting the adjustable sleeve, whereby the latter is held at the desired adjustment, and is permitted to rotate freely on the rod, and a horizontal spring arranged on the rod between the lower end of the sleeve and the collar, and provided with arms corresponding to the ears and disposed beneath the same in position to be engaged by the lower ends of the harness-supporting arms when the latter are swung upward to retain the same in their folded position, substantially as described.

603,941. TIRE-VALVE. AARON S. GARFURKEY, Birmingham, England. Filed Oct. 4, 1897. Serial No. 654,033. (No model.) Patented in England July 20, 1897, No. 17,702.

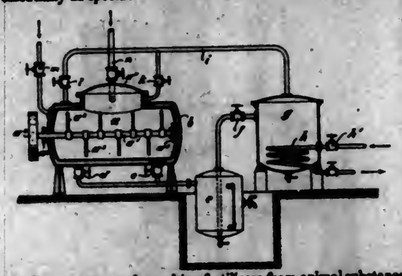


Claim.—1. The combination with a pneumatic tire, of a valve therefor, comprising a hollow stem having a head at one end located within the tire, an elastic dome or chamber inclosing said head but normally lying out of contact with the face thereof to provide an intervening air-space, and having a contracted mouth which surrounds the hollow stem adjacent to the said head slits or incisions in the elastic dome or chamber, the lips of said slits or incisions being normally held closed by the back pressure of air within the tire and opened by distending the dome, and clamping-nuts arranged upon the stem and adapted to clamp the parts together and to the tire, substantially as described.

2. The combination with a pneumatic tire, of a valve therefor comprising a hollow exteriorly-threaded stem having a head at one end located within the tire, an elastic dome or chamber inclosing said head and having a contracted mouth located between the head and tire, said dome or chamber being provided with slits or incisions which are opened by the act of inflating the tire and the lips of said incisions normally held closed by the elasticity of the walls of said chamber and by the back pressure of air within the tire, alternately-arranged nuts and washers screwed upon the hollow stem to clamp the valve to the tire, a screw-cap for the end of the hollow stem, a deflating-tube having openings in its opposite ends and adapted to pass up into the hollow stem to distend the elastic dome for the purpose specified, and a chain connection between the said screw-cap and deflating-tube.

603,942. APPARATUS FOR MAKING FERTILIZERS. BRUNO CLARENBACH, Berlin, Germany. Filed Feb. 7, 1896. Serial No. 579,204. (No model.)

Claim.—1. The combination, in an apparatus for the utilization of animal-cadavers or parts thereof, of the digester *c*, collector *e* and evaporator *g* with a pipe and valve connection for continually conducting the extracted liquids and the water condensed in the steam-jacket *b* from the first vessel or digester to the second vessel *e* and the vapors from the third vessel *g* back to the jacket of the digester, all essentially as specified.



2. In an apparatus for making fertilizers from animal substances, the combination with the digester having a valve-controlled steam-inlet thereto, of a collector, a valve-controlled pipe or conduit leading from the interior of said digester into said collector, a valve-controlled branch pipe or conduit leading from the steam-space around said digester into said collector, an evaporating vessel in connection with the interior of said collector through a valve-controlled pipe or conduit, and a pipe or conduit leading from said evaporator to the interior of said digester and also communicating with said steam-space, and valves for controlling said several pipes or conduits, substantially as described.

3. The combination in an apparatus for the utilization of animal-cadavers or parts thereof, of the digester having a steam-jacket, the collector arranged below the plane of the digester, a pipe or conduit connecting said collector with the interior of said digester and with said steam-jacket, an evaporating vessel located above the plane of said collector, a pipe or conduit leading from the interior of said collector near the bottom thereof into said evaporator, a heating-coil within the latter, having inlet and outlet pipe connections with a valve in each for controlling the same, a pipe or conduit leading from said evaporating-vessel to the digester-jacket and also to the interior of the digester, a valve-controlled steam-inlet pipe communicating with the interior of the digester, and valves controlling the pipes or conduits connecting the digester and collector and the collector and evaporator, substantially as described.

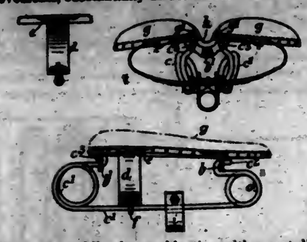
4. In an apparatus for treating animal-cadavers or parts thereof for the purpose of producing therefrom dry manure in powderous condition, a digester having a steam-jacket, an agitating device or stirrer within the digester, a collecting vessel for receiving the fluid matter and water from said digester, pipes or conduits leading from the interior of said digester and said steam-jacket into said collector, a valved pipe or conduit connecting said collector and evaporating vessel, conduits or pipes leading from the evaporator into the interior of said digester and said steam-jacket, and valves for controlling the flow of fluid matter and water from said digester and steam-jacket into said collector, and from the latter into said evaporator, and the vapors from the evaporator into said digester and steam-jacket, substantially as described.

5. An apparatus for treating animal-cadavers or parts thereof for the purpose of producing therefrom dried fertilizing material, comprising a digester having a steam-jacket and a steam-inlet pipe communicating with the interior thereof, a collecting vessel arranged below the plane of said digester, valve-controlled pipes or conduits leading from the interior of the digester and the steam-jacket thereof into said collector, an evaporating vessel, a valve-controlled pipe or conduit leading from the collector into said evaporator, pipes or conduits connecting the evaporator with the interior of the digester and its steam-jacket, and valves for controlling the inlets to the latter, the whole constituting a perfectly-closed fluid and vapor circulating system adapted to prevent the escape of steam or vapors and offensive odors and any waste of cooling-water, substantially as described.

603,943. CYCLE-SADDLE. WALTER GLYDDEN, London, England. Filed Jan. 6, 1897. Serial No. 618,963. (No model.) Patented in England Sept. 11, 1896, No. 22,162.

Claim.—1. A cycle-saddle divided longitudinally into two similar and equal parts or halves pivotally connected together and supported by longitudinal springs, and by a transverse spring common to both parts or halves, substantially as and for the purposes described.

2. In a cycle-saddle, the combination with a seat divided longitudinally into two equal parts or halves, of a spring arranged longitudinally under each said part or half and pivotally connected near the peak and rear thereto, and a transverse spring arranged beneath said parts or halves and adapted to support the same in their up or down movements, substantially as described.



3. In a cycle-saddle, the combination with a seat divided longitudinally into equal parts or halves, of a spring arranged longitudinally under each said part or half and pivotally connected near the peak and rear thereto, a transverse spring arranged beneath said parts or halves to support them in their movements, and means for securing the said springs together to cause them to work in unison, substantially as described.

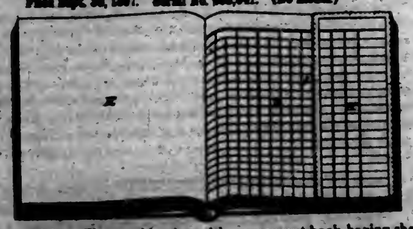
4. In a peaked cycle-saddle, the combination of two independent parts or halves, means for connecting the same, longitudinal springs to which said parts or halves are pivotally connected near their inner or adjacent edges, and a transverse spring for permitting said parts to move up or down so as to accommodate themselves to the movements of the rider, substantially as described.

5. In a cycle-saddle, the combination of two independent parts or halves, means for connecting the same, longitudinal springs to which said parts or halves are pivotally connected near their inner or adjacent edges, a transverse spring for permitting said parts to move up or down so as to accommodate themselves to the movements of the rider, and a flexible web attached along its edges to the said saddle parts or halves, and having its middle portion normally lying between and depending below the saddle parts to provide for sufficient play of the latter, substantially as described.

6. In a peaked cycle-saddle having a seat divided longitudinally into equal parts or halves and hinged together by suitable lugs or arms secured to said halves, the combination therewith of longitudinal springs pivotally connected to each of said parts and terminating in hooks at front and rear adapted to engage in holes formed in the lugs or arms of the pivotal or hinged connections of the saddle parts or halves, substantially as described.

7. In a peaked cycle-saddle, the combination of two equal and similar parts or halves provided with hinges for securing the same together, longitudinal springs pivotally connected to said parts or halves near their inner or adjacent edges, a transverse spring for supporting the said parts or halves in their up and down movements, and means for securing the extremities of the transverse spring to the halves of the saddle, substantially as described.

603,944. LEDGER-INDEX. WILLIAM M. DALY, Philadelphia, Pa. Filed Sept. 20, 1897. Serial No. 652,041. (No model.)



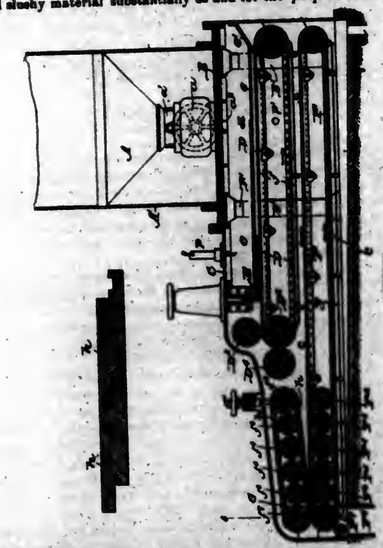
Claim.—The combination with an account-book having sheets projecting beyond the edges of the leaves of the book, of the retaining-frames secured to said extended sheets, and the slates adapted to slide within and be retained in position by said frames, substantially as described.

603,945. PROCESS OF AND APPARATUS FOR CONTINUOUSLY FILTERING AND PRESSING GARBAGE. CHARLES BOSSERTH, Philadelphia, Pa. Filed Oct. 21, 1897. Serial No. 655,522. (No model.)

Claim.—1. The process of continuously filtering the liquids from the solids, in the treatment of slushy garbage materials, which consists in distributing the slushy material in a layer upon a traveling

diaphragm, and applying a hot gaseous pressure to the upper side of the layer of slushy material while it is in transit substantially as and for the purpose described.

2. An apparatus for continuously filtering garbage, comprising a hermetically-closed casing, an endless traveling belt having interstices through it, means for closing the edges of said belt tightly against the sides of the casing to retain a gaseous pressure above the belt when covered with slushy materials, and means for introducing and maintaining a cushion of gaseous medium above said belt to continuously express and filter out the liquids during the passage of the said slushy material substantially as and for the purpose described.



3. An apparatus for continuously filtering and pressing slushy material comprising a gas or steam tight casing, extending horizontally and having a plate B on its upper side a digester mounted on the top of the same and having a valved communication therewith, an endless metal slatted belt, and means for closing its edges tightly against the sides of the casing substantially as and for the purpose described.

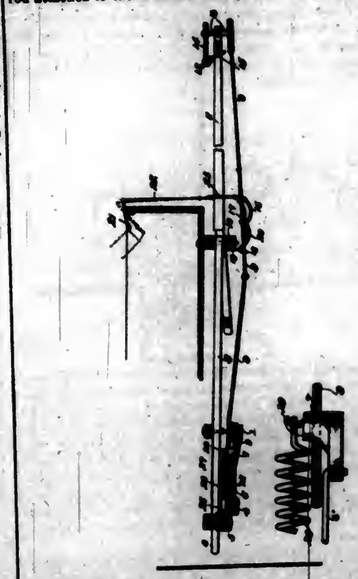
4. A filtering and pressing device for slushy materials, comprising a horizontal and pervious filter-belt having a fibrous covering and inclosing at one end a series of parallel rollers arranged horizontally, a corresponding series of parallel rollers arranged above the same and surrounded by an endless metal slatted belt, constructed with water-tight joints to prevent the upward penetration of liquids therethrough a frame carrying said upper set of rollers, pivoted at one end and made adjustable at the other, substantially as and for the purpose described.

5. A filtering and pressing device for slushy materials, comprising a casing, an endless filtering-belt, and means for closing its edges against the sides of the casing, crushing-rolls at the end of the belt, a subjacent belt extending under and beyond the first-named belt and having a fibrous covering, and a series of parallel rollers at one end and an adjustable series of parallel rollers arranged above the first-named series and carrying an endless metal slatted belt, a frame for supporting the upper adjustable series of rolls pivoted at one end and made adjustable at the other substantially as and for the purpose described.

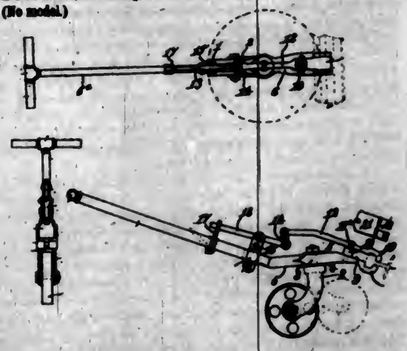
603,946. AUTOMATIC VEHICLE-BRAKE. JOSEPH S. ELLIOTT, Eddy, Tex. Filed Sept. 4, 1897. Serial No. 650,638. (No model.)

Claim.—1. The combination with the brake-beam rods 6', and levers 4, arranged in rear of the brake-beam and in the same plane therewith, of the yoke 7, having the central hook 29, the spring 28, attached to the latter, the pull-rod, threaded as specified and passing through a threaded bore in the yoke, and the hand mechanism, comprising the lever 26 arranged parallel to brake-levers 4, the rod 24, and hand-lever 25, as shown and described.

2. The combination, with the brake apparatus proper, of the link 19, suspended from the front axle, the device 16, consisting of an elongated link having an upward curve 17, at its middle, the pull-rod passing through said device and having the cross-pin 20 arranged in rear of the curved portion of said device, and the lift lever and rod attached to the front end of said device, as shown and described.



603,947. TRUCK FOR HANDLING RAILWAY-RAILS. THOMAS L. FLANAGAN, Vicksburg, Miss. Filed Aug. 9, 1897. Serial No. 647,895. (No model.)



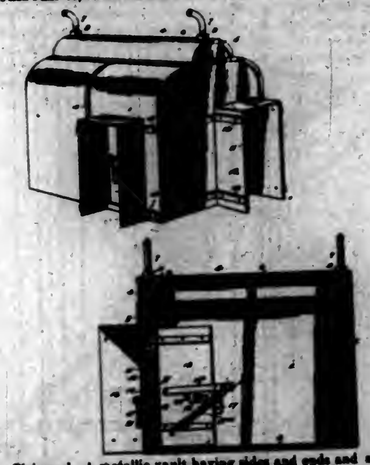
Claim.—1. A hand-truck having a single, swiveled wheel, a carrying-bar having a jaw at its forward end and a handle at the other end, a jaw-lever having a fulcrum on said bar and provided with a jaw at its forward end, and an operating-lever having a fulcrum on the handle its forward end connected by a toggle-link to the end of the jaw-lever and its other end held by a loop on the handle, substantially as described.

2. A hand-truck having a carrying-bar, a single caster-wheel swiveled thereon, a jaw-lever having a fulcrum on said bar, its forward end provided with a jaw adapted to clamp the head of a T-rail between it and a like jaw on the extremity of the beveled forward end of said bar, an actuating-lever coupled to the rear end of the jaw-lever and a loop pivoted on the handle to lock the operating-lever, substantially as described.

3. A hand-truck having jaws formed to grasp the head of a T-rail transversely, one of said jaws having a vertical slot to admit the web of the rail and clamp the end of the same in line with the truck, substantially as described.

4. The combination with a hand-truck of a fixed jaw and a lever having a jaw on its forward end, said jaws being adapted to grasp the sides of the head of a T-rail the fixed jaw having a central vertical slot or opening to admit the web of the rail and enable the jaws to grasp the head when the rail is in line with the trucks, substantially as described.

603,948. CYCLONE-VAULT. DARWIN H. HARLOW, Preston, Minn. Filed June 14, 1897. Serial No. 641,295. (No model.)



Claim.—1. A metallic vault having sides and ends and a metal floor, the said sides being extended upwardly to form the top, and an upper central ventilating-cupola of elongated form having its covering meeting the extension of the sides and secured thereto, substantially as and for the purposes specified.

2. In a cyclone-vault, the combination of a metallic inclosing frame, an upper ventilating-cupola, and elongated screw-threaded tubes adjustably mounted in said cupola and having upper bent ends, substantially as and for the purposes specified.

3. A cyclone-vault constructed of metal and adapted to be embedded in the ground and having door-entrances with hinged doors coacting therewith, guards mounted over the said door-entrances, latches in connection with the doors adapted to be operated from the exterior, an upper ventilating elongated cupola, and ventilating-tubes adjustably mounted in said cupola and having upper bent ends, substantially as and for the purposes specified.

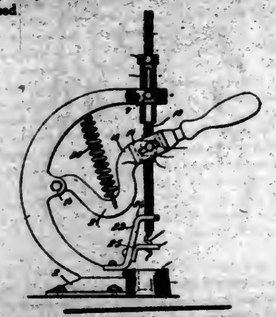
603,949. RECEPTACLE FOR CHEWING-GUM. CHARLES W. HARDING, Hunnewell, Kans. Filed July 2, 1897. Serial No. 643,304. (No model.)



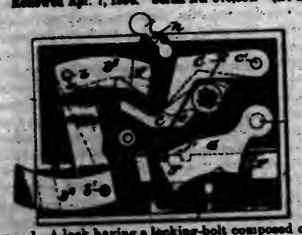
Claim.—A box or receptacle for the purpose described, made up of a flat circular base-plate, having a securing-pin upon the under side thereof, located diametrically of said base-plate, a triangular stud or spur upon the opposite side of said base-plate, located centrally thereof and lying in line with the securing-pin upon the opposite side, and a body portion made up of two sections, one of which sections comprises a portion of the sides which is semicircular in cross-section and is secured at its lower edge to said base plate, and a semicircular portion of the top, which is secured to the upper edge of said side portion, the said side portion and top portion lying, when the box is in its adjusted position, beneath the stud or spur, and the other section comprising the remaining portion of the sides, which is semicircular in cross-section, is pivoted to the rigid side portion, and has secured to its upper edge the remaining semicircular portion of the top, the said pivoted section being disconnected from said base-plate, but adapted to swing laterally thereof and to have its lower end closed by the projecting portion of said plate.

603,950. CORK-PULLING MACHINE. JAMES R. HAWKINS, St. Louis, Mo. Filed Aug. 23, 1897. Serial No. 649,128. (No model.)

Claim.—A cork-pulling machine comprising a frame provided with an opening in the upper portion thereof, a lever pivoted to said frame and having an elongated slot therein, a shaft provided with spirally-arranged grooves and having a cork-screw at its lower end, a block embracing the shaft and adapted to lie within the elongated slot in said lever, laterally-extending arms upon said block extending through the elongated slots in the sides of said levers at right angles to the slot in which said block fits, collars upon the shaft above and below said block, a vertically-movable sleeve surrounding the shaft and having a head thereon, projections on the inner periphery of said sleeve adapted to fit within the grooves in said shaft whereby said shaft is caused to rotate during the downward movement thereof when the head engages the upper surface of the casting, and means for restoring the parts to their normal positions after the lever has been depressed.



603,951. LOCK. ROBERT H. HEARN, Dyer, Tenn. Filed June 3, 1897. Renewed Apr. 7, 1898. Serial No. 676,881. (No model.)



Claim.—1. A lock having a locking-bolt composed of a straight middle portion with a pivot-hole at each end, and offsetting curved locking ends at opposite ends and on opposite sides of the straight portion, each being described about the pivot-hole of the opposite end and having bevel-faces upon opposite sides substantially as and for the purpose described.

2. A lock having a locking-bolt composed of a straight middle portion with a pivot-hole at each end, and offsetting curved locking ends at opposite ends and on opposite sides of its straight portion, each being described about the pivot hole of the opposite end and having bevel-faces upon opposite sides, a lift-bar pivoted at one end to the case and having its other end resting beneath the upper end of the main bolt, and a knob-shaft and sleeve with tappets lying beneath and acting upon the lift-bar substantially as and for the purpose described.

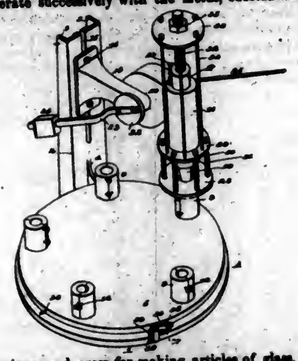
3. A lock having a locking-bolt composed of a straight middle portion with a pivot-hole at each end and offsetting curved locking ends at opposite ends and on opposite sides of its straight portion, each being described about the pivot-holes of the opposite end and having bevel-faces upon opposite sides, a lift-bar pivoted at one end to the case and having its other end resting beneath the upper end of the main bolt, a knob-shaft and sleeve with tappets arranged beneath and acting upon the lift-bar, and a supplemental key-bolt with tumbler arranged to be projected against the inner side of the lower end of the main bolt to lock it substantially as and for the purpose described.

603,952. PRESS FOR MAKING ARTICLES OF GLASSWARE. WILLIAM A. HEBERT and CHARLES H. BRADY, Washington, Pa., assignors to the Hazel Glass Company, same place. Filed May 14, 1897. Serial No. 636,662. (No model.)

Claim.—1. In an improved press for making articles of glassware, the combination of a circular mold-carrier rotatable in a horizontal plane, a plurality of molds thereon, a bracket adjacent to said mold-carrier, a supporting-arm carried by said bracket and arranged tangentially to the mold-carrier, and a plunger arranged to reciprocate with respect to the supporting arm and to cooperate successively with the molds, substantially as set forth.

2. In an improved press for making articles of glassware, the combination of a circular mold-carrier rotatable in a horizontal plane, a plurality of molds thereon, a bracket adjacent to said mold-carrier,

a supporting-arm carried by said bracket and arranged tangentially to the mold-carrier, means for adjusting said arm vertically, and a plunger arranged to reciprocate with respect to the supporting-arm and to coöperate successively with the molds, substantially as set forth.



3. In an improved press for making articles of glass, the combination of a base 1, a mold-carrier rotatably mounted on said base, a plurality of molds secured to said mold-carrier, a bracket 2, a supporting-arm 13 adjustably mounted on said bracket, a plunger-cylinder 16 at the front end of said supporting-arm, a plunger-carrier 17 in said cylinder and with respect to which said molds are movable, a plunger removably secured to the lower end of said plunger-carrier, a main operating-shaft 21 in said supporting-arm, a toothed segment 26 keyed to said shaft, and a rack 27 on the plunger-carrier and with which said segment engages, substantially as set forth.

4. In an improved press for making articles of glass, the combination of a base 1, a mold-carrier rotatably mounted on said base, a plurality of molds secured to said mold-carrier, a bracket 2, a supporting-arm 13 adjustably mounted on said bracket, a plunger-cylinder 16 at the front end of said supporting-arm, a plunger-carrier 17 in said cylinder and with respect to which said molds are movable, a plunger removably secured to the lower end of said plunger-carrier, a main operating-shaft 21 in said supporting-arm, a toothed segment 26 keyed to said shaft, a rack 27 on the plunger-carrier and with which said segment engages, and a counterbalance-weight connected to said shaft, substantially as set forth.

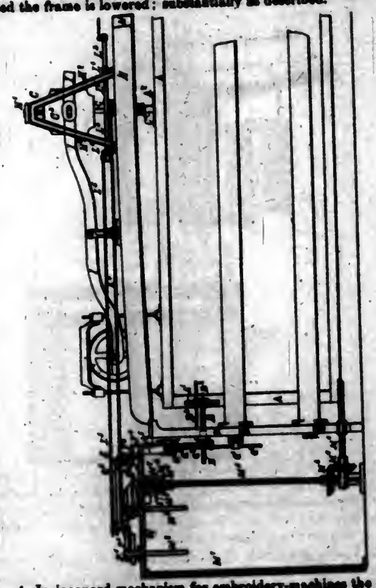
5. In an improved press for making articles of glass, the combination of a base 1, a mold-carrier rotatably mounted on said base, a plurality of molds secured to said carrier, a bracket 2, a supporting-arm 13 adjustably secured to said bracket, a plunger-cylinder 16 at the free end of said arm, a plunger-carrier 17 movable vertically in said cylinder, means for operating said plunger-carrier, a plunger at the lower end of said plunger-carrier, a collar 29 movable on said cylinder, a mold-closing disk, yielding connections between said disk and said collar, a screw-threaded rod 32 connected to the plunger-carrier, a disk 33 on said rod, adjusting-nuts 35 for adjusting the positions of said disk with respect to the rods, and connecting-rods 34 connecting the disk 33 with the collar 29, substantially as set forth.

608,953. WORK-FEEDING MECHANISM FOR EMBROIDERING-MACHINES. HENRY HILL, Nottingham, England. Filed July 14, 1894. Serial No. 518,120. (No model.)

Claim.—1. In a work-feeding mechanism for embroidering-machines, the combination with the jacquard mechanism, of the work-frame, the screw C connected to the frame, for moving the frame vertically, a pinion secured to the screw, a double rack, the three-armed lever, a second pinion mounted on one arm of said lever, and constantly in gear with the first-mentioned pinion, the rods carried by the other arms of the lever and connected to the jacquard mechanism, whereby the second pinion may be brought into gear with either of the racks; substantially as described.

2. In a work-feeding mechanism for embroidering-machines, the combination with the jacquard mechanism of a screw E for moving the frame pinion E secured to the screw double rack G G′ and pinion F, of a lever F' F^3 for carrying the axle F^2 of the pinion E the said lever being operated by the jacquard through the rods F^6 F^4 so as to move the pinion E into gear with either of the racks G G′ substantially as described.

3. In a work-feeding mechanism for embroidering machines, the combination with the work-frame, the counterweight formed with an axial hole, the vertical screw passing through the weight, and engaging the frame at one end and the weight at the other, the threads of the screw at the point of engagement with the weight and frame being oppositely pitched, and connections between the screw and jacquard mechanism for turning the screw whereby as the weight is raised the frame is lowered; substantially as described.



4. In jacquard mechanism for embroidery-machines the combination with a screw C for moving the frame A pinions J and J′ and a double rack L L^2 of change gear-wheels Y Y′ for connecting the pinions J and J′ substantially as described.

5. In jacquard mechanism for embroidery-machines the combination with a screw C for moving the frame A pinions J and J′ and a double rack L L^2 of change gear-wheels Y Y′ for connecting the pinions J J′ and an arm Y^4 for carrying the adjustable axle Y^3 of the pinion Y′ substantially as described.

6. In a work-feeding mechanism for embroidering-machines, the combination with the jacquard mechanism of the dropper-cage and pattern-card cylinder, the droppers carried by the dropper-cage and arranged in two rows parallel to the axis of the card-cylinder and provided with catches, and the pivoted locking-bars extending across the cage for engaging with the catches on the droppers to hold the droppers elevated during the traverse of the dropper-cage; substantially as described.

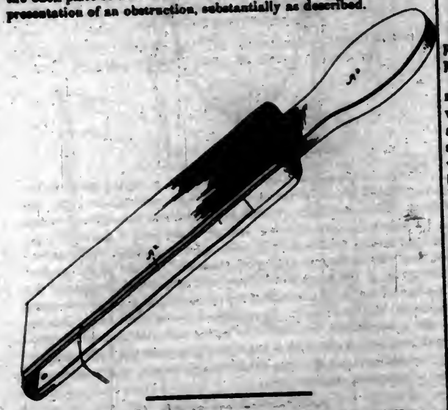
7. In a work-feeding mechanism for embroidering-machines, the combination with the jacquard mechanism, of the dropper-cage, the droppers provided with catches carried by said cage, the pivoted locking-bars extending across the cage on opposite sides thereof and engaging the catches of the droppers to hold the droppers elevated and the vertically-moving slide at one end of said dropper-cage working between the locking-bars and provided with two pivoted catches adapted to engage with the locking-bars to open the same and permit the droppers to fall; substantially as described.

8. In a work-feeding mechanism for embroidering-machines, the combination with the jacquard mechanism, of the dropper-cage, the vertically-movable T-shaped slides carried at the center of the dropper-cage, the selectors normally resting on the top of said slides, the pattern-card for raising the slides and thus lifting the selectors; substantially as and for the purpose set forth.

9. In a work-feeding mechanism for embroidering-machines the combination with the jacquard mechanism, the work-carrying frame, the screws connected to the frame for moving the frame vertically and horizontally, pinions carried by said screws, the double rack, the three-armed lever, pinion carried by one of the arms in mesh continuously with the pinion on the screw, the bars connected to the lever and to the jacquard mechanism, whereby the pinion on the lever-arm may be thrown into engagement with either one of the racks and the frame thus given a movement in two directions; substantially as described.

608,954. RAZOR-STROP. THOMAS G. HOLLAND, Philadelphia, Pa. Filed May 5, 1897. Serial No. 634,962. (No model.)

Claim.—A razor-strop comprising a handle, a rigid back plate secured to the handle and provided with a suitable stropping-surface, a resilient, metallic front plate secured at one end to the handle, and having its other end bent or curved to form a flange to be secured to the under side of the back plate, thereby leaving a clear space, practically the entire length of the body of the strop, in which to permit the front plate to yield, and a stropping-surface secured to the resilient front plate, the inturned ends of the flange of the front plate being let into the back plate so as to lie flush with the same, thereby obviating the presentation of an obstruction, substantially as described.



608,955. ADJUSTABLE VEHICLE-SPRING. JOSEPH S. HOLLIDAY, Parker's Landing, Pa. Filed Oct. 6, 1897. Serial No. 654,242. (No model.)



Claim.—1. In a device of the class described, the combination with a body, of rock-shafts journaled thereon and provided with oppositely-disposed arms extending outward and inward, the outer arms being designed to be supported upon the running-gear, a spring supporting the inwardly-extending arms of the rock-shafts and provided at its ends with notched hangers mounted on the body at the ends of the spring and provided with corresponding notches, and adjustable loops or stirrups depending from the hangers and receiving the ends of the spring and adapted to engage the said notches, substantially as and for the purpose described.

2. In a device of the class described, the combination with a body, of rock-shafts journaled thereon and provided with oppositely-disposed arms extending outward and inward, the outer arms being designed to be supported upon the running-gear, a spring supporting the inner arms of the rock-shafts, and means for adjustably connecting the ends of the spring with the body of the vehicle, whereby the distance between the points of connection may be varied, substantially as and for the purpose described.

3. In a device of the class described, the combination with a body, of rock-shafts journaled thereon and provided with oppositely-disposed arms extending inward and outward, and means for movably engaging the inner arms of the rock-shaft with the spring and for permitting such arms to move longitudinally of the spring and for relieving the latter of friction, substantially as described.

4. In a device of the class described, the combination with a body, of rock-shafts journaled thereon and provided with inwardly-extending arms, a spring, and rollers connected with the arms and engaging the spring, substantially as described.

5. In a device of the class described, the combination with a body, of rock-shafts journaled thereon and provided with arms; rollers journaled on the arms, a spring engaged by the rollers, and a guide mounted on the spring, extending over the rollers and adapted to cause the arms to operate simultaneously, substantially as described.

6. In a device of the class described, the combination with a body, of rock-shafts journaled thereon and provided with arms, rollers mounted on the arms, a spring engaged by the rollers, a block mounted on the spring and interposed between the rollers, and a guide-plate secured to the block and projecting therefrom over the rollers, substantially as described.

608,956. WHEEL TIRE AND FELLY. THOMAS B. JEFFERY, Chicago, Ill. Filed Nov. 14, 1894. Serial No. 528,706. (No model.)



Claim.—1. A tire of flexible material having separable edges and provided on its exterior convex surface and near each edge with two parallel ribs or projections, substantially as described.

2. The combination of the rim provided with a circumferential recess having in each of its walls or sides two channels, the transverse distance between the sides of the inner channels nearest the axis of the wheel being less than the transverse distance between the sides of the outer channels, and a tire-sheath of flexible material provided with ribs adapted to be seated in said channels and held there by the air-pressure of the inner tube, substantially as described.

3. The combination of an annular tire-sheath of flexible material having near each of its edges two parallel ribs or projections, and a wheel-rim having a recess with its walls grooved and channeled to receive said ribs, the ribs on said sheath adapted to be held to their respective seats in said channels by the pressure of the inner tube, substantially as described.

4. The combination with a tire-sheath provided on its exterior surface and adjacent to each edge with two parallel ribs or flanges, one rounded in cross-section and the other angular in cross-section, of the rim provided on its convex face with channels adapted to receive said ribs the said sheath held to the rim by the pressure of the inner tube, substantially as described.

5. The combination with the rim having a series of spoke perforations, of a washer on the tire-face of the rim surrounding a spoke perforation and against which the spoke-head directly bears, said washer having upward projections which engage the base of the tire-sheath, substantially as described.

6. The combination with the rim having a series of spoke perforations of a substantially rectangular washer on the tire-face of the rim, said washer provided with prongs for engaging it to the face of the rim and with upward projections to engage to the tire, substantially as described.

608,957. FINGER-GAGE FOR RINGS. ALFRED JOHNSON, Philadelphia, Pa. Filed July 19, 1897. Serial No. 644,108. (No model.)



Claim.—1. An instrument for measuring the external diameter or circumference of an object, comprising a frame, radially-movable members having heads at their inner ends adapted to close upon the object to be measured, a sliding pointer for indicating the result, and mechanism for simultaneously operating all of the radially-movable members and sliding the pointer in a rectilinear path, substantially as described.

2. A measuring instrument, embodying a frame, radially-movable members, a toothed rotatable disk for simultaneously operating said members, a sliding pointer, an operating-worm meshing with said disk, a meshlated gear-wheel meshing with said worm, and a pinion rotating with said gear-wheel and operatively connected to the pointer, substantially as described.

3. A measuring instrument of the character indicated, comprising a casing, members for engaging the article to be measured movable upon said casing, a pointer mounted to slide along said casing, a rack upon said pointer, a worm mounted in the casing, means for conveying motion from the worm to the measuring members, and a plate pivoted upon the casing, said plate having racks in mesh with the worm and with the rack upon the pointer whereby in the movement of the measuring members a corresponding motion is transmitted to the pointer; substantially as described.

4. A measuring instrument of the character indicated, comprising a casing, members upon said casing for engaging the article to be measured, slots upon said casing, a cross-bar removably fitting in said slots, a pointer having a groove therein fitting upon the cross-bar, means for transmitting motion to the measuring members, and means for imparting to the pointer a motion corresponding to that of the measuring members; substantially as described.

5. A measuring instrument of the character indicated, comprising a casing, members for engaging the article to be measured upon said casing, a worm journaled across said casing, connections between the worm and the measuring members for moving them in the operation of measuring, a pointer upon said casing, said pointer being provided with a groove, a cross-bar fitting in said groove and resting in slots upon the casing, a rack upon said pointer, a pintle upon the casing between the rack and the worm, a plate pivoted upon said pintle, said plate having a rack upon one side in engagement with the worm and extending above the cross-bar, and a second plate upon said first plate, said second plate being provided with a rack in engagement with the rack upon the pintle; substantially as described.

603,958. BOTTLE AND CAP. JOHN F KRIEG, Charleston, W. Va. Filed Apr. 21, 1896. Serial No. 588,498. (No model.)



Claim.—1. A bottle having independent loops attached to its neck combined with an inclosing frangible cap extending over the neck of the bottle and having on its inner sides engaging lugs or hooks adapted to engage the loops and hold the cap locked substantially as shown and described

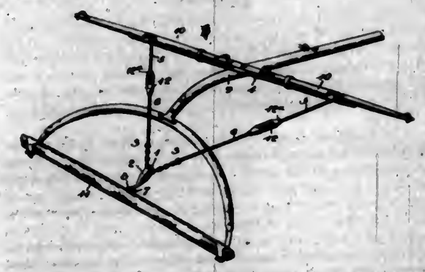
2. As an article of manufacture a frangible bottle-cap adapted to inclose the mouth and neck of the bottle, and having on its inner walls rigid inwardly-projecting lugs having locking-seats on their upper edges adapted to engage with loops attached to the bottle-neck substantially as and for the purpose described.

3. The bottle having flanges or collars a a^2, in combination with the wire yoke B having attached loops b b, and the frangible cap C with inwardly-projecting retaining lugs or catches c c engaging said loops substantially as and for the purpose described.

4. A bottle having loops attached to its neck portion combined with an inclosing cap extending over the neck of the bottle and having a central depressed end d and on its inner sides lugs or hooks adapted to engage the loops and hold the cap locked substantially as and for the purpose described.

5. The combination of a bottle having independent loops attached to its neck, an inclosing frangible cap extending down over the neck of the bottle and having rigid inwardly-projecting lugs adapted to lock beneath the loops, said bottle-neck and inclosing cap having interlocking clutch-sections to prevent the twisting of the cap substantially as and for the purpose described.

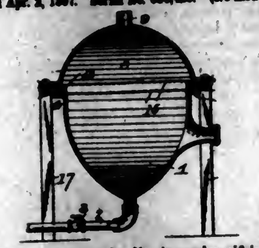
603,959. DRAFT-EQUALIZER. WARREN LEHEMY, Frederic, Kans. Filed Nov. 18, 1897. Serial No. 658,961. (No model.)



Claim.—1. In a device of the class described, the combination with a running-gear, of rods provided with eyes receiving the pivots of the singletrees, the hooks rigid with the eyes and arranged at right angles to the plane of the same, and engaging the front edge of the doubletree, and means for movably connecting the rods with the front axle, substantially as described.

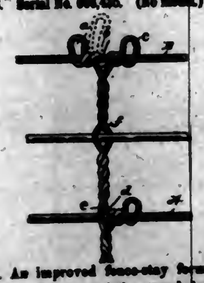
2. A draft equalizer comprising a pulley-block having a pulley and designed to be centrally connected with the front axle of a vehicle, a chain passing around the pulley, rods provided at their front ends with eyes to receive the pivots of singletrees and having hooks arranged at right angles to the plane of the eyes and adapted to engage the front edge of a doubletree, and means for connecting the rods with the ends of the chain, substantially as described.

603,960. GASOLENE-PURIFIER. FRANK MERRIOT, Bloomington, Ill. Filed Apr. 2, 1897. Serial No. 630,489. (No model.)



Claim.—In an apparatus for filtering and purifying gasolene the combination with the lower section having a rectangular upper end formed with horizontal and vertical flanges, and the sides curved so as to form a contracted lower end provided with a draw-off pipe, and said section formed with an inlet-opening above said contracted end, and the inlet-pipe connected therewith, of the upper section, rectangular at the lower end formed with horizontal flanges and the sides curved forming a contracted upper end, the outlet-pipe connected therewith, the rectangular frame seated on the horizontal flanges of said lower section, the canvas or textile material secured to opposite sides of said frame with a space therebetween, the bolts connecting said sections and the legs bolted to the flanges of the lower section, substantially as described.

603,961. FENCE-STAY. CHARLEY R. MORROW, Pine, Ind. Filed Jan. 12, 1898. Serial No. 666,635. (No model.)



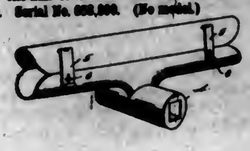
Claim.—1. An improved fence-stay formed of a plurality of strands twisted together, one of the strands being formed with projecting binding-loops with the other strand extending longitudinally past said loop and serving to hold the stay from longitudinal contraction while the loops are twisted about the fence-wires, substantially as shown and described.

2. An improved fence-stay formed of doubled and twisted wire, the upper end of the stay being formed into three loops a, b, and c, the center loop being adapted to receive the fence-wire, said loops a and c being adapted to be twisted about said wire, substantially as shown and described.

3. An improved fence-stay formed of a plurality of twisted strands, the upper end of the stay being formed into three loops a, b, c, the center loop adapted to receive the fence-wire, and the side loops adapted to be twisted around the fence-wire, and intermediate loops d, formed of one of the wires forming the stay, substantially as described.

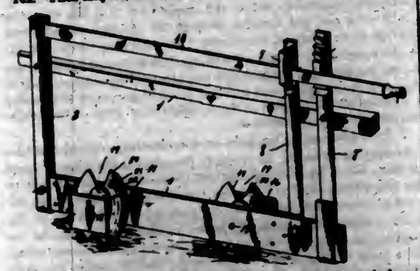
4. An improved fence-stay formed of a plurality of wires twisted together, the upper end of the stay formed with two upwardly-projecting parallel loops adapted to receive the fence-wire between them and to be twisted thereabout, and one of the wires provided with an intermediate loop extending upward and longitudinal to the stay to receive and support a fence-wire while being placed in position, and to be twisted thereabout, substantially as shown.

603,962. BUGGY-BOW REST. NORMAN MCAWLAY, Hill City, S. D., assignor of one-half to Claudio Von Weyhrmann, same place. Filed Oct. 2, 1897. Serial No. 653,599. (No model.)



Claim.—A buggy-bow rest comprising a bolting-socket, a rest extending transversely across the top of the bolting-socket in a plane at a right angle thereto and provided with an upper concave side, a curved clasp conforming in shape to the said rest and hinged at one side thereto, and supplemental clasps movably attached to said curved clasp and adapted to engage locking devices on the rest, substantially as described.

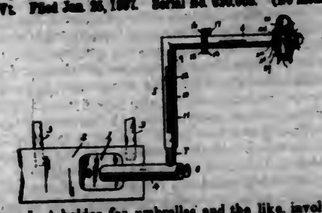
603,963. COTTON-CHOPPER. FRANK MCCLLOUGH, Mooreville, Tex. Filed May 26, 1897. Serial No. 638,094. (No model.)



Claim.—1. In cotton-choppers, the combination of a main bar or beam, a front standard, a hoe-carrier bar pivoted to the lower end of said standard and provided with bearing extensions having position on opposite sides thereof, a cotton-chopping hoe revolvable between the carrier-bar and each of said bearing extensions, a rear standard connected with the rear end of the main connecting-bar and provided with a loop-shaped retaining end adapted to receive the rear end of the hoe-carrying bar and provided at its upper end with a rack, and a lever pivoted to the upper end of the front standard and having its rear end adapted to engage with the said rack, substantially as described.

2. In a cotton-cultivator, the pivoted and adjustable hoe-bar provided with bearing extensions on its opposite sides, in combination with chopping-hoe disks journaled in said bar and bearing extensions provided with radial slots or openings, and cutting-blades adjustable in said slots, substantially as described.

603,964. UMBRELLA-HOLDER. LOUIS A. D. HOUGHTON, Shelburne, Vt. Filed Jan. 26, 1897. Serial No. 620,602. (No model.)

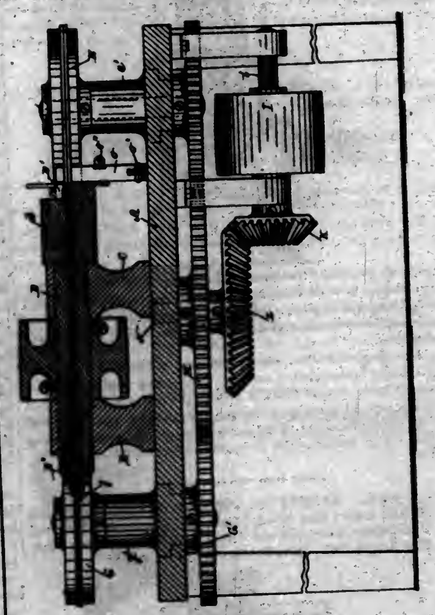


Claim.—1. A holder for umbrellas and the like, involving the combination of a base-plate for convenient attachment to a body-bolt or other like support having a vertical face, a main stem projecting horizontally from said base-plate, an axially-adjustable, telescopic piece extending vertically from the main stem, an axially-adjustable, horizontal socket-arm, and a socket, whereby the umbrella may be supported away from the body, and may be adjusted at any desired elevation and angle, substantially as described.

2. A holder of the class described, comprising a supporting-arm formed of a main stem, a socket-stem, and a sectional elbow connecting said stems, one end of said elbow being corrugated and fitted in the main stem, a screw carried by said main stem and adapted to engage the corrugated end of the elbow, whereby the latter is locked against rotation, means for locking the sections of the elbow together, adjustable connections between the elbow and the socket-stem, whereby said socket-stem is adjustable upon the elbow, a socket carried by the socket-stem and adapted to receive an umbrella or the like, said socket being adjustable upon said socket-stem, and locking-arms carried by said socket and adapted to secure an umbrella or the like within said socket, substantially as described.

603,965. DOWEL-MAKING MACHINE. OSCAR H. ORDWAY, South Framingham, Mass., assignor to Albert H. Ordway, same place. Filed Apr. 5, 1897. Serial No. 630,668. (No model.)

Claim.—In a dowel-making machine, the combination with leading feed-rollers having angularly-grooved peripheries for feeding a square dowel-blank, of the rotary hollow spindle arranged in bearings in rear of the feed-rollers and having a rearwardly-tapered delivery end, a cutter-head fixed on the forward end of the rotary spindle and carrying an adjustable cutter arranged to rotate circumferentially about the square blank and reduce it to cylindrical form, delivery-rollers having semicircular grooved peripheries for grasping the round dowel, the tapering delivery end of the spindle extending between the grooves of the delivery-rolls, and a guide for the blank arranged between the feed-rolls and cutter-head and in close proximity to the latter, said guide consisting of two yielding and expansible jaws having angular recesses on their inner adjacent sides each corresponding to one-half the sectional shape of the square blank and operating to hold the latter against the twisting action of the cutter-head, substantially as described.



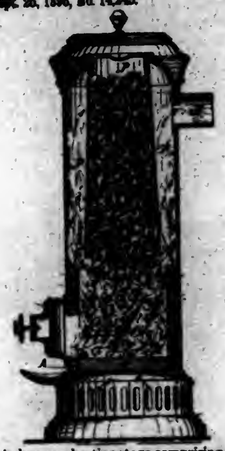
603,966. THILL-COUPLING. JOHN J. PHILLIPS, Grayson, Ky. Filed Sept. 17, 1897. Serial No. 652,015. (No model.)



Claim.—1. In a coupling for thills and the like, the combination of a clip-iron having semispherical sockets in its opposite sides in transverse alinement, a pole or thill, irons placed upon opposite sides of the pole or thill and projecting in the rear thereof and having corresponding semispherical sockets in their inner faces, balls seated in the sockets of the clip-iron and the irons secured to the pole or thill and adapted to turn loosely so as to bring different portions in position to sustain the wear and strain, and means for adjustably connecting the irons with the pole or thill so as to compensate for wear between the balls and sockets, substantially as and for the purpose set forth.

2. In a coupling for thills and the like, the combination of a clip-iron having semispherical sockets in its outer sides in transverse alinement, a pole or thill, irons placed upon opposite sides of the pole or thill and having their rear ends extending beyond the rear end thereof and formed in their inner faces with semispherical sockets to register with the corresponding sockets in the clip-iron, balls loosely fitted in the corresponding and registering sockets of the clip and thill irons, a bolt adjustably connecting the thill-irons in the rear of the pole or thill to take up wear, and other bolts adjustably connecting the thill-irons with the pole or thill, substantially in the manner set forth for the purpose described.

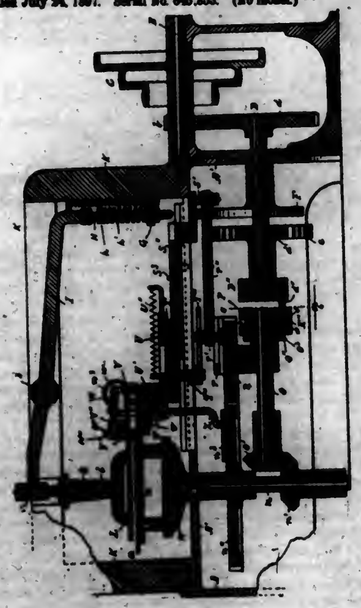
608,967. SLOW-COMBUSTION STOVE. HENRI J. PIRON, Brussels, Belgium. Filed Oct. 16, 1896. Serial No. 608,128. (No model.) Patented in Belgium Aug. 17, 1892, No. 100,967; in France Sept. 20, 1892, No. 224,430; in Austria Sept. 26, 1892, No. 45,230; in Germany Oct. 11, 1892, No. 70,729; in Spain May 3, 1893, No. 14,560, and in Switzerland Sept. 25, 1896, No. 14,245.



Claim.—1. A slow-combustion stove comprising a fire-holder provided with a closed bottom and a vertically-corrugated wall, and a casing fitting against the corrugated wall, providing vertical conduits open at top and bottom between the wall and the casing; substantially as described.

2. A slow-combustion stove comprising a fire-holder provided with a closed bottom and a vertically-corrugated wall, an envelop having exterior vertical gills and fitting against the corrugated wall providing vertical conduits open at top and bottom between the wall and the envelop and the casing surrounding the gills and providing vertical hot-air conduits open at top and bottom; substantially as described.

608,968. MACHINE FOR CUTTING OUT AND CHANNELING SOLES. ROBERT REID, Beverly, Mass., assignor of one-fourth to Sven M. Hallstrom, same place, and John F. Hendrickson, Boston, Mass. Filed July 24, 1897. Serial No. 645,803. (No model.)



Claim.—1. In a sole-cutting machine, in combination, a rotary drive-shaft, a rotary shaft in line therewith, clutch mechanism interposed between said shafts, a templet adapted to be rotated by said rotary shaft, a cutting-tool operating automatically to follow the contour of the templet during the rotation of the latter, a clamping device for holding the sole-blank on said templet, a pivoted lever supporting said clamping device at one end and at its opposite end carrying a depending rod provided with an adjusting-nut, a lever G pivoted at one end on the frame and intermediate its ends having an opening through which said rod extends, a coiled spring surrounding said rod and interposed between said adjusting-nut and lever G, a vertically-movable pin supporting the free end of said lever G, a cam operating to raise said pin, and thereby, through the mechanism described, operating to depress said clamp into yielding engagement with the sole-blank, means for releasing the clamp from such engagement when the cam has ceased to operate, and means operating automatically to throw said clutch mechanism into and out of engagement and to stop the rotation of the templet at the completion of each of its revolutions, substantially as described.

2. In a sole-cutting machine, in combination, a templet, means for rotating the same and for stopping the same at the completion of each of its revolutions, a clamping device operating automatically to clamp the sole-blank to the templet during the revolution of the latter and to release the sole at the completion of a revolution of the templet, a slide-plate mounted in guides in the frame, means for reciprocating said plate, a plate S' adjustably supported on said slide-plate, a plate T, pivotally supported on said plate S', means for oscillating said plate T, a tool-carrying slide U slidably supported in said plate T, a tool-carrier pivotally supported on said tool-carrying slide, and means for holding said tool-carrier normally in contact with the edge of the templet, substantially as described.

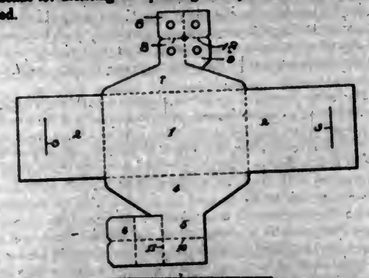
3. In a sole-cutting machine, in combination, a rotary drive-shaft, a rotary shaft in line therewith, clutch mechanism interposed between said shafts, means operating automatically to throw said clutch mechanism into and out of engagement and to stop the rotation of said rotary shaft when the clutch mechanism is out of engagement, a rotary templet-holder intermittently actuated by said rotary shaft, a clamping device operating automatically to clamp the sole-blank to the templet during the revolution of the latter and to release the sole at the completion of a revolution of the templet, an oscillating tool-carrier normally held in contact with the edge of the templet and operating automatically to follow the contour of the same during the rotation of the templet, substantially as described.

4. In a sole cutting, channeling and grooving machine a templet, means for rotating the same and for stopping the same at the completion of each of its revolutions, a clamping device operating automatically to clamp the sole-blank to the templet during the revolution of the latter and to release the sole at the completion of a revolution of the templet, an oscillating tool-carrier normally held in contact with the edge of the templet and operating automatically to follow the contour of the same during the rotation of the templet, a lever pivotally supported on the tool-carrier at one end and at its other end carrying the channeling and grooving tools, a spring holding said lever normally in a depressed position, and means operating automatically to lift said lever at a stated interval in the revolution of the templet whereby to raise the channeling and grooving tools out of contact with the sole-blank, substantially as described.

5. In a sole cutting, channeling and grooving machine, in combination, a templet, means for rotating the same and for stopping the same at the completion of each of its revolutions, a clamping device operating automatically to clamp the sole-blank to the templet during the revolution of the latter and to release the sole at the completion of a revolution of the templet, an oscillating tool-carrier normally held in contact with the edge of the templet and operating automatically to follow the contour of the same during the rotation of the templet, a lever pivotally supported on the tool-carrier at one end and at its other end carrying the channeling and grooving tools, a spring holding said lever normally in a depressed position, a vertically-movable rod journaled in the tool-carrier and having at its upper end a yoke located beneath said lever, and a gear rotating in unison with said templet and having on its upper surface a cam-surface adapted to engage the lower end of said rod at a stated interval in the revolution of the templet whereby to lift said lever and to raise the channeling and grooving tools out of contact with the sole-blank, substantially as described.

608,969. SAFETY-ENVELOP. JOHN W. RILEY, Ogden, Utah. Filed June 24, 1897. Serial No. 642,162. (No model.)

Claim.—A safety-envelop comprising a body with end folds or flaps having slits therein adapted to coincide, a lower flap with a laterally-projecting tongue, and an extension carrying an eyelet, the said tongue being passed through the coinciding slits in the end folds or flaps, and a closing-flap having a double tongue with an opening therein to engage the said eyelet, the said tongue on the lower flap being inserted in the slits in a longitudinal plane and said slits forming means for assisting in upsetting the eyelet, substantially as described.



608,970. AUTOMATIC BENCH CLAMP AND DOG. JAMES P. REESE, Kyle, Tex. Filed July 15, 1897. Serial No. 644,869. (No model.)



Claim.—1. In an automatic clamp for benches, the combination with a plate secured to the bench to be flush therewith, of a normally-fixed clamping member, having a straight clamping-face detachably secured to said plate, a movable clamping member detachably pivoted on said plate and having a curved clamping-face eccentric to its pivot, and provided with a slot concentric to the pivot, and a headed pin passing through the slot and detachably secured to said plate to prevent vertical movement of the pivoted member, substantially as described.

2. In an automatic clamp for benches, the combination with the plate removably secured to the bench and having a straight vertical flange at one side to form a clamping-face, of a segmental plate detachably pivoted at one of its apexes to the bench and having a curved clamping-face eccentric to the pivot, and a slot concentric thereto, and a headed pin passing through the slot and detachably secured to the bench to prevent vertical movement of the segmental plate, substantially as described.

3. In an automatic clamp for benches, the combination with a supporting-plate secured to the bench flush therewith, of a clamping-plate having a straight clamping-face, duck-bill pins projecting from the lower face of said clamping-plate and adapted to be removably seated in an undercut opening in the supporting-plate, straight pins projecting from the lower face of the clamping-plate adapted to be removably seated in openings in the supporting-plate, and a segmental plate removably pivoted at one of its apexes to the supporting-plate and having a curved clamping-face eccentric to its pivot, and means to hold the segmental plate against vertical movement, substantially as described.

4. In an automatic bench-clamp, the combination with a supporting-plate secured to the bench flush therewith and having a series of undercut openings, one of said openings having also a lateral recess, of a straight clamping-plate removably secured to the supporting-plate, a plate provided with a duck-bill pivot-pin removably seated in one of said undercut openings in the supporting-plate, said pivoted plate having a curved clamping-face eccentric to its pivot and a slot concentric therewith, and a pin extending through said slot and the opening in the supporting-plate having a lateral recess, said pin having spaced lugs on its lower end engaging respectively the upper and lower faces of the supporting-plate, and having also a shoulder to engage the pivoted plate on the side of the slot, substantially as described.

608,971. CARBID-CARTRIDGE. GEORGES DE ROBERT DE SALES, Lyons, France. Filed Feb. 10, 1897. Serial No. 622,823. (No model.) Patented in France Oct. 9, 1896, No. 260,880; in England Jan. 21, 1897, No. 1,033; in Switzerland Jan. 21, 1897, No. 13,983; in Hungary Jan. 21, 1897, No. 4,004; in Belgium Jan. 21, 1897, No. 125,850; in Russia Jan. 28, 1897, No. 1,051; in Austria Mar. 13, 1897, No. 871, and in Italy Apr. 12, 1897, LXXXV, 478.



Claim.—As an improved article of manufacture, the herein-described carbid cartridge, consisting of a rigid sheath or casing provided with openings in the ends and side, a metallic carbid, such as calcium carbid, inclosed in said sheath with an agglomerating material to fill the interstices between the pieces of carbid, and removable waterproof coverings for the openings in the sheath or casing, substantially as specified.

608,972. PHOTOGRAPHIC-PLATE HOLDER. JACOB SCHAUB, Salt Lake City, Utah. Filed July 6, 1897. Serial No. 643,543. (No model.)



Claim.—1. A photographic-plate holder composed of a rigid frame, having an end section which is hinged longitudinally and provided with a groove in its inner side, and a shutter adapted to slide in said frame and engage the hinged section, for locking it closed, as specified.

2. In a photographic-plate holder the combination, with a rigid rectangular frame, whose fixed end section 4, has a lengthwise rabbet, of a grooved movable section which is hinged longitudinally to such fixed section, and adapted to fold upon the same, and also engage the shoulder of the rabbet; and the slide or shutter adapted to enter the groove of the movable section, for locking it, as shown and described.

608,973. MEDICINE-DROPPER. JAMES R. SCHNEIDERMAN, Malden, N. Y. Filed July 20, 1897. Serial No. 645,206. (No model.)

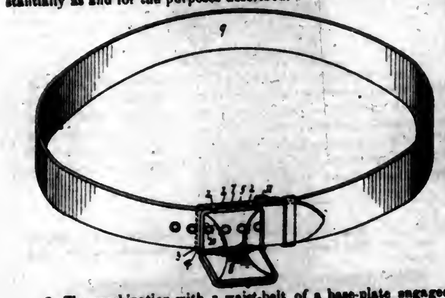


Claim.—As a new article of manufacture, the herein-described medicine-dropper comprising the glass tube and rubber nipple secured thereto, a protective casing fitting on said tube and having a recess on its upper face receiving the lower edge of the nipple and the adjacent edge of the tube the side wall of said recess being undercut, whereby to receive an adhesive substance, and a stopper fitted on said tube below said protective casing, to which it is secured, said stopper being of a diameter less than said casing, whereby the latter will project over the upper edge of a bottle in which neck the said stopper is inserted, as and for the purpose set forth.

608,974. COMBINED BELT-BUCKLE AND PURSE OR BAG. ARNOLD W. SAMUELS, New York, N. Y., assignor to Mary Hess, same place. Filed Sept. 9, 1897. Serial No. 651,066. (No model.)

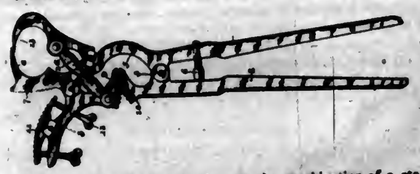
Claim.—1. A combined belt-buckle and purse, consisting of a base-plate having outwardly-projecting lugs and hooks at its upper and lower edge portions, and a purse composed of hinged frame-sections supported at their base by the outwardly-projecting lug, and one of the frame-sections engaged with and held by said hooks, substantially as and for the purposes described.

2. A combined belt-buckle and purse, consisting of a base-plate having outwardly-projecting lugs at its lower edge portion and engaging devices at its upper edge portion, and a purse composed of hinged frame-sections supported at their base by the outwardly-projecting lugs, and one of said frame-sections held and retained by said engaging devices at the upper edge portion of the base-plate, substantially as and for the purposes described.



3. The combination with a waist-belt, of a base-plate engaged with the belt and having at its lower edge portion outwardly-projecting lugs and at its upper edge portion outwardly-projecting engaging devices, and a purse composed of hinged frame-sections supported at their base by the outwardly-projecting lugs and one of said frame-sections held and retained by said engaging devices, substantially as and for the purposes described.

608,975. HORSESHOE-NAIL CLENCHER AND HOOF-TRIMMER. MARTIN SCHMITT, Cahorn, Ind. Filed Nov. 13, 1897. Serial No. 658,998. (No model.)



Claim.—1. In a farrier's implement, the combination of a stationary handle, a jaw pivoted to the stationary handle, a lever bearing a bit and having pivotal connection between its ends with an extension of the stationary handle, a link connecting the pivoted jaw and lever, and an operating-handle pivoted to the stationary handle and adapted to actuate the aforesaid pivoted lever, substantially in the manner specified.

2. In a farrier's implement, the combination of a stationary handle having a jaw and a rest at its front end, a jaw pivoted to the stationary handle and adapted to act in opposition to the jaw thereof, a lever pivoted between its ends to the front portion of the stationary handle and bearing a bit to act in conjunction with the aforesaid rest, a link connecting the lever with the pivoted jaw, and an operating-handle pivoted to the stationary handle and adapted to actuate the aforesaid lever, substantially as and for the purpose described.

3. In a farrier's implement, the combination of operating-handles, a clenching-bit pivotally supported between its ends, and set-screws disposed to act upon the clenching-bit upon opposite sides of its pivotal connection for adjusting and holding it in an adjusted position, substantially as set forth.

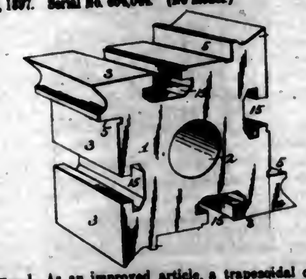
4. In a farrier's implement, the combination of a handle, a lever pivoted to the handle, a clenching-bit having pivotal connection between its ends with the lever, set-screws applied to the lever upon opposite sides of the pivotal connection therewith of the clenching-bit for properly positioning the latter and holding it in an adjusted position, and means for operating the pivoted lever, substantially as set forth.

5. In a farrier's implement, the combination of a stationary handle provided with a rest at its front end, a lever fulcrumed to the front portion of the stationary handle and having its rear end formed with a toothed segment, a clenching-bit having adjustable connection with the front end of the pivoted lever, and an operating-handle pivoted to the stationary handle and having a toothed segment at its front end intermeshing with the toothed segment of the pivoted lever, substantially as described.

6. In a farrier's implement, the combination of a stationary handle having a rest at its front end and a curved portion in the rear of the said rest, a lever pivoted between its ends to the front portion of the stationary handle and having a toothed segment at its rear end and its front end outwardly curved, a clenching-bit pivoted to the curved end of the lever and capable of adjustment, and an operating-handle pivoted to the stationary handle and having a toothed segment intermeshing with the toothed segment of the pivoted lever, both of the toothed segments adapted to enter the space formed by curving the front portion of the stationary handle, substantially as described.

7. The herein-described farrier's implement, comprising a stationary handle having a jaw and a rest at its front end and its forward portion curved, a jaw pivoted to the front portion of the stationary handle, a lever pivoted between its ends to the front portion of the said handle and having its forward portion outwardly curved and a toothed segment at its rear end, a clenching-bit pivoted between its ends to the outer end of the pivoted lever, set-screws for adjusting and holding the clenching-bit in an adjusted position, links connecting the pivoted jaw with the rear end of the pivoted lever, and an operating-handle pivoted to the stationary handle and having a toothed segment at its front end intermeshing with the toothed segment of the pivoted lever, substantially as described.

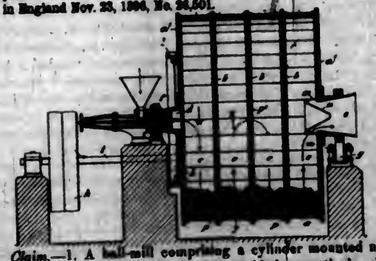
608,976. CUTTER-HEAD. SAMUEL J. SHIMER, Milton, Pa. Filed Oct. 4, 1897. Serial No. 654,044. (No model.)



Claim.—1. As an improved article, a trapezoidal cutter-head formed with knife seats or faces formed with chip-breaks, beveled on the under side and alternately arranged and alternately inclined with respect to the axial line of the head, the shoulders formed integral with said head in rear of the chip-breaks and each shoulder parallel or coincident with the chip-break in front thereof, and extending from end to end of the head, forming an abutment for a gage, substantially as described.

2. As an improved article, a cutter-head formed with knife seats or faces extending from end to end of the head and each formed with a chip-break alternately arranged and alternately inclined inwardly and outwardly with respect to the axial line of the head, and said heads formed with T-slots intermediate the front and rear limits of the knife seats, the longitudinal shoulders each of which is parallel or coincident with the chip-break in rear of which it is located, but at an angle to the next succeeding chip-break, and said shoulders integral with said head and extending from end to end thereof, forming abutments for a gage, substantially as described.

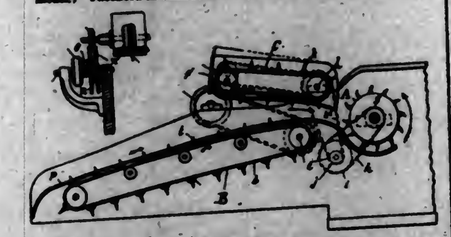
608,977. BALL-MILL. REINHOLD SCHUBACH, Magdeburg-Buckau, Germany, assignor to the Fried. Krupp Grusonwerk, same place. Filed Dec. 21, 1896. Serial No. 616,561. (No model.) Patented in England Nov. 23, 1896, No. 24,501.



Claim.—1. A ball-mill comprising a cylinder mounted upon a horizontal axis, and having end walls provided respectively with an inlet and a hollow-trunnion outlet; said outlet having secured at its inner end a cylindrical wide-meshed sieve and a cone secured within and at the inner end of the sieve and projecting into the hollow-trunnion outlet; substantially as and for the purpose set forth.

2. A ball-mill comprising a horizontal cylinder having end walls provided respectively, with inlet and outlet hollow trunnions, the cylindrical wide-meshed sieve secured to the inner end of the outlet hollow trunnion, the cone secured within and at the inner end of the sieve and projecting into the outlet hollow trunnion, the vertical partitions having peripheral apertures or slots, a vertical partition having perforations at or near its center and located between the first-named partitions and means for rotating the cylinder; the partitions providing vertical ball-compartments; substantially as described.

608,978. THRESHING-MACHINE FEEDER. WILLIAM STEPHENSON, Morris, Canada. Filed Mar. 17, 1897. Serial No. 628,093. (No model.) Patented in Canada Jan. 26, 1896, No. 51,157.



Claim.—1. In a feeder for threshing-machines, the combination with a feeding-apron, of an auxiliary feeder mounted over the apron and capable of moving therefrom, and a differential friction-gear for driving the apron and consisting of two friction-wheels the relative position of which is varied by the position of the auxiliary feeder, whereby the apron is driven with a speed varying inversely with the distance separating the apron and the auxiliary feeder, substantially as described.

2. In a feeder for threshing-machines, the combination of two aprons between which the grain is fed, one of the aprons being movable whereby it may be moved away from the opposite apron by the grain, and a differential frictional gear driving one of the aprons and consisting of two friction-wheels, the relative position of which is varied by the position of the movable apron, whereby the apron is driven with a speed varying inversely with the distance separating the aprons, substantially as described.

3. In a feeder for threshing-machines, the combination of two aprons, between which the grain is fed, a pivoted frame carrying one of the aprons, whereby it may be swung away from the opposite apron by the grain, a friction-wheel mounted on the pivoted frame and driven from the pivoted apron, and a friction-disk bearing thereon and driving the opposite apron, whereby the relative position of the wheel and disk will be changed, and the speed of the apron driven thereby will be varied inversely with the distance separating the aprons, substantially as described.

4. In a feeder and band-cutter the combination of two traveling aprons, a pivoted frame for supporting one of the aprons, knives upon one of the aprons, means for driving one of the aprons, a differential gear between the two aprons, whereby one is driven by the other at a different and variable speed, the gear consisting of two friction-wheels the relative position of which is determined by the position of the frame, substantially as described.

5. In a feeder and band-cutter, the combination of two traveling aprons, a pivoted frame for supporting one of the aprons, knives upon one of the aprons, means for driving one of the aprons, a differential gear between the two aprons whereby one is driven by the other at a different and variable speed, the gear consisting of two disks and a wheel engaging therewith, the relative position of which disks and wheel is determined by the position of the frame, substantially as described.

6. In a feeder and band-cutter, the combination of a lower apron, a pivoted frame mounted therabove, an upper apron contained therein within the frame, knives upon the upper apron, and a differential gear consisting of two friction-wheels, the relative position of which is governed by the position of the movable frame, to communicate motion to the lower apron, whereby the lower apron is driven from the upper apron in a reverse direction, and at a speed slower than that of the upper apron, the speed varying inversely with the distance between the aprons, substantially as described.

7. In a feeder and band-cutter for threshing-machines, the combination with an upper and a lower apron, driven in opposite directions, of a frame pivoted at its rear end and carrying the upper apron, the grain being fed between the two aprons, cutting-knives upon and moving with the pivoted apron, and a differential gearing controlled directly by the position of the pivoted apron to drive the lower apron at a speed varying inversely with the distance separating the aprons, whereby the bands of the bundles will be cut and the bundles opened up and fed to the thresher, and the aprons will be separated upon excessive feed of bundles to the lower apron, substantially as described.

608,979. GANG-PLOW. WILLIAM STEPHENSON, Morris, Canada. Filed Mar. 17, 1897. Serial No. 628,040. (No model.) Patented in Canada Jan. 26, 1896, No. 51,157.



Claim.—1. The combination, in a gang-plow, of a frame having a series of slots therein, with a series of plows, the forward end of the beam of each plow resting within and being free for vertical movement in one of the slots, substantially as described.

2. The combination, in a gang-plow, of a frame with a series of plows held therein by guides in the front and in the rear of the plowshares, the forward guide of each plow permitting vertical movement when in use independently of all of the other plows, substantially as described.

3. The combination, in a gang-plow, of a frame with a series of plows mounted and held therein by guides in the front and in the rear of the plowshares, the forward guide of each plow permitting independent vertical movement and the rear guides being secured by breakable pins which will let the plow swing to one side on striking an obstacle, substantially as described.

4. The combination, in a gang-plow of a frame, having a series of vertical slots, of a series of plows, each provided with a beam, the forward end of which plays up and down within the corresponding slot in the frame, substantially as described.

5. In a gang-plow, the combination, with a frame, having a series of vertical slots therein, of a series of plows, each provided with a beam the forward end of which plays up and down within the corresponding slot in the frame, and with a breakable part in the connections between the rear of each plow with the frame, substantially as described.

6. In a gang-plow, the combination with a frame, having a diagonal brace, provided with a series of vertical slots, of a series of plows, each provided with a beam the forward end of which plays up and down within the corresponding slot in the frame, traction-rods connected with the front of the frame and with the front of the beams, and a breakable part in the connection between the rear of each plow with the frame, substantially as described.

7. In a gang-plow, the combination, with a frame, having two diagonal braces, one of the said braces having a series of vertical slots therein, of a series of plows, each plow having a beam projecting forwardly through and vertically movable in one of the slots, a traction rod connected with the forward end of each beam, a series of adjustable brackets mounted on the other brace, a rod on each plow projecting rearwardly through one of the brackets, and a roller carrying the rear of the frame, substantially as described.

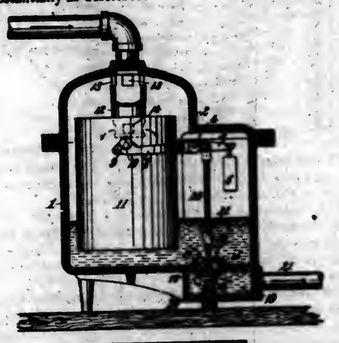
8. In a gang-plow, the combination, with a frame, having two diagonal braces and a front brace, one of the said diagonal braces having a series of vertical slots therein, of a series of plows, each plow having a beam projecting forwardly through and vertically movable in one of the slots, a traction-rod connected with the forward end of each beam, and spring interposed between the said rods and the front brace, substantially as described.

608,980. STEAM-TRAP. BERNHARD THIEME, New Orleans, La. Filed June 15, 1897. Serial No. 641,264. (No model.)

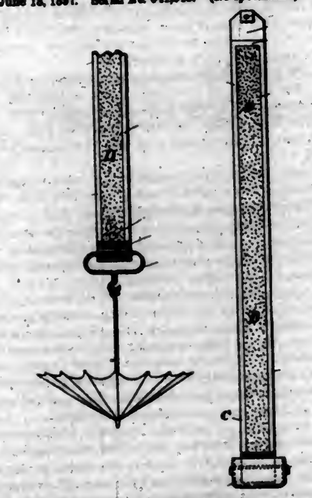
Claim.—1. In a steam-trap, the combination of a trap-chamber having an inlet in its top and an outlet at the bottom, a lever fulcrumed in said trap-chamber and provided with an open-top vessel at one end and a weight at the other end, an outlet-valve connected with said lever at a point between the weight and the lever-fulcrum, and a vertically-depending inlet-pipe connected with the trap-chamber inlet immediately above the open-top vessel and provided with a closed lower end and with lateral lower outlets for discharge of water into the open-top vessel and with lateral upper outlets or passages for steam to equalize the pressure in the trap-chamber and connected steam apparatus, substantially as described.

2. In a steam-trap, the combination of a trap-chamber having in its bottom an upwardly-seating outlet-valve, a lever fulcrumed in the trap-chamber and having an open-top vessel attached to one end and

a weight attached to the other end, means for suspending and operating the upwardly-seating outlet-valve from the said lever at a point between the lever-fulcrum and the said weight, an inlet-pipe connected with the cover of the trap-chamber at a point above the counterpoised open-top vessel, and a vertically-depending pipe closed at its lower end and having its upper end in communication with said inlet-pipe and the said depending pipe being provided in its lower portion with lateral outlets for discharge of water into the open-top vessel and having in its upper portion openings or passages for steam to equalize the pressure in the trap-chamber and the connected steam apparatus, substantially as described.



608,981. STICKY FLY-PAPER. HUGO TEUS, Grand Rapids, Mich. Filed June 13, 1897. Serial No. 641,315. (No specimens.)

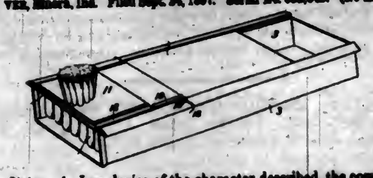


Claim.—1. An insect-catcher comprising a strip of paper coated with sticky material forming a web adapted to fold upon itself and provided at one end with means for suspending the same, a hollow core secured to the opposite end of the web and upon which the latter is wound, a wire passed loosely through said hollow core, and a receptacle carried by said wire, said receptacle being adapted to catch the drippings falling from the web.

2. A strip of paper coated with sticky fly-catching material, forming a web adapted to fold upon itself, provided with suitable means for suspending the same at one end and having a marginal confining-border for the sticky material, a hollow core secured to the opposite end of the web, a wire passing loosely through said hollow core, and a receptacle mounted upon the wire, said receptacle having a relatively wide open mouth and adapted to catch the flies and drippings falling from the web.

3. A strip of paper coated with sticky fly-catching material forming a web adapted to fold upon itself and provided with a marginal confining-border for the sticky material, a hollow core secured to one end of the web, a wire loop passing loosely through the said hollow core and provided with a hook, and a receptacle for catching the drippings and flies, suspended from said hook, substantially as described.

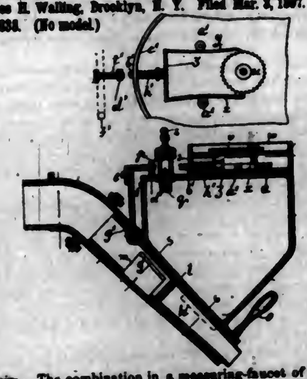
608,982. POCKET SHOE-BLACKING OUTFIT. LEVI W. WEAVER, Elnora, Ind. Filed Sept. 24, 1897. Serial No. 652,849. (No model.)



Claim.—1. In a device of the character described, the combination with a casing, of a shining-brush, a blacking-brush hinged to the shining-brush, and means for reversibly securing the brushes to the casing, substantially as specified.

2. The combination with a casing provided with longitudinal grooves along the upper edges of its side walls and with transverse grooves along the end edges of said side walls, of a shining-brush, a blacking-brush hinged thereto, flanges extending along the longitudinal edges of the said brushes and designed to engage the longitudinal grooves in the casing, a hinged cover carried by the blacking-brush, a box detachably carried by the cover, and securing mechanism designed to secure the cover over the end of the casing or to secure the same in position to retain the blacking-brush, substantially as specified.

608,983. MEASURING-FAUCET. ERNEST DOERING, Yonkers, N. Y., assignor of three-fourths to William D. Baldwin, same place, and James H. Walling, Brooklyn, N. Y. Filed Mar. 3, 1897. Serial No. 625,631. (No model.)



Claim.—The combination in a measuring-faucet of the upright shell having the taper-bottom, the taper cylindrical valve-case on the side of the taper-bottom sloping from the back forward and having inlet and discharge ports communicating with the measuring-chambers through said bottom, the valve in said case controlling said ports, the registering ratchet-wheel located in an inclosing case on the top of the shell, reciprocating hook-pawl for shifting said wheel cam-headed staff of the pawl, and the laterally-projecting rocking arm of the valve adapted to actuate said staff, said valve-actuating arm and staff of the pawl adapted for registering prior to opening the discharge-port, and the pawl-retracting spring substantially as described.

608,984. BEER-MEASURING FAUCET. ERNEST DOERING, Yonkers, N. Y., assignor of three-fourths to William D. Baldwin, same place, and James H. Walling, Brooklyn, N. Y. Filed Mar. 3, 1897. Serial No. 625,630. (No model.)



Claim.—1. The combination with a faucet of an automatic spring-power-actuated indicator, valve-actuated spring-winder, and valve-actuated controlling-brake for the spring substantially as described.

2. The combination with a faucet of an automatic spring-power-actuated indicator, valve-actuated spring-winder, automatic spring-power-actuated tension-regulator for the spring, and valve-actuated controlling-brake for the spring substantially as described.

3. The combination with a faucet, of an automatic spring-power-actuated indicator, automatic spring-winding apparatus geared with the valve for being actuated thereby, and a spring-power-controlling brake also geared with the valve for release when the valve opens and for application when the valve closes substantially as described.

4. The combination with a faucet, of an automatic spring-power-actuated indicator ratchet-wheel for winding up the spring-pawl, pawl-lever for actuating the ratchet-wheel, and gears connecting the pawl-lever with the valve for actuating it thereby substantially as described.

5. The combination with a faucet, of an automatic spring-power-actuated indicator, ratchet mechanism geared with the valve for winding up the spring, means for disconnecting the actuating-pawl from the ratchet-wheel to limit overtension of the spring, and means for restoring the connection when the tension of the spring relaxes substantially as described.

6. The combination with a faucet, of an automatic spring-power-actuated indicator, ratchet mechanism geared with the valve for winding up the spring, whereof the ratchet-wheel is mounted on a screw-threaded pivot-center for release from the pawl to limit overtension, and said pivot-center is geared with the master-wheel of the spring-power for relaxing overtension of the spring substantially as described.

608,985. AUTOMATIC CUT-OFF FOR OIL-TANKS. HIRAM OVIES, JOHN P. KELLY, and AARON KESSEL, Cygnet, Ohio. Filed June 30, 1897. Serial No. 643,404. (No model.)



Claim.—1. In an automatic cut-off for storage-tanks, the combination with a weight and a valve adapted to be operated by the falling of the weight, of means for holding the weight in elevated position, a float within the tank, and means operated by the float to release the weight, substantially as set forth.

2. In an automatic cut-off for storage-tanks, the combination with the valve in the discharge-pipe, of a handle connected to the valve, a float located within the tank, a weight adapted to strike the handle of the valve, and means operated by the float to release the weight, substantially as shown and for the purpose set forth.

3. In an automatic cut-off for storage-tanks, the combination with the valve in the discharge-pipe having a handle, of a float located within the tank, a trip-lever connected to the float, and a weight supported by the bracket and adapted to be struck by the trip-lever, substantially as shown and for the purpose set forth.

4. In an automatic cut-off for storage-tanks, the combination with the valve in the discharge-pipe and handle for operating the same, of a bracket or frame and weight supported thereby, a trip-lever engaging the weight, and a float within the tank connected to the trip-lever, substantially as shown and for the purpose set forth.

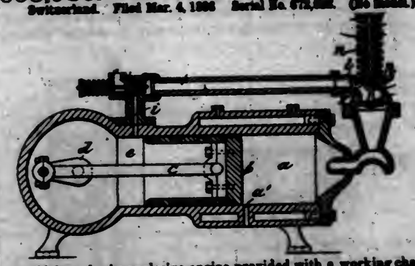
5. In an automatic cut-off for storage-tanks, the combination with the valve in the discharge-pipe and handle connected to the valve, of a bracket supported upon the tank and having guide-rods, a weight mounted upon one of the guide-rods and having a lug engaging the shoulder formed by the lower end of the slot in the bracket, a trip-lever mounted within the bracket to engage the weight, and a float sliding upon the other guide-rod and connected to the trip-lever, substantially as shown and for the purpose set forth.

6. In an automatic cut-off for storage-tanks, the combination with the valve in the discharge-pipe and handle connected to the valve, of a bracket secured to the upper end of the tank and having depending guide-rods, a weight mounted upon one of the guide-rods to strike the handle of the valve, said weight having a lug which engages the bracket, a trip-lever adapted to release the weight, a float located within the tank upon the other guide-rod, and a chain connected to the trip-lever and operated by the float, substantially as shown and for the purpose set forth.

7. In an automatic cut-off for storage-tanks, the combination with the valve in the discharge-pipe and handle connected to the valve, of a bracket supported upon the tank and having guide-rods, a sliding weight mounted upon one of the guide-rods and provided with a lug which engages the bracket, the handle of the valve projecting within the path of the weight, a trip-lever pivoted within the bracket and adapted to release the weight; together with a float located within the tank upon the other guide-rod, said float having a vertical opening through the same, a chain extending from the trip-lever through the opening in the float, and a ring adjustably connected to the chain, substantially as shown and for the purpose set forth.

8. In an automatic cut-off for storage-tanks, the combination with the discharge-pipe and valve, of a handle connected to the plug of the valve and having a bifurcated end, a bracket supported upon the tank and having a guide-rod which depends within the bifurcated end of the handle, a weight sliding upon the guide-rod and having a lug which engages the bracket, a trip-lever pivoted within the bracket and adapted to release the weight, and a float mounted within the tank and connected to the trip-lever, substantially as shown and for the purpose set forth.

608,986. EXPLOSIVE-ENGINE. CHARLES B. HEBBERD, Berne, Switzerland. Filed Mar. 4, 1896. Serial No. 672,282. (No model.)



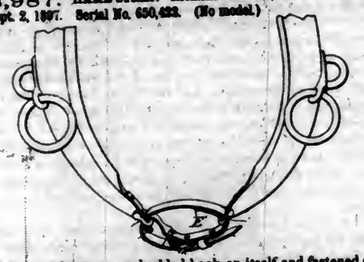
Claim.—1. An explosive-engine provided with a working chamber, a piston, a compression-chamber behind the piston, a valve-chamber having an inlet, a passage between the valve-chamber and the working chamber, and a passage-way between the valve-chamber and the compression-chamber, said passage-way being sufficiently constricted to retard the flow of fluid when the speed of the engine passes above the normal, in combination with valves in the valve-chamber, one being arranged to close the inlet during the power stroke of the engine and the other to close the passage from the valve-chamber to the working chamber during the opposite stroke of the engine, whereby the increase in speed of the engine beyond the normal rate will cause a delay in the operation of the valves and a consequent reduction in the charge supplied to the working chamber.

2. An explosive-engine provided with a working chamber, a piston, a compression-chamber behind the piston, a valve-chamber having an inlet, a passage between the valve-chamber and the working chamber, and a passage-way between the valve-chamber and the compression-chamber, said passage-way being sufficiently constricted to retard the flow of fluid when the speed of the engine passes above the normal, in combination with valves in the valve-chamber, one being arranged to close the inlet during the power stroke of the engine and the other to close the passage from the valve-chamber to the working chamber during the opposite stroke of the engine, whereby the amount of air supplied to the working cylinder varies with the speed of the engine, and a fuel-spray valve arranged to be operated by the supply of air to the working cylinder, whereby the quality of the charge is maintained substantially uniform.

3. An explosive-engine provided with a working chamber, a piston, a compression-chamber behind the piston, a valve-chamber having an inlet, a passage between the valve-chamber and the working chamber, and a passage-way between the valve-chamber and the compression-chamber, said passage-way being sufficiently constricted to retard the flow of fluid when the speed of the engine passes above the normal, in combination with valves in the valve-chamber, one being arranged to close the inlet during the power stroke of the engine and the other to close the passage from the valve-chamber to the

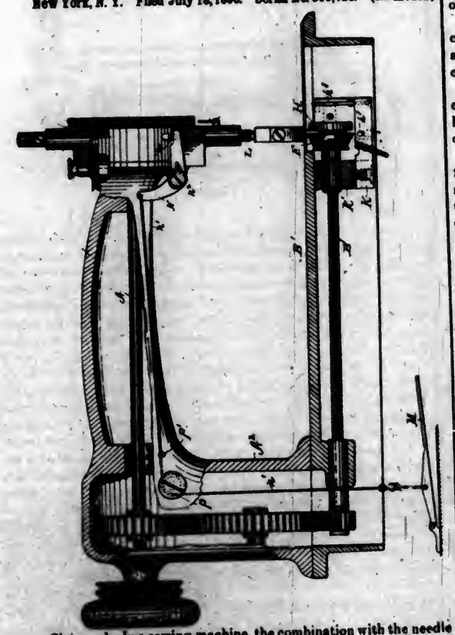
working chamber during the opposite stroke of the engine, whereby the amount of air supplied to the working cylinder varies with the speed of the engine, a check-valve in the said passage and arranged to be opened by the air on its way through the passage to the working cylinder, and a fuel-spray valve actuated by the movement of the said check-valve.

603,987. HAME-STRAP. RICHARD GRIBSBY, El Paso, Tex. Filed Sept. 2, 1897. Serial No. 650,422. (No model.)



Claim.—A hame-strap doubled back on itself and fastened so as to form two loops, a metallic hook secured in the outer loop, and a buckle and keeper held by the second loop, whereby the wearing strain is taken off from the main portion of the strap by the hook and looped portion and whereby the strain on the buckle is partially removed, substantially as described.

603,988. SEWING-MACHINE. CHARLES H. WILLCOX, New York, N. Y., CYRUS CARLETON, Providence, R. I., and STOCKTON BOSTON, Brooklyn, N. Y., assignors to the Willcox & Gibbs Sewing Machine Company, New York, N. Y. Filed July 13, 1896. Serial No. 599,723. (No model.)



Claim.—1. In a sewing-machine, the combination with the needle and looper, of a take-up comprising a rotating plate or support, and two crank-pins on opposite sides respectively of said plate or support, substantially as described.

2. In a sewing-machine, a take-up comprising a rotary support and two crank-pins, one on each side of said support, in combination with a thread eye or guide through which the thread is passed between the pins, substantially as described.

3. In a sewing-machine, the take-up, comprising a rotary support and two crank-pins one on each side thereof, one of said pins being nearer the center of the support than the other, substantially as described.

4. In a sewing-machine, the take-up comprising a rotary support and two crank-pins one on each side of the support, and at points nearly diametrically opposite, so as to constitute in operation on the thread a double crank, substantially as described.

5. In a sewing-machine, a take-up comprising three plates, a crank-pin between the middle and inner plates, and a second crank-pin between the middle and outer plates, substantially as described.

6. The combination with the rotary take-up, needle and looper, of a spring for holding the thread taut while the needle is descending, and a cam carried by the take-up for intermittently raising said spring and leaving the thread free, substantially as described.

7. The combination with the cup-shaped rotary hook, of the inclosed bobbin-case provided with plugs inserted at intervals in its periphery or rim, substantially as described.

8. The combination with the cup-shaped rotary hook, of the non-rotating bobbin-case inclosed therein and supported entirely by the hook, said bobbin-case being provided with peripheral plugs of soft or antifriction material, such as leather, projecting a slight distance beyond the metal of the rim thereby preventing contact of the latter with the surface of the hook, substantially as described.

9. The combination with the cup-shaped rotary hook, of the non-rotating bobbin-case having a rim of larger diameter than the body of the case, said rim being provided with oblique cuts or grooves, substantially as and for the purpose set forth.

10. The combination with the needle and the cup-shaped rotary hook, of the inclosed bobbin-case having an annular rim cut away at its upper part to form a space for entrance of the thread into the hook, said rim being undercut on one side of said space forming an overhanging horn, substantially as and for the purpose set forth.

11. The combination with the needle and the cup-shaped rotary hook, of a bobbin-case inclosed in said hook and having an annular rim cut away at its upper part forming a thread-space, said rim being provided on one side of said space with a cut constituting a thread-passage, curving upwardly from the rear of said horn and terminating on the top of the rim, said passage having between it and the path of the hook a thin upright wall or shield, substantially as described.

12. The combination with the needle, the rotary hook, the inclosed bobbin-case, and the bobbin-holder, of a loop-detaining device acting upon the loop between the adjacent surfaces of the bobbin-case and bobbin-holder, substantially as described.

13. The combination with the needle, the rotary hook, the inclosed bobbin-case, and the bobbin-holder, of a floating plate on said holder, and a spring for pressing said plate toward the adjacent face of the bobbin-case, substantially as described.

14. The combination with the needle, the rotary hook, means for imparting to the rotary hook a plurality of revolutions to each reciprocation of the needle, the bobbin-case inclosed in said hook and the bobbin-holder, of a loop-detaining device acting upon the loop of needle-thread between the adjacent surfaces of the bobbin-case and bobbin-holder, substantially as described.

15. The combination with the bobbin-case provided with a hollow sleeve having a split end and an enlargement thereon, of a bobbin having a barrel adapted to fit over said sleeve and to be placed on and removed from the same by compressing the enlarged split end, the bore of said barrel being countersunk to receive said enlargement, substantially as described.

16. The combination with the bobbin-case having a hollow spindle for the bobbin, of a split sleeve fitted within said spindle, and having on its outer end an enlargement or bead, and a bobbin having a barrel countersunk at the end to receive said enlargement or bead, substantially as described.

17. The combination with the bobbin, of a bobbin-case having on its face a tension for the bobbin-thread, and a rim interrupted at the top forming abutments, said case having a thread-slit extending from the rear of the case to the space between said abutments, so that the thread can be led through said slit and space to the tension, substantially as described.

18. The combination with the bobbin, of the bobbin-case, and the tension on the face of said bobbin-case, the latter having a rim interrupted at the top forming abutments overhanging the tension, a thread-slit extending from the rear of the case to the space between said abutments, and adjacent to one of the abutments, and a thread guide or eye adjacent to the other abutment, substantially as described.

19. The combination of the bobbin-case, having a rim interrupted at the top forming a thread-passage and an abutment at one side of said passage, the tension on said bobbin-case, and a spring-tongue forming with said abutment a thread-guide the free end of said tongue pressing against the adjacent surface of the rim to close the thread-guide against the escape of the thread, substantially as described.

20. The combination with the hook-shaft, of the hollow or cup-shaped rotary hook having a hub axially bored for reception of said shaft, the bore extending into the chamber of the hook, and a washer covering the end of the shaft and secured to the rear wall of the hook, substantially as described.

21. In a sewing-machine, and in combination with the needle, take-up, and bobbin-case, of a cup-shaped rotary hook having a slot extending obliquely from the edge toward the rear or base of the cup and forming the hook-point or loop-catcher, and provided with a loop-detaining device in the form of a horn extending part way across said slot, so that the loop will be drawn against and detained by said horn, substantially as described.

22. In a sewing-machine, the combination with the rotary hook having an oil-flange, the hook-shaft having a bearing in the block beneath the bed-plate of the machine, and a bracket attached to said bearing beneath the hook and having a groove or recess to catch the oil thrown from said flange, and an inclined rib or shield extending beyond the sides and bottom of said bracket, substantially as described.

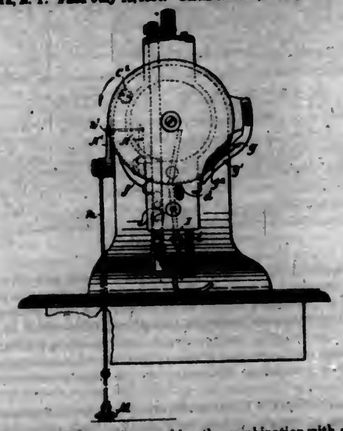
23. In a sewing-machine, the combination with the rotary hook having an oil-flange, the hook-shaft having a bearing in the block beneath the bed-plate of the machine, and a bracket attached to said bearing beneath the hook and having a groove or recess to catch the oil thrown from said flange, and an inclined rib or shield extending beyond the sides and bottom of said bracket, said shield being provided with a drip-angle, substantially as described.

24. In a sewing-machine the combination with the rotary hook having an oil-flange, the hook-shaft having a bearing in the block beneath the bed-plate of the machine, and a bracket attached to said bearing beneath the hook and having a groove or recess to catch the oil thrown from said flange, and an inclined rib or shield extending beyond the sides and bottom of said bracket, said shield having an oblique lower edge and an oblique side intersecting the same, and forming at one side of and beneath the bracket a drip-angle, substantially as described.

25. The combination with the presser-bar having a cross-pin or shoulder, of a bell-crank lever having one arm beneath said pin, a pulley inside the hollow vertical standard at the rear of the machine, a treadle beneath the machine, and a cord running from said lever over said pulley, and vertically through the interior of said standard to said treadle, substantially as described.

26. The combination with the needle-bar, and the shaft, crank and pitman for oscillating said bar, of a counterbalance extending from the shaft in the direction opposite to said crank, and having a projection on the side toward the needle-bar and overhanging said pitman, substantially as described.

603,989. SEWING-MACHINE. CHARLES H. WILLCOX, New York, N. Y., JAMES E. A. GIBBS, Rosslyn, Va., and STOCKTON BOSTON, Brooklyn, N. Y., assignors to the Willcox & Gibbs Sewing Machine Company, New York, N. Y. Filed July 13, 1896. Serial No. 599,722. (No model.)



Claim.—1. In a sewing-machine the combination with a needle, a looper and actuating mechanism, of a rotary take-up comprising two plates connected by a take-up pin, thread-guides arranged to conduct the thread across and in proximity to the edges of said plates, and a slack-taking device in the form of a horn projecting from the edge of one of said plates in position to engage the thread, and take up the slack when the take-up is releasing the thread, substantially as described.

2. In a sewing-machine, the combination of the take-up, comprising two plates connected by a crank-pin, a horn or projection on one of said plates for engaging the slack loop given up by the take-up pin, and a stripper or cast-off for releasing the loop from said horn or projection, substantially as described.

3. In a sewing-machine, the combination of a rotary take-up comprising two plates connected by a crank-pin, a thread-guide for leading the thread to the take-up, said guide being in close proximity to the line taken by the thread in leaving the take-up, a horn on the periphery of one of said take-up plates coming into action on the thread passing to said thread-guide after the take-up pin ceases to act, and means for releasing the loop from said horn, substantially as described.

4. The combination of the rotary take-up comprising two plates connected by a crank-pin, a slack-taker, in the form of a horn projecting from the periphery of one of said plates, thread-guides for conducting the thread to the take-up across the path of said horn, and a stripper or cast-off, substantially as described.

5. The combination with a rotary take-up in the head of the machine, said take-up comprising plates and a connecting crank-pin, and with stationary thread-guides in the rear of the head of the machine through which the thread passes to the take-up, of a vibrating thread-controller cooperating with said guides, and a spring actuating said controller whereby the slack thread, when given up by the take-up pin, is drawn back of the head of the machine, substantially as described.

6. The combination with the rotary take-up comprising take-up plates and a crank-pin connecting them, of a thread-controlling device comprising stationary thread-guides through which the thread passes on its way to the take-up, an eye or ring between said guides carried by a pivoted arm, a spring tending to move said arm from between said guides, and a plug or pad of soft material, said arm being provided with an extension which strikes said pad when the arm is actuated by its spring, substantially as described.

7. The combination of the rotary take-up comprising two plates connected by a crank-pin, a horn projecting from the periphery of one of said plates, said plate and horn being grooved, and a stripper or cast-off having its point lying in said groove, substantially as described.

8. The combination of the rotary take-up, the slack-taker coming into action when the take-up is giving out thread, the cast-off for releasing the thread from said slack-taker, and the thread-detainer for putting a drag on the thread when released by the cast-off, substantially as described.

9. The combination of the take-up, the slack-taker for taking up the slack given out by the take-up, the cast-off releasing the thread from the slack-taker, and the thread-detainer having a narrow thread-passage through which the thread passes after being released by the cast-off, substantially as described.

10. The combination of the rotary take-up comprising take-up plates and a crank-pin, a horn projecting from one of said plates intersecting the path of the thread on its way to the take-up, means for releasing the thread from said horn, and a thread-detainer having a narrow thread-passage through which the thread passes after being released from said horn, said passage being provided with an enlargement, substantially as and for the purpose set forth.

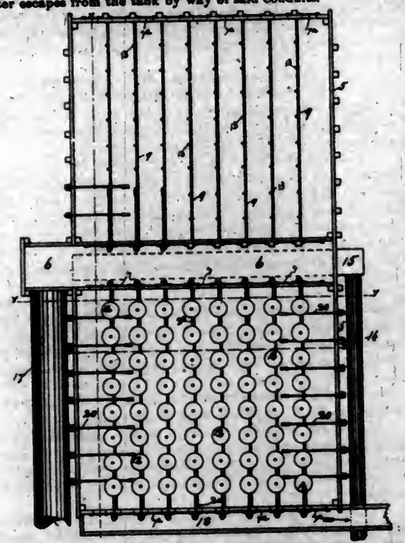
11. In a sewing-machine, the combination with the main shaft and the hook or looper shaft, of mechanism for oscillating the latter shaft at a varying speed so that the looper will move very rapidly when passing through the loop, and very slowly at other times, said mechanism comprising a large eccentric on the main shaft, a short pitman vibrated by said eccentric, a rocking arm vibrated at varying speed by said pitman, said arm being pivoted in the frame adjacent to said eccentric, extending close to the edge thereof and at its opposite end pivoted to said pitman, and connections between said arm and looper-shaft.

12. In a sewing-machine, the combination with the main shaft and looper-shaft, of mechanism for oscillating the latter from the former, said mechanism comprising a rocking arm having a curved limb, a wheel or pulley on said looper-shaft, and bands attached one at each end of said limb and wound in opposite directions around said looper shaft, and means for imparting to said arm a motion of varying speed, substantially as described.

603,990. APPARATUS FOR PURIFYING AND AERATING WATER. CHARLES P. ALLEN, Denver, Colo. Filed Oct. 16, 1897. Serial No. 655,443. (No model.)

Claim.—1. In an apparatus for settling and aerating water, the combination of a suitable tank or box for receiving the water, a flume having openings to allow the water to enter the box, gates controlling said openings, and one or more upright tubes or conduits whose lower extremities are inserted in apertures formed in the bottom of the box, the upper extremities of said tubes or conduits having relatively large mouths into which the top stratum of water is constantly flowing when the apparatus is in use.

3. In a water-settling apparatus, the combination of a suitable box or tank, a flume having openings to allow the water to enter the tank, partitions forming flushing-channels in the bottom of the tank which is provided with one or more outlets for the flushing-water, and suitable upright open-ended conduits attached to the tank and adapted to receive the water from the top of the tank only, which water escapes from the tank by way of said conduits.

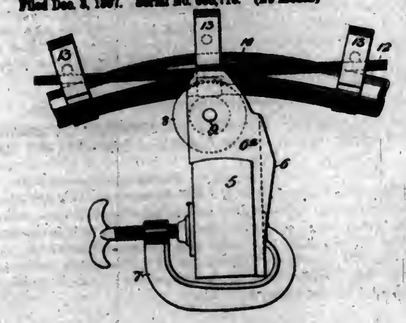


3. The combination with a suitable settling-tank, of one or more aerating-conduits each comprising a tube, a keeper secured to the top of the tube, a relatively large top having a reduced lower part engaging the keeper, set-bolts inserted in threaded apertures in the keeper for locking the said top in any desired position of adjustment, and a packing-ring for forming a water-tight joint between the keeper and the enlarged top of the device.

4. In a settling and aerating apparatus, the combination of a suitable box or tank, a flume having openings to allow the water to enter the tank, gates controlling said openings, partitions located in the tank and forming flushing-channels in the lower part of the tank, the tank having openings for the escape of the flushing-water, gates controlling said openings, aerating-conduits comprising upright tubes, and relatively large mouths adapted to receive the top stratum of water, the lower extremities of said tubes engaging apertures formed in the bottom of the tank, and one or more conduits located underneath the tank for receiving the water from the skimmers.

5. In an apparatus for settling and aerating water, the combination with a suitable tank or box for receiving the water, a flume having an opening to allow the water to enter the box, means for controlling said opening, and one or more conduits whose lower extremities are inserted in apertures formed in the bottom of the box, the upper extremities of said conduits having relatively large mouths.

608,991. CABLE-STRINGER. FRANK A. GARNER, Denver, Colo. Filed Dec. 3, 1897. Serial No. 660,716. (No model.)



Claim.—1. In a cable-stringer, the combination with suitable means for supporting the cable and suspension-wire, of a bracket adapted to be attached to said means, and a roller journaled on said bracket and adapted to engage the cable, the bracket being provided adjacent the roller with a ledge for supporting the suspension-wire.

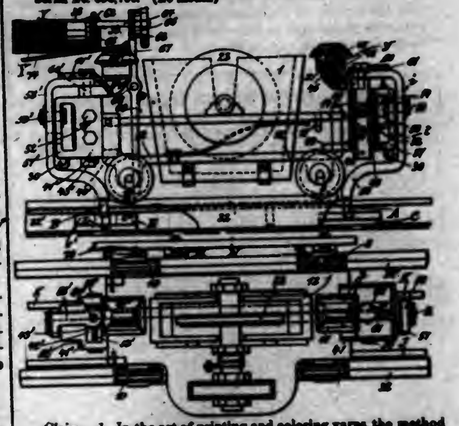
2. In an aerial cable stringer, the combination with suitable means for supporting the cable and suspension-wire, of a bracket detachably applied to said means and projecting above the same, and a roller journaled in the upper part of the bracket and adapted to engage the cable during the operation of stringing, the bracket being provided with a groove or recess adjacent the roller, to receive the suspension-wire.

3. In an aerial cable-stringer, the combination with means for supporting the cable and suspension-wire, the cable being provided with hooks to engage said wire, of a bracket detachably applied to said supporting means and projecting above the same, a concave-faced roller journaled in the upper part of the bracket and adapted to support the cable during the stringing operation, the bracket being provided adjacent the roller with a groove or recess adapted to receive the suspension-wire, the construction being such that as the cable is drawn over the roller its hooks are disengaged from the suspension-wire, but reengage the same automatically as the hooks leave the roller.

4. In an aerial cable-stringer, the combination with suitable means for supporting the cable and suspension-wire, of a bracket detachably applied to said means, a roller journaled in said bracket and adapted to engage the cable during the operation of stringing, and means located adjacent the roller for supporting the suspension-wire.

5. In an aerial cable-stringer, the combination with suitable means for supporting the cable and suspension-wire, of a roller detachably mounted on said means and projecting above the same, said roller being adapted to support the cable during the operation of stringing, and suitable means located adjacent the roller and adapted to support the suspension-wire in approximately the same plane as the roller.

608,992. METHOD OF AND APPARATUS FOR PRINTING YARNS. CHARLES I. HOLMES, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 656,702. (No model.)



Claim.—1. In the art of printing and coloring yarns, the method herein described of successively applying streaks of color to yarn and partially equalizing the same, which consists in printing such a streak, subjecting during its printing a portion only of its width to rubbing action, then printing another streak and during the printing of the same subjecting a portion of the width of said successive streak and rubbed and unrubbed portions of the previous streak to rubbing actions.

2. In the art of printing and coloring yarns, the method herein described of successively applying streaks of color to the yarn and partially equalizing the same, which consists in printing such a streak, subjecting during its printing a portion only of its width to rubbing action, then printing an adjoining streak and during the printing of the same subjecting a portion of the said successive streak and an adjoining portion of the former streak left unrubbed during the printing of the same and a portion of the former streak rubbed during the printing of the same, to rubbing action.

3. In the art of printing and coloring yarns, the method herein described of successively applying streaks of color to the yarn and partially equalizing the same, which consists in printing such a streak, subjecting during its printing a portion only of its width to rubbing action, then printing an adjoining streak and during the printing of the same subjecting a portion of the said successive streak to rubbing action and simultaneously subjecting a portion of the former streak left unrubbed during the printing of the same to two independent rubbing actions and also subjecting a portion of said former streak previously rubbed to an additional rubbing action.

4. In the art of printing and coloring yarns, the method herein described of successively applying streaks of color to the yarn and partially equalizing the same, which consists in printing such a streak; subjecting during its printing a portion only of its width to rubbing action, then printing an adjoining streak and during the printing of the same subjecting a portion of the width of said successive streak to a rubbing action and simultaneously subjecting a portion of the former streak previously rubbed to an additional rubbing in a direction opposite to that of the previous rubbing.

5. In apparatus for printing yarns, the combination with the yarn-drum, the color-carriage and the distributing-wheel, of a support carrying a suitable rubbing-surface, mechanism for shifting said support into varying positions corresponding with varying operative positions of the rubbing-surface and means for enforcing sliding contact between said rubbing-surface and the yarn on the drum.

6. In apparatus for printing yarns, the combination with the yarn-drum, the color-carriage and the distributing-wheel, of a support carrying a suitable rubbing-surface, mechanism for shifting said support, and means independent of the color-carriage adapted to lock said support in varying positions corresponding with varying operative positions of the rubbing-surface.

7. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader secured in proper relation with the color-wheel, and means for moving said spreader laterally with reference to the path of the color-wheel.

8. In apparatus for printing yarns, the combination with the color wheel, of a spreader in proper relation thereto, a support for said spreader adapted to move laterally with reference to the path of the color-wheel and secured against up-and-down movement, and means for producing such lateral movement of said support

9. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a support carrying suitable spreading means and mechanism for alternately locking the same in different positions whereby spreading means are applied to the yarn alternately in different positions laterally relative to the path of the color-wheel, and mechanism for shifting the support of the spreader laterally.

10. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of spreading means, and mechanism for alternately producing rubbing-contact between portions of such spreading means and the yarn on the drum in different positions, laterally, relative to the path of the color-wheel.

11. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of spreading means in front and in the rear of the color-wheel and means for applying operative portions of such spreading means to the yarn in varying positions laterally, relative to the color-wheel.

12. In apparatus for printing yarns, the combination with the yarn-drum adapted to be swung step by step and the distributing-wheel, of two sliding spreaders adapted to travel one behind the other and adjusted to have one edge of the forward spreader extend laterally beyond the corresponding edge of the rear spreader and to have the other edge of the rear spreader extend laterally beyond the corresponding edge of the forward spreader, the minimum aggregate widths of the operative surfaces of said spreaders being equal to the peripheral travel of the drum during two successive steps.

13. In apparatus for printing yarns, the combination with the distributing-wheel adapted to apply successive streaks of color to yarn, of two spreaders one overlapping the other and adapted to jointly cover a portion only of the streak in course of application and a portion of previously-printed yarn, and means for holding said spreaders in such positions.

14. In apparatus for printing yarns, the combination with the distributing-wheel adapted to apply successive streaks of color to yarn, of two spreaders, one overlapping the other and adapted to jointly cover a portion only of the streak in course of application and a portion only of the adjoining streak previously printed, and means for holding said spreaders in such positions.

15. In apparatus for printing yarns, the combination with the distributing-wheel adapted to apply successive streaks of a color to yarn, of two spreaders, one overlapping the other and adapted to jointly cover a portion only of the streak in course of application and a portion only of the adjoining streak previously printed, and means for holding said spreaders in such positions.

16. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of two spreaders one overlapping the other, one adapted to cover a portion of the streak in course of application and a portion only of the adjoining streak previously made, and the other adapted to cover a portion only of the previous streak, and means for holding said spreaders in such positions.

17. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of two spreaders adapted to travel one behind the other and adjusted to have one edge of one of said spreaders extend laterally beyond the corresponding edge of the other spreader and means for reversing the relative lateral positions of such edges.

18. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader alined with the path of said wheel, and means for placing it out of alinement therewith.

19. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of two spreaders alined with each other and means for placing the same out of alinement with each other.

20. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of two spreaders placed out of alinement with each other and with the color-wheel, and means for placing said spreaders in alinement with each other and with said wheel.

21. In apparatus for printing yarns, the combination with the yarn-drum and the color-wheel, of a spreader in front of the color-wheel and covering the larger portion of the adjoining streak previously made and a portion of the path to be traversed by the color-wheel while making the streak in course of application, and a spreader in the rear of the color-wheel covering a smaller portion of the adjoining streak previously made and portion of the streak in course of application.

22. In apparatus for printing yarns, the combination with the yarn-drum and the color-wheel, of a spreader, and means for moving the same laterally, such spreader being provided with a laterally-sloping surface extending downward and outward from its contact-surface.

23. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader, a support upon which the same is mounted, and means for producing a parallel movement of said support laterally.

24. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader, a support for said spreader adapted to be moved laterally and provided with suitable recesses, and a spring-catch adapted to engage with such recesses.

25. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader, an upright support for the same, longitudinal grooves in said support, and an elongated spring-actuated projection adapted to engage with said grooves.

26. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader, a support for the same adapted to move laterally, means for producing such movement and a spring for yieldingly resisting the same.

27. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of suitable spreading means, mechanism for alternately applying such means in different operative positions, and a spring adapted to assist such mechanism.

28. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of suitable spreading means, mechanism for alternately applying such means in different positions with reference to said wheel, and springs for yieldingly resisting such movements in either direction.

29. In apparatus for printing yarns, the combination with the color-wheel, of a spreader in proper relation thereto, a sectional support on which said spreader is mounted, and a spring between the sections forming said support, one of the sections being provided with convex surfaces engaging with proper surfaces of the other section.

30. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader capable of lateral movement, a shifting block having a lateral deflecting-surface, a shoe adapted to travel along the same and means for imparting movement from said shoe to said spreader.

31. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader capable of lateral movement, a shifting block having a proper deflecting-surface, and a lever interposed between said block and said spreader.

32. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader capable of lateral movement, a shifting block having a proper deflecting-surface, a lever interposed between said block and said spreader, and means for varying the fulcrumage of said lever.

33. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader capable of lateral movement, a shifting block having a proper deflecting-surface, a shoe adapted to travel along the same, means for imparting movement from said shoe to said spreader, and mechanism for shifting said spreader independent of said shifting block.

34. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader capable of lateral movement, a shifting block having a proper deflecting-surface, a shoe adapted to travel along the same, means for imparting movement from said shoe to said spreader and mechanism for displacing said shifting block.

35. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader capable of lateral movement, a shifting block for said spreader, and means for displacing said spreader and shifting block simultaneously.

36. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of two spreaders, supports on which said spreaders are mounted, each support having provided for it a pair of shifting blocks at opposite ends of the drum, independent of the shifting blocks for the other spreader, and joint means for displacing two of said shifting blocks.

37. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of two spreaders, proper supports for the same adapted to be moved laterally, and a joint shifting device adapted to simultaneously so move said supports.

38. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of a spreader, two bars joined together and shifting means interposed between said bars and said spreader and adapted to be actuated by each of said bars alternately in different directions.

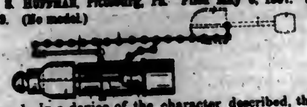
39. In apparatus for printing yarns, the combination with the revoluble yarn-drum, the color-carriage and a color-distributor, of a locking device for preventing revolving of the drum, comprising gearing in proper engagement with the drum, a brake for locking said gearing, a lever actuating said brake and a tilting device connected with the carriage adapted to engage with said lever.

40. In apparatus for printing yarns, the combination with the revoluble yarn-drum, the color-carriage and a color-distributer, of a gearing for revolving the drum, a hand-wheel for actuating said gearing, a gear-wheel on the same shaft with said gear-wheel, levers 67 and 72, connection 74, between the same, and arms on the carriage adapted to engage with said levers.

41. In an apparatus for printing yarns, the combination with the yarn-drum, the color-carriage and the distributing-wheel, of a spreader, a suitable support for said spreader, means for moving said support laterally and a drip-pan adapted to move with said support.

42. In apparatus for printing yarns, the combination with the yarn-drum and the distributing-wheel, of mechanism adapted to apply rubbing means to a single streak only, or to two streaks simultaneously.

608,993. DEVICE FOR PREVENTING DISCHARGE OF GAS. ADAM S. HUFFMAN, Pittsburg, Pa. Filed May 6, 1897. Serial No. 635,439. (No model.)



Claim.—1. In a device of the character described, the combination of a gas-tip, a valve therein, a shaft, the upper end of which is provided with outwardly-projecting wings, and the lower end thereof with a weight; a shelf or support for said weighted shaft, and means to connect said shaft and the valve in said tip, substantially as described.

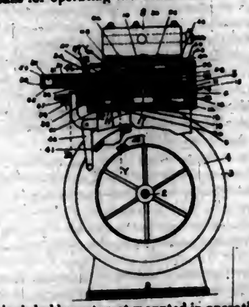
2. In a device of the character described, the combination of a gas-tip having a bell-crank secured in the sides thereof, the said tip being provided with a shelf on the exterior thereof; a valve connected to said bell-crank and adapted to control the opening of said tip: a lever connected to the outer member of said crank; a shaft connected to said lever, the upper end being provided with outwardly-projecting wings, and the lower end with a weight, substantially as described.

608,994. METAL-WORKING MACHINE. NATHANIEL V. PERRY, Falls Church, Va., assignor to the N. V. Perry Manufacturing Company, Hartford, Conn. Filed May 11, 1897. Serial No. 636,081. (No model.)

Claim.—1. A blank-holder, a turret rotatively mounted in operative relation to and with its axis vertically arranged with respect to the axis of the holder and having tool-holding means, means for automatically rotating the turret independent of other movement thereof, and means for varying the degree of rotation of the turret.

2. A blank-holder, a turret rotatively mounted in operative relation to and with its axis vertically arranged with respect to the axis of the holder and having tool-holding means, means for automatically rotating the turret independent of other movement thereof, means for varying the degree of rotation of the turret, and a locking device for holding the turret against rotation.

3. A blank-holder, a turret rotatively mounted in operative relation to and with its axis vertically arranged with respect to the axis of the holder and having tool-holding means, means for automatically rotating the turret independent of other movement thereof, means for varying the degree of rotation of the turret, an index-ring secured to the turret, an index-bolt to engage shoulders on the index-ring, and means for operating the index-bolt.



4. A blank-holder, a turret mounted in operative relation to and with its axis vertically arranged with reference to the axis of the holder and having tool-holding means, means for automatically rotating the turret independent of other movement thereof, means for varying the degree of rotation of the turret, and means for varying the distance between the turret and blank-holder.

5. A blank-holder, a turret mounted in operative relation to and with its axis vertically arranged with respect to the axis of the holder and having tool-holding means, means for automatically rotating the turret independent of other movement thereof, means for varying the degree of rotation of the turret, a locking device for holding the turret during the operation of the tool, and means for varying the distance between the turret and blank-holder.

6. A blank-holder, a turret mounted in operative relation to the holder, a tool held by the turret, means for rotating the turret independent of other movement thereof, means for varying the degree of rotation of the turret, an index-ring secured to the turret, an index-bolt to engage the ring, means for operating the index-bolt, and means for varying the distance between the turret and blank-holder.

7. A turret, means for rotating the turret, a non-rotative friction-band supported in operative relation to the turret, and automatic means for causing the band to bind the turret.

8. A turret, means for rotating the turret, a beveled surface on the turret, a non-rotative friction-band having a beveled surface corresponding to the beveled surface on the turret, and automatic means for causing the band to bind the turret.

9. A rotating turret having a radially-beveled surface, means for rotating the turret, a non-rotative friction-band supported in operative relation to the turret and having a beveled surface corresponding to the beveled surface on the turret, and automatic means for causing the band to bind the turret.

10. A rotating turret having a radially-beveled surface, automatic means for rotating the turret independent of the reciprocating movement of the carriage, a non-rotative friction-band supported in operative relation to the turret and having a beveled surface corresponding to the beveled surface on the turret, an opening through the band, and means for causing the band to bind the turret.

11. A turret, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening through the side, a toggle-lug projecting from the band, a sliding yoke, a toggle pivoted to the yoke and toggle-lug, and means for operating the yoke.

12. A turret, means for rotating the turret, a friction band supported in operative relation to the turret and having an opening through the side, a toggle-lug projecting from the band, a sliding yoke, a toggle pivoted to the yoke and toggle-lug, means for operating the yoke, and a stop to limit the movement of the yoke.

13. A turret, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening through the side, toggle-lugs projecting from the band, a sliding yoke, toggles pivoted to the yoke and toggle-lugs, means for operating the yoke, and a stop to limit the locking movement of the yoke at a point with the end of the toggles connected with the yoke located at a point beyond a line passing through each of the opposite pivots.

14. A turret, means for rotating the turret, a friction-band supported in operative relation to the turret an opening through the band, a sliding yoke, toggles pivoted to the yoke and to the band on opposite sides of the opening, means for operating the yoke, and a stop to limit the inward movement of the yoke at a point with the ends of the toggles connected to the yoke located beyond a line passing through each of the opposite pivots.

15. A turret, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening through the side, a yoke, a toggle pivoted to the band and yoke, a lever operatively connected with the yoke, and means for operating the lever.

16. A turret, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening through the side, a yoke, a toggle pivoted to the band and yoke, an index-ring secured to the turret, an index-bolt to engage the index-ring, an index bolt stud secured to the index-bolt and loosely engaging the yoke, and means for operating the index-bolt stud to move the index-bolt and yoke.

17. A turret, means for rotating the turret, a friction-band supported in operative relation to the turret, and having an opening through the side, a yoke, adjusting-screws supported on the yoke, toggles pivoted to the band and adjusting-screws, and means for operating the yoke.

18. A blank-holder, a turret mounted in operative relation to and with its axis vertically arranged with respect to the axis of the holder, a gear in engagement with the turret, a gear operatively connected with the turret-gear, automatic means for intermittently rotating the gears, and means for varying the distance between the blank-holder and turret.

19. A reciprocating carriage, a turret mounted thereon, a cam-wheel bearing cams with means for operating said cam-wheel, and connecting means between the cam-wheel and turret for rotating the latter in any position of the carriage and whether moving or at rest.

20. A support, a turret mounted on the support, a gear engaged with the turret, an internal gear, an intermediate gear interposed between the turret and internal gear, a ratchet secured to the internal gear, and means for operating the ratchet.

21. A support, a turret mounted on the support, a gear engaged with the turret, a ratchet operatively connected with the turret-gear, a pawl arranged to engage the ratchet, a pawl-slide bearing the pawl, and means for reciprocating the pawl-slide.

22. A support, a turret mounted on the support, a gear engaged with the turret, an internal gear, intermediate gears interposed between the turret and internal gear, a ratchet secured to the internal gear, a pawl arranged to engage the ratchet, a pawl-slide bearing the pawl, and means for reciprocating the slide.

23. A support, a shouldered recess within the support, a turret having a beveled flange and located in said recess, a non-rotative friction-band having a beveled surface corresponding with the beveled surface on the turret-flange, a cap overlying the recess and friction-band, means for rotating the turret, and means for operating the friction-band.

24. A reciprocating carriage, a turret mounted on the carriage with its axis vertically arranged, automatic means for rotating the turret independent of the reciprocating movement of the carriage, and means for varying the degree of rotation of the turret.

25. A reciprocating carriage, a turret mounted thereon with its axis vertically arranged, and automatic means for rotating the turret independent of the reciprocating movement of the carriage.

26. A reciprocating carriage, a turret mounted thereon and with its axis vertically arranged, automatic means for rotating the turret independent of the reciprocating movement of the carriage, means for varying the degree of rotation of the turret, and a locking device for holding the turret against rotation.

27. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, means for varying the degree of rotation of the turret, an index-ring secured to the turret, an index-bolt to engage the index-ring, and means for operating the index-bolt.

28. A reciprocating carriage, a turret mounted thereon, automatic means for rotating the turret independent of the reciprocating movement of the carriage, a friction-band supported in operative relation to the turret, and means for causing the band to bind the turret.

29. A reciprocating carriage, a turret mounted thereon and having a beveled surface, means for rotating the turret independent of the reciprocating movement of the carriage, a friction-band having a beveled surface corresponding to the beveled surface on the turret, and automatic means for causing the band to bind the turret.

30. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, a friction-band supported in operative relation to the turret and having an opening through the side, a toggle-lug projecting from the band, a sliding yoke, a toggle pivoted to the yoke and toggle-lug, means for operating the yoke, and a stop to limit the locking movement of the yoke at a point with that end of the toggle connected with the yoke located at a point beyond a line passing through the opposite toggle-pivot and located at a right angle to the plane of movement of the yoke.

31. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, a friction-band supported in operative relation to the turret and having an opening through the side, a toggle-lug projecting from the band, a sliding yoke, a toggle pivoted to the lug and yoke, means for operating the yoke, and a stop to limit the locking movement of the yoke.

32. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, a friction-band supported in operative relation to the turret, an opening through the band, a sliding yoke, toggles pivoted to the yoke and band, a lever operatively connected with the yoke, and means for operating the lever.

34. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, a friction-band supported in operative relation to the turret and having an opening therethrough, a yoke, toggles pivoted to the band and yoke, an index-ring secured to the turret, an index-bolt to engage the index-ring, an index-bolt stud secured to the index-bolt and loosely engaging the yoke, and means for operating the index-bolt stud to move the index-bolt and yoke.

35. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, a friction-band supported in operative relation to the turret and having an opening therethrough, a yoke, adjusting-screws supported on the yoke, toggles pivoted to the band and adjusting-screws, and means for operating the yoke.

36. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, a gear engaged with the turret, a gear operatively connected with the turret-gear, and means for rotating the gears.

37. A reciprocating carriage, a turret mounted thereon, means for rotating the turret independent of the reciprocating movement of the carriage, a gear engaged with the turret, a gear for rotating the turret and operatively connected with the turret-gear, a ratchet secured to the turret-rotating gear, and means for operating the ratchet.

38. A reciprocating carriage, a turret mounted on the carriage, a gear engaged with the turret, an internal gear, an intermediate gear interposed between the turret and internal gear, a ratchet secured to the internal gear, and means for operating the ratchet.

39. A reciprocating carriage, a turret mounted thereon, a gear engaged with the turret, a ratchet operatively connected with the turret-gear, a pawl arranged to engage the ratchet, a pawl-slide bearing the pawl, and means for reciprocating the pawl-slide.

40. A reciprocating carriage, a turret mounted on the carriage, a gear engaged with the turret, an internal gear, intermediate gears interposed between the turret and internal gear, a ratchet secured to the internal gear, a pawl arranged to engage the ratchet, a pawl-slide bearing the pawl, and means for reciprocating the slide.

41. A reciprocating carriage, a turret rotatively mounted thereon and having a beveled flange, a non-rotative friction-band having a beveled surface corresponding with the beveled surface on the turret-flange, a cap overlying the friction-band, means for rotating the turret, and means for operating the friction-band.

42. A reciprocating carriage, a turret mounted thereon and having a radially-beveled surface, means for rotating the turret, a band supported in operative relation to the turret and having a beveled surface corresponding with the beveled surface on the turret, means for compressing the band against the turret, a slide continuously connected with the slide-operating means, and means for operating the slide.

43. A reciprocating carriage, a turret mounted on the carriage, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening through the side, toggle-lugs projecting from the band, a sliding yoke, toggles pivoted to the yoke and toggle-lugs, a slide continuously connected with the yoke, and means for operating the slide.

44. A reciprocating carriage, a turret mounted thereon, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening therethrough, a yoke, toggles pivoted to the band and yoke, a slide continuously connected with the yoke, a lever in engagement with the slide, and means for operating the lever.

45. A reciprocating carriage, a turret mounted thereon, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening therethrough, a yoke, toggles pivoted to the band and yoke, an index-ring secured to the tur-

ret, an index-bolt to engage the index-ring, an index-bolt stud secured to the index-bolt and loosely engaging the yoke, an index-stud slide having a groove engaging the index-bolt stud, and means for operating said slide.

46. A reciprocating carriage, a turret mounted on the carriage, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening therethrough, a yoke, adjusting-screws supported on the yoke, toggles pivoted to the band and adjusting-screws, a slide having a groove, a stud located in the groove and connected with the yoke, and means for operating the slide.

47. A turret, means for rotating the turret, a friction-band having an opening through the side and supported in operative relation to the turret, and automatic means for causing the band to bind the turret.

48. A turret, means for rotating the turret, a friction-band supported in operative relation to the turret and having an opening through the side, a yoke, an adjusting-screw supported on the yoke, a toggle pivoted to the band and adjusting-screw, and means for operating the yoke.

49. A support, a turret mounted on the support, a ratchet operatively connected with the turret, a pawl-slide, a pawl mounted thereon, and means for moving the slide toward the ratchet independent of any movement of the turret or turret-carriage.

50. A reciprocating carriage, a turret mounted on the carriage, means for rotating the turret, a friction-band supported in operative relation to the turret, means for causing the band to bind the turret, a slide continuously connected with the band-operating means, and means for operating the slide.

51. A blank-holder, a turret rotatively mounted in operative relation to and with its axis vertically arranged with reference to the axis of the holder and having tool-holding means, and automatic means for rotating the turret independent of other movement thereof.

52. A sliding carriage, a turret rotatively mounted on the carriage, means for rotating the turret, a turret-lock mounted on the carriage, means for operating the turret-lock, and mechanism continually connecting the turret-lock and the locking means.

53. A reciprocating carriage, a turret rotatively mounted on the carriage, means for rotating the turret, and automatic means for locking the turret in any position of the carriage.

54. A reciprocating carriage, a turret rotatively mounted on the carriage and with its axis vertically arranged, and automatic means for rotating the turret in any position thereof and whether moving or at rest.

55. A reciprocating carriage, a turret rotatively mounted on the carriage, automatic means for rotating the turret in any position thereof and whether moving or at rest, and automatic means for locking the turret in any position thereof.

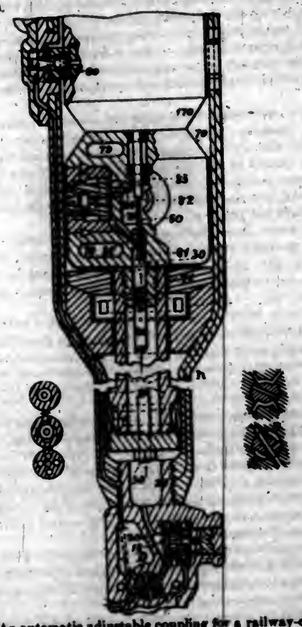
608,995. HANDLE-BAR FOR BICYCLES. GEORGE C. POWELL, Cleveland, Ohio. Filed June 19, 1896. Renewed Feb. 19, 1898. Serial No. 670,973. (No model.)



Claim.—In a handle-bar, the head-post with parallel tubular sockets attached to its upper end and stamped or pressed outwardly to form flutings or corrugations at their front ends as shown, with tubular handle-bars having tubular thimbles attached to their inner ends which thimbles fit within the sockets of the head-post and are also stamped or pressed outwardly to form flutings or corrugations at their front ends to correspond and interlock with the flutings or corrugations of the socket, the rear ends of the thimbles projecting from the sockets and being provided with clamping-nuts which hold the corrugations into engagement, substantially as hereinbefore set forth.

608,996. CAR-COUPLING. ROBERT C. SAYER, Bristol, England. Filed June 14, 1897. Serial No. 640,792. (No model.)

Claim.—1. An automatic adjustable coupling for a railway-carriage consisting of a fixed tube rotatably mounted in bearings, two polygonally-bored heads connected to the ends of the tube by universal tubular joints so as to allow of the heads being adjusted to meet similar heads when coupling and at the same time to form a continuous communication for fluid-pressure and for mechanical rotation, polygonal pistons within the heads, provided with means for attaching to similar heads when coupling, and valves in the heads adapted to be operated by hand and controlling the fluid-pressure to the pistons.



2. An automatic adjustable coupling for a railway-carriage consisting of a fixed tube rotatably mounted in bearings, two polygonally-bored heads connected to the ends of the tube by universal tubular joints so as to allow of the heads being adjusted to meet similar heads when coupling and at the same time to form a continuous communication for fluid-pressure and for mechanical rotation, polygonal pistons within the heads, provided with means for attaching to similar heads when coupling, valves in the heads adapted to be operated by hand and controlling the fluid-pressure to the pistons, laterally-movable bearings for the heads and a means for moving the bearings laterally as the carriage-body varies relatively to the rails so as to automatically adjust the heads to the desired position of the track.

3. An automatic adjustable coupling for a railway-carriage consisting of a fixed tube rotatably mounted in bearings, two polygonally-bored heads connected to the ends of the tube by universal tubular joints so as to allow of the heads being adjusted to meet similar heads when coupling and at the same time to form a continuous communication for fluid-pressure and for mechanical rotation, polygonal pistons within the heads, provided with means for attaching to similar heads when coupling, coupling-recesses in the heads, valves in the heads controlling the pressure to the pistons so that the pistons can be forced outward, radial piston-lugs in the pistons, automatic valves that are opened when the couplings meet similar couplings and act to force out the radial piston-lugs into the recesses, automatic valves in the piston-lugs that connect the tubular communication between the two vehicles, and a chamber with non-return-valve communication with the back of the pistons to withdraw the pistons when the pressure is removed from their front ends.

4. An automatic adjustable coupling for a railway-carriage consisting of a fixed tube rotatably mounted in bearings, two polygonally-bored heads connected to the ends of the tube by universal tubular joints so as to allow of the heads being adjusted to meet similar heads when coupling and at the same time to form a continuous communication for fluid-pressure and for mechanical rotation, polygonal pistons within the heads, provided with means for attaching to similar heads when coupling valves in the heads, a cross-shaft with handles, a lever-arm on the cross-shaft, a sleeve adapted to slide on the tube when operated by the lever-arm, a rack on the sleeve, a pinion on the valve gearing with the rack, a flat on the cross-shaft and a spring-lever forced against the flat on the shaft.

603,997. LUBRICATOR. GUSTAV SEYFFARTH, Philadelphia, Pa. Filed Mar. 5, 1897. Serial No. 626,117. (No model.)

Claim.—1. A lubricating apparatus for hydraulic elevators comprising a hood, adapted to be secured to the end of the piston-rod, a spindle, set in the hood concentrically with the piston, an oil-holder suspended from the spindle, a hub, rotatably set on the spindle, extensible arms secured in the hub, mop-wipers secured to the arms, means for securing the mop-wipers to the arms, brackets secured to the extensible arms, elastic strips secured to the brackets, spoons or ladles secured to the strips, in position to enter the oil-holder for the purpose of supplying oil to the wipers, and means for imparting a rotary motion to the hub.



2. In a lubricating apparatus for hydraulic elevators, the combination with extensible arms, rotatably set on a spindle, secured to the piston, and with wipers secured to the arms, of a stationary oil-holder, suspended from the spindle, of ladles secured to the arms in position to enter the oil-holder for the purpose of supplying oil to the wipers and of means for imparting a rotary motion to the arms.

3. In a lubricating apparatus for hydraulic elevators, the combination with extensible arms rotatably set on a spindle, secured to the piston, ladles and wipers secured to the arms, and a stationary oil-holder, suspended from the spindle in such position that the ladles may enter it for the purpose of supplying oil to the wipers, of an extensible arm, rigidly connected with the other arms, a holder adjustably secured to the arm, a socket set in the holder, a fork set turnably in the socket, means for securing the fork in adjusted position and a friction-roller set in the fork.

4. In a lubricating apparatus for hydraulic elevators, the combination with extensible arms rotatably set on a spindle, secured to the piston, ladles and wipers secured to the arms and a stationary oil-holder, suspended from the spindle in such position that the ladles may enter it for the purpose of supplying oil to the wipers, of an extensible arm, rigidly connected with the other arms, and a friction-roller adjustably secured to the arm.

603,998. AUTOMATIC GAS SHUT-OFF. JOHN BAIRD, Uniontown, Pa. Filed July 12, 1897. Serial No. 644,185. (No model.)

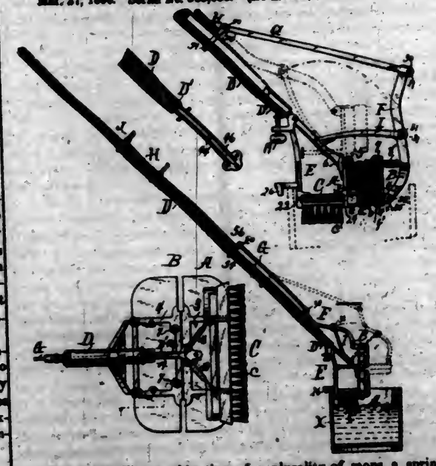


Claim.—1. In an automatic gas cut-off, the combination with a burner, of an arm secured thereto, a lever fulcrumed in said arm and provided with an upwardly-extending arm, a shade upon the upper end of said arm in position to receive the current of heat from the gas in its upward movement to keep the said arm in elevated position and a cap actuated by said arm and adapted to fit over the tip of the burner when the arm of the pivoted lever falls toward the gas-burner, substantially as described and for the purpose set forth.

2. In an automatic gas cut-off, the combination of an angle-arm adjustably secured to the burner, a lever pivoted to the vertical arm of said angle-arm and provided with an arm extending above the gas-burner, and a depending arm provided with an opening near its lower end, a curved arm or wire pivoted to the angle-arm at one end and extending through the opening in said depending arm, said curved arm being provided with a cap or plate adapted to fit over the tip of a gas-burner, a shade at the upper end of the upwardly-extending arm of the pivoted lever adapted to receive the current of heat from the gas and keep the said lever in one position, and means for balancing said lever, substantially as and for the purpose described.

3. In an automatic gas cut-off, the combination with an angle-arm adjustably secured to the gas-burner, of a lever pivoted between the bifurcated ends of said angle-arm, said lever being provided at one end with an eye for the reception of a weighted screw to balance said lever and at the other end with a rod or arm extending above the gas-burner, a depending arm provided with a loop or opening, and an arm or wire passing through said opening and pivoted to the angle-arm at one end and provided with a cap or plate at the other, the upwardly-extending arm of the lever being provided with a shade adapted to be kept elevated by the heat of the gas, substantially as and for the purpose set forth.

603,999. MOP-HEAD. DE LAGY E. BALLAN, Brooklyn, N. Y., assignor, by mesne assignments, to Annie T. Grace, same place. Filed Mar. 27, 1896. Serial No. 585,088. (No model.)



Claim.—1. The combination of a plurality of mops, a spring-hinge therefor, a handle, and a wringing-lever, and a centering-rod pivotally connecting the wringing-lever and the handle, and said wringing-lever and centering-rod being adapted to press the working faces of said mops together, substantially as described.

2. The combination with a plurality of mops, of a hinge consisting of headed rods pivoted to one mop and working through another, and spiral springs between the heads of the rods and the latter mop, substantially as described.

3. The combination with the handle and mops, of a hinge consisting of headed rods pivoted to one mop and working through another, spiral springs between the heads of the rods and the latter mop, a wringing-lever, a centering-lever, and connecting-rods, substantially as described.

4. The combination with a handle and mops, of a hinge consisting of headed rods pivoted to one mop and working through another, spiral springs between the heads of the rods and the latter mop, a wringing-lever, a centering-rod, connecting-rod, and a clutch adapted to engage said handle, substantially as described.

5. The combination of two mops hinged together, a handle attached to one mop, a clutch adapted to engage thereon, a lever attached to the other mop, a connecting-rod from the clutch to said lever, and a centering-rod connected to said lever and to said handle, whereby the working faces of the mops may be pressed together, substantially as described.

6. The combination with a handle and mop of a casting 3 provided with a jaw, a clamp E provided with a corresponding jaw, a brush within said jaws, an arm adapted to be pivoted on the handle, and an adjusting-screw working in the arm and against the handle and adapted to position said clamp E, substantially as described.

7. A finger-clutch consisting of a body part H provided with a guide-ring which works on a handle, and of spring-actuated arms pivoted on said plate H and normally engaging with the handle, substantially as described.

8. In a mop-head, the combination with the handle, of the wringing-lever F formed of malleable metal, a fork at the end thereof adapted to a pivotal connection with the mop and provided with pivotal pins, a centering-lever I provided with flaring ears at one end adapted to engage the pins of the wringing-lever F and with a goose-neck at the other end adapted to engage said handle, substantially as described.

604,000. BROOM. THADDEUS H. BROWN, Viroqua, Wis. Filed Sept. 9, 1897. Serial No. 651,144. (No model.)



Claim.—1. In a broom, the combination with the handle and straws, of a receptacle designed to receive the straws and provided with a handle-aperture in its bottom, and with a series of notches in its upper edge, and a binding-wire surrounding the broom and passing through the notches, substantially as specified.

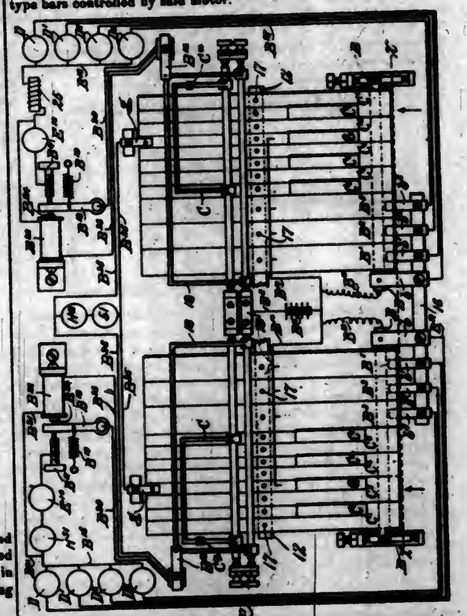
2. In a broom, the combination with the straws and handle, of a receptacle designed to receive the straws and provided with a handle-aperture in its bottom and with a series of alternating notches and inwardly-bent pointed projections around its upper edge, and a binding-wire passed around the broom and through the notches, substantially as described.

604,001. TYPE-WRITING MACHINE, &c. THADDEUS CAHILL, New York, N. Y., assignor to James B. Lambie, E. Hilton Jackson, George Frederick Cahill, and Arthur T. Cahill, trustees. Filed June 19, 1897. Serial No. 641,518. (No model.)

Claim.—1. In a type-writing machine, or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (*a*) two sets of type-bars; (*b*) two sets of keys; (*c*) a quick-acting motor device controlled by the keys of one set and serving to impel all the type-bars controlled by said keys, each type-bar as required; and (*d*) a slow-acting motor device controlled by the keys of the other set and serving to impel all the type-bars controlled by such keys, each type-bar as required; the quick-acting motor device and the slow-acting motor device aforesaid having such differing rapidities of action that when keys of the two sets aforesaid are depressed simultaneously, the type-bars brought into action respectively by them print in rapid succession.

2. In a type-writing machine, or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (*a*) two sets of type-bars; the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (*b*) two sets of keys; (*c*) a quick-acting motor device, controlled by the keys of one set and serving to impel all the type-bars controlled by said keys, each type-bar as required; and (*d*) a slow-acting motor device controlled by the keys of the other set and serving to impel all the type-bars controlled by such keys, each type-bar as required; the quick-acting motor device and the slow-acting motor device aforesaid having such differing rapidities of action that when keys of the two sets aforesaid are depressed simultaneously, the type-bars brought into action respectively by them print in rapid succession.

3. In a type-writing machine or other similar instrument an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, in combination, two sets of type-bars; a quick-acting motor, operating to impel all the type-bars of one set; and a slow-acting motor, operating to impel all the type bars of the other set; and permutational character-selecting mechanism for each set of type-bars, whereby the two motors aforesaid are caused each to impel the required type-bar of the set of type bars controlled by said motor.



4. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, in combination, two sets of type-bars; a quick-acting type-bar-controlling mechanism, operating upon the type-bars of one of the sets before mentioned and serving to bring the bars of such set into action individually; and a slow-acting type-bar-controlling mechanism, operating upon the type-bars of the other set, and serving to bring the bars of such set into action individually; one of said type-bar-controlling mechanisms being a permutational type-bar-selecting device, said permutational type-bar-selecting device including (*a*) a motor device whereby all the type-bars of one of the two sets aforesaid are impelled, each type-bar as required; said type-bars being normally disconnected from said motor device; (*b*) keys, whereby the type-bars aforesaid are connected, each type-bar as required, with the motor device aforesaid; and (*c*) a motor-controlling device operated by a plurality of the keys aforesaid and serving to bring the motor device aforesaid into action for the impelling of the type-bar connected with it.

5. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, in combination, two sets of type-bars; a quick-acting type-bar-controlling mechanism, operating upon the type-bars of one of the sets before mentioned and serving to bring the bars of such set into action individually; and a slow-acting type-bar-controlling mechanism operating upon the type-bars of the other set, and serving to bring the bars of such set into action individually; one of said type-bar-controlling mechanisms being a permutational type-bar-selecting device, said permutational type-bar-selecting device, including (*a*) controlling elements, by the cosetting of which the different type-bars aforesaid are brought into action each as required and (*b*) a motor device serving to actuate a plurality of the controlling elements aforesaid, each as required.

6. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, two sets of type-bars; a quick-acting type-bar-controlling mechanism, operating upon the type-bars of one of the sets before mentioned and serving to bring the bars of such set into action individually; and a slow-acting type-bar-controlling mechanism, operating upon the type-bars of the other set, and serving to bring the bars of such set into action individually; one of said type-bar-controlling mechanisms being a permutational type-bar-selecting device, said permutational type-bar-selecting device, including (*a*) controlling elements, by the cosetting of which the different type-bars aforesaid are brought into action each as required;

(*b*) a motor device, serving to actuate a plurality of the controlling elements aforesaid; (*c*) key mechanism, whereby the controlling elements aforesaid are connected, each as required, with the motor device aforesaid.

7. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, in combination, two sets of type-bars; a quick-acting type-bar-controlling mechanism, operating upon the type-bars of one of the sets before mentioned and serving to bring the bars of such set into action individually; and a slow-acting type-bar-controlling mechanism, operating upon the type-bars of the other set, and serving to bring the bars of such set into action individually; one of said type-bar-controlling mechanisms being a permutational type-bar-selecting device, said permutational type-bar-selecting device, including (*a*) controlling elements by the cosetting of which the different type-bars aforesaid are brought into action each as required; (*b*) a motor device serving to actuate a plurality of the controlling elements aforesaid; and (*c*) keys whereby the controlling elements aforesaid are connected, each as required, with the motor device aforesaid, said keys serving also to bring said motor device into action for the impelling of the controlling element connected with it.

8. In a type-writing machine, a set of type-bars striking to a common printing-center; group-controlling devices, each controlling a group of the type-bars aforesaid, a plurality of the type-bars in each group being normally disconnected from the group-controlling device corresponding to them; means whereby the different type-bars of a group are connected with the proper group-controlling device, each as required; a motor, serving for the impelling of all the type-bars above mentioned; and means whereby the different group-controlling devices aforesaid are connected with said motor, each as required; said group-controlling devices being normally disconnected from said motor.

9. In combination, (A) a set of character-corresponding devices; (B) keys, fewer in number than the character-corresponding devices aforesaid; (C) a single motor device controlled by said keys, and acting to operate the character-corresponding devices aforesaid, each as required; and (D) permutational connections intermediate said motor and the character-corresponding devices aforesaid; said permutational connections being controlled by the keys aforesaid.

10. In combination, (A) a set of character-corresponding devices; (B) keys fewer in number than the character-corresponding devices aforesaid; (C) a motor device controlled by a plurality of said keys and acting to operate the character-corresponding devices aforesaid, each as required; and, (D) permutational connections intermediate said motor and the character-corresponding devices aforesaid; said permutational connections being controlled by the keys aforesaid; said keys serving, when depressed, (*a*) to affect the permutational connections intermediate the motor aforesaid and the character-corresponding devices, thereby selecting one of said character-corresponding devices to be actuated, and, (*b*) to bring the motor aforesaid into operation, so that it acts upon said character-corresponding devices.

11. In combination with suitable character-corresponding devices, permutational selecting mechanism, having (*a*) a plurality of controlling elements; and (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned each as required.

12. In combination with suitable character-corresponding devices, permutational selecting mechanism, having (*a*) a plurality of controlling elements; (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required, said controlling elements being normally disconnected from said motor; and (*c*) key mechanism, whereby the controlling elements last above mentioned are connected, each as required, with the motor device aforesaid.

13. In combination with suitable character-corresponding devices, permutational selecting mechanism, having (*a*) a plurality of controlling elements; (*b*) a motor device, serving to actuate a plurality of the controlling elements aforesaid; (*c*) keys, operating to connect the controlling elements last aforesaid, each as required, with the motor device aforesaid; and (*d*) means actuated by the keys aforesaid and serving to bring the motor device aforesaid into operation for the actuating of the controlling elements aforesaid.

14. In combination with suitable character-corresponding devices, permutational character-selecting mechanism having (*a*) controlling elements fewer in number than the character-corresponding devices controlled thereby; and (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required; the controlling elements before mentioned, acting, when moved by the motor device aforesaid to communicate movement to the proper character-corresponding device.

15. In combination with suitable character-corresponding devices, permutational character-selecting mechanism, having (*a*) controlling elements fewer in number than the character-corresponding devices controlled thereby; (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required, said controlling elements being normally disconnected from said motor; and (*c*) key mechanism, whereby the controlling elements last above mentioned are connected, each as required, with the motor device aforesaid; the controlling elements before mentioned, acting, when moved by the motor device aforesaid, to communicate movement to the proper character-corresponding device.

16. In combination with suitable character-corresponding devices, permutational character-selecting mechanism, having (*a*) controlling elements fewer in number than the character-corresponding devices controlled thereby; (*b*) a motor device, serving to actuate a plurality of the controlling elements aforesaid; and (*c*) keys, whereby the controlling elements last aforesaid are connected, each as required, with the motor device aforesaid, said keys serving also to bring said motor device into action for the actuating of the controlling elements aforesaid; the controlling elements before mentioned, acting, when moved by the motor device aforesaid, to communicate movement to the proper character-corresponding device.

17. In a type-writing machine, and in combination therein (A) a set of type-bars arranged in such a manner that they strike to a common printing-center; (B) keys, fewer in number than said type-bars; (C) a single motor device, controlled by said keys and acting to operate the type-bars aforesaid, each as required; and, (D) permutational connections intermediate said motor and the type-bars aforesaid; said permutational connections being controlled by the keys aforesaid.

18. In a type-writing machine, and in combination therein, (A) a set of type-bars arranged in such a manner that they strike to a common printing-center; (B) keys fewer in number than said type-bars; (C) a single motor device controlled by said keys and acting to operate the type-bars aforesaid, each as required; and, (D) permutational connections intermediate said motor and the type-bars aforesaid; said permutational connections being controlled by the keys aforesaid; said keys serving, when depressed, (*a*) to affect the permutational connections intermediate the motor aforesaid and the type-bars aforesaid, thereby selecting one of said type-bars to be actuated, and (*b*) to bring the motor aforesaid into operation, so that it acts upon said type-bar.

19. In a type-writing machine, and in combination therein with the type-bars, arranged to strike to a common printing-center, permutational selecting mechanism, having (*a*) controlling elements fewer in number than the type-bars controlled by them; and (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned.

20. In a type-writing machine, and in combination therein with type-bars, arranged to strike to a common printing-center, permutational selecting mechanism, having (*a*) controlling elements, fewer in number than the type-bars controlled by them; (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required, said controlling elements being normally disconnected from said motor; and (*c*) key mechanism, whereby the controlling elements last above mentioned are connected each as required, with the motor device aforesaid.

21. In a type-writing machine, and in combination therein with type-bars, arranged to strike to a common printing-center, permutational selecting mechanism; having (*a*) controlling elements, fewer in number than the type-bars controlled by them; (*b*) a motor device, serving to actuate a plurality of the controlling elements aforesaid; and (*c*) keys, operating to connect the controlling elements last aforesaid, each as required, with the motor device aforesaid, said keys serving also to bring said motor device into action for the actuating of the controlling elements aforesaid.

22. In a type-writing machine, and in combination therein with type-bars, arranged so that they strike to a common printing-center, permutational character-selecting mechanism, having (*a*) controlling elements fewer in number than the type-bars operated thereby; and (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required; the controlling elements before mentioned acting, when moved by the motor device, to communicate movement to the proper type-bar.

23. In a type-writing machine, and in combination therein with type-bars, arranged so that they strike to a common printing-center, permutational character-selecting mechanism, having (*a*) controlling elements fewer in number than the type-bars operated thereby; (*b*) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required, said controlling elements being normally disconnected from said motor; and (*c*) key mechanism, whereby the controlling elements last above mentioned are connected each as required, with the motor device aforesaid; the controlling elements before mentioned, acting, when moved by the motor device, to communicate movement to the proper type-bar.

24. In a type-writing machine, and in combination therein with type-bars, arranged so that they strike to a common printing-center,

permutational character-selecting mechanism, having (a) controlling elements fewer in number than the type-bars operated thereby; (b) a motor device, serving to actuate a plurality of the controlling elements aforesaid; and (c) keys, whereby the controlling elements last aforesaid are connected, each as required with the motor device aforesaid, said keys serving also to bring said motor device into action for the actuating of the controlling elements aforesaid; the controlling elements before mentioned acting, when moved by the motor device, to communicate movement to the proper type-bar.

25. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, (A) two sets of type-bars, the bars of each set striking to a printing-center common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) type-bar-controlling mechanism serving for the operating of the bars of one of the two sets above mentioned; said type-bar-controlling mechanism including (a) keys, fewer in number than said type-bars; (b) a single motor device controlled by said keys, and acting to operate the type-bars aforesaid, each as required; and, (c) permutational connections intermediate said motor and the type-bars aforesaid; said permutational connections being controlled by the keys aforesaid; and, (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

26. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) type-bar-controlling mechanism serving for the operating of the bars of one of the two sets above mentioned; said type-bar-controlling mechanism including, (a) keys fewer in number than said type-bars; (b), a single motor device controlled by said keys, and acting to operate the type-bars aforesaid, each as required; and, (c) permutational connections intermediate said motor and the type-bars aforesaid; said permutational connections being controlled by the keys aforesaid, said keys serving, when depressed, (1) to affect the permutational connections intermediate the motor aforesaid and the type-bars, thereby selecting one of said type-bars to be actuated, and (2) to bring the motor aforesaid into operation so that it acts upon said type-bar; and, (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

27. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, (A) two sets of type-bars, the bars of each set striking to a printing-center common to the bars of such set, the printing-centers of the two sets of bars being adjacent to each other; (B) type-bar-controlling mechanism serving for the operating of the bars of one of the two sets above mentioned; said type-bar-controlling mechanism including (a) keys, fewer in number than said type-bars; (b) a single motor device controlled by said keys, and acting to operate the type-bars aforesaid, each as required; and, (c) permutational connections intermediate said motor and the type-bars aforesaid: said permutational connections being controlled by the keys aforesaid; and, (C) type-bar-controlling mechanism similar to that last above described, serving to operate the type-bars of the other one of the two sets above mentioned.

28. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) type-bar-controlling mechanism serving for the operating of the bars of one of the two sets above mentioned; said type-bar-controlling mechanism including, (a) keys fewer in number than said type-bars: (b), a single motor device controlled by said keys, and acting to operate the type-bars aforesaid, each as required; and, (c) permutational connections intermediate said motor and the type-bars aforesaid; said permutational connections being controlled by the keys aforesaid; said keys serving, when depressed, (a) to affect the permutational connections intermediate the motor aforesaid and the type-bars, thereby selecting one of said type-bars to be actuated, and, (b) to bring the motor aforesaid into operation so that it acts upon said type-bar: and, (C) type-bar-controlling mechanism similar to that last above described, serving to operate the type-bars of the other one of the two sets above mentioned.

29. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) permutational selecting mechanism, serving for the operating of the bars of one of the two sets before mentioned; said permutational selecting mechanism having (a) controlling elements, fewer in number than the type-bars controlled by them; and (b) a motor device serving to actuate a plurality of the controlling elements before mentioned each as required; and (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

30. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) permutational selecting mechanism, serving for the operating of the bars of one of the two sets before mentioned; said permutational selecting mechanism having (a) controlling elements fewer in number than the type-bars controlled by them; (b) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required, said controlling elements being normally disconnected from said motor; and (c) key mechanism whereby the controlling elements last above mentioned are connected each as required, with the motor device aforesaid; and (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

31. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) permutational selecting mechanism serving for the operating of the bars of one of the two sets before mentioned; said permutational selecting mechanism having (a) controlling elements, fewer in number than the type-bars controlled by them; (b) a motor device serving to actuate a plurality of the controlling elements aforesaid; and (c) keys, operating to connect the controlling elements last aforesaid, each as required, with the motor device aforesaid, said keys serving also to bring said motor device into action for the actuating of the controlling elements aforesaid; and (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

32. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) permutational selecting mechanism, serving for the operating of the bars of one of the two sets before mentioned; said permutational selecting mechanism having; (a) controlling elements fewer in number than the type-bars operated thereby; and (b) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required; the controlling elements before mentioned acting, when moved by the motor device, to communicate movement to the proper type-bar; and (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

33. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of such set, the printing-points of the two sets of bars being adjacent to each other; (B) permutational selecting mechanism, serving for the operating of the bars of one of the two sets before mentioned; said permutational selecting mechanism having (a) controlling elements fewer in number than the type-bars operated thereby; (b) a motor device, serving to actuate a plurality of the controlling elements before mentioned, each as required, said controlling elements being normally disconnected from said motor; and (c) key mechanism, whereby the controlling elements last above mentioned are connected each as required, with the motor device aforesaid; the controlling elements before mentioned acting, when moved by the motor device, to communicate movement to the proper type-bar; and (C) suitable means for operating the type-bars of the other one of the two sets before mentioned.

34. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the bars of each set striking to a printing-point common to the bars of each set, the printing-points of the two sets of bars being adjacent to each other; (B) permutational selecting mechanism, serving for the operating of the bars of one of the two sets before mentioned; said permutational selecting mechanism having (a) controlling elements fewer in number than the type-bars operated thereby; (b) a motor device, serving to actuate a plurality of the controlling elements aforesaid; and (c) keys, whereby the controlling elements last aforesaid are connected, each as required with the motor device aforesaid, said keys serving also to bring said motor device into action for the actuating of the controlling elements aforesaid; the controlling elements before mentioned acting, when moved by the motor device, to communicate movement to the proper type-bar; and (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

35. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the type-bars of each set striking to a printing-point common to the type-bars of each set, the printing-points of the two sets of type-bars being adjacent to each other; (B) permutational selecting mechanism, serving for the operating of the type-bars of one of the two sets before mentioned; said permutational selecting mechanism having (a) keys fewer in number than the type-bars controlled thereby; (b) a motor device, common to said type-bars and whereby all said type-bars are actuated, each as required; said type-bars being normally disconnected from said motor device; and (c) means whereby said type-bars are connected with the motor device before mentioned, each as required; said motor device being brought into action by the keys before mentioned, and operating thereupon independently of said keys to impel the type-bar corresponding to the key or combination of keys depressed; and (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

36. In a type-writing machine, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including (A) two sets of type-bars, the type-bars of each set striking to a printing-point common to the type-bars of such set, the printing-points of the two sets of type-bars being adjacent to each other; (B) permutational selecting mechanism, serving for the operating of the type-bars of one of the two sets before mentioned; said permutational selecting mechanism having (a) keys fewer in number than the type-bars controlled thereby; (b) a motor device, common to said type-bars and whereby all said type-bars are actuated, each as required; said type-bars being normally disconnected from said motor device; (c) means whereby said type-bars are connected with the motor device before mentioned, each as required; and (d) means whereby the keys are arrested; the keys serving when depressed to bring the motor device aforesaid into action; said motor serving after the keys have been depressed and arrested, to impel the type-bar independently of the keys; and (C) suitable means for operating the type-bars of the other one of the two sets above mentioned.

37. In a permutational character-selecting device, (a) a motor; (b) a group of elements adapted to be impelled by said motor, each as required; one of said elements being normally connected with said motor; and (c) means whereby the element before mentioned as being normally connected with the motor aforesaid is disconnected from said motor when any other element of the group of elements before mentioned is connected with said motor.

38. In a permutational character-selecting device, (a) a motor; (b) a group of elements adapted to be impelled by said motor, each as required; one of said elements being normally connected with said motor; (c) key mechanism whereby the other elements of the group of elements aforesaid are connected with the motor aforesaid, each as required; and (d) means whereby the element before mentioned as being normally connected with the motor aforesaid is disconnected from said motor when one of the other elements of the group of elements aforesaid is connected with said motor.

39. In a permutational character-selecting device, (a) a motor; (b) a group of elements adapted to be impelled by said motor, each as required; one of said elements being normally connected with said motor; (c) keys whereby the other elements of the group aforesaid are connected with the motor aforesaid, each as required; and (d) means operated by said keys and serving to break the connection between the motor aforesaid and that one of the elements before mentioned as being normally connected with said motor.

40. A permutational character-selecting mechanism, having (a) a plurality of controlling elements; and (b) a motor serving to actuate all said controlling elements, each as required; one of the controlling elements aforesaid being normally adapted to be operated by the motor aforesaid.

41. A permutational character-selecting mechanism, having (a) a plurality of controlling elements; (b) a motor serving to actuate all said controlling elements, each as required; one of the controlling elements aforesaid being normally adapted to be operated by the motor aforesaid; and (c) means whereby the controlling element before mentioned as being normally adapted to be operated by the motor aforesaid, is prevented from being operated thereby when any of the other controlling elements aforesaid is operated by said motor.

42. A permutational character-selecting mechanism, having (a) a plurality of controlling elements; (b) a motor serving to actuate all said controlling elements, each as required; one of the controlling elements aforesaid being normally adapted to be operated by the motor aforesaid; (c) key mechanism whereby the other controlling elements before mentioned are connected, each as required, with the motor aforesaid; and (d) means whereby the controlling element before mentioned as being normally adapted to be operated by the motor aforesaid is prevented from being operated thereby when any of the other controlling elements before mentioned is connected with the motor aforesaid.

43. A permutational character-selecting mechanism, having (a) a plurality of controlling elements; (b) a motor serving to actuate all said controlling elements, each as required; one of the controlling elements aforesaid being normally adapted to be operated by the motor aforesaid; (c) keys, whereby the other controlling elements before mentioned are connected, each as required, with the motor aforesaid; and (d) means operated by said keys, whereby the controlling element before mentioned as being normally adapted to be operated by the motor aforesaid, is prevented from being operated thereby when any of the other controlling elements before mentioned is connected with the motor aforesaid.

44. In combination, (a) a plurality of groups of character-corresponding devices; (b) a motor: (c) a group of elements, adapted to be impelled by said motor, each element as required; each of said elements controlling one of the groups of character-corresponding devices above mentioned; one of said elements being normally connected with said motor; and (d) means whereby the element before mentioned as being normally connected with the motor aforesaid, is disconnected from said motor when any other element of the group of elements before mentioned is connected with said motor.

45. In combination, (a) a plurality of groups of character-corresponding devices; (b) a motor; (c) a group of elements adapted to be impelled by said motor, each element as required; each of said elements controlling one of the groups of character-corresponding devices above mentioned; one of said elements being normally adapted to be operated by the motor aforesaid; (d) keys acting to connect the other elements of the group of elements aforesaid with the motor aforesaid, each as required; and (e) means whereby the element before mentioned as being normally adapted to be operated by the motor aforesaid, is prevented from being operated by said motor, when any other element of the group of elements before mentioned is connected with said motor.

46. In combination, (a) a plurality of groups of character-corresponding devices; (b) a motor; (c) a group of elements adapted to be impelled by said motor, each element as required; each of said elements controlling one of the groups of character-corresponding devices above mentioned; one of said elements being normally connected with said motor; (d) keys, acting to connect the other elements of the group of elements aforesaid with the motor aforesaid, each as required; and (e) means controlled by said keys and serving to break the connection between the motor aforesaid and that one of the elements before mentioned as being normally connected with said motor.

47. In combination, (a) a plurality of groups of character-corresponding devices; (b) a motor; (c) a group of elements adapted to be impelled by said motor, each element as required; each of said elements controlling one of the groups of character-corresponding devices above mentioned; one of said elements being normally connected with the motor aforesaid; (d) keys, acting to connect the other elements of the group of elements aforesaid, with the motor aforesaid, each as required; (e) means whereby the element before mentioned as being normally connected with the motor aforesaid is disconnected from said motor, when any other element of the group of elements before mentioned is connected with said motor; and (f) keys, acting to connect the different elements of the group above mentioned with the different character-corresponding devices which they respectively control.

48. In combination, (a) a plurality of groups of character-corresponding devices; (b) a motor; (c) a group of elements, adapted to be impelled by said motor, each element as required; each of said elements controlling the action of one of the groups of character-corresponding devices above mentioned; one of said elements being normally connected with the motor aforesaid; (d) keys, acting to connect the other elements of the group of elements aforesaid with the motor aforesaid, each as required; (e) means controlled by the keys before mentioned and serving to break the connection between the motor aforesaid and that one of the elements before mentioned as being normally connected with said motor; and (f) keys, acting to connect the different elements of the group above mentioned with the different character-corresponding devices which they respectively control.

49. In a type-writing machine, and in combination therein with a set of type-bars arranged in such a manner that they strike to a common printing-center, a permutational type-bar-selecting mechanism, including, (a) a motor: (b) a group of elements adapted to be impelled by said motor, each as required; one of said elements being normally connected with said motor, and (c) means whereby the element before mentioned as being normally connected with the motor aforesaid is disconnected from said motor when any other element of the group of elements before mentioned is connected with said motor.

50. In a type-writing machine, and in combination therein with a set of type-bars arranged in such a manner that they strike to a common printing-center, a permutational type-bar-selecting mechanism, including, (a) a motor; (b) a group of elements adapted to be impelled by said motor, each as required; one of said elements being normally connected with said motor; (c) key mechanism whereby the other elements of the group of elements aforesaid are connected with the motor aforesaid, each as required; and (d) means whereby the element before mentioned as being normally connected with the motor aforesaid is disconnected from said motor when any other element of the group of elements before mentioned is connected with said motor.

the motor aforesaid, each as required; and (*d*) means whereby the element before mentioned as being normally connected with the motor aforesaid is disconnected from said motor when one of the other elements of the group of elements aforesaid is connected with said motor.

51. In a type-writing machine, and in combination therein with a set of type-bars arranged in such a manner that they strike to a common printing-center, a permutational type-bar-selecting mechanism, including, (*a*) a motor: (*b*) a group of elements adapted to be impelled by said motor, each as required; one of said elements being normally connected with said motor; (*c*) keys whereby the other elements of the group aforesaid are connected with the motor aforesaid, each as required; and (*d*) means operated by said keys, and serving to break the connection between the motor aforesaid and that one of the elements before mentioned as being normally connected with said motor.

52. In a type-writing machine, and in combination therein with a set of type-bars arranged in such a manner that they strike to a common printing-center, a permutational type-bar-selecting mechanism, including, (*a*) a group of controlling elements; and (*b*) a single motor serving to actuate all the controlling elements of the group aforesaid, each controlling element as required; one of the controlling elements of the group aforesaid being normally adapted to be operated by the motor aforesaid.

53. In a type-writing machine, and in combination therein with a set of type-bars arranged in such a manner that they strike to a common printing-center, a permutational type-bar-selecting mechanism, including, (*a*) a group of controlling elements; (*b*) a motor serving to actuate all the controlling elements of the group aforesaid, each controlling element as required; one of the controlling elements of the group aforesaid being normally adapted to be operated by the motor aforesaid; and, (*c*) means whereby the controlling element before mentioned as being normally adapted to be operated by the motor aforesaid, is prevented from being operated thereby when any other controlling element of the same group is operated by said motor.

54. In a type-writing machine, and in combination therein with a set of type-bars arranged in such a manner that they strike to a common printing-center, a permutational type-bar-selecting mechanism, including, ( ) a group of controlling elements; (*b*) a motor serving to actuate all the controlling elements of the group aforesaid, each controlling element as required; one of the controlling elements of the group aforesaid being normally adapted to be operated by the motor aforesaid; (*c*) key mechanism whereby the other controlling elements of the group before mentioned are connected, each as required, with the motor aforesaid; and (*d*) means whereby the controlling element before mentioned as being normally adapted to be operated by the motor aforesaid is prevented from being operated thereby when one of the other controlling elements of the group aforesaid is connected with the motor aforesaid.

55. In a type-writing machine, and in combination therein with a set of type-bars arranged in such a manner that they strike to a common printing-center, a permutational type-bar-selecting mechanism, including, (*a*) a group of controlling elements; (*b*) a motor, serving to actuate all the controlling elements of the group aforesaid, each controlling element as required; one of the controlling elements of the group aforesaid being normally adapted to be operated by the motor aforesaid; (*c*) keys, whereby the other controlling elements of the group before mentioned are connected, each as required, with the motor aforesaid; and (*d*) a frame, operated by said keys, whereby the controlling element before mentioned as being normally adapted to be operated by the motor aforesaid, is prevented from being operated thereby when one of the other controlling elements of the group aforesaid, is connected with the motor aforesaid.

56. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars, (*b*) a motor; (*c*) a group of elements adapted to be impelled by said motor, each element as required, each of said elements controlling one of the groups of type-bars above mentioned; one of said elements being normally connected with said motor; and (*d*) means whereby the element above mentioned as being normally connected with the motor aforesaid is disconnected from said motor, when any other element of the group of elements before mentioned is connected with said motor.

57. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor; (*c*) a group of elements adapted to be impelled by said motor, each element as required; each of said elements controlling one of the groups of type-bars above mentioned; one of said elements being normally adapted to be operated by said motor; (*d*) keys, acting to connect the other elements of the group of elements aforesaid with the motor aforesaid, each as required; and (*e*) means whereby the element above mentioned as being normally adapted to be operated by the motor aforesaid is prevented from being operated by said motor when any other element of the group of elements before mentioned is connected with said motor.

58. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars, (*b*) a motor; (*c*) a group of elements adapted to be impelled by said motor, each element as required, each of said elements controlling one of the groups of type-bars above mentioned; one of said elements being normally connected with the motor aforesaid; (*d*) keys, acting to connect the other elements of the group of elements aforesaid with the motor aforesaid, each as required; and (*e*) means controlled by said keys, serving to break the connection between the motor aforesaid, and that one of the elements before mentioned as being normally connected with said motor.

59. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, (*b*) a motor; (*c*) a group of elements adapted to be impelled by said motor, each element as required, each of said elements controlling one of the groups of type-bars above mentioned; one of said elements being normally connected with the motor aforesaid; (*d*) keys, acting to connect the other elements of the group of elements aforesaid with the motor aforesaid, each as required; (*e*) means, whereby the element above mentioned as being normally connected with the motor aforesaid is disconnected from said motor when any other element of the group of elements before mentioned is connected with said motor and (*f*) keys, acting to connect the different elements of the group above mentioned with the different type-bars which they respectively control.

60. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor; (*c*) a group of elements adapted to be impelled by said motor, each element as required, each of said elements controlling one of the groups of type-bars above mentioned; one of said elements being normally connected with the motor aforesaid; (*d*) keys, acting to connect the other elements of the group of elements aforesaid with the motor aforesaid, each as required; (*e*) means, controlled by said keys and serving to break the connection between the motor aforesaid and that one of the elements which is before mentioned as being normally connected with said motor; and (*f*) keys, acting to connect the different elements of the group above mentioned with the different type-bars which they respectively control.

61. In a permutational character-selecting mechanism, (*a*) a frame or lever; (*d*) a group of elements adapted to be set in motion by said frame or lever; one of said elements being normally connected with said frame or lever, and (*c*) means whereby the element before mentioned as being normally connected with the frame or lever aforesaid, is disconnected from said frame or lever when any other element of the group of elements before mentioned is connected with said frame or lever.

62. In a permutational character-selecting mechanism, (*a*) a frame or lever; (*b*) a group of elements adapted to be set in motion by said frame or lever; one of said elements being normally connected with said frame or lever; (*c*) keys, whereby the other elements of the group aforesaid are connected with the frame or lever aforesaid, each element as required; and, (*d*) means whereby the element before mentioned as being normally connected with the frame or lever aforesaid, is disconnected from said frame or lever when any other element of the group of elements before mentioned is connected with said frame or lever.

63. In a permutational character-selecting mechanism, (*a*) a frame or lever; (*b*) a group of elements adapted to be set in motion by said frame or lever; one of said elements being normally connected with said frame or lever; (*c*) keys whereby the other elements of the group aforesaid are connected with the lever or frame aforesaid, each element as required; (*d*) means whereby the element before mentioned as being normally connected with the frame or lever aforesaid is disconnected from said frame or lever, when any other element of the group of elements before mentioned is connected with said frame or lever; and (*e*) means controlled by the keys aforesaid and serving to control the movements of the frame or lever before mentioned.

64. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of the group of character-corresponding devices aforesaid; and (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, each as required, thereby to operate the character-corresponding devices aforesaid.

65. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of the groups of character-corresponding devices aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the character-corresponding devices; and (*d*) keys, acting to connect the different elements above mentioned as each controlling one of the groups of character-corresponding devices aforesaid with the frame or lever aforesaid, each element as required; said keys acting also to control the movements of the frame or lever aforesaid.

66. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements, each controlling one of the groups of character-corresponding devices aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above

mentioned, thereby to operate the character-corresponding devices aforesaid; (*d*) keys, acting to connect the different elements above mentioned as each controlling one of the groups of character-corresponding devices aforesaid with the frame or lever aforesaid, each element as required; and (*e*) a motor device, controlled by said keys and serving, when said keys are acted upon, to impel the frame or lever before mentioned.

67. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of the groups of character-corresponding devices aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the character-corresponding devices; (*d*) keys acting to connect the different elements above mentioned as each controlling one of the groups of character-corresponding devices aforesaid, with the frame or lever aforesaid, thereby to operate the character-corresponding devices; said keys acting also to control the movements of the frame or lever aforesaid; and (*e*) keys controlling the action of the different elements above mentioned upon the different character-corresponding devices which they respectively control.

68. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements, each controlling one of the groups of character-corresponding devices aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the character-corresponding devices; (*d*) keys, acting to connect the different elements above mentioned as each controlling one of the groups of character-corresponding devices aforesaid, with the frame or lever aforesaid, each element as required; and (*e*) keys, controlling the action of the different elements above mentioned upon the different character-corresponding devices which they respectively control.

69. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a group of elements each controlling one of said groups of character-corresponding devices; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the character-corresponding devices aforesaid; one of said elements being normally connected with said frame or lever; and (*d*) keys, whereby the other elements of the group of elements aforesaid, are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid, being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever.

70. In combination, (*a*) a plurality of groups of character-corresponding devices, (*b*) a group of elements each controlling one of said groups of character-corresponding devices; (*c*) a frame or lever serving to communicate movement to the elements last above mentioned, thereby to operate the character-corresponding devices aforesaid; one of said elements being normally connected with said frame or lever; (*d*) keys, whereby the other elements of the group of elements aforesaid, are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid, being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever; and (*e*) a motor device, controlled by said keys and serving, when said keys are acted upon, to impel the frame or lever aforesaid.

71. In combination, (*a*) a plurality of groups of character-corresponding devices, (*b*) a group of elements, each controlling one of said groups of character-corresponding devices; (*c*) a frame or lever serving to communicate movement to the elements last above mentioned, thereby to operate the character-corresponding devices aforesaid; one of said elements being normally connected with said frame or lever; (*d*) keys, whereby the other elements of the group of elements aforesaid are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid, being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever; and (*e*) keys controlling the action of the different elements above mentioned upon the different character-corresponding devices which they respectively control.

72. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a group of elements, each controlling one of the groups of character-corresponding devices; (*c*) a frame or lever serving to communicate movement to the elements last above mentioned, thereby to operate the character-corresponding devices aforesaid; one of said elements being normally connected with said frame or lever; (*d*) keys, whereby the other elements of the group of elements aforesaid, are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid, being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever; (*e*) a motor device controlled by said keys and serving when said keys are acted upon to impel the frame or lever aforesaid; and (*f*) keys, controlling the action of the elements of the group above mentioned upon the different character-corresponding devices which they respectively control.

73. In combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common center; (*b*) a plurality of elements, each controlling one of the groups of type-bars aforesaid; and (*c*) a frame or lever, serving to communicate movement to the elements above mentioned, each element as required, thereby to operate the type-bars aforesaid.

74. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a plurality of elements each controlling one of the groups of type-bars aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the type-bars aforesaid, and (*d*) keys acting to connect the different elements above mentioned as each controlling one of the group of type-bars aforesaid, with the frame or lever aforesaid, each element as required; said keys acting also to control the movements of the frame or lever aforesaid.

75. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a plurality of elements, each controlling one of the groups of type-bars aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the type-bars aforesaid; (*d*) keys, acting to connect the different elements last above mentioned as each controlling one of the groups of type-bars aforesaid with the frame or lever aforesaid, each element as required; and (*e*) a motor, controlled by said keys and serving when said keys are acted upon to impel the frame or lever before mentioned.

76. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a plurality of elements each controlling one of the groups of type-bars aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the type-bars aforesaid; (*d*) keys, acting to connect the different elements above mentioned as each controlling one of the groups of type-bars aforesaid with the frame or lever aforesaid, each element as required; said keys acting also to control the movements of the frame or lever aforesaid, and (*e*) keys, controlling the action of the different elements last above mentioned upon the type-bars which they respectively control.

77. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a plurality of elements each controlling one of the groups of type-bars aforesaid; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the type-bars aforesaid; (*d*) keys acting to connect the different elements last above mentioned as each controlling one of the groups of type-bars aforesaid with the frame or lever aforesaid, each element as required; (*e*) a motor, controlled by said keys and serving when said keys are acted upon to impel the frame or lever before mentioned; and (*f*) keys controlling the action of the different elements last above mentioned upon the type-bars, which they respectively control.

78. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a group of elements each controlling one of said groups of type-bars; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the type-bars aforesaid, one of said elements being normally connected with said frame or lever; and (*d*) keys whereby the other elements of the group of elements aforesaid are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid, being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever.

79. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a group of elements each controlling one of said groups of type-bars; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the type-bars aforesaid, one of said elements being normally connected with said frame or lever; (*d*) keys, whereby the other elements of the group of elements aforesaid are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid, being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever; and (*e*) a motor, controlled by said keys and serving when the keys are acted upon to impel the frame or lever aforesaid.

80. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a group of elements each controlling one of said groups of type-bars; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned, thereby to operate the type-

bars aforesaid, one of said elements being normally connected with said frame or lever; (*d*) keys, whereby the other elements of the group of elements aforesaid, are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever; and (*e*) keys, controlling the action of the elements of the group above mentioned upon the different type-bars which they respectively control.

81. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a group of elements, each controlling one of said groups of type-bars; (*c*) a frame or lever, serving to communicate movement to the elements last above mentioned thereby to operate the type-bars aforesaid, one of said elements being normally connected with said frame or lever; (*d*) keys, whereby the other elements of the group of elements aforesaid, are connected with the frame or lever aforesaid, each element as required; the element above mentioned as being normally connected with the frame or lever aforesaid, being disconnected from said frame or lever when any other element of the same group is connected with said frame or lever; (*e*) a motor, controlled by said keys and serving when the keys are acted upon to impel the frame or lever aforesaid; and (*f*) keys, controlling the action of the elements of the group above mentioned upon the different type-bars which they respectively control.

82. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of said groups of character-corresponding devices; (*c*) a frame or lever, acting to give movement to the controlling elements aforesaid, each as required, thereby to actuate the character-corresponding devices; (*d*) a plurality of keys; (*e*) a plurality of tilting pieces connected with the controlling elements before mentioned and controlled by the keys; said tilting pieces lying normally out of the path of movement of the frame or lever aforesaid; each key serving when depressed to move the tilting piece controlled by it into the path of movement of the frame or lever aforesaid.

83. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of said groups of character-corresponding devices, and hereinafter in this paragraph termed "controlling elements;" (*c*) a frame or lever, acting to give movement to the controlling elements aforesaid, each as required, thereby to actuate the character-corresponding devices; (*d*) a plurality of keys; (*e*) a plurality of tilting pieces connected with the controlling elements before mentioned and controlled by the keys, said tilting pieces lying normally out of the path of movement of the frame or lever aforesaid; each key serving when depressed to move the tilting piece controlled by it into the path of movement of the frame or lever aforesaid; said keys controlling the movement of said frame or lever.

84. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements, each controlling one of said groups of character-corresponding devices and hereinafter in this paragraph termed "controlling elements," (*c*) a frame or lever acting to give movement to the controlling elements aforesaid, each element as required, thereby to actuate the character-corresponding devices; (*d*) a plurality of keys; (*e*) a plurality of tilting pieces, connected with the controlling elements before mentioned and controlled by the keys, said tilting pieces lying normally out of the path of movement of the frame or lever aforesaid, each key serving when depressed to move the tilting piece controlled by it into the path of movement of said frame or lever; and (*f*) a motor, controlled by said keys and serving to actuate the frame or lever aforesaid.

85. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of said groups of character-corresponding devices, and hereinafter in this paragraph termed "controlling elements;" (*c*) a frame or lever, acting to give movement to the controlling elements aforesaid, each element as required, thereby to actuate the character-corresponding devices; (*d*) a plurality of keys; (*e*) a plurality of tilting pieces connected with the controlling elements before mentioned and controlled by the keys; said tilting pieces lying normally out of the path of movement of the frame or lever aforesaid; each key serving when depressed to move the tilting piece controlled by it into the path of movement of said frame or lever; and (*f*) other keys controlling the action of the controlling elements aforesaid upon the different character-corresponding devices which they respectively control.

86. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements, each controlling one of said groups of character-corresponding devices and hereinafter in this paragraph termed "controlling elements;" (*c*) a frame or lever, acting to give movement to the controlling elements aforesaid, each element as required, thereby to actuate the character-corresponding devices; (*d*) tilting pieces connected with the controlling elements before mentioned, one of said tilting pieces being normally adapted to be impelled by the frame or lever aforesaid: and (*e*) keys whereby the other tilting pieces are connected, each as required, with the frame or lever aforesaid; that tilting piece before mentioned as being normally adapted to be impelled by the frame or lever aforesaid, being prevented from being impelled by said frame or lever when any other tilting piece is connected with said frame or lever.

87. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of said groups of character-corresponding devices, and hereinafter in this paragraph termed "controlling elements;" (*c*) a frame or lever, acting to give movement to the controlling elements aforesaid, each element as required, thereby to actuate the character-corresponding devices; (*d*) tilting pieces connected with the controlling elements before mentioned, one of said tilting pieces being normally adapted to be impelled by the frame or lever aforesaid; and (*e*) keys whereby the other tilting pieces are connected, each as required, with the frame or lever aforesaid; that tilting piece before mentioned as being normally adapted to be impelled by the frame or lever aforesaid being prevented from being impelled by said frame or lever when any other tilting piece is connected with said frame or lever; and (*f*) a motor, controlled by said keys and serving to actuate the frame or lever aforesaid.

88. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements each controlling one of said groups of character-corresponding devices and hereinafter in this paragraph termed "controlling elements;" (*c*) a frame or lever acting to give movement to the controlling elements aforesaid, each element as required, thereby to actuate the character-corresponding devices aforesaid; (*d*) tilting pieces connected with the controlling elements before mentioned, one of said tilting pieces being normally adapted to be impelled by the frame or lever aforesaid. (*e*) keys, whereby the other tilting pieces are connected, each as required, with the frame or lever aforesaid; that tilting piece before mentioned as being normally adapted to be impelled by the frame or lever aforesaid, being prevented from being impelled by said frame or lever when any other tilting piece is connected with said frame or lever; and (*f*) other keys controlling the action of the elements aforesaid upon the different character-corresponding devices which they respectively control.

89. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a plurality of elements, each controlling one of said groups of character-corresponding devices and hereinafter in this paragraph termed "controlling elements;" (*c*) a frame or lever, acting to give movement to the controlling elements aforesaid, each element as required, thereby to actuate the character-corresponding devices; (*d*) tilting pieces connected with the controlling elements before mentioned, one of said tilting pieces being normally adapted to be impelled by the frame or lever aforesaid; (*e*) keys whereby the other tilting pieces are connected, each as required, with the frame or lever aforesaid, that tilting piece before mentioned as being normally adapted to be impelled by the frame or lever aforesaid being prevented from being impelled by said frame or lever when any other tilting piece is connected with said frame or lever; (*f*) a motor, controlled by said keys and serving to actuate the frame or lever aforesaid; and (*g*) other keys, controlling the action of the controlling elements aforesaid upon the different character-corresponding devices which they respectively control.

90. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor; (*c*) a key; (*d*) an element controlled by the key and the motor aforesaid, said element being normally disconnected from said motor; said key acting, when depressed, to connect said element with said motor; and (*e*) means whereby said element is connected with the different character-corresponding devices of the group before mentioned, each as required.

91. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor; (*c*) a key; (*d*) an element controlled by the key and the motor aforesaid, said element being normally disconnected from said motor, said key acting when depressed to connect said element with said motor; and (*e*) key mechanism, whereby said element is connected with the different character-corresponding devices of the group before mentioned, each as required.

92. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor; (*c*) a key controlling said motor; (*d*) a part or element normally disconnected from the motor aforesaid; the key before mentioned acting when depressed both to connect the element aforesaid with the motor aforesaid and to bring said motor into action, so that it gives movement to said element; and (*e*) means whereby said element is connected with the different character-corresponding devices of the group before mentioned, each as required.

93. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor; (*c*) a key, controlling said motor; (*d*) a part or element normally disconnected from the motor aforesaid; the key before mentioned acting when depressed both to connect the element aforesaid with the motor aforesaid, and to bring said motor into action, so that it gives movement to said element, and (*e*) key mechanism, whereby said element is connected with the different character-corresponding devices of the group before mentioned, each as required.

94. In a type-writing machine, and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key; (*d*) an element controlled by the key and the motor aforesaid, said element being normally disconnected from said motor; said key acting, when depressed, to connect said element with said motor; and (*e*) means whereby said element is connected with the different type-bars of the group before mentioned, each as required.

95. In a type-writing machine, and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key; (*d*) an element controlled by the key and by the motor aforesaid, said element being normally disconnected from said motor; said key acting when depressed to connect said element with said motor; and (*e*) key mechanism, whereby said element is connected with the different type-bars of the group before mentioned, each as required.

96. In a type-writing machine and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key controlling said motor; (*d*) a part or element normally disconnected from the motor aforesaid; the key before mentioned acting, when depressed, both to connect the element aforesaid with the motor aforesaid, and to bring said motor into action, so that it gives movement to said element; and (*e*) means whereby said element is connected with the different type-bars of the group before mentioned, each as required.

97. In a type-writing machine and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key controlling said motor; (*d*) a part or element normally disconnected from the motor aforesaid, the key before mentioned acting, when depressed, both to connect the element aforesaid with the motor aforesaid, and to bring said motor into action, so that it gives movement to said element; and (*e*) key mechanism, whereby said element is connected with the different type-bars of the group before mentioned, each as required.

98. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor; (*c*) a key; (*d*) an element controlled by the key and the motor aforesaid, said element being normally disconnected from said motor; said key acting when depressed to connect said element with said motor and (*e*) a member continuously in operative relation to the element above mentioned and movable to connect said element with the different character-corresponding devices of the group before mentioned, each as required.

99. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor: (*c*) a key; (*d*) an element controlled by the key and the motor aforesaid; said element being normally disconnected from said motor; said key acting when depressed to connect said element with said motor: (*e*) a member continuously in operative relation to the element above mentioned: and (*f*) key mechanism, whereby said member is moved into different positions, thereby to connect the element above mentioned with the different character-corresponding devices of the group before mentioned, each as required.

100. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor; (*c*) a key controlling said motor, (*d*) a part or element normally disconnected from the motor aforesaid; the key before mentioned acting when depressed both to connect the element aforesaid with the motor aforesaid, and to bring said motor into action so that it gives movement to said element; and (*e*) a member continuously in operative relation to the element above mentioned and movable to connect said element with the different character-corresponding devices of the group before mentioned, each as required.

101. In combination, (*a*) a group of character-corresponding devices; (*b*) a motor; (*c*) a key, controlling said motor; (*d*) a part or element normally disconnected from the motor aforesaid; the key before mentioned acting when depressed both to connect the element aforesaid with the motor aforesaid, and to bring said motor into action, so that it gives movement to said element; (*e*) a member continuously in operative relation to the element above mentioned; and (*f*) key mechanism whereby said member is moved into different positions, thereby to connect the element before mentioned with the different character-corresponding devices of the group above mentioned, each as required.

102. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a motor; (*c*) a plurality of keys; (*d*) a plurality of elements each corresponding to and controlled by one of the keys aforesaid, conjointly with the motor aforesaid; each of said elements being normally disconnected from said motor; each of said keys acting, when depressed, to connect that one of the elements before mentioned which corresponds to said key with the motor aforesaid: and (*e*) a set of members corresponding to the elements aforesaid: each member being continuously in operative relation to that element with which it corresponds, said members being connected together and moving to connect the different elements with which they respectively correspond with the different character-corresponding devices of the groups which said elements respectively control.

103. In combination, (*a*) a plurality of groups of character-corresponding devices; (*b*) a motor; (*c*) a plurality of keys; (*d*) a plurality of elements each corresponding to and controlled by one of the keys aforesaid conjointly with the motor aforesaid; each of said elements being normally disconnected from said motor; each of said keys acting, when depressed, to connect that one of the elements before mentioned which corresponds to said key, with the motor aforesaid; (*e*) a set of members corresponding to the elements aforesaid, each member being continuously in operative relation to the element with which it corresponds, said members being connected together and movable to bring each member into operative relation with the different character-corresponding devices of the group with which each corresponds; and (*f*) key mechanism, controlling the movements of the set of members aforesaid.

104. In a type-writing machine, and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key; (*d*) an element controlled by the key and the motor aforesaid, said element being normally disconnected from said motor; said key acting when depressed to connect said element with said motor; and (*e*) a member continuously in operative relation to the element above mentioned and movable to connect said element with the different type-bars of the group before mentioned, each as required.

105. In a type-writing machine, and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key; (*d*) an element controlled by the key and the motor aforesaid; said element being normally disconnected from said motor: said key acting when depressed to connect said element with said motor; (*e*) a member continuously in operative relation to the element above mentioned, and (*f*) key mechanism whereby said member is moved into different positions, thereby to connect the element above mentioned with the different type-bars of the group above mentioned, each as required.

106. In a type-writing machine, and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key controlling said motor; (*d*) a part or element normally disconnected from the motor aforesaid; the key before mentioned acting when depressed both to connect the element aforesaid with the motor aforesaid, and to bring said motor into action so that it gives movement to said element, and (*e*) a member continuously in operative relation with the element above mentioned, and movable to connect said element with the different type-bars of the group before mentioned, each as required.

107. In a type-writing machine, and in combination, (*a*) a group of type-bars; (*b*) a motor; (*c*) a key, controlling said motor; (*d*) a part or element normally disconnected from the motor aforesaid, the key before mentioned acting, when depressed, both to connect the element aforesaid with the motor aforesaid, and to bring said motor into action, so that it gives movement to said element; (*e*) a member continuously in operative relation to the element above mentioned: and (*f*) key mechanism, whereby said member is moved into different positions, thereby to connect the element before mentioned with the different type-bars of the group above mentioned, each as required.

108. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor; (*c*) a plurality of keys; (*d*) a plurality of elements each corresponding to and controlled by one of the keys aforesaid, conjointly with the motor aforesaid: each of said elements being normally disconnected from said motor; each of said keys acting, when depressed, to connect that one of the elements before mentioned which corresponds to said key with the motor aforesaid; and (*e*) a set of members corresponding to the elements aforesaid: each member being continuously in operative relation with that element with which it corresponds, said members being connected together and moving to connect the different elements with which they respectively correspond, with the different type-bars of the groups which said elements respectively control.

109. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor; (*c*) a plurality of keys; (*d*) a plurality of elements, each corresponding to and controlled by one of the keys aforesaid conjointly with the motor aforesaid; each of said elements being normally disconnected from said motor; each of said keys acting, when depressed, to connect that one of the elements before mentioned, which corresponds to said key, with the motor aforesaid: (*e*) a set of members corresponding to the elements aforesaid, each member being continuously in operative relation to the element with which it corresponds, said members being connected together and movable to bring each member into operative relation with the different type-bars of the group with which each member corresponds; and (*f*) key mechanism, controlling the movements of the set of members aforesaid.

110. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a motor, adapted to give movement to all of said character-corresponding levers, each lever as required; (*c*) group-controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling ele-

ments aforesaid, each as required, with the motor aforesaid; and (*f*) connecting members, intermediate the group-controlling elements aforesaid and the groups of character-corresponding levers, controlled respectively by said group-controlling elements; said connecting members being movable to connect the controlling elements corresponding respectively to them with the different character-corresponding levers which said group-controlling elements respectively control.

111. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a motor, adapted to give movement to all said character-corresponding levers, each as required; (*c*) a group of controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; said keys acting also to bring said motor into action for the impelling of the controlling elements connected with it, and (*e*) connecting members intermediate the group-controlling elements aforesaid, and the groups of character-corresponding levers which said group-controlling elements respectively control; said connecting members being movable to connect the controlling elements corresponding respectively to them with the different character-corresponding levers which said group-controlling elements respectively control.

112. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a motor, adapted to give movement to all said character-corresponding levers, each as required; (*c*) group-controlling elements normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; (*e*) connecting members, equal in number to the number of groups of character-corresponding levers aforesaid and corresponding respectively each with one of said groups of character-corresponding levers, and with one of the controlling elements before mentioned; said connecting members being movable to connect the group-controlling elements aforesaid with the character-corresponding levers controlled respectively by them; and (*f*) key mechanism, whereby the connecting members aforesaid are moved to connect the different group-controlling elements aforesaid with the different character-corresponding levers that they respectively control.

113. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a frame or lever normally at rest; (*c*) group-controlling elements normally disconnected from the frame or lever aforesaid; (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid with the frame or lever aforesaid, each as required, said keys acting also to bring the motor aforesaid into action, so that it gives movement to the frame or lever aforesaid; and (*f*) connecting members intermediate the group-controlling elements aforesaid and the groups of character-corresponding levers controlled respectively by group-controlling elements aforesaid; said connecting members being movable to connect the group-controlling elements corresponding respectively to them with the different character-corresponding levers which said group-controlling elements respectively control.

114. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a frame or lever, normally at rest; (*c*) group-controlling elements normally disconnected from the frame or lever aforesaid; (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid with the frame or lever aforesaid, each as required, said keys acting also to bring the motor aforesaid into action, so that it gives movement to the frame or lever aforesaid; (*f*) a set of connecting members, equal in number to the number of groups of character-corresponding levers aforesaid, and corresponding respectively each with one of said groups of character-corresponding levers, and with one of the group-controlling elements before mentioned; said connecting members being movable to connect the group-controlling elements aforesaid with the character-corresponding levers controlled respectively by them; and (*g*) key mechanism, whereby the connecting members aforesaid are moved to connect the different group-controlling elements aforesaid with the character-corresponding levers which said group-controlling elements control.

115. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor, adapted to give movement to all of said type-bars, each type-bar as required; (*c*) group-controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; (*e*) connecting members, intermediate the group-controlling elements aforesaid, and the groups of type-bars controlled respectively by said group-controlling elements; said connecting members being movable to connect the controlling elements corresponding respectively to them with the different type-bars, which said group-controlling elements respectively control.

116. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor adapted to give movement to all of said type-bars, each as required; (*c*) group-controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; said keys acting also to bring said motor into action for the impelling of the group-controlling element connected with it; and (*e*) connecting members intermediate the group-controlling elements aforesaid and the group of type-bars which said group-controlling elements respectively control; said connecting members being movable to connect the controlling elements corresponding respectively to them with the different type-bars which said group-controlling elements respectively control.

117. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor, adapted to give movement to all of said type-bars, each as required; (*c*) group-controlling elements normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; (*e*) connecting members, equal in number to the number of groups of type-bars aforesaid, and corresponding respectively each with one of said groups of type-bars, and with one of the controlling elements before mentioned; said connecting members being movable to connect the group-controlling elements aforesaid with the type-bars controlled respectively by them; and (*f*) key mechanism, whereby the connecting members aforesaid are moved to connect the different group-controlling elements aforesaid with the different type-bars that they respectively control.

118. In a type writing machine, and in combination, (*a*) a plurality of groups of type-bars, (*b*) a frame or lever normally at rest; (*c*) group-controlling elements, normally disconnected from the frame or lever aforesaid; (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid, with the frame or lever aforesaid, each as required, said keys acting also to bring the motor, aforesaid into action, so that it gives movement to the frame or lever aforesaid; and (*f*) connecting members, intermediate the group-controlling elements aforesaid, and the groups of type-bars controlled respectively by the group-controlling elements aforesaid, said connecting members being movable to connect the controlling elements corresponding respectively to them with the different type-bars which said group-controlling elements respectively control.

119. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a frame or lever, normally at rest; (*c*) group-controlling elements, normally disconnected from the frame or lever aforesaid, (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid with the frame or lever aforesaid, each as required, said keys acting also to bring the motor aforesaid into action, so that it gives movement to the frame or lever aforesaid; (*f*) a set of connecting members, equal in number to the number of groups of type-bars aforesaid, and corresponding respectively each with one of said groups of type-bars and with one of the group-controlling elements before mentioned, said connecting members being movable to connect the group-controlling elements aforesaid with the type-bars controlled respectively by them; and (*d*) key mechanism, whereby the connecting members aforesaid are moved to connect the different group-controlling elements aforesaid with the type-bars which said group-controlling elements control.

120. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a motor adapted to give movement to all of said character-corresponding levers, each as required; (*c*) group-controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; (*e*) pins, intermediate the group-controlling elements aforesaid, and the groups of character-corresponding levers aforesaid, controlled respectively by the different group controlling elements aforesaid; said pins being mounted and moving as a set to connect the group-controlling elements corresponding respectively to them, with the different character-corresponding levers which such group-controlling elements respectively control.

121. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a motor, adapted to give movement to all said character-corresponding levers, each as required; (*c*) group-controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; (*e*) pins intermediate the group-controlling elements aforesaid, and the groups of character-corresponding levers controlled respectively by said group-controlling elements; said pins being mounted and moving as a set to connect the group-controlling elements corresponding respectively to them with the different character-corresponding levers which said group-controlling elements respectively control; and (*f*) key mechanism, whereby the pins above mentioned are moved.

122. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a frame or lever normally at rest; (*c*) group-controlling elements, normally disconnected from the frame or lever aforesaid; (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid, with the frame or lever aforesaid, each as required; said keys acting also to bring the motor aforesaid into action, so that it gives movement to the frame or lever aforesaid; and (*f*) pins intermediate the group-controlling elements aforesaid and the groups of character-corresponding levers controlled respectively by said group-controlling elements; said pins moving to connect the group-controlling elements corresponding respectively to them with the different character-corresponding levers which such group-controlling elements respectively control.

123. In combination, (*a*) a plurality of groups of character-corresponding levers; (*b*) a frame or lever normally at rest; (*c*) group-controlling elements normally disconnected from the frame or lever aforesaid; (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid with the frame or lever aforesaid, each as required; said keys acting also to bring the motor aforesaid into action, so that it gives movement to the frame or lever aforesaid; (*f*) pins intermediate the group-controlling elements aforesaid and the groups of character-corresponding levers controlled respectively by the group-controlling elements; said pins moving to connect the group-controlling elements corresponding respectively to them with the different character-corresponding levers; which such group-controlling elements respectively control; and (*g*) key mechanism, whereby the pins above mentioned are moved.

124. In combination, (*a*) a motor; (*b*) a plurality of groups of character-corresponding levers; (*c*) group-controlling levers, equal in number to the number of groups of character-corresponding levers aforesaid and corresponding each to one of the groups of levers aforesaid; (*d*) keys; (*e*) connections between the group-controlling levers aforesaid and the motor aforesaid, controlled by the keys aforesaid; and (*f*) pins, intermediate the group-controlling levers aforesaid and the character-corresponding levers, said pins being shiftable to connect the different levers of a group of character-corresponding levers, each as required, with the corresponding group-controlling lovers.

125. In combination, (*a*) a motor; (*b*) a plurality of groups of character-corresponding levers; (*c*) group-controlling levers, equal in number to the number of groups of character-corresponding levers aforesaid, and corresponding each to one of the groups of character-corresponding levers aforesaid; (*d*) keys; (*e*) connections between the group-controlling levers aforesaid and the motor aforesaid; said connections being controlled by the keys aforesaid; (*f*) pins, intermediate the group-controlling levers aforesaid and the character-corresponding levers; said pins being shiftable to connect the different levers of a group of character-corresponding levers, each as required, with the corresponding group-controlling lovers; and (*g*) key mechanism, whereby the pins aforesaid are moved into different positions, as required.

126. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a motor, adapted to give movement to all of said type-bars, each as required; (*c*) group-controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; (*e*) pins, intermediate the group-controlling elements aforesaid and the groups of type-bars aforesaid; said pins being mounted and moving as a set to connect the group-controlling elements corresponding respectively to them with the different type-bars which said group-controlling elements control.

127. In a type-writing machine, and in combination, (*a*) a plurality of groups of type bars; (*b*) a motor, adapted to give movement to all of said type-bars, each as required; (*c*) group-controlling elements, normally disconnected from the motor aforesaid; (*d*) keys, acting to connect the different group-controlling elements aforesaid, each as required, with the motor aforesaid; (*e*) pins, intermediate the group-controlling elements aforesaid and the groups of character-corresponding levers, controlled respectively by said group-controlling elements; said pins being mounted and moving as a set to connect the group-controlling elements corresponding respectively to them with the different type-bars which said group-controlling elements respectively control; and (*f*) key mechanism whereby the pins above mentioned, are moved.

128. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a frame or lever, normally at rest; (*c*) group-controlling elements, normally disconnected from the frame or lever aforesaid; (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid with the frame or lever aforesaid, each as required; said keys acting also to bring the motor aforesaid into action, so that it gives movement to the frame or lever aforesaid; and (*f*) pins intermediate the group-controlling elements aforesaid, and the groups of type-bars controlled respectively by said group-controlling elements, said pins moving to connect the group-controlling elements corresponding respectively to them with the different type-bars which said group-controlling elements control.

129. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; (*b*) a frame or lever normally at rest; (*c*) group-controlling elements normally disconnected from the frame or lever aforesaid; (*d*) a motor; (*e*) keys, acting to connect the different group-controlling elements aforesaid, with the frame or lever aforesaid, each as required, said keys acting also to bring the motor aforesaid into action, so that it gives movement to the frame or lever aforesaid; (*f*) a set of pins, intermediate the group-controlling elements aforesaid, and the groups of type-bars controlled respectively by said group-controlling elements; said pins moving to connect the group-controlling elements corresponding respectively to them with the different type-bars, which such group-controlling elements respectively control and (*g*) key mechanism, whereby the pins above mentioned are moved.

130. In a type-writing machine, and in combination, (*a*) a motor; (*b*) a plurality of groups of type-bars; (*c*) group-controlling levers, equal in number to the number of groups of type-bars aforesaid; said group controlling elements corresponding each to one of the groups of type-bars aforesaid; (*d*) keys, (*e*) connections between the group-controlling levers aforesaid and the motor aforesaid, controlled by the keys aforesaid; and (*f*) pins, intermediate the group-controlling levers aforesaid and the type-bars aforesaid; said pins being shiftable to connect the different type-bars of a group, each type-bar, as required, with the corresponding group-controlling lever.

131. In a type-writing machine, and in combination, (*a*) a motor; (*b*) a plurality of groups of type-bars; (*c*) group-controlling levers, equal in number to the number of groups of type-bars aforesaid, said group-controlling levers corresponding each to one of the groups of type-bars aforesaid; keys; (*e*) connections between the group-controlling levers aforesaid and the motor aforesaid, said connections being controlled by the keys aforesaid; (*f*) a set of pins intermediate the group-controlling levers aforesaid, and the type-bars aforesaid; said pins being shiftable to connect the different type-bars of a group, each type-bar as required, with the corresponding group-controlling lever; and (*g*) key mechanism whereby the set of pins aforesaid is moved into different positions, as required.

132. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including in combination, (A) two sets of type-bars; the type-bars of each set being arranged in such a manner that they strike to a printing-point common to the bars of such set; and (B) a type-bar-controlling mechanism for each of the sets of type-bars above mentioned; one of the type-bar-controlling mechanisms above mentioned being a permutational type-bar-selecting device, having a number of keys less than the number of type-bars controlled by it; said permutational type-bar-selecting device being constructed and arranged in such a manner that its small number of keys, operating in various permutations or combinations, serves to bring the various type-bars controlled by it into action, each as required; said permutational type-bar-selecting device including (*c*) a single-motor device, common to the type-bars of the set controlled by said permutational type-bar-selecting device, and serving to impel all said type bars, each type-bar as required; a plurality of said type-bars being normally disconnected from said motor device; and (*b*) means, whereby said type-bars are connected, each as required, with the motor device aforesaid.

133. In a type-writing machine, or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including in combination, (A) two sets of type-bars; the bars of each set being arranged in such a manner that they strike to a printing-point common to the bars of such set; and (B) a type-bar-controlling mechanism for each of the sets of type-bars above mentioned; each of the type-bar-controlling mechanisms above mentioned being a permutational type-bar-selecting device, having a number of keys less than the number of type-bars controlled by it; said permutational type-bar-selecting device being constructed and arranged in such a manner that its small number of keys operating in various permutations or combinations, serves to bring the various type-bars controlled by it into action, each type bar as required; each of said permutational type-bar-selecting devices including (*a*) a motor device, common to the type-bars of the set controlled by each permutational type-bar-selecting device; said motor device serving to impel all said type-bars, each type-bar as required; a plurality of said type-bars being normally disconnected from said motor device; and (*b*) means whereby said type-bars are connected, each as required, with the motor device aforesaid.

134. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, in combination, (A) two sets of type-bars; the bars of each set being arranged in such a manner that they strike to a printing-point common to the bars of such set; (B) a quick-acting type-bar-controlling mechanism for one of the sets of type-bars above mentioned; and (C) a slow-acting type-bar-controlling mechanism for the other set of type bars above mentioned;

each of the type-bar-controlling mechanisms above mentioned being a permutational type-bar-selecting device, having a number of keys less than the number of type bars controlled by it; said permutational type-bar-selecting device being constructed and arranged in such a manner that a small number of keys operating in various permutations or combinations serves to bring the various type-bars controlled by it into action, each type-bar as required; each of said permutational type-bar-selecting devices including (*a*) a single motor device, common to the type-bars of the set controlled by such permutational type-bar-selecting device; said motor device serving to impel all said type-bars, each type-bar as required; a plurality of said type-bars being normally disconnected from said motor device; and (*b*) means whereby said type-bars are connected, each as required, with a motor device serving for the set of type-bars to which it belongs.

135. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organization including, two sets of type-bars, the type-bars of each set being arranged in such a manner that they strike to a printing-point common to the type-bars of such set, the printing-points of the two sets of type-bars being distinct from and adjacent to each other; two motor devices, one motor device serving to actuate all the type-bars of one of the two sets aforesaid, and the other motor device serving to actuate all the type-bars of the other set above mentioned; and permutational selecting mechanism for each set of type-bars, including (*a*) keys less in number than the type-bars of the set controlled by them; and (*b*) means, controlled by said keys acting singly and in different combinations, whereby the different type-bars of such set are connected, each type-bar as required, with the motor device serving for the type-bars of such set.

136. In a type-writing machine or other similar instrument, an organization for producing consecutive letters by simultaneous actions of the operator, said organizations including two sets of type-bars, the bars of each set being arranged in such a manner that they strike to a printing-point common to the bars of such set; (B) two motor devices, to wit, a quick-acting motor device, serving to actuate all the type-bars of one of the two sets aforesaid; and a slow-acting motor device, serving to actuate all the type-bars of the other set above mentioned; and (C) a permutational selecting mechanism for each of the sets of type-bars aforesaid; each of said permutational selecting mechanisms including (*a*) keys less in number than the type-bars of the set controlled by them; and (*b*) means controlled by said keys acting singly and in different combinations, whereby the different type-bars of such set are connected, each type-bar as required, with the motor device serving for the type-bar of such set.

137. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (*b*) a motor device, acting to impel all said type-bars, each as required; (*c*) keys, each controlling a different group of the type-bars aforesaid, and acting, when depressed, to cause some one of the type-bars of said group to be connected with the motor device aforesaid; and (*d*) means, controlling what type-bar of the group shall be connected with the motor device aforesaid.

138. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (*b*) a motor device, acting to impel all said type-bars, each as required; (*c*) keys, each controlling a different group of the type-bars aforesaid, and acting when depressed to cause some one of the type-bars of said group to be connected with the motor device aforesaid; and (*d*) means, operated by one or more other keys acting simultaneously with the keys aforesaid to control what type-bar of the group shall be connected with the motor device aforesaid.

139. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a single motor device, acting to impel all said type-bars, each type-bar as required; (*c*) a group of keys, each key controlling a different group of the type-bars aforesaid; (*d*) other keys, and means controlled thereby coacting with the keys first named to connect the type-bars aforesaid, each as required, with the motor device aforesaid; the keys first in this paragraph mentioned acting, when depressed, to control what group of type-bars shall have one of its bars connected with the motor device aforesaid, and the keys of the other group acting simultaneously to control what type-bar of such group shall be connected with the motor device aforesaid.

140. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a single motor device, acting to impel all said type-bars, each type-bar as required; (*c*) a group of finger-keys, each controlling a different group of the type-bars aforesaid; and (*d*) one or more thumb-keys, and means operated thereby coacting with the finger-keys to connect the type-bars aforesaid each as required, with the motor device aforesaid; the finger-keys aforesaid acting, when depressed, to control what group of type-bars shall have one of its bars connected with the motor device aforesaid, and the thumb-key or thumb-keys acting to control what type-bar of such group shall be connected with said motor device.

141. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (*b*) a single motor device, acting to impel all said type-bars, each type-bar as required; (*c*) keys, less in number than the groups of type-bars aforesaid, each of said keys controlling a different group of said type-bars, and acting to cause some one of the type-bars of the group controlled by it to be connected with the motor device aforesaid; (*d*) an element, controlling one or more other type-bars striking to the same printing-center as the type-bars above mentioned; said element being itself controlled by the keys above mentioned, and acting as an alternative to said keys; and (*e*) means, controlling what type-bar of the group shall be connected with the motor device aforesaid.

142. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (*b*) a single motor device, acting to impel all said type-bars, each type-bar as required; (*c*) keys, less in number than the groups of type-bars aforesaid, each of said keys controlling a different group of said type-bars and acting to cause some one of the type-bars of the group controlled by it to be connected with the motor device aforesaid; (*d*) an element, controlling one or more other type-bars striking to the same printing-center as the type-bars above mentioned; said element being itself controlled by the keys above mentioned and acting as an alternative to said keys, and (*e*) one or more other keys, controlling what type-bars of a group shall be connected with the motor device aforesaid.

143. In a type writing machine, and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (*b*) a motor device, acting to impel all said type-bars, each type-bar as required; (*c*) finger-keys, less in number than the groups of type-bars aforesaid; said finger-keys each controlling a different group of said type-bars and acting to cause some one of the type-bars of the group controlled by it to be connected with the motor device aforesaid; (*d*) an element, controlling one or more other type-bars striking to the same printing-center as the other type-bars first above mentioned; said element being itself controlled by the keys above mentioned, and serving as an alternative to said keys; and (*e*) one or more thumb-keys, coacting with the finger-keys above mentioned to control what type-bar of the group controlled by the finger-key depressed shall be connected with the motor device aforesaid.

144. In combination, (A) a plurality of groups of character-corresponding devices; (B) a single motor device, serving to actuate all of said character-corresponding devices; each as required; and (C) double selective devices, acting both (*a*) to select what group of the character-corresponding devices aforesaid shall have one of its character-corresponding devices connected with the motor device aforesaid, and (*d*) to select what character-corresponding device in such group shall be connected with said motor device.

145. In combination, (A) a plurality of groups of character-corresponding devices; (B) a single motor device, serving to actuate all said character-corresponding devices, each as required; and (C) double selective devices acting both (*a*) to select what group of the character-corresponding devices aforesaid shall have one of its character-corresponding devices connected with the motor device aforesaid, and (*b*) to select what character-corresponding device in such group shall be connected with said motor device; said double selective devices including two groups of keys: the keys of one group controlling what group of the character-corresponding devices aforesaid shall have one of its character-corresponding devices connected with the motor device aforesaid; and the keys of the other group controlling what character-corresponding device in such group shall be connected with the motor device aforesaid.

146. In combination, (A) a plurality of groups of character-corresponding devices; (B) a single motor device, serving to actuate all of said character-corresponding devices, each as required; and (C) double selective devices, acting both (*a*) to select what group of the character-corresponding devices aforesaid shall have one of its character-corresponding devices connected with the motor device aforesaid; and (*b*) to select what character corresponding device in such group shall be connected with said motor device; said double selective devices including finger-keys, controlling what group of the character-corresponding devices aforesaid shall have one of its character-corresponding devices connected with the motor device aforesaid; and one or more thumb-keys, controlling what character-corresponding device in such group shall be connected with said motor device.

147. In a type-writing machine, and in combination, (A) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (B) a single motor device, acting to impel all said type-bars, each as required; and (C) double selective devices, acting both (*a*) to select what group of type-bars connected with the motor device aforesaid, and (*b*) to select what type-bar in each group shall be connected with said motor device.

148. In a type-writing machine, and in combination, (A) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (B) a single motor device, acting to impel all said type-bars, each as required; and (C) double selective devices, acting both (*a*) to select what group of type-bars shall have one of its type-bars connected with the motor device aforesaid; and (*b*) to select what type-bar in each group shall be connected with said motor device; said double selective devices including two groups of keys; the keys of one group controlling what group of the type-bars aforesaid shall have one of its type-bars connected with the motor device aforesaid; and the keys of the other group controlling what type-bars in each group shall be connected with the motor device aforesaid; some or all of the keys aforesaid controlling also the motor device aforesaid.

149. In a type-writing machine, and in combination, (A) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (B) a single motor device, acting to impel all of said type-bars, each as required; and (C) double selective devices, acting both (*a*) to select what group of type-bars shall have one of its type-bars connected with the motor device aforesaid, and (*b*) to select what type-bar in each group shall be connected with said motor device; said double selective devices including finger-keys, controlling what group of type-bars aforesaid shall have one of its type-bars connected with the motor device aforesaid, and one or more thumb-keys controlling what type-bars in each group shall be connected with said motor device; some or all of the keys aforesaid controlling the motor device aforesaid.

150. In combination, (A) a plurality of groups of character-corresponding devices; (B) a frame or lever, serving to give movement to all said character corresponding devices, each as required; and (C) double selective devices, acting both (*a*) to select what group of the character-corresponding devices aforesaid shall have one of its number connected with the frame or lever aforesaid, and (*b*) to select what character-corresponding device in each group shall be connected with said frame or lever.

151. In combination, (A) a plurality of groups of character-corresponding devices; (B) a frame or lever, serving to give movement to all said character-corresponding devices, each as required; (C) double selective devices, acting both (*a*) to select what group of the character-corresponding devices aforesaid shall have one of its number connected with the frame or lever aforesaid and (*b*) to select what character-corresponding device in each group shall be connected with said frame or lever; said double selective devices including a plurality of keys, controlling what group of the character-corresponding devices aforesaid shall have one of its number connected with the frame or lever aforesaid, and one or more other keys, controlling what character-corresponding device in each group shall be connected with said frame or lever.

152. In combination, (A) a plurality of groups of character-corresponding devices; (B) a frame or lever, serving to give movement to all said character-corresponding devices, each as required; and (C) double selective devices, acting both (*a*) to select what group of the character-corresponding devices aforesaid shall have one of its number connected with the frame or lever aforesaid, and (*b*) to select what character-corresponding device in each group shall be connected with said frame or lever; said double selective devices including finger-keys, controlling what group of the character-corresponding devices aforesaid shall have one of its number connected with the frame or lever aforesaid, and one or more thumb-keys controlling what character-corresponding device in each group shall be connected with said frame or lever.

153. In a type-writing machine and in combination, (A) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (B) a frame or lever, serving to give movement to all said type-bars, each as required; and (C) double selective devices, acting both (*a*) to select what group of type-bars shall have one of its type-bars connected with the frame or lever aforesaid, and (*b*) to select what type-bar in each group shall be connected with said frame or lever.

154. In a type-writing machine, and in combination, (A) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (B) a frame or lever, serving to give movement to all said type-bars, each as required; and (C) double selective devices, acting both (*a*) to select what group of type-bars shall have one of its type-bars connected with the frame or lever aforesaid, and (*b*) to select what type-bar in each group shall be connected with said frame or lever; said double selective devices including a plurality of keys, controlling what group of the type-bars aforesaid shall have one of its type-bars connected with the frame or lever aforesaid, and one or more other keys, controlling what type-bar in each group shall be connected with said frame or lever; some or all of the keys above mentioned controlling the frame or lever aforesaid.

155. In a type-writing machine and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (B) a frame or lever, serving to give movement to all said type-bars, each as required; and (C) double selective devices, acting both (*a*) to select what group of type-bars shall have one of its type-bars connected with the frame or lever aforesaid, and (*b*) to select what type-bar in each group shall be connected with said frame or lever; said double selective devices including finger-keys, controlling what group of the type-bars aforesaid shall have one of its type-bars connected with the frame or lever aforesaid, and one or more thumb-keys controlling what type-bar in each group shall be connected with said frame or lever; some or all of the keys aforesaid controlling the frame or lever aforesaid.

156. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center, (*b*) a frame or lever, serving to give movement to all said type-bars, each as required; (*c*) keys, each controlling a different group of the type-bars aforesaid, and acting, when depressed, to cause some one of the type-bars of said group to be connected with the frame or lever aforesaid; and (*d*) means controlling what type-bar of a group shall be connected with said frame or lever.

157. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars; said type-bars striking to a common printing-center; (*b*) a frame or lever serving to give movement to all said type-bars, each as required; (*c*) keys, each controlling a different group of the type-bars aforesaid, and acting, when depressed, to cause some one of the type-bars of said group to be connected with the frame or lever aforesaid; and (*d*) means, operated by one or more other keys acting simultaneously with the keys aforesaid to control what type-bar of a group shall be connected with the motor device aforesaid.

158. In a type-writing machine, and in combination, (*a*) a plurality of groups of type-bars, said type-bars striking to a common printing-center; (*b*) a frame or lever, acting to give movement to all said type-bars, each type-bar as required; (*c*) a group of finger-keys, each controlling a different group of the type-bars aforesaid; and (*d*) one or more thumb-keys and means operated thereby, coacting with the finger-keys to connect the type-bars aforesaid, each as required, with the frame or lever aforesaid; the finger-keys aforesaid acting, when depressed, to control what group of type-bars shall have one of its type-bars connected with the frame or lever aforesaid, and the thumb-key or thumb-keys acting to control what type-bar of such group shall be connected with said frame or lever.

604,002. ROTARY CUTTER FOR LEATHER-WORK. EUGENE CHILDS, Boston, Mass., assignor to the Trimont Manufacturing Company, Portland, Me. Filed Aug. 27, 1897. Serial No. 649,719. (No model.)



Claim.—1. A rotatable cutter-head composed of a flange or face having a plurality of eccentric crossing grooves; a plurality of cutter-blades each having a foot extended from its side substantially at right angles, each foot having a rib to enter one of said grooves; and means to clamp said feet closely to the face of the said head, substantially as described.

2. A rotatable cutter-head composed of a flange or face having a plurality of eccentric crossing grooves; a plurality of cutter-blades having each a foot extended from its concaved side, substantially at right angles, each foot having a rib to enter one of said grooves; means to clamp said feet closely to the face of the said head; and an adjustable ring having a plurality of stops to cooperate with the heels of and position the blades, substantially as described.

3. A rotatable cutter-head composed of a flange or face having a plurality of eccentric crossing grooves; a plurality of cutter blades having each a foot extended from its side substantially at right angles, each foot having a rib to enter one of said grooves; means to clamp said feet closely to the face of the said head; an adjustable ring having a plurality of stops, and a plurality of series of holes, the holes of each series of holes in the ring occupying varying positions with relation to said stops; and a device to hold the said ring in working position, whereby very minute adjustments of the cutter-blades may be gained, substantially as described.

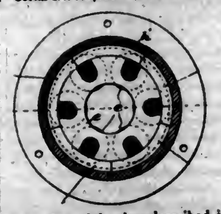
4. A series of cutter-blades having each a foot extended inwardly therefrom, said foot having a concave-convex rib extending from it at its edge opposite the blade and in a direction opposite said blade, combined with a head to clamp and carry said cutter-blades, the

ribs of said blades entering a series of eccentric grooves and being adjustable therein, substantially as described.

5. The herein-described cutter, it presenting a longitudinally concavo-convex blade having extended inwardly from its concaved side a foot, the said foot at its edge opposite said blade having extended from it in a direction opposite the direction of said blade a narrow concavo-convex rib, said rib being equidistant throughout from the said blade, substantially as described.

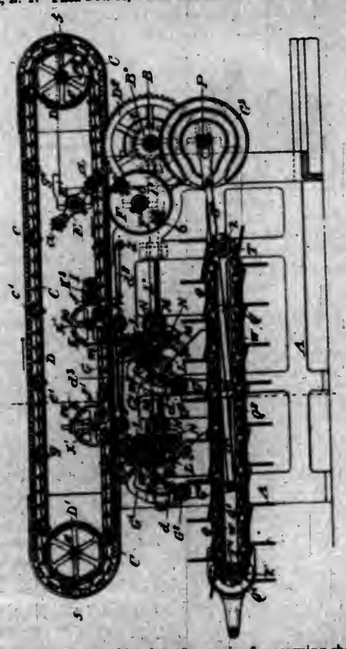
6. In a rotary cutter, a plurality of blades, and means to hold said blades in position, combined with a stop-ring provided with a series of holes and stops by which to secure proper adjustments of said blades and means cooperating with said holes to enable said ring to be held in its adjusted position, substantially as described.

604,003. ANTIFRICTION HUB OR WHEEL BEARING. ROBERT CHILDS, Boston, Mass., assignor to Edward O. Hy, same place. Filed Dec. 17, 1897. Serial No. 662,300. (No model.)



Claim.—A hub-bearing of the class described, it being composed of a hollow body provided with an internal annular groove, said body being slotted externally to intersect a part of said annular groove; a set of rollers having annular grooves, and a bearing-ring; combined with a series of segments inserted through said external slot and entering the annular groove of said body and also the grooves of said rollers; and a keeper to close said slot and prevent the escape of said segments, substantially as described.

604,004. MACHINE FOR CUTTING AND FOLDING PAPER. EDGAR H. COTTRELL and CHARLES P. COTTRELL, Stonington, Conn., assignors to the C. B. Cottrell & Sons Company, same place and New York, N. Y. Filed Feb. 11, 1897. Serial No. 622,947. (No model.)



Claim.—1. The combination of a carrier for carrying sheets one before another, a folding apparatus, assembling-rollers located between the carrier and the folding apparatus and having a surface velocity less than that of the carrier for taking therefrom several sheets one after another and placing them in a pile on the folding apparatus, means for operating the folding apparatus to produce the folding at once of the several sheets of the pile and cutters for cutting at once the several sheets thus folded together, substantially as herein described.

2. The combination of a carrier for carrying sheets one before another, a reciprocating folding-blade under said carrier, a folding-bed having an opening for said blade, assembling-rollers located between said carrier and said bed and having a surface velocity less than that of said carrier for taking several sheets one after another from said carrier and placing them in a pile on said bed, and a stop-gage against which the sheets are successively received on said bed, substantially as herein described.

3. The combination of a carrier for carrying sheets one before another, a folding apparatus located under entirely below said carrier, sheet-assembling rollers independent of said carrier located between the carrier and the folding apparatus and having a surface velocity less than that of the carrier, a bar arranged crosswise of the carrier and having attached to it fingers which project downward to direct the sheets downward therefrom to the folding apparatus, substantially as herein described.

4. The combination of a carrier, cutters for cutting paper into sheets in said carrier, a folding apparatus, assembling-rollers independent of said carrier located between the said carrier and folding apparatus for taking from the said carrier one after another several sheets cut by said cutters and placing said sheets one at a time in a pile on the folding apparatus, and means for operating the folding apparatus to produce the folding at once of the several sheets of the pile, substantially as herein described.

5. The combination of a carrier, cutters for cutting a web into sheets in said carrier, a folding apparatus, assembling-rollers independent of said carrier located between the said carrier and the folding apparatus and having a surface velocity less than that of said carrier for taking therefrom one after another several sheets cut from the web therein by said cutters and placing said sheets in a pile on the folding apparatus, and means for operating the folding apparatus to produce the folding at once of the several sheets of the pile, substantially as herein described.

6. The combination of a carrier for carrying sheets one before another, a reciprocating folding-blade under said carrier, a folding-bed consisting of a slotted plate stationary under said carrier with a downward inclination in the direction of the operating movement of the carrier, assembling-rollers for taking the sheets from said carrier to said plate, bars arranged across said plate above and below its folding-slot and carrying-fingers for guiding the sheets over the face of said plate and confining them thereto, substantially as herein described.

7. The combination of an endless carrier provided with sheet-holding grippers, and a pair of assembling-rollers having a surface velocity less than that of the carrier for taking sheets one after another from said carrier, one of said rollers having notches for the passage of the grippers between said rollers, substantially as herein described.

8. The combination of a carrier, rotary cutters for cutting a web transversely into sheets in said carrier, a folding apparatus arranged below said carrier for folding the cut sheets parallel with their cuts, assembling-rollers for taking the sheets one at a time from said carrier and presenting them in a pile to said folding apparatus, and cutters for slitting at once the several folded sheets of a pile transversely to their folds, substantially as herein described.

9. The combination of two folding apparatuses arranged one before the other, sheet-carrying devices running to both of said apparatuses, a pair of assembling rollers for each folding apparatus and mechanism for separating the assembling-rollers of one pair to allow sheets to pass by that pair and its respective folding apparatus to be taken by the other pair to the other folding apparatus, substantially as herein described.

10. The combination of two folding apparatuses arranged one before the other, a sheet-carrier having grippers in alternate series running past both of said apparatuses, a pair of assembling-rollers for each folding apparatus, and mechanism for separating the assembling-rollers of one pair to allow sheets carried by the grippers of one series to pass by that pair and its respective folding apparatus to be taken by the other pair to the other folding apparatus, substantially as herein described.

11. The combination of two folding apparatuses arranged one before the other, a sheet-carrier having grippers in alternate series running past both of said apparatuses, a pair of assembling-rollers for each folding apparatus, a bar with attached fingers for directing the sheets from the grippers of one series from one pair of assembling-rollers to the folding apparatus for that pair and means for operating said bar and fingers to allow the sheets in the grippers of the other series to pass by said fingers to the other folding apparatus, substantially as herein described.

12. The combination of two folding apparatuses arranged one before the other, a sheet-carrier running past both of said apparatuses to present sheets to each of them, and an intermittently-traveling delivery-carrier common to both feeding apparatuses for receiving folded sheets first from one and afterward from the other of said folding apparatuses, substantially as herein described.

13. The combination of two folding apparatuses arranged one before the other, a sheet carrier running past both of said apparatuses to present sheets to each of them, an intermittently-traveling delivery-carrier common to both feeding apparatuses for receiving folded sheets first from one and afterward from the other of said folding apparatuses, and cutters between each folding apparatus and the delivery-carrier, substantially as herein described.

14. The combination for locking and unlocking the cam-lever U^6 to control the operation of the delivery-carrier, of the geared tappet-wheels V W and their tappets v v', the catch-hook u^4 for engaging with a projection u^5 on said lever and the trip-lever t^6 through which the tappet v acts upon said catch-hook, substantially as herein described.

604,005. FEEDING MECHANISM FOR SEWING-MACHINES. GEORGE H. BURNS and WILBUR F. DAY, Bridgeport, Conn., assignors to The Wheeler & Wilson Manufacturing Company, same place. Filed Feb. 2, 1897. Serial No. 621,889. (No model.)



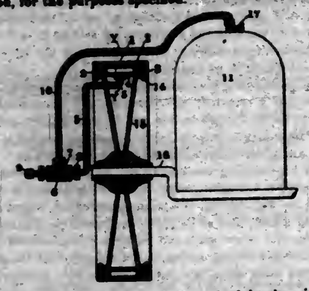
Claim.—1. In a sewing-machine, a cylindrical arm for the reception of the work, a presser-foot, a feeding mechanism comprising a carrier provided with a horizontally-arranged guide and having a vertical guideway and two attached ears or lugs to constitute guides, and a feed-dog having at one end a cam-strap and at its opposite end a feed-point, which, as it is raised, engages the material under the presser-foot, the shank of said feed-dog entering the guideway of the carrier and the strap fitting between the said ears or lugs; combined with means to reciprocate said carrier horizontally and an independent rotatable shaft having a cam located in said strap and acting only on said feed-dog to impart to it vertical movement in said carrier, substantially as described.

2. The cylindrical arm, the transversely-movable carrier therein having a horizontally-arranged guide adapted to slide in said arm; the shaft A^5 having a cam A^{20}; a rock-shaft B having an attached arm d^{14}, means to actuate said rock-shaft; an auxiliary rock-shaft parallel therewith and extended into said cylindrical arm, and provided at its rear end with an arm d^{12} which is joined at d^{13} to the said arm d^{14}, said auxiliary rock-shaft having at its front end an arm, and connections between said arm and said carrier, whereby said carrier is moved back and forth by or through the said auxiliary rock-shaft, and the feed-dog mounted in said carrier is moved vertically through the action of said cam A^{20}, substantially as described.

3. In a sewing-machine, a rotating shaft A^5 provided with a cam A^{20} and with a grooved collar, a cylindrical arm, through which said shaft is extended, a carrier composed of two parts d and $d^{\times}$ and slotted to slide horizontally on said shaft, one of said parts entering the groove of said collar, said carrier also having a vertically-arranged guideway, an auxiliary rock-shaft extended through said cylindrical arm, means to actuate said rock-shaft and connections between said rock-shaft and said carrier to enable the said auxiliary rock-shaft to move the carrier horizontally, combined with a feed-dog fitted to be moved vertically in the guideway of the said carrier and acted upon by the cam on the said shaft A^5, substantially as described.

604,006. TRACTION-WHEEL. HENRY G. DURRELL, Beecher, Ill. Filed Aug. 14, 1897. Serial No. 648,286. (No model.)

Claim.—1. A traction-wheel having a hollow air-tight rim, with a partition 13 therein, and a discharge-cock on one side of said partitions opening out of the rim, in combination with steam connections communicating with said rim on the opposite side of the partition, and adapted to convey steam or hot air into said rim while the wheel is in motion, for the purposes specified.

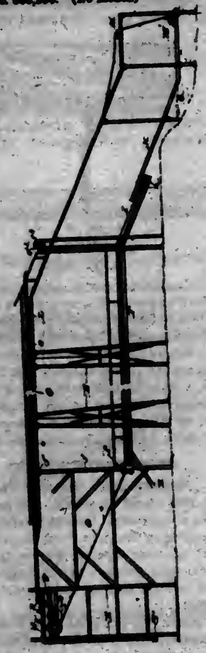


2. A traction-wheel having a hollow air-tight rim; in combination with a pipe 5 communicating therewith at one end, having its other end bent in line with the axle of the wheel, and having a port 6 therein; an air-tight connection in which said other end is journaled; and a pipe 10 secured to said connection for conveying steam or hot air through the port 6 and into said rim, for the purposes specified.

3. A traction-wheel having a hollow, air-tight rim with a partition 13 therein, and a discharge-cock on one side of said partition opening out of the rim; in combination with a pipe 5 communicating therewith at one end, on the opposite side of the partition, having its other end bent in line with the axle of the wheel and having a port 6 therein; an air-tight connection in which said other end is journaled, and a pipe 10 secured to said connection for conveying steam or hot air through the port 6 and into said rim, for the purposes specified.

4. A traction-wheel having an inner rim 4 and an outer rim 2 secured to same and grooved so as to form an air-tight compartment between said rims, and a gasket 3 intervening said rims on either side, in combination with steam connections, adapted to convey steam or hot air into said compartment while the wheel is in motion, substantially as and for the purposes specified.

604,007. ICE-HANDLING MACHINERY. ARTHUR GIFFORD, Hudson, N. Y., assignor to Gifford Brothers, same place. Filed Jan. 17, 1898. Serial No. 666,936. (No model.)



Claim.—1. In ice-handling machinery the combination with an adjustable gallery having slideways for the ice and a conveyer passing along said gallery for propelling the ice, of an incline hinged to said gallery at one end and a telescoping section in said incline, said incline also having a slideway corresponding to the slideway on the gallery; substantially as described.

2. In ice-handling machinery the combination with the supporting-towers and a vertically-adjustable gallery mounted therein, of a telescoping incline hinged to one end of said gallery and extending down to the source of supply, with a conveyer traveling up said incline and along the gallery; substantially as described.

3. In ice-handling machinery the combination with the vertically-adjustable conveyer-gallery and the permanent section of the incline at one end thereof, of a telescoping incline hinged at its upper end to said gallery and at its lower end to the permanent section of the incline, said telescoping and permanent sections of the incline having slideways corresponding to the slideways on the gallery, and a conveyer passing along said gallery and incline; substantially as described.

4. In ice-handling machinery the combination with the series of towers, the vertically-adjustable gallery suspended in said towers with means for raising and lowering the same and the permanent section of the incline at one end of said gallery, of a telescoping section hinged at one end to said gallery and at the opposite end to the permanent section of the incline, the parts of said telescoping section being united by hangers and having antifriction-rollers interposed therebetween, and the conveyer passing along the gallery and incline; substantially as described.

5. In ice-handling machinery the combination with the vertically-adjustable gallery having the slideways for ice thereon and the incline extending from said gallery to the source of ice-supply, and a continuous conveyer-chain passing along said gallery in one direction, of a driving mechanism for moving said conveyer-chain and a weighted take-up cooperating with said conveyer-chain to equalize the tension on the same when the gallery is adjusted; substantially as described.

6. In ice-handling machinery the combination with the vertically-adjustable gallery having slideways thereon and the telescoping incline at the end of said gallery extending down to the source of ice-supply, of a conveyer-chain passing along said gallery and incline, a driving mechanism for moving said chain and a weighted take-up over which said chain passes for equalizing the tension on said chain when the gallery is raised or lowered and the telescoping incline extended or contracted; substantially as described.

604,008. DESK OR TABLE ATTACHMENT FOR FURNITURE. EMMA HUGHES, Wichita, Kans. Filed June 4, 1892. Serial No. 435,483. (No model.)

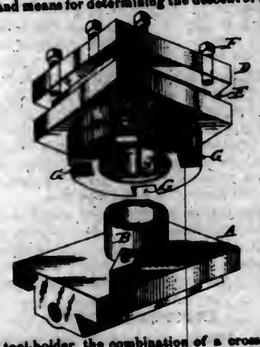


Claim.—A table-adjusting device comprising a clamp adapted to be secured to a fixed support and formed with a vertically-projecting disk, a rod provided with a vertically-projecting disk on its lower end, said disk being adapted to coact with the disk on the clamp to form a hinge, a sleeve adapted to loosely receive the rod, a thumb-screw for binding the rod in the sleeve, a disk formed on the upper end of the sleeve, a plate adapted to be secured to the under side of a table and formed with a depending disk adapted to coact with the disk on the sleeve to form a hinge, and thumb-screws uniting the respective pairs of disks, substantially as and for the purposes stated.

604,009. TOOL-HOLDER. HERBERT S. JOHNSON, Madison, Wis. Filed Nov. 22, 1897. Serial No. 660,473. (No model.)

Claim.—1. In a tool-holder, the combination of a cross-slide or base; a post extending up therefrom; a shell mounted upon said post and provided with an outer tapering face; a tool-carrier provided with an internal tapering bore surrounding said shell; a connection between said shell and tool carrier; and a screw for raising and lowering the taper-shell.

2. In a tool-holder, the combination of a cross-slide or base; a post extending up therefrom; a shell mounted upon said post and provided with an outer tapering face; a tool-carrier provided with an internal tapering bore surrounding said shell; a connection between said shell and tool-carrier; a screw for raising and lowering the taper-shell; and means for determining the descent of the tool-carrier.



3. In a tool-holder, the combination of a cross-slide or base; a post extending up therefrom; a shell mounted upon said post and provided with an outer tapering face; a tool-carrier provided with an internal tapering bore surrounding said shell; a connection between said shell and tool-carrier; recesses formed in the base of the carrier; a post extending up from the base in line with said recesses; adjusting-screws passing through the tool-carrier into said recesses; and a screw working in the post connected to the shell and designed to elevate and lower the parts.

4. In a tool-holder, the combination of a cross-slide or base; a post extending up therefrom; a shell mounted upon said post and provided with an outer tapering face and slots J in its side; a tool-carrier provided with an internal tapering bore surrounding said shell and with recesses or pockets G and adjusting-screws H; a connection between said shell and tool-carrier; a block extending up from the base in line with the recesses in the tool-carrier; and a screw working in the upper end of the post and connected to the shell.

5. In a tool holder, the combination of a cross-slide or base; a post extending up therefrom; a shell mounted upon said post provided with an outer tapering face and slots J in its side; a tool-carrier provided with an internal tapering bore surrounding said shell, and with recesses or pockets G in its base; adjusting-screws extending through the carrier into said recesses; a block extending up from the base in line with said recesses; a screw L secured in the tool-carrier and extending into an opening K in the shell; and a screw working in a nut carried in the upper end of the post, said screw being connected to the shell, substantially as described.

6. In a tool-holder, the combination of a cross-slide or base; a post extending upwardly therefrom; a tool-carrier; a wedge-shaped shell intermediate said carrier and post; means for raising and lowering the carrier and shell; and means for preventing the parts from rotating about the post when in their lowered and clamped position.

604,010. MECHANICAL MOVEMENT. CHARLES B. JUDD, Detroit, Mich. Filed Jan. 27, 1897. Serial No. 620,991. (No model.)



Claim.—1. In a mechanism for producing mechanical movements, the combination of a shaft having a disk rigidly mounted upon one end thereof, said disk having a triangular recess in that face lying farthest from the shaft, the sides of said triangle being curved inward and uniting with the side walls of the angles to form guides, a bar adapted to extend across said triangular recess, rollers mounted upon said bar adapted to engage two sides of said triangle at each angle thereof, a crank-shaft supported in axial line with said main shaft, a crank rigidly secured to said shaft and having its free end pivoted to a point in said bar substantially midway between the two rollers, and means for guiding the opposite end of said bar, substantially as described.

2. In a machine for the purpose set forth, the combination of the driven shaft journaled in bearings, a disk secured to said driven shaft, said disk having an angled recess in its face opposite the side to which said shaft is secured; a vibrating lever having friction-rollers pivoted thereto, said rollers adapted to travel in said angled recess, a cross-head secured to said bar, a guideway in which said head is adapted to reciprocate, a crank-arm secured to said bar between said friction-rollers, and the driven shaft suitably journaled in the frame and fastened to said crank-arm, substantially as and for the purpose set forth.

DESIGNS.

28,552. HANDLE FOR BUTTON-HOOKS OR SIMILAR ARTICLES. HERMAN F. W. SCHLOEMER, Newark, N. J., assignor to Eastwood & Park, same place. Filed Mar. 9, 1898. Serial No. 673,273. Term of patent 3½ years.



Claim.—The design for a handle of a button-hook or similar article, substantially as herein shown and described.

28,553. HANDLE FOR BUTTON-HOOKS, &c. FRANK R. STAFFORD, Providence, R. I., assignor to the Waite, Thrasher Company, same place. Filed Feb. 22, 1898. Serial No. 671,696. Term of patent 3½ years.



Claim.—The design for a handle for button-hooks and similar articles, herein shown and described.

28,554. HANDLE FOR BUTTON-HOOKS OR SIMILAR ARTICLES. EUSTACE CREES and CHARLES S. COURT, Providence, R. I., assignors to the Waite, Thrasher Company, same place. Filed Feb. 25, 1898. Serial No. 671,695. Term of patent 3½ years.



Claim.—The design for a handle for button-hooks and similar articles, herein shown and described.

28,555. HANDLE FOR BUTTON-HOOKS OR SIMILAR ARTICLES. EUSTACE CREES and CHARLES S. COURT, Providence, R. I., assignors to the Waite, Thrasher Company, same place. Filed Mar. 19, 1898. Serial No. 674,541. Term of patent 3½ years.



Claim.—The design for a handle for button hooks and similar articles herein shown and described.

28,556. HANDLE FOR BUTTON-HOOKS OR SIMILAR ARTICLES. EUSTACE CREES and CHARLES S. COURT, Providence, R. I., assignors to the Waite, Thrasher Company, same place. Filed Mar. 19, 1898. Serial No. 674,542. Term of patent 3½ years.



Claim.—The design for a handle for button-hooks and similar articles, herein shown and described.

28,557. HANDLE FOR BUTTON-HOOKS OR SIMILAR ARTICLES. EUSTACE CREES and CHARLES S. COURT, Providence, R. I., assignors to the Waite, Thrasher Company, same place. Filed Mar. 19, 1898. Serial No. 674,543. Term of patent 3½ years.



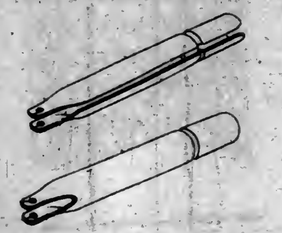
Claim.—The design for a handle for button-hooks, and similar articles, &c., herein shown and described.

28,558. LEAD-PENCIL. BYRON B. GOLDSMITH, New York, N. Y. Filed Feb. 8, 1898. Serial No. 669,594. Term of patent 14 years.



Claim.—The design for a lead-pencil substantially as herein shown and described.

28,559. PENCIL-HOLDER. NATHAN D. INGRAM, Holyoke, Mass. Filed Mar. 30, 1898. Serial No. 675,807. Term of patent 14 years.



Claim.—The design for a pencil-holder, substantially as herein described and shown.

28,560. SUSPENDER-BUCKLE. AARON COLEMAN, New York, N. Y. Filed Mar. 19, 1898. Serial No. 674,630. Term of patent 7 years.



Claim.—A design for a suspender-buckle, as herein shown and described.

28,561. HOOK FOR GARMENT-CLASPS. FREDERICK A. IVES, Cheshire, Conn., assignor to the Cheshire Manufacturing Company, same place. Filed Sept. 20, 1897. Serial No. 653,054. Term of patent 14 years.



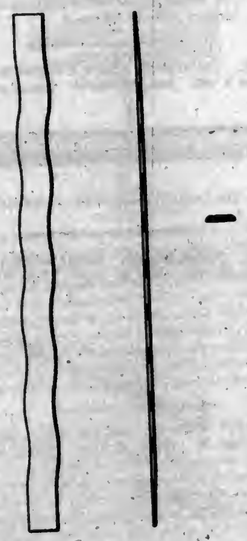
Claim.—The design for a hook for garment-clasps, as herein shown and described.

28,562. TIP FOR UMBRELLA OR PARASOL RIBS. CHARLES H. FREDERICK, Jr., New York, N. Y. Filed Mar. 15, 1898. Serial No. 673,982. Term of patent 3½ years.



Claim.—The design for the tip of an umbrella or parasol rib, substantially as shown and described.

28,563. TRUNK-SLAT. GEORGE CROUSE, New York, N. Y. Filed Dec. 20, 1897. Serial No. 663,751. Term of patent 14 years.



Claim.—The design for a trunk-slat, substantially, as shown and described.

28,564. TRUNK-SLAT. GEORGE CROUSE, New York, N. Y. Filed Mar. 17, 1898. Serial No. 674,270. Term of patent 14 years.



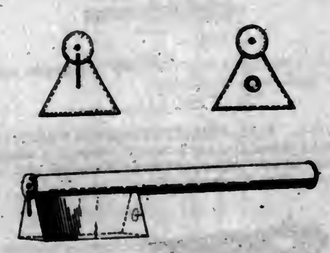
Claim.—The design for a trunk-slat, substantially as shown and described.

28,565. CLAMP FOR DOOR-SECURERS. ELISHA P. BRAINE, Waterville, Me. Filed Feb. 21, 1898. Serial No. 671,901. Term of patent 7 years.



Claim.—The design for a clamp for a door-securer, substantially as herein shown and described.

28,566. HAND-SPRAYER. THOMAS A. GALE, Sterling, Ill. Filed Mar. 15, 1898. Serial No. 673,903. Term of patent 7 years.



Claim.—The design for a hand-sprayer as herein shown and described.

28,567. PLUMBER'S TRAP. LOUIS H. BRIEGMAN, Brooklyn, N. Y., assignor to the New York Pipe Bending and Machine Company, same place. Filed Jan. 22, 1897. Serial No. 620,677. Term of patent 14 years.

28,567.



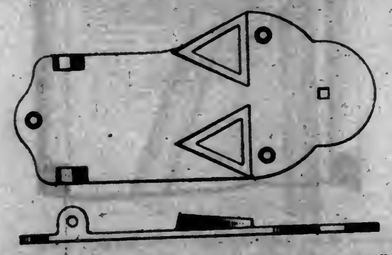
Claim.—The design for a plumber's trap, substantially as shown and described.

28,568. HANDLE SOCKET-PIECE FOR HAND-SCRAPERS. WILBUR B. HARRIMAN, North Chatham, N. H. Filed Mar. 30, 1898. Serial No. 675,806. Term of patent 7 years.



Claim.—The design for a handle socket-piece for hand-scrapers, herein shown and described.

28,569. SICKLE-GRINDER BASE. HARRY W. BELDEN, Port Washington, Wis. Filed Mar. 4, 1898. Serial No. 672,607. Term of patent 14 years.



Claim.—The design for a sickle-grinder base, substantially as herein shown and described.

28,570. VALVE-DISK. JOSEPH BERES, River Forest, Ill. Filed Apr. 18, 1898. Serial No. 678,010. Term of patent 7 years.



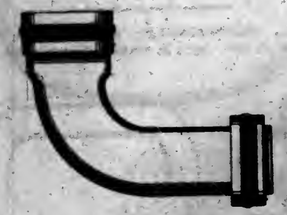
Claim.—The design for a valve-disk, as herein shown and described.

28,571. WASHER FOR THILL-COUPLINGS. CHRISTOPHER C. BRADLEY, Syracuse, N. Y. Filed Mar. 14, 1898. Serial No. 673,574. Term of patent 14 years.



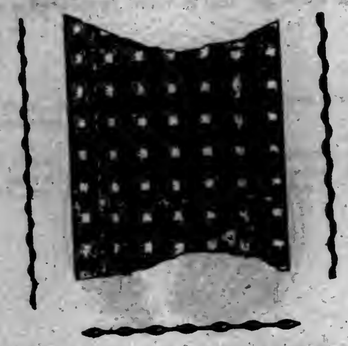
Claim.—The design for a washer substantially as herein shown and described.

28,572. QUARTER-BEND COUPLING. CLARENCE H. ROSE, Watertown, N. Y., assignor to the Hitchcock Lamp Company, same place. Filed Mar. 5, 1898. Serial No. 672,757. Term of patent 14 years.



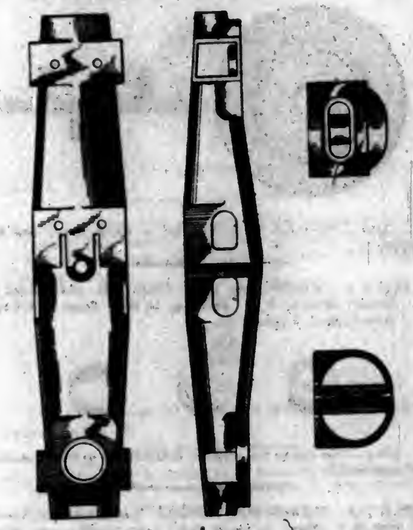
Claim.—The design for a coupling, substantially as hereinbefore described and illustrated in the accompanying drawing.

28,573. PATTERN FOR PIPE-COVERINGS. CHARLES BROOKS, New York, N. Y. Filed Aug. 31, 1897. Serial No. 649,084. Term of patent 14 years.



Claim.—The design for a pattern of pipe-covering, substantially as shown and described.

28,574. CAR-BOLSTER. JOHN PLAYER, Topeka, Kans. Filed Mar. 17, 1898. Serial No. 674,365. Term of patent 14 years.



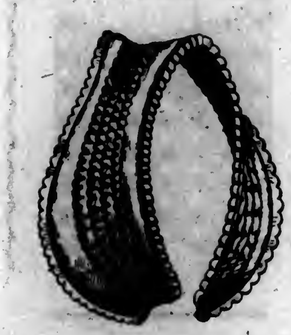
Claim.—A design for a car-bolster substantially as herein shown and described.

28,575. BOILER-DRUMHEAD. HORACE SEE, New York, N. Y. Filed Feb. 11, 1898. Serial No. 669,965. Term of patent 14 years.



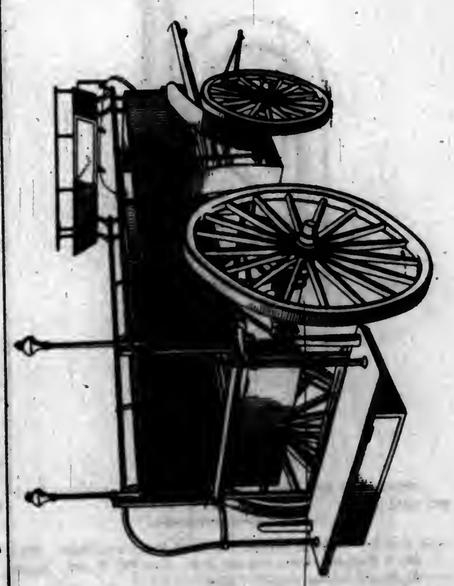
Claim.—The design for a boiler drumhead substantially as herein shown and described

28,576. SWEAT-PAD. EDWARD L. MCCLAIN, Greenfield, Ohio. Filed Nov. 20, 1897. Serial No. 659,339. Term of patent 14 years.



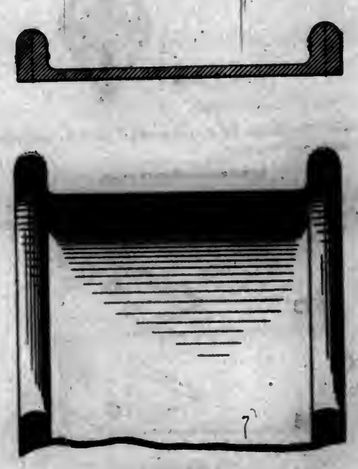
Claim.—The design for a sweat-pad, as herein shown and described.

28,577. FIRE-HOSE-WAGON BODY. GABRIEL STRAMER, Oshkosh, Wis. Filed Feb. 14, 1898. Serial No. 670,230. Term of patent 7 years.



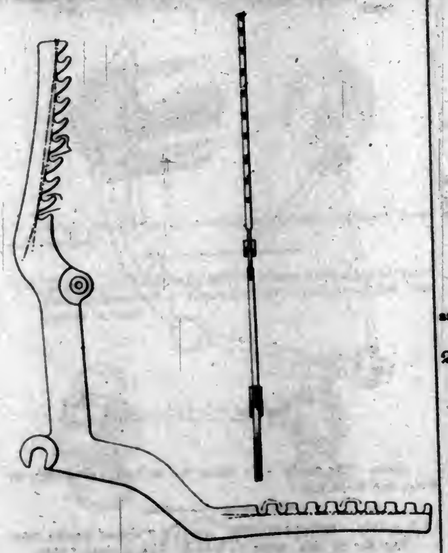
Claim.—The design for a fire-hose-wagon body, substantially as herein shown and described.

28,578. CONCENTRATOR-BAND. SAMUEL JOHNSON, San Francisco, Cal. Filed Feb. 10, 1897. Serial No. 623,263. Term of patent 14 years.



Claim.—The design for an ore-concentrator band, substantially as shown and described.

28,579. JACK-LEVER. GEORGE F. HYPOLITE, Worcester, Mass. Filed Dec. 22, 1897. Serial No. 663,369. Term of patent 14 years.



Claim.—The design for a jack-lever, substantially as shown and described.

28,580. OIL-CAN. JOSEPH W. CUSHMAN, New York, N. Y., assignor of one-half to George F. Wilkinson, same place. Filed Sept. 20, 1897. Serial No. 653,536. Term of patent 14 years.



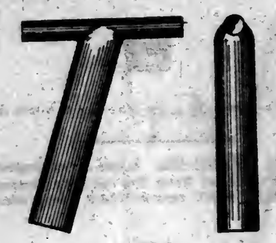
Claim.—The design for an oil-can as herein shown and described.

28,581. BICYCLE L SADDLE-POST. ERWIN G. PALMER, Cleveland, Ohio, assignor to the Standard Tool Company, same place. Filed Sept. 18, 1897. Serial No. 652,196. Term of patent 3½ years.



Claim.—The design for a bicycle L saddle-post as herein shown and described.

28,582. BICYCLE T SADDLE-POST. ERWIN G. PALMER, Cleveland, Ohio, assignor to the Standard Tool Company, same place. Filed Sept. 18, 1897. Serial No. 652,197. Term of patent 3½ years.



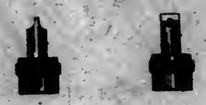
Claim.—The design for a bicycle T saddle-post, as herein shown and described.

28,583. SADDLE-SEAT. WILLIAM I. BUSHER, La Grange, Ill. Filed Mar. 31, 1898. Serial No. 675,909. Term of patent 14 years.



Claim.—A design for a saddle-seat substantially as herein shown and described.

28,584. TIRE-VALVE CAP. JOHN LIBBY, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Oct. 18, 1897. Serial No. 655,639. Term of patent 7 years.



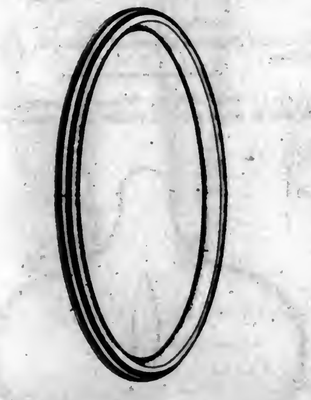
Claim.—The design for a tire-valve cap as herein shown and described.

28,585. TIRE-VALVE CAP. JOHN LIEBE, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Oct. 18, 1897. Serial No. 655,640. Term of patent 7 years.



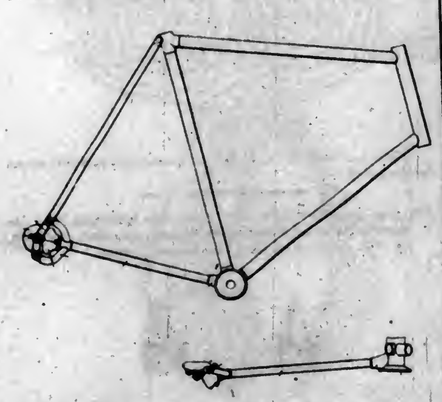
Claim.—The design for a tire-valve cap as herein shown and described.

28,586. ELASTIC TIRE. ROBERT COWEN, Cambridge, Mass., assignor to the Boston Woven Hose and Rubber Company, Boston, Mass. Filed Dec. 4, 1897. Serial No. 660,815. Term of patent 14 years.



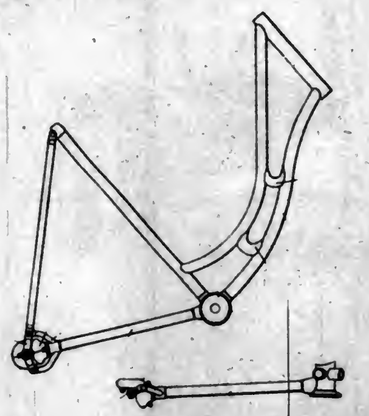
Claim.—The design for an elastic tire substantially as herein shown and described.

28,587. BICYCLE-FRAME. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Mar. 21, 1898. Serial No. 674,666. Term of patent 14 years.



Claim.—The design for a frame for a bicycle substantially as shown and described.

28,588. BICYCLE-FRAME. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Mar. 21, 1898. Serial No. 674,667. Term of patent 14 years.



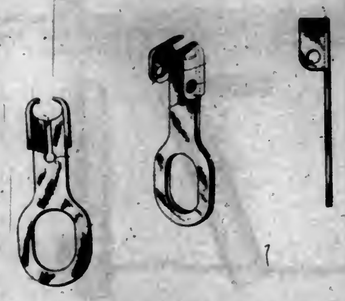
Claim.—The design for a frame for bicycles substantially as shown and described.

28,589. BICYCLE-HOLDER. HENRY S. WHEDON, Guilford, Conn. Filed Mar. 23, 1898. Serial No. 674,942. Term of patent 7 years.



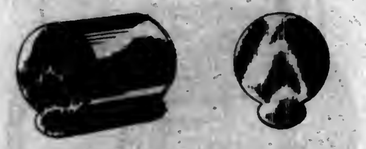
Claim.—The design for a bicycle-holder substantially as herein shown and described.

28,590. CYCLOMETER-BRACKET. EDWIN HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed Mar. 24, 1898. Serial No. 675,043. Term of patent 14 years.



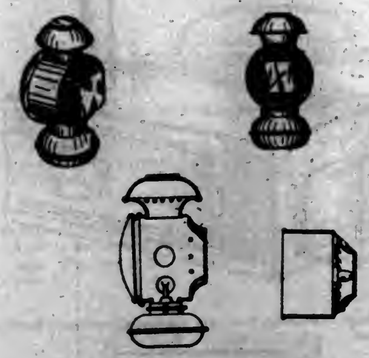
Claim.—The design for a bracket, substantially as shown and described.

28,591. CYCLOMETER-CASING. EDWIN HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed Mar. 17, 1898. Serial No. 674,269. Term of patent 14 years.



Claim.—The design for a casing, substantially as herein shown and described.

28,592. BICYCLE-LAMP BODY. GEORGE HAVELL and ALFRED G. WILLIAMS, Newark, N. J. Filed Aug. 9, 1897. Serial No. 647,636. Term of patent 3½ years.



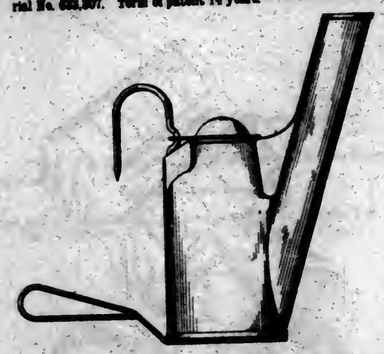
Claim.—The design for a bicycle-lamp body substantially as shown and described.

28,593. VEHICLE-LAMP. JOHN BERRIMAN, Chicago, Ill., and FRANKLIN I. WHITE, Waterbury, Conn.; said White assignor to said Berriman. Filed June 18, 1897. Serial No. 641,264. Term of patent 7 years.



Claim.—A design for a vehicle-lamp, substantially as herein shown and described.

28,594. MINER'S LAMP. ROBERT F. LOVE, Scranton, Pa., assignor of one-half to George A. Long, same place. Filed Apr. 24, 1897. Serial No. 633,307. Term of patent 14 years.



Claim.—The design for a miner's lamp as herein shown and described.

28,595. LAMP-CASE. FRANK R. SNOW, Chicago, Ill., assignor to Jennie B. Lawson, same place. Filed Oct. 8, 1897. Serial No. 654,662. Term of patent 3½ years.



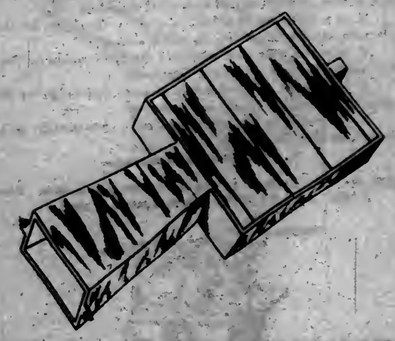
Claim.—A design for a lamp-case, consisting of a sphere having a truncated cone mounted at one side and flaring outwardly, and terminating in the segment of a sphere, as shown and described.

28,596. HOLDER FOR SHADES OF INCANDESCENT LAMPS. ROBERT FARIS, Decatur, Ill. Filed Dec. 28, 1897. Serial No. 663,102. Term of patent 7 years.



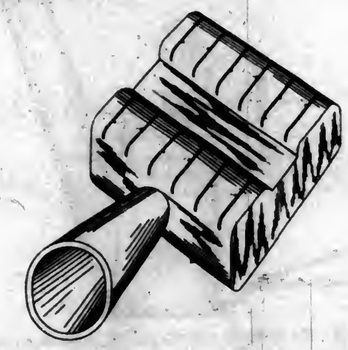
Claim.—The design for a holder for shades of incandescent lamps, substantially as herein shown and described.

28,597. SHELL FOR GAS-FUEL BURNERS. FRANK P. GILLESPIE, Erie, Pa., assignor of one-half to Jos. I. Town, same place. Filed Apr. 1, 1897. Serial No. 630,302. Term of patent 7 years.



Claim.—The design for a shell for a gas-fuel burner, substantially as herein shown and described.

28,598. SHELL FOR GAS-FUEL BURNERS. FRANK P. GILLESPIE, Erie, Pa., assignor of one-half to Jos. I. Town, same place. Filed Apr. 1, 1897. Serial No. 630,303. Term of patent 7 years.



Claim.—The design for the shell of a gas-fuel burner, substantially as herein shown and described.

28,599. SHELF-SECTION FOR STOVES OR RANGES. BRADLEY WOODRUFF, Dunmore, Pa., assignor to the Scranton Stove Works, Scranton, Pa. Filed Feb. 25, 1898. Serial No. 671,700. Term of patent 14 years.



Claim.—1. In a design for shelf section of stove, the design for the shelf E, substantially as shown and described.

2. In a design for shelf-section of stove, the design for the smoke-pipe section, substantially as shown and described.

3. In a design for shelf-section of stove, the design for the side brackets, substantially as shown and described.

4. In a design for shelf-section of stove, the design for the back rail, substantially as shown and described.

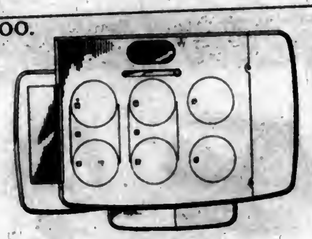
5. In a design for shelf-section of stove, the design for the top strip, substantially as shown and described.

6. The design for shelf-section of stove, substantially as herein shown and described.

28,600. RANGE. ARTHUR W. WALKER, Malden, Mass. Filed Jan. 7, 1898. Serial No. 665,979. Term of patent 14 years.

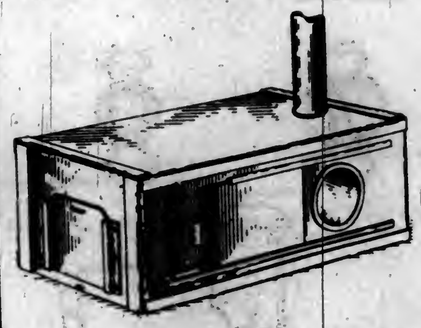


28,600.



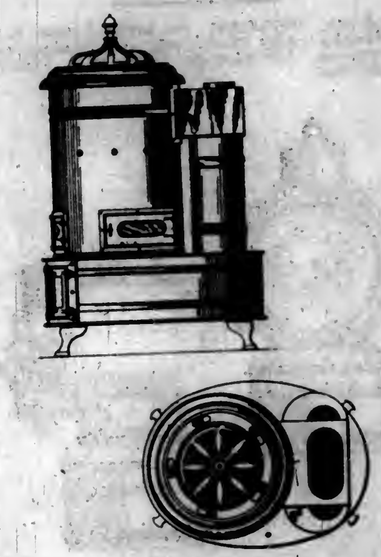
Claim.—The design for a range, substantially such as herein shown and described.

28,601. STOVE. ALBERT R. MCMILLAN, Auburn, Wash. Filed Jan. 29, 1898. Serial No. 668,494. Term of patent 3½ years.



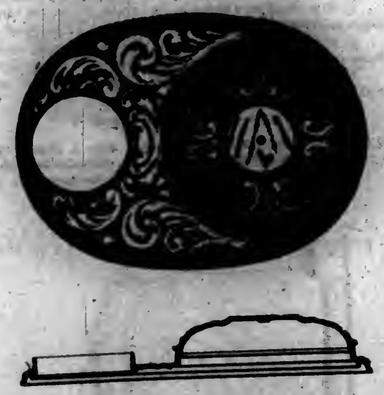
Claim.—The design for a stove, substantially as herein shown and described.

28,602. STOVE. JOHN P. LYBOYT, Louisiana, Mo. Filed Jan. 24, 1898. Serial No. 667,839. Term of patent 14 years.



Claim.—The design for a stove, substantially as herein shown and described.

28,603. HEATER. FERDINAND S. WELLS, Quincy, Ill., assignor to the W. J. Loth Stove Company, Waynesborough, Va. Filed Mar. 21, 1898. Serial No. 674,685. Term of patent 7 years.

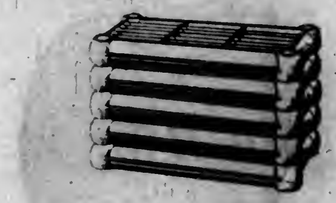


Claim.—1. In a design for a heater, the design for the top, substantially as shown and described.

2. In a design for a heater, the design for the cover, substantially as shown and described.

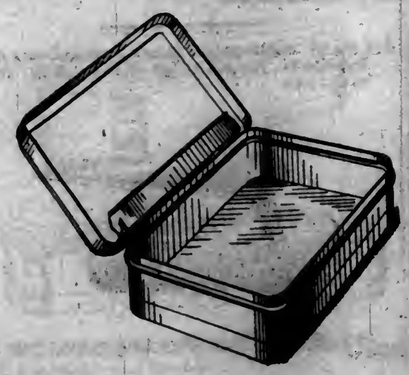
3. The design for a heater, substantially as shown and described.

28,604. RADIATOR. ARTHUR H. FOWLER, Philadelphia, Pa., assignor to the Fowler & Webb Manufacturing Company, of Pennsylvania. Filed Dec. 15, 1897. Serial No. 662,057. Term of patent 14 years.

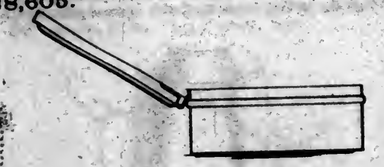


Claim.—The design for a radiator consisting of the shape or conformation substantially as herein shown and described.

28,605. SPICE-CABINET. EDWARD F. SNYDER, Brooklyn, N. Y. Filed Oct. 23, 1897. Serial No. 656,217. Term of patent 7 years.

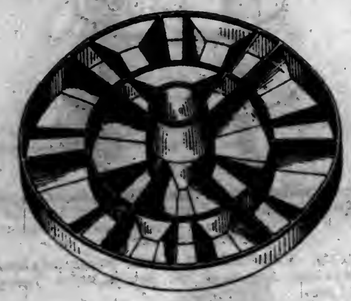


28,605.



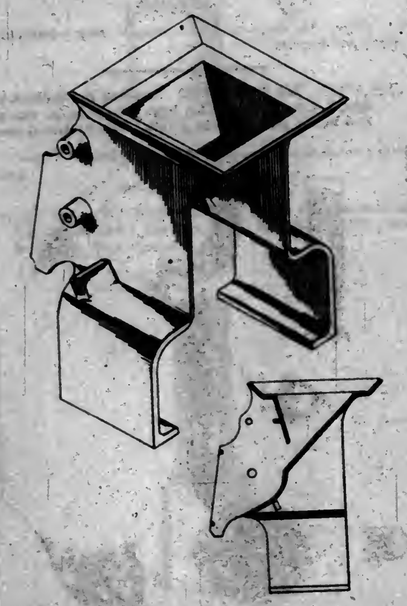
Claim.—A design for a spice-cabinet substantially as shown and described.

28,606. CHURN-DASH. JOHN R. REEVES, Jr., Vernon, Tex. Filed Feb. 10, 1898. Serial No. 669,857. Term of patent 7 years.



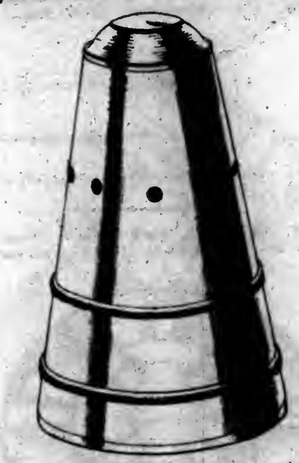
Claim.—The design for a churn-dash substantially as herein shown and described.

28,607. FRAME FOR FRUIT-SEEDING MACHINES. JOHN WILSON BROWN, Jr., Philadelphia, Pa. Filed Mar. 26, 1898. Serial No. 675,238. Term of patent 14 years.



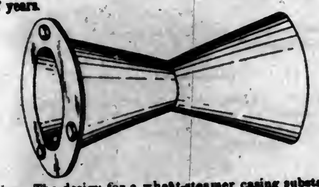
Claim.—The design for the frame of a fruit seeding machine as herein described and as shown in the accompanying drawings.

28,608. CHOPPING-KNIFE. SYDNIA C. REEVES, Lansing, Mich. Filed Mar. 18, 1898. Serial No. 674,594. Term of patent 7 years.



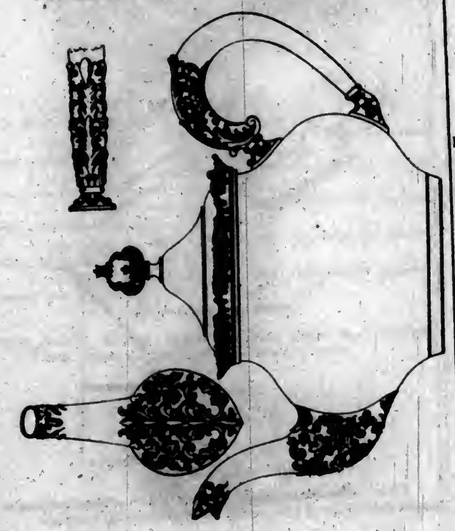
Claim.—A design for a chopping-knife substantially as herein shown and described.

28,609. WHEAT-STEAMER CASING. WILLIAM JOHN MERRIAM, Almont, Mich. Filed Nov. 24, 1897. Serial No. 659,716. Term of patent 7 years.



Claim.—The design for a wheat-steamer casing substantially as shown and described.

28,610. TEA OR COFFEE POT. FREDERICK W. VAN BERGH, Rochester, N. Y., assignor to the Van Bergh Silver Plate Co., same place. Filed Mar. 24, 1898. Serial No. 675,045. Term of patent 3½ years.



Claim.—1. In a design for a teapot or like article, the body having the shape and the ornamental band or border at the upper portion, substantially as shown and described.

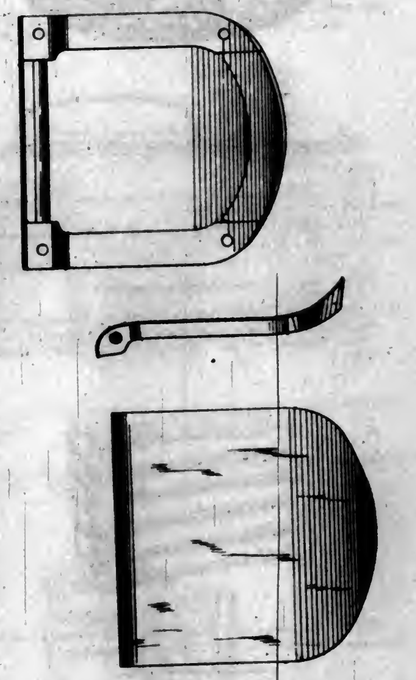
2. In a design for a teapot or like article, the top having the shape and ornamentation, substantially as shown and described.

3. In a design for a teapot or like article, the handle having the shape and ornamentation, substantially as shown and described.

4. In a design for a teapot or like article, the spout having the shape and ornamentation, substantially as shown and described.

5. The design for a teapot or like article, substantially as herein shown and described.

28,611. BENT-WOOD CHAIR-SEAT. FRED A. DESSERT, Sheboygan, Wis. Filed Feb. 16, 1898. Serial No. 670,867. Term of patent 14 years.



Claim.—The design for a bent-wood chair-seat, substantially as herein shown and described.

28,612. IRONING-BOARD. ERWIN F. BROWN and HARRY E. JOHNS, Homestead, Pa. Filed Sept. 17, 1898. Serial No. 692,186. Term of patent 7 years.



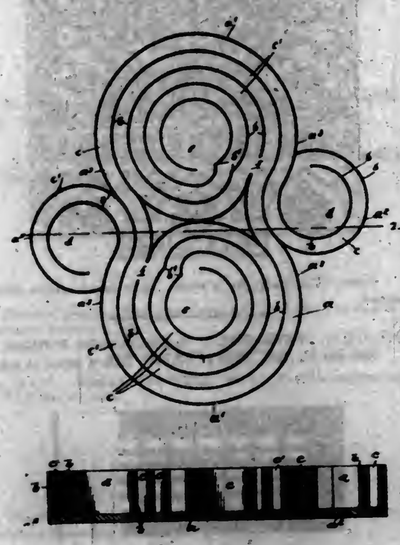
Claim.—The design for an ironing-board as herein shown and described

28,613. PACKING-JAR. ROBERT PEARSON, Brenham, Tex. Filed Feb. 18, 1898. Serial No. 670,864. Term of patent 14 years.



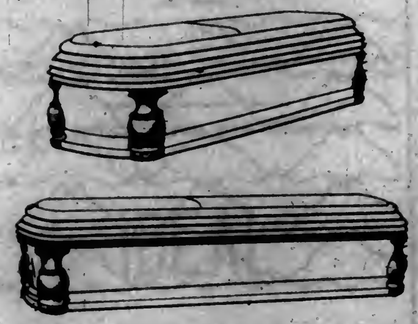
Claim.—The design for a packing-jar for cigars, substantially as herein shown and described.

28,614. PUZZLE-BOX. HIRAM C. GLAZIER, West Winfield, N. Y. Filed Jan. 6, 1898. Serial No. 666,864. Term of patent 3½ years.



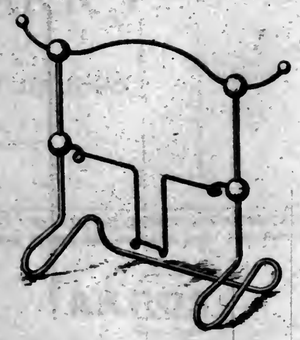
Claim.—The design for a puzzle-box, as herein shown and described.

28,615. BURIAL-CASKET. STANLEY REYNOLDS, Rochester, N. Y., assignor to the Stein Casket Company, New York, N. Y. Filed Feb. 5, 1898. Serial No. 669,375. Term of patent 3½ years.



Claim.—The design for a burial-casket having a pilaster substantially as herein shown and described.

28,616. FRAME FOR LOOKING-GLASSES. BENJAMIN F. STARNES, Chicago, Ill., assignor to Gabe Feisenthal, same place. Filed Jan. 22, 1898. Serial No. 667,854. Term of patent 7 years.



Claim.—The design for a frame for looking-glasses or similar articles, substantially as shown and described.

28,617. ADVERTISING-COLUMN. ALBERT GERSTENDORFER and MAX GERSTENDORFER, New York, N. Y. Filed Mar. 17, 1898. Serial No. 674,261. Term of patent 3½ years.



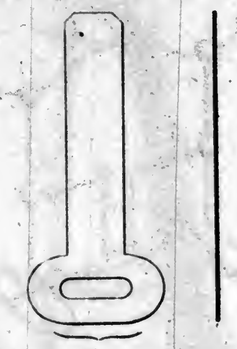
Claim.—The design for an advertising-column, as shown and described.

28,618. ADVERTISING-COLUMN. ALBERT GERSTENDORFER and MAX GERSTENDORFER, New York, N. Y. Filed Mar. 17, 1898. Serial No. 674,262. Term of patent 3½ years.



Claim.—The design for an advertising-column, as shown and described.

28,619. TAG. JAMES FRANKLIN MCFADDEN, Philadelphia, Pa., assignor to George H. McFadden & Brother, same place. Filed Feb. 7, 1898. Serial No. 669,453. Term of patent 7 years.



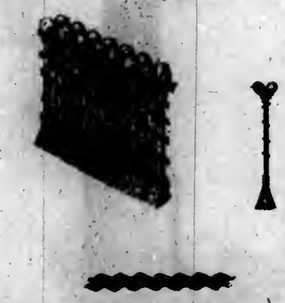
Claim.—A design for a tag, substantially as herein shown and described.

28,620. CURTAIN. FLORA V. REAM, Somerset, Ohio. Filed June 28, 1897. Serial No. 642,754. Term of patent 7 years.



Claim.—The design for a curtain herein shown and described.

28,621. FRINGE. CARL F. BUECHNER, New York, N. Y. Filed Mar. 25, 1898. Serial No. 675,189. Term of patent 7 years.



Claim.—The design for fringe, substantially as herein shown and described.

28,622. WOVEN FABRIC. CHARLES FRAHS, New York, N. Y., assignor to A. A. Vantine & Co., same place. Filed Mar. 1, 1898. Serial No. 672,208. Term of patent 3½ years.



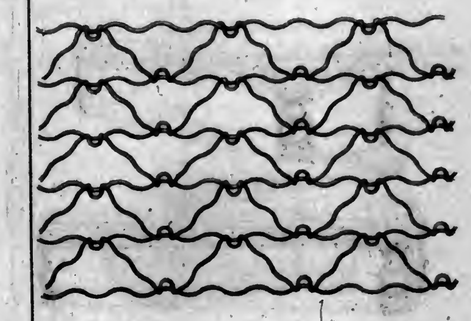
Claim.—The design for a woven fabric herein shown and described.

28,623. WOVEN FABRIC. SAMUEL BOTTOMLEY, Providence, R. I. Filed Mar. 31, 1898. Serial No. 675,902. Term of patent 14 years.



Claim.—The design for woven fabric herein shown and described.

28,624. PATTERN FOR WIRE FABRIC. CHARLES G. SMITH, Detroit, Mich. Filed Nov. 23, 1897. Serial No. 659,637. Term of patent 14 years.



Claim.—The design for a pattern for wire fabric substantially as herein shown and described.

TRADE-MARKS

REGISTERED MAY 10, 1898.

81,515. WRITING PAPER. WRITING PAPER COMPANY, Holyoke, Mass. Filed Mar. 8, 1898.

CLINGSTONE

Essential feature.—The word "CLINGSTONE." Used since October, 1881.

81,516. CERTAIN NAMED PUBLICATIONS. LEOPOLD GENSLE, Chattanooga, Tenn. Filed Jan. 28, 1898.

ST JOSEPH'S

Essential feature.—The abbreviation and word "ST. JOSEPH'S." Used since January 1, 1890.

81,517. COLLARS AND CUFFS. FRED R. FAY, Los Angeles, Cal. Filed Mar. 11, 1898.



Essential feature.—The compound word "NO-SAW-EDGE." Used since November 15, 1895.

81,518. BOYS' TROUSERS. A. SHUMAN & Co., Boston, Mass. Filed Mar. 3, 1898.

Cavalry Knee and Seat

Essential feature.—The words "CAVALRY KNEE AND SEAT." Used since February 14, 1898.

81,519. LEATHER. GEORGE S. WOLFF, Philadelphia, Pa. Filed Feb. 17, 1898.

IDEAL

Essential feature.—The word "IDEAL." Used since July, 1897.

81,520. VARNISH FOR INTERIOR AND EXTERIOR FINISHING. THE AKRON VARNISH COMPANY, Akron, Ohio. Filed Mar. 11, 1898.

AKROS

Essential feature.—The word "AKROS." Used since November, 1895.

81,521. FIRE-EXTINGUISHING COMPOUNDS AND RECEPTACLES THEREFOR. MECHANICAL FIRE APPLIANCE CO., New York, N. Y. Filed Feb. 2, 1898.

Kilfyre

Essential feature.—The word "KILFYRE." Used since December 1, 1897.

81,522. CEMENT FOR UNITING VARIOUS MATERIALS AND ARTICLES. MCCAW, STEVENSON & ORR, Limited, Belfast, Ireland. Filed Feb. 26, 1898.

"SECCOTINE"

Essential feature.—The word "SECCOTINE." Used since March, 1891.

81,523. DYNAMITE, DYNAMITE-CARTRIDGES, BLASTING-GELATIN, DETONATING CAPS, AND FUSES. THE ATLAS POWDER COMPANY, Atlas, Ind., and Chicago, Ill. Filed Mar. 9, 1898.

LION

Essential feature.—The word "LION." Used since November 1, 1897.

81,524. PORTLAND CEMENT. TRETOHIA MESSTORFER PORTLAND CEMENTWERK, Hintburg, Germany. Filed Mar. 10, 1898.



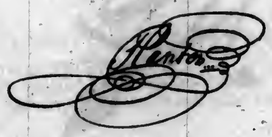
Essential feature.—A representation of the Hermann monument. Used since August 28, 1897.

81,525. CAPSULES. JOHN RUTGERS PLANTEN, New York, N. Y. Filed Jan. 12, 1898.

PLANTENS

Essential feature.—The word "PLANTEN'S" or its equivalent in any of the European languages. Used since 1836.

81,526. CAPSULES. JOHN RUTGERS PLANTEN, New York, N. Y. Filed Jan. 12, 1898.



Essential feature.—The name "PLANTEN." Used since 1836.

81,527. INTESTINAL ASTRINGENTS. FARBENFABRIKEN OF ELBERFELD COMPANY, New York, N. Y. Filed Mar. 5, 1898.

TANNOPINE

Essential feature.—The word "TANNOPINE." Used since February 1, 1898.

81,528. MEDICINAL PREPARATIONS HAVING ANTISEPTIC QUALITIES. CHARLES V. RYAN, Springfield, Mass. Filed Mar. 9, 1898.

MODOFORMAL

Essential feature.—The word "MODOFORMAL." Used since February 1, 1898.

81,529. LIQUID COUGH MEDICINE. CLARENCE S. MCILVEE, Columbus, Ohio. Filed Mar. 5, 1898.

EAGLE

Essential feature.—The word "EAGLE," the letters forming this word being arranged in vertical alinement one above the other, and the word thus produced being intersected centrally by the same word, the letters of which are arranged in horizontal alinement, the central letter "G" serving for both words. Used since February 1, 1898.

81,530. DYSPEPSIA-PADS AND PADS FOR CURE OF DISEASE BY ABSORPTION. CHARLES DEYOUNG, Philadelphia, Pa. Filed Feb. 18, 1898.



Essential feature.—A view of a terrestial globe having in front an oviform pad represented as quilted into a series of quadrangular cushions, the word "GUTTERMAN" inscribed above the quilted pad and "DYSPEPSIA PAD" below it. Used since January 22, 1898.

81,531. LIQUID REMEDY FOR DIARRHŒA, DYSENTERY, AND DYSPEPSIA. SLOAT BROS. Co., Valdosta, Ga. Filed Feb. 14, 1898.



Essential feature.—A picture of Underhill H. Sloat, a deceased member of the firm. Used since August 1, 1897.

81,532. COLIC AND LUNG-FEVER CURE. WILLIAM O. BROWNE, Lumberton, N. C. Filed Mar. 10, 1898.



Essential feature.—A picture of the registrant, holding in the left hand the bottom half of a carton, a bottle, and a syringe. Used since February 15, 1898.

81,533. CERTAIN NAMED MEDICAL COMPOUNDS. Leavell & Gentle, Chattanooga, Tenn. Filed Jan. 26, 1898.

ST. JOSEPH'S

Essential feature.—The abbreviation and word "St. JOSEPH'S." Used since January 1, 1892.

81,534. MEDICATED OINTMENT FOR THE SKIN. JOHNSON, HOLLOWAY & Co., Philadelphia, Pa. Filed Feb. 24, 1898.

HEBERELL

Essential feature.—The word "HEBERELL." Used since February 4, 1880.

81,535. SOAP. VEUVE CHARLES MORRE, Marseilles, France. Filed Mar. 27, 1897.

LA BONNE MERE

Essential feature.—The words "LA BONNE MERE." Used since 1865.

81,536. STARCH. JACOB J. HEMMEDER, New Haven, Conn. Filed Feb. 8, 1898.



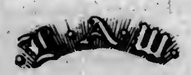
Essential feature.—The representation of a washtub. Used since June, 1897.

81,537. CANDY. GREGORY L. HEBERDEN, Boston, Mass. Filed Jan. 26, 1898.



Essential feature.—The representation of a monkey. Used since October, 1894.

81,538. WHISKY. BOYLE & MCGLEIN, Philadelphia, Pa. Filed Mar. 9, 1898.



Essential feature.—The letters "L. A. W." Used since November 1, 1897.

81,539. BOTTLES. JEFFERIS GLASS WORKS, Fairton, N. J., and Philadelphia, Pa. Filed Feb. 14, 1898.

"BRILLIANTINE"

Essential feature.—The word "BRILLIANTINE." Used since May 1, 1896.

81,540. LAMP-CHIMNEYS. THOMAS EVANS COMPANY, Pittsburg, Pa. Filed Feb. 26, 1898.

ZENITH

Essential feature.—The word "ZENITH." Used since May 15, 1895.

81,541. PIANOFORTES AND ORGANS. PEMBER & SMITH, New York and Saratoga Springs, N. Y.; Washington, D. C.; Jersey City, Newark, and Paterson, N. J.; Chicago, Ill., and Kansas City, Mo. Filed Mar. 11, 1898.

Imperial

Essential feature.—The word "IMPERIAL." Used since March, 1878.

81,542. IRONING-MACHINES. FRED B. FAY, Los Angeles, Cal. Filed Mar. 11, 1898.

Essential feature.—The compound word "SAW-EDGE." Used since November 15, 1895.

81,543. PNEUMATIC TIRES. MORGAN & WRIGHT, Chicago, Ill. Filed Mar. 10, 1898.

CACTUS

Essential feature.—The word "CACTUS." Used since February 12, 1896.

81,544. PNEUMATIC TIRES. MORGAN & WRIGHT, Chicago, Ill. Filed Mar. 10, 1898.

PLANK ROAD

Essential feature.—The words "PLANK ROAD." Used since July 14, 1897.

THE NORRIS PEULIS CO.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

Erratum.

OFFICIAL GAZETTE, vol. 83, No. 5, May 3, 1898, Decisions of the Commissioner, *Hammond* v. *Hart*, p. 746, second column, line 16, the word "Neither" should read *Either*.

COMMISSIONER'S DECISIONS.

EX PARTE KEYSER.

Decided February 24, 1898.

DIVISIONAL APPLICATION—ADDITIONAL FUNCTION.

In a divisional application a mere enlargement or extension of a certain feature whereby an additional function or capability is given the apparatus may be permitted.

ON petition.

ELECTRICALLY-ACTUATED SAFETY DEVICES FOR ELEVATORS.

Application of Nelson B. Keyser filed October 29, 1897, No. 656,779.

Mr. Marcus B. May for the applicant.

GREELEY, *Assistant Commissioner:*

This application is asserted by the petitioner to be a division of an application filed earlier disclosing several species of his device. The drawings of this application are identical with the drawings of the original application, so far as the particular species disclosed is concerned. The description is also identical with the description in the original application, so far as the construction and operation are concerned, except in one particular. In the original application the contact-strip on the car through which the circuit is closed to the clutching device by which the starting and stopping rope is gripped is not stated to be of any particular length, either long or short, but is shown as less in length than the length of the car, though much more than a mere contact. In the present application it is stated that it may, if desired, be of the full length of the car.

In the original application the use of this contact is stated to be to keep the circuit closed through the clutching device so long as the landing-door remains open, so that the starting-rope will be held from movement and the car cannot be started either up or down until the door is closed. In the present application it is stated to have this use and in addition is stated to be for the purpose of closing the circuit through the clutching device to cause it to operate to grip the rope and prevent the further movement of the car.

It is evident that the device as shown and described in the original application has every function which is stated in the present application, the extent of the space through which it is capable of acting being considerable, but necessarily limited by the length of the contact. Obviously lengthening the contact lengthens the space through which the device is capable of acting. It follows that the length of the contact-strip may be varied as desired. A statement of so obvious a modification would not involve new matter if made in the original application and does not involve new matter in the present application.

The present application is properly stated to be a division of the earlier application, and the requirement made by the Examiner that this statement should be eliminated is overruled.

The petition is granted.

EX PARTE CLARK-JEWELL-WELLS CO.

Decided February 24, 1898.

1. TRADE-MARK—CLASSES OF GOODS—SEPARATE REGISTRATION.

The Office is not warranted in requiring that a trade-mark be separately registered for each class of goods with which it is used in order to conform to the Office classification.

2. SAME—SAME—LENGTH OF USE ON DIFFERENT GOODS.

Where a trade-mark used on several classes of goods is covered by a single registration, the applicant should state for each class of goods the length of time the trade-mark has been used for that class.

ON petition.

TRADE-MARK FOR GROCERIES.

Application for registration filed October 9, 1897.

Mr. J. F. Beale for the applicant.

GREELEY, *Assistant Commissioner:*

This is a petition taken from the action of the Examiner of Trade-Marks requiring the applicant to limit the goods to which his mark is applied to one class.

It is stated in the application that the mark has been applied to groceries, and the particular goods said to be included in that class are "canned goods, flour, tobacco, cigars, dried fruit, condiments, farinaceous foods, flavoring extracts, coffee, and lard, hams, bacon, and canned beef." The Examiner states that if so many different kinds of goods are allowed to be covered by one registration confusion in the Office classification will result. Under the statute the Office should not register a mark which has been previously registered to some other applicant for the same class of goods, and in order to prevent this duplication in registration it is nec-

essary that the Office observe some form of classification.

The petitioner urges that there is no authority of law for the requirement of division in trade-mark applications to conform to the Office classification and cites in support of his position *ex parte Silvers*, (67 O. G., 811.)

Office classification of trade-marks is necessary in order to determine whether or not a trade-mark presented for registration has been before registered, and it is desirable for the purposes of such classification that a trade-mark be registered only for a particular class of goods. Yet there is not the necessity for requiring that the application for registration be so restricted that exists for restricting an application for patent to a single invention. But one trade-mark may be covered by a single registration; but, however desirable it may be, the Office is not warranted in requiring that the trade-mark be registered for but one class of goods. To require that a trade-mark be registered for each class of goods with which it is used—in the present case to require that the trade-mark be registered separately for five different classes of goods at an expense of five fees—would be a most onerous requirement.

The applicant should, however, be required to state for each class of goods the length of time for which the trade-mark has been used for that class of goods.

Subject to this requirement the petition is granted.

FOREIGN PATENT LAWS.

Condensed Statement of the Conditions and Formalities Required in the Principal Industrial Countries for Obtaining a Patent of Invention.

[*From La Propriété Industrielle of August 31, 1897.*]

UNITED STATES PATENT OFFICE,
May 2, 1898.

La Propriété Industrielle, the official organ of the International Union for the Protection of Industrial Property, in the number for August, 1897, contains a comparative tabular statement in condensed form of the conditions and formalities requisite for obtaining a patent in certain foreign countries.

For the information of the Patent Office and those inventors who may seek protection for their inventions in foreign countries this condensed statement, together with the explanatory note which accompanies it, has been translated at the Scientific Library of this Office, and the translation, after having been carefully revised, is herewith published.

The statement has in case of each of the countries considered been carefully compared with the patent law and requirements of that country, and in this work of comparison and revision the Patent Office has had the assistance of attorneys familiar with practice before the patent offices of the several countries. The Patent Office cannot, however, vouch for the accuracy of the statement in all details.

The fact that a patent can be obtained in those countries in which patents are granted without preliminary examination does not necessarily mean that such patent is valid or even likely to be valid. If the invention is new and is in other respects patentable under the law of the particular country and the prescribed formalities are complied with in applying for patent, the patent will be valid; otherwise, though granted in due form and bearing the Government seal, it is invalid.

The publication of a United States patent or even the publication of so much of a patent as is usually published in THE OFFICIAL GAZETTE, if prior to the application for patent in a foreign country, may, and in some countries does, invalidate the patent granted on such application.

The countries hereinafter referred to in which no preliminary examination as to novelty is provided for by law are:

Belgium,
Brazil,
France,
Germany, (Gebrauchsmuster,)
Great Britain,
Italy,
Mexico,
Portugal,
Russia,
Spain,
Switzerland,
Tunis.

The countries included by *La Propriété Industrielle* in the tabular statement are the principal European countries, together with Brazil and Tunis, both of which are members of the International Union. To these has been added a condensed statement with regard to Canada, Japan, and Mexico. The members of the International Union (Convention of Paris of March 20, 1883) are:

Belgium,
Brazil,
Denmark, with the Färöe Islands,
Dominican Republic,
France, with Algeria and the French colonies,
Great Britain, with New Zealand and Queensland,
Italy,
The Netherlands, with Dutch East Indies, Surinam, and Curacoa,
Norway,

Portugal, with the Azores and Madeira,
Servia,
Spain, with Cuba, Porto Rico, and the Philippines,
Sweden,
Switzerland,
Tunis,
United States.

The essential features of the Union are that, so far as patents for invention are concerned, the subjects or citizens of each country shall enjoy in all the other countries of the Union the same privileges which are accorded by the laws of the respective countries to their own subjects or citizens (Art. 2) and that a person who has regularly applied for a patent in one of the countries of the Union shall have a "right of priority" of six months (for countries over seas seven months) within which he may make application in other countries of the Union (Art. 4)—that is, six months (or seven months, as above) within which he may publish or exploit his invention without forfeiting his right to a patent.

To the statement as contained in *La Propriété Industrielle*, statements as to the requirements of the several countries in respect to working—that is, the commercial production of the invention in the country—have been added.

The taxes referred to in the statement are required in most of the countries mentioned to be paid in advance, though in some of the countries a short period of grace is allowed on payment of a fine.

Reference to the volume and page in which the full text of the various laws, if published in THE OFFICIAL GAZETTE, may be found have been inserted.

C. H. DUELL,
Commissioner.

EXPLANATORY NOTE.

"The International Bureau frequently receives letters from inventors asking it to indicate for a whole series of countries—often even for all countries—the formalities and conditions which must be complied with in filing an application for a patent. It is impossible to answer such requests in a satisfactory manner. Without counting that it would be difficult to reproduce every time the whole of the legislative and executive regulations in force in the countries in question, it would be necessary, further, to explain the administrative and judicial practice that has grown up in each of the countries. Moreover, the inventor should possess the technical knowledge necessary for describing his invention correctly and for preparing the necessary drawings, and he ought to know different languages sufficiently well to draw up the documents required. Even then he would be prevented from himself filing his application for a patent abroad, by reason of the provision found in a large number of laws which requires persons residing abroad to apply for their patents through a representative residing in the country.

"While instructing its correspondents to the best of its ability, the International Bureau has often thought that it ought to call their attention to the dangers to which they expose themselves in drawing up their applications themselves. It places itself at the same point of view as the Patent Office of the United States, which says in Article 17 of its Rules:

"The applicant is advised, unless familiar with such matters, to employ a competent attorney, as the value of patents depends largely upon the skilful preparation of the specification and claims.

"The table published hereinafter has therefore not for its purpose to put inventors in a position to themselves prepare their applications for patents. It is meant simply to let them form an exact idea of the various laws and their requirements. Moreover, the indications of this table, detailed as they are, do not always literally reproduce the requirements of the laws and regulations relating to the delivery of patents. It would be well, therefore, to refer to the original texts. The complete legislation of all countries is found in the *Recueil de la Législation et des Traités Concernant la Propriété Industrielle*, published by the International Bureau."

AUSTRIA.

(NOT A MEMBER OF THE INTERNATIONAL UNION.)*

[Law of January 11, 1897. The date of its going in force is not yet fixed.]

WHO MAY OBTAIN A PATENT.

The author of the invention or his representative has sole right to a patent. The first applicant is considered as author of the invention until the contrary is proved.

Persons not residing in Austria must appoint a representative residing in that country.

PATENTABLE INVENTIONS.

New inventions susceptible of industrial application.

An invention is not considered new if before the date of the filing of the application for a patent it had already—

First, been described in a printed publication in Austria in such manner as to render possible its use by those skilled in the art;

Second, been used, put on exhibition, or presented in the country in a sufficiently public manner to render possible its use by those skilled in the art;

Third, been the object of a patent granted in Austria subsequently lapsed into the public domain.

INVENTIONS EXCLUDED FROM PROTECTION.

First. Inventions whose object or use is contrary to the laws, immoral, or injurious to health, or that tend evidently to lead the public into error.

Second. Scientific theories or principles as such.

Third. Inventions whose object is reserved to the monopoly of the State.

Fourth. Inventions of—

(*a*) Food products and objects of consumption (*Genussmittel*) for the human race;

(*b*) Medicines and disinfectants;

(*c*) Products obtained by chemical means. But inventions mentioned under *a* to *c*, if they relate to a particular technical process, may be patentable.

NATURE AND DURATION OF THE PATENT—TAXES.

Four kinds of patents:

First. Patents of invention. Duration, fifteen years, to start from the date on which the application for a patent was published in the *Patent Journal*.

Second. "Patents of addition." Same duration as the principal patent to which they refer.

Third. "Patents of exposition." Granted under conditions to be determined by an ordinance of the Minister of Commerce, for insuring temporary protection to patentable inventions figuring at expositions. Duration, from the admission of the object to the exposition until three months after the close of the same.

Fourth. "Patents of transformation." Granted to owners of patents issued under the old law who desire to have the same transformed into patents under the new law, if the invention is patentable under the latter. They have the same duration as patents of invention, deducting the time already elapsed under the patent granted under the old law.

Patents of invention that cannot be exploited without entire

*Austria-Hungary signified its adhesion to the International Convention in 1897, subject to the approval of parliament.

or partial utilization of another invention already patented are designated by the name of "dependent patents."

Patents of invention, filing fee, 10 florins.

Annual taxes:	*Florins.*
First year	20
Second year	25
Third year	30
Fourth year	40
Fifth year	50
Sixth year	60
Seventh year	80
Eighth year	100
Ninth year	120
Tenth year	140
Eleventh year	160
Twelfth year	220
Thirteenth year	260
Fourteenth year	300
Fifteenth year	340

"Patents of addition," 25 florins, besides the filing fee.

Florin=$0.40.

APPLICATION—FORMALITIES AND DOCUMENTS.

The application must be addressed to the Patent Office and contain, first, the full name (name and given name) of the applicant and, if necessary, that of his representative, as well as their professions and residences; second, a request for the grant of a patent; third, the title of the invention; fourth, a statement of the number of years for which the tax is to be paid before the delivery of the patent.

With this must be deposited, first, the filing fee of ten florins, or a certificate showing that this amount has been sent by mail; second, the power of attorney to the representative, if necessary; third, two copies of the description of the invention, signed by the applicant or his representative.

The description of the invention must, first, describe the invention in such manner that it can be executed; second, group the characteristic elements of the invention in one or more claims; third, include the drawings, in duplicate, on tracing-cloth, necessary for understanding the description, and be accompanied, if needed, by the necessary models and samples.

MODELS.

The filing of models and samples is obligatory only when necessary for understanding the description of the invention.

THE GRANT.

First. Preliminary examination bearing on the patentability of the invention.

Second. Publication of the application, with call for opposition. Time allowed for opposition, two months.

In case of rejection of application or in case of allowance of a contested application the interested party may appeal, within a month, to the Patent Office, Division of Appeals.

WORKING.

Patented invention must be commercially produced in Austria at the latest within three years from the date of publishing the grant in the *Patent Journal*, and working must not be discontinued for more than two years; but the forfeiture of a patent cannot take place unless preceded by an official summons and warning of forfeiture unless adequately worked within a stated period.

BELGIUM.

(MEMBER OF THE INTERNATIONAL UNION.)

[Law of May 24, 1854. 4 O. G., 263.]

WHO MAY OBTAIN A PATENT.

The patent is granted to the inventor or his assignee.

PATENTABLE INVENTIONS.

Every discovery or improvement susceptible of being exploited as an article of industry or commerce. To obtain a valid patent, application must be made before public use in Belgium or description in a printed publication. Description in a printed publication due to requirement of law will not invalidate a "patent of importation."

NATURE AND DURATION OF THE PATENT—TAXES.

Three kinds of patents:

First. Patents of invention. Duration, twenty years, to start from the date of filing.

Second. "Patents of importation." Duration limited always by that of the patent for the same invention previously granted abroad for the longest term, but in no case to exceed twenty years.

Third. "Patents of improvement." They end at the same time with the principal patent to which they relate.

First annuity, 10 francs; second annuity, 20 francs, and so on, with an increase of 10 francs for each year.

No fee is required for "patents of improvement" if granted to the grantee of the principal patent.

Franc=$0.193.

APPLICATION—FORMALITIES AND DOCUMENTS.

The applicant must file at the office of one of the provincial governments or at the office of a district commissary an application accompanied by the following, under sealed envelope:

First. The description of the invention.

Second. The drawings, models, or specimens necessary for understanding the description.

Third. A duplicate, suitably certified to conform with the original of the description and the drawings.

Fourth. A memorandum of the documents filed.

The above must all be dated and signed.

There must be annexed to this deposit the receipt for the first annuity of 10 francs.

The application must be in the French, Flemish, or German language. If not in the French language, it must be accompanied by a translation in French if the applicant is not domiciled in Belgium, must indicate the name, given names, profession, and residence, real or elected, of the inventor in Belgium, and give an exact and concise title of the invention. The description must give complete knowledge of the invention and conclude with definite claims. The drawings, in duplicate, on tracing-cloth, must be in ink and on the metric scale and indicate by a different shade the characteristic parts of the invention. All the parts of the application except the drawings must be signed by the applicant or his representative, whose power of attorney must be filed.

MODELS.

The applicant need file samples only when they are necessary for understanding the description.

THE GRANT.

The patents are granted without preliminary examination.

WORKING.

Patented invention must be worked in Belgium within a year from beginning of working elsewhere and must not be discontinued for more than one year.

BRAZIL.

(MEMBER OF THE INTERNATIONAL UNION.)

[Law of October 14, 1892. 23 O. G., 193.]

WHO MAY OBTAIN A PATENT.

The patent may be issued to the inventor or his assignee, but must be applied for by the inventor.

PATENTABLE INVENTIONS.

Requisites of patentable inventions: The inventions of new industrial products; of new means or of the new application of known means for obtaining an industrial result; the improvement of an invention already patented, if it renders easier the manufacture of the product or the use of the patented invention or increases its utility.

Inventions will be considered new which have not been employed or practiced, in Brazil or abroad, previous to the application for the patent, nor described or published in any country in such a way as to enable them to be put in practice.

The right of the inventor who has received a patent abroad and who applies for a patent in Brazil within seven months from the date of the foreign application, while satisfying the conditions and formalities established for applying for a patent, will not be invalidated by application by another, the publication of the invention, or its being employed or put in practice during such period.

INVENTIONS EXCLUDED FROM PROTECTION.

Inventions, first, contrary to law and morality; second, dangerous to public security; third, injurious to public health; fourth, not producing a practical result.

NATURE AND DURATION OF THE PATENT—TAXES.

Three kinds of patents:

First. Patents of invention. Duration, fifteen years. In case of an invention previously patented abroad, the patent will have the same duration as the original patent, without, however, exceeding fifteen years.

Second. "Patents of improvement." Same duration as the principal patent to which they refer.

Third. Provisional patents, for inventors who before applying for a definite patent wish to experiment on their inventions in public or exhibit them at an official exposition or an officially recognized exposition. The term of protection shall not exceed three years. (Similar to U. S. caveat.) Specification must be published in full in the *Diario Official* at expense of patentee.

Taxes: Patents of invention, first year, 20 dollars; second year, 30 dollars, and so on, with an annual increase of 10 dollars; "patents of improvement," single tax corresponding to the annuity to fall due.

APPLICATION—FORMALITIES AND DOCUMENTS.

Documents to be deposited with the Section of the Public Archives:

First. Application for patent stating the name, nationality, profession, domicile, or temporary residence of the applicant, the nature of the invention, and the object of its application, signed by the applicant or his agent.

Second. In duplicate, specification of the invention, under dated and sealed envelope, describing the invention, its object and method of use, with the plans, drawings, models, and samples necessary for understanding the invention and the specification. The specification must be sufficiently clear for a competent person to be able to practice the invention. It must end by specifying with clearness and precision the characteristic feature of the invention. The indications of weights and measures must be given according to the metric system, those relating to temperature according to the centigrade thermometer, those relating to density according to specific gravity. The plans and drawings must be in duplicate and executed on thick white paper not doubled or pieced, in permanent black ink. The sheets must be thirty-three centimeters high by twenty-one, forty-two, or sixty-three centimeters wide, with a rectangular frame traced in double lines and leaving a margin of two centimeters on the outside. The serial number of the sheets and the signature of the inventor must be within the marginal lines. When it is a question of an improvement, the drawings will indicate by means of

an ink of the same color, but by different lines—broken or dotted lines—the modifications added to the principal invention.

Third. A power of attorney, duly legalized, if the application is not filed by the inventor himself.

Fourth. The original patent or an official copy if it is a question of the confirmation of a foreign patent.

Fifth. The original patent if it is a question of an improvement made by the patentee on his own invention.

Sixth. An attestation relative to the principal patent if it is a question of the improvement of an invention of a third party.

Seventh. A memorandum of the documents deposited.

Documents must be in the Portuguese language.

MODELS.

Models and samples need be filed only when indispensable for understanding the invention.

THE GRANT.

The patent is delivered without preliminary examination, unless the invention relates to food products, chemicals, or drugs. In such case the government orders a preliminary examination at the cost of the applicant.

In case of rejection the applicant may appeal to the Council of State.

WORKING.

Patented invention must be worked in Brazil within three years from date of issue, and working must not be suspended for more than a year.

CANADA.

(NOT A MEMBER OF THE INTERNATIONAL UNION.)

[Laws of June 14, 1872, 2 O. G., 31, and July 9, 1892, 65 O. G., 137.]

WHO MAY OBTAIN A PATENT.

The inventor, his executor, administrator, or assign. Application must be made by the inventor, if living.

PATENTABLE INVENTIONS.

Any new and useful art, machine, manufacture, or composition of matter or any improvement on any art, machine, manufacture, or composition of matter not known or used by others before the invention thereof by the applicant and not in public use or on sale for more than one year previous to the application in Canada, with the consent or allowance of the inventor.

An inventor who has patented his invention in a foreign country may obtain a patent in Canada if he applies within a year from the date of the issue of said patent. Notice to the Commissioner of intention of applying for patent, if given within three months from the date of the issue of foreign patent, entitles the inventor, after applying for and obtaining such patent, to prevent further manufacture of his invention by any person who may have commenced such manufacture during the year following the issue of the foreign patent and preceding the application for the Canadian patent.

In all cases the Canadian patent expires at the earliest date on which any foreign patent expires.

INVENTIONS EXCLUDED FROM PROTECTION.

All inventions having an illicit object in view or consisting in any mere scientific principle or abstract theorem.

NATURE AND DURATION OF THE PATENT—TAXES.

Patents are granted for eighteen years; but it is optional with applicant whether he shall pay for the whole term or only for six or twelve years, with permission to renew.

Fees:

Full fee for eighteen years	$20
Partial fee for twelve years	40
Partial fee for six years	20
Fee for further term of twelve years	40
Fee for further term of six years	20
Lodging a caveat	5

APPLICATION—FORMALITIES AND DOCUMENTS.

The application must be accompanied by an oath or affirmation to the effect that the applicant believes himself to be the original inventor. If applicant is a foreigner, he must elect domicile at some place in Canada.

There must also be given title of invention, specification in duplicate, (specification shall correctly and fully describe mode of operation and clearly state features claimed, shall bear the name of the place where made, and be signed by inventor or legal representative and two witnesses,) when necessary, drawings, in duplicate, in black ink, on tracing-linen eight by thirteen inches, signed by applicant or attorney; also, extra drawing on bristol-board, same size, but not necessarily giving all the figures, only the one giving the best general idea of the invention; no writing on the face, no title, certificate, or signature, but on the back of the sheets the inventor's name and title of invention in pencil. Oath may be made before any person authorized to administer oaths in the locality where it is made.

THE GRANT—WORKING.

Preliminary examination with reference to the formalities of the application and novelty and patentability of the invention.

The invention must be worked in Canada within two years from the date of the patent. Articles may be imported for one year only, unless extension of privilege is asked for. Such extension is limited to one year.

DENMARK.

(MEMBER OF THE INTERNATIONAL UNION.)

[Law of April 13, 1894. 68 O. G., 928.]

WHO MAY OBTAIN A PATENT.

The patent can be obtained only by the inventor or his assignee. In case of more than one application the preference is given to the first applicant.

Every applicant for a patent not a resident of Denmark must appoint a resident representative.

PATENTABLE INVENTIONS.

Inventions capable of being utilized in industry or capable of industrial exploitation.

INVENTIONS EXCLUDED FROM PROTECTION.

First, inventions devoid, as such, of any importance; second, those whose exploitation would be contrary to the laws, to morals, or to public order; third, inventions which at the time of the application were already described in a printed publication in any country or had already been used in public in Denmark sufficiently to be capable of being carried out by an expert in the art; fourth, inventions relating to medicines, food compounds, and beverages and those bearing on processes for manufacturing food.

NATURE AND DURATION OF THE PATENT—TAXES.

Three kinds of patents:

First. Patents of invention. Duration, fifteen years, dating from the date of issue.

Second. "Dependent patents," for improvements made on inventions patented by a person other than the applicant. Same duration.

Third. "Patents of addition," expiring with the principal patent.

Tax for filing, 20 crowns. Fee for issuing the patent, 10 crowns.

Amount of annual taxes:	*Crowns.*
The first three, each	25
The following three, each	50
The following three, each	100
The following three, each	200
The last three, each	300

"Patents of addition" pay only the filing fee.

Crown=$0.268.

APPLICATION—FORMALITIES AND DOCUMENTS.

First. Application for a patent, addressed to the Patent Commission, at Copenhagen, in duplicate.

Second. A description of the invention, in duplicate.

Third. When it is necessary for understanding the description, a drawing, in duplicate, and, according to circumstances, a model, sample, etc.

Fourth. When the applicant is not a resident of Denmark, the appointment of a general representative residing in that country, accompanied by the acceptance of the representative.

The application, on stamped paper, must indicate the name, profession, and the residence of the applicant, as well as the title of the invention. It must indicate the name of the inventor, and, if it is filed by another, contain proof of the assignment.

The description must be sufficiently complete to permit the invention to be carried out. It must indicate exactly what constitutes the invention (claims).

The application and the description must be on paper of official size.

One of the copies of the drawing must be on white cardboard of thirty-three centimeters in height by twenty-one, forty-two, or sixty-three in width. All the figures and writings of the drawing must be executed in india-ink, in very black and clear lines, without colors, within a line traced at two centimeters from the edge, a clear space of three centimeters being left at the top. The signatures must be placed in the lower right-hand corner. The second copy must be a tracing on muslin.

All documents must be in Danish.

MODELS.

Models are not required except when necessary for understanding the invention.

THE GRANT.

Preliminary examination as to formalities prescribed and as to the patentability of the invention.

Publication of the application, with call for opposition. Time allowed for opposition, eight weeks.

In case of rejection the applicant may appeal to the Patent Commission itself, afterward to a special commission to be appointed by the Minister of the Interior.

WORKING.

Patented invention must be worked in Denmark within three years from date of patent and must not be discontinued for more than one year.

FRANCE.

(MEMBER OF THE INTERNATIONAL UNION.)

[Law of July 5, 1844. 2 O. G., 565; 4 O. G., 343.]

WHO MAY OBTAIN A PATENT.

Any person who makes application therefor may obtain a patent for any new discovery or invention in any class of industry.

PATENTABLE INVENTIONS.

The invention of new industrial products.
The invention of new means or the new application of known means for obtaining an industrial result or product.
No discovery, invention, or application which in France or abroad and previous to the date of the filing of the application has received sufficient publicity to enable it to be carried out will be considered new, except in case of applications made in compliance with the terms of the International Convention.

INVENTIONS EXCLUDED FROM PROTECTION.

First. Pharmaceutical compositions or remedies of all kinds.
Second. Plans and combinations of credit or finance.

NATURE AND DURATION OF THE PATENT—TAXES.

First. Patents of invention. Duration, five, ten, or fifteen years, to start from the filing of the application.
Second. Certificates of addition. Same duration as that of the principal patent to which they refer.
The duration of patents granted for inventions already patented abroad cannot exceed that of such patents granted abroad.
Taxes: First, patents of invention, 100 francs a year; second, certificates of addition, single tax of 20 francs.
Franc=$0.193.

APPLICATION—FORMALITIES AND DOCUMENTS.

The applicant for the patent must file, under seal, at the office of the secretary of the prefecture in the Department in which he resides, or in any other Department which he elects as domicile—
First, his application to the Minister of Commerce, Industry, Posts, and Telegraphs;
Second, a description of the discovery or invention;
Third, the drawings or samples necessary for understanding the description;
Fourth, a memorandum of the documents filed.
The application must be limited to a single principal subject, including the details which it comprises and the uses to which it may be applied. It must mention the duration assigned to the patent and indicate a title, closing with a summary and precise designation of the subject of the invention. The description must be written in French. The denomination of weights and measures must be in the decimal system.
The drawings must be line drawings, in good black ink, according to the metric scale. They need not be signed.
A duplicate of the description and the drawings must be joined to the application.
All the documents must be signed by the applicant or his representative, whose power of attorney must accompany the application.
The application will be received only on the production of a receipt for the payment of the first annuity of 100 francs, at Paris, at the office of the Central Receiver of Finances of the Seine or in the Departments at the office of the receivers of finances.
A certificate of the filing is sent to the applicant on receipt of the price of the stamp.

MODELS.

The applicant may file a model if he thinks it necessary to the understanding of the invention.

THE GRANT.

When the application has been regularly prepared, the patent is issued, without preliminary examination, at the risk and peril of the applicant, and without guarantee either of the reality, the novelty, or the merit of the invention or of the fidelity or exactness of the description.

WORKING.

Patented invention must be worked in France within two years from grant of patent and must not be discontinued for more than two years.

GERMANY.

(NOT A MEMBER OF THE INTERNATIONAL UNION.)

[Patent law of April 7, 1891. 55 O. G., 1697. Law for models of utility (*Gebrauchsmuster*) of June 1, 1891. 57 O. G., 414.]

WHO MAY OBTAIN A PATENT.

The patent is granted to the inventor or his assignee.
Persons not residing in Germany must appoint a resident representative.

Models of Utility, (Gebrauchsmuster.)

The model of utility is registered for the benefit of the first applicant.
A person having neither residence nor establishment in Germany can claim legal protection only when it has been published in the *Reichs-Gesetzblatt* that German models of utility enjoy legal protection in the country where he has his domicile or establishment. In depositing his model such person must appoint a representative in Germany.

PATENTABLE INVENTIONS.

New inventions that are susceptible of industrial use.
An invention which at the time of filing of the application has already been described in printed publications anywhere within the last century or which has already been used in the country in a sufficiently public manner for those skilled in the art to be able to work it will not be considered new.

Models of Utility. (Gebrauchsmuster.)

The law protects as models of utility working tools or inventions designed for practical use, or their parts, in so far as by a new configuration, a new arrangement, or a new mechanism they may serve for work or practical use.
Models will not be considered new which at the time of the application were already described in printed publications or had already been notoriously utilized in the country.

INVENTIONS EXCLUDED FROM PROTECTION.

First. Inventions the use of which would be contrary to the laws or to good morals.
Second. Inventions of food products, objects of consumption, (*Genussmittel,*) and medicines, as well as materials obtained by chemical means, in so far as these inventions do not relate to the process of manufacture.

NATURE AND DURATION OF THE PATENT—TAXES.

Two kinds of patents:
First. Patents of invention. Duration, fifteen years, to start from the day following the date of filing the application.
Second. "Patents of addition." Granted for the remainder of the term of the principal patent. May become in effect a principal patent if the principal patent for any cause becomes void.
Application fee, 30 marks; first annuity, 30 marks; second annuity, 50 marks; third annuity, 100 marks, and so on, with an annual increase of 50 marks.
"Patents of addition" pay only the filing fee and first annuity.

Models of Utility, (Gebrauchsmuster.)

The applicant receives a certificate of registry.
The duration of the protection is three years, to start from the date following the date of filing, and may be extended three years more.
Filing fee, for the first three years, 15 marks. Fee for extension, for the following three years, 60 marks.
Mark=$0.238.

APPLICATION—FORMALITIES AND DOCUMENTS.

First. Application for a patent, addressed to the Imperial Patent Office.
Second. Description of the invention, in duplicate, written on paper thirty-three by twenty-one centimeters.
Third. (*a*) A drawing (or several) on bristol or card board, drawn in indie-ink, without color or wash; (*b*) a tracing on muslin of the above drawing, which may be colored. Dimensions of the drawings of the two kinds: Thirty-three centimeters high by twenty-one wide, or thirty-three centimeters high by forty-two wide, or thirty-three centimeters high by sixty-three wide. A single line traced two centimeters from the edge must surround the drawings. Within this line, at the top, a space of three centimeters in height must remain free. The lower right-hand corner must receive the signature of the applicant or his representative.
Fourth. A power of attorney, not authenticated, if the application is filed by representative.

Models of Utility, (Gebrauchsmuster.)

First. A declaration addressed to the Imperial Patent Office containing—
(*a*) An application for registry;
(*b*) The title under which the model is to be registered;
(*c*) A statement of the new configuration or new mechanism to be protected;
(*d*) The declaration that the fee of 15 marks has been paid to the treasury of the Patent Office or that it will arrive at the same time with the declaration;
(*e*) The name, profession, and residence of the applicant, if the filing is done by representative;
(*f*) The list of the annexes;
(*g*) The signature of the person effecting the filing, with statement of his profession and residence.
Second. A picture or reproduction of the model. The picture (drawing, photograph, etc.) must be on bristol or card board thirty-three by twenty-one centimeters or on tracing-muslin not over thirty-three centimeters each way. The reproduction must not exceed fifty centimeters in each dimension.
Third. A power of attorney if the filing is effected by a representative.
All the documents mentioned under 1 and 2 should be filed in duplicate, except in case of filing a reproduction of the model, where it will suffice that it shall be accompanied by a picture of the latter. They must all bear the designation given to the model, (see 1, *b*,) the name and residence of the applicant, and the date of filing.
All the written documents must be drawn up on sheets of paper thirty-three by twenty-one centimeters.

MODELS.

The Patent Office may require the filing of models of the objects to be patented whenever it is considered necessary.
When it is a question of applications for patents relating to processes for the manufacture of chemical products, there must be filed a sample of the products in question, as well as the intermediate products necessary for the application of these processes. If the invention relates to colors derived from tar, there must likewise be filed samples of wool, silk, or cotton dyed in these colors.

THE GRANT.

First. Preliminary examination relating to the formalities of the application and the patentability and novelty of the invention.
Second. Publication of the application, with call for opposition: Time allowed for opposition, two months. In case of rejection of application or in case of allowance of a contested application the interested party may appeal, within a term of one month, to the Patent Office, Division of Appeals.

Models of Utility, (Gebrauchsmuster.)

Registry is accorded without examination on compliance with the legal formalities.

WORKING.

Patented invention must be worked within three years after publication of grant of patent. Patentee may be compelled to grant licenses to others.

GREAT BRITAIN.

(MEMBER OF THE INTERNATIONAL UNION.)

[Statute of 1623 of monopolies; laws of August 25, 1883, August 14, 1885, June 23, 1888, and December 24, 1888. 25 O. G., 97; 28 O. G. 1127; 46 O. G., 1265.]

WHO MAY OBTAIN A PATENT.

The patent is valid only when granted to the true and first inventor either alone or jointly with another or others.
A person resident in the United Kingdom to whom an invention has been communicated from abroad is considered a first and true inventor.
In case of decease of the inventor the patent is granted to his legal representative.

PATENTABLE INVENTIONS.

Any manner of new manufactures, provided they are not in use or publicly known at the time of the grant of the patent and are not contrary to the law nor mischievous to the State by raising the price of commodities in the United Kingdom or injuring trade or generally inconvenient. (Statute of 1623.)

NATURE AND DURATION OF THE PATENT—TAXES.

Only one kind of patent is issued, having a duration of fourteen years from the date of filing the application.
Taxes: At the filing of the application for provisional protection, 1 pound; at the subsequent filing of the complete specification, 3 pounds; at the filing of the complete specification with the first application, 4 pounds, (the payment of these filing fees secures the legal protection during the first four years of the patent;) fifth year, 5 pounds; sixth year, 6 pounds, and so on, increasing by 1 pound a year.
Pound=$4.866⅔.

APPLICATION—FORMALITIES AND DOCUMENTS.

The application, addressed to the Patent Office, must declare that the applicant is in possession of an invention of which he is the true and first inventor. It must be accompanied by a specification, either provisional or complete.
The provisional specification must describe the nature of the invention.
The complete specification must describe and explain in detail the nature of the invention and the manner in which it must be carried out and be accompanied by drawings, if necessary.
The specification (provisional or complete) must begin with the title. The complete specification must end with a precise indication of the invention claimed.
If the application is accompanied by a provisional specification, the applicant may file the complete specification within the nine months following.
If agents represent applicants, they must be duly appointed by the applicant.
Every application that is to enjoy the time allowance of priority established by Article 4 of the International Convention or a similar arrangement of a convention concluded between Great Britain and a foreign State, must contain a declaration proving the filing of the anterior application made abroad and specify the foreign States in which applications have been made for patents for the same invention, as well as the official dates of these applications. The application must be made by the person who made the foreign application within seven months following the first foreign application.
There must also be furnished a certified copy of the specification filed by the applicant in the Patent Office of the foreign State, together with a statutory declaration affirming the identity of the invention with the invention in reference to which the first foreign application was made. If the foreign specification be in a foreign language a translation must be annexed and certified to in conformity with the original.
The applications and specifications mentioned above must be drawn up on blanks that may be procured at the principal post-offices of the United Kingdom.

MODELS.

The Department of Science and Arts may at any time require the patentee to furnish a model of his invention on payment of the expenses of the manufacture of the model.

THE GRANT.

First. Examination of the complete specification to see that it has been prepared in the manner prescribed and if the invention described in detail is the same as that described in the provisional specification.
Second. Publication of the acceptance of the complete specification, when the application is open for two months to the public for opposition by interested parties.
The patent is issued if unopposed or in event of an unsuccessful opposition.

WORKING.

Any interested party can oblige the inventor to grant him a license on such terms as the Board of Trade may determine.

HUNGARY.

(NOT A MEMBER OF THE INTERNATIONAL UNION.)*

[Law of July 14, 1895.]

WHO MAY OBTAIN A PATENT.

The patent belongs to the inventor or to the holder of his interest.
Persons not living in Hungary must appoint a representative in the country.

PATENTABLE INVENTIONS.

Every invention that is new and susceptible of being used industrially.
An invention is not considered new if at the time of the application for the patent—
First, it has already been sufficiently described by publication in a journal printed or otherwise reproduced to admit of its use by those skilled in the art;
Second, it has already been sufficiently divulged by exploitation or public exhibition to enable those skilled in the art to carry it into effect;
Third, it has already been the object of a patent.
The invention is considered as new, though it shall have been used or published, if one hundred years shall have elapsed since the last case of exploitation or publication.

INVENTIONS EXCLUDED FROM PROTECTION.

Inventions, first, the application of which is contrary to law and good morals; second, relating to objects necessary for the development of the power of the army or the navy, if the Minister of Commerce opposes the granting of the patent; third, bearing upon theories and scientific principles, as such; fourth, for food products and medicines and chemical compounds; (the process for the manufacture of these products is, however, patentable.)

NATURE AND DURATION OF THE PATENT—TAXES.

Two kinds of patents:
First. Patents of invention. Duration, fifteen years, to start from the filing of the application.
Second. "Patents of addition." Same duration as the principal patent to which they refer. May become in effect a principal patent if the principal patent becomes void for any reason.
Third. "Patents of improvement," granted for term of fifteen years to owner of original patent only during the first year after the grant of the original patent and thereafter to any one whether such owner or not.
Fee for filing for the two kinds of patents, 20 crowns.
Annual tax for the patents of invention:

	Crowns.
First year	40
Second year	50
Third year	60
Fourth year	80
Fifth year	100
Sixth year	120
Seventh year	140
Eighth year	160
Ninth year	200
Tenth year	250
Eleventh year	300
Twelfth year	350
Thirteenth year	400
Fourteenth year	500
Fifteenth year	600

Single tax for "patents of addition," 40 crowns over and above the fee for filing.
Crown=$0.203.

APPLICATION—FORMALITIES AND DOCUMENTS.

The application for the patent must be filed in writing in the Patent Office and must contain—
First, the name, profession, and residence of the applicant and, if the case calls for it, of his representative;
Second, the title of the invention;
Third, the declaration that the petitioner is the inventor or the holder of his interest, and in the latter case—
Fourth, the name, the profession, or the residence of the inventor, as well as a reference to the document upon which the applicant founds his right.
To the application must be joined—
First, the receipt of the Treasury for the payment of the fee for filing;
Second, a legalized power of attorney if the filing is done by a representative;
Third, the description of the invention, in duplicate, in a closed envelop, upon which should be written the title of the invention, as also the name and residence of the applicant;
Fourth, when the applicant is the holder of the interest of the inventor, the document showing the transfer of the invention.
The description must be sufficiently clear to enable those skilled in the art to understand the invention without other aid. It must end with one or more claims showing what is new and to be protected. If there are several claims and the substance of the invention consists in their combination or in their grouping, this circumstance must be mentioned. The description must be accompanied by the drawings necessary for the understanding of the invention and be accompanied, if necessary, by samples or models. It must be signed by the applicant or his representative. The requirements as to drawings are the same as for Germany.

MODELS.

The filing of samples or of models is obligatory if necessary for the understanding of the invention.

*See note under Austria.

THE GRANT.

First. Examination of the application for the patent in reference to regularity and the patentability of the invention, except in relation to the novelty of the latter.

Second. Publication of the invention, with call for opposition. Time allowed for opposition, two months.

In case of the refusal of a patent or in case of acceptance of an application for a patent contested the injured party can appeal it, within thirty days, to the judiciary branch of the Patent Office.

WORKING.

Patented invention must be worked in Hungary within three years from the publication of the grant.

ITALY.

(MEMBER OF THE INTERNATIONAL UNION.)

[Laws of October 30, 1859, and January 31, 1864.]

WHO MAY OBTAIN A PATENT.

The right to the patent is accorded to the author of a new industrial invention or discovery or his assignee.

PATENTABLE INVENTIONS.

Any new industrial invention.

An invention is called "industrial" when it has directly for its object, first, an industrial product or result; second, an instrument, a machine, a tool, a mechanism, or any mechanical construction whatsoever; third, a process or method of industrial production; fourth, a motor or the industrial application of a force already known; fifth, the technical application of a scientific principle, provided it gives immediate industrial results.

An invention is not considered new when it has been previously known in Italy or has been published in Italy or elsewhere.

Description in a printed publication due to requirement of foreign patent law does not invalidate a patent of importation.

INVENTIONS EXCLUDED FROM PROTECTION.

First. Inventions relating to industries contrary to law, to morality, and to public safety.

Second. Inventions which have not for their aim the production of material objects.

Third. Inventions or discoveries purely theoretical.

Fourth. Medicines.

NATURE AND DURATION OF THE PATENT—TAXES.

Three kinds of patents:

First. Patents of invention. Duration, one to fifteen years, as elected by the applicant, reckoning from the last day of March, June, September, or December next following the date of application. Patents granted for a less term than fifteen years may be prolonged to the full term.

Second. "Patents of importation," for new inventions already patented abroad. The same duration as the foreign patent conceded for the longest term, without, however, exceeding the term of fifteen years.

Third. "Patents of improvement."

Fourth. "Patents of addition." The same duration as the principal patent to which they refer.

Taxes: First, patents of invention and importation, 40 lire for the first three years, besides 10 lire per year indicated in the application for the patent; 65 lire for each of the years four to six; 90 lire for each of the years seven to nine; 115 lire for each of the years ten to twelve; 140 lire for each of the last three years; second, "patents of addition," single tax of 20 lire. There is also a "prolongation tax" of 40 lire, payable in addition to the annuities and proportional tax when it is desired to prolong the term of a patent originally taken for less than fifteen years.

Lira=$0.193.

APPLICATION—FORMALITIES AND DOCUMENTS.

The application for a patent must be addressed to the Minister of Agriculture, Industry, and Commerce through the local prefecture or subprefecture. It must contain—

First, the surname and Christian name, the country, and the residence of the applicant and of his representative, if the case calls for it;

Second, the title of the invention;

Third, a statement of the duration desired for the patent.

To the application must be joined—

First, the description of the invention;

Second, the drawings, when possible, and the models which may be considered necessary for the understanding of the invention;

Third, the receipt for the payment of the prescribed taxes and stamp fees;

Fourth, the original title or certified copy of the patent granted to the foreigner, when a patent of importation;

Fifth, if the application is filed by a representative, the power of attorney in authentic form, or in unauthenticated form with the signature of the applicant certified to by a notary or by the magistrate (syndic) of the commune where the said applicant resides;

Sixth, a list of the documents and articles filed.

The description must be written in Italian or French and must contain a complete and detailed statement of all the particulars necessary to enable one skilled in the art to put the invention into practice.

Three copies of the description and the drawings, signed by the applicant, must be filed.

If a model is filed, it will be sufficient to file two copies of the drawings.

The application and the three copies of the description must be written on paper stamped with 50 centimes. The description must be headed "Description of the invention having for title," etc.

The drawings must be furnished in triplicate, one being on bristol-board, in good black ink, for photographic reproduction, and two copies on tracing-cloth. There are no fixed dimensions for the sheet. It is only essential that the figures shall not exceed forty centimeters in any direction. Each sheet must have a fifty-centime stamp.

MODELS.

Models need be filed only when the inventor considers it necessary for the understanding of the invention. In this case each model must be furnished with a tag of cardboard or wood, on which shall be placed the signature of the party receiving the deposit and that of the one making it.

THE GRANT.

The patent is granted without preliminary examination as to the novelty of the invention.

The administration refuses the patent only if the application bears upon an invention in a class declared not patentable by law or if the filing has not been regularly effected. In case of refusal the applicant may within fifteen days address a complaint to a special commission named each year by the Minister.

Patents relating to beverages or foods are not granted except upon the favorable judgment of the Superior Council of Health.

WORKING.

If the patent is granted for five years or less, the invention must be worked in Italy within one year from the date of the patent, and working must not be omitted for more than one year. If the patent is granted for more than five years, the invention must be worked within two years, and working must not be omitted for more than two years.

JAPAN.

(NOT A MEMBER OF THE INTERNATIONAL UNION.)

[Law of 1888. Treaty with United States November 22, 1894.]

WHO MAY OBTAIN A PATENT.

The inventor only may apply for a patent. In case a person who has applied for or obtained a patent dies his rights devolve on his heirs or assigns.

In case of interfering applications the patent is granted to the prior inventor. When in case of interference between an application and a patent priority is awarded to the applicant and the existing patent is revoked, the patent granted to the applicant dates from the date of the revoked patent and has the same term.

Applicants residing abroad must appoint a representative residing in Japan.

PATENTABLE INVENTIONS.

Any new and useful technical process, machine, manufacture, or compound, or any new and useful improvement thereof.

Inventions publicly known or publicly used before application for patent is made are not considered new.

Inventions from which no good result can be expected are not considered patentable.

When the general use of an invention is considered desirable for the public interest or it is considered desirable that the invention be kept secret for military purposes, the Minister of State for Agriculture and Commerce may grant a conditional patent, or refuse to grant a patent, or may fix conditions to or cancel a patent already granted. In such case he must give the inventor or owner of the patent adequate compensation.

An improvement on a patented invention can be patented only after a license to use the original invention with the improvement has been obtained from the owner of the patent either by agreement or, in certain cases, by direction of the Minister of State for Agriculture and Commerce on payment of adequate compensation.

INVENTIONS EXCLUDED FROM PROTECTION.

First. Articles of food, drink, or fashion.

Second. Medicines or methods of compounding them.

Third. Articles which have been in public use before the application for a patent. This does not exclude articles which have been on public trial not more than two years.

NATURE AND DURATION OF THE PATENT—TAXES.

Patents are granted for terms of five, ten, or fifteen years, as the applicant may elect. Term is reckoned from day of registration.

A patent which is lost or damaged may be reissued on payment of a fee of 1 yen.

A patent of which the drawing or specification is insufficient may be amended provided the essential features of the invention are not changed.

Fees: For application of patent, 5 yen; for the grant of Letters Patent for five years, 20 yen; for ten years, 30 yen; for fifteen years, 40 yen. For amended Letters Patent: for a patent for five years, 10 yen; for ten years, 15 yen; for fifteen years, 20 yen.

Yen=$1.00.

APPLICATION—FORMALITIES AND DOCUMENTS.

Application addressed to the Minister of State for Agriculture and Commerce stating the name, status, occupation, domicile, and present residence of the applicant, the title of the invention, the date at which the invention was made, and the term for which a patent is desired, signed and sealed by the applicant, together with the specification and necessary drawings, must be

filed at the Patent Bureau. Registration-stamps of a value corresponding to the required fee must be affixed.

A foreigner making application for patent must furnish a certificate of nationality. All documents must be written in Japanese. A power of attorney, certificate of nationality, or other document written in a foreign language must be accompanied by a translation.

The specification must be clearly written without erasure or alteration on Mino paper, thirteen lines per page and twenty-five characters per line. It must comprise—

First, title sufficiently indicating the nature of the invention;

Second, brief statement of the nature and purpose of the invention;

Third, brief explanation of the drawings, if any;

Fourth, detailed explanation of the invention, referring to the drawings, if any, sufficiently clear to enable any person of ordinary ability to work the invention without difficulty, the meaning of words used in the claims being explained;

Fifth, in case of an improvement the difference between the original invention and the improvement must be pointed out;

Sixth, claims in which the essential features of the invention shall be pointed out.

Drawings must be in black india-ink and must be suitable for reproduction by photolithography. Space occupied by figures, 7.2 by 4.6 suns. (Sun=1.19 inch.) Margin at top, 1 sun; at bottom, .8 sun; at left, .3 sun; at right, 1.5 sun. On the drawing shall be put only the name of the applicant and his agent, with the seal of the latter. Not more than one sheet shall be used unless necessary. As little shading shall be used as possible. Section shall be shown by parallel lines about .3 sun apart. Four copies of drawings are required, which must be on Mino paper.

MODELS.

Models or specimens, when required, must be filed within ninety days from the date of notice that they are required.

THE GRANT.

Preliminary examination as to formalities and as to novelty and patentability. In case of rejection reëxamination may be demanded. Any person dissatisfied with the reëxamination may appeal to the Director of the Patent Bureau, who hears the case with two or more assistants. Costs in appeals are assessed as in civil suits.

WORKING.

Patented inventions must be worked within three years from the date of the patent, and working must not be discontinued for more than three years.

MEXICO.

(NOT A MEMBER OF THE INTERNATIONAL UNION.)

[Law of June 7, 1890. 57 O. G., 412.]

WHO MAY OBTAIN A PATENT.

The patent is granted to the inventor only, or, if already patented abroad, to the applicant for the foreign patent or his assignee. Persons not residing in Mexico must appoint a resident representative. Patentee has the exclusive right for one year after the grant to patent improvements.

PATENTABLE INVENTIONS.

A patent may be obtained on a new industrial product, a new method of production, or a new application of means already known to obtaining a result or an article useful in industry. Chemical or pharmaceutical preparations are likewise patentable. Inventions are not new if given such publicity in Mexico or abroad as to enable them to be worked; but this does not include publication by foreign patent office.

INVENTIONS EXCLUDED FROM PROTECTION.

First. Inventions of which the operation is forbidden by law or imperils the lives and property of citizens.

Second. Scientific principles or discoveries of a purely speculative order and not taking any tangible shape.

NATURE AND DURATION OF THE PATENT—TAXES.

Patents are granted for twenty years, dating from the date of the grant. The term may be extended for five years at the discretion of the executive. Patents granted for inventions previously patented abroad expire at the same time with the foreign patent, or, if more than one, with the foreign patent first granted.

The taxes are, before the expiration of the fifth year, $50 (Mexican); before the expiration of the tenth year, $75; before the expiration of the fifteenth year, $100.

APPLICATION—FORMALITIES AND DOCUMENTS.

Application in due form must be made to the Department of Public Works and must include petition, duplicate specification, (in Spanish,) and duplicate drawings on cloth or paper of any convenient size, with margin at the sides.

A non-resident who is unable to appear personally must appoint a resident agent by notarial power, legalised by Mexican consul.

MODELS.

Models are not usually required.

THE GRANT.

Patents are granted without preliminary examination; but notice of application must be published three times in the *Official Journal*, with call for opposition. Time allowed for opposition, two months.

WORKING.

Patented inventions must be worked within five years from the date of the patent.

NORWAY.

(MEMBER OF THE INTERNATIONAL UNION.)

[Law of June 16, 1885. 33 O. G., 500.]

WHO MAY OBTAIN A PATENT.

The patent is valid only when granted to the first inventor or to his assignee.

Persons not living in Norway must appoint a representative in that country.

PATENTABLE INVENTIONS.

New inventions which may be utilized in the arts.

An invention is not considered new if before the filing of the application for the patent it is already sufficiently well known to be used by persons skilled in the art. The publication in a printed memoir or the exhibition at an international exposition, however, constitutes an obstacle to the granting of the patent only after the expiration of six months.

INVENTIONS EXCLUDED FROM PROTECTION.

First, inventions the use of which is contrary to law, to good morals, or to public order; second, those the object of which is a food, an article of consumption, or a medicine. Patents, however, can be granted for the processes or the special apparatus designed for the manufacture of such products.

NATURE AND DURATION OF THE PATENT—TAXES.

Two kinds of patents:

First. Patents of invention. Duration, fifteen years, to start from the filing of the application.

Second. "Patents of addition." Same duration as the principal patent to which they refer.

Fee for filing, 20 crowns, (this constitutes at the same time the first annuity for the patents of invention;) second annuity, 10 crowns; third annuity, 15 crowns, and so on, with an annual increase of 5 crowns.

"Patents of addition" are subject to the payment of the filing fee only.

Crown=$0.268.

APPLICATION—FORMALITIES AND DOCUMENTS.

The applicant must file with the Commissioner of Patents—

First, an application for a patent addressed to the Commissioner;

Second, the description of the invention, in duplicate;

Third, the drawings necessary for explaining the invention, also in duplicate, and, if the case requires it, models, specimens, etc.;

Fourth, a power of attorney if the application is not filed by the inventor himself;

Fifth, a memorandum of the documents filed.

The application must state the name of the applicant, with his profession and residence, as well as the title of the invention. If the invention is not made by the applicant, he must furnish documents proving the transfer of the invention.

The description must be sufficiently clear and complete to enable an expert in the art to execute the invention. It must end with an exact indication of what the applicant claims as his invention.

The application and the description must be written in Norwegian.

The drawings must be executed in a sufficiently clear and durable manner. They must reproduce all the details named in the description, which must be indicated by letters or figures corresponding in the text and drawings. The requirements for drawings are the same as for Germany.

MODELS.

Models need not be filed unless necessary for the understanding of the invention.

THE GRANT.

First. Preliminary examination bearing upon the formality of the application.

Second. Publication of the application, with call for opposition. Time allowed for opposition, eight weeks.

Third. Examination bearing on the patentability of the invention.

In case of the refusal of a patent the applicant can within six weeks demand of the Commission to submit the matter to a new examination, furnishing it with explanations of a nature to bring about another result.

If the decision does not give satisfaction to the applicant, he may within four weeks demand that the matter be submitted to examination by a superior commission composed of seven members named by the King for each special case.

WORKING.

The patented invention must be worked in Norway within three years from the date of the grant of the patent and working must not be discontinued more than one year.

PORTUGAL.

(MEMBER OF THE INTERNATIONAL UNION.)

[Law of May 21, 1896.]

WHO MAY OBTAIN A PATENT.

A patent can be granted to any person who has invented an industrial object or a material product of commerce, (Art. 6.)

The right to receive the patent belongs to the first applicant, (Art. 27.)

PATENTABLE INVENTIONS.

The following can be patented:
First. A new product or new industrial result.
Second. A new combination or arrangement of parts or elements which may be new or already known.
Third. A new principle or means of industrial or professional application.
Fourth. A new application of known means.
Fifth. A new application of known products.
Sixth. A technical application of known scientific principles.
Seventh. An improvement in any product or industrial object whatsoever.
Eighth. A new method or process of industrial production.
Ninth. A means of rendering the production more economical, of regulating or facilitating it.
In chemical industries and in pharmacy patents are granted only for processes and not for the products themselves.
No invention is considered as new which has been described in any publication whatsoever within less than one hundred years or which has been utilized in a public manner in Portugal or in Portuguese possessions.

INVENTIONS EXCLUDED FROM PROTECTION.

Chemical and pharmaceutical products. The processes for the manufacture of these products are patentable.

NATURE AND DURATION OF THE PATENT—TAXES.

First. Patents of invention. Duration not to exceed fifteen years, to start from the date of the patent.
Second. Certificates of addition. The same duration as the principal patent to which they refer.
Taxes: First, patents of invention, 3,000 reis per year; second, certificates of addition, single tax of 3,000 reis.
Milreis=$1.08.

APPLICATION—FORMALITIES AND DOCUMENTS.

The applicant for a patent must address to the Division of Industry, at the Ministry of Public Works, Commerce, and Industry—
First, a petition in Portuguese or French containing the name and residence and nationality of the petitioner, the short title of the patent, the claims showing what it contains that is new, and the term for which the patent is desired;
Second, a power of attorney in favor of a person living in Portugal, if the case requires it;
Third, a list, in duplicate, of the documents accompanying the petition;
Fourth, a description of the invention, accompanied by the drawings necessary for the understanding of this description.
These documents must be filed in duplicate, sealed.
All the documents written or drawn must be dated and signed.
There may also be filed models or samples of invented objects. Those which cannot be signed must bear the private seal of the petitioner.
The description of the invention and the titles may be written in Portuguese or French.
At the time that the application for the patent is filed there must be deposited in the Division of Industry—
First, the sum of 3,000 reis for each of the years asked for in the application for the patent;
Second, the sum of 500 reis per page of twenty-five lines when written in the French language, and of 200 reis for the expense of correspondence. It is not necessary to translate the explanatory words on the drawings.
The description must be written with non-copying black ink, or lithographed or printed, on paper thirty-three centimeters long by twenty-two centimeters wide, and must be sufficiently clear to enable any competent person to execute the invention. It must be dated and signed by the inventor or by his representative and initiated on each sheet. It must have the short title of the patent applied for at the top of the first page and must end with the claims showing the points considered as new. These claims must correspond exactly with those indicated in the petition.
The drawings must be thirty-three centimeters long and of the necessary width. They must be inclosed in plain lines, with a margin of at least two centimeters. They may be done in india-ink and water-colors or in permanent black ink or be reproduced by lithography or photography. The scale must always be indicated. The parts representing the novelty should be made apparent by shading or hatching. Instead of drawings good photographs may be filed.
The inventor who wishes to enjoy the time allowance of priority established by the International Convention of March 20, 1883, must file besides the documents named above a document proving the date which serves as the point of departure of this time allowance. He who desires to obtain a patent antedating the date of the foreign patent must file the patent granted in the country of origin or a legal copy of this patent.
The rules of practice of March 26, 1895, contain forms for the drawing up of the application for a patent and the list of documents filed.

MODELS.

The filing of models or specimens is optional.

THE GRANT.

First. Examination of the application for a patent with reference to prescribed formalities.
Second. Publication of the application, with call for opposition. Time allowed for opposition, three months.
In case of the refusal of a patent the interested party may appeal to the Tribunal of Commerce within three months.

WORKING.

Patented invention must be worked in Portugal within two years from the date of the patent and working must not be interrupted for two years.

RUSSIA.

(NOT A MEMBER OF THE INTERNATIONAL UNION.)
[Law of May 20 (June 1), 1896. 79 O. G., 2201.]

WHO MAY OBTAIN A PATENT.

The right to the patent belongs to the inventor or to his assignee. The patent is granted to the first applicant.
If the petitioner be living abroad, he must appoint a representative living in Russia.

PATENTABLE INVENTIONS.

Inventions which present an element essentially new, either in whole or in one or several of their parts or in the original combination of their parts when they are already known separately.

INVENTIONS EXCLUDED FROM PROTECTION.

The inventions, first, which represent scientific discoveries and abstract theories; second, which are contrary to public order, to morality, and to good manners; third, which previous to the application for the patent have been patented in Russia or have been used there without a patent or which have been described in print in a manner sufficiently complete to be reproduced; fourth, which are known abroad without a patent or which are there patented in the name of a person other than the petitioner, except in case the invention shall have been assigned to the latter; fifth, which do not represent a sufficient novelty, but constitute trifling modifications of inventions already known.
Patents are not granted for chemical products, foods, and the like, for compounded medicines, though for the processes and apparatus designed for the manufacture of the latter patents may be obtained. In addition, patents are not at present granted for munitions of war unless adapted to other purposes, in which case the grant is subject to the right of the Government to use the same without compensation.

NATURE AND DURATION OF THE PATENT—TAXES.

Two kinds of patents:
First. Patents of invention. Duration, fifteen years, to start from the date of the signing of the patent.
Second. "Patents of addition." Expire with the principal patent to which they refer.
Taxes: First, patents of invention, fee for filing, 30 rubles; first year, 15 rubles; second year, 20 rubles; third year, 25 rubles; fourth year, 30 rubles; fifth year, 40 rubles; sixth year, 50 rubles; seventh year, 75 rubles; eighth year, 100 rubles; ninth year, 125 rubles; tenth year, 150 rubles; eleventh year, 200 rubles; twelfth year, 250 rubles; thirteenth year, 300 rubles; fourteenth year, 350 rubles; fifteenth year, 400 rubles; second, "patents of addition," single tax, 30 rubles.
A patent granted for an invention already patented abroad previous to the date of the filing of the application expires as soon as the patent or one of the foreign patents of anterior date has ceased to exist.
Ruble=$0.772.

APPLICATION—FORMALITIES AND DOCUMENTS.

First. Application for a patent addressed to the Department of Trade and Manufactures, with the heading "To the Committee of Technical Affairs." It must be written upon a sheet of paper of ordinary size, furnished with two stamps of 80 copecks and containing a request for the granting of a patent for the invention indicated in the description and the title of the invention, corresponding to the nature of the latter.
Second. A memorandum of the documents inclosed, the principal of which are the description, the explanatory drawings, the receipt for the fee for filing of 30 rubles, and, the case requiring it, the power of attorney in favor of the representative.
The application must be signed by the petitioner or by his representative, signing by power of attorney, which in the case of a foreign applicant must be legalized.
The description must be written in the Russian language and be clear and plain. It must be accompanied, if the case requires, by drawings and models sufficiently plain to enable one to reproduce the invention. At the end it must contain an enumeration of the distinctive particulars of the invention. The description must be written on paper of ordinary size, in duplicate, and be signed by the petitioner or his representative. A stamp of 80 copecks must be affixed to each sheet of one of the copies.
The drawings must be in black lines, on thick white drawing-paper. Their size must be thirteen inches long by eight inches in width, or thirteen inches by sixteen, or thirteen inches by twenty-four. Each drawing must be surrounded by a margin of about one inch. Upon the upper margin must be indicated the application to which the drawing relates. The addition of explanatory words and the use of colors are prohibited.
The drawings must be filed in duplicate, one of which must be on drawing-paper and one on tracing-cloth. The usual designation of the figures—*i. e.*, "Fig."—must not appear on the drawing.
The applications presented by the representative must be accompanied by a power of attorney. If the petitioner is living abroad and if the power of attorney is written in a foreign language, this power of attorney must bear the signature of the local Russian consul, certifying that it is executed according to the laws of the country, and be accompanied by a certified translation in the Russian language.
If the invention be already patented abroad, the application must be accompanied by a certified copy of that foreign patent which is the first to expire.

If the patent is asked for an invention patented abroad in the name of another person, the petitioner must file a certified assignment stating that he has received the exclusive right to use the invention in Russia.

MODELS.

The filing of models is required if it be necessary in order to easily reproduce the invention.

THE GRANT.

The applicant for a patent who has complied with the prescribed formalities receives a certificate of protection, which permits him to use his invention, to make it known, and to threaten infringers with prosecution. This certificate ceases to be in force if a patent is denied.
The application is submitted to the Committee of Technical Affairs of the Department of Commerce and Manufactures, which determines whether the application and the description of the invention answer to the conditions established by law. These researches do not bear either upon the utility of the invention or upon the existence of the right of the petitioner.
In case of refusal the interested party may appeal within the three months to the Department of Commerce and Manufactures.

WORKING.

Patented invention must be worked in Russia within five years from the grant of the patent.

SPAIN.

(MEMBER OF THE INTERNATIONAL UNION.)
[Law of July 30, 1878. 26 O. G., 108.]

WHO MAY OBTAIN A PATENT.

Any Spaniard or foreigner who desires to establish or has established a new industry in the Spanish dominions.

PATENTABLE INVENTIONS.

Machines, apparatus, instruments, mechanical or chemica processes or operations which as a whole or in part are of original invention and new or which, if not new, are not established or exploited in the same manner or under the same form in the Spanish dominions.
New industrial products or results obtained by new or known means, provided that their exploitation will result in establishing a new branch of industry in the country.
Inventions which are known or have been exploited in the Spanish domains or abroad are not considered new.

INVENTIONS EXCLUDED FROM PROTECTION.

First. The results or products of patentable machines, apparatus, instruments, mechanical or chemical processes or operations when they are not of original invention or new and their exploitation does not result in establishing a new branch of industry in the country.
Second. The use of natural products.
Third. Scientific principles or discoveries as long as they remain in the domain of speculation and are not reduced to a practical industrial use.
Fourth. Pharmaceutical preparations or medicines.
Fifth. Plans or combinations of credit or finance.

NATURE AND DURATION OF THE PATENT—TAXES.

Three kinds of patents:
First. Patents of invention for subjects of original and new invention. Duration, twenty years.
Second. Patents of introduction for all that is not of original invention or which, so being, is not new. Duration, five years.
Third. "Patents of importation" for all original inventions, even though the inventor has already obtained a patent for the same invention abroad, if he makes application in Spain before the expiration of a period of two years from the time of obtaining the first foreign patent. Duration, ten years.
Fourth. "Patents of addition." Expire with the principal patent to which they relate.
Tax: 10 pesetas the first year, 20 pesetas the second, and so on, increasing by 10 pesetas each year, payable in advance annually; "patents of addition," single tax of 25 pesetas.
Peseta=$0.193.

APPLICATION—FORMALITIES AND DOCUMENTS.

The applicant for a patent must file at the office of the civil government of any of the provinces of Spain the following documents and articles:
First. An application to the Ministry of Commerce stating the single subject of the patent, whether the said subject is or is not of original invention and new, and stating the address of the applicant or his representative. In the latter case the power of attorney must be joined to the application.
Second. A specification, in duplicate, describing clearly the invention to be patented. At the end of the specification there will be indicated in a note which part, mechanism, process, etc., it is desired to make the subject of the patent. The indications relative to weights and measures must be according to the metric system.
Third. The drawings, samples, or models that the applicant shall deem necessary for understanding the specification, in duplicate. The drawings must be executed in duplicate, on tracing-cloth, in ink, on a metric scale.
Fourth. The certificate of payment to the State of the tax for the first year.
Fifth. A signed list of all the documents and articles deposited, which must themselves also be signed by the applicant or his representative.
The specification must be written in the Spanish language, without abbreviations or corrections, on numbered sheets.

MODELS.

The applicant may file a model if he thinks it necessary for understanding the invention.

THE GRANT.

The patents are granted without preliminary examination as to the novelty or utility of the invention.

WORKING.

Patented invention must be worked in the Spanish dominions within two years from its date. Working must not be discontinued for more than one year.

SWEDEN.

(MEMBER OF THE INTERNATIONAL UNION.)
[Laws of May 16, 1884; June 12, 1891; April 14, 1898; March 26 and May 28, 1897.]

WHO MAY OBTAIN A PATENT.

The patent is valid only when granted to the inventor or to his assignee.
Persons not living in Sweden must appoint a representative in that country.

PATENTABLE INVENTIONS.

Inventions bearing upon new industrial products or upon special processes of manufacture.
An invention is not considered new if before the filing of the application for the patent the invention has been described in a manner sufficiently detailed in a public print or if it has been used in a manner plain enough to enable a person skilled in the art to practice the invention.
Exhibition of the invention at an international exposition does not, however, constitute an obstacle to the obtaining of a patent if the application be made within six months after the exhibition of the invention.

INVENTIONS EXCLUDED FROM PROTECTION.

Inventions the use of which is contrary to the laws or to good morals.
If an invention relates to foods or medicines, the patent cannot be granted for the product, but only for the processes of manufacturing the same.

NATURE AND DURATION OF THE PATENT—TAXES.

Two kinds of patents:
First. Patents of invention. Duration, fifteen years, to start from the filing of the application.
Second. "Patents of addition." Expire with the principal patent to which they refer.
Fee for filing, 20 crowns, (this constitutes at the same time the first annuity for the patents of invention;) annual tax for each of the years two to five, 25 crowns; for the years six to ten, 50 crowns; for the years eleven to fifteen, 75 crowns. A ten-crown stamp must be affixed to the Letters Patent.
The "patents of addition" are subject only to the payment of the fee for filing.
Crown=$0.268.

APPLICATION—FORMALITIES AND DOCUMENTS.

First. Application for a patent addressed to the Bureau of Patents and Registry.
Second. Description of the invention, in duplicate.
Third. The drawings necessary for the understanding of the description, in duplicate. The requirements for drawings are the same as for Germany.
Fourth. Models or samples, if the case requires.
Fifth. A power of attorney in favor of the representative if the applicant resides outside of the country.
The application should state the name, profession, and address of the applicant, as well as the title of the invention.
The description should be sufficiently clear to enable a person skilled in the art to use the invention. It should show in precise terms what the applicant considers as new in the invention.
If the patent is applied for by a person other than the inventor, the applicant should show that he is the holder of the interest of the former.
All the parts of the application must be in the Swedish language or if in another language must be accompanied by a legalized translation.

MODELS.

Models need not be filed unless necessary for the understanding of the invention.

THE GRANT.

First. Preliminary examination bearing upon the patentability of the invention.
Second. Publication of the application, with call for opposition. Time allowed for opposition, two months.
In case of the refusal of the patent the applicant can lodge an appeal with the King within the time allowance of sixty days.

WORKING.

Patented invention must be worked in Sweden within three years from the date of the patent; but the time may be extended on request to four years. Working must not be omitted for more than one year.

SWITZERLAND.

(MEMBER OF THE INTERNATIONAL UNION.)

[Laws of June 29, 1888, and March 13, 1893. 45 O. G., 233; 45 O. G., 1070; 49 O. G., 1046; 64 O. G., 1010.]

WHO MAY OBTAIN A PATENT.

The patent is valid only when granted to the inventor or to his assignee.

Persons not living in Switzerland must appoint a representative in that country.

PATENTABLE INVENTIONS.

New inventions which may be applied in the arts and are capable of being represented by models.

Inventions are not considered new which at the time of application for a patent are sufficiently well known in Switzerland to enable a person skilled in the art to execute them.

INVENTIONS EXCLUDED FROM PROTECTION.

Inventions which cannot be represented by models. Methods or processes cannot be patented.

NATURE AND DURATION OF THE PATENT—TAXES.

First. Patents of invention. Duration, fifteen years, to start from the date of the application.

Second. "Patents of addition." The same duration as the principal patent to which they refer.

A complete patent of invention is granted only upon proof of the existence of the model. In default of this proof a provisional patent is granted, which can be changed into a complete patent within a limit of three years, to date from the day of the application, by furnishing proof of the point in question.

Fee for filing, 20 francs; first annuity, 20 francs; second annuity, 30 francs, etc., increasing each year by 10 francs.

The "patents of addition" are subject only to the payment of the fee for filing.

Franc=$0.193.

APPLICATION—FORMALITIES AND DOCUMENTS.

The application for the patent must be addressed to the Federal Bureau of Intellectual Property.

There must be joined to it—

First, a description of the invention;

Second, the drawings necessary for the understanding of the description;

Third, the proof that a model of the object invented exists or that the invention itself exists;

Fourth, the sum of 40 francs, representing the fee for filing and the first annuity;

Fifth, a power of attorney if the application is filed by a representative;

Sixth, a declaration having the signature of the inventor, certified to by a competent authority or by a notary, establishing the right of the holders of the interest, if the patent is not applied for in the name of the inventor;

Seventh, a memorandum of the documents and articles filed.

The application must be written upon a form furnished by the administration.

The description of the invention and the drawings must be filed in duplicate. The application and the documents which are joined thereto must be written in one of the three languages, French, German, or Italian. All parts of the application must be in the same language.

The title under which the application is presented must designate in a precise manner the subject of the invention.

The applicant for the patent who desires to enjoy the benefit of a time allowance of priority established by international treaty may file the documents which establish the rights which inure to him from an anterior filing. He may also confine himself to mentioning upon the application form the facts serving as the basis for these rights.

The description of the invention must make known clearly its import and be so written that one skilled in the art may therefrom carry out the invention. It must terminate with a résumé of the features of the invention which are of special importance (claims).

The drawings, in duplicate, one copy on bristol-board and the other on tracing-cloth, must be executed under the following form: Thirty-three centimeters high by twenty-one wide, thirty-three centimeters high by forty-two wide, or thirty-three centimeters high by sixty-three wide. As far as possible the small or medium form should be used.

Each sheet of the drawings must be surrounded with a single line drawn two centimeters from the edge. It must have at the left, at the top, the name of the applicant and the date of the application, at the right, at the top, the number of sheets filed and the number of each sheet, and at the right, at the bottom, the signature of the person filing the documents of the application.

One of the duplicates, intended for photographic reproduction, must be executed upon strong, smooth, and white drawing-paper. It must be neither colored nor painted with a wash. The lines must be in good black ink. The hatchings must be separated.

The second duplicate must be a reproduction of the first upon tracing-paper. It may be colored.

The drawings must not be folded or rolled. They must be sent perfectly flat and not creased.

MODELS.

The proof of the existence of the model is shown—

First, by forwarding models of which the filing is obligatory, (watches or parts of watches, portable firearms, inventions which are essentially composed of substances difficult of identification, inventions which are characterised by properties which ordinary means of investigation do not admit of establishing;)

Second, by the permanent deposit of photographs representing the invention in a precise and complete manner;

Third, by a temporary deposit of models or satisfactory photographs, not to be permanently filed, but only for the purpose of comparison. (Fee for comparison in the Federal Bureau, 10 francs.)

THE GRANT.

Patents are granted upon proof that the documents and fees prescribed have been filed in the manner indicated by law.

In case of refusal the interested party may have recourse to the Federal Department of Justice and Police within four weeks.

WORKING.

Patented invention must be worked in Switzerland within three years from the date of the patent.

TUNIS.

(MEMBER OF THE INTERNATIONAL UNION.)

[Law of December 26, 1888. 49 O. G., 804.]

WHO MAY OBTAIN A PATENT.

Any person who makes application therefor may obtain a patent for any new discovery or invention in any class of industrial art.

PATENTABLE INVENTIONS.

The invention of new industrial products, the invention of new means, or the new application of known means for obtaining a result or an industrial product.

An invention is not considered new which in the Regency or abroad and previous to the date of filing the application has been made sufficiently public to admit of being practiced.

INVENTIONS EXCLUDED FROM PROTECTION.

Plans and combinations of trust or of finance, as well as inventions contrary to law or to good morals. If the invention relates to foods or to medicines, the patent cannot be granted for the product itself, but only for the special processes relating to its manufacture.

NATURE AND DURATION OF THE PATENT—TAXES.

First. Patents of invention. Duration, five, ten, or fifteen years, to start from the filing of the application.

Second. Certificates of addition. The same duration as the principal patent to which they refer.

The duration of patents granted for inventions already patented elsewhere cannot exceed that of the patents previously taken abroad.

Taxes: First, patents of invention, 100 piasters (francs) per year; second, certificates of addition, single tax of 20 piasters (francs).

Piaster (franc)=$0.193.

APPLICATION—FORMALITIES AND DOCUMENTS.

The applicant for a patent must produce at the Bureau of Industrial Property, at Tunis, a receipt for the payment at the office of the Receiver-General of the Tunisian Government of the first annuity of 100 piasters (francs) and forward to the said Bureau a sealed package containing—

First, an application;

Second, a description, in duplicate;

Third, one or several drawings, if the applicant considers them necessary for the understanding of the description;

Fourth, a memorandum of the documents filed.

The application must mention the duration of the patent, indicate concisely the subject of the invention, and be signed by the petitioner or his representative.

The original description must have at the top the word "Original," the copy the word "Duplicate." Both must be signed by the applicant or his representative. The description must be written in French and not contain any denomination of weights and measures other than those of the metric system.

The two copies of each drawing must be exactly alike, in good black ink, and may be on cloth or paper.

MODELS.

The applicant may file a model if considered necessary for the understanding of the description.

THE GRANT.

If the application is considered regular, it is published, with call for opposition. Time allowance of opposition, two months.

In case of opposition the patent is granted only after the applicant has obtained a decree of a competent tribunal.

WORKING.

Patented invention must be worked in Tunis within two years from date of patent, and working must not be discontinued for more than one year.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 7. TUESDAY, MAY 17, 1898. PRICE—$5 per year.

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Erratum.

OFFICIAL GAZETTE, vol. 82, No. 6, May 10, 1898, abstract of law of Japan, p. 882, second column, eighth line from bottom, the value of the "yen" should be $0.498 instead of $1.00.

Notice to Show Cause.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 7, 1898.

The following notice to show cause is published in the OFFICIAL GAZETTE for the reason that it has been found impracticable to serve notice in the usual way, a registered letter containing notice to the same effect, mailed to Mr. Holgate at his last-known address, having been returned with the report that it could not be delivered.

To George H. Holgate, doing business under the name of the Association American Inventors, last known address Betz Building, Philadelphia, Pennsylvania, present address unknown:

SIR: Copies of charges filed against you as representative of the Association American Inventors by the following-named persons were sent you on the dates mentioned below, and you were given until February 12, 1898, to answer the same, if you desired to do so:

I. N. Fickes, of Holland, Kans.....January 21, 1898.
Nathan Lloyd, of Greenbrier, Mo.....January 22, 1898.
J. L. Zanger, of Cleveland, Ohio .....January 22, 1898.
John McWilliams, of Egypt Mills, Mo ..February 5, 1898.

You were informed in the letters accompanying the charges of McWilliams, Lloyd, and Fickes that, inasmuch as you were not registered as a patent attorney, disbarment proceedings would not be instituted. It has been determined, however, that inasmuch as you still represent a number of applicants before this Office in applications filed before the 1st of January, 1898, as is shown by a list of such cases filed by your representative on January 14, 1898, and in which registration was waived, said list numbering 171 cases, you are practicing before the Office and within the provisions of the statute you are subject to disbarment proceedings. In view of this fact and in view of the fact that in some of the foregoing cases the filing of the answer was made optional with you you are hereby required to show cause on or before the 15th day of June, 1898, in each of these cases, why you should not be disbarred from practice and why the Commissioner of Patents should not refuse to recognise you as patent agent in accordance with the statutes in such cases made and provided.

C. H. DUELL,
Commissioner.

Circular.

Attention is called to Order 769, dated November 26, 1898, which is as follows:

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

This order is still in force.

Examiners are prohibited from making any change in the claims or specification of an application without the consent of applicants or their attorneys; but when amendment becomes necessary the Office will duly advise, by letter, the applicant or his representative before passing a case to issue.

Roster of Registered Attorneys.

As an alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 6, 1897, is about to be published, it is directed that one copy of such list be furnished to each registrant free of charge, and that copies be furnished to the public at the nominal price of five cents each, a five-cent coupon being acceptable in payment therefor. One copy of each subsequent edition will be furnished gratuitously to each registrant whose name appears thereon for the first time in any edition.

Registrants are requested to give notice of any errors that may have occurred in the list as published.

CERTIFICATES OF REGISTRATION ISSUED MAY 17, 1898.

Labels.

6,959.—Title: "OLIVE LABEL." (For Olives.) *Charles W. Gould*, New York, N. Y. Application filed March 22, 1898.

6,960.—Title: "DR. L. KIESEL'S BRAHLIAN HERBEUR." (For Medicine.) *J. W. Hewitt & Co.*, Stockton, N. J. Application filed March 11, 1898.

Print.

68.—Title: "COLOR BRAKER." (For Cigars.) *American Lithographic Company*, New York, N. Y. Application filed April 20, 1898.

separated.
The second duplicate must be a reproduction of the first upon tracing-paper. It may be colored.

[Vol. 83. No. 6.]

more than one year.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 10, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Between two and three months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 21	Apr. 26	251
102	XIX. Stoves and Furnaces	Feb. 11	Apr. 26	260
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 11	Apr. 25	257
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Feb. 10	Apr. 25	246
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 26	Apr. 18	263
	Between three and four months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 31	May 2	221
223	X. Carriages and Wagons	Jan. 15	May 2	226
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Jan. 12	May 2	239
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 7	Apr. 29	499
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Jan. 29	Apr. 28	404
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 9	Apr. 27	240
248	XVIII. Steam-Engineering, etc	Jan. 12	Apr. 27	308
246	I. Tillage and Fences	Feb. 1	Apr. 26	280
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Feb. 7	Apr. 25	244
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 10	Apr. 19	264
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 28	Apr. 13	245
	Between four and five months.			
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 5	Apr. 30	251
98	XXI. Textiles, etc	Jan. 3	Apr. 28	316
97	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 20	Apr. 27	215
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 3	Apr. 26	264
217	XXXIII. *Trade-Marks, etc., †Designs, Drafting, and Optics.	Dec. 31	Apr. 26	190
98	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Dec. 27	Apr. 26	467
106	II. Farm Stock, Products, etc	Jan. 3	Apr. 25	505
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 28	Apr. 25	478
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 11	Apr. 25	548
240	VII. Velocipedes	Dec. 13	Apr. 9	250
	Between five and six months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 2	May 2	743
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 22	May 2	508
122	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 17	Apr. 30	259
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	Apr. 28	411
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Nov. 26	Apr. 26	300
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Dec. 8	Apr. 25	301
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 25	Mar. 26	300

Applications Under Examination—Continued.

	Between six and seven months.			
221	XXIII. Instruments of Precision, Acoustics, etc.	Oct. 18	Mar. 21	493
	Between seven and eight months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 18	Apr. 15	541

Total number of applications awaiting action 13,868

Under one month.			
†Designs	Apr. 20	May 3	120
*Trade-Marks	Apr. 11	Apr. 29	321

ISSUE OF MAY 17, 1898.

Patents	346—No.	604,011 to No. 604,356, inclusive.
Designs	52—No.	25,625 to No. 25,676, inclusive.
Trade-Marks	25—No.	31,545 to No. 31,569, inclusive.
Labels	2—No.	6,559 to No. 6,560, inclusive.
Prints	1—No.	68.
Reissues	3—No.	11,083 to No. 11,085, inclusive.
Total issue	429	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	.....	New Hampshire	3	.....
Arizona Territory	2	.....	New Jersey	10	2
Arkansas	2	.....	New Mexico Territ'y	.....	.....
California	9	1	New York	60	7
Colorado	5	.....	North Carolina	1	.....
Connecticut	12	1	North Dakota	.....	.....
Delaware	2	.....	Ohio	25	1
District of Columbia	2	.....	Oklahoma Territory	.....	.....
Florida	.....	.....	Oregon	1	.....
Georgia	1	.....	Pennsylvania	42	1
Idaho	.....	.....	Rhode Island	5	.....
Illinois	26	.....	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	.....	.....
Indiana	14	1	Tennessee	4	.....
Iowa	2	.....	Texas	8	.....
Kansas	4	.....	Utah	1	.....
Kentucky	7	.....	Vermont	1	.....
Louisiana	.....	.....	Virginia	2	.....
Maine	2	.....	Washington	2	.....
Maryland	5	.....	West Virginia	.....	.....
Massachusetts	25	5	Wisconsin	13	.....
Michigan	9	.....	Wyoming	.....	.....
Minnesota	6	2	U. S. Army	.....	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	9	1			
Montana	4	1	Total to citizens of the United States	352	21
Nebraska	.....	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Italy	.....	.....
Australia	.....	.....	Mexico	.....	.....
Austria-Hungary	1	.....	Netherlands	1	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Burmah	.....	.....	Norway	.....	.....
Canada	6	1	Portugal	.....	.....
Cape Colony	.....	.....	Queensland	.....	.....
Chile, Republic of	.....	.....	Roumania	.....	.....
China	.....	.....	Russia	1	.....
Colombia	.....	.....	Scotland	.....	2
Cuba	.....	.....	South African Republic	.....	.....
Denmark	.....	.....	South Australia	.....	.....
Egypt	.....	.....	Spain	.....	.....
England	18	3	Sweden	.....	.....
Finland	.....	.....	Switzerland	.....	.....
France	7	.....	Victoria	.....	.....
Germany	13	.....			
Guatemala	.....	.....	Total to citizens of foreign countries	46	7
India	.....	.....			
Ireland	.....	.....			

PATENTS

GRANTED MAY 17, 1898.

604,011. BICYCLE. JOHN A. ANDERSON, Wakefield, Mass. Filed June 17, 1897. Serial No. 641,128. (No model.)



Claim.—1. In a bicycle, in combination, the frame; the driving-shaft; the hub A provided with the flange A' and drum A''; the sleeve B provided with the flange B'; the pivot-pin D' extending inward from said flange B'; the U-shaped dogs C bifurcated at their lower ends and embracing said pivots; the ring D extending through and between the legs of said dogs; the pins C' extending through said U-shaped dogs and ring; the pedal-lever pivoted to the frame; a suitable band or cord connected with the sleeve; mechanism intermediate of the pedal-lever and said band or cord for actuating the latter and rotating the sleeve; and a spring for returning said sleeve into its normal position, substantially as described.

2. In a bicycle of the character described, the frame; driving-shaft; hub, and clutching mechanism adapted to engage said hub; the pedal-lever F, F' pivotally secured to the frame; the cam-wheel E supported by the short arm F' of the pedal-lever; a gear-wheel rigid with said cam-wheel; a gear-wheel pivoted to the frame and engaging the gear which is rigid with the cam-wheel; and a band or cord extending from the periphery of the cam-wheel to the clutching mechanism, whereby the speed of the driving-shaft is accelerated, substantially as set forth.

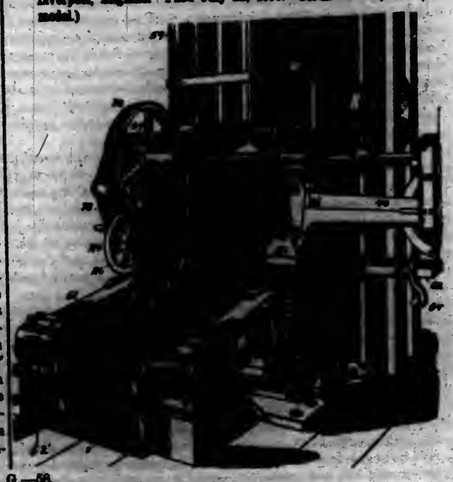
3. In a bicycle of the character described, the frame; driving-shaft; hub provided with the drum A'' inclosing a clutching mechanism; the lever L pivoted to the frame and provided with the rearwardly-extending arm L'' and downwardly-extending arm L'; the band-brake K extending around the drum and pivotally secured at its opposite ends to said rearwardly-extending and downwardly-extending arms; the lever N pivotally secured to the frame and with its rear end in engagement with said lever L; the elbow-lever P, P' provided with a foot-piece near the rear end of its long arm and with its short arm sustaining the roller or wheel S near the tire; and the rearward extension O from the lever P adapted to engage the forward portion of the lever N, whereby the pressure of the foot upon said foot-piece applies said roller as a brake to the tire and the band-brake to the drum, substantially as set forth.

4. In a bicycle of the character described, the frame; driving-shaft; hub and clutching mechanism adapted to engage said hub; the pedal-lever F F' pivotally secured to the frame; the cam-wheel E supported by the short arm F' of the pedal-lever; a gear-wheel rigid with said cam-wheel; a gear-wheel pivoted to the frame and engaging the gear which is rigid with the cam-wheel; the arm I pivoted to the frame and connected at one end by a link *g* with the short arm F' and at the other end by a link *l* with the gear-wheel pivoted to the frame, said arm I being formed with the dog or projection V'; the lever P, P', the long arm thereof being formed with the projection V adapted to be engaged by said dog V'; a band-brake upon the hub; mechanism intermediate of said lever P, P' and band-brake for tightening the latter upon said hub; and a band or cord extending from the periphery of the cam-wheel to the clutch mechanism, substantially as described.

5. In a bicycle, the frame; the driving-wheel; a lever pivotally secured to the frame and with one arm adapted to be pressed by the foot of the rider; a sliding holder supported by the outer arm of the lever in front of the tire of the driving-wheel; an elastic roller sustained by said holder and adapted to be pressed thereby against the tire by the action of said lever; a gong-ball rigid upon the spindle or axis of the roller; and a pin extending from said holder into engagement with the hammer of the gong, substantially as described.

6. In a bicycle, the frame; the driving-wheel; a lever pivotally secured to the frame and with one arm adapted to be pressed by the rider; the holder R R' supported by the outer end of said lever in front of the tire of the driving-wheel, the side portions R of said arm being provided with the slot R''; the spindle S' extending through said slots and held toward the wheel by suitable springs; the roller S fast on said spindle within the holder; a gong-bell rigidly secured to the spindle; and a pin extending from the holder into engagement with the bell, whereby the gong is sounded when the roller is rotated by its first contact with the tire, but silenced when the holder is applied with sufficient pressure against the roller to stop its rotation, substantially as set forth.

604,012. COTTON-PRESS. WILLIAM R. ANDERSON, Little Rock, Ark., assignor to the Standard Chrome Cotton Company, Limited, Liverpool, England. Filed July 22, 1895. Serial No. 556,773. (No model.)



Claim.—1. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of flanges having hollow central lugs mounted in said frame, a core extending between said flanges, a rod mounted in one of said hollow central lugs, and connected by screw-threads with the adjacent end of said core, and means for feeding cotton in the form of a sheet or bat to and around said core, substantially as set forth.

2. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of flanges having hollow cylindrical lugs revolubly mounted in said frame, a core extending between said flanges, a rod mounted in one of said cylindrical lugs, and connected by screw-threads with the adjacent end of the core, and means for feeding cotton in the form of a sheet or bat to and around said core, substantially as set forth.

3. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of flanges having hollow central lugs projecting into boxes formed in said frame, one of said flanges being longitudinally adjustable, a core having a tapped interiorly-screw-threaded end extending between said flanges and supported in said hollow lugs, a rod having a screw-threaded end, a shoulder mounted on the same and bearing against the projecting lug of the adjustable flange, means for operating said rod and thereby controlling the position of said adjustable flange, and means for feeding cotton in the form of a sheet or bat to and around said core, substantially as set forth.

4. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding the said belt, means for imparting tension to said belt, and means for imparting motion to the same, of a core mounted in the loop or bight of said belt, and means operated by the press for withdrawing said core, substantially as set forth.

5. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt, and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, means operated by the press for withdrawing said core, and means for automatically returning said core to its operative position, substantially as set forth.

6. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt, and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, means operated by the press for withdrawing said core, and a weight for automatically returning said core to its operative position, substantially as set forth.

7. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt, and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, flanges mounted upon both ends of said core adapted to guide the formation of the bale, and means operated by the press for withdrawing said core, substantially as set forth

8. In a machine for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt, and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, flanges mounted upon both ends of said core adapted to guide the formation of the bale, means operated by the press for withdrawing said core, and means for automatically returning said core to its operative position, substantially as set forth.

9. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt, and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, flanges mounted upon both ends of said core adapted to guide the formation of the bale, means operated by the press for withdrawing said core, and a weight for automatically returning said core to its operative position, substantially as described.

10. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, means operated by the press for withdrawing said core, and means for locking said core in its withdrawn position, substantially as set forth.

11. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, means operated by the press for withdrawing said core, means for locking said core in its withdrawn position, and means for automatically returning said core to its operative position, substantially as set forth.

12. In a press for making cylindrical cotton-bales, the combination with an endless belt arranged to form an expansible loop or bight, rolls for supporting and guiding said belt, means for imparting tension to said belt and means for imparting motion to the same, of a core mounted within the loop or bight of said belt, means operated by the press for withdrawing said core, means for locking said core in its withdrawn position, and a weight for automatically returning said core to its operative position, substantially as set forth.

13. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton is formed, means for feeding cotton in the form of a sheet or bat to and around said core, means operated by the press for withdrawing said core, and means for automatically returning said core to its operative position, substantially as set forth.

14. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton is formed, means for feeding cotton in the form of a sheet or bat to and around said core, means operated by the press for withdrawing said core, and a weight for automatically returning said core to its operative position, substantially as set forth.

15. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton is formed, means for feeding cotton in the form of a sheet or bat to and around said core, means operated by the press for withdrawing said core, and means for locking said core in its withdrawn position, substantially as set forth.

16. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton is formed, means for feeding cotton in the form of a sheet or bat to and around said core, means operated by the press for withdrawing said core, means for locking said core in its withdrawn position, and means for automatically returning said core to its operative position, substantially as set forth.

17. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton is formed, means for feeding cotton in the form of a sheet or bat to and around said core, a standard 40 projecting from said machine-frame, a worm-wheel 42 mounted in said standard, a worm 44 driven from the press normally disengaged from said worm-wheel 42 but adapted to be engaged therewith, and a connection between said worm-wheel and the core, substantially as set forth.

18. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which the bale of cotton is formed, means for feeding cotton in the form of a sheet or bat to and around said core, a standard 40 projecting from said machine-frame, a worm-wheel 42 eccentrically mounted in said standard, a worm 44 operated by the press and normally out of engagement with the said worm-wheel, a lever 45 for engaging the worm-wheel 42 with the worm 44, and a connection between said worm 42 and one end of the core, substantially as set forth.

19. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton may be formed, means for feeding cotton in the form of a sheet or bat to and around said core, means for withdrawing the core while the bale is in the press, and means for automatically returning the core in the press, substantially as set forth.

20. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton may be formed, a belt arranged to form an expansible loop or bight for feeding the cotton in the form of a sheet or bat to and around said core, means for withdrawing the core while the bale is still in the press, and means for automatically replacing the core in the press during the expulsion of the bale and before the loop or bight of the belt has passed the core, substantially as set forth.

21. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton may be formed, means for feeding cotton in the form of a sheet or bat to and around said core, means for withdrawing the core while the bale is still in the press, means for replacing the core in the press, and means for restraining said replacing means for operation, substantially as set forth.

22. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton may be formed, means for feeding cotton in the form of a sheet or bat to and around said core, means for withdrawing the core while the bale is still in the press, and a guideway for supporting said core when it is withdrawn from the press, substantially as set forth.

23. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton may be formed, means for feeding cotton in the form of a sheet or bat to and around said core, means for withdrawing the core while the bale is still in the press, a guideway for said core when it is withdrawn from the press, means for replacing the core in the press, and means stationed in said guideway for preventing the operation of the replacing mechanism, substantially as set forth.

24. In a press for making cylindrical cotton-bales, the combination with a machine-frame, of a core around which a bale of cotton may be formed, means for feeding cotton in the form of a sheet or bat to and around said core, means for withdrawing the core while the bale is still in the press, a weight attached to said core for replacing the same automatically, a guideway 52 for said core when it is removed from the press, and a weighted pawl 54 for holding the core in its withdrawn position, substantially as set forth.

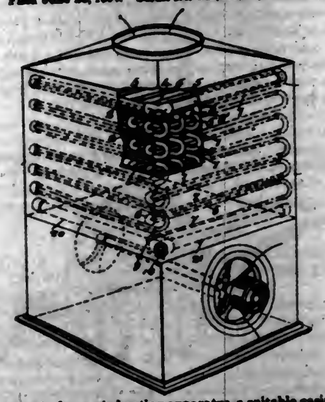
25. In a press for making cylindrical cotton-bales, the combination with a belt arranged to form an expansible loop or bight, of a machine-frame, arms pivoted in said frame adapted to swing outward, a guide-roll stationed at the entrance of the loop or bight of the belt journaled in said arms, means for locking said arms in a closed position, a swinging lever 67 carried by one of said swinging arms, a lug for engaging with said swinging lever when the arms have moved partially outward, and a weight attached to said swinging lever for counterbalancing said pivoted arms during their movement, substantially as set forth.

26. In a press for making cylindrical cotton-bales, the combination with a belt arranged to form an expansible loop or bight, of a core within said loop or bight around which a bale of cotton may be formed, means for feeding cotton in the form of a sheet or bat to and around said core, and bent pieces 32 stationed at the entrance of the loop or bight of the belt for preventing spreading of the cotton, substantially as set forth.

27. In a cotton-press for making cylindrical bales, the combination of means for winding a continuous sheet or bat into a bale, and mechanism operating therewith for effecting pressure on the bale during its formation, comprising a hydraulic cylinder, a piston in said cylinder moved therein as the bale enlarges, and a closed air-chamber connected with said cylinder whereby as the bale enlarges the liquid will be forced out of said cylinder into said air-chamber to gradually compress the air in the latter, substantially as and for the purpose described.

28. In a cotton-press for making cylindrical bales, the combination of a core on which a continuous sheet or bat is spirally wound, a traveling pressure-surface movable away from said core with the enlarging bale, and revolving said bale so as to wind the sheet or bat thereon, a hydraulic cylinder, a piston therein connected with said traveling pressure-surface and moving in said cylinder as the bale enlarges, and a closed air-chamber connected with said cylinder, whereby as the bale enlarges the liquid will be forced out of said cylinder into said air-chamber to gradually compress the air in the latter, substantially as and for the purpose described.

604,013. AIR-HEATING APPARATUS. HENRY RAHN, St. Louis, Mo. Filed June 26, 1897. Serial No. 642,495. (No model.)



Claim.—1. In an air-heating apparatus, a suitable casing, steam-pipes disposed along the inner surfaces of two adjacent or contiguous vertical walls thereof, drain-pipes located below the steam-pipes and disposed along the same contiguous surfaces or walls of the casing, a series of coils leading from each steam-pipe to its corresponding drain-pipe or that disposed along the same wall, the one series intersecting the other at substantially the angle which the contiguous walls make with each other, and a fan located below the coils and carried by the wall of the casing, substantially as set forth.

2. In an air-heating apparatus, a suitable casing, steam-pipes disposed along the inner surface of two adjacent walls thereof, a coupling at the meeting ends of the pipes for connection with a suitable steam-supply pipe, a series of pipe-sections secured directly to the peripheral wall of one of the pipes and leading to the opposite wall of the casing, a large U-shaped coupling at the further end of each of said pipe-sections, a return-pipe section leading back to the wall along which the main pipe is disposed, a small U-shaped coupling at the adjacent end of said return-pipe, a second pipe-section leading back to the opposite wall, and so on in repetition of the first arrangement whereby a series of coils disposed in vertical planes is formed, the last pipe of each member of the series terminating in a nipple disposed along the upper peripheral surface of a common drain-pipe disposed along the wall of the first or main pipe, a second series of coils intersecting the first series, said second series being similar to the first but reversely disposed thereto, that is to say, the adjacent steam and drain pipes having the arrangement and disposition of nipple connections and U-shaped couplings reversed, whereby the large U-shaped couplings of one series are disposed along a wall adjacent to that in which the large couplings of the other series are disposed, the pipe-sections coupled with the smaller U-shaped couplings occupying the space formed between the pipes connected by the large U-shaped couplings of the second series, the drain-pipes of the two series being connected to a common exit, and a suitable fan adapted to drive the air beneath the coils through openings formed in the opposite walls of the casing, substantially as set forth.

3. In an air-heating apparatus, a suitable casing, steam-pipes disposed along the inner surfaces of two adjacent or contiguous vertical walls thereof, drain-pipes located below the steam-pipes and disposed along the same contiguous surfaces or walls of the casing, and a series of coils leading from each steam-pipe to its corresponding drain-pipe or that disposed along the same wall, the one series intersecting the other at substantially the angle which the contiguous walls make with each other, the walls of the casing being provided with suitable openings for the admission of air to the system of pipes, substantially as set forth.

604,014. HOOF-SPREADING HORSESHOE. ELVIN S. BARROWS, Clarendon, Vt. Filed Sept. 28, 1897. Serial No. 653,587. (No model.)



Claim.—1. In a device of the class described, the combination of a shoe composed of two pivotally-connected sections adapted to be expanded, pivotally-mounted flanges projecting from the upper face of the shoe and arranged to bear against the walls of a hoof, said flanges being adapted to yield to the adjustment of the shoe in order to conform to the position of the walls of a hoof, and an adjusting device connecting the sides of the shoe, substantially as described.

2. In a device of the class described, the combination of a shoe composed of two pivotally-connected sections provided at their lower faces with recesses, sockets interposed between the sections of the shoe, provided with rounded inner edges and having outwardly-extending flanges pivoted in the said recesses, the lower faces of the sockets being substantially flush with the lower face of the shoe, and an adjusting-bar connecting the sockets, substantially as described.

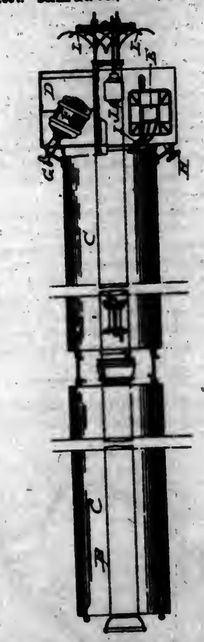
3. In a device of the class described, the combination of a shoe composed of two sections pivotally connected and recessed at their upper and lower faces, plates arranged in the upper recesses and provided with upwardly-extending flanges, sockets located between the sections of the shoe and provided with outwardly-extending flanges arranged in the lower recesses, pivots passing through the sections of the shoe and connecting the plates and the sockets and securing them to the shoe, and an adjusting-bar connecting the sockets, substantially as described.

4. In a device of the class described, the combination of a shoe composed of two sections pivoted together at one side of the center of the front of the shoe and being of unequal length, sockets mounted on the sides or sections of the shoe near the rear ends of the same, the socket of the longer side or section being smooth and the other socket being threaded, and an adjusting-bar connecting the sockets

and having one end smooth and its other end threaded, substantially as described.

5. In a device of the class described, the combination of a shoe composed of two sections of unequal length pivoted together at one side of the front of the shoe, plates pivoted to the upper faces of the sections and provided with upwardly-extending flanges, sockets pivoted to the sections adjacent to the plates, one of the sockets being smooth and the other being threaded, and an adjusting-bar connecting the sockets and having one end smooth and its other end threaded to agree with the same, substantially as described.

604,015. HYDRAULIC DREDGE. LINDON W. BATES, Chicago, Ill. Filed Aug. 9, 1897. Serial No. 647,603. (No model.)



Claim.—1. In combination with a dredge, a flexible buoyant discharge-pipe connected to and extending therefrom, and means controllable from the dredge for maintaining the discharge-pipe in any desired position.

2. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom carried upon a series of pontoons; and means controllable from the dredge for maintaining the discharge-pipe in any desired position.

3. In combination with a dredge, a flexible buoyant discharge-pipe connected to and extending therefrom; and means controllable from the dredge for swinging the end of said pipe to any desired point.

4. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe; motors mounted in said compartment; and screws connected to the motors extending out upon opposite sides of the pipe.

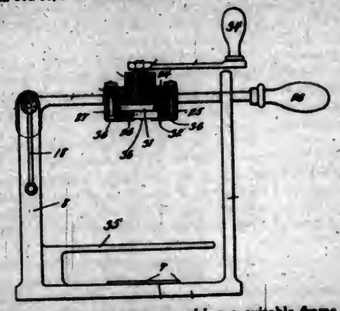
5. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe; motors mounted in said compartment; screws connected to the motors and extending out on opposite sides of the pipe; and means for controlling said motors from the dredge.

6. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe and extending to each side thereof; motors mounted in said compartment upon each side of the pipe; screws G, H, connected to the motors extending in the general direction toward the dredge and at an angle to the pipe; and means for controlling the motors.

7. In combination with a dredge; a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe and extending to each side thereof; motors mounted in said compartment upon each side of the pipe; screws G, H, connected to the motors extending in the general direction of the dredge and at an angle to the pipe; baffle-plates mounted in rear of the end of the discharge-pipe; a motor for moving said plates; and means for controlling said motors.

8. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; screw-propellers mounted upon each side of the pipe at or near its end; baffle-plates mounted in line with the discharge end of the pipe; and means for controlling the propellers, and varying the position of the baffle-plates.

604,016. CAN-OPENER. PORTER BEAVERS, Rossville, Ala. Filed Oct. 31, 1896. Serial No. 610,774. (No model.)



Claim.—1. A can-opener, comprising a suitable frame, consisting of a base on which a can is adapted to be placed, said base being provided at one end with an upright or standard, a lever pivotally connected with the upper end of said upright or standard, an annular head secured to the lower side of said lever centrally thereof, a collar or sleeve mounted on the upper side of said lever over said annular head, a shaft which passes centrally through said lever, and through said collar or sleeve and provided at its lower end with a circular head which revolves in said annular head, and which is also provided with a cutter or blade which is secured thereto adjacent to one side thereof, said shaft being provided at its upper end with a crank substantially as shown and described.

2. A can-opener, comprising a suitable frame, consisting of a base on which a can is adapted to be placed, said base being provided at one end with an upright or standard, a lever pivotally connected with the upper end of said upright or standard, an annular head secured to the lower side of said lever centrally thereof, a collar or sleeve mounted on the upper side of said lever over said annular head, a shaft which passes centrally through said lever, and through said collar or sleeve and provided at its lower end with a circular head which revolves in said annular head, and which is also provided with a cutter or blade which is secured thereto adjacent to one side thereof, said shaft being provided at its upper end with a crank, said base being also provided with an upright or standard in the upper end of which is a slot adapted to receive the free end of said lever, substantially as shown and described.

604,017. SEED-PLANTER. ALONZO H. BLAKE, Wilmington, N. C. Filed July 20, 1897. Serial No. 646,193. (No model.)



Claim.—1. In a seed-planter, the divided annular conducting-ring provided at its terminals with suitable abutments and with the radial upward flanges forming between themselves a seed-conducting space, a pendent delivery-spout occupying the space between the terminals of the divided ring and hinged at one edge to one terminal of the ring, and a fastener to detachably connect the other side of the spout to the other terminal of said conducting-ring, combined with a shaft which passes through the ring, and a dropping-disk arranged on the shaft to have its peripheral edge work in the annular space of the ring and the chute and to be embraced internally by the flanges of said ring, substantially as described.

2. In a planter, a hopper having, as an integral part thereof, an annular, divided, conducting-ring closed at its terminals by suitable abutments and provided with flanges at the sides thereof, and an adjustable chute occupying the space between the terminals of said divided conducting-ring, combined with a dropping-disk fitted to rotate between the flanged conducting-ring and within the chute, substantially as and for the purposes described.

3. In a planter, the combination with a frame, an axle, and ground-wheels, of a dropping-disk carried by the axle and provided with pockets or cups, a hopper having, as a part thereof, a divided conducting-ring which circumferentially incloses the dropping-disk and is flanged to embrace the faces of said dropping-disk, and a hinged chute occupying the space between the terminals of said divided ring and detachably attached to one of the terminals of said conducting-ring, for the purposes described, substantially as set forth.

604,018. METHOD OF AND APPARATUS FOR CHARGING LIQUIDS WITH GAS. HENRY CARNEGIE, Malden, Mass. Filed June 16, 1897. Serial No. 640,902. (No model.)



Claim.—An apparatus for charging liquid with gas, which consists in a chamber provided with a liquid-inlet and with a liquid-outlet, a gas-inlet connected to the chamber near its bottom, a gas-outlet for the chamber near its upper end, and a single cock or valve controlling the gas and liquid outlets, substantially as described.

604,019. STOVEPIPE-LOCK. PATRICK J. CARROLL, PATRICK O. FREYER, LEWIS KLEIN, and LOUIS B. SELIGER, Shenandoah, Pa. Filed May 27, 1897. Serial No. 638,256. (No model.)

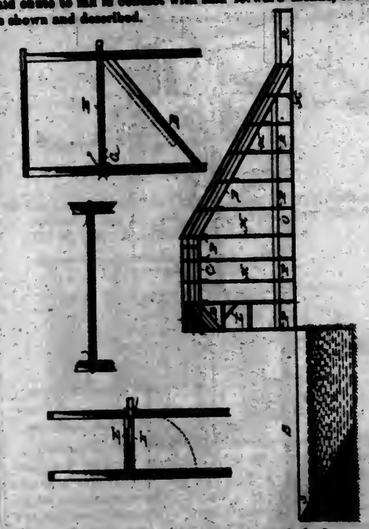


Claim.—The herein-described combination of two stovepipe-sections, one section being provided with a longitudinal slit and the other with a V-shaped tongue formed from the body of the pipe, said tongue being arranged transversely to the longitudinal axis of the pipe and bent inward to engage the slit upon the rotation of one section relative to the other, substantially as set forth.

604,020. STAGE APPLIANCE. WILLIAM F. CARVER, Chicago, Ill. Filed May 26, 1896. Renewed Apr. 7, 1898. Serial No. 676,698. (No model.)

Claim.—1. An apparatus or stage appliance consisting of an elevated platform having a downward and outward incline leading from the forward end of said platform to a body of water arranged below and in front of said incline, a chute hinged by its inner end contiguous to said platform and projecting in front of the same and over the incline at its forward end, means for supporting the outer end of said chute and means for releasing said end and causing said chute to fall in contact with said forward incline substantially as shown and described.

2. An apparatus or stage appliance consisting of an elevated platform having an inclined way leading from the ground or stage level to the rear end thereof, a downward and outward incline leading from the forward end of said platform to a body of water arranged below and in front of said latter incline, a chute hinged by its inner end contiguous to said platform and projecting in front of the same and over the incline at its forward end, means for supporting the outer end of said chute and means for releasing said end and causing said chute to fall in contact with said forward incline, substantially as shown and described.



3. An apparatus consisting of a horizontal platform a run or way leading to said platform a tower built in front of said platform, having an incline platform the upper end of which meets the forward end of said platform, a body of water at the foot of the forward end of said tower a chute hinged by its rear end to the rear upper portion of said tower and forming when in its normal position a continuation of said horizontal platform, a support pivoted to said tower and upholding the outer or free end of said chute when in its normal position, and means for releasing said support and swinging said chute downwardly upon said incline platform, substantially as shown and described.

4. An apparatus consisting of an elevated horizontal platform an inclined way leading to the rear end thereof, a horizontal chute forming a continuation of said horizontal platform, its rear end being hinged and its forward end resting upon a cross-bar immediately above a body of water; the cross-bar pivoted at one end, its free end resting when in its normal position, upon a crank-arm and a lever for operating said crank-arm to release the free end of said bar, substantially as shown and described.

604,021. APPARATUS FOR BENDING PIPES. ROBERT CLARKE, Brooklyn, N. Y. Filed Dec. 30, 1897. Serial No. 664,264. (No model.)

Claim.—1. A pipe-bending machine, comprising a traveling die adapted to receive a pipe, means for moving the same, a bearing or holder for the pipe, and means for forcing a series of spheres through the pipe while it is forced through the die, substantially as described.

2. In a bending-machine, the combination of a stationary bearing or holder for the article to be bent, a carriage, a die upon the carriage and means for moving the carriage toward the stationary bearing or holder, substantially as described.

3. In a pipe-bending machine, the combination of a die, means for forcing a pipe through the die, and rotary devices for forcing a series of spheres through the pipe while it is being bent, the axis of the said rotary devices being at an angle to the line of movement of the pipe, substantially as described.

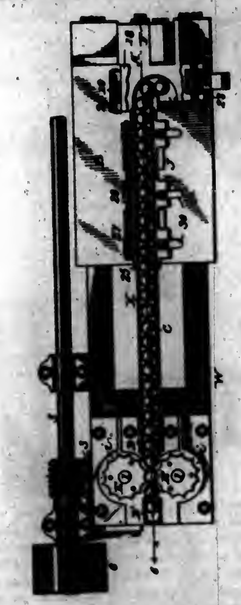
4. The combination of a stationary bearing for a pipe, a carriage, a die supported by said carriage and adapted to receive the end of the pipe, means for moving the carriage and a series of spheres, and means for propelling them through the pipe, substantially as described.

5. The combination with the die A and series of spheres, of propelling-wheels E, E adapted to receive and propel the spheres, substantially as described.

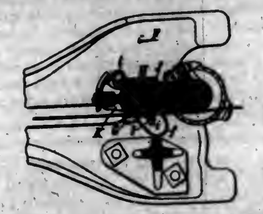
6. The combination with the die A, of a series of spheres, propelling-wheels E, E, and guide-tube D, D', substantially as described.

7. The combination of the traveling carriage B, die A, spheres and propelling-wheels, means for driving the wheels, means for propelling the carriage, and devices whereby to throw the carriage-propelling means into and out of operation, substantially as described.

8. The combination of the carriage, die, spheres, propelling-wheels, carriage-propelling screw F, shaft 5 geared to operate the propelling-wheels, gears 14, 15, 17 and a support for the gear 17, and means for shifting said support, substantially as described.



604,022. CORD-KNOTTER FOR GRAIN-BINDERS. PETER P. COLBY, Chicago, Ill., assignor to the McCormick Harvesting Machine Company. Filed May 15, 1897. Serial No. 636,835. (No model.)



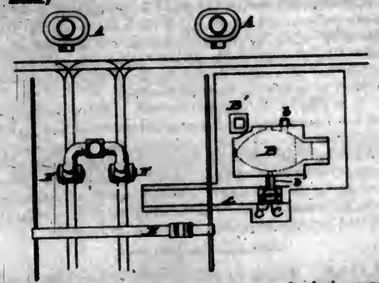
Claim.—1. In combination with a knotting-hook, a breastplate having a slot extending past the hook, a stationary stop positioned above the hook and extending across the slot in the breastplate from the same side as the knotting-hook and means whereby the cords are carried from the stop by the revolution of the knotting-hook.

2. In combination with a knotting-hook that trends outwardly, a breastplate having a slot that extends past the hook, a stop positioned on the knotter-frame and that extends across the cord-slot from the side of the knotting-hook, and a flange rotated by the knotting-hook, whereby the cords are removed from the stop by the revolution of the hook.

3. In combination in a knotter for self-binding harvesters, a stop projecting across the cord-slot, in a plane above that of the knotter-hook, a breastplate having a cord-slot that extends past the knotter, a tying apparatus having a hook that trends outwardly, a cord-holder for holding the cord, a flange attached to the knotting-hook, and revolving therewith, that in its path sweeps around the stop, and means for actuating the parts, substantially as and for the purpose specified.

4. In combination in a tying apparatus for self-binding harvesters, a breastplate having a cord-slot that extends past the knotter-hook, a knotter-hook that trends outwardly, and has a heel extension curved in the direction of the rotation of the knotter-hook, and a flange on the knotter-frame in the path of the rotation of the heel of the knotter-hook, substantially as and for the purpose specified.

604,023. PROCESS OF TREATING COPPER MATTE. JAMES COLEMAN, Clifton, Ariz. Filed Nov. 3, 1897. Serial No. 657,327. (No model.)



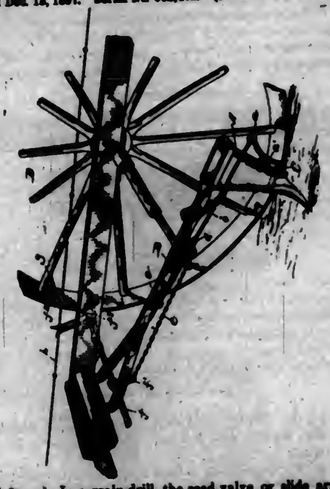
Claim.—1. As an improvement in the art of reducing copper by the Bessemer process, drawing off the molten matte from the blast-furnace, keeping it in a molten condition by an independent controllable source of heat, and altering its grade by the addition of suitable agents, substantially as described.

2. As an improvement in the art of reducing copper by the Bessemer process, storing the matte in a reverberatory furnace, and adding slags from the converter in order to clean them, substantially as described.

3. In apparatus for reducing copper by the Bessemer process, the combination with a blast-furnace and a converter, of a receptacle for the matte from the blast-furnace, and a separate furnace for maintaining and regulating the temperature of the contents of said receptacle, substantially as described.

4. In apparatus for reducing copper by the Bessemer process, the combination with a blast-furnace and a converter, of a reverberatory furnace to receive the molten matte from the blast-furnace and store it until required by the converter, substantially as described.

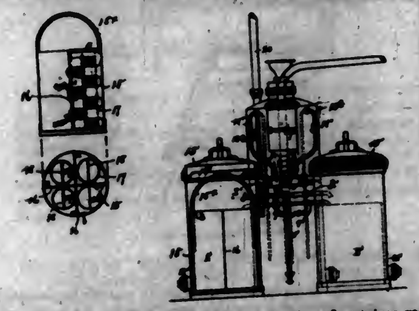
604,024. GRAIN-DRILL. ELMER J. CORBIN, Macedon, N. Y. Filed Dec. 18, 1897. Serial No. 662,472. (No model.)



Claim.—1. In a grain-drill, the seed valve or slide arranged in the seed-boot and operated by a lever pivoted upon the latter, the rock-shaft having a chain or line connection with said valve or slide lever and having an arm adapted to be operated by a check-row wire, and a second arm adapted to be struck by a stud or projection on the transportion-wheel, substantially as set forth.

2. In a grain-drill, the seed slide or valve arranged in the seed-boot and carried by a lever pivoted upon the latter, the guide-rod connected to said slide or valve lever and adapted to pass through and rest in a bracket on the drill drag-bar, a chain or line connected to a lateral stud or projection arranged on said rod, said rock-shaft having two additional arms adapted to be actuated, one, by the check-row wire, and the other by a stud or projection of the wheel of the machine, substantially as set forth.

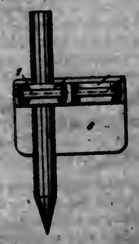
604,025. APPARATUS FOR PRODUCING ACETYLENE GAS. EMILE A. DESPUY, Paris, France. Filed July 2, 1896. Serial No. 597,583. (No model.) Patented in France Apr. 4, 1896, No. 253,259; in Luxemburg May 7, 1896, No. 2,889; in Belgium June 6, 1896, No. 121,720; in England June 9, 1896, No. 12,029; in Italy June 9, 1896, No. 41,788/251, and in Turin June 11, 1896, No. 152.



Claim.—1. In an apparatus for the production of acetylene gas, the combination of two generators, a basket or receptacle removably arranged in each of said generators and divided into compartments in communication with each other, a vessel in each of the latter adapted to receive calcium carbid, a water-pipe in communication with a compartment of each generator, a cock or valve adapted to regulate the supply of water to either of the compartments, a gas-outlet pipe in communication with the generators, a cock or valve adapted to control the communication of the gas-outlet pipe with either of the generators, an overflow water-pipe connecting the generators together and adapted to conduct the overflow from one generator into the other, and a valve or cock arranged in said overflow-pipe.

2. In an apparatus for the production of acetylene gas, the combination of generators, a water-pipe in communication with the generators, a cock or valve adapted to regulate the supply of water to either of the generators, a gas-outlet pipe in communication with the generators, a cock or valve adapted to control the communication of the gas-outlet pipe with either of the generators, an overflow water-pipe connecting the generators together and adapted to conduct the overflow from one generator into the other, a valve or cock arranged in said overflow-pipe, a water-reservoir with which the water-supply pipe is in communication, and pipes in communication with the gas-outlet pipe and leading into the reservoir, and adapted to have the opposite end submerged in the water contained in the reservoir.

604,026. PEN AND PENCIL HOLDER. JOHN DUNNE, (by order of court NOW JOHN BURNET,) Savannah, Ga. Filed Apr. 20, 1897. Serial No. 634,203. (No model.)



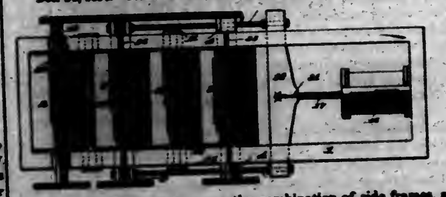
Claim.—A pen and pencil holder having a body-plate of stiff material, two cords arranged in front of the body-plate, and having their middle portions bowed outwardly therefrom, the body-plate having openings therein and an elastic band engaged with the front faces of the cords and passed through the openings in the body-plate whereby to hold the cords yieldingly against the body-plate.

604,027. POLISHER OR BRUSH. WILLIAM H. DURGIN, Hampton, Va. Filed July 3, 1897. Serial No. 643,933. (No model.)

Claim.—A device of the character described, comprising a handle of resilient material, formed with angular extensions at its ends, a band of suitable material extending between the ends of the handle and formed with pockets adapted to receive the angular extensions of the handle, fasteners secured to the band at its ends, beneath the pockets, substantially as and for the purpose set forth.



604,028. COTTON-PRESS. FRANK I. DYER, Washington, D. C., assignor to the American Cotton Company, New York, N. Y. Filed Dec. 21, 1896. Serial No. 616,461. (No model.)



Claim.—1. In a cotton-press, the combination of side frames, a baling-roll mounted in sliding boxes in said side frames, means co-operating with each of the sliding boxes for said baling-roll for allowing for a slight movement thereof, a second baling-roll cooperating with the first baling-roll, a pressure-producing device for the second baling-roll, and a core mounted in sliding boxes between said rolls, substantially as set forth.

2. An improved tandem cotton-press comprising two baling-rolls, a third roll movable back and forth between the same, and means cooperating with one of the first-mentioned baling-rolls for forcing the same toward the intermediate roll, substantially as set forth.

3. An improved tandem cotton-press comprising two baling-rolls, a third roll movable back and forth between the same, means co-operating with one of the first-mentioned baling-rolls for forcing the same toward the intermediate roll, and a core between the third baling-roll and each of the two other baling-rolls, substantially as set forth.

4. In a cotton-press, the combination of side frames, a baling-roll mounted in sliding boxes in said side frames, a spring cooperating with each of the sliding boxes for said baling-roll, a second baling-roll cooperating with the first baling-roll, a pressure-producing device for the second baling-roll, and a core mounted in sliding boxes between said rolls, substantially as set forth.

5. An improved tandem cotton-press, comprising two baling-rolls, a third roll movable back and forth between the same, and springs cooperating with one of the first-mentioned baling-rolls and forcing the same toward the intermediate roll, substantially as set forth.

6. In a tandem cotton-press, the combination of two outside spring-pressed baling-rolls, and a third baling-roll, movable between the same, substantially as set forth.

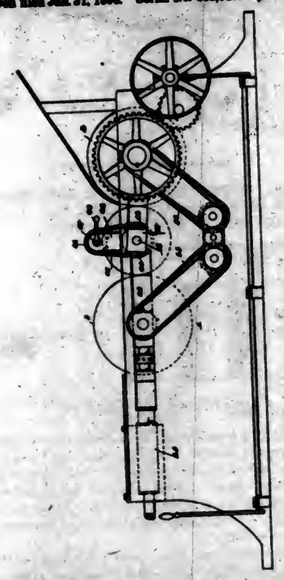
7. In a tandem cotton-press, the combination of two outside spring-pressed baling-rolls, a third baling-roll movable between the same, and a pressure-producing device connected to the last-mentioned baling-roll, substantially as set forth.

8. In a tandem cotton-press, the combination of two spring-pressed baling-rolls, an intermediate baling-roll working between the same, a pressure-producing device connected to said intermediate baling-roll, and two cores between the intermediate baling-roll and the outside baling-rolls, substantially as set forth.

9. In a tandem cotton-press, the combination of two outside baling-rolls, an intermediate baling-roll working between the same, a hydraulic cylinder, connections between the cylinder and the intermediate baling-roll, a discharge-pipe extending up from each end of said cylinder, a relief-valve in each of said discharge-pipes, and a run-around for each relief-valve having check-valves therein, substantially as set forth.

10. In a tandem cotton-press, the combination of two outside baling-rolls, an intermediate baling-roll working between the same, a hydraulic cylinder, connections between the cylinder and the intermediate baling-roll, a discharge-pipe extending up from each end of said hydraulic cylinder, a relief-valve in each discharge-pipe, a lever cooperating with the stem of each relief-valve, a weight on each of said levers, and connections between both of said weights and an element movable with the intermediate baling-roll, substantially as set forth.

604,029. COTTON-PRESS. FRANK L. DYER, Orange, N. J., assignor to the American Cotton Company, New York, N. Y. Original application filed Nov. 26, 1894, Serial No. 530,251. Divided and this application filed Jan. 31, 1896. Serial No. 577,516. (No model.)



Claim.—1. The combination in a rotary press, of withdrawable baling-core-supporting centers, a core mounted on said centers, and means for withdrawing and advancing said centers from one side of the press and independently of the other movable parts of the press, substantially as set forth.

2. The combination in a rotary cotton-press, of two baling-rolls, means for driving said rolls, withdrawable baling-core-supporting centers, a core mounted on said centers between said rolls, and means for advancing and withdrawing said supporting-centers from one side of the press independently of the movable parts of the press, substantially as set forth.

3. The combination in a rotary cotton-press, of withdrawable baling-core-supporting centers mounted in sliding bearing-blocks, and a connection between said centers whereby they may be advanced and withdrawn simultaneously and independently of the other movable parts of the press, substantially as set forth.

4. The combination in a rotary cotton-press, of two baling-rolls, means for driving said rolls, withdrawable baling-core-supporting centers mounted in sliding bearing-blocks, and a connection between said centers whereby they may be advanced and withdrawn simultaneously independently of the other movable parts of the press, substantially as set forth.

5. In a cotton-press of the character described, the combination of two baling-rolls, means for driving said rolls, a core mounted between the same, means for supporting said core at each end thereof, and independent means for simultaneously releasing both ends of the core, substantially as set forth.

6. In a cotton-press of the character described, the combination of two baling-rolls in substantially the same plane, means for operating said rolls, a core mounted between said rolls, movable bearing-pieces for the ends of said core, and an operating-shaft connected with said bearing-pieces for simultaneously moving the same out of engagement with the core, said operating-shaft being mounted out of the plane of the rolls, substantially as set forth.

604,080. BICYCLE-BRAKE. JOHN C. REMY, Flemington, N. J., assignor of two-thirds to Frank B. Mallory and William W. Hawks, same place. Filed Sept. 19, 1896. Serial No. 606,294. (No model.)

Claim.—1. In a bicycle-brake, the combination of a handle-bar provided with a longitudinal slot, a revolvable sleeve provided with a spiral slot, a plunger provided with a pin which operates in said slots, a brake-shoe, balls interposed between the brake-shoe and the plunger for pushing the brake-shoe against the tire of the wheel and means for returning the brake-shoe, substantially as described.

2. In a bicycle-brake, the combination of a handle-bar provided with a longitudinal slot, an independently-removable sleeve slipped on the handle-bar and provided with a spiral slot which extends through the walls of the sleeve, a handhold secured to said removable sleeve, a plunger provided with a pin, a brake-shoe, balls interposed between the brake-shoe and the plunger for forcing the brake-shoe against the tire of the wheel, and a spring for returning the brake-shoe, substantially as described.



3. In a bicycle-brake, the combination of a handle-bar provided with a longitudinal slot, a revolvable sleeve fitted on the handle bar, and provided with a spiral slot, a handhold secured to said sleeve whereby it may be turned, a plunger provided with a pin which operates in the said slots, a brake-shoe, and balls interposed between the brake-shoe and the plunger for pushing the brake-shoe into operative position, and means for returning the brake-shoe, substantially as described.

4. In a bicycle-brake, the combination of a handle-bar provided with a longitudinal slot, a revolvable sleeve fitted on the handle-bar, and provided with a spiral slot, a handhold secured to said sleeve, a plunger provided with a pin which operates in the said slots, a roller on said pin which bears against the walls of the slot in the handle-bar, and a shoe which bears upon the walls of the slot in the sleeve, a brake-shoe, flexible means interposed between the brake-shoe and the plunger for pushing the brake-shoe into operative position, and means for returning the brake-shoe, substantially as described.

5. In a bicycle-brake, the combination of a handle-bar provided with a longitudinal slot, a revolvable sleeve fitted upon the handle-bar, and provided with a spiral slot, a handhold secured to said sleeve, a plunger provided with a pin which operates in said slots, a brake-shoe, a tube or guideway secured in the handle-bar and guide-post, and balls in said tube, interposed between the brake-shoe and the plunger for pushing the brake-shoe into operative position, and means for returning the brake-shoe, substantially as described.

604,081. PAPER BOX. EDGAR FISHER, Toronto, Canada, assignor of one-half to Thomas Bell, same place, and Robert James Bell, New York, N. Y. Filed Sept. 17, 1897. Serial No. 652,097. (No model.) Patented in Canada Sept. 27, 1897, No. 57,891.



Claim.—1. A box comprising the two bottom triangular sides having a longitudinal central fold and the top folding flaps forming triangular ends and meeting in a cross-ridge in the center of the box and means for fastening the flaps together as and for the purpose specified.

2. A box comprising the two bottom triangular sides having a longitudinal central fold and the top folding flaps forming triangular ends and meeting in a cross-ridge in the center of the box and the projecting apexes a' and means for fastening the flaps together as and for the purpose specified.

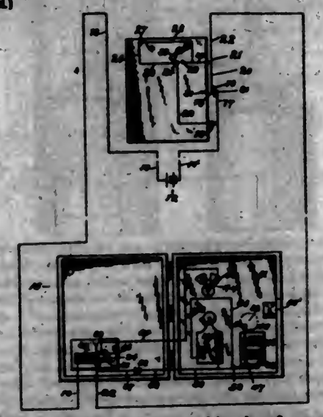
3. A box comprising the two bottom triangular sides having a longitudinal central fold and the top folding flaps forming triangular ends and meeting in a cross-ridge in the center of the box, projecting apexes a', opposing holes in the projecting apexes of the lower and upper flaps at one side and holes in the projecting apex of the upper flap at the opposite side and a cord passing through the opposing holes and designed to fasten the box together and form a carrying-loop therefor as and for the purpose specified.

604,082. WASHING-MACHINE. RUFUS A. FISHER, Hamilton, Mont. Filed May 25, 1897. Serial No. 638,114. (No model.)



Claim.—An improved washboiler comprising a suitable receptacle to contain the suds, in combination with the rotary shaft S removably journaled in said receptacle and provided with the parallel end disks S, S, and having a clothes-holder thereon made of a single piece of spring-wire bent to form two series of loops, at each end of the shaft, extending parallel with and fixed to the shaft, the loops of one series extending beyond the loops of the other series, substantially as shown and described.

604,088. ELECTRICAL SAFE-PROTECTION SYSTEM. ISAAC FISHER, Harrisburg, Pa. Filed June 15, 1897. Serial No. 640,344. (No model.)



Claim.—A safe-alarm system, comprising the safe, provided with the contact-points 16 and 21, a conductor extending from the point 16 to the point 21 and including one or more switches, the bottom 12 and the closed circuit 13 and 14 embracing the spring-fingers 17, 18 and the switch 18, in combination with the alarm-box 15, the magnet 22, core 23 and its armature 24, forming a part of the closed circuit 13, 14, the battery 26, conductor 27 connected to said armature 24, the contact-screw 30 located in the path of said armature, the switch 44, 45, the conductor 34 connecting said switch and screw 30, the alarm-bell 41, the conductor 43 connecting one post of said switch and bell and the conductor 29 connecting the opposite post of said bell with said battery 26, substantially as and for the purpose set forth.

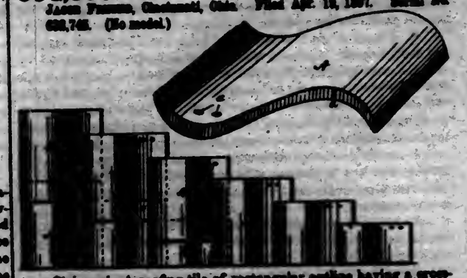
604,084. BOOT-TREAD REINFORCE. ALFRED FRANKERT, Cologne, Germany. Filed Apr. 16, 1897. Serial No. 632,491. (No model.) Patented in England Apr. 30, 1896, No. 8,514.



Claim.—1. A metal horseshoe consisting of the body A grooved as described from heel to heel and having nail-holes at the bottom of the groove, plates A and i, pin p, and steps S, in combination with the rope filling R and felt sole S, substantially as set forth.

2. The metal horseshoe consisting of the body A grooved as described from heel to heel and having nail-holes a at the bottom of the groove, the inclined notches a in the outer wall extending the depth of the shoe and corresponding with and leading to the nail-holes in the bottom of the groove, and pins p', in combination with the rope filling R, substantially as described.

604,085. TILE AND ARRANGEMENT THEREOF IN ROOFS. JAMES FLEMING, Cincinnati, Ohio. Filed Apr. 19, 1897. Serial No. 632,745. (No model.)



Claim.—1. A roofing-tile of rectangular outline having a cross-section oppositely curved from the center outward, in similar curves of diminishing radii, increasing the thickness of the material from the center to the apex of the curves and thence closing together to an acute-angled edge, whereby the tiles nest together in continuous contact; and, when laid, the overlapping surfaces present an elongated cross-opening of opposite arcs as a protection against capillary action, substantially as set forth.

2. A series of tiles of the general form described, of similar width but different lengths, laid so that the upper courses of uniform size overlay the lower courses at successively greater distances from the eaves producing a complete covering-joint, and a diagonal relation over the body of the roof, substantially as set forth.

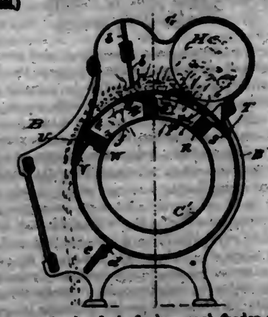
604,086. HOSE-NOZZLE. JOHN H. FRY, Grand Rapids, Mich., assignor of one-third to Louis A. Cornelius, same place. Filed Aug. 11, 1897. Serial No. 647,781. (No model.)



Claim.—1. A hose-nozzle consisting of a wooden body part, a metal ferrule for connecting the same with a hose, and lining or bushing tubes, substantially as described.

2. A hose-nozzle and sprinkler involving the combination of a wooden nozzle, a metallic ferrule, metal tubular lining or bushing for the nozzle, and a deflector permanently connected with the nozzle, substantially as described.

604,087. PNEUMATIC COTTON-HANDLING MACHINE. JAMES T. FULLER, Calvert, Tex. Filed Feb. 26, 1897. Serial No. 625,040. (No model.)



Claim.—1. A bank of gin-feeders, each feeder comprising end plates and a pipe-like hood open at the side thereof toward the center of the feeder, an air-tight dust-pipe open at the side thereof opposite to the said hood-opening, a revolving perforated cylinder surrounding said dust-pipe, and forming the bottom of said hood substantially in line with the bottom of the connecting-pipes between adjacent hoods, means to rotate said perforated cylinder, opposing pushing-flaps placed against said perforated cylinder for the hood and the dust-pipe, and sets of pipe connections for the hoods and dust-pipe, whereby a continuous supply-pipe with lateral openings opposite the feeders is formed, in combination with an exhaust-fan communicating

ing with said dust-pipe, an intake-pipe communicating with the hood-sections, and adapted to supply the cotton to said feeders under the suction produced by said fan.

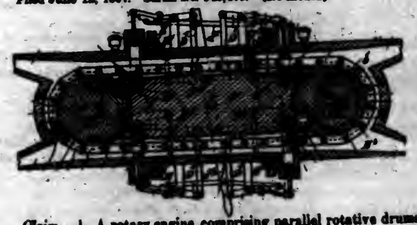
2. A bank of gin-feeders located in an axial line, each comprising end plates B', pipe-hood G, a central dust-pipe C supported by said ends and open laterally at F toward said hood, a perforated cylinder J rotatably mounted and surrounding said dust-pipe, packing for the joints at said lateral openings in the hood and dust-pipe respectively against said perforated cylinder, means to rotate said cylinder, pipe-sections C and H for connecting the dust-pipes and pipe-hoods respectively, an intake connection for one end of said pipe-hood, a cap for the other end of the line of hoods, an exhaust fan for one end of said dust-pipe, and a cap for the other end of the line of dust-pipes and connections.

3. A gin-feeder comprising end plates B', offset substantially as shown, and a pipe-hood G with an opening below, a dust-pipe passing through said plates, spider and ring supports for said dust-pipe, a perforated cylinder J having a ratchet on one end and mounted to rotate around said dust-pipe in said offset end plates, a push-pawl engaging said ratchet at one end, and an eccentric connection at the other end of the pawl.

4. A pneumatic gin-feeder comprising a central dust-chamber having a large and a small inlet-opening at the side, a screen-cylinder encircling said dust-chamber, packing-strips around said openings filling the interposed space between said chamber and screen-cylinder, a hood above said packed openings, matching packing-strips between said hood and screen-cylinder, means to allow the exit of the cotton-bat, a rotatable leveler in said hood adapted to act on the bat as it passes away from said large opening, and exhaust means to effect a suction of the air through said inlet-openings to the dust-chamber, and hold the bat with varying pressure as the screen carries it past said inlet-openings.

5. A pneumatic gin-feeder comprising a central dust-chamber having large and small inlet-openings, a rotatable screen-cylinder encircling said chamber, interior packing interposed around and between said inlet-openings and the screen-cylinder, a hood above said openings, exterior packing between the hood and cylinder matching the interior packing, a rotatable leveler consisting of a shaft having flexible blades mounted opposite the interior middle packing, a supply-pipe and exit-opening for the cotton-bat for said hood, and exhaust means communicating with said dust-chamber.

604,088. ROTARY ENGINE. AUGUSTUS H. GILBERT, Berlin, N. H. Filed June 12, 1897. Serial No. 640,470. (No model.)



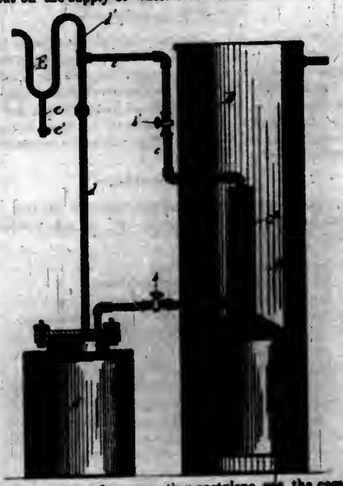
Claim.—1. A rotary engine, comprising parallel rotative drums, a chain passing about said drums, and having plates attached thereto and acting as pistons, a casing surrounding the paths of said pistons and also extending within the chain between the drums, said casing having steam inlet and exhaust ports and valves controlling the steam-ports, abutments having slots to accommodate the chain, cams mounted upon the drum-shafts, and mechanism connecting said cams with the abutments and valves, substantially as described.

2. A rotary engine having two sets of abutments and steam-valves adapted to be alternately used in reversing the operation of the engine, vibrating levers actuating said valves, each of said levers being composed of two parts pivoted to each other, and a coupling block or sleeve adapted to connect and disconnect the two parts to make of them a rigid or a jointed lever, substantially as described.

3. A rotary engine having two sets of abutments and steam-valves adapted to be alternately used in reversing the operation of the engine, vibrating levers actuating the same, each composed of two parts pivoted to each other, a coupling block or sleeve adapted to connect and disconnect the two parts to make of them a rigid or a jointed lever, a common reversing-lever, and links connecting the same with said coupling-blocks, substantially as described.

604,089. ACETYLENE-GAS GENERATOR. ROBERT GOSS, Three Rivers, Canada. Filed Oct. 7, 1897. Serial No. 654,472. (No model.) Patented in England July 19, 1897, No. 17,081; in France Nov. 18, 1897, No. 268,980, and in Canada Nov. 22, 1897, No. 56,166.

Claim.—1. An apparatus for generating acetylene gas, comprising a vessel for carbid; a vessel open at its top for the water; an internal vessel open at its bottom, and having an extension, said internal vessel being mounted within the water vessel; a gas-outlet pipe connected to said vessel for the carbid; an auxiliary pipe connected to the top of said extension and said gas-outlet pipe; and a connection between the top of said vessel for the carbid and said extension, the opening of said pipe in said extension being below the opening of the auxiliary pipe, whereby the surplusage of gas will serve to automatically cut off the supply of water to the carbid.



2. In apparatus for generating acetylene gas, the combination, with a vessel A for holding metallic carbids, of a vessel B for holding water, an internal vessel C open at the bottom and supported in the vessel B, a gas-outlet pipe connected to the upper parts of the vessels A and C, a pipe connecting the vessel A with the vessel C at a point below the said gas-pipe, and a gas-relief pipe D connected to said internal vessel near its bottom, substantially as set forth.

3. In apparatus for generating acetylene gas, the combination with a vessel A for holding metallic carbid, of a vessel B for holding water, an internal vessel C open at the bottom and supported in the vessel B, a gas-outlet pipe *d* connected to the vessel A, a pipe *e* provided with a valve and connected to the pipe *d* and to the upper part of the vessel C, a pipe *d'* provided with a valve and connected to the vessel A and to the vessel C at a point below the pipe *e*, and a gas-relief pipe D connected to said internal vessel near its bottom, substantially as set forth.

604,040. COVER FOR CROCKS, &c. WILLIAM GRIMSH and HARVEY W. SMITH, Carrsville, Mich. Filed June 9, 1897. Serial No. 640,008. (No model.)

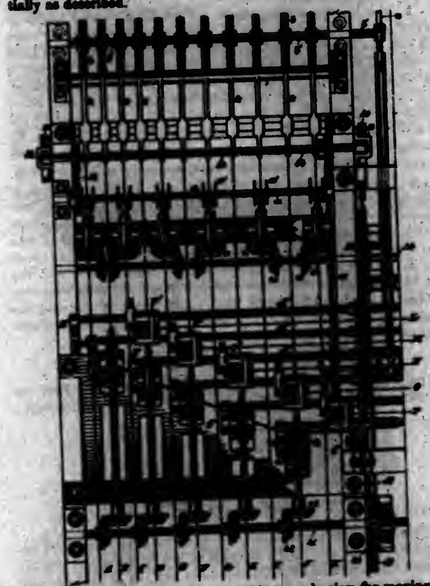


Claim.—The combination with a crock, and a fastening ring or band, of a removable cover constructed of flexible material and comprising a horizontal top portion, depending crimped or folded sides receiving the ring or band, and a stiff horizontal flange formed by expanding and extending outward the lower edges or portions of the depending sides and supporting the ring or band both when the cover is on and off the crock, said flange also serving as a grip or handle to enable the cover to be readily placed on and removed from the crock, substantially as described

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604,041. MACHINE FOR MAKING WIRE FENCING. JOHN W. GREWOLD and ABEL C. GELDERWAIT, Troy, N. Y. Filed Nov. 23, 1897. Serial No. 659,571. (No model.)

Claim.—1. In a wire-fence-making machine, mechanism for moving three strand-wires in a longitudinal direction, mechanism for moving a transverse wire in a longitudinal direction across said strand-wires, mechanism for cutting said transverse wire to definite length, mechanism for securing said divided piece of transverse wire between its ends to the middle strand-wire, and mechanism for securing the ends of said divided piece of transverse wire respectively to the other strand-wires, substantially as described.



2. In a wire-fence-making machine, mechanism for moving five strand-wires G, H, I, J, K in a longitudinal direction, mechanism for moving a transverse wire in a longitudinal direction across the strand-wires G, H, I, mechanism for moving a second transverse wire in a longitudinal direction across the strand-wires I, J, K, mechanism for severing said first transverse wire between its ends to the strand-wire H, mechanism for severing the ends *p*, *q* of said transverse wire to the strand-wires G, I, mechanism for severing said second transverse wire between the ends of the strand-wire J and mechanism for securing the ends *r*, *s* of said second transverse wire I, K, substantially as described.

3. In a wire-fence-making machine, mechanism for moving three strand-wires in a longitudinal direction, mechanism for moving a transverse wire in a longitudinal direction across said strand-wires, mechanism for cutting said transverse wire to definite length, mechanism for securing said divided piece of transverse wire between its ends to the middle strand-wire, and mechanism for severing the ends of said divided piece of transverse wire respectively to the other strand-wires, substantially as described.

4. In a wire-fence-making machine, mechanism for moving three strand-wires in a longitudinal direction, mechanism for moving a transverse wire in a longitudinal direction across said strand-wires, mechanism for twisting the body portion of said transverse wire around the middle strand-wire, and mechanism for twisting the ends of said transverse wire respectively around the other strand-wires, substantially as described.

5. In a wire-fence-making machine, mechanism for moving three strand-wires H, I, J in a longitudinal direction, the said strand-wires H, J being provided with transverse wires secured to them and having ends *r*, *q*, alternately crossing the middle strand-wire I, and mechanism for securing said ends to said strand-wire I, substantially as described.

6. In a wire-fence-making machine, mechanism for moving three strand-wires H, I, J in a longitudinal direction, mechanism for moving transverse wires alternately across the wires H, I, and I, J, mechanism for securing said transverse wires between their ends to the wires H, J and mechanism for securing the ends *r*, *q* of said wires alternately to the strand-wire I, substantially as described.

7. In a wire-fence-making machine, mechanism for feeding a series of strand-wires, mechanism for feeding a series of parallel transverse wires in a plane parallel to that of said strand-wires, mechanism for cutting the transverse wires, and mechanism for securing each section of transverse wire between its ends to one of said strand-wires, substantially as described.

8. In a wire-fence-making machine mechanism for feeding a series of strand-wires, mechanism for feeding a series of parallel transverse wires in a plane parallel to that of said strand-wires, mechanism for cutting the transverse wires, and mechanism for winding each section of transverse wire around one of said strand-wires, substantially as described.

9. In a wire-fence-making machine, mechanism for feeding a series of parallel strand-wires, mechanism for feeding a series of parallel transverse wires in a plane parallel to that of said strand-wires, whereby each strand-wire is overlapped by a transverse wire for a determinate distance, mechanism for cutting the transverse wire, and mechanism for securing each section of transverse wire between its ends to one of said strand-wires, substantially as described.

10. The combination in a wire-fence-making machine, of three twisting devices *g*, A, *i*, mechanism for moving three strand-wires through said twisting devices, a feeding mechanism operating to move a transverse wire O across said strand-wires, and a cutting device for said strand-wire; the aforesaid parts being constructed and timed so that after said transverse wire shall have been moved across the middle strand-wire by the said feeding mechanism, the twisting devices A shall twist said divided piece of transverse wire between the ends upon the middle strand-wire, the said cutting device shall then operate to cut it to definite length, and thereafter the twisting devices *g*, *i* shall twist the ends *p*, *q* of said divided piece of transverse wire respectively upon the other strand-wires, substantially as described.

11. The combination in a wire-fence-making machine of mechanism for moving three strand-wires H, I, J in a longitudinal direction, the said strand-wires H, J being provided with transverse wires secured to them and having ends *r*, *q* alternately crossing the middle strand-wire I, and a twisting device through which said strand-wire I passes; the said twisting device operating upon the ends *r*, *q* to twist said ends around said wire I, substantially as described.

12. The combination in a wire-fence-making machine, with mechanism for moving a series of strand-wires in a longitudinal direction, of twisting devices A disposed in series diagonally with reference to the line of movement of said wires, through which twisting devices said wires move, mechanism for feeding a series of transverse wires simultaneously across said strand-wires and to said twisting devices, and a series of cutting devices disposed diagonally and similarly to said twisting devices and cutting upon said transverse wires respectively; the aforesaid parts being constructed and timed so that a transverse wire shall be fed simultaneously over each strand-wire, then twisted at its middle around said strand-wire, and then cut to definite length by a cutting device, substantially as described.

13. The combination in a wire-fence-making machine with mechanism for moving two series of strand-wires simultaneously in a longitudinal direction; the wires of one series as D, F, H, J alternating with the wires of the other series, as E, G, I, of twisting devices as A disposed in series diagonally with reference to the direction of movement of said wires, through which twisting devices said wires D, F, H, J pass, a second series of twisting devices, as *g*, staggered in position with reference to said first series, through which second series said wires E, G, I, pass, mechanism for feeding a series of transverse wires simultaneously across said strand-wires D, F, H, J and to said first series of twisting devices and a series of cutting devices disposed diagonally and similarly to said first series of twisting devices and acting upon said transverse wires respectively; the aforesaid parts being constructed and timed so that a transverse wire shall be fed simultaneously over each strand-wire D, F, H, J, then twisted at its middle by a twisting device as A around its associate strand-wire, then cut to definite length by a cutting device, and then carried outward by said strand-wire until its ends meet two twisting devices as *g*, *i*, of the second series whereby its said ends *p*, *q* are twisted around the adjacent strand-wires G, I, substantially as described.

14. In a machine for making wire fencing having longitudinal or strand wires and transverse wires uniting said strand-wires mechanism for producing short bends laterally projecting from said strand-wires at the junctions of said strand-wires and said transverse wires, substantially as described.

15. In a machine for making wire fencing, a plurality of twisting devices through which the strand-wires of the fence are fed, mechanism for simultaneously feeding the transverse wires to said twisting devices, mechanism for cutting said transverse wires into lengths to extend from the strand-wires wherever they are twisted to adjacent strand-wires, and mechanism for producing crimps or bends in the strand-wires at the junction of said strand and transverse wires, substantially as described.

16. In a wire-fence-making machine, mechanism for moving two strand-wires in a longitudinal direction, one of said wires being provided with a transverse wire projecting across said other strand-wire, a twisting device through which said second strand-wire passes, and operating to twist said transverse wire at one end about said second strand, and means for forcing the end of said transverse wire into close engagement with said twisting device, substantially as described.

17. The combination of a twisting-head having a rotary spindle f

and pin *a'* with the rotary shaft *a* having finger *d'*, substantially as described.

18. The combination in a wire-crimping device of a bar *c*, having pairs of pins as *c*, *c'* adapted to receive between them the wire to be crimped, means for holding said wire between said pins, and mechanism for moving said bar in a direction transverse said wire, substantially as described.

19. The combination in a wire-crimping device of the bar *c* having pairs of pins as *c*, *c'*, adapted to receive between them the wire to be crimped, means for holding said wire in tense condition between said pins, a presser-bar for said wire and mechanism for moving said bar *c* in a direction transverse said wire, substantially as described.

20. The combination in a multiple wire-crimping device of a bar *c* having as many pairs of pins *c*, *c'* as there are wires to be crimped, and adapted to receive said wires between them, means for holding said wires parallel and in tense condition, and mechanism for moving said bar transversely the direction of said wires, substantially as described.

21. The combination in a multiple wire-crimping machine of a bar *c*, having as many pairs of pins *c*, *c'* as there are wires to be crimped, and adapted to receive said wires between them, means for holding said wires parallel and in tense condition, a series of presser-bars acting upon said wires, mechanism for simultaneously operating said presser-bars, and mechanism for moving said bar *c* transversely the direction of said wires, substantially as described.

22. The combination in a wire-crimping machine of the bar *c*, having pins *c*, *c'*, ways *c'* in which said bar *c* slides longitudinally, rotary shaft 49, cam-disk 55 thereon, vibrating lever 57 actuating bar *c* and having pin 60 entering the groove of said cam-disk, substantially as described.

23. The combination in a wire-crimping device of the bar *c* having pins *c*, *c'*, ways *c'* in which said bar *c* slides longitudinally, rotary shaft 49, cam-disk 55 thereon, vibrating lever 57 actuating bar *c* and having pin 60 entering the groove in said cam-disk 55, pivoted presser *h*, lifting-bar 54, support-bar 52 therefor, and cam 50 on shaft 49 actuating said support-bar 52, substantially as described.

24. In a wire-fence-making machine, a plurality of twisting devices through which the strand-wires of the fence are fed, mechanism for simultaneously feeding the transverse wires to said twisting devices and mechanism for cutting said transverse wires into lengths to extend from each side of the strand-wires whereon they are respectively twisted to the adjacent strand-wires, substantially as described.

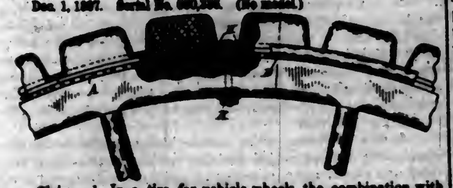
25. In a wire-fence-making machine a plurality of twisting devices through which the strand-wires of the fence are fed, mechanism for simultaneously feeding the transverse wires to said twisting devices, mechanism for cutting said transverse wires into lengths to extend from each side of the strand-wires whereon they are respectively twisted to adjacent strand-wires, a winding-drum whereon said strand-wires are wound, and mechanism for actuating said drum, substantially as described.

26. In a wire-fence-making machine, the combination of the rotary shaft 5, cam 6, bar 9, actuating said cam, vibrating arms 10 and 11 actuated by said bar and carrying sectors 12, rack-bar 13 engaging with said sectors, rack-bar 16 carried by bar 13, lever 18 having sector 17 engaging with bar 16, rock-shaft 21 and wire-feeding devices actuated from said rock-shaft, substantially as described.

27. In a wire-fence-making machine, the combination of the rotary shaft 5, cam 27 thereon, pivoted arm 26, arm 29, rod 30, pawl 32, ratchet-wheel *n* actuated by said pawl, and a wire-feeding device actuated from said ratchet-wheel, substantially as described.

28. In a wire-fence-making machine the combination of the rotary shaft 5, cam 33 thereon, bar 36 actuated by said cam, pivoted arms 37 carrying sectors 28, gears actuated by said sectors and wire-twisting devices actuated from said gears, substantially as described.

604,042. ELASTIC TIRE. FRANK B. HALL, Quincy, Mass. Filed Dec. 1, 1897. Serial No. 660,206. (No model.)



Claim.—1. In a tire for vehicle-wheels, the combination with blocks or sections of india-rubber having flat bases with flanges at the sides and ends and adapted to rest upon the periphery of a wheel, of a band B, composed of side bars with flanges that embrace the side edges of the wheel, and cross-bars E, the said band being applied over the said rubber blocks with the side bars bearing on the flanges at the sides and the cross-bars over the flanges at the ends of said blocks, and means for drawing together the ends of the band and holding it to the wheel, as set forth.

2. In a tire for vehicle-wheels, the combination with blocks or sections of india-rubber having flat bases with flanges at the sides and ends and adapted to rest upon the periphery of a wheel, of a band B composed of side bars with flanges that embrace the side edges of the wheel and having channels or grooves G in their under surfaces, and cross-bars E, the said band being applied over the said rubber blocks with the side bars bearing on the flanges at the sides and the cross-bars over the flanges at the ends of said blocks and means for binding the said band firmly to the wheel whereby the flanges of the blocks will be forced up into the channels or grooves G, as set forth.

3. The combination in a wheel-tire with blocks or sections of india-rubber having flat bases with flanges at the sides and ends and adapted to rest upon the periphery of a wheel, and reinforcing plates or strips L secured to the said bases, of a band B composed of side bars with flanges that embrace the side edges of the wheel, and cross-bars E, the said band being applied over the rubber blocks with the side bars bearing on the flanges at the sides and the cross bars over the flanges at the ends of said blocks, and means for drawing the band tightly about the wheel and thereby clamping the rubber blocks in position, as set forth.

604,043. MATTRESS. OLIVE R. HALL, Oconto, Wis. Filed Jan. 20, 1898. Renewed Mar. 30, 1898. Serial No. 674,509. (No model.)



Claim.—1. The combination with a mattress, of the strip E arranged outside of, and rigidly fastened to, the mattress and extending from the bottom around the two sides and top thereof, and the strip F extending around the bottom and two sides of the mattress and permanently fastened to the ends e^2 of the strip E and the bottom of the mattress, the loose or free ends *f* of said strip F forming the handles, for the purposes described, substantially as set forth.

2. The combination with a mattress, of the external strip or band E fastened to the sides and top of the mattress and having its ends e^2 carried around and fastened to the bottom thereof, and the strip F secured permanently to the bottom of the mattress and the ends e^2 of the strip E, the free ends *f* of the strip F extending around the sides of the mattress and detachably fastened, at *g*, to the strip E, for the purposes described, substantially as set forth.

604,044. ORTHOPEDIC APPLIANCE. ALBERT H. HAMEL and ARTHUR H. HIBBERT, De Soto, Mo.; said Hibbert assignor to said Hamel. Filed Aug. 14, 1897. Serial No. 648,211. (No model.)



Claim.—1. An orthopedic appliance comprising a shoe, a supporting-frame projecting upwardly and laterally from the heel thereof, a cord fastened at one end to the fore part of the shoe, and means mounted on said supporting-frame for regulating the tension of said cord, substantially as and for the purpose set forth.

2. An orthopedic appliance comprising a shoe having a drum-support thereto fastened at the heel, a drum mounted on said support, a cord fastened at one end to the fore part of the shoe and at the other end to said drum, and means for winding said drum and thereby regulating the tension on said cord, said drum being located above and aside from the sole of the shoe, substantially as and for the purpose set forth.

3. An orthopedic appliance comprising a shoe, a drum mounted on a support secured at the heel of the shoe, a cord attached to said drum and to the fore part of the shoe, and a spring tending to wind said drum, substantially as and for the purpose set forth.

4. An orthopedic appliance comprising a shoe, a vertically-arranged drum mounted on a support fastened thereto at the heel, a cord attached to said drum and to the fore part of the shoe respectively, and means tending to wind said drum, substantially as and for the purpose set forth.

5. An orthopedic appliance comprising a shoe, a vertically-arranged drum mounted on a support fastened at the heel, a cord attached to said drum and to the fore part of the shoe, and a helical spring secured at its lower end to said drum and at its upper end to a band adapted to be fastened to the patient's limb, substantially as and for the purpose set forth.

6. An orthopedic appliance comprising a shoe, a vertically-arranged drum mounted on a support fastened at the heel, a cord attached to said drum and to the fore part of the shoe, a helical spring secured at its lower end to said drum and at its upper end to a band adapted to be fastened to the patient's limb, and a jointed upright bar secured at the heel on the side opposite the drum-support, and having a band adapted to encircle the patient's limb, substantially as and for the purpose set forth.

604,045. CHILD'S CHAIR. FRED C. HAMBAM, Kenosha, Wis., assignor to the Kenosha Crib Company, same place. Filed Aug. 4, 1897. Serial No. 647,042. (No model.)



Claim.—1. In a child's chair, the combination, with an axle, of a chair-frame tiltable thereon or therewith, consisting of side bars, front bars extending downwardly, the lower ends thereof forming a lower forward support, and handle-bars extending rearwardly at their lower ends to form steps.

2. In a child's chair, the combination, with an axle, of a chair-frame tiltable thereon or therewith, said frame consisting of side seat-bars, extending rearwardly and obliquely, front bars extending downwardly, the lower ends thereof forming a lower forward support, and handle-bars secured to the obliquely and rearwardly extending portions of the side bars, and extended rearwardly therefrom to form steps.

3. In a child's chair, the combination, with an axle, of a chair-frame tiltable thereon or therewith, and consisting of side seat-bars extending rearwardly and obliquely, front bars extending downwardly, their lower ends forming a lower forward support, and handle-bars secured to the obliquely and rearwardly extending portions of the side bars, and projecting rearwardly therefrom, and curved upwardly to form steps.

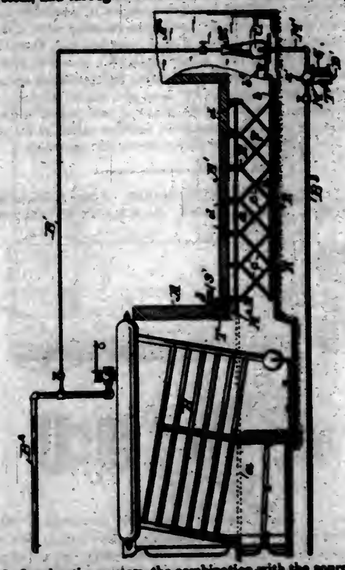
4. In a child's chair, the combination, with an axle, wheels mounted thereon, and springs secured to the axle and extending upwardly therefrom, of a chair-frame supported by the springs and tiltable therewith, said frame consisting of side seat-bars, front bars extending downwardly, their lower ends forming a forward lower support, and handle-bars.

5. In a child's chair, the combination, with an axle, of a chair-frame mounted above the same, and tiltable thereon or therewith, said frame consisting of side seat-bars bent downwardly at their forward ends to form front bars, said front bars forming at their lower ends a lower forward support, and said side bars also bent rearwardly and obliquely, and handle-bars secured to the rearwardly and obliquely extending portions of the side bars, and projecting rearwardly beyond the same to form rear steps.

6. In a child's chair, the combination, with an axle, wheels mounted thereon, and springs secured to the axle and extending upwardly therefrom, of a chair-frame supported by the springs and tiltable therewith, said frame consisting of side seat-bars bent downwardly at their forward ends to form front bars, the lower ends of said front bars forming a lower forward support, and said side bars also bent rearwardly and obliquely, and handle-bars secured to the rearwardly and obliquely extending portions of the side bars, and projecting rearwardly beyond the same to form rear steps.

604,046. HEAT-ECONOMIZER. JOHN C. HENDERSON, New York, N. Y. Filed June 28, 1895. Serial No. 554,204. (No model.)

Claim.—1. In a heating system, the combination with the source of heat, the absorber or heater, having manifolds, upper and lower, arranged parallel with each other, and within the flue of the uptake, and communicating with each other, adapted to be acted on by the said heat, the circulating system, substantially as herein shown and described, and connected with said heater, for carrying a heating medium, as oil, and pumps for circulating the said medium through the system, and through the heater or absorber, as herein set forth.



2. In a heating system, the combination with the source of heat, the absorber or heater, provided with series of upper and lower manifolds, located and arranged within the flue of the uptake, in different planes, but parallel with each other, connected together, and communicating with each other, and adapted to be acted on by the said heat, the circulating system connected to, and communicating therewith, and adapted to keep in a continuous circulation a heating medium, such as oil, the intake of said heater or absorber, situated at the point of lowest heat, and the output at the point of highest heat, substantially as herein shown and described.

3. In a heating system, the combination with a furnace, of the uptake thereof, of the heater or absorber, consisting of the two series of upper and lower manifolds, connected together, and communicating with each other, by the series of tubes or sections, the series of tubes, *c*, having one end of each of said tubes opening into the upper manifolds, and the other end thereof, opening into the lower manifold, the circulating system, adapted to carry on continuous cycles of a circulating medium, through the said system and absorber, and means for circulating said medium, substantially as herein shown and described.

4. In a heating system, the combination of the heater or absorber, provided with two manifolds connected together, and communicating with each other, the series of sections or tubes, *c*, each of said manifolds having perforated branch pipes, located therein, the circulating system, adapted to keep in continuous circulation a heating medium, the receiver or melting-pan, pipes connected to, and communicating with, both sides of the said system, for conducting the heating medium to and from the receiver-jackets, reheaters, or melting pans, substantially as herein shown and described.

5. In a heating system the combination of the intake and output, of the heater or absorber, comprising two series of manifolds, an upper and a lower series, located and arranged within the flue of an uptake, in different planes, one above the other, and connected together and communicating with each other by means of a series of tubes, one or more of said manifolds connected to and communicating with the intake, and one or more of said manifolds connected to and communicating with the output, substantially as herein shown and described.

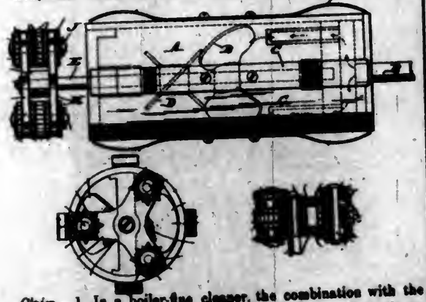
6. The combination with the intake and the output, of a heater or absorber, consisting of two series of manifolds, tubes connecting together, and forming communication between said series of manifolds, the plurality of inclined perforated pipes, connecting together and forming communication between one of said series of manifolds, and the intake, and valves for said pipes, substantially as herein shown and described.

7. In a heating system, the combination of the intake and the output, the heater or absorber, substantially as herein shown and de-

scribed, the circulating system, for carrying on continuous cycles of a heating medium, such as oil, the gas and steam relief, upon the outlet, and the drip and water tank, upon the intake, as herein set forth.

8. In a heating system, the combination with the source of heat, of the absorber or heater, having two series of manifolds, an upper and lower connected together, and communicating with each other, the series of sections or tubes, *c*, communicating with the said manifolds respectively and each of said manifolds, provided with perforated branch pipes, and regulating-valves, the circulating system connected therewith, and adapted to keep in a continuous circulation a heating medium, such as oil, the intake of said heater or absorber, situated at the point of lowest heat, and the output at the point of highest heat, substantially as herein shown and described.

604,047. **BOILER-FLUE CLEANER.** HENRY L. HILDRETH, Saginaw, Mich. Filed July 10, 1897. Serial No. 644,080. (No model.)



Claim.—1. In a boiler-flue cleaner, the combination with the hollow head and rotary propeller-shaft mounted therein, of a frame carried upon and rotating with the propeller-shaft, and an independent freely-rotatable scale-cutter having its axis parallel to the propeller-shaft and mounted on the frame in slotted bearings located to one side of the axis of rotation of the frame so as to move outward under the action of centrifugal force when the propeller-shaft rotates and produce a rolling frictional cutting-contact with the scale upon the interior of the tube.

2. In a boiler-flue cleaner, the combination with the hollow head and rotary propeller-shaft mounted therein, of a frame carried by and rotating with the propeller-shaft and having near its outer edges more or less radially-slotted bearings, a movable shaft arranged parallel to the propeller-shaft and movable in the slotted bearings, and a toothed cutting-disk carried by said shaft and movable with it in the frame.

3. In a boiler-flue cleaner, the combination with the hollow head and rotary propeller shaft mounted therein, of a frame having parallel arms carried by and rotating with the propeller-shaft and in which the arms are each provided with a slot more or less radially disposed to the propeller-shaft, a shaft loosely mounted in the slots of the arms of the frame and thereby movable in a more or less radial direction, and a series of loose toothed cutting-disks carried by said shaft whereby said disks rotate upon their own axis while being movable more or less radially and bodily moved about the shaft.

4. In a boiler-flue cleaner, the combination with the hollow head and rotary propeller-shaft mounted therein, of a frame carried by and rotating with the propeller-shaft, and a series of scale-cutters carried by the frame out of alinement with the shaft but in substantially the same plane with each other and each consisting of a series of toothed disks mounted upon the same axis in which the line of separation between adjacent faces of the disks of one scale-cutter are out of the plane in which the corresponding line of separation occurs between the disks in the others whereby one set of cutters is moved bodily over the path traversed by the others and every portion of the scale subjected to the action of the cutters.

5. In a boiler-flue cleaner, the combination with the hollow head and rotary propeller-shaft mounted therein, of a frame carried by the propeller and having two parallel slotted arms, a shaft journaled in said slotted arms and adapted to move outward in said slots under the action of centrifugal force when the propeller-shaft rotates, and a scale-cutter having a toothed periphery loosely carried by said shaft intermediate of the slotted arms.

6. In a boiler-flue cleaner, the combination with the head and rotary propeller-shaft, of a frame carried by the propeller-shaft and having two parallel slotted arms, a shaft journaled in said slotted arms and adapted to move outward in the slots thereof under the action of centrifugal force when the propeller-shaft rotates, a series of independent toothed disks, arranged side by side, and a shaft guided loosely in the slotted arms and supporting the disks between said arms.

7. In a boiler-flue cleaner, the combination with the head and rotary propeller-shaft, of a frame carried by the propeller-shaft and having two parallel slotted arms, a shaft journaled in said slotted arms and adapted to move outward in the slots thereof under the action of centrifugal force when the propeller-shaft rotates, and a series of independent toothed disks mounted on the shaft between the slotted arms and one or more additional toothed disks on the axis outside of the slotted arms.

8. In a boiler-flue cleaner, the combination with the head and rotary propeller-shaft, of a frame carried by the propeller-shaft and having a series of pairs of parallel slotted arms, a shaft journaled in each pair of parallel slotted arms and independently adapted to move outward in the slots thereof under the action of centrifugal force when the propeller-shaft rotates, and a series of independent and loosely-rotatable toothed disks mounted on each shaft between the slotted arms.

9. In a boiler-tube cleaner, the combination with the hollow head and a rotary propeller and shaft journaled therein, of a frame secured to and rotating with the propeller-shaft and having one or more pairs of laterally-projecting parallel arms each of which is provided with a slot arranged obliquely to a radial plane through the propeller-shaft, a movable shaft or pin loosely supported within the slots of the arms so as to be capable of moving at each end to different degrees, and rotary cutting-disks loosely supported upon the shaft or pin intermediate of the two parallel arms.

604,048. **NECKTIE-FASTENER.** BUCKLEY H. HOLMES, Duluth, Minn. Filed Aug. 12, 1896. Serial No. 602,669. (No model.)



Claim.—1. The herein-described improved necktie-fastener, the same being formed of a single piece of spring-wire and comprising at its upper end an attaching-loop, below which is formed a button-embracing eye, and below the eye divergent terminals abruptly ending in hooks adapted to engage the lower edge of the collar at opposite sides of the button or stud, substantially as specified.

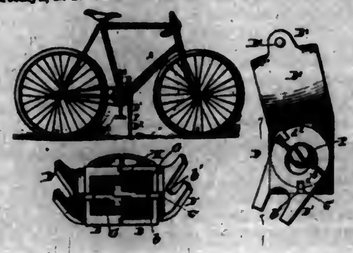
2. The herein-described improved necktie-fastener, the same being formed of a single piece of spring-wire bent at opposite sides of its center to form the central triangular loop, 1, comprising the upper horizontal cross-bar 2, and below said loop having its terminals crossed and curved in reverse directions to form the button-embracing eye, 3, below which said terminals are diverged, as at 4, and laterally offset in rear of the plane of the loop and eye, and finally terminating in the rounded offset hooks, 6, adapted to engage the lower edge of a collar, substantially as specified.

604,049. **OXYDIAMIDODIPHENYL AND PROCESS OF MAKING SAME.** PAUL JACOBSON and HERMANN TROSIN, Berlin, Germany, assignors to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed Nov. 13, 1897. Serial No. 658,462. (No specimens.) Patented in Germany July 12, 1896, No. 90,980, and in France Aug. 7, 1896, No. 258,735.

Claim.—1. The process of producing oxydiamidodiphenyl bases by reducing the acetyl derivatives of oxyazo compounds such as paraoxyazobenzene by means of chlorid of tin and muriatic acid substantially as described.

2. The oxydiamidodiphenyl having the constitution $OH.NH_2—C_6H_3—C_6H_3NH_2$ which is a colorless substance melting at 148° centigrade easily soluble in alcohol, glacial acetic acid and hot water, more difficultly soluble in benzene, soluble in soda-lye being easily oxidized in alkaline solution substantially as described.

604,050. **BICYCLE SUPPORT AND LOCK.** WHITFIELD R. JONES, Brooklyn, N. Y. Filed Feb. 11, 1897. Serial No. 622,908. (No model.)



Claim.—1. In a combined stand and lock for cycles, having a housing-clamp provided with a key-opening and inclined sides and adapted for embracing the lower horizontal frame-bar, and locking mechanism within the housing including dogs G' G', the combination therewith of legs pivoted on the inclined sides to diverge when vertical and converge when horizontal, and a key for simultaneously operating the dogs for causing them to positively engage and lock both legs in either of the said two positions, substantially as specified.

2. In a combined stand and lock for cycles, having sections B B, pivotally connected, and constituting in connection with a screw B^4, a clamp and housing, the latter having inclined divergent sides and a key-opening, and the former adapted for embracing the lower horizontal frame-bar, the combination therewith of legs pivotally turning on the inclined sides of the housing to spread and converge, and key-operated locking mechanism within the same for simultaneously and positively engaging and locking both legs in either of said two positions, substantially as specified.

3. In a combined stand and lock for cycles, having the sections B B, pivotally connected and recessed at their lower portions and constituting the clamp and housing, the latter having the key-opening and the former adapted for embracing the lower horizontal frame-bar, the combination therewith of circular heads D D, pivotally turning on the sides and each provided with two or more recesses d^3, d^3, and offset legs, and a key-operated locking mechanism including the dogs G G, oppositely projecting through the housing-recesses and arranged to positively engage the same and lock the legs in either of two positions, substantially as specified.

604,051. **SHOE-BUFFER.** WILLIAM B. KNEELAND, Vineland, N. J. Filed Nov. 20, 1897. Serial No. 659,559. (No model.)



Claim.—1. A buffer consisting of a head, a conical cup attached thereto, a block supported within said cup, a conical-shaped pad in contact with said block, the latter and said head having a threaded passage therein, an exteriorly-threaded sleeve engaging the passage in said block, and a threaded bolt engaging the passage in said head, said sleeve having a head or washer thereon, in combination with suitable abrading material held on the side and base of said pad.

2. A buffer consisting of a conical pad, a block against which the same is held, a sleeve attached to said block, means for holding said pad in position relative to said block, an abrading device covering said pad, and means for holding said abrading device in position.

3. In a buffer, a conical cup, a conical block adapted to rest therein, a conical pad forming a continuation of said block, means for holding said pad on said block, and means for holding said block in position in said cup, in combination with suitable abrading material secured to said pad.

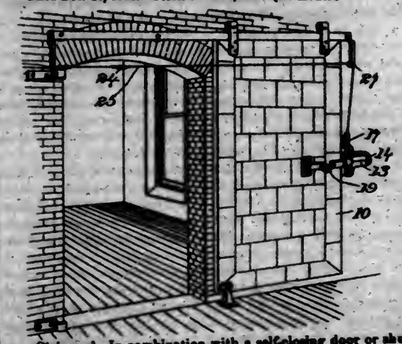
4. A buffer consisting of a pad, a block against which the same is held, a sleeve engaging said block, a lock-nut adapted to engage said sleeve, means for locking the latter, an abrading device covering said pad, and means for holding said abrading device in position.

604,052. **HEATING FEED-WATER AND CIRCULATION.** JOHN KING, London, England. Filed July 12, 1897. Serial No. 643,695. (No model.)

Claim.—1. The combination, with a boiler provided with an internal fire-box; of hollow bars at the back and front of the lower part of the fire-box, a hollow inclined deflector in the upper part of the fire-box, a hollow partition connecting the said hollow bars and deflector, a water-pipe connection between the upper part of the deflector and the interior of the boiler, and a water-inlet pipe connected to one of the said hollow bars, substantially as set forth.

2. The combination, with a boiler provided with an internal fire-box; of hollow bars at the back and front of the lower part of the fire-box, an inclined hollow deflector in the upper part of the fire-box, a hollow partition connecting the said hollow bars and deflector, and separate water-pipe connections between the upper and lower parts of the said deflector and the interior of the boiler, substantially as set forth.

604,053. **SHUTTER-FASTENER.** JOHN G. LAMB, Philadelphia, Pa. Filed Feb. 17, 1898. Serial No. 670,896. (No model.)



Claim.—1. In combination with a self-closing door or shutter, a fusible link, a cord, a slotted weight supported by said cord, a pivoted arm located in the slot of the weight, and a latch.

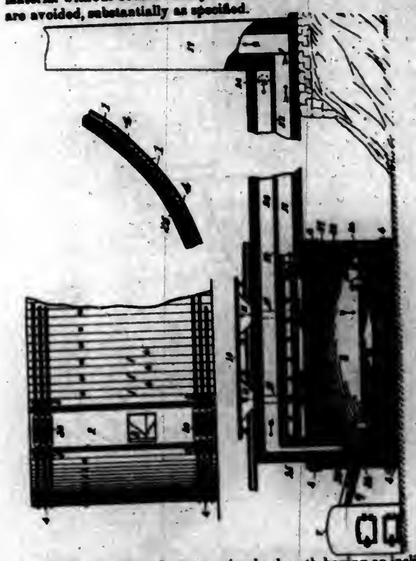
2. In a fastener for self-closing doors or shutters, the combination of a pivoted arm, a weight which normally supports said arm but impinges upon it in falling, and a latch.

604,054. **SMELTING-FURNACE.** HERBERT LAMB, Oakland, Cal. Filed Feb. 18, 1897. Serial No. 624,068. (No model.)

Claim.—1. In a smelting-furnace, a circular hearth having an inclined or sloping margin, a circular arch over the said hearth, dome-shaped within and flat without, said dome meeting the sloping margin of the said hearth at an acute angle, a series of vertical stays surrounding the structure and supporting the arch, and elastic encircling bands with means for adjusting the same, in combination with means for supplying heat and suitable flues for carrying off the waste products of combustion and for supplying air, substantially as specified.

2. In a smelting-furnace, a circular hearth having an inclined or sloping margin, a circular arch over the said hearth, dome-shaped within and flat without, said dome meeting the sloping margin of the said hearth at an acute angle, vertical stays surrounding the structure and supporting the arch, and elastic encircling bands surround-

ing the stays, said hearth and arch being formed of a homogeneous material without courses or layers, whereby joints in the structure are avoided, substantially as specified.



3. In a smelting-furnace, a circular hearth having an inclined or sloping margin, a circular arch over the said hearth, dome-shaped within and flat without, said dome meeting the sloping margin of the said hearth at an acute angle, vertical stays surrounding the structure and supporting the arch by means of brackets or ledges affixed to said stays, and elastic adjustable bands surrounding and supporting the stays, substantially as specified.

4. In a smelting-furnace, a circular hearth having an inclined or sloping margin, a circular arch over the hearth, dome-shaped within and flat without, said dome meeting the sloping margin of the said hearth at an acute angle, forming a furnace-chamber, a separate combustion-chamber, a conduit connecting the said combustion-chamber with the said furnace-chamber, a chimney-flue for carrying off the waste products of combustion, and passages from the furnace-chamber to the said chimney-flue, substantially as specified.

5. In a smelting-furnace, a circular homogeneous structure formed of molded refractory material, without joints, comprising a hearth having a sloping margin, an arch over said hearth, flat without, dome-shaped within, meeting said sloping margin at an acute angle, the whole surrounded by a series of vertical supporting-stays encircled by elastic metallic constraining-bands, substantially as specified.

6. In a smelting-furnace, a circular structure comprising a hearth having an inclined or sloping margin and an arch over the said hearth, dome-shaped within and flat without, forming a furnace-chamber, said dome meeting the sloping margin of the said hearth at an acute angle, an inlet-conduit for conveying hot products of combustion to said furnace-chamber, outlet-passages remote from said conduit for waste products of combustion, a conduit with a double flue passing over the top of the structure, one flue for the waste products of combustion and the other for the admission of air to the furnace-chamber, and downtake-passages 25 through the arch near the margin thereof, substantially as specified.

7. In a smelting-furnace, a circular structure comprising a hearth and an arch over the said hearth, dome-shaped within and flat without, forming a furnace-chamber, an inlet-conduit for conveying hot products of combustion to said furnace-chamber, an inlet-passage for heated air near said conduit, outlet-passages remote from said conduit, for waste products of combustion, a chimney-flue, and a horizontal conduit over the top of the structure, separated by a horizontal diaphragm into upper and lower flues, one for the conveyance of the waste products of combustion and the other for the conveyance of heated air to the furnace-chamber, substantially as specified.

8. In a smelting-furnace, a circular structure comprising a hearth, and an arch over the said hearth, dome-shaped within and flat without, forming a furnace-chamber, outlet-passages at one side of the said furnace-chamber, an inlet-passage at the other side of the said chamber, a chimney-flue, a double conduit over the structure comprising two horizontal flues, one above the other, the lower flue connecting the furnace-chamber by the said outlet-passages with the chimney-flue, the upper flue communicating with the external air at one end, and with the furnace-chamber at the other end by the said inlet-passage, and means for supplying the said furnace-chamber with ore in suitable quantities at various points, substantially as specified.

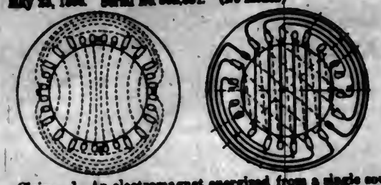
9. In a smelting-furnace, a circular homogeneous structure formed of molded refractory plastic material, comprising a hearth and an arch over the said hearth, dome-shaped within and flat without, said hearth having an inclined or sloping margin, and meeting said dome at the joining-line at an acute angle supported entirely from the outside by means of vertical stays and supporting-brackets affixed thereto, and encircling adjustable elastic bands, in combination with an inlet-conduit for products of combustion, an inlet-passage for hot air, inlet-conduits for supplying ore, outlet-passages for waste products of combustion, and a chimney-flue, substantially as specified.

10. In a smelting-furnace, a circular hearth, a circular arch over the said hearth, dome-shaped within and flat without, forming a furnace-chamber, a combustion-chamber, a conduit connecting the said combustion-chamber with the said furnace-chamber, an inlet-passage for hot air near the said conduit, inlet-conduits and hoppers for supplying ore, outlet-passages for waste products of combustion, a chimney-flue, a horizontal conduit along the top of the structure, comprising two flues one above the other, the upper flue communicating with the external air at one end and with the chimney-flue at the other end, and openings in the periphery of the furnace-chamber, substantially as specified.

11. In a smelting-furnace, a chamber provided with a dome-shaped roof or arch 27, a separate combustion-chamber 7, with downwardly-inclined conduit 9 for conveying hot products of combustion to the said furnace-chamber, and vertical passages 25 in said arch 27 near the conduit 9, whereby the burning gases are thrown down upon the hearth, substantially as specified.

604,055. ELECTROMAGNET HAVING ROTATING FIELDS.

WALTER LARSON-DAVIES, London, England, assignor, by mesne assignments, to the Davies Motor Company, Limited, same place. Filed May 23, 1896. Serial No. 592,851. (No model.)



Claim.—1. An electromagnet energized from a single source of alternating electromotive force comprising two component fields of equal rates of alternation but with different phase angles of magnetization, having their magnetic axes inclined one to the other at an angle other than ninety degrees and equal to the supplement of that angle by which the currents in the two component windings differ in phase, thus producing a rotary field.

2. An electromagnet energized from a single source of alternating electromotive force, for an electric motor or transformer, comprising two component fields of equal strength and equal rates of alternation, but with different phase angles of magnetization, having their magnetic axes inclined one to the other at an angle other than ninety degrees and equal to the supplement of that angle by which the currents in the two component windings differ in phase, so as to produce a resulting rotary field of constant strength and of uniform rate of rotation.

3. A field-magnet for an electric motor or transformer, consisting of a substantially cylindrical magnetic core, wound with coils of wire encircling varying amounts of the cylindrical field-space, the coils being distributed upon the cylinder in due proportion to the magnetic reluctance to be overcome in the central field-space, so as to produce a field of substantially uniform density, substantially as described.

4. A field-magnet for electric motors or transformers consisting of a substantially cylindrical magnetic core, wound with two component windings, with their axes of magnetization inclined one to the other, each winding being composed of coils of wire encircling varying amounts of the cylindrical field-space, the coils being distributed upon the cylinder in due proportion to the magnetic reluctance to be overcome in the central field-space, so as to produce a resultant field of substantially uniform density, substantially as described.

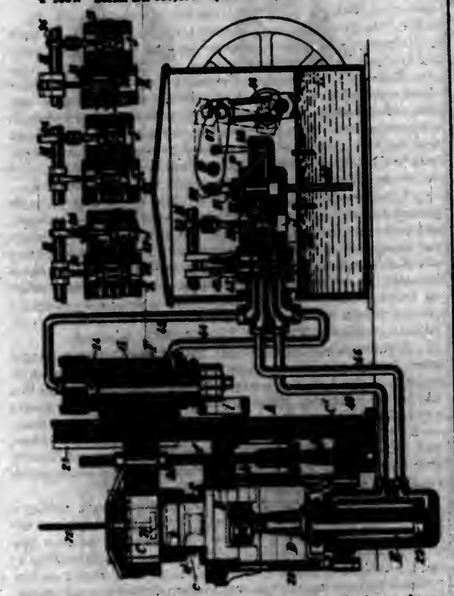
5. A field-magnet for electric motors or transformers, consisting of a substantially cylindrical magnetic core, wound with two component windings, carrying currents of different phase, the magnetic axes of the two component fields being inclined one to the other, each winding being composed of coils of wire encircling varying amounts of the cylindrical field-space, the coils being distributed upon the cylinder in due proportion to the magnetic reluctance of the central field-space, so as to produce a rotary field of substantially uniform density, substantially as described.

6. A field-magnet for electric motors or transformers consisting of a substantially cylindrical magnetic core, wound with two component windings, carrying currents of equal magnetizing effects and rate of alternation but of different angles of lag, the magnetic axes of the two component fields being inclined one to the other at an angle equal to the supplement of that angle by which the currents in the component windings differ in phase, each winding being composed of coils of wire encircling varying amounts of the cylindrical field-space, the coils being distributed upon the cylinder in due proportion to the magnetic reluctance to be overcome in the central field-space, so as to produce a resultant rotary field of uniform density, constant strength, and uniform rate of rotation.

7. An electromagnet having a rotating field resulting from two windings carrying currents differing in phase asymmetrically arranged upon the core and inclined the one to the other at an oblique angle which is the supplement of the angle by which the current in the two windings differ in phase.

604,056. HYDRAULIC PRESS.

FRANK M. LEAVITT, Brooklyn, N. Y., assignor to the E. W. Bliss Company, same place. Filed June 4, 1897. Serial No. 639,413. (No model.)



Claim.—1. In a press having two hydraulic cylinders and rams, the combination therewith of a controlling-valve and communicating passages adapted in one position of said valve to connect the eduction side of one cylinder with the induction side of the other, whereby movement of the ram of the former acts through the intervening hydraulic column to move the ram of the latter, and simultaneous movement of the two rams is insured.

2. In a drawing-press having two hydraulic cylinders and rams, the one for working the blank-holder and the other the punch, the combination therewith of a controlling-valve and communicating passages adapted in one position of said valve to connect the eduction side of one cylinder with the induction side of the other, whereby movement of the ram of the former acts through the intervening hydraulic column to move the ram of the latter, thereby insuring simultaneous retracting movements of the punch and blank-holder.

3. In a drawing-press having two hydraulic cylinders and rams, the one for working the blank-holder and the other the punch, the combination therewith of a controller comprising a distributing-valve and passages communicating therefrom with the opposite ends of the respective cylinders, and a stop-valve adapted in one position to direct the liquid from the pump to the distributer, and in another position to direct the liquid therefrom when the press is to remain at rest.

4. In a hydraulic press, the combination with its cylinder, ram, and distributer-valve controlling the flow of liquid to the cylinder, of a valve-operating mechanism comprising a continuously-driven part, a clutch interposed between such part and the valve and adapted when engaged to communicate movement to the valve, means for disengaging said clutch at the end of determinate movements thereof, and tappet mechanism operated by the ram and connected to the clutch-disengaging means to reëngage the clutch at the end of determinate movements of the ram.

5. In a drawing-press having two hydraulic cylinders and rams, the one for working the blank-holder and the other the punch, the combination therewith of a distributer-valve for controlling the flow of liquid to the respective cylinders, and means for operating said valve comprising a continuously-driven part, a clutch interposed between it and the valve, clutch-operating dogs in positions corresponding to the stopping positions of the valve, and tappet mechanisms operated by the rams and connected to the respective dogs, whereby the shifting of the valve from one position to the next is controlled by the ram movements and is effected by power derived from said continuously-driven part.

6. In a hydraulic press, the combination with a cylinder and ram, the latter tending by gravity to move in one direction, of a distributer for controlling the flow to said cylinder, a valve-opening with the exhaust therefrom during the gravitating movement of said ram, and an adjustable tension device opposing the opening of said valve, whereby the gravitating movement is opposed by said valve proportionally to the tension thereon.

7. In a hydraulic press the combination of a hydraulic cylinder, ram, and platen, the ram and platen connected together so that the weight of the platen tends to move the ram in one direction, a distributer controlling the flow of liquid to said cylinder, and a valve having a spring holding it normally closed, and arranged to close the outlet from the distributer through which the liquid from said cylinder must escape during the gravitating movement of the ram, whereby the gravitation of the platen is opposed by the choking of the outflow of liquid by said valve proportionally to the compression of its spring, and the gravitating movement is thereby moderated.

8. In a hydraulic drawing-press, the combination of two cylinders and rams, of controlling means interposed between the source of hydraulic pressure and said cylinders, comprising a stop-valve J and a distributer K, and means for operating them comprising a shaft M having a crank connected to said distributer, and a cam adapted in one stopping position to displace said stop-valve, and means for rotating said shaft a quarter-turn at each movement.

9. In a hydraulic press, the combination with its cylinder, ram, and pump, of a valve movable to admit the flow from the pump to the cylinder, or to waste it freely back to the pump, and means for moving it to intermediate positions to choke more or less the waste and thereby to control the speed of the ram, and an adjustable stop device adapted to vary the extent of its opening.

10. In a hydraulic press, the combination with its cylinder, ram, and pump, of a stop-valve J controlling inlet-port 27 and outlet-port 29 and having its piston 28 of less effective width than the width of the port 27, whereby in an intermediate position it opens this port partly to the waste and partly to the outlet-port 29 supplying the cylinder.

604,057. MACHINE FOR WORKING SHEET METAL.

FRANK M. LEAVITT, Brooklyn, N. Y., assignor to the E. W. Bliss Company, same place. Filed June 28, 1897. Serial No. 643,794. (No model.)



Claim.—1. The combination of a supporting-frame adapted to rest on a horizontal support and formed with inclined spindle-bearings, inclined spindles in said bearings, reciprocal rotary dies on the lower ends of said spindles, inclined mechanism mounted on said frame for automatically feeding the blank by an oblique upward movement onto one of said dies, and automatic mechanism for subsequently moving the dies together to act on the blank, and then separating them to release the blank, whereby the latter is discharged by gravity.

2. The combination of a stationary supporting-frame having non-

rotative spindle-bearings, rotary spindles in said bearings carrying reciprocal rotary dies on their lower ends, a pad beneath the master-die, adapted to feed the blank onto the latter, and to hold it thereon during the operation, and positively-acting cam mechanisms for first advancing said pad, then moving the dies together to act on the blank while the latter is held by the stationary pad, and finally separating the dies and retracting the pad to permit the discharge of the blank by gravity.

3. The combination of a supporting-frame having stationary spindle-bearings, rotary spindles F G therein carrying reciprocal dies *f g*, a pad Q, a reciprocating plunger Q′ therefor, a revolving cam R for reciprocating said plunger with a positive movement in both directions, one of said spindles being mounted to be movable toward and from the other, a revolving cam and connecting mechanism for so moving it, and driving mechanism for said spindles and cams adapted to turn the cams coincidently to the effect specified.

4. The combination of rotary spindles F G carrying reciprocal dies *f g*, a revolving gear D, pinions on said spindles, one of them meshing directly with said gear, and an idler-pinion for connecting the other to said gear, a swing-frame carrying one of said spindles and turning on the same axis as said gear D, and a cam for moving said swing-frame to bring the spindles and dies toward and from each other.

5. The combination of rotary spindles F G carrying reciprocal dies, and provided with pinions, a gear D driving said pinions, a swing-frame H carrying one of said spindles and turning on the same axis as said gear, a cam I rotating with said gear, and a lever J driven by said cam and mechanically connected with said swing-frame for communicating the movement imparted by said cam to move the dies toward and from each other.

6. The combination of rotary spindles F G carrying reciprocal dies, and provided with pinions, a gear D driving said pinions, a swing-frame H carrying one of said spindles and turning on the same axis as said gear, a cam I rotating with said gear, a lever J driven by said cam, a link *k* connecting said lever with the swing-frame, and an adjustable block *k* for varying said connection, whereby to adjust the relative approach of the dies.

7. The combination of reciprocal rotary dies, a pad adapted to feed the blank onto the master-die, and an automatic feed for the blanks comprising a trough down which they may gravitate, and a laterally-reciprocating feeder at the bottom of said trough having a recess adapted to receive one blank at a time, and movable to carry said blank onto said pad, and having a lateral extension adapted when so moved to receive the next gravitating blank and form a temporary bottom for the trough until the return movement of said feeder.

8. The combination of a main supporting-frame having stationary inclined spindle-bearings, rotary spindles in said bearings carrying reciprocal rotary dies on their lower ends, a pad beneath the master-die, movable obliquely upward in direction approximately parallel to the axis of said die, to feed the blank onto said die, and mechanism for feeding the blanks into position between said pad and die, comprising an inclined trough down which the blanks may gravitate, in a plane approximately perpendicular to the axis of said die, and a reciprocating feeder at the bottom of said trough having a recess to receive the lowermost blank, movable laterally to deliver it onto said pad, and having means for preventing the fall of the blanks to the bottom of the trough until the return movement of the blank, with automatic driving mechanism for alternately moving said feeder and pad to the effect specified.

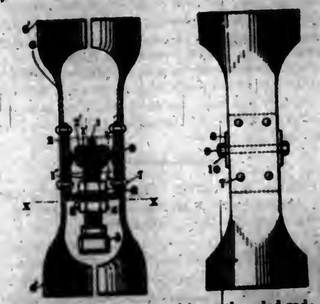
9. A blank-feed mechanism comprising an inclined trough L down which the blanks may gravitate, a feeder M at the bottom of said trough having a recess to receive the lowermost blank, movable laterally to deliver said blank out of the trough, and having an extension *m′* to arrest the next blank and hold it until the return movement, and a finger P adapted to engage the next to the lowermost blank and hold it off said feeder, with means for lifting said finger at each movement of the feeder to drop the blanks against said extension.

10. A blank-feed mechanism comprising an inclined trough L down which the blanks may gravitate, and a feeder M at the bottom of said trough having a recess to receive the lowermost blank, movable laterally to deliver said blank out of the trough, and having an extension *m′* to arrest the next blank and hold it until the return movement, and a finger P adapted to engage the next to the lowermost blank and hold it off said feeder, a shaft P′ carrying said finger, a cam-arm on said shaft, and a cam projection on said feeder adapted to coact with said cam-arm to oscillate said shaft and lift said finger at each feed movement of the feeder.

11. The combination of reciprocal rotary dies, spindles F G carrying them and having pinions, gear D driving said pinions, feed-trough L, feeder M formed as a swinging arm carried on a shaft *m*, and a cam N terming with said gear D and mechanically connected to said feeder-arm for vibrating the same at intervals, whereby to carry a blank from the bottom of said trough into alinement with one of said dies.

12. The combination of rotary spindles F G carrying reciprocal dies, means for revolving them, a fixed frame carrying one spindle, a swing-frame carrying the other, and guide-plates for insuring accurate coincidence of the dies, fixed to said frames adjacent to the bearings for said spindles, the one formed with a projection entering a recess in the other.

604,058. FLUE-SCRAPER. RICHARD I. LOCKE and OSCAR H. SCHMIDT, Chicago, Ill. Filed Aug. 27, 1897. Serial No. 649,726. (No model.)



Claim.—1. A flue-scraper comprising a threaded rod; a pair of shanks pivoted thereto; each shank having a scraping edge on each end, and each shank having a shoulder 2″ projecting toward said rod; a nut on said rod above said shoulders and a nut on said rod below said shoulders; said nuts being adapted to bind against said shoulders and thereby limit the degree of separation of the scraping edges on corresponding ends of the shanks; substantially as described.

2. A flue-scraper comprising a threaded rod; a pair of shanks pivoted thereto; each shank having a scraping edge on each end, and each shank having a shoulder 2″ projecting toward said rod; a nut on said rod above said shoulders and a nut on said rod below said shoulders; said nuts being adapted to bind against said shoulders and thereby limit the degree of separation of the scraping edges on corresponding ends of the shanks; and a connecting member 8 pivoted to each shank on a different axis than the pivoted axis between each shank and the rod; substantially as described.

3. A flue-scraper, comprising a pair of shanks, each having a scraping edge on each end; a lug 2′ and a shoulder 2″ projecting inwardly from each shank; a member 1, adapted for attachment to a handle, having sockets 1′ therein for receiving the lugs, and having a threaded shank, extending between said shoulders, with a nut thereon above said shoulders, and a nut thereon below said shoulders; said nuts being adapted to bind against said shoulders and thereby limit the degree of separation of the scraping edges on corresponding ends of the shanks, substantially as described.

4. A flue-scraper comprising a pair of shanks, each having a scraping edge on each end; a member 2, having the lug 2′ and the shoulder 2″ projecting inwardly therefrom, secured to the inner face of each shank; a connecting member 8 pivoted to each member 2; and a member 1 adapted for attachment to a handle, having sockets 1′ therein for receiving the lugs, and having a threaded shank extending between said shoulders with a nut thereon above said shoulders, and a nut thereon below said shoulders; said nuts being adapted to bind against said shoulders and thereby limit the degree of separation of the scraping edges on corresponding ends of the shanks, substantially as described.

604,059. CHURN. JOHN A. MADDOX, West Union, Ohio, assignor to C. C. MOORE, same place. Filed July 7, 1897. Serial No. 643,748. (No model.)

Claim.—1. In a churn, the combination with a receptacle and dasher, of a swinging standard adapted for movement toward and from the plane of the dasher-staff, a slide or cross-head mounted for reciprocation upon the standard and forked or bifurcated to engage the dasher-staff between spaced shoulders, and operating devices mounted upon the standard for reciprocating the slide, substantially as specified.

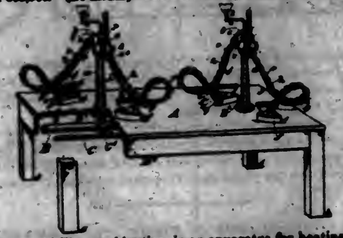
2. In a churn, the combination with a receptacle and dasher, of a swinging standard mounted upon the receptacle for movement toward and from the plane of the dasher-staff, a keeper on the receptacle for receiving and engaging the standard when in its normal or upright position, a slide or cross-head mounted for reciprocation upon the standard and bifurcated to engage the dasher-staff between spaced shoulders, and operating devices mounted upon the standard for actuating the slide, substantially as specified.



3. An attachment for churns comprising a standard, a securing-plate to which the standard is hingedly connected, said securing-plate being adapted to be fastened to the side of a churn-receptacle, a slide or cross-head mounted for reciprocation upon the standard and adapted to extend inwardly over the top of the churn-receptacle, said slide or cross-head terminating in a fork or bifurcation for engagement with a dasher-staff between spaced shoulders thereon, and operating devices mounted upon the standard for reciprocating the slide, substantially as specified.

4. A dasher-operating mechanism having a standard, a slide or cross-head mounted for reciprocation upon the standard and adapted to be engaged with a dasher-staff, a crank-shaft and means for operating the same, and a pitman pivotally mounted at one end upon the slide or cross-head, and bifurcated at the other end to form spaced yielding jaws between which the interval is less than the spindle portion of the crank, and also provided, in communication with the interval between the jaws, with a bearing for said spindle portion of the crank, substantially as specified.

604,060. SMOOTHING AND PRESSING IRON. JOHN MANNERS and JAMES R. S. HAYES, London, England. Filed Dec. 24, 1897. Serial No. 663,906. (No model.) Patented in England Jan. 14, 1898, No. 664.

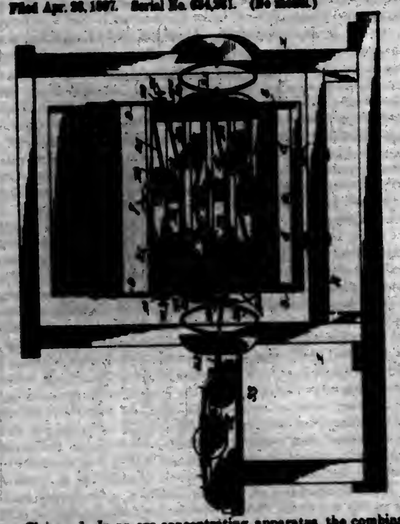


Claim.—1. The combination, in an apparatus for heating a combustion-chamber, of a gas-supply pipe, an air-supply pipe, means to supply air under pressure to such last-mentioned pipe, a box connected to said pipes, compartments in said box for gas, air and exhaust respectively, a regulating plug and valve connected to both the gas and air compartments, means to convey the mixed gas and air under pressure to the combustion-chamber and means to connect the combustion-chamber to the exhaust-compartment in said box.

2. In an apparatus for heating a combustion-chamber, the combination, with a box having compartments respectively for gas, air under pressure and exhaust, the air and gas chamber connecting through a mixing valve or regulator with the combustion-chamber which chamber is connected with the said exhaust-compartment, of a way or passage between said air and exhaust compartments serving to produce in the latter an induced air-current substantially as and for the purposes set forth.

3. The combination, in an apparatus for heating a combustion-chamber, of a box divided into compartments for gas, air under pressure and exhaust, means to connect and mix in the proportions desired the said gas and air under pressure and to convey such mixture to the combustion-chamber, means to connect the combustion-chamber to the exhaust-compartment and means to connect said gas-compartment direct to said combustion chamber for the purpose of providing a pilot-light in said last-mentioned chamber substantially as set forth.

604,061. ORE-CONCENTRATOR. WALTER H. MEWBURN, Flagstaff, Ariz., assignor of one-half to Ezra S. Gosney, same place. Filed Apr. 28, 1897. Serial No. 634,361. (No model.)



Claim.—1. In an ore-concentrating apparatus, the combination with a reciprocatory receptacle, and means for imparting motion thereto, of a tier of concentrating trays arranged within the receptacle, alternate trays having spaced terminal elevated outlets, from which the floor declines inwardly to a depressed central pocket and the intermediate trays having central elevated outlets from which the floors decline outwardly in both directions, substantially as specified.

2. In an ore-concentrating apparatus, the combination with a reciprocatory receptacle, and means for imparting motion thereto, of a tier of concentrating-trays arranged within the receptacle, alternate trays having spaced terminal elevated outlets from which flat floor-surfaces decline inwardly to a depressed center, and intermediate trays having elevated central outlets from which flat floor-surfaces decline in both directions to form depressed terminal pockets, substantially as specified.

3. In an ore-concentrating apparatus, the combination with a vibratory receptacle, and means for imparting motion thereto, of a tier of concentrating-trays arranged within the receptacle, the alternate trays having spaced terminal outlets from which the floor declines inwardly to form a central pocket, and having a central transverse dividing-partition, and the intermediate trays having elevated central outlets, arranged respectively over the depressed pockets of the alternate trays, the floors of the intermediate trays declining in both directions from their outlets to form terminal depressed pockets, substantially as specified.

4. In an ore-concentrating apparatus, the combination with a vibratory receptacle, and means for communicating motion thereto, of a tier of concentrating-trays arranged within the receptacle, the alternate trays having elevated terminal outlets from which the floor declines inwardly to form a central depressed pocket, and the intermediate trays having central elevated outlets from which the floor declines outwardly to form terminal depressed pockets, and distributing-guards spanning the depressed pockets of said alternate trays beneath the outlets of the intermediate trays, substantially as specified.

5. In an ore-concentrating apparatus, the combination with a vibratory receptacle, and means for communicating motion thereto, of a tier of concentrating-trays arranged within the receptacle, the alternate trays having elevated terminal outlets from which the floor declines inwardly to form a central depressed pocket, and the intermediate trays having central elevated outlets from which the floor declines outwardly to form terminal depressed pockets, and separate distributing-trays interposed between the alternate and intermediate trays, and having guards spanning the depressed pockets of the alternate trays beneath the outlets of the intermediate trays, substantially as specified.

6. In an ore-concentrating apparatus, the combination with a

vibratory receptacle, and means for communicating motion thereto, of a tier of concentrating-trays arranged within the receptacle, each tray having its bottom constructed to form duplicate oppositely-inclined plane surfaces with an outlet at the most elevated point of each inclined surface, and a distributing-tray interposed between each two concentrating-trays, and provided with a reticulated guard arranged under and spaced from each outlet of the superjacent concentrating-tray and free at one edge to discharge into the subjacent tray, substantially as specified.

7. In an ore concentrating apparatus, the combination with a vibratory receptacle and means for operating the same, of a tier of alternately-disposed main and auxiliary concentrating-trays having their discharge-openings disposed respectively in longitudinally-different vertical planes, the main concentrating-trays having terminal, and the auxiliary concentrating-trays central, elevated discharge-openings, transverse partitions arranged at the depressed portions of the main concentrating-trays between the discharge-openings thereof to form separated ore-receiving pockets, and distributing-trays arranged under the central discharge-openings of the auxiliary concentrating-trays, and hence over the dividing-partition of the subjacent main concentrating-trays to cover said pockets, substantially as specified.

8. In an ore-concentrating apparatus, the combination with a longitudinally-vibratory receptacle, and means for communicating motion thereto, of a tier of alternately-disposed main and auxiliary concentrating-trays having their discharge-openings disposed respectively in longitudinally-different vertical planes, the main concentrating-trays having terminal, and the auxiliary concentrating-trays central, elevated discharge-openings, transverse partitions arranged at the depressed portions of the main concentrating-trays between the discharge-openings thereof to form separate ore-receiving pockets, distributing-trays arranged under the central discharge-openings of the auxiliary trays and spanning the depressed pockets of the main concentrating-trays, and a second distributing-tray arranged above the uppermost main concentrating-tray and having its bottom provided with a central depressed perforate portion and upwardly and outwardly inclined imperforate portions, substantially as specified.

9. In an apparatus of the class described, an ore-concentrating tray having a skeleton frame, a taut flexible bottom provided with a depressed portion, an elevated discharge-opening, and an inclined plane portion rising from the plane of the depressed portion to the discharge-opening, and means for vibrating the tray in a direction transverse to the length of the discharge-opening, and parallel with the direction of inclination of the bottom, substantially as specified.

10. The herein-described ore-concentrating tray having a skeleton frame provided with sectional side bars, of which the lower members are cut away to form seats having a central depressed portion and contiguous upwardly-inclined side portions, and upper members having their lower edges constructed to fit said seats, and a flexible bottom of textile fabric interposed between the contiguous faces of said members of the side bars, and secured in place thereby, to correspond in cross-section with said seat, substantially as specified.

604,062. BOTTLE. FREDERICK L. MEYER, Brooklyn, N. Y. Filed Jan. 10, 1896. Serial No. 575,132. (No model.)



Claim.—1. As a new article of manufacture, a bottle provided with a recess on its shoulder, and a vent-tube connected with said recess and opening outward at its upper end, said vent-tube being integral with the walls of the bottle, substantially as set forth.

2. As a new article of manufacture, a bottle provided with a recess on its shoulder, a vent-tube connected at its upper end with said recess, and a seal for said recess, substantially as set forth.

3. As a new article of manufacture, a bottle provided with a recess on its shoulder, a vent-tube connected at its upper end with said recess, and a breakable seal for said recess, substantially as set forth.

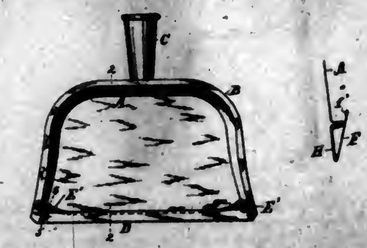
604,063. SUPPOSITORY. ISAAC H. MILLER and JOSIAH R. MOSS, St. Joseph, Mo. Filed Sept. 20, 1897. Serial No. 652,262. (No model.)



Claim.—1. A suppository comprising the hard body formed of medicine or medicines, an anchor, and a flexible stem or shank interposed between the body and the anchor; the said stem or shank being formed of cord and having one end of said cord connected to the anchor and its opposite end frayed and embedded in the body, substantially as specified.

2. A suppository comprising the hard body formed of medicine or medicines, the anchor of general elliptical form and concavo-convex shape in cross-section made from rubber or other suitable material, and a stem or shank formed of cord and connected at one end to the anchor and having its opposite end frayed and embedded in the body, substantially as specified.

604,064. DUST-PAN. STEPHEN W. MILLIKAN, Brooklyn, N. Y. Filed Dec. 22, 1896. Serial No. 616,634. (No model.)



Claim.—1. A dust-pan provided adjacent to its front edge with the shoulder extended along such edge and inclined backwardly at its ends and a flange extended backwardly from the edge of the pan and projected over the shoulder excepting at its ends, to form a sharp corner along the middle portion of the shoulder, substantially as herein set forth.

2. A dust-pan provided along its front edge with the hem *f* and adjacent to the edge with the fold *h'* stamped upwardly from the bottom of the pan to form a shoulder parallel with the edge, and to stiffen the edge of the pan, and the separate flange F having the plate H formed integral therewith and provided with the tongue h fitted within the fold *h'*, and the inner edge of the flange F projected slightly beyond the shoulder formed by the fold, substantially as and for the purpose set forth.

604,065. FENCE-STAY. LEVI S. MOELLER, Covington, Ohio. Filed Feb. 21, 1898. Serial No. 671,181. (No model.)



Claim.—1. A fence-stay comprising parallel strips 1, the flat strip 2, and tie-wire 3 to draw and hold the outer edges of the parts 1 together, while the strip 2 braces the inner edges of said parts 1, substantially as shown and described.

2. A fence-stay comprising parallel strips 1 having their inner edges notched to engage the horizontal strand-wires of a fence, the strip 2 separating and bracing said notched edges, and tie-wires 3 to hold the outer edges of said parts 1 together, substantially as described.

604,066. PROCESS OF MAKING PYROCATECHIN-SULFONIC ACID. PIERRE P. MONNET, Lyons, France, assignor to the Société Chimique des Usines du Rhône, Anotemennent Gilliard P. Monnet et Cartier, same place. Filed Nov. 22, 1897. Serial No. 659,518. (No specimens.) Patented in England July 6, 1896, No. 14,921, and in France Apr. 30, 1897, No. 266,498.

Claim.—1. The method or process hereinbefore described of producing or preparing meta-halogenated paraphenol-sulfonic acid, which consists in treating an acid solution of paraphenol-sulfonic acid with a halogen, and thereby halogenating such paraphenol-sulfonic acid, substantially as set forth.

2. The method or process hereinbefore described of producing or preparing pyrocatechin-monosulfonic acid which consists in melting an alkaline salt of meta-halogenated paraphenol-sulfonic acid with caustic alkali, substantially as set forth.

3. The method or process hereinbefore described of producing or preparing pyrocatechin-monosulfonic acid, which consists in first introducing a halogen into an acid solution of paraphenol-sulfonic acid, and thereby halogenating such paraphenol-sulfonic acid, then producing an alkaline salt of the halogenated product, and then melting the said salt with caustic alkali at a temperature not below about 250° centigrade, substantially as set forth.

604,067. ELASTIC TIRE AND MEANS FOR ATTACHING SAME. FRED W. MORGAN, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Mar. 16, 1896. Serial No. 574,127. (No model.)



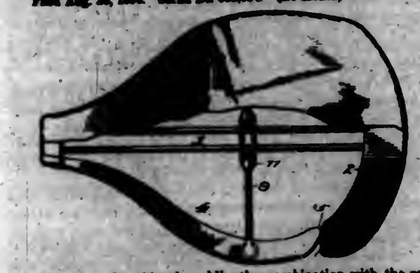
Claim.—1. The combination with a vehicle-wheel having a channeled rim portion, of an elastic rubber or rubber-composition tire seated in the channeled rim and provided with an internally-arranged and longitudinally-extending thin flexible metal band having lapping ends, the band being secured at its lapping ends by one or more fastening devices which are inserted through one or more openings punched through the band and clamped down flat upon the band so as to permit end portions of the tire forced back upon the band to slide upon the joined ends of the band and close the one against the other, substantially as set forth.

2. An elastic rubber or rubber-composition tire molded upon a thin flexible band, and secured upon a channeled wheel-rim by fastening devices inserted through suitable openings punched in the band and flattened down upon the band so as to permit the end portions of the tire to slide over the end portions of the band thus secured together, substantially as described.

3. An elastic rubber or rubber-composition tire provided with an internally-arranged and longitudinally-extending thin metal or metallic-composition fastening-band and held seated in a channeled wheel-rim by the latter, the end portions of the fastening-band being lapped and provided with one or more openings and one or more pliable tongues, the latter being inserted through the former and clamped down upon the band, substantially as described.

4. An elastic rubber or rubber-composition tire molded upon a thin, pliable metal or metallic fastening-band and secured upon a wheel-rim by the latter, the end portions of the band being lapped together and provided with one or more openings and one or more pliable tongues, the latter being inserted through the former and clamped down upon the band, substantially as described.

604,068. BICYCLE-SADDLE. JOHN W. MORRAN, Harriman, Tenn. Filed Aug. 26, 1896. Serial No. 603,994. (No model.)



Claim.—1. In a bicycle-saddle, the combination with the usual longitudinal supporting-bar, of front and rear end sections secured respectively to the opposite ends thereof, a pair of oscillating wings rocking on substantially longitudinal axes, and located on opposite sides of the saddle, and a transverse rod connecting the wings together so that a downward pressure on one elevates the other, substantially as described.

2. In a bicycle-saddle, a frame provided with a pair of oscillating side wings having substantially longitudinal axes, in combination with means for adjusting the wings nearer together or farther apart, substantially as described.

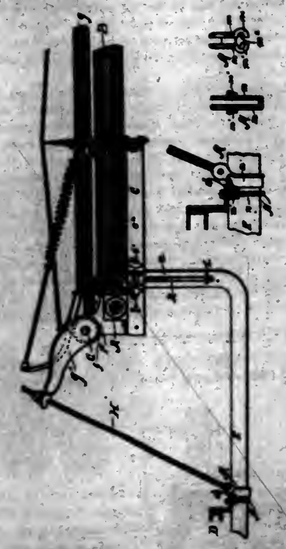
3. In a bicycle-saddle, and in combination with the frame portion thereof, a pair of oscillating side wings having substantially longitudinal axes, and a connecting-bar having its opposite ends pivotally joined to the wings, whereby they are made to alternate, substantially as described.

4. In a bicycle-saddle, the combination with a supporting-frame having rigid sections attached to its front and rear ends, of a pair of oscillating side wings having longitudinal axes, and pivoted to said sections, and transverse rods attached to the wings by universal joints, substantially as described.

5. In a bicycle-saddle, the combination with the supporting-frame, of a pair of oscillating side wings having longitudinal axes and pivoted to said frame, and a transverse rod attached to the wings by a universal joint, substantially as described.

6. In a bicycle-saddle, the combination with the longitudinal frame portion provided at its opposite ends with rigid transverse sections, of a pair of curved side wings pivoted to rock or oscillate on said sections, and an adjustable connection between the wings, whereby the lowering of one wing lowers the other.

604,069. HEADER PLATFORM CONNECTION. JOHN MORRIS, West Pullman, Ill., assignor to the Plano Manufacturing Company, Chicago, Ill. Filed Feb. 9, 1895. Serial No. 537,932. (No model.)



Claim.—1. In a header-harvester, the axle, in combination with a stationary frame carried thereby, a bracket, I, provided with a channel, *i*, in one side, having suitable, outwardly-flaring edges, *i*², platform-supporting arms, E, provided with upright terminals, *e*, corresponding substantially in width to the narrowest part of the channel and adapted to fit loosely therein, and a hinge or pivot connecting device uniting the platform support and bracket, substantially as described.

2. In a header-harvester, a main or stationary frame, C, in combination with brackets, I, secured to the respective end bars of the frame and provided with a transverse channel, *i*, in one side and flaring at each end, and an enlargement or rib, *i*³, on its outer face, having a recess or socket therein, platform-supporting arms, E, having upright terminals, *e*, adapted to fit and move in the channels in the brackets, nuts, J, adapted to be seated in the said bracket-supports respectively, and threaded rods, K, loosely connected at their lower ends to the platform supporting arms and passing up thence through apertures, prepared therefor in the brackets, and the perforated nuts threaded to fit the said rods, substantially as described.

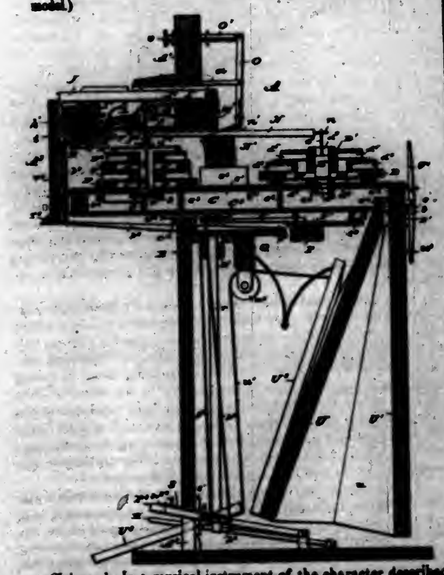
3. In a header-harvester, a stationary frame, C, in combination with a bracket, I, adapted to be secured to the respective end bars or arms of the frame, provided with a transverse channel in the side next to the frame-bar, flaring at each end, a side socket, *i*³, extending outward from said channel, and apertures, *i*⁴, *i*⁵, above and below said socket, platform-supporting arm, E, the extremity, *e*, of which is adapted to fit and slide loosely in the channel between the bracket and the main frame, a nut, J, adapted to fit loosely in the socket and having a threaded perforation, a bracket, L, fastened to the arm E, below the bracket I, and provided with a projecting perforated lug, *l*, and a connecting-rod, K, passing loosely through the perforation in the bracket L, and provided with an enlargement or head on the under side of the latter, threaded to fit the perforation in the nut J, and passing up through the latter and the apertures, *i*⁴, *i*⁵, in the bracket I, being of less diameter than the latter to permit a limited lateral vibration, substantially as described.

4. In a header-harvester, the platform-supporting arms, E, in combination with a divided or loop-shaped stirrup, M, adapted to embrace the respective platform-arms and fit up against the under edge thereof, the platform-sill, D, of angle-iron with its horizontal web extending over projections on the stirrup, a fastening device passing through suitable ways in the stirrup and sill-web and connecting them to the platform-support or line-lever, and link-rods pivoted at their lower ends to the upper ends of the stirrups and at their upper ends connected to the tilting mechanism of the harvester, substantially as described.

5. In a header-harvester, platform-supporting arms, E, in combination with divided or loop-shaped stirrups, M, adapted to embrace the said arms respectively and provided with vertically-perforated projecting lugs, *n'*, angle-iron platform-sill, D, the horizontal web, *d*, of which is fitted over the said projecting lugs, U-bolts, N, adapted to embrace the line-levers and pass up through the respective stirrup-lugs and the horizontal web of the sill, nuts, or other fastening device, applied to the upper ends of said bolts, and link-rods, H, hinged at their lower ends to the upper ends of the stirrups M and connected at their upper ends to the tilting device of the machine, substantially as described.

6. In a header-harvester, platform-supporting arms, E, having upright extremities, *e*, in combination with brackets, I, secured to the respective ends of the main frame and having transverse side channels flaring at each end, vertical ribs or enlargements, i^4, on the outside of said brackets, having horizontal sockets, i^2, therein and apertures, i^3, i^5, running out upwardly and downwardly from said socket, the lower one somewhat wider than the upper, a threaded rod, K, connected at its lower end to the line-lever or platform-supporting arm, extending up thence through the vertical openings and socket of the rib i^4 and of a diameter substantially the same as the lower or inner diameter of the upper aperture, but less than the diameter of the lower aperture, and a nut, J, arranged in said socket and also receiving the threaded rod as it is passed up through the openings in the rib by turning it in said nut, substantially as described.

604,070. REED-ORGAN. WILLIAM S. MOSES, Tracy, Minn. Filed Sept. 3, 1896. Renewed June 17, 1897. Serial No. 641,184. (No model.)



Claim.—1. In a musical instrument of the character described, the combination with the exhaust mechanism, of a sounding-chamber movable sidewise and communicating with said exhaust mechanism by way of a slot and opening registering with each other, a transverse series of reeds mounted on the sounding-chamber and communicating therewith by valved openings, and headed operating-rods for operating the valves; together with a keyboard, having tracker-pins adapted to engage the headed operating-rods immediately below, substantially as shown and described.

2. The combination in a reed-organ, of the sounding-chamber having openings in the upper sounding-board thereof, a diaphragm supported a suitable distance above the sounding-board and having a series of openings which communicate with the openings in said sounding-board, a pipe-board having a corresponding series of pipes, and a reed-board having reed-chambers which communicate with the pipes and a series of vertical openings on a line with the corresponding openings in the diaphragm; together with pistons located within said vertical openings, and means for operating the pistons from a keyboard, substantially as shown and for the purpose set forth.

3. In a reed-organ, the combination, of the tone mechanism movable sidewise, a tilting keyboard adapted to operate the reeds of the tone mechanism; together with a single foot lever or pedal connected to the tone mechanism and keyboard for tilting them in opposite directions, and supplemental means for shifting the tone mechanism, substantially as shown and described.

4. In a reed-organ, the combination, of the tone mechanism movable sidewise, a tilting keyboard adapted to operate the reeds of the tone mechanism, a foot lever or pedal connected to the keyboard and to interposed means for tilting the rear part of the tone mechanism, and independent pedals connected to the ends of the tone mechanism by belts which pass over suitable guide-pulleys, substantially as shown and described.

5. In a reed-organ, the combination with the movable tone mechanism carrying friction-rollers, a tilting board forming a bearing for the friction-rollers, and an arm secured to said tilting board and connected to a pedal; together with a tilting keyboard connected to said pedal by interposed levers and connections, substantially as shown and for the purpose set forth.

6. In a reed-organ, the combination with the movable tone mechanism carrying friction-rollers, a tilting board forming a bearing for the friction-rollers, an arm secured to said tilting board and connected to a depending rod the lower end of which is passed through an opening in a foot-pedal, an adjustable stop attached to the lower end of the rod; together with a tilting keyboard connected to said pedal, and supplemental means for shifting the tone mechanism, substantially as shown and for the purpose set forth.

7. In a reed-organ, the combination with a foot lever or pedal, of a sliding plate mounted thereon and provided with lateral extensions and at its forward end with a toe portion, stationary rack bars with which the lateral extensions of the plate engage, and a spring for causing such engagement, substantially as shown and described.

8. In a reed-organ, a device for holding the foot levers or pedals depressed, consisting of a sliding plate mounted on the pedal and provided at its forward end with an upturned portion and at its sides with extensions, rack-bars with which said extensions engage and a spring for causing such engagement; together with a cam located on the pedal to engage the end of the sliding plate, substantially as shown and for the purpose set forth.

9. In a reed-organ, the combination with the coupler-boards, of a hinged board, screws adjustable upon said hinged board and in engagement with said coupler-boards, a centrally-fulcrumed lever one end of which is in contact with said hinged board, and interposed levers and rods connecting the first-mentioned lever to a foot lever or pedal, substantially as shown and described.

10. In a reed-organ, the combination with the two sets of reeds and keyboard having tracker-pins with rigid collars, of levers operating one set of reeds by engaging said collars, a rock-bar upon which the levers are fulcrumed, a lever connected at one end to the rock-bar, and an operating-rod connected to the other end of the lever, substantially as shown and for the purpose set forth.

11. In a reed-organ, the combination with the two sets of reeds mounted upon a movable sounding-chamber, of a keyboard having tracker-pins with rigid collars, levers operating one set of reeds by engaging said collars, a rock-bar upon which the levers are fulcrumed, said rock-bar having a looped wire attached thereto; together with a pivoted lever in sliding engagement with the rock-bar, and an operating-rod connected to the opposite end of said lever, substantially as shown and for the purpose set forth.

12. In a reed-organ the combination with a movable sounding-chamber or wind-chest and fixed bellows or exhaust mechanism, of connection between the parts and means for disengaging the sounding-chamber from the bellows and means for moving laterally the sounding-chamber substantially as shown and for the purpose set forth.

13. In a reed-organ the combination with a movable sounding-chamber or wind-chest and a fixed bellows or pumping device, of separable connections between the sounding chamber and bellows and means for detaching or separating the connections so that the sounding-chamber may be moved laterally substantially as shown and for the purpose set forth.

14. In a reed-organ, the combination with the exhaust mechanism or bellows, of a keyboard both mounted immovably upon the frame of the instrument, of a wind-chest or sounding-chamber movable longitudinally with respect to the frame, means for operating the valves or pistons of the sounding-chamber carried thereby so as to engage with the keys of the keyboard substantially as shown and for the purpose set forth.

15. In a reed-organ the combination with the exhaust mechanism, of a wind-chest or sounding-chamber movable relative to the exhaust mechanism, of reeds, and valve or piston operating means carried by the sounding-chamber; together with a keyboard fixedly mounted upon the frame, substantially as shown and for the purpose set forth.

16. In a reed-organ, the combination with the exhaust mechanism or bellows, of a wind-chest or sounding-chamber movable laterally relative to said exhaust mechanism, openings connecting the bellows and sounding-chamber; the openings registering, substantially as shown and for the purpose set forth.

17. In a reed-organ the combination of a sounding-board having the tone mechanism mounted thereon and means for moving the same sidewise, a keyboard carried by the frame of the instrument so as to occupy a fixed position, of exhaust mechanism also occupying a fixed position with respect to the frame; together with mechanism for shifting the tone mechanism with respect to the keyboard, and the bellows or exhaust mechanism substantially as shown and for the purpose set forth.

18. In a reed-organ, the combination of the tone mechanism movable sidewise, a keyboard occupying a relatively-fixed position with respect to the tone mechanism; together with exhaust mechanism and means for changing the position of the tone mechanism with respect to the keys and exhaust mechanism substantially as shown and for the purpose set forth.

19. In a reed-organ, a wind-chest movable laterally with respect to a fixed keyboard and bellows, said wind-chest having openings in its inclosing boards, valves or pistons operating in conjunction with said openings and connections between the valves or pistons and the keyboard; together with air-passages for establishing communication between the bellows and wind-chest, substantially as shown.

20. In a reed-organ the combination with the keyboard and bellows of a wind-chest or sounding-chamber moving laterally with respect thereto, said wind-chest or sounding-chamber having openings in the inclosing boards, valves or pistons therefor, connections with the valves or pistons, and keyboard, and means for connecting the bellows and wind-chest or sounding-chamber substantially as shown and for the purpose set forth.

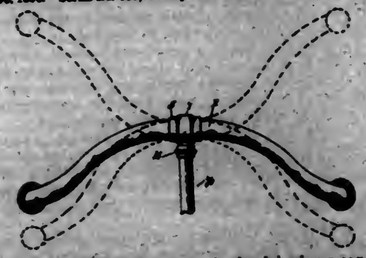
21. In a reed-organ or similar instrument, the combination with a wind-chest movable laterally with respect to the keyboard and bellows, of tone mechanism connected with the wind-chest so as to be moved in conjunction with the same, substantially as shown.

22. In a reed-organ or similar instrument, the combination with the keyboard and bellows of ordinary construction, of a wind-chest or sounding-chamber supported so as to be movable laterally with respect to the keyboard and bellows, substantially as shown and for the purpose set forth.

23. In a reed-organ the combination with a movable sounding-chamber and fixed bellows, of connections between said parts and means for tilting the sounding-chamber to effect a disengagement of the connections and means substantially as shown for moving the sounding-chamber when tilted for the purpose set forth.

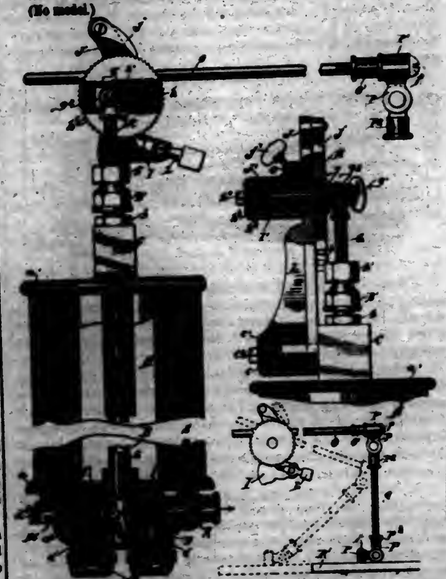
24. In a reed-organ the combination with a keyboard, sounding-chamber and bellows of connecting means, the sounding-chamber being supported so that it may be raised or tilted and when so moved will disengage the connections carried thereby from the keyboard and bellows substantially as shown and for the purpose set forth.

604,071. HANDLE-BAR. OTIS B. MOSHER, Joliet, Ill. Filed Nov. 20, 1896. Serial No. 613,203. (No model.)



Claim.—In combination, a steering-head having a cog at the extremity of the steering-stem, a handle-bar having a series of cavities at intervals in its circumferential length to interlock with the aforesaid cog, a split sleeve fitted about and receiving the handle-bar and having its end portions brought together forming a nook which is exteriorly threaded, and a clamp-nut mounted upon the steering-head and interlocking therewith, and having its threaded opening tapering to receive and draw together the separated portions forming the nook of the split sleeve to cause the latter to grip the handle-bar and at the same time hold the said cog in engagement with any one of the aforesaid cavities, whereby the handle-bar is locked, substantially as set forth.

604,072. LUBRICATING-PUMP. JOHN F. MCCANNA and BENJAMIN T. MCCANNA, Chicago, Ill. Filed Oct. 22, 1897. Serial No. 656,136. (No model.)



Claim.—1. In a lubricator, the piston reciprocating in a straight line, with the support capable of reciprocating substantially at right angles to the line of movement of the piston, the disk rotated by a moving part of the machinery, a graduated channel in the face of said disk, the block pivotally connected to said piston, and means for fastening said block at any desired point in said channel.

2. In a lubricator, the pivoted arm, I, terminating in the sleeve, I', the disk, H, having the journal, A^2, in said sleeve, I', the piston, G, reciprocating in a straight line and adjustable connections between said piston, G, and the disk or crank-wheel, H.

3. In a lubricator, the pivoted arm, I, having the sleeve, I' the notched disk, H, journaled in the sleeve, I', the piston, G reciprocating in a straight line, means for adjustably connecting said piston and the disk, H, and the pawl-arm, J, carrying the pawl, *j*, and pivotally mounted on the sleeve, I'.

4. In a lubricator, the pivoted arm I terminating in the sleeve I', the disk H having the journal A^2 in said sleeve I', the piston G reciprocating in a straight line, and adjustable connections between said piston G and the disk H comprising the dovetailed slot A in said disk, the block *g* slidingly mounted in said slot, means for securing it therein at any desired position, and the wrist-pin g^2 screwed into the block *g*, substantially as described.

5. In a lubricator, the pivoted arm I having the sleeve I'; the notched disk H journaled in the sleeve I'; the piston G reciprocating in a straight line; means for adjustably connecting said piston and the disk H, comprising the groove A, the screw-threaded block *g*, and the screw-threaded wrist-pin g^2, and the pawl-arm J carrying the pawl *j* and pivotally mounted on the sleeve I', all substantially as and for the purpose described.

6. In a lubricator, the pumping mechanism, the discharge duct, a supplemental pipe suitably located in connection to the discharge-duct at some visible point, and a valve for controlling the discharge through the discharge-duct or the supplemental pipe, as may be desired.

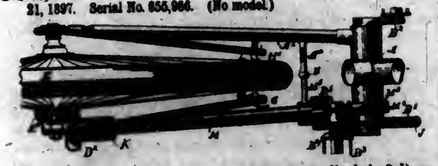
7. In a lubricator, the pumping mechanism, the discharge-duct, a supplemental pipe suitably located in connection to the discharge-duct at some visible point, and means for controlling the discharge through the discharge-duct or the supplemental pipe, as may be desired.

8. In a lubricator, the oil-cup, A, the discharge-duct, d^4, suitable mechanism and valves for discharging the lubricant from the oil-cup through the duct, d^4, the tube, S, terminating in said oil-cup, and the valve, R, for regulating the discharge through the duct, d^4, or the tube, S, as may be desired.

9 In a lubricator, the pivoted pawl-arm, J, the rod, O, adjustably connected thereto, the reciprocating portion, R', and the universal knuckle joints, P, interposed between the rod, O, and the reciprocating portion, R'.

10. In a lubricator, the reciprocating pawl-arm, J, the rod, O, adjustably mounted therein, the knuckle, P, having the sleeve, P^1, pivotally mounted on said rod, O, and the thimble, P^2, to which is connected the rod, Q, by means of a similar knuckle, P, to the reciprocating portion, R', of the machinery, substantially as and for the purpose described.

604,073. BICYCLE. JOHN MCLEAN, New York, N. Y. Filed Oct. 21, 1897. Serial No. 655,966. (No model.)

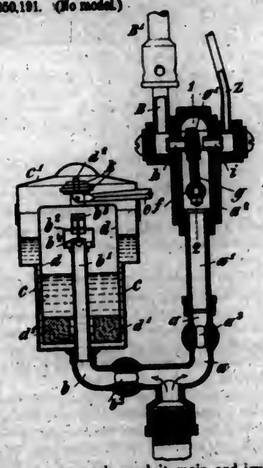


Claim.—1. In a bicycle operating by a longitudinal shaft D, extending through the tubular frame-piece M, a split clamp at the front end allowing of engagement and disengagement with the cross-tube A and also of lateral adjustment thereon, substantially as herein specified.

2. In a bicycle operating by a longitudinal shaft D, extending through the tubular frame-piece M, a detachable clamp at the front end allowing of engagement and disengagement with the cross-tube A, in combination with the bracing-arms M^3, A^2, and clamp N, adapted to allow the convenient assemblage and separation of the parts and also the adjustment of the engagement of the gear-wheels B', D', all substantially as herein specified.

3. In a bicycle operating by a longitudinal shaft D, extending through the tubular frame-piece M, a split clamp at the front end allowing of lateral adjustment upon and also of engagement and disengagement with the cross-tube A and the open yoke A^2, wings M^2 and fastening means L, adapted to allow a strong and rigid connection and an easy disconnection and removal or change of position relatively to the tube M and its immediately-associated parts, all combined and arranged to serve substantially as herein specified.

604,074. AUTOMATIC IGNITING DEVICE FOR GAS-LAMPS, &c. CARL F. HEBENDANZ, Wandsbeck, Germany. Filed Aug. 31, 1897. Serial No. 650,191. (No model.)



Claim.—1. A gas-supply conduit, main and igniter burner passages communicating therewith through its vertical walls at diametrically opposite points, and a valve adapted to be moved by variations of the pressure in said conduit to close or open one of said passages and open or close the other, for the purpose set forth.

2. A gas-supply conduit, main and igniter burner passages communicating therewith through its vertical walls at diametrically opposite points, and a loaded valve adapted to be moved by variations of the pressure in the conduit to close or open one of said passages and open or close the other, for the purpose set forth.

3. A gas-supply conduit, main and igniter burner passages communicating therewith through its vertical walls at diametrically opposite points, a rocking valve adapted to be moved by variations of the pressure in said conduit to close or open one of said passages and open or close the other, and means for adjusting the amplitude of the rocking movements of said valve, for the purpose set forth.

4. A gas-supply conduit, main and igniter burner passages communicating therewith through its vertical walls at diametrically opposite points, a rock-lever carrying a two-faced valve at its free end, and appliances adapted to be controlled by variations of the pressure in the conduit and thereby rock the valve-lever and move its valve to close or open one of said passages and open or close the other, for the purpose set forth.

5. A gas-supply conduit, main and igniter burner passages communicating therewith through its vertical walls at diametrically opposite points, a valve, and appliances outside of the conduit connected with said valve and controlled by variations of the pressure in the conduit and thereby move the valve to close or open one of said passages and open or close the other, for the purpose set forth.

6. The combination with a gas-supply conduit, main and igniter burner passages communicating therewith through its vertical walls, and a valve-lever carrying a two-faced valve at its free end, of a gas-holder, its bell in communication with said conduit and a connection between said bell and the valve-lever, whereby the latter is rocked by variations of the pressure in the conduit to close or open one of the aforesaid passages and open or close the other, for the purpose set forth.

7. The combination with a gas-supply conduit, main and igniter burners in communication therewith through its vertical walls at diametrically opposite points, and a rock-lever carrying a valve at its free end adapted to close or open one of said passages and open or close the other; of a gas-holder, its bell in communication with said supply-conduit, a connection between the bell and rock-lever whereby the latter is operated by variations of the pressure in the conduit, and a pressure-controlled valve adapted to control the flow of gas to the bell, for the purpose set forth.

8. A gas-supply pipe, main and igniter burner passages leading therefrom, a valve-seat for each of said passages adjustable reciprocally, and a valve adapted to move from one seat to the other to open or close one of said passages and close or open the other, for the purpose set forth.

9. A gas-supply pipe, main and igniter burner passages leading therefrom, a valve-seat for each of said passages adjustable reciprocally, and a valve adapted to move from one seat to the other to open or close one of said passages and close or open the other, said valve moved by variations of the pressure in the supply-pipe, for the purpose set forth.

604,075. LINE-DIVIDING SCALE. AXEL A. OLSEN, Minneapolis, Minn., assignor of one-half to Charles A. Nelson, same place. Filed July 2, 1897. Serial No. 643,196. (No model.)

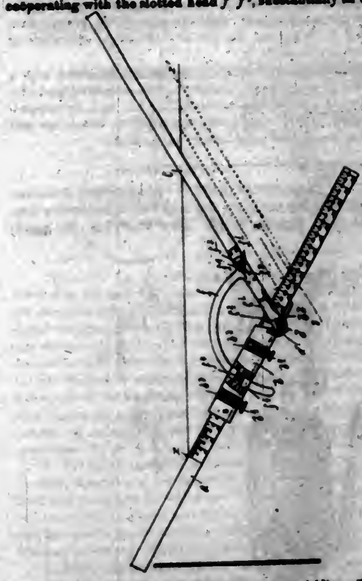
Claim.—1. A dividing-scale, involving a graduated base-rule with depending pin or brad at the intersection of the zero-mark with the lining edge thereof, a head or block mounted for sliding movement on said base-rule, and a lining-rule projecting from and carried by said sliding head or block, substantially as described.

2. A dividing-scale, involving a graduated base-rule with a depending pin or brad at the intersection of the zero-mark with the lining edge thereof, a head or block mounted for sliding movement on said base-rule, and a lining-rule pivotally mounted on and carried by said sliding head or block, substantially as described.

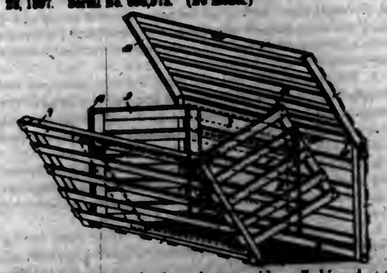
3. A dividing-scale, involving a graduated base-rule, a head or block mounted for sliding movement on said base-rule and provided with one or more finger-operated traction-rollers working over the graduated face of said base-rule, and a lining-rule projecting from and carried by said sliding head, substantially as described.

4. A dividing-scale, involving a graduated base-rule, a head or block mounted for sliding movement on said base-rule and provided with a pair of rubber-faced finger-operated traction-rollers which engage the graduated face of said base-rule, and a lining-rule projecting from and carried by said sliding head or block, substantially as described.

5. A dividing-scale, involving the graduated base-rule *a*, with the depending pin or brad *a'*, the sliding head *b* provided with the side flanges b^1, seats b^2 and extension b^3, the finger-operated traction-rollers b^4 b^5 mounted in said seats b^2, the lining-rule *c* with the extension *c'* having slots c^2, the set-screw *d* *d'* working in slot c^2, the segmental arm *f* working through keeper f^3 on said head *b* and provided with the slotted head f' f^2, and the thumb-nut and bolt f^4 f^5 cooperating with the slotted head f' f^2, substantially as described.



604,076. CRATE. GEORGE H. OWEN, Addison, N. Y. Filed May 28, 1897. Serial No. 638,572. (No model.)



Claim.—1. A crate having a bottom, side walls hinged at their lower edges to the bottom above the plane of its outer surface, to fold respectively inwardly and outwardly, end walls each pivotally mounted at one side edge upon the extremity of one of the side walls to fold inwardly in contact and parallel with said side wall, and a top hinged at one edge to and carried by the inwardly-folding side wall, and adapted to occupy a position in contact and parallel with the outwardly-folding side wall, whereby the end walls are inclosed between the top, bottom and side walls, substantially as specified.

2. A crate having a bottom provided at its side edges with inside cleats, side walls having inside vertical end cleats depending below the lower edges of said walls to abut against, and being pivotally mounted upon, the extremities of said side cleats above the plane of the bottom, proper, one of the side walls being adapted to fold outwardly to occupy a position in the plane of the bottom, and the other side wall being adapted to fold inwardly over the plane of the bottom, end walls each pivotally mounted upon a side wall and adapted to fold inwardly to occupy a position in the longitudinal plane of the end cleats thereof, and a top pivotally mounted upon the inwardly-folding side wall, to occupy a position in the plane thereof and parallel with the outwardly-folding side wall, whereby the end walls are inclosed between the planes of the top, bottom, and side walls, substantially as specified.

3. A crate having a bottom provided with side cleats, side walls having upper and end cleats, the lower extremities of the latter being pivotally mounted upon the extremities of said side cleats of the bottom, end walls pivotally mounted respectively upon the side walls to fold inwardly into the planes of the upper and end cleats thereof, and provided at their free ends with upwardly-projecting studs to engage seats in said upper cleats, and hold the side walls in their upright or normal positions, and a top pivotally mounted upon one of the side walls and provided with a depending ear to engage the upper edge of the other side wall, substantially as specified.

4. A crate having a bottom, and side walls hinged at their lower edges to the bottom to fold respectively inwardly and outwardly, end walls pivotally mounted respectively upon the extremities of the side walls to fold inwardly in contact and parallel therewith, and a top hinged to and carried by the inwardly-folding side wall, and adapted to occupy a position in contact and parallel with the outwardly-folding side wall, said top being provided with depending end flanges spaced apart an interval greater than the length of the side walls, to occupy positions outside of the extremities of said side walls when the crate is folded, substantially as specified.

5. A crate having a bottom, side walls hinged at their lower edges to the bottom to fold respectively inwardly and outwardly, end walls pivotally mounted respectively upon the extremities of the side walls to fold inwardly in contact and parallel therewith, means for limiting the outward swinging movement of the end walls when the side walls are in their normal positions perpendicular to the plane of the bottom, and a top hinged to and carried by the inwardly-folding side wall and adapted to occupy a position in contact and parallel with the outwardly-folding side wall, said top being provided with depending end cleats spaced apart at an interval greater than the length of the side walls, and also having at its free edge a depending ear to engage a recess in the upper edge of the outwardly-folding side wall, substantially as specified.

6. A crate having a bottom, side walls hinged at their lower edges to the bottom to fold respectively inwardly and outwardly, end walls pivotally mounted respectively upon the side walls to fold inwardly in contact and parallel therewith, upper inwardly-extending cleats on the side walls, provided respectively at the ends opposite to the pivotal points of said end walls with bayonet-seats of which the inlet-openings are offset inwardly from the planes of the normal positions of the end walls, an upwardly-extending stud carried by each end wall contiguous to its free edge and adapted to enter the bayonet-slot in the upper cleat of the opposite side wall from that upon which said end wall is mounted, and each end wall being also adapted to swing outwardly at its free end after its stud is engaged with said slot, and a top hinged to and carried by the inwardly-folding side wall, substantially as specified.

604,077. APPARATUS FOR CONTROLLING TEMPERATURE. REUBEN S. PEASE, Rose, Minn., assignor, by mesne assignments, of one-half to James U. Miner, Minneapolis, Minn. Filed Aug. 11, 1897. Serial No. 647,776. (No model.)



Claim.—1. In a circulatory liquid-heating system, a valve-chamber in the circuit, a valve therein having its port arranged to permit the liquid to flow onward through it only when the surface of the liquid in the chamber is above a predetermined level, and a fluid-holder connected with said chamber for producing fluid-pressure upon the liquid therein to vary its level and thereby control its flow through the valve and its circulation in the system, substantially as set forth.

2. In a circulatory liquid-heating system, a valve-chamber in the circuit, a valve therein having its port arranged to receive a full flow when the liquid-level is above the port and to present a gradually-diminishing passage-way as the level lowers toward the point of cut-off, and a fluid-holder connected with said chamber for producing varying pressure upon the liquid therein to change its level and thereby regulate its circulation, substantially as set forth.

3. The combination in a circulatory liquid-heating system, of a fluid-holder arranged to have its temperature affected by the heating system and having connection with a chamber in the liquid-circuit, whereby changes of the fluid-temperature cause corresponding variations of pressure upon the liquid and consequent fluctuations of the liquid-level in the chamber, and a valve in said chamber having a free port within the range of such fluctuations of the liquid-level, whereby the liquid circulation is controlled by the fluid-pressure, substantially as set forth.

4. In a circulatory liquid-heating system, a valve having a port provided in a chamber in the liquid-circuit, and a fluid-pressure device arranged to communicate with said chamber to regulate the level of the liquid therein relative to the valve-port, and means for regulating the pressure of the fluid upon the liquid in said chamber, substantially as set forth.

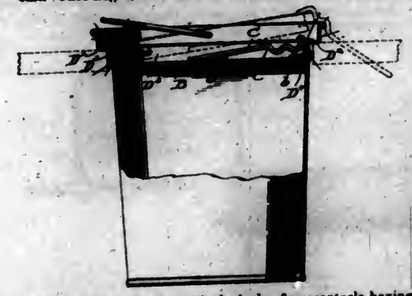
5. In a circulatory liquid-heating system, the combination with a valve-chamber, and a valve therein having a port arranged to receive a full flow when the liquid is at a given level and a gradually-diminishing flow as the level is lowered, and a temperature-controlled fluid-pressure device in communication with said chamber for changing the level of the liquid therein to regulate its flow through the port, substantially as set forth.

6. The combination in a liquid-heating system, of a circulatory pipe, a valve-fitting therein, said fitting provided with a diaphragm crossing its axis, a fluid-pipe communicating with said fitting on one side of the diaphragm and with a fluid-reservoir, and a pipe extending downward from within the fluid-pipe and communicating with the valve-fitting on the opposite side of said diaphragm, said pipe providing a communication for the liquid from one to the other side of the diaphragm, the flow of the liquid being regulated by the pressure of the fluid in the fluid-reservoir, substantially as set forth.

7. The combination with the pipes of a liquid-heating system, of a valve-shell connecting them, a vertical tube connected with the inlet, a shorter concentric tube communicating with the outlet and providing a port arranged to receive a gradually-diminishing volume as the level of the liquid is lowered from full flow to cut-off, and a fluid-pressure device having connection with said outer tube for producing varying pressure on the liquid in the tubes to regulate its flow, substantially as set forth.

8. In an incubator, the combination with a casing, of a circulatory liquid system and means for heating the liquid, a valve-chamber provided with a valve presenting a gradually-diminishing port as the level of the liquid is lowered from a full flow to the point of cut-off, and a suitable fluid-holder located in the incubator-casing and having communication with the valve-chamber for producing fluid-pressure on the liquid therein to regulate its level and consequently its circulation through said port and incubator, substantially as set forth.

604,078. PAIL AND PACKAGE. GEORGE J. RECORD, Connecaut, Ohio. Filed Aug. 5, 1897. Serial No. 647,231. (No model.)



Claim.—In combination with the body of a receptacle having an internal, annular groove near its upper edge, a bell-top for said body fitting within the upper part of the same and provided near its lower end with an annular offset which fits into the said groove and which forms a groove on the inner side of the said bell-top and a resilient seal provided with projecting lugs to snap into the said groove of the said bell-top the joints of these three parts being within the receptacle-body as shown.

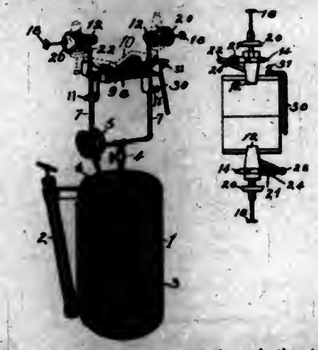
604,079. DEVICE FOR CLOSING CANS OR OTHER RECEPTACLES. GEORGE J. RECORD, Connecaut, Ohio. Filed Jan. 3, 1898. Serial No. 665,403. (No model.)



Claim.—1. A device for closing receptacles consisting of two pivoted parts in the form of pliers provided with lateral extensions curved in a horizontal plane, the upper one of which extends beyond the lower, the said upper extension being adapted to rest flat on the peripheral part of a cap or seal, while the edge of the lower extension is adapted to fit against the side of a cylindrical receptacle or nozzle substantially as set forth.

2. A plier-like device for closing receptacles provided with a laterally-curved part adapted to rest flat on the peripheral part of a seal or cap around a portion of its circuit and having a corresponding part adapted to bear against the receptacle to which the said cap or seal is to be applied substantially as set forth.

604,080. BRAKING APPARATUS. BERNARD REES, Rochester, N. Y., assignor of one-half to the Red Cross Cement and Rubber Company, same place. Filed Dec. 20, 1897. Serial No. 664,312. (No model.)



Claim.—1. The combination with the tank, the stationary vertical oil-supply pipes, having their upper ends offset in opposite directions, of the vapor-burners swiveled on the ends of said pipes and movable in a vertical plane, and the work-support arranged beneath the pivots of the burners.

2. The combination with the tank, the two stationary vertical oil-supply pipes, and the adjustable vapor-burners located at the upper ends of said pipes, of the work-support adjustable vertically on the pipes, and securing devices for holding it in adjusted position thereon.

3. The combination with the tank, the stationary vertical oil-supply pipes, and the adjustable vapor-burners mounted on the upper ends thereof, of the work-support sleeved upon the supply-pipes, and set-screws for holding it in adjusted position.

4. The combination with the vertical oil-supply pipes, having the horizontally-extending upper ends, the vapor-burners rotatably adjustable on said ends, of the work-support arranged beneath the burners.

5. The combination with oil-supply pipes and vapor-burners at the upper ends thereof, of the work-support adjustable on the pipes, and the adjustable arm 30 on said support.

6. The combination with the tank, the pump thereon, the two vertical supply-pipes connecting with the tank and the vapor-burners on the upper ends of the pipes and rotatably adjustable thereon to swing in a vertical plane, and the work-support mounted on the two pipes below the burners, and adjustably connected therewith.

7. The combination with a supply-pipe, of the vapor-burner swiveled thereon to turn in a vertical plane and embodying the hollow body portion, having the vaporizing-chamber formed by the intersecting tangential passages and plugs at their outer ends, the jet-pipe 15 having the plug 19, the valve 18, and the cap 20 carried by the jet-pipe.

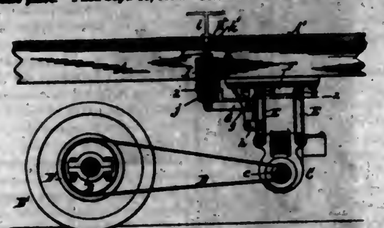
8. The combination with the work-support, the inclined slabs of refractory material thereon, and the oppositely-arranged adjustable vapor-burners cooperating with the slabs.

9. A vapor-burner embodying the hollow truncated cone and having the jet-aperture and a vaporizing-chamber connected with the jet-aperture and formed in the cone by a series of tangential intersecting passages, and plugs for closing the outer ends of said passages.

10. In a vapor-burner, the combination with the hollow conical body portion having the vaporizing-chamber formed by a series of intersecting tangential passages and removable plugs at their outer ends, of a supply-pipe connecting with one end of said chamber, and a jet-pipe connected to the other end and discharging into the body.

11. In a vapor-burner, the combination with the hollow body portion having the vaporizing-chamber therein formed of a series of intersecting tangential passages and removable plugs in their outer ends, of the jet-pipe 15 connected to the vaporizing-chamber having the plug 19, and the jet-aperture and valve controlling said aperture.

604,081. ELECTRIC-LIGHTING SYSTEM FOR RAILWAY-CARS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Charles M. Gould, same place. Filed Sept. 16, 1897. Serial No. 651,969. (No model.)



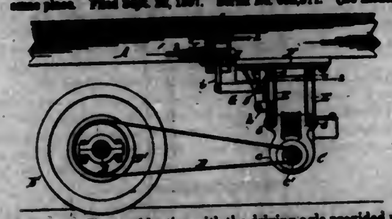
Claim.—1. The combination with the car, the driving-axle provided with a pulley, the dynamo provided with a pulley and capable of movement toward and from the driving-axle in a substantially horizontal direction, and a driving-belt applied to said pulleys, of a pressure device attached to the car and pressing the dynamo away from the driving-axle, whereby the pressure is applied to the belt for producing the desired normal speed of the dynamo-shaft irrespective of the weight of the dynamo, while the latter is moved toward the axle when the speed of the latter increases above that which produces the desired normal speed of the dynamo, causing a slip of the belt which neutralizes the excess of speed of the axle, substantially as set forth.

2. The combination with the car, the driving-axle provided with a pulley, the dynamo provided with a pulley, and the driving-belt, of front and rear links by which the dynamo is suspended from the car and rendered capable of moving lengthwise of the car in a horizontal position, and a pressure device attached to the car and pressing the dynamo away from the axle, substantially as set forth.

3. The combination with the car, the driving-axle provided with a pulley, the dynamo provided with a pulley, and a driving-belt, of front and rear links by which the dynamo is suspended from the car and rendered capable of movement lengthwise of the car in a horizontal position, an elbow-lever pivoted on the car and acting with its short arm upon the dynamo, and a pressure-spring attached to the car and connected with the long arm of said lever, substantially as set forth.

4. The combination with the car, the driving-axle provided with a pulley, the dynamo provided with a pulley and capable of movement toward and from the driving-axle, of a lever having one arm connected with the dynamo, a telescopic cylinder having one of its sections connected with the other arm of said lever, a pressure-spring arranged in said cylinder, and an adjusting-screw connected with the other section of said cylinder, substantially as set forth.

604,089. ELECTRIC-LIGHTING SYSTEM FOR RAILWAY-CARS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Charles M. Gould, same place. Filed Sept. 22, 1897. Serial No. 652,511. (No model.)



Claim.—1. The combination with the driving-axle provided with a pulley, a dynamo provided with a pulley and capable of movement toward and from the driving-axle, and a driving-belt applied to said pulleys, of a fluid-pressure mechanism which is connected with the movable dynamo and by which the same is pressed away from the driving-axle to tighten the belt, while the dynamo is drawn toward the axle by an excessive speed of the belt, substantially as set forth.

2. The combination with the driving-axle provided with a pulley, a dynamo provided with a pulley and capable of movement toward and from the driving-axle, and a driving-belt applied to said pulleys, of a fluid-pressure mechanism which is connected with the movable dynamo and by which the same is pressed away from the driving-axle to tighten the belt and which is provided with a pressure-equalizer by which a uniform fluid-pressure is maintained, substantially as set forth.

3. The combination with the driving-axle provided with a pulley, a dynamo provided with a pulley and capable of movement toward and from the driving-axle, and a driving-belt applied to said pulleys, of a cylinder and piston adapted to receive fluid-pressure and apply it to the movable dynamo and to press the same away from the driving-axle, a valve-chamber connected with said cylinder, a reducing-valve arranged in said chamber, and an equalizing-passage connecting the cylinder with said chamber, substantially as set forth.

4. The combination with the driving-axle, a dynamo and a frictional mechanism whereby the dynamo is driven from said axle, of a cylinder and piston for tensioning such driving mechanism, a valve-chamber connected with said cylinder and having a flexible diaphragm and a fluid-inlet entering the same between the cylinder and said diaphragm, a reducing-valve controlled by said diaphragm and governing the admission of the fluid into the cylinder, and an equalizing-passage, connecting the cylinder with the portion of the valve-chamber above or in rear of said diaphragm, substantially as set forth.

604,088. ELECTRIC-LIGHTING APPARATUS FOR RAILROAD-CARS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Charles M. Gould, same place. Filed Sept. 20, 1897. Serial No. 651,903. (No model.)



Claim.—1. The combination with a car-body, a car-truck and its axle, and a dynamo driven from said axle, of a support on the car-body by which the dynamo is carried and which permits of the lateral movement of the dynamo with reference to the car-body, and a connection from the dynamo to the car-truck by which the dynamo is caused to remain in alinement with the car-axle, substantially as set forth.

2. The combination with a car-body having a transverse track on its under side, and a car-truck and its axle, of a dynamo capable of lateral movement on said track, and a pivoted frame which connects said dynamo with the truck and moves laterally with the truck, substantially as set forth.

3. The combination with a carriage adapted to move transversely on the under side of a car-body and a dynamo suspended therefrom and adapted to be driven from one of the car-axles, of a connecting-frame which connects said carriage with the car-truck and which causes the carriage and the dynamo to follow the swiveling movements of the car-truck and remain in alinement therewith, substantially as set forth.

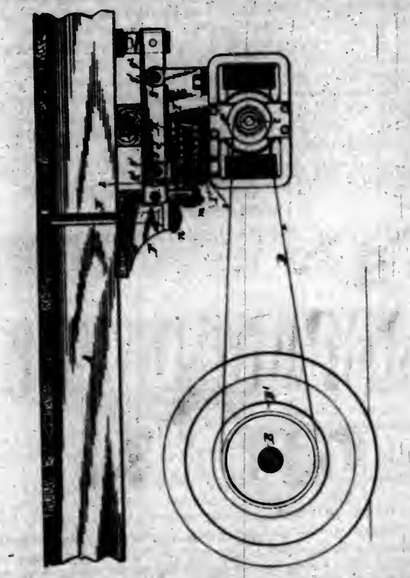
4. The combination with a transverse track or way adapted to be arranged on the under side of a car-body, of a carriage mounted on said track, a dynamo suspended from said carriage and adapted to be driven from one of the car-axles, and a connecting-frame connecting said carriage with the car-truck and causing the carriage and the dynamo to follow the swiveling movement of the car-truck, substantially as set forth.

5. The combination with a transverse track or way adapted to be arranged on the under side of the car-body, of a carriage mounted on said track, a dynamo suspended from said carriage and adapted to be driven from one of the car-axles, and a connecting-frame adapted to connect said carriage with the car-truck carrying said axle and to be hinged to the truck by a transverse pivot, substantially as set forth.

6. The combination with a transverse track or way adapted to be arranged on the under side of a car-body, of a carrier or carriage adapted to run on said track, a dynamo suspended from said carriage and adapted to be driven from one of the car-axles and a connecting-frame adapted to connect said carriage with the car-truck carrying said axle, and a tension device for the driving-gear of the dynamo mounted on said connecting-frame, substantially as set forth.

7. The combination with a transverse track or way adapted to be arranged on the under side of the car-body and a carrier or carriage adapted to run thereon, of a dynamo adapted to be driven from one of the car-axles by a belt and suspended from said carriage by links swinging lengthwise of the car, a frame adapted to connect said carriage with the car-truck, a socket mounted on said connecting-frame, a follower moving therein, a tension-spring arranged in said socket and follower, and a lever operating with one arm against said follower and having its other arm connected with the suspension-links of the dynamo, substantially as set forth.

604,084. ELECTRIC-LIGHTING APPARATUS FOR RAILWAY-CARS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Charles M. Gould, same place. Filed Oct. 11, 1897. Serial No. 654,807. (No model.)



Claim.—1. The combination with the car-body and the driving-axle provided with a pulley, of a longitudinal track arranged on the under side of the car-body, a carriage mounted on said track and carrying a dynamo provided with a pulley, a horizontal socket mounted on said carriage, a follower applied to said socket, a pressure-spring arranged between said socket and follower, an adjusting device connected with said follower, and a belt applied to said pulleys and extending in a substantially horizontal direction from the driving to the driven pulley, substantially as set forth.

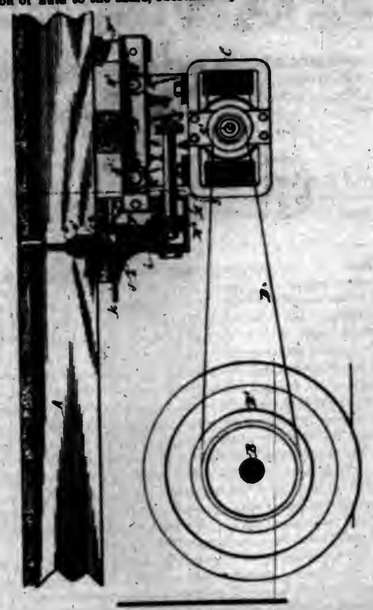
2. The combination with the car-body and a car-axle, of a longitudinal track or way arranged on the under side of the car-body, a carriage mounted on said track and carrying a dynamo, a horizontal socket mounted on said carriage, a tubular follower applied to said socket, a tension-spring arranged in said socket and follower, an adjusting-screw engaging with said follower, and an upright operating-shaft geared with said adjusting-screw, substantially as set forth.

604,085. ELECTRIC-LIGHTING APPARATUS FOR RAILWAY-CARS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Charles M. Gould, same place. Filed Oct. 14, 1897. Serial No. 655,135. (No model.)

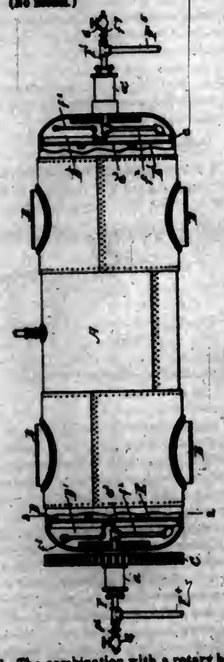
Claim.—1. The combination with a railway-vehicle and its axle, of a longitudinal track or way arranged on the under side of the vehicle, a dynamo mounted on said track and capable of moving toward and from the car-axle, a frictional driving mechanism whereby the dynamo is driven from said car-axle, a horizontal cylinder supported by the vehicle, a piston arranged in said cylinder and connected with the dynamo, and means for delivering fluid under pressure to said cylinder, substantially as set forth.

2. The combination with a railway-vehicle and its axle, of a longitudinal track or way arranged on the under side of the vehicle, a dynamo-carriage mounted on said track and capable of moving toward and from the car-axle, a frictional driving mechanism whereby the dynamo is driven from said car-axle, a horizontal pressure-cylinder arranged between the car-axle, and the dynamo and supported by the vehicle, a piston arranged in said cylinder and having its rod connected directly with the dynamo-carriage and an inlet-valve controlling the admission of fluid to said pressure-cylinder, substantially as set forth.

3. The combination with a railway-vehicle, its axle and a movable dynamo adapted to be driven from the car-axle by a frictional driving mechanism, of a longitudinal track or way arranged on the under side of the vehicle and supporting the dynamo, a bracket supporting the front end of said track and carrying a horizontal pressure-cylinder and a valve-chamber communicating with said cylinder, a piston arranged in said cylinder and connected with the dynamo, and an inlet-valve arranged in said chamber and controlling the admission of fluid to the same, substantially as set forth.



604,086. ROTARY BLEACHING-BOILER. BRADLEY D. RIDER, Springfield, Mass., assignor of two-thirds to Charles McKerson and Allen A. Wheat, West Springfield, Mass. Filed June 7, 1897. Serial No. 638,862. (No model.)



Claim.—1. The combination with a rotary bleaching-boiler having a main compartment to hold the material or stock under treatment and auxiliary liquor-heating compartments adjacent to said main compartments, of stationary liquor-heating devices in said auxiliary chamber which deliver the heating medium to the lower part of said auxiliary liquor-heating compartments, and partitions separating said main compartment from the said auxiliary compartments, said partitions allowing free circulation of the liquor through the several compartments but preventing escape of the material under treatment from the main compartment into the auxiliary liquor-heating compartment.

2. The combination with a rotary bleaching-boiler having a main compartment to hold the material or stock under treatment and auxiliary liquor-heating compartments adjacent to said main compartment, a stationary steam-pipe passing through the trunnion of said rotary boiler and depending within the same so as to deliver steam at a point near the bottom of the auxiliary liquor-heating compartments and always below the level of the liquor therein, and partitions separating said main compartment from the said auxiliary compartments, said partitions allowing free circulation of the liquor through the several compartments but preventing escape of the material under treatment from the main compartment into the auxiliary liquor-heating compartment.

3. The combination with the rotary bleaching-boiler having a main compartment to hold the material or stock to be treated, and auxiliary liquor-heating compartments adjacent to said main compartment, of pipes leading through the trunnion of said boiler into said auxiliary compartments one of said pipes connecting with a stationary depending pipe so as to deliver steam or other heating medium near the bottom of the auxiliary compartment at a point below the level of the liquor, the other pipe connecting with a stationary vertical pipe rising to a point near the top of the boiler so as to permit exit of the heated air, partitions separating said main compartment from said auxiliary compartments, said partitions allowing free circulation of the liquor through the several compartments but preventing escape of the material under treatment from the main compartment in the auxiliary liquor-heating compartments, and manholes in said partitions to allow access to said auxiliary compartments.

4. The combination in a rotary boiler of the main compartment having one or more openings thereto and manhole-plates for closing the same, the liquor-heating chambers D', D^2 at the ends of the boiler, the perforated diaphragms having manholes, and doors or covers for said manholes opening into the main compartment, the said doors or covers for said manholes being provided with perforations, as and for the purpose described.

5. In a rotary boiler the main compartment D, and end compartment and a perforated partition-plate having a manhole and a perforated gate or cover for the same.

6. The combination with a rotary boiler having hollow trunnions, of a stationary pipe or casing having a plurality of passages through said trunnions, pipes supported at the inner end of said casing and connecting with the passages therethrough and pipes connected with said passages outside of said boiler.

7. The combination of the boiler, its hollow trunnions, means for rotating the boiler, its main chamber, the auxiliary chambers which are separated from the main chamber as specified, the stationary pipes extending through the hollow trunnions to said auxiliary chambers and having two passages, a stationary downward extension from one of said passages in said auxiliary chamber or chambers having an opening at or near its lower end and a stationary upward extension from the other of said passages, having an opening at or near its upper end.

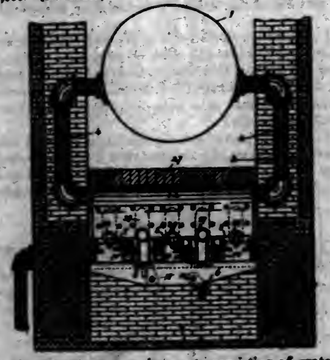
8. The combination of the rotary boiler having a main compartment D and the end compartments D', D^2, the perforated plates E, the hollow trunnions, the stationary pipes having two passages extending through said trunnions into the chambers D', D^2, the stationary branch pipes, one of which is an inlet and the other an outlet pipe, and valves in the outlet-pipes outside the boiler.

604,087. WINDOW-AWNING. JAMES F. SARGENT, Saugus, Mass., assignor to Herbert M. Sylvester, Melrose, Mass. Filed Feb. 23, 1897. Serial No. 624,711. (No model.)



Claim.—An awning appliance with a frame composed of bent wire material, including a supporting part composed of the end piece, 4, and side arms, 5, said arms having twist-loops, 6, formed therein, approximately near the terminal ends thereof, the ends being overturned with eye-openings, X, and a swinging part having a corresponding end piece, and side arms with terminal ends bent, to hook-ed engagement with the twist-loops, 6, of said supporting part, combined with means for holding the supporting part in position to a window-frame and the like, said means including hook appliance, 10, for engaging the piece, 4, the staple appliances, 8, in the eye-openings, X, and removable pins in said staples, substantially as described.

604,088. STEAM OR HOT-WATER GRATE AND GENERATOR. FRANKLIN G. SAYLES, Boston, Mass. Filed June 16, 1897. Serial No. 640,202. (No model.)



Claim.—1. A box or pocket grate consisting of grates of alternating level, the grate on the lower level forming the bottom of the box or pocket, and having water-legs which form the sides of the box or pocket, substantially as described.

2. In combination with a boiler or hot-water reservoir, a box or pocket grate consisting of grates of alternating level, the grate on the lower level forming the bottom of the pocket and having water-legs which form the sides of the pocket, and waterway connections between the boiler or reservoir and said water-legs whereby circulation is completed from the boiler or reservoir to the water-legs, thence through the water-legs and return to the boiler or reservoir by another way, substantially as described.

3. In combination with a boiler or hot-water reservoir, a box or pocket grate consisting of grates of alternating level, the grate on the lower level forming the bottom of the pocket and having water-legs which form the sides of the pocket, a bridge-wall tank at the rear of the grate and water-pipe connection between the boiler or reservoir and said tank and between the said tank and the water-legs, a mud-drum at the front end of the grate, and water-pipe connections between said water-legs and said mud-drum and between said mud-drum and the boiler or reservoir whereby a complete circulation is made, substantially as described.

4. In combination with a boiler or hot-water reservoir, a box or pocket grate consisting of grates of alternating level, the grates on the lower level forming the bottom of the pocket and having water-legs which form the sides of the pocket, a bridge-wall tank at the rear of the grate and water-pipe connection between the boiler or reservoir and said tank and between the said tank and the water-legs, a mud-drum at the front of the grate and water-pipe connection between the water-legs and the mud-drum, and between the mud-drum and the boiler or reservoir, the outlet from the water-legs being of smaller sectional area than the sectional area of the water-legs, substantially as and for the purpose described.

5. In combination with a boiler or hot-water reservoir and grate, a bridge-wall tank at the rear of the grate, a partition between the fire-box and combustion-chamber but not extending to the top of the chamber and having a series of hot-air ducts leading from the fire-box to the combustion-chamber, substantially as described.

6. In combination with a boiler or hot-water reservoir and grate, a bridge-wall tank at the rear of the grate rising above the level thereof but not extending to the top of the chamber and having a series of hot-air ducts from the fire-box through the tank to the combustion-chamber, the openings to said ducts being in part above and in part below the surface of the grate, substantially as described.

7. In combination with a boiler or hot-water reservoir, a box or pocket grate consisting of grates of alternating level, the grate on the lower level forming the bottom of the pocket and having water-legs which form the sides of the pocket, a bridge-wall tank at the rear of the grates and water-conduits from the boiler or reservoir to the tank, from the tank to the water-legs and from the water-legs to the boiler or reservoir said bridge-wall tank forming a partition back of the

fire-box part way to the top of the chamber, and having a series of hot-air ducts leading from different levels through the tank to the combustion-chamber, the entrances to some of the ducts being so located as to conduct fresh air from below the surface grates as well as the hot air from above the surface, and other ducts conducting the gases which rise from the box part of the grates, substantially as described.

8. In combination with a boiler or hot-water reservoir and grate, a bridge-wall tank at the rear of the grate rising part way above the level thereof, hot-air ducts leading from the fire-box through the tank and into the combustion-chamber, a baffle-wall within the combustion-chamber at some distance back of the tank and projecting from the roof part way to the bottom of the chamber, substantially as described.

9. In combination with a boiler or hot-water reservoir and grate, a bridge-wall tank at the rear of the fire-box, and a series of hot-air ducts from the fire-box, through said tank and into the combustion-chamber, the said ducts starting at alternating levels and opening into the combustion-chamber at a higher level than the entrance ends, substantially as described.

10. In a box or pocket grate consisting of grates of alternating level, a series of pockets of which the walls thereof are composed of water-legs, the water-legs of one pocket being connected by a water-conduit with the water-legs of another pocket, substantially as described.

604,089. DEMIJOHN. ISAAC M. SCHELLENBERG, Royersford, Pa. Filed Aug. 9, 1897. Serial No. 647,663. (No model.)



Claim.—1. The combination with a demijohn, the wicker-work case and the wicker-work handle, of the metal ring at the bottom of said case, the vertical wire formed integral therewith and extending up and interlaced with said handle and wound around the neck of the demijohn and the opposite vertical wire connected with said ring and interlaced with the wicker-work case, substantially as described.

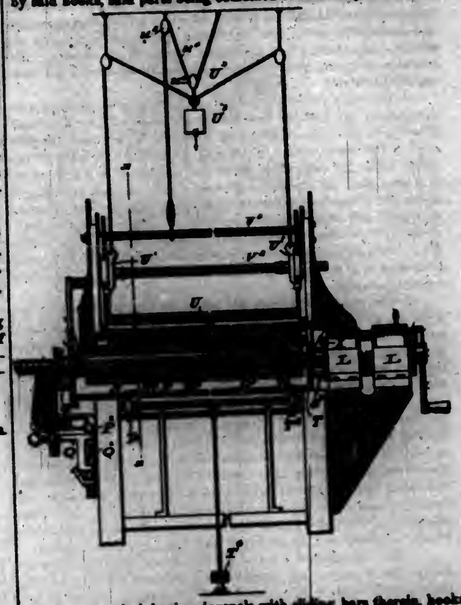
2. The combination with the demijohn and the wicker-work case, of the ring at the bottom of said case having a loop at one end through which the other end is passed and extended upwardly, the handle, the strands of which are twisted around said upwardly-extending wire and the upwardly-extended wire twisted around the neck, substantially as described.

3. The combination with the demijohn and the wicker-work case, of the ring at the bottom of said case, formed with a loop at one end through which the other end passes and is extended upwardly and formed with a loop intermediate its ends, the handle, the strands of which are passed through said loop and then twisted around the said wire and wound around the neck of the demijohn, and the upwardly-extending wire twisted around the neck, substantially as described.

604,090. MACHINE FOR MAKING PAPER TUBES. FERDINAND SCHOETTLE, Philadelphia, Pa.; Mary A. Schoettle and William C. Schoettle executors of said Ferdinand Schoettle, deceased. Filed June 9, 1892. Serial No. 436,053. (No model.)

Claim.—1. In a machine for making paper tubes, a frame, a mandrel mounted in standards on said frame and having a detachable journal, a pasting-trough on said frame, and an adjustable carriage having mounted thereon a cutter intermediate of said mandrel and trough, and an automatically-detachable holder on said mandrel.

2. A mandrel having journals with sliding bars therein, a hook on one end of each of said bars, a spring bearing against a pin on each of said bars, and a holding-bar with ends adapted to be engaged by said hooks, said parts being combined substantially as described.



3. A mandrel having journals with sliding bars therein, hooks on the one end of said bars, and shoes on the other end thereof, springs bearing against pins on said bars, a holding-bar with ends engaged by said hooks, and bearings for said journals having cams thereon engaged by the said shoes, said parts being combined substantially as described.

4. In a machine for making paper tubes, a mandrel with journals having spring-controlled bars therein, with hooks on one of their ends adapted to engage the ends of a holding-bar, and swinging arms adapted to engage the other ends of said bars so as to operate them against said springs, said parts being combined substantially as described.

5. In a machine for making paper tubes, a mandrel, a detachable journal therefor, a bearing for said journal having a swinging support, and means for holding said support in place when the journal is secured to the mandrel, said parts being combined substantially as described.

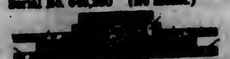
6. A mandrel, a detachable journal therefor, a swinging bearing for said journal, a lever-arm for supporting said bearing when the journal is connected with the mandrel, and an arm for supporting said bearing when the journal is detached therefrom, said parts being combined substantially as described

7. A mandrel having the bearing of one of its journals provided with a slide, and a crank-handle for said journal having a stop for said slide, the opposite journal being detachably connected with the mandrel and provided with a lug which is adapted to enter a recess in said mandrel, substantially as described.

8. A journal for the mandrel having a crank-handle therefor with a stop thereon, a slide on the bearing of said journal adapted to engage said stop, a stud with a lug thereof on the opposite journal, the latter being detachable from the mandrel, the mandrel having a socket with a recess to receive said stud and lug, and a supporting-arm for the detachable journal, said parts being combined substantially as described.

9. A mandrel, a binder removably connected therewith, a detachable journal for said mandrel adapted to interlock therewith, and a device on the other journal whereby the interlocking means for the detachable journal may register, said parts being combined substantially as described.

604,091. HORSESHOE. ROWLAND F. SMITH, Springfield, Ill. Filed July 26, 1897. Serial No. 645,260. (No model.)



Claim.—1. In a horseshoe, a calk having a lodge, in combination with an affixable member, a detachable member, and means for connecting said members, the lodge on said calk serving as a cushion between said members, as set forth.

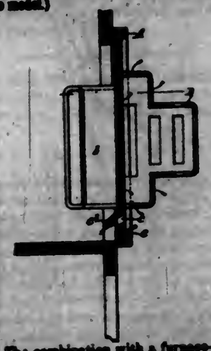
2. In a horseshoe, the combination of an affixable member having lugs, a detachable member fitting on said affixable member and having openings adapted to receive calks, removable flanged calks fitting in the openings in said detachable member, and screws connecting said members, as set forth.

604,092. KITCHEN UTENSIL. MILES W. SMITH, Long Island City, N. Y. Filed Sept. 14, 1896. Serial No. 605,709. (No model.)



Claim.—The herein-described kitchen utensil comprising a bar 5, having an angular projection 6, a segmental lever 8, pivotally connected with bar 5 at 7, a spiral spring 10 mounted between said bars, a bar 11 pivotally connected with said segmental lever having an angular projection 13 adapted to engage the angular projection on the bar 5, and a keeper 12 secured to the bar 5, and adapted to hold the bar 11 and permit the same to slide therein, substantially as shown and for the purpose set forth.

604,093. FURNACE-DOOR. GEORGE B. STEWARD, London, England, assignor of two-thirds to Edwin Ragley Gimkin, same place, and Joseph Cash, Coventry, England. Filed June 24, 1897. Serial No. 642,976. (No model.)



Claim.—1. The combination with a furnace-door, having a pair or pairs of slits or openings, of curved air-trunks projecting into the furnace, and forming air-passages, the vents of each pair of which are opposed to each other, but situate in different planes, as and for the purpose set forth.

2. The combination with a furnace-door having slits or openings covered by curved air-trunks projecting inward, and arranged in pairs, with vents opposed to each other, but in different planes, of a metal box on the front of the door covering the slits, and having openings in its front, and in all its sides, as and for the purpose set forth.

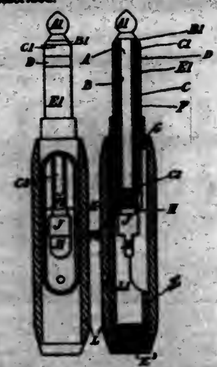
3. The combination with a furnace-door having slits or openings covered by curved air-trunks arranged in pairs, with vents opposed to each other, but in different planes, and a perforated metal box on the front of the door, covering the slits of other openings for the admission of air below the curved trunks and metal box, and having deflectors set at different angles to the door-face, as and for the purpose set forth.

4. The combination, in a furnace-door, of slits or openings covered by curved air-trunks arranged in pairs with vents opposed to each other, but in different planes, of other air-openings below the curved trunks, and covered by deflectors set at different angles to the door-face, as and for the purpose set forth.

5. The combination with the dead-plate of a furnace, of a furnace-door having longitudinal openings near its lower edge each provided at its upper side with a deflector, said deflectors being set at different angles to the door-face, whereby a whirling stream of air is directed toward the dead plate, and, by it, deflected toward the fire, as set forth.

604,094. TELEPHONE-SWITCHBOARD PLUG. JAMES TAYLOR, Knutsford, County, England. Filed Nov. 21, 1896. Serial No. 613,021. (No model.)

Claim.—1. In a telephone-switchboard plug, the combination with a metal bolt A, having the head formed solid with it, of metal tubes C and E, insulating-tubes B and F, insulating-rings D and G, nuts H and J, casing L, screws K and L', and electrical conductors, substantially as described.



2. In a telephone-switchboard plug, the combination of a central metal bolt A having a contact-head, metal tubes C and E, said tube C having a tag C', insulating-tubes B, F, said tube F having an opening F' and a groove F² to receive the tag, insulating-rings D and G, and nuts H and J, all arranged substantially as described.

3. In a telephone-switchboard plug, the combination with a metal tube C, having a collar and tag, of an insulating-ring D, and tube F fitting over the tube C, the insulating-tube F having an opening through which the tag passes, and a groove within which it lies.

4. In a telephone-switchboard plug, the combination with a metal bolt having a head at one end, an insulating-sleeve thereon and having one end enlarged to form a washer lying adjacent to the head of the bolt, a metal sleeve on the said insulating-sleeve, said metal sleeve having a collar at one end lying adjacent to the washer of the insulating-sleeve and having a tongue at the opposite end, an insulating ring or washer on the metal sleeve adjacent to the collar thereof, a second metal tube forming the body of the plug having one end smaller than the other, a second insulating-sleeve on the second metal tube, one portion of said latter sleeve fitting within the said smaller portion of the second metal tube, and the other portion fitting in the larger part of the latter tube, an insulating-washer on the smaller end of the said second insulating-sleeve and a nut on the bolt to secure the various parts thereon, and an insulating-casing secured to the body of the plug, all as specified.

5. In a telephone-switchboard plug, the combination with a metal bolt having a head at one end, an insulating-sleeve thereon and having one end enlarged to form a washer lying adjacent to the head of the bolt, a metal sleeve on the said insulating-sleeve, said metal sleeve having a collar at one end lying adjacent to the washer of the insulating-sleeve and having a tongue at the opposite end, an insulating ring or washer on the metal sleeve adjacent to the collar thereof, a second metal tube forming the body of the plug having one end smaller than the other, a second insulating-sleeve on the second metal tube, one portion of said latter sleeve fitting within the said smaller portion of the second metal tube, and the other portion fitting in the larger part of the latter tube, an insulating-washer on the smaller end of the said second insulating-sleeve, and a nut on the bolt to secure the various parts thereon, an insulating-casing secured to the body of the plug, a second nut having a flattened portion, and a screw passing through the plug-body and engaging a slot in the said second insulating-tube.

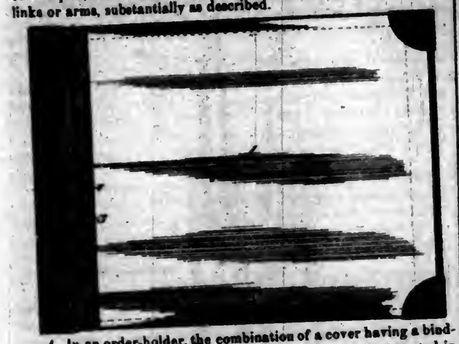
604,095. ORDER-HOLDER. ROBERT A. TERRELL, St. Louis, Mo., assignor to the Globe & Truppel Manufacturing Co., same place. Filed June 1, 1897. Serial No. 638,894. (No model.)

Claim.—1. An order-holder comprising an inflexible lower cover, an inflexible upper cover, means whereby the covers are hinged together at a distance apart so as to locate the pivotal point of the upper cover forward of the pivotal point of the lower cover, and a spring connection between the covers; substantially as described.

2. An order-holder comprising an inflexible lower cover, an inflexible upper cover, means whereby the covers are hinged together at a distance apart so as to locate the pivotal point of the upper cover forward of the pivotal point of the lower cover, and springs adapted to control the hinge between the covers; substantially as described.

3. In an order-holder, the combination of two covers, a binding to said covers, pins secured to the said binding of one of said covers,

links or arms connecting said pins with the second cover, pivotal attachment between said second cover and said links or arms, forward of said pins, and coil-springs about said pins, adapted to depress said links or arms, substantially as described.



4. In an order-holder, the combination of a cover having a binding, a spring box carried by said cover, a pin or shaft mounted in said box, a sleeve mounted on said pin or shaft, a coil-spring surrounding said sleeve, a second cover provided with pivotal connection to said spring, whereby said spring is arranged to depress said second cover upon said first cover forward of the rear end of said first cover of the line of said spring; substantially as described.

604,096. FIRE-ESCAPE. FRANKLIN UNDERWOOD, Burt's Mills, N. Y. Filed Apr. 26, 1897. Serial No. 634,083. (No model.)



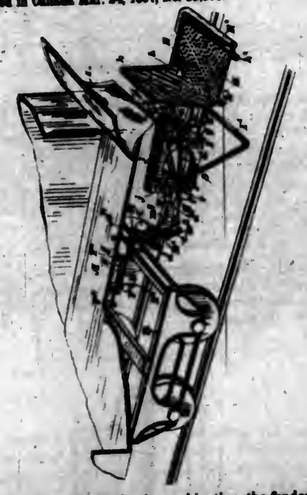
Claim.—1. In a device of the class described, the combination of a wheel, a frame composed of two substantially T-shaped sides permanently connected at the bottom and receiving the wheel between their upper portions, one of the sides having the terminals of its top portion extended across the periphery of the wheel, a rod mounted on the extended terminals of the said side and extending across the outer face of the other side, and a lever fulcrumed on the rod and engaging the outer face of the adjacent side of the frame, substantially as and for the purpose described.

2. In a device of the class described, the combination of a wheel forming a drum and adapted to receive the line, a frame composed of two substantially vertically disposed sides permanently connected at the bottom and having the wheel journaled between their upper ends, the latter being compressible to clamp and release the wheel, a rod carried by one of the sides, and a lever fulcrumed on the rod, provided with a spring-coil to receive the same and engaging the other side of the frame yieldingly, whereby the two sides of the frame are caused to engage the wheel yieldingly, substantially as described.

3. In a device of the class described, the combination of a wheel, a frame provided at its bottom with a loop, and composed of two substantially T-shaped sides having the wheel arranged between them, one of the sides having the terminals of its top portion extended across the periphery of the wheel, a rod journaled on the extended ends, a substantially Y-shaped brake-lever fulcrumed on the rod, having its arms coiled around the same to form springs and extended to provide legs, and a ring mounted on one side of said loop and arranged to engage the handle of the lever, substantially as described.

4. In a device of the class described, the combination of a wheel, a frame composed of two sides having the wheel journaled between them, one of the sides being extended across the periphery of the wheel at opposite sides thereof, a rod carried by the extended portions of the frame, and a lever having diverging arms coiled around the rod and extended to engage the frame, substantially as and for the purpose described.

604,097. STREET-CAR FENDER. JAMES R. A. WALKER, Walkerton, Canada. Filed May 31, 1897. Serial No. 637,502. (No model.) Patented in Canada Mar. 24, 1897, No. 55,396.



Claim.—1. In a car-fender, in combination, the fender, the truck, the supporting-bar attached to the truck and having inclined ways, the double vertical frame secured to the fender and provided with friction-rollers to run on the ways and a suitable spring for holding the double frame and fender, so that the friction-rollers rest on the highest points of the ways as and for the purpose specified.

2. In a car-fender, in combination, the fender, the truck, the supporting-bar having inclined ways, the central stud on the truck, the vertical pin extending through the stud and connected to the rear end of the supporting-bar, means connecting the pin to the bottom of the car for swinging the supporting-bar, the double vertical frame secured to the fender and provided with friction-rollers to run on the ways and a suitable spring for holding the double frame and fender so that the friction-rollers rest on the highest points of the ways as and for the purpose specified.

3. In a car-fender, in combination, the fender, the truck, the supporting-bar having inclined ways, the central stud on the truck, the vertical pin extending through the stud and connected at the rear end of the supporting-bar, a rod extending rearwardly from the top of the vertical pin extending through the stud, the screw-spindle held from longitudinal movement and the bracket on such spindle having a flat end abutting the bottom of the car, a notch at the bottom of the bracket into which the rod attached to the vertical pin extends, the double vertical frame secured to the fender and provided with friction-rollers to run on the ways and a suitable spring for holding the double frame and fenders so that the friction-rollers rest on the highest points of the ways as and for the purpose specified.

4. In combination, the fender, the truck, the supporting-bar provided with inclined ways, double vertical frame connected to the fenders and provided with the friction-rollers, the spring for holding such frame, so that the friction-rollers are normally situated at the front highest points of the ways, and the arms attached to the front end bars and provided with flanged wheels designed to ride on the track behind the fender as and for the purpose specified.

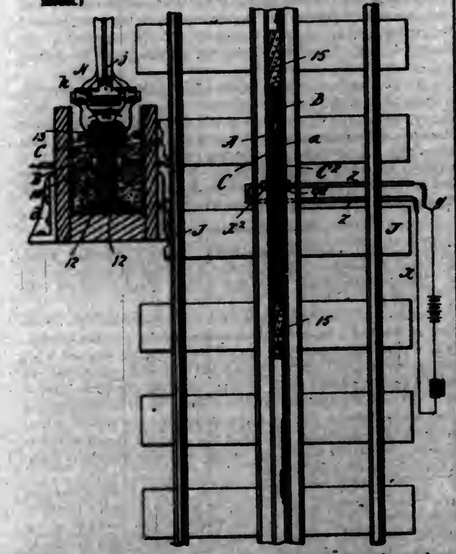
5. In combination, the fender, the supporting-bar and double frame connected to the fenders and supporting the same provided with a central opening, the spring connected to the double frame and to one end of the bar and the stop-pin on the bar designed to come in contact with one end of the opening of the double frame as and for the purpose specified.

6. In combination, the fender, and supporting-bar, the double vertical frame, the curved supplemental fender, the arm at the forward end of the supporting-bar, the shaft extending through the upper end of the arm, the arms on the end of the shaft connected to the lower end of the arc-shaped fender and means whereby upon the backward depression of the fender the arc-shaped fender is thrown downwardly into proximity with the front edge of the lower fender as and for the purpose specified.

7. In combination, the fender, and supporting-bar, the double vertical frame, the curved supplemental fender, the arm at the forward end of the supporting-bar, the shaft extending through the upper end of the arm, the arms on the end of the shaft connected to the lower end of the arc-shaped fender, pinions on the shaft, a counter-shaft journaled on the arm, spur-wheels secured to the counter-shaft meshing with the pinions on the upper shaft, levers on the end of the shaft, connecting-rods attached to the upper end of such levers, guiding-rods supported and designed to move longitudinally in suitable sleeves, collar on the guiding-rods and set-screws for fastening the rear ends of the connecting-rods to such collar and a cross-bar at the rear end of the connecting-rods designed to be thrown rearwardly by the double vertical frame as and for the purpose specified.

8. In combination the fender and supporting-bar, the double vertical frame, the curved supplemental fender, the arm at the forward end of the supporting-bar, the shaft extending through the upper end of the arm, the arms on the end of the shaft connected to the lower end of the arc-shaped fender, pinions on the shaft, a counter-shaft journaled on the arm, wheels secured to the counter-shaft meshing with the pinions on the upper shaft, levers on the end of the shaft, connecting-rods attached to the upper ends of such levers, guiding-rods supported and designed to move longitudinally in suitable sleeves, collar on the guiding-rods and set-screws for fastening the rear end of the connecting-rods to such collar, a cross-bar at the rear end of the connecting-rods designed to be thrown rearwardly by the double vertical frame, and a spring connected to the lower end of one of the levers on the counter-shaft and to the supporting-bar as and for the purpose specified.

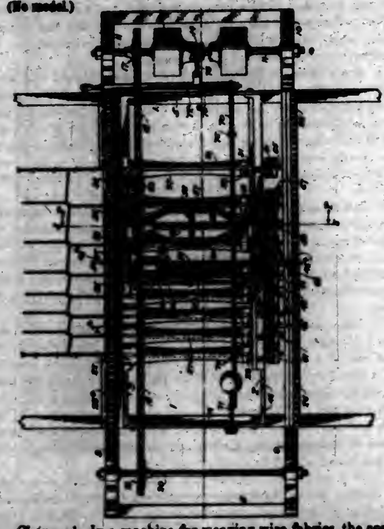
604,098. RAIL CONDUCTOR FOR ELECTRIC SYSTEMS. LOUIS R. WALKER, Springfield, Mass., assignor of one-half to Francis W. Dickinson, same place. Filed Aug. 18, 1897. Serial No. 648,787. (No model.)



Claim.—1. The combination of several rails in end-to-end arrangement, an intermediate one A thereof consisting of two opposite longitudinally-ranging metallic sections and an intermediate rail of non-conducting material supporting and insulating said sections, end portions of said intermediate rail overlying the ends of said metallic sections and serving to insulate the respective metallic side sections at their ends from the rails adjoining the ends of said intermediate sectional rail A, substantially as described.

2. In a railway, the combination with the usual side track-rails J J, and the intermediate third rail comprising lengths of rail in endwise arrangement, an intermediate one A of these rails or sections consisting of two opposite longitudinally-ranging metallic sections, and an intervening length of non-conducting material supporting and insulating said opposite metallic sections, the ends of said latter sections being insulated from the rails which endwise adjoin the said rail-section A, and which are of metal, wires *x y* joined to said metallic sections and forming an electric circuit comprising therein a generator, and an electromagnet also comprised in said circuit having an armature, substantially as described.

604,099. WIRE-FENCE-WEAVING MACHINE. WILLIAM H. WARNER, Malvern, Kans. Filed Aug. 23, 1897. Serial No. 649,201. (No model.)



Claim.—1. In a machine for weaving wire fabrics, the combination with a carriage, and a shuttle, of an advancing-shaft for said carriage, a common driving connection, a clutch device for said advancing-shaft, and a latch arranged to lock the carriage and having an operative connection with said clutch device for the carriage-advancing shaft, whereby the adjustment of the latch to release the carriage brings into service the clutch device and the advancing-shaft to feed the carriage, substantially as described.

2. In a machine for weaving wire fabrics, the combination with a carriage, warp-carriers, and a shuttle, of a shuttle-driving mechanism mounted on the carriage for rotating the shuttle, a feed mechanism for intermittently moving the carriage, a common driving connection for the carriage-feed mechanism and the shuttle-driving mechanism, and a locking device having operative connections with the shuttle-driving mechanism and the carriage-feed mechanism, said locking device arranged in relation to the shuttle-driving mechanism to be operated thereby after the shuttle has been rotated a predetermined time and serving to throw the carriage-feed mechanism into operative engagement with the common driving connections, substantially as described.

3. In a wire-fence-weaving machine, the combination of the warp-carriers, a shuttle-carrier having a shuttle, a feed mechanism for imparting intermittent traveling movement to the shuttle-carrier, a locking mechanism for holding the shuttle-carrier at rest in the intervals between its feed, and a trip mechanism acting in synchronism with a driving mechanism for the shuttle and the warp-carrier and arranged to release the locking mechanism and the shuttle-carrier automatically after the shuttle and the warp-carrier have completed the twisting of the warp and weft wires, as set forth.

4. In a wire-fence-weaving machine, the combination with a series of warp-carriers, a shuttle-carrier, and a shuttle, of a driving mechanism carried on the shuttle-carrier for imparting rotary motion to the shuttle and the warp-carrier with which the shuttle may be alined, and a trip-latch mechanism acting in conjunction with the shuttle-driving mechanism to lock the shuttle-carrier and release the same at intervals, as and for the purposes described.

5. In a wire-fence-weaving machine, the combination with a series of warp-carriers, a shuttle-carrier, and an intermittent feed mechanism for said shuttle-carrier, of a shuttle mounted in the shuttle-carrier, a driving mechanism for rotating the shuttle and the warp-carrier with which it may be alined, a latch mechanism for the shuttle-carrier, and a trip mechanism between the shuttle-driving mechanism and the latch mechanism, for the purposes described, substantially as set forth.

6. In a machine for weaving wire fabrics, the combination with a carriage, and a shuttle, of a shuttle-driving mechanism, a latch mechanism for locking the carriage, and a time-controlled trip mechanism in operative relation to the shuttle-driver and serving to free the latch after the shuttle has made a predetermined number of revolutions, substantially as and for the purposes described.

7. In a machine for weaving wire fabrics, the combination with a carriage, warp-carriers, and a shuttle, of a shuttle-driver, a latch mounted on the carriage, and a time-controlled trip having its operating-arm arranged to ride against the latch and actuated by independent collars which are capable of independent play and of interlocking engagement with one another, the shuttle-driver, and the operating trip-arm, substantially as described.

8. In a wire-fence-weaving machine, the combination with warp-carriers, a shuttle-carrier, and a shuttle, of an endless drive-chain, a driving mechanism for the shuttle and the warp-carrier alined therewith, a latch mechanism for the shuttle-carrier, a feed or advancing shaft for the shuttle-carrier, and a clutch-controlled driving-gear between the drive-chain and the feed-shaft and arranged to be thrown into and out of action by the latch mechanism, as and for the purposes described.

9. In a wire-fence-weaving machine, the combination with warp-carriers, a shuttle-carrier, and a shuttle, of a latch mechanism for the shuttle carrier, a feed-shaft journaled on the shuttle-carrier, a drive-chain, a clutch-controlled gear between the drive-chain and the shuttle-carrier feed-shaft, and a shipper mechanism for said clutch acting in connection with the latch mechanism, as and for the purposes described.

10. In a wire-fence-weaving machine, the combination with warp-carriers, a shuttle-carrier, and a shuttle, of a latch mechanism on the shuttle-carrier, a feed-shaft journaled on the shuttle-carrier, a drive-chain, a clutch-controlled gear between the drive-chain and the feed-shaft for the shuttle-carrier, a shipper-rod between said clutch-controlled gear and the latch mechanism, a mechanism for rotating the shuttle and the warp-carrier alined therewith, and a trip mechanism between the shuttle-driving devices and the latch mechanism, for the purposes described, substantially at set forth.

11. In a wire-fence machine, the combination with a carriage, and a shuttle, of a series of warp-carriers each having its shell-pinion provided with lugs, a shaft journaled in said carriage, the cam-wheel provided with a toothed segment and with projecting arms to engage with the lugs and the teeth of the shell-pinions on the warp-carriers successively, a latch, and a time-controlled trip mechanism, substantially as described.

12. In a wire-fence-weaving machine, the combination with a shuttle carrier, and a shuttle, of a series of warp-carriers each provided with a shell-pinion having teeth and a lateral eccentric stud, a cam-wheel mounted on the shuttle-carrier and provided with teeth for a part of its circumference and with lateral entrance-studs to coact with the shell-pinions, and mechanism for rotating the cam-wheel and the shell-pinion of the warp-carrier with which the cam-wheel may be temporarily engaged, as and for the purposes described.

13. In a wire-fence-weaving machine, the combination with a shuttle-carrier, a shuttle, and a series of warp-carriers, of a cam-wheel shaft, a latch mounted on the shuttle-carrier, a cam-wheel on said shaft, and a time-controlled trip on the cam-wheel shaft to act in conjunction with the cam-wheel and the latch, as and for the purposes described.

14. In a wire-fence-weaving machine, the combination with a shuttle-carrier, a shuttle, and warp-carriers, of a latch mounted on the shuttle-carrier, a cam-wheel shaft journaled in said carrier, a cam-wheel on the shaft and provided with a stud, a trip arranged to move the latch, and one or more time-collars between the cam-wheel and the trip, as and for the purposes described.

15. In a wire-fence-weaving machine, the combination with a shuttle-carrier, a shuttle, and a series of warp-carriers, of a cam-wheel shaft on the shuttle-carrier, a latch on the shuttle-carrier, a cam-wheel on said shaft, a time-trip between the cam-wheel and the latch, a feed-shaft journaled on the shuttle-carrier, a clutch-controlled gear on said feed-shaft, a drive-chain engaging with the cam-wheel shaft and with the clutch-controlled gear of the feed-shaft, and a shipper-rod between the latch and the clutch-controlled gear of the feed-shaft, for the purposes described, substantially as set forth.

16. In a wire-fence-weaving machine, the combination of a main supporting-frame, one side of which is provided with semicircular openings and the other side having openings along its medial line and a groove on its inner side, a shuttle-carrier flanged to engage the groove of one side of said frame and resting upon the other side thereof, track-bars one of which engages with the flange on one side of the shuttle-carrier, a series of warp-carriers journaled in the main frame contiguous to the shuttle-carrier, a shuttle, and a feed mechanism for the shuttle-carrier which engages with the track-bars, as and for the purposes described.

17. In a wire-fence-weaving machine, the combination with a series of warp-carriers, a traveling shuttle-carrier, and a shuttle, of a shuttle-driving shaft on said carrier, a feed mechanism for the shuttle-carrier, a drive-chain, a power-shaft having a reversing mechanism for its pulleys, a hand-lever associated with the reversing mechanism, a balanced lever, and a reversing-rod connected with the balanced lever and the hand-lever and having dogs arranged in the path of the shuttle-carrier, for the purposes described, substantially as set forth.

18. In a wire-fence-weaving machine, the combination with a series of warp-carriers mounted within a stationary frame, of a shuttle-carrier, a shuttle mounted in said carrier and supporting a weft-bobbin, mechanism for imparting intermittent feed to said carriage, mechanism for imparting motion to the shuttle and the warp-carrier with which the shuttle may be temporarily in alinement, a timing device associated with the mechanism for rotating the shuttle and warp-carrier to regulate the number of rotations thereof, a latch traveling with the carriage to lock the same in the intervals between its feed and lying in the path of the timing device to be actuated thereby at the completion of the desired number of rotations of the shuttle and warp-carrier, and shifting devices controlled by the latch to throw the feed mechanism into operation and renew the feed of the shuttle-carrier, substantially as described.

19. In a machine for weaving wire fabrics, the combination of a series of warp-carriers arranged in the same horizontal plane in a suitable frame, a traveling carriage having a shuttle for a weft-bobbin, a driving-shaft with a reversing-gear, a driving connection from said driving-shaft for feeding the carriage and rotating the shuttle and warp-carrier, a shifting rod with stops in the path of the traveling carriage, and a reversible clutch with which the shifting rod is connected, substantially as described.

20. In a machine for weaving wire fabrics, the combination of a series of warp-carriers arranged in the same horizontal plane in a suitable frame, a traveling carriage mounted to travel in a plane at one side of said warp-carriers, a shuttle mounted in said carriage and having a weft-bobbin, a driving-shaft, pulleys mounted thereon, a shiftable clutch between said pulleys, a driving connection between the driving-shaft and the carriage for feeding the latter and for rotating the shuttle and warp-carrier in the intervals between the feed of the carriage, a shifting rod supported above the warp-carriers and the carriage and having stops in the path of the carriage, and a lever fulcrumed on the frame and operatively connected with the shifting rod and the clutch, substantially as described.

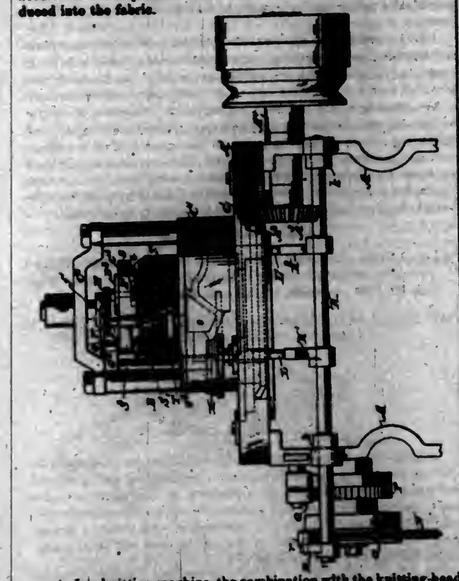
21. In a machine for weaving fence fabrics, the combination with a traveling carriage, a series of warp-carriers, a shuttle, and a driving connection, of a driving-shaft by which the driving connection is operated, the pulleys on said shaft, a clutch, a lever connected with the clutch, an overbalanced swinging arm opposite to the lever, a shiftable rod attached to said lever and the swinging arm to hold the rod and lever in their adjusted positions, and stops carried by the rod in the path of the carriage, substantially as described.

604,100. KNITTING-MACHINE. FRANK A. WILDMAN, Norristown, Pa., assignor to the McMichael & Wildman Manufacturing Company, of Pennsylvania. Filed May 13, 1897. Serial No. 636,332. (No model.)

Claim.—1. The combination with the knitting-head of a knitting-machine, of a movable thread-carrier having a thread passage-way, a clamping-piece adjacent to the thread-carrier, adapted, when the carrier is moved into a certain position, to clamp the thread and hold it against passage to the needles, operating-levers connected so that when one is projected the other is retracted, power-transmitting connections between the operating-levers and the thread-carrier whereby the operation of said levers will move the thread-carrier to clamp or release the thread, and devices controlled by pattern mechanism for operating the levers.

2. The combination with the knitting-head of a knitting-machine, of a frame D' arranged adjacent to the needles thereof, a rotatable thread-carrier D journaled on the frame D', and provided with a thread passage-way extending through it, through which the thread may pass freely to the needles when said passage-way is presented to them, a clamping-wall d' on the frame D' adjacent to the thread-carrier adapted to hold and break the thread when the thread-carrier is turned to move its thread passage-way away from the needles, a pinion E carried by the carrier D, a second pinion F adjacent to the pinion E and engaging the teeth thereof, and means controlled by pattern mechanism for operating the pinion F embracing levers I, J, so connected that when one is retracted the other is projected, and connections between the levers I, J, and the pinion F.

3. In a knitting-machine, the combination with the knitting-head having the vertical and horizontal needles, the movable thread-carrier D for introducing an auxiliary thread to the needles, in addition to the ordinary threads which compose the fabric, means for operating the thread-carrier D, embracing a pinion F, the operating-cam for the vertical needles, a rod S carried by the said cam and bearing against the pinion F and adapted to be depressed thereby when the pinion is turned to operate the thread-carrier, whereby the vertical needles will be depressed while the auxiliary thread is being introduced into the fabric.



4. In a knitting-machine, the combination with the knitting-head and its needles, and the usual thread-guide for guiding the body-thread to the needles, of the devices for introducing an auxiliary or reinforcing thread consisting of a block D' located adjacent to the needles and provided with a recess, a movable perforated thread-carrier located in the recess of said block through the perforation *d* of which the auxiliary thread passes, and means controlled by pattern mechanism for operating said thread-carrier to clamp and release the auxiliary thread between said carrier and a wall of the recess in said block.

5. In a knitting-machine, the combination with the knitting-head and its needles, and the usual thread-guide for guiding the body-thread to the needles, of the devices for introducing an auxiliary or reinforcing thread consisting of a rotary perforated thread-carrier D, through the perforation *d* of which the auxiliary thread passes, a clamping frame or wall located adjacent to said carrier and adapted to clamp the thread which passes through the perforation *d* between it and the carrier when said carrier is turned, and means controlled by pattern mechanism for turning said rotary carrier to clamp or release the auxiliary thread, which passes through the perforation thereof.

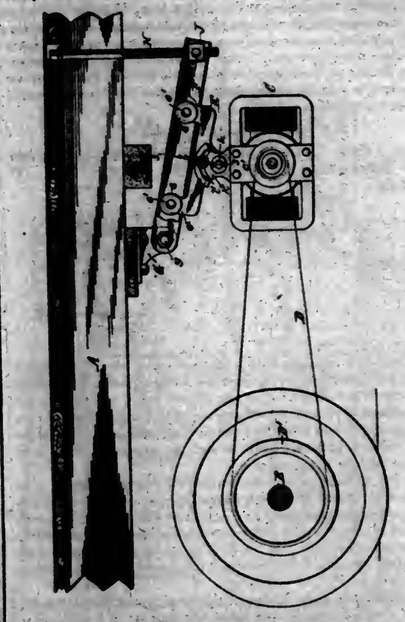
604,101. ELECTRIC-LIGHTING APPARATUS FOR CARS. EDWARD WILHELM and WILLARD F. RICHARDS, Buffalo, N. Y., assignors to Charles H. Gould, same place. Filed Oct. 23, 1897. Serial No. 656,160. (No model.)

Claim.—1. The combination with a railway-vehicle and its axle, of an inclined track or way arranged on the under side of the vehicle, a dynamo supported on said track and capable of moving thereon toward and from said axle, and a frictional driving mechanism whereby the dynamo is driven from said axle, substantially as set forth.

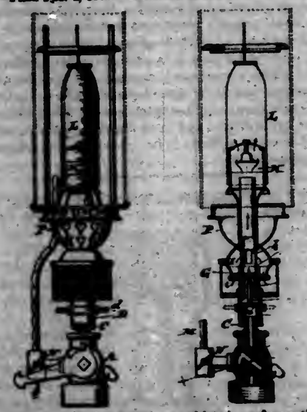
2. The combination with a railway-vehicle and its axle, of an inclined track or way arranged on the under side of the vehicle, means whereby the inclination of the track or way can be adjusted, a dynamo supported on said track or way and capable of moving thereon toward and from the axle, and a frictional driving mechanism whereby the dynamo is driven from said axle, substantially as set forth.

3. The combination with a railway-vehicle and its axle, of an inclined track or way arranged on the under side of the vehicle and pivoted at one end thereto, means for adjusting the opposite end of the track vertically, a dynamo supported on said track and capable of moving toward and from said axle, and a frictional driving mechanism whereby the dynamo is driven from said axle, substantially as set forth.

4. The combination with a railway-vehicle and its axle, of an inclined track or way arranged lengthwise on the under side of the vehicle, a carriage mounted on said track, a dynamo adjustably attached to said carriage, and a frictional driving mechanism whereby the dynamo is driven from said axle, substantially as set forth.



604,102. GAS-BURNER. THOMAS WILSON, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, of Pennsylvania. Filed Feb. 1, 1897. Serial No. 621,420. (No model.)



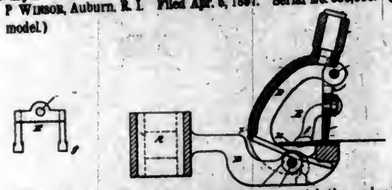
Claim.—1. In a gas-burner, the combination of a vertically movable and rotatable Bunsen burner having a gas-aperture at the bottom, a main gas-pipe leading to the Bunsen burner, a fixed needle-valve arranged upon the main gas-pipe and extending into the aperture in the Bunsen burner, an air-valve carried by the Bunsen burner, lateral projections from the Bunsen burner below the air-valve for rotating it, a main burner loosely supported upon the Bunsen burner, an incandescing mantle supported over the main burner, and means to hold the main burner and mantle against rotation when adjusting the Bunsen burner upon the needle-valve.

2. In a gas-burner, the combination of the main gas-pipe and valve, a by-pass leading therefrom, an auxiliary igniting-pipe leading from the by-pass to the main burner, a fixed needle-valve arranged upon the gas-pipe, a Bunsen burner adjustable vertically upon the fixed needle-valve, and a main burner supported by the Bunsen burner and held against rotation by the auxiliary igniting-pipe.

3. In a gas-burner, a stationary needle-valve secured centrally

upon a perforated thimble fitted to the gas-pipe, a Bunsen burner having a small central gas-orifice at the bottom receiving the point of the needle-valve and provided with a screw-threaded adjusting connection upon the thimble whereby it may be rotated and thus vertically adjusted upon the needle-valve, a mantle adapted to be heated by the gas from the Bunsen burner, screened air-passages to lead air to the Bunsen burner adapted to be rotated with the Bunsen burner, and means to hold the mantle stationary when the Bunsen burner is rotated during adjustment.

604,103. CLOTH-CLAMP FOR TEXTILE MACHINERY. ROBERT P WINSOR, Auburn, R. I. Filed Apr. 6, 1897. Serial No. 630,961. (No model.)



Claim.—1. In a cloth-clamp, the combination with the under jaw having a cloth-support of an upper jaw swinging laterally to expose said support and comprising an arm pivoted below said support and a gripping-pawl pivoted to said arm above said support and a spring pressing against said arm which restores the upper jaw to normal position, and acts upon said pawl through the medium of said arm to hold the cloth by spring-pressure.

2. In a cloth-clamp, the combination with the cloth support of an arm pivoted below said support, a gripping-pawl pivoted to said arm above said support and having a limited travel with the cloth in the direction of stretch, and a spring, acting upon said pawl through the medium of said arm to hold the cloth by spring-pressure and to determine the strain to which the arm is subjected by the toggle action of the pawl.

3. In a cloth-clamp, the combination with a slotted cloth-support of a curved arm pivoted below said support, a gripping-pawl pivoted to said arm above said support, a spring acting upon said pawl through the medium of said arm to hold the cloth by spring-pressure and a controller swiveled to said pawl and having fingers with enlarged ends which cross the warp and equalize their pressure while they rest upon the cloth, and drop through the slots in the cloth-support to locate the grip of the pawl near the selvage.

4. A cloth-clamp for textile machinery having an upwardly-pressing spring, a laterally-swinging lever-arm against which said spring presses, and which converts such pressure into downward stress, a gripping-pawl pivoted to the upper end of said arm and provided with a suitable controller, a cloth-support beneath said pawl, and stops limiting the travel of said pawl with the cloth in the direction of its stretch and arresting said arm in its normal position, substantially as hereinbefore specified.

604,104. NON-REFILLABLE BOTTLE. ALVIN H. WOODARD, Mansfield, Ohio. Filed July 21, 1897. Serial No. 645,433. (No model.)



Claim.—1. A vessel having a valve-seat in its neck, and a by-pass, a plate corresponding to the opening in the mouth of the vessel, a tube secured to said plate and projecting downwardly into the neck, a valve adapted to seat in the neck of the vessel, and provided with a guide-stem projecting upwardly within the tube, and an impenetrable packing placed in the neck of the bottle above the plate to prevent the withdrawal of the plate and valve, substantially as set forth.

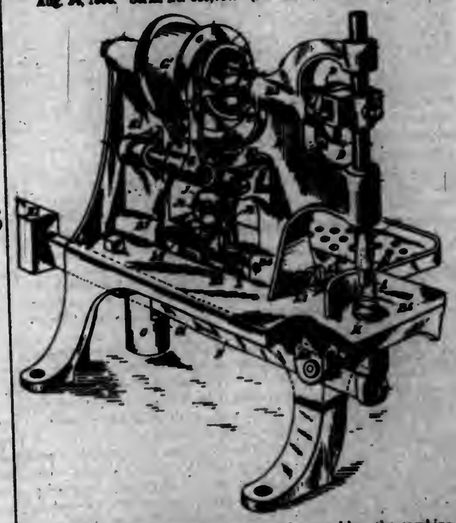
2. A vessel having a valve-seat in its neck, and a by-pass, a plate corresponding to the opening in the mouth of the vessel, a tube secured to said plate and projecting downwardly into the neck, and provided with a longitudinal slot, a valve adapted to seat in the neck of the vessel and provided with a guide-stem projecting upwardly within the tube, and having a pin to engage the slot, a spring inclosed within the tube and confined between the upper end of the valve-stem and the plate, disks secured to said tube and having unalined apertures, and a packing of impenetrable material placed in the neck of the vessel above the plate to prevent the withdrawal of the tube and its connected or associated parts, substantially as set forth.

604,105. IMPLEMENT-HANDLE. ABRAHAM L. ADAMS, Bridgeport, Conn., assignor of one-half to George R. Hawes, same place. Filed July 30, 1896. Serial No. 557,612. (No model.)



Claim.—In a tool, the combination with a handle provided with a ferrule bent at an angle thereto, said ferrule having a longitudinal perforation, adapted to engage a plurality of tools each having a shank secured thereto adapted to enter the perforation of the ferrule and rotate therein, the angle of attachment of each shank to its tool being such that in the rotation of the tool the tool will lie at a constantly-varying angle to the handle.

604,106. MACHINE FOR STAMPING SOLES OF BOOTS, SHOES, &c. ARTHUR ADCOCK, South Wigston, England, assignor of three-fourths to Benjamin Toone and John Wycliffe Black, same place. Filed Aug. 24, 1896. Serial No. 603,707. (No model.)



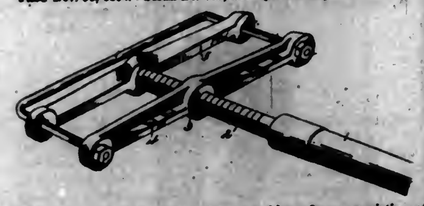
Claim.—1. In a stamping or embossing machine, the combination with the stamp, of a shaft, an eccentric thereon, clutch mechanism on the shaft, a ratchet-wheel and means between it and the said clutch, to place the latter in and out of action, and a slide, movable by the article to be stamped, to actuate the ratchet-wheel substantially as described.

2. In a stamping or embossing machine the combination with the stamp, of a shaft, an eccentric thereon for actuating the stamp, clutch mechanism on the shaft, a two armed lever, a ratchet-wheel to actuate the latter to place the clutch in and out of action and means for actuating the said ratchet-wheel and operated by the article to be stamped substantially as described.

3. In a stamping or embossing machine the combination of a stamp and its spindle, an eccentric for actuating them, a shaft and clutch mechanism thereon, a lever for placing the latter in and out of action, a ratchet-wheel for actuating the said lever, a yielding tooth which when moved in one direction will partly rotate the ratchet-wheel and in returning will pass under it without actuating it substantially as described.

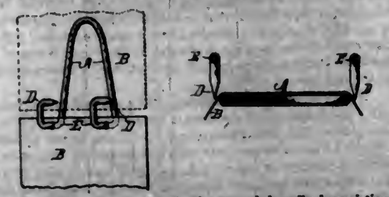
4. In a stamping or embossing machine, the combination of a stamp, a rotatable shaft, an eccentric thereon for actuating the stamp, a pulley loosely mounted on the shaft, a toothed clutch carried by the pulley, a pawl pivotally connected with the shaft adapted to engage with the tooth of the clutch, a pivoted lever having an inclined edge adapted to free the pawl from a tooth of the clutch as described, a ratchet-wheel, a slide movable by the article to be stamped, a connection between the slide and ratchet-wheel whereby the latter is actuated when the slide is moved in one direction, and a connection between the ratchet-wheel and the pivoted lever for the purpose set forth.

604,107. MOP-HOLDER. HERMAN A. L. RADE, Clyde, Ohio. Filed Nov. 30, 1897. Serial No. 660,393. (No model.)



Claim.—A mop-holder comprising an oblong frame consisting of the outer side and ends constructed of a single piece of rod metal threaded at its terminals, and the adjustable transverse bar 4, having a central threaded perforation and provided at its terminals with perforations receiving the ends of the frame, nuts arranged on the threaded portions of the ends of the frame and engaging the inner and outer faces of the bar 4, and detachably and adjustably securing the latter to the ends of the oblong frame, the movable bar provided at its ends with perforations receiving the ends of the frame, whereby the bar is guided on the latter, and a screw designed to be secured to the mop-handle, engaging the threaded perforation of the bar 5 and having its outer end swiveled to the movable bar, substantially as and for the purpose described.

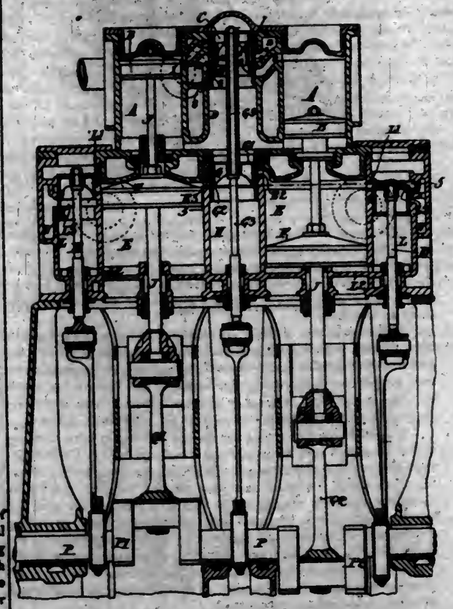
604,108. FILE FOR PRESCRIPTIONS. ALFRED H. COOK, Jr., Joliet, Ill. Filed Dec. 13, 1897. Serial No. 661,841. (No model.)



Claim.—The prescription-file shown and described consisting of a single piece of wire bent to form substantially a V-shaped body, and having its extremities or arms terminating in needle-points D, and bent backward toward said body so as to form loops E for holding prescriptions, said needle-points D being extended slightly beyond the line of said body and turned laterally from each other to be out of line with said body and leave a passage for the insertion of prescriptions, and so said loops or prescription-receptacles will be substantially parallel with each other substantially as and for the purpose set forth.

604,109. STEAM OR OTHER FLUID PRESSURE ENGINE. WILLIAM H. GREENWOOD, Bradford, England. Filed Sept. 16, 1896. Serial No. 605,908. (No model.)

Claim.—1. In a steam-engine, the combination with the cylinder and independent valve-chests, with ports opening communication with one of said valve-chests and the upper end of the cylinder, ports communicating between the other of said valve-chests and both ends of the cylinder, with an independent passage connecting the last-mentioned ports with each other and an exhaust-port, of a piston working in said cylinder, independent valves located in said valve-chests and controlling said ports, one to admit pressure to the upper end of the cylinder and the other to control the exhaust therefrom, and to control the by-pass from the upper to the lower end of the cylinder; substantially as described.



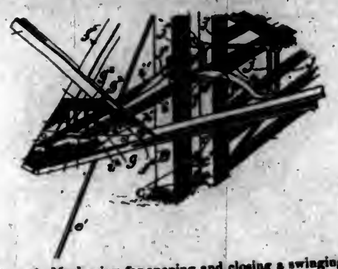
2. In a steam-engine the combination with the cylinder, and independent valve-chests, with ports opening communication with one of said valve-chests and the upper end of the cylinder, ports communicating between the other of said valve-chests and both ends of the cylinder, with an independent passage connecting the last-mentioned ports and an exhaust-port, of a piston working in said cylinder, valves controlling said ports and the pressure-reducer located in the passage between the upper and lower ends of the cylinder; substantially as described.

3. In a steam-engine, the combination with the cylinder, independent valve-chambers with ports communicating with one of said valve-chambers and the upper end of the cylinder and between the other of said valve-chambers and both ends of the cylinder with an independent passage connecting the last-mentioned ports and an exhaust-port, a piston working in said cylinder and valves controlling the said ports, of a pressure-reducing valve interposed between the ports communicating with both ends of the cylinder, with means for manually controlling the said pressure-reducing valve; substantially as described.

4. In a steam-engine the combination with the two cylinders arranged side by side, an intermediate valve-chest with ports opening communication between said valve-chest and the upper ends of both said cylinders, and independent valve-chests with ports opening communication between both ends of said cylinders and said independent valve chests, and pistons working in said cylinders, of a valve working in said intermediate valve-chest and controlling the admission of pressure to the upper ends of the cylinders alternately, and independent valves located in said independent valve-chests and controlling the ports leading from opposite ends of the cylinders to exhaust; substantially as described.

5. In a steam-engine the combination with the cylinders arranged side by side, the intermediate and independent valve-chest with ports leading from the intermediate valve-chest to the upper ends of both the cylinders and from the independent valve-chest to both ends of the cylinders and to exhaust, and a passage M in each of said independent valve-chests, of pistons working in said cylinders and valves working in said valve-chests, and controlling, respectively, the alternate admission of pressure to the upper ends of the cylinders and the alternate admission of pressure from the upper ends of said cylinders through the passages M, to the lower ends of said cylinders, and from the lower ends of said cylinders to exhaust; substantially as described.

604,110. SWINGING GATE. WILLIAM P. DAVIS, Warren, and HENRY J. ALEXANDER, Huntington County, Ind. Filed Nov. 15, 1897. Serial No. 658,580. (No model.)



Claim.—1. Mechanism for opening and closing a swinging gate, comprising a rocking actuator, and a double set of operating connections between the same and the gate with provisions for automatic alternation, whereby reciprocation of the rocker may be converted into a complete swing of the gate in one direction, substantially as described.

2. Mechanism for opening and closing a swinging gate, comprising a rocking actuator, and a pair of connector-bars coupled with the gate in different radial lines from the hinging-center thereof, said actuator and bars having coacting abutments and said bars having coacting cams to alternately disengage abutments thereof from abutments on the actuator, substantially as and for the purpose described.

3. Mechanism for opening and closing a swinging gate, comprising an elongated rocking actuator having a plurality of vertically-extending shoulders or abutments and a horizontally-extending shoulder or abutment, connector-bars coupled with the gate in different radial lines from its hinging-center and arranged to bear upon the horizontal shoulder or abutment adjacent to the vertically-extending shoulders or abutments, said bars having lateral projections for engagement with the latter and shoulders for engagement with the horizontal shoulder of the actuator, and also having coacting cams to effect alternate disengagement of the bars from said horizontal shoulder, substantially as described.

4. Mechanism for opening and closing a swinging gate, comprising an elongated actuating rocker-frame obliquely disposed on elevated supports and having at or near its middle lower portion a horizontally-extending edge or shoulder and a plurality of vertically-extending abutments or shoulders adjacent thereto, a pair of connector-bars set on edge to rest upon the said horizontal shoulder and having teeth or shoulders to alternately engage the same for movement of said bars in one direction by the actuator, the bars having coacting cams to alternately disengage them from the said horizontal shoulder and also provided with lateral abutments or projections for engagement with the vertical abutments of the actuator to effect movement of the bars alternately in a direction opposite to that produced through their engagement with the horizontal shoulder, and arms projecting laterally and divergently from the gate at the hinged end thereof and pivotally connected with the bars respectively.

5. Mechanism for opening and closing a swinging gate, comprising a rocking actuator, a double set of operating connections between the same and the gate with provisions for automatic alternation whereby reciprocation of the rocker may be converted into a complete swing of the gate in one direction, and a latch on the gate coupled with the said connections, substantially as described.

6. Mechanism for opening and closing a swinging gate, comprising a rock-shaft on the hinge end of the gate and projecting laterally therefrom and having a plurality of arms, a bracket fastened on the gate and supporting the outer end of said rock-shaft, said bracket comprising a member extending downwardly to constitute a guard for a pendent arm of the rock shaft, a latch on the gate operatively connected with an arm of the rock-shaft, a rocking actuator, and suitable connections between the same and the said rock-shaft.

604,111. HAIR-TONIC. LOUISA EDWARDS, Florence, Colo. Filed Dec. 31, 1897. Serial No. 665,173. (No specimens.)

Claim.—A composition of matter for the purpose named, comprising a decoction of mountain-sage, glycerin, tincture of lobelia, prickly-pear juice, tincture of capsicum, sweet-oil, and alcohol, combined, substantially as and in the proportions specified.

604,112. BOX OR CAN. ALAN R. FERGUSON, Baltimore, Md., assignor to Henry F. Miller and George Miller, same place. Filed Oct. 9, 1897. Serial No. 654,654. (No model.)

Claim.—The combination with a receptacle having a neck at one end and a fixed perforated disk at the end of said neck, of a fixed cap on said neck having an outlet-opening and a slot communicating with said opening, a disk within the cap and adapted to form a measuring-chamber with which said outlet-opening in the cap is adapted to communicate, said disk having a hole to aline with the hole in the fixed disk, a flange on said disk to close the outlet-opening of the cap and a lip on said disk projecting through said slot in the cap and serving as a handle and a spout, substantially as set forth.



604,113. PAPER-SERVING MACHINE. CHARLES PFEIFER, Milwaukee, Wis., assignor of one-half to Herman Segnitz, same place. Filed May 31, 1895. Serial No. 551,329. (No model.)



Claim.—1. A paper-serving machine comprising a suitable casing or frame, a serving-roller journaled therein, and a retaining device or fastening for holding a package or bunch of sheets at one end or edge, constructed and arranged with reference to said roller and the point of discharge of the paper to hold the package in a curved position or form around or against said roller, substantially as and for the purposes set forth.

2. A paper-serving machine comprising a casing, having a delivery slot or aperture, a serving-roller journaled in said casing, and a retaining device constructed and arranged with reference to said serving-roller and delivery-slot to hold a bunch or package of sheets by one end or edge in a curved form around said roller with each inner sheet of the package projecting at the opposite end or edge from the retaining device beyond the next sheet, substantially as and for the purposes set forth.

3. A paper-serving machine comprising a suitable casing provided with a discharge slot or aperture, a serving-roller journaled in said casing above said discharge-aperture, a retaining device or fastening constructed and arranged with reference to said serving-roller so as to hold a package or bunch of sheets by one end or edge suspended in a curved form upon said roller in position to be advanced thereby through said discharge-aperture, substantially as and for the purposes set forth.

4. A paper-serving machine comprising a suitable casing provided with a delivery slot or aperture, a serving-roller journaled in said casing, and a retaining device or fastening constructed and arranged with reference to said roller and delivery-aperture so as to hold a package or bunch of sheets by one end or edge in a curved form upon or against said roller with each inner sheet projecting at the end or edge opposite said retaining device beyond the next sheet, said casing having an inclined wall next to said delivery-aperture serving to support and guide the free ends of the sheets thereto, substantially as and for the purposes set forth.

5. A paper-serving machine comprising a suitable casing or frame, a serving roller journaled therein and provided with a coating or covering of material affording frictional engagement with the paper, and a retaining device or fastening constructed and arranged to hold a package or bunch of sheets in a curved position in contact with said roller, whereby the withdrawal of the inner sheet causes the roller to advance the next sheet sufficiently to be readily grasped, substantially as and for the purposes set forth.

6. A paper-serving machine comprising a casing provided with a delivery slot or aperture, a serving-roller journaled in said casing, a retaining device or fastening constructed and arranged to hold a package or bunch of sheets by one end or edge in a curved position or form around said roller, and means for turning said roller manually for starting a sheet through said delivery-aperture, substantially as and for the purposes set forth.

7. A paper-serving machine comprising a casing provided with a delivery slot or aperture, a serving-roller journaled in said casing, and a retaining device or fastening constructed and arranged to hold a package or bunch of sheets by one end or edge in a curved position or form around said roller, said casing having an opening at the end of said roller arranged to expose to view the edges of a part or all of the sheets of paper thereon, substantially as and for the purposes set forth.

8. A paper-serving machine comprising a suitable casing or frame, a serving-roller journaled therein, a retaining device or fastening constructed and arranged to hold a package or bunch of sheets by one end or edge in a curved position or form around said roller, and a detent constructed and arranged to prevent the backward rotation of said roller, substantially as and for the purposes set forth.

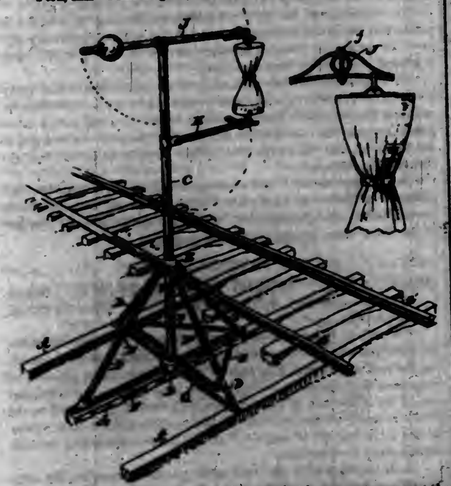
604,114. NUT-LOCK. WALTER A. GARRISON and ROBERT GOTLIEB, Lamar City, Texas. Filed May 15, 1897. Serial No. 637,092. (No model.)



Claim.—1. A nut-lock comprising a nut having throughout the entire length of its bolt-opening threads of even pitch with the bolt to which the nut is to be applied, said nut being provided with a recess dividing it into two integrally-connected sections or members and forming a web arranged at the bolt-opening in position to engage a bolt, whereby when the outer section or member of the nut is jammed upon the inner section or member, the web will be crowded inward for mutilating the threads of the bolt, substantially as described.

2. A nut lock comprising a nut having throughout the entire length of its bolt-opening threads of even pitch with the bolt to which the nut is to be applied, said nut being provided with an annular recess extending around the same, dividing the nut into two sections or members and forming an annular connecting-web located at the bolt-opening in position for engaging a bolt, whereby when the outer section or member is jammed upon the inner one, the web will be crowded inward for mutilating the threads of the bolt, substantially as described.

604,115. MAIL-BAG CRANE. WILLIAM I. HATFIELD, Green Fork, Ind. Filed Aug. 26, 1897. Serial No. 649,433. (No model.)



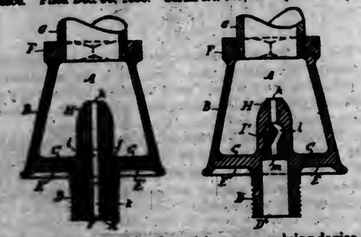
Claim.—1. A vertical, revolvable post having arms to support the mail-bag in the path of the gripper-arm of a passing mail-car and having a pair of springs of predetermined resistance attached to fixed supports outside of the post and to opposite sides of the post to hold the post against rotation from any force below the predetermined resistance of the springs.

2. A vertical, revolvable post mounted on ball-bearings and having arms to support a mail bag in the path of the gripper-arm of a passing mail-car, a pair of arms secured to the post on opposite sides from each other and a pair of springs connecting the ends of the arms with a fixed support, all substantially as shown.

3. A vertical, revolvable, tubular post a base-plate to support the post and having ball-bearings between the plate and the post, a collar above the base-plate supported by diagonal braces and having ball-bearing contact with the post, a bar passing transversely through the post, spiral springs connected by eyebolts with the ends of the bar, the opposite ends of the springs being fastened to a fixed support, and arms projected laterally from the top portion of the post whereby a mail-bag supported by said arms will cross the path of the gripper-arm of a passing mail-car, all substantially as described and for the purpose specified.

4. The combination, with a vertical, revolvable post held by springs against rotation up to a predetermined resistance, of arms to hold a mail-bag in the path of the gripper-arm of a passing car, and clamps on the ends of the arms consisting of an upper and lower plate of spring metal with meeting outer ends, fastened to the arm by a bolt passing through the arm and through the upper and lower plate, substantially as shown.

604,116. FUEL-GAS MIXER. ANDREW KRIDER and JOHN COTLE, Indianapolis, Ind., assignors to William Langenkamp, Jr., same place. Filed Dec. 30, 1895. Serial No. 573,776. (No model.)



Claim.—1. The combination with a gas-supplying device having a duct therethrough, of a drill-obstructer, situated within said duct, the said obstructer provided with a gas-passage, as set forth.

2. The combination with a gas-supplying device having a duct therethrough, and one part of the said duct of greater diameter than the balance thereof, a drill-obstructer adapted to fit within the enlarged portion of the duct, the said obstructer provided with a gas-passage, substantially as set forth.

3. The combination with a gas-supplying device having a duct therethrough, one part of said duct somewhat enlarged, and provided with a screw-thread for a part of its length, a drill-obstructer situated within the enlarged part of the duct, and a screw-plug to fit the threaded part of the duct, the obstructer and plug, each provided with a gas-passage, as set forth.

4. In a gas-mixing device, the combination with a gas-supplying device having a duct therethrough for the passage of a combustible fluid, of a drill-obstructer situated in line with said duct, said obstructer provided with a crooked bore.

5. In a gas-mixing device, the combination with a gas-supplying device having a duct therethrough for the passage of a combustible fluid, and a cylindrical drill-obstructer provided with a crooked bore, said drill-obstructer being rotatably supported within said duct and having its bore arranged to communicate with the duct of said mixer.

604,117. SEWER-VALVE. ZACHARIAH LATHROP, New York, N. Y., assignor to Charles R. Higgins, same place. Filed Nov. 19, 1897. Serial No. 659,002. (No model.)

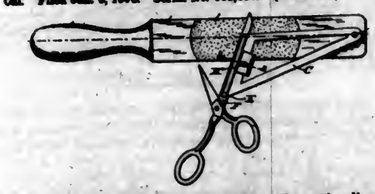


Claim.—1. A sewer-valve constructed for use with hub-and-spigot pipes and having the valve casing with spigot C at one end, and at the opposite end the hub A to receive the spigot C of the connecting-pipe, and provided with shoulder B at the bottom, the collar D with valve-tube E extended therefrom and formed with inclined end to provide the valve-seat, as set forth, the lead packing M be-

tween the margin of the collar and the inner wall of the hub, the valve G hinged to such tube to fit the seat, a hand-hole with cover J in the side of the casing above such valve, and a chamber, between such cover and valve-seat, of greater width than the pipe, to permit the free movement of the valve, substantially as herein set forth.

2. A sewer-valve constructed for use with hub-and-spigot pipes, and comprising the valve-casing with spigot C at one end, and at the opposite end the hub A to receive the spigot C of the connecting-pipe, and provided with shoulder B at the bottom, the collar D having marginal lead packing M, and the valve-tube E projected through the shoulder and made smaller than the same, with the hinge-lugs F formed thereon and adapted to pass through the shoulder, as set forth, the valve G having leg H fitted detachably between the lugs F, the pivot-pin A extended through the lugs to engage the same detachably, and the hand-hole with cover J in the side of the casing above such valve, the whole arranged and operated substantially as herein set forth.

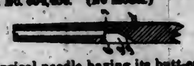
604,118. SCISSORS-SHARPENER. HANS C. LARSEN, Newman, Cal. Filed Jan. 6, 1896. Serial No. 575,037. (No model.)



Claim.—1. The combination with a bar and an abrading-block fixed thereto, of a plate pivoted at one end to the bar to swing in a plane parallel to the working face of the block and having a projection extending toward the working face of the block, and means for clamping against said projection a blade to be sharpened.

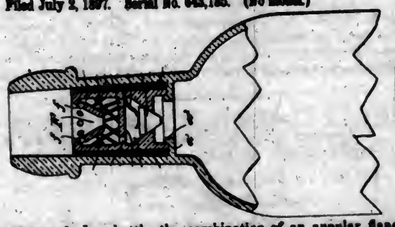
2. The combination with the handled bar, of the abrading-block secured in the middle portion of the bar, the plate pivoted to the bar at the end opposite the handle and provided with the lip, and the adjustable spring adapted to coact with said lip in holding a blade, substantially as set forth.

604,119. SURGICAL NEEDLE. MILTON H. LOWE, Jeffersonville, Ind., assignor of one-half to Theo Russell, West Baden, Ind. Filed Oct. 7, 1897. Serial No. 654,459. (No model.)



Claim.—A surgical needle having its butt-end tapered from the thread-notch to the rear extremity thereof, a transverse notch in said shank adjacent to the tapered butt and forming an inclined face, 5, and an abrupt shoulder, 6, which constitutes a seat for a knotted thread, an axial bore or passage in the butt and opening into the notch at one side of the inclined face thereof, and a groove on the inclined face of the notch and arranged in line with the axial bore or passage, substantially as described.

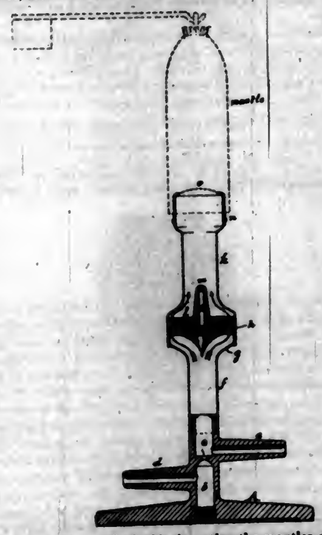
604,120. BOTTLE. ANTON MARKANOVICH, New York, N. Y. Filed July 2, 1897. Serial No. 643,185. (No model.)



Claim.—1. In a bottle, the combination of an annular flanged shelf formed in the neck thereof and a cylindrical casing resting upon said shelf and tightly secured within the neck, a network of glass in the casing, said casing having the inlet thereto normally closed by means of a spring-pressed cork valve and having the outlet therefrom partly closed by means of a downwardly-extended funnel, said funnel having perforations leading therethrough for discharge of fluid from the cylinder, substantially as shown and described.

2. In a bottle-closing device, the combination of a cylindrical casing having two recesses therein which are separated by means of a perforated partition, the lower recess being normally closed by means of a spring-pressed cork valve and the upper recess being partly closed by means of a perforated funnel, this latter recess containing a network of fine glass, all parts of the cylinder being formed integrally with each other, and a bottle having an annular shelf in the neck thereof for engagement with the said cylinder, and means for securing the cylinder to the neck, substantially as shown and described.

604,121. METHOD OF INCINERATING INCANDESCENT GAS-MANTLES AND APPARATUS THEREFOR. THOMAS J. MEEHAN, Brooklyn, N. Y., assignor to Charles H. Hoyt, New York, N. Y. Filed June 11, 1897. Serial No. 640,305. (No model.)



Claim.—1. The method of incinerating the mantles of incandescent gas-burners, consisting in suspending or supporting the mantle and subjecting it to the heat of an internal flame while the latter is caused to rotate about the axis of the mantle.

2. An apparatus for incinerating the mantles of incandescent gas-burners, consisting of a support for the mantle, and means for subjecting the mantle to the heat of an internal rotating flame.

3. A gas-burner having a vertical flame-forming tip adapted to rotate around its own center, in combination with a stationary support and means for rotating the tip, whereby in operation the flame is caused to rotate on its own center.

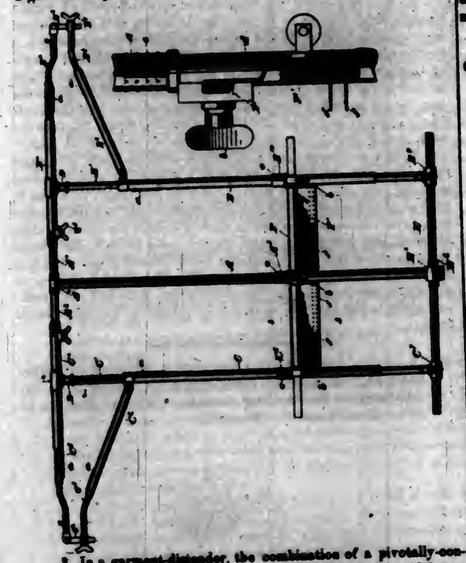
4. A blast gas-burner consisting of a vertical flame-forming tip adapted for rotation around its own center, a base provided with inlet-ports for air under pressure and gas, and a rotating device interposed between the base and tip and adapted to cause the rotation of the latter around its own center by the movement of air and gas through the apparatus.

5. An apparatus for incinerating incandescent gas mantles, consisting of a stationary support for the mantle, and an atmospheric burner having its tip adapted to rotate and produce axial rotation of the flame when ignited within the mantle.

604,122. GARMENT DISTENDER AND DRIER. PATRICK O'TRAINE, New York, N. Y. Filed Mar. 12, 1897. Serial No. 627,155. (No model.)

Claim.—1. In an adjustable and collapsible garment-distender, the combination of center and side bars, means for adjustably connecting the said center and sides bars at their lower ends, a plurality of cross-bars B^4 C^4 pivotally and adjustably connected to the center bar and to the upper end of the side bars, and bars B^5 C^5 pivoted to the side bars and in connection with the last-mentioned cross-bars, whereby the cross-bars B^4, B^5 and C^4 C^5 constitute arm-distending devices, substantially as described.

2. In an adjustable and collapsible garment-distender, the combination of a middle main bar and side bars, of collapsible arm-distenders each comprising a plurality of bars, one pivoted to a side bar and the other pivoted both to a side bar and to the main bar, means for adjusting the arm-distenders laterally independently of the expansion of the frame, and adjustable means for retaining the skirt of a garment in place.



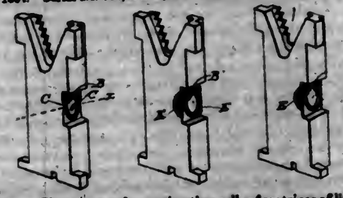
3. In a garment-distender, the combination of a pivotally-connected collapsible frame, a cross-bar F adjustable upon the said frame, means carried by the said cross-bar for retaining the lower edge of the garment in place and means whereby the frame may be collapsed without effecting a movement of the cross-bar.

4. In a garment distender and drier, the combination of a plurality of side bars, a movable bar A, adjustable arm-distenders connected to the side bars and to the movable bar A, a pivotal connection intervening between the arm-distenders and the upper end of the movable bar A whereby the said distenders may be collapsed toward their centers, and means for retaining the parts against movement around their pivots.

5. In an adjustable and collapsible garment-distender, the combination of a longitudinally-movable main bar, side bars adjustably connected therewith, longitudinally-adjustable arm-distenders each comprising a plurality of rods, one of the rods of each of said arm-distenders being pivoted to a side bar and another of the rods of each of said arm-distenders being pivoted to a side bar and to the main bar and means for adjusting the arm-distenders laterally independently of the expansion of the frame.

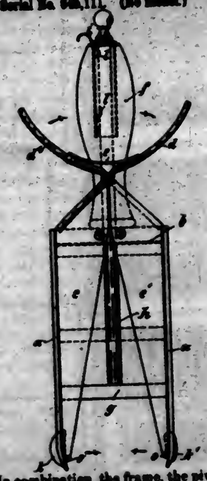
6. In an adjustable and collapsible garment-distender, the combination of a longitudinally movable main bar and side bars adjustably connected therewith, each of said side bars comprising a plurality of members adjustable with relation to each other, longitudinally-adjustable arm-distenders each comprising a plurality of rods, one of said rods of each of the said arm-distenders being pivoted to one member of a side bar and another of the said rods of each of said arm-distenders being pivoted to a second member of a side bar and to the main bar and means for adjusting the arm-distenders laterally at both ends independently of the expansion of the frame.

604,123. PROCESS OF RENEWING MATRICES. BYRON REED, San Francisco, and BENJAMIN W. STURGEY, Oakland, Cal. Filed Apr. 14, 1897. Serial No. 632,164. (No model.)



Claim.—The process of renewing the walls of matrices of line-type setting and casting machines, consisting in first coating the matrix-plate with a non-conducting substance; secondly, removing a section of the plate on the side of the matrix outside the wall; thirdly, immersing the plate in a metallic solution and depositing metal in place of the removed portion; and lastly, trimming and reducing the deposited metal to an even surface with the wall of the plate.

604,124. APPARATUS FOR REMOVING KUTTER, &c. HERMANN BLEM and HELLMUTH UHSON, Neubrandenburg, Germany. Filed July 19, 1897. Serial No. 645,111. (No model.)



Claim.—1. In combination, the frame, the pivoted clips movable transversely across opposite sides thereof, and flexible sheets of the full width of the frame connecting the ends of the clips with said frame, substantially as described.

2. In combination, the frame comprising the oppositely-arranged side pieces and the connecting-head, the pairs of clips pivoted to opposite sides of said head each pair having a tong-like movement, the adjustable stamp, and the flexible sheets connecting the end of each clip with the lower edge of the adjacent side piece, said sheets forming a supporting-bottom to said frame when said clips are open, substantially as described.

3. In combination the sides c, c', having a tong movement, the loops d, d' fixed thereto, the cross-pieces e, e' carried by the clips and the connecting-sheets K, K', fixed to said cross-pieces.

4. In combination, the frame, the sides thereof having their lower ends inwardly curved and tapered and the pivoted side pieces tapered toward their lower ends, said ends when said pieces are open being adapted to lie against said side frames at the curve thereof in the vertical plane of and above said ends, substantially as described.

5. In combination, the pivoted pieces having a tong movement, and the portions secured between said frame and said pivoted pieces forming complete bottom supports for the material held between said frames, substantially as described.

604,125. COLLECTING GAS FROM FERMENTING LIQUORS. JOSEPH SCHNEIBLE, New York, N. Y. Filed Sept. 2, 1897. Serial No. 650,257. (No model.)

Claim.—1. An apparatus for collecting the gas of fermentation comprising a collector, a compressor connected directly to the collector, a governor subject to the varying pressure of the gas supply and means actuated by said governor to control the compressor.

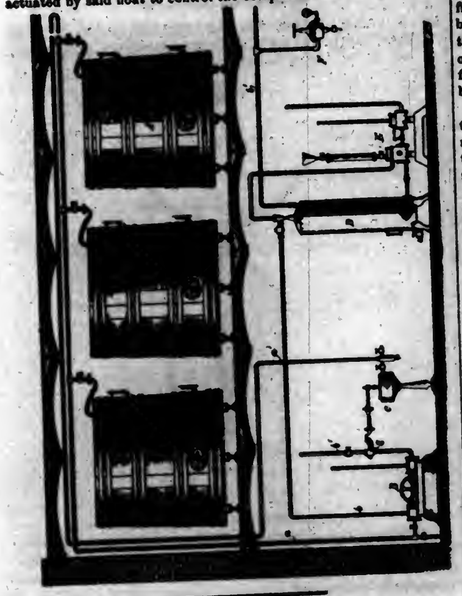
2. An apparatus for collecting the gas of fermentation comprising a collector, a compressor, a pipe to deliver gas from the collector to the compressor, a governor, subject to the varying pressure of the gas-supply and connected with the collector by a branch pipe and means actuated by said governor to control the compressor.

3. An apparatus for collecting the gas of fermentation comprising a collector, a compressor connected directly to the collector, a governor comprising a closed chamber and a float, a pipe connection between said closed chamber and the collector and means actuated by said float to control the compressor.

4. An apparatus for collecting the gas of fermentation comprising a collector, a compressor, a pipe to deliver gas from the collector to the compressor, a valve to control the compressor and a governor, subject to the varying pressure of the gas-supply and operatively connected to said valve.

5. An apparatus for collecting the gas of fermentation compris-

ing a collector, a compressor connected directly to the collector, a governor comprising a tank, a supplemental chamber closed and connected at the bottom to said tank and a float in said tank, a connection between said closed chamber and the collector and means actuated by said float to control the compressor.

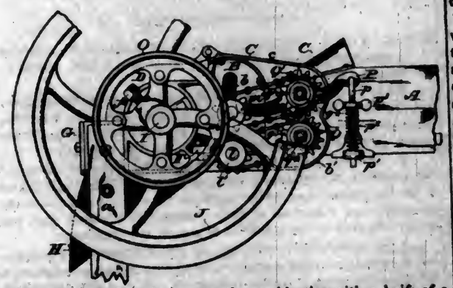


604,126. SHOE-LACE FASTENER. FRED P. SCHULTZ, New York, N. Y. Filed May 26, 1897. Serial No. 638,204. (No model.)



Claim.—A shoe-lace fastener, composed of a single piece of spring-wire bent to form two adjacent coils for the passage of the lace, a loop connecting said coils, extending therefrom in a plane tangential thereto, and the forwardly-projecting, pointed ends, as and for the purpose set forth.

604,127. FEED-CUTTER. CASPER F. SEARCH, Oak Park, Ill., assignor to the Search Manufacturing Company, Sheboygan Falls, Wis. Filed June 5, 1897. Serial No. 639,504. (No model.)

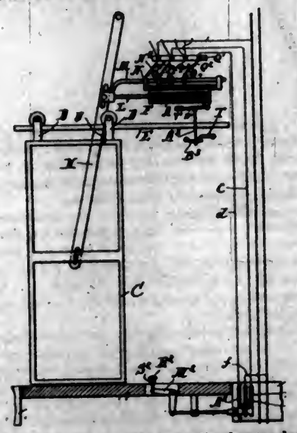


Claim.—1. In a feed-cutter the combination with a knife of a shaft through which the knife is actuated, a driving or balance wheel mounted upon said shaft, a friction block inserted in a recess in the hub of said wheel, a set-screw threaded in the hub of the wheel and adapted to force said block against said shaft and to lock the wheel thereon, the outer face of said block being inclined toward the shaft in advance of the set-screw, whereby obstruction to the knife causes the set-screw to ride over said incline, release said block and permit the wheel to turn upon said shaft, substantially as and for the purposes set forth.

2. In a feed-cutter the combination with the knife, of a shaft through which the knife is actuated, a driving or balance wheel mounted upon said shaft and having an internally-recessed hub a friction-block inserted in the recess in said hub and retained therein by engagement with a shoulder in the hub, a screw set radially in the hub of the wheel and adapted to bear at its inner end against the outer face of said block, and when forced against it to hold the wheel from turning on said shaft, and a spring pressing forward against the back of said block, substantially as and for the purposes set forth.

3. In a feed-cutter the combination with the knife, of a shaft through which the knife is actuated, a driving or balance wheel mounted upon said shaft, a friction-block loosely fitted in a recess in the hub of said wheel and a screw set radially in said hub and adapted to force said block, when placed in the front end of the recess, against the shaft and to hold the wheel from turning thereon, said recess being extended behind the set-screw to receive the block when it is forced out of engagement with the set-screw by an obstruction to the knife, thereby allowing the wheel to turn upon said shaft without injury to the machine, substantially as and for the purposes set forth.

604,128. ELECTRICAL APPARATUS FOR OPERATING ELEVATOR-DOORS. HUMPHREY R. SMITH, Chicago, Ill., assignor to the Burdett Rowntree Manufacturing Company, same place. Filed Apr. 14, 1897. Serial No. 632,067. (No model.)



Claim.—1. In an apparatus for operating elevator-doors, the combination with a car, a series of coils and a core, said coils and core being relatively movable, of a door, connections between said door and movable part, a circuit for said coils, means for controlling said circuit from the car, and means actuated by the movement of said movable parts for successively and progressively controlling the circuits of said coils, as and for the purpose set forth.

2. In an apparatus for operating elevator-doors, the combination with a car, a series of coils and a core, said core and coils being relatively movable, of a door connections between said door and movable part, a circuit for said coils said circuit controllable from the car and means for successively cutting out of live circuit from a car said coils and progressively cutting in other of said coils, said means actuated by the movements of said movable part as and for the purpose set forth.

3. In an apparatus of the class described, a car a motor comprising a sectional solenoid and a core, said core and solenoid being relatively movable, a circuit for the coils of said solenoid, said circuit controllable from the car and means for successively cutting out of and progressively cutting into live circuit certain of the sections of said coils, said means actuated by the movements of said movable part in combination with a door and connections between said door and the movable part of said motor, as and for the purpose set forth.

4. In an apparatus of the class described, a car, a motor comprising a sectional solenoid, a movable core therefor, a circuit for the coils of said solenoid, said circuit controllable from the car and means for successively cutting out of said circuit and for progressively cutting into said circuit certain of said sections or coils, said means actuated by the movements of said core in combination with a door and connections between said door and core, as and for the purpose set forth.

5. In an apparatus of the class described, the combination with a series of coils and a core therefor, said coils and core being relatively movable, of a door, connections between said door and movable part, a circuit for said coils, means operated from the car for controlling said circuit and means actuated by the movements of said movable part for successively cutting out of said circuit and for progressively cutting into said circuit said coils, as and for the purpose set forth.

6. In an apparatus of the class described, the combination with a series of coils and core therefor, said coils and core being relatively movable, of a door, connections between said door and movable part, a circuit for said coils, means actuated by the movements of said movable part, for successively cutting out of live circuit said coils and progressively cutting in other of said coils, and means controllable from the car for opening and closing said circuit, as and for the purpose set forth.

7. In an apparatus of the class described, a series of coils and a core therefor, said coils and core being relatively movable and a circuit for said cores, means actuated by the movement of said movable part for successively cutting said coils out of live circuit and progressively cutting in other of said coils, in combination with a door and connections between said door and movable part, as and for the purpose set forth.

8. In an apparatus of the class described, a series of coils and a core therefor, said coils and core being relatively movable, a circuit for said coils, and means actuated by the movement of said movable part for successively cutting said coils out of live circuit and progressively cutting in other of said coils, in combination with a door and connections between said door and movable part, and means controllable from the car for opening and closing said circuit as and for the purpose set forth.

9. In an apparatus of the class described, a series of coils and a core therefor, said coils and core being relatively movable, a circuit for said coils, a switch arranged in said circuit for controlling the same, means operated from the car for controlling said switch, and means actuated by the movements of said movable part for successively cutting out of and progressively cutting into live circuit said coils, in combination with a door and connections between said car and said movable part, as and for the purpose set forth.

10. In an apparatus of the class described, a series of coils and a core therefor, said coils and core being relatively movable, a circuit for said coils, means for successively cutting out of live circuit said coils and progressively cutting in other of said coils, and means for arresting the cutting out of said coils near the end of the movement of said movable part while the progressive cutting in of other coils continues, in combination with a door and connections between such door and movable part, as and for the purpose set forth.

11. In an apparatus of the class described, a series of coils and a core, said coils and core being relatively movable, a circuit for said coils, means actuated by the movement of said movable part for successively cutting out of live circuit said coils and progressively cutting in other of said coils, and means for arresting the cutting out of said coils near the end of the movement of said movable part, while the progressive cutting in of other coils continues, in combination with a door and connections between such door and movable part, as and for the purpose set forth.

12. In an apparatus of the class described, a series of coils and a core therefor, said coils and core being relatively movable, a circuit for said coils, means for successively cutting out of live circuit said coils and progressively cutting in other of said coils, in combination with a door, connections between said door and movable part, means for magnetically combining said movable part at the limit of travel thereof as and for the purpose set forth.

13. In an apparatus of the class described, a series of coils arranged in series, a core mounted to move through said coils, a series of contact-segments respectively connected electrically to the windings of said coils, a series of contacts mounted to move with said core and adapted to complete the circuit of said coils through said segments, and means for opening and closing said circuit in combination with a door and connections between said door and core, as and for the purpose set forth.

14. In an apparatus of the class described, a series of solenoid-coils arranged in series, a core arranged to move through said solenoid, a series of segments respectively connected electrically to the windings of said coils, a bar connected to move with said core, and carrying a series of contacts adapted to contact with said segments and complete therethrough an electric circuit through a portion of said coils, in combination with a door and connections between said door and core, as and for the purpose set forth.

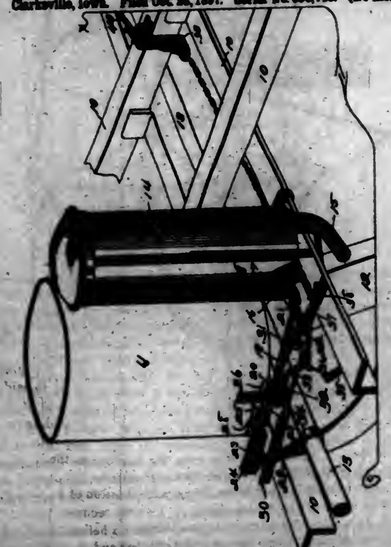
15. In an apparatus of the class described, a series of coils arranged in series, a core arranged to move through said coils, a series of segments respectively connected electrically to the windings of said coils, a bar connected to move with said core and carrying a series of contacts adapted to contact with said segments and complete therethrough an electric circuit through a portion of said coils, one of said contacts being movable with respect to said bar, and a step arranged in the path of movement of said movable contact, in combination with a door and connections between said door and core, as and for the purpose set forth.

16. In an apparatus of the class described, a motor comprising a relatively-movable solenoid and core, contacts for completing the circuit of said solenoid, said contacts arranged in pairs, a pair of hinged arms and an intermediate arm, said intermediate arm electrically connected to a line-wire, one pair of said contacts connected to another line-wire and the other pair of said contacts respectively connected to said hinged arms, and means carried by the car for making and breaking the circuit between said hinged arms and said intermediate arm at will in combination with a door and connections between said door and the movable part of the motor, as and for the purpose set forth.

17. In an apparatus of the class described a motor comprising a relatively-movable solenoid and core, a door and connections between said door and the movable part of said motor, in combination with an armature arranged to be actuated by the energization or de-energization of said solenoid, and a lock for the door operated by the actuation of said armature, as and for the purpose set forth.

18. In an apparatus of the class described, a motor comprising a relatively-movable solenoid and core, a door and connections between said door and the movable part of said motor, in combination with a pivoted latch arranged to lock said door, an armature arranged to be attracted by said solenoid when energized, and connections between said armature and latch for releasing the latter whereby the door is unlocked when said solenoid is energized, as and for the purpose set forth.

604,129. CORN-PLANTER ATTACHMENT. WALTER P SMITH, Clarksville, Iowa. Filed Oct. 26, 1897. Serial No. 656,718. (No model.)



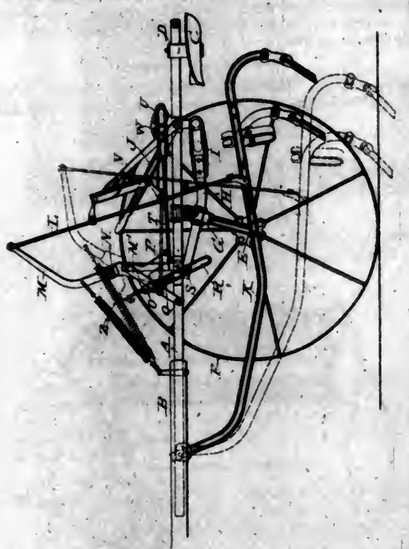
Claim.—1. A pumpkin-seed-dropping attachment for check-row corn-planters, comprising in combination, a hopper designed to be secured to the machine-frame, a tube connecting the hopper with the runner of the corn planter, a seed-dropping valve in the pumpkin-seed holder having a notched disk, a ratchet-bar slidingly mounted and arranged to engage the said notched disk, means for connecting the rock-shaft of the corn-planter with the said ratchet-bar in such a manner as to cause the ratchet-bar to move the said disk one notch-space each time that said rock-shaft is operated so that when the said ratchet-bar has been moved a certain predetermined number of times the pumpkin-seed-dropping valve will be operated, and means for locking the said ratchet-bar, for the purposes stated.

2. A pumpkin-seed-dropping attachment for check-row corn-planters, comprising in combination, a hopper designed to be attached to the machine-frame, a tube connecting the hopper with the hollow leg of the planter, a seed-dropping valve having a disk with a ratcheted periphery, a ratchet-bar slidingly mounted, a spring for normally holding the ratchet-bar to its forward limit, means for limiting the

movement of the ratchet-bar, said ratchet-bar having an opening therein, an arm clamped to the rock-shaft of the corn-dropping mechanism and having two openings therein, a bar having a bifurcated end inserted in the said openings and connected with the ratchet-bar at its other end, a curved lever fulcrumed beneath the ratchet-bar and having a projecting end that is designed to enter the said opening in the ratchet-bar, a spring for holding the rear end of the lever downwardly so that the said projecting end of the lever will enter the said opening, and means for holding the rear end of the said lever elevated against the resiliency of the said spring, all arranged and combined substantially in the manner set forth and for the purposes stated.

3. A pumpkin-seed-dropping attachment for check-row corn-planters, comprising in combination, a seed-containing hopper designed to be attached to a corn-planter, a valve therein, having a ratcheted periphery, a tube for connecting the said hopper with the hollow leg of the planter, a ratchet bar slidingly mounted to engage the said ratcheted disk, means for limiting the movement of the said ratchet-bar, a spring for normally holding the said ratchet-bar to its forward limit of movement, an arm clamped to the rock-shaft of the said dropping mechanism of the planter, and a bar connecting this arm with the said ratchet-bar, substantially as and for the purposes stated.

604,180. CULTIVATOR. NILS O. STARKE, Madison, Wis., assignor to the Fuller & Johnson Manufacturing Company, same place. Filed Dec. 31, 1897. Serial No. 664,941. (No model.)



Claim.—1. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle; and a lever pivoted to the frame and connected to one end of said arm, substantially as described

2. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle; a lever pivoted to the frame and connected to one end of said arm; a plow-beam pivoted to the frame; means for suspending said beam; and connections between said means and the opposite end of said arm for determining the position of the beams as the lever is raised or lowered.

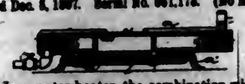
3. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle extending forwardly and rearwardly thereof; a bell-crank lever pivoted to the frame and pivotally connected to one end of said arm; a plow-beam pivoted to the frame and extending beneath the axle; means for suspending the rear end of the beam pivotally supported upon the frame; and connections between said means and the forward end of the arm.

4. In a cultivator-plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle extending forwardly and rearwardly thereof and provided with an elongated slot or eye at its rear end; a lever J pivoted to the frame having its short arm in operative connection with said eye; a beam pivoted to the frame; and connections between said beam and the forward end of the arm.

5. In a cultivator or plow, the combination of a frame; an arched axle journaled thereon; an arm H secured to said axle and provided with an elongated eye I at its rear end; a lever J pivoted to the frame and provided at its short end with a stud or roller working in said eye; a plow-beam pivoted to the frame and extending rearwardly beneath said axle; a member N pivoted on the frame; lever M extending upwardly therefrom; rod L connecting said arm and the beam; link Q connected to said member N and provided with an elongated eye at its lower end; a connection between said eye and the forward end of arm A; and means for adjusting the member N.

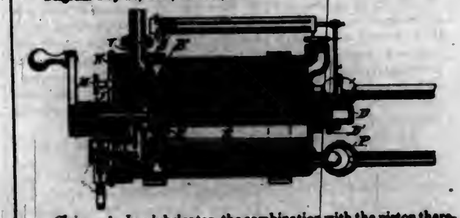
6. In a cultivator-plow, the combination of a suitable frame; an arched axle journaled thereon; a slotted arm secured to said axle; and a lever pivoted to the frame and connected to one end of said arm, substantially as described.

604,181. WATER-HEATER. JAMES A. STEVENSON, New Castle, Pa. Filed Dec. 6, 1897. Serial No. 661,173. (No model.)



Claim.—In a water-heater, the combination with a hollow body forming a water-chamber and having water inlet and outlet passages, said body having a vertical opening around which the chamber extends, of a gas-burner supported below the hollow body with its discharge-openings outside the plane of said opening, and a removable cover to close the opening, whereby the flame from the burner may be confined below the upper surface of the hollow body, or permitted to pass up through the opening, substantially as and for the purpose specified.

604,182. LUBRICATOR. WILLIAM H. THOMPSON and ROBERT THOMPSON, London, England. Filed May 5, 1896. Serial No. 590,717. (No model.) Patented in England Feb. 2, 1892, No. 2,044; in Germany May 26, 1892, No. 70,631; in France May 26, 1894, No. 236,743, and in Belgium May 26, 1894, No. 110,179.



Claim.—1. In a lubricator, the combination with the piston thereof, of a revolving screw-threaded shaft, means for transmitting the motion of said shaft to the piston to operate it, a suitable device attached to said shaft for manually operating it, automatic actuating mechanism, and means for transmitting the motion of the automatic mechanism to said shaft and for permitting said shaft to be manually rotated without disconnecting it from said automatic mechanism.

2. In a lubricator, the combination of a piston, a screw and nut device, a handle attached thereto for manually operating it, an independently-moving pinion, means for automatically actuating said pinion and a pawl and ratchet device connecting said pinion and said screw and nut device.

3. In a lubricator, the combination with the piston thereof, of suitable means for actuating it, a train of speed-reducing gearing, the elements of which intermesh, interposed between the actuating mechanism and the piston, a pinion, an index attached to said pinion and a wheel-carriage carrying the elements of said train and provided with a rack meshing with said pinion whereby the actuating mechanism is applied to different elements of the train to translate a constant speed of the actuating mechanism into different speeds of the piston.

604,188. SUPPORT-BRACKET FOR LAMPS, GAS-BURNERS, OR THE LIKE. CHARLES M. TOLAND, Wilmington, Del. Filed Sept. 15, 1897. Serial No. 651,708. (No model.)

Claim.—1. In combination, a supporting-plate having a portion of its center cut away, cross-ribs lying in a lower plane than the plate, a handle carried by the plate by means of which it may be manipulated, a supporting-bracket adapted to be attached in two positions to the under side of the plate, and means for securing said bracket upon either a lamp-chimney or gas-burner, as shown and described.

2. The herein-described combination of a supporting-plate having a portion of its center cut therefrom, cross-ribs lying in a lower horizontal plane, fingers projecting toward the center of the plate, a handle formed with the plate for its manipulation, clips secured to the under side of the plate, a supporting-bracket consisting of a single piece of wire so bent as to be attached to the under side of the plate in two positions and to either a lamp-chimney or gas-burner, and catch-hooks attached to the supporting-bracket whereby the latter may be clamped in position, as specified.



3. As a new article of manufacture, a supporting-plate having its center cut away, ribs extending across said cut-away portion and lying in a lower plane than the plate, fingers projecting into said cut-away portion and lying in the same plane as said plate, and means for supporting said plate above a lamp-chimney or gas fixture, as and for the purpose described.

4. A bracket for a heating attachment consisting of a single piece of wire doubled on itself and bent to produce a Y-shaped figure, the body of said bracket being bent to form a U-shaped portion, the ends of the arms being bent parallel with said U-shaped portion, and a plate adapted to be engaged by the U-shaped portion or by the ends of the arms, substantially as shown and described.

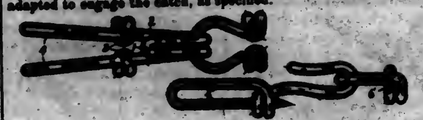
604,184. GARMENT-SUPPORTER. WILLIAM G. WARBURTON, Thomaston, Me. Filed Dec. 23, 1896. Serial No. 616,762. (No model.)



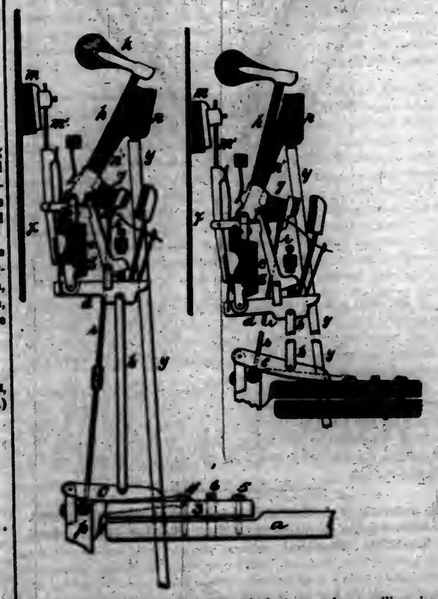
Claim.—A garment-supporter consisting of two slides placed one against the other, each of said slides having a central longitudinal bar connected by a coiled spring which surrounds both bars and reacts against the longitudinal movement of said slide, one of said slides having lower connections for the lower strap and the other or rear slide having transverse slots and bars at both ends adapted to receive the upper strap and means at the upper end for holding the said upper strap whereby the said strap is held at both ends of the slide and behind the spring, all as set forth.

604,185. HOOK AND EYE. PAULINE YOUNG, (now by marriage Pauline Young Weeks,) Philadelphia, Pa. Filed Dec. 1, 1896. Serial No. 614,003. (No model.)

Claim.—As a new article of manufacture, a garment-fastener of the hook-and-eye type, composed of a single piece of wire, having two catches each formed from the body of the wire and beneath the fastener by turning an end section of the wire outward from the fastener, then downward therefrom and inward and finally reversing the end section to complete the catch so that the strands forming each catch interlock, whereby spreading is prevented, and two plain pin-pointed loops each formed by turning the end section of wire from the catch across the initial strand thereof, the looper-point being adapted to engage the catch, as specified.



604,186. PIANOFORTE-ACTION. LUTHER A. BARBER, Buffalo, N. Y. Filed Jan. 26, 1897. Serial No. 620,702. (No model.)



Claim.—1. The combination with the key, and an auxiliary jack-lever arranged above the same, of a block or key-lever jack arranged between the key and said auxiliary jack-lever, a supporting-screw having a collar or shoulder supporting said block centrally and adjusting-screws arranged on opposite sides of the central supporting-screw to clamp said block upon said shoulder.

2. The combination with the key, and an auxiliary jack-lever arranged above the same, of a key-lever jack mounted between the key and said auxiliary jack-lever, a shouldered and adjustable support for said key-lever jack, and screws on each side of said support to secure said jack upon the shoulder of said support after it has been adjusted.

3. The combination with a buffer-rail, of a key, a pedal-rail, an auxiliary lever actuated by said key, a jack-lever, a sticker connecting it to said auxiliary lever, a jack, and a hammer.

4. The combination with the key, a pedal-rail, in substantially the same plane, an auxiliary jack-lever actuated by said key, a jack-lever, a sticker connecting it to said auxiliary, a jack, and a hammer, of a buffer-rail, and a rod connecting it to said pedal rail.

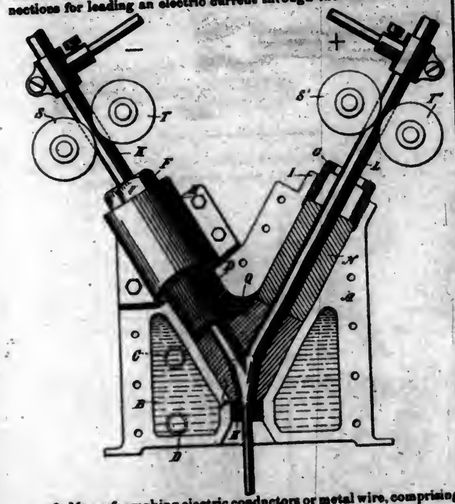
5. The combination with the key, a pedal-rail in substantially the same plane, an auxiliary jack-lever actuated by said key, a jack-lever, a sticker connecting it to said auxiliary, a jack, and a hammer, of a buffer-rail.

6. The combination with the key, a key-lever jack mounted thereon, a pedal-rail, an auxiliary jack-lever actuated by said key-lever jack, a jack-lever, a sticker connecting it to said auxiliary, a jack, and a hammer, of a buffer-rail, and a rod connecting it to said pedal-rail.

604,187. APPARATUS FOR ELECTRICALLY WORKING METALS. JAMES B. BENDY, New York, N. Y. Filed May 6, 1897. Serial No. 633,573. (No model.)

Claim.—1. Means for making electric conductors or metal wire, consisting of a refractory chamber containing a die, means for feed-

ing bars of metal therein and forcing them into contact with one another at or near the die, by pressure applied behind the die, and connections for leading an electric current through the bars.



2. Means for making electric conductors or metal wire, comprising a heat-refractory chamber containing a die, a plurality of openings into said chamber for bars of the metal to be worked, feed devices for forcing the bars into the chamber, and connections for leading an electric current through the bars.

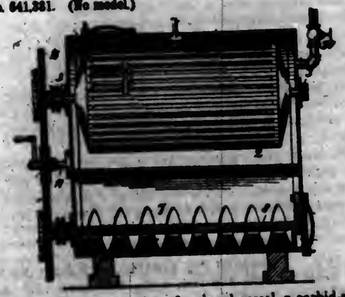
3. Means for making electric conductors or metal wire, comprising a metal chamber having a heat-refractory lining said chamber containing a die and water-jacket around the same, openings for feeding in bars of the metal to be worked, feeding devices, for forcing the bars toward the die, and connections for leading an electric current through the bars.

604,138. FRAMELESS SPECTACLES OR EYEGLASSES. STEPHEN J. CLELES, Attleborough, Mass. Filed Sept. 15, 1897. Serial No. 651,742. (No model.)



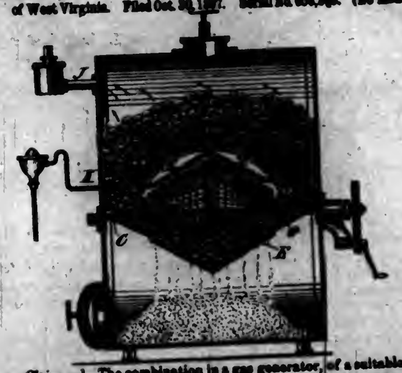
Claim.—As a new article of manufacture, a clip for frameless spectacles and eyeglasses consisting of a body portion, an arm or ear portion extending from the front end of the body portion, and an arm or ear portion connected with the rear end of the body portion by an elongated pliable non-resilient bent portion, the said arms or ear portions bearing against the opposite faces of the lens and being provided with perforations to receive the fastening-screw.

604,139. ACETYLENE-GAS-GENERATING APPARATUS. EDWARD H. DICKINSON, New York, N. Y. Filed June 18, 1897. Serial No. 641,331. (No model.)



Claim.—The combination of a closed vessel, a carbid-receptacle rotatably mounted therein, a discharge-screw or conveyer located beneath the carbid-receptacle, the said carbid-receptacle and discharge-screw being each provided with geared wheels having ratchets engaging in opposite directions, and a single intermediate gear and gaging in opposite directions, and a single intermediate gear and gaging in opposite directions, thereby enabling either the carbid-receptacle or the screw to be rotated at will, while the other remains at rest, substantially as described.

604,140. ACETYLENE-GAS GENERATOR. EDWARD J. DOLAN, Philadelphia, Pa., assignor to the Acetylene House Lighting Company, of West Virginia. Filed Oct. 30, 1897. Serial No. 656,993. (No model.)

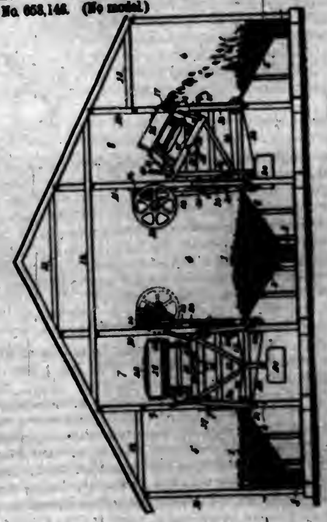


Claim.—1. The combination in a gas-generator, of a suitable casing, a revoluble cage located in said casing and provided with open ends, a guide for each end of said cage and a carved protecting-casing over said cage, substantially as described.

2. The combination in a gas-generator, of a suitable casing, a revoluble cage located in said casing, a protective casing over said cage, and means at the end of said cage for guiding a gas-producing material into it, said means in connection with said protective casing forming a chamber for the gas-producing material, a spraying device intermediate the cage and protective casing and a gas-outlet at the upper end of said casing, substantially as shown and described.

3. The combination in a gas-generator, of a suitable casing provided with a charging-opening at its upper portion and a manhole at its lower portion, a cage provided with open ends journaled in said casing, means in connection with said cage for revolving it, a protective casing over said cage, a guide for each of said open ends, said guides and casing forming a division for said casing, a spraying device intermediate the protective casing and cage, and a gas-outlet at the upper end of the casing, substantially as shown and described.

604,141. APPARATUS FOR HANDLING COMMINUTED MATERIALS. EDWARD F. DYER, Cleveland, Ohio. Filed Nov. 11, 1897. Serial No. 658,148. (No model.)



Claim.—1. In handling and storing apparatus, a building or shed, vertically divided into bays or compartments, a row or rows of pivoted platforms extending therethrough, means to tilt the platforms and hold the same in all positions, and counterweights suspended from a framework rigidly connected with the platform beneath it, at a point some distance below the pivot of the said platform, whereby the load is partially or wholly counterbalanced in all positions, substantially as specified.

2. A row of elevated pivoted platforms, means for tilting the same in either direction and holding them at any angle of inclination, a framework rigidly connected with each platform on the under side thereof, and a counterweight attached to said framework at such point beneath the pivot of the platform that the centers of gravity of the load and counterweight shall be approximately equidistant from the said pivot, whereby the load is partially or wholly counterbalanced in all positions, substantially as specified.

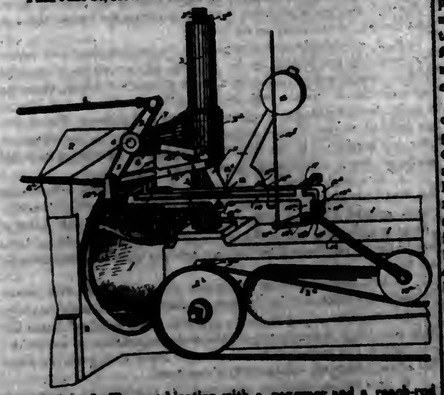
3. A row of elevated pivoted platforms, winding-gear for tilting the same in either direction, means for holding them at any angle of inclination, adjustable shores for sustaining each platform with its load in a level position, a framework rigidly connected with each platform on the under side thereof, and a counterweight attached to said framework at each point beneath the platform that the centers of gravity of the load and counterweight shall be approximately in equilibrium, whereby the load is partially or wholly counterbalanced in all positions, substantially as specified.

4. A row of elevated pivoted platforms, rails on the same for carriages to move thereon, means for tilting said platforms in either direction and holding them at any angle of inclination, a framework rigidly connected with each platform, on the under side thereof, and a counterweight attached to said framework at each point beneath the said platform that the centers of gravity of the load and counterweight shall be approximately in equilibrium, whereby the load is partially or wholly counterbalanced in all positions, substantially as specified.

5. In handling and storing apparatus, a building or shed provided with elevated ways on which cars or wagons are moved, in these ways tilting platforms provided with counterweights, ropes or chains to move or tilt the platforms right or left, the ropes or chains wound oppositely on drums moved by worm or tangent gearing that will lock and hold the gearing and platforms in any position, substantially as described.

6. In handling and storing apparatus, a building or shed provided with bins for storing, and elevated passages for cars or wagons, said passages having tilting platforms adapted to deposit loads from the cars or wagons, counterweights to compensate loads on the platforms when in an angular position, ropes or chains to move the platforms, attached to a rigid frame at an approximately equal distance, with the load, from the pivot on which the platforms turn, passing around pulleys to the right and left and wound on a drum moved by tangent gearing, all operating in the manner substantially as specified.

604,142. AUTOMATIC ENGINE-STOP. JOHN H. EASTWOOD, CHARLES H. BIRD, and FRANK MCELHINNEY, Colorado Springs, Colo. Filed June 26, 1897. Serial No. 642,302. (No model.)



Claim.—1. The combination with a governor and a reach-rod lever for controlling and regulating the detachment of steam-valves, of a pin for rigidly securing the reach-rod lever to rocking shaft, a link connected thereto and having its other end secured to a weight or spring actuated lever, a latch or catch for retaining said lever in operative position, means for releasing said latch or catch and means for throwing the reach-rod lever to such position as will prevent the opening of the steam-valves.

2. The combination with a governor and a reach-rod lever for controlling and regulating the detachment of steam-valves, of a tapering pin for rigidly securing the reach-rod lever to the governor rocking shaft, a spring for retaining said pin normally in its seat, a link pivotally connected to said pin and having a slotted connection at its other end to a weight or spring-actuated lever, a latch or catch for retaining said lever in operative position, means for releasing said latch or catch, and means for throwing the reach-rod lever to such position as will prevent the opening of the steam-valves.

3. The combination with means for disconnecting the reach-rod lever of an engine-valve gear from the governor, of a link having at one end a slotted connection with the reach-rod lever and the other end secured to a weight or spring actuated lever, a latch or catch for retaining said lever in operative position, and means for releasing said latch or catch to allow the lever to operate to throw the reach-rod lever to such position as will prevent the opening of the steam-valves.

4. The combination with a governor and a reach-rod lever for controlling and regulating the detachment of steam-valves, of a pin for rigidly securing the reach-rod lever to the governor rocking shaft, means for withdrawing said pin to disconnect the reach-rod lever from the governor, means for throwing the reach-rod lever to such position as will prevent the opening of the steam-valves; a latch-plate for retaining the parts normally in operative position, and means operated by the breaking or running off its pulley of the governor-belt for moving said latch-plate so as to release the operative parts.

5. The combination with means for disconnecting the reach-rod lever of an engine valve-gear from the governor and means for throwing the reach-rod lever to such position as will prevent opening of the steam-valves, of a latch or catch for retaining the parts normally in operative position and capable of being moved longitudinally to release the operative elements, a lever adapted to engage and move said latch or catch longitudinally and a wire or cord connected to said lever and extending to a distant point.

6. The combination with means for disconnecting the reach-rod lever of an engine valve-gear from the governor and means for throwing the reach-rod lever to such position as will prevent the opening of the steam-valves, of a latch or catch for retaining the parts normally in operative position and capable of being moved longitudinally to release the operative elements, speed-limit stops adjustably secured to said latch or catch across the path traversed by the end of the reach-rod lever and adapted to be engaged thereby.

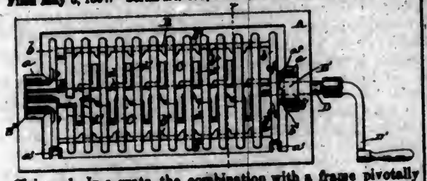
7. The combination with means for disconnecting the reach-rod lever of an engine valve-gear from the governor and means for throwing the reach-rod lever to such position as will prevent the steam-valves being opened, of a compound latch or catch for retaining the parts normally in operative position having as a whole a longitudinal movement operated mechanically and an independent lateral movement and means for operating the lateral movement electrically.

8. The combination with means for disconnecting the reach-rod lever of an engine valve-gear from the governor and means for throwing the reach-rod lever to such position as will prevent the opening of the steam-valves, of a compound latch or catch for retaining the parts normally in operative position having as a whole a longitudinal movement operated mechanically, an independent arm adapted to move laterally to which the projecting catch is secured, a spring for holding said arm normally in a locking position, and an electromagnet adapted to attract said independent arm with its projecting catch whenever the electric circuit is closed substantially as specified.

9. The combination in an automatic engine-stop of a pin for securing the reach-rod lever of the engine valve-gear rigidly to the governor, a spring for holding said pin normally in its seat, a link connected pivotally to said pin and having its other end secured by a slotted pivotal connection to a weight or spring-actuated lever, a link having a slotted pivotal connection to the lower arm of the reach-rod lever and having its other end secured to said weight or spring actuated lever, a compound latch or catch for normally retaining the weight or spring actuated lever in operative position which is adapted to be moved longitudinally as a whole to release said lever, adjustable speed-limit blocks secured to said longitudinally-movable latch and adapted to be engaged by the reach-rod lever as it is moved to and fro by the governor as the speed of the engine varies, a pivoted lever having one arm adapted to engage and move the latch-plate longitudinally and a wire or cord secured to the other arm and extending to a distant point, an arm loosely connected to said pivoted lever and having a pulley on its outer end adapted to rest normally on the governor-belt, and a pin connection between the hub of said arm and the pivoted lever, adapted to be engaged and cause the latch-plate to be moved, upon the dropping of the arm and pulley, a laterally-movable arm, carrying a projecting stop, pivoted to the longitudinally-movable part of the latch-plate and held in its normal position by means of a spring, and an electromagnet for attracting

and withdrawing said laterally-movable arm upon the closing of an electric circuit, substantially as specified.

604,148. GRATE. CORNELIUS FULLER, Warren, R. I., assignor of one-half to the Somerset Stove Foundry Company, Somerset, Mass. Filed May 6, 1897. Serial No. 635,317. (No model.)



Claim.—1. In a grate, the combination with a frame pivotally mounted, of a plurality of grate-bars loosely hinged alternately to opposite sides of the frame, a shaft capable of continuous rotation having cams arranged alternately on opposite sides and adapted to lift and drop the grate-bars, and fingers on said shaft adapted to revolve in the spaces between the grate-bars, substantially as described.

2. In a grate, the combination with a frame having tubular trunnions, of a cam-shaft capable of continuous rotation journaled in said trunnions and provided with fingers, and a plurality of grate-bars loosely hinged at one end to said frame and lying transverse to said shaft, with spaces between them for the fingers, substantially as described.

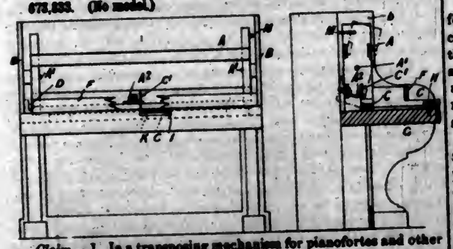
3. In a grate, the combination with a frame having tubular trunnions and carrying grate-bars, of a cam-shaft journaled in said trunnions and smaller in diameter than the interior of one of them, teeth on said large trunnion, and similar teeth on the shaft, whereby when said teeth are interlocked, the turning of the shaft will turn the frame on its trunnions, substantially as described.

4. In a grate, the combination with a frame having notched side bars, of grate-bars having at one end a hook and a guard-lug to engage with said notches, and at the other end only a shoulder to rest upon the side bar with no portion projecting under said bar, and means for lifting the grate-bars, substantially as described.

5. In a grate, the combination with a frame pivotally mounted on tubular trunnions, of a plurality of grate-bars supported on said frame, a cam-shaft loosely journaled in said trunnions and serving to actuate said bars, and teeth on said shaft and on one of said trunnions, whereby the shaft can be used to turn the frame when said teeth are interlocked, substantially as described.

6. The combination with the main frame A having depending bearings a, of a frame B having tubular trunnions B^2 B^3 resting in said bearings, said frame B being composed of end bars b, side bars b^2 having notches and provided with ribs b^4, open grate-bars C having hooks c, lugs c', shoulders c^2 and notches c^3, a cam-shaft D having cams d, fingers d' and teeth d^2, and teeth b^5 on one of the trunnions of the frame B, substantially as described.

604,144. TRANSPOSING MECHANISM FOR PIANOFORTES. EDMUND H. STERRY, London, England. Filed Mar. 14, 1896. Serial No. 583,233. (No model.)



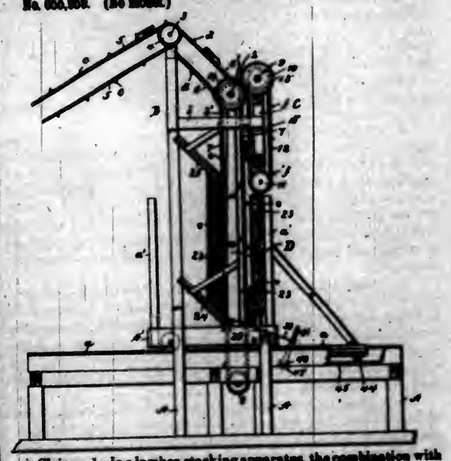
Claim.—1. In a transposing mechanism for pianofortes and other keyboard instruments the action-frame mounted on horizontal pivots in combination with means for swinging it thereon so that its lower part can be swung back to clear the keys and the upper part be swung forward to clear the strings, whereupon the key-frame can be shifted laterally to the desired extent and the action-frame then be returned to its normal position substantially as set forth.

2. In a transposing mechanism the action-frame mounted in horizontal pivots in combination with means for swinging it thereon, keys with chamfered-off back ends to clear the prolongs on the action-frame, a key-frame capable of limited lateral movement on the key-bottom and means for holding it in the position according to the desired key substantially as set forth.

3. In a transposing mechanism the combination of the action-frame mounted in horizontal pivots, a rod attached to the lower end of the action-frame for swinging it back and forth, a comb-shaped plate on the action-frame, a key-frame capable of limited movement on the key-bottom, and a finger on the key-frame engaging with said comb for holding the key-frame in position according to the desired key substantially as set forth.

4. In a transposing mechanism the combination of the action-frame mounted on horizontal pivots, means for swinging it thereon, a frame provided with slotted plates, pins on the key-bottom working in the slots, a knob on the key-frame for moving it, and a plate fixed at the front of the instrument with slot for limiting the movement of the knob therein substantially as set forth.

604,145. LUMBER-STACKING APPARATUS. WILLIS GRAHAM, Meridian, Miss. Filed Oct. 2, 1895. Renewed Oct. 21, 1897. Serial No. 655,958. (No model.)



Claim.—1. In a lumber-stacking apparatus, the combination with means for receiving the lumber to be stacked, of two series of parallel conveyer-chains constructed and adapted to form a throat for the reception of lumber between them, and lugs on said chains to receive and lower said lumber, substantially as set forth.

2. In a lumber-stacking apparatus, the combination with means for receiving lumber to be stacked, of two parallel conveyer-chains, having lugs for the reception of the lumber, said chain being so disposed as to form a throat into which the lumber is made to pass, and gearing constructed and adapted to cause both chains to move at the same rate of speed, whereby to cause lugs of one chain to cooperate with the lugs of the other chain for lowering the lumber through said throat, substantially as set forth.

3. In a lumber-stacking apparatus, the combination with means for receiving the lumber to be stacked, of two series of parallel chains constructed and adapted to form a throat between them for the reception of lumber, lugs projecting from both series of chains, a main elevating-carrier terminating above said series of chains, and an inclined carrier adapted to receive lumber from the elevating carrier and deposit it in the throat formed by the two first-mentioned series of chains, substantially as set forth.

4. In a lumber-stacking apparatus, the combination with means for receiving the lumber to be stacked, of two series of chains disposed parallel with each other and having lugs thereon, one series of chains terminating above the other, and means for depositing lumber in the throat formed by the two series of chains, substantially as set forth.

5. In a lumber-stacking apparatus, the combination with means for receiving lumber to be stacked, of a series of chains having lugs for the reception of lumber to be stacked, and a yielding device behind each chain, whereby to hold the chains normally in proper working position and permit them to yield and allow the lugs to pass lumber already stacked, substantially as set forth.

6. In a lumber-stacking apparatus, the combination with means for receiving lumber to be stacked, of a series of chains having lugs for the reception of the lumber to be stacked, a bar adapted to bear against each chain, and yielding devices in rear of said bar, substantially as and for the purpose set forth.

7. In a lumber-stacking apparatus, the combination with a framework adapted to receive trucks, of a series of lowering-chains disposed over the position occupied by the trucks and yielding pusher-bars adapted to receive said chains, substantially as set forth.

8. In a lumber-stacking apparatus, the combination with means for receiving the lumber to be stacked, of a series of chains carrying lugs for the reception of the lumber to be stacked and adapted to place the lumber in position, a pivoted bar behind each chain, and a series of springs behind each pivoted bar, substantially as set forth.

9. In a lumber-stacking apparatus, the combination with suitable framework and a truck, of a series of chains having lugs thereon adapted to receive lumber and stack it on the truck, and a short series of chains having lugs, said short series of chains being disposed parallel with the first-mentioned chains so as to form a throat or passage for the lumber, the short series of chains terminating at their lower ends a distance above the truck about equal to the desired height of the stack of lumber thereon, substantially as set forth.

10. In a lumber-stacking machine, the combination with suitable framework and a truck, of two series of parallel conveyer-chains adapted to form a throat between them for the reception of lumber to be stacked, and means for moving the truck step by step as the tiers of lumber on the truck shall have been successively completed, substantially as set forth.

11. In a lumber-stacking machine, the combination with a truck and means for piling lumber thereon in tiers, of a movable bar, a standard carried by said bar and adapted to be connected with the truck, and means for moving said movable bar to move the truck, substantially as set forth.

12. In a lumber-stacking apparatus, the combination with a framework, a truck adapted to run thereon and means for piling lumber on said truck, in tiers, of a sliding bar, a standard carried by the sliding bar and adapted to be connected with the truck, a rack-bar on the sliding bar, a pinion meshing with the rack-bar, and a ratchet device for moving said pinion step substantially as set forth.

13. In a lumber-stacking apparatus, the combination with a framework, a truck adapted to run thereon, and means for stacking lumber on the truck, of a sliding bar, and a collapsible standard carried by said sliding bar and adapted to be connected with the truck, said standard being adapted to bear against the lumber on the truck, substantially as set forth.

14. In a lumber-stacking apparatus, the combination with a framework, a truck adapted to run thereon and means for stacking lumber on the truck, of a sliding bar, a standard hinged to the sliding bar and adapted to bear against the lumber on the truck, a connection between said standard and the truck, and a collapsible brace connecting the upper end of the standard with the sliding bar, substantially as set forth

15. In a lumber-stacking apparatus, the combination with a framework and a series of trucks adapted to run thereon, of a sliding bar in proximity to each truck, a standard hinged to each sliding bar and adapted to bear against the lumber on the trucks, a connection between the standards and the trucks, a collapsible bracket connecting the upper ends of the standards with the sliding bars, a rack-bar on each sliding bar, a shaft, pinions carried by the shaft and meshing with the rack-bars, and a ratchet device connected with said shaft whereby to move the pinions step by step, substantially as set forth.

16. In a lumber-stacking machine, the combination with a truck and means for piling lumber thereon, of a fixed stick-holder, substantially as set forth.

17. In a lumber-stacking machine, the combination with a truck and means for piling lumber thereon, of a stick-holder having its bottom inclining toward the lumber on the truck, substantially as set forth.

18. In a lumber-stacking machine, the combination with means for receiving lumber and means for stacking said lumber, of a stick-holder, a notched wheel or cam at the bottom, and means for operating said notched wheel or cam whereby to cause it to eject a stick, substantially as set forth.

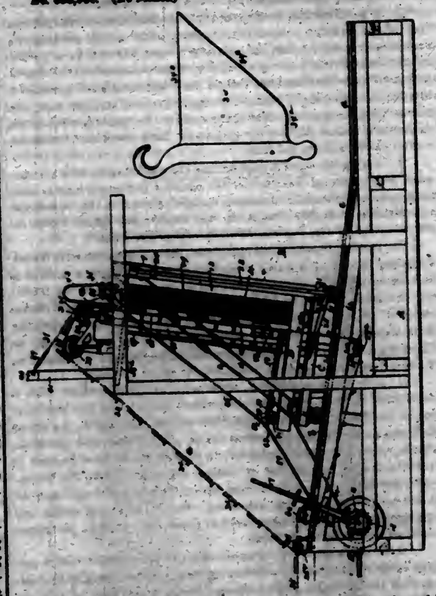
19. In a lumber-stacking apparatus, the combination with a truck and means for piling lumber thereon, of a stick-holder having an inclined bottom, and a spring-actuated device at the top of the holder adapted to bear on the forward stick, substantially as set forth.

20. In a lumber-stacking apparatus, the combination with a truck and means for piling lumber thereon, of a stick-holder having an inclined bottom, a cam or notched wheel at the bottom of the stick-holder to receive the forward stick, a spring-actuated device at the top of the holder to bear against said forward stick, and means for operating the cam or notched wheel whereby to eject the stick, substantially as set forth.

21. In a lumber-stacking apparatus, the combination with a truck and means for piling lumber thereon, of means for placing sticks between the tiers of lumber, and hooks or bars for holding said sticks in place while a tier of lumber is being piled against them, and means for operating said hooks or bars, substantially as set forth.

22. In a lumber-stacking machine, the combination with a truck and means for piling lumber thereon, of a stick-holder having an inclined bottom, a cam or notched wheel at the lower end of the holder and adapted to receive the forward stick in the holder, a hood or bar for holding the stick in place against the lumber after it shall have been released from the stick-holder, a bell-crank lever connected with the journal of said cam or wheel, a connection between said bell-crank lever and the said hood or bar, an operating-lever, and a connection between the operating-lever and the bell-crank lever, substantially as set forth.

604,146. LUMBER-STACKING APPARATUS. WILLIS GRAHAM, Meridian, Miss. Filed Nov. 19, 1895. Renewed Oct. 21, 1897. Serial No. 656,959. (No model.)



Claim.—1. In a lumber-stacking apparatus, the combination with a carriage, of trucks adapted to run onto said carriage, and gates connected with the carriage for preventing the escape of said trucks while lumber is being piled on the latter, substantially as set forth.

2. In a lumber-stacking apparatus, the combination with a carriage comprising a transverse timber and a series of parallel bars or arms projecting at right angles from said transverse timber, of braces securing said timber and bars or arms together, trucks adapted to run onto said carriage, lugs on the braces and gates hinged to some of said lugs and adapted to be removably connected with lugs on other braces, whereby to normally prevent the escape of the trucks from the carriage, substantially as set forth.

3. In a lumber-stacking apparatus, the combination with a framework and inclined tracks, of a carriage on said inclined tracks, means for normally holding said carriage in position, trucks on said carriage for receiving lumber to be piled, standards on said trucks, and devices carried by the carriage for engaging said trucks, and devices for engaging the tops of the standards whereby to retain said trucks normally in position while they are being loaded with lumber, substantially as set forth.

4. In a lumber-stacking apparatus, the combination with a carriage adapted to receive trucks having standards, of uprights projecting from said carriage, guides carried by said uprights, a transverse timber on said standards and in said guides and adapted to be normally engaged by the standards on the trucks, and means for raising said transverse timber out of line with said standards, substantially as set forth.

5. In a lumber-stacking apparatus, the combination with a carriage adapted to receive trucks having standards, of uprights projecting from said carriage, guides at the upper ends of said uprights, a transverse timber supported by the uprights in said guides, said transverse timber being normally disposed in the path of the standards on the trucks, a shaft supported by the carriage, arms projecting from said shaft, rods connected to said arms and terminating

under said transverse timber, and a lever for operating said shaft whereby to raise the rods and lift the transverse timber out of line with the standards on the trucks, substantially as set forth.

6. In a lumber-stacking apparatus, the combination with framework and means for holding trucks in position while being loaded, of a series of endless chains arranged to receive a board, elevate it, and lower it, positively placing it upon the trucks, a portion of said chains being always disposed at right angles to the trucks and parallel with the standards of said trucks, substantially as set forth.

7. In a lumber-stacking apparatus, the combination with a framework and trucks having standards, of a series of endless chains having lugs thereon and means for conveying lumber to said endless chains, said endless chain being so disposed as to receive a board, elevate it, and lower it, positively placing it upon the trucks, one board edgewise upon another, substantially as set forth.

8. In a lumber-stacking apparatus, the combination with a framework and trucks, of endless chains arranged to receive a board, elevate it, and lower it, positively placing it upon the trucks, a portion of said chains being disposed parallel with the standards of the trucks, spring-actuated presser-bars behind said last-mentioned portions of the chains, and upright beams for supporting said presser-bars, said beams being secured at their upper ends to the upper portion of the framework and at their lower ends to the base portion of the framework, substantially as set forth.

9. In a lumber-stacking apparatus, the combination with a framework and trucks, of flexible devices adapted to deposit lumber onto the trucks, and inverted-U-shaped springs secured to the framework and forming, in conjunction with said flexible devices, a throat for the reception of the lumber, substantially as set forth.

10. In a lumber-stacking apparatus, the combination with framework and trucks, of a series of endless conveyer-chains, a portion of each chain being at all times disposed at right angles to the trucks and extending above and below the same, and a portion of said chains being at all times so disposed as to convey the lumber above the truck-standards, and yielding devices constructed and adapted to direct the lumber from the last-mentioned portions of the chains to the first-mentioned portions, substantially as set forth.

11. In a lumber-stacking apparatus, the combination with a framework and trucks, of sprocket-wheels mounted in the base portion of the framework, upper sprocket-wheels mounted in the top of the framework, a series of endless chains passing over said sprocket-wheels, said chains being adapted to convey lumber and deposit it upon the trucks, a cross bar or timber supported above the framework, springs secured to said cross bar or timber, and chains secured at one end to said springs, extending over the conveyer-chains and upper sprocket-wheels, and secured at their other ends to the framework, substantially as set forth.

12. In a lumber-stacking apparatus, the combination with a carriage adapted to receive trucks having standards, of uprights projecting from the carriage, guides secured to the upper ends of said uprights, a transverse timber on said uprights and in said guides, brackets on the carriage, and truss-rods secured to said brackets and at their upper ends to the said guides, substantially as set forth.

13. In a lumber-stacking apparatus, a stick-feeding device comprising an endless chain having pockets and means for moving said chain step by step, substantially as set forth.

14. In a lumber-stacking apparatus, a stick-feeding device comprising an endless chain having pockets for the reception of the sticks, a ratchet-wheel connected with one of the sprocket-wheels over which said chain passes, a pivoted arm, a dog connected with said arm and adapted to engage said ratchet-wheel and means for vibrating said arm whereby to move the endless chain step by step, substantially as set forth.

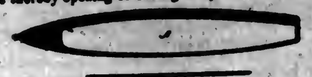
15. In a lumber-stacking apparatus, the combination with a framework and a carriage adapted to receive trucks, stick-feeding devices comprising endless chains having pockets, a lever for controlling the movement of the carriage, and step-by-step devices connected with said chains and said lever, substantially as set forth.

16. In a lumber-stacking apparatus, the combination with a framework and means for supporting trucks, of stick-feeding devices comprising endless chains having pockets, an operating-lever, hoods adapted to receive the upper ends of the sticks and hold them in position, step-by-step devices for the said feeding-chains connected with the operating-lever and means connecting said operating-lever with said hoods, substantially as and for the purpose set forth.

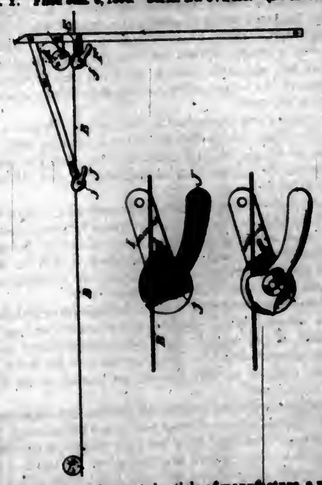
17. The combination with a truck adapted for the reception of lumber and having a standard at each end, of a binder consisting of a hook to engage one standard, a rope attached to said hook and adapted to pass over the lumber and the other standard, and a clamp attached to said rope and adapted to engage the last-mentioned standard, substantially as set forth.

604,147. STRINGER. JOHN GRAY, Pittsburg, Pa., assignor to W. P. Fitz Gerald. Filed May 4, 1894. Serial No. 510,061. (No model.)

Claim.—As an article of manufacture, a syringe comprising a hollow elastic and compressible bulb made in the form of a cigar and having a tapered end having an inward tubular extension and a socket or bore in said extension, the latter being provided with a side passage-way opening into the bulb-chamber, all integral, and a sliding tube open at each end and adapted to work back and forth in said bore thereby opening or closing the passage-way, as set forth.



604,148. WIRE-STRETCHER. THEODORE H. GOSS, Marcellus, N. Y. Filed Jan. 6, 1896. Serial No. 574,488. (No model.)



Claim.—As an improved article of manufacture, a wire-stretcher, composed of a lever having a projecting fulcrum or stud thereon near one end, a wire-clamp arm pivotally attached to said lever at one side of said stud, a second wire-clamp arm pivotally attached to said lever by a link at the other side of said stud, said clamp-arms and stud projecting from the same side of the lever, the link by which said second clamp-arm is attached to the lever being longer than the first clamp-arm, substantially as described.

604,149. MEANS FOR SECURING PRINTING-PLATES TO CYLINDRICAL SURFACES. JOHN T. HAWKINS, Taunton, Mass., assignor to the Campbell Printing Press and Manufacturing Company, New York, N. Y. Filed Dec. 7, 1895. Serial No. 570,994. (No model.)



Claim.—1. In combination with a printing form or bed having a circumferentially-grooved cylindrical surface, thin tying or holding strips, as S, provided with means for securing the under sides of printing blocks or plates thereto, and adapted to be strained upon said cylindrical surface, substantially as and for the purposes set forth.

2. The combination of a cylindrical holding-surface, grooves formed therein, straining-strips fitting within said grooves, said cylindrical surface carrying straining means for said strips, said strips carrying a number of printing-plates, substantially as described.

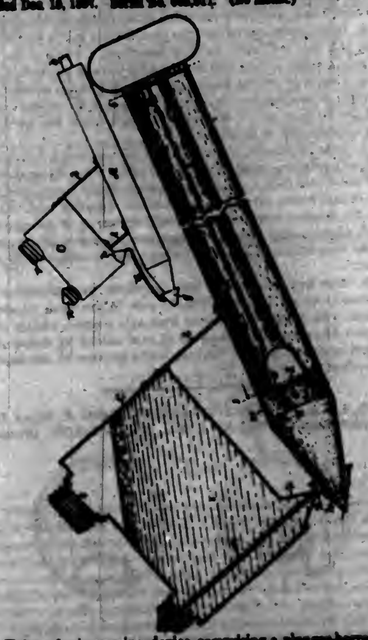
604,150. TOILET-PAPER CUTTER. JOHN HERMAN, Sr., Green Bay, Wis. Filed July 20, 1896. Renewed Nov. 2, 1897. Serial No. 657,302. (No model.)

Claim.—1. A cutter for toilet-paper machines, comprising a blade subdivided by recesses in its edge into a series of flat teeth and having in the sides of the teeth a series of V-shaped depressions formed to alternate with each other on opposite sides of the blade and causing the edge to appear in a zigzag line, in combination with means for causing said blade to reciprocate vertically and a die adapted to receive the blade as it penetrates the paper, substantially as described.

2. A cutter for toilet-paper machines, comprising a blade formed with teeth E and E', each tooth having trough-shaped recesses or depressions in the sides thereof arranged to form a cutting edge in a zigzag line in combination with a reciprocating head-block, for actuating the blade, and a die located beneath the path of the paper and adapted to receive the blade as it penetrates the paper, substantially as described.



604,151. SPRAYING DEVICE. GEORGE A. KENT, Everett, N. Y. Filed Dec. 15, 1897. Serial No. 661,811. (No model.)



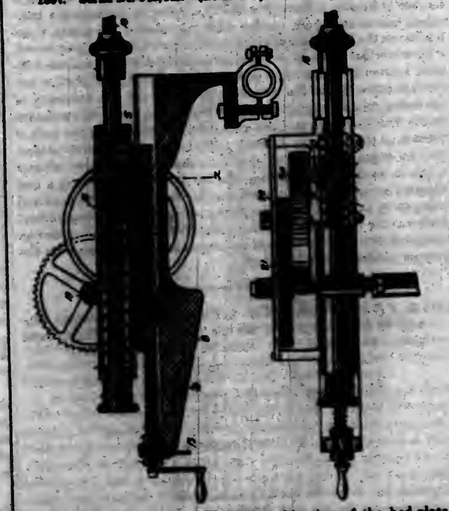
Claim.—1. A spraying device comprising a plunger-barrel and contained plunger, the barrel having a delivery-opening, a cap for said delivery-opening having a delivery-opening in line with the opening of the barrel, said a reservoir for liquid so placed and arranged with reference to said barrel and cap as to deliver the liquid by gravity into the space between the cap and barrel, substantially as specified.

2. A spraying device comprising a plunger-barrel having a delivery-opening, a cap extending over the end of the barrel and having a delivery-opening in line with the delivery-opening in the barrel, a plunger within said barrel, a reservoir for liquid so placed and arranged with reference to said barrel and cap as to deliver the liquid by gravity into the space between the cap and barrel, and means for controlling the passing of liquid from the reservoir to the interior of the cap, substantially as specified.

3. A spraying device comprising a plunger-barrel having a conical apertured extremity and a plunger within the barrel, a conical cap carried by the end of the barrel and provided with a delivery-opening in line with the delivery-opening therein, a reservoir supported by the barrel and provided with a conical chamber at its bottom communicating with the cap and designed to discharge liquid into the cap and around the end of the barrel, and mechanism designed to control the passage of liquid from the conical chamber to the cap, substantially as specified.

4. A spraying device comprising a plunger-barrel having an apertured conical extremity and a contained plunger, a conical cap fitting over the conical end of the barrel and provided with a discharge-opening in line with the aperture therein, a reservoir supported upon the exterior of the barrel and provided with a conical chamber at its bottom and communicating with the cap and designed to permit the gravitation of liquid from the reservoir to the space between the cap and the conical end of the barrel, a rod extending through the reservoir and designed to be reciprocated for the purpose of opening or closing the passage from the reservoir to the cap, and a screw-cap secured to said rod and designed by its rotation to actuate the same, substantially as and for the purpose specified.

604,152. ROCK-DRILL. MARIANO C. JAMIESON, Denver, Colo., assignor of one-half to Henry Darell Gripper, same place. Filed Aug. 16, 1897. Serial No. 648,448. (No model.)



Claim.—1. In a rock-drill, the combination of the bed-plate, the casing slidingly mounted thereon, a transverse shaft journaled on the casing, a gear-wheel fast on said shaft, another shaft journaled on the casing, a pinion fast on the last-named shaft and meshing with the said gear-wheel, a fly-wheel fast on the pinion-shaft and provided with a cam, the drill-shaft located in the casing, a power-spring engaging said shaft, a loose collar mounted on the drill-shaft and provided with a lug projecting into the path of the cam on the fly-wheel whereby as the last-named wheel is rotated the cam engages the said lug, draws the shaft backward and releases it, the forward movement being effected by the power-spring, a dog mounted on said lug, and a ratchet-collar fast on the drill-shaft and engaged by said dog, the casing being provided with a longitudinal guideway for the lug on the loose collar, the depth of said guideway being sufficient to allow the said projection to oscillate therein for the purpose of turning the drill-shaft.

2. In a rock-drill, the combination with the casing, the reciprocating shaft and the power-spring, of a loose collar mounted on the drill-shaft and provided with a lateral projection, a dog mounted on said projection, a ratchet-collar fast on the drill-shaft and engaged by said dog, the casing being provided with a longitudinal guideway for the projection on the loose collar, the depth of the said guideway being sufficient to allow the said projection to oscillate therein for the purpose of turning the drill-shaft, a rotary cam mounted on the drill-casing and engaging the projection on the loose collar which

projection lies in the path of the cam, and suitable means for rotating the cam.

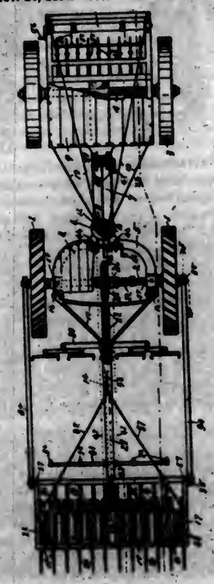
3. In a rock-drill, the combination with the casing and the reciprocating shaft, of a collar loosely mounted on said shaft and reciprocating therewith, said collar being provided with a projection, the casing being grooved to form a guideway for this projection, which is allowed to oscillate therein to a limited extent for the purpose of turning the drill-shaft, a spring engaging said collar and normally holding it on the bottom of the said guideway, a dog carried by said projection, a ratchet-collar fast on the drill-shaft and engaged by said dog, and a rotary cam mounted on the casing and engaging the projection on the collar.

4. In a rock-drill, the combination with the casing and the reciprocating shaft, of a loose collar mounted on said shaft and reciprocating therewith, said collar being provided with a lateral projection, the casing having a guideway formed therein for said projection in which the latter is allowed a limited oscillatory movement for the purpose of rotating the drill-shaft, the bottom of the guideway being inclined, a spring engaging a projection on the loose collar whereby the said projection is normally held in the bottom of said guideway, and a rotary cam engaging the outer extremity of said projection which is provided with an antifriction-roller.

5. In a rock-drill, the combination of the guide bed or track, the casing slidingly mounted thereon and provided with a nut, a shoe detachably mounted on the rear extremity of the guide-bed, the feed-screw being journaled in said shoe, and a cam pivotally mounted on the guide-bed and adapted to lock the shoe thereon.

6. In a rock-drill, the combination of the bed-plate, the casing slidingly mounted thereon and provided with a threaded opening in its rear extremity, a transverse shaft journaled on the casing, a gear-wheel fast on said shaft, another shaft journaled on the casing, a pinion fast on the last-named shaft and meshing with the said gear-wheel, a fly-wheel fast on the pinion-shaft and provided with a cam, the drill-shaft located in the casing, a power spring engaging said shaft, a tension-nut screwed into the threaded opening in the rear extremity of the casing, said nut engaging said power-spring, a loose collar mounted on the drill shaft and provided with a lug projecting into the path of the cam on the fly-wheel, whereby as the last-named wheel is rotated, the cam engages the said lug, draws the shaft backward and releases it, the forward movement being effected by the power-spring, a dog mounted on said lug, and a ratchet-collar fast on the drill-shaft and engaged by said dog, the casing being provided with a longitudinal guideway for the lug on the loose collar, the depth of said guideway being sufficient to allow the said projection to oscillate therein for the purpose of turning the drill-shaft.

604,153. HORSE-POWER BAYONET. ADOLPH J. JOHNSON, Minneapolis, Minn., assignor of one-half to Edward H. O. Holien, same place. Filed Nov. 27, 1897. Serial No. 659,959. (No model.)



Claim.—1. An implement of war comprising a multiplicity of bayonets mounted for endwise movement and projecting in advance of the machine, and mechanism driven by horse-power for vibrating said bayonets, substantially as described.

2. In an implement of war, the combination with a truck with traction-wheels, of a pole projecting forward from said truck, a frame-work at the forward end of said pole, a series of bayonets mounted for endwise movement in said frame, a crank-shaft mounted in said frame and provided with connections to said bayonets, and a sprocket-and-chain drive between the axle of said traction-wheels and said crank-shaft, substantially as described.

3. In an implement of war the combination with a four-wheeled truck, certain of which wheels are traction-wheels, of a pole projecting forward from said truck, a frame at the forward end of said pole, bayonets mounted for endwise movement in said frame, a mast rising from said truck, a hoisting connection attached to said frame, or at the forward end of said pole, and running over a guide at the top of said mast, and a windlass on said truck connected to the rear end of said hoisting connection, whereby said bayonets may be supported in different operative vertical positions, substantially as described.

4. In an implement of war, the combination with a four-wheeled truck two of which wheels are traction-wheels, of a pole projecting forward from said truck, a frame, at the forward end of said pole, the bayonets mounted for endwise movement in said frame, the crank-shaft mounted in said frame and connected by pitmen to said bayonets, the sprocket-and-chain drive between the axle of said traction-wheels and said crank-shaft, the mast rising from said truck, the cable connected to said frame and running over a guide at the top of said mast, and a windlass on said truck connected to the rear end of said cable, substantially as described.

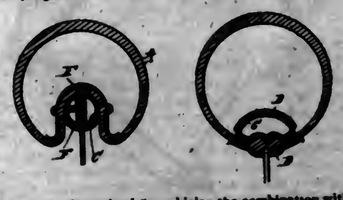
5. In an implement of war, the combination with a four-wheeled truck, of a pole projected forward from the same, a frame at the forward end of said pole, means for raising and lowering the forward end of said pole from the truck, a series of bayonets mounted for endwise movement in said frame, and a series of swords depending from said frame, said parts operating substantially as described.

6. In an implement of war, the combination with a four-wheeled truck, of a pole projecting forward therefrom, a frame at the end of said pole, a series of bayonets mounted for endwise movement in said frame, a series of swords depending from said frame, another series of swords depending from said truck, and means for raising and lowering the forward end of said pole from said truck, said parts operating substantially as described.

7. In an implement of war, the combination with a four-wheeled truck, of a pole projecting forward from said truck, a frame at the forward end of said pole, a series of bayonets mounted for endwise movement in said frame, driving connections for vibrating said bayonets from the traction-wheels of said truck, the series of spring-pressed swords 42 depending from said frame, and a common lifting connection for simultaneously raising all of said swords, substantially as described.

8. In an implement of the class described, the combination with the traction-wheels 1, their axle 2, the pole 14, the frame 17, and the bayonets with driving connections from said traction-wheels, of the side rods 34 connected to the ends of said axle 2 by means of the pronged or slotted keys 35 working in the grooves 36, substantially as described.

604,154. WHEEL FOR VEHICLES. ERNEST F. JULIAN, Teignmouth, England. Filed July 6, 1897. Serial No. 643,891. (No model.)



Claim.—1. In a wheel for vehicles, the combination with the rim of a wheel, of a split tire, a non-contractible ring adapted to receive the edges of the split tire and a tube seated between the said edges and the said rim, whereby by the inflation of said tube, the various parts are retained in the proper relative position, substantially as described.

2. In a wheel for vehicles, the combination with the rim of a wheel, of a split tire, a non-contractible ring adapted to receive the edges of the split tire and a tube seated between the said edges and the said rim, whereby, by the inflation of said tubes the various parts are retained in the proper relative position, said ring being provided with recesses in the inner surface thereof, substantially as described

604,155. WHEEL FOR VEHICLES. ERNEST F. JULIAN, Teignmouth, England. Filed July 6, 1897. Serial No. 643,892. (No model.)



Claim.—1. In a wheel for vehicles, the combination with the rim of a wheel, of a fully, upwardly-directed flanges thereon, and a tube seated between said flanges, said fully and said rim whereby said parts are bound together said rim being of smaller dimension than the diameter of said tube whereby by the inflation of said tube a depression is formed to receive said rim and the various parts are more securely retained in their positions, substantially as described.

2. In a wheel for vehicles, the combination with the rim of a wheel, of a fully, upwardly-directed flanges thereon, a tube seated between said upwardly-directed flanges, said fully and said rim, downwardly-directed flanges on said fully and an independent tread seated between said downwardly-directed flanges, said rim being of smaller dimension than the diameter of said tube whereby by the inflation of said tube a depression is formed to receive said rim and the various parts are more securely retained in their positions, substantially as described.

3. In a wheel for vehicles, the combination with the rim of a wheel, of a fully, upwardly-directed flanges thereon, a tube seated between said flanges said fully and said rim, downwardly-directed flanges on said fully, an independent tread seated between said last-mentioned flanges, a cover secured between the upper ends of said upwardly-directed flanges and means whereby said cover is firmly attached thereto, said rim being of smaller dimension than the distance between said first-mentioned flanges, whereby by the inflation of said tube, the various parts are more securely retained in their positions substantially as described.

4. In a wheel for vehicles, the combination with the rim of a wheel, of a fully, upwardly-directed flanges thereon, a tube seated between said flanges, said fully, and said rim, downwardly-directed flanges on said fully, an independent tread seated between said last-mentioned flanges, a cover secured between the upper ends of said flanges, said flanges being provided respectively with a projection whereby said cover is firmly attached thereto, said rim being of smaller dimension than the distance between said first-mentioned flanges, whereby by the inflation of said tube the various parts are more securely retained in their positions, substantially as described.

604,156. CHAIR. FRANK H. KASSEN, Rosiya, Wash. Filed May 17, 1897. Serial No. 637,317. (No model.)



Claim.—1. In an article of the class described the combination with a seat, forward and rear legs pivoted to said seat and so connected together that they remain relatively parallel, arms pivoted to upwardly-extending portions of said rear legs and detachably secured to said seat, said arms being adapted to swing backward to uphold the parts in an inclined position and means for adjusting the inclination of said arms substantially as and for the purpose set forth.

2. In an article of the class described the combination with a seat, forward and rear legs pivoted to said seat and so connected together that they remain relatively parallel, arms pivoted to said rear legs and detachably secured to said seat, said arms being adapted to swing backward and rest on the floor at various angles of inclination, said arms, legs and seat being adapted to fold together into a compact form substantially as and for the purpose set forth.

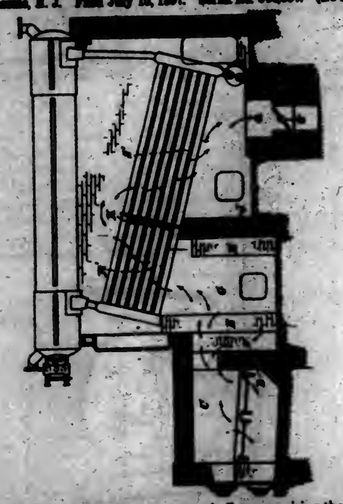
604,157. CIRCUIT-CLOSER. WILLIS B. KENNEDY, Easton, Pa. Filed Mar. 20, 1893. Renewed Oct. 2, 1897. Serial No. 653,593. (No model.)

Claim.—1. In a circuit-closer, the combination with a bellows base, of oppositely-curved thermostatic plates located respectively in the opposite sides of the base, and forming terminals of an electric circuit, one being formed to rest below and the other above the normal temperature, adjustable terminals adjacent to the plates, and a manual closer on the base, substantially as described.



2. In a circuit-closer, the combination with a base, of a thermostatic plate thereon, a central manual closer, a perforated guard for the thermostat, and a cap for the manual closer engaging and securing the guard on the base, substantially as described.

604,158. FURNACE FOR STEAM-BOILERS. WILLIAM KENT, Passaic, N. J. Filed July 15, 1897. Serial No. 644,897. (No model.)



Claim.—1. A furnace for a steam-boiler comprising the furnace-chamber C built exterior to the boiler, the wing-walls E, E', the projecting piers H, the rear wall J, the mixing-chamber F, and the combustion-chamber G, substantially as shown and described.

2. In a steam-boiler furnace, the fire-chamber extending in front of the boiler, the combustion-chamber separated from said fire-chamber by a bridge-wall over which the products of combustion pass, the combustion-chamber in rear of said fire-chamber and provided with wing-walls at the sides and a rear wall extending upward to the boiler-tubes, and a partition-wall extending across the tubes, said combustion-chamber having fire-brick piers serving as radiators and having passages leading away from said chamber, all substantially as described.

3. In a steam-boiler furnace, the fire-chamber, the combustion-chamber connected thereto as described and provided with wing-walls at its sides by which the gases in passing backward are deflected toward the central part of the chamber, said combustion-chamber also having fire-brick piers serving as radiators, and passages leading from said combustion-chamber to water-containing parts of the boiler, all substantially as described.

4. In a furnace for a water-tube steam-boiler, said boiler having inclined tubes and transverse gas-passages, a fire-chamber in front of the boiler, a gas-mixing chamber in rear of the fire-chamber, the fire-chamber and the mixing-chamber both having a tile or fire-brick roof to prevent the direct access of the gases to the tubes of the boiler, wing-walls in the rear of the mixing-chamber, an open-top combustion-chamber in the rear of the mixing-chamber and partly separated therefrom by said wing-walls, through which open top the gases pass directly into the first or forward ascending transverse gas-passage leading across the tubes of the boiler, in combination substantially as described.

604,159. PIPE-COUPLING. FREDERICK A. PERLEY, Jr., Johnstown, Pa. Filed Sept. 1, 1897. Serial No. 650,253. (No model.)

Claim.—1. In a pipe-coupling, the combination of the pipes having reamed ends, the gasket between said ends, the collars around

said ends, the projection upon one of said collars engaging the periphery of said gasket, and the flanges and bolts for compressing the gasket between the pipe ends and the said projection.



2. A pipe-coupling comprising the combination with the recessed and scored ends of the pipe members, of a ferrule within the registering recesses, a gasket between the scored ends, and means for compressing the gasket and securing the whole together.

604,160. FRAME CLAMP AND SUPPORT. FREDERICK REMMARE, West Point, N. Y. Filed Mar. 5, 1897. Serial No. 626,157. (No model.)



Claim.—1. In a locking frame-clamp, a fixed supporting-plate, a revoluble plate mounted thereon, each of said plates having journal-bearings, threaded shafts having gears on their inner ends journaled in said bearings, a central adjustable gear and means to throw it in and out of operative connection with the gears on the shafts, all combined as set forth.

2. As an improvement in locking frame-clamps, the combination of a vertical fixed plate having a central hub and a circular rack, a revoluble plate mounted thereon, threaded shafts journaled in said plate carrying miter-boxes, and operative means connected with the rack for revolving the revoluble table, all arranged as set forth.

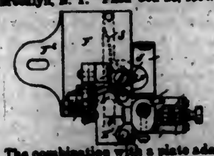
3. As an improvement in locking-clamps for frames, the combination of a fixed support having suitable legs and a central upwardly-disposed hub, of a revoluble plate, operatively mounted on said hub; threaded shafts secured to said support and movable plate in the manner specified and having upon their inner ends a beveled gear designed to mesh with a central gear, which latter communicates movement from one shaft to another, and means for automatically raising the central gear when the thumb-screw secured thereto is raised, substantially as specified and for the purpose set forth.

4. As an improvement in frame-holding clamps, the combination of a fixed plate, a movable plate mounted thereon, each plate being provided with a pair of suitably-mounted threaded shafts, miter-boxes operatively connected with said shafts and adjustable thereon, gears secured to the inner ends of said shafts, a vertically-adjustable central gear meshing with each shaft-gear and means for operating one of said threaded shafts, all arranged as set forth.

5. In a locking frame-clamp, a fixed supporting-plate having a vertical central hub provided with a downwardly-extending collar, a revoluble plate having a central aperture fitting over said hub, an axle extending through said collar and having an adjustable gear on its upper part and a spiral spring around its central portion and a thumb-screw whereby the gear may be thrown into and out of operative condition and means to operate said gear and screw-shafts with miter-boxes and gears cooperating with said gear all combined as set forth.

6. In a locking-frame, a fixed supporting-plate, a revoluble plate mounted thereon, shafts carrying miter-boxes and having gears on their inner ends, a central adjustable gear and devices whereby it is thrown into and out of operative connection with the inner end gears, all combined as set forth.

604,161. ATTACHMENT FOR SEWING-MACHINES. CARL SAMUELSON, Brooklyn, N. Y. Filed Oct. 26, 1897. Serial No. 656,626. (No model.)



Claim.—1. The combination with a plate adapted to be attached to the presser-foot of a sewing-machine, and having a recess opening toward the presser-foot, of a polygonal cam mounted to turn on a vertical axis in said recess, and also mounted so that its angles can be projected beyond the recessed edge of the plate, said cam having a vertical needle-slot in each angle and means for turning said cam a partial rotation for each stroke of the needle-bar, substantially as herein shown and described.

2. The combination with a plate adapted to be attached to the presser-foot of a sewing-machine, and having a recess opening toward the presser-foot of a polygonal cam mounted to turn on a vertical axis in said recess, and also mounted so that its sides can be brought in position successively in line with the recessed edge of the plate and its angles successively projected beyond said edge, said cam having a vertical needle-slot in each angle and means for rotating the cam for each stroke of the needle-bar to bring the cam from one position to the other, substantially as herein shown and described.

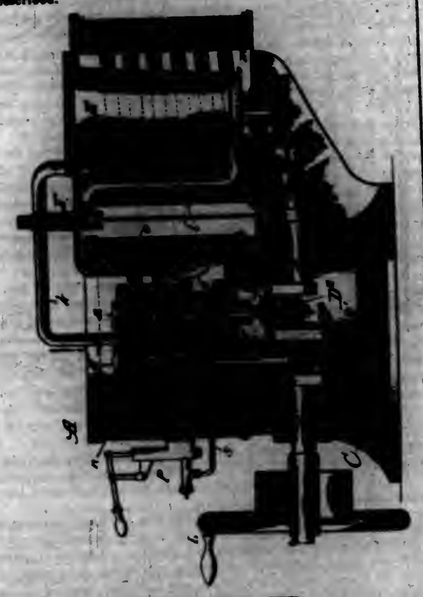
3. The combination with a plate adapted to be attached to the presser-foot of a sewing-machine and having a recess opening toward the presser-foot, of a polygonal cam mounted to rotate on a vertical axis within said recess, said cam having a vertical needle-slot in each angle, a ratchet-wheel fixed on said cam and having as many teeth as the cam has sides and angles, a pawl-lever engaging said ratchet-wheel, and means for operating said pawl-lever from the needle-bar of the sewing-machine, substantially as herein shown and described.

604,162. COOLING AND SEALING. JULIUS SIEGLAGHE, Nuremberg, Germany. Filed Sept. 27, 1897. Serial No. 653,215. (No model.) Patented in France Dec. 31, 1892, No. 228,560; in Germany Feb. 10, 1893, No. 68,773; in Italy Mar. 28, 1893, No. 1,194; in Austria-Hungary May 6, 1896, No. 1,880 and No. 5,697, and Aug. 30, 1896, No. 10,220 and No. 10,989; in Switzerland June 28, 1894, No. 8,796; in Belgium Aug. 25, 1894, No. 95,943, and in England May 14, 1895, No. 9,859.

Claim.—1. In a refrigerating-machine, the combination with the compressor and suction chamber of means for maintaining a predetermined pressure of leakage-gas behind the piston in the compressor-chamber greater than the pressure in the suction-chamber, said means comprising a tapering valve and a tapering valve-seat interposed between the two said chambers and presenting to said pressure behind the piston a smaller surface area and to said suction-pressure a larger surface area, said areas being relatively proportioned substantially as described.

2. In a refrigerating-machine, the combination of a compressor containing a pair of piston-chambers provided with a connecting-passage behind the pistons, a suction-chamber and means for maintaining a predetermined pressure of leakage-gas behind the pistons greater than the pressure in the suction-chamber, said means comprising a duct leading to the suction from said connecting-passage and containing a valve-chamber and a tapering valve having a tapering valve-seat in said chamber presenting a smaller surface area to said pressure behind the pistons and a larger surface area to said suction-pressure, said areas being relatively proportioned substantially as described.

3. In a refrigerating-machine, the combination with the condenser and refrigerator of a suction-chamber into which the refrigerator-coil discharges, a discharge-chamber connected with the condenser-coil, a compressor containing a pair of piston-chambers each having a valve-controlled connection with said suction-chamber and a valve-controlled connection with said discharge-chamber, and means for maintaining a predetermined pressure of leakage-gas behind the pistons greater than the pressure in the suction-chamber, said means comprising a duct communicating at one end with the piston-chambers behind the pistons therein and from its other end with said suction-chamber, and a tapering valve having a tapering valve-seat interposed in said duct and presenting a smaller surface area to said pressure behind the pistons and a larger surface area to said suction-pressure, said areas being relatively proportioned substantially as described.



604,163. UNDERGARMENT. ADOLPH G. VELASKO, Syracuse, N. Y. Filed Oct. 28, 1897. Serial No. 656,149. (No model.)



Claim.—In an [illegible] garment, the combination with the body, of a sleeve-piece having part of its end folded inwardly and doubling the fabric, a pad upon the body below the armhole, and means to secure this parts together around the armhole substantially upon the line of the fold upon the sleeve portion, whereby said pad and infold create an armpit-absorbent reinforced by said sleeve-fold at their meeting-points.

604,164. ROUNDABOUT. CHARLES T. WILDE and CHARLES W. HENDERSON, Lawrence, Mass. Filed Oct. 12, 1897. Serial No. 655,021. (No model.)

Claim.—1. In a roundabout, a tank, a fixed upright standard therein, a hub rotatably mounted upon the standard and having a series of radial arms, a boat connected with each arm, electric motor mechanism on one of said boats, a distant generator, electrically connected with the standard, a current-collecting brush on the hub, electrically connected with the motor mechanism, and a return-wire from the tank-water to the generator, the water completing the circuit, substantially as described.



2. In a roundabout, a tank, a fixed upright standard therein, supporting an insulated metallic contact-ring, an inclosing hub rotatably mounted on said standard and provided with an insulated collecting-brush, radial arms extended from the hub, a boat loosely connected with each arm, an electric motor on one of said boats, electrically connected with said brush and with the water, and a fixed generator in circuit with the contact-ring and the water in the tank, substantially as described.

3. In a roundabout, a tank, a central upright standard, a hub inclosing the standard and mounted to rotate on an antifriction-bearing, a plurality of radial arms extended from the hub, boats connected with and having vertical movement, relative to said arms, a fixed electric generator having one terminal electrically connected with the standard and the other with the water in the tank, and an electric propelling mechanism on one of said boats, electrically connected with the water and with a current-collecting brush within the hub, the arm to which said boat is connected carrying within it the circuit-wire between the boat and brush, substantially as described.

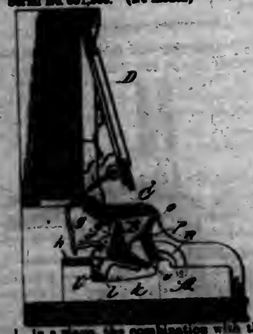
604,165. SPRING-HINGE. ALONZO D. ANTHONY, Groton, N. Y. Filed Aug. 30, 1897. Serial No. 649,945. (No model.)



Claim.—1. A spring-hinge, comprising a leaf having a case upon one edge, the upper portion of which is removed, a spindle having a head, and a ratchet formed thereon, a spring mounted on said spindle, and a second leaf having ears adapted to engage the ends of the case, and top of the spindle, and a pin, as set forth.

2. In a spring-hinge, the combination of a leaf having a case upon one edge, the upper portion of which is removed to form a bearing, a spindle having a head and ratchet thereon, a spring mounted on said spindle, one end of which is confined, a second leaf having perforated ears adapted to engage the ends of the case, and the top of the spindle, said ears and spindle having angular openings, and an angular pin adapted to engage said openings as set forth.

604,166. PIANO. WILLIAM M. BAUER, Chicago, Ill. Filed Sept. 11, 1897. Serial No. 651,202. (No model.)



Claim.—1. In a piano, the combination with the ledge of a fall-board formed of folding sections, the forward section, when raised, extending at its outer edge beneath the corresponding edge of the ledge to close the opening in the piano-frame, and a grip on said forward section, substantially as described.

2. In a piano, a fall-board comprising the section *p'* supported to ride on ways provided on the piano-key blocks, and the section *p* hinged to the section *p'* and having a grip at its forward edge and link connection with said blocks, said section *p* having a transverse dimension approximately equal to that of the opening between the key strip and ledge, and adapted to close said opening and to present its forward edge against the lower side of the ledge when the fall-board is opened, substantially as described.

3. In a piano, a fall-board comprising the section *p'* carrying rollers supported to ride on ways provided on the piano-key blocks, and the section *p* hinged to the section *p'* and having link connection with the said blocks and a grip at its forward edge, and a stop for the section *p'* whereby when the fall-board is opened the forward edge of the section *p* is brought into close proximity to the lower side of the piano-ledge to cover the opening in the piano-frame, substantially as described.

4. In combination with the fall-board and swinging front frame of an upright piano, mechanism for opening and closing the front frame by operating the fall-board, comprising a rock-shaft extending from side to side of the piano-case behind said frame and means for engaging therewith the fall-board, spring-sockets on said front frame and arms extending from said rock-shaft to engage with said sockets, substantially as described.

5. In combination with the fall-board and swinging front frame of an upright piano, mechanism for opening and closing the front frame by operating the fall-board, comprising a rock-shaft E having a depending arm *g* to be engaged by the fall-board and arms *f'* carrying rollers *f''*, and springs *e* forming sockets on the back of the front frame to be engaged by said rollers, substantially as described.

604,167. METHOD OF TREATING METALLIC ORES. STANLEY C. G. CURRIE, Montreal, Canada, assignor to himself, and EDWARD H. DICKERSON, New York, N. Y. Filed Feb. 19, 1897. Serial No. 624,276. (No specimens.)

Claim.—1. The process of extracting metals from their ores, which consists in treating the ore with a solution containing free chlorin and a hypochlorite, the former being in excess of the chlorin in the latter, substantially as described.

2. The process of extracting metals from their ores, which consists in treating the ore with a weak caustic solution which has been saturated with chlorin, whereby the free chlorin is in excess of the chlorin in the hypochlorite, substantially as described.

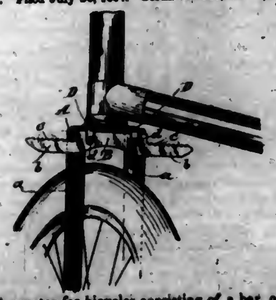
3. The process of extracting metals from their ores, which consists in treating the ore with a solution containing free chlorin, a hypochlorite and a chlorid, the free chlorin being in excess of the chlorin in the hypochlorite, and also in excess of the chlorin in the chlorid, substantially as described.

4. The new combination of matter, useful as a solvent for metals and metallic ores, consisting in a solution containing essentially free chlorin and a hypochlorite, the former being in excess of the chlorin in the latter, substantially as described.

5. The new combination of matter, useful as a solvent for metals and metallic ores, consisting in a solution containing free chlorin, a hypochlorite, and a chlorid, the free chlorin being in excess of the chlorin in the hypochlorite, and also in excess of the chlorin in the chlorid, substantially as described.

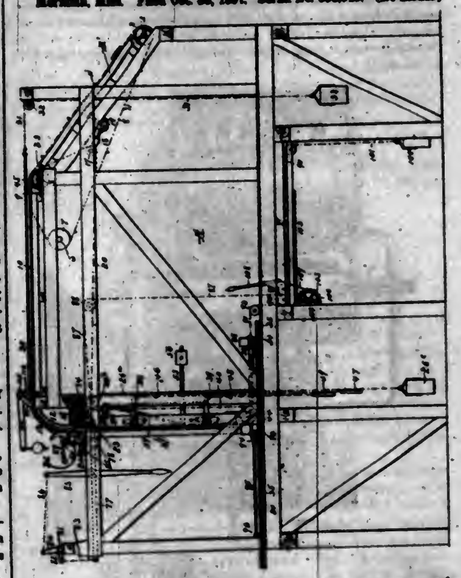
6. The new combination of matter, useful as a solvent for metals and metallic ores, consisting in an aqueous solution containing free chlorin and a hypochlorite, in which the proportion of the former to the chlorin in the latter is not less than three parts to one, substantially as described.

604,168. COASTER FOR BICYCLES. BRADFORD H. DIVINE, Utica, N. Y. Filed July 26, 1897. Serial No. 646,057. (No model.)



Claim.—A coaster for bicycles consisting of a bar, or plate-like piece of suitable dimensions to be applied transversely to the fork sides of a bicycle above the wheel, and, in said position, to extend beyond said fork sides, the said bar or plate-like piece being provided with metallic straps adapted to pass over or around the fork-crown of the bicycle for the purpose of securely attaching said piece to the said fork-crown substantially as shown and described.

604,169. LUMBER-STACKING APPARATUS. WILLIE GRAHAM, Meridian, Miss. Filed Oct. 30, 1897. Serial No. 656,913. (No model.)



Claim.—1. In a lumber-stacking machine, the combination with suitable framework having a platform, of ramping chains constructed and adapted to deposit lumber on said platform, means for supporting trucks in said framework, and chains constructed and adapted to move the lumber from said platform, and vertically-disposed chains having lugs thereon and adapted to deposit the lumber edgewise in tiers on said trucks, substantially as set forth.

2. In a lumber-stacking apparatus, the combination with suitable framework having a platform, of a series of chains passing over said platform and adapted to convey lumber from one end to the other thereof, a series of ramping chains constructed and adapted to deposit lumber onto the platform over said first-mentioned chains, and vertically-disposed lowering-chains arranged to receive lumber from the first-mentioned chains and deposit it in tiers onto a truck, substantially as set forth.

3. In a lumber-stacking apparatus, the combination with suitable framework having a platform, of wheels mounted at one end of said platform, sprocket-chains having lugs thereon passing over said wheels and over the platform, a frame in the platform adjacent to said wheels, and ramping chains extending over said frame and adapted to deposit lumber on the platform over said first-mentioned chains and forwardly of said wheels, substantially as set forth.

4. In a lumber-stacking apparatus, the combination with suitable framework having a platform, of a throat below the forward end of said platform, chains passing over said platform and into said throat, and two series of lugs on each of said chains and having faces at right angles to the chains, the lugs of one series alternating with the lugs of the other series, and the said angular faces of the lugs of one series being oppositely disposed to the angular faces of the other series, whereby one series of lugs will propel lumber forwardly and the other series resist the forward movement of the lumber, substantially as set forth.

5. In a lumber-stacking machine, the combination with suitable framework having a platform, of a series of sprocket-wheels at one end of said platform, a series of conveying-chains passing over said sprocket-wheels and over the platform, a frame under said chains in proximity to said sprocket-wheels and a series of ramping chains passing over said sprocket-wheels and said frame, and other sprocket-wheels below said frame, over which said ramping chains pass, substantially as set forth.

6. In a lumber-stacking apparatus, the combination with framework having a platform and means near the forward end of said platform for depositing lumber onto trucks, of a series of wheels at the rear end of the framework, a shaft at the rear end of the platform, wheels mounted loosely on said shaft, ramping chains passing over said wheels for depositing lumber onto said platform, a driving-shaft disposed below and forwardly of said first-mentioned shaft, a series of sprocket-wheels secured to the driving-shaft and over which said ramping chains pass, a second series of wheels mounted loosely on said first-mentioned shaft, chains passing over the platform and the last-mentioned wheels and means for driving said last-mentioned chains, substantially as set forth.

7. In a lumber-stacking apparatus, the combination with a framework having a platform, and means for depositing lumber onto said platform, of a series of chains passing over the platform below the upper surface thereof, two series of lugs having oppositely-disposed angular faces, on said chains, said lugs being of a length to terminate below the surface of the platform, and larger lugs also secured to said chains at intervals and adapted to engage lumber on the platform and move it forwardly to be conducted by said first-mentioned lugs toward stacking devices, substantially as set forth.

8. In a lumber-stacking apparatus, the combination with framework having a platform, of curved bracket-castings depending from the forward end of said platform, sprocket-wheels mounted at the lower ends of said castings, sprocket-wheels at the other end of the platform, idle-pulleys disposed below the last-mentioned sprocket-wheels and a series of conveying-chains passing over said sprocket-wheels, idle-pulleys and curved castings, substantially as and for the purpose set forth.

9. In a lumber-stacking apparatus, the combination with framework having a platform and means for supporting trucks, of a series of curved brackets or castings at the forward end of said platform, said brackets or castings having grooves, a series of chains passing over the platform and through the grooves of said brackets or castings, two series of lugs on each chain, the lugs of one series alternating with the lugs of the other series and the respective series of lugs having oppositely-opposed angular faces, and means intermediate of said chains and trucks for depositing lumber from said chains onto the trucks, substantially as set forth.

10. In a lumber-stacking apparatus, the combination with framework, adapted to receive trucks, of a throat located above the position occupied by said trucks, said throat having one wall rigid and the other wall yielding, substantially as set forth.

11. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks, of a throat located over the position occupied by the trucks, a movable timber forming one wall of said throat, and means attached to said timber and tending to cause it to press toward the other wall of the throat, substantially as set forth.

12. In a lumber-stacking apparatus, the combination with a framework adapted to receive trucks, of curved brackets or castings located above the position occupied by the trucks and forming one side of a throat, a movable timber forming the other side of said throat, and weights attached to said movable timber and tending to force it toward said brackets or castings, substantially as set forth.

13. In a lumber-stacking apparatus, the combination with a framework adapted to receive trucks, of a series of curved brackets or castings located above the position occupied by the trucks and forming one side of a throat, a movable timber forming the other side of said throat, ropes attached to said movable timber and passing over pulley mounted in the framework in rear of said brackets or castings and weights secured to the free ends of said ropes, substantially as set forth.

14. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks and having a platform, of a series of curved brackets or castings forming one side of a throat located above the position occupied by the trucks, a movable timber forming the other side of said throat, means for conveying lumber from said platform, through the throat and onto the trucks, a series of straps or ropes secured at one end to said movable timber passing over the platform and provided at their free depending ends with weights, substantially as set forth.

15. The combination with framework adapted to receive trucks, of a throat above the position occupied by the trucks, a movable timber forming one side of said throat and adapted to be yieldingly pressed toward the other side thereof, of guiding-brackets secured to the top of said movable timber and adapted to assist in guiding lumber through said throat, substantially as set forth.

16. The combination with a framework adapted to receive trucks and having a platform at its top, of an automatically-expansible throat above the position occupied by the trucks, means for conducting lumber from the platform through the throat and means for conducting lumber from the throat and depositing it upon the trucks, substantially as set forth.

17. The combination with a framework adapted to receive trucks and having a platform at its top, of a series of curved brackets or castings at one end of said platform and forming one side of a throat, a yielding timber forming the other side of said throat, beveled brackets secured to said timber and cooperating with said curved brackets or castings to direct lumber to the throat, means for conducting the lumber from the throat to the trucks, substantially as set forth.

18. The combination with a framework adapted to receive trucks, of a series of brackets or castings forming one side of a throat located above the position occupied by the trucks a movable timber forming the other side of the throat, brackets secured to the framework and having rods passing through said movable timber whereby, to support the latter, face-plates secured to said timber and having flanges surrounding said rods, substantially as set forth.

19. In a lumber-stacking apparatus, the combination with a framework, of a series of lowering-chains, a series of fixed uprights parallel with said chains, presser-bars supported by said uprights and means for pressing said presser-bars outwardly, whereby to keep the lowering-chains well up to the lumber being stacked on the trucks, substantially as set forth.

20. In a lumber-stacking apparatus, the combination with framework, of a series of lowering-chains, a series of yielding bars to press said chains outwardly, sprocket-wheels mounted in the framework over the presser-bars, for said chains, and pulleys carried by the lower ends of the presser-bars, over which said chains also pass, substantially as set forth.

21. In a lumber-stacking machine, the combination with framework, a series of sprocket-wheels, a series of yielding presser-bars, pulleys movably supported by the lower ends of said presser-bars and lowering-chains passing over said sprocket-wheels and pulleys, substantially as set forth.

22. In a lumber-stacking apparatus, the combination with a framework having a platform at its top, of a throat at one end of said platform, a shaft mounted in proximity to said throat, a series of sprocket-wheels on said shaft, conveying-chains passing over the platform, through said throat and over said sprocket-wheels, a second series of sprocket-wheels on said shaft, lowering-chains passing over said last-mentioned sprocket-wheels, and presser-bars adapted to bear against said lowering-chains, substantially as set forth.

23. In a lumber-stacking apparatus, the combination with a series of lowering-chains and a series of fixed uprights disposed parallel therewith, of crank-arms mounted in said uprights, bars pivotally connected with said crank-arms and adapted to press the lowering-chains outwardly, substantially as set forth.

24. In a lumber-stacking apparatus, the combination with a series of lowering-chains, a series of fixed uprights bell-crank levers pivotally connected to said fixed uprights, presser-bars for said lowering-chains, pivotally attached to one arm of the respective bell-crank levers, and weighted cords attached to the other arms of said bell-crank levers, substantially as set forth.

25. In a lumber-stacking apparatus, the combination with trucks and means for stacking lumber edgewise thereon, of a series of presser-bars constructed to bear against the lumber outwardly and downwardly, substantially as and for the purpose described.

26. In a lumber-stacking apparatus, the combination with trucks and means for stacking lumber edgewise thereon, of a series of fixed uprights, bell-crank levers pivotally connected to said uprights, one arm of each bell-crank lever being adapted to project upwardly, presser-bars connected with said upwardly-projecting arms of the bell-crank levers and adapted to bear against the lumber, and a weight connected with the other arms of said bell-crank levers, substantially as set forth.

27. In a lumber-stacking apparatus, the combination with trucks and means for stacking lumber edgewise thereon, of fixed uprights, bell-crank levers pivotally connected to said uprights and each having one arm projecting upwardly, presser-bars pivotally connected to said upwardly-projecting arms of the bell-crank levers, a rod or bar connecting the other arms of said bell-crank levers, a crank-shaft connected with said rod or bar, a weighted lever, and a connection between said weighted lever and said crank-shaft, substantially as set forth.

28. In a lumber-stacking apparatus, the combination with means for stacking lumber edgewise, of a series of yielding presser-bars adapted to bear against the lumber being stacked, and holders for spacing-sticks carried by said presser-bars, substantially as set forth.

29. In a lumber-stacking apparatus, the combination with means for stacking lumber edgewise, of a spacing-stick holder consisting of a pivoted angular lever having one arm adapted to press against the spacing-sticks and a weight on the other arm of said angular lever, substantially as set forth.

30. In a lumber-stacking apparatus, the combination with means for stacking lumber edgewise, of a spacing-stick holder consisting of an angular lever having one arm adapted to press against the lumber being stacked, a weight on the other arm of said angular lever, and

an operating-lever secured to said angular lever, substantially as set forth.

31. In a lumber-stacking apparatus, the combination with means for stacking lumber, edgewise, of yielding presser-bars adapted to bear against the lumber being piled, an angular lever pivotally attached to each of said presser-bars, one arm of said lever being adapted to hold a spacing-stick, and a weight on the other arm of said angular lever, substantially as set forth.

32. In a lumber-stacking apparatus, the combination with means for stacking lumber edgewise, of yielding presser-bars, angular levers pivotally attached to said presser-bars, one arm of each angular lever being adapted to hold a spacing-stick, a weight on the other arm of said angular lever, an operating-lever secured to each angular lever, and a pin on each presser-bar adapted to receive said operating-levers and hold the angular levers withdrawn when not in use, substantially as set forth.

33. In a lumber-stacking apparatus, the combination with framework having a throat for the passage of lumber to be attached on trucks having standards, of guide-plates secured to the timber at one side of said throat, vertically-movable stops for spacing-sticks and the truck-standard, mounted in said guide-plates, and means for raising said stops out of the path of the upper ends of the truck-standards and spacing-sticks, substantially as set forth.

34. In a lumber-stacking apparatus, the combination with framework having a throat for the passage of lumber to be stacked on trucks having standards, of a series of guide-plates secured to the timber at one side of said throat, vertically-movable stops for spacing-sticks and the truck-standards, mounted in said guide-plates, and a crank-shaft mounted on said timber and connected with said stops whereby to raise them out of the path of said spacing-sticks and truck-standards, substantially as set forth.

35. In a lumber-stacking apparatus, the combination with framework, and trucks having standards, of a movable transverse timber and means for causing said transverse timber to bear yieldingly against the upper ends of said truck-standards, substantially as set forth.

36. In a lumber-stacking apparatus, the combination with a framework and trucks having standards, of a movable transverse timber adapted to bear against said truck-standards, cords attached to said transverse timber and passing over pulleys mounted in the framework, and weights connected with said cords, substantially as set forth.

37. In a lumber-stacking apparatus, the combination with framework and trucks having standards, of a transverse movable timber adapted to bear against said truck-standards, guide-rods for said transverse timber, said guide-rods being pivoted at their inner ends to the framework and means connected to the outer ends of said guide-rods whereby to raise them and move said transverse timber out of the path of the upper ends of the truck-standards, substantially as set forth.

38. In a lumber-stacking apparatus, the combination with framework and trucks having standards, of a yielding transverse bar to bear against the truck-standards and means for raising said transverse bar out of the path of said truck-standards, substantially as set forth.

39. In a lumber-stacking apparatus, the combination with framework and trucks having standards, of a yielding transverse timber adapted to bear against said standards, guide-rods for said transverse timber, said guide-rods being pivoted at their inner ends, a crank-shaft mounted above the free ends of said guide-rods, a pivoted operating-lever and a connection between said operating-lever and said crank-shaft, substantially as set forth.

40. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks, of movable knees to engage said trucks, and weights connected with said movable knees, substantially as set forth.

41. In a lumber-stacking apparatus adapted to receive trucks, the combination of guide-rods disposed to one side of the path of movement of said trucks, knees adapted to move on said guide-rods and to be turned to engage the trucks, and weights connected with said knees, substantially as set forth.

42. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks, of guide-rods disposed to one side of the path of movement of said trucks, knees mounted on said guide-rods, each knee comprising a sleeve to slide and to turn on said guide-rods, and two lugs on said sleeve, one of said lugs being adapted to engage the truck and the other to act as a treadle, and weights connected with said knees, substantially as set forth.

43. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks having standards of a movable transverse timber adapted to bear against the upper ends of the truck-standards, a series of movable knees adapted to engage the trucks, connections between said transverse timber and said knees, means for feeding and stacking lumber onto said trucks and means for regulating the tension on said transverse timber and knees to accommodate the thickness of the lumber being stacked on the trucks, substantially as set forth.

44. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks, of a series of movable knees adapted to engage the trucks, weights connected with said knees means for stacking lumber on said trucks, and brake devices constructed and adapted to regulate the tension on said knees to accommodate the trucks for receiving lumber of different thicknesses, substantially as set forth.

45. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks and means for stacking lumber on said trucks, of movable devices mounted in the framework and adapted to press against the trucks, a friction-brake connected with said movable devices and a lever for controlling said brake, substantially as set forth.

46. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks, and means for stacking lumber on said trucks, of movable devices mounted in the framework and adapted to press against the trucks, a rack-bar connected with said movable devices, a shaft, a pinion on said shaft and meshing with said rack-bar, a brake-wheel also on said shaft, a brake-band on said brake-wheel and a lever for operating said brake-band, substantially as set forth.

47. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks and means for stacking lumber on said trucks, of movable knees adapted to bear against said trucks, a movable transverse bar mounted in the framework, flexible connections between said movable transverse timber and said knees, pulleys located in rear of said movable transverse timber, cords attached to said timber and passing over said pulleys and weights on the depending ends of said cords, substantially as set forth.

48. In a lumber-stacking apparatus, the combination with framework adapted to receive trucks having standards, of an upper movable transverse timber adapted to bear against said standards, movable knees to engage said trucks, a lower movable transverse timber, flexible connections between said movable transverse timbers, and weights connected to said lower movable transverse timber to pull the same rearwardly, substantially as set forth.

49. In a lumber-stacking apparatus, the combination with framework having a platform, of ramping chains for depositing lumber on the platform, conveying-chains for moving the lumber over the platform and lowering-chains for depositing the lumber, in tiers, of a driving-shaft for the ramping chains, a driving-shaft common to the conveying-chains and the lowering-chains, a pulley mounted and a sprocket-wheel mounted loosely on said last-mentioned shaft, a clutch for securing the pulley to its shaft, a separate clutch for securing said sprocket-wheel to the same shaft, a sprocket-wheel on the driving-shaft of the ramping chains, and a sprocket-chain connecting said sprocket-wheels, substantially as set forth.

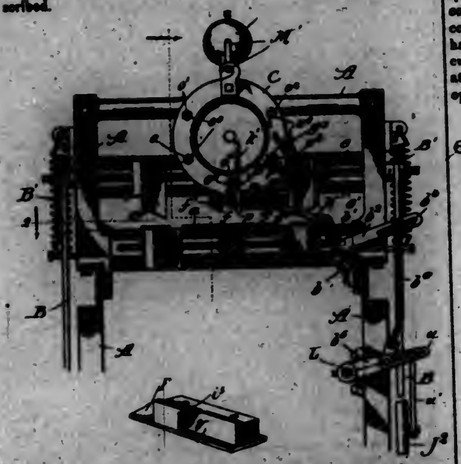
50. In a lumber-stacking machine, the combination with a frame having a platform, means for depositing lumber on said platform, means for receiving lumber from said platform and stacking it, and devices for positively moving said lumber from the platform, of yielding devices adapted to bear against the end board of the lumber on the platform and prevent said lumber from leaving the platform until moved positively by the devices provided for that purpose, substantially as set forth.

51. In a lumber-stacking machine, the combination with a frame having a platform, means for depositing lumber on the platform, means for receiving lumber from the platform and stacking it and means for positively moving said lumber from the platform to the stacking appliances, of a shaft mounted over the platform, a series of arms projecting from said shaft and adapted at their free ends to engage the first board of the timber on the platform, an arm projecting forwardly from said shaft and a weight at the free end of said last-mentioned arm whereby to force the first-mentioned arms against the last board of the lumber on the platform with a yielding pressure, substantially as set forth.

604,170. BOOKBINDING-MACHINE. FREDERIC P. HILL, Chicago, Ill. Filed Dec. 10, 1897. Serial No. 661,620. (No model.)

Claim.—1. In combination with a book-cover machine of the character set forth, an attachment adapted to be supported on the reciprocating cutter-head *e* of said machine, for cutting and applying the lining H, said attachment comprising a roll for the web of material for said lining, feed mechanism for feeding at intervals material from said roll, a cutter device operated by the descent of said cutter-head to sever from said web the fed section thereof forming a lining-strip, and a spring-actuated presser-plate released by the action of said cutter device to apply said strip, substantially as described.

2. In combination with a book-cover machine of the character set forth, an attachment, supported on the reciprocating cutter-head *e* of said machine, for cutting and applying the lining H, said attachment comprising a spring-controlled pivotally-supported blade having a handle to bear against the bed of the machine in the descent of said cutter-head and thereby actuate the blade to sever from said web the fed section thereof forming a lining-strip, and a spring-actuated presser-plate operating to apply said strip, substantially as described.



3. In combination with a book-cover machine of the character described, an attachment, supported on the reciprocating cutter-head *e* of said machine, for cutting and applying the lining H, said attachment comprising a roll for the web of material, a cutter device having a spring-controlled pivotal blade actuated by the descent of said cutter-head to sever from said web the fed section thereof forming a lining-strip, and a presser-plate on a spring-pressed reciprocating carrier carrying a spring-dog to engage a catch and projecting into the path of said blade to be tripped thereby, substantially as described.

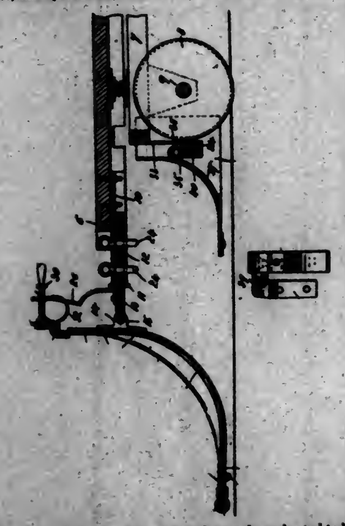
4. In combination with a book-cover machine of the character described, an attachment, supported on the reciprocating cutter-head *e* of said machine, for cutting and applying the lining H, said attachment comprising a roll for the web of material for said lining, feed mechanism for feeding at intervals material from said roll, a cutter device having a spring-controlled pivotal blade actuated by the descent of said cutter-head to sever from said web the fed section thereof forming a lining-strip, a cam on said blade and a pivotal finger thereon engaging at one end with the attachment-frame, and a presser-plate on a spring-pressed reciprocating carrier engaged by the free end of said finger and carrying a spring-dog projecting at one end into the path of said cam and engaging at its opposite end with a catch, substantially as described.

5. In combination with a book-cover machine of the character described, an attachment, supported on the reciprocating cutter-head *e* of said machine, for cutting and applying the lining H, said attachment comprising heads between which are supported a roll for the web of material for said lining and feed-rolls for said web, a cutter device having a pivotal spring-controlled blade provided with a handle to engage with the bed of said machine and carrying a pivotal finger engaging at one end with one of said heads and containing a cam-recess, a presser-plate on a spring-pressed reciprocating carrier engaged by the free end of said finger and carrying a spring-dog projecting at one end into the path of said cam-recess and engaging at its opposite end with a catch, and means for actuating said feed-rolls, substantially as described.

6. An attachment for a book-cover machine for cutting and applying the lining H, comprising, in combination heads connected together at intervals by rods and provided with recesses extending upward from their lower edges, a roll for the material G, and feed-rolls I and I' supported between said heads, a cutter D pivotally supported near one end to extend through said slots and connected with a spring *k'* at its free end and having a handle portion provided with a roller *q*, a finger *f'* pivoted on the cutter-blade and engaging at one end with a head, a cam-recess *i* in the blade, a carrier F' supporting a presser-plate *l'* and reciprocally supported on one of said rods and having a flange *f*⁵ engaged by the opposite end of said finger and carrying a spring-dog *f*⁶, a spring *f*⁷ engaging the carrier F', a catch *f*⁸ engaging said dog, and a stationary cutter *n*, substantially as described.

7. In combination with a book-cover machine of the character described, an attachment supported on the reciprocating cutter-head *e* of said machine, for cutting and applying the lining H, said attachment comprising heads C C' C² and C³ connected at intervals by rods, a roll for the material G and feed-rolls I and I' supported between said heads, a gear *d* on a stud *v* on the head C³ meshing with a pinion *d'* on the roll I, and a gear *d*² on said roll meshing with a gear *d*³ on the roll I', a lever K fulcrumed on said stud and carrying the spring-pawls *v'* and *v*² engaging with said gear *d*, said lever being connected with the rock-shaft L of the machine, stops *f f*, a cutter D comprising a spring-controlled pivotally-supported blade, having a handle to bear against the bed of the machine in the descent of said cutter-head, and a presser-plate F on a spring-pressed carrier F' actuated by said blade, the whole being constructed and arranged to operate substantially as described.

604,171. FENDER OR GUARD FOR TRAMWAY-CARS. JOSEPH LIGHTHAM, Reading, Pa., assignor of three-fourths to Joseph Stamber, same place, and Edward Leightham, Harry Leightham, and Allen Leightham, Conshohocken, Pa. Filed July 27, 1897. Serial No. 646,033. (No model.)



Claim.—1. In a car-fender, a plate or bar adapted to be attached to the car-body, a circular head thereon having a circular chamber opening outwardly, a plate removably mounted in said chamber, a pin or pins whereby said plate is secured within said chamber, a fender or guard pivotally connected with the outer end of said plate, said fender being curved downwardly and outwardly and in close proximity to the rails and means whereby said fender may be swung on its pivots from the platform of the car, substantially as described.

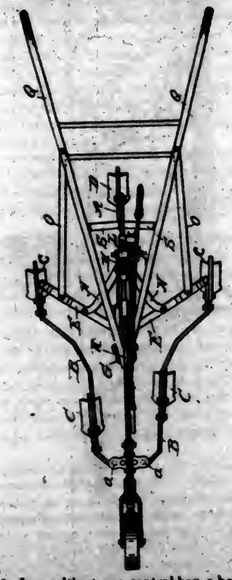
2. A car provided with a plate or bar which is secured to the bottom of the platform thereof, and on which is formed a circular head which projects therefrom, said head being also provided with a circular chamber which opens outwardly, a plate mounted in said chamber and connected with said head by a pin or pins which are passed therethrough, and a fender or guard pivotally connected with the outer end of said plate, said fender or guard being curved downwardly and forwardly, and being adapted to be held in proximity to the rails of the track, and means for adjusting or raising and lowering the forward part of said fender or guard, consisting of an arm which extends upwardly from said plate, a screw-threaded bolt or shaft which passes through the upper end of said arm, and through an upright or standard connected with the upper portion of said fender or guard, and means for operating said bolt or shaft, substantially as shown and described.

3. A car provided with a plate or bar which is secured to the bottom of the platform thereof, and on which is formed a circular head which projects therefrom, said head being also provided with a circular chamber which opens outwardly, a plate mounted in said chamber and connected with said head by a pin or pins which are passed therethrough, and a fender or guard pivotally connected with the outer end of said plate, said fender or guard being curved downwardly and forwardly, and being adapted to be held in proximity to the rails of the track, and means for adjusting or raising and lower-

ing the forward part of said fender or guard, consisting of an arm which extends upwardly from said plate, a screw-threaded bolt or shaft which passes through the upper end of said arm; and through an upright or standard connected with the upper portion of said fender or guard, and means for operating said bolt or shaft, said fender or guard being also provided with rings or handles which are connected with the top thereof, substantially as shown and described.

4. A car provided with a plate or support which is secured to the bottom of the platform thereof, and a plate connected therewith by means of pins or bolts, a main fender or guard pivotally connected with the forward end of said last-named plate and adapted to swing vertically, an arm connected with said last-named plate and projecting upwardly, a screw-threaded bolt passing through the upper end thereof, and through an attachment connected with the upper part of the main fender or guard, and means for operating said bolts so as to raise or lower the front end of said fender or guard, substantially as shown and described.

604,172. CULTIVATOR. DAVID M. MOTHERWELL, Chicago, Ill., assignor to the Whitman & Barnes Manufacturing Company, Akron, Ohio. Filed Nov. 24, 1896. Serial No. 613,256. (No model.)



Claim.—1. In a cultivator, a central bar, a handle-frame extending therefrom, a pair of side frames adjustable toward and from said central bar, a pair of spreading links connected at their outer ends to said side frames, the guides for the inner ends of said links curved outwardly and rearwardly, in combination with braces connecting said links with stationary points, for the purpose specified.

2. In a cultivator, a central bar, a handle-frame extending therefrom, a pair of side frames adjustable toward and from said central bar, a pair of spreading links connected at their outer ends to said side frames and having their inner ends guided in curved paths, in combination with means for causing said inner ends to move in the said paths and for locking them in desired position therein, and braces connecting said links with stationary points, for the purpose specified.

3. In a cultivator, in combination, a central bar, a handle-frame extending therefrom, a pair of side frames adjustable toward and from said central bar, a pair of links connected at one end with the side frames and having their other ends guided in a curve flaring outwardly as it extends rearwardly, links connecting said spreading links with an operating-lever and means for locking the operating-lever in desired points, for the purpose specified.

4. In a cultivator, in combination, a central bar, a pair of side frames adjustable toward and from said central bar, a spreading device having rigid links connecting said side frames with the central bar and adapted to spread the side frames while keeping them in substantially the same plane of elevation and without flexion in said links, and brace-rods connected to the central bar by fixed pivots and pivotally connected to the spreading device at points intermediate of the ends of said links which move substantially in the arc of a circle about such fixed points, for the purposes specified.

5. In a cultivator, in combination, a central bar, a side frame adjustable toward and from said central bar, a spreading link connected to said side frame and to a link leading to an operating-lever, and guides curved outwardly and rearwardly, for the purposes specified.

6. In a cultivator, in combination, a central bar, a pair of side frames adjustable toward and from said central bar, a pair of links connecting the side frames and central bar and having their inner ends guided by a block secured to the central bar in paths flaring rearwardly and means for moving the links, for the purpose specified.

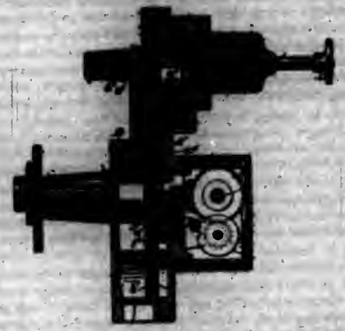
7. In a cultivator, in combination, a central bar, a pair of side frames adjustably connected therewith, a pair of spreading links connecting said side frames with said central bar, the inner ends of said links sliding in paths diverging from the central bar, an operating-lever mounted on the central bar and a pair of links each pivoted at one end to the operating-lever and connected at the other end to the spreading link, for the purpose specified.

8. In a cultivator, in combination, a central bar, a pair of side frames adjustably connected therewith, a pair of spreading links connecting said side frames with said central bar, each of said links consisting of two bars one above the other, the inner ends of said bars being connected together by a bolt which passes through a slot in a piece secured to the central bar, an operating-lever and a link connecting the lever and the bolt, for the purpose specified.

9. In a cultivator, the combination with a central bar of a block having guides curved outwardly and rearwardly, for the purpose specified.

10. In a cultivator in combination with the central bar, a block having flaring slots and an upwardly-extending lug, spreading links pivotally mounted in said slots and extending rigidly to and pivotally connected with the side frames of the cultivator, and handle-bars attached at their lower ends to the lug upon said block, substantially as and for the purposes specified.

604,173. PREPAYMENT ATTACHMENT FOR METERS. SAMUEL R. MOWER, New Haven, Conn., assignor to Henry C. Thompson & Son, same place. Filed Oct. 20, 1897. Serial No. 655,764. (No model.)



Claim.—1. A prepayment attachment consisting of a frame, a shaft therein rotated by the actuating parts of a meter; a coin-carrier made as a wheel having pockets and means between said shaft and coin-carrier to rotate it positively, combined with a movable coin-feeder arranged at the side of said wheel and having a coin-receiving opening, means to act on the coin in said feeder and force it into the openings of the coin-carrier, and a locking device cooperating with the openings of the coin-carrier to arrest the motion of said carrier when a coin is absent from the carrier, substantially as described.

2. In a prepayment attachment for a meter, a frame containing a shaft adapted to be rotated by the actuating parts of a meter, a coin-carrier having openings to receive coin, means between said shaft and said coin-carrier to move the latter positively, and a coin-feeder having an opening to receive coin, combined with a spring-pressed plunger adapted to act on the coin in the said coin-feeder and force said coin into the openings of the coin-carrier, and a locking device cooperating with the opening of the coin-carrier when coin is absent therefrom, substantially as described.

3. In a prepayment attachment for a meter, a frame containing a shaft adapted to be rotated by the actuating parts of a meter, a coin-carrier having openings to receive coin, means between said shaft and coin-carrier to move the latter positively, and a coin-feeder having an opening to receive coin, combined with a spring-pressed plunger adapted to act on the coin in the said coin-feeder and force said coin into the openings of the coin-carrier, said plunger being grooved at its end and being of a diameter to enter the opening of the coin-carrier when the coin is exhausted therefrom, and a locking device also entering an opening of the said coin-carrier, and the groove of the said plunger, substantially as described.

4. In a prepayment attachment for a meter, a frame containing a shaft adapted to be rotated by the usual actuating parts of a meter, a coin-carrying wheel in said frame and provided with openings for coin, gearing between said shaft and coin-carrier to rotate it positively, a coin-feeder to feed coin into the openings of said coin-carrier, a locking device to restrain the rotation of said coin-carrier until rendered inoperative by the presence of coin in the carrier, combined with a coin-discharging device arranged to act against each coin in succession after said coin has rendered the said locking device inoperative, said coin-discharging device discharging the coin from the said coin-carrier, and a casing having a receptacle to receive the said discharged coin, substantially as described.

5. In a prepayment attachment for a meter, an attachment-frame, a shaft adapted to be rotated by the actuating parts of a meter, a toothed coin-carrying wheel having openings to receive coin; gearing between said shaft and coin-carrier by which to rotate it positively; a coin-feeder to receive coin and supply it to the openings of said coin-carrier, a plunger to act upon the coin in the coin-feeder and discharge it therefrom into a chamber of the attachment-frame and thence into the openings of the coin-carrier, combined with a spring-actuated locking device arranged at one side of said coin-carrier, a coin-discharging device arranged at the opposite side of said carrier, and a receptacle to receive the discharged coin, substantially as described.

6. In a prepayment attachment for a meter, an attachment-frame, a shaft mounted therein and adapted to be rotated by the actuating parts of a meter, a coin-carrier having a plurality of coin-openings and mounted in said frame and actuated by said shaft, an independent spring-actuated locking device normally acting to enter and restrain the movement of said coin-carrier when coin is absent therefrom, means to act on one or a series of coin held in a pile at the side of said coin-carrier opposite the opening entered by said locking device and put the endmost coin of the series into the opening of the coin-carrier, the entrance of said coin into the coin-carrier displacing the said spring-actuated locking device, thus releasing the coin-carrier and permitting the meter to start, substantially as described.

7. In a prepayment attachment for a meter, a frame adapted to be attached to a meter and composed of a back plate having a passage for the used coin, a front plate having a chamber to receive and hold a supply of coin to be used, and a dividing-wall separating said two plates, said wall having a passage through which the coin from the coin-carrier escapes, a coin-carrier having openings for the reception of the coin, means to move said coin-carrier between the said front plate and said dividing-wall from the position where the coin-carrier receives coin into a position opposite the discharge-opening of said dividing-wall, said front plate and dividing-wall by contact with said coin keeping it in the coin-opening of said carrier, and means to put the coins lying in said front plate into an exposed opening of said coin-carrier, and an independent locking device located at the opposite side of said coin-carrier in line with the path of movement of the means employed to put the said coins into said coin-carrier, an incoming coin acting on and displacing said locking device to release the coin-carrier, substantially as described.

8. In a prepayment attachment for a meter, a frame provided with a shaft adapted to be rotated by the actuating parts of the meter, a coin-carrier having openings to receive coin, a coin-feeder to supply said openings with coin, a locking device to enter a coin-receiving opening of said coin-carrier and restrain the rotation of the same in the absence of coin, coin-discharging device to discharge a coin from said opening, it having performed its function of releasing the locking device; a recording device to indicate the quantity of gas delivered, and means between said shaft and said coin-carrier and recording device whereby one and the same shaft becomes the mover for both the coin-carrier and the recording device to operate, substantially as described.

9. In a prepayment attachment for a meter, a frame adapted to be secured to the meter; a movable coin-carrier having openings to receive, carry and deliver coins; a recording device composed of disks figured at their peripheries to enable the amount of gas consumed to be readily read at the face of said attachment-frame in a straight line, a toothed wheel connected with the disk-shaft of said recording device; a driving-shaft mounted in said attachment and adapted to be moved from the actuating parts of a meter; a gear on said driving-shaft to engage a gear on said disk-shaft; means actuated by said driving-shaft to move said coin-carrier; a cam on said driving-shaft, a main locking device cooperating with the openings of the coin-carrier, an auxiliary locking device intermediate said main locking device and the said cam to positively restrain the rotation of the said shaft when the main locking device stands in an opening of the coin-carrier, said parts being constructed and combined, substantially as described, whereby one and the same shaft moves simultaneously the coin-carrier and recording device, to step and start the coin-carrier and recording device simultaneously, the auxiliary locking device checking the rotation of the said shaft on the absence of coin in the coin-carrier, substantially as described.

10. In a prepayment attachment for a meter, a frame combining a movable coin-carrier having openings to receive coins and deliver them after having effected the starting of the coin-carrier; a shaft rotated by the mechanism of any usual meter, means between said shaft and coin-carrier to move it, a cam fixed to and carried by the said shaft, combined with a locking device adapted to engage the cam on said shaft and by abutting against it stop the rotation of said shaft after the coins in the coin-carrier have been exhausted therefrom, substantially as described.

11. In a prepayment attachment for a meter, a frame adapted to be attached to a meter; a movable coin-carrier having openings to receive and carry coins to point of delivery; a shaft rotated by the mechanism of any usual meter, and means between it and said coin-carrier to actuate the latter, a cam carried by said shaft, a main locking device to enter an opening of the coin-carrier when a coin is absent therefrom, combined with an auxiliary locking device under the control of said main locking device and adapted to cause the auxiliary locking device to engage said cam and prevent the rotation of said shaft when the main locking device stands in an opening of the coin-carrier, substantially as described.

12. In a prepayment attachment for a meter, a frame composed of front and back plates separated by a dividing-wall having a slot; a coin-carrier having openings for the reception of coins, said front plate and dividing-wall lying close to the opposite sides of said coin-carrier and serving to keep the said coin in said carrier; combined with a locking device located in said slot and adapted to enter an opening in said coin-carrier when said opening arrives opposite said locking device and is without coin, substantially as described.

13. In a prepayment attachment for a meter, a frame composed of front and back plates, and an intermediate dividing-wall having a discharging-opening b^2, the back plate having a receptacle for the discharged coin, the edges of said opening being beveled, as at b^{20}, to offset the ready passage of coin through said opening b^2, combined with a coin-carrier having openings to receive coin, and a discharging device to discharge coin from said coin-carrier through the opening b^2 of the dividing-wall, substantially as described.

14. In a prepayment attachment for a meter, a frame adapted to be attached to a meter, a coin-carrier located and made movable in said frame, and provided with openings to receive coin, said openings being beveled at one side for the easy entrance of coin therein, combined with a coin-feeder and means to transfer coin from said feeder into said coin-carrier, substantially as described.

15. In a prepayment attachment for a meter, a frame adapted to be attached to a meter, said frame consisting of a back plate having a chamber for the reception of used coin, a front plate having a chamber for the reception of coin, and having a smooth bearing-face c^1, a dividing-wall having a discharge-opening b^2 for the coin, a coin-carrier having openings for the reception of coin from the coin-receiving opening of the front plate, said coin-carrier being of the same thickness as the coin to be handled in the attachment, the space between said smooth bearing-face and the adjacent face of the said dividing-wall being also equal in thickness to that of the said coin-carrier and the coin therein, whereby said coin is kept upright and is guided positively at both sides while being carried by the coin-carrier from the place where it is supplied with coin to the point where the coin is discharged therefrom, substantially as described.

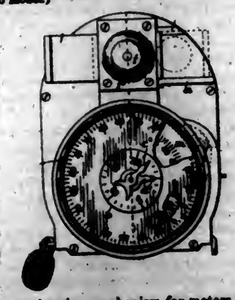
16. In a prepayment attachment for a meter, a frame presenting a back plate provided with a passage for the used coin, a front plate presenting a chamber to receive one or more coins, a movable coin-feeder having an opening to be supplied with coin in one position and to place the coin in said opening opposite the chamber in said front plate in its other position, a coin-carrier, and an independent locking device combined with a plunger to act on the coin in said feeder and put it in the chamber of the front plate from which chamber said coins are taken in succession by the coin-feeder, said plunger continuing to act on said coin until the last coin has been put into the coin-carrier, substantially as described.

17. In a prepayment attachment for a meter, a frame, a coin-carrier having a plurality of openings to receive coin; a locking device entering one of said openings to hold said coin-carrier at rest when the coin is exhausted therefrom; and a discharging device cooperating with said coin-carrier to discharge a coin from said carrier after the same has been started in motion by the reception of a coin; and means to supply coin into an opening of said coin-carrier, the incoming coin removing the locking device from the opening of

the coin-carrier and permitting the latter to start, substantially as described.

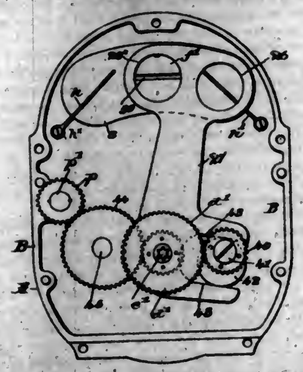
18. In a prepayment attachment for a meter, a frame composed of a front plate, a back plate, and a dividing-wall, the latter having a slot for the passage therethrough of a locking device; a locking device movable in said slot, a coin-carrier having coin-openings and contained in said frame and substantially filling the space between said front plate and dividing-wall, said locking device entering an opening in said coin-carrier when a coin is absent therefrom; combined with means carried by said frame and located directly in line with the slot in said dividing-wall through which said locking device works, said means acting to put a coin into an opening in said coin-carrier and force said coin firmly in contact with said dividing-wall, and at the same time displace said locking device to enable the coin-carrier to be started; and a recording device also carried by said frame and moved in unison with said coin-carrier, substantially as described.

604,174. REGISTERING MECHANISM FOR METERS. SAMUEL R. MOWER, New Haven, Conn., assignor to Henry G. Thompson & Son, same place. Filed July 15, 1896. Renewed Dec. 14, 1897. Serial No. 661,585. (No model.)



Claim.—In a registering mechanism for meters, a series of concentric shafts having pointers, and a series of concentric graduated dials having a different number of teeth, the outer dial having an opening through which the graduations on the rear dial can be read, and a pointer, a shaft deriving its motion from the mechanism of a meter, and gearing actuated by said shaft to actuate said shafts and dials, substantially as described.

604,175. COIN-CONTROLLING AND RECORDING MECHANISM FOR METERS. SAMUEL R. MOWER, New Haven, Conn., assignor to Henry G. Thompson & Son, same place. Filed Mar. 13, 1897. Renewed Mar. 21, 1898. Serial No. 674,091. (No model.)



Claim.—1. In a coin-controlled meter, a front and a back plate, a separator-plate located between them and provided with two coin-discharging openings separated by a smooth or plain surface of the said plate, the said smooth surface acting to receive against it one side of a coin while being transferred from the coin-feeder into discharging position, a to-and-fro-movable coin-carrier made as a lever and located between said front plate and separator-plate, the thickness of the said lever being substantially equal to the thickness of the coin used or controlled by it, said coin-carrier having two coin-receiving openings; a coin-feeder to receive a series of coins, means acting on said coins to transfer them one at a time from said feeder into one and then into the other of the holes of the coin-carrier, means to positively move the said coin-carrier to and fro across the coin held in the coin-feeder, whereby said coin-carrier is enabled to take and have discharged from it a coin in each direction of its movement, the sides of the coin while being taken from a position opposite the coin-feeder into a position opposite the discharge-openings of the separator-plate being engaged both by the said separator-plate and the front plate, substantially as described.

2. In a coin-controlled meter, a power-driven shaft of a meter, a coin-carrier composed of a pivoted elbow-lever having coin-openings and a slot, and a locking device to enter either one of said coin-openings to lock the coin-carrier, combined with an eccentric located in the slot of the coin-carrier, and gearing between said eccentric and said power-driven shaft to actuate said carrier to and fro when not held locked by said locking device, substantially as described.

3. In a coin-controlled meter, a to-and-fro-moving coin-carrier having coin-openings, means to move said coin-carrier to and fro when a coin is present, combined with a plunger, and a coin-feeder to present a coin opposite a coin-opening in said carrier, and means to remove the coin from the feeder into the coin-carrier, the incoming of a coin into a coin-receiving opening of the coin-carrier removing the said locking device, thus releasing the coin-carrier in order that it may be moved, substantially as described.

4. In a coin-controlled meter, a to-and-fro-moving coin-carrier made as a lever having coin-receiving openings and provided with a forked arm, an eccentric or cam to move said coin-carrier to and fro, a coin-feeder to supply said coin-receiving openings in succession with coins, and a discharging device one for each of said coin-receiving openings, substantially as described.

5. In a coin-controlled meter, a to-and-fro-moving coin-carrier made as a lever having coin-receiving openings and a forked arm, an eccentric or cam to move said coin-carrier to and fro, and a locking device to enter either of the coin-receiving openings when a coin is absent and thus restrain the movement of said coin-carrier when a coin is absent, substantially as described.

6. In a coin-controlled meter, a power-driven shaft of a meter, a coin-feeder, a coin-carrier having coin-receiving openings to be supplied with coins, an eccentric or cam to move said carrier to and fro, a registering mechanism containing a plurality of dials, to indicate the quantity of gas consumed, and gearing intermediate said power-driven shaft and said cam and the said registering mechanism to simultaneously actuate said registering mechanism and rotate said eccentric or cam, substantially as described.

7. In a coin-controlled meter, a coin-carrier made as a lever provided with two coin-receiving openings, and with a slot, combined with an eccentric standing in said slot, and means to move said eccentric to actuate said lever to and fro, a coin-feeder to supply coins to said to-and-fro-moving carrier, and discharging devices to push the coins from said coin-carrier at a distance from the point where the coin-feeder in its movement took the said coin, substantially as described.

8. In a coin-controlled meter, a coin-carrier made as a lever provided with two coin-receiving openings, and with a slot, combined with an eccentric standing in said slot, and means to move said eccentric to actuate said lever to and fro, a coin-feeder to supply coins to said to-and-fro-moving carrier, and discharging devices located at that side of the feeder at which the coin was received to act on said coins and push them through the coin-feeder, substantially as described.

9. In a coin-controlled meter, the front and back plates B, A, and a separating-plate provided with openings as 4, 4^0, to leave at one side said plate a coin-receiving chamber f^3, a coin-carrier made as a lever and provided with a plurality of holes, said lever having a slot, an eccentric in said slot, means to actuate said eccentric to move said coin-carrier, and a coin-feeder to supply coins to said carrier, combined with means to detach the coins from said carrier and push them through the openings of said separating-plate and into said receiving-chamber, substantially as described.

10. In a coin-controlled meter, a front and back plate, a separator-plate located between them and provided with a coin-discharging opening and presenting a smooth face at the side of said opening against which may slide one side of the coin while being transferred from a pile into discharging position, a to-and-fro-movable coin-carrier made as a lever and located between said front plate and separator-plate, said coin-carrier having a coin-receiving opening, a plunger to act on a coin and press the same toward the coin-carrier to put said coin in the openings of said carrier when the said openings in the movement of the carrier come opposite the coin to be fed into the carrier, means to positively move the said coin-carrier to and fro in order that the coin may be taken singly from the pile of coins and transferred laterally into position to be discharged through the opening of the separator-plate, substantially as described.

604,176. MILK-PAIL. CHARLES B. MCKINNEY, Mercersburg, Pa. Filed Nov. 8, 1897. Serial No. 657,882. (No model.)



Claim.—1. A combined milk-can and stool consisting of a body having a squared end on which the can is adapted to rest when in an upright position, means for supporting said can in a substantially horizontal position and an upturned mouth formed on the forward end of the can, as and for the purpose described.

2. In a combined milk-pail and stool, a can consisting of a body having a squared end on which the can is adapted to rest when in an upright position, legs on the side of the can to support it in a substantially horizontal position, an upturned mouth formed on the forward end of the can and a reinforcement forming a seat at the rear portion of the can, as shown and described.

3. A milk-can and stool consisting of a body having a squared end on which the can is adapted to rest when in an upright position, legs on the side of the can to support it in a substantially horizontal position, an upturned mouth formed on the forward end of the can, a reinforcement forming a seat on the rear portion of the can, and handles rigidly and pivotally secured to the forward and rear ends respectively of said body, as and for the purpose described.

4. In a milk-can and stool, a body having a squared end on which said can rests when in an upright position, legs on the side of the can adapted to support the same in a substantially horizontal position, an upturned mouth formed on the forward end of the can, and a seat consisting of a flat portion, and flanges extending downward from the sides thereof, said flanges being secured to the side of the can near the rear end thereof opposite the legs, as and for the purpose set forth.

5. A can consisting of a body lying approximately horizontally, legs supporting said body, a seat comprising a reinforcement having downwardly-projecting flanges secured at the rear end of the body to the side thereof making said seat straight across the top, and an upturned mouth formed on the forward end of the body, as and for the purpose described.

604,177. APPARATUS FOR TREATING MILK HYGIENICALLY. WILLIAM F. HEBBLER, Cincinnati, Ohio. Filed June 16, 1897. Serial No. 641,212. (No model.)

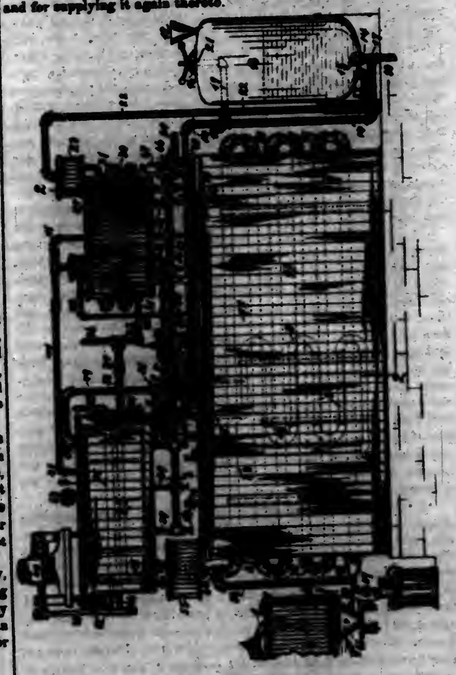
Claim.—1. In a plant for treating milk hygienically, by subjecting it to the action of cold air, heat and cooling, the combination of an aerator in which the milk is subjected to the action of cold air, a sterilizer in which it is heated and a cooling-tank in which the air for the aerator is cooled and the temperature of the sterilized milk reduced.

2. In a plant for treating milk hygienically, by subjecting it to the action of cold air, heat and cooling, the combination of an aerator in which the milk is subjected to the action of cold air, a sterilizer in which it is heated, a cooling-tank in which the temperature of the sterilized milk is reduced and a cold-air circuit to supply the air to the aerator, part of said circuit passing through the cooling-tank mentioned for the purpose of cooling the air.

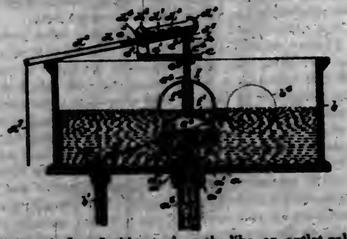
3. In a plant for treating milk hygienically, by subjecting it to the action of cold air, heat and cooling, the combination of an aerator in which it is subjected to the action of cold air, a sterilizer in which the milk is heated, a cooling-tank in which the temperature of the milk is reduced, an air-circuit connecting with the aerator at the bottom and near the top of the same, also with the sterilizer and with the cooling tank, means for putting the air under pressure, and for moving it to and between the devices mentioned, valves in said circuit whereby air may be admitted at the bottom of the aerator for purposes of aerating the milk, valves whereby air under pressure may be admitted on top of the milk while in the aerator to empty the latter, and valves whereby the circuit may be connected with the sterilizer to draw hot air from the latter.

4. In a plant for treating milk substantially as described and containing as parts, a cooling and aerating tank and a sterilizer, the air-conduit for supplying cold air to the cooling and aerating tank and for drawing hot air out of the sterilizer, consisting of coil 3 within which the air is cooled, a cooling-tank within which this coil is contained, a pipe 14 connecting with tank 13 a pipe 40 connecting with the sterilizer, and a pump for moving either cooled air to tank 13, or for drawing hot air out of the sterilizer.

5. A cooling-tank 11 forming part of a plant for treating milk substantially as described, being subdivided by vertical partitions into compartments to contain brine, ammonia-pipe coils for cooling this brine, a pipe-coil 62 within one of the compartments to pass the milk through, a pipe-coil 3 for cooling air, and means for withdrawing the brine independently from the compartment containing the milk-coil and for supplying it again thereto.



604,178. FLUSHING-TANK. HOWARD M. STERLING, Newark, N. J. Filed Feb. 17, 1897. Serial No. 623,234. (No model.)



Claim.—1. In a flushing-tank or the like, an outlet-valve, comprising therein, a hollow vessel forming a float and adapted to rest upon a valve-seat, said float being open to the ingress of the water in the tank when off said valve-seat, and open to a supply of air when upon said valve-seat, and means, for preventing the displacement of said float from the valve-seat when filled with air, consisting, essentially, of a lever pivotally arranged above said flushing-tank, having arm portions $d^{\prime}$ and d^{3}, a trough d^{2} on said arm portion $d^{\prime}$ and a ball movably arranged in said trough for normally exerting a pressure upon the top of said float, and means connected with the arm portion d^{3} of said lever for operating the same and removing said ball from its holding or pressing contact upon said float, substantially as and for the purposes set forth.

2. In a flushing-tank, or the like, an outlet-valve, comprising therein, a hollow vessel forming a float and adapted to fit on a valve-seat, said float being open to the ingress of the water in the tank when off said valve-seat, and a tube connected with the top of said float for admitting a supply of air into said float when upon said valve-seat, and means for preventing the displacement of said hollow float from the valve-seat when filled with air, consisting, essentially, of a lever pivotally arranged above said flushing-tank, having arm portions $d^{\prime}$ and d^{3}, a trough d^{2} in said arm portion $d^{\prime}$ and a ball

movably arranged in said trough for normally exerting a pressure upon the top of the air-tube on said float, and means connected with said arm portion d^3 of said lever for operating the same and removing said ball from its holding or pressing contact upon said air-tube, substantially as and for the purposes set forth.

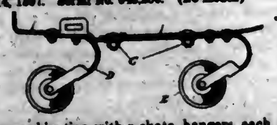
3. In a flushing-tank or the like, an outlet-valve, comprising therein, a hollow vessel forming a float and adapted to fit on a valve-seat, said float being open to the ingress of the water in the tank when off said valve-seat, a tube connected with said float for admitting a supply of air into said float when upon said valve-seat, a regulating-valve in said tube, and means for preventing the displacement of said hollow float from the valve-seat when filled with air, consisting, essentially, of a lever pivotally arranged above said flushing-tank, having arm portions d' and d^3, a trough d^3 in said arm portion d' and a ball movably arranged in said trough for normally exerting a pressure upon the top of said air-tube on said float, and means connected with said arm portion d^3 of said lever for operating the same and removing said ball from its holding or pressing contact upon said air-tube, substantially as and for the purposes set forth.

4. In a flushing-tank or the like, an outlet-valve, comprising therein, a hollow vessel forming a float and adapted to fit on a valve-seat, said float being open to the ingress of the water in the tank when off said valve-seat, and open to the supply of air when upon the valve-seat, a stem on said float and an adjustable stop on said stem, a supplemental float to prevent overflow of the water in the flushing-tank, said supplemental float being adapted to engage with said stop on said stem, and cooperating with the hollow vessel forming the other float, to raise it off its valve-seat, and means for normally preventing the displacement of said hollow vessel from its valve-seat, consisting, essentially, of a lever pivotally arranged above said float on said valve-seat, and a weight movable only on that portion of the lever between its pivotal support and its free end directly above said float, for normally exerting a pressure on the float and causing it to rest upon the valve-seat, substantially as and for the purposes set forth.

5. In a flushing-tank or the like, an outlet-valve, comprising therein, a hollow vessel forming a float and adapted to fit on a valve-seat, said float being open to the ingress of the water in the tank when off said valve-seat, and open to the supply of air when upon the valve-seat, a supplemental float to prevent overflow of the water in the flushing-tank, said supplemental float cooperating with the hollow vessel forming the other float, to raise it off its valve-seat, and means, for normally preventing the displacement of said hollow vessel from its valve-seat, consisting, essentially, of a lever pivotally arranged above said flushing-tank, having arm portions d' and d^3, a trough d^3 on said arm portion d' and a ball movably arranged in said trough for normally exerting a pressure upon the top of said float, and means connected with the arm portion d^3 of said lever for operating the same and removing said ball from its holding or pressing contact upon said float, substantially as and for the purposes set forth.

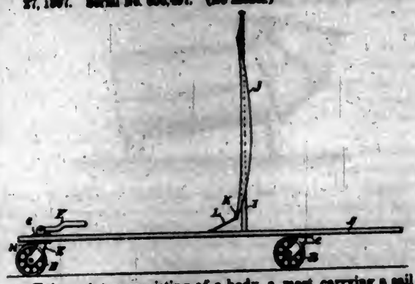
6. In a flushing-tank or the like, an outlet-valve, comprising therein, a hollow vessel e forming a float and adapted to fit on a valve-seat, said float being open to the ingress of the water in the tank when off said valve-seat, a tube e^4 connected with said float e for admitting a supply of air into said float when upon said valve-seat, a stop on said tube, a supplemental float f movably arranged on said tube e^4 to prevent overflow of the water in the flushing-tank, said supplemental float being adapted to engage with said stop, and cooperating with the hollow vessel or float e to raise it off its valve-seat, and means, for normally preventing the displacement of said float e from its valve-seat, consisting, essentially, of a lever pivotally arranged above said float on said valve-seat, and a weight movable only on that portion of the lever between its pivotal support and its free end directly above said float, for normally exerting a pressure on the float and causing it to rest upon the valve-seat, substantially as and for the purposes set forth.

604,179. ROLLER-SKATE. FRANK J. SULER, Philadelphia, Pa. Filed Aug. 14, 1897. Serial No. 648,260. (No model.)



Claim.—In combination with a skate, hangers, each consisting of an elongated strip of metal widened and slotted at one end, the sides of said widened end being turned up parallel with each other, said end being turned down and back at an acute angle to the other portion of the strip, which is secured to the under side of the skate, whereby a spring-action is produced also a drag in the direction of the forward movement of the foot, a roller journaled between said upturned sides, as and for the purpose described.

604,180. TOY. ALFRED M. TOUS, Bordeaux, France. Filed Oct. 27, 1897. Serial No. 656,497. (No model.)

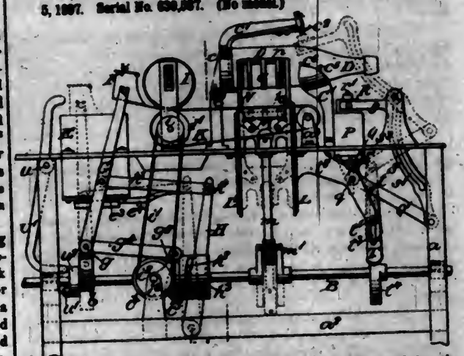


Claim.—A toy consisting of a body, a mast carrying a sail arranged on said body, two wheels journaled at the forward portion of said body, a bracket pivotally secured at the center near the rear portion of the body, a washer secured on the bracket on each side of the body, whereby the friction contact of the washers on said body will hold the bracket in any adjustment, a wheel journaled in said bracket, and a lever for operating the bracket, substantially as shown and described.

604,181. PYROXYLIN COMPOSITION. GUSTAV WALKER, New York, N. Y. Filed Sept. 8, 1896. Serial No. 605,495. (No specimens.)

Claim.—The herein-described composition consisting of pyroxylin and the decreosoted oil of the tar of hard woods having a boiling-point from 65° to 170° centigrade and a specific gravity of about .860 to .910.

604,182. LABELING-MACHINE. THEODORE A. WEBB, New York, N. Y., assignor to Frederick Hasbrouck, same place. Filed June 5, 1897. Serial No. 639,557. (No model.)



Claim.—1. The combination with mechanism for applying the label to the bottle and means for supporting labels in a stack, of a label-carrier comprising a hollow head for receiving a charge of liquid glue, absorbent material secured to the bottom of said head and in communication with the liquid glue through openings in the bottom of the head, valves for controlling the admission of the liquid glue to the absorbent material and means for moving the label-carrier head toward and away from the top of the stack of labels, substantially as set forth.

2. The combination with the label-feeding rollers, one of said rollers being provided with a raised central portion, a label applying mechanism and means for supplying the labels, of a label-carrying head provided on its face with strips of absorbent material spaced apart a distance equal to or greater than the said raised portion on the feed-roller, means for supplying liquid glue to the said strips of absorbent material and means for conveying the label-carrier from the supply of labels to the feed-rollers, substantially as set forth.

3. The combination with suitable means for feeding and applying the labels, means for holding a supply of labels in the form of a pile or stack and a label carrying head adapted to engage the uppermost label to remove it to the feeding and applying mechanism, of a tappet adapted to push the label-carrying head slightly along the plane of the top of the stack to separate the uppermost label of the stack from the next succeeding label, means for operating the tappet and means for lifting the carrier-head, substantially as set forth.

4. The combination with the seat for receiving the bottle to be

labeled and the skeleton carrier-belt for advancing the label into position to be applied to the bottle, of a label-applying device comprising spring-arms adapted to engage the opposite sides of the bottle, elastic straps connecting the said arms in a transverse direction beneath the bottle and means for moving the said arms through an opening in the skeleton carrier-belt to lift the label from the belt into engagement with the bottle, substantially as set forth.

5. The combination with the skeleton carrier-belt, means for feeding the labels to the belt from the label-receptacle and means for holding the bottle in position to receive the label, of a stop located in position to arrest the movement of the label carried by the belt in a position opposite that portion of the bottle to which it is to be applied and a reciprocating label applying device arranged to remove the label from the belt and apply it to the bottle, substantially as set forth.

6. The combination with a seat for receiving a bottle to be labeled, of means for conveying one label into position spaced from the bottle-seat and a second label into position on the bottle-seat and means for moving the first-named label from its position spaced from the bottle-seat into engagement with the bottle, substantially as set forth.

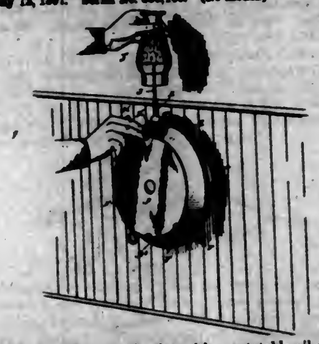
7. The combination with a seat for receiving a bottle to be labeled and a stack or supply of labels, of an abutment located above the bottle-seat, a label-carrying head provided with a label-discharge plunger and means for conveying the said label-carrying head into a position over the bottle-seat with the discharge-plunger in engagement with the said abutment, substantially as set forth.

604,183. RAILROAD-TIE. HENRY T. ARMSTRONG, Joshua, Tex. Filed May 14, 1897. Serial No. 636,504. (No model.)



Claim.—The combination with the tie 1, formed with the orifice 9 and the longitudinal groove 7 communicating therewith, and the integral slotted longitudinal web 3, of the block 4 formed with the integral toe 8 and lateral rib 6, and the bolt 5 adapted to detachably secure said block to said web 3, substantially as shown and described.

604,184. OIL-CAN. HENRY C. ATKINSON, Louisville, Ky. Filed May 12, 1897. Serial No. 636,102. (No model.)



Claim.—1. The combination with a rotatable oil-can having a peripheral flange, of the shaft of a chimney-cleaner having a friction-wheel adapted to engage said flange whereby the shaft is rotated by the rotation of the can, substantially as set forth.

2. The combination with a rotatable oil-can provided with a peripheral flange, of the shaft of a chimney-cleaner having a friction-wheel which is adapted to engage said flange, and means for moving said wheel in and out of engagement with the flange of the can, substantially as set forth.

3. The combination with a rotatable oil-can provided with a peripheral flange, of a shaft suitably mounted and having a friction-wheel on one end which is adapted to engage the peripheral flange, and a cleaning device carried by the opposite end of said shaft for engaging and cleaning the chimney, substantially as set forth.

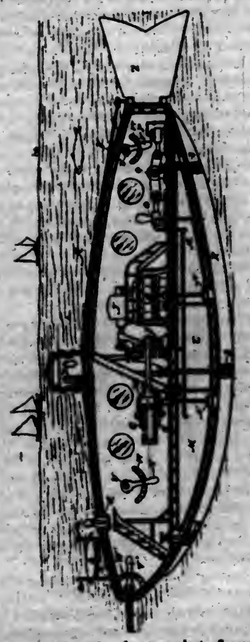
4. The combination with a rotatable oil-can provided with a peripheral flange, of a bracket having an arm carrying a vertical bearing, and a shaft movable in said bearing provided with a cleaning device at its upper end, and a friction-wheel at its lower end adapted to engage the flange of the can, substantially as set forth.

5. The combination with a rotatable oil-can having a peripheral flange, of a bracket having an arm, an arm movable upon said bracket-arm and having a vertical bearing, and a shaft rotatable in said bearing and having a cleaning device at its upper end, and a friction-wheel at its lower end adapted to engage the peripheral flange of the oil-can, substantially as set forth.

6. The combination with a rotatable oil-can formed with a peripheral flange, of a bracket, having an arm, a slotted arm movable upon said bracket-arm and secured in position by a set-screw, said slotted arm having a vertical bearing, and a shaft rotatable in said bearing and provided with a cleaning device at its upper end, and a friction-wheel at its lower end adapted to engage the peripheral flange, substantially as set forth.

7. The combination with an oil-can provided with a peripheral flange and a central bearing, of a bracket, having a horizontally-extending rod at its lower end adapted to engage the bearing of the can, whereby the latter is rotatable, a horizontal arm formed at the upper end of the bracket and supporting a vertical bearing, and a shaft rotatable in said bearing, and provided with a cleaning device at its upper end and a friction-wheel at its lower end which engages the peripheral flange of the oil-can, substantially as set forth.

604,185. SUBMARINE BOAT. GEORGE W. BRAUER, Georgetown, Del. Filed June 12, 1897. Serial No. 641,319. (No model.)



Claim.—1. In a submarine boat, pockets formed in the sides thereof, shafts journaled vertically in the pockets and projecting to the interior of the boat, shanks on the shafts, fins pivoted to the shanks to swing vertically, a crank-shaft journaled in the boat, pitmen extending from the inner ends of the first-named shafts to the crank-shaft, and means for driving the crank-shaft, substantially as described.

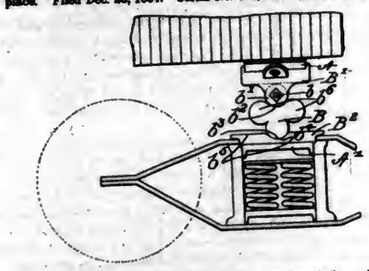
2. In combination with a submarine boat, a shaft journaled across the bow of the boat and extending to the exterior, at its ends, a blade secured to the ends of the shaft, a lever secured to the interior portion of the shaft, a segment having holes therethrough and a pin adapted to be passed through a hole in the lever into a hole in the segment, substantially as set forth.

3. In a submarine boat, pockets formed in the sides thereof, shafts journaled vertically therein, shanks secured on the shafts, fin propeller-blades hinged to the shanks to swing vertically, stops on the shanks and lugs on the propellers adapted to come in contact with the stops, as and for the purpose set forth.

4. Propelling mechanism consisting of vertical shafts, ratchet-wheels on the shafts, pawls to engage the ratchet-wheels, gear-teeth

on the upper face of the ratchet-wheels, shanks on the shafts, propeller-blades journaled thereon, gear-teeth on the propeller-blades meshing with the first-mentioned gear-teeth, substantially as set forth.

604,186. SIDE BEARING FOR RAILWAY-CARS. CHESTER C. BOSTON, Chicago, Ill., assignor of one-half to Edgar C. Dodge, same place. Filed Dec. 23, 1897. Serial No. 663,247. (No model.)



Claim.—1. A side bearing for railway-cars consisting of a strut or brace pivoted to the car or body bolster, a seat or bearing thereon, which is adapted to engage a seat or bearing on said bolster, a seat or bearing on the lower or free end of said strut or brace, which is adapted to engage a seat or bearing on the truck-bolster, supporting-surfaces at both sides of said seat or bearing on the truck-bolster and lateral projections on said strut or brace which are adapted to be brought into contact with said supporting-surfaces, the relation of parts being such as to allow limited depression of the side of the car-body relatively to the truck, substantially as described.

2. A side bearing for railway-cars consisting of a strut or brace pivoted to the car-bolster, a seat or bearing thereon which is adapted to engage a seat or bearing on said car-bolster, a seat or bearing on the lower or free end of said strut or brace, which is adapted to engage a seat or bearing on the truck-bolster, supporting-surfaces at both sides of said seat or bearing on the truck-bolster and lateral projections on said strut or brace, the relation of parts being such that, when the free end of said strut or brace and one of the lateral projections thereon are in contact with one of said supporting-surfaces at the side of the seat or bearing on the truck-bolster, the other of said lateral projections will be in contact with a rigid support on the car-bolster, substantially as described.

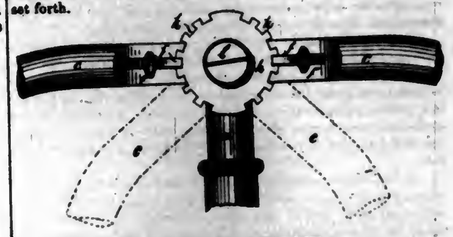
3. A side bearing for railway-cars consisting of a strut or brace pivoted to the car-bolster, seats or surfaces thereon which are adapted to engage corresponding seats or surfaces on the car-bolster, the free end of said strut or brace being circular and being adapted to engage a corresponding circular seat formed in the truck-bolster, plane surfaces on each side of said seat or recess in the truck-bolster, lateral projections on said strut or brace which are adapted to be brought into contact with said plane surfaces on the truck-bolster and with the car-bolster by pivotal movement of the truck relatively to the car-body, the relation of parts being such that, when the strut or brace is entirely withdrawn from its seat in the truck-bolster and rests upon the plane surface on said truck-bolster together with one of the lateral projections thereon, the other of said lateral projections will be in contact with a rigid support on the car-bolster, substantially as described.

4. A side bearing for railway-cars consisting of a strut or brace pivoted to the car-bolster, circular seats or surfaces on which are adapted to engage corresponding circular seats or surfaces formed on the car and truck bolsters and lateral projections on said strut or brace adapted to be brought into contact with rigid supports on the car and truck bolsters by pivotal movement of said truck, the elements of said bearing-surfaces extending radially relatively to the king bolt which connects the truck to the car-body, substantially as described.

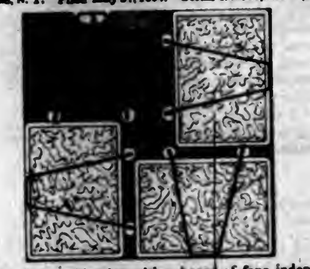
604,187. BICYCLE. WILLIAM H. CASTLE, Woodsport, N. Y., assignor of one-half to the Geneva Cycle Company, Geneva, Ohio. Filed Jan. 27, 1896. Renewed Jan. 20, 1898. Serial No. 667,353. (No model.)

Claim.—1. The combination with the steering-post having a rearwardly-extending arm interiorly threaded and provided with a flange, handle-bars mounted on said arm, adapted to rotate, a notched disk mounted on said arm, means for preventing the disk from rotating upon the arm and means for securing said disk and handle-bars upon said arm and a latch secured upon said handle-bars and adapted to engage with the notches in said disk, as set forth.

2. The combination with a steering-post, of a rearwardly-extending arm having an interiorly-threaded opening and a flange, handle-bars mounted upon said arm and adapted to rotate, and a notched disk mounted on said arm, means to prevent its rotation, a screw adapted to engage with said opening in the arm for the purpose of holding the disk and handle-bars upon the arm, spring-actuated latches mounted upon said handle-bars and adapted to engage with the notches in the disk, substantially as described for the purposes set forth.

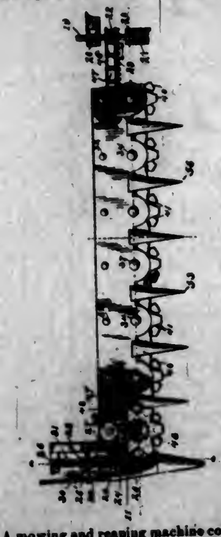


604,188. DUPLICATE-WHIST BOARD. CHARLES H. DAMAN, Syracuse, N. Y. Filed May 27, 1897. Serial No. 638,485. (No model.)



Claim.—The combination with a board of four independent U-shaped card-hand spring-grips, each having its arms secured to said board, and each arm having a pivotal coil projecting above the board substantially the thickness of a hand, whereby each hand is doubly gripped along the entire length of the separated transverse lines of said arms exterior to their pivots.

604,189. ROTARY SICKLE FOR MOWING AND REAPING MACHINES. JOHN A. DAVIS, Desert Lake, Utah, assignor of two-thirds to George Ipson, Huntington, and Harry Wade and Eugene Miller, Castle Gate, Utah. Filed Apr. 29, 1897. Serial No. 634,426. (No model.)

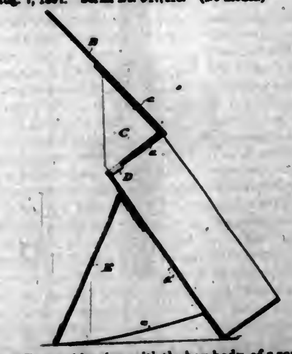


Claim.—1. A mowing and reaping machine comprising the main axle provided with a longitudinal key 4, and collars 7 7, the sleeve 6 formed with the keyway 5, and provided with the oppositely-disposed fixed bevel-gears 12 13, the shaft 14, the bevel gear-wheel 15,

mounted on said shaft and adapted to alternately engage the gear-wheels 12 13, the shaft 19 in operative connection with said shaft 14, and provided with the sprocket-wheel 22, the parallel shaft 25 the sprocket-wheel 24 mounted thereon, and the endless sprocket-chain 23 encompassing said sprocket-wheels, and provided with a series of gear-teeth in combination with the cutting-disks 38 39 arranged one above the other and provided with rectangular hubs 42 and the spur gear-wheels 44 45 having rectangular orifices 46 to receive the hubs of said disks, substantially as shown and described.

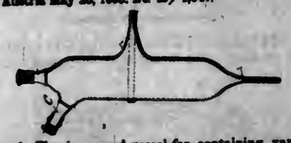
2. A mowing and reaping machine comprising a sickle-bar frame provided with a carrying-wheel on its outer end and means substantially as described for imparting a continuous rotary motion to said wheel independent of its contact with the ground, as and for the purpose set forth.

604,190. DISPLAY-BOX. ANTHONY M. HAHN, Philadelphia, Pa. Filed Aug. 7, 1897. Serial No. 647,418. (No model.)



Claim.—The combination, with the box-body, of a support hinged to the bottom thereof; means, substantially as described, for limiting the bending out of said support; a lid hinged to the back of the box and capable of turning upon its hinge into a plane substantially parallel with the plane of the top edges of the box; a hinged stay-piece intermediate between the back of the box and the lid when the latter is in its extreme open position; and a lock upon said stay-piece adapted to form a positive engagement, whereby the lid is prevented from moving in either direction from its extreme open position, substantially as described.

604,191. VESSEL FOR CONTAINING AND ADMINISTERING VOLATILE LIQUIDS. PIERRE P. MONNET, Lyons, France. Filed Aug. 6, 1896. Serial No. 601,977. (No model.) Patented in France Feb. 8, 1895, No. 244,975; in Switzerland Feb. 9, 1896, No. 9,707; in Belgium Feb. 11, 1895, No. 114,078; in England Feb. 14, 1895, No. 3,398; in Germany Feb. 19, 1895, No. 83,657; in Italy Mar. 28, 1895, No. 38,947/102, and in Austria May 25, 1895. No. 45/1,847.



Claim.—1. The improved vessel for containing, vaporizing and administering, volatile liquids under internal pressure, consisting of a vessel-body of such size and form that it may be grasped by and inclosed in the hand, having a plurality of necks projecting from said body in different directions, and having a plurality of capillary outlet-orifices, one in each of said necks, and closing devices for said orifices, whereby either of said orifices can be opened for ejecting the liquid, and said vessel can be refilled when both said orifices are open, substantially as and for the purposes set forth.

2. The improved vessel for containing, vaporizing and administering, volatile liquids under internal pressure, consisting of a vessel having a body of such size and form that it may be grasped by and inclosed in the hand, having a plurality of necks projecting from said body in different directions, having a capillary outlet-orifice in each neck, and having a closing device for each orifice, one of said capillary orifices in one neck differing in diameter from that of the orifice in another neck, whereby either of said orifices can be opened for ejecting the liquid, and said vessel can be refilled when both said orifices are open, substantially as and for the purpose set forth.

3. The improved vessel for containing, vaporizing and administering volatile liquids under internal pressure, consisting of a vessel having a plurality of necks projecting from it in different directions, and having in each neck a capillary aperture, means for closing said orifices hermetically, and cannulæ, substantially as described, for fitting tightly on the necks of said vessel as set forth, said necks having fastenings for said closing means and said cannulæ, and each of the latter having fastenings reciprocal to and fitting those of the necks, whereby either of said orifices can be opened for ejecting the liquid, and said vessel can be refilled when both said orifices are open.

4. The improved vessel for containing, volatilizing and administering volatile liquids under internal pressure, consisting of a thin glass body adapted to be grasped by and inclosed in the hand, whereby the heat of the hand can volatilize the contents of the vessel for generating an internal pressure therein, such vessel having an integral neck having a capillary orifice-opening at its outer end, an external metal collar fixed on and surrounding said neck, and a cap closing said orifice, embracing the end of said neck, and held thereon by said collar.

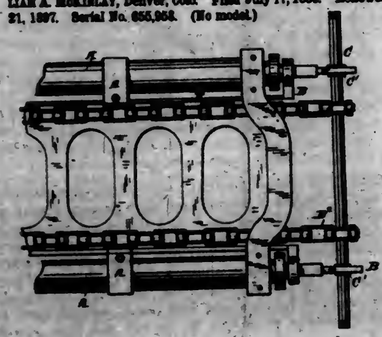
5. The improved vessel for containing, volatilizing and administering volatile liquids under internal pressure, consisting of an elongated body for containing the liquid, adapted to be grasped by and inclosed in the hand, whereby the heat of the hand may volatilize the liquid to generate an internal pressure, said body having an elongated neck exteeding from it angularly of its longitudinal axis, a capillary orifice traversing and opening at the end of said neck, a cap enveloping the end of said neck and closing said orifice, and fastening provisions on the exterior of said neck engaging said cap for holding it thereon, whereby said orifice can be opened and closed by removing and applying said cap, and the liquid can be discharged through said neck when said body is inclined toward the horizontal.

6. The improved vessel for containing, volatilizing and administering volatile liquids under internal pressure, consisting of a glass body adapted to be held in the hand, whereby the heat of the hand can volatilize the liquid and generate an internal pressure in the vessel, having two integral necks, having capillary orifices traversing and opening at the end of each neck, an outer metal collar surrounding and fixed to each neck, and a cap for each neck closing the orifice therethrough, inclosing the end of the neck and engaging the collar thereon.

7. In vessels for containing, volatilizing and administering volatile liquids, a vessel-body for containing the liquid, adapted to be grasped by and inclosed in the hand, whereby the heat of the hand can volatilize the liquid to generate an internal pressure, said body having two independent outwardly-projecting necks, the one angular in its projection relatively to the other, capillary orifices traversing and opening through said necks respectively, fastenings on the exteriors of said necks, and caps for closing said orifices enveloping the ends of said necks respectively and held thereon by said fastenings, whereby the liquid can be discharged in different directions relatively to the longitudinal axis of said body.

8. The improved vessel for containing, volatilizing and administering volatile liquids under internal pressure, consisting of a vessel-body of suitable size and form to be grasped by and inclosed in the hand, whereby the heat of the hand can be used to volatilize the liquid for generating an internal pressure in the vessel, having two necks, the one axial and the other angular in extension relatively to the longitudinal axis of the body, a capillary orifice traversing and opening through each of said necks, fastenings on the exteriors of said necks respectively, and caps for closing said orifices, and enveloping the ends of said necks respectively, and held thereon by said fastenings.

604,192. MINING-MACHINE. EDWARD S. MCKINLAY and WILLIAM A. MCKINLAY, Denver, Colo. Filed July 17, 1896. Renewed Oct. 21, 1897. Serial No. 655,956. (No model.)



Claim.—1. In a mining-machine, the combination with a bed or supporting-frame adapted to be made stationary, the carriage or frame to which the cutting apparatus is attached and which is movable upon the said bed to vary the position of the cutting apparatus, of the cutter-carrying shaft, the two bearings on the carriage for the ends of the shaft, the series of hubs or holders for the teeth, all of substantially the same diameter, and arranged, some between, and some outside of, the said two bearings and adapted to slide longitudinally along the shaft and the cutters secured to the said hubs and projecting therefrom, substantially as set forth whereby a cut can be produced of uniform diameter from end to end, and the shaft can be removed in either direction relatively to the cutter-hubs while they are in position, substantially as described.

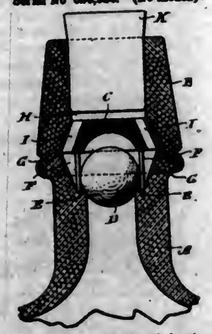
2. In a mining-machine, the combination of the bed or frame adapted to be made stationary, the carriage or movable frame mounted thereon and adapted to carry the cutting apparatus, the shaft or bar secured to said carriage, for carrying the cutters, the bearings for said shaft, one at or near each end thereof, the cutter-carrying hubs situated between the said bearings and movable on the shaft longitudinally, the similar hubs at the ends of the shaft outside of the bearings, and means substantially as described for locking the hubs of the whole series against longitudinal movement along the shaft, substantially as described.

3. In a mining-machine, the combination of the bed or frame adapted to be made stationary, the sliding frame or carriage thereon, the cutting apparatus, the shaft which is non-circular in section mounted on the carriage, two bearings on the carriage for said shaft respectively at or near the ends thereof the bearing-pieces for the shaft having apertures of a cross-section corresponding to that of the shaft, the removable washers adapted to move longitudinally along the shaft, and the cutters secured thereto, said shaft being removable from the cutters which are between the bearings while the cutters remain in position substantially as described.

4. In a mining-machine, the combination of the bed or frame adapted to be made stationary, the movable carriage, the bar or shaft mounted in two bearings on the said carriage, the open hubs or washers on the said shaft adapted to move longitudinally thereon, the cutters projecting from the said washers, and the cutters on the hubs adjacent to the said bearing being arranged to project laterally to overlap the bearings and cut a path therefor, said shaft being longitudinally movable in either direction through the said hubs while they are in position substantially as described.

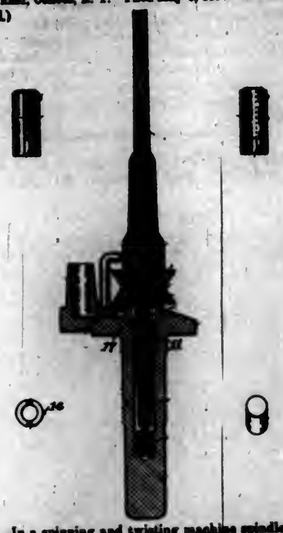
5. In a mining-machine, the combination of a stationary bed, as at A A, the sliding carriage, as at B, B, the shoes B' B' supported on the carriage, the cutter-bar C, supported in said shoes, one of the latter being on one side of the center, longitudinally of said bar and the other on the other side of said center, the series of cutter-carrying hubs or washers D between the said shoes and movable longitudinally along the shaft or bar C, the series of similar hubs or washers outside of each of said shoes and on said bar C, and means substantially as described for rotating said bar and with it the said hubs or washers, as set forth.

604,193. BOTTLE. JOHN C. PATTERSON, Philadelphia, Pa. Filed Mar. 11, 1897. Serial No. 626,986. (No model.)



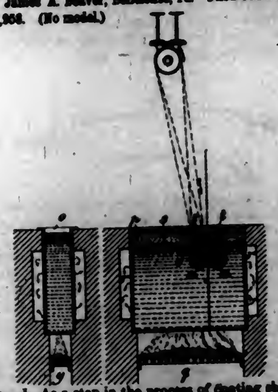
Claim.—The combination with a bottle having a valve-seat formed in its neck, a chamber of inverted cone shape above said valve-seat, integral inwardly-projecting lugs F upon the sides of said chamber, and a valve adapted to said seat; of a ferrule B having its lower end fitted to the upper end of the bottle-neck, a substantially cylindrical bore in its upper end adapted to receive a cork, a chamber of larger diameter than said bore at its lower end; and a stop C in said latter chamber, said stop having a solid body resting upon the lugs F and as large in diameter as the bore for the cork and being provided with projecting lugs I which conform to the wall of said enlarged chamber, whereby irregular passages are formed around the stop and direct access to the valve is prevented, substantially as described.

604,194. SPINNING AND TWISTING MACHINE SPINDLE. JOHN B. PEREZ, Osborn, N. Y. Filed May 6, 1897. Serial No. 636,396 (No model.)



Claim.—In a spinning and twisting machine spindle, the combination with a sleeve-whirl spindle having a pointed foot, a holder therefor adapted to be secured to the bolster-rail, and a tube extending from the holder into the sleeve-whirl of larger internal diameter than the internal diameter of the lower part of the holder, of a flat step in the lower part of the holder forming the vertical support of the spindle, a short cylindrical bolster loose in the tube extending upward from the holder into the sleeve-whirl and held against rotation by a pin, whereby the spindle is supported laterally within the sleeve-whirl by a short bolster free to adjust itself with the spindle, as described.

604,195. PROCESS OF AND APPARATUS FOR MANUFACTURING TIN-PLATE. WILLIAM ROGERS, Lanchburg, Pa., assignor of one-half to James A. Beaver, Bellefonte, Pa. Filed Oct. 24, 1896. Serial No. 609,906. (No model.)



Claim.—1. As a step in the process of coating sheets of iron or steel with tin or other coating metal or alloy, preparing the sheets by subjecting them, after rolling and without previous pickling for removing the scale, to heat in a suitable furnace while inclosed in a pack in a suitable vessel or box, and protected from the access of atmospheric air by surrounding them with pulverized sand, lime, iron ores, or other suitable material, whereby is effected a mutual reaction between the external oxid scale and the internal carbon of the sheets; substantially as and for the purpose described.

2. In the process of preparing sheet-iron for coating with tin or other metal or alloy, deoxidizing and decarburizing the sheets without removal of the iron scale, by inclosing them in a pack within a suitable receptacle, and preventing the access of atmospheric air by surrounding them with sand or pulverized material, such as dolomite or iron ore, placed within the receptacle, the sheets being protected from actual contact with such pulverized material by an envelop or inclosure composed preferably of sheet-iron, and subjecting the sheets thus surrounded to heat in a suitable furnace and thereby effecting a mutual reaction between the external oxid (scale), and the internal carbon, of the sheets, substantially as described.

3. The process of reducing the oxid and largely eliminating the carbon from sheets of rolled wrought-iron, at one operation, by subjecting them, without previous removal of the oxid coating, to furnace heat, when inclosed in a substantially air-tight receptacle, and protected from access of external air, effecting thereby a mutual reaction between the oxid of the external scale and the internal carbon, of the sheets, substantially as described.

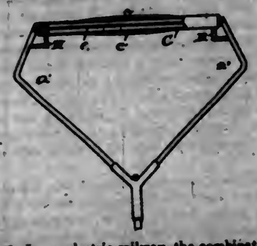
4. As a finishing step in the process of manufacturing tin-plate, or other metal-coated sheets, subjecting the sheets to the compressive and polishing action of burnished steel rolls coated wholly or partially with grease, said sheets having been first treated, without removal of the surface oxid to a simultaneous deoxidizing and decarburizing operation of heating in a substantially air-tight receptacle, and then coated by dipping in molten metal substantially as described.

5. The process of making tin-plate or other metal-coated sheet-iron, by subjecting the metal sheets to a process of simultaneous deoxidation and decarburization, by exposure to heat in a suitable vessel protected from access of external atmosphere for the purpose of effecting a mutual reaction between the external oxid (scale) and the internal carbon, of the sheets, then coating the wrought-iron sheets by dipping in tin, or other coating metal in a molten condition, and finally subjecting the sheets to the compressive action of polished steel rolls, to compact the pores of the metal sheet, and effect a firmer adherence of the coating metal, substantially as described.

6. The process of coating sheet-iron with tin or other metal or alloy, consisting in the following steps, viz: deoxidizing, decarburizing and softening the sheets in the manner hereinbefore described without previous removal of the surface oxid, by subjecting them to heat in a furnace when inclosed in a substantially air-tight receptacle, protected from access of external atmosphere, then coating such sheets with melted grease, then dipping the sheets repeatedly in a tank of melted coating metal, then dipping each sheet separately in a tank of melted metal at a lower temperature, and finally subjecting sheets so prepared and coated to rolling pressure while immersed in melted grease; substantially as described.

7. The apparatus hereinbefore described for finishing sheets of wrought-iron after immersion in molten coating metal consisting of a tank for holding grease, or grease and molten coating metal, means for heating said tank, cooling-pipes horizontally traversing said tank to prevent the overheating of the grease, said tank being furnished with one or more pairs of rolls, one pair at least arranged to be in contact with or immersed in grease, and adapted to exert a compacting and polishing pressure on both surfaces of each coated sheet, passing through between them, and for feeding and delivering the metal-coated sheets, substantially as described.

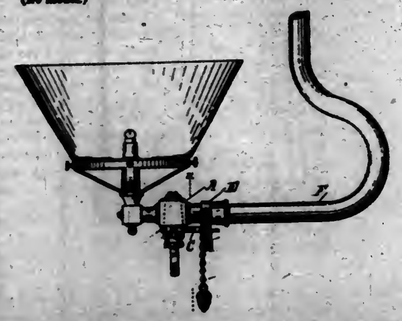
604,196. TROLLEY FOR ELECTRIC RAILWAYS. SIDNEY H. SHORT, Cleveland, Ohio. Filed Sept. 20, 1895. Serial No. 607,111. (No model.)



Claim.—1. In an electric railway, the combination of a motor-car, and an overhead conductor, with a trolley-arm mounted on the car by means which permit the vertical movement but prevent the lateral movement of the upper end of the trolley-arm, a horizontal cylindrical roller mounted on the upper end of said trolley-arm, and a convex sleeve centered upon said roller between its ends, substantially as and for the purpose specified.

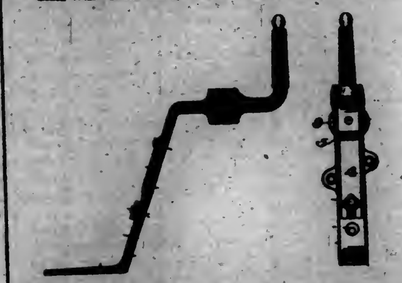
2. In an electric railway, an overhead conductor, and a trolley-arm mounted upon a car, combined with a horizontal cylindrical roller mounted upon the upper end of the trolley-arm, a sleeve secured upon said roller between its ends, a rod extending through the roller and the ends of the arm, and ball-bearings placed upon the rod, and fitting in the ends of the roller, substantially as described.

604,197. SAFETY ATTACHMENT FOR GAS-COCKS. JAMES F. SMITH, San Francisco, Cal. Filed Dec. 15, 1897. Serial No. 661,948. (No model.)



Claim.—In combination with a gas-cock having a turnable key, the stem of which is provided with a stop-pin adapted to contact with a fixed flange on the cock, a safety attachment therefor, consisting of a yoke, independent of the key-stem and fitted freely thereto to normally lie with the extremities of its arms in the path of movement of the stop-pin, and adapted to confine said pin between them and the ends of the fixed flange, whereby the key is normally locked, a holder or clamp supported by the fixture, and having a hanger on which the yoke is slidingly fitted, a suitable pull attachment to the yoke for moving it in a plane to free the stop-pin of its extremities, and enable said pin to ride upon its adjacent surface in turning, as the key is turned to open the cock, whereby the cock may remain open, and a spring on the hanger, bearing on the yoke, to automatically return it to its normal position as the pin passes from its surface, as the key is turned to close the cock.

604,198. ADJUSTABLE VEHICLE-IRON. HENRY C. SWAN, Oshkosh, Wis. Filed Jan. 6, 1898. Serial No. 665,742. (No model.)



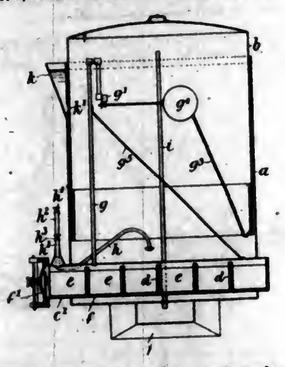
Claim.—1. A vehicle-iron composed of two parts, one part having a longitudinal recess with an elongated slot in its bottom, and an end loop, and the other part being arranged to lie within the longitudinal recess in the same line with the first part and under the loop, and having a bolt movable along within the elongated slot.

2. A vehicle-iron composed of two parts, one part having a recess with an elongated slot in its bottom, and the other part being arranged to lie within the recess and having a slotted end to receive a bolt movable along and within the slot in the other portion.

3. A vehicle-iron comprising a base portion arranged to be secured to the vehicle, said portion having an open-ended recess with a loop or bar crossing its end, the base of the recess being provided with an elongated slot, and another portion having a depending arm arranged to pass under the loop and rest within the recess, the lower end of the arm being slotted to receive a bolt which passes through the slot in the base portion.

4. A vehicle-iron composed of two parts, one part having an elongated slot, and the other part lying longitudinally of the first part in the same line, and having a slotted end to receive a bolt movable along and within the elongated slot.

604,199. APPARATUS FOR GENERATING ACETYLENE GAS. FREDERICK S. TROBE and CHARLES HUDDLE, London, England. Filed Nov. 21, 1896. Serial No. 612,963. (No model.) Patented in England July 18, 1896, No. 15,963; in France Mar. 22, 1897, No. 265,252; in Belgium June 2, 1897, No 128,632, and in Canada Dec. 1, 1897, No. 58,234.



Claim.—1. In apparatus for generating storing and cooling acetylene gas, the combination with a gasometer or gas-holder, and with the gas-generator having a tray for carbids within the same, such generator being located in the bottom of the gasometer and surrounded by the water in the same, of two pipes in connection with the carbid holder or generator, one of these pipes being in communication with the gasometer below the surface of the water, and the other with the gasometer above such surface, and of means whereby the latter is closed or opened by the movement of the gasometer, substantially as described.

2. In apparatus for generating and storing acetylene gas, the combination with a gasometer or holder, and with one or more generators having carbid-containers, and located in the bottom of the gasometer, of two passages or pipes within such gasometer or holder and in connection with each generator, one of which pipes places each generator in communication with the gasometer below the surface of the water therein, and the other being also in communication with the gasometer above the surface of the water therein, of a ball-cock within the gasometer fitted to the latter pipe and controlled by the rise and fall of the gasometer cylinder, and whereby the flow of gas is controlled by one inlet, and the gas may enter by the water-inlet and into the gasometer, and pressure in the generator is avoided.

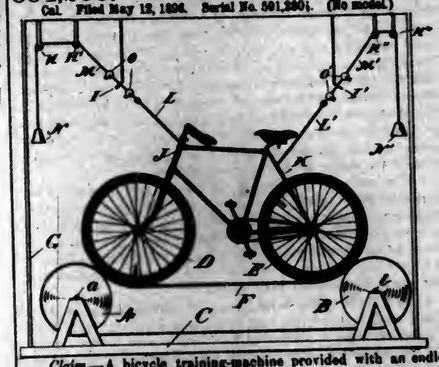
3. In apparatus for generating and storing acetylene gas, the combination with a gasometer or holder and with one or more generators located therein, of two pipes or passages within the gasometer and in connection with each generator, one of which pipes places each generator in communication with the gasometer below the surface of the water, and the other with the gasometer above the surface of the water, of a ball-cock within the gasometer and fitted to the latter pipe, and of a chain connecting the ball-cock float with the lower part of the sliding cylinder of the gasometer and whereby when the said cylinder descends the chain opens said cock, the other pipe or passage always permitting a free inflow of gas to the gasometer, all substantially as set forth.

4. In apparatus for generating, storing and cooling acetylene gas, the combination with a gas-holder or gasometer, of gas-generating chambers provided with sliding trays serving as the carbid-containers and located within the gasometer, and two pipes within such holder, one of which makes communication with the holder below the surface of the water, and the other of which is in such communication above its surface.

5. The described carbid containers or trays divided into a series of compartments by partitions *d*, each partition having a notch or opening at its upper end as described, in combination with perforated or gauze funnels or tubes d^3, as and for the purposes set forth.

6. In apparatus for generating and storing acetylene gas, the combination with a gasometer, of two or more hermetically-closed generators in the bottom of the gasometer and preferably surrounded by water, a carbid-container in the form of a tray within each of such generators and having a series of communicating compartments whereby the water passes from one compartment to another, the tray being adapted to be slid horizontally within its generator and to have the carbid in each compartment, means for admitting water to the carbid-container, a gas-outlet, a cooling-chamber beneath the gasometer-tank, and a gas-pipe leading from the upper part of the gasometer and through the water therein to this chamber, and a gas-outlet pipe from such chamber, all substantially as set forth.

604,200. BICYCLE-TRAINER. HENRY VOGELER, San Francisco, Cal. Filed May 12, 1896. Serial No. 591,290. (No model.)



Claim.—A bicycle training-machine provided with an endless belt F for supporting the wheels of the bicycle, guides L L' reaching upward from said bicycle and yieldingly secured to an overhead support, and stops O O' adapted to limit the play of said guides substantially as set forth.

604,201. PLATING METALS. WILLIAM J. WILDER, St. Louis, Mo. Filed Oct. 26, 1897. Serial No. 656,697. (Specimens.)

Claim.—1. As a new manufacture iron or steel having a coating of a flexible tenacious alloy, containing aluminium, tin and zinc.

2. As a new manufacture iron or steel having a coating of an alloy containing aluminium, lead, tin and zinc, substantially as described.

3. The process of preparing the herein-described new manufacture consisting in preparing a molten bath of an alloy containing aluminium, tin and zinc; cleansing iron or steel and applying a suitable flux and after applying the flux introducing the iron or steel into, and withdrawing it from, the bath, substantially as described.

4. The process of preparing the herein-described manufacture, consisting in preparing a molten bath of an alloy containing aluminium, lead, tin and zinc, cleansing iron or steel and applying a suitable flux; and after applying the flux, introducing said iron or steel into and withdrawing it from the bath, substantially as described.

604,202. OIL-WELL PUMP. WILLIAM J. WRIGHT, Pittsburg, Pa. Filed June 11, 1897. Serial No. 640,374. (No model.)

Claim.—1. An improved oil-well pump, comprising a standing valved feed-tube, a working barrel operating over such tube, having an upwardly-opening valve and a lift-tube, and an outer tube-section having anchoring means, said tube being connected with the standing feed-tube and forming the lower support therefor, and having a guide-support at the upper end on the lift-tube, all being arranged substantially as shown and for the purposes described.

2. An oil-well pump comprising an outer tube, an anchor-tube connected to the lower end thereof, said outer tube having discharge-openings near the lower end, a standing feed-tube secured at the lower end to the outer tube and having its upper end provided with an outwardly-opening valve and extended up into the outer tube, packing-cups secured to the said upper end, a working barrel having a guide on the standing tube and provided at its upper end with a valved outlet and a lift-tube connected to such outlet as specified.

3. An oil-well pump, comprising a standing feed-tube having a suitable upwardly-opening valve, a working barrel operating over such feed-tube, having a tubular lift-tube, and an outer tube incasing the working barrel and standing feed-tube, having a feed-opening at the lower end communicating with the feed-tube, and an aperture at the top for the passage of the lift-tube, and provided with discharge-openings, and means for securing it to the sides of the well, as set forth.

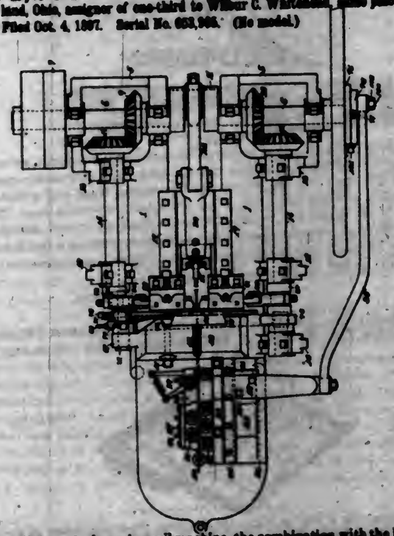
4. An oil-well pump, comprising an outer tube, a cage secured to the lower end thereof having wedge-dogs, the anchor-tube projected into the cage and having a head portion to engage and force such dogs outward, a standing feed-tube secured to the outer tube having an outwardly-opening valve at the upper end and a packing surrounding such end, a working barrel, having a lift member 11 at the lower end; a valved discharge at the upper end and a lift-tube connected to such discharge end as specified.

5. As an improvement in oil-well pumps, the combination with the outer tube having a closed lower end and a detachable centrally-apertured cap 20, at the top, a standing feed-tube extended through the bottom of the outer tube, having packing-cups, and a valve above the cups, a working barrel, a closed cage 12, detachably connected to such barrel, a valve, said cage having an upwardly-opening valve, a lift-tube connected to the said cage, and anchor means secured to the outer tubing, all being arranged substantially as shown and described.



6. The combination with the outer tube having a removable bushing 4, a cage having wedge members, an anchor-tube loosely connected to the cage having a member adapted to engage and set the wedge members, said outer tube having a cap at the upper end, a standing feed-tube connected at the lower end to the bushing 4, and provided with a valve at the upper end and packing at a point below the valve, a working barrel having a valved outlet at the upper end, and the lift-tube guided in the cap of the outer tube, all being arranged substantially as shown and for the purposes described.

604,203. WIRE-NAIL MACHINE. GEORGE W. ARDELL, Cleveland, Ohio, assignor of one-third to Wilbur C. Whitehead, same place. Filed Oct. 4, 1897. Serial No. 653,966. (No model.)



Claim.—1. In a wire-nail machine, the combination with the bed, of a reciprocating feed-plate arranged thereon, a device for vertically adjusting the feed, consisting of an upright 38 provided with a threaded portion 39, adapted to engage in a threaded recess formed in the plate, a shoulder 43, and cylindrical portion 40, means for clamping the upright within the plate, after the required adjustment of the former has been made, a chisel-carrier swiveled upon the upright, comprising the chisel-plate 46 and outwardly-extending arm 49, a chisel fixedly secured within the chisel-plate, and a spring connection between the arm 49 and an arm 51 integral with the feed-plate.

2. In a wire-nail machine, the combination with the bed, of a main driving-shaft mounted thereon and a side shaft driven thereby, a wire-clamping device comprising a horizontally-arranged stationary die, and a similarly-arranged movable or operating die, said operating-die being mounted for lateral movement, a transverse lever fulcrumed at one side of the bed, extending across the latter to the opposite side in proximity to the driven side shaft, and adapted to be operated by said shaft, a connecting device intermediate the supported end of the lever and the movable die, whereby, upon the actuation of the lever, an inner lateral pressure will be exerted by the latter upon said die, and means for returning the lever to its initial position after its actuation.

3. In a wire-nail machine, the combination with the machine-bed and a main driving-shaft mounted thereon, of a driven side shaft, a wire-clamping device, a transverse U-shaped lever arranged across the machine-bed and embracing the sides thereof, said lever having one of its embracing-arms fulcrumed upon one side of the bed, and the other arm extending in proximity to the side shaft upon the opposite side of said bed, and adapted to be operated by the driven shaft, an extension projecting upwardly from the supported end of the lever above the level of the bed, a connecting device intermediate the extension and the clamping device, whereby, upon the actuation of the lever, a lateral pressure will be exerted by the latter upon the clamping mechanism, and means for returning said lever to its initial position after its actuation.

4. In a wire-nail machine, the combination with the machine-bed, of a main driving-shaft mounted thereon, a side shaft driven thereby, a wire-clamping device comprising a horizontally-arranged stationary die, and a similarly-arranged movable or operating die, said operating-die being mounted for lateral movement, a transverse U-shaped lever arranged across the machine-bed and embracing the sides thereof, said lever having one of its embracing-arms fulcrumed upon one side of the bed, and the other embracing-arm extending in proximity to the shaft upon the opposite side of said bed, and adapted to be operated by the shaft, an extension projecting upwardly from the supported end of the lever above the level of the bed, a connecting device intermediate the free end of the extension and the operating-die, whereby, upon the actuation of the lever, an inward lateral pressure will be exerted upon the die by the extension, and means for returning the lever to its initial position after its actuation.

5. In a wire-nail machine, the combination with the machine-bed, of a bracket projecting from the side of the bed above the level thereof, said bracket having an inclined face toward the bed and a bearing in said inclined face below the top of the bracket, and a cap for said bearing, the parts being so arranged and constructed that the side thrusts will be received by the bracket-body and transmitted therethrough to the frame or bed itself.

6. In a wire-nail machine, the combination with the main driving-shaft, of a driven shaft operated thereby, a lever 66 having upwardly-projecting end portions 67 and 68, and an extension 77, a pin 71 upon which one end of the lever is pivotally supported, a roller-bearing in the free end of the lever, a clamping die, connections between the extension 77 and said die, a cam secured to the driven shaft adapted to bear against the roller-bearing in the free end of the lever, the spring 74, and the adjustable stop 76, substantially as described and shown.

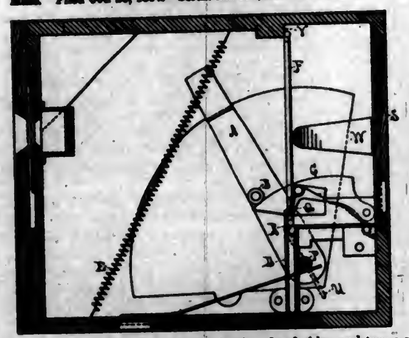
7. In a wire-nail machine, the combination with the machine-bed and a main driving-shaft mounted transversely thereon, of a plurality of bracket-arms arranged upon each side of the bed and extending upwardly therefrom, each arm being provided with an inner inclined face and having a recess formed within said face, shaping the free end of the arm thereby into a substantially vertical portion with respect to the bed, a journal-box arranged within each recess, each box constructed to abut against the vertical portion of the arm, whereby a solid backing is formed for the side shafts adapted to receive and sustain the lateral thrusts imposed upon said shafts, and the side shafts arranged one upon each side of the machine within the journal-boxes, and adapted to be driven by the main shaft.

8. In a wire-nail machine, the combination with a machine-bed and a main driving-shaft mounted transversely thereon, of a plurality of bracket-arms arranged upon each side of the bed and extending upwardly therefrom, each arm being provided with an inner inclined face and having a recess formed within said face shaping the free end of the arm into a vertical portion with respect to the bed, a journal-box arranged within each recess, each box having constructed

thereon a vertical face adapted to abut against the vertical portion of the bracket-arm, whereby a solid backing is formed for the side shafts adapted to receive and sustain the lateral thrusts imposed upon the shafts, and the said side shafts arranged one upon each side of the machine within the journal-boxes and adapted to be driven by the main driving-shaft.

9. In a wire-nail machine, the combination with the machine bed and a main driving-shaft mounted transversely thereon, of a plurality of bracket arms arranged upon each side of the bed and extending upwardly therefrom, each arm being provided with an inner inclined face and having a recess, substantially a right angle in configuration, formed within said face, shaping the free end of the arm, with respect to the bed, into a vertical portion having an inner vertical face, a divided journal-box mounted within the recess, the lower member of said box conforming in configuration to said recess, whereby a solid backing is formed by the bracket-arm for the shafts, and the said shafts arranged one upon each side of the machine within the journal-boxes and adapted to be driven by the main driving-shaft, substantially as described.

604,204. MAGAZINE-CAMERA. JACOB J. CRANE, Newburyport, Mass. Filed Oct. 20, 1897. Serial No. 656,736. (No model.)



Claim.—1. A magazine-camera having fixed sides and top, a removable door in back and bottom, two parallel arms A, located on each side of the interior of the camera, said parallel arms being attached to the rod P which extends across the lower corner of the camera and to which is attached a thumb-piece which is adapted to be operated on the outside; two rollers B, attached to the inside of said parallel arms, said rollers running over the semicircular edges of the two levers C; said levers being loosely attached to the frame which also serves as a plate-holder guide; these levers on being pressed downward force the plate-holders down so that the extended tops of the plate-holders are released from the projecting ledge V, below the tops of said parallel arms, for the purpose and in the manner described.

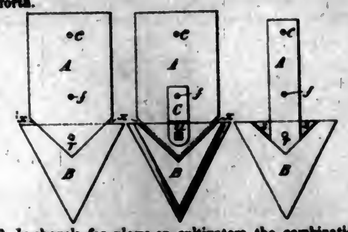
2. In a magazine-camera the combination of the two parallel arms A, the rod P, which extends through the lower corner of the box and adapted to be operated by an outside thumb-piece, the two rollers B, which are attached to each of the parallel arms, the two levers C, having semicircular edges, substantially for the purpose described.

3. In a magazine-camera the combination of the two parallel arms A, the rod P, which extends through the lower corner of the camera-box and adapted to be operated by an outside thumb-piece U, the two rollers B, which are attached to each of the parallel arms, the two levers C, having semicircular edges and the two pawls Q, which are attached to said levers, substantially for the purpose described.

4. In a magazine-camera having fixed sides and top and removable doors in the back and bottom, the combination of two parallel arms A, which are attached to and turn with a rod P, which extends across the lower corner of the camera-box; said rod adapted to be turned by an exterior thumb-piece U; two rollers B, attached to said parallel arms, said rollers being adapted to run over the semicircular edges of the two levers C; two pawls Q, attached to said levers, the two spring-clips R, and the spiral springs E, which are diagonally attached to the top and bottom of the camera inside, for the purpose specified.

604,205. CULTIVATOR-SHOVEL. GEORGE T. CROSARDER, Newton, Kans. Filed Jan. 20, 1898. Serial No. 667,227. (No model.)

Claim.—1. In shovels for plows or cultivators, the shovel constructed of standard and point, with the standard extending downward into the wedge-shaped socket *s s* formed in the upper and front central region of the point and secured by the bolt *r* and the nut *u* as set forth.



2. In shovels for plows or cultivators, the combination of the standards A and the points B, the standards secured against the floor and between the side walls of the socket *s s*, the point extending at its upper edge laterally on both sides, beyond the standard, and the narrow-size standard reinforced by rear extension C as substantially described and for the purposes set forth.

604,206. MODIFICATION OF CELLULOSE AND METHOD OF PREPARING SAME. CHARLES F. CROSS, EDWARD J. BEVAN, and CLAYTON BEADLE, London, England. Filed Aug. 16, 1898. Serial No. 688,979. (No specimens.)

Claim.—1. The structureless insoluble modification of cellulose recovered through the decomposition of the soluble plastic compound hereinbefore described.

2. The process herein described consisting in first treating cellulose to form the soluble plastic compound described hereinbefore, and then decomposing the plastic compound thus obtained, substantially as set forth.

3. The process herein described consisting in first treating cellulose with caustic alkali and carbon disulfid, and then decomposing the plastic compound thus obtained, substantially as set forth.

4. A structureless insoluble modified cellulose obtained by first treating cellulose, with caustic alkali and carbon disulfid, and then decomposing the soluble mass thus obtained to obtain the modified cellulose.

604,207. COTTON AND CORN SCRAPER. THOMAS F. DOVE, Cotton Gin, Tex., assignor of one-third to W. R. Reland, same place. Filed Nov. 20, 1897. Serial No. 659,256. (No model.)



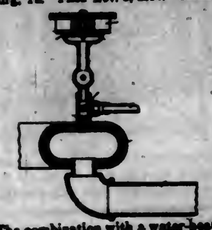
Claim.—An improved article of manufacture, a scraper or sweep for plows constructed of a strip of metal bent between its ends upon an oblique line and at an obtuse angle, forming a shank and a blade, the latter inclining upwardly, rearwardly and outwardly from the plane of the shank and having a partial twist given thereto, and the shank having a centrally-disposed longitudinal slot curving in the direction of its length and having the front end of the shank beveled, substantially as and for the purpose described.

604,208. POCKET CIGARETTE-MACHINE. THADDEUS S. FITCH, Oakland, Cal. Filed Sept. 22, 1897. Serial No. 652,803. (No model.)



Claim.—In a pocket cigarette-machine, the combination of the bed having upwardly-curved sides, a loose apron attached at one end to the side of the bed, the spring-guides having curved slots 1 2 at the ends and a connecting straight slot, fixed rails on the bed beneath and in the same plane with the guides, a roller adapted to travel along and to rotate in said guides and provided with circumferential grooves for the guides and a head on the end for rotating it, the end of the apron being attached to said roller.

604,209. GAS-BURNER FOR WATER-HEATERS. HENRY F. GAMBS, Pittsburg, Pa. Filed Nov. 3, 1897. Serial No. 657,267. (No model.)



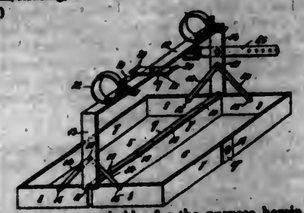
Claim.—1. The combination with a water-heater having a heating-burner, of a valved gas-supply leading thereto, a pilot-light burner having a branch supply-pipe extending therefrom to the main gas-supply at a point beyond the valve therein, and another connection leading from the pilot-light burner to the main gas-supply between the valve therein and the heating-burner and provided with an automatic valve which prevents backflow from the pilot-light burner to the heating-burner when the gas-supply to the heating-burner is cut off.

2. The combination with a water-heater having a series of heating-burners connected to a common supply-chamber extending beneath them, of a pilot-light burner also connected to the common supply-chamber and having a downwardly-closing gravity-valve in the connection, said valve being arranged to be lifted by the pressure of gas, and a branch supply-pipe leading to the pilot-light burner at a point between this burner and the gravity-valve.

3. A gas-burner of square or angular shape having a plate provided with jet-openings, and outwardly-projecting separating wings or ribs between the openings.

4. An angular gas-burner having a central portion provided with ribs or partitions extending outwardly around the same, and a plate below the same having jet-openings arranged to discharge upwardly into the spaces between the partitions.

604,210. TOOL HOLDER OR CARRIER FOR BICYCLES. JOHN O. GLASS, Reading, Pa. Filed June 12, 1897. Serial No. 640,451. (No model.)

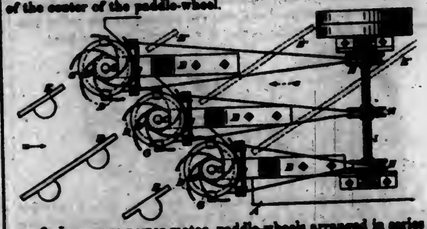


Claim.—1. A case or holder for the purpose herein described, said case or holder consisting of two similar parts hinged together at one side, a yoke-shaped frame the end plates of which are pivotally connected with the ends of the hinge-rod by which said parts are connected, a spring-plate secured to the top of said frame and extending on each side thereof and provided with a depending lug on the under side of each end thereof and adapted to engage a catch on each part of the case, and suitable means for securing the frame to a support, substantially as described.

2. A case or holder for the purpose herein described, said case or holder consisting of two similar parts hinged together at one side, a yoke-shaped frame the end plates of which are pivotally connected with the ends of the hinge-rod, by which the said parts are connected, supporting-links pivoted at one end to each of the end plates of the frame and at the other end to each of the hinged parts of the case, a spring-plate secured to the top of said frame and extending on each side thereof, and provided with a depending lug on the under side of each end thereof and adapted to engage a suitable catch on each part of the case, and straps connected with the frame for securing the case or holder to its support, substantially as described.

604,211. WAVE OR CURRENT MOTOR. GREAT LOVERING, Newark, Cal. Filed Dec. 3, 1897. Serial No. 660,668. (No model.)

Claim.—1. In a wave-power motor, a paddle-wheel fixed upon the lower end of a vertically-journaled shaft and connected with a float whereby it may be moved vertically to conform to the movements of the tide, a structure by which said shaft is supported and means whereby the inflow and reflex waves are directed upon opposite sides of the center of the paddle-wheel.

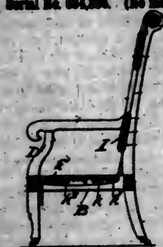


2. In a wave-power motor, paddle-wheels arranged in series diagonally to the line in which the waves approach, vertically-disposed shafts upon the lower ends of which the wheels are mounted and means whereby the wheels may rise and fall with the tide, a supporting structure for the upper portions of the shafts and diagonally-disposed channels in front of and behind the wheels whereby the inflowing and outflowing movements of the waves are directed upon opposite sides of the center of the wheels to produce a continuous movement of the wheels in one direction.

3. In a wave-power motor, vertically-journaled shafts mounted upon a supporting structure, paddle-wheels fixed at the lower ends of said shafts and dipping into the water, diagonally-disposed guiding sluices or channels whereby the inflowing waves are directed upon one side of the wheels, and the returning waves are directed upon the opposite side and a means whereby the wheels and shafts may be raised and depressed to suit the condition of the tide.

4. In a wave-power motor, a series of vertically-journaled shafts, a structure upon which they are supported in a line diagonal to the line of movement of the waves, paddle-wheels fixed upon the lower ends of said shafts to dip into the water, diagonally-disposed channels or chutes so fixed with relation to the wheels and the line of movement of the waves that the inflowing wave is directed against one side of the wheel and the outflowing wave against the opposite side to produce an approximately continuous motion in one direction, transmitting mechanism fixed to the upper ends of the shafts and connecting said wheel-shafts with a counter-shaft through which the power is transmitted.

604,212. CHAIR. ISAAC R. PALMER, Middletown, Conn. Filed Apr. 30, 1897. Serial No. 634,206. (No model.)



Claim.—1. The combination with a suitable chair-frame provided with separate cross bars or rungs placed in groups at intervals along the frame, of a fabric adapted to form a support for the body of the occupant said fabric having a return fold passing around one of the rungs of each group, and thence between a rung and the fabric which passes over the rung, for removably securing the fabric in position, substantially as set forth.

2. The combination with a suitable chair-frame and cross-rungs arranged in groups at intervals along the frame, of a fabric removably secured to said groups of cross-rungs and one or more frames adjustably engaged with the fabric, said frames being adapted to receive upholstery, substantially as set forth.

3. The combination with a suitable chair-frame and cross-rungs arranged in groups at intervals along the frame, of a fabric removably secured to said groups of cross-rungs to form a support for the body of the occupant and a sectional cant-frame, constructed to be extended and contracted, adjustably secured to the fabric, for receiving a cushion, substantially as set forth.

604,213. RADOR. ANDREW PHELPS, Newark, N. J. Filed Feb. 3, 1897. Serial No. 621,743. (No model.)

Claim.—1. The improved badge comprising the outer shell and its covering and an annular collet in cover-holding relation to said shell and covering, said collet having a pin-fastening tongue D, integral therewith, extending radially inward into the central opening of said collet and permitting the pointed end of the pin to be entered beneath from either of the opposite sides of said tongue into fastening relation to said tongue, and said pin secured to the collet at a point opposite the fastening-tongue D, substantially as set forth.



2. The improved badge comprising the outer shell, a covering therefor, a collet and pin, the collet being centrally apertured and separately perforated at one side of the central aperture, and having a pin-fastening tongue, D, at the side opposite said perforation and a tongue, G, to hold the curved part of the pin lying back of the pointed end beneath the said collet, and said pin having its pointed part lying approximately parallel with the plane of the collet and adapted to engage said pin-fastening tongue, D, and bent to lie in said pin-perforation and extended on the inner side of the collet and curved around the central aperture and held in place by said tongue, G, substantially as set forth.

3. The improved badge comprising the outer shell, the cover, the annular collet having integral tongues G, projecting inward from the edge of the collet, and an integral pin-fastening tongue D, bent to receive and hold the point of the pin, and a pin having a straight outer part with a pointed end, and bent forward and passing through said collet and having a curved extension lying between the collet and shell and held concealed therebetween by said tongues G, said parts being arranged and combined, substantially as set forth.

4. In a badge, the combination with the annular collet having the perforation E', separate from the central opening thereof, tongue G and flange C', of a pin bent to extend through the perforation E', and again bent and curved to form an extension conforming to the concavity of said flange C', and held in said concavity by said tongue G, substantially as set forth.

5. In a badge, the combination with the shell and annular or centrally-open collet having inwardly-projecting integral tongues D and G, formed at its inner edges, one of which tongues is bent back and out of the plane of said collet and extends radially toward the center of the badge and is flanged on opposite sides of its longitudinal axis and concaved or recessed to receive the pin-point, the concavity or recess being open to the pin-point from opposite sides of said tongues and the other is bent to lie between the collet and shell to hold the pin, of a pin having a straight outer part lying back of the badge with a point adapted to enter the recess of the tongue D, and curved to conform to the collet and held by said tongue G, between said collet and shell, substantially as set forth.

6. The combination with the shell and annular collet the latter having an integral tongue D, projecting radially inward into its central opening and in the longitudinal line of the pin, of said pin adapted to be caught by said tongue and extended and bent to lie between the shell and collet, substantially as set forth.

7. The combination with the shell, of an annular collet having a tongue G, extending from the edge thereof and bent inward between the shell and collet, and a resilient pointed pin having a curved extension also lying between said shell and collet and held in place by said tongue G, substantially as set forth.

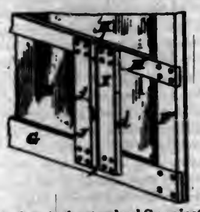
8. The improved badge herein described, comprising an outer shell and a collet, the latter forming a central opening or aperture at the back of the badge and having a pin-perforation formed therein outside of and independent of said central aperture, and also having a backwardly-projecting radial catching-tongue, to receive the pointed end of the pin, of said pin having a curved extension rigidly held between the collet and shell, the curve conforming to the flange of said collet, and bent and extending through said pin-perforation in a direction substantially at right angles to the plane of the collet, said bend at the perforation holding the straight portion of the pin back and away from the back face of the collet a distance equal to the backward projection of the radial tongue substantially as set forth.

604,214. ICE-CREAM FREEZER. ROBERT L. PORTER and JOSEPH D. FAULKNER, Galena, Kans. Filed Mar. 2, 1897. Serial No. 625,751. (No model.)

Claim.—In an ice-cream freezer, the combination of a casing having compartments therein, with a rotary freezing-cylinder supported in bearings in the ends of the casing, adapted to revolve therein, the said cylinder having an operating-crank, angular strips secured longitudinally therein, adapted to receive the cream-holding tubes, and longitudinal openings, provided with a cover and perforations opposite the said opening substantially and for the purpose set forth.



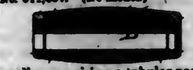
604,215. DETACHABLE FOOT FOR SCREENS, &c. WILLIAM J. QUARRY, Newport, Ky. Filed Nov. 5, 1897. Serial No. 657,823. (No model.)



Claim.—1. The foot A, the standard C, projecting upwardly therefrom; a screen-frame including a pair of vertical cleats I, J, and a fastener for retaining it in place; said parts being so combined and fitted together as to cause said foot to support the dead-weight of said frame, while lateral shifting is prevented by said cleats bearing against the opposite sides of said standard, thereby relieving said fastener of any material strain, all as herein described.

2. The foot A, having a transverse notch B in its upper edge; a rigid standard C, projecting upwardly from said foot, in the rear of said notch B, and provided with a perforation *c*; a screen-frame having attached to its back a pair of cleats I, J, provided, respectively, with perforations *i j*; and a fastener D adapted to traverse said perforations *c*, *i*, *j*; said parts being so combined and fitted together as to cause said foot to support the dead-weight of said frame, while lateral shifting of the frame is prevented by said cleats bearing against the opposite sides of said standard, thereby relieving said fastener from any material strain, all as herein described and set forth.

604,216. VELOCIPEDE-HANDLE. PAUL RACHEW, Brooklyn, N. Y., assignor to John S. Long's Son & Co., New York, N. Y. Filed Nov. 11, 1896. Serial No. 611,697. (No model.)

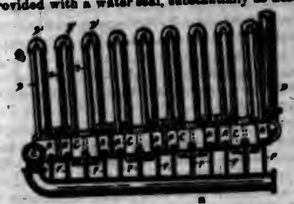


Claim.—A handle comprising a tubular paper core, an outer cup-shaped tip overlapping one end of the core and having an annular abutment around its interior wall against which the end of the core rests, an inner tip or ferrule overlapping the other end of the core and having an annular abutment around its interior wall against which the said end rests and a grip portion surrounding the core between the tips and forming an extension of their exterior walls, substantially as set forth.

604,217. HOT-BLAST RADIATOR. GEORGE I. ROCKWOOD, Worcester, Mass. Filed May 28, 1897. Serial No. 638,506. (No model.)

Claim.—1. The combination of a series of headers inclosing steam-chambers arranged in pairs, steam-pipes connecting the chambers in each pair, and disposed above the level of said chambers, with a steam-chamber in one pair communicating with a steam-chamber in the next adjacent pair, drip-pipes leading downward from each of said chambers discharging into a common pipe or header, a pipe or header having its discharge at a higher level than the lowest point of said drip-pipes, and a steam-pipe and a discharge-pipe at opposite ends of said series of headers, substantially as described.

2. The combination of a series of headers inclosing steam-chambers and arranged in pairs, a steam-pipe by which steam is admitted to the first in said series, radiating-pipes connecting said chambers in series, a discharge-pipe by which air is withdrawn from the last in said series, and drip-pipes leading downward from each of said chambers and provided with a water seal, substantially as described.

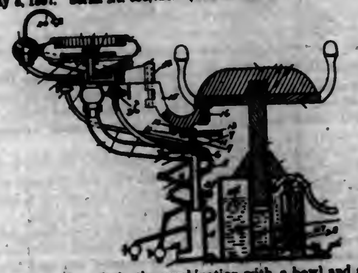


3. The combination of a series of headers inclosing steam-chambers connected alternately at opposite ends of said headers, steam-pipes extending upward from each alternate chamber and returning to the next adjacent chamber, and drip-pipes connecting each of said chambers with a common discharge-pipe, a discharge-pipe receiving said drip pipes and having its discharge at a higher level, a steam-pipe by which steam is admitted to the first header and a discharge-pipe by which air is withdrawn from the last header in said series, substantially as described.

4. The combination of a series of headers inclosing steam-chambers, radiating-pipes connecting said chambers, a steam-pipe admitting steam to the first header, a discharge-pipe through which air is withdrawn from the last header, drip-pipes connecting each of said headers with a common pipe or header at a lower level, and a pipe or header communicating with said air-discharge pipe at a higher level, substantially as described.

5. The combination of a series of headers A, each inclosing a pair of steam-chambers A^1 and A^2, steam-pipes B, connecting the chambers in each of said headers, passages connecting one of the chambers in said headers with a chamber in the adjacent header, drip pipes F leading downward to a common water-discharge pipe G, an air-discharge pipe E communicating with the last chamber in the series and also with the water-discharge pipe G and a steam-pipe through which steam is admitted to the first chamber in the series, substantially as described.

604,218. SPITTOON. ALBERT ROSENBERG, Baltimore, Md. Filed May 5, 1897. Serial No. 636,730. (No model.)



Claim.—1. In a chair, the combination with a bowl and a telescoping drain-pipe therefor; of a vertically-adjustable support, and a seat therefor rotatable independently of the said telescoping drain-pipe; suitable pipe connecting the bowl with the said telescoping drain-pipe; and means for adjusting the support and the telescoping drain-pipe vertically, substantially as described.

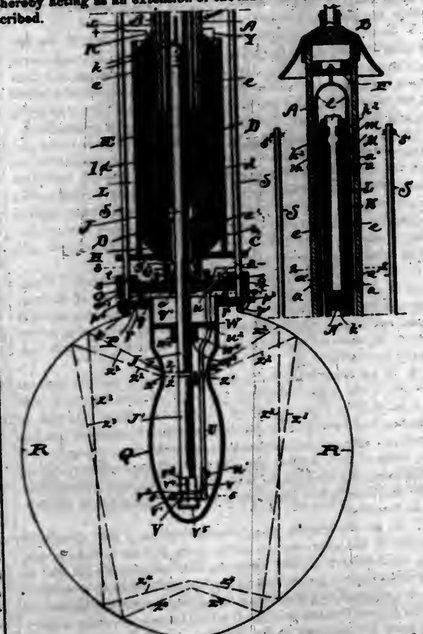
2. The combination with a bowl, suitable pipe therefor and an adjustable rotatable support; of a rail attached to the rotatable portion of said support and engaging said pipe, substantially as described.

3. The combination with a bowl, suitable pipe therefor and an adjustable rotatable support, a rail attached to the rotatable portion of said support; of rollers attached to said pipe and engaged by said rail, substantially as described.

4. In a spittoon, the combination with a revolving flushing-jet of a bowl having a contracted opening or mouth, and a flange extending downwardly toward the bottom of said bowl, substantially as described.

604,219. ELECTRIC-ARC LAMP. FRANK W. STEBBINS, and EDWIN F. COWLEY, Cleveland, Ohio. Filed Apr. 12, 1897. Serial No. 631,933. (No model.)

Claim.—1. In an electric-arc lamp, a telescoping holder composed of an outer stationary tube, and an inner movable tube in contact therewith, said inner tube being adapted to hold the movable carbon, and being adapted to slide up and down within the stationary tube, and, while the lamp is burning, being adapted to have its upper portion in the lower portion of the outer tube, said outer tube thereby acting as an extension of the inner tube, substantially as described.



2. In an electric-arc lamp, a telescoping holder composed of a stationary tube and a movable tube slidable within the stationary tube and contacting with it and receiving current from it and connected with the movable carbon, said movable tube being adapted to descend so that the upper end thereof is below the upper end of said stationary tube, whereby said stationary tube lengthens said holder, substantially as described.

3. In an electric-arc lamp, in combination, a stationary tube, a clutch below the same, a movable tube adapted to stand within said stationary tube and adapted to project downward beyond said clutch while in engagement with said stationary tube, said movable tube contacting with said stationary tube and receiving current from it and a movable carbon carried by said movable tube, substantially as described.

4. In an electric-arc lamp, in combination, the solenoid D, the sleeve E constituting its armature, the sleeve H, substantially within said sleeve E, clutch members G pivoted to said sleeve H and having outward projections adapted to be engaged by said sleeve, substantially as described.

5. In an electric-arc lamp, in combination, the sleeve H, clutch members G pivoted to said sleeve and adapted to engage a carbon extending through said sleeve, the sleeve E having holes e^3, the pins f projecting from said clutch members into said holes whereby movement of the sleeve E causes the clutch to assume engaging position, substantially as described.

6. In an electric-arc lamp, in combination, the sleeve H, clutch members G pivoted to said sleeve and adapted to engage a carbon extending through said sleeve, the sleeve E capable of movement independent of the sleeve H, means connecting said sleeve and clutch members whereby a movement of said sleeve causes the clutch members to assume engaging position, and a pin in one of said sleeves projecting into a slot in the other, whereby independent movement of the two sleeves is limited, substantially as described.

7. In an electric-arc lamp, in combination, the sleeve H, clutch members G pivoted to said sleeve and adapted to engage a carbon extending through said sleeve, the sleeve E capable of movement independent of the sleeve H, means connecting said sleeve and clutch members whereby a movement of said sleeve causes the clutch members to assume engaging position, and a stop limiting the absolute movement of both sleeves in the downward direction, substantially as described.

8. In an electric-arc lamp, in combination, a stationary plate, a pair of rods supporting a globe and passing through said plate, shoulders on said rods and a latch movable horizontally but held against vertical movement, said latch being adapted to engage with the shoulders on the rods and thereby hold the globe in its elevated position and being adapted to be withdrawn from such engagement and thereby allow the globe to descend, substantially as described.

9. In an electric-arc lamp, in combination, the plate O, the pivoted lever T above said plate and having diametrically-opposed forked ends *t*, the rods S supporting a globe and passing through said plate O, there being formed notches in said rods into which the said forked ends are adapted to take, and means for turning said lever about its pivot and thereby releasing said rods S, substantially as described.

10. In an electric-arc lamp, in combination, the plate O, the pivoted lever T above said plate and having diametrically-opposed forked ends *t*, the rods S supporting a globe and passing through said plate O, there being formed notches in said rods into which the said forked ends are adapted to take, the spring t^2 forcing said forked ends in the direction to engage said notches, and the cord or chain t^4 furnishing means for withdrawing said ends from engagement with said notches, substantially as described.

11. In an electric-arc lamp, in combination, the rods S S supporting a globe, notches *s s* formed in said rods, a pair of latching members substantially immovable vertically but movable horizontally and adapted to take into said notches, and means for insuring a community of motion or rest between said two latching members, substantially as described.

12. In an electric-arc lamp, in combination, a pair of rods on either side of the upper carbon of the lamp, notches formed in said rods, a latch-lever T pivoted about an axis coincident with that of said carbon and having ends with circumferentially-disposed notches t^3 which are adapted to take around said rods, there being formed on the walls of said notches the ribs t' which incline outwardly as they approach the entrance to the notch whereby they release their hold on said rods before the latter are clear of the notches, substantially as described.

13. In an electric-arc lamp, in combination, a pair of rods on either side of the upper carbon of the lamp, notches formed in said rods, a latch-lever T pivoted about an axis coincident with that of said carbon and having ends with circumferentially disposed notches t^3 which are adapted to take around said rods, there being formed on the walls of said notches the ribs t' which incline upwardly as they recede from the entrance to the notch, a stop limiting the upward movement of the rods at a point which causes the notches *s* to occupy a position intermediate of the position occupied by the lowest portion and the highest portion of said ribs, whereby the latch-lever is adapted to draw said rods tightly up to their highest position, substantially as described.

14. In an electric-arc lamp, in combination, the plate O, the thimble *o*, the lever T pivoted about said thimble and supported by said plate, the rods S S passing through said plate, forks on said lever adapted to take around said rods, there being notches in the rods and corresponding ribs on said forks, substantially as described.

15. In an electric-arc lamp, the plate P having a depending flange *p* and having a hole through its center, in combination with the outer globe R supported by said flange and the inner globe Q extending through said hole and having the outwardly-turned flange *q* by which it is supported, substantially as described.

16. In an incandescent arc electric lamp, an inner globe surrounding the arc and adapted to inclose a more or less perfect vacuum, and a relatively large outer globe, said globes being each closed at their lower ends and being supported only at their upper ends, in combination with means for simultaneously raising or lowering both globes, substantially as described.

17. In an electric-arc lamp, in combination, the stationary plate O, the plate P, supported by rods passing through said plate O, a hole through the center of the plate P, a lamp-globe Q extending through said hole and having a flange *q* which extends over onto the plate P and means for holding said two plates apart, substantially as described.

18. In an electric-arc lamp, in combination, the stationary plate O, the plate P having a hole through its center, the lamp-globe Q extending through said hole and having a flange *q* projecting over onto the upper surface of the plate P, and the flange p^4 on the upper surface of the plate P surrounding the said flange *q*, and adapted to contact with said plate O, substantially as described.

19. In an electric-arc lamp, the combination, with the plate P and means for holding the same in place, of the depending inwardly-extending pivoted flange *p'*, said flange *p'* being pivoted at p^3 near one end, and having near the other end an upwardly-extending spring-lip p^4 adapted to take into a notch p^5 in the edge of said plate P and means for locking said lip to said plate and thereby holding the flange *p'* in place, substantially as described.

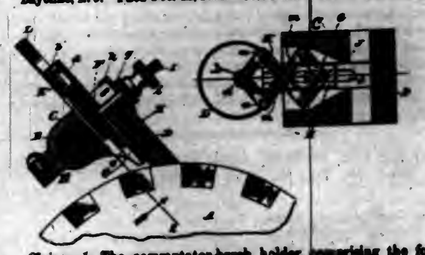
20. In an electric-arc lamp, in combination, the plate O supported by the frame of the lamp, the plate P supported beneath said plate O, the globe Q supported by said plate P, the rod U for supporting the lower carbon, said rod being supported by said plate O and a head W substantially closing the upper end of the globe Q, said rod U passing through said head, substantially as described.

21. In an electric-arc lamp, in combination, a lower-carbon holder consisting of a slotted thimble adapted to embrace the carbon, a split yoke surrounding the thimble, a screw passing from one part of the yoke into the other and adapted to clamp the same about the thimble, a tongue extending upwardly from said yoke, and a depending rod having a recess in its lower end into which recess said tongue is adapted to take, and means for locking said tongue into said rod, substantially as described.

22. In an electric-arc lamp, an inner globe adapted to surround the carbons and from its bottom upward first concave to the carbons and then convex and then cylindrical and having an outwardly-turned flange at its upper end which flange extends laterally farther than any of the portions below it, in combination with a plate having a hole through it of a diameter greater than the external diameter of said cylindrical part and less than the external diameter of said flange, said plate supporting said globe at its upper end and allowing its withdrawal upward from said plate, substantially as described.

23. In an electric-arc lamp, the combination, with suitable carbon-holders adapted to hold a pair of carbons in proper juxtaposition, of an inner globe surrounding the arc produced between the carbons, and an outer globe surrounding the inner globe, said globes being supported only at their upper ends whereby there is no obstruction by their supports to the rays of light emanating from the arc, there being rods operating to support both of said globes and slidable through a portion of the lamp connected to the frame, and means for latching or releasing said rods whereby said two globes may be simultaneously raised or lowered, substantially as described.

604,220. COMMUTATOR-BRUSH HOLDER. WILLIAM B. SCULL, Bayonne, N. J. Filed Feb. 12, 1896. Serial No. 579,099. (No model.)



Claim.—1. The commutator-brush holder, comprising the follower connected with the brush and the lazy-tong levers at one end connected with the follower and at the other end to the holder, combined with means for exerting spring-pressure laterally against the sides of said levers; substantially as set forth.

2. The commutator-brush holder, comprising the follower and the lazy-tong levers at one end connected with said follower and at the other end to said holder, combined with the spring L bearing against said levers at points *a*, *a*, substantially as set forth.

3. The commutator-brush holder having the front plate provided with the slot *e* and against which the brush is placed, combined with the follower, the levers K connected at one end with said follower and at the other end with said holder, means for exerting spring-pressure laterally against said levers, the screw connected with said follower, and extending through the slot in said front plate and engaging said brush, the plate *h* at the upper end of said brush, the adjusting-nut *i* upon said screw and the spring *g* intermediate said nut and said plate *h*; substantially as set forth.

4. The commutator-brush holder C having the front-plate F provided with the slot *e* and guiding-groove G, combined with the follower in said guiding-groove, the lazy-tong levers connected at one end with said follower and at the other end to said holder, the spring exerting a tension against said levers to elongate the same, the brush D against said front plate and having the slot *f*, the screw I connected with said follower and thence passing through the slot *e* in said front plate and the slot *f'* in said brush, the plate *h* and spring *g* upon said screw and the nut *i* upon said screw for pressing said spring *g* and plate *h* against said brush; substantially as set forth.

5. In a commutator-brush holder, the follower, and means connecting the follower with the brush, combined with the pivoted levers connected at one end with the follower and restrained at the other end, and a spring whose force is exerted to elongate said levers and move said follower and brush toward the commutator; substantially as set forth.

6. In a commutator-brush holder, the pivoted levers K, means connecting one end of said levers with the brush, and means restraining the other end of said levers, combined with a spring whose force is exerted to elongate said levers and move said follower and brush toward the commutator; substantially as set forth.

7. In a commutator-brush holder, the front plate having the slot *e*, the brush having the slot *f*, and the screw passing through said slots and having the nut, combined with the plate *h* and spring *g* on said screw and held against the brush by said nut, the spring L, and the pivoted levers intermediate said spring and said screw for transmitting the force of said spring to said screw and thereby to move said brush toward said commutator; substantially as set forth.

8. In a commutator-brush holder, the spring to drive the brush toward the commutator, and a pivoted lever operatively connected with said brush and spring, said lever normally extending transversely with respect to the brush when the spring is exerting its greatest force and pivoted to turn toward a parallel position with respect to the brush as the latter moves toward the commutator and the spring expends its force, whereby the lever by its changing position compensates for the decreasing force of the spring and renders the pressure of the spring on the brush substantially uniform during the shortening, by wear, of the brush; substantially as and for the purposes set forth.

604,221. CARD-DISPLAY CABINET. WILLIAM H. WICKENS, Indianapolis, Ind. Filed Sept. 27, 1897. Serial No. 653,220. (No model.)

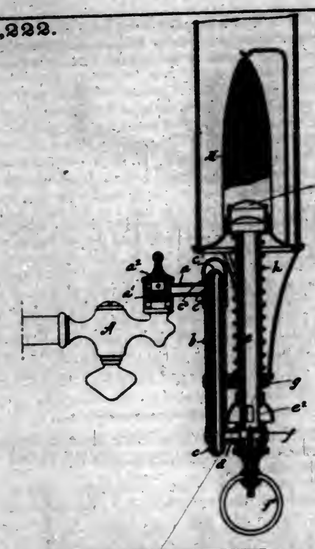


Claim.—1. A cabinet for the purposes described having approximately one-half of its front covered and having the inner side of one of its side walls cut away to form a shoulder, and adapted to receive a plurality of removable cards approximately the same in width and one-half the height, inside measurement, as the cabinet, substantially as described and specified.

2. A cabinet having the upper half of its front covered and having one of its sides of uniform thickness and having its other side of normal thickness at the top but sloping outwardly and downwardly on the inner side to approximately half the normal thickness midway of the length of the wall where the inclined part terminates forming a shoulder, said cabinet being adapted to receive a plurality of cards removably secured within the cabinet, substantially as described and specified.

3. A cabinet having the upper half of its front covered and having one side cut away to form an inside shoulder, a rock-shaft adjacent to the shoulder with an outside knob and an inside flanged and notched head, substantially as described, to engage and push the cards off of the shoulder, and adapted to receive a plurality of cards, all substantially as described and for the purposes specified.

604,222.

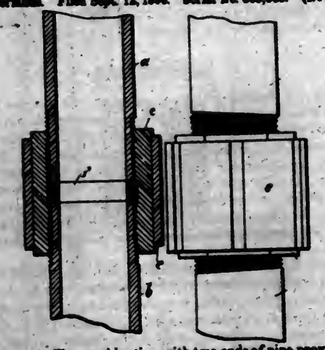


604,223. SPIKE-TOOTH HARROW-BAR. HENRY D. RADDOCK, Leonardsville, N. Y., assignor to the Standard Harrow Company. Filed July 30, 1897. Serial No. 646,638. (No model.)



Claim.—In a harrow the combination of a pair of crescent-shape bars, in cross-section, each bar provided with angular depressions in the opposing flanges of each crescent bar, said depressions being produced by pressure, forming at the angle of the depression a broad surface, angular harrow-teeth and bolts and nuts for clamping the teeth between the crescent bars, substantially as set forth for the purposes stated.

604,224. TUBE-COUPLING. ARIE W. F. BENNIK, Apeldoorn, Netherlands. Filed Sept. 12, 1896. Serial No. 605,653. (No model.)



Claim.—1. The combination with two ends of pipe provided with oppositely-directed screw-threads, of a divided nut placed around both of said ends and having corresponding threads and a strap or sleeve surrounding the nut, substantially as described.

2. The combination with two ends of pipe, of a main divided nut placed around the same, an auxiliary divided nut inclosed by the main nut and a sleeve surrounding the main nut, substantially as described.

604,225. GATE FOR CARS. HENRY W. PRATT, Boston, Mass. Filed Aug. 2, 1897. Serial No. 646,706. (No model.)

604,222. GAS-BURNER. STEPHAN LAUBER and EDWARD O. GOTTLIEB, New York, N. Y. Filed Nov. 19, 1897. Serial No. 659,090. (No model.)

Claim.—1. The combination of a fixed incandescing body, a sliding tube having gas-outlets at one end adapted to be moved toward and away from the incandescing body, a fixed gas-tube in which a portion of said sliding tube moves, means for automatically regulating the supply of gas to the gas-outlets in accordance with the position of the sliding tube and air-inlets to said sliding tube open in all positions thereof.

2. A burner provided with a stationary incandescing body and comprising a stationary tube adapted for attachment to a gas-supply pipe and a sliding tube having gas-outlets at one end and provided with air-openings, said sliding tube adapted to move to carry its gas-outlets toward and away from the incandescing body while its air-openings are always open.

3. In a gas burner the combination of a fixed incandescing body, a stationary gas-tube, a U-shaped gas-tube, one leg of which is guided by the stationary tube while the other leg is provided with the gas-outlets and also with continuously-open air-inlets, and means for altering the supply of gas in accordance with the movement of the U-shaped tube.

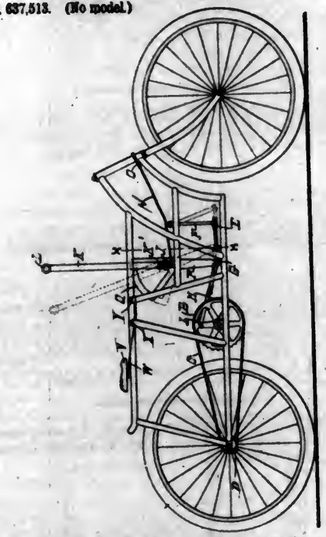
Claim.—1. In a gate for cars, the combination with a car-seat, and its pivoted back, of a gate, or arm, pivotally mounted on the seat, and a bar-link pivoted to the gate and to the end frame of the seat-back.



2. In a gate for cars, the combination with two adjacent seats, each having arms at its ends, and a seat-back the end frames of which are pivotally mounted, of a gate, or arm, pivotally mounted on one of said seats to swing down onto the other seat within its arm, and a link pivoted to the gate and to the end frame of the seat-back.

3. The combination with the seats 5 5 having the arms 6 6 and the uprights 7 7, the end frames 8 8 pivoted to the uprights and having the members 8' 8', and the seat-back 9 secured to said frames, of the bracket 10 mounted on one of the seats, the gate 11 pivoted in the bracket, and the link 12 pivoted to the gate and to the member 8' of one of the end frames.

604,226. BICYCLE. CHARLES R. CAIN, Milwaukee, Wis., assignor of one-half to Alfred R. Cain, same place. Filed May 21, 1897. Serial No. 637,513. (No model.)



Claim.—1. In a bicycle, the combination with the rear wheel, of a pair of drive-sprockets, suitable connections for communicating motion to said wheel, a reciprocatory pedal-rod suspended in the bicycle-frame, means for communicating motion therefrom to the drive-sprockets, an oscillatory bracket supported in said frame, with a hand-lever swiveled thereto, a connecting-lever adapted to communicate the motion of the hand-lever to the foot-actuated connections and means for disengaging said connecting-lever from the hand-lever whereby the latter may be permitted to move independently, substantially as described.

2. In a bicycle, the combination of a foot driving mechanism, an oscillatory bracket journaled in the bicycle-frame, a tubular hand-lever swiveled thereto, a connecting-lever fulcrumed to said bracket on the axis of its journals with its lower end connected with the foot driving mechanism and provided with a sector running through a slot in said hand-lever, a locking-bar located in said hand-lever and adapted to engage in a recess in said sector and rotatable handles connected with said locking-bar and arranged to actuate the latter with reference to its engagement in the notch in said sector, substantially as described.

3. In a bicycle, the combination of a foot driving mechanism, an oscillatory bracket journaled in the bicycle-frame, a hand-lever swiveled thereto and provided with offset downwardly-projecting arms, rods connected to said arms by a universal joint on the axis of the bracket-journals and united to the steering-head by a flexible connection, a lever fulcrumed to said bracket on the axis of its journals, and connected with the foot driving mechanism and a detachable connection between said hand-lever, and said connecting-lever, substantially as described.

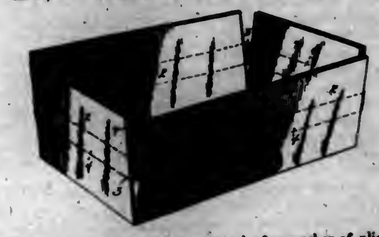
4. In a bicycle, the combination of a foot driving mechanism, an oscillatory bracket journaled in the bicycle-frame, a tubular hand-lever swiveled thereto and connected with the bicycle steering-head, a connecting-lever fulcrumed to said bracket on the axis of its journals and provided with a sector running through a slot in said hand-lever, a locking-bar located in the interior of the hand-lever and adapted to engage in a notch in said sector, handles adapted to rotate upon a handle-bar and connected by a rod running through an eye in the upper end of the locking-rod, with an eccentric fitted to said eye whereby the rotation of said handles is adapted to engage and disengage the locking-rod from the notch in said sector, substantially as described.

604,227. CAR-COUPLING. HARRY F. CAMP, Carpenter, Pa., assignor of one-half to Fred Henry Trippe, Canton, Pa. Filed Sept. 14, 1897. Serial No. 651,635. (No model.)



Claim.—An improved automatic car-coupling comprising the approximately U-shaped draw-head having one of its arms formed with the rectangular recess 5 having the beveled wall 6 and vertical orifice 11 in combination with the gravity coupling-block 12 formed with the beveled face 7 and provided with the vertical pin 9 journaled in said orifice 11 in the draw head so as to permit of a vertical and an oscillating movement of said coupling-block in said draw-head, substantially as shown and described.

604,228. FOLDING BOX. MARK B. CLAFF, Perry, N. Y. Filed Jan. 20, 1897. Serial No. 619,961. (No model.)



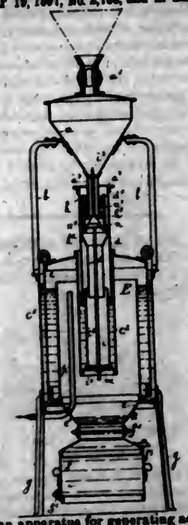
Claim.—1. A folding box composed of a number of plies, and having the inner plies of the folding sides terminating short of the extremities of the outer plies to provide matching corners, and having longitudinal channels formed between the plies of the folding sides intermediate of their top and bottom edges and extending the entire length thereof, and a tape or like connection passing loosely through the said longitudinal channels and concealed and protected thereby when the box is folded, said tape having its loose end passing outwardly through an opening midway the ends of a side and adjacent to the fold between the said side and bottom, substantially as and for the purpose specified.

2. In a folding box, the combination with the folding sides having longitudinal passages formed in three of the sides intermediate of their top and bottom edges and extending the entire length thereof, and having an oblique passage in the fourth side, of a tape or similar connection secured at one end to the side having the oblique passage and passing loosely through the passages of the other sides and through the said oblique passage and out through an opening communicating therewith and in line with the base or cover, substantially as set forth for the purpose described.

3. A folding box composed of telescoping sections similarly constructed, each section having its folding sides composed of a series of layers having longitudinal passages formed between them, and having the inner layers terminating short of the outer layers, whereby the adjacent ends of contiguous sides overlap, and one of the sides having an oblique passage, and a tape or like connection secured at one end to the side having the oblique passage and passing loosely

through the passages of the other sides and through the said oblique passage and out through an opening communicating therewith and about in line with the base or cover, substantially as set forth for the purpose described.

604,229. APPARATUS FOR MANUFACTURING ACETYLENE GAS. HENRI COUSIN, Paris, France. Filed May 1, 1897. Serial No. 634,690. (No model.) Patented in Belgium Nov. 26, 1896, No. 124,006; in Luxemburg Mar 19, 1897, No. 2,736, and in England Apr. 3, 1897, No. 8,502.



Claim.—1. In an apparatus for generating acetylene, the combination of a suitable frame, a hopper supported thereby and having an outlet-orifice at its lower end, a sleeve extending downwardly from said hopper and surrounding the outlet-orifice, an inner sleeve fixed to the aforesaid sleeve, a gas-holder guided in said frame, an outer casing extending downwardly from the top of the gas-holder and arranged within the same, an inner casing extending upwardly from the lower part of the outer casing, said outer sleeve on the hopper extending down between the said casings and said inner sleeve extending down into the inner casing, a spring-retracted valve-stem passing through the outer casing and inner sleeve and having a valve above said inner sleeve for opening and closing the said outlet-orifice of the hopper, means for guiding the valve-stem, means connected with the outer casing for lowering the valve-stem and unseating the valve, and a generator located below and within said holder, substantially as set forth.

2. In an apparatus for generating acetylene, the combination of a supporting-frame, a hopper provided with a valve-seat, a valve carried by said hopper, a spring attached to the hopper and adapted to seat said valve, a gas-holder guided by said frame, a generator located below and within said holder, an outer casing secured to said holder and extending into the generator, an inner casing concentric with said outer casing, an outer sleeve secured to the hopper and extending into the said outer casing, an inner sleeve attached to said outer sleeve and extending into said inner casing, a valve-stem extending downwardly through the inner sleeve and the inner casing, and a nut threaded on the end of the valve-stem and adapted to be engaged by the outer casing as the gas-holder descends, whereby the valve is unseated, substantially as set forth.

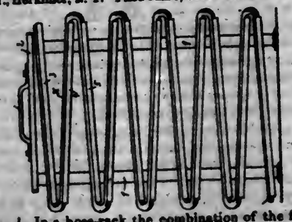
604,230. VALVE FOR HYDRAULIC ELEVATORS. JESSE P. DAVIS, Ludlow, Ky., assignor to the Warner Elevator Manufacturing Company, Cincinnati, Ohio. Filed Sept. 27, 1897. Serial No. 653,101. (No model.)



Claim.—1. In a valve for hydraulic elevators the combination of the main-valve cylinder or seat having closed ends and perforated in the chambered heads of the main supply-pipe, the pipe leading to the elevator-cylinder and the exhaust leading to the sewer, the valves controlling the supply and exhaust from said heads and having a stem extending through one end of the cylinder or seat, the pilot-valve for operating said main valves communicating with the supply from the main through the head of the main supply and having its exhaust communicating with the head of the discharge or sewer pipe and having supply-ports communicating with each end of the main-valve cylinder, connected piston-valves controlling the supply and exhaust ports of the pilot-valve, said pistons barely covering the openings of the supply-valve and having guide-wings upon each end and a stem extending through the pilot-valve case, the link connected to the pilot-valve stem and main-valve stem, a rocking lever, a link connecting the rocking lever and the link to which both valve-stems are connected, and the cross-lever having ropes or cables extending into the car for actuating the rocking lever and moving the pilot-valve and main valve in either direction or stopping it in the center, substantially as shown and described.

2. The hereinbefore-described pilot-valve for hydraulic elevators, consisting of the case having a central receiving-port to connect with the water-main, supply-ports upon each side thereof and the exhaust-ports having a central discharge, a bored seat communicating with said ports, a double piston-valve fitting said bore, controlling the supply-ports, barely covering the same without lapping and having guide-wings upon their ends, the stem of said valve extending through the end of the case to be connected to operating mechanism, and the heads closing the ends of said valve-case, combined and arranged substantially as set forth.

604,231. HOSE-RACK. IRVING R. DEVENDORF and CHARLES I. EARL, Jr., Herkimer, N. Y. Filed Jan. 3, 1898. Serial No. 666,006. (No model.)

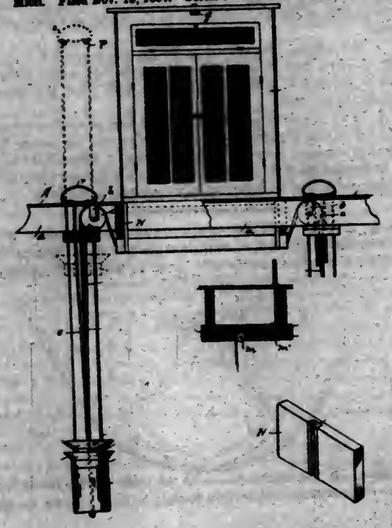


Claim.—1. In a hose-rack the combination of the frame and a series of incline shelves converging and diverging as shown, whereby a constant inclination is given to the hose placed thereon.

2. The combination in a hose-rack of a frame and a series of incline shelves in pairs on opposite sides of the frame converging and diverging as shown, whereby a constant inclination is given to the hose placed thereon, substantially as set forth.

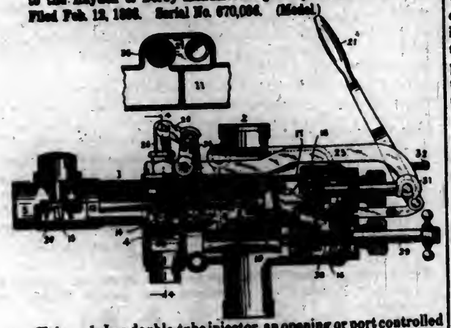
3. The combination in a hose-rack of the frame and a set of incline grooved shelves converging and diverging whereby a constant inclination is given to a hose placed thereon, substantially as set forth.

604,232. DUMB-WAITER. WILLIAM R. PITCHER, Pinnebog, Mich. Filed Nov. 15, 1897. Serial No. 658,363. (No model.)



Claim.—The combination with a provision-safe, a main counterweight for said safe, a cord connecting said safe and counterweight, and a sheave over which said cord passes, of an auxiliary weight adapted to be added to said main counterweight, cords whereby said auxiliary weight may be lifted from said main weight, means for sustaining said auxiliary weight in this lifted position, and a dish on said auxiliary weight arranged to take up the lifting-cords of said auxiliary weight as they are slackened, substantially as described.

604,283. INJECTOR. JACOB HUBER, Bridgeport, Conn., assignor to the Hayden & Derby Manufacturing Company, New York, N. Y. Filed Feb. 12, 1898. Serial No. 670,096. (Model.)



Claim.—1. In a double-tube injector, an opening or port controlled by an automatic valve between the discharge-chamber of the lifting apparatus and a passage which contains the overflow-port of the forcing apparatus, and a final positive overflow-valve constructed to choke the mouth of the communicating passage from said automatic valve without closing said passage, as set forth.

2. In a double-tube injector, an opening or port in the discharge-chamber of the lifting apparatus, an automatic valve controlling said opening or port, a communicating passage leading from said opening or port to the overflow-port of the forcing apparatus controlled by a final overflow-valve, the respective valves being located in close proximity, as shown, and with no intervening chamber wherein an expansion of the steam can take place, as described.

3. In an injector a check-valve operating within a separable section of the injector-casing, and joined thereto by means of a flanged joint, whereby the main body of the injector may be separated and removed therefrom by a longitudinal movement without rotation and the interior parts of the injector rendered accessible for removal or repair, as set forth.

4. In an injector, a casing made in two or more parts, a check-valve located in the casing containing the discharge-outlet to the boiler, said check-valve casing being joined to the main injector-casing by means of a flanged joint, whereby the injector-casing containing the operative parts of the injector can be removed from the casing containing the check-valve without disturbing or breaking the discharge or delivery connection to the boiler, as shown and described.

5. In a double-tube injector, a lifting steam-nozzle 6, a steam-valve 16 and a hole 30 in said nozzle, which shall admit sufficient steam to nozzle 6 to enable the injector to work when the valve 16 is closed, as set forth.

6. In an injector a main steam-valve, a stem to operate the same and a bar connecting with the overflow-valve, said bar having forks or prongs engaging the stem of the steam-valve, whereby the bar 23 can be disengaged from the spindle of the main steam-valve and the overflow-valve may be independently operated, as set forth.

604,284. ENDLESS-CHAIN CONVEYER. WILLIAM P. HUNT, West New Brighton, N. Y., assignor to the C. W. Hunt Company, New York, N. Y. Filed Nov. 15, 1897. Serial No. 658,517. (No model.)

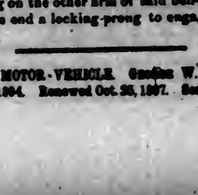


Claim.—1. The combination with the chain and the pivots in an endless-chain conveyer, of buckets notched at their ends for the pivots, and removable pivot-plates at the notches and means for connecting such removable pivot-plates to the bucket ends, substantially as set forth.

2. The combination with the chains in an endless-chain conveyer, of buckets and pivotal supports on the chains and a projection at the end of each bucket above the pivot and to the rear of such pivot, and a stationary cam for acting upon such projections and tipping the buckets to change the lap of the lips, substantially as set forth.

3. The combination with the chains in an endless-chain conveyer and the cross-bar pivots, of buckets notched at their ends to receive the pivots, removable pivot-plates and means for securing the same to the ends of the buckets over the pivot-bars, cams upon the ends of the buckets and below the pivots and stationary cams for engaging the cams on the buckets in tipping the buckets for discharging the contents and projections upon the ends of the buckets above the pivots and to the rear of such pivots at one end for engaging a stationary cam to change the lap of the lips, and similar projections at the other ends of the buckets but forward of the pivots, so that the buckets can be changed end for end between the chains, substantially as set forth.

604,285. ART OF BUILDING SUBMERGED STONE AND CONCRETE STRUCTURES, &c. DENIS JORDAN, San Francisco, Cal., assignor to Mary L. McNamara, same place. Filed May 8, 1897. Serial No. 635,602. (No model.)

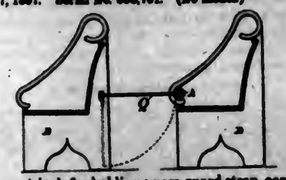


Claim.—1. A buoyant, movable support having a well that is open both at the ends and at the bottom to the surrounding body of water; in combination with a suspended and movable platform in said well, and suspending ropes and tackle for supporting the said platform and lowering it into the water consisting of slings detachable from the platform, pulley-blocks attached to said slings, pulley-blocks attached to the movable support along the sides of the well above the platform, a rope connecting the lower blocks and the upper blocks in alternate order and winding-drums on the buoyant support to which said rope is connected, as a means of lowering the platform in the well while sustaining it in horizontal position.

2. A buoyant, movable support having a well open both at the ends and at the bottom to the surrounding body of water, and a suspended vertically-movable platform in said well detachable from the buoyant support; in combination with anchored, movable pontoons, and cables and windlasses connecting said buoyant support with the pontoons.

3. A buoyant, movable support composed of two members having water-tight compartments and united at the ends to partially inclose between them a well open at the bottom and the ends; in combination with a vertically-movable and detachable platform in said well and ropes and tackle adapted to suspend and lower said platform in the well between the two members comprising the buoyant, movable support.

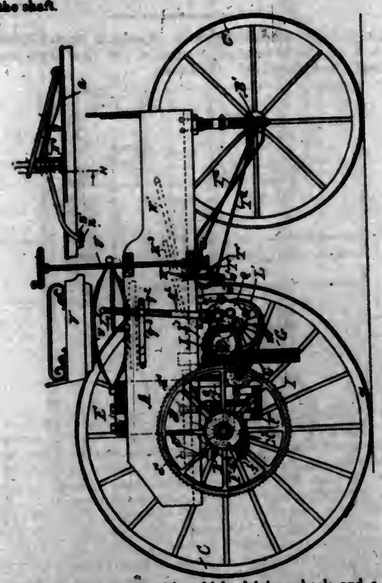
604,286. PEW-GUARD. REILLY T. KERVICK, Baltimore, Md. Filed Nov. 17, 1897. Serial No. 658,781. (No model.)



Claim.—A lock for holding a pew-guard strap, comprising a lock-case having a central pivot hole, *c*, in each of two opposite sides and an opening, *g*, in its rim; a bell-crank-shaped lever having trunnions that fit in said pivot-holes, said trunnions being exposed exteriorly and having a keyhole, and one arm of said lever having a hook-catch, *k*; a spring pressing on the other arm of said bell-crank lever; and a strap having at one end a locking-prong to engage with said hook-catch, as set forth.

604,287. MOTOR-VEHICLE. Gustus W. Lewis, Chicago, Ill. Filed June 14, 1894. Renewed Oct. 26, 1897. Serial No. 656,218. (No model.)

Claim.—1. The combination with vehicle driving-wheels and a prime mover of a speed-changing, reversing and power-disconnecting mechanism comprising a friction-disk, a shaft extending across the face of the disk, said shaft consisting of two parts or sections connected by a universal or flexible joint and one of which sections is mounted in fixed bearings on the machine-frame, gearing connecting said last-named section of the shaft with the vehicle driving-wheel, a pulley mounted on the movable section of the shaft and movable endwise thereon from one side of the disk to the other across the face of the disk, a movable bearing for the free end of the movable section of the shaft, means for giving movement to the said bearing and an actuating device connected with said pulley for moving it endwise on the shaft.



2. The combination with vehicle driving-wheels and a prime mover of a speed-changing, reversing and power-disconnecting mechanism comprising a friction-disk, a shaft extending across the face of the disk, said shaft consisting of two parts or sections connected by a universal or flexible joint and one of which sections is mounted in fixed bearings on the machine-frame, gearing connecting said last-mentioned section of the shaft with the driving-wheels, a pulley mounted on the movable section of the shaft and movable endwise thereon from one side of the disk to the other across the face of the disk, a movable bearing for the free end of the movable section of the shaft, an oscillating arm supporting said bearing, means connected with said arm for actuating the bearing comprising a foot-lever having rigid attachment to said arm and an actuating device connected with said pulley for moving it endwise on the shaft, substantially as described.

3. The combination with vehicle driving-wheels and a prime mover of driving-gear comprising a friction-disk, and a pulley adapted for contact with said disk, a movable shaft with which the pulley has longitudinally-sliding but non-rotative connection, a movable bearing for said shaft, a spring applied to throw the shaft away from the friction-disk, an actuating-lever for forcing the shaft toward the disk and a locking device acting on said lever with spring-pressure, substantially as described.

4. The combination, with vehicle driving-wheels and a prime mover, of a driving-gear comprising a friction speed-changing, reversing, and power-disconnecting mechanism, and a spur-gear speed-changing mechanism interposed between the said friction speed-changing, reversing, and disconnecting mechanism, and the vehicle driving-wheels, substantially as described.

5. The combination with vehicle driving-wheels and a prime mover, of driving connections, comprising a friction-disk, a pulley adapted for contact with the face of the disk, which pulley is movable to either side of the center of the same, and a spur-gear speed-changing mechanism consisting of an oscillating frame carrying two pinions, gearing driving the same at different speeds, and a single gear-wheel adapted to be engaged by either pinion, substantially as described.

6. The combination with vehicle driving-wheels and a prime mover, of driving connections comprising a friction-disk, a pulley adapted for contact with the face of the disk, which pulley is movable to either side of the center of the disk and is also movable toward and from the face of the disk, and a spur-gear speed-changing mechanism consisting of an oscillating frame carrying two pinions, gearing driving the same at different speeds, and a single gear-wheel adapted to be engaged by either pinion, substantially as described.

7. The combination with vehicle driving-wheels and a prime mover, of a driving-gear, comprising a stationary gear-wheel through which motion is transmitted to the driving-wheels, an oscillating frame, two pinions mounted on the frame either of which may be engaged with the said gear-wheel by oscillation of the frame, and gearing on the frame by which one of said pinions is driven faster than the other, substantially as described.

8. A driving-gear comprising an oscillating frame, a driving-shaft mounted on said frame, a pinion attached to said shaft, a shaft carrying a second pinion, a stationary gear-wheel with which either of said pinions may be engaged by oscillation of the frame, an intermediate shaft mounted on the frame, and gear wheels and pinions attached to said shafts whereby motion is transmitted from the driving-shaft through the medium of the intermediate shaft to the shaft which carries the second pinion, substantially as described.

9. The combination with vehicle driving-wheels and a prime mover of a driving-gear comprising a friction-disk, a pulley adapted for contact with the face of the disk, a shaft supporting said pulley with which said pulley has longitudinal sliding but non-rotative connection, said shaft consisting of two parts connected by a flexible joint, a movable bearing engaging the part of the shaft on which the pulley is mounted, an oscillating frame in which the other part of said shaft is mounted, gear-pinions on said frame which are driven from said shaft by gearing giving greater speed to one pinion than to the other and a gearing-wheel with which either of said pinions may be engaged by oscillation of said frame, substantially as described.

10. The combination with vehicle driving-wheels and a prime mover, of driving connections comprising a friction-disk, a pulley adapted for contact therewith, a shaft with which the pulley has longitudinally-sliding but non-rotative connection, said shaft consisting of two parts united by a universal joint on one of which parts the pulley is mounted, a movable bearing for the part of the shaft on which the pulley is mounted, an oscillating frame supporting the other part of said shaft, a pinion on the part of said shaft carried by said oscillating frame, a second pinion mounted on said frame, gearing on the frame by which the said second pinion is driven and a gear-wheel with which either of said pinions may be intermeshed by the rocking of the oscillating frame, substantially as described.

11. The combination with vehicle driving-wheels and a prime mover of a driving-gear comprising a stationary gear-wheel, an oscillating frame, two pinions mounted on the frame either of which may be engaged with the gear-wheel, gearing on the frame by which one of said pinions is driven faster than the other and an actuating-lever attached to the said frame and provided with a locking device for holding the frame in a desired position, substantially as described.

12. The combination with vehicle-wheels and a prime mover, of driving connections comprising an oscillating frame, two pinions mounted on the frame, gearing driving said pinions at different speeds, a gear-wheel with which either of said pinions may be engaged by oscillation of the frame, a friction-disk, a pulley adapted for contact with the face of the disk, a shaft with which said pulley has longitudinally-sliding but non-rotative connection, said shaft consisting of two parts united by a flexible joint one of which parts is mounted in said oscillating frame, a movable bearing for the part of said shaft which carries said pulley, an actuating-lever connected with said bearing for moving the same, a spring applied to throw the pulley away from the disk and a locking device for engaging the actuating-lever to hold the pulley in contact with the disk, said locking device embracing a spring by which the actuating-lever is held with yielding pressure, substantially as described.

13. The combination with vehicle driving-wheels of a prime mover, the crank-shaft of which is arranged at right angles with the axis of rotation of the driving-wheels, a friction-disk mounted on said shaft, a friction-pulley adapted for contact with the face of the disk, a shaft with which said pulley has longitudinally-sliding but non-rotative connection, said shaft being arranged parallel with the axis of rotation of the driving-wheels and movable toward and from the face of the disk, a spur-gear speed-changing device embracing an oscillating frame adapted to rotate or swing on a horizontal axis parallel with the axis of rotation of the driving-wheels, gearing connecting said speed-changing device with the driving-wheels, substantially as described.

14. The combination with vehicle driving-wheels and a prime mover, the crank-shaft of which is arranged at right angles with the axis of the driving-wheels, of a friction-disk attached to said shaft,

a pulley adapted for contact with the face of the friction-disk, a horizontal shaft with which said pulley has sliding but non-rotative engagement, said shaft being movable toward and from the disk, an actuating-lever for moving the pulley endwise on the shaft, an actuating-lever for moving the shaft toward and from the disk, an oscillating frame carrying two pinions gearing on the frame actuated by said shaft and driving said pinions at different speeds, a gear-wheel with which either of said pinions may be engaged by oscillation of said frame, an actuating-lever attached to the frame for moving the said frame, and a gear-wheel on the driving-wheel axle intermeshing with said gear-wheel last mentioned, substantially as described.

15. The combination with vehicle driving-wheels, a frame and a prime mover, of a revolving axle through which motion is transmitted to the driving-wheel, and bearings for said axle comprising a shell or casing attached to the vehicle-frame, antifriction-rollers mounted in said shell and engaging the upper surface of the axle-bearing, pins for the rollers resting in sockets in the frame, a cap holding the axle in place in the bearing, and flanges or collars on the axle bearing against the side faces of the rollers and the cap, substantially as described.

16. The combination with vehicle driving-wheels, a frame and a prime mover, of an axle through which motion is transmitted to the driving-wheels, bearings for the axles located beneath the frame, bolts for connecting the said bearings with the frame, said bolts being arranged vertically and passing loosely through the said bearings, and coiled springs interposed between the bearing-boxes and the frame, substantially as described.

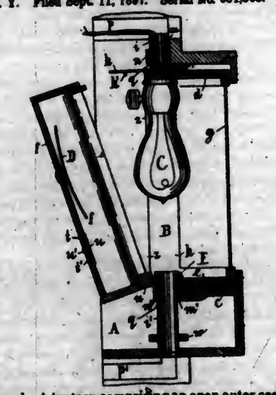
17. The combination with a vehicle-body driving-wheels at the rear of the body and a motor for actuating driving-wheels, supporting-wheels in front of the body, an axle for the same pivotally connected with the body, and a steering gear comprising a transverse shaft provided with two drums, ropes connecting the axle with the drums, and means for turning said shaft on which the drums are mounted, one of said drums being adjustably connected with the shaft whereby the ropes may be tightened, substantially as described.

604,238. SPECTACLE EYE GUARD OR SHIELD. PETER HERNEY, Attleborough, Mass. Filed Sept. 15, 1897. Serial No. 651,708. (No model.)



Claim.—As a new article of manufacture, an eye guard or shield consisting of a non-absorbent flexible frame formed in a single integral structure having two lens portions separated by a central integral transverse tie, and provided with an integral horizontal flange having ventilating-openings, and flexible lenses held in the lens portions.

604,239. LANTERN FOR OVENS. FERDINAND C. STOLZ, New York, N. Y. Filed Sept. 11, 1897. Serial No. 651,365. (No model.)

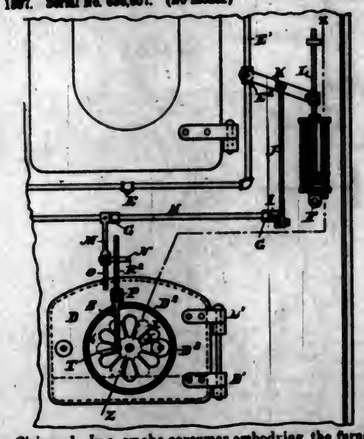


Claim.—1. A lantern comprising an open outer case or frame and a closed inner case, rotatably mounted therein, hollow trunnions communicating with the inner case and through the outer case with flues provided in the wall of the oven, a lighting-fixture and a reflector secured in the inner case, means for turning the inner case within the outer case and means for securing the inner case in position relatively to the outer case.

2. The combination with a frame adapted to be immersed in the wall of an oven, of a cylindrical case adapted to contain a lighting-fixture and an adjustable reflector and provided with hollow trunnions connecting the inner space of the case with flues provided in the wall above and below the outer case

3. The combination with an open outer case or frame and a closed inner case, rotatably mounted therein, and adapted to contain a lighting-fixture and an adjustable reflector, of hasps secured to the top beam and tie of the outer frame, springs riveted to the hasps and knobs secured to the springs in position to engage bores provided in the trunnions of the inner case and thereby to lock the inner case in position when the hasps are fastened.

604,240. SMOKE-CONSUMER. HAROLD L. THOMAS, Brooklyn, N. Y., assignor to Sumner T. Dunham, of New York. Filed May 15, 1897. Serial No. 636,657. (No model.)



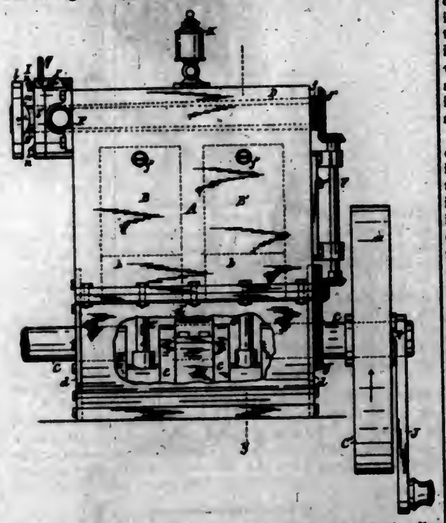
Claim.—1. In a smoke-consumer embodying the furnace-door, steam-jet valve, dash-pot which opposes the steam-jet-valve-closing apparatus, and a knuckle-lever mounted in front of the door upon a rod having a crank connection with the dash-pot and valve and which is operated by the opening of the furnace-door to open the steam-jet valve but knuckles under without operating to close the valve when said door is shut; a weighted pressure device mounted on said door which operates mechanism adapted to close said steam-jet valve against the resistance of the dash-pot when the furnace-door is shut, substantially as shown and described.

2. In a smoke-consumer, the combination of the furnace-door, steam-jet valve, dash-pot which opposes the steam-jet-valve-closing apparatus, and a knuckle-lever which is connected to a rod journaled in the front of the furnace and said rod having a crank carrying a vertical rod pivoted to a link connected to the steam-valve and said dash-pot plunger, and is operated by the opening of the furnace-door to open the steam-jet valve but knuckles under without closing the valve when said door is shut, together with a curved bell-crank arm mounted on said door and engaging the valve-actuating apparatus when the door is shut and a weight tending to turn said bell-crank in a direction to close said valve, substantially as described.

3. In a smoke-consumer, the combination of the furnace-door, steam-jet valve, dash-pot which opposes the steam-jet-valve-closing apparatus and a knuckle-lever projecting in front of the said lever which is operated by the opening of the furnace-door to open the steam-jet valve but knuckles under without closing the valve when said door is shut, means for operating the said lever with relation to the steam-jet valve and dash-pot and with a curved bell-crank arm mounted on said door and engaging the valve-actuating apparatus when the door is shut, and a weight tending to turn said bell-crank in a direction to close said valve, together with an air-valve and connections whereby the closure thereof is controlled by said bell-crank, substantially as described.

604,241. GAS-ENGINE. DANIEL M. TUTTLE, Oneida, N. Y. Filed Dec. 17, 1896. Serial No. 615,965. (No model.)

Claim.—1. In a gas-engine, the combination with the casing, a plurality of cylinders having inlets and outlets, pistons, and a driving-shaft having cranks connected to the pistons, of rotary supply and exhaust tubes journaled in said casing and provided with apertures for opening the said inlets and outlets, said apertures being located at different points on the periphery and different points along the length of each tube, gearing between the driving-shaft and the rotary tubes to rotate the tubes continuously, electric igniting means for each cylinder, and a commutator to control the passage of the electric currents through the cylinders, as set forth.



2. In a gas-engine, the combination with the casing, a plurality of vertical cylinders having inlets and outlets in their upper ends, pistons, and a horizontal driving-shaft passing through the casing below the cylinders and having cranks connected by pitmen with the pistons, of a pair of rotary tubes journaled in said casing above the cylinders and parallel with the driving-shaft, said tubes having apertures in opposite sides to open the inlets and outlets in the cylinders, gearing between the driving-shaft and the said rotary tubes to rotate the tubes continuously, electric igniting means for each cylinder, and a revolving commutator to control the passage of the electric currents through the cylinders, as set forth.

3. In a gas-engine, the combination with the casing, a pair of cylinders in the casing side by side, said cylinders having each an inlet and an outlet, pistons, and a driving-shaft having a pair of cranks on one and the same side of the shaft, pitmen connecting the cranks with the pistons, of a pair of rotary tubes having apertures in opposite sides to open and close the inlets and outlets in the cylinders, gearing between the driving-shaft and the tubes to rotate the tubes continuously, and suitable igniting means for each cylinder, as set forth.

4. In a gas-engine, the combination with the casing, a pair of cylinders in the casing side by side, said cylinders having each an inlet and an outlet, pistons in the cylinders, and a driving-shaft having a pair of cranks on one and the same side of the shaft, pitmen connecting the cranks with the pistons, of a pair of rotary tubes passing through the casing and having apertures therein to open and close the inlets and outlets in the cylinders alternately, gearing between the driving shaft and the tubes to rotate the tubes continuously, a commutator operated by the engine to control electric currents through circuits, and electric igniting means within each cylinder connected with the circuits, as set forth.

5. In a gas-engine, the combination with the casing, a pair of cylinders in the casing side by side, said cylinders having each an inlet and an outlet, pistons in the cylinders, and a driving-shaft having a pair of cranks on one and the same side of the shaft, pitmen connecting the cranks with the pistons, of a pair of rotary tubes passing through the casing and having apertures therein to open and close the inlets and outlets in the cylinders alternately, gearing between the driving-shaft and the tubes to rotate the tubes continuously, a commutator operated by the engine to control electric currents through circuits, electric igniting means within each cylinder connected with the circuits, and an adjustable part in said commutator to vary the time of closing the circuits, as set forth.

6. In a gas-engine, the combination with the casing, a plurality of cylinders having inlets and outlets, pistons, and a driving-shaft having cranks connected to the pistons, of tapered rotary supply and exhaust tubes journaled in said casing and provided with apertures for opening the said inlets and outlets, gearing between the driving-shaft and the rotary tubes to rotate the tubes continuously, electric igniting means for each cylinder, and a commutator to control the passage of the electric currents through the cylinders, as set forth.

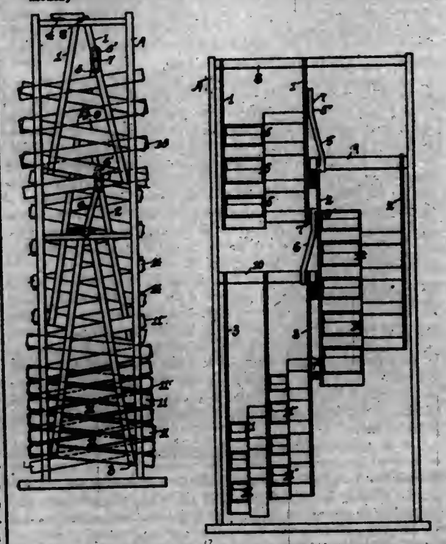
7. In a gas-engine, the combination with the casing, a plurality of cylinders having inlets and outlets, pistons, and a driving-shaft having cranks connected to the pistons, of rotary supply and exhaust tubes journaled in said casing and provided with apertures for opening the said inlets and outlets, said tubes being tapered and provided with means to force them endwise, gearing between the driving-shaft and the rotary tubes to rotate the tubes continuously, electric igniting means for each cylinder, and a commutator to control the passage of the electric currents through the cylinders, as set forth.

8. In a gas engine, the combination with the casing, a plurality of cylinders having inlets and outlets, pistons, and a driving-shaft having cranks connected to the pistons, of rotary supply and exhaust tubes journaled in said casing and provided with apertures for opening the said inlets and outlets, said tubes being tapered, loose plugs in the ends of the shafts to turn the latter, a spring to force the tubes endwise, gearing between the driving-shaft and the rotary tubes to rotate the tubes continuously, electric igniting means for each cylinder, and a commutator to control the passage of the electric currents through the cylinders, as set forth.

9. In a gas-engine, a pair of cylinders, pistons, and a crank-shaft connected with the pistons, rotary valves for the cylinders operated continuously by the crank-shaft, a commutator operated by the engine, having a rotatable part carrying a rubber and an adjustable part carrying spring-contacts in the path of the rubber, a primary electric circuit having branches containing the spring-contacts and the primaries of induction-coils, and secondary circuits leading from the coils to igniting means in the said cylinders, as set forth.

10. In a gas-engine, a pair of cylinders, pistons, and a crank-shaft connected with the pistons, rotary valves for the cylinders operated continuously by the crank-shaft, a commutator having a rotatable part carried by one of the rotary valves, another part of the commutator bearing electric spring-contacts to be operated by the said rotatable part, a primary electric circuit having branches containing the spring-contacts and the primaries of induction-coils, and secondary circuits leading from the coils to igniting means in the said cylinders, as set forth.

604,242. WATER-LIFTING MACHINE. ALPHEUS J. VARNE, Grand Junction, Colo. Filed Oct. 26, 1896. Serial No. 610,290. (No model.)



Claim.—A water-lifting machine consisting of the combination of a swinging pendulum having a series of troughs in which the troughs are placed one above the other, in parallel directions and at a given angle to a horizontal plane, a second series of troughs similarly arranged, but inclined in an opposite direction at about the same angle, the troughs of one series communicating by passage-ways at their ends, with the troughs of the other series, a second set of series of

troughs located at a higher level, and communicating by a waterway, other similar sets of series of troughs, and connecting-rods between the pendulums for communicating motion from the top pendulum to the lowest, the several series of troughs being respectively on different pendulums.

604,243. DOLL. EMIL VERPILLIER and CHARLES W. GRAVES, Newark, N. J. Filed June 25, 1897. Serial No. 642,245. (No model.)



Claim.—1. A doll or the like, comprising a body, and a skeleton frame in said body, tubular portions on said frame, a ball-joint connected with each tubular portion, and members of the doll secured to said joints, whereby each member of the doll is capable of a rotary movement about its longitudinal axis, but is also capable, at the same time, of a flexible movement in any plane different to the plane of rotation, substantially as and for the purposes set forth.

2. A doll or the like, comprising a body, and a skeleton frame F in said body, tubes f^3 and f^4 at or near the top of said frame, and tubes f^5 and f^6 at or near the bottom of said frame, a ball-joint connected with each tube, and members of the doll secured to said joints, whereby each member of the doll is capable of a rotary movement about its longitudinal axis, but is also capable, at the same time, of a flexible movement in any plane different to the plane of rotation, substantially as and for the purposes set forth.

3. A doll or the like, comprising a body, and a skeleton frame F in said body, tubes f^3 and f^4 at or near the top of said frame, and tubes f^5 and f^6 at or near the bottom of said frame, a ball-joint connected with each tube, and members of the doll secured to said joints, each joint consisting of a ball portion, a pair of hinge-pieces pivotally arranged on a pin or rivet in said ball portion, and a sleeve on each hinge-piece, adapted to be respectively secured, one in a tubular portion on the frame F and the other in the hollow part of a member of the doll, whereby each member of the doll is capable of a rotary movement about its longitudinal axis, but is also capable, at the same time, of a flexible movement in any plane different to the plane of rotation, substantially as and for the purposes set forth.

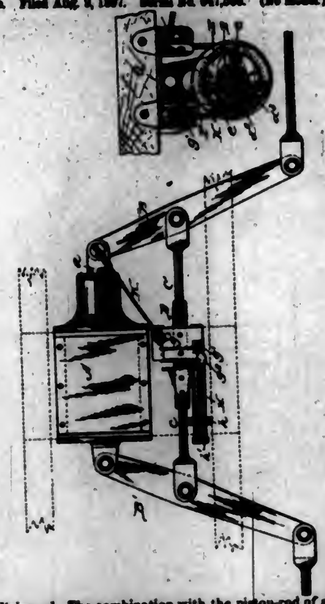
4. A joint for dolls or the like, consisting, essentially, of a pair of hemispheres pivotally arranged on a pin, an arm secured to each hemisphere, said arms projecting beyond said hemispheres, and sleeves arranged on said arms, substantially as and for the purposes set forth.

5. A joint for dolls or the like, consisting, essentially, of a pair of hemispheres pivotally arranged on a pin, an arm secured to each hemisphere, said arms projecting beyond said hemispheres, a sleeve permanently fixed on one of said arms, and a sleeve rotatively arranged on the other of said arms, substantially as and for the purposes set forth.

6. A joint for dolls or the like, consisting, essentially, of a pair of hemispheres, recessed on their flat surfaces, a pin on which said hemispheres are pivotally arranged, and arms secured in the recessed portion of each hemisphere and also pivotally connected with said pin, and a sleeve on the free end of each arm, substantially as and for the purposes set forth.

7. A joint for dolls or the like, consisting, essentially, of a pair of hemispheres, recessed on their flat surfaces, a pin on which said hemispheres are pivotally arranged, arms secured in the recessed portion of each hemisphere and also pivotally connected with said pin, a sleeve permanently fixed on the free end of one of said arms, and a sleeve rotatively arranged on the free end of the other of said arms, substantially as and for the purposes set forth.

604,244. AIR-BRAKE CONTROLLER. JOHN C. WARDE, St. Louis, Mo. Filed Aug. 9, 1897. Serial No. 647,868. (No model.)



Claim.—1. The combination with the piston-rod of an air-brake cylinder and the tie-rod of a brake system, of a turnbuckle, a turnbuckle-sheave, a flexible bridle which connects the piston-rod and the turnbuckle-sheave and means for actuating the turnbuckle-sheave in a direction the reverse of that caused by the connection with the piston-rod, substantially as and for the purposes specified.

2. The combination with the piston-rod of an air-brake cylinder and the tie-rod of a brake system, of an interposed turnbuckle, turnbuckle-sheave, and a spring-retracted bridle which connects the piston-rod and turnbuckle-sheave, substantially as and for the purposes specified.

3. The combination with the piston-rod of an air-brake cylinder and the tie-rod of a brake system, of an interposed turnbuckle and turnbuckle-sheave, a bridle which connects the piston-rod and turnbuckle-sheave, and a spring with which the free end of the bridle engages, substantially as and for the purposes specified.

4. The combination with the piston-rod of an air-brake cylinder and the tie-rod of a brake system, of an interposed turnbuckle and turnbuckle-sheave, a spring-retracted bridle which connects the piston-rod and the turnbuckle-sheave, and suitable bridle-sheaves, substantially as and for the purposes specified.

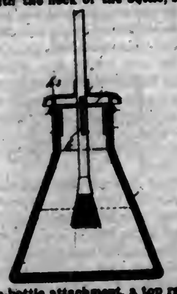
5. The combination with the piston-rod of an air-brake cylinder and the tie-rod of a brake system, of a turnbuckle, a turnbuckle-sheave, a turnbuckle rest or support, means for actuating the turnbuckle-sheave from the piston-rod and means for actuating the turnbuckle-sheave in a direction the reverse of that caused by its connection with the piston-rod, substantially as and for the purposes specified.

6. The combination with the piston rod of an air-brake cylinder and the tie-rod of a brake system, of a turnbuckle, an adjustable turnbuckle support or rest, means for actuating the turnbuckle from the piston-rod and means for actuating the turnbuckle in a direction the reverse of that caused by its connection with the piston-rod, substantially as and for the purposes specified.

7. In a brake system, the combination with a tie-rod composed of threaded sections, of a turnbuckle having plain guide-chambers in advance of its threaded portion the bores of said chambers turned to afford bearings for the unthreaded portions of the tie-rod, whereby cross or wabbling motion and strain on the tie-rod sections is obviated; substantially as and for the purposes specified.

604,245. MUCILAGE-BOTTLE. MARK P. BRESNAN, New York, N. Y. Filed Sept. 3, 1897. Serial No. 650,550. (No model.)

Claim.—1. In a mucilage-bottle attachment, a top rail, downwardly-directed prongs whereby said rail may be secured in the neck of a bottle and means whereby the escape of the attachment into the bottle is prevented, said prongs being so disposed as to hold said top rail out of contact with the neck of the bottle, substantially as described.



2. In a mucilage-bottle attachment, a top rail, flaring extension thereon whereby the escape of the attachment into the bottle is prevented and downwardly-directed prongs so disposed as to hold said top rail out of contact with the neck of the bottle, substantially as described.

3. In a mucilage-bottle attachment, a top rail, flaring extension thereon, whereby the escape of the attachment into the bottle is prevented, downwardly-directed prongs so disposed as to hold said top rail out of contact with the neck of the bottle and means whereby the cover of a bottle may be held out of contact with the neck, substantially as described.

4. In a mucilage-bottle attachment, a top rail, flaring extension thereon whereby the escape of the attachment into the bottle is prevented, downwardly-directed prongs so disposed as to hold said top rail out of contact with the neck of the bottle and upwardly-directed extensions whereby the cover of a bottle may be held out of contact with the neck, substantially as described.

604,246. BICYCLE-SUPPORT. JOSEPH J. DIX, St. Louis, Mo. Filed July 12, 1897. Serial No. 644,903. (No model.)



Claim.—1. In a bicycle-support, the combination with an inclined portion A, recessed at its upper end, and side walls having cut-away portions at their highest points, forming rests for the handle-bar of a bicycle, the handle-bar stem being received in the recess of the inclined support A, substantially as described.

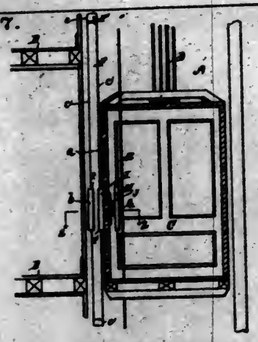
2. In a bicycle-support, the combination with the inclined portion A, of prongs arranged on its highest end, side walls D having cut-away portions *d*, and a locking device cooperating with said prongs, substantially as described.

3. The combination with the inclined support A, of prongs B extending from the upper end of said inclined support, a notched locking device slidingly arranged between said prongs, and side walls D having cut-away portions *d*, substantially as described.

4. The combination with an inclined support A, having a slot *a* in its lower end, prongs B projecting from the upper end of said inclined support, a locking-plate C slidingly mounted between said prongs, side walls D formed with inclined faces *d*, and a tool-box, or receptacle, arranged between said side walls, substantially as described.

604,247. SAFETY-BRAKE FOR ELEVATORS. GEORGE HANCOCK, Providence, R. I. Filed Nov. 8, 1897. Serial No. 657,891. (No model.)

Claim.—The combination of the elevator-car, with the clamping-track F, F, arranged outside of the car, the clamping-bolt G provided with the head *b*, adapted to bear against the outer edges of the track, the hand-operated nut H within the car, and the friction-plate I interposed between the inner edges of the track and the side of the car, substantially as described.



604,248. PUNZLE. FRANK D. HOPLEY, New York, N. Y. Filed July 3, 1897. Serial No. 643,242. (No model.)



Claim.—1. A puzzle consisting of a surface provided with marked positions of two distinguished groups arrayed oppositely to each other and connected by similar positions in two places and a number of chips divided into two distinguished groups and marked correspondingly to the positions, adapted to be placed thereon, all for the purpose of a puzzle, substantially as shown and described.

2. The combination of a field with eighteen positions marked thereon, divided into two groups of seven each, and connected with each other by the four remaining positions, a number of disks belonging to one of two groups, matching the markings of the positions, all for the purpose of placing the disks upon the positions and transferring them through skilful planning over the connecting positions unto the positions of the opposite group, substantially as shown and described.

3. A puzzle, consisting of a box, whereon a number of spots, lined to one another are oppositely arrayed in two groups, the second spot from either end of the line connected by other spots with the same spot of the other group, a number of men to cover the positions in line, all for the purpose of moving the men of one group upon the positions of the other group, using only as a place of access the connecting-spots, substantially as shown.

4. A puzzle combination and arrangement, consisting of a box, a cover, seven spots, marked 1, 2, 3, 4, 5, 6, 7 in rotation along one side of the box, the same number of spots opposite thereof, marked likewise but of a different color or form, two spots connecting these two groups each between the second and sixth spot, fourteen chips to match the fourteen spots, all for the purpose of placing them thereon and to endeavor their transfer to another neighboring and unoccupied spot until one group consecutively occupies the spots formerly opposite, substantially as shown and described.

5. A puzzle having two rows of positions, distinguished by color from each other, and disks to match the positions in color, and marked by consecutive numerals, the same number of disks in each group, free, unoccupied positions between the groups for operation, over which the disks are to be moved and placed in consecutive numbers upon the positions of the opposite group, substantially as shown and described.

604,249. FEED-WATER HEATER. CHARLES J. JARMEN, Erie, Pa. Filed Dec. 11, 1896. Serial No. 615,949. (No model.)

Claim.—1. The combination, in a water-heater, of several rows of tubes terminating at top and bottom in tube-plates, a base on which the bottom tube-plate rests containing passages connecting the bottoms of the tubes of one central row to the bottoms of the tubes of an adjoining row, a cap on the tops of the tubes also having passages and connecting the tops of the tubes in the second row with those of a third row, and so on for other rows until the outer rows are reached, water inlet and outlet passages, one communicating with a central

row of the tubes and the other with an outer row, and an inclosing steam-chamber.



2. The combination, in a water-heater, of groups of tubes connected in series, the connection at the bottom being by curved passages cast in the base and extending transversely to openings at one side, a removable plate normally covering said openings, and a steam-chamber inclosing the tubes.

3. The combination, in a water-heater, of groups of tubes the groups being connected in series by detachable curved passages at top and bottom, the passages at the bottom having normally-closed clearing-openings and a removable cover therefor.

4. The combination, in a water-heater, of groups of tubes the groups being connected in series by passages at top and bottom, the passages at the bottom having blowing-out connections whereby the passages and connected rows of tubes can be drained or blown out separately.

5. The combination, in a water-heater having a water inlet and outlet and a steam-chamber, of rows of tubes connected in series by suitable passages, a scum-chamber over the connecting-passage of the last row of tubes, and one or more openings from said passage to the scum-chamber.

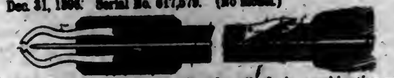
6. The combination, in a water-heater having a water inlet and outlet and a steam-chamber, of tubes suitably connected at the bottom, a tube-plate in which the tubes terminate at the top, a cap having curved passages for connecting the tubes at the top, and a scum-chamber connected with the outer passage.

7. The combination, in a water-heater, of tubes terminating at the top in a tube-plate, a cap having curved passages for connecting the tubes, a scum-chamber over the last passage, there being one or more openings from said last passage to the scum-chamber, a lip or lips below the openings for diverting scum into the scum-chamber, and a steam-chamber.

8. The combination, in a water-heater having water inlet and outlet, and a steam-chamber, of rows of tubes connected in series by passages, the rows of tubes and the passages being of greater capacity than the outlet of the heater, the passage to the last row of tubes at its outer end being contracted between the water-outlet and the opening into the scum-chamber so as to make it about equal in capacity to the water-outlet, as specified, whereby scum is more perfectly diverted to the scum-chamber, and said scum-chamber.

9. The combination, in a water-heater having a water inlet and outlet and a steam-chamber, of rows of tubes connected in series by suitable passages, a scum-chamber over the connecting-passage of the last row of tubes, and one or more openings from said passage to the scum-chamber, and a blow-out pipe connected to the scum-chamber.

604,250. SCREW DRIVER AND DRAWER. GEORGE B. JOCELYN, Arthur, Ill., assignor of one-half to Hugh F. Kirk, same place. Filed Dec. 31, 1896. Serial No. 617,579. (No model.)



Claim.—1. In a tool of the class described, the combination with a suitable handle provided with a bore, of a plurality of clamping-jaws hinged to said handle and adapted to retain therein a screw or the like for inserting or extracting the same, a driving-blade disposed in the bore of the handle, means for retaining said blade in said bore at different points throughout the length thereof, and means for compressing the jaws to retain the screw or the like therein, substantially as set forth.

2. In a tool of the class described, the combination with a suitable handle provided with a bore, of a plurality of oppositely-disposed clamping-jaws hinged to said handle and adapted to retain therein a screw or the like for inserting or extracting the same, a driving-blade disposed in the bore of the handle, a pawl for retaining said blade in said bore, and means for compressing the jaws to retain the screw or the like therein, substantially as set forth.

3. In a tool of the class described, the combination with a suitable handle provided with a bore, of a plurality of oppositely-disposed clamping-jaws hinged to said handle and adapted to retain therein a screw or the like for inserting or extracting the same, a driving-blade disposed in the bore of the handle, a pawl for retaining said blade in said bore, and a collar mounted on the handle and adapted to compress the jaws to retain the screw or the like therein, substantially as set forth.

4. In a tool of the class described, the combination with a suitable handle provided with a bore and having a series of screw-threads, of a plurality of clamping-jaws hinged to said handle and adapted to retain therein a screw or the like for inserting or extracting the same, a driving-blade disposed in the bore of the handle, means for retaining said blade in said bore, and a collar mounted on the threads of the handle and adapted to compress the jaws to retain therein the screw or the like, substantially as set forth.

5. In a tool of the class described, the combination with a suitable handle provided with a bore, of a plurality of clamping-jaws carried by said handle, said jaws being provided in their outer ends with notches adapted to receive a screw or the like for retaining the same in said jaws when inserting or extracting, said jaws being further provided with offsets, a driving-blade disposed within the bore of the handle and adjustable therein, means for retaining said blade at different points throughout said bore, and a collar mounted upon the handle and having its inner face concaved longitudinally, the concaved inner face of the collar being adapted to contact with the offsets of the jaws for compressing the latter to retain therein a screw or the like, substantially as described.

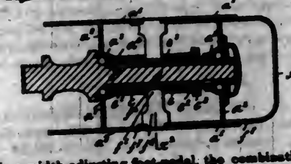
6. In a tool of the class described, the combination with a suitable handle provided with a bore and also having a series of screw-threads, of a plurality of clamping-jaws hinged to said handle, said jaws being provided in their outer ends with notches adapted to receive a screw or the like for retaining the screw in the jaws, said jaws being further provided with offsets, a driving-blade disposed in the bore of the handle, means for retaining said driving-blade at different points in said bore, a collar mounted upon the threads of the handle and provided with a longitudinal concaved inner face, the concaved inner face of said handle being adapted to contact with the offsets of the clamping-jaws to compress the latter, and means for expanding said jaws when pressure thereon is removed, substantially as set forth.

7. In a tool of the class described, the combination with a suitable handle provided with a bore and also having a series of screw-threads, of a plurality of clamping-jaws hinged to said handle, said jaws being provided in their outer ends with notches adapted to receive a screw or the like for retaining the screw in the jaws, said jaws being further provided with offsets, a driving-blade disposed in the bore of the handle, and having one of its sides provided with a series of serrations, a pawl pivoted in one side of the handle and adapted to engage the serrations of the driving-blade for retaining the latter at different points in said bore, a collar mounted upon the threads of the handle and provided with a longitudinal concaved inner face, the concaved inner face of said handle being adapted to contact with the offsets of the clamping-jaws to compress the latter, and means for expanding said jaws when pressure thereon is removed, substantially as set forth.

8. In a tool of the class described, the combination with a suitable handle provided with a bore and also having a series of screw-threads, said handle being further provided in one of its sides with an opening, of a plurality of clamping-jaws hinged to said handle, said jaws being provided in their outer ends with notches adapted to receive a screw or the like for retaining the screw in the jaws, said jaws being further provided with offsets, a driving-blade disposed in the bore of the handle and having one of its sides provided with a series of serrations, a pawl pivoted in the opening of the handle, a spring connected to said pawl and seated in a depression formed in the handle adjacent to the opening thereof, said pawl being adapted to engage the serrations of the driving-blade to retain the latter at different points in the bore of the handle, a collar mounted upon the threads of the handle and provided with a longitudinal concaved inner face, the concaved inner face of said handle being adapted to contact with the offsets of the clamping-jaws to compress the latter, and means for expanding said jaws when pressure thereon is removed, substantially as set forth.

604,251. CYCLE-PEDAL. WILLIAM A. LLOYD and HENRY KEELING, Birmingham, England. Filed Dec. 29, 1897. Serial No. 664,295. (No model.) Patented in England Sept. 11, 1897, No. 20,891.

Claim.—1. In a width-adjusting foot-pedal, the combination with a stationary frame, of an externally-threaded waist or barrel mounted to rotate in bearings in said frame, a movable frame sliding upon the stationary frame and having lateral projections which have a threaded connection with the waist or barrel, means for guiding the free ends of said projections and a nut on the waist or barrel for rotating the latter to adjust the movable frame upon the stationary frame.

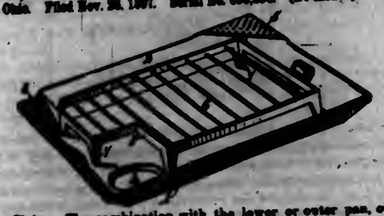


2. In a width-adjusting foot-pedal, the combination with a stationary frame carrying a pair of cup-bearings, of an externally-threaded waist or barrel mounted to rotate in said cup-bearings, a movable frame sliding upon the stationary frame and having threaded shanks which engage the threaded surface of the waist or barrel, and a milled nut fixed to the said waist or barrel for the purpose specified.

3. In a width-adjusting foot-pedal, the combination with a stationary frame carrying a pair of cup-bearings, of an externally-threaded waist or barrel mounted to rotate in said bearings, a slotted sleeve fixed to the frame and surrounding said waist or barrel, a movable frame sliding upon the stationary frame and having threaded shanks which pass through the slots in the sleeve and have their threaded portions in engagement with the threads of the waist or barrel, and a milled nut or head on the said waist or barrel, for the purpose specified.

4. In a width-adjusting foot-pedal, the combination with a stationary frame having guide-slots in the opposite sides thereof, and end plates a^3, connecting the sides of said frame of a cup-bearing a^2, fixed to each end plate; an externally-threaded waist or barrel c, mounted to rotate in said cup-bearings, a milled nut c^1, at one end of the waist or barrel, a slotted sleeve c, surrounding said waist or barrel and secured at one end to one of the cup-bearings, a movable U-shaped frame b, having guide-studs f^7, at its ends which move in the guide-slots of the stationary frame, and oppositely-disposed threaded shanks f^8 fixed to the said movable frame, said shanks passing freely through the slots in the sleeve and having their threaded portions in operative engagement with the threads on the waist or barrel as and for the purpose described.

604,252. ROASTING-PAN. EDWARD S. LORENSEN, Manchester, Conn. Filed Nov. 26, 1897. Serial No. 659,599. (No model.)

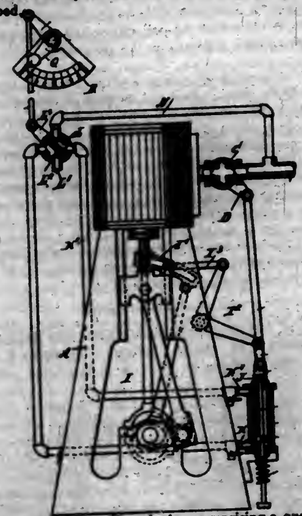


Claim.—The combination with the lower or outer pan, of the inner or upper pan having a corner beveled off or drawn inward, and a grid arranged in the inner pan, the said inner pan being supported in the outer pan at the edges of said pans and with a water-space between the two pans, whereby the beveled-off or inwardly-drawn corner of the inner pan will afford a passage for introducing water into the outer pan and for escape of steam, substantially as described.

604,253. ENGINE-CONTROLLING DEVICE. ALEXANDER P. LOPER, Stonington, Conn. Filed Sept. 9, 1897. Serial No. 651,104. (No model.)

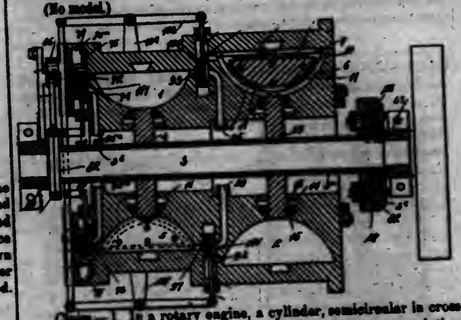
Claim.—1. In an engine-controlling device the combination with the throttle-valve and the reversing-gear of an auxiliary cylinder containing a piston normally in a middle position in the cylinder, the piston being connected with the said throttle-valve and the said reversing-gear, a valve connected with a fluid-pressure supply and with the ends of the said auxiliary cylinder to admit a fluid under pressure to either end of the said cylinder to shift the piston therein, and means under the control of the operator for shifting the said valve and indicating the position thereof, substantially as described.

2. An engine-controlling device, comprising an auxiliary cylinder containing a piston connected with a throttle-valve and with the reversing-gear of the engine, for actuating both simultaneously, a valve directly under the control of the operator, and connected with a supply and with both ends of the said auxiliary cylinder, and springs connected with the piston-rod of the auxiliary cylinder, to hold the piston thereof normally in a middle position, substantially as shown and described.



3. An engine-controlling device, comprising a quadrant having a pointer, a valve having its plug positively connected with the said pointer, the valve being connected with a steam-supply and with an exhaust, an auxiliary cylinder connected at its ends with the said valve, to permit of sending steam from the valve to either end of the cylinder, a piston contained in the said cylinder, and having its piston-rod pressed on by springs, to normally hold the piston in a middle position, and means for connecting the piston-rod of the said piston with the throttle-valve of the engine and with the reversing mechanism thereof, as set forth.

604,254. ROTARY ENGINE. THOMAS C. LOUD, Richmond, Mass., assignor to himself and J. Harry Orr, New Lebanon, and Theodore W. Harris, New York, N. Y. Filed Sept. 24, 1897. Serial No. 653,210. (No model.)



Claim.—1. In a rotary engine, a cylinder, semicircular in cross-section, a slide-valve for governing admission of steam, a regulating-valve movable with and adjustable relatively to the slide-valve, an abutment movable in the cylinder, a semicircular piston in the cylinder, comprising a center block and side pieces, segmental packing-strips between the side pieces and adapted to engage against the sides of the cylinder, springs for forcing the segmental packing strips outward, a packing-strip made in two sections and arranged between the side pieces at the end of the piston, a spring exerting longitudinal pressure on said sections, and a spring for forcing the sections outward, substantially as specified.

2. In a rotary engine, a cylinder, abutments mounted to swing into recesses formed in the wall of the cylinder, the said abutments being ribbed on the under side, stop-lugs extended from the wall of the cylinder and against the sides of which the ends of the abutments are designed to engage and prevent the entrance of steam rearward of inactive abutments, and a rotary piston in the cylinder, substantially as specified.

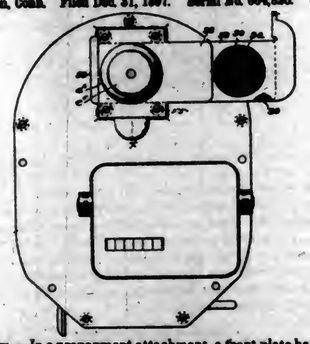
3. A rotary engine, comprising a cylinder, a driving-shaft, a piston carried by the driving shaft and movable in the cylinder, opposite slide-valves for governing ports leading into the cylinder, regulating-valves movable with the slide-valves, and means for adjusting the regulating-valves relatively to the slide-valves, substantially as specified.

4. A rotary engine, comprising a cylinder, a driving-shaft, a piston carried by the driving-shaft and movable in the cylinder, opposite slide-valves for governing the ports leading into the cylinder, regulating-valves, plates extended from the regulating-valves to projections on the slide-valves, said plates having hook ends, wedge-blocks movable between said hook ends and the first projection, and levers for moving said wedge-blocks, substantially as specified.

5. In a rotary engine, a cylinder, a power-shaft extended through the cylinder, a sleeve mounted to rotate on the shaft, a piston attached to the sleeve, an eccentric on the sleeve, abutments in the cylinder and operated from the eccentric, and means for securing the sleeve as rotatively adjusted to compensate for wear of the shaft due to side thrusts, substantially as specified

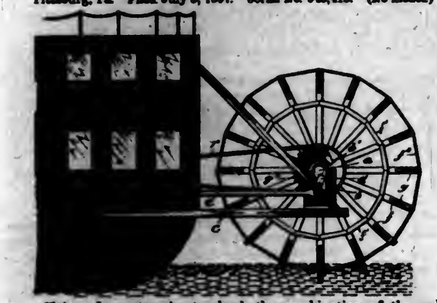
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604,255. PREPAYMENT ATTACHMENT FOR METERS. CHAS LOEB, Milford, Conn., assignor to Henry G. Thompson & Son, New Haven, Conn. Filed Dec. 31, 1897. Serial No. 664,220. (No model.)



Claim.—In a prepayment attachment, a front plate having a coin-chamber, a coin-carrier, a detachable table fitted to said front plate, a cap fixed to said front plate, and a coin-feeder having a through-and-through opening and fitted to slide snugly between said table and said cap, and means to remove a coin from said feeder into said coin-carrier, substantially as described.

604,256. STEAMBOAT PADDLE-WHEEL. LOUIUS O. C. MAGEE, Pittsburg, Pa. Filed July 3, 1897. Serial No. 643,413. (No model.)



Claim.—In a steamboat-wheel, the combination of the axle mounted upon suitable bearings, a crank secured to said axle outside of the bearings, driving-rods connected to said cranks, paddle-spokes secured in the axle and provided near their outer and inner ends with elongated slots, a wheel mounted on the shaft and provided with parallel-centrical grooves, paddles slidably mounted in the longitudinal slots near the outer ends, a bar mounted in the slots near the axle, and provided with an extension engaging the parallel-centrical groove, said bar being secured to the paddle by means of braces or arms, said wheel provided on its outer periphery with teeth adapted to engage a sprocket-chain whereby the position of the groove may be changed to simultaneously change the operation of the paddles, substantially as shown and described.

604,257. CIGARETTE-WRAPPER. CARL H. MEISSER, Berlin, Germany, assignor of one-half to Alonzo H. Sylvester, same place. Filed May 10, 1897. Serial No. 636,023. (No model.) Patented in Germany Nov. 23, 1894, No. 82,904; in England Dec. 7, 1894, No. 22,333; in Belgium Jan. 16, 1895, No. 112,686, and in France Nov. 30, 1895, No. 252,164.

Claim.—A cigarette or cigar wrapper, consisting of a thin metal film, coated with a suitable isoeneous substance, that will induce such an action of capillarity with the metal, as to prevent the transformation of the melted film into big drops, as and for the purpose set forth.

604,258. APPARATUS FOR JOINING TELEGRAPH-CABLES. HENRI MEISER, Paris, France. Filed Dec. 28, 1897. Serial No. 664,022. (No model.) Patented in France May 11, 1897, No. 264,268.



Claim.—1. The apparatus above described for completing telegraphic cable-joints, comprising an elastic cylinder to inclose the cable-joint, hollow chambers about the cylinder and means for admitting fluid-pressure to the chambers to compress the cable-joint, substantially as described.

2. The apparatus above described which consists in the combination of a metal box or case in two parts with hollow elastic inclosures between which is placed the joint to be operated upon, and in which the compression takes place, as and for the purposes described.

3. The apparatus above described, comprising a metal box or case in two parts, elastic pieces inclosed therein, means for fastening the parts of the case together, and means for admitting fluid to the interior when jointed, substantially as described.

4. The apparatus above described, comprising a box or case in two parts, means for uniting them together, and hollow elastic inclosures with thickened ends and means for admitting fluid-pressure to the hollow elastic inclosures, as and for the purpose described.

604,259. BOTTLE-STOPPER. EDWARD A. PARKER, Meriden, Conn., assignor of one-half to William I. Healey, New York, N. Y. Filed June 3, 1897. Serial No. 638,536. (No model.)



Claim.—1. In combination a central tube having at its lower end a disk and at its upper end a screw-thread, a disk free to slide on said tube, a plug between said disks and a faucet having a body separate from the central tube and internally threaded to engage the thread on the tube whereby the disks are moved toward each other and the plug is expanded transversely.

2. In combination a central tube having at its lower end a disk and at its upper end flattened portions 4 and a screw-thread, a disk free to slide on said tube and held against rotation by said flattened portions, a plug between said disks and a faucet-body separate from the central tube and internally threaded to engage the thread on the central tube whereby the disks are moved toward each other and the plug is expanded transversely.

604,260. STAKE FOR PLANTS, FLOWERS, OR TREES. THERON H. PARKER, Brooklyn, N. Y., assignor of one-half to Peter Igoe and Andrew Igoe, same place. Filed May 5, 1897. Serial No. 635,172. (No model.)

Claim.—1. A stake comprising an upper member having a leg and a lower or supporting member on which the upper member is vertically adjustable, the engaging parts comprising a lateral hook at the lower end of the said leg, the said upper member binding on the lower member at the hook end and at a point on the upper member above the hook when the parts are sprung into adjusted position, substantially as described.

2. A stake made in sections, each formed with a leg terminating in an eye, and a rim part extending from the eye approximately at right angles to the leg, the free end of the rim part being formed with a pin adapted to engage the eye of the adjacent section, substantially as shown and described.

3. A stake made in sections forming legs and a sectional rim, of which the rim parts are detachably connected with each other, substantially as shown and described.



4. A stake made in tiers vertically adjustable one on the other, each tier being made in sections consisting of a leg terminating in an eye, and a rim part extending from the eye and formed with a pin adapted to engage the eye of the adjacent section, the extension tiers having their legs formed with hooks adapted to engage the legs of the preceding tier, substantially as shown and described.

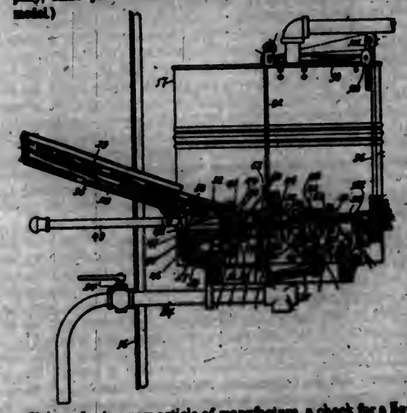
5. A stake provided with an extension-tier made in sections, each formed with a leg terminating at one end in a hook and at its other end in an eye, a rim part extending from the eye approximately at right angles to the leg, and a pin formed on the free end of the said rim part to engage the eye of the adjacent section, substantially as described.

6. A stake made in tiers adjustable one on the other, and each formed with legs and a rim, the legs of the extension-tier being adapted to engage the rim of the preceding tier and the inside of the corresponding legs, the lower ends of the legs of the extension-tiers being formed with hooks adapted to engage the outside of the corresponding leg of the preceding tier, substantially as shown and described.

7. A stake made in sections forming legs and a sectional rim having its rim parts pivotally connected with each other, substantially as described.

8. A stake provided with an extension-tier made in sections forming legs and a sectional rim, the rim parts being detachably connected with each other and the legs being formed with hooks, substantially as described.

604,261. MILK MEASURING AND DISCHARGING MACHINE. WILLIAM H. PERRY, Lake Mills, Wis., assignor to the F. E. Fargo & Company, same place. Filed June 5, 1897. Serial No. 639,202. (No model.)



Claim.—1. As a new article of manufacture, a check for a liquid-measuring machine, consisting of a split ring having a peripheral shoulder.

2. As a new article of manufacture, a check for liquid-measuring machine, consisting of a split ring, having on one face a projecting lug, said lug being on the plane of a line drawn vertically and centrally through the opening of the ring.

3. As a new article of manufacture, a check for a liquid-measuring machine, consisting of a split ring having a peripheral shoulder, and said ring also having on one face a projecting lug.

4. In a liquid-measuring machine, the combination, with a box or casing provided with a slot having an enlargement at one point, and a runway arranged longitudinally therein, and consisting of a beam having its upper edge free from contact with the top of the box or casing, and provided on opposite sides with longitudinal shoulders, said shoulders terminating short of the upper end of the runway.

5. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism adapted to operate in conjunction with a mechanism-controlling check, for seating and unseating the valves, whereby, when the inlet is opened and the outlet closed, a certain measured quantity of the liquid corresponding to an index on the check is permitted to enter the casing, and, when the inlet is closed and the outlet opened, the measured quantity of liquid is automatically discharged, and a pusher-rod adapted, when pushed inwardly, to act on the mechanism-controlling check so as to force said check into position to operate on the valve-controlling mechanism to open the inlet and close the outlet, said check, during the time the pusher-rod is held inwardly, and after a predetermined quantity of fluid has entered the casing through the inlet, adapted to be acted on by the valve-operating mechanism, so as to cause the closing of the inlet and the opening of the outlet.

6. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, a float within the casing adapted, when the inlet is opened and the outlet closed, to be raised as the liquid passes into the casing, and, when the inlet is closed and the outlet opened, to be lowered as the liquid discharges from the casing, a shaft, valve-operating mechanism, mechanism carried by the shaft for operating on the valve-operating mechanism, mechanism between the float and the shaft for rotating said shaft in opposite directions, and means for operating the mechanism carried by the shaft, whereby when said mechanism is operated in one direction the inlet-valve is opened and the float caused to ascend by the inflowing liquid, said ascent causing the rocking of the shaft in one direction, whereby the mechanism carried by said shaft and which is adapted to act on the valve-operating mechanism will, after a certain quantity of liquid has entered the casing, act on said valve-operating mechanism so as to cause a closing of the inlet and an opening of the outlet for the discharge of the contents of the casing and the descent of the float, which descent of the float will cause the rocking of the shaft in the opposite direction, and the mechanism carried by said shaft to be returned to a position to again act on the valve-operating mechanism.

7. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and outlet openings, valve-operating mechanism, a sliding and rotative part, means for sliding the sliding and rotative part, whereby, when said longitudinally in one direction, it will actuate the valve mechanism to cause an unseating of the inlet-valve, and means for giving a partial rotation to said sliding and rotative part, to cause, after a certain quantity of liquid has been admitted to the casing, a seating of the inlet-valve and an unseating of the outlet-valve, and means for returning the sliding and rotative part to its normal rotative and longitudinal positions.

8. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and outlet openings, valve-operating mechanism, a sliding and rotative part adapted to be engaged by a mechanism-controlling check, said check adapted to act on the sliding and rotative part, to cause the sliding of said part in one direction, whereby it is caused to actuate the valve mechanism in a manner to unseat the inlet-valve, and said mechanism-controlling check adapted, at this time, to give a partial rotation to said sliding and rotative part, to cause, after a certain amount of liquid has been admitted to the casing, the seating of the inlet-valve and the unseating of the outlet-valve, and means adapted for returning the sliding and rotative part to its normal rotative and longitudinal positions.

9. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and outlet openings, valve-operating mechanism, a sliding and rotative part adapted to be engaged by a mechanism-controlling check, said check adapted to act on the sliding and rotative part to cause the sliding of said part in one direction, whereby it is caused to actuate the valve mechanism, which mechanism under such actuation unseats the inlet-valve, and said mechanism-controlling check adapted, at this time, to give a partial rotation to said sliding and rotative part, to cause, after a certain amount of liquid has been admitted to the casing, the seating of the inlet-valve and the unseating of the outlet-valve, and means

adapted for returning the sliding and rotative part to its normal rotative and longitudinal positions, and for ejecting the mechanism-controlling check simultaneously with the return of the sliding and rotative part to its normal longitudinal position.

10. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and outlet openings, valve-operating mechanism, a float within the casing, an operating-shaft, mechanism between the shaft and the float, a sliding and rotative part on the shaft, mechanism adapted to act on the sliding and rotative part to cause the sliding of said part in one direction, whereby it will actuate the valve mechanism and cause an unseating of the inlet-valve to admit the liquid into the casing and cause the ascent of the float, said ascent of the float, through the mechanism between the float and the shaft, causing a partial rotation of said shaft and a consequent partial rotation of the sliding and rotative part, which partial rotation of the sliding and rotative part will, after a certain quantity of the liquid has been admitted to the casing, cause a seating of the inlet-valve and an unseating of the outlet-valve, for the outflow of the liquid and the consequent descent of the float, said descent of the float causing the shaft to be rotated in the opposite direction, and the sliding and rotative part to be rotated therewith and thereby returned to its normal rotative position, and means for causing the sliding and rotative part to be returned to its normal longitudinal position.

11. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a float within the casing, an operating-shaft having a winch mounted thereon, a chain fast at one point to the float, and thence passing around a pulley mounted in the bottom of the casing, and thence upwardly over other pulleys, and finally fastened at its ends to the winch, a slidable and rotative part on the shaft, mechanism adapted to act on the slidable and rotative part to cause the sliding of said part in one direction to actuate the valve mechanism and cause the unseating of the inlet-valve to admit the liquid into the casing and also cause the ascent of the float, said ascent of the float, through the chain connection, causing a partial rotation of the shaft and a consequent partial rotation of the slidable and rotative part, which partial rotation of said part will, after a certain quantity of the liquid has been admitted to the casing, cause a seating of the inlet-valve and an unseating of the outlet-valve for the discharge of the liquid and the consequent descent of the float, said descent of the float through another chain connection causing the rotation of the shaft in the opposite direction, and the slidable and rotative part to be rotated therewith, and thereby returned to its normal rotative position, and means for causing the sliding and rotative part to be returned to its normal longitudinal position.

12. In a liquid measuring and discharging machine, the combination, of a casing having an inlet and a discharge opening, a pivoted lever, a valve-rod suspended freely through an eye in the short arm of the lever, and carrying at its lower end a valve adapted to close and open the outlet-opening, another valve-rod pivoted medially to the long arm of the lever, and carrying at its lower end a valve adapted to close and open the inlet-opening, and an operating rod connected to the lever and adapted to turn the same in opposite directions on its pivot.

13. In a liquid measuring and discharging machine, the combination, of a casing having an inlet and a discharge opening, a pivoted lever, a valve-rod suspended freely through an eye in the short arm of the lever, and carrying at its lower end a valve adapted to close and open the outlet-opening, another valve-rod pivoted medially to the long arm of the lever and carrying at its lower end a valve adapted to close and open the inlet-opening, a rod connected to the lever, a bell-crank lever to one arm of which the rod is adapted to be connected, and means for operating on the bell-crank lever to turn the same on its pivot.

14. In a liquid measuring and discharging machine, the combination, of a casing having inlet and discharge openings, valve-operating mechanism, a float within the casing, an operating-shaft, a winch rotative with the shaft, but constructed to be removed therefrom to adapt another winch of varying diameter to be substituted therefor, whereby the percentage of liquid discharged is regulated, a chain fast at one point to the float, and thence passing around a pulley mounted in the bottom of a casing, and thence upwardly over other pulleys, and finally fastened at its ends to the winch, a slidable and rotative part on the shaft, mechanism adapted to act on the slidable and rotative part, to cause the sliding of said part in one direction whereby the valve mechanism is caused to be actuated and the inlet-valve unseated to admit the liquid into the casing and the float also caused to ascend, said ascent of the float, through the chain connection, causing a partial rotation of the shaft and a consequent partial rotation of the slidable and rotative part, which partial rotation of the slidable and rotative part will, after a certain quantity of the liquid has been admitted to the casing, cause a seating of the inlet-valve, and an unseating of the outlet-valve for the discharge of the liquid and a consequent descent of the float, said descent of the float, through another chain connection, causing the rotation of the shaft in the opposite direction, and the slidable and rotative part to be rotated therewith and thereby returned to its normal rotative position, and means for returning the slidable and rotative part to its normal longitudinal position.

15. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a slidable and rotative part, a pusher-rod adapted to slide said slidable and rotative part both inwardly and outwardly, said rod on its inthrust adapted to slide the slidable and rotative part to cause said part to actuate the valve mechanism and thereby unseat the inlet-valve, means for giving a partial rotation to said slidable and rotative part to cause, after a certain quantity of liquid has been admitted to the casing, a seating of the inlet-valve and an unseating of the outlet-valve, and means for returning the slidable part to its normal rotative position, whereby the slidable and rotative part can be returned to its normal longitudinal position upon the outpulling of the pusher-rod.

16. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a slidable and rotative part adapted to be engaged by a mechanism-controlling check, said check adapted to bear against the slidable part, and to slide said part inwardly so as to actuate the valve mechanism and thereby unseat the inlet-valve, means for giving a partial rotation to said slidable and rotative part to cause, after a certain quantity of liquid has been admitted to the casing, a seating of the inlet-valve and an unseating of the outlet-valve, and which means are controlled by the check, so that the inflow into the casing ceases as soon as the quantity indicated on the check is admitted to the casing, means acting in a manner to return the slidable and rotative part to its normal rotative position, and means for returning the slidable and rotative part to its normal longitudinal position.

17. In a liquid measuring and discharging machine, the combination, of a casing having valve controlled inlet and discharge openings, valve-operating mechanism, a slidable and rotative part, adapted to be engaged by a mechanism-controlling check, a pusher-rod adapted to act on its inthrust to force the check into proper position and to cause said check to bear against the slidable part and to slide said part inwardly so as to actuate the valve mechanism and thereby unseat the inlet-valve, means for giving a partial rotation to said slidable and rotative part to cause, after a certain quantity of the liquid has been admitted to the casing, a seating of the inlet-valve and an unseating of the outlet-valve, and which means are controlled by the check, so that the inflow into the casing ceases as soon as the quantity indicated on the check is admitted to the casing, and means acting in a manner to return the slidable and rotative part to its normal rotative position, in position to be returned to its normal longitudinal position by the outpulling of the pusher-rod.

18. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a bell-crank lever adapted to act on said valve operating mechanism, a slidable and rotative part adapted to be engaged by a mechanism-controlling check, a pusher-bar adapted to act on its inthrust to force the check into proper position to cause said check to bear against the slidable part and to slide said part inwardly so as to cause the arm of said sliding part to act on the bell-crank lever, and thereby unseat the inlet-valve, means for giving a partial rotation to said slidable and rotative part, so as to release the arm thereof from engagement with the bell-crank lever, and thereby cause, after a certain quantity of the liquid has been admitted to the casing, a seating of the inlet-valve and an unseating of the outlet-valve, and which means are controlled by the check, so that the inflow into the casing ceases as soon as the quantity indicated on the check is admitted to the casing, and means acting in a manner to return the slidable and rotative part to its normal rotative position, and in position so that the arm thereof may be acted upon by the end of the pusher-rod so as to return the slidable and rotative part to its normal longitudinal position.

19. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a slidable and rotative part, a dog or pawl pivoted thereto, and adapted to be engaged by a mechanism-controlling check provided with a peripheral shoulder, said check adapted to bear against the slidable and rotative part and slide said part inwardly so as to actuate the valve mechanism and thereby unseat the inlet-valve, means for giving a partial rotation to the mechanism-controlling check, whereby its shoulder is brought into engagement with the dog and the slidable and rotative part, thereby giving a partial rotation, to cause, after a certain quantity of the liquid has been admitted to the casing, said quantity corresponding to the quantity indicated on the check, a seating of the inlet-valve and an unseating of the outlet-valve, means for causing a return of the check to its normal rotative position, and means for retrieving the slidable and rotative part to its normal rotative position and to its normal longitudinal position.

20. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a pusher-rod, a slidable and rotative part adapted to be engaged by a mechanism-controlling check, said slidable and rotative part formed with a sleeve portion having a bore of less diameter than the diameter of the check, but of sufficient diameter to permit the engaging part of the pusher-rod to enter therein when the check is not against the sleeve portion of the sliding and rotative part, said check, when against the sleeve of the slidable and rotative part, adapted to be acted upon by the pusher-rod, whereby the slidable part is moved inwardly to actuate the valve mechanism and thereby unseat the inlet-valve, means for giving a partial rotation to said slidable and rotative part to cause, after a certain quantity of the liquid has been admitted to the casing, a seating of the inlet-valve and an unseating of the outlet-valve, and which means are controlled by the check, so that the inflow into the casing ceases as soon as the quantity indicated on the check is admitted to the casing, means acting in a manner to return the slidable and rotative part to its normal rotative position, in position to be returned to its normal longitudinal position by the outpulling of the pusher-rod.

21. In a liquid measuring and discharging device, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a pivoted bell-crank lever, one arm thereof adapted to carry a mechanism-controlling check-lever, and a pusher-rod adapted, on its inthrust, to act on the bell-crank lever to cause said bell-crank lever to bring the mechanism-controlling check to a position to act on the valve-operating mechanism.

22. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings valve-operating mechanism, a pivoted bell-crank lever having one member provided with a projecting arm, said arm formed with a leg and its other member adapted to carry a mechanism-controlling check, a dog pivoted to said arm and having its free end normally resting on the leg, and a pusher-rod provided with a projecting pin, said pin on the outpull of the rod adapted to pass between the dog and the leg, and on the instroke of the rod adapted to act on the upper edge of the dog, whereby the lever is tilted so as to bring the mechanism-controlling check to a position to act on the valve-operating mechanism.

23. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a pivoted bell-crank lever, means for normally holding said lever in a position to cause its upper arm to be at an incline, said upper arm adapted to carry a mechanism-controlling check, and a pusher-rod provided with a projecting cylinder having a slotted upper portion, said pusher-rod adapted on its inthrust to act on the bell-crank lever to cause said bell-crank lever to be turned so that its upper arm will pass into the cylinder, and the inner end of said arm, projecting through the cylinder and which carries the check, to be in position to cause said check to act on the valve-operating mechanism.

24. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a runway consisting of an inclined beam having longitudinal shoulders on opposite sides, a pivoted bell-crank lever adapted to be normally turned on its pivot so that its upper arm will be at an incline adjacent to the lower end of the runway, said arm provided upon opposite sides with ears or lugs, and said arm adapted to carry a mechanism-controlling check consisting of a split ring adapted to straddle the runway and to be locked beneath the shoulders thereof, and to pass down to the bell-crank lever and to straddle the tilted arm thereof and to be locked beneath the ears or lugs on opposite sides of said arm of the bell-crank lever, and means for turning the bell-crank lever so as to throw its upper arm to a horizontal position in order to bring the mechanism controlling check to a position to act on the valve-operating mechanism.

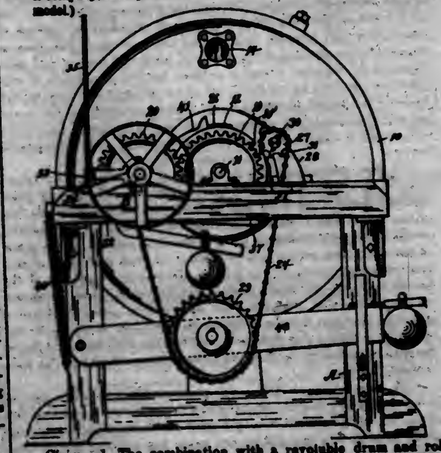
25. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a pusher-bar adapted on its inthrust to act on the valve-operating mechanism so as to open the inlet and allow a certain quantity of liquid to pass into the casing, other mechanism acting on the valve-operating mechanism to close the inlet-opening and open the outlet-opening, after a certain quantity of liquid has entered the casing, means for locking the pusher-bar during the time the liquid is flowing into and out of the casing, and means for unlocking said bar after the casing has been emptied of its contents.

26. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a pivoted bell-crank lever adapted to act on said valve-operating mechanism, a pusher-bar provided on one edge with teeth, said bar adapted to cause an operation of the valve-operating mechanism so as to open the inlet and allow a certain quantity of the liquid to pass into the casing, other mechanism acting on the bell-crank lever to close the inlet-opening and open the outlet-opening, after a certain quantity of the liquid has entered the casing, another bell-crank lever connected to the first-mentioned bell-crank lever, and a dog normally engaged by one arm of said other bell-crank lever, and thereby held out of engagement with the teeth of the pusher-bar, said dog adapted to be released by said bell-crank lever, when the other lever is turned, so as to permit the dog to engage the teeth of the pusher-bar, and thereby lock said bar during the time the liquid is flowing into the casing, and said bell-crank lever raising the dog out of engagement with the teeth of the pusher-bar, when the bell-crank lever which actuates the dog is turned in a reverse direction.

27. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a rocking shaft, provided with a projecting tappet, a pusher-bar provided on one edge with teeth, said bar on its inthrust adapted to act on the valve-operating mechanism so as to open the inlet and allow a certain quantity of the liquid to pass into the casing, other mechanism acting on the valve-operating mechanism to close the inlet-opening and open the outlet-opening, after a certain quantity of the liquid has entered the casing, said operation also causing a rotation of the shaft carrying the projecting tappet, and a pivoted dog normally in engagement with the teeth of the pusher-bar during the time the casing is being filled and emptied of its contents, but adapted to be turned out of engagement with said teeth by the tappet, as said tappet is swung around to a certain position, after the casing is fully emptied of its contents.

28. In a liquid measuring and discharging machine, the combination, of a casing having valve-controlled inlet and discharge openings, valve-operating mechanism, a rocking shaft provided with a projecting tappet, a pusher-bar provided on opposite edges with teeth, said bar adapted on its inthrust to act on the valve-operating mechanism so as to open the inlet and allow a certain quantity of the liquid to pass into the casing, other mechanism acting on the valve-operating mechanism to close the inlet and open the outlet opening, after a certain quantity of liquid has entered the casing, said operation also causing a rotation of the shaft carrying the tappet, a dog adapted to engage the teeth on one edge of the pusher-bar and to lock said bar during the time the liquid is flowing into the casing, means for raising the dog out of engagement with the teeth to unlock the rod, and a pivoted dog normally in engagement with the teeth on the other edge of the pusher-bar, during the time the casing is being filled and emptied of its contents, and adapted to be turned out of engagement with said teeth by the tappet, as said tappet is swung around to a certain position, after the casing is fully emptied of its contents.

604,262. CHURN AND BUTTER-WORKER. WILLIAM B. PERRY and CHARLES S. BROWN, Lake Mills, Wis., assignors to the F. B. Fargo & Company, same place. Filed Nov. 5, 1897. Serial No. 657,670. (No model.)



Claim.—1. The combination with a revoluble drum and rolls therein parallel with the axis of the drum the journals of which rolls extend through the drum and have gears thereon, of means for rotating the drum partial revolutions intermittently, and means therewith

for rotating the rolls on their axes in the periods of non-movement of the drum.

2. The combination with a revoluble drum and rolls therein parallel with its axis said rolls having journals extending through the drum and provided with gears thereon, of a driving-shaft provided with a gear-wheel eccentric to the axis of the drum disposed to mesh alternately with the gear-wheels on the several rolls and rotate them when by the rotation of the drum it is in a line with the axis of the drum and the axis of the roll, and means for revolving the drum.

3. The combination with a revoluble drum, of a loose pulley on the arbor of the drum, a disk or disks fixed on the arbor alongside the loose pulley, and a traveling belt or chain running on and partially around the arbor loose pulley, the belt or chain being provided with a dog or catch adapted to engage the disk or disks and rotate the arbor a partial revolution before release therefrom.

4. The combination with a revoluble drum provided with an axial arbor, of a loose pulley thereon, disks of greater diameter than the loose pulley alongside of the loose pulley fixed on the arbor, and a belt or chain traveling on the pulley between the disks and provided with a dog adapted intermittently to drop into recesses in the disks and rotate the arbor a partial revolution and then to be released therefrom.

5. The combination with a revoluble drum provided with an axial arbor, of a loose pulley thereon, a disk or disks alongside the loose pulley fixed on the arbor, a belt or chain traveling continuously on and partially around the loose pulley, a dog on the belt or chain adapted to engage the disk or disks intermittently and rotate the arbor a partial revolution, and a lever on which an idler is mounted, the lever being disposed to be lifted by contact with an eccentric-pin on said disk and thereby to force the idler against and raise the belt or chain holding the dog in engagement with the disk briefly and then by the release of the lever from the eccentric allowing the lever and idler to drop and the dog to suddenly escape from the disk or disks.

6. The combination with a revoluble drum having a fixed arbor, of a loose pulley on the arbor, a disk or disks fixed on the arbor alongside the loose pulley, a belt or chain running continuously on and partially around the loose pulley, a dog on the belt or chain adapted intermittently to engage the disk or disks and rotate the arbor a partial revolution, and a spring-actuated lever adapted to engage said disk and hold the same against rotation when it is not being moved by said belt or chain.

7. The combination with a revoluble drum having a fixed arbor, of a loose pulley on the arbor, a disk or disks fixed on the arbor alongside the loose pulley, a belt or chain running continuously on and partially around the loose pulley, a dog on the belt or chain adapted intermittently to engage the disk or disks and rotate the arbor a partial revolution, and an arm on the lever disposed to be engaged briefly by the dog on the belt or chain whereby by the movement of the belt or chain the lever is released from engagement with the disk and the arbor is permitted to rotate.

8. The combination with a revoluble drum having a fixed arbor, and rolls in the drum parallel with its axis said rolls having gear-wheels outside of the drum intermeshing with each other in the line of the axis of the drum, of a driving-shaft, a gear-wheel splined on the driving-shaft adapted to be shifted into and out of the plane of the roller gear-wheels and in position to mesh with each of said gear-wheels when adjacent to and in or near the line of the axis of said gear-wheel and the axis of the drum, and a driving gear-wheel on the drum-arbor for rotating the drum continuously and to be shifted into clutch with a belt or chain carrying wheel for rotating the drum intermittently.

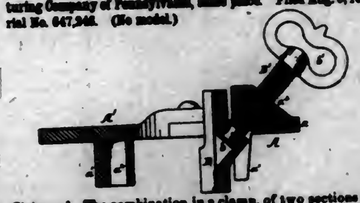
9. The combination with a revoluble drum having a fixed arbor, and rolls in the drum parallel with its axis, said rolls having gear-wheels outside of the drum intermeshing with each other in the line of the axis of the drum, of a driving-shaft, a gear-wheel 33 splined on the driving-shaft adapted to be shifted into and out of the plane of the roller gear-wheels and in position to mesh with each of said gear-wheels when adjacent to it in or near the prolonged line of the axis of said gear-wheel and the axis of the drum, a wheel 20 splined on the driving-shaft adapted when in action to rotate the drum, a wheel on the drum-arbor so disposed as on occasion to mesh with the wheel 20 on the driving-shaft, and a shifting bar slidable on the frame adapted concurrently to shift the drum-driving wheel and the roll-driving wheel.

10. In combination with a driven revoluble drum and a pair of roll-journal gears thereon intermeshing in the line of the axis of the drum, of a driving-shaft having a gear thereon adapted intermittently to mesh with said roll-journal gears, and a sliding weight-controlling box in which the driving shaft is mounted at one end, provided for a yielding of the parts in case of a mismeshing contact of a roll-gear and the driving-gear.

11. In an automatic gear-controlling device, the combination of a revoluble disk provided with an eccentric-pin, an idler-carrying lever 41 adapted intermittently to be lifted by contact with the pin on the revolving disk, a cam 43 on the lever, and a bar 33 provided with a pin 44 adapted when the bar is shifted in one direction to engage the cam and lift the lever out of the path of the pin on the disk.

12. In a combined churn and butter-worker, the combination with a revoluble drum, of two butter-working rolls in the drum parallel with but on different sides of and adjacent to its axis, two sets of hopper-like strips, the sets of strips being on opposite sides of the rolls, and means for rotating the drum a partial revolution intermittently.

604,268. CLAMP FOR SECURING PUMPS TO BARRELS. WILLIAM PEOPLES, Philadelphia, Pa., assignor to The Enterprise Manufacturing Company of Pennsylvania, same place. Filed Aug. 6, 1897. Serial No. 647,248. (No model.)

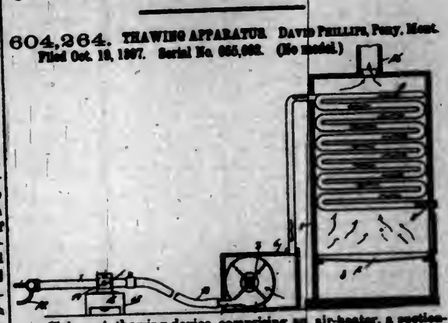


Claim.—1. The combination in a clamp, of two sections adapted to be inserted in a bung-hole of a barrel, with a clamp-plate carried by one section, with means for adjusting said plate by which the pump is secured to the barrel through the clamp, substantially as described.

2. The combination in a clamp, of two sections, one section having a plate, with a winged extension, the other section having a plate and an extension, an inclined screw adapted to said section and a clamp-plate carried by the screw, substantially as described.

3. The combination of two clamp-sections adapted to be inserted in the bung-hole of a barrel and surrounding a pump, a pivot-pin securing the two sections together, a screw adapted to one of said sections, a clamp-plate carried by the screw and adapted to rest against the pump, substantially as described.

604,264. THAWING APPARATUS. DAVID PHILLIPS, Perry, Mont. Filed Oct. 19, 1897. Serial No. 655,092. (No model.)

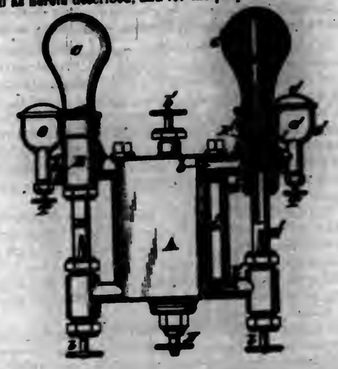


Claim.—A thawing device comprising an air-heater, a suction-fan for drawing air from the heater, a flexible pipe receiving the discharge from the fan, a discharge-pipe having connection with the flexible pipe, nozzles on the discharge-pipe, a sleeve in which the discharge-pipe is axially and longitudinally adjustable, a plate having bearings in which trunnions on the sleeve engage, a block, a socket-plate on said block and with which the first-named plate engages, and a bolt passing from the first-named plate, through the socket-plate and through the block, substantially as specified.

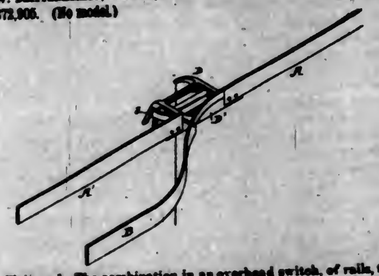
604,265. LUBRICATOR. JAMES POWELL, Avondale, Ohio, assignor to the William Powell Company, Cincinnati, Ohio. Filed Nov. 14, 1894. Serial No. 528,526. (No model.)

Claim.—1. The combination, in a sight-feed lubricator, of a reservoir; a condenser; a sight-feed chamber; an oil-discharge pipe communicating with said chamber; an external steam-pipe leading into the base of the condenser; a pipe within the latter, for conveying an upward current of steam; and, near the junction of said steam-pipe and condenser, a duct that conveys another current of steam down to said oil-discharge pipe, all as herein described, and for the purpose stated.

2. The combination, in a sight-feed lubricator, of a reservoir A; a condenser C, a sight-chamber H; an oil-discharge pipe E, communicating with said chamber; an external steam-pipe d' leading into the base of the condenser; a pipe c within the latter, for conveying an upward current of steam; a stand-pipe d; and a duct p that connects said pipes E and d, and conveys another current of steam downward, all as herein described, and for the purpose stated.



604,266. OVERHEAD SWITCH. JOSEPH S. ROSS and FREDERICK W. BEITTENMILLER, Philadelphia, Pa. Filed Mar. 7, 1898. Serial No. 672,905. (No model.)



Claim.—1. The combination in an overhead switch, of rails, two pivoted rail-sections interlocking one with the other, an arm on one section so arranged as to pass on either side of the pivot of the said section when operated, so that a down pull will shift the rails of the sections when in either position, substantially as described.

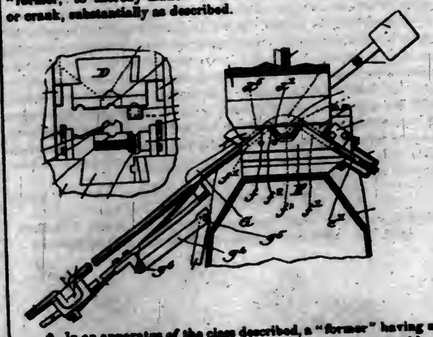
2. The combination in an overhead switch, of rails, the two pivoted rail-sections, one section interlocking with the other, the rail of one section acting as a weight when thrown back to hold the other rail-section in position, substantially as described.

3. The combination in an overhead switch, of rails, two pivoted rail-sections E, F, arms g g' on the rail-section F, a cam e' on the rail-section E adapted to work between the said arms and a projection e^3 on the rail-section E against which the arm g of the rail-section F strikes when the said rail-section is thrown out and the rail-section E is thrown in, and means for operating the said rail-section F, substantially as described.

4. The combination in an overhead switch, of rails, a frame secured to said rails, arms on the frame, two pivot-rods secured to said arms, a straight rail-section pivoted to one rod and having a cam, a curved rail-section pivoted to the other rod and having arms engaging the cam, and an operating-arm on the curved rail-section, substantially as described.

604,267. APPARATUS FOR MAKING CRANK-SHAFTS. CHARLES F. ROPER, Hopedale, Mass., assignor to the Draper Company, Portland, Me. Filed Sept. 27, 1897. Serial No. 653,093. (No model.)

Claim.—1. In an apparatus of the class described, a "former" having upwardly and oppositely inclined seats for and to receive the portions of the blank, at each side of and adjacent a preliminary bend therein, and a depressed portion between the inner ends of the seats, and a retaining device for one end of the blank when preliminarily bent to rest in said seats, combined with a cooperating die adapted to engage the convex side of the preliminary bend in the blank between the seats and reverse the curvature thereof, the die forcing the bent portion of the blank into the depressed portion of the "former," to thereby make the bottom and sides of the final bend or crank, substantially as described.



2. In an apparatus of the class described, a "former" having upwardly and oppositely inclined seats for the preliminarily-bent blank, and a wedge-shaped depression between them, the converging sides of said depression being substantially at right angles to the adjacent seats, combined with a cooperating die having a wedge-shaped projection to engage the bent portion of a blank resting in the seats and to force the same into the depression of the "former," substantially as described.

3. In an apparatus of the class described, a "former" having upwardly and oppositely inclined seats and a wedge-shaped depression therebetween; a projection on the former having a recessed top, and longitudinal seats in the "former" oppositely extended from the base of said projection, in alinement with each other and in the plane of the recess; and a swaging-recess in said "former," combined with a die having a wedge-shaped projection to cooperate with the similarly-shaped depression in the "former;" a cavity in the die to be entered by the projection on the "former," and a swaging-recess, whereby a blank may be acted upon by said die and "former" to form successively a bend therein having divergent sides, straighten the sides of and set the bend, and finally swage the latter, substantially as described.

4. In an apparatus of the class described, a "former," a cooperating die, one of which is movable toward and from the other, said die and "former" being constructed to act upon a blank to form a crank therein by successive steps, and a yielding stop-gage for the end of the blank, substantially as described.

5. In an apparatus of the class described, a "former," a cooperating die, one of which is movable toward and from the other, said die and "former" being constructed to act upon a blank to form a crank therein by successive steps, a guide-block to receive a completed crank while a second crank is being formed in the blank, and a pivotally-mounted support for said guide-block, substantially as described.

6. In an apparatus of the class described, a "former," a cooperating die, one of which is movable toward and from the other, said die and "former" being constructed to act upon a blank to form a crank therein by successive steps, a guide-block having a crank-receiving recess, a projection to hold the completed crank when the blank is reversed, and means to move the guide-block, said recess and projection thereon being adapted to cooperate respectively with successively-operating portions of the die and "former," substantially as described.

604,268. PHOTOGRAPHIC-PLATE HOLDER FOR THREE-COLOR PROCESSES. GUSTAV SELLS, Brandenburg, Germany. Filed May 27, 1897. Serial No. 638,472. (No model.)

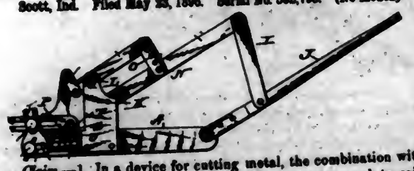


Claim.—A frame b and a case a movable longitudinally in said frame the said case having in the line of its movement three compartments divided by bars d, said bars having rabbets for receiving photographic sensitive plates and having slots in front of and parallel with said rabbets, in combination with three light-filters inserted in said slots, one in each compartment, substantially as and for the purpose described.

604,269. PHOTOGRAPHS IN NATURAL COLORS. GUSTAV SELLS, Brandenburg, Germany. Filed Apr. 20, 1896. Serial No. 587,520. (No specimens.)

Claim.—The process for the production of natural-colored photographs from three negatives, taken with interposition respectively of three differently-colored light-filters, consisting in forming three plates by spreading upon a firm support an excessively thin adhering coating of collodion and upon the latter an adhering coating of colorless chromated gelatin emulsion, exposing the plates so formed respectively behind the negatives with the gelatin coating in contact with the negative, immersing each plate in cold water containing a dye or solution complementary to the color of the light-filter used for the corresponding negative, subsequently detaching the collodion films with the gelatin films thereon from the supports and superposing said detached films.

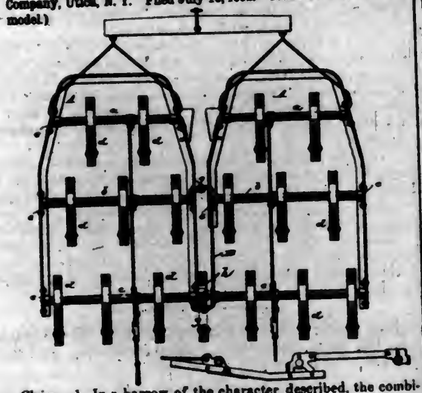
604,270. DEVICE FOR CUTTING IRON. HOMER J. SHAFFER, Scott, Ind. Filed May 23, 1896. Serial No. 592,793. (No model.)



Claim.—1. In a device for cutting metal, the combination with the base provided with a fixed cutter, the uprights secured to said base, and the cutter pivoted thereto, of the arms pivotally connected with said cutter, the bar pivoted to said uprights and arms, the arms pivoted to said bar and formed with a number of holes, the bar pivotally connected thereto and to said uprights, the removable keys or pins, the bar pivoted to said last-mentioned bar and the lever pivoted thereto and to said base, substantially as described.

2. In a machine for cutting metal, the combination with the base-plate, provided with a cutter, the pivot-pin secured to said base-plate, the plate pivoted thereto provided with a cutter and means for actuating the same, of the angle-plate formed with a vertical slot through which said pivot-pin passes and with a horizontal slot, the vertical plate formed with a vertical and a horizontal slot, the set-screws and the nuts to secure and adjust the same, substantially as described.

604,271. SPRING-TOOTH HARROW. CHARLES S. SHARP, Auburn, N. Y., assignor, by mesne assignments, to the National Harrow Company, Utica, N. Y. Filed July 16, 1892. Serial No. 440,289. (No model.)



Claim.—1. In a harrow of the character described, the combination of two side-bar sections hinged together side by side, the inner side bar of one section having a bridge-piece standing above the adjacent side bar of the other section.

2. In a harrow of the character described, the combination of two side-bar sections hinged together side by side, the inner side bar of one section having a bridge-piece standing above the adjacent side bar of the other section to form a lateral passage for rubbish, and a tooth mounted between the two sections adjacent to said passage.

3. In a harrow of the character described, the combination of two frame-sections hinged together side by side, the inner side bar of one section being shorter than that of the other section, shaft-supporting standards on said frames, tooth-supporting shafts journaled in said standards, a bridge-piece B connected to the top of one of said standards to form an extension of the short side bar, and a tooth mounted between the frame-sections at the rear end of the bridge-piece.

4. In a harrow, the combination of a frame comprising an outside and an inside runner, shaft-bearing standards secured thereto, rock-shafts journaled in said standards, and means for rocking said shafts in unison, and another frame having an outside runner, a short inside runner, and an elevated bridge-piece, supported upon it and extending rearwardly and standing above the adjacent runner of the other frame, shaft-bearing standards secured to said frame, rock-shafts journaled therein, and means for rocking said shafts in unison, the two frames being connected together, substantially as described.

5. In a harrow of the character described the combination of a frame composed of two angle-iron sections A, A', hinged together, the threads of which serve as runners, the section A being bent substantially U shape, presenting two parallel runner-bars, and the section A' being bent to include a front end and a single outside runner-bar, and a short inside runner and therefore affording a lateral clearance-passage adjacent the runner of the adjoining section, harrow-teeth supported by said sections and movable with relation thereto, whereby the teeth or runners may be brought into operative position at the will of the operator.

6. In a harrow of the character described, the combination of a frame having shaft-bearing standards, shafts borne by said standards, and harrow-teeth thereon, and another frame having shaft bearing standards, shafts borne by them, and harrow-teeth, and pivot connections joining the adjacent shaft-bearing standards of said frames, and operating to support the inner side of one of said frames in elevated position at such connecting-points.

7. A harrow composed of two runner-bearing sections, the frame of one section being cut away upon the side adjoining the second section, and partially supported where cut away by said second section.

8. A two-section spring-tooth harrow, one of the sections of which comprises a frame, a pair of runners borne by it, a set of spring harrow-teeth supported by it, and means for varying the relative planes occupied by the teeth and runners, and the other section of which comprises a frame cut away upon the side adjoining the aforesaid section to present a clearance-passage, and partially supported where cut away by said section, a runner at the opposite side borne by said frame, a set of spring harrow-teeth supported by said frame, and means for varying the relative planes occupied by said teeth and runner, substantially as described.

9. In a harrow, the combination of spring-teeth, with the opposite sections of a frame hinged together, and each comprising draft-bars, and top-carrying bars having their tooth-supporting surfaces arranged in an elevated position but beneath the hinge-pins of said sections and having depending arms at the ends secured to the draft-bars, substantially as described.

10. A harrow provided with outside and inside runners, a portion of one of said inside runners being removed or elevated, substantially as and for the purpose set forth.

11. A sectional harrow provided with outside and inside runners, the inside runner of one section being cut off, and an elevated bar supported thereby to afford a clearing-space for the harrows between the sections.

12. A sectional harrow provided with outer and inner frame-bars that serve as runners, one of the runners being located centrally of the sections and supporting directly a portion of the frame and also carrying an elevated bar which supports another part of the frame whereby a lateral clearance is afforded between the sections.

604,272. SPRING-TOOTH HARROW. JACOB B. SHEDDLY, Harrisburg, Pa., assignor, by mesne assignments, to the National Harrow Company, of New Jersey. Filed Jan. 18, 1892. Serial No. 458,233. (No model.)

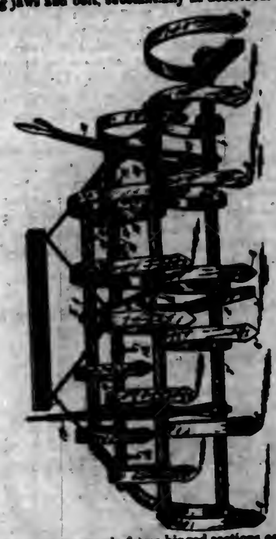
Claim.—1. A harrow having a frame including among its members rigidly-secured transverse rods said hollow rock-shafts loosely mounted on said rods, harrow-teeth rigidly secured to said rock-shafts and means for holding said shafts in different positions to adjust the harrow-teeth, substantially as described.

2. In a harrow the combination with the side bars, of transverse rods rigidly secured to the side bars, hollow rock-shafts loosely mounted upon said rods, harrow-teeth secured to said rock-shafts and means for rocking said rock-shafts, substantially as described.

3. In a harrow the combination with the hollow rock-shafts, of rods extending entirely through the shafts and jam-nuts securing said rods to the sides of the frame, whereby the frame is made rigid and the shafts left free to turn on said rods, substantially as described.

4. A socket for harrow-teeth formed in one piece provided with an aperture to engage the tooth-bar, a socket to receive the tooth, clamping-jaws and a clamping-bolt, the said tooth-bar aperture extending into the tooth-socket whereby the clamping-bolt clamps the tooth against the tooth-bar, substantially as described.

5. In a harrow the combination with the circular-surfaced tooth-bars, of a socket formed in one piece having a tooth-socket, a circular aperture for the tooth-bar extending into the tooth-socket and the clamping jaws and bolt, substantially as described.



6. A harrow composed of two hinged sections each section having a runner on its outer side, the two sections having a runner construction for supporting the inner sides of the sections, said inner runner construction forming a part of the inner side bars of the said sections, substantially as described.

7. A harrow composed of two hinged sections, each section having a runner on its outer side forming the outer side bar of such section, the said harrow having an inner or central runner construction forming a part of the inner side bars of the said sections, a part of the inner side bars of said sections being held out of contact with the ground to facilitate clearance, substantially as described.

8. In a sectional turnable-tooth-bar harrow, the combination therewith of the three runners or draft-bars, the outer runner on each section being deflected inwardly, hinged together at their front; the turnable tooth-bars mounted on the runners and lever operating mechanism, substantially as set forth.

9. The combination in a harrow of the tooth-bar; the tooth-clip surrounding the tooth-bar provided with an opening to allow the tooth-bar to engage the tooth; a transverse tooth-seat through the clip below the tooth-bar, a curved spring-tooth and a screw-threaded binder for securing the parts, as set forth.

10. In a sectional three-runner harrow, the combination of turnable tooth-bars arranged across the line of draft and carrying teeth, and draft-bars or runners, the draft-bars of a section connected at the front by a cross connection integral with and at right angles to the inner draft-bar or runner, substantially as described.

11. In a sectional harrow, the combination of draft-bars or runners deflected upwardly at their front portions and at the front connected by an elevated cross-bar from which one runner extends at right angles, said bars bent from one integral metal bar, and tooth-bars connecting and carried in an elevated plane above the runners and provided with teeth and adjusting means, substantially as described.

12. In a turnable-tooth-bar harrow, the combination of the draft-bars or runners having their front ends deflected upwardly, a series of turnable tooth-bars mounted in brackets in an elevated plane above the draft-bars in substantially the same horizontal plane with the front elevated portion of the draft-bars, and lever-operating mechanism for the purposes stated.

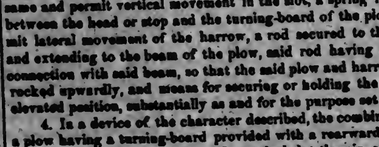
13. In a sectional harrow the combination of three runners, the tooth-bars supported in an elevated plane above the plane of the runners, and the supporting-hinges between the sections, substantially as shown.

14. In a sectional harrow, the combination of outer and inner runners, the runners of a section formed in one piece and continued across the front with the inner runner extending backward at a right angle and in the line of draft and parallel with the outer runner in a portion of its length, the turnable tooth-bars elevated above the plane of the runners and carrying teeth, and centrally-disposed hinges between the sections, substantially as described.

15. A sectional harrow consisting of three runners or draft-bars to each two sections; turnable tooth-bars; separating and supporting connections for separating and supporting the turnable tooth-bars in an elevated plane above the runners or draft-bars and hinges between the sections, as set forth.

16. A sectional harrow consisting of three runners or draft-bars to each two sections; turnable tooth-bars having curved spring-teeth; separating and supporting connections for separating and supporting the turnable tooth-bars in an elevated plane above the runners or draft-bars and hinges between the sections, as set forth.

604,273. LOCKING DEVICE FOR GUN-BARRELS. VALERIAN SOLOGOUBENSKY, St. Petersburg, Russia. Filed June 1, 1897. Serial No. 639,016. (No model.) Patented in Germany Apr. 3, 1897, No. 94,733, and in England Apr. 20, 1897, No. 9,982.



Claim.—The combination with the mortised frame provided with the arc-shaped bridge-piece 6, of the barrel provided with the lug 3 having an arc-shaped slot 7 and having corresponding recesses 8 formed in the opposite walls of said slot, the locking-bolt 9 arranged to reciprocate transversely in the frame and having a flat head adapted to engage the recesses 8 to lock the barrel, and a spring for throwing said bolt into engagement with the recesses, substantially as described.

604,274. COMBINATION PLOW AND HARROW. ARTHUR DE FOREST SPERRY, Hamilton, Mont. Filed Aug. 26, 1897. Serial No. 649,254. (No model.)



Claim.—1. The combination with a plow having a vertical or approximately vertical slot in the turning-board thereof, of a harrow having a projection extending through said slot, means for securing the projection in said slot so that the same will have vertical movement therein, and suitable braces between the plow-beam and the harrow, substantially as and for the purpose set forth.

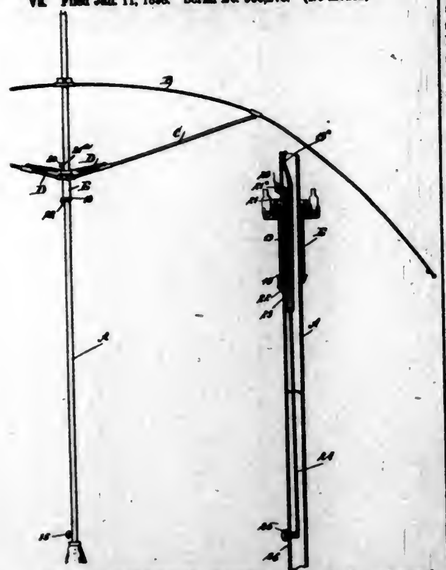
2. In a combined plow and harrow, the combination with a plow having a vertical or approximately vertical slot in the rear portion of the turning-board thereof, of a harrow provided with an extension passing through said slot, said extension being provided with a head or stop to secure the harrow to the turning-board and permit the same to have vertical movement in the slot therein, a spring interposed between the head or stop and the turning-board to permit independent lateral movement of the harrow, and suitable braces between the harrow and the plow-beam, substantially as and for the purpose set forth.

3. In a device of the character described, the combination with a plow having a vertical or approximately vertical slot in the turning-board thereof, of a harrow provided with an extension passing through said slot, said extension being provided with a head or stop on the other side of the turning-board to secure the harrow to the same and permit vertical movement in the slot, a spring interposed between the head or stop and the turning-board of the plow to permit lateral movement of the harrow, a rod secured to the harrow and extending to the beam of the plow, said rod having a pivoted connection with said beam, so that the said plow and harrow can be rocked upwardly, and means for securing or holding the harrow in elevated position, substantially as and for the purpose set forth.

4. In a device of the character described, the combination with a plow having a turning-board provided with a rearward extension having a vertical or approximately vertical slot therein, of a harrow

provided with a projection, extending through said slot and provided with a head or stop to secure the harrow to the turning-board and permit the same to have vertical movement in said slot, a spring interposed between said slot and the turning-board to permit lateral movement to the harrow, braces between the plow-beam and the harrow, said harrow being adapted to be lifted out of contact with the ground, and the means for holding said harrow in elevated position, substantially as and for the purpose set forth.

604,275. SELF-CLOSING UMBRELLA. FRANK R. STOVER, Luray, Va. Filed Jan. 11, 1898. Serial No. 666,576. (No model.)



Claim.—1. In an umbrella, the combination with ribs, and stretchers, of a runner having in its upper face seats in which the lower ends of the stretchers loosely rest, and coil-springs secured to the stretchers and to the upper portion of the runner, whereby the springs serve to hold the stretchers to the runner and also to force the runner downward when released from its locking device, substantially as described.

2. In an umbrella, the combination with the runner, said runner being provided with an annular groove in its upper surface, and slots crossing the said groove at intervals, of stretchers having their lower ends formed to enter the said slots, and provided with transverse pivots that seat in the said groove, and coil-springs attached to the stretchers and to the upper face of the runner, the springs serving to hold the stretchers in rockable engagement with the runner, as specified.

3. In a folding umbrella, the combination of a runner having a collar on its upper end and provided on its upper face with an annular groove, and with slots crossing said groove, stretchers provided at their lower ends with transverse pivots seated in the groove of the runner, and coil-springs having one end secured to the collar of the runner and their other ends secured to the stretchers, substantially as and for the purpose set forth.

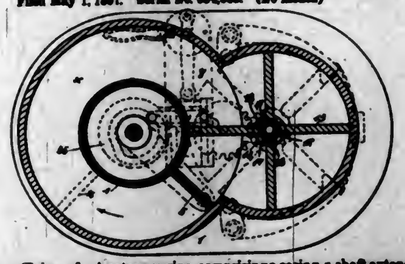
4. In a folding umbrella, the combination with a tubular stick provided with spaced openings, and a runner on the stick, of a latch within the stick and having its upper end bearing against the inner face of the stick, the said latch being provided with lugs projecting out through the openings of the stick, one of said lugs having limited movement in the opening of the stick while the other is free to work in and out in its opening, and an operating-rod secured to the latch and extending to the handle end of the stick, substantially as described.

5. In an umbrella, the combination with a tubular stick provided with spaced openings, and a runner on the stick, of a latch within the stick and provided with lugs projecting through the openings of the stick and with a tongue at its upper end, the upper lug of the latch being loosely held in its opening, and an operating-rod secured to the latch extending to the handle end of the stick and projecting out through an opening therein, substantially as described.

6. In an umbrella, the combination with a tubular stick provided with two spaced openings at its upper end and with an opening at its lower end, and a runner on the stick, of a latch within the stick and provided with a tongue at its upper end bearing against the inner face of the stick and with two lugs, the upper lug projecting through one of the openings in the stick and having a pin passing through it to hold it in the opening, the lower lug being free to move in and out of the opening in the stick, and an operating-rod secured to the latch and provided at its lower end with a knob projecting out through the opening at the lower end of the stick, substantially as described.

7. A closing umbrella, comprising a tubular stick, a runner mounted on the stick, ribs pivoted to the upper end of the stick, stretchers pivoted to the ribs and loosely seated in the runner, coil-springs secured to the stretchers and runner, a pivoted and sliding latch within the stick for engaging the runner, and an operating-rod secured to the latch and extending to the handle end of the stick and projecting out through an opening therein, substantially as herein shown and described.

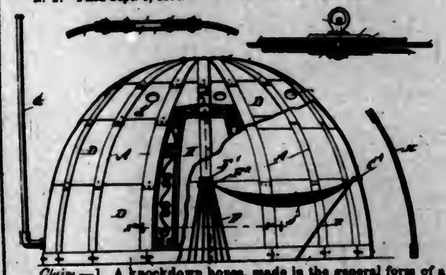
604,276. ROTARY ENGINE. WILLIAM R. SUTTON, Belvidere, Ill. Filed May 1, 1897. Serial No. 634,662. (No model.)



Claim.—1. A rotary engine, comprising a casing, a shaft extended through said casing, pistons mounted on the said shaft but isolated one from the other, each piston comprising a cylinder or hub portion and a radial wing, an abutment-wheel for each piston, each abutment-wheel consisting of a hub portion having inlet and outlet ports and radial blades, means for controlling the admission of steam through said ports, disks mounted on the hub portions of the abutment-wheels, the said disks being provided with radial slots, dogs pivoted in the casing, there being two dogs for each disk, the said dogs having fingers to engage in the slots of the disks, and means for moving said dogs into and out of engagement with the disks, substantially as specified.

2. A rotary engine, comprising a casing, a shaft extended through said casing, pistons mounted on said shaft but isolated one from the other, each piston comprising a cylinder or hub portion and a radial wing, an abutment-wheel for each piston, each abutment-wheel consisting of a hub portion having inlet and outlet ports and radial blades, means for controlling the admission of steam through said ports, disks mounted on the hub portions of the abutment-wheels, the said disks being provided with radial slots, dogs pivoted in the casing, one at the upper side and one at the lower side of each disk, the said dogs having finger portions to engage in the slots, spring-pressed tappets carried by the dogs and adapted to move the dogs and also to move relatively to the dogs, and arms extended from the shaft, having pins designed to engage in the slots of the disks, substantially as described.

604,277. KNOCKDOWN HOUSE. PETER A. TOTTY, New York, N. Y. Filed Sept. 9, 1897. Serial No. 651,115. (No model.)



Claim.—1. A knockdown house, made in the general form of a dome, having ribs formed of plates secured together so as to leave a groove in each edge, a central crown formed of two plates secured together and having sockets between their edges adapted to receive the upper ends of the ribs, and plates adapted to enter the grooves in the edges of the ribs and fit between adjacent ribs, substantially as described.

2. A knockdown house, made in the general form of a dome, having ribs formed of plates secured together so as to leave a groove in each edge, said ribs being made in sections which may be secured together at their ends, the outer layer of each section registering with the groove in the section next above, a central crown, consisting of two plates secured together and having sockets between their edges adapted to receive the upper ends of the ribs, and plates adapted to enter the grooves in the edges of and fit between the adjacent ribs, substantially as described.

3. A knockdown house, having hooks or eyes attached to the inner walls thereof at intervals, and a central stand having hooks or rings thereon, said wall and center rings being adapted to support hammocks, substantially as described.

4. A knockdown house, composed of ribs meeting at their upper ends and having grooves in their edges, segmental plates adapted to fit the grooves in the edges of the ribs, and an encircling band surrounding the base of the house, said ribs and bands being made in sections and bolted together, substantially as described.

5. A knockdown house, composed of vertical ribs meeting at their upper ends and having grooves in their edges, segmental plates adapted to fit the grooves in the edges of the ribs, and an encircling band surrounding the base of the house, said ribs and bands being made in sections and bolted together, said house having a door-opening on one side, guides adjacent thereto, and a door sliding therein, substantially as described.

6. A knockdown house, composed of ribs meeting overhead and having grooves in their edges, a central crown receiving the upper ends thereof, said crown being formed of two plates having a spacing-washer between, segmental plates adapted to fit the grooves in the edges of the ribs, and an encircling band surrounding the edges of the house and secured to the lower ends of the ribs, substantially as described.

7. A sectional or knockdown house, having ribs formed in short sections, each section consisting of two outer plates of substantially the same width and an interposed plate of narrower width, thus forming a groove in each edge, the plates at the joining ends of the sections projecting successively at a greater distance, and adjacent sections being joined to each other by butting an outer plate of each section against the central plate of the other section, and securing the sections through the overlapping parts, substantially as described.

604,278. EXPANDING HUB. LOUIS P. VOLLRATH, San Antonio, Tex. Filed July 23, 1897. Serial No. 645,722. (No model.)



Claim.—1. In a wheel, a spindle-box screw-threaded on both ends, a central portion of said box larger than the main body and tapering toward the forward end of the same, said tapering portion being screw-threaded, a nut integral with the box and near the rear of the same, an expanding-ring provided on the interior with threads, and clamping-rings; all combined and operating substantially as described.

2. In a wheel, a spindle-box screw-threaded on both ends, a central portion of said box larger than the main body and tapering toward the forward end, screw-threads formed on said tapering portion, a nut formed integral with and near the rear of the box, an expanding-ring engaging said tapering portion, clamping-rings, and a forward and rear cap to cover the box, an annular rib on the inside of the forward cap having screw-threads in its face adapted to engage the threads on the box, a cap-nut screw-threaded on the inside and adapted to screw on the forward end of the box and jamb against the said rib, thereby locking the parts against movement.

3. In a wheel, a spindle-box screw-threaded on both ends, an enlarged tapering central portion also screw-threaded, a nut integral with and near the rear of said box, an annular groove in the forward end of the same, a section-ring tapered and screwed-threaded on the inside, spoke-sockets in the periphery of said ring, collars adapted to fit around and bear against the said ring, and a bracing-ring fitting around the periphery of said collars and provided with slots through which the spokes pass, the forward and rear hub-caps, an annular rib having threads in its face inside the forward cap adapted to engage the box, a cap-nut threaded on the inside, an annular rib having a screw-threaded face inside the rear cap; and a set-screw passing through the rear cap and engaging the box.

604,279. SAW. FRANK W. WALQUIST, GULBRAND NELSON, and JOHN L. GRONDAHL, Brooklyn, N. Y.; said Walquist assignor of one-third of his right to Henry G. Towles, Washington, D. C. Filed Dec. 13, 1896. Serial No. 616,116. (No model.)

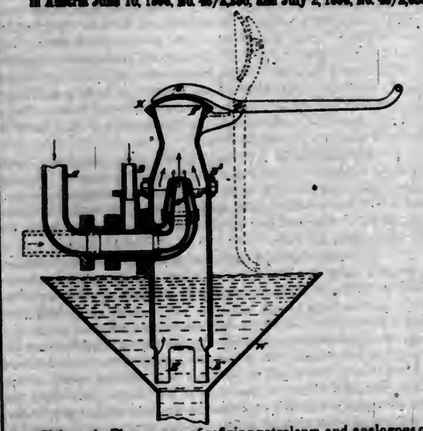


Claim.—1. The combination in a saw of the alternate taper-faced channeling-teeth and the upset-faced finishing-teeth, the channeling-teeth being longer and narrower than the finishing-teeth substantially as described.

2. The combination in a saw of the alternate taper-faced channeling-teeth and the upset finishing-teeth, the channeling-teeth being longer and narrower than the finishing-teeth, and the finishing-teeth having the narrow side faces parallel, transversely, with the sides of the saw-plate substantially as described.

3. The combination in a saw of alternate channeling-teeth and finishing-teeth, the channeling-teeth being longer and narrower than the finishing-teeth, and the finishing-teeth being upset on the face and their sides tapered from the cutting edge backward substantially as described.

604,280. PROCESS OF AND APPARATUS FOR REFINING CRUDE PETROLEUM, &c. HERMANN WOLF, Ludwigshafen-on-the-Rhine, Germany, assignor to the Badische Anilin und Soda Fabrik, same place. Filed Feb. 7, 1896. Serial No. 578,441. (No model.) Patented in England Dec. 6, 1895, No. 23,436; in Germany Jan. 23, 1896, Nos. 93,013 and 93,708; in Hungary Mar. 24, 1896, No. 5,954, and in Austria June 10, 1896, No. 46/2,230, and July 2, 1896, No. 46/2,635.



Claim.—1. The process of refining petroleum and analogous oils which consists in injecting a stream of sulfuric acid between two streams (one of which is oil) moving at different velocities, substantially as described.

2. The process of refining petroleum and analogous oils which consists in injecting a stream of sulfuric acid between two streams (one of which is oil) moving at different velocities, said oil and acid being made to stream in parallel directions, substantially as described.

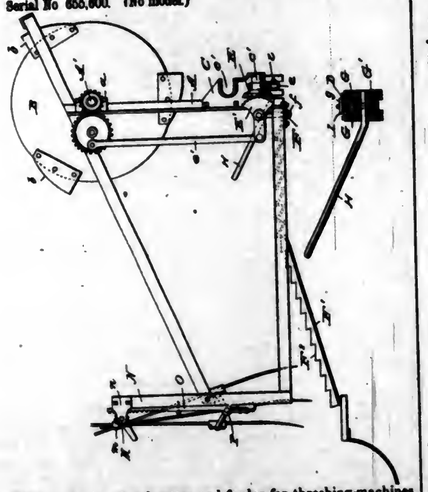
3. The process of refining petroleum and analogous oils which consists in injecting a stream of fuming sulfuric acid between two streams of oil moving at different velocities then treating the said oil with non-fuming sulfuric acid to remove acid-impurity combinations and then washing the oil, substantially as described.

4. A refining apparatus comprising a cylindrical casing provided with concentric inlet or injection nozzles and having a constricted portion above the nozzle-mouths and below the upper extremity of the casing; said casing having its upper portion provided with a lid and its lower portion provided with lateral inlets, substantially as described.

5. A refining apparatus comprising a cylindrical casing provided with concentric inlet or injection nozzles and having a constricted portion above the nozzle-mouths and below the upper extremity of the casing combined with a tank or vessel (one or more) made to

communicate with the lower part of the casing, substantially as described.

604,281. BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES. FRANK J. WOOD, Pipe Stone, Minn. Filed Oct. 18, 1897. Serial No. 655,600. (No model.)



Claim.—1. In a band-cutter and feeder for threshing-machines, the combination with a frame having journaled thereto a shaft upon which is mounted a series of cutting-disks, a series of agitating-fingers positioned below said cutting-disks, the journals of the cutting-disks being at right angles with the shaft and provided with pinions, a reciprocating rack-bar in engagement with the pinions for imparting an oscillating movement to the agitating-fingers, a feed-board supported at one end by a rock-shaft, and connecting means substantially as shown for reciprocating the feed-board and rack-bar from the shaft carrying the cutting-disks.

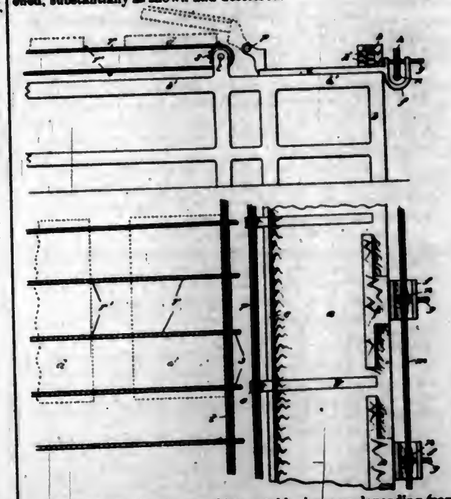
2. In a band-cutter and feeder for threshing-machines a frame having a cross-bar to which are attached parallel bars of agitating-fingers journaled in said bars, pinions carried by the agitating-fingers and a rack-bar with depending teeth which engage with the pinions, and means for reciprocating the rack-bar substantially as shown and for the purpose set forth.

3. In a band-cutter and feeder for threshing-machines, a supporting-frame made up of angle-bars arranged and connected substantially as shown, of castings attached to the rear vertical bars of the frame said castings having recesses *d* and inwardly-projecting members *c* to which a cross-bar of the frame is attached, one of the castings having outwardly-projecting lugs, a gear journaled between said lugs, a rack-bar connected to the gear, agitating-fingers and pinions carried thereby with which the teeth of a rack-bar mesh, a rock-shaft journaled to the vertical bars of the frame, a feed-table one end of which is movably supported by the rock-shaft, a gear having a projecting member carried by the rock-shaft so as to mesh with the gear carried by the casting and a pitman connected to the projecting portion of the gear for actuating the table and agitating-fingers, the parts being combined, substantially as shown and for the purpose set forth.

4. In a band-cutter and feeder for threshing-machines, the combination of the rotary band-cutters mounted upon a driven shaft, a pinion carried by said shaft, a gear-wheel which engages with the pinion, a pitman connected with said gear-wheel and to a gear E', a rock-shaft suitably journaled the gear E' being attached thereto on a line with the journals of the shaft a feeding-board supported at one end by the rock-shaft, a gear E in mesh with the gear E' a reciprocating bar connected to the gear E, said reciprocating bar having rack-teeth for engagement with pinions on agitating-fingers journaled between parallel bars G, the agitating-fingers projecting over the feeding-board, the parts being organized substantially as shown and for the purpose set forth.

604,282. STRAIGHTENING-MACHINE. JOHN ZIMMER, Pittsburg, Pa. Filed June 1, 1897. Serial No. 639,062. (No model.)

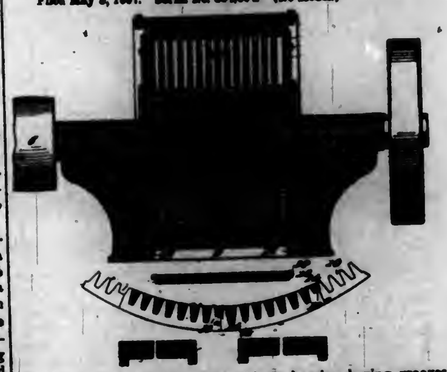
Claim.—1. In a straightening-machine, the combination of a table having U-shaped hangers depending therefrom, screws journaled in said hangers and connected to heads or straightening-blocks, an operating-shaft carrying worms to engage worm-wheels on said screws, a shaft journaled on the opposite side of said table and carrying arms operating on said table to remove the plates or flat iron when straightened, substantially as shown and described.



2. In a straightening-machine, a table, hangers depending from said table and having screws journaled therein, heads or straightening-blocks connected to said screws, said blocks having a series of spring-actuated bars mounted thereon, worm-wheels mounted on said screws, a shaft provided with worms engaging the worm-wheels to operate the heads or straightening-blocks, and means for removing the plates, substantially as shown and described.

3. In a straightening machine, a suitable table, a frame for supporting same, hangers secured to said table, screws journaled in said hangers connected to the head-block carrying a series of spring-actuated bars, worm-wheels on said screws, an operating-shaft carrying worm-screws to engage said worm-wheels, lifting-arms to remove the plate from the table, and means for operating said lifting-arms, in combination with a carrier adapted to receive the plate from said lifting-arms, substantially as shown and described.

604,283. PULVERIZER. HERMAN S. ALLENSWORTH, St. Louis, Mo. Filed May 3, 1897. Serial No. 634,494. (No model.)



Claim.—1. A pulverizer comprising a housing having grooves in the inner faces of the side walls thereof, a revolving cylinder, sectional removable side plates having notches and fitting in the grooves, and the bars having their ends fitting in the notches of the side plates and providing a screen; substantially as described.

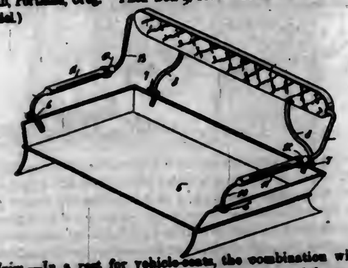
2. A pulverizer comprising a housing having grooves in the inner faces of the side walls thereof, a revolving cylinder, sectional removable side plates having notches of different depths and fitting in the grooves, the bars fitting in the deepest notches, and the bars having notched ends fitting in the notches of less depth to hold the side plates in position independent of other fastenings; substantially as described.

3. A pulverizer comprising a housing having inner and outer grooves in the inner faces of the side walls thereof, a revolving cylinder, sectional removable side plates having notches and fitting in the outer grooves, the bars having their ends fitting in the notches of the side plates, and providing a screen, and the wear-plates fitting in the inner grooves; substantially as described.

4. A pulverizer comprising a housing having side walls formed with an outer groove, and an inner groove of less depth than the outer groove, a revolving cylinder, sectional removable side plates having notches and fitting in the outer grooves, the bars having their ends fitting in the notches of the side plates and providing a screen, and the wear-plates fitting in the inner grooves; substantially as described.

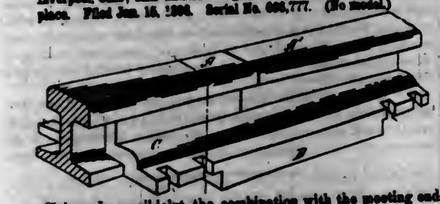
5. A pulverizer consisting of a housing, a revolving cylinder, and a screen; said cylinder being composed of a shaft, a number of spiders each having two pairs of arms, and hammers pivoted to the arms of the spiders; one pair of arms of each spider being located to one side of the other pair of arms of said spider, substantially as set forth.

604,284. BACK-REST FOR VEHICLE-SEATS. ROBERT C. ALFORD, Portland, Oreg. Filed Dec. 3, 1897. Serial No. 660,497. (No model.)



Claim.—In a rest for vehicle-seats, the combination with the seat, of a back-rest ranging transversely at the rear of the seat, two braces attached to the back-rest and extending downward and pivotally mounted on the seat at the rear portion thereof, two rods pivotally connected with the respective ends of the back-rest and extending forwardly, two cylinders in which the rods are respectively slidable, the cylinders being mounted at their front portions to swing at the respective sides of the seat, and a spring contained in each cylinder and pressing against the rod therein.

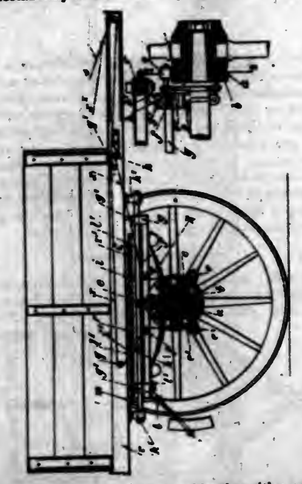
604,285. RAIL-JOINT. PHILIP W. ARNOLD and JOHN KELL, East Liverpool, Ohio; said Arnold assignor to William Jack Curry, same place. Filed Jan. 15, 1898. Serial No. 666,777. (No model.)



Claim.—In a rail-joint, the combination with the meeting ends of two rails, of a connecting-plate, consisting of a base portion extending below the base of the rails, and running to a point near the ends of the plate proper, forming abutting shoulders which are adapted to bear against the sides of the ties for holding the plate in a rigid position, side arms cast integral with the plate, one of which extends upward to a point underneath the head of the rails, and the other extending upward and embracing the side of the head of the rails, forming a reinforced bearing therefor, together with recesses formed in the edges of the base of the plate for receiving spikes for securing the plate in a rigid position, substantially as shown and for the purposes described.

604,286. VEHICLE-BRAKE. RENÉ M. ARTUS, Gonneville, France. Filed Apr. 24, 1896. Serial No. 587,902. (No model.) Patented in France Sept. 28, 1894, No. 241,086, and in Germany Apr. 14, 1896, No. 87,868.

Claim.—1. In a brake mechanism, the combination with a vehicle having one of its constituent parts movable longitudinally relatively to the wheels, of an expansible collar loosely mounted on a rotating part of the vehicle, a cord or chain wound around the said collar and connected with the movable part of the vehicle, and a brake operated by the movement of the said movable part of the vehicle, substantially as herein shown and described.



2. In a brake mechanism, the combination with a vehicle having one of its constituent parts longitudinally movable relatively to the wheels, of an expansible collar loosely mounted on a rotating part of the vehicle, a chain or cord wound around the said collar and connected with the movable part of the vehicle, a pivoted brake-lever, and a connection between the brake-lever and the said movable part of the vehicle, substantially as herein shown and described.

3. In a brake mechanism, the combination with a vehicle having one of its constituent parts longitudinally movable and spring-pressed, of an expansible collar loosely mounted on the hub of one of the wheels of the vehicle, a cord or chain wound around the said collar and connected with the movable part of the vehicle, a pivoted brake-lever, and a connection between the said brake-lever and the movable part of the vehicle, substantially as herein shown and described.

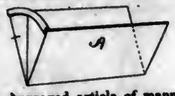
4. In a brake mechanism, the combination with a vehicle-body longitudinally movable relatively to the wheels, of an expansible collar loosely mounted on the hub of one of the wheels, a cord or chain wound around the said collar and having one end connected to the vehicle-body and its other end adapted to have a pull exerted thereon to compress the collar on the hub of the wheel, a pivoted brake-lever, and a connection between the brake-lever and body, substantially as described.

5. In a brake mechanism, the combination with a wheel-supported frame, of a vehicle-body mounted to slide longitudinally on said frame, an expansible collar loosely mounted on the hub of one of the wheels, a cord or chain wound around the said collar and having one end secured to the body, the other end of the said cord or chain being adapted to have a pull exerted thereon to compress the collar into frictional engagement with the hub, springs for pressing the body forwardly and rearwardly, a pivoted brake-lever, and a connection between the brake-lever and body, substantially as described.

6. In a brake mechanism, the combination with a wheel-supported frame, of the body fitted to slide longitudinally on said frame, an expansible collar loosely mounted on the hub of one of the wheels, a cord or chain wound around the collar and having one end secured to the body, the other end of the cord or chain being adapted to have a pull exerted thereon to compress the collar into engagement with the hub, a sliding rod on the under side of the body, springs on said rod and serving to press the body forwardly and rearwardly, and a pivoted brake-lever having one end pivoted to the sliding rod, substantially as herein shown and described.

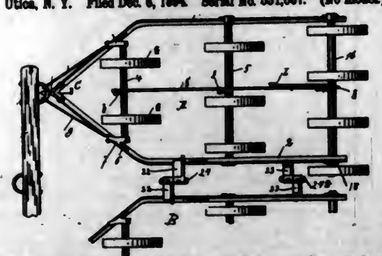
7. A brake mechanism for vehicles, comprising an expansible collar mounted to rotate loosely on one of the rotating parts of the vehicle, a flexible connection extending around said loose collar to compress the same and bring it into frictional engagement with the said rotating part, a draft-receiving device to which one end of said connection is secured, a vehicle-body movable longitudinally of the vehicle relatively to the wheels, the other end of the flexible connection being connected to said movable body, and a brake actuated by the movement of the body, substantially as described.

604,287. MORTAR-HOD. WILLIAM G. AVERY, Cleveland, Ohio. Filed Aug. 3, 1894. Serial No. 519,770. (No model.)



Claim.—As an improved article of manufacture, a triangular-shaped mortar-hod made up of a single blank of sheet metal substantially rectangular with one end extended at either side at obtuse angles with the side edges and having a triangular central section terminating in a flap, said blank being bent transversely near the aforesaid end, then bent upon its longitudinal center and the said triangular central section bent inward upon the inclined sides to form a transverse wall between said sides, after which the triangular portions or flaps extending beyond the wall are bent upon the latter and the flap or upper end of said wall turned over the upper edges of the aforesaid flaps, as herein shown and described.

604,288. HARROW. HENRY D. BABCOCK, Leonardsville, N. Y., assignor, by mesne assignments, to the National Harrow Company, Utica, N. Y. Filed Dec. 6, 1894. Serial No. 531,067. (No model.)



Claim.—1. In a sectional harrow the following elements in combination: draft-bars parallel in portions of their length deflected upwardly at their front ends; a wearing or reinforcing shoe conforming to the angle of the draft-bars; turnable tooth-bars and lever-operating mechanism for the purposes stated.

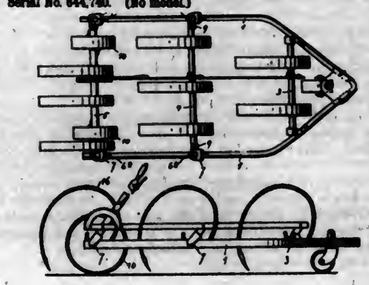
2. In a sectional harrow the following elements in combination: parallel draft-bars in portions of their length; turnable tooth-bars at substantially right angles to the draft-bars; tooth-bar sockets or clips secured at one end to the draft-bars and provided with tooth-bar sockets at their free ends and arms carried by the tooth-bars and overlapping said clips for holding the tooth-bars from end thrust, and lever mechanism for operating the turnable tooth-bars as set forth.

3. The combination in a harrow, of turnable tooth-bars, draft bars or runners integral in their length, the inner draft-bars deflected at their rear into a plane above the other portions of the draft bars or runners, substantially as described.

4. In a harrow, the combination of turnable tooth-bars, draft-bars provided with tooth-bar sockets rigidly secured thereto, and clips secured to the tooth-bars and arranged to overlap portions of the tooth-bar sockets on the outer sides thereof, substantially as described.

5. In a metal-frame harrow, the combination of draft-bars parallel in portions of their length and deflected at their front into engagement with a nose-piece to which they are rigidly secured, and the nose-piece, substantially as described.

604,289. HARROW. HENRY D. BABCOCK, Leonardsville, N. Y., assignor to the Standard Harrow Company. Filed July 15, 1897. Serial No. 644,740. (No model.)



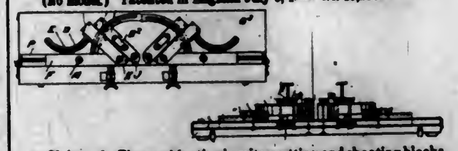
Claim.—1. In a spring-tooth harrow having side or draft bars with tooth-bars running substantially at right angles to the line of draft, and wheels mounted on the rear bar of the harrow and running parallel with the teeth, whereby the rear of the harrow is carried in a given horizontal plane, substantially as set forth.

2. The combination with the rear bar of a spring-tooth harrow and the wheel mounted thereon, by means of which the rear of the harrow is always carried in a given horizontal plane for the purposes stated, substantially as set forth.

3. In a lever spring-tooth harrow, the combination with the rear tooth-bar located substantially at right angles to the line of draft, a wheel-bearing box mounted on the rear tooth-bar and a wheel running thereon, substantially in the direction of the line of draft, whereby the rear of the harrow is carried in a given horizontal plane for the purposes stated.

4. In a lever spring-tooth harrow, the combination therewith of the rear tooth-bar of I-beam steel located substantially at right angles to the line of draft, a wheel-bearing box having a shoulder surrounding the rear tooth-bar and a wheel mounted thereon to run in the direction of the line of draft for the purposes stated.

604,290. MITER CUTTING AND SHOOTING BLOCK. WILLIAM O. BAILEY, London, England. Filed Dec. 24, 1897. Serial No. 663,294. (No model.) Patented in England July 8, 1896 No. 13,368.



Claim.—1. The combination in miter cutting and shooting blocks, of a bed-plate formed with a raised platform, a pair of guide-blocks pivoted to the raised platform, a pair of quadrantal slotted plates in which the bolts attached to the guide-blocks work for adjusting the said guide-blocks, a pair of auxiliary guide-blocks mounted on a pair of sliding blocks, and a pair of quadrantal slotted plates for adjusting said auxiliary guide-blocks substantially as described.

2. The combination in miter cutting and shooting blocks, of a bed-plate formed with a raised platform, a pair of guide-blocks pivoted to the raised platform, a pair of quadrantal slotted plates in which the bolts attached to the guide-blocks work for adjusting the said guide-blocks, a pair of auxiliary guide-blocks mounted on a pair of sliding blocks, a pair of quadrantal slotted plates for adjusting said auxiliary guide-blocks, and a pair of horizontal clamps mounted in or upon the base-plate substantially as specified.

3. The combination, in miter cutting and shooting blocks, of a bed-plate formed with a raised platform, a pair of guide-blocks pivoted to the raised platform, a pair of quadrantal slotted plates in which the bolts attached to the guide-blocks work for adjusting the said guide-blocks, a pair of auxiliary guide-blocks mounted on a pair of sliding blocks, a pair of quadrantal slotted plates for adjusting said auxiliary guide-blocks, a pair of horizontal clamps, mounted in or upon the base-plate, and a pair of cooperating vertical clamps, substantially as specified.

4. The combination, in miter cutting and shooting blocks, of a bed-plate, carrying the guide-blocks, auxiliary guide-blocks and quadrantal slotted plates as described, a circular-saw bench, grooves and runners, and rollers, adapted and arranged substantially as described.

604,291. MITER CUTTING AND SHOOTING BLOCK. WILLIAM O. BAILEY, London, England. Filed Dec. 24, 1897. Serial No. 663,295. (No model.) Patented in England Aug. 11, 1894, No. 15,322.



Claim.—1. In a miter cutting and shooting block, the combination with a bed-plate of a raised platform carrying a pair of adjustable guide-blocks, a pair of auxiliary guide-blocks carried by slotted blocks capable of sliding in slots or guides formed in or upon the raised platform, substantially as specified.

2. In a miter cutting and shooting block, the combination with a bed-plate, of a raised platform carrying a pair of adjustable guide-blocks with the auxiliary means described for securing same in position, a pair of auxiliary guide-blocks carried by slotted blocks capable of sliding in slots or guides in or upon the raised platform, substantially as described.

3. In a miter cutting and shooting block, the combination, with a bed-plate having a raised platform carrying a pair of adjustable guide-blocks adapted to be fixed in position as described, of a pair of auxiliary guide-blocks carried by slotted blocks capable of sliding in slots or guides formed in or upon the edge of the raised platform, and a removable platform adapted and arranged substantially as described.

4. In a miter cutting and shooting block, the combination of a bed-plate with raised platform, a pair of adjustable guide-blocks adapted to be fixed as described, a pair of auxiliary guide-blocks mounted upon a pair of slotted blocks adapted to slide in slots or guides, a removable platform and adjustable springs for securing the material while being cut, substantially as specified.

604,292. WASHING-MACHINE. JAMES S. BEATTY, Simpsonville, Ky. Filed June 19, 1897. Serial No. 641,474. (No model.)



Claim.—1. In a washing-machine, the combination with a supporting-frame, of bearings formed thereon, a shaft held in said bearings, a sprocket-wheel formed upon said shaft, a crank held upon the same, a swinging frame supported upon said shaft, a roller held to rotate in said swinging frame near the end thereof, a similar roller rotatably mounted in said frame and held to rotate therein, gears connecting the said rollers, springs to normally hold said rollers together, a sprocket mounted upon one of said rollers, and a chain connecting said sprocket with the first-mentioned sprocket, substantially as described.

2. In a washing-machine, the combination with a pair of arched supporting-bars having a series of spaced holes near the ends thereof, of rods connecting said bars, adjustable supports held upon said bars adapted to be attached thereto at any of said openings, bearings formed upon said arched bars, a shaft extending across said bearings, a sprocket mounted upon said shaft, a crank held upon the same, a swinging frame held upon said shaft, a roller mounted to rotate in said swinging frame at the lower end of said shaft, a similar roller slidably mounted in said frame and adapted to rotate therein, gears connecting said rollers, a sprocket formed upon one of said rollers, and a chain connecting the said sprocket with the sprocket upon the shaft, substantially as described.

604,293. PRINTING-PRESS. HENRY F. BECHMAN, Battle Creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed May 12, 1897. Serial No. 636,165. (No model.)

Claim.—1. The combination of the reciprocating carriers and the gripper cylinder journaled thereon; with an extensible and contractible reciprocating feed mechanism adapted to feed sheets to the cylinder for the purpose and substantially as described.

2. The combination in a printing-press of a reciprocating impression gripper-cylinder, a stationary sheet-supply, and a reciprocating feed mechanism having one part connected to and reciprocating horizontally with the cylinder and adapted to take sheets from the stationary table and deliver them to the cylinder as it travels.

3. The combination with a pair of reciprocating gripper-cylinders, and a stationary feeding mechanism, of a secondary feed mechanism having one part connected to and reciprocating with the cylinders and adapted to transfer sheets from the stationary feed to the moving cylinders, substantially as and for the purpose set forth.

4. The combination in a printing-press of a pair of reciprocating carriers and impression-cylinders mounted thereon and a stationary sheet-supply; with a feed mechanism having one part attached to the carriers and another part to the frame, and adapted to take sheets from the stationary supply and deliver them to the cylinders while moving, substantially as and for the purpose described.



5. In a printing-press the combination of a pair of reciprocating oscillating impression-cylinders, and a pair of oppositely-reciprocating type-beds, with a reciprocating feed mechanism moving with the cylinders, and adapted to take sheets automatically severed from the web, or otherwise delivered thereto, and deliver them to one of the impression-cylinders as it travels, and means for transferring sheets from one cylinder to the other, substantially as described.

6. The combination of the reciprocating carriers and the cylinder journaled thereon; with an extensible and contractible feed mechanism adapted to feed sheets to the cylinder, said mechanism being so connected to the carriers that it can be detached therefrom and swung up out of the way when making ready the press, all substantially as and for the purpose set forth.

7. In a printing-press the combination of a reciprocating type-bed, or pair of reciprocating type-beds, with a pair of oppositely-reciprocating oscillating impression-cylinders so arranged that sheets printed on one side upon one of the cylinders may be directly transferred to the other cylinder and printed on the other side, with a feeding mechanism reciprocating with the cylinders and adapted to take sheets automatically severed from the web, or otherwise delivered thereto, and deliver them to one of the impression-cylinders as it travels.

8. In a printing-press the combination of a reciprocating type-bed with a pair of oppositely-reciprocating oscillating gripper impression-cylinders, so arranged and actuated by suitable mechanism that sheets printed on one side upon one cylinder may be directly transferred to the other cylinder and printed on the other side.

9. The combination of a pair of reciprocating, oscillating cylinders, and a stationary mechanism for feeding a web and severing it into sheets; with an extensible and contractible feed mechanism substantially as described, adapted to take the sheets from the cutting mechanism and deliver them to the nearest cylinder while it travels, and means for transferring sheets from one cylinder to the other for the purpose and substantially as described.

10. The combination of a pair of reciprocating carriers, a pair of oscillating cylinders journaled thereon, and means for transferring sheets from one cylinder to the other; with guide-fingers and tape-guide rollers mounted on the carriers and moving with the cylinder; a stationary sheet-feeding mechanism mounted on the main frame, tape-guide rollers beside said sheet-feeding mechanism; and a system of endless tapes for carrying sheets from the stationary tape-guide rollers to the guide-rollers on the carriers, and mechanism for looping the tapes in proper manner to compensate for the movement of the carriers, all substantially as and for the purpose set forth.

11. The combination of a reciprocating oscillating impression-cylinder; a set of tape rollers and guides connected to and moving with the cylinder, adapted to deliver sheets thereto, and a set of

tape-rollers mounted on the frame, with endless tapes extending from the stationary rollers to the movable rollers for carrying sheets from the former to the latter, and guides, and means for looping said tapes so as to compensate for the movement of the movable rollers, for the purpose and substantially as described.

12. In a feed mechanism for printing-presses, the combination of a reciprocating impression-cylinder, guide-fingers and tape-rollers connected to and moving with the cylinder, tape-rollers mounted on a stationary support adapted to receive sheets of paper; endless tapes for carrying sheets from the stationary to the movable tape-rollers; and rollers movable with the cylinder carriers and actuated by the latter, and forming loops in the endless tapes compensating for the travel of the cylinder, all substantially as and for the purpose described.

13. The combination in a printing-press of a pair of reciprocating carriers and impression-cylinders mounted thereon and a stationary sheet-supply; with a feed mechanism adapted to take sheets from the stationary supply and deliver them to the cylinders while moving; said feed mechanism being so connected to the carriers that it can be detached therefrom and swung out of the way when making ready, all substantially as and for the purpose set forth.

14. The combination of a reciprocating oscillating cylinder, a reel traveling with the cylinder, having grippers adapted to take the sheet from said cylinder, and the systems of endless tapes moving with the reel and cylinder for delivering the printed sheets, substantially as and for the purpose described.

15. In a printing-press the combination of type-beds, a pair of cylinders, screws and rack-bars for raising and lowering said cylinders, a pinion engaging the rack-bar, a sliding rack engaging the pinion, and means for shifting said rack, for the purpose and substantially as described.

16. The combination of an impression-cylinder, a screw for throwing said cylinder on or off impression, and a sliding bar having a rack engaging a pinion on the screw; with a movable rack-bar, a pinion meshing with said rack-bar and with a rack on the lower edge of said sliding bar, and mechanism for shifting the lower rack-bar for the purpose and substantially as described.

17. The combination of a reciprocating cylinder carrier and a cylinder mounted thereon, a screw for raising and lowering the cylinder having a pinion; and a sliding rack-bar engaging said pinion; with an adjustable rack supported on the frame of the machine, a pinion meshing with said adjustable rack and with teeth on said rack-bar, means for lineally moving said pinion, and means for shifting the adjustable rack so as to compel the pinion to shift the rack-bar, for the purpose and substantially as described.

18. In a printing-press the combination of type-beds; a pair of reciprocating carriers; a pair of cylinders mounted on said carriers; a fixed and a sliding rack-bar mounted on the carrier; and means operated by the movable rack, for alternately throwing said cylinder on and off impression; with a fixed and movable rack on the frame; a pair of pinions interposed between said pairs of racks; and means for shifting the lower movable rack-bar so as to cause the pinion meshing therewith and with the upper movable rack-bar, to shift the latter, for the purpose and substantially as described.

19. In a printing-press the combination of a pair of reciprocating carriers, a pair of oscillating cylinders mounted thereon; screws for raising and lowering said cylinders, provided with pinions; a sliding rack-bar meshing with said pinions and having a rack on its lower edge; a fixed rack also mounted on the carrier beside the movable rack; a fixed and a movable rack lying below the carrier-racks; a pinion meshing with both said fixed racks; a loose pinion meshing with both said movable racks; and means for shifting the lower movable bar, all substantially as and for the purpose set forth.

20. The combination of a reciprocating carrier, a cylinder mounted thereon, a rotatable screw for raising and lowering said cylinder, a sliding rack-bar for rotating said screw, and a fixed rack-bar beside the sliding rack-bar, all mounted on the carrier; with a stationary rack-bar and an adjustable rack-bar mounted on the frame; a pair of pinions mounted loosely on a stub-shaft and respectively meshing with the fixed and stationary rack-bars, and the sliding and adjustable rack-bars, and means for shifting said adjustable rack-bar, all substantially as and for the purpose set forth.

21. In a printing-press the combination of type-beds, a pair of oscillating bars, a pair of cylinders mounted on opposite ends of said bars, screws and rack-bars for oscillating said bars, a pinion engaging the rack-bar, a sliding rack engaging the pinion, and means for shifting said rack, for the purpose and substantially as described.

22. In a printing-press the combination of type-beds; a pair of oscillating bars mounted on reciprocating carriers; a pair of cylinders mounted on opposite ends of said bars; with a fixed and a sliding rack-bar mounted on the carrier; and means operated by the movable rack, for oscillating said bars; a fixed and movable rack on the frame; a pair of pinions interposed between said pairs of racks; and means for shifting the lower movable rack-bar so as to cause the pinion meshing therewith and with the upper movable rack-bar, to shift the latter, for the purpose and substantially as described.

23. In a printing-press the combination of a pair of reciprocating carriers, oscillating cylinder-supporting bars mounted thereon; screws for oscillating said bars, provided with pinions; a sliding rack-bar meshing with said pinions and having a rack on its lower edge; a fixed rack also mounted on the carrier beside the movable rack; a fixed and a movable rack lying below the carrier-racks; a pinion meshing with both said fixed racks; a loose pinion meshing with both said movable racks; and means for shifting the lower movable bar, all substantially as and for the purpose set forth.

24. The combination of a pair of type-beds, a pair of reciprocating carriers, an oscillating bar on each carrier, and a pair of cylinders journaled in said oscillating bars; screws for oscillating said bars, pinions on the screws, a rack-bar on each carrier engaging the screw-pinions and having a rack on its lower edge also; and a fixed rack on each carrier beside the movable rack; with a fixed and a movable rack mounted on the frame below the carrier; a sliding plate mounted in guides and provided with a stub-shaft overlying the lower racks; a pair of pinions on said sub-shaft respectively meshing with the upper and lower fixed racks, and the upper and lower movable racks, and means for shifting said lower movable rack, all substantially as and for the purpose set forth.

25. The combination with the reciprocating cylinder, the sheet-guide fingers traveling therewith, and the tape-guides J^3, J^3 also moving with the cylinder; the stationary tape-guides J', J^4, and the endless carrier-tapes J, running over rollers J', J^3, J^3, J^4, all for the purpose and substantially as described.

26. The combination with the reciprocating cylinder, the sheet-guide fingers traveling therewith, and the tape-guides J^3, J^3, also moving with the cylinder; the stationary tape-guides J', J^4, and the endless carrier-tapes J, running over rollers J', J^3, J^3, J^4; with the tape-guides j^3, j^3 also moving with the cylinder, the stationary guides j', j^4, and the endless tapes j running over guides j', j^3, j^3, j^4, all substantially as and for the purpose described.

27. The combination with the cylinder and its reciprocating carriers, the sliding bars detachably connected to the carrier, and the castings supporting said bars pivoted on the main frame, with the tape-guides J^3, J^3, j^3, j^3, mounted on said bars; and the tape-guides J', J^4, j', j^4, mounted on said castings, the endless tapes J running over guides J', J^3, J^3, J^4, and the endless tapes j running over guides j', j^3, j^3, j^4, all substantially as and for the purpose described.

28. The combination of a pair of type-beds, a pair of oscillating gripper impression-cylinders arranged side by side, and respectively operating on the beds; with mechanism for delivering a sheet to the gripper of the first impression-cylinder; mechanism for causing the grippers of the first cylinder to release the sheet when it has made one revolution, mechanism for causing the grippers of the second cylinder to catch the sheet as it is released from the first cylinder, and to release it after it is perfected; and means for throwing the cylinders off and on impression alternately so that they print only on the proper beds and on alternate strokes, all substantially as and for the purpose set forth.

29. The combination of a pair of type-beds, a pair of reciprocating oscillating impression-cylinders arranged side by side, and mechanism for throwing the cylinders alternately on and off impression so that they print on alternate strokes; with mechanism for feeding a sheet of paper to the first cylinder at a point between the cylinders, during the back stroke thereof, mechanism for shifting the grippers on the cylinders when they are at the end of their back stroke so that the first cylinder releases the sheet while the second cylinder catches it, and mechanism for taking the sheet from the second cylinder, all substantially as and for the purpose described.

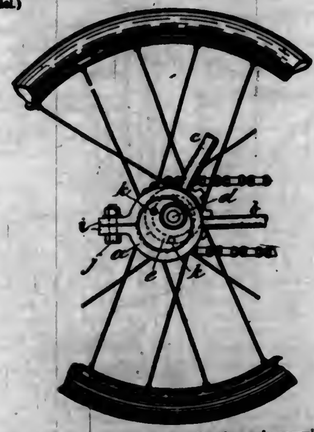
30. The combination of the reciprocating carriers, the cylinder journaled thereon; the bars detachably fastened to the carriers, the reel mounted on said carriers provided with grippers adapted to strip a sheet from said cylinder; and the system of tape-guides and tapes carried by said bars for delivering the printed sheets from the reel, all substantially as and for the purpose described.

31. The combination of the reciprocating cylinder, the reel mounted above the same and traveling therewith provided with gripper-fingers adapted to strip the sheets from the cylinder; and the upper and lower sets of endless tapes for delivering the sheets from the roll, the lower tapes running around the reel, and means for driving said reel and tapes independently of the cylinder, substantially as and for the purpose set forth.

32. The combination of the reciprocating carriers, the cylinder journaled therein, the reel moving with the carriers and provided with grippers adapted to take the sheets from the cylinder; with the telescopic shaft, one section thereof being journaled in bearings on the carriers and driving the reel by bevel-gearing, and the other section thereof being journaled in a stationary bearing and driven by gearing, substantially as and for the purpose described.

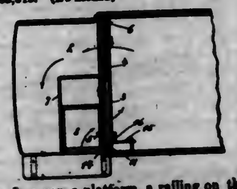
33. In a printing-press the combination of a pair of beds, a pair of reciprocating carriers, and a pair of cylinders respectively cooperating with the beds, with a sheet-feeding mechanism moving with the carriers adapted to supply sheets to the cylinders while they are traveling, and a delivery mechanism also moving with the carriers and adapted to remove the sheets while the cylinders travel, said movable feed and delivery mechanisms being respectively detachable from the carriers at will, so that they can be moved back out of the way when making ready the press, all substantially as and for the purpose described.

604,294. CHAIN ADJUSTMENT FOR BICYCLES. CHARLES W. BENSON, New York, N. Y., assignor to the Benson Manufacturing Company, same place. Filed Dec. 28, 1896. Serial No. 617,197. (No model.)



Claim.—In an eccentric chain-adjusting axle-carrying device for the driving-wheel in a bicycle, the combination of ring-terminals of the bind forks of the frame, said rings being parted for opening and provided with suitable lugs and a device for clamping them together, a disk fitted and adapted to be clamped in each terminal ring and being ribbed and grooved therein for resisting lateral displacement and also being eccentrically perforated for the axle, the axle inserted in the disks and clamped at the ends therein respectively, and the wheel mounted on the axle between said disks, substantially as described.

604,295. FARE-REGISTER-OPERATING MECHANISM FOR CARS. CHARLES BERGSTEIN, New York, N. Y. Filed Jan. 6, 1898. Serial No. 666,813. (No model.)



Claim.—1. In a car, a platform, a railing on the platform embracing one of a pair of doors for the car, a swinging section for the platform and within the space embraced by said railing and connections between said swinging section and a fare-register in the car whereby the register will be operated by a downward pressure of the swinging section, substantially as specified.

2. In a car, a platform, a railing on the platform embracing one of a pair of doors for the car, a swinging section for the platform within the space embraced by said railing, a draw-rod having connection with the swinging section, a rock-shaft operated by the draw-rod, and a finger extended from the rock-shaft and adapted to operate the lever of a fare-register, substantially as specified.

3. A car having two sliding doors at its end, one of said doors having a handle on its outer side and the other having a handle on its inner side, a railing on the car-platform for directing a passenger to one of the doors, a swinging platform-section within the space embraced by the railing, means operated by said swinging section to operate a fare register, and a spring supporting the swinging section, substantially as specified.

604,296. COMBINATION PUSH-BUTTON CARD RECEIVER AND EJECTOR. OBADIAH M. BOSSERT, Oakmont, Pa. Filed June 21, 1897. Serial No. 641,630. (No model.)



Claim.—1. The combination with the bell-actuating mechanism, of the card-receptacle, mechanism for ejecting the cards therefrom, a casing inclosing said bell-actuating mechanism and card-ejecting mechanism, said receptacle being open at one end for permitting the insertion and removal of cards, and an operative connection between the bell-actuating mechanism and the card-ejecting mechanism whereby they are operated simultaneously, substantially as described.

2. The combination with the bell-actuating mechanism, of the divided card-receptacle, mechanism for partially ejecting the cards therefrom, a casing inclosing said bell-actuating mechanism, card-receptacle and card-ejecting mechanism, said receptacle being open at its forward end for permitting the insertion and removal of cards, and an operating connection between the bell-actuating mechanism and the card-ejecting mechanism, whereby they are operated simultaneously, substantially as described.

604,297. TIMEPIECE. JOHN C. BURKE, Middleborough, Ky. Filed Aug. 21, 1896. Serial No. 603,507. (No model.)



Claim.—1. In a timepiece, the combination with the driving and time-indicating mechanism, of a calendar mechanism comprehending dials and hands or pointers for indicating the days of the week and the days of the month, toothed wheels mounted on the arbors of said hands, one of said wheels having teeth corresponding in number with the days in a week, and the other having teeth corresponding in number with the days in a month, a wheel located between said toothed wheels and geared with the driving and time-indicating mechanism to make one rotation in twenty-four hours, and carrying two tappet-arms one of which engages and operates one of said toothed wheels, and the other arm the other of said wheels, a month-indicating disk, a toothed wheel for operating the same, a year-indicating disk, a toothed wheel for operating the same, connections between the wheels having teeth corresponding in number with the days of the month and the said wheels for operating the month and year indicating disks, a sun-dial, a moon-dial, toothed wheels for operating the same, and connections between the driving mechanism and the last-mentioned toothed wheels, whereby the said hands or pointers are each advanced one step at each rotation of said tappet-wheel.

2. In a timepiece, the combination with the driving and time-indicating mechanism, of a calendar mechanism comprehending four dials and rotary indicators operating in connection therewith to indicate, respectively the day of the week, the day of the month, the date, respectively the day of the week, the day of the month, the month, and the year, of a tappet-wheel geared with the time mechanism to make one rotation in twenty-four hours, the tappet-arms

thereof standing in different planes of rotation, toothed wheels mounted on the arbors or spindles of the indicator for the day of the week and the day of the month, adapted to be operated by the respective tappet-arms, a toothed wheel on the arbor or spindle of the year-indicator, and a twelve-toothed wheel on the arbor of the month-indicator, the last-named wheel having a tappet to operate the toothed wheel of the year-indicator, a tappet-wheel geared, and rotating synchronously, with the first-named tappet-wheel to operate the month-indicator, a sun-dial, a moon-dial, toothed wheels for operating the same, and connections between the driving mechanism and the last-mentioned wheels, all operating together as and for the purpose set forth.

3. In a timepiece, the combination with the main driving mechanism, of a dial for indicating mean solar time having a hand or pointer centrally mounted upon a suitable shaft, a series of smaller supplemental dials for indicating the time in different time-sections, hands or pointers for each of said supplemental dials mounted upon suitable shafts, pinions upon the lower ends of said shafts meshing with one another through suitable intermediate pinions, a train of gearing for rotating said hands in the same direction and at the same speed directly from said main driving mechanism, a dial for indicating the days of the month, a hand or pointer therefor, a shaft upon which said hand or pointer is mounted, a disk or wheel secured to said shaft having a series of thirty-one radially-extending teeth thereon, a cog-wheel meshing with one of the pinions on the lower end of the shaft upon which the hands of the solar disk are mounted, so geared as to make a complete rotation once in twenty-four hours, a projecting lug or arm on said cog-wheel adapted to engage said disk once during each complete revolution thereof, a circular dial-plate for indicating the different months of the year, having the names of said months printed or otherwise impressed upon the upper surface of said plate adjacent to its outer edge adapted to be visible one at a time through an opening in the face-plate of the device, a shaft upon which said plate is mounted, a disk or wheel having a series of twelve teeth thereon secured to said shaft, an idle-pinion meshing with a similar pinion of the same size on the shaft to which said thirty-one-toothed disk is mounted, an arm or projection on said idle-pinion adapted to engage the twelve-toothed disk once during each revolution of said idle-pinion, a dial for indicating different years, having printed or otherwise impressed upon the upper surface thereof adjacent to its outer edge different years in succession, capable of being visible one at a time through a second opening in the face-plate of the device, a shaft upon which said dial-plate is mounted, a disk having a series of teeth thereon equal in number to the number of different years printed upon said dial-plate, and a lug or projection on said twelve toothed disk adapted to engage one of the teeth on the toothed disk connected to said year dial-plate once during each revolution of the former, substantially as and for the purpose described.

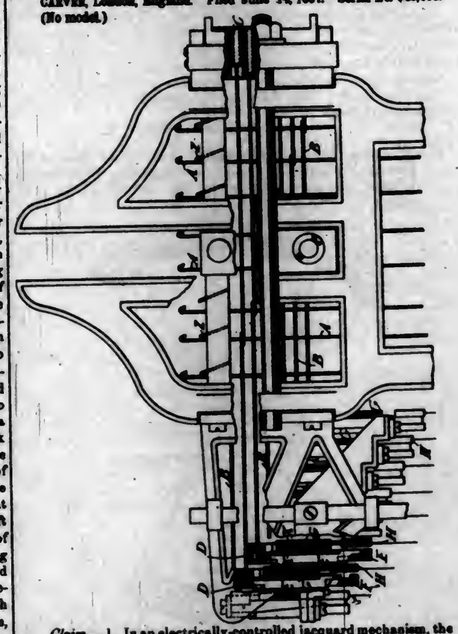
604,298. BELT. HEINRICH CAROLI, Lahr, Germany. Filed Sept. 3, 1896. Serial No. 604,732. (No model.)



Claim.—1. The combination of a belt *a*, two buckles *f*, *l*, secured upon said belt, a strap *g* extending from one end of said belt and adapted to be secured by buckle *l*, a bipartite strap *d* extending from the other end of said belt and united at *d'* to be secured by buckle *f* and an independent wire bow *k* having eyes for the passage of the parts of strap *d* and having a bar midway of said eyes adapted to lie in the bight of strap *g*.

2. The combination of belt *a* formed of two parts, each having at one end lace-holes, laces for attaching said parts by means of said lace-holes, buckles *f*, *l*, secured respectively upon the two parts of said belt, a strap *g* extending from one end of the belt, a bipartite strap *d* extending from the other end of said belt, and a wire bow *k* having eyes for the passage of the parts of strap *d* and having a bar midway of said eyes adapted to lie in the bight of strap *g*, said straps *d* and *g* being adapted to be secured by the buckles *f* and *l* respectively.

604,299. JACQUARD MECHANISM FOR LOOMS. THOMAS A. B. CARVER, London, England. Filed June 14, 1897. Serial No. 640,660. (No model.)



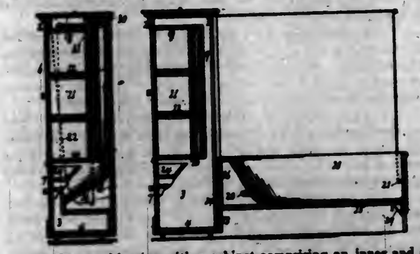
Claim.—1. In an electrically-controlled jacquard mechanism, the combination with a plurality of vertically-movable hooks, horisontal needles connected therewith and operating to throw said hooks into and out of operation to determine the pattern, and the vertically-reciprocating knife, of vertically-movable keepers arranged to be projected into the path of the needles, electromagnets, one for each keeper, arranged to attract and hold the keepers in the path of the needles, electric circuits controlling said magnets, circuit making and breaking mechanism, and a pattern sheet for opening and closing said circuits to energize and demagnetize the said magnets and thus throw the hooks into and out of operation at predetermined intervals, substantially as described.

2. In an electrically-controlled jacquard mechanism, the combination with a plurality of vertically-movable hooks, horisontal needles connected therewith and operating to throw said hooks into and out of operation to determine the twill of the fabric, and the vertically-reciprocating knife, of vertically-movable keepers arranged to be projected into the path of the needles, electromagnets, one for each keeper, arranged to attract and hold the keepers in the path of the needles, electric circuits controlling said magnets, and a commutator constructed to make and break said circuits progressively in a predetermined order, substantially as described and for the purpose specified.

3 In an electrically-controlled jacquard mechanism, the combination with a plurality of vertically-movable hooks, horizontal needles connected therewith and operating to threw said hooks into and out of operation, and the vertically-reciprocating knife, of vertically-movable keepers arranged to be projected into the path of the needles, electromagnets, one for each keeper, arranged to be energized and hold said keepers in the path of the needles, two electric circuits for each magnet and arranged when closed to neutralize each other and demagnetize the magnet, a circuit making and breaking mechanism and a pattern-sheet for controlling said mechanism to open and close said circuits, and a commutator constructed to make and break the other circuit at predetermined intervals, substantially as described for the purpose specified.

604,300. CABINET-BATH. VALDEMAR CHRISTENSEN, New York, N. Y. Filed July 1, 1897. Serial No. 643,139. (No model.)

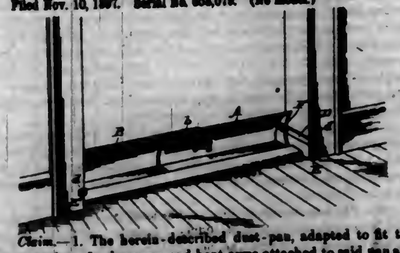
Claim.—1. The combination with a cabinet comprising an inner and an outer shell concentrically arranged with an intervening space between their four sides, said shells being fixed relatively one to the other, the inner shell being closed at its back and open at its front, and the outer shell open at its back and provided in its front with a door controlling the communication with the inner shell, of a bath-tub hinged at the lower edge of its head portion to the bottom of the outer shell and arranged to be swung or folded into the space between the inner and outer shells, and a door hinged in the lower portion of the front of the outer shell and provided on its inner face with a receptacle arranged to project into the head portion of the tub when the latter and the tub are closed, substantially as described.



2. The combination with a cabinet comprising an inner and an outer shell concentrically arranged with an intervening space between their four sides, said shells being fixed relatively one to the other and the outer shell open at its back, of a bath-tub hinged at the lower edge of its head portion to the bottom of the outer shell and arranged to be swung or folded into the space between the inner and outer shells, means for gaining access to the interior of the inner shell from the front of the cabinet, a rod pivoted at one end to the side of the foot of the tub and adapted to fold between the side of the tub and the side of the outer shell when the tub is raised up, and a flexible connection attached to the free end of the rod and to the upper end of the cabinet, substantially as described.

3. The combination with a cabinet comprising an inner and an outer shell concentrically arranged with an intervening space between their four sides, said shells being fixed relatively one to the other and the outer shell open at its back, of a bath-tub hinged at the lower edge of its head portion to the bottom of the outer shell and arranged to be swung or folded into the space between the inner and outer shells, means for gaining access to the interior of the inner shell from the front of the cabinet, a discharge-spout provided with a valved faucet flexibly connected to the tub, and a slot formed in the side of the tub and adapted to be engaged by the faucet-handle to hold the faucet in position to be folded with the tub into the said outer shell, substantially as described.

604,301. DUST-PAN. KATE A. CLABAUGH, Martinsburg, Pa. Filed Nov. 10, 1897. Serial No. 658,079. (No model.)



Claim.—1. The herein-described dust-pan, adapted to fit the lower portion of a doorway, and boot arms attached to said pan and adapted to engage the casing of the doorway, substantially as specified.

2. The herein-described dust-pan, adapted to fit the lower portion of a doorway in the manner described, and formed in two sections adjustably connected to each other, substantially as specified.

3. The herein-described dust-pan adapted to fit the lower portion of a doorway in the manner described, and formed in two sections whose inner end portions are overlapped and slidingly connected to each other, means for securing the adjustment of said sections to vary the length of the pan, and arms connected to the end portions of the pan and adapted to engage the casing of the doorway, substantially as specified.

604,302. WIRE-STRETCHER. LEANDER CLARK, Greenville, Ohio. Filed Dec. 20, 1897. Serial No. 664,941. (No model.)

Claim.—1. A wire-stretcher having parallel separable cheek-plates, one of which carries a bifurcated guide, of which the extremities are stepped in openings in the other cheek-plate, a shouldered drum removably mounted in transversely-alined bearings in the cheek-plates and provided with a wire-receiving bifurcation, a transverse key engaging the drum in contact with the exterior surface of one of the cheek-plates, to prevent relative displacement of the cheek-plates and the accidental dismounting of the drum, while allowing the disconnection of said parts to facilitate the engagement of the drum with a fence-wire, and means for locking the drum against backward rotation, substantially as specified.

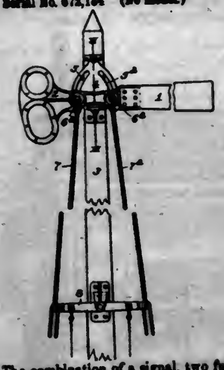


2. A wire-stretcher having parallel cheek-plates, a revolubile drum mounted in bearings in the cheek-plates, ratchet mechanism for preventing backward rotation of the drum, and including a pawl, mounted upon one of the cheek-plates, engaging a ratchet on the drum, and a removable locking-pin fitted in an opening in the stretcher-frame in the path of the pawl, to prevent disengagement of the latter from the ratchet, substantially as specified.

3. A wire-stretcher having parallel cheek-plates and an interposed wire-guide, a revolubile drum mounted in transversely-alined bearings in the cheek-plates and carrying a ratchet, a pawl mounted upon one of the cheek-plates in operative relation with said ratchet and provided with a tail or extension, and a removable locking-pin fitted in an opening in the stretcher-frame to prevent disengagement of the pawl from the ratchet, substantially as specified.

4. A wire-stretcher having parallel separable cheek-plates, bifurcated wire-guides carried by one of the cheek plates and fitted at their extremities in openings in the other cheek-plate, a drum mounted in transversely-alined bearings in the cheek-plates and provided with a ratchet to bear against the outer surface of one of the cheek-plates, said drum being longitudinally slotted to engage a fence-wire, a pin engaging transverse openings in the drum contiguous to the outer surface of the other cheek-plate, to prevent displacement of the drum from its bearings and lock the extremities of the wire-guides in the openings in which they are fitted, and a pawl for engaging the ratchet to prevent accidental backward rotation of the drum, substantially as specified.

604,808. SIGNAL. JOHN P. COLEMAN, Edgewood Park, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed Mar. 1, 1898. Serial No. 672,184. (No model.)



Claim.—1. The combination of a signal, two fulcra for said signal and means for shifting the signal on either of the fulcra, substantially as set forth.

2. The combination of a signal, two fulcra supporting the signal on opposite sides of its center of gravity and means for shifting the signal on either of the fulcra, substantially as set forth.

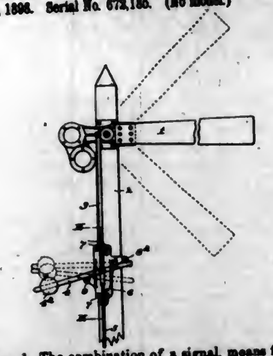
3. The combination of a signal, two fulcra for supporting the signal, means for holding the signal as against longitudinal movement, and means for shifting the signal on either of said fulcra, substantially as set forth.

4. The combination of a signal, two fulcra supporting the signal, a floating lever, fulcra for said lever, a rod connecting the signal and lever at points intermediate of their fulcra, and means for holding the signal on one fulcrum when the lever is shifted in one direction and for holding it against the other fulcrum, when the lever is shifted in the opposite direction, substantially as set forth.

5. The combination of a signal, two fulcra for supporting the signal, a floating lever, fulcra for said lever supported by the signal, and a rod connected to the signal and lever at points intermediate of their fulcrum, substantially as set forth.

6. The combination of a signal, two fulcra for supporting the signal, means for shifting the signal on either fulcra and means rendered operative by the signal when shifted to return it to normal position, substantially as set forth.

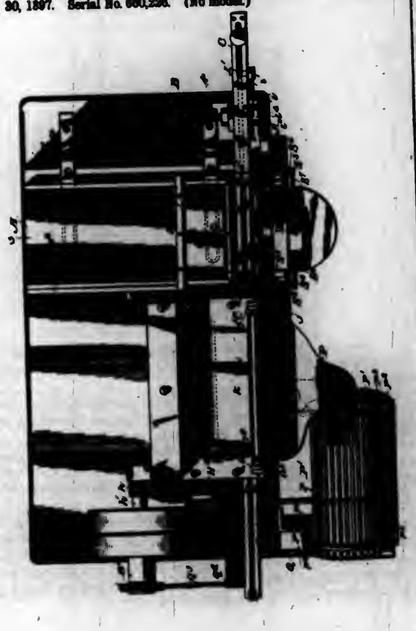
604,804. SIGNAL. JOHN P. COLEMAN, Edgewood Park, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed Mar. 1, 1898. Serial No. 672,185. (No model.)



Claim.—1. The combination of a signal, means for shifting the signal to clear or caution positions, a weighted lever, fulcra for said lever and a connection from the signal to the lever, whereby the weighted end of the lever is raised when the signal is shifted to either caution or clear positions, substantially as set forth.

2. The combination of a balanced signal, a floating lever having a weight at or near one end, a rod connecting the signal to the lever, fulcra arranged on opposite sides of the point of connection of the rod to the lever, and means for causing the lever to turn on either fulcrum, substantially as set forth.

604,805. MACHINE FOR DISCARDING LEADS, SPACES, AND QUADS FROM DEAD-MATTER. PAUL F. COX, Chicago, Ill., assignor to the Cox Type Setting Machine Company, same place. Filed Nov. 30, 1897. Serial No. 660,236. (No model.)



Claim.—1. The combination of mechanism for discarding spaces and quads from a line of type, and means for feeding a line of type to said mechanism; with means for separating the quads from the spaces after they are removed from the line of type.

2. The combination of mechanism for discarding spaces and quads from a line of type, and means for separating lines of type from dead-matter and feeding them to said mechanism; with means for separating the quads from the spaces after they are removed from the type, substantially as described.

3. The combination with mechanism for discarding spaces and quads from the line of type, and means for feeding lines of type to said mechanism; with mechanism for separating the quads from the spaces after they are removed from the line of type, and means for assembling the discarded quads, substantially as described.

4. The combination of mechanism for separating lines of type from dead-matter, and for discarding the leads therein; with mechanism for subsequently discarding the spaces and quads from the separated lines of type and mechanism for separating the quads from the spaces, substantially as and for the purpose described.

5. The combination of mechanism for discarding the leads from dead-matter and for separating the lines of type therein; with mechanism for subsequently discarding the spaces and quads from the separate lines of type, means for separating the quads from the spaces, and means for assembling the separated quads, substantially as and for the purpose described.

6. The combination of a dead-matter galley having a transverse slot in its rear end, means for forwarding dead-matter in the galley toward said slot, and a lead-holding shelf below the galley; with a reciprocating plate having a ledge on its front face adapted to engage the leads in the dead-matter and pull the same down through said slot when the plunger descends, and a rocker stacking-plate below said slot and between said reciprocating plate and said shelf adapted to remove the leads from the plate and stack them on the shelf; and means for rocking said plate, substantially as described.

7. The combination with a galley having a slot in its rear end, the plunger-plate adapted to lower leads from the galley through said slot, provided with vertical grooves, and a rocking stacker-plate having fingers adapted to rest in said grooves and strip the leads from the plunger and stack the same in the lead-holder.

8. The combination with a galley having a slot in its rear end, a lead-holding shelf below the galley and the plunger having a plate adapted to lower leads from the galley through said slot, and provided with vertical grooves; with a rocking stacker having fingers adapted to rest in said grooves and strip the leads from the plunger and stack the same on the shelf, and mechanism for operating said stacker, substantially as described.

9. The combination of a dead-matter galley having a transverse slot in its rear end, a lead-holding shelf below the galley, a type-channel above the slot therein, and means for forwarding dead-matter in the galley toward said slot, with a vertically-grooved reciprocating plate having a ledge on its front face adapted to engage the leads in the dead-matter and pull the same down through said slot into the type-holder when the plate descends, and adapted when it ascends to lift the line of type into the type-holder, and a rocking stacker-plate below said slot having fingers adapted to engage the grooves of the stacker and remove the leads from the plate and stack them on the shelf, substantially as described.

10. The combination of the type-line holder, and a series of parallel independently-removable sliding ejectors provided with feelers; with means for positively actuating any ejector that has found a space or quad to cause it to eject the same from the line, substantially as described.

11. The combination of the type-line holder, and a series of parallel independently-removable sliding ejectors; with a gyratory pusher adapted to engage and positively actuate any ejector that has found a space or quad to cause it to eject the same from the line, substantially as described.

12. The combination of the type-line holder, and a series of parallel sliding ejectors provided with feelers: with means for positively actuating any ejector that has found a space or quad to cause it to eject the same from the line, mechanism for returning said ejectors to normal position, and means for moving the type-line forward past the ejectors while they are retracted, substantially as and for the purpose described.

13. The combination of the type-line holder, a series of parallel independently-removable sliding ejectors provided with feelers, and a gyratory pusher for positively actuating any ejector that has found a space or quad and to cause it to eject the same from the line, a vibrating controller for returning said ejectors to normal position, and means for moving the type-line forward past the ejectors while they are retracted, substantially as described.

14. The combination of a type-line holder having an opening in its side; a series of parallel sliding ejectors opposite said opening, the grooved guides for said ejectors and springs adapted to push said ejectors toward the opening; with means for withdrawing said ejectors from the slot, and a gyratory pusher adapted to engage any of the ejectors that has found a space or quad and cause it to positively eject the same, substantially as described.

15. The combination of means for holding a line of type, means for tilting spaces or quads from the line, and means for positively knocking out of the line the tilted spaces or quads.

16. The combination of a type-line holder, a series of space-ejectors beside the holder, means for actuating any ejector that finds a space or quad, and a striker adapted to knock out all the spaces or quads tilted over by the ejectors, substantially as described.

17. The combination of a type-line holder, a series of parallel space-ejectors beside the holders having feelers on their ends adapted to press against the type in the holder; and means for actuating any ejector, whose feeler finds a space; with means for holding said ejectors out of the way of the type when the latter is moving in the holder; and a striker-plate adapted to knock out all the spaces or quads tilted over by the ejectors.

18. The combination of a type-line holder, a series of space-ejectors, springs for pressing said ejectors against the type, a controller for holding said ejectors away from the type, except at the moment of their operation; and a striker adapted to positively remove all spaces and quads tilted from the line of type by said ejectors.

19. The combination of a type-line holder, a series of space-ejectors, springs for pressing said ejectors against the type and a controller for holding said ejectors away from the type, except at the moment of their operation; with means for operating any ejector that finds a space, and a movable striker-plate adapted to knock out all spaces and quads tilted from the line of type by said ejectors.

20. The combination of a type-line holder, a series of sliding parallel space-ejectors, a controller for holding the ejectors away from the type except at the moment of their operation, and a gyratory pusher for positively operating any ejector which has found a space or quad; with a striker adapted to positively eject any spaces or quads tilted from the line by the ejectors, all substantially as described.

21. The combination of the type-line holder, a series of parallel sliding space-ejectors, individual springs for pressing each ejector against the type, and a single controller for holding the ejectors away from the type, except at the moment of their operation; with a vertically and laterally movable bar adapted to engage any ejector which has found a space or quad and cause it to positively eject the latter from the line, and a vertically-movable swinging striker adapted to engage any partially-ejected spaces or quads and remove them from the line, substantially as described.

22. The combination of a type-line holder and means for moving the line of type therein, a series of parallel ejectors provided with feelers adapted to engage the type, and springs for pressing said ejectors toward the type, a controller-plate for withdrawing said ejectors from the type except at the moment of their operation and means for operating said plate; with a pusher-bar vertically-movable cam-actuated bars carrying said bar, and the cam-actuated levers engaging said bar and adapted to cause it when lifted to positively operate any ejector which has found a space or quad, for the purpose and substantially as described.

23. The combination of a type-line holder having an opening past which a line of type is passed, ejectors beside said slot adapted to detect and eject spaces and quads from the line of type; with a vertically-movable and laterally-swinging plate adapted to engage any spaces or quads tilted from the line by said ejectors, and positively remove them, for the purpose and substantially as described.

24. The combination with a type line holder and mechanism for tilting spaces or quads from the lines of type therein, with a vertically-movable and laterally-swinging plate, and mechanism for lowering said plate, so as to cause it to engage any spaces or quads tilted from the line of type, and means for causing said plate to swing outwardly when lowered so as to positively eject such spaces and quads.

25. The combination with mechanism for ejecting spaces and quads from a line of type, of means by which the ejected spaces are separated from the quads.

26. The combination with mechanism for ejecting spaces and quads from a line of type, of a rotatable cage-separator into which the ejected spaces and quads are delivered, and by which the spaces are separated from the quads, and a conveyer at the discharge end of said cage into which the quads are delivered, a channel at the lower end of said conveyer, and mechanism for stacking the quads in said channel.

27. The combination of the dead-matter galley, the lead-supporting shelf, and a reciprocating plunger adapted to transfer leads from the galley to the shelf; with a pivoted stacker-plate adapted to strip the leads from the plunger and stack them upon the shelf, a rotary shaft having an eccentric-pin on its end, a vertically-movable rod having a loop in which said pin works, a spring for uplifting said rod, and connections substantially as described between the upper end of said rod and said stacker, substantially as described.

28. The combination of the galley, a reciprocating plunger for removing lines of types therefrom, an oscillating lever for operating said plunger, a bifurcated slide-bar engaging said lever, a grooved cam for operating said bar mounted upon a rotatable shaft, and a guide for said slide, substantially as and for the purpose described.

29. The combination of the galley, means for forwarding "dead-matter" therein, a reciprocating plunger for removing lines of type therefrom, and an oscillating lever for operating said plunger; with a bifurcated slide-bar engaging said lever, a grooved cam for operating said bar mounted upon a rotatable shaft, and a guide for said slide, said shaft passing through openings in said guide and slide-bar, for the purpose and substantially as described.

30. The combination of a type-line holder, a series of ejectors adapted to detect and eject spaces and quads from the line of type, and means for operating said ejectors, and a striker-plate adapted to positively remove all spaces and quads tilted from the line by the ejector; with means for moving a line-type step by step past said ejectors, so that it shall be repeatedly subjected to the action thereof, substantially as described.

31. The combination of a type-line holder having an opening past which a line of type is passed, a series of ejectors beside said opening adapted to detect and eject spaces and quads from the line of type, and means for operating said ejectors; with a line-pusher, a vibrating lever for operating said pusher and a cam for oscillating said lever, said cam having a series of dwells, whereby the lever is caused to move the line of type intermittently or step by step past said opening, so that it shall be repeatedly subjected to the action of the ejectors, substantially as described.

32. The combination of the galley having a fixed side and a movable side and transverse grooves in its bottom dovetailed in cross-section; with guides adapted to embrace the bottom of the galley having their upper portions made fast to the movable side and their lower portions dovetailed in cross-section and engaging the grooves in the bottom of the galley, and clamping-screws attached to the guides, substantially as described.

33. The combination of the vertically-movable pusher-bar having slots in its ends, the vertically-movable bars carrying said pusher-bar, and means for raising and lowering said bars; with pivoted levers having blocks pivoted on their ends and sliding in the grooves in the ends of the pusher-bar and means for oscillating said levers for the purpose and substantially as described.

34. The combination of the vertically-movable pusher-bar having slots in its ends, the vertically-movable bars carrying said pusher-bar having their lower ends slotted to embrace a rotary shaft and cams on said shaft for raising and lowering the said bars; with pivoted cam-levers having blocks pivoted on their upper ends and sliding in the grooves in the ends of the pusher-bar, and cams on said shaft for oscillating said levers, all for the purpose and substantially as described.

35. The combination with a type-line channel, mechanism for feeding lines of type thereto and a plunger for forwarding lines of type therein; of a break-lever for operating said plunger, having a lower part pivoted to a fixed support and connected to a cam-actuated lever, and an upper part pivoted on the lower part and held in alinement therewith by springs, the upper part being also connected to the plunger, for the purpose and substantially as described.

36. The combination of a type-line holder, a plunger for forwarding lines of type therein, a break-lever for operating said plunger, said break-lever consisting of a lower part pivoted on the fixed support and an upper part pivoted on the lower part and connected by links to the plunger and held in alinement with the lower part by means of springs; with an adjustable stop for limiting the movement of the plunger thereby arresting the movement of the upper portion of the lever, and means for imparting a uniform swing to the lower portion of the lever, substantially as described.

604,806. METAL-SCREW MACHINE. WILLIAM S. DAVENPORT, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Oct. 4, 1897. Serial No. 653,980. (No model.)

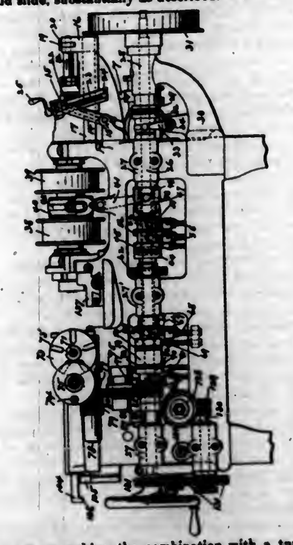
Claim.—1. The combination of a support for a plurality of tools, of mechanism for indexing said support, mechanism for advancing said support, and independent mechanism for returning said support, substantially as described.

2. The combination of a support for a plurality of tools, of mechanism for indexing said support, a cam for advancing said support, and mechanism independent of said cam for returning said support, substantially as described.

3. In a screw-machine, the combination with the turret-slide, of mechanism for advancing said slide, and independent mechanism for returning said slide, substantially as described.

4. In a screw-machine, the combination with the turret-slide, of a cam for advancing said slide, and mechanism independent of said cam for returning said slide, substantially as described.

5. In a screw-machine, the combination with the turret-slide, a turret mounted thereon and mechanism for indexing the same, of mechanism for advancing said slide, and independent mechanism for returning said slide, substantially as described.



6. In a screw-machine, the combination with a turret-slide, a turret mounted thereon and mechanism for indexing said turret, of mechanism for moving said slide during the cutting, and independent mechanism for moving said slide during the non-cutting movement, substantially as described.

7. In a screw-machine, the combination with a turret-slide, a turret mounted thereon and mechanism for indexing said turret, of a continuously-moving cam for advancing said slide, and intermittently-operating mechanism for returning said slide, substantially as described.

8. In a screw machine, the combination with a turret-slide, of mechanism for advancing said slide, and mechanism carried by said slide for returning the same, substantially as described.

9. In a screw-machine, the combination with a turret-slide, of a cam for advancing said slide, and mechanism carried by said slide for returning the same, substantially as described.

10. In a screw-machine, the combination with a turret-slide, a turret-head mounted thereon, and mechanism for indexing the same, of mechanism for advancing said slide, and mechanism carried by said slide and driven from the indexing mechanism for returning said slide, substantially as described.

11. In a screw-machine, the combination with a turret-slide, a turret mounted thereon, and mechanism for indexing said turret, of a reciprocating member, a bar connected with said slide for engaging said member, means for intermittently causing a relative reciprocating movement between said bar and turret-slide, and a stop for said bar, substantially as described.

12. In a screw-machine, the combination with a turret-slide, a turret mounted thereon and mechanism for indexing said turret, of a block, a cam and connections for reciprocating said block, a bar connected with said slide for engaging said block, a stop for said bar, and means for intermittently causing a relative reciprocating movement between said turret-slide and bar, substantially as described.

13. In a screw-machine, the combination with a turret-slide, a turret mounted thereon, and mechanism for indexing said turret, of a block, means for reciprocating said block, a bar for engaging said block, a stop for said bar, a crank on said turret-slide, and means for intermittently rotating said crank substantially as described.

14. In a screw-machine, the combination with a turret-slide, a turret mounted thereon and mechanism for indexing said turret, of a block provided with a rack, a lever provided with a segmental gear engaging said rack, a cam for operating said lever, a bar for engaging said block, a stop for said bar, a crank on said turret-slide connected with said bar, and means for intermittently revolving said crank, substantially as described.

15. In a screw-machine, the combination with a turret-slide, a turret mounted thereon and mechanism for indexing said turret, of mechanism for advancing said turret-slide, and mechanism operated from the indexing mechanism for returning said slide, substantially as described.

16. In a screw-machine, the combination with a turret slide, a turret mounted thereon and mechanism for indexing said turret, of mechanism for moving said slide during the cutting and mechanism operated from said indexing mechanism for moving said turret-slide during the non cutting movement, substantially as described.

17. A slide, a reciprocating member, a bar connected with said slide for engaging said member, means for intermittently causing a relative reciprocating movement between said slide and bar, and a stop-bar for said bar, substantially as described.

18. A slide, a block, means for reciprocating said block, a bar for engaging said block, a stop for said bar, a crank on said slide, connected to said bar, and means for intermittently rotating said crank, substantially as described.

19. A slide, a block, a cam and connection for reciprocating said block, a bar connected with said slide for engaging said block, a stop for said bar, and means for intermittently causing a relative reciprocating movement between said bar and slide, substantially as described.

20. A slide, a block provided with a rack, a lever provided with a segmental gear engaging said rack, a cam for operating said lever, a bar connected with said slide for engaging said block, a stop for said bar, and means for intermittently causing a relative reciprocating movement between said bar and slide, substantially as described.

21. A slide, a block provided with a rack, a lever provided with a segmental gear engaging said rack, a cam for operating said lever, a bar for engaging said block, a stop for said bar, a crank on said slide connected with said bar, and means for intermittently rotating said crank, substantially as described.

22. A slide, a rack, guided on said slide, a bar guided on said slide and provided with a shoulder for engaging said rack, a stop for said bar, an oscillating gear engaging said rack, and means for causing a relative reciprocating movement between said bar and slide, substantially as described.

23. A slide, a block guided on said slide, means for reciprocating said block, a bar guided on said slide and engaging said block, a stop for said bar, and means for intermittently causing a relative reciprocating movement between said slide and bar, substantially as described.

24. A slide, a rack guided on said slide, an oscillating gear for operating said rack, a bar guided on said slide for engaging said rack, a stop for said bar, a crank on said slide connected with said bar, and means for intermittently rotating said crank, substantially as described.

25. In a screw-machine, the combination with a turret-slide, and a turret mounted thereon, of mechanism for indexing said turret carried by said slide, a driver for said mechanism mounted on the frame, and gearing between said driver and indexing mechanism, substantially as described.

26. In a screw-machine, the combination with a turret-slide, and a turret mounted thereon, of mechanism for indexing said turret carried by said slide, a shaft extending longitudinally of said slide and connected with said mechanism, a gear on said shaft, a gear mounted on the frame engaging said gear, and means for intermittently revolving the gear on the frame, substantially as described.

27. In a screw-machine, the combination with a turret-slide, and a turret mounted thereon, of a disk connected with said turret and provided with radial slots, a crank on said slide for engaging said slots, and means for intermittently revolving said crank, substantially as described.

28. In a screw-machine, the combination with a turret-slide, and a turret mounted thereon, of a disk connected with said turret-head, and a crank-pin on said turret-slide arranged to enter and leave said slots when moving radially of said disk, substantially as described.

29. The combination with means for engaging the stock, of a slide connected therewith, a lever, an adjustable pivotal connection between said slide and lever, and means for oscillating said lever, substantially as described.

30. The combination with means for engaging the stock, of a slide connected therewith, a lever, a groove in one of said parts, an adjustable stud secured to the other part and engaging said groove, and means for oscillating said lever, substantially as described.

31. The combination with means for engaging the stock, of a slide connected therewith, a lever, a slot in one of said parts, a stud secured to the other lever and engaging said groove, means for adjusting said stud in line with said groove when the lever is at the forward limit of its throw, and means for oscillating said lever, substantially as described.

32. The combination with means for engaging the stock, of a slide, a screw-rod on said slide, a stud engaged by said screw-rod, a lever provided with a groove engaged by said stud, and a cam for oscillating said lever, substantially as described.

33. In a screw-machine, the combination with a turret-head for holding a series of tools, mechanism for indexing said turret-head, a driver for said mechanism, a device for holding said driver out of operation, means for tripping said device to allow the driver to operate, and means for tripping said device to prevent the driver from being thrown out of operation, substantially as described.

34. In a screw-machine, the combination with a turret-head for holding a series of tools, mechanism for indexing said head, a driver for said mechanism, a cam connected with said driver, an abutment in the path of the cam for holding the driver out of operation, means for tripping said abutment to render the driver operative, and means for tripping said abutment to prevent the engagement of the cam and abutment, substantially as described.

35. In a screw-machine, the combination with a turret-head, for holding a series of tools, a clutch-gearing between said clutch and turret-head, a cam on said clutch, an abutment in the path of said cam, means for tripping said abutment, a disk driven from said clutch, and a series of slides carried by said disk for engaging said abutment, substantially as described.

36. In a screw machine, the combination with a turret-head for holding a series of tools, a clutch, gearing between said clutch and turret-head, a cam on said clutch, an abutment in the path of said cam for holding said clutch out of engagement, means for tripping said abutment, and a series of adjustable devices carried by said gearing for holding said abutment out of the path of said cam, substantially as described.

37. The combination of a clutch, a cam on said clutch, an abutment in the path of said cam, means for tripping said abutment, a disk driven from said clutch, and a series of slides carried by said disk for engaging said abutment, substantially as described.

38. The combination of a clutch, a cam on said clutch, an abutment in the path of said cam, means for tripping the abutment, a disk driven from said clutch, and a series of adjustable pins for engaging said abutment, substantially as described.

39. In a screw-machine, the combination with mechanism for operating the jaws of the chuck embodying a cam, a shaft on which said cam is mounted, a driver for said shaft, means for holding said driver out of operative position, means for manually operating the jaws of the chuck, and simultaneously throwing said driver into operative position, substantially as described.

40. In a screw-machine, the combination with mechanism for operating the jaws of the chuck, of a driver therefor, means for rendering said driver inoperative, and means for manually operating the chuck-jaws and simultaneously rendering said driver operative, substantially as described.

41. In a screw-machine, the combination with the chuck, of mechanism for reversing said chuck, mechanism for operating the chuck-jaws and feeding the stock, a cam-shaft for operating said feeding and jaw-operating mechanism, a tarret, indexing mechanism for said turret, a shaft and intermittently-operating drivers on said shaft for operating the reversing mechanism, cam-shaft and indexing mechanism, substantially as described.

42. In a screw-machine, the combination with mechanism for operating the jaws of the chuck embodying a lever, a cam-shaft, a cam on said shaft for operating said lever, mechanism for feeding the stock embodying a lever, a cam on said shaft for operating said lever, a driver for said shaft, and a cam on said shaft engaged by the end of the jaw-operating lever and so arranged that movement of said lever to open the jaws will turn said shaft, substantially as described.

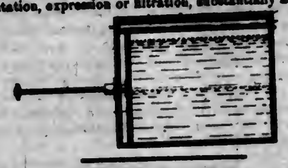
43. The combination of a shifter, a cam for operating said shifter in each direction, a clutch for operating said cam, two cams on said clutch, an abutment in the path of each cam for holding the clutch out of engagement, and means for rendering said abutments inoperative, substantially as described.

44. In a screw-machine, the combination with the spindle, one or more cross-slides, and mechanism for reversing the direction of rotation of the spindle, of a front shaft, one or more cams on the end of said shaft for operating the cross-slides, a second shaft in line with said front shaft provided with means for controlling the reversing mechanism, and a movable coupling between said shaft, substantially as described.

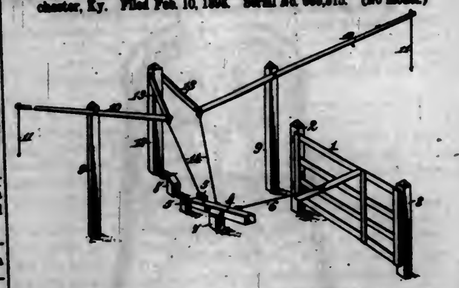
604,807. PROCESS OF TREATING OILS AND FATS. WILLARD G. DAY and RAYMOND M. GRAGHER, Baltimore, Md., assignors of one-third to Thomas A. Bryan, same place. Filed Feb. 9, 1897. Serial No. 622,665. (No specimens.)

Claim.—1. The process of extracting and purifying oils and fats, which consists in subjecting them to the actinic power of an electric light to break down the nitrogenous sheaths or envelops of the fat-globules, and then separating the broken-down sheaths or envelops by expression or filtration, substantially as specified.

2. The process of imparting flavors and odors to purified oils and fats, which consists in making an aqueous solution of the flavor or odor giving material, then adding to the solution the purified oil or fat to make an emulsion, then subjecting the emulsion to the actinic power of an electric light, and then separating the oil or fat by decantation, expression or filtration, substantially as specified.



604,808. GATE-OPERATING MECHANISM. JOHN W. DEAN, Winchester, Ky. Filed Feb. 10, 1898. Serial No. 669,815. (No model.)



Claim.—1. In combination with the gate-post 2, having a gate mounted thereon, the posts 9 having pivotally supported thereon the lever-arms 10, a post, 12, located between the posts 9, rods pivotally connected to said post and to the inner ends of said lever-arms, a beam pivotally supported at its lower end between the posts 9 and in line with the post 12, rods pivotally connecting the inner ends of said lever arms with said beam and a rod connecting the outer end of said beam with the gate, substantially as described.

2. In combination with the gate-post 2 having a gate mounted thereon, the posts 9 having pivotally supported thereon the lever-arms 10, a post 12 located between the posts 9, rods pivotally connected to said post and to the inner ends of said lever-arms, a beam pivotally supported at its lower end between the posts 9 and in line with the post 12, rods pivotally connecting the inner ends of said lever-arms with said beam, and being connected with said beam toward its lower end, a rod connecting the outer end of said beam with the gate, and being connected with the gate toward its rear end, and the posts 7 and 8, the combination operating in the manner set forth.

604,809. COTTON-PLOW. MIKEY DEAN, El Dorado, Ark. Filed Aug. 31, 1897. Serial No. 650,161. (No model.)



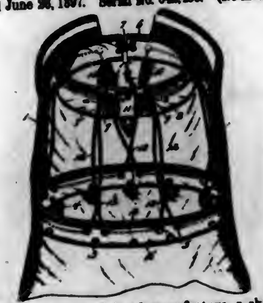
Claim.—1. In combination, a beam, a cross-piece secured to the beam intermediate of its ends and having its outer end portions longitudinally slotted, forwardly-divergent side bars bearing earth-treating devices, means for securing the rear ends of the side bars against opposite sides of the beam, and means for adjustably connecting the front ends of said side bars with the cross-piece and operating in the slots thereof, substantially as set forth.

2. In combination, a beam, upper and lower plates secured to the beam at an intermediate point and having their outer end portions longitudinally slotted and connected, forwardly-convergent braces connecting the outer extremities of the plates with the front portion of the beam, forwardly-divergent side bars bearing earth-treating devices, and means for connecting the rear ends of the side

bars with the beam and their front ends with the slotted ends of the plates, substantially as set forth.

3. The herein-described plow, comprising a beam having its rear end tapering, a cross-bar secured to the beam about midway of its length, upper and lower plates secured to the cross-bar and connected at their outer ends, and provided with longitudinal slots, braces connecting the outer ends of the plates with the front portion of the beam, forwardly-divergent side bars bearing shovels or earth-treating devices, means for connecting the rear ends of the side bars with the tapering end of the beam, and fastenings operating in the longitudinal slots of the upper and lower plates and adjustably connecting the front ends of the side bars therewith, substantially in the manner and for the purpose specified.

604,810. SKIRT-LIFTER. BARBARA M. PERSON, Philadelphia, Pa. Filed June 26, 1897. Serial No. 642,486. (No model.)

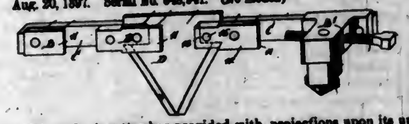


Claim.—1. As a new article of manufacture, a skirt-lifter comprising a lower lifting-band adapted to be connected to the skirt and provided with eyelets arranged in pairs at different points around its length, an upper waistband made separate from the skirt and provided also with spaced eyelets, and lifting-cords connecting said bands and extending in pairs out through an eyelet of the waistband and down, each through an eyelet of a pair in the lifting-band, thence in opposite directions along said band, each out through an eyelet of another pair, and thence up to and through the waistband, the free ends of the cords being connected to form lifting-cords, substantially as described.

2. In a dress-skirt elevator, the combination with a skirt, of a lower lifting-band secured thereto which encircles the skirt and has eyelets at different points of its own length, an upper waistband having a series of eyelets extending around the band, and sets of lifting-cords for the sides of the skirt, the cords of each set having free ends secured together and formed into a pull-cord, and passing through one eyelet of the waistband, thence through an eyelet of the lifting-band, along the length of said lifting-band and out through the next eyelet thereof, and then through another eyelet of the waistband.

3. In a dress-skirt elevator, the combination with a skirt, of a lower lifting-band secured to the skirt and extending therearound, said band having eyelets arranged in sets, an upper waistband having separated eyelets and lifting-cords extending from the waistband to the lifting-band and arranged in the following manner, to wit: having their ends connected together, forming two separate pull-cords, then arranged in sets which pass through the eyelets of the waistband, thence down to the lifting-band where the cords of the set separate, being passed through the sets of eyelets of the lifting-band, along said band and out through the eyelets of the next set, thereby forming lifting-loops, and the set of cords at the back of the skirt having their upper ends diverged and passed through the rear eyelets of the band in opposite directions, around said band and connected to the respective pull-cords.

604,811. CUTTER-BAR. CHARLES H. FRYE, Wilton, N. H. Filed Aug. 20, 1897. Serial No. 648,941. (No model.)



Claim.—1. A cutter-bar provided with projections upon its upper face at predetermined intervals apart, the inner end of each of the projections being provided with a lip and an undercut longitudinal recess in its front and rear faces, the outer end of each of the said projections being of reduced width, knives or blades having T-shanks, the shank portions being arranged to enter spaces between opposing blocks, and the heads of the shanks and the rear ends of the blades to enter the undercut recesses in the said blocks, and a cap fitted for locking engagement with the blocks on the cutter-bar, for the purpose set forth.

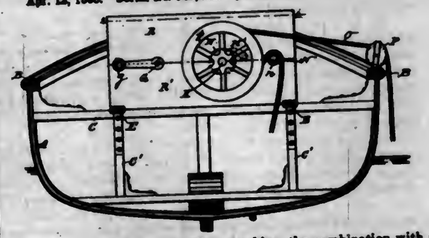
2. A cutter-bar provided with a series of projections or blocks upon its upper face, the said projections being spaced apart a predetermined distance, one end of each of the projections or blocks being provided in its sides with undercut recesses, a knife or blade secured in each of the spaces between the blocks, a portion of the knife being arranged to engage the said side recesses, and a cap arranged for locking engagement with all of the projections or blocks, substantially as described.

3. The combination with a cutter-bar provided with a series of blocks or projections upon its upper face, one end of each block being provided with a lip and having undercut recesses in its front and rear faces, and knives or blades secured in the spaces between the blocks and having portions arranged to engage the recesses in the said blocks, of a cap provided with chambers adapted to receive the blocks of the cutter-bar, each chamber having an end recess to receive the lips of said blocks, the cap being adapted for end movement, and a locking device for the said cap, substantially as described.

4. The combination, with a cutter-bar provided with a series of blocks or projections upon its upper face, one end of each block being wider than its opposite end, the wider end of each block being provided with a lip and its sides with undercut recesses, of blades or knives provided with T-shanks, the shanks being adapted to enter the spaces between opposing blocks and likewise to enter the side recesses of the blocks and that portion beneath the lips of the blocks, a cap provided with chambers adapted to receive the blocks of the cutter-bar, each chamber being provided with an end recess to receive the lips of said blocks, and a locking device whereby the cap may be held locked upon the said bar, for the purpose specified.

5. The combination with a cutter-bar provided with a head at its inner end, of a pin secured in the said head and having an enlarged outer end, and a polygonal block loosely mounted on the pin between the enlarged end of the pin and the head of the cutter-bar, the polygonal block being adapted to receive a driving-pitman, substantially as described.

604,812. SEINE-PURSING MACHINE. CHARLES H. GAFFNEY, Gloucester, Mass., assignor to William B. Lewis, same place. Filed Apr. 12, 1895. Serial No. 545,461. (No model.)

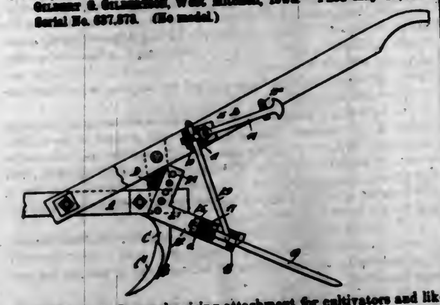


Claim.—1. In a seine-hauling machine, the combination with a floating or other support, of a casing hinged to said support and provided with three sets of shaft-bearings in its sides, a longitudinally-adjustable crank-shaft journaled in two of said bearings and carrying a pinion and a gear-wheel of different diameters, a drum-shaft journaled in two of said bearings in front of the crank-shaft and provided with a pinion and a gear-wheel which are adapted to mesh with the pinion and gear-wheel on the crank-shaft, the aforesaid gears and pinions being inclosed by the casing, a pawl and ratchet each end of the drum-shaft outside the casing, a pawl and ratchet adapted to hold the latter-named shaft against backward rotation, a third shaft journaled in bearings in the casing in front of the drum-shaft and having its ends extending upward in front of said drums, and a sleeve or trunnion mounted upon each end extension of said third shaft, substantially as described.

2. In a seine-hauling machine, the combination with a suitable support, of a casing hinged to the said support and provided with three sets of shaft-bearings in its side walls, said bearings being in a line with each other, a longitudinally-adjustable crank-shaft journaled in two of said bearings and carrying a pinion and a gear-wheel, a drum-shaft journaled in two of said bearings in front of the crank-shaft, a pinion and a gear-wheel fixed to said drum-shaft and adapted to mesh with the gear-wheel and pinion on the crank-shaft, a rope-drum mounted on each end of the drum-shaft outside the casing, means for preventing the backward rotation of the drum-shaft, a third shaft journaled in the remaining bearings in the casing in front of the drum-shaft and having its ends extending outward a short distance so as to be in a line with the periphery of the drums, and an elastic or yielding trunnion mounted upon the end extensions of said shaft, substantially as described.

3. In a seine-hauling machine, the combination with a support, of a casing hinged to said support, a longitudinally-adjustable crank-shaft journaled in said casing, gear-wheels of different diameters secured to the said crank-shaft, a drum-shaft also journaled in said casing, gear-wheels of different diameters secured to the said drum-shaft and adapted to mesh alternately with the gear-wheels on the crank-shaft, a rope-drum mounted on each end of the drum-shaft outside the casing, a pawl and ratchet adapted to hold the said drum-shaft against backward rotation, a third shaft journaled in the said casing and having its ends extending outwardly in front of said rope-drums, and a sleeve or trunnion mounted upon each end extension of the said shaft, substantially as described.

604,813. PULVERIZING ATTACHMENT FOR CULTIVATORS. GILBERT G. GILBERTSON, West Mitchell, Iowa. Filed May 24, 1897. Serial No. 637,573. (No model.)



Claim.—1. In a pulverizing attachment for cultivators and like implements, the combination with a head, tines carried thereby, and means for adjustably connecting the head with the beam of the implement of a clamp comprising cross-bars connected at one end to the cultivator-handles, a hanger connected to the tine portion of the attachment and entering said portion, and a clamping-screw passing through the bars of the clamp and securing the hanger, substantially as described.

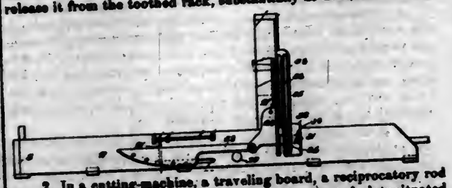
2. A combination with the beam and the handles of a cultivator or like implement, of a pulverizing attachment consisting of tines, a support for the tines which support is pivotally connected with the beam, cross-bars connecting the handles, a clamping device laterally adjustable on said cross-bars and a hanger connected with the tine portion of the device and secured by said clamp, whereby the head may be adjusted in position, substantially as described.

3. A pulverizing attachment for cultivators, comprising a head formed as a bar extending across the same and having thereon a series of rearwardly-extending rake-like tines, a bar attached to the head and to the cultivator-frame forwardly, two bars extended between the cultivator-handles and each having one end bent to one side and secured to the handle and the other end having a slight side bend toward the other bar and also having a slot in one end of the central straight body, and a pin in the other end, said pins being adapted to enter the slot in the opposite bars, one of said bars having a longitudinally-extending central slot and the other a series of threaded holes opposite said slot, a bolt passing through the central slot and threaded into one of the central holes, and a stay formed as a rod bent upon itself, with the ends hooked and engaging the rake-head and near the central bend parallel and embracing the bolt between the two cross-bars, substantially as described.

4. The combination, with the beam and handles of a cultivator or like implement, a clamp secured to the handles, and an adjusting-screw for said clamp, of a pulverizing attachment consisting of a head, tines carried by the head, adjusting-plates adjustably connected with said head and pivotally and adjustably connected with said beam, and a hanger pivotally connected with the head and received by said clamp.

604,814. CANDY-MACHINE. EDWIN F. GOULD, Machias, Me., assignor of one-half to Clement B. Dunworth, same place. Filed Aug. 12, 1897. Serial No. 648,098. (No model.)

Claim.—1. In a cutting-machine, a traveling board provided on its lower face with a toothed rack, in combination with a reciprocatory rod arranged underneath said board and provided on one end with a pivoted spring-actuated pawl for engaging said rack, a pivoted operating-lever and intermediate devices for actuating said rod, and a laterally-sliding detent adapted to engage the said pawl and release it from the toothed rack, substantially as described.



2. In a cutting-machine, a traveling board, a reciprocatory rod for moving the same, an operating-lever, and a pivoted plate situated in the path of said operating-lever and connected with said reciprocatory rod.

3. In a cutting-machine, a traveling board, a reciprocatory rod provided with devices for engaging the same, a lateral extension upon said rod, a link adjustably connected with said lateral extension, an operating-lever and a pivoted plate located in the path of said lever and connected with said link to move the same backwardly and forwardly.

4. In a cutting-machine, a traveling board, a reciprocatory rod for moving the same, a knife-operating lever, a slide provided with a guide to receive said knife-operating lever, a plate pivoted to said slide and situated in the path of said knife-operating lever, and connections between said plate and the reciprocatory rod to move the latter through the movement of the former.

5. In a cutting-machine, a traveling board, a reciprocatory rod for moving said board, a knife-operating lever, an upright slide having a guide to receive said knife-operating lever, a plate pivoted upon the frame of the machine having an adjustable pivotal connection with said slide, and connected with said reciprocatory rod for moving the same.

6. In a cutting-machine, a frame provided with uprights, a knife sliding in said uprights, an operating-lever having one end situated in the slot of one of said uprights, an antifriction-roller situated above said operating-lever, a lever pivoted to said knife and to said operating-lever and having its ends situated within a slot in the other upright, and an antifriction-roller situated within said slot and above said lever.

7. In a cutting-machine, a movable knife, a knife-operating lever, a lever pivoted to the frame of the machine, a slide having a guide to receive said operating-lever, a slot in said slide, a plate adjustably secured to said slide by means of an adjusting-screw extending through said slot, a pivotal connection between said lever and said plate, and connections between said lever and the traveling board for moving the latter.

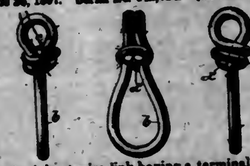
604,815. COIN-HOLDER. JOSEPH GREEN, Philadelphia, Pa. Filed Feb. 15, 1897. Serial No. 623,413. (No model.)



Claim.—1. The combination with a coin-holder and coin retaining and releasing means projecting from one side or edge thereof, of attaching means for securing said holder to the clothing, and a face-plate extending over the front of the holder and concealing said releasing means, substantially as described.

2. A coin-holder, comprising a series of flat cases arranged side by side and secured flatwise against each other, in combination with independent means for each case for holding and releasing the coins, the releasing means of one case being on the opposite side of the article from the releasing means of the adjacent case, substantially as described.

604,816. CHAIN-LINK. WILLIAM H. GRIFFITH, New York, N. Y. Filed June 26, 1897. Serial No. 642,734. (No model.)



Claim.—1. A bent-wire link having a terminal eye at one end, a loop, a bight or coil corresponding in size to and coinciding with the terminal eye and forming a duplex eye with parallel folds, a transverse wrap below the coinciding eye and bight, said link having also

the end of its eye extended below the transverse wrap and held within its embrace substantially as and for the purpose described.

2. A bent-wire link having a relatively small terminal eye at one end, a relatively large loop, a bight or coil corresponding in size to and coinciding with the terminal eye, and forming a duplex eye with parallel folds and a transverse wrap below the coinciding eye and bight, and said link having the end of one of its eyes extended between and lying within the fork formed by the legs of the loop substantially as and for the purpose described.

3. A bent-wire link having a relatively small terminal eye at one end, a relatively large loop, a bight or coil corresponding in size and coinciding with the terminal eye, and forming a duplex eye with parallel folds, and a transverse wrap below the coinciding eye and bight, one end of said wrap being extended between the legs of the loop and lying within the acute angle fork of the same substantially as and for the purpose described.

604,817. COMPOSITE FUEL AND PROCESS OF MAKING SAME. GEORGE GRIFFITHS, Los Angeles, Cal., assignor of one-half to William Henry Avery, same place. Filed Feb. 15, 1897. Serial No. 623,569. (No specimens.)

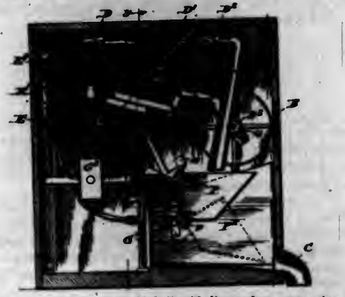
Claim.—1. A composition of matter to compose a fuel consisting of thoroughly-dried eucalyptus leaves and twigs cut into short lengths, bray or asphaltum, crude petroleum, and distillate.

2. The process of producing composite fuel, which consists in boiling bray and crude petroleum together until smooth and sticky; adding eucalyptus leaves and twigs chopped to suitable size; thoroughly incorporating the same with the mixture, and while hot, molding into suitable blocks.

3. The process of making composite fuel, which consists in placing bray and a little crude petroleum in a receptacle, bringing it to the boiling-point, boiling until smooth, then adding more crude petroleum and boiling thoroughly; then adding thoroughly-dried eucalyptus leaves and twigs cut into suitable lengths; thoroughly incorporating the leaves and twigs with the mixture; then adding distillate, and while the mixture is still hot, molding into suitable blocks.

4. The process of producing composite fuel, which consists in placing bray, with a little crude petroleum, in a receptacle; bringing the mixture to the boiling-point and boiling until smooth; then adding more crude petroleum and boiling until smooth and sticky; then adding thoroughly-dried eucalyptus leaves and twigs chopped to suitable size; thoroughly incorporating the same with the mixture, and while still hot, molding into suitable blocks.

604,818. COIN-CONTROLLED APPARATUS FOR DISPENSING LIQUIDS. WILLIAM P. HACKETT, Winchester, Ky. Filed July 21, 1897. Serial No. 645,312. (No model.)



Claim.—1. A coin-controlled liquid-dispensing apparatus, comprising a faucet, a cylinder with piston and rod connected to and operating the faucet, a compressed-air valve connected to the cylinder, a coin-carrier operating the air-valve, a liquid receiving and weighing device, and a discharge air-valve controlling the escape of air from the cylinder, said discharge-valve being opened by the movement of the liquid-receiving devices substantially as and for the purpose described.

2. In a coin-controlled liquid-dispensing apparatus, the combination with a compressed-air cylinder and piston for working the faucet; of an air-discharging device for said cylinder comprising a weighing device for receiving the liquid to be dispensed, and a discharge air-valve connected with said cylinder and operated by the weighing device substantially as and for the purpose described.

3. In a coin-controlled liquid-dispensing apparatus, the combination with the air-cylinder for working the faucet; of a discharge-valve for the air, a weighing-scale beam with tilting liquid-receptacle having counterbalance and latch, said scale-beam being arranged to hold said discharge-valve closed until overbalanced by the weight of the liquid weighed substantially as shown and described.

4. In a coin-controlled liquid-dispensing device a faucet, air-cylinder, and weighing-receptacle, all connected together by the crank-arm of the faucet, and operated by the piston of the air-cylinder substantially as shown and described.

5. In a coin-controlled liquid-dispensing apparatus, the combination with the air-cylinder for working the faucet and the faucet-lever; of the hollow standard G' with air-nozzle g' and offsetting fulcrum-frame g^3, scale-beam G G^2 with adjustable weight G^3, valve-section g and ball g', latch g^3, with weight 10 and the tilting liquid-receptacle P, pivoted on the ball p', and provided with counterbalance substantially as shown and described.

6. In a coin-controlled liquid-dispensing apparatus, the combination with the faucet and the air-cylinder and piston for working the same; of an inlet air-valve for the cylinder and a coin-carrier adapted by the weight of the coin, to move and operate the inlet air-valve, substantially as shown and described.

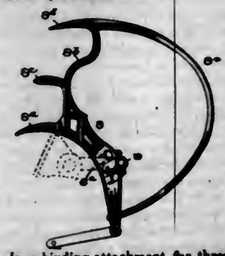
7. In a coin-controlled liquid-dispensing apparatus, the combination with the faucet and the air-cylinder and piston for working the same; of the coin-throat, coin-holder, the clock-gear-tripping mechanism, the lever L and an inlet air-valve for the cylinder consisting of a case with air-duct and a weighted valve-stem, diaphragm, and valve, connected together and operated by the lever L, substantially as shown and described.

8. In a coin-controlled apparatus, the combination of the coin-holder M', the coin-slot plate c and a lever N pivoted in the middle and having its upper end extended partly across the coin-slot and its lower end armed with a pin obstructing the path of the coin, said lever being arranged to open the path of the coin when the slot is fully opened by the insertion of the succeeding coin, substantially as and for the purpose described.

9. The combination with the air-inlet valve and the coin-throat; of a coin-carrier, a clock-spring tripping-gear, and a lever operated upon thereby to open the air-valve substantially as and for the purpose described.

10. The combination with the air-inlet valve, the coin-throat, the air-cylinder, its piston, and the faucet; of a motor-tripping device for the air-valve interposed between the air-valve and the coin-throat and connected to the working parts of the air-cylinder to be regenerated or wound up by the movement of the piston of said air-cylinder substantially as described.

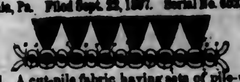
604,819. BINDING ATTACHMENT FOR THRESHERS OR RUBBERS. GEORGE D. HARDER, Cobleskill, N. Y. Filed May 10, 1897. Serial No. 635,915. (No model.)



Claim.—1. In a binding attachment for threshers or rubbers a packer comprising the body portion, the extension carried thereby having a plurality of teeth, and a curved guard extending from the extremity of said extension to the main portion of the packer, substantially as described.

2. In a binder attachment for threshers or rubbers, a packer comprising the body portion, the extension carried thereby having a plurality of teeth, and the curved guard extending from the extremity of said extension to the body portion of the packer, said guard being formed integral with and being a curved extension of the outermost tooth, substantially as described.

604,820. CUT-PILE CARPET FABRIC. HARRY HARDWICK, Philadelphia, Pa. Filed Sept. 22, 1897. Serial No. 652,552. (No model.)



Claim.—1. A cut-pile fabric having sets of pile-warp alternating with sets of divider warp, the whole being interwoven with binding-wefts, the pile being formed by upwardly-extending tufts of warp-thread and the sets of divider-warp each containing two or more pairs of fine binder-warp, so separated as to laterally compress the bases of the tufts of pile-warp, substantially as specified.

2. A cut-pile fabric having sets of pile-warp alternating with sets of divider-warp, the whole being interwoven with binding-wefts the pile being formed by upwardly-extending tufts of warp-thread and each set of divider-warp comprising one or more pairs of fine binder-warp and one or more strands of stuffer-warp, substantially as specified.

604,821. APPARATUS FOR DISPENSING OIL, &c. ADOLPH HAYE, San Antonio, Tex. Filed Mar. 20, 1897. Serial No. 629,310. (No model.)



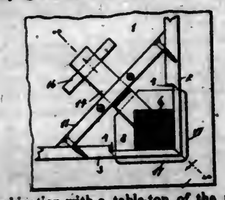
Claim.—1. In an apparatus for dispensing oil, the combination with a table, of a tank or reservoir supported on the table-top, said table-top and the bottom of the tank having registering openings, a measuring vessel having a flange at its lower end secured to one of the rails of the table to support the said vessel below the table-top, a faucet firmly secured at its lower end in the upper end of the measuring vessel, and its upper end being threaded and extending through said registering openings, a nut on the threaded upper end of the faucet to engage the inner face of the tank-bottom and clamp the tank to the table-top, and a discharge-faucet in the bottom of the measuring vessel, substantially as described.

2. In an apparatus for dispensing oil, the combination with a table, of a tank or reservoir supported on the table-top, said table-top and the bottom of the tank having registering openings, and the opening in the table-top being of greater diameter than that in the bottom of the tank, a measuring vessel having a flange at its lower end secured to one of the rails of the table to support the said vessel below the table-top, a faucet firmly secured at its lower end in the upper end of the measuring vessel, and its upper end being threaded and extending through said registering openings, a collar on the faucet near its upper end to fit snugly in the opening in the table-top, a washer seated between the said collar and the bottom of the tank, a nut on the threaded upper end to engage the inner face of the tank-bottom, and a discharge-faucet in the bottom of the measuring vessel, substantially as described.

3. In an apparatus for dispensing oil, &c., the combination with a table, of a tank or reservoir supported on the table-top, said table-top and the bottom of the tank having registering openings, a measuring vessel having a flange at its lower end secured to one of the rails of the table to support the said vessel below the table-top, a faucet firmly secured at its lower end in the upper end of the measuring vessel, and its upper end being threaded and extending through said registering openings, a collar on the faucet near its upper end, a washer seated between the said collar and the bottom of the tank, a nut on the threaded upper end to engage the inner face of the tank-bottom, and a discharge-faucet in the bottom of the measuring vessel, substantially as described.

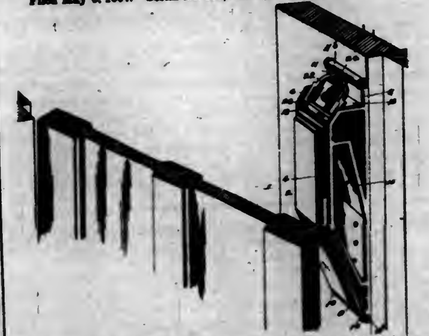
604,822. TABLE. ALFRED H. HEINE and GODFAY A. HOSWELDER, Evansville, Ind. Filed Nov. 26, 1897. Serial No. 660,584. (No model.)

Claim.—1. The combination with a table-top, of the rails cut away at the top at their meeting ends, a leg having a projecting plate on its upper end to engage in the cut-away portion of the rails, a diagonally-extending bridge secured to the under side of the table-top, and having a notch in its upper edge, a wedge designed to pass through said notch and engage with the leg, and a block for holding the wedge tightly against the leg and its plate, substantially as specified.



2. The combination with a table-top, of the rails cut away at their top edge, a leg, a projecting plate on the upper end of the leg for engaging in the cut-away portion of the rails, a notched bridge-piece secured to the table, a wedge for passing through the notch, the said wedge having a notched end to engage the leg and a shoulder to engage the bridge, and a block between the wedge and table-top, substantially as specified.

604,828. LETTER-BOX. JOSEPH J. HERZOG, Baltimore, Md. Filed May 6, 1897. Serial No. 635,948. (No model.)



Claim.—1. In a letter-box, the combination of a hinged cover-plate therefor, a spring-plate engaging the said cover-plate and forming the rear part of the lining of the box, and signal mechanism adapted to be actuated by the movement of the said cover-plate and spring-plate, substantially as and for the purpose specified.

2. In a letter-box, the combination of a casing, a cover-plate movably mounted in connection with the upper part thereof, and a spring plate forming a part of the rear lining of the box and against which a part of the said cover-plate has direct bearing, substantially as and for the purpose specified.

3. In a letter-box, the combination of a casing having an upper shelf and a spring-actuated cover-plate hinged at its lower portion and adapted to project upwardly from the shelf and form means for confining mail-matter thereon, said cover-plate operating a signal when moved downwardly, substantially as and for the purpose specified.

4. In a mail-box, the combination of a casing having its front, sides and back rigidly united against separation and having slots formed in the back thereof screw-hooks attached to a support and extending through said slots, and transverse locking-pins removably mounted under the said screw-hooks and located within a part of the box to hold the said box against movement, substantially as and for the purpose specified.

5. In a letter-box, the combination of a casing having a mail-receptacle with front metal plates, a rear spring-plate, a side with an opening therein conforming to the contour of the receptacle and inclosing the working parts, and a cover-plate with a projection bearing against the upper part of said rear spring-plate, substantially as and for the purposes specified.

6. In a letter-box, the combination of a casing having a letter-receptacle therein with an entrance-opening at the top thereof, a block projecting over the upper part of said receptacle to form an overhanging shoulder and having an inner inclined face, a metallic plate mounted on said inclined face of the block provided with a

depending lip, and a hinged cover-plate with a lip adapted to extend into the throat of the letter-receptacle, substantially as and for the purposes specified.

7. In a letter-box, the combination of a casing, a movable cover-plate having an inwardly-extending flange, a spring-plate directly engaged and operated by the flange of said cover-plate, a push-pin adapted to be actuated by said spring-plate and an electrically-connected push-button operated by said push-pin, substantially as and for the purposes specified.

8. In a letter-box, the combination of a casing, a movable cover-plate having an inward extension, a spring-plate engaged by the said extension and forming the back lining of the box, a gong-hammer operated by the said plate and extension, and a gong or signal adapted to be struck by the said hammer, substantially as and for the purposes specified.

9. In a letter-box, the combination of a casing having a mail-receptacle therein, an upper plate with a depending lip, an upwardly-extending spring-plate with an outturned upper end, and a cover-plate with an inner extension, substantially as and for the purposes specified.

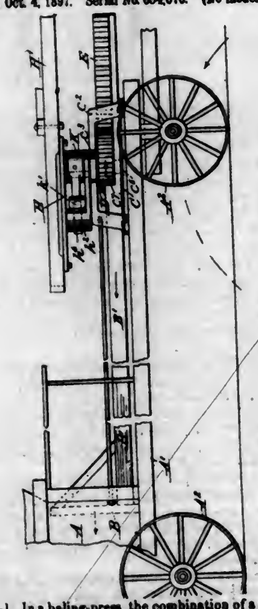
10. In a letter-box, the combination of a casing having a vertically-disposed mail-receptacle therein, an upwardly-extending spring-plate arranged at an angle of inclination, a front inclined plate forming with the upper part of the said spring-plate an entrance or throat to the mail-receptacle, and a cover-plate having a flange directly and movably engaging the said spring-plate, substantially as described.

11. In a letter-box, the combination of a movable cover-plate having an inwardly-projecting flange, a spring-plate with an upper inturned end and a central slot against which the said flange directly bears, a hinged plate carrying a hammer, a spring engaging the said hammer, and a gong with which the said hammer engages, substantially as and for the purposes specified.

12. In a letter-box, the combination of a casing having an open side, and an upper entrance-throat for the entrance of mail-matter and a spring-actuated door engaging said side and provided with a gravitating catch, substantially as and for the purposes specified.

13. In a letter-box, the combination of a casing having an open side, provided with an upper entrance-throat for mail-matter, a hinged cover-plate for said throat, a hinged door engaging the said side and provided with an upper recess, and a gravitating catch carried by the said door adjacent to the said recess, substantially as described.

604,324. BALING-PRESS. JULIUS H. HOLMGREEN, San Antonio, Tex. Filed Oct. 4, 1897. Serial No. 654,076. (No model.)



Claim.—1. In a baling-press, the combination of a platen, a plunger connected with said platen, a rack mounted on said plunger, a rotatable shaft, a gear fixed on said shaft and engaging with said rack, a yoke journaled at its open end on said shaft, means for rotating said yoke on said shaft, a driver fixed on said shaft between the forks of said yoke and adapted to move clear of the yoke, a dog pivoted in the bifurcation of said yoke for engaging with said driver, and a trip for disengaging said dog from said driver.

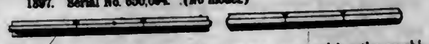
2. In a baling-press, the combination of a platen, a plunger connected with said platen, a rack mounted on said plunger, a rotatable shaft, a gear fixed on said shaft and engaging with said rack, a yoke having its forks connected by a casing journaled at its open end on said shaft, means for rotating said yoke on said shaft, a driver fixed on said shaft between the forks of said yoke and adapted to move clear of said casing, a dog pivoted in said casing and adapted to engage with said driver, and a trip for disengaging said dog from said driver.

3. In a baling-press, the combination of a platen, a plunger rigidly connected with said platen and moving in a line parallel with the axis of the baling-chamber, a rack mounted on said plunger and having its teeth following a line in the form of a compound curve, a rotatable shaft, a spiral gear secured on said shaft and in continuous engagement with said rack, a yoke journaled at its open end on said shaft, means for rotating said yoke on said shaft, a driver fixed on said shaft between the forks of said yoke and adapted to move clear of the yoke, a dog pivoted in the bifurcation of said yoke for engaging with said driver, and a trip for disengaging said dog from said driver.

4. In a baling-press, the combination of a platen, a plunger rigidly connected with said platen and moving in a line parallel with the axis of the baling-chamber, a rack mounted on said plunger and having its teeth following a line in the form of a compound curve, a rotatable shaft, a spiral gear secured on said shaft and in continuous engagement with said rack, a yoke having its forks connected by a casing and journaled at its open end on said shaft, means for rotating said yoke on said shaft, a driver fixed on said shaft between the forks of said yoke and adapted to move clear of said casing, a dog pivoted in the said casing and adapted to engage with said driver, and a trip for disengaging said dog from said driver.

5. In a baling-press, the combination of a platen, a plunger connected with said platen, a rack mounted on said plunger, a plate provided with a bearing, a shaft journaled at an end in said bearing, a gear fixed on said shaft and engaging with said rack, a roller-bearing on said plunger for holding said rack and said gear in engagement, a yoke having its forks connected by a casing and journaled at its open end on said shaft, means for rotating said yoke on said shaft, a driver fixed on said shaft between the forks of said yoke and adapted to move clear of said casing, a roller journaled in the outer end of said driver, a dog pivoted in said casing and adapted to engage with the roller carried by the driver, and a trip for disengaging said dog from said roller.

604,325. SELF-ADJUSTABLE AND REVERSIBLE TILE. FRANK T. HOPKINS and HARRY A. HOPKINS, Washington, D. C. Filed Aug. 31, 1897. Serial No. 650,094. (No model.)



Claim.—1. A tile floor or like structure comprising the combination of a plurality of self-adjusting and reversible tiles, the edges of which project at their horizontal centers beyond the upper and lower portions thereof, whereby when the tiles are abutted together uniform filling-spaces will be left on both sides thereof, substantially as described.

2. As an improved article, a reversible tile having its sides beveled from the center to the edges, substantially as described.

3. A tile floor or other construction consisting of a number of tiles abutting against or contacting with each other on a central line with uniform spaces at the upper and lower edges and the cement foundation upon which the said tiles rest, the cement filling the said lower and upper spaces, thus forming a cement locking, substantially as described.

604,326. VALVE. HANNS HÖRBIGER, Buda-Pesth, Austria-Hungary, assignor of one-half to Ladislaus Lang, same place. Filed Aug. 10, 1897. Serial No. 647,734. (No model.) Patented in Belgium Aug. 16, 1895, No. 116,869; in Hungary Oct. 25, 1895, No. 3,933; in France Dec. 3, 1895, No. 248,475; in England Oct. 13, 1896, No. 23,759; in Switzerland Nov. 2, 1896, No. 13,251, and in Austria Jan. 28, 1897, No. 47/250.

Claim.—1. In combination with a valve consisting of a thin circular metal plate having a concentric central hole, a valve-seat, a link-carrier opposite the valve-seat and two or more elastic links, each of which is secured at one end to the valve and at the other end to the link-carrier, such links being arranged symmetrically around the center of the valve and at a comparatively small angle to the plane of the valve-body and tangentially to a circle concentric to the axis of the valve.

2. In combination with a valve, consisting of a thin circular metal plate, having a concentric central hole, a valve-seat, one or more thin buffer-plates similar and parallel to the valve and secured on the back thereof with the interposition of washers, a link-carrier opposite the valve-seat and two or more elastic links arranged symmetrically around the center of the valve, each of such links being secured at one end to the valve and at the other to the link-carrier, making a comparatively small angle with the plane of the valve-body and being tangential to a circle concentric with the axis of the valve.



3. In combination with a valve consisting of a thin circular metal plate, having a concentric central hole, a valve-seat, one or more supporting-rings between and concentric to the two valve-seat edges, a link-carrier opposite the valve-seat and two or more elastic links, arranged symmetrically around the center of the valve, each of such links being secured at one end to the valve, making a comparatively small angle with the plane of the valve-body and at the other to the link-carrier and being tangential to a circle concentric with the axis of the valve.

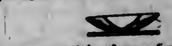
4. In combination with a valve, consisting of a thin circular metal plate, having a concentric central hole, a valve-seat, a link-carrier opposite the valve-seat, two or more elastic links arranged symmetrically around the center of the valve, each of such links being secured at one end to the valve and at the other to the link-carrier making a comparatively small angle with a plane of the valve-body and being tangential to a circle concentric with the axis of the valve, one or more valves similar and concentric to the first-mentioned valve and connected therewith by radial arms and seats for the last-mentioned valve or valves.

604,327. DEVICE FOR REMOVING BROKEN DRILL-RODS. JOHN HUNER, Helena, Wash. Filed May 25, 1897. Serial No. 638,084. (No model.)



Claim.—A device for removing broken bits from drill-holes formed by said bits, the same consisting of a permanent magnet cylindrical in form, bifurcated at one end to resemble the arms of an ordinary horseshoe-magnet, said arms being adapted at their ends to receive and retain a keeper, the opposite end of said magnet being made in the form of a hollow sleeve adapting it to receive and retain a non-conducting rod or stem, substantially as and for the purpose described.

604,328. NON-REFILLABLE BOTTLE AND SEAL. ALFRED J. JONS, Philipsburg, Mont. Filed Nov. 6, 1897. Serial No. 657,633. (No model.)



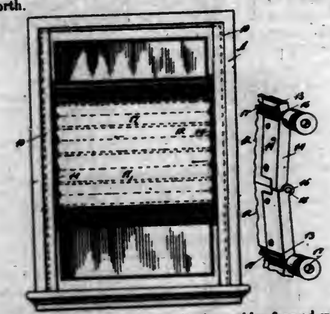
Claim.—As a new article of manufacture, a seal or stopper for bottles, consisting of a metallic disk and a washer of larger diameter than said disk, provided with radially-extending slits forming wings which are bent inwardly, reducing the diameter of said washer, and are adapted to be forced outwardly so as to engage a shoulder on the inner surface of the bottle in which the same is inserted, the said disk being formed with an integral leg at its center which extends through an opening at the center of said washer, and is afterward upset, forming a pivotal connection between said disk and washer, as and for the purpose set forth.

604,329. WINDOW-SHADE. JOHN S. JONES, Peterborough, Canada. Filed Aug. 19, 1897. Serial No. 648,742. (No model.)

Claim.—1. A window-shade, consisting of a series of slats pivotally connected together, and arranged in pairs, each pair of slats at opposite ends being provided with roller-bearings spring-pressed in an outward direction, as set forth.

2. A window-shade consisting of a series of pivotally-connected slats, and roller-bearings projected from the end portions of sundry of the said slats, the said roller bearings being in spring-controlled sections.

3. The combination, with the window-frame provided with a tubular guide formed with a longitudinal slot, of the window-shade composed of a series of slats pivotally connected together, and tension devices in said guide and connected through said slot with sundry of said slats, whereby the slats may be held at any desired height, as set forth.



4. The combination with the tubular guides formed with longitudinal slots, of the series of slats pivotally connected together and having spindles extended through said slots into said guides, and tension devices in said guides and connected with said spindles, said tension devices being formed in sections spring-pressed against opposite walls of said guides, as and for the purpose set forth.

5. A window-shade consisting of a series of pivotally-connected slats, the said slats being arranged in pairs and each pair of slats at opposite ends being provided with a spindle, and roller-bearings at the ends of the spindles, the roller-bearings being constructed in telescopic sections, and springs interposed between the said sections, for the purpose set forth.

6. The combination with the window-frames having guides, of a shade composed of slats pivotally connected together and arranged in pairs, each pair at opposite ends being provided with a spindle having its ends extending into the guides, hollow cylinders 18 in said guides and received on the ends of said spindles, cylinders 22 in which the spindle ends are loosely inserted and telescoping with the cylinders 18, and springs coiled around the ends of said spindles and bearing against each cylinder 18 and its corresponding cylinder 22 to press the same apart, as and for the purpose set forth.

7. The combination, with guides having vertical slots therein, of a shade consisting of a series of pivotally-connected slats, sundry of the said slats being provided with friction-rollers at their end portions, said friction-rollers being constructed in telescopic, spring-controlled sections, arranged to enter and travel in said guides, for the purpose specified.

604,330. MINING APPARATUS. GEORGE F. KEBLING, Hanover, N. H. Filed Oct. 16, 1897. Serial No. 655,575. (No model.)

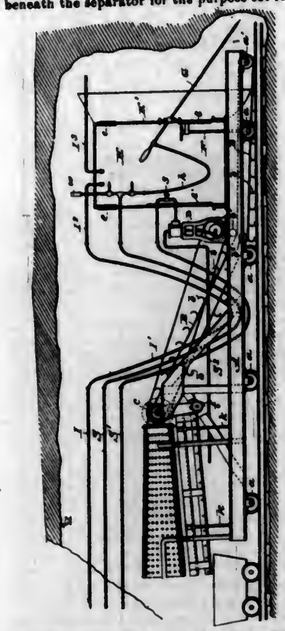
Claim.—1. In an apparatus for excavating tunnels in naturally-frozen soil, the combination with a bed or platform, an endless conveyer mounted on said platform, a wall or support attached to the platform to the rear of the front end of the endless conveyer, an excavating-tool carried by the wall or support so as to project through the same and a steam supply pipe connected to the tool, substantially as shown and for the purpose set forth.

2. In a mining apparatus for excavating in frozen soil, the combination of a platform, a chamber mounted thereon, air and steam supply pipes extending within the chamber, the steam-supply pipe being connected to a forward projecting rod which serves the purpose of an excavating-tool by discharging the steam upon the frozen soil, a conveyer-belt for taking the soil so excavated toward the rear of the platform, and an engine for operating the carrier-belt, substantially as shown and for the purpose set forth.

3. In an apparatus for mining or excavating frozen soil consisting of a platform, an excavating-tube through which steam is ejected upon said soil, an endless conveyer mounted on the platform, and wings or shields the lower ends of which converge toward the endless carrier, substantially as shown.

4. In an apparatus for mining in frozen soil, the combination of a movable platform having mounted thereon a suitably-driven conveyer, a separator mounted on the platform adjacent to one end of the conveyer said separator being actuated from the same source of power that operates the conveyer, a closed chamber carried by the platform, and a tube which extends through the chamber said tube being of sufficient length to extend forward of the conveyer, a steam-supply pipe connected with the tube and with the source of power which drives the conveyer, the steam being exhausted beneath the separator, substantially as shown and for the purpose set forth.

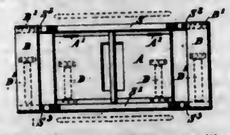
5. In an apparatus for mining or tunneling in frozen soil, the combination with an apparatus comprising a platform, means for manually moving the same, said platform carrying a chamber, engine, conveyer, separator and steam-ejecting pipe, organized or assembled as shown, an air-supply pipe connected with the chamber, steam-pipes one connected to the excavating-tube and the other with the engine said engine having a pipe for conveying the exhaust-steam therefrom to a point beneath the separator for the purpose set forth.



6. In a mining apparatus for tunneling in naturally-frozen soil, the combination with a platform, an endless carrier mounted thereon so that the forward portion thereof will be adjacent to the base of the tunnel, a chamber carried by the platform and positioned thereon to the rear of the forward portion of the endless carrier and a tool connected with a source of heat through which the heated medium is ejected upon the soil, said tool extending through the front wall of the chamber and adapted to be operated from within the chamber, substantially as set forth.

7. In an apparatus for mining or tunneling in naturally-frozen soil, the combination with a platform or support, a chamber mounted thereon and an excavating-tool which is connected with a steam-supply pipe, said tool being supported by the front wall of the chamber, the end beyond the chamber being of such length that the tool can operate over an area larger than the area of the platform and parts carried thereby, substantially as shown.

604,331. FOLDING ROAD-VEHICLE. WILLIAM LEGGE, London, England, assignor to the Patent Folding Perambulator Company, Limited, Croydon, England. Filed Dec. 29, 1897. Serial No. 664,231. (No model.) Patented in England Dec. 7, 1893, No. 23,567.



Claim.—1. In a folding road-vehicle or the like and in combination with the side pieces and an undivided bottom piece which is hinged on one edge to one of the side pieces, a hinge connected to the opposite side piece and to the bottom piece and adapted after the latter has been raised to automatically assist the closing of the sides substantially as described.

2. In a folding road-vehicle or the like and in combination two side pieces, a part situated between same and adapted when at right angles to such sides to keep same apart a hinge connecting said part with one of the side pieces by one edge of the former and a double hinge connected to the other side piece and to said part about the middle of same so that its other edge is free to move substantially as described.

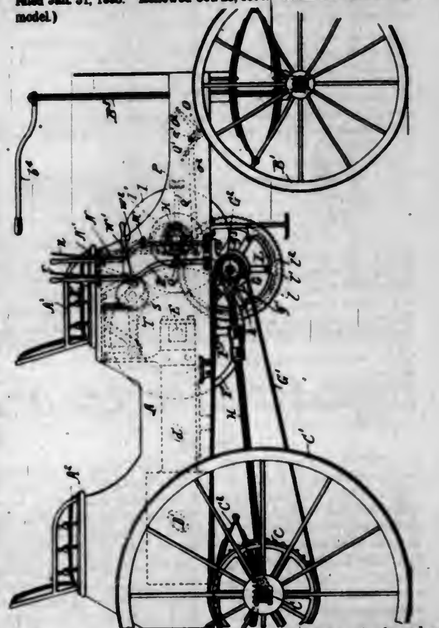
3. In a folding road-vehicle or the like, and in combination two side pieces, a bottom piece, a hinge connecting said bottom piece with one of the side pieces, by one edge of the former, a double hinge connected to the other side piece and to the bottom piece about the middle of same so that its other edge is free to move, and flexible stays attached to each side piece and extending to the opposite side piece to stiffen same when open substantially as described.

4. In a folding road-vehicle or the like and in combination two side pieces, a bottom piece adapted to fold against the side pieces, hinged parts situated below said bottom piece adapted when the vehicle is open to stiffen the side pieces and means connecting the bottom and said part beneath so that as the bottom is raised to fold the side pieces together the part beneath is drawn up substantially as described.

5. In a folding road-vehicle or the like and in combination with two side pieces and a bottom piece adapted to fold up with the side pieces a stay G pivoted to one of the sides a rod H pivoted centrally to same and to the opposite side the stay and rod being adapted to lie snugly together when the vehicle is open substantially as described.

6. In a folding road-vehicle or the like and in combination two side pieces, a bottom piece adapted to fold against the side pieces and, a piece hinged to one of the side pieces so as to fold against same and adapted when open to lock the bottom piece substantially as described.

604,882. VEHICLE-MOTOR. GEORGE W. LEWIS, Chicago, Ill. Filed Jan. 31, 1895. Renewed Oct. 25, 1897. Serial No. 656,319. (No model.)



Claim.—1. The combination with vehicle driving-wheels and a prime mover, of a friction driving-gear comprising a shaft which is actuated by the prime mover, two friction-pulleys of different sizes on said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from the same, two friction-pulleys on the second shaft which are movable in a direction endwise of the shafts relatively to the pulleys on the first shaft, the pulleys on the two shafts being located at different distances apart and means applied to the second shaft for giving lateral movement to the same, substantially as described.

2. The combination with vehicle driving-wheels and a prime mover of a friction driving-gear, comprising a shaft which is actuated by the prime mover, two friction-pulleys of different sizes on said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from the same, two friction-pulleys mounted to slide endwise on the second shaft and rigidly connected with each other and means applied to move laterally the second shaft, substantially as described.

3. The combination with vehicle driving-wheels and a prime mover of a friction driving-gear, comprising a shaft which is actuated by the prime mover, two friction-pulleys of different sizes mounted on said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from the same, two friction-pulleys mounted to slide endwise on said second shaft actuating means connected with said pulleys for moving them endwise on the shaft and means applied to the second shaft for giving lateral movement to the same, substantially as described.

4. The combination with vehicle driving-wheels and a prime mover of a friction driving-gear, comprising a shaft which is actuated by the prime mover, two friction-pulleys of different sizes mounted on the said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from the same, two friction-pulleys arranged to slide endwise on said second shaft and rigidly connected with each other, and means for moving said pulleys on the shaft, comprising an oscillating arm connected with a ring which engages a groove in the hub of one of the pulleys, a hand-lever and a connecting-bar uniting the hand-lever with said oscillating arm, substantially as described.

5. The combination with vehicle driving-wheels and a prime mover, of a friction driving-gear, comprising a shaft which is actuated by the prime mover, two friction-pulleys of different sizes mounted on said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from same, two friction-pulleys on said second shaft which are movable relatively to the pulleys on the first shaft, a laterally-movable bearing for one end of said second shaft, an upright arm at the free end of which said bearing is attached, and an actuating device connected with said bearing for giving lateral movement with the said second shaft, substantially as described.

6. The combination with vehicle driving-wheels and a prime mover of a friction driving-gear, comprising a shaft which is actuated by a prime mover, two friction-pulleys of different sizes mounted thereon, a second shaft arranged parallel with the first shaft and movable laterally toward and from the same, two friction-pulleys on said second shaft which are movable relatively to the pulleys on the first shaft a movable bearing for one end of the said second shaft and means connected with said movable bearing for shifting said shaft laterally, consisting of a rock-shaft provided with a crank-arm which is connected with said bearing and with an actuating-lever and a spring applied to one of said bars to throw the second shaft away from the first shaft, substantially as described.

7. The combination with vehicle driving-wheels and a prime mover of a friction driving and brake gear, comprising a shaft which is actuated by a prime mover, two friction-pulleys of different sizes on said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from the same, two friction-pulleys of different sizes mounted on the second shaft and movable relatively to the pulleys on the first shaft, a friction-strip arranged parallel with the said shafts in position for contact therewith of the larger of the pulleys on the second shaft and means for giving lateral movement to said second shaft, substantially as described.

8. The combination with vehicle driving-wheels and a prime mover, of a friction driving and brake gear, comprising a shaft which is actuated by a prime mover, two friction-pulleys of different sizes on said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from the same, two friction-pulleys of different sizes mounted on the second shaft and movable relatively to the pulleys on the first shaft, a friction-strip arranged parallel with the said shafts in position for contact therewith of the larger of the pulleys on the second shaft, a laterally-movable bearing for one end of said second shaft and means for moving laterally the second shaft, comprising a rock-shaft provided with a crank-arm which is connected with the bearing and provided also with two foot-levers, one for throwing the friction-pulleys into engagement with each other the other for throwing the larger friction-pulley into contact with the said friction-strip, substantially as described.

9. The combination with vehicle driving-wheels and a prime mover, of a combined friction and spur gear driving device, comprising a shaft which is actuated by the prime mover, two friction-pulleys of different sizes on said shaft, a second shaft arranged parallel with the first shaft and movable laterally toward and from the first shaft, two friction-pulleys on the said second shaft which are movable relatively to the pulleys on the first shaft, a third shaft having operative connection with the driving-wheels, two spur-gears of different sizes on said third shaft, two spur-gears of different sizes mounted on said second shaft and movable relatively to those on the third shaft and means for giving lateral movement to said spur-gears on the second shaft, substantially as described.

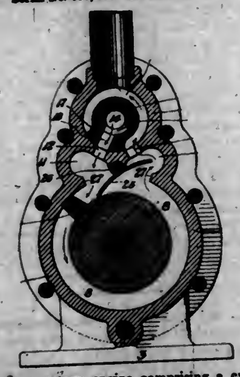
10. The combination of vehicle driving-wheels and a prime mover of a combined friction and spur gear driving device, comprising a shaft which is driven by the prime mover, two friction-pulleys of different sizes on said shaft, a second shaft arranged parallel with the first shaft and movable both laterally and endwise, two friction-pulleys of different sizes mounted to move endwise on the second shaft, a third shaft having operative connection with the driving-wheels, two spur-gears of different sizes on said third shaft two spur-gears of different sizes secured to the second shaft and adapted for engagement with the spur-gears on the third shaft by endwise movement of said second shaft and means for giving endwise movement to said second shaft, substantially as described.

11. The combination with vehicle driving-wheels and a prime mover, of a combined friction and spur gear driving device, comprising a shaft which is driven by the prime mover, two friction-pulleys of different sizes on said shaft, a second shaft arranged parallel with the first shaft and movable both endwise and laterally, two friction-pulleys mounted to slide endwise on said second shaft, said pulleys being rigidly connected with each other, a third shaft having operative connection with the driving-wheels, two spur-gears of different sizes on said third shaft, two spur-gears of different sizes rigidly attached to said second shaft, a laterally-movable bearing for one end of said second shaft, an actuating-lever connected with said movable bearing for giving lateral movement to the said second shaft, an actuating-lever connected with said pulleys on the second shaft for moving them endwise on said shaft and an actuating-lever connected with said second shaft for giving endwise movement to the latter, substantially as described.

12. The combination of vehicle driving-wheels and a prime mover, of friction driving and reversing gear, comprising a shaft which is actuated by the prime mover, a second shaft arranged parallel with the first shaft and movable toward and from the same, two friction-pulleys of unequal sizes on the first shaft, two friction-pulleys of different sizes mounted on the second shaft and movable thereon relatively to the pulleys on the first shaft, gearing connecting said second shaft with the driving-wheel, means applied to the said second shaft for moving it toward and from the first shaft and a laterally-movable reversing-pulley adapted for contact with said friction-pulleys for reversing the direction of rotation of the second shaft, substantially as described.

13. The combination with vehicle driving-wheels and a prime mover, of a friction driving and reversing gear, comprising a shaft which is actuated by the prime mover, a second shaft arranged parallel with the first shaft and movable toward and from the same, friction-pulleys on said shafts, a laterally-movable reversing-pulley, a shaft on which said reversing-pulley is mounted, a pivotal arm affording a bearing for one end of said reversing-pulley shaft and means for giving lateral movement to the reversing-pulley, comprising a lug or projection on said pivoted arm provided with a holding notch and a rock-shaft provided with a cam-arm adapted for engagement with said lug or projection, substantially as described.

604,333. ROTARY STEAM-ENGINE. FRANK D. MOON, Lockport, N. Y., assignor of three-twentieths to Lucius F. Adams and Joshua Gaskill, same place, and Frederick S. Jackson, Holland, N. Y. Filed May 14, 1897. Serial No. 636,532. (No model.)



Claim.—1. In a rotary engine comprising a cylinder, a drum mounted therein provided with an abutment, a valve-chamber located to one side of the cylinder, a valve mounted therein, and a double acting rock-valve pivotally mounted between the valve-chamber and the cylinder with means for actuating the rock-valve: intervening pocket-chambers between the valve-chamber and the cylin-

der constituting enlarged communicating passages for supply and exhaust steam around the ends of the rock-valve, substantially as set forth.

2. A rotary engine comprising a cylinder, a drum mounted therein provided with an abutment, a valve-chamber located to one side of the cylinder, a valve mounted therein, intervening pocket-chambers between the valve-chamber and the cylinder formed into enlarged laterally-extended cavities, a double-acting rock-valve pivoted between the pocket-chambers adapted to open and close communication between such chambers and the cylinder, a cam-arm on the rock-valve shaft and means attached to the main shaft for operating the cam to actuate the rock-valve, substantially as set forth.

3. In a rotary engine provided with a cylinder and a drum mounted therein provided with an abutment, a double-acting pivoted rock-valve with its inner face conforming to the inner face of the cylinder and a valve-chamber located to one side of the cylinder with a valve mounted therein; intervening pocket-chambers between the valve-chamber and cylinder having extended lateral cavities allowing for free circulation around the ends of the rock-valve when deflected and contracted to meet the edges of said valve when closed, substantially as set forth.

4. The combination, in a rotary engine, of a cylinder, a drum mounted therein provided with an abutment, a valve-chamber located to one side of the cylinder, intervening pocket-chambers between the valve-chamber and the cylinder, a double-acting rock-valve pivoted between the pocket-chambers with its inner face curved to conform to the inner face of the cylinder, a double-arm cam on the valve-stem, a disk on the main shaft provided with a roller for engagement therewith, and a rotary valve mounted on an inlet-barrel in the valve-chamber and adapted to open supply and exhaust passages leading to the intervening pocket-chambers; substantially as set forth.

5. In a rotary engine, the combination of a cylinder, a drum mounted therein provided with an abutment, a plurality of valve-chambers located laterally to the cylinder with valves mounted therein, means for simultaneously reversing the valves, intervening pocket-chambers between the valve-chambers and the cylinder, constituting enlarged communicating passages for supply and exhaust steam around the ends of the rock-valves, double-acting rock-valves pivoted centrally between the pocket-chambers with their inner faces curved to conform to the inner face of the cylinder, actuating-cams on the valve-stems and a disk on the main shaft provided with a roller for engagement therewith, substantially as set forth.

6. In a rotary engine comprising a cylinder, a drum mounted therein provided with an abutment, a valve-chamber located to one side of the cylinder, a valve mounted therein, a double-acting rock-valve pivotally mounted between the valve-chamber and the cylinder, and intervening pocket-chambers between the valve-chambers and the cylinder constituting enlarged communicating passages for supply and exhaust steam around the ends of the rock-valve; a double-arm cam with a concave recess between the arms, mounted on the end of the rock-valve shaft and a roller mounted on a disk secured to the main shaft adapted to enter the recess and engage one of the arms, substantially as set forth.

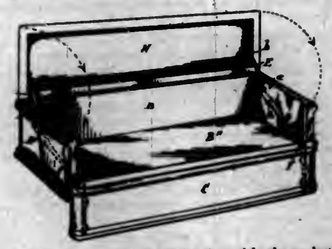
7. The combination, in a rotary engine, of a cylinder, a drum mounted therein provided with an abutment, a valve-chamber located to one side of the cylinder, intervening pocket-chambers between the valve-chamber and the cylinder, a double-acting rock-valve pivoted between the pocket-chambers with its inner face curved to conform to the inner face of the cylinder, a cam on the valve-stem, a disk on the main shaft provided with a roller for engagement therewith, and a rotatory valve mounted on the inlet-barrel in the valve-chamber and adapted to open supply and exhaust passages leading to the intervening pocket-chambers; substantially as set forth.

8. The combination, in a rotary engine, of a cylinder, a drum mounted therein provided with an abutment, a valve-chamber located to one side of the cylinder, intervening pocket-chambers between the valve-chamber and the cylinder, a double-acting rock-valve pivoted between the pocket-chambers with its inner face curved to conform to the inner face of the cylinder, a cam on the valve-stem, a disk on the main shaft provided with a roller for engagement therewith and a valve in the valve-chamber adapted to open supply and exhaust passages leading to the intervening pocket-chambers, substantially as set forth.

604,884. BURIAL-CASKET. CHARLES B. MYERS, Detroit, Mich., assignor of one-half to James G. Barton, same place. Filed Oct. 16, 1897. Serial No. 655,283. (No model.)

Claim.—1. In a burial-casket, the combination with the casket-shell, of the vertically-movable side, the hinged lid mounted on the fixed portion of the casket, and means connecting said movable side with said hinged lid to effect a vertical movement of said side as said lid is opened and closed.

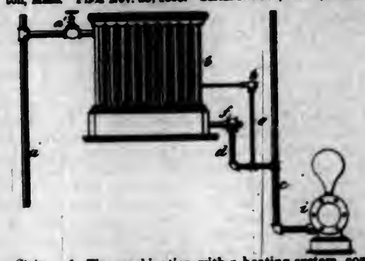
2. In a burial-casket, the combination of the rigid portion of the casket-shell, of the vertical movable side thereof, the hinged lid mounted on the fixed portion of the shell, and the levers and links connecting said lid with said movable side.



3. In a burial-casket, the combination with the casket-shell, of the side mounted to move vertically thereon, the hinged lid, the pivoted levers connected with said lid, and the jaws carried by said movable side engaged by the ends of said levers.

4. In a casket, the combination with the fixed portion of the casket-shell comprising the bottom, ends, and one side, of the complementary portion of said shell consisting of a movable side, the lid hinged to the fixed side of the shell, and means connecting said lid with said movable side to effect a movement thereof as the lid is opened and closed.

604,885. STEAM-HEATING SYSTEM. ANDREW G. PAUL, Boston, Mass. Filed Nov. 25, 1895. Serial No. 569,900. (No model.)



Claim.—1. The combination with a heating system, comprising a radiator or heater and a supply-pipe, of a discharge-pipe having a branch or passage connected with that part of the system where the water of condensation collects and an automatic steam-trap in said branch and a second branch or passage connected with the system on the supply side of the steam-trap above the point where the water of condensation ordinarily collects, and an exhausting device connected with the discharge-pipe whereby the water of condensation is intermittently discharged through the first branch and the air is discharged through the second branch, substantially as set forth.

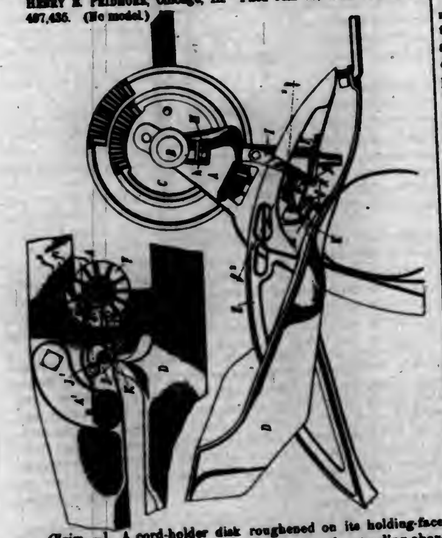
2. The combination with a heating system, comprising a radiator or heater and a supply-pipe, of a discharge-pipe having a branch or passage connected with that part of the system where the water of condensation collects, and an automatic steam-trap in said branch and a second branch or passage connected with the system on the supply side of the steam-trap above the point where the water of condensation ordinarily collects, and an automatic air-valve in said branch, and an exhausting device connected with the discharge-pipe, whereby the water of condensation is intermittently discharged through the first branch and the air is intermittently discharged through the second branch, substantially as set forth.

3. The combination with a heating system, comprising a radiator or heater and a supply-pipe, of a discharge-pipe having a branch connected with the lower part of the radiator or heater, an automatic steam-trap consisting of a valve device in said branch, and a second branch connected with the radiator or heater above the point where the water of condensation ordinarily collects, a trap consisting of a valve device in the discharge-pipe, a relief-pipe connected with the discharge-pipe, and an exhauster with which the relief-pipe is connected, substantially as set forth.

4. The combination with a heating system, comprising a radiator or heater and a supply-pipe, of a discharge-pipe having a branch connected with the lower part of the radiator or heater, an automatic steam-trap consisting of a valve device in said branch, and a second branch connected with the system on the supply side of the steam-trap above the point where the water of condensation ordinarily collects, an automatic air-valve in said branch, a trap consisting of a valve device in the discharge-pipe, a relief-pipe connected with the discharge-pipe and an exhauster with which the relief-pipe is connected, substantially as set forth.

5. The combination with a heating system, comprising a radiator or heater and a supply-pipe, of a discharge-pipe having a branch connected with the lower part of the radiator or heater, an automatic steam-trap consisting of a valve device in said branch, and a second branch connected with the system on the supply side of the steam-trap above the point where the water of condensation ordinarily collects, an automatic air-valve in said branch, a trap consisting of a valve device in the discharge-pipe, a relief-pipe connected with the discharge-pipe and provided with a restricted passage, and an exhauster with which the relief-pipe is connected, substantially as set forth.

604,886. CORD-KNOTTER FOR SELF-BINDING HARVESTERS. HENRY R. PRIDMORE, Chicago, Ill. Filed Jan. 19, 1894. Serial No. 497,436. (No model.)



Claim.—1. A cord-holder disk roughened on its holding-face, and having a hub roughened on its periphery and extending above the face.

2. A cord-holder disk provided with grooves or serrations on its holding-face, and having a hub formed with grooves or serrations in lines at substantially a right angle to the plane of the disk.

3. A cord-holder disk provided with radial grooves or serrations on its holding-face, and having a hub formed with longitudinal peripheral grooves or serrations forming continuations of those of the disk.

4. A cord-holder disk having two notches in its periphery, the segment of the disk between the notches having a greater diameter than the main portion of the disk.

5. A cord-holder disk having two notches in its periphery, the segment of the disk between the notches having a greater diameter than the main portion, and a knife secured to part of the greater diameter.

6. In a cord-knotter, the combination of a holder-disk having two notches in its periphery, the segment of the disk between the notches having a greater diameter than the main portion, a guide extending downward from the knotter-frame above the disk and secured to the holder so as to form a loop to admit the needle-point and a guide to direct the cord into the disk-notches, and a knife mounted on the part of the disk of the greater diameter and adapted to rotate outside the guide.

7. In a cord-knotter, the combination of a holder-disk, a holder integral with the knotter-frame, a spring to hold the disk against the holder, and a cord-guide extending from the holder outwardly and upwardly so as to form a loop for the passage of the needle's point, said guide being connected at its upper end to the knotter-frame.

8. In a cord-knotter, the combination of a holder-disk, a holder integral with the knotter-frame, a spring to hold the disk against the holder, and a cord-guide secured at its upper end to the knotter-frame and extending downwardly and forming a loop for the passage of the needle and a guide to direct the cord into the holder, said guide being continued under the cord and secured to the holder so as to act as a support for the cord.

9. In a cord-knotter, the combination of the holder integral with the knotter-frame, a holder-disk, a spring to hold the disk against the holder, and a cord-guide extending from the holder outwardly and upwardly and connected at its upper end to the knotter-frame so as to form a loop for the passage of the needle-point, said guide being extended beneath the holder so as to form a bearing-face for the disk.

10. In a cord-knotter, the combination with the looper trending normally in the direction of the discharge of the bundle, and the slotted breastplate, of a guiding-finger projecting from the side of the slot opposite the looper and having its active face so inclined in the general direction of the movement of the cord as to guide and deflect the same to the opposite side of the slot nearest the looper without arresting it, and a stop and support for the cord on the side of the slot next the looper, said guide-finger overhanging the stop and acting to hold the cords thereon during the knot-forming operation.

11. In a cord-knotter, the combination with the looper trending normally in the direction of the discharge of the bundle, and the slotted breastplate, of a guiding-finger projecting from the side of the slot opposite the looper, and a stop and support for the cord in rear of the guiding-face of the finger, said guiding-face inclined at all points in the direction of the movement of the cord, whereby the finger acts to guide the cord toward and upon the stop and serves to prevent it from slipping off the same during the knot-forming operation.

12. In a cord-knotter, the combination with the looper trending normally in the direction of the discharge of the bundle, and the slotted breastplate, of a guiding-finger that projects from the side of the slot opposite the looper and acts to deflect the cord to the side of the slot toward the looper, and a stop and support for the cord on the side of the slot next the looper, the outer edge of said stop or rest being inclined upwardly and acting to prevent the cord from slipping off the support during the knot-forming operation.

13. In a cord-knotter, the combination with the looper trending normally in the direction of the discharge of the bundle, and the slotted breastplate, of a guiding-finger projecting from the side of the slot opposite the looper and acting to deflect the cord to the side of the slot toward the looper, and a stop and support for the cord on the side of the slot next the looper, said guide-finger trending outwardly and inclined upwardly so as to overhang the stop or rest, and the outer edge of the stop itself being inclined upwardly in rear of the finger and acting to prevent the cord from slipping off the support during the knot-forming operation.

14. In a cord-knotter, the combination with the looper trending normally in the direction of the discharge of the bundle, and a slotted breastplate, of a guiding-finger projecting from the side of the slot opposite the looper and having its active face so inclined in the general direction of the movement of the cord as to guide and deflect the same to the opposite side of the slot nearest the looper without arresting it, the edge of the slot on the looper side being inclined transversely to the direction of movement of the cord to arrest the same and form a stop and support therefor, and the free end of the guiding-finger overhanging the said inclined edge of the slot in front and rear of the said inclined edge and acting to prevent the cord from slipping off the support during the knot-forming operation.

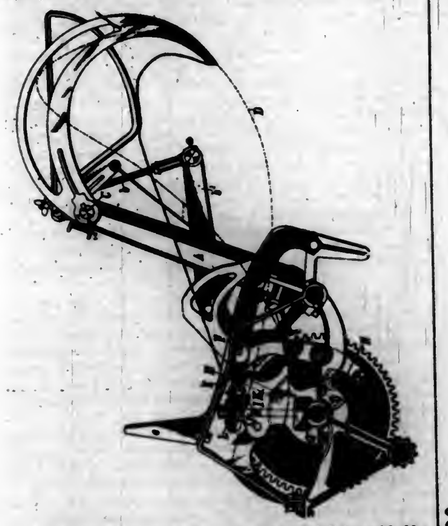
15. In a cord-knotter, the combination with the looper trending normally in the direction of the discharge of the bundle, and the slotted breastplate, of a guiding-finger projecting from the side of the slot opposite the looper and having its active face so inclined in the general direction of the movement of the cord as to guide and deflect the same to the opposite side of the slot without arresting it, the edge of the slot on the looper side being inclined transversely to the direction of movement of the cord to form a stop and support for the same, and the guiding-finger being widened and flattened toward its free end so as to overhang the inclined edge of the slot, whereby the end of said finger acts to hold the cord on the support and prevent the same from slipping therefrom during the knot-forming operation.

16. In a grain-binder, the combination of the needle, the cord-holder, and the slotted breastplate, of a finger projecting from one side of the breastplate-slot into and across the same with its active face so inclined in the general direction of the outward movement of the cord as to guide and deflect the same to the opposite side of the slot without arresting it, and the opposite edge of the slot being deflected into a generally-perpendicular direction to the movement of the cord at the point where the finger crosses the slot, whereby the deflected edge of the slot receives the cord from the finger and arrests and holds it against farther outward movement.

604,887. CORD-KNOTTING DEVICE. HENRY R. PRIDMORE, Chicago, Ill. Filed Feb. 23, 1895. Serial No. 539,327. (No model.)

Claim.—1. In a cord-knotting device, the combination with the

cam-wheel, of the holder and the looper, the shafts of said holder and looper being substantially radial to the cam-wheel and parallel with the face of the wheel and located between it and the plane of the needle, the looper-shaft being set back from the needle's plane farther than the holder-shaft, and the holder pinion being driven by a gear tooth or segment on the side of the cam-wheel in a plane set out farther from the face of the wheel than the segment that drives the looper-pinion.



2. In a cord-knotting device, a rotary flanged disk cord-holder, the cord-receiving notches of which are provided with lips that project from the flange of the disk, a clamping-shoe, a guide projecting from the shoe toward the lip of the flange and that with the lip of the disk forms a support for the cord and guides it into the notch as the holder is rotated.

3. In a cord-knotting device, in combination a holder mounted upon a radial shaft and driven directly from the cam-wheel, a looper also mounted upon a shaft driven from the same cam-wheel, the looper being positioned in a plane farther from the plane of the path of the needle than the holder, the holder receiving the cord on its side toward the needle in a notch formed with a lip projecting from the same in the direction of movement of the holder, a cord-holding shoe having a guide-finger projected beyond its holding-surface in a reverse direction to the movement of the holder, in the same horizontal plane with the lip on the holder, whereby the cord is prevented from escaping the notch in the holder, as the holder continues its rotation.

4. In a cord-knotting device, in combination substantially as set forth, a holder and looper on the same side of the plane of the path of the needle, and actuated directly from a common cam-wheel, the looper being set back from the plane of the path of the needle farther than the holder, a cord-guide on the breastplate on the side of the looper toward the bundle, against which guide the incoming grain forces the holder-strand of cord, a compressor moving forward against the formed bundle and lifting it away from the guide whereby the needle-strand of the cord is permitted to slide down the guide to its point within the path of the rotation of the looper.

5. In combination in a cord-knotting device, a holder located on one side of the looper, a cord-guide located on the other side; the holder adapted to carry the cord in its rotation toward the looper, the cord-guide formed with a cam or boss along which the cord slides toward the looper and a compressor independent of the needle to force the formed bundle from the cord-guide, substantially as and for the purpose specified.

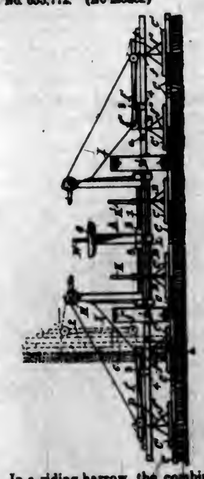
604,838. ART OF TREATING TOBACCO-LEAVES. CLYDE A. RICKARD and EDWARD H. LOUD, Seville, Ohio. Filed Oct. 18, 1895. Serial No. 566,129. (No specimens.)

Claim.—1. An improvement in the art of treating tobacco-leaves, which consists in applying a combustion-promoting agent to the leaves of a growing plant, substantially as described.

2. An improvement in the art of treating tobacco leaves, which consists in applying an alkali to the leaves of a growing plant in spots, substantially as described.

3. An improvement in the art of treating tobacco-leaves which consists in applying a mixture of potash and glycerin to the leaves of a growing plant in spots, substantially as described.

604,839. RIDING-HARROW. MYRON ROWE, Clarksville, Iowa, assignor of one-half to Nelson J. Walrath, same place. Filed Oct. 2, 1897. Serial No. 653,772. (No model.)



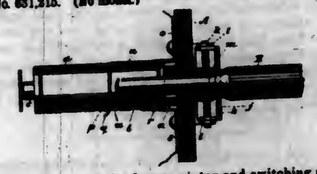
Claim.—1. In a riding-harrow, the combination with a central or main frame-section, having one or more drags suspended therefrom, of lateral or wing frames hinged or pivoted at their inner edges to the central or main frame-section, one or more drags flexibly suspended from each of said lateral or wing frames, means whereby each of the said drags may be raised or lowered toward and away from the respective frame-sections independently of the others, and means whereby each wing-section with its drag or drags may be raised on its hinge or pivot connection with the main or central frame-section, substantially as specified.

2. In a riding-harrow, the combination of a frame, consisting of a central wheel-supported section, and laterally-extending wing-sections hinged or pivoted to said central section, one or more drags flexibly suspended from each of the said sections underneath the same, windlasses mounted upon the said central section, ropes or the like connected to said windlasses and to the drags of the lateral sections, said ropes having an intermediate bearing on said lateral sections, whereby by a partial operation of said windlasses, the drags may be raised toward the under side of said sections, and by a further operation, the said sections will be raised on their hinge connections and carry the drags with them, means for supporting the sections when so raised, and means for supporting the drags in raised positions on the sections, substantially as specified.

3. In a riding-harrow, the combination with a main frame-section having one or more drags suspended therefrom, of a lateral or wing frame-section hinged or pivoted to said main frame-section, two independent drags flexibly suspended from the said lateral or wing section, a windlass mounted upon the main frame-section, and two independent ropes or cables which connect the said windlass with the respective drags, said ropes having means whereby they may be operated independently of the windlass, means for locking said windlass in the desired position, and means on the under side of the lateral or wing section for supporting its drags thereon when the said section is raised on its hinge or pivot connection, substantially as specified.

4. In a riding-harrow, the combination of the main section, the lateral or wing sections hinged or pivoted thereto and adapted to be raised into substantially vertical positions, the independent drags suspended from said main and lateral or wing sections, the two windlasses mounted on the main section, ropes or the like running from each windlass to each of the said drags on the wing-sections and having intermediate bearings on the said sections, said ropes being also arranged to be operated individually independently of the windlasses, means for holding said drags in position on the sections when raised, and means for raising the drag or drags of the main section, substantially as specified.

604,840. COMBINED ANNUNCIATOR AND SPRING-JACK. GEORGE W. SUTTON, New Rochelle, N. Y., assignor to the Phœnix Interior Telephone Company, New York, N. Y. Filed Apr. 5, 1897. Serial No. 631,215. (No model.)



Claim.—1. In a combined annunciator and switching structure, the combination of a plug and switching device, and an apertured "drop," the aperture in the said "drop" being so located as to bar access by the plug to the said switching device when the "drop" is in position to indicate a call and to allow the plug to have access to the said switching device when the "drop" is in its reset position, whereby the "drop" may be reset by the act of inserting the plug to operate the switching device.

2. In a combined annunciator and spring-jack, the combination of a switching device, a movable apertured "drop" having its aperture so located as to allow access to the switching device when the "drop" is in its set position and to prevent access thereto except when in said set position, whereby when the "drop" is in position to indicate a call the switching device can be operated by a switching-plug only by inserting the said switching-plug through the aperture in the "drop," all combined with means for limiting the movement of the "drop."

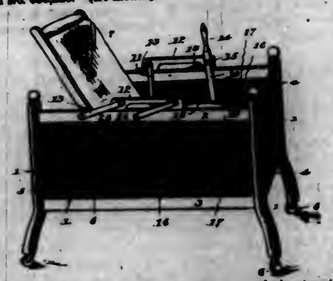
3. In a combined annunciator and spring-jack, the combination with a spring-jack switch of an apertured shutter mounted in front of the said spring-jack switch having its aperture so located as to allow the switching-plug to have access to the spring-jack switch only when the shutter is in its set position and to bar access to the spring-jack switch when the shutter is in position to indicate a call, whereby the spring-jack plug will be ineffective to operate the spring-jack except by being passed through the aperture in the shutter and into the spring-jack switch and thereby resetting the shutter.

4. In a combined annunciator and switching device which is accessible through an opening, the combination with the said switching device of a plug, a movable apertured annunciator having its aperture so arranged as to register with the opening when in its set position so as to admit the plug to actuate the switching device and to bring a solid portion in front of the said opening when the said shutter is thrown out of registry by being actuated.

5. The combination of a switching device and an apertured pivoted shutter barring access to the said switching device, except through the aperture thereof, whereby a plug for operating the switching device must be passed through the shutter to reset the same, substantially as described.

6. In a spring-jack switch, the combination of a contact *n* having a bent portion *p*, of a contact-spring *r* having a cam *t* and a bent portion *q* adapted to contact with the bent portion *p* of the contact *n* with a rubbing motion.

604,841. COMBINED CHAIR, CRIB, CRADLE, BED, AND WALKER. FRANK A. TOTTMAN, Montana, Kans. Filed May 12, 1897. Serial No. 636,230. (No model.)



Claim.—1. The combination of a frame a chair structure suspended within the frame by swinging arms, and adjustable connections between the swinging arms and the frame, whereby the chair structure may be adjusted longitudinally of the frame, substantially as specified.

2. The combination of a frame having antifriction supporting devices, a chair structure suspended within the frame by swinging arms, and adjustable connections between the swinging arms and the frame whereby the chair structure may be adjusted longitudinally of the frame, substantially as specified.

3. The combination of a frame, supporting-bars mounted upon the frame for adjustment longitudinally thereof, swinging arms carried by the supporting-bars, and means for supporting an occupant suspended by said swinging arms, substantially as specified.

4. The combination of a supporting-frame, a sectional chair structure suspended for swinging movement within and longitudinally of the frame, and means for securing the sections of the chair structure in the desired relative positions, substantially as specified.

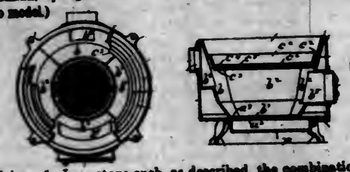
5. The combination of a supporting-frame, supporting-bars resting upon the upper edges of the sides of the frame, links connecting the supporting-bars with the frame, whereby the supporting-bars may be adjusted longitudinally of the same, swinging links suspended from the supporting-bars, and a sectional chair structure supported by the swinging arms, substantially as specified.

6. The combination with a supporting-frame, of side swinging arms pivotally mounted at their upper ends on the frame, an occupant-supporting device suspended by said swinging arms within the frame, and an operating-handle provided with a clasp constructed to fit upon and detachably engage the upper end of one of said swinging arms, whereby oscillatory motion may be imparted to the occupant-supporting device by an attendant, substantially as specified.

7. The combination with a supporting-frame, of a sectional chair structure suspended by swinging arms within said frame, and including a seat-section, a foot-section having arms pivotally mounted upon the seat-section, a back-section pivotally mounted upon the seat-section, side arms connecting the back-section with the upper extremities of the arms of the foot-section, perforated segments carried by the seat-section, spring actuated latches pivotally mounted upon the back-section to engage the perforations of said segments, and contiguous bell-crank operating-levers 24 mounted upon the back-section at its upper end and respectively connected by independent means with said latches, substantially as specified.

8. The combination with a supporting-frame, of a sectional chair structure having pivotally-connected seat, back and foot sections, and means for securing the same at the desired relative adjustment, and spaced front and rear swinging arms supported at their upper ends with the said frame and pivotally connected at their lower ends respectively to the seat near its front edge and the back-section near its pivotal connection with the seat, whereby when the back and foot sections are adjusted at an inclination to the seat-section, the rear edge of the seat-section is depressed below its front edge, substantially as specified.

604,842. PORTABLE FARM-STOVE. JOHN WEBB and MICHAEL TURNER, Springfield, Ohio. Filed Mar. 9, 1897. Serial No. 626,592. (No model.)



Claim.—1. In a stove such as described, the combination with an outer casing, of a base secured thereto, a grate adapted to fit in a central opening in said base, and a sectional lining extending outwardly and upwardly from said grate to the upper edge of said casing at an angle to the outer casing, forming a conical chamber as described, and removable tapering rings extending from the top of said casing into said conical chamber at approximately the same angle to the outer casing as the sectional lining, substantially as specified.

2. The combination with the outer casing having a flanged ring at the top, and a base having a central opening, an upwardly-projecting peripheral flange about said opening, an inner tapered or conical-shaped partition formed in horizontal sections as described, and extending at an angle from said flange to said upper ring, the respective sections of said partition being formed with overlapping parts, substantially as and for the purposes specified.

3. The combination with the outer casing of the inner removable sectional lining or partition extending downwardly and inwardly to form a tapered or conical fire-pot, flanged fuel and smoke openings in said lining as described, and conical-shaped removable rings having overlapping flanges, said rings adapted to fit into the top of said fire-chamber and into each other substantially as specified.

4. In a stove such as described the combination with a conical chamber having a flue-opening and a flue-conduit as described, of removable conical rings having overlapping flanges extending into said conical chamber and a plate adapted to fit the lowest ring to close said conical chamber at the top, substantially as specified.

604,348. HARROW. ENTLINGER E. WHIPPLE, St. John's, Mich. Filed Feb. 25, 1895. Serial No. 539,711. (No model.)



Claim.—1. A harrow having vertically-movable bearings, turnable tooth-beams therein, and shoes attached to said bearings, substantially as described.

2. A harrow provided with tooth-beams mounted in bearings, each bearing provided with a single downwardly and rearwardly extending shoe secured thereto, each beam having such bearings at both ends, substantially as described.

3. A harrow having independently vertically movable tooth-beams so connected together as to be rocked simultaneously to raise or lower the teeth, yet so as to permit the independent vertical play of each beam, each beam provided with its own supporting-shoes, substantially as described.

4. In a harrow the combination of frame-bars, a tooth-beam carrying teeth, connections or bearings receiving the tooth-beam and confining or connecting the same to the frame-bars, and depending shoes secured to the front portions of said bearings or connections, substantially as described.

5. A tooth-beam, in combination with a curved harrow-tooth so formed for attachment to the beam that the working point of the tooth is raised or lowered by moving the tooth transversely of the beam and longitudinally of itself, said tooth having a longitudinal slot at the butt of the tooth opposite the beam, a washer or clip conforming to and bearing against said tooth at said slotted portion and provided with a holding teat or projection entering the tooth, and a clamping-bolt passing through said parts and the slot of the tooth and provided with a nut, whereby on loosening the nut the tooth and the washer can be shifted independently of the beam to vary the vertical position of the working point of the tooth.

6. A float-harrow having rigid frame-bars, turnable tooth-beams carrying teeth and provided with controlling and operating means, each tooth-beam so connected to the frame-bars as to be movable vertically independently thereof and of the remaining tooth-beams, whereby the individual tooth-beams float independently, each beam provided with its own supporting-shoes, substantially as described.

7. A tooth-beam, in combination with a curved tooth so formed for attachment that the point of the tooth is raised or lowered by moving the tooth transversely of the beam and longitudinally of itself, said tooth having a longitudinal slot opposite the beam, a reversible tooth-clamping means entering said slot and so arranged that on reversal of the means the tooth must be moved longitudinally to vary the working position of its point, substantially as described.

8. In a harrow, the combination of the rigid frame-bars, independently vertically movable bearings loosely confined to the frame-bars, the several turnable tooth-bars carrying curved teeth, each mounted to turn in and move vertically with its bearings, the adjusting-bar arranged above and so connected with all the tooth-bars as to rock the same simultaneously, and yet so as to permit independent vertical movement of any tooth-bar with its bearings, and operating means for the adjusting-bar, substantially as described.

9. In a harrow, the combination of a frame-bar, a bearing carried thereby, a shoe having the upwardly-extending end secured to the front side of said bearing, the shoe from thence extending downwardly and rearwardly beneath the bearing with its upper face adjacent to the under side of the bearing, and a tooth-beam in the bearing, substantially as described.

10. The combination with a harrow frame-bar, of a bearing having a forward projection, a supporting-shoe having its upper portion formed to receive and be locked on said projection, the free end of the shoe extending downwardly and rearwardly therefrom, and a turnable tooth-beam in the bearing, substantially as described.

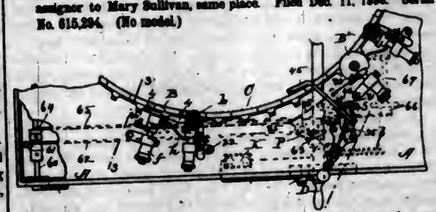
11. In combination, frame-bars, carriers or supports, tooth-beams carrying teeth and mounted in the supports, and supporting-shoes, each having its upper end secured to a support in advance of the beam with its free end extending downwardly and rearwardly beneath the beam and so arranged that the upward spring of the free end of the shoe is limited by the lower end of the support, substantially as described.

12. In a float-harrow, the combination of frame-bars, a series of tooth-beams carrying teeth and connected with the frame-bars, and a series of downwardly and rearwardly extending tooth-beam-supporting shoes, each tooth-beam directly carried by its own supporting-shoes arranged beneath the same, substantially as described.

13. In a float-harrow, the combination of rigid frame-bars, several vertically-movable tooth-beams carrying teeth and each provided with its own supporting-shoes extending downwardly and rearwardly and moving vertically with the beam and loosely connected with the frame-bars, substantially as described.

14. In a float-harrow, the combination with rigid frame-bars, a series of independent tooth-beams carrying teeth and arranged beneath the frame-bars, and a series of downwardly and rearwardly extending short shoes arranged beneath the tooth-beams and frame-bars and loosely connected with the frame-bars, each beam provided with a pair of said shoes arranged beneath its end portions and connected thereto, substantially as described.

604,344. STOP MOTION FOR CIRCULAR-KNITTING MACHINES. ALBERT WHITE and DANIEL F. SULLIVAN, Lowell, Mass.; said Sullivan assignor to Mary Sullivan, same place. Filed Dec. 11, 1896. Serial No. 615,294. (No model.)



Claim.—1. In a knitting-machine stop-motion, a drop-wire and a support therefor, in combination with mechanism for automatically engaging the support with said wire and mechanism for disengaging the drop-wire support from said drop-wire by hand substantially as described.

2. In a stop motion for a circular-knitting machine a vertically-movable rotary presser-wheel and mechanism for moving the same vertically in combination with a locking mechanism therefor and releasing devices comprising a drop-wire; and mechanism comprising an electrical circuit closed by the movement of said wheel for projecting a support under said wire.

3. In a stop-motion for circular-knitting machines a rotary presser-wheel mounted on a support 16 in combination with a locking mechanism therefor and releasing mechanism comprising a drop-wire and mechanism for projecting a support under said drop-wire, comprising an electrical circuit closed by the movement of the presser.

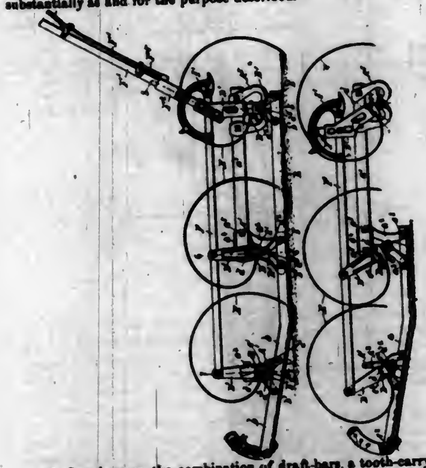
4. In a stop-motion for circular-knitting machines a presser mounted on a support 16 in combination with a locking mechanism therefor and releasing mechanism comprising a drop-wire; a shipper; electrically-actuated mechanism started by a movement of said presser for releasing said shipper; and mechanism operated by the movement of said shipper for projecting a support under said drop-wire.

5. In a stop-motion for circular-knitting machines a vertically-movable rotary presser and mechanism for moving the same vertically; an electric circuit; a magnet in said circuit; a presser locking mechanism and releasing devices therefor comprising a drop-wire; a hand-shipper; locking mechanism therefor released by said magnet; and a mechanism for projecting a support under said drop-wire, all being combined and arranged to operate substantially as specified.

604,345. HARROW. HARRY WIARD and HIRAM M. BURDICK, Syracuse, N. Y., assignors, by mesne assignments, to the National Harrow Company, Utica, N. Y. Filed Dec. 26, 1896. Serial No. 616,622. (No model.)

Claim.—1. In a harrow, the combination with teeth; of a frame comprising tooth-carrying bars arranged one in advance of the other, inner and outer draft-bars, said outer draft-bars extending forwardly beyond the front tooth-carrying bar being arranged substantially parallel with each other and having their front ends inclined forwardly toward each other from a point in proximity to the front tooth-carrying bar and having the front extremities of said inclined ends separated from the front extremities of the inner draft-bars, and a front cross-bar connecting the front extremities of the draft-bars of a section and arranged substantially parallel with the tooth-carrying bars, substantially as and for the purpose set forth.

2. In a harrow, the combination with teeth; of a frame comprising tooth-carrying bars arranged one in advance of the other, inner and outer draft-bars extending forwardly beyond the front tooth-carrying bar and having upwardly-inclined front ends, said outer draft-bars being arranged substantially parallel with each other and having their upwardly extending ends inclined forwardly toward each other from a point in proximity to the front tooth carrying bar and having the front extremities of said inclined ends separated from the front extremities of the inner draft-bars, and an elevated front cross-bar connecting the front extremities of the draft-bars of a section and arranged substantially parallel with the tooth-carrying bars, substantially as and for the purpose described.



3. In a harrow, the combination of draft-bars, a tooth-carrying bar having depending arms hinged to the draft-bars and provided with a tooth-supporting surface elevated above the hinge-pin of said tooth-carrying bars, and a tooth secured to said supporting-surface, substantially as described.

4. In a harrow, the combination with spring-teeth; of a frame comprising inner and outer draft-bars disposed in planes substantially parallel with the line of draft, and tooth-carrying bars disposed in planes arranged at substantially right angles with the line of draft and having tooth-supporting surfaces elevated above the top faces of the adjacent portions of the outer draft-bars and having their opposite ends provided with depending arms hinged to the inner and outer draft-bars, and adjusting means for simultaneously adjusting said tooth-carrying bars, substantially as set forth.

5. In a harrow, the combination with spring-teeth; of inner and outer draft-bars, arms projecting upwardly above adjacent portions of said draft-bars and provided at their upper ends with laterally-projecting trunnions or spindles, and tooth-carrying bars having projecting arms provided with journal openings for receiving said trunnions or spindles, substantially as described.

6. In a harrow, the combination of spring-teeth; with the opposite sections of a frame hinged together and each consisting of draft-bars, and tooth-carrying bars having elevated tooth-supporting surfaces arranged beneath the hinge-pins of said sections and having depending arms secured to said draft-bars, substantially as specified.

7. In a harrow, the combination of draft-bars and tooth-carrying bars having channeled under faces arranged above the adjacent portions of the draft-bars, spring-teeth having their attaching ends bearing against said faces of the tooth-carrying bars, fastening-plates arranged beneath said attaching ends above the adjacent portions of the draft-bars and provided with shoulders for entering the channels of the tooth-carrying bars, and clamps for holding said fastening-plates in operative position, substantially as and for the purpose specified.

8. The following elements in combination in a harrow: parallel draft-bars having their front ends deflected upwardly formed in one piece; turnable tooth-bars having perforated angle bends at their ends, perforated brackets secured rigidly to the draft-bars with their free ends extending upwardly, and means for pivotally connecting the angle perforated ends of the tooth-bars and the free ends of the brackets, and means for operating the turnable tooth-bars, substantially as set forth.

9. The following elements in combination in a harrow: draft-bars parallel in portions of their length, tooth-supporting bars at an angle to the line of draft having perforated angle bends at their ends; upwardly-extending brackets rigidly secured to the draft-bars provided with inwardly-extending perforated trunnions to receive the perforated ends of the tooth-bars, means for securing the ends of the tooth-bars and the free end of the bracket together, and mechanism for operating the turnable tooth-bars, substantially as set forth.

10. In a turnable tooth-bar harrow the combination therewith of the bracket having a perforated journal extending from its side, a perforated turnable bar mounted to turn on the journal, and mechanism for securing the parts together, substantially as set forth.

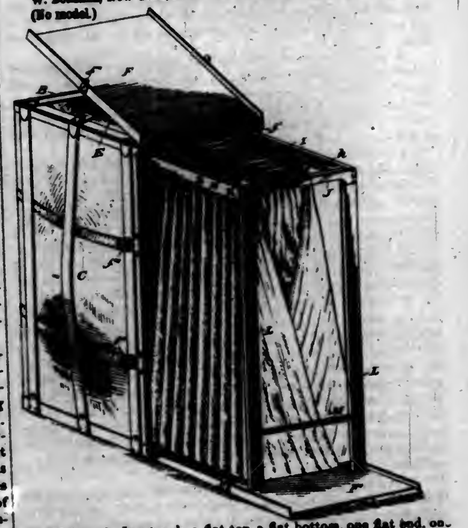
11. In a sectional turnable tooth-bar harrow, the combination therewith of an outer and a short inner draft-bar, parallel in portions of their length, a supplementary bar supported at its front end in an elevated plane above the short bar and at its rear end by a depending support extending into engagement with the soil, substantially as set forth.

12. In a sectional tooth-bar harrow, the combination therewith of an outer draft-bar and a short inner draft-bar parallel in portions of their length, a supplementary short bar supported at its front in an elevated plane above the short draft-bar and at its rear end by a depending support extending into engagement with the soil and the depending support provided with means for supporting and carrying one end of one of the rocking tooth-bars, substantially as set forth.

13. In a harrow of the character described, the combination of the clips provided with projecting journals to receive and support the turnable tooth-bars in a different plane from the plane of the runners, and the turnable tooth-bars supported by the projecting journals in a different horizontal plane from the runners, substantially as set forth.

14. In a sectional harrow, the combination of the following elements: an outside runner and an inside short runner in each section, two elevated short supplemental sections supported in a plane above the plane of the short runners of the harrow-sections, intermediate supports between the rear ends of the short runners and the front ends of the elevated supplemental sections, and a supporting-hinge between the rear ends of the elevated supplemental sections, substantially as set forth.

604,346. DRESS-SKIRT AND WARDROBE TRUNK. SEYMOUR W. BOSSALL, New York, N. Y. Filed Oct. 30, 1897. Serial No. 655,867. (No model.)



Claim.—1. In a trunk, a flat top, a flat bottom, one flat end, one rounded end and two rounded sides, substantially as described.

2. In a trunk, a flat top and bottom, one flat end, one rounded end and two rounded sides; in combination with a sliding hanger and devices adapted to suspend garments between said hanger and said flat end.

3. In a trunk, a slide adapted to move forward when the trunk is on one end, a prop at the forward end of said slide, and a cover-flap hinged to said trunk at one end and adapted when open to afford a bearing for the lower extremity of said prop.

4. A hanger-frame adapted to slide back and forth, said hanger-frame comprising bearing sides and intermediate supporting-bars; in combination with hangers adapted to slide on said supporting-bars.

5. A hanger-frame adapted to slide back and forth, said hanger-frame comprising bearing sides and intermediate supporting-bars; in combination with hangers adapted to slide on said supporting-bars and a prop for said frame attached to its outer end.

604,347. BICYCLE-SADDLE. EDWARD W. BRAY, Indianapolis, Ind., assignor of two-thirds to Franklin A. Williams and Lawson R. Hughes, Needham, Ind. Filed Apr. 20, 1896. Renewed Feb. 28, 1898. Serial No. 672,094. (No model.)

Claim.—1. In a bicycle-saddle, the combination with the two independent parts thereof, of means for supporting each of said parts whereby each of said parts may be given a simultaneous rocking and translatory movement in a substantially vertical plane about a point above the saddle.



2. The combination with a bicycle-saddle consisting of two independent parts, of a pair of hangers pivoted to a suitable support below each of said saddle parts and also pivoted, at their free ends, to the said saddle parts, substantially as described.

3. In a bicycle-saddle consisting of two parts, means for supporting each of said parts consisting of a carrier, a pair of pivoted hangers mounted in said carrier and pivoted at their free ends to said saddle parts, a spring mounted in each carrier and adapted to hold each saddle part in its normal position, and means for securing each of said carriers to the bicycle-frame, substantially as described.

4. In a bicycle-saddle, the combination with a cross-bar adapted to be secured to the bicycle-frame, of a pair of carriers mounted on said cross-bar, a pair of pivoted hangers mounted in each of said carriers, and two independent saddle parts each of which is pivoted to and supported by a pair of said hangers, as and for the purpose set forth.

5. In a bicycle-saddle, the combination with a cross-bar adapted to be secured to a bicycle-frame, of a pair of carriers mounted on said cross-bar, a pair of pivoted hangers mounted in each of said carriers, two independent saddle parts each of which is pivoted to and supported by a pair of hangers, and means for yieldingly holding each of said saddle parts in its normal position.

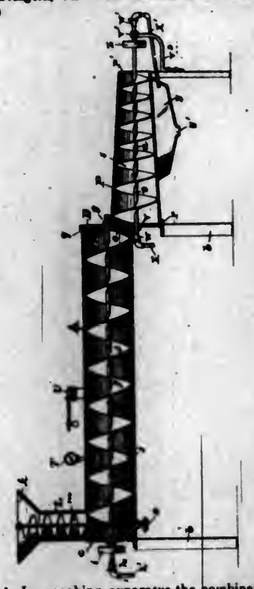
6 In a bicycle-saddle, the combination with a cross-bar adapted to be secured to a bicycle-frame, of a pair of carriers adapted to be secured to said cross-bar, said carriers each consisting, in part, of a pair of side plates, a pair of pivoted hangers mounted in each carrier between said plates and each provided, at its free end, with a pair of oppositely extending arms which project through suitable slots formed in said side plates, a pair of plates pivoted to each pair of hangers upon the extended arms of the free ends thereof, and a saddle-frame secured to each pair of plates, substantially as set forth.

7. In a bicycle-saddle, the combination with a cross-bar adapted to be secured to a bicycle-frame, of a pair of carriers adapted to be secured to said cross-bar, said carriers each consisting, in part, of a pair of side plates, a pair of pivoted hangers mounted in each carrier between said plates and each provided, at its free end, with a pair of oppositely-extending arms which project through suitable slots formed in said side plates, a pair of plates pivoted to each pair of hangers upon the extended arms of the free ends thereof, a saddle-frame secured to each pair of plates, and means for yieldingly holding each of said saddle-frames in its normal position, substantially as set forth.

8. In a bicycle-saddle, the combination with a cross-bar adapted to be secured to a bicycle-frame, of a pair of carriers adapted to be secured to said cross-bar and longitudinally adjustable thereon, said carriers each consisting, in part, of a pair of side plates, a pair of hangers pivoted between the side plates of each carrier, each of said hangers being provided, at its free end, with a pair of oppositely-extending arms which project through suitable slots formed in said side plates, a pair of plates pivoted to each pair of hangers upon the extended arms of the free ends thereof, and two parts of a saddle-frame each formed of a single piece of wire bent into the form shown and each secured to one pair of pivoted plates, substantially as set forth.

9. In a bicycle-saddle, the combination with a cross-bar adapted to be secured to a bicycle-frame, of a pair of carriers adapted to be secured to said cross-bar and longitudinally adjustable thereon, said carriers each consisting, in part, of a pair of side plates, a pair of hangers pivoted between the side plates of each carrier, each of said hangers being provided, at its free end, with a pair of oppositely-extending arms which project through suitable slots formed in said side plates, a pair of plates pivoted to each pair of hangers upon the extended arms of the free ends thereof, a saddle-frame composed of two parts each formed of a single piece of wire bent into the form shown and each secured to one pair of pivoted plates, and means for yieldingly holding each of said saddle parts in its normal position, substantially as described.

604,848. COOKING AND PRESSING APPARATUS. JOSEPHUS F. RUSSELL, Irvington, Va. Filed Dec. 30, 1897. Serial No. 664,613. (No model.)



Claim.—1. In a cooking apparatus the combination of a cylinder; a revoluble spiral or screw extending lengthwise within the cylinder; inlets for steam under pressure and opening into the cylinder; a feed-neck opening into the cylinder at one end; a force-feed screw revoluble in said neck which will keep the neck closed to the escape of steam; and a discharge-opening at the other end of the cylinder that will be kept closed to the escape of steam by engorgement of the escaping cooked material.

2. In a cooking apparatus the combination of a cylinder; a revoluble spiral or screw extending lengthwise within the cylinder; inlets for steam under pressure and opening into the cylinder; a feed-neck opening into the cylinder at one end; a force-feed screw revoluble in said neck which will keep the neck closed to the escape of steam; a tapered compressor-case having its large end joined to a restricted discharge-opening in the cylinder; and a tapered screw revoluble in said case.

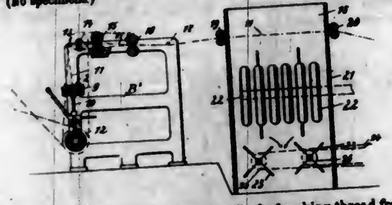
3. In a cooking apparatus the combination of a cooking-cylinder; a revoluble spiral or screw extending lengthwise within the cylinder; inlets for steam under pressure and opening into the cylinder; a feeding-in device at one end of the cylinder which permits continuous feeding of the material to be cooked and at same time prevents back escape of steam; and a discharge-opening at the other end of the cylinder that will be kept closed to the escape of steam by engorgement of the escaping cooked material.

4. The combination of a cooking apparatus having a discharge for the cooked material; a tapered compressor-case having its large end placed to receive the said discharging cooked material and said case having outlets or holes in its wall for the escape of oil and water; a receiver below said case; a pipe through the center of the case and having holes to receive oil and water from the case; and a tapered screw around said pipe, and a pipe connected at one end of the center pipe and leading to the said receiver.

5. In a cooking apparatus the combination of a steam cooking-cylinder; a tapered compressor-case; and a plate, D, having on one side a circular flange, *q*, which fits the end of the steam-cylinder and on the reverse side and lower down another circular flange, *r*, which fits the end of said compressor case and said plate provided with an opening, *c*, which serves as a discharge from the steam-cylinder to the compressor-case.

6. In a cooking apparatus the combination of a cooking-cylinder; a revoluble spiral or screw extending lengthwise within the cylinder; inlets for steam under pressure and opening into the cylinder; a feeding-in device at one end of the cylinder which permits continuous feeding of the material to be cooked and at same time prevents back escape of steam; a discharge-opening at the other end of the cylinder that will be kept closed to the escape of steam by engorgement of the escaping cooked material; a compressor-case having one end joined to the said discharge-opening of the cooking-cylinder and having outlets for the expressed oil and water and a discharge-opening for the dry cooked product; and a compressing-screw in said case.

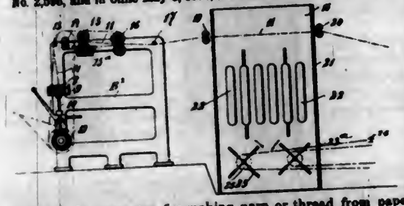
604,849. PROCESS OF MAKING PAPER THREAD. EMIL CLAVIER, Chemnitz, Germany, assignor to the Kunstweberei Clavier & Company, Leipsic, Germany. Filed Jan. 31, 1896. Serial No. 577,594. (No specimens.)



Claim.—1. The process herein described of making thread from paper, which consists in cutting paper into narrow strips of suitable length, steaming said strips so as to soften the same, twisting the strips into threads, drawing the threads for condensing, rounding and polishing the same, impregnating the threads with a suitable liquid, and finally drying the threads, substantially as set forth.

2. The process herein described of making thread from paper, which consists in cutting paper into narrow strips of suitable length, steaming said strips so as to soften the same, twisting the strips so as to form threads, drawing the threads thus produced and simultaneously subjecting the same to the action of suitable liquids, and finally drying the threads, substantially as set forth.

604,850. APPARATUS FOR MAKING YARN OR THREAD FROM PAPER. EMIL CLAVIER, Chemnitz, Germany, assignor to the Kunstweberei Clavier & Company, Leipsic, Germany. Filed Jan. 31, 1896. Serial No. 577,595. (No model.) Patented in Germany May 4, 1895, No. 86,234; in Austria Dec. 13, 1895, No. 46 1/4,264; in England Dec. 13, 1895, No. 23,942; in Hungary Dec. 30, 1895, No. 5,669; in Belgium Dec. 23, 1895, No. 118,908; in France Jan. 2, 1896, No. 253,949; in Italy Jan. 9, 1896, No. 40,565; in Sweden Jan. 13, 1896, No. 7,263; in Norway Jan. 14, 1896, No. 5,047; in Switzerland Jan. 15, 1896, No. 11,330; in Spain Jan. 18, 1896, No. 18,551; in Portugal Jan. 18, 1896, No. 2,141; in Denmark Jan. 20, 1896, No. 994; in Brazil Apr. 6, 1896, No. 2,042; in India Apr. 6, 1896, No. 126; in Luxemburg Aug. 31, 1896, No. 2,586, and in Chile May 6, 1897, No. 779.



Claim.—In apparatus for making yarn or thread from paper, mechanism for imparting a twist to the shreds of paper, a pair of rolls for pulling the twisted shreds from said mechanism, a pair of drawing-rolls, means for revolving the latter at a greater rate of speed than the pulling-rolls, mechanism for applying suitable size to the twisted shreds between the pulling-rolls and the drawing-rolls, a drying device, and means for conducting the threads from the drawing-rolls through the drying device, substantially as set forth.

604,851. PLOW-CARRIAGE. OLIVER C. HUBBARD, Bedford, Ind. Filed Apr. 6, 1897. Serial No. 630,967. (No model.)

Claim.—1. In combination, a plow-carriage comprising a pole or tongue, and a transverse bar having a loop or arch intermediate of its ends to receive the pole or tongue, to which it is secured, the side or parallel members of the said loop being spaced apart a distance corresponding to the width of the pole to touch the sides thereof and brace it laterally, a plow having its beam pivotally connected to the pole or tongue and adapted to operate and snugly fit within the space of the said loop or arch to be braced laterally thereby, and means mounted upon the pole or tongue and connected with the plow-beam for raising and lowering the front end, substantially as and for the purpose set forth.

2. In a plow-carriage, the combination of a segment-standard, a lever fulcrumed thereto and provided with means to engage with the said standard for holding the lever in an adjusted position, said lever having a sleeve rigidly applied to its lower end, and a wheel-spindle having an arm adjustably mounted in the sleeve of the lever, substantially as and for the purpose set forth.



3. In a plow-carriage, the combination of a wheel-spindle, a support therefor, an arm as 20 having adjustable connection with a part extending laterally from the wheel-spindle, and a guide acting jointly with the said arm 20 to properly position the wheel-spindle, substantially as and for the purpose set forth.

4. In a plow-carriage, the combination of a wheel-spindle having an arm, a support for the said arm, a crank-arm, means for adjustably connecting the crank-arm with the arm of the wheel-spindle, and a guide cooperating with the crank-arm to fix the position or slant of the wheel-spindle, substantially as and for the purpose set forth.

5. In a plow-carriage, the combination of a lever, means for securing the lever in an adjusted position, a wheel-spindle having an offstanding arm, means for adjustably connecting the offstanding arm with the aforesaid lever, a second arm 20 having adjustable connection with the arm of the wheel-spindle, and a guide cooperating with the second arm to hold the wheel-spindle in an adjusted position, substantially as set forth.

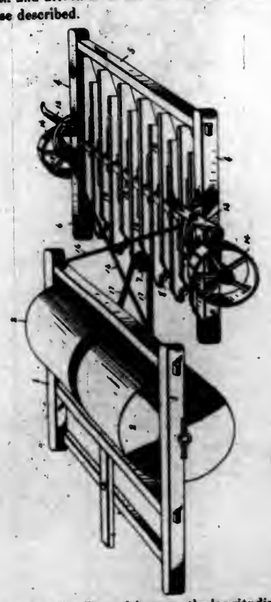
6. In a plow-carriage, the combination of a lever having a sleeve and provided with means for securing it in an adjusted position, a crank-arm having a sleeve at its outer end and having its inner end operating in a guide, a wheel-spindle having an arm passing through the aforesaid sleeves and having independent adjustable connection with each, and a keeper for holding the sleeves in fixed relation, substantially as set forth.

7. In a plow-carriage, the combination of a pole or tongue provided with means for raising and lowering the front end of a plow-beam connected therewith, a transverse bar having a loop or arch intermediate of its ends to receive the pole or tongue, to which it is secured, segment-standards at the ends of the transverse bar, levers fulcrumed to the segment-standards and provided with hand-latches to cooperate therewith for holding the levers in an adjusted position, said levers having sleeves at their lower ends, wheel-spindles having arms adjustably secured in the sleeves of the levers, a crank-arm having adjustable connection with the arm of one of the wheel-spindles, and a guide secured to an end portion of the aforesaid transverse bar and receiving the free end of the aforesaid crank-arm, substantially as and for the purpose set forth.

604,852. AUTOMATIC PULVERIZING-HARROW. AARON KINSELL, Cygnet, Ohio, assignor of one-half to Frank M. Lee and Nelson Guyer, same place. Filed May 14, 1897. Serial No. 636,622. (No model.)

Claim.—1. The combination with the roller-frame, of a harrow-

frame connected to said roller-frame to permit it to follow the undulations of the ground independently thereof, a series of longitudinally-arranged blades set on edge with long cutting edges on their lower faces and connected at their forward ends with alternate oppositely-set cranks on a shaft journaled in the harrow-frame, said shaft being connected with and driven from the roller-shaft, substantially as and for the purpose described.



2. In a combined roller and harrow, the longitudinally-arranged parallel blades connected at their forward ends with alternate oppositely-set crank-arms formed on a shaft journaled in said frame, means for guiding the movements of the rear ends of said blades, and means connecting the roller-shaft with said crank-shaft for actuating the latter, substantially as described.

3. The combination with the harrow-frame, of a crank-shaft located at the forward end of said frame and having alternately oppositely disposed crank-arms, means for actuating said shaft connected therewith, a series of parallel longitudinally-arranged blades connected with said crank-arms at their forward ends having slots near their upper edges, a transverse frame-rod passing through the slots in said blades, and spacing-thimbles intermediate said blades, for the purpose and substantially as described.

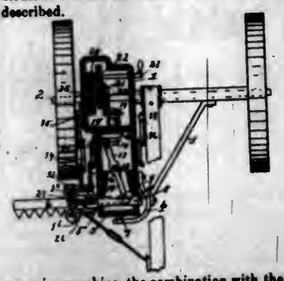
4. A harrow-frame provided at its forward end with a crank-shaft having the alternate oppositely-set crank-arms, a pulley connected therewith for actuating it, parallel blades connected with the crank-arms of said shaft and having lower longitudinally-arranged cutting edges, means for guiding the movements of the rear ends of the blades, and means for regulating or adjusting the height of the frame for regulating the depth of the cut of the blades, substantially as described.

5. A roller-frame in combination with a harrow-frame connected to said harrow-frame by bracing link-rods crossing each other as described and hinged to the roller-frame for permitting the harrow to follow the ground independently of the roller-frame, chopping-blades mounted in said harrow-frame, a crank-shaft for imparting a chopping movement thereto, and a sprocket-wheel and drive-chain connecting the said crank-shaft and roller-shaft, for the purpose and substantially as described.

604,853. MOWING-MACHINE. DANIEL W. KNISELY, Johnsville, Ohio. Filed Nov. 26, 1897. Serial No. 659,702. (No model.)

Claim.—1. In a mowing-machine, the combination with the casing 1, of an inner casing 5 mounted to rotate therein, a tubular case 8 mounted in the outer end of said case 5, the said tubular case 8 having a slot in the portion that is inclosed in the case 5, a link 26 inclosed in the case 8, and having a ball-and-socket connection with the sickle-bar, an arm 11 having a ball-and-socket connection with said link 26, and a rotating beam to impart a reciprocating movement to said arm, all arranged substantially as herein shown and described.

2. In a mowing-machine, the combination with the case 1 mounted on the axle of the machine, and a crank mounted in said case with gearing to drive it, of a case 5 loosely mounted in the outer end of said case 1, a tube or case 8 mounted in the outer end of said case 5 and having an attachment with the shoe of the sickle-bar, an angular link 26 inclosed in said case 8 and having a universal-joint connection with the sickle-bar, a reciprocating arm 11 having a fulcrum in the case 5 and a universal-joint connection with the link 26, a rotating beam 13 having a pivotal connection with said arm 11, means for elevating the sickle-bar while the same is in motion, substantially as shown and described.



3. In a mowing-machine, the combination with the case 1, of an inner case 5 rotatably mounted in the outer end of said case 1, a tubular case 8 loosely mounted in the outer end of said case 5 in a transverse position, the said case 8 having a slot in the portion that is inclosed in said case 5, and arms 8ª adapted to be attached to the shoe of the sickle-bar, a reciprocating arm 11 having a fulcrum on the inner end of the case 5, and ball-and-socket connections between said arm and the sickle-bar, a rotating beam 13 having a flexible connection with said arm 11, a crank having a ball-and-socket connection with said beam, and means for driving said crank, and means for elevating the sickle-bar, substantially as shown and described.

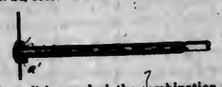
604,854. TOMBSTONE. JOHN B. FOSS, Creighton, Pa. Filed Oct. 30, 1897. Serial No. 656,914. (No model.)



Claim.—1. A hollow porcelain tombstone having an opening in one face, a panel fitting in said opening and having a rib or projection fitting in a recess in the wall of the opening so as to prevent outward movement, and a filling of concrete or cement which contacts with and secures the panel in place.

2. A hollow porcelain tombstone having an opening in one face, a panel fitting in said opening and having a projection fitting in a recess in the wall of the opening to prevent outward movement, the outer face of the panel being flush with the face of the stone, and a filling of concrete or cement which contacts with and secures the panel in place.

604,855. DENTAL DISK-MANDREL. JAMES B. KNEFF, Chicago, Ill. Filed Apr. 24, 1895. Renewed Oct. 11, 1897. Serial No. 654,878. (No model.)



Claim.—1. In a disk-mandrel, the combination of two members between which the disk is adapted to be clamped, one of said members carrying a lug and the other member being provided with oblique walls with one or the other of which said lug engages in locking the disk according as the disk is rotated in one direction or the other, whereby the disk is adapted to be clamped between said members regardless of the direction of rotation of the disk; substantially as described.

2. The combination with a mandrel carrying a mandrel-head, of a clamping-head between which and the mandrel-head the disk is clamped, an opening in said mandrel-head at a distance from the periphery thereof, oblique walls upon the rear of the mandrel-head upon opposite sides of said opening, and a lug or part upon the clamping-head adapted to pass through said opening and to engage one or the other of said oblique walls according as the mandrel is rotated in one direction or the other, the space to the rear of said mandrel-head being completely inclosed; substantially as described.

604,856. BICYCLE-BELL. JEREMIAH KEYES, Providence, R. I., assignor to Simmons & Payne, same place. Filed Oct. 8, 1897. Serial No. 654,577. (No model.)



Claim.—The combination of the pivoted disk, and the bell, with the spiral spring secured at one end to the pivoted disk, and having its opposite end arranged to form the bell-hammer, the friction-wheel, and the revolving wiper adapted to engage with the free end of the spiral spring of the hammer to cause the ringing of the bell, and means for causing the engagement and rotation of the friction-wheel.

REISSUES.

11,663. SPECTACLES. GEORGE RAMSH, Syracuse, N. Y. Filed May 13, 1897. Serial No. 636,333. Original No. 576,251, dated Feb. 2, 1897.



Claim.—1. In a pair of spectacles having temples A A, the bridge B of rigid ductile metal attached to the lenses, the ends of which are extended below the points of attachment, bent inward and upward, and each provided with an inwardly-offset nose-guard C.

2. In a pair of spectacles having temples A, A, the bridge B of rigid ductile metal secured to the lens-frames *b b*, by rigid studs *d d*, and extended below said studs, the said extended ends of the bridge B being bent inward and upward and each provided with an inwardly offset nose-guard C; substantially as described.

3. In a pair of spectacles having temples A A and lens-frames *b b*, the combination therewith of the bridge B of rigid ductile metal soldered or otherwise secured to the posts *d d*, and extended below the posts, the said extended ends being bent inward and upward and the terminals thereof curved and flattened to form offset and adjustable nose-guards, substantially as described.

11,664. IRONING-MACHINE FOR SMOOTHING EDGES OF CUFFS AND COLLARS. FRED R. FAY, Los Angeles, Cal. Filed Aug. 6, 1897. Serial No. 647,371. Original No. 580,810, dated Apr. 13, 1897.



Claim.—1. An ironing-machine comprising a rotatable head formed with a peripheral groove, one wall of the groove being extended beyond the other wall to provide a ledge whereby an article is guided into the groove; substantially as described.

2. An ironing-machine having a rotatable head, a circular groove in the head and a guide on the same plane as a side of the groove, forming a projecting wall to the latter; substantially as set forth.

3. An ironing-machine having a circular rotatable head with circular faces of different circumference, a groove in the circular face of smallest circumference; the surface of the head which extends on a line with the lower wall of the groove forming a guide leading to the groove, substantially as set forth.

4. In a machine of substantially the character described, a rotating portion formed with a groove in which to smooth the edges of articles; the periphery of one wall of which groove is of greater diameter than that of the other wall, whereby a ledge is provided upon which to rest the article and by which to direct it into the groove, substantially as set forth.

5. An ironing-machine having a circular rotatable head with circular faces of different circumference, a groove in the circular face of smallest circumference, a table having a central circular opening, the wall of said opening fitting the face of greatest circumference and in line with the groove therein and means for heating and rotating the head, substantially as set forth.

6. In an ironing-machine, the combination of a rotating circular head formed with a peripheral groove having a guiding-ledge projecting beyond and leading to the groove, said head terminating in an upwardly-presented working end or button with unobstructed working space above it, and means for supporting and operating the head located wholly beneath it; substantially as set forth.

7. The ironing-machine consisting of the table provided with a circular hole, the shaft journaled coaxially with such hole; a circular head fixed on the upper end of the shaft and fitted in the hole and provided with a peripheral groove one wall of which is in line with the face of the table and terminating in a knob at the top with a groove around the neck of the knob; means underneath the table and head for heating the head; and means for rotating the shaft, substantially as set forth.

8. The combination of a vertical rotating shaft; means for rotating the shaft; a circular head on such shaft stepped on its upper face and having around the steps respectively a peripheral groove, substantially as set forth.

9. The combination of a vertical rotating shaft; means for rotating the shaft; a circular head fixed on the top of such shaft and being solid and stepped on its upper face and having around the steps respectively a peripheral groove; and the heating appliance arranged beneath the head to heat it.

10. In an ironing-machine for smoothing the edges of cuffs and collars, a conical revolving head having its surface stepped to form vertical circular walls and horizontal annular ledges, and provided with peripheral grooves formed respectively in the vertical walls, each of which grooves has one of its walls in line with and adjacent to an annular ledge; substantially as shown and for the purposes set forth.

11. In a machine for ironing the edges of collars, a circular rotary head having its upper face stepped and provided with peripheral grooves and terminating at the top in a button or knob having a small neck to approximately fit into the internal angles of the collar, substantially as and for the purpose set forth.

12. The machine for smoothing the edges of cuffs and collars provided with a vertical rotating shaft and a gas-burner arranged near such shaft; and a solid circular head having its upper face stepped and provided with peripheral grooves and in its under side a central socket to fit the upper end of the shaft, and an annular groove to receive the flame from the gas-burner.

11,665. HOLDER FOR NURSERY-BOTTLES. JOSHUA W. STEER, Detroit, Mich. Filed Aug. 9, 1897. Serial No. 647,662. Original No. 580,837, dated Apr. 13, 1897.



Claim.—1. As a new article of manufacture, a bottle-case consisting of an encircling band, the bails depending therefrom, the arms pivoted thereto and extending upward, means for locking the upper ends of said arms about the neck of the bottle when said bottle is supported by said bails, and the hanger pivoted to said encircling band, for the purpose set forth.

2. In a holder for nursery-bottles, the combination of the bracket 6 composed of the upright portion 6' and the horizontal portion 6", the clamp 8, provided with set-screws to engage with the bedpost and to adjustably support the vertical portion of said bracket, the

sleeve 10 provided with the set-screw 12 adjustably mounted upon the horizontal portion of said bracket, the flexible support 9 having its upper end secured to said adjustable sleeve, from which it is suspended, the bottle-case 1 consisting of the circular band, bails depending therefrom, and arms pivoted thereto and extending upward, means for locking the upper ends of the arms about the neck of the bottle, and a hanger pivoted to the circular band adapted to be secured to the lower end of said flexible support, whereby said bottle is returned to an upright position when released, substantially as described.

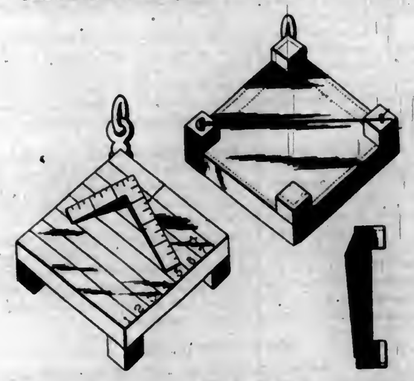
DESIGNS.

28,625. BADGE OR SIMILAR ARTICLE. ALFRED C. CLAS, Milwaukee, Wis., assignor to the Milwaukee Carnival Association, same place. Filed Feb. 5, 1898. Serial No. 669,506. Term of patent 3½ years.



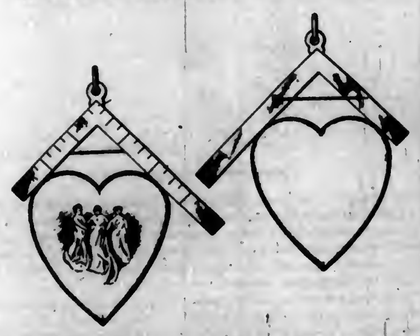
Claim.—The design for a badge or similar article, substantially as herein shown and described.

28,626. CHARM. BENJAMIN THOMAS SELMAN, Chattanooga, Tenn. Filed Jan. 26, 1898. Serial No. 667,998. Term of patent 7 years.



Claim.—The design for a charm, substantially as herein shown and described.

28,627. CHARM. BENJAMIN THOMAS SELMAN, Chattanooga, Tenn. Filed Jan. 26, 1898. Serial No. 668,075. Term of patent 7 years.



Claim.—The design for a charm, as herein shown and described.

28,628. COLLAR-BUTTON OR STUD. ACHILL BUFFARE, Newark, N. J. Filed June 26, 1897. Serial No. 642,545. Term of patent 14 years.



Claim.—The design for a collar-button or stud substantially as shown and described.

28,629. SPOON. WILLIS O. HART, Unionville, Conn. Filed Apr. 2, 1898. Serial No. 676,251. Term of patent 7 years.



Claim.—The design for a spoon, as herein shown and described.

28,630. SPOON OR FORK HANDLE. JEAN GEO. THEISOLD, North Attleborough, Mass., assignor to the Frank M. Whiting Company, same place. Filed Dec. 30, 1897. Serial No. 664,745. Term of patent 3½ years.



Claim.—The design for a spoon or fork handle as herein shown and described.

28,631. HANDLE FOR SPOONS, FORKS, &c. CHRIS SILBER, Meriden, Conn., assignor to the Rogers & Brother, Waterbury, Conn. Filed Apr. 11, 1898. Serial No. 677,259. Term of patent 7 years.



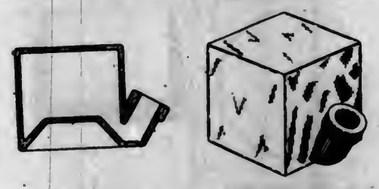
Claim.—A design for a handle for spoons, forks, &c., as herein shown and described.

28,632. BACK FOR BRUSHES OR SIMILAR ARTICLES. GERRAVE C. ROSS, North Attleborough, Mass., assignor to George K. Webster, same place. Filed Mar. 11, 1898. Serial No. 673,540. Term of patent 7 years.



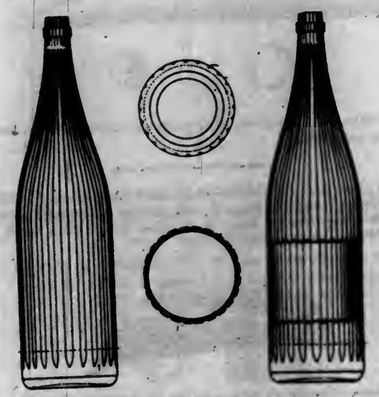
Claim.—The design for the back of a brush, or similar article, substantially as herein shown and described.

28,633. INK-BOTTLE. BROCK CARRUTHERS, Guelph, Canada, assignor of one-half to William Brock Kerr, same place. Filed Mar. 28, 1898. Serial No. 675,502. Term of patent 14 years.



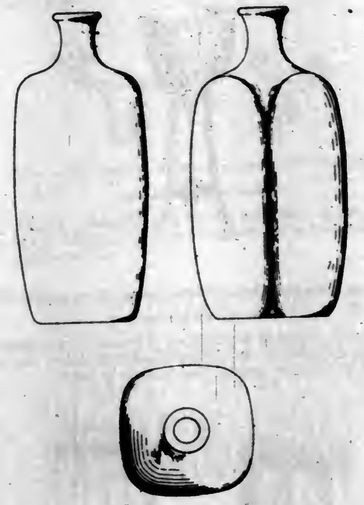
Claim.—The design for an ink-bottle, substantially as herein shown and described.

28,634. BOTTLE. FRANK SCHILLING, Muncie, Ind., assignor to the T. A. Snider Preserve Company, Cincinnati, Ohio. Filed Apr. 9, 1898. Serial No. 677,066. Term of patent 14 years.



Claim.—The design for a bottle substantially as shown and described.

28,635. BOTTLE. EDWARD C. MOORE, Cicero, Ind. Filed Apr. 13, 1898. Serial No. 677,490. Term of patent 14 years.



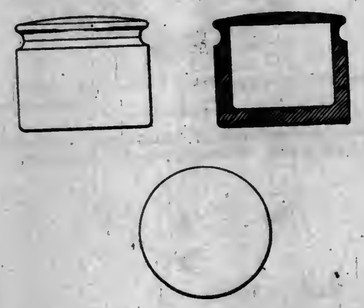
Claim.—The design for a bottle substantially as herein shown and described.

28,636. BOTTLE-CAP. HERMAN TAPPAN, New York, N. Y. Filed Apr. 11, 1898. Serial No. 677,233. Term of patent 7 years.



Claim.—The design for a bottle-cap, as herein shown and described.

28,637. WOODEN JAR. WEBSTER C. ROTH, New York, N. Y. Filed Apr. 12, 1898. Serial No. 677,375. Term of patent 14 years.



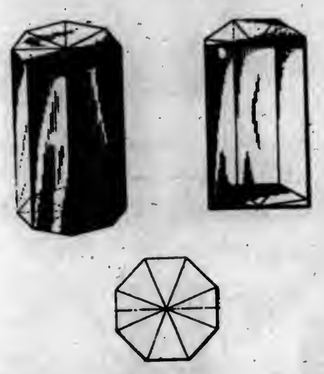
Claim.—The design for a wooden jar, substantially as shown and described.

28,638. JARDINIÈRE. WILLIAM M. GREER, New York, N. Y. Filed Apr. 7, 1898. Serial No. 676,829. Term of patent 3½ years.



Claim.—The design for a jardinière as herein shown and described.

28,639. CARTON OR ENVELOP. WILLIAM R. GREE, Syracuse, N. Y., assignor to the Merrell-Soule Company, same place. Filed Dec. 15, 1897. Serial No. 662,062. Term of patent 14 years.



Claim.—The design for a carton or envelop, substantially as herein shown and described.

28,640. PAPER BOX. PHINEAS R. MYERS, New York, N. Y. Filed Feb. 28, 1898. Serial No. 671,300. Term of patent 14 years.



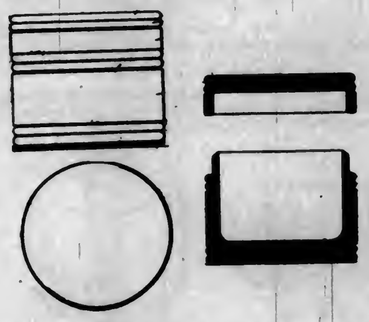
Claim.—The design for a paper box, substantially as herein shown and described.

28,641. BOX. GEORGE H. RICHARDS, Somerville, Mass. Filed July 27, 1897. Serial No. 646,151. Term of patent 14 years.



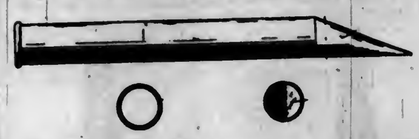
Claim.—The design for a box substantially as shown and described.

28,642. WOODEN BOX. WILLIAM C. REED, New York, N. Y. Filed Feb. 26, 1898. Serial No. 672,168. Term of patent 14 years.



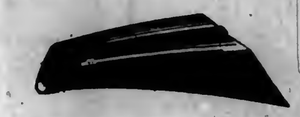
Claim.—The design for a wooden box, substantially as shown and described.

28,643. ATOMIZER-BODY. JAMES A. BURNETT, Indianapolis, Ind. Filed Nov. 6, 1897. Serial No. 657,705. Term of patent 7 years.



Claim.—The design for an atomizer-body substantially as herein shown and described.

28,644. SPOUT FOR TEA-KETTLES OR SIMILAR ARTICLES. GEORGE W. TURNEY, Chicago, Ill., assignor of one-half to the Rome Manufacturing Company, Rome, N. Y. Filed Nov. 2, 1897. Serial No. 657,211. Term of patent 14 years.



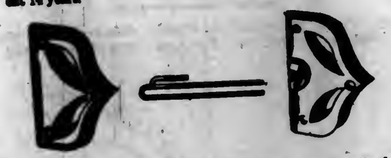
Claim.—The design for a spout for tea-kettles and similar articles, as herein shown and described.

28,645. HANDLE FOR POSTAL MARKING AND CANCELING STAMPS. ALBA H. ATKINSON, Indianapolis, Ind., assignor to the Specialty Manufacturing Company, same place. Filed Dec. 3, 1897. Serial No. 660,708. Term of patent 7 years.



Claim.—The design for the handle of a postal marking and canceling stamp, as herein shown and described.

28,646. TROUSERS-FASTENER MEMBER. AUGUST SALOMI, Denton, Tex. Filed Sept. 14, 1897. Serial No. 651,654. Term of patent 14 years.



Claim.—The design for a trousers-fastener member herein shown and described.

28,647. TROUSERS-STRETCHER. JERRY J. LYNCH, Erie, Pa. Filed Apr. 9, 1898. Serial No. 677,094. Term of patent 7 years.



Claim.—The design for a trousers-stretcher substantially as hereinbefore described and illustrated in the accompanying drawing.

28,648. PUSH-BUTTON. MORRIS GOETZ, Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, same place. Filed Nov. 30, 1897. Serial No. 660,207. Term of patent 14 years.



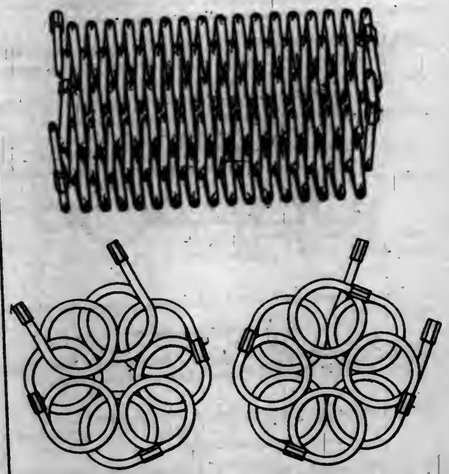
Claim.—The design for a push-button herein shown and described.

28,649. BURNER. REUBEN UPHAM, New York, N. Y., assignor, by mesne assignments, to the Acetylene House Lighting Company, of West Virginia. Filed Jan. 5, 1898. Serial No. 665,701. Term of patent 14 years.



Claim.—The design for a burner, as herein shown and described.

28,650. COIL-PIPE FOR WATER-HEATERS. REGINE SCHLUMBERGER, Allegheny, Pa. Filed Jan. 18, 1898. Serial No. 667,112. Term of patent 14 years.



Claim.—The design for coil pipe for water-heaters, as herein shown and described.

28,651. HOLDBACK-IRON FOR THILLS. GEORGE W. FLETCHER, Meadon, Ill. Filed Mar. 14, 1898. Serial No. 673,869. Term of patent 14 years.



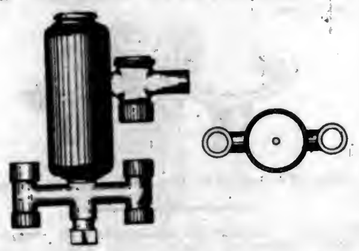
Claim.—The design for a holdback-iron for thills herein shown and described.

28,652. BASIN-CLAMP. BENJAMIN DETTELBACH, Cleveland, Ohio. Filed Mar. 12, 1898. Serial No. 673,666. Term of patent 7 years.



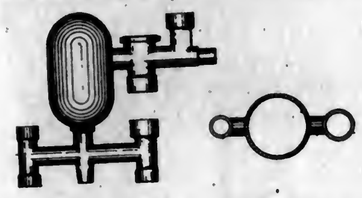
Claim.—The design for a basin-clamp, as herein shown and described.

28,658. LUBRICATOR-BODY. DUGALD H. ROBERTS, Detroit, Mich. Filed July 6, 1897. Serial No. 643,660. Term of patent 14 years.



Claim.—The design for a lubricator-body substantially as herein shown and described.

28,654. LUBRICATOR-BODY. DUGALD H. ROBERTS, Detroit, Mich. Filed June 30, 1897. Serial No. 643,030. Term of patent 14 years.



Claim.—The design for a lubricator-body substantially as shown and described.

28,655. SNOW-GUARD. GEORGE F. FOLSOM, Boston, Mass. Filed Mar. 17, 1898. Serial No. 674,263. Term of patent 14 years.



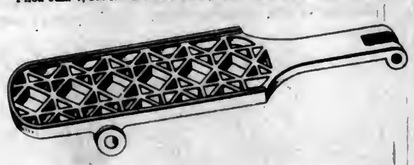
Claim.—The design for a snow-guard, substantially as herein shown and described.

28,656. PIPE-COUPLING MEMBER. WILLIAM CUNNINGHAM SAVAGE, New York, N. Y. Filed Apr. 15, 1897. Serial No. 632,334. Term of patent 14 years.



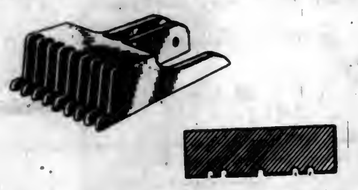
Claim.—The design for a pipe-coupling member, substantially as shown and described.

28,657. MACHINE-PLATE. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed Jan. 7, 1898. Serial No. 665,984. Term of patent 14 years.



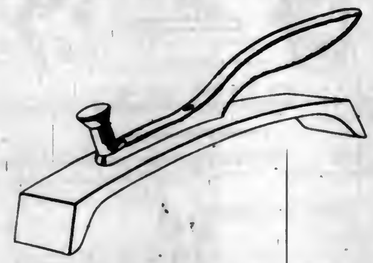
Claim.—The design for a machine-plate substantially as herein shown and described.

28,658. WASHING-MACHINE PLUNGER. SIMEON BROWN and THOMAS P. BROWN, Purity, Ohio. Filed Mar. 9, 1898. Serial No. 673,371. Term of patent 14 years.



Claim.—The design for a washing-machine plunger, substantially as herein shown and described.

28,659. SHOE-POLISHER FRAME. EDWARD R. LEE, Odin, Ill. Filed Mar. 10, 1898. Serial No. 673,405. Term of patent 7 years.



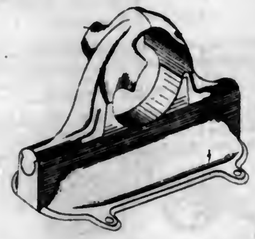
Claim.—The design for a shoe-polisher frame, as herein shown and described.

28,660. HOPPER FOR SEED-PLANTERS. JAMES A. EVERITT, Indianapolis, Ind. Filed Nov. 6, 1897. Serial No. 657,706. Term of patent 7 years.



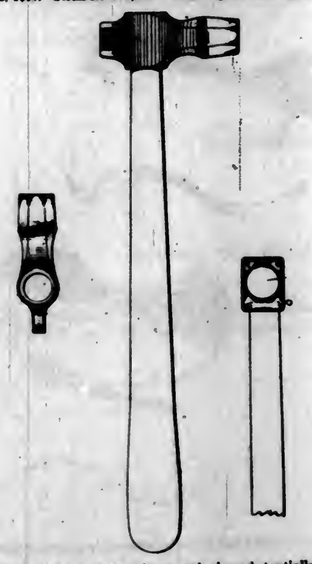
Claim.—The design for a seed-planter hopper, substantially as described and shown.

28,661. BICYCLE-LOCK. FREDERICK W. BROWN, Boston, Mass., assignor to Thomas Stanley Paterson, same place. Filed Dec. 18, 1897. Serial No. 662,489. Term of patent 7 years.



Claim.—The design for a bicycle-lock, substantially as shown and described.

28,662. HAMMER-BODY. GEORGE K. YOUNG, Auburn, N. Y. Filed Oct. 11, 1897. Serial No. 654,891. Term of patent 14 years.



Claim.—The design for a hammer-body, substantially as shown and described.

28,663. STOVE OR RANGE. BRADLEY WOODHILL, Dunmore, Pa., assignor to the Scranton Stove Works, Scranton, Pa. Filed Mar. 2, 1898. Serial No. 672,342. Term of patent 14 years.



Claim.—1. In a design for a stove or range, the design for the base; substantially as herein shown and described.

2. In a design for a stove or range, the design for the oven-door; substantially as herein shown and described.

3. In a design for a stove or range, the design for the oven-shelf; substantially as herein shown and described.

4. In a design for a stove, or range, the design for the reservoir; substantially as herein shown and described.

5. In a design for a stove or range, the design for the fire-door; substantially as shown and described.

6. In a design for a stove or range, the design for the panel J, substantially as shown and described.

7. In a design for a stove or range the design for the ash-cup K, substantially as shown and described.

8. In a design for a stove or range, the design for the front draft-door; substantially as herein shown and described.

9. In a design for a stove or range, the design for the broiling-door; substantially as herein shown and described.

10. The design for a cooking stove or range, substantially as herein shown and described.

28,664. STOVE OR RANGE. BRADLEY WOODHILL, Dunmore, Pa., assignor to the Scranton Stove Works, Scranton, Pa. Filed Mar. 2, 1898. Serial No. 672,343. Term of patent 14 years.

Claim.—1. In a design for a stove or range, the design for the base; substantially as herein shown and described.

2. In a design for a stove or range, the design for the oven-door; substantially as herein shown and described.

3. In a design for a stove or range, the design for the fire-box door; substantially as herein shown and described.



4. In a design for a stove or range, the design for the panel L; substantially as shown and described.

5. In a design for a stove or range, the design for the ash-pit panel J; substantially as shown and described.

6. In a design for a stove or range, the design for the ash-pit door; substantially as herein shown and described.

7. In a design for a stove or range, the design for the reservoir; substantially as herein shown and described.

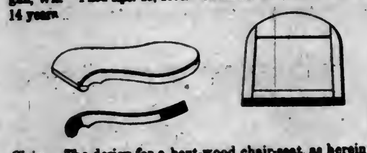
8. In a design for a stove or range, the design for the front ash-pit door; substantially as herein shown and described.

9. In a design for a stove or range, the design for the broiling-door; substantially as herein shown and described.

10. In a design for a stove or range, the design for the corner; substantially as herein shown and described.

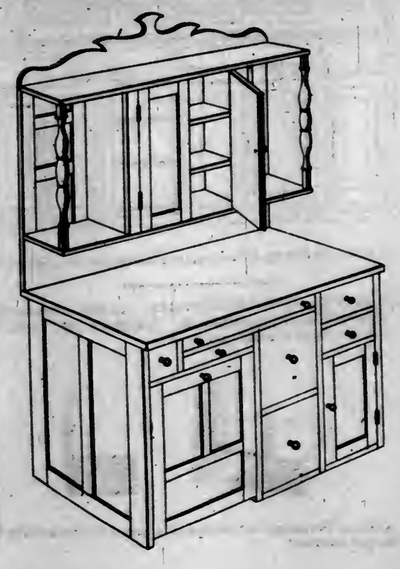
11. The design for a stove or range; substantially as herein shown and described.

28,665. BENT-WOOD CHAIR-SEAT. WILLIAM SCHRADE, Sheboygan, Wis. Filed Apr. 15, 1898. Serial No. 677,747. Term of patent 14 years.



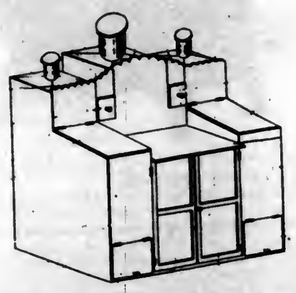
Claim.—The design for a bent-wood chair-seat, as herein shown and described.

28,666. KITCHEN-CABINET. WILLIAM B. TABOR, Alhambra, Ill., assignor of one-half to F. William Brunsworth, same place. Filed Apr. 5, 1898. Serial No. 676,588. Term of patent 7 years.



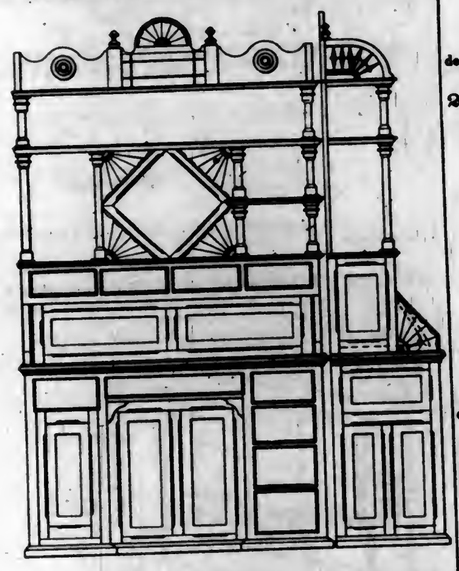
Claim.—A design for a kitchen-cabinet, substantially as herein shown and described.

28,667. KITCHEN-CABINET. JAMES W. BRADDOCK, Montgomery City, Mo. Filed Mar. 4, 1898. Serial No. 672,605. Term of patent 3½ years.



Claim.—The design for a kitchen cabinet as herein shown and described.

28,668. SECRETARY. ALBERT W. GRUNWALDT, Abrams, Wis. Filed Apr. 12, 1898. Serial No. 677,576. Term of patent 7 years.



Claim.—The design for a secretary as herein described and shown.

28,669. BASE FOR COIN-SCALES. CHARLES P. SWEENEY and HORATIO WRIGLEY, Philadelphia, Pa. Filed May 1, 1897. Serial No. 634,781. Term of patent 7 years.



Claim.—The design for the base of a coin-scale substantially as shown and described.

28,670. TILE. EVALINDA S. THOMAS, Lindenwold, N. J. Filed Apr. 5, 1898. Serial No. 676,598. Term of patent 14 years.



Claim.—The design for tile substantially as herein illustrated and described.

28,671. EMBROIDERY-HOOP. LEWIS GIBBS, Canton, Ohio. Filed Mar. 21, 1898. Serial No. 674,682. Term of patent 14 years.



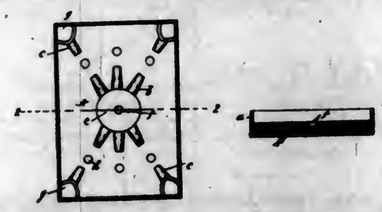
Claim.—The design for an embroidery-hoop as herein shown and described.

28,672. WRAPPED CANDY. OHNIK TAKVORIAN, Boston, Mass. Filed Aug. 14, 1897. Serial No. 648,330. Term of patent 14 years.



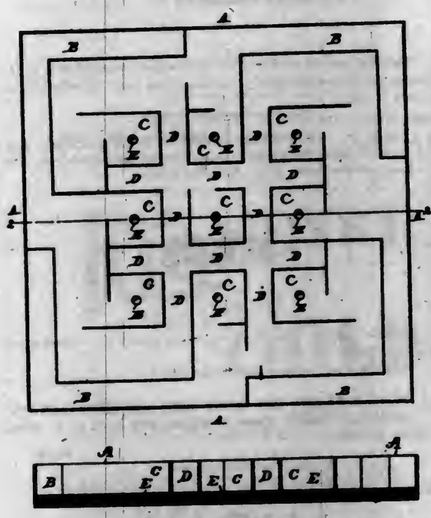
Claim.—The design for wrapped candy, substantially as herein shown and described.

28,673. GAME-BOARD. EMILE MINETTO and JOHN MINETTO, New York, N. Y. Filed Mar. 3, 1898. Serial No. 672,309. Term of patent 3½ years.



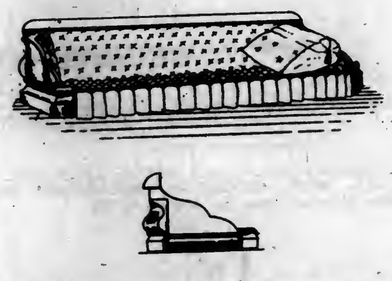
Claim.—The design for a game-board, substantially as herein shown and described.

28,674. GAME-BOARD. ROBERT W. LINDSAY, Middletown, N. Y. Filed Mar. 12, 1898. Serial No. 673,694. Term of patent 3½ years.



Claim.—The design for a game-board, substantially as herein shown and described.

28,675. BURIAL-CASKET. WILLIAM C. LANTHER, Rochester, N. Y., assignor to the Ideal Couch and Casket Company, same place. Filed Feb. 27, 1897. Serial No. 626,653. Term of patent 14 years.



Claim.—The design for a burial-casket, as herein shown and described.

28,676. FABRIC. HOWARD M. BETTS, New York, N. Y., assignor to A. A. Vantine & Co., same place. Filed Feb. 21, 1898. Serial No. 671,214. Term of patent 3½ years.



Claim.—The design for fabric substantially as herein shown and described.

TRADE-MARKS

REGISTERED MAY 17, 1898.

81,545. BOOKS, PAMPHLETS, AND LEAFLETS. DAVID PATTERSON HATCH, Los Angeles, Cal. Filed Feb. 28, 1898.



Essential feature.—A square or rectangular figure having diagonal lines across it and a circle at the center where the diagonal lines bisect each other. Used since January 15, 1898.

81,546. COMBS. ROBERT FRED TOOTHEMAKER, London, England, New York, N. Y., and Washington, D. C. Filed Mar. 31, 1898.

SHELLENE

Essential feature.—The word "SHELLENE." Used since February 1, 1898.

81,547. RIBBONS. ERNEST & HERMAN LEVY, New York, N. Y. Filed Feb. 25, 1898.

GILT
EDGE

Essential feature.—The words "GILT EDGE." Used since January 2, 1898.

81,548. GLOVES. BENJAMIN ALTHAN, New York, N. Y. Filed Mar. 22, 1898.

THE MARVEX.

Essential feature.—The words "THE MARVEX." Used since February 1, 1898.

81,549. HOSIERY. MISSOULA MERCANTILE COMPANY, Missoula, Mont. Filed Mar. 2, 1898.



Essential feature.—The words "NEVER DARN" and the representation of a needle extending through the letters. Used since December 1, 1897.

81,550. FIBROUS MATERIAL FOR STUFFING PURPOSES. WEST INDIA FIBRE COMPANY, Salem and Boston, Mass. Filed Jan. 26, 1898.



Essential feature.—A ring of two twisted ropes, within which appears the representation of a cocoanut-palm tree. Used since November 1, 1897.

81,551. ANTIFOULING PAINT FOR SHIPS' BOTTOMS. HOLZAPFEL'S COMPOSITIONS COMPANY, LIMITED, Newcastle-upon-Tyne, England, and New York, N. Y. Filed May 4, 1897.

INTERNATIONAL

Essential feature.—The word "INTERNATIONAL." Used since January 1, 1897.

81,552. REMEDY FOR INSECT BITES AND STINGS AND FOR VEGETABLE POISON. JAMES L. MILLER, New York, N. Y. Filed Mar. 12, 1898.

HIRAX

Essential feature.—The word "HIRAX." Used since October, 1893.

81,553. COMPOUND FOR THE CURE OF DYSPEPSIA. BASIL HILL, Pittsburg, Pa. Filed Feb. 23, 1898.

B. H.

Essential feature.—The letters "B. H." Used since May, 1877.

81,554. PREPARATION OF MUSTARD AND HORSE-RADISH. DODSON-BRAUD MANUFACTURING COMPANY, St. Louis, Mo. Filed Feb. 5, 1898.

81,554 

Essential feature.—The words "MUSTARD WITH HORSE-RADISH" and the pictorial representation of a horse-radish, said pictorial representation being inclined downwardly from right to left and the compound word "Horse-Radish" inclining upwardly across said representation from left to right. Used since June, 1897.

81,555. CEREAL FOOD PRODUCTS. THE H-O (HORNBY'S OATMEAL) COMPANY, New York, N. Y. Filed Jan. 19, 1898.

WARRIOR

Essential feature.—The word "WARRIOR." Used since December 20, 1897.

81,556. WHEAT-FLOUR. W. H. KNEISBACK & Co., Hopkinton, Minn. Filed Apr. 1, 1898.

KLONDYKE GOLD

Essential feature.—The words "KLONDIKE GOLD." Used since March 11, 1898.

81,557. WHEAT-FLOUR. HOBLENVILLE MILLING COMPANY, Hoblenville, Ind. Filed Mar. 23, 1898.

KISMET.

Essential feature.—The word "KISMET." Used since March 1, 1898.

81,558. BLENDED COFFEE CONTAINING JAVA AND MOCHA. R. T. SMITH COMPANY, Worcester, Mass. Filed Feb. 16, 1898.

CONSTITUTION

Essential feature.—The word "CONSTITUTION." Used since December, 1897.

81,559. WHISKY. BERNARD & Co., Leith, Scotland. Filed Feb. 18, 1898.

ENCORE

Essential feature.—The word "ENCORE" and the signature "BERNARD & Co." Used since 1887.

81,560. WHISKY. DANIEL CRAWFORD & SON, LIMITED, Glasgow, Scotland. Filed Mar. 17, 1898.

Daniel Crawford

Essential feature.—The signature "DANIEL CRAWFORD." Used since 1876.

81,561. WHISKY. ROBERT CRAWFORD & Co., Edinburgh and Leith, Scotland. Filed Feb. 18, 1898.



Essential feature.—Three diamond devices joined together containing the letter "C." Used since 1896.

81,562. WOODEN SKEWERS. WALTER SCOTT SHIPP, Toronto, Canada. Filed Dec. 30, 1897.



Essential feature.—A representation of the letter "O." Used since May 1, 1897.

81,563. TIN AND TERNE PLATES. C. S. MERRICK & Co., New Haven, Conn. Filed Feb. 7, 1898.

YALE

Essential feature.—The word "YALE." Used since March 1, 1893.

81,564. COPPER IN INGOTS, BARS, AND OTHER UNMANUFACTURED FORMS. THE MOUNTAIN COPPER COMPANY, LIMITED, London, England. Filed Mar. 16, 1898.

MOCOCO

Essential feature.—The word "MOCOCO." Used since March 8, 1898.

81,565. SUPERCARBURETED STEEL ARTICLES MADE UNDER REGISTRANT'S PROCESS. HARVEY STEEL COMPANY, Newark, N. J., and New York, N. Y. Filed Oct. 23, 1897.

Harveyed

Essential feature.—The word "HARVEYED." Used since March, 1890.

81,566. STEEL SHOVELS, SPADES, AND SCOOPS. THE AVERY STAMPING COMPANY, Cleveland, Ohio. Filed Mar. 7, 1898.

NATIONAL

Essential feature.—The word "NATIONAL." Used since September, 1897.

81,567. VEHICLE-SPRINGS. DEERE & WEBBER COMPANY, Minneapolis, Minn. Filed Mar. 21, 1898.

JACORD.

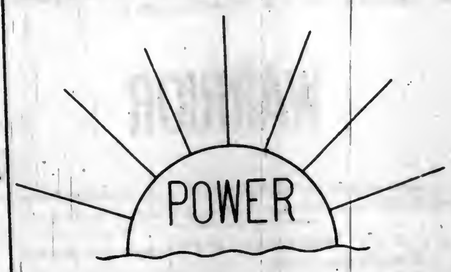
Essential feature.—The word "JACORD." Used since December 1, 1897.

81,568. BICYCLE-CHAINS. BALDWIN CYCLE CHAIN COMPANY, Worcester, Mass. Filed Aug. 16, 1897.



Essential feature.—The letter "B" inclosed in a geometrical figure having polygonal sides and surrounded by a border representing an endless bicycle-chain. Used since June 1, 1897.

81,569. ENGINES. POWER SPECIALTY CO., New York, N. Y. Filed Feb. 15, 1898.



Essential feature.—A curved line on the arc of a circle, lines extending radially from the convex side of said curved line, and a waved line extending between and across the ends of said curved line. Used since October 1, 1895.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

BOYDEN POWER BRAKE COMPANY *et al. v.* WESTINGHOUSE *et al.* WESTINGHOUSE *et al. v.* BOYDEN POWER BRAKE COMPANY *et al.*

Decided May 9, 1898.

1. WESTINGHOUSE, JR.—BRAKE MECHANISM—NOT INFRINGED.
   Claims 1, 2, and 4 of Letters Patent No. 360,070, granted March 29, 1887, to George Westinghouse, Jr., for a fluid-pressure automatic-brake mechanism, construed and *Held* not infringed.
2. SAME—CONSTRUCTION OF CLAIM 2—FUNCTION OF MACHINE.
   Claim 2 of Letters Patent No. 360,070, which reads "in a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, and a triple valve having a piston, whose preliminary traverse admits air from the auxiliary reservoir to the brake-cylinder, and which by a further traverse admits air directly from the main air-pipe to the brake-cylinder, substantially as set forth," is, to a certain extent, for a function—viz., the admission of air directly from the train-pipe to the brake-cylinder—and is only limited to such function when performed by the further traverse of the piston of the triple valve. If it be not susceptible of the interpretation that it is simply for a function, then the performance of that function must be limited to the particular means described in the specification for the admission of air from the train-pipe to the brake-cylinder.
3. SAME—SAME—SAME.
   If this claim be interpreted simply as a claim for the function of admitting air to the brake-cylinder directly from the train-pipe, it is open to the objection that the mere function of a machine cannot be patented. (Citing *Corning* v. *Burden*, 15 How., 252; *Risdon Locomotive Works* v. *Medart*, 71 O. G., 751; 158 U. S., 68, and other cases.)
4. SAME—SAME—"SUBSTANTIALLY AS SET FORTH."
   The words "substantially as set forth" have been uniformly held by the Supreme Court to import into a claim the particulars of the specification. A claim, therefore, which might otherwise be bad, as covering a function or result, when containing these words should be construed in connection with the specification, and when so construed may be held to be valid. (Citing *Seymour* v. *Osborne*, 11 Wall., 516, and *The Corn Planter Patent*, 23 Wall., 181.)
5. PROCESS—PATENTABILITY—CHEMICAL ACTION.
   Risdon Locomotive Works v. *Medart* and other cases assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions.
6. SAME—SAME—FUNCTION OF MACHINE.
   Where a process is simply the function or operative effect of a machine, *Corning* v. *Burden*, *Risdon Locomotive Works* v. *Medart*, and other cases are conclusive against its patentability; but where it is one which, though ordinarily and most successfully performed by machinery, may also be performed by simple manipulation—such, for instance, as the folding of a paper in a peculiar way for the manufacture of paper bags or a new method of weaving a hammock—there are cases to the effect that such a process is patentable, though none of the powers of nature be invoked to aid in producing the result. (*Eastern Paper Bag Co* v. *Standard Paper Bag Co.*, 41 O. G., 231; 30 Fed. Rep., 63; *Union Paper Bag Machine Co.* v. *Waterbury*, 39 Ib., 389; *Travers* v. *Am. Cordage Co.*, 70 O. G., 277; 61 Fed. Rep., 771.)
7. INFRINGEMENT—DEFENDANT WITHIN THE LETTER OF THE CLAIMS OF COMPLAINANT.
   If it be conceded that Boyden's device corresponds with the letter of Westinghouse's claims 1 and 4, that does not settle conclusively the question of infringement. A charge of infringement is sometimes made out, though the letter of the claims be avoided. The converse is equally true. The patentee may bring the defendant within the letter of his claims, but if the latter has so far changed the principle of the device that the claims of the patent, literally construed, have ceased to represent his actual invention he is as little subject to be adjudged an infringer as one who has violated the letter of a statute is to be convicted when he has done nothing in conflict with its spirit and intent.
8. SAME—PIONEER INVENTION—FUNCTION OF MACHINE.
   If the patent for a machine be a pioneer, the alleged infringer must have done something more than reach the same result. He must have reached it by substantially the same or similar means, or the rule that the function of a machine cannot be patented is of no particular value. To say that the patentee of a pioneer invention for a new mechanism is entitled to every mechanical device which produces the same result is to hold that he is entitled to patent his function. Mere variations of form may be disregarded, but the substance of the invention must be there.
9. INVENTION—"PIONEER" INVENTION DEFINED.
   The word "pioneer" is commonly understood to denote a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before.
10. INFRINGEMENT—FUNCTIONAL INVENTION—DIFFERENCE IN FORM ONLY.
    The ruling of the Supreme Court that where the invention is functional and the defendant's device differs from that of the patentee only in form or in rearrangement of the same elements of a combination he would be adjudged an infringer, even if in certain particulars his device be an improvement upon that of the patentee, is in no way qualified.
11. DISSENTING OPINION.
    Mr. Justice Shiras, Mr. Justice Brewer, Mr. Justice Gray, and Mr. Justice McKenna dissented from the opinion and from the decision of the Court.

ON writ of *certiorari* to the Circuit Court of Appeals for the Fourth Circuit.

STATEMENT OF THE CASE.

This was a writ of *certiorari* to review a decree of the Circuit Court of Appeals, reversing a decree of the Circuit Court for the District of Maryland, which had sustained, in part, a bill filed by Westinghouse against the Boyden Power Brake Company for the infringement of Patent No. 360,070, and from which decree both parties had taken an appeal to the Circuit Court of Appeals.

The patent in suit, which was issued March 29, 1887, to George Westinghouse, Jr., is for a fluid-pressure automatic-brake mechanism, the object of which is said in the specification to be—

to enable the application of brake-shoes to car-wheels by fluid-pressure to be effected with greater rapidity and effectiveness than heretofore, more particularly in trains of considerable length, as well as to economize compressed air in the operation of braking by utilizing in the brake-cylinders the greater portion of the volume of air which in former practice was directly discharged into the atmosphere.

To this end my invention, generally stated, consists in a novel combination of a brake-pipe, an auxiliary reservoir, a brake-cylinder, and a "triple-valve" device governing, primarily, communication between the auxiliary reservoir and the brake-cylinder, and, secondarily, communication directly from the brake-pipe to the brake-cylinder.

There follows here a description of the Westinghouse automatic brake as theretofore used, its mode of operation, and the defects or insufficiencies which attended its application to long trains, in the following language:

In the application of the Westinghouse automatic brake as heretofore and at present commonly in use, each car is provided with a main air-pipe, an auxiliary reservoir, a brake-cylinder, and a triple valve, the triple valve having three connections—to wit, one to the main air-brake pipe, one to the auxiliary reservoir, and one to the brake-cylinder. The main air-pipe has a stop-cock at or near each of its ends, to be opened or closed as required, and is fitted with flexible connections and couplings for connecting the pipes from car to car of a train, so as to form a continuous line for the transmission of compressed air from a main reservoir supplied by an air-pump on the engine. When the brakes are off or released, but in readiness for action upon the wheels of the train, the air which fills the main reservoir and main air-pipes has a pressure of from sixty-five to seventy-five pounds to the square inch, and by reason of the connections referred to the same pressure is exerted in the casings of the triple valves on both sides of their pistons and in the auxiliary reservoirs connected therewith. At the same time passages called "release-ports" are open from the brake-cylinders to the atmosphere. When it is desired to apply the brakes, air is allowed to escape from the main air-pipes through the engineer's valve, thereby reducing the pressure in the main air-pipes, whereupon the then higher pressure in the auxiliary reservoirs moves the pistons of the triple valves, so as to first close the passages from the triple valves to the brake-pipe and at the same time close the release-ports of all the brake-cylinders, and then open the passages from the auxiliary reservoirs to the brake-cylinders, the pistons of which are forced out by the compressed air thereby admitted to the brake-cylinders, applying the brakes by means of suitable levers and connections, all of which mechanism is fully shown in various Letters Patent granted to me.

The application of the brakes with their full force has heretofore required a discharge of air from the main pipe sufficient to reduce the pressure in said pipe below that remaining in the auxiliary reservoir after the brakes have been fully applied, and it has been found that, while the brakes are sufficiently quick in action on comparatively short trains, their action on long trains of from thirty to fifty cars, which are common in freight service under present practice, is in a measure slow, particularly by reason of the fact that all the air required to be discharged from the main pipe to set the brakes must travel from the rear of the train to a single discharge-opening on the engine. This discharge of air at the engine has not only involved a serious loss of time in braking, but also a waste of air. Under my present invention a quicker and more efficient action of the brakes is obtained, and air which has been heretofore wasted in the application of the brakes is almost wholly utilized to act upon the brake-pistons.

After a detailed description of the invention, an important feature of which is a triple valve, (hereinafter more fully explained in the opinion,) with references to the accompanying drawings, the specification proceeds to state that—

so far as the performance of its preliminary function in ordinary braking is concerned—that is to say, effecting the closure of communication between the main air-pipe and the auxiliary reservoir, and the opening of communication between the auxiliary reservoir and the brake-cylinder in applying the brakes, and the reverse operations in releasing the brakes—the triple valve 10 accords substantially with that set forth in Letters Patent of the United States No. 220,556, granted and issued to me October 14, 1879, and is not, therefore, saving as to the structural features by which it performs the further function of effecting the direct admission of air from the main air-pipe to the brake-cylinder, as presently to be described, claimed as of my present invention. Certain of its elements devised and employed by me prior thereto will, however, be herein specified, in order to render its construction and operative relation to other members of the brake mechanism fully intelligible.

After a further reference to the drawings he again states that—

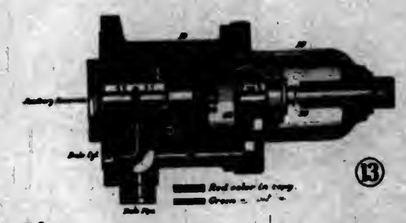
so far as hereinbefore described, the triple valve accords in all substantial particulars with and is adapted to operate similarly to those of my Letters Patent Nos. 168,359, 172,064, and 220,556, and, in order that it may perform the further functions requisite in the practice of my present invention, it is provided with certain additional members, which will now be described.

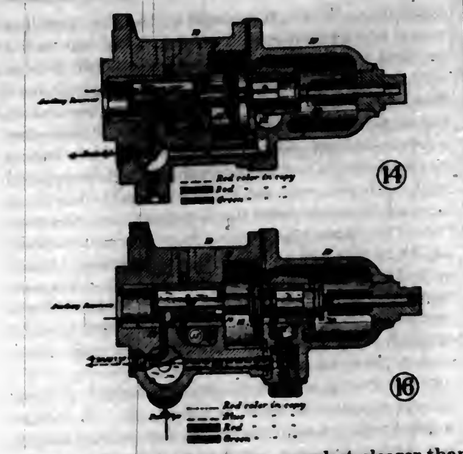
These additional members, which are said to be for the purpose of effecting the admission of air directly from the main air-pipe to the brake-cylinder when it is desired to apply the brakes with great rapidity and full force, consist of (1) a passage-way through which air can be admitted directly from the main air (or train) pipe to the brake-cylinder, without passing through the auxiliary reservoir; and (2) an auxiliary valve in connection with such passage, that, when the triple-valve piston makes a short or preliminary movement, the passage-way direct from the train-pipe to brake-cylinder, controlled by said valve, will not be opened, while, in the event of a long or full movement of the piston, or "further traverse," as it is called, such direct passage-way will be thrown wide open to the admission of train-pipe air, and the brake-cylinder will be rapidly filled thereby.

After describing the auxiliary sliding valve 41 and its connections, as well as the operation of the device in ordinary (non-emergency) cases of checking the speed of or stopping trains, already fully provided for in previous patents, he proceeds to state its operation in cases of emergency which the patent was specially designed to cover, as follows:

In the event, however, of its becoming necessary to apply the brakes with great rapidity and with their greatest available force, the engineer, by means of the valve at his command, instantly discharges sufficient air from the front end of the main air-pipe to effect a sudden reduction of pressure of about twenty pounds per square inch therein, whereupon the piston 12 of the triple valve is forced to the extreme limit of its stroke in the direction of the drain-cup 19, carrying with it the stem 36 and auxiliary slide-valve 41, which instantly uncovers the port 42 and discharges air from the main air-pipe through the opening of the check-valve 49 and the passages 46 and 48 to the brake-cylinder, and, each car being provided with one of these devices, it will be seen that they are successively moved with great rapidity, there being practically on a train of fifty cars fifty openings for discharging compressed air from the main pipe, instead of the single opening heretofore commonly used. Not only is there a passage of considerable size opened from the brake-pipe on each car, whereby the pressure is more quickly reduced, but the air so discharged is utilized in the performance of preliminary work, it being found in practice that the air so taken from the pipe will exert a pressure of about twenty-five pounds in the brake-cylinders. When the piston 12 arrives at the extremity of its stroke, as above specified, the supplemental port 35 of the slide-valve 14 is brought into communication with the port 33 and passages 22 and 16, which serves to discharge the reservoir-pressure into the brake-cylinder, thereby augmenting the pressure already exerted in the brake-cylinder by the air admitted from the main air-pipe. Upon the reduction of the pressure in the main air-pipe below that in the brake-cylinders, as by the breaking in two of the train, the check-valve 49 closes communication between the passages 46 and 18, thereby preventing the return of the air from the brake-cylinder to the main air-pipe. The feed-opening for the admission of air from the auxiliary reservoir to the brake-cylinder is purposely made of comparatively small diameter, it having been determined by experiment that the initial application of the brakes should not be made with maximum force, and this opening may be made of such size as to apply the brakes exactly in accord with the requirements of the most efficient work.

In using the terms "triple valve" and "triple-valve device" I refer to a valve device, however specifically constructed, having a connection with the main air or brake pipe, another with an auxiliary reservoir or chamber for the storage of power, and another with a brake-cylinder or its equivalent for the utilization of the stored power and with a release or discharge passage for releasing the operative power from the brake-cylinder, whether the valves governing these passages or connections are arranged in one or more cases and are moved by a piston or its equivalent or by a series of pistons or their equivalents, there being numerous examples in the art of constructions varying materially in appearance whereby these functions are performed, both in plenum and vacuum brake mechanisms.





The above drawings are somewhat clearer than those annexed to the patent, and exhibit the triple valve and its connections in three positions, viz., No. 13, Released or "Brakes Off;" No. 14, Ordinary Service Application, and No. 16, "Quick Action" Position.

The only claims of the patent alleged to have been infringed are the first, second and fourth, which read as follows:

1. In a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, a triple valve, and an auxiliary-valve device, actuated by the piston of the triple valve and independent of the main valve thereof, for admitting air in the application of the brake directly from the main air-pipe to the brake-cylinder, substantially as set forth.

2. In a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, and a triple valve having a piston whose preliminary traverse admits air from the auxiliary reservoir to the brake-cylinder, and which by a further traverse admits air directly from the main air-pipe to the brake-cylinder, substantially as set forth.

4. The combination, in a triple-valve device, of a case or chest, a piston fixed upon a stem and working in a chamber therein, a valve moving with the piston-stem and governing ports and passages in the case leading to connections with an auxiliary reservoir and a brake-cylinder and to the atmosphere, respectively, and an auxiliary valve actuated by the piston-stem and controlling communication between passages leading to connections with a main air-pipe and with the brake-cylinder, respectively, substantially as set forth.

The joint and several answer of the Boyden Brake Company and the individual defendants admitted that such company was engaged in manufacturing and selling a fluid-pressure brake, but denied that the same was an infringement upon complainants' patent, and also denied that Westinghouse was the original inventor of the mechanism covered by the patent, and alleged that an apparatus, substantially identical in character, had been previously granted Westinghouse, March 5, 1872, (No. 124,404,) and that a like apparatus was previously described in the following patents issued to Westinghouse, viz: No. 138,827, May 13, 1873; No. 144,006, October 28, 1873; No. 168,359, October 5, 1875; No. 172,064, January 11, 1876; No. 220,556, October 14, 1879, and also in three patents to other parties, not necessary here to be specifically mentioned.

The answer further denied any infringement of the first, fourth and fifth claims of the patent sued upon, (No. 360,070,) and, with respect to the second claim, averred the same to be invalid because the combination of parts therein named is inoperative to perform and incapable of performing the function set forth in said claim; and that, if the said claim be considered merely as the combination of parts therein set forth, and without reference to the function described as performed by it, it is invalid for the reason that the same combination of parts is shown in most of the prior patents above cited, and has been publicly used by the complainants for a long time prior to the date of the said Letters Patent No. 360,070.

The answer further averred the claim to be uncertain and ambiguous, and if the functions recited by it are construed as amplifying the description of the combination to distinguish this combination from that shown in the prior patents—

then the defendants say that the said claim is anticipated by the prior Letters Patent issued to George A. Boyden on June 20, 1882, for the reason that air-brake valves made in accordance with the last-mentioned patent embody the same combination of parts, and will perform the same functions, and operate in substantially the same manner as stated in said second claim.

Upon a hearing in the circuit court upon the pleadings and proofs, that court was of opinion that the second claim was valid, and had been infringed, but that defendants had not infringed claims 1 and 4, and as to those the bill was dismissed. (66 Fed. Rep., 997.) From the decree entered in pursuance of this opinion both parties appealed to the Court of Appeals for the Fourth Circuit, which affirmed the action of the circuit court with respect to the first and fourth claims, but reversed it with respect to the second claim, and dismissed the bill. (25 U. S. App., 475.) Whereupon complainants applied for and were granted a writ of *certiorari*.

Full copies of the principal Westinghouse patents are printed in *Westinghouse Brake Co.* v. *N. Y. Brake Co.*, (26 U. S. App., 248,) and of the Boyden patents in the report of this case in 25 U. S. App., 475.

Mr. Lysander Hill, *Mr. Hector T. Fenton*, *Mr. Melville Church*, *Mr. Anthony Pollok*, *Mr. Philip Mauro*, and *Mr. Edgar H. Gans* for the Boyden Brake Company *et al.*

Mr. George H. Christy, *Mr. Frederic H. Betts*, *Messrs. Bernard Carter & Sons*, and *Mr. J. Snowden Bell* for Westinghouse *et al.*

Mr. Justice BROWN delivered the opinion of the Court.

The history of arresting the speed of railway-trains by the application of compressed air is one, to which the records of the Patent Office bear frequent witness, of a gradual progress from rude and imperfect beginnings, step by step, to a final consummation, which, in respect to this invention, had not been reached when the patent in suit was taken out, and which, it is quite possible, has not been reached to this day. It is not disputed that the most important steps in this direction have been taken by Westinghouse himself.

The original substitution of the air-brake for the old hand-brake was itself almost a revolution, but the main difficulty seems to have arisen in the subsequent extension of that system to long trains of freight-cars, in securing a simultaneous application of brakes to each of perhaps forty or fifty cars in such a train, and finally in bringing about the instantaneous as well as simultaneous application of such brakes in cases of emergency, when the speediest possible stoppage of the train is desired to avoid a catastrophe.

Patent No. 88,929, issued April 13, 1869, appears to have been the earliest of the Westinghouse series. This brake, known as the *straight air-brake*, consisted of an air-compressing pump, operated by steam from the locomotive-boiler, by which air was compressed into a reservoir, located under the lo-

comotive, to a pressure of about eighty pounds to the square inch. This reservoir, being still in use, is now known as the main reservoir. From this reservoir an air-pipe, usually called the train-pipe, led into the cab, where the supply of air was regulated by an "engineer's valve," thence down and back under the tender and cars, being united between the cars by a flexible hose with metal couplings, rendering the train-pipe continuous. These couplings were automatically detachable; that is, while they kept their grip upon each other under the ordinary strains incident to the running of the train, they would readily pull apart under unusual strains, as when the car-coupling broke and the train pulled in two.

From the train-pipe of each car, a branch pipe connected with the forward end of a cylinder, called the "brake-cylinder," which contained a piston, the stem of which was connected with the brake-levers of the car. This piston was moved and the brakes applied, by means of compressed air admitted through the train-pipe and its branches, into the forward end of the brake-cylinder. When the brakes were to be applied, the engineer opened his valve, admitted the compressed air into the train-pipes and brake-cylinders, whereby the levers were operated and the brakes applied. To release the brakes, he reversed the valve, whereby the compressed air escaped from the brake-cylinders, flowed forward along the train-pipe to the escape-port of the engineer's valve, thence into the atmosphere. Upon the release of the compressed air, the pistons of the brake-cylinders were forced forward again by means of springs, and the brake-shoes removed from the wheels. By means of this apparatus, the train might be wholly stopped or slowed down by a full or partial application of the brakes. As between a full stop and a partial stop, or slow speed, there was only a question of the amount of air to be released from the main reservoir. The validity of this patent was sustained by the Circuit Court for the Northern District of Ohio, Mr. Justice Swayne and Judge Welker sitting, in *Westinghouse* v. *The Air Brake Company*, (9 O. G., 538.) The court said, in its opinion, that while Westinghouse was not the first to conceive the idea of operating railway-brakes by air-pressure, such fact did not detract at all from his merits or rights as a successful inventor; that the new elements introduced by him—

fully substantiated his pretensions as an original and meritorious inventor, and entitled him as such to the amplest protection of the law,

and that it appeared from the record and briefs that he was the first to put an air-brake into successful actual use.

While the application of this brake to short trains was reasonably successful, the time required for the air to pass from the locomotive to the rear cars of a long train (about one second per car) rendered it impossible to stop the train with the requisite celerity, since in a train of ten cars it would be ten seconds before the brakes could be applied to the rear car, and to a freight-train of fifty cars nearly a minute. While the speed of the foremost car would be checked at once, those in the rear would proceed at unabated speed, and in their sudden contact with the forward cars would produce such shocks as to often cause damage. As a train moving at the rate of fifty miles an hour makes over seventy feet per second, a train of fifty cars would run half a mile before the brakes could be applied to the rear car. So, too, if the rear end of the train became detached from the forward end by the rupture of the train-pipe or couplings, the brakes could not be applied at all, since the compressed air admitted to the train-pipe by opening the engineer's valve would escape into the atmosphere without operating the brakes, or if the brakes were already applied, they would be instantly released when such rupture occurred.

The first step taken toward the removal of these defects resulted in what is known as "the *automatic brake*," described first in Patent No. 124,404 in a crude form, and, after several improvements, finally culminating in Patent No. 220,556 of 1880. The salient features of this brake were an auxiliary reservoir beneath each car for the reception and storage of compressed air from the main reservoir, and a triple valve, so called, automatically controlling the flow of compressed air in three directions, by opening and closing, at the proper times, three ports or valve-openings, viz: first, a port or valve known as the "feeding-in valve" from the train-pipe to the auxiliary reservoir, allowing the auxiliary reservoir to fill so as to be ready when the brakes were applied; second, a port or valve from the auxiliary reservoir to the brake-cylinder, which allowed a flow of compressed air to apply the brakes, and was called the "main valve;" third, a port or valve from the brake-cylinder to the open air, denominated the "release-valve," to be opened when it was desired to release the brakes.

The operation of these valves was as follows: Before the train starts, compressed air from the main reservoir is permitted to flow back through the train-pipe, and through valve No. 1, for the purpose of charging the auxiliary reservoir beneath each car with a full working pressure of air. When it is desired to apply the brakes, the engineer's valve is shifted, and the air in the train-pipe is allowed to escape into the atmosphere at the engine. Thereupon the compressed air in the auxiliary reservoir closes valve No. 1, leading to the train-pipe, and opens the main valve No. 2, from the auxiliary reservoir to the brake-cylinder, whereby the piston of that cylinder operates upon the brake-levers and applies the brakes. By this use of the auxiliary reservoirs a practically simultaneous application of the brakes is secured for each car. This application of the brakes is secured, not by direct application of compressed air from the engine through the train-pipe, but by a reverse action, whereby the air is allowed to escape from the train-pipe toward the engine, the pressure being applied by the air escaping from the auxiliary reservoirs. It also results that, if a train should pull in two, or a car become detached, the same

escape of air occurs, the same action takes place automatically at the broken part, and the same result follows by the escape of the compressed air through the separated couplings. When it is desired to release the brakes, the engineer's valve is again shifted, and the compressed air not only opens valve No. 1 from the train-pipe to the auxiliary reservoir, but valve No. 3 from the brake-cylinder to the open air, which allows the air from the brake-cylinder to escape and thus release the brake.

From this description it will be seen that the action of the automatic brake was, in fact, the converse of that of the straight air-brake, and that the result was to obviate the most serious defects which had attended the employment of the former.

This automatic brake appears, in its perfected form, in Patent No. 220,556, although this patent was but the culmination of a series of experiments, each successive step in which appears in the prior patents. Thus in Patent No. 124,404, (1872,) is introduced the auxiliary reservoir beneath each car in connection with a double line of brake-pipes and a single cock with suitable ports for charging the reservoir and for operating the brakes—a device which was obviously the foundation of the triple valve which first made its appearance in Patent No. 141,685, (1873,) in which the main valve, which admitted air from the auxiliary reservoir to the brake-cylinder, was of the puppet form; and as a puppet-valve can govern only one port, separate valves had to be provided for feeding in the air from the train-pipe to the auxiliary reservoir, and for discharging the air from the brake-cylinder to release the brakes. In subsequent patents, No. 144,006 (1873) and No. 163,242 (issued in 1875 to C. H. Perkins and assigned to Westinghouse), Mr. Westinghouse improved upon his prior devices by substituting a sliding piston-valve for the puppet form of main valve previously used by him. This enabled the piston to perform the feed-valve function of admitting air from the train-pipe to the auxiliary reservoir; the main-valve function of admitting air from the auxiliary reservoir to the brake-cylinder to apply the brakes, and the release-valve function of discharging the air from the cylinder to release the brakes. In Patent No. 168,359, (1875,) a piston actuating a slide-valve was substituted for the piston-valve, and, after a series of experiments, which did not seem to have been successful, he introduced into Patent No. 217,838 the idea of venting the train-pipe, not only at the locomotive, but also under each car, in order to quicken the application of the brakes. Prior to this time—

when the engineer desired to apply his brakes with full force he operated the valve at the engine and opened the port wide, letting the compressed air out of the train-pipe at the locomotive, then its only vent. The air, as before said, had to travel from the rear cars along the cars forward to the engine before it could lessen the pressure of the train-pipe air * * * and before the brake-cylinder could be operated with air from the auxiliary reservoirs. In a train of fifty cars it would have to travel nearly half a mile to get out at the engine.

He embodied in Patent No. 220,556, (1879,) the most complete form of the automatic brake, as stated by the court below—

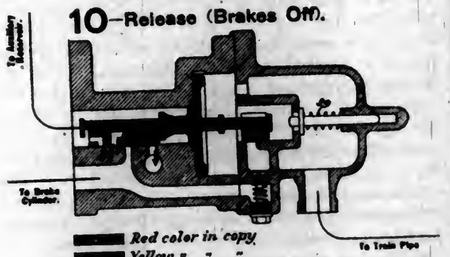
the ordinary work of braking was performed by a partial traverse of its chamber by the triple-valve piston, graduated according to the purpose desired, at the will of the engineer, and emergency work was done by an extreme traverse of the piston to the end of its chamber.

While the automatic brake had thus obviated the most important defects of the old or straight air-brake, and came into general use upon passenger-trains throughout the country, it was found, in practice upon long freight-trains, that the air from the auxiliary reservoirs did not act with sufficient promptness upon the brakes of the rear cars, where a particularly speedy action was required, and that it would be necessary to devise some other means for cases of special emergency. In the business of transporting freight over long distances, the tendency has been in the direction of increasing the load by using stronger and heavier cars and larger locomotives. Upon a long train of this kind, composed of thirty to fifty cars, a demand was made for quicker action in cases of emergency than had yet been contemplated, although for ordinary work, such as checking the speed of a train while running, holding it at a slow speed on a downgrade, and also for making the ordinary station stops, the automatic brake was still sufficient, and produced satisfactory results even in the equipment of long and heavy trains. But however effective for ordinary purposes, the automatic brake did not sufficiently provide for certain emergencies, requiring prompt action, and, therefore, failed in a single important particular.

Upon examination of these defects it was found that they could only be remedied by securing, (1) in cases of emergency, a more abundant discharge of compressed air into the brake-cylinder; and (2) an escape of air near to each triple valve without requiring the escaping air to travel all the way back to the engine. The latter device having been already embodied in Patent No. 217,838, these features Mr. Westinghouse introduced into the patent in suit, by which a passage was opened directly from the train-pipe, filled from the main reservoir on the engine, to the brake-cylinder through which, in cases of emergency, the train-pipe air, instead of being discharged into the atmosphere, could pour directly from the train-pipe into the brake-cylinder. This operation resulted in charging the brake-cylinder and applying the brakes more quickly than before, and also, by reason of the fact that the filling of the brake-cylinder from the train-pipe on one car made what was, in effect, a local vent for the release of pressure sufficient to operate the valve on the next car behind, each successive valve operated more quickly than when a diminution of pressure was caused by an escape of air only at the locomotive. The direct passage of the air from the train-pipe to the brake-cylinder was effected by a valve (41) colored red in the above diagrams, which is never opened except in cases of emergency. In ordinary cases, when the brakes are desired to be applied, sufficient air is released from the train-pipe to open the passage from the auxiliary reservoir to the brake-cylinder by what is called a preliminary traverse of the piston (12), but when a

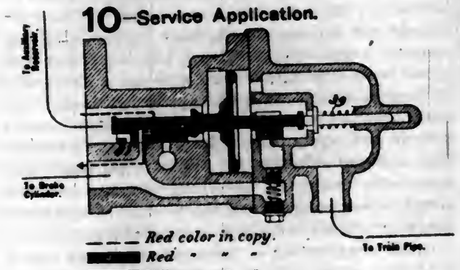
quick action is required sufficient air is drawn from the train-pipe, not only to open this passage, but by a further traverse of the piston, to shove valve 41 off its port, and introduce air directly from the train-pipe to the brake-cylinder, as shown in the third drawing, above set forth.

10—Release (Brakes Off).



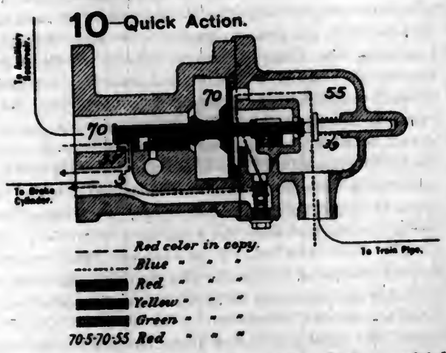
Red color in copy
Yellow " " "
Green " " "

10—Service Application.



Red color in copy.
Red " " "
Yellow " " "
Green " " "

10—Quick Action.



Red color in copy.
Blue " " "
Red " " "
Yellow " " "
Green " " "
70-70-55 Red " " "

In the foregoing skeleton drawings, from which all details of construction, and all figures of reference, not necessary for a clear understanding of the structure, are omitted, the essential parts are colored, so that their changes of position in the different stages of action can be easily followed.

The access of train-pipe air is shown located at the right end of the structure, instead of the left, (as in the patent drawings,) simply for greater clearness. Its course from the train-pipe to the auxiliary cylinder is through the small port above the upper arm of the piston 12.

The "main valve" of the triple is *black*. Its office is to admit auxiliary-reservoir air to brake-cylinder.

The "quick-action" valve is colored *red*. Its office is to admit *train-pipe air* to brake-cylinder.

The release-port is colored *green*. Its office is to discharge air from brake-cylinder, in releasing the brakes.

There is also shown in *yellow* what is known as the graduating-valve, the function of which will be hereinafter explained. As at present used, the triple valve is in reality a quadruple valve.

The flow or movement of air, in the several positions of the structure is also shown by colored lines and arrows, viz:

Air released from brake-cylinder to open air by *green* arrow.

Air flowing from auxiliary reservoir to brake-cylinder, in "service" application of the brakes, by *red* line. And air flowing from train-pipe to brake-cylinder in "quick-action" application, by *blue* line.

This patent, although it introduced a novel feature into the art, does not seem to have been entirely successful in its practical operation, since in October of the same year an improvement was patented, No. 376,837, with the object of still further increasing the rapidity of action. As observed by the district judge in this connection—

> The success of this improved device, No. 376,837, has demonstrated that the invention, by which the further traverse of the triple-valve piston beyond the extent of the traverse required for the ordinary application of the brakes, is made to admit a large volume of train-pipe air directly to the brake-cylinder, was one of great importance. The proofs show that a quick-action automatic brake, which would give the results which this brake has accomplished, was eagerly sought after by inventors and car-builders, and all had failed until Westinghouse discovered that it could be done by this mode of operation.

We are now in position to take up the several claims of the patent in suit, and their defenses thereto. It may be stated generally that the position of complainants in this connection is, that the novel feature of this patent, in respect to which they are entitled to be protected, is the opening of a passage directly from the train-pipe to the brake-cylinder, without passing through the auxiliary reservoir and without reference to the means by which such passage-way is controlled. Defendants' theory is that they are limited to such passage-way when governed by the auxiliary valve 41, a device which, although of no utility as arranged in the patent in suit, became afterward exceedingly useful when further combined with the supplementary piston shown in Patent No. 376,837. The further inference is that, as they do not use the auxiliary valve of this patent, they cannot be held liable as infringers.

Complainants' case must rest either upon the theory that the admission of compressed air directly from the train-pipe to the brake-cylinder is patentable as a function, or that the means employed by the defendants for that purpose are a mechanical equivalent for the auxiliary valve 41, described in the patent.

1. The first theory is based upon the second claim, which is—

> In a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, and a triple valve having a piston, whose preliminary traverse admits air from the auxiliary reservoir to the brake-cylinder, and which by a further traverse admits air directly from the main air-pipe to the brake-cylinder, substantially as set forth.

In the construction of this claim, the district

judge was of opinion that it was broad enough to cover other devices in which air was admitted directly from the train-pipe to the brake-cylinder by the further traverse of the piston actuating a valve admitting such air, and that the defendants could not exculpate themselves from the charge of infringement, from the fact that in their device the train-pipe air was admitted through the triple-valve chamber, and not through a by-passage, nor by the fact that in their device the further traverse of the piston opens the main valve in a special manner, which produces the same result, but does not make use of a separate auxiliary valve.

Upon the other hand, the Circuit Court of Appeals held that—

> the transmission of train-pipe air and auxiliary-reservoir air simultaneously to the brake-cylinder is a result of [or] function, and is not patentable; [that] the means by which this or any other result or function is accomplished may be many and various, and if these several means are not mechanical equivalents, each of them is patentable.

It was of opinion that when the second claim—

> in its language describing the action of that device, failed to describe any means by which the extreme traverse of the piston produced it, declaring merely that the piston, "by a further traverse, admits air directly from the main air-pipe to the brake-cylinder," it was fatally defective, claiming only a result which is public property, and not identifying the specific means (his own property) by which the result is achieved.

It is true, as observed by the Court of Appeals, that the further traverse of the piston for use in cases of emergency had been shown in prior patents, but it had never been employed for the purpose of admitting air directly from the main air-pipe to the brake-cylinder until the patent in suit was taken out.

The claim in question is, to a certain extent, for a function, viz., the admission of air directly from the train-pipe to the brake-cylinder, and is only limited to such function when performed by the further traverse of the piston of the triple valve. This limitation, however, does not obviate the objection that the means are not fully and specifically set forth for the performance of the function in question.

The difficulty we have found with this claim is this: That, if it be interpreted simply as a claim for the function of admitting air to the brake-cylinder directly from the train-pipe, it is open to the objection, held in several cases to be fatal, that the mere function of a machine cannot be patented.

This rule was clearly laid down in the leading case of *Corning* v. *Burden*, (15 How., 252,) in which Mr. Justice Grier, delivering the opinion of the Court, drew the distinction between such processes as were the result or effect of—

> chemical action, by the operation or application of some element or power of nature, or of one substance to another,

and the mere result of the operation of a machine, with regard to which he says:

> It is for the discovery or invention of some practicable method or means of producing a beneficial result or effect that a patent is granted, and not for the result or effect itself. It is when the term process is used to represent the means or method of producing a result that it is patentable, and it will include all methods or means which are not effected by mechanism or mechanical combinations.
>
> But the term process is often used in a more vague sense, in which it cannot be the subject of a patent. Thus we say that a board is undergoing the process of being planed, grain of being ground, iron of being hammered or rolled. Here the term is used subjectively or passively as applied to the material operated on, and not to the method or mode of producing that operation, which is by mechanical means, or the use of a machine, as distinguished from a process.
>
> In this use of the term it represents the function of a machine, or the effect produced by it on the material subjected to the action of the machine. But it is well settled that a man cannot have a patent for the function or abstract effect of a machine, but only for the machine which produces it.

In the subsequent case of *Burr* v. *Duryee*, (1 Wall., 531, 570,) Mr. Justice Grier laid down the same principle as follows:

> The patent act grants a monopoly to any one who may have discovered or invented any new and useful art, machine, manufacture or composition of matter. * * * The law requires that the specification "should set forth the principle and the several modes in which he has contemplated the application of that principle, or character by which it may be distinguished from other inventions, and shall particularly point out the part, improvement, or combination which he claims as his own invention or discovery." We find here no authority to grant a patent for a "principle" or a mode of operation, or an *idea*, or any other abstraction. A machine is a concrete thing, consisting of parts, or of certain devices and combination of devices. The principle of a machine is properly defined to be its mode of operation, or that peculiar combination of devices which distinguish it from other machines. A machine is not a principle or an idea. The use of ill-defined abstract phraseology is the frequent source of error. It requires no great ingenuity to mystify a subject by the use of abstract terms of indefinite or equivocal meaning. Because the law requires a patentee to explain the mode of operation of his peculiar machine which distinguishes it from others, it does not authorize a patent for a "mode of operation as exhibited in the machine," much less can any inference be drawn from the statute, that an inventor who has made an improvement in a machine, and thus effects the desired result in a better or cheaper manner than before can include all previous inventions and have a claim to the whole art, discovery, or machine which he has improved. All others have an equal right to make improved machines, provided they do not embody the same, or substantially the same devices, or combination of devices, which constitute the peculiar characteristics of the previous invention.

So also in *Fuller* v. *Yentzer*, (11 O. G., 551; 94 U. S., 288,) this Court, speaking through Mr. Justice Clifford, also said:

> Patents for a machine will not be sustained if the claim is for a result, the established rule being that the invention, if any, within the meaning of the patent act, consists in the means or apparatus by which the result is obtained, and not merely in the mode of operation independent of the mechanical devices employed; nor will a patent be held valid for a principle or for an idea, or any other mere abstraction.

Most of the prior authorities upon this subject are reviewed in the recent case of *Risdon Locomotive Works* v. *Medart*, (71 O. G., 751; 158 U. S., 68,) in which it was also held that a valid patent could not be obtained for a process which involved nothing more than the operation of a piece of mechanism, or the function of a machine. See also to the same effect *Wicke* v. *Ostrum*, (19 O. G., 867; 103 U. S., 461, 469.) These cases assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions. Where the process is simply the function or operative effect of a machine, the above cases are conclusive against its patentability; but where it is one which, though ordinarily and most successfully performed by machinery, may also be performed by simple manipulation, such, for instance, as the folding of a paper in a peculiar way for the manufacture of paper bags, or a new method of weaving a hammock, there are cases to the effect that such a process is patentable, though none of the powers of nature be invoked to aid in producing the result. (*Eastern Paper Bag Co.* v. *Standard Paper Bag Co.*, 41 O. G., 231; 30 Fed. Rep., 63; *Union Paper Bag Machine Co.* v. *Waterbury*, 39 Ib., 389; *Travers* v. *Am. Cordage Co.*, 70 O. G., 277; 64 Ib., 771.) This case, however, does not call for an expression of our opin-

ion upon this point, nor even upon the question whether the function of admitting air directly from the train-pipe to the brake-cylinder be patentable or not, since there is no claim made for an independent process in this patent, and the whole theory of the specification and claims is based upon the novelty of the mechanism.

But if the second claim be not susceptible of the interpretation that it is simply for a function, then the performance of that function must be limited to the particular means described in the specification for the admission of air from the train-pipe to the brake-cylinder. This we understand to be the theory of the defendants, and this raises the same question which is raised under the first and fourth claims, whether defendants' device contains the auxiliary valve of the Westinghouse patent, or its mechanical equivalent.

In this view, it becomes unnecessary to express an opinion whether the second claim be valid or not, since in the aspect of the case most favorable to the complainants, it is necessary to read into it something which is not fonnd there, or, in the language of complainants' brief—

> to refer back to the specification; not, it is true, for a slavish adoption of the identical instrumentalities therein described, but for the understanding of the essential and substantial features of the means therein illustrated.

In thus reading the specification into the claim, we can adopt no other construction than to consider it as if the auxiliary valve were inserted in the claim in so many words, and then to inquire whether the defendants make use of such valve, or its mechanical equivalent.

There are two other facts which have a strong bearing in the same connection, and preclude the idea that this can be interpreted as a claim for a function, without reading into it the particular device described in the specification.

One of these is that the claim is for a triple-valve device, etc., for admitting air from the main air-pipe to the brake-cylinder, "substantially as set forth." These words have been uniformly held by us to import into the claim the particulars of the specification, or, as was said in *Seymour* v. *Osborne*, (11 Wall., 516, 547)—

> where the claim immediately follows the description of the invention, it may be construed in connection with the explanations contained in the specifications; and where it contains words referring back to the specifications, it cannot be properly construed in any other way.

In that case it was held that a claim which might otherwise be bad, as covering a function or result, when containing the words "substantially as described," should be construed in connection with the specification, and when so construed was held to be valid. To the same effect is *The Corn Planter Patent*, (6 O. G., 392; 23 Wall., 181, 218.)

Again, it appears from the file-wrapper and contents, that in his original application Mr. Westinghouse made a broad claim for the admission of air directly from the main air-pipe to the brake-cylinder, which was rejected upon reference to a prior patent to Boyden, No. 280,285, and that on January 19, 1887, his attorney wrote the Patent Office in the following terms:

> It is respectfully submitted that while the Boyden patent No. 280,285 referred to, shows that what the inventor terms "an always-open one-way passage," by which communication may be established under certain conditions, between the main air-pipe or train-pipe, and hence might be held to meet the terms of the claim as originally broadly drawn, yet it fails to embody a device which in structure or function corresponds with the auxiliary valve of applicant, which in no sense relates to "an always-open one-way passage." This amended claim, above submitted, prescribes a valve device actuated by the piston of the triple valve for admitting air to the brake-cylinder in the application of the brake, while Boyden's check-valve *d* is not actuated by the piston, and is designed to recharge the auxiliary reservoir and brake-cylinder while the brakes are on. It is submitted, as to claim 2, that a piston, which by its preliminary traverse, admits air from the auxiliary reservoir to the brake-cylinder and by its further traverse admits air directly from the main air-pipe to the brake-cylinder, as set forth in said claim, is not found in the Boyden patent, the check-valve *d* of which is described as actuated by the manipulation of the cock *q* on the locomotive to "recharge and continue charging the reservoir and brake-cylinder while the brakes are applied." * * * It is to be understood that applicant *does not seek to broadly claim a device for admitting air directly from the main air-pipe to the brake-cylinder*, as the four-way cock long heretofore employed by him (similar to the cock K of the Boyden patent) would be a structure of such character. When, however, the triple valve is provided with an *auxiliary valve, operated by its piston which performs a new function* additional to that of the triple valve as previously employed, it is believed that such *combination* is wholly novel.

So, too, in the specification it is stated:

> So far as the performance of its preliminary function in ordinary braking is concerned—that is to say, effecting the closure of communication between the main air-pipe and the auxiliary reservoir, and the opening of communication between the auxiliary reservoir and the brake-cylinder in applying the brakes, and the reverse operations in releasing the brakes—the triple valve 10 accords substantially with that set forth in Letters Patent of the United States No. 220,556, granted and issued to me October 14, 1879, and is not, therefore, saving as to the *structural features* by which it performs the further function of effecting the direct admission of air from the main air-pipe to the brake-cylinder, as presently to be described, claimed as of my present invention.

Apparently, too, in consequence of the above letter of January 19, 1887, the patentee erased from his original specification the following sentence:

> Further, while in the specific construction described and shown, the function of admitting air from the main pipe is performed by a valve separate from that which effects the preliminary admission of reservoir-pressure to the cylinder, a modification in which the same office is performed by a valve integral with the main valve and formed by an extension thereof, would be included in and embody the essential operative features of my invention—

and inserted in its place the following:

> I am aware that a construction in which "an always-open one-way passage" from the main air-pipe to the brake-cylinder is uncovered by the piston of the triple valve simultaneously with the opening of the passage from the auxiliary reservoir to the brake-cylinder, has been heretofore proposed, and such construction, which involves an operation different from that of my invention, I therefore hereby disclaim.

We agree with the defendant that this correspondence, and the specification as so amended, should be construed as reading the auxiliary valve into the claim, and as repelling the idea that this claim should be construed as one for a method or process. Language more explicit upon this subject could hardly have been employed.

While it is true that no claim is formally made for the admission of train-pipe air directly to the brake-cylinder as a method or process, a construction is given by the complainants and the circuit court to the second claim which eliminates the mechanical features described, and one which could only be supported upon the theory that the claim was for a method or process. If the mechanism described by Westinghouse, and particularly the auxiliary valve, be not essential to the validity of the second claim, then it could only be supported upon the theory that it was for the process of admitting train-pipe air directly to the brake-cylinder.

2. The first and fourth claims of this patent are as follows:

1. In a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, a triple valve, and an auxiliary-valve device, actuated by the piston of the triple valve and independent of the main valve thereof, for admitting air in the application of the brake directly from the main air-pipe to the brake-cylinder, substantially as set forth.

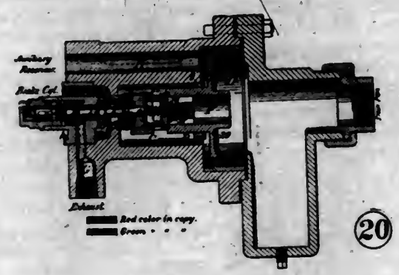
4. The combination, in a triple-valve device, of a case or chest, a piston fixed upon a stem and working in a chamber therein, a valve moving with the piston-stem and governing ports and passages in the case leading to connections with an auxiliary reservoir and a brake-cylinder and to the atmosphere, respectively, and an auxiliary valve actuated by the piston-stem and controlling communication between passages leading to connections with a main air-pipe and with the brake-cylinder, respectively, substantially as set forth.

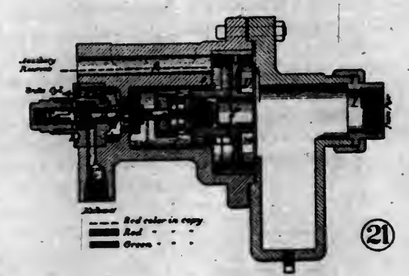
These two claims are practically little more than different expressions of one and the same invention. In both of them there is a main air-pipe, an auxiliary reservoir, a brake-cylinder, a triple valve and piston, described in the fourth claim as "fixed upon a stem and working in a chamber" in a case or chest, and an auxiliary valve; and in the fourth claim also a case or chest, which contains the whole device, and is immaterial.

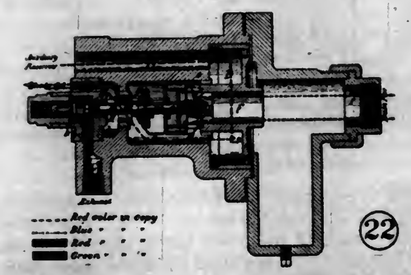
In both of these claims an auxiliary valve is named as an element. In the first it is described as "actuated by the piston of the triple valve and independent of the main valve thereof;" and in the fourth as "actuated by the piston-stem and controlling communication between passages leading to connections with the main air-pipe and with the brake-cylinder."

To what liberality of construction these claims are entitled depends to a certain extent upon the character of the invention, and whether it is what is termed in ordinary parlance a "pioneer." This word, although used somewhat loosely, is commonly understood to denote a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before. Most conspicuous examples of such patents are: the one to Howe of the sewing-machine; to Morse of the electrical telegraph; and to Bell of the telephone. The record in this case would indicate that the same honorable appellation might be safely bestowed upon the original air-brake of Westinghouse, and, perhaps also, upon his automatic brake. In view of the fact that the invention in this case was never put into successful operation, and was to a limited extent anticipated by the Boyden patent of 1883, it is perhaps an unwarrantable extension of the term to speak of it as a "pioneer," although the principle involved subsequently and through improvements upon this invention became one of great value to the public. The fact that this invention was first in the line of those which resulted in placing it within the power of an engineer, running a long train, to stop in about half the time and half the distance within which any similar train had stopped, is certainly deserving of recognition, and entitles the patent to a liberality of construction which would not be accorded to an ordinary improvement upon prior devices. At the same time, as hereinafter observed, this liberality must be exercised in subordination to the general principle above stated: that the function of a machine cannot be patented, and, hence, that the fact that the defendants' machine performs the same function is not conclusive that it is an infringement.

The device made use of by the defendants is exhibited in Patents Nos. 481,134 and 481,135, both dated August 16, 1892, and both of which were granted after the commencement of this suit. There are two forms of this patent, one of which, illustrated in Patent No. 481,135, is here given in its three positions of release (20), service application (21), and quick action (22).

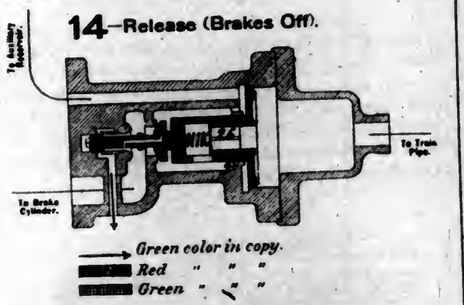






In this device there is found a main air-pipe, an auxiliary reservoir, a brake-cylinder, a triple, or rather a quadruple, valve and piston (29) with three ports; first, for the admission of air from the train-pipe to the brake-cylinder through the feeding-in valve 26; second, for the passage of air from the auxiliary reservoir to the brake-cylinder through the apertures *i*, *j*, *k* in the stem slide-valve 18; and, third, for the release of air from the brake-cylinder to the exhaust-port by means of valve 17, colored green. Whether this device has an auxiliary valve or not is one of the main questions in the case, complainants' theory being that puppet-valve 22 is an

auxiliary valve, while defendants' claim is that it is in reality the main valve.



The operation of this device is best shown by the foregoing skeleton drawings.

The auxiliary reservoirs are charged by air under pressure, entering from the train-pipe, raising and passing through the feeding-in-valve piston 26, and flowing slowly into and through the passage A to the auxiliary reservoir, until such reservoir is filled. In this condition the brake-cylinder is emptied and opened to the atmosphere through the exhaust-passage G.

In order to apply the brakes gradually, so as to slacken speed or make an ordinary stop, air-pressure in the train-pipe is reduced slightly (say from three to five pounds) by action of the engineer's valve, and the reduction of pressure on the right side of the piston 29 causes the piston to make what is termed a "preliminary traverse" to the position shown in diagram "Service application." Such preliminary traverse pulls the stem slide-valve 18 to the right, and opens the apertures *i*, *j* and *k*, (one of these apertures being to the right and the other to the left of valve 22,) and through these apertures air rushes from the auxiliary reservoir to the brake-cylinder; but the puppet-valve 22 still remains upon its seat.

If quick action be required, the pressure in the train-pipe is suddenly lowered to the extent of fifteen or twenty pounds, and the traveling piston 29, instead of making a preliminary traverse to the intermediate position shown in the "Service application," makes a full traverse to the extreme right, the effect of which is that the valve 22 is pulled off its seat by the collar M, and a large passage is opened to the brake-cylinder under the valve 22 and around the stem 18. The result is, as shown in the last diagram, that not only does the air in the auxiliary reservoir escape in full volume to the brake-cylinder, but air from the train-pipe rushes directly to the brake-cylinder through the large passage F into the chamber C and under valve 22.

The argument of the defendants in this connection is that, in this device, there is no auxiliary valve or by-passage, but the quick-action result is effected simply by proportioning the ports and passages of the old triple valve and using a fixed partition, 9, to divide the piston-chamber D from the main-valve chamber C; that it is this partition which produces the quick action, and that such partition is not a valve, nor the mechanical equivalent of a valve, but merely a metal ring screwed immovably into the triple-valve casing, and serving to divide the piston-chamber from the main-valve chamber; that this partition was a new element, never before found in triple valves, and introduced a new principle and mode of operation, totally different from anything ever invented by Mr. Westinghouse or any other inventor, and that its effect is to make valve 22, termed by them the main valve, admit the train-pipe air to the brake-cylinder at the same time that it admits the auxiliary air thereto.

It is claimed that, in embodying this new principle, Mr. Boyden adopted the form of triple valve shown in the expired Westinghouse patent No. 141,685, (1873,) in which the main valve, 22, is of the puppet form, and the separate valve 17, controlled by a rod sliding through the main valve, is employed for releasing the brakes. For charging the auxiliary reservoir he adopted, from the expired Westinghouse patent No. 144,006, (1873,) a check-valved feed-passage through the triple-valve piston, but arranged the feed-passage and its check-valve, 26, in a tubular extension, F, of the piston, and substantially in the form shown in Boyden patent No. 280,285, (1883.) He also provided a sensitive graduating-valve, similar in results to the graduating-valve *e'* of the Westinghouse patent No. 220,556, (1879,) by so arranging a small passage, 40, in the sliding stem, which actuates the release-valve, that such passage will be opened and closed by the sliding of such stem through the main valve 22. As thus constructed, the triple valve operates

much the same as that of Patent No. 220,556, and, like the latter, is incapable of quick action.

In both the complainants' and defendants' devices there is (1) a feeding-in valve to charge the auxiliary reservoir; (2) a valve which complainants call their "main valve," and which the defendants denominate a "graduating-valve," which is opened by the preliminary traverse of the piston to admit reservoir-air to the brake-cylinder; (3) a release-valve which discharges air from the brake-cylinder to the atmosphere; and (4) a quick-action valve—41 in the complainants' patent, and 22 in the defendants'—which is opened by the further traverse of the piston to admit train-pipe air to the brake-cylinder. In defendants' patent, it may also be used to admit auxiliary-reservoir air to the brake-cylinder.

One of the main controversies in the case turns upon the construction and operation of the puppet-valve 22, called by the defendants their "main valve." Complainants insist that the office of *their* main valve is performed by the stem slide-valve 18 of defendants' patent, and by its apertures *i*, *j* and *k*, through which air passes from the auxiliary reservoir to the brake-cylinder, and that the puppet-valve 22 is only called into action in emergency cases, when a large quantity of air is suddenly withdrawn from the train-pipe, and the valve is unseated by the traverse of the piston to the extreme right.

There is no doubt that the function of admitting air from the auxiliary reservoir to the brake-cylinder, which is performed in the Westinghouse patent by what the complainants term the main valve, (aided, however, by the graduating-valve,) is, in ordinary cases, performed principally, if not altogether, by the stem slide-valve 18 and its three ports *i*, *j*, *k*, of the Boyden patent, which defendants term their graduating-valve. It is equally clear that, in emergencies, where quick action is required, air, which in the Westinghouse patent passes through auxiliary valve 41, (opened by the further traverse of the piston,) in the Boyden patent finds its way through the puppet-valve 22, which has also been lifted from its seat by the further traverse of the piston.

One of the main differences between the two devices is this: That in the preliminary traverse of the piston of the Westinghouse patent, there is a movement, first, of the graduating-valve to open its port from the auxiliary reservoir, and then of the main valve, carrying the graduating-valve also with it, to open a passage to the brake-cylinder, while in the Boyden patent it is only the graduating-valve which is opened by the preliminary traverse of the piston. In doing this the graduating-valve moves *through* the puppet-valve, but does not lift it from its seat. In emergency cases not only do the graduating-valve and the main valve of the Westinghouse patent move as before, but, by the extreme traverse of the piston, the auxiliary valve 41 is shoved from its seat, and a separate passage is opened for the air from the train-pipe to the brake-cylinder. In the Boyden patent, however, the extreme traverse of the piston lifts the puppet-valve from its seat, and opens a wide passage to the brake-cylinder, not only for the air from the auxiliary reservoir, but, through the peculiar operation of the partition 9 and its aperture B, directly from the train-pipe. As the graduating-valve of the Boyden patent practically does all the work in ordinary cases, and the puppet-valve is only called into action in emergency cases, the latter is practically an auxiliary valve, by which, we understand, not necessarily an independent valve, nor one of a particular construction, but simply a valve which in emergency cases is called into the assistance of the graduating-valve. In this particular, the puppet-valve of the Boyden device performs practically the same function as the slide-valve 41 of the Westinghouse. It is not material in this connection that it is a puppet-valve while the other is a slide-valve, since there is no invention in substituting one valve or spring of familiar shape for another; (*Imhaeuser* v. *Buerk*, 17 O. G., 795; 101 U. S., 647, 656;) nor, that in one case the piston *pushes* the valve off its seat, and in the other *pulls* it off; nor is it material that this puppet-valve may have been used in prior patents to perform the function of a main valve, so long as it is used for a different purpose here. Indeed, this valve seems to have been taken bodily from Westinghouse patent No. 141,685, where it was used as a main valve, and the stem-valve 18 with its ports *i*, *j*, *k*, added for ordinary uses, and the puppet-valve thus converted from a main valve to an auxiliary valve.

We have not overlooked in this connection the argument that the puppet-valve 22 is also sometimes used for graduating purposes, but it is not commonly so used, and appears to be entirely unnecessary for that purpose. It seems to be possible to move the piston 29 to its extreme traverse so slowly, and hence to open valve 22 so gradually, that the pressure in the chamber C will be reduced so slightly, that the train-pipe air will not have sufficient force to throw open the check-valve 26, and hence, in such case no train-pipe air will be admitted directly to the brake-cylinder, which will be filled with auxiliary-reservoir air only. But, as a matter of fact, this seldom or never takes place in the practical operation of the device, and is an unnecessary and wholly unimportant incident, and for all practical purposes valve 22 is solely a quick-action valve. As this valve is actuated by the piston of the triple valve, and in such action is independent of the main valve, it meets the demand of the first claim of the patent, and as it is actuated by the piston-stem, and controls communication between passages leading to connections with the main air-pipe and with the brake-cylinder, it seems also to be covered by the fourth claim.

But even if it be conceded that the Boyden device corresponds with the letter of the Westinghouse claims, that does not settle conclusively the question of infringement. We have repeatedly held that a charge of infringement is sometimes made out, though the letter of the claims be avoided. (*Machine Co.* v. *Murphy*, 13 O. G., 366; 97 U. S., 120;

Ives v. *Hamilton*, 10 O. G., 336; 92 U. S., 341; *Morey* v. *Lockwood*, 8 Wall., 230; *Elizabeth* v. *Pavement Company*, 97 U. S., 137; *Sessions* v. *Romadka*, 59 O. G., 939; 145 U. S., 29; *Hoyt* v. *Horne*, 59 O. G., 1764; 145 U. S., 302.) The converse is equally true. The patentee may bring the defendant within the letter of his claims, but if the latter has so far changed the principle of the device that the claims of the patent, literally construed, have ceased to represent his actual invention, he is as little subject to be adjudged an infringer as one who has violated the letter of a statute has to be convicted, when he has done nothing in conflict with its spirit and intent.

> An infringement [says Mr. Justice Grier in *Burr* v. *Duryee*, 1 Wall., 531, 572] involves substantial identity, whether that identity be described by the terms "same principle," same "*modus operandi*," or any other. * * * The argument used to show infringement assumes that every combination of devices in a machine which is used to produce the same effect, is necessarily an equivalent for any other combination used for the same purpose. This is a flagrant abuse of the term "equivalent."

We have no desire to qualify the repeated expressions of this Court to the effect that, where the invention is functional, and the defendant's device differs from that of the patentee only in form, or in a rearrangement of the same elements of a combination, he would be adjudged an infringer, even if, in certain particulars, his device be an improvement upon that of the patentee. But, after all, even if the patent for a machine be a pioneer, the alleged infringer must have done something more than reach the same result. He must have reached it by substantially the same or similar means, or the rule that the function of a machine cannot be patented is of no practical value. To say that the patentee of a pioneer invention for a new mechanism is entitled to every mechanical device which produces the same result is to hold, in other language, that he is entitled to patent his function. Mere variations of form may be disregarded, but the substance of the invention must be there. As was said in *Burr* v. *Duryee*, (1 Wall., 531, 573,) an infringement—

> is a copy of the thing described in the specification of the patentee, either without variation, or with such variations as are consistent with its being in substance the same thing. If the invention of the patentee be a machine, it will be infringed by a machine which incorporates in its structure and operation the substance of the invention; that is, by an arrangement of mechanism which performs the same service or produces the same effect in the same way, or substantially the same way. * * * That two machines produce the same effect will not justify the assertion that they are substantially the same, or that the devices used are, therefore, mere equivalents for those of the other.

Not only is this sound as a general principle of law, but it is peculiarly appropriate to this case. Under the very terms of the first and fourth claims of the Westinghouse patent, the infringing device must not only contain an auxiliary valve, or its mechanical equivalent, but it must contain the elements of the combination, "substantially as set forth." In other words, there must not only be an auxiliary valve, but substantially such a one as is described in the patent, *i. e.*, independent of the triple valve. Not only has the Boyden patent a puppet instead of a slide valve—a matter of minor importance—but it performs a somewhat different function. In the Westinghouse patent the valve is not in the line of travel between the auxiliary reservoir and the brake-cylinder, and admits train-pipe air only. In the Boyden patent, it is in the line of travel, both from the auxiliary reservoir and from the train-pipe, and admits both currents of air to the brake-cylinder. The by-passage, to which the auxiliary reservoir is merely an adit, is wholly wanting in the Boyden device, both currents of air uniting in chamber C and passing to the brake-cylinder together, through the puppet-valve.

But a much more radical departure from the Westinghouse patent is found in the partition 9, separating the valve-chamber C from the piston-chamber D. This partition has an aperture, B, the capacity of which is less than that of the large passage A, and intermediate in size between that of the graduating-passage 40, and that of the port covered by the valve 22. The office of this partition is thus explained by the defendants in their briefs:

> When the engineer's valve is thrown wide open, the puppet-valve is lifted from its seat by the extreme traverse of the piston, and a new action takes place. The port of the main valve 22 is so much larger than the passage B, that the pressure in the main-valve chamber C is instantly emptied into the brake-cylinder, and, as the passage B cannot supply air so fast as the main-valve port can exhaust it, the pressure in the main-valve chamber suddenly drops to about five pounds. Meanwhile the passage A, leading from the auxiliary reservoir to the inner end of the piston-chamber, is so much larger than the passage B leading from the piston-chamber to the main-valve chamber, that full reservoir-pressure is maintained in the piston-chamber between the partition 9 and the inner side of the piston, thereby holding the piston back firmly at its extreme traverse. But the feed-valve 26 is now exposed on the one side to a train-pipe pressure of about fifty-five pounds, and on the other side to a main-valve-chamber pressure of only about five pounds, and therefore valve 26 is instantly forced open by the greater train-pipe pressure, which then vents freely through the said feed-valve port into the main-valve chamber C, where it commingles with the auxiliary-reservoir air passing through said chamber, and both airs pass together through the port opened by the main valve 22 to the brake-cylinder. The whole operation is substantially instantaneous, and the result is that the train-pipe is freely vented at each car, the time of serially or successively applying the brakes of the several cars from one end of the train to the other is reduced to a minimum, and the train is quickly stopped without shock, a result which Mr. Westinghouse did not attain with the device of Patent No. 360,070, nor did he attain it until he had invented his later apparatus of Patent No. 376,837, not here in suit.

In a word, this partition maintains upon the outside of valve 26 a much higher pressure than upon the inside, the effect of which is to open feed-valve 26 and admit a full volume of train-pipe air upon the brake-cylinder.

Conceding that the functions of the two devices are practically the same, the means used in accomplishing this function are so different that we find it impossible to say, even in favor of a primary patent, that they are mechanical equivalents. While the puppet-valve, which, for the purposes of this case, we may term the auxiliary valve, is in its operation independent of the main valve, the word "independent" in the claims of the Westinghouse patent evidently refers to a valve auxiliary to the triple valve, and independently located as well as operated. The difference is that in one case the air from the train-pipe is introduced into the brake-cylinder separately and independently from the air from the auxiliary reservoir; while in the other case they unite in the chamber C and pass through the same valve to the brake-cylinder. In the Westinghouse patent there is one valve operated by the direct thrust of the piston, opening a by-passage; in the other, there is a puppet-valve also opened by the piston, and another valve, 26, opened by

the pressure maintained upon the outside of the partition 9.

It is claimed, however, by the complainants that Boyden was not the inventor of the differential pressure theory; that there is such a differential pressure in their own patent, caused by the fact that the air from the auxiliary reservoir in passing to the brake-cylinder travels through a restricted port, 35, and, as the entrance to the brake-cylinder is through a much larger port, the air is taken up by it much more rapidly than it is supplied by the restricted port, which reduces the pressure in the by-passage so much that when the quick-action valve 41 is opened, the pressure from the train-pipe air is sufficient to open the valve 49 and admit a full volume of train-pipe air, at a pressure of fifty-five pounds, to the brake-cylinder. The fact, however, that no suggestion is made in the patent of such a function of the restricted port 35, indicates either that none such had been discovered, or that it was not considered of sufficient importance to mention it. Indeed, it seems to have been an afterthought, suggested by the necessity of an answer to the defendants' argument, based upon their partition 9. That when the auxiliary valve is opened there must be a difference in pressure above and below the check-valve 49, in order to open it, is manifest; yet, this is rather an incident to the Westinghouse device than the controlling feature that it is made in the Boyden patent. There is no partition in the proper sense of the word—certainly none located as in the Boyden device—between the chambers D and C, and no aperture in such partition opened for the express purpose of maintaining this differential pressure. If such differential pressure existed to the extent claimed in the Westinghouse patent, it certainly was not productive of the results flowing from the same device in the Boyden patent.

We are induced to look with more favor upon this device, not only because it is a novel one and a manifest departure from the principle of the Westinghouse patent, but because it solved at once in the simplest manner the problem of quick action, whereas the Westinghouse patent did not prove to be a success until certain additional members had been incorporated into it. The underlying distinction between the two devices is that in one, a separate valve and separate by-passage are provided for the train-pipe air, while in the other, the patentee has taken the old triple (or quadruple) valve, and by a slight change in the functions of two of its valves and the incorporation of a new element, (partition 9,) has made a more perfect brake than the one described in the Westinghouse patent. If credit be due to Mr. Westinghouse for having invented the function, Mr. Boyden has certainly exhibited great ingenuity in the discovery of a new and more perfect method of performing such function. If his patent be compared with the later Westinghouse patent No. 376,837, which appears to have been the first completely successful one, the difference between the two, both in form and principle, becomes still more apparent, and the greater simplicity of the Boyden patent certainly entitles it to a favorable consideration. If the method pursued by the patentee for the performance of the function discovered by him would naturally have suggested the device adopted by the defendants, that is in itself evidence of an intended infringement; but, although Mr. Boyden may have intended to accomplish the same results, the Westinghouse patent, if he had had it before him, would scarcely have suggested the method he adopted to accomplish these results. Under such circumstances, the law entitles him to the rights of an independent inventor.

Upon a careful consideration of the testimony we have come to the conclusion that the Boyden device is not an infringement of the complainants' patent, and the decree of the Circuit Court of Appeals is, therefore, affirmed.

DISSENTING OPINION.

Mr. Justice SHIRAS, with whom concurred Mr. Justice BREWER, dissented and filed the following opinion:

I am unable to concur in the reasoning and conclusion of the Court, and shall briefly state my views.

The history of the art discloses that the patent in suit was what is called a "pioneer invention." In it, for the first time, was brought to light a method or process which, by the coöperation of the air from the train-pipe with that from the car-reservoir, created the "quick-action" brake. The patent, in its specification and claims, clearly described a machine or mechanical combination whereby the invention was exemplified or rendered operative.

It is not an unwarrantable extension of the term to speak of this invention in suit as a pioneer, since it is practically conceded in this case, and justly observed by the court below, "one of the highest value to the public," and conspicuously one "which entitles the proprietor to a liberal protection from the courts in construing the claim." The very fact that this invention resulted in placing it within the power of an engineer, running a long train, to stop in about half the time and half the distance within which any similar train had been stopped, is certainly deserving of recognition. The claims of such patents have from time out of mind been allowed a liberal construction, and considered as entitled to the fullest benefit of the doctrine of mechanical equivalents.

It in no wise detracts from the merit of this invention that later devices have been adopted which render its practical operation more efficient. The very term, "pioneer patent," signifies that the invention has been followed by others. A pioneer patent does not shut but opens the door for subsequent invention.

The particular patent in suit was, as I understand it to be admitted, an entire success in supplying passenger-trains and short freight-trains with a "quick-action" brake; but while it enabled

even the longest freight-trains to stop in half the time and half the distance previously occupied, there remained difficulties which required further devices to give to the invention the perfect success which it has now attained.

Being of the character so described as a pioneer, the patent in suit is entitled to a broad or liberal construction. In other words, the invention is not to be restricted narrowly to the mere details of the mechanism described as a means of carrying the invention into practicable operation.

I cannot assent to what is, perhaps, rather intimated than decided in the opinion of the Court that what is called a "process in order to be patentable must involve a chemical or other similar elemental action." The term process or method, as describing the subject of a patent, is not found in the statutes. No reason is given in the authorities, and I can think of none in the nature of things, why a new process or method may not be patentable, even though a mechanical device or a mechanical combination may be necessary to render the new process practicable. It seems to be used by the courts as descriptive of an invention which, from its novelty and priority in the art to which it belongs, is not to be construed as inhering only in the particular means described, in the Letters Patent, as sufficient to exemplify the invention and bring it into practical use.

Thus in the case of *Winans* v. *Denmead*, (15 How., 330,) the patent was for a new form of the body of a car for the transportation of coal, thus avoiding certain practical difficulties or disadvantages in such cars as previously made. To the argument on behalf of the infringer, that the claim of the patent was confined to a single form, and only through and by that form to the principle which it embodies, this Court said, per Mr. Justice Curtis:

> It is generally true that when a patentee describes a machine, and then claims it as described, that he is understood to intend to claim, and does by law actually cover, not only the precise form he has described, but all other forms which embody his invention; it being a familiar rule that to copy the principle or mode of operation described is an infringement, although such copy should be totally unlike the original in form or proportions. It is not sufficient to distinguish this case to say that here the invention consists in a change of form, and the patentee has claimed one form only. Patentable improvements in machinery are almost always made by changing some one or more forms of one or more parts, and thereby introducing some mechanical principle or mode of action not previously existing in the machine, and so securing a new improved result. And in the numerous cases in which it has been held that to copy the patentee's mode of operation was an infringement, the infringer had got forms and proportions not described, and not in terms claimed. If it were not so, no question of infringement could arise. If the machine complained of were a copy, in form, of the machine described in the specification, of course, it would be at once seen to be an infringement. It could be nothing else. It is only ingenious diversities of form and proportion, presenting the appearance of something unlike the thing patented, which rise to questions; and the property of inventors would be valueless if it were enough for the defendant to say: Your improvement consisted in a change of form; you describe and claim but one form; I have not taken that, and so have not infringed.
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> The answer is: My infringement did not consist in a change of form; but in the new employment of principles or powers, in a new mode of operation, embodied in a form by means of which a new or better result is produced; it was this which constituted my invention; this you have copied, changing only the form. * * * Where form and substance are inseparable it is enough to look at the form only. Where they are separable—where the whole substance of the invention may be copied in a different form—it is the duty of courts and juries to look through the form for the substance of the invention—for that which entitled the inventor to his patent, and which the patent was designed to secure; where that is found there is an infringement; and it is not a defense that it is embodied in a form not described and in terms claimed by the patentee. Patentees sometimes add to their claims an express declaration to the effect that the claim extends to the thing patented, however its form or proportions may be varied. But this is unnecessary. The law so interprets the claim without the addition of those words.

McCormick v. *Talcott*, (20 How., 402,) was also a case of a mechanical patent, and it was said by Mr. Justice Grier, who delivered the opinion of the Court:

> If the patentee be the original inventor of the device or machine, he will have a right to treat as infringers all who make machines operating on the same principle and performing the same functions by analogous means or equivalent combination, even though the infringing machine may be an improvement of the original and patentable as such.

In *Morley Machine Co.* v. *Lancaster*, (47 O. G., 267; 129 U. S., 263,) there was also a question of an alleged invention of a primary character, and wherein the invention was embodied in a mechanical combination; and it was held that, in a pioneer patent, such as that of Morley, the patentee, the special devices set forth by Morley were not necessary constituents of the claims; that his patent was to receive a liberal construction, in view of the fact that he was a pioneer in the construction of an automatic button-sewing machine, and that his patent was not to be limited to the particular devices or instrumentalities described by him.

In that case extended and approving reference was made to the case of *Proctor* v. *Bennis*, (36 Ch. Div., 740,) which was a case of an invention embodied in a mechanical contrivance, and the following language of Lord Justice Bowen was quoted:

> Now, I think it goes to the root of this case to remember that this is, as was described by one of the counsel, really a pioneer invention; and it is by the light of that, as it seems to me, that we ought to consider whether there have been variations or omissions and additions, which prevent the machine which is complained of from being an infringement of the plaintiff's. With regard to the additions and omissions, it is obvious that additions may be an improvement and that omissions may be an improvement; but the mere fact that there is an addition, or the mere fact that there is an omission, does not enable you to take the substance of the plaintiff's patent. The question is not whether the addition is material or whether the omission is material, but whether what has been taken is the substance and essence of the invention.

These were cases wherein the discovery or invention was made effective through machines or mechanical combinations, and wherein it was held that the merit of the process or method was not to be confined, in the case of a pioneer patent, to the mere form described in the specification as sufficient to make the invention practically operative.

Neilson's patent, (Web. Pat. Cas., 275,) was a noted case, in which the true distinction was drawn between a mere principle, as the subject of a patent, and a process by which a principle is applied to effect a new and useful result. The Court of Exchequer, in answering the objection that Neilson's patent was for a principle, said:

> It is very difficult to distinguish it from the specification of a patent for a principle, and this at first created in the minds of some of the court much difficulty; but, after full consideration, we think the plaintiff does not merely claim a principle, but a machine embodying a principle, and a very valuable one. We think the case must be considered as if, the principle being well known, the plaintiff had first invented a mode of applying it by a mechanical apparatus to furnaces; and his invention consists in this—by interposing a receptacle for heated air between the blowing apparatus and the furnace. In this receptacle he directs the air to be heated by the application of heat externally to the receptacle, and thus he accomplishes the object of applying to the blast, which was, before of cold air, in a heated state to the furnace.

And when the case came before the House of Lords, Lord Campbell said:

> After the construction first put upon the patent by the learned judges of the Exchequer, I think the patent must be taken to extend to all machines, of whatever construction, whereby the air is heated intermediately between the blowing apparatus and the blast-furnace. That being so, the learned judge was perfectly justified in telling the jury that it was unnecessary for them to compare one apparatus with another, because, confessedly, that system of conduit-pipes was a mode of heating air by an intermediate vessel between the blowing apparatus and the blast-furnace, and, therefore, it was an infringement of the patent. (Web. Pat. Cas., 715.)

Very applicable to the present case is the doctrine of *Tilghman* v. *Procter*, (19 O. G., 859; 102 U. S., 707.) It was there held, overruling the case of *Mitchell* v. *Tilghman*, (5 O. G., 299; 19 Wall., 284,) that a patent may be validly granted for carrying a principle into effect; and if the patentee suggests and discovers not only the principle, but suggests and invents how it may be applied to a practical result by mechanical contrivances and apparatus, and shows that he is aware that no particular sort or modification of form of apparatus is essential to obtain benefit from the principle, then he may take his patent for the mode of carrying it into effect, and is not under the necessity of confining himself to one form of apparatus.

Having discussed the previous cases, particularly that of Neilson and of *O'Reilly* v. *Morse*, (15 How., 62,) Mr. Justice Bradley said:

> Whoever discovers that a certain useful result will be produced in any art by the use of certain means is entitled to a patent for it, provided he specifies the means. But everything turns on the force and meaning of the word "means." It is very certain that the means need not be a machine, or an apparatus; it may be a process. A machine is a thing. A process is an act, or a mode of acting. The one is visible to the eye—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed. Either may be the means of producing a useful result. * * * Perhaps the process is susceptible of being applied in many modes and by the use of many forms of apparatus. The inventor is not bound to describe them all in order to secure to himself the exclusive right to the process, if he is really its inventor or discoverer. But he must describe some particular mode, or some apparatus, by which the process can be applied with at least some beneficial result, in order to show that it is capable of being exhibited and performed in actual experience.

The *Telephone Cases* (43 O. G., 377; 126 U. S., 1, 533) contain an apt illustration of these principles. Mr. Chief Justice Waite, in discussing the case, said:

> In this art, or, what is the same thing, under the patent law, this process, this way of transmitting speech, electricity, one of the forces of nature, is employed; but electricity, left to itself, will not do what is wanted. The art consists in so controlling the force as to make it accomplish the purpose. It had long been believed that if the vibrations of air caused by the voice in speaking could be reproduced at a distance by means of electricity, the speech itself would be reproduced and understood. How to do it was the question.
>
> Bell discovered that it could be done by gradually changing the intensity of a continuous electric current, so as to make it correspond exactly to the changes in the density of the air caused by the sound of the voice. This was his art. He then devised a way in which these changes of density could be made and speech actually transmitted. Thus his art was put in a condition for practical use. In doing this, both discovery and invention, in the popular sense of those terms, were involved; discovery in finding the art, and invention in devising the means of making it useful. For such discoveries and such inventions the law has given the discoverer and inventor the right to a patent—as discoverer, for the useful art, process, method of doing a thing he has found; and as inventor, for the means he has devised to make the discovery one of actual value. * * * The patent for the art does not necessarily involve a patent for the particular means employed for using it. Indeed, the invention of any means, in the specification or descriptive portion of the patent, is only necessary to show that the art can be used; for it is only useful arts—arts which may be used to advantage—that can be made the subject of a patent. The language of the statute is that "any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter," may obtain a patent therefor. Thus, an art—a process—which is useful, is as much the subject of a patent, as a machine, manufacture or composition of matter. * * * But it is insisted that the claim cannot be sustained, because when the patent was issued Bell had not in fact completed his discovery. While it is conceded that he was acting on the right principles, and had adopted the true theory, it is claimed that the discovery lacked that practical development which was necessary to make it patentable. In the language of counsel, "there was still work to be done, and work calling for the exercise of the utmost ingenuity, and calling for the very highest degree of practical invention." It is quite true that when Bell applied for his patent he had never actually transmitted telegraphically spoken words so that they could be distinctly heard and understood at the receiving end of his line, but in his specification he did describe, accurately and with admirable clearness, his process, that is to say, the exact electrical condition that must be created to accomplish his purpose, and he also described with sufficient precision to enable one of ordinary skill in such matters to make it a form of apparatus which, if used in the way pointed out, would produce the required effect, receive the words, and carry them to and deliver them at the appointed place. The particular instrument he had and which he used in his experiments did not, under the circumstances in which it was tried, reproduce the words spoken so that they could be clearly understood. But the proof is abundant and of the most convincing character that other instruments, carefully constructed and made exactly in accordance with the specification, without any additions whatever, have operated and will operate successfully. The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection. It is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation. * * * Surely a patent for such a discovery is not to be confined to the mere means he improvised to prove the reality of his conception.

The conclusion justified by the authorities is that whether you call Westinghouse's discovery, that "quick action" may be accomplished by the coöperation of the main-pipe air and that from the car-reservoir, a process, or a mode of operation, yet if he was the first to disclose it and to describe a mechanical means to give practical effect to the invention, he must be regarded as a pioneer inventor, and as entitled to protection against those who, availing themselves of the discovery, seek to justify themselves by pointing to mere differences in form in the mechanical devices used.

Much stress was laid in the argument on an alleged disclaimer by the patentee while the application was pending in the Patent Office, whereby it is said Westinghouse must be understood to have abandoned the second claim, or, at any rate, to have consented that that claim should be interpreted by the courts as if it contained an auxiliary valve as a material element in the claim.

There are cases, no doubt, in which it has been held that when a claimant has, under objection in the Patent Office, withdrawn certain claims, or has modified them by adding or striking out terms or phrases, and accepts a patent which does not grant the abandoned or unmodified claims, he cannot be heard to insist upon such a construction of the allowed claims as would cover what had been previously rejected. (*Shepard* v. *Carrigan*, 34 O. G., 1157; 116 U. S., 593; *Roemer* v. *Peddie*, 49 O. G., 2151; 132 U. S., 313; *Corbin Lock Co.* v. *Eagle Lock Co.*, 65 O. G., 1066; 150 U. S., 38.)

An examination of the cited cases, however, will disclose, as I think, that they turned upon matters of construction. In other words, were cases where it was questionable what the patent, as actually granted, meant. In such cases, as in other cases of ambiguity, it may be allowable to consult the application and file wrapper, and possibly written communications, which may throw light upon claims that are ambiguous or capable of different constructions.

But where the claims allowed are not uncertain or ambiguous, the courts should be slow to permit their construction of a patent, actually granted and delivered, to be affected or controlled by alleged interlocutions between the officers in the Patent Office and the claimant. No doubt, in proceedings to re-

voke or cancel a patent granted by inadvertence or by fraudulent representations, it would be competent to show what had taken place in the Patent Office pending the application. But when we consider that often the employees in the Patent Office are inexperienced persons, and that the mass of the business is so vast that it is impossible for the Commissioner or the Chief Examiner to review it, except in a perfunctory way, it can be readily seen how dangerous it would be to modify or invalidate a patent, clear and definite in its terms, by resorting to such uncertain sources of information.

However this may be, I do not perceive that the matters alleged in the present case are entitled to any weight in the construction of the patent. Even if the letter of the claimant's attorney, written on January 19, 1887, can be looked to as helping us to understand the meaning of a patent granted on March 29, 1887, it only appears to be an argument as to the meaning or legal effect of the language used in the claims, and does not amount to a withdrawal or modification of them.

Accordingly the second claim of the patent is before us for construction on its own terms, and, to avoid protracting this discussion, the opinion of Judge Morris in the circuit court is referred to and adopted as a sound construction of that claim. (66 Fed. Rep., 997.) This claim is not, as I read it, open to the objection that it aims to patent a principle. It sets forth the discovery that by a cooperation of the air from the auxiliary reservoir and that from the main air-pipe, the action of the brakes is quickened and the air vented from the main air-pipe directly to the brake-cylinder.

But, even if the second claim must, as argued in the opinion of the Court, be read, by reason of the letter of the claimant's attorney, as if it called for the auxiliary valve described in the first and fourth claims, and even if, when not so read, it can be regarded as void because simply for a function or principle, nevertheless the invention, as described in the other claims and specification, is clearly set forth, and, under the evidence as to the state of the art, is entitled to be regarded as a pioneer. Regarding the second claim as a mere statement of the idea or invention and the other claims as describing a form or combination of mechanism which embodies the invention and renders it operative, all the requisites of the law are sufficiently complied with.

The only remaining question is that of the infringement, and that is readily disposed of. For it is conceded in the opinion of the majority of the Court that, if the patent in suit is entitled to a broad construction as a pioneer, embodying a new mode of operation, not limited to the particular means described in the specification, then the defendant's device is an adoption of the idea or principle of the Westinghouse patent with a mechanical equivalent or substitute for the auxiliary valve.

Upon the whole I am of the opinion that the decree of the Circuit Court of Appeals should be reversed and that the cause should be remanded with directions to restore the decree of the circuit court.

Mr. Justice BREWER concurred in the dissenting opinion.

Mr. Justice GRAY and Mr. Justice MCKENNA also dissented from the opinion and from the decision of the Court.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 8. TUESDAY, MAY 24, 1898. PRICE—$5 per year.

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Complete Applications.

(ORDER No. 1,304.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 20, 1898.

It is hereby ordered that applications shall not be given serial numbers as complete applications and forwarded to the examining divisions for examination (1) when the petition has not been signed by the inventor; (2) when the specification and claims have not been signed by the inventor and the signature attested by two witnesses; (sec. 4888, Rev. Stats.;) (3) when the drawing has not been signed by the inventor or his attorney in fact and the signature attested by two witnesses; (sec. 4889, Rev. Stats.;) and (4) when the oath to the application does not fill the requirements of sections 4865 and 4892, Revised Statutes.

The requirements of section 4896, Revised Statutes, respecting the right of executor or administrator to make application for a patent for the invention of a deceased person must also be observed before the application will be considered as complete and forwarded for examination. The legal requirements in cases where the application is made by a foreign administrator are stated in *ex parte Ransome*, (C. D., 1870, 143.)

Under existing law no right is given to the guardian of an insane person to make an application for a patent for the invention of said insane person, and such application will not be received for examination.

This order, so far as applicable, relates to applications for the registration of trade-marks, labels, and prints, which must in all respects comply with the requirements of the statutes.

C. H. DUELL,
Commissioner.

Notice to Show Cause.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 7, 1898.

The following notice to show cause is published in the OFFICIAL GAZETTE for the reason that it has been found impracticable to serve notice in the usual way, a registered letter containing notice to the same effect, mailed to Mr. Holgate at his last-known address, having been returned with the report that it could not be delivered.

To George H. Holgate, doing business under the name of the Association American Inventors, last known address Betz Building, Philadelphia, Pennsylvania, present address unknown:

SIR: Copies of charges filed against you as representative of the Association American Inventors by the following-named persons were sent you on the dates mentioned below, and you were given until February 12, 1898, to answer the same, if you desired to do so:

I. N. Fickes, of Holland, Kans.....January 21, 1898.
Nathan Lloyd, of Greenbrier, Mo.....January 22, 1898.
J. L. Zeiger, of Cleveland, Ohio .....January 22, 1898.
John McWilliams, of Egypt Mills, Mo ..February 5, 1898.

You were informed in the letters accompanying the charges of McWilliams, Lloyd, and Fickes that, inasmuch as you were not registered as a patent attorney, disbarment proceedings would not be instituted. It has been determined, however, that inasmuch as you still represent a number of applicants before this Office in applications filed before the 1st of January, 1898, as is shown by a list of such cases filed by your representative on January 14, 1898, and in which registration was waived, said list numbering 171 cases, you are practicing before the Office and within the provisions of the statute you are subject to disbarment proceedings. In view of this fact and in view of the fact that in some of the foregoing cases the filing of the answer was made optional with you you are hereby required to show cause on or before the 15th day of June, 1898, in each of these cases, why you should not be disbarred from practice and why the Commissioner of Patents should not refuse to recognise you as patent agent in accordance with the statutes in such cases made and provided.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED MAY 24, 1898.

Labels.

6,891.—Title: "COURT'S GREAT STOMACH AND NERVE TONIC." *Thora Petersen*, Chicago, Ill. Application filed March 19, 1898.

6,892.—Title: "VELVETTA KID." (For Leather and Kid.) *Frank Crocker*, Washington, D. C. Application filed April 13, 1898.

Prints.

64.—Title: "JUST OUT." (For Cigars.) *American Lithographic Company*, New York, N. Y. Application filed April 26, 1898.

65.—Title: "THE CONTINENTAL GOLD BOND." (For a Suit of Clothes.) *Freeland-Loomis Company*, Boston, Mass. Application filed March 14, 1898.

66.—Title: "BUFFALO LITHIA WATER." *Thomas F. Goode*, Boydton, Va. Application filed April 20, 1898.

67.—Title: "HAMMOND TYPE WRITER FOR ALL NATIONS AND TONGUES." *The Hammond Typewriter Company*, New York, N. Y. Application filed March 7, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 17, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Between two and three months.			
108	XIX. Stoves and Furnaces	Feb. 21	May 5	347
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 2	May 4	235
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Feb. 18	May 3	251
98	XXXIV. Railway Brakes, Draft Appliances, and Rolling-Stock.	Mar. 1	May 2	267
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 17	May 2	345
	Between three and four months.			
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Jan. 17	May 9	323
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 14	May 6	486
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 8	May 6	242
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 9	May 4	249
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 4	May 4	517
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Feb. 12	May 3	216
246	I. Tillage and Fences	Feb. 12	May 3	261
248	XVIII. Steam-Engineering, etc	Jan. 19	May 3	314
253	X. Carriages and Wagons	Jan. 17	May 2	329
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 2	Apr. 30	318
	Between four and five months.			
38	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Jan. 11	May 4	407
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 28	May 3	503
93	XXI. Textiles, etc	Jan. 14	May 2	327
108	II. Farm Stock, Products, etc.	Jan. 14	May 2	535
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 10	May 2	355
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 17	May 2	503
37	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 30	Apr. 30	204
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 6	Apr. 27	388
217	XXXIII. *Trade Marks, etc., †Designs, Drafting, and Optics.	Jan. 3	Apr. 26	212
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 10	Apr. 19	316
	Between five and six months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 15	May 9	786
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 1	May 9	251
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 22	May 9	251
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	May 6	513
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Dec. 8	May 2	497
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Nov. 26	Apr. 30	406
240	VII. Velocipedes	Dec. 13	Apr. 11	918
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Mar. 31	514

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	Between six and seven months.			
221	XXIII. Instruments of Precision, Acoustics, etc.	Oct. 18	Mar. 21	493
	Between seven and eight months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 22	Apr. 15	552

Total number of applications awaiting action 18,977

Under one month.			
†Designs	May 3	May 9	116
*Trade-Marks	Apr. 18	May 4	234

ISSUE OF MAY 24, 1898.

Patents	354—No. 604,357 to No. 604,710,	inclusive.
Designs	42—No. 28,677 to No. 28,718,	inclusive.
Trade-Marks	26—No. 31,570 to No. 31,607,	inclusive.
Labels	2—No. 6,591 to No. 6,592,	inclusive.
Prints	4—No. 64 to No. 67,	inclusive.
Reissues	None.	
Total issue	440	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3	.....	New Hampshire	2	.....
Arizona Territory	.....	.....	New Jersey	27	1
Arkansas	2	.....	New Mexico Territory	.....	.....
California	9	.....	New York	47	8
Colorado	4	.....	North Carolina	1	.....
Connecticut	8	.....	North Dakota	3	.....
Delaware	1	.....	Ohio	21	2
District of Columbia	1	1	Oklahoma Territory	.....	.....
Florida	.....	.....	Oregon	.....	.....
Georgia	2	.....	Pennsylvania	33	7
Idaho	1	.....	Rhode Island	4	1
Illinois	30	3	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	.....	.....
Indiana	19	2	Tennessee	2	.....
Iowa	6	.....	Texas	6	.....
Kansas	4	.....	Utah	.....	.....
Kentucky	6	.....	Vermont	1	1
Louisiana	.....	1	Virginia	.....	1
Maine	4	.....	Washington	1	.....
Maryland	3	2	West Virginia	1	.....
Massachusetts	27	5	Wisconsin	10	.....
Michigan	13	.....	Wyoming	.....	.....
Minnesota	8	2	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	17	.....	Total to citizens of the United States	323	36
Montana	3	.....			
Nebraska	1	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Italy	.....	.....
Australia	.....	.....	Mexico	.....	.....
Austria-Hungary	3	1	Netherlands	1	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	3	.....
Canada	10	.....	Norway	1	.....
Cape Colony	.....	.....	Portugal	.....	.....
Chile, Republic of	.....	.....	Queensland	.....	.....
China	.....	.....	Russia	1	.....
Colombia	.....	.....	Scotland	1	.....
Cuba	.....	.....	South African Republic	.....	.....
Denmark	1	.....	South Australia	.....	.....
Egypt	.....	.....	Spain	1	.....
England	18	3	Sweden	3	1
Finland	.....	.....	Switzerland	1	.....
France	4	2	Turkey	1	.....
Germany	13	1	Victoria	1	.....
Guatemala	.....	.....			
Hawaii	2	.....	Total to citizens of foreign countries	64	8
India	.....	.....			
Ireland	.....	.....			

PATENTS

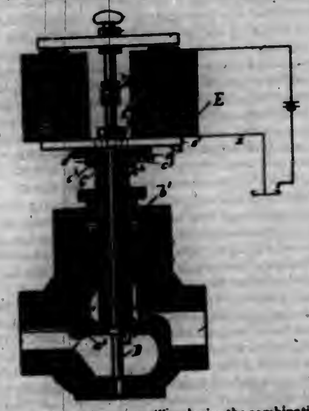
GRANTED MAY 24, 1898.

604,357. COLLAR-BUTTON AND NECKWEAR-RETAINER. JOHN ARMER, Philadelphia, Pa. Filed Sept. 10, 1896. Serial No. 605,251. (No model.)



Claim.—A button consisting of a head, and a two-part expansible shank with shoulders thereon, in combination with the depending plate G, having a slot to receive said shanks, the walls of said slot engaging with said shoulders, an upwardly-extending resilient portion H forming with said plate the loop J and the closing neck K at the top of said portion.

604,358. VALVE-CONTROLLING DEVICE. WALTER S. ALEXANDER, New York, N. Y., assignor, by mesne assignments, to the New Jersey Valve Company, of New Jersey. Filed Feb. 24, 1896. Serial No. 580,341. (No model.)



Claim.—1. In a valve-controlling device the combination of a main valve normally closed by the pressure controlled thereby, a motor to operate said main valve, consisting of a cylinder and piston, a valve-stem secured to the piston and valve-head with a port passing through said stem to the pressure lying before the valve, and leading to the cylinder and an exhaust, two auxiliary valves interposed within said port operating conjointly, one adapted normally to close the supply-port to the motor, by the operation of the pressure controlled by the main valve, and the other operating abnormally to close the exhaust from the motor while the supply-port is opened, and means to operate said auxiliary valves substantially as described.

2. In a valve-controlling device, the combination of a main valve, having a valve-head adapted to be seated by the pressure controlled by said valve; a motor to operate said main valve, consisting of a cylinder and piston, a valve-stem secured to the piston, and the main-valve head, a port through said main-valve head and stem, leading to the cylinder and an exhaust, an auxiliary-valve stem adapted to operate within said port through the main-valve stem, said auxiliary-valve stem provided with two valve-heads, one head adapted normally to be seated by the pressure controlled by the valve, and to close the said supply-port leading to the motor, and the other head operating conjointly with the first to close the said port leading from the motor to an exhaust when the supply-port is open, and to open said exhaust when the supply-port is closed, and means to operate said auxiliary-valve stem, substantially as described.

3. In a valve-controlling device the combination of a main valve having a valve-head adapted to be seated by the pressure controlled by said valve, a motor to operate said main valve consisting of a cylinder and piston, a valve-stem secured to the piston and the main-valve head, a port through said main-valve head and stem, leading to the cylinder and to an exhaust, an auxiliary-valve stem adapted to operate within said port through the main-valve stem, said auxiliary-valve stem provided with two valve-heads, one head adapted normally to be seated, by the pressure controlled by the valve, and to close the said supply-port leading to the motor, and the other head operating conjointly with the first to close the said port leading from the motor, to an exhaust when the supply-port is open, and to open said exhaust when the supply-port is closed, and a motor suitably mounted and connected with the auxiliary-valve stem to operate the same substantially as described.

4. In a valve-controlling device, a main valve normally closed by the pressure controlled by said valve, a hollow valve-stem carrying the main-valve head, and a piston, a cylinder for said piston, a port through said hollow stem leading from the pressure lying before the valve to the cylinder, and to an exhaust, two auxiliary valves interposed in said port, operating together, to open the supply-port, and close the exhaust, or to close the supply-port and open the exhaust; an electromagnet suitably mounted on the main-valve stem, in circuit, and means to control said circuit, with an armature for said magnet secured to the auxiliary valves, to operate the same, substantially as described.

5. In a valve-controlling device, a main valve normally closed by the pressure controlled by said valve, a hollow valve-stem carrying the main-valve head, and a piston, a cylinder for said piston, a port through said hollow stem leading from the pressure lying before the valve to the cylinder, and to an exhaust; an auxiliary-valve stem adapted to operate within said hollow stem, and carrying two valve-heads suitably interposed in said port, and operating together to open the supply-port, and close the exhaust, or to close the supply and open the exhaust; an electromagnet suitably mounted on the main-valve stem, in circuit, with means to control said circuit, an armature for said magnet secured to the auxiliary-valve stem substantially as described.

6. In a valve-controlling device, a valve-chest with inlet and outlet ports through the same, and a valve-seat, a main-valve stem carrying a main-valve head and a piston, a port through the axis of said main-valve stem, leading to a cylinder and an exhaust; said port having valve-seats at either end, a cylinder for said piston, and an auxiliary-valve stem carrying two valve-heads, and means to operate said auxiliary-valve stem substantially as described.

7. In a valve-controlling device, a valve-chest with inlet and outlet ports through the same, and a valve-seat, a main-valve stem carrying a main-valve head; a piston and magnets, a port through the axis of said main-valve stem, leading to a cylinder, and an exhaust, said port having valve-seats at either end, a cylinder for said piston, an auxiliary-valve stem carrying two valve-heads, and an armature, an electromagnet, mounted on the main-valve stem said magnet in circuit, and means to control said circuit, substantially as described.

8. In a valve, the combination of a main valve, valve-stem, steam-cylinder and piston secured to the valve-stem for operating it, a steam-port for supplying steam to the cylinder, a valve controlling said port and an auxiliary-valve stem operating said valve, with an electro-magnet, mounted upon the main-valve stem and moving with it, and an armature for said magnet operating the auxiliary-valve stem.

9. The combination of the main valve, a piston whose movement controls the movement of the main valve, an auxiliary valve for controlling the movement of the fluid to the piston, an exhaust-valve

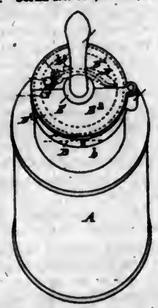
whose movement is controlled by the movement of the auxiliary valve, an electromagnetic mechanism for moving the auxiliary valve from its seat, and means connecting the part upon which the electromagnetic mechanism is mounted with the main valve.

10. The combination of a main valve, a piston whose movement controls the movement of the main valve, an auxiliary valve for controlling the movement of the fluid to the piston, an armature secured to the stem of the auxiliary valve, a yoke secured to the main valve, and an electromagnetic mechanism mounted upon said yoke.

11. The combination of a main valve, a piston whose movement controls the movement of the main valve, an auxiliary valve for controlling the flow of the fluid to the piston, an electromagnetic mechanism for moving the auxiliary valve from its seat, and means for connecting the part upon which the electromagnetic mechanism is mounted to the main valve.

12. The combination of a main valve, a piston whose movement controls the movement of the main valve, a hollow valve-stem connecting the main valve with the piston, an auxiliary valve for controlling the flow of the fluid to the piston, and an electromagnetic mechanism for operating the auxiliary valve.

604,859. VESSEL-CLOSURE. WALDO P. BEAN, Bearmington, Ill.
Filed May 24, 1897. Serial No. 637,351. (No model.)



Claim.—1. The herein-described combined spring, latch and scraper, in combination with a fixed plate to which the spring member of said combined spring, latch and scraper is secured, and a complemental plate having a hinge connection with said fixed plate and acted against by the spring member of and adapted to be engaged with and locked by the latch member of said combined spring, latch and scraper, as set forth.

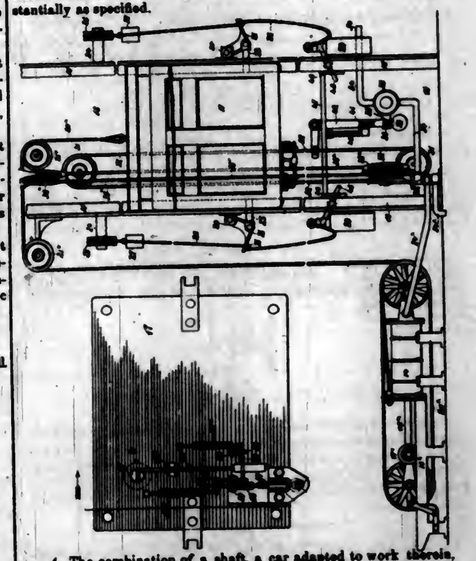
2. In a vessel-closure, the combination of a notched fixed plate attachable to a vessel, a complemental notched hinged plate connected with said fixed plate, a spring, a latch and a scraper supported on said fixed plate, and an annular brush-holder fitting in a central hole formed by the conjunction of the notches in said fixed plate and said hinged plate, as set forth.

604,860. SAFETY DEVICE FOR ELEVATORS. FRANK M. BELL, New York, N. Y., assignor of one-half to Wilma Pollack, same place.
Filed Nov. 22, 1897. Serial No. 639,358. (No model.)

Claim.—1. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and the means for operating the car, means arranged within the shaft adapted to operate said interposed cut-out mechanism, and means carried by said car adapted to engage the means arranged within the shaft whereby to operate the interposed cut-out mechanism to shut off the source of power and render the means for operating the car thereupon inoperable from the car, and arrest the movement of the car, substantially as specified.

2. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and the means for operating the car, means adapted to obstruct the movement of the car within the shaft, and means carried by the car adapted to operate the cut-out mechanism to shut off the source of power and render the means for operating the car thereupon inoperable from the car, and the obstructing means to arrest the movement of the car, substantially as specified.

3. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and means for operating the car, means adapted to obstruct the movement of the car within the shaft, a signal apparatus, means for operating said signal apparatus, and means carried by the car adapted to operate the cut-out mechanism to shut off the source of power, the obstructing means to arrest the movement of the car, and the signal apparatus to become operative, substantially as specified.



4. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and the means for operating the car, obstructing mechanism normally out of the path of the car adapted to be projected into the path thereof, means arranged within the shaft adapted to operate the interposed cut-out mechanism, and the obstructing mechanism, and means carried by the car adapted to engage the means arranged within the shaft whereby to operate the cut-out mechanism to shut off the power, and the obstructing mechanism to be projected into the path of the car, substantially as specified.

5. The combination of a shaft, a car adapted to work therein, and means for operating said car, with cut out mechanism interposed between the source of power and the means for operating the car, means adapted to obstruct the movement of the car within the shaft, means arranged within the shaft whereby to operate the cut-out mechanism, and the obstructing mechanism, and means carried by the car adapted to engage from any point of the shaft the means for operating the cut-out mechanism, and the obstructing mechanism, and cause the same to shut off the power, reader the means for operating the car thereupon inoperable from the car, and arrest the movement of the car, substantially as specified.

6. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and the means for operating the car, mechanism adapted to be projected from the sides of the shaft into the path of the car to arrest the movement thereof, means arranged within the shaft adapted to operate the cut-out mechanism, and the obstructing mechanism, and means carried by the car adapted to engage at any point within the shaft the means arranged therein whereby to simultaneously cause the same to operate the cut-out mechanism to shut off the source of power, and the obstructing mechanism to be projected into the path of the car to arrest the movement thereof, substantially as specified.

7. The combination of a shaft, a car adapted to work therein, and means for operating said car, with cut-out mechanism interposed between the source of power and the means for operating the car, obstructing devices arranged in the shaft, normally out of the path of the car, means for projecting said devices into the path of the car, means arranged at the side of the shaft adapted to operate the cut-out mechanism and the obstructing devices, and means carried by the car adapted to engage the means at the side of the shaft whereby to operate the cut out mechanism to shut off the power, and the obstructing devices to be projected into the path of the car, substantially as specified.

8. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and the means for operating the car, series of obstructing devices arranged upon opposite sides of the shaft, means for maintaining said obstructing devices normally out of the path of the car, means for projecting said devices into the path of the car, means arranged upon the side of the shaft adapted to operate the cut-out mechanism, and the means for projecting the obstructing devices, and mechanism carried by the car adapted to engage the means arranged upon the side of the shaft and cause the same to operate the cut-out mechanism to shut off the power, and the means for operating the obstructing devices to project said devices into the path of the car to arrest the movement thereof, substantially as specified.

9. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and the means for operating the car, series of obstructing devices arranged upon opposite sides of the shaft, means for maintaining said devices normally out of the path of the car, means for projecting said devices into the path of the car, an endless cable supported at one side of the shaft, extending through said shaft for its entire length, and connected with the cut-out mechanism, and means for operating the obstructing devices, a grip mechanism carried by the car adapted to be maintained out of engagement with the endless cable aforesaid, and means for bringing said grip mechanism into engagement with said endless cable to operate the cut-out mechanism to shut off the power, and the means for operating the obstructing devices to project the same into the path of the car to arrest the movement thereof, substantially as specified.

10. The combination of a shaft, a car adapted to work therein, and means for operating said car with cut-out mechanism interposed between the source of power and the means for operating the car, shafts secured to the outer sides of the elevator-shaft near the top thereof, pulleys mounted upon the ends thereof, cables having their uppermost ends passed over said pulleys and provided with counterweights, and their other ends extending downward and provided with weights, series of bolts arranged in opposite sides of the shaft, bearings secured upon the outer sides of the shaft above said bolts, bell-crank levers having their upper ends supported within said bearings, their apexes pivotally secured to the rear ends of the bolts, and their outer ends secured to the cables, aforesaid, means for supporting the weights secured to the lower ends of said cables, and means carried by the car whereby to operate from any point of the shaft the cut-out mechanism to shut off the power, and release the weights at the lower ends of the cables of their support to project the bolts into the path of the car, substantially as specified.

11. In a safety device for elevators, the shaft and car in combination with an endless cable arranged within the shaft and extending through the entire length thereof, a valve arranged within the shaft for controlling the supply of power to the hoisting mechanism, means for maintaining said valve open to permit of the passage of the fluid to the hoisting mechanism, means for closing said valve, a device having one end connected to the endless cable and another end in contact with the means for maintaining the valve open, said device being adapted to release the means for maintaining the valve open, and cause the valve to close and arrest the passage of the fluid to the hoisting apparatus, and means carried by the car, adapted to engage the endless cable at any point within the shaft to operate said valve to shut off the power, substantially as specified.

12. In a safety device for elevators, the shaft and car in combination with pulleys arranged within the shaft near the top and bottom thereof, an endless cable carried by said pulleys, a valve having a stem, an arm secured thereto and projecting beyond the same at the rear, a weight arranged upon the long end of said arm, and a spring-actuated catch arranged therein between the weight and the valve-stem, a bracket supported above said valve having a bell-crank pivotally supported thereon, the lower end of whose vertical member is adapted to lock against the spring-actuated catch in the valve-stem, a bell-crank supported at right angles to the bell-crank above named having a toe at the lower end of its vertical member against which the rearwardly-projecting end of the valve-stem arm is adapted to rest, and the end of its horizontal member connected with the endless cable, and means carried by the car adapted to engage said endless cable at any point within the shaft to operate said valve to shut off the power, substantially as specified.

13. In a safety device for elevators, the shaft and car adapted to work therein in combination with pulleys supported within the shaft near the top and bottom thereof, an endless cable carried thereby, a grip carried by the car adapted to engage said endless cable, a valve arranged within the shaft intermediate the source of power and the hoisting mechanism, means for maintaining said valve to its open position, means for closing said valve, obstructing devices arranged in the sides of the shaft, normally out of the path of the car, adapted to be projected into the path of the car, means for projecting said devices into the path of the car, pulleys supported upon the outer sides of the shaft near the top thereof, cables secured to and connecting said projecting means having weights at their lower ends, and their upper ends passed over the pulleys, last mentioned, and provided with counterweights, levers pivotally supported in the sides of the shaft near the base thereof adapted to support at their outer ends the weights secured to the lower ends of the cables aforesaid, and levers pivotally supported upon the inner sides of the shaft having their forward ends connected with the inner ends of the weight-supporting levers and their rear ends united by a connecting-rod adapted to be supported by the mechanism for operating the valve whereby to maintain the weights upon the lower ends of the cables in position upon their supporting-levers when the valve is open, substantially as specified.

14. In a safety device for elevators, the shaft and car working therein, means for operating said car, mechanism operable from the car adapted to control the supply of power to the hoisting mechanism, obstructing devices normally out of the path of the car adapted to be projected into the path thereof, means for projecting said devices into the path of the car, combined with an electric signal apparatus, a source of electric supply for operating said signal apparatus, a contact-plate arranged within the shaft, conductors leading from said signal apparatus and including the source of electric supply, and having their terminals electrically connected with said contact-plate and a movable part of the mechanism for releasing the means for maintaining the valve open and the obstructing devices withdrawn from the shaft whereby to complete the electric circuit and cause the signal to become operative when the valve is closed, or the obstructing devices are projected into the path of the car, substantially as specified.

15. In a safety device for elevators, the combination with a car-body of a grip comprising a rigid member secured to the car-body, provided with a bifurcated portion extending beyond the outline of the car-body, a movable member adapted to work within said rigid member, said grip members having apertures in their projecting portions through which a cable is adapted to extend, means for maintaining said movable grip member normally drawn back and the aperture therein out of register with the apertures in the bifurcated projecting portion of the rigid member to grip the cable, and means operable from the interior of the car for projecting said movable grip member to bring the aperture in the projecting end thereof into register with the apertures in the bifurcated end of the rigid grip member to release the cable and permit of the free and uninterrupted movement of the car within the shaft, substantially as specified.

16. In a safety device for elevators, the combination with a car-body of a grip comprising a rigid member secured to the under side of the car-body having a bifurcated projecting portion, and a guide, a movable member adapted to work in said guide and intermediate the bifurcated projecting portion, apertures provided in the projecting portion of the rigid member, and an aperture provided in outer end of the movable member, through which apertures a cable is adapted to extend, bearings provided upon the under side of the car-body, two bell-cranks and an arm pivotally supported therein, a rod connecting the free end of said arm with the end of the horizontal member of one of said bell-cranks, a rod connecting the ends of the vertical members of the bell-cranks, a link connecting the rear end of the movable grip member with the end of the horizontal member of one of said bell-cranks, springs having their forward ends secured to the under side of the car-body, and their rear ends secured to the rod connecting the ends of the bell-cranks, and the rod connecting one bell-crank with the arm aforesaid, to hold the movable grip member normally drawn back, a bearing provided upon the under side of the car-body, a lever pivotally supported thereby having its rear end in contact with and bearing against the rod connecting one of the bell-cranks with the pivoted arm, and a foot-plate arranged upon the base of the car having a stem extending downwardly therefrom through the base of the car-body and bearing upon the forward end of the lever supported upon the under side thereof, substantially as specified

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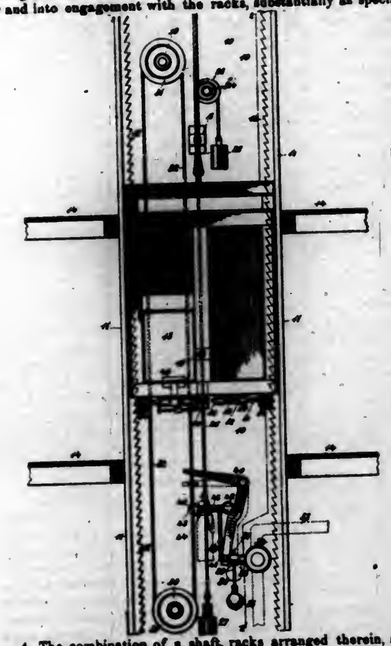
604,861. SAFETY DEVICE FOR ELEVATORS. FRANK M. BELL, New York, N. Y., assignor of one-half to Wilma Pollack, same place.
Filed Dec. 3, 1897. Serial No. 660,568. (No model.)

Claim.—1. The combination of a shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car, and clutch mechanism carried by said car, with means operable from the car whereby to render inoperative from the car the means for operating said car, and project the clutch mechanism into engagement with the racks, substantially as specified.

2. The combination of a shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car, and clutch mechanism carried by said car, with cut-out mechanism interposed between the source of power and the means for operating the car, and means operable from the car whereby to operate the cut-out mechanism to shut off the power and render the means for operating the car thereupon inoperable from the car, and project the clutch mechanism into engagement with the racks, substantially as specified.

3. The combination of a shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car,

clutches carried by said car, and means for holding said clutches normally within the outline of the car, with cut-out mechanism interposed between the source of power and the means for operating the car, a series of devices arranged within the shaft adapted to engage the clutch-holding means on the car, and means operable from the car whereby to operate the cut-out mechanism to shut off the power, and operate the devices arranged within the shaft to trip the clutch-holding means, and project the clutches beyond the outline of the car and into engagement with the racks, substantially as specified.



4. The combination of a shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car, clutches carried thereby, and means arranged partly within and partly without the outline of the car adapted to hold the clutches normally within the outline of the car, with cut-out mechanism interposed between the source of power and the means for operating the car, a series of tripping devices arranged within the shaft normally out of the path of the projecting portion of the clutch-holding means carried by the car and means operable from the car whereby to operate the cut-out mechanism to shut off the power, and the trip mechanism to be projected into the path of the clutch-holding means to trip the same, and project the clutches into engagement with the racks, substantially as specified.

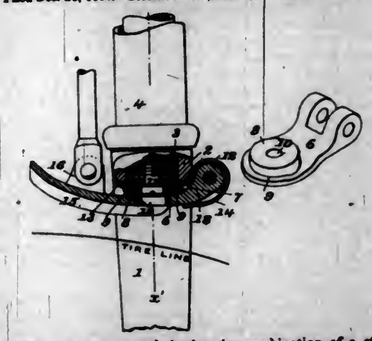
5. The combination of a shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car, bearings arranged upon said car, rods supported therein, clutches disposed upon the outer ends thereof and heads upon the inner opposing ends thereof, springs for projecting said clutches outwardly, bearings arranged at right angles to those aforesaid, a rod supported therein, a double detent arranged thereon adapted to engage the inner opposing ends of the clutch-rods, a shoe carried upon the end of said rod beyond the outline of the car, with cut-out mechanism interposed between the source of power and the means for operating the car, a series of tripping devices arranged within the shaft normally out of the path of the shoe carried by the car, and means operable from the car whereby to operate the cut-out mechanism to shut off the power, and project the tripping devices into the path of the shoe aforesaid to release the clutches and cause the same to be projected into engagement with the racks, substantially as specified.

6. The combination of a shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car, clutch mechanism carried by said car, means arranged partly within and partly without the outline of the car adapted to hold the clutches normally drawn back with a series of tripping devices arranged within the shaft normally out of the path of the clutch-holding means carried by the car, a cable secured to said tripping devices provided at its lower end with a weight, and at its upper end with a counterweight, cut-out mechanism interposed between the source of power and the means for operating the car, means for holding said cut-out mechanism in position to permit of the passage of the operating fluid therethrough, and support the weight at the lower end of the cable aforesaid, and means operable from the car whereby to release the aforesaid holding means and cause the cut-out mechanism to shut off the power, and release the weight to operate the tripping devices to trip the clutch-holding means carried by the car, substantially as specified.

7. The shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car, clutch mechanism carried by said car, means arranged partly within and partly without the outline of the car adapted to hold the clutches normally drawn back combined with a series of tripping devices, each comprising a bolt, normally out of the path of the clutch-holding means carried by the car, a bell-crank for projecting said bolt, a link intermediate the rear end of the bolt and the bell-crank adapted to hold the bolt to its projected position, a cable secured to the bell-cranks of said tripping devices having a weight at its lower end, and a counterweight at its upper end, and cut-out mechanism interposed between the source of power and the means for operating the car, means for holding said cut-out mechanism in position to permit of the passage of the operating fluid therethrough, and support the weight at the end of the cable aforesaid, and means carried by the car adapted to release the holding means aforesaid and cause the cut-out mechanism to shut off the power, and release the weight to operate the tripping devices, substantially as specified.

8. The shaft, racks arranged therein, a car adapted to work within said shaft, means for operating said car, grip mechanism carried by said car, clutch mechanism likewise carried by said car, means for holding said clutches drawn back, tripping devices arranged within the shaft adapted to release the clutch-holding means, a cable for operating said tripping devices having a weight at its lower end, and a counterweight at its upper end, combined with an endless cable extending through the shaft, adapted to be engaged by the grip mechanism carried by the car, a valve having a stem, an arm secured thereto extending beyond the valve-stem at the rear thereof, a weight arranged upon the outer end of said arm, a spring-actuated catch arranged in said arm intermediate its weighted end and the valve-stem, a bell-crank pivotally supported above said valve having the end of its horizontal member secured to the endless cable and the end of its vertical member provided with a toe adapted to contact with the end of the arm projecting at the rear of the valve-stem, a bell-crank pivotally supported at right angles to the one above named, the horizontal member of which is adapted to receive and support the weight on the cable for operating the tripping devices, and its vertical member adapted to lock against the spring-actuated catch in the valve-stem arm, substantially as specified.

604,862. BICYCLE-BRAKE. CHARLES P. BIRNER, Chicago, Ill., assignor to the Monarch Cycle Manufacturing Company, same place. Filed Dec. 20, 1897. Serial No. 662,732. (No model.)



Claim.—1. In a bicycle-brake, the combination, of a steering-fork provided near the lower end of its steering-post with a cross-bar or projection that is formed with a screw-threaded orifice, a bracket formed with a circular projection fitting the bore of the steering-post, a marginal flange surrounding said projection, and rearwardly-projecting pivot-ears, a spring formed with an attaching-eye fitting the circular projection of the bracket, and with a loop portion encircling the pivot-ears of said bracket, with its free end bearing on the under surface of the brake-shoe forward of its pivotal attachment, a brake-shoe of a curved-plate formation pivoted to the pivot-ears of the bracket, and extending forward between the fork sides, and an attaching-bolt passing through the bracket and screwing into the screw-threaded orifice in the cross-bar or projection of the steering-fork, substantially as set forth.

2. In a bicycle-brake, the combination, of a steering-fork provided near the lower end of the steering-post with a cross-bar or projection that is formed with a screw-threaded orifice, a bracket formed with a circular projection fitting the bore of the steering-post, a marginal flange surrounding said projection, and rearwardly-projecting pivot-ears, a spring formed with an attaching-eye fitting the circular projection of the bracket and with a loop portion encircling the pivot-ears of said bracket, with its free end bearing on the under surface of the brake-shoe forward of the pivotal attachment, a brake-shoe of a curved-plate formation pivoted to the pivot-ears of the bracket, and extending forward between the fork sides and an attaching-bolt passing through the bracket and screwing into the screw-threaded orifice in the cross-bar or projection of the steering-fork, the said shoe being formed with an orifice in line with the head of said attaching-bolt, substantially as set forth.

3. In a bicycle-brake, the combination, of a steering-fork provided near the lower end of the steering-post with a cross-bar or projection that is formed with a screw-threaded orifice, a bracket formed with a circular projection fitting the bore of the steering-post, a marginal flange surrounding said projection and rearwardly-projecting pivot-ears, a spring formed with an attaching-eye fitting the circular projection of the bracket, and with a loop portion encircling the pivot-ears of said bracket, with its free end bearing on the under surface of the brake-shoe forward of its pivotal attachment, a brake-shoe of a curved-plate formation pivoted to the pivot-ears of the bracket, and extending forward between the fork sides, and an attaching-bolt passing through the bracket and screwing into the screw-threaded orifice in the cross-bar or projection of the steering-fork, the marginal flange of the bracket, and the attaching-eye of the spring having a convex form in a transverse direction, substantially as set forth.

604,863. ARTIFICIAL TOOTH FOR CROWN AND BRIDGE WORK. FRANCIS H. BROWN, Chicago, Ill. Filed July 7, 1896. Serial No. 598,265. (No model.)

Claim.—1. An artificial tooth of a contour approximately that of the natural tooth and having its approximal and palatine surfaces provided below the cusp with a shallow depression bounded by vertical and horizontal shoulders, said depression being of a depth suitable to receive a metal backing and a pronged anchor embedded within the tooth and having the exposed ends of the pins or prongs thereof extending from the depressed portion of the body of the tooth and adapted to penetrate the backing and to be bent down thereon, substantially as described.

2. An artificial tooth of the contour approximately that of the natural tooth and having its approximal and palatine surfaces provided below the cusp with a depression bounded by vertical and horizontal shoulders, said depression being of such depth as to receive a suitable backing, an anchor embedded within the body of the tooth and having pins or prongs projecting from the depressed portion and a backing secured in said depressed portion by said pins, substantially as described.

604,864. HYDRAULIC LIFT. THOMAS H. BROWN, New York, N. Y. Filed June 14, 1897. Serial No. 640,791. (No model.)

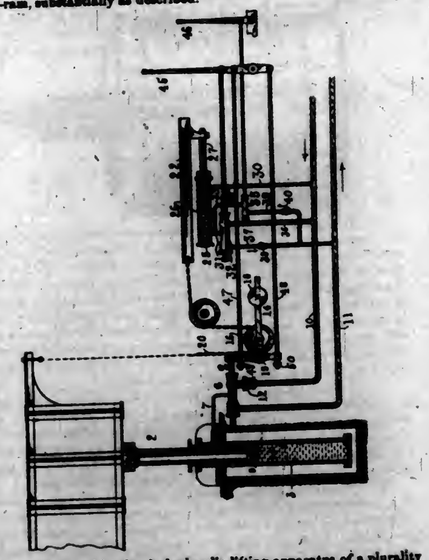
Claim.—1. The combination with a platform, a hydraulic motor for lifting the same, and a valve for controlling the motor, of a tensional connection operatively connected with said platform and adapted to throw said valve to various degrees of opening, and an auxiliary motor for actuating said connection, substantially as described.

2. The combination with a platform, a hydraulic motor for lifting the same, and a valve for controlling the motor, of a reciprocating tensional connection operatively connected with said platform and adapted to actuate said valve, and an auxiliary motor for actuating said tensional connection, substantially as described.

3. The combination of a platform, a plurality of lifting hydraulic motors and valves therefor, a plurality of tensional connections each operatively connected with said platform and adapted to independently actuate each valve, and an auxiliary motor adapted to actuate said tensional connections, substantially as described.

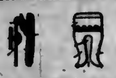
4. The combination in hydraulic lifting apparatus, of a platform, a plurality of hydraulic lifting-rams operatively connected therewith, a main operating-valve for each ram, a pilot-ram and tensional connections operatively connecting the pilot-ram with said platform and each of said main operating-valves, whereby each of said lifting-rams is required to move the same distance proportionally to the movement of the pilot-ram, substantially as described.

5. The combination in hydraulic lifting apparatus, of a platform, a plurality of hydraulic lifting-rams operatively connected therewith, a main operating-valve for each ram, a lever for throwing said valves, a pilot-ram and tensional devices from said pilot-ram to each of said levers and said platform, whereby each of said lifting-rams is required to move the same distance proportionally to the movement of said pilot-ram, substantially as described.



6. The combination in hydraulic lifting apparatus of a plurality of hydraulic lifting-rams, a main operating-valve for each ram, a pilot-ram controlled by the operator, a tensional connection from said pilot-ram to each main operating-valve and an auxiliary valve in the exhaust connection from said pilot-ram, also controlled by the operator and adapted to establish communication between the said last-mentioned valve and the exhaust when desired, substantially as described.

604,865. NECKTIE-FASTENER. HENRY W. BUEHLER, Brooklyn, N. Y. Filed June 16, 1897. Serial No. 640,977. (No model.)



Claim.—1. The herein-described means for connecting a necktie or bow with a collar-button, said means consisting of a device which is adapted to be connected with said button, and which consists of a plate the upper end of which is bent forwardly, downwardly and outwardly to form a loop, and the lower end of which is provided with a longitudinal slot, and a device connected with the back of said tie which is adapted to engage with said loop, substantially as shown and described.

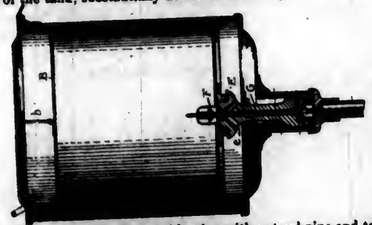
2. In a fastening device for securing a necktie or bow to a collar-button, a plate formed of spring metal, the upper end of which is bent forwardly, downwardly and upwardly to form a loop and the lower end of which is provided with a longitudinal slot forming spring-prongs which are adapted to engage the shank of a collar-button, substantially as and for the purpose set forth.

604,866. VAPOR-STOVE. HARRY C. CAMPBELL, Lost, Pa., assignor to the Standard Oil Company of New York, New York, N. Y. Filed Oct. 14, 1897. Serial No. 655,103. (No model.)

Claim.—1. In vapor-stoves, the combination with a stand-pipe and tank, of a cylinder connected with the stand-pipe and tank, a plunger provided with an upwardly-opening check-valve working in said cylinder and acting to withdraw the gasolene from the stand-pipe, means for holding said check-valve positively open in its lowered position, and a connection between said plunger and a part which is moved as a condition precedent to the filling of the tank, substantially as set forth.

2. In vapor-stoves, the combination with a stand-pipe and tank, of a cylinder connected with the stand-pipe and tank, a plunger pro-

vided with an upwardly-opening check-valve working in said cylinder and acting to withdraw the gasolene from the stand-pipe, a coupling at the lower end of said cylinder with which the stem of said check-valve engages whereby the check-valve will be maintained positively opened in its lowered position, and a connection between said plunger and a part which is moved as a condition precedent to the filling of the tank, substantially as set forth.



3. In vapor-stoves, the combination with a stand-pipe and tank, of a reservoir or can within the tank, a plunger connected to said reservoir or can and acting by its movement to withdraw the gasolene from the stand-pipe and carried by said interior reservoir, whereby the withdrawal of the reservoir from the tank will cause the plunger to withdraw gasolene from the stand-pipe and extinguish the flame at the burner, an upwardly-opening check-valve for opening a passage through the plunger when the parts are in the normal condition of rest, and means for holding said check-valve positively open in its lowered position, substantially as set forth.

4. In vapor-stoves, the combination with a stand-pipe and tank, of a cylinder between the stand-pipe and tank, a reservoir or can within the tank, a check-valve in the bottom of the reservoir, a plunger and check-valve carried by the interior reservoir and moving in said cylinder, and means for opening both check-valves when the reservoir is inserted in the tank, substantially as set forth.

5. In vapor-stoves, the combination with a stand-pipe and tank, of a cylinder between the stand-pipe and tank, a reservoir or can within the tank having a filling-plug with a check-valve, in its bottom, an extension from said filling-plug carrying a plunger and check-valve at its lower end working in said cylinder, and a valve-stem for opening both check-valves which strikes an obstruction at the lower end of said cylinder and opens the check-valves when the interior reservoir reaches its position of rest in the tank, substantially as set forth.

604,367. OVERSHOE. LUTE E. CAMPBELL, Arkansas City, Kans. Filed May 26, 1897. Serial No. 638,258. (No model.)

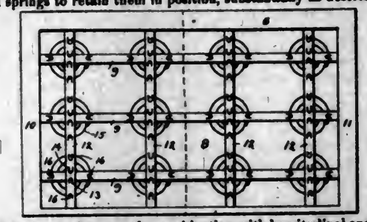


Claim.—An overshoe having a reinforcement extending continuously around the heel portion on the inner face thereof and forming a shoulder to engage the upper edge of the counter of a shoe, said reinforcement consisting of the connecting portion 7 and the convex enlargements 6, located at the terminals of the portion 7 and adapted to engage the shoe opposite the hollows in the foot of the wearer, between the heel and the ankle, said convex enlargements 6 being tapered from their centers to their outer ends and to the terminals of the portion 7 and gradually decreasing in thickness above the shoulder at their bottoms or lower edges to the upper edges of the overshoe, whereby the upper edges of the overshoe will fit closely to the inner shoe and exclude water and slush, substantially as described.

604,368. SPRING-SEAT. JAMES H. CLOYES, Chicago, Ill., assignor to the Staver Carriage Company, same place. Filed Dec. 27, 1897. Serial No. 663,443. (No model.)

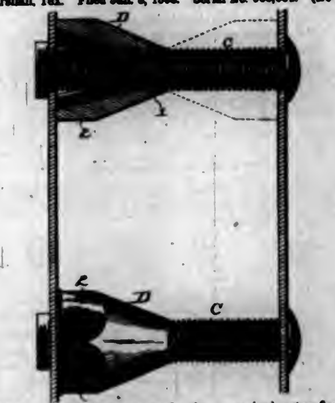
Claim.—1. In a spring-seat, the combination with longitudinal and transverse strips, of tongues projecting from one of said strips and overlapping the other to hold said strips together, and springs supported by said strips, substantially as described.

2. In a spring-seat, the combination with longitudinal and transverse strips, of tongues projecting from one of said strips and overlapping the other to hold said strips together, springs supported by said strips, and tongues projecting from said strips and overlapping said springs to retain them in position, substantially as described.



3. In a spring-seat, the combination with longitudinal and transverse strips, of tongues projecting from one of said strips and overlapping the other to hold said strips together, notches in the overlapped strips, which receive said tongues, and springs supported by said strips, substantially as described.

604,369. PROTECTOR FOR STAY-BOLTS. PEARCE J. COBB, Marshall, Tex. Filed Jan. 8, 1898. Serial No. 666,061. (No model.)

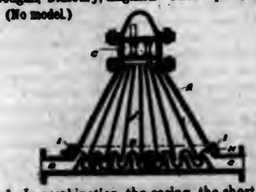


Claim.—1. A bolt-protector having a conical outer face, a conical inner face, a screw-threaded opening communicating at one end with the conical interior of the protector and terminating at the other end coincident with the end of the conical outer face, the larger end of the protector being adapted to bear against a boiler-plate and having flat peripheral faces to receive a wrench, substantially as set forth.

2. The combination with two shells of a boiler, of screw-threaded bolts connecting said shells, and conical protectors on said bolts, one end of each protector bearing against the inner face of the outer shell and the other end of said protector terminating intermediate of the end of the bolt on which it is screwed, substantially as set forth.

3. The combination with the shell of a fire-chamber and an outer shell with an intervening water-space between said shells, of bolts passing through said shells and the water-space, each bolt having a screw-threaded portion, a conical protector adapted to screw at its smaller end on each bolt so as to terminate between the ends of said bolt and each protector being adapted to bear tightly against the inner face of the outer shell, substantially as set forth.

604,870. OIL-EXTRACTOR AND FEED-WATER PURIFIER AND HEATER. ARTHUR COLLIER, Goole, England, assignor to Isaac Shimwell McDougall, Didsbury, England. Filed Apr. 1, 1896. Serial No. 676,111. (No model.)

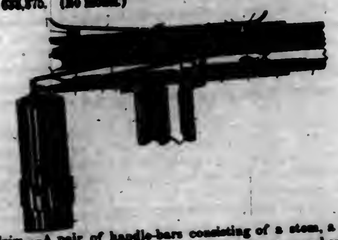


Claim.—1. In combination the casing, the short partitions, the long partitions providing a circuitous passage for the water, and a heating-pipe in the casing and in the path of the water, substantially as described.

2. In combination, the casing, the series of short partitions extending up from the bottom thereof, a series of long partitions converging upwardly, said casing having a collecting-chamber for the oil and grease at its upper part, and the heating-pipe at the lower part of the casing, substantially as described.

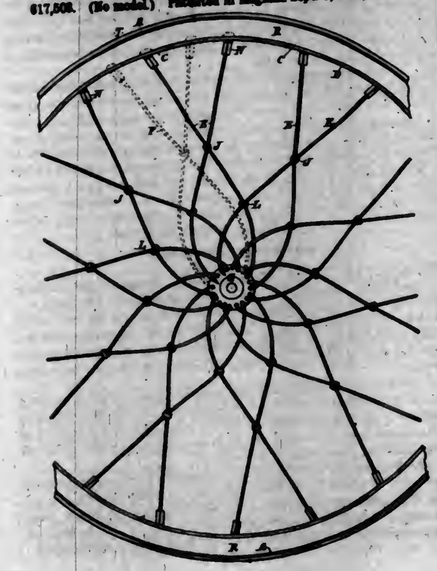
3. In combination, the casing having the short partitions extending up therefrom, the longer partitions extending up in line with the spaces between the short partitions, the heater-pipe, the said casing having discharge-openings in its bottom for the sediment and the perforated grating L with means for adjusting the same to open or close the said discharge-openings, substantially as described.

604,871. COLLAPSIBLE AND ADJUSTABLE BICYCLE-HANDLE. WILLIAM H. COOK, Ironwood, Mich. Filed June 1, 1897. Serial No. 638,575. (No model.)



Claim.—A pair of handle-bars consisting of a stem, a tubular head secured at its center to the upper end of the stem and extending at right angles thereto, teeth formed at the ends of the head, a double-ended spring secured near the center of the head, lugs secured at each end of the spring and projecting through openings in the head to the interior thereof, the portion of the spring beyond the lugs being turned up to form finger-holds, two handle-bars having their inner ends adapted to fit in the head, each of said handles having a number of openings formed thereabout in that portion fitting within the head, registering with the opening through which the lug projects crown-rings secured on each handle-bar a suitable distance from its inner end, said ring being notched to form teeth to intermesh with the teeth formed at the ends of the head, a loop formed with and extending across the end of each handle-bar and a link connecting the loops, as and for the purpose described.

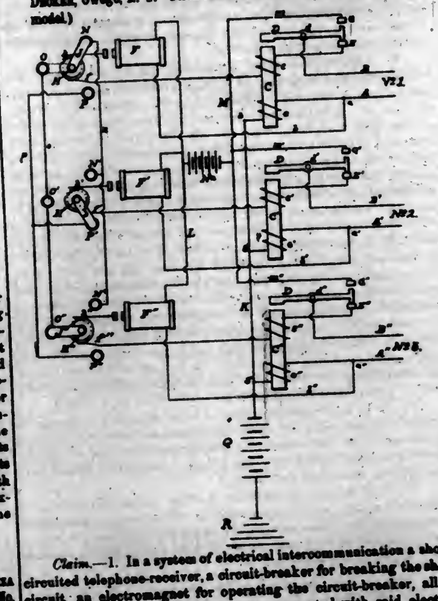
604,872. VEHICLE-WHEEL. WILLIAM G. CROMLEY and ELIZA A. CROMLEY, Auckland, New Zealand. Filed Dec. 30, 1896. Serial No. 617,503. (No model.) Patented in England Sept. 3, 1896, No. 19,660.



Claim.—1 In combination the rim, the convolute spring B, the waved spoke-rings C, D, arranged side by side with their waves alternating and filling in the waves of the spring B, and the spokes connected with the spoke-rings, substantially as described.

2. In a metallic wheel for cycles, and for other purposes, the combination with a series of twin spokes as hereinbefore described, of a rim consisting of an outer rim A, fluted or corrugated circumferentially, a fluted convoluted spring B, and two waved spoke-rings C and D, constructed, arranged, and held together as hereinbefore described, and set forth.

604,873. AUTOMATIC TELEPHONE-EXCHANGE. WARD DENKER, Owego, N. Y. Filed Mar. 26, 1895. Serial No. 543,122. (No model.)



Claim.—1. In a system of electrical intercommunication a short-circuited telephone-receiver, a circuit-breaker for breaking the short circuit, an electromagnet for operating the circuit-breaker, all in combination with a calling-generator connected with said electromagnet, whereby the short circuit is broken on operating the calling-generator.

2. In a system of electrical intercommunication, the combination of a calling-generator, a short-circuited telephone-receiver, a polarized electromagnet in circuit with the calling-generator for the purpose of breaking the short circuit on operating the generator.

3. In an automatic telephone or other electrical exchange, the combination of a calling-generator, a telephone-receiver, a short circuit around the latter adapted to be opened and closed by the armature of a polarized electromagnet in circuit with, and operated by, the calling-generator.

4. In an automatic telephone or other electrical exchange an armature free to move between two points, a polarized electromagnet on one side of said armature normally holding it against one point, means for releasing the armature from the influence of the electromagnet, all in combination with a permanent magnet on the other side of said armature of such strength as to draw the armature against the other point and hold it there despite further action of the electromagnet.

5. In a system of electrical intercommunication a short-circuited telephone-receiver, an electromagnet in circuit with the calling-generator for breaking the short circuit on operating the generator, all in combination with a switch for throwing the electromagnet out of circuit when the latter circuit is used for telephonic purposes.

6. In an automatic telephone or other electrical exchange, a short-circuited telephone-receiver, a polarized electromagnet for breaking the short circuit, a switch for throwing the polarized electromagnet out of the telephone-circuit and means for automatically restoring the short circuit.

7. In an automatic telephone or other electrical exchange system differential magnets included in but inoperative over a metallic circuit, an electromagnetic switching device for connecting said metallic circuit with other circuits, means for operating said differential

magnets over one side of the metallic circuit and suitable return, a switch controlled by the differential magnets and adapted to bring the electromagnetic switching device into the metallic circuit, all in combination with suitable means for operating the last-named switching device over the metallic circuit.

8. In an automatic telephone or other electrical exchange system, a metallic circuit with one side grounded, a switch-operating magnet in the metallic circuit and a switch-operating magnet in the grounded circuit for throwing the aforesaid magnet into action.

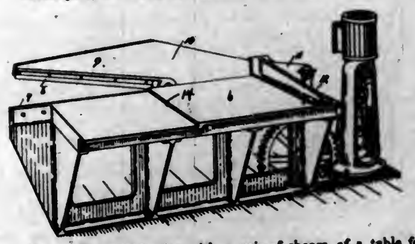
9. In an automatic telephone or other electrical exchange system comprising metallic circuits converging at a central station and one side of each metallic circuit permanently connected together and to a common ground or return at said central station, electromagnets adapted to be operated over one side of the metallic circuit to bring into the metallic circuit a second set of electromagnets, operating the last-named magnets over the metallic circuit to connect the free side of said metallic circuit with the free side or sides of other metallic circuits, substantially as described.

10. A system of electrical intercommunication consisting of metallic circuits extending from substations to a central station; one side of each metallic circuit being connected at the central station through one half of a differential electromagnet to the corresponding side of all the other metallic circuits and also through a battery or other source of electricity to a return-circuit; the other side of each metallic circuit at the central station being connected through a circuit-breaker operated by said differential electromagnet, and through the remaining half of said differential electromagnet and terminating in a switch; mechanism at the respective substations and central station whereby a current may be sent over one side of a metallic circuit and half of the differential magnet, thereby operating the circuit-breaker and breaking the circuit on the other side and at the same time bringing into the metallic circuit another electromagnet together with a battery or other source of electricity, whereby, by means of the second electromagnet and currents sent over the metallic circuit the said metallic circuit may, by the switch before mentioned be placed in electrical connection with one or more other metallic circuits, and by breaking the circuit of the first-named current restore the other side of the differential magnet to the metallic circuit and remove the switching-magnet.

11. In an automatic telephone or other electrical exchange, a transmitting instrument for operating the central-station switchboard consisting of the combination of a backward-and-forward moving intermittent circuit-breaker 31, the trigger 7, arm 6 and pin 49 substantially as shown and described.

12. In an automatic telephone or other electrical exchange, a transmitting instrument for operating the central-station switchboard consisting of the rotary axle 48, the plates 8 and 5, arm 6, trigger 7 and contact 11 all in combination with the stops 12 and 13 substantially as shown and described.

604,874. DOUBLING-SHEARS. FRANK DOWNER, Anderson, Ind. Filed Sept. 3, 1897. Serial No. 650,623. (No model.)



Claim.—The combination with a pair of shears, of a table for supporting the material to be sheared, the said table having one end thereof in a plane lower than the other thus forming a shoulder against which the material to be sheared may be held and presented to the shears.

604,875. WRENCH. JAMES K. DOWNER, Valley River, Canada. Filed Aug. 10, 1897. Serial No. 647,763. (No model.)



Claim.—1. In a monkey-wrench, the combination of the flat hollow handle A, having the jaw B, and inwardly-projecting lug C, with the aperture D, in it; the jaw I, having the flat rack-bar G, adapted to slide guidingly in said handle, the worm-screw F, placed in the aperture D, and engaging the rack-bar G, the screw E, inserted from the front of the lug C, and serving as a journal for the worm-screw to revolve upon, substantially as and for the purpose set forth.

2. In a monkey-wrench, the combination of a flat hollow handle A, having the jaw B, and inwardly-projecting lug C, with the aperture D, in it; the jaw I, having the flat rack-bar G, adapted to slide guidingly in said handle, the worm-screw F, placed in the aperture D, and engaging the rack-bar G, the screw E, inserted from the front of the lug C, and serving as a journal for the worm-screw to revolve upon, said rack-bar having a solid portion on its rear end to prevent it from being accidentally extracted from the handle, substantially as and for the purpose set forth.

3. In a monkey-wrench, the combination of the flat hollow handle A, having the jaw B, and inwardly-projecting lug C, with the aperture D, in it; the jaw I, having the flat rack-bar G, adapted to slide guidingly in said handle, the worm-screw F, placed in the aperture D, and engaging the rack-bar F, the screw E, inserted from the front of the lug C, and serving as a journal for the worm-screw to revolve upon, said rack-bar being guided between the lug C, and the opposite narrow wall of the handle, substantially as and for the purpose set forth.

4. In a monkey-wrench, the combination of the flat hollow handle A, having the jaw B, and inwardly-projecting lug C, with the aperture D, in it; the jaw I, having the flat rack-bar G, adapted to slide guidingly in said handle, the worm-screw F, placed in the aperture D, and engaging the rack-bar F, the screw E, inserted from the front of the lug C, and serving as a journal for the worm-screw to revolve upon, said rack-bar being guided between the lug C, and the opposite narrow wall of the handle, and its rear end widened beyond the rack-bar so as to guide snugly between the narrow walls of the handle and to stop against the rear shoulder of the lug C, substantially as and for the purpose set forth.

5. In a monkey-wrench, the combination of the hollow flat handle A, having the jaw B, and inwardly-projecting lug C, with the aperture D, in it; the worm-screw F, placed in the aperture D, the screw E, inserted in the lug C, and serving as a journal for the worm-screw, the flat rack-bar G, adapted to be inserted through the rear end of the handle and engage with its teeth the worm-screw and having the combined guide and stop M, on its rear end, and the jaw I, secured upon its front end, and the strip L, closing the rear end of the handle substantially as and for the purpose set forth.

6. In a monkey-wrench, the combination of the hollow flat handle A, having the jaw B, and inwardly-projecting lug C, with the aperture D, in it; the worm-screw F, placed in the aperture D, the screw E, inserted in the lug C, and serving as a journal for the worm-screw, the flat rack-bar G, adapted to be inserted through the rear end of the handle and engage with its teeth the worm-screw and having the combined guide and stop M, on its rear end, and the jaw I, secured upon its front end, and the strip L, closing the rear end of the handle, all external corners of the wrench being rounded off, substantially as and for the purpose set forth.

7. In a monkey-wrench, the combination of the hollow flat handle A, having the jaw B, and inwardly-projecting lug C, with the aperture D, in it; the worm-screw F, placed in the aperture D, the screw E, inserted in the lug C, and serving as a journal for the worm-screw, the flat rack-bar G, adapted to be inserted through the rear end of the handle and engage with its teeth the worm-screw and having the combined guide and stop M, on its rear end, and the jaw I, secured upon its front end, and the strip L, closing the rear end of the handle all working and wearing parts of said wrench being made out of steel, substantially as and for the purpose set forth.

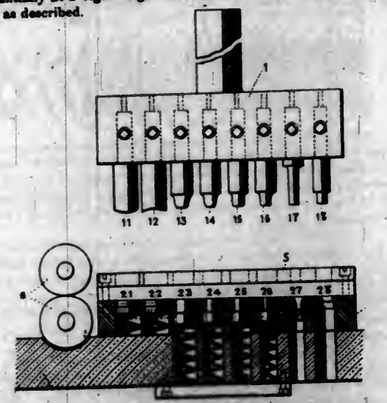
604,876. METAL-WORKING TOOL. FREDERICK ROSS, Bridgeport, Conn. Filed July 17, 1897. Serial No. 644,966. (No model.)

Claim.—1. In a reciprocating tool for simultaneously performing a series of operations on a strip of metal or the like, means, substantially as described, for incising the metal so as to partially detach from the strip a portion of metal larger than the base of the finished article.

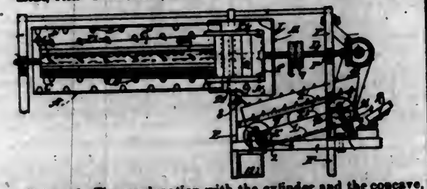
2. In a tool for simultaneously performing a series of operations on a strip of metal or the like a reciprocating cutting-die adapted to produce a plurality of incisions in the metal whereby a portion of metal larger than the base of the finished article is partially detached from the strip, substantially as described.

3. In a tool for simultaneously performing a series of operations on a strip of metal or the like a plurality of reciprocating cutting-dies each adapted to produce an incision, one or more, in the metal whereby a portion of metal larger than the base of the finished article is partially detached from the strip, substantially as described.

4. In a tool for simultaneously performing a series of operations on a strip of metal or the like two reciprocating cutting-dies each adapted to produce a pair of opposite curved incisions in the metal the chords of the curves of the second pair of said incisions being substantially at a right angle with those of the first pair, substantially as described.



604,877. PEA-SHELLING MACHINE. JOHN H. RHYNER, Longmont, Colo. Filed Feb. 4, 1897. Serial No. 621,978. (No model.)

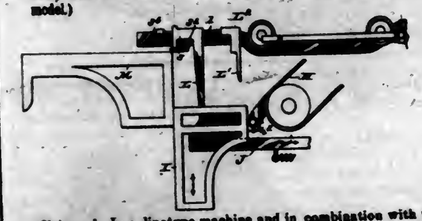


Claim.—1. The combination with the cylinder and the concave, of a beater comprising a short piece of right-angled angle-iron having a rubber thimble secured to its vertically-disposed limb, channel-shaped washers secured to the threshing-cylinder or to the concave adapted for the said beaters to rest on, a hole through the center of said washer and a like hole on each side of it, a hole through the central portion of the opposite limb of said angle-iron beater and a concentric slot on each side of it arranged to register with the holes in said channel-shaped washer, and bolts, having their heads confined in the channel of said washer and projecting through the holes of said washer through the slots of said angle-iron whereby the said beater may be secured to said washer and adjusted on it at various angles to said washer and to the longitudinal axis of said threshing-cylinder, substantially as described.

2. The combination with the cylinder and the concave, of two crank-shafts having a plurality of oppositely-disposed cranks, troughs having a centrally-depending rib pivoted at each end to each similar disposed crank of each shaft and inclined upward away from said cylinder and positioned with their lower ends below and opposite the discharge-outlet of said cylinder and concave, and having their lower ends open and their upper ends closed, a plurality of right-angular-shaped strips secured transversely across the top of each trough at a space apart sufficient to allow the peas in the vines to drop between them into said trough, and positioned with one of the sides of the right angle toward the highest end of said troughs, with a bevel-gear on the end of said driving-shaft, a shaft journaled transversely to said driving shaft, a bevel-gear thereon meshing with said first-named bevel-gear, suitable belt and pulley connections between said transverse shaft and one of said crank-shafts, and between the said crank-shafts, whereby they are caused to rotate with their cranks moving in unison and a portion of said troughs are thereby carried uniformly upward and the remainder uniformly downward in alternate order, substantially as described.

3. The combination with the cylinder and the concave, of a right-angle-shaped beater having a rubber-covered beating end, a bolt-hole through the center of its opposite end and a slot on each side of said hole and concentric to it, with a foundation-washer for said beater consisting of a channel-shaped member having its ends turned outward at approximately right angles to its sides and curved to fit and rest on the surface of said cylinder at an angle to its longitudinal axis, a centrally-arranged bolt-hole through its top registering with the center hole of said beaters, and similar bolt-holes on each side of said center bolt-hole registering with the slots in said beater and bolts adapted to said holes and slots, whereby said beater may be adjustably secured at any desired angle relative to said cylinder's axis on said washer, substantially as described.

604,878. LINOTYPE-MACHINE. LOUIS PFAHLER and EDWARD W. REYNOLDS, Brooklyn, N. Y., assignors to the Mergenthaler Linotype Company, of New Jersey. Filed Mar. 6, 1896. Serial No. 581,891. (No model.)

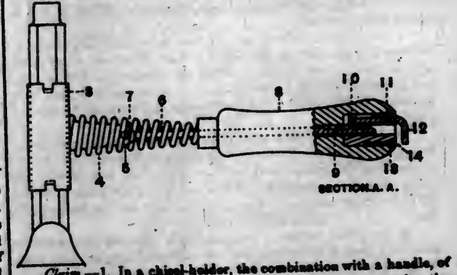


Claim.—1. In a linotype-machine and in combination with the assembling-elevator I, the sliding transfer-carriage provided with a rigid arm L', and the longer yielding arm L.

2. In a linotype-machine in combination with the assembling-elevator and the assembling-slide J, the transfer-carriage L^2 provided with a depending arm L', the sliding arm L, the spring acting on the arm L and an adjustable collar or support for said spring.

3. As an improvement in linotype-machines, a transfer-carriage L^2, provided with an arm or bar *l* and depending arm L', the sliding arm L, the spring *s*, collar s^3, and latch s^5.

604,879. CHISEL-HOLDER. JOHN J. FLYNN, Warren, Minn. Filed Oct. 12, 1897. Serial No. 654,962. (No model.)



Claim.—1. In a chisel-holder, the combination with a handle, of a rod extending from one end of the handle, means for securing the rod, a pair of jaws provided with tapering extensions movably connected to the extremity of the rod, and a spiral spring encircling the jaw extensions and the rod intermediate of the jaws and handle, substantially as specified.

2. In a chisel-holder, the combination with a handle, of a longitudinally-movable rod carried thereby, means for securing the rod, a pair of jaws provided with tapering extensions connected to the extremity of the rod, and a spring intermediate of the handle and jaws and encircling the tapering extension and the rod, substantially as specified.

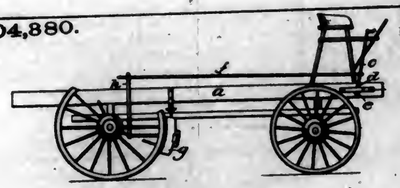
3. In a chisel-holder, the combination with a handle, of a longitudinally-movable rod carried thereby, a latch extending from the rear end of the handle and in operative relation to the rod, a pair of jaws provided with conical extensions connected to one extremity of the rod, and a tapering spring intermediate of the handle and jaws and encircling the tapering extensions and the rod, substantially as specified.

4. The combination of the jaws 3 provided with the tapering connections 5, the spring 4, the rod 6, provided with the notched portion 9, the bushing 14 and the spring-latch 10, substantially as shown.

604,880. WAGON-BRAKE. DUANE A. FOSTER, Santa Rosa, Cal. Filed Oct. 31, 1896. Serial No. 610,778. (No model.)

Claim.—A fulcrum-bar for wagon-brakes provided with two or more notches in combination a brake-lever having a tooth for engagement with the notches and capable of being shifted from one notch to another in the manner described.

604,880.



604,881. WITHDRAWN.

604,882. LAST. EDWIN L. GODING, Portland, Me. Filed Mar. 22, 1895. Serial No. 542,743. (No model.)



Claim.—1. A divided last consisting of a fore part, a heel, and an intermediate section, the lateral surfaces of which are unsymmetrical with said fore part and heel when the several parts are placed adjacent to each other, substantially as and for the purposes set forth.

2. A divided last consisting of a fore part, a heel, and an intermediate section hinged to said heel, the lateral surfaces of said intermediate section being unsymmetrical with said fore part and heel when the several parts are placed adjacent to each other, substantially as and for the purposes set forth.

3. A divided last consisting of a fore part, a heel and an unsymmetrical intermediate section hinged to said heel, the top of said intermediate section being inclined downwardly toward the heel to permit said heel to be turned on said hinge, substantially as and for the purposes set forth.

4. As a new article of manufacture, a last-heel formed in two sections hinged together, the adjacent faces being cut away at the top, the forward section varying from the symmetrical outline of the last by being reduced in size to adapt it to be used with fore parts of lasts of different styles and sizes, substantially as and for the purposes set forth.

5. As a new article of manufacture, a universal last-heel divided at a point at or near the instep and having its forward end reduced in size from the symmetrical outlines of the last, said forward end being adapted to engage the upright end of the fore parts of lasts of different styles and sizes, substantially as and for the purposes set forth.

6. As a new article of manufacture a last-heel adapted to be used with lasts of different styles and sizes consisting of two parts, a heel proper and a brace hinged thereto and adapted to engage the rear end of the fore part of the last when these said parts are inserted in a shoe the size of said brace being in cross-section smaller than the adjacent edge of the fore part of the last, substantially as and for the purposes set forth.

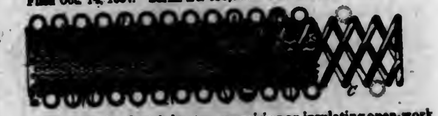
604,883. LAST. EDWIN L. GODING, Portland, Me. Filed Aug. 14, 1896. Serial No. 602,708. (No model.)



Claim.—1. As a new article of manufacture a fore part of a last provided with a vertical socket in its rear wall and a transverse bar set in said fore part and extending across said socket, in combination with a heel part provided with a projecting connecting-plate, said plate being adapted to project into the socket in the fore part and adapted to removably engage and pivot on said bar, substantially as and for the purposes set forth.

2. In a last, the combination with a fore part provided with a vertical socket in its rear wall and a transverse bar set in said fore part and extending across said socket, of a heel part provided with a connecting-plate having a hook on the end adapted to engage the bar in the fore part and swing thereon and a spring adapted to serve as a closure for said hook, substantially as and for the purposes set forth.

604,884. ELECTRIC HEATER. EDWARD R. GOLD, New York, N. Y. Filed Oct. 14, 1897. Serial No. 655,176. (No model.)



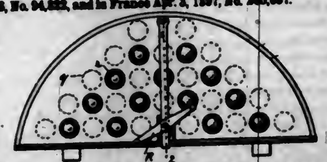
Claim.—1. An electric heater comprising an insulating open-work support consisting of a thin foraminous tube, and a helix of resistant wire wound helically around said support, whereby air may circulate between the meshes of said helix and through the openings into and out of the interior of said support and into contact with all portions of the heated resistance wire.

2. An electric heater comprising an insulating open-work support of thin foraminous metal in the general form of a hollow cylinder, coated with insulating-enamel, and a helix of resistant wire wound helically around said support, whereby air may circulate between the meshes of said helix and through the openings into and out of the interior of said support and into contact with all portions of the heated resistance wire.

3. An electric heater comprising a hollow open-work support in the general form of a hollow cylinder, having projections winding helically around it, and a helix of resistant wire wound helically around said support parallel with and between said projections, whereby said projections serve to separate the successive windings of resistant wire, and the openings in said support permit circulation of air into and out of the interior thereof and into contact with all portions of the helix.

4. An electric heater comprising an insulating open-work support consisting of a thin foraminous tube, an enameled wire wound helically around said support, and a helix of resistant wire wound helically around said support in the spaces between the parallel convolutions of said enameled wire, whereby the resistant wire is supported by said support and its parallel windings are separated by said enameled wire.

604,885. DEVICE FOR ADMITTING AIR TO FURNACES. RICHARD GOLL, Frankfort-on-the-Main, Germany. Filed Dec. 20, 1897. Serial No. 664,358. (No model.) Patented in Switzerland Nov. 20, 1896, No. 17,136; in Hungary Dec. 2, 1896, No. 17,623; in Germany Dec. 24, 1896, No. 94,822, and in France Apr. 3, 1897, No. 265,637.



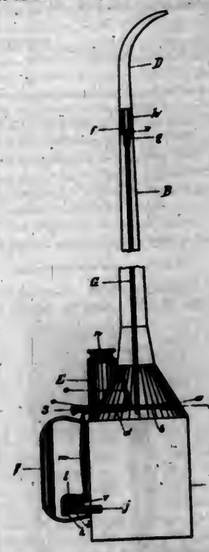
Claim.—1. In a device for regulating the admission of air and the like, the combination of two perforated plates, one of which plates is movable toward and from the other plate, a boss projecting from the surface of one plate, placed opposite the opening in the other plate, and decreasing in thickness toward the opening.

2. In a device for regulating admission of air and the like, the combination of two plates having series of openings, and bosses on one plate opposite openings in the other plate, said bosses projecting from the normal surface of their plate.

3. The combination of two plates one having openings, and bosses projecting from the surface of the plate, the other plate being perforated opposite the bosses, one plate being movable toward and from the other plate.

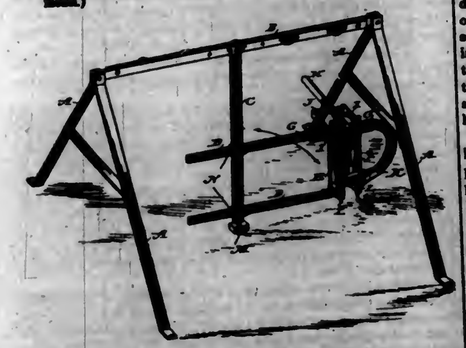
604,886. OIL-CAN. WESLEY R. GOODWIN, Indianapolis, Ind. Filed Mar. 26, 1896. Renewed Apr. 3, 1897. Serial No. 630,690. (No model.)

Claim.—1. The combination in a hand oil-can, having a threaded collar *f*, within the upper end of its spout B, and a like-threaded nipple A, having a valve-seat *o* on the end thereof entering the interior of the collar *f*, of the oil-outlet-regulating mechanism, consisting of the crank-shaft *b*, the socket-bearing *c*, the open bearing *d'*, the packing-ring *d*, on the end of the bearing *d'*, the thumb-lever *e*, the coil-spring *e*, and the valve-rod G, having the valve-point *g*, with the air-inlet mechanism located within the handle F, consisting of the tube *i*, having an air-opening *j*, said opening normally closed by a rubber valve *k*, said valve attached to the lever *l*, pivotally mounted on the tube *i*, and normally held against the opening *j* by means of a U-spring *v*, resting between the tube *i*, and lever *l*, and a rod *m*, secured to the lever *l*, and extending upwardly and terminating at a point just below the thumb-lever *e*, all as set forth.



2. In a hand oil-can of the class described, having a detachable nozzle, an oil-outlet valve, a crank-shaft journaled within the can, the inner end within a socket-bearing, and the projecting end within a tube-like bearing, having a packing-ring at its outer end, said crank-shaft provided with a thumb-lever at its outer end, a valve-rod actuated by the crank-shaft, a coil spring secured to the can and to the crank-shaft, for the purpose of normally lifting the cranked portion of the crank-shaft, the combination of an air-inlet tube *i*, located near the lower part of the can within the handle F, having the opening *j*, which is normally closed by a rubber valve *k*, attached to the pivoted lever *l*, on the tube *i*, said closure being effected by the U-spring *v*, placed between the tube *i* and the upper end of the lever *l*, said lever *l*, pivotally attached to a rod *m*, extending upwardly and terminating just below the thumb-lever *e*, on the crank-shaft *b*, as shown and described.

604,887. GROUT WATER-TANK MACHINE. FRANK R. GREGORY, Victor, Mich. Filed Mar. 31, 1896. Serial No. 584,857. (No model.)



Claim.—A machine for forming grout tanks having the combination of standards A, adjustable cross-beam B, vertical shaft C having its upper end journaled therein and its lower end supported, horizontal arms D secured to the shaft C, shapers E and F secured at their lower ends to the free ends of the arms D and their upper ends adjustably controlled substantially as described.

604,888. SHIPPING BOX OR CRATE. EDGAR H. HAMILTON, Berlin, Conn. Filed Nov. 16, 1897. Serial No. 658,755. (No model.)



Claim.—1. A packing-box having vertical slots formed in its sides, horizontal slots leading therefrom and notches formed in the horizontal slots, partitions adapted to pass through the vertical slots, said partitions having tenons thereon for fitting in the notches, as and for the purpose set forth.

2. In combination, a box having vertical slots, horizontal slots leading therefrom and notches formed in said horizontal slots, partitions adapted to pass through the vertical slots, and tenons formed upon the partitions adapted to fit within said notches whereby the partitions will be held in various positions, as specified.

3. In combination, a box having its sides formed with vertical slots therein and horizontal slots leading from the first named, partitions adapted to pass through the vertical slots, tenons formed on the ends of said partitions adapted to fit within notches formed in the horizontal slots, said partitions being slotted and notched similarly to the sides, and cross-partitions having tenons similar to the first named to fit in the slots thereof, as and for the purpose described.

4. In a box having vertical slots formed in the sides thereof and horizontal slots leading therefrom, partitions adapted to be passed through the vertical slots, tenons on the ends of the partitions adapted to slide within the horizontal slots, and means for holding the partitions rigidly in position, substantially as described.

604,889. ADJUSTABLE HANDLE-BAR. JOHN L. HAMILTON, Jr., Hoopeston, Ill. Filed Nov. 19, 1896. Serial No. 612,760½. (No model.)

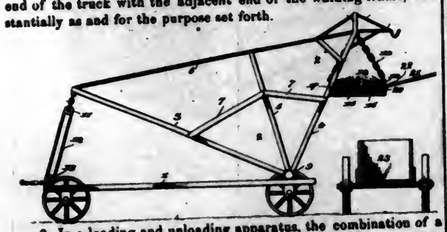


Claim.—1. In an adjustable handle-bar for bicycles or velocipedes, a handle-bar having a plurality of depressions or indentations for a portion of its length, a steering-post having a hollow cylindrical top portion, said cylindrical top portion being provided with one or more slots or openings, engaging devices adapted to ride in said slots or openings, an eccentric sleeve carried by and surrounding the cylindrical top portion of the steering-post and adapted, in the operation of adjustment of the said handle-bar, to force and bind the said engaging devices into the depressions or indentations in the said handle-bar, thereby locking and securely fastening the said handle-bar in the desired position of adjustment.

2. In an adjustable handle-bar for bicycles or velocipedes, a handle-bar having a plurality of depressions or indentations for a portion of its length, a steering-post having a hollow cylindrical top portion, one or more slots or openings, located in said cylindrical top portion, keys or pins riding in said slots or openings, a cylindrical sleeve carried by and surrounding the said cylindrical top portion of the steering-post, said cylindrical sleeve having one or more depressions, indentations, grooves or flutes located within its inner periphery, said depressions, indentations, grooves or flutes being capable of adjustment coincident with the position of the said keys or pins located within the said slots or openings in the cylindrical top portion of the steering-post, thereby supplying means for the proper displacement of the said keys or pins during the process of adjusting the handle-bar in the desired position.

604,890. LOADING OR UNLOADING MACHINE. JOSEPH I. HANSEN, Moville, Iowa. Filed Mar. 20, 1897. Serial No. 628,514. (No model.)

Claim.—1. In a loading and unloading apparatus, the combination of a trick, a walking-frame mounted upon one end of the truck and comprising similar side pieces which are connected together, each side piece comprising diverging beams and an intermediate brace, a tie-rod and braces connecting the diverging beams with the intermediate brace, and a block and tackle connecting the opposite end of the truck with the adjacent end of the walking-frame, substantially as and for the purpose set forth.

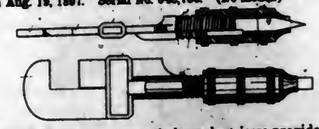


2. In a loading and unloading apparatus, the combination of a walking-frame, actuating mechanism therefor, hooked arms projecting from an end of the walking-frame, and struts and truss-braces for strengthening the hooked extremities of the said arms, substantially as set forth for the purpose described.

3. In a loading and unloading apparatus, the combination with the hoisting mechanism, of a box for receiving the load, suspending means applied to the sides of the box, means for pivotally connecting the bottom of the box with a side, and detachable connections for uniting the opposite end of the bottom with the other side, substantially as set forth.

4. In a loading and unloading apparatus, the combination with the hoisting mechanism, of a box, slip connections between a side and the bottom of the box, and a lever having connection with the bottom and side for relatively moving them laterally so as to slip the said connections, whereby the bottom is released, substantially as and for the purpose set forth.

604,891. WRENCH. HENRY J. HANCOCK, New York, N. Y. Filed Aug. 19, 1897. Serial No. 648,780. (No model.)



Claim.—1. In a wrench, two independent jaws provided respectively with a screw-threaded shank, the threads on each shank being turned in the opposite direction to the other, and a revolubie cylinder adapted in coöperation with said shanks to reciprocate the jaws of the wrench in opposite directions simultaneously, substantially as described.

2. In a wrench, two independent jaws provided respectively with a screw-threaded shank, the threads on each shank being turned in the opposite direction to the other, and means in conjunction with said threads whereby the said jaws are simultaneously reciprocated in opposite directions, substantially as described.

3. In a wrench, an upper and a lower jaw provided respectively with a screw-threaded shank, the thread on each shank being turned in the opposite direction to the other, means in conjunction with said threads whereby said jaws are simultaneously reciprocated in opposite directions and means whereby the extent of such reciprocation is limited, substantially as described.

4. In a wrench, an upper and a lower jaw provided respectively with a screw threaded shank, the thread on each shank being turned in the opposite direction to the other, means in conjunction with said threads whereby said jaws are simultaneously reciprocated in opposite directions, and a check-screw secured to one of said shanks whereby the extent of such reciprocation is limited, substantially as described.

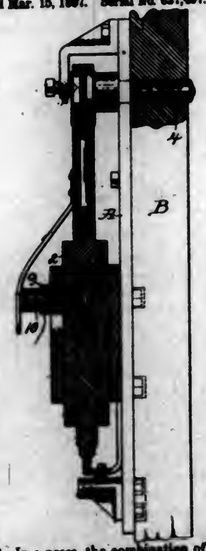
5. In a wrench, the combination with independent movable jaws provided respectively with a shank, having a screw-thread thereon and a bearing-surface adapted to abut against a corresponding bearing-surface of the other whereby longitudinal oscillation of the jaws is prevented, of means in conjunction with said screw-thread whereby said jaws are reciprocated, said threads being turned in opposite directions whereby said jaws will be reciprocated simultaneously in opposite directions, substantially as described.

6. In a wrench, two independent jaws provided respectively with a screw-threaded shank, the threads on each shank being turned in the opposite direction to the other, a revolubie cylinder, interior screw-threads thereon whereby in coöperation with the screw-threads on said shanks, said jaws are simultaneously reciprocated in opposite directions, and a screw-driver attached to one of said shanks and adapted to be drawn within said cylinders, substantially as described.

7. In a wrench, two independent jaws provided respectively with a screw-threaded shank, the screw-threads on each shank being turned in the opposite direction to the other, said shanks being provided with abutting bearing-surfaces whereby longitudinal oscillation of said jaws is prevented, and a revolubie cylinder having right and left screw-threads on the interior thereof whereby said jaws are simultaneously reciprocated in opposite directions, substantially as described.

8. In a wrench, an upper and a lower jaw provided respectively with a screw-threaded shank, the screw-threads on said shank being turned in opposite directions said shanks being provided respectively with a bearing-surface adapted to abut against a corresponding bearing-surface of the other, a cross bar having a guide-groove therein whereby said jaws are maintained in the proper relative position, and an interiorly-screw-threaded, revolubie cylinder, the threads therein being turned in opposite directions whereby said jaws are simultaneously reciprocated in opposite directions, substantially as described.

604,892. PUNCHING-PRESS. WILLIAM O. HOSABOOM, Everett, Mass. Filed Mar. 15, 1897. Serial No. 627,497. (No model.)



Claim.—1. In a press, the combination of a reciprocating plunger having a longitudinal bore, of means for retaining the punch in said bore, of a pin, and of a spring which normally holds said pin from projecting into said bore, said pin being adapted to be thrust between the upper end wall of said bore and the upper end of the punch.

2. In a press, the combination of a reciprocating punch, of a die-block, of an adjustable stripper, and of a gage carried by said stripper and adjustable thereon.

3. In a press, the combination of a back plate, of a stripper having vertically-slotted vertical arms, said stripper having its horizontal portion transversely slotted, of a plate, and of screws passing through said transverse slots, and securing said plate adjustably to said stripper.

4. In a press the combination of a back plate; of a block projecting therefrom, said block having a central bore and a slotted face; of a plunger made to reciprocate in said bore, said plunger carrying the pin which projects through the slot in the face of said block; of a punch carried by the plunger, said punch being thrown into operation by means of said pin

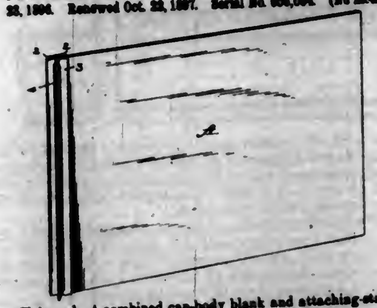
5. In a press the combination of a back plate; of a centrally-bored block projecting therefrom having a slotted face; of a reciprocating plunger provided with a punch; of a spring-pressed pin carried by the plunger and projecting through the slotted face of the block; and of a keeper to limit the outward movement of the pin.

604,893. DEVICE FOR ADMINISTERING MEDICINES. CHAS. C. HOOKER, Richmond, Ky. Filed Apr. 30, 1897. Serial No. 634,659. (No model.)

Claim.—The combination with the open-ended box, the hinged bottom, and the hollow handle, having a circular flange at the upper end, of the cup open at the lower end and top, the plunger secured thereto and formed with a ring at the upper end, substantially as described.



604,894. COMBINED BODY-BLANK AND CONNECTING-STRIP FOR PACKING-CANS. HENRY G. HUNTER, Alameda, Cal. Filed Jan. 23, 1896. Renewed Oct. 23, 1897. Serial No. 656,064. (No model.)



Claim.—1. A combined can-body blank and attaching-strip, the said strip having flanges clamped on one edge of the blank, and two flanges open to receive the other edge, substantially as described.

2. A body-blank for cans, comprising the sheet of material and an attaching-strip secured permanently to one edge thereof, said strip having the double flanges 2, 2, in the same plane, the flange 3 clamping the strip between itself and one double flange 2 and the flange 4 extending at an angle to the second double flange 2 to receive the free edge of the sheet when the same is bent to the form of the can-body.

604,895. CAR-FENDER. LYTLE J. HUNTER, Covington, Ky. Filed Mar. 19, 1896. Serial No. 584,013. (No model.)



Claim.—1. A car-front shield, made in elastic sections, separable, and capable of ready connection at their junction, and when in use, bent into a curved form and connected by a connection forming a chord of a circle, substantially as and for the purpose specified.

2. The shield made in two half-sections, capable of ready union and separation, the shield being connected above for oscillation, and having its lower outer ends connected by the chain, hooked to one of the sections and holding the same together below, substantially as and for the purposes specified.

3. A curved shield supported above on loose connections and below provided with link E^2, having pin E^3, interfitting arm E^4 and in combination with said arm E^4, and shaft E^5 thereof, for moving mechanism for dropping a fender below the car, and a connection across the shield for holding the pin E^3 in place in said arm E^4, substantially as and for the purposes specified.

4. A curved shield made in sections and suspended above at the car-front, each side section provided with a link E^2 and pin E^3 on the link, in combination with an arm E^4 receiving the pin E^3, a shaft E^5 of arm E^4, for moving the mechanism for operating the fender, and a chain connecting the outer end of each side of the shield with the other, and holding the links to the arms E^4, and the pins E^3 thereon, substantially as and for the purposes specified.

5. The combination of the horizontal fender and the shaft H thereof, and the tripping-rod I connected to the said shaft, and having rounded end I^3, and the bell-crank lever J, pivoted at J^3 and having arm J^5 and arm J^4, and rounded projection I^4, for engaging tripping-rod I, and lever K pivoted at K^3, and having arm K^5, provided with recess K^4, for receiving the end of lever-arm J^4, and connection L fixed at one end to arm K^5, substantially as and for the purpose specified.

6. The combination of the horizontal fender and the shaft H thereof, and the tripping-rod I connected to the said shaft, and having rounded end I^3, and the bell-crank lever J, pivoted at J^3 and having arm J^5 and arm J^4 and rounded projection I^4, for engaging tripping-rod I, and lever K pivoted at K^3, and having arm K^5, provided with recess K^4, for receiving the end of lever-arm J^4, and connection L and tripping-rod I in combination with a front trigger apparatus for moving the connection L, substantially as and for the purposes specified.

7. The combination of the horizontal fender and the shaft H thereof, and the tripping-rod I connected to the said shaft, and having rounded end I^3, and the bell-crank lever J, pivoted at J^3 and having arm J^5 and arm J^4 and rounded projection I^4, for engaging tripping-rod I, and lever K pivoted at K^3, and having arm K^5, provided with recess K^4, for receiving the end of lever-arm J^4, and connection L, and tripping-rod I, shaft H thereof, shield for operating through levers the said shaft, and lever M^4, and connection M^5, connected to connection L, and means for elastically returning the fender to place, substantially as and for the purposes specified.

8. The combination of the horizontal fender and the shaft H thereof, and the tripping-rod I connected to the said shaft, and having rounded end I^3, and the bell crank lever J, pivoted at J^3 and having arm J^5 and arm J^4 and rounded projection I^4, for engaging tripping-rod I, and lever K pivoted at K^3, and having arm K^5, provided with recess K^4, for receiving the end of lever-arm J^4, and connection L, and tripping-rod I, shaft H thereof, shield for operating through levers the said shaft, and treadle in platform, and lever M^6 and connection M^6 connected to connection L, and means for elastically returning the said treadle-shield and the said treadle to place, substantially as and for the purposes specified.

9. The combination of the fender, shaft H thereof, tripping-rod I fixed to shaft H, ratchet-piece N^2, pivoted to tripping-rod I and having weight N^3 and suspended pawl N, substantially as and for the purposes specified.

10. The combination of the fender, shaft H thereof, tripping-rod I fixed to shaft H, ratchet-piece N^2 pivoted to tripping-rod I and having weight N^3 and suspended pawl N, and pulley P^2, cord P thereof, connected at an end to ratchet-piece N^2, and at the other carried forward and above the platform, within reach of the operator, substantially as and for the purposes specified.

11. The combination of the horizontal fender, shaft H thereof, tripping-rod I thereon, and lever J, and latch K, interconnecting, and connection L for unlocking the latch, and pulley P^2, cord P thereof, duly connected to tripping-rod I, and carried above the platform, substantially as and for the purposes specified.

12. The combination of the horizontal fender, shaft H thereof, tripping-rod I thereon, and lever J, and latch-lever K, interconnecting, and connection L for unlocking the latch, and pulley P^2, cord P thereof, and ratchet-piece N^2, and pawl N, the cord being connected to said ratchet-piece, and at its other end carried above the platform, substantially as and for the purposes specified.

13. The combination of a connection L, an apparatus for operating the said connection, a fender and mechanism for dropping it, and a ratchet-wheel, on a shaft R^2, carrying a spring strained between same and another point as R^6, arm R^7, pawl R^8 thereof, and a connection R^9 connected to connection L, substantially as and for the purposes specified.

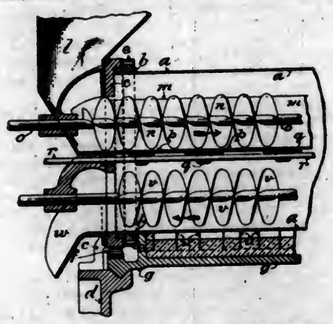
14. The combination of the operating connection L, and the fender, intermediate mechanism, consisting of tripping-rod I, for working the fender, and lever J^3, I^4, J^4, latch K^3, K^4, K^5, duly connected to connection L, ratchet-piece N^2, pawl N, and ratchet-wheel R, shaft R^2 thereof, spring R^4, arm R^7, pawl R^8 thereof for engaging the ratchet-wheel R, and a connection R^9 connected to connection L, substantially as and for the purposes specified.

15. The combination of the operating connection L, and the fender, intermediate mechanism, consisting of tripping-rod I for working the fender, and lever J^3, I^4, J^4, latch K^3, K^4, K^5, duly connected to connection L, ratchet-piece N^2, pawl N, and ratchet-wheel R, shaft R^2 thereof, spring R^4, arm R^7, pawl R^8 thereof for engaging the ratchet-wheel R, and a connection R^9 connected to connection L, and pulley P^2, and cord P duly connected to the tripping-rod I, and carried to the platform, substantially as and for the purposes specified.

16. The combination of the operating connection L, and the fender, intermediate mechanism, consisting of tripping-rod I for working the fender, and lever J^3, I^4, J^4, latch K^3, K^4, K^5, duly connected to connection L, ratchet-piece N^2, pawl N, and ratchet wheel R, shaft

R^3 thereof, spring R^5, arm R^7, pawl R^8 thereof for engaging the ratchet-wheel R, and a connection R^9 connected to connection L, and pulley P^2, and a cord P duly connected to the tripping-rod I, and carried to the platform, and the oscillatory shield carrying the links E, pivoted to arms for operating the shaft, arm L^2, duly connected to connection L, substantially as and for the purposes specified.

604,396. MACHINE FOR CHARGING LINOLEUM-MOLDS. JOHN INGLEBY, Leeds, England. Filed Feb. 25, 1897. Serial No. 624,951. (No model.) Patented in England June 27, 1895, No. 12,433.



Claim.—1. In mechanism for feeding the molds used in the manufacture of mosaic and inlaid linoleum or similar fabric, the combination with said molds, of a stencil having openings formed therein and movable with the said molds of means for conveying a stream of linoleum material along and over the said stencil and delivering the same thereto and means for conveying said material in an upper stream of reverse direction and delivering successively portions of such material from the upper stream to the lower substantially as set forth.

2. In combination with linoleum-molds and a rotating stencil having openings arranged to discharge into them, means arranged within the said stencil for feeding two streams of linoleum material in reverse directions and means for permitting the discharge of the material from the upper stream into the lower and from the lower stream on the discharging part of the stencil substantially as set forth.

3. In combination with a series of linoleum-molds and a longitudinally-movable support therefor, a rack carried by said support, a cylindrical stencil arranged above the said molds and provided with openings at intervals, a gear-wheel turning with the said stencil, means for feeding the linoleum material to the discharging part of the said stencil, and gearing interposed between the said rack and the gear-wheel first above mentioned, a part of this gearing having the same ratio of diameters as the stencil and its gear-wheel, for the purpose set forth.

4. In combination with a series of linoleum-molds and a stencil movable above them, two superposed troughs arranged above the discharging part of the said stencil, and conveyers operating respectively in the said troughs and in reverse directions, these troughs being provided with discharge-openings substantially as set forth.

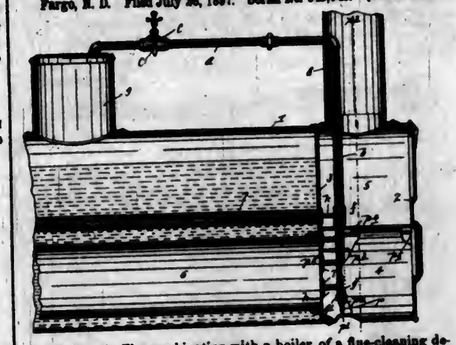
5. In combination with a series of linoleum-molds and a stencil movable above them, a pair of superposed troughs provided with downwardly-discharging openings arranged as described, a series of gates and an operating-rod controlling the openings of upper trough, and conveyers operating in reverse directions in said troughs substantially as set forth.

6. A series of molds, endwise movable collectively and a rack moving therewith, in combination with a cylindrical stencil, a gear-wheel thereon, gearing between the said rack and wheel, two troughs having outlets which are superposed within the said stencil but do not turn therewith, conveyers operating in said troughs to feed the material in reverse streams, and means for governing the outlets from the upper trough to the lower, substantially as set forth.

7. In combination with a stencil, molds supplied therethrough, a trough above the said stencil adapted to discharge thereon and a screw conveyer arranged within the said trough and adapted to maintain by simultaneous action on the material at several points a continuous movement of material lengthwise of the same substantially as set forth.

8. In combination with a stencil, molds supplied therethrough, and means for automatically maintaining, by simultaneous action on the material at several points, a continuous movement of material above the stencil, and permitting it to be discharged thereon substantially as set forth.

604,397. STEAM-BOILER-FLUE CLEANER. HENRY J. JOHNSON, Fargo, N. D. Filed July 26, 1897. Serial No. 645,943. (No model.)



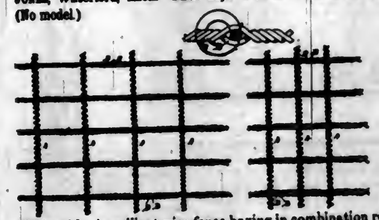
Claim.—1. The combination with a boiler, of a flue-cleaning device involving nozzled pipe-sections suspended within the smoke-box or similar compartment, and one or more extensible or adjustable rods or spuds adapted to be extended for engagement with a fixed part of the boiler, substantially as described.

2. The combination with a boiler, of a flue-cleaning device involving nozzled pipe-sections suspended within the smoke-box or similar compartment, and adjustable or extensible rods or spuds, at least one projecting downward, one forward, and one rearward, for contact with fixed parts of the boiler, substantially as described.

3. The combination with a boiler, of a flue-cleaning device involving the pipe-sections *f* and *g* provided with the discharge-nozzles *k*, and the extensible arms or spuds *p* working through the lower closed ends of said pipe-sections *g*, substantially as described.

4. The combination with a boiler, of a flue-cleaning device involving the pipe-sections *f* and *g* with discharge-nozzles *k*, the extensible screw-threaded rods or spuds *p* working through the lower closed ends of said pipe-sections *g*, and the screw-threaded extensible arms or spuds p^3 p^4, the former extending forward, and the latter extending rearward from said pipe-sections *g*, for engagement, respectively, with the boiler-head 2 and flue-sheet 3, substantially as described.

604,398. METAL FABRIC FOR WIRE FENCES. JAMES R. JONES, Waterford, Mich. Filed Sept. 24, 1897. Serial No. 652,825. (No model.)



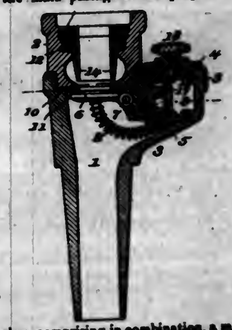
Claim.—1. A resilient wire fence having in combination resilient pickets formed of continuously-coiled spring-wire, and longitudinal strands arranged in pairs twisted together and about the wire connecting two adjacent coils of the pickets, the pickets having a series of resilient coils intermediate to the pairs of longitudinal strands, and the coils above and below the point of connection of the strands with the picket extending laterally on an arc of a circle on both sides thereof, thereby bracing the point of connection of the strands with the pickets on different sides of said point and both above and below said point, substantially as set forth

2. In a wire fence, coiled-wire pickets, interior wires within the coiled-wire pickets and forming a part of the pickets, and in combination therewith longitudinal strands twisted together and about the pickets, the interior wires disconnected with the coils of the pickets, as set forth.

3. In a wire fence, coiled-wire pickets, interior wires within the coiled-wire pickets and forming a part of the pickets, the extremities of the interior wires formed with loops, substantially as set forth.

604,399. VENT-PLUG. WILLIAM P. KEENAN, Columbus, Ohio. Filed Aug. 30, 1897. Serial No. 648,969. (No model.)

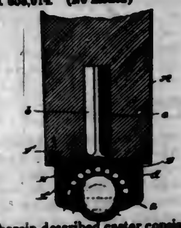
Claim.—1. A vent-plug, comprising in combination, a main body portion 1, a hollow lateral housing 3, forming part thereof, and having a horizontal inlet 15, and vertical valve-passage, a cap 4, fitting said housing, a check-valve 17, controlling the valve-passage and a valve 6, closing the main passage of the plug, substantially as set forth.



2. A vent-plug, comprising in combination, a main body portion 1, a head portion screwing into the top of the same, a packing-ring 10, having a raised seat 11, said ring being held in place between the head and body portion of the plug, a valve 6, pivoted to the body portion, a hollow lateral housing 3, forming a part of the body portion, and provided with an inlet check-valve, substantially as set forth.

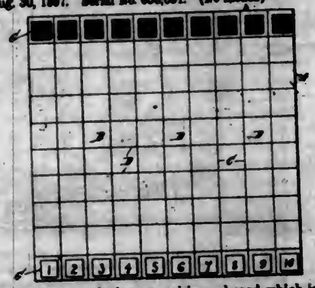
3. A vent-plug, comprising in combination, a main body portion 1, a hollow lateral housing 3, forming part thereof, a cap 4, fitting said housing, a screw-valve 18, arranged in said cap, and a valve 6, controlling the main passage of the plug, substantially as set forth.

604,400. BALL-CASTER. KARL A. KLOSE, Des Plaines, Ill., assignor to the Klose Ball Caster Company, Chicago, Ill. Filed Nov. 15, 1897. Serial No. 658,614. (No model.)



Claim.—The herein-described caster consisting essentially of the body having the hemispherical concavity in its under side and also having the lateral flange provided with the notches G in its edges and the seats H in its upper side coincident with said notches, a large ball arranged in the concavity of the body, a plurality of small anti-friction-balls also arranged in said concavity and interposed between the large ball and the body, and the cap E receiving the body and having the central aperture in its bottom of less diameter than the large ball and also having the tongues F at its upper end resting in the notches G of the body-flange and bent inwardly into the seats H in said flange and resting flush with the upper side thereof, substantially as specified.

604,401. GAME DEVICE. ALEXANDER LAIRD, Rosedale, Canada. Filed Aug. 30, 1897. Serial No. 650,081. (No model.)



Claim.—1. A game device comprising a board which is divided into squares and two sets of blocks or cubes, the blocks or cubes of one set differing in color from those of the other, and each block or cube of each set being provided on each of the sides or faces thereof with a number, substantially as shown and described.

2. A game device comprising a board which is divided into squares, and two sets of blocks or cubes, the blocks or cubes of one set differing in color from those of the other, and each block or cube of each set being provided on each of the sides or faces thereof with a number, and the amount of the numbers on the separate sides or faces of each block being the same, substantially as shown and described.

3. A game device comprising a board which is divided into squares, and two sets of blocks or cubes the blocks or cubes of one set differing in color from those of the other, and each block or cube of each set being provided on each of its sides or faces with a number and the aggregate amount of the numbers on the sides or faces of each block being the same, and the amount of the numbers on all of the blocks of each set being the same, substantially as shown and described.

604,402. AUTOMATIC GATE. JOSEPH C. LAPORTE, Manitwald, Canada. Filed Sept. 20, 1897. Serial No. 653,073. (No model.) Patented in Canada July 26, 1897, No. 56,797.



Claim.—1. In combination with a gate having a pivot-pin and a roller on its under side, a disk having raised cam-faces for said roller to run on and a fixed centrally-bored stud which receives the said pin internally and the said disk externally, serving as a bearing for both, substantially as set forth.

2. In combination with a gate having a pivot-pin and a roller on its under side, a disk having raised cam-faces for said roller to run on, means for revolving the said disk, a fixed centrally-bored stud, which receives the said pin internally and the said disk externally, a latch-bar rigidly attached to the gate, a catch actuated by a spring on the looking-post, and a similar catch on the post holding the gate open, the said raised cam-faces being adapted to raise the gate and so disengage the rigid latch-bar from the spring-catches as the disk is revolved and to allow the roller carrying the gate to run down the inclined cam-faces, substantially as set forth.

3. In combination with a gate having a pivot-pin and roller on its under side, a pulley having raised cam-faces, for the said roller to run on, a fixed centrally-bored stud which receives the said pin internally and the said disk externally serving as a bearing for both, a weighted chain passing around the said pulley and means enabling a passing vehicle to actuate said chain, substantially as set forth.

4. In a gate the combination with the rigid latch-bar secured to the gate of the pivoted catch on the gate-post, the said catch consisting of a rounded front portion 40, a notch 39, projection 41, a stop 42 engaging the said projection, a handle 38, and a spring 43 adapted to hold the said catch in its normal position, substantially as set forth.

604,403. THERMOSTATIC VALVE. MEREDITH LEEDS, Merchantville, N. J., assignor to the Warren Webster & Company, of New Jersey. Filed Nov. 6, 1897. Serial No. 657,599 (No model.)

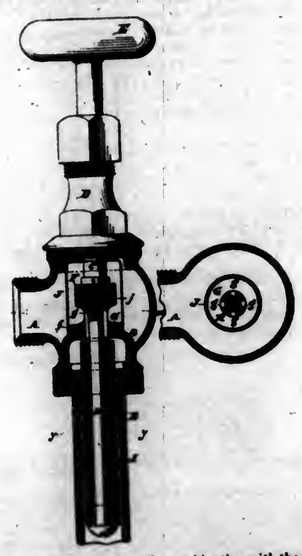
Claim.—1. In a thermostatic valve, the combination of the valve-body provided with an internal aperture, a removable seat-piece located in said aperture, a valve-stem holding said seat-piece in place, and a thermostatic expanding piece supported adjacent to said seat-piece and adapted to close thereon when expanded.

2. In a thermostatic valve, the combination of the valve-body provided with an internal aperture, a removable seat-piece located in said aperture, a valve-stem carried by the body and holding said seat-piece in place, a support carried by said seat-piece, and a thermostatic expanding piece supported by said support and adapted to close upon the seat-piece.

3. In a thermostatic valve, the combination with the valve-body, provided with an internal aperture, of a removable seat-piece, located in said aperture, a support independent of the valve-body carried by said seat-piece and extending below it under the seat-piece, and an expanding piece supported by said support and adapted, when expanded to close upon the under side of the seat-piece.

4. In a thermostatic valve, the combination with the valve-body, provided with an internal aperture, of a removable seat-piece, located in said aperture, a cage independent of the valve-body carried by said seat-piece and extending below it under the seat-piece, and an expanding piece adjustably supported at one end by said cage and

adapted, when expanded to close upon the under side of the seat-piece.



5. In a thermostatic valve, the combination with the valve-body, provided with an internal aperture, of a seat-piece, adapted to fit therein and provided with a valve-seat on its under side, a support independent of the valve-body carried by said seat-piece and extending below it, and an expanding piece, carried by said support and adapted to close upon the seat on the under side of said seat-piece.

6. In a thermostatic valve, the combination with the valve-body, provided with an internal aperture, a seat-piece, adapted to fit therein and provided upon its under side with a valve-seat, and upon its upper side with a bearing, an expanding piece, supported from the seat-piece and located below it, and adapted to close upon the valve-seat on the under side of the seat-piece, and means carried by the valve-body and abutting against the bearing of the seat-piece to hold said piece in place.

7. As an article of manufacture, the removable parts for converting a hand-valve into a thermostatic valve, consisting of a seat-piece adapted to fit the aperture in the valve-body, a tubular piece carried by said seat-piece, and a perforated nut adapted to carry a thermostatic expanding piece carried by said tubular piece.

8. As an article of manufacture, the removable parts adapted for converting a hand-valve into a thermostatic valve, consisting of a seat piece, adapted to fit the aperture in the valve-seat of a valve-body and provided upon its upper face with a bearing extension, and a support for a thermostatic expanding piece, carried by said seat-piece, and extending below it.

9. As an article of manufacture, the removable parts for converting a hand-valve into a thermostatic valve, consisting of a seat-piece adapted to fit the aperture in the valve-body, a tubular piece carried by said seat-piece, a perforated nut carried by said tubular piece, and a thermostatic expanding piece carried by said perforated nut.

10. As an article of manufacture, the removable thermostatic parts of a thermostatic valve, consisting of a seat-piece, adapted to fit the aperture in the valve-seat of a valve-body, and provided upon its upper face with a bearing extension, an extended support carried by the seat-piece and extending below it, and an expanding piece supported by said support and located below the seat-piece and adapted to close on the under side thereof when expanded.

11. As an article of manufacture, the removable thermostatic parts of a thermostatic valve, consisting of a removable seat-piece G provided on its upper side with a bearing extension, a cage H' carried by the seat-piece and extending below it, and an expanding piece I supported at its lower end by the cage H', and having its upper end adjacent to the under side of the seat-piece G and adapted to close thereon when expanded.

12. In a thermostatic valve, the combination with the valve-body provided with an internal aperture, of a removable seat-piece adapted to fit therein, a support independent of the valve-body carried by said seat-piece, and an expanding piece carried by said support and adapted to close on said seat-piece.

604,404. LINOTYPE AND MATRIX FOR MAKING SAME. Gaynor B. Lincoln, Brooklyn, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed July 26, 1897. Serial No. 645,980. (No model.)



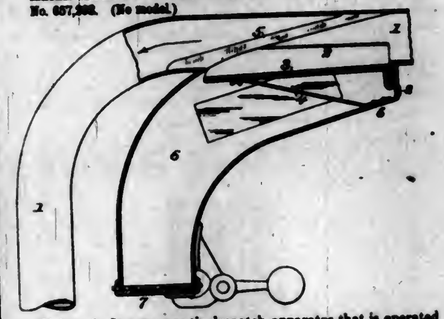
Claim.—1. An improved linotype or slug having figures or characters arranged to read transversely of its edge.

2. A form composed of a series of parallel slugs or linotypes each having a column of figures one under another, whereby figures of one slug are adapted to be read in connection with those on the next.

3. A matrix or die having a figure character arranged to be read lengthwise of the matrix.

4. A series of matrices having their characters located in line with each other, and arranged to be read lengthwise of the matrices whereby they are adapted to form a series of characters transversely of the edge of a linotype.

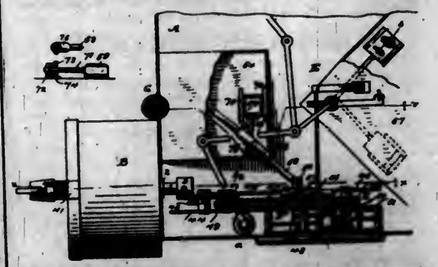
604,405. PNEUMATIC-DESPATCH APPARATUS. Julius W. Mayer and August Mayer, Chicago, Ill. Filed Nov. 3, 1897. Serial No. 657,302. (No model.)



Claim.—1. In a pneumatic-despatch apparatus that is operated by suction or exhaust, the combination of a pneumatic-despatch tube having a side opening, a hinged shutter closing the same, a spring tending to hold said shutter in a substantially closed condition, and a closed receiving-chamber inclosing the shutter and discharge-opening, and provided on its lower end with an opening closed by a self-closing gate, substantially as set forth.

2. In a pneumatic-despatch apparatus that is operated by suction or exhaust, the combination of a pneumatic-despatch tube having a side opening, a hinged shutter closing the same, a spring tending to hold said shutter in a substantially closed condition, and a closed receiving-chamber inclosing the shutter and discharge-opening and provided on its side with a small air-inlet opening, and on its lower end with an opening closed by a self-closing gate, substantially as set forth.

604,406. AUTOMATIC GAS-VENDING APPARATUS. Charles P. Mayer and John H Pomeroy, New Haven, Conn. Filed Sept. 24, 1897. Serial No. 652,811. (No model.)



Claim.—1. In a device of the character described, the combination with a controlling-shaft carrying a notched disk and an operating-shaft carrying a coin-receiver, of a single connecting-lever carried by the coin-receiver and adapted to be tilted by the insertion of a coin

one end of said lever being formed to directly engage the notched disk thereby connecting the shafts.

2. In a device of the character described, the combination with a controlling-shaft carrying a notched disk, an operating-shaft and a fixed barrel in which the inner ends of said shafts are journaled and which is provided with a vertical slot, of a coin-receiver carried by the operating-shaft and oscillating upon the barrel, a connecting-lever carried by the coin-receiver which is tilted by the insertion of a coin and caused to engage the notched disk, and a spring acting on the connecting-lever to normally retain said lever out of engagement with the notched disk and after a coin has been inserted to expel the coin through the slot in the barrel when the coin-receiver registers with said slot.

3. In a device of the character described, the combination with the notched disk and the coin-receiver, of a single connecting-lever pivoted in the coin-receiver one end of said lever being extended to directly engage the notched disk, and a spring normally acting to hold the said end of the connecting-lever out of engagement with the notched disk.

4. In a device of the character described, the combination with the notched disk and the barrel having a slot, of the coin-receiver, a single connecting-lever pivoted therein and adapted to have one end placed directly in engagement with the disk by a coin, and a spring acting to hold the coin pressed against the barrel and when the coin-receiver is in alinement with the slot to expel the coin through the slot.

5. The stationary or fixed barrel 8 having recesses 16 and slot 12, in combination with a coin-receiver movable about said barrel and adapted to discharge a coin through said slot, substantially as shown, for the purpose specified.

6. In a device of the character described, the combination with a case and a barrel having a slot 12, of arms 9 rigidly secured thereto and means for detachably securing said arms in the case.

7. In a device of the character described, the combination with casing B having a cross-piece 11 rigidly secured to its inner periphery, of a barrel 8 having arms rigidly secured thereto said arms being provided with notches 10 which receive the cross-piece thereby holding the barrel in position and permitting its convenient removal.

8. In a device of the character described, the combination with casing B and a circular angle-plate 17 detachably secured thereto and provided with a T-headed lug 19, of coin-holder D having a recess 20 adapted to receive the lug with the head thereof extending each side of the recess 20 and inside the holder D and means for attaching the coin-holder to casing B so that the angle-plate cannot be removed until the coin-holder is opened.

9. In a device of the character described, the combination with casing B and the circular angle-plate detachably secured thereto, of the face-plate rotatably adjustable relatively to the angle-plate, substantially as shown, for the purpose set forth.

10. In a device of the character described, the combination with the circular angle-plate having a scale 22, of the face-plate rotatably adjustable relatively to the angle-plate and provided with a mark adapted to register with the scale, substantially as described, for the purpose set forth.

11. In a device of the character described, the combination with the angle-plate and the face-plate detachably secured thereto, of the operating-shaft journaled in the face-plate and carrying a bridge 41 which bears on the angle-plate.

12. In a device of the character described, the combination with the face-plate having a radial coin-slot and an operating-shaft journaled in said plate and carrying a plate 15 having a radial coin-slot, of a stationary or fixed barrel having a coin-passage, a coin-receiver secured to plate 15 and having a space c registering with the coin-slot in plate 15, and means for stopping the rotation of the controlling-shaft and the coin-receiver when the coin-slots are in alinement.

13. In a device of the character described, the combination with the controlling-shaft and the barrel, of a coin-receiver, comprising plates 24, secured to the operating-shaft and turning on the barrel, said plates having slots 33, connecting-lever 30 pivoted between said plates and having a cross-pin engaging the slots, and a spring bearing upon the cross-pin.

14. In a device of the character described, the combination with the face-plate, an operating-shaft journaled therein and carrying a plate 15, said plates having radial coin-slots, and the central barrel having a vertical slot, of the coin-receiver secured to plate 15 and having a space c registering with the coin-slot in said plate, mechanism for stopping the rotation of the coin-receiver when the coin-slots are in alinement and a spring-actuated lever acting to expel the coin through the slot in the barrel when the coin-receiver is placed in alinement therewith.

15. In a device of the character described, the combination with the carrier and a sprocket-wheel 56 thereon, of two sprocket-chains which are engaged by said sprocket-wheel, the controlling-shaft and mechanism intermediate the controlling-shaft and one of the sprocket-chains whereby said sprocket-chain is actuated to move the carrier in one direction, the other sprocket-chain remaining stationary.

16. In a device of the character described, the combination with the carrier and a sprocket-wheel 56 thereon, of sprocket-chains 47 and 48 both of which are engaged by sprocket wheel 56, sprocket-wheels 49 on which said chains are mounted, the controlling-shaft and mechanism intermediate the controlling-shaft and one of the sprocket-wheels 49 by which sprocket chain 47 is actuated and the carrier is moved in one direction sprocket-chain 48 remaining stationary.

17. In a device of the character described, the combination with the carrier and a sprocket-wheel 56 thereon, of two sprocket-chains which are engaged by said sprocket-wheel, sprocket-wheels 49 on which said chains are mounted, the controlling-shaft having a face-wheel and gear-wheels intermediate said face-wheel and one of the sprocket-wheels 49 so that when the controlling-shaft is actuated the carrier will be moved in one direction by one of the sprocket-chains, the other sprocket-chain remaining stationary.

18. In a gas-vending machine the carrier 54 having sprocket-wheel 56 mounted thereon, and the valve-controlling lever 59 pivotally connected with the carrier, substantially as shown, for the purpose set forth.

19. In a device of the character described, the combination with sprocket-chains 47 and 48 and the carrier mounted to reciprocate between said chains and having a sprocket-wheel engaging both of said chains, of mechanism for actuating said chains alternately whereby the carrier is moved in opposite directions.

20. In a device of the character described, the combination with sprocket-chains 47 and 48, sprocket-wheels 49 on which said chains are mounted, and the carrier mounted to reciprocate between said chains and having a sprocket wheel 56 engaging both of said chains, of a meter-train F having a shaft 60 carrying one of the sprocket-wheels 49, whereby one of said chains will be actuated by the meter-train and will move the carrier in one direction.

21. In a device of the character described, the combination with sprocket-chains 47 and 48, sprocket-wheels 49 on which said chains are mounted and a carrier having a sprocket-wheel 56 engaging both of said chains, of the controlling-shaft and mechanism intermediate said controlling-shaft and one of the sprocket-wheels 49 by which one of the sprocket-chains is actuated and the carrier is moved in one direction, and meter-train F having shaft 60 carrying one of the sprocket-wheels 49 on which the other chain is mounted, whereby the other chain is actuated through the meter-train and the carrier is moved in the opposite direction.

22. In a device of the character described, the combination with the carrier having a sprocket-wheel 56, and sprocket-chains 47 and 48 engaging said sprocket-wheel, of the controlling-shaft and mechanism intermediate the controlling-shaft and chain 47 whereby said chain is actuated to move the carrier in one direction, substantially as shown, for the purpose specified.

23. In a device of the character described, the combination with the carrier having a sprocket-wheel 56 and sprocket-chains 47 and 48 engaged by said sprocket-wheel, of a meter-train F having a shaft 60 and mechanism intermediate said shaft and sprocket-chain 48 whereby said chain is actuated to move the carrier in one direction.

24. In a device of the character described, the combination with the carrier and a sprocket-wheel 56 and the carrier having a sprocket-wheel sprocket-chains 47 and 48 and having a pointer extending therefrom, of mechanism for actuating said chains alternately, whereby the carrier may be moved in opposite directions.

25. In a device of the character described, the combination with the receiving-chamber and valve 69 which controls the passage of gas therefrom, of meter-valve mechanism, a meter-train, a controlling-shaft, carrier 54 having a sprocket-wheel 56, sprocket-chains 47 and 48, both of which are engaged by said sprocket-wheel, mechanism intermediate said chains and the controlling-shaft and the meter-train respectively for actuating said chains alternately, and mechanism intermediate the carrier and valve 69 whereby said valve is opened and closed.

26. In a device of the character described, the combination with the carrier, controlling-lever 59 and valve 69, of shaft 73 having a crank 72 and carrying at its upper end a sleeve through which the controlling-lever passes freely and a valve-rod 71 the ends of which are pivoted respectively to the valve and to the crank, movement of the carrier and the controlling-lever acting to oscillate the sleeve, shaft and crank thereby opening or closing the valve.

27. In a device of the character described, the combination with meter-valve mechanism a meter train and valve 69, of the sprocket-chains, the carrier having a sprocket-wheel engaging said chains, and mechanism intermediate the carrier and the valve whereby the meter-train will move the valve in one direction.

28. In a device of the character described, the combination with the controlling-shaft and valve 69, of the sprocket-chains, the carrier having a sprocket-wheel engaging said chains, mechanism intermediate the controlling-shaft and the chains whereby one of said chains

is operated, and mechanism intermediate the carrier and the valve whereby the latter is moved in one direction by movement of the controlling-shaft.

29. In a device of the character described, the combination with valve 69, sprocket-chains 47 and 48, the carrier having a sprocket-wheel engaging both of said chains and connecting mechanism intermediate the carrier and the valve, of a controlling-shaft and mechanism intermediate the controlling-shaft and sprocket-chain 47 whereby valve 69 is opened, and meter-valve mechanism, a meter-train and mechanism intermediate the meter-train and sprocket-chain 48 whereby the valve is closed.

30. In a device of the character described, the combination with valve 69, the sprocket-chains, the carrier having a sprocket-wheel engaging both of said chains and connecting mechanism intermediate the carrier and the valve, of the controlling-shaft, mechanism intermediate the controlling-shaft and one of the chains whereby the valve is opened, the operating-shaft a coin-receiver carried thereby coin-operated mechanism for connecting the coin-receiver with the controlling-shaft and means for varying the receiving position of the coin-receiver so that the movement of the coin-receiver and the controlling-shaft may be increased or decreased thereby increasing or decreasing the movement of the valve in opening, and determining the amount of gas that can pass said valve.

31. In a device of the character described, the combination with valve 69, the carrier having a sprocket-wheel 56, and mechanism intermediate the carrier and the valve whereby the latter is opened and closed, of sprocket-chains 47 and 48 engaged by said sprocket-wheel, a controlling-shaft acting upon one of said chains to open the valve, and meter-valve mechanism and meter-train acting upon the other chain to close the valve.

32. In a device of the character described, the combination with valve 69, the carrier having sprocket-wheel 56, and mechanism intermediate the carrier and the valve whereby the latter is opened and closed, of sprocket-chains 47 and 48 engaged by said sprocket-wheel, a controlling-shaft acting upon one of said chains to open the valve and means for regulating the movement of the controlling-shaft so that the valve will be opened more or less to permit the passage of a greater or less quantity of gas.

33. In a device of the character described, the combination with valve 69, the sprocket-chains, the carrier and connecting mechanism intermediate the carrier and the valve, of the controlling-shaft, by which one of the said chains is actuated to open the valve.

34. In a device of the character described, the combination with valve 69, the sprocket-chains, the carrier and connecting mechanism intermediate the carrier and the valve, of meter-valve mechanism and a meter-train whereby one of said chains is actuated to close the valve.

35. In a device of the character described, the combination with valve 69, the sprocket-chains, the carrier, and connecting mechanism intermediate the carrier and the valve, of a controlling-shaft whereby one of said chains is actuated to open said valve and meter-valve mechanism and a meter-train whereby the other chain is actuated to close the valve.

36. In a device of the character described, the combination with valve 69, the sprocket-chains, the carrier and connecting mechanism intermediate the carrier and the valve, of a controlling shaft by which one of said chains is actuated to open the valve, a coin-receiver, coin-operated means for connecting the coin-receiver and the controlling-shaft, and means for regulating the movement of the coin-receiver and consequently of the valve.

37. In a device of the character described, the combination with the carrier and the sprocket-chains, of the controlling-shaft by which one of said chains is actuated to move the carrier in one direction, the coin-receiver, coin-operated means for connecting the coin-receiver and the controlling-shaft, a face-plate having a coin-slot and a lug which is engaged by the coin-receiver when the coin-receiver and the slot are in alinement, and means for adjusting the face-plate whereby the movement of the coin-receiver and the controlling-shaft is determined.

38. In a device of the character described, the combination with the carrier and the sprocket-chains, of a controlling-shaft by which one of said chains is actuated to move the carrier in one direction, a coin-receiver, a connecting-lever which is tilted by the insertion of a coin to connect the coin-receiver and the controlling-shaft, a fixed barrel about which the coin-receiver oscillates and which is provided with a vertical slot through which the coin is expelled when the coin-receiver and the slot are in alinement, a face-plate having a coin-slot and a lug which is engaged by the coin-receiver when the coin-receiver and coin-slot are in alinement, and means for adjusting the face-plate and thereby regulating the receiving position of the coin-receiver and consequently determining the movement of the coin-receiver and the controlling-shaft.

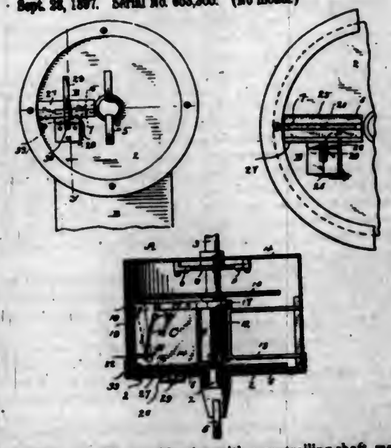
39. In a device of the character described, the combination with a controlling-shaft, a coin-receiver and a spring-actuated lever which is tilted by the insertion of a coin, of a barrel having a slot through which the coin is expelled, an adjustable face-plate having a coin-slot and a lug which stops the movement of the coin-receiver when in alinement with the slot, substantially as shown, for the purpose set forth.

40. In a device of the character described, the combination with casing B the circular angle-plate and the face-plate detachably secured thereto and provided with a coin-slot, of the controlling-shaft, the coin-receiver, the connecting-lever and the barrel, substantially as shown, for the purpose specified.

41. In a device of the character described, the combination with casing B, the angle-plate provided with a scale, and the face plate detachably secured to the angle-plate and having a coin-slot and a mark corresponding with the scale, of the controlling-shaft, the coin-receiver, the connecting-lever, a fixed barrel having a slot 12 through which coins are discharged from the coin-receiver and means for varying the receiving position of the coin-receiver.

42. In a device of the character described, the combination with the controlling-shaft, the coin-receiver, the connecting-lever and the barrel, of the face-plate having a coin-slot and mark 23 on its outer side and a lug 42 on its inner side which is engaged by the coin-receiver, the angle-plate having a scale with which the mark is adapted to register, and means for adjustably securing the face-plate to the angle-plate so that the position of lug 42 may be changed to increase or decrease the movement of the coin-receiver.

604,407. GUARD FOR COIN-CONTROLLED APPARATUS. CHARLES P. MAYER and JOHN H. POMEROY, New Haven, Conn. Filed Sept. 28, 1897. Serial No. 653,205. (No model.)



Claim.—1. The combination with a controlling-shaft, means for holding said shaft against backward movement, an operating-shaft, a coin-receiver and a plate having a slot carried by the operating-shaft, and coin-operated means for connecting the controlling-shaft with the operating-shaft, of a casing having an opening with which the coin-receiver is adapted to register, and a lever carrying a guard adapted to fit said opening and having cam-faces 30 and 31 adapted to enter said slot, so that when the guard is raised cam-face 31 will engage one end of said slot and move the coin-receiver to the receiving position and after the shafts have been connected by the insertion of a coin in order to close the guard the parts must be strained by the engagement of cam-face 30 with the other end of said slot until said cam-face passes out of the slot when the parts will spring forward again throwing the slot out of alinement with the lever and rendering it impossible to open the guard again until the shafts have been disconnected.

2. The lever D carrying guard 27 and having cam-faces 30 and 31, substantially as shown, for the purpose set forth.

604,408. FASTENING DEVICE. WILLIAM T. MERRIMAN, Boston, Mass. Filed May 24, 1897. Serial No. 637,904. (No model.)

Claim.—1. In a fastening device, the combination with a hook, of a cooperating portion, an offset portion connecting the said hook and cooperating portion, said offset portion being adapted to extend through an opening in the material to which the fastening device is connected and being joined to the cooperating portion between the upper and lower edges thereof, substantially as described.

2. In a fastening device for necktics, the combination with a hook, of a cooperating portion lying in a plane substantially parallel to that of the said hook, the lower edge of said cooperating portion being adapted to engage the crease at the edge of the tie within the material of which the tie is made, an offset connecting portion between the hook and cooperating portion adapted to pass through the said material, the said offset portion forming the throat of the hook and joining the cooperating portion below the top thereof whereby the fastening device is held in position by the engagement of the cooperating device with the crease, and the engagement of the offset portion with the material at the opening through which it passes, while the hook and cooperating member both extend from the throat of the hook in the same direction at opposite sides of the material, substantially as described.



3. A necktie-fastening device comprising a hook adapted to engage a collar, and a retaining device for securing the hook to the tie and adapted to hold the tie against the side of the collar, the said retaining device comprising a loop extending laterally from one side of the said hook, the end of said loop extending to the opposite side of the hook and terminating in a point adapted to penetrate the material of which the tie is made, substantially as described.

4 A necktie-fastening device comprising a hook adapted to engage a collar, and a retaining device for securing the hook to the tie and adapted to hold the tie against the side of the collar, the said retaining device comprising a loop extending laterally from one side of the said hook, the end of said loop extending to the opposite side of the hook and terminating in a point adapted to penetrate the material of which the tie is made, and a shoulder on said retaining device adjacent to the point of connection between said retaining device and said hook, substantially as described.

5. A necktie-fastening device comprising a hook adapted to engage one side of the collar and a retaining device adapted to secure the hook to the tie and hold the tie against the side of the collar, the said retaining device comprising a loop extending laterally from one side of the hook, the end of said loop extending to the opposite side of the hook and thence around to a point substantially adjacent to the top thereof, the said loop being adapted to be wholly inserted between the face and lining of the tie and thereby constitute an invisible retaining device for the hook, substantially as described.

6. The combination with the hook *a*, provided with the cooperating member a^2 which also constitutes a retaining device, said member a^2 comprising a loop 2 terminating in a point 3 substantially adjacent to the top of the said hook, the connecting portion a^3 between said hook and said loop, and the shoulder 20 at the upper side of said loop adjacent to the hook, substantially as and for the purpose described.

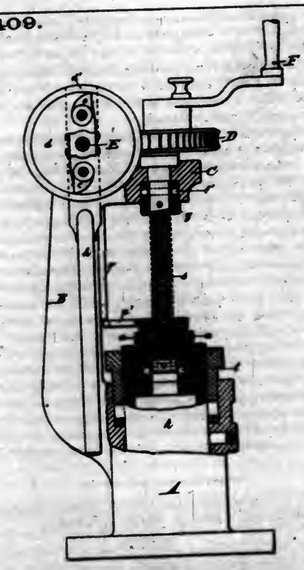
7. The herein-described fastening device for a necktie comprising a hook and a cooperating member lying in a plane substantially parallel with that of the hook, the said cooperating member being adapted to lie between the layers of material of which the tie is formed, the lower edge of said cooperating member being below the throat of the hook and extending laterally beyond the same in a substantially straight line to engage the crease at the edge of the tie and hold the same below the edge of the collar and at the same time to maintain the hook substantially perpendicular to the edge of the tie, substantially as described.

8. The herein-described fastening device for a necktie comprising a hook and a cooperating member lying in a plane substantially parallel with that of the hook, the said cooperating member being adapted to lie between the layers of material of which the tie is formed, a throat portion extending from the hook proper to the cooperating member, the said throat portion being adapted to extend through a perforation in the material, and a substantially straight lower edge portion of the cooperating member to engage the crease at the edge of the tie and maintain the hook substantially perpendicular thereto, substantially as described.

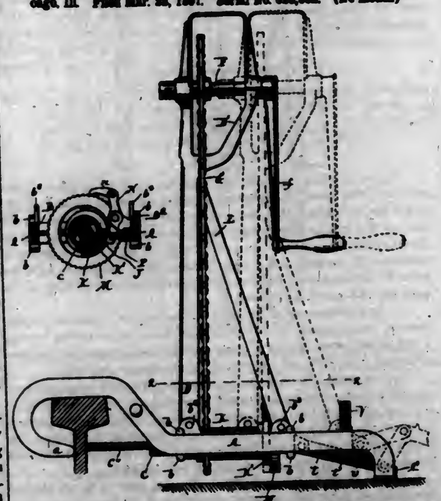
604,409. LUBRICATOR. WILHELM MENSALK, Deuben, Germany. Filed Nov. 9, 1896. Serial No. 611,512. (No model.)

Claim.—In lubricating apparatus, the combination of the pump-frame having a rib *r*, the piston *k*, and the nut *c*, arranged so as to be able to rotate in the piston *k*, said nut having an arm *c'*, which engages the rib *r*, so that said nut is constrained to travel in a straight line axially so as to operate the piston, said arm, when the piston reaches the lower portion of its stroke, becoming disengaged from said rib *r*, thereby permitting the nut to rotate in the piston, thereby allowing the piston to remain at rest, substantially as set forth.

604,409.



604,410. RAILWAY-TRACK DRILL. DAVID A. MOORE, Harvey, Ill., assignor to the Dain Foundry and Manufacturing Company, Chicago, Ill. Filed Mar. 20, 1897. Serial No. 628,002. (No model.)



Claim.—1. In apparatus of the character described the combination with a supporting-frame provided with hooks adapted to engage a track-rail, of a drill-stock, a horizontally-arranged reciprocating carriage mounted upon said supporting-frame and carrying said drill-stock and vertically-swinging toggle-links connecting the rear of said supporting-frame with said reciprocating carriage whereby said carriage and drill-stock can be quickly moved toward and from the work and held in place.

2. In apparatus of the character described, the combination of a main supporting-frame comprising side bars A, A' having hooks at one end and having their opposite ends rigidly connected with a suitable cross-bar or base A', and a reciprocating carriage B mounted upon said side bars A, A', a drill-stock mounted in said carriage, means for shifting said carriage, a support rising from and sustained by said carriage and means for operating the drill-stock carried by said support.

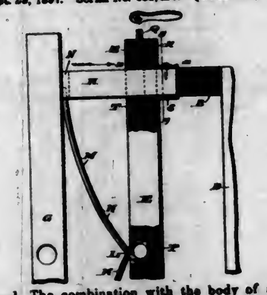
3. In apparatus of the character described, the combination with a suitable support, of a rectangular carriage movably mounted thereon, a horizontally-arranged drill-stock and means for rotating said drill-stock, a support D rising vertically from said frame and provided with an arm D', a shaft journaled in said support D and said arm D' and a brace frame E connected to said support D, said shaft being suitably engaged by said drill-stock.

4. In apparatus of the character described, the combination with a suitable support or frame provided with means whereby it may be connected with a railway-rail, of a drill-stock, a driving-sleeve through which said drill-stock passes and to which it is connected, a screw for advancing said drill-stock, pawl-and-ratchet mechanism for operating said screw and means for detachably locking the ratchet-wheel to the driving-sleeve whereby a rapid backward movement may be given to the ratchet-wheel to withdraw the drill from its work.

5. In apparatus of the character described, the combination with a suitable support provided with hooks for engaging the rail, of a carriage, a drill-stock, means for rotating said stock, a screw for advancing said stock, pawl-and-ratchet mechanism for operating said screw and a shiftable latch for connecting said ratchet-with the means for rotating the drill, whereby the drill may be quickly shifted,

6. In apparatus of the character described, the combination with a suitable support, of a drill-stock, means for rotating said stock, a screw for advancing said stock, pawl-and-ratchet mechanism for operating said screw, a driving-sleeve for effecting its rotation, a shiftable latch carried by said driving-sleeve and adapted to lock said sleeve to the ratchet in order to permit the rapid movement of the drill-stock.

604,411. NURSERY-GATE. PETER MOTLEY, Philadelphia, Pa. Filed Sept. 29, 1897. Serial No. 653,420. (No model.)



Claim.—1. The combination with the body of a gate of the character described, of a movable member consisting of an upright, and a bar projecting therefrom and telescopically arranged in the body of the gate, a stop carried by said movable member adapted to abut against a stationary part of said body to limit the movement of said movable member, a screw on the stationary member to hold the movable member in adjustment and a spring between the body of the gate and the movable member.

2. In a nursery-gate, a frame provided with a recess on the side thereof, an adjustable stile fitted to said frame and a spring having a coil at its center, the same being seated in said recess and its limbs diverging from said coil and occupying recesses in said stile.

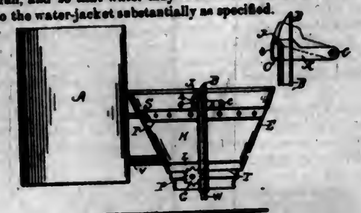
3. A nursery-gate having an adjustable stile with tongues thereon, and a spring bearing outwardly against the same, in combination with yokes which freely embrace the rails of said frame and are secured to the tongues of said stile and stop-pieces on the ends of the frame freely encircling said tongues and tightly embracing said rails about the slots or grooves occupied by said tongues.

4. The combination with the body of a gate of the character described, of a movable member consisting of an upright, bars projecting therefrom and telescopically arranged in the body of the gate, stops carried by said bars adapted to abut against an upright of the body of the gate to limit the movement of the movable member, a screw on said body for engagement with either of the bars of the movable member to hold the latter and a spring between the body of the gate and the upright of the movable member.

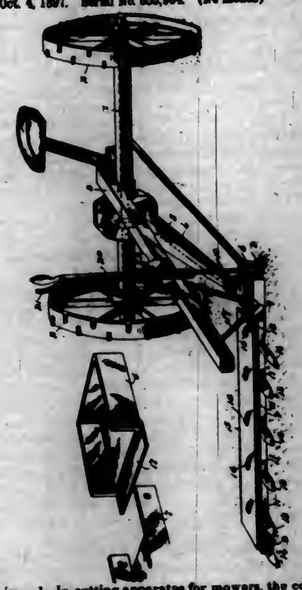
604,412. LAMP-BURNER. LUCIAN R. OAKES, Bloomington, Ind. Filed Jan. 15, 1898. Serial No. 666,706. (No model.)

Claim.—1. In a lamp-burner, the combination of the burner E, wick-tube B having its upper rear side shorter than its opposite side and having the flange J, the damper o, r, and rock-shaft C all arranged to operate substantially as and for the purpose set forth.

2. In a lamp burner, the burner E having a water-jacket H formed of the sides of the burner and the two diaphragms F and L and arranged to surround the wick-tube, in combination with a reservoir A, and the pipes S and V for connecting said water-jacket and reservoir, said pipes being arranged one above the other so that said water-jacket may be filled full, and so that water may have a circulation from the reservoir to the water-jacket substantially as specified.



604,413. CUTTING APPARATUS. ALBERT PALM, Sterling, Ill. Filed Oct. 4, 1897. Serial No. 653,864. (No model.)



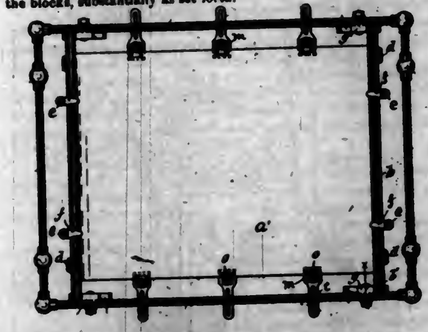
Claim.—1. In cutting apparatus for mowers, the combination of an inner casing mounted upon a rolling support, an outer casing pivoted to the inner casing and provided at its outer end with a rolling support, a cutting mechanism applied to the outer casing and having an inner gear-wheel, a primary gear-wheel journaled to the inner casing and having its axis in transverse alinement with the axis of the gear-wheel meshing therewith, and having edge and top gearing formed on the arc of a circle having the pivotal connection between the two casings for its center, and means for imparting motion to the said primary gear-wheel, substantially as described.

2. In cutting apparatus for mowers, the combination of an inner casing having vertical sides and an outwardly-extending lip at its bottom, an outer casing having its sides extended and pivoted to the sides of the inner casing and limited in its downward movement by engaging with the said lip thereof, a top plate closing the outer casing, gear-wheels having upper and lower tubular gudgeons journaled in the top and bottom of the outer casing, bolts passing through the said tubular gudgeons and connecting upper and lower parts of the outer casing, overlapping cutters secured to the gear-wheels, and a primary gear-wheel alining transversely with the cutter gear-wheels and having an edge and top gearing formed on the arc of a circle having the pivotal connection between the two casings as a center, substantially as set forth.

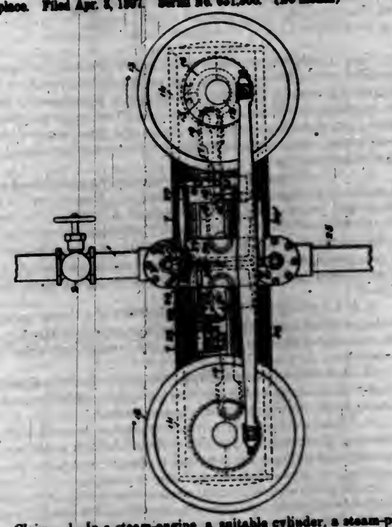
604,414. DEVICE FOR SUPPORTING AND STRETCHING BED-COMFORTABLES. REUBEN T. PALMER, Jr., and FREDERICK W. MINER, New London, Conn. Filed Apr. 24, 1896. Renewed Oct. 18, 1897. Serial No. 655,693. (No model.)

Claim.—In a fabric-supporting device, the combination, with a

rectangular frame, two of the opposite sides of which are longitudinally slotted, a bolt through each slot, a block upon the inner end of the bolt, provided with a pocket, a clamping-tube extending between and resting within each of the oppositely-located pockets, and a series of clamps adjustably secured to said side pieces intermediate the blocks, substantially as set forth.



604,415. STEAM-ENGINE. JAMES A. BEARDSLEE, St. Louis, Mo., assignor of two-thirds to James H. Butterall and Peter Hensel, same place. Filed Apr. 5, 1897. Serial No. 631,209. (No model.)



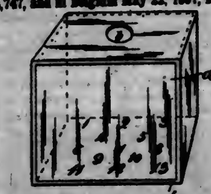
Claim.—1. In a steam-engine, a suitable cylinder, a steam-pipe communicating therewith, a valve casing at the juncture of the pipe with the cylinder-wall, a rock-valve in said casing, a piston for the cylinder, a drive-shaft, a crank-disk carried by the shaft, a pitman connecting the disk with the piston, an arm carried by the valve and disposed along the outside of the casing, intermediate yielding connections between said arm and drive-shaft for regulating the point of cut-off for said valve, rigid connections between the said arm and drive-shaft in connection with the said yielding connections for rocking the valve during the reciprocation of the piston, a supplemental air-cylinder, a piston for said cylinder, air-regulating cocks carried by the cylinder-walls on either side of the piston for offering predetermined resistance to the reciprocation of the piston of said supplemental cylinder, and suitable connections between the rock-valve and the piston of the supplemental cylinder, substantially as set forth.

2. In a steam-engine, a suitable cylinder, a steam-pipe communicating therewith, a valve-casing at the juncture of the pipe with the cylinder-wall, a rock-valve in said casing, a piston for the cylinder, a drive-shaft, a crank-disk or arm carried by the shaft, a pitman connecting the disk with the piston, an arm carried by the valve and disposed along the outside of the casing thereof, intermediate connections between said arm and the drive-shaft for rocking the valve during the reciprocation of the piston, a supplemental air-cylinder, a piston therefor, intermediate connections between said piston and rock-valve, and suitable valve-controlled openings disposed on the cylinder-walls for offering a predetermined resistance to the reciprocation of the piston of the supplemental air-cylinder and to the oscillation of the rock-valve, whereby the speed of the engine is controlled, substantially as set forth.

3. In a steam-engine, a cylinder, a steam-pipe leading thereinto, a piston reciprocating within the cylinder, a drive-shaft, an exhaust-pipe leading from the cylinder, a valve controlling the steam-pipe and a similar valve controlling the exhaust-pipe, an arm carried by each valve along the outside of the casing thereof, an eccentric controlled arm in connection with the drive-shaft, suitable link connections between the arm and the arm carried by the exhaust-valve, an oscillating lever having one end pivotally secured to the eccentric controlled arm, a link pivotally connected to the end of the opposite arm of the oscillating lever, a lateral extension or guideway forming a part of the arm carried by the steam-valve, a block mounted in said guideway and pivotally secured to the opposite end of the link, a controlling-screw for said block, a spring confined within the guideway and bearing against the opposite face of the block whereby a yielding connection is formed between the link and the steam-valve, an adjusting-screw for the spring, a supplemental air-cylinder carried by the engine, a piston and piston-rod therefor, a slotted connection between the outer end of the piston-rod and the arm secured to the steam-valve, air cocks or valves disposed at each end of the air-cylinder to offer any predetermined resistance to the reciprocation of the piston therein, the parts operating substantially as and for the purpose set forth.

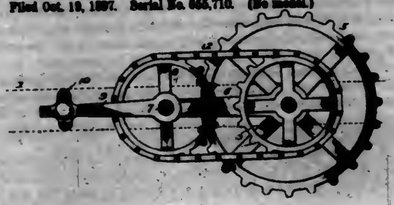
4. In a steam engine, a suitable cylinder, a steam-pipe communicating therewith, a valve casing at the juncture of the pipe with the cylinder-wall, a rock balance-valve in said casing, two oppositely-reciprocating pistons in said cylinder, a drive-shaft for each piston, a crank-disk carried by each shaft, a pitman connecting each disk with its corresponding piston, an arm carried by the valve and disposed along the outside of the casing, intermediate rigid and yielding connections between said arm and one of the drive-shafts adjacent thereto for rocking the valve during the reciprocation of the piston and for setting the point of cut-off for said valve, a driving-pulley for each drive-shaft, and a connecting-rod connecting the pullays, whereby the same speed is imparted to both drive-shafts simultaneously, substantially as set forth.

604,416. TOY OR PUZZLE. JACOB REEPMAKER, Rotterdam, Netherlands. Filed May 28, 1897. Serial No. 638,663. (No model.) Patented in England May 15, 1897, No. 13,039; in France May 20, 1897, No. 264,747, and in Belgium May 22, 1897, No. 99,567.



Claim.—The combination in a toy or puzzle of a box or receptacle *a* having an aperture *b* in the top thereof and a bottom *f* divided into spaces or marked with letters numerals pictures figures or the like, with as many puppets or figures *d* as there are spaces numerals letters pictures or the like at the bottom of the box and marked to correspond therewith, and a piece *c* of wood or other suitable material adapted to be inserted in the aperture *b* and by means of which piece each of the said puppets or figures may be placed in an erect position on the space letter figure numeral picture or the like at the bottom of the box designed to receive it, substantially as set forth.

604,417. MECHANICAL MOVEMENT. SAMUEL T. RICHARDSON, Baltimore, Md., assignor of one-third to Albert B. Holland, same place. Filed Oct. 19, 1897. Serial No. 655,710. (No model.)



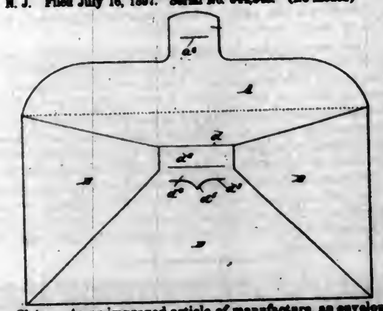
Claim.—A pedal-motor movement comprising a fixed sprocket-disk 3, and a sprocket-wheel 5, adapted to rotate on the axis of said disk and formed with the radial arm 6, carrying the stud 7 in combination with the sprocket-wheel 8, journaled on said stud and provided with crank 9, and the sprocket-chain 12 encompassing said disk and wheel 8, substantially as and for the purpose set forth.

604,418. ACCUMULATOR-PLATE. ISIDOR ROSLER, Berlin, Germany, assignor to Lehmann & Mann, same place. Filed Mar. 10, 1898. Serial No. 673,416. (No model.)



Claim.—An accumulator-plate, consisting of a continuous zigzag core-piece, the surfaces of which on both sides are fitted with triangular webs wholly separated from each other substantially as described.

604,419. ENVELOP. ELBERT V. D. ROUSSEAU, Bound Brook, N. J. Filed July 16, 1897. Serial No. 644,843. (No model.)



Claim.—As an improved article of manufacture, an envelop provided with the usual folding flap on which is formed a tongue or projection having a transverse slot therein, the back of said envelop being provided with two slots whereby a strip is formed, the lower side of which is provided with a projecting tongue, the tongue on the said flap being adapted to pass through the said slits formed in the back of said envelop and the tongue formed on said strip being adapted to engage the transverse slot formed in the tongue of the flap, substantially as and for the purpose described.

604,420. KNITTING-MACHINE. JAMES R. ROWE, Pawtucket, R. I., assignor to the R. Jenckes Manufacturing Company, same place. Filed Oct. 9, 1896. Serial No. 608,337. (No model.)

Claim.—1. In a knitting-machine, the combination with a rotary cam-cylinder, of means independent of said cam-cylinder for guiding a plurality of threads, and means for carrying said threads successively to the needles, substantially as described.

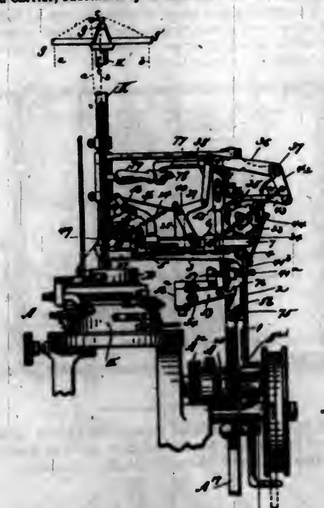
2. In a knitting-machine, the combination with a rotary cam-cylinder, and a thread-guide moving with said cylinder, of means independent of said cam-cylinder for guiding a plurality of threads, and means for carrying said threads successively to said guide and to the needles, substantially as described.

3. In a knitting-machine, the combination with a rotary cam-cylinder, of stationary guides for a plurality of threads, and means for carrying said threads successively to the needles, substantially as described.

4. In a knitting-machine, the combination with a rotary cam-cylinder, of a thread-guide independent of said cylinder, a thread-guide moving with said cylinder provided with a lateral opening, a thread-carrier, and means for operating said carrier to carry the thread to said guide through said opening, substantially as described.

5. In a knitting-machine, the combination of a traveling thread-guide provided with a lateral opening, a thread-carrier independent of said guide, means for operating said thread-carrier to carry the thread to said guide through said opening, and means for quickly returning said carrier, substantially as described.

6. In a knitting-machine, the combination of a traveling thread-guide, provided with a lateral opening, a thread-carrier independent of said guide, means for operating said carrier to carry the thread to said guide through said opening, and a spring for quickly returning said carrier, substantially as described.



7. In a knitting-machine, the combination of a main thread-guide provided with a lateral opening, a thread-guide from which the knitting-thread passes to the main thread-guide, a thread-carrier, means for operating said thread-carrier to carry a thread to the main thread-guide through said opening, means for quickly returning said carrier to its normal position, and means for severing the knitting-thread, substantially as described.

8. In a knitting-machine, the combination of a main thread-guide provided with a lateral opening, a thread-guide from which the knitting-thread passes to the main thread-guide, a thread-carrier, means for operating said thread-carrier to carry a thread to the main thread-guide through said opening, means for quickly returning said carrier to its normal position, and means operated by the return movement of said carrier for severing the knitting-thread, substantially as described.

9. In a knitting-machine, the combination of a thread-engaging device, a thread-holder and means for operating said engaging device and holder to carry a thread to the needles, substantially as described.

10. In a knitting-machine, the combination of a thread-guide, a thread-holder and means for operating said guide and holder to carry a thread to the needles, substantially as described.

11. In a knitting-machine, the combination of a plurality of thread-engaging devices, a plurality of thread-holders, and means for operating said engaging devices and holders to carry the threads successively to the needles, substantially as described.

12. In a knitting-machine, the combination of a thread-engaging device, a thread-holder and means for moving said device and holder into position upon opposite sides of the needles whereby the thread is carried between adjacent needles, substantially as described.

13. In a knitting-machine, the combination of a thread-guide, a thread-holder, and means for moving said guide and holder into position upon opposite sides of the needles, substantially as described.

14. In a knitting-machine, the combination of a plurality of thread-engaging devices, a plurality of thread-holders, means for moving said engaging devices and holders into position upon opposite sides of the needles, and means for successively operating said holders, substantially as described.

15. In a knitting-machine, the combination of a pivoted thread-holder, a thread-engaging device carried with said holder and means for moving said holder to and from the needles and rocking said holder on its pivot, substantially as described.

16. In a knitting-machine, the combination of a slide, a thread-holder and thread-engaging device pivoted to the end of said slide, means for reciprocating said slide to rock said holder and engaging device, and means for moving the end of said slide to and from the needles, substantially as described.

17. In a knitting-machine, a plurality of thread-holders, means for moving said holders to and from the needles, and means for operating said holders successively, substantially as described.

18. In a knitting-machine, a pivotal plate carrying two thread-holders, means for rocking said plate on its pivot, and two stops for successively operating said holders, substantially as described.

19. In a knitting-machine, a pivoted plate carrying two thread-holders, means for rocking said plate on its pivot, two stops for operating said holders and means for controlling the operation of said stops, substantially as described.

20. In a knitting-machine, two grippers having their movable jaws connected, two movable stops for operating said grippers, means for reciprocating said grippers, and means for alternately arresting the movement of said stops, substantially as described.

21. In a knitting-machine, a pivoted plate carrying a fixed jaw, a movable jaw pivoted to said plate and provided with two projecting arms, two stops for engaging said arms, means for controlling the operation of said stops, and means for rocking said plate, substantially as described.

22. In a knitting-machine, a plurality of thread-holders, a plurality of stops for operating said holders, slides carrying said stops, a wheel provided with a series of projections for each slide, and means for operating said wheel, substantially as described.

23. In a knitting-machine, the combination of a pivoted arm a slide mounted on said arm, a plate pivoted to said slide, and carrying a thread-guide and thread-holder, one or more links connecting said plate and arm, and means for operating said slide and arm, substantially as described.

24. In a knitting-machine, the combination of a thread-holder, a thread-guide, means for moving said holder and guide to and from the needles, and means for forcing the thread into said holder, substantially as described.

25. In a knitting-machine, the combination of two thread-grippers, two thread-guides, means for moving said grippers and guides to and from the needles, means for alternately operating said grippers, and means for forcing the thread to be gripped between the jaws of the open gripper, substantially as described.

26. In a knitting-machine, a pivoted support, an arm projecting therefrom, a lever pivoted to said arm, a second lever pivoted to a stationary pivot and to said former lever, and stops on said levers to hold the three pivotal points in line, substantially as described.

27. In a knitting-machine, a thread-guide provided with a lateral passage for the entrance of the thread, means for carrying a thread to said guide and means for preventing the escape of the thread through said passage, substantially as described.

28. In a knitting-machine, a thread-guide having a lateral passage for the entrance of the thread, and a safety-stop in said passage, substantially as described.

29. In a knitting-machine, a thread-guide having a lateral passage for the entrance of the thread, said passage being enlarged at its entrance end and provided with diverging sides, substantially as described.

604,421. DRAFT-BEAM FOR CARS. THOMAS W. SALENS, Marshall, Tex. Filed Nov. 13, 1897. Serial No. 658,260. (No model.)

Claim.—1. A draft-beam for cars provided with transverse slots extending through the said beam, one of said slots being adapted to receive a follower plate and hold the same rigidly and the other slot being adapted to receive a key-plate for securing a coupler in place, the construction being such that the key-plate may slide in said slot according to the movement of the coupler, substantially as described.

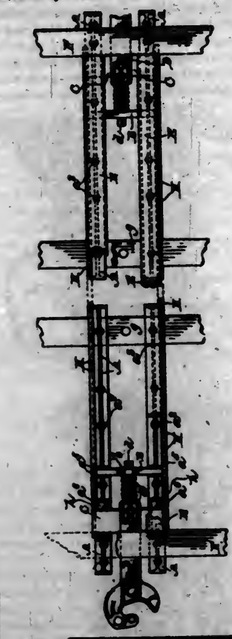
2. In a draft mechanism for cars, the combination with a suitable coupler, of draft-beams secured to the under side of the car, said beams being provided with apertures extending through said beams for receiving follower-plates and key-plates whereby the coupler may be secured to said beams, the construction being such that the said follower plate may be held rigidly in place and the key-plate may be allowed to slide in its slots to conform to the movement of the coupler, substantially as described.

3. In a draft-gear for cars, the combination with a suitable coupler, of draft-beams provided with transverse apertures, a follower-plate adapted to engage one set of said apertures and be held rigidly therein, and a key-plate passing through the draw-head and the other set of apertures and adapted to slide therein and connecting draw-rods for joining the outer ends of the said key-plates at the opposite ends of the car, substantially as described.

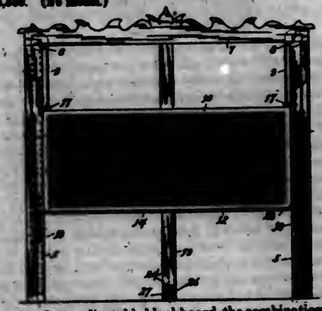
4. In a draft-gear for cars, the combination with a suitable coupler, of draft-beams adapted to receive the coupler between them, said beams being made alike whereby they are interchangeable, the said beams being also provided with transverse apertures whereby they are adapted to receive and hold rigidly follower-plates and to receive and movably hold key-plates for securing the coupler in position, substantially as described.

5. A draft-beam for cars provided with a transverse vertical slot for rigidly securing a follower-plate and a transverse longitudinal slot for receiving and movably holding a key-plate, the construction being such that the key-plate is guided in its movement with a coupler, substantially as described.

6. A draft mechanism for cars comprising metallic beams adapted to be secured to the car-sills, the said beams being provided with vertical slots for rigidly securing a follower-plate and being also provided with longitudinal slots for movably holding and guiding a key-plate whereby a coupler may be secured to said beams, substantially as described.



604,422. BLACKBOARD. GODFRAY J. SCHREIBER, Sheboygan, and KARL F. G. BRENNER, Kaukauna, Wis. Filed Mar. 30, 1897. Serial No. 629,260. (No model.)

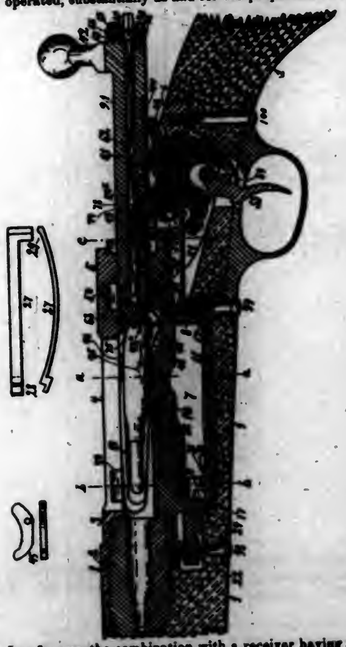


Claim.—In an adjustable blackboard, the combination, of a frame, the side pieces thereof being in the form of boxes or casings, a blackboard slidable between the side boxes and having a rack-bar formed thereon, coiled springs within said side boxes, cords passing over pulleys and having one of their ends secured to the blackboard and their opposite ends secured to the coiled springs, a vertical boxing or casing, a lever pivoted therein, and having one end passing through an opening in its boxing in order to engage the rack-bar, a spring adapted to normally hold the lever in engagement with the rack-bar, and a bell-crank lever pivoted within the vertical box or casing, and having one end engaging the other lever, and its opposite end passing through an opening in the boxing or casing in position to be operated.

604,428. MAGAZINE BOLT-GUN. GUNNERUS SCHEE, Christiania, Norway. Filed Apr. 26, 1897. Serial No. 633,906. (No model.) Patented in Norway June 6, 1896, No. 4,612, and Oct. 10, 1896, No. 4,617.

Claim.—1. In a magazine bolt-gun, the combination with a receiver and a breech-bolt moving back and forth therein; of a maga-

zine communicating therewith and forming a part of a cylinder around the receiver and having a lid or cover for admitting the cartridges to be dropped sidewise down into the magazine without changing the position of the gun and a spring-actuated cartridge-carrier adapted to feed the cartridges into the receiver, said cover consisting of a curved plate sliding with its ends in suitably-provided curved grooves and which presses the carrier back and locks it so it offers no resistance to the filling of the magazine, and when the cover is closed the carrier is set free to chase all the cartridges toward the inlet to the receiver, said cover having also a projection by which it is easily operated, substantially as and for the purposes set forth.



2. In a firearm, the combination with a receiver having a cylindrical inside provided with a side inlet and top exit for cartridges, the gap 93, extending rearwardly from said top exit to the rear end of the receiver, the notches 48×, 49 and 50 formed in the upper wall of the receiver; the round breech-bolt 21 adapted to slide in the receiver and having the lugs 47, 48, and the arm 42, adapted to interlock with said notches, said breech-bolt having further the circular groove 74, and the rear central projection 67; the flexible extractor-bar 71, sliding in the gap 93, and being provided at its front end with a hook for extracting the empty cartridges from the rear end of the gun-barrel, and having its rear end extended across the rear end of the breech-bolt, and journaled upon the projection 67 thereof, also having the tooth or hook 73, engaging the circular groove 74 in the front side of a semicircular projection near the rear end of the breech-bolt and means for ejecting the shells of the cartridges from the receiver, substantially as and for the purposes set forth.

3. In a firearm, the combination with the round breech-bolt 21, adapted to be rocked from side to side in the receiver for interlocking or releasing it, and having an axial hole through it, and its rear end formed with a hollow cylindrical extension 67, with cams or teeth in its bottom; the firing-pin 62, having a round body extending through the central hole in the bolt and having the rigid collar 65, inserted in the cavity 66 of the cylindrical extension of the breech-bolt, and provided with teeth or cams upon its front side corresponding to those in the bottom of the cavity, and the rearwardly-extending four-cornered end 64; the cartridge-extractor 71, journaled to the rear end of the breech-bolt and having the angular portion 70, with a square hole in it fitting the end 64, of the firing-pin to prevent it from turning with the bolt, said extractor being guidingly inserted in a gap in the receiver, permitting it to slide but not to oscillate, substantially as and for the purpose set forth.

4. In a firearm, the combination with the receiver 4, 5, 6, the round breech-bolt 21, inserted in the receiver and having the operating-lever 42, with the segmental notch, and the firing-pin 62, extending through it, and beyond its rear end, said bolt being adapted to slide and oscillate so as to lock and unlock itself with the receiver; said receiver having the diagonal or spiral-shaped recesses 84 85; the transversely-curved hammer-lifter 79, adapted to fit and retain itself in said grooves with its front and rear edges, and between the shoulders 89 and 90 of the breech-bolt with its side edges, it also having the square rear edge 78, for cocking the hammer of the gun; the hammer 54, mounted at the rear of the receiver adjacent to the rear edge of the hammer-lifter, and means for keeping the hammer-lifter in position when the breech-bolt is retracted, and means for driving and for releasing the hammer, substantially as shown, and described, and for the purpose set forth.

5. In a magazine bolt-gun, the combination with the receiver 4 5 and the breech-bolt moving therein, of a segmental horizontal magazine extending underneath and up along one side of the receiver, the said upwardly-extending portion being provided near its top with an inwardly-opening mouth communicating with the receiver and an outwardly-opening mouth for receiving the cartridges, and the lid 16, for closing said outwardly-opening mouth, said lid consisting of a curved plate having its ends sliding in suitably-provided grooves and its upper edge formed into an outward upwardly projecting wing by which the lid is operated and the cartridges quickly guided into the magazine substantially as and for the purpose set forth.

6. In a magazine bolt-gun, the combination with the receiver 4 5 and the breech-bolt moving therein, of a segmental horizontal magazine extending underneath and up along one side of the receiver, the said upwardly-extending portion being provided near its top with an inwardly-opening mouth communicating with the receiver and an outwardly-opening mouth for receiving the cartridges, and the curved, sliding lid 16, for closing said outwardly-opening mouth; said magazine having the end walls 8 and 9 projecting transversely out from the receiver, and provided with the curved grooves 17 for the ends of said sliding lid to slide in, substantially as and for the purpose set forth.

7. In a magazine bolt-gun, the combination with the receiver 4 5 and the breech-bolt moving therein, of a segmental horizontal magazine extending underneath and up along one side of the receiver, the said upwardly-extending portion being provided near its top with an inwardly-opening mouth communicating with the receiver and an outwardly-opening mouth for receiving the cartridges, and the curved, sliding lid 16, for closing said outwardly-opening mouth; said magazine having the end walls 8 and 9 projecting transversely out from the receiver, and provided with the curved grooves 17 for the ends of said rolling lid to slide in; the flat downwardly-sliding lid 12, closing the opposite side of the magazine, and having the segmentally-curved extension 11, overlapping the lower part of the sliding lid 16, and forming the bottom of the magazine, substantially as and for the purpose set forth.

8. In a magazine bolt-gun, the combination with the receiver 4 5 and the breech-bolt moving therein, of a segmental horizontal magazine extending underneath and up along one side of the receiver, the said upwardly-extending portion being provided near its top with an inwardly-opening mouth communicating with the receiver and an outwardly-opening mouth for receiving the cartridges, and the curved, sliding lid 16, for closing said outwardly-opening mouth; said magazine having the end walls 8 and 9 projecting transversely out from the receiver, and provided with the curved grooves 17 for the ends of said lid to slide in; the flat downwardly-sliding lid 12, closing the opposite side of the magazine, and having the segmentally-curved extension 11, overlapping the lower part of the sliding lid 16, and forming the bottom of the magazine; the front end wall of the magazine having the horizontal slot or notch 24 opening toward the sliding lid 12, the pendent stem 22 at the lower side of the receiver forward of the magazine, the cartridge carrier 23, 26 95 having its arm 23 pivotally placed upon said stud 22, and retained thereon by the said notch 24, in which it swings, and by the flexible arm 26 and head 95, and the auxiliary spring 27, empties the magazine into the receiver, substantially as shown and described.

9. In a magazine bolt-gun, the combination with the receiver 4 5 and the breech-bolt moving therein, of a segmental horizontal magazine extending underneath and up along one side of the receiver, the said upwardly-extending portion being provided near its top with an inwardly-opening mouth communicating with the receiver and an outwardly-opening mouth for receiving the cartridges, and the curved, sliding lid 16, for closing said outwardly-opening mouth; said lid being provided at its lower front corner with the locking-notch 31, the spring-pressed cartridge-carrier 23, 26 95, pivotally secured to the receiver in front of and extending into and swinging in the magazine and having the tooth 25 operated by the lower edge of the lid and engaging the locking-notch 31 of the lid when the latter is open, substantially as and for the purpose set forth.

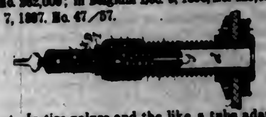
10. In a magazine bolt-gun, the combination with the receiver 4 5 and the breech-bolt moving therein, of a segmental horizontal magazine extending underneath and up along one side of the receiver, the said upwardly-extending portion being provided near its top with an inwardly-opening mouth communicating with the receiver and an outwardly-opening mouth for receiving the cartridges, and the curved, sliding lid 16, for closing said outwardly-opening mouth; said lid being provided at its lower front corner with the clearing-notch 30 and the locking-notch 31; the spring-pressed cartridge carrier 23 26 95 pivotally secured to the receiver, but extending through a slot into and swinging in the magazine, is provided with the tooth or lug 25 operated by the lower edge of the lid and engaging the locking-notch 31, when the lid is open and finding a clearing in the notch 30 when the lid is either in motion or closed, substantially as and for the purpose set forth.

11. In a magazine bolt-gun, the combination with the receiver 4 5 and the breech-bolt moving therein, of a segmental horizontal magazine extending underneath and up along one side of the receiver, the said upwardly-extending portion being provided near its top with an inwardly-opening mouth communicating with the receiver and an outwardly-opening mouth for receiving the cartridges, and the curved, sliding lid 16, for closing said outwardly-opening mouth; the cartridge-carrier arm 23, pivoted to the receiver and extending through a slot or notch in the end wall of the magazine, and formed with the upwardly-tending spring-arm 26, provided at its free end with a head 95, either side of which is adapted to touch and move the cartridges sidewise and upward in the magazine, the auxiliary spring 27, pressing against the arm of the carrier so as to assist it in its horizontal movement; means for locking the carrier and lid when opened; and a suitable cut-off at the mouth or port extending from the magazine into the receiver, substantially as and for the purpose set forth.

12. In a magazine bolt-gun, the combination with a receiver and a magazine embracing a portion of the receiver and having a gate for the cartridges to enter sidewise into the receiver, of a cartridge cut-off consisting of a rock-shaft provided with a rocker-arm and having a half-round portion rocking in a groove in one side of the gate, the spring-arm 39, inserted in a groove in the rock-shaft and having its free end curved outward and engaging the transverse groove 41, in the receiver, substantially as and for the purpose set forth.

13. In a magazine bolt-gun the combination with a receiver and a magazine embracing a portion of the receiver and having a gate for the cartridges to enter sidewise into the receiver, of a cartridge cut-off consisting of a rock-shaft provided with a rocker-arm and having a half-round portion rocking in a groove in one side of the gate, the spring-arm 39, inserted in a groove in the rock-shaft and having its free end curved outward and engaging the transverse groove 41, in the receiver; the rear end of said rock-shaft extending beyond the rocker-arm and is journaled in the bearing 37, having the slot or notch 38, for the rocker-arm to pass through in removing or replacing the rock-shaft, substantially as shown and described.

604,424. TIRE-VALVE OR THE LIKE. GEORGE H. F. SCHRADER, New York, N. Y. Filed Nov. 13, 1896. Serial No. 612,565. (No model.) Patented in England Dec. 3, 1896, No. 27,032; in France Dec. 3, 1896, No. 262,000; in Belgium Dec. 3, 1896, No. 126,090, and in Austria Jan. 7, 1897. No. 47/57.



Claim.—1. In tire-valves and the like, a tube adapted to be fastened to a tire and having an open end, in combination with a valve member adapted to be coupled to the end of such tube, consisting of a tubular member having an internal valve seat and chamber and an external groove near one end and at that end fitting into such tube until said groove is entirely within the latter, a packing-ring fitting said groove and surrounding said member and completely inclosed between the opposing walls of said parts, a valve proper in said chamber and inclosed therein, and a screw-threaded coupling engaging said member for coupling it to such tube with its end therein.

2. In tire-valves and the like, a tubular valve member having a valve-seat and an end for entering the interior of a tire-tube, and a valve proper within said member, in combination with an internally-screw-threaded coupling irremovably swiveled to said member for fastening it to such tube and intercngaging shoulders on the coupling and member for holding the member within such tube and preventing separation of the coupling and member.

3. In tire-valves and the like, a valve member having an internal chamber and valve-seat and a valve proper completely inclosed in said chamber, said member having an end for entering within the valve-tube of a tire, in combination with a screw-threaded sleeve surrounding said member for coupling it to such tube, having an inwardly-projecting flange, and shoulders on said member and sleeve engaging and transmitting the axial motion of the latter in both directions to the former.

4. In tire-valves and the like, a valve member having an internal valve-seat near its outer end, and constituting a valve-casing having a long end for projecting far into the interior of a tire-tube, and a valve proper inclosed therein, an external packing-ring intermediate of the ends of the casing and surrounding said long end thereof for entering entirely within the interior of such tube, and a coupling-sleeve surrounding the casing outwardly of said ring.

5. In tire and other valves, a member D, having an internal valve-chamber and valve seat, and an external tapering end surrounding said chamber for fitting entirely into the valve-tube of a tire, and having a projection outwardly of said end for preventing rotation of said member, a ring of packing material surrounding and held on said end, and a valve proper inclosed in said member, and means holding said valve proper therein.

6. For tire valves and the like, a valve member D having an internal valve chamber and seat, a plug closing the inner end of said chamber, a valve proper in the latter, a spring between said valve and plug, said member having a groove around its inner end, a packing-washer in said groove, a cap at the outer end of said member and a sleeve swiveled to said member between said cap and its inner end, substantially as and for the purpose set forth.

604,425. TIRE-VALVE, &c. GEORGE H. F. SCHRADER, New York, N. Y. Filed Nov. 19, 1896. Serial No. 612,667. (No model.) Patented in England Dec. 3, 1896, No. 27,533; in France Dec. 3, 1896, No. 262,000; in Belgium Dec. 9, 1896, No. 126,090, and in Austria Jan. 7, 1897, No. 47/57.



Claim.—1. In tire and other valves, a valve member adapted to be coupled to the end of a valve-tube, consisting of a tubular member having an end for fitting within the hollow end of said tube, an annular seat beyond such portion, an inlet leading from its outer end to and opening at such seat, and an annular groove surrounding the end of its body which enters within the end of such tube, a packing-washer in said groove for entering entirely into the hollow interior of such tube for making a leak-tight joint between said member and such valve-tube, said member having a wall above said groove for passing into the hollow end of said tube outwardly of said washer and holding the latter therein, and a coupling swiveled to said member for screwing on said tube and coupling the member thereto, whereby said ring can be clamped between the outer wall of said member and the internal wall of said tube and a leak-tight joint between the two, inwardly of the outer end of the latter, can be made.

2. In tire-valves and the like, a tubular member having a tapering end for fitting into the hollow interior of a valve-tube, having an annular seat beyond such portion, for passing into the valve-chamber of such tube, and an inlet leading from its outer end to said seat, a coupling swiveled to said member outwardly of its tapering end for clamping it to said tube, a valve proper beyond said member movable axially of it and seating on its inner end, and means securing said valve proper movably to said member and preventing its accidental escape therefrom.

3. In tire and other valves, a valve-tube, having a valve-chamber and an enlarged socket leading thereto, in combination with a valve member comprising a tubular part having a tapering portion near one end adapted to fit entirely into the socket of said tube, having an annular groove surrounding such portion and passing entirely into such tube, an annular seat beyond such portion, and an inlet extending through it from its outer end to said seat, a valve proper secured to said member opposite the seat thereof, and movable axially of the member, and a coupling swiveled to said member outwardly of its tapering end for coupling it to a valve-tube.

4. In tire and other valves, a valve-tube, having an open socket in its end, in combination with a tubular valve member, having a valve-seat, an inner end fitting into the socket of said tube, an outer shoulder outwardly of said end, and a screw-thread for receiving a cap, a valve proper carried by said member movable axially thereof and engaging said seat, a cap screwing onto said member and having a shoulder outwardly of the shoulder thereof, and an internally-screw-threaded sleeve outwardly of said seat, surrounding said member and having an internal flange between the shoulder thereof and the shoulder of said cap, whereby said shoulders retain said sleeve on said member, substantially as and for the purpose set forth.

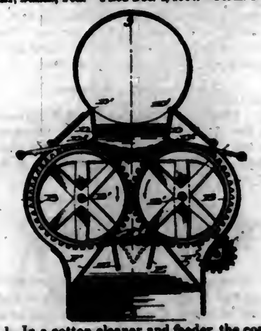
5. For tire and other valves, a valve proper, and a spiral spring therefor irremovably connected together.

6. For tire and other valves, a tubular member having a seat, an inlet leading through it to said seat, and having an end for entering into the hollow interior of a valve-tube, and a shoulder outwardly

thereof, in combination with a sleeve swiveled to said member for coupling it to such tube, engaging said shoulder and held thereby outwardly of said end, and a valve proper engaging said seat and having a stem traversing said inlet and permanently and irremovably fixed therein.

7. In tire and other valves, a valve member D, having outer shoulder *o*, reduced portion L for fitting into the hollow interior of a tire-tube, and groove M on its exterior, surrounding such portion having an inlet *g* extending through it, and a valve-seat H on its end, in combination with a valve proper I engaging said seat at the inner end of said member, a sleeve E swiveled to said member outwardly of said groove and engaging said shoulder, a packing-ring in said groove for passing entirely into such tube, and a cap for said member.

604,426. COTTON ELEVATOR, CLEANER, AND FEEDER. JOHN W. SEIFERT, Dallas, Tex. Filed Dec. 4, 1897. Serial No. 660,775. (No model.)



Claim.—1. In a cotton cleaner and feeder, the combination with a casing, of reticulated cylinders geared to rotate toward each other, an air-exhaust communicating with the interior of said cylinders, and adjustable dampers for regulating the air-exhausting area of said cylinders; substantially as specified.

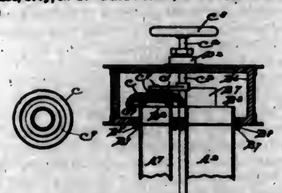
2. In a cotton cleaner and feeder, the combination with a casing, of reticulated cylinders geared to rotate toward each other, an air-exhaust communicating with the interior of said cylinders, and adjustable dampers provided with flexible flaps in contact with said cylinders; substantially as specified.

3. In a cotton cleaner and feeder, the combination with a casing, of reticulated cylinders geared to rotate toward each other, an air-exhaust communicating with the interior of said cylinders, adjustable dampers for regulating the air-exhausting area of said cylinders, and flap-valves located beneath said cylinders; substantially as specified.

4. In a cotton cleaner and feeder, the combination with reticulated cylinders geared to rotate toward each other, of a casing surrounding said cylinders and provided with apertures above and below the cylinders, closures for said apertures, adjustable dampers above said cylinders and an air-exhaust connection communicating with the interior of said cylinders; substantially as specified.

5. In a cotton cleaner and feeder, the combination with a casing, of oppositely-located reticulated cylinders provided with meshing gears, an air-exhaust communicating with the interior of said cylinders, a driving-gear meshing with the gear upon one cylinder, adjustable dampers above said cylinders, and flap-valves below said cylinders; substantially as specified.

604,427. APPARATUS FOR MANUFACTURING GAS. HENRY C. SHIELDS, Troy, N. Y. Filed Dec. 27, 1895. Serial No. 573,493. (No model.)

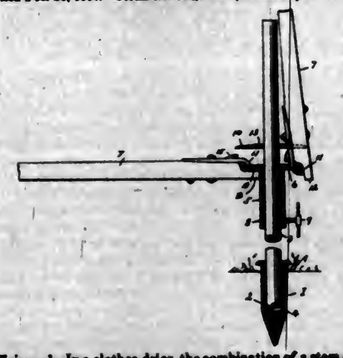


Claim.—1. In a valve, the combination of the valve case, pipes situated side by side and extending above the floor of the case, a pair of valve-seats on the ends of said pipes in approximately the same horizontal plane, a perpendicular crank-shaft approximately equidistant from such seats and extending from the interior through the case-wall, a crank-arm secured to such shaft interiorly of the case, a slide-disk movable on and along the seats, a swivel connection between the disk and crank-arm, the pin of said connection being the center of the motion of the valve, and means located exteriorly of the case for communicating rocking movements to the shaft, substantially as described.

2. In combination a valve-case, pipes extending through its bottom and above the same, the valve pivoted at a point outside the circumference of the pipes to swing on and across their mouths in an approximately horizontal plane, a shaft supported in the case-wall and fixed against endwise motion, and devices intermediate the valve and shaft whereby the rotation of the latter alternately covers and uncovers each pipe-mouth, substantially as described.

3. In a valve, the combination with the valve-case, said case having a sheet-metal side with a pair of openings, pipes extending through said openings, the valve disk, and means for operating the disk, of a detachable nipple-seat registering with each case-opening, and means for detachably securing the nipple-seats to the sheet-metal wall of the case, substantially as described.

604,428. CLOTHES-DRIER. WILLIAM B. SHIELDS, Nashville, Mich., assignor to Wells T. Barker and Lon W. Feighner, same place. Filed Feb. 20, 1897. Serial No. 624,260. (No model.)



Claim.—1. In a clothes-drier, the combination of a stem or standard, drier-arms horizontally connected with the same, and adapted to swing upward in folding, and a locking-plate mounted on the stem or standard at a point above the hinged ends of the arms and provided with fingers engaging said arms and locking the same in a horizontal position, said locking-plate being held in engagement with the arms by gravity and adapted to be rotated partially to bring its fingers opposite the intervals between the arms to permit the latter to swing upward, substantially as described.

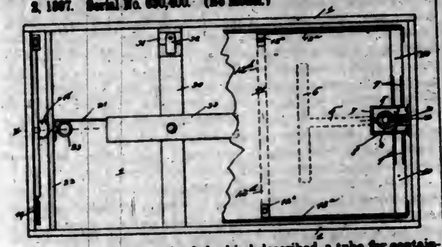
2. In a clothes-drier, the combination of a stem or standard, an adjustable sleeve mounted thereon and provided with a flange having openings, drier-arms provided at their inner ends with recesses, hooks secured to the drier-arms and projecting over the recessed portions thereof and linked into the openings of the flange, said hooks being provided with shoulders, and a locking-plate arranged on the stem or standard above the sleeve and provided with fingers engaging said shoulders to lock the drier-arms in a horizontal position, said locking-plate being adapted to be partially rotated to bring its fingers opposite the intervals between the arms for permitting the same to swing upward, substantially as described.

604,429. CHAIN-CLEANING ATTACHMENT. ROBERT W. SIMS, Medford, Mass. Filed Oct. 7, 1897. Serial No. 654,412. (No model.)



Claim.—The combination with a clamp adapted to the lower frame bar of a bicycle and having two horizontal attaching-screws, the threaded ends of which project beyond the clamp, of a vertically-disposed plate or bar slotted to receive said projecting screw ends and vertically adjustable thereon; said plate or bar having a brush on one end, and nuts on said screws at opposite sides of the bar or plate, substantially as described.

604,430. TRUNK. PAUL H. SMITH, Columbus, Ohio. Filed Apr. 2, 1897. Serial No. 630,400. (No model.)



Claim.—1. In a trunk of the kind described, a tube for containing a tray-holding tube or spindle having a longitudinal opening at its inner side and a longitudinal opening at its outer side, webs or walls projecting from each side of said opening at the outer side, pulleys journaled between said walls, and a cord for raising said tube or spindle passed around said pulleys, substantially as set forth.

2. In a trunk of the kind described, a tube for containing a tray-holding tube or spindle having a longitudinal opening at one side, pulleys journaled in said tube, a block comprising the parts 15ª and 15ᵇ supporting the tray-holding tube or spindle, a cord attached to said block and passing over said pulleys, substantially as described.

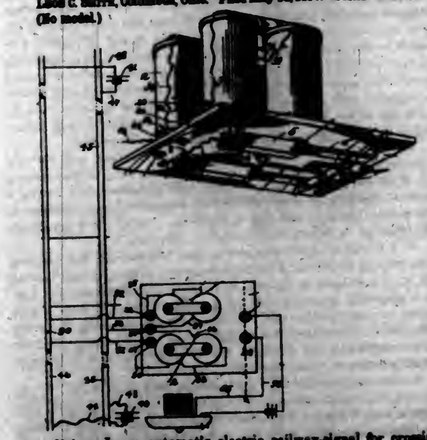
3. In a trunk of the kind described, a tube containing a tray-supporting spindle, a cord and pulleys for elevating said spindle, a lever 20 for operating said cord having one arm connected with the cord and the other arm having a socket 20ª extending through the arm, and a handle-bar movable in said socket so as to form an extension to the lever and to be contained within the trunk without disconnecting said lever and handle, substantially as shown and described.

4. In a trunk, the combination with a vertical tube or spindle having a horizontal bar 5ª at its upper end and a fork 5ᵇ, the parts of which fork are adapted to engage the opposite sides of the end board of a tray, substantially as described.

5. The combination with a vertical tube or spindle having a horizontal bar at its upper end, of a frame consisting of a wall 7, rearwardly-extending walls 8, and laterally-extending forks 9, substantially as described.

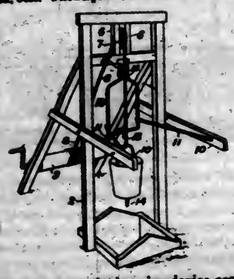
6. In a trunk, a tray having metallic side braces consisting of a horizontal portion 12ª extending from the opposite corners of the end of said tray along the upper edges thereof, a portion 12ᵇ extending diagonally downward toward the lower corners of the tray, vertical portions 12ᶜ extending to the bottom of the tray, and a transverse bar 12ᵈ across the bottom of the tray connecting the lower ends of portions 12ᶜ, substantially as described.

604,431. ELECTRIC SIGNAL FOR RAILWAY-CROSSINGS. LEWIS C. SMITH, Columbus, Ohio. Filed May 18, 1897. Serial No. 637,130. (No model.)



Claim.—In an automatic electric railway-signal for crossings, the combination with two sets of magnet-spools 1 and 2, armature-bars 3 and 4, oppositely-located stop projections 15 and 16 on said bars, each of said stop projections having one of its faces inclined and its remaining face provided with a shoulder as described, of a cut-out bar pivoted between said armature-bars, the ends of said cut-out bar being adapted when said armature-bars are moved toward them to come into contact respectively with the inclined faces and shoulders of said stops, a bell-contact bar with which said armature-bars are adapted to come into contact, and connections substantially as described whereby circuits may be established through the magnets 1 and 2 with the track-rails on opposite sides of the crossing, substantially as and for the purpose specified.

604,432. AUTOMATIC DUMPING-BUCKET. WILLIAM F. SMITH, Cripple Creek, Colo. Filed Apr. 26, 1897. Serial No. 633,963. (No model.)



Claim.—1. An automatic dumping device comprising a frame, a stirrup or bail provided with an open loop to engage a chain secured to the bottom of the bucket when the latter has risen to a proper elevation, arms pivotally secured to the said stirrup or bail and frame and adapted to move the stirrup or bail and bucket to dump the same, substantially as described.

2. An automatic dumping device comprising a framework, a stirrup or bail provided with an open loop to engage a chain secured to the bottom of the bucket when the latter has risen to a proper elevation, a finger located at the upper extremity of the said stirrup or bail, adapted to engage a catch and keep the stirrup or bail elevated, and arms pivotally connected to said stirrup or bail, and to the frame, and adapted to move the stirrup and bucket to dump the latter, substantially as described.

3. An automatic dumping device for dumping buckets comprising a frame, a stirrup or bail provided with an open loop to engage a chain secured to the bottom of the bucket, a finger located at the upper extremity of the stirrup or bail adapted to engage a catch arranged upon the frame, the said finger being provided with an opening to receive pulleys or sheaves, a rope adapted to pass between said pulleys, one end of which rope is secured to the bail of the bucket and the other to a windlass, and arms adjustably connected to the frame and pivotally secured to the stirrup or bail and adapted to move the latter with the bucket downward and dump the same, substantially as described.

4. An automatic dumping device comprising a framework, a stirrup or bail provided with an open loop to engage a chain secured to the bottom of the bucket, a finger located upon said stirrup or bail, and a catch arranged upon the framework, said catch being provided with vertical grooves or channels in one of which is located a ledge adapted to engage said finger, substantially as and for the purpose described.

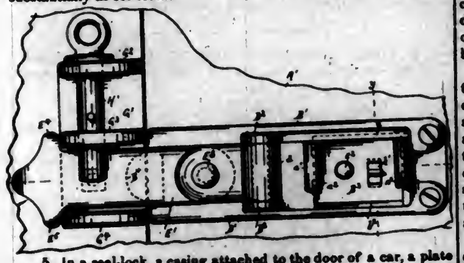
604,433. SEAL-LOCK. JOHN W. STEVENS, St. Paul, Minn. Filed June 16, 1897. Serial No. 640,206. (No model.)

Claim.—1. In a seal-lock, a casing adapted to receive a breakable seal, a lever held normally poised against the rear of said seal, a wheel provided with projections on its rim and mounted to be revolved in said casing with one of said projections adapted to enter a cavity in the seal, and means for holding said wheel from revolving backward, substantially as and for the purpose set forth.

2. In a seal-lock, a casing attached to the door of the car, a breakable seal held irremovably in said casing, a lever held normally poised against the rear of said seal, a hasp with a cam thereon and pivoted upon or adjacent to said casing and adapted to hold the door closed, said lever being poised with one end against the back of said seal and the other held against said cam by a spring, substantially as and for the purpose set forth.

3. In a seal-lock, the combination of a casing attached to the door of a car, a plate attached to the stop adjacent to the casing, a breakable seal held irremovably in said casing, a hasp hinged to said casing and adapted to break said seal when actuated and provided with a lip adapted to engage said plate and hold the door closed, substantially as shown and described.

4. In a seal-lock, the combination of a casing attached to the door of a car, a breakable seal held irremovably in said casing, a plate attached to the stop adjacent to the casing and having perforated lugs projecting therefrom, a hasp hinged to said casing and adapted to break said seal when actuated, and with side projections adapted to engage said lugs, whereby said door is held closed and means provided for the employment of a padlock or bolt as additional security, substantially as set forth.

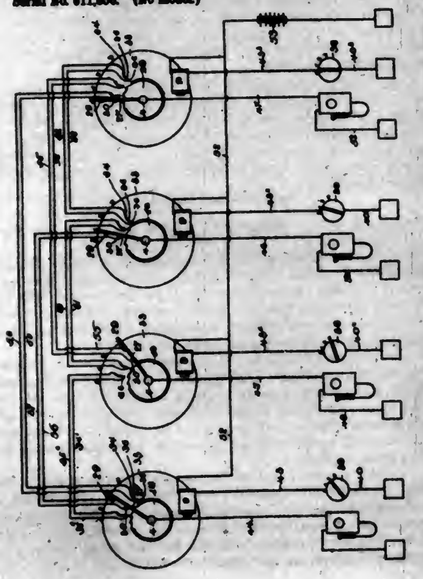


5. In a seal-lock, a casing attached to the door of a car, a plate attached to the stop adjacent to the casing, a breakable seal held irremovably in said casing a hasp hinged to said casing and adapted to hold said door closed and to break said seal when actuated, and a lip upon said casing projecting beneath said plate upon said stop, substantially as and for the purpose set forth.

6. In a seal-lock, a casing adapted to receive a breakable seal, a wheel provided with projections on its rim and mounted to be revolved in said casing with one of said projections adapted to enter a cavity in said seal, and a pawl to hold said wheel from revolving backward, substantially as set forth.

7. In a seal-lock, a casing, a breakable seal supported in said casing and with a cavity therein, a tumbler mounted to be revolved and provided with projections adapted to enter the path of the seal, said projections being so placed upon said tumbler that as the tumbler revolves one projection passes out of the path of the seal the next passes into the path of the seal and enters the cavity therein, whereby the path of the seal is never free from one of the projections, and the seal is prevented from being inserted into the casing without revolving said tumbler and automatically locking the seal therein, and means for preventing said tumbler from revolving backward, substantially as set forth.

604,434. TELEPHONE SIGNAL SYSTEM. WALLACE A. STILWELL and ALEXANDER BARSNIK, Salina, Kans. Filed Nov. 10, 1896. Serial No. 611,856. (No model.)

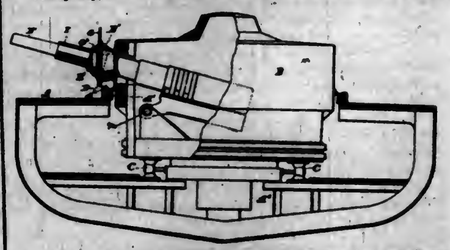


Claim.—1. A telephone-exchange system, comprising a central office in which is located a series of switchboards, one for each distant subscriber's station, a pair of conductor-wires leading from each board to each of the other switchboards, one of these wires terminating in a spring contact-point 34 which normally contacts with one of a series of contact-shoes 35, which are connected by a common conductor 54, and also connected to a union-post 37 which is normally in contact with a rotating contact-arm 27 having a ground connection through the corresponding telephone, and the other wire of each pair leading from a fixed contact-post 36 located in the path of and adapted to be engaged by a spring contact-finger 30 carried by said rotating contact-arm 27, as and for the purpose set forth.

2. A telephone-switchboard comprising two series of fixed contacts arranged in concentric circles, a common conductor normally connected with each contact of one of the series, a series of wires arranged in pairs, the ends of the wires of each pair terminating in a contact in each series, a switch arm movably secured relatively to the series of contacts and normally electrically connected with the common conductor and permanently connected through a telephone-station with the ground, said switch adapted to simultaneously connect with the contiguous ends of any pair of wires in said series, as and for the purpose set forth.

3. A telephone signal system comprising an electrically-operated switch having a movable switch-arm carrying two contact-points as 29 and 30, and permanently connected through a telephone-station with the ground, of a series of individual conductors arranged in pairs, the contiguous ends of each pair terminating in the path of said contact-points 29 and 30, one end of one wire of each of which pairs is connected to an insulated contact-post as 36, and the other wire to a contact-spring as 34, normally in contact with a common conductor as 54, said common conductor having a normal ground connection through the switch-arm, as and for the purpose set forth.

604,435. TURRET FOR WAR VESSELS. WILLIAM D. SEVERS, Jersey City, N. J. Filed June 4, 1896. Serial No. 594,242. (No model.)



Claim.—1. A revoluble turret having two obliquely-located ports or gun-apertures, guns correspondingly arranged one on each side of the radial line, each elevated and depressed by turning on an axis m arranged squarely relatively to the gun near the corresponding oblique aperture, and an angularly-projecting casing B' rigidly connected to the turret and surrounding each aperture, and extending outward parallel each to the other, provided with parallel ways one on each side, equidistant from the axis m, in combination with a shutter engaged with each gun and with the ways so as to traverse up and down in the latter as the gun is elevated and depressed, all arranged for joint operation substantially as herein specified.

2. A turret or shield arranged to turn horizontally, and carrying a gun turning therewith, a shutter connected to the gun and moving with it up and down as it is elevated and depressed, and having a spherical aperture, in combination with a spherical ring arranged to turn in such aperture and also to allow the gun to move longitudinally through it, substantially as herein specified.

3. A turret or shield arranged to turn horizontally and carrying a gun turning therewith, a shutter connected to the gun and moving with it up and down as the gun is elevated and depressed, and having a spherical aperture, and flat portions *g*, *g*, each with a hole therein, in combination with an inclosed spherical ring H having trunnions H', H², engaged in such holes so as to aid in supporting the shutter on the gun and allow the free turning of the ring H thereon, all substantially as herein specified.

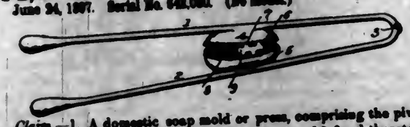
4. The combination with a revolving turret or shield B, of a gun F turning therewith and having a cylindrical exterior along its midlength, a ring H having a generally spherical exterior form inclosing such cylindrical portion of the gun and an inclosing part G', G², matching to the spherical exterior of said ring, the gun extending outward and adapted to move longitudinally within the ring and to accommodate the elevation and depression by the rolling of the ring, all substantially as herein specified.

5. A ship or floating support, a revoluble turret, projecting above the upper deck thereof and capable of being revolved horizontally, a gun inclosed therein and turning therewith, elevated and depressed on an axis within the turret contiguous to the gun-port, an externally-projecting casing rigidly connected to the turret and having guideways in which a shutter plays up and down to accommodate the elevation and depression of the gun, a device H rocking in such shutter adapted to permit a cylindrical portion of the gun to work longitudinally through such device, all combined and arranged for joint operation substantially as herein specified.

6. A turret or shield arranged to turn horizontally and carrying a gun turning therewith, a shutter connected to the gun and moving with it up and down as the gun is elevated and depressed, and having a spherical aperture, in combination with an inclosed spherical ring and with a sleeve I, carried on the gun, all arranged for joint operation substantially as herein specified.

7. A ship or floating support, a revoluble turret carried thereon inclosing a gun elevated and depressed in a suitable gun-port in said turret, a yielding diaphragm closing the joint between the turret and ship, allowing liberty for both a revolving and lateral movement, and a shutter closing the joint between the gun and turret, all substantially as herein specified.

604,436. SOAP-PRESS. HARRY H. SWARES, Reading, Pa. Filed June 24, 1897. Serial No. 642,020. (No model.)



Claim.—1. A domestic soap mold or press, comprising the pivoted lever-handles 1 and 2, the separable disks 4 and 5 fixed thereto, and provided with intermeshing edges, substantially as shown and described.

2. The domestic soap mold or press, comprising the pivoted handles 1 and 2, the cup-shaped disk 4 fixed to the handle 1, and provided with a series of guide-ears 6 6, and an intervening series of recesses 7 7, and the oppositely-disposed cup-shaped disk 5 formed with a series of guide-ears 8 and intervening recesses 9 alternating with the corresponding guide-ears and recesses on the disk 4, substantially as shown and described.

604,437. CLOTHES RACK OR DRIER. URBIN P. TARDIF, Toronto, Canada. Filed Apr. 9, 1897. Renewed Mar. 24, 1898. Serial No. 675,041. (No model.)

Claim.—1. In a clothes rack or drier the combination of the vertical case, a movable bracket within the case arranged to assume a vertical position when the arms are folded into the case and a horizontal position when the arms are required for use, and a vertically-slidable front for the case, adapted to support the bracket in its horizontal position, and close the front of the case when the bracket and arms are contained within the case, substantially as specified.

2. In a clothes rack or drier the combination of a vertical case, a vertically-slidable front for the case, a flange at the top of the front, flanged plates connected to the front, adapted to enter grooves in the sides of the case, flanged plates connected to the sides of the case, overlapping the front, a hook connected to the back of the front, and a vertically-movable bracket within the case consisting of a base, and a top plate, a series of arms connected to the bracket between the base and top plate, and a staple connected to the bottom of the base adapted to engage the hook at the back of the front, substantially as specified.

604,438. FIRE-KINDLER. WILLIAM R. R. TRAEP, Glidden, Iowa. Filed June 26, 1897. Serial No. 642,452. (No model.)



Claim.—1. A fire-kindler comprising a lamp or vessel, a tube extending therefrom carrying a wick and match, a support secured to the upper portion of the vessel, a spring-actuated striker carried by said support, an alarm-clock, and mechanism connected to and operated thereby for releasing the striker, in the manner and for the purpose described.

2. A fire-kindler comprising a lamp or vessel having a tube extending upwardly from the top portion thereof, a wick within said tube, a match arranged in proximity to the wick, a support carrying an upright guide, a spring-actuated striker secured near one end of said support, a trigger to hold said striker in a raised position, an alarm-clock, and a bar or rod having one end thereof connected to said trigger and the opposite end attached to a movable part of the alarm-clock, as and for the purpose set forth.

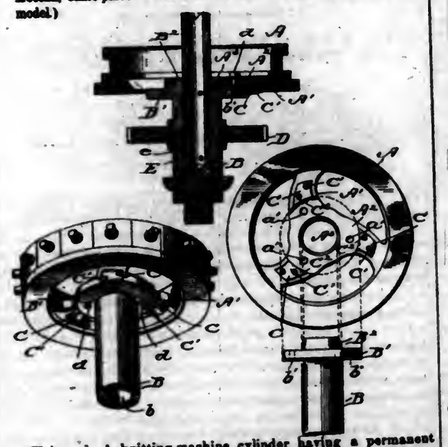
3. An apparatus for kindling fires, comprising a lamp or vessel having an upwardly-extending tube and a wick and match arranged within said tube, a support fitted over said tube, an upwardly-extending guideway on the support, a spring-actuated trigger carried by said support, an alarm-clock, and operating mechanism secured to and adapted to be operated by the alarm-clock to ignite the match when the alarm is sounded as and for the purpose described.

604,439. APPARATUS FOR EXTINGUISHING FIRE AND DISTRIBUTING DISINFECTANTS. WALTER M. THOMPSON and CHARLES HUNKINS, Cincinnati, Ohio. Filed May 23, 1896. Serial No. 592,816. (No model.)

Claim.—In an apparatus of the character described, the combination of a through water-pipe having a stop-cock, a series of vertically-disposed receptacles, baskets or holders suspended therein, a branch pipe connecting said through water-pipe with the upper part of the first receptacle of the series, said branch pipe having a stop-

cock, a pipe connecting the lower part of said receptacle with the upper part of the next succeeding receptacle, a pipe connecting the lower part of the last receptacle of the series with the through water-pipe and a check-valve in the latter connecting-pipe.

604,440. KNITTING-MACHINE CYLINDER. EUGENE VERMILYEA, Waterford, N. Y., assignor of one-half to Samuel Snyder and John Metcalf, same place. Filed Nov. 17, 1897. Serial No. 658,799. (No model.)



Claim.—1. A knitting-machine cylinder having a permanent part extending across the bottom of the ring, and provided with a detachable hub or sleeve, and means for detachably fastening the upper end of the said hub to the said part, substantially as set forth.

2. A cylinder having a permanent part extending across the bottom of the ring, having a central, conoidal opening, and provided with a hub or sleeve which is provided with a conical upper end adapted to fit into this opening, and an outwardly-extending part and means for detachably fastening said outwardly-extending part to the said bottom part of the cylinder substantially as set forth.

3. In combination with a cylinder having a permanent part extending across the bottom of the ring and lugs or plates with curvilinear edges detachably fastened to the under side of the said part, a hub or sleeve having a rigid disk or collar on its upper end the periphery of which fits against the said lugs and means for detachably fastening said collar to the said bottom part of the cylinder substantially as set forth.

4. A hub or sleeve having a conoidal top, B^3, and a disk or collar, B', in combination with a cylinder having a permanent part extending across the bottom of the ring and provided with a central, conoidal opening adapted to fit the upper end of the said hub, lugs removably attached to the under side of the said part and having curved, inner edges fitting the periphery of the said disk and means for detachably fastening the latter to the said bottom part of the cylinder substantially as set forth.

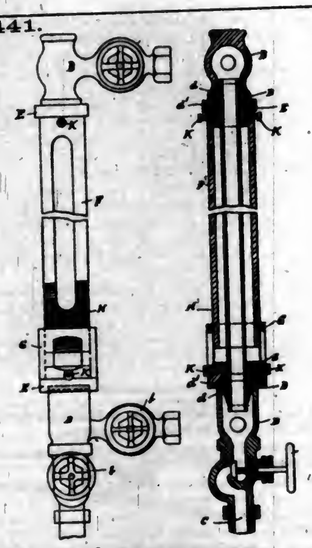
5. A cylinder, A, provided with a permanent spider-frame, A', extending across its bottom and having a central, conoidal opening, B^3, in combination with a hub or sleeve having a conoidal, upper end, R^3, adapted to fit into the said opening, and a disk, B', adapted to fit against the bottom of the said frame, means for fastening the said disk to the said frame and lugs which are detachably fastened to the said frame and provided with curved, inner edges which fit against the said disk substantially as set forth.

6. In combination with the tubular, suspending-stud, E, having holes, *c*, the sleeve or hub, B, having a conoidal, upper end, B^3, and the cylinder, A, having a rigid part extending across it at the bottom, and provided with a central, conoidal opening, A^3, the said sleeve and cylinder being detachably fastened together, substantially as set forth.

604,441. GAGE-GLASS MOUNTING. ALBION VILE, Cardiff, England. Filed Dec. 21, 1897. Serial No. 662,888. (No model.)

Claim.—In combination, the gage-glass, the fittings B, B, the hat washers about the ends of the gage-glass, the metallic washers E, E, about the gage-glass for forcing the base-flange of the hat washers against the fittings, and the extension-piece F between the washers with the piece G screw-threaded into connection with the extension-piece and connected with the lower washer by a swivel-joint, substantially as described.

604,441.



604,442. CAR-BUFFER. ARTHUR M. WAITT, Cleveland, Ohio. Filed Sept. 21, 1897. Serial No. 652,448. (No model.)



Claim.—1. In a car-buffer, the combination with a friction-plate socket, of a telescoping friction-plate having a blind pocket inaccessible from the exterior or bolt-socket on its interior face, a bolt for securing the friction-plate to the friction-plate socket, means for movably securing the bolt in the bolt-socket on the interior face of the friction-plate, a nut for the bolt, and a nut-recess in the friction-plate socket, substantially as and for the purposes specified.

2. In a car-buffer, the combination with a friction-plate socket having a countersunk bolt-hole in its bottom, of a telescoping friction-plate having a slotted bolt-socket on its interior face, a slotted bolt, and a key for connecting the friction plate and friction-plate socket, substantially as and for the purposes specified.

3. In a car-buffer, the combination with a friction-plate socket or base and a friction-plate or movable section, of a plurality of buffer-springs and means for maintaining one or more of said springs under partial compression independently of the friction-plate or movable section of the buffer, substantially as and for the purposes specified.

4. In a car-buffer, the combination with a friction-plate socket, a telescoping friction-plate, and a plurality of buffer-springs interposed between the socket and friction-plate, of anchors for maintaining one or more of said springs under partial compression within the friction-plate socket and independently of the movable friction-plate, substantially as and for the purposes specified.

5. In a car-buffer, the combination with a friction-plate, and a friction-plate socket having lugs on its interior, of interposed buffer-springs, and Z-shaped anchors for holding part of said springs under compression, substantially as and for the purposes specified.

6. In a car-buffer, the combination of a cup friction-plate, and a friction-plate socket, one of said parts having a raised spring-seat for the inner or lighter buffer-spring, a plurality of buffer-springs of equal length, and means for maintaining part of said springs under partial compression independently of the friction-plate, substantially as and for the purposes specified.

7. In a car-buffer, the combination with a socket having recessed offsets and anchor-lugs on its interior, of a cup friction-plate having legs on its exterior which engage in the recesses of the socket and interior lugs which engage the spring-anchors, interposed buffer-springs, and anchors which maintain one or more of said buffer-springs under partial compression, substantially as and for the purposes specified.

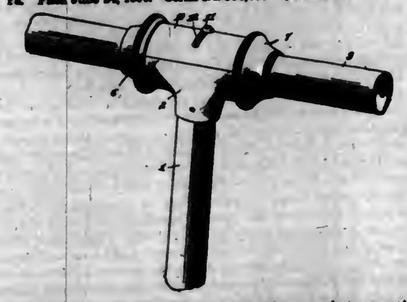
8. In a car-buffer, the combination of a socket, a telescoping friction-plate, an interposed buffer-spring, and means for maintaining the buffer-spring under partial compression independently of the telescoping friction-plate, substantially as and for the purposes specified.

604,443. BOTTLE-STOPPER. WILLIAM WALKER, Summit, N. J. Filed Oct. 1, 1897. Serial No. 653,602. (No model.)



Claim.—Means for hermetically sealing bottles, comprising, in combination, a vessel having a neck, a shouldered offset at the upper end of said neck, an annular flange of greater internal diameter than the diameter of said neck, said flange being upwardly directed to afford a holding-surface, a cork in said neck, a screw-fastening between the same, and a hardened, non-resilient sealing substance between and engaging the said cork and the inner holding surface or wall of said flange and entering the interstices of the same.

604,444. BICYCLE-HANDLE. MONTEREY WALLIS, Philadelphia, Pa. Filed June 24, 1896. Serial No. 596,703. (No model.)

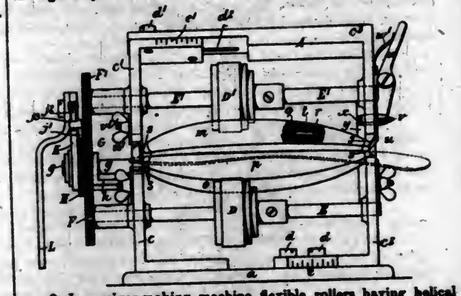


Claim.—1. In combination, a socket-tube, a socket connected thereto, a barrel provided at one end with an overhanging flange to engage one end of the socket, a lug projecting from the bottom of the socket to engage notches in the barrel, a collar having an overhanging flange to engage the opposite end of the socket, said socket being shaped to produce an annular space when applied to a handle-bar, the collar having a flange to rest on the handle bar, a cap semi-circular in cross-section fitting under the flanges of the collar and barrel, said cap having a transverse slot, a screw seated in the barrel and protruding through the slot, the edges of said cap meeting and resting on the edges of the socket, a spring encircling the bar within the space and abutting the flange, and a ring 16 fitting partially in the space to confine the spring, as and for the purpose described.

2. An adjustable handle-bar, a semicircular socket, a barrel adapted to fit in said socket, a lug projecting upward to engage slots in the barrel, a semicircular plate adapted to fit over the barrel, the edges of the plate fitting against the edges of the socket, a cap formed with one end of the barrel having an annular flange encircling the socket and plate, a similar cap on the end adapted to slide back and forth and clamp the parts together, and a handle-bar clamped within the barrel, substantially as described.

604,445. CIGAR-MACHINE. OTTO WARTMANN, London, England. Filed Feb. 17, 1897. Serial No. 623,783. (No model.) Patented in England Mar. 26, 1896, No. 6,698.

Claim.—1. In a cigar-making machine, flexible rollers having helical wire-coil foundations, each roller having a continuous surface without division or joint, and of the same diameter throughout as the corresponding part of the cigar to be produced, and means for rotating said rollers acting frictionally upon said rollers intermediate their respective ends, in combination with fixed mandrels supported at both ends on which said rollers are mounted and adapted to revolve, said mandrels being curved so that the rollers fit against and shape the cigar in process of formation, substantially as set forth.



2. In a cigar-making machine, flexible rollers having helical wire-coil foil foundations, each roller having substantially the shape and size of the cigar to be produced, and means for rotating said rollers acting frictionally upon said rollers intermediate their respective ends, in combination with fixed curved mandrels supported at both ends on which said rollers are mounted, each mandrel being so shaped that one side of the roller thereon conforms to the contour of the cigar in process of formation, substantially as set forth.

3. In a cigar-making machine, flexible rollers having helical wire foundations, each roller having a continuous surface without section or joint and being in every part substantially of the same diameter as the corresponding part of the cigar to be produced, in combination with fixed mandrels on which said rollers are mounted, each mandrel being supported at both ends and so shaped that one side of the roller thereon conforms to the contour of the product, friction-wheels in contact with said rollers intermediate their respective ends, and ratchet-and-pawl gearing whereby intermittent revolution of said friction-wheels is produced, substantially as set forth.

4. In a cigar-making machine, flexible rollers each of which has a continuous surface without section or joint and substantially the size and shape of the cigar to be produced, in combination with rigid curved mandrels on which said rollers are mounted, each mandrel being supported at both ends and so formed that one side of the roller thereon corresponds with and fits the contour of the cigar, friction-gearing intermediate the respective ends of said rollers and in contact therewith, and ratchet-and-pawl mechanism for actuating said friction-gearing, substantially as set forth.

5. In a cigar-making machine, the combination of flexible rollers, rigid mandrels supported at both ends on which said rollers are mounted, and friction driving-gear in contact with said rollers intermediate their respective ends, substantially as set forth.

6. In a cigar-making machine, the combination of flexible rollers, rigid mandrels supported at both ends on which said rollers are mounted, friction driving-gear in contact with said rollers intermediate their respective ends, and ratchet-and-pawl mechanism whereby intermittent revolution of said friction-wheels is produced, substantially as set forth.

7. In a cigar-making machine, the combination of continuous-surfaced shaping-rollers, and friction driving-gear in contact with said rollers intermediate their respective ends, substantially as set forth.

8. In a cigar-making machine, the combination of shaping-rollers, friction driving-gear in contact with said rollers intermediate their respective ends, and ratchet-and-pawl mechanism whereby intermittent revolution of said friction-wheels is produced, substantially as set forth.

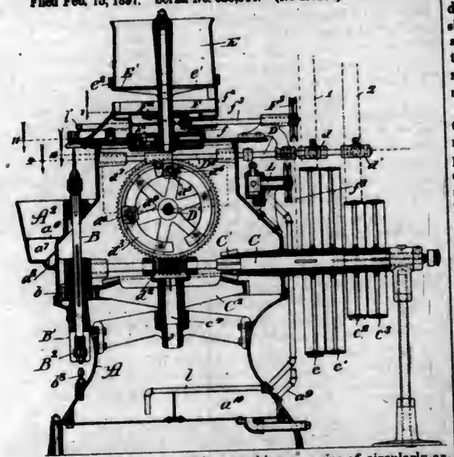
604,446. DOFFER-GUARD AND STOPPER FOR LUBRICATING-TUBES FOR SPINDLES. JOSEPH W. WATTLES, Canton, Mass. Filed Oct. 12, 1897. Serial No. 654,943. (No model.)

Claim.—1. The combination, with a bolster-holder, a spindle, and a cylindrical body extending upward from the holder and provided with a projection on its side, of a sleeve-like member adapted to fit and slide upon said cylindrical body, and provided with both a projecting flange at its upper end and a vertical and a horizontal slot in its side for engagement with said projection, whereby the spindle may be either held within the holder, or its withdrawal therefrom permitted, as may be desired, substantially as described.

2. The combination, with the spindle C provided with the whirl *c* having the circumferential flange *c'* at its lower edge, the bolster-holder A, and the tube E provided with the pin or projection f^3 extending outward from its side, of the doffer-guard fitted to such tube and provided at its upper end with a flange, *f'*, for engagement with the flange *c'* on said whirl *c*, and with vertical and horizontal intersecting slots f^3 and f^4 in its lower portion for engagement with said pin or projection, the latter of which slots is so disposed with respect to the former slot that the action of the spindle upon the doffer-guard, when the spindle is in rotation, tends to hold such guard in a locked position upon its locking pin or projection; substantially as described.



604,447. NUT-TAPPING MACHINE. GEORGE WEISS, Chicago, Ill. Filed Feb. 15, 1897. Serial No. 623,501. (No model.)



Claim.—1. In a nut-tapping machine, a series of circularly-arranged tapping-spindles provided with spur-pinions, radially-arranged chutes and pushers coacting therewith, in combination with a centrally-located driving-gear meshing with the pinions on the tapping-spindles and receiving its motion directly from the driving-shaft, and a driving-shaft arranged at right angles to the rotation of the centrally-located driving-gear and arranged to drive the same, substantially as described.

2. In a nut-tapping machine, the combination of a frame portion, a set of spindles rotatably and vertically mounted in such frame portion on substantially equidistant points of a circle, mechanism for operating the spindles in the desired manner and feeding them forward, a centrifugally-acting plate for feeding the nuts forward to position, a series of radially-arranged pushers for feeding the nuts forward after they have left the centrifugally-acting plate into position to be acted on by the tapping-spindles, and a centrally located disk provided with a series of cams adapted to impart the desired motion to the pushers, substantially as described.

3. In a nut-tapping machine, the means for feeding the nuts forward into position, which consists of an oscillating cam moving in a horizontal plane, a set of radially-mounted pushers provided with portions engaging with the cam, whereby the pushers are moved in and out at the desired times, and means for vibrating the cam in a right-hand and left-hand manner, substantially as described.

4. In a nut-tapping machine, the means for feeding the nuts forward into position, which consists in the combination of a double set of oscillating cam-disks arranged in different horizontal planes provided with a set of eccentric cam-grooves, a set of radially-mounted pushers provided with portions arranged so that one half engages with the cam-grooves of such disks whereby the pushers are moved in and out at the desired times, and means for vibrating the cam in a right-hand and left-hand manner, substantially as described.

5. In a nut-tapping machine, the means for pushing the nuts forward into position, which consists of a set of pushers each made in two portions one portion slidingly mounted in the other—one portion of each pusher having a notch and the other portion a spring-actuated pin to engage with the notch and permit the parts to be collapsed or extended, substantially as described.

6. In a nut-tapping machine, the means for feeding the nuts forward, which consists of a set of vibrating cam-disks having a set of eccentric cam-grooves, a set of radially-mounted and movable pushers engaging with the grooves so that the vibrations of the cam reciprocate the pushers in the desired manner, an independently-movable outer portion of each pusher slidingly mounted in the main portion of the pusher and provided with a notch in its upper surface, a spring-actuated plug in the main portion of the pusher adapted to engage with the notch in the independently-movable portion of the pusher and hold the same in position or permit it to move relatively inwardly when striking a rigid article, a pin g^3 arranged on a stationary portion of the machine and in the path of the pusher to force the pushers into their extended position, substantially as described.

7. In a nut-tapping machine, the means for operating or feeding forward the nuts, which consists in the combination of a main driving-shaft, an intermediate driving-shaft, means for transmitting power or motion from the main driving-shaft to the intermediate shaft in a vibratory manner, a reciprocating sliding bar H^3 provided with lugs adjustably mounted thereon, a lever-arm secured to the intermediate driving-shaft and arranged to contact the lugs and reciprocate said sliding bar, a cam vibratingly mounted in a horizontal plane, mechanism on the sliding bar engaging with the vibrating cam to vibrate the same by the reciprocations of the sliding bar, and a set of reciprocating pushers arranged to be actuated by the cam to feed the blank nuts forward into position, substantially as described.

8. In a nut tapping machine, the means for holding and feeding the nuts forward, which consists in the combination of a hopper arranged to have a step-by-step rotation, a circular ratchet on such hopper, a vertical shaft provided with a dog or pawl eccentrically mounted on the upper portion thereof to move the hopper in a step-by-step manner, a lever-arm on the lower portion of said vertical shaft, a sliding bar H^3 provided with adjustable lugs I I' arranged to contact the lever-arm and vibrate the same during the reciprocations of the sliding bar, a second set of lugs A^5 and A^6 on said sliding bar, a vibrating shaft D' provided with a lever-arm D^4 arranged to contact the second set of lugs and reciprocate the sliding bar, and means for transmitting power and motion to the vibratory shaft, substantially as described.

9. In a machine of the class described, the belt-shifting device which consists of a combination of tight and loose pulleys of different diameters one of which is provided with an inner or intermediate abrupt bevel-edge, a belt-guiding loop of substantially greater length than the width of the belt, and an adjustable friction-bearing for preventing the yielding of the shipper-rod and its loop to anything other than the positively-actuating mechanism, and a shipper-rod for carrying the belt-guiding loop mounted in the adjustable friction-bearing, substantially as described.

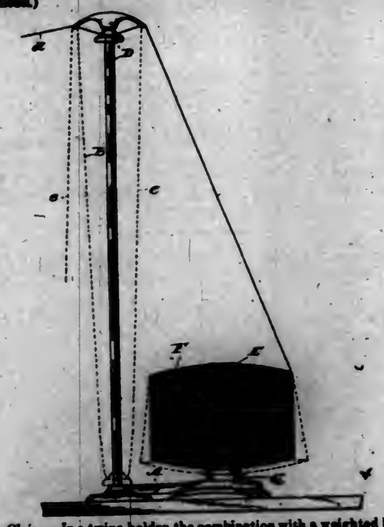
604,448. NOSE-GUARD FOR EYEGLASSES. GEORGE W. WELLS, Southbridge, Mass., assignor to the American Optical Company, same place. Filed June 21, 1897. Serial No. 641,563. (No model.)



Claim.—1. In a nose-guard for eyeglasses, the combination with the main part of the nose-guard, of a two-leaf or double spring extending at the back thereof, and two nose-pads secured thereto and moving therewith, one leaf or part of said spring being intermediate the other leaf or part of the spring and the back of the main part of the nose-guard, and secured to said main part, substantially as shown and described.

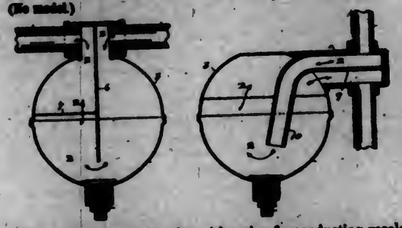
2. In a nose-guard for eyeglasses, the combination with the main or rigid part of the nose-guard, of a spring extending at the back thereof, and two nose-pads secured thereto and moving therewith, and a second spring intermediate the first-mentioned spring and the back of the main part of the nose-guard, and secured at one end to said main part, and at its other end to one end of said first-mentioned spring, substantially as shown and described.

604,449. TWINE-HOLDER. EDWARD B. WHITE, Dayton, Ohio. Filed Oct. 24, 1896. Renewed Oct. 18, 1897. Serial No. 655,022. (No model.)



Claim.—In a twine-holder, the combination with a weighted base having a stud or support for the twine and a vertical rod attached thereto, of the opposite horizontally-extending arms at the top of the rod having inclined guide-openings, and a weight sliding on the rod provided with opposite inclined guide-openings and a groove on its under side connecting the openings, substantially as and for the purpose shown and described.

604,450. GASOLINE-FILTER. CHARLES S. WHITE, Minneapolis, Minn., assignor of one-half to J. Henry Bear, same place, and George H. Morse, Elm Prairie, Minn. Filed June 17, 1895. Serial No. 553,003. (No model.)



Claim.—1. The combination with a pipe for conducting gasolene to a burner, of a filter consisting of a hollow body providing downward inflow and upward outflow conduits in communication only near the bottom of the chamber of said hollow body, and a screen in the outflow-conduit arranged suitably above the plane of communication between the conduits, and means for removing settlings from said chamber, substantially as set forth.

2. The combination with a pipe for conducting gasolene from a source of supply to a burner, of a filtering device consisting of a downwardly-curved section coupled into the pipe and provided with a filtering medium arranged to intercept the upward flow from such curved section to the outflow-pipe, substantially as set forth.

604,451. CAR-BUFFER. HERMAN F. BALL, Cleveland, Ohio. Filed Sept. 21, 1897. Serial No. 652,442. (No model.)

Claim.—1. In a car-buffer, the combination of a flanged spring-box or base-section, a flanged cup friction-plate which incloses and telescopes with the spring-box or base-section, interposed buffer-springs, and a removable collar or slip-ring which encircles the flanged spring-box or base-section and is detachably connected with the flanged cup friction-plate, substantially as and for the purposes specified.

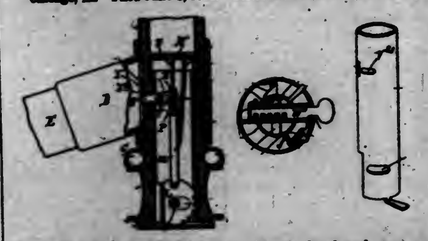


2. In a car-buffer, the combination of a flanged spring-box or base-section, a flanged cup friction-plate, interposed buffer-spring, a removable slip-ring which encircles the base-section or spring-box and is detachably attached to the cup friction-plate, and means for preventing the rotation of the cup friction-plate on the base-section or spring-box, substantially as and for the purposes specified.

3. In a car-buffer, the combination of a base-section or spring-box having a notched flange, a flanged cup friction-plate having one or more inner ribs which engage the notched flange of the base-section, interposed buffer-spring, and a slip-ring, substantially as and for the purposes specified.

4. In a car-buffer, the combination with a base-section or spring-box having a notched flange, of a flanged cup friction-plate having one or more ribs on its interior which engage the notches of the flange of the spring-box, interposed buffer-spring, and a notched slip-ring, substantially as and for the purposes specified.

604,452. LOCKING DEVICE FOR BICYCLES. JOHN C. BARR, Chicago, Ill. Filed June 8, 1896. Serial No. 594,673. (No model.)



Claim.—1. The combination of a bicycle head and stem, each provided with an aperture with a bolt-controlling device within each stem and its bolt in proper relation to said apertures, a cylindrical shield to control each apertures, a lock for each shield and means whereby each lock is controlled by the keys so as always to free the shield when the key is introduced.

2. The combination of a bicycle head and stem, each provided with an aperture with a bolt-controlling device within each stem, and its bolt in proper relation to said aperture, a cylindrical shield to control each apertures, a lock for each shield and means whereby each lock is controlled by the key so as always to free the shield when the key is introduced, and a frame portion outside the apertures in the head and stem to conceal them and the bolt and prevent access thereto.

3. In a bicycle-lock, the combination of the head and stem with a bolt-controlling device within the stem and adapted to lock the head and stem together, apertures in the stem adapted to receive said bolt, a transverse key-chamber below the stem, a reciprocating key adapted to move therethrough and connecting means whereby the reciprocation of said key operates the bolt.

4. In a bicycle-lock the combination of a locking device inserted in the stem with a key-chamber below the stem, and a spring-lock to lock the key in and to close the key-aperture when the key is removed.

5. In a bicycle-lock, the combination of a slotted casing containing mechanism to be received in the stem with a cylindrical shield for the slot in said casing, a lock to secure the shield in its operative position and a key to control said lock.

6. A lock for bicycles, comprising a pivoted bolt, bolt-receiving apertures in the stem and head opposite a frame-tube of the bicycle, a controlling device for said bolt concealed within the stem of the bicycle, a connecting-rod pivotally connected with said controlling device and provided with a slot, a projecting part on said bolt engaging said slot, a key-chamber near said controlling device, said controlling device projecting into said key-chamber so as to be engaged by the key.

7. A bicycle-lock, comprising a pivoted locking-bolt within the stem and adapted to pass into an aperture in the stem and head and lock them together, a spring-actuated arm within said stem and forming part of said bolt, a toothed plate pivotally connected with said

arm, a key-chamber into which said toothed plate projects, the parts so positioned that when the key is inserted in said key-chamber it engages said toothed plate and actuates the bolt.

8. A bicycle-lock comprising a cylindrical case or frame adapted to be received in the lower part of the stem, a key-chamber at the lower part of such stem, a locking-bolt within said stem and adapted to pass through an aperture in the stem and head and lock them together, an actuating device for said bolt projecting into said key-chamber, said bolt normally in a locked position, the parts so constructed that when the key is inserted in said key-chamber, the bolt is held in an unlocked position and a connecting device for said key contained within said case, and adapted to engage said key and hold it in the lock.

604,453. SECONDARY ELECTRIC CLOCK. AARON D. BLODGETT, Newton, Mass. Filed May 29, 1897. Serial No. 638,670. (No model.)



Claim.—1. In a device of the character specified, the combination of the lever E adapted to be reciprocated, with the portion E' pivoted to the said lever at e^3 having its feed-pawl provided with an inclined surface e^9 and having its rear end provided with the face e^8, with the stop or pins e^7, e^{10} arranged as specified and acting in conjunction with the teeth or notches of the feed-wheel as described, and said feed-wheel.

2. The combination in a device of the character specified of the spur-wheel having the feeding teeth or notches, the detent-pawl having a point to engage said teeth or notches and the extension f^4, and a movable projection or lock moved against said extension to lock the detent as the feed-pawl approaches or reaches the end of its forward feeding movement, and said pawl.

3. The combination in a device of the character specified of the oscillating arm E, the spring E^2, the support e^6 pivoted at A, having the curved slot A^3 and a clamping nut or device A^4, as and for the purposes described.

4. The combination in a device of the character specified of the main shaft C, the feed-wheel E^2 mounted thereon having feeding spurs or notches, the sleeve D mounted upon said shaft and free to be turned backward and forward a limited extent thereon, an arm E extending outward from said sleeve, an armature attached to said sleeve and having outwardly-extending arms, the magnets D^2, D^3 arranged in respect to the arms of the armature as shown and described, a feed-pawl E' pivoted to the arm E and shaped at its end as specified, the arm moving spring E^3, the stops or pins e^7, e^{10}, the detent F having the inclined end f^7 and the extension f^6 and the movable detent-locks f^3, f^5, all arranged to operate as and for the purposes set forth.

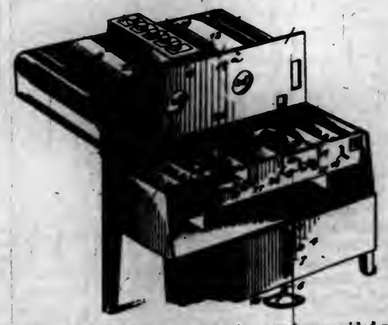
5. In a time-dial movement of the character specified, the combination of a spur-wheel having a single set of teeth, a lever adapted to be oscillated at stated intervals, a feed or driving pawl carried by said lever, a detent-pawl and means substantially as specified for seating the driving-pawl between the teeth of the said wheel at the end of its backward movement, for seating the detent-pawl between the teeth of said wheel at the end of the driving or forward movement, and for locking the driving-pawl and detent-pawl in engagement with the teeth of said wheel while the lever is stationary or at rest.

6. The combination in a time-dial movement of a wheel having a single set of teeth, a lever adapted to have oscillating movements imparted to it at stated intervals, a feeding or driving pawl for imparting an intermittent progressive feeding movement to said wheel carried by said lever, means for seating said pawl between the teeth of the wheel as said lever approaches the end of its backward movement and made operative because of said backward movement of the lever, a detent-pawl and a projection upon said lever adapted to be brought into contact with said pawl as the said lever is approaching the end of its forward movement, and to be held in contact with said pawl while the lever is in its forward position, and an additional projection upon said lever adapted to be brought into contact with said pawl as the said lever approaches the end of its backward movement, whereby the said lever acts to lock the detent as it approaches and recedes from the end of each of its movements, and to hold the said detent while at the end of said movements.

7. The combination in a time-dial movement of a wheel having a single set of teeth, a lever adapted to have oscillating movements imparted to it at stated intervals, a feeding or driving pawl for imparting an intermittent progressive feeding movement to said wheel carried by said lever, means for seating said pawl between the teeth of the wheel as said lever approaches the end of its backward movement and made operative because of said backward movement of the lever, as and for the purposes set forth.

8. The combination in a time-dial movement of a wheel having a single set of teeth, a lever adapted to have oscillating movements imparted to it at stated intervals, a feeding or driving pawl for imparting an intermittent progressive feeding movement to said wheel carried by said lever, and means such as a pin and a cooperating surface or arm of the feed-pawl for seating said pawl between the teeth of the wheel as said lever approaches the end of its backward movement, and made operative because of said backward movement of the lever, as and for the purposes set forth.

604,454. KITCHEN-CABINET. THOMAS W. BOYETTE, Dallas, Tex. Filed May 27, 1897. Serial No. 638,422. (No model.)



Claim.—1. A kitchen-cabinet having a casing provided with a tilting lid, bins supported by said lid, and sifting and conveying devices arranged within the casing respectively in communication with the bins and adapted to be exposed by tilting said lid, substantially as specified.

2. A kitchen-cabinet having a casing and inclosed sifting and conveying devices, said casing being provided with a tilting lid and a drop-door having meeting edges, bins supported by said lid in communication respectively with the sifting and conveying devices and adapted to be inclined with the lid to expose the interior of the casing, and a common locking device connecting the meeting edges of said lid and door, substantially as specified.

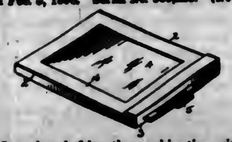
3. A kitchen-cabinet having a casing provided with a tilting top lid and a front drop-door, adapted to meet at their contiguous edges, bins supported by said lid in communication with the interior of the casing, and a common locking device for said lid and door, including an eye on the door engaging a socket formed in a beveled surface carried by the lid, and a pin for engaging said eye, substantially as specified.

4. A kitchen-cabinet having a casing provided with a drop-door, a scale mounted upon the drop-door and arranged in its normal position when the door is in its open position, said scale having a detachable pan and a spring-actuated stem or shank, extending beyond the free edge of the door and adapted to engage a socket in the casing, to lock the door in its closed position, substantially as specified.

5. A kitchen-cabinet having a casing provided with an open top fitted with a lid, bins supported by said lid, troughs arranged within the casing in communication with the bins, the outlet ends of the bins being located at the rear ends of the troughs, said troughs being provided at their front ends with outlet-spouts, and conveyors arranged in the troughs and having exposed operating devices, the lid and supported bins being adapted to be tilted rearwardly to expose the interiors of the troughs, substantially as specified.

6. A kitchen-cabinet having a casing provided with parallel guides, removable stop-plates closing the front ends of said guides, sifting devices having slides mounted upon said guides and adapted to be removed through the open front ends of the guides, the sifting devices having agitators of which the shafts extend through the bearings in the stop-plates, and bins mounted upon the top of the casing and adapted to discharge into the sifting devices when the latter are in their normal positions under the bin-outlets, substantially as specified.

604,455. PHOTOGRAPHIC PLATE HOLDER. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed Feb. 5, 1896. Serial No. 578,322. (No model.)



Claim.—1. In a plate-holder, the combination with the back having the slotted strip at one end and the flap therein, of the plate-container hinged to the opposite end of the back, open at the front, and having the way for the slide or shutter and the hinged back cover flap, and the slide or shutter operating in the strip and container, substantially as described.

2. In a plate-holder, the combination with the back having the slotted strip at one end, of the plate-container open at the front and hinged to the opposite end of the back, and having the ways for the slide and the back cover flap hinged to the rear side of the outer free end of the container and adapted to fold beneath it, and the slide or shutter cooperating with the back and container, substantially as described.

3. In a plate-holder, the combination with the back, having the slotted strip at one end, of the plate-container open at the front and hinged to the opposite end of the back, and having the way for the slide, and the back-cover having the corrugations and hinged to the back of the container, and the slide or shutter cooperating with the back and container, substantially as described.

4. In a plate-holder, the combination with the back, having the strip at the end of the plate-container hinged to the holder-back, consisting of the outer face-frame 16 the frame 18, and the inner frame 17 having the back cover flap 11, and a slide or shutter, substantially as described.

5. In a plate holder, the combination with the strip 3 having the passage for the slide or shutter, and the recesses above and below it, of the flap 6, the flexible hinge-strip 7 secured to the strip 3, and the springs 9, substantially as described.

604,456. BRAKE-BEAM. LUTHER C. BURDEN, Chicago, Ill., assignor to the Chicago Railway Equipment Company, same place. Filed Dec. 20, 1897. Serial No. 664,502. (No model.)



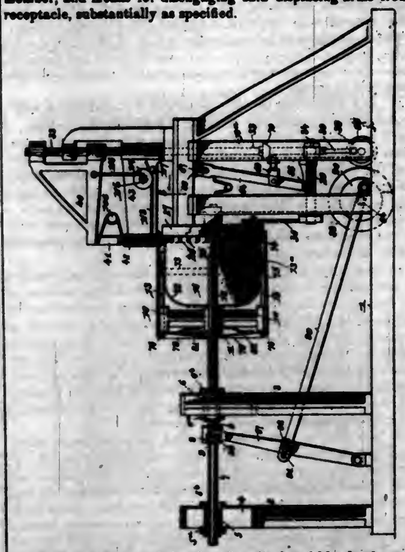
Claim.—1. In a trussed brake-beam, the combination with the tension member and tension-nut, of a rocking block or bearing for the nut, substantially as and for the purposes specified.

2. In a trussed brake-beam, the combination with the tension-rod and tension-nut, of a perforated bearing-block having the form of the segment of a sphere, and a brake-head having a corresponding seat for the reception of the bearing-block; substantially as and for the purposes specified.

604,457. BASKET-MAKING MACHINE. THOMAS CRIMMIN, Bridgeport, Ala. Filed June 4, 1897. Serial No. 639,457. (No model.)

Claim.—1. In a machine of the class described, a folder having an interior form, and a reciprocatory exterior member supported by an axial shaft connected with said exterior member at its outer end, radially-movable displacing-arms mounted upon the outside of the exterior member of the folder and provided at their inner sides with means for engaging a completed receptacle, and removing the latter from the form during the backward movement of the exterior member, and means located contiguous to the supporting-shaft of the exterior member, for spreading the displacing-arms to release the receptacle, the receptacle being removable from the exterior member at its inner end, substantially as specified.

2. In a machine of the class described, a folder having an interior form and a reciprocatory exterior member, radially-movable displacing-arms mounted upon the exterior member of the folder and provided contiguous to their extremities with interior shoulders for engaging the edge of a completed receptacle, and removing the latter from the form during the backward movement of the exterior member, and means for disengaging said displacing-arms from the receptacle, substantially as specified.



3. In a machine of the class described, a folder having an interior form and an exterior reciprocatory member, shouldered displacing-arms pivotally mounted upon the reciprocatory member and provided with trip extensions, and a stop located in the paths of the extremities of said trip extensions to spread the detaching arms when the reciprocatory member is retracted, substantially as specified.

4. In a machine of the class described, a folder having an interior form, an exterior reciprocatory member, pivotal detaching-arms mounted upon the reciprocatory member and shouldered to engage a receptacle on the form, said detaching-arms having inturned trip extensions, a stop located in the paths of the trip extensions, whereby when the reciprocatory member is retracted the detaching-arms are spread to release a receptacle, and a locking device for securing the detaching-arms in their spread position, substantially as specified.

5. In a machine of the class described, a folder having an interior form, an exterior reciprocatory member, pivotal detaching-arms mounted upon the reciprocatory member and shouldered to engage a receptacle on the form, said detaching-arms having inturned trip extensions, a stop located in the paths of the trip extensions, whereby when the reciprocatory member is retracted the detaching-arms are spread to release a receptacle, and a locking device consisting of a rotatable disk having slots to receive the extremities of the trip extensions and adapted to be turned to retain the latter with the detaching-arms in their spread position, substantially as specified.

6. In a machine of the class described, a folder having an interior form and an exterior reciprocatory member, pivotal detaching-arms mounted upon the reciprocatory member and yieldingly held in position to engage a receptacle on the form, and locking devices for securing said arms in their inoperative or spread position, substantially as specified.

7. In a machine of the class described, the combination with a rotary blank-folding form, a stapling mechanism having a staple-driver mounted for radial movement toward and from the exterior surface of a blank on the form, of a guide disposed parallel with the axis of the form, an anvil mounted in the guide for radial movement toward and from the interior surface of the blank, in alinement with the staple-driver, whereby it may be arranged in contact with the inner surface of a receptacle in the path of impact of said staple-driver, a slide mounted in said guide, and having a cam-face for cooperation with the anvil, and means for actuating the slide, substantially as specified.

8. In a machine of the class described, the combination with a form and stapling mechanism having a staple-driving member operating radially with relation to the form, of an anvil mounted for radial movement in alinement with the staple-driving member, means for moving the anvil to bring it in contact with the inner surface of a receptacle in the line of impact of the staple-driving member, and independently-movable means carried by the anvil for bending the staple-points, substantially as specified.

9. In a machine of the class described, the combination with a

form and stapling mechanism having a staple-driving member, of an anvil mounted for movement in the plane of the staple-driving member and adapted to be arranged in contact with the inner surface of the wall of a receptacle to receive the impact of the staple-driving member, a clenching-plunger mounted upon the anvil, and means for successively advancing the anvil and actuating said clenching-plunger, substantially as specified.

10. In a machine of the class described, the combination with a form and stapling mechanism including a staple-driving member, of an anvil mounted for movement in alinement with the staple-driving member and adapted to be arranged in contact with the inner surface of the wall of a receptacle to receive the impact of the staple-driving member, a clenching-plunger mounted in a guide arranged axially in the anvil, a slide operatively connected with the anvil, a trip carried by the slide and adapted to cooperate with a cam to engage and actuate the clenching-plunger, and means for reciprocating the slide, substantially as specified.

11. In a machine of the class described, the combination with a form and stapling mechanism including a staple-driving member, of an anvil movable in alinement with the staple-driving member whereby it may be arranged in contact with the inner surface of the wall of a receptacle to receive the impact of said member, a die carried by the anvil and provided with a bending-seat having downwardly-convergent walls to inwardly deflect the extremities of a staple, a clenching-plunger operating in a guide communicating with the bending-seat, and means for successively advancing the anvil and actuating the clenching-plunger, substantially as specified.

12. In a machine of the class described, the combination with a form and stapling mechanism including a staple-driving member, of an anvil movable in alinement with the staple-driving member and adapted to be arranged in contact with the inner surface of the wall of a receptacle, a die carried by the anvil and provided with a bending seat having downwardly-convergent and transversely-beveled walls, whereby the extremities of a staple are bent inwardly and deflected laterally, a clenching-plunger, and means for successively advancing the anvil and actuating said plunger, substantially as specified.

13. In a machine of the class described, the combination of a hollow rotary form provided in its side with spaced openings, stapling mechanism having a staple-driving member, a normally stationary anvil arranged within the hollow form in alinement with the staple-driving member and capable of movement toward and from the same when an opening of the form is alined therewith, to arrange the face of the anvil in contact with the inner surface of a receptacle to receive the impact of the staple-driving member, means for advancing the anvil during the operative movement of the staple-driving member, and feeding mechanism for imparting a step-by-step rotary movement to the form, to bring the openings therein successively in alinement with the anvil, substantially as specified.

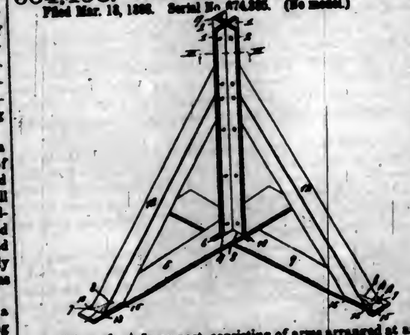
14. In a machine of the class described, the combination with a rotary form having a circumferential series of openings, stapling mechanism including a reciprocatory staple-driving member, a reciprocatory anvil adapted to be extended radially through the openings in the form and arranged in contact with the wall of a receptacle to receive the impact of the staple-driving member, and a slide operatively connected with said anvil, of a driving-shaft, a stem carrying the staple-driving member operatively connected with a crank on the driving-shaft, a feeding-lever operatively connected with said stem and carrying a pawl for engaging a ratchet on the form, an oscillatory arm connected with said slide, a cam arranged upon the stem, and a push-arm connected with said oscillatory arm and arranged in the path of the cam, substantially as specified.

15. In a machine of the class described, the combination with a rotary form having a circumferential series of openings, stapling mechanism including a reciprocatory staple-driving member, a stem carrying said staple-driving member and adapted to receive a continuous reciprocatory movement, an anvil adapted to be extended radially through the openings in the form and arranged in contact with the inner surface of the wall of a receptacle, and a slide for actuating the anvil, of an oscillatory arm connected with said slide and provided with a push-arm, and a peripheral irregular beveled cam carried by said stem for engagement with the extremity of the push-arm, and capable of rotary adjustment to vary the throw of the push-arm, substantially as specified.

16. In a machine of the class described, the combination with a movable folder member and stapling mechanism, and a driving-shaft with which the stapling mechanism is operatively connected, and having a friction-disk, of a friction-wheel operatively connected with the folder member and having movable journal-boxes whereby it may be arranged in peripheral contact with said friction-disk, a toggle-lever connecting the journal-boxes of said friction-wheel with a fixed object, a foot-lever connected with the contiguous ends of the arms of the toggle-lever for adjusting the journal-boxes, and stop mechanism operatively connected with the foot-lever for checking the movement of the friction-wheel at intervals, substantially as specified.

17. In a machine of the class described, the combination with a movable folder member and stapling mechanism, and a driving-shaft with which the stapling mechanism is operatively connected, and having a friction-disk, of a friction-wheel operatively connected with the folder member and having movable journal-boxes whereby it may be arranged in peripheral contact with said friction-disk, a toggle-lever connecting the journal-boxes of said friction-wheel with a fixed object, a foot-lever connected with the contiguous ends of the arms of the toggle lever for adjusting the journal-boxes, and stop mechanism carried by the foot-lever, consisting of a reciprocable stop-bar mounted upon the foot-lever, and a tilting foot-rest or treadle mounted upon the foot-lever and operatively connected with said stop-bar, the friction-wheel being provided with projections for engagement with said stop, substantially as specified.

604,458. FENCE-POST. GERARD A. DENEMARK, Lovejoy, Mo. Filed Mar. 18, 1898. Serial No. 674,325. (No model.)



Claim.—1. A fence-post, consisting of arms arranged at an angle to each other, one of which is provided with notches in its edges, and the other of which terminates just above said notches, a sill, provided with a slot through which the notched end of said arm may be projected until the lower end of the other arm rests upon said sill, and an inclined brace secured at its upper and lower ends, respectively, to said post and to one end of said sill, substantially as described.

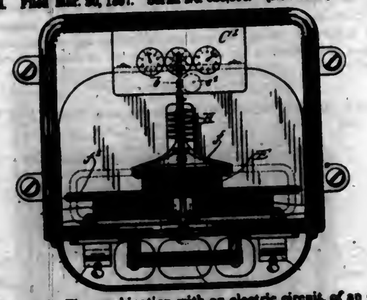
2. A fence-post, consisting of arms arranged at an angle to each other, one of which is provided with notches in its edges, and the other of which terminates just above said notches, a sill, provided with a slot through which the notched end of said arm may be projected until the lower end of the other arm rests upon said sill, and with a slot near one end, and a diagonal brace extending through the last-named slot and bearing upon the sill contiguous thereto, and secured at its upper end to said post, substantially as described.

3. A fence-post, consisting of a pair of arms arranged at an angle to each other, one of them provided with notches near its lower end and the other terminating just above said notches, a sill provided with a slot and a communicating opening, through which the notched part of said arm is projected, and in which that portion of the arm between said notches may be rotatably operated, and provided also near one end with a longitudinal slot and a communicating opening, an inclined brace notched near its lower end to form a T-shaped head which may be fitted through said slot and opening and then turned therein until said head is disposed transversely of said opening; said brace having its upper end secured to the post, substantially as described.

4. A fence-post, comprising angle-irons secured together so as to form arms extending at right angles to each other, one of which is notched near its lower end to form a depending inverted-T-shaped head, and the other of which terminates above said notches, a sill provided with a horizontal slot, which is slipped upon said T-shaped head, a second sill provided with a slot that it may also be slipped upon said head below the first-named sill, and with a communicating opening, in order that the neck or stem of said T-shaped head may be turned therein to dispose said sills at an angle to each other, and an inclined brace secured at its lower end to each sill and at its upper end to said post, substantially as described.

5. A fence-post, constructed of angle-iron, and provided with a vertical series of bolts, an angle-bar provided with a corresponding series of vertical slots through which said bolts extend, washers upon said bolts, and clamping-nuts upon the bolts and adapted to clamp the washers upon fence-wires interposed between them and said bar, substantially as described.

604,459. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Mar. 30, 1897. Serial No. 630,208. (No model.)



Claim.—1. The combination with an electric circuit, of an electric meter for measuring the energy of said circuit, provided with a rotating armature, field-coils connected in series in said circuit, volt-coils cooperating with said field-coils to set up a shifting magnetic field to actuate the armature, a transformer having a primary coil in shunt across said circuit, and a closed-circuit secondary coil between which and the primary coil a consequent magnetic field is set up, and a tertiary coil wound to inclose the lines of said magnetic field, and connected with series with the volt-coil, substantially as described.

2. An induction motor meter provided with an armature, coils acting inductively on the armature, a magnetic drag also acting on the armature, and a shield of conducting material inserted between the coils and drag.

3. An induction motor-meter provided with an armature, coils acting inductively on the armature, a magnetic drag also acting on the armature, and a shield of conducting material embracing the armature between the coils and drag.

4. An induction motor-meter provided with a disk armature, coils acting inductively on the armature, a magnetic drag also acting on the armature, and a shield of conducting material embracing the disk between the coils and drag.

5. An induction motor-meter provided with an armature, coils acting inductively on the armature, a magnetic drag also acting on the armature and shield of conducting material inserted between the coils and drag, said shield being slotted to permit the free rotation of the armature therethrough.

6. A meter provided with a disk armature, coils acting inductively on the armature, a magnetic drag also acting on the armature, a shield of conducting material arranged between the coils and drag and a slot in said shield through which the disk is free to rotate.

7. The combination with the meter-frame, of the armature mounted on its spindle, a bearing on the frame for one end of said spindle, a pivotal arm having a bearing for the other end of said spindle, coils acting inductively on the armature, a magnetic drag also acting on said armature, a shield of conducting material secured to the frame between the coils and drag and forming a support for the pivotal arm, and a slot in said shield through which the armature rotates.

8. An electric meter provided with a rotative part, means for exerting a torque on said part, registering or recording devices therefor, an increasing resistance detachably applicable to said part, and means for measuring the movement of said parts in opposition to said resistance.

9. An electric meter provided with a rotative part, means for exerting a torque on said part, registering or recording devices therefor, a spring detachably applicable to said part, and means for measuring the movement of said part in opposition to the spring.

10. A meter provided with a rotative part, means for exerting a torque on said part, registering or recording devices therefor, a coiled spring detachably applicable between the rotating part and a stationary part, and means for measuring the movement of the part in opposition to said spring.

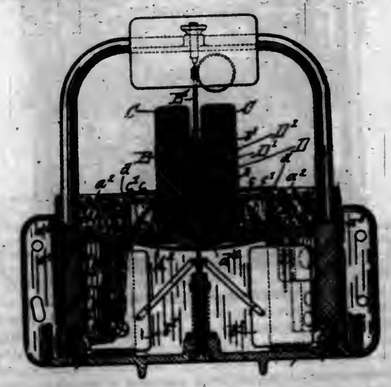
11. A meter provided with an armature, means for exerting a rotary torque on said armature, registering or recording devices therefor, a spring coiled about the armature-spindle and secured to a fixed part on the meter-frame, and detachable connections between the free end of the spring and the spindle.

12. An electric meter provided with an armature, coils acting inductively on said armature, a spring detachably applicable between the armature and a stationary part, and means for measuring the movement of the armature in opposition to said spring.

13. An electric meter provided with a rotating armature, registering or recording devices, a spring detachably applicable between the armature and a stationary part on the meter-frame, a graduated scale on the armature and a stationary pointer or mark for measuring on the scale the movement of the armature in opposition to said spring.

14. A magnetic drag for electric meters and the like, comprising two horseshoe sections arranged with their ends in proximity, and inserting pole-pieces secured to the ends of the sections at their points of juncture.

604,460. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Aug. 6, 1897. Serial No. 647,203. (No model.)



Claim.—1. An electric meter provided with an annular armature and a plurality of magnetic fields part of which are set up within and part without the armature, two fields being arranged on the same side of the annular wall of the armature on separate axes located on opposite sides of the axis of a field on the other side of said annular wall from said two fields, and means for producing a phase displacement between the inner and outer fields.

2. An electric meter provided with an annular armature, a magnetic field exterior to the armature located on an axis intersecting the armature, a plurality of magnetic fields within the armature, two inner fields being arranged on separate axes on opposite sides of the axis of the outer field, and means for producing a phase displacement between the inner and outer fields.

3. An electric meter provided with an annular armature, a magnetic field exterior to the armature, and magnetic fields within the armature located on intersecting axes, each extending at an angle to the axis of the outer field.

4. An electric meter provided with an annular armature, a magnetic field exterior to the armature, and a plurality of magnetic fields within the armature arranged on axes intersecting each other and the axis of the outer field at the center of the armature, and means for producing a phase displacement between the inner and outer fields.

5. An electric meter provided with an annular armature, series coils exterior to the armature, and a plurality of coils within the armature arranged on separated axes on opposite sides of the axis of the series coils, and means for producing a phase displacement between the currents in the outer and inner coils.

6. An electric meter provided with an annular armature, coils exterior to the armature, and coils within the armature arranged on separated axes on opposite sides of the axis of the series coils, and a magnetic core within the inner coils.

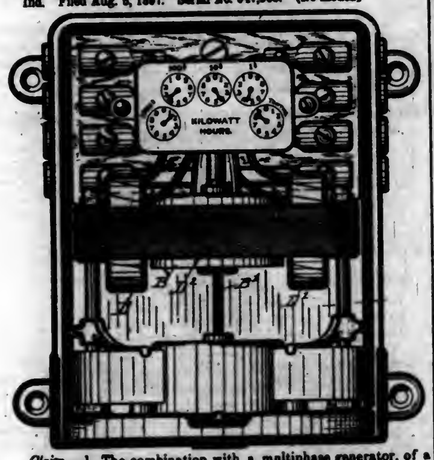
7. An electric meter provided with an annular armature, coils exterior to the armature, coils within the armature, and a cross-shaped magnetic core upon the poles of which the inner coils are mounted.

8. An electric meter provided with an annular armature, coils exterior to the armature, a cross-shaped core within the armature arranged with its axes at an angle to the axis of the outer coils and inner coils mounted on the poles of said cross-shaped core.

9. An electric meter provided with an annular armature, coils exterior to the armature, a cross-shaped magnetic core within the armature, coils within the armature mounted upon the poles of the cross-shaped magnetic core, and means for adjusting said core about the axis of rotation of the armature.

10. An electric meter provided with a rotary armature, coils acting inductively on said armature to rotate the latter, binding-posts for connecting said coils in circuit and means for adjusting the speed of the armature, comprising terminals of high resistance secured to the ends of said coils and adapted to be inserted varying distances within the binding-posts.

604,461. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Aug. 6, 1897. Serial No. 647,305. (No model.)



Claim.—1. The combination with a multiphase generator, of a meter provided with a rotary armature, a pair of series coils, one connected in one circuit from the generator and the other connected in another circuit from the generator, and two sets of shunt-coils, the set adjacent to each series coil being connected in the other circuit from that in which its adjacent series coil is connected.

2. The combination with a two-phase generator, of a meter provided with a rotary armature, two series coils, adjacent to the armature, one connected in each circuit from the generator and two shunt-coils opposite each series coil on the other side of the armature-wall therefrom, the shunt-coils opposite each series coil being connected across the other circuit from that in which said series coil is connected.

3. The combination with a two-phase generator, of a meter provided with a rotary armature of annular form, a pair of series coils exterior to the armature, one connected in each generator-circuit and two sets of shunt-coils within the armature, the set adjacent to each series coil being connected across the other circuit from that in which said series coil is connected.

4. The combination with a multiphase generator, of an electric meter provided with an annular armature and a plurality of magnetic fields part of which are set up within and part without the armature, one field being set up upon an axis extending between two fields located on the opposite side of the annular wall of the armature from the first field, means for connecting the first field in one of the generator-circuits, and means for connecting the opposite two fields in the other generator-circuits.

5. The combination with a multiphase generator, of an electric meter provided with an annular armature, a magnetic field set up exterior to the armature upon an axis extending between two magnetic fields set up within the armature, means for connecting the first field in one of the generator-circuits, and means for connecting the opposite two fields in the other generator-circuits.

6. The combination with a multiphase generator, of an electric meter provided with an annular armature, a magnetic field set up exterior to the armature, and magnetic fields set up within the armature on intersecting axes extending at an angle of approximately forty-five degrees with the axis of the outer field, means for connecting the outer field in one generator-circuit, and means for connecting the opposite inner field in another generator-circuit.

7. The combination with a two-phase generator, of a meter provided with a cylindric armature, a pair of series coils, one connected in each of the generator-circuits, and two sets of shunt-coils mounted within the armature upon the poles of a cross-shaped magnetic core, the set adjacent to each series coil being connected across the other circuit from that in which that series coil is connected.

8. A magnetic drag for electric meters comprising an armature, magnets arranged with the poles adjacent to said armature, a magnetic core arranged with its poles opposing and on the opposite side of the armature-wall from the magnet-poles and means for adjusting the relative positions of the opposing magnet and core poles.

9. A magnetic drag for electric meters comprising an annular armature, magnets exterior to said armature with their poles approaching the armature, a magnetic core within the armature having poles arranged opposite the poles of the magnet and means for adjusting the relative positions of the magnets and core.

10. A magnetic drag for electric meters comprising an annular armature, magnets exterior to said armature with their poles approaching the armature, a cross-shaped magnetic core within the armature adapted to stand with its poles in alinement with the magnet-poles and means for giving the core an oscillatory adjustment about the axis of the armature to vary the position of its poles with reference to the pole.

604,462. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Aug. 11, 1897. Serial No. 647,809. (No model.)



Claim.—1. In a meter of the class specified, the combination of an annular rotary armature; a magnetic field exterior to said armature; a plurality of magnetic fields within the armature and having intersecting axes each of which is arranged at an angle to the axis of the exterior field; and a friction-compensating magnetic axis arranged at right angles to the axis of the said exterior field.

2. An electric meter provided with an annular armature of low electrical resistance, series coils exterior to said armature, and a plurality of coils within the armature arranged on separate axes on opposite sides of the axis of the series coils, and a magnetic field acting at right angles to the axis of said series coils for the purpose of overcoming the friction of said meter.

3. In an electric induction-meter or motive device an annular rotatable armature, series coils exterior thereto, a plurality of volt-coils arranged within said armature upon intersecting axes and on opposite sides of the axis of the series coils, and an auxiliary starting coil or coils arranged upon laminated pole-pieces integral with the pole-pieces of said volt-coils, the said starting-coils being adapted to set up a magnetic field whose action is at right angles to the axes of the series coils.

4. In an electric induction-meter or motive device the combination of the series coils exterior to the armature and a plurality of volt-coils within the rotatable armature; in combination with a friction-compensating coil whose axis is at right angles to that of the axis of the series coils and adapted to be energized from the same source as the said volt-coils.

5. The combination in an electric meter of the series coils exterior to the rotatable armature; a plurality of volt-coils within the said armature whose axes are inclined to the axis of the said exterior coils; a friction-compensating coil whose axis is at right angles to that of the axis of the series coils and adapted to be energized from the same source as the said volt-coils; and an impedance-coil in series with the said compensating coil or coils.

604,468. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Aug. 26, 1897. Serial No. 649,556. (No model.)

Claim.—1. In a motor-meter, a revolvable metallic armature, and a series of field-coils without said armature whose adjacent poles are in close proximity thereto, and in such relation that the resulting intersecting lines of magnetization are at right angles to each other; in combination with an equal number of volt-coils located within the armature whose lines of magnetization are inclined to the said lines of magnetization of the field-coils, for the purpose specified.

2. In a motor-meter, a revolvable aluminium armature having its reduced upper end adapted to inclose the volt coils; two pairs of series coils without the said armature whose lines of magnetization bisect the armature and intersect each other at right angles; in combination with two pairs of volt-coils located within the armature whose poles are equal in number to the series coils and whose lines of magnetization intersect the said lines of magnetization of the field-coils; and means for retarding the said lines of magnetization of the volt-coils.



3. The process herein described of producing rotation in a revolvable metallic armature for motor-meters, which consists in setting up four or more intersecting lines of magnetization bisecting said armature by alternating electric currents differing in phase, thereby producing a shifting magnetic field about said armature adapted to actuate the same.

4. In an electric motor, a plurality of energizing-coils connected in series in the main line and conveying the current to be measured; a plurality of energizing-coils supplied with current from the mains in parallel and representing the electromotive force of the system; and an impedance coil in series with said volt-coils; in combination with a revolvable metallic armature of low electrical resistance arranged between the two series of energizing-coils as described; and a proper totalizing mechanism.

5. In a motor-meter of the class described a rotatable metallic armature having a contracted upper portion for the motive part of the meter and an enlarged lower portion for the retarding mechanism; a series of field-coils without said contracted portion of the armature; a series of volt-coils within said armature and adjacent to the field-coils; a fixed iron ring 13 embracing said armature out of contact therewith for the purpose specified; and a permanent magnet or magnets arranged within the enlarged portion of the armature for the purpose of increasing its retardation, all substantially as described.

6. In a motor-meter the metallic frame 1 having a marginal groove and aperture lateral ears for the purpose specified; a pair of upright supporting-posts 10 for the motive parts; a yoke 17 surmounted on said posts as shown; the upright tube 35 fixed as shown in a supporting-chair and adapted to rigidly support the volt-coils; the armature-spindle 26 rotatably mounted in a proper bearing and arranged within said upright tube; a rotatable armature fixed on said spindle as shown; the supporting-disk 15 arranged as shown on said posts and adapted to support the field-coils; the ring or band 13 arranged as described about said armature; the permanent retarding-magnets within said armature as described; and means for rigidly fixing the armature-spindle out of contact with the jewel-bearing, all substantially as described.

7. In a motor-meter, the combination of a revolvable metallic armature; a fixed metallic ring encircling said armature out of contact therewith and adapted to conduct the lines of magnetic force through said armature; and a permanent magnet or other source of magnetism arranged within said armature.

8. An electromagnetic drag consisting of a magnet, an annular magnetic conductor forming part of the magnetic circuit of said magnet, and a revolvable armature located within the field of force between said magnet and said conducting-ring and adapted to cut the lines of force of said field.

9. In a motor-meter, an electromagnetic drag consisting of an annular metallic conducting-ring, in combination with a revolvable cylinder of low resistance and inclosed by said ring; and a compound magnet or magnets within said revolvable armature as shown, having like poles terminating in a common pole-piece of iron, as described.

604,464. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Sept. 11, 1897. Serial No. 651,370. (No model.)



Claim.—1. The herein-described method of measuring alternating electric currents which consists in setting up or establishing a shifting field of magnetism from three intersecting lines or axes of magnetization, and adapted to actuate a rotatable armature in a motor-meter arranged within the energizing-coils producing said lines of magnetization.

2. The process of producing rotation in a revoluble metallic armature for meter-meters, arranged within the energizing-coils, which consists in setting up a shifting field from three intersecting lines or axes of magnetization two of which are synchronous in phase but differ in phase from the third, and bisecting said armature, as described.

3. The herein described method of measuring alternating currents by producing a shifting field from three intersecting lines or axes of magnetization, bisecting and adapted to actuate a rotatable metallic armature arranged within the energizing-coils, one of said lines or axes being set up by the series coils, the remaining lines or axes of non-synchronous phase being set up by the shunt-coils at an angle to each other and being inclined to the line or axes of the series coils.

4. In a motor-meter the combination of the series coils connected in series in the main line and conveying the current to be measured; a pair of shunt-coils arranged within said series coils; and a revolvable metallic armature mounted within said shunt-coils.

5. In an electric meter the combination of the series coils conveying the current to be measured; a plurality of shunt or volt coils arranged within said series coils and adapted to set up intersecting lines or axes of magnetization whose phase is non-synchronous with that set up by the said series coils; and a revoluble armature arranged within said shunt-coils adapted to be actuated by intersecting lines of magnetization set up by the said series coils and said shunt-coils.

6. In an electric meter the series coils conveying the current to be measured; the shunt-coils adjustably mounted within said series coils; the revoluble armature arranged within said shunt-coils and provided with a metallic core 42, and adapted to be actuated by intersecting lines of magnetization set up by said series and shunt coils.

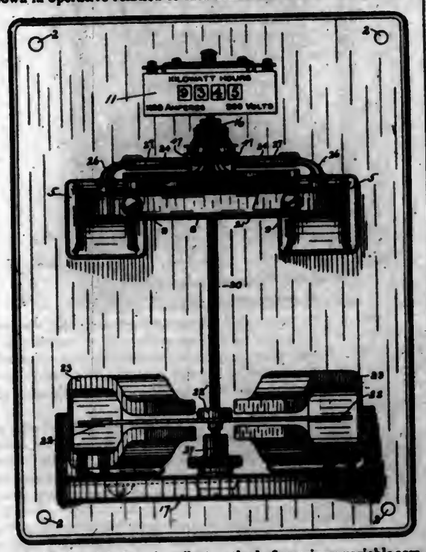
7. The combination of the series coils conveying the current to be measured; the shunt-coils adjustably mounted within said series coils, at an angle to each other and to the series coils; the revoluble armature arranged within said shunt-coils, and adapted to be actuated by said series and shunt coils; and means for varying at pleasure the inclination of said shunt-coils to each other.

8. The combination of meter-supporting bracket 1 having upon its rear face a closed fan-receiving recess or pocket 11, for the purpose specified and provided upon its front face with a continuous cover-receiving groove or recess; and a dust-proof cover adapted to snugly fit said recess, all substantially as described.

604,465. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Sept. 24, 1897. Serial No. 652,943. (No model.)

Claim.—1. In a meter for measuring large electric currents a stationary field-conductor having a detachable section for the purpose specified; a disk-like armature comprising a series of sector-like coils assembled as shown, and arranged in inductive relation to said conductor; and a commutator arranged as shown and provided with proper contact-brushes.

2. In a meter for measuring large electric currents a stationary field-conductor having a detachable section for the purpose specified; a disk-like armature comprising a series of sector-like coils assembled as shown, and arranged in inductive relation to said conductor; a commutator arranged as shown and provided with proper contact-brushes, and one or more adjustable compensating coils arranged as shown in operative relation to said armature.



3. The hereinbefore-described method of securing a variable compensation for the increased friction incident to use in an electric meter, consisting in accelerating the rotation of the armature by the influence of one or more adjustable compensating coils arranged in coöperative relation therewith.

4. The combination of a stationary field-casting traversed by the main current, provided with a horizontal central opening adapted to contain the rotary armature as shown; a rotary disk-like armature mounted in said opening of the field-casting as shown, in inductive relation therewith; a commutator and contacting brushes; a retarding device and a proper totalizing mechanism.

5. The combination of the two-part stationary field-casting traversed by the main current; a rotary disk-like armature arranged in inductive relation to said field-casting; an adjustable compensating coil or coils in coöperative relation to said armature; a disk 13; and permanent magnets embracing said disk as shown.

6. In an electric meter adjustable compensating coils 24 mounted as shown in inductive relation to the rotary armature and adapted to compensate for the increased friction incident to use, substantially as described.

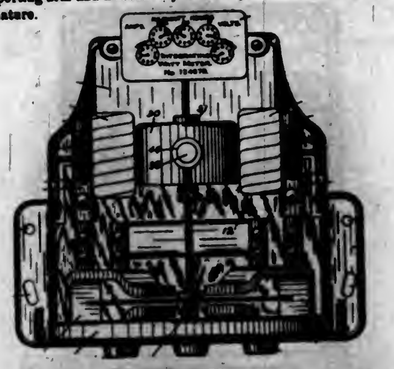
7. In a motor-meter the combination of a series field carrying the main current; a revoluble armature in inductive relation to said field; and an adjustable compensating coil or coils in coöperative relation to said armature for the purpose specified.

604,466. ELECTRIC METER. THOMAS DUNBAR, Fort Wayne, Ind. Filed Nov. 8, 1897. Serial No. 657,730. (No model.)

Claim.—1. In an electric-motor meter the combination of a series field representing the main current; a revoluble armature in inductive relation to said field; a volt coil or coils arranged in inductive relation to said armature; a secondary coil closed through a suitable resistance and acting inductively in coöperation with the said volt coil or coils upon the said armature; and a compensating device comprising an iron core 39 and a closed circuit or secondary 40, the said compensator being adapted for adjustment relative to said armature for the purpose specified, substantially as described.

2. In an electric-motor meter, a compensating device 38 comprising an iron core 39 and a secondary 40, and means for adjusting the same, the said device being adapted for an angular adjustment relative to the armature, and is adapted to neutralize the friction and inertia of the moving parts of the meter, all substantially as described.

3. In a motor-meter, the combination of a series field traversed by the main current; a revoluble armature in inductive relation to said field; and an adjustable compensating device 38 adapted to counterbalance or neutralize the friction and inertia of the moving parts of the meter, and comprising an iron core fixed upon a pivoted supporting-arm and a secondary 40 in coöperative relation with said armature.

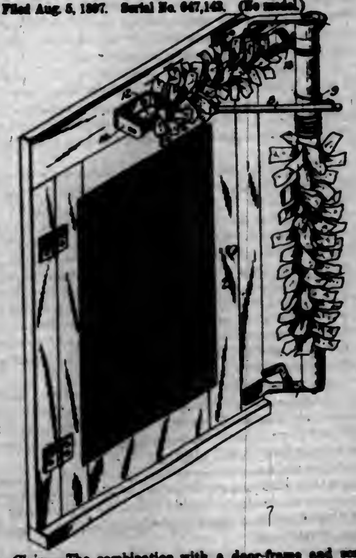


604,467. SEALING DEVICE. GEORGE W. GORDON, Conyngham, Pa. Filed Feb. 27, 1897. Serial No. 625,264. (No model.)



Claim.—A can or jar having an annular flaring recess in its upper part, said recess in its lower part terminating in a groove, an elastic cushion or gasket fitting said recess, a screw-cap having a flaring lower rim terminating in an upward curved portion resting on said gasket, whereby when screwed home the gasket is bulged outwardly, all arranged as set forth.

604,468. SCREEN-DOOR FASTENING. ELIJAH J. HAGAR, Bayard, Iowa, assignor of one-half to Robert C. Ochiltree, same place. Filed Aug. 5, 1897. Serial No. 647,143. (No model.)



Claim.—The combination with a door-frame and screen-door hinged thereto, of the vertical spring-roller, provided with strips or streamers, and formed with a slot or groove at the lower end, the pivoted arm, the cord secured to and wound around said roller, the arm secured to the door with which said cord is also connected, the horizontal spring-roller, provided with strips or streamers, the cord wound around and secured thereto and to the vertical roller, substantially as described.

604,469. HORSE-DETACHER. CHARLES R. HARDIN and JAMES D. MOSBY, Kansas City, Mo. Filed Aug. 24, 1897. Serial No. 649,373. (No model.)



Claim.—1. In a horse-detacher, the combination of a pivoted box, a double or whiffle tree secured thereto, a top plate or cover for said box, and means to raise the whiffle or double tree out of said box, substantially as described.

2. In a horse-detacher, the combination of a pivoted box, a trip-plate held upon its base, a whiffle or double tree within the box and resting upon said plate, a top plate or cover for the box, and means to lift said trip-plate, said whiffle or double tree and said top plate, that the whiffle or double tree may be drawn from the box, substantially as described.

3. In a horse-detacher, the combination of a pivoted box, a trip-plate therein, a sectional whiffle or double tree within said box and upon said trip-plate, a top plate held down upon the whiffle or double tree with a yielding pressure, and means to raise said trip-plate against the resistance of said spring-pressure to expel the whiffle or double tree from the box, substantially as described.

4. In a horse-detacher, the combination of a pivoted box, provided with a pair of rods or stems projecting vertically upward, a notched trip-plate resting upon the base of said box, a sectional whiffle or double tree provided with registering notches and located in said box and upon said plate, a top plate held down upon said whiffle or double tree with a yielding pressure, and means to raise the trip-plate, substantially as described.

5. In a horse-detacher, the combination of a pivoted box, provided with a pair of rods or stems projecting vertically upward, a notched trip-plate resting upon the base of said box, a sectional whiffle or double tree provided with registering notches and located in said box and upon said plate, a top plate provided with holes fitting upon said stems or rods, nuts or collars upon the upper ends of said rods or stems, and expansive springs interposed between said top plate and said nuts or collars, substantially as described.

6. In a horse-detacher, the combination of a pivoted box, provided with a pair of rods or stems projecting vertically upward, a notched trip-plate resting upon the base of said box, a sectional whiffle or double tree provided with registering notches and located in said box and upon said plate, a top plate provided with holes fitting upon said stems or rods, nuts or collars upon the upper ends of said stems or rods, expansive springs interposed between said top plate and said nuts or collars, a stem depending from the trip-plate, a collar or nut upon its lower end, a lever loosely embracing said stem above said nut or collar, and a spring interposed between said plate and said lever, substantially as described.

7. In a horse-detacher, a pivoted box provided with a front side hinged at its lower edge, an L-shaped top plate overlapping the front side and free edge of said hinged plate, a whiffle or double tree arranged in said box, and means to raise said top plate to release said hinged plate, substantially as and for the purpose described.

8. In a horse-detacher, a pivoted box provided with a front side hinged at its lower edge, an L-shaped top plate overlapping the front side and free edge of said hinged plate, a whiffle or double tree arranged in said box, a spring for holding said top plate down upon the whiffle or double tree, and means for overcoming the pressure of said spring and raising said top plate, for the purpose described.

9. The combination of a vehicle provided with forwardly-opening loops at the under side of the shafts and a detachable whiffle-tree, with bands secured to the back and breech straps of the harness and encircling the shafts and the loops, and rollers journaled in said bands and interposed between the shafts and said forwardly-opening loops, substantially as and for the purpose described.

604,470. BUTTONHOLE-GAMER. ARTHUR M. HEATH, London, England. Filed Sept. 17, 1896. Renewed Apr. 26, 1897. Serial No. 633,602. (No model.)

Claim.—A fabric provided with a buttonhole or stud-hole, provided with the usual stitching, reinforced by a metallic ring composed of wire or similar material, the ends of said wire being twisted together and formed into separate loops or eyes *c c*, substantially as set forth.



604,471. ELECTRIC BRUSH. EMMA M. HELLWIG, Chicago, Ill. Filed Dec. 11, 1893. Serial No. 615,268. (No model.)



Claim.—1. In an electric brush, the combination with the body having a cavity in its upper face and a handle carrying a contact-plate, bristles set in the lower face of the body, two metal sockets set in the base of the cavity but out of contact with the bristles, a conductor connecting the latter with one of said sockets, and an insulating and waterproof covering over the conductor and the upper ends of the bristles; of a wire connecting said handle contact-plate with the other socket, a battery located within said cavity above the insulation, and means for connecting its poles with the two sockets, as and for the purpose set forth.

2. In an electric brush, the combination with the body having a cavity in its upper face and a contact-plate, bristles set in the lower face of said body, two metal sockets set in the base of the cavity, means for electrically connecting the bristles with one of the sockets, and an insulating and waterproof covering over the upper ends of the bristles; of an electrical connection between the contact-plate and the other socket, a battery located within said cavity above the insulation and whose poles have plates provided with outwardly-opposing slots and are adapted to engage said sockets, and thumb-screws removably connecting said slotted plates with the sockets, as and for the purpose set forth.

604,472. COMPOSITE PRINTING-PLATE AND METHOD OF MAKING SAME. STEPHEN H. HORGAN, Hoboken, N. J., assignor of one-half to the Trihune Association, New York, N. Y. Filed Mar. 10, 1897. Serial No. 626,855. (No model.)



Claim.—1. A combined stereotype and half-tone plate, said plate being, provided at opposite edges with flanges in substantial axial alinement with the stereotype, said flanges being wider at the outside ends thereof than at the points of attachment with said plate.

2. A half-tone plate having a solder-foil fastened to the back thereof, said foil extending beyond the edges of the plate so as to form overlapping flanges.

3. A half-tone plate provided with flanges at the ends or sides thereof, said plate having a solder-foil fastened to the back thereof, which foil extends beyond the edges of the plate so as to form overlapping flanges.

4. The method of securing an original half-tone plate in a matrix, consisting in indenting the matrix at the place where the plate is to be secured, inserting in such indentation face downward a half-tone plate to which is attached on the back thereof a solder-foil which extends beyond the edges of said plate, and then pasting or otherwise securing to the matrix the portions of solder-foil which extend beyond the edges of the plate.

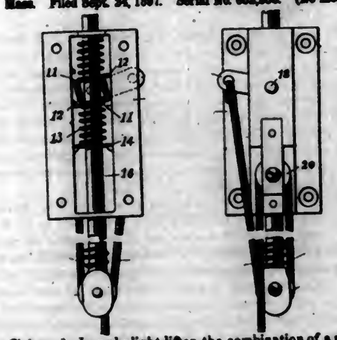
5. The method of securing an original half-tone plate in a stereo-

type, consisting in inserting in a matrix a half-tone plate having downwardly-projecting flanges at the ends or sides thereof, said flanges being disposed in substantial axial alinement with the stereotype and wider at the outside ends thereof than at the points of attachment with said plate, and then pouring over the face of the matrix the molten metal of which the stereotype is made.

6. The method of securing an original half-tone plate in a stereotype, consisting in inserting in a matrix face downward a half-tone plate to which is attached on the back thereof a soldering-foil which extends beyond the edges of said plate, pasting or otherwise securing to the matrix the portions of solder-foil which extend beyond the edges of the plate, and then pouring over the face of the matrix the molten metal of which the stereotype is made.

7. The method of securing an original half-tone plate in a stereotype, consisting in inserting in a matrix a half-tone plate having downwardly-projecting flanges at the ends or sides thereof and having attached to the back thereof a solder-foil which extends beyond the edges of said plate, pasting or otherwise securing to the matrix the portions of solder-foil which extend beyond the edges of the plate, and then pouring over the face of the matrix the molten metal of which the stereotype is made.

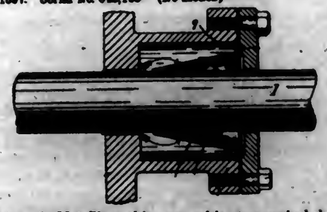
604,473. SKYLIGHT-LIFTER. SAMUEL I HOWARD, Worcester, Mass. Filed Sept. 24, 1897. Serial No. 652,536. (No model.)



Claim.—1. In a skylight-lifter, the combination of a slide, a frictional catch for said slide, a releasing-lever, and a flexible cord or connection connected to simultaneously operate the releasing-lever and slide so that a straight downward pull or tension on the cord will release the catch and shift the slide, and so that, when the cord is slackened, the catch will automatically secure the slide in its adjusted position, substantially as described.

2. In a skylight-lifter, the combination of a slide, a frictional catch comprising tilting plates and springs for normally holding said plates in engagement with the slide, a releasing-lever for said plates, pulleys journaled on the slide and a stationary point respectively, an operating-cord secured to the releasing-lever and passing over said pulleys so that a straight pull or tension on the cord will release the catch, and shift the slide, and so that, when the cord is slackened, the catch will automatically secure the slide in its adjusted position, substantially as described.

604,474. METALLIC PACKING. NATHAN JESSUP, Indianapolis, Ind., assignor of one-half to John A. Smith, Rossville, Ind. Filed Aug. 13, 1897. Serial No. 648,163. (No model.)

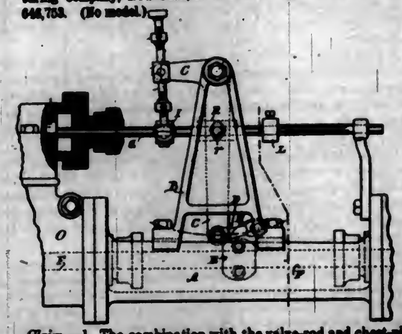


Claim.—1. Metallic packing comprising two conical sleeves, one within the other and both split longitudinally so their small ends will contract under pressure but the splits in each being located at different places, an outwardly-extending annular flange secured to the large end of the conical sleeves and means for securing such flange against the head of the cylinder.

2. Metallic packing in two or more parts each comprising a section of two conical sleeves, one within the other, a section of an outwardly-extending annular flange secured to the large end of the sleeves, the lines on which the sleeves are cut being at different points so that the sections of the sleeves will overlap, and means for securing such flange against the head of the cylinder, substantially as shown.

3. The combination with a cylinder or other steam-chest having a packing-chamber, a follower to close said packing-chamber, and a piston-rod extending therethrough, of metallic packing comprising two conical sleeves, one within the other, split longitudinally at different points so that their small ends will contract under pressure, and an outwardly-extending annular flange secured to the large ends of said sleeves, said packing being placed in the packing-chamber surrounding the piston-rod with the small end of the sleeve engaging it and the annular flange clamped between the end of the steam-chest and the follower.

604,475. VALVE MECHANISM FOR STEAM-PUMPS. GUSTAF DE LAVAL, Cambridge, Mass., assignor to the Gen. F. Make Manufacturing Company, New York, N. Y. Filed Aug. 2, 1897. Serial No. 646,703. (No model.)



Claim.—1. The combination with the valve-rod and chest-piston of valve moving piston and piston-rod, of a head upon the piston-rod, a beat-lever and link connection between the same and the head on the piston-rod, an arm upon the piston-rod, a tappet-rod and universal-joint connection between the same and the arm on the valve-rod, and adjustable tappets upon said rod acted upon by the short arm of the beat lever, substantially as set forth.

2. The combination with the engine and valve-moving piston and its rod, of a head and means for clamping the same to the piston-rod of the engine, a stationary frame and pivot, a beat lever supported by the pivot and a connection between the lower end of the beat lever and the head on the piston rod, an arm extending out from the valve-rod, a tappet-rod and ball connection to the arm, adjustable tappets on the rod and a tappet surrounding and sliding upon the tappet-rod and a pivotal connection between the same and the short end of the beat lever, substantially as set forth.

3. The combination with the engine and valve-moving piston and its rod, of a head and means for clamping the same to the piston rod of the engine, a stationary frame and pivot, a beat lever supported by the pivot and a connection between the lower end of the beat lever and the head on the piston-rod, an arm extending out from the valve-rod, a tappet-rod and ball connection to the arm, adjustable tappets on the rod and a tappet surrounding and sliding upon the tappet rod and a pivotal connection between the same and the short end of the beat lever, a tappet surrounding and sliding freely on the valve rod and having a stud projecting into a slot in the beat lever, and a collar upon the valve-rod for insuring the movement of the valve by the direct action of the beat lever and connection to the piston-rod, substantially as set forth.

4. The combination with the engine and its valve-moving piston, of a two-part head clamped to the piston-rod, a stationary triangular frame and a pivot carried thereby, a beat lever upon the pivot, a link pivoted at one end to the lower end of the beat lever and at the other end to the two-part head on the piston-rod, a rod extending from the valve-moving piston and an arm upon the same, a tappet-rod and ball connection to the arm, adjustable tappets on the rod, a tappet surrounding and sliding freely upon the rod and a pivotal connection for the same to the short end of the beat lever, a tappet surrounding the valve-rod and a stud thereon extending into a slot in the beat lever, and an adjustable collar upon the valve-rod against which and the arm, the sliding tappet is caused to act by the swinging movement of the beat lever, if the valve-moving piston and valve are not moved by the pressure, substantially as set forth.

604,476. ADJUSTABLE CORN-HUSKER. WILLIAM F. LELLIE, Dentrice, Nebr. Filed Sept. 15, 1897. Serial No. 651,768. (No model.)



Claim.—1. The combination of a wristband having two straps and means for connecting them to the band, a hook-carrying plate secured to one strap of said band and formed with an arm, a plate flexibly secured to this arm, and another curved plate flexibly secured to the hook-carrying plate, the free ends of both the attached plates being connected to the other strap of the wristband, substantially as described.

2. A corn-husking implement comprising a wristband having two straps and means for connecting them to the wristband, a hook-carrying plate attached to one strap, a plate slidably and pivotally attached to said hook-carrying plate, and another curved plate pivotally attached to said hook-carrying plate; the free ends of both attached plates being connected to the other strap and forming therewith a flexible thumb-shackle, substantially as described.

3. A corn-husking implement comprising a wristband having two straps and means for attaching the same to said band, a plate, 7, attached to both straps, a hook-carrying plate attached at one end to one strap and with its hook-formed end free from said straps, a plate flexibly attached to the hook-carrying plate on one side of the hook thereof, and another curved plate flexibly attached to the hook-carrying plate on the opposite side of the hook thereon; the attached plates being loosely connected and forming a flexible thumb-shackle, substantially as described.

4. In a corn-husking implement, the combination with a hook-carrying plate, metallic plates flexibly connected to the hook-carrying plates and forming therewith a loose thumb-shackle, and a bifurcated wristband connected with the hook-carrying plate and the thumb-shackle plates to join the latter loosely together and confine the same in place when the device is worn on the hand, substantially as described.

5. A corn-husking implement comprising a wristband having two straps, a palm-plate attached thereto, a hook-carrying plate, shackle-plates pivoted to the hook-carrying plate and connected at their free ends by one of the straps of the wristband, and a loop embracing one of the straps and arm of the hook-carrying plate, substantially as described.

604,477. LID-LIFTER. LOUIS J. A. MORTH, State Centre, Iowa. Filed Sept. 7, 1897. Serial No. 650,988. (No model.)



Claim.—As an improved article of manufacture a lid-lifter comprising a weighted head 10, a tongue 11 fixed to and extending longitudinally from said head, a stem 12 fixed to and extending longitudinally from the end of the head 10 opposite to the tongue 11, the head 10 being formed with an annular recess surrounding the stem, a sleeve 13 mounted for revolution on the stem, one end of which sleeve is inserted within the annular recess in the head, a handle on the outer engaging the outer end of said sleeve and locking the same to the head and a deflecting-plate 14 mounted rigidly on the sleeve and spaced apart from the adjacent end of the head.

604,478. COMBINATION-TOOL. GEORGE S. HEISLEY, ALEXANDER MATTLAGE, and GEORGE BERKHEIMER, Pardee, Mo. Filed July 2, 1897. Serial No. 643,946. (No model.)

Claim.—1. The herein-described tool for the purpose named, having a shank terminating at one end in a hatchet poll and blade and at the other end in a fulcrum-foot, and provided at an intermediate point with a recessed enlargement having communicating side openings and a socket, fixed and movable dies, seated respectively in said socket and recess, of greater width than the lateral opening to close the same and exclude dust when the movable die is advanced, and a lever operatively connected with the movable die, substantially as specified.



2. A car-coal press having its shank provided with an intermediate recessed enlargement provided with side openings communicating with its recess, and with a socket also communicating and alined with the recess, the recess being equal in width with the socket and being open at its inner end, cooperating fixed and movable dies arranged respectively in said socket and in the recess of the enlargement, and removable through the end opening of the latter, and a lever fulcrumed in the recess of the enlargement in operative engagement with the movable die, and fitted snugly in the recess to close the open end thereof when in its normal position, substantially as specified.

3. A car-coal press having its shank provided with an intermediate recessed enlargement having side openings communicating with its recess, and a socket alined with the recess and also communicating therewith, the recess being provided with an open inner end, fixed and movable dies fitted respectively in said socket and recess and removable through the opening of the latter, and a lever removably fulcrumed in the recess of the enlargement in operative engagement with the movable die, and adapted normally to occupy a position in contact with the shank and closing said open end of the recess to exclude dust therefrom, whereby the dies are held from displacement when the lever is mounted in the recess, substantially as specified.

604,479. OIL-DISTRIBUTING APPARATUS. JAMES H. HIBBS, Haddonfield, N. J., assignor, by direct and mesne assignments, to the Dunham Rendbed Company, Camden, N. J. Filed June 30, 1897. Serial No. 643,019. (No model.)



Claim.—1. In a distributing apparatus, the combination with a car, of distributing-pipes connected at the sides of the car by universal joints, and means for adjusting said distributing-pipes both horizontally and vertically and holding them in any desired adjustment, substantially as described.

2. In a distributing apparatus, the combination with a car, of a distributing-pipe arranged transversely beneath the car, additional distributing-pipes connected at the sides of the car by universal joints, means for adjusting said pipes both horizontally and vertically, and flexible connections to said side pipes, substantially as described.

3. In a distributing apparatus, the combination with a car, of a transverse distributing-pipe beneath the car, independent distributing-pipes connected by universal joints at the sides of the car, means for adjusting said side pipes vertically and horizontally, valves for governing the flow of oil to each of said pipes independently, levers for operating said valves and locking devices for said valves, substantially as described.

4. In a distributing apparatus, the combination with a car, of a distributing-pipe pivotally connected at the side of the car, and devices for locking said pipe yieldingly in any desired horizontal adjustment, whereby said distributing-pipe may yield and swing back toward the car upon coming in contact with any obstacle, substantially as described.

5. In a distributing apparatus, the combination with a car, of a distributing-pipe pivotally connected at the side of the car, a vertical shaft upon which said pipe swings and a yielding locking device for holding said pipe yieldingly in any desired position, substantially as described.

6. In a distributing apparatus, the combination with a car, of vertical shafts at the sides of the car, distributing-pipes connected to said shafts, means for turning the shafts to adjust the pipes horizontally, and means for locking the shafts in any desired position, substantially as described.

7. In a distributing apparatus, the combination with a car, of vertical shafts mounted at the sides of the car and distributing-pipes pivotally connected to said shafts for vertical adjustment, and means for sustaining the pipes at any desired vertical angle, substantially as described.

8. The combination of the car, the vertical shafts mounted on the sides of the car, the yokes connected to the lower ends of said shafts, the pipes pivotally mounted in the yokes, and means for adjustably suspending the pipes from the upper ends of the shafts, substantially as described.

9. The combination with a car, of the vertical shafts, the pipes pivotally connected to the lower ends of the shafts, means for vertically adjusting the pipes and sustaining them in any desired position, and means for adjusting the shafts horizontally and locking them in any desired adjustment, substantially as described.

10. The combination with a car, and oil-distributing apparatus carried by the car, of shields sustained by the car in line with the wheels and in proximity to the rails, whereby the oil is prevented from falling upon the rails, substantially as described.

11. In combination with a car, of a transverse oil-distributing pipe carried beneath the car and shields sustained beneath said pipe and over the rails whereby the oil from the pipe is prevented from falling on the rails, substantially as described.

12. The combination with a car and oil-distributing apparatus, of shields for preventing the oil from falling on the rails, said shields having upturned end flanges, substantially as described.

13. The combination with a car and a perforated oil-distributing pipe, of a steam-pipe communicating with said distributing-pipe, whereby heat and pressure may be applied to assist the discharge of oil from said latter pipe, substantially as described.

14. The combination with a car and an oil-distributing pipe provided with suitable openings or perforations, of a pressure-pipe arranged within the oil-distributing pipe, said pressure-pipe having openings to permit its contents to mingle with the oil in the distributing-pipe, substantially as described.

15. The combination with a car and an oil-distributing pipe having suitable openings or perforations in its lower side, of a pressure-pipe within said oil-pipe, said pressure-pipe being provided with openings in its lower side opposite the openings in the distributing-pipe, substantially as described.

16. The combination with a car and oil-distributing apparatus mounted on the car, of a main oil-supply pipe, means for connecting said supply-pipe with an oil tank car, a pressure-pipe, and means for connecting said pressure-pipe with a source of fluid-pressure such as steam or air, substantially as described.

17. The combination with a car and oil-distributing apparatus, of shields for preventing the oil from falling on the rails, said shields comprising top plates located over the rails and flexible curtains extending down from said plates upon both sides of the rails, substantially as described.

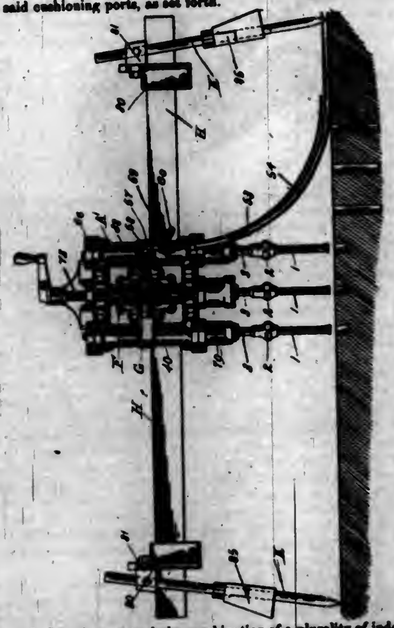
604,480. IMPACT-TOOL. JAY R. REUDER, Chicago, Ill., assignor to Frederick C. Austin, same place. Filed May 28, 1897. Serial No. 638,514. (No model.)

Claim.—1. An impact tool provided with a ported piston-chamber, a reciprocating piston moving therein, and a couple of cooperating fluid-actuated valves for distributing motive fluid to the piston-chamber independent of the piston movement; and constructed with separate ports for supplying motive fluid separately to the piston-chamber and to the chamber of one of said valves, as set forth.

2. An impact-tool comprising a ported piston-chamber, a reciprocating piston moving therein, a fluid-actuated piston-valve for distributing motive fluid to the piston-chamber, means for distributing motive fluid to the piston-valve independent of the piston movement, and a couple of supply-ports arranged to supply motive fluid separately to the piston-chamber and to the piston-valve chamber, as set forth.

3. An impact-tool comprising a ported piston-chamber; a reciprocating piston arranged therein; a fluid-actuated reciprocating piston-valve for distributing motive fluid to the piston-chamber, a fluid-actuated reciprocating supplemental valve arranged to distribute motive fluid for reciprocating the piston-valve, and arranged also to receive motive fluid from the latter upon the arrival of the same at the ends of its stroke; and a couple of supply-ports for supplying motive fluid separately to the piston-chamber and to the piston-valve chamber, substantially as described.

4. In an impact-tool, the combination of a couple of separated reciprocating piston-heads connected so as to reciprocate in unison and also so as to form a space between them; a piston-chamber therefor provided with a live-motive-fluid-inlet port which communicates with the space between the piston-heads during their reciprocation, and also provided with a couple of cushioning ports which serve to connect the space between the piston-heads with one or the other of the ends of the piston-chamber when the piston-heads are approaching that end of the chamber; and a couple of inwardly-opening automatic check-valves arranged respectively within one and the other of said cushioning ports, as set forth.



5. In an impact-tool, the combination of a plurality of independently-reciprocating pistons confined within a plurality of piston-chambers having their ends connected by ports; and a valve mechanism operating independently of the movement of any one of said pistons, and comprising a couple of cooperating fluid-actuated reciprocating valves, one of which distributes motive fluid to one of said piston-chambers, as set forth.

6. In an impact-tool, the combination of a vertically-adjustable leg; a support, such as the yoke 80, for the leg-holding box; a removable pivotal adjusting-bolt 82 extending through the leg-support; a hollow leg-holding box inclosing the head of the pivotal bolt 82 and having one of its ends closed and fitted between said bolt-head and the leg-support, and the other one open so as to permit the bodily removal of the bolt, and also having its upper and lower sides provided with apertures into which the leg can fit and through which it can slide; and a locking-bolt 84 which extends through one of the vertical sides of the box 81, and serves as a means of locking the leg in adjustment, substantially as described.

7. In an impact-tool, the combination with a couple of separated piston-heads and a spirally-grooved connecting-rod connecting the same, of a toothed collar secured tightly to the walls of the piston-chamber and fitted loosely over the connecting-rod; a correspondingly-toothed and internally-tongued loose collar having a friction connection with the connecting-rod; and a disk also secured to the walls of the piston-chamber and arranged to afford a stop limiting the movement of the loose collar longitudinally of said piston-chamber, substantially as described.

604,481. LOCOMOTIVE. WILLIAM M. RENNELL, New York, N. Y. Filed July 22, 1897. Serial No. 645,502. (No model.)

Claim.—1. A locomotive having a boiler provided with fires, a combustion-chamber beneath the boiler and communicating with the fires at one end thereof, the under wall of the combustion-chamber being unbroken throughout its length, an outlet chamber or space in connection with the fires at the opposite end of the boiler, and a stack connected with said outlet chamber or space, substantially as set forth.

2. A locomotive having a boiler provided with fires, walls inclosing the lower portion of the boiler and extending beneath the same throughout its entire length unbroken and on a single plane and forming a combustion-chamber beneath the boiler, walls at the forward part of the boiler forming a space that communicates with said combustion-chamber and with the boiler-fires, walls at the opposite end of the boiler forming a space that communicates with the adjacent ends of the fires, one of said walls separating the last-mentioned space from the combustion-chamber, and a stack connecting with said last-mentioned space, substantially as described.



3. A locomotive having a boiler provided with fires, a combustion-chamber extending beneath the boiler and communicating with the fires thereof at one end under the wall of the combustion-chamber being unbroken throughout its length, a stack communicating with the opposite ends of said fires, and means connected with said combustion-chamber, at the end that is opposite its connection with the fires, for forcing pulverized or comminuted fuel into said combustion-chamber, substantially as set forth.

4. A locomotive having a boiler provided with fires, a combustion-chamber extending beneath the boiler and communicating with the fires thereof at one end, the under wall of the combustion-chamber being unbroken throughout its length, a stack communicating with the opposite ends of said fires, and a pulverizer and blower connected with said combustion-chamber, at the end that is opposite its connection with the fires, for forcing pulverized fuel into said combustion-chamber, substantially as set forth.

5. A locomotive having a boiler provided with fires, walls extending beneath the boiler forming a combustion-chamber inclosing the open ends of said fires at one end of the boiler and a space that connects said combustion-chamber with said fires, the outer of said last-mentioned walls being curved upwardly and over rearwardly, the under wall of the combustion-chamber being unbroken throughout its length, a stack connected with the opposite ends of said tubes, and means for forcing pulverized or comminuted fuel into said combustion-chamber at the end opposite its connection with said fires, substantially as set forth.

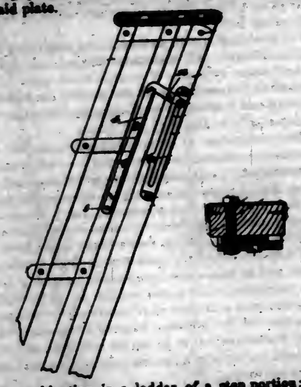
604,482. STEP-LADDER. WILLIAM O. SHARAR, Springfield, Mass. Filed Jan. 20, 1898. Serial No. 667,895. (No model.)

Claim.—1. The combination, in a ladder, of a step portion; a support therefor; a slotted plate secured to the support; a stud on said support; and a brace hinged to the step portion and having a pin adapted to slide in the slot in said plate and provided with a lateral extension or bend adapted to be hooked over said stud.

2. The combination, in a ladder, of a step portion; a support therefor; a stud or projection on one of the parts; a brace on the other part, having a bend or lateral extension adapted to be hooked over said projection; a plate on the ladder, having a longitudinal slot adapted to receive a pin on the brace.

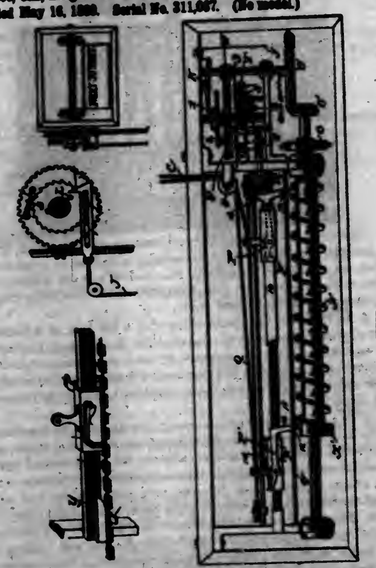
3. The combination, in a ladder, of a step portion; a support therefor; a stud or projection on said support; a brace pivoted to the step portion and having a bend or lateral extension adapted to be hooked over said projection and also having a pin; and a guide-plate secured to the support and slotted to receive said pin.

4. The combination, in a ladder, of a step portion; a support for the step portion; a slotted plate fixed to the support; a bolt on the support; a step carried by the bolt between the guide-plate and the support; and a brace connected to the step portion and having a hook adapted to engage the bolt and also having a pin adapted to slide in the slot of said plate.



5. The combination, in a ladder, of a step portion; a support therefor; a slotted plate secured to the support; a bolt passing through the plate and support, respectively, and held in place by a nut; a reinforcing-plate fitting against the support; and a brace hinged to the step portion and having a bend or lateral extension at its opposite end adapted to be hooked over said bolt and provided with a pin adapted to slide into the slot in said plate.

604,483. STATION-INDICATOR. WILLIAM A. TURNER, San Francisco, Cal., assignor to the American Indicator Company, same place. Filed May 16, 1898. Serial No. 311,087. (No model.)



Claim.—1. The combination with a station-indicating mechanism of the continuous type, of a positively-operated and independent correcting device, for positively moving the indicating mechanism at a certain time independently of its normal motion, whereby the errors accumulated up to that time are corrected, substantially as set forth.

2. In combination, a station-indicator, a continuously-operating driving mechanism therefor, a detachable connection between said indicator and the continuously-operating driving mechanism, and a corrector for moving the indicating mechanism to a predetermined position, substantially as described.

3. In a station-indicating apparatus, the combination of a continuously-operating driving mechanism, an intermittently-operating indicating mechanism, a continuously-operated device for controlling the connection of said driving and indicating mechanisms, and a positively-operated corrector for moving said controlling device independently of its normal motion, to correct errors in its position, substantially as set forth.

4. The combination with mechanism for controlling the operation of a station-indicator, said mechanism being driven continuously by driving mechanism by means of a ratchet and pawl, of a corrector set in operation independently of the driving mechanism, for positively moving said controlling mechanism, to correct errors in its position, substantially as described and shown.

5. The combination of an intermittently-operated station-indicating mechanism adapted to be connected to a continuously-operated driving mechanism, a retaining-bolt for preventing such connection, a traveling chain having spaced teeth for successively displacing said bolt and thus permitting such connection, and a corrector set in operation independently of the driving mechanism for moving said chain to correct errors in its position, substantially as set forth.

6. In a station-indicating apparatus having a continuous driving mechanism, and an intermittently-operated indicating device, a corrector for correcting errors in the position of the indicating device, in combination with a ratchet-wheel intermediate between the driving mechanism and the indicator adapted to transmit the motion of the driving mechanism but to be moved independently of its normal motion by said corrector to a definite point at a definite locality, substantially as set forth.

7. In a station-indicator of the continuous type, the combination of a primary operating mechanism driven by the motion of the wheels, an indicating mechanism, and a detachable connection between said primary operating mechanism and indicating mechanism whereby the indicating mechanism is permitted to be moved independently of the primary operating mechanism, substantially as described.

604,484. HOT-WATER HEATER. JAMES WHITE, Melvale, Md. Filed May 19, 1897. Serial No. 637,194. (No model.)



Claim.—1. In a heater, the combination with a fire-box, of rows of upright water-columns, substantially elliptical in cross-section, which are located at the sides of the fire-box and are inclined in relation to the longitudinal axis of the latter, the rows being disposed angularly in relation to each other.

2. In a heater, the combination with a fire-box, of a dome and rows of water-columns at the sides of the fire-box and leading into the said dome, the water-columns of each row being substantially elliptical in cross-section and having their transverse axes inclined to the columns and the rows being disposed angularly in relation to each other.

3. In a heater the combination of a fire-box, a dome located over the fire-box and drop-tubes depending from the dome, which tubes comprise an outer tube closed at its lower end and provided with an internal-threaded collar and an inner supplemental tube open at both ends, of less diameter than the outer tube and provided with an enlarged threaded portion engaging the collar in the outer tube.

4. In a heater, the combination with a fire-box, of a dome and rows of water-columns at the sides of the fire-box and leading into said dome, the water-columns of each row having their transverse axes inclined to the columns and the rows disposed angularly in relation to each other, and drop-tubes depending from the dome, provided with inner supplemental tubes open at both ends and of less diameter than the outer tubes.

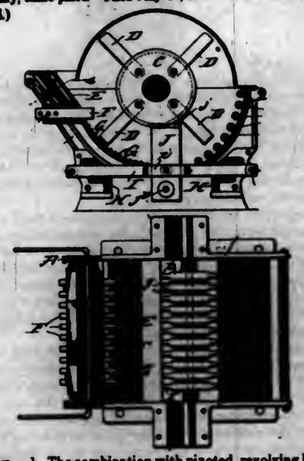
5. In a heater, the combination with a fire-box, of an outer water-jacket, inner water-columns at the sides of the fire-box, and flues between the water-columns and the jacket which are in communication with the fire box by the spaces between the columns.

6. In a heater, the combination with a fire-box, and a water-jacket, of a dome, separated upright water-columns in communication with the dome and jacket aforesaid, an outer water-jacket in communication with the water-jacket aforesaid, and flues located between the outer water-jacket and the water-columns in communication with the fire-box by the spaces between said water-columns.

7. In a heater, the combination with a fire-box, of a water-back, inlet-pipes for said water-back, outer water-jackets at the sides and front of the heater, inner water-jackets at the sides of the heater and communicating with the outer water-jacket, an inner water-back communicating with the inner water-jackets, a dome in communication with the inner water-back and the outer water-jacket, upright water-columns in communication with the dome and the inner water-jackets, outlets from the dome, a smoke-outlet, and flues leading from said outlet between the inner and outer water-backs, and the inner and outer water-jackets, and in communication with the fire-box by the spaces between the water-columns.

8. The herein-described heater, comprising a fire-box, water-backs, inlet-pipes leading into the water-backs, outer water-jackets at the sides and front of the heater, an inner water-back at the rear of the fire-box, inner water-jackets at the sides of the fire-box, which jackets are in communication with the outer water-jackets and with the inner water-jacket, a dome having outlets which dome is located above the fire-box and in communication with the front portions of the outer water-jackets and with the inner water-back and the inner water-jackets, said water-columns being located at the opposite sides of the fire-box, a smoke-outlet, flues leading from said outlet between the inner and outer water-backs, and the inner and outer water-jackets, and in communication with the fire-box by the spaces between the staggered water-columns, and drop-tubes depending from the dome above the fire-box, which drop-tubes comprise outer tubes having closed lower ends and inner supplemental tubes of smaller size which are open at both ends.

604,485. BREAKING-MACHINE. MILTON F. WILLIAMS, St. Louis, Mo., assignor to the Williams Patent Crusher and Pulverizer Company, same place. Filed July 17, 1897. Serial No. 644,893. (No model.)



Claim.—1. The combination with pivoted, revolving hammers, of an adjustable breaker-plate, and fingers arranged below said breaker-plate, and projecting between the paths of the hammers; substantially as described.

2. The combination with pivoted, revolving hammers, of an adjustable breaker-plate, and adjustable fingers projecting below said breaker-plate between the paths of the hammers; substantially as described.

3. In a crusher, the combination with pivoted revolving hammers, of a breaker-plate, a supporting-block therefor, a lug formed on said breaker-plate and extending through a suitable opening in the supporting-block, said lug being formed with an opening or eye in its outer end, a wedge which passes through said lug opening or eye and coöperates with the supporting-block, and liners which are adapted to be inserted between the breaker-plate and its supporting-block, substantially as described.

4. The combination with pivoted revolving hammers, of a breaker-plate upon which the hammers primarily break or crush the material, fingers below said breaker-plate which project into the spaces between the paths of the hammers, said fingers, in conjunction with the hammers, acting upon the material after it leaves the breaker-plate, a concave for receiving the material as it leaves the fingers, and bars for receiving the material as it leaves the concave, said bars permitting small particles of material to pass between them; substantially as described.

5. The combination with pivoted, revolving hammers and their supports, of longitudinally-disposed bars formed with thickened portions at the points where the hammers most nearly approach said bars, bar-supports for supporting the ends of said bars, and fingers clamped between the thickened portion of said bars, said fingers engaging the hammer-supports; substantially as described.

6. The combination with a suitable casing, of a hammer-shaft mounted therein, pivoted hammers carried by said shaft, bar-supports comprising heads which are connected by parallel cross-pieces, bars mounted in said bar-supports between the parallel cross-pieces, spacers between said bars, and through-bolts for clamping said parts in position, substantially as described.

7. The combination with pivoted, revolving hammers, and bars or fingers projecting between the path of the hammers and engaging the peripheries of the hammer-supports; substantially as described.

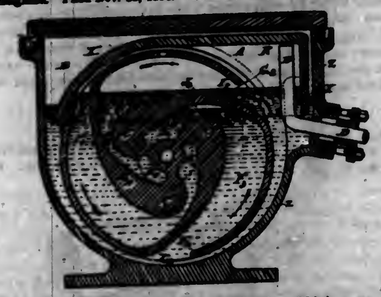
8. The combination with pivoted, revolving hammers, of revolving supports therefor, said supports being formed with peripheral grooves, and fingers which extend between said hammers, said fingers being formed with tongues fitting into the grooves on the hammer-supports; substantially as described.

9. The combination with pivoted, revolving hammers, of their supports, bars I coöperating with said hammers, and fingers J secured between the bars I, engaging said hammer-supports and coöperating with said hammers; substantially as described.

10. The combination with pivoted revolving hammers, of longitudinally-disposed bars, a concentrically-arranged series of transversely-disposed bars located at the rear end of the machine and above the bars first mentioned, all of said bars coöperating with the hammers, the spaces between said bars affording an escape for the material when it is reduced to the proper size, and a curved blind which is fitted in concentrically-arranged grooves behind the transversely-disposed bars for preventing the escape of material between said bars, substantially as described.

11. The combination with pivoted revolving hammers, of a breaker-plate tangentially arranged relative to the path of said hammers, and with the lower end of which breaker-plate said hammers coöperate, of a concave arranged below said breaker-plate and forming a continuation thereof, transversely-disposed corrugations or serrations on the working face of said concave, adjustable fingers arranged between the breaker-plate and concave, said fingers projecting inwardly between the paths of the hammers and bars forming a grinding-surface beyond said concave, substantially as described.

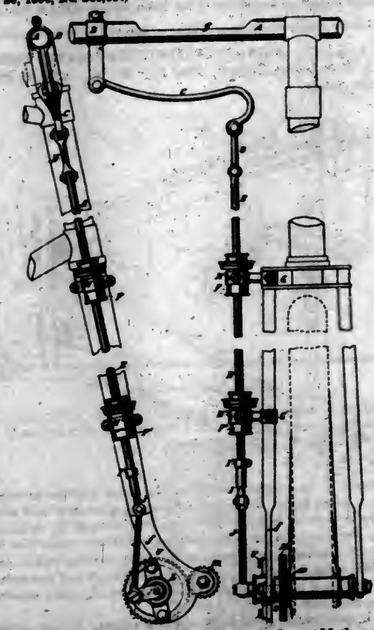
604,486. APPARATUS FOR PRODUCING HIGH VACUUMS. ARCHIBALD BAIRD, Glasgow, Scotland, and WILLIAM STROUD, Leeds, England. Filed Nov. 18, 1896. Serial No. 612,778. (No model.)



Claim.—1. An apparatus for the production of high vacua, comprising a case having an exhaust-tube and a pump-tube and adapted to contain liquid, a cover, a cap located within the case and providing in connection therewith an inner chamber and an outer chamber sealed by the said liquid, and a rotating drum adapted to be partly submerged in the liquid and having a curved air-passage through which air is transferred from the inner chamber; substantially as described.

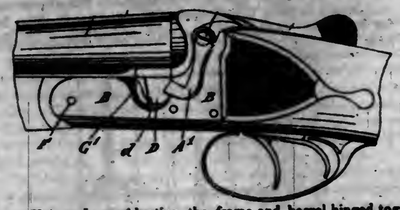
2. An apparatus for the production of high vacua, comprising a case, a cover, a cap located within the case and providing in connection therewith an inner chamber and an outer chamber, the exhaust-tube entering the inner chamber, the pump-tube extending from the outer chamber, and the rotating drum formed with three curved passages terminating at the periphery of the drum in apertures, and near the axis of the drum in apertures; substantially as described.

604,487. BICYCLE. LOUIS BOGNEY, Paris, France. Filed Mar. 18, 1897. Serial No. 628,146. (No model.) Patented in France Sept. 20, 1896, No. 260,067.



Claim.—In combination, the pinion n and gear M, the rod E and the boxes F having stops and ball-bearings and a lubricator carried by said box, substantially as described.

604,488. BREECH-LOADING FIREARM. WILLIAM CASHMORE, Birmingham, England. Filed Dec. 14, 1897. Serial No. 661,880. (No model.) Patented in England Sept. 12, 1896, No. 17,049.



Claim.—In combination, the frame and barrel hinged together by the pin F, the said barrel having the lumps D thereon at its sides to fit down along the sides of the frame, the catches to engage the lumps on the sides of the barrel and the lumps on the frame fitting in front of the barrel-lumps to resist the shock, substantially as described.

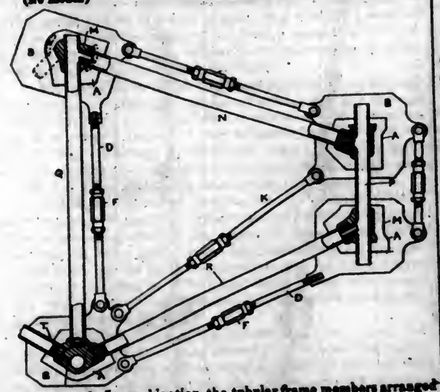
604,489. STEAM-ACTUATED VALVE. EDWIN H. DE LANY, Cleveland, Tenn. Filed Aug. 2, 1897. Serial No. 646,796. (No model.)



Claim.—The combination with the valve-chest provided with supply and exhaust ports substantially as described, of a main valve consisting of a hollow cylindrical body having exterior annular grooves and passages therefrom to the interior and an auxiliary valve consisting of a hollow cylindrical body movable within the main valve

and provided with exterior annular grooves and openings leading therefrom to its interior, said valves being open-ended, and means interposed between a movable part of the engine and the auxiliary valve for imparting movement to the latter, substantially as described.

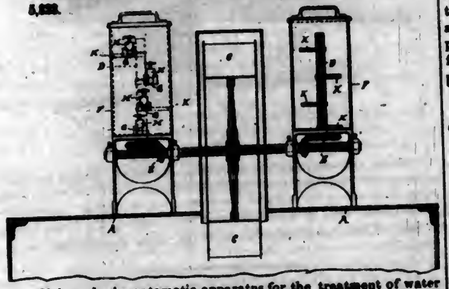
604,490. MEANS FOR MAKING CYCLE-FRAMES. FREDERICK A. ELLIS, London, England. Filed July 13, 1896. Serial No. 599,091. (No model.)



Claim.—1. In combination, the tubular frame members arranged to form a closed figure, the molds at the meeting points of said members, one or more of said members extending through its mold and opening into the outer air, and the washer-and-tube connection for placing the interior of the tubular members in communication, said connection being adapted to permit and limit the flow of the molten metal within and about the tubular members at the joint, substantially as described.

2. In combination, the series of molds adapted to cast sockets about the meeting ends of tubular frame members which are arranged to form a closed figure, and the adjustable rods connecting the molds, said rods having yielding portions to allow for the expansion and contraction of the tubes while the sockets are being cast, substantially as described.

604,491. APPARATUS FOR PURIFYING WATER. ALFRED A. ELLIS, London, England, assignor to the Maignen's Filtre-Rapide and Anti-Calcaire Company, Limited, same place. Filed Dec. 21, 1897. Serial No. 662,869. (No model.) Patented in England Mar. 4, 1897, No. 5,522.



Claim.—1. An automatic apparatus for the treatment of water or other liquids with powdered material, comprising the powder-supply canisters having orifices of ejection at various levels with means for the adjustment of the size of the orifices, means for the ejection of powder therefrom and operating means consisting of a water wheel or motor to automatically proportion the feed of powder to the quantity of water or liquid passing over or through the said operative water wheel or motor.

2. In automatic apparatus for the treatment of water or other liquids with powdered material the combination with a water wheel or motor of a canister or canisters adapted to contain a store of powdered material, rotating spindles and ejecting-arms fitted thereto operated by the said water wheel or motor, orifices at various levels in the sides of said canisters, and screw-regulated shutter-doors adapted to said orifices substantially as and for the purposes described.

604,492. BOX OR CAN. ALAN B. FERGUSON, Baltimore, Md., assignor to Henry F. Miller and George Miller, same place. Filed Oct. 9, 1897. Serial No. 654,653. (No model.)



Claim.—1. The combination with a receptacle having a neck at one end, of a movable cap having an outlet-opening, a disk within said cap having a flange to close said outlet-opening and arranged to form a measuring-chamber within the cap, said disk also having a hole therein, a lug projecting from said disk and adapted to engage the neck of the receptacle, and another disk having a hole and a shoulder to engage said lug, and a lip on said last-mentioned disk, said lip projecting through the outlet-opening of the cap, substantially as set forth.

2. The combination with a receptacle having a neck at one end and a fixed disk at the end of said neck, said disk having a hole therein, of a movable cap having an outlet opening, a disk within said cap and forming a measuring-chamber within the cap, a flange on said disk to close the outlet-opening of the cap, a lug on said disk to enter the opening in the fixed disk, and a third disk within said cap and having a hole therein to register with the holes in the other disks and a lip on said last-mentioned disk and passing through the outlet-opening of the cap, substantially as set forth.

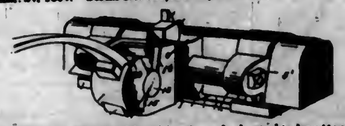
604,493. PROCESS OF PRODUCING ALIMENTARY PRODUCTS. JOHN H. KELLOGG, Battle Creek, Mich. Filed Feb. 16, 1897. Serial No. 623,711. (No specimens.)

Claim.—1. The process of producing the improved alimentary product which consists in blanching and thoroughly cooking nut-kernels, and reducing them to a pulp, then adding water, and sealing the pasty mass in cans, and subjecting such cans to the action of steam at a temperature ranging between 212° and 240° Fahrenheit, for a considerable period, that is to say until the mass becomes changed or modified, as specified.

2. The process of producing the improved alimentary product which consists in blanching and thoroughly cooking nut-kernels, and reducing them to a pulp, then adding water, and sealing the pasty mass in cans, and subjecting such cans to the action of simultaneous pressure and heat ranging between 212° and 230° Fahrenheit for a considerable period, that is to say until the mass becomes changed or modified, as specified.

3. The process of producing the improved alimentary product described, the same consisting in the following steps, first, blanching the nut-kernels; second, thoroughly cooking them; third, reducing them to a pulp; fourth, adding water in the proportion of about one to two; fifth, sealing the soft, pasty and emulsified mass in tin cans, and, sixth, in subjecting such cans to the action of steam at a temperature ranging from 212° to 240° Fahrenheit for a period varying from one to four hours, whereby the mass becomes converted into a product having the characteristics specified.

604,494. THILL-COUPLING. THOMAS H. KELLOGG, Walla Walla, Wash., assignor of one-third to Harry A. Reynolds, same place. Filed Mar. 27, 1897. Serial No. 629,589. (No model.)



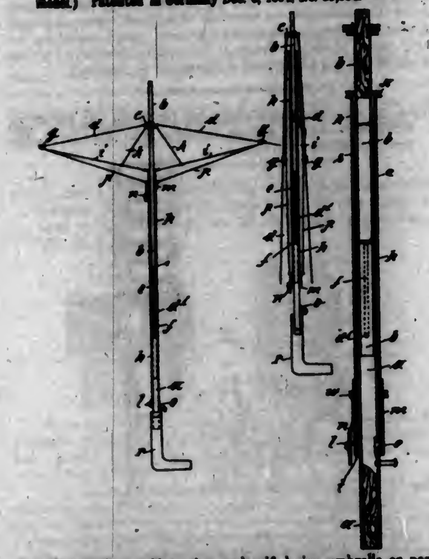
Claim.—1. The combination of a rod adapted to be attached to the axle, a coupler-head movable upon said rod, a bar supported beneath the axle and forming a guideway between the same and the under side of the axle, said coupler-head formed with an elongated portion adapted to move in said guideway, and means for securing the coupler-head at the desired position, substantially as described.

2. The combination of clips adapted to embrace the axle, lugs carried by said clips, a rod supported by said lugs, a bar adapted to be positioned beneath the axle, said bar having perforated lugs formed on its ends through which the lugs of the clips extend and are secured, a coupler-head movable upon the rod and having a projecting portion adapted to move in the guideway formed between the bar and the under surface of the axle, and means for securing the head at the desired position upon the rod, substantially as described.

3. In a thill-coupler, the combination with a coupler-head having a transverse passage formed therein with a central vertical recess communicating with the transverse passage, one of the walls formed by the vertical recess having a cut-out portion communicating with the transverse passage, whereby the thill-iron may be inserted in the coupler-head with its trunnion engaging the transverse passage, a pivoted latch adapted to close said opening, a spring engaging said latch for holding it in an open or closed position, the bottom wall of the head being slotted, and a slide controlling said slot, whereby when said slide is drawn out the dirt may be removed from the coupler-head and also the spring, substantially as described.

4. A thill-coupling comprising a coupler-head having a transverse passage formed therein with a central vertical passage communicating therewith, one of the side walls formed by said passage being cut out above the transverse passage and communicating therewith, whereby the thill-iron may be inserted with its trunnion taking the transverse passage, a latch pivoted to the head and closing said opening formed by the cut-out portion, a U-shaped spring engaging the latch at its upper end and having its double portion bearing against the back wall of the coupler-head, said head being formed with an opening in its bottom wall beneath said spring, and a slide closing said opening, said slide being perforated, the parts operating substantially as described.

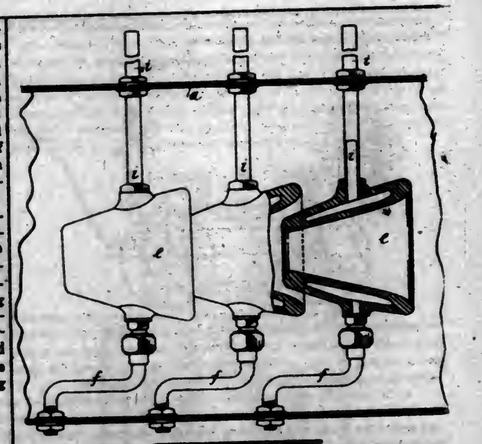
604,495. SELF OPENING OR CLOSING UMBRELLA. EMIL KLEMM, Berlin, Germany, assignor to Edmund Scherff and Gustav Recober, same place. Filed June 24, 1896. Serial No. 596,703. (No model.) Patented in Germany Dec. 6, 1894, No. 85,351.



Claim.—In a self-opening and self-closing umbrella or parasol having a tube *a*, another tube *b*, arranged to slide within the former tube *a*; a third tube *h*, arranged upon the tube *a*; a catch *c* adapted to couple the tube *h* to the tube *a*, and a spring *c* adapted to move the tube *b* out of the tube *a*, the combination of auxiliary stretchers *i* hinged to the tube *h* and connected displaceably with the ribs *d*; the braces *k* hinged to the auxiliary stretchers *i*, as well as the tube *b*; the runner *m* arranged displaceably upon the tube *h*; the stretchers *p* hinged to said slide as well as to the auxiliary stretchers *i*; and the catch *n* secured to the runner *m*, and adapted to fix the latter in its normal position, all operating in the manner and for the purpose as described.

604,496. STRAM-GENERATOR. EDWARD MAHR, Jr., Manchester, England. Filed May 20, 1897. Serial No. 637,204. (No model.) Patented in England Aug. 6, 1896, No. 17,206.

Claim.—In combination with the tube, a series of hollow-walled cones therein with their smaller ends directed into the larger ends of the adjacent cones with spaces through, around and between the cones for the circulation of the hot products and the independent pipe connections *f*, *i*, between the hollow-walled cones and the water-space of the boiler.



604,497. NON-REFILLABLE BOTTLE. JOSEPH H. MCDONALD, New York, N. Y. Filed Feb. 8, 1897. Serial No. 622,422. (No model.)



Claim.—1. The combination with a bottle, of a valve device comprising a lower conical section secured within the neck of the bottle by engagement with its inner walls, a separate upper conical section also supported within the neck by engagement with its inner walls, and having at its upper end a flat cap 15, and a buoyant and a ponderable ball within such sections, and a separate retaining element confined within the bottle-neck by engagement with the inner walls thereof, and having a flat bottom which rests upon the cap of the upper section of the valve device, substantially as set forth.

2. The combination with a bottle, its neck and valve mechanism, of a member confined within the neck above the valve mechanism, passages through said member, enlarged portions in the lower end thereof, and constricted openings from the enlarged portions into the neck, substantially as set forth.

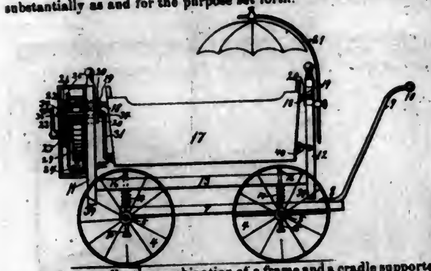
3. The combination with a bottle, its neck, and the valve mechanism, of a tortuous-passage-defining member 17 confined within the neck of the bottle above the valve mechanism, and provided with two passages through it, such passages being separated by a septum 22, and enlarging toward their lower ends, and constricted openings from the said enlarged portions of the passages into the neck of the bottle, substantially as set forth.

604,498. COMBINED MOTOR-CRADLE AND CHILD'S CARRIAGE. CARL F. HUBERT, Giles, Wis. Filed Mar. 12, 1897. Serial No. 627,146. (No model.)

Claim.—1. The combination with a wheeled skeleton truck having the handle 9 10 of a frame detachably supported on springs upon the truck; a cradle suspended within the frame and being adapted to rock in the frame whether the latter is on the truck or not, substantially as and for the purpose set forth.

2. The combination with a wheeled truck having handhold for pushing it by, of a cradle suspended and rocking or swinging in a frame having legs adapted to stand on the floor and a motor secured to said frame for swinging the cradle and means for yieldingly and

detachably supporting said motor cradle and frame upon the truck, substantially as and for the purpose set forth.



3. In a cradle, the combination of a frame and a cradle supported on trunnions to rock or swing therein, of a clockwork-motor secured to one end of the frame and operatively connected with the cradle and a parasol secured to the opposite end of the cradle over the head of the child, substantially as and for the purpose set forth.

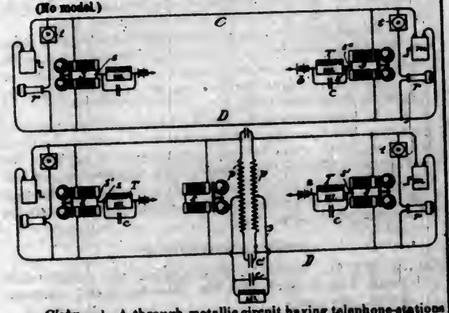
4. In a cradle, the combination with a supporting-frame of a cradle swinging therein on trunnions or journals, a motor secured to one end of the frame and operating the cradle, said motor having the escapement-wheel 29, and the anchor 30, rock-shaft 34, and pendulum-arm 31, and flexible connection between said arm and the cradle proper, substantially as and for the purpose set forth.

5. In a cradle, the combination with a supporting-frame, of a cradle swinging therein on trunnions or journals, a motor secured to one end of the frame and operating the cradle, said motor having the escapement-wheel 29, and the anchor 30, rock-shaft 34, and pendulum-arm 31, and flexible connection between said arm and the cradle proper, said escapement-wheel being made of rubber or other sound-deadening materials, substantially as and for the purpose set forth.

6. In a cradle, the combination with a supporting-frame, of a cradle swinging therein on trunnions or journals, a motor secured to one end of the frame and operating the cradle, said motor having the escapement-wheel 29, and the anchor 30, rock-shaft 34, and pendulum-arm 31, and flexible connection between said arm and the cradle proper, said trunnions and rock-shaft having their journal-boxes inserted in rubber secured in the framework, substantially as and for the purpose set forth.

7. In a cradle, the combination with a supporting-frame, of a cradle swinging therein on trunnions or journals, a motor secured to one end of the frame and operating the cradle, said motor having the escapement-wheel 29, and the anchor 30, rock-shaft 34, and pendulum-arm 31, and flexible connection between said arm and the cradle proper, said trunnions and rock-shaft having their journal-boxes inserted in rubber secured in the framework, and the case containing said motor being secured to the cradle-supporting frame with an intervening dead-air space, substantially as and for the purpose set forth.

604,499. MULTIPLE TELEPHONY AND TELEGRAPHY. RICHARD PUSH, New York, N. Y. Filed Oct. 22, 1897. Serial No. 656,007. (No model.)



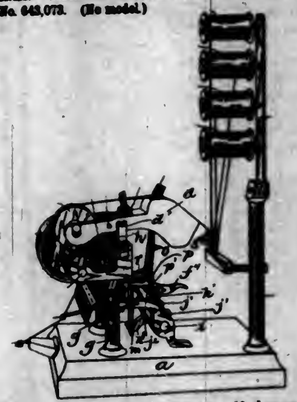
Claim.—1. A through metallic circuit having telephone-stations included therein or connected therewith, signaling-magnets for said stations bridged across the two wires of the circuit, an extra circuit uniting the middle points of the signal-magnets whereby an independent circuit is obtained between the stations, and instruments for communication, located in said extra circuit, substantially as described.

2. A through metallic circuit having terminal and way stations, the terminal stations including a self-inductive resistance bridged across the mains, communicating instruments located in or connected with the metallic circuit at said stations, the two sides of the metallic circuit being opened at the way-stations and closed through condensers, self-inductive resistances connecting the two sides of the metallic circuit on each side of the condensers at the way-stations, in the manner described, extra conductors connecting the middle points of the two resistances at the way-stations and including communicating instruments, and an extra circuit connecting the middle points of the resistances at the terminal stations and including communicating instruments, as described.

3. A through metallic circuit having terminal and way stations, the terminal stations including a signaling-magnet bridged across the mains, communicating instruments located in or connected with the metallic circuit at said stations, the two sides of the metallic circuit being opened at the way-stations and closed through condensers, self-inductive resistances connecting the two sides of the metallic circuit on each side of the condensers at the way-stations, in the manner described, extra conductors connecting the middle points of the two resistances at the way-stations and including communicating instruments and an extra circuit connecting the middle points of the coils of the signaling-magnets at the terminal stations and including communicating instruments, as described.

4. A metallic circuit having terminal and way stations, the terminal stations including self-inductive resistances bridged across the mains, communicating instruments located in or connected with the metallic circuit at said stations, the two sides of the metallic circuit being opened at the way-stations, self-inductive transformer or repeating coils connected across the mains, one-half on each side of the opening in the mains in the manner described, extra conductors connecting the middle points of each half of the transformer and including communicating instruments and an extra circuit connecting the middle points of the resistances at the terminal stations and including communicating instruments, substantially as described.

604,500. STOP MECHANISM FOR DOUBLING AND TWISTING MACHINES. ANDREW M. PRESS, Lincolnton, N. C. Filed July 1, 1897. Serial No. 643,073. (No model.)



Claim.—1. A device of the character specified comprising means for progressively actuating two or more yarn-threads, a knife, a normally-stationary knife-actuating member, a feeler having a reciprocating motion toward and away from said member, detectors engaged with the several yarn-threads, and members connected with the several detectors, each of said members being adapted, upon the breaking of a thread and the release of the corresponding detector to fall into the space between the feeler and the knife actuating member, causing engagement of the two and causing the knife to be operated to cut all of the threads.

2. A device of the character specified comprising means for progressively actuating two or more yarn-threads, a knife having a normally-inoperative position in proximity to said threads, means for moving said knife from this position to cut the threads upon the breaking of one or more of them, and means for automatically returning the knife to its inoperative position immediately after the cutting operation.

3. A device of the character specified comprising means for progressively actuating two or more yarn-threads, a knife, a knife-operating member, a vibratory feeler, detectors adapted to effect engagement between said member and said feeler so as to operate the knife and cause it to cut the threads when one or more of said threads break, and means for automatically effecting disengagement of the said member and said feeler immediately after the cutting operation, thereby permitting the knife to return to an inoperative position.

4. A device of the character specified comprising drawing-rollers for progressively actuating two or more yarn-threads, a tilting member carrying one of said rollers, means for locking said tilting member with the rollers in contact, a knife, and thread-controlled devices for causing said knife to sever the threads and simultaneously therewith releasing the locking means to allow of the separation of the rollers upon the breaking of one or more of the threads.

5. A device of the character specified comprising drawing-rollers for progressively actuating two or more yarn-threads, a knife, a knife-operating lever, a vibratory feeler, detectors normally suspended by the threads, a tilting table carrying one of the drawing-rollers, a latch depending from said tilting table and adapted to lock the same with the rollers in contact, and latch-fingers connected with said latch and with the detectors, the arrangement being such that a latch-finger will fall and effect engagement between the vibratory feeler and the knife-operating lever, upon the breaking of its suspending thread, thereby causing the knife to cut the threads, and at the same time pulling the latch so as to unlock the tilting table and allow of the separation of the drawing-rollers.

6. A device of the character specified, comprising means for progressively actuating two or more yarn-threads, an oscillating shaft, a knife-actuating member loosely mounted thereon, a knife, a feeler secured to and vibrated by the oscillating shaft, detectors engaged with the several yarn-threads, and members connected with the several detectors and each adapted, upon the breaking of the thread supporting its detector, to fall between the feeler and the knife-actuating member, thereby causing the latter to oscillate and operate the knife to sever the threads.

7. A device of the character specified, comprising a tilting table formed with detector-channels, a series of detectors occupying said channels and normally supported by the yarn-threads at or near the orifices of the channels, and means for automatically tilting the table upon the breaking of one or more of the yarn-threads so as to depress its channeled portion and cause the detectors to project from their orifices for the purpose of rethreading.

604,501. MOTOR-WATTMETER. CARL D. RAAB, Kaiserslautern, Germany. Filed Dec. 27, 1897. Serial No. 663,782. (No model.) Patented in Belgium June 30, 1897, No. 126,966, and in Spain July 10, 1897, No. 21,922.



Claim.—1. A motor-wattmeter having a disk armature, two horseshoe electromagnets placed near each other at one side of the disk armature and a main-current solenoid at the other side thereof, substantially as described.

2. A motor-wattmeter having a disk armature, two horseshoe electromagnets placed near each other at one side of the disk armature and provided with shunt-coils, and a main-current solenoid at the other side of the disk armature, substantially as described.

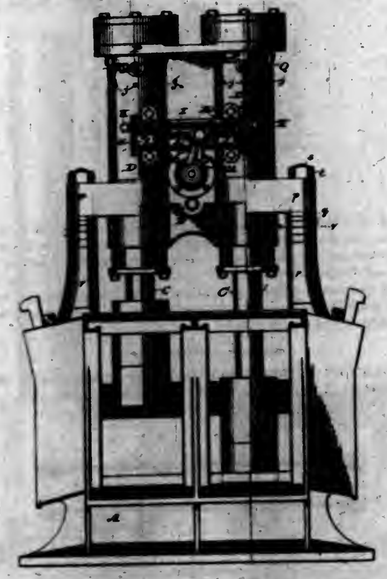
3. A motor-wattmeter having a rotary armature and two shunt horseshoe electromagnets with their poles closely adjacent thereto and on one side thereof, in combination with a main-current solenoid located on the other side thereof, substantially as described.

4. A motor-wattmeter having a disk armature, two shunt horseshoe electromagnets of different size placed near each other at one side of the armature, in combination with a main-current solenoid located on the other side of said armature, substantially as described.

604,502. STAMP-MILL. ERWIN RITTINGER, Milwaukee, Wis. Filed Mar. 13, 1897. Serial No. 627,201. (No model.)

Claim.—1. In a stamp-mill, a pair of main cylinders containing reciprocative stamp-pistons and provided with ports communicating with free atmosphere, these ports being opened and closed by the pistons, a pair of auxiliary cylinders having pipe connection with the main cylinders, pistons in the auxiliary cylinders connected by a sliding rod, a lever in connection with the rod, a steam-chest intermediate of said main cylinders, and an oscillative valve in the steam-chest provided with a stem having rigid connection with said lever, the valve being operative to control passages that establish communication between said steam-chest and steam-spaces at the lower ends of the aforesaid main cylinders.

2. In a stamp-mill, a pair of main cylinders containing reciprocative stamp-pistons, a pair of auxiliary cylinders communicating with the main cylinders, pistons in the auxiliary cylinders connected by a sliding rod, a lever in connection with the rod, a steam-chest intermediate of said main cylinders, and an oscillative valve in the steam-chest provided with a stem having rigid connection with said lever, the valve being operative to control passages that establish communication between said chest and main cylinders.



3. In a stamp-mill, a pair of main cylinders containing reciprocative stamp-pistons having automatic intermittent rotary movement, a pair of auxiliary cylinders communicating with the main cylinders, pistons in the auxiliary cylinders connected by a sliding rod, a lever in connection with the rod, a steam-chest intermediate of said main cylinders, and an oscillative valve in the steam-chest provided with a stem having rigid connection with said lever, the valve being operative to control passages that establish communication between said chest and main cylinders.

4. In a stamp-mill, a pair of main cylinders containing reciprocative stamp-pistons having automatic intermittent rotary movement in one direction only, a pair of auxiliary cylinders communicating with the main cylinder, pistons in the auxiliary cylinders connected by a sliding rod, a lever in connection with the rod, a steam-chest intermediate of said main cylinders, and an oscillative valve in the steam-chest provided with a stem having rigid connection with said lever, the valve being operative to control passages that establish communication between said chest and main cylinders.

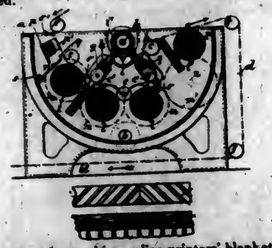
604,503. PROCESS OF MAKING ORTHOSULFAMIN-BENZOIC-ACID ALKYL ESTERS. BRUNO R. SEIFERT, Radebeul, Germany, assignor to the Chemische Fabrik von Heyden, Gesellschaft mit Beschränkter Haftung, same place. Filed Jan. 27, 1897. Serial No. 620,864. (No specimens.)

Claim.—The process of manufacturing orthosulfamin-benzoic-acid alkyl esters which consists in converting orthosulfamin-benzoic acid into an alkyl ester by heating it in an alcoholic solution with a small quantity of a water-absorbing substance, substantially as described.

604,504. MACHINE FOR WASHING PRINTERS' BLANKETS. DANIEL H. SEIFERT and JOHN WALKER, Cheadle Heath, JOSEPH STRAPP, Entwistle, and FRANK FARNWORTH, Ramsbottom, England. Filed Apr. 28, 1897. Serial No. 634,376. (No model.)

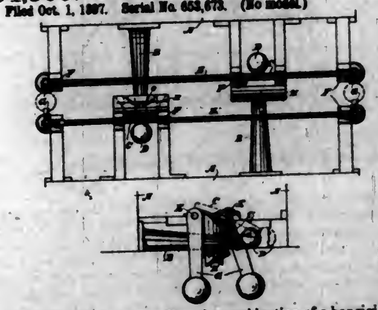
Claim.—1. In a machine for washing calico-printers' blankets, a radially-adjustable guide-roller mounted between two stationary guide-rollers adapted to operate upon back of the blanket, in combination with a brush mounted between the said adjustable and one of the said stationary guide-rollers adapted to act upon the face of the blanket, all substantially as and for the purpose set forth.

2. In a machine for washing calico-printers' blankets, in combination with guide-rollers and brushes between which the blanket runs, a stationary brush *p* supplied with liquid and a trough *r*, *s*, below the same, said trough being adapted to receive the material from the basket independent of the main wash-box and to convey the same away without entering said wash-box, substantially as and for the purpose specified.



3. In a machine for washing calico-printers' blankets, in combination with the wash-box and guide-rollers over which the blanket runs, stationary brushes *l* and *p* made in two lengths placed end to end and having right and left hand fashioned rows of bristles or strips, said brush extending parallel with the rollers, the said two brush parts abutting against each other and being reversible, all substantially as and for the purpose set forth.

604,505. CAR-COUPLING. CHARLES H. SMITH, Coulterville, Cal.
Filed Oct. 1, 1897. Serial No. 653,673. (No model.)

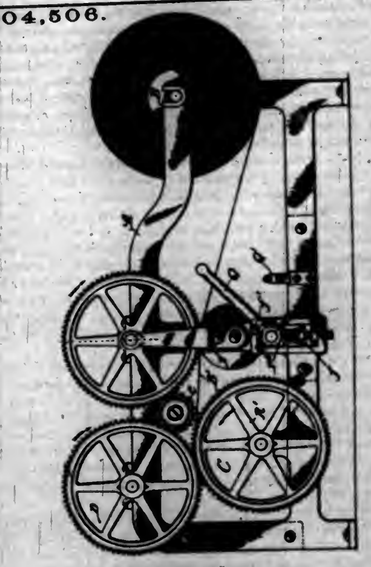


Claim.—1. In a car-coupling, the combination of a bar rigid with and projecting from one car in the line of travel thereof, and having a knob upon its outer end, an outwardly-diverging guide fixed to the opposing car and having a passage or opening made entirely through it, and a shaft exterior to and journaled behind the inner end of the guide, having a plate depending from it and adapted to seat itself against the rear exterior surface of the guide, so as to partially close the opening in the inner end thereof, said plate having its under surface grooved and said shaft having weighted arms upon its outer ends.

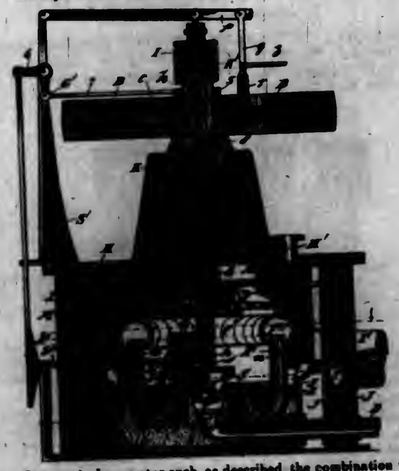
2. An improved car-coupling consisting of bars rigid with and projecting from opposite cars, said bars being on opposite sides of the longitudinal central line of the cars, diverging guides projecting from said cars one in line with each of the said bars, said guides having openings made entirely through them and said bars having knobs to pass through said openings to a point exterior to the inner ends of the guides, shafts journaled on each car at a point behind the inner end of each guide, weighted arms on the ends of said shafts and plates on said shafts and lying just behind the vertical plane of the inner ends of the guides, whereby the passage of the knobs beyond the inner ends of the guides lifts the plates until the grooved portions thereof pass the knobs when the plates seat themselves against the open inner ends of the guides and partially close the same, and secure the knobs.

604,506. ROTARY STENCILING-MACHINE. ADDISON C. THOMAS and CASSIUS M. HAMILTON, Chicago, Ill., assignors to George W. Cummings, New York, N. Y. Filed Aug. 14, 1897. Serial No. 648,200. (No model.)

Claim.—In a rotary stenciling-machine, the combination with the frame, of a stencil-cylinder journaled therein, means for supplying ink to the inner side of said stencil while on the cylinder, a paper-drum, and feed and severing rolls journaled in the frame, substantially as and for the purpose set forth.



604,507. STEAM-TURBINE. OTTO THOMEN, Hamburg, Germany.
Filed Sept. 23, 1896. Serial No. 606,763. (No model.)



Claim.—1. In a motor such as described, the combination with a vessel adapted to contain a liquid, an ejector device partly immersed in said vessel and having radial fluid ejecting channels whose inlets open into said vessel, and a turbine wheel into which the outlets of said channels open, and means for periodically admitting steam under pressure to said channels to drive the liquid therefrom into contact with said wheel, of means for preventing the displacement of the liquid in the vessel beyond a normal level, and a power-transmitting shaft on which the turbine wheel is secured, for the purpose set forth.

2. In a motor such as described, the combination with a vessel adapted to contain a liquid, a revoluble power-transmitting shaft extending into said vessel, a turbine wheel secured to said shaft, and an ejector device partly immersed in the liquid in said vessel and provided with radially-arranged liquid-ejecting channels whose inlets and outlets open into the vessel and turbine wheel respectively; of a valve-controlled steam-supply passage in communication with said channels, means for unseating and seating the valve, and means for admitting liquid from the vessel to the valve when on its seat, for the purpose set forth.

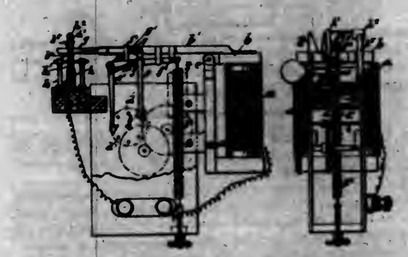
3. In a motor such as described, the combination with a vessel adapted to contain a liquid, a revoluble power-transmitting shaft extending into said vessel, a turbine wheel secured to said shaft, and an ejector device partly immersed in the liquid in the vessel and provided with radially-arranged liquid-ejecting channels whose inlets and outlets open into said vessel and turbine wheel respectively; of a valve-controlled steam-supply passage in communication with said channels, means for alternately unseating and seating the valve controlled by the rotation of the turbine, and similarly-controlled means for admitting liquid from the vessel to the steam-passage on the inlet side of the valve-seat to seal the same.

4. In a motor such as described, the combination with a vessel divided into two chambers by a partition provided with normally open ports or openings, one of said chambers containing a liquid, a revoluble power-transmitting shaft extending into the other chamber, a turbine wheel secured to said shaft and an ejector device partly immersed in the liquid in one of said chambers and provided with radially-arranged liquid-ejecting channels having their inlets and outlets opening into the liquid-containing chamber and the turbine wheel respectively; of means for periodically admitting steam under pressure to the ejecting-channels, and a float-valve in the liquid in one of the chambers adapted to close the ports leading to the other chamber when the level of said liquid is displaced by the pressure of the steam, for the purpose set forth.

5. In a steam-turbine in which superheated steam acts upon molten lead, the combination of a suitably-heated vessel, a body arranged in said vessel and provided with a steam-chest and conducting-channels, the latter and the vessel being partially filled with molten lead, and intermittingly-operated stop-valve for regulating the admission of the superheated steam into the said conducting-channels, a suitable valve for preventing backflow of the molten metal under the pressure of the superheated steam; of a turbine wheel adapted to be rotated by the molten lead thrown out through the conducting-channels, and a fly-wheel or pulley connected with the turbine wheel and adapted to transmit the rotation imparted to the turbine wheel, substantially as described.

6. In a steam-turbine in which superheated steam acts upon molten lead, the combination of a suitably-heated vessel, a body arranged in said vessel and provided with a steam-chest and conducting-channels, the latter and the vessel being partially filled with molten lead, an intermittingly-operated stop-valve for regulating the admission of the superheated steam into the said conducting-channels, a suitable valve for preventing backflow of the molten metal under the pressure of the superheated steam, of a turbine wheel adapted to be rotated by the molten lead thrown out through the conducting-channels, a fly-wheel or pulley connected with the turbine wheel, a box in communication with the interior of the vessel and the steam chest, a cock for changing the said communications alternately and means for actuating the said cock from one position into the other, substantially as specified.

604,508. ELECTRIC CLOCK. WILLIAM WESTENRAD, Manchester, England. Filed June 7, 1897. Serial No. 639,734. (No model.)

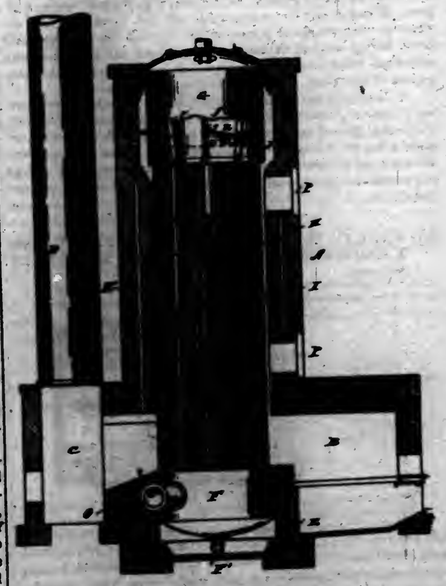


Claim.—1. In an electric clock, the combination of an armature-arm *b'* under the influence of a spring *b²* with a switch consisting of a lever *h'* having at its upper end a contact *h²* adapted to make and break contact with an insulated contact-piece *h³* and its lower end being alternately engaged and released by a pawl *h⁴*, all substantially as and for the purpose set forth.

2. In an electric clock, the combination with a pin-wheel *d*, *d'*, and the armature-arm *b'* of a rocking lever *f* pivoted to the armature-arm *b'* and placed under the influence of a spring *b³* and two pawls *e*, *e'*, the "thrust-pawl" *e* of which is pivoted to the armature-arm *b'* and the "pull pawl" *e'* to the rocking lever *f*, which pawls are adapted to engage the pins *d'* and rotate the respective wheel *d'*, all substantially as and for the purpose set forth.

3. In an electric clock, the combination with the armature-arm *b'* of a two-armed lever *g* pivoted to the free end of the said arm, the inner end of which lever is controlled by a lip *f⁴* on the rocking lever *f* and the outer end adapted to operate a switch, all substantially as and for the purpose set forth.

604,509. UPRIGHT WATER-TUBE BOILER. WILLIAM J. WICKES and LEWIS BAKER, Saginaw, Mich. Filed Oct. 4, 1897. Serial No. 654,008. (No model.)



Claim.—1. An upright water-tube boiler comprising a suitable setting or casing having a transverse partition therein, a fire-chamber communicating with the heating-space on one side of said partition and an outlet for the spent gases on the opposite side of said partition, front and rear sets of tubes arranged respectively on opposite sides of said partition, a drum connecting the lower ends of said sets, a steam-drum connecting the upper ends of said sets, and a baffle-plate in the steam-drum extending over the front set of tubes only, substantially as described.

2. An upright water-tube boiler comprising a suitable setting or casing having a transverse partition therein, a fire-chamber communicating with the heating-space on one side of said partition and an outlet for the spent gases on the opposite side of said partition, front and rear sets of tubes arranged respectively on opposite sides of said partition, a drum connecting the lower ends of said sets, a steam-drum connecting the upper ends of said sets, and a baffle-plate in the steam-drum extending over the front set of tubes only and hinged to permit access to said tubes, substantially as described.

3. An upright water-tube boiler comprising a suitable setting or casing having a transverse partition therein, a fire-chamber communicating with the heating-space on one side of said partition and an outlet for the spent gases on the opposite side of said partition, front and rear sets of tubes arranged respectively on opposite sides of said partition, a drum connecting the lower ends of said sets, a steam-drum connecting the upper ends of said sets, and a baffle-plate in the steam-drum extending from the wall of the drum inward in an upwardly-inclined direction over the front set of tubes only, substantially as described.

4. An upright water-tube boiler comprising a suitable setting or casing having a transverse partition therein, a fire-chamber communicating with the heating-space on one side of said partition and an outlet for the spent gases on the opposite side of said partition, front and rear sets of tubes arranged respectively on opposite sides of said partition, a drum connecting the lower ends of said sets, a steam-drum connecting the upper ends of said sets, and a baffle-plate arranged in the steam-drum extending over the front set of tubes and comprising a fixed section adjacent to the wall of the drum and a hinged section located above the fixed section and extending therefrom inward to the central line of the drum, substantially as described.

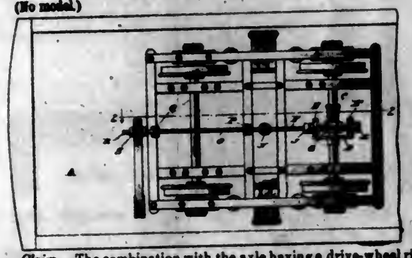
604,510. HANDLE-FASTENER OR SHANK-LOCK. THOMAS E. WILSON, Farmland, Ind. Filed Nov. 18, 1897. Serial No. 658,947. (No model.)



Claim.—1. In combination, a tool-handle having a hole therein, a split nut having internal screw-threads, a tool-shank having a tapered threaded end for engagement with the threads of the nut whereby when the shank is rotated the nut will be expanded, said shank having longitudinal corrugations thereon, and a ferrule having extensions which are corrugated at their ends to engage the corrugations of the shank, as and for the purpose described.

2. In combination with a threaded split nut of a tool-shank having a tapered threaded end adapted to engage the threads of the nut, a shoulder formed upon said shank having notched or corrugated sides, a ferrule secured upon the handle, said ferrule having extensions formed therewith, the ends thereof being serrated to engage the notches or corrugations of the shoulder, as and for the purpose described.

604,511. DRIVING MECHANISM FOR DYNAMOS. PHILEMON W. ALEXANDER, Allapaha, Ga. Filed Sept. 21, 1897. Serial No. 652,414. (No model.)



Claim.—The combination with the axle having a drive-wheel rigidly secured thereto, with a slidable bearing upon the axle normally held toward the drive-wheel, a shaft mounted in said slidable bearing, clutch-collars rigidly secured to said shaft having teeth pointed in opposite directions, drive-wheels mounted loosely upon said shaft engaging said drive-wheel on opposite sides of the axle and having teeth to engage the clutch-collars respectively, and springs coiled around the shaft between the slidable bearing and the wheels thereon, normally holding the wheels in contact with the clutch-collars, substantially as described.

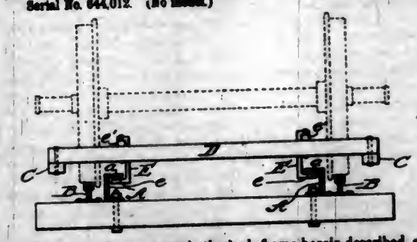
604,512. TUBULAR-FABRIC-TURNING MACHINE. ROBERT BARRIE, Philadelphia, Pa. Filed Aug. 31, 1897. Serial No. 650,174. (No model.)



Claim.—1. In a circular-fabric-turning machine the combination of a base having openings for the fabric to pass through, a tube resting upon said base and registering with one of said openings, and rollers suitably journaled and surrounding the tube substantially as shown and described.

2. In a circular-fabric-turning machine, the combination of a stretching-frame over which the fabric is intended to pass, a base having openings for the fabric to pass through, a tube registering with one of said openings and to which the aforesaid stretcher is secured with rollers surrounding the tube and serving to receive and draw the fabric down as and for the purpose herein shown and described.

604,513. MEANS FOR PREVENTING DERAILMENT OF RAILROAD-CARS. MARIA R. BRADLEY, Chicago, Ill. Filed July 9, 1897. Serial No. 644,012. (No model.)



Claim.—1. In a car-truck, the lock-frame herein described, consisting of the side bars C C, the cross-bars D D, and the longitudinal bars E E; substantially as and for the purpose described.

2. In a car-truck, a lock-frame independent of the action of the car-springs and having longitudinal members E E extending below the level of the guard-rail flanges and in the immediate vicinity thereof, for the purpose of supporting the detent or locking device in proper relation thereto; substantially as described.

3. The combination of the flanged guard-rails A A with a car-truck provided with the lock-frame herein described, and with a detent or locking device projecting outward laterally from the side of the inner longitudinal member of said lock-frame and normally running under the flange of the guard-rail; substantially as and for the purpose described.

604,514. VESSEL FOR HOLDING LIQUIDS. ROBERT H. BALDOM, Horton, Mich., assignor of one-half to William F. Cowham, Jackson City, Mich. Filed May 12, 1897. Serial No. 636,194. (No model.)



Claim.—A drinking-glass or tumbler, provided at the top with a broad swelling enlargement forming a comparatively shallow bowl-shaped receptacle surmounting the brim of the tumbler proper for the purposes herein described and set forth.

604,515. PROCESS OF DEODORIZING AND PURIFYING PETROLEUM-OIL. JOHN BRAGG, Cleveland, Ohio. Filed Aug. 12, 1896. Serial No. 602,042. (No specimens.)

Claim.—1. The process of deodorizing and purifying petroleum-oil, which consists in first dissolving in the oil a metallic compound soluble in the oil and whose metallic constituent is combinable with the sulfur element of the oil, such for instance as an oleate or colophonate, subsequently breaking up the compound or emulsion then formed by the addition thereto of a substance capable of reacting with the metallic element of the compound added, whereby the metallic constituents of the mass are caused to separate from the oil, and finally removing from the oil the separated impurities and precipitates, without distillation, substantially as described.

2. The process of deodorizing and purifying petroleum-oil which consists in effecting the solution in the liquid oil of a metallic soap or emulsion, subsequently decomposing the metallic soap by the addition of acid to the oil under treatment, whereby the skunk is driven off and a precipitation of the impurities is caused, separating the purified oil from such precipitate, and then neutralizing the acid remaining in the oil and washing the oil, substantially as described.

3. The process of deodorizing and purifying petroleum-oil which consists in forming a solution in the liquid oil of a metallic soap or

emulsion and agitating the same to diffuse the same thoroughly throughout, then adding sulfuric acid to precipitate the metallic elements of the solution and separate the impurities from the oil, separating the oil from such precipitate, and then washing the oil with alkaline and chlorin solution, substantially as described.

4. The process of deodorizing and purifying petroleum-oil which consists in dissolving in the liquid oil with agitation a metallic soap or emulsion, then adding sulfuric acid to precipitate the metallic elements of the solution and separate the impurities from the oil, separating the oil from the precipitate and subsequently treating the oil, first with alkali and then with chlorin liquor, alternating each treatment with water-washing, and finally steaming the oil, substantially as described.

5. The process of deodorizing and purifying petroleum-oil which consists in effecting the solution in the oil of a metallic soap or emulsion formed of the oxids of lead or manganese or both oxids mixed saponified with a mixture of cotton-seed oil and petroleum, subsequently adding acid to decompose the soap and precipitate the metallic elements thereof and drive off the skunky element as a vapor, separating the oil from the precipitate, and afterward treating the oil, first with alkali and then with chlorin liquor, alternating each treatment with water-washing, and finally steaming the oil, substantially as described.

6. The process of deodorizing and purifying petroleum-oil which consists in effecting the solution in the liquid oil of a metallic soap or emulsion, and thoroughly diffusing the same in the oil by agitation, whereby a reaction takes place between the oil and the metallic elements added, then breaking up the combination thus formed by the addition of acids and alkali, whereby the impurities originally present and those added to the oil precipitate, separating the oil from such precipitated impurities, and subsequently washing the oil with alkaline and chlorin solutions, substantially as described.

7. The process of deodorizing and purifying petroleum-oil which consists in effecting the diffusion or solution in the oil of a metallic soap or emulsion, subsequently adding acid to break up the soap or emulsion and precipitate the metallic elements thereof and drive off the skunky element, separating the oil from the precipitate and afterward treating the oil with alkali, chlorin liquor, water and steam, substantially as described.

8. The process of deodorizing and purifying petroleum-oil which consists in effecting the diffusion or solution in the oil of a metallic soap or emulsion, formed of the oxids of lead or manganese or both oxids mixed saponified by a mixture of cotton-seed oil water and petroleum, subsequently adding acid to break up the soap or emulsion and precipitate the metallic elements thereof and drive off the skunky element, separating the oil from the precipitate and afterward treating the oil with alkali, chlorin liquor, water and steam, substantially as described.

604,516. LATCH MECHANISM. CHARLES H. BRIGGS, Canton, Mass., assignor to S. M. Hewes, Jr., Yonkers, N. Y. Filed Feb. 15, 1897. Serial No. 623,249. (No model.)



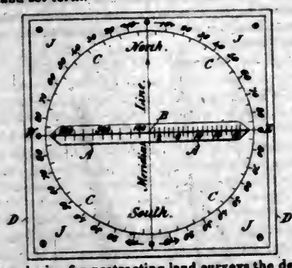
Claim.—1. A latch mechanism having a longitudinally-movable latch-bar, a key-operated revoluble bushing, and a tumbler directly engaged and operated by the key, and arranged to normally lock the bushing against movement.

2. A latch mechanism having a longitudinally-movable latch-bar, a key-actuated revoluble bushing formed to lock the latch-bar against movement, and a longitudinally-sliding tumbler normally locking the bushing, and unlocked therefrom directly by the engagement of the key therewith.

3. A latch mechanism having a casing with opposing keyholes, a key-actuated oscillatory bushing formed to close either of said keyholes, and a tumbler arranged in the path of the key so as to be directly engaged thereby, said tumbler normally locking the bushing against movement.

604,517. DEVICE FOR PROTRACTING LAND SURVEYS. JOHN D. BROWN, Richmond, N. Y. Filed June 26, 1897. Serial No. 642,313. (No model.)

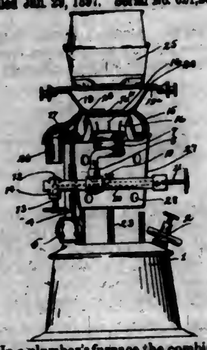
Claim.—1. In a device for protracting land surveys the degreed circle C as herein described provided with a flat rotary indicator plate A, of a length equal to the diameter of the circle C; such plate having a line drawn through the center of its length and made rotatable at the point B by means of a rod, spindle or shaft F attached thereto and passing through the material on which such circle is drawn or fastened substantially as and for the uses and purposes herein fully described and set forth.



2. In a device for protracting land surveys the degreed circle C as herein described provided with a flat rotary indicator-plate A having a scale of measurements drawn thereon commencing to number from the point of rotation B and a length equal to the diameter of the circle C; such plate having a line drawn through the center of its length and made rotatable at the point B by means of a rod, spindle or shaft F attached thereto and passing through the material on which such circle is drawn or fastened substantially as and for the uses and purposes herein fully described.

3. In a device for protracting land surveys the degreed circle C—indicator-plate A—rod, spindle or shaft F in combination with the wheel or pulley E substantially as and for the uses and purposes herein fully described and set forth.

604,518. PLUMBER'S FURNACE. EDWARD T. BURDSEN, Columbus, Ohio. Filed Jan. 29, 1897. Serial No. 621,309. (No model.)



Claim.—1. In a plumber's furnace the combination with a burner 15 having burner-openings therein, of a generating pipe-coil 7 having connection with a tank and a valve-tube 9 connected with said coil, said valve-tube being provided with valve-openings 10 and 12 adapted to discharge respectively through said coil and into said burner, substantially as and for the purpose specified.

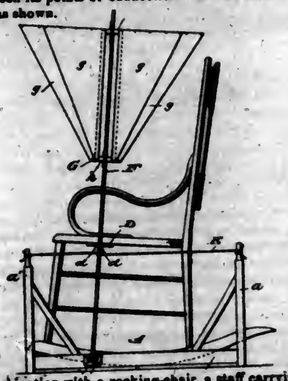
2. In a plumber's furnace the combination with a hollow circular burner body or ring having burner-openings on its inner side and means for discharging gas into said burner, of a flaring flame-protecting ring rising from said burner-top and an interned flange portion 20 formed on the lower end of said protector-plate and adapted to form a protecting-hood for the burner-openings, substantially as and for the purpose specified.

3. In a plumber's furnace the combination with a hollow circular burner-body having a gas-receiving neck 17 and having a continuous horizontal burner-opening 18 in its inner wall, and substantially vertical burner-openings 16 below said burner-opening 18, of a tank 1, a generating-coil burner encircled by said burner-body and connected with said tank, a valve-tube connected with said coil and supported therefrom and valve-controlled openings in said valve-tubes adapted to discharge respectively through said coil and into said burner-neck, substantially as and for the purpose specified.

604,519. FAN ATTACHMENT FOR ROCKING-CHAIRS. ROBERT M. CRITTENDEN, Black Rock, Ark. Filed Oct. 21, 1897. Serial No. 656,260. (No model.)

Claim.—1. In a fan attachment for rocking-chairs, the combination with the chair having attached thereto a clamp with outwardly-projecting arms, a staff with which the outer ends of the arms en-

gage, of a trough for the reception of the rocker, a bearing or fixture carried by the trough with which the lower end of the staff engages, and posts having a flexible connection which engages with the staff between its points of connection with the chair and frame, substantially as shown.



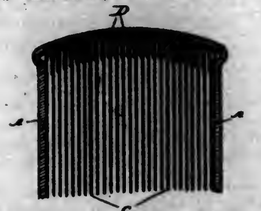
2. In combination with a rocking-chair, a staff carrying a fan, a frame with which the rocker is adapted to engage, said frame having a bearing in which the lower end of the staff is loosely fulcrumed, a clamp carried by the chair and provided with outwardly-projecting spring-arms; together with a cord or flexible connection carried by the frame for engagement with the staff, substantially as shown and for the purpose set forth.

604,520. CASTER. ROBERT L. DORSEY, Indianapolis, Ind., assignor to the Tucker & Dorsey Manufacturing Company, same place. Filed Nov. 13, 1897. Serial No. 658,037. (No model.)



Claim.—The combination, in a wheel, of the part A having a hub and projections *p* integral therewith, a rim or tire part B, and a side part C having a central opening to receive said hub, and openings corresponding to the projections *p* to receive said projections, said projections being adapted to be headed down and secure the parts together when said parts are assembled, substantially as and for the purposes set forth.

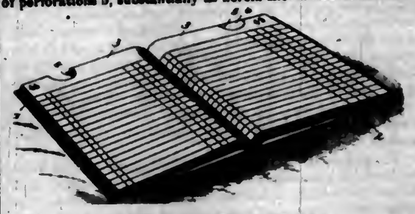
604,521. ACCOUNT-BOOK. JOHN RIEHEMY, Pittsburg, Pa. Filed Mar. 30, 1897. Serial No. 628,469. (No specimens.)



Claim.—In an account-book, the leaves B arranged in sections, combined with the dividing-sheets C which have their inner edges turned inwardly so as to form the strips D, and which sheet C and strip D inclose the inner edge of each section of the leaves B, substantially as shown.

604,522. BLANK-BOOK. THOMAS ELLIOTT, Rexburg, Idaho, assignor of two-thirds to George B. Rogers and Lorenzo B. Thomas, Blackfoot, Idaho. Filed Apr. 20, 1897. Serial No. 634,431. (No specimens.)

Claim.—As an improved article of manufacture, a consecutive-entry book comprising the solid back cover 2, the front cover 1 provided in its top edge with a recess 4 formed as described and arranged between the center and outer side edge thereof, and the leaves 3 having the alined detachable portions 6 formed at the upper edges of their head marginal portions 5, each detachable portion being arranged between the center and outer side edge of said marginal portion and separated from the body of the same by an intervening row of perforations 5, substantially as herein shown and described.



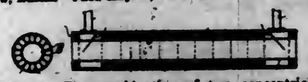
604,523. COMBINED PACK AND SLED. JOHN J. ESS, Livingston, Mont. Filed Jan. 26, 1898. Serial No. 668,242. (No model.)



Claim.—1. A combined pack and sled comprising a rectangular-shaped box having a runner-shaped bottom, two chambers therein, water and insect proof openings into said chambers, prospecting-pans fitting snugly over and forming secure covers over said openings, bails secured to the sides of the top of said device, locks to secure said bails to superstructures on top of said pans, and adjustable harness for securing the pack on the back of a person or to a draft-animal, substantially as described and set forth.

2. The combination in a pack and sled for miners, of a rectangular-shaped device, having a toboggan-shaped bottom, compartments in the same having openings through the top of the same, gasketed, perforated and water-tight covers over the same, prospectors' pans securely fitting on top of said covers, and means to lock said pans in place, as and for the purposes set forth.

604,524. APPARATUS FOR VAPORIZING AND SUPERHEATING WATER CONTAINED IN STEAM. WOLDEMAR FERREMANN, Moscow, Russia. Filed May 27, 1897. Serial No. 638,412. (No model.)



Claim.—1. The combination of two concentrically-arranged tubes, annular plates to close the ends of the annular space between said tubes, an outlet and inlet steam-pipe at opposite ends of said exterior tube, baffle-plates across the outlet and inlet openings, and a series of plates arranged in the annular space formed between the tubes, so as to cause the steam to take a zigzag course through the same and to impart heat direct to the steam substantially as described.

2. The combination of a series of members, each member consisting of two concentrically-arranged tubes, having the ends of the annular space formed between the same closed by annular plates, a steam-inlet extending upwardly from each of the members, and a steam-outlet also extending upwardly at the opposite end of each member, baffle-plates within each member, and a series of plates arranged within each member to cause the steam to take a zigzag course through the said member as specified, the said outlet and inlet pipes having flanges and being so arranged that their flanges extend out of the heating-flue which incloses the members, in two groups at each end of the same, a main inlet for the steam having branches to connect with each of the individual inlet-pipes and a main outlet similarly constructed substantially as described.

3. The combination of an exterior and an interior tube concentrically arranged, plates to close the annular space between the two tubes, an inlet-pipe at one end and an outlet-pipe at the other end of the exterior tube, a slantingly-arranged baffle-plate within the space between the two tubes and across the inlet and outlet, a series of corrugated rings arranged between the outlet and inlet, said rings fitting tightly between and contacting with each of the adjacent walls of the tubes alternately, substantially as described.

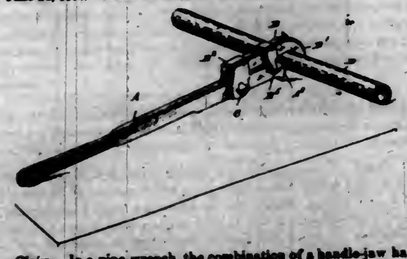
604,525. DIE FOR MAKING METALLIC LATHING. CHARLES FORST, Newark, N. J., assignor, by mesne assignments, to the American Metal Lath Proof Construction and Manufacturing Company, same place. Filed Mar. 10, 1897. Serial No. 626,699. (No model.)



Claim.—1. In a die for making expanded metallic lathing, the combination of a holder, teeth for slitting the metal and separate teeth for expanding the metal after it is slitted mounted in said holder.

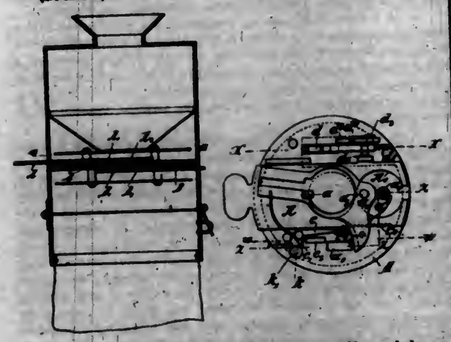
2. In a die for making expanded metallic lathing, the combination of a holder, teeth for slitting the metal and teeth for expanding the metal after it is slitted mounted in said holder and arranged therein in groups, and means for holding said teeth in said holder.

604,526. PIPE-WRENCH. THOMAS J. POWLEN, Tupas, Cal. Filed June 26, 1897. Serial No. 642,499. (No model.)



Claim.—In a pipe-wrench, the combination of a handle-jaw having a series of perforations and a curved or cam-shaped outer end provided with teeth, a movable jaw having its outer end curved or bent to one side, the inside of said jaw being V-shaped and provided with teeth on both sides of the V, two parallel arms projecting from the movable jaw on the same side as its curved end, embracing the handle-jaw and having perforations to register with those of the handle-jaw the perforations of one arm being of less diameter than the other and screw-threaded, a pivot-screw passing through the perforation of one arm of the movable jaw and one of the perforations of the handle-jaw and threaded into the perforation of the other arm of the movable jaw, and a second pair of parallel guide arms projecting from the movable jaw on the same side as the curved end, between the curved end and the pivot-arms, all substantially as and for the purpose set forth.

604,527. DEVICE FOR COLLECTING CONTENTS OF CONTRIBUTION-BOXES. GOTLAV PUSER, Vienna, Austria-Hungary, assignor to Martin Koblenzer, same place. Filed Mar. 20, 1897. Serial No. 628,403. (No model.)



Claim.—1. The combination of a box having orifice and closure-slide as specified and a bag having a head-plate with corresponding orifice and closing-slide, a series of tumblers in connection with both said slides, to retain the same locked, a slide-bolt *f'* mounted beneath said head-plate and having a circular orifice therein with lineal slotted elongation, a vertically-guided pin *f*[3] to fit said circular orifice and having flattened sides at a point in its length, to fit said elongation, means for retaining said bolt with its circular part in the circular orifice, when the box and bag are apart and means in connection with the box-bottom for depressing said bolt as specified when the box and bag are united, a hooked bolt *f* on said slide-bolt, extending through the head-plate and adapted to engage over the bottom of the box when the slide-bolt is operated, and to free the tumblers of the box-slide as specified, a sliding hooked bolt *d* mounted on the bottom of the box and means in connection with the slide of the box to impart to said bolt a downward and then a horizontal motion when the said slide is opened, an orifice in the head plate through which the bolt *d* extends, said bolt constituting the means for operating the tumblers of the bag-slide on the movement of the box-slide, a pawl-and-ratchet device to lock the box-slide in its open position, a pawl operated by the bag-slide to lock the slide-bolt *f'* in its operative position when the bag-slide is opened and a tumbler-lever mechanism in the bag-head plate, adapted to be operated by the bag-slide and to extend into the box-bottom and release the box-slider-retaining pawl when the bag-slide has been opened, substantially as described.

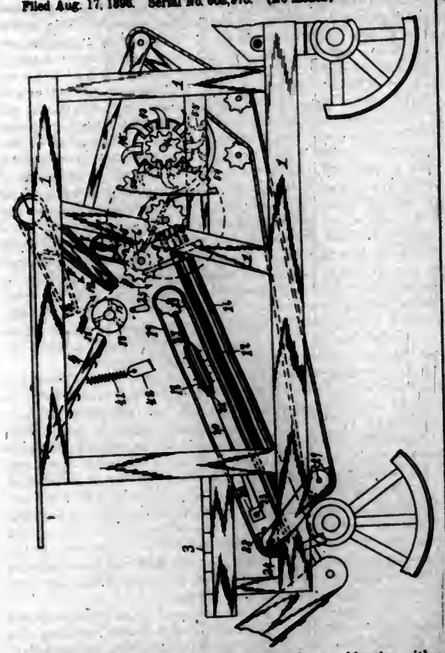
2. The combination of a box having an orifice in the bottom and a slide to close said orifice, a bag having corresponding head-plate and orifice and closing-slide as specified, an operating-bolt slide to lock the box and bag together and release the lock of the box-slide as specified, a series of tumblers to lock the bag-slide, an orifice in the bag-head in proximity to said tumblers, a sliding bolt *d* mounted in the box-bottom, a guide-plate d^5 for the same having slot d^6 with upwardly-extending semicircular arm d^7, pins on the bolt *d* to travel in said slot, a slanting slot in the said bolt *d* and a pin on the slide of the box to engage said slot, a returning-spring to said bolt and means for locking and releasing the slides and the operating-bolt in the order specified and for locking the box to the bag-head while the slides are open and releasing the parts when the slides have been closed and locked substantially as described.

3. The combination of a box having orifice and closing-slide and means for normally keeping said closing-slide locked consisting of a series of tumblers, a bag having corresponding orifice and head-plate in which said orifice is formed and a closing-slide and lock to the same and having an operating-bolt normally locked by means of a pin as specified, means in connection with the box-bottom to release said pin when the box and bag are united and a hooked bolt on said slide-bolt to engage the tumblers of the box-slide, a rearwardly-extending projection on one of said tumblers and an orifice a^4 in the box-bottom in proximity to said tumbler projection and adapted to be partially closed by said projection when the tumblers are in the position to release the slide, a pin on the bag-plate to extend into said orifice a^4 and having lateral recess into which the tumbler projection passes to retain the bag and box together when the slide of the box has been released, and means for locking and unlocking the parts in the order specified, substantially as described.

4. The combination of a box having orifice in the bottom and having slide to close same with locking mechanism as specified, a bag having corresponding orifice in its head-plate and locking means in connection with its closure-slide all as specified, an operating slide-bolt and means in connection therewith to release the tumblers of the box-slide, a vertically and horizontally movable bolt *d* mounted in the box-bottom and means in connection with the box-slide for projecting the same into the bag-head as specified, a row of ratchet-teeth formed in the side of the slide *A* of the box within the box and a pawl *c* having spring c^2 and rearwardly-extending arm c^3 to engage said ratchet-teeth and retain the slide in its outward position, an orifice in the box-bottom in proximity to said pawl, a tumbler-lever mounted beneath the bag-head plate and an orifice in said bag-head above said tumbler-lever and means in connection with the bag-slide to project said tumbler-lever through the box-bottom and release the pawl of the slide of the box substantially as described.

5. The combination of a box having orifice in the bottom and closing-slide with locking means and a bag having head-plate with corresponding orifice and locking means for the closing-slide beneath said head-plate as specified an operating slide-bolt *f''* and means in connection therewith for locking together the box and bag and for releasing the lock of the slide of the box, means in connection with the box-slide to release the bag-slide, a pivoted pawl *g* mounted beneath the bag-head and below the operating slide-bolt, and orifice in said slide-bolt adapted to be brought over the pawl-hook when the operating slide-bolt is pushed in as specified, a cam-surface beneath the slide of the bag and fast on the same adapted to contact with the pawl end and operate the pawl to engage the said slide-bolt orifice when the bag-slide is drawn out and means for locking and unlocking the parts in the order specified for the purpose substantially as described.

604,528. CORN-HUSKER, GILBERT S. GUDGEREEN, Dayton, Ohio. Filed Aug. 17, 1896. Serial No. 602,975. (No model.)



Claim.—1. In a corn-husking machine, the combination with a continuous snapping-roll having grooves and rings throughout its length, of two short rolls of similar construction mounted parallel therewith in positions to bring the grooves of one roll in line with the rings of the other, the said short rolls being provided with yielding bearings, substantially as shown and described.

2. The combination with snapping-rollers, of a rotating beater to advance the stalks to the snapping-rollers, and apply pressure thereto; a butting-apron mounted above said snapping-rollers, and beater, and having its lower end, essentially free, and projected between the snapping-rollers and beater, so that a yielding pressure is immediately applied to the stalks to crowd them into the snapping-rollers as said stalks are directed past the beater; whereby the necessity of applying manual pressure to said stalks at a point adjacent to said snapping-rollers, is dispensed with, substantially as described.

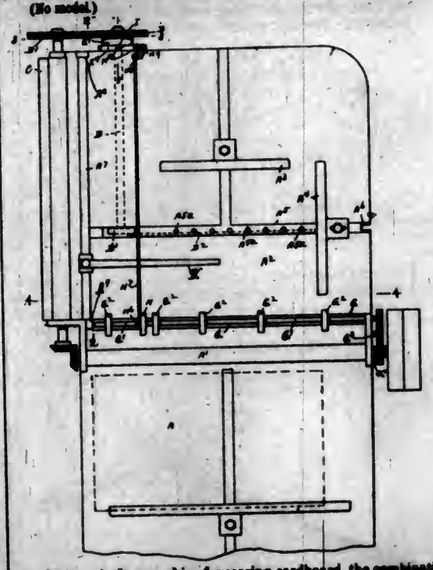
3. In a corn-husking machine having side feed-tables and a feeder's footboard, the combination with snapping-rollers, and a shredding-cylinder, of a rotating beater to advance the stalks to the snapping-rollers and to apply pressure thereto, and a butting-apron mounted above said snapping-rollers and beater, the said butting-apron having its lower end essentially free and disconnected from other supports so as to apply variable pressure at all times to the stalks to crowd them into the snapping-rollers as said stalks are advanced by the rotating beater, substantially as shown and described.

604,529. WHEEL-TIRE. WILLIAM H. HEYNER, Rock Hill, S. C. Filed Dec. 1, 1897. Serial No. 660,262. (No model.)



Claim.—A wheel-tire consisting of a pneumatic tube or sack mounted on the rim, a cushion-tire with a central perforation mounted on said pneumatic tube or sack, and a solid non-expansible metal ring mounted in said perforation in said cushion, whereby it is prevented from expanding under the pressure from the pneumatic tube, when pumped up, said pneumatic tube or sack being adapted to partially embrace said cushion-tire, and thus hold it in place, substantially as set forth.

604,530. MACHINE FOR SCORING CARDBOARD. CLARENCE W. HOBBS, Worcester, Mass. Filed Aug. 19, 1896. Serial No. 603,066. (No model.)



Claim.—1. In a machine for scoring cardboard, the combination of a scoring mechanism, a table from which a sheet of cardboard is fed to said scoring mechanism, an automatic feeding mechanism by which the cardboard is fed to said scoring mechanism, a clutching mechanism by which said feeding mechanism is connected with the driving power, a clutch-controlling mechanism arranged in the path of the cardboard and adapted to be actuated thereby, and a table upon which the cardboard is supported as it is presented to said clutch-controlling mechanism, substantially as described.

2. In a machine for scoring cardboard, the combination of two tables for successively supporting the sheet of cardboard, a scoring mechanism, a feeding mechanism by which the sheet of cardboard is fed from the second of said tables to said scoring mechanism, a clutching mechanism by which said feeding mechanism is operatively connected with the driving power, and a clutch-controlling mechanism located between said tables and arranged to be actuated by the sheet of cardboard as it passes from the first to the second table, substantially as described.

3. In a machine for scoring cardboard, the combination of two tables for successively supporting the sheet of cardboard, a feeding mechanism for feeding the sheet of cardboard from the second of said tables, a clutching mechanism by which said feeding mechanism is operatively connected with the driving power, a clutch-controlling mechanism located between said tables and arranged to be actuated by the sheet of cardboard as it passes from the first to the second of said tables, and comprising a tripping member capable of being carried out of the path of the cardboard, substantially as described.

4. In a machine for scoring cardboard, the combination with a feeding mechanism and a clutching mechanism by which said feeding mechanism is operatively connected with the driving power, of a clutch-controlling mechanism arranged to be actuated by the sheet of cardboard and comprising a tripping member and rolls for engaging the cardboard as it strikes said tripping member, substantially as described.

5. In a machine for scoring cardboard, the combination with the scoring mechanism, a feeding mechanism by which a sheet of cardboard is fed to said scoring mechanism, a clutching mechanism by which said feeding mechanism is operatively connected with the driving power, means for automatically disengaging said clutching mechanism at the end of the feeding movement, means for engaging said clutching mechanism with the driving power, consisting of a tripping member adapted to be moved in one direction by the advancing edge of the cardboard and be held from reverse movement by the contact of the cardboard, means for reversing the motion of said tripping member after the cardboard has passed and means for operatively connecting said tripping member with said clutching mechanism whereby said feeding mechanism is set in motion upon the reverse movement of said tripping member, substantially as described.

6. In a machine for scoring cardboard the combination of a scoring mechanism, a table upon which a cardboard is fed to said scoring mechanism, a feeding mechanism, a clutching mechanism by which said feeding mechanism is operatively connected with the driving power, means for automatically disengaging said clutching mechanism at the end of the feeding movement, means for engaging said clutching mechanism with the driving power, consisting of a tripping member pivoted above the surface of the table and arranged to be rocked about an axis parallel with the surface of the table by the advancing edge of the cardboard and arranged to be held from reverse movement by the contact of the cardboard, means for reversing the motion of said tripping member and connected mechanism by which the reverse motion of said tripping member is made to engage said clutching mechanism immediately after the cardboard has passed beneath said tripping member, and means for moving the cardboard beneath said tripping member, substantially as described.

7. In a machine for scoring cardboard, the combination with a scoring mechanism, a table upon which a sheet of cardboard is fed to said scoring mechanism, rolls by which the cardboard is carried upon said table, a feeding mechanism by which the cardboard is fed to said scoring mechanism, a clutching mechanism by which said feeding mechanism is operatively connected with the driving power, means for automatically disengaging said clutching mechanism at the end of the feeding movement and means for engaging said clutching mechanism with the driving power consisting of a tripping member which is moved in one direction by the advancing edge of the cardboard, a spring by which the motion of said tripping member is reversed, means for operatively connecting said tripping member with said clutching mechanism whereby said clutching mechanism is thrown into action by the reverse movement of said tripping member, substantially as described.

8. In a machine for scoring cardboard, the combination with a feeding mechanism and a clutching mechanism by which said feeding mechanism is operatively connected with the driving power, of a clutch-controlling mechanism arranged to be actuated by the sheet of cardboard and comprising a tripping member, and means for holding the cardboard against said tripping member, substantially as described.

9. In a machine for scoring cardboard, the combination with mechanism for scoring a sheet of cardboard, of a tripping-wheel H arranged to be actuated by the passage of a sheet of cardboard beneath it, and feeding mechanism for pushing the cardboard toward the scoring mechanism, clutching mechanism by which said feeding mechanism is connected with the driving power, said clutching mechanism being operatively connected with said tripping-wheel, substantially as described.

10. In a machine for scoring cardboard, the combination with mechanism for scoring the sheet of cardboard, feeding mechanism for pushing the sheet toward the scoring mechanism, and clutching mechanism by which said feeding mechanism is connected with the driving power, of a tripping-wheel provided with a projecting segment placed in the path of the sheet of cardboard, by which said tripping-wheel is oscillated, said tripping-wheel and said clutching mechanism being operatively connected, whereby the oscillation of said tripping-wheel will bring said clutching mechanism into action, substantially as described.

11. In a machine for scoring cardboard, the combination with a pair of scoring mechanisms placed at right angles to each other and with an intervening table, of a feeding mechanism sliding upon the surface of said table and clutching mechanism by which said feeding mechanism is connected with the driving power, of a roll G, shaft G', tripping-wheel H, turning loosely on said shaft and provided with a projecting segment, arranged to be engaged by a passing sheet of cardboard, said tripping-wheel and said clutching mechanism being operatively connected, substantially as described.

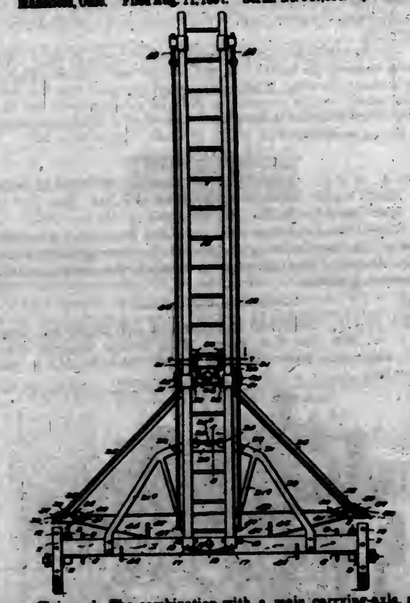
12. The combination with the table A^2, and scoring mechanism comprising the roll C and knives C, of a roll G, shaft G', tripping-wheel H, turning loosely on said shaft, spring-actuated segment acting conjointly with said roll to engage a passing sheet of cardboard, a pushing-plate, a rotating crank connected with said pushing-plate, and a clutching device by which said crank is connected with the driving power, said clutching device being operatively connected with said tripping-wheel H, whereby the passage of a sheet of cardboard will cause said tripping wheel to oscillate and bring said clutching device into action, substantially as described.

13. In a machine for scoring cardboard, the combination with scoring mechanism and feeding mechanism for feeding a sheet of cardboard thereto, of an oscillating tripping-wheel H operatively connected with said feeding mechanism, said tripping-wheel having a recess H', a radially-sliding segment H^3 held in said recess, guide-plates H^5 and a spring H^6 by which said plate is pressed outward, substantially as described.

14. In a machine for scoring cardboard, the combination with a table A^2, and scoring mechanism placed at one side of said table, of a bar A^7 held in a fixed position slightly above the surface of said table and parallel with and adjacent to said scoring mechanism with a clear space beneath said bar to receive a sheet of cardboard, feeding mechanism by which a sheet of cardboard is fed upon said table A^2 in a line parallel with, and beneath said bar, and a pusher-plate capable of a reciprocating motion at right angles to said bar, by which the sheet of cardboard is moved transversely to said bar and toward said scoring mechanism.

15. In a machine for scoring cardboard, the combination with a scoring mechanism of a receiving-table A' upon which the sheet of cardboard is fed to said scoring mechanism, a table A^2 upon which the scored sheet is delivered from said scoring mechanism, a feeding mechanism consisting of the roll G, shaft G' and disks G^2 attached to said shaft placed behind the scoring mechanism by which the sheet of cardboard is fed upon the table A^2, after it has left the scoring mechanism, a second scoring mechanism by which the sheet of cardboard is cross-scored, a reciprocating pushing-plate by which the sheet of cardboard is moved on table A^2 toward said second scoring mechanism, means for actuating said reciprocating pushing-plate comprising a clutching mechanism and a tripping-wheel H mounted upon said shaft G' operatively connected with said clutching mechanism, substantially as described.

604,581. PORTABLE ADJUSTABLE LADDER. HENRY HUBER, Mansfield, Ohio. Filed Aug. 11, 1897. Serial No. 647,863. (No model.)



Claim.—1. The combination with a main carrying-axle, and a ladder thereon, of the cranked axle pivoted to the main axle and provided with a hanger-arm, a wheel journaled on the spindle of said cranked axle and provided with a perforated ring or annulus disposed adjacent to the hanger-arm, a locking-pin for holding the ring of the wheel in rigid relation to the hanger-arm of the cranked axle, and means for locking the cranked axle at different points of its adjustment on the main axle, as and for the purposes described.

2. The combination with a main carrying-axle, and a ladder thereon, of a cranked axle having means for locking it at different points of adjustment on said main axle, a wheel journaled on the spindle of the cranked axle and provided with perforations in its rim situated at suitable intervals and in alternate relation to the spokes, and an anchoring-rod which passes through the perforation in the rim of the wheel, as and for the purposes described.

3. The combination with a main carrying-axle, of the supporting-frame rigidly attached thereto and provided with a perforated segment, a ladder, a pivoted carrier in which the ladder is stepped, a block arranged between the ladder-rails and against the segment of the supporting-frame, the connected clips fitted to the block and the segment and embracing one of the rounds of the ladder, and a locking-pin engaging with the block and the segment of said supporting-frame, as and for the purposes described.

4. The combination with a wheeled main axle, and a ladder, of

the inclined braces, a hinge-rod on which the braces are swiveled, and clip-bearings fitted to the ladder-rails and connected to one of the ladder-rounds, as and for the purposes described.

5. The combination with a ladder, of the clip-bearings fitted against the ladder-rails and provided with the elongated plates arranged to engage with adjacent rounds of the ladder, sleeves arranged between the clip-bearings, a hinge rod or bolt, and braces attached to the sleeves, as and for the purposes described.

6. The combination with a ladder, of the clip-bearings, sleeves fitted between the clip-bearings, a hinge rod or bolt passing through the clip-bearings and the sleeves, braces pivoted to the sleeves, and suitable anchoring devices for the braces, as and for the purposes described.

7. The combination with a wheeled axle, and a ladder, of the clip-bearings connected to the ladder, a hinge bolt or rod, carried by said clip-bearings, sleeves fitted to said rod to be confined between the clip-bearings, braces pivoted to the sleeves and provided with ground-plates, an anchoring-chain connecting the ground-plates, and other chains connecting the ground-plates to the axle, as and for the purposes described.

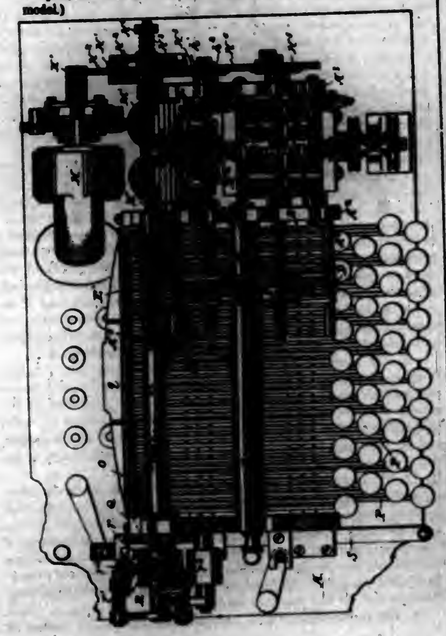
8. The combination with an axle, and a ladder, of braces having loose connections with the ladder, perforated ground-plates having pivoted connections with the braces, the hooks rigid with the ground-plates and the axle, anchoring-chains attached to said hooks of the ground-plates and the axle, and rods or stakes passing through the ground-plates to anchor them to the ground, as and for the purposes described.

9. The combination with a ladder and its truss, of the keepers which embrace the ladder-rails and are provided with the sleeves, the tension-bolts fitted in said sleeves and provided with the channeled saddles for the reception of the truss cables or rods, and nuts fitted on the bolts and bearing against the ends of the sleeves, as and for the purposes described.

604,582. COMPOUND FOR HEALING PUNCTURES IN PNEUMATIC TIRES. ISRAEL D. JEWETT, Greensburg, Ind. Filed June 15, 1896. Serial No. 695,705. (No specimens.)

Claim.—The herein-described compound for healing punctures in pneumatic tires consisting of glycerin, a farinaceous powdery substance, a metallic oxid and graphite combined in substantially the proportions specified.

604,583. COMBINED TRANSMITTER AND RECEIVER. JOHN M. JOY, New York, N. Y., assignor to the Printing Telegraph News Company, same place. Filed June 21, 1897. Serial No. 641,619. (No model.)



Claim.—1. In a printing-telegraph apparatus, a type-wheel carried rotatively by a shaft, a carriage to move the type-wheel longitudinally on the shaft, a transmitter having a circuit-controlling shaft, a motor connected to operate the type-wheel, the carriage and the circuit-controlling shaft and arranged to exert a constant stress upon the same, and escapements controlling the operation of the type-wheel, carriage and transmitter-shaft, substantially as described.

2. In a printing-telegraph apparatus, a type-wheel carried rotatively by a shaft, a carriage to move the type-wheel longitudinally on the shaft, a transmitter having a circuit-controlling shaft, and a single motor connected to operate the type-wheel, the carriage and the circuit-controlling shaft and arranged to exert a constant stress upon the same, substantially as described.

3. In a printing-telegraph apparatus, a type-wheel carried rotatively by a shaft, controlling mechanism for determining the movements of the type wheel, a carriage connected to move the type-wheel longitudinally on the shaft, a shaft for moving the carriage, controlling mechanism for determining the movements of said shaft, a transmitter having a circuit-controlling shaft, means for controlling the movements of the shaft, a motor, and connections between the motor and said shafts whereby they are put under constant stress tending to propel the same, substantially as described.

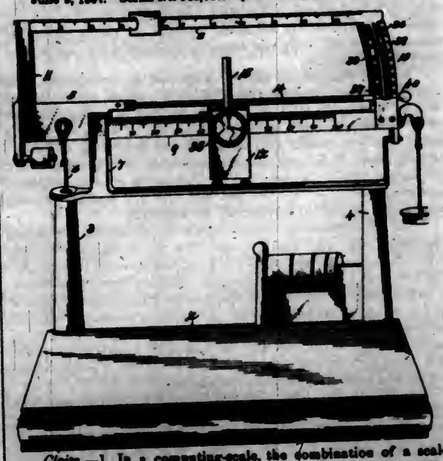
604,584. GEARING. HENRY B. KEIPER, Lancaster, Pa. Filed Oct. 8, 1897. Serial No. 654,563. (No model.)



Claim.—1. A gear-wheel comprising a body having sockets in its acting face and screw-threads on opposite sides of the sockets, balls seated in the sockets, and ball-retaining rings interiorly screw-threaded and engaged with the screw-threads on the body.

2. A gear-wheel comprising a body having a series of sockets in its acting face and screw-threaded in said acting face on opposite sides of the sockets, balls seated in the sockets, ball-retaining rings interiorly screw-threaded and engaged with the body on opposite sides of the balls, and securing-rings engaged with the body and with the retaining-rings, substantially as described.

604,585. COMPUTING-SCALE. THOMAS A. KELLMAN and HERSCHEL A. BRATTEN, Liberty, Texas, assignors, by mesne assignments, to the American Computing Scale Company, New York, N. Y. Filed June 9, 1897. Serial No. 640,019. (No model.)



Claim.—1. In a computing-scale, the combination of a scale-beam, an adjustable bar arranged at an angle to the same, a sliding poise mounted on the scale-beam, a rack-bar mounted on the poise and connected with the adjustable bar, an indicator geared with and operated by the rack-bar, upper rollers journaled on the poise and resting upon the upper edge of the scale-beam, the lower rollers 22, engaging the lower edge of the scale-beam, screws mounted on the

poise, sleeves adjustably connected with the screws, rods arranged in the sleeves and carrying the lower rollers, and springs interposed between the sleeves and the lower rollers, substantially as described.

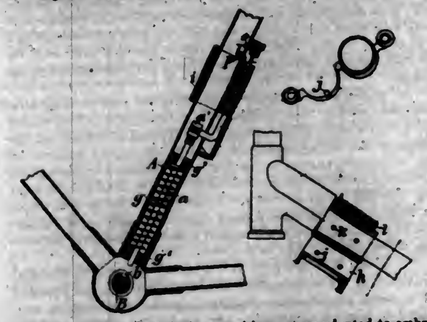
2. In a computing-scale, the combination of a scale-beam, a sliding poise mounted on the same, and upper and lower rollers carried by the poise and bearing against the upper and lower edges of the scale-beam, one set of rollers being spring-actuated and yieldingly engaging the beam, substantially as and for the purpose described.

3. In a computing-scale, the combination of a scale-beam, a sliding poise mounted on the same and provided at its top with a vertical post having a longitudinal slot, an adjustable bar disposed longitudinally of the scale-beam, arranged within the slot of the post and adapted to be moved to and from the beam to vary the angle between the same, a vertically-movable rack-bar mounted on the poise, extending into the post and connected with the adjustable bar and adapted to be actuated by the same when the poise slides along the scale-beam, and an indicating mechanism mounted on the poise and geared with and actuated by the rack-bar, substantially as described.

4. In a computing-scale, the combination of a scale-beam, a sliding poise mounted thereon, an adjustable bar arranged at an angle to the scale-beam and adapted to be moved to and from the same to vary the angle, registering mechanism mounted on the poise and operated by the adjustable bar, an arm extending upward from the front or outer end of the scale-beam, arranged in the path of the adjustable bar and being rigid with the said scale-beam, said arm being provided with graduations, and means for securing the adjustable bar at any point on the arm, substantially as described.

5. In a computing-scale, the combination of a scale-beam provided with graduations, an arm rigid with the scale beam and extending upward from the outer or front end thereof, said arm being provided with a longitudinal slot 36, and having graduations at opposite sides of the same, an adjustable bar arranged at an angle to the scale-beam and adapted to be moved to and from the same to vary the angle thereof, said adjustable bar having its outer end arranged at and moving along said arm, a pointer carried by the adjustable bar, operating in the slot 36 and extending from the same in opposite directions, a sliding poise mounted on the beam, and a registering mechanism carried by the poise and actuated by the adjustable bar, substantially as described.

604,586. BICYCLE-LOCK. ALEXIS KÖHL, Copenhagen, Denmark. Filed Aug. 15, 1896. Serial No. 602,876. (No model.) Patented in England July 24, 1896, No. 16,451.



Claim.—1. A cycle-lock comprising a strap adapted to embrace a frame bar of the cycle, the free ends overlapping, bearings formed therein, and a bolt adapted to lock said ends together and to lock a movable element of the cycle, for the purpose set forth.

2. A cycle-lock comprising two parts hinged together and adapted to embrace a frame member of the cycle, and a bolt adapted to lock said parts together and to lock a movable element of the cycle against motion, for the purpose set forth.

3. The combination with a movable element and a frame member of a cycle, of a lock composed of two parts hinged together and adapted to embrace the frame member, and a bolt adapted to lock said parts to the frame member and to lock the movable element against motion, for the purpose set forth.

4. A bicycle-lock comprising a hinged strap adapted to fit around a frame member of a cycle, a permutation-lock on one of the strap parts, the other provided with lugs or ears having boltways fitting against opposite ends of the lock, and a bolt for said lock extending through and beyond said boltways, for the purpose set forth.

5. The combination with a frame member and a movable element of a cycle, of a permutation-lock and its bolt, said lock constructed to be locked to said frame member by its bolt and the latter adapted to lock the movable element, and a stop connected with the bolt and extending into a slot in the frame member to limit the endwise motion of the bolt, for the purpose set forth.

6. A lock for cycles comprising a substantially cylindrical strap formed of two parts hinged together, a permutation-lock secured to one of the strap parts, the other provided with lugs or ears having a boltway, and with pins projecting from its inner face, and a bolt of a length to project from opposite faces of the lock and adapted to be locked therein against unauthorized removal, said bolt having bearings in the aforesaid ways in the strap-lugs, for the purpose set forth.

7. In a bicycle-lock, a hinged strap surrounding the cycle-frame, pins on said strap engaging holes in the frame, and a lock mechanism on one section of the strap, ears on the other section adapted to register with the said lock mechanism, and a bolt adapted to lock both lock-sections together, pass through the cycle-frame, and engage and lock a moving element, substantially as described.

8. A cycle-lock comprising a strap composed of two parts hinged together, each of said parts provided with two ears having boltways, a permutation-lock detachably secured between the ears of one of said parts, and a bolt projecting through the aligned boltways when the strap is closed, for the purpose set forth.

9. A cycle-lock comprising a strap composed of two parts hinged together, each of said parts provided with two ears having boltways, a permutation-lock secured between the ears of one of the strap parts, a bolt for said lock adapted to pass through the aligned ways in the ears of both parts when the strap is closed, and a spring-actuated auxiliary bolt adapted to engage a movable element of a cycle, said bolt moved into such engagement by the lock-bolt, substantially as set forth.

604,587. SASH-HOLDER. OLE P. KVERNEN, Weaton, Iowa. Filed June 28, 1897. Serial No. 641,921. (No model.)



Claim.—A sash-lock comprising a casing to be secured in the window-sash provided with wedge-shaped slots in each side near the edges, the large ends of the slots being downward and having a rounded corner, rollers mounted on pins or shafts journaled in said slots, an eccentric block in the casing near its rear edge journaled in the sides thereof, and a flat spring interposed between the eccentric block and the spring bearing forward and downward on each roller, substantially as described.

604,588. ROCK-DRILL ENGINE. JOHN G. LEVERE, Denver, Colo. Filed Apr. 26, 1897. Serial No. 633,955. (No model.)



Claim.—1. In a rock-drilling engine, the combination with the cylinder and the piston, of a front cylinder-head comprising an integral, cylindrical member adapted to be threaded to the end of said cylinder, an axial bore through said head, a counterbore at its inner end, a sleeve rotatably seated in said bore, buffer-rings in the bottom of said counterbore and a collar or head portion on said sleeve extending into said counterbore and resting between the buffer-rings and the end of said cylinder, substantially as described.

2. In a rock-drilling engine, the combination with the cylinder, the piston and the cylinder-head, of a rotatable sleeve axially supported in said cylinder-head, having an axial bore, a portion of which is of polygonal cross-section, with a drill-bit loosely supported in said sleeve and having a polygonal-shaped shank adapted to fit the polygonal bore of said sleeve and having its shank extending normally beyond the sleeve into said cylinder of the drill, and having a hole, passage or conduit extending through or along the drill-bit from end to end and adapted to convey a portion of the actuating expansive fluid from the cylinder to the cutting-point of the drill and to the bottom of the hole being drilled, substantially as described.

3. The combination in a rock-drilling engine, of the cylinder, the piston, and the front cylinder-head having an axial bore, a counterbore adjacent to its cylinder end of larger diameter than the bore of said cylinder, a sleeve rotatably seated in said cylinder-head having a collar portion on its inner end extending into said counterbore and of larger diameter than the bore of said cylinder, a rubber buffer-ring and a steel buffer-ring surrounding said sleeve between the collar portion and the bottom of said counterbore and having two

or more rods secured at diametrically opposite points in the collar portion, with said piston-head having holes therein adapted to fit freely said rods and adapted to reciprocate on said rods, substantially as described.

4. The combination with the cylinder and the piston, of the front cylinder-head, the sleeve, the rods, the free holes in the piston in which the rods extend and a bushing at the entrance of said holes adapted to fit slidably the said rods, substantially as described.

5. The combination with the cylinder and the piston, of the front cylinder-head, the sleeve, the buffer-rings, the rods secured to said sleeve, the holes in said piston head, the bushings at the entrance of said holes and the drill-bit adapted to be operatively supported by said sleeve and having a passage or conduit from end to end adapted to convey a portion of the actuating expansive fluid from the cylinder to the cutting-point of the drill and to the bottom of the hole being drilled, substantially as described.

6. The combination with the cylinder and the piston, of the front cylinder-head, a sleeve rotatably supported axially therein, a drill-bit operatively supported by said sleeve and means connected with the said piston for rotating or turning said sleeve and drill-bit step by step, substantially as described.

7. The combination with the cylinder, the piston and the front cylinder-head, of a drill-bit adapted to be operatively held and supported loosely in said cylinder-head so as to be withdrawn therefrom and inserted therein instantly at will, and adapted to extend into the reciprocal path of said piston and be impinged by it in its reciprocal movements in the said cylinder and having a passage extending through it, from one end to the other adapted to convey a portion of the actuating expansive fluid used to operate the piston from the front end of the cylinder to the cutting-point of the said drill-bit and means for rotating or turning said drill-bit step by step at each full stroke of said piston, substantially as described.

8. The combination with the cylinder, the piston, the front cylinder-head and the sleeve freely supported by said cylinder-head and having an axial perforation round in cross-section for a portion of its length and of polygon shape for the rest of its length, with a drill-bit having a shank adapted to fit both portions of the hole in said sleeve loosely, and extending through said sleeve into said cylinder into the reciprocal path of said piston, a counterbore in the outer end of said cylinder-head, a collar or projection on said drill-bit normally resting in said counterbore and adapted to define the inward movement and the position of the end of the drill-bit's shank relative to the said piston, means for rotating said drill-bit and sleeve step by step, and an axially-arranged hole extending through said drill-bit from end to end and adapted to convey a portion of the actuating expansive fluid from the cylinder to the cutting-point of said drill-bit, substantially as described.

9. The combination with the cylinder, the piston, the front cylinder-head and the sleeve, and having a pentagon-shaped shank and a round portion adjacent to said pentagon end, a collar or projection adjacent to said round portion and an axial perforation through said drill-bit and means for rotating said drill-bit step by step, substantially as described.

10. The combination with the cylinder, the piston, the front cylinder-head and the sleeve, of a drill-bit constructed of ribbed steel and operatively supported by said sleeve and front cylinder-head and having a hole drilled axially into each end of it for a short distance, a tube soldered over its central portion and closed at its ends and perforations extending from the axial holes at each end into the spaces between the ribs of the drill-bit and into the tube, whereby a continuous passage is formed from one end of the drill-bit to the other, as and for the purpose herein set forth and described.

11. The combination with the cylinder, the piston, the front cylinder-head and the sleeve adapted to be operatively supported by said sleeve, of a drill-bit having an axial hole in each end, a hole drilled at an angle from the side of the bit into the axial hole in the shank end of the bit, a slot along the bit from said inclined hole to near the cutting end of the bit and a tube soldered in said slot having one end inserted into said inclined hole and its opposite end closed, a hole leading from each end of the tube into the holes at the end of the bit and means for rotating said bit step by step, substantially as described.

12. The combination with the cylinder, the piston, the front cylinder-head and a sleeve having a polygonal-shaped hole formed axially through its center, of a drill-bit adapted to fit freely in said sleeve and projecting beyond it into the reciprocal part of said piston, a collar on said drill-bit adapted to normally rest in contact with the outer end of said cylinder-head, an axially-formed hole in each end of said drill-bit, and a tube or passage either in or attached to said drill-bit adapted to connect with the holes in its ends, whereby a continuous passage is made throughout the entire length of said drill-bit, substantially as described.

13. The combination with the cylinder, the piston, the cylinder-head and the sleeve, having a square or polygonal-shaped axially-arranged aperture, with a drill-bit of any form of cross-section, having a square or polygonal shaped striking end adapted to fit freely the polygonal aperture in said sleeve and arranged to be operatively impinged and intermittently rotated by said piston, a collar or projecting portion adjacent to said drill-point's striking end adapted to normally rest against the outer end of said cylinder-head, and a passage from the striking end of said drill-bit to its cutting-point adapted to convey a portion of the piston's actuating fluid from said cylinder to the cutting-point of said drill-bit and to the bottom of the hole being drilled, substantially as described.

14. In a rock-drill bit, a drill-shank of any merchantable form of cross section having a cutting point of any desired common form, a polygonal-shaped striking end, a collar adjacent to said end and an axial hole from end to end throughout its length, or a closed passage attached to or arranged to form a part of said drill-bit extending from its striking end to its cutting-point, substantially as described.

15. The combination with the cylinder, the piston and the front cylinder-head, of a drill-bit resting freely and loosely and not in any way clampingly secured or fastened to the cylinder-head but operatively supported in a substantially fixed position relative to the reciprocal movements of said piston and arranged and adapted to be struck intermittently and successively by said piston, means for rotating said drill-bit step by step and means for conveying a portion of the piston's actuating fluid from the cylinder to the drill-bit's cutting-point, substantially as described.

16. A rock-cutting drill for rock-drilling engines, comprising a bar of drilled steel of any form of cross-section containing an axial hole through it from end to end and a collar or projection or shoulder adjacent to or at a short distance from its striking end, substantially as described.

17. A rock-drilling engine having a rock-cutting drill loosely positioned and supported in and to the drilling-engine and arranged to be impinged upon one end by a reciprocal movement of the piston, and arranged and adapted to convey a portion of the piston's actuating fluid directly from the cylinder into and through said cutting-drill to its cutting-point and to the bottom of the hole being drilled, whereby said actuating fluid is used to expel the rock-cuttings from the hole being drilled, substantially as described.

18. A rock-drilling engine having a rock-cutting drill loosely positioned and supported in the drilling-engine and arranged to be impinged upon one end by a reciprocal movement of the piston, an axial hole through said rock-cutting drill from end to end arranged and adapted to convey a portion of the piston's actuating fluid directly from the cylinder to its cutting-point to blow out from the hole being drilled the rock-cuttings, and said drill arranged and adapted to be moved by the expansive fluid against the rock after each recoil from the rock, after each blow of the piston, substantially as described.

19. A rock-drilling engine for expelling the rock-cuttings from holes while drilling them, consisting of an operative drilling-engine having rock-cutting drills arranged and adapted to extend into the cylinder of the drilling engine and to be struck and actuated to cut rock by the reciprocative movements of the piston impinging against its inner end and in which the cutting-drills have an axial hole through them from end to end, and the piston's actuating fluid has at all times, free, direct and unobstructed passage from the cylinder to the cutting-point of the drill and to the atmosphere and to the bottom of the hole being drilled, substantially as described.

20. A rock-drilling engine having a rock-cutting drill arranged to be struck by the reciprocal movements of the piston, and provided with a collar, projection, or shoulder adjacent to its striking end, adapted to form an abutment or rest, against the front part of the drilling-engine and define the cutting-drill's operative position relative to the engine's piston and a passage axially through said cutting-drill arranged to conduct a portion of the piston's actuating fluid directly from the cylinder to the cutting-point of said rock-cutting drill, substantially as described.

604,539. JOURNAL-BOX FOR RAILROAD-CARS. WESLEY H. MAREN, Braddock, Pa. Filed Dec. 7, 1897. Serial No. 661,097. (No model.)



Claim.—A journal-box, a lid hinged thereto, a staple secured to the inner face of said lid, a shaft journaled in the box, and a spring-actuated catch secured to one end of the shaft, said spring forcing the catch into engagement with the staple when the lid is closed, substantially as shown and described.

604,540. SPOOL. SIDNEY MATHER, Bridgeport, Conn. Filed Apr. 5, 1897. Serial No. 630,604. (No model.)

Claim.—A spool or bobbin having its barrel provided with a slot or recess lying wholly at one side of the usual longitudinal opening, said slot or recess extending into one of the heads of the spool, and the sides of the recess in the head converging at one end and leading into an opening c, through which the contents of the recess may be removed before the thread is used.

604,541. PNEUMATIC TIRE. CHARLES A. MAYNARD, Springfield, Mass. Filed Jan. 22, 1898. Serial No. 668,262. (No model.)



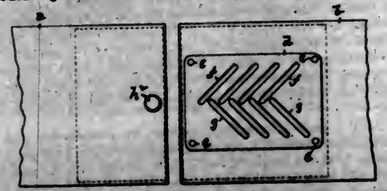
Claim.—1. A single-tube pneumatic tire, a retaining-band embedded in the wall thereof in contact with the felly, and comprising one or more metal sections, segments of a circle in cross-section joined with overlapping ends to form a complete hoop, and anchored on both sides to the tube between its free ends, corresponding elongated holes in the band ends, and bolts through said holes for binding the tube to the felly.

2. A single-tube pneumatic tire, a retaining-band comprising one or more metal sheets bent to form a segment of a circle in cross-section with ends joined to form a complete circle in the plane of the wheel and combined with the wall of the tube seated in the felly by being embedded therein and vulcanized or cemented fast to the tube between the free ends of the band, a felly seating said tube and band—and bolts bearing the band and tube to the felly.

3. A single-tube pneumatic rubber tire, a clamp-band comprising a metal sheet a segment of a circle in cross-section with ends joined to complete a hoop, embedded in the tire-wall and provided at intervals of its length with a covering of fabric united to it by being laced through holes therein, whereby a vulcanizing or cementing surface is formed for the union of the band and inclosing rubber—and a felly bolted to the tire through the band.

4. A single-tube pneumatic rubber tire, a clamp-band comprising a hoop of sheet metal a segment of a circle in cross-section, with ends provided with joints to permit a movement one upon the other, and embedded in the wall of the tire, a covering to the band of woven fabric in the form of a tape laced through perforations in the band, substantially as set forth, and forming a vulcanizing surface—and a felly bolted to the tire through the band.

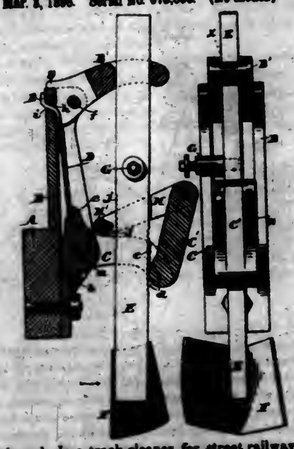
604,542. FASTENER. ERASTUS H. PARKER, Springfield, Mass. Filed Aug. 21, 1896. Serial No. 603,504. (No model.)



Claim.—1. A fastener for bolts, &c., composed of two members, one of said members being composed of a backing-plate and a superimposed plate secured to said backing-plate, said superimposed plate containing two series of slots, the slots of each series being parallel with each other and at substantially a right angle to those of the other series and all of said slots terminating at their front end at the transverse center line of the plate and at their rear end at points within the side edges of the plate, and the other of said members comprising a hook or stud adapted to make a locking engagement with the slots in said plate, each of said members being provided with means whereby it can be secured to one of the meeting ends of a bolt or similar article, substantially as described.

2. A fastener for bolts, &c., one member of which consists of the plate *d* having therein the slots *f* and *g* arranged as described, and the other member of which consists of the notched stud *h* having its head h^2 provided with the annular shoulder h^3 and annular flange h^4, and ring h^5, substantially as set forth.

604,543. TRACK-CLEANER FOR STREET-RAILWAY CARS. GEORGE A. FARRENTER and STEPHEN H. PERRY, Cambridge, Mass. Filed Mar. 3, 1896. Serial No. 672,063. (No model.)



Claim.—1. In a track-cleaner for street railway cars, the combination with the truck-frame of a stand carried by said frame and provided with a slotted arm at its upper end; a radius-arm pivoted at one end to said stand and provided with a vertical slot through the same, and with a rearwardly and upwardly projecting extension-arm at its rear end; a forked or ⌊-shaped arm or link pivoted by the ends of its forks to the upper end of said oblique extension-arm; a scraper or plowshare to contact with the track-rail and provided with a shank or bar which projects upward through the slots in the radius-arm, the forked link, and the arm at the upper end of said stand; a series of teeth formed upon both the front and rear edges of the shank of said plowshare; a toothed surface at the rear end of the slot through said radius-arm to engage the teeth on the rear edge of said plowshare-shank; and a toothed surface in said forked link arranged to engage the teeth on the front edge of said plowshare-shank substantially as described.

2. In a track-cleaner for street-railway cars the combination with the pilot-board of a truck-frame, the stand B secured to said pilot-board; the slotted arm B' secured to said stand by a single pin or bolt; the radius-arm C C pivoted to said stand B and provided with the shoulders *b* and *c* and having a vertical slot through the same having in its rear end a toothed surface; a spring engaging the shoulder *c* of said radius-arm; the forked link H pivoted at one end to the upper end of the radius-arm C C, and provided at its other end with the tie H' having a toothed inner surface; the bar E provided with the two series of teeth *e* and *j*; and the plowshare F carried by said bar substantially as described.

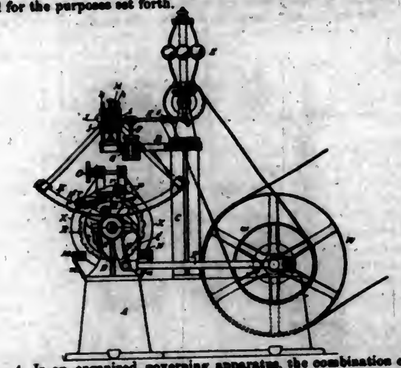
604,544. ELECTRICAL GOVERNOR. MARK A. REYNOLDS, Akron, Ohio. Filed Feb. 19, 1897. Serial No. 624,371. (No model.)

Claim.—1. In combination with an electrical governor having a pair of electromagnets, a pair of insulated electrical contact-points by means of which electrical circuits may be completed through the said magnets, the said insulating contact-points being separately adjustable and jointly movable substantially as described and for the purpose set forth.

2. In a governor the main or motor-controlling shaft having a pinion keyed thereto engaging with the toothed partial circumference of a sector or quadrant, the said sector or quadrant operating a cam adapted to change the basis of governing, to correspond with the different loads of work thrown on or off the machinery or plant to be governed substantially as specified.

3. The herein-described governing apparatus consisting of a main

or motor-controlling device built upon a base plate or frame, having a pedestal erected thereon and the said pedestal surmounted with a common centrifugal governor and also provided with a horizontal arm supporting guide-posts or sliding rods, the said sliding rods being provided with a sliding bracket carrying electrical contact-points with the end of a tilting lever disposed between them, the said tilting lever being fulcrumed intermediate of the common speed-governor and the contact-points aforesaid, and being adapted to be operated by the action of the centrifugal balls of the governor, for the purpose of setting into and out of operation the main or motor-controlling device and means by which the main or motor-controlling device may change the location of the contact-points aforesaid substantially as specified and for the purposes set forth.



4. In an organized governing apparatus, the combination of a motor-controlling device adapted to be set into and out of operation by means of electromagnets and electrical circuits adapted to charge the said magnets, with a common speed-governor operating a tilting lever adapted to make the required electrical connections and means whereby the motor-controlling device may shift the points, through which the electrical connections are thus made for the purpose of adapting the apparatus to light or heavy work substantially as specified.

5. In a governing apparatus having a main or motor-controlling shaft, a pair of sliding rods or guide-posts disposed over and above said motor-controlling shaft, the said rods having a bracket sliding thereon, a projection of the said bracket engaging with the curved surface of a cam attached to a shaft and the said shaft also provided with a sector or quadrant geared to a revolving pinion on the said motor-controlling shaft so as to move the sliding bracket upward when the motor-controlling shaft is turned in one direction and to allow it to drop downward when the motor-controlling shaft is turned in the opposite direction substantially as specified and for the purposes set forth.

6. In an organized governing apparatus consisting of a motor or gate controlling device, the said motor or gate controlling device being composed of a main shaft S to which is keyed a double ratchet-wheel R by means of which, the said shaft is adapted to be turned, the oscillating arm v carrying oppositely-disposed pawls adapted to engage with the said ratchet-wheel, the said arm adapted to be continuously vibrated by means of a pitman P and crank V driven by a belt-wheel W for the purpose of operating the motor-controlling shaft; in combination with a common speed-governor E adapted to operate a tilting lever F for the purpose of setting into or out of operation one or the other of the pawls aforesaid and means for shifting the field for operation of the said tilting lever to correspond with the load or degree of work imposed upon the plant or machinery to be governed substantially as specified.

7. In a governing apparatus of the kind described, a motor-controlling shaft having a pinion keyed thereto and the said pinion geared to a sector or quadrant adapted to turn a shaft parallel and over the motor-controlling shaft, which last-mentioned shaft is provided with a cam adapted to raise and lower a bracket sliding on vertical rods and carrying electrical contact-points, adapted to make connections setting into and out of operation mechanisms for turning the motor-shaft aforesaid all arranged for joint operation in the manner specified and for the purposes set forth.

8. In an organized governing apparatus of the kind described, a pair of electrical circuits and corresponding electromagnets for the purpose of setting into and out of operation mechanisms for turning on or off the supply of power, the herein-described cut-out consisting of flexible strips connected with the wires of the said electrical circuits, so that the said circuits are completed through the said strips and the said strips adapted to be pressed out of contact so as to break the circuits aforesaid, in combination with a pair of arms disposed on a revolving shaft and placed over such strips in such relation, that if the said shaft is revolved in one way one of said circuits will be broken by one of the arms pressing its corresponding flexible strip out of contact, and if the shaft be revolved the other way the other of said arms will press out of contact its corresponding flexible strip for the purpose of cutting out the action of the governor substantially as specified.

604,545. DEVICE FOR PREVENTING FRAUDULENT REFILLING OF BOTTLES. MEYER ROSENBERG, Brooklyn, N. Y. Filed June 28, 1897. Serial No. 642,622. (No model.)



Claim.—1. In a bottle, the combination with a neck having indentations on its inner surface adjacent to the upper end of the neck, a stopper provided with spring-plugs adapted to engage the said indentations, said stopper being hollow and provided at its inner central portion with a bushing or casing, the lower end of which terminates in a circular valve-seat, a hinged valve-cup comprising a metal thimble, normally engaging said valve-seat, said valve-cup being provided at its upper edge with an annular flexible collar adapted to engage the upper portion of the valve-seat, a bucket-wheel revolubly mounted in the central portion of the bushing, substantially as described and for the purpose set forth.

2. In a bottle, the combination of a flexible hollow stopper permanently secured to the neck of a bottle, and provided at its upper end with an annular flange overlapping the upper circular edge of the neck of the bottle, a bushing mounted in the interior hollow portion of the stopper, the lower portion of said bushing terminating in a circular valve-seat, a hinged valve-cup normally engaging said valve-seat, said valve-cup being provided at its upper edge with an annular flexible collar adapted to engage the upper portion of the valve-seat, a bucket-wheel revolubly mounted in the central portion of the bushing, substantially as described and for the purpose set forth.

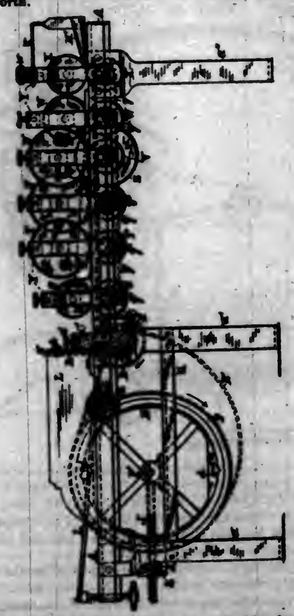
3. In a bottle the combination with a neck having indentations on its inner surface adjacent to the upper end of the neck, a hollow stopper provided with spring-plugs adapted to engage the said indentations, the lower portion of said stopper being provided with a circular valve-seat a hinged valve-cup comprising a metal thimble normally engaging said valve-seat, said valve-cup being provided at its upper edge with an annular flexible collar adapted to engage the upper portion of the valve-seat, a bucket-wheel revolubly mounted in the central portion of the stopper, substantially as described.

604,546. PAPER-BOX-MAKING MACHINE. JOHN H. RUSSELL, Amsterdam, N. Y., assignor of one-half to John H. Glen, same place. Filed July 26, 1897. Serial No. 645,904. (No model.)

Claim.—1. In a paper-box-making machine, the combination with the table and the guides, L, L, of horizontal feed-rollers between which the sheet is passed, large rolls, catches on the peripheries of the rolls to engage the edge of the sheet, said catches consisting of ribs having inclined surfaces forward of the catches and supported to yield and conform to the inclination of the sheet to be fed, as set forth.

2. In a paper-box-making machine, the combination with the table and the guides, L, L, of horizontal feed-rollers between which the sheet is passed, large rolls on a shaft parallel with the said feed-rollers, said large rolls having recesses in their peripheries, a block having a transverse rib and an inclined surface forward of said rib in said recess, a spindle extending through the block and entering recesses in the rolls, and a spring on the spindle to hold the said block and spindle in place, as set forth.

3. In a paper-box-making machine, the combination with devices for feeding a sheet of paper and simultaneously folding the side edges, of means for confining a pile of sheets in an inclined position, rolls beneath the pile, and catches on the peripheries of the rolls to engage the edge of the lower sheet to push it from the pile to the feed-rollers, as set forth.



4. In a paper-box-making machine, the combination with means for confining a pile of sheets, and rolls having catches on their peripheries to engage the edge of the lower sheet to push it from the pile, of pairs of feed-rolls to convey the sheet, folding-guides to turn over the said edges of the sheet during transit, and feet to hold the sheet down upon the table while the edges are turned, substantially as described and shown.

5. In a paper-box-making machine, the combination with the table, means for confining a pile of sheets, and rolls having catches on their peripheries to engage the edge of the lower sheet to push it from the pile, of a plurality of pairs of feed-rolls to convey the sheet lengthwise of the table, adjustable folding-guides to turn over the side edges of the sheet during transit, and feet mounted on the folding-guides to hold the sheet down while the edges are turned, substantially as described.

6. In a paper-box-making machine, the combination with the table, means for confining a pile of sheets, rolls having catches on their peripheries to engage the edge of the lower sheet to push it from the pile, of pairs of feed-rolls to convey the sheet over the table, a driving-pulley on one of the shafts of the feed-rolls, gearing connecting the lower feed-roll shafts together, folding-guides to turn over the side edges of the sheet during transit, and feet to hold the sheet down upon the table while the edges are turned, substantially as described and shown.

7. In a paper-box-making machine, the combination with the table, means for confining a pile of sheets, rolls having catches on their peripheries to engage the edge of the lower sheet to push it from the pile, of pairs of feed-rolls to convey the sheet over the table, a driving-pulley on one of the shafts of the feed-rolls, sprocket-wheels on the shafts of the lower feed-rolls, chains connecting the sprocket-wheels together, folding-guides to turn over the side edges of the sheet during transit, and feet mounted on the folding-guides to hold the sheet down while the edges are turned, substantially as described and shown.

8. In a paper-box-making machine, the combination with the table, means for holding a pile of sheets, rolls having catches on their peripheries to engage the edge of the lower sheet to push it from the pile, of pairs of feed-rolls to convey the sheet over the table, gearing between the lower-feed-roll shafts, folding-guides to turn over the side edges of the sheet upon itself during transit, feet mounted on the folding-guides to hold the sheet down while the edges are turned, and horns adapted to raise the said edges of the sheet after it passes from the folding-guides, as set forth.

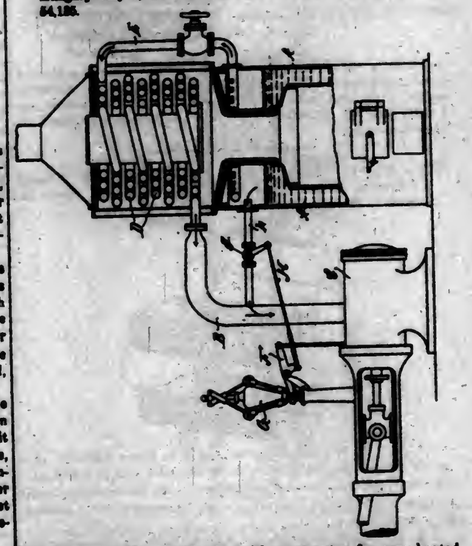
9. In a paper-box-making machine, the combination with the table, means for holding a pile of sheets, rolls having catches on their peripheries to engage the edge of the lower sheet to push it from the pile, of pairs of feed-rolls to convey the sheet over the table, gearing between the lower-feed-roll shafts, folding-guides to turn over the side edges of the sheet upon itself during transit, feet mounted on the folding-guides to hold the sheet down while the edges are turned, and adjustable horns having their points extending toward the folded edges of the sheet to pass between the sheet and the edge, substantially as and for the purpose described.

10. In a paper feeding and folding machine, a table, feeding devices to convey the sheet, folding-guides to turn over the side edges of the sheet, and wedge-shaped horns suitably mounted to open the folded edges, as set forth.

11. In a paper feeding and folding machine, a table, feed-rolls to convey the sheet, folding-guides to turn over the side edges of the sheet, a cross-bar with brackets mounted adjustably thereon, and cone-shaped horns mounted on the brackets to raise the folded edges, substantially as described and shown.

12. In a paper feeding and folding machine, a table, feed-rolls to convey the sheet, folding-guides to turn over the side edges of the sheet upon itself, a slotted cross-bar above the table, angular brackets mounted adjustably on said bar, and horns secured to the said brackets and adapted to open the folded side edges of the sheet, substantially as described and shown.

604,547. APPARATUS FOR REGULATING SUPERHEATED STEAM. WILHELM SCHMIDT, Ballenstedt, Germany. Filed July 17, 1896. Serial No. 599,549. (No model.) Patented in Switzerland June 3, 1896, No. 12,894; in France June 23, 1896, No. 257,482; in Belgium July 2, 1896, No. 122,307; in Italy July 6, 1896, LXXXII, 294; in Hungary July 4, 1896, No. 7,415, and in Canada Nov. 27, 1896, No. 54,125.



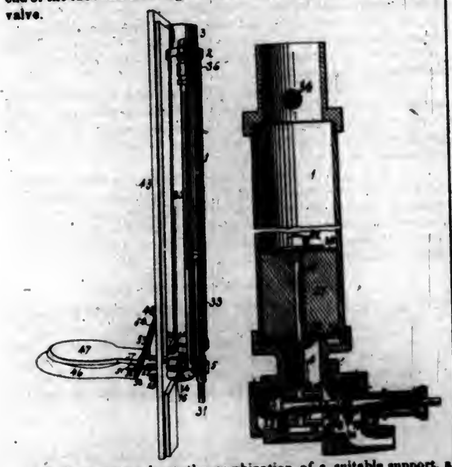
Claim.—1. The combination with a generator for superheated steam, and with an engine adapted to be driven by such steam, of a regulator for the temperature of that steam; said regulator being adapted to be automatically adjusted according to the degree of filling of the cylinder of said engine, for the purpose as described.

2. The combination with a generator for superheated steam, and with an engine adapted to be driven by such steam, of a regulator for the temperature of said steam; said regulator being connected to the means that determine the degree of filling of the cylinder of said engine, for the purpose as described.

3. The combination with a steam-generator, a superheater for the steam, an engine adapted to be driven by the superheated steam and a connection between said superheater and said engine, of a connection between the latter and said generator so as to allow of the admixing of non-superheated steam to the superheated one, and a steam-distributing device adapted to control said admixing and connected to the means that determine the degree of filling of the cylinder of the said engine, for the purpose as described.

604,548. WATER-CLOSET. DAVID H. SHERMAN, Rockford, Ill. Filed Jan. 16, 1897. Serial No. 618,487. (No model.)

Claim.—1. In a water-closet, the combination of a tube having an open contracted upper end, a movable weight located within the tube, a discharge-chamber, a valve arrangement for admitting water into the tube below the weight and allowing water to escape into the discharge-chamber and a stand-pipe connection between the upper end of the tube and discharge-chamber, said pipe supporting a check-valve.



2. In a water-closet, the combination of a suitable support, a valve arrangement, a bracket secured to the support, a seat, a bracket secured to the seat, links pivotally connecting the two brackets, and a cover pivotally connected to the seat, the seat resting against the valve arrangement.

604,549. PAINT-POT HOOK AND BRUSH-HOLDER. CHARLIE F. SPENCER, Alexandria Bay, N. Y. Filed Oct. 15, 1897. Serial No. 655,257. (No model.)



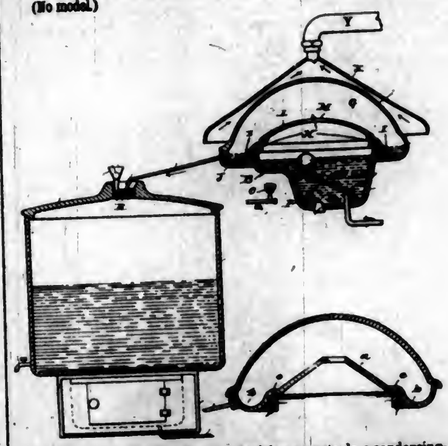
Claim.—1. In a hanger for paint-pails, a frame consisting of a pair of ladder-rung hooks from which depend a pair of bail-receiving hooks, the frame on the opposite side of the bail-receiving hooks carrying a trough which serves as a paint-brush receptacle, substantially as shown.

2. In a hanger for paint-pails a frame made up of a single bar bent to provide portions or hooks for engagement with a ladder-rung and a pair of bail-receiving hooks, a cross-bar connecting the side pieces of the frame to each other, a handle carried by the cross-bar, and a brush-receiving receptacle carried by the opposite side of the frame from the bail-receiving hooks substantially as shown and for the purpose set forth.

3. A combined paint-pail hanger and brush-receptacle comprising a frame made up of a single bar, bent to receive a brush-receptacle and provide eyes, bends forming hooks for a ladder-rung and depending portions which are bent to provide bail-receiving hooks substantially as shown, in combination with a second receptacle having members which are adapted to engage with the eyes *a a'* so that the second receptacle will be suspended below the one carried by the frame, substantially as shown.

4. In a paint-pot hanger and brush-receptacle, a main supporting-frame made up of a single bar bent to provide a pair of hooks above which are bends which provide means for suspending the device from the ladder-round, a brush-receptacle having a vertical wall at one end said receptacle being attached to the frame, and a cross-bar carried by the frame above and adjacent to the open end of the receptacle, substantially as shown and for the purpose set forth.

604,550. APPARATUS FOR DISTILLING WATER. JOSEPH STRETON, East Orange, N. J. Filed June 29, 1897. Serial No. 643,574. (No model.)

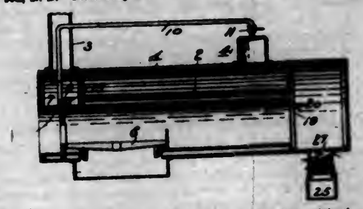


Claim.—1. In combination, a vaporizing-receptacle, a condensing-dome having a hemispherical top, an annular catch-basin around the inside of the top, a flange or ledge surrounding the basin, a crown-plate having a central opening, said plate being so arranged that a space is formed between it and the top, said top and plate being separable, as and for the purpose set forth.

2. In combination, a hemispherical dome of earthenware, an annular catch-basin formed around the inside of the base of the dome, a flange or ledge projecting around the edge of the basin, a crown-plate having a central opening, said plate resting on the edge of the catch-basin and a vaporizing-receptacle on the upper edge of which the flange or ledge of the catch-basin is adapted to rest, substantially as set forth.

3. In combination, a vaporizing-receptacle oval in cross-section, a hemispherical dome of earthenware, an annular catch-basin formed with said dome around the inside lower edge thereof, a downwardly-projecting flange or ledge around the edge of the catch-basin which is adapted to rest on the upper edge of said receptacle, a crown-plate having a central opening, said crown-plate being adapted to rest on the edge of the catch-basin, a draft-hood arranged to inclose the dome so that a space is left therebetween and the dome, and means for automatically supplying water to said receptacle, as and for the purpose set forth.

604,551. STEAM FLUE-CLEANER. JOSEPH T. THOMPSON, Hatton, N. D. Filed July 27, 1897. Serial No. 646,126. (No model.)

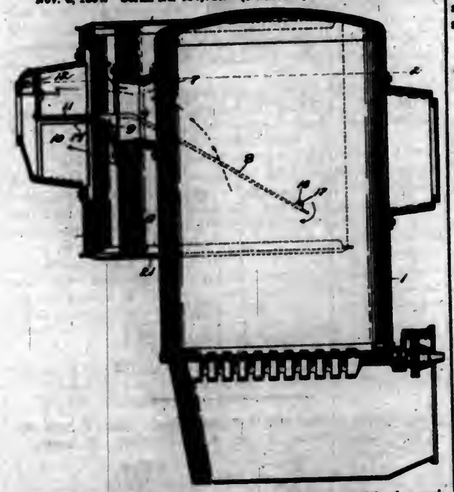


Claim.—1. In a steam-boiler, the combination with the vertical and transverse pipes located in the smoke-box, and connected with the boiler, of the short pipes connected with said pipes, the perforated heads, the tubes connected therewith and the funnels, substantially as described.

2. In a steam-boiler, the combination with the vertical and transverse pipes, and the pipe connected with the boiler and transverse pipe, of the short pipes connected with the said vertical and transverse pipes, the perforated heads, the tubes, the funnels, and the pipes extending through the flues and provided with perforated heads, substantially as described.

3. The combination with a steam boiler, of the ash-discharge consisting of the casing secured to the lower part of the boiler, provided with a slide-valve and having perforations in its sides, the vertically-movable extension and means for raising and lowering the same, substantially as described.

604,552. HOT-AIR FURNACE. HOWARD A. TIBBETS, Norton, Mass., assignor to the White Warner Company, Taunton, Mass. Filed Nov. 4, 1897. Serial No. 657,703. (No model.)



Claim.—1. In a hot-air furnace, in combination with the main radiator, an auxiliary radiator outside of the main radiator, an air-space between the outside wall of the main radiator and the inside wall of the auxiliary radiator, a diaphragm dividing the auxiliary radiator into an upper and a lower chamber, with a passage between said chambers at each end thereof, a single cross-flue connecting the main radiator with said upper chamber midway of the ends of said chamber, a single outlet-flue for both chambers midway of the ends thereof, a plate extending from the diaphragm part way into said outlet-flue, and a damper for the portion of the flue above said extension-plate, substantially as described.

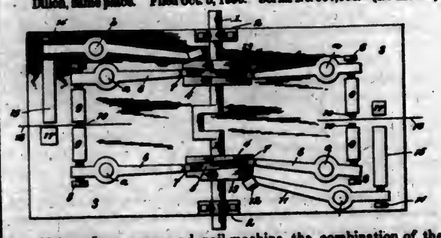
2. In a hot-air furnace, in combination with the main radiator, an auxiliary radiator outside of the main radiator, an air-space between the outside wall of the main radiator and the inside wall of the auxiliary radiator, a single cross-flue connecting the main radiator with said auxiliary radiator midway of the ends thereof, a single outlet-flue for the auxiliary radiator opposite the inlet-flue and of larger sectional area, a bevel-plate extending crosswise of the auxiliary radiator from the lower edge of the inlet-flue to about midway of the outlet-opening, diaphragm-plates extending from both sides of said bevel-plate toward the ends of the auxiliary radiator dividing said radiator into an upper and a lower chamber with a passage between them at each outer end thereof, a plate extending from the bevel-plate into the outlet-flue and a damper for the portion of the flue above said extension-plate, substantially as described.

3. In a hot-air furnace, in combination with the main radiator, an auxiliary radiator outside of the main radiator, an air-space between the outside wall of the main radiator and the inside wall of the auxiliary radiator, a single cross-flue connecting the two radiators midway of the ends of the auxiliary radiator, an outlet-flue from the auxiliary radiator, a bevel-plate with side walls extending crosswise of the auxiliary radiator the full width thereof from the lower edge of the inlet-flue to about the middle of the outlet-opening, diaphragm-plates extending from the upper edge of both side walls of said bevel-plate toward the ends of the auxiliary radiator dividing it into an upper and a lower chamber with end passages, and a damper for that portion of the outlet-flue above the bevel-plate, substantially as described.

4. In a hot-air furnace, an auxiliary radiator, an inlet-flue intermediate the ends thereof, an outlet draft-opening and collar connection, a diaphragm which divides the said radiator into an upper and a lower chamber with passage-ways between the chambers at the ends thereof, said diaphragm comprising a bevel-bottomed plate which forms the middle piece and two deflecting-plates detachably secured to the middle piece and extending toward the ends of said radiator, a plate detachably secured to said bevel-plate and projecting into the draft-opening dividing it crosswise, a damper above said plate for the upper portion of the draft-collar, and a support for the diaphragm and plates, substantially as described.

5. A top and bottom plate for a segmental radiator consisting of a segmental plate, an upwardly-projecting lip around the inner periphery, an outwardly-extending flange around the outer periphery and around the ends, and an upwardly-projecting lip around inside of said flange, said second lip extending around the ends inside of the flange and past the ends of the inner lip, the two lips being spaced apart at their passing-points to admit the wall of the radiator, substantially as described.

604,553. NAIL-MAKING MACHINE. ROBERT WALTON and FRED MAGEE, Sterling, Ill., assignors of one-third to Washington M. Dillon, same place. Filed Oct. 5, 1896. Serial No. 607,981. (No model.)



Claim.—In a compound nail-machine, the combination of the driving-shaft 1 carrying the cams 4 provided with tracks 5 and projections 13, and levers 11 actuated by said cam projections 5 and carrying pinch-bars 15, and levers 6 actuated by said cam-tracks 5, and carrying rocker-bars 9 to which are secured the wire-cutting knives 10, substantially as set forth.

604,554. HOSE-NOZZLE. ROBERT WISE, New York, N. Y. Filed Nov. 18, 1895. Serial No. 569,290. (No model.)



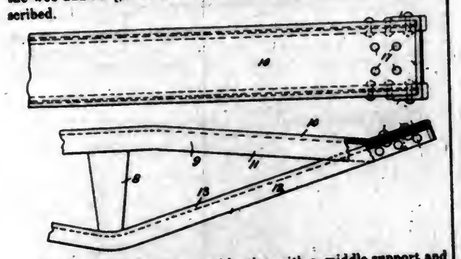
Claim.—1. The hose-pipe nozzle having a body with a shut-off cock and a coupling portion at its rear end screw-threaded at its forward end, a jet-nozzle extending forward of the body and having a flange around it, the body, shut-off cock, coupling portion, jet-nozzle and flange being permanently and rigidly connected, in combination with a bell screw-threaded at its rear end to fit the screw-thread upon the body and adapted to vary the annular opening between its front end and the flange by screwing it forward or backward, substantially as set forth.

2. The hose-pipe nozzle having a body with a shut-off cock and a coupling portion at its rear end screw-threaded at its forward end, a jet-nozzle extending forward of the body and having a flange around it, the body, shut-off cock, coupling portion, jet-nozzle and flange being permanently and rigidly connected, in combination with a bell screw-threaded at its rear end to fit the screw-thread upon the body and adapted to vary the annular opening between its front end and the flange by screwing it forward or backward, a lock-nut and washer adjacent to the rear end of the adjustable bell, substantially as set forth.

604,555. CAR-BOLSTER. CARL E. RAMM, Chicago, Ill., assignor to the Simplex Railway Appliance Company, same place. Filed Feb. 14, 1898. Serial No. 670,128. (No model.)

Claim.—1. In a car-bolster, the combination with a middle sup-

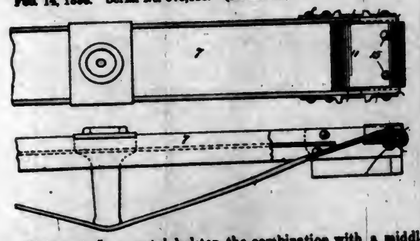
port and a compression member having a web and flanges, of a tension member also provided with web and flange portions, the web and flange portions of the tension member being separated or split at the ends and formed into hook shape, and engaging respectively the web and flanges of the compression member, substantially as described.



2. In a car-bolster, the combination with a middle support and a compression member having a web and flanges, of a tension member also provided with web and flange portions, the flanges of the tension member at the ends being split or separated from the web and formed into hook shape engaging the flanges of the compression member.

3. In a car-bolster, the combination with a channel-iron compression member and a middle support, of a channel-iron tension member embraced within the flanges of said compression member at the ends of the same, the flanges of the tension member being split or separated from the web portion of the tension member, and formed into hook shape and engaging the compression member, substantially as shown and described.

604,556. METAL BOLSTER. CARL H. BAUER, Chicago, Ill., assignor to the Simplex Railway Appliance Company, same place. Filed Feb. 14, 1898. Serial No. 670,183. (No model.)



Claim.—1. In a metal bolster, the combination with a middle support and a tension member formed of a plate or strap, of a compression member having an opening through its horizontal portion or web at or near its end, and the tension member passing through said opening and engaging said horizontal portion, substantially as shown and described.

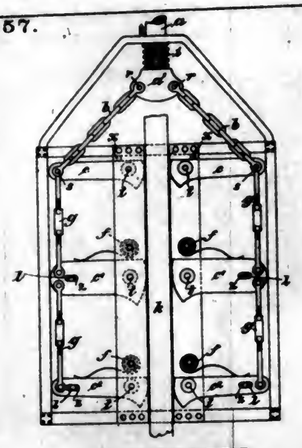
2. In a metal bolster, the combination with a middle support and a tension member, of a compression member having a web and flanges, the web of the same having a hole formed near the end thereof, and the tension member passing through said hole and engaging said web.

3. In a metal bolster, the combination with a middle support and a plate tension member, of a compression member having a web and flanges, the web of the same having a hole formed near the end thereof, the tension member passing through said hole and engaging said web, and a filling-piece embraced between the ends of said compression and tension members and engaging the flanges of said compression member.

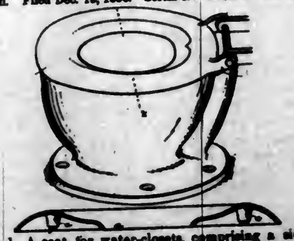
604,557. SAFETY DEVICE FOR ELEVATORS. HERMANN RAUH, Dudweiler, Germany. Filed Jan. 4, 1898. Serial No. 665,540. (No model.)

Claim.—A safety device for elevators comprising levers pivotally mounted on the cage and provided with serrated eccentric ends adapted to engage the guides in the elevator-shaft, connection between the outer ends of said levers and the cables supporting said cage to hold said levers normally out of engagement with said guides of said shaft, and connection between said outer ends of said levers and the load-carrying devices of said cage whereby the strain is adapted to be transferred from said cables to said levers when said cables part to throw said eccentric ends of said levers into engagement with said guides of said shaft, substantially as described.

604,557.



604,558. SEAT FOR WATER-CLOSETS. HENRY P. COPE, Detroit, Mich. Filed Dec. 19, 1896. Serial No. 616,257. (No model.)

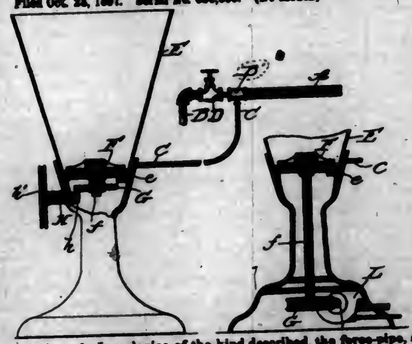


Claim.—1. A seat for water-closets, comprising a single-piece ring of concavo-convex cross-section and of the same general shape as the rim of the bowl to which it is to be applied, and provided with cushion-seats on the concave side thereof for supporting said ring from the bowl.

2. In combination with the bowl of a water-closet, a seat therefor comprising a jointless ring of concavo-convex cross-section and of the same general shape as the rim of the bowl, cushion-seats on the concave side thereof, and hinge-lugs.

3. A seat for water-closets, consisting of a ring of homogeneous material of the same general shape as the bowl of the closet to which it is to be applied, and of concavo-convex cross-section, and having formed on its concave side cushion-seats, for supporting it from the bowl.

604,559. SAND-BLAST. KENDALL H. COTTLE and ROBERT C. DAILY, Chicago, Ill., assignors to Frank B. Redington, same place. Filed Oct. 28, 1897. Serial No. 656,633. (No model.)



Claim.—1. In a device of the kind described, the force-pipe, arranged to direct a blast upon the work to be treated, in combination with a sand-receptacle, an agitator arranged therein, means for operating the agitator, and means for conducting the sand from the receptacle and delivering it to the force-pipe, substantially as described.

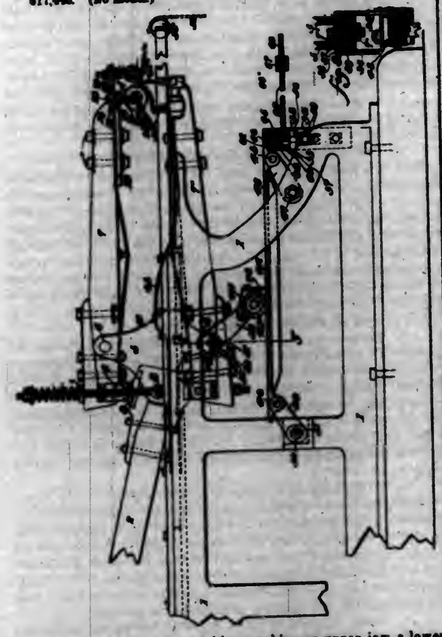
2. In a device of the kind described, a pipe adapted to direct a blast on a given object, and a force-pipe extending into the pipe to produce a siphon action, in combination with a sand-receptacle, an agitator arranged therein, means for operating the agitator, and a sand-pipe extending from the receptacle to the siphon, substantially as described.

3. In a device of the kind described, the siphon-blast, in combination with the receptacle E, agitator, F, gear-wheel, G, mechanism for driving the gear-wheel, and sand-pipe C, connecting the receptacle with the siphon, substantially as described.

4. In a device of the kind described, a sand-receptacle, a blast-pipe, a sand-supply pipe connecting with said blast-pipe and with said receptacle at or near its bottom, an agitator within the sand-receptacle adjacent said sand-supply pipe, means for operating the same, and a force-pipe, substantially as described.

5. In a device of the kind described, a sand-receptacle having an outlet-opening in one of its side walls, a horizontally-rotating agitator within the receptacle adjacent said opening, means for operating said agitator, a blast-pipe, a sand-supply pipe leading from said outlet-opening to said blast-pipe, and a force-pipe, substantially as described.

604,560. LEATHER-STAKING MACHINE. JAMES CRAIG and FRANK P. SLOCUM, Wilmington, Del. Filed Dec. 30, 1896. Serial No. 617,446. (No model.)



Claim.—1. In a leather staking machine, an upper jaw, a lower jaw, a blade carried by said lower jaw, a roller mounted in bearings attached to said upper jaw, adjustable arms carried by said upper jaw, stems adjustably supported in said arms, means for securing said stems in their adjusted positions and a roller having bearings in said stems.

2. In a leather-staking machine, an upper jaw, a fixed roller mounted in suitable bearings attached to said jaw, adjustable arms carried by the latter, said arms supporting adjustable threaded stems, and a roller having bearings in said stems.

3. In a leather-staking machine, an upper jaw, a roller journaled thereupon, arms adjustably mounted on said jaw, adjustable stems supported by said arms, and a roller journaled in said stems.

4. In a leather-staking machine, an upper jaw having a plate attached thereto, a roller journaled in bearings depending from said plate, slotted arms having a cross-piece attached thereto, means for securing said arms to said plate, bearings capable of vertical adjustment depending from said arms, and a roller journaled in said bearings.

5. In a leather-staking machine, a cross-head having upper and lower jaws pivotally mounted therein, means for reciprocating and for opening and closing said jaws, a plurality of arms having hubs journaled in said cross-head, openings in said arms located eccentrically in said hubs, a rod passing through said openings, means for holding said rod in position, and means for raising and lowering said arms.

6. In a leather staking machine, a bed or table, arms pivotally attached thereto and supported from the housing of the machine, an inclined or cam-faced projection depending from said table and adapted to contact with a hub having corresponding inclines thereon, and means for actuating said hub, in combination with connections from said bed for adjusting the lower jaw of the machine.

7. In a leather-staking machine, a bed or plate movably supported, arms common to said bed and to the housing of the machine, one of said arms having a shaft passing therethrough, said shaft being provided with bearings eccentric thereto, means for raising and lowering said bed, and connections from the latter to the lower jaw of the machine for adjusting said jaw.

8. In a leather-staking machine, a cross-piece, a hub supported thereupon, said hub having an opening therethrough and a shoulder therein, a threaded stem passing through said opening, and having a head adapted to engage said shoulder, a plurality of cam-faces on said hub, a table having a plurality of cam-faces thereon, arms extending from said hub and having a plate attached thereto, and pins projecting from said plate, in combination with connections common to said plate and to the lower jaw of the machine for adjusting said jaw without stopping the operation of the machine.

9. In a leather-staking machine, upper and lower jaws, a table, suitably supported, means for raising and lowering said table, a roller supported upon the latter, arms common to said roller and to one of said jaws, a scraper adapted to contact with said table, said scraper being located in advance of said roller, and suitably attached to said arms, and means for reciprocating and opening and closing said jaws.

10. In a leather-staking machine, an upper and lower jaw, a cross-head therefor, a plurality of arms having hubs mounted in said cross-head, openings in said hubs eccentrically located, a rod passing through said openings and the lower jaw of the machine, and means for raising and lowering said arms.

11. In a leather-staking machine, an upper and lower jaw, a roller mounted in suitable bearings attached to said upper jaw, adjustable arms carried by the latter, stems adjustably supported in said arms, and a roller having bearings in said stems, in combination with a plurality of upright blades attached to said lower jaw, one of said blades occupying the space between said rollers when said jaws are in their forward position.

12. In a leather-staking machine, a bed, arms pivotally attached thereto and supported from the housing of the machine, an inclined or cam-faced projection on said bed, adapted to contact with a hub having corresponding inclines thereon, and means for supporting and actuating said hub.

13. In a leather-staking machine, a hub suitably supported and having an opening therethrough, and a shoulder therein, a stem passing through said opening and provided with a head adapted to engage said shoulder, and hold said hub in position, a plurality of cam-faces on said hub, a table suitably supported and also provided with a plurality of cam-faces, and devices attached to said hub whereby the latter can be rotated by the knee of the attendant.

14. In a leather-staking machine, pivoted jaws, suitably supported, a movable bed, a roller carried by the lower of said jaws and bearing on said bed, a cam-face carried by said bed, and a rotatable hub having a cam-face adapted to register with the cam-face carried by the bed.

15. In a leather-staking machine, an upper and lower jaw pivotally supported, a movable bed, means for supporting the latter, a roller carried by said lower jaw and bearing on said bed, a cam-face on the latter, a rotatable hub having a cam-face adapted to coact with said first-mentioned cam-face, and means for actuating said hub, said means being controlled and actuated by the knee of the operator.

16. In a leather-staking machine, a pivoted jaw, the pivoted arms, a bed supported by said arms, a roller carried by said jaw and bearing on said bed, a cam-face carried by said bed, and a rotatable hub bearing a cam-face adapted to contact with the cam-face carried by said bed.

17. In a leather-staking machine, upper and lower jaws pivotally supported, a blade carried by said lower jaw, a roller mounted in bearings attached to said upper jaw, arms carried by the latter, stems adjustably supported in said arms, means for locking said stems in position and a second roller having bearings in said stems.

18. In a leather-staking machine, an upper and lower jaw pivotally supported, a movable bed, means for sustaining the latter, connections common to said bed and jaw for operating the latter, a cam-face on said bed, a rotatable element having a cam-face thereon adapted to coact with the first-mentioned cam-face, and means for actuating said element, said means being controlled and actuated by the knee of the operator.

604,561. TEMPORARY BINDER AND LOCK. HARRY B. DAPE, New York, N. Y. Filed Jan. 20, 1897. Serial No. 621,100. (No model.)



Claim.—1. In a binder, the combination with two binding-pieces designed to be fastened together, with sheets of paper or other material between them, of a post attached to one binding-piece, a locking-piece adjustable up and down lengthwise the post and arranged to be locked with the other binding-piece to secure the said pieces together, and means whereby the said locking-piece is at such time secured against upward adjustment lengthwise the post, substantially as described.

2. In a binder, the combination with two binding-pieces designed to be fastened together, with sheets of paper or other material between them, of a threaded post attached to one binding-piece, a member adjustable up and down lengthwise the post and carrying a locking-piece arranged to be locked with the other binding-piece to secure the said pieces together, and means whereby the said locking-piece is at such time secured against upward adjustment lengthwise the post, substantially as set forth.

3. In a binder, the combination with upper and lower binding-pieces designed to be fastened together with sheets of paper or other material between them, a locking device carried by the upper binding-piece, a post attached to the lower binding-piece, a locking-piece adjustable up and down lengthwise the post and arranged to be engaged with the locking device of the upper binding-piece and means whereby at such time the said adjustable locking-piece is secured against upward adjustment lengthwise the post, substantially as set forth.

4. A lock adapted to fasten two pieces together, comprising a post designed to be secured to one of the pieces, a locking-head adjustable up and down lengthwise the post and adapted to be locked to the other of said pieces, and means to secure the adjustable locking head against upward adjustment lengthwise the post when it is locked to the piece engaged thereby, substantially as set forth.

5. A lock adapted to fasten two pieces together, comprising a post designed to be secured to one of the pieces, a member adjustable up and down lengthwise the post and dependent upon rotation for its adjustment, a locking-head carried by said member and adapted to be locked to the other of said pieces, and means to secure the locking-head against adjustment when it is locked to the piece engaged thereby, substantially as set forth.

6. A lock adapted to fasten together two pieces, comprising two or more posts designed to be secured to one of the pieces and each having a member adjustable up and down along it, said members being connected so as to move together, one or more locking-heads moving with said members and adapted to be locked to the other of said pieces, and means to secure the adjustable locking-heads against upward adjustment along the posts when the locking head or heads are locked to the piece engaged thereby, substantially as set forth.

7. A lock adapted to fasten together two pieces, comprising two or more posts designed to be secured to one of the pieces and each having a member adjustable up and down lengthwise it, said members being connected so as to move together and dependent for their adjustment upon rotation of one of them, one or more locking-heads moving with said members and adapted to be locked to the other of said pieces, and means to secure the rotatable adjustable member against rotation when the locking head or heads are locked to the piece engaged thereby, substantially as set forth.

8. A lock adapted to fasten two pieces together, comprising a post designed to be secured to one of said pieces having a locking-head adjustable up and down lengthwise the post, and a locking-piece designed to be carried by the other of said pieces adapted to engage the said locking-head, and means to prevent the upward adjustment of the locking-head when in engagement, substantially as set forth.

9. A lock adapted to fasten two pieces together, comprising two or more posts designed to be secured to one of said pieces, each of said posts carrying a member adjustable up and down along it, said members being connected so as to move together, one or more locking-heads moving with said members and adapted to be locked to the other of said pieces, substantially as set forth.

10. In a binder, the combination with two binding-pieces designed to be fastened together with sheets of paper or other material between them, of a post attached to one of said pieces, a locking-head adjustable up and down lengthwise the post, the other of said binding-pieces being provided on its under side with a recess adapted to receive the locking-head, said recess being provided with means adapted to engage the locking head and fasten the binding-pieces together, and means to prevent the upward adjustment of the locking-head when in engagement, substantially as set forth.

11. In a binder, the combination with two binding-pieces designed to be fastened together with sheets of paper or other material between them, of a post attached to one of said pieces, a locking-head adjustable up and down lengthwise the post, the other of said binding-pieces being provided on its under side with a recess adapted to receive the locking head, said recess being provided with means adapted to engage the locking-head and fasten the binding-pieces together and means to secure the locking-head at such time against upward adjustment, substantially as set forth.

12. In a binder, the combination with two binding-pieces designed to be fastened together with sheets of paper or other material between them, the upper of said binding-pieces being provided with a recess and a locking-piece therein, of three posts fixed to the lower binding-piece, one of said posts being threaded and provided with a threaded member adjustable thereon by rotation and carrying two or more locking-heads connected so as to move together, the other two of said posts having adjustable members connected with and moving with the locking-heads, said locking-heads adapted to be received in the recess of the upper binding-piece and be locked therein and means to prevent the rotation of the said threaded member when the locking-heads are locked with the upper binding-piece whereby at this time the adjustment of the locking-heads is prevented, substantially as set forth.

13. The combination with two pieces designed to be fastened together, of a lock adapted to fasten the pieces together, comprising a threaded post, a threaded member adjustable up and down along said post and carrying a head, two posts in proximity to the threaded post, a yoke carried by the threaded member and adjustably connected with said two posts, locking-heads carried with the yoke, all of said posts being secured to one of the said two pieces to be fastened together, the other of said pieces being provided with an opening to receive the head of the threaded adjustable member and prevent its rotation and having means to engage the locking-heads, substantially as set forth.

14. The combination with two pieces designed to be fastened together, of a lock adapted to fasten the pieces together, comprising a threaded post and two plain posts secured to one of said pieces, the threaded post being disposed between the plain posts, a threaded member adjustable on the threaded post, a yoke carried by the threaded member and sleeved at its ends on the plain posts, two locking-heads carried by the yoke, one at each end thereof, the other of said two pieces to be fastened together being provided with means adapted to engage the locking-heads and also adapted to engage the threaded member so as to prevent its rotation and thereby secure the locking-heads against adjustment, substantially as set forth.

15. The combination with two pieces designed to be fastened together, of a lock adapted to fasten the pieces together comprising a threaded post secured to one of said pieces, an adjustable threaded member sleeved on the post and carrying a locking-head, the post having a stop to limit the upward adjustment of the threaded member, the other of said two pieces to be fastened together being provided with means for engaging the locking-head and at such time prevent the adjustment of the threaded adjustable member, substantially as set forth.

16. A lock adapted to fasten two pieces together, comprising a threaded post secured to one of said pieces, a threaded member adjustable on the post and having a shouldered head, a locking-head carried by the threaded member, the post having a stop to limit the upward adjustment of the threaded member, the other of said two pieces to be fastened together having an opening to receive the shouldered head and prevent its rotation, and also provided with means for engaging the locking-head, substantially as set forth.

17. A lock adapted to fasten together two pieces, comprising two or more posts designed to be secured to one of the pieces and each having a member adjustable up and down lengthwise it, said members being connected so as to move together, one or more locking-heads moving with said members and adapted to be locked to the other of said pieces, one or more of the posts having a stop or stops to limit the upward adjustment of the locking-head or locking-heads, and means to secure the adjustable members against upward adjustment lengthwise the posts when the locking head or heads are locked to the piece engaged thereby, substantially as set forth.

18. The combination with two pieces designed to be fastened together, of a lock adapted to fasten the pieces together, comprising a threaded post and two plain posts secured to one of said pieces, the threaded post being disposed between the plain posts, a threaded member adjustable on the threaded post, a yoke carried by the threaded member and sleeved at its ends on the plain posts, two locking-heads carried by the yoke, one at each end thereof, one or more of the posts having a stop or stops to limit the upward adjustment of the locking-head or locking-heads, the other of said two pieces to be fastened together being provided with means adapted to engage the locking-heads and also adapted to engage the threaded member so as to prevent its rotation and thereby secure the locking-heads against adjustment, substantially as set forth.

19. In combination with two pieces designed to be fastened together, a lock comprising a post secured to one of said pieces and having an adjustable locking-head, the other of said pieces having an opening to receive the locking-head, and a sliding bolt adapted to engage the locking-head, and means to prevent the upward adjustment of the locking-head at such time, substantially as set forth.

20. In combination with two pieces designed to be fastened together, a lock comprising a post secured to one of said pieces, a member adjustable on the post and dependent upon rotation for its adjustment, a locking-head carried by said member, the other of said two pieces having a sliding bolt to engage the locking-head, and provided with means to prevent the rotation of the said adjustable member when the locking-head is engaged by the bolt, substantially as set forth.

21. In a binder, the combination with two binding-pieces designed to be fastened together with sheets of paper or other material between them, of a post secured to one of said binding-pieces, a member adjustable up and down along the post and dependent upon rotation for its adjustment, a locking-head carried by said member, means carried by the other binding-piece to engage the locking-head and including means arranged to prevent the rotation of the adjustable member when the locking-head is so engaged, substantially as set forth.

22. In a binder, the combination with two binding-pieces designed to be fastened together with sheets of paper or other material between them, of two posts secured to one of the binding-pieces, locking-heads adjustable on the posts and connected so as to move together, means for adjusting the locking-heads, and locking means carried by the other binding-piece arranged to engage the locking-heads and at such time secure them against upward adjustment, substantially as set forth.

23. In a binder, the combination with two binding-pieces designed to be fastened together, of a locking-piece carried by one of the binding pieces and adjustable to and from the same, a locking device carried by the other binding-piece and arranged to engage the adjustable locking-piece and means to secure the adjustable locking-piece at such time against upward adjustment, substantially as set forth.

24. In a binder, the combination with two binding-pieces permanently connected together but movable to and from each other, one or more extensible fixed posts and one or more removable posts to receive and secure sheets in the binder, a locking-piece carried by one of the binding-pieces and adjustable to and from the same, and locking means carried by the other binding-piece arranged to engage the adjustable locking-piece and at such time secure it against upward adjustment, substantially as set forth.

25. In a binder, the combination with two covers, having hinged strips at their rear ends, extensible posts and removable posts to receive and secure sheets in the binder, the extensible posts being fixed to the hinged strip of the lower cover and connected together by a rigid strip at their tops, a flexible piece or flap connecting the said rigid strip with the upper cover at its rear end in front of its hinged strip, and means for locking the covers together, substantially as set forth.

26. In a binder, the combination with a lower cover provided with a post having an adjustable locking-head, of an upper cover provided with an opening as a^2 in one end adapted to receive the locking-head, a sliding bolt in a recess in the end of said cover to engage the locking-head and having a key-receiving opening as l^2 whereby the bolt may be operated, the upper cover having a key-hole to give access to a key to the said opening l^2, and means for preventing adjustment of the locking-head when in engagement with the sliding bolt, substantially as set forth.

27. In a binder, the combination with a lower cover provided with a post having an adjustable locking head, of an upper cover provided with an opening as a^2 in one end adapted to receive the locking-head, a sliding spring-bolt in a recess in the end of said cover to engage the locking-head and having a key-receiving opening as l^2 whereby the bolt may be operated, the upper cover having a key-hole to give access to a key to the said opening l^2, and means for preventing adjustment of the locking-head when in engagement with the sliding bolt, substantially as set forth.

604,562. DISINFECTING APPARATUS. JAMES EVERTS, Chicago, Ill., assignor to the Red Cross Hygienic Company, same place. Filed Apr. 24, 1897. Serial No. 633,963. (No model.)

Claim.—1. In a disinfecting apparatus, the combination of a normally-sealed reservoir adapted to contain liquid disinfectant, an auxiliary chamber located within and communicating with said reservoir, a wick-tube leading from below the reservoir and into the upper portion of the chamber and extraneous thereof, a wick arranged in such tube and leading to the lower end of the chamber, the said chamber being closed at its upper end but open at its lower end below the level of liquid in the reservoir whereby air passes through the tube and into the auxiliary chamber only as the liquid is withdrawn by the wick so that the liquid therein remains at a practically constant level which is near the bottom of the chamber and of the reservoir regardless of the level of the liquid in the reservoir, thereby assuring a uniform feed by the wick.



2. In a disinfecting apparatus, the combination with a reservoir adapted to contain liquid disinfectant, of an auxiliary chamber to which access of air is permitted, and located within the reservoir, an avenue of communication between said reservoir and said auxiliary chamber, a wick adapted to withdraw the liquid from said auxiliary chamber to the point of application, said reservoir having holes for the admission of air to said reservoir, and means for normally maintaining said holes sealed against the passage of air, whereby the atmospheric pressure causes the liquid in said auxiliary chamber to remain at a practically constant level, regardless of the height of the liquid within the reservoir, substantially as described.

3. In a disinfecting apparatus, the combination with the reservoir *a*, of an auxiliary chamber *c*, within said reservoir and in communication therewith at the bottom, access of air being permitted to said auxiliary chamber *c*, a wick *h* adapted to withdraw liquid from said chamber *c* to the point of application, said reservoir having holes *e e* for the admission of air, and a cap *d* normally sealing said holes against the passage of air, substantially as described.

4. In a disinfecting apparatus, the combination with the reservoir *a*, of the chamber *c* communicating therewith and with the external air, wick *h*, said reservoir having holes *e e* for the admission of air, cap *d* normally covering the chamber *c*, and a washer *f* carried upon said cap and normally sealing said holes *e e*, substantially as described.

5. In a disinfecting apparatus, the combination of a normally-closed reservoir adapted to contain liquid disinfectant, an auxiliary chamber located within the reservoir and communicating substantially at the bottom with the reservoir, and a wick extending from below the reservoir and into the auxiliary chamber for withdrawing the disinfectant, substantially as described.

6. In a disinfecting apparatus, the combination of a normally-closed reservoir adapted to contain liquid disinfectant, an auxiliary chamber located within the reservoir and to which air has access and whose lower end communicates with the reservoir near the bottom thereof, and a wick extending into the auxiliary chamber to its lower end and leading from a point extraneous of such chamber for withdrawing the disinfectant from the reservoir, substantially as described.

7. In a disinfecting apparatus, the combination of a normally-closed reservoir adapted to contain liquid disinfectant, an auxiliary chamber open only at its lower end and depending into the liquid, a wick-tube leading outside the chamber from its upper portion and a wick extending from the lower end of the chamber upward through the chamber and thence through the wick-tube.

8. In a disinfecting apparatus, the combination of a reservoir adapted to contain liquid disinfectant, an auxiliary chamber located therein and communicating substantially at its lower end with the reservoir, a tube leading from near the top of the chamber downward and a wick in the chamber and tube for withdrawing the disinfectant from the reservoir.

9. In a disinfecting apparatus, the combination of a reservoir adapted to contain liquid disinfectant, an auxiliary chamber depending therein and having communication through its lower end, an ex-

posing surface located adjacent to the reservoir, a tube extending from near the top of the auxiliary chamber and passing downwardly through the reservoir to the exposing-surface and a wick in the auxiliary chamber and tube for conducting the disinfectant.

10. In a disinfecting apparatus, the combination of a reservoir to contain liquid disinfectant, an auxiliary chamber communicating therewith substantially at its lower end and a wick leading from the lower end of the chamber upward therethrough and thence downward extraneous of the chamber and below the bottom of the reservoir.

604,563. DASH-POT FOR STEADYING MULE-CARRIAGES. SAMUEL GREEN, Mossley, England. Filed May 22, 1897. Serial No. 637,784. (No model.) Patented in England May 24, 1896, No. 10,259.



Claim.—1. A carriage-steadier for mules for spinning, consisting of an iron box *a* containing fluid and a plate *b* formed with perforations *k* and an arm *c* hinged to the outside of the said box, the mule-carriage having projections *i* fixed thereto, the said arm being adapted to catch the mule-carriage projections *i* at the end of the inward travel and the said fluid to check the rise of the said plate and thus control the speed of the mule-carriage at the commencement of its outward travel, all substantially as and for the purpose set forth.

2. In combination with an iron box *a* containing fluid and a movable plate therein formed with an arm *c*, a lever *f* hinged to the said arm and supported by a spring, which lever is adapted to be depressed by and catch a projection *i* on the mule-carriage at the end of its inward travel, all substantially as and for the purpose set forth.

604,564. PUNCH. AUGUST KRAEUTER, Newark, N. J. Filed Sept. 17, 1897. Serial No. 651,964. (No model.)



Claim.—1. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a movable receptacle held in said opening by frictional contact, forming a box or chamber to receive the piercings and to be automatically opened when filled with such piercings, substantially as and for the purposes set forth.

2. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle pivotally connected with one of said jaws and held therein by frictional contact, forming a box or chamber to receive the piercings and to be automatically opened when filled with such piercings, substantially as and for the purposes set forth.

3. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle pivotally connected with said jaw and adapted to fit in said opening and held therein by frictional contact, forming a box or chamber to receive the piercings and to be automatically opened when filled with such piercings, substantially as and for the purposes set forth.

4. In a punch, a pair of piercing-jaws, one of said jaws having an opening, a receptacle in said opening, forming a box or chamber to receive the piercings, and a spring-plate connected with said receptacle by frictional contact for removably retaining said receptacle in said opening and to be automatically opened when filled with such piercings, substantially as and for the purposes set forth.

5. In a punch, a pair of piercing-jaws, one of said jaws having an opening, a receptacle pivotally connected with said jaw and adapted to fit in said opening, forming a box or chamber to receive the piercings, and a spring-plate connected with said receptacle for removably retaining said receptacle by frictional contact in said opening and to be automatically opened when filled with such piercings, substantially as and for the purposes set forth.

6. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle in said opening, forming a box or chamber to receive the piercings, consisting, essentially, of a base-plate c', side c^2, a top plate c^3, and a lip c^4 on said top plate, substantially as and for the purposes set forth.

7. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle in said opening, forming a box or chamber to receive the piercings, consisting, essentially, of a base-plate c', side c^2; a top plate c^3, and a lip c^4 on said top plate, and means connected with said receptacle for removably retaining it in said opening, substantially as and for the purposes set forth.

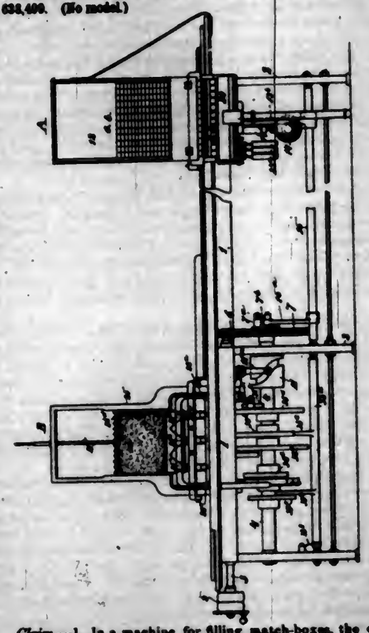
8. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle in said opening, forming a box or chamber to receive the piercings, consisting, essentially, of a base-plate c', side c^2, a top plate c^3, and a lip c^4 on said top plate, and a spring-plate c^5 connected with said receptacle for removably retaining it in said opening, substantially as and for the purposes set forth.

9. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle in said opening, forming a box or chamber to receive the piercings, consisting, essentially, of a base-plate c', side c^2, a top plate c^3, a lip on said top plate, and lugs c^7 for pivotally attaching said receptacle to a pin on one of the said jaws, substantially as and for the purposes set forth.

10. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle in said opening, forming a box or chamber to receive the piercings, consisting, essentially, of a base-plate c', side c^2, a top plate c^3, a lip on said top plate, and lugs c^7 for pivotally attaching said receptacle to a pin on one of the said jaws, and means connected with said receptacle for removably retaining it in said opening, substantially as and for the purposes set forth.

11. In a punch, a pair of piercing-jaws, one of said jaws having an opening, and a receptacle in said opening, forming a box or chamber to receive the piercings, consisting, essentially, of a base-plate c', side c^2, a top plate c^3, a lip on said top plate, and lugs c^7 for pivotally attaching said receptacle to a pin on one of said jaws, and a spring-plate c^5 connected with said receptacle for removably retaining it in said opening, substantially as and for the purposes set forth.

604,565. MACHINE FOR FILLING MATCH-BOXES. ALEXANDER LAGERMAN, Jönköping, Sweden, assignor to Jönköpings Tändsticks-Fabriks Aktiebolag, same place. Filed May 28, 1897. Serial No. 638,469. (No model.)



Claim.—1. In a machine for filling match-boxes, the combination with a table or main frame to support the mechanism, an endless carrier on said frame, and mechanism for moving said carrier intermittently, of an upright match-box magazine mounted on the main frame over said carrier and adapted to contain the empty boxes arranged in tiers, a plunger adapted to push out the lower tier of boxes onto the carrier, mechanism for operating said plunger, mechanism for pushing the drawers of the boxes on the carrier from their cases, mechanism for placing the matches in the drawers of the boxes, and mechanism for drawing the cases of the boxes over the filled drawers, said mechanisms being situated adjacent to the carrier, and at different points therealong, substantially as set forth.

2. In a machine for filling match-boxes, the combination with the main frame or table to support the mechanism, and a box-filling mechanism for the matches, of the endless carrier for the boxes mounted thereon and comprising the flanged plates 8, hinged together and each having a beveled stud 8^9, and the polygonal, horizontally-arranged, rotatable disks 9 and 9^8, of the slidable rod 10, mounted in the main frame and having laterally-projecting lugs 10^2, adapted to engage the studs on the plates 8 for intermittently advancing the carrier, and mechanism substantially as described for imparting a reciprocating movement to the rod 10, substantially as set forth.

3. In a machine for filling match-boxes, the combination with the main frame or table supporting the mechanism, and an intermittently-moving carrier mounted on said main frame, of the upright magazine 12, for the reception of the empty boxes *a*, *b*, in tiers, the pusher 13, adapted to push out the lowermost tier of boxes from the magazine, said pusher being mounted to slide to and fro on the machine-frame, a weight 14, adapted to move the pusher forward in expelling the boxes, positive mechanism, substantially as described for withdrawing the pusher, and a stop to regulate the forward movements of the pusher, said stop comprising the intermittently-rotating disk 9, of the carrier provided with raised segments 17 on its surface, and a stud 13^2, carried by the pusher, said segments being adapted for interposition into the path of the stud 13^2 during certain parts of the rotation of said disk 9, substantially as set forth.

4. In a machine for filling match-boxes, the combination with the main table or frame supporting the mechanism, and an intermittently-moving carrier, mounted on said frame, for carrying the boxes, of the mechanism for pushing the drawers of the empty boxes from their cases, said mechanism comprising a movable bar 21^2, which rests upon and holds down the box-case, a weight carried by said bar, means for raising said bar to release the case, a slidable plunger 22, which pushes out the drawer of the box from its case while the latter is held stationary, a weight 23^2, which imparts the operative, forward movement to said plunger, and mechanism, substantially as described, for withdrawing said plunger, substantially as set forth.

5. In a machine for filling match-boxes, the combination with the main frame, the carrier mounted thereon for supplying empty boxes to the filler, and an upright magazine for the matches, said magazine having a chute or chutes at its bottom to load the matches to the box to be filled, of an intermittently-operating vibrating brush 26^2, situated in front of the match-magazine and adapted to bear on the uncoated ends of the matches and by shaking them cause them to descend freely to the box-filling point, substantially as set forth.

6. In a machine for filling match-boxes, the combination with the upright match-magazine having a chute at its bottom for the delivery of the matches, of a cut-off in said chute consisting of a pair of shutters 27, hinged on vertically-arranged pins so as to swing in a curved path into the chute, entering the same first near the heads of the matches therein, and mechanism for closing and opening said shutters simultaneously, substantially as set forth.

7. In a machine for filling match-boxes, the combination with the upright match-magazine having a chute at its bottom for the delivery of the matches to the filling-point, of a cut-off in said chute consisting of a pair of shutters 27, adapted to move in and out simultaneously with a tremulous motion, a cam with an undulating or wavy periphery, mechanism between said cam and shutters whereby the cam moves them out in one direction, and springs for holding them against the undulating movement derived from the cam and for moving them in the opposite direction, substantially as set forth.

8. In a machine for filling match-boxes, the combination with an upright match-magazine having a chute at its bottom for the delivery of the matches to the filling-point, of a cut-off in said chute consisting of a pair of shutters 27, hinged on upright axes, mechanism substantially as described for opening said shutters, and springs which close the shutters with a yielding force or pressure, substantially as set forth.

9. In a machine for filling match-boxes, the combination with an upright match-magazine having a chute at its bottom for the delivery of the matches to the filling-point, of a cut-off in said chute, consisting of a pair of swinging shutters 27 hung on upright hinge-axes, whereby they are adapted to close and to open simultaneously, mechanism substantially as described for operating the shutters, a movable, inclined bottom 30 in the chute which receives the matches cut off by the shutters, mechanism which moves said bottom and a reciprocating plunger 32, arranged under the chute, which pushes the matches so separated into the box, substantially as set forth.

10. In a machine for filling match-boxes, the combination with the upright match-magazine having a chute at its bottom and means substantially as described for separating a measured quantity, $m^{\times}$, of matches from said chute to fill a box, of the vertically-movable cell 32, to receive the matches, mechanism for operating said cell, the movable depressor, 34, at the delivery end of said cell, mechanism for operating said depressor, and the reciprocating plunger adapted to push the matches into the cell and from the cell into the box, substantially as set forth.

11. In a machine for filling match-boxes, the combination with the upright match-magazine having a chute at its bottom and means substantially as described for separating a measured quantity, $m^{\times}$, of matches from said chute to fill a box, of the vertically-movable cell 32, to receive the matches, mechanism for operating said cell, the movable depressor, 34, at the delivery end of said cell, mechanism for operating said depressor, 34, and the reciprocating plunger 33, and its operating mechanism, the slidable bottom plate, 31, in the cell and adapted to take over the margin of the box to be filled, and mechanism for operating said sliding bottom, substantially as set forth.

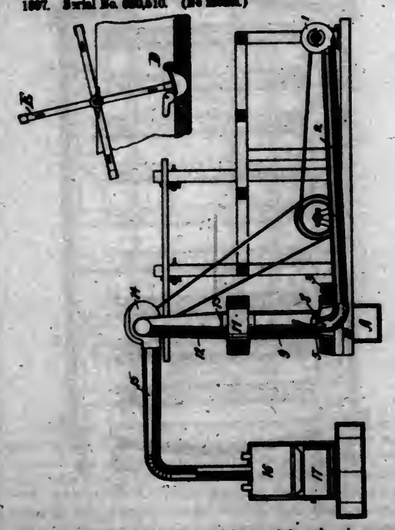
12. In a machine for filling match-boxes, the combination with the vertically-movable cell 32, and the means for moving the same, of the vibrating adjuster 35, adapted to even the matches in the cell by rubbing on their uncoated ends while the cell is elevated, substantially as set forth.

13. In a machine for filling match-boxes, the combination with the carrier for the match-box, and mechanism for placing the matches in the protruding drawer thereof, of the slidable hook 36, with a beveled under side, adapted to engage the margin of the box-case at its end and guide the matches into the drawer, and mechanism for operating said hook, substantially as set forth.

14. In a machine for filling match-boxes, the combination with the endless carrier, composed of flanged plates 8, and polygonal disks 9 and 9^8, mechanism for advancing said carrier intermittently, mechanism for placing the empty boxes on said carrier at one point and mechanism for pushing out the drawers of the boxes at another point, of a stationary, curved guide, 9^9, arranged over the carrier at the point set forth, and adapted to insure the boxes being pressed up to the flange on the main frame when they reach the point where the drawers are pushed out, substantially as set forth.

15. In a machine for filling match-boxes, the combination with the main frame, the intermittently-moving, endless carrier for the boxes, mounted on said frame, the upright box-magazine 12, on the main frame and at the inner side of the path of the carrier, the pusher for pushing out the lower tier of boxes onto the plates of the carrier, whereby the filled boxes are pushed off from the carrier, and mechanism for operating said pusher, of the inclined plate 18 on the frame down which the filled boxes slide, the tray 20, situated to receive the filled boxes, the slide 16, adapted for pushing the filled boxes into the tray, and mechanism for operating said slide, substantially as set forth.

604,566. MACHINE FOR SEPARATING FINE GOLD FLAKES FROM SAND. JONATHAN H. MARION, Louisville, Ky. Filed Jan. 25, 1897. Serial No. 620,510. (No model.)



Claim.—1. The combination, with a receiving-chamber: a supply-hopper; and a nozzle, for depositing centrally within the receiving-chamber the mass of material fed from said hopper to the machine, of means for supplying an air-blast which operates to force upwardly within said chamber the finer portions of the sand and also all the

finest particles, of the gold; a screen, located at the upper end of said chamber, and adapted to permit the passage through it of only the dust and flour gold; and a pipe extending upwardly from said screen and provided with an exhaust-fan, operating to enforce the ascent of said flour gold, and fine particles of dust, and discharge them into a suitable receiver, or receptacle.

2. In combination with a vertical, tubular, receiving-chamber, provided with a supply-hopper and nozzle as specified, a centrally-located receiving-pan, 6, arranged within the open, upper, end of a blast-pipe, located within the lower end of said receiving-chamber; the frustum-shaped cape, or deflector, 8, arranged and operating as specified; a force-fan, 1; and a flume, A, located beneath the sand-receiving blast devices as shown; the whole arranged and operating so that the overflowing mass of material fed into the pan, 6, will be acted upon by the blast which forces upwardly its finer particles, and disintegrates the overflowing mass, while at the same time the coarser sand and the bulk of the entire mass will finally descend into the flume; substantially as and for the purpose hereinbefore set forth.

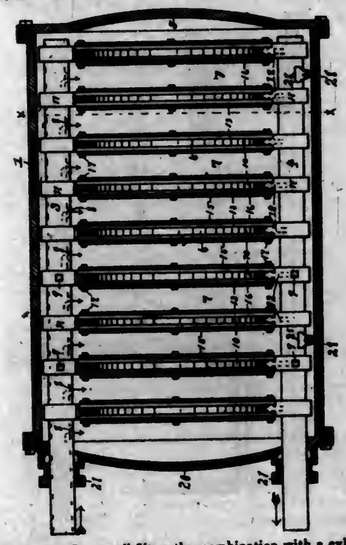
3. The combination, with the vertical, tubular chamber 9, into which the mass of material is centrally discharged and within which the flour gold and dust are separated by a blast operation; and the flume A, into which the coarser sand and gold particles descend from said chamber, of a series of quicksilver-receptacles, or amalgamating-boxes D, each of which is let into the flume-bottom, each of which is provided with a hinged lid and is made as specified; and a series of wheels each arranged relatively to one of said boxes in the manner specified and revolved by the action of the water in the flume; the whole constructed and operating substantially as and for the purposes hereinbefore set forth.

604,567. HARNESS-PAD. EDWARD L. MCCLAIN, Greenfield, Ohio. Filed June 25, 1896. Serial No. 596,871. (No model.)



Claim.—A pad for application to animals, which pad contains a flexible waterproof diaphragm; an absorbent filling on one side of the latter; and a dissimilar filling on its opposite side, for the purpose described.

604,568. OIL-FILTER. JOHN B. RAAB, Dayton, Ohio, assignor to W. P. Callahan & Co., same place. Filed Nov. 22, 1897. Serial No. 659,439. (No model.)

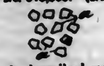


Claim.—1. In an oil-filter, the combination with a cylinder, of inlet and outlet pipes located in opposite sides of said cylinder and throughout the length thereof, the inlet-pipe being provided with a series of oil-orifices throughout its length, a series of filter-buckets mounted on said pipes with intervening spaces into which the oil enters from said inlet-pipe and from whence it enters the filter-buckets, and an oil-channel leading from the interior of each of said buckets to the outlet-pipe, the said pipes and buckets being removable from the cylinder in a body, substantially as and for the purposes specified.

2. A filtering apparatus comprising in combination with a cylinder from and into which it may be freely moved, an inlet and outlet pipe, a series of filter-buckets rigidly mounted on said pipes with space between each pair into which oil is forced through a series of orifices in the inlet-pipe, and openings leading from the interior of said buckets to the outlet-pipe, and a cylinder-head mounted on said pipes, substantially as described.

3. In an oil-filter, the combination with a cylinder having pipe-channels in opposite sides, and inlet and outlet pipes having oil-orifices throughout their inner sides, of a series of filter-buckets rigidly mounted on said pipes, each of said buckets consisting of plates 13 and cloths 15, a ring 10 against which said plates and cloths are firmly held, the said rings being placed on the pipes at uniform distances apart, and having oil-orifices on one side through which the oil enters the outlet-pipe from the interior of the buckets, as herein shown and described.

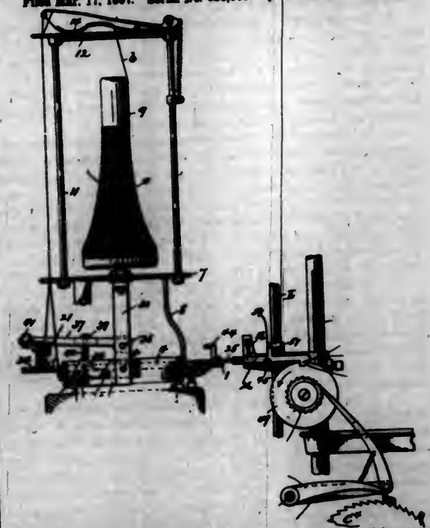
604,569. GRINDING, ABRADING, OR CUTTING MATERIAL AND MODE OF PREPARING SAME. ANDERS V. RINMANSÖ, Örebro, Sweden, assignor to Nils Ryvin Frykholm, Stockholm, Sweden. Filed Dec. 26, 1896. Serial No. 573,265. (No model.)



Claim.—1. The herein-described method of preparing abrading materials which consists in first applying to the separate, fine grains of a hard, abrading material, as corundum, a coating of metal, then mixing said coated grains with molten metal, and then shaping said mixture into suitable forms for use.

2. As an improved article of manufacture, an abrading or cutting tool having its surface composed of a mass of fine particles or granules of hard abrading material, each coated with a film or metal, and an embedding or binding metal about and among said granules, the binding metal having a lower melting-point than that of the metal with which the granules are coated, substantially as set forth.

604,570. KNITTING-MACHINE. JAMES E. ROWE, Pawtucket, R. I., assignor to the E. Jonston Manufacturing Company, same place. Filed Mar. 17, 1897. Serial No. 628,005. (No model.)



Claim.—1. In a knitting-machine, the combination with a traveling main thread-guide, of a thread-guide traveling therewith, means for reciprocating said guide in a path which does not cross the plane of the needles, a clamp inside the needles and means for severing the thread, substantially as described.

2. In a knitting-machine the combination with a traveling main thread-guide, of a pivoted thread-guide traveling therewith and arranged to oscillate in a path which does not cross the plane of the

needles, means for oscillating said thread-guide, and means for severing the thread, substantially as described.

3. In a knitting machine the combination with a rotary cam cylinder, of a thread-carrier carried therewith, a stationary cam for reciprocating said carrier, and means inside the needles for severing and holding the thread, substantially as described.

4. In a knitting-machine the combination with a rotary cam-cylinder, of a thread-carrier carried therewith, a cam for reciprocating said carrier, a support for said cam moving with the cam-cylinder, and means for automatically stopping and releasing said cam, substantially as described.

5. In a knitting-machine the combination with a rotary cam-cylinder, of a thread-carrier carried therewith for carrying the thread into engagement with the needles, a stationary cam for operating said carrier, means for automatically throwing said cam into and out of operative position, and means inside the needles for severing the thread, substantially as described.

6. In a knitting-machine, a thread-carrier, means for operating said carrier to carry the thread into and out of engagement with the needles, and a thread-holder inside the needles, and means for operating said holder from said carrier, substantially as described.

7. In a knitting-machine, a thread-carrier, a cam for operating said carrier to carry the thread to and from the needles, a support for said cam moving with the cam-cylinder, means for holding said cam stationary during one or more revolutions of the cam-cylinder, and means for throwing said holding means into and out of operation, substantially as described.

8. In a knitting-machine, a thread-carrier for carrying the thread into engagement with the needles, a cam for operating said carrier, a clamp inside the needles for the thread also operated from said cam, substantially as described.

9. In a knitting-machine, the combination of a thread-guide, means for operating said guide to carry the thread to and from the needles at each revolution of the cam-cylinder, a support for said operating means traveling with the cam-cylinder, and means for automatically stopping and releasing said operating means, substantially as described.

10. In a knitting-machine, a thread-carrier, a ring carrying a cam for operating said carrier to carry the thread to and from the needles, a support for said cam-ring moving with the cam-cylinder, a stop for engaging said cam-ring, and means for moving said stop into and out of operative position, substantially as described.

11. In a knitting-machine, an annular ring secured to the cam-cylinder, a cam-ring mounted in said ring, means for holding said cam-ring stationary during one or more revolutions of the cam-cylinder, a thread-guide operated by said cam-ring, substantially as described.

12. In a knitting-machine, a cam-ring, a support therefor carried by the cam-cylinder, a pivoted thread-carrier operated by said cam-ring at each revolution of the cam-cylinder, substantially as described.

13. In a knitting-machine, a stationary cam, a traveling thread-carrier for carrying the thread into engagement with the needles operated by said cam, a thread-holder operated by said cam, and a cam for operating said holder independent of said carrier, substantially as described.

14. In a knitting-machine, a cam partially surrounding the needles and provided with a swell at its forward end, a thread-carrier riding over said cam, a thread-holder operated from said carrier, and a cam for operating said holder substantially as described.

15. In a knitting-machine, a support traveling with the cam-cylinder, a thread-carrier supported by said support, a ring also supported by said support and carrying a cam for operating said thread-carrier, substantially as described.

16. In a knitting-machine, a support traveling with the cam-cylinder, a thread-carrier and a thread-holder supported by said support, a ring also supported by said support and carrying a cam for operating said carrier, substantially as described.

17. In a knitting-machine, a thread-carrier, a ring carrying a cam for operating said carrier, a main-thread guide, a latch-guard, and a support secured to the cam-cylinder for supporting all said devices, substantially as described.

604,571. BISMUTH-OXYIODIN TANNATE. JAKOB SCHMID, Basle, Switzerland, assignor to the Society of Chemical Industry, same place. Filed Aug. 17, 1897. Serial No. 648,800. (Specimens.)

Claim.—1. The process for the production of a bismuth-oxyiodid lake of tannic acid, consisting in bringing one molecule of bismuth oxyiodid into reaction with one molecule of a tannic acid, as described.

2. As a new article of manufacture the described bismuth-oxyiodid lake of tannin consisting of a gray powder which is quite insoluble in water and is dissociated by acids and alkalies, the gray coloration of the compound turning to yellow, with emanation of an acid odor, when it is boiled with water.

604,572. GUIDE-FRAME FOR LOOSE ROLLS IN JOURNAL-BEARINGS. THEODORE J. TELLEPSEN, Newark, N. J., assignor to the Hyatt Roller Bearing Company, of New Jersey. Filed Apr. 1, 1897. Serial No. 630,230. (No model.)



Claim.—1. In a roller-bearing, the combination, with the journal, the casing, and a considerable series of rolls C arranged in groups around the journal within the casing, of two similar guide-frames consisting each of the semicircular yokes *a* connected by the guide-bars *b* and *b'* arranged as shown and described, the lateral guide-bars *b* being each set at a short distance from the end of the yoke for the purpose set forth, and a group of the rolls in contact with one another being fitted between the guide-bar *b'* and each of the lateral bars *b* and other rolls being fitted between the adjacent guide-bars *b* upon the two guide-frames, substantially as herein set forth.

2. In a roller-bearing guide-frame having semicircular yokes connected by guide bars with groups of rolls in contact between each bars, the combination, with the three yokes *a*, *a*, *a'*, of the guide-bars *b*, *b* and *b'* arranged as shown and described, with the guide-bar *b'* connecting the centers of the yokes, and the lateral guide-bars *b* connected to the yokes at a suitable distance from the ends of the same, to admit one of the rolls between the opposite yokes, beyond each lateral guide-bar, substantially as herein set forth.

604,573. FILTER. WILLIAM W. WILSON, Holyoke, Mass. Filed Feb. 3, 1896. Serial No. 578,594. (No model.)



Claim.—1. In a filter, a collecting-tube for conducting filtered water from and washing-water to the filtering-chamber, said tube having connected thereto within said chamber, a hollow head provided with a plurality of laterally-projecting, tubular arms, each of which arms is provided with a plurality of longitudinal slits adapted to permit the passage of water therethrough while preventing the passage of the particles composing the filtering material, substantially as described.

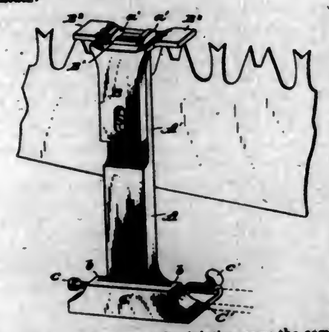
2. In a filter, the combination with the filtering-chamber thereof of a tube for conducting filtered water from and washing-water to said chamber, said tube having connected to its end within the chamber a hollow head provided with a plurality of radially-disposed tubes,

each of which tubes is longitudinally slitted to permit water to pass therethrough while preventing the passage of sand or similar filtering material, substantially as described.

3. In a filter, the combination with a discharging device located within the filtering-chamber and forming the outlet therefrom for filtered water consisting of a globular head provided with a plurality of radially-disposed and longitudinally-slitted members, of an imperforate guard adapted to rest upon the bottom of said chamber and to cover said head and its members, said guard having an open waterway between its bottom and the bottom of said chamber, substantially as set forth.

4. The discharging device for filters composed of the globular head *f* having projecting radially therefrom the tubular members *g* provided with the dividing-slits 6, substantially as described.

604,574. DEVICE FOR JOINTING, GAGING, AND SETTING SAWS. ITHAMAR ARNOLD, La Fargeville, N. Y., assignor of one-half to Parley K. Foote, same place. Filed Sept. 1, 1897. Serial No. 650,268. (No model.)



Claim.—1. In an implement for jointing saws the combination with the body portion A, one end of which is bent to provide an overlying member or portion *c* which is cut away centrally to provide an aperture for the passage of the teeth of a saw, and a gage which is adjustably secured to the body portion and provided with laterally-extending members substantially as shown and for the purpose set forth.

2. In an implement for jointing and setting saws the combination with a body portion A, having one end beveled, the opposite end being bent upon itself and centrally cut away; together with a saw-filing gage adjustably secured to one end of the body portion, said gage having an aperture and laterally-extending members and a file-holding frame adjustably mounted on the opposite end of the body portion, substantially as shown and for the purpose set forth.

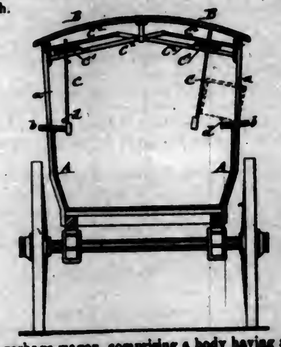
3. In a saw-sharpening implement or tool, the combination with the body portion A, the ends thereof being reduced in thickness, of a saw-filing gage adjustably secured to one end of the body portion and a file-holding frame adjustably secured to the opposite end of the body portion for the purpose set forth.

4. In a saw-jointer, the combination of a frame or body portion A, bent upon itself so as to provide an overlying portion *a* having connecting portions *a'* and an aperture between said portions through which the saw-teeth may pass, in combination with a saw-filing gage which is adjustably secured to the body portion and provided with an aperture through which the body portion passes, said gage having laterally-projecting portions B^2, substantially as shown and for the purpose set forth.

604,575. GARBAGE-WAGON. PETER BAUER, Cologne-Ehrenfeld, Germany, assignor to Lobach & Company, Gesellschaft mit Beschränkter Haftung, Cologne, Germany. Filed Dec. 30, 1897. Serial No. 664,696. (No model.) Patented in Belgium June 7, 1895, No. 115,986; in Switzerland July 30, 1895, Nos. 10,963 and 10,976; in Germany Aug. 22, 1895, No. 91,447; in France Mar. 6, 1897, No. 256,615; in Hungary July 9, 1897, No. 295, and in Austria July 17, 1897, No. 47/3,320.

Claim.—1. A garbage-wagon, comprising a body having a side opening, a laterally-projecting ledge at the lower part of the side opening, a swinging gate abutting against said ledge and displaceable at its upper end, and means for guiding said upper end inwardly in its movement, substantially as set forth.

2. A garbage-wagon, comprising a body having a side opening, a laterally-projecting ledge at the lower part of the side opening, a swinging gate abutting against said ledge and displaceable at its upper end, means for guiding the said upper end inwardly in its movement, and a transverse rod arranged above said ledge, substantially as set forth.

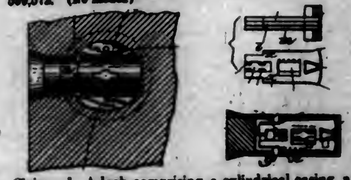


3. A garbage-wagon, comprising a body having a side opening, a swinging gate hinged adjacent to the upper part of said side opening and adapted to be opened automatically inward when the receptacle to be emptied is brought in contact therewith, and a transverse rod above the lower part of said opening, substantially as set forth.

4. A garbage-wagon comprising a covered body having an opening or openings in the side walls, a ledge at the lower edge of each side opening, a swinging gate or shutter, abutting against the inner edge of said ledge, guide-rollers applied to the upper parts of the swinging gate or shutter, and rails for guiding said rollers and shutter when moved in inward direction, substantially as described.

5. A garbage-wagon, comprising a closed body, having an opening or openings in the side walls, a ledge at the lower part of each side opening, a swinging gate or shutter for each opening, means for guiding the upper part of the swinging gate or shutter on inclined rails in inward direction, a chain connected at the ends of the swinging gate or shutter, and conducted over a stationary pulley to the outside of the body, and means for attaching said chain to the outside shutter, so as to support the swinging gate or shutter in inward-raised position, substantially as set forth.

604,576. LOCK. CHARLES H. BURROWS, Canton, Mass., assignor to S. M. Hawes, Jr., Yonkers, N. Y. Filed July 17, 1896. Serial No. 599,573. (No model.)



Claim.—1. A lock comprising a cylindrical casing, a bolt movable longitudinally in said casing, and two or more flat key-actuated tumblers placed longitudinally of the casing, and a stop for said tumblers, said tumblers having laterally-extended rear ends to loosely engage the opposing inner walls of the casing, whereby the said rear ends are held against edgewise movement, and their forward ends are free to move edgewise to permit the bolt to be shot.

2. A lock comprising a casing, two or more flat tumblers arranged side by side to engage and hold the locking member against movement, said tumblers having laterally-extended ends to engage the opposing inner walls of the casing, a stop for said tumblers and a V-shaped spring inserted in notches in the said laterally-extended ends of the tumblers for holding them in locking position.

3. A lock comprising a seamless casing having a cylindrical aperture with unobstructed sides for the insertion of the operative parts, two or more flat tumblers arranged side by side independently of the bolt and having stops to limit the movements of the bolt, a stop for said tumblers, and a bolt normally held against movement by the tumblers, said tumblers being free from positive connection with the casing but having rear corners resting upon a wall of the casing whereon they may oscillate and having means with which a key may be engaged in such way that the stops thereon will permit the bolt to be moved by the key.

604,577. PADLOCK. CHARLES H. BURROWS, Canton, Mass., assignor to S. M. Hawes, Jr., Yonkers, N. Y. Filed Sept. 8, 1897. Serial No. 650,904. (No model.)

Claim.—1. In a lock, the combination with a casing, of two or more flat apertured tumblers arranged side by side and movable edgewise and longitudinally, and a locking member movable into and out of an aperture in the casing, and adapted to enter the aperture in said tumblers whereby it may be locked in place.



2. In a lock, the combination with a casing having a transverse aperture in the end adapted to receive a locking member, and also having a keyhole, a plug or block inserted in the said casing to close the end of the same and formed with a slot or recess, two or more flat tumblers arranged in the recess, said tumblers having apertures normally out of alinement with each other and adapted to be moved to bring the apertures into alinement with the apertures in the casing.

3. In a lock, the combination with a tubular casing, a block closing one end thereof, and a plug or frame closing the other end thereof, of a locking member arranged to have its free locking end enter an aperture in the casing and block, and locking devices in the casing adapted to engage the said locking members when it is so inserted.

4. A lock comprising in its construction a cylindrical casing, one or more flat tumblers arranged side by side in said casing and having stops to normally prevent movement of the locking member, a locking member adapted to be engaged by the tumblers, and means on the said tumblers whereby they may be engaged by a key and moved thereby longitudinally and edgewise to liberate the end of said locking member.

5. In a lock, the combination with a tubular casing, and locking-tumblers in said casing, of a frame or plug closing one end of the casing, and a locking member hinged in said frame or plug and swinging about the axis transverse thereto and adapted to have its locking end engaged by the tumblers at the other end of the casing.

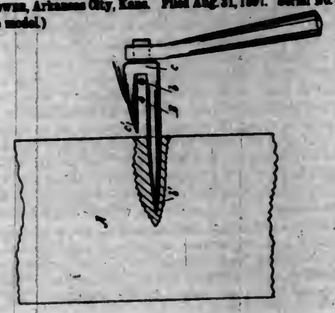
6. In a lock, the combination with a cylindrical casing, locking-tumblers in the casing, and a locking member, of a removable plug or frame inserted in the end of the casing in which the said locking member is hinged, and a spring bearing against said locking member to hold it normally in its unlocked position.

7. In a lock, the combination with a casing having a straight cylindrical aperture and locking-tumblers in said aperture adapted to be moved both longitudinally and transversely edgewise, of a locking member hinged at one end of said casing and adapted to be engaged by the tumblers at the other end of the casing.

8. A lock comprising in its construction an open-ended casing and tumblers in said casing free from connection therewith, a block closing one end of the casing and held therein by frictional contact with the walls of said casing, said block and casing having bolt-receiving apertures, a plug or frame closing the other end of the casing and held therein by frictional contact with the walls of said casing and a locking member hinged in said frame and adapted to engage the said tumblers and the said apertures, whereby all of said parts are securely locked in and with the casing.

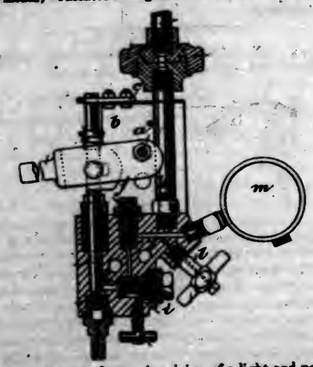
9. A lock comprising in its construction a seamless open-ended casing, tumblers in said casing, frictionally-retained plugs or blocks closing both ends of said casing, and a locking member adapted for engagement with the tumblers, plug, and casing, whereby all of said parts may be securely locked in and with each other.

604,578. WIRE-TIGHTENER. DANIEL DONNELL and ASHER A. BROWER, Arkansas City, Kans. Filed Aug. 31, 1897. Serial No. 650,063. (No model.)



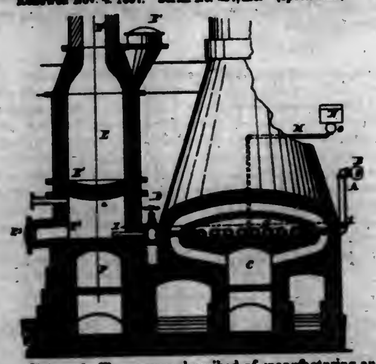
Claim.—A fence-wire tightener, comprising a revolvable straight pog pointed at one end and provided with a hooked portion at its other end, said hooked portion being provided with a projection *d* suitable for a wrench to engage with and having a straight and pointed portion shorter than the pog and arranged parallel with it, substantially as described and shown.

604,579. PORTABLE PUMP. WILLIAM G. GAM and JAMES TOWER, Bolton, England. Filed Aug. 12, 1897. Serial No. 648,776. (No model.) Patented in England Mar. 23, 1897, No. 7,441.



Claim.—A pump for use in mining of a light and portable character adapted for use in confined limits, comprising the piston and cylinder, the duplicate check-valves, the standard, the reservoir, both the pump-cylinder and the reservoir being adjustable vertically of the standard, means for operating the pump by a downward thrust in the direction of the standard, and a connection extending from the pump to the cartridge from the upper part of the pump, substantially as described.

604,580. PROCESS OF AND APPARATUS FOR ALLOYING IRON AND HYDROGEN. GEORGE W. GESNER, New York, N. Y., assignor to Harriston Corbett Gesner, Brooklyn, N. Y. Filed Dec. 10, 1895. Renewed Nov. 4, 1897. Serial No. 657,626. (Specimens.)



Claim.—1. The process described of manufacturing an alloy of iron and hydrogen, the same consisting in first passing jets of hydrogen through a mass of melted metal and thereafter similarly circulating hydrogen and hydrocarbon vapor combined, substantially as herein specified.

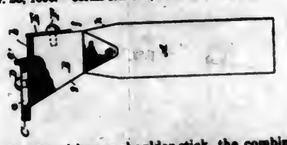
2. The process described of manufacturing an alloy of iron and hydrogen, the same consisting in first passing jets of hydrogen through a mass of melted metal, subsequently similarly circulating hydrogen and hydrocarbon vapor combined, and thereafter resuming the introduction of hydrogen alone until the flame at the top of the mass indicates a yellowish hue, substantially as herein specified.

3. In apparatus for the production of an alloy of iron and hydrogen, the combination with a furnace inclosing an iron coil communicating with a source of steam-supply and capable of decomposing the steam to form hydrogen under pressure, of a converter having a chamber for a mass of melted metal provided with a perforated bed, and a communication between the coil and converter below the bed

of the latter, the connections at both sides of said coil having suitable controlling-valves, substantially as herein specified.

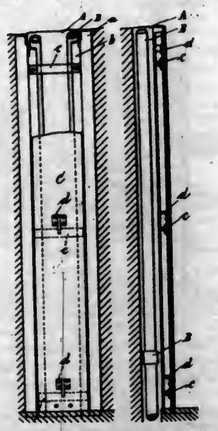
4. In apparatus for the production of an alloy of iron and hydrogen, the combination with a furnace inclosing an iron coil communicating with a source of steam-supply and capable of decomposing the steam to form hydrogen under pressure, of a converter having a chamber for a mass of melted metal, provided with a perforated bed, a communication between the coil and converter below the bed of the latter, and a hydrocarbon-supply connecting with the coil, the several connections of the coil with the steam and hydrocarbon supply and with the converter having suitable controlling-valves, substantially as specified.

604,581. SHOULDER-STICK. GEORGE W. SHEER, Concord, N. H. Filed Nov. 23, 1896. Serial No. 613,091. (No model.)



Claim.—In a burnisher or shoulder-stick, the combination with a handle provided with an inclined end, of a head having its side walls parallel, its front and rear walls rearwardly inclined in different degrees, the front wall being in substantial alinement with the adjacent inclined face of the handle and the end or burnishing-face of the head being transversely curved throughout its length, an adjustable stop-piece consisting of a plate C substantially longitudinally coextensive with the burnishing-face of the head, correspondingly transversely curved throughout its length and provided with a longitudinal slot and with a flanged upwardly-inclined and longitudinally-curved face, a retaining-screw passed through the slot in the plate C and screwed into the head at a point adjacent to its rear edge, and a bead-plate E of somewhat less width than and adjustably secured to the front face of the head, the upper edge of said bead-plate being carved in degree corresponding to the curvature of the burnishing-face of the head, and a screw extending into the front face of the head and passing through a longitudinal slot in the bead-plate, substantially as and for the purpose specified.

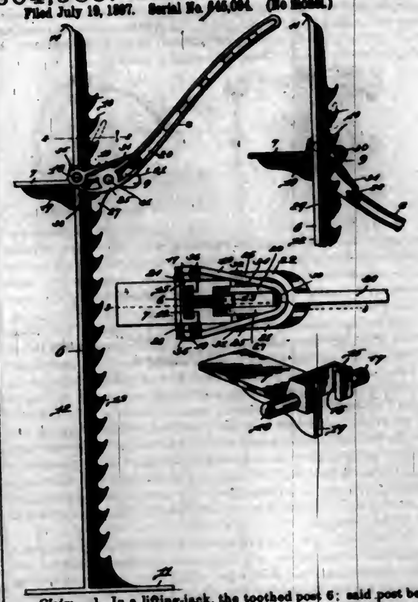
604,582. COVERING-PLATE FOR CHANNELS FOR PIPES, &c. DAVID GROVE, Berlin, Germany. Filed Oct. 6, 1897. Serial No. 654,288. (No model.) Patented in Germany June 2, 1891, No. 59,660, and Mar. 3, 1894, No. 79,383.



Claim.—1. In combination, the channel for pipes, the angle-irons extending along the edges thereof and having engaging surfaces and the cover having the hooks or lugs to engage said surfaces, substantially as described.

2. In covering-plates of channels for pipes and the like the combination with angular pieces or rails *a* on the side walls of the channel A with angular pieces or rails *b* of connecting pieces or strips *c* between such rails and of hooks or lugs *d* on the covering-plate C, such hooks being provided with inclined surfaces substantially as and for the purpose described.

604,588. LIFTING-JACK. JOHN C. HACKETT, St. Louis, Mo. Filed July 19, 1897. Serial No. 645,094. (No model.)



Claim.—1. In a lifting-jack, the toothed post 6; said post being T-shaped in cross-section, its first and second flanges forming the flat front face 12 and its third flange projecting backwardly from the junction of said first and second flanges, the rear edge of said third flange being notched to form the upwardly-projecting teeth 13, the sliding block 15 having the T-slot 16 formed from its rear face, said toothed post 6 being mounted in said slot, the lifting-plate 7 projecting forwardly from said sliding block, the trunnions 17 and 18 extending from opposite sides of said block 15 in alinement with each other, the bracket-shaped web 19 extending downwardly from the center of said plate 7 with its rear edge engaging the face 12 of the toothed post, a hand-lever having bearings to receive said trunnions and a fulcrum carried by said hand-lever to engage said teeth, substantially as specified.

2. In a lifting-jack, the toothed post 6; said toothed post being T-shaped in cross-section, its first and second flanges forming the flat front face 12 and its third flange projecting backwardly from the junction of the first and second flanges and the rear edge of said third flange being notched to form the upwardly-projecting teeth 13, the projection 14 formed integral with the toothed post 6 and designed to be bent forwardly after the parts of the jack have been assembled, the block 15 having the T-slot 16 in its rear face, said toothed post being mounted in said T-slot, said block being provided with the lifting-plate 7, the trunnions 17 and 18 and the bracket-shaped web 19 for strengthening the plate 7, a hand-lever having bearings in which said trunnions operate, a fulcrum attached to said hand-lever and engaging said teeth, and a locking-link having bearings to receive said trunnions and extending upwardly and backwardly in position to engage said teeth, substantially as specified.

3. In a lifting-jack, a T-shaped toothed post having upwardly-projecting teeth formed upon the edge of its third flange, a sliding block having a T-slot to receive said toothed post as required to form a sliding connection between the block and the post, a lifting-plate projecting forwardly from said block, trunnions projecting from opposite sides of said sliding block, the hand-lever 8 having bearings in which said trunnions operate; said hand-lever consisting of the bar 20 and the arms 21 and 22 formed integral with the forward end of said bar, said arms 21 and 22 having bearings in their forward ends to receive said trunnions and the forward ends of said arms being spread apart to allow of the insertion of said trunnions and then bent toward each other to hold the trunnions in position and the bearings 25 and 26 formed in said arms 21 and 22 a short distance back of the bearings in which said trunnions operate; the overbalanced pivoted fulcrum 9 mounted between said arms 21 and 22 and engaging the teeth of said post; said overbalanced pivoted fulcrum consisting of the curved plates 27 and 28 in parallel positions and connected by the fulcrum-bar 29 and the weight 30, the trunnions 31 and 32 extending in a horizontal line outwardly from said plates 27 and 28 and approximately at the centers of the plates and engaging in said bearings 25 and 26, substantially as specified.

4. In a lifting-jack, a toothed post, said toothed post being T-shaped in cross-section and having upwardly-projecting teeth formed upon the edge of its third flange, a sliding block having a T-slot in its rear face in which said toothed post operates, a lifting-plate projecting forwardly from said block, trunnions projecting from said sliding block, a hand-lever having its forward end bifurcated and having bearings in the forward ends of the arms forming the bifurcated portion to receive said trunnions, the overbalanced pivoted fulcrum 9 mounted between the arms of said hand-lever and in position to engage said teeth; said fulcrum 9 consisting of the curved plates 27 and 28 in parallel positions and connected by the fulcrum-bar 29 and the weight 30, the trunnions 31 and 32 extending outwardly from the centers of said plates 27 and 28 into bearings in said arms of said hand-lever and the leg 33 extending outwardly from near the lower end of one of said curved plates and in position to be engaged by the end of one of said arms of said hand-lever, substantially as specified.

604,584. ADHESIVE COMPOUND AND PROCESS OF PRODUCING SAME. CHARLES M. HIGGINS, Brooklyn, N. Y. Filed Oct. 6, 1897. Serial No. 654,205. (No specimens.)

Claim.—1. The described process of making an adhesive compound, viz., dissolving or combining dextrine with an alkaline solvent and then adding boracic acid until neutrality is nearly or actually reached or exceeded, substantially as herein set forth.

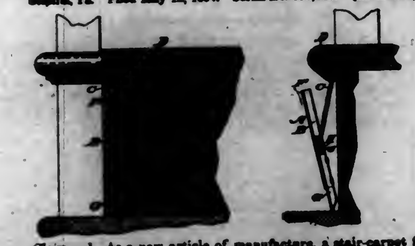
2. The described process of making an adhesive compound, viz., dissolving dextrine in a cold alkaline solution and then adding boracic acid until neutrality is nearly or actually reached or exceeded, substantially as herein set forth.

3. A dextrine paste or mucilage formed by the combination with a dilute caustic alkali and with dextrine dissolved therein, of boracic acid added thereto till neutrality is nearly or actually reached or exceeded, substantially as set forth.

4. A dextrine paste or mucilage formed by the combination with solvent water and dextrine dissolved therein, of the ingredients of borax combined therewith in proportion of about five or more per cent. of the weight of the dextrine and having the acid and alkali in such proportions that some of the boracic acid remains in excess, giving an alkalinity to the compound less than borax, substantially as and for the purpose set forth.

5. A dextrine paste or mucilage formed by the combination with a dilute alkali and dextrine dissolved therein, with boracic acid added thereto in such proportions as to give an alkaline reaction less than borax, substantially as herein set forth.

604,585. STAIR-CARPET FASTENER. JOHN S. JARDINE, Philadelphia, Pa. Filed May 12, 1897. Serial No. 634,143. (No model.)

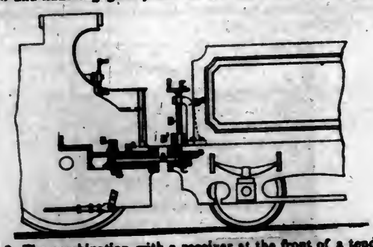


Claim.—1. As a new article of manufacture, a stair-carpet fastener consisting of a bar formed of sections longitudinally movable and adjustable on each other, a rod pointed at its outer end and pivoted at its inner end to one of said sections intermediate of the ends thereof, the outer end of the other section being pointed, and means on the back of said bar and rod adjustably coupling said sections, said bar inclosing said rod and the coupling means and concealing the same.

2. A bar formed of sections adjustably connected, a rod pivoted to one section of said bar, a dog on the pivotal end of said rod, and a ratchet on the other section of said bar, adapted to be engaged by said dog, the outer end of said rod, and the end of the section opposite to said rod having spurs thereon.

604,586. CAR-COUPLING. MARY A. KNOWLES, Bolden, England. Filed Nov. 1, 1897. Serial No. 657,060. (No model.) Patented in England Dec. 17, 1896, No. 26,926.

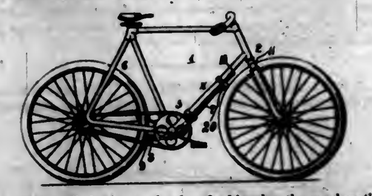
Claim.—1. The combination, with a stationary bracket, a vertically-slidable bracket, and guides for the said slidable bracket; of a revolvable screw engaging with both the said brackets, coupling-pins carried by the said slidable bracket and screw respectively, and a receiver and links engaged by the said pins, substantially as set forth.



2. The combination, with a receiver at the front of a tender, of a rod extending under the tender and connected to the carriage behind it, a retractable pin coupling the said rod and receiver, and a support on said carriage preventing the said rod from striking the ground when no longer supported from the tender, substantially as set forth.

3. The combination, with receivers attached to two adjacent carriages, and a coupling-bar connecting the two receivers; of a rod N supported by the receiver on the front carriage, means for disengaging the said bar and rod at one operation from the receiver to which they are connected, a block carried by the said rod, and flexible connections attached to the said block and to the rear carriage, whereby the block falls in front of the wheels of the rear carriage when the said rod and bar are disengaged from the receiver on the front carriage, substantially as set forth.

604,587. BICYCLE-BRAKE. PETER KERN, Shawnee, Ohio. Filed May 26, 1897. Serial No. 638,302. (No model.)



Claim.—In brake mechanism for bicycles, the combination with the bicycle-frame, of a pivot-clamp engaging the reach-bar thereof adjoining the crank-hanger; a guide-clamp also engaging the reach-bar at a point adjoining the front fork thereof and provided with guide-arms, a brake-lever fulcrumed to the said pivot-clamp and moving between the guide-arms of the guide-clamp and provided at one end with a heel-rest having position adjoining the front fork of the bicycle and at the other end thereof with a horizontal extremity provided with a brake-shoe adapted to bear against the rear-wheel tire, and a spring connecting between the guide-clamp and the brake-lever and serving normally to press the upper or operative end of the lever upward and thereby throw the brake-shoe out of engagement with rear-wheel tire, substantially as described.

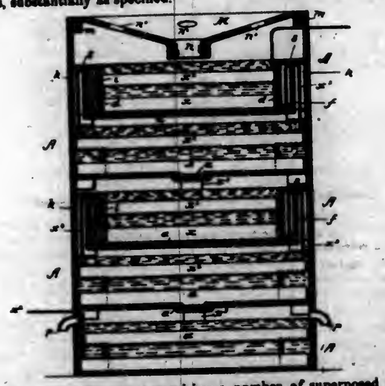
604,588. STORAGE BATTERY. HERBERT S. LLOYD, Philadelphia, Pa. Filed Dec. 28, 1896. Serial No. 616,711. (No model.)

Claim.—1. A battery-cell comprising a vessel having vertically-disposed passages *k k'* formed by partitions, *c*, *c'*, *c²*, *c³*, *d*, *f*, arranged at the sides of the vessel for the escape of any excess of electrolyte and for the passage of the connecting wires or strips.

2. The combination in a battery-cell of the open-top vessel of non-conducting material, electrode-supports and overflow-partitions in said cell forming passages arranged to allow of the flow of excess of electrolyte into the cell immediately below, and lugs or ribs on the lower surface of said vessel adapted to act as guides in superposing a number of said vessels.

3. The combination in a battery-cell, of the open-top vessel of non-conducting material, vertically-disposed passages formed by partitions, *c*, *c'*, *c²*, *c³*, *d* arranged on each side of the same, a central mercury-trough in the bottom of said vessel, partitions, *f*, extending between the partitions, *c'*, *c³*, said partitions, *f*, having their tops on a level below the tops of the remaining partitions, electrode-supports within the vessel, and guiding lugs or blocks on the bottom of said vessel, substantially as specified.

4. A series battery comprising a number of superposed cells, overflow-partitions in each cell communicating with an opening in the bottom of said cell, and arranged to form passages for the overflow of the excess of electrolyte into the cell below, electrode-supports in said cells, and connecting wires or strips extending between adjacent cells, substantially as specified.



5. A series battery comprising a number of superposed cells, forming passages arranged to allow of the flow of excess of electrolyte from said cell, overflow-partitions in each cell and connecting-strips extending from opposite sides of the upper electrode of one cell through one of said passages and over one of said partitions to the lower electrode of the cell immediately above it, substantially as specified.

6. A series battery comprising a number of superposed and connected cells, troughs containing mercury in the bottom of each cell in contact with the lower electrode, the conducting wires or strips extending from the upper electrode of one cell to the mercury of the cell immediately above it.

604,589. EYELET-HOLE-FINISHING DEVICE. JAMES R. MORAN, New Haven, Conn. Filed Jan. 31, 1896. Serial No. 577,516. (No model.)

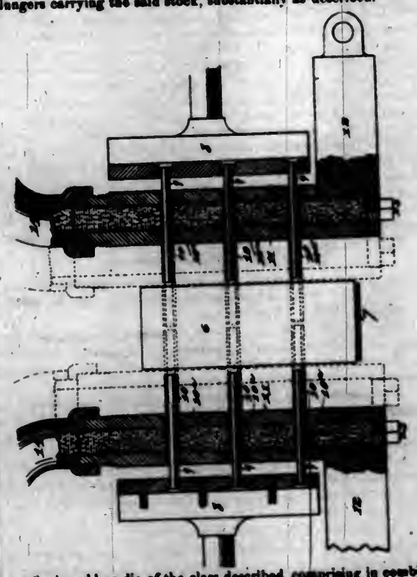


Claim.—In an eyelet-finishing device, the combination with the handle member *a*, carrying at its front end the tubular socket *b* that extends below the handle member *a* and provided with the downwardly and forwardly projecting bracket *d*, upon which is secured the convex and centrally-recessed die *f*, of the stem *c* loosely mounted in said tubular socket and carrying at its lower end the concave die *h* and punch *k*, the handle member *c* having a pivotal bearing upon said bracket and carrying at its front end a fork which engages a reduced portion of the stem *c*, below the socket *b*, and spring *m*, arranged and operating substantially as described, whereby sufficient space is provided between the fork and the female die, for the purpose set forth.

604,590. MOLD OR DIE FOR PLASTIC SUBSTANCES. PEARSON P. MCCOLL, Brooklyn, N. Y. Filed May 3, 1897. Serial No. 634,602. (No model.)

Claim.—1. The herein-described apparatus for impregnating a solid or semisolid body with material having a distinguishing characteristic comprising in combination a reservoir to contain the impregnating material, a hollow needle in communication with the reservoir and receiving impregnating material therefrom, means for imparting relative movement of the needle and the solid or semisolid body, whereby to cause the needle to penetrate the body, and a plunger contained and reciprocating within the needle whereby the impregnating material is ejected and caused to enter the openings in the body produced by the penetration of the needle, substantially as described.

2. The herein-described apparatus for impregnating a solid or semisolid body with material having a distinguishing characteristic comprising in combination a reservoir adapted to contain the impregnating material under pressure and having a series of needles affixed thereto and communicating therewith, the reservoir and needles and the body to be impregnated having relative movement to cause the needles to penetrate the body, a reciprocating stock and a series of plungers carrying the said stock, substantially as described.



3. A mold or die of the class described, comprising in combination a movable reservoir, hollow needles connected thereto, and plungers reciprocating within said needles, and said reservoir being adapted for pressure connection, substantially as described.

4. An apparatus of the class described, comprising in combination oppositely-movable reservoirs or holders adapted to hold a fluid or semifluid material under pressure, hollow needles carried by said holders and extending across the interiors thereof with apertures communicating with said interiors, reciprocating stocks having plungers slidably mounted within said needles and means for reciprocating said holders or reservoirs with their needles and said stocks with their plungers both simultaneously and independently, substantially as described.

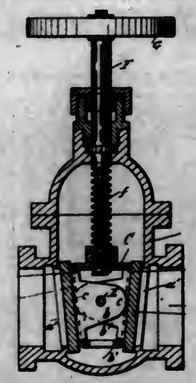
604,591. APPARATUS FOR MANUFACTURING RAILROAD-SPIKES. HERMANN C. ROMPF, Dahlhausen, Germany. Filed Oct. 1, 1896. Serial No. 607,541. (No model.) Patented in Hungary Aug. 13, 1896, No. 7,123; in England Aug. 14, 1896, No. 18,004; in France Aug. 14, 1896, No. 256,899; in Belgium Aug. 14, 1896, No. 123,031, and in Austria Sept. 18, 1896, No. 45/3,603.



Claim.—In a machine for severing a blank into nails or spikes, the combination with a fixed and a movable die having alternate projections and depressions adapted to register with each other, the surfaces of the projections and depressions of one of said dies being serrated to impart their contour to the nails or spikes while being severed, substantially as set forth

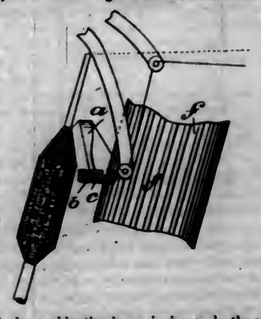
604,592. VALVE. HENRY J. SCHMITT, Hoboken, and RUSSELL BOSELL, Elizabeth, N. J. Filed Dec. 27, 1897. Serial No. 663,607. (No model.)

Claim.—1. The combination, with a valve-casing provided with seats, of a hollow carrier, and disks provided with lugs which have shoulders arranged near the peripheries of the disks and engaging pivotally with the carrier, the lugs on each disk being arranged to overlap the lugs on the other disk and to bear against its central portion, whereby both disks are pressed uniformly upon the said seats, substantially as set forth



2. The combination, with a valve casing provided with seats, of a hollow carrier, disks provided with lugs which have shoulders arranged near the peripheries of the disks and engaging pivotally with the carrier, the lugs on each disk being arranged to overlap the lugs on the other disk and to bear against its central portion, and a pin passing loosely through holes in two of the said lugs and the side of the carrier and preventing the disks from falling apart from the carrier when the carrier is removed from the valve-casing, substantially as set forth.

604,593. YARN-GUIDE FOR SPINNING-MULES. JOHN D. WHITE, Urmston, England, assignor of one-fourth to Henry Stafford Golland, Worsley, England. Filed Aug. 27, 1897. Serial No. 649,706. (No model.) Patented in England Oct. 17, 1896, No. 23,060.



Claim.—1. In combination in a spinning-mule, the spindle for the bobbin, the winding-faller wire and means between the winding-faller wire and the spindle engaging the yarn with means for giving the same a vibrating motion to produce cross-winding, substantially as described.

2. In combination in a spinning-mule, the spindle for the bobbin, the winding-faller, and a double incline between the winding-faller and the spindle with means for traversing the said incline across the path of the yarn whereby said yarn will be raised and lowered to produce cross-winding, substantially as described

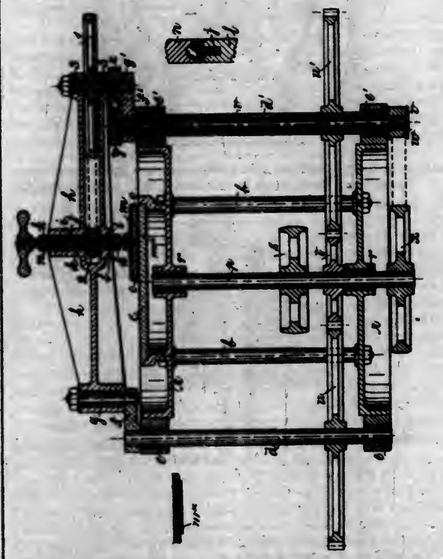
3. In combination, the spindle, the winding-faller and a series of double inclines between the spindle and winding-faller with means for traversing the double inclines across the path of the yarn and in contact therewith to produce cross-winding, substantially as described.

4. In combination, the spindle, the winding-faller, the device between the faller and the spindle with means for moving the same across the path of the yarn and in contact therewith, said device comprising inclines and means for moving the device up and down, substantially as described.

5. In combination, the spindle, the winding-faller, the double inclines between the winding-faller and the spindle, means for traversing said inclines, the reciprocating carrier for the inclines, the slideway in which the carrier moves and means for reciprocating said carrier, substantially as described.

6. In combination, the spindle, the winding-faller, the double inclines between the same and the spindle, the carrier *b* for said inclines having gear-teeth thereon, and the pinion *f* for moving the carrier, means for actuating said pinion *f*, substantially as described.

604,594. MACHINERY FOR GRINDING AND POLISHING STEEL BALLS. WILLIAM WOOLF, Birmingham, and ALBERT BROWN and JAMES R. RICHARD, London, England. Filed Mar. 4, 1898. Serial No. 672,597. (No model.)



Claim.—1. The combination, in a ball grinding and polishing machine, of a frame A and lower grinding-plate *c*, central driving-shaft *p*, side shaft *d*, hollow side shaft *d'*, and driving-gear *t*, *u*, *w*, cranks *f*, *f'*, connecting-rod *h*, bracket *i*, bearings *k* and spindle *l* carrying grinding-disk *m* with rim *o*, inner shaft *r*, pulley *w*, and driving-pulley *x*, pulley *y*, spindle *g'* turning in crank *f'* and in bearings 3, 3, pulley *z* driven by pulley *y*, and pulley 1 driving pulley 2 on spindle *l*, all substantially as set forth.

2. In combination, the table *c*, the disk *m*, the spindle *l* carrying the disk, the supporting means carrying bearings in which the spindle *l* is journaled and means for adjusting the disk *m* toward and from the disk *c* comprising a screw *n* arranged in line with the spindle and the pin having a spherical head forming the connection between the end of the spindle and the screw, substantially as described.

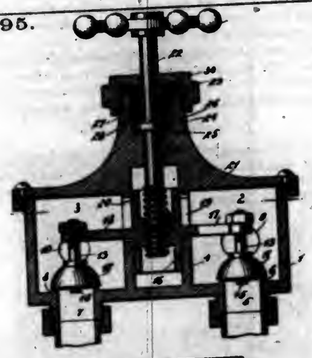
3. In combination with the table *c*, the grinding-disk *m* having a projecting rim *o* and arranged with a space between its plain face and a similar face on the table *c* and the frame having arms with a pin connecting it to the disk *m*, said frame being located between the plain face of the table and disk and within the space bounded by the projecting rim, substantially as described.

4. In combination, the table, the grinding-disk carrying the same, the movable bar *h* carrying the shaft of the grinding-disk, the cranks connected to the bar for operating the same and means for rotating the disk carried by the movable bar and having connection with one of the crank-shafts, said rotating means comprising the pulleys 1 and 2, the crank-pin *g'* and the pulleys *z*, *y*, with connections between the pulleys 1 and 2 and between the pulleys *z*, *y*, substantially as described.

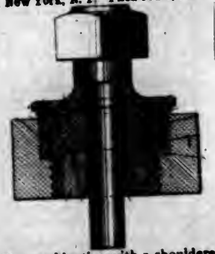
604,595. VALVE. MATHEW ABT, New York, N. Y. Filed Sept. 3, 1897. Serial No. 650,477. (No model.)

Claim.—A valve comprising a casing having two chambers, a tubular guide separating the chambers and having opposite slots, a nut movable in the guide and forming a closure for the slots, arms integral with the nut and extended through the slots of the guide, valves adjustably connected to said arms for controlling inlet and outlet openings, a screw-rod engaging with the nut and means for holding said rod from longitudinal movement, substantially as specified.

604,595.



604,596. TAPPING APPARATUS. ANDREW BERGER and HENRY HILDENBRAND, New York, N. Y. Filed Oct. 7, 1897. Serial No. 654,463. (No model.)



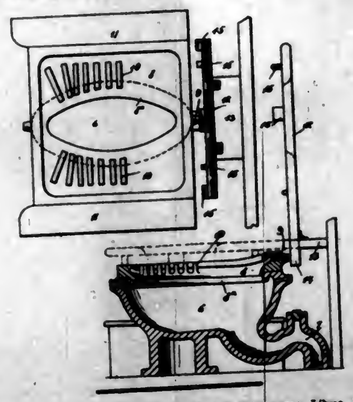
Claim.—1. The combination with a shouldered bushing screwed in the head of the barrel and provided with cam-shaped projections in its outer enlarged portion, a webbed wooden plug driven into the inner smaller part of the bushing, a faucet-piece provided with a circumferential flange, a cylindrical portion adjacent thereto, provided with cam-shaped projections adapted to engage the projections in the bushing, a tapering portion adjacent to said cylindrical portion and an enlarged head at the outer end of the faucet-piece, an elastic washer or gasket interposed between the outer edge of the bushing and the circumferential flange of the faucet-piece, a stuffing-box at the outer end of the faucet-piece, and a discharge-pipe guided in said stuffing-box and provided with a stop-cock, substantially as set forth.

2. The combination with a bushing located in the head of the barrel, said bushing being provided with a shoulder so as to form an outer larger and inner smaller portion, cam-shaped projections in the outer larger portion, a webbed wooden plug driven into the inner portion of the bushing, a faucet-piece provided with a circumferential flange, a cylindrical portion adjacent to said flange provided with cam-shaped projections corresponding in size to the space between the cam-shaped projections in the bushing, a conically-tapering portion adjacent to the cylindrical portion of the faucet-piece, and a head at the outer end of the faucet-piece, a stuffing-box at the outer end of the faucet-piece, a gasket interposed between the outer edge of the bushing and the circumferential flange on the faucet-piece, a short tubular portion on the outer end of the faucet-piece for connection with the air-pump, and a discharge-pipe passing through the bore of the faucet-piece and provided with a stop-cock at its outer end, said discharge-pipe being of slightly less diameter than the interior bore of the faucet-piece so as to provide an annular space for the ingress of air to the interior of the barrel, substantially as set forth.

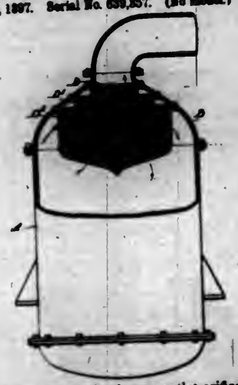
604,597. PRIVY-STOOL. WILLIAM G. BLISS, Constantinople, Turkey. Filed Dec. 29, 1897. Serial No. 664,290. (No model.)

Claim.—1. A privy-stool having a basin, a pan or tray mounted on the basin and having an opening registering with the basin, the pan or tray being extended horizontally beyond the sides of the basin and having a smooth top surface inclined gradually toward the opening in the pan or tray, two series of parallel ribs formed on the top surface of the pan or tray at the horizontally-extended portions thereof and located one series at each side of the opening therein, such ribs forming raised gratings on which the feet of a person may rest, and a weighted seat horizontally mounted adjacent to the basin and normally extending perpendicularly to expose the pan or tray, the seat being capable of swinging downward to cover the pan or tray.

2. A privy-stool having a basin, a pan or tray mounted on the basin and having an opening registering with the basin, the pan or tray being extended horizontally beyond the sides of the basin and having a smooth top surface inclined gradually toward the opening in the pan or tray, and two series of parallel ribs formed on the top surface of the pan or tray and at the horizontally-extended portions thereof and located one series at each side of the opening therein, such ribs forming raised gratings on which the foot of a person may rest.



604,598. VACUUM-PAN. HENRY G. BOWELL, Lihue, Hawaii. Filed June 8, 1897. Serial No. 639,857. (No model.)



Claim.—A vacuum-pan having an outlet-orifice, and a plurality of depending cup-shaped screens fitting one within the other and spaced apart from each other, the screens being foraminous at the bottom and sides and arranged under the said orifice and within the vacuum-pan, whereby vapors passing from the pan will be separated from the liquids that may be suspended therein.

604,599. THREAD OR YARN GUIDE. HOWARD W. BRACKETT, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Dec. 31, 1897. Serial No. 664,810. (No model.)

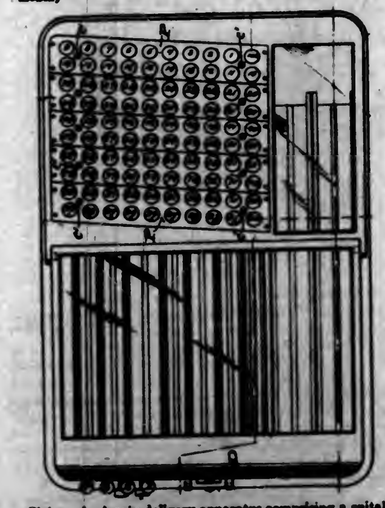


Claim.—1. A thread or yarn guide comprising a jaw having two separated parallel clearing-faces, an opposed jaw having its clearing-face between the planes of the said separated faces, and means to vary the distance laterally between the parallel faces.

2. A thread or yarn guide comprising an open jaw having a plurality of separated, parallel clearing-faces, means to vary the distance laterally between said clearing-faces, and an opposed jaw having a cooperating clearing-face.

3. A yarn or thread guide comprising a jaw having a plurality of independent, adjustable clearing portions and provided with an attaching-foot, means to adjust said clearing portions toward and away from each other, an opposed jaw having an arm to cooperate with said foot, and means to secure said arm and foot together and to vary the space between the acting faces of the jaws.

604,600. COIN-DELIVERY APPARATUS. EDWARD J. BRANDT, Watertown, Wis. Filed July 26, 1897. Serial No. 645,967. (No model.)



Claim.—1. A coin-delivery apparatus comprising a suitable casing, a series of inclined coin-chutes in the casing, a notched plate at the lower ends of the chutes constituting a temporary stop for the coin, a coin follower in each of said chutes, suitably-arranged permanently-located spring-controlled drums in flexible strap connection with the coin-followers, and pusher mechanism operative to lift coin from the chutes into register with notches of the aforesaid plate, these notches being of such contour and dimension as will permit escape of the lifted coin.

2. A coin-delivery apparatus comprising a suitable casing, a series of inclined coin-chutes in the casing, a notched plate at the lower ends of the chutes constituting a temporary stop for the coin, a coin follower in each of said chutes, suitably-arranged permanently-located spring-controlled drums in flexible strap connection with the coin-followers, a pusher mechanism operative to lift coin from the chutes into register with notches of the aforesaid plate, and deflectors for the lifted coin, said notches being of such contour and dimensions as will permit escape of said lifted coin.

3. A coin-delivery apparatus comprising a suitable casing, a series of inclined coin-chutes in the casing, a suitably-notched plate at the lower ends of the chutes constituting a temporary coin-stop, a coin-follower in each of said chutes, suitably-arranged permanently-located spring-controlled drums in flexible strap connection with the coin-followers, a series of lever-controlled pushers operative to eject coin from the aforesaid chutes, and lever-actuating mechanism comprising a series of rockers and a series of reciprocative edgewise plates having foot operative on the rockers.

4. A coin-delivery apparatus comprising a suitable casing, a series of inclined coin-chutes in the casing, a suitably-notched plate at the lower ends of the chutes constituting a temporary coin-stop, a delivery-chute in front of the plate, a coin-follower in each of said chutes, suitably-arranged permanently-located spring-controlled drums in flexible strap connection with the coin-followers, a series of lever-controlled pushers operative to eject coin from the aforesaid chutes, and lever-actuating mechanism comprising a series of rockers and a series of reciprocative edgewise plates having foot operative on the rockers.

5. A coin-delivery apparatus comprising a suitable casing, a series of inclined coin-chutes in the casing, a suitably-notched plate at the lower ends of the chutes, constituting a temporary coin-stop, a coin-follower in each of said chutes, suitably-arranged permanently-located spring-controlled drums in flexible strap connection with the coin followers, a series of lever-controlled pushers operative to eject coin from certain of the chutes, lever-actuating mechanism comprising a series of rockers and a series of reciprocative edgewise plates having foot operative on the rockers, other lever-controlled pushers operative to eject coin from the remaining chutes of the series, and a multiple lever-and-trip mechanism operative in conjunction with the latter pushers.

6. A coin-delivery apparatus comprising a series of inclined coin-chutes, a suitably-notched plate at the lower ends of the chutes constituting a temporary coin-stop, an automatic pressure-exerting coin-follower in each of said chutes, a series of lever-controlled pushers operative to eject coin from the aforesaid chutes, lever-actuating mechanism comprising a series of rockers and a series of reciprocative edgewise plates having foot operative on the rockers, and a longitudinally-reciprocative crank-controlled plate provided with stop-lugs arranged to be brought in opposition to pusher-levers.

7. A coin-delivery apparatus comprising a series of inclined coin-chutes, a suitably-notched plate at the lower ends of the chutes constituting a temporary coin-stop, an automatic pressure-exerting coin-follower in each of said chutes, a series of lever-controlled coin-pushers operative to eject coin from certain of the chutes, lever-actuating mechanism comprising a series of rockers and a series of reciprocative edgewise plates having foot operative on the rockers, other lever-controlled pushers operative to eject coin from the remaining chutes of the series, a multiple lever-and-trip mechanism operative in conjunction with the latter pushers, and a longitudinally-reciprocative crank-controlled lock-plate for all the pusher-levers.

8. A coin-delivery apparatus comprising a series of inclined coin-chutes, a suitably notched and slotted plate at the lower ends of the chutes constituting a temporary coin-stop, an automatic pressure-exerting coin-follower in each of said chutes, a series of adjustable lever-controlled pivotal coin-pushers engaging the plate-slots, and suitable mechanism for operating single levers and combinations of levers.

9. A coin-delivery apparatus comprising a series of inclined coin-chutes, a suitably notched and slotted plate at the lower ends of the chutes constituting a temporary coin stop, an automatic pressure-exerting coin-follower in each of said chutes, a system of levers, coin-pushers having pivotal spring-controlled connection with the levers and engaged with the plate-slots, a spring-plate secured at one end to each coin-pusher and provided with lateral ears opposing the plate aforesaid, a set-screw adjustable in the spring-plate to bear against the corresponding coin-pusher, and suitable mechanism for operating single levers and combinations of levers.

10. A coin-delivery apparatus comprising a series of inclined coin-chutes, a suitably notched and slotted plate at the lower ends of the chutes constituting a temporary coin-stop, an automatic pressure-exerting coin-follower in each of said chutes, a series of lever-controlled pivotally-adjustable coin-pushers engaging the plate-slots, suitable mechanism for operating single levers and combinations of levers, and a longitudinally-reciprocative crank-controlled lock-plate for said levers.

11. A coin-delivery apparatus comprising a series of inclined chutes, a temporary coin-stop in each of said chutes, a series of lever-controlled coin-pushers, suitable mechanism for operating single levers and combinations of levers, and other suitable mechanism operative to throw one or more coin-pushers of a combination out of working position.

12. A coin-delivery apparatus comprising a series of inclined coin-chutes, a temporary coin-stop at the lower end of each chute, an automatic power-exerting coin-follower in each of said chutes, a series of spring controlled pivotally-adjustable coin-pushers, suitable mechanism for operating single coin-pushers and combinations of the same, and other suitable mechanism operative in conjunction with certain of said coin-pushers to throw the same out of working position.

13. A coin-delivery apparatus comprising a series of inclined coin-chutes, a temporary coin-stop at the lower end of each chute, an automatic power-exerting coin-follower in each of said chutes, a series of spring-controlled pivotal coin-pushers, suitable mechanism for operating single coin-pushers and combinations of the same, and spring-controlled push-pins operative in conjunction with certain of said coin-pushers to throw the same out of working position.

14. A coin-delivery apparatus comprising a series of inclined coin-chutes, a temporary coin-stop at the lower end of each chute, chute-engaging coin-followers, flexible straps connected to the coin-followers and trained on pulleys through apertures in the chute-bottoms, spindles journaled in bearings under said chutes, loose drums on the spindles in connection with the straps, spiral springs on said spindles connecting the latter with said drums, and suitable means for dislodging coin from the lower ends of the aforesaid chutes.

15. A coin delivery apparatus comprising a series of inclined coin-chutes, a temporary coin-stop at the lower end of each chute, chute-engaging coin-followers, spindles journaled in bearings under the chutes, loose drums on the spindles in flexible strap connection with the coin-followers, spiral springs on the spindles connecting the

latter with said drums, stops for retaining said spindles in rotary adjusted position to vary spring tension, and suitable means for dislodging coin from the lower ends of the aforesaid chutes.

16. A coin-delivery apparatus comprising a series of inclined coin-chutes, a temporary coin-stop at the lower end of each chute, chute engaging power-exerting coin-followers, a fulcrum-rod, a series of levers supported on the rod and provided with rear crank-rod extensions, a series of rockers operative on the said lever extensions, reciprocative edgewise plates having feet operative on the rockers, and pushers having pivotal spring-controlled connection with forward ends of the levers under coin in the lower ends of the aforesaid chutes.

17. A coin-delivery apparatus comprising a series of inclined coin-chutes, a temporary coin-stop at the lower end of each chute chute-engaging power-exerting coin-followers, a series of levers having a common fulcrum, crank-rods extended rearward from certain of the levers, rockers operative on the crank-rods, reciprocative edgewise plates having feet operative on the rockers, the remainder of the levers provided with spring-controlled rear rod extensions, a pusher having spring-controlled pivotal connection with each lever under coin in the lower ends of the aforesaid chutes, a coin-pusher trip device on the fulcrum-rod, and a system of multiple levers operative in conjunction with the trip and those of the aforesaid levers provided with spring-controlled rod extensions, the working faces of the pushers in connection with the latter levers being of width approximating the thickness of a plurality of coin.

18. A coin-delivery apparatus comprising a pair of inclined coin-chutes, a temporary coin-stop at the lower end of each chute, chute-engaging power-exerting coin-followers, levers carrying spring-controlled pivotal pushers each of which opposes two coins at the lower end of a chute, a tripper operative to bring one of the pushers out of opposition to the innermost coin normally in line therewith, and a series of four tilt-levers operative in conjunction with the tripper and aforesaid levers to effect an ejection of one, two, three or four coins from the aforesaid chutes.

19. A coin-delivery apparatus comprising a pair of inclined coin-chutes, a temporary coin stop at the lower end of each chute, chute-engaging power-exerting coin-followers, a pair of levers carrying spring-controlled pivotal pushers arranged to oppose two coins at the lower end of a chute, a tripper operative to bring one of these pushers out of opposition to the innermost coin normally in line therewith, a tilt-lever operative to actuate the tripper and that one of the pusher-levers carrying the tripped coin-pusher, a second tilt-lever operative to actuate said pusher-lever independent of the tripper, a third tilt-lever operative to actuate said tripper and both pusher-levers, and a fourth tilt-lever operative to actuate both pusher-levers independent of the tripper.

20. A coin-delivery apparatus comprising a suitable casing, a series of inclined chutes in the casing, a temporary coin-stop, at the lower end of each chute, chute-engaging power-exerting coin-followers, a system of levers carrying pushers operative to eject coin from said chutes, a series of lever-actuating rockers, edgewise plates having feet operative on the rockers, spring-controlled push-pins connected to the plates in successive series, and a pair of suitably spaced and connected horizontal guide-plates for each series of pins, the upper guide plate in each pair constituting a top section of said casing.

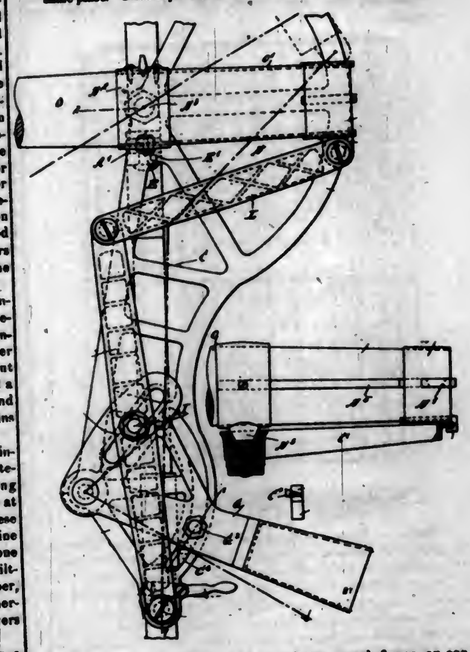
21. A coin-delivery apparatus comprising a series of inclined chutes, a temporary coin-stop at the lower end of each chute, chute-engaging power-exerting coin-followers, ejector mechanisms operative on single coin and combinations of coins, and stop-ears extending inward from walls of each chute in opposition to the coin next in rear of a predetermined number in position to be acted upon by ejector mechanism.

22. A coin-delivery apparatus comprising a series of inclined chutes, a temporary coin-stop at the lower end of each chute, chute-engaging power-exerting coin-followers, ejector mechanisms operative on single coin and combinations of coins, and chute-wall noses arranged to oppose foremost coin of each column and skew the same as it clears the temporary stop incidental to action of ejector mechanism.

23. A coin-delivery apparatus comprising a series of inclined chutes, a temporary coin-stop at the lower end of each chute, chute-engaging power-exerting coin-followers, ejector mechanisms operative on single coin and combinations of coins, stop-ears extending inward from chute-walls in opposition to the coin next in rear of a predetermined number in position to be acted upon by ejector mechanism, and chute-wall noses arranged to oppose foremost coin of each column and skew the same as it clears the temporary stop incidental to action of ejector mechanism.

24. A coin-delivery apparatus comprising an inclined coin-chute, a temporary coin-stop at the lower end of the chute, a chute-engaging power-exerting coin-follower, a pivotal pusher in normal opposition to two coins in the lower end of the chute, a tripper operative to bring the pusher out of opposition to the innermost coin normally in line therewith, a spring-controlled finger arranged to resist frictional lift of the latter coin, suitable mechanism for effecting joint action of the tripper and pusher, and other suitable mechanism for actuating the pusher independent of the tripper.

604,601. BOW-FACING OAR. THOMAS H. BROSNIHAN, Livermore Falls, Me., assignor to Frank A. Millett and Thomas H. Brosnihan, same place. Filed Sept. 14, 1897. Serial No. 651,644. (No model.)



Claim.—1. A bow-facing oar, comprising a rock-frame, an oar-holder pivoted on the said frame, a handle pivoted on the frame a distance from the oar-holder, and a connection between the said handle and oar-holder, to impart a swinging motion to the oar-holder, the said connection comprising a lever fulcrumed on the rock-frame, and engaged by the said handle, and a link for connecting the free end of the lever with the said oar-holder, substantially as shown and described.

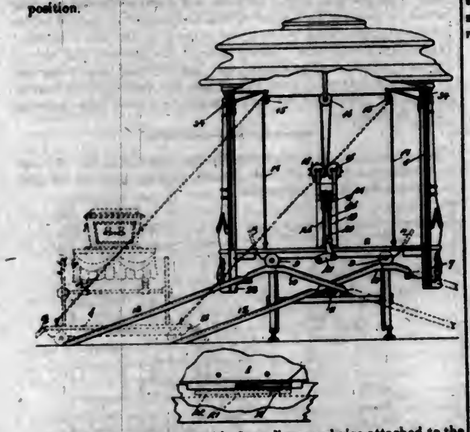
2. A bow-facing oar, comprising a rock-frame, an oar-holder mounted to swing on the said rock-frame, a link pivotally connected with the inner end of the said oar-holder, a lever fulcrumed on the said rock-frame, and connected at its free end with the said link, and a handle fulcrumed on the rock-frame, and provided with an angular slot engaged by a bolt carried by the said lever at or near the middle thereof, substantially as shown and described.

3. A bow-facing oar, comprising a rock-frame, an oar-holder mounted to swing on the said rock-frame, a link pivotally connected with the inner end of the said oar-holder, a lever fulcrumed on the said rock-frame, and connected at its free end with the said link, a handle fulcrumed on the rock-frame, and provided with an angular slot engaged by a bolt carried by the said lever at or near the middle thereof, and a bolt carried by the said handle, to engage a segmental guideway on the said frame, substantially as shown and described.

4. A bow-facing oar, provided with a rock-frame, brackets on which the rock-frame is mounted to swing, one of the brackets carrying for this purpose a fixed pivot-pin engaging a bearing on the rock-frame, and the other bracket carrying a removable pivot-pin engaging an eyebolt on the rock-frame, the bearing on the said rock-frame comprising a half bearing or pin fitted to slide vertically, and a lever fulcrumed on the frame, for lifting the said pin, as set forth.

604,602. FUNERAL-CAR. JAMES BURNS, Cincinnati, Ohio. Filed Sept. 18, 1897. Serial No. 652,140. (No model.)

Claim.—1. A car having a movable floor, and rails on which said floor may be moved from its position in the car to a position in proximity to the ground, the rails maintaining the floor in a horizontal position.



2. A car having a movable floor, lines or chains attached to the floor for raising the same, and rails on which the floor may move.

3. A railway-car having a movable floor, stationary rail-sections on which the floor normally rests, and movable rail-sections capable of connection with the stationary rail-sections and of extending outwardly and downwardly to the ground.

4. A car having a movable floor, lines or chains attached to the floor by which to raise the same, stationary rail-sections on which the floor is normally supported, and removable rail-sections capable of connection with the stationary sections and of extending outwardly and downwardly to the ground.

5. A railway-car having a panel sliding in one side thereof, and a removable sill whereon said panel bears.

6. A railway-car having a floor, a portion of which is capable of lateral movement in and out of the car, means whereon said portion of the floor is supported, and a panel forming part of the side of the car and slidable on the car to permit the displacement of said portion of the floor of the car.

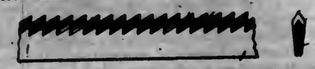
7. A railway-car having rails, a removable floor portion carried on said rails and movable in and out of the car, a removable sill held on the car, and a sliding panel normally sustained on the sill and capable of moving on and off the same to permit the displacement of said floor portion.

8. A railway-car having a removable floor portion, a series of stationary rail-sections whereon said portion may roll, and removable rail-sections capable respectively of attachment to the stationary rail-sections to form continuations thereof.

9. A railway-car having a removable floor portion, rails whereon said portion may roll to move in and out the car, and lines attached to the floor portion and supported on the car whereby to move the floor portion on said rails.

10. A railway-car having a removable floor portion, means whereon said portion is carried to roll in and out of the car, and a lever swinging on the stationary portion of the car and engaging the floor portion to start the same laterally.

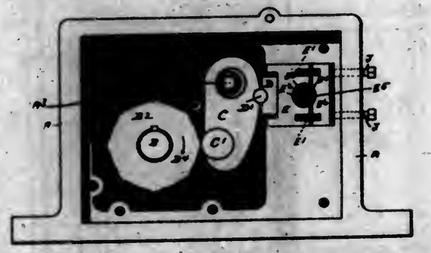
604,608. SAW. JOHN I. CARUTHERS, Ingleside, Tex. Filed Aug. 13, 1897. Serial No. 647,979. (No model.)



Claim.—A saw having the front sides of its teeth arranged at a slight incline relatively to the blade and the rear sides arranged at a greater incline, the said teeth being beveled outward from their longitudinal centers, the inner end of a tooth engaging with and terminating at a point between the inner and outer ends of the front portion of an adjacent tooth, substantially as specified.

604,604. WIRE-SWAGING MACHINE. LEMUEL OSGOOD, Worcester, Mass., assignor to the Washburn & Moen Manufacturing Company, same place. Filed July 6, 1896. Serial No. 598,093. (No model.)

Claim.—1. The combination with a pair of swaging-dies, of a sliding block arranged behind one of said dies, a pivoted lever operatively connected with said sliding block, a cam-wheel by which said lever is actuated to compress said dies, means for shifting the fulcrum of said lever and a stop-pin against which said lever is moved by the shifting of its fulcrum, whereby said lever is carried out of engagement with said cam-wheel, substantially as described.



2. The combination with a pair of swaging-dies of a lever pivoted at its upper end and hanging by gravity in a vertical plane between said dies and an actuating cam-wheel, a cam-wheel arranged to act against the lower end of said lever, means for operatively connecting said lever with one of said dies on the side opposite said cam-wheel and between the cam-wheel and the pivoted end of the lever, and means for moving the pivoted end of said lever away from said dies, substantially as described.

3. The combination with a fixed and movable swaging-die, of a pivoted lever operatively connected with said movable die, a cam-wheel by which said lever is actuated, means for shifting the fulcrum of said lever and a stop-pin against which said lever is moved by the shifting of said fulcrum, substantially as described.

4. The combination with a fixed and a movable die, of a sliding block bearing against said movable die and a pressure-plate capable of a sliding movement at right angles to the movement of said sliding block, a pivoted lever operatively connected with said pressure-plate, and a rotating cam-wheel by which said lever is actuated, substantially as described.

5. The combination with a pair of swaging-dies of a sliding block bearing against one of said dies, a pressure-plate bearing against the side of said sliding block and capable of a slight sliding movement thereon at right angles to the movement of said sliding block and provided with a semicircular recess, a pivoted lever having a semicircular recess opposite the recess in said pressure-plate, a cylindrical pin fitting said recess whereby said lever is operatively connected with said pressure-plate and a rotating cam-wheel by which said lever is actuated, substantially as described.

6. The combination of a pair of swaging-dies, a sliding block bearing against said dies to compress the same, a lever operatively connected with said sliding block and pivoted at one end upon a rotating spindle, a rotating spindle carrying said lever and journaled eccentrically in the frame of the machine, a cam-wheel arranged to act against the free end of said lever, a handle attached to said eccentric spindle, and means for determining the angular movement of said handle, substantially as described.

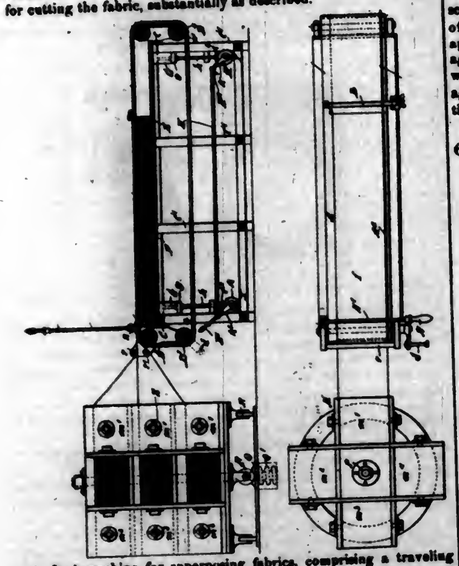
7. The combination with a pair of swaging-dies, of a lever pivoted at one end and operatively connected with one of said dies, a rotating cam-wheel for actuating said lever to close said dies, means for simultaneously moving the pivoted end of said lever away from said dies and its opposite end away from said cam-wheel, whereby said lever is rendered inoperative on said dies and at the same time moved out of engagement with said cam-wheel, substantially as described.

8. The combination with a pair of swaging-dies, of a sliding block, E, a pressure-plate D bearing against said sliding block and capable of a slight movement thereon, and provided with a semicircular recess, a lever C pivoted at its upper end upon a rotatable eccentric spindle journaled in the frame of the machine, said lever having a semicircular recess opposite the recess in said pressure-plate, a pin engaging both of said recesses, a cam-wheel having a series of radial projections acting against the free end of said lever, and a stop-pin H by which the free end of said lever is thrown out of engagement with said cam-wheel by the rotation of said eccentric spindle, substantially as described.

604,605. MACHINE FOR SUPERPOSING CLOTHS. HENRI E. COMMERAN, Lille, France. Filed May 21, 1897. Serial No. 637,640. (No model.) Patented in Belgium Feb. 15, 1897, No. 126,008, and in France May 3, 1897, No. 268,490.

Claim.—1. A machine for superposing fabrics, comprising a traveling apron having a solid or supporting portion and an open portion to allow the fabric to pass therethrough, a holder carried by the apron and adapted to engage the fabric, means for opening the

holder to release the fabric, means for operating the apron and means for cutting the fabric, substantially as described.



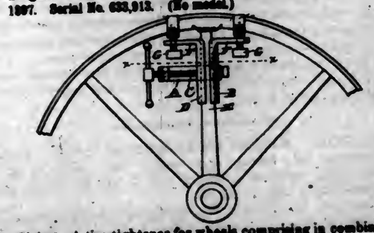
2. A machine for superposing fabrics, comprising a traveling apron having a solid or supporting portion and an open portion to allow the fabric to pass therethrough, a holder carried by the apron and adapted to engage the fabric, a stationary abutment adapted to collide with the holder for the purpose of opening the same and releasing the fabric, means for operating the apron, and means for cutting the fabric, substantially as described.

3. A machine for superposing fabrics, comprising a traveling apron having a solid or supporting portion and an open portion to allow the fabric to pass therethrough, a holder carried by the apron and adapted to engage the fabric, a normally stationary abutment adjustable longitudinally of the apron and adapted to collide with the holder for the purpose of opening the same and releasing the fabric, means for operating the apron, and means for cutting the fabric, substantially as described.

4. A machine for superposing fabrics, comprising a traveling apron having a solid or supporting portion and an open portion to allow the fabric to pass therethrough, a holder carried by the apron and adapted to engage the fabric, means for opening the holder to release the fabric, means for operating the apron, means for cutting the fabric, a table serving as a support for the fabric, and arranged adjacent to the apron, said table and apron being movable relatively to one another, and means for varying the distance between the table and the apron, substantially as described.

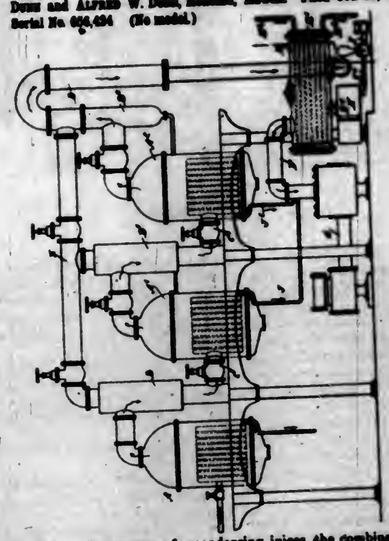
5. The herein-described stand for fabrics, the said stand being mounted to turn and having a series of circumferential compartments adapted to receive the fabrics, in combination with a movable spring-pressed stop or locking plate having a depression adapted to receive a projection on the stand proper, substantially as described.

604,606. TIRE-TIGHTENER. GEORGE M. DOERSCH, Antigo, Wis., assignor of one-half to Richard Koehler, same place. Filed Apr. 26, 1897. Serial No. 633,913. (No model.)



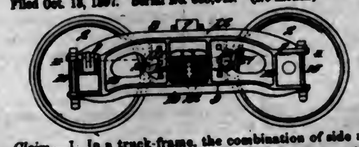
Claim.—A tire-tightener for wheels comprising in combination a clamp having two arms with concave inner surfaces to embrace a spoke of the wheel, each of said arms bent at its top at a right angle and there provided with a set-screw and a swiveled saddle on said screw, an open bar having curved ends and secured at one end to one of said clamping-arms, and provided at the other end with a threaded aperture, a threaded bolt passing through said aperture and bearing against the other clamping-arm, said bolt provided on its outer end with means to turn the same and to move the clamping-arms from or against the spokes and the saddles to and from each other, substantially as described.

604,607. VAPOR-CONDENSER FOR VACUUM-PANS. WILLIAM DUNN and ALFRED W. DUNN, Honiton, Devon. Filed Oct. 26, 1897. Serial No. 656,634. (No model.)



Claim.—In apparatus for condensing juices, the combination of a vacuum-pan, a pipe leading from the vacuum-pan downwardly, a surface condenser located beneath the vacuum-pan and having said pipe in communication with the bottom of the surface condenser, a pump located adjacent to the surface condenser and in communication therewith by means of a pipe running from the top of the surface condenser, a reservoir beneath the surface condenser and communicating with the bottom thereof, and a second pump, said second pump having communication with the reservoir.

604,608. TRUCK-FRAME. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Oct. 18, 1897. Serial No. 655,648. (No model.)



Claim.—1. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom; each side member consisting of a vertical web having upper and lower horizontal flanges and vertical flanges 14 connecting said horizontal flanges at the middle portion of the member, substantially as set forth.

2. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom; said side members each consisting of a web having upper and lower horizontal flanges and vertical flanges 13 and 14 connecting said horizontal flanges, substantially as set forth.

3. In a truck-frame, the combination of side members, a transom secured to the side members and provided with spring-seats, and a bolster carried by the transom; said side members consisting each of a web having upper and lower flanges connected by vertical flanges; said webs being cut away between said vertical flanges to permit the removal and renewal of the truck-springs, substantially as set forth.

4. In a truck-frame, the combination of side members an open-top transom, and a bolster fitting in the transom; said transom having sides, and ends adapted to fit against and be secured to said side members; said sides and ends being made in one integral casting, substantially as set forth.

5. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom; said transom having sides joined at the bottom by shelves to form seats to receive the bolster-springs, and said transom also having ends adapted to fit against and be secured to said side members, said sides, ends and shelves being formed in one integral casting, substantially as set forth.

6. In a truck-frame, the combination of side members, a transom, and a bolster carried by the transom: said transom having sides, open at bottom to permit the bolster to be raised from beneath, and said transom having ends adapted to fit against and be secured to the side members, said sides and ends being formed in one integral casting, substantially as set forth.

7. In a truck-frame, a transom having sides, and bottom shelves to form spring-seats, and having ends adapted to fit against the side members of the truck-frame: said sides, ends and shelves being formed in one integral casting, substantially as set forth.

8. In a truck-frame, a transom having sides, bottom shelves to form spring-seats, and end flanges adapted to fit against and be secured to the side members of the truck-frame: said sides, shelves and flanges being formed in one integral casting, substantially as set forth.

9. In a truck-frame, the combination of side members, having horizontal flanges and vertical ribs on the inner faces of their webs, and a transom having end flanges and adapted to fit between said flanges and ribs on the side members and occupying the entire space surrounded by said flanges and ribs, substantially as set forth.

10. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom; said transom having open ends, and said side members having vertical webs provided with openings registering with the open ends of the transom, whereby the bolster-springs may be removed and replaced through said openings, substantially as set forth.

11. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom said transom being formed with sides having horizontal flanges, an open top and spring-seats at the ends of its bottom, all made integral, substantially as set forth.

12. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom; said transom being formed with sides having horizontal and vertical flanges, an open top, and spring-seats at the bottom of each end of the transom, all made integral, substantially as set forth.

13. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom; said transom having sides, and open at the top to receive the bolster and having spring-seats, and said side members consisting of vertical webs and flanges, and having pockets over the journal-boxes to embrace the springs, substantially as set forth.

14. In a truck-frame, the combination of side members, a transom secured to the side members, and a bolster carried by the transom, said transom having lateral flanges at the ends, and said side members having vertical ribs on their inner faces against which said lateral flanges abut, substantially as set forth

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604,609. CAR-BOLSTER. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company. Filed Jan. 3, 1898. Serial No. 665,454. (No model.)



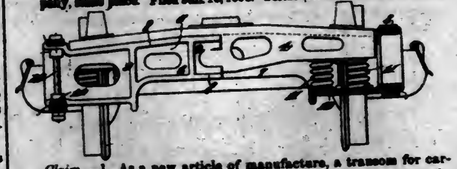
Claim.—1. A metallic bolster for railway-cars made in hollow box form with a top, sides and bottom, all made integral, the top being shaped to receive the center plate and side bearings, and the bottom being extended out and adapted to provide spring-seats, substantially as set forth.

2. A metallic bolster for railway-cars made in hollow box form with a top, sides and bottom all made integral, the top having a horizontal central part and sloping ends, and the bottom having sloping central portions and horizontal ends providing spring-seats, substantially as set forth.

3. A metallic bolster for railway-cars made in hollow box form with a top, sides and bottom all made integral, the sides being formed with grooves to receive hangers, and the bottom being extended out to provide spring-seats, substantially as set forth.

4. A metallic bolster for railway-cars made in hollow box form with a top, sides and bottom, formed flush with each other, all made integral, and the bottom being extended out to provide spring-seats, substantially as set forth.

604,610. TRANSOM FOR CAR-TRUCKS. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Jan. 10, 1898. Serial No. 666,174. (No model.)

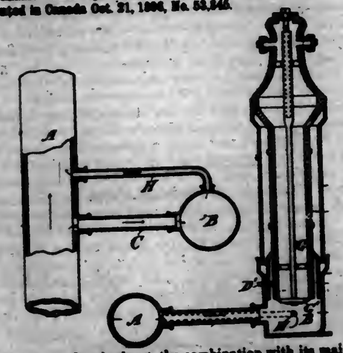


Claim.—1. As a new article of manufacture, a transom for car-trucks composed of sides having ends formed to receive the arch-bars of a truck-frame, and spring-seats located at the bottom of the sides near the ends all made in one integral casting, substantially as set forth.

2. As a new article of manufacture, a transom for car-trucks composed of sides having ends provided with grooves to receive the arch-bars of a truck-frame, and spring-seats located at the bottom of the sides near the ends all made in one integral casting, substantially as set forth.

3. As a new article of manufacture, a transom for car-trucks composed of sides having ends formed to receive the arch-bars of a truck-frame, perforated lugs or ears to receive the frame-bolts, and spring-seats located at the bottom of the sides near the ends, all made in one integral casting, substantially as set forth.

604,611. HYDRANT AND STAND-PIPE. LUDGER GRENIER, Hull, Canada. Filed Apr. 14, 1897. Serial No. 633,168. (No model.) Patented in Canada Oct. 21, 1896, No. 53,545.



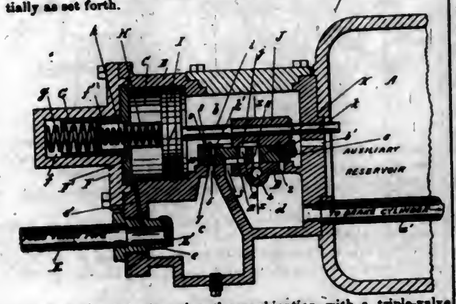
Claim.—1. In a hydrant, the combination with its main body, of a jacket at its lower end forming a space around said lower end and adapted to be secured to the base, a base into which said jacket is secured, a service-pipe connecting said base with the main and a circulating-pipe connecting said base with the main a little distance from said service-pipe, independently of the latter, substantially as set forth.

2. In a hydrant, the combination with the main body and the base of a jacket at the lower end of said main body closed at the top and open below and adapted to form an air-space around said lower end and said jacket forming the connection with said base or valve-chamber, substantially as set forth.

604,612. AIR-BRAKE VALVE. WINFIELD O. GORDON, Terre Haute, Ind., assignor of one-fifth to George W. Faris, same place. Filed Sept. 3, 1897. Serial No. 650,514. (No model.)

Claim.—1. In an air-brake valve, the combination, with a triple-valve casing provided with a faced plate; of an intermediate valve, said intermediate valve and faced plate being provided with ports 6 and 2 of different area for admitting air from the reservoir to the brake-cylinder and effecting two service steps of different suddenness, and a passage 12 and ports 5 and 3 for admitting air from the train-pipe to the brake-cylinder in an emergency stop, said passage 12 being formed separate from the port 6 and not communicating with it; and a separate valve for admitting air through the said port 6, substantially as set forth.

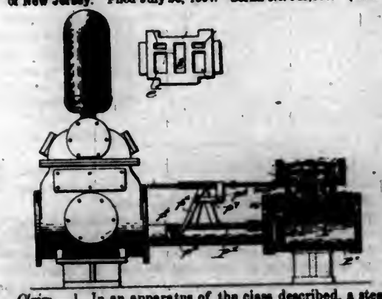
2. In an air-brake valve, the combination, with a triple-valve casing provided with a faced plate having a port 5 leading to the train-pipe, and ports 2 and 3 leading to the brake-cylinder; of an intermediate valve provided with a port 6 of less area than the said port 2, a passage 12 for connecting the ports 5 and 3, and a port 7 communicating with the port 5; a reservoir check-valve carried by the intermediate valve and normally covering the said port 7; and a separate valve for admitting air through the said port 6, the said ports 6 and 2 and the passage 12 operating respectively to effect two service stops of different suddenness and an emergency stop, substantially as set forth.



3. In an air-brake valve, the combination, with a triple-valve casing provided with a faced plate having ports 5 and 3 at one end, an admission-port 2 at its other end, and an exhaust-passage 4 between the ports 2 and 3; of an intermediate valve provided at one end with a port 6 smaller than said port 2 and communicating with it, said ports 2 and 6 effecting two stops of different suddenness, a passage 12 in its under face at its other end for connecting the said ports 5 and 3, said passage 12 having no connection with the port 2, a port 13 extending between its upper face and the passage 12, and an exhaust-port 11 extending through it between the ports 6 and 13; and a separate valve operating to uncover the port 6 and provided with an exhaust-cavity for connecting the said port 11 with the port 13 and passage 12, substantially as set forth.

4. In an air-brake valve, the combination, with a triple-valve casing provided with a faced plate having three ports, one of which is an inlet-port leading from the reservoir to the brake-cylinder; of an intermediate valve provided with an air-inlet port of less area than the said inlet-port, and having a passage for connecting the remaining two of the said ports which lead to the train-pipe and brake-cylinder respectively; and a valve for uncovering the said inlet-port of the intermediate valve and effecting an ordinary service stop, the three said ports of the faced plate and the said passage being arranged at such relative distances apart that the intermediate valve upon being moved in one direction operates first to uncover the said inlet-port of the faced plate and effects a more sudden service stop without connecting the brake-cylinder direct with the train-pipe, and subsequently connects the remaining two ports of the faced plate by means of the said passage thereby effecting an emergency stop, substantially as set forth.

604,618. DIRECT-ACTING STEAM-PUMP. ALBERT F. HALL, Boston, Mass., assignor to the Geo. F. Blake Manufacturing Company, of New Jersey. Filed July 26, 1897. Serial No. 645,885. (No model.)



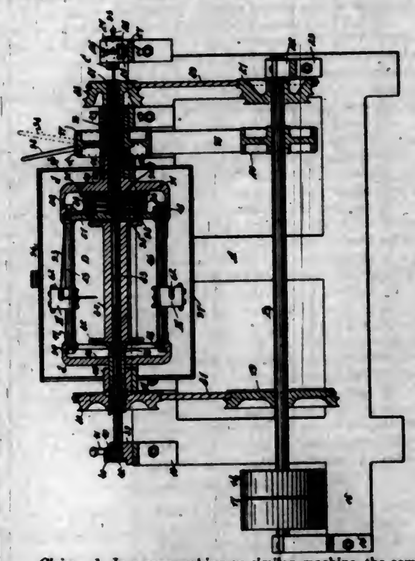
Claim.—1. In an apparatus of the class described, a steam-cylinder having large main steam-ports, a piston reciprocable in the cylinder, a movable valve-seat, a main valve, and small auxiliary steam-ports opening into the cylinder near the end thereof, adapted and arranged to admit a small quantity of steam at the beginning of the stroke to impart a gradual initial movement to the piston, substantially as described.

2. In an apparatus of the class described, a steam-cylinder, a reciprocating piston therein, and means including a movable valve-seat and a main valve, to admit a small quantity of steam to the cylinder at the beginning of the stroke and thereafter an independent larger quantity, and to cushion the piston at the end of the stroke, substantially as described.

3. In an apparatus of the class described, a steam-cylinder having main and auxiliary steam-ports, a reciprocating piston in the cylinder, a movable valve-seat and a cooperating main valve for said ports, whereby steam is admitted through both, and exhausted through the main port, and manually-controlled means to at times effect communication between said ports to permit a limited exhaust from the auxiliary into the main port, to regulate the amount of cushion, substantially as described.

4. In an apparatus of the class described, a steam-cylinder having main and auxiliary steam-ports, a reciprocating piston in the cylinder, a combined movable valve-seat and auxiliary valve, said seat having ports corresponding to the said main and auxiliary steam-ports, a main valve, whereby steam is admitted through both of said main and auxiliary steam-ports but exhausted through the main port only, an auxiliary steam-cylinder having steam and exhaust ports, and a plunger-piston therein to move the main valve, said ports being controlled by said auxiliary valve, substantially as described.

604,614. ROPE-MAKING MACHINE. HARRY I. HARRIS, Boston, Mass. Filed June 9, 1897. Serial No. 640,004. (No model.)

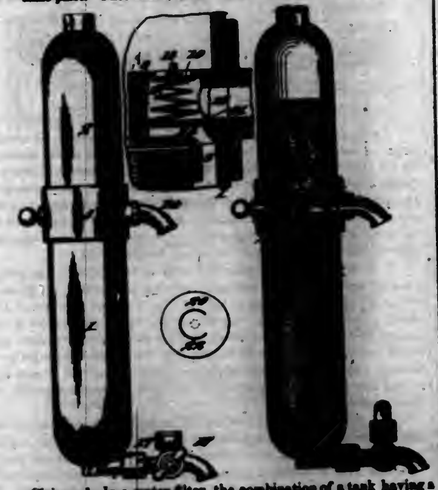


Claim.—1. In a rope-making or similar machine, the combination, with a flier, a bar whereof is provided with a longitudinal slot in one face and a wider longitudinal slot in its opposite face, together with a longitudinal rib extending along the wider slot and stopping short of its ends, the walls of the wider slot being provided with teeth, of a traverse mounted to travel on the bar of the flier, having a guide-wheel arranged to enter the annular slot in said bar, a driving-wheel held in engagement with the toothed wall of the wider slot, a pulley over which the yarn or rope is to be carried, and a driving connection between said pulley and the driving-wheel of the traverse.

2. The combination, with the bar of a flier having a longitudinal slot in one face and a wider slot in the opposite face, a rib dividing the wider slot for a portion of its length, the walls of the wider slot having teeth or projections, of a traverse held to travel on said bar, provided with a guide-wheel which enters the narrower slot, the said traverse being provided with a shaft having lateral movement, a driving-wheel carried by the shaft and arranged for engagement with the projections from the wall of the wider slot, a pulley adapted for engagement with the yarn or rope passed to the traverse, and means for driving said shaft from said pulley.

3. In rope-making machines or machines of like type, a flier provided with a guide-bar, in combination with a traverse consisting of a casing having an opening to receive the bar of a flier, a shaft above the opening, extending within the same and mounted to have rotary and lateral movement, a driving-wheel carried by the lower end of said shaft, a pulley adapted for frictional engagement with the rope or yarn, and a driving connection between said shaft and said pulley.

604,615. WATER-FILTER. CHARLES F. HITCHCOCK, St. Louis, Mo., assignor of two-thirds to Orville D. Tibbetts and Philip J. Conroy, same place. Filed Jan. 5, 1898. Serial No. 666,667. (No model.)



Claim.—1. In a water-filter, the combination of a tank having a filtering medium, a clear-water tank to receive the water after it passes through the filtering medium, a supply-pipe, a valve controlling the flow of water from the supply-pipe to the filtering-tank and from the latter to a waste pipe or nozzle, a discharge-nozzle and an automatic valve located in the discharge from the clear-water chamber, substantially as set forth.

2. In a water-filter, the combination of a tank or chamber for receiving the filtering medium, a tank or chamber for receiving the filtered water, a valve for controlling the passage of water to the filtering-chamber and from the chamber to a waste, and an automatic valve located in the discharge from the clear-water chamber; said last-mentioned valve being arranged to open under the pressure of water in the clear-water chamber and to close on the opening of a communication between the filtering-chamber and the waste, substantially as set forth.

3. In a water-filter, the combination of a filtering-chamber, a valve controlling the flow of water into the filtering-chamber, a clear-water chamber and an automatic valve located in the discharge from the clear-water chamber, substantially as set forth.

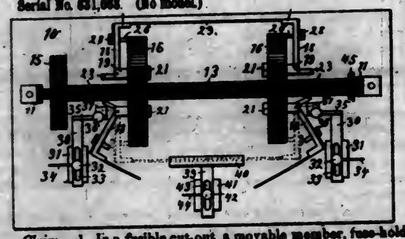
4. In a water-filter, the combination of a filtering-chamber with which supply and waste pipes connect, a single valve for controlling the flow of water from the supply-pipe to the filtering-chamber and from the filtering-chamber to the waste-pipe, a clear-water chamber and an automatic valve located in the discharge from the clear-water chamber, substantially as set forth.

5. In a water-filter, the combination of a filtering-chamber, a valve controlling the flow of water to and from the chamber, a clear-water chamber and an automatic valve located in the discharge from the clear-water chamber; said automatic valve being arranged to open under the pressure created in the clear-water chamber and being arranged to close when water wastes from the filtering-chamber, and said automatic valve being provided with a vent to permit air to pass into the filtering-chamber, substantially as set forth.

6. In a water-filter, the combination of a filtering-tank, a clear-water tank, a ring connecting the tanks together and which is provided with a perforated diaphragm, an automatic spring-valve connected to said ring, and adapted to open up a communication between the clear-water tank and a discharge-nozzle, a supply-pipe, a discharge pipe or nozzle, and a valve controlling the flow of water from the supply-pipe into the filtering-tank and from the latter to the discharge-nozzle, substantially as set forth.

7. In a water-filter, the combination of a filtering-tank, a supply-pipe and a discharge pipe or nozzle communicating with the filtering-tank, a valve controlling the flow of water from the supply-pipe to the filtering-tank and from the filtering-tank to the waste-nozzle, a clear-water tank, a ring connecting the filtering-tank and the clear-water tank, and which is provided with a perforated diaphragm and a raised flange, a plug fitting in said flange and a spring-actuated valve located within the plug, substantially as set forth.

604,616. AUTOMATIC RESETTING FUSIBLE CUT-OUT. JOHN D. HOLMES and WEBSTER L. HEATH, St. Louis, Mo. Filed Apr. 12, 1897. Serial No. 631,663. (No model.)



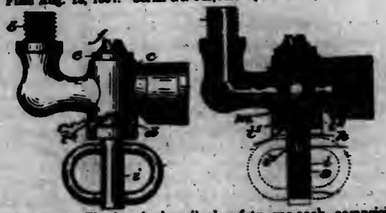
Claim.—1. In a fusible cut-out, a movable member, fuse-holding devices carried by said movable member and normally locking the same, said fuse-holding devices being arranged in pairs and insulated from each other, means for releasing said movable member when a fuse is burned out, and line-wire terminals adapted to be put in electrical communication with one pair only of said fuse-holding devices at a time.

2. In a fusible cut-out, a rotary member, radial fuse-holding arms pivotally mounted thereon to swing in radial planes, said rotary member being normally locked against rotation, and means for releasing said rotary member when a fuse is burned out.

3. In a fusible cut-out, a rotary member, fuse-holding arms pivotally mounted on said rotary member to swing in radial planes, each of said fuse-holding arms being insulated from the others, and stops at each end of said rotary member adapted to come in contact with said fuse-holding arms when they are held in position by a fuse and thereby lock said rotary member.

4. In a fusible cut-out, a rotatable sleeve, disks of insulating material carried by said sleeve, radial fuse-carrying arms pivotally mounted on said disks, projections on said radial arms, and line-wire terminals with which said projections come in contact when said arms are held in position by a fuse.

604,617. SAFETY GAS-FIXTURE. ALBERT H. HOXIE, Boston, Mass., assignor of two-thirds to Nathaniel C. Merrill, New York, N. Y. Filed Aug. 13, 1897. Serial No. 648,643. (No model.)

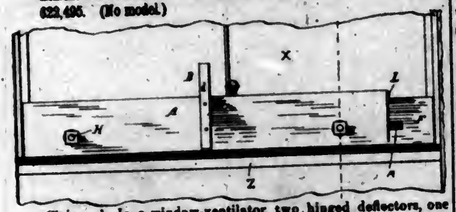


Claim.—1. The herein-described safety gas-cock, comprising a usual socket and plug, the latter having usual securing means at its upper smaller conical end, and at its lower portion an extension interiorly threaded, a screw secured in said extension, a barrel inclosing said screw and extension and non-rotatably secured to said block, said barrel having an interior shoulder adjacent said extension and a laterally-extended head at its upper end provided with opposite projections, notches being formed adjacent said socket to receive said projections when the cock is in closed position, a spring within said barrel between said shoulder and the head of said screw, and turning portions projecting laterally from said barrel, substantially as described.

2. The herein-described safety gas-cock, comprising a usual socket and tapered plug, the latter, when snugly seated in the socket, depending at its base slightly below said socket, a laterally-extended head inclosing said depending portion of the plug, said head having one or more locking projections 3^3, and the socket having notches therefor, means holding said head against rotation relatively to the plug and permitting it to move to and from the plug, a spring normally holding said head against the plug with its said projections in said notches, and turning portions for pulling said head down from

locked engagement with the socket and turning the plug, substantially as described.

604,618. WINDOW-VENTILATOR. WILLIAM L. JOHNSON and ERNEST G. JOHNSON, Buffalo, N. Y. Filed Feb. 3, 1897. Serial No. 622,495. (No model.)



Claim.—1. In a window-ventilator, two hinged deflectors, one carried by the main supporting-piece, A, of the device, and the other by an extensible portion of the device, the two deflectors being substantially parallel, and one superposed on the other, substantially as set forth.

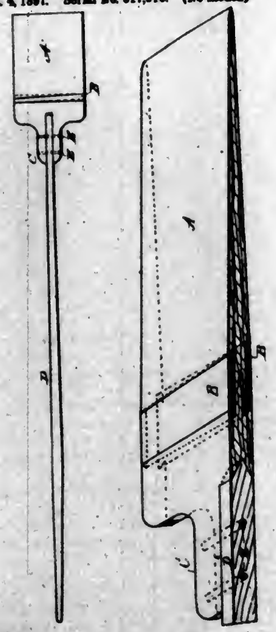
2. In a window-ventilator, a hinged deflector, B, and two hinged deflectors, E, the latter being each about half as long as the deflector, B, the deflectors E being arranged to lie above and close to the deflector B, substantially as set forth.

3. In a window-ventilator, the supporting-piece, A, a deflector hinged thereto, two extension-pieces at the ends of the piece, A, and independent deflectors hinged to such extension-pieces, substantially as set forth.

4. In a window-ventilator, the piece, A, a deflector hinged to the upper edge thereof, the extension-pieces, F, the bolts, H, which pass through holes in the piece, A, and through slots in the extension-pieces, the pieces, G, which cover the slots in the extension-pieces, and the deflectors hinged to the said extension-pieces, substantially as set forth.

5. The combination, in a window-ventilator, of the main supporting-piece, a deflector hinged thereto, and a spring-catch for holding the deflector in a more or less open position, having a main portion, *d*, secured to the supporting-piece, and a curved portion, *d'*, under which the deflector moves, and which is adapted to engage with the edge thereof, substantially as set forth.

604,619. BAKER'S PEEL. CHRISTIAN KNEBEL, St. Louis, Mo. Filed Jan. 4, 1897. Serial No. 617,916. (No model.)



Claim.—A baker's peel consisting of the blade, having tapering dovetailed grooves formed on opposite sides, combined with tapering wedge-shaped strips which are forced into the grooves, the taper of the grooves and the strips being made to extend in opposite directions, upon opposite sides of the blade, whereby should the blade split, the two parts may be secured rigidly together by driving in the strips from opposite directions, substantially as shown and described.

604,620. WINDOW-SCREEN. ROBERT J. KOLB, Florence, and MICHAEL KOLB, Newport, Ky. Filed Sept. 25, 1897. Serial No. 653,696. (No model.)



Claim.—1. A window-screen, comprising a netting or screen proper, a screen-roller on which winds the screen, a casing containing the said roller and formed with a slot for the passage of the said screen, a removable cap on the end of the casing, a rod secured to the said cap and extending into the said roller, a spring coiled on the said rod and secured at one end to the rod and at its other end to the said roller, and a bearing on the said cap for the end of the said roller to turn on, substantially as shown and described.

2. A window-screen, provided with a screen-roller, on which winds a screen-netting, a casing containing said roller and formed with a slot for the passage of the netting, a cap on the end of the casing and formed with a bearing for the roller to turn on, a rod secured to the cap and extending into the said roller, the inner end of the rod being formed with a collar for the roller to turn on as a bearing, and a spring coiled on the said rod and secured at one end to said rod and at the other end to the said roller, substantially as shown and described.

3. A window-screen, provided with a fixed casing, a spring-roller mounted to turn therein, a netting winding on the said roller, a sliding casing to which the outer end of the netting is secured and which is formed with a shoulder, a spring-catch on the window-sash and adapted to engage the said shoulder to lock the slidable casing to the sash, a plate having a finger-piece and secured to the sash, the plate carrying the said catch, and a button turnable on the said catch, and provided with an angular flange adapted to pass through a correspondingly-shaped opening in the said plate and adapted to rest against the back of the said plate to hold the catch locked in an inactive position, substantially as shown and described.

604,621. PROCESS OF CLEANING AND DRYING EGGS. JOHN A. KNEBEL, New York, N. Y. Filed Feb. 11, 1896. Serial No. 669,903. (No specimens.)

Claim.—The process of cleaning and drying eggs, which consists in cleaning them in a weak solution of a vegetable acid, as vinegar, and soda, in water having cornmeal stirred therein, and then drying them in cornmeal, as described

604,622. STOP-COCK BOX. JARED C. LOCKELL and ADA TALCOTT, Minneapolis, Minn., assignors of one-third to Henry F. Hodge, same place. Filed July 2, 1897. Serial No. 643,216. (No model.)

Claim.—1. A stop-cock box, securable at its lower end to the stop-cock, by means of a joint which permits angular movement of said parts with respect to each other, substantially as described.

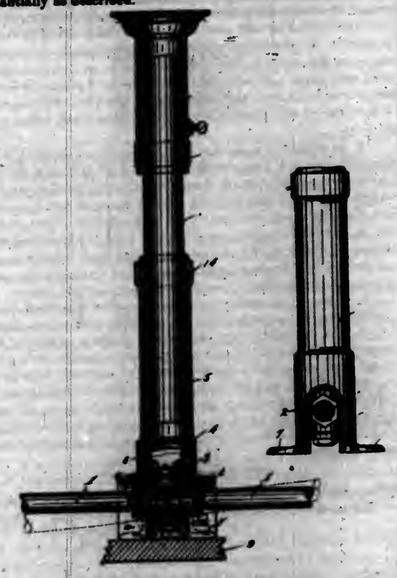
2. A stop-cock box, securable to the stop-cock, by means of a telescopic flexibly-packed joint which permits angular movement of said parts with respect to each other, substantially as described.

3. A stop-cock box formed in sections, the lower of which is applicable to the stop-cock, the upper of which is securable at or near the surface of the ground, and the intermediate section of which telescopes with said upper and lower box-sections, with freedom for endwise sliding movements substantially as described.

4. A stop-cock box formed in sections, the upper of which is securable at or near the surface of the ground, the lower of which is securable to the stop-cock by means of a telescopic flexibly-packed joint, and the intermediate section of which telescopes with said upper and lower box-sections, substantially as described.

5. A stop-cock box, formed in sections, the lower of which is applicable to the stop-cock, the upper of which is securable at or near the surface of the ground, and the intermediate section of which telescopes with said upper and lower box-sections, and is connected therewith by means of flexible gaskets, secured in channeled seats formed, respectively, in said upper and lower box-sections, substantially as described.

6. The combination with a stop-cock located beneath the surface of the ground, of a stop-cock box, formed with telescopic sections, the lower member of which is connected to said stop-cock, by a telescopic joint and is pronged or bifurcated to form a supporting-base, substantially as described.



604,623. CIGARETTE-FORMER. WILLIAM S. MALLARD, Darien, Ga., assignor of one-half to Robert Manson, same place. Filed Aug. 27, 1897. Serial No. 649,774. (No model.)



Claim.—1. A cigarette-former, consisting of the body portion provided at one end with a trough-shaped portion, and a former removably placed within the said trough-shaped portion, said former consisting of a handle provided with a boss, a finger attached to said boss, said finger having a beveled forward end, and a serrated upper edge adapted to engage with the cigarette-paper.

2. In a cigarette-forming device, the combination with the body 1, having a trough 3 and having its edge 14 in a plane with the body-plate 1, and having bearing portions 6 and 7, at the ends, of the twister comprising the knob 12, the bearing portion 12^b, having a spring-contact 12^a and a single projecting spring member 13 having a friction bearing-face 13^d, and a serrated beveled face 13^c, all being arranged substantially as shown and described.

3. In a cigarette-former of the kind described, the combination with the curved trough, of a twister means movable rotatably and endwise in the trough, said twister comprising a finger-holding knob having a bearing member and a single spring-finger projected over the circumferential edge of the bearing portion, said finger having a friction face 13 and a beveled face 13^c, having serrations 13^e, substantially as shown and for the purposes described.

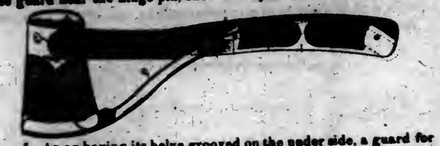
604,624. SAFETY-GUARD FOR AXES. WEBSTER L. MARBLE, Gladstone, Mich., assignor of one-half to Frank H. Van Cleve, Escanaba, Mich. Filed Jan. 28, 1898. Serial No. 667,849. (No model.)

Claim.—1. An ax having a guard hinged to its helve on an axis transverse thereto and adapted to cover and inclose its edge, substantially as described.

2. An ax having a grooved helve, and a guard hinged to said helve and adapted to inclose the edge when open and to lie within the groove when closed, substantially as described.

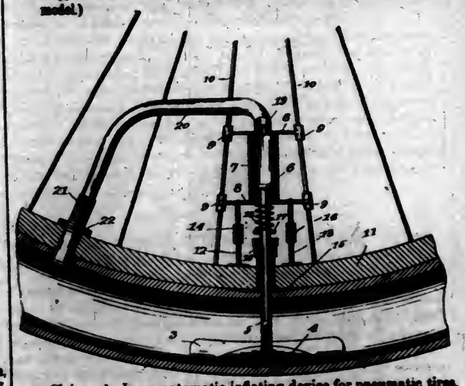
3. An ax having a guard hinged to its helve about midway of the same, the length of said guard being about half that of the helve so as to inclose the edge when open and to lie parallel with the butt of the helve when closed, substantially as described.

4. An ax having the handle portion of its helve grooved on the under side, a guard for the edge of the head hinged in said groove about midway of the helve, and a spring bearing against the end of the guard near the hinge-pin, substantially as described.



5. An ax having its helve grooved on the under side, a guard for the ax edge hinged in said groove, a roller mounted in the end of the guard near the hinge-pin, and a spring in the groove bearing against said roller, substantially as described.

604,625. AUTOMATIC BICYCLE-PUMP. WARREN METCALF, Skippersville, Ala. Filed Aug. 27, 1897. Serial No. 649,761. (No model.)



Claim.—1. In an automatic inflating device for pneumatic tires, a pump-cylinder provided at its ends with cross-heads having sleeves adapted to slidingly fit upon adjacent spokes, in combination with a flexible tube adapted to be applied to the inflating-valve of the tire, a reciprocating piston in said pump-cylinder, a piston-rod extending into the tire and having a foot or shoe for contact with the outer portion of the tire, a spring for normally pressing said piston outward, and longitudinally-extensible connections between the wheel-rim and the adjacent cross-head of the pump-cylinder, all arranged for joint operation, substantially as described.

2. In an automatic tire-inflater, the combination with wheel-spokes and a tire, of a pump-cylinder fitted to adjacent wheel-spokes for slidable adjustment thereon, adjustable devices between the pump-cylinder and wheel-rim for holding the pump-cylinder in a fixed position and for securing a limited adjustment of the pump-cylinder relatively to the tire, and a piston-rod actuated by the tire on partial deflation thereof, substantially as described.

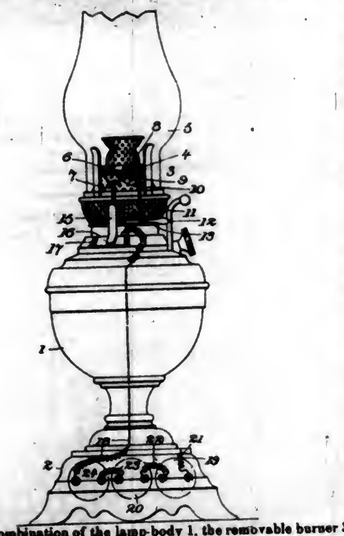
3. In an automatic tire-inflater, the combination with wheel-spokes, a wheel-rim, and a tire, of a pump-cylinder fitted to adjacent wheel-spokes for limited adjustment thereon, means for rigidly connecting the pump-cylinder with the wheel-rim, a tubular connection between the pump-cylinder of the tire, and a piston-rod fitted within the tire to be actuated by the latter on partial deflation thereof, substantially as described.

4. In an automatic tire-inflater, the combination with a wheel-rim and a tire, of a pump-cylinder slidably fitted to the wheel-spokes, the extensible rods attached to the wheel-rim and pump-cylinder for holding said pump-cylinder normally in a fixed position with relation to the rim and spokes, and a piston-rod actuated by the tire, substantially as described.

5. In an automatic tire-inflater, the combination with a wheel-rim, a tire, and wheel-spokes, of the bushing fixed in the wheel-rim, a pump-cylinder having the cross-heads fitted to the spokes, rods fixed to the wheel-rim and the cross-head of the cylinder, a piston-rod passing through the bushing and having a piston-head at one end and a shoe at the other end, a coiled spring acting against a shoulder or stud of the rod, and a tubular connection between the cylinder and the tire, substantially as described.

604,626. ELECTRICAL LIGHTING DEVICE FOR KEROSENE OR OTHER BURNERS. SYDNEY M. MEYER, Brooklyn, N. Y. Filed Jan. 27, 1897. Serial No. 620,909. (No model.)

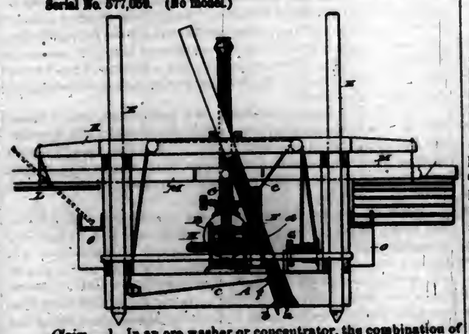
Claim.—1. In combination with a lamp-burner 3 and a suitable source of electricity and conductors, the contact-arm 6 and the contact-spring 9, vibrating in an arc approximately tangential to the wick 4 of the lamp-burner, substantially as and for the purposes set forth.



2. The combination of the lamp-body 1, the removable burner 3, a suitable source of electricity, as 19, 20, 24 and conductor 18, therefrom, in the body of the lamp, an insulated plate 16, on the body of the lamp, in electrical connection with the conductor 18, a circuit-closing device, as 6, 8, 9, 10, mounted on the removable burner, and a spring 15, in electrical connection with the circuit-closer and making connection with the insulated plate 16, when the burner is placed in position, substantially as explained.

3. A device for lighting lamps by electricity comprising a suitable lamp-body, a burner separable therefrom, a source of electricity in the body or base of the lamp grounded by one pole in the lamp-body, an insulated conductor from the other pole, an igniting device mounted on the removable burner grounded by one end in the metal of the burner and connected at the other end with an insulated conductor, insulated contact devices carried by the lamp-body and removable burner respectively and respectively connected to the insulated conductors therein, so as to form electric connection between the insulated conductors when the burner is placed in position; and a suitable device for closing the electric circuit by hand, substantially as set forth.

604,627. APPARATUS FOR CONCENTRATING GOLD-BEARING SAND. ALEXANDER McDOUGALL, Duluth, Minn. Filed Jan. 27, 1896. Serial No. 577,059. (No model.)



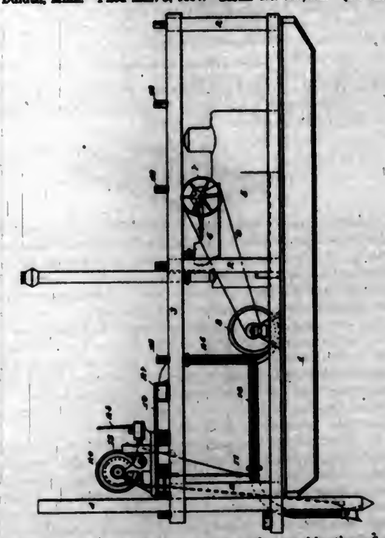
Claim.—1. In an ore washer or concentrator, the combination of a scow, a pump carried on the scow, the suction-pipe of said pump being arranged to remove the gold-bearing sand or gravel, an inclined tiltable platform carried on said scow, having a corrugated or roughened surface, and a trough movably mounted above and normally engaging said inclined platform, receiving the discharge of said pump and normally holding the platform with its minor axis horizontal, but adapted to be moved out of its engagement therewith to allow the platform to be tilted, substantially as set forth.

2. In an ore washer or concentrator, the combination of a scow, a pump carried on the scow, the suction-pipe of said pump being arranged to remove the gold-bearing sand or gravel, an inclined tiltable platform carried on said scow at each side thereof and having a corrugated or roughened surface, and a trough pivotally mounted above and normally engaging said inclined platform, receiving the discharge from said pump, and normally holding the said platforms with their minor axes horizontal, but adapted to be swung out of its engagement with either of said platforms to allow it to be tilted, substantially as set forth.

3. In a mining apparatus of the character described, the combination of a scow, a superstructure carried on said scow, an inclined platform suspended from said superstructure by flexible connections whereby the same may be tilted, a chute mounted below one edge of said platform, a trough mounted on said platform above the upper end of said platform but movable away from the same, and a pump carried on the scow, the suction-pipe of said scow being arranged to remove the gold-bearing sand or gravel and discharge the same to said trough, substantially as and for the purposes set forth.

4. In a mining apparatus of the character described, the combination of a scow, a superstructure carried on said scow and extending over the side of the scow, an inclined platform carried by flexible connections on the end of said superstructure outside of the scow, a trough pivoted to said superstructure and normally arranged over the upper ends of said platforms, but movable alternately out of engagement therewith, and a pump carried on the scow, the suction-pipe being arranged to remove the gold-bearing sand or gravel and discharge the same to said trough, substantially as and for the purposes set forth.

604,628. DREDGING APPARATUS. ALEXANDER McDOUGALL, Duluth, Minn. Filed Mar. 5, 1897. Serial No. 626,112. (No model.)



Claim.—1. In a dredging apparatus, the combination of a support, a pump mounted thereon, a suction-pipe flexibly connected to said pump, means for sustaining the forward end of said suction-pipe, a dredge-pipe connected to said suction-pipe and in contact with the material to be removed, a superstructure for said support, a steam-windlass, connections between said windlass and said dredge-pipe for moving the latter back and forth in contact with the material, and a trough or chute secured to said superstructure and connected to the discharge-pipe of the pump, substantially as set forth.

2. In a dredging apparatus, the combination of a support, a pump mounted thereon, a suction-pipe flexibly connected to said pump, means for sustaining the forward end of said suction-pipe, a dredge-pipe connected to said suction-pipe and in contact with the material to be removed, a superstructure for said support, a steam-windlass having a double drum carried on said superstructure and mounted directly over the forward end of said suction-pipe, and two cables wound in opposite directions on said double drum and connected to opposite sides of the dredge-pipe for moving said dredge-pipe back and forth in contact with the material, substantially as set forth.

604,629. BOTTLE-CLOSURE. PATRICK H. McGRATH, Randolph, Mass., assignor of one-half to Michael F. Cunningham, same place. Filed Sept. 23, 1897. Serial No. 652,674. (No model.)



Claim.—1. The combination with a bottle-neck, provided with an internal channel, of a guard having perforations therethrough, one or more of said perforations having transverse apertures therefrom, a pin movable in each of said apertures adapted to be projected into said channel, said perforations being conical with the larger end outermost, and a correspondingly conical plug adapted to be inserted in the perforation behind said pin and hold the latter against removal from said channel, said plug terminating within the perforation short of the upper end thereof, substantially as described.

2. The combination with a bottle-neck, provided with an internal channel, of a guard having a perforation in the shape of an inverted cone extending from its outer end, a transverse aperture from said perforation through the wall of the guard in alinement with said channel, a pin movable in said aperture, and a rigid plug of the same shape as the perforation and slightly less in diameter at its larger end than the outer end of the perforation, whereby when the plug is driven in the perforation behind the pin, the latter is held in said channel and the plug terminates short of the top and is thereby inaccessible, substantially as described.

3. In a non-refillable bottle, a guard, means to secure it in the neck of the bottle, and a contractible ring carried at the lower end of the guard, said ring being made up of rigid sections movably secured together and provided with tortuous passages across it for the flow of the liquid, substantially as described.

4. In a non-refillable bottle, a guard, means to secure it in the neck of the bottle, and a contractible ring carried at the lower end of the guard, said ring being made up of rigid sections interlocked with each other and each provided with tortuous passages across it, for the flow of the liquid, substantially as described.

5. In a non-refillable bottle, a guard, means to secure it in the neck of the bottle, and a contractible ring carried at the lower end of the guard, said ring being made up of rigid sections movably secured together and provided with tortuous passages across it, and means normally maintaining said ring extended, substantially as described.

6. In a non-refillable bottle, a guard secured in the bottle-neck, said guard comprising a body having a stem at its lower end and outlet-perforations through its upper end, and a sectional ring secured to said stem, the sections thereof being overlapped and having tortuous passages for the escape of the liquid to said outlet-perforations, substantially as described.

7. In a non-refillable bottle, a guard secured in the bottle-neck, said guard comprising a body having a stem at its lower end and outlet-perforations through its upper end, and a sectional ring secured to said stem, the sections thereof being overlapped and having tortuous passages for the escape of the liquid to said outlet-perforations, a chamber being formed between the latter and said ring, substantially as described.

604,630. BANJO-BELL. WILLIAM J. McLEAN, New York, N. Y. Filed Sept. 20, 1897. Serial No. 653,491. (No model.)

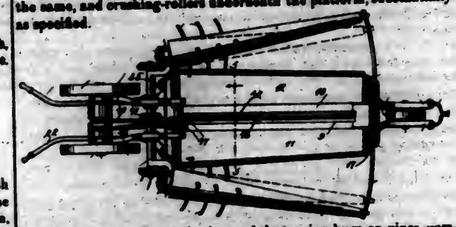


Claim.—1. An attachment for banjos, consisting of a shallow bell adapted to fit between the banjo-head and the continuation of the neck, and having a central aperture and a flange surrounding said aperture, said bell being adjustable in height.

2. An attachment for banjos, consisting of a shallow bell having a central aperture therein, a flange surrounding said aperture, and a series of openings above said central aperture, and a flanged ring threaded in the central aperture of said bell, whereby the bell may be adjusted to fit the same between the head of the banjo and the continuation of the neck.

604,631. POTATO-BUG DESTROYER. CHRISTIAN NELSON and HENRY P. S. JOHNSON, Arrowsmith, Ill. Filed Nov. 10, 1897. Serial No. 658,048. (No model.)

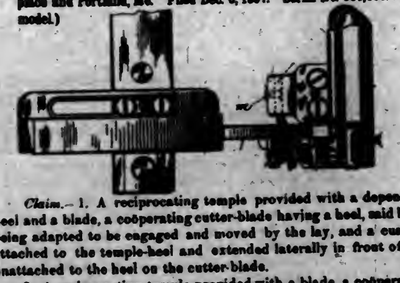
Claim.—1. A machine for gathering and destroying bugs on vines, comprising a platform having laterally-movable side sections, pivoted handles for moving said side sections, wheels upon which the platform is mounted, gathering-rollers at the sides of the platform and above the same, and crushing-rollers underneath the platform, substantially as specified.



2. A machine for gathering and destroying bugs on vines, comprising a platform mounted on wheels, laterally-movable sections on said platform, pivoted handles having connection with said movable sections for moving them in one direction, and springs for moving the sections in the other direction, substantially as specified.

3. A machine for gathering and destroying bugs on vines, comprising a platform having laterally-sliding sections curved upward at the outer edge, means for moving said sections in both directions, longitudinally-tapered gathering-rollers at the sides of the platform, laterally-extended arms at the front of the platform and having holes to receive the front trunnions of the gathering-rollers and whereby the front ends of said rollers may be adjusted outward and inward, means for rotating said rollers, crushing-rollers extended along a slot longitudinally formed in the platform, and means for rotating said crushing-rollers, substantially as specified.

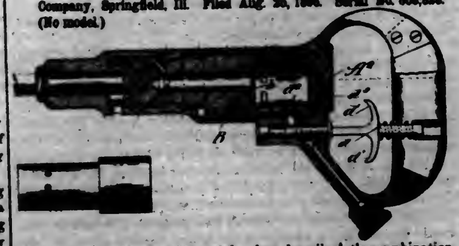
604,632. THREAD-CUTTING TEMPLE FOR LOOMS. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Dec. 6, 1897. Serial No. 660,986. (No model.)



Claim.—1. A reciprocating temple provided with a depending heel and a blade, a cooperating cutter-blade having a heel, said heels being adapted to be engaged and moved by the lay, and a cushion attached to the temple-heel and extended laterally in front of but unattached to the heel on the cutter-blade.

2. A reciprocating temple provided with a blade, a cooperating cutter-blade having a heel adapted to be engaged by the lay, and a flexible cushion attached to the temple and extended in front of and independent of the heel of the cutter-blade, to break the force of the blow of the lay thereupon.

604,633. PNEUMATIC HAMMER. ALFRED PARFITT, Topeka, Kans., assignor, by mesne assignments, to the Johnson-Parfitt Tool Company, Springfield, Ill. Filed Aug. 26, 1896. Serial No. 603,832. (No model.)



Claim.—1. In a machine of the class described, the combination of a shouldered piston, a port adapted to give constant supply of motive agent beneath the shoulder, an exhaust-port, and a passage in the piston leading to its larger end adapted to communicate alternately with the supply and exhaust ports at opposite ends of its stroke, substantially as described.

2. In a machine of the class described, the combination of a cylinder having an enlarged bore at one end, and a correspondingly-shaped piston, a supply-port leading into the inner end of the enlarged bore

adapted to give a constant supply of motive agent, and a passage in the piston leading to the large end having a port adapted to connect alternately with the supply and an exhaust port at the opposite ends of the stroke and to be closed intermediate thereof, substantially as described.

3. In a pneumatic hammer or drill, the combination of a cylinder provided with a duct for the inlet of the motive fluid and with an annular shoulder between the opening of the duct and the tool end and with an emergency groove or duct arranged along its inner surface, a plunger provided with an annular shoulder arranged at such a distance from its outer end as to enable the outer end of the emergency groove or duct to open into the cylinder beyond the end of the plunger when the tool is out and the plunger fully in, and means for admitting the motive fluid into the cylinder between the shoulder on the cylinder and the annular shoulder on the plunger.

4. In a pneumatic hammer or drill, the combination of a cylinder provided with a duct for the inlet of the motive fluid and with an annular shoulder between the opening of the duct and the tool end, a plunger provided with an annular shoulder and with a head E at its tool end so that as the plunger is moved out the motive fluid is admitted to the outer side of the head, and means for admitting the motive fluid into the cylinder between the annular shoulder on the cylinder and the annular shoulder on the plunger.

5. In a pneumatic hammer or drill, the combination of a cylinder provided with a duct for the inlet of the motive fluid and with an annular shoulder between the opening of the duct and the tool end, a plunger provided with an annular shoulder and with a head E at its tool end and with a diminished portion between the annular shoulder and its head E, so that as the plunger is moved out its diminished portion will come opposite the inner end of the duct for the inlet of the motive fluid, and means for admitting the motive fluid into the cylinder between the annular shoulder on the cylinder and the annular shoulder on the plunger.

6. In a pneumatic hammer or drill, the combination of a cylinder provided with a duct for the inlet of the motive fluid and with an annular ring between the opening of the duct and the tool end, a plunger provided with an annular shoulder and with a head E at its tool end, both of larger diameter than the bore of the ring, and means for admitting the motive fluid into the cylinder between the annular ring and the annular shoulder on the plunger.

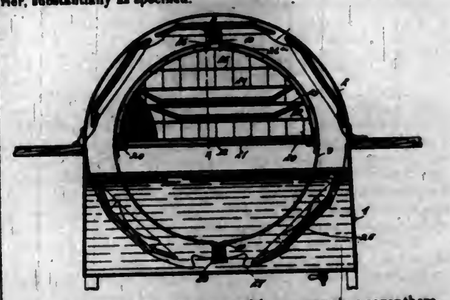
7. A valveless portable pneumatic hammer in which there is combined a casing provided with a fluid-pressure chamber and inlet and exhaust openings, an operating-tool in one end thereof, a reciprocating piston-hammer in the casing arranged to contact the operating-tool at one limit of its stroke and divide the pressure-chamber into two chambers, and means whereby fluid-pressure is admitted constantly to one end of the piston and through the piston is alternately admitted to and exhausted from the other end of the piston to reciprocate the same and operate the parts, substantially as described.

8. In a machine of the class described, a casing provided with fluid-pressure and exhaust chambers, an operating-tool in one end of the casing, a reciprocating piston hammer in the chambers of the casing arranged to contact the operating-tool at one limit of its stroke and divide the exhaust from the pressure chamber, a head portion on such piston-hammer dividing the pressure-chamber into two chambers, one a constant-pressure chamber and the other a main intermittent-pressure chamber, so as to present a larger superficial area of the piston in the main chamber over the surface presented in the constant-pressure chamber, means whereby fluid-pressure is admitted constantly to the constant-pressure chamber, a passage in the piston for alternately connecting the main and constant-pressure chamber and the main pressure and exhaust chambers by the movements of the reciprocating piston to supply to and exhaust fluid-pressure from the same, substantially as described.

9. In a machine of the class described, the combination of a casing provided with a pressure and exhaust chamber, an operating-tool in one end thereof, a reciprocating piston-hammer in the casing arranged to contact the operating-tool at one limit of its stroke and divide the pressure from the exhaust chambers, a head portion on the piston dividing the pressure-chamber into two chambers, one an annular pressure-chamber between the body, the piston and the casing and the other a main pressure-chamber between the head and the end of the casing and presenting a larger superficial area of piston surface than in the annular chamber, an inlet-passage connected with the annular chamber whereby fluid-pressure is admitted constantly thereto, and a passage in the piston whereby the main and constant-pressure chamber and the main and exhaust chambers are alternately connected to admit to and exhaust fluid-pressure from the main chamber during the movements of the piston, substantially as described.

604,684. DISH-CLEANER. ROBERT B. PARRY and EDWIN EVANS, Poultney, Vt., assignors of one-third to John Hughes Parry, Utica, N. Y. Filed Apr. 9, 1897. Serial No. 631,568. (No model.)

Claim.—1. A dish-washing machine, comprising a reservoir, a cover therefor, carrier-rings mounted to rotate in the reservoir and cover, means for raising and supporting the carrier-rings above the water in the reservoir, a series of open-work receptacles for containing articles to be washed, said receptacles being arranged to conform to the interior of the carrier-rings, a brush secured to the carrier-rings and means for holding dishes in the reservoir outside the carrier, substantially as specified.



2. A dish-washing machine, comprising a reservoir, a cover thereon, a carrier mounted to rotate in said reservoir, a brush on the carrier, vertically movable rods on the reservoir and having bearings for the shaft of the carrier, guides for the rods and fulcrumed levers having pivotal connection with said rods, substantially as specified.

3. A dish-washing machine, comprising a reservoir, a semicircular cover therefor, a carrier mounted to rotate in the reservoir and cover and adapted to receive dish-receptacles, a brush secured to the carrier, and spring yielding clips in the reservoir for receiving and holding dishes to be operated upon by the brushes, substantially as specified.

4. A dish-washing machine, comprising a reservoir, a semicircular cover therefor, a carrier mounted to rotate in the reservoir and cover and adapted to receive dish-receptacles, a brush secured to the carrier, spring yielding clips in the reservoir for receiving and holding dishes to be operated upon by the brushes, and spring yielding clips in the cover portion for supporting the dishes, substantially as specified.

5. A dish-washing machine, comprising a reservoir a carrier mounted to rotate in the reservoir, and means for lifting and supporting the carrier, comprising sliding bearing-blocks, guides therefor and levers, substantially as specified.

604,685. APPARATUS FOR CASTING TYPE. JAMES G. PAYNE, St. Louis, Mo. Filed June 21, 1897. Serial No. 641,603. (No model.)



Claim.—1. An apparatus for casting type comprising a type-mold, a matrix, a nipple having a core extension formed with a jet-opening and whereby a recess or channel is formed in the base of the type, and a choker-valve constructed and arranged to enter and fill the jet-opening and thereby displace the molten metal at the base of the core extension, whereby the necessity of removing the sprue is avoided; substantially as described.

2. An apparatus for casting type comprising a type-mold, a matrix, a nipple-plate having a core-extension formed with a jet-opening and whereby a recess or channel is formed in the base of the type, a nipple adapted to seat in the core extension, and a choker-valve constructed and arranged to enter and fill the jet-opening and thereby displace the molten metal at the base of the nipple and core extension, whereby the necessity of removing the sprue is avoided; substantially as described.

604,686. DEVICE FOR REPAIRING RUBBER TIRES. JAMES F. REYNOLDS, Lynn, Mass., assignor to L. C. Chase & Co., Boston, Mass. Filed Feb. 21, 1898. Serial No. 671,086. (No model.)

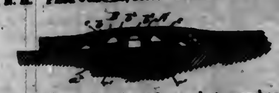
Claim.—1. A repair-patch for rubber tires and the like, comprising two layers of unvulcanized rubber, an interposed layer of inelastic material completely inclosed by the layers of rubber, and a backing of resilient material, substantially as described.

2. A repair-patch for rubber tires and the like, comprising two layers of unvulcanized rubber, an interposed layer of inelastic material, and a backing of vulcanized rubber, the edges of the layers of unvulcanized rubber extending beyond the inelastic material to form an annular, hermetic seal around it when the said layers are vulcanized, substantially as described.



3. A repair-patch for rubber tires and the like, comprising two layers of rubber ready for vulcanizing, an interposed smaller layer of strengthening material, a resilient backing, and a thread or string passed through the outer layer of rubber and attached to the strengthening-layer, the layers of rubber extending beyond the edges of said strengthening-layer and adapted to be vulcanized together to hermetically inclose the strengthening-layers, substantially as described.

604,687. FASTENER. WILLIAM S. RICHARDSON, Boston, Mass., assignor to the Ball and Socket Fastener Company, same place and Nashua, N. H. Filed June 23, 1896. Serial No. 596,900. (No model.)



Claim.—1. The combination of a socket member having a fastening-flange, a wall surrounded by the flange and integral therewith, which wall forms a cavity open at both ends and provides a yielding socket-entrance, and a flexible fabric to one surface of which the fastening-flange is secured, and which fabric covers the said cavity opposite the socket-entrance and is held from said socket-entrance by the wall, and which fabric and wall forms a bearing, raised from the socket-entrance, for the thumb or finger used in holding or pressing said socket member while it is being engaged by or with its cooperating member.

2. The combination of a socket member of a fastener having a fastening-flange, a wall at an angle to said flange surrounded by and integral with the flange, forming a cavity or chamber open at both ends and a socket-entrance, flexible fabric to which the said member is secured by said flange, and which fabric is held from the socket-entrance by said wall and closes one end of said cavity, with a ball member having a flange by which it is secured to its support or material, and said support or material; the said socket and ball members being secured to the opposing faces of the fabrics or parts which they unite without perforating said fabrics or parts and without interposing any substance between the ball and the fabric with which it is united by the socket member.

3. A socket member of a fastener consisting of a single piece of metal having a fastening-flange adapted to lie against the surface of the fabric or material to which the member is to be attached, a wall integral with said flange and forming a stud-containing cavity open at both ends, and which wall provides, first, a socket-entrance, second, a means for holding the fabric from the socket-entrance, and, third, a pressure-receiving bearing, as and for the purposes set forth.

4. A complete socket member of a fastener consisting of a single piece of metal, having an attaching-flange, a socket-entrance substantially in line with said flange and a wall or raised section surrounding said socket-entrance.

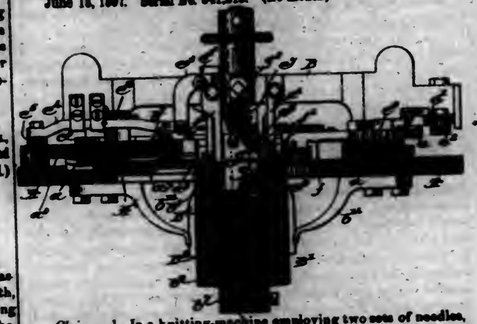
5. A complete socket member of a fastener consisting of only one piece of metal having an attaching-flange, a socket-entrance substantially in line therewith, a raised section about said socket-entrance, and a slit b^4 extending from the socket-entrance through the raised section or wall and flange.

6. A complete socket member of a fastener consisting of only one piece of metal and having the flange b provided with holes b', the continuous socket-entrance b^2 and the interposed raised section or wall b^3, as and for the purposes described.

7. A complete socket member of a fastener consisting of a single piece having an attaching-flange adapted to be united to a surface of the fabric or material with which it is used, an integral continuous wall extending first upward therefrom and then downward, to provide a socket-entrance substantially in line with the flange, said wall serving as a means for holding the fabric or material above or away from the socket-entrance and thereby establishing a ball-receiving cavity above said entrance.

8. A complete socket member of a fastener consisting of a single piece of metal having an attaching-flange and a continuous raised wall or bead within said flange and the inner depending part of which wall or bead extends downward so as to form a socket-entrance substantially in line with the said flange, said wall or bead serving to hold the fabric or material above or away from the socket-entrance, to provide a ball-receiving cavity, combined with a ball member consisting also of a single piece of metal and also having an attaching-flange, one of said members being formed resilient so that they will be elastically and detachably connected when engaged, and the ball of said ball member being of a height approximately equal to the height of said wall so that the top of said ball will not project materially above the top of said wall or bead when the two members of the fastening are engaged.

604,688. KNITTING-MACHINE. JOHN H. RICE, Manchester, N. H., assignor to the Leighton Machine Company, same place. Filed June 18, 1897. Serial No. 641,315. (No model.)



Claim.—1. In a knitting-machine employing two sets of needles, one or more main-thread guides to constantly supply said needles with thread, and means to actuate said needles to knit plain-rib stitch, combined with one or more auxiliary sets of cams and one or more auxiliary-thread guides which are not in action when the machine is operated to knit plain-rib stitch, and with means to put said auxiliary cams into operative position to cause them to also actuate said plate-needles to take said auxiliary threads and enable tuck or royal rib stitch to be knitted at desired times, substantially as described.

2. In a knitting-machine, the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cylinder-needle cam to actuate said needles, a dial-needle bed to contain a series of plate-needles, a dial-needle cam-plate having a plurality of main cams to actuate said plate-needles, a plurality of main-thread guides having threads to at all times supply said plate-needles with thread for plain-rib knitting, a plurality of auxiliary cams carried by said dial-needle cam-plate, a plurality of auxiliary-thread guides which occupy their inoperative position when the machine is actuated to knit plain-rib stitch, and means under the control of a pattern-surface to put said auxiliary cams into their operative position to actuate said plate-needles to take thread from said auxiliary-thread guides at points intermediate the said main-thread guide when tuck or royal rib is to be knitted, and means to effect the putting of the said auxiliary cams out of operative position when plain-rib knitting is to be carried on following tuck or royal rib knitting, substantially as described.

3. In a knitting-machine, the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cylinder-needle cam to actuate said needles, a dial-needle bed to contain a series of plate-needles, a dial-needle cam-plate having a plurality of main cams to actuate said plate-needles, a plurality of main-thread guides to supply said plate-needles at all times for plain-rib knitting, a plurality of auxiliary-thread guides, a plurality of auxiliary cams, and means under the control of a pattern-surface to put said auxiliary cams into operative position to actuate said plate-needles to take thread from said auxiliary-thread guides at points intermediate the said main-thread guide when tuck or royal rib is to be knitted, and means to effect the putting of the said auxiliary cams out of operative position when plain-rib knitting is to be carried on following tuck or royal rib knitting, and means to cut off said auxiliary threads, substantially as described.

4. In a knitting-machine, the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cylinder-needle cam to actuate said needles, a dial-needle bed to contain a series of plate-needles, a dial-needle cam-plate having a plurality of main cams to actuate said plate-needles, a plurality of main-thread guides having threads to at all times supply said plate-needles at all times for rib-knitting, a plurality of auxiliary-thread guides, a plurality of auxiliary cams, and means under the control of a pattern-surface to put said auxiliary cams into operative position to actuate said plate-needles to take thread from said

auxiliary-thread guides at points intermediate the said main-thread guide when tuck or royal rib is to be knitted, and means to effect the putting of the said auxiliary cams out of operative position when plain-rib knitting is to be carried on following tuck or royal rib knitting, and means to clamp and hold the ends of said auxiliary threads, substantially as described.

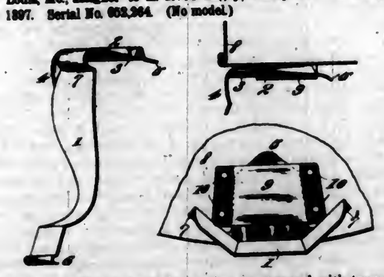
5. In a knitting-machine, a dial-needle cam-plate, a pair of blades occupying a position within the central opening of the said plate, and a dial or plate needle bed, a cam mounted therein, and a pattern-surface to actuate said cam, combined with means intermediate one of said blades and said cam to actuate the same at the proper time to cut a thread placed between them, substantially as described.

6. The dial needle cam-plate, and the ratchet-toothed ring having spaced cam projections 2 and mounted thereon, a pawl to move said ratchet-toothed ring on said cam-plate, a plurality of sets of auxiliary cams, levers a^{20}, and 16, connected with said cams, and a lever c, said levers a^{20} and c being acted upon by said cam projections and actuating said auxiliary cams, substantially as described.

7. The dial-needle cam-plate, its cams a^3 and a^7, two levers a^{20} and c connected with said cams, and a third lever having an adjusting device, combined with a ring having cam projections to actuate said levers a^{20} and c, substantially as described.

8. In a machine for knitting plain-rib stitch and tuck or royal rib stitch, the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cam-cylinder to actuate said needles, a dial or plate needle bed, a series of plate-needles therein, a plurality of main-thread guides containing threads to be used in plain-rib knitting, and a plurality of auxiliary-thread guides to contain threads to be used only when tuck or royal rib stitch is being made, a dial-needle cam-plate provided with a plurality of main cams to operate said plate-needles, to take the threads from the main-thread guides for plain-rib knitting, and a plurality of auxiliary cams, and means to automatically put them in operative position to impart to said plate-needles during each rotation of said cam-plate extra knitting movements to engage the threads of said auxiliary-thread guides only when tuck or royal rib stitch is being knitted, substantially as described.

604,689. SHEET-METAL STOVE-LEG. JOHN B. SCHNEIDER, St. Louis, Mo., assignor to H. Given Hagey, same place. Filed Sept. 20, 1897. Serial No. 652,264. (No model.)



Claim.—1. A sheet-metal stove-leg constructed with transverse corrugations 7 for providing an extended bearing-surface to support the stove, and with longitudinal corrugations 3 and 4 for strengthening the leg; substantially as described.

2. A sheet-metal stove-leg, having a horizontal tongue adapted to engage with the keeper of a stove, and a spring-tip on said tongue adapted to serve as a lock, substantially as described.

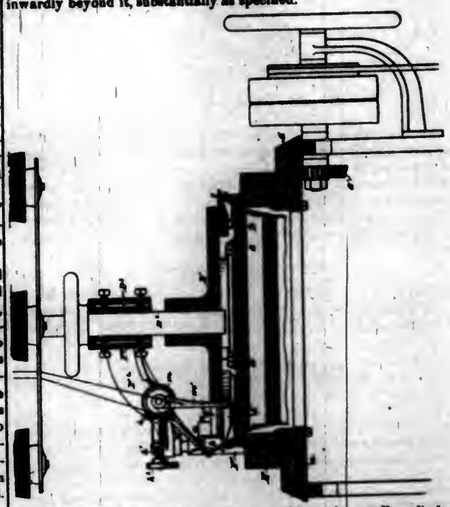
3. A sheet-metal stove-leg, provided at the top thereof with a horizontal corrugated tongue, said corrugations extending down over the front of said leg, a spring-tip on the end of said tongue, and transverse corrugations at the top of said leg which provide an extended bearing-surface to support the stove, substantially as described.

4. The combination of a sheet metal stove-leg, said leg being provided with a horizontal tongue, a spring-tip on said tongue, and a socket secured to the stove-bottom into which said tongue is adapted to fit, and be locked by said spring-tip, substantially as described.

604,640. YARN-CHANGING DEVICE FOR RIB-KNITTING MACHINES. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis H. D. Williams, Ashbourne, Pa. Filed Apr. 16, 1896. Renewed May 8, 1896. Serial No. 590,722. (No model.)

Claim.—1. The combination, in a knitting-machine, of a needle-cylinder and its needles, an annular dial also provided with needles, and having a slot extending through the same from the inner to the outer edge, and means for actuating the needles of the cylinder and dial whereby one or more threads may be passed down on the inner side of the dial, substantially as specified.

2. The combination, in a knitting-machine, of a needle-cylinder and its needles, an annular dial also provided with needles, and having a slot extending through the same from the inner to the outer edge, means for actuating the needles of the cylinder and dial, and a movable thread-guide adapted to carry a thread through the slot of the dial from a position outwardly beyond the same to a position inwardly beyond it, substantially as specified.



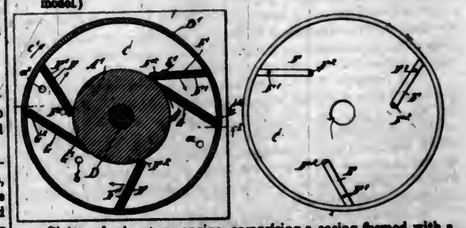
3. The combination, in a knitting-machine, of a needle-cylinder and its needles, an annular dial also provided with needles, and having a radial slot, cam-cylinder having cams for actuating the cylinder-needles, a cam-plate having cams for actuating the dial-needles, and brackets on said cam-plate for supporting said dial, substantially as specified.

4. The combination, in a knitting-machine, of a needle-cylinder and its needles, an annular dial also provided with needles and having a radial slot, means for actuating the needles of the cylinder and dial, a series of thread-guides mounted so as to be movable inwardly through the slot of the dial to a position within the limits of said dial and so as to be moved outwardly through said slot to a position for feeding thread to the needles of the cylinder and dial, and means for so moving said thread-guides.

5. The combination in a knitting-machine, of the needle-cylinder and its needles, the cam-cylinder, an annular and radially-slotted dial and its needles, a radially-slotted cam-plate and its spindle, a structure connecting the cam-cylinder and the spindle of the dial cam-plate, and swinging thread-guides mounted upon said connecting structure and adapted to move through the slot of the dial either to an inoperative position within the dial or to an operative position beyond the same.

6. The combination of the swinging thread-guides, the bevel-wheels carrying the same, a bevel-wheel meshing with the wheels which carry the thread-guides, a shaft carrying said meshing bevel-wheel, a tappet on said shaft, and means for actuating said tappet so as to partially turn the shaft first in one direction and then in the opposite direction, substantially as specified.

604,641. ROTARY ENGINE. WILLIAM WILLERTON and THOMAS SHORTLIFF, Kipp, Mont. Filed July 27, 1897. Serial No. 646,094. (No model.)



Claim.—1. A rotary engine, comprising a casing formed with a hub and having pivoted abutments, a revoluble piston in the form of a wheel having a rim concentric to the hub of the casing and forming with the said hub an annular working chamber, the said abutments being pivoted near their inner ends and each having a heel at said end adapted to rest against the inner wall or hub, the outer ends of said abutments being adapted to travel on the inner surface of the said rim, and piston-heads pivoted near their outer ends on the web of the said wheel, the inner ends of the said piston-heads being adapted to travel on the peripheral surface of the hub, substantially as described.

2. A rotary engine, comprising a casing formed on one face with a hub, the said casing having inlet and exhaust ports alternately arranged, a piston mounted to turn and having its central portion engaging the said hub of the casing, the piston having a solid web and a rim concentric to the said hub of the casing and having its outer edge fitted to turn in an annular groove formed on the inner face of the casing, thereby forming with the casing an annular working chamber, the said piston being provided with piston-heads pivoted near their outer ends to the web of the said piston and mounted to swing in the said chamber, the inner ends of the said piston-heads being provided with friction-rollers adapted to travel on the peripheral surface of the hub of the casing, and abutments pivoted near their inner ends to the hub of said casing at opposite points and normally extending tangentially therefrom, the said abutments being provided at their outer ends with friction-rollers arranged to travel on the inner surface of the rim of the piston, the said abutments and piston-heads being so arranged that when the piston rotates the piston-heads swing outwardly while the abutments swing inwardly to allow the piston-heads to pass the abutments, substantially as set forth.

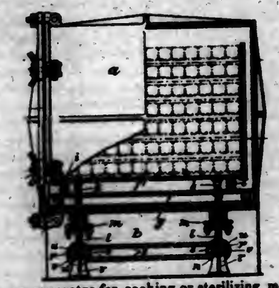
3. A rotary engine, comprising a casing, and a piston mounted to turn and forming with the said casing an annular working chamber and pivoted abutments and pivoted piston-heads within the working chamber and adapted to pass one another, the said abutments being pivoted near their inner ends to the inner fixed wall of said working chamber and provided with friction-rollers at their outer ends adapted to rest against the inner surface of the rim of the piston, and the said piston-heads being pivoted near their outer ends on the movable piston and having their inner ends provided with friction-rollers adapted to engage the inner fixed wall of the said working chamber, the said casing being provided with inlet-ports opening into the said annular chamber forward of said abutments, and outlet-ports leading from said annular chamber and located at the rear of said abutments, the inlet-ports being located near the outer wall of the annular chamber and the outlet-ports near the inner wall thereof, the said ports being alternately arranged, substantially as shown and described.

4. A rotary engine, comprising a casing, a piston mounted to turn and forming with the said casing an annular working chamber, abutments pivoted near their inner ends to the inner fixed wall of the chamber at opposite points and adapted to engage with their outer ends the inner surface of the rim of the piston, piston-heads pivoted near their outer ends to the movable piston and having their inner ends adapted to engage the inner fixed wall of the working chamber, the said casing being provided with oppositely-arranged inlet-ports opening into the said annular working chamber at a point forward of said abutments, the casing being also provided with oppositely-arranged outlet-ports opening into the annular chamber at the rear of the abutments, the said pivoted abutments and pivoted piston-heads being adapted to pass one another and arranged to be returned to their normal positions by pressure of the motive agent, substantially as set forth.

5. A rotary engine, comprising a casing, a revoluble piston forming with the said casing an annular working chamber, two oppositely-arranged abutments pivoted near their inner ends to the casing and resting with their inner ends against the inner wall of the chamber, the said abutments carrying friction-rollers at their outer ends adapted to rest against the rim of the piston, the said abutments normally extending tangentially from the inner wall of the annular working chamber and in opposite directions, piston-heads pivoted near their outer ends on the web of the piston and adapted to rest with their outer ends against the rim of the piston and their inner ends on the inner wall of the chamber, the piston-heads being three in number, the said casing being provided with diametrically-arranged inlet-ports opening into the annular working chamber forward of the said abutments, and outlet-ports opening into said chamber at the rear of said abutments, substantially as set forth.

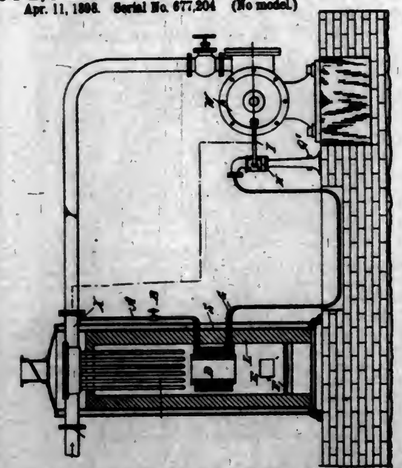
604,642. APPARATUS FOR TREATING OR STERILIZING CANNED FOOD. FRANK W. SMITH, Portland, Me. Filed Sept. 3, 1897. Serial No. 650,473. (No model.)

Claim.—1. In an apparatus for cooking or sterilizing meats, vegetables and other substances, the combination of a stationary retort, a car, crate or similar device holding such substances, a rod connected with said car and passing through a steam-tight opening in the walls of said retort and means for reciprocating such rod, substantially as described.



2. In an apparatus for cooking or sterilizing meats and other substances, the combination of a stationary retort, a car, crate or similar device mounted upon springs upon a car with trucks and means by which said springs may be alternately depressed and released, substantially as described.

604,643. ENGINE. HENRI STEVEN, San Sebastian, Spain. Filed Apr. 11, 1898. Serial No. 677,204. (No model.)



Claim.—1. The combination with the movable resistance or piston, the cylinder or working chamber, and means for supplying a main motive agent alternately to both ends of the cylinder, of a separate superheater for each end of the cylinder, connections from the superheaters to the cylinder, and a shifting valve for alternately admitting the heating medium from the superheaters to the cylinder.

2. The combination, with movable resistance or piston, the cylinder or working chamber, means for supplying a motive agent to said cylinder, ports or nozzles arranged longitudinally to discharge a fluid in the same direction in which the piston moves, and a superheating arrangement connected with said ports.

3. The combination with the piston or movable resistance, the cylinder or working chamber, and means for supplying a motive agent thereto, of two superheaters, a valve-casing having two passages connected to the ends of the cylinder, and two passages connected to said superheaters, and a shifting valve which in each of its positions closes one of the cylinder-passages and one of the superheater-passages.

4. The combination with the piston or movable resistance, the cylinder or working chamber, and means for supplying a motive agent thereto, of two superheaters, a valve-casing having two passages connected to the ends of the cylinder, and two passages connected to said superheaters, and an oscillating valve which in each of its positions closes one of the cylinder-passages and one of the superheater-passages.

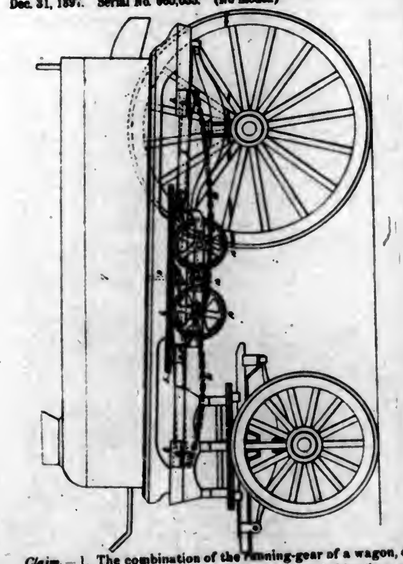
5. The combination with the piston or movable resistance, the cylinder or working chamber, and means for supplying a motive agent thereto, of a valve-casing having two passages connected to the ends of the cylinder, a superheating arrangement connected to the valve-

casing, and an oscillating valve for alternately admitting the superheated medium to the opposite ends of the cylinder.

6. The combination with the piston or movable resistance, the cylinder or working chamber, a furnace, a supply-pipe for the motive agent, a series of pipes connected to said supply-pipe and extending into said furnace to dry the motive agent, a device for distributing the motive agent in the cylinder, a pipe leading from the discharge end of the said series of pipes to the distributing device, a superheating arrangement located in said furnace and having connections to each end of the cylinder, and an oscillating valve for alternately admitting the superheated medium to opposite ends of the cylinder.

7. The combination with the piston or movable resistance, the cylinder or working chamber, a device for distributing the motive agent in the cylinder, and a supply-pipe leading to said device, of a branch pipe connected to said supply-pipe, a superheating arrangement connected to said branch pipe, a throttle-valve controlling the connection of the superheating arrangement with the supply-pipe, connections from the superheating arrangement to each end of the cylinder, and a shifting valve for alternately admitting the superheated medium to opposite ends of the cylinder.

604,644. DUMPING-WAGON. SAMUEL STURGIS, West Manayunk, Pa., assignor to James A. McCullough, Philadelphia, Pa. Filed Dec. 31, 1897. Serial No. 665,033. (No model.)



Claim.—1. The combination of the running-gear of a wagon, opposite pairs of toggle-levers thereon, a turn-table carried by the meeting ends of said toggle-levers, a wagon-body mounted so as to turn on said turn-table, and provision for drawing the lower ends of the toggle-levers toward each other so as to elevate the turn-table and the wagon-body mounted thereon, substantially as specified.

2. The combination of the running-gear of a wagon, opposite pairs of toggle-levers, a turn-table carried by the meeting ends of said levers, a wagon-body mounted upon said turn-table so as to be free to turn thereon, and winding-shafts having draft-chains, those of one shaft operating one pair of toggle-levers and those of the other shaft operating the other pair of toggle-levers, substantially as specified.

3. The combination of the running-gear of a wagon, opposite pairs of toggle-levers, a turn-table carried by the meeting ends of said pairs of levers, a wagon-body free to turn on said turn-table, a pair of winding-shafts, draft-chains whereby each shaft is caused to operate its respective pair of toggle-levers, and slides guided on the sills of the truck and carrying the outer ends of said toggle-levers, substantially as specified.

4. The combination of the truck and its running-gear, opposite pairs of toggle levers, a turn-table carried by the meeting ends of said levers, a wagon-body free to turn on said turn table, winding-shafts each having draft-chains operating its respective pair of toggle-levers, cone-drums on said shafts, and stay-chains leading from said cone-drums to the fore-and-aft portions of the turn-table, substantially as specified.

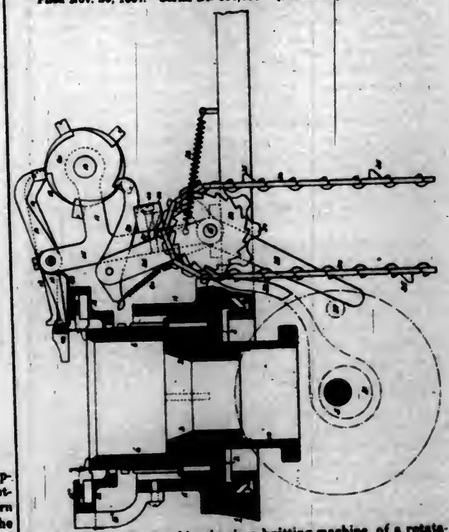
5. The combination of the truck and its running-gear, opposite pairs of toggle-levers, a turn-table carried by the meeting ends of said levers, a wagon-body free to turn on said turn-table, a pair of winding-shafts each having draft-chains operating its respective pair of toggle-levers, and provision for operating said winding-shafts either simultaneously or separately, substantially as specified.

604,645. SYRINGE. WILLIAM L. WHITTINGTON, St. Joseph, Mo. Filed May 13, 1896. Renewed Dec. 17, 1897. Serial No. 662,341. (No model.)



Claim.—A vaginal syringe having an interiorly-threaded socket at the end of its discharge-tube, the discharge-nozzle having its rear end reduced and threaded to take into said socket and also having the collar flange or shoulder *g*, and the projection *h*, in rear of said flange or shoulder, and the frame comprising the sleeve *i*, placed on the nozzle between the collar-flange thereof and the socket of the discharge-tube and having a notch in its forward end receiving the projection *h*, of the nozzle, the arms *k*, extending radially from the rear end of the sleeve, the forward plate, and the bars connected at their ends to the said plate and the arms *k*, substantially as specified.

604,646. CIRCULAR-KNITTING MACHINE. LOUIS H. D. WILLIAMS, Ashbourne, and HARRY SWINBURNE, Jr., Philadelphia, Pa., assignors to said Williams and Robert W. Scott, Philadelphia, Pa. Filed Nov. 29, 1897. Serial No. 660,060. (No model.)



Claim.—1. The combination in a knitting-machine, of a rotatable and removable needle-cylinder, with thread-guides movable into and out of operative relation with the needles, and also movable from and toward the needles so as to permit of the insertion or removal of the needle-cylinder.

2. A knitting-machine in which are combined a rotatable and removable needle-cylinder, thread-guides movable into and out of operative relation with the needles of said cylinder and also movable to and from the needle-cylinder so as to permit of the insertion and removal of the same, and a pattern device acting on said thread-guides and movable toward and from the needle-cylinder with the same.

3. A knitting-machine in which are combined a needle-cylinder, a rotatable carrier therefor having a split and tapered flange engaging with the inner side of the needle-cylinder and an annular wedge rotating with said carrier and acting upon the split and tapered flange of the same.

4. A knitting-machine in which are combined a needle-cylinder, a rotatable carrier having a split and tapered flange adapted to engage with the inner side of said cylinder, an annular wedge engaging with said split and tapered flange, and an annular nut engaging with said annular wedge and bearing upon said rotating carrier.

5. A knitting-machine in which are combined a rotatable and removable needle-cylinder, a series of thread-guides, a pattern-drum for acting thereupon, a pivoted structure carrying said thread-guides and drum, and operating mechanism for said pattern-drum hung upon the same axis as the carrier therefor.

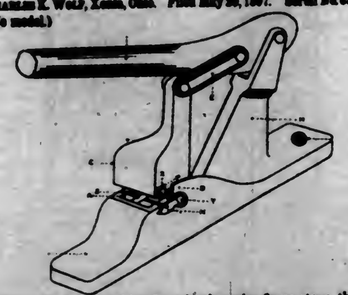
6. The combination in a knitting-machine, of a series of thread-guides, a pattern-drum for acting thereupon, a ratchet-wheel connected to said drum, a swinging arm having a pawl for engaging with said ratchet-wheel, a movable stop lug for arresting the movement of said pawl-carrying arm, a pattern-chain for moving said lug, and means for actuating said pattern-chain and swinging arm.

7. A knitting-machine in which are combined a rotatable needle-cylinder, thread-guides movable vertically into and out of operative relation with the needles, and a needle shield or guard covering and protecting the tops of the needles on each side of the knitting-point, whereby the thread from a raised guide will pass over said shield.

8. A knitting-machine in which are combined a rotatable needle-cylinder, thread-guides movable vertically into and out of operative relation with the needles, and a needle shield or guard covering and protecting the tops of the needles on each side of the knitting-point, whereby the thread from a raised guide will pass over said shield, the latter being cut away so as to escape the needles when the latter rise to receive the thread from the operative guide.

9. A knitting-machine in which are combined a rotatable and removable needle-cylinder, thread-guides movable vertically into and out of operative relation with the needles, a needle shield or guard for preventing the thread from a raised guide from engaging with the needles at the knitting-point, and a carrier for said thread-guides and needle-shield movable so as to carry them away from the cylinder in order to permit of the removal of the same.

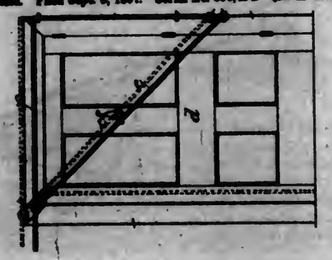
604,647. MACHINE FOR CRIMPING WIRE-FENCE STAYS. CHARLES K. WOLF, Xenia, Ohio. Filed May 20, 1897. Serial No. 638,702. (No model.)



Claim.—1. In a machine for crimping wire-fence stays, the combination with the casting or base 1, the projection extending from the upper side of said base forming a boxing in which is placed the female die A, the hammer fastened to the top of said projection and working pivotally thereon and being provided on its under side with a male die F, the link E connecting said hammer with the lever F pivoted to the upright H on the base, substantially as described and shown.

2. In a machine for crimping wire-fence stays, the combination with the base or casting formed with a projection on its upper side, and with a lug at the side, of the hammer having a male die at its lower end, the stud or pivot at the side of the hammer and engaging said lug, the upright formed integral with said casting, the lever pivoted thereto, the link pivotally connecting said lever and hammer, and the guide N, substantially as described and shown.

604,648. PORTIÈRE-ROD. JAMES ATHERSON, Dunedin, New Zealand. Filed Sept. 3, 1897. Serial No. 650,694. (No model.)



Claim.—1. A curtain or portière support of the character described, comprising a vertical rod; a horizontal rod fixed upon the upper end of said vertical rod; a diagonal rod rigidly fixed at its ends to said vertical and horizontal rods; eyebolts or equivalent devices loosely mounted upon said vertical rod; and an eyebolt or equivalent device loosely mounted upon said diagonal rod, as and for the purposes described.

2. The combination with a swinging door and its hinge-post; of a curtain or portière support comprising a vertical rod, a horizontal rod fixed upon the upper end of said vertical rod, and a diagonal rod rigidly connected to both of said rods; a plurality of eyebolts or equivalent devices loosely inclosing said vertical rod and attached in a vertical line to the hinge-post of said door at some distance to one side of the hinges thereof; and an eyebolt or equivalent device loosely inclosing said diagonal rod and fixed upon said door, substantially as and for the purposes described.

3. The combination with a swinging door and its hinge-post; of a curtain or portière support comprising a vertical rod hinged to the said hinge-post of the door, and at some distance to one side of the hinges of the latter, and having a longitudinal as well as a rotary movement; a horizontal rod fixed upon the upper end of said vertical rod and extending transversely above the doorway; and a diagonal rod rigidly connected at its ends to said vertical and horizontal rods and passing through a guide fixed upon the face of the door, and having a longitudinal movement in said guide, substantially as described.

604,649. PERPETUAL CALENDAR. OCTAVIUS H. ST. GEORGE ARMER, Madison, Wis. Filed May 26, 1897. Serial No. 638,051. (No model.)



Claim.—In a calendar of the character set forth, the combination of a rectangular frame open at the front and having a pivoted back to serve as a rest therefor, and also formed with a longitudinal slot in one of the frame sides, a calendar-card mounted in the said frame and divided into columns representing the days of the month and also formed with a longitudinal slot as well as upper slots, an endless roll movable against the back of the frame containing days of the week and also an upper roll bearing the names of the months of the year, one of the slots at the top of the frame being adapted to expose a roll bearing terminal numerals representing the fraction of a year or portion of a century, and a concealing-slide movable over the card at one side thereof to conceal one or all of the numerals in the last column of the same, and connected to cranks of an actuating-slide, the said cranks projecting through the slot in one side of the frame and the actuating-slide being of greater width than the said slot and located on the exterior of the frame and provided with an operating-knob, the said shanks also providing stops to abut against the upper and lower terminations of the slot in the side of the frame and limit the movement of the concealing-slide.

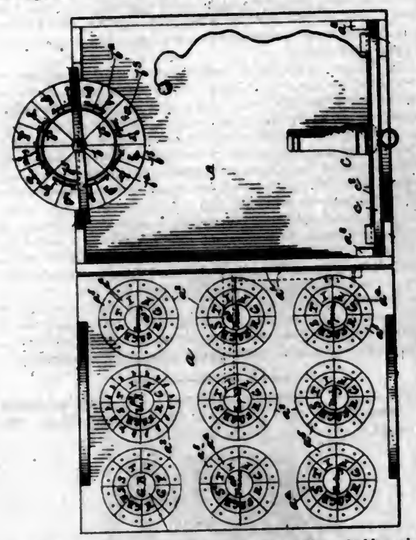
604,650. GAME APPARATUS. CHARLES R. AMES, Duluth, Minn., assignor of one-half to Edward A. Forsythe, same place. Filed Oct. 7, 1897. Serial No. 654,436. (No model.)

Claim.—1. In a game apparatus, the combination of a suitable casing, a target mounted therein, means for shooting said target, a cover for said casing having an indicod counter thereon consisting of inclosed spaces representing the territories of different nations, each inclosed space having an inner space which is subdivided, each subdivision representing a nation represented in the game, and an outer subdivided space provided with pin-holes adapted to receive and hold markers representing captured flags or prisoners, substantially as described.

2. In a game apparatus, the combination with a suitable target and a shooting means, of a casing for inclosing the same, the said casing being provided with apertures in its ends for accommodating the target and the shooting apparatus, a cover adapted to close the casing when the game is not being used and means on the cover for closing the said apertures in the casing, substantially as described.

3. In a game apparatus, the combination with a suitable casing, of a target adapted to be mounted therein, said target comprising a disk having soldiers or flags removably mounted thereon, a revolv-

ing rim surrounding the said disk and adapted to indicate the flag or soldier captured and a mechanism for throwing a projectile against said target for revolving it, substantially as described.



4. In a game apparatus, the combination with a suitable casing, of a target adapted to be mounted therein comprising a vertical standard, a disk mounted thereon having suitable indicating means upon the same, a revolving rim also mounted on said standard, a target portion mounted on the said rim and an indicator adapted to operate in connection with the indications upon the said disk and means for forcing a projectile against the said target, substantially as described.

5. In a game apparatus, the combination of a suitable casing having apertures in the sides thereof, a removable target mechanism adapted to be set up in one of said apertures and a gun-carriage adapted to be set up in the other aperture whereby the parts will be held in suitable playing position, substantially as described.

6. In a game apparatus, the combination with a suitable casing of a target mounted therein, a removable gun-carriage, having a plurality of engaging portions, disposed at right angles to each other, a cannon, pivotally and slidably mounted therein, and retaining means in said box for holding the said gun-carriage in position, the construction being such that the carriage may be placed in position upon different edges so that the gun may have a horizontal or vertical sliding movement, substantially as described.

7. In a game apparatus, the combination with a suitable casing of a target having a disk provided with spaces for the representative flags and soldiers of different nations, a counter having spaces representing the territory of different nations, a target provided with an indicator for designating the flag or soldier of the nation which may be captured, the construction being such that the captured flag or soldier may be placed in the prison of the victorious nation upon the counter, substantially as described.

8. In a game apparatus, the combination with a suitable casing of a target mounted therein having a revolving rim portion, a projectile-receiving portion mounted thereon and an indicator secured to the said rim, a disk also mounted on the said target and provided with flags and soldiers of different nations, a removable cannon also mounted in the said casing and adapted to force the projectiles against the said target, the construction being such that the revolving rim portion will indicate when it ceases its movement the flag or soldier captured, substantially as described.

604,651. WELL-STRAINER. JOHN BOOTH, Bellville, Tex. Filed Sept. 23, 1897. Serial No. 652,642. (No model.)

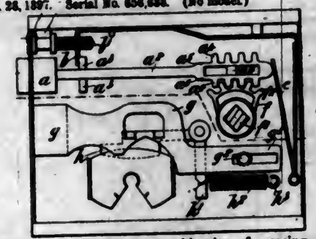
Claim.—1. In a well-strainer, the combination of a hollow shell or casing made up of a plurality of sections fitted together, and provided externally with a plurality of larger openings leading partially therethrough, and internally with a corresponding number of smaller openings leading to said larger external openings; a strainer covering the passage between each larger and corresponding smaller opening; and a strainer covering each larger opening, substantially as described.



2. In a well-strainer, the combination with a hollow shell or casing made of cement molded into the desired shape and provided externally with a plurality of larger openings leading partially therethrough, and internally with a corresponding number of smaller openings leading to said larger external openings; sheets of wire-gauze covering the inner ends of said smaller openings, and other sheets of wire-gauze covering the outer ends of said larger openings, said sheets of gauze being embedded at their edges in said cement, substantially as described.

3. In a well-strainer, the combination with a hollow shell or casing made of cement, molded into the desired shape and provided externally with a plurality of openings leading partially therethrough, and internally with smaller openings leading to said external openings, sheets of wire-gauze covering the outer ends of said smaller openings, and other sheets of wire-gauze covering the outer ends of said larger openings, said sheets of gauze being embedded at their edges in said cement casing, and a porous filtering material filling the space between the parallel layers of wire-gauze, substantially as described.

604,652. LOCK. WILLIAM R. BURT, Dunedin, New Zealand. Filed Oct. 28, 1897. Serial No. 656,688. (No model.)

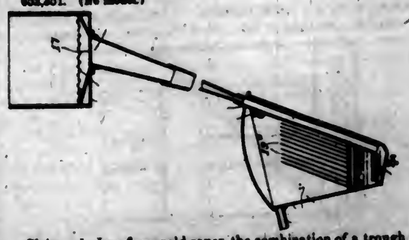


Claim.—1. In a lock, the combination of a casing, a bolt provided with a pin, a spring engaging said bolt, one end of said spring serving as a stop with which said pin engages and an adjusting-screw mounted in said casing and engaging the said stop, substantially as described.

2. In a lock, the combination of a casing, a bolt provided with a rack and a pin, a handle provided with a rack, a spring engaging said bolt, one end of said spring serving as a stop with which said pin engages and an adjusting-screw mounted in said casing and engaging the stop, substantially as described.

3. In a lock, the combination of a casing, a bolt provided with a stop and with two racks, a handle provided with a rack, a spring engaging said bolt near one end and having the other end bent over and provided with a screw-threaded perforation and an adjusting-screw provided with collars and a screw-thread, said casing being provided with a perforated guide-block, substantially as described.

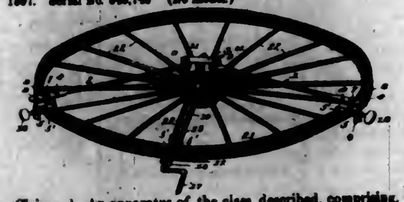
604,653. FLOUR-GOLD SAVER. BURT CHALONER and RICHARD B. LICHTENBERGER, Anaconda, Colo. Filed Sept. 20, 1897. Serial No. 652,351. (No model.)



Claim.—1. In a flour-gold saver, the combination of a trough or receptacle for mercury, a distributer or feed-chute discharging into the trough, and a dividing-plate composed of a series of parallel bars forming narrow, parallel openings arranged within the trough below the surface of the mercury, and a series of parallel, inclined, amalgamated plates in the receptacle above and inclined with relation to the dividing-plate and away from the discharge side, whereby the material passing through the discharge side, whereby the material passing through the amalgamator is forced to take a zigzag or sinuous path between the amalgamated surfaces, substantially as described.

2. The combination of a trough or receptacle having downwardly-converging front and rear walls, a discharge-port in the upper part of the front wall, a feed-chute having a narrow, elliptical mouth or discharge-orifice in the lower part of the rear wall, a dividing-plate composed of a series of bars forming narrow parallel openings arranged in the trough below the surface of the mercury, of a series of amalgamated plates in the receptacle above the mercury, inclined away from the discharge side whereby the material passing through the amalgamator is forced to take a zigzag or sinuous path between the amalgamated surfaces, substantially as described.

604,654. DEVICE FOR CONTRACTING AND EXPANDING VEHICLE-RIMS. WILLIAM H. CLAWSON, Rob Roy, Ind. Filed Aug. 27, 1897. Serial No. 649,743. (No model.)



Claim.—1. An apparatus of the class described, comprising, in combination, a wedge-block or head, a pair of expanding and contracting arms pivoted thereto, clamps adjustably connected with the free ends of said arms and provided with pendent, parallel arms adapted to straddle a wheel-rim, a clamping-screw operating in one of the parallel arms of each clamp and adapted to bear against the periphery of the wheel-rim, a bearing-clamp also provided with parallel arms and a clamping-screw, and a screw-shaft operating in said bearing-clamp and connected with said wedge-block or head, substantially as described.

2. An apparatus of the class described, comprising, in combination, a wedge-block or head 3, expanding and contracting arms 1 2 pivoted at their inner ends thereto and provided at their outer ends with a series of orifices 4, a pair of clamps 5 each provided with pendent, parallel arms 6 adapted to straddle a wheel-rim, a pivot-bearing adapted to engage either one of the said series of holes 4 in the said arms 1 2 and a clamping-screw, a bearing-clamp 12 provided with similar parallel flanges and a clamping-screw and also with a bearing-leg, and a screw-shaft operating in said bearing-lug and connected with said wedge-block or head, substantially as described.

3. An apparatus of the class described, comprising, in combination, a wedge-block or head, a pair of expanding and contracting arms pivoted thereto and carrying adjustable clamps formed with pendent flanges or arms adapted to straddle and engage the inner and outer faces of a wheel-rim and with lateral lips or ears adapted to bear upon the side of the rim, a bearing-clamp, and a screw-shaft operating in the bearing-clamp and connected with said wedge-block or head, substantially as described.

604,655. STOVE. ERNEST C. COLE, Council Bluffs, Iowa. Filed Nov. 9, 1897. Serial No. 657,948. (No model.)



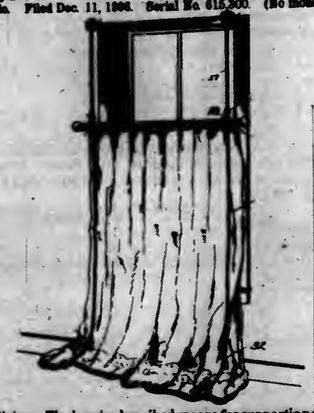
Claim.—1. In a stove substantially as shown and described the combination of the elbow-frame or jamb, the swinging connection pivoted at one end thereto, and the door pivoted to the other end of said connection and having a latching projection or lug arranged to abut the framing and hold the door open substantially as shown and described.

2. In a stove substantially as shown and described the combination of the frame or jamb, the door having a projecting lug arranged to abut said frame or jamb, and the swinging connection pivoted at one end to the elbow or frame and at its other end to the door and provided between its ends with an opening through which the lug on the door plays substantially as shown and described.

3. An improvement in stoves comprising the door, and the door-jamb having coincident surfaces and provided with hinge lugs or projections arranged wholly out of the line of coincidence between said door and its jamb and a double-hinge connection between said lugs or projections substantially as described, whereby the lugs or projections will not interfere with the grinding of the coincident surfaces on a flat wheel and the surfaces when so ground may adjust to a true fit substantially as set forth.

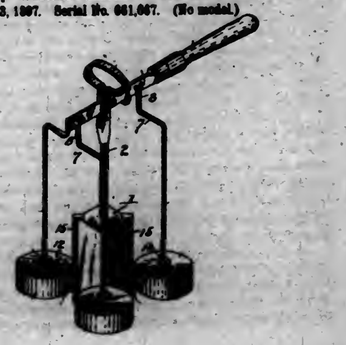
4. The herein-described improvement in stoves consisting of the sheet-metal body having an opening, the cast-metal door-jamb, and the sheet-metal collar extending at its outer end within the cast-metal door-jamb and secured thereto at a point away from the extreme heat, the inner end of the sheet-metal collar being secured to the sheet-metal body whereby the sheet-metal collar is connected at one end directly with the sheet-metal body and its connection at its other end with the cast-metal door-jamb may be located away from the extreme heat substantially as set forth.

604,656. CURTAIN-FIXTURE. ALBERT C. FISCHER, Cincinnati, Ohio. Filed Dec. 11, 1896. Serial No. 615,200. (No model.)



Claim.—The herein-described means for supporting curtains comprising a pair of brackets adapted to be secured to a window-frame, each of which has formed integral therewith one section of a casing, a complemental section of said casing detachably connected thereto, said sections having oppositely and centrally located socketed offsets, an opening in said casing, an axle, revolubly and removably mounted in said offsets, having longitudinal ribs, a pulley having in its bore grooves adapted to receive said ribs and removably fitted on the axle to turn therewith, a spring located within the casing for actuating said pulley, a gravity-latch engaging the axle of said pulley for retarding the rotation thereof, and a tape wound around said pulley and working through the opening in the casing and having at its free end provision for the attachment of a curtain-pole, substantially as described.

604,657. WASHING-MACHINE. SAMUEL FLOWERS, Galion, Ohio. Filed Dec. 13, 1897. Serial No. 661,667. (No model.)



Claim.—In a clothes-washer of the character described, the combination with the central block provided with vertical guides, of the cups provided with loops engaging with and movable upon said guides, the rods connected with said cups formed with central bends, the rod secured to said block provided with a hand-hole, and the lever pivotally connected with the rods secured to the cups, substantially as specified.

604,658. ARCH-STONE. Otto Förster, Wernigerode, Germany. Filed Dec. 23, 1896. Serial No. 616,780. (No model.) Patented in England Dec. 26, 1896, No. 6,846.



Claim.—The herein-described floor construction, comprising supporting-beams and a series of rows of tiles placed end to end, the tiles of one row breaking joints with those of the adjacent rows and each block being provided upon the two opposite sides which extend transversely to the supporting-beams, with two oppositely-inclined walls, said walls extending toward each other and joined about midway of the sides of the tile by a short inclined intermediate wall to provide a continuous transverse rib upon opposite sides of each row of tiles, and the ribs of one row of tiles interlocking with the ribs of the adjacent rows, substantially as described.

604,659. APPARATUS FOR USING LIQUEFIED OR COMPRESSED GAS. Joseph B. Fournier, Paris, France. Filed Oct. 22, 1896. Serial No. 609,762. (No model.) Patented in France Mar. 30, 1896, No. 255,128.



Claim.—In an apparatus for receiving and discharging liquefied gas, the combination of a closed vessel for containing the gas, a valved filling-tube having an automatic alarm at its inner end, a valved eduction-tube fitted gas-tight in one end of said vessel, a safety-vent formed in the vessel, a valve for closing said vent, and a manometric tube communicating at one end with the interior of the vessel and connected at its other end with said vent-valve, the said manometric tube being adapted to expand and open the vent-valve when pressure in the vessel becomes excessive, substantially as shown and described.

604,660. TRACTION-ENGINE WITH WINDING-DRUM. Robert H. Fowler and George B. Tuer, Leeds, England. Filed Sept. 20, 1897. Serial No. 652,336. (No model.) Patented in England Dec. 6, 1896, No. 23,422.

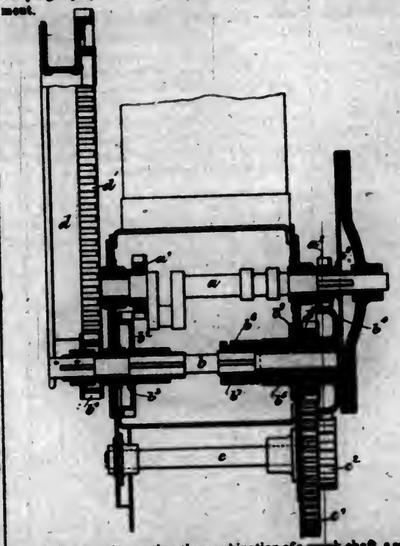
Claim.—1. In a traction-engine, the combination of a crank-shaft, a second-motion shaft, gearing connecting the road-wheels with the second-motion shaft, means for disconnecting this gearing, a vertical winding-drum at the side of the engine, a ring of teeth on the drum, and a pinion on the second-motion shaft engaging with the ring of teeth.

2. In a traction-engine, the combination of a crank-shaft, a second-motion shaft, a pinion fixed on the crank-shaft gearing with a wheel free to slide on the second-motion shaft, a pinion free to slide on the crank-shaft gearing with a wheel on the second-motion shaft, means for connecting this wheel to the shaft, a pinion revolving with the wheel and driving the road-wheels, and a pinion on the second-motion shaft driving a vertical winding-drum at the side of the engine.

3. In a traction-engine, the combination of a crank-shaft, a second-motion shaft, a pinion fixed on the crank-shaft gearing with a wheel free to slide on the second-motion shaft, a pinion free to slide on the crank-shaft gearing with a wheel fixed to a sleeve on the second-motion shaft, a clutch connecting the sleeve to the shaft, a pinion free to slide on the boss of the wheel and driving the road-wheels, and a pinion on the second-motion shaft driving a vertical winding-drum at the side of the engine.

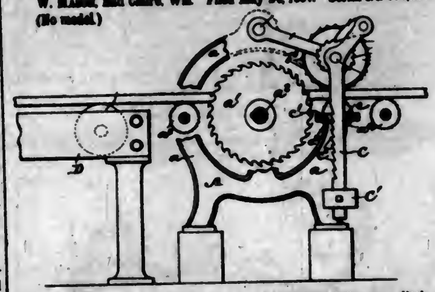
4. In a traction-engine, the combination of road-wheels, a winding-drum, means for driving the wheels when the drum is stationary and the drum when the wheels are stationary each at two different speeds and means whereby the driver is prevented from putting both traveling speeds or both winding speeds into gear at the same time.

5. In a traction-engine, the combination of road-wheels, a winding-drum, means for driving the wheels and the drum each at two different speeds, four clutch-levers operating the gearing, a locking-bar moved by the first lever and carrying a hook engaging with the second lever, a second locking-bar moved by the third lever and carrying a projection coming between the first bar and a fixed abutment.



6. In a traction-engine, the combination of a crank-shaft, a second-motion shaft, a pinion fixed on the crank-shaft gearing with a wheel on second-motion shaft, a clutch-lever sliding the wheel on the shaft, a pinion on the crank-shaft, a second clutch-lever sliding the pinion on the shaft, a sleeve on the second-motion shaft, a wheel fixed to the sleeve and gearing with the pinion, a clutch connecting the sleeve to the shaft, a third lever operating the clutch, a pinion free to slide on the boss of the wheel and driving the road-wheels, a fourth clutch-lever operating the pinion, a pinion on the second-motion shaft driving a vertical winding-drum on the side of the engine, a locking-bar moved by the first lever and carrying a hook engaging with the second lever, a second locking-bar moved by the third lever and carrying a projection coming between the first bar and a fixed abutment.

604,661. LUMBER-EDGER. Hansen M. Johnson and George W. Mason, Eau Claire, Wis. Filed May 24, 1897. Serial No. 637,997. (No model.)



Claim.—1. An attachment for machines for edging or splitting lumber consisting of a roller for holding the lumber in position in said machine, means secured to the shaft of the said roller for preventing its backward movement comprising a pivoted lever, a pawl on the said lever and a guide upon the frame engaging said lever whereby the said lever is held so that the pawl will always be in operative position, a ratchet-wheel upon the roller-shaft for engaging the said pawl and means upon the periphery of the said roller for engaging the surfaces of the lumber, the construction being such that the lumber cannot be thrown backward in the machine by the action of the saw, substantially as described.

2. An attachment for a machine for edging or splitting lumber comprising a roller for holding the lumber in proper position, a ratchet secured to the shaft of the said roller, a lever pivotally mounted on the said shaft, a pawl pivotally secured to the said lever for engaging the said ratchet whereby the roller is prevented from moving backwardly and the back throw of the lumber under the action of the saw is also prevented, and a guide upon the frame engaging the said lever to limit the movement of the pawl with the ratchet, the said pawl also operating to prevent the rising of the roller, substantially as described.

3. An attachment for a machine for edging or splitting lumber comprising a roller for holding the said lumber in proper position, a ratchet secured to the shaft of the said roller, a lever pivotally mounted on the said shaft and a pawl pivotally secured to said lever for engaging the said ratchet whereby the roller is prevented from turning backwardly and a weight secured to the lower end of the said pivoted lever for holding the roller in engagement with the lumber, substantially as described.

4. In an attachment for lumber-edging machines, the combination of a roller for holding the lumber in proper position, means for pivotally holding said roller in said frame whereby the roller is capable of an up-and-down movement, brads for engaging the lumber secured to the periphery of the roller, a ratchet secured to the shaft of the roller, a pivoted lever carrying a pawl for controlling the ratchet, said lever being provided with a rack or ratchet-teeth adapted to engage a portion of the frame, the construction being such that the roller is prevented from being turned backwardly and is held firmly in contact with the lumber, substantially as described.

5. In an attachment for lumber-edgers, the combination of a roller for holding the lumber in proper position, a swinging frame for supporting the roller, a lever pivotally mounted on the shaft of said roller, means interposed between the said roller and lever for preventing the backward revolution of the roller, ratchet-teeth formed upon the said lever, a projection upon the frame of the machine having a guide-slot formed therein for receiving and guiding the lower portion of the said lever, one of the walls of the said slot being adapted to engage the teeth upon the lever for preventing its upward movement and a weight secured to the lower end of the lever, substantially as described.

6. In an attachment for lumber-edgers, the combination of a roller for holding the lumber in proper place, brads consisting of cylindrical body portions adapted to be inserted into the periphery of the roller, whereby the roller is adapted to hold the lumber from twisting, the surface of the outer ends of the said cylindrical portions being flush with the peripheral surface of the roller, flattened knife-edges formed upon said body portions for engaging the lumber, the said edges being arranged on lines at right angles to the roller, a ratchet secured to the shaft of the roller, a lever pivotally mounted on the said shaft, a pawl pivotally secured to said lever for engaging the said ratchet whereby the roller is prevented from turning backwardly and thus adapted to prevent the back throw of the lumber under the action of the saw, and means for limiting the movement of the said lever, substantially as described.

604,662. GEARING. Henry B. Keiper, Lancaster, Pa. Filed Oct. 13, 1897. Serial No. 655,070. (No model.)



Claim.—1. A gear-wheel divided transversely, and each section having a series of sockets registering with the corresponding series of sockets in the other section, and each section having an encircling channel registering with that in the other section, each two registering sockets together forming a spheroidal recess opening out of the periphery of the wheel, and the registering encircling channels together forming a groove extending centrally through the recesses and opening out of the periphery of the wheel and being of reduced width as compared with the recesses, balls seated in said recesses and confined therein by reason of the spheroidal form of the latter; and means securing the sections of the wheel together.

2. A gear-wheel divided transversely, and each section having a series of sockets registering with the corresponding series of sockets in the other section, and each section having an encircling channel registering with that in the other section, each two registering sockets together forming a spheroidal recess opening out of the periphery of the wheel, and the registering encircling channels together forming a groove extending centrally through the recesses and opening out of the periphery of the wheel and being of reduced width and depth as compared with the recesses; balls seated in said recesses and confined therein by reason of the spheroidal form of the latter; and means securing the sections of the wheel together.

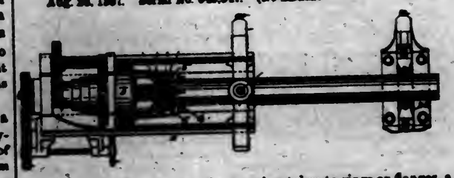
604,668. CUSHION-TIRE. Wheeler G. Kendall, Providence, R. I., assignor to the Kendall Rubber Tire Company, same place. Filed Dec. 22, 1897. Serial No. 663,126. (No model.)



Claim.—1. A rubber tire, having an interior longitudinal cavity of inverted-T shape, in cross-section, and provided with means opening from the inner periphery into said cavity for the passage of securing-bolts, in combination with a metal clamping-band, provided with a central rib to set into the vertical channel of the cavity, and bolts for securing the tire onto a wheel.

2. A rubber tire, having an interior longitudinal cavity of inverted-T shape, in cross-section, and provided with a channel or slot opening from the inner periphery into said cavity, in combination with a clamping-band, provided with a central rib adapted to set up into the vertical channel of the cavity and with depending ribs on its horizontal portion, and suitable bolts, whereby the tire may be secured onto a wheel.

604,664. MACHINE FOR CUTTING AND EXPANDING PIPES. Carl W. A. Koehnhorst and Joseph K. Smith, Pittsburg, Pa. Filed Aug. 26, 1897. Serial No. 649,847. (No model.)



Claim.—1. In apparatus for securing tubes to rings or flanges, a rotatory head provided with a central expanding-chuck, said head having secured thereto and rotatory therewith holders for the ring into which the pipe is expanded.

2. In pipe-expanding apparatus, a rotatory head having radially-movable arms, and rollers in the arms arranged to guide and hold in place the flange into which the pipe is expanded.

3. In a pipe-expanding machine, a rotatory head having a chuck arranged to expand the pipe, and a series of radially-movable holders mounted in frames and having rollers bearing upon the pipe, the planes of the rollers lying longitudinally of the pipe.

4. A pipe cutting and expanding machine having a rotary head, a chuck secured to the head and having means for expanding the pipe, said head having radially-movable grippers arranged to seize and rotate the pipe in cutting the same.

5. In pipe cutting and expanding apparatus, a rotatory head, a chuck secured thereto and having means for expanding the pipe, holders for the ring into which the pipe is expanded, and spindles having rollers arranged to bear upon and guide the pipe.

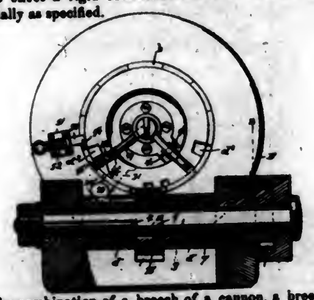
6. In apparatus for expanding pipe, a head having radially-movable arms, means for moving said arms simultaneously in a radial direction, rollers upon the arms arranged to engage a ring or flange and hold the same in position, a chuck centrally secured to the head and having an inner hollow tapered mandrel rotatable therewith, means for sliding said mandrel longitudinally, and pressing-rollers movably mounted in the chuck and engaged by the tapered mandrel.

7. In pipe-expanding apparatus, a rotary head having radially-adjustable arms, and rollers in said arms arranged to engage and hold a ring or flange in position for pressing the pipe thereinto, one of said rollers being movable to and from the other.

604,665. BREECH MECHANISM FOR ORDNANCE. Michael A. Lynch and William I. Rouse, Washington, D. C., assignors, by direct and mesne assignments, to James J. Sheehy, A. A. Thomas, and R. J. Turner, same place. Filed Oct. 16, 1896. Serial No. 608,819. (Model.)

Claim.—1. The combination of a breech of a cannon, a breech-plug, a rock-shaft supported on the cannon, a breech-plug carrier fixed with respect to the rock-shaft, a gear movable independent of the rock-shaft and engaging the breech-plug, a lever connected with said gear, and mechanism independent of the breech-plug adapted, at in-

tervals, to effect a rigid connection of the lever to the rock-shaft, substantially as specified.



2. The combination of a breech of a cannon, a breech-plug, a rock-shaft supported on the cannon, a breech-plug carrier fixed to the rock-shaft, a gear movable independent of the rock-shaft and engaging the breech-plug, and suitable mechanism for transmitting motion to the gear and rock-shaft.

3. In a breech-loading cannon, the combination with a breech and the breech-plug; of a breech-plug carrier hinged to the breech, the gear-segment engaging the breech-plug to rotate the same axially and also move said breech-plug in a forward and backward direction, and a single lever which is rigid with the gear-segment and is fixedly connected at suitable intervals with the breech-plug carrier by mechanism independent of the breech-plug to cause the carrier to cooperate with the gear-segment in moving the breech-plug toward or from the breech, substantially as specified.

4. In a breech-loading cannon, the combination with a breech and the breech-plug, of a breech-plug carrier hinged to the breech, a gear segment engaging the breech-plug to successively rotate the same and move the same rearward, a single lever rigid with said gear-segment, and a clutch mechanism independent of the breech-plug for rigidly connecting said breech-plug carrier to the lever during a portion of its movement both in a backward and forward direction and operated to release said carrier from the lever as the breech-plug is being locked or unlocked in the breech, substantially as specified.

5. In a breech-loading cannon, the combination with a breech and a mutilated-gear breech-plug adapted to lock with suitable threads in the breech, of a breech-plug carrier hinged to the breech, a gear engaging the breech-plug to successively rotate and impart endwise movement to the breech-plug, a lever normally rigid with said gear, and clutch mechanism independent of the breech-plug for securing a rigid connection between the lever and the breech-plug carrier after the gear has operated the breech-plug to unlock the same from the breech, substantially as described.

6. In a breech-loading cannon, the combination with a breech and a breech-plug, of a breech-plug carrier hinged to the breech, the gear-segment having the separate rack-teeth and worm-teeth to mesh with similar teeth on the breech-plug, and a lever connected, substantially as described, with said gear-segment and the breech-plug carrier to operate said parts conjointly and independently in the manner and for the purpose described.

7. In a breech-loading cannon, the combination with a breech and a breech-plug, of the rock-shaft supported on the breech, the breech-plug carrier rigid with said rock-shaft, the tubular spindle concentric with the rock shaft and carrying the gear-segment, a lever rigid with the tubular spindle, and a clutch mechanism carried by the lever to rigidly connect the rock-shaft to said lever at suitable intervals during the forward and backward motions of the lever, substantially as and for the purpose described.

8. In a breech-loading cannon, the combination with the breech and the breech-plug, of a rock-shaft carrying the breech-plug carrier, a tubular spindle having the gear-segment rigid therewith and engaging the breech-plug, a lever rigid with the tubular spindle and provided with the groove or channel, the locking-key carried by said lever and adapted to engage the rock-shaft, and a trip to release the locking-key from the rock-shaft, for the purpose described, substantially as set forth.

9. In a breech-loading cannon, the combination with the breech and the breech-plug; of a rock-shaft carrying the breech-plug carrier, the tubular spindle having the gear-segment rigid therewith and engaging the breech-plug, the lever rigid with the tubular spindle and having the concentric annular groove provided with an offset, the locking-key carried by the lever, and the sliding trip supported on the breech and riding in the groove of the lever to operate the movable key, substantially as specified.

10. In a breech-loading cannon, the combination with the breech and the breech-plug, of the rock-shaft carrying the breech-plug carrier, the tubular spindle having the rigid lever and provided with the concentric groove which is provided with an offset and has its ends terminating in abutments located near each other, the gear-segment operating in a slot in the breech-plug carrier and rigid with the tubular spindle, the movable key seated in the lever opposite to the offset portion in the groove of the lever and adapted to enter a recess in the rock-shaft, and the trip-piece seated in a groove in the breech and having the angular arm that rides in the groove of the lever to release the movable key at the desired intervals, substantially as specified.

11. In a breech-loading cannon, the combination with the breech and the breech-plug, of the breech-plug carrier hinged to the breech, the segmental gear movable with the carrier, and an extractor-piece seated in the breech and provided with a rack which engages with the segmental gear for the purpose described, substantially as set forth.

12. In a breech-loading cannon, the combination with the breech having the extended groove therein, and the breech-plug; of the breech-plug carrier hinged to the breech, the segmental gear movable with the carrier, and the extractor-piece fitted in the groove of said breech and having its right-angled toe entering the extension of the groove and the rack meshing with the segmental gear, substantially as specified.

13. In a breech-loading cannon, the combination with a breech the breech-plug, and the breech-plug carrier; of the spring-pressed firing-pin supported in said breech-plug and having the rack-teeth, the setting-lever having the segmental toothed surface which meshes with said rack on the firing-pin and which lever is journaled in the breech-plug with its free end extending rearwardly beyond said breech-plug and adapted to strike against the breech-plug carrier on the rearward movement of the breech-plug, the sear arranged to engage with the firing-pin as it is retracted, and the discharge-detent connected to the sear, substantially as specified.

14. In a breech-loading cannon, the combination of the breech the breech-plug, the breech-plug carrier provided with the slot or groove 55', the firing-pin carried by said breech-plug, means for automatically setting the firing-pin for action on a rearward movement of said breech-plug, and a sear also carried by the breech-plug and adapted to take into the recess or slot in the breech-plug carrier as the breech-plug is withdrawn in a rearward direction into said carrier, substantially as and for the purpose set forth.

15. In a breech-loading cannon, the combination with the breech, and the breech-plug, of a breech-plug carrier provided with the slot or groove 55', the firing-pin carried by said breech-plug, the setting-lever engaging with the firing-pin, and the sear also carried by the breech-plug and having its head adapted to take into the recess or slot in the breech-plug carrier as the breech-plug is withdrawn in a rearward direction into said carrier, substantially as described.

16. In a breech-loading cannon, the combination with a breech and a breech-block; of a shell-starter arranged within the breech to have a circumferential contact with a cartridge-shell and movable in a line transverse of the cannon, and operated by the breech-block as the latter is unlocked to release the shell from the breech and give the same its initial movement in extracting it from the breech, substantially as described.

17. In a breech-loading cannon, the combination with a breech and breech-plug, of a shell-starting plate fitted within the breech to have a circumferential contact with a cartridge-shell and movable in a line transverse of the cannon, and means for imparting movement to the plate and starting the cartridge-shell in the breech as the breech-plug is rotated

18. In a breech-loading cannon, the combination with a breech and a breech-plug; of a segmental shell-starting plate fitted in the breech and movable in a line transverse of the cannon, and connected to the breech-plug to be seated and unseated in the breech as said breech-plug is locked and unlocked therein, substantially as specified.

19. In a breech-loading cannon, the combination with a breech; of a breech-plug, the shell-starting plate movable in a line transverse of the cannon and having the cam seated in the breech, and means for connecting the plate to the breech-plug while the latter is locked or unlocked in the breech and which disengages said plate from the breech-plug as the latter is withdrawn in a rearward direction, substantially as specified.

20. In a breech-loading cannon, the combination of a breech having the cam-face recess or seat therein, the grooved breech-plug, and the segmental wedge-shaped shell-starting plate seated in said cam-groove within the breech and having the lug to fit into the groove of the breech-plug, substantially as described.

21. In a breech-loading cannon, the combination with a breech and an endwise-movable and rotary breech-plug having a recess; of a segmental shell-starting plate fitted in the breech and movable in a line transverse of the cannon and having a projection adapted to engage the recess of the breech-plug, substantially as specified.

22. In a breech mechanism of the slotted-screw system, the combination with a breech-block provided with combined rack-teeth and screw-threads thereon for locking the same in the gun and worm-threads in rear of said screw-threads, of a gear-segment provided with teeth to engage in said worm and other teeth to engage in said combined rack-teeth and screw-threads, and a hand-lever connected with said gear-segment, substantially as described.

23. In a breech mechanism of the slotted-screw system, the combination with a breech-plug provided with combined rack-teeth and screw-threads thereon for locking the same in the gun and worm-threads in rear of said screw-threads; of a gear-segment pivoted to the gun and provided with teeth to engage in said worm and other teeth to engage in said combined rack-teeth and screw-threads, and a hand-lever connected with said gear-segment, substantially as specified.

24. In a breech-loading cannon, the combination with a breech and a breech-plug having rack-teeth and worm-gear teeth; of a gear having rack-teeth and worm-gear teeth adapted to engage the rack-teeth and worm-gear teeth respectively of the plug, and a suitable means for rotating or partially rotating the gear.

25. In a breech-loading cannon, the combination with a breech and a mutilated-gear breech-plug adapted to lock with suitable threads in the breech and having rack-teeth and worm-gear teeth; of a gear having rack-teeth and worm-gear teeth adapted to engage the rack-teeth and the worm-gear teeth respectively of the plug, and a suitable means for rotating or partially rotating the gear.

26. In a breech-loading cannon, the combination with a breech-plug having a series of rack-teeth and also having another series of worm-gear teeth; of a gear having a series of rack-teeth and also having another series of worm-gear teeth adapted to engage the series of rack teeth and the series of worm-gear teeth respectively of the plug; the said rack-teeth and the worm-gear teeth being so arranged on the gear and plug that a single partial revolution of the gear will completely unlock and withdraw or replace and lock the breech-plug, substantially as specified.

27. In a breech-loading cannon, the combination with a breech and a mutilated-gear breech-plug adapted to lock with suitable threads in the breech and having a series of rack-teeth and also having another series of worm-gear teeth; of a gear having a series of rack-teeth and also having another series of worm-gear teeth adapted to engage the series of rack-teeth and the series of worm-gear teeth respectively of the plug; the said rack-teeth and worm-gear teeth being so arranged on the gear and plug that a single partial revolution of the gear will completely unlock and withdraw or replace and lock the breech-plug, substantially as and for the purpose set forth.

28. In a breech-loading cannon, the combination with the breech, the breech-plug, and the breech-plug carrier; of the spring-pressed firing-pin carried by said breech-plug, the setting-lever arranged to retract the firing-pin on the backward movement of the plug, the sear to engage the firing-pin as it is retracted and having an angular branch at its outer end, and the discharge detent supported on the breech and having a branch at its inner end adapted to engage that of the sear to release the latter from the firing-pin when the lanyard is pulled, substantially as specified.

29. In a breech mechanism in which a breech-block is rolled or turned to lock it in the breech, the combination of a breech-block, rotating and translating means thereon, and a partially-revoluble gear-segment meshing as described with both said rotating and translating means as set forth.

30. In a breech mechanism in which a breech-block is rolled or turned to lock it in the breech, the combination of a breech-block, a partially-revoluble gear-segment, coacting devices on the block and gear-segment for translating the block, and other, distinct coacting devices on the block and gear-segment for rolling or turning the said block on its axis as described, whereby the block may be placed and locked in the breech or unlocked and removed from the breech by a single, partial revolution of the gear-segment as set forth.

31. In a breech mechanism in which a breech plug or block is rolled or turned to lock it in the breech, the combination of a breech plug or block having the translating-rack and also having worm-teeth thereon, and a partially-revoluble gear-segment having the rack and also having worm-teeth thereon to engage the translating-rack and the worm-teeth, respectively, of the plug or block as set forth.

32. In a breech-loading gun in which a breech plug or block is rolled or turned to lock it in the breech, the combination of a breech plug or block, and a gear-segment; said plug or block and the gear-segment having coacting devices for translating the block and other coacting devices for rolling or turning the said block on its axis, a cartridge-extractor, a handle for operating the gear-segment, and suitable means, operative by the handle, for actuating the extractor.

33. In a breech-loading gun in which a breech plug or block is rolled or turned to lock it in the breech, the combination of a breech-block, a partially-revoluble gear-segment, coacting devices on the block and gear-segment for translating the block, other, distinct coacting devices on the block and gear-segment for rolling or turning the said block on its axis as described, firing mechanism carried by the block, and an actuating device arranged on the breech of the gun in juxtaposition to and adapted to register with the firing mechanism when the plug is turned to lock it in the breech.

34. In a breech-loading gun in which a breech plug or block is rolled or turned to lock it in the breech, the combination of a breech plug or block, and a partially-revoluble gear-segment; said plug or block and the gear-segment having coacting devices upon them for translating the block, and other coacting devices upon them for rolling or turning the said block on its axis, a firing-hammer carried by the block, a sear also carried by the block, and a trigger arranged on the breech of the gun in juxtaposition to and adapted to be engaged by the sear when the plug is turned to lock it in the breech.

35. In a breech-loading gun in which a breech-block is rolled or turned to lock it in the breech, the combination of a breech-block, and a partially-revoluble gear-segment; said block and gear-segment having coacting devices upon them for translating the block and other coacting devices upon them for rolling or turning the said block on its axis, a spring-pressed firing-hammer carried by the block, a sear also carried by the block, a trigger arranged on the breech in juxtaposition to and adapted to be engaged by the sear when the block is turned, a breech-plug carrier, and a lever, for setting the firing-hammer, arranged to engage the carrier.

36. In a breech-loading gun in which a breech-block is rolled or turned to lock it in the breech, the combination of a breech-block, a spring-pressed firing-hammer carried thereby, a sear also carried by the block, a trigger arranged on the breech in juxtaposition to and adapted to be engaged by the sear when the block is turned to lock it in the breech, a hinged breech-plug carrier having a recess 55' to receive the sear, a device, for setting the firing-hammer, carried by the plug and arranged to engage the carrier, a partially-revoluble gear-segment, coacting devices on the block and gear-segment for translating the block, other, distinct coacting devices on the block and gear-segment for rolling or turning the said block on its axis as described, and suitable means for operating the breech-plug carrier and the gear-segment conjointly and independently, substantially as specified.

37. In a breech mechanism in which a breech-block is rolled or turned to lock it in the breech, the combination of a breech-block, a gear, coacting sets of teeth on the block and gear for translating the block and other distinct coacting sets of teeth on the block and on the gear for rolling or turning the said block on its axis.

604,666. ENVELOP. CHARLES P. MONFORT, Louisiana, Mich. Filed Dec. 8, 1896. Serial No. 614,994. (No model.)

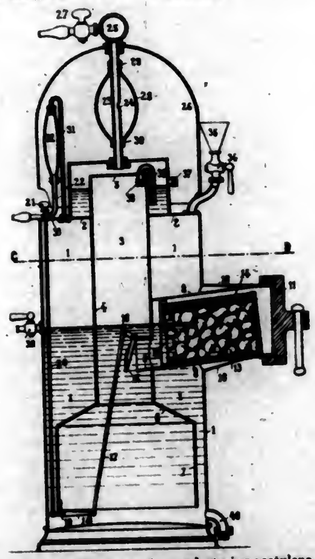


Claim.—An envelop comprising a body having side flaps with transverse slits adapted to coincide when the said flaps are folded over, one of the said side flaps under its transverse slits having a pair of vertically-disposed slits, the said body of the envelop also having opposite end flaps, one of which forms the sealing-flap and has supplemental folds thereon brought over on the inner face thereof, and the said folds and flaps apertured adjacent to the apex, a keeper having its ends inserted in the vertical slits in one of the side flaps and exposed at the rear of the envelop, and a tongue having a triangular head inserted in the sealing-flap and held against the supplemental flaps, and also provided with a bendable prong adapted to engage the said keeper to hold the sealing-flap closed.

604,667. APPARATUS FOR GENERATING ACETYLENE GAS. GEORGES DE ROSNY DE SALES, Lyons, France. Filed Feb. 15, 1897. Serial No. 623,422. (No model.) Patented in France Oct. 24, 1896, No. 260,714; in Belgium Jan. 23, 1897, No. 125,983; in Hungary Jan. 25, 1897, No. 8,389; in Switzerland Jan. 27, 1897, No. 13,991; in England Jan. 26, 1897, No. 2,265; in Austria Feb. 16, 1897, No. 965, and in Italy Apr. 6, 1897, LXXXV, 402.

Claim.—1. An apparatus for generating and storing acetylene gas consisting of a reservoir, a dome rising above the reservoir, a bell arranged within the reservoir, its lower open end lying in water therein, a washer arranged in the dome above the reservoir and in which the upper end of the bell lies, a valved siphon-tube communicating with the bell and having one arm lying in a body of water in the washer, one or more receivers each having a pipe which opens into the bell, a valve to close the open end of said pipe, means for operating said valve from the exterior, a cap to close the receiver

and separate it and the carbid-cartridge from the reservoir and atmosphere, a pipe communicating with the washer and with the exterior, and an elastic bag inclosing a part of said pipe in which is an opening for the gas, substantially as described.

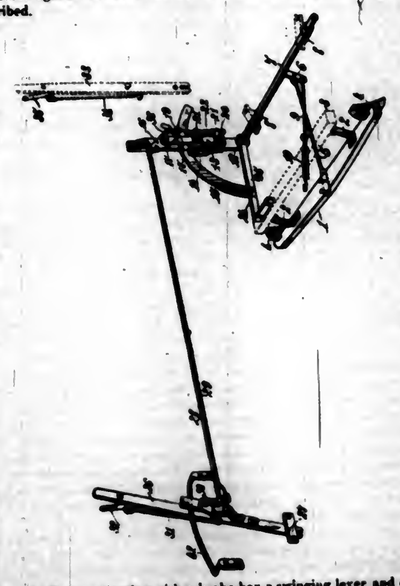


2. An apparatus for generating and storing acetylene gas, consisting of a vessel or reservoir adapted to contain water, a bell whose mouth dips into the water and whose upper part is fitted with a siphon-tube provided internally with a ball-valve and with its exterior end dipping into the water contained in a washer mounted at and surrounding the upper part of said bell and fitted with a gas-outlet tube perforated so as to communicate with an elastic air-tight bag or pocket for storing a small volume of gas for immediate consumption, a receiver, (or receivers,) containing a carbid-cartridge and communicating with the interior of said bell by a tube fitted with a valve adapted to be operated by hand from the exterior of the apparatus so as to start or stop the generation of gas, a cap to inclose the receiver and separate the carbid-cartridge both from the atmosphere and from the vessel or reservoir, a safety device in connection with the upper part of said vessel or reservoir to prevent overpressure therein, and suitable inlet and outlet fittings, substantially as described and shown.

3. An apparatus for generating and storing acetylene gas, consisting of a reservoir containing a body of water, a bell arranged in said reservoir its lower end lying in the water, a dome on the upper end of the reservoir but separated from it by a hermetically-closed cover, a washer in the dome containing a body of water above which the upper, closed end of the bell rises, a siphon-tube having one valved end in the bell and the other open end in the water in the washer, a gas-pipe communicating with the washer and with the exterior, an elastic bag inclosing a part of said pipe in which is an opening permitting the gas to pass from said pipe into the bag, one or more receivers each lying in a socket projecting from the wall of the reservoir and closed by a cap, a valve to close and open a pipe leading from said receiver into the bell, means for operating said valve from outside, a pipe communicating at one end with the top of the reservoir and at the other end with an elastic bag in the dome, and a second pipe communicating with said bag and the exterior, substantially as described.

604,668. VEHICLE-BRAKE. CHARLES SAMPLE, Valley Grove, W. Va. Filed Sept. 29, 1897. Serial No. 653,500. (No model.)

Claim.—1. The combination with a brake-bar, a lever, and intermediate connections between the lever and the brake-bar, of a segmental ratchet-bar having ratchet-teeth on its upper or outer edge, a support to which one end of the ratchet-bar is pivoted, a guide on the lever constructed with an abutment or shoulder against which the lower or inner edge of the ratchet-bar bears, a ratchet-dog pivoted to the lever and constructed to engage or slide over the ratchet-teeth, and a spring connected with the dog and acting to force it in engagement with the ratchet-bar and to bind the inner or lower edge thereof against the said abutment or shoulder, substantially as described.



2. The combination with a brake-bar, a swinging lever, and connections between the lever and the brake-bar, of a segmental ratchet-bar having ratchet-teeth in its upper or outer edge, a support to which one end of the ratchet-bar is pivoted, a plate secured to one side of the lever and constructed with an abutment or shoulder against which the lower or inner edge of the ratchet-bar bears, a dog pivoted to the lever and having a beveled extremity to engage the ratchet-bar, a spring connected with the beveled extremity of the dog to force it in engagement with the teeth of the ratchet-bar and to bind the latter against said abutment or shoulder, a pivoted finger-piece, and a link connection between the finger-piece and the dog for disengaging the latter from the teeth of the ratchet-bar, substantially as described.

3. The combination with a brake-bar, a rock-shaft connected with the brake-bar, and a lever secured to the rock-shaft, of a segmental ratchet-bar having ratchet-teeth in its upper or outer edge, a support to which the lower end of the ratchet-bar is pivoted, an abutment or shoulder on the lever against which the lower or inner edge of the ratchet-bar bears, a ratchet-dog pivoted to the lever and constructed to engage the teeth of the ratchet-bar, a spring acting on the dog to force it in engagement with the teeth of the ratchet-bar and to bind the lower or inner edge of the latter against said abutment or shoulder, a hand-lever connected with the lever of the rock shaft, a tripping wire or rod connected with the ratchet-dog, and a finger-piece mounted on the hand-lever and engaging the tripping wire or rod for disengaging the ratchet-dog from the teeth of the ratchet-bar, substantially as described.

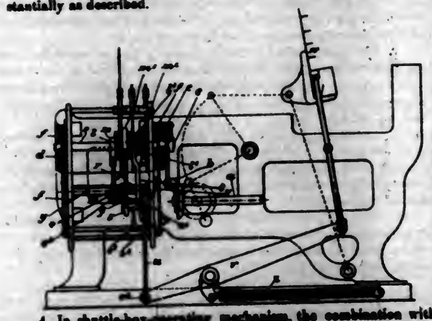
604,669. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. GEORG SCHWARZ, Biela, Austria-Hungary. Filed Apr. 27, 1897. Serial No. 634,125. (No model.) Patented in England Dec. 20, 1894, No. 24,794.

Claim.—1. In shuttle-box-operating mechanism, the combination with the shuttle-boxes, of a lifting and depressing lever connected therewith and pivoted at a fixed point, a second pivoted lever connected to the lifting and depressing lever, and pattern-controlled devices for shifting the pivotal point of said second lever and for swinging it upon its pivot, substantially as described.

2. In shuttle-box-operating mechanism, the combination with the shuttle-boxes and their carrier, of a lever connected with the carrier and pivoted at a fixed point, mechanism for swinging the lever upon its pivot, an eccentric, connections between the eccentric and the pivot of the lever, and pattern-controlled devices for rotating the eccentric and for operating the swinging mechanism of the lever, substantially as described.

3. In shuttle-box-operating mechanism, the combination with the shuttle-boxes and their carrier, of a lever having a pivot adapted

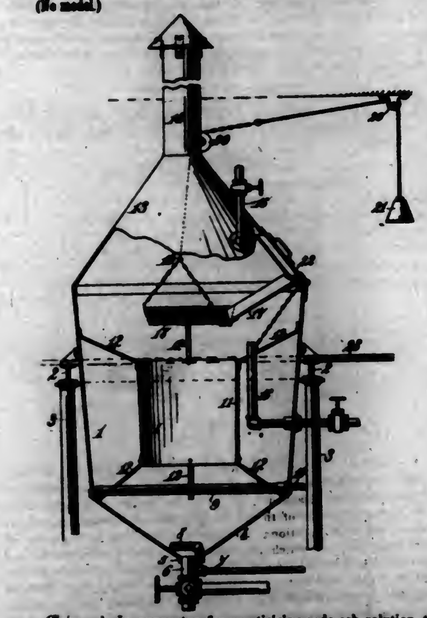
to be moved in different planes, connections between said lever and the shuttle-box carrier, a second lever having a fixed pivotal point, a third lever pivoted to the said second lever and connected to the pivot of the first-mentioned lever, and pattern-controlled devices for swinging any one or more of the three levers upon their pivots, substantially as described.



4. In shuttle-box-operating mechanism, the combination with the shuttle-boxes and their carrier, a lever having a pivot adapted to be moved in different planes, connections between said lever and the shuttle-box carrier, a second lever connected with the pivot of the first, said second lever likewise having a pivot adapted to be moved in different planes, means for shifting said pivotal point, and pattern-controlled devices for swinging one or both of the levers upon their pivots, substantially as described

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604,670. APPARATUS FOR MAKING CAUSTIC SODA. FREDERICK B. STRAUB, Pittsburg, Pa. Filed Aug. 2, 1897. Serial No. 646,817. (No model.)



Claim.—1. In apparatus for causticizing soda-ash solution, the herein-described kettle having downward and inward slanting sides and a conical bottom, in combination with a perforated steam-coil located in said kettle close to the lowest part of the conical kettle-bottom, to cause agitation of the kettle contents and a motion of the same upward and downward in the kettle, and mechanism suspended in the kettle for introducing lime therein, the slanting sides of the kettle-body being adapted to permit a gradual distribution of the force of steam-pressure toward the top of the kettle and thereby prevent a sudden accumulation of lime precipitate at the bottom, substantially as described.

2. In apparatus for causticizing soda-ash solution, the herein-described kettle having downward and inward slanting sides and a conical bottom, in combination with mechanism suspended in said kettle for introducing lime therein, a lower perforated steam-coil located close to the lowest part of the conical kettle-bottom, and an upper perforated steam-coil located in the kettle at about the junction of the kettle-body and its said conical bottom, one of said steam-coils having its perforations directed upward and the other downward to cause agitation and circulation of the kettle contents, and whereby the slanting sides of the kettle-body will permit a gradual distribution of the force of steam-pressure toward the top of the kettle and thereby prevent a sudden accumulation of lime precipitate at the bottom, substantially as described.

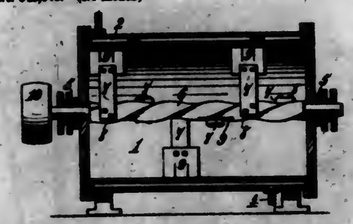
3. In apparatus for causticizing soda-ash solution, the herein-described kettle having a conical bottom and provided with the lower perforated steam-coil 8 located close to the bottom and the upper perforated steam-coil 9 located at or near the junction of the kettle-body and its said conical bottom, the perforations of the lower steam-coil being directed upward and the perforations of the upper steam-coil being directed downward, whereby there is caused a movement of the kettle contents upward at the center and downward along the slanting sides of the conical kettle-bottom, in combination with mechanism for introducing and suspending a body of lime within the said kettle, substantially as specified.

4. In apparatus for causticizing soda-ash solution, the herein-described kettle having its sides slanting downward and inward and provided with a conical bottom and a conical cover having a vapor-escape pipe attached, in combination with a perforated steam-coil located in the conical kettle-bottom, and a perforated lime-basket suspended in the kettle substantially as specified.

5. In apparatus for causticizing soda-ash solution, the herein-described kettle having slanting sides and a conical bottom and provided with a cover having an attached vapor-escape pipe, in combination with a flanged cap secured to the lower part of the conical kettle-bottom, a drawing-off pipe and a steam-inlet pipe connected with said cap, a perforated steam-coil located in the conical kettle-bottom, a lime-basket suspended in the kettle and a lime-chute having hinged connection with said basket and kettle, substantially as specified.

6. In apparatus for causticizing soda-ash solution, the combination with the herein-described kettle provided with downward and inward slanting sides and a conical bottom, of a perforated steam-coil located in and close to the lowest part of the conical kettle-bottom, an upper perforated steam-coil located in said kettle at about the junction of the kettle-body and its said conical bottom, an annular shield supported above said steam-coils to serve as a guide for upward and downward currents of the kettle contents caused by injection of steam into the kettle through said coils, and a lime-receptacle suspended in the kettle above said shield or guide, substantially as described.

604,671. SOAP-CRUTCHING MACHINE. FREDERICK B. STRAUB and STEPHEN C. STRAUB, Pittsburg, Pa. Filed Aug. 30, 1897. Serial No. 649,973. (No model.)



Claim.—1. In a soap-crutching machine, the combination with a cylindrical vessel, of a shaft journaled centrally therein and consisting of a torsionally-twisted bar square in cross-section, and a plurality of flat paddles having their inner flat sides seated upon one of the flat faces of said shaft and secured thereto by bolts passing transversely through the shaft and paddles, substantially as described.

2. In a soap-crutching machine, the combination with a cylindrical vessel inclosed by a water-jacket, of a shaft journaled centrally therein, a plurality of flat radial paddles arranged spirally about said shaft and fastened thereto at their inner ends, and resilient scraper-blades fixed on the outer ends of the paddles and resting in intimate contact with the interior of the vessel, the paddles being so arranged that each scraper will travel in a path immediately adjacent to the path traversed by the preceding scraper, whereby the interior of the vessel is thoroughly scraped and the soap prevented from caking, substantially as described.

3. In a soap-crutching machine, the combination with a cylindrical vessel, of a shaft journaled centrally therein and carrying a plurality of paddles, and longitudinally-slitted metallic scraper-blades attached to the outer ends of the paddles and resting in contact with the interior of the vessel, substantially as described.

604,672. LOCK. FRED W. TOBEY, Grand Rapids, Mich. Filed Nov. 6, 1897. Serial No. 657,697. (No model.)



Claim.—1. The combination with the two doors and the recessed lintel, of the latch pivoted at one end to one of said doors and projecting into the path of the other door, and a plate attached to the meeting edge of the last-named door and inwardly beveled at its upper end whereby when both doors are closed said beveled plate raises the free end of the pivoted latch into the recess in the lintel, substantially as described.

2. The combination with the two doors and the recessed lintel, of the latch pivoted at one end to one of said doors, a beveled plate attached to the edge of the other door and operating to lift the free end of the latch into the recess in the lintel, and a notch or recess formed in the upper end of the beveled plate in which the free end of the latch is adapted to rest and hold the doors closed, substantially as described.

3. The combination with the two doors and the recessed lintel, of the latch pivoted at one end in a recess in one of the doors and constructed to overlap the edge of the other door, a beveled plate secured to the edge of the last-named door and operating to lift the free end of the latch into the recess in the lintel and provided at its upper end with a notch in which the free end of the latch is adapted to rest when the doors are closed, and a spring for throwing the latch out of locking position when the doors are open, substantially as described.

604,673. MITER-SAW GUIDE. HAMILTON WEIR, La Porte, Ind. Filed Feb. 7, 1898. Serial No. 669,427. (No model.)



Claim.—1. A saw-guide comprising the clamp-sections hinged together and having below their hinged connection depending plates forming a clamp for the saw-blade, means operating above said hinge connection whereby the depending plates may be forcibly set toward each other and a guide in which the clamp-sections are slidable lengthwise substantially as set forth.

2. In a miter-saw guide the combination of the main plate having guides and the clamp-sections hinged together and held to said main plate by said guides and movable in the direction of their length in said guides substantially as set forth.

3. In a miter-saw guide the combination of the hanger, a cap-plate pivoted or hinged to the swinging end of the hanger, and a main plate provided with the guide devices and movable rotarily on the cap-plate substantially as set forth.

4. The combination of the cap-plate, the hanger supporting said cap-plate, the main plate having the guide devices and pivotally connected with the cap-plate whereby it may be adjusted thereon and means for securing the main plate in any desired adjustment substantially as set forth.

5. In a miter-saw guide the combination of a main plate having at its outer edges securing ribs or rails and the clamp-sections having depending plates spaced apart forming a clamp for the saw-blade, and top plates resting at their outer edges on the ribs or rails substantially as set forth.

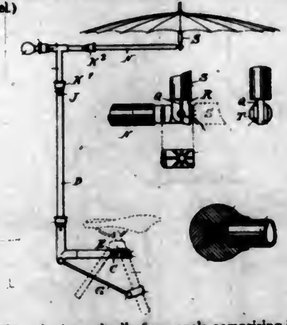
6. In a miter-saw guide the combination of the clamp-sections hinged together, devices for adjusting said sections and a support in which the clamp-sections are movable in the direction of their length substantially as set forth.

7. The combination of the cap-plate, a support therefor the main plate adjustable on the cap-plate, means for securing the main plate in its different adjustments, the clamp-sections hinged together and supported by the main plate and means for adjusting the clamp-sections substantially as set forth.

8. The combination in a miter-saw guide of the guide-sections having depending plates spaced apart forming a clamp for the saw-blade and top plates provided with inwardly-facing shoulders, of a spreading device operating between said shoulders whereby to adjust the clamping plates or arms and a support for the clamp-sections, substantially as set forth.

9. The miter-saw guide herein described comprising the cap-plate having a curved slot, the hanger to which said cap-plate is jointed, the main plate pivoted to the cap-plate and movable thereon to different adjustments, the screw for securing the main plate in its different adjustments, the clamp-sections hinged together, the spreading device by which to adjust the said clamp-sections and the ribs or rails by which the moving clamp sections are held to the main plate substantially as set forth.

604,674. UMBRELLA-HOLDER FOR CYCLES. ARTHUR T. WOODWARD, Bendigo, Victoria. Filed Dec. 1, 1896. Serial No. 614,125. (No model.)

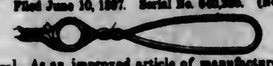


Claim.—1. An umbrella for a cycle comprising in its construction a vertically-adjustable umbrella-support of approximately U shape, which is attached at its lower end to the saddle-supporting rod of a cycle out of the way of the rider, the outer end of the upper horizontal portion being provided with a plug having a forked end, each wall of which is provided with a transverse opening and one wall is provided on its inner face with radial grooves, an umbrella proper having a rod provided with a ridge, which latter is adapted to be inserted into any one of the radial grooves on the fork, and a screw passing through the openings in the fork for tightening the fork upon the umbrella-rod, and holding the umbrella at the desired angle, substantially as described.

2. An umbrella-support for a cycle which is capable of being adjusted to different heights on the frame of the cycle and which is also capable of having a tilting movement backward and forward, means for adjusting the same and securing it in an adjusted position, said support being pivotally attached to the saddle-supporting rod of a cycle by means of a clip vertically adjustable thereon, and a diagonal brace-rod attached at its upper end to the umbrella-support and at its lower end by a pivotal connection to a clip which is also vertically adjustable on the saddle-supporting rod, substantially as described.

3. An umbrella for a cycle comprising in its construction a vertically-adjustable and backward and forward tilting support, means for adjusting the same and securing it in an adjusted position, said support being pivotally attached to the saddle-supporting rod of a cycle by means of a vertically-adjustable clip and a diagonal brace-rod attached at its upper end to the umbrella-support and at its lower end by a pivotal connection to a vertically-adjustable clip on the saddle-supporting rod, and means for tilting the umbrella proper to the desired extent, and holding it in such tilted position, substantially as described.

604,675. SEAM-RIPPING DEVICE. JOHN R. FISHER, Rhodedale, Canada. Filed June 10, 1897. Serial No. 640,256. (No model.)



Claim.—1. As an improved article of manufacture, a seam-ripping device comprising a suitable handle, yielding jaws having flaring ends and opposing knife-edges for grasping and holding the seam, one of said jaws carrying a knife or cutter crossing obliquely the plane of the opposing jaw edges, substantially as and for the purpose specified.

2. In a seam-ripping device, the opposing knife-edged yielding or spring jaws having flaring or diverging receiving ends, separated at their rear ends, said jaws being formed integrally with the arms of wire twisted together in rear thereof, and extended in a loop forming the handle, with a blade or cutter applied to one of the jaws, substantially as described.

3. As an improved article of manufacture, a seam-ripping device comprising knife-edged jaws, a handle formed integral from a single rod or wire, a coil in said wire intermediate said jaws and handle forming an opening in the rear of said jaws, a spring for pressing the jaws together, and a knife or cutter connected to one of said jaws and operated substantially as described.

604,676. WEATHER-STRIP. JOHN FELLABERER, Pittsburg, Pa. Filed Dec. 23, 1897. Serial No. 663,139. (No model.)



Claim.—1. A weather-strip comprising two metallic strips, one of which is formed of a flat base or web, with a longitudinally-raised portion bent upon itself and extending at right angles thereto at each edge of the base, and thereby providing recesses or grooves for the reception of two projecting ribs or flanges formed on each edge of a similar base or web, substantially as shown and described.

2. A weather-strip comprising two sections, each of which consists of a metallic strip having a flat base provided throughout with apertures, one of said strips being formed at its edge with a longitudinally-raised portion forming a projecting rib, and the other of which is formed at its edge with a similar longitudinally-raised portion that is bent upon itself to receive the projecting rib of the engaging strip, substantially as shown and described.

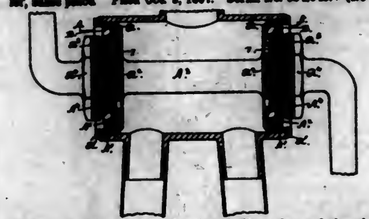
604,677. CYCLIST'S BRACE AND RACK-SUPPORT. WILLIAM C. HUMPHREY, Jamestown, N. D. Filed Nov. 23, 1897. Serial No. 660,041. (No model.)



Claim.—1. In combination with the body-engaging strap, the link connected thereto, the member secured to the post of the machine, the guide member, the spring for retaining the link on the lug, and the protecting strap or shell secured to the member about the guide member, as shown and described.

2. In combination with the body-strap, the webbing or long strap carried thereby, the elastic strap connecting the ends of the said body-strap, the link, and strap connecting same with a link or ring to which the long strap or webbing is connected, the shoulder-strap, combined with the member clamped to the post of the bicycle handle-bar, the lug on said member over which the said link is designed to engage, the guide member and protecting strap or shell and the retaining-spring, all arranged substantially as shown and described.

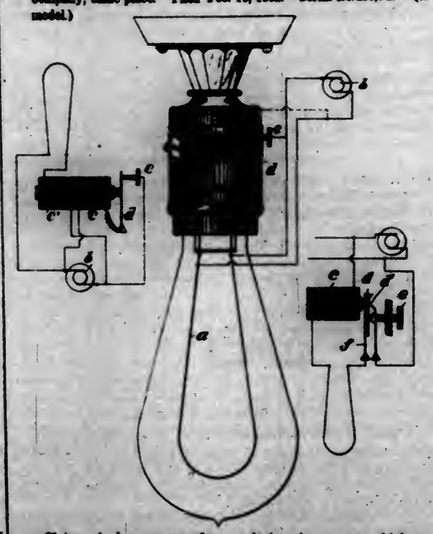
604,678. BALL-RETAINER FOR ANTIFRICTION-BEARINGS. HENRY B. KNIPER, Lancaster, Pa., assignor of one-half to John Hertzler, same place. Filed Oct. 9, 1897. Serial No. 654,649. (No model.)



Claim.—1. The combination in a ball-retainer of the character described, with a funnel-like ring having ball-seating apertures in its body and a tubular ring having one end secured thereto, of a second tubular ring securely seated in said first-mentioned tubular ring, and having an outwardly-projecting ring-flange with its inner edge securely affixed to the forward end thereof, substantially as and for the purpose hereinbefore set forth.

2. The ball-bearing comprising the portion, A', having the ball-race, a, and the ring-flange, a'; the cone, A^4, with the ball-bearing face, a^3, and adapted to be secured onto a central shaft or bolt; the balls, A^2, moving in said race and against said face; and the independent ball-retainer comprising the funnel-shaped ring, B, having the apertures, b, loosely seating said balls, and the tubular ring, b', having one end secured to the inner edge of said funnel-shaped ring, with the tubular ring, b^3, fitted into said fixed ring, b', and having the outwardly-projecting ring-flange, b^4, secured to the forward end thereof, all substantially as described and for the purpose hereinbefore set forth.

604,679. INCANDESCENT-ELECTRIC-LAMP REGULATOR. DANIEL MCF. MOORE, New York, N. Y., assignor to the Moore Electrical Company, same place. Filed Feb. 10, 1892. Serial No. 420,943. (No model.)



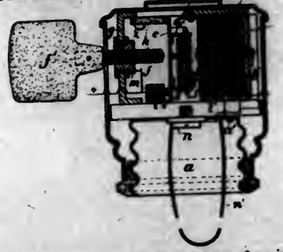
Claim.—1. In a system for regulating the current which operates an incandescent electric lamp, the combination with an incandescent electric lamp of a magnet in circuit therewith, means for auto-

matically and variably opening and closing both the circuit of said magnet and that of said lamp at terminals which are independent of a surrounding rarefied or inert gas.

2. An incandescent-electric-lamp regulator, consisting of the combination with the filament thereof, located within an evacuated bulb, of circuit-breaking terminals outside of the bulb in free air, and means for automatically maintaining vibration of the terminals relatively to and from each other.

3. The combination of an incandescent electric lamp, its filament, and an automatic circuit-breaker in the circuit of said filament arranged to make and break the circuit through said filament, rapidly and continually.

604,680. ELECTRIC-LAMP REGULATOR. DANIEL MCF. MOORE, New York, N. Y., assignor to the Moore Electrical Company, same place. Filed Oct. 13, 1894. Serial No. 525,787. (No model.)

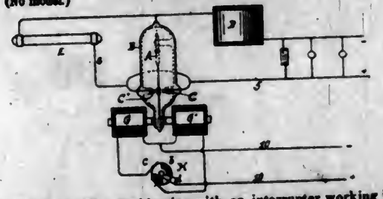


Claim.—1. The combination with the base of an incandescent electric-lamp socket, of an electromagnet, a bulb having a vacuum or inert atmosphere, a vibratory armature within the vacuum within inductive relation to the magnet, a flexible arm carrying the bulb and movable to and from the magnet, an insulating-stop for limiting the movement of the bulb from the magnet, a screw provided with a handle passing through the socket-frame and movable to and from and against the said arm, and electric contacts within the bulb and controlled by the armature, the electric circuit being from one terminal of the lamp to the other and passing through the said screw, the said arm, the said contacts and the said magnet.

2. The combination with the base of an incandescent electric lamp, of an electromagnet, a bulb having a vacuum within inductive relation to the magnet, a flexible arm, carrying the bulb and movable to and from the magnet, an insulating-stop for limiting the movement of the bulb from the magnet, a screw provided with a handle passing through the frame of the socket and movable to and from and against said arm, and electric contacts within the bulb and controlled by the armature, and a short-circuiting electric conductor in the path of the arm *e*, for the purpose as set forth, of short-circuiting the said contacts and the magnet.

3. The combination with an incandescent lamp, of an electromagnet in the socket thereof and in the lamp-circuit, a vacuous chamber within said socket, circuit-interrupting contacts within said chamber and in circuit with the lamp-filament, and an armature attached to one of said contacts and actuated by said magnet.

604,681. INTERRUPTER FOR ELECTRIC-LIGHTING SYSTEMS. DANIEL MCF. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Dec. 3, 1895. Serial No. 570,872. (No model.)

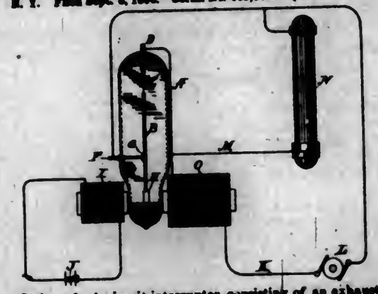


Claim.—1. The combination with an interrupter working in a sealed receptacle, of a pair of actuating-magnet poles arranged at opposite sides of an armature carried by said interrupter, and means for energizing said magnets in alternation, as described, over a circuit independent of the interrupter.

2. The combination with an interrupter loosely pivoted in a sealed receptacle, of an armature borne thereby, and a pair of actuating-magnet poles arranged on opposite sides thereof, said magnet being in a circuit independent of the interrupter-contacts.

3. The combination, substantially as described, of an interrupter working in a sealed receptacle and carrying an armature within said receptacle, a pair of magnet-poles exterior to the same and arranged on opposite sides of said armature, and means for energizing said magnets in alternation as described to cause a positive movement of the interrupter in both directions.

604,682. MAGNETIC CIRCUIT-BREAKER. DANIEL MCF. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Sept. 8, 1896. Serial No. 605,109. (No model.)



Claim.—1. A circuit-interrupter consisting of an exhausted receiver, a non-resilient vibrating tongue therein, a fixed contact also in the receiver for engagement with the tongue, a magnet exterior to the receiver tending to hold the contacts in engagement, and the circuit-interrupting magnet also exterior to the receiver but acting on said tongue in opposition to the other magnet.

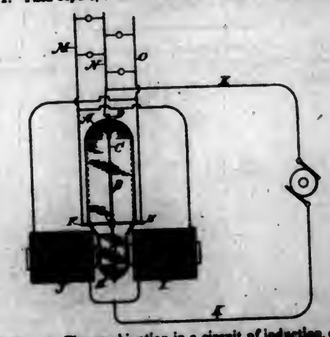
2. In a circuit-interrupter in vacuo, the combination with the vibrating member, of coöperating contacts located in substitute relation to one another for the purpose set forth.

3. The combination with a series of circuit interrupters, of a magnet normally holding the vibrating part of each interrupter in engagement with its coöperating contact, and a series of circuit-breaking magnets successively energized, as and for the purpose set forth.

4. The combination with a series of circuit-interrupters, of a magnetic retractor common to all of them, a circuit-breaking magnet for each interrupter, a circuit common to said magnets, and a commutator in said circuit for successively creating a flow of current through said magnets, substantially as and for the purpose set forth.

5. The combination of a series of circuit-interrupters in each of which the vibrating part is normally magnetically held in engagement with its coöperating contact, and magnetic means for successively withdrawing said vibrating parts from their coöperating contacts.

604,683. MAGNETIC CIRCUIT-BREAKER. DANIEL MCF. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Sept. 8, 1896. Serial No. 605,110. (No model.)



Claim.—1. The combination in a circuit of induction, of circuit-breaking magnets in said circuit, and a contact-tongue alternately actuated thereby to repeatedly make and break said circuit, and a circuit to receive the discharges of the circuit of induction.

2. A circuit-interrupter having a vibrating contact-tongue, in combination with a circuit of induction, circuit-breaking magnets in said circuit operating alternately upon said tongue and a lighting-circuit controlled by each magnet and forming a branch of said circuit of induction.

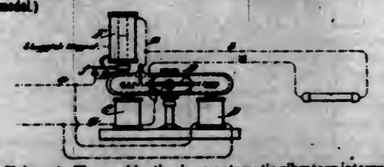
3. The combination in a circuit of induction, of circuit-breaking magnets in said circuit, and a contact-tongue alternately actuated thereby to repeatedly make and break said circuit, a circuit to receive the discharges of the circuit of induction, and devices operated directly or indirectly by said discharges.

4. In a circuit-interrupter, the combination of a vibrating contact-tongue centrally pivoted, a contact engaged by each end thereof in alternation, magnets in circuit with said contacts and acting to vibrate said tongue automatically and continuously, a circuit of induction controlled by said interrupter, and a discharge circuit or circuits connected to the circuits of induction, substantially as and for the purpose set forth.

5. The combination with a source of current, of two self-induction coils, circuits or branches, a circuit-interrupter acting alternately on said coils or circuits, and a circuit or circuits forming branches around the contacts of the interrupter into which the coils discharge and containing devices operated by the discharges from said coils.

6. The combination in a circuit of self-induction, of a vibrating circuit-interrupter making contact at each half-vibration, of electromagnets in said circuit for actuating said interrupter, and a lighting-circuit at each contact for receiving the discharge from the circuit of induction.

604,684. AUTOMATIC VIBRATORY INTERRUPTER. DANIEL MCF. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Dec. 17, 1896. Serial No. 616,971. (No model.)



Claim.—1. The combination in an automatic vibratory interrupter, of an operating-magnet therefor in the circuit including the interrupter-contacts, and a jarring device for insuring continuous action of the interrupter, as and for the purpose described.

2. The combination with an automatic electromagnetic vibratory interrupter, substantially as described, of a striker for jarring the contacts, and a separate actuating-magnet for said striker in a circuit controlled by the interrupter.

3. The combination with an automatic vibratory interrupter, substantially as set forth, of a striker, and a sluggish magnet controlling it and energized on the cessation of the interrupter, as and for the purpose described.

4. The combination with an automatic vibratory interrupter, of a striker, and a sluggish actuating-magnet therefor having a self-acting circuit-breaker controlled by the flow of current through the interrupter-contacts, as and for the purpose described.

5. The combination with an automatic rapidly-operating vibratory interrupter, substantially as described, of a vibratory striker or knocker independently of the vibratory portion of the interrupter, and a magnet in the circuit of the interrupter-contacts for operating it, as and for the purpose described.

6. The combination with a pivoted vibratory contact, of contacts with which it cooperates to make and break an electric circuit, of a striker for jarring the pivoted contact but without touching it to prevent its sticking to a contact with which it cooperates.

7. The combination with a vacuous receptacle, of a balanced vibrating contact mounted therein, a contact within said receptacle with which the balanced contact cooperates to make and break circuit, magnets for vibrating the balanced contact, and a striker for jarring the receptacle occasionally to insure the continued operation of the balanced contact.

8. The combination with a vibrating contact, of magnets alternately energized to produce the vibration of said contact, a striker for jarring the vibrating contact to insure its continuous action, and a magnet for controlling the actions of the striker, said magnet being connected in the circuit controlled by the interrupter and timed to act when the interrupter comes to rest, as and for the purpose set forth.

9. In a vibratory interrupter, a balanced lever and two magnets operating respectively at opposite sides of the fulcrum of said lever one to close and the other to open the circuit, in combination with a circuit controlled by the interrupter and containing means whereby the interrupter is maintained in continuous operation, as and for the purpose described.

10. The combination with a vacuous receptacle, of a balanced contact mounted therein, a fixed contact sealed in the wall of said receptacle and engaging the balanced contact, and electromagnets arranged exterior to and under opposite ends of the balanced contact for producing a continuous vibration of said contact for the purpose set forth.

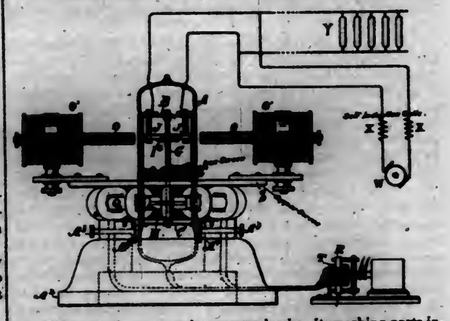
11. The combination in an automatic continuously-operating vibratory interrupter having an actuating-magnet in the circuit of the interrupter-contacts, of a retractor-magnet supplied by a branch from the main circuit and acting with a constant retracting power tending to close the circuit to the interrupter.

12. In a vibratory interrupter, a balanced contact-lever, a magnet acting with a constant power upon said lever and tending thereby to maintain it in a certain position, and another magnet in the circuit of the interrupter-contacts and acting intermittently to move said contact-lever from that position for the purpose set forth.

13. The combination with the interrupter, of the circuit of self-induction having two self-inductive coils on opposite sides of the break respectively, and a circuit into which said coils discharge in concert connected to opposite sides of said break.

14. In an apparatus for producing electric vibrations or disturbances by discharges from a rapidly-interrupted circuit of induction, the combination with an interrupter, of a circuit having its self-induction equalized at opposite sides of the break.

604,685. ELECTRIC-LIGHTING APPARATUS. DANIEL MCF. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Feb. 15, 1897. Serial No. 623,209. (No model.)



Claim.—1. In a rotary interrupter having its working parts inclosed within a sealed receptacle, the combination with an armature secured to the rotator and stationary armature-coil system surrounding said receptacle, of a rotating commutating device to which the said system is connected, and a circuit of self-induction exterior to the sealed receptacle and connected through the walls thereof to the contacts of the interrupter.

2. In a rotary interrupter contained within a sealed receptacle, the combination with the armature in said receptacle, of means for producing a rotating field to rotate said armature, said means comprising a fixed system of windings similar to the armature system of a dynamo-electric machine or motor, a rotating commutating device for said system, and a circuit of self-induction exterior to the sealed receptacle and connected through the walls thereof to the contacts of the interrupter, as and for the purpose described.

3. In a rotary interrupter, the combination with a vacuous chamber, of the armature attached to the interrupter-shaft and mounted within said chamber, a stationary system of closed-circuit windings surrounding said armature and outside of said chamber, a rotating commutating device to which said closed-circuit system is connected in the ordinary way, and a circuit of self-induction exterior to the vacuous chamber and connected through the walls thereof to the contacts of the interrupter.

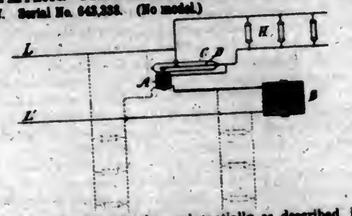
4. In a rotating interrupter, the combination, substantially as described, of a vacuous chamber, an armature secured to the rotator-shaft and both mounted in said chamber, a fixed system of closed-circuit windings, the fixed commutator-cylinder with which said windings are connected after the manner of the windings for the armature of a dynamo-electric machine or motor, rotating brushes moving on said cylinder, and a circuit of self-induction exterior to the vacuous chamber and connected through the walls thereof to the contacts of the interrupter.

5. In a rotary circuit-interrupter, having magnetic devices for holding the parts of the interrupter in contact, and means for producing a rotating magnetic field to rotate the interrupter, of a magnetic screen interposed between the latter devices and the devices which act magnetically upon the interrupter-contacts, as and for the purpose described.

6. In a rotating circuit-interrupter having its parts inclosed in a sealed receptacle, the combination with a commutator-brush carry-

ing a spring, of a lever having an arm bearing on said spring so as to force the brush against its contacts and armature carried by said lever, and an exterior magnet, as and for the purpose described.

604,686. APPARATUS FOR PRODUCING LUMINOUS OR SIMILAR EFFECTS. DANIEL McF. MOORE, Newark, N. J. Filed July 3, 1897. Serial No. 643,233. (No model.)



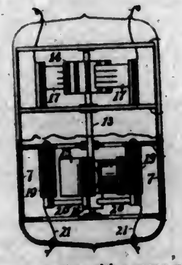
Claim.—1. The combination, substantially as described, in an apparatus for producing luminous or similar effects by interruptions of a circuit of induction, of a vacuous receptacle, inter upter-contacts located therein, a magnet or coil in the circuit of the interrupter-contacts and constructed solely for the operation of said contacts, and a separate coil or magnet in the circuit of the interrupter constructed to produce inductive effects in said circuit, as and for the purpose described.

2. In an apparatus for producing luminous or similar effects, as described, by interruptions of a circuit of induction supplied from any suitable source of energy, the combination, substantially as described, of a circuit-interrupter in an exhausted receiver, a magnet or magnets for the operation of the interrupter and devoid of inductive effects upon said circuit, and a separate magnet or magnets acting inductively upon said circuit, said operating and inductive magnets being placed in branches of the circuit but both in circuit with a contact or contacts of the interrupter, as and for the purpose described.

3. In an apparatus for producing luminous or similar effects, as described, by interruptions of a circuit of induction, the combination, substantially as described, of an operating magnet or magnets in the circuit of an interrupter inclosed in an exhausted receiver, and a separate inductive magnet or coil in a branch or circuit through a separate interrupter brush or contact in said receiver, as and for the purpose described.

4. The combination, substantially as described, with the rotary interrupter, of a series of operating-magnets arranged on the exterior of the receptacle containing the interrupter and having their poles presented to armatures within said receptacle, said magnets being included in a circuit of the interrupter, and a separate inductive coil B, in a branch of the circuit controlled by said interrupter, as and for the purpose described.

604,687. CIRCUIT-INTERRUPTING MECHANISM. DANIEL McF. MOORE, Newark, N. J. Filed Sept. 9, 1897. Serial No. 651,153. (No model.)



Claim.—1. The combination with a vacuous receptacle, of a circuit-interrupter therein, a motor for driving the interrupter, the rotary part of which motor is within said receptacle and has its coils insulated and thoroughly embedded in a vitreous mass.

2. The combination with a vacuous receptacle, of a circuit-interrupter therein, a motor for driving the interrupter also located in the receptacle and having the coils thereof insulated by and thoroughly embedded in a vitreous mass.

3. A magnetically-operated circuit-interrupter the magnet or magnets of which are inclosed in a vacuous receptacle and the coils of which are insulated by and thoroughly embedded in a vitreous mass.

4. The combination with a vacuous chamber, of a rotary circuit-interrupter located therein, a circuit of induction controlled thereby, an electromagnetic motor located wholly within said chamber for operating the interrupter, and an operating circuit for said motor independent of the circuit of induction.

5. The combination with a vacuous chamber, of a rotary circuit-interrupter located therein, a circuit of induction controlled thereby, a self-starting or induction motor the armature or rotary part of which with its coils is located within said chamber and operates the interrupter, and a power-circuit for said motor independent of the circuit of induction, substantially as set forth.

6. The combination with a vacuous receptacle, of a circuit-interrupter therein, and electromagnetic devices operating the interrupter, said devices being also located in the receptacle and having its coil or coils covered by an inclosing vitreous envelop.

7. A magnetically-operated circuit-interrupter inclosed in a vacuous receptacle, and having the metal portions of the magnet or magnets which operate said interrupter coated with a vitreous envelop.

604,688. CIRCUIT-INTERRUPTER. DANIEL McF. MOORE, Newark, N. J. Filed Sept. 10, 1897. Serial No. 651,178. (Model.)



Claim.—1. A circuit-interrupting device consisting of a metallic foundation and sections of insulation formed from some vitreous substance located therein in suitable quantities and at the desired intervals, and having a fused or fired connection with said foundation.

2. A circuit-interrupting device consisting of a metallic foundation and sections of porcelain which have a fused or fired connection with the metal.

3. A circuit-interrupter consisting of a metallic foundation provided with openings or depressions and successive layers of a vitreous insulating substance deposited therein and having a fused connection with the metal and the surface of the metal and insulation made level and smooth.

4. A circuit-interrupter consisting of a metallic foundation with sections of porcelain deposited therein and having a fused or "fired" connection with the metal, the foundation being then ground or planed down to expose a portion of the porcelain sections.

5. A circuit-breaking wheel consisting of a cylinder of metal with plugs of porcelain deposited therein and having a fused or "fired" connection with the metal, the cylinder being turned or ground down to expose a portion of said plugs.

604,689. MAIL-MARKING MACHINE. CHARLES P. OGDEN, New York, N. Y., assignor, by mesne assignments, to the Asmo Supply Company, of New York. Filed June 22, 1897. Renewed May 2, 1898. Serial No. 679,490. (No model.)

Claim.—1. The combination with printing and impression cylinders, a stop and trip, of a sliding spring-actuated foot located above one of the cylinders for moving the article to be marked from the stop and for operating the trip, and means on one of the cylinder-shafts for moving the foot.

2. The combination with printing and impression cylinders, of a rigid stop, a strip, a sliding bifurcated foot located over one of the cylinders, a spring for pulling the foot in one direction and a cam on one of the cylinder-shafts for forcing the foot positively in the other direction.

3. The combination with printing and feeding mechanism, of a stop, a shaft having a cam thereon, a slide having a foot adapted to be forced in one direction by the cam, a tail-bolt extending rearward from the foot through a solid part of the machine and a spring connecting said bolt to a rigid part of the machine.

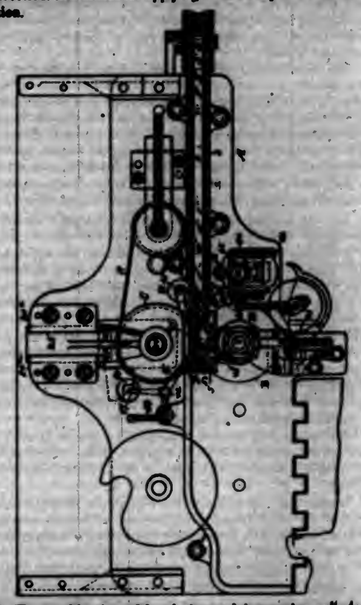
4. The combination with a printing and impression cylinder, and conveyer-belts, of a trip, a stop, a sliding spring-actuated feed-roller, and a sliding spring-actuated foot for throwing the card or envelop from the stop and operating the trip.

5. The combination with rotary printing and impression cylinders, a feed-roller, and a sliding bracket carrying one of the cylinders, of a trip operated by a passing card or envelop to release the bracket, and means for automatically applying a variable pressure to the bracket and through it to the cylinder carried thereby.

6. The combination with a rotary printing-cylinder, rotary impression-cylinder, a sliding feed-roller, and sliding foot a sliding bracket carrying one of these cylinders, of a trip operated by a passing card or envelop to release the bracket and means for automatically applying a variable pressure to the bracket and through it to the cylinder carried thereby.

7. The combination with two rotary cylinders, one movable and means for applying a variable pressure to the movable cylinder, of a sliding spring-actuated foot-feeding mechanism and trip mechanism.

8. The combination with rotary printing and impression cylinders, one of which is movable, of a sliding spring-actuated feed-roller, a sliding foot, trip mechanism, cam moving the movable cylinder in one direction, and means for applying a variable pressure in the other direction.



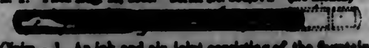
9. The combination with printing and impression cylinders one of which is movable, the shaft on which one cylinder is secured having two cams, of a sliding spring-actuated foot operated by one of these cams, a lever operated by the other, a spring extending from this lever and connected with the movable cylinder and adapted to apply a variable pressure thereto, and feed, stop and trip mechanism.

10. The combination with a printing-cylinder having a transverse post therein, of a cancellation-block having a bayonet or L-shaped slot formed therein and adapted to receive this post, and a slide constructed and adapted to lock the block in this post.

11. The combination with a printing-cylinder having a post therein, of a cancellation-block having an L-shaped slot opening into the inner face and adapted to receive and let the post into its innermost end whereby the block is held in place, and a spring-actuated slide having sliding connection with the cylinder in rear of the cancellation-block and adapted to normally extend over the end of the latter whereby to lock it in place on the cylinder.

12. The combination with feed mechanism and a printing-cylinder, of a sliding spring-actuated foot located over the cylinder, a cam on the cylinder-shaft for moving said foot, a stop and trip mechanism.

604,690. FOUNTAIN-PEN. LOUIS H. WAGNEMAN, Brooklyn, N. Y. Filed Aug. 16, 1893. Serial No. 483,094. (No model.)



Claim.—1. An ink and air joint consisting of the fountain of a fountain-pen provided at its front end with an inner surface in the form of a truncated female cone, in which is inserted a nozzle provided at its rear end with an outer surface in the form of a truncated male cone, the front end of the fountain having on its outer surface the form of a truncated male cone which is inserted in the open end of the cap of a fountain-pen provided at its front end with an inner surface in the form of a truncated female cone.

2. An ink and air joint consisting of the fountain of a fountain-pen provided at its front end with an inner surface in the form of a truncated female cone, in which is inserted the nozzle provided at its rear end with an outer surface in the form of a truncated male cone, the front end of the fountain having on its outer surface the form of a truncated male cone which is inserted in the open end of the cap of a fountain pen provided at its front end with an inner surface in the form of a truncated female cone, the outer edge of the open end of the cap being beveled to a thin edge.

3. An air and ink joint consisting of a nozzle provided with a surface in the form of a truncated male cone inserted in a seat in the form of a truncated female cone provided in the forward end of the fountain, in combination with an air-joint consisting of a fountain provided on its front end with a truncated male cone inserted in a seat in the form of a truncated female cone provided in the open end of the cap, the open end of the cap being provided with a short truncated male cone on its exterior end surface.

4. In a fountain-pen, surfaces in the form of two truncated female cones in combination with three surfaces in the form of truncated male cones forming two air and ink joints, one between the nozzle and the fountain and the other between the holder and the cap, substantially as shown and described.

5. In fountain-pens, one or more annular progressive elastic ink and union joints and stops formed by the combination of truncated tubular wedges, without an abutting shoulder, and with an elastic mouth in the outer member of each joint engaging the opposite part of the inner wedge or member with a comparatively slight elastic pressure, the stop being formed at and opposite the inner part of the conical chamber where its wall is thicker, less elastic and more rigid.

6. In fountain-pens, an ink and union joint and stop consisting in the cooperative and supporting union of external and internal conical members, the external member provided with an internal conical surface, seat or chamber and composed of material made progressively thicker and less yielding from the outer to the inner end of its conical surface, and the internal member provided with an external conical surface, in which the external member, at, by and near its mouth, engages the opposite part of the internal member with elastic pressure, and forms a non-capillary joint and stop.

7. In fountain-pens, an automatic and progressive ink joint and stop, consisting in the cooperative and supporting union of external and internal conical members, the external member provided with an internal conical surface, seat or chamber and composed of material made progressively thicker and less yielding from the outer to the inner end of the conical surface, and the internal member provided with an external conical surface, in which the external member, at, by and near to its mouth, engages the opposite part of the internal member with elastic pressure and forms a non capillary joint and variable stop, and the internal conical member projects beyond the external conical member and thereby provides for the automatic maintenance of a progressive ink and union stop and joint during both use and wear.

8. In fountain-pens, an ink and union joint and stop consisting in the cooperative and supporting union of external and internal conical members, the external member being also provided at its open end with an elastic, externally-beveled annular lip that engages the opposite part of the internal member with elastic pressure and forms a non-capillary joint and stop with and upon the internal member.

9. In fountain-pens, a cap having within its open mouth a conical seat or chamber for the conical end of the fountain also provided at its mouth with an externally-beveled elastic annular lip engaging the conical end of the fountain at and near its base.

10. An elastic, non-capillary joint for the convenient opening and closing of the outlets of vessels to contain fluids, consisting in the combination of mutually-supporting members having exterior and interior conical surfaces, the outer one of which members is elastic at and near its mouth.

11. An elastic, non-capillary joint for the convenient opening and closing of the outlets of vessels to contain fluids, consisting in the combination of mutually-supporting members having exterior and interior conical surfaces, the outer one of which members is elastic at and near its mouth and is provided with a beveled or conical exterior surface as well.

12. An elastic, non-capillary joint for the convenient opening and closing of the outlets of vessels to contain fluids, consisting in the combination of mutually-supporting members having exterior and interior conical surfaces, the outer one of which members is elastic at and near its mouth and is provided with an external conical or beveled and elastic lip.

13. An elastic cap or cover surrounding and forming a non-capillary joint with the outside of the outlets of vessels to contain fluid, consisting in the combination of mutually-supporting members having exterior and interior conical surfaces, the outer one of which members is elastic at and near its mouth.

14. An elastic cap or cover surrounding and forming a non-capillary joint with the outside of the outlets of vessels to contain fluid, consisting in the combination of mutually-supporting members having exterior and interior conical surfaces, the outer one of which members is elastic at and near its mouth and is provided with a beveled or conical exterior surface as well.

15. An elastic cap or cover surrounding and forming a non-capillary joint with the outside of the outlets of vessels to contain fluid,

consisting in the combination of mutually-supporting members having exterior and interior conical surfaces, the outer one of which members is elastic at and near its mouth and is provided with an external conical or beveled and elastic lip.

16. In fountain-pens, a combined non-capillary and capillary joint between the nozzle and the fountain, the nozzle having an exterior conical surface and the fountain having an interior conical surface or chamber therefor, in combination with an ink-duct conducting ink from the reservoir to the pen by means of capillary grooves or other capillary ducts, and also in combination with a cap provided with a conical chamber for the conical front end of the fountain the two forming a non-capillary joint at and near the mouth of the chamber.

17. A tapered interior member and an exterior member having at and near its mouth an elastic bearing thereon and a positive supporting-bearing thereon back of the mouth, forming a union-joint, substantially as shown and described.

18. A holder of a fountain-pen tapered on its forward open end, in combination with a cap which is elastic at and near its mouth and thereby makes and maintains union-joint connection with the holder.

19. In fountain-pens, a holder provided with a tapered hollow end and with a cap which is elastic and flexible at and near its mouth.

20. In fountain-pens, an internal member having a taper surface and bearing, and an external member or cap having an elastic mouth, seat or chamber, which engages with the internal taper surface and forms a variable elastic joint.

21. In fountain-pens, an internal member having a taper surface and bearing, and an external member or cap having an elastic mouth, seat or chamber, which engages with the internal taper surface and forms a variable elastic combined joint and stop.

22. In fountain-pens, an external member or cap having an elastic mouth, seat or chamber, which engages with a taper surface on an internal member and forms a variable stop.

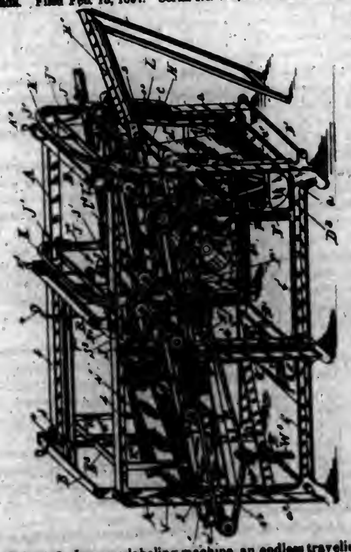
23. In fountain-pens, an external member or cap having an elastic mouth, seat or chamber, which engages with a taper surface on an internal member and forms a variable stop and elastic joint.

24. In fountain-pens, a cap or exterior member which is elastic at and near its mouth and forms a variable-stop joint on and with a taper surface of an interior member.

25. In a fountain-pen, a cap and a holder engaged and held together by an elastic progressive-wedge union-joint.

26. In fountain-pens, a cap and a holder engaged and held together by an elastic progressive-wedge union-joint which also is a stop.

604,691. CAN-LABELING MACHINE. JOHN L. BARNEY, Toronto, Canada. Filed Feb. 18, 1897. Serial No. 624,012. (No model.)



Claim.—1. In a can-labeling machine, an endless traveling paste-belt having a longitudinal run to apply the paste to the cans, and a vertically-disposed run at its head end, of a vertically-disposed traveling paste-supply belt adjacent to the vertical run of the said paste-belt to supply paste thereto, and a paste-receptacle into which the lower end of said supply-belt extends.

2. The combination in a can-labeling machine with the main frame and a supplemental frame mounted in the head end thereof and means for raising and lowering the head end of the supplemental frame, of three triangularly-arranged rolls mounted in said supplemental frame, an endless paste-belt passed around said rolls with its longitudinal run in the path of the cans, a vertically-disposed traveling paste and supply belt alongside of the vertical run of the paste-belt and also having rolls mounted in the supplemental frame, a paste-receptacle into which the lower end of the supply-belt extends, and means for adjusting the adjacent runs of the two belts toward and from each other.

3. The combination with the main frame, of a pivoted frame mounted therein and vertically adjustable at its head end to vary its inclination, a paste-belt having its rolls mounted in said pivoted frame, and a paste-supply for said belt carried by said pivoted frame, of vertically-adjustable hangers suspended from the main frame over the ends of the paste-belt, rolls journaled in said hanger, an endless can-feeding belt passed around said rollers and guide-rails mounted on the main frame and extending longitudinally over the paste-belt, and means for adjusting the rails for different sizes of cans.

4. In a can-labeling machine, a pasting apparatus consisting of a supplemental frame pivotally connected at one end to the main frame, means for adjusting the opposite end of the supplemental frame, to increase or diminish its inclination, a set of drums journaled in the supplemental frame, a paste-belt passing around the drums, a paste-dish carried by the supplemental frame, a second set of drums one of the said drums journaled in the said dish and the other in the supplemental frame, a supply-belt passing around the second set of drums, adapted to convey the paste from the paste-dish to the paste-belt, an idler engaging the outer surface of the supply-belt, an idler engaging the paste-belt, and a platform carried by the supplemental frame to receive the cans from the hopper and deliver them to the paste-belt, substantially as specified.

5. In a can-labeling machine, a label-holder consisting of an open bottom, laterally-adjustable sides composed of telescopic sections connected to the said bottom, and a head for the said sides, substantially as specified.

6. In a can-labeling machine a label-holder, consisting of an open bottom, laterally-adjustable sides composed of telescopic sections connected to the said bottom, a head for the said sides, and a door formed in one of the said sides, substantially as specified.

7. In a can-labeling machine, a label-holder consisting of an open bottom, laterally-adjustable sides composed of telescopic sections connected to the said bottom, a head for the said sides, a door formed in one of the said sides, and an adjusting-screw for moving the said sides toward or away from each other, substantially as specified.

8. In a can labeling machine, a label-holder consisting of an open bottom, laterally-adjustable sides composed of telescopic sections connected to the said bottom, a head for the said sides, a door formed in one of the said sides, an adjusting-screw for moving the said sides toward or away from each other, a sleeve depending from the under side of the false bottom, a column entering the said sleeve, a laterally-movable base for the said column, spring-actuated rollers connected to the base, idlers connected to the under side of the open bottom, and cords connected to the spring-actuated rollers, passing around the idlers connected to the sleeve, to cause the elevation of the false bottom, substantially as specified.

9. In a can-labeling machine the combination of the pasting apparatus, a label-holder, a supplemental pasting apparatus to gum the lap of the label, consisting of a paste-brush journaled above the label-holder, a paste-receptacle adapted to feed the paste-brush, a reciprocating brush within the paste-receptacle, and a traveler on the end of the shank of the reciprocating brush, engaging a cam on the spindle of the supplemental paste-brush, substantially as specified.

10. In a can-labeling machine the combination of the pasting apparatus, a label-holder, a supplemental pasting apparatus to gum the lap of the label, consisting of a paste-brush journaled above the label-holder, a paste-receptacle adapted to feed the paste-brush, a reciprocating brush within the paste-receptacle, a traveler on the end of the shank of the reciprocating brush, engaging a cam on the spindle of the supplemental paste-brush, a conveyer to roll the cans from the primary pasting apparatus to the labels, and a presser-belt to press the label on the can, substantially as specified.

11. In a can-labeling machine the combination of the primary pasting apparatus, a label-holding receptacle, a platform interposed between the primary pasting apparatus and the label-holder, and longitudinally and laterally adjustable tracks R' R' connected to the platform to receive the cans from the primary pasting apparatus, and deliver them at the edge of the labels, substantially as specified.

12. In a can-labeling machine the combination of the raceway, a presser apparatus located above the raceway, consisting of two vertically and longitudinally adjustable hangers, drums supported in the hangers, a belt passing around the drums, and a spring-supported

hinged leaf at the delivery end of the raceway, substantially as specified.

13. In a can-labeling machine, a feed regulator for the cans, consisting of a rock-shaft 8, a lever 9 connected to the rock-shaft 8, a gate 10 carried by the lever 9, a rock-shaft 17 connected with and operated by the action of the rock-shaft 8, and a gate 20 carried by the rock-shaft 17, substantially as specified.

14. In a can-labeling machine a feed-regulator for the cans, consisting of a rock-shaft 8, a lever 9 carried by the rock-shaft 8 and operated by the action of the can-conveyer, a gate 10 connected to the lever 9, a rock-shaft 17 having a rod 18 operated by the action of the rock-shaft 8, and a gate 20 carried by the rock-shaft 17, substantially as specified.

15. In a can-labeling machine a feed-regulator for the cans consisting of a rock-shaft 8, a lever 9 carried by the rock-shaft 8 and operated by the action of the can-conveyer, a vertically-adjustable gate 10 connected to the forward end of the lever 9, a rock-shaft 17, longitudinally-adjustable side rods 18 connected to the rock-shaft 17 and to the lever 9, an arm 19 connected to the rock-shaft 17, and a vertically-adjustable gate 20 carried by the forward end of the arm 19, substantially as specified.

16. In a can-labeling machine a feed-regulator for the cans consisting of a rock-shaft 8, a lever 9 carried by the rock-shaft 8 and operated by the action of the can-conveyer, a vertically-adjustable gate 10 connected to the forward end of the lever 9, a rock-shaft 17, longitudinally-adjustable side rods 18 connected to the rock-shaft 17, and to the lever 9, an arm 19 connected to the rock-shaft 17, a vertically-adjustable gate 20 carried by the forward end of the arm 19, and springs to return the lever and correlative parts to their normal position after being actuated, substantially as specified.

17. The combination with the chute, the paste-belt and the can-conveying belt mounted thereabove and provided with transverse arms to engage the cans and move them over the paste-belt, of oppositely-operating gates located one in advance of the other for controlling the feed of the cans and provided with an operating device located in the path of the belt-arms and to be operated thereby.

18. A can-labeling machine comprising a frame, a can-chute at the head thereof, a gate mechanism over the chute in the path of the cans, a pasting mechanism to which the chute delivers, a can-conveyer belt over the paste mechanism and provided with means for actuating the said gate mechanism, a label-holder at the rear end of the paste mechanism, a supplemental pasting mechanism at the rear end of the label-holder and a pressing device in rear of said supplemental pasting mechanism.

19. The combination with the can-chute, and the pasting mechanism, of a vertically-adjustable frame above the pasting mechanism, a can-conveying belt and gate mechanism mounted in said frame and adjustable as a whole toward and from the pasting mechanism and chute, the said can-conveying belt having means for actuating the gate mechanism to release one can at a time.

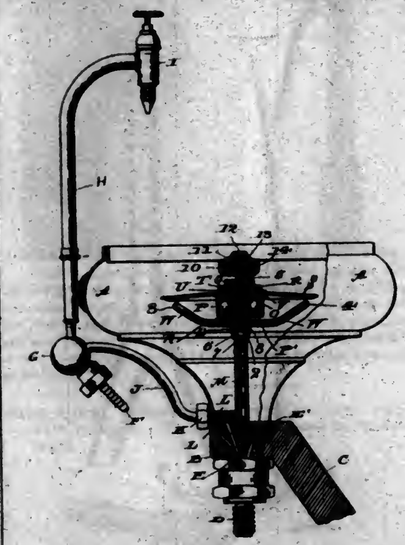
20. A can-labeling machine comprising, the frame having adjustable sides, the longitudinally-extending paste-belt at the lower end of the chute, a can-conveying belt over the paste-belt, a label-holder beyond the lower ends of the said two belts and having adjustable sides, a table between the said holder and the lower end of the paste-belt, adjustable tracks mounted on said table, a leaf at the rear of the label-holder, laterally adjustable guide-rails extending from the lower ends of the sides of the can-chute over the paste-belt, label-holder, and leaf, an endless belt over the label-holder, a supplemental pasting mechanism at the rear end of said belt and over the rear end of the label-holder and a presser-belt over said leaf and in rear of said supplemental pasting mechanism.

604,692. FOUNTAIN-SPITTOON. THEODORE H. CLARK, Toronto, Canada. Filed Dec. 20, 1897. Serial No. 663,265. (No model.)

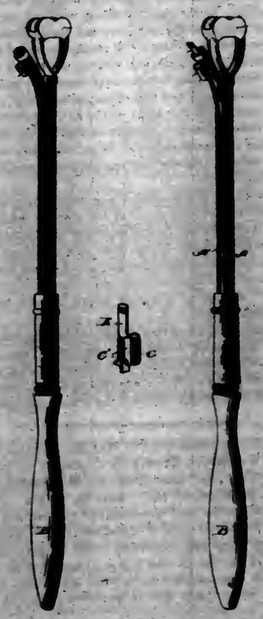
Claim.—1. In a spittoon, the combination with the body portion and supply-pipe, of the valve-chamber secured to the upper end of said supply-pipe, radial arms extending therefrom, which arms are apertured near their ends, the valve mounted in said chamber, the threaded stem to said valve, the adjusting head piece to the stem, of the disk mounted above the said chamber, and the ball-bearings, arranged as set forth.

2. In a spittoon, the standard, the body portion mounted thereon, the supply-pipe mounted in said standard, the valve-chamber communicating with said pipe, the exit-ducts leading from the chamber through the standard, radial arms W, the rotary disk mounted above the said valve-chamber, and provided with ball-bearings, the valve and stem mounted centrally in said valve-chamber, and means for regulating the said valve, as shown and described.

3. In a spittoon, the combination with the supply-pipe, the valve-chamber, the radially-arranged pipes leading from said chamber, the rotary disk mounted above the said valve-chamber and having ball-bearing connection therewith, the valve-stem mounted in said chamber, and provided with a duct in said stem opening into the said chamber, the adjusting part of the valve-stem and radial ducts opening downward at the outer end of the adjusting part of the valve-stem, which ducts communicate with the duct in the stem of the valve, as shown and described.

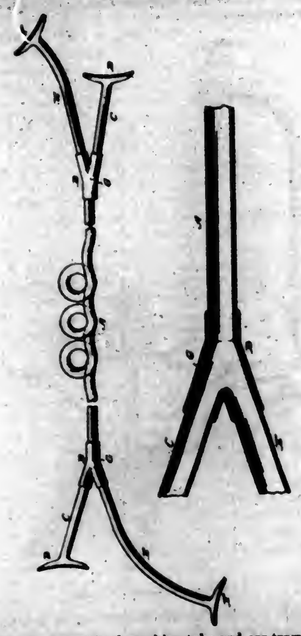


604,698. LIGHTING IMPLEMENT. HARRY M. EDWARDS, Brooklyn, N. Y., assignor to William Vogel & Brothers, same place. Filed Aug. 24, 1897. Serial No. 649,374. (No model.)



Claim.—In a lighting implement, a taper-holder tube, in combination with a thumb-piece provided with an extension made in closed-loop or eye form, through which the taper is adapted to be hooked substantially as described.

604,694. SPEAKING-TUBE. THOMAS FALES, Bridgeport, Ct., assignor of one-half to George J. Thackery, same place. Filed July 20, 1897. Serial No. 646,265. (No model.)



Claim.—1. A combined speaking-tube and ear-trumpet, consisting of the extensible body portion having each end formed with two branch pipes leading to the ear and mouth respectively, the mouth-pipe being provided with a mouthpiece and the ear-tube being provided with an ear-covering which will closely surround the ear, and hold the said covering upon the ear without the aid of the hand.

2. A combined speaking-tube and ear-trumpet, consisting of the body portion having each end forked to provide two branches, one leading to the mouth and the other to the ear, mouthpieces carried by the mouth branches and ear-covers carried by the ear branches, said covers being of elastic material to permit them to cover and snugly fit the ears, and hold the said ear-covering upon the ear without the aid of the hand.

3. A combined speaking-tube and ear-trumpet, consisting of the body portion and forked ends made in one piece of material, mouth and ear pieces carried by the forked ends and having flaring mouths to cover the ears and mouths of the users, said ear-covering adapted to surround the ear and be held thereabout without the aid of the hand, and a forked reinforcement adapted to surround the body portion and ends of the forked branches where the said body portion and forked branches meet.

4. A speaking-tube, consisting of the conducting-tube, said tube terminating in the forked reinforced ends, two of the said forked ends carrying a mouthpiece, and the other two being of greater length and carrying each an ear-covering adapted to fit over the ear of the user and be held thereabout without the aid of the user's hand.

604,695. ROLLER-DIE FOR MAKING METALLIC LATHING. ALEXANDER B. FORSTER, Newark, N. J., assignor to the American Metal Lath, Fire Proof, Construction and Manufacturing Company, same place. Filed June 30, 1897. Serial No. 642,804. (No model.)

Claim.—1. In a roller-die for making metallic lathing, a roll having an annular row of female dies extending into its periphery, and an annular row of male dies projecting from the periphery of said roll, the said male and female dies being separated from each other and their relative arrangement being such that those forming the row of male dies break joint with those forming the row of female dies.

2. In a roller-die for making metallic lathing, a roll having an annular row of female dies extending into its periphery, an annular row of male dies projecting from the periphery of said roll, the said male and female dies being separated from each other and their relative arrangement such that those forming the row of male dies break joint with those forming the row of female dies, and having an annular ogee formation interposed between the row of male dies and the row of female dies.



3. In a roller-die for making metallic lathing, the combination of a disk having an annular row of male dies projecting from its periphery, a disk having an annular row of female dies extending into its periphery, the said disks being arranged so that the male dies are separate from and break joint with the female dies, and means for securing the said disks in their proper relative positions.

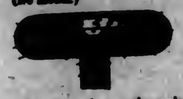
4. In a roller-die for making metallic lathing, the combination of a disk having an annular row of male dies projecting from its periphery, a disk having an annular row of female dies extending into its periphery, a disk having an annular ogee formation extending around its periphery, the said disks being arranged so that the male dies are separate from and break joint with the female dies and so that the disk having the ogee formation is interposed between the disk having the male dies and the disk having the female dies, and means for securing said disks in their proper relative positions.

5. In a roller-die for making metallic lathing, a roll having an annular row of female dies consisting of apertures extending into the periphery of said roll, and the said roll having an annular row of male dies projecting from its periphery, each of said male dies having a cutting edge substantially concentric with the axis of the roll and with the corners of said edge cut away to permit a gradual entrance and exit of the die into and from the metal on which it operates, the said dies being arranged so that the male dies of one row are separate from and break joint with the females dies of an adjacent row.

6. In a roller-die for making metallic lathing, a roll having an annular row of female dies consisting of apertures extending into the periphery of said roll, each of said female dies having its interior walls inclined to approach each other as they extend inwardly, and the said roll having an annular row of male dies projecting from its periphery, each of said male dies having a cutting edge substantially concentric with the axis of the roll and with the corners of said edge cut away to permit a gradual entrance and exit of the die into and from the metal on which it operates, the said dies being so arranged that the male dies of one row are separate from and break joint with the female dies of an adjacent row, and the relative dimensions of a male and a female die being such that the male die is smaller than the female die so that when the male die of one roll registers with the female die of another roll considerable space between the same will exist to permit the metal upset between them to assume the form of an irregular collar to constitute a key.

7. In a machine for making metallic lathing, the combination with a roll having a series of disks provided one with a series of cutters, another with a series of depressions, and an intermediate disk; of a cooperating roll also having a series of disks provided one with a series of cutters, another with a series of depressions, and an intermediate disk, the depressions in each roll being directly opposite the cutters in the other roll.

604,696. VALVE-HANDLE. HENRY B. FRENCH, Belleville, N. J., assignor of one-half to David Dodd, Newark, N. J. Filed June 30, 1897. Serial No. 643,919. (No model.)



Claim.—1. The combination, in a valve-spindle handle of the character described, of a wooden handle portion provided with a concentric groove in its upper and lower face, said grooves of different diameters, so as to avoid weakening each wooden portion, retaining-plates provided with flanges bent at right angles to said plates, said flanges adapted to enter said grooves so as to support each wooden portion, in case of accidental breakage, said bottom plate having a hole to admit a valve-spindle, a flange rising from the inner surface of said plate and surrounding said hole, for the purpose set forth.

2. The combination, in a valve-spindle handle of the character described, of a wooden handle portion provided with concentric grooves of unequal diameters, as shown, upper and lower retaining-plates provided with flanges to enter said grooves, projections on the edge of the flange of the lower retaining-plate, adapted to enter holes in the bottom of the lower groove of the wooden handle, a square curb having a square hole therethrough, rising from the central inner surface of said lower plate to admit the valve-spindle and support the wooden handle, also having a square hole to fit said curb, means substantially as shown for securing said handle to the spindle, for the purpose set forth.

604,697. DUMPING-WAGON. THOMAS R. HOOPER, Yountville, Cal., assignor of one-half to H. W. Collins and H. L. Goss, Napa, Cal. Filed Oct. 26, 1897. Serial No. 656,502. (No model.)



Claim.—1. The dumping-wagon, substantially as described, composed of the oblong wagon-body elevated on bolsters from axles, the series of tilting sections forming the dumping-bottom thereof, said sections arranged to swing together and in the same direction and longitudinally of the wagon-body, each section having journal-bars secured at a side thereof near one edge and, respectively, to turn at the bottoms of the wagon ends, the edges of the sections beveled to overlap so that the sections can assume the horizontal position when closed together, the single horizontal transverse winding-shaft arranged centrally across the body and mounted on the tops of the sides thereof with a handle at the exterior of a side of the body, and exterior locking means, flexible connections secured to said shaft and at their lower ends to the central parts of the free portions of the dumping-sections, respectively, and arranged to permit the sections to assume the vertical positions and to be drawn up by the winding-shaft without locking on the dead-center, substantially as shown.

2. The dumping-wagon comprising the body, having the strip secured longitudinally along the inner face of one side above the bottom edge thereof, the series of dumping-sections extending longitudinally the length of the body and at their ends eccentrically journaled in the ends thereof so that all the sections swing in one direction, the pivoted side edge of one end section abutting against one side of the body and the free edge of the other end section closing up against said strip when the sections are closed to their horizontal positions, the sections (except said end sections) having projecting plates secured on their upper faces at their free edges, the transverse winding-shaft extending across the body and mounted at the top of the sides with the end handle at the exterior of the body, a swinging latch or hook to engage said handle and hold the shaft against unwinding rotation, and the loose connections secured to said shaft at points, respectively, about in the vertical planes of the section-journals when the sections are in their vertical dumping positions and at their lower ends, respectively, secured to the upper faces near the free edges of said sections, whereby the sections do not lock at the dead center and the connections press laterally against the upper edges of said sections when swinging the same up.

3. The dumping-wagon comprising essentially the oblong body, the dumping-sections arranged longitudinally thereof and eccentrically mounted in the ends thereof and arranged to swing to the horizontal positions with the sections overlapping and to the vertical positions, the transverse winding-shaft on the top of the wagon-body provided with turning and locking means, and the loose connections secured to said shaft, respectively, about in the vertical planes of the axes of said sections with their lower ends secured to the upper faces of said sections, respectively, near the free edges thereof and so arranged that when the sections are in their vertical positions said connections extend up transversely of the sections and against the upper edges thereof, and thereby press laterally against said upper edges of the sections and swing the sections up without locking at the dead-center, substantially as described.

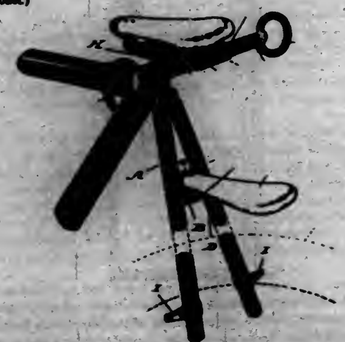
4. A dumping-wagon comprising essentially the wagon-body, the dumping-sections extending longitudinally of the same and mounted eccentrically in the ends thereof, the transverse winding-shaft mounted at the top edges of the sides of the body with the exterior crank-handle, chains secured to the shaft and to the free edges of said sections, and the swinging hook pivoted to the exterior of a wagon-body side to engage said crank-handle when the dumping-sections are elevated and to hold the shaft against unwinding, whereby the hook can be easily knocked from the handle to dump the wagon, substantially as described.

604,698. LATHING. PAUL KLEMM, Stapleton, N. Y., assignor to the Staten Island Construction Company, same place. Filed Apr. 28, 1897. Serial No. 633,633. (No model.)



Claim.—A partition-wall formed of I-shaped uprights, tie-rods connecting said uprights, sections or panels formed of parallel laths, and transverse intercrossing wires attached respectively to the top and bottom angle-irons and to intermediate tie-rods, and layers of plaster-of-paris or other covering material applied to opposite sides of said panels so as to form a strong and rigid partition, substantially as set forth.

604,699. SUPPLEMENTAL SEAT FOR BICYCLES. WALTER R. MAYO, Chicago, Ill. Filed Sept. 13, 1897. Serial No. 651,473. (No model.)



Claim.—1. In a bicycle, the combination of the rear forks, a tie-plate uniting the rear forks above the driving-wheel, a seat-spring, a clamp united to the seat-spring embracing the tie-plate, a cross-head connected to the seat-spring on the inner side of the rear forks, a seat-frame connected to the rear of the seat-spring, a seat, the rear of the seat being connected to the seat-frame, and the horn of the seat connected to the seat-spring, substantially as specified.

2. In a bicycle, the combination of the rear forks, a tie-plate uniting the rear forks above the driving-wheel, a seat-spring, a clamp united to the seat-spring embracing the tie-plate, a cross-head connected to the seat-spring on the inner side of the rear forks, a seat-frame connected to the rear of the seat-spring, a seat, the rear of the seat being connected to the seat-frame, the horn of the seat connected to the seat-spring, and hand-grips connected to the saddle-post, substantially as specified.

3. In a bicycle, the combination of the rear forks, a tie-plate uniting the rear forks above the driving-wheel, a seat-spring, a clamp united to the seat-spring embracing the tie-plate, a cross-head connected to the seat-spring on the inner side of the rear forks, a seat-frame connected to the rear of the seat-spring, a seat, the rear of the seat being connected to the seat-frame, the horn of the seat connected to the seat-spring, hand-grips connected to the saddle-post, and foot-rests connected to the rear forks below the supplemental seat, substantially as specified.

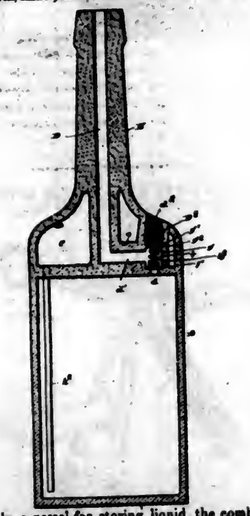
4. In a bicycle, the combination of the rear forks, a tie-plate uniting the rear forks above the driving-wheel, a seat-spring, a clamp united to the seat-spring embracing the tie-plate, a cross-head connected to the seat-spring on the inner side of the rear forks, a seat-frame connected to the rear of the seat-spring, a seat, the rear of the seat being connected to the seat-frame, the horn of the seat connected to the seat-spring, a T-coupling connected to the horizontal part of the seat-post, having hollow screw-threaded branches, and hand-grips

having shanks fitted into the hollow screw-threaded branches of the T-coupling, substantially as specified.

5. In a bicycle, the combination of the rear forks, a tie-plate uniting the rear forks above the driving-wheel, a seat-spring, a clamp united to the seat-spring embracing the tie-plate, a cross-head connected to the seat-spring on the inner side of the rear forks, a seat-frame connected to the rear of the seat-spring, a seat, the rear of the seat being connected to the seat-frame, the horn of the seat connected to the seat-spring, a T-coupling connected to the horizontal part of the seat-post, having hollow screw-threaded branches, hand-grips having shanks fitted into the hollow screw-threaded branches of the T-coupling, and foot-rests connected to the rear forks below the supplemental seat, substantially as specified.

604,700. DEVICE FOR PREVENTING REFILLING VESSELS.

Billings H. Raymond, Detroit, Mich., assignor of three-eighths to George C. Darwin, same place. Filed Jan. 15, 1897. Serial No. 619,260. (No model.)

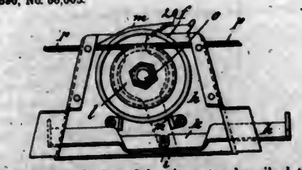


Claim.—1. In a vessel for storing liquid, the combination of a liquid-chamber, an air-chamber, means of communication between the air-chamber and the normal bottom of the liquid-chamber, a tortuous outlet from the liquid-chamber provided with a valve, and a direct inlet leading into said liquid-chamber adapted to be permanently closed, substantially as described.

2. In a vessel for storing liquids, the combination of a liquid-holding chamber, a direct passage leading into the liquid-holding chamber and provided with a chamber *f* and a collar f^3 above the chamber *f*, a tortuous outlet from the chamber *f*, and a spring-closed valve in the passage below the chamber *f*, the portion of the direct passage above the collar f^3 being adapted to be permanently closed, substantially as described.

604,701. APPARATUS FOR CUTTING DOUBLE-PILE FABRICS.

Reinhold Richter, Reichenberg, Austria-Hungary. Filed Jan. 18, 1897. Serial No. 619,520. (No model.) Patented in Germany June 13, 1896, No. 88,063.



Claim.—1. In a device of the character described, the combination with holding-rollers *a* and *a'* for feeding forward the uncut fabric, of spreading-rollers *b* and *b'*, a railway S, a traveling double-acting shears composed of a circular rotating and a straight-edged knife-blade mounted upon the railway S, means for reciprocating the shears along such railway and means for rotating the circular knife-blade during the reciprocation, substantially as shown and described.

2. In a device of the class described, the combination with the holding-rollers *a* and *a'*, of the spreading-rollers *b* and *b'*, the drawing-rollers *c* and *c'*, the taking-off roller *y*, a railway S, a traveling double-acting shears composed of a circular rotating and a straight-edged shear-blade mounted upon the railway S, means for reciprocating the shears, and means for rotating the circular knife-blade during reciprocation, the shears being located below the rollers *a* and *a'*, substantially as shown and described.

3. In a device of the class described, the combination with a cutting device or shears for cutting the pile of the fabric, of a reciprocating carriage therefor, a railway S upon which the same is mounted, and means for reciprocating the carriage; the said cutting device or shears consisting of a straight-edged knife-blade, a rotary circular knife-blade adjacent thereto so that the two together form a shears, a wheel *l* secured to the rotary circular knife-blade of the shears, and a belt or cord *p* encircling the wheel *l* and permanently secured at the ends in such manner that as the carriage carrying the stationary and rotary knife-blades is reciprocated, rotary motion will be given to the rotary knife-blade *f*, first in one direction and then in the other, according to the direction of the movement of the carriage, substantially as shown and described.

4. In a device of the class described, the combination with a cutting device or shears for cutting the pile of the fabric, of a reciprocating carriage therefor, a railway S upon which the same is mounted, and means for reciprocating the carriage; the said cutting device or shears consisting of a knife-blade having the points 20 and 21 and the undercutting straight edges 9, a rotary circular knife-blade adjacent thereto so that the two together form a shears, a wheel *l* secured to the disk or rotary circular knife-blade of the shears, and a belt or cord *p* encircling the wheel *l* and permanently secured at the ends in such manner that as the carriage carrying the knife-blades is reciprocated rotary motion will be given to the rotary circular knife-blade *f*, first in one direction and then in the other according to the direction of the movement of the carriage, substantially as shown and described.

5. In a device of the class described, the combination with a reciprocating carriage, of means for reciprocating such carriage, a cutting device or shears carried thereby consisting of a rotating disk knife or circular shear-blade *f*, means for rotating the blade *f*, a knife *m* having the cutting edges 9 and the points 20 and 21, and means for vibrating such knife *m* at the end of each reciprocation of the carriage, substantially as shown and described.

6. In an apparatus for cutting double-pile fabrics on the loom, the combination with the loom and the shaft W, of a toothed wheel E upon the said shaft W, a loose intermediate wheel T gearing with the wheel E, the wheel R gearing with the wheel T, the connecting-rod K pivoted upon the crank-pin C of the wheel R, the driving-lever A to be moved alternately backward and forward, upon which the connecting-rod K is pivoted at D, the cord *z* attached to the lower end of the driving-lever A, guide-pulleys *n*, *t*, *u*, *x*, *v'*, *t'* over which the cord *z* passes, a carriage to which the cord *z* is secured so as to move such carriage alternately backward and forward owing to the alternative movement of the driving-lever A, the carriage having a frame *h h'*, carrying upon a pivot-bolt *o*, a vibrating knife *m* having a boss *o'*, and pointed at either end and having an inclined sharp edge on its under or inner side, a cutting disk knife or wheel *f* which together with the knife *m* forms a shears, and a pulley *l* secured to the disk knife, both the disk knife *f* and a pulley *l* being mounted on said boss *o'*, and said disk-knife blade *f* being rotated by means of a driving-cord *p* fixed to both side frames of the loom and passing around the pulley *l*, substantially as shown and described.

7. In an apparatus for cutting double-pile fabrics on the loom, the combination with a railway S fixed transversely between the two side frames of the loom parallel to the breast-beam B, of a carriage adapted to be moved alternately backward and forward along the railway, a shears or pile-cutting device carried by the carriage, consisting of a vibrating knife-blade *m* pointed at either end and having an inclined sharp edge on its under or inner side and being provided with a boss *o'*, and being pivoted upon a bolt *o* fixed to the side of the carriage-frame *h*, and being provided with an arm *m'* projecting downward from the knife-blade below the center upon which it turns, a pin *i* upon the arm *m'*, said pin *i* working in a notch or recess in a sliding plate or bar *k* which projects at each end of the carriage-frame, a circular cutting disk-knife blade or wheel *f* which together with the knife-blade *m* forms a shears, and a pulley *l* secured to the circular disk-knife blade *f*, said circular disk-knife blade being mounted upon the boss *o'*, and being rotated by means of a driving-cord *p* fixed to both side frames of the loom and passing around the pulley *l*, substantially as shown and described and for the purposes set forth.

8. In an apparatus for cutting double-pile fabrics on the loom, the combination with a reciprocating carriage, of means for reciprocating such carriage, a shears or cutting device carried by the carriage, and consisting of a knife-blade *m*, provided with a boss *o'*, and pointed at either end and having an inclined sharp edge on its under or inner side adjacent to each point, a cutting circular disk-knife blade or wheel *f* mounted upon the boss *o'*, a pulley *l* secured to the circular disk-knife blade or wheel *f*, the two knives together forming a shears, and the circular disk-knife blade being rotated by means of a driving-cord *p* secured at the ends and passing around the pulley *l*, substantially as described and for the purposes set forth.

604,702. GRAIN CLEANING AND SCALPING MACHINE.

Rel-ford G. Royal, Camden, N. J., assignor of seven-ninths to Richard H. Reeve, same place, Alexander C. Wood and Edward S. Wood, Cinnaminson, N. J., and Eldridge R. Johnson, Philadelphia, Pa. Filed Mar. 22, 1897. Serial No. 628,001. (No model.)



Claim.—1. In a grain cleaning and scalping machine, the combination with an abrading-cylinder of a rotatable drum mounted within the cylinder and grain-carriers mounted upon said drum, said carriers being contradistinguished from brushes and comprising wire strands radially secured at their lower ends to a yielding back to allow of a uniform vibration of each strand throughout its length while in operation, said strands being adapted to receive and carry the grain and to throw it by centrifugal force against the abrading-surface, the outer ends of the strands being out of contact and at a distance from the abrading-surface, substantially as described.

2. In a grain cleaning and scalping machine, the combination with an abrading-cylinder of a rotatable drum mounted within the cylinder and grain-carriers mounted upon said drum, said carriers being contradistinguished from brushes and comprising wire strands radially secured at their lower ends to a yielding back to allow of a uniform vibration of each strand throughout its length while in operation, said strands being spaced to receive and retain the grain in the direction of its length while being carried thereby, and to direct the grain when thrown by centrifugal force with the end against the abrading-surface, the outer ends of the strands being out of contact and at a distance from the abrading-surface, substantially as described.

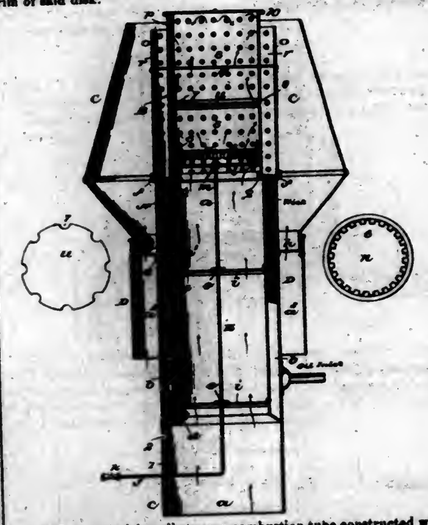
3. In a grain cleaning and scalping machine, the combination of an abrading-cylinder, of a rotatable drum mounted within the cylinder and grain-carriers mounted upon said drum, said carriers being contradistinguished from brushes and comprising wire strands formed in pairs radially disposed and secured at their united ends yieldingly by being passed through a backing-piece of yielding material, said backing-piece being secured to a longitudinally-disposed holding bar provided upon the circumference of the rotatable drum, said yielding connection providing for a uniform vibration of each strand throughout its length while in operation, said strands being spaced to receive and retain the grain in the direction of its length while being carried and to direct the course of the grain when thrown by centrifugal force with the end against the abrading-surface, the outer ends of the strands being out of contact with and at a distance from the abrading-surface, substantially as described.

604,708. VAPORIZING OIL-STOVE.

William H. Silver, Brooklyn, N. Y., assignor to the Silver & Company, same place. Filed May 24, 1897. Serial No. 637,876. (No model.)

Claim.—1. A vaporizing oil-stove comprising an annular wick-tube having a practically unobstructed central air-chamber open at bottom and top, a superposed combustion-tube having concentric perforated walls and loosely seated at the top of said wick-tube, a fixedly-attached gallery surrounding said wick-tube, an outer drum supported on said gallery, and means for elevating said combustion-tube including a vertical lifter-rod within the wick-tube, a perforated lifter disk carried by the upper end of said rod and serving by its perforations to regulate the supply of air to the interior of the flame, and a lifter-abutment within said combustion-tube to coact with said lifter-disk, substantially as hereinbefore specified.

2. In a vaporizing oil-stove, the combination of an annular wick-tube having a practically unobstructed air-chamber open at bottom and top, a superposed combustion-tube loosely seated at the top of said wick-tube, and means for elevating said combustion-tube comprising a vertical lifter-rod within said wick-tube, a disk-shaped perforated disk carried by the upper end of said rod, and a lifter-abutment within said combustion-tube in the form of a fixed ring having downwardly and inwardly inclined fingers to coact with the upturned rim of said disk.



3. In a vaporizing oil-stove, a combustion-tube constructed with concentric outer and inner walls inclosing an annular flame-space and a central air-chamber and provided within the latter with an imperforate air-directing disk having notches in its perimeter forming the air-passages, the projections between said notches bringing the disk into contact with the inner wall of the tube on all sides, for mutual support.

4. In a vaporizing oil-stove, a combustion-tube constructed with concentric outer and inner walls inclosing an annular flame-space and a central air-chamber, the latter closed at top by an imperforate cap and open at bottom, and provided at mid-height within said air-chamber with an imperforate air-directing disk having notches in its perimeter forming the air-passages, the projections between said notches bringing the disk into contact with the inner wall of the tube on all sides, for mutual support, substantially as hereinbefore specified.

604,704. WAGON-BRAKE.

Samuel L. Sibley, Perryopolis, Pa. Filed May 24, 1897. Serial No. 637,914. (No model.)



Claim.—A wagon-brake, consisting of the two horizontal bars, provided with horizontal slots, having angular openings, guides for each of said horizontal bars, in combination with the brake-lever, provided with lugs or pins on each side thereof, adapted to be seated in the said slotted horizontal bars, substantially as described.

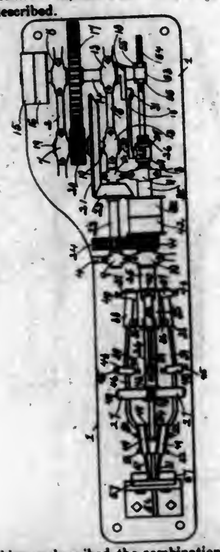
604,705. CORK-CUTTING MACHINE.

Henry Weiss, Pittsburg, Pa. Filed May 24, 1897. Serial No. 637,918. (No model.)

Claim.—1. In combination with the herein-described cork-cutting machine, of a revoluble guide-block, guide-boxes pivoted upon the forward end of the said block, rods carrying knives, the rods being loosely fitted within the said guide-boxes, brackets formed upon the rear end of the said block and extending over the said guide-boxes, screws arranged upon the said brackets and bearing upon the outer sides of the said guide-blocks, and screws arranged upon the said block and beneath the said guide-boxes and at their rear ends which form bearings for the under sides of the said boxes, said screws arranged and adapted to adjustably incline the said boxes, substantially as shown and for the purpose described.

2. A cork-cutting machine consisting of the hollow shaft having mounted thereon adjustable guide-boxes, rods loosely fitting within

said guide-boxes provided with adjustable slide-boxes, knives secured to the outer ends of said rods, and means for revolving the said knives, substantially as described.



3. In a machine as described, the combination with the rods 39 and arms 46 of the adjustable slide-boxes 44 and 47 into which the said arms are pivoted and by which they may be adjustably inclined.

4. A cork-cutting machine consisting of the shaft having adjustably mounted thereon guide-boxes, each of said guide-boxes being provided with openings into which are loosely fitted suitable rods, the ends of said rods having formed thereon boxes provided with slide-blocks, arms connected to said slide-blocks, and a series of knives suitably attached to said arms, substantially as shown and described.

5. A cork-cutting machine consisting of the hollow shaft having adjustably mounted thereon guide-boxes, each of said guide-boxes being provided with openings into which are loosely fitted suitable rods, the outer ends of said rods having formed thereon hollow boxes provided with slide-blocks, means for adjusting said slide-blocks, arms connected to said slide-blocks, their forward ends being provided with bushings into which are fitted a series of knives, and means for revolving the said knives, substantially as shown and described.

6. A cork-cutting machine consisting of the hollow shaft having adjustably mounted thereon guide-boxes, rods loosely fitted in said guide-boxes, boxes provided with adjustable slide-blocks formed upon the ends of said rods, arms pivoted to said slide-blocks, their middle portions being pivoted to adjustable slide-boxes located within a spider, the forward ends of said arms having attached thereto knife-holders which are provided with bushings into which the knives are fitted, substantially as shown and described.

604,706. HAND-GRIP. ADOLPH R. WIRTH and GERHARD J. BRANDT, Milwaukee, Wis. Filed Oct. 26, 1896. Serial No. 610,118. (No model.)



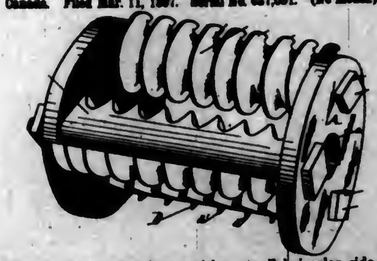
Claim.—1. A hand-grip comprising a hollow core provided at its outer end with an external shoulder, a compressible perforate frame on the core having longitudinal play under pressure toward said shoulder, a series of cane stakes recurved under the inner end of the frame and made fast therewith to said core, a filler of pliable material in weave with the stakes, and end pieces in the form of a ferrule and cap arranged to embrace terminals of the jacket resulting from the interwoven stakes and filler.

2. A hand-grip comprising a hollow core provided at its outer end with an external shoulder, a compressible perforate frame on the core having longitudinal play under pressure toward said shoulder, a series of cane stakes recurved under the inner end of the frame and made fast therewith to said core, a filler of hair-braid in weave with the stakes, and end pieces in the form of a ferrule and cap arranged to embrace the terminals of the jacket resulting from the interwoven stakes and filler.

3. A hand-grip comprising a hollow core provided at its outer end with an external shoulder, a spring-metal grid on the core having longitudinal play under pressure toward said shoulder, a series of cane stakes recurved under the inner end of the grid and made fast therewith to said core, a filler of hair-braid in weave with the stakes, and end pieces in the form of a ferrule and cap embracing the terminals of the jacket resulting from the interwoven stakes and filler.

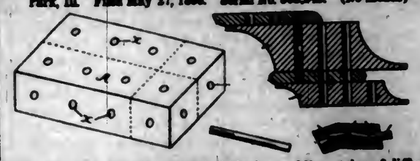
4. A hand-grip jacket that consists of interwoven cane and hair-braid.

604,707. CUTTER-HEAD. HARVEY M. WILSON, Owen Sound, Canada. Filed Mar. 11, 1897. Serial No. 627,051. (No model.)



Claim.—A cutter-head comprising parallel circular side plates each formed with a central bore, and with centrally-bored recessed seats on its inner side, in combination with stay-bolts extending through the bores in said seats, a cutting-cylinder mounted on each of said stay-bolts, each of said cylinders having hubs fitting the seats in the side plates, and parallel cutting-blades having concave sides to form semicircular spaces between the blades and being longitudinally recessed to form a front cutting edge d^3.

604,708. CHILD'S BUILDING-BLOCKS. CHARLES S. BISHOP, Oak Park, Ill. Filed May 27, 1896. Serial No. 593,945. (No model.)



Claim.—1. In child's building-blocks, molding-strips of different thicknesses, which are multiples of a selected unit of thickness, having at opposite edges similarly-molded face portions corresponding in extent to the thickness, the body portion intermediate said face portions having pin-holes in three longitudinal rows, one outer row being distant from the lateral boundary of the body once the unit of thickness, the other outer row being distant from the other lateral boundary twice said unit, and the middle row being distant from the outer rows twice said unit of thickness.

2. In child's building-blocks, in combination with blocks whose dimensions are all multiples of a selected unit of measure, and which have pin-holes in their faces distant from each other once said unit and from the edges respectively of the blocks half such unit; molding-strips of different thicknesses which are all multiples of a unit of thickness which is an aliquot part of said unit of measure, said molding-strips having at opposite edges similarly-molded face portions corresponding in extent to the thickness, the body portion intermediate said face portions having pin-holes in three longitudinal rows, one outer row being distant from the lateral boundary of the body once the unit of thickness, the other outer row being distant from the other lateral boundary twice said unit, and the middle row being distant from the outer rows twice said unit of thickness.

3. In child's building-blocks, in combination with rectangular blocks whose dimensions are all multiples of a selected unit of measure, and which have sockets in their several faces distant from their edges respectively half the unit of measure and from each other once such unit; right-angle triangular gable-blocks whose three sides are all multiples of the unit of measure, and whose edges at said three sides are provided with sockets at the middle point of each such unit into which said edges can be divided.

4. In child's building-blocks, in combination with rectangular blocks whose dimensions are all multiples of a unit of measure, and which have sockets in their several faces distant from the edges respectively half the unit of measure and from each other once such unit, right-angle triangular gable-blocks whose sides are respectively three, four and five times the unit of measure and whose edges are provided with sockets at the middle point of each such unit into which said edges can be divided.

5. In building-blocks for arch construction, wedges of small angle which is an aliquot part of one hundred and eighty degrees, in combination with blocks having their two opposite faces parallel, said wedges having their oblique faces and said other blocks having their opposite parallel faces provided with sockets adapted to receive connecting devices, whereby the parallel face blocks in different numbers or dimensions may be interposed and secured between the wedges to form arches of different span and radius.

6. In building-blocks for arch construction, wedges of small angle which is an aliquot part of ninety degrees, in combination with blocks having their two opposite faces parallel, said wedges having their oblique faces and said other blocks having their opposite parallel faces provided with furrows at corresponding positions, and keys adapted to enter said corresponding furrows to unite the edges to the parallel-faced blocks at their said parallel faces.

7. In building-blocks for arch construction, wedges of small angle which is an aliquot part of ninety degrees, in combination with blocks having their two opposite faces parallel, said wedges having their oblique faces and said other blocks having their opposite parallel faces provided with dovetailed furrows at corresponding positions and double dovetail keys adapted to enter said corresponding furrows to unite the edges to the parallel-faced blocks at said parallel faces.

8. In child's building-blocks for decorative arch construction, blocks which are cylindrical segments with equal oblique bases, provided with sockets at the center of such oblique bases and entering the block at right angle to such bases respectively, and pins adapted to enter such sockets, whereby the span and radius of an arch formed by a series of such oblique cylindrical segments may be varied at will.

9. In child's building-blocks, keystone blocks for arch building comprising two pieces hinged together at one edge and having each a row of perforations; a staple adapted to have one leg inserted in a pin-hole of each block, whereby the spread of the blocks from their hinge edge may be varied by the selection of the perforations used for the staples: substantially as set forth.

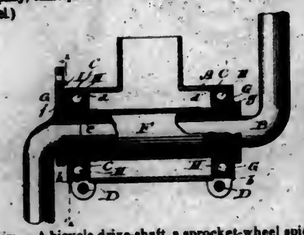
604,709. ROTARY ENGINE. DANIEL B. COOK, Superior, Wis., assignor to the Cook Rotary Engine Company, of Wisconsin. Filed Mar. 8, 1897. Serial No. 626,419. (No model.)



Claim.—1. In a rotary engine, the combination of the main shaft A, the conical collar a, a, and the motor-wheel B, containing the concentric chambers E, E, &c., and provided with the parallel reverse-curve slots h, h', located in the wheel B, and outside of, and concentric and eccentric to the chambers E, E, &c., all of which are rigidly attached, and a stationary sleeve D, projecting into said wheel, completing the inclosure of the chambers E, E, &c., and bearing and holding in position the automatic partitions e, e, &c., which are actuated by said parallel reverse-curve slots h, h', revolving outside of said sleeve and thus causing the successive division of the chambers E, E, &c., into an expansive and a contracting chamber, substantially as specified.

2. In a rotary engine the core C, with the projecting sleeve D, and to which are rigidly attached the valve-plates o, o, &c., and the steam-chest I, I', and exhaust-chamber H, H', and in which revolves the main shaft A, which bears the motor-wheel B; said core and sleeve being also provided with ports and passages connecting the steam-chest I, I', and the exhaust-chambers H H', with the chambers E, E, &c., practically as specified.

604,710. BICYCLE. JAMES R. COWELL, Milwaukee, Wis., assignor, by mesne assignments, to the League Cycle Manufacturing Company, same place. Filed Sept. 14, 1896. Serial No. 605,775. (No model.)



Claim.—A bicycle drive-shaft, a sprocket-wheel spider having its hub fast on the shaft, a shaft-sleeve having an annularly-flanged end in screw-thread connection with said hub a ball-bearing cone in similar connection with the sleeve against its flange, and another such cone in like connection with the other end of said sleeve.

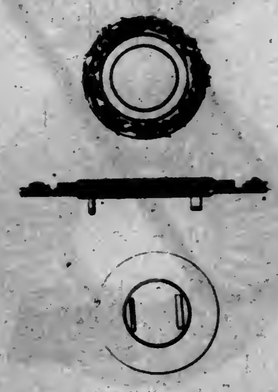
DESIGNS.

28,677. BADGE. GEORGE CORBETT, New York, N. Y., assignor to Alfred S. Bishop, trustee, Pittsburg, Pa. Filed Mar. 21, 1898. Serial No. 674,684. Term of patent 3½ years.



Claim.—The design for a badge herein shown and described.

28,678. LOCKET. TILLIE J. ZELTMACHER, New York, N. Y. Filed Jan. 27, 1898. Serial No. 668,295. Term of patent 7 years.



Claim.—The design for a locket herein shown and described.

28,679. HEAD FOR BUTTONS. FRANK P. LAWE, Beebe, Ark. Filed Mar. 24, 1898. Serial No. 675,044. Term of patent 3½ years.



Claim.—The design for a head for a button substantially as herein shown and described.

28,680. HANDLE FOR SPOONS, &c. FRED T. LOVE, Rockford, Ill., assignor to the Rockford Silver Plate Company, same place. Filed Feb. 5, 1898. Serial No. 669,284. Term of patent 7 years.



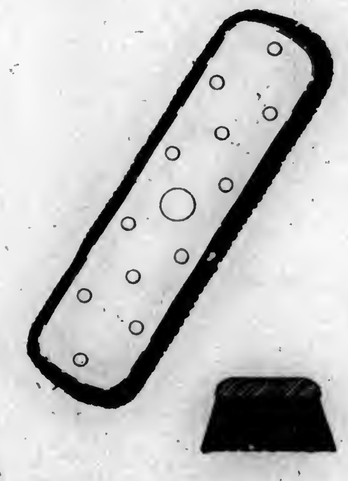
Claim.—The design for a handle for spoons, forks and similar articles herein shown and described.

28,681. HANDLE FOR SPOONS, &c. FRED T. LOVE, Rockford, Ill., assignor to the Rockford Silver Plate Company, same place. Filed Feb. 5, 1898. Serial No. 669,285. Term of patent 7 years.



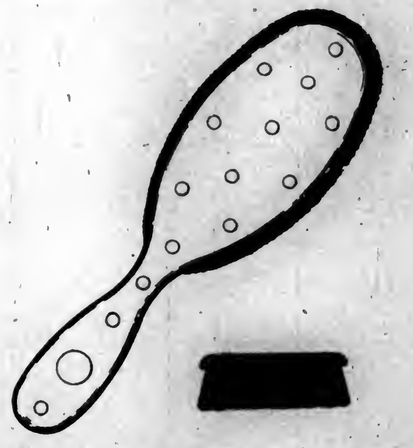
Claim.—The design for a handle for spoons, forks, and similar articles, herein shown and described.

28,682. CLOTHES-BRUSH. FRANK H. LA PIERRE, East Orange, N. J. Filed Apr. 21, 1898. Serial No. 678,396. Term of patent 7 years.



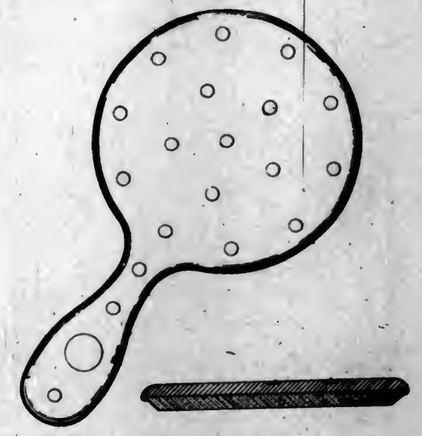
Claim.—The design for a clothes-brush as herein shown and described.

28,683. HAIR-BRUSH. FRANK H. LA PIERRE, East Orange, N. J. Filed Apr. 21, 1898. Serial No. 678,397. Term of patent 7 years.



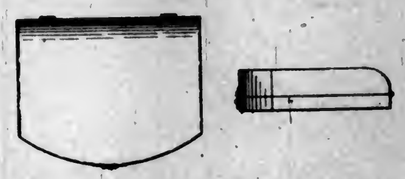
Claim.—The design for a hair-brush as herein shown and described.

28,684. HAND-GLASS. FRANK H. LA PIERRE, East Orange, N. J. Filed Apr. 21, 1898. Serial No. 678,398. Term of patent 7 years.



Claim.—The design for a hand-glass as herein shown and described.

28,685. BOX. THEODORE W. FOSTER, Providence, R. I. Filed Apr. 13, 1898. Serial No. 677,501. Term of patent 3½ years.



Claim.—The design for a box for manicure or similar articles herein shown and described.

28,686. ORNAMENTAL BOX. HENRY SOBIL, St. Louis, Mo. Filed Apr. 6, 1898. Serial No. 676,716. Term of patent 3½ years.



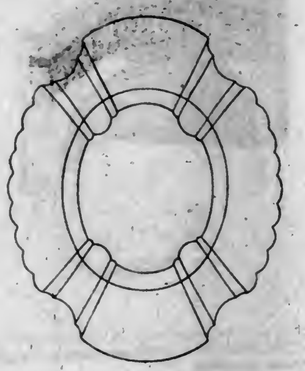
Claim.—The design for an ornamental box, as herein shown and described.

28,687. BOTTLE. BENNETT ROBY PAINE, Hamden Junction, Ohio. Filed Mar. 14, 1898. Serial No. 673,873. Term of patent 14 years.

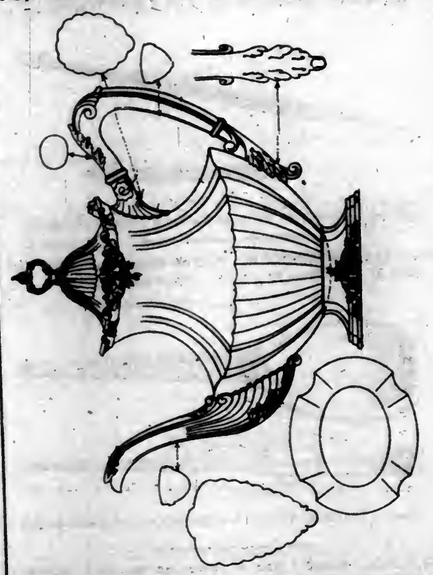


Claim.—The design for a bottle, substantially as herein shown and described.

28,688. TEAPOT OR LIKE ARTICLE. AUSTIN F. JACKSON, Taunton, Mass. Filed Dec. 27, 1897. Serial No. 663,775. Term of patent 14 years.



28,688.



Claim.—1. In a design for a teapot, or like article, the body having the shape and ornamentation as herein shown and described.

2. In a design for a teapot, or like article, the handle having the shape and ornamentation as herein shown and described.

3. In a design for a teapot, or like article, the spout having the shape and ornamentation as herein shown and described.

4. In a design for a teapot, or like article, the top having the shape and ornamentation as herein shown and described.

5. The design for a teapot or like article having the shape and ornamentation as shown and described.

28,689. GLOBE. MARSHALL WILFRED GLEASON, Brooklyn, N. Y. Filed Dec. 29, 1898. Serial No. 617,406. Term of patent 3½ years.



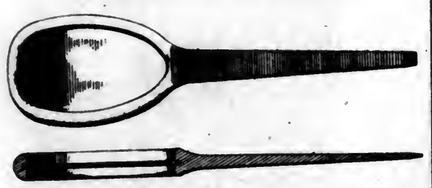
Claim.—The design for a globe, herein shown and described.

28,690. FILE. SAMUEL D. BROWN, Andrews Settlement, Pa. Filed Jan. 29, 1898. Serial No. 668,489. Term of patent 3½ years.



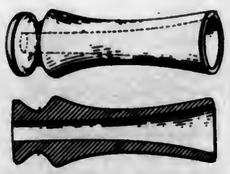
Claim.—A design for a file, substantially as herein set forth.

28,691. SCREW-DRIVER. HARRY E. SWARTZ, Reading, Pa. Filed Mar. 31, 1898. Serial No. 675,998. Term of patent 7 years.



Claim.—The design for a screw-driver herein shown and described.

28,692. NOZZLE. JACOB A. THOMAS and WILLIAM W. DRISCOLL, Reading, Pa. Filed Apr. 8, 1898. Serial No. 676,961. Term of patent 3½ years.



Claim.—The design for a nozzle, substantially as herein shown and described.

28,693. CLOTHES-PIN. FREDERICK C. HASEN, Los Angeles, Cal. Filed Aug. 30, 1897. Serial No. 650,058. Term of patent 14 years.



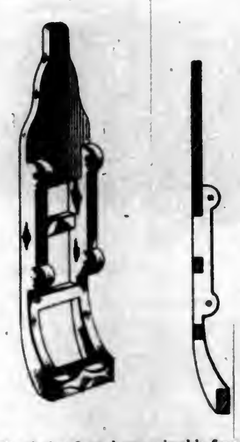
Claim.—The design for a clothes-pin, substantially as herein shown and described.

28,694. SNAP-HOOK. FREDERICK WOOD, Liverpool, England. Filed Feb. 5, 1898. Serial No. 669,277. Term of patent 14 years.



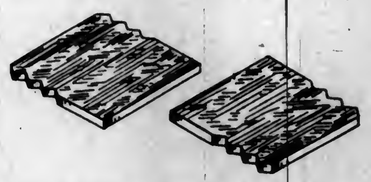
Claim.—The design for a snap-hook substantially as herein shown and described.

28,695. HARNESS-BUCKLE FRAME. GEORGE P. PRESTON, Wickliffe, Ky., assignor of one-half to Nathaniel L. Rogers and Bedford F. Burton, same place. Filed Apr. 4, 1898. Serial No. 676,468. Term of patent 14 years.



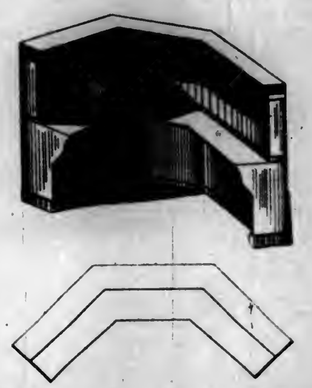
Claim.—The design for a harness-buckle frame substantially as herein shown and described.

28,696. SEAL-PLATE FOR SEAL-LOCKS. JOHN WALTER STEVENS, St. Paul, Minn. Filed Apr. 4, 1898. Serial No. 676,469. Term of patent 7 years.



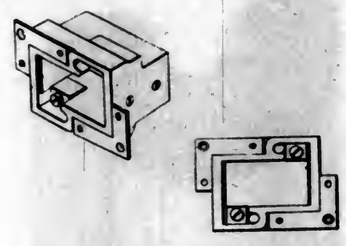
Claim.—The design for a seal-plate for seal-locks substantially as herein shown and described.

28,697. SWITCHBOARD FOR TELEPHONE OPERATORS. WILLIAM F. SMITH, San Francisco, Cal. Filed Apr. 13, 1898. Serial No. 677,502. Term of patent 14 years.



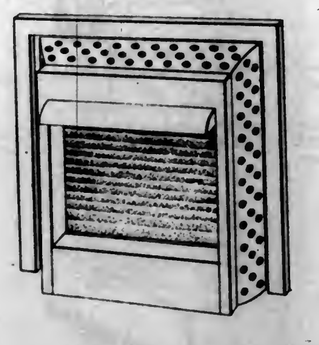
Claim.—The design for a telephone-operator's switchboard as herein shown and described.

28,698. RECEPTACLE FOR ATTACHMENT-PLUGS. WILLIAM P. FRIEDLE, Primos, Pa. Filed Mar. 5, 1898. Serial No. 672,782. Term of patent 7 years.



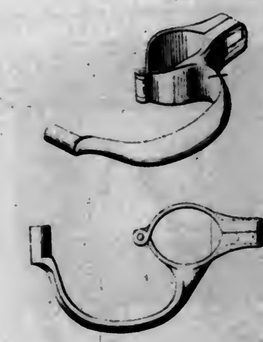
Claim.—The design for a receptacle for attachment-plugs, substantially as herein shown and described.

28,699. GAS-BURNER. EDWARD J. DASCHBACH, Pittsburg, Pa. Filed Mar. 16, 1898. Serial No. 674,117. Term of patent 14 years.



Claim.—The design for a gas-burner substantially as herein shown and described.

28,700. BICYCLE-LAMP BRACKET. EDWIN M. ROSENBLOTH, Philadelphia, Pa. Filed Dec. 23, 1897. Serial No. 663,309. Term of patent 7 years.



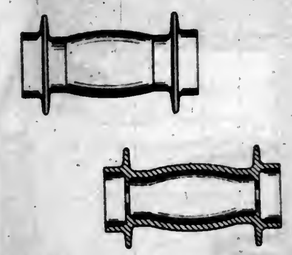
Claim.—The design for a bicycle lamp bracket herein shown and described.

28,701. NIPPLE FOR BICYCLE-VALVES. FREDRICK MARTINEK and OTTO ALBERT LOSE, Chicago, Ill. Filed Apr. 11, 1898. Serial No. 677,236. Term of patent 3½ years.



Claim.—The design for a nipple for bicycle-valves, substantially as herein shown and described.

28,702. BICYCLE-HUB. JAMES ANDERSON COULTER, Ingersoll, Canada. Filed June 1, 1897. Serial No. 639,050. Term of patent 3½ years.



Claim.—The design for a bicycle-hub, substantially as herein shown and described.

28,703. WAGON-BODY. HARRY A. DE HART, Thorofare, N. J. Filed Jan. 13, 1898. Serial No. 666,575. Term of patent 7 years.



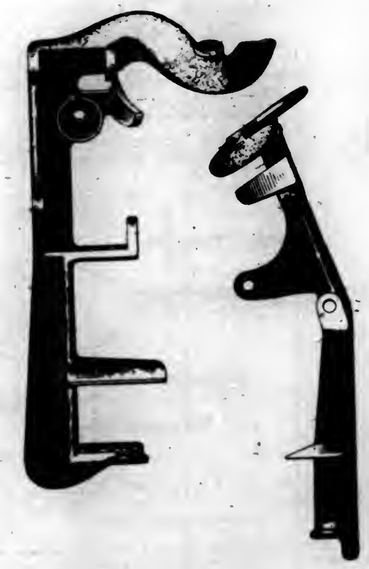
Claim.—The design for a wagon-body, as herein shown and described.

28,704. BARREL-HOOP. JOHN G. BAUER and JACOB M. BAUER, Lawrenceburg, Ind. Filed Oct. 23, 1897. Serial No. 656,213. Term of patent 14 years.



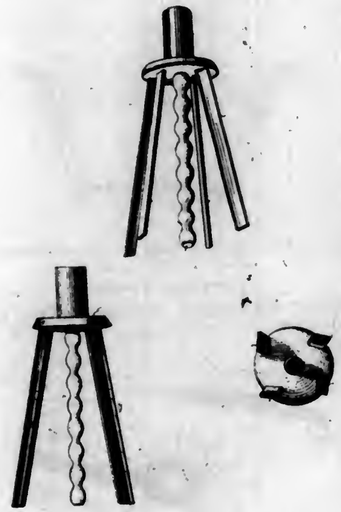
Claim.—The design for a barrel-hoop, substantially as herein shown and described.

28,705. FRAME FOR FRUIT OR VEGETABLE PARERS. FREDERICK B. RISING, Antrim, N. H., assignor to the Goodell Company, same place. Filed Apr. 23, 1898. Serial No. 678,671. Term of patent 14 years.



Claim.—The design for a frame for fruit and vegetable parers, substantially as shown and described

28,706. CHURN-DASHER. EUGENE W. GLADHILL, Abingdon, Ill. Filed Apr. 18, 1898. Serial No. 678,063. Term of patent 14 years.



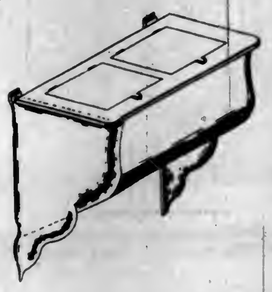
Claim.—The design for a churn-dasher herein shown and described.

28,707. CUSPIDOR-CLEANER. WILLIAM R. WHITTEMORE, Hartford, Conn. Filed Apr. 9, 1898. Serial No. 677,097. Term of patent 14 years.



Claim.—The design for a cuspidor-cleaner as herein shown and described.

28,708. RESERVOIR FOR STOVES. CHARLES W. WIPPLER, Detroit, Mich. Filed Nov. 8, 1897. Serial No. 657,707. Term of patent 7 years.



Claim.—A design for a reservoir for stoves, substantially as shown and described.

28,709. FURNITURE-FOOT. FRANK STEWART, Chicago, Ill., assignor to the Stockham Manufacturing Company, same place. Filed Mar. 25, 1898. Serial No. 675,188. Term of patent 7 years.



Claim.—The design for a furniture-foot, as herein shown and described.

28,710. MEDICINE-CASE AND DESK. WILLIAM S. COOPER, Birmingham, Ala. Filed Mar. 19, 1898. Serial No. 674,531. Term of patent 3½ years.



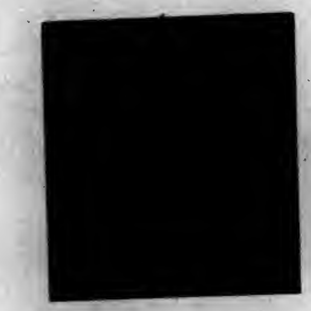
Claim.—The design for the medicine-case and desk herein shown and described.

28,711. PICTURE-MOUNT. JOHN P. ODGERS, Philadelphia, Pa., assignor to the A. M. Collins Manufacturing Company, same place. Filed Apr. 22, 1898. Serial No. 678,627. Term of patent 7 years.



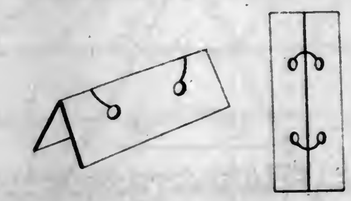
Claim.—The design for a picture-mount, substantially as described and as shown in the accompanying drawing.

28,712. PATTERN FOR PAPER. LOUIS J. W. WALZ, St. Louis, Mo. Filed Dec. 9, 1897. Serial No. 661,325. Term of patent 14 years.



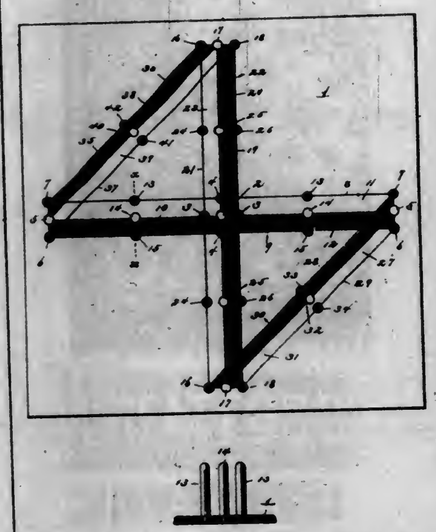
Claim.—The design for a pattern for paper substantially as herein shown and described.

28,713. DISPLAY-CARD. JAMES EDWIN HILLS, New York, N. Y. Filed Mar. 23, 1898. Serial No. 674,943. Term of patent 7 years.



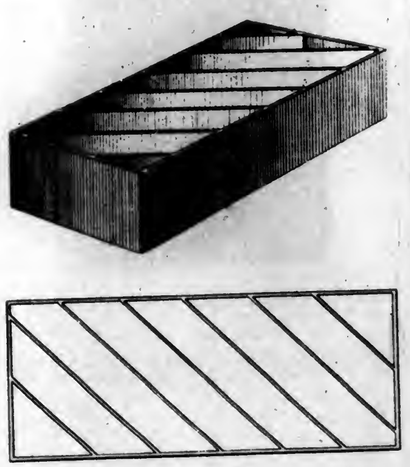
Claim.—The design for a display-card substantially as herein shown and described.

28,714. GAME-BOARD. HENRY BOSOM, Philadelphia, Pa. Filed Jan. 29, 1898. Serial No. 668,490. Term of patent 14 years.



Claim.—The design for a game-board, substantially as shown and described.

28,715. MOLD FOR PAVING-BLOCKS. JOHN LAMSON ADAMS, New York, N. Y. Filed Mar. 22, 1898. Serial No. 675,503. Term of patent 7 years.



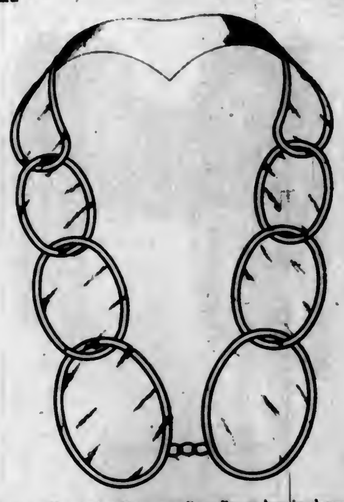
Claim.—The design for a mold for paving-blocks herein shown and described.

28,716. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed Apr. 8, 1898. Serial No. 676,959. Term of patent 3½ years.



Claim.—The design for a woven fabric, as shown and described.

28,717. REGALIA-COLLAR. CHARLES H. LIEBERMANN, Columbus, Ohio. Filed Feb. 14, 1898. Serial No. 670,223. Term of patent 14 years.



Claim.—The design for a regalia-collar as herein shown and described.

28,718. FLOUR-TANK. WILLIAM H. CURTON, Louisville, Ky. Filed Apr. 18, 1898. Serial No. 678,086. Term of patent 14 years.



Claim.—The design for a flour-tank, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MAY 24, 1898.

81,570. LADIES' PANTS. COMMERCIAL KNITTING MILLS COMPANY, Troy, N. Y. Filed Mar. 26, 1898.



Essential feature.—The compound word "LAPOYER-MOOR." Used since February 15, 1898.

81,571. SILK VESTINGS, BUTTON-STOCK, AND DRESS GOODS. C. STORR'S Sons, Jersey City, N. J. Filed Mar. 26, 1898.



Essential feature.—A monogram formed of the letters "C S." Used since April 1, 1897.

81,572. CERTAIN NAMED STATIONERY ARTICLES AND MATERIALS FOR ARTISTS AND DRAFTSMEN. L. & C. HARDTMUTH, Vienna and Budweis, Austria-Hungary, and London, England. Filed Mar. 18, 1898.

KOH-I-NOOR.

Essential feature.—The word "KOH-I-NOOR." Used since 1889.

81,573. WRITING-PAPER. WHITING PAPER COMPANY, Holyoke, Mass. Filed Mar. 3, 1898.

CHAUNCY BOND

Essential feature.—The words "CHAUNCY BOND." Used since March, 1894.

81,574. CERTAIN NAMED PHOTOGRAPHIC MATERIAL, APPARATUS, AND PRODUCTS. RADIOTYPE, LIMITED, London, England. Filed Mar. 22, 1898.



Essential feature.—The representation of the head and fore quarters of a unicorn. Used since October, 1897.

81,575. WHEAT BREAKFAST FOOD. PILLSBURY-WASHBURN FLOUR MILLS COMPANY, (LIMITED,) Minneapolis, Minn. Filed Apr. 26, 1898.

Pillsbury's

PYRAMID BRAND

VITOS

WHEATFOOD

BEST GERMOS

THE WORLDS

Essential feature.—The words "PILLSBURY'S PYRAMID BRAND," the representation of a triangle or pyramid, the words "VITOS," "WHEATFOOD," "BEST GERMOS," and "THE WORLD'S." Used since July 1, 1897.

81,576. WHEAT BREAKFAST FOOD. PILLSBURY-WASHBURN FLOUR MILLS COMPANY, (LIMITED,) Minneapolis, Minn. Filed Apr. 26, 1898.

Pillsbury's

PYRAMID OF HEALTH & STRENGTH

PYRAMID BRAND

VITOS

WHEATFOOD

BREAKFAST

Essential feature.—The words "PILLSBURY'S PYRAMID OF HEALTH & STRENGTH, PYRAMID BRAND, VITOS, THE IDEAL WHEATFOOD FOR BREAKFAST." Used since July 1, 1897.

81,577. CEREAL FOOD PRODUCTS. THE H-O (HORSFORD'S OATMEAL) COMPANY, New York, N. Y. Filed Apr. 2, 1898.

PAW-NEE

Essential feature.—The word "PAWNEE." Used since October 27, 1897.

81,578. CERTAIN NAMED MEATS AND COMPOUNDS. SWIFT & COMPANY, Chicago, Ill., and St. Paul, Minn. Filed Jan. 20, 1898.

MINNEPAUL

Essential feature.—The word "MINNEPAUL." Used since December 31, 1897.

81,579. CONDENSED MILK. THE VERMONT CONDENSED MILK COMPANY, Burlington and Richmond, Vt. Filed Feb. 21, 1898.



Essential feature.—The pictorial representation of a mountain. Used since January, 1897.

81,580. BOTTLED CIDER. S. S. PIERCE COMPANY, Boston, Mass. Filed Mar. 30, 1898.



Essential feature.—The representation of a shield, with a lion rampant, the letters and abbreviation "S. S. P. Co.," and the motto "PURITAS ET CURA." Used since May, 1877.

81,581. NATURAL MINERAL WATER AND CARBONATED BEVERAGES. WILSON H. DAVIS, Boston, Mass., and Tenne, Va. Filed Mar. 22, 1898.



Essential feature.—The word "TAKHMAS" and a design or escutcheon surmounted by a deer's head erased and on a scroll. Used since March 8, 1898.

81,582. CANDY. THE BUNTE BON CANDY KITCHEN COMPANY, Columbus, Ohio. Filed Dec. 10, 1897.



Essential feature.—The representation of a dome-shaped beehive supported upon a stand-top and a large figure of a bee on the surface of said hive. Used since June 1, 1897.

81,588. BITTERS. JOHNSTON, HOLLOWAY & CO., Philadelphia, Pa. Filed Feb. 24, 1898.

HOOFLANDS

Essential feature.—The word "HOOFLAND'S." Used since 1842.

81,584. MEDICATED CONFECTIONS, A WORM SPECIFIC. JOHNSTON, HOLLOWAY & CO., Philadelphia, Pa. Filed Feb. 24, 1898.

HOLLOWAY

Essential feature.—The word "HOLLOWAY." Used since 1883.

81,585. LINIMENT. SMITH, KLINE & FRENCH COMPANY, Philadelphia, Pa. Filed Mar. 4, 1898.

PROFESSOR LOW'S

MAGNETIC LINIMENT.

Essential feature.—The words and title "PROFESSOR LOW'S MAGNETIC LINIMENT." Used since 1865.

81,586. LINIMENT. SMITH, KLINE & FRENCH COMPANY, Philadelphia, Pa. Filed Mar. 4, 1898.

DR. LAUBACH'S

ECLECTIC

LINIMENT.

Essential feature.—The title and words "DR. LAUBACH'S ECLECTIC LINIMENT." Used since 1869.

81,587. PILLS. WILLIAM ANDREW PRICE, London, England. Filed Mar. 21, 1898.



Essential feature.—A representation of a gouty patient seated in a chair and having one foot bandaged and supported by a foot-rest. Used since 1810.

81,588. MEDICINAL TABLETS. ANTI-OXPHALIC CHEMICAL CO., Indianapolis Ind. Filed Mar. 30, 1898.

AC

Essential feature.—The letters "A. C." Used since December 1, 1897.

81,589. HOG-CHOLERA REMEDIES. HARRY BRAGG, Connersville, Ind. Filed Dec. 13, 1897.



THE THREE GRACES

Essential feature.—The representation of the front part of three hogs standing side by side and the words "THE THREE GRACES." Used since October 15, 1895.

81,590. MEDICINES, MEDICINAL SPECIALTIES, AND ARTICLES FOR THE TOILET. GEBRÜDER KNEIPP & LAHRMANN, Würzburg, Germany. Filed July 24, 1893.



Essential feature.—The portrait and signature of Father Kneipp. Used since September 26, 1897.

81,591. CERTAIN NAMED MEDICINAL REMEDIES AND TOILET PREPARATIONS AND ARTICLES. CATHERINE CLARK DUANE SANDERS, New York, N. Y. Filed Mar. 4, 1898.



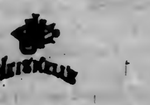
Essential feature.—The representation of a crescent and a triangular checkered or paneled figure appearing below the representation of the crescent. Used since February 1, 1898.

81,592. SOAP, PERFUMERY, AND TOILET PREPARATIONS FOR THE TEETH, SKIN, AND HAIR. JOSEPH CROSFIELD & SONS, LIMITED, Warrington, England. Filed Mar. 31, 1898.

ERASMIC

Essential feature.—The word "ERASMIC." Used since January 1, 1891.

81,593. TOILET SOAP. JOHNSTON, HOLLOWAY & CO., Philadelphia, Pa. Filed Feb. 24, 1898.



Essential feature.—A monogram of the letters, character, and abbreviation "J H & Co," the word "HEISKELL'S," and a fac-simile of the firm-signature, "JOHNSTON, HOLLOWAY & CO." Used since January, 1895.

81,594. PERFUMERY. THE FIRM OF ALFRED WEBBEY, Rochester, N. Y. Filed Apr. 4, 1898.

PRISCILLA

Essential feature.—The word "PRISCILLA." Used since January 10, 1898.

81,595. OILS FOR CERTAIN NAMED PURPOSES. TRUB OLSEN, Stockholm, Sweden. Filed Mar. 8, 1898.

Collan.

Essential feature.—The word "COLLAN." Used since October 1, 1880.

81,596. OILS AND CERTAIN NAMED TOILET ARTICLES AND PREPARATIONS. WARRICK FRÈRES, Grasse, France, and New York, N. Y. Filed Nov. 13, 1897.



WARRICK FRÈRES

Essential feature.—The name "WARRICK FRÈRES" and the monogram "W F" appearing behind a rose. Used since 1859.

81,597. LIQUID BLACKING FOR BOOTS AND SHOES. C. I. HAYWARD & SONS, Boston, Mass. Filed May 14, 1897.

Crozine

Essential feature.—The word "CROZINE." Used since March 15, 1897.

81,598. FIRE-CRACKERS. E. J. & L. HEILBRUNN, New York, N. Y. Filed Mar. 22, 1898.

YANG KEY

Essential feature.—The words "YANG KEY." Used since March 1, 1898.

81,599. FIRE-CRACKERS. E. J. & L. HEILBRUNN, New York, N. Y. Filed Mar. 22, 1898.

WAH SHING TONG

Essential feature.—The words "WAH SHING TONG." Used since March 1, 1898.

81,600. POWDERED PREPARATIONS FOR CLEANING OR POLISHING SILVER. JOHN HOWARD MILLER, Philadelphia, Pa. Filed Mar. 5, 1898.



Essential feature.—The representation of a forearm and hand, the latter holding between the thumb and forefinger thereof a small box or package supposed to contain the goods to which the trade-mark is applied. Used since November 20, 1897.

81,601. PAINTS AND PAINTERS' SUPPLIES. NATIONAL MINING AND MILLING COMPANY, Canton, Md. Filed Mar. 26, 1898.



Essential feature.—The representation of two men working in a mine. Used since May 31, 1897.

81,602. PAINTS AND PAINTERS' SUPPLIES. NATIONAL MINING AND MILLING COMPANY, Canton, Md. Filed Mar. 25, 1898.

BASOFINE

Essential feature.—The word "BASOFINE." Used since October, 1894.

81,603. VARNISH. THE AKRON VARNISH COMPANY, Akron, Ohio. Filed Mar. 11, 1898.

MARBLEINE

Essential feature.—The word "MARBLEINE." Used since November, 1895.

81,604. AXES AND HATCHETS. SUPPLEE HARDWARE COMPANY, Philadelphia, Pa. Filed Mar. 30, 1898.



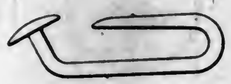
Essential feature.—The title "BLUE JEANS." Used since January 1, 1897.

81,605. CERTAIN NAMED AGRICULTURAL IMPLEMENTS AND HARDWARE. PUGSA HARDWARE COMPANY, LIMITED, Baton Rouge, La. Filed Feb. 25, 1898.

ISTROUMA.

Essential feature.—The word "ISTROUMA." Used since January, 1893.

81,606. COVERS FOR BICYCLE AND OTHER TRANSMISSION CHAINS. WALTER EDOUARD FELIX MARCHAL, St. Mandé, France. Filed Feb. 16, 1898.



Essential feature.—A representation of a flattened hook with a button at one end. Used since December 1, 1897.

81,607. REMEDY FOR CHRONIC CONSTIPATION, HEPATIC TORPOR, AND JAUNDICE. WILLIAM ROGERS, Providence, R. I. Filed Jan. 26, 1898.

VOUMI

Essential feature.—The word "VOUMI." Used since February 3, 1898.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE ERVIN A. RICE COMPANY.

Decided May 4, 1898.

1. TRADE-MARK—"BETTER THAN MOTHER'S"—MINCE-MEAT.
The phrase "Better than Mother's" refused registration as a trade-mark for mince-meat, as it expresses quality.

2. SAME—WORDS EXPRESSING QUALITY.
A valid trade-mark cannot be predicated upon words or phrases expressing quality. No one can appropriate for his exclusive use words and phrases that all may use. Any one dealing in mince-meat can declare, if the statement be true, that his product is better than any one else's, be that other "mother," "grandmother," or "aunt."

On petition.

TRADE-MARK FOR MINCE-MEAT.

Application for registration filed January 11, 1898.

Ervin A. Rice Company pro se.

DUELL, *Commissioner:*

This is an appeal from the action of the Examiner of Trade-Marks refusing registration of the phrase "Better than Mother's" as a trade-mark for mince-meat.

In view of the fact that appellants are prosecuting their own case I have carefully gone over the proceedings had during the pendency of the case and have given due weight to appellants' views, as set forth in their various letters and the brief in answer to the Examiner's statement.

The question involved is simple and easy of solution: Can a phrase expressing quality be the valid subject of a trade-mark? That the words "Better than Mother's" is such a phrase is evident upon the face thereof. The words clearly import that the article so marked is to be compared with some other known article and that when so compared will be found of superior quality. This is emphasized by the fact that another brand of mince-meat is upon the market to which has been applied the phrase "Like Mother Used to Make." Further proof of the statement that the phrase is intended to express quality is found in appellants' brief. It is there said:

> "Better than Mother's" appeals distinctively to the prevalent notion of universal progress and improvement in every direction and implies that modern methods and progressive ideas have been applied to mince-meat and that our goods are not "Like Mother Used to Make," but are indeed very different and decidedly improved.

It is an elementary principle of the law applicable to trade-marks that a valid trade-mark cannot be predicated upon words or phrases expressing quality. (Browne on Trade-Marks, sec. 29.) No one can appropriate for his exclusive use words and phrases that all may use. Any one dealing in mince-meat can declare, if the statement be true, that his product is better than any one else's, be that other "mother," "grandmother," or "aunt."

The action of the Examiner in refusing registration being correct, his ruling is affirmed.

PALMER AND THOMPSON v. BAILEY.

Decided May 6, 1898.

1. INTERFERENCE—BURDEN OF PROOF—NO DRAWING—INCOMPLETE APPLICATION.
No statutory drawing having been filed by Palmer and Thompson until after the complete application of Bailey was filed, the burden of proof in the interference is upon Palmer and Thompson.

2. INCOMPLETE APPLICATION—NO DRAWING.
The rules of the Office require that in order to constitute a complete application a drawing must be filed whenever the nature of the case admits. Until a drawing is filed the application is not complete. Until an application is completed by filing all the necessary papers and the payment of the fee it cannot be examined, nor can it be placed in interference.

3. DRAWING, STATUTORY REQUIREMENT OF—TINTYPE.
The statutes require that whenever the nature of the case admits of drawings one copy signed by the inventor or his attorney in fact and attested by two witnesses shall be filed in the Patent Office. A tintype not signed by the inventor or his attorney and not attested by two witnesses cannot be considered a drawing within the statutes.

APPEAL on motion.

BICYCLE-SADDLE SPRING.

Application of Byron G. Palmer and William Thompson filed July 12, 1897, No. 644,367. Application of Selden A. Bailey filed May 25, 1897, No. 638,127.

Mr. Julian C. Dowell for Palmer and Thompson.
Mr. Frank C. Somes for Bailey.

DUELL, *Commissioner:*

This case comes before me on appeal by Palmer and Thompson from the decision of the Primary Examiner denying their motion to shift the burden of proof. The state of facts upon which the motion is based shows that Palmer and Thompson filed a petition, specification, and oath and paid the Government fee of $15. They were notified by the Office that a drawing was required; but before the drawing was received a complete application was filed by Bailey. It appears that at the time when Palmer and Thompson paid the fee and filed the papers above stated they filed a tintype in lieu

of a drawing, and they now insist that for the purposes of this interference the tintype should be considered the same as a drawing and the burden shifted to Bailey.

The statutes require that whenever the nature of the case admits of drawings one copy, signed by the inventor or his attorney in fact and attested by two witnesses, shall be filed in the Patent Office. It is admitted that the tintype filed in lieu of the drawing was not signed by the inventors or their attorney and was not attested by two witnesses. Therefore no drawing accompanied the application.

The rules of the Office require that in order to constitute a complete application a drawing must be filed whenever the nature of the case admits. (Rules 30 and 49.) The invention of the Palmer and Thompson application being for a bicycle-saddle spring a drawing of course was required, and until a drawing was filed the application was not completed. Until an application is completed by the filing of all the necessary papers and the payment of the fee it cannot be taken up for examination and is not before the Examiner in charge of the class to which it relates. No more can it be placed in interference, for the reason that Rule 116 expressly provides that—

in original proceedings in cases of interference the several parties will be presumed to have made the invention in the chronological order in which they filed their *completed* applications, etc.

The exact question raised by this appeal does not appear to have been heretofore presented for the decision of the Commissioner. It was, however, held in *Lapham* v. *Bettendorf* (16 O. G., 137) that there was no complete application before the Office until the fee was paid, although the specification, oath, drawings, etc., were on file. In the case of *ex parte Brand* (82 O. G., 893) the fee was paid and a petition, specification, and oath and drawings were filed, but the residence of the applicant was nowhere stated. It was held that the application was not entitled to a record date earlier than the date when these omissions were supplied.

No statutory drawing having been filed by Palmer and Thompson until after the complete application of Bailey was filed, the burden of proof in the interference is upon Palmer and Thompson, and the Examiner was correct in his decision, and it is therefore affirmed.

EX PARTE HALLBERG.

Decided May 7, 1898.

1. APPLICATION—IRREGULAR PAPERS—FILING DATE OF APPLICATION.

Applicant filed a drawing and the first fee of an application on December 31, 1897. At the same time he filed an unsigned paper describing and claiming the device shown by the drawing. On January 3, 1898, he filed a petition, specification and claims, and an oath properly signed, executed, and witnessed. The application was given a filing date as a complete application, January 3, 1898. *Held* that the paper filed December 31, 1897, cannot be treated as a specification, and a petition to change the date of filing the application from January 3, 1898, to December 31, 1897, denied.

2. SAME—REQUISITES OF A COMPLETE APPLICATION.

The Rules of Practice and the statutes require that the specification shall be signed by the applicant, and a complete application must comprise, in addition to the drawing and fee, a petition, specification, and oath, and an application will not be considered as complete until all its parts have been filed in this Office.

3. REFUNDING FEE—INCOMPLETE APPLICATION.

Where an applicant filed an incomplete application and first fee on December 31, 1897, and on January 3, 1898, he completed the application, with the understanding that if it were possible it would be given the earlier date, and upon consideration it was decided that the application could not be given the earlier date, *Held* that the first fee could not be refunded, as it was not paid by actual mistake, but in paying it and completing his application the applicant took his chances as to the earlier date being given to the application, and, further, the application has had a full examination on the merits.

ON petition.

MASSAGE APPARATUS AND VIBRATORS.

Application of Karl V. Hallberg filed January 3, 1898, No. 665,465.

Mr. William E. Boulter for the applicant.

DUELL, *Commissioner:*

A drawing and the first fee of $15 were filed in this case on December 31, 1897. At the same time there was filed a paper describing the device shown by the drawing, and at the end of this description was a set of eleven claims. This paper was not signed.

On January 3, 1898, a petition, a specification containing a set of six claims differing from the eleven claims in the paper of December 31, 1897, and an oath signed and executed by the applicant were received in this Office. The application containing these papers was given a filing date as a complete application, January 3, 1898, and forwarded to the Examiner for consideration. The Examiner examined the application and refused a patent, among other grounds, for the reason that—

under section 4887 of the Revised Statutes which went into effect January 1, 1898, applicant is barred from obtaining a patent in the United States in view of his foreign patentswhich were granted on applications filed more than seven months prior to the filing of this application in the United States.

From this action applicant has petitioned to the Commissioner, praying that in view of the—

fact that the invention desired to be protected was fully disclosed in the specification and drawings filed on December 31, 1897, it is prayed that the action of the Examiner may be reversed and the application be permitted to be considered as coming within the provisions of the law in effect prior to January 1 last. Or, should the present petition be denied, it is prayed that the application the Government filing fee may be returned to petitioner.

The paper filed December 31, 1897, cannot be treated as a specification, even if it did describe the invention. This paper was unsigned and unverified, and there was no petition or oath accompanying it.

The Rules of Practice and the statutes require that the specification shall be signed by the applicant, and a complete application must comprise, in addition to the drawing and fee, a petition, specification, and oath, and an application will not be considered as complete until all its parts have been filed in this Office. As applicant did not file such a specification as required by the rules and statutes and a petition and oath until January 3, 1898, his application cannot be given a date prior to January 3, 1898. (*Ex parte Brand*, 82 O. G., 893.)

Applicant's request to give his application a filing date as of December 31, 1897, and that the application be considered as filed within the provisions of section 4887 in effect prior to January 1, 1898, cannot therefore be granted.

Applicant's request that the first fee be returned to him if his application is not given a filing date of December 31, 1897, is based on the alleged fact that the formal papers of the application were not filed in the Patent Office until favorable assurance was given by the Acting Commissioner to applicant's attorney that the application would probably be given the date of December 31, 1897, and permitted to come within the provisions of section 4887, Revised Statutes, before it was amended, and that had he been informed that the application would not be given the early date he would not have filed the paper on January 3, 1898, but would have asked for the return of the fee paid on December 31, 1897.

After consultation with the Assistant Commissioner I have been assured that applicant is mistaken as to any promises about this matter. It seems that the most that was said to applicant was that if he filed the paper of January 3, 1898, the matter would be given consideration, and if it were possible to give the application the earlier date it would be done.

The rule as to the repayment of fees reads:

209. Money paid by actual mistake, such as a payment in excess, or when not required by law, or by neglect or misinformation on the part of the Office, will be refunded; but a mere change of purpose after the payment of money, as when a party desires to withdraw his application for a patent or for the registration of a trade-mark, or to withdraw an appeal, will not entitle a party to demand such a return.

Under the circumstances of the case I am of the opinion that the first fee was not paid by actual mistake; but in paying it and completing his application applicant took his chances as to the earlier date being given to his application. Furthermore, applicant has had a full examination on the merits of his case by the Primary Examiner.

The petition is denied.

GRIMM v. DOLAN.

Decided May 10, 1898.

1. INTERFERENCE IN FACT—BROAD AND NARROW CLAIMS.

Where Grimm has made a broad claim and Dolan a narrow claim, *Held* that both parties are not claiming substantially the same invention, and under *Hammond* v. *Hart* (83 O. G., 743) an interference does not properly arise.

2. SAME—SAME—MAKING BROAD CLAIM.

If Dolan is the inventor of the broad invention, he should make the broad claim of the issue. As the claims now stand there is no interference in fact, as an interference should not be declared between dominated and dominating claims. (Citing *Hammond* v. *Hart*, 83 O. G., 743.)

APPEAL on motion.

GAS-BURNERS.

Application of Maximilian Grimm filed January 15, 1897, No. 619,357. Application of Edward J. Dolan filed November 10, 1896, No. 611,588.

Mr. Edward N. Dickerson and *Messrs. Foster & Freeman* for both parties.

DUELL, *Commissioner:*

This is an appeal by both parties through their common attorneys from the decision of the Primary Examiner refusing to dissolve the interference on the ground that there is no interference in fact. Both parties are not only represented by the same attorneys, but it is stated that both applications have been assigned to one party.

The issue of the interference is thus defined:

The process of burning acetylene gas, which consists in ejecting the same at suitable pressure through a burner, and in preventing the gas from reaching its kindling temperature at its point of escape to the atmosphere.

This issue is in the words of Grimm's first claim and is stated to embrace his second claim and the fifth claim of Dolan's application. Grimm's second claim is:

2. The process of burning acetylene gas, which consists in causing the gas to reach its kindling temperature only at a distance from the burner-surface and not in contact with the orifice where the escape occurs, substantially as described.

The Dolan claim reads as follows:

5. The herein-described method of producing a flame for acetylene gas without deposition of carbon which consists in dividing a stream of acetylene gas into two fine oblique conical jets of substantially equal pressure and directed toward each other so as to meet in open space whereby the said fine jets of acetylene gas form inverted cones, and burning the said gas from the point of juncture of the said two streams of gas and air in a direction away from said stream.

It is apparent that this is not a case where both parties are claiming substantially the same invention. Grimm has made a broad claim and Dolan a narrow one.

The Examiner impliedly admits this when he says in his decision:

The method defined in claim 5 of his (Dolan's) case falls squarely under and is *dominated by the issue.*

In view of the decision in *Hammond* v. *Hart* (83 O. G., 743) an interference does not properly arise and should not be declared between dominated and dominating claims.

The Examiner in his decision quotes various fragmentary statements from Dolan's specification to sustain his position that the interference should be continued. In view of these quotations it is suggested that Dolan's specification should be amended to more clearly set forth the differences between the process claimed by him and that claimed by Grimm and made the issue of this interference. Presumably Dolan is not the inventor of the process of the issue, because he has failed to claim it, although his attorneys knew the claims made by Grimm. If, however, he is the first inventor, then he should make the broad claim of the issue. As the claims now stand there is no interference in fact, and the Examiner erred in refusing to dissolve the interference, and his decision is therefore reversed.

EX PARTE LYNCH AND HOUGH.

Decided February 25, 1898.

JURISDICTION—EXAMINERS-IN-CHIEF—PRIMARY EXAMINER—REOPENED CASE—APPEAL.

Where the Examiners-in-Chief refused to consider claims rejected by the Primary Examiner and appealed to them on the ground that the Examiner had no authority to reopen the case after a decision by the Commissioner on the merits, and therefore that the Examiners-in-Chief are without jurisdiction to consider the claims rejected by the Examiner, *Held* that

the record shows that the case was reopened by the Assistant Commissioner under Rule 143 and when so reopened it was reopened for all purposes—for the presentation of such claims as the applicant saw fit to offer and for consideration and reexamination by the Examiner *de novo*, just as was done. The Examiner did not exceed his authority, but acted within the practice and clear intent of the Assistant Commissioner's decision. The Examiner having the second time rejected certain claims, and appeal having been taken to the Examiners-in-Chief, the case was within their jurisdiction, and they should have considered the appealed claims on their merits.

ON petition.

BREECH-LOADING CANNON.

Application of Michael A. Lynch and William I. Hough filed October 16, 1890, No. 368,319.

Mr. James J. Sheehy for the applicants.

GREELEY, *Assistant Commissioner:*

This is a petition filed upon the refusal of the Examiners-in-Chief to consider claims rejected by the Primary Examiner and appealed to them. The ground for refusing to consider the claims is that the Examiner had no authority to reopen the case after a decision by the Commissioner on the merits, and therefore that the Examiners-in-Chief are without jurisdiction to consider the claims rejected by the Examiner.

On December 15, 1894, two claims of the application under consideration were appealed to the Commissioner from the decision of the Examiners-in-Chief rejecting said claims. On appeal to the Commissioner the Assistant Commissioner on January 30, 1895, rendered a decision allowing the claims, subject to an amendment limiting them in scope. On March 13, 1895, the case was amended to carry out the decision of the Assistant Commissioner by the substitution of two claims for those appealed. These claims were allowed by the Examiner, who then required certain formal objections to be removed from the case. This requirement was complied with and put the application in condition for issue; but it was withheld in view of a probable interference. While the case was suspended an amendment containing two additional claims was presented, which was refused entry by the Examiner, as in his opinion the claims did not carry out the suggestions made by the Assistant Commissioner in his decision of January 30, 1895.

On petition to the Commissioner the Assistant Commissioner reopened the case under Rule 142. After this decision the claims presented by the amendment of October 2, 1895, and two other claims were entered in the application. The Primary Examiner thereupon considered the case *de novo*, rejected some of the claims that had been allowed, and required that the specification be rewritten, under Rule 74, which requirement was complied with. The application was again reëxamined and certain claims were rejected. The case was finally rejected on May 15, 1897, whereupon appeal was taken to the Examiners-in-Chief. The Examiners-in-Chief, however, refused to consider the appealed claims for the reason heretofore stated.

From the record it is apparent that when the case was reopened by the Assistant Commissioner under Rule 142 it was reopened for all purposes—for the presentation of such claims as the applicant saw fit to offer and for consideration and reexamination by the Examiner *de novo*, just as was done. The Examiner did not exceed his authority, but acted within the practice and clear intent of the Commissioner's decision. The Examiner having the second time rejected certain claims, and appeal having been taken to the Examiners-in-Chief, the case was within their jurisdiction, and they should have considered the appealed claims on their merits.

The petition is granted.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MCCREERY *v.* COMMISSIONER OF PATENTS.

Decided April 4, 1898.

PATENTABILITY—SYSTEM OF VENTILATION.

A system of ventilation the novel feature of which consists in supplying each of the branch pipes leading into a room or compartment to be ventilated with nozzles composed of articulated sections of such construction that the current of air forced into the pipe may be discharged in any direction in the room by the adjustment of the nozzles, so that the incoming air may be more thoroughly agitated and commingled and drafts prevented. *Held* to be patentable over the systems of ventilation disclosed by patent to Brown, No. 182,746, and to Jennison, No. 177,847.

Mr. Wm. H. Singleton for the appellant.

Mr. W. A. Megrath for the Commissioner of Patents.

SHEPARD, *J.:*

The appellant, Joseph McCreery, appeals from a decision of the Commissioner of Patents denying him a patent for an improved system of ventilation.

There is an inlet for the introduction of the fresh outer air, with which is connected a blower that drives the air into the general supply-pipe.

The latter has branches running into the apartments to be ventilated, with as many outlets therein as desired.

It is in the same manner adapted for ventilating cars, particularly those with compartments. The end of each of the branch pipes in a room or compartment is supplied with a nozzle composed of articulated sections of such construction that the current of air may be discharged in any direction by their adjustment. The incoming air may also be heated when desired.

The object of sending the incoming air in different directions is not only to more thoroughly agitate and commingle the air, but also and more particularly to accomplish this without creating drafts.

Appellant has a patent for the combination of the induction and eduction pipes with the rotary fan for driving the air, issued June 5, 1894. The improvement of the application under consideration consists in forcing the fresh air through the

branch-pipe openings by means of the adjustable nozzles in different directions. By the different directions of these currents, made to meet each other as desired, the object is to so diffuse the air as to prevent injurious drafts.

A number of references were made in the Patent Office to anticipations; but the two patents finally relied upon are one to Aaron B. Brown, dated October 3, 1876, and another to Edward S. Jennison, dated May 23, 1876, the greatest weight being given to the latter.

Having carefully examined the specifications and claims of the foregoing patents, we are constrained to differ from the Commissioner and to hold that neither anticipates the improvement of the appellant. The feature of the Brown patent particularly referred to is that by which the fresh air is admitted around the top of the room at different points, thus giving a different direction to the currents. In a measure this is true and the incoming air is better diffused; but each aperture on one side of a room discharges at the same angle and their currents do not come in contact with each other. They are met merely by the currents coming from either side at a like invariable angle. Appellant overcomes this difficulty of Brown's system of fresh-air introduction by driving the air through the adjustable nozzles, whereby the adjacent currents can be made to intermingle at any angle desired, and these may be changed at any time by resetting any one of the nozzles or shutting it off altogether.

Moreover, a strong draft may be turned in the same way upon any particular part of the room, if so desired.

The Jennison patent is for an improvement in car heaters and ventilators. The fresh air is driven through the heater by a fan and thence in a supply-pipe along the top of the car. Openings at each seat or in each berth, if a sleeping-car, are provided, to which are attached rubber pipes. These hang down, and the warm air, or cold when the heater is not operated, is turned upon the bottom of the car in jets. If these pipes were not flexible and could not be moved, they would distribute the air at the same angle, but at the bottom instead of at the top, as in Brown's system. The pipes are, however, made flexible for the express purpose of permitting the passengers in the car to take them up and turn the air-current upon any part of their bodies while sitting upon a seat or lying in a berth. It is true the specification says that the distributing-pipes may be made of metal; but it is evident that they must be so constructed as to admit of being lifted and used by the occupants of the seats and berths in the same manner as the rubber pipes of preferred use. No attempt is made to show how this might be accomplished.

It is also true that when these pipes are caught up by passengers and held at different angles their currents will vary in direction to some extent, like those ejected from the branch pipes of appellant's system; but that is plainly not the purpose of their use, and no such function as the creation of variable air-currents for the end sought to be attained by appellant was in contemplation. The normal condition of these pipes as ventilators is perpendicular, with their currents discharging against the bottom or floor of the car. They are made flexible, not that their currents may be made to move in different directions, but that individual passengers may at convenience turn them upon their bodies for comfort or pleasure. It is only when used for this special purpose that they operate at all after the manner of appellant's branch pipes. As soon as released they resume their normal condition and operation.

Grant that the difference between the inventions of Brown and Jennison and that of appellant may not be very great, it nevertheless seems to us one that is patentable. (*In re Snyder*, 10 App. D. C., 140.)

For the reasons given the decision appealed from is reversed, and this decision, with the proceedings in this court, will be certified to the Commissioner of Patents. It is so ordered.

Court of Appeals of the District of Columbia.

HILL *v.* HODGE.

Decided April 12, 1898.

1. INTERFERENCE—PATENTABILITY OF A CLAIM IN THE INTERFERENCE.

The question of patentability of the claim in interference is not involved in the interference. (*Hisey* v. *Peters*, 71 O. G., 898; *Doyle* v. *McRoberts*, 79 O. G., 1029.) After the interference shall have been finally determined the question of patentability may be raised against the successful party.

2. SAME—SAME—PARTY TO THE QUESTION OF PATENTABILITY.

When the interference has been determined and the question of patentability is before the Primary Examiner, the defeated party to the interference has no other interest in the decision on patentability than as one of the general public whose interests are under the protection of the Commissioner of Patents.

3. SAME—DISCLAIMER—ESTOPPEL—COMMISSIONER'S DECISION AFFIRMED.

Hodge's evidence in respect of his conception of the invention does not show an intention to disclaim and is not of a nature to estop him from claiming an invention as broad as the issue. The decision of the Commissioner of Patents awarding priority to Hodge affirmed.

4. SAME—PRODUCING SPECIES—RIGHT TO BROAD CLAIM.

As a general proposition an inventor making any generic invention necessarily produces some species of it, and the fact that he has never thought of other specific forms cannot deprive him of his right to a broad claim. The inventor may not regard his invention at the time it is produced as any broader than his specific form; but the question for consideration is not as to his opinion, but is one of fact.

Messrs. Raymond & Omohundro for the appellant.

Messrs. Gridley & Hopkins for the appellee.

SHEPARD, *J.:*

1. This is an interference proceeding involving priority in respect of certain claims of invention of an "improvement in car-door guides."

As declared the interference embraced four issues, on each of which priority was awarded to the appellee, Hodge, by the Examiner of Interferences.

On appeal to the Examiners-in-Chief his decision

was affirmed as to three of the issues and reversed as to the fourth. Hodge acquiesced in this decision, and Hill did the same in respect of issue No. 2. His appeal to the Commissioner was from the award of priority to Hodge as regards issues 1 and 3, which are defined as follows:

1. The combination with a car and its door, of a bracket engaged by said door, an anchor secured to the side of the car, and means whereby said anchor is concealed by said bracket and detachably connected therewith.

3. The combination with a car and its door, of an anchor, a bracket engaged by the door, provided with a hood or pocket, and having a slot in the rear face thereof of less width than the greatest width of the anchor and leading to said hood or pocket whereby the bracket may be slidingly connected with the anchor and the latter concealed thereby.

The Commissioner having decided against him, both issues are involved in this appeal from his decision.

2. Appellant admits that if Hodge in fact invented the subject-matter of the issues his claim to priority over himself is established by the evidence.

But while admitting the superiority of Hodge's claim to his own as regards the subject-matter of issue No. 1 appellant denies his right to an award thereon, because, he says, that prior to Hodge's conception a device embodying the subject-matter thereof had gone into public use. There is some evidence in the record tending to show that before Hodge conceived the idea at all a car-door guide or bracket answering generally the description of the issue had been made by one Leeds and had been used upon freight-cars of the Louisville and Nashville Railroad.

The Commissioner was right in refusing to entertain the issue of patentability. That the question of patentability of the claim in interference is not involved therein has been time and again decided. (*Hisey* v. *Peters*, 71 O. G., 892; 6 App. D. C., 68, 71; *Doyle* v. *McRoberts*, 79 O. G., 1029; 10 App. D. C., 445, 467, and cases cited therein.)

After this controversy shall have been determined the question of patentability may be raised in the Patent Office against the successful party. As a matter of fact the Commissioner, though refusing to take cognizance of the issue of patentability, regarded the evidence of prior invention and public use by Leeds as sufficiently important to require him in rendering his decision to direct the Primary Examiner to inquire into and consider the question of patentability when the matter shall again come before him. When that question shall be raised, Hill will have no other interest in its decision than as one of the general public whose interests are under the protection of the Commissioner of Patents.

3. The anchor of the combination of Hodge, as described in issue No. 3, is firmly fastened in the body of the car. When the bracket is connected by sliding the anchor into the pocket by means of the slot, it will remain fixed in its place. Hill's anchor is so constructed that after sliding into the pocket of the bracket the latter will rotate thereon, except when withheld by the pressure of the closed car-door.

It is admitted that the issue is not limited to a rotative or non-rotative engagement between bracket and anchor, but is broad enough to cover both. Hodge's actual construction is limited to the non-rotative engagement, and his evidence shows that he did not have in contemplation any other specific form thereof. It may be conceded that he did not conceive the idea of the rotative engagement of the appellant's bracket and anchor. In respect of this the Commissioner said:

In making any generic invention the inventor necessarily produces some species of it, and the fact that he has never thought of other specific forms cannot deprive him of his right to a broad claim. The inventor may not regard his invention at the time it is produced as any broader than his specific form, but the question for consideration is not as to his opinion, but is one of fact.

There is no doubt of the correctness of this as a general proposition. (*Roberts* v. *Ryer*, 71 O. G., 892; 91 U. S., 150, 157; *Stow* v. *Chicago*, 104 U. S., 547, 550; *Miller* v. *Eagle Mfg. Co.*, 79 O. G., 1029; 151 U. S., 186, 201.)

4. The appellant admits the soundness of the foregoing proposition, but seeks to avoid its effect through the contention that Hodge has confined his claim of invention to the specific form of his device as constructed and has disclaimed the generic invention. It is not pretended that he has entered any formal or substantial disclaimer upon the files of the Patent Office; but the claim is that he has made it in his evidence in the case.

Passing by the questions whether the effect of a disclaimer can be attributed to the evidence of a party in a case like this for the benefit of his adversary or whether, in the same interest, he can be held estopped thereby, we agree with the Commissioner that Hodge's evidence in respect of his conception of the invention does not show an intention to disclaim and is not of a nature to estop him from claiming an invention as broad as the issue.

It would serve no useful purpose to set forth and review that evidence. We entirely agree with the Commissioner that it shows nothing more than that Hodge when he conceived the invention and reduced it to practice had in mind nothing more than the non-rotative engagement of anchor and bracket.

It follows that the decision appealed from must be affirmed. It is so ordered, and this decision, with the proceedings herein, as required by law, will be certified to the Commissioner of Patents.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 9. TUESDAY, MAY 31, 1898. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., May 20, 1898.

SIR: The Secretary of the Interior has ordered that E. J. Sloss, of Courtland, Ala., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Notice to Show Cause.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 7, 1898.

The following notice to show cause is published in the OFFICIAL GAZETTE for the reason that it has been found impracticable to serve notice in the usual way, a registered letter containing notice to the same effect, mailed to Mr. Holgate at his last-known address, having been returned with the report that it could not be delivered.

To George H. Holgate, doing business under the name of the Association American Inventors, last known address Betz Building, Philadelphia, Pennsylvania, present address unknown:

SIR: Copies of charges filed against you as representative of the Association American Inventors by the following-named persons were sent you on the dates mentioned below, and you were given until February 12, 1898, to answer the same, if you desired to do so:

I. N. Fickes, of Holland, Kans.....January 21, 1898.
Nathan Lloyd, of Greenbrier, Mo.....January 22, 1898.
J. L. Zeiger, of Cleveland, Ohio .....January 26, 1898.
John McWilliams, of Egypt Mills, Mo ..February 5, 1898.

You were informed in the letters accompanying the charges of McWilliams, Lloyd, and Fickes that, inasmuch as you were not registered as a patent attorney, disbarment proceedings would not be instituted. It has been determined, however, that inasmuch as you still represent a number of applicants before this Office in applications filed before the 1st of January, 1898, as is shown by a list of such cases filed by your representative on January 14, 1898, and in which registration was waived, said list numbering 171 cases, you are practicing before the Office and within the provisions of the statute you are subject to disbarment proceedings. In view of this fact and in view of the fact that in some of the foregoing cases the filing of the answer was made optional with you you are hereby required to show cause on or before the 15th day of June, 1898, in each of these cases, why you should not be disbarred from practice and why the Commissioner of Patents should not refuse to recognize you as patent agent in accordance with the statutes in such cases made and provided.

C. H. DUELL,
Commissioner.

Regulations in Relation to Mail-Matter.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of this city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

CERTIFICATES OF REGISTRATION ISSUED MAY 31, 1898.

Label.

6,503.—Title: "THE SILENT." (For a Device for Making Flushing-Tanks Noiseless.) *Charles H. Shepherd*, New York, N. Y. Application filed April 13, 1898.

Print.

63.—Title: "ROYAL SCOT." (For Cigars.) *American Lithographic Company*, New York, N. Y. Application filed May 3, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 24, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between two and three months.			
102	XIX. Stoves and Furnaces	Mar. 1	May 12	343
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Feb. 26	May 12	250
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 4	May 11	214
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Mar. 9	May 10	202
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Mar. 5	May 6	256
	Between three and four months.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 21	May 13	504
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 2	May 12	300
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 15	May 11	252
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 11	May 11	514
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Jan. 27	May 11	330
246	I. Tillage and Fences	Feb. 18	May 10	244
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 9	May 10	242
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 28	May 10	306
38	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Jan. 26	May 10	396
96	XXI. Textiles, etc	Jan. 24	May 10	326
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 19	May 9	334
248	XVIII. Steam-Engineering, etc	Jan. 27	May 9	314
253	X. Carriages and Wagons	Jan. 27	May 2	333
	Between four and five months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 28	May 16	739
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 17	May 14	371
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 17	May 11	200
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 6	May 11	408
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 28	May 10	482
240	VII. Velocipedes	Dec. 27	May 10	844
106	II. Farm Stock, Products, etc.	Jan. 17	May 9	539
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 24	May 9	545
217	XXXIII. *Trade Marks, etc., †Designs, Drafting, and Optics.	Jan. 3	Apr. 26	220
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 10	May 16	511
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 7	May 11	254
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Dec. 21	May 10	498
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Nov. 26	May 10	400
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	May 6	544
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Mar. 31	511

Applications Under Examination—Continued.

221	*Between six and seven months.* XXIII. Instruments of Precision, Acoustics, etc.	Oct. 14	May 9	498
215	*Between seven and eight months.* XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 23	May 10	536

Total number of applications awaiting action 13,764

Under one month.			
†Designs	May 12	May 17	69
*Trade-Marks	May 5	May 11	204

ISSUE OF MAY 31, 1898.

Patents	356	No. 604,711 to No. 605,066, inclusive.
Designs	60	No. 26,719 to No. 26,778, inclusive.
Trade-Marks	39	No. 51,608 to No. 51,646, inclusive.
Label	1	No. 6,598.
Print	1	No. 68.
Reissues	2	No. 11,666 to No. 11,667, inclusive.
Total issue	459	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	.....	New Hampshire	3	.....
Arizona Territory	1	.....	New Jersey	20	.....
Arkansas	.....	.....	New Mexico Territ'y	.....	.....
California	7	.....	New York	60	10
Colorado	2	.....	North Carolina	2	.....
Connecticut	15	2	North Dakota	.....	.....
Delaware	.....	.....	Ohio	24	1
District of Columbia	6	.....	Oklahoma Territory	1	.....
Florida	2	.....	Oregon	1	.....
Georgia	3	.....	Pennsylvania	38	3
Idaho	.....	.....	Rhode Island	5	.....
Illinois	38	2	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	2	.....
Indiana	2	.....	Tennessee	3	.....
Iowa	7	1	Texas	6	.....
Kansas	9	.....	Utah	1	.....
Kentucky	3	.....	Vermont	.....	.....
Louisiana	1	1	Virginia	5	.....
Maine	1	.....	Washington	3	.....
Maryland	4	2	West Virginia	1	.....
Massachusetts	30	8	Wisconsin	8	.....
Michigan	17	.....	Wyoming	1	.....
Minnesota	4	.....	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	20	2			
Montana	3	.....	Total to citizens of the United States	372	32
Nebraska	1	.....			
Nevada	.....	.....			

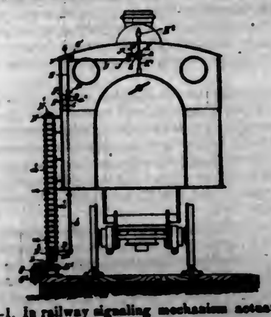
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Italy	.....	.....
Australia	.....	.....	Mexico	.....	.....
Austria-Hungary	3	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	1	.....	New South Wales	1	.....
Brazil	.....	.....	New Zealand	1	.....
Canada	2	.....	Norway	.....	.....
Cape Colony	2	.....	Portugal	.....	.....
Chile, Republic of	.....	.....	Queensland	.....	.....
China	.....	.....	Russia	1	.....
Colombia	.....	.....	Scotland	1	.....
Cuba	.....	.....	South African Republic	.....	.....
Denmark	.....	.....	South Australia	.....	.....
Egypt	.....	.....	Spain	.....	.....
England	18	8	Sweden	.....	.....
Finland	.....	.....	Switzerland	1	.....
France	6	1	Turkey	.....	.....
Germany	7	.....	Victoria	.....	.....
Guatemala	.....	.....			
Hawaii	.....	.....	Total to citizens of foreign countries	44	9
India	.....	.....			
Ireland	.....	.....			

PATENTS

GRANTED MAY 31, 1898.

604,711. RAILWAY SIGNALING APPARATUS. WILLIAM H. RADCOM, Washington, D. C., administrator of William T. G. Pratt, deceased, assignor to Ramadine Ann Pratt, Ramadine Frances Pratt, and Charles Claridge Pratt, Sneyd Park, and Mary Ann Manaka Wreaford, née Pratt, Portico, England. Filed Dec. 7, 1897. Serial No. 661,088. (No model.) Patented in England Nov. 30, 1896, No. 27,125.



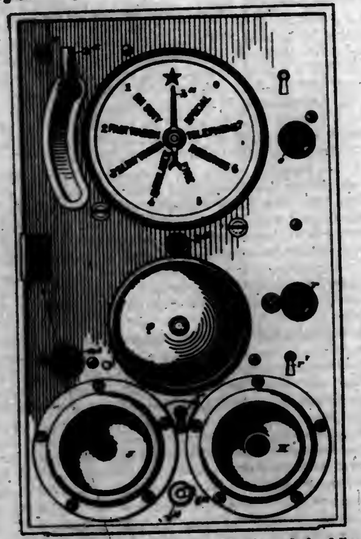
Claim.—1. In railway signaling mechanism actuated by a stationary cutter, the combination of a part carried by the train and arranged to be severed by the said cutter, with a device arranged to fall on such severance, a signal and the system of links and levers consisting of the link E, connected with the said device, the lever, F, connected with said link E, the lever G, actuated by said lever, F, and the link, H, connected with said lever, G, and actuating the said signal, for operating the latter, the said links and levers serving to minimize the strain on the operative parts of the said signal substantially as set forth.

2. In railway signaling mechanism actuated by a stationary cutter, the combination of a series of superposed ring-frames carried by the train, with a device supported by the lowest ring frame and arranged to fall on its severance, a signal and connections between the said device and the said signal for operating the latter, the said ring-frames supporting one another, in order that by the severance and consequent removal of the lowest ring-frame, the next lowest ring may automatically take the lowest position, supporting the said device and ready to be struck and severed by the cutter substantially as set forth.

3. In railroad signaling mechanism a stationary, vertical, double-edged knife provided with a base and a clamping device which is adapted to fasten the said knife temporarily to any of the sleepers of a track, in combination with a signal-controlling device carried by the train, and arranged to be cut by the said knife substantially as and for the purpose set forth.

604,712. ELECTRICAL SIGNALING SYSTEM AND APPARATUS. WALTER P. (BAKER, Milford, Conn., assignor to the National Electrical Manufacturing Company, same place. Filed Oct. 1, 1896. Serial No. 607,847. (No model.)

Claim.—1. In a signaling system, the combination of the following instrumentalities in operative relation, to wit: signal-transmitting mechanism comprising a plurality of signaling devices transmitting a variety of calls, one of said signaling devices transmitting calls comprising short signals, and the other of said signaling devices transmitting calls comprising long signals, a controlling device at the central station arranged to be partially actuated by short signals and fully actuated by long signals, a signal-receiver arranged to respond to a call comprising a plurality of long signals and under the control of the controlling device and operable therefrom when the said controlling device has been fully actuated, whereby calls containing short signals indicate themselves on the controlling device only and calls containing long signals will actuate the controlling device to cause the same to permit the secondary signal-receiver to respond to each long signal.



2. In a signaling system, the combination of the following instrumentalities in operative relation, to wit: signaling mechanism transmitting a plurality of calls, one of said calls comprising short signals, and other of said calls comprising long signals, a controller at a central station, a signal-receiver operated from the said controller at predetermined times, and a governing device for the controller comprising in its structure means for preventing the controller from allowing the signal-receiver to operate during the reception of short signals, and means for manipulating the receiver upon the reception of each long signal of a predetermined class of calls.

3. In a signaling system, the combination of the following instrumentalities in operative relation, to wit: signaling mechanism transmitting a variety of calls, one of said calls comprising short signals, and other of said calls comprising long signals, a controller in the circuit responsive to all signals, a signal-receiver responsive to calls comprising a plurality of long signals, a short circuit around the same under the control of the controller, and a governing device for the said short circuit, whereby the controller will open the short circuit of the signal-receiver at the reception of each long signal of a call containing said long signals of a predetermined character, so that the said signals may manifest themselves in the receiver to cause the said receiver to respond to the said call.

4. In a signaling system, the combination of the following instrumentalities in operative combination, to wit: signaling mechanism transmitting a plurality of calls, said calls comprising long and short signals, a signal-receiving device and a controller at the central station in circuit with each other, each arranged to respond to a call comprising a plurality of signals, a governing mechanism for the controller operating in conjunction with the signal-receiving device, the

said governing mechanism being operated by the controller only during the reception of calls containing long signals to permit the signal-receiving device to operate and to respond to each of the said long signals.

5. In a signaling system, the combination of the following instrumentalities in operative relation, to wit: signaling mechanism provided with means for transmitting calls containing long signals and calls containing short signals, a signal-receiving device and a controller therefor operated by the signals, and a short circuit for the said signal-receiving device, a governing device for the said short circuit controlled by the controller and cooperating therewith to break the short circuit of the short-circuited signal-receiving device upon the reception of each long signal so that the normally-short-circuited signal-receiving device will be rendered operative to respond to each call containing long signals at the time of the reception of each of the said long signals of the call, the said controller and short-circuited signal-receiving mechanism operating in unison.

6. In a signaling system, the combination of the following instrumentalities in operative relation, to wit: signaling mechanism provided with means for transmitting a plurality of calls containing long and short signals, a signal-receiving device and a controller therefor, the signal-receiving device comprising in its structure a vibratory part, a governing device operating in conjunction with the controller to govern the operation of the signal receiving device, the said governing device comprising in its structure a vibratory part executing vibrations of a plurality of amplitudes, and rendering the signaling-receiving device operative only upon its vibrations of great amplitude, whereby the swinging part of the signaling-receiver will vibrate in unison with the vibrating part of the governing device only in its vibrations of great amplitude, and will leave the signal-receiving device unaffected during its vibrations of less amplitude.

7. In a signaling system, the combination of the following instrumentalities in operative relation to wit: a signaling-box provided with means for transmitting a plurality of calls containing signals of different lengths or durations, a controller-magnet, a visual indicator, a governor for the visual indicator under the control of the controller and comprising in its structure a vibrating part, the said controller device being arranged to actuate the governor upon the passage of long signals so that upon receipt of each of the said long signals the vibrating part of the governor and the visual indicator will operate in unison.

8. In a signaling system, the combination of the following instrumentalities in operative relation, to wit: signaling mechanism adapted to transmit a plurality of calls consisting of signals of different lengths, an electromagnetic controller at the central station having an armature adapted to make long and short strokes in response to long and short signals respectively, a signal-receiving instrument at central station provided with a vibrating armature and under the control of the controller and operated therefrom at each long stroke of the armature of the said controller, whereby calls comprising long signals will be indicated at the central station by the armature of one signal-receiving instrument vibrating in unison with the long strokes of the other signal-receiving instrument.

9. In a signal-box, the combination of the following instrumentalities in operative relation, to wit: a normally-short-circuited main signaling-movement, an auxiliary signaling-movement in circuit therewith, a signal-receiving magnet in circuit with the signaling-movement and a short circuit for the signal-receiving magnet and means for breaking the short circuit around the signal-receiving magnet operated from the auxiliary signaling-movement.

10. In a signal-box, the combination of the following instrumentalities in operative relation, to wit: main and auxiliary signaling-movements, a short circuit around the main signaling movement, a signal-receiving magnet in the line of the main and auxiliary signaling-movements and a short circuit around the signal-receiving magnets controlled by the auxiliary signaling-movement.

11. In a signaling mechanism, the following instrumentalities in operative combination, to wit: a plurality of signal-wheels with driving-gear, a plurality of contact devices each cooperating with a signal-wheel to send a signal, and an automatically-operated switching device connected to the line and adapted to cooperate with one or the other contact device, and means for connecting the switching device first with one contact device and then with the other contact device, whereby first one of the signal-wheels will thereby be connected in circuit with the line and the other cut out, and then the other signal-wheel will be connected in circuit with the line, so that the signal-wheels will send their signals to line successively.

12. In a signaling mechanism, the combination of the following instrumentalities in operative relation to wit: a plurality of signal-wheels with driving-gear, a plurality of contact devices cooperating with the signal-wheels to send a signal, and a switching device arranged for cooperation with one or the other of the contact devices of the signal-wheels, and means for connecting the switching device in circuit first with one contact device and then with the other contact device, whereby the wheels will successively send their signals to line, and means intervening between the driving-gear and the switching device for actuating the said switching device.

13. In a signaling mechanism, the combination of the following instrumentalities in operative relation to wit: a plurality of signal-wheels with driving-gear, a plurality of contact devices cooperating with the signal-wheels to send a signal, and a switching device arranged for cooperation with one or the other of the contact devices of the signal-wheels, and means for connecting the switching device in circuit first with one contact device and then with the other contact device, whereby the wheels will successively send their signals to line, means intervening between the driving-gear and the switching device for actuating the said switching device, and a short circuiting device for short-circuiting the contact devices.

14. In a signaling mechanism, the combination of the following instrumentalities in operative relation to wit: a plurality of signal-wheels with driving-gear, a plurality of contact devices cooperating with the signal-wheels to send a signal, and a switching device arranged for cooperation with one or the other of the contact devices of the signal-wheels, and means for connecting the switching device in circuit first with one contact device and then with the other contact device, whereby the wheels will successively send their signals to line, means intervening between the driving-gear and the switching device for actuating the said switching device, and a short-circuiting device for short-circuiting the contact devices, and means for actuating the short-circuiting device from the signal-wheel driving-gear.

15. In a signal-box, the combination of a plurality of signal-wheels, and circuit-controllers under control of the signal-wheels, the said circuit-controllers terminating in terminals opposed to each other, a contact normally bearing upon one of the said terminals and adapted when moved to reach contact with the other, and a pivoted arm carrying the said movable contact in operative relation to an arm-swinging device, such as the cam A^{24}, substantially as described and for the purposes set forth.

16. In a signaling mechanism, the combination of a plurality of signal-wheels, a plurality of circuit-controllers, a switching device for putting one or the other of the circuit-controllers into the line and a short-circuiting device for short-circuiting the circuit-controllers, said switching and short-circuiting devices being operated from the motor mechanism for the signal-wheels.

17. In a signaling mechanism, the combination of a plurality of signal-wheels, a plurality of circuit-controllers, a switch-lever for putting one or the other of the circuit-controllers into the line and a short-circuiting lever for short-circuiting the circuit-controllers, and a spring connecting the short-circuiting lever and the switch-lever.

18. In a signal box, the combination of a signaling-movement, winding mechanism for setting the said movement for operation, a releasing mechanism for releasing the movement and means for locking the winding mechanism from being operated when the releasing mechanism has been thrown to release the movement for operation.

19. In a signal mechanism, the combination of a signaling-movement, a winding mechanism for setting the said movement, a releasing mechanism for releasing the movement and means for rendering the winding mechanism inoperative when the releasing mechanism has been actuated to release the movement for operation

20. In a signal mechanism, the combination of a signaling-movement and setting mechanism for setting the same, a releasing mechanism for releasing the movement for operation after it has been set and means for rendering the setting mechanism inoperative to set the movement while the signal is being transmitted.

21. In a signaling mechanism, the combination with a signal-transmitting movement of a setting mechanism for setting the same for operation, a releasing mechanism for the movement, means for rendering the setting mechanism inoperative when the movement has been put in operation by the releasing mechanism and means for rendering the releasing mechanism inoperative during transmission of the signal.

22. In a signaling mechanism, the combination of a step-by-step setting mechanism combined with a transmitting mechanism and a releasing device for the transmitting mechanism provided with a stop for the step-by-step setting mechanism.

23. In a signaling mechanism, the combination with a signal-transmitting movement, of a setting mechanism for setting the same for operation, a releasing mechanism for releasing the movement and means for rendering the setting mechanism inoperative when the releasing mechanism has been operated and for rendering the releasing mechanism inoperative when the setting mechanism is in operation.

24. In a signaling mechanism, the combination of a signal-transmitting device, winding and releasing mechanisms therefor, and locking means actuated from the releasing mechanism for rendering the winding mechanism inoperative when the releasing mechanism is operated.

25. In a signaling mechanism, the combination of a signal-transmitting device, a setting mechanism therefor, a releasing mechanism, means for rendering the setting mechanism inoperative, the said means being controlled from the releasing mechanism, means for rendering the releasing mechanism inoperative during operating of the setting mechanism, and a locking device for the releasing mechanism, whereby both the releasing and setting mechanisms will be rendered inoperative each during the operation of the other, and both will be rendered inoperative during transmission of a signal.

26. In a signaling mechanism, the combination of a signal-transmitting device having setting and releasing mechanism arranged to reciprocally lock one another from movement and a locking device for one of these elements, whereby both may be held locked at predetermined times.

27. In a signaling mechanism, the combination of a signaling device having a driving-gear, a releasing device for releasing the said driving-gear, a latch for holding the releasing device inoperative during the transmission of a signal, a spring for actuating the said latch and a means for restoring the latch to its initial position against the tension of the spring.

28. In a signaling mechanism, the combination of a signaling device having a driving-gear, a releasing device for the driving-gear, a reciprocating latch for holding the releasing device inoperative during transmission of a signal, a spring for actuating the said latch to bring it into position to lock the releasing device and means for reciprocating the latch to restore the same to its initial position against the tension of the spring.

29. In a signaling-box, the combination of a signaling-movement, a movable releasing device for the said movement, means for locking the said releasing device in the position which it assumes when it has released the movement, means for moving the said releasing device in a direction opposite to its movement to release the box, whereby the said releasing device will be restored to its initial position, and a reciprocating latch for locking the releasing device during transmission of a signal.

30. In a signaling mechanism, the combination of a signal-transmitting device having a driving-gear, a releasing device therefor, a reciprocating latch for locking the releasing device during transmission of the signal, the said reciprocating latch being reciprocated in one direction by a spring and reciprocated in the opposite direction by the action of the driving-gear, whereby the driving-gear of the said signaling mechanism may be released, the releasing device therefor held locked during transmission of the signal by the latch and the said latch restored to its initial position at the completion of the signal by the operation of the driving-gear.

31. In a signaling mechanism, the combination of a signal-transmitting device and its driving-gear, of a setting-lever and a reciprocating releasing-plunger and projections carried upon the lever and plunger for cooperating with each other, each to prevent the operation of the other at predetermined times, whereby the setting-lever and releasing-plunger will be rendered inoperative one from the other.

32. A signal-transmitting mechanism combined with a setting mechanism, comprising a swinging pawl and a ratchet cooperating therewith, the said ratchet being provided with a series of teeth and one tooth of greater length than any of the other teeth.

33. The combination with a signaling device and its driving-train of a releasing mechanism therefor, comprising a plunger, a stop-lever A^{27} carried by the plunger, a pin on the driving-gear cooperating with the stop-lever, a latch on the driving-gear serving to lock the stop-lever, and means for withdrawing the latch by the movement of the driving-gear.

34. In a signaling-box, a releasing mechanism comprising the combination of a plunger, a stop-lever A^{27}, a spring for restoring the plunger to its initial position, a latch A^{45}, a spring for impelling the latch into the return-path of the stop-lever and means for withdrawing the latch by the movement of the driving-gear of the signal device.

35. In a signal-box, the combination with signal transmitting mechanism and setting mechanism therefor of a push-rod or plunger carrying a stop or releasing lever for releasing the transmitting mechanism upon movement of the plunger and also a catch-lever A^{61} for locking the setting mechanism while the plunger is out of its normal position.

36. In a signaling mechanism, the combination of a signal-transmitting device provided with a releasing mechanism and a locking mechanism for the releasing mechanism, of a main or setting arbor, a stop-arm on the arbor for cooperating with the releasing mechanism and a lifting-arm on the arbor for cooperating with the locking mechanism.

37. A key-trap comprising a winding-arbor, a stop engaging the key to stop the said key in its rotation, a toothed plate rotated by the key and a pawl engaging the plate to prevent the return movement thereof.

38. In a signaling device, the combination of a winding-arbor, a key-trapping device comprising pawl-and-ratchet mechanism and a locking mechanism for locking the pawl, and means operated by the key for swinging the pawl out of the key-trapping position and engaging the said pawl with a locking device while in such last-named position, whereby the signal may be sent in by a special key which will not be trapped.

39. The combination in a signal-box of a signal-receiving mechanism in the box, a signal-transmitting mechanism and a key-trap cooperating with the signal-receiving mechanism and means for putting the signal-receiving mechanism into circuit by the operation of the key-trap.

40. In a signal mechanism, the combination of a signal-receiving mechanism in the box, a short circuit around the same, a signal-transmitting mechanism combined with a key-trap and circuit-manipulating means actuated by the key-trap for opening the short circuit around the signal-receiving mechanism.

41. In a signaling device, the combination with a winding-arbor of a cam-plate j^{14} moving therewith, a pawl or lever j^{34} cooperating with the cam-plate and a catch-lever j^{35}.

42. In a signal-box-key-trapping mechanism, the combination of a key-arresting projection, a plate moving with the key and provided with teeth, a pawl for cooperating with the teeth and means for swinging the pawl out of the return-path of the teeth.

43. In a key-trapping mechanism for a signal-movement, the combination of a key-arresting projection as j^{35}, a plate moving with the key and provided with teeth and a cam, a pawl for engaging the teeth on their return movement to lock the plate, thereby trapping the key, and a locking or latch device for the pawl, the said cam cooperating with the pawl and its lock to swing the pawl into its locked position out of the return-path of the teeth and to unlock the pawl after the teeth have passed the said pawl on their return movement, substantially as described.

44. A trapping mechanism for signal-box keys comprising a key-arresting projection, a plate moving with the key, a pawl for locking the plate upon its return movement, a locking device for locking the pawl when it has been moved out of the path of the return movement of the plate and a spring uniting the said pawl and locking device.

45. In a signal movement, the combination of a key-arresting projection combined with a plate moving freely with the key, a stop-pawl j^{34}, a catch-lever j^{35}, teeth upon the plate for catching with the stop-pawl j^{34} and a cam upon the plate for rocking the pawl and catch-levers.

46. In a signal-box, the combination of a signal-movement adapted to be set by a key, a trapping mechanism for the key and a lever j^{34} for untrapping or releasing the key from the outside of the front plate of the box.

47. A contact device for time-stamp magnets and the like, comprising a magnet, an armature adapted to manipulate the circuit on its return stroke, means for preventing the armature from manipulating the circuit of the time-stamp on its forward stroke, and a retarding means for retarding the return movement of the armature, whereby at the beginning of a signal the armature will be thereby put in position to actuate the time-stamp circuit, and upon the cessation of the said signal the armature will be retracted and caused to manipulate the said time-stamp circuit, substantially as and for the purposes set forth.

48. In a contact device for time-stamp magnets and the like, the combination with the said time-stamp or other magnet, of a circuit therefor, a magnet, an armature therefor, arranged to manipulate the circuit of the time-stamp magnet upon its return stroke only, means for preventing the said armature from manipulating the circuit of the time-stamp magnet upon its forward stroke, whereby the armature will be attracted to its magnet at the beginning of a signal, a train of gearing for retarding the return movement of the armature during the periods intervening between the receipt of integral parts of the signal, whereby the armature will be retracted to its full degree of retraction only upon the completion of the signal, and will in each return stroke manipulate the circuit of the time-stamp or other magnet, substantially as described and for the purposes set forth.

49. In a contact device for time-stamp magnets and the like, the combination of a magnet, an armature therefor carrying a contact-piece, a contact-lever d^{14} provided with an insulating-block d^{16} to be struck by the contact-piece of the armature on the front stroke thereof and a toe d^{18} in metallic connection with the time-stamp circuit to be struck by the contact-piece of the armature on the back stroke thereof and a retarding device for retarding the back stroke of the armature, whereby the armature-contact will strike the contact-toe d^{18} only upon the cessation of a signal.

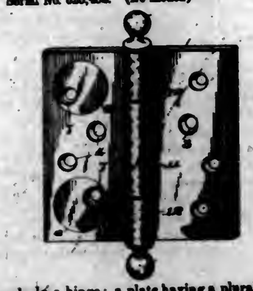
50. In a signaling mechanism, the combination of a signaling-movement combined with a strap or calling-key and actuating mechanism therefor comprising a reciprocating plunger adapted to reach contact with the key, combined with a lock therefor having a bolt arranged to engage the plunger to lock the same, from which lock

its actuating-key can be withdrawn only when the bolt thereof is in its locking position.

51. A signal-box provided with a plate as A turning upon one of its edges, a plurality of pairs of pins on opposite sides of the box, hook-hinges carried by the swinging plate and cooperating with one or the other of the pairs of pins in their extreme positions.

52. The combination in a telephone box of a pull-down-hook signal-setting device, a plunger-box-releasing device, a cut-out or short-circuiting key V and a box-door adapted to restore the plunger-box-releasing device to its normal position should it be accidentally left out and to manipulate the cut-out key.

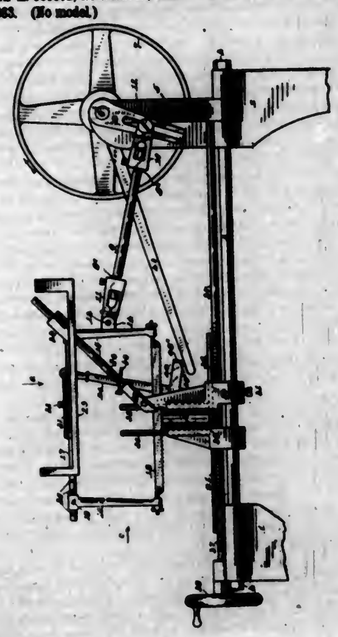
604,718. HINGE. GEORGE H. BENNOS, Baltimore, Md. Filed Mar. 1, 1897. Serial No. 626,452. (No model.)



Claim.—1. In a hinge; a plate having a plurality of openings in combination with a plate covering said openings, and also provided with an opening, the latter plate being movable with relation to the hinge-plate for bringing its opening into alinement with one of the openings in the plate, substantially as described.

2. In a hinge, the combination with the leaves thereof, of a device movably connected therewith and having an opening therein for the reception of a screw, whereby the movement of said device within a predetermined limit brings the opening therein into alinement with one of a series of openings in the hinge-leaf, substantially as and for the purpose set forth.

604,714. HACK-SAW MACHINE. FRANK S. BRADLEY and FRANK A. COTTON, New Haven, Conn. Filed Dec. 22, 1897. Serial No. 663,063. (No model.)



Claim.—1. In a hack-saw machine, of the character described, the combination, with a suitable reciprocating mechanism and a reciprocating-saw-carrying frame, of a saw-frame support operatively mounted on angularly-disposed guides so that, when the saw-carrying frame is on its return stroke the said support will follow up such guides a sufficient distance to prevent the saw dragging on the work, and on the forward stroke will follow down said guides to reengage the saw, for the purpose set forth.

2. In a hack-saw machine, of the character described, the combination, with suitable reciprocating mechanism and a saw-carrying frame actuated thereby, of a saw-frame support in which said saw-carrying frame is operatively mounted, said support balanced on angularly-disposed guide-rods fixed to one of the work-holding jaws, so that, by means of such guide-rods the saw is relieved on its backward stroke by said support rising on said rods, for the purpose set forth.

3. The combination, in a hack-saw machine, with suitable reciprocating mechanism, of a saw-frame support adapted to hold a reciprocating-saw-carrying frame, of angularly-disposed guide-rods or their equivalent, means on said support whereby it is adapted to operatively engage said rods so as to rise thereon when the saw is retreating and follow down such rods when the saw is advancing, for the purpose set forth.

4. The combination, in a hack-saw machine of the work-holding jaws each provided with a kerf in the body thereof to assist in keeping the saw in vertical alinement during its operation, for the purpose set forth.

5. The combination, in a hack-saw machine, of the work-holding jaws each provided with a kerf in the body thereof and guide-pins rising above said jaws and placed, one on each side of said kerf, for the purpose set forth.

6. The combination, in a hack-saw machine, of the two side supporting-rods anchored in the supporting-legs, work-holding jaws adjustably mounted on said rods, for the purpose set forth.

7. The combination, in a hack-saw machine, with a threaded-jaw-carrying rod and means for operating the same of side supporting-rods anchored in the machine-legs, a front and rear jaw adjustably mounted on said rods, the former under control of the said threaded rod and the latter temporarily secured to said side supporting-rods, said jaws provided with a narrow kerf therein to guide the saw, and guide-pins rising above said jaws and placed, one on each side of the said kerfs, a floor rigidly secured to one of said jaws and adapted to freely extend through the other of said jaws, for the purpose set forth.

8. The combination, in a hack-saw machine, of the character described, consisting of work-holding jaws and their support, a saw-frame, a support therefor on which said frame is adapted to operate, angularly-disposed guide-rods, means whereby the further downward movement of said frame is arrested so that the saw may simply reciprocate, without cutting, when it has reached its lowest point, for the purpose set forth.

9. The combination, in a hack-saw machine, of the work-holding jaws, narrow guide-kerfs in the body thereof and guide-pins extending above such jaws and placed, one on each side of said kerfs, a saw-carrying frame, a saw-frame support in which each saw-carrying frame is adapted to operate, angularly-disposed guide-rods, means whereby the further downward progress of said saw-carrying frame is arrested so that, the saw may reciprocate without cutting, for the purpose set forth.

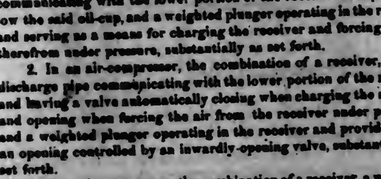
10. In a hack-saw machine, the saw-carrying frame and a support therefor, means substantially as shown on the saw-arm-supporting rod for changing the distance between said arms so that saws of different lengths may be used in the same frame, for the purpose set forth.

11. The combination, in a hack-saw machine, of the character described, of the side rods mounted in the machine-legs, work-holding jaws adjustably mounted thereon, said jaws having each a narrow kerf in the body thereof to act as a guide for the saw, guide-pins projecting above the jaws and on each side of the said kerf, a saw-frame having an adjustable back and a support therefor in which such frame is adapted to operate, angularly-disposed guide-rods attached to one of said jaws and means whereby said frame-support is operatively mounted on said guide-rods, means whereby the further downward progress of the saw is checked or the machine stopped for the purpose set forth.

604,715. SCALE-WEIGHT. JOHN F. BRADSHAW, Butte, Mont., assignor of one-half to George G. Bigham, same place. Filed May 6, 1897. Serial No. 635,417. (No model.)

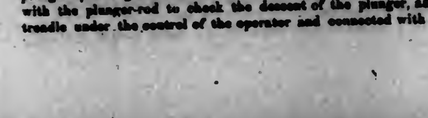
Claim.—1. A scale-weight provided with a crotch or slot and having a preponderance of weight at the side in which the slot or crotch is produced, as and for the purpose set forth.

2. A scale-weight provided with a slot or crotch for the reception of a scale-bar, said weight being made heavier at that side in which the crotch or slot is produced, the upper surface of said weight being inclined in direction of the inner end of said slot or crotch, as and for the purpose set forth.



3. A scale-weight having a slot formed therein and having an inclined face, the said face slanting inward from the outer end of the slot.

604,716. DOOR-CLOSER. CHARLES BEERS, Farwell, Mich. Filed Oct. 8, 1897. Serial No. 654,565. (No model.)



Claim.—A door and gate pulley device consisting of a substantially U-shaped plate having inclined portions and a flat connecting portion, a pulley removably secured to one of the inclined portions, a vertically-disposed pulley, a spindle secured to the flat portion of the plate and on which the vertical pulley is mounted, and a roller-washer, loosely supported on the spindle between the plate and the pulley, substantially as described.

604,717. AIR-COMPRESSOR. ORMAN H. BURNHAM, Chatsworth, Ill. Filed May 4, 1897. Serial No. 635,009. (No model.)

Claim.—1. In an air-compressor, the combination of a receiver having an inner annular oil-cup at its lower end, an air-discharge pipe communicating with the lower portion of the receiver at a point below the said oil-cup, and a weighted plunger operating in the receiver and serving as a means for charging the receiver and forcing the air therefrom under pressure, substantially as set forth.

2. In an air-compressor, the combination of a receiver, an air-discharge pipe communicating with the lower portion of the receiver and having a valve automatically closing when charging the receiver and opening when forcing the air from the receiver under pressure, and a weighted plunger operating in the receiver and provided with an opening controlled by an inwardly-opening valve, substantially as set forth.

3. In an air-compressor, the combination of a receiver, a weighted plunger operating therein, and a brake under the control of the operator for checking and regulating the descent of the weighted plunger, substantially as set forth for the purpose described.

4. In an air-compressor, the combination of a receiver, a weighted plunger operating therein, a brake-lever normally held in engagement with the plunger-rod to check the descent of the plunger, and a treadle under the control of the operator and connected with the brake-lever, whereby the descent of the plunger may be regulated, substantially in the manner set forth.

5. In an air-compressor, the combination of a receiver, a cover having a tubular guide, a plunger having its rod operating through the tubular guide, a brake-lever pivoted to extensions of the tubular guide and operating through an opening in the side thereof, a spring for holding the brake-lever in engagement with the plunger-rod, and means under the control of the operator for moving the brake-lever to control the descent of the plunger, substantially as and for the purpose set forth.

6. In an air-compressor, the combination of a receiver, a weighted plunger operating in the receiver and having a valve-controlled opening, and provided on its top side with lugs, and a weight slipped upon the plunger-rod and supported upon the aforesaid lugs, substantially as and for the purpose set forth.

7. In an air-compressor, the combination of a receiver, a weighted plunger operating therein and adapted to have additional weights slipped upon the plunger-rod, a cover for closing the upper end of the receiver and provided in one side with a series of openings, and a pin or stop adapted to be thrust through any one of the said openings for limiting the upward movement of the plunger, substantially as set forth for the purpose described.

8. In an air-compressor, the combination of a receiver, a plunger operating therein and adapted to receive additional weights which are slipped upon its rod, a cover for closing the receiver and provided in a side with a series of openings, a spring pivotally mounted at one end, and a pin or stop applied to the free end of the pivoted spring and adapted to enter any one of the aforesaid openings, substantially as set forth for the purpose described.

9. In an air-compressor, a receiver having an outer flange at its lower end to receive the feet of the operator, an air-discharge pipe having connection with the lower portion of the receiver, and a weighted plunger operating in the receiver, substantially as and for the purpose set forth.

604,718. RELEASE-RIGGING FOR RAILWAY-CARS. HARRY G. BENNER, Chicago, Ill., assignor to the McConway & Torley Company, Pittsburg, Pa. Filed Dec. 20, 1897. Serial No. 664,231. (No model.)

Claim.—1. In a release-rigging for car-couplers, the combination with an uncoupling lever or shaft provided with a ratchet device, of a lever-handle, an automatically-retracted dog for releasing the lever-handle from the uncoupling-lever, and means for locking the ratchet device of the uncoupling-lever, substantially as and for the purposes specified.

2. In a release-rigging for car-couplers, the combination with an uncoupling-lever having a ratchet device, of a lever-handle having an elongated slot whereby it is journaled on the uncoupling-lever, and provided with a dog which is adapted to engage the ratchet device of the uncoupling-lever, substantially as and for the purposes specified.

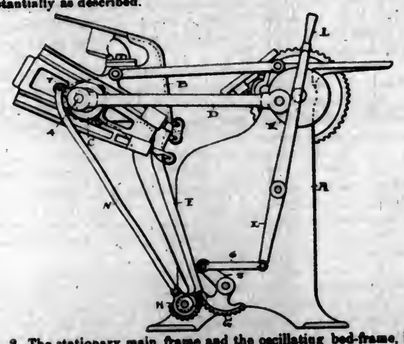
3. In a release-rigging for car-couplers, the combination with an uncoupling-lever provided with a ratchet device, of a drop-handle, provided with a dog to engage the ratchet device of the uncoupling-lever, and a pawl or locking-dog adapted to engage the ratchet device of the uncoupling-lever, said dog being counterweighted to be held normally out of engagement with the ratchet device of the uncoupling-lever, substantially as and for the purposes specified.

4. In a release-rigging for car-couplers, the combination with an uncoupling lever or shaft provided with a ratchet device, of a forked-jaw drop-handle loosely journaled on the uncoupling-lever by means of an elongated slot and provided with a dog adapted to engage the ratchet device of the uncoupling-lever when the drop-handle is raised, substantially as and for the purposes specified.

604,719. IMPRESSION THROW-OFF FOR PLATEN PRINTING-PRESSES. FRANK A. BURNHAM, Cleveland, Ohio, assignor to the Chandler & Price Company, same place. Filed July 22, 1897. Serial No. 645,551. (No model.)

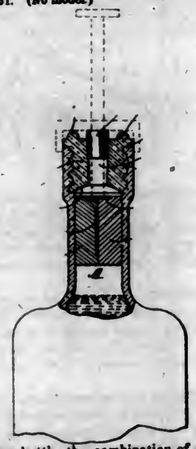
Claim.—1. In platen printing-presses, the bed and the transverse rotatable shaft therein, and the connecting-rod eccentrically connected with the end of said shaft, in combination with throw-off

mechanism consisting of two interlocked members, one of which is pivoted on the bottom of the main frame and the other on the bottom of bed-frame, and constructed to compensate for the movements of the bed-frame on its pivots, whereby the said rotatable shaft is the bed is kept from rotating when the bed-frame moves back and forth, and means for changing the positions of said throw-off mechanism, substantially as described.



3. The stationary main frame and the oscillating bed-frame, in combination with a rotatable transverse shaft in said bed-frame, a connecting-rod eccentrically engaged with said shaft, and throw-off mechanism to rotate said shaft consisting of loosely-connected gears meshing with each other and having their line of engagement across the pivot-center of the bed-frame, whereby when the bed-frame is moved back and forth on its pivots the said rotatable shaft is prevented from turning, substantially as described.

604,720. BOTTLE. ALLAN R. CAMPBELL, Birmingham, Ala., assignor to Archibald Campbell, Huntsville, Ala. Filed July 1, 1897. Serial No. 643,061. (No model.)



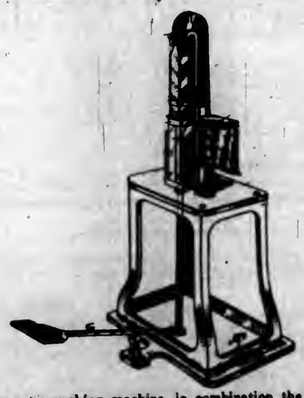
Claim.—1. In a bottle, the combination of a threaded stopper having a concave lower end permanently secured within the outer end of the neck thereof and a removable sectional cork placed within the lower portion of the neck thereof, the sections united by a disk, the said stopper having an aperture leading therethrough for discharge of fluid from the bottle, substantially as shown and described.

2. In a bottle, the combination of a cork comprising two sections united by a disk in the lower portion of the neck thereof and a concealed coupon between said sections, and a threaded stopper having an aperture leading therethrough and a concave lower end, said stopper permanently secured in the outer end of the bottle-neck, substantially as shown and described.

604,721. TEA-PACKING MACHINE. ALEXANDER H. CANNING, Toronto, Canada. Filed Oct. 12, 1897. Serial No. 654,977. (No model.)

Claim.—1. In combination, the frame, the plunger, a holder having an open side and top and the means independent thereof for closing said top and side, substantially as described.

2. In combination, the frame, the stationary plunger, the vertically-movable holder having an open side and top with means for operating said holder, and means carried by the frame independent of the holder for closing said open side and top, substantially as described.



3. In a tea-packing machine, in combination the frame, the standard, the plunger depending from the top thereof a short distance from the main body of the standard, the holder, means for operating same, and a gage comprising two sides and a top and a block depending from the top, hinged to the standard and designed to be swung so that the block enters the open top of the holder and the side closes the open side when the holder is raised as and for the purpose specified.

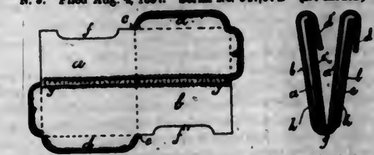
4. In combination, the frame, the stationary plunger, the vertically-movable holder, means for operating the same, said holder having an open top and side, said holder being adapted to receive a package, and the gage supported independently of said holder and adapted to close said open top and side and having a projection adapted to enter the mouth of the holder, substantially as described.

604,722. RETURN-ENVELOP. JESSE M. CARTER, Bowie, Tex. Filed July 28, 1897. Serial No. 646,220. (No model.)



Claim.—The envelop 1, provided with the flap 2, the auxiliary back 5, detachably secured thereto and provided with the vertical slit 6, in combination with the stamp 7, formed with a vertical row of perforations 10, and adapted to be inserted part way through said slit, and simultaneously secured to the envelop 1 and the auxiliary back 5, substantially as shown and described.

604,723. DOUBLE ENVELOP. WALTER S. CARVER, Bloomfield, N. J. Filed Aug. 4, 1897. Serial No. 647,074. (No model.)



Claim.—1. A double envelop composed of a blank formed of a single piece of material and comprising a substantially rectangular portion *a*, *b*, provided with diagonally opposite end flaps *c* and *d*, and folded upon itself, substantially as described.

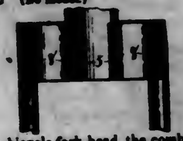
2. A double envelop composed of a blank formed of a single piece of material and comprising a substantially rectangular portion *a*, *b* having a central longitudinal row of perforations, and the diagonally opposite end flaps *c* and *d* and properly folded upon itself, substantially as described.

3. A double envelop composed of a blank formed of a single piece of material and comprising a substantially rectangular portion *a*, *b*, provided with the diagonally opposite end flaps *c* and *d*, and properly folded upon itself, in combination with spreading strips or guards *h*, secured between the inner faces of the envelops, substantially as described.

4. A double envelop composed of a blank formed of a single piece of material and comprising a substantially rectangular portion *a*, *b*, having the diagonally opposite end flaps *c*, *d*, the similarly-disposed notches *f* and *f'*, and flaps *d* and *d'*, folded upon each other, substantially as described.

5. A plurality of double envelops, each composed of a blank formed of a single piece of material and comprising a substantially rectangular portion *a*, *b*, having the diagonally opposite end flaps *c*, *d*, and each blank properly folded upon itself, to constitute two united envelops; said envelops being bound at their meeting edges between suitable covers, substantially as described.

604,724. BICYCLE FORK-HEAD. FRANK B. CASE, Syracuse, N. Y., assignor to R. C. Stearns & Co., same place. Filed Jan. 9, 1897. Serial No. 618,626. (No model.)

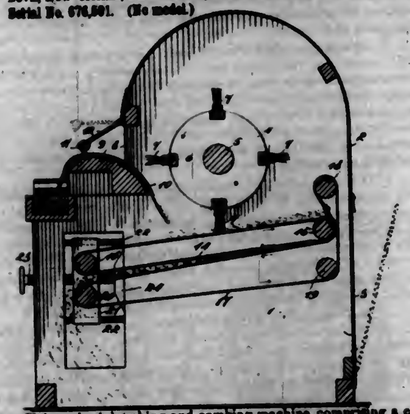


Claim.—1. In a bicycle fork-head, the combination of the steering-post slotted at its lower end, fork sides slotted at their upper ends and tubes fitted to said slots to connect the fork sides to the post, substantially as described and shown.

2. In a bicycle fork-head, the combination of the steering-post provided with double slots on both sides of its lower end, fork sides provided with double slots on the inner sides of their upper ends, tubes fitted to said slots, connecting the fork sides to the post, braces fitted to the interior of said tubes, and a crown-piece having a central perforation for receiving the post and formed to cover over the open ends of the fork sides and tubes, substantially as described and shown.

3. In a bicycle fork-head, the combination of the steering-post provided with double slots on both sides of its lower end, fork sides provided with double slots on the inner sides of their upper ends, tubes fitted to said slots for connecting the fork sides to the head, a crown-piece having a central perforation for receiving the post and formed to cover the open ends of the tubes and fork sides, and braces fitted to the interior of the tubes formed of a single piece of metal bent to bear with one edge against the post, and with two edges against the fork sides at the point of connection with said tubes, substantially as described and shown.

604,725. BRUSHING OR COMBING MACHINE. EDGAR CAMARDOVA, New Orleans, La. Filed Apr. 20, 1897. Renewed Apr. 5, 1898. Serial No. 676,591. (No model.)



Claim.—1. A brushing and combing machine, comprising a casing, a rotary brush, means located at an opening in the casing for holding the goods to be brushed and carrying devices below the brush for receiving and carrying the material brushed from the goods, substantially as described.

2. A brushing or combing machine, comprising a casing, a rotary brush-carrier in said casing, a series of brushes on said carrier, a transversely-curved bed-plate located in an opening in the front of the casing, a holder-bar above the bed-plate, pivoted arms to which said holder-bar is attached, and endless belt movable below the brush-carrier, and means for imparting motion to the brush-carrier and to the endless belt, substantially as specified.

3. A brushing or combing machine, comprising a casing, a brush-carrier mounted to rotate therein, a series of brushes mounted on the carrier, two endless belts arranged below the brush-carrier, one of said belts being below the other, the lower belt being extended over one of the rollers of the upper belt, and means for imparting motion to the brush-carrier and to the endless belts, substantially as specified.

4. A brushing or combing machine, comprising a casing, a brush-carrier mounted to rotate therein, a series of brushes on said brush-carrier, a transversely-curved bed-plate extended along an opening in the front of the casing, a swinging holder-bar above said bed-plate, a tray forward of the bed-plate, endless belts movable in opposite directions below the brush-carrier, means for rotating the brush-carrier, and moving the endless belts, and means for changing the direction of movement of said parts, substantially as specified.

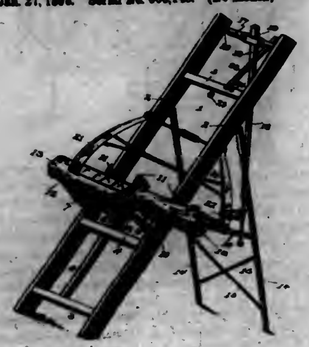
5. A brushing or combing machine, comprising a casing, a brush-carrier mounted to rotate therein, brushes on said carrier, fast and loose pulleys on the extended journal of the shaft of said carrier, a main driving-pulley, bands extended from the driving-pulley and adapted for connection with the fast and loose pulleys, another pulley on said extended journal, endless belts mounted on rollers having journal-bearings in the casing, fast and loose pulleys on an extended journal of one of said rollers, bands extended from the last-named pulley on the journal of the brush-carrier shaft and adapted for engagement with the fast and loose pulleys on the journal of the roller, a shifter-carriage movable on an arm extended outward from the casing, a fulcrumed lever for moving said carriage, and fingers extended from the carriage for engagement with the several bands, whereby they may be shifted to change the direction of rotation of the brush-carriage and endless belts, substantially as specified.

604,726. VEHICLE-WHEEL. LEE R. CHAMBLISS, Langston, Okla., assignor of one-half to Clement B. Black, same place. Filed Dec. 18, 1897. Serial No. 662,286. (No model.)



Claim.—In combination with the felly, the socket 18, provided with the plate 19 and flanges 20; the bolt 16, having right-hand threads 17; the slotted wrench enlargement 15, integral with said bolt; the left-hand-threaded nut 14, integral with said enlargement; thimble 12, secured on the outer end of the spoke 11, and having a threaded bolt extension working in the nut 14, and the spring lock-bar 14½ catching in the slot of the wrench enlargement 15, substantially as shown and described and for the purposes set forth.

604,727. SAWING-MACHINE. FRANK CHIRGAR, Tower, Minn. Filed Jan. 27, 1898. Serial No. 668,140. (No model.)



Claim.—In a sawing-machine, the combination with the frame, 1, the brace, 5, and the buffer-spring, 24, fixed thereto, of the right angular serrated plates forming a log-support, of the spring-actuated shaft, 17, the handle, 18, fixed to said shaft, the saw, 21, connected to said handle, and the buffer-arm, 23, depending from said shaft and having its lower end alined with said buffer-spring, 24, substantially as shown and described.

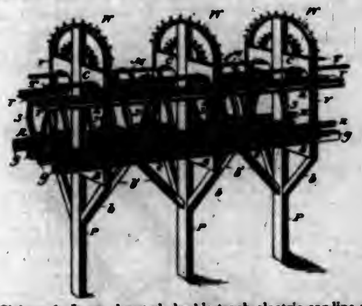
604,728. PROCESS OF PRODUCING SPIEGEL OR SIMILAR METALLIC ALLOY. EDWARD A. S. CLARKE, Chicago, Ill. Filed Nov. 23, 1894. Serial No. 530,332. (No specimens.)

Claim.—1. The hereinbefore-described improvement in the process of producing steel in a Bessemer converter or open-hearth furnace, that consists in charging the converter or open hearth with molten iron and thereafter delivering to said converter or open hearth, after the refining operation, a proper quantity of a molten metallic alloy (such as spiegel) while still in the molten condition in which it is received from the smelting-furnace (*i. e.*, without remelting) suitable additions in proper quantity being made to said molten metallic alloy, before its delivery to the converter, in order to impart to said alloy a character that shall adapt it for use as an addition, after said refining operation to the charge of the converter or open-hearth furnace.

2. The hereinbefore-described improvement in the process of producing steel in a Bessemer converter or open-hearth furnace, that consists in smelting a manganiferous ore adapted to produce a metallic alloy for an addition to the charge of said converter or open-hearth furnace, then delivering said alloy in molten condition from the smelting-furnace into a suitable mixing-chamber and therein adding to the charge of the mixing-chamber a further quantity of molten metal containing one or more agents (such as manganese, silicon, carbon, or the like) in proper quantity to give to the mass of metal within the mixing-chamber the desired grade or character, and thereafter adding a quantity of said molten metallic alloy from said mixing-chamber to the mass of metal within the Bessemer converter or open-hearth furnace at the end of the refining operation.

3. The hereinbefore-described improvement in the process of producing steel in the Bessemer converter or open-hearth furnace, that consists in charging a smelting-furnace with ore sufficiently high in manganese to give to the smelted metal a percentage of manganese in excess of that required to be delivered to the converter or open hearth as a recarburizing addition at the end of the refining operation, then tapping the smelted metal from the furnace and delivering it into a suitable mixing-chamber and therein adding to it molten iron of proper silicon content and in proper quantity to bring the manganese and silicon contents of the mass of metal within the mixing-chamber to the desired percentages, and finally adding a quantity of said molten metal from said mixing-chamber to the mass of metal within the Bessemer converter or open-hearth furnace at the end of the refining operation.

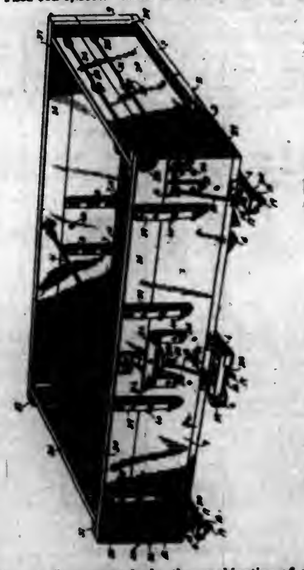
604,729. ELEVATED ELECTRIC CAR-LINE. JOE H. COOLEY, Paris, Tex. Filed Aug. 13, 1897. Serial No. 648,169. (No model.)



Claim.—1. In an elevated double-track electric-car-line system the combination of a single line of posts P, P, P, with cross-beams B, B, B, attached, braces *b*, *b*, *b*, supporting-girders *g*, *g*, *g*, and cross-beams, B, B, B, in like manner, cross-ties *t*, *t*, supporting a single rail R, for car-wheel groove, a system of vertical and longitudinal framework supporting two upper rails *r*, *r*, for each track, upper cross-beams C, C, C, attached to posts P, P, P, supporting electric-wire supports substantially as and for the purposes herein shown and described.

2. In an elevated double-track electric-car-line system the combination of a single line of posts P, P, P, with upper and lower beams B, B, and C, C, attached, braces *b*, *b*, *b'*, *b'*, and vertical supports *v*, *v*, the latter provided with inwardly-projecting bearings *h*, *h*, *h*; curved supports S, S, S, attached at lower ends to girders *g*, *g*, and upper ends shouldered to *r*, *r*, supporting same; semicircular iron braces M, M, to prevent rails *r*, *r* from spreading, substantially as and for the purposes herein shown and described.

604,730. FOLDING WAGON-BODY. GEORGE M. COBB, Charlotte, N. C. Filed Oct. 9, 1897. Serial No. 654,695. (No model.)



Claim.—1. In a wagon-body, the combination of a folding bottom, sides detachably mounted on the bottom, the substantially horizontal link-rods mounted on the outer faces of the sides of the wagon-body, the inclined braces provided at their upper ends with hooks detachably engaging the horizontal link-rods, said braces being adjustably connected at their lower ends with the bottom of the wagon-body, the transverse rods provided at their inner ends with interlocking hooks and extending across the wagon-body, and means for adjustably and hingedly connecting the outer ends of the transverse rods with the sides of the wagon-body, said means serving to hold the hooks in engagement with each other and adapted to loosen the transverse rods to enable the hooks to be disengaged without disconnecting the transverse rods from the sides of the wagon-body, substantially as described.

2. In a wagon-body, the combination of a bottom, sides detachably mounted on the bottom ends, the substantially horizontal link-rods hinged at their ends to the sides of the wagon-body near the upper edges thereof, and provided with central eyes, and inclined braces provided at their upper ends with hooks detachably engaging the central eyes of the link-rods, said braces being adjustably connected at their lower ends with the bottom of the wagon-body, substantially as described.

3. In a wagon-body, the combination of a bottom, a detachable side, cleats secured to the bottom and extending therefrom, a connecting-piece secured to the cleats, an adjustable eyebolt mounted on the connecting-piece, a substantially horizontal link-rod hinged at its ends to the sides of the wagon-body at the upper edge thereof and provided with a central eye and a brace having a hook at its lower end to engage the eyebolt, and provided at its upper end with an eye linked into that of the link-rod, substantially as described.

4. In a wagon-body, the combination of a bottom, middle cleats secured to the bottom and extending therefrom, a connecting-piece mounted on the cleats, the wagon-body side provided on its inner face with metal strips or bars having depending lower portions interlocked with the bottom of the body, a reinforcing plate or frame secured to the outer face of the side and arranged opposite the metal bars or strips, eyebolts passing through the side portions of the plate or frame, the side of the wagon-body and the metal strips or bars, the curved link-bar having a central eye and provided at its ends with eyes linked into the eyebolts, an inclined brace provided at its lower end with a hook and having an eye at its upper end linked into the central eye of the link-bar, and an adjusting-bolt mounted on the said connecting-piece and having an eye to receive the said hook, substantially as described.

604,731. DUPLEX PENCIL-SHARPENER. ISAAC CORY, New Decatur, Ala. Filed July 28, 1897. Serial No. 646,246. (Model.)



Claim.—1. A pencil-sharpener comprising the cylindrical socket or sleeve 4, and the conical hood 12, provided with the straight cutting edge 15 and the spiral cutting edge 14, substantially as shown and described.

2. A duplex pencil sharpener comprising the cylindrical socket or sleeve 4, formed with the spiral slot 8, having the spirally-arranged cutting edges 9 and 10, and the fixed conical hood 12 provided with the straight cutting edge 15 arranged parallel with the axis of said cylindrical socket, and the spiral cutting edge 14 extending around the axis of said hood, substantially as shown and described.

604,732. VALVE. CHARLES R. DALLAS, Pittsburg, Pa. Filed Mar. 6, 1897. Serial No. 626,212. (No model.)



Claim.—1. A valve composed of two hollow nested chambers, of substantially similar form, the inner member being provided with discharge-openings in the wall, a pipe connected to the truncated end of one member and a valve-stem or connecting-rod to the other, one of said members being adjustable on a line parallel to the axis of both members, substantially as shown and described.

2. A valve consisting of two similar hollow members, one nested within the other, the inner member being provided with discharge-openings in the wall, and one of said members being adjustable to form an intermediate discharge and having a form similar to that of the parts composing the valve, and a space between the top of the inner member and the outer member said space being filled with air, gas or liquid, forming a cushion to give a steady action to the valve, substantially as shown and described.

3. A valve consisting of two hollow, nested, approximately conical members, one nested in the other, a pipe opening into the truncated end of the inner member which has openings into the space between the two members, and a valve-stem upon the large end of the other member, substantially as described.

4. A valve consisting of a fixed and movable part one of which constitutes the valve-chamber, one of said parts being movable, the inner member being provided with openings, a supply-pipe connected to the contracted end of the inner part and a valve-stem or connecting-rod connected to the outer part, one of said members being adjustable on a line parallel to the axis of both members, substantially as described.

5. A valve consisting of two approximately conical hollow members, one of which is nested within the other, the inner member being provided with an imperforate head, the outer member having a chamber at one end within which the imperforate head operates, said chamber being filled with air, gas, steam or fluid and forming a cushion which rates the action of the movable member, substantially as shown and described.

604,733. KINETOGRAPHIC CAMERA. WILLIAM H. DANIELS, New York, N. Y., assignor to Leo Prange, Brooklyn, N. Y. Filed Jan. 11, 1897. Serial No. 618,709. (No model.)



Claim.—1. The combination with a case provided with openings which are in line with each other, a movable picture-carrying surface within the case arranged intermediate and in line with the openings, and automatic means for imparting an intermittent movement to the surface, substantially as described.

2. The combination with a case provided in its opposite sides with openings which are in line with each other, a lens fitted in one of said openings, a movable picture-carrying surface within the case arranged in line with the openings, and means for imparting an automatic intermittent movement to the surface, substantially as described.

3. The combination with a case provided in its opposite sides with openings which are in line with each other, oscillating shutters operating intermittently, a picture-carrying disk within the case in line with the openings thereof, and automatic means for imparting an intermittent, rotary motion to the disk alternately with the shutters, substantially as specified.

4. The combination with a case provided in its opposite sides with openings which are in line with each other, a lens-tube fitted in one of said openings, an automatic, intermittently-moving surface within the case arranged in line with the openings, an oscillating shutter intermediate the lens-tube and movable surface, and means for intermittently actuating the shutter alternately with the intermittent motion of the surface, substantially as specified.

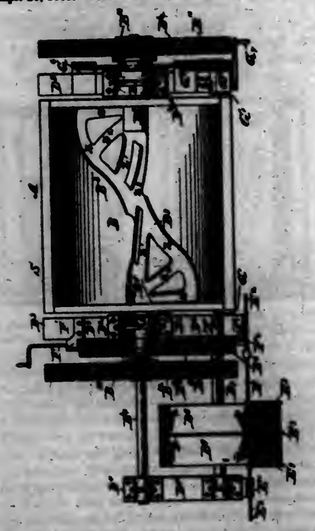
5. The combination with a case having an opening, of a movable surface within the case in line with the opening, an oscillating shutter intermediate the opening and movable surface, said shutter comprising two parts having a relative movement to each other, and means for simultaneously moving the two parts of the shutter in opposite directions, substantially as described.

6. The combination with a case having an opening, of a movable surface within the case in line with the opening, an oscillating shutter intermediate the opening and movable surface adapted to open when moved in one direction, and to remain closed when in the opposite direction, and automatic mechanism for operating the shutter and for moving the movable surface, substantially as described.

7. The combination with a case, of an oscillating shutter, a crank for operating said oscillating shutter, an intermittently-operated wheel driving motion from said crank, and a disk carried by said wheel, substantially as specified.

8. The combination with a case, of a shutter composed of two parts D', D^2 having arms d', d^2, and one of said arms having lugs d^3, d^4, substantially as specified.

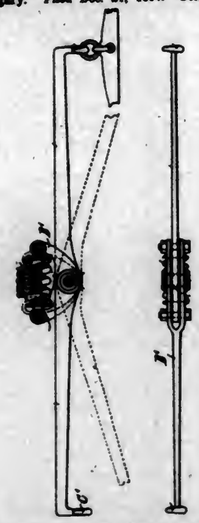
604,734. MIXING-MACHINE. JOHN H. DAY, Cincinnati, Ohio. Filed Apr. 29, 1893. Serial No. 472,361. (Model.)



Claim.—The combination of a hopper, an agitator therein, a power-pulley for operating the agitator and means intermediate between the agitator and power-pulley for enabling the latter to operate said agitator, the idler-pulley E^3 and sliding belt-shifting rod E, E^2, E^3, at the rear of the machine, and a movable rod F extending from the front to the rear of the machine, and there combined with means whereby a movement of rod F shall communicate a move-

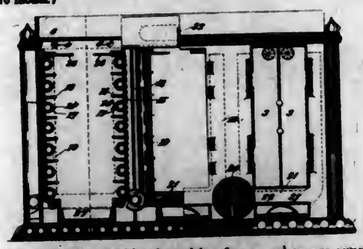
ment to the belt-shifting rod and cause the latter to shift the belt, substantially as and for the purposes specified.

604,735. DRAFT-GEAR. ALEXANDER DIAMANTIDI, Freiland, Austria-Hungary. Filed Dec. 21, 1897. Serial No. 663,852. (No model.)



Claim.—A draft-gear comprising a vertical bolt secured to the carriage-frame, a pair of horizontal bell-crank levers fulcrumed on such bolt and crossing each other like the halves of a pair of scissors and having their inner short arms bent rearwardly, a spring arranged between the ends of the inner short arms of such levers and adapted to be compressed on turning forward the outer ends of the long arms of such levers and means for connecting the outer ends of the long arms of such levers with the harness of the animal or team.

604,736. HEATING-URN FOR BUFFET-CARS. ROBERT M. DIXON, East Orange, N. J. Filed July 8, 1897. Serial No. 643,965. (No model.)

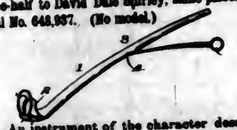


Claim.—1. The combination with a frame and an urn supported above the same, of vertical partitions dividing the interior of the frame into a series of separate compartments, burners within the several compartments, respectively, a flue communicating with an intermediate compartment, and a deflector between the intermediate compartment and the flue, with which the flue would otherwise directly communicate, substantially as and for the purpose specified.

2. The combination with a frame and an urn supported above the same, of vertical partitions dividing the interior of the frame into a series of compartments, burners within the several compartments, respectively, a flue in the frame, a deflecting-plate between the flue and an intermediate compartment with which the flue would otherwise directly communicate, and a flange upon the front of the deflecting-plate, substantially as set forth.

3. The combination with a frame and its flue, of a vertical burner arranged within the frame, said burner consisting of a vertical supply-pipe, a series of perforated horizontal pipes secured thereto, and a series of horizontally-disposed flanges or shelves arranged above each of the perforated pipes, substantially as and for the purpose specified.

604,737. CAPONIZER. ANDREW M. DUNCAN, Allerton, Iowa, assignor of one-half to David Dale Shirley, same place. Filed Aug. 20, 1897. Serial No. 648,937. (No model.)

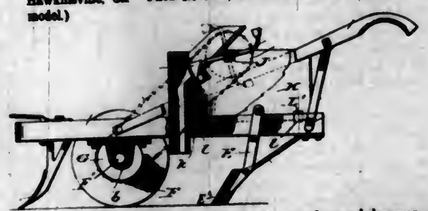


Claim.—1. An instrument of the character described, comprising a handle and a bowl or spoon shaped end having a slot therein for the reception of the cord of the testicle, a wire loop adapted to be contracted in close proximity to the bowl or spoon shaped end to effect the operation, and means for contracting said wire, substantially as and for the purpose set forth.

2. An instrument of the character set forth, comprising a handle and a concavo-convex end, having a slit therein for the purpose specified, a wire passing through suitable guides upon the convex side of said end and adapted to form a loop which is contracted to perform the operation, and means for contracting said loop, substantially as and for the purpose set forth.

3. An instrument of the character described, comprising a suitable handle having a perforation in its under side and a concavo-convex slit end, a lug or projection on the convex side of said end and at the bottom of the slit, said projection being provided with oppositely-disposed perforations, and wire strands passing through said perforations and forming a loop above the same, said wire also extending through the perforation in the handle and being provided with a ring or its equivalent adapted to be engaged by the hand to contract the loop and perform the operation, substantially as and for the purpose set forth.

604,738. CORN OR SEED DROPPER. GEORGE R. DYER, Hawkinsville, Ga. Filed Nov. 29, 1897. Serial No. 660,127. (No model.)



Claim.—1. In combination with the frame of a seed-dropper, a driving-wheel journaled in the front part thereof, a seedbox carried by the said frame, a seed-tube connected to said box and arranged to drop the seed behind the said wheel, a spout or chute within the said box discharging into the upper end of the said tube and provided with a slot extending downward from the top and ending in an opening, a shaft journaled in said feed-box, a cup-rod and cup carried by the said shaft and adapted to pass through the said slot and opening, gearing which connects the said shaft with the rotary shaft of the driving-wheel and a cut off which prevents the seed from falling through the said opening from the cup substantially as set forth.

2. In combination with the seedbox of a seed-dropping machine, a rotary shaft mounted in the said box, a cup or cups carried thereby and arranged to dip up the seed and discharge the same, a spout and seed-tube through which the seed from the said cup is dropped by the machine the said spout being slotted and having an opening for the passage of the said cup, and a slotted cut off tube arranged in the said opening to extend above the same, this tube being adapted to allow the passage of the cup through it as the latter is carried around by the shaft substantially as set forth.

3. In combination with the seedbox of a seed-dropping machine having a seed-tube connected thereto, a rotary shaft and a cup-rod and cup carried thereby, the said cup being arranged to dip up seed from the interior of the said box and discharge it into the said tube, and being removable at will from the said rod for the purpose of allowing the substitution of a cup of different size substantially as set forth.

4. In combination with the seedbox of a seed-dropping machine having a seed-tube connected thereto a rotary shaft and cup-rods and cups carried thereby, the cups being arranged and adapted to successively dip up the seed and discharge it into the seed-tube and the said rods being detachable from the said shaft, which is provided at regular intervals with means for permitting the attachment of a greater or less number at will substantially as set forth.

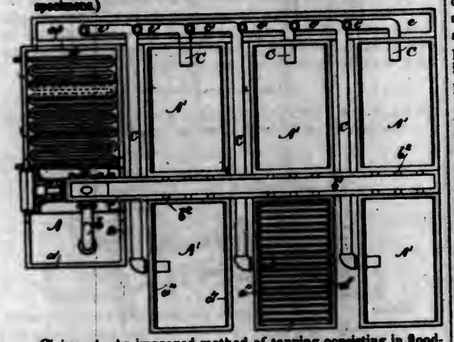
5. In a seed-dropping machine, a cup-rod which is screw-threaded on its ends, in combination with a shaft and seed-cup which are screw-tapped to receive the said ends, a seedbox in which the said shaft rotates to cause the said cup to dip up and discharge the seed, and

means for allowing the seed thus discharged to pass from the machine substantially as set forth.

6. In combination with a seedbox and a spout leading to the outlet, a rotary shaft screw-tapped at regular radial intervals, a series of rods adapted to screw into the said shaft in greater or less number and a series of screw-tapped cups adapted to turn on the threaded outer ends of the said rods, in order that larger or smaller cups may be substituted, the said cups and rods being carried through a slot and opening in the said spout as the said shaft rotates, for the purpose set forth.

7. In combination with the frame of a seed-dropper, a pair of bars or plates detachably secured thereto and depressed between the side bars of the said frame, a seedbox fastened rigidly but detachably to the said bars and resting in the depressed part thereof, a shaft journaled in the said seedbox and provided with cups which dip up the seed therefrom, a spout or chute and seed-tube whereby the seed is received from the said cups and dropped and a driving-wheel and gearing whereby the said shaft is rotated substantially as set forth.

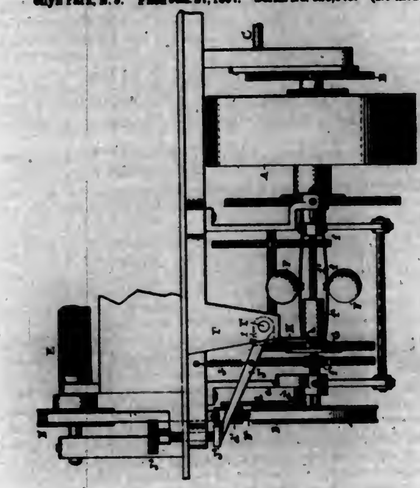
604,739. METHOD OF TANNING. DOUGLAS M. RAYTON, Weymouth, Mass., assignor to Marshall C. Diser, Silas C. Diser, and Walter M. Diser, same place. Filed Nov. 30, 1897. Serial No. 660,191. (No specimens.)



Claim.—1. An improved method of tanning consisting in flooding the hides in a stationary vat with a continuously-flowing tanning liquor kept at a substantially uniform temperature and strength, substantially as described.

2. An improved method of tanning consisting of flooding the hides in a stationary vat with a continuously-flowing tanning liquor exposed to the action of the atmosphere and kept at a substantially uniform temperature and strength.

604,740. GOVERNOR FOR MOTORS. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Jan. 27, 1897. Serial No. 620,976. (No model.)



Claim.—1. A friction speed-governor having in combination a rotatable element having a friction-surface, two friction-pads bearing thereon at opposite points, and a swiveled equalizing device for maintaining the same uniform pressure between both pads and said friction-surface, substantially as set forth.

2. A friction speed-governor having in combination a rotatable element having a friction-surface, friction-pads bearing thereon at diametrically opposite points on the same side of the friction-surface, and a swiveled equalizing device for maintaining the same uniform pressure between all the pads and said friction-surface, substantially as set forth.

3. A friction speed-governor having in combination a rotatable element having a friction-surface, friction-pads bearing thereon at opposite points, and an equalizing device for maintaining a uniform pressure between each pad and said friction-surface, said device being supported so as to be capable of swinging about an axis perpendicular to the axis of the friction-surface, substantially as set forth.

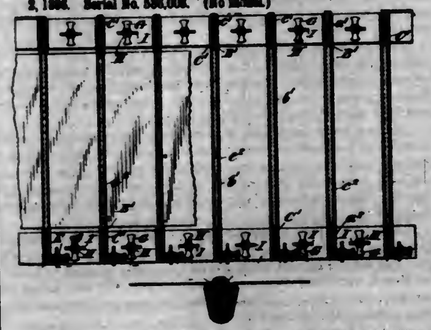
4. In a friction speed-governor, the combination of a friction-disk, and a swiveled yoke carrying friction blocks or pads in contact with said disk at diametrically opposite points on the same side of the disk, whereby a uniform pressure between the disk and pads is produced, substantially as set forth.

5. In a friction speed-governor, the combination of a friction-disk, a yoke carrying friction blocks or pads making contact with said disk at diametrically opposite points on the same side of the disk, a pivoted block in which said yoke is swiveled, whereby a uniform pressure between the disk and pad is produced, and means for moving said block on its pivot to vary the friction between said disk and pads to vary the speed, substantially as set forth.

6. In a friction speed-governor, the combination of a friction-disk, a yoke carrying friction blocks or pads making contact with said disk at diametrically opposite points on the same side of the disk, a pivoted block in which said yoke is swiveled, whereby a uniform pressure between the disk and pads is produced, means for moving said block on its pivot to vary the friction between said disk and pads to vary the speed, and a centrifugal governor for maintaining a uniform speed, substantially as set forth.

7. A friction speed-governor having in combination a rotatable element having a friction-surface, two friction-pads bearing thereon at opposite points, and a swiveled equalizing device connecting said pads for maintaining the same uniform pressure between both pads and said friction-surface, substantially as set forth.

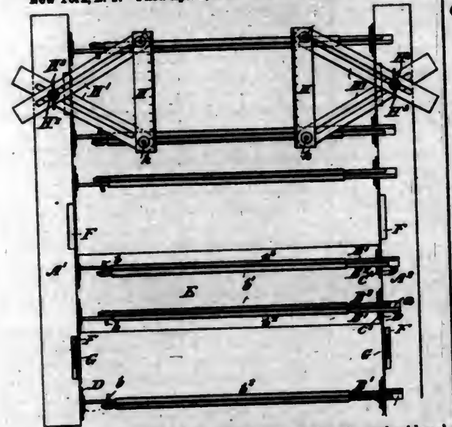
604,741. FABRIC-HOLDING DEVICE FOR EMBROIDERING-MACHINES. THEODOR D. BRAUN, West New York, N. J., assignor, by mesne assignments, to Frederick Braun, New York, N. Y. Filed Apr. 2, 1896. Serial No. 586,008. (No model.)



Claim.—1. In a frame for holding materials to be embroidered, the combination with longitudinal rails, of a number of pairs of trough-like bars, a number of tongue-like bars pivoted to the corresponding end of the trough-like bars, said trough and tongue like bars extending between the rails, screws arranged adjacent to the other ends of the trough-like bars and tongue-like bars, buttons fitted loosely to said screws and capable of being swung over the latter to hold them within the trough-like bars, and nuts applied to the screws, for forcing the buttons in such direction as to cause the tongue-like bars to clamp within the trough-like bars, substantially as specified.

2. In a fabric-holding device for embroidering-machines, the combination with longitudinal rails, of a number of pairs of clamping-bars extending between the rails and clamping devices upon the rails intermediate the clamping-bars, each comprising a screw, a button fitted loosely upon the screw, and a nut likewise upon the screw and freely movable longitudinally thereon and adapted to force the button into contact with the rail, substantially as described.

604,742. EMBROIDERY-FRAME. THEODOR D. BRAUN, West New York, N. J., assignor, by mesne assignments, to Frederick Braun, New York, N. Y. Filed Apr. 2, 1896. Serial No. 585,004. (No model.)



Claim.—1. In a frame for holding materials to be embroidered, the combination with the longitudinal rails, of pairs of clamping-bars, the bars constituting each pair being arranged side by side, and one being pivoted at one end to another and secured at the free end by a fastening device consisting of a notched rotary disk, substantially as specified.

2. In a frame for holding materials to be embroidered, the combination of longitudinal rails, pairs of clamping-bars extending between the said rails, and rotary bearings for the pairs of clamping-bars substantially as specified.

3. In a frame for holding materials to be embroidered, the combination of longitudinal rails, pairs of clamping-bars extending between the said rails, rotary bearings for the pairs of clamping-bars, and detents for holding said bearings against rotary movement, substantially as specified.

4. In a frame for holding materials to be embroidered, the combination of longitudinal rails, pairs of clamping-bars extending between the said rails, rotary bearings for the pairs of clamping-bars, pivots for connecting one bar of each pair at one end to its fellow, and a fastening for connecting the free end of said bar in place, substantially as specified.

5. In a frame for holding fabrics to be embroidered, the combination with longitudinal rails, of several pairs of clamping-bars and transverse receptacles independent of the clamping-bars extending from one longitudinal rail to the other, intermediate and beneath alternate pairs of bars, substantially as described.

6. In a frame for holding materials to be embroidered, the combination of longitudinal rails, two pairs of clamping-bars extending between said rails, pockets intermediate the said two pairs of clamping bars, on that face of one of the rails to which these pairs of clamping-bars extend, and clamping-pieces for said pockets, substantially as specified.

7. In a frame for holding materials to be embroidered, the combination of longitudinal rails, clamping-bars extending between said rails and serving to hold, along parallel lines, the material to be embroidered, additional clamps connected to said rails and means for securing said clamps at different angles with respect to the clamping-bars, substantially as specified.

8. In a frame for holding materials to be embroidered, the combination of longitudinal rails, clamping-bars extending between said rails and serving to hold, along parallel lines, the material to be embroidered, and additional clamps connected to said rails at their ends by longitudinally-slotted rods, and fastening devices whereby longitudinal and lateral adjustment of the clamps is permitted, substantially as specified.

9. In fabric-holding devices for embroidering-machines, the combination with longitudinal rails, of pairs of clamping-bars extending between said rails, rotary bearings for each pair of said clamping-bars, capable of independent rotary movement of the bars in both directions, and means for holding the rotary bearings against movement, substantially as described.

10. In fabric-holding devices for embroidering-machines, the combination with longitudinal rails, of pairs of clamping-bars extending between the rails, and fastening devices carried upon the longitudinal rails each comprising a clamp, slotted bars pivotally connected to the clamp at separated points and securing devices engaging the slots of the slotted bars for holding them against movement, substantially as described.

604,748. FRAME FOR BICYCLES. WILLIAM H. EVANS, Cardiff, England. Filed Oct. 16, 1897. Serial No. 655,268. (No model.)



Claim.—1. In a bicycle-frame, the combination of an upper member divided in two parts, with a connecting-link, the opposite ends of said link being pivoted to the said parts of the upper member, a sleeve movable on said member and over the link-joint aforesaid, a lower member also in two parts pivoted together, a sleeve movable on said lower member and over the pivot-joint aforesaid, and a separable joint connecting the front end of the said lower member with the machine-frame substantially as and for the purpose herein described.

2. A bicycle-frame comprising an upper member made in two parts secured together by a link-joint, a sleeve movable on said upper member and over the link-joint aforesaid, and a lower member the front of which is removably secured to the steering-pillar substantially as and for the purpose herein described.

604,744. ANIMAL-POKE. LEROY W. FERRIS, Phillipsburg, Kans. Filed Sept. 20, 1897. Serial No. 652,486. (No model.)



Claim.—1. In an animal-poke, the combination with the collar and arms formed of a single piece of wire, said arms having forwardly-extending hooked ends, of a sheet-metal strip folded over upon the wire at the junction of the collar and upper arm and secured in position, one end of the strip being bent to form a rearwardly and downwardly extending hook provided with a series of pointed teeth or prods, an adjustable clip to secure the two sides of the collar together at their lower ends, and a spring-protected prod projecting rearwardly from the clip, substantially as described.

2. In an animal-poke, the combination with the collar and the arms formed of a single piece of wire, said arms having forwardly-extending hooked ends, of a block having grooves to receive the spaced wires forming the sides of the collar at their junction with the lower arm, a U-shaped clip embracing the wires and the sides of the block, a pin having a flange intermediate its ends, one portion of the pin on one side of the flange extending through said block and clip and having a threaded end, a nut on said threaded end to adjustably clamp the block and clip to the wires and to each other, and the other portion of the pin being bifurcated to form pointed prods, and springs clamped between the clip and block and having looped portions projecting in front of the pointed ends of the prods, substantially as described.

3. In an animal-poke, a collar or a yoke formed of a single length of wire folded upon itself and having upper and lower arm extensions, a sheet-metal clip carrying spurs and embracing the wire at the junction of the collar and the upper arm extension, a rivet-fastening for rigidly securing said metal clip in place, a clip arranged to slide on the lower arm extension and carrying a spur, and means for securing said sliding clip fast in its adjusted position, substantially as set forth.

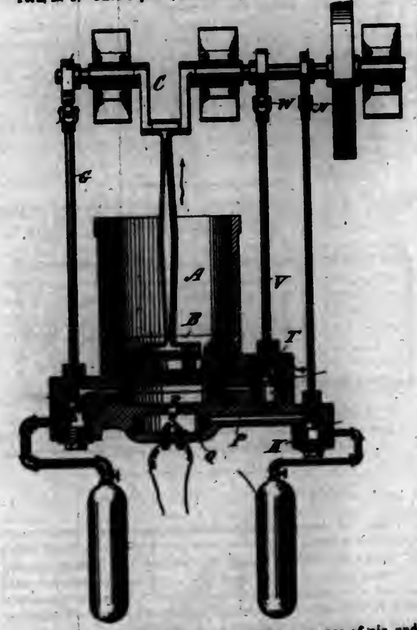
4. In an animal-poke, a collar or yoke having upper and lower arm extensions, a clip carrying a rigid spur and arranged to slide on the lower arm extension, and fastening means for securing the clip fast in its adjusted position, substantially as set forth.

5. In an animal-poke, a collar or yoke formed of a single length of wire and having upper and lower arm extensions, a clip arranged to slide on the lower arm extension and carrying a rigid spur, and a spring-wire guard having one end arranged within the clip and having an offstanding looped portion normally lying beyond the plane of the spur point or points and adapted to yield to permit said point or points to pass through the looped portion, substantially as set forth.

6. An animal-poke having a two-pronged rigid spur, and a spring-wire guard supported in position by the fastening means of the spur and provided with an offstanding yielding member provided with a pair of spaced loops or eyes, normally lying beyond the plane of the spur-points, substantially as set forth.

7. In an animal-poke, a collar having upper and lower arm extensions, a clip fitted to the lower arm extension and adjustable thereon to provide for varying the size of the collar, a rigid two-pronged spur connected with said clip, a spring-wire guard having an offstanding movable member provided with separate loops normally lying beyond the plane of the spur-points, and a single fastening for securing the clip, the spur, and the spring-wire guard in proper relative positions, substantially as set forth.

604,745. COMPRESSED-AIR ENGINE. LOUIS T. GIBBS, New York, N. Y. Filed Sept. 23, 1897. Serial No. 652,672. (No model.)



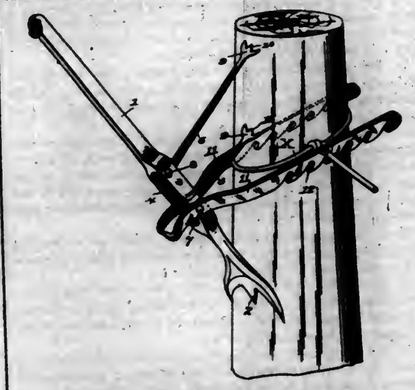
Claim.—1. The combination of a motor, a source of air under working pressure, a source of gas or inflammable vapor under pressure, valves respectively controlling the admission of said air and said gas to said motor and an igniter; the said parts being so organized and timed that first air and then gas are independently admitted to the cylinder and an explosion or ignition then caused to occur subsequent to the cut-off of the working air, substantially as described.

2. The combination of a motor, a source of air under working pressure, a source of gas or inflammable vapor under pressure, a valve controlling the admission of air to the motor, a valve controlling the admission of gas to the motor and an igniter; the parts being so organized and timed that gas will be independently admitted into the cylinder when the air is at a certain pressure therein and subsequently ignited when said air is at a certain lower pressure, substantially as described.

3. The combination of a motor, a source of air under working pressure, a source of gas or inflammable vapor under pressure, a valve controlling the admission of air to the motor, a valve controlling the admission of gas to the motor and an igniter; the parts being so organized and timed that gas will be independently admitted into the cylinder before the point of cut-off of the air and ignited subsequent to said point of cut-off, substantially as described.

604,746. TOOL FOR TIGHTENING WIRE FENCES. LYLE J. SUGARS, Long Grove, Iowa. Filed Mar. 22, 1898. Serial No. 674,755. (No model.)

Claim.—In a fence-tool of the character described, the combination with an operating-lever having a forked end, the edges of which are beveled or sharpened, and a piercing-tang arranged intermediate between the ends of the fork, said lever formed with an enlarged swell intermediate between its ends, and said swell being provided with an elongated aperture, hook-levers pivoted to the sides of said lever, and dogs having their inner ends pivoted in said aperture provided at their outer ends with forks having sharpened or beveled edges and piercing-tangs, one of said dogs being of greater length than the other, substantially as set forth.



604,747. ELECTRIC RAILWAY. JOHN H. GUEST, Boston, Mass., assignor to Laura M. Child, Edgar O. Ashorn, R. Sherman York, and William L. Whitcomb, same place, and Charles H. Moore, Springfield, Vt. Filed Oct. 30, 1896. Serial No. 610,418. (No model.)



Claim.—1. The combination with the trough-shaped contact-rail forming a working conductor, the supplemental contact-rails or conductors within the same, the metal cross pins or bars mounted in the sides of the trough and passing through said rails but insulated from them, and a filling of insulating cement or concrete in which the rails and pins are anchored.

2. In a conduit-railway system, a switch-operating magnet having spool-heads fitting into a protective tube hermetically sealed at its end with a plug or stopper, and permanent or fixed connections for said switch and magnet passing through and hermetically sealed in said plug or stopper.

3. A switch-operating magnet having spool-heads fitted into a containing-tube having a seal at its end through which permanent magnet connections pass and in which they are hermetically sealed.

4. The combination with the metal tube in which the contact-core slides, of the fixed metal plug filling the bore of the tube at the end, and a circuit connection to said plug extending through the end of the tube.

5. The combination with the metal tube and sliding core therein, of the fixed metal plug filling the bore of the tube and having a conducting extension, and a filling of insulating-cement over said plug.

6. In a sectional electric railway, the combination with an armature adapted to close the circuit to a section, of a supplemental contact carried or operated thereby, and having a lost motion as described, whereby said parts may follow one another in opening contact.

7. The combination with the circuit-closing armature, of a spring-actuated contact operated thereby and working through an opening in said armature.

8. The combination with the tubular armature, of the contact-pin working through said armature and normally supported thereby.

9. The combination with the circuit-closing armature and pin supported thereby, of two springs one tending to lift the armature and the other of inferior power tending to depress the pin, as and for the purpose described.

10. The combination with the trough-shaped stringer carrying the magnetic switches and connections, of a surface contact-rail forming a removable cover-plate for the same.

11. The combination with the trough-shaped stringer containing the magnetic switches, of a trough-shaped cover supported on top of said stringer and containing one or more contact-rails or conductors supported in an insulating-cement contained within said cover, and connections therefrom passing through the bottom of the trough.

12. The combination with the trough-shaped stringer containing

the magnetic switches, of a trough-shaped contact-rail supported on the top thereof and forming a cover therefor, and supplemental contact rails or conductors supported in said cover in a mass of insulating-cement, and connections therefrom passing through the bottom of said cover.

13. The combination with a reciprocating core, of contacts each adapted to touch the same, and actuating-coils wound as described to produce the same polarity in said core, and operating alternately on said core to move it in opposite directions.

14. The combination with the reciprocating core moving in a metal tube, of the magnet-coils on said tube, and a pair of armatures supported on the tube and adapted to close connection with the core at opposite ends thereof.

15. In a conduit-railway system, a trough-shaped stringer containing one or more lines of conductor and magnetic switches, a cover or seal for the same formed as a trough and resting on top of said stringer and a surface contact-rail or conductor supported in said trough in a mass of insulating-cement and having connections passing through said cover into the stringer.

16. A rubbing-contact shoe vertically guided on a swinging hanger, swinging in a vertical plane and provided with a pressure-spring, as and for the purpose described.

17. The combination with the main trolley, of the hanger swiveled on the axle thereof, a vertically-guided spring-actuated shoe carried by said hanger, and suitable abutments or stops between which said hanger may have a limited swing.

18. The combination, substantially as described, with the pair of contact-trolleys moving over a suitable line of rails, of a supplemental contact-shoe supported by and vertically movable independently of said trolley and adapted to engage with a line of supplemental rails between the main rails.

19. The combination, substantially as described, of a trough-shaped main conductor and trolley moving thereon, one or more supplemental contact-rails anchored in the trough, and a contact for the latter supported by the main trolley and adapted to move up and down independently thereof.

20. The combination with the main trolley-wheels, bearing respectively on two parallel lines of insulated conductor, of the hanger supported on an insulating-sleeve between said wheels, and a contact shoe or trolley carried by said hanger.

21. The combination, substantially as described, of the arm swiveled on the car-axle and jointed so as to be capable of turning horizontally, a pair of contact-trolleys mounted on the end of said arm and adapted to move over suitable conducting-rails, and two sets of intermediate contact-rails upon which bear a pair of contact-shoes insulated from one another and supported by the said trolley-wheel.

22. The combination, substantially as described, of a main conductor formed as a trough and having a pair of supplemental conductors mounted within it and arranged in sections, a pair of trolley-wheels moving on the edges of said trough, and two independent supplemental contact-shoes insulated from one another and mounted between said trolley-wheels, said supplemental shoes bearing respectively on the sectional supplemental conductors.

23. In an electric railway, a series of insulated sections and normally open magnetic switches therefor through which the car takes power-current, a supplemental series of insulated contacts normally insulated from one another and from the first-named series, and a supplemental generator for operating said switches, said generator being connected with the car over a trolley or moving contact moving upon said supplemental series.

24. In an electric railway, the combination substantially as described, of a series of sectional conductors insulated from one another, means for supplying power to the car over the same, a second series of conductors disconnected from one another, a series of switch-operating magnets, switches actuated thereby but normally open, a supplemental generator, and means for supplying current from the same over the car and a second series of sectional conductors to said magnets.

25. In an electric railway, a power-circuit for the car formed over a single series of sectional conductors insulated from ground, a traveling contact, a series of normally open switches operated in succession, and a suitable electric return, and a supplemental switch-magnet circuit supplied from a separate stationary generator and formed over a traveling contact, a second series of insulated conductors, and a third traveling contact carried by the car.

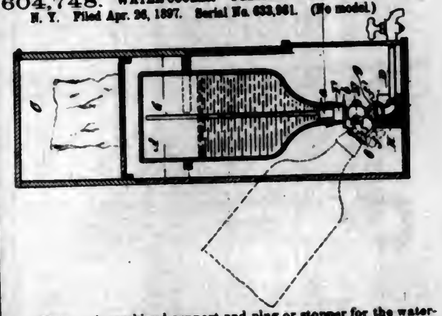
26. The combination, substantially as described, of a trough-shaped conductor forming a portion of the power-circuit, and two sets of insulated conducting rails or contacts anchored in said trough and arranged in sections, one of said sets being connected with suitable switches and forming a part of the power-circuit and the other set being connected with the coils of suitable switch-operating magnets, as and for the purpose described.

27. In an electric-railway system, the combination with the switch-magnet for each section, of a plurality of switch-contacts simultaneously operated thereby and having multiple connections for the power-current.

28. In an electric-railway system, the combination substantially as described, of a series of normally-dead power-supply surface contacts or conductors and a metallic return forming the metallic power-circuit, normally open switches for closing the connections to the sections of power-supply conductors as the car progresses, a sectional switch-operating-magnet circuit independent of the power-circuit and insulated therefrom, and a separate generator for actuating the magnet-switches individually connected to the latter sections of conductor, said switch-operating-magnet circuit being also a metallic circuit and formed over two sets of conductors positive and negative respectively, one set being divided into sections and insulated from the contacts or conductors over which the power-current is supplied to the car, as and for the purpose described.

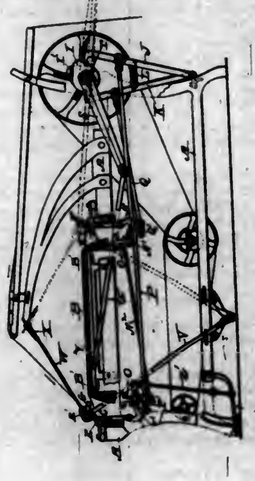
29. In an electric-railway system, a main supply-conductor, a series of branch circuits connected therewith, said branch circuits being normally open, an auxiliary circuit, a series of branch circuits connected therewith, said auxiliary branch circuits being also normally open, but adapted to be closed by the passage of the car, means arranged solely in said auxiliary branch circuits and actuated by the opening and closing of said auxiliary circuit for opening and closing said main circuits, and means for completing the main branch circuits through the translating devices on the car.

604,748. WATER-COOLER. FREDERICK GUTTENBERG, Brooklyn, N. Y. Filed Apr. 26, 1897. Serial No. 633,961. (No model.)



Claim.—A combined support and plug or stopper for the water-receptacle, consisting of a hollow section provided at one end with a vent-tube, a surrounding flange, an auxiliary vent-passage opening below said flange, a central cock, and a spherical or rounded head provided with packing, in combination with a hollow complemental socket for said spherical or rounded head and a draw-off pipe connected to said socket, substantially as described.

604,749. CLOTH-FOLDING MACHINE. EDWARD HALL, Worcester, Mass. Filed Apr. 19, 1897. Serial No. 632,721. (No model.)



Claim.—In a cloth folding and measuring machine, the combination of table B and frame A, stationary jaws E F mounted transversely thereon in front and back of table B and the movable jaws G H having means for operating them vertically toward and from said stationary jaws E F, said table being shorter than the distance between the jaws to leave sufficient space between the ends of said table and the jaws to permit the folded ends of the cloth to drop down below the level of the table and hang loose between said table and jaws after each fold is laid in the folding and measuring operation, substantially as and for the purpose set forth.

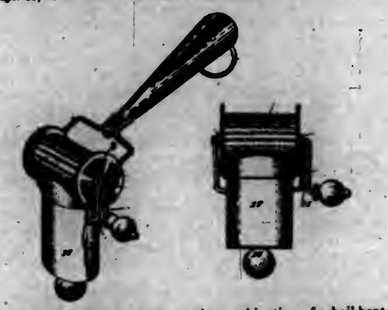
604,750. TIRE. OMOREN B. HALL, Malden, Mass. Filed Mar. 14, 1898. Serial No. 673,706. (No model.)



Claim.—1. A tire comprising a channel-piece directly connected with the rim, a tread portion of resilient material supported in said channel-piece, a metallic fastening-strip or inner steel tire extending longitudinally through the said tread portion and provided at its ends with rigid shoulders to cooperate with engaging portions of the channel-piece to hold the said strip longitudinally, rigid horizontal shoulders at the end of said strip and a clamping device cooperating with said shoulders to hold the strip in engagement with said engaging portions, substantially as described.

2. A tire comprising the channel portion *b* provided with the opening b^3, the tread portion *c*, a fastening-strip a^2 extending longitudinally through said tread portion and provided with the rigid vertical shoulders a^3 to engage the channel-piece at the edges of the opening b^3, the rigid horizontal shoulders a^4, and the locking-bolt *d* cooperating with said shoulders a^4, substantially as described.

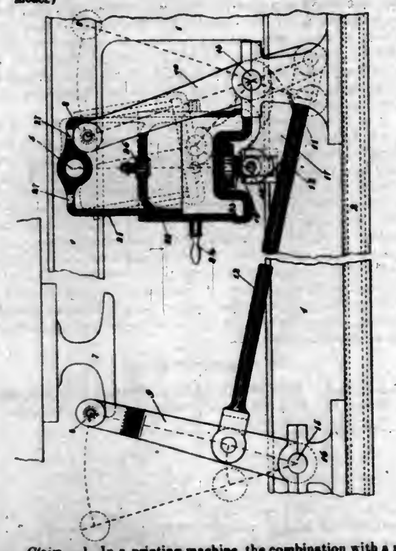
604,751. NUTMEG-GRATER. JOHN W. HART, Pittsburg, Kans., assignor of one-half to William J. Kammerling, same place. Filed Apr. 12, 1897. Serial No. 631,986. (No model.)



Claim.—1. In a rotary grater, the combination of a bail bent at points intermediate of its length and provided with journal-eyes or loops at its bent portion, a holder with the longitudinal beads forming grooves to receive the extremities of the bail, which beads extend into the holder and constitute the follower-guides, a handle rigid with the bail and lying at right angles to the holder, a drum journaled in the loops or eyes of the bail, a follower fitted in the holder and provided with a flanged, notched edge adapted to the guides formed by the beads, a headed stem attached to the follower, and a spring, substantially as described.

2. In a nutmeg-grater, the combination of a handle provided with a yoke having its sides extended and arranged at an angle to the handle, a casing adapted to receive a nutmeg and provided at opposite sides with grooves and having the extended portions of the yoke secured to it in said grooves, a grating-drum journaled within the yoke at the inner end of the casing, between the same and the handle, and provided with a crank-handle, and a spring-actuated follower mounted on the casing and adapted to hold a nutmeg against the grating-drum, substantially as described.

604,752. CUSHIONING APPARATUS FOR PRINTING-MACHINES. JOHN T. HAWKINS, Taunton, Mass., assignor to the Campbell Printing Press and Manufacturing Company, New York, N. Y. Filed July 10, 1890. Renewed Oct. 30, 1897. Serial No. 656,961. (No model.)



Claim.—1. In a printing-machine, the combination with a reciprocating type-bed, of a vertical plunger, as 21, a vertically-moving air-chamber, or cylinder, sliding thereon; levers, as 9 and 10, and a lever, as 17, for transmitting the motion of said bed to said cylinder, or air-chamber; said levers being fulcrumed and connected substantially as described so that the motion of either of levers 9 and 10 transfers the motion of said bed to said air-chamber: whereby one and the same air chamber, or cylinder, is utilized as a cushion for both strokes of said bed, substantially as set forth.

2. In a buffer, or cushioning, apparatus of a printing-machine, in combination with a reciprocating type-bed, a vertically-moving air-chamber, as 22, sliding upon a vertically-set plunger; levers, as 10 and 17, for transmitting the motion of said bed to said air-chamber; a nut, as 19, journaled in said lever 17, and a screw, as 23, operating within said nut, secured to said air-chamber; whereby, by the rotation of said screw, the volume of said air-chamber may be varied, substantially as and for the purposes set forth.

604,753. WRENCH. GEORGE W. HESSER, Mount Holly, Ohio. Filed Feb. 5, 1897. Serial No. 622,066. (No model.)



Claim.—1. In a wrench the combination of a stationary jaw, a movable jaw supporting cam-surfaces, contractible operating members adapted to engage the cam-surfaces for operating the movable jaw, and means for holding the jaws normally separated, substantially as described.

2. A wrench, comprising a handle portion, a fixed jaw secured to said handle portion, a movable jaw having its shank extended within the handle portion and provided with cam-surfaces, contractible members for engaging the cam-surfaces and moving the movable jaw in contact with the fixed jaw, and a means for normally holding the jaws separated, substantially as shown and described.

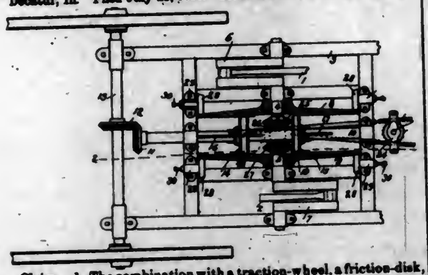
3. A wrench, comprising a handle portion, guides extended from one end and supporting a fixed jaw, a movable jaw adapted to slide on said guides and having its shank extended within the handle, cam-surfaces upon the end of said shank, operating members pivoted at one end to the handle portion and adapted at their opposite ends to extend within the handle and engage the cam-surfaces of the shank of the movable jaw, whereby, when the operating members are con-

tracted the movable jaw is moved in contact with the fixed jaw, and a means for holding the jaws normally separated, substantially as shown and described.

4. A wrench, comprising a handle portion, a fixed jaw supported by said handle portion, a movable jaw having its shank extended within the handle and provided with cam-surfaces, operating members pivoted at their lower ends to the handle and slit at their opposite ends to form operating-tongues which are adapted to extend within the casing and engage the cam-surfaces, the edges of the top and bottom walls of the casing working in the said slits, and a means for holding the jaws normally separated, the parts adapted to operate as described.

5. A wrench, comprising a casing, guides extended from its upper end, a fixed jaw supported by the guides, a movable jaw having a shank which extends through a perforation in the upper end wall of the casing and between the guides, an arrow-head upon the opposite end of the shank portion, operating members pivoted to the casing at their lower ends and adapted to extend through the side walls of the casing and engage the cam-surfaces of the arrow-head, said operating members being inclined at the point of engagement with the arrow-head, whereby they are prevented from being disengaged from the casing, and a spring for holding the jaws separated, whereby, when the operating members are contracted the movable jaw is moved upon its guides and when the operating members are released the spring returns the movable jaw to its normal position, substantially as shown and described.

604,754. DRIVING MECHANISM. CHARLES T. HILDEBRANDT, Decatur, Ill. Filed July 23, 1896. Serial No. 600,233. (No model.)



Claim.—1. The combination with a traction-wheel, a friction-disk, and means for rotating said disk, of a shaft 10, a pair of wheels mounted thereon and bearing against said disk, racks for moving said latter disks, and a vertically-movable pinion adapted to be moved into engagement with said racks to adjust said latter wheels, substantially as described.

2. The combination with a traction-wheel, of a pair of friction-disks, means for rotating said disks, a wheel which bears against the opposite faces of said disks, means for driving said traction-wheel from said latter wheel, and beveled disks 28 for adjusting said disks toward and from each other, substantially as described.

3. The combination with a drive-disk, of a wheel which bears against one face of said disk and is driven thereby, and adjustable disks bearing against the outer face of said drive-disk near its periphery, substantially as described.

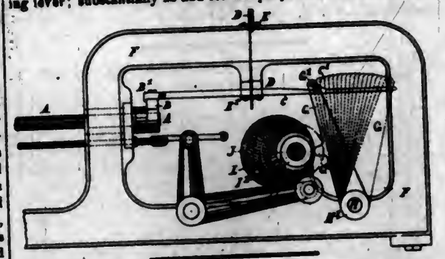
4. The combination with a drive-disk, of a wheel which bears against one face of said disk and is driven thereby, and beveled disks bearing against the outer face of said drive-disk near its periphery, said beveled disks being adjustable radially of said drive-disk, substantially as described.

5. The combination with a traction-wheel, of two friction-disks geared together, means for rotating said disks, an interposed wheel bearing against the inner faces of said disks, independent devices bearing against the outer faces of said disks near their peripheries for adjusting said disks toward each other, and means for driving the traction-wheel from said interposed wheel, substantially as described.

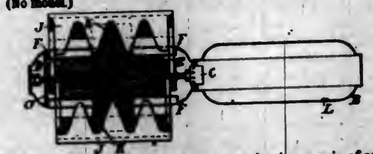
604,755. JACQUARD MECHANISM FOR EMBROIDERING-MACHINES. HENRY HILL, Nottingham, England. Filed Aug. 30, 1897. Serial No. 649,999. (No model.)

Claim.—1. In a device such as described, the combination with the longitudinally-moving shafts, connections between said shafts and the embroidery-frame, a series of hooked jacks pivotally connected to said shafts, the lifting-needles for raising said jacks, a series of oscillating levers corresponding in number to the jacks, each adapted to engage and move a particular jack, and mechanism for imparting to each lever a different length of movement; substantially as and for the purpose set forth.

2. In a device such as described, the combination with the longitudinally-moving shafts, connections between said shafts and the embroidery-frame, a series of hooked jacks pivotally connected to said shafts, a series of lifting needles, each adapted to raise a particular jack, a series of oscillating levers corresponding in number to the jacks and each adapted to engage and move a particular jack, a series of cams or eccentrics corresponding in number to the levers and each adapted to impart a different length of movement to its corresponding lever; substantially as and for the purpose set forth.



604,756. PLUG-TOBACCO CARRIER AND CUTTER. GUSTAVE HIRSCHBRACH, New York, N. Y. Filed Sept. 16, 1897. Serial No. 651,853. (No model.)



Claim.—1. A pocket-case for tobacco having a pair of serrated cutting-blades combined therewith and cooperating to cut off slices of the tobacco, the serrations of one blade intermeshing with those of the other with a shearing action for the purpose set forth.

2. A pocket-case for "plug-tobacco" having a cutting device combined therewith, means for forcing the plug into position to be cut, and a stop or guard for limiting the movement of the plug, said cutting device consisting of cooperating serrated blades closing together under said stop.

3. A pocket-case for plug-tobacco consisting of the combination with the outer case A, B, of an inner case or guide D, for a plug of tobacco, the pair of cutting-blades J, located within the outer case and operable from the exterior thereof, the vertical portion of the blades forming part of the wall of the outer case and means for moving the end of the plug past said blades for the purpose set forth.

4. A pocket-case for plug-tobacco consisting of the combination with the outer covered case A, B, and the plug case or guide D, of springs for forcing the plug outward, an adjustable stop M, for limiting the movement of the plug, a spring as O, for holding said stop in vertical position and a cutting device within the outer case and operable through the walls thereof for severing the desired piece from the plug.

5. The combination with the outer case, of the liner case for a plug of tobacco, the serrated blades hinged within the outer case and adapted to close over the end of the plug, springs for forcing the blades apart, and means for projecting the end of the plug beyond the blades for the purpose set forth.

6. The combination with the outer casing having a hinged cover, of the blades for severing the plug provided with a catch for holding the cover closed, substantially as set forth.

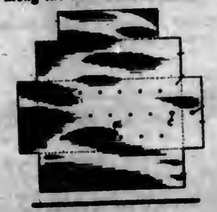
7. The combination with the outer casing, of the plug-guide therein, the spring-follower in said guide, the outwardly-spring-pressed cutting-blades adapted to close over the end of the plug and to be confined in such position by the cover when closed, substantially as and for the purpose set forth.

8. The "plug-tobacco" case consisting of the outer casing having a suitable cover, the inner casing provided with a spring-follower for the plug, the spring-separated blades adapted to cut through the plug, and the stop for limiting the outward movement of the plug, substantially as and for the purpose set forth.

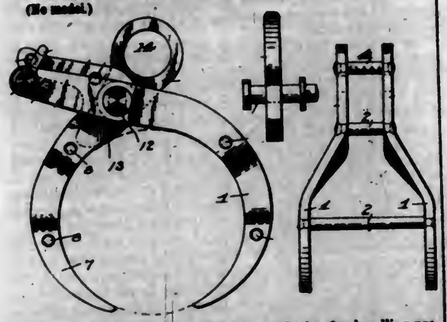
604,757. CARPET-FASTENER. JOHN H. JAMES, London, England. Filed Dec. 20, 1897. Serial No. 662,617. (No model.)

Claim.—1. As a new article of manufacture a carpet-holding device of arched form provided with radial points projecting vertically upward and obliquely on both sides of the center substantially as set forth.

2. A carpet-holder in the form of a section of a cylinder provided with radial points, upwardly projecting at an angle to each other, a longitudinal eye and a strengthening-rod in said eye, the said rod running along the central line of the said device for the purpose set forth.



604,758. TONGS FOR HANDLING PROJECTILES. CARL F. JEANNIN, Washington, D. C. Filed Sept. 18, 1897. Serial No. 652,153. (No model.)



Claim.—1. As an improved article, a device for handling projectiles, comprising the pivoted grappling-jaws, a pivot therefor and a projectile engaging and supporting means connected with said pivot, substantially as described.

2. As an improved article, a device for handling projectiles consisting of two pairs of curved arms or jaws, the pivot connecting them with each other, and the finger pivoted intermediate its ends to said pivot whereby its inner end will project between said jaws and bear upon a projectile engaged by said jaws, substantially as described.

3. In a device for handling projectiles, the combination with the curved arms or jaws arranged in pairs, the pivot passing through said jaws, the extensions formed integral with said jaws and projecting outwardly in the same direction and means for connecting them with each other, of the finger pivoted intermediate its ends to said pivot with its inner end projecting between the jaws and adapted to bear against a projectile engaged by the jaws, substantially as described.

4. In a device for handling projectiles, the combination with the curved arms or jaws arranged in pairs and formed with extensions, the yoke pivotally connected with one pair of said extensions and adapted to engage with the other extensions, of the finger formed with an eye at one end and the pivot pin or bolt passing through said finger and arms, substantially as described.

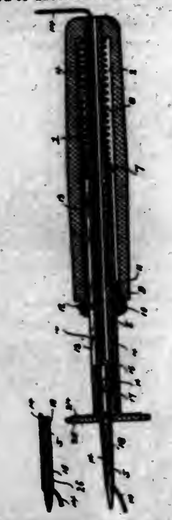
5. In a device for handling projectiles, the combination with the curved arms or jaws, the extensions thereof, the finger, the pivot-pin and the pivoted yoke, of the rod or bolt connecting the extensions of one pair of arms or jaws and serving as a stop, substantially as described.

604,759. TAGGING-NEEDLE. FRANK M. JOHNSON, Union City, Conn., assignor of one-half to Richard C. Warner, Naugatuck, Conn. Filed Aug. 30, 1897. Serial No. 649,902. (No model.)

Claim.—1. A device of the character described, comprising a handle, a tube extending through and beyond the handle at one end and having an opening through which the cord passes outward, a needle at the outer end of the tube and a spring-actuated sheath which normally incloses the outer end of the tube and the needle and is adapted to be pressed backward to uncover the needle in use, said sheath having at its outer end a recess 21 provided upon one side with a hook 22, substantially as described.

2. A device of the character described, comprising a handle, a tube extending through and beyond the handle at one end and having an opening through which the cord passes outward, a needle at the outer end of the tube, a sheath which normally incloses the outer end of the tube and the needle and is provided with a head 7, a spring lying within the handle and acting against head 7 to hold the sheath at its normal position.

3. A device of the character described comprising a handle, a tube extending through and beyond the handle at one end and having an opening through which the cord passes outward, a needle at the outer end of the tube, a tension-spring recessed into the needle which prevents the cord from slipping backward and a spring-actuated sheath which normally incloses the outer end of the tube and the needle and is adapted to be pressed backward to uncover the needle in use.



4. A device of the character described, comprising a handle, a tube extending through and beyond the handle at its outer end and having an opening through which the cord passes outward, a needle at the outer end of the tube, a sheath which normally incloses the outer end of the tube and the needle and is provided with a head 7, and a spring lying within the handle and acting against head 7 to hold the sheath at its normal position.

5. A device of the character described comprising a handle, a tube extending through and beyond the handle at one end and having an opening through which the cord passes outward, a needle at the outer end of the tube, a spring-actuated sheath which normally incloses the outer end of the tube and the needle and is provided with a recess 18, a sleeve 9 in the handle through which the sheath passes freely and a screw-pin in the sleeve which engages the recess to hold the sheath against rotation.

604,760. PERFECTING PLATEN-PRESS. FRANK L. JONES and EDWIN C. JONES, Boston, Mass., assignors to the Boston Check and Ticket Company, same place. Filed Nov. 11, 1896. Serial No. 611,773. (No model.)

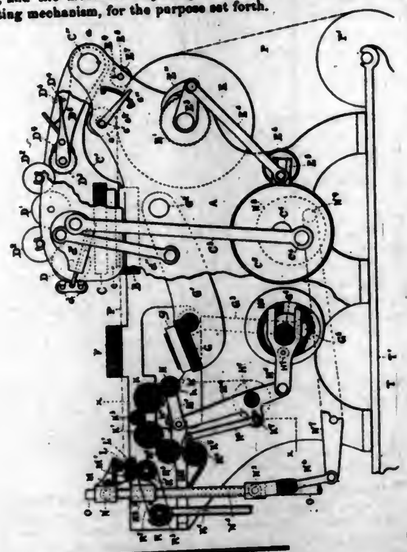
Claim.—1. The combination of the top print and the under print arranged to oscillate alternately, the intermeshing gears, cranks and pitmen by which such oscillation is performed, the gear E^3, one-fourth of the diameter of said gears, the adjustable crank-pin, E^5, pitman, E^4, pawl and ratchet, E^7, E^8, the feed-cylinder, E, and the presser-roll, *e*, whereby the paper is fed to the said upper and under print between the oscillations of the latter.

2. The oscillating top print having its frame pivoted upon the fixed shaft, C^7, in combination with the fountain and its ink-roll, the gear-frame, D^3, rigidly mounted on said shaft, the arm, D^4, dog D^5, engaging ratchet on said ink-roll, and the projection, D^6, extending from said oscillating frame into contact with said arm, D^4, for the purpose set forth.

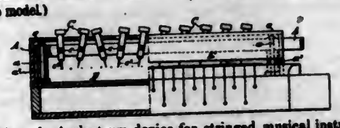
3. The combination of the shaft, G^4, cams, H^3, straddle-arms, H^4, friction-rolls engaging said cams, the levers, H^5, the inking-roll and vibrator actuated by said levers, the distributers, the ink-fountain and fount-roll K^6, the dog, K^5, rod, K^9, and the adjusting-slot, K^7, of the lever, H^4, substantially as and for the purpose set forth.

4. The combination of the vertical rods, O, brackets, N^3, fixed thereon, the blocks, N, movable on said rods, the cross-head, N^5, connecting-rods, N^6, joining said cross-head and blocks, link, N^4, lever, N^7, and cam, N^8, substantially as and for the purpose specified.

5. The combination of the vertical rods and the punching and shearing mechanism carried thereby, the printing mechanism, the base for the same having rims, T', feet for said rods clasping said rims, and the means for adjusting said feet toward and from the printing mechanism, for the purpose set forth.



604,761. STRINGED INSTRUMENT. JAN A. JOHKHOFF, Dresden, Germany, assignor to Alfred Grunert, New Gruna, Germany. Filed June 11, 1897. Renewed Apr. 29, 1898. Serial No. 679,255. (No model.)



Claim.—1. A plectrum device for stringed musical instruments consisting of one or more bars extending across the strings and resting on elastic supports and carrying pivoted key-levers provided with operating-fingers which in their oscillations, limited by fixed stops, can engage with the strings in either direction, and produce either a single note or the same note repeated, the strength of the sound being at the same time determined by the pressure exercised on the key-lever, substantially as described.

2. A plectrum device for stringed musical instruments consisting of a bar resting on elastic supports and extending transversely across above the strings of the instrument, said bar carrying pivoted key-levers provided with operating-fingers *c'* and a casing provided with slots for accommodating and limiting the reciprocating movement of the key-levers, substantially as described.

3. A plectrum device for stringed musical instruments consisting of a bar A, guided and supported on pins A and elastic supports *a'*, key-levers C pivoted on said bar in combination with a slotted casing E, substantially as and for the purposes described.

604,762. CRUSHER. ALFRED JORDAN, London, England. Filed July 3, 1896. Serial No. 598,015. (No model.) Patented in England Apr. 21, 1896, No. 8,336.



Claim.—In a crushing or disintegrating apparatus, the combination of a movable jaw, the working face of which is shaped so as to form a segment of the involute of a circle and which is pivoted upon a central spindle; means for rocking the same, and a sliding jaw normally forced into its highest position by means of springs, but capable of being drawn downward by the material under treatment when the movable jaw descends, substantially as described.

604,768. BROOCH. GEORGE B. KEPLINGER, Chicago, Ill. Filed Mar. 25, 1897. Serial No. 629,161. (No model.)



Claim.—1. As a new article of manufacture, a brooch composed of the continuous front piece, A, having the turned-over rim portion, B; with the back piece having the turned-over rim portion, G, cooperating with the rim portion, B, the depressed concaved portion, F, resting against the central portion of the front piece, A, to strengthen it, said front and back pieces forming an arch-like structure, and the undepressed portion, E, between the rim portion, G, and the depressed portion, F; and means for attaching said brooch to a garment, substantially as described.

2. As a new article of manufacture, a brooch composed of the continuous front piece, A, having the turned-over rim portion, B; with the back piece having the turned-over rim portion, G, cooperating with the rim portion, B, the depressed concaved portion, F, resting against the central portion of the front piece, A, to strengthen it, said front and back pieces forming an arch-like structure, and the undepressed portion, E, between the rim portion, G, and the depressed portion, F; and the pin secured beneath the undepressed portion, E, and having its body portion, H^2, emerging from the shoulder M between the portions, E and F, and caught by the tongue, L, formed by the notch, K, in said shoulder, substantially as described.

3. In a brooch, the combination of the back piece having the turned-over rim portion, G, the depressed concaved portion, F, and the undepressed portion, E; with the pin, H, consisting of the curved portion, H', in the channel between the rim, G, and the portion, F, and secured by the turned-over tongue, J, of the rim, G, and the straight portion, H^2, projecting through the aperture, J, in the undepressed portion, E, and caught by the tongue, L, formed by the notch, K, substantially as described.

604,764. MAGAZINE-FIREARM. WILLIAM R. KING, Chase, Mich. Filed July 21, 1897. Serial No. 645,280. (No model.)

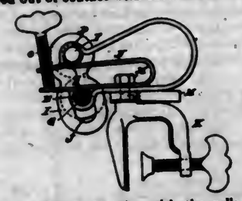


Claim.—1. In a magazine-firearm, the combination with a sliding breech-block, of a dog pivoted thereto and automatically engaging a stationary part of the firearm when the breech-block is closed, a pivoted arm having an enlarged portion or hub presenting shoulders engaged by the depending member of the dog, and a rod passed through the depending member of said dog and extending beyond the front end of the frame where it is provided with a head having spring-clips, said rod also having rigid collars located on opposite sides of the depending member of the dog, substantially as shown and for the purpose set forth.

2. In a magazine firearm, the combination with a sliding breech-block and magazine-tube, of a dog pivoted to the breech-block and presenting horizontal and depending members, the depending member being slotted, an arm or cartridge-carrier pivoted within the frame, its forward end extending through the depending member of the dog, the said arm or carrier being located on a line with the magazine-tube when the breech-block is closed, a hub or projection formed on the arm at its pivoted point and presenting a cam or shoulders against which the dog abuts to actuate the arm; together with the sliding rod connected to the depending member of the dog and extending through the frame, substantially as shown and for the purpose set forth.

604,765. WRINGER. CHARLES A. KOHL, Cleveland, Ohio. Filed Dec. 17, 1897. Serial No. 662,287. (No model.)

Claim.—1. In a wringer, the combination with the rolls, journals at the ends thereof, a spring bearing against the journals adapted to keep the rolls normally in contact, and a roll-separating device in connection with each pair of journals, comprising a horizontally-arranged bar provided with two transverse members interposed between the journals, and means for spreading said members, whereby the rolls will be forced out of contact with each other.



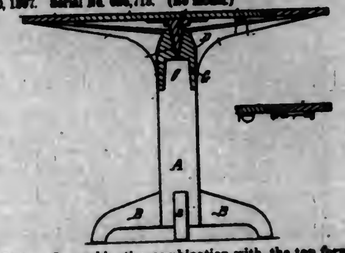
2. In a wringer, the combination with the rolls, of journals at the ends thereof, a horseshoe-spring, the free ends of which form bearings for the journals, a separating device, comprising a curved bar, interposed between the journals and arranged upon and detachably secured to the spring; the free ends of said bar bearing against the free ends of said spring, and means for spreading the ends of the curved bar, substantially as described.

3. In a wringer comprising two rolls provided at their ends with journals, and horseshoe-springs in which said journals are adapted to bear; a roller-separating device, interposed between the journals at each end of the wringer, comprising a U-shaped bar N, each member of said bar having an offset S formed thereon, and one of said members being slotted, and a device for spreading the free ends of said bar, substantially as and for the purpose described.

4. In a wringer comprising two rolls provided at their ends with journals, and horseshoe-springs in which said journals are adapted to bear; a roller-separating device, interposed between the journals at each end of the wringer, comprising a U-shaped bar N, each member of said bar having an offset S formed thereon, and one of said members being slotted, and a device for spreading the free ends of said bar, comprising a lever-actuated cam P, pivoted in one end of the bar, substantially as described.

5. In a wringer comprising a pair of rolls provided at their ends with journals, and horseshoe-springs in which said journals have bearings: a roller-separating device interposed between the journals at each end of the wringer, comprising a U-shaped bar N, one of the members of said bar being slotted whereby the bar may be detachably and adjustably secured to the spring, and means for spreading the ends of said bar, substantially as and for the purpose described.

604,766. TABLE. HENRY KOEHL, Hamilton, Ohio. Filed Mar. 10, 1897. Serial No. 626,713. (No model.)

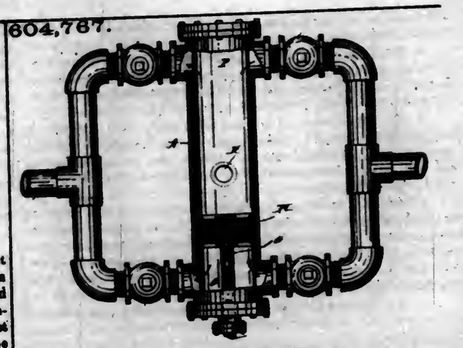


Claim.—In a table, the combination with the top formed with a circular opening in its center, and radial arms supporting said top of a circular disk to occupy said opening, said disk being pivotally mounted above the common center of the arms, whereby it may be rotated in the opening and continue in the plane of the top, a bell secured beneath the disk and a lever depending therefrom to engage with the respective arms and thereby ring the bell.

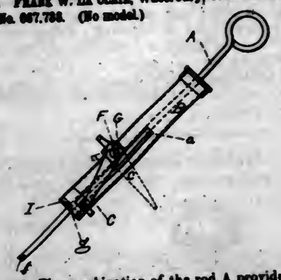
604,767. HYDRAULIC-PRESSURE PUMP. THOMAS A. KNOBLER and JOSEPH GOMEZ, New York, N. Y. Filed Nov. 26, 1895. Serial No. 570,149. (No model.)

Claim.—In a combined water-pump and air-compressor, the combination with the pump-cylinder of an air-inlet directly from atmosphere to a point midway of the length of the cylinder and above the water-level therein and adapted to form a layer of air above the water in said cylinder, a check-valve on the said air-inlet opening inward, an adjustable valve on the said air-inlet outside of the said check-valve, a reciprocating plunger in said cylinder having a periphery broader than said air-inlet, supply connections near the ends of said pump-cylinder, check-valves thereon opening inward, independent discharge connections from the ends of the cylinder, and check-valves thereon opening outward, substantially as described.

604,767.



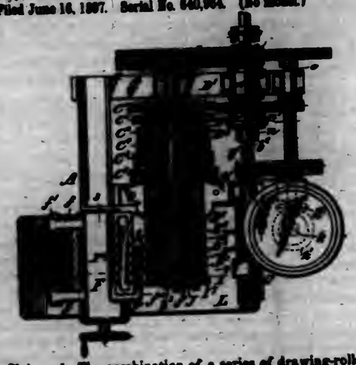
604,768. DEVICE FOR STOPPING HOLES IN PNEUMATIC TIRES. FRANK W. LA CLAIR, Waterbury, Conn. Filed Jan. 24, 1898. Serial No. 667,788. (No model.)



Claim.—1. The combination of the rod A provided with a slot in one end thereof; the tube B provided with the longitudinal slot *a*, the transverse slot *f* and the lever-support F; and the lever C provided with the slots *A A'* in one end thereof substantially as described.

2. The combination of the rod A provided with a slot in one end thereof; the tube B provided with the longitudinal slot *a*, the transverse slot F and the end provided with the lip *g*; and the lever C provided with the slots *A A'*.

604,769. WIRE-DRAWING MACHINE. GEORGE B. LAMB, Waterbury, Conn., assignor to the Waterbury Machine Company, same place. Filed June 16, 1897. Serial No. 640,964. (No model.)



Claim.—1. The combination of a series of drawing-rolls, means for operating the same, a die for each of said rolls and a sliding die-box carrying said dies, for moving the dies in front of the rolls, substantially as specified.

2. The combination of a series of drawing-rolls, a drawing-in roll, a die for each of said rolls and a sliding die-box carrying said dies whereby each die may be successively moved in front of the drawing-in roll and then in front of its drawing-roll, substantially as specified.

3. The combination of a series of drawing-rolls, a drawing-in device, a die for each of said rolls, a frame carrying the series of dies,

and means for moving the frame longitudinally relatively to the drawing-rolls, substantially as specified.

4. The combination of a series of drawing-rolls, a frame carrying a series of dies and a corresponding series of idler-rolls, and means for moving said frame longitudinally relatively to the drawing-rolls, substantially as specified.

5. The combination of a series of drawing-rolls, a drawing-in roll, means for engaging and disengaging the drawing-in roll with one of the series of drawing-rolls, a die-box, and means for moving the die-box longitudinally relatively to the series of drawing-rolls, substantially as specified.

6. In a wire-drawing machine, the combination of a series of drawing-rolls of the same diameter, means for rotating the drawing-rolls at varying rates of speed, a wire-block having means for driving it, and mechanism in engagement with the driving means of the rolls and block for varying the speed of the block to correspond with the rate of speed of the drawing-rolls, substantially as specified.

7. In a wire-drawing machine, the combination of a series of drawing-rolls of the same diameter, means for rotating the drawing-rolls at varying rates of speed, a wire-block having means for driving it, and means for varying the rates of speed of the drawing-rolls and the block, said means comprising a driving-shaft, a sleeve on said shaft carrying a fast gear which drives the gearing of the drawing-rolls and block, and a loose gear, each of said gears being provided with a clutch, a sliding clutch on said shaft, a sliding clutch on said sleeve, a gear fast on said shaft, a second shaft having gears fast thereon, one of which is in engagement with the fast gear on the driving-shaft, and the other in engagement with the loose gear on the sleeve, and means for alternately operating the sliding clutches, substantially as specified.

604,770. PNEUMATIC ATTACHMENT FOR TELEGRAPH-KEYS. WILLIAM J. LEES, Pratt, Minn. Filed Apr. 15, 1897. Serial No. 633,337. (No model.)



Claim.—1. A pneumatic attachment for telegraph-keys, comprising an outer wall, a diaphragm, means for securing the device to a key-button, and a tube leading into an air-chamber formed by said outer wall and said diaphragm, for the purpose set forth.

2. As a new article of manufacture, a cushion for telegraph-keys, comprising an inflatable outer wall or shell, a diaphragm forming a closed air-chamber within said shell, means for securing said shell upon a key, and the wall of said chamber being provided with an opening through which air may be forced to inflate said cushion, for the purpose set forth.

3. As a new article of manufacture, a cushion for telegraph-keys comprising a substantially hemispherical shell, having a flexible outer wall, a diaphragm extending across the lower portion of said shell and forming an air-chamber therein, and an inwardly-turned annular flange at the lower edge of said wall, a space being provided between said flange and said diaphragm, for the purpose set forth

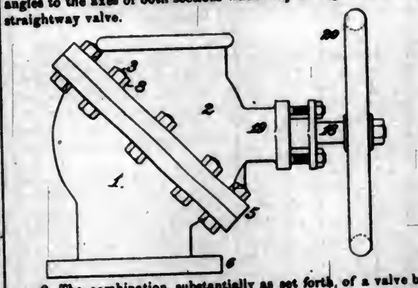
4. In a device of the class described, the combination, with a key, of an elastic shell or cap arranged over the same, means for securing said shell to said key, a diaphragm connecting the inner walls of said shell and forming an air-chamber in the upper portion of the same, said diaphragm being provided with an opening in its wall to permit said chamber to be filled with air, and said opening being covered by said key when the cushion is in position thereon to prevent the escape of air from said chamber, substantially as described.

5. The combination, with the key F, of the shell or cap arranged over the same, and comprising an inflatable outer wall D, an inner wall or diaphragm D', extending across the lower portion of the shell and forming an air-chamber therein, the inwardly-turned flange or ring C, an annular recess being provided between the same and said diaphragm to receive the edge of said key, and said diaphragm having an opening leading to said air-chamber, the entrance to said opening being closed by said key when the device is in position thereon, substantially as described.

6. As a new article of manufacture, a cushion for telegraph-keys, comprising a substantially hemispherical shell, having an inflatable and flexible outer wall, a diaphragm extending across the lower portion of said shell and forming a closed air-chamber therein, and means provided at or near the lower edge of said wall for securing the same to a telegraph-key, substantially as described.

604,771. THROTTLE-VALVE. ALBERT K. MANSFIELD, Salem, Ohio. Filed Jan. 8, 1897. Serial No. 618,460. (No model.)

Claim.—1. The combination, substantially as set forth, of a valve-body composed of two sections, provided, each, with a pipe connection, and abutting in a plane inclined to the axis of the valve-body, said sections being relatively adjustable to form either a straightway or an angle valve, a valve-face fixed to one of said sections, a valve fitted to move about an axis thereon, an operating-stem which is fitted to be rotated in the other section, at an angle with the abutting face thereof, and gearing through which movement is imparted to the valve from the stem, the stem being, in each adjustment of the valve-body sections, at right angles to the axis of one section, and at right angles to the axes of both sections when they are adjusted to form a straightway valve.



2. The combination, substantially as set forth, of a valve body composed of two substantially hemispherical sections, each provided with a pipe connection the axis of which is offset from the center of the valve-body, and abutting in a plane inclined to the axis of the valve-body, peripheral flanges surrounding the abutting faces of said sections, connecting-bolts passing through said flanges, a valve-face fixed to one of said sections, a valve fitted to move about an axis thereon, a stem which is rotatable in the other section, and gearing through which movement is imparted to the valve from the stem.

3. The combination, substantially as set forth, of a valve-body composed of two sections, each provided with a pipe connection, and abutting in a plane inclined to the axis of the valve-body, a valve-face fixed to one of said sections, a valve fitted to move about an axis thereon, a stem which is rotatable in the other section, gearing through which movement is imparted to the valve from the stem, and a spring interposed between, and acting on, the valve and an abutment independent thereof.

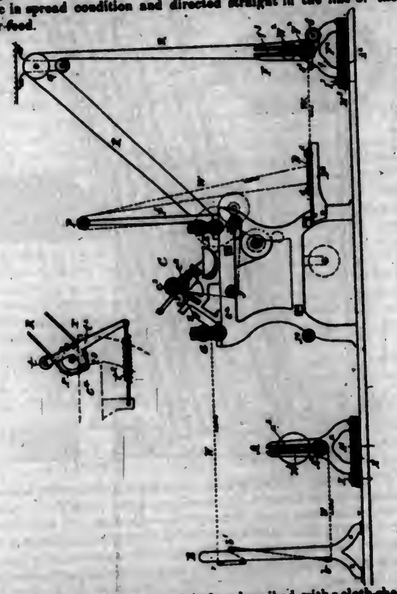
4. The combination, substantially as set forth, of a valve-body composed of two sections, each provided with a pipe connection, and abutting in a plane inclined to the axis of the valve-body, a valve-face fixed to one of said sections, a valve fitted to move about an axis thereon, a gear fixed to said valve, a stem which is rotatable in the other section, a pinion fixed to said stem and forming a joint with a face on the valve-body at the inner end of the stem, and a spring bearing on said pinion and on a fixed abutment.

5. The combination, substantially as set forth, of a valve-body composed of two sections, each provided with a pipe connection and abutting in a plane inclined to the axis of the valve, a transverse ported partition on one of the sections at the end opposite the pipe connection thereof, a central support extending from the partition to the wall of the section, a valve-face on said partition, a valve fitted to move about an axis thereon, a stem which is rotatable on the other section, and gearing through which movement is imparted to the valve from the stem.

604,772. LAPPET-SHEARING MECHANISM. EDWIN T. MARBLE and EDWIN H. MARBLE, Worcester, Mass. Filed Aug. 26, 1897. Serial No. 649,571. (No model.)

Claim.—1. The combination, with a cloth-shearing mechanism, and the guides and parallel rolls at front and rear thereof, that maintain the spread and control the feed of the fabric in a direct or laterally unwavering course of advancement while passing the shearing-cutters; of the feed-carrier frame having the rotatable delivery-drum and beam-roll mounted in bearings thereon and adapted for the support and delivery of the fabric: said feed-carrier frame arranged adjustable to right and left oblique positions for working said drum in skewed relation to the guides and rolls that control the shear-feed, and means substantially as described for transposing the obliquely-delivered web of fabric, skewed and spread, into straight alinement with its line of advancement at the shear.

2. The combination, with a cloth-shearing mechanism, its draft or feed rolls, and the pinch-rolls that hold the fabric taut preceding the shearing cutters; of the obliquely-adjustable feed-carrier frame and the feed carrier drum, disposed in front of said pinch-rolls, said carrier-frame pivoted to its supporting-base at a point central in the length and forward of the vertical plane passing through the feed-carrier axis; said carrier-frame adjustable about said pivot for swinging the feed-carrier drum to right or left angularity for delivering the fabric in a direction oblique to the line of the shear-feed; and a guide intermediate to said carrier and pinch-rolls, adapted for regulating the skew tension of the fabric, and presenting the skewed fabric in spread condition and directed straight in the line of the shear-feed.



3. In combination, as hereinbefore described, with a cloth-shearing machine, a feed-carrier comprising the segment bed-plate having the flanged edge, the swinging carrier-frame resting upon and pivoted to said bed-plate, and provided with end bearings having bearings for the carrier-drum, the jaw-openings for the reception of the winding-beam shaft, the carrier-drum mounted in said bearings, the friction-brake on said drum-shaft, and means for effecting and securing the swing adjustment of said carrier-frame.

4. In a machine for shearing and shearing lappet-cloth, the combination with the shearing mechanism and stationary guide-stand, of the laterally-swinging feed carrier frame having the frictionally-controlled supporting-drum and removable cloth-winding beam mounted thereon, the arm a^3 fixed on said carrier-frame, the sprocket-chain K attached to arm a^3 of said carrier-frame, the upright shaft-stand K^4, the shaft K^2, the hand-wheel K^3 and sprocket-wheel K^2 fixed on said shaft, said sprocket-wheel engaging said chain, and the guiding-wheel K', as shown and described.

5. The combination, with the shearing mechanism comprising the shearing-revolver and ledger-blade, cloth-rest, draft-rolls and pinch-rolls; of the front tension-stand having a series of transverse bars that even and direct the fabric straight to said pinch-rolls; and the obliquely-adjustable feed-carrier frame having thereon the supporting-drum and beam for delivering the cloth therefrom, and means for varying the angular position of said carrier in relation to the stand.

6. In mechanism for shearing and rewinding lappet-cloth, the combination as described, of the shearing mechanism, its draft-rolls, the high guide roll, the receiving-carrier, a power-operated drum turning in bearings on said carrier, a beam for winding or rolling the cloth thereon, a guide bar or roll parallel and adjacent to said drum, and a transverse, obliquely-adjustable deflecting guide-bar arranged between said high-guide roll and the receiving-carrier, substantially as set forth.

7. The combination with the cloth-shearing mechanism, and means comprising pinch-rolls and draft-rolls for directly advancing the cloth therethrough; of an obliquely adjustable feed-carrier and front guide adapted for automatically rendering the cloth in skewed condition; a rear guide, and an obliquely-adjustable receiving-carrier having the supporting-drum and winding-beam mounted thereon, and adapted for controlling the skew in the rewinding of the cloth, and means for rotating said drum, all substantially as set forth.

8. In a machine for shearing lappet-cloth, the combination of the cloth-shearing mechanism, its draft-rolls, and means for feeding said shear; of the receiving-carrier adapted for use in right or left obliques relation to said shear, and carrying thereon means for winding up the cloth; a deflecting-guide situated for action on the fabric between said draft-rolls and said receiving-carrier; said deflecting-guide and receiving-carrier being respectively adjustable to varied inclination in relation to the draft-roll axis and to each other, and means for operating the winding-up devices, substantially as and for the purpose set forth.

9. In a cloth-shearing machine of the character described, the rearwardly-projecting brackets or arms D' and the spreader-bar D adjustably secured upon said arms and adapted for right or left oblique adjustment, substantially as and for the purpose set forth.

10. The combination, with the shearing mechanism, its cloth-guides and draft-rolls; of the receiving-carrier comprising the laterally-swinging pivoted carrier-frame, the supporting-drum mounted in bearings thereon, the stretcher-roller adjacent to said drum, the drive-chain connecting from a sprocket on the draft-roll shaft, to a sprocket on the drum-shaft, and the overhead guides for said chain, for the purpose set forth.

604,773. CULTIVATOR. DAVID B. MILES, Blackwater, Mo. Filed Dec. 22, 1897. Serial No. 663,014. (No model.)



Claim.—1. In a cultivator, the combination with the main frame having longitudinal side flanges, of cultivator-beams fitted between said flanges, and means for holding said beams in place, substantially as set forth.

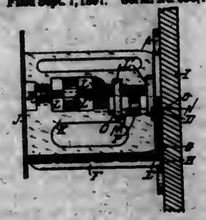
2. In a cultivator, the combination with the main frame having flanges *a*, *b* and *c*, of cultivator-beams fitted between said flanges, and wedge-keys for holding said beams in place, substantially as set forth.

3. In a cultivator, the combination with the main frame having flanges *a*, *b* and *c*, of cultivator-beams fitted between said flanges and provided with stop-lugs, of keys inserted through flanges *a* and *c* immediately at the rear of the stop lugs, substantially as set forth.

4. In a cultivator, the combination with the metallic main frame bent at its sides to form flanges *a*, *b* and *c*, the flanges *a* and *c* being provided with alined perforations, of cultivator-beams fitted between said flanges and provided with stop-lugs, and wedge-keys inserted through the alined perforations immediately at the rear of the stop-lugs, substantially as set forth.

5. A cultivator comprising in combination the following essential elements, to wit: a metallic main frame, formed at the sides with flanges *a*, *b* and *c*, the flanges *a* and *c* having alined perforations, cultivator-beams fitted between said flanges and provided with stop-lugs, wedge-keys inserted through said perforations immediately at the rear of the stop-lugs, a handle-stock secured to the cultivator-frame, a beam-brace having forked ends which engage the rear ends of the cultivator-beams, stock-braces having perforations in their lower ends that receive one of the forks at each end of the beam-brace, clip-plates, and nuts for clamping the clip-plate, cultivator-beams and stock-braces to the beam-brace, substantially as set forth.

604,774. OVAL HOLDER FOR TOILET-PAPER. JOHN H MOSER, Milwaukee, Wis. Filed Sept. 7, 1897. Serial No. 650,748. (No model.)



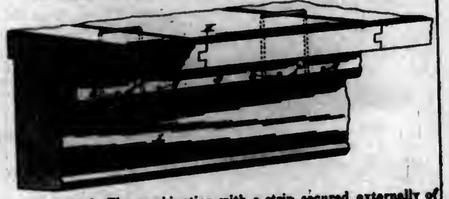
Claim.—1. The combination of a wall-plate provided with a projecting pivot-pin and separating-bar and having a curved slot therein, bordered by a guide-channel formed in its rear surface, of a cast frame formed with right and left offset bars between which the pivot-rod is engaged and a catch connected with said frame and provided with a hooked end adapted to project through said slot and engage in the guide-channel, substantially as described.

2. The combination of a wall-plate provided with a projecting pivot-pin and separating-bar and having a curved slot therein, of a

cast frame formed with right and left offset bars between which the pivot-rod is engaged, and a spring-catch provided with hooked ends engaged between said offset bars, lugs projecting from said frame and bearing upon said catch at the center and at one of said hooked ends respectively, whereby the catch is held in said frame with one end projecting and adapted to be inserted through the slot in the wall-plate, and to engage against the rear surface of the plate, substantially as described.

3. The combination of a wall-plate provided with a projecting pivot-pin and having a curved slot therein, together with an aperture for the separating-bar, and a recess in the rear surface of the plate around said aperture, a toothed separating-bar adapted to be inserted through said aperture and provided with a flange adapted to fit into the recess, a cast paper-holding frame provided with offset bars between which the pivot-pin engages, and a holding-catch adapted to project through the curved slot in the wall plate and to engage against the rear surface thereof, substantially as described.

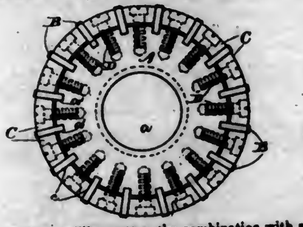
604,775. ROOF-SECURING DEVICE. ALEXANDER H. MOUTHER, Springfield, Mo., assignor of one-half to W. A. Hottleston, Kansas City, Mo. Filed Oct. 26, 1897. Serial No. 656,403. (No model.)



Claim.—1. The combination with a strip secured externally of and a slight distance from the moldboard of a car, of an inverted-U-shaped staple which extends down through two roof-boards, and a space between the moldboard and the strip, and is provided at its lower end with upwardly-disposed hooks engaging the lower edge of said strip, substantially as described.

2. The combination with a strip arranged outward of and a slight distance from the moldboard of a car and below the roof-boards thereof, and nails or screws extending horizontally through said strip and into the moldboard at points about vertically below the joints between the roof-boards, of inverted-U-shaped staples bridging the joints between the roof-boards and extending downward through the latter and between the moldboard and said strip, and having their lower ends bent upwardly to form hooks for reliably securing the roof boards down upon the moldboards, substantially as described.

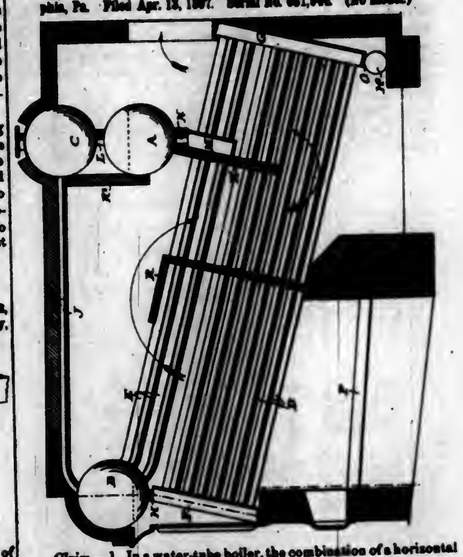
604,776. MILLING-CUTTER. ALBERT H. MORTON, Lowell, Mass. Filed Mar. 8, 1897. Serial No. 626,963. (No model.)



Claim.—1. In a milling-cutter, the combination with a central stock or body portion comprising an integral block having threaded holes around the periphery and a central aperture, of a series of cutters disposed around the periphery of said stock or body portion, a series of removable wedge-shaped bars or blocks alternating with the cutters and screws passing through said bars or blocks and engaging the threaded holes in the stock or body portion, the inner peripheral faces of said bars or blocks being of greater width than the peripheral face of the stock or body portion exposed between the cutters, whereby the bars or blocks may be caused to forcibly engage the sides of the cutters and securely hold them in position upon the stock or body portion, substantially as described.

2. In a milling-cutter, the combination with the stock or body portion, of a series of blades disposed along the periphery thereof, a series of fixed projections on the stock or body portion extending between the blades, and a series of clamping-blocks interposed between the blades, and arranged to be brought into clamping contact therewith, substantially as described.

604,777. WATER-TUBE BOILER. LAUREN M. MOYER, Philadelphia, Pa. Filed Apr. 13, 1897. Serial No. 631,944. (No model.)



Claim.—1. In a water-tube boiler, the combination of a horizontal bank of water-tubes; a transverse steam-and-water drum; a transverse water-drum; and a transverse steam-drum, all of said three drums being situated within the walls of the furnace, the steam-drum being wholly above the normal water-level and situated in that part of the furnace which is exposed to the least intense heat, substantially as described.

2. In a water-tube boiler, the combination of a horizontal bank of water-tubes; a transverse steam-and-water drum; a transverse water-drum; a transverse steam-drum, all of said three drums being situated within the walls of the furnace; and a vertical baffle bridge-wall extending down from the roof of the furnace and protecting the steam-drum from the most intense heat of the furnace, substantially as described.

3. In a water-tube boiler, the combination of a horizontal bank of water-tubes; a transverse steam-and-water drum; a transverse water-drum; a transverse steam-drum, all of said three drums being situated within the walls of the furnace, the steam-drum being protected from the intense heat of the furnace by the water-drum immediately below it and a baffle bridge-wall immediately in front of it, substantially as described.

4. In a water-tube boiler, the combination of a horizontal bank of water-tubes; a transverse steam-drum wholly above the normal water-level; a transverse steam-and-water drum largely above the normal water-level; and a transverse water-drum largely below the normal water-level, all situated within the walls of the furnace, substantially as described.

5. In a water-tube boiler, a horizontal bank of water-tubes; a transverse steam-and-water drum; a transverse water-drum; and a transverse steam-drum, all situated within the walls of the furnace; and connections by means of which the water-tubes and the three transverse drums form a complete circuit, substantially as described.

6. In a water-tube boiler, the combination of a bank of horizontal water-tubes, connected at both ends by water-legs or manifolds; three transverse drums situated all above and within the vertical lines determined by the bank of tubes and the water-legs or manifolds; and connections by which the three drums are brought into complete circulation with each other and with the water-tubes, substantially as described.

7. In a water-tube boiler, the combination of a transverse water-drum situated near the rear thereof; a bend of water-tubes connected at both extremities by water-legs or manifolds, and all below the level of the water-drum; connections between the water-drum and the rearward portion of the group of water-tubes; a transverse steam-and-water drum situated above and connected with the forward portion of the group of water-tubes; and a transverse steam-drum wholly above the normal water-level and having connections with both the steam-and-water drum and with the water-drum, substantially as described.

8. In a water-tube boiler, the combination of a transverse water-drum; a transverse steam-and-water drum; a transverse steam-drum; a primary bank of water-tubes connected at their extremities by water-legs or manifolds; an auxiliary bank of water-tubes immediately above the primary bank; connections respectively between the forward water-leg and the steam-and-water drum, the steam-and-water drum and the steam-drum, the steam-drum and the water-drum, and the water-drum and the rear portion of the auxiliary bank of water-tubes, substantially as described.

9. In a water-tube boiler, the combination with the drums, a primary bank of water-tubes with their connections at both ends; an auxiliary bank of water-tubes situated above said primary bank, said auxiliary bank being interrupted and divided into two portions by a transverse water-chamber; and connections between said water-chamber and the water-drum, substantially as described.

10. In a water-tube boiler, the combination of a transverse water-drum; a transverse steam-and-water drum; and a transverse steam-drum, all situated above the water-tubes; a primary bank of water-tubes connected at their extremities by water-legs or manifolds; connections between the forward water-leg or manifolds and the steam-and-water drum; an auxiliary bank of water-tubes immediately above the primary bank, in direct communication at their forward ends with the steam-and-water drum and entering at their rear ends the rear water-leg or manifolds; an intermediate transverse water-chamber dividing the said auxiliary bank into two portions; connections between said intermediate water-chamber and the water-drum, the water-drum and the steam-drum, the steam-drum and the steam-and-water drum, substantially as described.

11. In a water-tube boiler, the combination of a transverse water-drum; a transverse steam-and-water drum; and a transverse steam-drum, all situated above the water-tubes; a primary bank of water-tubes connected at their extremities by water-legs or manifolds; connections between the forward water-leg or manifolds and the steam-and-water drum; an auxiliary bank of water-tubes immediately above the primary bank, entering at both extremities the front and rear water-legs or manifolds; an intermediate transverse water-chamber dividing the said auxiliary bank into two portions and connected with the water-drum; and a second or forward transverse water-chamber similarly dividing the said auxiliary bank and connected with the steam-and-water drum; and connections between the water-drum and the steam-drum, and the steam-drum and the steam-and-water drum, substantially as described.

12. In a water-tube boiler, a bank of simple direct-circulation water-tubes with a distributing-chamber, such as a water-leg or manifold, at both ends of the bank, the said bank being composed of a vertical series of horizontal rows of parallel tubes, the tubes in each horizontal row being regularly staggered with reference to those in the proximate rows, the vertical proximity of each such row to the row next to it being such that the uppermost edge of each of the tubes composing it is situated in a higher horizontal plane than that of the lowermost edge of the tubes in the row next above it; while the horizontal distance between the tubes in each row is such that any given vertical series which results from the regular superposition of the horizontal rows falls by a substantial clearance-space on either side to overlap the opposing sides of the adjacent vertical series, substantially as described.

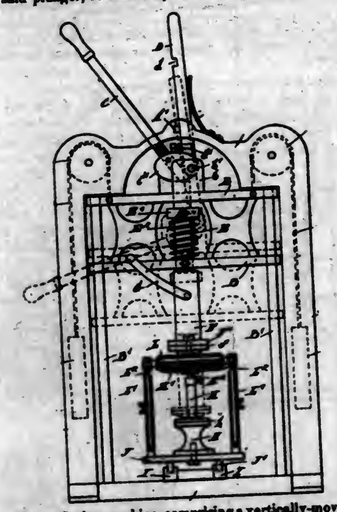
13. In a water-tube boiler, the combination of a horizontal bank of water-tubes; a transverse steam-and-water drum; a transverse water-drum; a transverse steam-drum, all of said three drums being situated within the walls of the furnace; and a vertical baffle bridge-wall extending down from the roof of the furnace and protecting the steam-drum and the water-drum from the most intense heat of the furnace, substantially as described.

604,778. HAT-PRINTING MACHINE. THOMAS J. MCCARTHY, Orange Valley, N. J. Filed July 31, 1897. Serial No. 646,236. (No model.)

Claim.—1. A hat-printing machine, comprising a frame having guideways thereon, a frame mounted to slide on said guides, a lock for holding the frame in its lower position, a plunger mounted in said sliding frame and carrying a printing-die, means for normally retracting the plunger, a lever mounted on the sliding frame and connected to said plunger to project it, and an impression-bed in line with said plunger, substantially as described.

2. A hat printing machine, comprising a frame having vertical guides, a frame mounted to slide on said guides and provided with counterbalances, a lock for holding the frame in its lower position, a plunger mounted in said frame and carrying the printing-die, a spring normally supporting the plunger, a lever connected to said plunger to depress it, and an impression-bed beneath said plunger, substantially as described.

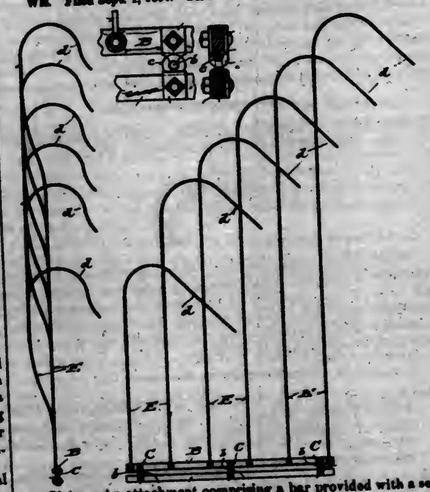
3. A hat-printing machine, comprising a frame having vertical guides, a frame mounted to slide on said guides and having counterbalances attached, a lock for holding said frame in its lower position, a plunger, hollow in its lower portion, mounted in said frame, and carrying the printing-die, a gas heating apparatus within said plunger for heating the die, a spring normally supporting the plunger, a lever connected to said plunger to depress it, and an impression-bed beneath said plunger, substantially as described.



4. A hat-printing machine, comprising a vertically-movable frame having therein a reciprocable plunger carrying a printing-die, a lock engaging said frame in its lower position a lever for depressing the plunger, a transversely-movable slide, an impression-bed mounted thereon, and an inking-roller mounted upon said slide and engaging the surface of the printing-die when the latter is in its upper position, substantially as described.

5. A hat-printing machine, comprising a vertically-movable plunger carrying a printing-die, a counterweighted frame supporting said plunger and mounted to slide vertically, a spring normally supporting the plunger in said frame, a lever for depressing the plunger, a transversely-movable slide, an impression-bed mounted thereon, and an inking-roller mounted upon the slide and engaging the surface of the printing-die when the latter is in its upper position, substantially as described.

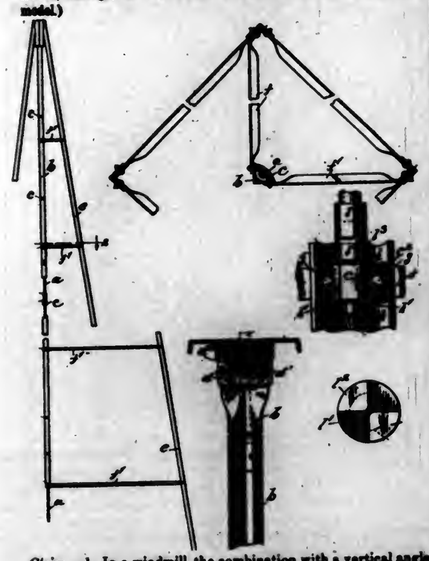
604,779. MOWER ATTACHMENT. THEODORE HAHN, Manitowoc, Wis. Filed Sept. 1, 1897. Serial No. 650,277. (No model.)



Claim.—An attachment comprising a bar provided with a series of shackle-joints for vertically-yielding connection with a mower

finger-bar in rear of the same, and a series of different-length rods that are rigidly connected to the former bar at intervals thereof, bent below the same a short distance therefrom to have a considerable portion of each rest on the ground and recurved at the rear to form overhanging guards.

604,780. SHAFT-SUPPORT FOR WINDMILLS. LA VERNE W. NOYES, Chicago, Ill. Filed Nov. 20, 1897. Serial No. 659,231. (No model.)



Claim.—1. In a windmill, the combination with a vertical angle-bar braced at intervals to the posts of the tower, of journal-boxes secured between the flanges of said angle-bar, and a shaft journaled therein and lying in the angle between the flanges of said angle-bar, substantially as described.

2. In a windmill, the combination with a vertical angle-bar braced at intervals to the posts of the tower, of a shaft lying in the angle between the flanges of said angle-bar, and journal-boxes for said shaft at intervals resting against and secured to the inner faces of said flanges, the axis of the shaft and the points of support of the box lying substantially in line, substantially as described.

3. The combination with an angle-bar of a journal-box secured between the flanges thereof, and a shaft journaled therein and lying within the angle between said flanges, said journal-box having a central opening and recesses in the sides communicating with holes having oblique side walls, and securing-bolts passing through said holes and having the heads resting in said recesses, substantially as described.

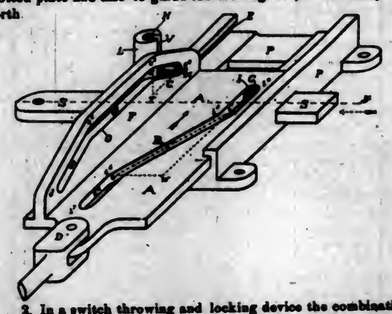
604,781. PETROLEUM-BURNER. WILFRED I. OSBER, Dayton, Ohio. Filed Feb. 20, 1896. Serial No. 580,075. (No model.)



Claim.—In a petroleum-burner, the combination with a burner-tube, a collar surrounding said tube, arms projecting upwardly from said collar, a heat-conductor on said arms, and a flame-spreading plate above said heat-conductor, of a hood inclosing a portion of said burner-tube and providing a space around the burner-tube in which oil is heated, substantially as specified.

604,782. SWITCH THROWING AND LOCKING APPARATUS. ELBERON P. OWEN, Manchester, Va., assignor of one-half to Morten Riddle, Jr., Petersburg, Va. Filed Aug. 11, 1897. Serial No. 647,260. (No model.)

Claim.—1. In a switch throwing and locking device the combination of a flanged-plate having a slot which engages a pin in a switch-bar, and which when operated shall by means of the slot and pin cause the switch-bar to operate the switch-rails, and having in its flanged portion another slot which engages a pin which is directly attached to a locking-bolt, and which when operated shall cause the locking-bolt to enter a perforation or hole in the said switch-bar, and so to lock the switch-rails, a switch-bar having perforations adapted to receive a locking-bolt, a locking-bolt, and a frame to guide the slotted plate and also to guide the locking-bolt, substantially as set forth.



2. In a switch throwing and locking device the combination of the flanged plate A F, having slots B and O, the switch-bar S, having the perforation Q and R, the locking-bolt H and the frame P L, having the slots E and V, all as and for the purpose set forth.

604,783. CARPET-SWEEPER. JOSEPH PARSEL and JOSEPH A. STAVIS, Grand Rapids, Mich. Filed Aug. 20, 1897. Serial No. 648,818. (No model.)



Claim.—1. In a carpet-sweeper, a case having a large opening in the top, a rotary brush and driving mechanism, a screen in said opening, a sponge above said screen, and an upper case inclosing said sponge, substantially as described.

2. In a carpet-sweeper, a case having a large opening in the top, an upper case covering said opening and hinged to said first-named case, a strip surrounding said opening, a screen in said opening, and a sponge supported on said screen, and a rotary brush below said opening, and means for rotating said brush, substantially as described.

3. In a carpet-sweeper, a case having a large opening in the top, a metal strip surrounding said opening, a screen attached to said strip, a case above said screen, a metal lining in said case, a sponge supported on said screen and within said case, a rotary brush below said screen and sponge, and means for rotating said brush, substantially as and for the purpose specified.

604,784. CAR-TRUCK. EDGAR PEMBHAM, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,094. (No model.)

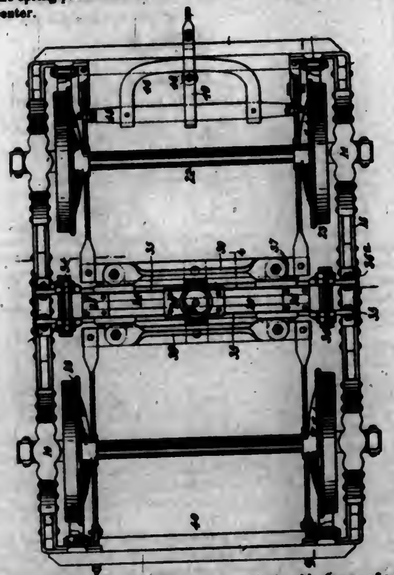
Claim.—1. In a car-truck, the combination with the side frames, of a car-body-supporting bolster, a spring-plank suspended by links below the bolster, a half-elliptic spring and a pair of spiral springs arranged on the spring-plank and supporting the bolster, the ends of said half-elliptic spring bearing on the spring-plank toward its ends and at its middle supporting said bolster, and the spiral springs also bearing on the spring plank near its ends.

2. In a car-truck, the combination with the side frames, of a car-supporting bolster, a plank suspended below the bolster, spiral springs and a half-elliptic spring between the plank and bolster, and a yielding bearing between the bolster and said half-elliptic spring.

3. In a car-truck, the combination with the side frames, of a car-body-supporting bolster, a spring-plank and two pairs of links whereby said spring-plank is suspended beneath the bolster, and a series of springs all bearing on said plank at or near its ends, a part of said springs directly supporting the bolster at or near its ends, and the rest of said springs supporting the bolster at its center.

4. In a car-truck, the combination with the side frames, of a car-supporting bolster, a plank suspended below the bolster, spiral springs between the plank and bolster, and a half-elliptic spring bearing on the plank near its ends and against the bolster at its center, and a pair of transverse bars or transoms one on each side of the bolster and supported by the truck.

5. In a car-truck, the combination with the side frames, of a car-body-supporting bolster composed of two channel-bars set on edge and held together by bearing-plates at their ends and a suitable plate in the middle, two transverse bars or transoms secured in pockets on the side frames of the truck, two pairs of links suspended from said transoms beyond the ends of the bolster, a spring-plank supported by said links beneath the bolster, and a series of springs arranged on said spring-plank and sustaining the bolster, one of said springs bearing on the spring-plank near its ends and bearing against the bolster at its center.



6. In a car-truck the combination, with the side frame, of a bolster, links depending from supports on the truck-frame and having a slight outward inclination from the point of support, a plank supported by the links at their lower ends, and springs bearing on said plank near its ends, one of said springs supporting the bolster at its center.

7. In a car-truck, the combination with the side frames and transverse bars or transoms 35 seated in pockets on the side frames, of a car-body-supporting bolster arranged between said transoms, two pairs of links carried by said transoms beyond the ends of the bolster, a spring-plank suspended below the bolster by said links, a half-elliptic spring the ends of which bear on said spring-plank near its ends, the center of the bolster resting on said spring and two spiral nest-springs seated in pockets attached to the bolster and the spring-plank near the ends of the latter.

8. In a car-truck, the combination with the transverse end beam connecting the side frames together, of a half-elliptic spring suitably mounted on said end beam and provided on its top with a rolling wheel or the like adapted to coact with the car-body sill against which said wheel normally bears for the purpose set forth.

9. In a car-truck the combination with the transverse end beam of the truck-frame, of a half-elliptic spring mounted on said end beam, adjustable pockets for the end of said half-elliptic spring and means on top of said spring adapted to coact with the car-body sill as set forth.

10. In a car-truck, the combination with the transverse end beam of the truck-frame, of a half-elliptic spring suitably mounted on said end beam, adjustable pockets for the ends of said half-elliptic spring, and a rolling wheel or the like journaled on top of said spring and adapted to coact with the car body sill for the purpose set forth.

11. In a car-truck, the combination with the end beam, of a half-elliptic spring adjustably supported on said beam and provided on its top with a rolling wheel, and pockets for the ends of said half-elliptic spring to rest in, and removable portions adapted to fit said pockets to vary the height of their seating-surfaces for the purpose set forth.

12. The combination with a car-truck equipped with a center-bearing car-body-supporting bolster, of a spring traction-regulating appliance located on the end of the truck outside the wheels, whereby increased traction is obtained on the wheels between the bolster and said end of the truck.

13. In a car-truck, the combination with a center-bearing bolster and the driving-wheels, of a half-elliptic spring adjustably supported on the end beam of the truck outside the driving-wheels and provided with a rolling wheel on its top surface for the purpose set forth.

14. In a car-truck, the combination with a center-bearing bolster and a traction-regulating appliance supported upon the end beam of the truck-frame, of a pair of wheels and their axle between said bolster and traction-regulating appliance on said end beam, and a motor supported on the axle of said wheels.

15. In a car-truck, the combination with the driving-wheels and a motor supported on the axle of said wheels, of a center-bearing bolster supported on the truck-frame and a half-elliptic spring adjustably supported on the end beam of the truck-frame, outside the driving-wheels, and provided with a rolling wheel at its top, for the purpose set forth.

604,785. BAKING-VARNISH. JESSE PETTIBONE, Lockport, N. Y., assignor to the United Indurated Fibre Company, same place. Filed Feb. 17, 1897. Serial No. 623,795. (No specimens.)

Claim.—1. The herein-described baking-varnish or enamel which consists of boiled corn-oil as its essential ingredient, and a resin or gum mixed therewith, substantially as described.

2. The herein-described baking-varnish or enamel which consists of corn-oil, resin or gum, and a drier, said materials being used in substantially the proportions stated, substantially as described.

604,786. COFFIN-FASTENER. LEVI L. FLETCHER, Malta, Ohio. Filed Dec. 6, 1897. Serial No. 661,613. (No model.)



Claim.—1. A catch comprising a base-plate, a latch-piece having a loose fulcrum engagement with an opening in the base-plate, and a spring secured at one end to the base-plate and provided with a slot receiving therein a portion of the latch-piece to pivotally and removably hold the latter in place, substantially as set forth.

2. A catch comprising a base-plate formed with a latch-opening, a latch-piece having a catch arm or hook loosely fitting in the latch-opening, a U-shaped latch-guard inclosing between its side arms said catch arm or hook and having its terminals clenched within the latch-opening, and a leaf-spring secured fast at one end to the base-plate and having its free end engaging with the latch-piece to pivotally and removably hold the latter in place, substantially as set forth.

3. A catch comprising a base-plate formed with a latch-opening and a smaller fulcrum-opening disposed in a line with and adjacent to the latch-opening, a latch-piece having a catch arm or hook loosely fitting in the latch-opening, and a lever-arm portion lying above the plane of the base-plate and disposed approximately at right angles to the catch arm or hook, said lever-arm portion being provided at its inner end with a round fulcrum-knob loosely engaging in the fulcrum-opening, and at its upper edge with an elongated shouldered projection, and a leaf-spring secured fast at one end to the base-plate and having a longitudinally-disposed slot engaging over the shouldered projection of the latch-piece, substantially as set forth.

604,787. PNEUMATIC-TIRE PUMP. CARMELLE PELOQUIN, Murphysborough, Ill., assignor of one-half to August Buta, same place. Filed Nov. 30, 1897. Serial No. 660,257. (No model.)

Claim.—1. The combination with a wheel, of an air-pump carried thereby, and driving means held against rotation during the pumping action and adapted to automatically rotate with the wheel when the pressure in said pump exceeds that of the holding means; substantially as specified.

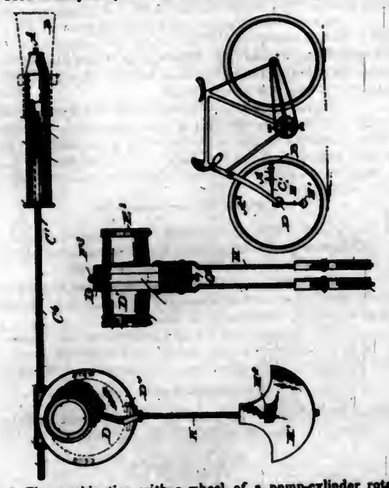
2. The combination with a wheel, of an air-pump rotated thereby, weighted driving means loosely mounted upon the hub of the wheel, and a connection from said pump loosely mounted in relation to said driving means; substantially as specified.

3. The combination with a wheel, of an air-pump rotated thereby, an eccentric loosely mounted upon the hub of the wheel, a yoke loosely mounted upon said eccentric and connected to the piston-rod of said pump, and means for holding said eccentric against rotation until a predetermined pressure of air is exerted against the piston of said pump; substantially as specified.

4. The combination with a wheel, of an air-pump rotated thereby, an eccentric loosely mounted upon the hub of the wheel, a yoke loosely mounted upon said eccentric and connected to the piston-rod of the pump, and a weight for holding said eccentric against rotation during the pumping action; substantially as specified.

5. The combination with a wheel, of an air-pump rotated thereby, an eccentric loosely mounted upon the hub of the wheel, a yoke

loosely mounted upon said eccentric and connected to the piston-rod of said pump, and an adjustable weight suspended from said eccentric; substantially as specified.



6. The combination with a wheel, of a pump-cylinder rotated thereby, a piston-rod extending from said cylinder, an eccentric rotatably mounted upon the hub of said wheel, a yoke adjustably secured to said piston-rod, and automatic means for holding said eccentric against rotation during the pumping action of the piston-rod; substantially as specified.

7. The combination with a wheel, of a pump-cylinder rotated thereby, a piston-rod extending from said cylinder, an eccentric rotatably mounted upon the hub of said wheel, a yoke adjustably secured to said piston-rod, means for holding said eccentric against rotation during the pumping action of the piston-rod, and a pawl-and-ratchet device for preventing the rotation of the eccentric at a speed greater than the rotation of the wheel-hub; substantially as specified.

8. The combination with a wheel, of a pump-cylinder carried thereby, a piston-rod extending from said cylinder and provided with a squared portion and a threaded end portion, a weighted eccentric located upon the wheel-hub, a yoke rotatably mounted upon said eccentric and adjustably connected to the threaded end of said piston-rod; substantially as specified.

9. The combination with a wheel, of a pump-cylinder and piston-rod carried thereby, an eccentric formed in sections and secured together so as to rotate upon the wheel-hub and a yoke rotatably mounted upon said eccentric and connected with said piston-rod; substantially as specified.

10. The combination with a wheel, of a pump-cylinder rotated thereby, an eccentric rotatably mounted upon the wheel-hub, and a sectional yoke secured together and connected to said piston-rod; substantially as specified.

11. The combination with a wheel, of a cylinder and piston-rod rotated thereby, a yoke carried by said rod, an eccentric rotatably mounted upon said hub, a threaded extension from said eccentric, a weight adjustable upon said extension, and a nut mounted to adjust said weight; substantially as specified.

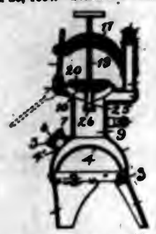
12. The combination with a wheel, of a pump-cylinder and its piston-rod, a bearing secured upon the wheel-hub against rotation, an eccentric rotatably mounted upon said bearing, and a yoke rotatably mounted upon said eccentric and connected to said piston-rod; substantially as specified.

13. The combination with a wheel, of a pump-cylinder and its piston-rod, a bearing secured upon the wheel-hub against rotation, an eccentric rotatably mounted upon said bearing, a yoke rotatably mounted upon said eccentric and connected to said piston-rod, ratchet-teeth carried by said eccentric, and a pawl located upon said bearing; substantially as specified.

14. The combination with a wheel, of a pump-cylinder and piston-rod, an eccentric rotatably mounted upon the wheel-hub and provided with flanges at opposite sides thereof, a rotatable yoke located between said flanges and connected with said piston-rod, and a packing-band extending around said yoke and into contact with said flanges; substantially as specified.

15. The combination with a wheel, of a pump-cylinder and its piston-rod, means for reciprocating said rod, a contractible clamp exteriorly threaded and secured to the wheel-rim, and a nut engaging said threads for pressing and holding said clamp into contact with the pump-cylinder, substantially as specified.

604,788. VULCANIZER. BERNARD REIS, Rochester, N. Y., assignor of one-half to the Red Cross Cement and Rubber Company, same place. Filed Dec. 28, 1897. Serial No. 664,313. (No model.)



Claim.—1. In a vulcanizer, the combination with the base, the sheet-metal boiler 3 supported thereon, the heavier cast-metal closed steam-chamber 9 secured to the upper portion of the boiler and having the shaped upper surface, the standard mounted on the chamber, the arm on the standard, and the shaped clamping-block movable on the arm.

2. In a vulcanizer, the combination with the boiler, and the inclosed steam-chamber, constituting a work-support, of the vertical, hollow standard at one side communicating with the steam-chamber, the valve at the upper end thereof, a laterally-extending clamp-arm supported on the tube and extending over the chamber, and clamping devices thereon.

3. In a vulcanizer, the combination with the base, the boiler and the steam-chamber having the concaved upper surface, and the downwardly-extending recess 25 therein, of the standard at the side of the chamber, the arm 17 mounted thereon, the clamping screw operating through the arm and the convex block 20 with which the clamping-screw cooperates.

4. In a vulcanizer, the combination with the boiler and the inclosed steam-chamber, the exterior of which constitutes a work-support, of the vertical standard at one side of the work-support, the supporting-arm pivotally mounted on the standard and adapted to swing laterally over or away from the work-support, and clamping devices mounted on said arm.

5. In a vulcanizer, the combination with the boiler, the steam-chamber, the exterior of which constitutes a work-support, the vertical standard at one side of the work-support, the arm pivotally mounted thereon adapted to extend over or away from the work-support, the work-clamp mounted on the arm and the pivoted link at the side of the support adapted to engage the free end of the arm.

6. In a vulcanizer, the combination with a steam-chamber constituting the work-support, the standard at the side thereof, the arm pivoted on the standard and adapted to be moved laterally over and away from the work-support, the clamping-screw on the arm, and the block with which said screw cooperates.

7. In a vulcanizer, the combination with the steam-chamber, constituting a work-support, the hollow standard communicating with the interior thereof, the arm swiveled on the standard, the clamping device on the arm, the collar on the standard for securing the arm, and the adjustable valve at the upper end of the standard.

8. In a vulcanizer, the combination with the base, the boiler 3 having the convex exterior and the hemispherical concave bottom 4, of the steam-chamber 9 attached to the upper portion of the boiler having the shaped upper face, and clamping devices mounted on the steam-chamber embodying a shaped clamping-block, substantially as described.

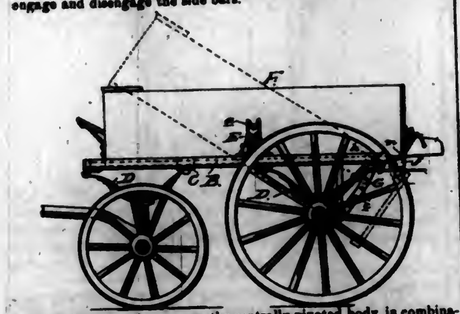
9. In a vulcanizer, the combination with the boiler 3 having the convex exterior and the hemispherical concave bottom 4, the inclined threaded nipple 4× on the boiler, the glass 6 and the flanged nut 5 on the nipple, substantially as described.

604,789. DUMPING-WAGON. OLIVER B. REYNOLDS, Brockton, Mass. Filed Aug. 16, 1897. Serial No. 648,490. (No model.)

Claim.—1. In a dumping-wagon, a tilting body having trunnions about which it tilts and means whereby the trunnions are maintained approximately in the center of gravity of the load.

2. A dumping-wagon having a tilting body, trunnions about which the body tilts and means for adjusting the position of the trunnions on the body whereby the center of movement of the body is essentially the center of gravity of the load.

3. In a dumping-wagon, the side-bars having vertically-disposed standards or hangers, the body having centrally-located trunnions pivotally mounted in said standards whereby the body is substantially balanced and is tiltable about said trunnions, slidable bolts on the body, adapted to engage the side-bars to detachably lock the body thereto, said bolts having their outer ends made tapering or wedge-shaped and adapted to slightly elevate the rear end of the body and thereby remove the weight of the load from the trunnions, and a lever and connections whereby the bolts are operated and made to engage and disengage the side bars.



4. In a dumping-wagon, the centrally-pivoted body, in combination with slide-bolts for locking said body with a stationary part of the wagon, said bolts having tapering or wedge-shaped ends adapted to slightly elevate the rear end of the body and thereby remove the weight of the load from the pivots about which the body tilts, a lever and rods connecting the bolts with the lever upon each side of the pivot of the latter, and a means for holding the lever against accidental movement.

5. A dumping-wagon having a body with trunnions at its center adapted to enter open bearings in hangers on the main frame whereby the body is substantially balanced and tiltable about its central axis, bolts at the rear of the body and locking the same to the frame, and means for elevating the forward end of the body whereby the trunnions are lifted out of their bearings and the body tilted about the locking-bolts.

6. In a dumping-wagon the body portion, the stationary frame and means for supporting and elevating the front end of said body, bolts connecting the rear portion of the body to said frame and means whereby the bolts may be adjusted in vertical planes to vary the inclination of the body, said bolts serving as pivots about which the body is tiltable.

7. In a dumping-wagon, the side-bars of the main frame, a bracket depending from each of said bars and provided with a vertical series of holes or sockets, a tiltable body and bolts carried by the body and fitted to said series of holes or sockets and adjustably securing the rear of the body to said bars, and forming the axis about which the body is tiltable when its front end is raised.

8. In a dumping-wagon, the body thereof having a discharge, in combination with a chute pivotally secured to said body, pistes projecting from the body and having notched edges, and links on the chute adapted to detachably engage said edges and thereby secure the chute in its adjusted positions.

9. A dumping-wagon having a body provided with vertically-adjustable trunnions about which it tilts, in combination with a frame having hangers or standards to receive said trunnions.

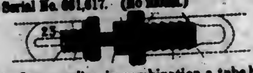
10. A dumping-wagon having a body provided with centrally-located side trunnions, means for vertically adjusting said trunnions, hangers or standards for the trunnions and means whereby they are adjusted vertically to correspond with the adjustment of the trunnions.

11. In a dumping-wagon, the stationary frame, and the tiltable body, in combination with levers fulcrumed to said body and provided with trunnions, a latching device for detachably securing the free end of the lever in its adjusted positions, and hangers or standards on the stationary frame each consisting of a channeled or slotted fixed member, a vertically-adjustable member having a bearing for said trunnions and a means for securing the movable member in its adjusted positions.

12. In a dumping-wagon, the combination of the frame having adjustable hangers or standards, of a tiltable body having levers fulcrumed to its sides and provided with trunnions, and latching devices for the levers each consisting of a stationary member, a member hinged or pivoted thereto, and provided with recesses or notches adapted to receive the free end of the lever and means for detachably securing the movable member.

13. In a dumping-wagon and in combination with a tiltable body having side trunnions, the hangers or standards in which the trunnions are mounted, each consisting of a stationary and channeled member, a vertically-slidable member having notches, a pivoted or hinged plate on the fixed member, having a lug to engage said notches and means for detachably securing said plate.

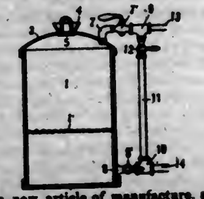
604,790. COUPLING. FRANK REID, Bridgeport, Conn., assignor of one-half to The Bridgeport Brass Company, same place. Filed Dec. 13, 1897. Serial No. 661,817. (No model.)



Claim.—1. In a coupling in combination a tube having a tapered seating end, a nipple also having a tapered seating end adapted to engage with the end of said tube said nipple being free as to rotation and limited as to longitudinal motion in relation to said tube, a thread on said tube and a nut on said thread adapted to hold said parts in their seated position, substantially as described.

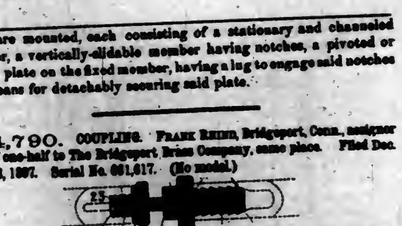
2. In a coupling in combination a tube provided with means for engaging a flexible pipe and flared at its free end, a nipple on said tube and tapered to receive the flared end thereof, a thread on said tube intermediate of its length and a nut on said thread adapted to bear against said nipple and to force said flared tube and said tapered nipple portion into engagement, substantially as described.

604,791. BEER-PIPE CLEANER. BERT REESE, Detroit, Mich. Filed July 8, 1897. Serial No. 643,912. (No model.)



Claim.—As a new article of manufacture, a beer-pipe cleaner, consisting of a pressure-tight chamber or tank, said tank having a flat bottom and a bulged head, a funnel 4 fitted in said head and a stopper 5 adapted to screw thereinto, the perforated or screen diaphragm extending across the interior of said tank, the water-inlet cock 7' leading into the interior of said chamber through the upper portion of one end, and a fluid-outlet 8' at the other, the T connections 9 and 10 united with said cut-offs 7' and 8', the pipe 11 and valve 12 located between said T connections in such a way as to establish communication therebetween, and the flexible tubes 13 and 14 also united with said T connection, all substantially as and for the purpose set forth.

604,792. CLAMP FOR RAILS. HIRAM K. RITTER, Reading, Pa. Filed Oct. 27, 1897. Serial No. 656,608. (No model.)

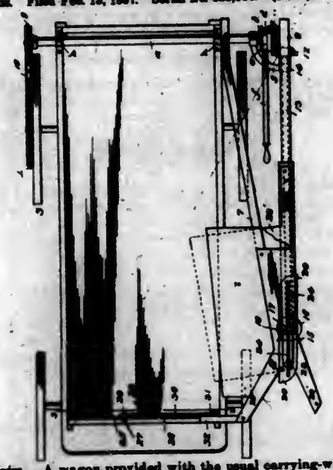


Claim.—1. A clamp for securing rails, &c., in place consisting of a body, slit transversely producing two parts one of which is adapted to be forced beneath the flange of one member and the other part to overlap said flange, and a tongue formed on said body to engage the flange of the other member, substantially as shown and described.

2. In combination, a railway-rail having notches therein, cross-ties also having notches therein, a clamp-plate having a body for engagement with a flange of the rail and a notch therein, a hook formed upon said clamp adapted for engagement with the flange of the tie and a notch therein, and a tongue so arranged as to be forced beneath the flange of the rail, as specified.

3. The herein-described combination of two beams crossing each other, a clamp-plate consisting of a body adapted to overlap the flange of one of said beams, a tongue for passing beneath said flange, and a hook projecting at right angles to the tongue and body adapted to engage with a flange of the other beam, as shown and described.

604,793. CORN-CUTTER. WILLIAM ROWLAND, Independence, Kans. Filed Feb. 13, 1897. Serial No. 623,336. (No model.)



Claim.—A wagon provided with the usual carrying-wheels, the sprocket-wheel rim 1 removably secured to one of said wheels, in combination with the tube *a* mounted in the brackets A A, fixed to the upper edge of the sides of the wagon near its rear end, the shaft 8 journaled in said tube, the sprocket-wheel 9 fixed on one end of said shaft, the sprocket-chain 10 connecting said rim 1 and sprocket-wheel, the bevel gear-wheel 11 fixed on the opposite end of said shaft, the platform-frame 7 pivoted at its rear end to said tube *a* and adjustably connected at its forward end to the front end of the wagon-box, the longitudinal tube A fixed in said platform-frame, the shaft 13 journaled in said tube A, the bevel gear-wheel 12 fixed to the rear end of said shaft 13 and the bevel-gear 15 fixed to the forward end of said shaft, the vertical shaft 17 journaled in the forward end of said platform-frame, the bevel gear-wheel 16 fixed to the lower end of said vertical shaft and in mesh with the gear-wheel 15, the diverging finger guards 29 and the throat-plate 23, fixed in the forward end of the platform-frame, the cutter-blades 30, 30 horizontally fixed to said vertical shaft, the reel or fan arms 24, 24 fixed to said shaft above said blades, and the shield 28 fixed to said platform above the fan-arms and inclined downwardly over the inside of the wagon-body, substantially as shown and described.

604,794. BOLSTER FOR RAILWAY-CARS. CHARLES T. SCHOCH, Philadelphia, Pa. Filed Feb. 25, 1898. Serial No. 671,560. (No model.)



Claim.—1. A bolster, comprising a body member made U shape in cross-section and having its top covered in by a substantially U-shaped channel cover-plate, inserted within the body and secured to its sides substantially as described.

2. A bolster, comprising a member U shape in cross-section, with one surface substantially level and the opposite surface bellied, and a channeled cover-plate riveted within and to the sides of the U-shaped member, substantially as described.

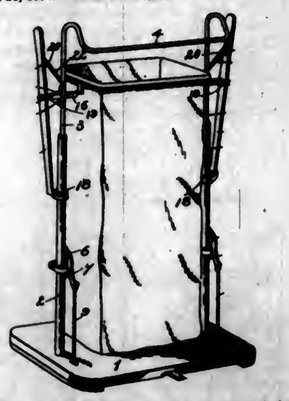
3. A bolster, comprising a body U shape in cross-section, and a channel cover-plate arranged within the sides of the body and united therewith, the whole constituting a boxed girder, substantially as described.

4. A bolster, of box form, comprising a girder U shape in cross-section, having its top closed by a cover channel-plate inserted between and riveted to the sides of the girder, and end and center braces, substantially as described.

5. A bolster, comprising a body member made U shape in cross-section, and having solid sides and bottom, and a top member arranged within and riveted to the sides of the body member, and the whole constructed of pressed steel, substantially as described.

6. A built-up bolster, comprising a body member made U shape in cross-section, and having its top covered in by a channel cover-plate arranged between and riveted to its sides, and adapted for interchange in ordinary diamond trucks, substantially as described.

604,795. SACK-HOLDER. EDWARD H. SCHWEY, Shoals, Ind. Filed Apr. 28, 1897. Serial No. 634,203. (No model.)



Claim.—1. A sack-holder having a frame provided with oppositely-alined guides, a sectional stretcher having relatively-adjustable members adapted to engage the mouth of a sack, and provided respectively with alined terminal stems or shanks fitted to slide in said guides, said members having alined telescoping arms, operating-levers respectively connected with the stems or shanks and having sliding fulcrums upon the frame, and means for locking said levers with the stretcher members at the desired relative adjustment, substantially as specified.

2. A sack-holder having a frame provided with oppositely-alined guides, a sectional stretcher having relatively-adjustable members adapted to engage the mouth of a sack, and provided respectively with alined terminal stems or shanks fitted to slide in said guides, said members having alined telescoping arms, operating-levers respectively connected with the stems or shanks and having sliding fulcrums upon the frame, and locking devices yieldingly held in operative engagement with the levers, to maintain the stretcher members at the desired relative adjustment, substantially as specified.

3. A sack holder having a frame, a sectional stretcher adapted to engage the mouth of a sack and having members of which one is adjustable relatively to the other and is provided with a stem or shank fitting in a guide on said frame, an operating-lever connected with said stem or shank, and means for securing the lever at the desired adjustment, said means consisting of a gravity-pawl engaging a ratchet on the lever, substantially as specified.

4. A sack-holder having a frame, a sectional stretcher having relatively-adjustable members provided respectively with stems or shanks fitted in guides on said frame, operating-levers connected with said stems or shanks, set-screws for engaging the stems or shanks to secure them at the desired adjustment, and yielding pawls for engaging the levers, substantially as specified.

5. A sack-holder having a frame including standards curved laterally at their upper extremities and connected by a cross bar, and a stretcher mounted upon the frame below the plane of said cross-bar and adapted to support a measure, said cross-bar forming a guard or rest for a measure supported by the stretcher, substantially as specified.

6. A sack-holder having standards of sectional telescoping construction, a stretcher carried by the movable sections of the standards and comprising relatively-adjustable members, and operating-levers connected with the stretcher members and having their fulcrums mounted to slide upon the fixed members of the standards, substantially as specified.

7. A sack-holder having a frame including standards, each of which comprises a fixed tubular member and a movable member fitted to slide in the tubular member, means for locking the movable members at the desired adjustment, a sectional stretcher having its members mounted respectively upon the movable standard members, collars mounted to slide upon the fixed standard members, and operating-levers fulcrumed upon said collars and operatively connected with the stretcher members, substantially as specified.

8. A sack-holder having standards, each of which comprises a fixed tubular and a movable member, a stretcher supported by the movable members of the standards, pawls for engaging said movable members to secure them at the desired adjustment, a trip-bar terminally connected by links with said pawls, and oppositely-disposed trip-levers or treadles operatively connected with the trip-bar, substantially as specified.

604,796. STANDARD. CHARLES J. SHAW, Owosso, Mich., assignor to W. H. Shaw, Duffield, Mich. Filed Dec. 20, 1897. Serial No. 617,209. (No model.)

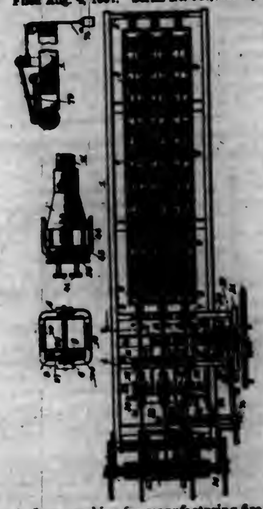


Claim.—1. In an end standard of the class described, the combination with the upper open box or member, the uprights detachably secured thereto at their upper ends, of the lower clamping members and fastening devices for detachably securing the clamping members together and to the lower ends of the uprights; substantially as described.

2. An end standard of the class described, the same comprising an upper member, uprights having upper and lower inwardly bent or extending ends, a lower member having open box-like portions adapted to receive the lower inwardly-bent ends of the uprights, fastening devices connecting said lower ends to the lower member, and fastening devices connecting the upper ends to the upper member.

3. The herein-described end standard, the same comprising an open box, uprights having upper and lower inwardly-bent ends, which uprights converge downwardly, lower separable clamping members, the upper one of which is provided with open boxes that receive the lower inwardly-bent ends of the uprights, fastening devices connecting the upper bent ends of the uprights to the bottom of the upper box, and fastening devices passing through the lower inwardly-bent ends of the upright and the two clamping members.

604,797. MACHINE FOR MAKING FIRE-ESCAPE LADDERS. MICHAEL SHIRK, Spring Mills, and JOHN O. A. KNEPPLY, Johnstown, Pa., assignors to the Johnstown Fire Escape Company, Limited, Johnstown, Pa. Filed Aug. 4, 1897. Serial No. 647,009. (No model.)



Claim.—1. In a machine for manufacturing fire-escape ladders, the combination of a spool-carrying frame, a tube connected to the frame and through which the wires pass from the spools, a pair of jaws pivotally connected to the tube and provided with perforations through which the wires pass, devices to open said jaws to separate the wires for the insertion of a rung, and means to rotate the spool-frame and the jaws, substantially as described.

2. In a machine for manufacturing fire-escape ladders, the combination of the spool-carrying frames, tubes rigidly connected to the frames, recessed cones carried by said tubes, inner tubes slidably supported in the first-named tubes to rotate therewith, disks carried by the said inner tubes, a pair of jaws pivoted in each of said disks, each jaw having perforations through which the wires pass, curved arms on said jaws working in the recesses in the cones, means to reciprocate the inner tubes to open or close the jaws, and means to rotate the spool-frames, the tubes, and the jaws, substantially as described.

3. In a machine for manufacturing fire-escape ladders, the combination of the spool-carrying frames, wire-twisting devices carried by the frames, gearing to rotate the frames and twisting devices simultaneously, a driving-wheel, a clutch connection between said gearing and the driving-wheel, a drum on which the completed ladder is wound, and mechanism operated by the successive rungs of the completed ladder to disengage the members of said clutch, substantially as described.

4. In a machine for manufacturing fire-escape ladders, the combination of spool-carrying frames, wire-twisting devices carried by the frames, gearing to rotate the frames and twisting devices simultaneously, a driving-wheel, a clutch connection between said gearing and the driving-wheel, a drum on which the completed ladder is wound, a roller journaled in the frame over which the completed ladder moves to the winding-drum, a spring-actuated pivoted lever connected at one end to the movable member of the clutch, a locking-lever pivoted on the frame and engaging at one end the spring-actuated lever to hold the clutch members locked, an arm pivotally connected to the other end of said locking-lever and projecting over the said roller to be engaged by the successive rungs of the completed ladder to trip the locking-lever and release the clutch mechanism, substantially as described.

5. In a weaving-machine of the class described, the combination with the twisting mechanism; of the drum for the woven structure, ratchet mechanism arranged on the drum-shaft and having a swinging pawl-carrying arm, a normally-elevated movable support carrying a head slidably engaging said pawl-carrying arm, and a normally-elevated movable contact-bar arranged beneath the drum and engaging with said movable support, substantially as set forth.

6. In a machine for manufacturing fire-escape ladders, the combination of the wire-twisting devices, the drum on which the completed ladder is wound, a ratchet-wheel on the shaft of the drum, an arm pivoted at one end on the drum-shaft, a spring-pawl carried by the arm to engage the teeth of the ratchet-wheel, a sliding head on the arm, means connected to the sliding head to oscillate said arm to turn the wheel and drum, a sliding bar arranged below the drum transversely thereof and adapted to be engaged and moved by the completed ladder as it is wound on the drum, a weight to normally hold the bar in contact with the woven structure on the drum and connections between said bar and the sliding head, substantially as described.

7. The combination of the wire-twisting devices, the flanged drum on which the completed ladder is wound, a ratchet wheel rigid on the shaft of the drum, an arm pivoted at one end on the drum-shaft, a spring-pawl carried by the arm to engage the teeth of the wheel, a sliding head on the arm, means connected to the sliding head to oscillate said arm to turn the ratchet-wheel and drum, a bracket supported on the frame to have vertical movement, a bar carried by the bracket and extending across below the drum, a weight to hold the bar normally in engagement with the completed ladder on the drum, a U-shaped bar straddling the flange of the drum and connected at one end to the sliding head, a pulley journaled on the other end of said U-shaped bar to engage the bar carried by the bracket, whereby the position of the head is changed as the ladder is wound on the drum and the speed of the drum thereby decreased, substantially as described.

8. In a machine for manufacturing fire-escape ladders, the combination of the wire-carrying spools, collars secured at one end to said spools, a pair of bars engaging the collars on adjacent pairs of spools, a bolt connecting said bars midway their length, and thumb-nuts on said bolt to regulate the pressure of the bars on the collars, substantially as described.

9. In a weaving-machine of the class described, the combination of a spool-holder, and the twisting device having means for separating the strands of wire, and causing the latter to approach and recede from the axis of rotation, substantially as set forth.

10. In a weaving mechanism of the class described, a rotatable twisting device having wire-holders each provided with a plurality of perforations for threading the wire strands therein, and means for causing the two sets of wire strands to approach and recede from the axis of rotation.

11. In a weaving-machine of the class described, a rotatable twisting device having wire-holders each provided with a plurality of perforations for threading the wire strands therein, and means for simultaneously adjusting said holders to cause the sets of strands carried thereby to approach and recede from the axis of rotation.

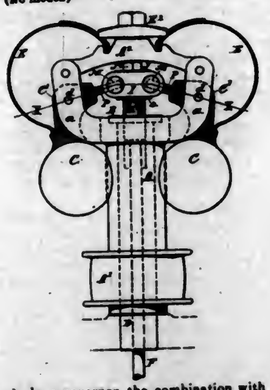
12. In a weaving-machine of the class described, a rotatable

twisting device having a pair of movable wire-holders, and means for causing said holders to move in a direction toward and away from each other.

13. In a weaving-machine of the class described, a rotatable twisting device having a pair of pivotal wire holders or jaws provided each with a plurality of wire openings or perforations, and means for oscillating said holders or jaws on their pivots.

14. In a weaving-machine of the class described, the combination with the twisting mechanism for the parallel cables, of a rotatable drum for the woven structure, and means for automatically stopping the rotation of said drum and the operation of the twisting mechanism when a certain predetermined length of the woven structure is complete.

604,798. GOVERNOR MECHANISM. JOHN W. SMITH and ALBERT H. ANTHONY, Worcester, Mass. Filed Jan. 15, 1898. Serial No. 666,771. (No model.)



Claim.—1. In a governor, the combination with the ball-lever and valve-actuating rod; of a center block running on the valve-rod head, and a connection from said center block to said ball-lever consisting of the transversely-disposed joint-roller and the finger-pin engaging with said roller for operation substantially as set forth.

2. The combination, with the swinging governor-lever, and the swiveling center block carrying the endwise-movable rod; of the transversely-disposed roller mounted to rock within a cylindrical recess formed in one of the parts, and a straight projecting finger-pin rigidly fixed on the other part and extending into a hole formed in said roller perpendicular to the axis thereof, and movable therein, substantially as set forth.

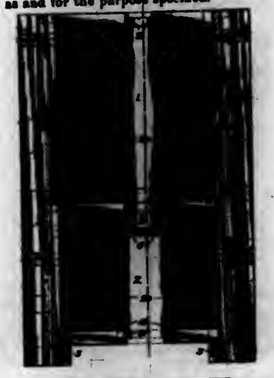
3. The combination, as described, of the valve-rod, the valve-rod head having the conical-faced flange and centering stud thereon, the conical-faced washer fitting over said stud, its fastening-screw, the center block mounted to turn on said head and having cone-shaped recesses matching said flange and washers, the governor-ball levers and a hinging joint connection joining said center block and governor-ball levers, substantially as set forth.

4. In combination, the rotatable sleeve having the bifurcated arms, the governor-ball levers pivoted to said arms, the central valve-rod having the conically-flanged head, the center block mounted on said head to turn freely between the conical bearing-surfaces, the joint rollers arranged in transversely-disposed openings extending across the opposite ends of said center block, said rollers having a hole therein perpendicular to their axis, and the finger-pins respectively fixed in the governor-ball levers and fitting into the holes in the joint-rollers, for the purposes set forth.

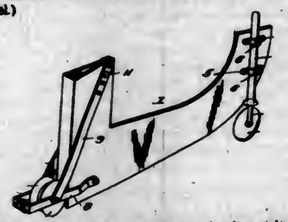
604,799. WINDOW-SCREEN. ELWYN SPEAKER, Egan City, Ill. Filed Sept. 24 1897. Serial No. 652,897. (No model.)

Claim.—1. In an adjustable screen, the combination of wings having transverse grooves or seats in their inner faces, and channels at the bottoms of the said grooves or seats, longitudinally-slotted plates fitted into the said transverse seats, and clamp-bolts mounted in openings in the screen and passing through the slotted plates and having their heads operating in the aforesaid channels, substantially as set forth.

2. In combination, a screen, laterally-adjustable wings having transverse grooves formed with undercut edges and inner ends, plates having their edges and inner ends beveled and fitted into the said transverse grooves and having longitudinal slots which extend through the outer ends of the plates, and clamp-bolts passing through openings in the side stiles of the screen and having their headed ends operating in the grooves of the wings and slots of the aforesaid plates, substantially as and for the purpose specified.

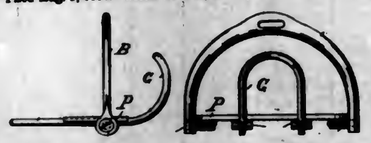


604,800. RUNNER FOR SEED-PLANTERS. WILLIAM I. SPENCER, Admire, Kans. Filed Feb. 16, 1898. Serial No. 670,545. (No model.)



Claim.—A runner for seed-planters, having at its forward end a vertically-adjustable swiveled colter-wheel, and at its heel a seed-coverer, consisting of two disks the contiguous faces of which are convex, arms pivoted to the runner and to the disks, and having their rear ends bent at right angles to their length and slotted, a bolt for clamping the slotted ends together in desired adjustment, and links pivoted to said arms and having vertical rows of perforations through which passes a bolt for the purpose of adjusting the covering-disks, substantially as set forth.

604,801. STIRRUP. CARL STRENKER, Dinglingen, Germany. Filed Aug. 5, 1897. Serial No. 647,908. (No model.)



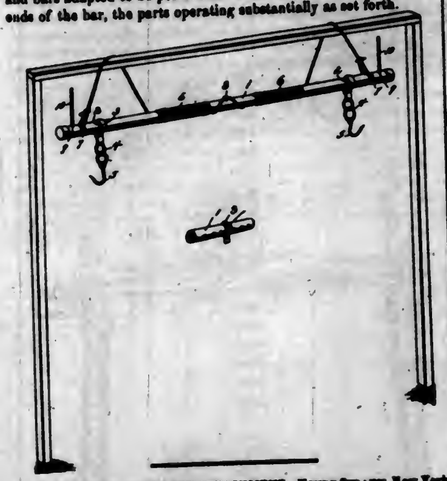
Claim.—A stirrup the foot-plate of which is pivotally connected by its middle length axis to the Π-shaped main body and in which base-plate a fork-like-shaped bow is adjustably guided, substantially as set forth.

604,802. HOISTING DEVICE. ROLLA STEWART and WILLIAM R. WINCHEL, Wolcott, N. Y. Filed June 23, 1897. Serial No. 641,968. (No model.)

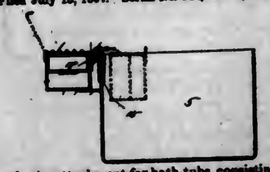
Claim.—1. The combination with a suitable support of a supporting-bar, and a rope attached at its ends to the respective ends of said bar and adapted to be drawn over said support, with its looped portion attached to said bar, substantially as set forth.

2. The combination with a suitable support of a bar, a rope secured at its ends to the respective ends of the bar, said rope adapted to be suspended by said support and have its looped end attached to the bar intermediate its ends, and supporting-hooks loosely attached to said bar, substantially as set forth.

3. The combination with a suitable support of a bar, a rope secured at its ends to the respective ends thereof, a hook carried by the bar intermediate its ends, said hook adapted to receive the looped portion of the rope when the same has been passed around said support, said bar being formed with annular grooves adjacent its ends, looped straps engaging said grooves, hooks carried by said straps, and bars adapted to be positioned within the passages formed in the ends of the bar, the parts operating substantially as set forth.



604,803. BATH-TUB ATTACHMENT. HENRY STRAUS, New York, N. Y. Filed July 15, 1897. Serial No. 644,721. (No model.)



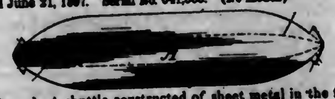
Claim.—1. An attachment for bath-tubs, consisting of an oblong casing or receptacle which is divided by a transverse partition into two compartments, one of which is adapted to receive soap, and the other a sponge, said attachment being provided at its opposite ends with holders or receivers for a glass, and for a brush and comb, and said attachment being also provided with a hinged cover and with spring-clamps by which it may be connected with the bath-tub, substantially as shown and described.

2. The herein-described attachment for bath-tubs, said attachment being oblong in form and open at the top, and provided with a hinged cover, and at the opposite ends thereof with holders or receivers for a glass and brushes and other toilet articles, and said attachment being also divided transversely into two separate compartments, substantially as shown and described.

3. An attachment for bath-tubs, which is open at the top and oblong in form, and provided with a transverse partition, into two compartments, one of said compartments being provided with a detachable perforated receptacle, and the other with an open receiver, and the walls of said attachment below said detachable receptacle and said receiver being perforated, substantially as shown and described

4. An attachment for bath-tubs, which is open at the top and oblong in form, and provided with a transverse partition, into two compartments, one of said compartments being provided with a detachable perforated receptacle, and the other with an open receiver, and the walls of said attachment below said detachable receptacle and said receiver being perforated, said attachment being also provided with hinged clamps by means of which it may be connected with the bath-tub, substantially as shown and described.

604,804. SHUTTLE FOR LOOMS. LEE STURGES, Chicago, Ill. Filed June 21, 1897. Serial No. 641,585. (No model.)



Claim.—1. A shuttle constructed of sheet metal in the form of a seamless three-sided shell having tapered points and integral deck portions at said points closing the ends of the otherwise open side.

2. A shuttle constructed of sheet metal in the form of a seamless three-sided shell having tapered points, provided with integral deck portions closing the ends of the otherwise open side, and provided with metal filling occupying the cavities within the points beneath the deck portions.

604,805. HEEL-SPRING FOR BOOTS OR SHOES. GEORGE R. SWAN, Beaver Dam, Wis. Filed Apr. 22, 1897. Serial No. 633,363. (No model.)

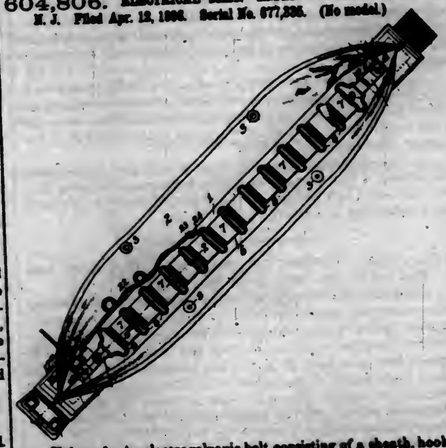


Claim.—1. A spring attachment for heels, comprising a plate adapted for attachment to a heel and having an opening therein, a tread-block having its ends resting against the inside of the plate, the tread-block being of reduced thickness at its rear end and its forward thickened end projecting outward through the slot in the plate, and a spring bearing against and exerting a downward pressure on the block, the spring at its forward end pressing against the front end of the tread-block and the rear end of the tread-block being free to slide on the plate when the front end is pressed inward, substantially as described.

2. A spring attachment for heels, comprising a plate adapted for attachment to a heel and having a slot therein, a tread-block of tapering outline projecting through said hole having a lug upon the thicker end thereof limiting its outer projection and an inwardly-extending knob upon the same end, the smaller end of said tread-block resting upon the inner side of the plate, and a spirally-coiled spring mounted upon the plate within the reduced end of the tread-block and having a loop projecting forwardly from the middle thereof, and terminating in an eye encircling the knob on the tread-block, whereby the block is loosely held projected and its rear or reduced end is free to move on the plate, substantially as described.

3. A spring heel attachment, comprising a plate adapted for attachment to a heel, said plate having an opening therein, lugs on each side of said opening projecting beyond the upper surface of the plate, a pin connecting said lugs, a tread-block loosely swinging in the opening of the plate and provided with a knob at the top of its thickened forward end, a spring coiled around said pin having bearing upon said plate and provided with an extension which embraces the knob on the tread-block, a lug horizontally projected from the tension-control or forward end of the tread-block adapted for engagement with the upper surface of the plate, and a loop formed upon the plate at its forward portion and exteeding upwardly therefrom, substantially as described.

604,806. ELECTRICAL BELT. ANDREW J. TAYLOR, Vineland, N. J. Filed Apr. 12, 1898. Serial No. 677,326. (No model.)



Claim.—1. An electrogalvanic belt consisting of a sheath, hook-plates attached thereto, a battery detachably connected to said hook-plates within the sheath, and battery-electrodes arranged outside of the sheath and having a hinged connection with the sheath and electrical connection with the hook-plates in the battery, substantially as described.

2. An electrogalvanic belt comprising a sheath, hook-plates attached thereto, hinge-plates having electrical connection with said

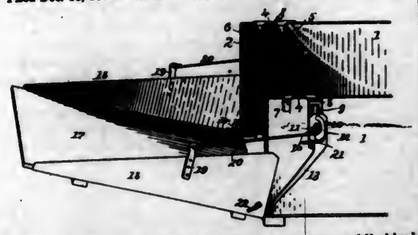
hook-plates, battery-electrodes hinged to the hinge-plates and provided with removable fibrous pads, and a battery detachably connected to the hook-plates within the sheath, substantially as described.

3. An electrogalvanic belt comprising a sheath, hook-plates attached thereto, battery-electrodes having hinged electrical connections with said hook-plates, fibrous pads removably fitted to said battery-electrodes, and a battery connected to said hook-plates, substantially as described.

4. An electrogalvanic belt consisting of a sheath, the hook-plates attached to the sheath, the clips attached to the hook-plates to have electrical connection therewith by the same rivets which attach said hook-plates to the sheath, the loops having hinged connection with the clips, a battery having its cells joined by hinged loops and provided with attaching-loops that engage the hook-plates, and a conductor provided at its ends with hooks, one of said hooks engaging with an auxiliary loop and the other hook detachably connected to any one of the series of hinged loops between the battery-cells, substantially as described.

5. An electrogalvanic belt comprising a sheath, the hook-plates attached thereto, the clips also attached to the hook-plates, the auxiliary loops hinged to the clips, a battery with attaching-loops engaging with the hook-plates, a terminal conductor having a hook engaging with the auxiliary loop, and a terminal body electrode attached to the terminal conductor and provided with a removable fibrous pad, substantially as described.

604,807. SCOOP-BOARD. FRANK M. TENNEY, Decatur, Ill. Filed Dec. 18, 1897. Serial No. 662,461. (No model.)



Claim.—1. A scoop-board fastening comprising a saddle-block composed of horizontal portion 4 and downward extensions 5, 6, 7 and 8, the last-named extension being vertically slotted, a plate 10 having a hitch-loop and a hinge-strap and a bolt to bind the plate to the slotted extension of the saddle-block, substantially as set forth.

2. A scoop-board fastening comprising a saddle-block composed of horizontal portion 4 and downward extensions 5, 6, 7 and 8, the last-named extension being vertically slotted, a plate 10 slotted horizontally and having a hitch-loop and a hinge-strap, and a bolt to bind the plate to the slotted extension of the saddle-block, substantially as set forth.

3. A scoop-board fastening comprising a vertically-slotted member adapted to be secured to a side-board of a wagon-bed, a plate slotted horizontally and having a hitch-loop and a hinge-strap, and a bolt to bind the horizontally-slotted plate to the vertically-slotted member, substantially as set forth.

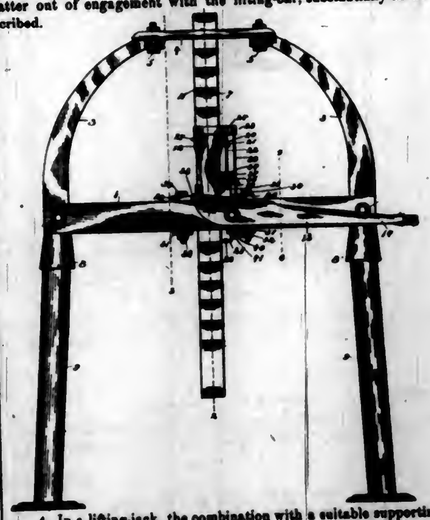
4. In a scoop-board fastening, the combination of a plate slotted horizontally, a hitch-loop on the plate, a hinge-strap extending from the plate, and a bolt to fasten the plate to a side-board of a wagon-bed, substantially as set forth.

604,808. LIFTING-JACK. FRANK A. UPTEGROVE, Caney, Kans. Filed Feb. 20, 1897. Serial No. 624,401. (No model.)

Claim.—1. In a lifting-jack, the combination with a supporting-frame comprising parallel separated horizontal beams, of an operating-lever having its side portions arranged outside of said beams, a lifting-bar mounted to operate between said beams and provided on opposite sides with teeth, dogs pivotally connected to said lever on axes at right angles to the fulcrum of said lever and engaging said lifting-bar on opposite sides, and a spring connecting said dogs for holding the same in yielding engagement with said lifting-bar, substantially as described.

2. In a lifting-jack, the combination with a suitable supporting-frame comprising parallel beams, of a lifting-bar movable between said beams and provided on opposite sides with teeth, a lifting-lever embodying side portions which embrace said beams, dogs pivotally connected to said lever and engaging the lifting-bar on opposite sides, a spring for holding said dogs in yielding engagement with said lifting-bar, a rock-shaft, and links interposed between said shaft and dogs for tripping the latter, substantially as described.

3. In a lifting-jack, the combination with a suitable frame, of a toothed lifting-bar movable in said frame, an operating-lever fulcrumed on the frame, dogs pivotally connected to said lever and engaging the lifting-bar, means for holding said dogs in yielding engagement with said bar, a rock-shaft extending longitudinally of the lifting-bar and journaled thereon and also provided with a double crank, and links interposed between said crank and dogs for throwing the latter out of engagement with the lifting-bar, substantially as described.



4. In a lifting-jack, the combination with a suitable supporting-frame, of a toothed lifting-bar slidingly mounted therein, an operating-lever fulcrumed on said frame, dogs pivotally connected to said lever and engaging said lifting-bar, a second set of dogs fulcrumed on the frame and engaging said bar, means for holding said dogs in yielding engagement with said bar, and a pair of rock-shafts for independently moving said dogs out of engagement with the bar, substantially as described.

604,809. VALVE. WILLIAM G. URMSON, New Brunswick, N. J. Filed June 1, 1897. Serial No. 638,972. (No model.)



Claim.—1. A valve comprising a tubular portion, a valve-seat extended downward in the tubular portion, a tube of yielding material in said tubular portion and a flap-valve in said yielding tube, the said flap-valve being extended normally at a transverse incline whereby it is caused to have an equal pressure at all its bearing-points, on the valve-seat, substantially as specified.

2. A valve, comprising a tubular casing having an interiorly-threaded portion, a valve-carrier having an exterior thread engaging therein, the said carrier having an inwardly extending valve-seat, a tube of yielding material in said valve-carrier, and a flap valve in said tube and having a hinge connection therewith at one side, the said flap-valve being normally extended at a transverse incline, whereby the pressure is equalized on the valve-seat, substantially as specified.

3. A valve, comprising a casing having annular ribs on its outer side, and a thimble for engaging over the nipple extended from a pneumatic tire into which the valve-casing is extended, the said thimble having its outer end turned over the end of the nipple, substantially as specified.

4. A valve comprising a tubular casing having its inner portion reduced, forming an exterior annular shoulder at the junction of the outer portion, the outer portion of said casing being provided with an interior screw-thread at the base of which an annular shoulder or seat is formed, a valve-carrier having an exterior screw-thread engaging with said interior screw-thread and adapted to engage its inner end against the shoulder or seat in the valve-casing, the said valve-carrier having an inwardly-extended valve-seat, and a flap-valve for engaging against said seat, the said flap-valve being normally extended at a transverse incline, substantially as specified.

5. A valve for a pneumatic tire, comprising a tubular casing having an interiorly-screw-threaded portion, a flap-valve arranged therein, a plug-cap having an exteriorly-screw-threaded portion for engaging the thread of the casing, the said screw-threaded portion having a longitudinal opening or slit, and a tongue pivoted to swing into and out of the slit, substantially as specified.

6. A valve for a pneumatic tire, comprising a tubular casing having an interiorly-screw-threaded portion and having an annular flange at its outer end, and also a projection outward from said flange forming a bearing, a plug-cap for engaging in said screw-threaded portion and having an annular channel in the inner side of its finger-piece, a flexible packing in said channel for engaging on the end of the valve-casing, a tongue pivoted to swing into and out of a slit in the threaded portion of the plug, and a valve in the valve-casing, substantially as specified.

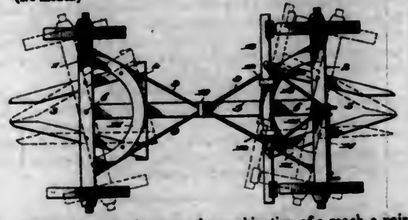
604,810. AUTOMATIC JETTY FOR DEEPENING TIDAL WAYS. JOHN A. L. WADDELL, Kansas City, Mo. Filed Dec. 23, 1897. Serial No. 663,131. (No model.)



Claim.—1. In combination with piles driven into the bed of a tidal waterway on the side opposite to that which it is desired to deepen, and extending to the surface of the water, or above or below it, the top-hinged gates *b*, placed on the upstream side of the piles, substantially as shown.

2. In an automatic jetty, the combination of the piles *a*, extending in a line from the shore opposite to the harbor to be deepened and inclined in the direction of the outgoing tide, with the top-hinged gates *b*, on the upstream side of the row of piles and extending approximately from the surface of the water to near the bottom of the river, and also with sheet-piling driven into the river-bed and extending up toward the gates, for the purpose of preventing the current from washing the ground from the piles, substantially as shown.

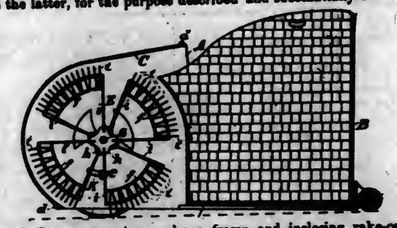
604,811. RUNNING-GEAR FOR VEHICLES. ROBERT H. WALLACE, New Concord, Ohio. Filed Mar. 31, 1897. Serial No. 630,151. (No model.)



Claim.—In a running-gear, the combination of a reach, a pair of axles pivoted to the ends of the reach, the centrally-arranged guide-block mounted on the reach between the ends thereof and provided with diagonally-disposed openings, the wires or rods 9 disposed diagonally of the running-gear, extending through the openings of the guide and secured at their terminals to the axles near the ends thereof, and the semicircular guides mounted on the axles and interposed between the ends of the wires or rods to take up the slack of the latter and cause the wheels to track perfectly in turning the vehicle, substantially as and for the purpose described.

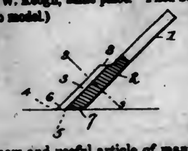
604,812. ROTARY LAWN-RAKE. FREDERICK H. WALTON, Orono, Me. Filed May 8, 1897. Serial No. 635,647. (No model.)

Claim.—1. In a rotary lawn-rake composing a revolving rake, inclosing casing and frame mounted upon supporting-wheels having internal gears; a wheel-plate having a protruding hollow axle for mounting the driving-wheels, upon one side and a projection near its periphery on the opposite side, said projection provided with two opposite flanges and adapted to enter the opening in a locking-plate attached to the frame, for the purpose described; a hollow locking-plate with inwardly-disposed lips adapted to engage the flanges protruding from the projection on the wheel-plate, and having an opening for the rake-shaft to pass therethrough; a retaining-bolt connecting the driving-wheel, wheel-plate, and frame; with a pinion mounted upon the rake-shaft within the driving-wheel and meshing into the gear on the latter, for the purpose described and substantially as shown.



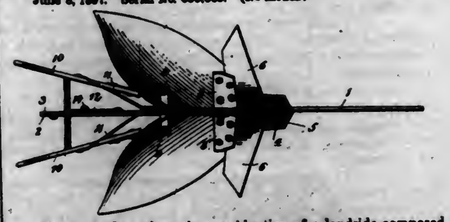
2. In a rotary lawn-rake a frame and inclosing rake-casing mounted upon driving-wheels; a rotating rake having spiral vanes with protruding rake-teeth; in combination with adjustable driving-wheels having internal gears thereon; a wheel plate with hollow driving-wheel axle protruding from one side, and a projection having opposite flanges adapted to engage in a locking-plate, protruding from its opposite side; a locking-plate with hollowed center and internally-protruding lips, so constructed to receive a circular or ball shaft-bearing within said plate and the projection locking in the same protruding from the wheel-plate; a ball-journal with central shaft-opening; a cam-bar protruding from a transverse hole in the rake-shaft; a pinion with cam-openings inclosing the said cam-bar and constructed to operate the rake-shaft in one direction only, said pinion mounted upon said rake-shaft and engaging the gears on the driving-wheels, all for the purpose described and substantially as shown and set forth.

604,818. SHREDDING-KNIFE. BERA H. WARD, Chicago, Ill., assignor to John W. Keogh, same place. Filed Sept. 20, 1897. Serial No. 652,336. (No model.)



Claim.—As a new and useful article of manufacture a knife for the purpose described having its forward side provided with upright grooves or channels constituting the edges 4 arranged at right angles to the line of movement of the knife and at short intervals apart, and a second series of edges arranged to the rear with respect to said edges 4 and in a plane therewith, and the bevels 6 7 formed along the lower edge of said knife, substantially as set forth.

604,814. PLOW. WILLIAM H. WARD, Dodd City, Tex. Filed June 8, 1897. Serial No. 639,835. (No model.)



Claim.—1. In a plow, the combination of a landside composed of two plates or component parts detachably connected and having their front ends of unequal length, and a point having a bar secured to the longer front end of the landside and having its rear end abutting against the front end of the shorter plate and coming flush with the outer side thereof, substantially as set forth.

2. In a plow, the combination of a landside composed of component plates or parts detachably connected together and having their front ends of unequal length, the plate having the shorter end being disposed on the outer side, a point having a bar placed against the projecting end of the inner plate and having its rear end abut-

ting against the front end of the shorter plate and coming flush therewith, and a beam secured to the inner side of the landside, whereby the outer side of the landside is unobstructed throughout its length, substantially as and for the purpose set forth.

3. In a plow, the combination with the point, and a landside secured so as to have the point project from either side, of a runner and a fastening for adjustably connecting the runner with the landside, substantially as set forth.

604,815. SOLITAIRE, BUTTON, &c. WILLIAM WEST, Aston, England, assignor of two-thirds to Richard Poore, London, England. Filed Mar. 8, 1898. Serial No. 673,070. (No model.)



Claim.—The herein-described button or fastening appliance, comprising the cupped disk *a* provided with a central aperture surrounded by the annular flange *b*, a rigid frame secured to one face of said disk and composed of standards *c c* provided with laterally-projecting heads *d d* and a centrally-perforated connecting-bridge *e* near said heads, the perforation in said bridge being in line with the central aperture of the disk, the bar *f* having a trough-shaped under face adapted to engage on the heads of the standards *c c* and provided with a stem *h* that is axially and longitudinally movable in the perforations of the said bridge and disk, a washer *j* secured on said stem beyond where it is passed through the disk-aperture, and a coiled spring *i* surrounding said stem between the bridge *e* and washer *j* and having one end housed in the annular flange *b*, substantially as specified.

604,816. SOFT-TREAD HORSESHOE. ROBERT S. WIESENFELD, Baltimore, Md., assignor of one-half to Joseph Friedenwald, same place. Filed May 7, 1897. Serial No. 635,534. (No model.)



Claim.—1. In a horseshoe having a channeled under face, a tread located in the channel, and alining openings in the walls of the channel, the openings in one wall having flaring mouths on the inside of the walls, and fastening means extending through the tread and the openings in the walls, the flaring mouths guiding the fastening means to the openings substantially as described.

2. In a horseshoe, a channel in its under face with corrugated bottom, a tread located therein, laterally-extending fastening means, and tongues on the edges of the walls adapted to be bent inwardly to secure the tread in place, substantially as described.

3. A horseshoe having a channeled under face, the bottom of the channel being corrugated, and a solid corrugated tread fitting said channel, and tongues on the edges of the channel to hold the tread in place.

4. A horseshoe having a channeled under face, a tread located therein and extending above the walls of the channel, and heels and toe-pieces also extending above the walls of the channel, substantially as described.

604,817. TEMPORARY BINDER. JAMES E. WOODWORTH, Milwaukee, Wis.; Hattie E. Woodworth administratrix of said James E. Woodworth, deceased. Filed Dec. 2, 1895. Serial No. 570,732. (No model.)



Claim.—1. A temporary binder embodying a clamping-strip provided with hollow transversely-apertured posts, another clamping-strip having unyielding inelastic transversely-apertured stems engaging the posts, and a pin engaging registering apertures in each of said posts and stems.

2. A temporary binder embodying a clamping-strip provided with hollow posts having longitudinal series of transverse apertures, another clamping-strip having unyielding inelastic transversely-apertured stems engaging the posts, and a pin engaging registering apertures in each of said posts and stems.

3. A temporary binder embodying a clamping-strip provided with hollow transversely-apertured posts, another clamping-strip having unyielding inelastic stems apertured transversely at intervals longitudinally thereof, and a pin engaging registering apertures in each of said posts and stems.

4. A temporary binder embodying a clamping-strip provided with hollow transversely-apertured posts, another clamping-strip having transversely-apertured stems engaging the posts, a channeled stub on the posts, and a pin engaging the stub and registering apertures in each of said posts and stems.

5. A temporary binder embodying a clamping-strip provided with hollow posts, another clamping-strip having stems engageable with said posts, one of each pair of said engageable parts being formed with a longitudinal series of transverse apertures therethrough, and the other of each pair of said engageable parts being formed with at least one such transverse aperture therethrough, and an independent removable pin adapted for engagement with the registering apertures of said pair of engageable parts.

6. A temporary binder embodying a clamping-strip provided with hollow transversely-apertured posts, another clamping-strip having transversely-apertured stems engaging said posts, and an independent removable pin engaging registering apertures in each of said posts and stems.

7. A temporary binder embodying a clamping-strip provided with hollow posts having longitudinal series of transverse apertures, another clamping-strip having transversely-apertured stems engaging said posts, and an independent removable pin engaging registering apertures in each of said posts and stems.

8. A temporary binder embodying a clamping-strip provided with hollow transversely-apertured posts, another clamping-strip having stems apertured transversely at intervals longitudinally thereof, and an independent removable pin engaging registering apertures in each of said posts and stems.

604,818. SKIRT-PROTECTOR MATERIAL. WILLIAM F. WYMAN, Oshkosh, Wis. Filed Nov. 29, 1897. Serial No. 660,079. (No model.)



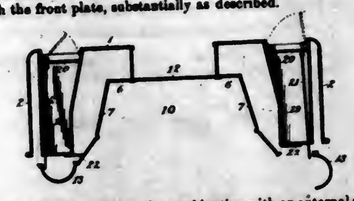
Claim.—1. A skirt-protector material comprising a facing-strip, and a binding-strip of less width than the facing-strip, this binding-strip being stitched to one side of said facing-strip, turned back away from the seam and stitched to the other side of the aforesaid facing-strip, the original seam being concealed inside the fold formed by said binding-strip.

2. A skirt-protector material comprising a facing-strip, a binding-strip of less width than the facing-strip and a stiffening-cord, the binding-strip being stitched to one side of the facing-strip turned back away from the seam over the cord and stitched to the other side of said facing-strip, the original seam being concealed with the cord inside the fold formed by said binding-strip.

604,819. HEATING APPARATUS. JOHN W. YATES, Nashville, Tenn. Filed May 15, 1897. Serial No. 636,673. (No model.)

Claim.—1. A fireplace-heater comprising an external casing, a fire-box casing having its side and rear walls arranged parallel with corresponding walls of the external casing and forming therewith the air-circulating spaces which discharge over the top of the grate through the front plate, a forwardly-inclined deflector within the grate-casing and overhanging the grate therein, a transverse smoke-arch above the deflector of the grate-casing to receive the products of combustion therefrom, horizontal base-flues arranged in the lower part of the air-chamber between the external and grate casings and discharging at their rear ends to a suitable flue, and a plurality of descending flues spaced relatively to each other within the air-chamber at the sides of the grate-casing and communicating with the smoke-arch and the base-flues, whereby the air-chamber is divided by a series of flues through which the products of combustion pass to the exit-flues and the ascending currents of air are divided into strata or columns which are brought successively in contact with

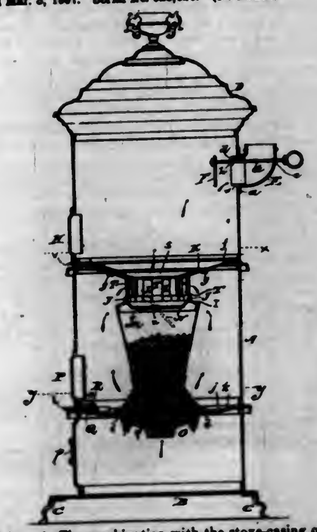
smoke-flues and the grate-casing prior to the discharge of the air through the front plate, substantially as described.



2. In a fireplace-heater, the combination with an external casing, and a grate-casing forming between itself and the external casing an air-circulating chamber, of the front plate having the hinged perforated guards at the bottom thereof, the base-flues arranged in the horizontal planes of the hinged guards and having the removable closures 22, the damper within the base-flues and having their operating-rods extending through said flues, the transverse smoke-arch over the grate-casing, and the downdraft smoke-flues situated at the sides of the grate-casing and communicating with the smoke-arch and the base-flues, substantially as described.

3. In a fireplace-heater, the combination with an external casing, of a grate-casing situated within the external casing and having a water-back situated in front of the air-circulating chamber provided between the grate and external casings and also having an inclined overhanging deflector, the base-flues at the sides of the grate-casing, the transverse smoke-arch, and the downdraft smoke-flues communicating with said arch and the base-flues, substantially as described.

604,820. HEATING AND COOKING DEVICE. JAMES ALLINGHAM, Chicago, Ill., assignor to the Allingham Stove Works, of Illinois. Filed Mar. 3, 1897. Serial No. 625,828. (No model.)



Claim.—1. The combination with the stove-casing of a grate, a cross-partition above the grate, having a fuel-magazine extending downward from its central portion, said fuel-magazine having a discharge end of such a size relative to the casing, and in such a position with respect to the grate that the fuel supplied therefrom will not spread outward against the walls of the casing; said fuel-magazine being also provided with openings near the top of the same for the passage of the burning gases arising from the grate, and a dumping-trap located in the upper portion of said fuel-magazine and below said openings therein, substantially as described.

2. The combination with the stove-casing and grate of the cross-partition above the grate, the fuel-magazine extending downward from said cross-partition and provided with openings in the upper portion thereof for the passage of burning gases arising from the grate below, a dumping-trap located in the upper section of said fuel-magazine and below said openings, whereby an auxiliary combustion-chamber is formed above said dumping-trap, substantially as described.

3. In a stove, the combination with the casing of a cross-partition made of two parts, an outer and an inner part, which are adapted to expand and contract by heat and cold, independently of each other, a rotary register depending from said cross partition and an automatically-adjusting trap below said register, substantially as described.

4. In a stove, the combination with the casing, of a cross-partition made of two parts, an outer and an inner part, which are adapted to expand and contract by heat and cold independently of each other, and located above the fire-grate, the inner part of said partition being provided with a central feed-opening, a fuel-magazine depending from said partition and communicating with said central opening, and an automatically-adjusting dumping-trap located below said central feed-opening, substantially as described.

5. In a stove, the combination with the casing, of a cross-partition provided with a central feed-opening, a fuel-magazine depending from said cross-partition and communicating with said opening, an automatically-adjusting dumping-trap below said opening, and a rotating register, provided with lateral openings below said cross-partition and above said dumping-trap, substantially as described.

6. In a stove, the combination with the outer casing, A, of a cross-partition, located above the grate, and composed of the outer plate, *f*, and the inner plate, K, the inner plate, K, being provided with a central opening, to the edges of which central opening are attached a series of pendants, J J, extending downward from the plane of the said cross-partition, and the fuel-magazine, M, located below said cross-partition and attached to the lower ends of the pendants, J J, and the damping-trap N below said pendants, substantially as described.

7. In a stove, the combination with the outer casing, A, of a cross-partition, located above the grate, and composed of the outer plate, *f*, and the inner plate, K; the said inner plate, K, being provided with a central feed-opening, to the edges of which central opening are attached a series of pendants, J, J, extending downward from the plane of said cross-partition, the register-plate, S, provided with the vertical valves, T T, and the fuel-magazine, M, located below said cross-partition and attached to the lower ends of the pendants, J J, and the damping-trap N below said register, substantially as described.

604,821. SHEEP-SHEARS. HORACE B. BURKE, Fort Pierce, Fla. Filed July 12, 1897. Serial No. 644,236. (No model.)



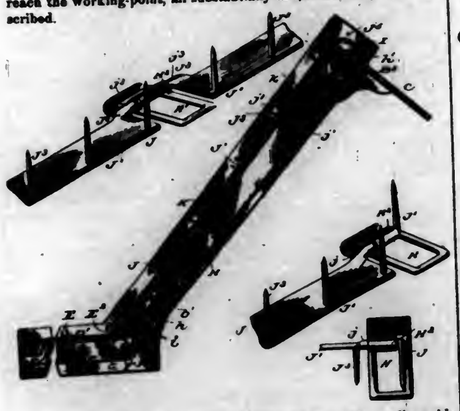
Claim.—The combination with a pair of shears comprising blades with attached handles connected by a flat spring-like portion bent in semicircular form, and provided about centrally with an opening, of a shank provided at its rear end with a projecting pin fast in said opening, said shank having a transverse opening at an intermediate point and provided at its forward end with a series of rigid parallel teeth, and inwardly-projecting pins on the handle portions of the shears slidingly fitting in the opening of said shank, substantially as described.

604,822. GRAIN-CARRIER. ALVA R. DEWEESE, Quincy, Ohio. Filed Apr. 1, 1897. Serial No. 630,297. (No model.)

Claim.—1. In an endless conveyer, the combination of the platform, sprocket-wheels at the ends thereof, endless chains arranged to move rake-bars over the platform and return them under the platform; the L-bars having hinge-studs *c*, *c'*, on their ends journaled on the chains substantially as described, said studs having upstanding trip-fingers c^3 on their ends; with a stationary pin at the discharge end of the conveyer adapted to engage the trip-fingers on the rake-bars and cause the bars to partly turn on their hinges as they pass over the discharge end of the platform and thus withdraw from the straw, and a guard-plate for turning the rake-bars to natural position at the front or grainward end of the platform, all substantially as and for the purpose described.

2. In an endless conveyer, the combination of the platform, the endless carriers running up over the platform and back thereunder, rake-bars J having upstanding teeth J^3 at their rear edge, and journal-pins *j* on their front edge at each end, by which they are hinged on said carriers, and also upstanding tripping-fingers *j'* on the ends of pins *j*; with fixed studs at the discharge end of the conveyer adapted to engage said trip-fingers and cause the rake-bars to partly turn downward and backward and withdraw from the straw, &c., on the conveyer as they pass over the discharge end thereof; and means

for throwing said rake-bars into their natural position before they reach the working-point, all substantially as and for the purpose described.



3. In an endless conveyer, the combination of the endless side chains H and intermediate endless chain H' having links provided with journal-bearings; and the sectional rake-bars J' having pins j^3 on their inner ends journaled in chain H', and pins j on their outer ends journaled in a chain H, said pins j having trip-fingers j' on their outer ends; with stationary studs at the discharge end of the conveyer adapted to engage said trip-fingers and cause the rake-bars to tilt rearwardly and thus withdraw from the straw, &c., all substantially as and for the purpose described.

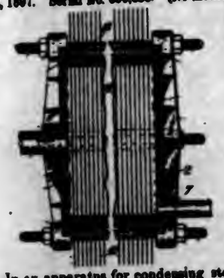
4. In a conveyer the combination of the board b, the endless side sprocket-chains and endless intermediate sprocket-chain running over said board, and the sprocket-wheels, and shafts at each end of the board, the curved plate I at the discharge end of the conveyer; the sectional rake-bars J having pivot-pins j, and j^3 by which they are hinged to said side and intermediate sprocket-chains respectively and provided with tripping-fingers j' on their outer ends; with the fixed studs j^4 secured to the side boards and adapted to engage fingers j' and cause the rake-bars to partly turn and withdraw from the straw, &c., and the curved plate i attached to the lower end of the board for turning the rake-bars back to natural position at the lower end of the conveyer, all substantially as and for the purpose described.

5. In an endless conveyer, the combination of the rake-bars having upstanding teeth, journal-pins on their front edges at each end, by which they are hinged on endless belts or chains, and also upstanding tripping-fingers; and a slotted plate overlying the upper surface of the conveyer and covering the rake-bars which travel thereunder while the teeth project upward through and travel in the slots in the plate; with fixed studs attached to the side boards at the discharge end of the conveyer in position to engage said trip-fingers and cause the rake-bars to tilt backward and withdraw from the straw, &c., on the carrier; and a curved plate attached to the lower end of the conveyer adapted to cause said rake-bars to turn into normal position, all substantially as and for the purpose described.

6. In an endless conveyer, the combination of the side and intermediate endless carriers, the sectional rake-bars J having hinge-studs j, j^3, in their ends pivoted to said side and intermediate carriers substantially as described, and provided with trip-fingers j', in their outer ends and also having a series of equidistant upstanding teeth; and a fixed plate overlying said rake-bars having a series of parallel longitudinal slots through which the teeth of the upper series of bars project as they travel thereunder; with a guard-plate I and stationary studs at the discharge end of the conveyer adapted to engage said trip-fingers and cause the rake-bars to partly turn rearwardly and thus withdraw from the straw, &c., as they pass over the upper end of the conveyer, and a plate i attached to the lower end of the conveyer for turning the rake-bars to normal position, all substantially as and for the purpose described.

7. In a conveyer, the combination of the board as b, the sprocket-wheels and shafts at each end thereof, the side and intermediate chains running thereover; the plate I at the discharge end of the conveyer; and the plate i at the receiving end thereof; with the rake-bars J having hinge-studs j, j^3, on their front edges pivoted to said side and intermediate chains and provided with tripping-fingers j'; the fixed studs j^4 attached to the side boards adapted to engage fingers j' and cause the rake-bars to tilt backward and withdraw from the straw, &c.; and the plate K covering the board b and overlying the upper set of rake-bars, but provided with longitudinal slots through which the teeth of the upper set of rake-bars project as the bars travel thereunder, all substantially as and for the purpose set forth.

604,823. CONDENSER. CHARLES S. FORBES, Strathdon, Scotland. Filed Nov. 15, 1897. Serial No. 659,093. (No model.)



Claim.—1. In an apparatus for condensing steam or vapor, the combination with end plates having suitable inlet and exit openings, of pieces of thin, perforated metal separated from each other by packing-rings of yielding material, said pieces being held in position by means of fastening devices passing through the end plates substantially as and for the purpose set forth.

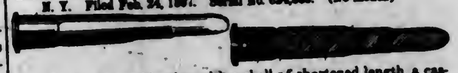
2. In a condenser the combination of end plates having respectively an inlet-opening and an outlet-opening in them, with a series of lamina of conducting material arranged in the intervening space, and adapted to allow the passage of vapor through them, and fastening devices connecting the said lamina to the framing of the said end plates substantially as set forth.

3. In a condenser the combination of metallic lamina adapted to allow the passage of vapor through them, packing-rings of yielding material interposed between said lamina, and fastening devices securing the same, with fixed parts of the condenser to which the said fastening devices are attached and which have respectively an inlet and an outlet opening in them, portions of the said lamina being arranged and adapted to project into the refrigerating medium surrounding the condenser substantially as set forth.

4. In combination with a condenser having an inlet-opening and an outlet-opening, a series of lamina adapted to allow the passage of vapor through them and arranged between the said openings, means for fastening the said lamina in position, a series of resilient packing-washers interposed between said lamina, and provided with lugs, and guides engaging the said lugs substantially as and for the purpose set forth.

5. In a condenser a series of lamina adapted to allow the passage of vapor through them and means for holding them in position, in combination with a casing having an inlet-opening and an outlet-opening and means for supplying refrigerating material to the said casing, the said plates being so arranged that the vapor to be condensed and the refrigerating material will be applied to the same side of the said plates substantially as set forth.

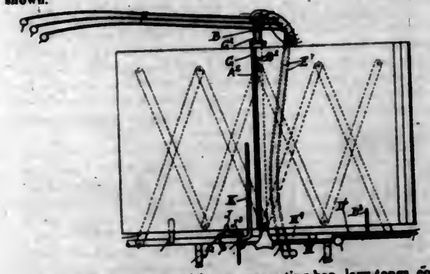
604,824. BLANK CARTRIDGE. LAWSON M. FULLER, New York, N. Y. Filed Feb. 24, 1897. Serial No. 624,889. (No model.)



Claim.—In combination with a shell of shortened length, a casing having its rear end reduced and fitted in said shell, the body portion of the casing forming a continuation with the shell and tapering gradually toward its outer end, the forward portion of said casing being formed in sections, each being less in diameter than that portion immediately preceding producing shoulders which fit against corresponding shoulders or projections in the bore of the gun to prevent the outward passage of the rear portion of said casing, the foremost section having its walls reduced in thickness, the inner configuration of the casing conforming to the outer configuration, a charge of compressed powder conforming to the inner configuration and lending strength to said casing, and a primer fixed in said shell, substantially as described.

604,825. MUSIC-LEAF TURNER. CHARLES GITTUS, Jr., Golden Gate, Cal., assignor of two-thirds to Arthur F. Farman, Jr., and Louis C. Gittus, same place. Filed Apr. 30, 1897. Serial No. 634,694. (No model.)

Claim.—1. In a music-leaf turner, the cross-bar D, provided with a longitudinal groove in its outer edge near one end, and the rod D^6 secured to the cross-bar, combined with the spring-actuated finger D^5 placed upon the rod, and the sliding block D^6 placed upon the rod and having its inner end to catch in the groove, substantially as shown.



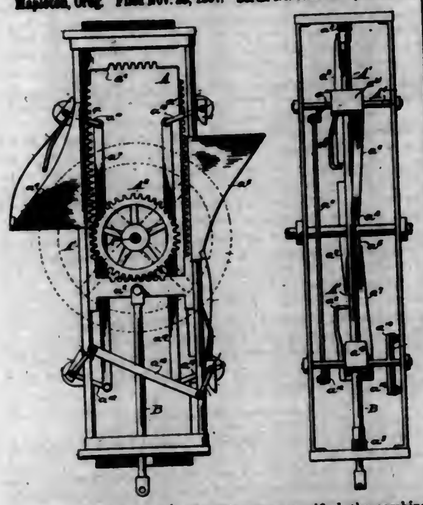
2. A leaf-turner comprising a supporting-bar, lazy-tongs connected therewith, and side bars hinged to said supporting-bar and adapted to be secured to the ends of said lazy-tongs, substantially as described.

3. A leaf-turner comprising a supporting-bar, a clamp-bar thereon upon which the sheet or book is placed, a spring-supported rest for the lower edge of the sheet or book, a top clamp-bar hinged at one end to said supporting-bar, and a catch for the other end of said top clamp-bar, substantially as described.

4. A leaf-turner comprising a supporting-bar, means for clamping the sheet or book thereon, spring-actuated wires secured to a head on said bar in such a way as to extend out therefrom in a horizontal position and adapted thence to be forced down and placed under the sheet or under certain leaves of the book, a catch to retain said wires down, and means for releasing the latter consecutively from said catch, substantially as described.

5. A leaf-turner comprising a supporting-bar, a screw or bolt passing through the upper end thereof, a head provided with a nut engaging said screw or bolt, wires secured to pivots in said head, springs wrapped around said pivots and arranged to exert a torsional strain on the same, and stops bearing on said wires and limiting the action of said springs, substantially as described.

604,826. DEVICE FOR CONVERTING MOTION. AMOS HADSALL, Mapleton, Oreg. Filed Nov. 23, 1897. Serial No. 659,642. (No model.)

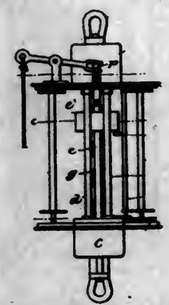


Claim.—1. In a device of the character specified, the combination with a gear-wheel and two rack-bars adapted alternately to operate the same, of automatically-operating shifting mechanism comprising, in part, cam-plates secured to the rack-bars, springs exerting lateral pressure on the cams, and means comprising a spring-retaining arm and a fin engaged thereby for holding the springs under requisite tension until a full stroke of the rack-bars has been completed, substantially as described.

2. In a device of the character specified, the combination with a gear-wheel, of two rack-bars mounted for reciprocatory motion and adapted to be shifted laterally, of means for bringing alternate rack-bars into engagement with the gear-wheel at the termination of each stroke, comprising two cam-plates, one mounted on each of the rack-bars, two shafts each carrying a spring in engagement with the cam-plate, and an arm, a fin also carried by each rack-bar with which the arm engages to hold the spring under requisite tension, two shafts, each carrying a dog adapted to bear upon the rack-bar frame on opposite sides thereof, and links connecting, through the medium of arms, with the respective shafts, substantially as described.

3. In a device of the character specified, the combination with a gear-wheel, of two rack-bars mounted for reciprocatory and lateral motion with relation to the gear-wheel, a cam-plate carried by each rack-bar, a spring, and mechanism for holding the same under requisite tension to effect lateral shifting of the rack-bars, and means for effecting accurate meshing between the respective rack-bars and the gear-wheel at the end of each stroke, comprising a toothed stop-plate arranged at each end of the rack-bar-carrying frame, and with which the teeth of the gear-wheel engage at the limit of each stroke, substantially as described.

604,827. WEIGHING-SCALE. JOHN HEMPSTALL, Lyttelton, New Zealand. Filed Mar. 21, 1895. Serial No. 542,689. (No model.) Patented in New Zealand Oct. 21, 1893, No. 6,508, and in England Apr. 8, 1895, No. 7,184.



Claim.—1. In a self-registering scale, the combination with an indicator-apron, of mechanism for automatically moving the indicator-apron a predetermined distance after a body has been weighed, reciprocating means adapted to be actuated by the body being weighed, and a marking device carried by said means, and adapted to make contact with the indicator-apron when moved in one direction, and to be out of contact with the apron when moved in the opposite direction, substantially as described.

2. In a scale, the combination with a screw-spindle, of a threaded head adapted to travel upon said spindle, means for attaching a weight to the head, devices for automatically returning the head to its normal position after a body has been weighed, and weight-indicating devices actuated by the head, substantially as described.

3. In a self-registering scale, the combination with the weighing mechanism, of an endless scale-ribbon and a support therefor, and means actuated by the weighing mechanism for moving the scale-ribbon, substantially as described.

4. In a self-registering scale, the combination with the weighing mechanism, of a traveling indicator-apron, marking device and an endless scale-ribbon and its support, and means for actuating the indicator-apron, scale-ribbon and marking device, substantially as described.

5. In a self-registering scale, the combination with a traveling indicator-apron, of a marker and means for moving the same in a direction transverse to that in which the indicator-apron travels, devices for returning the marker to its normal position and mechanism for locking it in such position, substantially as described.

6. In a scale, the combination with a screw-spindle, of a threaded head adapted to travel upon said spindle, means for attaching a weight to the head, devices for automatically returning the head to its normal position after a body has been weighed, and a scale-ribbon connected to the said head, substantially as described.

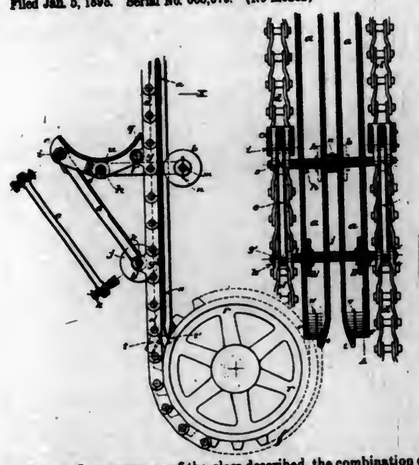
7. In a self-registering scale the combination with a traveling indicator-apron, means for moving it step by step, a marker adapted to reciprocate across the indicator-apron, and to be in contact therewith when moving in one direction only and to be out of contact therewith when moving in the opposite direction and means actuated by the body being weighed to reciprocate the marker, substantially as described.

8. In a scale, the combination with a suitable frame, of a screw-spindle mounted therein, a spring connected to the screw-spindle and frame, of a threaded head adapted to travel upon the screw-spindle, means for attaching a weight to the head, and a scale-ribbon connected to said head, substantially as described.

9. In a self-registering scale, the combination with a screw-spindle, means actuated by the body being weighed for rotating the same, devices for locking the screw-spindle against movement, and means for releasing said locking means, substantially as described.

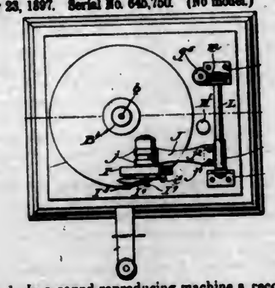
10. In a self-registering scale, the combination with the weighing mechanism and a marking device carried thereby, of an indicator-apron, devices adapted to hold said apron stationary while the weighing mechanism is moving in one direction and to move it a predetermined distance while the said mechanism is moving in the opposite direction, and the said marking device being adapted to make contact with the indicator-apron when traveling in one direction, and to be out of contact therewith when moved in the opposite direction, substantially as described.

604,828. CONVEYER. HARRY F. HODGES, New York, N. Y. Filed Jan. 5, 1898. Serial No. 665,679. (No model.)



Claim.—In a conveyer of the class described, the combination of fixed guides having front and rear faces, a conveyer-chain running near and parallel to said fixed guides, and a carrier attached to said chain, said carrier comprising contact devices at its upper part adapted to engage the rear faces of the guides, and contact devices at its lower part adapted to engage the front faces of the guides, substantially as set forth.

604,829. SOUND-REPRODUCING MACHINE. JOSEPH W. JONES, Philadelphia, Pa., assignor to himself and Joseph A. Vincent, same place. Filed July 23, 1897. Serial No. 645,750. (No model.)



Claim.—1. In a sound-reproducing machine a record-disk, suitably supported and rotated, a sound-box provided with a diaphragm and stylus, the latter being adapted to the record, a lever secured to the sound-box and hinged to a sleeved portion or carrier which is guided upon a horizontal bar, said lever being hinged in such a manner as to allow a slight movement of the sound-box and stylus independent of the motion imparted by the feed mechanism, the sleeved portion or carrier having a depending portion adapted to a feed-screw, the horizontal bar for guiding said carrier, the feed-screw arranged below the horizontal bar, a worm-wheel on said screw, and a worm driven from the source of power to impart motion to the worm-wheel.

2. A feed-motion for a sound-reproducing machine comprising a horizontal bar, a carrier mounted thereon having a depending portion engaging a feed-screw, the feed-screw, means as shown for imparting motion thereto, a sound-box provided with a diaphragm and stylus, the latter being adapted to a sound-record, and an arm secured to the sound-box and hinged to the carriage in such a manner as to allow a slight movement of the sound-box and stylus independent of the movement imparted thereto by the feed-screw.

3. A sound-reproducing machine consisting of a record-disk suitably supported and rotated, a sound-box provided with a diaphragm, a stylus-lever extending across the face of the diaphragm, having a rigid portion fulcrumed by a spring to the sound-box and a flexible portion secured by a screw to the sound-box, an adjusting-screw located at or near the center of the stylus-lever, one end of which is in contact with the diaphragm, a sound-box lever hinged and guided upon a horizontal bar, said lever having a depending portion provided with a screw-thread, a screw for engaging the threaded depending portion of said lever, a worm-wheel upon the end of said screw, and a worm driven from the source of power for operating said worm-wheel.

4. A sound-box for a sound-reproducing machine, consisting of a diaphragm mounted in a box or casing, a stylus-lever having a rigid portion hinged to the box or casing by a thin leaf-spring, and a flexible portion united through the medium of a rubber cushion to the box or casing, and an adjustable set-screw threaded to the stylus-lever at or near the center thereof, adapted to engage a buffer secured to the center of the diaphragm.

5. In a sound-reproducing machine, a sound-box comprising a shell or casing provided with a diaphragm and stylus-lever, the latter passing diametrically across the face of the diaphragm, and having a rigid portion connected to the sound-box by a spring, and a flexible portion pivoted at the opposite side and provided with a buffer, and an adjusting-screw adapted to the center of the stylus-lever and bearing against the diaphragm, substantially as specified.

6. In a sound-reproducing machine a sound-box provided with a diaphragm and securing-ring, a stylus-lever extending across the face of the diaphragm having a rigid portion fulcrumed by a spring to the securing-ring and a flexible portion formed integral therewith and secured to said ring by a screw and an adjusting-screw passing through the stylus-lever and acting upon a buffer fixed to the center of the diaphragm, substantially as specified.

7. In a sound-reproducing machine, a sound-box provided with a diaphragm, a stylus-lever extending diametrically across the face of the diaphragm and having a rigid portion fulcrumed at one side of the sound-box and a flexible portion secured to the opposite side of the sound-box with an adjustable screw threaded to the stylus-lever at or near the center and adapted to press upon the diaphragm, substantially as specified.

8. In a sound-reproducing machine, a sound-box provided with a diaphragm and securing-ring, a stylus-lever, extending across the face of the diaphragm, having a thickened and rigid portion fulcrumed by a spring to the securing-ring and a flexible portion united by a yielding pivotal connection to the opposite side of the securing-ring with an adjustable screw passing through the stylus-lever and acting upon the diaphragm, substantially as specified.

9. In a sound-reproducing machine, a sound-box provided with a diaphragm and securing-ring, a stylus-lever extending diametrically across the face of the diaphragm, the same being thick and rigid at one end and thin and flexible at the other, a leaf-spring interposed between the rigid portion of the stylus-lever and the securing-ring, an elastic buffer interposed between the flexible end of the stylus-lever and the securing-ring with a screw for holding the same in position, and an adjusting-screw passing through the center of the stylus-lever and acting upon the diaphragm through the medium of an elastic buffer, substantially as specified.

604,830. COMBINATION-TOOL. JOSEPH C. KAEMER, Menia, Tex. Filed Aug. 26, 1897. Serial No. 649,851. (No model.)

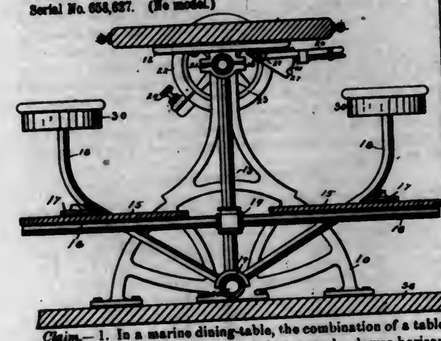
Claim.—1. In a device of the class described, the combination with a hatchet or analogous tool composed of a head, and a handle rigid with the same and having a longitudinal slot, of a bar provided at one end with a socket and pivoted at its other end in the longitudinal slot of the handle and adapted to lie in the slot when the hatchet is in use, said handle and bar being provided with opposite notches forming a wire-cutter, and a fastening device adapted to secure a tool in the socket of the bar and retain the latter in the slot of the handle, substantially as described.

2. In a device of the class described, the combination of a handle provided with a longitudinal opening, a pivot extending across the opening at one end thereof, a bar arranged within the opening and adapted to receive a screw-driver or similar tool, and provided with a slot receiving the said pivot, said slot being disposed at an angle and forming a wedge-shaped portion adapted to be interposed between the pivot and the handle at the adjacent end of the slot, whereby the bar is rigidly locked in position, substantially as described.



3. In a device of the class described, the combination of a handle provided with a longitudinal opening and having a threaded perforation at one side thereof, a pivoted bar arranged within the opening and provided with a socket and having a threaded perforation at one side thereof adapted to register with the threaded perforation of the handle, and a screw adapted to engage the said perforations and capable of securing the bar in the opening of the handle and also of securing a screw-driver, bit or similar tool in the socket of the bar, substantially as described.

604,831. SELF-LEVELING MARINE DINING-TABLE. JOHN H. LASKEY, Boston, Mass. Filed Dec. 22, 1896. Renewed Nov. 15, 1897. Serial No. 658,627. (No model.)



Claim.—1. In a marine dining-table, the combination of a table, an upper horizontal shaft upon which it is mounted, a lower horizontal shaft and a seat-support mounted thereon, and provided with a seat, a foot-platform, a support for said platform and a connection between the upper and lower horizontal shafts, said table, seat and platform adapted to oscillate in unison and maintain positions relative to each other.

2. In the construction of a marine dining-table, a frame structure composed of two longitudinal shafts connected by perpendicular shafts, a platform mounted on shafts running at right angles and secured to the perpendicular shafts, and seats mounted on the lower longitudinal shaft; all pivoted on uprights, secured to the deck, substantially as shown and described.

3. In the construction of a marine dining-table, the combination of a frame structure pivoted on uprights secured to the deck, a locking device consisting of a shaft running longitudinally with the table and revoluble in bearings mounted on the upper longitudinal shaft of the framework, a pulley secured to one end of said shaft, and a lever and latch on the other end, a quadrant provided with a notch to receive the latch, a rope on one end connected to the pulley and having the other end connected to the levers, said levers connected to the lock-shafts by links, and a spring mounted on said shaft to force them into the end standard, all mounted on the lower longitudinal shaft, substantially as shown and described.

4. In a marine dining-table, the combination of a frame comprising uprights secured to the deck, and a horizontal shaft, about which it oscillates, and a means for counterbalancing said structure consisting of a shaft slidable in bearings secured to the deck, a stiff spiral spring and resisting-collar on said shaft, a rope or connection from one end of said shaft and secured to the lower longitudinal shaft, and a swiveled pulley-block secured to the deck and through which the rope or connection passes.

5. In a marine dining-table, the combination with a stationary support or frame, and a frame mounted therein and adapted to oscillate and comprising a table and a seat and seat-support connected and movable therewith, of means for locking the oscillating frame to the stationary frame, comprising a spring-actuated shaft slidable in bearings and having an end to engage the stationary frame or support, a second shaft having an operating-lever and pulley, a rope or connection secured to said pulley, a bell-crank lever having an arm connected with the slidable shaft and the other arm connected with said rope, a quadrant fixed to the table-support and a latch to detachably engage the quadrant.

6. In a marine dining-table, the combination of the upper and lower horizontal shafts and the intermediate vertical upright, a table mounted on the upper shaft, a friction-wheel on said shaft, a friction-band surrounding the wheel, the screw whereby the band is adjusted and the stationary support to which the band is secured.

604,832. CENTRIFUGAL MACHINE. EUSTACHY ŁUKIEWSKI and EDWARD KRAJEWSKI, Warsaw, Russia. Filed May 28, 1897. Serial No. 638,573. (No model.)

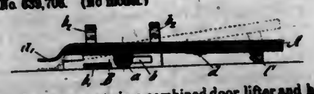


Claim.—1. A centrifugal for sugars, consisting of an interior drum adapted to be rotated and to receive the materials to be separated, said drum being provided with an imperforate bottom declining downwardly and outwardly, in combination with an exterior casing provided with a gutter, said gutter having a spout at its lowest point provided with an opening in its bottom adapted to be closed by a valve, and a second gutter concentric with and below the first, and adapted to drain off the overflow from said first gutter, said second gutter being likewise provided with a spout lying below the first and having likewise an opening in its bottom adapted to be closed by a valve, and a valve-stem carrying said valves, and suitable means for operating the same substantially as described.

2. In an apparatus for separately collecting syrups as described, the combination of a centrifugal drum and an exterior casing provided with collecting-gutters concentric to each other, said gutters being provided with spouts having apertures in their bottoms, said apertures adapted to be closed by separate valves, and a valve-stem carrying said valves and adapted to be operated by suitable means substantially as set forth.

3. In an apparatus for separately collecting syrups as described, the combination of a centrifugal drum and an exterior casing provided with collecting-gutters concentric to each other, said gutters provided with spouts having apertures in their bottoms, said apertures adapted to be closed by separate valves, and a valve-stem carrying said valves operated by suitable means, said valve-stem adapted to be displaced in three positions, *i. e.* for opening either of said apertures singly, or both simultaneously, and suitable means for cleansing the apparatus with a steam-jet, substantially as set forth.

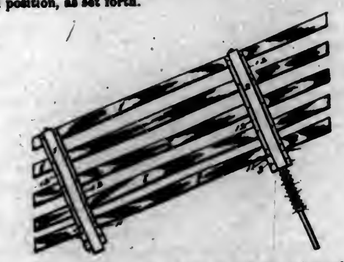
604,833. MACHINE FOR LIFTING DOORS AND HOLDING SAME. RUDOLF MÜLLER, Linz, Austria-Hungary. Filed June 7, 1897. Serial No. 639,708. (No model.)



Claim.—Improvements in a combined door lifter and holder, the treadle-board A, the roller-like bottom block *a* and the metal foot or under grip *a'* on said treadle-board, the pegs a^2 on the block *a* and the swinging lift-limiting prop C all in combination with the shore B having slots *b* adapted to receive the said pegs a^2, and the cross-piece *b'* and the struts *b* on the shore B, substantially as described.

604,834. CHUTE. JOSEPH W. MYERS, Sikeston, Mo. Filed Jan. 28, 1897. Serial No. 621,061. (No model.)

Claim.—1. A chute consisting of sides and a floorway, telescopic tubes attached to one end of the chute, the inner tube having a lug and the outer tube having a slot and external pins and means engaging said lug and pins and means to secure the elevated tube in adjusted position, as set forth.



2. The combination with a chute of tubular telescopic sections connected to the forward end thereof, the inner tube provided with a lug and the outer tube with a longitudinal slot in which the lug works, and means to elevate and hold the outer tube in place, as set forth.

3. The combination with a chute of an elevating mechanism consisting of a tubular housing provided with a longitudinal slotted opening; a shaft mounted within said housing and provided with a lug adapted to protrude through said slotted opening; fulcrum-points formed upon opposite sides of said housing and means for engaging said fulcrum-points and leg to the end that said shaft may be forced in and out of its housing, substantially as described and for the purpose set forth.

604,885. VALVE. SAMUEL H. MCCARROLL, Providence, R. I. Filed Sept. 30, 1897. Serial No. 653,604. (No model.)



Claim.—1. The improved valve herein described, having a valve-case with three tubular branches, having open ends, a rotatable cylindrical valve mounted in said valve-case and capable of closing all said tubular branches, but provided with a transverse port through it, which is made continuous with either two of the branches, when desired, by the partial rotation of the valve, pipes opening into said tubular branches, respectively, caps to cover the open outer ends of said tubular branches and a leather packing-ring in each tubular branch arranged to lie in contact with the cylindrical surface of the valve, substantially as specified.

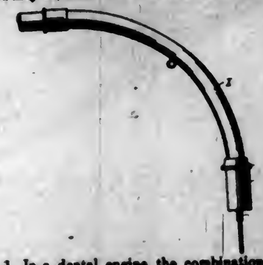
2. In combination with a valve-case, having a tubular bore and a plurality of tubular branches or ways, a cylindrical valve mounted rotatably in said bore and provided with a port through it transversely, which by the partial rotation of the valve may be made continuous with either two of said tubular branches, and flexible packing-rings, suitably supported in said tubular branches bent as shown and secured in position in the branches, respectively, and adapted to lie in contact with the cylindrical surface of the valve, substantially as described.

3. In combination with a valve-case, having a tubular bore and a plurality of tubular branches or ways, a cylindrical valve mounted rotatably in said bore and provided with a port through it transversely, which by the partial rotation of the valve may be made continuous with either two of the tubular branches, a flexible packing-ring adapted to lie in contact with the cylindrical surface of the valve, and a metallic supporting-ring upon said packing-ring secured to the interior surface of a tubular branch and adapted to confine said flexible ring in position to maintain its said contact with the valve, substantially as shown.

4. In combination with a valve-case having a tubular bore and a plurality of tubular branches or ways, a cylindrical valve mounted rotatably in said bore and provided with a transverse port, a metallic sheet covering the cylindrical surface of the valve, but cut away into a series of alternate bars and slots arranged parallel with each other and registering with the openings of said valve-port, and a flexible packing-ring suitably supported in a tubular branch of said valve and adapted to lie in contact with the metallic covering upon the cylindrical surface of the valve, substantially as set forth.

5. In a valve having a tubular bore and a plurality of tubular branches or ways, a cylindrical valve mounted rotatably in said bore and provided with a transverse port, a flexible packing-ring adapted to lie in contact with the cylindrical surface of the valve, a supporting-ring, suitably mounted and adapted to hold said packing-ring in operative position and a netting stretched across the tubular branch or way and held upon said supporting-ring by bolts, substantially as specified.

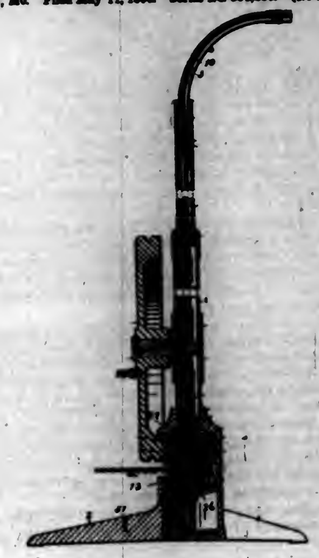
604,886. DENTAL ENGINE. ARTHUR J. MCDONALD, Kansas City, Mo. Filed May 11, 1896. Serial No. 591,185. (No model.)



Claim.—1. In a dental engine, the combination with a rotary driving-shaft mounted in a tubular support, of a rotatable cap movable lengthwise upon the said support, a curved tubular arm secured to the said cap, and a flexible shaft located in the said tubular arm and connected to and rotatable with the driving-shaft, substantially as described.

2. In a dental engine, the combination with a rotary driving-shaft, of a tube in which the shaft is mounted, a flexible shaft provided at one end with a rigid spindle a portion of which is cylindrical and the outer end of which is otherwise than round and is adapted to be inserted within a similarly-shaped opening in one end of the driving-shaft, a cap rotatably and longitudinally movable in one end of the tube and provided with a peripheral flange abutting against one end of the tube and having an axial opening in which the cylindrical portion of the spindle is rotatably fitted, and a curved tubular arm in which the flexible shaft is rotatable, one end of the said tubular arm being rigidly secured to the flanged end of the cap, substantially as described.

604,887. DENTAL ENGINE. ARTHUR J. MCDONALD, Kansas City, Mo. Filed May 11, 1896. Serial No. 591,186. (No model.)



Claim.—1. In a dental engine, the combination with a rotary driving-shaft, of a wheel secured thereto and rotatable therewith, a wheel rotatable around but independently of the driving-shaft, and means for bringing the two wheels into or out of engagement with each other, substantially as described.

2. In a dental engine, the combination with a rotary driving-shaft, of a wheel secured thereon and rotatable therewith, a wheel rotatable around but independently of the driving-shaft, and means for imparting longitudinal motion to the driving-shaft, for the purpose of engaging or disengaging the two wheels, substantially as described.

3. In a dental engine, the combination with a driving-shaft rotatable in a suitable support and longitudinally movable therein, of a flexible shaft connected to and rotatable with the driving-shaft, a wheel secured upon and rotatable with the driving-shaft, a wheel independently rotatable of the driving-shaft, means for rotating the second-named wheel, and means for engaging the two wheels with each other when the driving-shaft is moved longitudinally in its support in the proper direction, substantially as described.

4. In a dental engine, the combination with a driving-shaft rotatable in a suitable support and longitudinally movable therein, of a flexible shaft connected to and rotatable with the driving-shaft, a wheel secured upon and rotatable with the driving-shaft, a second wheel rotatable independently of the driving-shaft, means for imparting rotation to the second wheel, means for imparting rotation in the same direction to the driving-shaft when it is moved longitudinally in one direction, and means for reversing the direction of rotation of the driving-shaft when it is moved in the opposite direction longitudinally, substantially as described.

5. In a dental engine, the combination with a rotary driving-shaft, of a wheel secured thereon and rotatable therewith, a wheel rotatable independently of the driving-shaft, a plate rotatable with the driving-shaft, a roller located between the independent wheel and the plate, means for moving the driving-shaft in one direction for the purpose of engaging the two wheels together, and means for moving the driving-shaft in the opposite direction for the purpose of engaging the roller with the independent wheel and the said plate, substantially as described.

6. In a dental engine, the combination with a rotary driving-shaft, of a wheel secured to and rotatable with the driving-shaft, a plate secured to and rotatable with the driving-shaft, a wheel rotatable independently of the driving-shaft and located between the said plate and the first wheel, a roller located between the independent wheel and the said plate and adapted to have a rolling connection between the two, a lever for controlling the lengthwise movement of the driving-shaft in opposite directions, whereby when moved in one direction, the roller may be brought into engagement with the independent wheel and the plate, and when moved in the opposite direction the independent wheel may be brought into engagement with the wheel secured to the driving-shaft, substantially as described.

7. In a dental engine, the combination with a longitudinally-movable rotary shaft provided with a suitable support, of a driving-pulley mounted upon said support and rotatable about and independently of said shaft, a friction-wheel secured to the shaft at one end of the said pulley and rotatable with the driving-shaft, a plate on said shaft at the other end of said pulley also rotatable with the driving-shaft, a roller interposed between the driving-pulley and said plate, and means whereby the shaft may be longitudinally shifted to alternately bring the friction-wheel and roller in contact with the driving-pulley for reversing the rotary movement of the shaft.

8. In a dental engine, the combination with a rotary driving-shaft, of a plate secured to and rotatable therewith, a driving-wheel rotatable independently of the driving-shaft, a roller between the plate and driving-wheel, and means for bringing the plate and driving-wheel in and out of revolving contact with the roller, substantially as described.

9. In a dental engine, the combination with a rotary driving-shaft, of a driving-wheel rotatable independently of the driving-shaft, a plate secured to and rotatable with the driving-shaft, a roller located between the plate and driving-wheel, and a lever pivoted to a suitable support and adapted to engage the driving-shaft for the purpose of moving the said shaft lengthwise whereby the roller is made to have a revolving contact with the plate and the driving-wheel, substantially as described.

10. In a dental engine, the combination with a rotary driving-shaft, of a wheel rotatable therewith, a wheel rotatable around but independently of the driving-shaft, means for preventing longitudinal movement of the independent wheel, and means for bringing the two wheels into or out of engagement with each other, substantially as described.

11. In a dental engine, the combination with a rotary driving-shaft, of a driving-wheel rotatable around the driving-shaft, two devices rotatable with the driving-shaft, means for engaging the driving-wheel with one of the said devices for rotating the driving-shaft in one direction, and means for engaging the driving-wheel with the other device for rotating the driving-shaft in the opposite direction, substantially as described.

12. In a dental engine, the combination with a rotary driving-shaft, of a flexible shaft rotatable therewith, and connected thereto, a driving-wheel rotatable in a fixed plane independently of the driving-shaft, means for imparting rotation from the driving-wheel to the driving-shaft in one direction when the driving-shaft is moved in one direction, and means for imparting rotation to the driving-shaft in the opposite direction when the driving-shaft is moved lengthwise in the opposite direction, substantially as described.

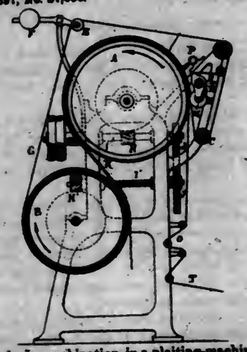
604,888. BICYCLE-FRAME. JOHN R. HASELL, Tacoma, Wash. Filed Feb. 4, 1897. Serial No. 621,905. (No model.)



Claim.—1. In combination with a bicycle-frame hollow tubular lugs arranged one above the other and extending inwardly at different angles from the head, similar lugs formed on the middle-post tube at the bottom and top thereof, a removable tube of a length to fit between the lugs, and nuts revolubly secured on the ends of said tube, said nuts being threaded internally to fit corresponding external threads formed on the lugs whereby the tube may be fitted between the two upper lugs thereby forming a diamond frame, or between the two lower lugs forming a drop or lady's frame, substantially as described.

2. In a bicycle-frame, joining-lugs at the head, crank-hanger and top of the middle-post tube having hollow tubular lugs formed thereon, said lugs being threaded externally, a tube of a length to fit between the lugs, and nuts revolubly secured at the ends of said tube, said nuts being threaded internally to fit the threads of said lugs, whereby the tube may be fitted between the two upper lugs forming a diamond-frame wheel or between the two lower lugs forming a drop frame, substantially as described.

604,889. PLAITING-MACHINE. HENRY PERVILHAC, Lyons, France. Filed Oct. 23, 1897. Serial No. 656,169. (No model.) Patented in France May 31, 1897, No. 267,110; in Austria Sept. 21, 1897, No. 47/5,223; in Switzerland Oct. 14, 1897, No. 15,214, and in England Nov. 13, 1897, No. 27,008.



Claim.—1. In combination, in a plaiting-machine, a drum, means for moving the drum, a series of cords passing over the same and means for moving the cords at a less surface speed than the drum, the fabric to be plaited being fed between the drum and cord, substantially as described.

2. In combination, the heated rotary drum, the cords with means for moving them at a less surface speed than that of the drum, and the steam-pipe arranged outside the drum for acting upon the material, substantially as described.

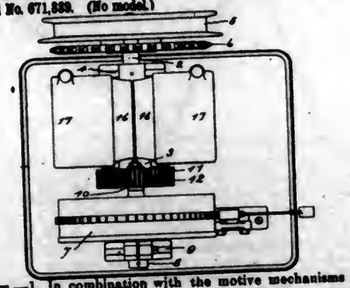
3. In combination, the rotary drum, the cords with means for moving the same at a less surface speed than the drum, the spring-

pressed pulleys by which the cords pass and the steam-pipe acting on the goods adjacent to said pulleys, substantially as described.

4. In combination, the smooth internally-heated drum, means for moving the said heated drum, a frictional drum, means for moving the said frictional drum at a less surface speed than the heated drum, guide-rollers having equidistant grooves, the spring-pressed pulleys, tension-pulleys and the cords passing around the friction-drum to be moved thereby about the heated drum to act on the goods, the said cords being moved slower than the heated drum, substantially as described.

5. In combination, the heated drum, means for moving the same, a drum having a friction-surface adapted to grip a cord or band, and the cord or band passing around the drums with means for moving the friction-drum slower than the heated drum, substantially as described.

604,840. GOVERNING MECHANISM FOR THROTTLE-VALVE CLOSERS. JOHN R. REYNOLDS, Hartford, Conn. Filed Feb. 28, 1896. Serial No. 671,889. (No model.)



Claim.—1. In combination with the motive mechanisms of a throttle-valve closer, cylinders located on opposite sides of the driving-spindle, a speed-reducing mechanism connected with the driving-spindle, and oppositely-facing pistons movable within the cylinders and provided with parts connected by intermeshing teeth with the speed-reducing mechanism and adapted to be given very slow short rectilinear movements in opposite directions in the cylinders by the rotation of the speed-reducing mechanism and connected parts, substantially as specified.

2. In combination with the motive mechanisms of a throttle-valve closer, a plural number of cylinders located on different sides of the driving-spindle, a speed-reducing mechanism connected with the driving-spindle, and a plural number of pistons movable within the cylinders and provided with parts connected by intermeshing teeth with the speed-reducing mechanism, which parts are so arranged that the pistons move simultaneously oppositely and each of the parts assists in guiding the opposite piston from that to which it is connected, substantially as specified.

604,841. NAPHTHA-RETORT. JOHN V. RICE, Jr., Edgewater Park, N. J., assignor to the John V. Rice, Jr., Company, same place. Filed May 22, 1895. Renewed Nov. 1, 1897. Serial No. 657,079. (No model.)

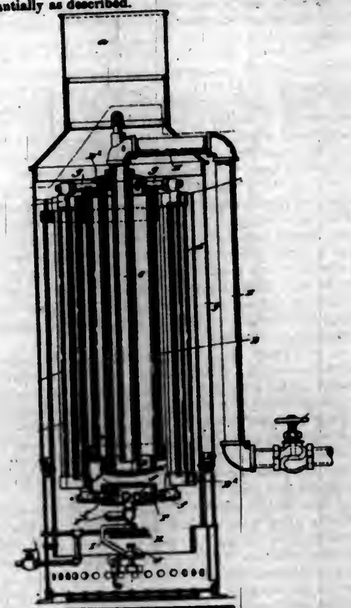
Claim.—1. In a pressure-generator of the class described, the combination with a retort and a burner below it, of an independent hollow casing situated between it and the burner, and connecting-pipes between said casing and the upper end of the retort, substantially as described.

2. In a pressure-generator of the class described, the combination of the combustion-chamber, the vapor-generating retort within the same, a tube or chamber encircled by the said retort, an independent hollow casing located below the retort, an oil-supply pipe connecting with said casing, suitable connecting-pipes between the casing and the upper end of the retort, and a burner located below the said casing, substantially as described.

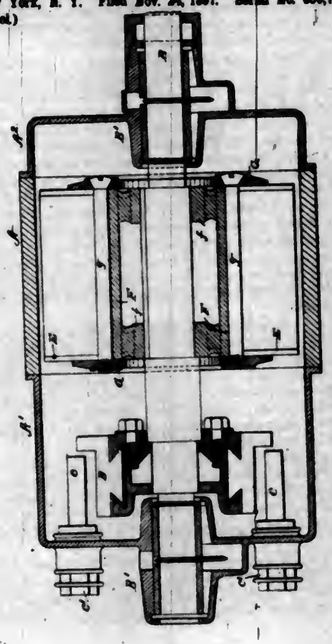
3. In a pressure-generator, the combination of a combustion-chamber, a vapor-generating retort within the same, a burner below said retort having a burner supply-pipe, a tube or chamber centrally located within the retort and smoke-flues passing upward through the retort and arranged in a series around the central tube, substantially as described.

4. In a retort of the class described, the combination of the combustion-chamber, the retort within the same, a hollow casting below the retort, groups of vertical pipes located around the retort and pipe connections at the upper end of said groups with the upper end of said retort and at the lower end of said groups with the casting below the retort, together with an oil-supply pipe entering said casting, substantially as described.

5. In a pressure-generator of the character described, the combination of a combustion-chamber, a retort within the same, a central tube or chamber within said retort, a hollow annular casting below the retort, groups of vertical pipes arranged around the retort and having connections at their upper ends with the upper end of the retort and at their lower ends with the annular casting, a pipe leading from the upper end of the retort to the work to be performed by the gas and a burner located below the annular casting, all arranged substantially as described.



604,842. ELECTRIC MOTOR OR DYNAMO. ANDREW L. RICE, New York, N. Y. Filed Nov. 24, 1897. Serial No. 659,708. (No model.)

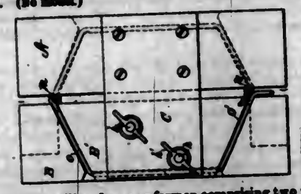


Claim.—1. The combination with the motor having its brushes arranged one above the other, of an inclosing casing having at one end an extension of less width than the body of the casing, said extension inclosing and supporting the brushes, and having a door in one side thereof to give access to the brushes, substantially as described.

2. In an armature, the combination with a spider having radial arms grooved longitudinally in their outer surfaces, rings surrounding and supported by said spider and provided in their inner edges with cuts corresponding to said grooves, and fastening-bolts surrounded partly by the rings and partly by the arms, substantially as described.

3. An armature-frame comprising in combination, a spider having radial arms grooved longitudinally in their outer surfaces, rings surrounding and supported by said spider and provided in their inner edges with cuts corresponding to said grooves, end plates or flanges provided with bolt-holes, and fastening-bolts engaging the arms and rings, substantially as described.

604,843. FORMER FOR WINDING ARMATURE-COILS. ANDREW L. RICE, New York, N. Y. Filed Nov. 19, 1897. Serial No. 659,163. (No model.)



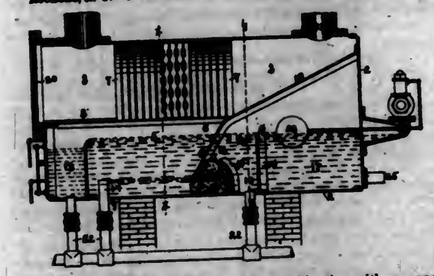
Claim.—1. A coiling frame or former comprising two parts having a winding-space between them, and grooves or winding-channels in each part transverse to the plane of the winding-space, those in one part being on the face of the former, and those in the other part in the rear thereof, substantially as described.

2. A coiling frame or former comprising two parts and means for attaching the two parts rigidly together and for detaching them when desired, said former having at each end a winding-space or slit through which the wire can pass from front to rear, grooves or channels in each part, those in one part being in the face, and those in the other part in the rear, so that the coil, when completed, lies partly on one side of the former and partly on the other, substantially as described.

3. A two-part former having slits or winding-spaces extending through the same, and pins or bearings crossing said slits, the face of one part being provided with two oblique grooves leading from the respective pins, and with a channel connecting the grooves, the rear of the other part having corresponding grooves and channel, substantially as described.

4. A former composed of two detachable parts, one of said parts having a detachable cheek-piece, bounded by grooves or channels in which the coil is wound, the other part having on its opposite side corresponding winding-grooves, slits or spaces being provided for the passing of the wire from the face to the rear of the former, and vice versa, substantially as described.

604,844. STEAM-SEPARATOR. GEORGE I. ROGERS, New Rochelle, N. Y. Filed Jan. 12, 1896. Serial No. 575,470. (No model.)



Claim.—1. In a steam-separator, in combination with an upper compartment having inlet and outlet openings, a lower compartment having inlet and outlet openings, a removable cover to said upper compartment, a removable partition-plate, strips supporting the same, a fixed partition-apron, separating said compartments and a plurality of partitions in said lower compartment for controlling the movements of the several drip matters or materials as and for the purposes set forth.

2. In a steam-separator, in combination with the upper and lower compartments, each having inlet and outlet openings, a removable cover to said upper compartment, a removable partition-plate, a transverse baffle device, strips supporting said partition-plate and baffle device, and a partition-apron, as and for the purposes set forth.

3. In a steam-separator, in combination with the upper and lower compartments, each having inlet and outlet openings, a removable cover to the upper compartment, a removable partition-plate, a transverse baffle device in the upper compartment, strips supporting said removable partition-plate and baffle device, and an overflow and underflow exit for the said lower compartment, as and for the purposes set forth.

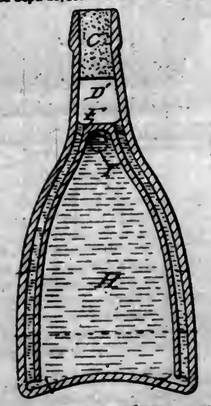
4. In a steam-separator, in combination with the lower or drip-receiving compartment, a partition-dam over which the lighter foreign matters or materials pass or flow; a partition-apron under which the water passes, an upwardly-projecting retarding-dam, and a final partition-dam over which the water of condensation passes for discharge or exit, as and for the purposes set forth.

5. In a steam-separator, in combination with the lower or drip-receiving compartment, a partition-dam over which the lighter foreign matter or materials pass or flow, a partition-apron under which the water of condensation passes, a discharge-pipe or blow-nozzle extending up from the bottom of said drip-receiving compartment to a height somewhat above the bottom edge of said partition-apron, a retaining-partition, and a final partition-dam over which the water passes for the discharge or exit, as and for the purposes set forth.

6. In a steam-separator, in combination with the lower or drip-receiving compartment, a partition-dam over which the lighter foreign matter or materials pass or flow, a partition-apron under which the water of condensation passes, a retaining-partition, filtering or clarifying material inclosed by and between said partition-apron and said retaining-partition, as and for the purposes set forth.

7. In a steam-separator in combination with the lower or drip-receiving compartment, a partition-dam over which the lighter foreign matter or materials pass or flow, a partition-apron under which the water of condensation passes, a retaining-partition, and a discharge-nozzle extending up from the bottom of said drip-receiving compartment to a height somewhat above the bottom edge of said partition-apron, as and for the purposes set forth.

604,845. NON-REFILLABLE BOTTLE. EDMUND ROSNER, New York, N. Y. Filed Sept. 25, 1897. Serial No. 653,094. (No model.)



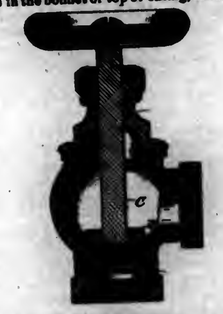
Claim.—1. As an article of manufacture, a non-refillable bottle having its liquor-containing chamber permanently closed at its upper portion and communicating at different points in its bottom portion by means of channels with the mouth of the bottle above said chamber.

2. In a non-refillable bottle, the combination with a body portion and a neck, of a partition at the neck, a filling-aperture in said body adapted to be sealed, and channels extending through said partition to and opening into the lower portion of the body of the bottle respectively at different points.

604,846. VALVE. WILLIAM H. SHAY, Newburg, N. Y., assignor of one-half to Benjamin Franklin Shay, Poughkeepsie, N. Y. Filed Jan. 5, 1897. Serial No. 618,094. (No model.)

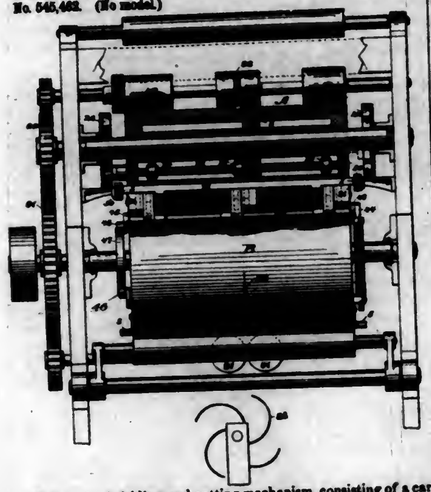
Claim.—In an angle-valve of the character specified, compris-

ing the casing having inlet and outlet openings, and a valve-seat placed at the opening of greatest depth, a valve-stem having at the lower end a valve formed by joining the larger ends of the frustums of two cones, said valve having each end screw-threaded, the lower end of valve being adapted to fit a screw-threaded socket in the valve-seat when shut, and when open the upper end of valve to fit the screw-threaded recess in the bonnet or top of casing, as shown and described.



604,847. FOLDING AND CUTTING MECHANISM.

EDWARD P. SHELDON, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Apr. 12, 1895. Serial No. 545,462. (No model.)



Claim.—1. A folding and cutting mechanism, consisting of a carrier supporting a blade constructed so as to tuck and sever material fed within its range of action, and a companion carrier provided with means coöperating with said blade to freely receive the doubled portion of the material tucked by said blade and then support the same by means nipping the material at opposite sides of the blade while the latter is performing its severing operation, substantially as described.

2. A folding and cutting mechanism, consisting of a carrier supporting a blade constructed so as to tuck and sever material fed within its range of action, and a companion carrier provided with means coöperating with said blade to freely receive the doubled portion of the material tucked by said blade and then support the same by means nipping the material at opposite sides of the blade independent thereof while the latter is performing its severing operation, substantially as described.

3. The combination with a carrier supporting a blade, a companion carrier supporting spring-seated jaws, and means for feeding a sheet thereto, of means causing the blade to move primarily to tuck the sheet between said jaws, and, secondarily, to force the blade through said sheet while it is pressed by the jaws against the blade-carrier on opposite sides of the blade, substantially as described.

4. The combination with a carrier supporting a blade, a companion carrier supporting spring-seated jaws, and means for feeding a sheet thereto, of means causing the blade to move primarily to tuck the sheet between the open jaws, and secondarily to force the blade through said sheet while it is pressed by the jaws against the blade-carrier on opposite sides of the blade, and means causing the jaws to close and nip the severed ends of the divided sheet, substantially as described.

5. The combination with a carrier supporting a blade, a companion carrier supporting jaws, and, means for feeding a sheet thereto, of means causing said blade primarily to tuck the material between said jaws, means holding said jaws open and one of them out of contact with the material during the tucking movement of the blade, means moving said blade secondarily to force it through the material to sever it, and means causing both of said jaws while separated to nip the material on opposite sides of the blade against its straining force during the severing operation, substantially as described.

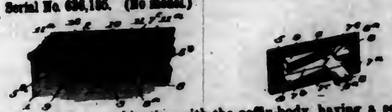
6. The combination with a carrier supporting a blade, a companion carrier supporting jaws, and, means for feeding a sheet thereto, of means causing said blade primarily to tuck the material between said jaws, means holding said jaws open and one of them out of contact with the material during the tucking movement of the blade, means moving said blade secondarily to force it through the material to sever it, means causing both of said jaws while separated to nip the material on opposite sides of the blade against the straining force during the severing operation, and means causing the jaws to nip the severed ends of the divided sheet and carrying the same onward, lap its plies together and deliver the same associated, substantially as described.

7. In a sheet-delivering mechanism consisting of a rotating carrier supporting a blade and means for projecting it primarily to tuck outward the material and secondarily, to sever the same, and of a companion rotating carrier provided with spring-seated jaws coöperating with said blade to support the material while being tucked and severed, the combination of guards 50 constructed and operating to maintain the foremost jaw in its depressed condition during the tucking operation, substantially as described.

8. In a sheet-delivering mechanism consisting of a rotating carrier supporting a blade and means for projecting it primarily to tuck outward the material and secondarily, to sever the same, of a companion rotating carrier provided with spring-seated jaws coöperating with said blade to support the material while being tucked and severed, the combination of guards 50 constructed and operating to maintain the foremost jaw in its depressed condition during the tucking operation and to release the same so that the material is nipped between the jaws and the carrier of said blade during the severing operation, substantially as described.

604,848. COFFIN-LID FASTENER.

CHRIS H. SMITH, Elgin, Ill., assignor of one-half to G. A. Rowe, same place. Filed May 13, 1897. Serial No. 636,185. (No model.)



Claim.—The combination with the coffin-body, having a series of pockets in the upper edge of its sides, each having a lock-plate having a keyhole-slot having beveled portions 7^a pendent wedges 9 having the beginning-point of incline at the said beveled portions, and having pendent lugs 8 at each point of beginning, said lugs having beveled edges 8^a, of a lid having a series of lock-plates having T-heads, beveled edges 8^a, all being arranged substantially as shown and described, whereby the shank of the lock-plate will be guided by the edges 7^a, and the head by the beveled edges 8^a, when the parts are joined as hereinbefore described.

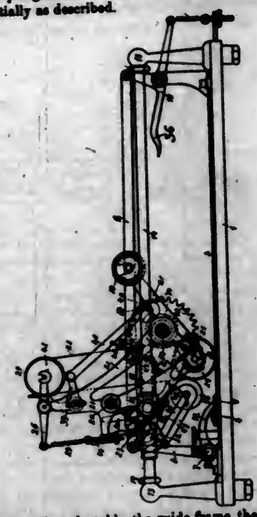
604,849. MACHINE FOR MULTIPLYING COPIES OF MANUSCRIPT.

EUGEN STRÖHER, Zurich, Switzerland, assignor to C. A. Meyer & Co., same place. Filed Apr. 7, 1897. Serial No. 631,145. (No model.) Patented in Switzerland Sept. 17, 1896, No. 13,131, and in Austria Nov. 10, 1896, No. 46/4,530.

Claim.—1. In combination, the table, the guide-frame, the carrier moving thereon comprising a pivoted portion, the traveling band, the rollers therefor on the carrier, the driving-disk having connections to the band for driving the same through contact with the sheet, the spring for returning the band to normal position and means for lifting the pivoted carrier-frame when it reaches the end of its course whereby the driving-roller will be lifted and the band will be free to return to normal position, substantially as described.

2. In combination, the table, the guide-frame, the carrier-frame, the band thereon with means for operating the same including a spring-drum for returning the band to normal position and the brake for controlling the band, said brake being in turn controlled by the spring-drum, substantially as described.

3. In combination, the table, the guide-frame, the carrier thereon comprising the pivoted part, the traveling band on the carrier, the spring drum connected with the band, the means for operating the drum, the rollers for carrying the band on the carrier, the brake controlling one of the rollers, the draw-bar connected with the brake, the pin on the spring-drum for operating the draw-bar and the stops 43, 38, substantially as described.

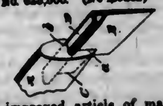


4. In combination, the table, the guide-frame, the carrier moving thereon, the printing device on the carrier, the clamp for holding the sheet to the table and the connections leading to the clamp for operating the same, said connections being operated by the carrier as it reaches the limit of its movement.

5. In combination, the table, the guide-frame, the carrier moving thereon, the printing device on the carrier, the clamp 6, the arm 12 carrying the same, the lever 8, rod 9 and the lever 10 having the arm 36 in the plate of a part of the carrier, substantially as described.

604,850. KNIFE.

AARON WRIGHT, Hudson, N. Y. Filed Feb. 13, 1897. Serial No. 623,300. (No model.)



Claim.—As an improved article of manufacture, the herein-described knife comprising the handle having a recess open at the lower edge and forward end of the handle, and provided with the upper enlarged portion, and the blade having the integral shank and also having the stiffening portion D, at its upper edge extending throughout the length of the blade and shank; the said shank being arranged in the recess of the handle with the stiffening portion D, in the upper enlarged portion of said recess, substantially as specified.

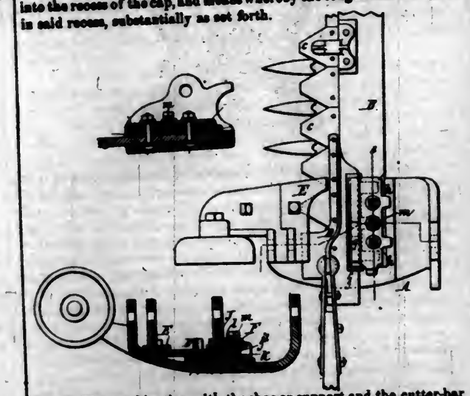
604,851. MOWER.

THOMAS S. BROWN, Poughkeepsie, N. Y., assignor to the Adriance, Platt & Company, same place. Filed Dec. 15, 1897. Serial No. 661,978. (No model.)

Claim.—1. The combination with the finger-bar, the shoe or support arranged at the inner end of the same, the reciprocating cutter-bar and its head, of a removable lower gib resting upon the finger-bar and supporting the rear portion of said head, an upper removable gib bearing with its front portion upon said head and with its rear portion upon the lower gib, and means whereby said gibs are held in place, substantially as set forth.

2. The combination with the shoe, of a cap having one or more recesses in its under side, a reciprocating cutter-bar and its head, and removable gibs arranged on the upper and lower sides of said head and provided with tongues which are arranged in the recesses of the cap, and means whereby the gibs are clamped, substantially as set forth.

3. The combination with the shoe and the reciprocating cutter-bar head, of a cap secured to the shoe and provided on its under side with a forwardly-facing shoulder and with one or more recesses, a lower gib consisting of a wear-plate bearing against the under side of the cutter-bar head and provided with a tongue projecting into the recess of the cap, an upper gib consisting of a wear-plate interposed between the top of the cutter-bar head and the under side of the cap, a depending offset arranged between the rear edge of the cutter-bar head and the shoulder of the cap and a tongue projecting into the recess of the cap, and means whereby the tongues are clamped in said recess, substantially as set forth.



4. The combination with the shoe or support and the cutter-bar head, of a cap which projects over said head, an upper gib seated in the under side of said cap and having a curved tongue, a lower gib having a tongue on which said curved tongue rests, and a clamping-screw which bears upon the curved tongue and whereby the upper gib is pressed upwardly and the lower gib downwardly, each against its seat, substantially as set forth.

604,852. DOOR-FASTENER.

HENRY R. BUTTS, St. Louis, Mo., assignor to Lucinda Butts, same place. Filed Oct. 8, 1897. Serial No. 654,601. (No model.)



Claim.—1. A door-fastener comprising a clip, a pivot traversing said clip, a sustaining-bar pivoted on said pivot, a spring mounted on said pivot and impinging the bar, and engaging arms pivoted on said bar.

2. A door-fastener comprising a sustaining-bar, means for pivoting said bar to a door, the outer end portion of which bar is bent outwardly from the door, engaging arms pivoted on said outwardly-bent portion of the bar and a hook fixed to the door and so arranged as that the sustaining-bar engages in the lip thereof when the device is in an operative position.

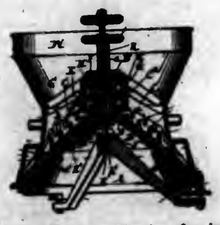
604,858. GRINDING-MILL.

THOMAS CASCADEN, Jr., Waterloo, Iowa, assignor to the Davis Gasoline Engine Works Company, same place. Filed June 21, 1897. Serial No. 641,557. (No model.)

Claim.—1. In a grinding-mill the combination of an inner cone or crushing surface having a central post rising above the same, a ball-support around said post, an outer shell provided with arms extending over said cone or crushing surface and provided also with a vertical ring or hub to which said arms are joined and antifriction-balls interposed between said post and the vertical inner surface of said ring or hub.

2. In a grinding-mill the combination of a cone or crushing surface having a post rising above the same, an outer shell having inwardly-extending arms and sustained from said post, a ring or hub for said arms having its interior formed with vertical and horizontal bearing-surfaces, antifriction-balls interposed between said cone-post and the vertical bearing-surface of said ring or hub and beneath the

horizontal bearing-surface of said ring or hub, said balls serving to receive the strain from said ring or hub in both vertical and lateral directions.



3. In a grinding-mill the combination of an inner cone or crushing surface provided with a raised central post, an outer shell having inwardly-extending crushing-arms, a ring or hub for said arms encircling the cone-post, antifriction-balls interposed between said ring or hub and the cone-post and a ring arranged beneath said balls and serving to guard the same against the mass of material being ground.

4. In a grinding-mill the combination of an inner cone or crushing surface provided with a raised central post, an outer shell having inwardly-extending crushing-arms, a ring or hub for said arms encircling the cone-post, antifriction-balls interposed between said ring or hub and the cone-post and a ring arranged beneath said balls and serving to guard the same against the mass of material being ground, said ring having teeth upon its under surface.

5. In a grinding-mill the combination of an inner cone or crushing surface, an outer shell having arms extending above said cone or crushing surface, a hub for said arms encircling a post rising from said cone, a cob-breaker mounted upon said cone-post and antifriction-balls interposed between the cob-breaker and said hub and a ring serving to close the space between the cob-breaker and the hub beneath it and being provided with pockets whereby said antifriction-balls are retained in place.

6. In a grinding-mill the combination of an inner cone or crushing surface an outer revoluble shell having inwardly-extending crushing-arms provided with a hub, a post rising from said cone and passing through said hub, a stationary cob-breaker upon said hub, antifriction-balls interposed between said cob-breaker and said hub and a ring for guarding said antifriction-balls against the material being ground.

7. In a grinding-mill the combination of an inner cone or crushing surface, a revoluble shell mounted over said cone or surface, inner and outer grinders at the base of said shell, a bracket located beneath said inner cone and provided with a series of arms extending outwardly and connected with the outer ring of the outer grinder and a screw for adjusting said bracket.

8. In a grinding-mill the combination of an inner cone or crushing surface, an outer revoluble shell, inner and outer grinders at the base of said shell, a bracket connected with the outer ring of the outer grinder, and an adjusting-screw leading from said bracket centrally upward through said cone and provided with hand-wheels.

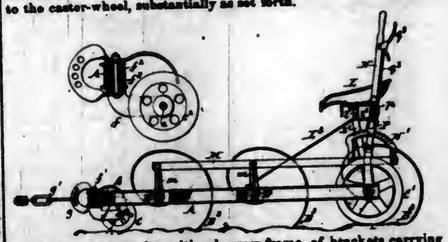
9. In a grinding-mill the combination of an inner cone or crushing surface, an outer revoluble shell, inner and outer grinders at the base of said shell, a post rising centrally from the top of said cone and having an opening therethrough, an adjusting-screw passing through said cone-post and a bracket connected with said adjusting-screw, said bracket being connected also with the outer grinder and a hand-wheel mounted upon said adjusting-screw.

10. In a grinding-mill the combination of an inner cone or crushing surface provided with a central post rising above the same, an outer shell provided with inwardly-extending arms having a hub encircling said post, a cob-breaker fixed to but vertically movable upon said central post, inner and outer grinders at the base of said shell, a bracket connected with the outer grinder, an adjusting-screw leading from said bracket up through the cone-post and cob-breaker and means substantially as shown for effecting the adjustment of said screw.

11. In a grinding-mill the combination with an inner cone or crushing surface, an outer revoluble shell provided with openings therethrough for the passage of grain, the inner and outer grinders at the base of said shell, said outer grinder comprising a vertically-adjustable casing extending above the openings in the shell and provided at its base with a grinding-ring and a bracket connected with said vertically-adjustable casing and a screw for adjusting said bracket and said casing leading upward centrally through the cone.

604,854. SPRING-TOOTH HARROW. HENRY J. CASE, Owasco, N. Y., assignor to the Adriance, Platt & Company, Poughkeepsie, N. Y. Filed Feb. 15, 1897. Serial No. 623,472. (No model.)

Claim.—1. The combination with a harrow-frame, of a bracket carrying a caster-wheel and pivoted to said frame, a scraper separately pivoted to swing concentric with the pivot of said bracket and engaging at its rear end with the caster-wheel, and a draft device connected with said scraper, whereby the lateral movement of the draft device is communicated to the scraper and by the latter to the caster-wheel, substantially as set forth.



2. The combination with a harrow-frame, of brackets carrying caster-wheels and pivoted to said frame, scrapers separately pivoted to swing concentric with the pivots of said brackets and engaging at their rear ends with the caster-wheels and provided with arms in front of their pivots, and a transverse draft-bar arranged in front of the harrow-frame and connected at its ends with the front arms of said scrapers, substantially as set forth.

3. The combination with a harrow-frame, of grooved caster-wheels pivoted to said frame, scrapers pivoted concentric with the pivots of said caster-wheels and engaging with their rear ends in the grooves of said wheels, clevises secured to said scrapers and arranged in front of the pivots thereof, and a draft-bar having its ends connected with said clevises, substantially as set forth.

4. The combination with a harrow-frame having a journal-opening, of a hollow tooth-bar bearing against the inner side of said frame, a journal secured in said bar, a screw secured in the outer end of said journal and bearing with its head against the outer side of said frame, a supporting-wheel mounted upon said bar and having its hub provided with annular recesses in its ends, a collar seated in the outer recess and bearing against the inner side of the frame, and a collar seated in the inner recess and secured to the tooth-bar, substantially as set forth.

5. The combination with a harrow-frame having a journal-opening, of a hollow tooth-bar bearing against the inner side of said frame, a journal secured in said bar and provided outside of said frame with an enlargement which bears against the outer side of said frame, a tooth secured to said enlargement, and a brace secured at its front end to the frame and engaging at its rear end with said enlargement, substantially as set forth.

6. The combination with the adjusting-lever and its segment, of a locking-slide mounted on said lever, means whereby said slide can be locked on the lever in an elevated position to clear the segment, and releasing devices whereby the slide is automatically released from the lever to interlock with the segment, substantially as set forth.

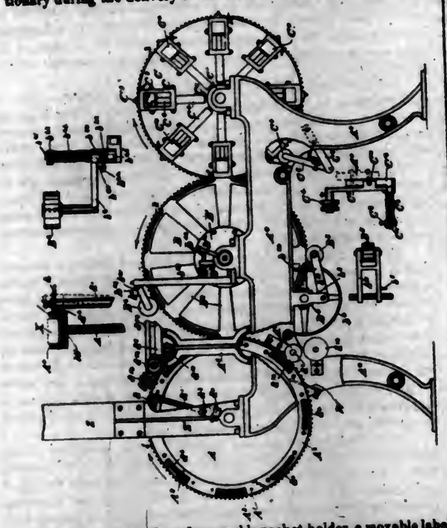
7. The combination with the adjusting-lever and its segment, of a locking-slide mounted on said lever and provided with a releasing-arm, means whereby said slide can be locked on the lever in an elevated position to clear the segment, and a releasing-stop on the segment which is adapted to engage with the arm of the slide and release the latter from the lever, substantially as set forth.

8. The combination with the adjusting-lever and its segment, of a locking-slide mounted on the lever and provided with a lip which is adapted to engage in a notch in the lever for locking the slide in an elevated position, and having a releasing-arm, of a releasing-stop on the segment which is adapted to engage with the arm of the slide and release the lip of the latter from the notch in the lever, substantially as set forth.

604,855. LABEL-AFFIXING MACHINE. ARTHUR R. COWLES and FRANK S. REYNOLDS, Rochester, N. Y. Filed Aug. 7, 1896. Renewed Sept. 29, 1897. Serial No. 653,519. (No model.)

Claim.—1. The combination of a packet-holder, a movable label-carrier, a movable magazine adapted to present successive labels to said label-carrier, means cooperating with said label-carrier for removing a label from said magazine and for carrying it on the label-carrier to the packet-holder, and mechanism for moving the magazine and the label-carrier with substantially the same speed in the same direction when the label is presented to the label-carrier, whereby the label-magazine and the label-holder are both movable but relatively stationary during the delivery of the label from the former to the latter.

2. The combination of a packet-holder, a movable label carrier, a movable magazine adapted to present successive labels to said label-carrier, means cooperating with said label-carrier for removing a label from said magazine and for carrying it on the label-carrier to the packet-holder, a device for interposing adhesive or moisture between the packet and the label, and mechanism for moving the magazine and the label-carrier with substantially the same speed in the same direction when the label is presented to the label-carrier, whereby the label-magazine and the label-holder are both movable but relatively stationary during the delivery of the label from one to the other.



3. The combination of a movable packet-holder, a movable label-carrier, a movable magazine adapted to present successive labels to said label-carrier, means cooperating with said label-carrier for removing a label from said magazine and for carrying it on the label-carrier to the packet-holder and then releasing it, a device for gumming or moistening the packet while on the packet-carrier and before it meets its label, mechanism for moving the magazine and the label-carrier with substantially the same speed in the same direction when the label is presented to the label-carrier, and mechanism for moving said packet-holder with substantially the same speed as the label-carrier when the label meets its packet, whereby a label is relatively stationary to the label-carrier and to the packet-holder during its delivery to and from the label-carrier.

4. The combination of a movable packet-holder, a continuously-moving label-carrier, a movable magazine adapted to present successive labels to said label-carrier, means cooperating with said label-carrier for removing labels successively from said magazine and for holding a series of labels upon said label-carrier and carrying them to the packet-holder and then releasing them, mechanism for moving the magazine and the label-carrier with substantially the same speed in the same direction whenever the means for removing a label from said magazine is in operation, and mechanism for moving said packet-holder with substantially the same speed as the label-carrier when the label meets its packet, whereby a label is relatively stationary to the label-carrier and to the packet-holder during delivery of the label to and from the label-carrier.

5. The combination of a movable packet-holder, a continuously-moving label-carrier, a movable magazine adapted to present successive labels to said label-carrier, means cooperating with said label-carrier for removing labels successively from said magazine and for holding a series of labels upon said label-carrier and carrying them to the packet-holder and then releasing them; a device for interposing adhesive or moisture between the packet and the label, mechanism for moving the magazine and the label-carrier with substantially the same speed in the same direction whenever the means for removing a label from said magazine is in operation, and mechanism for moving said packet-holder with substantially the same speed as the label-carrier when the label meets its packet, whereby a label is relatively stationary to the label-carrier and to the packet-holder during delivery of the label to and from the label-carrier.

6. The combination of a movable packet-holder, a continuously-moving label-carrier, a movable magazine adapted to present successive labels to said label-carrier, means cooperating with said label-carrier for removing labels successively from said magazine and for holding a series of labels upon said label-carrier and carrying them to the packet-holder and then releasing them, a device for gumming or moistening the packet while on the packet-holder and before it meets its packet, mechanism for moving the magazine and the label-carrier with substantially the same speed and in the same direction whenever the means for removing a label from said magazine is in operation, and mechanism for moving said packet-holder with substantially the same speed as the label-carrier when the label meets its packet, whereby a label is relatively stationary to the label-carrier and to the packet-holder during delivery of the label to and from the label-carrier.

7. The combination of a movable packet-holder, a continuously-moving label-carrier, a movable magazine adapted to present successive labels to said label-carrier, means cooperating with said label-carrier for removing labels successively from said magazine and for holding a series of labels upon said label-carrier and for carrying them to the packet-holder and then releasing them, a gumming device having a raised portion supplied with adhesive, mechanism for moving said gumming device to press said raised portion upon a portion of a packet, means for moving said packet-holder with substantially the same speed and in the same direction as the label-carrier when the packet meets its label, whereby the label is placed upon the gummed portion of the packet, and mechanism for moving the magazine with substantially the same speed as the label-carrier and in the same direction whenever the means for removing a label from said magazine is in operation, whereby a label is relatively stationary to the label-carrier and to the packet-holder during the delivery of the label to and from the label-carrier.

8. The combination of a packet-hopper, a continuously-moving packet-carrier having a series of packet-holders, a moving label-magazine, a continuously-moving label-carrier provided with means for taking a series of labels from said label-magazine, one for each packet, and for carrying them to said packet-holders, mechanism for moving said label-magazine and said label-carrier in the same direction and with substantially the same speed when the label is presented to the label-carrier, and a gumming or moistening device for supplying adhesive or moisture between the label and the packet.

9. The combination of a packet-hopper, a continuously-moving packet-carrier having a series of packet-holders, a continuously-moving label-magazine, a continuously-moving label-carrier provided with means for taking a series of labels from said magazine, one for each packet-holder, and for carrying them to said packet-holders, mechanism for moving said label-magazine and said label-carrier in the same direction and with substantially the same speed when the label is presented to the label-carrier, and a gumming or moistening device for operating on each packet in a packet-holder.

10. The combination of a packet-hopper, a moving packet-carrier, a moving label-magazine, a pneumatic label-carrier, movable from said magazine to said packet-carrier, and moving with substantially the same speed and in the same direction as the label-magazine when a label is presented to the label-carrier, an air-exhausting device, means for connecting the exhausting device with said label-carrier when it registers with said magazine whereby a single label is taken thereout, and for disconnecting the exhaust from said label-carrier when the label is carried to said packet-carrier, and a gumming or moistening device for supplying adhesive or moisture between the label and the packet.

11. The combination of a packet-hopper, a continuously-moving packet-carrier having a series of packet-holders, a continuously-moving label-magazine, a continuously-moving label-carrier provided with a series of pneumatic suction devices and movable from said magazine to said packet-carrier, mechanism for moving the label-magazine and the label-carrier with substantially the same speed and in the same direction, when the label is presented to the label-carrier, an air-exhausting apparatus, connections therefrom to each of said suction devices, means for connecting said exhausting apparatus with each suction device when it registers with said magazine, whereby a single label is withdrawn from said magazine and is carried to said packet-carrier upon said label-carrier, and for disconnecting said exhaust from said suction device when the label meets a packet, and a gumming or moistening device for supplying adhesive or moisture between the label and the packet.

12. The combination of a packet-hopper, a movable packet-carrier, a movable label-magazine, a label-carrier movable from said magazine to said packet-carrier, a perforated label-holder thereon, an air-exhausting apparatus, means for connecting said label-holder with said exhaust apparatus when the holder registers with said magazine, whereby a label is withdrawn from said magazine and is carried to said packet-carrier, and for disconnecting said exhaust from said label-holder when the same meets a packet, mechanism for moving said label-carrier and said magazine with substantially the same speed and in the same direction when a label is presented to the label-carrier, and a gumming or moistening device for operating on the packet before it reaches the label and while on said packet-carrier.

13. The combination of a packet-hopper, a continuously-moving

packet-carrier having a series of packet-holders, a continuously-moving multiple label-magazine, a continuously-operating label-carrier movable from a magazine to a packet-carrier and having a series of pneumatic label-holders thereon consisting of perforated elastic plates, an air-exhaust apparatus, means for connecting said exhausting apparatus with said label-holder when it registers with said magazine to carry a label therefrom to said packet-carrier, and for disconnecting said exhausting apparatus from said label-holder when the same meets a packet, mechanism for moving said label-carrier and said magazine with substantially the same speed and in the same direction when a label is presented to the label-carrier, and a gumming or moistening device for operating on each packet while on said packet-carrier before it meets its label.

14. The combination of a packet-holder, a movable label-magazine, a label-carrier movable from said magazine to said packet-carrier and having a label-holder thereon, provided with a printing-plate, means for inking said printing-plate, means cooperating with said label-carrier for removing a label from said magazine and for delivering it to the packet-holder upon said printing-plate, mechanism for moving said magazine and said label-carrier with substantially the same speed and in the same direction when a label is presented to the label-carrier, means for pressing the label against the printing-plate during its movement toward the packet-carrier, and a device for interposing adhesive or moisture between the packet and the label, whereby the label is printed and affixed to the packet.

15. The combination of a packet-holder, a movable label-magazine, a label-carrier movable from said magazine to said packet-carrier and having a label-holder thereon, provided with a printing-plate, means for inking said printing-plate, means cooperating with said label-carrier for removing a label from said magazine and for delivering it to the packet-holder upon said printing-plate, mechanism for moving said magazine and said label-carrier with substantially the same speed and in the same direction when a label is presented to the label-carrier, means for pressing the label against the printing-plate during its movement toward the packet-carrier, and a device for gumming or moistening the packet while in the packet-holder and before it meets its label.

16. The combination of a packet-hopper, a packet-carrier having a series of packet-holders, a label-magazine, a label-carrier movable from said magazine to said packet-carrier and having a series of label-holders thereon, each being a perforated printing-plate, means for inking said printing-plate, an air-exhaust apparatus, means for connecting said exhaust apparatus with each label-holder when it registers with said magazine and until the label meets its packet, and for disconnecting said exhaust when the label meets its packet, whereby the label is carried upon said printing-plate to said packet-carrier and is pressed against a packet, whereby the label is printed and affixed to the packet, and a gumming or moistening device for operating on each packet while on said packet-carrier and before it meets its label.

17. The combination of a packet-carrier, a label-magazine, a label-carrier, and an exhaust apparatus, said label-carrier moving from the delivery end of the label-magazine to said packet-carrier and having a cavity therein connecting with said exhaust apparatus, a perforated printing-plate on said cavity, a valve controlling the connection of the exhaust with said cavity and adapted to connect the cavity with the exhaust when the printing-plate registers with the delivery end of the magazine and to disconnect said cavity from the exhaust when the label meets its packet, and an inking device for inking said printing-plate before the label is carried thereon.

18. The combination of a packet-carrier, a label-magazine, a rotary label-carrier, said label-carrier revolving from the delivery end of the label-magazine to the packet-carrier and having a cavity in its outer portion, a perforated printing-plate on said cavity, a hollow axle for the label-carrier, said cavity connecting with the hollow axle, an exhaust apparatus connecting with said hollow axle, a valve controlling the connection of the exhaust with the cavity adapted to connect the cavity with the exhaust when the printing-plate registers with the delivery end of the magazine and to disconnect from the exhaust when the label meets its packet, and an inking device for inking said printing-plate before the label is carried thereon.

19. The combination of a packet-carrier, a label-magazine, a label-carrier, and an exhaust apparatus, said label-carrier moving from the delivery end of the label-magazine to the packet-carrier and having a series of cavities, a perforated printing-plate on each cavity, a common chamber connected with said exhaust apparatus and a separate connection between said chamber and each cavity, and a valve controlling the connections of the exhaust with the cavity adapted to connect each cavity with the exhaust when the printing-plate registers with the delivery end of the magazine, to sustain the connection with the exhaust until the label meets its packet, and then to disconnect the cavity from the exhaust, and an inking device for inking said printing-plates before the labels are carried thereon.

20. The combination of a packet-carrier having a series of packet-holders thereon and side flanges for said packet-holders provided with a slot on one side opposite each packet-holder, an arm pivoted to the frame to move to and from the packet-holders, a device for normally pressing said arm toward the packet-holders, a surface on said packet-holder between each two slots for engaging and moving said arm from said packet-holders, and a wheel freely revolvable on said arm and adapted to enter said slots to press upon the packets in said holders.

21. A magazine mechanism for cut sheets consisting of a series of magazines for such cut sheets, a moving support adapted to carry said magazines successively to a delivery-point, mechanism for removing said cut sheets from said magazines successively, said support having a socket for each magazine and a catch for engaging a lug upon each magazine, whereby said magazines are removable and replaceable at will.

22. The combination of a revolvable wheel A having a series of packet-holders on the periphery thereof, a revolvable wheel B having a series of label-holders thereon, a revolvable wheel C having a series of label-magazines thereon, gearing for moving said three wheels with equal peripheral speed, mechanism cooperating with said wheel B for removing labels successively from said label-magazines and for retaining the same upon the successive label-holders and for releasing the labels successively from said label-holders when a label meets its packet, and a device for interposing gum or moisture between said label and its packet.

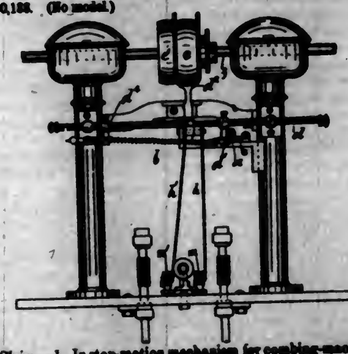
23. The combination of a revolvable wheel A having a series of packet-holders on the periphery thereof, a revolvable wheel B having a series of label-holders thereon, a revolvable wheel C having a series of label-magazines thereon, gearing for moving said three wheels with equal peripheral speeds, mechanism cooperating with said wheel B for removing labels successively from said label-magazines and for retaining the same upon the successive label-holders and for releasing the labels successively from said label-holders when a label meets its packet, and a device for interposing gum or moisture between said label and its packet, and a wheel A^7 for pressing the label against the packet after it had adhered thereto.

24. A label-magazine and a support therefor, consisting of the label-box c provided with the notched lug c^6 and the pin c^8 upon the stem c^4 in combination with a socket c' on said support for the pin c^8 and a perforation C^9 on said support for the lug c^6 and a spring-pressed pin C^8 for pressing said lug to cause its notch to engage with the perforation C^9 and the pin c^8 to engage the socket c'.

25. A top delivery for cut sheets consisting of a box open at the delivery end, mechanism for constantly pressing the sheets transversely toward said delivery end, means on said delivery end for holding one edge of the topmost sheet, and a knife attached to said delivery end and projecting over another edge of said sheet, in combination with apparatus for extracting a label transversely from the magazine.

26. A label-magazine for top delivery consisting of the label-box c, the spring-pressed piston c^3 tending to move the labels thereon toward the delivery end of said box, plates c^5 extending over corners of the open end of said box and an adjustable knife c^9 extending diagonally over a portion of the open end of said box opposite to said plates.

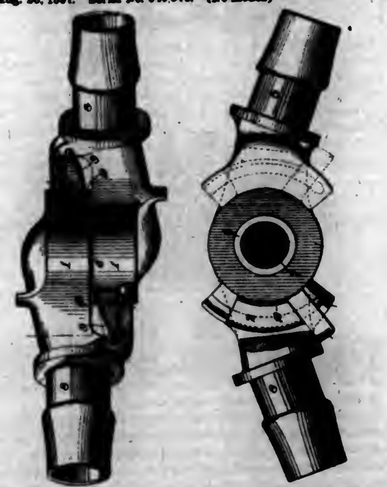
604,856. STOP MECHANISM FOR COMBING-MACHINES. JONAS DEBET, Bingley, England. Filed Mar. 31, 1897. Serial No. 630,188. (No model.)



Claim.—1. In stop-motion mechanism for combing-machines, the combination with spring-actuated belt-shifting mechanism having a detent for holding it against the action of its spring, of detector-levers adapted to rest on the slivers, connections between said levers and detent whereby the descent of either or both of the levers will release the said detent, and means whereby the levers may be independently moved to inoperative positions.

2. In stop-motion mechanism for combing-machines, the combination with spring-actuated belt-shifting mechanism, of a lever having a detent for holding said mechanism against the action of its spring, said detent having an inclined side, detector-levers adapted to rest on the slivers, rods connected with the detector-levers and having connections whereby they will release the detent on the descent of one of the detector-levers, and means operated by the spring-actuated movement of the belt-shifter to ride under the inclined side of the detent and elevate its lever and also the rods and the detector-levers.

604,857. PIPE-COUPLING. WILLIAM W. EDWARDS, Wilmerding, Pa., assignor to Henry Herman Westinghouse, Pittsburg, Pa. Filed Aug. 26, 1897. Serial No. 649,570. (No model.)



Claim.—1. In a half-section of a pipe-coupling provided with a lateral opening and adapted to be coupled with a similar half-section by a partial rotary movement, a flange or hook on the end of the coupling, and a stop formed on the half-section between the back of the half-section and the plane of the face of the half-section and offset from the plane of the face, substantially as set forth.

2. In a half-section of a pipe-coupling, provided with a lateral opening and adapted to be coupled with a similar half-section by a partial-rotary movement, a flange, or hook, on the end of the coupling and a projection, or extension, formed integral with the flange, or hook, and adapted to form a stop to limit the rotary movement of the half-section when coupled with a similar half-section, substantially as set forth.

3. In a pipe-coupling, comprising two half-sections having lateral openings and adapted to be rotated in a longitudinal plane to effect the coupling of the half-sections, a lug or projection formed on the curved end portion of a half-section and adapted to engage with the casting or shell of the other half-section to limit the relative rotary movement of the half-sections, substantially as set forth.

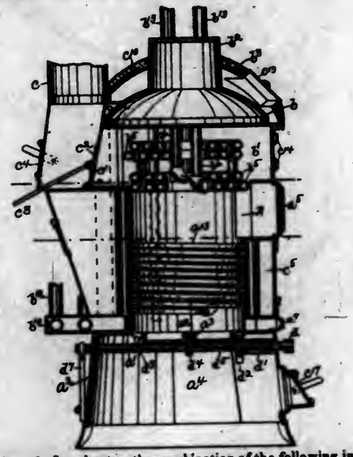
604,858. WASHBOILER ATTACHMENT. JAMES H. SHARINE, Early, Iowa. Filed May 4, 1897. Serial No. 635,095. (No model.)



Claim.—1. In a washboiler attachment for heating water, a sheet-metal plate having a lateral extension and an opening in said extension to admit a tube and downwardly-extended flanges to rest upon a plurality of straight and parallel pipes connected at their ends, a plurality of parallel pipes connected at their ends, a tube fixed to one of the parallel pipes and extended up through the opening in the sheet-metal plate and a coinciding opening in the flat bottom of a washboiler and means for fastening the said parts together for the purposes stated.

2. An attachment for washboilers, comprising a series of straight parallel pipes connected at their ends, externally-screw-threaded tubes fixed to the open ends of the parallel pipes, nuts placed on said tubes, sheet-metal plates having parallel flanges projecting downward and resting on said pipes and lateral extensions with holes therein to admit the said tubes that extend up through coinciding holes in the bottom of a washboiler, a washer and nut placed on one of the screw-threaded tubes, a washer and a short internally-screw-threaded coupling placed on the other short tube, and an upward extension having a spout at its top fixed in said coupling, all arranged and combined with a washboiler substantially as shown and described.

604,859. HEATER. ELIJAH C. HALL, Braintree, Mass. Filed July 2, 1897. Serial No. 643,189. (No model.)



Claim.—1. In a heater, the combination of the following instrumentalities, viz: a hollow casting forming the walls of a fire-pot, a hollow dome supported above said casting, a coil of pipe in the fire-pot having its opposite ends connected to the said hollow casting near the top and bottom of the same, and a coil of pipe intermediate of the hollow casting and the said dome and connected therewith for the circulation of liquid from the hollow casting through the coil of pipe into the said hollow dome, substantially as described.

2. In a heater, the combination of the following instrumentalities, viz: an inclosing shell, a hollow casting located therein and forming the walls of a fire-pot, a hollow dome supported above said hollow casting, and a plurality of horizontal coils of pipe interposed between said hollow casting and the said dome and placed one above the other and connected therewith, substantially as described.

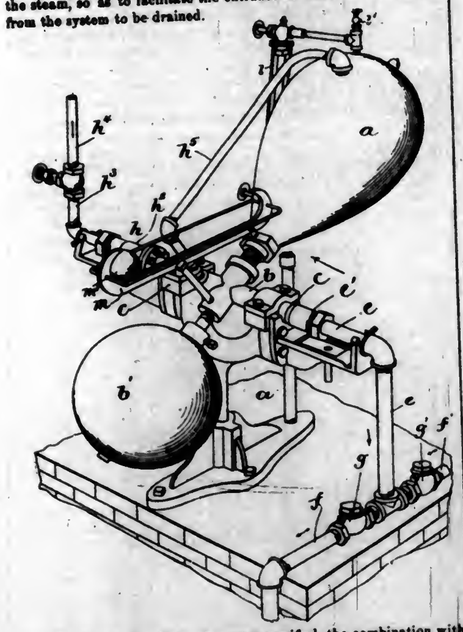
3. In a heater, the combination of the following instrumentalities, viz: an inclosing shell, a hollow casting provided with openings a^{10} a^{12}, a coil of pipe located in said hollow casting and having its end extended into the openings a^{10} a^{12} and connected to the hollow casting, and a coil of pipe located above the hollow casting and having one end connected thereto, substantially as described.

4. In a heater, the combination of the following instrumentalities, viz: a hollow casting forming the walls of a fire-pot and provided with a fuel-opening a^7, clinker-opening a^8 and openings a^{10} a^{12}, of a coil of pipe located in said hollow casting and having its ends extended into the openings a^{10} a^{12} and connected to the hollow casting to communicate therewith for the circulation of water from the bottom of the hollow casting through the coil of pipe to the top or upper part of said casting, substantially as described.

604,860. STEAM-TRAP. BURTON W. HILL, Somerville, Mass. Filed May 18, 1896. Received Nov. 11, 1897. Serial No. 658,203. (No model.)

Claim.—1. A steam-trap comprising in its construction a shaft mounted to turn in bearings and provided with a longitudinal passage in each end, branch pipes connected with one end thereof, one of the branch pipes being adapted to be connected to the system to be drained and the other to the boiler, a chamber rigidly connected with the said

shaft to turn therewith and adapted to receive water from one of said branch pipes and discharge it through the other, a counterbalance for the chamber, a live-steam-supply pipe connecting the upper portion of the chamber with the passage at the other end of the shaft, and a valve located within said shaft and operated by the movements of the chamber to admit steam to the chamber and to cut it off therefrom, whereby a vacuum may be formed in the chamber after cutting off the steam, so as to facilitate the entrance of water to the chamber from the system to be drained.



2. In a device of the character specified, the combination with the pipes b and h mounted in bearings, the chamber a connected at its lower end with the pipe b and adapted to turn therewith and with the pipe h, the pipe h^2 connecting the pipe h with the upper portion of the chamber, the pipe h^3 for live steam and having its end provided with a valve-seat, and a valve operated toward and from the said seat by the oscillation of the pipe h, the said valve being movable in the direction of the axis of said pipe.

3. In a device of the character specified, the combination with the stationary pipe h^3 having a valve-seat and the guides i' i^2, the casing h^3 mounted to rotate on the pipe h^3, the valve having the threaded stem i^4 and fitted to the said guides, and the threaded sleeve i^5 connected to rotate with the casing h^3.

4. In a device of the character specified, the combination with the stationary pipe h^3 having a valve-seat and the guides i' i^2, the casing h^3 mounted to rotate on the pipe h^3, the valve having the threaded stem i^4 and fitted to the said guides, the threaded sleeve i^5 having the flanges i^7 i^8 provided with fluid-passages, and an adjusting-screw i^9 passing through the casing and engaging with a portion of one of the flanges, substantially as described.

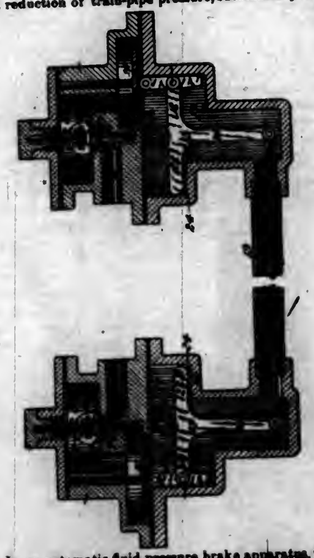
604,861. AUTOMATIC FLUID-PRESSURE BRAKE APPARATUS.

THOMAS J. HOGAN, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Filed Mar. 13, 1897. Serial No. 627,363. (No model.)

Claim.—1. In an automatic fluid-pressure brake apparatus, the combination, with a section of train-pipe, on a car, of operatively-connected means for simultaneously effecting a local release of fluid from the train-pipe at more than one point in the length of the train-pipe section, substantially as set forth.

2. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, of means, actuated by a reduction of train-pipe pressure, for locally exhausting fluid under pressure from the train-pipe simultaneously at two points in the length of the train-pipe, substantially as set forth.

3. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, of two release-valve devices connected therewith and adapted to effect a local exhaust of fluid therefrom, and means whereby the two release-valves may be operated simultaneously by a reduction of train-pipe pressure, substantially as set forth.



4. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, of two release-valve devices which are so connected that the operation of one may effect the simultaneous operation of the other, substantially as set forth.

5. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, of a release-valve device adapted to be operated by variations of fluid-pressure, and connected with and adapted to positively operate another release-valve device, substantially as set forth.

6. In an automatic fluid-pressure brake apparatus, the combination, with a train-pipe, of two release-valve devices, each adapted to be actuated by variations of fluid-pressure, and so connected together that the operation of one will effect a simultaneous operation of the other, substantially as set forth.

7. The combination, with two connected valve devices, of a fluid-pressure-actuated member, or abutment in each valve device, and a connection between the fluid-pressure-actuated members, or abutments, whereby the operation of either valve device by fluid-pressure may effect a simultaneous operation of the other, substantially as set forth.

8. The combination, with two valve devices, of a piston, or other fluid-pressure-actuated member, for each valve device and means connecting the pistons whereby each piston is adapted to operate both valve devices, substantially as set forth.

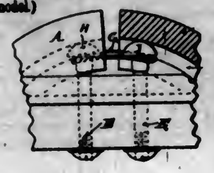
9. The combination, with a pipe connected with a number of valve devices adapted to be operated by variations of fluid-pressure in the pipe, of means, operative by variations of pressure in the pipe, and simultaneously actuated for effecting variations of fluid-pressure at different points in the pipe, substantially as set forth.

10. The combination, with a train-pipe, of two valve devices for releasing fluid under pressure therefrom, a piston in each of the valve devices, a lever adapted to be actuated by each piston, and a connection between the levers, substantially as set forth.

11. The combination, with two valve devices, of two connected levers having changeable fulcrums, and a piston connected to each lever and adapted to operate both valves, substantially as set forth.

604,862. MEANS FOR FIXING RUBBER TIRES ON WHEELS.

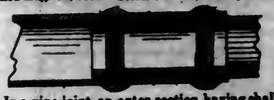
ALFRED HOPTON, London, England. Filed Feb. 5, 1897. Serial No. 622,142. (No model.)



Claim.—In a wheel for a vehicle, a tire constructed of suitable material, provided with a groove throughout its length, and slot to accommodate the head and pin of a bolt, in combination with a wheel-rim made to conform in shape to the tire, and provided with holes to receive the bolts, the slotted plate G, and the bolts H and J arranged in the ends of the tire, substantially as described.

604,863. PIPE-JOINT.

GUSTAV HOYER, Schlüsselburg, Germany, assignor to the Fahrradwerke Weltrad, vormals Hoyer & Gluhn, same place. Filed Aug. 13, 1897. Serial No. 648,112. (No model.)



Claim.—In a pipe-joint, an outer section having shallow annular grooves formed near the end thereof, an inner section fitting within the outer section and a reinforcing-section of uniform thickness throughout, said reinforcing-section being permanently fitted in the inner section, said inner and reinforcing sections being simultaneously pressed outward or expanded into the grooves of the outer section and at those points only, the flange produced by the groove in the reinforcing-section being deeper in proportion than the other section, substantially as set forth.

604,864. CAR-COUPLING.

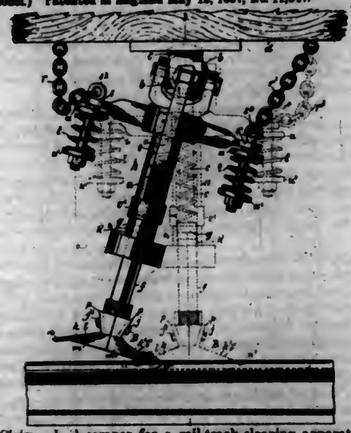
GEORGE B. JOHNSTON, St. Thomas, Ont. Filed Oct. 27, 1897. Serial No. 656,496. (No model.)



Claim.—In a car-coupler, two draw-heads, each having a longitudinal vertical slot formed at one end thereof, the walls of said slot having longitudinal ways formed therein near the bottom of the slot, the outer ends of said ways being deepened to form a flared mouth, bars extending across the forward end of the slot, one above the other, said bars having registering holes therethrough, a swing-pin pivoted in said slot, a coupling-link enlarged and rounded at one end to fit against the walls of the flared mouth and be limited in its backward movement thereby, the other end being adapted to pass into the ways of the other draw-head and engage the swing-pin, and a coupling-pin adapted to pass through the openings in said bars, as and for the purpose described.

604,865. RAIL-TRACK CLEANER.

EDWARD G. JOHNS, Cape Town, Cape Colony. Filed Oct. 21, 1897. Serial No. 655,984. (No model.) Patented in England May 12, 1897, No. 11,847.



Claim.—1. A scraper for a rail-track-cleaning apparatus, consisting of a shaft to which are rigidly fixed two plates bent to, or meeting together at an angle along a central longitudinal line, thus each plate forming two lateral oblique planes, one of such planes having on the bottom edge thereof a tooth-like projection, as and for the purpose described and set forth.

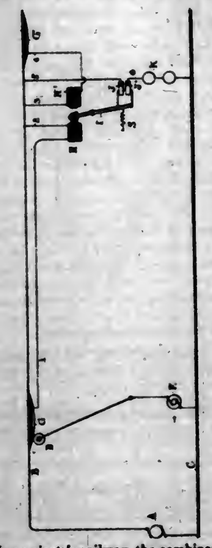
2. A holder for the scraper of a rail-track-cleaning apparatus, consisting of a T-shaped frame the center leg of which is hollow and occupied mainly by a helical spring and the lower end being adapted to retain the headed end of the shaft of the scraper, and the cross-bar of which is provided with a hole at each extremity thereof to receive an eyebolt, as and for the purpose described and set forth.

3. In a rail-track-cleaning apparatus, the combination with a suitable carriage, of the T-shaped scraper-holder suspended from the center of its cross-bar by a gimbal-joint from a bearing-bracket on the under frame of the carriage, and from the extremities of its cross-bar by means of chains attached at one end to the under frame of the carriage and at the other to eyebolts adapted by means of helical springs and washers to cushion the movement of the said scraper-holder, as and for the purpose described and set forth.

4. In a rail-track-cleaning apparatus, the combination with a suitable carriage of the T-shaped scraper-holder suspended by a gimbal-joint, chains and spring-cushioned eyebolts to the under frame of the carriage: lateral spring sliding guides adapted to control any lateral movement of the holder, and the scraper and scraper-shaft, as and for the purpose described and set forth.

604,866. SIGNAL FOR ELECTRIC RAILWAYS.

WILLIAM H. JORDAN, Brooklyn, N. Y. Filed Feb. 16, 1897. Serial No. 623,723. (No model.)



Claim.—1. In an electric railway, the combination with the main or working conductors, of an electromagnetic signal-controller connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor, and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

2. In an electric railway, the combination with the main or working conductors, of two electromagnets for controlling a signal, said magnets being independently connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor, and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

3. In an electric railway, the combination with the main or working conductors, of a signal-circuit, an electromagnetic device for controlling said signal-circuit, said device being connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

4. In an electric railway, the combination with the main or work-

ing conductors, of a signal-circuit, two electromagnets for controlling said signal-circuit, said magnets being independently connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

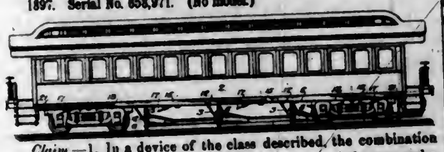
5. In an electric railway, the combination with the main or working conductors, of a signal-circuit, a switch for controlling said circuit, an electromagnetic device for operating said switch, said device being connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

6. In an electric railway, the combination with the main or working conductors, of a signal-circuit, a switch for controlling said circuit, two electromagnets for operating said switch, said magnets being independently connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

7. In an electric railway, the combination with the main or working conductors, of a signal-circuit connected across said conductors, a switch for controlling the signal-circuit, an electromagnetic device for operating said switch, said device being connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

8. In an electric railway, the combination with the main or working conductors, of a signal-circuit connected across said conductors, a switch for controlling the signal-circuit, two electromagnets for operating said switch, said magnets being independently connected between one of the main or working conductors and two distant contact-plates located in close proximity to the same conductor and which contact-plates are adapted to be electrically and successively connected with the other main or working conductor through the contact devices and circuit connections of a moving vehicle, substantially as set forth.

604,867. DUST-CONVEYER FOR RAILROAD PASSENGER CARS OR COACHES. AARON H. LE VAN, Reading, Pa. Filed Nov. 18, 1897. Serial No. 658,971. (No model.)



Claim.—1. In a device of the class described, the combination with a car, of hangers depending from the bottom of the car, and a longitudinal series of funnels located beneath the car and supported in the hangers, said funnels being provided with rearwardly-extending tubes having their rear ends supported within the mouths of the adjacent funnels, substantially as described.

2. A device of the class described comprising a longitudinal series of funnels provided at their reduced ends with tubes fitting in the mouths of the adjacent funnels, said funnels being provided at their mouths with stop-flanges, pins or projections mounted upon the funnels in rear of the stop-flanges, hangers supporting the funnels and having the stop-flanges abutting against their front faces, said hangers being provided with slots or openings to permit the passage of the pins, and latches mounted on the hangers and adapted to cover the slots or openings, substantially as and for the purpose described.

3. In a device of the class described, the combination of a funnel having an arched upper portion and a flat bottom portion and provided with a stop-flange, a hanger composed of vertical sides, a horizontal bottom portion supporting the funnel, and a curved connecting portion extending over the top of the funnel and conforming to the configuration of the same, means for detachably locking the funnel in the hanger, and braces, substantially as described.

4. In a device of the class described, the combination with a car, of the side conveyers mounted upon the car below the body thereof and provided with curved terminals extending inward in rear of the steps of the car, said conveyers being provided with openings having flaring mouths, substantially as described.

5. In a device of the class described, the combination with a car, of a series of hangers mounted on the car and depending from the bottom thereof, the said hangers being provided with horizontal bottom portions and having curved connecting-pieces arranged above the horizontal portions, and a horizontal series of funnels arranged within the hangers and having flat bottom portions and arched top portions to fit the hangers, said funnels being provided with rearwardly-extending tubes having their rear ends arranged within the mouths of the adjacent funnels, substantially as described.

6. In a device of the class described, a side conveyer comprising a tube or conduit, designed to be mounted on the body of a car at the bottom thereof and provided with openings, plates pivoted between their ends at the openings, arranged at an angle to the tube or conduit and forming flaring mouths or entrances, springs engaging the plates and stops mounted on the tube or conduit and arranged to be engaged by the plates, substantially as described.

604,868. WINDOW STRUCTURE. THEODORE H. SCHEITZ, Philadelphia, Pa. Filed Oct. 2, 1897. Serial No. 653,516. (No model.)



Claim.—1. The combination of devices forming a window structure with a main frame, whereby a pair of window-sashes are suspended and counterbalanced within the frame and adapted to be held therein at any angle of inclination or bodily removed therefrom when desired; said devices consisting of the following elements in combination, namely, a pair of sectional stiles B, B provided with longitudinal guideways *b* and composed of two separate and independent sections arranged end to end, the upper section being stationary and the lower section bodily adjustable laterally; springs *d* operating to maintain the lower stile-sections out in normal position to preserve the continuity of the guideways, weight-boxes the walls of which are adapted to furnish one bearing for said springs, locking devices E operating to maintain the lower sections in normal as well as in retracted position, sashes to slide in the guideways, sash-cords and counterweights; said parts being combined, arranged and operating, substantially as described.

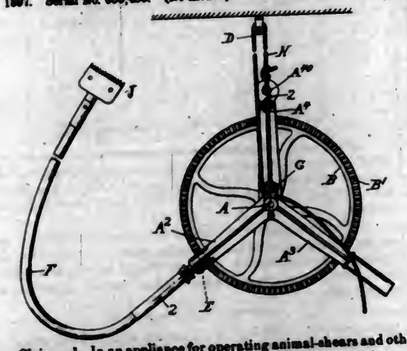
2. In a window structure, the combination with a sliding sash, of a hanger consisting of a vertically-movable portion slotted to engage a pin or stud of the sash, and having at each end a projecting slotted lug, a counterbalance-weight, a cord connected at one end to said weight and at the other end to the upper of said lugs, and a second cord connected at one end to the opposite end of the said weight, and to the lower lug of said hanger, said second cord having a portion of its length constituted by a spring, substantially as specified.

3. In a window structure, the combination with the main frame, of adjustable stile-sections therein, provided with longitudinal guideways, means to maintain the stiles in and out of normal position, sashes to slide in the guideways, and angular hangers F for the sash-cords, pivoted to supports on the sashes, said hangers being constructed with a slotted vertical member, and with opposite horizontal members, perforated for the passage of sash-cords, the knots of which are inclosed in the hangers; and counterweights on the opposite ends of the sash-cords; substantially as described.

4. The combination, forming a window structure, with a main frame, sectional stiles arranged end to end, the upper section being stationary and the lower section being adjustable laterally, vertical guideways therein for the sashes, weight-boxes having walls *d'* recessed at a^3 to permit access thereto, springs *d* interposed between the lower stile-sections and the walls of the weight-boxes, and locking devices consisting of normally-projecting spring-actuated bolts *e*,

casings therefor in the ends of the lower section, and keepers e^4 mounted in the opposing end of the upper section, with sockets e^4 adapted to engage the said bolts; said elements being combined and operating substantially as and for the purposes set forth.

604,869. MECHANISM FOR OPERATING ANIMAL-SHEARS OR OTHER TOOLS. JOHN K. STEWART, Chicago, Ill. Filed Oct. 16, 1897. Serial No. 655,459. (No model.)



Claim.—1. In an appliance for operating animal-shears and other tools, a frame or spider, and means for suspending it flexibly, such frame comprising a rigid handle; a drive-wheel and a driven wheel both mounted on the frame; and a tool-actuating flexible shaft operatively connected with the driven wheel.

2. In an appliance for driving and operating animal-shears or other tools, a frame, a driving and a driven wheel journaled therein; a cable by which the frame is flexibly suspended, each cable extending from the frame over a supporting sheave-pulley, and thence back to the frame, and suitably secured thereto at two points, and a slip-and-grip device at one of said points to permit adjustment, all combined and operating substantially as set forth.

3. In an appliance for operating animal-shears or other tools, in combination with the spider having arms A^3 and A^4 radiating from the central hub; and a driving-wheel journaled at the hub; one of said arms having means for suspending the frame; the other of said arms extending in a position to serve as a directing-handle, and a third arm having bearings for a pinion, a pinion journaled in said arm actuated by the centrally-journaled wheel, and a flexible shaft operatively connected with and actuated by said pinion and adapted to carry the tool at the remote end.

4. In combination with the frame consisting of a hub having two radial arms, the driving-wheel journaled at the hub-center; a pinion journaled on one of the arms and driven by the drive-wheel, and the flexible shaft operatively connected with and driven by the pinion, the other arm being adapted to serve as a directing-handle for the frame, and a third radial arm pivoted about the hub-center, and a suspending-cable attached to such arm at a point remote from the center, the frame being provided with another point of attachment for the cable near the hub-center.

5. In combination with the frame consisting of a hub having two rigid radial arms, the drive-wheel journaled at the hub-center; a pinion journaled on one of the arms and driven by the drive-wheel, and the flexible shaft operatively connected with and driven by the pinion, the other arm being adapted to serve as a directing-handle for the frame, and a third radial arm pivoted about the hub-center and a suspending-cable attached to such arm at a point remote from the center, the frame being provided with another point of attachment for the cable near the hub-center, the attachment at one of said points being made by a slip-and-grip device engaging the cable.

6. In combination with the frame consisting of a hub having two rigid radial arms, the drive-wheel journaled at the hub-center, a pinion journaled on one of the arms and driven by the drive-wheel and the flexible shaft operatively connected with and driven by the pinion; the other arm being adapted to serve as a directing-handle for the frame, and a third radial arm pivoted about the hub-center and a suspending-cable attached to such arm at a point remote from the center, the frame being provided with a slip-and-grip device for engaging the cable at a second point of attachment near the center on the side opposite that from which the rigid arms project.

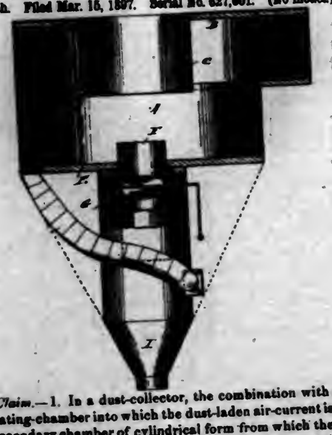
604,870. BULLET-PROOF FABRIC. CASIMIR ZDOLEK, Chicago, Ill. Filed May 14, 1897. Serial No. 636,443. (No specimens.)

Claim.—1. As a new article of manufacture, a bullet-proof fabric comprising an inner or cushioning layer of unwoven fibers and one or more outer layers of closely woven or braided silk cords or strands, which consists of a number of fibers tightly wrapped or twisted together, said layers being suitably secured together.

[redacted]

2. As a new article of manufacture, a bullet-proof fabric composed of an inner cushioning layer of unwoven or loose silk fibers compactly inclosed within a suitable covering, and one or more outer layers, each composed of closely woven or braided silk cords or strands, which consists of a number of fibers tightly wrapped or twisted together, the whole being secured together by stitching or otherwise.

604,871. DUST-COLLECTOR. WILLIAM R. ALLINGTON, Saginaw, Mich. Filed Mar. 15, 1897. Serial No. 627,601. (No model.)



Claim.—1. In a dust-collector, the combination with a primary separating-chamber into which the dust-laden air-current is delivered, of a secondary chamber of cylindrical form from which the separated dust is discharged, the axial portions of said chambers being in open communication with each other for the return of the purified air from the secondary to the primary chamber and a pipe or passage connecting said chambers, the connecting pipe or passage communicating with the primary chamber near its peripheral wall and with the secondary chamber tangential to the axis thereof, substantially as described.

2. In a dust-collector, the combination with a primary chamber having a tangential inlet for the dust-laden air, a purified-air outlet and a bottom wall having an aperture therein near the periphery of the chamber, and a secondary chamber of cylindrical form communicating with the primary chamber through a central aperture in its bottom wall, and also by an external pipe or passage connecting the peripheral aperture and said secondary chamber and entering the latter tangentially, substantially as described.

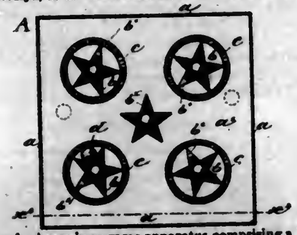
3. In a dust-collector, the combination with a casing providing a primary chamber into which the dust-laden air is delivered, said chamber having a peripheral outlet in its bottom wall for the separated dust, of a secondary chamber of cylindrical form located below the primary chamber and an external duct or passage connecting said chambers, said duct or passage leading from said peripheral aperture to and entering the secondary chamber tangentially, and an air relief-pipe connecting said chambers, substantially as described.

4. In a dust-collector of the class described, the combination with a casing constituting a primary separating-chamber into which the dust-laden air-current is delivered, said primary chamber having its bottom wall provided with a peripheral dust-outlet, of a secondary chamber of cylindrical form and an external spiral pipe or passage connecting said secondary chamber tangentially with the peripheral dust-outlet, substantially as described.

5. In a dust-collector of the class described, the combination with the primary and secondary air-chambers of cylindrical form having an external spiral pipe or passage connecting their peripheries, the secondary chamber having a dust-outlet to which its walls converge and the primary chamber having a purified-air outlet with a relief-pipe connecting said primary and secondary chambers, substantially as described.

6. In a dust-collector of the class described, the combination with primary and secondary air-chambers of cylindrical form having a spiral pipe or passage connecting their peripheries, the secondary chamber having a dust-outlet to which its walls converge and the primary chamber having a purified-air outlet with a relief-pipe connecting said primary and secondary chambers, and a valve in said relief-pipe, substantially as described.

604,872. PUZZLE OR GAME APPARATUS. CHARLES R. BALDWIN, Brooklyn, N. Y. Filed Mar. 16, 1897. Serial No. 627,842. (No model.)

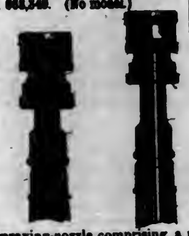


Claim.—1. A puzzle or game apparatus comprising a board with an elevated marginal rim, an indicating-star mounted rotatively on said board, a series of characters marked on said board around said indicating-star, an obstacle-star mounted rotatively on the board, and a ball to roll freely over the board.

2. A puzzle or game apparatus comprising a board with an elevated marginal rim and having the letters of the alphabet arranged in a circle thereon, a rotatively-mounted indicating-star *b*, on the board within said circle, said star having one of its points marked so as to distinguish it from the other points, and a ball free to roll over the said board and to rotate said star by contact with its points.

3. A puzzle or game apparatus comprising a board with an elevated margin, a ball free to roll over said board, a plurality of indicating-stars *b*, each having a marked point, mounted rotatively on the board, the letters of the alphabet being arranged in a circle on the board about each of said stars *b*, and an obstacle-star $b^{\times}$, rotatively mounted on the board within the space inclosed between the stars *b*, substantially as set forth.

604,873. SPRAYING-NOZZLE. JOHN BEAN, Los Gatos, Cal., and ROSCOE BEAN, Hudson, Mich. Filed Feb. 4, 1895. Renewed Jan. 26, 1898. Serial No. 668,249. (No model.)

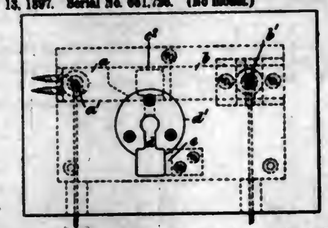


Claim.—1. A spraying-nozzle comprising a main tube provided at its upper discharge end with an end wall, and a cylindric chamber exterior to the wall and having sliding telescopic connection with said main tube, and normally held at the extreme outward limit of its movement by the force of the outflowing liquid, said main tube having an eccentric discharge opening obliquely or spirally into said chamber, and a spray-orifice in the outer wall of the chamber out of line with said discharge-orifice, substantially as described.

2. A spraying-nozzle comprising a tube closed at its end except for a discharge-orifice therein and provided with a sliding telescopic cap having a spray-orifice out of line with the discharge-orifice, and a stop for limiting the outward movement of the cap under the force of the outflowing liquid, comprising an elongated recess parallel with the axis of the tube, and a stud carried by the cap and engaging said recess.

3. A spraying-nozzle comprising a main tube provided in its upper end with an eccentric outwardly-directed discharge-passage, a cap inclosing the end of the tube and having sliding telescopic connection therewith, a stop for limiting the outward movement of the cap under the pressure of the outflowing liquid, a central spray-orifice in the end wall of the cap, and a central clearing-point on the end of the tube opposite the spraying orifice adapted to enter and clear said orifice when the cap is moved downwardly on the tube, substantially as described.

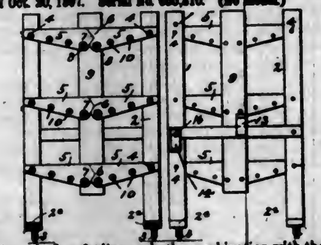
604,874. SAFETY DEVICE FOR ELECTRIC CARRIAGES. REGINALD T. D. BROCKMAN and WALTER C. BERRY, London, England, assignors to the Electrical Vehicle Syndicate, Limited, same place. Filed Dec. 13, 1897. Serial No. 661,736. (No model.)



Claim.—1. The combination of a closed box, a keyhole leading into the box, two open contacts within the box remote from the keyhole and connected to the circuit-wires and a key so shaped that it passes through the keyhole and when the key is turned connects the contacts.

2. The combination of a closed box, a key leading into the box, two open contacts within the box remote from the keyhole and connected to the circuit-wires, a key so shaped that it passes through the keyhole and a projection on the key adapted to enter between the contacts.

604,875. SHOE-RACK. BERNEY B. CARNEY, North Adams, Mass. Filed Oct. 20, 1897. Serial No. 656,210. (No model.)



Claim.—1. In a folding rack, the combination with the front and rear stationary standards, the connecting-bars at the lower ends thereof provided with casters, and the longitudinal connecting-rods secured to said standards near the upper and lower ends and intermediate said ends, of the inwardly-extending arms pivoted to said rods, formed with interlocking V-shaped recesses and beveled points at their inner ends, the vertically-movable bars, the longitudinal rods secured thereto to which the inner ends of said arms are pivoted, and the intermediate rods secured to said arms, substantially as described.

2. In a folding rack, the combination with the front and rear stationary standards formed with upper and lower holes to receive locking-pins, the longitudinal connecting-bars provided with casters, the longitudinal connecting-rods secured to said standards, the inwardly-extending arms pivoted to said rods and formed with interlocking beveled points and recesses at the inner ends, the vertically-movable bars, the connecting-rods to which the inner ends of said arms are pivoted, the locking-arms pivoted to the diagonally opposite standards, the lugs on the other standards and on the vertically-movable bars and the locking-pins, substantially as described.

604,876. CYCLE-HANDLE-BAR FASTENING ATTACHMENT. EDWARD H. CRAPTIUS, Marysville, Cal. Filed Dec. 13, 1897. Serial No. 661,738. (No model.)



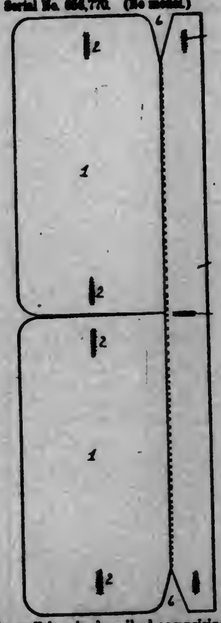
Claim.—1. In a bicycle, the vertically-movable handle-bar post with corrugations, locking-cam and cam-block, a two-part elastic head formed of disks with corrugated exterior faces, corresponding corrugated disks fixed upon the handle-bar, a cam turnable upon the handle-bar between the two parts of the head of the handle-bar post whereby the parts may be separated and caused to engage with the disks upon the handle-bar and lock the latter in any desired position.

2. An adjusting and clamping device for handle-bars of bicycles consisting of disks fixed upon the central portion of the handle-bar having their inner faces radially corrugated, a correspondingly-shaped head for the handle-bar post having a slot formed in the upper end in line with the frame of the machine, through which head the handle-bar is adapted to pass with its corrugated disks exterior to the circular head-disks of the post, a cam fitting the channel in the head of the post and turnable about the handle-bar which passes therethrough, a lever by which the cam is actuated, and lugs with which the cam engages when turned, whereby the channeled post-head is separated and its outer faces interlocked with those of the disks upon the handle-bar and the latter is locked in any desired position.

3. The steering-post of a bicycle having a slotted head, the parts of which are movable to and from each other, and which have radially-corrugated outer surfaces as shown, central openings through which the handle-bar passes through said head, a cam fitting between the two parts turnable upon the handle-bar, and lugs with which the cam engages to separate the disks forming the head of the post, or allow them to approach each other, circular disks fitted upon the handle-bar exterior to the disks forming the post-head and correspondingly corrugated so as to be engaged thereby when the head is spread by the action of the cam, a cylindrical hood or collar inclosing the parts and having inwardly-turned flanges upon the opposite edges adapted to engage corresponding channels in the outer faces of the disks which are fixed to the handle-bar whereby they are maintained in position and protected from dust.

4. In a handle-bar adjustment of the character described, the circular rotary cam with its projecting lever, a collar or casing surrounding and inclosing the interlocking disks of the handle-bar and the steering-post head, said collar having a channel or slot in the line of travel of the movable cam-lever, and a gate fixed to the cam-lever and slidable therewith to open the channel when the lever is moved to disengage the locking mechanism, and to close the channel when the lever is moved to again interlock the parts.

604,877. CUFF. CHARLES A. CHENEY, Philadelphia, Pa. Filed Oct. 20, 1897. Serial No. 656,770. (No model.)



Claim.—The cuff herein described comprising a band provided with means whereby its free ends may be secured together and a cuff-body divided into separate sections near its mid-length, each section being separately attached to the band and having both ends provided with a buttonhole whereby the said sections may be secured by links, substantially as described.

604,878. CAN-OPENER. CALVIN FRANCISCO, Newark, N. J. Filed Aug. 3, 1897. Serial No. 646,902. (No model.)

Claim.—1. A can-opening device, combining therein, a cover and a handle having legs and provided with a cutter or knife on one of the legs thereof, extending downward and through said cover, substantially as and for the purposes set forth.



2. A can-opening device, combining therein, a cover, a handle, a cutter or knife, and means connected with said handle and said cutter or knife for securing said handle directly above said cutter or knife upon said cover, substantially as and for the purposes set forth.

3. A can-opening device, combining therein, a cover, a handle, a cutter or knife, and means connected with said handle and said cutter or knife for securing said handle directly above said cutter or knife upon said cover, and said cutter consisting, essentially, of a shank *d* adapted to be secured upon the top of said cover and having a bladed' extending downward and through said cover, substantially as and for the purposes set forth.

4. A can-opening device, combining therein, a cover, a handle *c*, having a leg provided with a grooved or channeled end c^4, a cutter or knife having a shank arranged in said grooved or channeled end of the handle, and means for attaching it to said cover, substantially as and for the purposes set forth.

5. A can-opening device, combining therein, a cover, and a handle *c*, having a leg provided with a grooved or channeled end c^4, a shank *d* of a cutter arranged in said grooved or channeled end having a blade *d'* extending downward and through said cover, and means, for securing said end c^4 of the handle and said shank *d* to said cover, substantially as and for the purposes set forth.

6. A can-opening device, combining therein, a cover, and a handle *c*, having a leg provided with a grooved or channeled end c^4, a shank *d* of a cutter arranged in said grooved or channeled end having a blade *d'* extending downward and through said cover, and means, for securing said end c^4 of the handle and said shank *d* to said cover, consisting, of pins or rivets b' and b^3 passed through perforations in said end c^4 and the shank *d* and the body portion of said cover, substantially as and for the purposes set forth.

604,879. ACETYLENE-GAS GENERATOR. WILLIAM W. GOODWIN, Bordentown, N. J. Filed Apr. 13, 1896. Serial No. 587,401. (No model.)

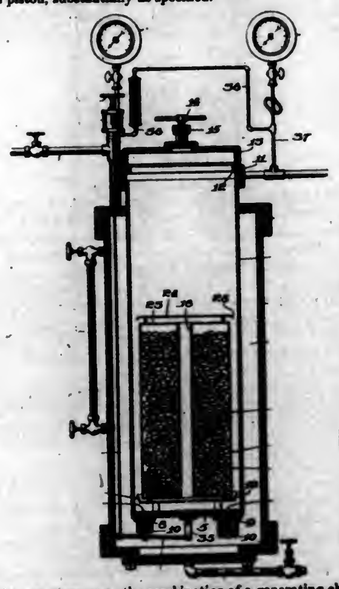
Claim.—1. In a gas apparatus, the combination of a generating-chamber in which the source of gas is obtained, of a surrounding water-containing chamber or space with the lower portion of which the generating-chamber has communication, valve mechanism for controlling the communication between said chambers, and a gas-operated governor operatively connected with the valve mechanism, substantially as specified.

2. In a gas-generator, the combination of an outer water-chamber, a generating-chamber supported within the water-chamber and having a valved port at its lower end which opens into said water-chamber, a receptacle supported in said generating-chamber said receptacle having a central perforated tube therein and layers of carbid &c. surrounding said tube and partially separated from each other by diaphragms, and means for controlling automatically the valve of said port, substantially as specified.

3. In a gas-generator, the combination of a generating-chamber in which the source of gas is contained, a water-chamber having communication with the lower portion of said generating chamber, and means for automatically controlling such communication, a return port or passage from the generating-chamber to the water-chamber, and an automatically-operating valve which controls the said port or passage, substantially as specified.

4. In a gas apparatus, the combination with a generating-chamber in which the source of gas is contained, a water-chamber having communication with the lower portion of the generating-chamber, valve mechanism controlling such communication, a gas-operated governor connected to the said valve mechanism, a return port or passage from the generating-chamber to the water-chamber, and a safety-valve, controlling said return port or passage, substantially as specified.

5. In a gas apparatus, the combination of a generating-chamber in which the source of gas is contained, a water-containing chamber with the lower portion of which the generating-chamber has communication by a port in its bottom wall, a normally-closed valve for controlling the said port, a cylinder, a piston therein, a spring acting upon the piston, means to depress the spring and piston, connections between said piston and the valve, and a pipe leading from the generating-chamber to said cylinder and communicating with the same below its piston, substantially as specified.



6. In a gas apparatus, the combination of a generating-chamber, a vessel therein provided with a perforated pipe, detachable diaphragms for said vessel and of less diameter than the vessel, and means for supplying liquid to said pipe, substantially as described.

7. In a gas apparatus, the combination of a generating-chamber, a vessel therein to receive layers of carbide, &c., diaphragms of less diameter than the vessel and provided with drooping edges and adapted to separate such layers except at the outer marginal portions thereof, and means for supplying water to such vessel, substantially as described.

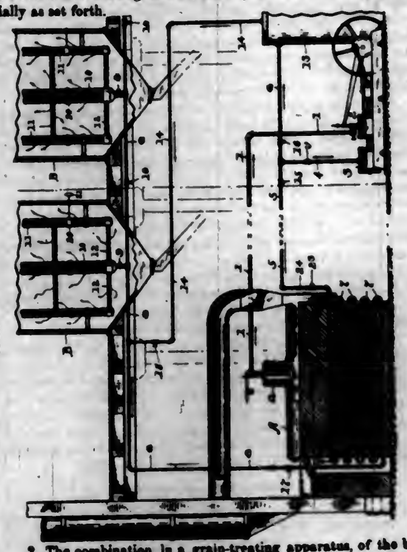
8. In a gas-generating apparatus, the combination of a generating-chamber, a water-chamber with the lower portion of which the generating-chamber communicates, means for automatically controlling such communication, a vessel in the generating-chamber adapted to receive layers of carbide &c. said vessel having a central perforated tube, diaphragms to separate such layers and a diaphragm supported above said vessel, substantially as specified.

9. In a gas-generating apparatus, the combination of an outer cylinder having a removable screw cap or head at each end, an inner cylinder extended through and supported in the upper cap or head of said outer cylinder, a valved port in the lower end of the inner cylinder, means for automatically actuating the valve of said port, and means for introducing water within the outer cylinder, substantially as described.

10. In a gas-generating apparatus, the combination of an outer cylinder capped or headed at both ends, an inner cylinder extended through and supported in the upper cap or head of said outer cylinder, a valved port in the lower end of the inner cylinder, a pipe rising from the outer cylinder, a governor-cylinder on said pipe, a piston therein connections between the piston and the valve of said port, and a pipe leading from the inner cylinder to said governor-cylinder, substantially as described.

604,880. GRAIN-TREATING APPARATUS. GEORGE R. GORHAM, Chicago, Ill., assignor of one-half to Abel R. Angle, Indianapolis, Ind. Filed May 14, 1897. Serial No. 636,630. (No model.)

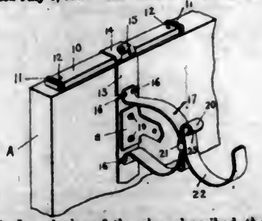
Claim.—1. The combination, in a grain-treating apparatus, of the furnace and boilers, an air-compressor driven from said boilers, coils of pipe arranged within said furnace, a heating-drum arranged adjacent thereto and heated therefrom, a pipe running from said air-compressor and connected both with said coils and with said drum, a pipe connected both with said coils and said drum and running past the grain-bins, said grain-bins, perforated columns therein, said pipe being connected by branches to said columns, and valves arranged in the various pipes, whereby the air may be directed through one or both of said heating devices, and any or all of said bins, substantially as set forth.



2. The combination, in a grain-treating apparatus, of the bins, vertical perforated columns within the bins, valves interposed in said columns at intervals whereby the effective height thereof can be varied, air-pipes connected to the bottom of said columns, and an air-compressor for supplying air to said pipes, said several parts being arranged and operating substantially as shown and described.

3. The combination, in a grain-treating apparatus, of a furnace and boiler, an air-compressor driven therefrom, heating-coils arranged within the structure of said furnace, a cold-air reservoir suitably located, a pipe leading from the compressing-cylinder of said air-compressor having branches which lead to said coils and to said reservoir, valves whereby the flow of air can be caused to travel in either direction from said air-compressor, pipes leading from said coils and said air-reservoir to a common point where they unite, a continuation of one of said pipes past grain-bins, said grain-bins, perforated columns extending vertically up in said grain-bins, connections between said pipe and said columns, and suitable valves interposed in said several pipes, whereby the flow of air can be controlled, and whereby either cold or hot air can be driven by means of said air-compressor into said perforated columns and thus through the grain in said bins, substantially as and for the purposes set forth.

604,881. CURTAIN-FIXTURE. HENRY L. GREEN, Worcester, Mass. Filed July 6, 1897. Serial No. 643,456. (No model.)



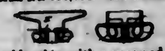
Claim.—1. In a device of the class described, the combination of a wooden supporting-strip 10 secured on top of a window-casing, and having strengthening-wires 11 for holding the same a short distance up therefrom, and a curtain-fixture having a metallic base-piece 13 with a socket 14 at its upper end adapted to engage the supporting-strip 10, whereby the curtain-fixture may be adjustably supported without defacing the front of the window-casing, substantially as described.

2. In a curtain-fixture, the combination of a metallic base-piece 13 having sockets, a yoke-piece 17 engaging said sockets, and an angle-piece 18 detachably secured to the base-plate 13 by the metallic fasteners 19, substantially as described.

3. In a curtain-fixture, the combination of a support or yoke having a socket 20 adapted to receive a metallic curtain-rod, a hook 22 having a coil 24 adapted to engage the socket 20, one of said parts being provided with a locking-tongue adapted to engage a notch in the other piece to detachably secure said parts together, substantially as described.

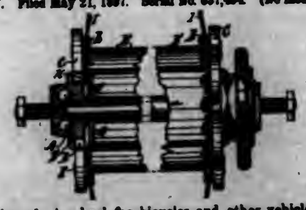
4. In a curtain-fixture, the combination of the base-piece 13, the angle-piece 18 detachably secured thereto by the metallic fasteners 19, a yoke-piece 17 engaging sockets in the base-piece formed by integral tongues or projections 16, a socket-piece 20 adapted to receive one end of a metallic curtain-rod, and a detachable hook 22 having a coil 24 at its upper end with a notch 23 formed therein in position to engage an integral locking-tongue 25 extending from the socket-piece 20 to detachably secure said parts together, substantially as described.

604,882. BUTTON-BACK. ALBERT HALL, Brooklyn, N. Y. Filed May 29, 1897. Serial No. 638,694. (No model.)



Claim.—The combination with a pronged button, of a cap composed of a metal cup having an upwardly-projecting central interior post, provided at its upper end with a head, the prongs of the button passing down between the inner edge of the cup and the outer edge of the head and being curled up under the head, on the outer face of the post, substantially as herein shown and described.

604,883. WHEEL FOR BICYCLES. GEORGE HAYES, New York, N. Y. Filed May 21, 1897. Serial No. 637,494. (No model.)



Claim.—1. A wheel for bicycles and other vehicles, having a central axle-hub suspended within the hollow of an encircling spoke-nave by series of binary arc suspensory springs of flat metal, arranged around the axle-hub, standing outwardly therefrom parallel to the plane of the wheel and transversely to the hub, the ends of each spring secured to the axle-hub by ring-plates placed thereupon, and each spring formed with a deep depression between its two arcs, the web passing through a clamping device upon a cross-rod forming part of the spoke-nave, securing the spring to the spoke-nave, essentially as set forth.

2. In a wheel for bicycles and other vehicles, having an axle-hub suspended within an encircling spoke-nave by binary arc suspensory springs, the regulating device K, arranged and adapted for operation upon the springs, essentially as set forth.

3. In a wheel for bicycles and other vehicles, the combination consisting of first; the axle-hub A, constructed with groove H, and flanges G; second, the spoke-nave B, constructed with two cheek-rings arranged parallel to the plane of the wheel, encircling the axle-hub and connected together; and third; two sets of binary arc suspensory springs secured to the axle-hub by rings, and to the spoke-nave by hanger-blocks, essentially as set forth.

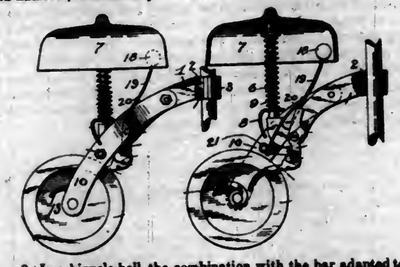
4. In a wheel for bicycles and other vehicles, a ball-bearing axle-hub having interiorly back of the ball-bearings near each end of the hub, an encircling groove adapted for reception of resiliently-sustained cheek-rings of a special spoke-nave, essentially as set forth.

5. In a wheel for bicycles and other vehicles, an axle-hub having a spindle midway between expanded ball-bearing ends, the two additional guard-flanges herein described, for the purpose set forth.

6. In a wheel for bicycles and other vehicles, the spoke-nave B, constructed with cheeks as rings placed parallel to the plane of the wheel, with as a part thereof, a midway drum B, and having semicircular peripheral projections for securing spokes thereto, essentially as set forth.

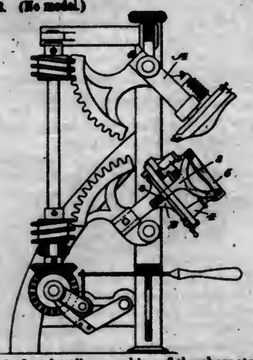
604,884. BICYCLE-BELL. CHRISTIAN JETSCHKUS, Scranton, Pa. Filed Dec. 31, 1897. Serial No. 664,963. (No model.)

Claim.—1. In a bicycle-bell, the combination with the bar, having a stop-pin at one end, the upwardly-extending rod, gong and coiled spring, of the wheel provided with a cam, the trigger, the pivoted arm to which the trigger is pivoted formed with a notch, the pin on the trigger, the spring bearing against said arm and the hammer-rod and hammer, substantially as described.



2. In a bicycle-bell, the combination with the bar adapted to be connected with a bicycle-brake, the upwardly-extending rod, the coiled spring, and the gong, of the arms pivoted to said bar, the connecting-rod, the coiled spring thereon, the bracket connected with said arms through which said rod passes, the wheel, the cam thereon, the arm pivoted to said bar and formed with a notch, the trigger pivoted thereto provided with a pin engaging with said notch, the projection on one of the side arms adapted to engage with said arm carrying the trigger, the hammer-rod and the hammer, substantially as described.

604,885. ATTACHMENT FOR SOLE-LEVELING MACHINES. CHARLES S. JOHNSON, Lynn, and GEORGE W. SPAULDING, Beverly, Mass.; said Spaulding assignor to said Johnson. Filed June 14, 1897. Serial No. 640,722. (No model.)



Claim.—1. In a leveling-machine of the character described, the combination with an adjustable last-carrier of a gage arranged to be moved into and out of position as described, and mechanism for adjusting said last-carrier with reference to the gage, for the purpose set forth.

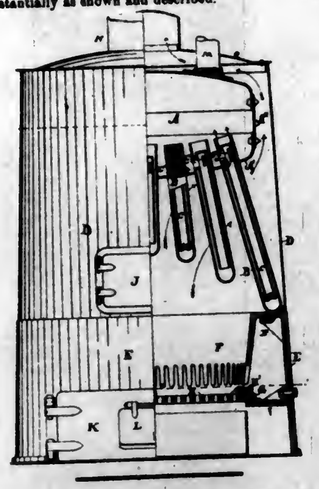
2. In a leveling-machine of the character described, the combination with an adjustable last-carrier of a pivoted arm having a fixed relation to the machine and provided with a templet as described, and mechanism for adjusting said last-carrier with reference to said templet, for the purpose set forth.

3. In a leveling-machine of the character described, the combination with an adjustable last-carrier of a pivoted arm having a fixed relation to the machine and carrying a templet detachably secured thereto, said templet having a contour substantially corresponding to that of the last which is to be used on the machine, and mechanism for adjusting said last-carrier with reference to said templet, for the purpose set forth.

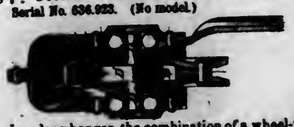
4. In a leveling-machine of the character described, the combination with the rocking arm B, carrying an adjustable last-carrier, of an arm 2 pivoted to said arm B and carrying a detachable templet 5, arranged to be moved into position over said last-carrier, and mechanism for adjusting said last-carrier with a last thereon, with reference to said templet 5, for the purpose set forth.

604,886. STEAM OR HOT-WATER BOILER. JAMES B. JOHNSTON and CLARENCE B. LITTLE, Dayton, Ohio. Filed Mar. 1, 1897. Serial No. 625,923. (No model.)

Claim.—In a steam and hot-water boiler, the combination with a slightly-inclining and circular base E having an inwardly-projecting rim P, and a circular boiler having its top and bottom plates rounded, of a plurality of heating-tubes A radially mounted in said bottom plate and a portion of which rests upon the rim P and forms the sole support for said boiler, a plurality of circulating-tubes C held concentrically within said tubes A, the said tubes C having their upper ends closed and provided with a series of side passages C' through which the colder water passes from the boiler into said tubes, the said passages C' being essentially deep and narrow so that a substantially less area of space is provided for the passage of the descending colder water than is provided for the ascending hot water, substantially as shown and described.

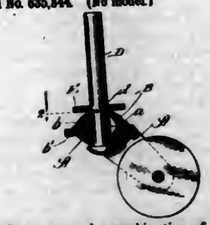


604,887. DOOR-HANGER. DAVID NICKEL, Morris, Ill. Filed May 17, 1897. Serial No. 636,923. (No model.)



Claim.—In a door-hanger, the combination of a wheel-frame provided with two internal cups on each side—one circumscribing the other—facing or opposing each other, caps arranged withid the larger cups and provided with cups facing or opposing such smaller cups, balls arranged between the cups in the caps and the smaller cups in the frame, and a wheel or pulley provided with an axle having its spindles resting and riding upon the balls, substantially as described

604,888. CASTER. DAVID NICKEL, Morris, Ill. Filed May 10, 1897. Serial No. 635,844. (No model.)



Claim.—1. In a caster, the combination of a cup-shaped lower member having an axial hole, and a cup-shaped upper member having an axial hole, the cups being opposed and the holes registering when the two are in place, whereby a long or extended journal or bearing for a pintle is secured, means forming a part of one member of the caster to permit it to be clasped and attached to the other member when in position to insure their movement in unison, and a pintle insertible from below to pass through the axial holes in the cup-shaped members and effect the attachment of the caster to an article of furniture, substantially as described.

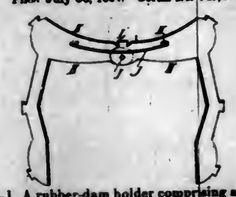
2. In a caster, the combination of a cup-shaped member having an axial hole and holes near its outer edges, and a cup-shaped member having an axial hole and lugs near its outer edges adapted to be inserted through the holes and bent to permit it to be clasped and attached to the other member to insure their movement in unison with the cups opposed and the holes registering when in position, and a pintle insertible from below to pass through the axial holes in the cup-shaped members and effect the attachment of the caster to an article of furniture, substantially as described.

604,889. HANDLE. WILLIAM R. RICHARDS, New York, N. Y. Filed July 8, 1895. Serial No. 555,262. (No model.)



Claim.—In combination with an escutcheon-plate having two semicircular openings communicating but with their centers slightly out of line, a drawer-pull having a shank provided with corresponding semicircular projections slightly out of line adapted to enter the openings in the plate and to be turned to frictionally engage the walls of the openings, substantially as described.

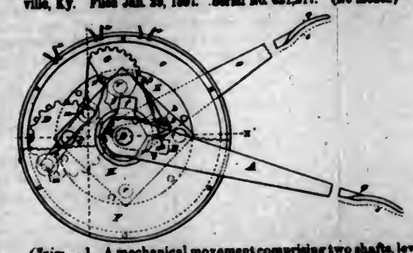
604,890. RUBBER-DAM HOLDER. WILLIAM M. SENSER, Louisville, Ky. Filed July 30, 1897. Serial No. 646,461. (No model.)



Claim.—1. A rubber-dam holder comprising an arch to pass over the face and perpendicular side extensions or legs with attaching-buttons, means for allowing the side extensions or legs to be adjusted toward each other, and a spring to restore the parts to their normal position.

2. A rubber-dam holder comprising an arch provided with buttons as described, parallel side extensions pivotally connected at their upper end to the arch and having buttons, and springs connecting the arch and side extensions.

604,891. BICYCLE PROPULSION. GEORGE D. ADAMSON, Louisville, Ky. Filed Jan. 29, 1897. Serial No. 621,217. (No model.)



Claim.—1. A mechanical movement comprising two shafts, levers fulcrumed on said shafts, a double-crank shaft mounted in proximity to said first-named shafts, a spur gear-wheel on said double-crank shaft, cam-wheels mounted at a point above said crank-shaft, chains connected to double-crank shaft and passing over the cam-wheels and attached to the levers, substantially as described.

2. The combination in a bicycle of shafts, levers fulcrumed on said shafts, a double-crank shaft mounted in proximity to said first-named shafts, cam-wheels mounted at a point above said crank-shaft, chains connected to the double-crank shaft and passing over the cam-wheels and attached to the levers, and the hollow axle having said first-named shafts mounted centrally, substantially as described.

3. The combination in a bicycle of shafts, levers fulcrumed on said shafts, a double-crank shaft mounted in proximity to said first-named shafts, a spur gear-wheel on said double-crank shaft, cam-wheels mounted at a point above said crank-shaft, chains connected to the double-crank shaft and passing over the cam-wheels and attached to the levers, the driving-hub and a gear-wheel suitably fastened to the inside of said driving-hub of bicycle, substantially as described.

4. The combination of crank-shaft, cam-wheel provided with keeper-tooth mounted in proximity to said crank-shaft, chain attached to said crank and passing over said cam-wheel engaging said keeper-tooth and oscillating lever to which the end of said chain is attached, substantially as described.

5. The combination of the nut *i* having a groove in its periphery, with a lever carrying a tongue *k* and screw *l* engaging said groove and nut, respectively, a shaft taking into said lever, the end of said shaft being threaded and longitudinally grooved, and the aperture in the lever being provided with longitudinal ribs corresponding to the grooves on the shaft, substantially as, and for the purpose specified.

6. A bicycle-hub comprising shell F, flange *c* suitably attached to said shell, spur gear-wheel securely fastened to inside said flange, and bearings *a*, *a*, substantially as described.

604,892. PAPER-FEEDING MACHINE. JAMES M. BLAISDELL, Winthrop, Mass., assignor to the Perfection Labeling Machine Company, of Maine. Filed Sept. 3, 1897. Serial No. 650,696. (No model.)



Claim.—1. An apparatus for feeding sheets of paper from a pile of such sheets, comprising a sheet-picker into contact with which the top sheet is adapted to be forced by atmospheric pressure, and means for producing a change of position of said sheet-picker relative to the part of said top sheet which is acted upon by such pressure, while such action is going on, to thereby progressively pick up said sheet and separate it from the sheet below, substantially as described.

2. The combination with a sheet-picker into contact with which a sheet is adapted to be forced by atmospheric pressure; of a support for a pile of sheets; a retaining device to hold a portion of the top sheet stationary with relation to the support; means for producing a change of position of said sheet-picker relative to said support and to that part of the top sheet which is being acted upon by such pressure whereby said sheet-picker and said top sheet are caused to travel one past the other to progressively subject the sheet to atmospheric pressure; and means for subsequently releasing the portion acted upon by the said retaining device, substantially as described.

3. In a sheet-feeding device, the combination with an exhausted chamber having an inlet in a wall thereof, of a support for the sheets, means for producing a relative movement of said chamber and said support whereby the sheets are brought to a position to be acted upon by atmospheric pressure at the chamber-inlet, a retaining device for the sheets adapted to engage and hold one portion of the sheet while another portion thereof is drawn into contact with the wall of the chamber, means for pressing said support toward said retaining device, and means for releasing the sheet from said retaining device after that portion of the sheet which is not held by said device has been drawn into contact with the wall of the chamber, and for simultaneously preventing the movement of the support toward the retaining device, substantially as described.

4. In a sheet-feeding device, the combination with an exhausted chamber having an inlet in a wall thereof; of a support for a pile of sheets arranged to support the pile so that the top sheet thereof is adjacent to but wholly out of contact with the wall of said chamber where the said inlet is situated; a retaining device to hold a portion only of the top sheet stationary with relation to the said support, the remainder of the sheet being free to move into contact with the wall of the chamber at the inlet aforesaid; and means for producing a movement of one of said parts past the other whereby the exhaust chamber and that part of the sheet drawn into contact therewith have a movement one past the other, so that the sheet is progressively acted upon by pressure at the inlet and that portion of the sheet not held by the retaining device progressively picked up into contact with the chamber over the inlet thereto, substantially as described.

5. In a sheet-feeding device, the combination with a traveling carrier comprising a rotatable drum from which the air is partially exhausted, said drum being provided with one or more inlets, of a sheet-support adjacent to said drum, means for rotating said drum to cause the inlets to travel past said support, means for moving said support toward the wall of the drum, a retaining device for the sheets on said support to retain a portion of the top sheet while another portion thereof is being drawn into contact with the wall of the drum, a stop or projection connected with said drum and adapted in the movement thereof to engage the said retaining device and cause it to release the top sheet, and means whereby the movement of said retaining device to release the top sheet prevents the movement of the support toward the wall of the carrier, substantially as described.

6. In a sheet-feeding device the combination with the traveling carrier comprising a rotatable drum from which the air is exhausted, said drum being provided with one or more inlets, of a sheet-support adjacent to said drum, a stationary shutter for the inlet, said shutter terminating at a point adjacent to the sheet-support, a retaining device for holding a portion only of the sheet stationary with relation to the said support, the remainder of the sheet being free to move into contact with the drum at the inlet, means for rotating said drum to cause the inlets to travel past the surface of the sheet which is drawn into contact therewith, but prevented by said retaining device from being carried along thereby; and means for subsequently operating the retaining device to release the sheet, substantially as described.

7. In a sheet-feeding device, the combination with an exhausted chamber having an inlet in the wall thereof, of a support for a pile of sheets arranged to support the pile so that the top sheet thereof is adjacent to the wall of said chamber where the said inlet is situated, a retaining device to hold a portion only of the top sheet stationary with relation to said support, the remainder of said sheet being free to move into contact with the wall of said chamber at the inlet, means for producing a movement of one of said parts past the other whereby the exhaust-chamber and that part of the sheet which is drawn into contact therewith have a movement one past the other so that the sheet is progressively picked up by atmospheric pressure at the inlet; and means for closing the said inlet up to the time the said inlet is in position to cause the pressure thereat to act upon the sheet, substantially as described.

8. In a sheet-feeding device, the combination with an exhausted chamber provided with an inlet in the wall thereof, of a support for the sheets adapted to be moved toward the wall of said chamber by means of a weight and pulley, a presser-foot provided with a spring whereby it is normally pressed down upon the surface of a sheet on the support, said presser-foot having a loose pivotal connection with said support, an arm or projection from said presser-foot adjacent to said pulley, means for producing a relative movement of the chamber and the sheet-support, and a tripping projection adapted to engage said arm and move the same into engagement with the pulley, whereby said arm is rocked on the pulley as a fulcrum, to lift the presser foot and at the same time to prevent rotation of the pulley and check the movement of the support which would otherwise result, substantially as described.

9. In a sheet-feeding device, the support *c*, weight c^2 and pulley c^4, and the presser-foot *d* having an elongated slot d^5 adapted to engage projections or pins to support said presser-foot, the spring d^3 whereby said presser-foot is normally pressed toward said support, and the arm d^3 overlying said pulley, substantially as described.

604,893. HOISTING AND CONVEYING APPARATUS. JEREMIAH CAMPBELL, Chelsea, Mass. Filed Dec. 4, 1897. Serial No. 660,894. (No model.)

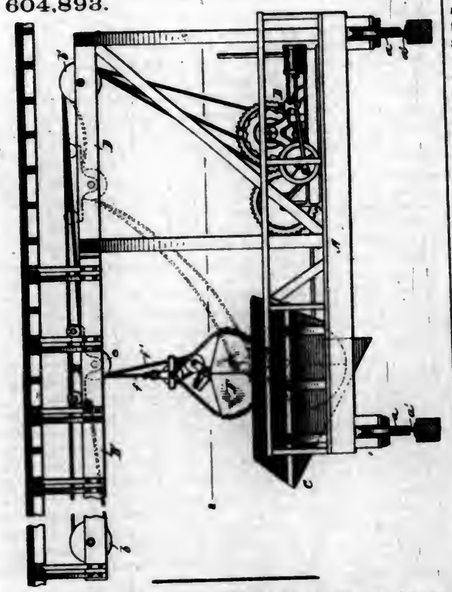
Claim.—1. In a hoisting and conveying apparatus, the combination of a movable car or truck, a shovel and trolley operating engine mounted thereon, a space in which the steam-shovel may be held while it is being moved with the car or truck, and a movable boom-section adapted to hold the trolley while it is being transferred with the shovel and engine, and two or more stationary boom-sections with which said movable section is adapted to cooperate.

2. In combination, the car or truck A, a shovel and trolley operating engine carried thereby, a hopper C, a movable boom-section D adapted to receive and hold the trolley, the sheaves mounted thereon and two or more stationary booms.

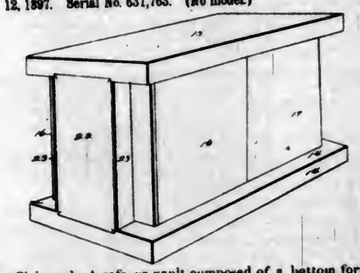
3. The combination of the truck or car A, the shovel and trolley operating engine thereon, the steam-shovel carried thereby with its operating-ropes connected therewith, the trolley carried thereby disconnected from its operating-rope and a boom-section or support for said trolley carrying sheaves for the operating-rope and which boom-section or support is adapted to be moved into line with a stationary boom-section, and said stationary boom-section.

4. The combination in a hoisting and conveying apparatus, of a movable truck or car, a trolley-support mounted therein, a trolley carried thereby, a support at one side of and below the trolley-support, a steam-shovel adapted to be carried upon said support and the shovel-operating rope extending over a sheave on said trolley to an operating-engine.

604,893.



604,894. SAFE. OLIVER E. CONVERSE, St. Louis, Mo. Filed Apr. 12, 1897. Serial No. 631,763. (No model.)



Claim.—1. A safe or vault composed of a bottom formed of a single piece of armor-plate provided with upwardly and inwardly extending marginal flanges, a top formed of a single piece of armor-plate provided with downwardly and inwardly extending marginal flanges, sides and ends built up of sections of armor-plate provided with outwardly-extending flanges at their top and bottom margins fitting within the flanges of the top and bottom pieces and a lining located within the space inclosed by the top, bottom, side and end pieces whereby the casing is restrained against inward collapse.

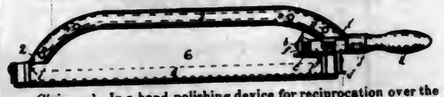
2. A vault comprising an outer casing composed of a bottom formed of a single piece of armor-plate provided with upwardly and inwardly extending marginal flanges, a top formed of a single piece of armor-plate provided with downwardly and inwardly extending marginal flanges, and sides and ends formed of pieces of armor-plate provided with outwardly-extending flanges at their top and bottom margins fitting within the flanges of the top and bottom pieces, the meeting edges of the side and end pieces being tongued and grooved respectively.

3. A vault comprising a casing built up and composed of a bottom formed of a single piece of armor-plate provided with upwardly and inwardly extending marginal flanges, a top formed of a single piece of armor-plate provided with downwardly and inwardly extending marginal flanges, sides and ends formed of pieces of armor-plate provided with outwardly-extending flanges at their top and bottom margins fitting within the flanges of the top and bottom pieces, the meeting edges of the side and end pieces being tongued and grooved respectively, in combination with a lining mounted within the casing whereby the side and end pieces are restrained against inward movement or collapse.

4. In a safe or vault a side piece having a door-opening and formed with a curved or rounded face on the jambs of said opening, and a door formed with a marginal shoulder having a curved inner face fitting closely to the corresponding curved jambs of the end or side pieces.

5. A safe or vault composed of a bottom formed of a single piece of armor-plate provided with marginal flanges, a top formed of a single piece of armor-plate provided with marginal flanges, sides and ends built up of sections of armor-plate and engaging the top and bottom pieces at their top and bottom margins within and interlocking the marginal flanges thereof, and a lining located within the space inclosed by the top, bottom, side and end pieces, whereby the casing is restrained against inward collapse.

604,895. HAND POLISHING DEVICE. JULIUS FIEWEGER, Menasha, Wis. Filed Mar. 27, 1897. Serial No. 629,499. (Model.)

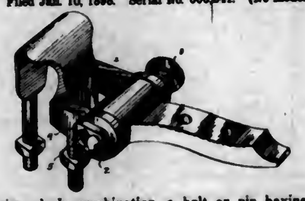


Claim.—1. In a hand polishing device for reciprocation over the work to be smoothed, the combination of the clamps 1 and 2 secured upon opposite ends of the curved bar 3, the strap 4, abrasive strip 5, and the board 6, which latter serves as a backing to said strap and abrasive strip 5, each clamp being provided with a loose follower and the screws *i*, *i*, and the clamp 1 having a screw *b* for moving it toward and from the clamp 2 and thereby giving the proper degree of tension to said strap and abrasive strip, and also, for holding said removable board between said clamps, whereby said board can be easily removed and the abrasive surface changed from a rigid to a flexible one, substantially as set forth.

2. In a hand polishing device having a curved bar adapted to be grasped by the hand of the operator and reciprocated over the work to be smoothed, the combination of two clamps, one upon each end of said bar, fitted to receive and removably hold the end of a strap, and one of said clamps being provided with a screw for giving the proper degree of tension to said strap, and extending from one to the other of said clamps a strap therefor, and removably held between said clamps the board 6, for providing a rigid backing to said strap, whereby said polishing device may be changed from a flexible one to one having a rigid backing at the will of the operator, substantially as set forth.

3. In a hand polishing device having a curved bar adapted to be grasped by the hand of the operator for reciprocation over the work to be smoothed, the combination of two clamps, one upon each end of said bar, fitted to receive and removably hold the end of a strap and strip of abrasive paper, and one of said clamps being provided with a screw for giving said strap and paper the proper degree of tension, and extending from one to the other of said clamps a strip of abrasive paper, and inside of said paper, the strap 4 for providing a support and flexible backing to said paper, substantially as described.

604,896. BOLT-FASTENING. CARROLL GARNETT, Front Royal, Va. Filed Jan. 10, 1898. Serial No. 666,241. (No model.)



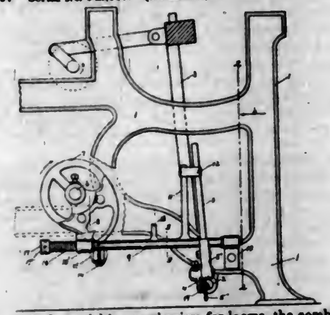
Claim.—1. In combination, a bolt or pin having an annular groove forming a reduced portion, and a locking-plate provided with a pair of intercommunicating openings, the passage at the juncture of the openings being less than the diameter of the engaging end of the bolt, and one of the openings having its inner end contracted forming a flange or shoulder to engage with the outer wall of the said annular groove of the bolt, the end portion of the bolt exterior to the groove obtaining a seat in the enlarged end of the opening having its inner end contracted, substantially as set forth.

2. In combination, a bolt or pin having an annular groove forming a reduced portion, a locking-plate having a pair of intercommunicating openings, the space at the juncture of the openings being less than the diameter of the openings, and one of the openings having its inner end contracted forming an inner flange or shoulder to receive the reduced portion of the bolt and engage with the outer wall of the annular groove, and a spring arranged to normally move the locking-plate and bolt apart, whereby the engaging end of the bolt is held seated in the enlarged end of the opening having its inner end contracted, substantially as set forth.

3. In combination, a bolt having an annular groove near its outer end, a spring mounted upon the inner end of the bolt and adapted to exert an outward pressure against the head thereof when the bolt is in position, and a locking-plate having intercommunicating openings through one of which the engaging end of the bolt is adapted to be thrust, and the other opening having its inner end contracted forming an inner flange or shoulder to receive the reduced portion of the bolt and engage with the outer wall of the annular groove, the end of the bolt exterior to its reduced portion obtaining a seat in the enlarged end of the opening having its inner end contracted and held in said seat by the aforedescribed spring, substantially as and for the purpose set forth.

4. In combination, a bolt or pin having a shouldered or projecting portion, a locking-plate having intercommunicating openings, one of the openings adapted to have the shouldered end of the bolt or pin thrust therein, and the other opening receiving the said shouldered end by a sliding movement of the locking-plate, and a spring for moving the bolt and locking-plate apart to cause the latter to engage with the shouldered or projecting portion of the said bolt or pin and secure the latter, substantially as set forth.

604,897. PICKING MECHANISM FOR LOOMS. GEORGE GOODLINE, Paterson, N. J., and JOHN A. CLARK, Worcester, Mass., assignors to the Crompton & Knowles Loom Works, Worcester, Mass. Filed June 29, 1897. Serial No. 642,803. (No model.)



Claim.—1. In a picking mechanism for looms, the combination with the picking-cam, and means to operate it, and a picking-shaft having a picking-roll arm secured thereto, of a spring encircling said shaft, and having one end adjustably secured thereto, and the other end secured to a fixed part of the loom-frame, substantially as shown and described.

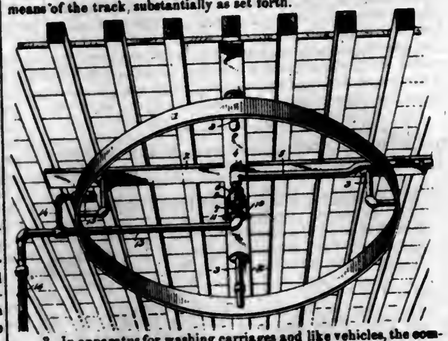
2. In a picking mechanism for looms, the combination with the picking-cam, and means to operate it, and a picking-shaft having a picking-roll arm secured thereto, of a spring encircling said shaft, and having one end secured thereto, and the other end secured to a fixed part of the loom-frame, substantially as shown and described.

3. In a picking mechanism for looms, the combination with the picking-cam, and means to operate it, and a picking-shaft and bearings therefor, one end of the shaft extending beyond its bearing, and a picking-arm secured to said shaft, of a spring surrounding the extended end of the shaft, and having one end secured to the shaft, and the other end secured to a fixed part of the loom-frame, substantially as shown and described.

604,898. CARRIAGE-WASHER. EDWARD J. GREEN and SCHUYLER C. BROWN, Saratoga Springs, N. Y. Filed Nov. 10, 1897. Serial No. 658,034. (No model.)

Claim.—1. In apparatus for washing carriages and like vehicles, the combination of an approximately circular track having its opposite portions varying slightly from a true circle, a swivel-joint located centrally of the track and in communication with a water-supply, a delivery-pipe having connection with the swivel-joint, and a roller for supporting the outer end of the delivery-pipe and adapted to travel upon the track and receiving the wear throughout its length, substantially as set forth.

2. In apparatus for washing carriages and like vehicles, the combination of an approximately circular track, a vertical pipe located centrally of the track and in communication with a water-supply, a second pipe slidably within the vertical pipe and rotatable therein, a yoke for supporting the inner pipe, means for detachably connecting the yoke with the said vertical pipe to admit of the inner pipe sliding out therefrom, and a delivery-pipe having its inner end connected with the inner or lower pipe and having its outer end supported by means of the track, substantially as set forth.



3. In apparatus for washing carriages and like vehicles, the combination of an approximately circular track, a vertical pipe disposed centrally of the track and in communication with a water-supply, a second pipe fitted within the vertical pipe so as to turn and of less diameter, whereby a water-space is formed between it and the outer pipe, and having an opening in its side communicating with the lowest point of the said water-space, a yoke connected with the upper pipe and supporting the lower pipe, and a delivery-pipe having connection with the inner or lower pipe and supported at its outer end by means of the track, substantially as set forth.

4. The herein-described apparatus for washing carriages and the like, consisting of an overhead track varying slightly from a true circle, a supply-pipe having a vertical extension, a delivery-pipe having a vertical extension at its inner end fitting within the vertical extension of the supply-pipe and of less diameter so as to provide a water-space, and having an opening in its side communicating with the lowest point of the said water-space, a stuffing-box applied to the outer vertical extension, a yoke having connection with the upper extension and engaging with the extension of the delivery-pipe to maintain the parts in fixed relation, a bent arm applied to the free end of the delivery-pipe, and a roller applied to the bent portion of the said arm to travel upon the track and support the delivery-pipe at its outer end, substantially as described.

604,899. CAR-DOOR. WILLIAM O. HARLOW, Shenandoah, Va., assignor of one-half to L. A. Lohr, same place. Filed Sept. 20, 1897. Serial No. 652,285. (No model.)

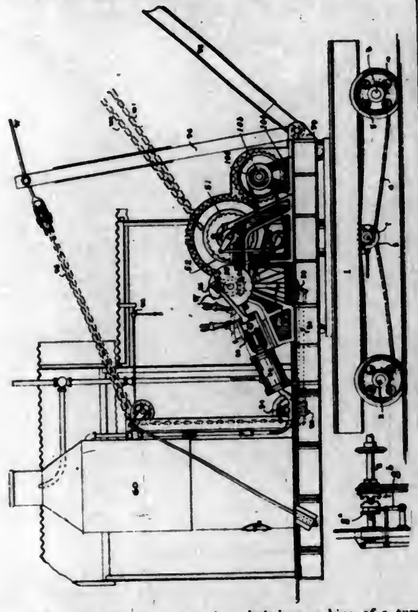


Claim.—1. The combination with a car having a door-opening, and a car-door, of a crank-shaft journaled on the car at the top of the door-opening and supporting the car-door and forming a track for the same, said crank-shaft being adapted to be rotated partially to swing the door into and out of the door-opening of the car, means for locking the crank-shaft against rotation, and guides mounted on the car at the bottom of the car-opening and provided with lower inner vertical portions to confine the door in its closed position, and having outer upper vertical portions to receive and guide the lower edge of the door when the latter is swung out of the door-opening, substantially as described.

2. The combination with a car having a door-opening, and a car-door, of a crank-shaft journaled on the car at the top of the door-opening and forming a track, said crank-shaft having the car-door slidingly mounted on it and adapted to swing the same into and out of the door-opening, the guides mounted on the car at the bottom of the door-opening and composed of the lower inner vertical por-

tions adapted to confine the door in its closed position, the outer upper vertical portions forming guides and receiving the bottom of the door when the latter is swung out of the door-opening, and the inclined connecting portions extending from the upper ends of the lower vertical portions to the lower ends of the outer vertical portions and adapted to guide the bottom of the door into the door-opening when the door is being closed, an operating-lever mounted on the car and connected with the crank-shaft, and means for locking the lever, substantially as described.

604,900. HOISTING-MACHINE. JAMES H. LANCASTER, New York, N. Y.. Filed Mar. 11, 1895. Serial No. 541,348. (No model.)



Claim.—1. The combination in a hoisting-machine, of a turn-table platform, a vertically-movable pivoted boom, a rocking frame, a driving-shaft, a truck, a clutch-gearing mechanism on the driving-shaft for rotating the platform in either direction, a friction-driver, a counter-shaft, drums on opposite sides of said driver, a spring for normally holding the same in a disengaged position, extensions extending adjacent to the driving-shaft and adapted to independently throw said drums to engage with the friction-driver, a vertical boom-adjusting mechanism, platform-actuating means and boom-drum-operating devices adapted to be controlled from a point contiguous to that from which the main-drum-operating connections are manipulated, all arranged and combined substantially as and for the purposes specified.

2. The combination in a hoisting-machine, of a turn-table platform carrying a boom and frame at an angle thereto, both being fulcrumed at their lower ends on the same pivots at the front of the platform and connected at their top, a drum operating a cable for adjusting the vertical frame and boom, a drive-shaft on said platform rotating a friction-driver on a counter-shaft upon which loosely turn drums at opposite sides of the driver, connections for throwing either or both of the drums last mentioned into engagement with the driver, means for rotating the platform and clutch-gearing for actuating the same, substantially as set forth

3. The combination in a hoisting-machine, of a turn-table platform carrying a boom and supporting a drive-shaft imparting motion to a friction-driver rotating a counter-shaft; the driver comprising in metal, a central hub provided with an annular series of gear-teeth and an extension at each side thereof, yielding material in said extensions, drums on opposite sides of said driver and normally held by springs in a disengaged position, connections extending adjacent to the drive-shaft and adapted for independently throwing said drums into engagement with the friction-driver, means including clutch-gearing on the drive-shaft for rotating the platform in either direction and for independently driving a third drum controlling the vertical adjustment of the boom, said platform-actuating means and boom-drum-operating devices being adapted to be controlled from a point contiguous to that at which the main-drum-operating connections are manipulated, substantially as set forth.

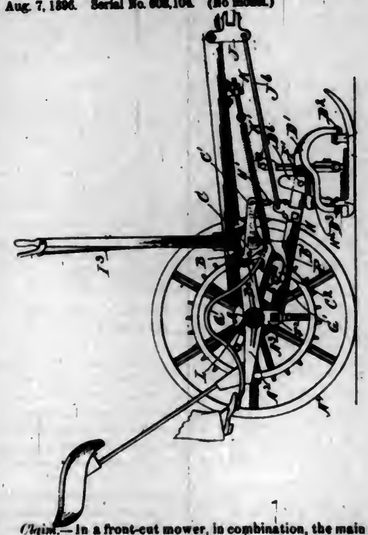
4. The combination in a hoisting-machine, of the boom-carrying platform supporting a drive-shaft and its controlling means, the former having a toothed pinion meshing with a driver centrally mounted on and rotating a counter-shaft; the driver comprising in metal, a central hub provided with an annular series of gear-teeth and an extension at each side thereof, yielding material in said extensions, together with drums at opposite sides of said driver, connections extending adjacent to the drive-shaft and adapted to independently throw said drums into engagement with the friction driver, means including clutch-gearing on the drive-shaft for rotating the platform, said platform-actuating means being also controllable from a point adjacent to that at which the drum-actuating means are manipulated; said drive-shaft also actuating clutch-gearing for driving the truck-carrying wheels, substantially as set forth.

5. The combination in a hoisting-machine, of the boom carrying platform supporting a drive-shaft and its controlling means, the former having a toothed pinion meshing with a driver centrally mounted on and rotating a counter-shaft; the driver comprising in metal a central hub provided with an annular series of gear-teeth and an extension at each side thereof, yielding material in said extensions, together with drums at opposite sides of said driver, connections extending adjacent to the drive-shaft-controlling means for independently operating the drums, a wheel 106, meshing with the driver and loosely mounted on a winch-head shaft 103, to operate the same as specified, and clutch mechanism and its operating means for actuating the shaft 103, substantially as set forth.

6. In a hoisting-machine, the combination with a wheel having contiguous to its periphery, a series of laterally-extending boxes, each including a wall parallel with, and connected to the wheel by a perforated bottom and end walls, the opposing walls of any pair of boxes being separated to afford intervening air-spaces, of a series of radial segments of yielding material within and bearing against the bottoms of said boxes and exposed near the wheel periphery, substantially as set forth.

7. In a hoisting-machine, the combination with a wheel having contiguous to its periphery, a series of laterally-extending boxes, each including a wall parallel with, and connected to the wheel by a perforated bottom portion, of a series of radial segments each of yielding material, within and having an outer portion overlapping the outer wall of its box, and an independent plate or section, interposed between each segment and its box-bottom to take up wear, substantially as set forth.

604,901. MOWER. JAMES MACPHAIL, Blue Island, Ill. Filed Aug. 7, 1896. Serial No. 602,104. (No model.)



Claim.—In a front-cut mower, in combination, the main axle, the main frame mounted thereon, a rack mounted on the main frame and having a spindle projecting therefrom, the finger-bar-lifting device provided with an upwardly and forwardly projecting arm C and a downwardly, and backwardly projecting arm C^2 and mounted on said spindle, the floating frame of the machine, a connection between the free end of the arm C and the floating frame of the machine, and a foot lifting-lever pivotally connected with the free end portion of the arm C^2 of the finger-bar-lifting device and adapted to operate therethrough to raise the floating frame and having its elevation adjustable by means of a set-screw, substantially as and for the purpose specified.

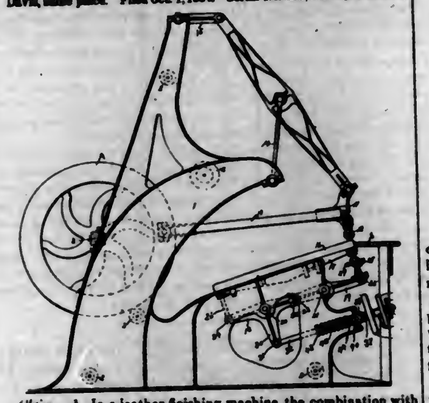
604,902. DRAFT-EQUALIZER. MILES MARTIN, Marshall, Ind. Filed Apr. 29, 1897. Serial No. 634,416. (No model.)



Claim.—1. In a three-horse evener, the combination with the tripletree, and two singletrees connected by links with its ends; of a lever pivoted at its rear end to the center of the tripletree and extending thence obliqaely forward, a link pivoted to the front end of this lever and extending obliquely forward in the opposite direction, an intermediate singletree pivoted to the front end of the link, and pivotal connections between the vehicle and a point on the lever one-third the distance on the latter between its pivot to the tripletree and its pivot to said link, as and for the purpose set forth.

2. The herein-described equalizer attachment, the same comprising a pair of levers having their rear ends adapted to be pivoted to the center of the main tree and extending thence obliqaely forward, a pair of links pivoted to the front ends of the levers and extending thence obliquely forward in the opposite direction, a singletree pivoted between the front ends of said links, and a yoke whose body is adapted to span the main tree, whose rear end is adapted to be connected with the vehicle, and whose front ends are pivoted to said levers at a point one-third the distance from the rear to the front pivots of the latter, as and for the purpose set forth.

604,908. LEATHER-DRESSING MACHINE. EDWARD R. PARKHURST, Woburn, Mass., assignor to James T. Freeman and Henry F. Davis, same place. Filed Oct. 1, 1897. Serial No. 653,730. (No model.)



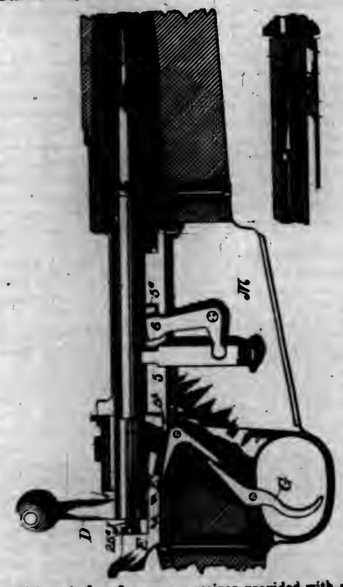
Claim.—1. In a leather-finishing machine, the combination with a finishing-tool which travels over the surface of the bed, of a bed for supporting the stock while it is being operated upon, levers adjacent the bed and having their contiguous ends adapted to engage with each other, with their remote ends serving to support the bed, and means for yieldingly sustaining the bed under the pressure of the finishing-tool while its parallelism is maintained, substantially as described.

2. In a leather-finishing machine, the combination with a finishing-tool which travels over the surface of the bed, of a bed for supporting the stock while it is being operated upon, levers adjacent the bed and having their contiguous ends adapted to engage with each other, with their remote ends serving to support the bed, and a yielding member connected with the levers to sustain them against the pressure of the finishing-tool upon the bed, substantially as described.

3. In a leather-finishing machine, the combination of a bed for supporting the stock while it is being operated upon, connected sector-levers supporting the bed, a rod engaging one of the said levers, means for adjusting said rod to vary the position of the levers and thereby effect an adjustment of the bed, and a spring on said rod which tends to hold the said bed in its normal position against the pressure of the finishing-tool, and means for adjusting the tension of the said spring, substantially as described.

4. In a leather-finishing machine, the combination with a bed for supporting the stock while it is being operated upon, connected sector-levers for supporting the bed, a rod engaging one of the said levers, a sleeve on said rod, a collar threaded upon the sleeve and pivotally mounted on the frame; means for turning the sleeve within the collar to effect an adjustment of the rod, a spring on the said rod adjacent the said sleeve and an adjusting-nut on the said rod for adjusting the tension of the spring, substantially as described.

604,904. MAGAZINE BOLT-GUN. EDWARD G. PARKHURST, Hartford, Conn., assignor to the Lee Arms Company, of Connecticut. Filed Apr. 20, 1896. Serial No. 588,365. (No model.) Patented in England May 5, 1896, No. 9,570; in France May 9, 1896, No. 256,226; in Belgium May 9, 1896, No. 121,276; in Italy May 9, 1896, LXXXI, 279, and in Austria July 23, 1896, No. 46/3,018.



Claim.—1. In a firearm, a receiver provided with a lug for receiving and temporarily retaining a detachable magazine-filler, the lug having an enlarged retaining-head for engaging with a clasping member of the filler.

2. In a firearm, in combination with the receiver thereof, a supporting-lug provided with a rounded head for temporarily engaging with the clip or clasp of a detachable magazine-filler so as to form a temporary supporting and retaining pivot upon which the emptied filler may be swung backward.

3 In a firearm, in combination with the receiver thereof, a supporting-lug, having an enlarged rounded head for engaging with a cartridge-filler, forming one member of a hinged connection therewith, the lug being recessed upon its rearward side below the rounded head portion to an extent sufficient to allow of a suitable backward inclination of the filler, beyond which the filler is detached by impinging against the lug.

4. In a firearm, a receiver having a filler-receiving recess in the rearward wall of the breech-opening thereof, the side walls of the recess sustaining the cartridge-filler against lateral movement relative to the breech, and the rearward wall being provided with a filler-sustaining lug for engaging with a suitable clasp upon the filler.

5. A magazine for firearms, having the upper portion of its side wall hinged at its forward end, whereby the rearward or cartridge-head end may be swung laterally outward, for the purpose specified.

6. A magazine-mouth closer for firearms, hinged at its forward end and provided with a lateral guiding extension at its rearward end, for the purpose specified.

7. In a firearm of the class specified, the magazine thereof having the upper portion of one of its side walls cut away, and a closer

for the opening thus made, hinged at its forward end, the upper portion of the closer extending into and contracting the upper portion of the magazine-space so as to prevent the passage of the cartridges, the rearward end of the closer being provided with a lateral guiding extension passing transversely through a supporting-slot in the receiver rearwardly of the cartridge-space.

8. In a firearms-magazine, having the upper portion of one of its side walls cut away, a closer for the opening thus made, pivotally mounted upon the side wall, and provided with an inclined cam portion upon its outward surface for forcing the closer to its closed position.

9. In combination with a firearms-magazine, having the upper portion of its side wall cut away, a closer for the opening thus made, pivotally mounted upon the side wall, having an inclined cam-surface upon its outer side, and a correspondingly-inclined lock adjacent to the cam of the closer and engaging therewith to force the closer to its closed position.

10. In a firearms-magazine, having the upper portion of its side wall cut away, a closer for the opening thus made, hinged at its forward end, and provided with an inclined cam-surface, a lock adjacent thereto, having a correspondingly-inclined surface for engaging with the closer, and a spring arranged and operating to normally press the lock toward its locking position with relation to the closer.

11. In a firearms-magazine, having the upper portion of its side wall cut away, a pivotally-mounted closer for the opening thus made, provided with an inclined cam-surface, a lock for the closer pivotally mounted adjacent thereto, and provided with a correspondingly-inclined cam-surface, a key operatively connected with the lock and so disposed in relation to the magazine as to unlock the closer when pushed in a direction opposite to that in which the cartridges enter the magazine, substantially as described and for the purpose specified.

12. In a magazine, a cartridge cut-off pivotally mounted upon the side wall, and a spring operatively engaging therewith and normally operating to press the cut-off out of engagement with the cartridges.

13. In a firearms-magazine, a cartridge cut-off pivotally mounted thereon, having one end extending through the side wall in engaging relation to the uppermost cartridge, a spring operatively engaging therewith and normally operating to press the cut-off out of its cartridge-engaging position, and an operating-key for engaging with and moving the cut-off into its cartridge-engaging position against the pressure of the spring.

14. In a firearms-magazine, in combination with the side wall thereof, a cut-off pivotally mounted thereon, having a curved end extending through the side wall into engaging relation with the uppermost cartridge contained in the magazine, a spring normally pressing the cut-off out of its cartridge-engaging position, and an operating-key therefor having a retaining-recess adapted to engage with the end of the cut-off at the cartridge-engaging position of the latter.

15. In a firearms-magazine, in combination with the side wall, and with a cut-off pivotally mounted thereon, an operating-key for the cut-off fitted to slide in the side wall, and having an inclined face terminating in a transverse recess, the cut-off being provided with a hooked or rounded end engaging with the inclined surface and in the recess, with a spring normally pressing the cut-off into engagement with the key.

16. In a firearm of the class specified, a turning breech-bolt and an extractor therefor arranged for longitudinal movement only, provided at their forward ends with interlocking-ribs for preventing lateral movement of the forward end of the extractor away from the bolt, one of the ribs being extended annularly around the bolt so as to enable them to remain in locking engagement throughout the turning movement of the bolt.

17. In a firearm of the class specified, in combination with the receiver thereof, having a longitudinal extractor-receiving groove therein, a breech-bolt arranged to slide longitudinally and to partially rotate in the receiver, provided with a locking-rib adjacent to its forward end, an extractor sliding in the groove of the receiver, and having a locking-shoulder engaging with the locking-rib of the bolt, so as to prevent lateral movement of the hook of the extractor away from the bolt, the extractor having an extent of longitudinal movement with relation to the bolt sufficient to lock and unlock their engaging portions, whereby the extractor is moved into locked relation with the bolt by the extraction-resisting tendency of the cartridge, and is unlocked therefrom by the action of pushing the cartridge into its chamber.

18. A breech-bolt for firearms provided with an annularly-extending extractor-carrying rib, adjacent to the forward end of the bolt, and provided with an annularly-extending locking-rib for locking the extractor laterally to the bolt-head during the retracting movement of the bolt.

19. In a firearm, in combination with the receiver thereof, provided with a longitudinal groove and with an extractor therefor provided with a locking-shoulder at its forward end, a breech-bolt provided with a recessed groove at its forward end to receive the locking-shoulder of the extractor, the groove being extended annularly around the bolt to allow of the turning movement of the bolt with relation to the extractor.

20. Means for uniting a bolt and its head, the former being provided with a transversely-shouldered recess, and the head being provided with a locking-lug entering the recess in the wall of the bolt, and a locking-piece supported by the shoulders of the recess, and preventing opening movement of the bolt-head.

21. Means for uniting a bolt and its head, the latter being provided with a stem having a projecting lug thereon, the bolt being recessed to receive the stem and the lug, and having a transversely-shouldered locking-recess adjacent to the lug with a locking-piece for the recess, all arranged and operating to lock the lug against opening movement.

22. A bolt for firearms chambered to receive a firing-pin, and having a recess in its forward end, substantially in the form of a cross, that bolt-head having a stem fitting the chamber of the bolt, with a lug thereon fitting the upper portion of the cross-shaped recess, and a T-shaped locking-piece for filling the remainder of the recess.

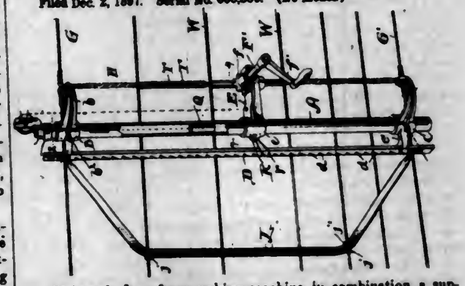
23. In a firearm of the class specified, in combination with the bolt and with the extractor thereof, the bolt being provided with a detachable head having a retaining-lug thereon fitting in the wall of the bolt, a locking-piece fitted in the wall of the bolt against the opening side of the retaining-lug of the bolt-head, and located beneath the extractor, whereby the latter is utilized to retain the locking-piece in its recess.

24. In a firearm of the class specified, in combination with a rotating bolt thereof, and with a non-rotating extractor, the bolt being provided with a detachable head, having a locking-lug fitting in a corresponding recess in the wall of the bolt, a locking-piece located in advance of the retaining lug of the bolt-head, and extending circumferentially around the bolt to an extent sufficient to enable it to be overlaid by the extractor at all of the working positions of the latter.

25. In a firearm, a breech-closing bolt chambered from its forward end to receive the firing-pin and its spring, a firing-pin provided with an enlarged collar near its forward end, the bolt being counterbored therefor to an extent sufficient to allow only of the necessary working compression of the spring, and forming a stop-abutment against excessive retraction of the pin, a detachable bolt-head rigidly locked to and forming the forward end of the bolt, provided with an annular locking-rib at its forward end, and an extractor having a locking-rib at its forward end for engaging with the rib of the bolt-head, so as to prevent lateral movement of the extractor away from the bolt-head, the extractor being arranged for longitudinal as well as rotary movement with relation to the bolt-head whereby their locking-ribs may be moved into and out of engagement.

26. In a firearm, the herein-described means for uniting the firing-pin and its cocking-piece, they being provided with corresponding engaging threads, and having longitudinal thread-interrupting grooves, which allow the cocking-piece to be slipped longitudinally to its seat upon the pin, one of the grooves being extended beyond the threaded portion to an extent sufficient to receive the key, and that groove being adapted to coincide with a corresponding groove in the cocking-piece when the latter is turned to its thread-engaging position upon the pin, whereby the key may be pushed through the groove and thus lock the parts against rotary movement.

604,905. FENCE-MAKING MACHINE. ALBERT E. ROBERTS, Norwalk, Ohio, assignor of one-half to John H. Clauss, Fremont, Ohio. Filed Dec. 2, 1897. Serial No. 660,556. (No model.)



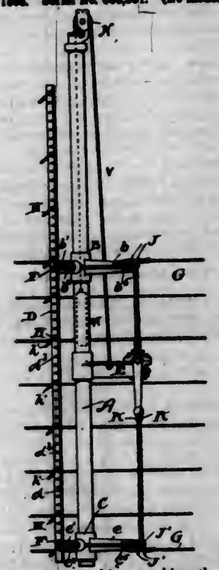
Claim.—1. In a fence-making machine, in combination, a supporting-post, a vertically-movable bracket-arm having a slotted bearing for a twister, a twister consisting of a cylindrical portion which is mounted in said bearing and upon which it revolves, and a geared portion whereby it is revolved, said twister having a longitudinal slot *b'*, and a geared operating-shaft for revolving said twister, a cable fastened to said bracket-arm, a sheave carried by the post over which the cable passes, and a counterbalance-weight secured to the end of the cable, substantially as and for the purpose specified.

2. In a fence-making machine, in combination, a tubular post, a sheave mounted upon the post, a vertically-movable bracket-arm carried by said post, a weight movable in the post, and a cable connecting said weight and bracket-arm and passing over said sheave, and a stay-twister carried by said bracket-arm, substantially as and for the purpose specified.

3. In a fence-making machine, in combination, a post, two adjustably-fixed collars, each having a curved arm the end of which is adapted to engage with a running wire, a bracket-arm on the post between said collars, and a stay-twister carried by said bracket-arm, substantially as and for the purpose specified.

4. In a fence-making machine, in combination, a post, a collar B adjustably fixed thereto having the curved arm *b* and the oppositely-extended arm *b'*, a collar C adjustably fixed to the post having the curved arm *c* and the oppositely-extended arm *c'*, the vertically-notched guide-bar fixed to the arms *b'* and *c'*, and adapted to engage with the running wires of a fence, the bracket-arm on said post, and stay-twisting mechanism carried by said bracket-arm, substantially as and for the purpose specified.

604,906. FENCE-MAKING MACHINE. ALBERT E. ROBERTS, Norwalk, Ohio, assignor of one-half to John H. Clauss, Cleveland, Ohio. Filed Jan. 11, 1898. Serial No. 666,931. (No model.)



Claim.—1. In a fence-making machine, the combination of a vertical post, a collar B secured thereto having two rigid arms *b* and *b'*, a collar C secured to the post having the two rigid arms *c* and *c'*, and stay-twisting mechanism carried by the post between said collars, with a vertical bar rigidly secured to the two arms *b' c'*, and a plurality of obliquely-disposed hooks H secured to the rear side of said bar for engagement with the running wires, substantially as specified.

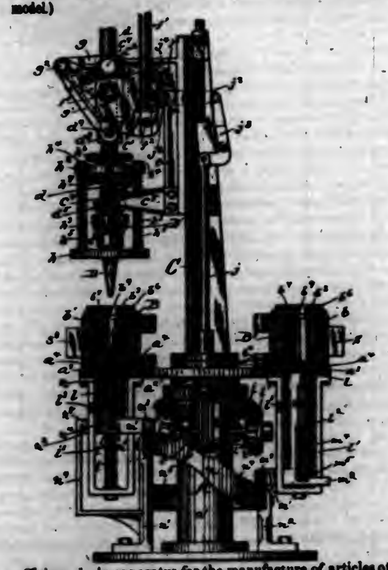
2. In a fence-making machine, the combination of a vertical post, a collar B secured thereto having two rigid arms *b* and *b'*, a collar C secured to the post having the two rigid arms *c* and *c'*, and stay-twisting mechanism carried by the post between said collars, with a vertical bar secured to the two arms *b' c'*, a plurality of obliquely-disposed hooks secured to the rear side of said bar for engagement with the running wires, and two hooks pivoted to the arms *b* and *c* respectively and adapted to engage behind the running wires, substantially as specified.

3. In a fence-making machine, the combination with a vertical post, two arms *b* and *c* secured to said post, and stay-twisting mechanism between said arms, with the hooks pivoted respectively to said arms, and adapted to engage behind the running wires with which said arms engage, substantially as specified.

4. In a fence-making machine, the combination of a vertical post, a collar B adjustably secured thereto having two rigid arms *b* and *b'*, and a collar C secured to the post and having the arms *c* and *c'*, with a vertical angle-bar secured to the arm *c'*, and having in one side *d* near its upper end a plurality of holes, and a bolt adapted to pass through the arm *b'* and through any of said holes to fasten said bar to the arm *b'*, substantially as specified.

5. In a fence-making machine, the combination of a vertical post, a collar B adjustably secured thereto having two rigid arms *b* and *b'*, and a collar C secured to the post and having the arms *c* and *c'*, with a vertical angle-bar secured to the arm *c'*, and having in one side *d* near its upper end a plurality of holes, and a bolt adapted to pass through the arm *b'* and through any of said holes to fasten said bar to the arm *b'*, said bar having in its other side *d*³ a plurality of holes, and oblique hook-bolts secured in the last-named holes, substantially as specified.

604,907. APPARATUS FOR MANUFACTURING GLASSWARE. CHARLES E. SCHNURR, Pittsburg, Pa., assignor of one-half to William S. McKee, Allegheny, Pa. Filed Oct. 8, 1897. Serial No. 654,554. (No model.)



Claim.—1. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a mold supported thereon, an upright below said mold and forming a portion of the bottom of same, a sleeve on said upright, the upper portion of said sleeve constituting the walls of press-mold, and mechanism for raising and lowering said sleeve and a locking device for holding said sleeve in its raised position, substantially as set forth.

2. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a press-mold supported thereon, an upright below said mold and forming a portion of the bottom of same, a sleeve on said upright, the upper portion of said sleeve constituting the walls of the press-mold, a bottom for the mold to convert it into a blow-mold surrounding said upright, and mechanism for raising and lowering said sleeve and simultaneously opening and closing said bottom, substantially as set forth.

3. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a mold supported thereon, an upright below said mold and forming a portion of the bottom of same, a sleeve on said upright, the upper portion of said sleeve constituting the walls of press-mold, bottom plates for the blow-mold, and mechanism for raising and lowering said sleeve and simultaneously opening and closing said bottom plates, substantially as set forth.

4. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a mold supported thereon, an upright below said mold and forming a portion of the bottom of same, a sleeve on said upright, the upper portion of said sleeve constituting the walls of press-mold, bottom plates for the blow-mold, levers connected to said bottom plates, and mechanism for raising and lowering said sleeve and operating said levers to advance and withdraw said bottom plates, substantially as set forth.

5. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a mold supported thereon, an upright below said mold and forming a portion of the bottom of same, a sleeve on said upright, the upper portion of said sleeve constituting the walls of press-mold, bottom plates for the blow-mold, levers connected to said bottom plates, said levers having inwardly-projecting arms engaging with grooves in said sleeve, and mechanism for raising and lowering said sleeve, substantially as set forth.

6. In apparatus for the manufacture of articles of glasswkre, the combination with a suitable frame, of a mold supported thereon, an upright below said mold and forming a portion of the bottom of same, a sleeve on said upright, the upper portion of said sleeve constituting the walls of press-mold, bottom plates for the blow-mold, levers connected to said bottom plates, said levers having inwardly-projecting arms engaging with grooves in said sleeve, said arms entering recesses at the upper ends of said grooves, and mechanism for raising and lowering said sleeve, substantially as set forth.

7. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a press and blow mold mounted thereon, an upright below said mold and forming a portion of the bottom of same, the press-mold being mounted on said upright and vertically movable thereon, a stud on said upright entering a guide in said press-mold and forming a bayonet-lock at the lower end of said guide, and mechanism for unlocking same and for raising and lowering said press-mold, substantially as set forth.

8. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a combination press and blow mold mounted thereon, an upright below said mold and forming a portion of the bottom of same, the press-mold being mounted on said upright and vertically movable thereon, a stud on said upright entering a guide in said press-mold and forming a bayonet-lock at the lower end of said guide, a projection on said press-mold, a stop on the frame with which said projection engages, and mechanism for raising and lowering said press-mold, substantially as set forth.

9. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, mechanism for rotating said table, a plurality of molds mounted thereon, a plunger, a lever for operating said plunger, a toggle-joint between said lever and plunger, and connections between said lever and mechanism for rotating said table, substantially as set forth.

10. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, mechanism for rotating said table, a plurality of molds mounted thereon, a plunger, a lever for operating said plunger, a vertically-movable rod, connections between said rod and said lever, pawls on said rod, a ratchet-wheel, and connections between said ratchet-wheel and gearing mechanism for rotating said table, substantially as set forth.

11. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, mechanism for rotating said table, a plurality of molds mounted thereon, a plunger, a lever for operating said plunger, a vertically-movable rod, connections between said rod and said lever, oppositely-arranged pawls on said rod, a ratchet-wheel, and connections between said ratchet-wheel and gearing mechanism for rotating said table, substantially as set forth.

12. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, a plurality of molds mounted thereon, a plunger, a lever for operating same, a vertically-movable rod, connections between said rod and said lever, oppositely-arranged pawls on said rod, a ratchet-wheel mounted on a shaft, a bevel-pinion on said shaft, and a like pinion on said table with which said first-mentioned pinion engages, substantially as set forth.

13. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, a plurality of molds mounted thereon, a plunger, a lever for operating same, a vertically-movable rod, connections between said rod and said lever, a rotary shaft, mechanism for turning said shaft by the movement of said rod, gearing mechanism between said shaft and said table, and a lock for holding said table against rotation, substantially as set forth.

14. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, a plurality of molds mounted thereon, a plunger, a lever for operating same, a vertically-movable rod, connections between said rod and said lever, a rotary shaft, mechanism for turning said shaft by the movement of said rod, gearing mechanism between said shaft and said table, and a lock operated by said rod for holding said table against rotation, substantially as set forth.

15. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, a plurality of molds mounted thereon, a plunger, a lever for operating same, a vertically-movable rod, connections between said rod and said lever, a rotary shaft, mechanism for turning said shaft by the movement of said rod, a bevel-pinion on said shaft, a like pinion on said table with which said first mentioned pinion engages, a spring-latch engaging a seat in said pinion on said table, said latch being operated by said rod, substantially as set forth.

16. In a partible mold for forming articles of glassware, the combination of a swinging latch mounted on one of the parts of said mold, a freely-removable eccentric-pin mounted to turn in bearings in said mold, the free end of said swinging latch being adapted to engage with a shoulder on the opposite part of the mold, substantially as set forth.

17. In a partible mold for forming articles of glassware, the combination of a swinging latch mounted on one of the parts of said mold, a freely-removable eccentric-pin mounted to turn in the free end of said latch, and a recess in the opposite part of the mold in which the pin is adapted to enter, substantially as set forth.

18. In a partible mold for forming articles of glassware, the combination of a swinging latch mounted on one of the parts of said mold, a freely-removable eccentric-pin mounted to turn in the free end of said latch, a handle secured to said pin, and a recess in the opposite part of the mold in which the pin is adapted to enter, substantially as set forth.

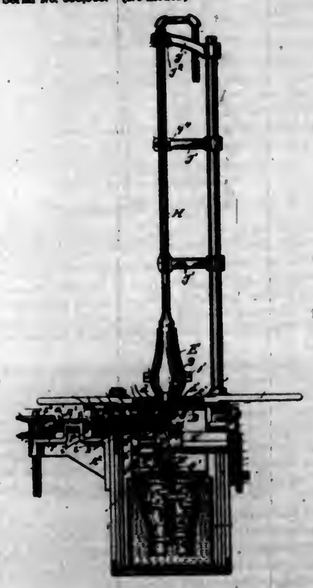
19. In a partible mold for forming articles of glassware, the combination of a swinging latch mounted on one of the parts of said mold, a freely-removable eccentric-pin mounted to turn in the free end of said latch, the opposite part of said mold having a lug with a curved face and a recess beyond said face, substantially as set forth.

20. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, means to rotate the table, a plurality of molds mounted thereon, a plunger, a blowpipe, a movable rod in the path of the plunger and lowered thereby, and connections between said rod and said blowpipe, substantially as set forth.

21. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, means to rotate the table, a plurality of molds mounted thereon, a plunger, a blowpipe, a lever connected to the upper end of said blowpipe, a rod extending down from said lever, said rod having a projection in the path of said plunger, substantially as set forth.

22. In apparatus for the manufacture of articles of glassware, the combination with a suitable frame, of a rotary table, means to rotate the table, a plurality of molds mounted thereon, a plunger, a blowpipe, a lever connected to the upper end of said blowpipe, a spring-actuated rod extending down from said lever, said rod having a projection in the path of said plunger, substantially as set forth.

604,908. APPARATUS FOR MANUFACTURING ARTICLES OF GLASSWARE. CHARLES E. SCHNURR, Pittsburg, Pa. Filed Oct. 16, 1897. Serial No. 655,385. (No model.)



Claim.—1. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-support, a shaft therefor, a partible mold supported on said mold-support, a lever adapted to open and close said mold, bevel-pinions operated by said lever, an arm on one of said pinions, a shaft, a second movable arm, a gear-wheel on said shaft, the said gear-wheel having a stop, a link connecting said arms, said second arm being adapted to engage the stop on said gear-wheel, and a gear-wheel on the mold-supporting shaft with which said first-mentioned gear-wheel meshes, substantially as set forth.

2. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-support, a shaft therefor, a partible mold supported on said mold-support, a lever adapted to open and close said mold, bevel-pinions operated by said lever, an arm on one of said pinions, a shaft, a gear wheel on said shaft, a second movable arm, a link connecting said arms, a latch on said second arm adapted to engage a seat formed in said gear-wheel, and a gear-wheel on the mold-supporting shaft with which said first-mentioned gear-wheel meshes, substantially as set forth.

3. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-support mounted therein, a gear-wheel on the mold-supporting shaft, a gear-wheel meshing therewith, a lever adapted to open and close the mold, and connections between said lever and the before-mentioned second gear-wheel, whereby an intermittent rotary movement is imparted to said gear-wheel, substantially as set forth.

4. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary partible mold, mechanism for oscillating said mold, mechanism for closing said mold and connections between said mold-closing mechanism and the mechanism for oscillating said mold, whereby said oscillating mechanism is operated immediately after the closing of the mold, substantially as set forth.

5. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-supporting plate, a partible mold mounted thereon, a lever adapted to close said mold, a clutch device, and connections between said lever and clutch for imparting an oscillating movement to said mold-supporting plate, substantially as set forth.

6. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-supporting plate, a partible mold mounted thereon, a lever adapted to close said mold, a shaft having a clutch-face, connections between said plate and shaft, a reversing-shaft, a clutch thereon, and connections between said lever and clutch and clutch-face, substantially as set forth.

7. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-supporting plate, a partible mold mounted thereon, a reversely-rotatable shaft having a clutch-face, connections between the plate and shaft, a sliding clutch adapted to engage said clutch-face, a lever adapted to close said partible mold, connections between said lever and said sliding clutch, and mechanism for rotating the clutch-shaft in opposite directions, substantially as set forth.

8. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-supporting plate and a reversely-rotatable shaft having a clutch-face, a sliding clutch adapted to engage with said clutch-face, a lever adapted to close said mold, a stud on said lever, a movable arm having a curved slot therein with which the stud on said lever engages, connections between said arm and said sliding clutch, and mechanism for rotating the clutch-shaft in opposite directions, substantially as set forth.

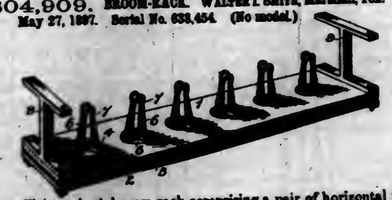
9. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-supporting plate, a shaft, connections between said mold-supporting plate and said shaft, a power-driven shaft having cam-disks thereon, said cam-disks engaging said first-mentioned shaft at opposite sides thereof, substantially as set forth.

10. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-supporting plate, a shaft, connections between said mold-supporting plate and said shaft, said shaft having a conical friction-head, a power-shaft, cam-disks on said power-shaft adapted to engage said conical head at opposite sides thereof, substantially as set forth.

11. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-support mounted therein adapted to revolve in a vertical plane, and having a plurality of mold-supporting faces, rotary mold-supporting plates mounted on said faces, mechanism for rotating said plates, an upright frame adapted to support a pipe in line with the mold supported on the mold-supporting plate, and mechanism for imparting an intermittent rotary movement to said mold-support, whereby the molds are brought successively under said upright frame, substantially as set forth.

12. In apparatus for forming articles of glassware, the combination with a suitable frame, of a rotary mold-support mounted therein adapted to rotate in a vertical plane and having a plurality of rotary mold-supporting faces, mold-supporting plates journaled in said faces and vertical shafts, each of said mold-supporting plates mounted on a vertical shaft, bevel-pinions on said vertical shafts, counter-shafts journaled in said mold-support, bevel-pinions on said counter-shafts meshing with said first-mentioned bevel-pinions, said counter-shafts having clutch-faces, a reversely-rotatable clutch-shaft having a clutch adapted to engage successively with the first-mentioned clutch-faces, and mechanism for rotating said clutch-shaft in opposite directions, substantially as set forth.

604,909. BROOM-RACK. WALTER I. SMITH, Marshall, Tex. Filed May 27, 1897. Serial No. 638,464. (No model.)

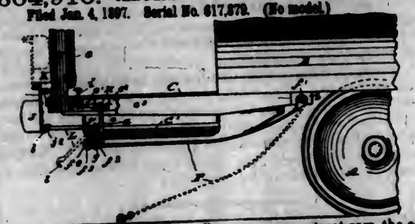


Claim.—1. A broom-rack comprising a pair of horizontal plates or strips arranged one above the other and provided with registering openings, and a pair of substantially U-shaped clamping-jaws arranged within the opening at opposite sides thereof and being slightly tapered and adapted to engage the handle of a broom, each jaw being constructed separate from the other and being rigidly clamped at the inner end of each side of each jaw by the strips or plates, substantially as described.

2. A broom-rack comprising a pair of horizontal strips arranged one above the other and provided at intervals with registering openings, and the substantially U-shaped clamping-jaws arranged in pairs in each of the openings and extending therefrom and disposed substantially vertical, the jaws at each side of the strips being constructed of a single piece of resilient material and being connected by bends forming arms arranged between the strips and clamped by the same, substantially as described.

3. A broom-rack comprising a pair of horizontal strips arranged flat against each other and provided at intervals with registering openings, the substantially U-shaped clamping-jaws arranged in pairs in each of the openings and extending therefrom and disposed substantially vertical, the jaws at each side of the strips being constructed of a single piece of resilient material and being connected by bends forming arms arranged between the strips and clamped by the same, and brackets secured to the strips and extending upward therefrom and adapted to be fastened to a ceiling or other support, said strips being of greater length than the jaws to space the latter from the ceiling or support, substantially as described.

604,910. CAR-FENDER. GEORGE O. GRIMMER, Manchester, N. H. Filed Jan. 4, 1897. Serial No. 617,879. (No model.)

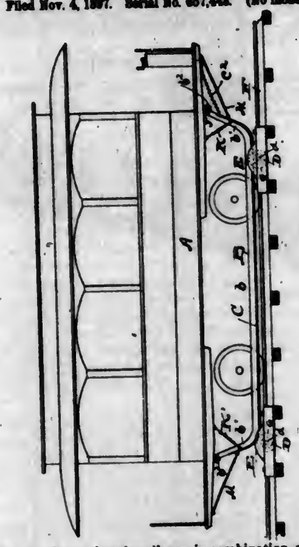


Claim.—1. As a safety appliance to power street-cars, the combination of a transverse frame or buffer pivotally connected forward of the dasher and adapted for adjustment to a position above or below the platform, a screen or frame pivotally connected at one end to a car its free end being provided with a rubber covering and arranged to drop to the ground forward of the wheels, suitable movable arms depending from the car-platform for supporting the free end of said screen frame, and rods pivotally attached to said supporting-arms below their pivotal point and detachably connected to said buffer, substantially for the purpose set forth.

2. In street-cars, the combination of a transverse cushioned frame or buffer pivotally connected forward of the dasher and adapted for adjustment to a position above or below the platform, a screen or frame pivotally connected at one end to a car its free end being provided with a rubber covering and arranged to drop to the ground forward of the wheels, suitable movable arms depending from the car-platform for supporting the free end of said screen-frame, rods

pivotally attached to said supporting-arms below their pivotal point and detachably connected to said buffer, and means substantially as shown whereby the car-operator may disengage the supporting-arms and screen-frame from a point above the car-platform.

604,911. ELECTRIC RAILWAY. FREDERICK D. SWEET, Elyria, Ohio. Filed Nov. 4, 1897. Serial No. 657,642. (No model.)



Claim.—1. In an electric railway, in combination, a motor-car, a runner flexibly suspended beneath the car and extending longitudinally thereof, the centering-springs K and K', the guy-wires M, and a series of insulated contact devices secured in the road-bed, in position to be engaged by said runner, said contact devices being connected with the source of the electric current, and the distance between them being less than the length of the runner, substantially as specified.

2. In an electric railway, in combination, a motor-car, a runner having a horizontal middle part and ends which are bent upward and then outward into substantially horizontal position, bolts secured beneath the car and passing loosely through holes in the horizontal ends of the runner, springs pressing said runner ends downward, and a series of contact devices connected with the source of electrical current and secured at intervals in the road-bed in a position to be engaged by the horizontal part of said runner, the distance between said contact devices being less than the horizontal length of the runner, substantially as specified.

3. In an electric railway, a box secured in the road-bed and having a slotted top, a contact-roller mounted in said box but insulated therefrom, two disks lying on opposite sides of said roller and movable in the direction of its axis, said disks having recesses in their proximate faces which are adapted to embrace said roller, the disks having beveled adjacent ends, springs acting to force said disks toward each other, substantially as specified.

604,912. BUCKLE. GEORGE N. CLARK, Dry Ridge, Ky. Filed May 12, 1897. Serial No. 636,192. (No model.)



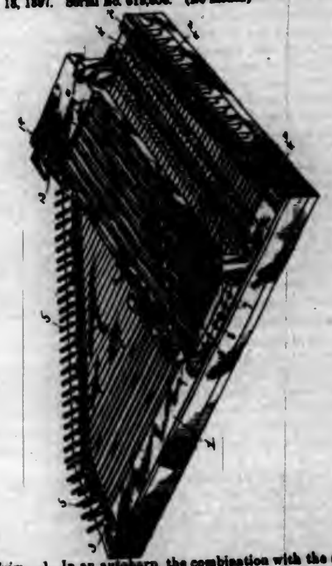
Claim.—A buckle comprising a box having its bottom extended at one end for connection therewith of a strap, and having its sides parallel and outwardly convergent and longitudinally bulged, forming inner guideways adjacent to and parallel with the plane of the bottom, the inner ends of the guideways being contracted, and having its top outwardly and rearwardly inclined to the plane of the bottom, and a wedge of corresponding width to the box and slidable therein through its inner or rear end and having a loop at its inner or rear end and lateral extensions at its smaller or front end which operate in the aforesaid guideways and hold the wedge against the said bottom, and which limit the rearward movement of the wedge by engaging with the inner contracted ends of the guideways, substantially as and for the purpose specified.

604,918. COMBINED HUB CAP AND NUT. JESSE A. CRABDALL, Brooklyn, N. Y., assignor of one-half to Joseph Moss, same place. Filed Feb. 4, 1897. Serial No. 622,036. (No model.)



Claim.—A combined cap and nut comprising an apertured threaded central portion 6 having the lateral flange 7, an inwardly-extending peripheral flange 8 terminating in an outwardly-projecting flange 9 adapted to lie over the outer edge of a hub and recessed to form a series of handhold projections upon the inner edge of the cap portion; substantially as and for the purposes set forth.

604,914. AUTOHARP. JACOB R. BOEHRZ, Marengo, Iowa. Filed Jan. 18, 1897. Serial No. 619,653. (No model.)



Claim.—1. In an autoharp, the combination with the strings, of rocking damper-bars of cross-sectionally angular or V shape having padded lower wings and angularly-disposed upper wings bearing keys, and return-springs connected respectively with the bars, substantially as specified.

2. In an autoharp, the combination with a body and strings, and stationary guides on the body, of a damper-frame mounted in said guides for sliding movement, and held from vertical movement, and provided parallel with its length with a rack consisting of a series of shallow rounded depressions fitted with padding or clothing, a fixed holding-spring provided at its free end with a pin fitted with an antifriction-roll for permanently engaging the rack, and adapted to slip from one depression to another thereof when longitudinal pressure is applied to the damper-frame, without manipulation of said holding-spring, and also adapted to hold the frame from accidental movement, and damper-bars mounted upon the damper-frame and yieldingly held out of contact with the strings, substantially as specified.

604,915. BED-PAN. ANNIE R. REBERT, Clifton Springs, N. Y. Filed Nov. 20, 1897. Serial No. 659,270. (No model.)

Claim.—1. A bed-pan approximating the form of a seat, comprising a plate having its rear and side portions upwardly deflected and having its front portion extended upwardly, and having an opening leading into the front extension, and a chamber below the plate projecting forward of the aforesaid front extension, substantially as described for the purpose specified.

2. A bed-pan comprising a plate having its front portion extending upwardly, forming a guard, and having an opening extending into the guard, and a shield fitted to the guard for closing the opening therein, substantially as set forth.

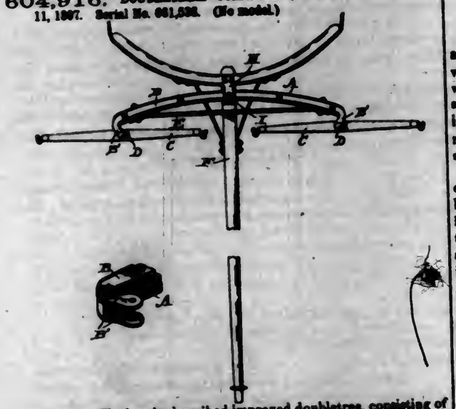


3. The combination with a bed-pan having a vertically-disposed guard at its front end provided with an opening, of a shield detachably fitted to the guard and held in place by portions engaging over the edge of the said guard, substantially as set forth.

4. In a bed-pan, the combination of a plate having its front end upwardly deflected, forming a guard, and having an opening extending into the said guard, and a chamber applied to the bottom side of the plate and having its front portion terminating in a spud or horn, and having an opening in its top side opposite the opening in the plate and extending beyond the said guard, substantially as and for the purpose set forth.

5. A bed-pan comprising a plate having its rear and side portions upwardly deflected and upholstered, and having its front end bent upwardly, forming a guard, and provided with an opening extending into the said guard, a shield detachably fitted to the guard and closing the opening therein, a chamber applied to the bottom side of the plate and formed into a spud or horn at its front end, and having an opening in its top side extending beyond the aforesaid guard, and a cap for closing the end of the spud or horn and provided with a tube, substantially as and for the purpose set forth.

604,916. DOUBLETREE. JOHN FINLEY, Granby, Mo. Filed Dec. 11, 1897. Serial No. 661,532. (No model.)



Claim.—The herein-described improved doubletree, consisting of the forwardly-arched bar A, the top and bottom plates B secured thereto and having reduced and extensions bent forwardly and forming clevises for the singletrees, the singletrees hung therein upon center bolts, and the front brace E, substantially as described.

604,917. SHOESTRING-HOLDER. WILLIAM D. HADDOCK, Colleyville, Kans. Filed Aug. 12, 1897. Serial No. 647,997. (No model.)



Claim.—1. In a shoestring-holder, the combination with the supporting-base, of a vertical finger-post supported by the base to receive the middle loop of the shoestring, and a series of spaced vertical posts supported by the base on each side and to the rear of the finger-post, and around which the respective portions of the string extending from the middle loop are looped, substantially as described.

2. In a shoestring-holder, the combination with the supporting-base, of a vertical finger-post supported by the base near one end thereof to receive the middle loop of the shoestring, said finger-post having a groove in its outer face, and a series of spaced vertical posts supported by the base on each side and to the rear of the finger-post, and around which the respective portions of the string extending from the middle loop are looped, substantially as described.

3. In a shoestring-holder, the combination of the casing having its front end wall formed of two sections with a space between them, of a vertical finger-post supported by the base in the said space, to receive the middle loop of the shoestring, and a series of spaced vertical posts supported by the base within the casing to the rear and on each side of the finger-post, and around which the respective portions of the string extending from the middle loop are looped, substantially as described.

4. In a shoestring-holder, the combination of the casing having its front end wall formed of two sections with a space between them, of a vertical finger-post supported by the base in said space to receive the middle loop of the shoestring, a pair of vertical posts supported by the base near its front end to the rear and on each side of the finger-post, and a pair of spaced vertical posts supported by the base near the rear end of the casing, and around which vertical posts the respective portions of the string extending from the middle are looped, substantially as and for the purpose specified.

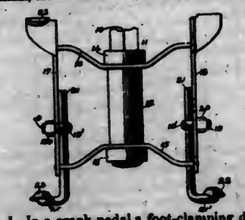
604,918. WHISTLE. JULIUS L. HARMON, Governor's Island, N. Y. Filed Oct. 7, 1897. Serial No. 654,323. (No model.)



Claim.—1. A whistle comprising a bottom casing, a top casing arranged therein and adapted to telescope therewith, means to prevent the separation of said casings, the said top casing being provided with slots or openings in the sides thereof, air-chambers arranged upon said top casing, and provided with openings communicating with the interior of the bottom casing and the top casing, and a spring arranged in the bottom casing for forcing the top casing upwardly, substantially as described.

2. A whistle comprising a bottom casing provided upon its upper edge with inwardly-projecting lugs, a top casing arranged within said bottom casing and adapted to telescope therewith, the said top casing being provided with slots or openings in its sides within which the lugs of the lower casing are guided, air-chambers arranged upon said top casing and provided with openings communicating with the interior of the bottom casing and with the top casing, and a spring arranged in the bottom casing for forcing the top casing upwardly, substantially as described.

604,919. CRANK-PEDAL. CHARLES H. METZ and THOMAS CURLEY, Waltham, Mass. Filed May 3, 1895. Serial No. 547,961. (No model.)



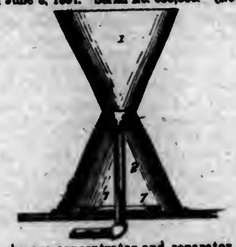
Claim.—1. In a crank-pedal a foot-clamping device or stop consisting of a rotatable shaft laterally movable in its bearings and having an upwardly-extending arm furnished with a button and a device for rigidly securing the shaft when adjusted.

2. The combination with the foot-plate 17 and the looped shanks 19 19 extending through perforations in the plates and furnished with the nuts 20 20, of the bent arms or shafts 21 21 extending through the looped shanks and having the bent ends furnished with the convex buttons 23 22 as described.

3. In a pedal the combination with the hub and lateral supporting-arms extending therefrom, of a vertical plate, rigidly secured to the outer ends of the arms, and having an upwardly-extending stop extending at an angle with the surface plane of said plate, a stop

having a supporting portion mounted to slide laterally in close proximity to said fixed plate, and a clamping device for clamping this supporting portion to the fixed plate.

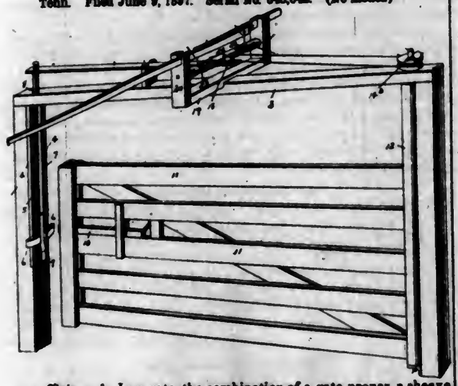
604,920. ORE-CONCENTRATOR. ELMER M. RICH, Silverton, Colo. Filed June 8, 1897. Serial No. 639,886. (No model.)



Claim.—1. An ore concentrator and separator comprising similarly-formed funnel-shaped receptacles inversely disposed and joined at their smaller ends, the subreceptacle having openings in its sides closed by means of a plug and a door, flumes communicating tangentially with the upper end of the topmost receptacle, a pipe for supplying water extending vertically through the subreceptacle and terminating in a flaring nozzle about in the plane of the juncture of the two receptacles, and a tray placed in the subreceptacle and removable therefrom through the opening closed by the door, substantially as described.

2. An ore-concentrator constructed substantially as set forth, comprising funnel-shaped receptacles inversely disposed and joined at their smaller ends, a flume communicating with the upper end of the upper receptacle and disposed tangentially so as to impart a whirling motion to the ore simultaneously with its delivery to the receptacle, a supply-pipe passing vertically through the subreceptacle and terminating in a flaring nozzle about in the plane of the juncture of the two receptacles, and a sectional amalgamated tray composed of similar parts notched in their meeting ends and located in the subreceptacle and fitted about the supply-pipe, substantially as set forth.

604,921. REVERSIBLE DRIVE-GATE. IRBY M. SMITH, Pasquo, Tenn. Filed June 9, 1897. Serial No. 640,042. (No model.)

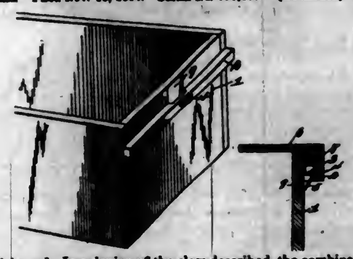


Claim.—1. In a gate, the combination of a gate proper, a sheave attached to a portion thereof, a shaft having cams thereon, operating-arms having their inner ends located adjacent to said shaft, ropes, cables or chains attached to the inner ends of said operating-arms, reversely wound on the said shaft, and extended outwardly in the form of a belt to engage the said sheave, a latch-releasing bar having a lever attached to the upper end thereof adapted to be engaged by the said cams, and a spring-actuated latch-bar in connection with the gate, substantially as and for the purposes specified.

2. The combination of a gate having a spring-actuated latch-bar, a vertically-movable latch-releasing bar, a lever attached to the upper end of said bar, a shaft having cams thereon engaging the said lever, and means for operating the said shaft, substantially as and for the purposes specified.

3. The combination of a gate, a sheave keyed to the pivot-bar thereof, a shaft, operating-arms having their inner ends extending over the said shaft, and connected to opposite ends of a rope, cable or chain wound in reverse directions on the shaft and extending in the form of a belt to engage the said sheave, whereby one of the arms will unwind one end of the rope, cable or chain, and wind the opposite end, to thereby turn the gate in different directions, substantially as and for the purposes specified.

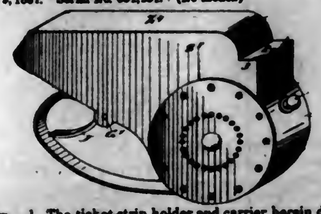
604,922. BOX-FASTENER. CHARLES J. STILLWELL, Whitfield, Kans. Filed Nov. 10, 1897. Serial No. 658,166. (No model.)



Claim.—1. In a device of the class described, the combination of a crate provided with a tapering recess 9 extending downward from the upper edge of the crate at one end thereof, the cleat 2 extending across the end of the crate and provided at its inner face with a vertical recess disposed opposite the tapering recess of the crate, the cover, the resilient catch secured thereto and having a lower engaging portion adapted to be depressed into the recess 9, and the horizontal tapering plate 4 embedded in the front wall of the recess of the cleat from the inner side thereof, and having its rear edge terminating short of the rear face of the cleat, said plate being located at a point between the upper and lower faces of the cleat and having its inner or rear portion projecting from the front wall of the recess of the cleat and engaged by the catch, substantially as described.

2. In a device of the class described, the combination of a crate, a horizontal cleat secured to the crate and provided at its inner face with a recess, the outwardly-tapering plate 4, located at a point between the upper and lower faces of the cleat and embedded in the front wall of the recess and having its inner or rear portion projecting from such front wall, and a catch mounted on the cover of the crate and having a lower portion engaging the plate, substantially as described.

604,923. TICKET HOLDER AND REGISTER. PERRY B. TURPIN, Washington, D. C., administrator of Manuel Fortuño, deceased. Filed Sept. 9, 1897. Serial No. 651,131. (No model.)



Claim.—1. The ticket-strip holder and carrier herein described, consisting in the combination with the casing divided into two compartments, each compartment provided with a locking-lid, of the rotating ticket-strip reel within one compartment, and the mechanism for carrying and forcing the strip through and out of the apparatus located in the other compartment and consisting of a plate on which the strip is supported, a sliding plate provided with clamping-arms to clamp the strip and carry it along, and mechanism for moving said sliding plate, said mechanism consisting of a spring-controlled trigger outside of the apparatus, a shaft on which said trigger is mounted, and a spring-controlled lever mechanism mounted on the said shaft and operatively connected to the trigger and to the said sliding plate, substantially as described.

2. The combination with the casing consisting of two separate compartments each provided with a hinged cover and interlocking parts secured to the said covers, of a rotary ticket-strip reel within one compartment, and a feeding device for the strip located in the other compartment, and consisting of a supporting-plate for the strip, a sliding plate provided with clamping-arms to clamp the strip and carry it along, and a lever mechanism for moving said sliding plate, substantially as described.

3. The casing provided with the combination lettered rotary dial-plates, a post connected to each of said dial-plates, each post

being provided with a slot and hole, in combination with the lid of the casing provided with teeth to engage with said slotted posts and lock the casing, substantially as described.

4. In a ticket-strip holder the combination of the supporting-plate, the reciprocating, clamp-carrying slide, and the lever mechanism for actuating said slide, substantially as described.

5. The combination with the casing, of the rotary reel on which the ticket-strip is rolled, a supporting-plate over which the strip is carried, the said casing being provided with a slot in the end opposite the end carrying the reel, a sliding plate provided with clamping-arms to clamp the strip and carry it along at intervals, and a lever mechanism for moving said sliding plate, substantially as described.

6. The combination, with the casing, of the rotary reel adapted to receive the ticket-strip, the plate on which said strip is carried, the reciprocating slide and its actuating mechanism, said slide having clamping-arms and rollers, and the top plate adapted to rest on said rollers for pressing the clamping-arms down on the strip, substantially as described.

7. The casing composed of a cylindrical compartment, the ticket-reel in said compartment, and an elongated compartment, in combination with the trigger pivoted in the bottom of the elongated compartment, a sliding plate carrying clamps and located in said compartment, and a lever mechanism connecting said trigger and said sliding plate, substantially as described.

8. In combination with the casing, the spring-controlled trigger, the shaft on which said trigger is mounted, the levers likewise mounted on said shaft, the ticket-feed device connected with said levers, and the pawl on the trigger to hold and release the lever mechanism, substantially as described.

9. The combination with a casing, the numbered register-wheels and the notched disks on the said wheels, of the pawl provided with teeth of unequal length to engage with and turn said disks, the ticket-feed device in the casing, consisting of the clamp-carrying slide, and the lever mechanism for actuating said slide, and connections between said feed device and the said pawl to actuate the latter, as and for the purpose described.

10. The combination, with the supporting-plate for the ticket-strip, and the feed device, of a top plate pivoted at one end and extending over the supporting-plate, and a blade secured to said plate for cutting the ticket-strip, substantially as and for the purpose described.

11. The combination, with the plate adapted to support the ticket-strip, and a device for feeding said strip forward, of the movable top plate extending over said supporting-plate, and a longitudinally-adjustable plate on the said top plate, the action of the feed device being controlled by the said top plate and adjustable plate, substantially as described.

12. The combination, with the plate adapted to support the ticket-strip, of the movable top plate extending over said supporting-plate, a slide having reciprocating movement longitudinally of the supporting-plate, and feeding-clamps operatively connected to said slide and provided with guides arranged to pass alternately over and under the top plate to feed and release the ticket-strip, substantially as described.

13. The combination with the supporting-plate for the ticket-strip, of a pivoted and spring-pressed top plate extending over the supporting-plate and provided with a blade, a feed device for the ticket-strip, and means for moving the said top plate to permit of feeding the ticket-strip forward, substantially as described.

14. The combination of the casing, the ticket-strip reel therein, the supporting-plate for the ticket-strip, the sliding plates provided with arms to clamp the strip and carry it along, and mechanism for operating said sliding plates, substantially as described.

15. The combination with the casing, of the reel on which the ticket-strip is rolled, a supporting-plate for the strip, a sliding plate provided with clamping-arms to clamp the strip and carry it along, a lever mechanism for moving said sliding plate, and a registering device arranged to be operated by the movement of the said lever mechanism, substantially as described.

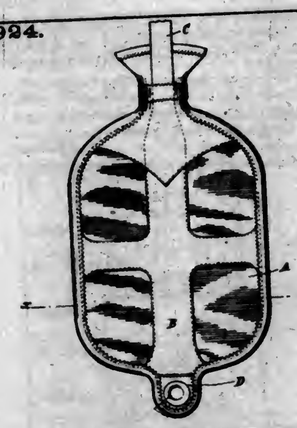
604,924. INDIA-RUBBER WATER-BAG. ADELBERT H. ALDEN, Lawrence, N. Y. Filed Nov. 26, 1897. Serial No. 659,725. (No model.)

Claim.—1. A water-bag composed essentially of sheet-rubber with a reticulated reinforcement composed of thickened portions of the walls or sides of the bag, as set forth.

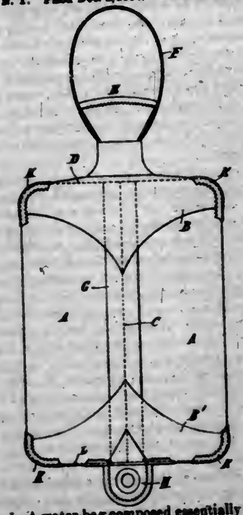
2. A water-bag A composed of sheet-rubber having bands or portions B thicker than the remaining portions of the bag, extending across its sides and serving as reinforcements therefor, as set forth.

3. A water-bag A composed of sheet-rubber having bands or reinforcing-strips B extending across its sides, the vertical band or strip being extended above the neck of the bag to form a loop or handle C and united below the bag to form a tag D, as set forth.

604,924.



604,925. INDIA-RUBBER WATER-BAG. ADELBERT H. ALDEN, Lawrence, N. Y. Filed Dec. 1, 1897. Serial No. 660,410. (No model.)



Claim.—1. A water-bag composed essentially of a sheet of india-rubber folded upon itself from opposite sides and having its meeting edges joined along a vertical line, so as to form a bag without seam or joint along its side edges, as set forth.

2. A water-bag composed of a sheet of rubber folded upon itself from opposite sides and having its meeting edges joined on a line extending vertically across one side of the bag, and its ends closed by sheets of rubber folded over said ends and united to the sides, as set forth.

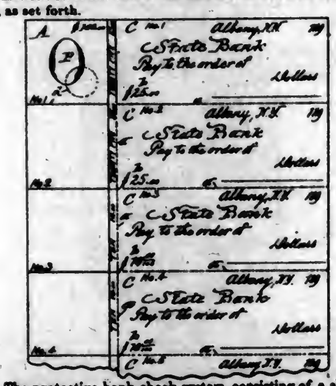
3. A water-bag composed of a sheet of rubber folded upon itself from opposite sides and with its meeting edges joined in a central vertical line running across the side of the bag, and having strips or sheets of rubber folded over its ends and united to the sides, and a reinforcing-strip applied over the vertical seam or joint, as set forth.

604,926. PROTECTIVE BANK-CHECK SYSTEM. CHARLES L. REESE, Scranton, Pa. Filed Sept. 7, 1897. Serial No. 650,729. (No model.)

Claim.—1. The protective bank-check system, consisting of a sheet containing a series of detachably-united bank-checks, a stub permanently attached to one of said checks and having marked on it the limit of the total amount the series of checks may be drawn for, and a mark of identification of the drawer of the checks applied to said stub.

2. The improved bank-check system, consisting of a sheet containing a series of blank checks detachably united and each having

permanently marked on it the amount for which said check may be drawn, and a stub permanently attached to one of the checks and having marked on it the sum of the amounts marked on the series of checks, as set forth.



3. The protective bank-check system, consisting of a sheet containing a series of blank checks detachably united and each having marked on it the amount for which said check may be drawn, a stub permanently attached to one of said checks and having marked on it the sum of the amounts marked on the series of checks, and a mark of identification of the drawer applied to said stub.

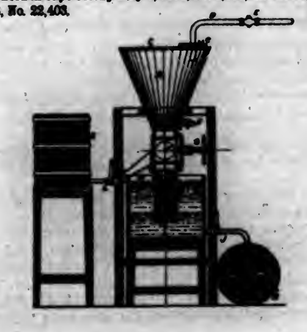
4. The protective bank-check system, consisting of a sheet containing a series of blank checks detachably united, a stub permanently attached to one of said checks and having marked on it the total amount for which the entire series of checks may be drawn, and a photograph or analogous likeness of the drawer of the checks applied to the stub, as set forth.

5. The protective bank-check system, consisting of a sheet containing a series of blank checks detachably united, a stub permanently attached to one of said checks and having marked on it the total amount for which the series of checks may be drawn, a photograph or analogous likeness of the drawer applied to the stub and the seal or other private mark of the bank applied to said likeness, as set forth.

6. The protective bank-check system, consisting of a sheet containing a series of blank checks detachably united, a stub permanently attached to one of said checks and having marked on it the total amount for which the entire series may be drawn, a photograph or analogous likeness of the drawer applied to said stub, the signature of the drawer across said picture and the seal or private mark of the bank applied to said likeness and signature, as set forth.

7. The protective bank-check system, consisting of a sheet containing a series of blank checks detachably united and each having marked on it the amount for which the check is to be drawn, a stub permanently attached to one of said checks and having marked on it the sum of the amounts marked on the series of checks, a photograph or analogous likeness of the drawer applied to said stub, the signature of the drawer on said likeness, the seal or other private mark of the bank applied to said likeness and signature, and the signature of the cashier of the bank applied to said stub, as set forth.

604,927. APPARATUS FOR REMOVING SACCHARIN OR OTHER IMPURITIES FROM WINE. JOHN T. BENNETT, Cape Town, Cape Colony. Filed Feb. 15, 1897. Serial No. 623,471. (No model.) Patented in Cape Colony May 7, 1896, No. 1,163, and in England Oct. 19, 1896, No. 22,403.



Claim.—1. An apparatus for separating heavy impurities from wines and spirits, by gravity, comprising the combination of an open vat containing water, a vessel suspended above said vat and provided with an air-tight cover and a valved supply-pipe, an extension from the lower part of the funnel-shaped vessel of reduced diameter and extending into the water in the vat, a cut-off valve between the funnel-shaped vessel and the extension, and a draw-off cock above the cut-off valve, substantially as described.

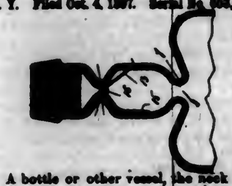
2. In an apparatus for separating saccharin and other heavy impurities from wines and spirits by gravity, the combination with the vat B open at the top and supplied with water, of the funnel-shaped vessel A having an air-tight cover and provided with a valved inlet-pipe E, an extension from the lower end of the vessel A immersed in the water in the vat, a cut-off valve between the vessel A and the extension, a draw-off cock above the cut-off valve, a water-inlet connection for the vat and an outlet connection therefrom, substantially as described.

604,928. EYEGLASSES. BYRD F. BRADDOCK, Philadelphia, Pa. Filed Sept. 30, 1897. Serial No. 653,541. (No model.)



Claim.—Eyeglasses having nose-clamps proper, and a nose-bridge consisting of downwardly and outwardly projecting side pieces, the latter being adapted to clamp the sides of the nose of the wearer, said side pieces being connected by a cross-piece which is below the nose-clamps proper and is adapted to rest on the bridge of the nose.

604,929. BOTTLE OR SIMILAR VESSEL. GEORGE A. DIEHM, Newburg, N. Y. Filed Oct. 4, 1897. Serial No. 653,949. (No model.)



Claim.—1. A bottle or other vessel, the neck of which is contracted at the opposite sides thereof so as to form a narrow transverse passage or opening, a stopper which is adapted to be inserted into said neck, and a strip of spring metal which is passed through said stopper, and the ends of which are bent downwardly and adapted to be passed through said narrow transverse passage or opening, substantially as shown and described.

2. A bottle or other vessel, the neck of which is contracted at the opposite sides thereof so as to form a narrow transverse passage or opening, a stopper which is adapted to be inserted into said neck, and a strip of spring metal which is passed through said stopper, and the ends of which are bent downwardly and adapted to be passed through said narrow transverse passage or opening, one end of said strip of metal being wider than the other and provided with a transverse slot or opening, and the other end being adapted to be passed therethrough, substantially as shown and described.

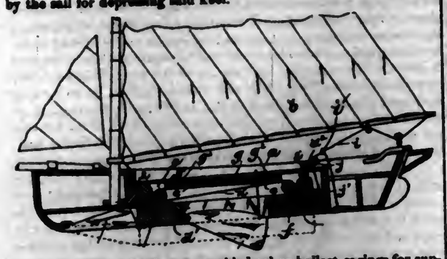
3. A bottle or other vessel, the neck of which is contracted at the opposite sides thereof so as to form a narrow transverse passage or opening, a stopper which is adapted to be inserted into said neck, and a strip of spring metal which is passed through said stopper, and the ends of which are bent downwardly and adapted to be passed through said narrow transverse passage or opening, one end of said strip of metal being wider than the other and provided with a transverse slot or opening, and the other end being adapted to be passed therethrough, said last-named end being also provided with a transverse loop or bend whereby a shoulder is formed which is also adapted to be passed through said slot or opening, substantially as shown and described.

604,930. SAIL-CONTROLLED KEEL. FELIX DOUCET, Malvern, Mass. Filed July 10, 1897. Serial No. 644,697. (No model.)

Claim.—1 A sail-boat, having a movable keel or ballast, and means controlled by the sail for depressing said keel with respect to the hull of the boat.

2. A sail-boat having a movable keel or ballast, and means controlled by the sail for raising and depressing said keel with respect to the hull of the boat.

3. A sail-boat having a movable keel or ballast, means for supporting said keel in a normally-raised position, and means controlled by the sail for depressing said keel.

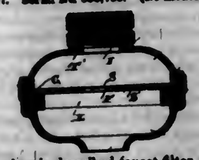


4. A sail-boat having a movable keel or ballast, springs for supporting said keel in a normally-raised position and means controlled by the drawing of the sail for depressing said keel against the tension of said springs.

5. A sail-boat having a movable keel or ballast, springs connected therewith and supporting said keel in a normally-raised position, a sail, and a sheet connected with said sail and said keel, and adapted by the pressure of wind upon the sail to depress the keel against the tension of said springs.

6. A sail-boat having a movable keel or ballast, means such as a cord or chain whose drawing will tend to depress said keel, and an adjustable sheet connection between the sail and said keel-depressing means.

604,931. FILTER. SAMUEL D. EBERSBATH, St. Paul, Minn. Filed Oct. 1, 1897. Serial No. 653,730. (No model.)



Claim.—1. The herein-described faucet-filter, the same comprising a shell-like body in two members of substantial cup shape, the upper having an inlet and the lower an outlet, the upper having exterior threads around its mouth, the lower having interior threads at its mouth adapted to receive those on the upper member and also having a shoulder just below said threads, a filter proper consisting of a fabric sheet removably clamped within a metal frame, the latter resting on said shoulder, and a gasket between the lower edge of the upper member and the upper side of the filter-frame, as and for the purpose set forth.

2. In a filter, the combination with a shell-like body in two cup-shaped members detachably connected at their open edges, one member having a shoulder opposite the edge of the other member; of a filter proper consisting of two sheets of silk with an interposed sheet of felt, said sheets being held upon said shoulder by said edge, as and for the purpose set forth.

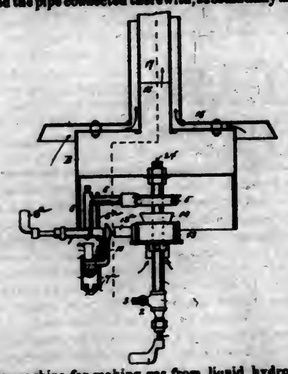
3. In a filter, the combination with a body having inlet and outlet openings respectively above and below; of a filter proper supported within each body between the openings therein and consisting of a fibrous sheet with silk sheets held close against its opposite faces, as and for the purpose set forth.

4. In a filter, the combination with a hollow body in two members of cup shape detachably connected at their open sides, one member having a shoulder opposite the edge of the other; of a filter proper consisting of a metallic ring L-shaped in cross-section with its upright portion innermost and its foot of a size to rest on said shoulder, a plain metal ring of a size to fit closely around said upright portion, and a fabric filter-sheet passing at its edges over the upright portion and clamped between it and said plain ring, the entire filter with its frame being held between said shoulder and said edge of the body members, substantially as described.

604,932. CARBURETER. JOHN C. FUHR and HENRY J. FUHR, Williamsburg, Ohio. Filed July 26, 1897. Serial No. 646,207. (No model.)

Claim.—1. In an apparatus for making gas from liquid hydrocarbons the combination with the generator, the supply-pipe, the horizontal pipe connected therewith and the valve therein, of the sliding trough, the upwardly-extending spoon-shaped arm, the main burner located below the generator and the pipe connected therewith, substantially as described.

2. In an apparatus for making gas from liquid hydrocarbons, the combination with the supply-pipe, the generator connected therewith, the angle-pipe connected with the generator, and the horizontal pipe connected therewith, provided with a valve of the plate connected with said angle and horizontal pipes, the bracket secured thereto, formed with a longitudinal opening the sliding trough provided with notched lugs working in said opening, the upwardly-extending spoon-shaped arm, the main burner located beneath the generator and the pipe connected therewith, substantially as described.



3. In a machine for making gas from liquid hydrocarbons, the combination with supply-pipe, the generator connected therewith, the angle and horizontal pipes, and the valve, of the plate connected with said angle and horizontal pipes, the bracket secured thereto formed with a longitudinal opening, the sliding trough having downwardly-depending notched lugs engaging with said opening, the upwardly-extending spoon-shaped arm, the plate secured to said bracket having an opening therein, the perforated chimney, the burner located beneath the generator and the pipe connected therewith, substantially as described.

4. In an apparatus for making gas from liquid hydrocarbons, the combination, with the supply-pipe, the generator connected therewith, the angle and horizontal pipes, the valve in the horizontal pipe, and the lateral lugs secured to said horizontal lugs, of the bracket having an opening therein, the sliding trough provided with notched lugs engaging with said openings, the upwardly-extending spoon-shaped arm, the burner located beneath the generator and the pipe connected therewith, substantially as described.

5. In an apparatus for making gas from liquid hydrocarbons, the combination with the cylinders, the supply-pipe, the generator connected therewith, the inclined passage in the generator, the pipe at the upper end of said generator, with which said passage communicates, the valve-stem screw-threaded near its upper end and the needle-valve, projecting into the upper cylinder, substantially as described.

6. The combination with the upper and lower cylinders, the air-pipes connected with the upper cylinder, the escape-pipe provided with a perforated diaphragm, and the cover, of the generator, the supply and escape pipes therefor, the inclined passage leading to the escape-pipe, the screw-threaded valve-stem, the needle-valve projecting into the upper cylinder, the angle-pipe, the horizontal pipe connected therewith provided with a valve, the sliding trough, the upwardly-extending arm, the burner and pipe connected therewith, substantially as described.

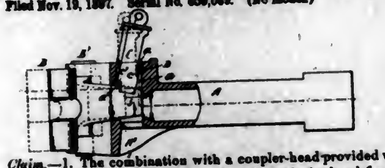
604,933. BUFFING OR POLISHING DEVICE. CHARLES R. GRAHAM, Swampscott, Mass., assignor to George H. P. Flagg, trustee, Boston, Mass. Filed Dec. 6, 1897. Serial No. 660,943. (No model.)



Claim.—1. An appliance of the character specified, comprising a rotary hub, a yielding cushion secured to said hub and adapted to be centrifugally maintained, and a seamless tubular laterally-inelastic sheath of fibrous material having a compressible body inclosing said cushion and forming a yielding bed for a working cover.

2. An appliance of the character specified, comprising a rotary hub, a cushion composed of limp annular sections surrounding the hub and closely confined at their inner portions around the hub, their outer portions being free to yield, and a seamless tubular laterally-inelastic sheath of fibrous material having a compressible body inclosing said cushion and forming a yielding bed for a working cover.

604,984. CAR-COUPLING. PHILIP T. HANDIGAN, Detroit, Mich. Filed Nov. 19, 1897. Serial No. 659,069. (No model.)



Claim.—1. The combination with a coupler-head provided with a chamber and with an orifice extending through the head for the reception of a locking-pin, of a swinging knuckle, and a movable locking device mounted in said head projecting through the upper end of said orifice and formed with a supporting-shoulder toward its lower end, said head formed with a fixed support within said orifice to engage said shoulder and support the locking device in unlocked position, said pin in raised position being lifted up so that the projecting shoulder thereon engages on said fixed support above the chamber of the draw-head, for the purpose described.

2. The combination with a coupler-head provided with a chamber to receive the knuckle, and with an orifice therethrough to receive a locking-pin having a fixed support therewithin above said chamber, of a swinging knuckle, a vertically-movable locking-pin passing through said orifice in the head provided with a supporting-shoulder toward its lower end, a lifting device connected with the upper end of said pin, and a fulcrum at one side the locking-pin above said chamber to tilt the locking device when in raised position and seat the supporting-shoulder of the pin upon said fixed support, whereby the pin may be automatically held in an uncoupled position, said pin in raised position being lifted up so that the projecting shoulder thereon engages on said fixed support above the chamber of the draw-head, substantially as set forth.

3. The combination with a coupler-head formed with a chamber and with an opening through the head, of a swinging knuckle, and a vertically-movable locking-pin mounted in said orifice and projecting through the upper end thereof, said head constructed with a fixed support projecting inward within said opening, and said locking-pin constructed with a supporting-shoulder toward its lower end to engage said ledge, said pin in raised position being lifted up so that the projecting shoulder thereon engages on said fixed support above the chamber of the draw-head, substantially as set forth.

4. The combination of a coupler-head provided with an orifice therethrough for the reception of a locking-pin and having a fixed support within said orifice, of a swinging knuckle, and a locking-pin provided with a supporting-shoulder toward its lower end to engage the support within said orifice to support the pin in raised position upon the fixed support within said orifice in position for uncoupling, the inner end of said knuckle by its opening movement tripping the locking device from off said support and throwing said supporting-shoulder upon the upper surface of the knuckle into position to drop into locked position at the closing movement of the knuckle, for the purpose set forth.

5. The combination with a chambered coupler-head, formed with an orifice extending therethrough to receive a locking device, of a swinging knuckle, a vertically-movable locking-pin passing through said orifice and provided with a supporting-shoulder toward its lower end, and a fulcrum at the rear of the locking-pin above the chamber in said head, said head formed with a fixed support projecting inward on the front wall of said orifice intermediate the ends of said opening to engage said shoulder and support said pin, said pin in raised position being lifted up so that the projecting shoulder thereon engages on said fixed support above the chamber of the draw-head, for the purpose described.

6. The combination with a coupler-head provided with a chamber and with an opening through the head to receive a locking-pin, of a swinging knuckle, a vertically-movable locking-pin provided with a supporting-shoulder on one side thereof toward its lower end, and with an additional shoulder on the opposite side thereof, a fulcrum at one side the locking device above the chamber in the head, and a fixed support on the opposite side the locking device within said opening above the chamber in the head to engage the corresponding shoulder of the locking device and support the pin in unlocked position, said pin in raised position being lifted up so that the projecting shoulder thereon engages on said fixed support above the chamber of the draw-head, substantially as set forth.

7. The combination with a coupler-head provided with an orifice therethrough for the reception of a locking-pin and having a fixed support within said orifice, of a swinging knuckle provided with a shoulder at its inner end, and a locking device provided with a supporting shoulder toward its lower end to engage said fixed support in position for uncoupling, said locking device projecting below said supporting-shoulder, the inner end of said knuckle by its opening movement tripping the locking device and throwing the supporting-shoulder off said fixed support and upon the shoulder of the knuckle into position to permit the locking device to drop into locked position at the closing movement of the knuckle, for the purpose set forth.

8. The combination with a chambered coupler-head provided with an orifice therethrough for the reception of a locking-pin and having a fixed support within said orifice above the chamber of the head, of a swinging knuckle provided with a shoulder projecting inward and outward at its inner end, and a locking device provided with a supporting-shoulder toward its lower end to engage said fixed support in position for uncoupling, and having its lower end projecting below said supporting-shoulder, the inner end of said knuckle by its opening movement contacting with the lower end of the locking device and tripping the locking device throwing the supporting-shoulder off from said fixed support and upon the upper face of the shoulder of the knuckle into position to permit said latter shoulder riding out from in under said supporting-shoulder in the closing movement of the knuckle, whereby the locking device may drop into locked position in front of the shoulder of the knuckle, substantially as set forth.

9. The combination with a coupler-head provided with a chamber and with an opening through the head to receive a locking device, and with a fixed support within said opening, of a swinging knuckle, a vertically-movable locking device in said opening provided with a supporting-shoulder toward its lower end to seat upon said fixed support in uncoupled position, a fulcrum at one side the locking device serving as a stop to limit the upward movement of the locking-pin, and also serving to seat the supporting-shoulder of the locking device upon said fixed support in uncoupled position, said pin in raised position being lifted up so that the projecting shoulder thereon engages on said fixed support above the chamber of the draw-head, substantially as set forth.

10. The combination with a coupler-head provided with an orifice extending therethrough for the reception of a locking-pin, and constructed with a fixed support within said orifice, of a swinging knuckle, and a movable locking-pin mounted in said head projecting through the upper end of said orifice, said locking-pin formed with a supporting-shoulder c' to seat upon said fixed support, and with a portion C' at the lower end of the pin projecting downward below said supporting-shoulder, said knuckle formed with a shoulder B^2, said latter shoulder by the opening movement of the knuckle contacting with the portion C' of said pin to trip the pin from off said fixed support and throw the supporting-shoulder of the pin upon the upper surface of the shoulder of the knuckle into position to drop into locked position at the closing movement of the knuckle, substantially as set forth.

11. The combination with a coupler-head provided with an orifice extending therethrough for the reception of a locking-pin, and formed with a fixed support within said orifice, of a swinging knuckle, and a movable locking-pin mounted in said head projecting through the upper end of said orifice, said locking-pin formed with a supporting-shoulder c', with a portion C' projecting below said supporting-shoulder, and with a cut-away portion c^3, said knuckle formed with a shoulder B^2, and with a cut-away portion b to contact with the cut-away portion c^3 of the pin in the opening movement of the knuckle to trip the locking device from off the fixed support and throw the supporting-shoulder of the pin upon the upper surface of the shoulder of the knuckle into position to drop into locked position at the closing movement of the knuckle, for the purpose set forth.

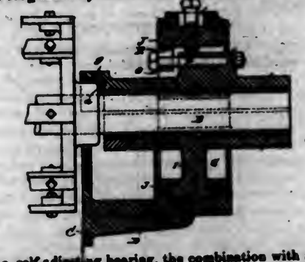
604,985. INHALER. WILLIAM B. HIDDEN, Boston, Mass. Filed May 13, 1897. Serial No. 636,405. (No model.)



Claim.—An inhaler, consisting of an elongated shell, of greater diameter at the center than at the ends, having tubes extending from the opposite ends inwardly to the larger diameter, the inner ends of said tubes being curved in opposite directions, substantially as described.

604,986. SELF-ADJUSTING JOURNAL-BEARING. EDWARD HUBER, Marion, Ohio. Filed Dec. 20, 1897. Serial No. 662,531. (No model.)

Claim.—1. In a self-adjusting bearing, the combination with a support, of a box so mounted within the support as to form a joint permitting of universal adjustment, a cap for the box and means carried by the box to clamp down on the cap, and other means to adjust the cap longitudinally and in turn the shifting of the shaft.



2. In a self-adjusting bearing, the combination with a support, of a box so mounted within the support as to form a joint permitting of universal motion, a cap for the box, a clamping-screw mounted in the box and clamping upon the cap and an adjusting-bolt engaging with the box and cap to shift the latter longitudinally.

3. In a self-adjusting bearing, the combination with a support having a curved seat, of a box having a globular exterior fitted to said seat, a cap for said box extending within the upper half of said box, and a clamp-screw carried by the box and adapted to engage with said cap, whereby the cap is held within the box, substantially as shown and described.

4. In a self-adjusting bearing, the combination with a support and a curved seat, of a box having a globular exterior mounted in said seat, a lug and a bolt extending through the lug, and a cap for the box having a boss through which the bolt extends for adjusting the cap longitudinally.

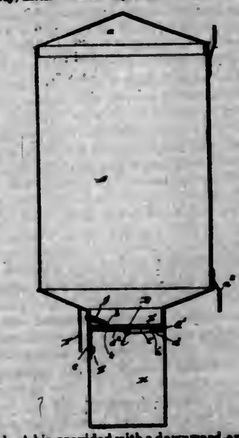
5. In a self-adjusting bearing, the combination with a support having a slot, of a box having a screw extending through said slot and a cap on the box against which the screw clamps.

6. In a self-adjusting bearing, a box having a lug, a bolt extending through it, and a cap on the box and having a boss with which said bolt engages.

7. In a self-adjusting bearing, the combination with a frame or casing and a support secured thereto and having a curved seat, of a box having a globular exterior mounted in said bearing and a shaft mounted in the box.

8. In a self-adjusting bearing, the combination with a frame or casing, of a support secured to the frame or casing and encircling the shaft, and having a curved seat, a box having a globular exterior mounted in said seat, a cap for the box, means carried by the box to clamp down on the cap, and means for adjusting the cap longitudinally and with it said shaft with respect to the box.

604,987. BIN FOR POWDERED MATERIAL. CHARLES IRISH, Traverse City, Mich. Filed May 10, 1897. Serial No. 636,897. (No model.)



Claim.—1. A bin provided with a downward-extending neck having a perforated bottom plate, a perforated plate pivoted to the bottom plate, a spring arranged to normally hold the pivoted plate so that the holes through the bottom plate and the pivoted plate do not register, a cup adapted to engage with the neck with both a sliding and a twisting motion, and a lug on the cup adapted to engage an arm on the pivoted plate and rotate said plate, substantially as described.

2. A bin provided with a downward-extending neck having a perforated bottom plate, a perforated plate pivoted to the bottom plate, a cup adapted to engage with the neck with both a sliding and twisting motion, a lug on the cup, and an arm on the pivoted plate adapted to engage and cause the plate to rotate with the cup, substantially as described.

3. A bin provided with a downward-extending neck having a spiral guide on the wall thereof and closed by a perforated bottom plate, a rotative perforated plate pivoted to the bottom plate and having a projecting arm thereon, a cup having a guide adapted to engage the spiral guide, and a lug adapted to engage the projecting arm on the pivoted plate, whereby as the cup is pushed onto the neck it is caused to turn, and turns the pivoted plate, substantially as described.

604,988. DISPLAY HAT-TOP. EDWARD LESER, Chicago, Ill. Filed June 24, 1897. Serial No. 642,081. (No model.)



Claim.—1. A display hat-top, consisting of a cup-shaped head, provided with border-flange having apertures therethrough at intervals, and the elastic tubing, woven through said apertures and forming cushion bearing-sections, substantially as described.

2. The combination with a display hat-top, consisting of a cup-shaped head, provided with a number of apertures around the edge, of a soft cushioning-cord, woven through said apertures and forming yielding bearing-surfaces disposed in sections, substantially as described.

604,989. EXTENSION-TABLE. CHRISTIAN MARKEL, Corry, Pa. Filed Sept. 27, 1897. Serial No. 653,276. (No model.)



Claim.—In an extension-table, the combination, with a stationary table-top section; of a slidable end section E, a depressible table-top section hinged to the said end section and provided with a downwardly-projecting plate at its outer end, and a slidable catch carried by the said end section and engaging with the said plate, substantially as set forth.

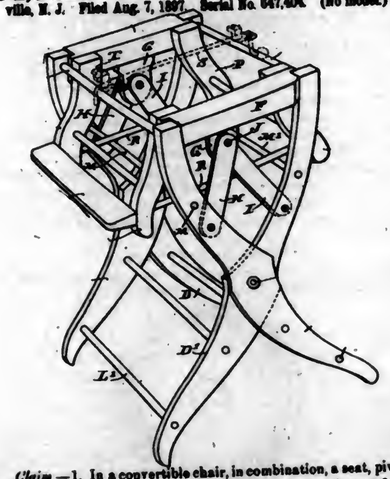
604,940. PROTECTIVE COVERING FOR SHIPS' ARMOR. JOHN L. MATTHEWS, Baltimore, Md. Filed Sept. 4, 1897. Serial No. 650,634. (No model.)



Claim.—A protective covering for armor, which consists in the combination of an exterior plate of Babbitt metal, a body of rubber applied to the inner surface of the said metal, and a spring backing

secured to the armor and forming a support for the rubber and its outer covering of Babbitt metal, substantially as specified.

604,941. CONVERTIBLE CHAIR. HENRY H. PAINE, Merchantville, N. J. Filed Aug. 7, 1897. Serial No. 647,404. (No model.)

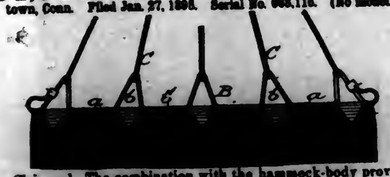


Claim.—1. In a convertible chair, in combination, a seat, pivoted cross-legs the inner under sides of which are so curved as to form a rocker when the chair is lowered, rounds uniting each pair of legs, sills to which the seat is adapted to be secured, hangers depending from said sills, links pivoted upon each side of said hangers and the lower ends of which are pivotally attached to the legs of the chair, means for securing the upper ends of said legs when the chair is in an elevated position, and means for causing said seat to maintain its horizontal position when elevated or depressed and while being elevated or depressed.

2. In a convertible chair, in combination, a seat, pivoted cross-legs the inner under sides of which are so curved as to form a rocker when the chair is lowered, rounds joining each pair of legs, a rod passing from front to back of and secured in bearings carried by the under part of said seat, the ends of said rod being bent down and adapted to pass over the upper rounds joining said legs, sills to which the seat is adapted to be secured, hangers depending from said sills, links pivoted upon each side of said hangers and the lower ends of which are pivotally attached to the legs of the chair, and means for causing said seat to maintain its horizontal position when elevated or depressed and while being elevated or depressed.

3. In a convertible chair, in combination, a seat, pivoted cross-legs the inner under sides of which are so curved as to form a rocker when the chair is lowered, rounds joining each pair of legs, sills to which the seat is adapted to be secured, hangers depending from said sills, links pivoted upon each side of said hangers and the lower ends of which are pivotally attached to the legs of the chair, means for preventing said legs from opening when the chair is in its elevated position, legs depending from said sills, and rounds carried by said legs adapted to engage the tops of one pair of rounds carried by said legs, all substantially as and for the purposes set forth.

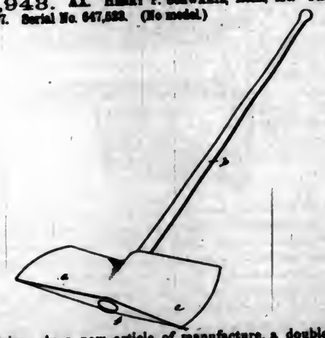
604,942. HAMMOCK-SPREADER. ISAAC B. PALMER, Middletown, Conn. Filed Jan. 27, 1898. Serial No. 668,116. (No model.)



Claim.—1. The combination with the hammock-body provided at its end with a hem, of a spreader consisting of alternate straight and loop portions, the loop portions projecting at intervals through the bight of the hem for the reception of suspension-cords and the bight of the hem being engaged in sections with the straight portions of the spreader intermediate of the loop portions, substantially as set forth.

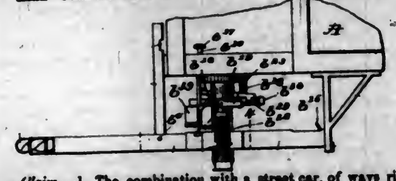
2. The hammock-spreader, comprising a rod developed into loops at intervals throughout its length and having its ends turned to form loops at the opposite ends of the spreader, one of the ends of the rod being returned to the opposite end of the spreader and engaged with the portions of the spreader intermediate of the loops, substantially as set forth.

604,948. AX. HENRY P. SCHWARZE, Rolla, Mo. Filed Aug. 9, 1897. Serial No. 647,553. (No model.)



Claim.—As a new article of manufacture, a double-bitted ax composed of the bits *a*, and *c* having their body portions united and provided with an eye to receive a helve, said bit *c*, and the front edge of said bit *a*, being arranged in the same plane with the helve and the rear and cutting edges of said bit *a*, offset from said plane substantially as described.

604,944. STREET-CAR FENDER. GEORGE H. SMITH, Lowell, Mass. Filed Jan. 12, 1898. Serial No. 666,400. (No model.)



Claim.—1. The combination with a street car, of ways rigidly mounted beneath the car, a fender reciprocable in said ways, said fender having pivoted intermediate its length an apron automatically held turned up against the front of the car, and holding the fender yieldingly forward in projected position, and springs normally holding said apron forcibly in its upright position, substantially as described.

2. The combination with a street-car, of ways rigidly mounted beneath the car, a fender reciprocable in said ways, said ways being open at their under sides, cut away at their rear upper ends and provided with bottom ledges opposite said cut-away portions, guards being provided opposite said ledges, and removable means adjacent the forward ends of said ways for normally sustaining said fender and permitting it to drop when desired, whereby said fender at its rear end in dropping is caused to turn on said bottom ledges and abut against said guards, as and for the purpose described.

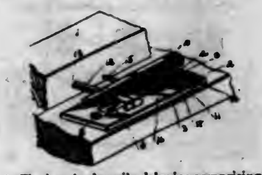
3. The combination with a street-car, of ways rigidly mounted beneath the car, a fender reciprocable in said ways, said fender having pivoted intermediate its length an apron adapted to be turned up against the front of the car, and springs normally holding said apron forcibly in its upright position, said apron having notches in its upper edge adjacent its free end, and a device rigidly mounted beneath the forward end of the car to be engaged by said notches when the fender is in retracted position as and for the purpose described.

4. The combination with a street-car, of a support for a fender, a fender carried by said support, depending posts adjacent the front end of the car, shafts rotatably mounted in said posts, said shafts having lateral arms at their lower ends provided with antifriction-rollers, springs engaging said posts, and said shafts tending to maintain said arms normally turned outward, levers projecting from said shafts, a trip-lever mounted beneath the car, connections between said levers and said trip-lever whereby the latter operates the former and said shafts, a dog adapted to engage said trip-lever when the latter is in position to turn said arms inwardly beneath and to support said fender, and means for disengaging said dog to permit said springs to turn said arms from supporting engagement with the fender, substantially as described.

5. The combination with a street-car, of ways, a fender reciprocable therein and when in projected position being capable of dropping therefrom at its forward end, vertical posts pivotally mounted adjacent the forward ends of said ways, said posts having lateral arms provided with friction-rollers adapted to be turned inwardly beneath the fender, said fender being supported by and freely movable on said rollers, springs normally tending to turn said arms and their shafts away from each other out of supporting engagement with said fender, means for holding said arms in said supporting engagement against the action of said springs, and releasing means therefor, substantially as described.

6. The combination with a street-car, of ways, a fender reciprocable therein and when in projected position being capable of dropping therefrom at its forward end, vertical posts pivotally mounted adjacent the forward ends of said ways, said posts having lateral arms provided with friction-rollers adapted to be turned inwardly beneath the fender, said fender being supported by and freely movable on said rollers, springs normally tending to turn said arms and their shafts away from each other out of supporting engagement with said fender, means for holding said arms in said supporting engagement against the action of said springs, and releasing means therefor, said fender having an apron pivoted thereto, springs normally holding said apron in upright position, notches near the forward end of the apron, and a device carried beneath the forward end of the car to be engaged by said notches and thereby retain the fender when in retracted position, substantially as described.

604,945. STORM-WINDOW FASTENER. ARTHUR P. SPILLER, Manchester, N. H. Filed Aug. 23, 1897. Serial No. 649,867. (No model.)



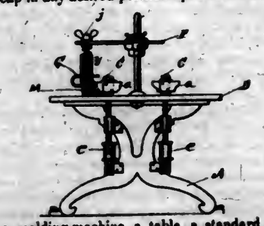
Claim.—1. The herein-described device comprising a plate having an elongated slot therein open at one end, said plate being adapted to be secured to the sash of the storm-window, a bolt maintained in said slot and adapted to slide vertically therein, said bolt being provided near its lower end with a laterally-extending lug, a spring-arm secured to the plate and provided with a shoulder adapted to engage said lug and hold the sliding bolt in elevated position, a laterally-extending bolt upon the window-frame adapted to be engaged by the spring-arm to cause the same to release the sliding bolt and permit the same to move downwardly across the laterally-extending bolt, substantially as described.

2. The herein-described device comprising a plurality of plates having elongated slots therein open at one end and adapted to be secured to the sash of the storm-window, said plates being provided with beveled under sides approximate to the slots, sliding bolts provided with beveled shoulders adapted to fit snugly against the inclined under edges of the plates, laterally-extending flanges integral with the shoulders and adapted to rest upon the upper sides of the plates approximate to the slots, said bolts being provided with downwardly-extending portions having inclined under sides, laterally-extending bolts provided upon the inner edges of the window-frame, lateral projections upon the vertically-sliding bolts, spring-arms secured to the plates and having shoulders thereon adapted to engage the lateral projections, said spring-arms being adapted to engage the laterally-extending bolts to permit the sliding bolts to fall across the laterally-extending bolts, substantially as described.

3. In the herein-described device, the combination with the portion adapted to be secured to the frame of the storm-window and comprising sliding bolts having inclined under sides, of longitudinally-sliding bolts situated within laterally-extending recesses in the window-frame to which the storm-window is to be applied, said bolts being provided with heads and situated to engage said inclined under sides of the storm-window bolts, and means for limiting the longitudinal movement of said bolts, substantially as described.

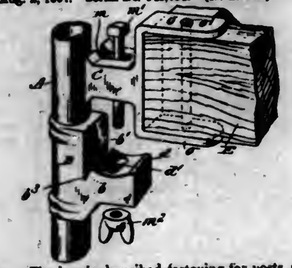
604,946. GUIDE AND GUARD FOR VARIETY MOLDING-MACHINES. ABBOTT L. STODDARD, Providence, R. I. Filed June 3, 1897. Serial No. 639,229. (No model.)

Claim.—1. In a molding-machine, the table, the standard rigidly secured thereto, the block *s* adjustably secured to the standard and provided with a recess in its top, a second larger block also adjustably clamped to the standard, and rabbeted to the lower one, and provided with a recess in its top, combined with a slotted arm which is horizontally adjustable in relation to the standard and which arm supports at its outer end the slotted guide and its attachments, a cap placed upon the top of the arm, and suitable clamping-bolts for securing the cap in any desired position upon the arm, substantially as shown.



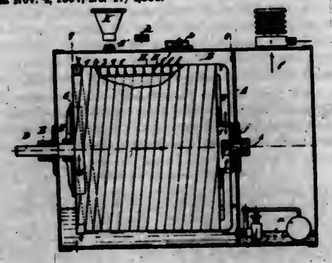
2. In a molding-machine, a table, a standard rigidly secured thereto, and a horizontal arm adjustably secured upon the standard, combined with a screw-rod *j* which is square at that portion where it passes through the slot in the upper end of the arm, suitable washers applied to the arm, a thumb-screw, a spring applied to the rod below the arm, a foot having a tubular portion to receive the lower end of the rod and the spring, and an adjustable slotted guide secured to the foot, substantially as set forth.

604,947. BEDSTEAD. FRANCIS M. TINKHAM, Springfield, Mass. Filed Aug. 2, 1897. Serial No. 646,751. (No model.)



Claim.—The herein-described fastening for posts and side rails of metal bedsteads consisting of a rail-support cast on said post having thereon a vertical wall *h'*, a horizontal projection *h*, integral therewith, and a V-shaped groove *h²*, at the base of said vertical wall; a lug for attaching a side rail to one of said posts, a vertical end on said lug terminating in a V-shaped projection at the base thereof and having a horizontal portion adapted to rest on said projection *h*, of said support; an elongated slot in said projection parallel with said V-shaped groove, a slot *w* in said lug, a binding-bolt passing therethrough and through said elongated slot, said slot *w* lying at right angles to said elongated slot whereby on the tightening of said bolt and the engagement of said V-shaped projection on said lug with said V-shaped groove, the end of said lug may be free to move toward the vertical wall *h'*, on said support, substantially as described.

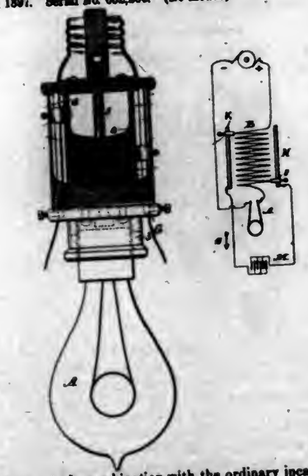
604,948. CARBURETER. ADOLPHE I. VAN VRIELAND, Paris, France. Filed Aug. 13, 1897. Serial No. 648,155. (No model.) Patented in France July 8, 1897, No. 268,556; in Belgium July 16, 1897, No. 129,503; in Switzerland July 16, 1897, No. 14,710; in England July 17, 1897, No. 16,907; in Luxemburg July 17, 1897, No. 2,904; in Hungary Aug. 5, 1897, No. 10,445; in Italy Aug. 28, 1897, No. 45,386, and Sept. 30, 1897, No. 33; in Spain Sept. 10, 1897, No. 21,282, and in Austria Nov. 4, 1897, No. 47/4,563.



Claim.—1. In a carbureting and compressing apparatus, the combination with a cylinder divided by a partition into two chambers, of a rotary drum mounted in one of said chambers, a series of conduits helically wound adjacent to each other around said drum, a box arranged at the end of the drum, said conduits opening at one end into the drum-chamber and at the other end into said box, a passage between said box and the second chamber, an air-inlet valve and a supply-opening in the drum-chamber, and a gas-outlet valve in the second chamber, and a valved passage connecting the lower part of said chambers for the return of the surplus hydrocarbon, substantially as set forth.

2. In a carbureting and compressing apparatus, the combination with a cylinder divided by a partition into two chambers, of a rotary drum mounted in one of said chambers, a series of conduits helically wound around said drum, a box arranged at the end of the drum, radial conduits leading into said box, said helically-wound conduits communicating at one end with the drum-chamber and at the other end with said radial conduits, a passage between said box and the second chamber, an air-inlet valve and a supply-opening in the drum-chamber and a gas-outlet valve in the second chamber, substantially as set forth.

604,949. RHEOSTAT FOR ELECTRIC LAMPS. REINHOLD H. WAPPLER and FREDRICK H. WAPPLER, New York, N. Y. Filed Sept. 20, 1897. Serial No. 652,266. (No model.)



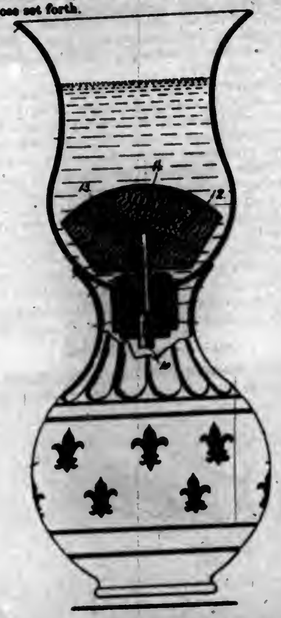
Claim.—1. In combination with the ordinary incandescent electric lamp, two heads of insulating material, a socket connection upon one head for the incandescent lamp, and a socket connection on the other head for the socket or electric-lamp fixture, a rheostat-coil between the insulating-heads, a bar also between the heads, a sliding contact in the electric circuit and upon the bar and resting upon the rheostat-coil and having a knob or head by which it is adapted to be moved toward one head or the other for varying the resistance in the lamp-circuit, and a casing of sheet metal multiperforated and surrounding the rheostat and bar to protect the same and allow a free circulation of air, the casing being slotted for the knob or head of the sliding contact, substantially as set forth.

2. The combination in an electric circuit, of a rheostat composed of a metal tube with enamel or similar insulating material upon the surface thereof, and naked wire having an oxidized surface closely wound upon the insulating-surface of the metal tube, and a sliding contact in the electric circuit resting on the convolutions of the wire, for varying the resistance in the circuit, substantially as set forth.

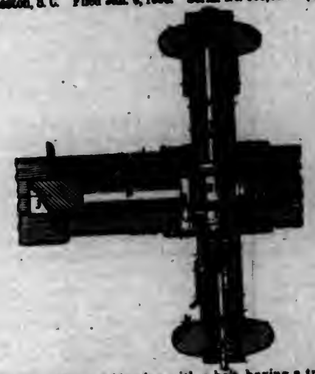
3. The combination with a source of electric energy and with an incandescent electric lamp, of a rheostat composed of a coil of wire in the closed circuit containing the lamp, two stationary bars each having a slider thereupon in contact with the rheostat-coil, and a shunt or derived circuit connected with the slider-bars and containing a transforming device, for varying the resistance in the lamp-circuit and the current diverted into the shunt-circuit, substantially as set forth.

604,950. FILTER. ARTHUR C. WILLATS, Buffalo, N. Y. Filed Aug. 14, 1897. Serial No. 648,309. (No model.)

Claim.—The herein-described filtering device, the same comprising a receiving vessel having an opening in its bottom, a tube passing through said opening, means for closing the latter around the tube, and a filtering-block rounded on its upper side and provided with a cylindrical recess extending part way into its body from the lower side and mounted on the upper end of said tube, the recess being of such depth and the block of such size and shape that the latter stands out of contact with all parts of the device except said tube, as and for the purpose set forth.



604,951. LOCK. ELBERT I. ANDERSON and OSCAR M. MORRILL, Charleston, S. C. Filed Jan. 6, 1898. Serial No. 665,809. (No model.)



Claim.—1. The combination with a bolt having a transversely-arranged passage, of a longitudinally-movable spring-pressed spindle having a lateral rigidly-attached lug for entering said passage to actuate the bolt, a device for holding the spindle with its lug out of engagement with the bolt, and means for releasing said holding device to permit the spring acting on the spindle to actuate the latter and move the lug into engagement with the bolt, substantially as described.

2. The combination with a bolt having a transversely-arranged passage, of a knob-carrying tube, a tubular spindle arranged in the knob-carrying tube, rotating therewith and movable longitudinally independent thereof, a lug rigidly secured to and projecting laterally from the tubular spindle to enter the said passage of the bolt, a spring for moving the spindle in one direction, a device for holding the spindle against the tension of the spring, and means for operating said device to release the spindle and permit its spring to operate and cause the lug to enter the said passage, substantially as described.

3. A tube or housing having a lip, a spindle having a catch for engaging the lip, a lug on the spindle, and a bolt, said spindle being made longitudinally movable to carry the lug into and out of engagement with the bolt and said catch being made rotatable to clear or move to one side of the lip substantially as described.

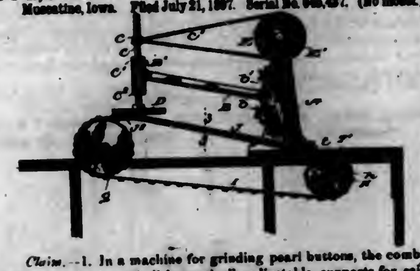
4. A tube or housing having a lip, a longitudinally-movable spindle having a catch for engaging the lip, a lug on the spindle, a bolt adapted to be engaged by the lug, a rotary stem in the spindle and to which the catch is connected, and a button or handle at one end of the spindle for rotating said stem, the other end of the spindle being adapted for the insertion of a key substantially as described.

5. A tube or housing having a lip, a longitudinally-movable spindle having a catch for engaging the lip, a lug on the spindle, a bolt adapted to be engaged by the lug, a rotary stem in the spindle for supporting the catch, a button or handle for the stem, and a key-block forked for the respective engagement of the catch and of a key substantially as described.

6. A tube or housing having a lip, a spindle having a catch for engaging the lip, a lug on the spindle, and a bolt adapted to be engaged by the lug, said tube being slotted and said spindle having a handle or trigger extended through the slot substantially as described.

7. A door having a mortise, a bolt in the mortise, a spindle, and a lug on the spindle adapted to engage the bolt, said door having a slot or seat for the lug and said spindle being longitudinally movable to carry the lug from the slot to the bolt substantially as described.

604,952. BUTTON-GRINDING MACHINE. CHARLES L. AFTER, Muscatine, Iowa. Filed July 21, 1897. Serial No. 645,427. (No model.)



Claim.—1. In a machine for grinding pearl buttons, the combination of a horizontal disk, vertically-adjustable supports for said disk, and means for rotating it; with a vertically-disposed and upwardly-inclined endless button-carrier located below and extending beneath and to one side of the disk, adapted to carry button-blanks placed on its upper side to, under and against the disk, part of said carrier directly under the disk being arranged parallel with the surface of said disk, substantially as and for the purpose described.

2. In a button-grinding machine, the combination of a feed-table, a standard thereon, an arm attached to said standard having a sleeve on its outer end, a vertically-adjustable shaft journaled in said sleeve, means for rotating said shaft, and a horizontally-disposed abrading-disk secured on the lower end of said shaft: with an endless button-carrier extending from the table to the disk, the supporting-wheels for said carrier respectively located below the table and disk, said carrier being adapted to carry buttons from the table to the disk, for the purpose and substantially as described.

3. In a button-grinding machine, the combination of the table, a horizontal abrading-disk attached to the lower end of a vertical shaft journaled in the support attached to said standard, a wheel below said disk, a wheel below the table, an endless upwardly-inclined button-carrier running over said wheels, a guide for the upper portion of said carrier adapted to assist in guiding and retaining button-blanks thereon, said guide having its upper end extending parallel with the lower surface of the disk, and means for rotating said disk and said wheels, substantially as described.

4. In a button-grinding machine, the combination of an endless carrier, and a grinding-disk rotating in a plane at right angles to the plane of the carrier and adapted to operate upon the button-blanks as they are moved thereunder by the carrier and a guideway for the upper portion of said carrier extending under said disk, for the purpose and substantially as described.

5. In a button-grinding machine, the combination of the table, the standard mounted thereon, the adjustable arm attached to said standard having a sleeve on its outer end; and a vertical shaft mounted in said sleeve, and means for rotating said shaft; with a horizontal abrading-disk secured on the lower end of said shaft, a wheel below the disk, a wheel below the top of table, an endless carrier supported by said wheels and a guide extending along the upper part of said carrier from the table to the disk, all substantially as and for the purpose described.

604,958. READING ATTACHMENT FOR METERS. CAMILO L. ANDRUS, San José, Cal. Filed Dec. 1, 1897. Serial No. 660,572. (No model.)



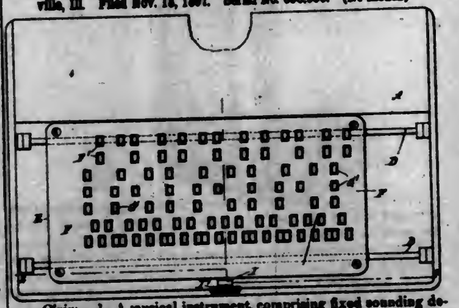
Claim.—1. A reading attachment for meters provided with an apertured plate, and a ring-shaped dial mounted to turn on the plate concentric with the aperture in the plate, to permit of viewing the meter-dial, and setting the said ring-shaped dial according to the position of the pointer on the meter, substantially as shown and described.

2. A reading attachment for meters provided with a revoluble ring-shaped dial formed with a point or projection for registering with the pointer on the dial on which the attachment is to be used, said pointer coinciding with the zero-mark on the ring-shaped dial, substantially as shown and described.

3. A reading attachment for meters comprising a plate having apertures for viewing the dials on the meters on which the attachment is to be used, and ring-shaped dials mounted to turn on the said plate, concentric with the said apertures, each movable dial being formed with a numeral graduation from zero upward, substantially as shown and described.

4. A reading attachment for meters comprising a plate having apertures for viewing the dials on the meters on which the attachment is to be used, and ring-shaped dials mounted to turn on the said plate, concentric with the said apertures, each movable dial being formed with a numeral graduation from zero upward, and each movable dial being provided with a fixed point projecting inward from the zero-mark, substantially as shown and described.

604,954. MUSICAL INSTRUMENT. BENJAMIN C. AUTER, Princeville, Ill. Filed Nov. 18, 1897. Serial No. 658,989. (No model.)



Claim.—1. A musical instrument, comprising fixed sounding devices, actuating devices for the same, keys for manipulating the said actuating devices, a slidable carriage containing the said keys and the said actuating devices, and a top plate for the said carriage, and having apertures through which project the heads of the said keys, the said apertures being arranged in rows indicating chords and scales, substantially as shown and described.

2. A musical instrument, comprising fixed sounding devices, actuating devices for the same, keys for manipulating the said actuating devices, a slidable carriage containing the said keys and the said actuating devices, a top plate for the said carriage, and having apertures through which project the heads of the said keys, the said apertures being arranged in rows indicating chords and scales, and means for shifting the said carriage to set the instrument to any desired key, as set forth.

3. A musical instrument provided with a slidable carriage, keys fulcrumed on the carriage and having their finger-pieces or heads arranged in rows indicating chords and scales, actuating devices pivotally connected with the said keys, and fixed sounding devices, substantially as described.

4. A musical instrument, comprising a box, sounding devices contained in said box, actuating devices for the same, keys for manipulating the said actuating devices, a carriage mounted to slide and containing the said keys and the said actuating devices, a top plate for the said carriage having apertures through which project the heads

of the said keys, the said apertures being arranged in rows indicating and chords and scales, a shaft journaled in bearings in the box and provided with a gear-wheel in mesh with a rack on the carriage, a ratchet-wheel on the said shaft, and a spring-pressed pawl attached to the box and engaging the ratchet-wheel, substantially as set forth.

5. A musical instrument, comprising sounding devices, actuating devices for the same, a slidable carriage containing the said actuating devices, and keys for manipulating the actuating devices, the said keys being fulcrumed in the carriage and pivotally connected at their lower ends with the said actuating devices, substantially as shown described.

604,955. BICYCLE-SADDLE. FREDERICK C. AVERY, Toledo, Ohio. Filed Apr. 7, 1898. Serial No. 676,554. (No model.)



Claim.—1. A bicycle-saddle consisting of a seat portion, a cantle, a pommel-clip, and an intermediate bearing-plate connected to said seat portion, means for connecting the intermediate plate to the cantle to support the rider, and means for connecting the intermediate bearing-plate with the pommel-clip in a yielding manner said intermediate plate being practically rigid substantially as and for the purpose described.

2. A bicycle-saddle having a central bearing-plate and a cantle-plate supports connecting the two, an independent pommel part, and a spring connecting the pommel or front part to the rigid part of the saddle and made adjustable substantially as shown and described.

604,956. LETTER-BOX. PETER S. BATES, York, Pa., assignor of three-fourths to Edwin W. Loucks, same place. Filed Nov. 23, 1897. Serial No. 659,003. (No model.)



Claim.—1. A mail-box comprising the two front compartments arranged side by side and provided with suitable openings, a compartment in rear of and coextensive with said front compartments, said rear compartment being open at top and bottom, and flaps closing said open top and bottom, substantially as described.

2. A mail-box comprising two compartments with openings thereto, an indicator for each compartment, a movable slide covering enlarged openings in each compartment, a movable bottom-plate and connection therefrom to the indicator, substantially as described.

604,957. ELEVATOR SAFETY DEVICE. WALTER R. BENNETT, Carbondale, Pa., assignor to the Hendrick Manufacturing Company, Limited, same place. Filed May 20, 1897. Serial No. 637,372. (No model.)



Claim.—In a safety device for elevators, having the operating rope on the latch side of the hoistway-door, the combination of a car, a bell-crank lever attached thereto, a roller on one end of said bell-crank lever adapted to roll upon the hoistway-door when said door is moved, a lever upon the opposite side of the car, said lever having a clutch for the operating-rope at one end thereof, and an adjustable connection between the ends of said levers, substantially as set forth.

604,958. PESSARY. LORENZ F. RISSMEYER, Westphalia, Mo. Filed Jan. 4, 1898. Serial No. 665,880. (No model.)



Claim.—1. In a pessary, the combination of a tubular stem, a cup removably mounted on the upper end thereof, wings extending laterally from said stem and having shanks extending into the latter, and a spring-supported plunger externally operated through said stem for adjusting the wings, substantially as described.

2. A pessary having a stem, a cup removably mounted on the upper end thereof, a pair of wings pivoted to said stem below the cup, a yielding plunger, a divided plunger-rod, a spring interposed between the parts of said rod, and means for adjusting the tension of said spring, substantially as described.

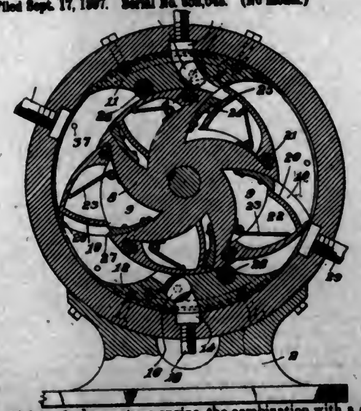
3. A pessary comprising a tubular stem, a cup removably connected with the upper end thereof, wings pivoted in a transverse opening in said stem and provided with hollow extensions or shanks adapted to pass by each other, a spring-actuated plunger acting upon said shanks, and means for adjusting the tension of said spring, substantially as described.

604,959. MANUFACTURE OF GLASSWARE. GEORGE W. BLAIR, Pittsburg, Pa. Filed Mar. 27, 1897. Serial No. 630,505. (No model.)



Claim.—The method of making glass articles, which consists in forming a blank with a neck portion and a body portion by pressing, expanding the body portion by blowing, and then cutting off the said neck portion and an adjacent part of the blown body portion, and from the remainder of the body portion constituting the finished article, substantially as described.

604,960. ROTARY ENGINE. PIERRE J. BOBIN, Boston, Mass. Filed Sept. 17, 1897. Serial No. 652,048. (No model.)



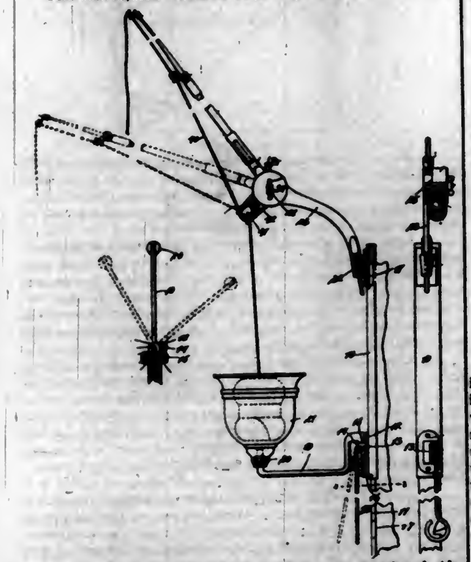
Claim.—1. In a rotary engine, the combination with a cylinder, a shaft, a rotary piston on the latter, of a series of pivoted heads carried by the said piston, diametrically-disposed abutments within the cylinder having curved steam-passages therein running in reverse directions, valves controlling the said steam-passages, cams for operating the said valves, means carried by the said piston for actuating the valves and cams, and diametrically-opposed exhausts situated intermediate the said abutments.

2. The combination with a cylinder provided with ingress and exhaust ports, of a shaft, a rotary piston on said shaft provided with a series of pivoted piston-heads, valves controlling the ingress-ports, valve-cams connected to said valves, independently-pivoted cut-off cams connected to said valve-cams, and means carried by the said piston for actuating the valves and valve-cams automatically in alternation, substantially as specified.

3. The combination with a cylinder provided with diametrically-opposed abutments having steam-passages therein running in reverse directions therethrough and adapted to be alternately opened and closed, antifrictional rollers carried by the said abutments, and valves controlling the said steam-passages, of a rotary piston consisting of circular plates movable upon the opposite sides of the abutments, a cylindrical head-carrier intermediate the plates, a series of spring-actuated pivoted heads on the said head-carrier adapted to be automatically forced outwardly and moved inwardly by the said abutments, and pins or rollers on the said plates for operating the said valves, substantially as specified.

4. The combination with a cylinder provided with ingress-ports and exhaust-ports, of rotary controlling-valves in the ingress-ports, valve cams connected thereto independently-pivoted cut-off cams in advance of the valve-cams, linkage intermediate of the cut-off valve-cams, a rotary piston and means carried thereby for successively actuating the valve and cut-off cams, substantially as specified.

604,961. TWINE-HOLDER. FRANK BENSON, Ellensburg, Wash. Filed June 25, 1897. Serial No. 642,220. (No model.)



Claim.—1. The combination of a disk having a ratcheted side flange with a break therein, a rod passed and movable through the break in the flange, a pin carried by the disk and pivotally mounting the rod on the disk, a cap having a projection capable of engaging with the ratchet-teeth of the flange on the disk whereby to adjustably hold the cap on the disk, and a spring coiled around the pin of the disk and connected with the cap and with the rod.

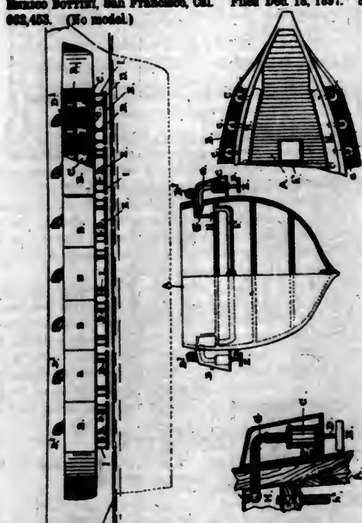
2. The combination of a carriage-plate, capable of sliding vertically to adjust the position thereof, a lever mounted on the carriage-plate and movable to lock and release the carriage-plate, the carriage-plate having two sockets therein, the sockets being located respectively at the upper and lower portions of the carriage-plate, an arm mounted to swing in the lower socket, a twine-cup carried on the arm, and a tension device mounted to swing in the upper socket and overhanging the twine-cup.

3. The combination of a carriage-plate, a tension device supported by the upper portion of the carriage-plate, a block attached to the lower portion of the carriage-plate and having a recess therein, and a lever fulcrumed within the recess and supported by the carriage-plate, the lever having a long arm and a short arm, such arms running parallel with each other, and the short arm forming a locking-pin capable of holding the carriage-plate stationary.

4. A tension device having a plate provided with a ratcheted peripheral flange, one side of which flange is broken away, a pin rigidly secured to the plate and centrally with reference to the flange, an arm mounted to swing on the pin, a cap engaging the flange of the plate and held from turning by the ratchet-teeth thereof, the cap also having connection with the pin, and a spring coiled around the pin and having connection with the swinging arm and with the cap.

5. The combination of a plate having a circular flange, and having a pin central with reference to the flange, the flange having a break therein, an arm mounted to swing on the pin and extended to the break in the flange, a cap engaging the flange to inclose the pin, and a spring inclosed between the cap and plate, the spring having connection with the arm whereby to actuate the same.

604,962. AIR-COMPRESSING APPARATUS FOR VESSELS. BENICO BOTTINI, San Francisco, Cal. Filed Dec. 18, 1897. Serial No. 662,453. (No model.)



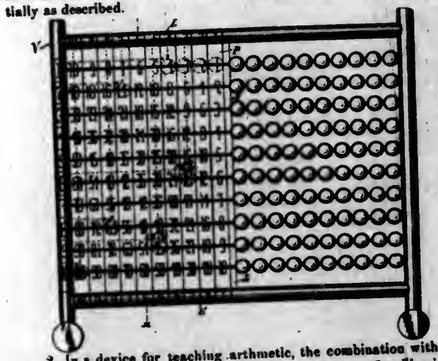
Claim.—1. The combination in and with a vessel, of air-receiving compartments arranged exteriorly on the hull and communicating with the atmosphere; air-pumps in said compartments provided with inlet-ports and pressure or discharge ports and having piston-rods extending through the bottoms of the compartments; floats beneath said compartments having rising-and-falling movements under the impact of the waves from beneath, said floats being connected to the piston-rods; storage tanks within the vessel and air-conductors connecting the discharge-ports of the pumps with said tanks, and check-valves in said connections, constructed for operation as set forth.

2. In an air-compressing apparatus for vessels, the combination of a compartment located exteriorly of the hull having communication with the atmosphere; an air-pump in said compartment provided with inlet-ports and discharge-ports; a storage-tank; an air-conductor connecting the discharge-port of the pump with the storage-tank and having a check-valve; and a float beneath the pump-containing compartments connected to the piston-rods of the pump, and adapted to rise and fall under the impact of the waves acting against said float from beneath, substantially as described.

604,963. APPARATUS FOR TEACHING ARITHMETIC. ANTON R. BERNE, Gratitz, Austria-Hungary. Filed Nov. 1, 1897. Serial No. 657,092. (No model.)

Claim.—1. In a device for teaching arithmetic, the combination with a frame, of ten wires carried thereby, each of said wires being provided with ten adjustable balls, a numerical table attached to the back of the frame and having figures, the products of the numbers

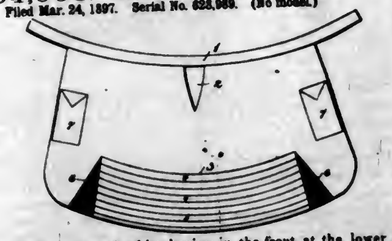
from "1" to "10," arranged thereon in ten horizontal and ten vertical rows, the top and bottom bars of the frame having numbers from "10" to "1" arranged thereon opposite the ends of the vertical rows of figures on the table, and the side bar V of the frame having numbers from "1" to "10" arranged thereon opposite the ends of the horizontal rows of figures on the table, said horizontal and vertical rows of figures on the numerical table, showing at their points of intersection, the products of the figures opposite their ends on the side bar V and end bars, respectively, of the frame, to which points of intersection the balls on the wires are adapted to be moved, substantially as described.



2. In a device for teaching arithmetic, the combination with a frame, of a numerical table attached to the back thereof and having a series of numbers arranged thereon in vertical and horizontal rows, and a series of numbers arranged on the bars of the frame opposite the ends of the vertical and horizontal rows of numbers on the numerical table, said vertical and horizontal rows of numbers on the numerical table being the products of the numbers opposite their ends on the bars of the frame, substantially as described.

3. In a device for teaching arithmetic, the combination with a frame, of a numerical table attached to the back thereof and having a series of numbers arranged thereon in vertical and horizontal rows, a series of numbers arranged on the bars of the frame opposite the ends of the vertical and horizontal rows of numbers on the numerical table, said vertical and horizontal rows of numbers on the numerical table being products of the numbers on the bars of the frame, and a writing-tablet attached to the back of the numerical table, substantially as described.

604,964. UNDERSKIRT. SARAH CAIN, Huntington, W. Va. Filed Mar. 24, 1897. Serial No. 628,969. (No model.)



Claim.—An underskirt having in the front at the lower part thereof a series of parallel, horizontally-extending pockets or compartments, strips of thin, flat, resilient material secured therein, and an elastic gusset at each end of said series of pockets, for the purpose and substantially as described.

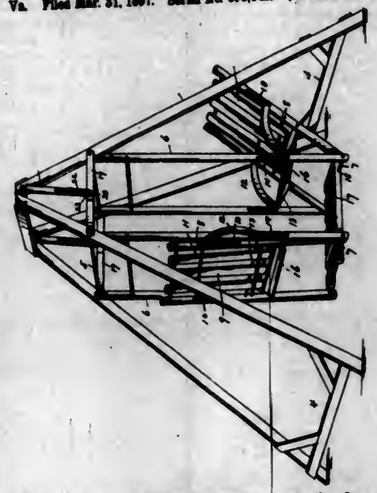
604,965. COMBINATION POTATO-MASHER, KETTLE-CLEANER, AND VEGETABLE-FORK. ALONZO H. CARTWRIGHT, Amy, Wis. Filed May 11, 1897. Serial No. 635,963. (No model.)



Claim.—1. A combined implement of the character set forth, comprising a sleeve, a combined potato-masher and kettle-cleaner adapted to be removably attached to one end of the sleeve, and a fork detachably inclosed within the said sleeve and inserted and withdrawn through the opposite end thereof, said sleeve serving both as a sheath for the fork and as a handle for the potato-masher, substantially as and for the purposes specified.

2. In a device of the character set forth, the combination with a sleeve, of a fork removably mounted therein and having a portion of the handle adapted to lie flush with the said sleeve, and a combined masher and scraper having a shank or stem adapted to be inserted and secured in the opposite end of the sleeve, substantially as and for the purposes specified.

604,966. PORTABLE SWING. WIRT A. CRISTERMAN, Richmond, Va. Filed Mar. 31, 1897. Serial No. 630,048. (No model.)



Claim.—1. In a swing, a pivotally-supported swing-frame, a back for the seat pivoted to the swing-frame, a seat pivoted to the back and slidingly connected to the swing-frame, and arms pivoted to the forward end of the seat and slidingly connected at opposite ends to the swing-frame and back respectively.

2. In a swing, a pivotally-supported swing-frame having elongated slots therein, a back for the seat pivoted to said frame, and having elongated slots therein, a seat pivoted to the back, arms for the seat, a rod pivotally connecting the said arms with said seat, and adapted to move in the elongated slots in the swing-frame, and a similar rod connecting the opposite ends of said arm and adapted to move within the slots in said back.

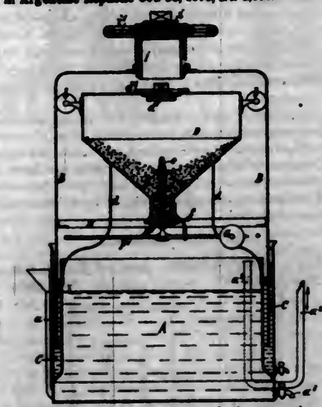
3. A portable swing, comprising supporting-standards, adapted to be folded together, swing-frames pivoted to said standards and depending therefrom, backs pivoted at their lower ends to the swing-frames, seats pivoted to the backs at one and and slidingly mounted upon the swing-frames at their opposite ends, arms pivoted at one end to the seats, and at their opposite end slidingly connected to the backs, and means for connecting the swing-frames so that they move together, substantially as set forth.

4. A portable swing comprising supporting-standards adapted to be folded together, swing-frames pivoted between said standards and provided with longitudinal slots adjacent their lower ends, backs having their side pieces pivoted to the swinging frames at their lower ends and formed with longitudinal slots adjacent their upper ends, seats pivoted at one end to the backs, rods movable in the slots of the swinging frames to which are attached the opposite ends of the seats, arms pivoted to the rods, rods movable in the slots of the backs to which the opposite ends of the arms are pivoted, and means for detachably connecting the swing-frames whereby they move together, substantially as set forth.

5. A portable swing comprising standards adapted to be folded together, swing-frames pivoted between the standards and having their side pieces formed with longitudinal slots adjacent their lower ends, backs having their side pieces pivoted to the swing-frames at their lower ends and having longitudinal slots adjacent their upper ends, rods movable in the slots of the side pieces of the backs, arms pivoted to said rods, rods movable in the slots of the swing-frames to which the opposite ends of the arms are pivoted, seats pivoted between the side pieces of the back at one end and attached to the rods, connecting the arms to the swing-frames, and a platform pivoted to the lower end of one of the swing-frames and adapted to engage the opposite swing-frame, substantially as set forth.

6. A portable swing comprising supporting-standards adapted to be folded together, arms pivoted at one end to the standards and provided with slots adjacent their ends, brace-rods pivoted to the standards, bolts movable in the slotted arms and uniting the opposite brace-rods, whereby when the standards are folded the brace-rods move upon the slotted arms, swing-frames pivoted between the standards, and swings carried thereby, substantially as set forth.

604,967. ACETYLENE-GAS APPARATUS. DANIEL H. CHIVERS, Neuilly-sur-Seine, France. Filed Sept. 19, 1896. Serial No. 606,236. (No model.) Patented in France Feb. 1, 1896, No. 253,680, and Aug. 19, 1896, No. 254,894; in Belgium Apr. 7, 1896, No. 120,742; in England Aug. 22, 1896, No. 19,050; in Austria Aug. 31, 1896, No. 46/3964; in Hungary Sept. 3, 1896, No. 7,168; in Italy Sept. 4, 1896, No. 42,441; in Spain Sept. 5, 1896, No. 19,608; in Portugal Sept. 26, 1896, No. 2,315, and in Argentine Republic Oct. 30, 1896, No. 1,957.



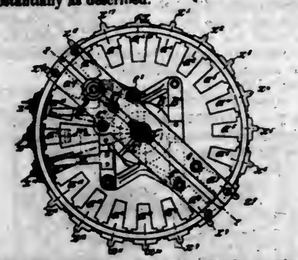
Claim.—1. In an apparatus for producing acetylene gas comprising a water-reservoir and a bell or gasometer covering said reservoir in an air-tight manner and including a fixed container for crushed carbid, the combination therewith of a valve E in the form of a cupel and arranged and guided in the discharge-orifice of the container and operated by means of a hinged and counterweighted lever F, the end of which lever is adapted to be engaged by an annular projection or strip H on the interior of the bell, substantially as hereinbefore described and shown.

2. In an apparatus for producing acetylene gas comprising a water-reservoir, a bell or gasometer covering said reservoir in an air-tight manner and including a fixed container for crushed carbid, the combination therewith of a movable chamber I by means of an air-tight joint in an opening formed in the bell above the filling-orifice of the container in such a way as to form when lowered a tight joint on the said reservoir and of the stoppers *i*, *d'*, adapted to the said chamber and container respectively for the introduction of the crushed carbid into the container, substantially as hereinbefore described and shown.

3. In an apparatus for producing acetylene gas, a water-reservoir A, a bell or gasometer B covering the said reservoir, a container D for crushed carbid fixed to the reservoir A and having rollers *b* for guiding the bell, a valve E guided by a sheath or socket *e* arranged vertically in the center of the orifice for discharging the carbid, a chamber I screw-threaded at the top of the bell to form an air-tight joint at the top of the container and stoppers *i*, *d'*, arranged in the chamber I and container D respectively, substantially as described and shown.

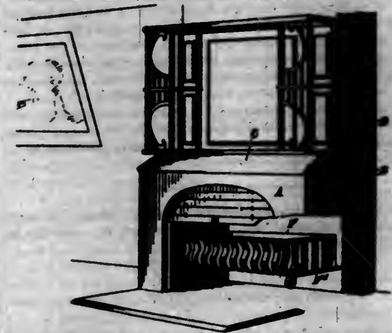
604,968. AUTOMATIC CURRENT-DISTRIBUTER FOR ELECTRIC RAILWAYS. JEAN CLARET and OLIVIER VEILLEUX, Paris, France. Filed May 4, 1897. Serial No. 636,057. (No model.) Patented in France June 8, 1896, No. 248,015, and Nov. 18, 1896, No. 251,782; in Germany Nov. 27, 1896, No. 93,856; in Switzerland Dec. 2, 1896, No. 11,712, and in Spain Feb. 4, 1896, No. 18,698.

Claim.—1. A distributer for an electric railway having a series of switches to be connected to the spaced contacts of the railway contact-arms, such as *m*, *n* and *n'*, to contact with said switches, the spacing of the axes of these contact-arms being less than the spacing of the axes of said switches, and an electric motor to move said arms, the motor-armature having a commutator provided with fingers electrically connected with the coils of the electromagnets of the motor, and contacts for the said fingers electrically connected with the arms *n n'*, all substantially as described.



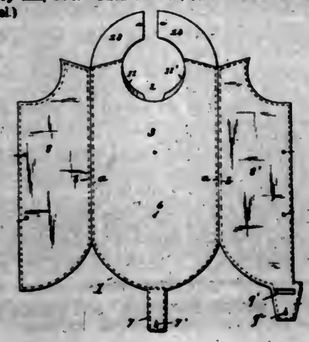
2. A distributer for an electric railway, having a series of switches to be connected to the spaced contacts of the railway, contact-arms, such as *m*, *n* and *n'*, to contact with said switches, the spacing of the axes of these contact-arms being less than the spacing of the axes of said switches and an electric motor whose armature has a commutator provided with fingers electrically connected with the coils of the electromagnets of the motor in combination with contacts for said fingers electrically connected with the arms *n* and *n'*, a toothed driving-wheel to move the contact-arms and pawls to act on the wheel and acted on by the commutator from the motor, substantially as described.

604,969. FIREPLACE-GRATE. SAMUEL L. COOK, Jacksonville, Fla. Filed June 2, 1897. Serial No. 639,103. (No model.)



Claim.—The combination with a fireplace provided with a stationary shelf or bracket G on its rear face, with the rollers H and H' journaled on pins projecting from the sides of the fireplace, the roller H being located above and slightly inside of the roller H', and the grate-basket provided with laterally-projecting bottom flanges having curved front ends, the rear portion of the grate-basket being shaped to rest upon the brackets G, and the curved portion of the flanges to rest between the rollers H and H', located as aforesaid, for the purpose set forth.

604,970. DETACHABLE SHIRT-BOSOM. JOHN W. COOPER, Cherry Hill, N. J. Filed Nov. 10, 1897. Serial No. 658,058. (No model.)



Claim.—A false or detachable shirt-bosom, consisting of a body portion in the form of a bosom-front and provided at its lower end with a tongue having a buttonhole, and side flaps adapted to be folded over upon the face of the body portion, one of said flaps being provided at its lower end with a tongue having a buttonhole and an opening through which the tongue on the said body portion is adapted to be passed, substantially as described.

604,971. PACKING-AUGER. JOHN B. CORNWALL, Moline, Ill., assignor to the Barnard & Leas Manufacturing Company, same place. Filed Jan. 27, 1898. Serial No. 668,216. (No model.)



Claim.—1. A rotary packing-auger having a packing-blade provided with a plurality of packing-surfaces on its under side substantially as described.

2. A packing-auger having a spirally-inclined packing-blade, provided with a secondary packing-surface on its under side intermediate its ends, substantially as described.

3. A rotary packing-auger consisting of a single spiral having a feed-opening at one side only and a plurality of packing-surfaces on its under side substantially as described.

4. A single continuous spiral packing-auger having two packing-surfaces on its under face, the lower edges of said surfaces being diametrically opposed, substantially as described.

5. A packing-auger having a single incline on its upper face and a plurality of packing-surfaces on its under face, substantially as and for the purpose described.

6. A packing-auger having a single incline on its upper face and a plurality of packing-surfaces on its under face and only one feed-mouth, substantially as and for the purpose described.

7. A packing-auger having a single incline on its upper face, diametrically opposite packing-surfaces on its under face, and one feed-mouth, substantially as and for the purpose described.

8. The combination of the packing-tube and a rotary shaft; with a single-mouth spiral packing-auger on said shaft having a single incline on its upper face and two inclines or packing-surfaces on its lower face, substantially as described.

604,972. WIRE-FENCE TOOL. HUGH W. DENISON, Gebhart's, Pa., assignor of one-half to J. C. Lowry, Somerset, Pa. Filed Mar. 28, 1896. Serial No. 675,463. (No model.)



Claim.—1. A wire-fence tool having a shank, a head carried thereon, and two angular lugs projecting from one face of the head and arranged in proximity with each other, the lugs having portions cut away at their corners to produce plane surfaces, by which angles may be formed in the wire as the wire is crimped by the action of the tool.

2. A wire-fence tool having a head, a shank carrying the head, the head being provided with a slot extending through to one edge thereof, a splicing-lug projecting from one side of the head adjacent to the inner end of the lug and having an undercut portion, and two crimping-lugs projecting from the opposite side of the head, the crimping-lugs being angular in general contour and having their edges cut away to produce plane surfaces.

3. A wire-fencing tool having a shank, a head attached to one end of the shank and two angular crimping-lugs located rigidly on one face of head and adjacent to each other.

4. A wire-fencing tool having a shank, a head attached to one end of the shank and having a slot therein, a splicing-lug attached rigidly to one face of the head adjacent to the slot and two angular crimping-lugs attached rigidly to the opposite face of the head.

604,978. GRIPPING MECHANISM. ALVA C. DERRY, Munhall, Pa. Filed Feb. 23, 1897. Serial No. 624,628. (No model.)

Claim.—1. The combination with an element having at one end an open-ended socket, of a movable bar having a head arranged to move endwise directly into the socket, and a locking mechanism arranged to rigidly connect the bar and socket.

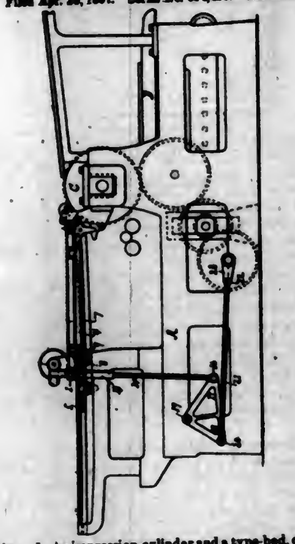


2. The combination with an element to be operated, having at one end an open-ended socket with inclined inner faces, of a bar movable endwise directly into the socket and having a head provided with inclined faces arranged to slide over the inclined faces of the socket and fit therein, a locking mechanism arranged to rigidly lock the head to the socket, and means for unlocking the head in any position of the element.

3. The combination with an element, having at one end an open-ended socket, of a bar having a head movable endwise directly into the socket, locking-levers in the head arranged to engage recesses in the sides of the socket and rigidly lock the head therein and means for positively moving said levers to lock or unlock the head in any position of the element.

4. The combination with a charging-box, having at one end an open-ended socket provided with inclined inner faces, of a charging-bar having a head provided with inclined outer faces arranged to fit within the socket, locking-levers pivoted within the head and arranged to enter recesses in the socket and rigidly lock the head therein, and means for positively moving said levers in any direction in any position of the box.

604,974. PRINTING-PRESS. GEORGE P. FISHER, New London, Conn. Filed Apr. 20, 1897. Serial No. 634,436. (No model.)

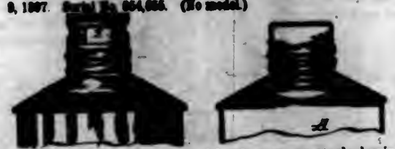


Claim.—1. An impression-cylinder and a type-bed, combined with a tape-carriage, and a sectional track or way for the carriage, one of the track-sections comprising rails fixed at a distance from the cylinder and the other track-section comprising rails slidably mounted alongside the fixed rails and of a length greater than the space between said fixed rails and the cylinder, so that when the movable rails are run to the cylinder said movable rails partly overlap or are held by said fixed rails, and said carriage having wheels arranged to run, respectively, on the fixed and movable rails, so that when the carriage has been run away from the cylinder, the movable rails can be moved along under the carriage away from the cylinder without disturbing such carriage, substantially as described.

2. An impression-cylinder and a type-bed, combined with a tape-carriage, a hooked actuating-rod for the carriage, an actuating-lever having a stud provided with a head and made to receive said rack-hook between said head and lever, a sleeve slidably mounted on the head and adapted to move toward and clasp the rack-hook when the latter engages the stud, and a fastening-screw on said head made to engage the sleeve, substantially as described.

3. An impression-cylinder and a type-bed, combined with stop-fingers, a carriage made to pass from the cylinder under the fingers and beyond the latter, and tapes actuated by the carriage so as to be extended from the impression cylinder under and beyond the fingers and to receive a sheet fed from the cylinder and then to carry said sheet into position for delivery from the tapes, said stop-fingers being made to dip between the tapes after the latter have been extended under and beyond the fingers, and arranged to arrest a sheet on the tapes after each sheet has been fed from the impression-cylinder and prior to its advance into position for delivery from the tapes, substantially as described.

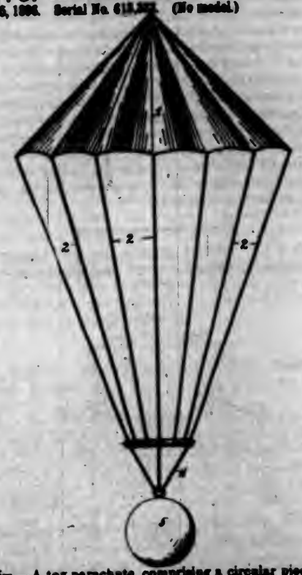
604,975. BOX OR CAN. ALAN R. FERGUSON, Baltimore, Md., assignor to Henry P. Miller and George Miller, same place. Filed Oct. 9, 1897. Serial No. 654,685. (No model.)



Claim.—1. The combination with a box or receptacle having a restricted neck, of a measurer mounted in said neck so as to be capable of longitudinal movement therein, said measurer being hollow and closed at both ends and having a slot in its wall adapted to communicate with the interior of the box or receptacle and terminate within the neck when said measurer is closed, and to extend beyond the neck and close communication with the interior of the box or receptacle when the measurer is open, said measurer being constructed to so cooperate with the neck as to limit the extent of movement of the former in both directions.

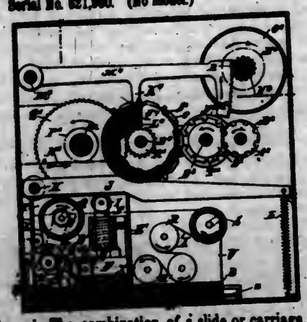
2. The combination with a receptacle and a screw-threaded neck thereon, of a measurer having a corrugated or screw-threaded wall adapted to mesh with the screw-threaded neck, said measurer closed at both ends and having a slot in said corrugated or screw-threaded wall, the neck and measurer being so proportioned relatively to each other that when the measurer is screwed outwardly the slot will project beyond the end of the neck and so that when screwed inwardly the outer end of the slot will be closed and the inner end be in communication with the interior of the receptacle, substantially as set forth.

604,976. PARACHUTE. CARRIE G. FISHER, Fulton, Ohio. Filed Nov. 26, 1896. Serial No. 613,372. (No model.)



Claim.—A toy parachute, comprising a circular piece of flexible fabric, cords attached to the edge thereof at suitable intervals, a ring to which the opposite ends of the cords are attached, a solid ball or sphere of heavy material suspended from the ring by cords, and a small ring on the ball or sphere to which the suspending-cords are attached and through which the peak of the fabric is passed when the device is rolled or wrapped around the ball, as herein shown and described.

604,977. APPARATUS FOR COPYING, REGISTERING, CHECKING, AND ADDING. JULES FEYDMANN, Paris, France. Filed Feb. 4, 1897. Serial No. 621,980. (No model.)



Claim.—1. The combination of a slide or carriage, a board or holder having movable projections or plates for operating the carriage, and a registering apparatus operated by those plates which have been moved out of their normal position, substantially as described.

2. The combination of the slide or carriage, the board for operating the carriage and having a series of movable plates, a controlling device, a registering device, and an adding device operated by those plates which have been moved out of their normal position, substantially as described.

3. The combination of the board having pivoted plates, the slide or carriage constructed to receive said board, a movable frame and rods carried by said frame and arranged to project into the path of the said plates when the latter are moved out of their normal position, substantially as described.

4. The combination of the operating-board having projections, the carriage constructed to receive said board, the movable frame, the rods carried by said frame, the incline arranged to effect a downward movement of the frame when the carriage is moved inward, bars provided with inclined guideways and carried along by the said rods when the latter are operated by engagement with the projections on the operating-board, substantially as described.

5. The combination of the carriage, the movable frame, the rods carried thereby, the bars engaged by the rods, the racks connected to said bars, pinions engaging said racks, a controlling device and an adding device operatively connected to said pinions, substantially as described.

6. The combination of the carriage, the longitudinally-movable shaft shifted by the forward movement of the carriage, wheels loosely mounted on said shaft, a parallel shaft carrying wheels in the form of a Maltese cross, the wheels on said parallel shaft being moved into or out of engagement by the longitudinal movement of the first-named shaft, and an adding device connected to the wheels on the second-named shaft, substantially as described.

7. The combination of the carriage, the frame operated thereby, the rods carried by said frame, the board having projections for engaging said rods, mechanism operated by the rods, and a stop secured to the said frame and adapted to engage the said board for the purpose of preventing its withdrawal until after the completion of the operation, substantially as described

8. The combination of the carriage and apparatus operated thereby with an operating-board having movable projections, and yielding stops or levers secured to the frame of the apparatus and adapted to engage said projections the stops yielding in one direction only and being adapted to shift the projections back to their original position upon the withdrawal of the board, substantially as described.

9. The combination of the carriage, the board carrying a pad and movable projections or plates, a copying-head adapted to be fed over the pad, a compressor adapted to press said head upon the pad, and a numbering and dating stamp adapted for engagement with the said head and with the pad, substantially as described.

10. The combination of the carriage and the adding device operated thereby, said device comprising wheels consisting of disks divided into segments of different diameters and forming steps, each step being prolonged laterally by a portion of equal diameter and

levers engaged by said wheels and adapted to move the numbered disks, substantially as described.

11. The combination of the carriage and the adding device operated thereby, said adding device comprising step-wheels, levers operated by said wheels, controlling-disks actuated by the levers, impression-rollers rigid with said controlling-disks, and a registering-band upon which said rollers are adapted to print, substantially as described.

12. The combination of the carriage and the adding device operated thereby, said adding device having impression-rollers, a registering-band on which said rollers are adapted to print, and a lever receiving its movement from the carriage and operatively connected to the said band to feed it forward and to the impression-rollers to bring them against said band, substantially as described.

13. A recording apparatus comprising copying, recording, checking and indicating mechanism, and an actuating-board constructed to be inserted from the exterior of the apparatus, substantially as described.

14. A recording apparatus comprising copying, recording, checking, indicating and adding devices, and an actuating-board for operating the apparatus, said board having a plurality of plates or projections pivoted thereon and capable of actuating the mechanism, substantially as described.

15. The combination with a casing, of a movable rod-carrier, a plurality of rods slidable in the rod-carrier, and recording mechanism actuated by the rod, substantially as described.

16. The combination with a casing, of a carriage slidable thereon, a plurality of rods slidably mounted on the carriage, a rack-bar capable of being operated by the rods, and recording mechanism operated from the rack-bar, substantially as described.

17. The combination with a casing, of a carriage slidable thereon, a plurality of rods mounted to move independently on the carriage, a sliding rack-bar, and operating devices connected to the rack-bar and having a detent capable of being engaged by the rods, and recording mechanism operated from the rack-bar, substantially as described.

18. The combination with a casing, of a carriage slidably mounted on the casing, a plurality of rods mounted to move independently on the carriage, a rack-bar slidably mounted on the casing, an operating device in connection with the rack-bar and having a detent adapted to be engaged by the rods, the operating device moving in diagonal guides, and recording mechanism operated from the rack-bar, substantially as described.

19. The combination with a casing, of a carriage slidably mounted on the casing, a series of independently-movable rods carried by the carriage, a rack-bar slidably mounted on the casing, mechanism driven from the rack-bar, and an operating device slidable with the rack-bar and movable transversely independently of the rack-bar, the operating device having transversely-slidable connection with the rack-bar and being capable of being operated by engagement with the rods, substantially as described.

20. The combination of a slidable rack-bar, an operating device slidable with the rack-bar and moving transversely independently of the rack-bar, the operating device having transversely-slidable connection with the rack-bar, and means for sliding the said operating device, substantially as described.

21. The combination of a slidable rack-bar, an operating device having a diagonal slot therein and having transversely-slidable connection with the rack-bar, a stationary member coacting with the slot of the operating device to move the operating device transversely independently of the rack-bar, and means for moving the operating device, substantially as described.

22. A recording apparatus operated by an actuating-board with movable projections, the recording apparatus having means for returning the projections for operating said apparatus to a normal position upon the withdrawal of the board from the apparatus, substantially as described.

23. The combination with a recording apparatus, of a carriage movable therein and carrying operative parts, a spring tending to normally draw the carriage to an inactive position, and means for holding the carriage in an active position during the operation thereof, substantially as described.

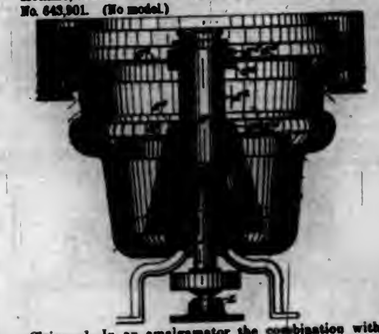
24. The combination with a casing, of a carriage slidable therein and having the parts movable thereon, a pivoted cam member adapted to have the movable parts of the carriage engaged therewith, and a spring holding the cam member in a normal position and permitting a yielding of the cam member, substantially as described.

25. The combination of a lever, a sector carried thereon, gearing engaged with and driven by the sector, and a disk provided with a series of cammed surfaces serving to operate the lever, substantially as described.

26. The combination of a lever, a sector at the end of the lever, gearing engaged with and driven by the sector, and a cam the periphery of which is formed with a series of graduated cams such cams being capable of operating the lever to various extents, substantially as described.

604,978. CENTRIFUGAL AMALGAMATOR AND SEPARATOR.

CHARLES L. GARLAND, Sydney, and JOHN MURRAY and SAMPSON R. MURRAY, Cowra Creek, New South Wales. Filed July 6, 1897. Serial No. 643,901. (No model.)



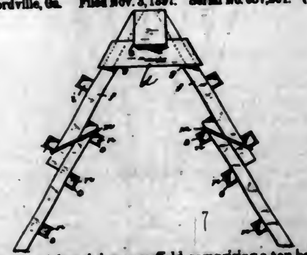
Claim.—1. In an amalgamator the combination with a bowl mounted on a central, hollow shaft having a feed-hopper, emptying into its upper end, the lower portion of said shaft having slots for the passage of the material, of a part mounted on said hollow shaft and having the shape of a truncated hollow cone, an amalgamating-plate upon the inner face of said part, and one or more circular plates, or disks, mounted on said hollow shaft above the cone-shaped part, and having their edges projecting into a corresponding number of catch-grooves, or traps, formed of the wall of the bowl which projects outward beyond the normal diameter of the latter, substantially as described.

2. In an amalgamator the combination with a hollow shaft having slots near its lower end and a feed-hopper communicating with its upper end, of a bowl mounted on and rotating with the shaft, a part mounted on said shaft and having the form of a hollow truncated cone, the closed truncated end lying above the slots in the hollow shaft, an amalgamated plate upon the inner face of said part, the lower edge of the latter being above the bottom of the bowl, and a disk, or circular plate, mounted on said shaft and projecting at its edge into a catch-groove, or trap extending beyond the outer surface of the bowl and entirely around the same, substantially as described.

3. In an amalgamator, the combination with a vertical hollow shaft having slots at its lower end and a feed hopper at the upper end, of a bowl mounted on said shaft below the slotted end, a part having the form of a hollow truncated cone having its truncated closed end mounted on the shaft above the slots in the lower end, an amalgamating-plate on the inner face of said part, the lower open end of the latter being above the bottom of the bowl one or more disks or circular plates on said shaft above the said truncated end, the outer edge or edges thereof lying in one or more circular catch-grooves or traps in said bowl which project outward, a splash-ring mounted on the lower face of each of said disks at a little distance from the inner face of the bowl and a circular launder, or trough surrounding and partly inclosing the upper edge of the bowl, and the upper catch-groove, substantially as described.

604,979. COMBINATION-SCAFFOLD.

JAMES V. GARRETT, Crawfordville, Ga. Filed Nov. 3, 1897. Serial No. 657,361. (No model.)



Claim.—1. A knockdown scaffold comprising a top beam having converging transverse slots, a block having a recess adapted to receive the beam, slots formed in the block registering with those of the beam, and legs passed convergingly through the slots of the block into those of the beam.

2. A knockdown scaffold comprising a top beam having converging transverse slots, a block having a recess in its upper face adapted to receive the beam, slots formed in the block registering with those of the beam, and legs passed convergingly through the slots of the block into those of the beam, said legs having shoulders engaging the under side of the block.

3. A knockdown scaffold comprising a top beam having converging transverse slots in its opposite sides, a block having a recess in its upper face adapted to receive the beam, converging slots formed in the block registering with those of the beam, and legs in pairs passed through the slots of the block into those of the beam.

4. A knockdown scaffold comprising a top beam having converging slots on opposite sides, a block having a recess in its upper face adapted to receive the beam, converging slots formed in the block registering with those of the beam, legs in pairs passed through the slots of the block and into those of the beam, rungs secured to each pair of legs, supplemental legs arranged in pairs and connected through the medium of rungs, and straps passed above a rung of each pair of supplemental legs, round said legs and round the corresponding main legs below a rung thereof.

604,980. GOLD-WASHER.

CHARLES GEISER, Rapid City, S. D. Filed June 12, 1896. Serial No. 595,329. (No model.)



Claim.—1. In a gold-washer, a gold-pan comprising an outer body or rim, a flat bottom of smaller diameter than the body and situated in a higher plane than the bottom edge of the latter, and an inclined flange located inside the rim or body and connecting the bottom with the lower edge of said body, said flange being provided with vertically-disposed slots.

2. In a gold-washer, the combination with a support, of a tub on the support, a foldable crane-post connected to the support and adapted to retain the tub on the latter, a crane connected to the post, and a gold-pan suspended from the crane, substantially as described.

3. In a gold-washer, the combination with a support, of a tub thereon, a crane-post hinged to the support, a crane detachably connected to the crane-post, a gold-pan suspended from the crane, and a gold-pan support connected to the tub, substantially as described.

4. In a gold-washer, the combination with a tub and a removable tailings-pan therein, of a movable crane, and a gold-pan suspended from the crane over the tailings-pan, substantially as described.

5. In a gold-washer, the combination with a tub, of a draining-box rest comprising a support having curved pieces straddling the edge of the tub and a leg hinged to the support, of a draining-box resting on the support and adapted to drain into the tub.

6. In a gold-washer, the combination with a tub, of a draining-box rest comprising an inclined support having curved pieces straddling the edge of the tub, a leg hinged to the support and terminating in a foot, and a draining-box resting on the support and adapted to drain into the tub.

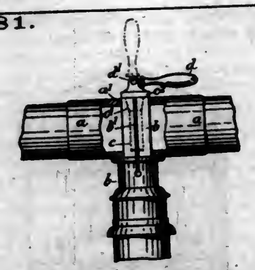
7. The herein-described draining-box having a bottom, and sides that converge, being also provided with an end at the converged portions of the sides, which end has its lower edge cut away into notches constituting draining-openings.

604,981. HANDLE-BAR FOR CYCLES.

FREDERICK R. GUY, London, England. Filed July 19, 1897. Serial No. 645,093. (No model.)

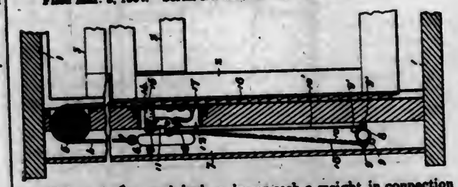
Claim.—In a reversible handle-bar for cycles, the combination with a steering-head having a split plug *b* of angular shape in cross-section, provided with a centrally-threaded aperture having a tapered upper portion, of a handle-bar having angular holes extending transversely therethrough at right angles to each other and into either one of which the split angular plug may pass, a screw *c* having a tapered portion *c'* and a head *c²*, said screw being tapped into the threaded aperture in the plug for the purpose specified, and a handle *d* pivoted in ears upon the top or head of the screw whereby the handle may assume a vertical position to allow of the handle-bar being slipped from the plug without removing the screw.

604,981.



604,982. SASH-LOCK.

EDWARD W. HABERMAAS, St. Louis, Mo. Filed Mar. 9, 1897. Serial No. 626,641. (No model.)

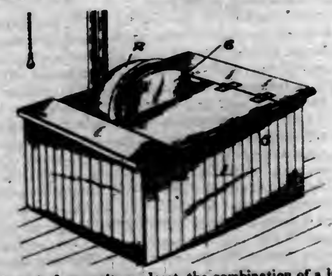


Claim.—1. In a sash-lock, a lower sash a weight in connection with the same, and heavier than said sash, an upper sash a weight in connection with same and lighter than said sash, a series of teeth carried by each of said sashes a bell-crank tripping lever for each of said sashes and located in proximity to the latter, a latch pivoted to one arm of each of the tripping levers and having respectively upwardly and downwardly inclined locking ends coöperating with said teeth springs coöperating with the bell-crank levers, a rocking or rotatable spindle, means for rotating the spindle, and cords connecting the periphery of the spindle with the bell-crank tripping levers, whereby the rocking of the spindle in either direction will release either one of the latches from its locked position allowing the upper sash to fall automatically, or the lower sash to automatically move upward.

2. In a sash-lock, a suitable spindle, a socket for the same, radiating depressions at the outer end of the socket, a collar carried by the periphery of the spindle, a terminal flange surrounding the outer end of the socket, a casing carried by the frame and having a tubular reduced extension embracing the spindle between the collar and the terminal flange, said socket and depressions being adapted to receive the shank and processes of a key, respectively, for rotating the spindle, substantially as set forth.

604,983. SANITARY BOWL.

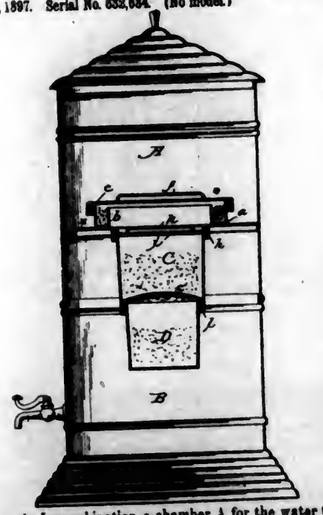
HERBERT R. HALL, Brooklyn, N. Y. Filed May 4, 1897. Serial No. 635,064. (No model.)



Claim.—1. In a sanitary closet, the combination of a bowl provided at its upper rear portion with a hood or cover, a seat for said closet having an opening therein adjacent to the opening in the hood, and a cover hinged to swing laterally and adapted to close the mouth of the bowl.

2. In a sanitary closet, the combination of a bowl having an angular mouth, one side of which is vertical and the other horizontal, a seat extending across the horizontal side and having its opening facing the vertical side, the said bowl extending above the seat upon its rear side and forming a forwardly-projecting hood, and a cover hinged to swing laterally and provided with a segmental projection adapted to close the mouth of the bowl.

604,984. FILTER. ARTHUR J. HARDER, Williamsport, Pa. Filed Apr. 17, 1897. Serial No. 632,684. (No model.)



Claim.—1. In combination, a chamber A for the water to be filtered, a diaphragm *a* therein, a circular opening centrally of said diaphragm, two vertical circular flanges *b* and *c* concentric with said opening, filtering-space *d* between said flanges, a removable imperforate cap *e* fitting imperviously over flange *c* by means of screw-threads, contracted spaces for the passage of the water beneath flange *c*, removable filtering-chamber C depending from said diaphragm, beneath the opening therein, and connected thereto by means of a screw-threaded flange *h*, a removable perforated disk *i* resting upon a ledge in the mouth of said chamber, removable filtering-chamber D depending from chamber C and connected thereto by a screw-threaded flange *l*, pervious bottom in chamber C and perforated bottom in chamber D, and chamber B to act as a receptacle and cooler for the filtered water, all so coacting as to produce the unitary result, substantially as described.

2. In combination with a chamber A to receive the water to be filtered, a diaphragm *a* therein, a circular opening centrally of said diaphragm, a circular screw-threaded flange *h* extending downwardly from said diaphragm concentric with said opening, a removable filtering-chamber C depending and supported from flange *h* by means of screw-threads, a screw-threaded flange *l* extending downwardly from the bottom of filtering-chamber C, a second filtering-chamber D depending and supported from flange *l* by means of screw-threads, both chambers having pervious or perforated bottoms for the passage of the water, substantially as described.

3. In combination with the chamber A, the diaphragm therein having a central opening, a circular flange depending downward from the diaphragm concentric to the opening, a filtering-chamber removably supported from said concentric flange, a second chamber depending from and removably connected to the first chamber, and perforated bottoms for both said chambers, substantially as described.

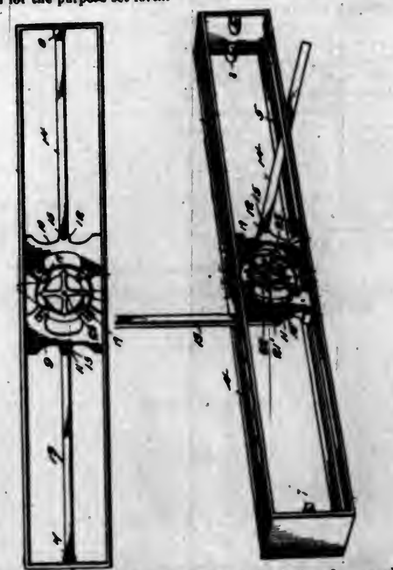
4. In a water-filter, a chamber for the water to be filtered, a diaphragm therein having an opening in the center, a concentric flange having a plurality of openings at the base thereof, an imperforate cover removably secured to said flange, and an inner imperforate flange of less height than the outer flange, substantially as described.

5. In combination, a water-chamber A, a diaphragm *a*, an opening centrally thereof, filtering-chambers depending from and removably connected with said diaphragm, a removable perforated disk covering the opening in the diaphragm, a filtering-space arranged concentric of the perforated disk with a water-passage to said space and a removable cover for said filtering-space, substantially as described.

604,985. SPIRIT-LEVEL. JOHN HARTFORD, San Francisco, Cal. Filed Jan. 25, 1897. Serial No. 620,575. (No model.)

Claim.—1. In a spirit-level, the combination with an open body or frame, of gage-bars located within the frame and independently pivoted upon opposite sides of the central portion, and clamping pivot-screws upon which said bars are mounted, whereby either bar may be held in any desired position, independently of the other, substantially as shown and described.

2. In a spirit-level, the combination with a body, of clamp-sections secured thereto for holding in place an annular spirit-tube, the ends of said clamp-sections being provided with grooves, and a gage having radially-extending, pointed arms to fit within said grooves, as and for the purpose set forth.



3. In a spirit-level, the combination with a body, of an annular spirit-tube fitted in said body, clamp-sections for securing said tube which have grooves, and a gage extending diametrically of the tube and pivoted centrally thereof, which also serves as a guard for the tube and has its ends adapted for reception in the grooves aforesaid when it is not in use.

4. In a spirit-level, the combination with a body, of an annular spirit-tube connected thereto and exposed on both sides, gages consisting of a plurality of arms extending diametrically of the tube and located on opposite sides thereof, and a bolt or pin passing through the center parts of said gages, the latter also serving as protectors for the tube.

5. In a spirit-level, the combination with a body, of an annular spirit-tube fitted therein and exposed at both sides, and gages located on opposite sides of the said tube and which consist of bowed-out braces having pointed ends bearing against the tube, and a bolt passing through the center parts of said gages and through the open space of the tube, said gages serving as protectors for said tube.

604,986. FILING-CASE. CHARLES O. HITCOCK, Ridgeway, Mich. Filed Mar. 12, 1897. Serial No. 627,180. (No model.)

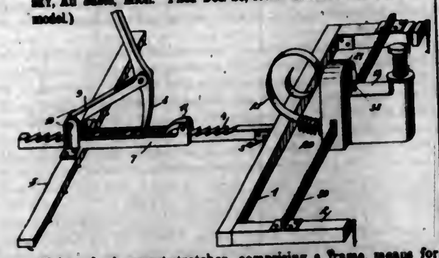


Claim.—1. The combination of the file-case G, with the two lids A, and B, of a continuous rod F, bent to form two parallel posts connected by a curved portion securely fastened in a stationary manner to the inside bottom of the box G, and whose free ends touch the lid B, for the double purpose of holding in place the series of receptacles C, and supporting the lids A, and B, substantially as described.

2. In a filing-case, in combination with a containing-box, a post rigidly secured to the bottom of said box projecting upward and having a blunt terminal parallel with one side thereof, a narrow lid hinged to one side of the box adapted to fold over and rest on said post, and a broad lid hinged to the other side of said box and adapted to fold over the first-mentioned lid and carrying a fastening member H located above the posts when the lid is closed, substantially as described.

3. In a filing-case, in combination with a box adapted to hold receptacles, posts secured to the bottom of the box extending parallel with one side thereof and having blunt terminals, a narrow lid secured to one edge of said box adapted to extend over, engage with, and be supported by said posts, a wide lid secured to the other edge of said box adapted to engage over and rest on first-mentioned lid, and means for securing the two lids together, substantially as described.

604,987. CARPET STRETCHER AND TACKER. CYRIL M. JANSEY, An Sable, Mich. Filed Dec. 28, 1897. Serial No. 663,882. (No model.)



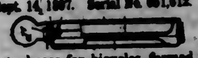
Claim.—1. A carpet-stretcher, comprising a frame, means for securing said frame to a floor, a stretching-bar for engaging with the carpet, means for moving said stretching-bar toward the frame, a tacking or staple-driving device mounted on said frame, and means for imparting a step-by-step motion to said device longitudinally of the frame, substantially as specified.

2. A carpet-stretcher, comprising a frame having means for removably securing it to a floor, a stretching-bar, means for moving said stretching-bar toward the frame, a tack or staple driving mechanism comprising a vertically-movable plunger, a casing in which said plunger is arranged, a rack on the carpet-stretcher frame passing through said casing, a spring-operated gear in the casing engaging with said rack, and means operated by a downward movement of the plunger for releasing the spring to allow it to move the tack or staple driving mechanism longitudinally of the frame, substantially as specified.

3. A carpet-stretcher, comprising a frame adapted to be removably secured to a floor, means connected with said frame for stretching a carpet toward the same, a rack extended longitudinally of said frame, a driving mechanism comprising a vertically-movable plunger, a casing in which said plunger is arranged, a gear-wheel in the casing engaging with the rack, a shaft upon which said gear-wheel is loosely mounted, a spring connected at one end with said shaft and at the other end with the gear-wheel, a stop-pin extended from the gear-wheel, a swinging detent-bar with which said stop-pin is designed to engage, and a tappet on the plunger for engaging with said detent-bar, to move it out of engagement with the pin upon the downward movement of the plunger, substantially as specified.

4. The combination with a carpet-stretcher comprising a frame adapted to be removably secured to a floor, of a driving mechanism comprising a casing, a plunger operating vertically in said casing and having a cutting edge for severing staples from a strip, means operated in one direction by the plunger for feeding the strip, a spring-operated gear-wheel in the casing, a rack on the carpet-stretcher frame with which said gear-wheel engages, stop-pins extended forward from said gear-wheel, a detent-bar mounted to swing in the casing and adapted to be engaged by either one of the stop-pins, and a tappet on the plunger for engaging the said detent-bar to move it out of engagement with the stop-pin, substantially as specified.

604,988. BICYCLE TOOL-CASE. LOUIS H. KNOPPEL, New York, N. Y. Filed Sept. 14, 1897. Serial No. 651,612. (No model.)



Claim.—1. A tool-case for bicycles, formed in two halves each half comprising a metallic frame, consisting of a band or bar and forming the outline thereof, and a sheet of fabric fastened thereto, hinges connecting the two halves at their bottom edges, clamps connected with the upper part of the metallic frame of one of the halves of the case and arranged to connect said half to the bicycle-frame, the fastening means for the said clamps being controlled from the inside of the tool-case, and means for supporting the other half of the case in a horizontal position when opened, substantially as described.

2. A tool-case for bicycles formed in two halves each half comprising a metallic frame forming the outline thereof, and a fabric sheet secured thereto forming the sides of the case, a pocket for one side or half of said case comprising a sheet of fabric having a fabric strip or band secured to its bottom and end edges, a second strip or band lying parallel with the rim of said half and secured to the first strip or band, and a metal strip secured to the frame and between which and the frame the latter fabric strip and the fabric sheet forming the outer side of the case are clamped, substantially as described.

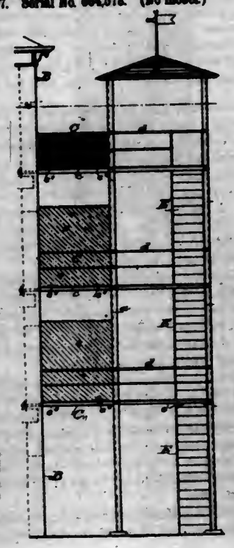
3. A clamp for bicycle tool-cases, comprising a strap having a bent or curved portion to fit about a tube, and straight portions extending from the ends of the curved portions, the free ends of the straight portions being bent sharply inward, one of said inwardly-extending ends being perforated to receive a locking-bolt, and the other inwardly-extending end having a slot formed therein extending from the end longitudinally of the band, the tips of each half thereof turning upward, for the purpose set forth.

4. The combination with a tool case for bicycles, of a clamp consisting of a metal strap or band bent to fit about a tube, and having its ends bent inward at right angles to the body thereof, one of said inwardly-bent ends being perforated and the other end having a longitudinal slot formed therein and extending from the end thereof, the extreme ends of the halves formed by said slot being turned upward for the purpose set forth, a bolt adapted to extend through the perforation and slot in the ends of the band, and through the frame of the tool-case to the inside thereof, and means located inside the tool-case for locking the bolt to hold the clamp in position, substantially as described.

5. A clamp for embracing tubes and similar cylindrical forms comprising a band embracing the tube and having its ends at a short distance apart bent outward in substantially a radial direction and then toward each other in a tangential direction, the ends overlapping each other, the outer end at its extremity being bent inwardly or toward the center and engaging the angle or bend of the other end, and a radial bolt passing through the tangential parts of each end, substantially as described.

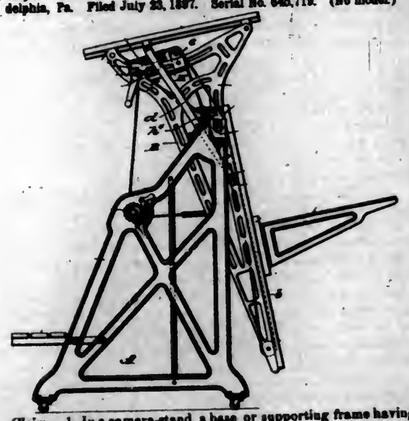
6. A clamp for embracing tubes and similar cylindrical forms comprising a band embracing the tube and having its ends at a short distance apart bent outward in substantially a radial direction and then toward each other in a tangential direction, the ends overlapping each other, the outer end at its extremity being bent inwardly or toward the center and engaging the angle or bend of the other end, the tangential portion of one end having a hole therethrough, and of the other end having a slot extending to the end and a radial bolt passing through the tangential parts of each end, substantially as described.

604,989. FIRE-ESCAPE. MAX KOLMERN, Chicago, Ill. Filed Dec. 20, 1897. Serial No. 664,578. (No model.)



Claim.—In a fire-escape, a fixed metal tower, a series of floors therein, each floor provided with an opening, a series of ladders depending from said floors, the lowermost ladder being hinged to its floor, a series of bridges secured to said tower adjacent the floors, and wire screens hinged to said bridges substantially as and for the purpose set forth.

604,990. PHOTOGRAPHIC-CAMERA STAND. MAX LEVY, Philadelphia, Pa. Filed July 23, 1897. Serial No. 645,719. (No model.)



Claim.—1. In a camera-stand, a base or supporting frame having spring-sustained boxes or bearings, in combination with an adjustable frame journaled to the boxes or bearings, a camera-platform pivotally attached to the adjustable frame on one side of its supporting means and an object-support longitudinally movable upon the adjustable frame the same being positioned on the other side of the supporting means, for the purpose set forth.

2. In a camera-stand, the combination with a base or supporting-frame having spring-supported bearings or boxes, of a frame held in pivotal engagement with the base and engaging with the bearings or boxes, said frame carrying on one side of its support a longitudinally-adjustable object-support and on the other side a camera-platform which is pivotally attached to the frame, arms movably secured to the camera-platform and studs or pins with which the free ends of the arms may be placed in engagement said pins being carried by the base, substantially as shown and for the purpose set forth.

3. In a camera-stand, the combination with a base, of a frame pivotally connected thereto, an object-support carried by the frame so as to be movable to and from the pivotal connection between the frame and base, a flexible connection the ends of which are attached to the pivotal frame, a shaft carried by the base and provided with a drum over which the flexible connection passes, ratchet-wheels carried by the shaft, and pawls pivoted to the base so as to engage with the ratchet-wheels, substantially as shown and for the purpose set forth.

4. In a camera-stand, the combination with a base having movable shaft-bearings, a shaft carried by an adjustable frame for engagement with said shaft-bearings, and a flexible connection attached to the adjustable frame and engaging with a drum on a shaft journaled in the base, substantially as shown and for the purpose set forth.

5. In a camera-stand, the combination with a base, of a platform carried thereby, and in pivotal connection therewith, the platform having a shaft which engages shaft-bearings, said bearings being spring-supported so as to insulate the platform from the base as to vibrations, for the purpose set forth.

6. In a camera-stand, the combination with a base and a platform or supporting-frame pivotally connected thereto and provided at the points of pivotal connection with means for insulating the parts as to vibrations, of an object-support carried by the platform, and a camera-platform pivotally attached to the supporting-frame, substantially as shown and for the purpose set forth.

7. In a photo-copying camera-stand, the combination with a camera-platform and an object-support carried by an adjustable frame, a base to which said frame is pivotally connected, a shaft carried by the base, a drum mounted on said shaft, a flexible connection attached to the adjustable frame an intermediate portion thereof engaging with the drum, and means for moving the shaft to effect a change of position of the adjustable frame with respect to the base, for the purpose set forth.

8. In a photo-copying camera-stand having a pivotally-supported frame which is insulated from its base, an object-support carried by the frame so as to be adjustable longitudinally thereon, and a camera-platform pivotally attached to said frame and provided with means for changing its position or angle with respect to the object-holder, substantially as shown and for the purpose set forth.

9. In a photo-copying apparatus the combination of a pivotally-supported frame connected to a supporting-base, means embodying flexible connections, guides therefor, a drum over which the flexible connection passes, means for turning said drum attached to the pivotally-supported frame, and an object-support mounted on the pivotally-supported frame the flexible connection engaging with said object-support to effect a longitudinal movement thereof upon the frame when the drum is turned, for the purpose set forth.

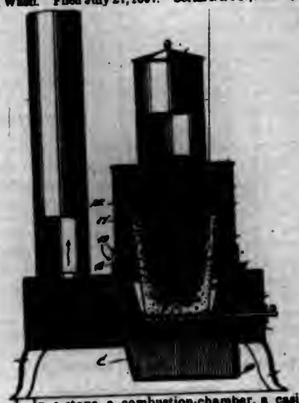
10. In a photo-copying apparatus, the combination with a base or main supporting-frame, of a frame pivotally connected thereto and insulated therefrom, means for moving the frame upon its pivot embodying a flexible connection the ends of which are attached to the movable frame, a shaft mounted on the base and provided with a drum about which the flexible connection is wound, and means for holding the shaft against rotation, substantially as shown and for the purpose set forth.

11. In a camera-stand, the combination of a base having spring-supported journal-boxes, a shaft journaled between the side pieces of the base, ratchet-wheels mounted on said shaft, pawls carried by the base, a drum mounted on the shaft between the side pieces of the base, of a frame which engages with the journal-boxes, a flexible connection which is attached thereto and engages with the drum on the shaft hereinbefore mentioned, an object-support and a camera-holder carried by the pivoted frame, substantially as shown so that the angle of the pivoted frame may be varied by disengaging one of the pawls from its ratchet-wheel, for the purpose set forth.

12. In a camera-stand the combination with a base having spring-supported or insulated journal-boxes, a frame having a shaft which engages with said journal-boxes, a shaft journaled to the base and provided with a drum, means for holding said shaft against rotation; together with a flexible connection which passes over the drum the ends thereof being connected to the frame carried by the base, an object-support, and a camera-platform connected to the frame, substantially as shown and for the purpose set forth.

13. In a photo-copying apparatus a camera-platform and an object-support mounted upon a frame, said frame being pivotally connected to and insulated as to vibrations from its supporting-base, means for connecting the camera-platform to the frame so that it may be positioned parallel with or at right angles to the object support, and means for moving the frame to which the camera-platform and object-support are attached with respect to the base, substantially as shown and for the purpose set forth.

604,991. STOVE. CHARLES T. LITCHFIELD and JOSEPH T. BAUGHER, Spokane, Wash. Filed July 27, 1897. Serial No. 646,067. (No model.)



Claim.—1. In a stove, a combustion-chamber, a casing on the combustion-chamber and having a closed top and draft-openings in its lower portion, a fire-box having its lower portion projecting into the combustion-chamber and provided at its upper end with an extension, said fire-box and its extension forming with the casing a heating-space, and a feeder or magazine projecting through the top of the casing and extending into the upper end of the fire-box, said magazine forming with the extension of the fire-box an annular chamber through which the air from the heating-space passes to the fire-box, substantially as described.

2. In a stove, the combination with a base having a combustion-chamber from which leads a smoke-pipe, of a casing secured upon the top of the combustion-chamber and having a closed top and draft-openings in its lower portion, a fire-box supported upon the top of the combustion-chamber with its lower portion projecting into the same, a jacket secured to the upper portion of the fire-box, the fire-box and its jacket being spaced from the casing to form an annular air-space, a feeder or magazine projecting through the top of the casing and extending into the jacket and upper portion of the fire-box, the said feeder being of less diameter than the upper end of the fire-box and its jacket to form therewith an annular chamber and having its end flared outwardly, and a grate in the combustion-chamber below the lower end of the fire-box, substantially as described.

3. In a stove, the combination, with a base having a chamber therein, a smoke-pipe connected with the said chamber, a fire-pot attached to the base and extending downward into the chamber, the portion of the fire-pot in the chamber being slotted, forming a series of fingers, and a grate in the said chamber below the end of the fire-pot, of a jacket attached to the upper portion of the fire-pot, a casing on the base and extending above the said jacket and surrounding it and the upper portion of the fire-pot to form an annular air-space, the said casing being provided with openings at its bottom, a draft-slide located at the apertured portion of the casing, and a magazine or feeder passed through the upper portion of the casing and also through the jacket to the upper portion of the fire-pot, the lower end of the magazine or feeder being outwardly flared, and a space being provided between the magazine or feeder and said jacket, as specified.

604,992. CULTIVATOR. PETER R. LITTLE, Dayton, Ohio, assignor to the Ohio Rake Company, same place. Filed Nov. 10, 1897. Serial No. 658,607. (No model.)



Claim.—1. In a cultivator, the combination, with the seat-bar and automatic laterally-adjustable cultivator-frames therefor, with means for attaching same to the seat-bar, of two pairs of similar rotary disks, with similar means for adjustably securing same to the cultivator-frames, whereby said disks may be interchangeable, the one pair attached to the front bar of said frame, the other pair attached to the rear bar, and each pair adjustable to throw the dirt in opposite directions, with respect to the cultivated plants, substantially as shown and described.

2. In a cultivator, the combination, with seat-bar, and automatic laterally-adjustable cultivator-frames therefor, with means for attaching same to the seat-bar, and two pairs of similar rotary disks, with similar means for adjustably securing same to the cultivator-frames, whereby said disks may be interchangeable, the one pair attached to the front bar of said frame, the other pair attached to the rear bar, and each pair adjustable to throw the dirt in opposite directions, with respect to the cultivated plants, with adjustable shields attached to the runner-frames opposite said rear disks, substantially as shown and described.

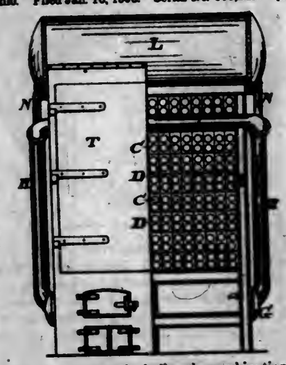
3. In a cultivator, provided with rotary cultivating-disks, a hanger therefor, with coupling-block for securing same to the frame, and journal-bearing for the disk, said hanger being provided with ratchet-plates at each end, and corresponding ratchet-plates on said coupling-block and disk-journal meshing therewith, substantially as shown and described.

4. In a cultivator, provided with concavo-convex rotary cultivating-disks, a hanger therefor, with coupling-block for securing same to the frame and antifriction journal-bearings for the disks mounted on the convex side thereof, said hanger being provided with ratchet-plates at each end and corresponding ratchet-plates on said coupling-block and disk-journal meshing therewith, substantially as shown and described.

5. In a cultivator, provided with rotary cultivating-disks, a rotatable and longitudinally-adjustable hanger, coupling-block for securing same to the frame, and journal-bearing for the disk, said hanger being provided with ratchet-plates at each end, and corresponding ratchet-plates on said coupling-block and disk-journal meshing therewith, whereby universal adjustment may be had for said disks, substantially as shown and described.

6. In a cultivator, provided with rotary cultivating-disks, a hanger therefor with coupling-block for securing same to the frame, said block being provided with a ratchet-plate, and a corresponding ratchet-plate meshing therewith, strap encircling said hanger and passing through said plates for securing same, said hanger being provided with a rib and the intermediate ratchet-plate being recessed and grooved to receive said rib and prevent the hanger from turning, substantially as shown and described.

604,993. WATER-TUBE BOILER. WILLIAM A. LLOYD, Ashtabula, Ohio. Filed Jan. 10, 1898. Serial No. 666,249. (No model.)



Claim.—1. In a water-tube boiler, the combination with the tubes B of the headers D, having double tubular chambers, caps C for closing said chambers, annular beveled grooves *d* in said caps and in the ends of said chambers, tapering packing-rings *e* in said grooves, and the bolts E, nuts *f* and cross-pieces F, substantially as described.

2. In a water-tube boiler, the combination with the tubes B, headers D connecting said tubes at the front and rear, and the mud-drum G, connected with the rear end of lower row of water-tubes, the outside diagonal pipes H H, attached to the ends of mud-drum, and the upper cross-pipe I connected with the upper tubes B, substantially as described, of the steam-drum L connected at its rear side by pipes M with the upper rear headers D, and its ends connected by branch pipes N with the diagonal pipes H H, substantially as described and for the purpose set forth.

604,994. PEANUT-VENDING CASE. CLARENCE O. LUCE, Plainfield, Wis. Filed Aug. 6, 1897. Serial No. 647,334. (No model.)

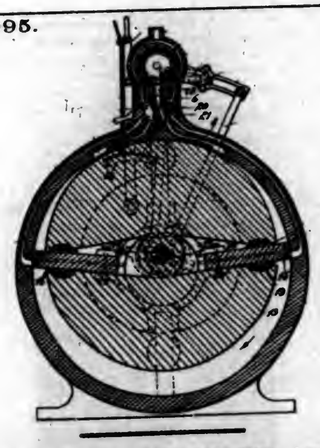


Claim.—A peanut-vending case consisting of a casing having transparent front and sides and an open top, a door fitted in said top, a back terminating above the bottom, converging partitions extending from the back toward the front and terminating a short distance from the front, a heater fitted snugly to the bottom of the case and having a door in its rear side to admit an oil-stove or lamp.

604,995. ROTARY ENGINE. FRED J. MACEY, Ontonagon, Mich. Filed June 21, 1897. Serial No. 641,062. (No model.)

Claim.—A rotary engine comprising a cylinder having exhaust-ports leading from a head on the cylinder and extending through the peripheral wall of the cylinder and communicating with the interior of the cylinder at about its center, the said peripheral wall also having inlet-ports, the inlets being at the upper portion of the cylinder, a reversing-valve, a hollow rocking valve for controlling admission of steam, a piston-disk eccentrically mounted in the cylinder, and radially-movable piston-wings carried by the piston-disk, substantially as specified.

604,995.



604,996. PROCESS OF PURIFYING SPIRIT. LOUIS MAICHE, Paris, France. Filed Apr. 26, 1897. Serial No. 634,006. (No specimens.)

Claim.—The process herein described of purifying spirit, consisting in diluting crude spirit with several times its volume of water, distilling at a low temperature *in vacuo*, thereby eliminating impurities, and finally concentrating the dilute spirit by distillation in the usual manner.

604,997. SOFA-BED. ALEXANDER MANDL, New York, N. Y., assignor to Moses Stiefel, same place. Filed Aug. 27, 1897. Serial No. 649,697. (No model.)



Claim.—The combination with a main frame, having an upholstered seat-section and flattened portions at its ends, side pieces having flat bottoms and provided with recesses at the inner corners of the rear ends, means for connecting said side pieces with the ends of the main frame, a back upholstered at its upper part and along a portion of its sides and provided with a recessed lower part, and a folding mattress-section, the ends of which are inserted in the corner recesses of the side pieces, whereby said mattress-section is retained in the recessed lower part of the back, substantially as set forth.

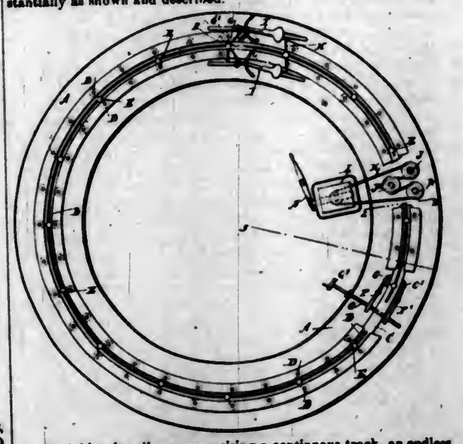
604,998. BICYCLE-RAILWAY. WILLIAM F. MANGELS, Brooklyn, N. Y., assignor of one-half to William S Smith, same place. Filed Sept. 29, 1897. Serial No. 653,494. (No model.)

Claim.—1. A bicycle-railway, comprising a continuous track, guide-wheels, an endless band of rigid material adapted to travel on the said guide-wheels, and a rigid support erected on the said band and connected with the bicycles arranged to travel on the track, substantially as shown and described.

2. A bicycle-railway, comprising a continuous track, a duct on the said track, an endless band of rigid material mounted to travel in the said duct, posts erected at intervals on the said band, frames carried by the said posts and connected with the bicycles traveling on the said track, and a brace arranged above the said band and connecting the several posts with each other, as set forth.

3. A bicycle-railway, comprising a continuous track, an endless band of rigid material movable in a duct in the said track, posts erected at intervals on the said band, frames provided with transverse rods or bars connecting adjacent posts with the axles of the front and rear wheels of the bicycles respectively, and a brace connecting the several posts with each other, substantially as specified.

4. A bicycle-railway, comprising a continuous track, an endless movable band, posts erected at intervals on the said band, frames provided with transverse rods or bars connecting adjacent posts with the axles of the front and rear wheels of the bicycles respectively, and a brace extending above the said band and connecting the said posts, the said brace being depressed between adjacent posts, substantially as shown and described.



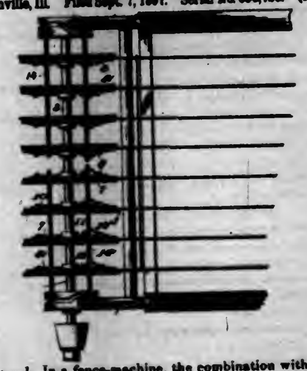
5. A bicycle-railway, comprising a continuous track, an endless band of rigid material movable in a duct on the said track, means for connecting the band with the bicycles arranged to travel on the said track and a device for clamping the said band to stop the same, substantially as shown and described.

6. A bicycle-railway provided with a continuous track, guide-wheels, an endless band traveling on the said guide-wheels, posts erected at intervals on the said band, frames provided with transverse rods or bars connecting adjacent posts with the axles of the front and rear wheels of the bicycles respectively, a brace connecting the several posts with each other, an auxiliary starting device for imparting a traveling motion to the said band, and a stopping device for said band, substantially as shown and described.

7. A bicycle-railway, comprising a continuous track, an endless movable band of rigid material, means for connecting the band with the bicycles traveling on the track, and a stopping device for the said band comprising jaws adapted to clamp the edge of the band on opposite sides, and means for moving the jaws in or out of engagement with the band, substantially as set forth.

8. A bicycle-railway, comprising a continuous track, a duct on the said track, guide-wheels journaled in the walls of said duct, an endless band of rigid material arranged to travel on the said guide-wheels, means for connecting the band with bicycles mounted to travel on the track, and an auxiliary driving device for the said band comprising pulleys arranged for frictional engagement with the edges of the band, and means for driving the said pulleys, substantially as shown and described.

604,999. CLAMP FOR FENCE-MACHINES. ELISHA C. MATHEWS, Jacksonville, Ill. Filed Sept. 7, 1897. Serial No. 650,732. (No model.)



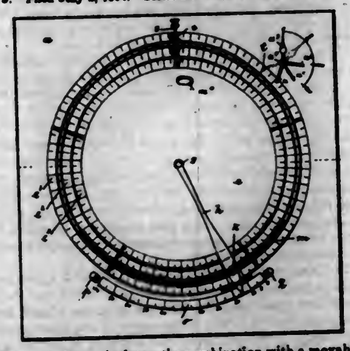
Claim.—1. In a fence-machine, the combination with the wire-supporting spools, of clasping-arms mounted on the spools and adapted to press the wires against the edges of the same.

2. In a fence-machine, the combination with the wire-supporting spools, of clasping-arms mounted on the sides of the same and adapted to press the wires against the edges of the spools, and means for forcing said arms upon the wires.

3. In a fence-machine, the combination with the wire-supporting spools, of clasping-arms carried by the said spools, toggle-levers fulcrumed on the spools and engaging the said arms, and means for operating the said levers.

4. In a fence-machine, the combination with the wire-supporting spools, of clasping-arms carried thereby and adapted to engage the wires, toggle-levers fulcrumed on the spools and engaging the arms, reciprocating rods pivotally joined to the toggle-levers, and cam-disks adapted to operate said rods.

605,000. CALCULATING DEVICE. LEVY MAYBAUM, Newark, N. J. Filed July 2, 1897. Serial No. 643,195. (No model.)



Claim.—1. In a calculator, the combination with a movable indicating element provided with a rack, of a pointer pivotally movable with reference to a fixed scale and provided with laterally-projecting supporting-arms secured at its free end and with a pin having a deflected end and adapted to engage the teeth of said rack, substantially as described.

2. In a calculator, the combination with the frame or bed plate, of a revoluble disk provided with graduated indices and having ball-bearings arranged in said frame, a stationary scale arranged concentrically to said disk on said frame, an operating hand or pointer for said disk pivoted on the pivot thereof and movable independently thereof, flexible supporting-arms for the free end of said pointer, an annular rack-bar carried by said disk, a pin secured to the free end of said hand or pointer and having a deflected end adapted to engage the rack-rod, stops for said pointer, a pointer *s* arranged on the frame at a point remote from the stationary scale, a depression s^0 in said plate, a pin *t* carried by said disk, and an auxiliary indicating mechanism adapted to be operated by said disk and consisting of a dial and a pointer therefor having a series of arms adapted to be successively engaged by said pin *t*, substantially as described.

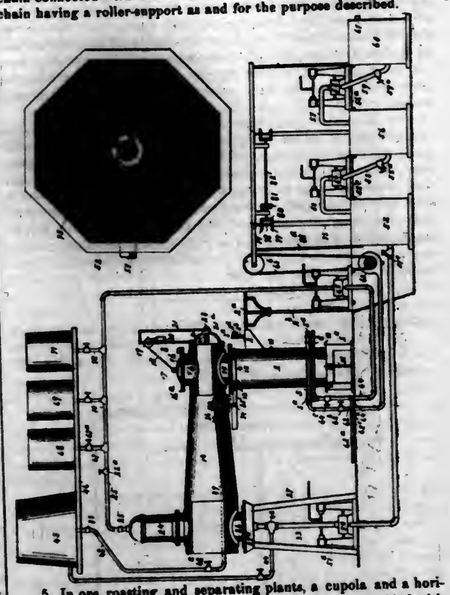
605,001. PROCESS OF AND APPARATUS FOR ROASTING AND SEPARATING ORES. WAITMAN M. MORGAN and FRANCIS E. PARKER, Kansas City, Mo. Filed Oct. 9, 1894. Serial No. 608,571. (No model.)

Claim.—1. The herein-described process of treating refractory ores in ore-roasting furnaces consisting first in roasting the ores with a flux and simultaneously drawing air through the heated ores, and separating the sulfur and arsenic and also the sulfids and arsenids from the ores, and then investing the slag containing the metal with a separate mineral after the separation in the furnace.

2. The herein-described process of treating refractory ores in ore-roasting furnaces consisting first in roasting the ores with a flux, simultaneously drawing air through the heated ores, and separating the sulfur and arsenic, then fluxing the arsenids and sulfids beneath the ores, and then investing the silicious slag containing the metal with a salt, within the furnace.

3. The herein-described process of treating refractory ores in ore-roasting cupola-furnaces, consisting in roasting the ores with a flux, and simultaneously drawing air through the heated ores, thereby separating the sulfur and arsenic, fluxing the arsenids and sulfids beneath the ores, drawing lime through the heated ores and then investing the silicious slag containing the metal with salt and pulverized granite.

4. In ore roasting and separating plants a cupola, a horizontal detachable fume-arresting case having one end supported by the said cupola, separate openings in said end, a pivotal support at the other end of said case, a hinged cover to one of the separate openings, a chain connected with said cover and a weight upon said chain, said chain having a roller-support as and for the purpose described.



5. In ore roasting and separating plants, a cupola and a horizontal, detachable fume-arresting case, having one end provided with an opening and supported by said cupola, a pivotal support at the other end of said case, and a fume-discharging pipe connected with said case as and for the purpose described.

6. In ore roasting and separating plants a cupola, a horizontal detachable fume-arresting case, having an opening for the entrance of the fumes at one end, and supported by said cupola, a pivotal support at the other end of said case, a discharge-pipe for the fumes, connected with the pivotal end of said case, a fume-precipitating perforate pipe within said case, and a fluid-supply pipe connected with the said perforate pipe, said fume-arresting case, having its bottom inclined downwardly at an angle to its support and in the direction of the said fume-discharging pipe as and for the purpose described.

7. In ore roasting and separating plants, a series of ore-roasting cupolas in a circuit, a scaffold within the series of the cupolas and equidistant from each cupola, a horizontally-extending fume arresting case or flue, having an opening in its vibrating end extending over one of said cupolas, a fume-discharging pipe, a plate upon said scaffold having antifriction devices, and an extension in said case having a flange bearing upon said antifriction device as and for the purpose described.

8. In ore roasting and separating plants the combination with one or more ore roasting and separating cupolas in a circuit, of a scaffold within the series of cupolas and equidistant from each cupola, a horizontally-extending fume-arresting case or flue, having an opening in its vibrating end extending over one of said cupolas, a discharge-pipe for the said fumes, a pivotal support for said case upon said scaffold, a circular track-rail with the series of cupolas, and beneath the vibrating end of said case, a support for said rail, rollers on said case and resting on said rail, and eccentric axis to said rollers as and for the purpose described.

9. An ore roasting and separating cupola having vertical passages between the lining to the cupola and its outer casing, and a perforate lining to each of said passages as and for the purpose described.

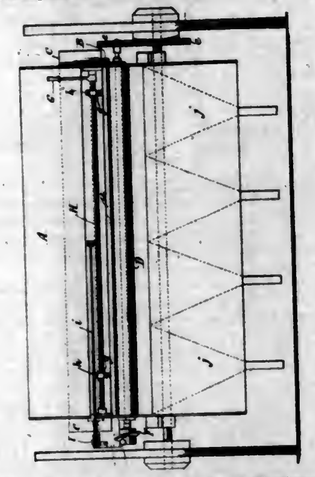
10. In fume-arresters for ore roasting and separating plants, a case for the fumes, having a vibrating outer end, and a pivotal inner end, an extension to said case having a flange and a supporting-plate beneath said flange, having pockets and antifriction-rollers in said pockets, and adjusting-bolts in said pockets beneath said rollers, as and for the purpose described.

11. In separating plants for ores, &c., a settling-tank, a supply-pipe and a discharge-pipe connected with said tank, separate perforate disks in said tank, a shaft connected with one of said disks and a concentric pipe or tube connected with the other disk and power-conveyers connected with said shaft and pipe as and for the purpose described.

12. In a separating plant for ores, &c., a settling-tank, a supply-pipe and a discharge-pipe connected with said tank, a vertical shaft and a concentric pipe or tube within said tank, a perforate convex disk on the lower end of the respective shaft and tube, separate miter-gear on the upper end of the respective shaft and tube, a power-conveying shaft and a miter-gear on said shaft meshing with the miter-gear on the said shaft and tube as and for the purpose described.

13. In a separating plant for ores, &c., a settling-tank, a pipe having its lower end extending within said tank, a convex wire disk on the said end of said pipe, a miter-gear upon its upper end, a shaft within said pipe and a convex wire disk upon the lower end of said shaft, a miter-gear upon its upper end, a power-conveying shaft, a miter-gear on said shaft meshing with said miter-gear on the upper ends of the respective shaft and tube carrying said disks, a supply-pipe to the settling-tank having its inner end extending to a position beneath the wire disk, and a discharge-pipe in the side of said tank as and for the purpose described.

605,002. MANURE-DISTRIBUTER. THOMAS H. MOTLEY, Grainthorpe, England, assignor of one-half to William Haddon Owen, Louth, England. Filed Dec. 24, 1897. Serial No. 663,343. (No model.) Patented in England Nov. 2, 1896, No. 24,443.



Claim.—1. In a manure-distributer, the combination with a suitable hopper, of slides mounted in the lower portion thereof and adapted to form a discharge-opening between them, a pivoted lever mounted upon the hopper and connected at its ends with the said slides, and means for reciprocating one of the slides, the construction being such that upon one slide being reciprocated it will by means of the lever communicate a reciprocating movement to the other slide, substantially as described.

2. In a manure-distributer, the combination with a suitable hopper, of slides mounted therein and adapted to form a discharge-opening between them, a lever pivoted to the said hopper and connected directly to one of the said slides at one end, a link for connecting the other end of the said lever to the central portion of the other slide, and means for reciprocating one of the slides whereby motion is communicated to both through the said lever, substantially as described.

3. In a manure-distributer, the combination with a suitable hopper, of slides mounted therein and adapted to form a discharge-opening between them, a lever pivoted to said hopper and connected directly to one of the said slides at one end, a link for connecting the other end of the said lever to the central portion of the other slide, and means for raising and lowering the latter slide whereby the size of the discharge-opening may be enlarged or diminished as required, the construction being such that the slides will be caused to reciprocate with respect to each other when in their different adjusted positions, substantially as described.

4. In a manure-distributer, the combination with a suitable hopper, of slides mounted in the lower portion thereof and forming a discharge-opening between them, means for reciprocating the said slides, and means for adjusting one of said slides upon a longitudinal rod whereby the said slide may be raised or lowered to increase or diminish the discharge-opening between the two slides and may still be capable of a longitudinal movement with respect to the hopper, substantially as described.

5. In a manure-distributer, the combination with a suitable hopper, of reciprocating slides mounted in the lower portion thereof and adapted to form a discharge-opening between them, means for reciprocating the said slides, a roller mounted below the said discharge-opening for assisting in the distribution of the contents of the hopper, and means for revolving the said roller, substantially as described.

6. In a manure-distributer, the combination with a suitable hopper, of reciprocating slides mounted therein and adapted to form a discharge-opening between them, a roller mounted below the said discharge-opening, means for rotating the said roller, means connected with the said roller and engaging one of the slides for reciprocating the said slide, a lever pivotally mounted upon the said hopper and engaging the said slide at one end, and means for connecting the opposite end to the other slide, the construction being such that the slides will reciprocate oppositely with respect to each other, substantially as described.

7. In a manure-distributer, the combination with a suitable hopper, of reciprocating slides controlling the discharge from the said hopper, a roller arranged below the said discharge, gearing for connecting the roller with the shaft of the distributer whereby upon the distributer being moved forward the motion from the wheels will be communicated to the said roller, a cam-disk formed upon the shaft of the said roller, friction-rollers upon one of the said slides and adapted to engage said cam-disk whereby a reciprocating movement may be imparted to the said slide, and a lever mounted upon the hopper and engaging the said slide at one end and connected with the other slide at the other end, the construction being such that the slides will be caused to reciprocate in opposite directions with respect to each other, substantially as described.

8. In a manure-distributer, the combination with a suitable hopper, of slides mounted therein and adapted to control the discharge from the said hopper, means for reciprocating one of said slides, a lever mounted upon the hopper and engaging the said actuated slide, a link connected to the said lever and engaging the other slide for communicating motion thereto, links for supporting the latter slide, arms for supporting the said links, the said arms being movably secured upon a shaft transversely mounted in the frame of the distributer, and a lever secured to the said shaft, the construction being such that the height of the latter slide may be regulated by the said lever in order to increase or diminish the discharge-opening between the slides, substantially as described.

9. In a manure-distributer, the combination with a suitable hopper, of slides controlling the discharge therefrom, one of the said slides forming a movable bottom for the hopper, means for adjusting the other slide vertically, an overhanging apron mounted interiorly of the hopper for preventing the material in the hopper from clogging the movement of the latter slide, and means for reciprocating the said slide, substantially as described.

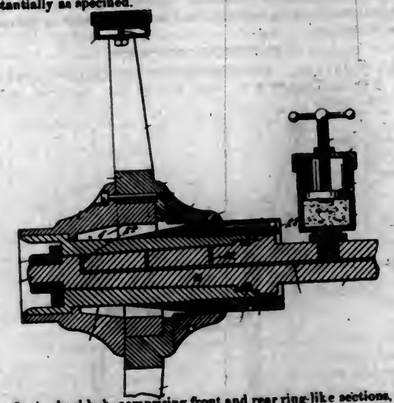
10. In a manure-distributer, the combination with a suitable hopper, of slides mounted in the lower portion thereof and adapted to form a discharge-opening between them, a cam arranged upon the said hopper and adapted to engage one of said slides for reciprocating the same, and means for connecting the said slide to the other slide whereby a reciprocating movement is also imparted to the second slide, substantially as described.

11. In a manure-distributer, the combination with a suitable hopper, of slides mounted in the lower portion thereof and adapted to form a discharge-opening between them, a cam arranged upon the said hopper and adapted to engage one of said slides for reciprocating the same, means for rotating the said cam, friction-rollers upon one of said slides and adapted to engage the said cam whereby a reciprocating movement is imparted to one of said slides, and means for connecting the said slides to the other slide whereby a reciprocating movement is also imparted to the second slide, substantially as described.

605,008. VEHICLE-WHEEL. ROBERT G. MCDOWELL, Anaconda, Mont. Filed Dec. 13, 1897. Serial No. 661,741. (No model.)

Claim.—1. A wheel-hub, comprising a front ring-like portion having inwardly-extending wedge-shaped projections to engage between spokes, a ring having forwardly-extended wedge-shaped projections to engage between spokes at the outer side of the first-named projections, a ring-shaped inner portion for the hub, means for securing the two sections of the hub together, a box, a tapered sleeve having an exterior screw-thread engaging with an interior screw-thread of the inner section of the hub, and means for securing said sleeve to the box, substantially as specified.

2. In a wheel, a hub, comprising inner and outer ring-shaped sections, means for securing the two sections together, a box, a tapered sleeve movable on said box for forcing the wheel-spokes outward, the said tapered sleeve having screw-thread engagement with the inner section of the hub, and a ring having a screw-thread engagement with the box and engaging against the end of the sleeve, substantially as specified.



3. A wheel-hub, comprising front and rear ring-like sections, the said sections having wedge-shaped projections to engage the sides of spokes, means for securing the sections together, a box, a tapered sleeve movable on the box to force spokes outward, and means for holding said sleeve in position, substantially as specified.

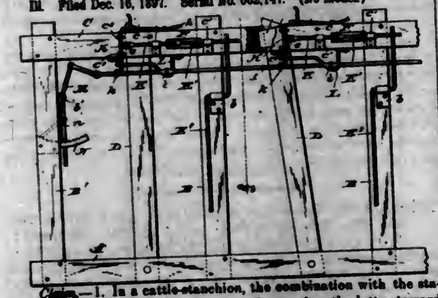
605,004. HANDLE FOR SHEET-METAL VESSELS. JAMES R. MCLAUGHLIN, Clifton Springs, N. Y., assignor of one-half to Thomas W. Martin, same place. Filed Sept. 7, 1897. Serial No. 650,742. (No model.)



Claim.—1. The combination, with a sheet-metal vessel, of arms or brackets secured thereto, a handhold part arranged between said arms or brackets at or near the outer ends thereof, caps or ferrules upon each end of said handhold part, means securing said handhold part to said arms and said caps having convex surfaces at the ends of said handhold part to nest with similar surfaces on said arms or brackets, substantially as described.

2. The combination, with a sheet metal vessel, of supporting arms or brackets secured thereto, a handhold part arranged between said arms, caps or ferrules 11 provided upon the opposite ends of said handhold part and having convex surfaces 12, said arms having curved surfaces 7 to nest with said surfaces 12 and a rod 9 extending through said handhold part and the convex surfaces of said caps and said arms whereby the parts are rigidly secured together, substantially as described.

605,005. CATTLE-STANCHION. GEORGE L. NICHOLS, De Kalb, Ill. Filed Dec. 16, 1897. Serial No. 662,147. (No model.)



Claim.—1. In a cattle-stanchion, the combination with the stationary and movable bars, and means for moving the latter toward the former, of stops limiting this movement, sliding stop-pins for holding the movable bar at an inclination with respect to the stationary bar, and a bail engaging the movable bar when the same is moved into position closing the stanchion, substantially as shown and described.

2. In a cattle-stanchion, the combination with the stationary and movable bars, and means for moving the latter toward the former, the movable bar having a beveled upper end, of sliding stop-pins for holding the movable bar at an inclination with respect to the stationary bar, and a pivoted bail adapted to ride over the end of the movable bar and engage the same, substantially as shown and described.

3. In a cattle-stanchion, the combination with the stationary and movable bars and means for moving the latter toward the former, the movable bar having its upper end beveled, of sliding stop-pins engaging the movable bar to hold the same at an inclination with respect to the stationary bar, means automatically moving the stop-pin into such engagement, and a pivoted bail adapted to ride over the end of the movable stanchion-bar and engage the same, substantially as shown and described.

4. In a cattle-stanchion, the combination with the stationary and movable bars and means for moving the latter toward the former, the movable bar having its upper end beveled, means for engaging and releasing the movable bar, and a pivoted locking-bail adapted to ride over the end of the movable bar and engage the same, the ends of said bail being extended and bent to limit its upward movement, substantially as shown and described.

5. In a cattle-stanchion, the combination with the stationary and movable bars and means for moving the latter toward the former, of a sliding stop-pin engaging the movable bar to hold the same at an inclination with respect to the stationary bar, a pivoted lever connected to said stop-pin, and a spring moving the stop-pin into engagement with the movable stanchion-bar; together with means for locking said stanchion-bar in a closed position, substantially as shown and described.

6. In a cattle-stanchion the combination with the stationary and movable bars and means for moving the latter toward the former, of a sliding stop-pin engaging the movable bar to hold the same at an inclination with respect to the stationary bar, a lever consisting of two pivoted sections connected to each other, one of the sections being connected to the stop-pin, an operating-lever engaging the other section, and a flat spring bearing against the sectional lever to project the stop-pin into engagement with the stanchion-bar; together with means for locking said stanchion-bar in a closed position, substantially as shown and described.

7. In a cattle-stanchion, the combination with the stationary and movable stanchion-bars and means for moving the latter toward the former, bails engaging the movable bars when closed, a sliding rod engaging said movable bars to move them away from the stationary bars, the rod having a vertical movement, rods connected to said sliding rod and engaging the bails, and means for holding the sliding rod, substantially as shown and for the purpose set forth.

8. In a cattle-stanchion, the combination with the stationary and movable bars and means for moving the latter toward the former, the movable bars having their upper ends beveled, of bails engaging the upper ends of the movable bars, a sliding rod having arms which engage said movable bars to move them away from the stationary bars, and means actuated by the sliding rod to lift the bails out of engagement with the stanchion-bars, substantially as shown and for the purpose set forth.

9. In a cattle-stanchion, the combination with the stationary and movable bars and means for moving the latter toward the former, of bails engaging the upper ends of the movable bars, a sliding rod having arms which engage the movable bars to move them away from the stationary bars, guide-rails engaging the arms to move the sliding rod vertically, and means actuated by the vertical movement of the sliding rod to lift the locking-bails, substantially as shown and for the purpose set forth.

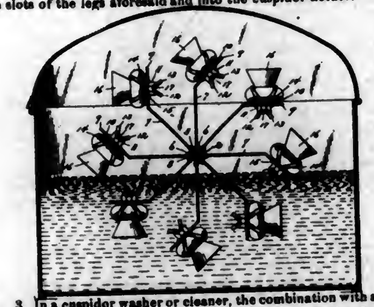
10. In a cattle-stanchion, the combination with the stationary and movable bars and means for moving the latter toward the former, of bails engaging the upper ends of the movable bars, a sliding rod having arms which engage the movable bars to move them away from the stationary bars, guide-rails engaging the arms to move the sliding rod vertically, rods connected to the sliding rod and engaging the locking-bails, being extended above the same, a lever for operating the sliding rod, a pawl pivoted to the lever, and a rack-bar with which the pawl engages, substantially as shown and for the purpose set forth.

605,006. CUSPIDOR-CLEANER. JOHN F. HOLAN, Chicago, Ill. Filed Dec. 4, 1897. Serial No. 660,808. (No model.)

Claim.—1. In a cuspidor washer or cleaner, the combination with a fluid-receptacle, of a rotary cuspidor-holder within said receptacle, and cuspidor-clamps located at different points of the holder and consisting of substantially U-shaped clamp members adapted to embrace the body of the cuspidor on opposite sides thereof and being relatively adjustable, and means for securing said clamp members.

2. In a cuspidor washer or cleaner, the combination with a fluid-

receptacle, of a rotary cuspidor-holder within said receptacle, cuspidor-clamps comprising substantially U-shaped clamp members having slotted legs, the cross-pieces of said clamp members being adapted to embrace the body of the cuspidor and having their slotted legs crossing each other, and thumb-screws whose shanks pass through the slots of the legs aforesaid and into the cuspidor-holder.



3. In a cuspidor washer or cleaner, the combination with a washing-receptacle, of a shaft journaled therein, arms radiating from said shaft and provided with tangentially-disposed platform portions having depending ears, cuspidor-clamps for each arm which consist of duplicate clamp members of U shape having slotted legs which cross each other and lie against the respective ears aforesaid and thumb-screws which pass through the slotted portions of the crossed legs and into the ears.

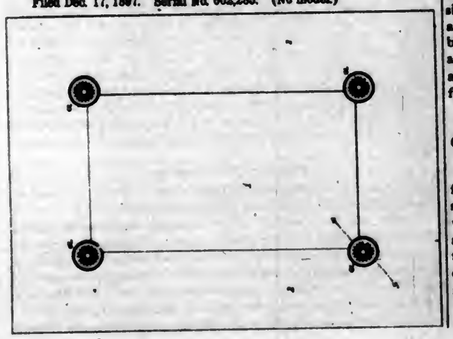
4. In a cuspidor washer or cleaner, the combination with a washing-receptacle, of a rotary cuspidor-holder located therein, and cuspidor-clamps carried by said holder each consisting of auxiliary clamp members having fingers or projections adapted to engage the upper portion of the body of the cuspidor, and retaining and securing devices to engage the cuspidor-mouth, and main clamp members connecting the auxiliary clamp members to the cuspidor-holder.

5. In a cuspidor washer or cleaner, the combination with a washing-receptacle, of a rotary cuspidor-holder located therein, and cuspidor-clamps carried by said holder consisting of auxiliary clamp members having devices for engaging the body of the cuspidor, retaining-hooks adapted to engage the upper edge of the cuspidor-cover, and adjustable securing devices to engage the lower portion of said cover, and main clamp members which afford a connection between the auxiliary clamp members and the cuspidor-holder.

6. In a cuspidor washer or cleaner, the combination with a washing-receptacle, of a rotary cuspidor-holder therein and cuspidor-clamps carried by said holder consisting of auxiliary clamp members having portions adapted to engage the sides of the cuspidor-body, retaining-hooks adapted to engage the upper part of the cuspidor-cover, and adjustable securing devices to engage the lower portion of the rim of the cover, and main clamp members connecting the auxiliary clamp members to the cuspidor-holder.

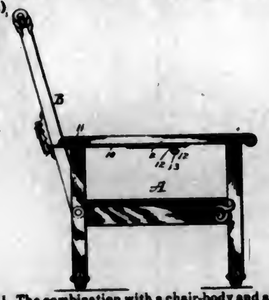
7. In a cuspidor washer or cleaner, an auxiliary clamp for cuspidors having removable covers consisting of a body having a retaining-hook at its upper end, a curved base-piece, fingers, said clamp member having a slot, a retaining-screw whose shank is movable in the slot, and means for securing said screw.

605,007. CARD-MOUNT. ALBERT M. ODGERS, Philadelphia, Pa., assignor to the A. M. Collins Manufacturing Company, same place. Filed Dec. 17, 1897. Serial No. 662,283. (No model.)



Claim.—A photographic-card or picture mount having formed in its face a series of depressions or recesses each having secured in it a button with an unconfined portion forming a pocket for the reception of the card.

605,008. ADJUSTING DEVICE FOR CHAIRS. WILLIAM H. O'KEEFE, Lockport, N. Y. Filed July 29, 1897. Serial No. 646,397. (No model.)



Claim.—1. The combination with a chair-body and a back hinged thereto, of a ratchet-bar secured to the chair-body at each side thereof, ratchet-bars secured to the chair-back at each side thereof and a yoke extending across said back, engaging the ratchet-bars thereon and having teeth at the free ends of its side bars adapted to engage the ratchet-bars secured to the chair-body, substantially as set forth.

2. The combination with a chair-body and a back hinged thereto, of ratchet-bars secured to the chair-body, ratchet-bars secured to the chair-back, a yoke extending across the chair-back and engaging the ratchet-bars thereon, teeth at the free ends of the side bars of said yoke to engage the ratchet-bars on the chair-body and clips secured to the chair-body, through which the side bars of the yoke pass, substantially as set forth.

3. The combination with a chair-body and a back hinged thereto, of slotted brackets secured to the chair-back, a ratchet-bar in each slotted bracket, a yoke extending across the chair-back, passing through said slotted brackets and engaging said ratchet-bars and means for adjustably and removably connecting the side bars of said yoke to the chair-body, substantially as set forth.

4. The combination with a chair-body and a chair-back hinged thereto, of ratchet-bars secured to the under face of the side rails of the chair-body, ratchet-bars secured to the upright rails of the chair-back at points which are normally in line with the side rails of the chair, rods connected with the ratchet-bars on the back and with the ratchet-bars on the side rails and clips through which said rods loosely pass, said clips being secured to the under faces of the side rails of the chair, substantially as set forth.

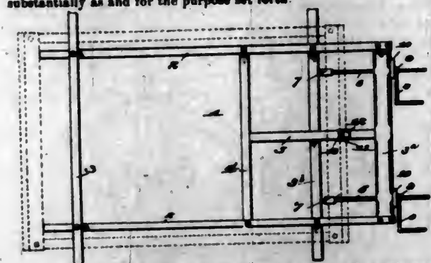
5. The combination with a chair-body and a back hinged thereto at points below the side rails of the chair, of ratchet-bars secured to the side rails, brackets having slots and ratchet-bars therein, secured to the chair-back, a yoke extending across the chair-back, passing through the slots in said brackets and engaging the ratchet-bars therein, teeth at the free ends of the parallel bars of said yoke adapted to engage the ratchet-bars secured to the side rails, handles or knobs on said side bars of the yoke and clips secured to the rear bars of the chair through which said side bars of the yoke pass, substantially as set forth.

6. The combination with a chair-body and a back hinged thereto, of slotted brackets having ratchet-bars, secured to the chair-back, slotted boxes having ratchet-bars, secured to the side rails of the chair, a yoke passing through the slotted brackets and engaging the ratchet-bars therein, teeth at the free ends of the parallel bars of the yoke, said free ends of the parallel bars being adapted to enter said boxes and the teeth to engage the ratchet-bars therein, and knobs at the free ends of said teeth, substantially as set forth.

605,009. BED-SPRING STRETCHER. JAMES F. PHAGAN, Cheyenne, Wyo. Filed Oct. 21, 1897. Serial No. 655,933. (No model.)

Claim.—1. A stretching device for bed-springs, comprising a frame composed of two side bars and two end bars, screw-threaded shafts or rods extending through one of the end bars and provided with hooks adapted to embrace the end bar of the bed-spring frame, and cranks provided with internally-screw-threaded portions adapted to be screwed upon said screw-threaded shafts, whereby the said shafts are drawn through the end bar when the cranks are turned, substantially as and for the purpose set forth.

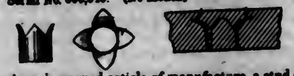
2. A stretching device for bed springs, comprising two end bars and two side bars, the ends of the side bars at one end of the frame extending beyond the end bar and adapted to bear against the cross-bar of the bed-spring frame, screw-threaded shafts extending to the cross-bar at the opposite end of the bed-spring frame, and cranks provided with screw-threaded portions adapted to be screwed upon said shafts to draw them through the end bar of the stretcher-frame, substantially as and for the purpose set forth.



3. The combination with the end bar and side bars, of a transverse bar having its ends connected to the side bars, a horizontal bar connected to said transverse bar at one end, and having its other end connected with the end bar, a runner secured to said horizontal bar and provided with a clamp adapted to embrace the cross-bar of the bed-spring frame and to be secured thereto by a set-screw, and screw-threaded rods extending through said end bar and provided with means for attachment to the bed-spring frame, substantially as and for the purpose set forth.

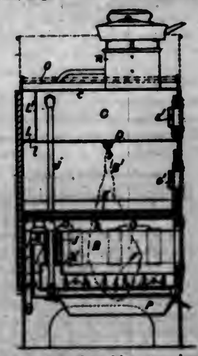
4. A stretching device for bed-springs, consisting of a frame including in its structure a longitudinally-extending bar, means on said frame for elongating the bed-spring frame, and a runner slidingly mounted on said bar and adapted to be clamped to the bed-spring frame, as and for the purpose set forth.

605,010. HOLLOW STUD OR RIVET. RICHARD POSER, London, England, assignor to Lionel Cuthbert Cropper, same place. Filed Dec. 2, 1897. Serial No. 660,515. (No model.)



Claim.—As an improved article of manufacture, a stud struck up from a single piece of metal and having a hollow body portion and a series of teeth formed thereon, the said teeth being curved or flared outwardly, whereby upon driving the stud into a material which it is to reinforce, the teeth will be caused to spread by the resistance offered thereto so as to form a retaining head embedded within the material, the said material incised by the said stud being crowded more compactly to form with the body portion of the stud a durable wearing-surface, substantially as described.

605,011. GAS-STOVE FOR COOKING PURPOSES, &c. ROBERT PRIDGIN, London, England. Filed Aug. 26, 1897. Serial No. 649,304. (No model.)

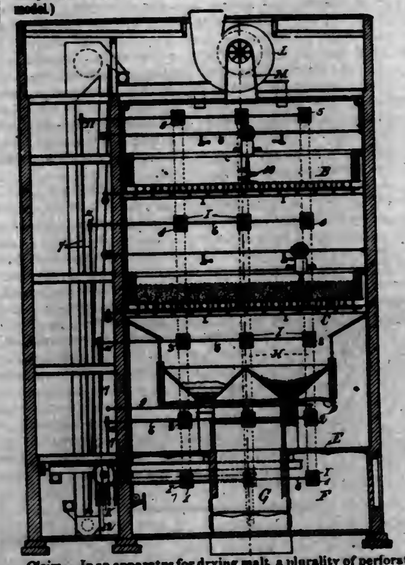


Claim.—1. A gas-heated cooking-stove having a casing comprising a roasting-space, a door at the front of the roasting-space, an air admission and heating chamber surrounding the remaining sides of the roasting-space and located at the lower part thereof, the upper part of the air-heating chamber being offset or inwardly projecting and being traversed by vertical flues leading from the space beneath to the roasting-space above, burners in the space beneath the air-heating chamber but not directly beneath the flues, air-inlets outside of a baffle rising within the chamber and directing the incoming air against the flues, and a depending baffle or curtain inclosing a downcast passage opening to the combustion-chamber at or below the level of the burners therein, substantially as specified.

2. A gas-heated cooking-stove having a casing, comprising a roasting-space, a door at the front of the roasting-space, an air admission and heating chamber surrounding the remaining sides of the roasting-space and located at the lower part thereof, the upper part of the air-heating chamber being offset or inwardly projecting and being traversed by vertical flues leading from the space beneath to the roasting-space above, burners in the space beneath the air-heating chamber but not directly beneath the flues, air-inlets outside of a baffle rising within the chamber and directing the incoming air against the flues, and a depending baffle or curtain inclosing a downcast passage opening to the combustion-chamber at or below the level of the burners therein, and an inner curtain depending within the line of the burners so as to separate the upper part of the combustion-space from the inclosed roasting-space to such an extent as to prevent the flames being deflected inward and the products of combustion from passing up through the roasting-chamber, while permitting direct radiation of the heat from the flames to the roasting-space, substantially as specified.

3. A gas-heated cooking-stove having a casing, comprising a roasting-space having a door at the front of the roasting-space, an air admission and heating chamber surrounding the remaining sides of the roasting-space and located at the lower part thereof, the upper part of the air-heating chamber being offset or inwardly projecting and being traversed by vertical flues leading from the space beneath to the roasting-space above, burners in the space beneath the air-heating chamber but not directly beneath the flues, air-inlets outside of a baffle rising within the chamber and directing the incoming air against the flues, and a depending baffle or curtain inclosing a downcast passage opening to the combustion-chamber at or below the level of the burners therein, an inner curtain depending within the line of the burners so as to insure the passage of the products of combustion through the flues alone while permitting of direct radiation from the flames to the roasting-space, and a grating dividing the roasting-space into a lower space heated only by radiation and an upper space heated mainly by convection-currents from the flues discharging therein, substantially as specified.

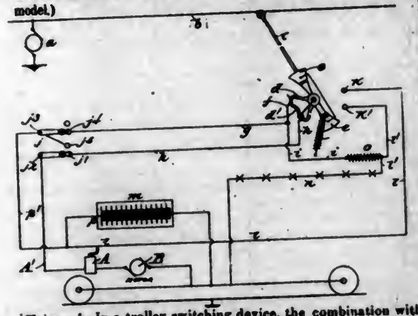
605,012. APPARATUS FOR DRYING MALT. WILLIAM H. PRINZ, Austin, Ill., assignor to the Saladin Pneumatic Malting Construction Company, Chicago, Ill. Filed July 10, 1897. Serial No. 644,141. (No model.)



Claim.—In an apparatus for drying malt, a plurality of perforated drying-floors situated one above the other, a heating-chamber below

the lowermost of said floors, a chamber around said heating-chamber adapted to deliver air to the heater, flues in the walls of said apparatus connecting at their lower ends with said chamber around said heating-chamber, between their ends with the spaces underneath said drying-floors, and at their upper ends with a suction-chamber, and valves controlling said connection, whereby hot, cold or mixed hot and cold air can be passed through the malt on any one, or all of said floors, or avoid all of said floors, substantially as described.

605,013. SWITCHING DEVICE AND CIRCUIT ARRANGEMENT FOR ELECTRICALLY-PROPELLED VEHICLES. EMIL B. W. REICHEL, Berlin, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Jan. 10, 1896. Serial No. 666,126. (No model.)



Claim.—1. In a trolley switching device, the combination with the trolley-arm *c*, contact-piece *d* electrically connected with and actuated by said trolley-arm, and contact part *f* adapted to be electrically engaged by said contact-piece only when the trolley-arm is in engagement with the trolley-conductor, substantially as described.

2. In a trolley switching device, the combination with the trolley-arm *c*, contact-piece *d* electrically connected with and actuated by said trolley-arm, contact part *f* adapted to be electrically engaged by said contact-piece only when the trolley-arm is in engagement with the trolley-conductor, and contact *e* also actuated by the trolley-arm and adapted to close a second circuit when said trolley-arm is in a position of rest, substantially as described.

3. The combination with a trolley-arm for electrically-propelled vehicles, of a conductor connected with said trolley-arm having included therein suitable circuit-controlling apparatus extending to the motor of said vehicle, a contact part connected with a secondary circuit of said vehicle, and a contact-piece actuated by said trolley-arm to engage the contact part only when the trolley-arm is in engagement with the trolley-conductor, substantially as described.

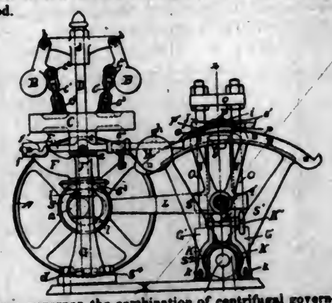
4. In an electrically-actuated vehicle, the combination with a trolley-arm adapted to engage the trolley-conductor, of a motor-circuit connected therewith, a lamp-circuit and an accumulator, a contact part connected therewith, and a contact-piece actuated by the trolley-arm to move into engagement with said contact part when the said trolley-arm is connected with the trolley-conductor, substantially as described.

5. In an electrically-actuated vehicle, the combination with a trolley-arm adapted to engage the trolley-conductor, of a motor-circuit connected therewith, a lamp-circuit and an accumulator, a contact part connected therewith, a contact-piece actuated by the trolley-arm to move into engagement with said contact part when the said trolley-arm is connected with the trolley-conductor, a switch *j* adapted to connect said accumulator with the motor-circuit, and a contact *e* actuated to close the accumulator-circuit by the movement of the trolley-arm to its position of rest, substantially as described.

6. The herein-described circuit arrangement for electrically-actuated vehicles, consisting of motor, accumulator and lamp circuits, a switching or trolley arm adapted to be connected with an external source of power and the motor-circuit, a contact-piece connected therewith, a contact part adapted to be engaged by the contact-piece and insure the electrical continuity of the remaining circuits when said arm is connected with the source of power, a switch *j* controlling these two circuits and a contact part *e* actuated by said switching-arm to close the lamp-circuit when said arm is in a position of rest, substantially as described.

605,014. SPEED-GOVERNOR. MARK A. REPLOGLE, Akron, Ohio. Filed Jan. 30, 1897. Serial No. 619,882. (No model.)

Claim.—1. In a governor of the kind described having centrifugal weights adapted to set into and out of operation power increasing and decreasing mechanisms, the combination of the cam *e*, the rocking lever L *g g* pivoted to the sliding bracket O′ with an eccentric sector provided with the eccentric flange *r′* adapted to slide in the groove *o′* of the said bracket for the purpose set forth substantially as specified.



2. In a governor, the combination of centrifugal governor-balls and a fly-wheel suspended therefrom revolving on a vertical axis, the lever operated thereby, the said lever being provided at its one end with the curved strip *c′* and fulcrumed at the other end, and intermediate of the fulcrumed and curved ends aforesaid attached to the neck of a fly-wheel adapted to be raised and lowered by the said centrifugal balls aforesaid substantially as specified and for the purpose set forth.

3. In a governor, the combination of an eccentric sector adapted to control the supply of power, by turning the shaft to which it is keyed, the said sector being provided with curved racks and an eccentric flange, which flange slides in a groove on a sliding bracket, carrying a rocking lever having a pawl vibrated thereby and the said pawl adapted to engage with the racks of the eccentric sector and operate it so as to turn off, or turn on the supply of power substantially as shown and set forth.

4. In a governor of the kind described, the combination of a sliding bracket having a rocking lever pivoted thereto, the one end of the said rocking lever being adapted to be operated by a cam, and the other end thereof being furnished with a pawl adapted to be vibrated over a pair of curved racks, which racks when moved in one direction raise the said sliding bracket and rocking lever therewith, and when moved in the opposite direction lower the said sliding bracket and rocking lever by means of the eccentric flange slid in a groove on the side bracket substantially as specified and for the purpose set forth.

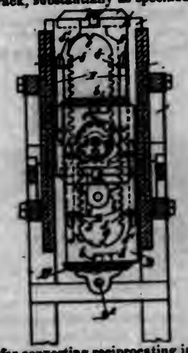
5. In a governor of the kind described an eccentric sector provided with a flange also eccentric therewith and the said sector being also provided with racks R and *r* having their teeth disposed in opposite directions; the double-acting pawl P adapted to engage with either of said racks, means for vibrating the pawl and means for tilting it into engagement with either one or the other of said racks according as the governor is affected by increased or decreased speed together with the sliding bracket O′ adapted to be raised or lowered by the eccentric flange aforesaid for the purpose of throwing the pawl out of reach of engagement, substantially as specified.

6. In a speed-governor the combination of vertical sliding rods O O having the sliding frame or bracket O′ adapted to slide upward or downward thereon with a rocking lever pivoted to the said bracket and said rocking lever carrying a vibrating and double-acting pawl and said rocking lever carrying a vibrating and double-acting pawl adapted to operate the mechanism by which the said bracket is lifted or lowered, means for vibrating said rocking lever and means for throwing into and out of engagement said pawl according as the speed of the governor increases or subsides substantially as specified and for the purposes set forth.

605,015. MECHANICAL MOVEMENT. EDWARD C. RIDDLE, Browning, Mo. Filed Nov. 9, 1897. Serial No. 657,937. (No model.)

Claim.—1. A device for converting reciprocating into rotary motion and the contrary, comprising a frame having two sets of parallel guideways therein, two reciprocating frames or guides sliding longitudinally in said guideways and provided with lateral guides, a rack mounted to slide laterally in said guides, said frame and rack being provided with stops limiting said lateral movement, said racks consisting of two bars connected at their ends and having the inner or opposed surfaces of the side bars toothed, ribs fixed to each of the side bars upon the side facing the other rack and adapted to slidingly engage each other, a single tooth upon the cross-bars at each end of the racks, and a pinion mounted upon a shaft and engaging opposite sides of each rack, substantially as specified.

2. A device for converting reciprocating into rotary motion and the contrary, comprising a frame having two sets of parallel guideways therein, two reciprocating frames or gates sliding on said guideways and provided with lateral guides, a rack mounted to slide in said lateral guides, said frame and rack being provided with stops limiting said lateral movement, said rack consisting of two bars connected at their ends and having the inner or opposed surfaces of the side bars toothed, ribs fixed to each bar upon the side facing the other rack and adapted to slidingly engage each other, said ribs being secured by bolts passing through laterally-extending slots so as to be laterally adjustable, a single tooth upon the cross-bars at each end of the racks, and a pinion mounted upon the shaft and engaging opposite sides of each rack, substantially as specified.



3. A device for converting reciprocating into rotary motion and the contrary, comprising a frame having two sets of parallel guideways therein, two reciprocating frames or gates sliding in said guideways and provided with lateral guides, a rack mounted to slide in said lateral guides, said frames and racks being provided with stops to limit said lateral movement consisting of a lug upon the gate entering a recess upon the rack, said racks consisting of two bars connected at their ends and having inner or opposed surfaces of the side bars toothed, ribs fixed to each bar upon the side facing the other rack and adapted to slidingly engage each other, and of such length as to pass by each other at the limit of their stroke, means for laterally adjusting said ribs, a single tooth upon the cross-bars at each end of the racks, and a pinion mounted upon the shaft and engaging opposite sides of each rack, substantially as specified.

605,016. DISPLAY-RACK. EDWARD S. ROBBINS, Parker, S. D. Filed May 19, 1897. Serial No. 637,206. (No model.)



Claim.—1. In a display-rack, separable sections, one section being provided with a sleeve and the other section with skeleton tongues at angles to each other and a skeleton base constructed of diverging members connecting the two tongues, either of said tongues being adapted to enter the said sleeve.

2. A display-rack constructed in separable sections, each section being constructed of spaced members, one section being provided with a sleeve at one of its ends and a loop at its opposite end, the other section being provided with tongues at angles to one another, and a base formed of diverging members connecting the two tongues, for the purpose set forth.

3. A display-rack constructed of a rod or bar bent upon itself to form a base having diverging arms and two tongues at angles to each other and connected by the said base, one tongue being at a decided angle to the base, the other tongue being practically in alinement with a portion of the base as specified.

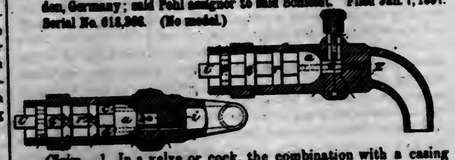
4. A display-rack consisting of two sections constructed of a rod material, said sections being detachably connected, one section comprising a loop, a body and a sleeve carried by the body, the other section comprising two tongues at angles to one another, and arms constituting continuations of said tongues, being at an angle to one of the tongues and extending outwardly in opposite directions therefrom, for the purpose set forth.

605,017. CENTRIFUGAL MACHINE. OTTO W. SCHAUM, Philadelphia, Pa. Filed Nov. 12, 1897. Serial No. 658,284. (No model.)



Claim.—In a hydro-extractor, the combination with a movably-suspended curb or casing, an inwardly-projecting bracket secured to the top edge thereof, bearings in the free end of said bracket, an inwardly-projecting arm mounted on said bracket, electromagnets and a pair of horizontally extending fields carried by said arm, the latter being arranged above the bearings, a bridge connecting said fields and suitably-mounted and arranged brushes and commutators, of a vertical jointed shaft stepped in said curb or casing and journaled in said bearings and in the bridge, a basket carried by the lower member of said shaft and having an inclined top flange and an armature carried by the upper member of said shaft between said fields and a brake for said basket consisting of a horizontally and longitudinally movable rod penetrating said bracket and provided at its outer end with a handle and at its inner end with a brake-block adapted to wipe on said flange, substantially as described.

605,018. COCK. ADAM SCHLEIDT and WILHELM PFEIL, Wiesbaden, Germany; said Pfeil assignor to said Schleidt. Filed Jan. 7, 1897. Serial No. 618,908. (No model.)



Claim.—1. In a valve or cock, the combination with a casing provided with inlet and discharge openings, and an intermediate wall, said wall being formed with a conical seat, a passage, a central socket, and a cavity intersecting the socket and extending to the exterior of the casing, a conical valve upon the inside of the wall adapted to the seat thereof for controlling the passages of the wall, said valve having a stem which extends into the socket, a ring encircling and adapted to turn upon the casing, and devices within the cavity of the wall connecting the valve-stem and ring, substantially as described.

2. In a valve or cock, the combination with a casing provided with inlet and discharge openings, and an intermediate wall, said wall being formed with one or more passages, a central socket and a cavity intersecting the socket and extending to the exterior of the casing, a rotary valve for controlling the passages of the wall, provided with one or more ports adapted to aline with the passages of the wall and with a stem which extends into the socket of said wall, a ring encircling and adapted to turn upon the casing, and devices within the cavity of the wall connecting the valve-stem and ring, substantially as described.

3. In a valve or cock, the combination with a hollow casing provided with an exterior annular groove and a dividing-wall within the chamber of the casing formed with one or more passages, a socket and a cavity intersecting the socket and the exterior annular groove, a rotary valve for controlling the passages of the wall provided with a stem which extends into the socket of said wall, a ring adapted to turn within the annular groove and connections within the cavity between the ring and valve-stem, substantially as described.

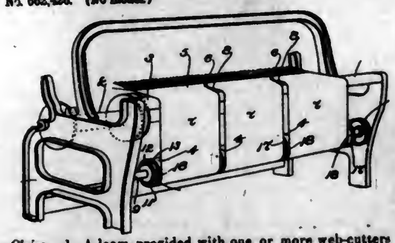
4. A cock or faucet provided with interior longitudinal passages leading to the discharge, and provided with a cavity having convergent sides, and with a longitudinal socket leading to said cavity, a rotary valve having a stem turning in the socket, and formed with ports to register with the passages, a pin working in the cavity and connecting with the stem, and a two-part ring turning in a groove in the shell and provided with the semicircular projections *k*, *k′*, embracing the outer end of the pin, and the knob or button, substantially as described.

5. A cock or faucet provided with interior longitudinal passages

leading to the discharge, a rotary valve having ports adapted to register with said passages, and the disks arranged to the rear of the valve, and provided respectively with the straight and diagonal passages, substantially as described and for the purpose set forth.

6. In a valve or cock, the combination with a casing provided with inlet and discharge openings, a rotary valve within the casings intermediate the said openings, a ring upon the exterior of the casing having separated ends, means for securing the ends of the ring together and connections intermediate the ring and valve extending through the casing, for operating said valve, substantially as described.

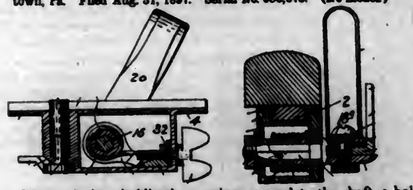
605,019. LOOM. JOHN W. SHERRY, Crompton, R. I., assignor to the Crompton Company, Providence, R. I. Filed Dec. 18, 1897. Serial No. 662,426. (No model.)



Claim.—1. A loom provided with one or more web-cutters or knives whereby to divide longitudinally into narrower webs the web which is woven in the loom, a take-up shaft, a plurality of take-up beams mounted on said shaft, independent sets of beam-driving connections interposed between the said shaft and beams comprising toothed wheels and pawls engaging the said wheels, whereby by disengagement of the pawls from the toothed wheels the independent letting back and adjustment of the respective narrow webs is facilitated, and warp-supplying devices permitting of separate adjustment of the warp-threads of each narrow web, whereby to obviate the necessity for picking out the weft-threads of more than the narrow web in whose width a mispick occurs.

2. A loom provided with one or more web-cutters or knives whereby to divide longitudinally into narrower webs the web which is woven in the loom, a take-up shaft, a plurality of take-up beams mounted on said shaft, one of them fast and the others free to turn thereon, the toothed wheels fast with said shaft, the pawls connected to the free beams and engaging said toothed wheels, whereby to facilitate independent letting back and adjustment of the respective narrow webs, and the separate yarn beams supplying the warp-threads pertaining to the respective narrow webs, all contributing to obviate necessity for picking out the weft-threads of more than the narrow web in whose width a mispick occurs.

605,020. ADJUSTABLE HOLDBACK. FERDINAND SIER, Allentown, Pa. Filed Aug. 31, 1897. Serial No. 650,073. (No model.)



Claim.—1. In a holdback, a casing secured to the shaft, a bolt having a limited rotation transversely projected through the casing and formed with lugs extending at the side of the casing, a breeching, means to hold the bolt in adjusted position against rotation, a lever-bar in the end of the breeching and formed with a laterally-extending lug to set between the lugs on the bolt, and a fastening-bolt in the casing and the breech-lever bar.

2. In a holdback, a casing adapted to be secured to the shaft of a road-vehicle, a bolt extended transversely through the casing, a breech-carrier connected to the bolt, a metal sleeve on the bolt formed with an arm, and a spiral spring on the sleeve having one end lodged on the said arm and the other end lodged in the casing.

3. In a holdback, a casing adapted to be secured to the shaft of a road-vehicle, a bolt extended transversely through the casing, a breech-carrier connected to the bolt, a metal sleeve on the bolt formed with an arm, a spiral spring on the sleeve having one end lodged on the end of the said arm and the other end lodged in the casing, and a movable block in the casing to engage under the arm of the sleeve and adjust the position of the breech-carrier.

4. A holdback, comprising a casing adapted to be secured to the shaft of a road-vehicle, a bolt extended transversely through the casing, a breech-carrier connected to the bolt whereby the bolt may be turned with its connections, a trace carrier and guide on the bolt, a metal sleeve on the bolt within the casing, a spiral spring on the sleeve against the torsional force of which the bolt and sleeve have a limited rotation, a movable cam-block to hold the sleeve and bolt in adjusted position, and a swiveled screw to move the cam-block.

605,021. PNEUMATIC TIRE. FREDERICK R. SIMMS, London, England. Filed June 1, 1897. Serial No. 639,081. (No model.) Patented in England July 22, 1896, No. 16,261, and in France Dec. 26, 1896, No. 262,573.



Claim.—1. In a vehicle-wheel, the combination with the rim, of a pneumatic cushion surrounding the same, secured to said rim and having separate flanges or edges along its periphery, a tread portion surrounding said cushion, and fastening devices separate from the tread and cushion for positively securing the said tread portion to said edges or flanges, substantially as described.

2. In a vehicle-wheel, the combination with the rim, of a pneumatic cushion surrounding the same, secured to said rim and having separate flanges or edges along its periphery, a tread portion surrounding said cushion, and fastening devices extending transversely through said flanges and a portion of said tread, substantially as described.

3. In a vehicle-wheel, the combination with the rim, of a pneumatic cushion secured to and surrounding the rim, and a tread portion surrounding and secured to said cushion, said rim and tread having, the one, guiding devices, adapted to engage the other to prevent lateral play of the tread and rim with respect to each other, substantially as described.

4. In a vehicle-wheel, the combination with the rim, of a pneumatic cushion secured to and surrounding the rim, and a tread secured to and surrounding said cushion, said rim and tread having the one, projections, engaging recesses in the other, for preventing the lateral movement of said rim and tread with respect to each other, substantially as described.

5. In a wheel the combination of a rim having lateral grooves or recesses, of a pair of india-rubber or other rings having outer peripheral flanges and lateral flanges to enter the said grooves or recesses, of a pair of metal rings forming an outer casing and of a tread having a central rib, which passes up between the outer peripheral flanges and is provided with a groove or holes (or with sockets to receive balls having holes) into which enter the ends of the spokes of the wheel which project from the rim, substantially as described.

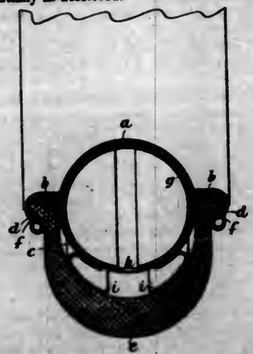
6. In a vehicle-wheel, the combination with the rim, of a pneumatic cushion secured to and surrounding the rim, said cushion being open along its periphery forming peripheral flanges or edges, a tread surrounding said cushion and having a portion adapted to enter between said edges or flanges, said rim and the inwardly-extending portion of said tread being provided the one, with projections, and the other with guiding-recesses to receive said projections, to prevent the lateral movement of said rim and tread with respect to each other, substantially as described.

7. In a vehicle-wheel the combination with the rim, of a pneumatic cushion secured to and surrounding said rim, said cushion being open at its periphery forming peripheral flanges or edges, a tread surrounding said cushion and provided with portions adapted to enter between the edges of said cushion and retaining devices passing transversely through said edges of the cushion and the inwardly-extending portion of the tread, substantially as described.

8. In a vehicle-wheel, the combination with the rim having a deep central groove and having its edges provided with lateral annular grooves, of a pneumatic cushion engaging said central groove and provided on each side with an annular rib to engage one of said lateral grooves in said rim, said cushion being open along its periphery and forming peripheral edges, a tread surrounding said cushion and engaging said peripheral edges, fastening devices extending transversely through said edges of the cushion and through said tread, and fastening devices extending transversely through the lateral grooved portions of said rim and through the lateral ribs of the cushion, substantially as described.

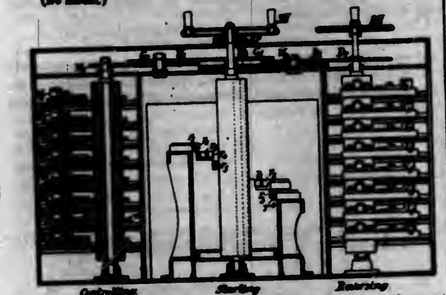
605,022. WHEEL FOR MOTOR-CARS OR OTHER VEHICLES. FREDERICK R. SIMMS, London, England. Filed Dec. 28, 1897. Serial No. 664,067. (No model.)

Claim.—1. In a pneumatic tire, the combination of a rim having lateral flanges, of an auxiliary or supplementary rim perforated around its periphery and having lateral flanges or recesses, of an outer covering having lateral flanges to engage in the lateral recesses of the auxiliary rim, of strips of suitable material cemented at one end to the outer surface of the auxiliary rim and of an inner air-tube arranged between the two rims and split around its outer periphery, substantially as described.



2. The described pneumatic tire and rim for the wheels of motor-cars, velocipedes and other vehicles consisting of the rims *a* and *c*, tire proper *c*, split inner or air tube *g* and valve flaps or strips *i*, *i*.

605,023. ELECTRIC SWITCH FOR USE WITH ELECTRICALLY-PROPELLED VEHICLES OR LOCOMOTIVES, &c. ALBION T. SNELL and CHARLES R. GROVE, London, England, assignors of one-third to Arnold Frank Hills, same place. Filed Oct. 8, 1897. Serial No. 654,882. (No model.)



Claim.—1. The combination with a switch for opening and closing an electric circuit, of a second switch carrying two or more series of contacts for the purpose of distributing the current flowing through the said circuit in various manners through subsidiary circuits, and of a third switch having contacts for reversing the direction in which the current flows through the circuits connected with it, the last-mentioned switch being interlocked with the first-mentioned switch in such a manner that it can only be moved when the latter is in the "off" position while the second switch is designed to receive its motion from the first switch through gearing in such a manner that when the first switch is in a position to allow the passage of a current through it the second switch is in position to distribute the current through one or other of its sets of contacts, substantially as described.

2. A compound switch comprising among its members, a starting-switch and a controlling-switch for coupling the motors in different relations, and mechanism for imparting an intermittent movement to the controlling-switch from the starting-switch, substantially as described.

3. A compound switch comprising among its members, a starting-switch, a controlling-switch for coupling the motors in different relations, mechanism for imparting an intermittent movement to the controlling-switch from the starting-switch, and a reversing-switch independent of the controlling-switch and interlocked with the starting-switch, substantially as described.

4. A compound switch comprising among its members, a starting-switch provided with a series of sets of resistance-contacts, a controlling-switch for coupling the motors in different relations, and mechanism for imparting an intermittent movement to the controlling-switch from the starting-switch while the latter is passing from one set of contacts to another, substantially as described.

5. A compound switch comprising among its members, a starting-switch provided with a series of sets of contacts, a controlling-switch for coupling the motors in different relations, mechanism for imparting an intermittent movement to said controlling-switch from the starting-switch, while the latter moves from one set of contacts to another, and a reversing-switch independent of the controlling-switch and interlocked with the starting-switch, substantially as described.

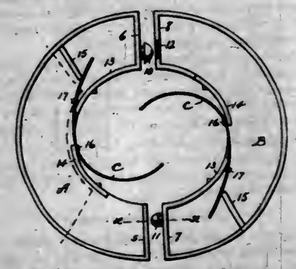
6. A compound switch comprising among its members, a starting-switch provided with a series of contacts, a gear-disk having concentric rests and operating-teeth, and a controlling-switch provided with a series of sets of contacts and with a gear-disk having inwardly-curved portions to engage the said concentric rests and recesses to engage the said operating-teeth, substantially as described.

7. A compound switch comprising among its members, a starting-switch provided with a series of contacts, and a driving-shaft having a driving-disk provided with concentric rests and operating-teeth, a controlling-switch for coupling the motors in different relations having a gear-disk provided with inwardly-curved faces to engage said concentric rests and recesses to engage said operating-teeth, a reversing-switch provided with a segmental locking-recess, and a locking-disk operatively connected with the shaft of the starting-switch provided with a segmental locking-recess, substantially as described.

8. A compound switch comprising among its members, a starting-switch provided with a plurality of sets of contacts arranged in a circle, with an "off" space between adjacent sets, a controlling-switch provided with a plurality of sets of contacts for coupling the motors in different relations, and gearing operatively connecting said starting-switch with the controlling-switch and so constructed that the controlling-switch will be moved from one set of contacts to another while the starting-switch is in one of its off positions, substantially as described.

9. A compound switch comprising among its members, a starting-switch provided with a plurality of sets of contacts arranged in a circle, with an "off" space between adjacent sets, a controlling-switch provided with a plurality of sets of contacts for coupling the motors in different relations, and gearing operatively connecting said starting-switch with the controlling-switch and so constructed that the controlling-switch will be moved from one set of contacts to another while the starting-switch is in one of its off positions, and means for preventing the reversing of the direction of movement of said starting-switch, substantially as described.

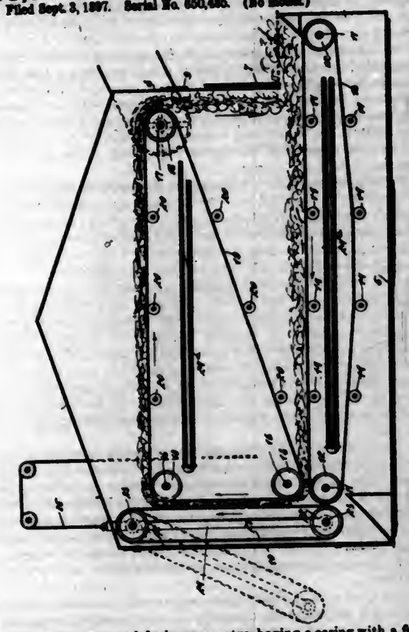
605,024. FLOOR AND CEILING PLATE. LYMAN H. SNYDER and WILLIAM G. CHRISTIAN, Rocky Hill, Conn.; said Christian assignor to said Snyder. Filed Nov. 9, 1897. Serial No. 657,953. (No model.)



Claim.—1. A two-part floor or ceiling plate the two parts of which are provided with end walls at their confronting ends, the end walls at one side of the plate having the hooked projection on one part and the hole 9 on the other part for receiving said hooked projection, the end walls at the opposite side of the plate having respectively on the two parts the headed projection and open notch or recess for engaging each other, substantially as described.

2. In a floor and ceiling plate, the combination of the parts having the spaced walls at their inner edges, the oppositely-projecting pins on said walls at the opposite sides of the space between them, a stud or post as at 15 adjacent to one of said walls and pins, and the slotted spring bearing against said stud or post, extending through the space between said walls with the opposite ends of its slot engaging said pins and with one end of the spring projecting from the inner edge of the plate, substantially as described.

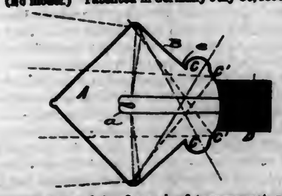
605,025. WOOL-DRIER. JAMES W. SPENCER, Providence, R. I. Filed Sept. 3, 1897. Serial No. 650,495. (No model.)



Claim.—1. A wool-drying apparatus, having a casing with a forwardly-projected lower portion, the top of which is open to form a feed-orifice, an endless apron having two horizontal runs mounted in the lower portion of the casing and extending into the forwardly-projected portion beneath the feed-orifice, a second endless apron mounted in the casing above the first apron, and having three runs, representing each the side of a triangle, one run extending vertically perpendicular to the first-named apron, and the uppermost run of the second apron extending horizontally to the front of the casing, and a third endless apron extending vertically at the rear of the other aprons, the vertical run of the third apron passing into immediate proximity with the vertical run of the second apron, so that the wool will be conveyed in an endless course horizontally along the first apron, then vertically between the second and third aprons, and finally forwardly over the uppermost run of the second apron, from which the wool is dropped back to the first apron.

2. A wool-drying apparatus, having a casing, a horizontal endless apron arranged in the lower portion thereof and capable of carrying the wool in a horizontal plane, a second endless apron mounted above the first apron and within the casing, and having three runs describing a triangular form, one run extending upward from the first apron, the second run extending horizontally, and the third run extending diagonally between the first and second runs, and a third endless apron extending parallel and in proximity with the vertical run of the second apron.

605,026. GLOBE FOR INCANDESCENT LAMPS. VICTOR DE SPRUNER-MERTZ, Brussels, Belgium. Filed Nov. 16, 1897. Serial No. 658,916. (No model.) Patented in Germany July 30, 1896, No. 92,154.



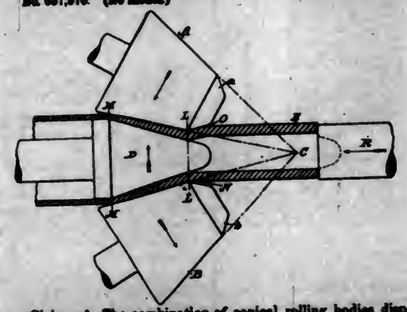
Claim.—1. A lamp-globe formed of transparent material and consisting of a double conical portion truncated at one end, a narrow conical portion, and an intermediate annular portion integrally connecting the two first-named portions, the said conical portion and the adjacent member of the double conical portion being lined with reflecting material, and the source of light being adapted to be situated between the annular portion and the extreme end or tip of the globe, substantially as described.

2. A lamp-globe formed of transparent material and consisting of a double conical portion truncated at one end, a narrow conical portion, and an intermediate bulging and annular portion integrally connecting the two first-named portions, the walls of the truncated member of the double conical portion and the conical portion being lined with reflecting material and being substantially parallel and the source of light being adapted to be situated between the annular portion and the extreme end or tip of the globe, substantially as described.

3. A globe for incandescent electric lamps formed of transparent material and consisting of a double conical portion truncated at one end and having the meeting ends of its members joined in a curved surface, a narrow conical portion, and an intermediate bulging and annular portion integrally connecting the two first-named portions, the wall of the double conical portion being lined with reflecting material from its truncated end to and somewhat beyond the line of junction of the members of said portion, the wall of the conical portion being likewise lined with reflecting material and arranged substantially parallel to the wall of the truncated member of said double conical portion, and the source of light being adapted to be situated between the annular portion and the extreme or tip end of the globe, substantially as described.

4. A globe for incandescent electric lamps formed of transparent material and consisting of a double conical portion truncated at one end and having the meeting ends of its members joined in a curved surface, a bulging portion adjoining said truncated end of the double conical portion, a narrow conical portion, and an annular portion, all integrally connected together in the order named, the wall of the double conical portion being lined with reflecting material from its truncated end to and somewhat beyond the line of junction of the members of said portion, the wall of the conical portion being also lined with reflecting material and arranged parallel to the wall of the truncated member of said double conical portion, and the source of light being adapted to be situated approximately in the plane of the line of junction of said members of the double conical portion, substantially as described.

605,027. MECHANISM FOR EXPANDING OR ENLARGING METALLIC TUBES. RALPH C. STEPHS, Elwood City, Pa., assignor to the Shelby Steel Tube Company, Pittsburg, Pa. Filed May 24, 1897. Serial No. 637,970. (No model.)



Claim.—1. The combination of conical rolling bodies disposed to form a pass between them the sides of which converge toward the entrance end, the diameters of the rolling bodies diminishing progressively in the same direction and in the same ratio as the width of the pass with a mandrel located in said pass, substantially as set forth.

2. The combination of conical rolls disposed to form a pass between them, the sides of which converge toward its entrance end, a mandrel located in said pass the working surfaces of which converge toward the entrance end more rapidly than do the sides of the pass, the diameters of the rolls diminishing progressively in the same direction and in the same ratio as the width of the pass, substantially as set forth.

3. The combination of conical rolls disposed to form a pass between them the sides of which converge toward its entrance end, a conical mandrel located in said pass the working surfaces of which converge toward the entrance end more rapidly than do the sides of the pass, the axes of the opposed rolls and the lines of their working faces substantially converging in a common point on the axial line of the pass substantially as set forth.

4. The combination of conical rolling bodies disposed to form a pass between them, the sides of which converge toward its entrance end, a conical mandrel located in said pass, the working surfaces of which converge toward the entrance end more rapidly than do the sides of the pass, the axes of the opposed rolling bodies intersecting the plane of the pass and diverging therefrom and means for forcing hollow billets or blanks endwise into the pass and against the mandrel, substantially as set forth.

5. The combination of conical rolls disposed to form a pass between them the sides of which converge toward its entrance end, a conical mandrel located in said pass the working surfaces of which converge toward the entrance end more rapidly than do the sides of the pass, the axes of the opposed rolls intersecting the plane of the pass and diverging therefrom, and means for forcing hollow billets or blanks endwise into the pass and against the mandrel substantially as set forth.

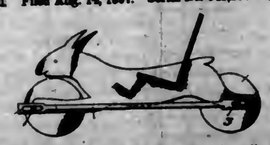
6. The combination of conical rolls disposed to form a pass between them the sides of which converge toward its entrance end, a conical mandrel located in said pass the working surfaces of which converge toward the entrance end more rapidly than do the sides of the pass, the diameters of the rolls diminishing in the same ratio as the width of the pass diminishes, with means for forcing hollow billets or blanks endwise into the pass and against the mandrel substantially as set forth.

7. The combination of conical rolls disposed to form a pass between them the sides of which converge toward its entrance end, a conical mandrel located in said pass, the axes of the opposed rolls and the lines of their working surfaces converging toward a common point on the axial line of the pass, the rolls being adjustable toward or away from each other by swinging about an axis passing through the said common point and at right angles to a common plane of the axes of the roll and of the pass substantially as set forth.

8. The combination of conical rolls disposed to form a pass between them the sides of which converge toward its entrance end, a conical mandrel located in said pass, the axes of the opposed rolls and the lines of their working surfaces converging toward points on a common line drawn through the axis of the pass at a right angle to a plane through the axis of the pass and through the straight line which intersects the center of the pass at a right angle and also the axes of the rolls, the rolls being adjustable toward or away from each other by swinging about an axis on said common line as set forth.

9. The combination of conical rolls disposed to form a pass between them the sides of which converge toward its entrance end, a conical mandrel located in said pass the working surfaces of which converge toward the entrance end more rapidly than do the sides of the pass, the axes of the opposed rolls being oppositely inclined relatively to the plane of the pass and their axes and the lines of their main working surfaces converging toward points on a common line drawn through the axis of the pass at a right angle to its said plane, with the additional surfaces *a*, and *b*, on the small ends of the rolls outside of the narrowest part of the pass substantially as and for the purpose set forth.

605,028. FOOT-PROPELLED VEHICLE. GEORGE STERKER, Chicago, Ill. Filed Aug. 14, 1897. Serial No. 648,200. (No model.)



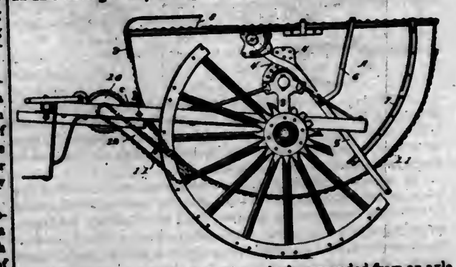
Claim.—1. In a device of the character described, the combination with a series of wheels and crank-pins on the inner sides thereof, of a body loosely mounted upon said pins, and a connection between the crank portions of the pins having a sliding engagement with one of said crank portions, substantially as described.

2. In a device of the character described, the combination with a series of wheels, of crank-pins having their crank portions disposed oppositely, a body loosely mounted upon said pins, and a reach-rod connecting the crank portions of the pins, and having a limited sliding movement thereon, substantially as set forth.

3. In a device of the character described, the combination with a series of wheels, of crank-pins connecting said wheels in pairs, a body loosely mounted thereon, and a rod loosely connected at one end to the crank portion of one of said pins and slotted at its opposite end to receive the crank portion of the opposite pin, substantially as set forth.

605,029. DUMPING-CART. JAMES W. TAYLOR, Herndon, Va., assignor to the United States Sanitary Company, of Virginia. Filed June 6, 1894. Serial No. 513,602. (No model.)

Claim.—1. In a dumping-vehicle having a body provided with a tube extending from side to side and suspended from an axle the combination of such body, a bearing-piece attached to the body and an axle having a cooperating bearing-face substantially as described.



2. In a dumping-vehicle having a body suspended from an axle, the combination of such body, a flanged plate attached to the body, and an axle having a collar outside the body upon which the flanged plate rests to support the body as set forth.

3. In a dumping-vehicle the combination of a body, a swinging lid, a lever pivoted to one side of the body, and extending downwardly to be operated from the ground, and a link connecting the lever and the lid, substantially as described.

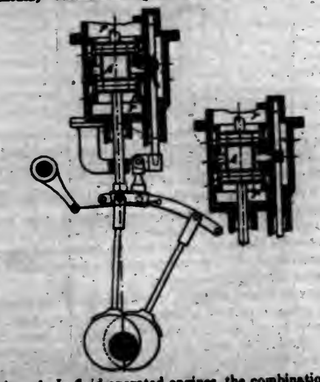
4. In a dumping-vehicle the combination of a body, a swinging lid or cover for said body, a lever alongside the body, and stops or catches alongside the body for holding the lever and the lid in desired positions, substantially as described.

5. In a dumping-vehicle the combination of a swinging body a swing-lid, a lever arranged alongside the body connected with the lid, and a notched segment on the side of the body for holding the lever and lid in desired positions, substantially as described.

6. In a dumping-vehicle the combination of a body, a lever arranged to project downward by the side of the body, a lid connected with the lever and means attached to the side of the body for holding the lid in a closed position under tension, substantially as described.

7. In a dumping-vehicle, the combination of an eccentrically-swinging body, a chain extending around the lower side of said body, a windlass and a take-up, substantially as described.

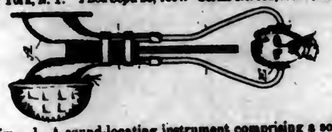
605,080. VALVE MECHANISM FOR ENGINES. COURTNAY W. THOMPSON, London, England. Filed Oct. 24, 1896. Serial No. 609,936. (No model.) Patented in England Apr. 16, 1896, No. 8,049.



Claim.—1. In fluid-operated engines, the combination of a cylinder, with the main valve or valves, and the cut-off valve, having a cushioning-space located between the main and cut-off valve-faces and adapted to receive compression alternately from both ends of the cylinder, and mechanism for operating said valves, whereby the exhaust and cushioning conditions are controlled independently of the control of the variable expansion, substantially as described.

2. In fluid-operated engines, the combination of a cylinder, with the main valve or valves, and the cut-off valve, having a cushioning-space located between the faces of the main and cut-off valves and adapted to receive compression alternately from both ends of the cylinder and to alternately place the ends of the cylinder in communication, and mechanism for operating said valves, whereby the exhaust and cushioning conditions are controlled independently of the control of the variable expansion, substantially as described.

605,081. SOUND-LOCATING INSTRUMENT. LEVI E. THORNE, New York, N. Y. Filed Sept. 23, 1897. Serial No. 652,719. (No model.)



Claim.—1. A sound-locating instrument comprising a sound-receiver of funnel or trumpet shape, the mouth of which is provided with a flat flange projecting outward in a plane substantially transverse to the axis of the receiver at its mouth, substantially as and for the purposes hereinbefore set forth.

2. A sound-locating instrument, comprising two receivers of funnel or trumpet shape whose mouths point in substantially opposite directions, the mouth of the receivers being provided with flat flanges extending outward in planes substantially transverse to the axes of the receivers at their mouths, substantially as and for the purposes hereinbefore set forth.

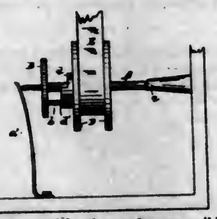
3. In a sound-locating instrument, a receiver for collecting the sound, the outer flaring portion of which is bellied on its rear part adjacent to the mouth, substantially as and for the purposes hereinbefore set forth.

4. The combination with the receiver of a sound-locating instrument, of a wind-screen supported across and covering the edges of the mouth of the receiver, substantially as and for the purposes hereinbefore set forth.

5. The combination with the receiver of a sound-locating instrument, of a frame supported directly by the receiver and arranged over the mouth thereof, and a wind-screen drawn over the frame, substantially as and for the purposes hereinbefore set forth.

6. In combination with a receiver of a sound-locating instrument, of a funnel or trumpet shape, of a wind-screen of flexible material, and means for stretching the screen across the open end or mouth of the receiver, and over the edges thereof and for securing it directly thereto, substantially as and for the purposes hereinbefore set forth.

605,082. TYPE-WRITING-MACHINE RIBBON-SPOOL. HENRY H. UHL, Philadelphia, Pa. Filed Feb. 11, 1890. Serial No. 340,055. (No model.)



Claim.—1. As a new article of manufacture, a ribbon-spool provided with a step or projection adapted to coact with a fixed stop on the machine for locating the position of the ribbon on the spool with reference to the point of impact of the type.

2. As a new article of manufacture, a ribbon-spool provided with two or more steps or projections at its head, said steps projecting different extents and adapted to coact with a fixed step or projection on the machine to locate the position of the ribbon with reference to the printing-point of the type and to vary the position of the ribbon with reference to said printing-point.

3. In a type-writing machine, in combination, a ribbon-spool provided with a step or projection at its head, and a stop upon the machine adapted to rest upon the step or projection to locate the position of the ribbon with reference to the printing-point of the type and to vary the position of the ribbon with reference to said printing-point.

4. In a type-writing machine, in combination, a ribbon-spool, provided with two or more projections or steps at its head, said steps projecting different extents, and a stop upon the machine adapted to rest against the steps upon the ribbon-spool.

5. In combination, a ribbon-spool shaft, a disk upon said shaft, a pin projecting from said disk, a ribbon-spool upon said shaft, and a projection or step upon the head of said spool, adjacent to the said disk.

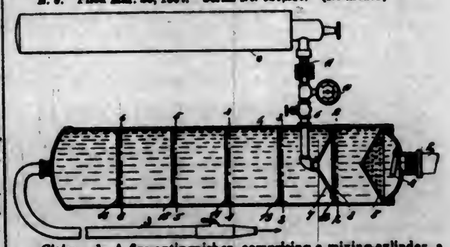
6. In combination, a ribbon-spool shaft, a disk upon said shaft, a pin projecting from said disk, a ribbon-spool upon said shaft, and two or more projections or steps upon the head of said spool, adjacent to the said disk, said steps projecting different extents from the body of the head.

7. In combination, a ribbon-spool shaft, a driving ratchet-wheel upon said shaft, a projection from said ratchet-wheel, a ribbon-spool upon said shaft and a projection or step upon the head of said spool adjacent to the said ratchet-wheel.

8. In combination, a ribbon-spool shaft, a driving ratchet-wheel upon said shaft, a pin projecting from said ratchet-wheel, a ribbon-spool upon said shaft, and projections or steps upon the head of said spool adjacent to the ratchet-wheel, said steps projecting different extents from the body of the head.

9. In combination, a ribbon-spool shaft, a spring substantially as described upon said shaft, a ribbon-spool retained upon said shaft by said spring, projections or steps upon the head of said spool, a driving ratchet-wheel upon said shaft and a pin projecting from said ratchet-wheel.

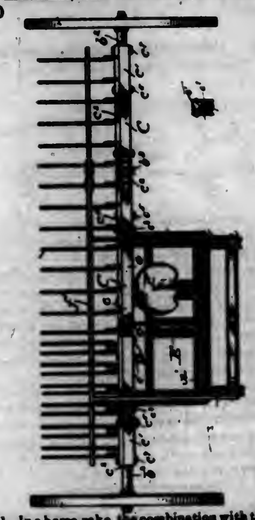
605,088. FIRE-EXTINGUISHER. ABRAM H. VAN RIPER, Nutley, N. J. Filed Mar. 25, 1897. Serial No. 630,290. (No model.)



Claim.—1. A fire-extinguisher, comprising a mixing-cylinder, a water-inlet therefor, a perforated conical disk forward of the inlet, an outlet-pipe, a cylinder for containing gas, a pipe leading from said gas-containing cylinder into the mixing-cylinder and having a perforated disk outlet discharging in the direction of the inlet of the first-named cylinder, and means for mixing the gas and water in the first-named cylinder, substantially as specified.

2. A fire-extinguishing apparatus, comprising a mixing-cylinder, a water-inlet therefor, a water-outlet therefor, a cylinder for containing gas under pressure, a pipe leading from the gas-cylinder to the interior of the mixing-cylinder and having a funnel-shaped nozzle, a perforated diaphragm secured to the nozzle, and a series of perforated partitions in the mixing-cylinder, the perforations through said partitions being variously placed, the perforations of one partition relatively to those of another, substantially as specified.

605,084. FOLDING HAY-RAKE. JAMES R. VAUGHN and MCHENRY JENKINS, Walnut Shade, Tenn. Filed Dec. 15, 1896. Serial No. 615,705. (No model.)



Claim.—1. In a horse-rake, the combination with the draft-frame, of a telescopic axle having a slotted tubular central portion pivotally connected with said frame, axle end portions adjustable lengthwise in said tubular central portion, means for holding said end portions at the desired adjustment, a sectional folding rake bar or head mounted upon said axle and having its central portion rigidly connected to the axle to rock with it and its hinged and folding end sections provided each with pendent legs adapted to straddle and engage the telescoping end sections of the axle between them, and means mounted upon the draft-frame for rocking the rake-head and axle, substantially as described.

2. In a horse-rake, the combination with the draft-frame, of the telescopic axle, comprising the central tubular longitudinally-slotted portion and end extension portions mounted to slide in the tubular portion, securing-screws moving in the slots of the central tubular portion to engage and lock said extension portions in adjusted position, and a sectional folding rake-bar secured to said axle to rock with it, and having its folding end portions provided with pendent legs adapted to engage the telescoping end portions of the axle on opposite sides thereof, for the purpose and substantially as described.

605,085. FOUNTAIN-PEN. JOHN WEEKS, Brooklyn, N. Y., assignor of three-fourths to John H. Marsh, same place. Filed June 30, 1897. Serial No. 642,991. (No model.)



Claim.—1. In a fountain-pen, a barrel having a valve-seat, a plunger held to travel in the barrel, a valve controlled by the plunger, adapted for engagement with the said seat, and means for operating the plunger, substantially as described.

2. In a fountain-pen, a plunger, and a valve connected therewith, located within the barrel of the pen, the plunger being arranged to draw the ink from the nib or to force the ink in direction thereof, the valve controlling the supply of ink to the nib, as specified.

3. In a fountain-pen, the combination with a barrel, of a plunger movable longitudinally within the barrel of the pen, and a valve connected with the said plunger and located within the barrel of the pen, the said plunger when moved in one direction drawing the ink from the nib and when moved in the opposite direction forcing the ink toward the nib, the said valve controlling the supply of ink to the nib, substantially as specified.

4. In a fountain-pen, the combination with a barrel having its lower end provided with a chamber communicating by a contracted opening with the interior of the barrel, and a valve controlling the passage of material from the body of the barrel to the said chamber, the said valve having a rod extending upward into the barrel, of a plunger connected with the upper end of said valve-rod, and means for imparting movement to said plunger longitudinally of the barrel, substantially as set forth.

5. In a fountain-pen, the combination with a barrel having its lower end provided with a chamber communicating with the interior of the barrel, and a valve controlling the passage of material from the body of the barrel to the said chamber, of a stem arranged to turn in the upper portion of the barrel and held against end movement, the said stem being capable of being operated from the outside of the barrel and having its inner or lower end threaded, and a plunger arranged to travel on the threaded portion of said stem when the stem is turned, said plunger being connected with the said valve, substantially as described.

6. In a fountain-pen, the combination with a barrel, and a stem extending through an opening in the top of the barrel and fitted to turn therein, the outer end of the stem being provided with a knob by which the stem may be turned, the said stem being provided inside the barrel with a collar to prevent end movement and the lower portion of the stem within the barrel being provided with an exterior thread, of a plunger held to travel upon the lower threaded portion of the stem, the said plunger having a tubular extension at its lower portion of less diameter than the plunger, a nose arranged to carry a pen-sleeve at its lower end and screwing into the lower end of the barrel, the said nose being formed with a chamber and having a contracted opening in its top connecting said chamber with the interior of the barrel, and a valve arranged to control the passage of material from the body of the barrel to the said chamber, the said valve being provided with a rod extending upward in the barrel and connected at its upper end to the tubular extension of the plunger, substantially as shown and described.

605,086. CURTAIN-HOLDER. EDWARD F. WILKINSON, New York, N. Y. Filed Jan. 12, 1898. Serial No. 666,429. (No model.)

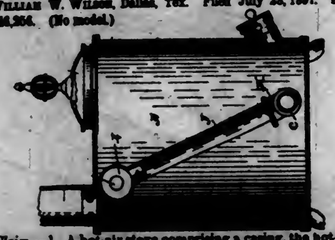


Claim.—1. In a curtain-holder, the combination with a hollow ring having slots in its outer circumference; of a pair of similar curved rods extending through opposite sides of said hollow ring and projecting at their ends from said slots; gripping-jaws formed upon one pair of corresponding ends of said curved rods; thumb and finger grips formed upon the other pair of corresponding ends of said curved rods; and a spring interposed between said thumb and finger grips, substantially as described.

2. In a curtain-holder, the combination with a ring provided with passages upon opposite sides thereof; of a pair of curved rods passing through said passages, and bent outwardly at their ends; gripping-jaws formed upon one pair of corresponding ends of said curved rods; thumb and finger grips formed upon the other pair of corresponding ends thereof, and a spring interposed between said thumb and finger grips, substantially as described.

3. In a curtain-holder, the combination with a ring provided with passages upon opposite sides thereof; of a pair of semicircular rods passing through said passages upon opposite sides of said ring; one pair of corresponding ends of said rods being bent outwardly and carrying rigid gripping-jaws, and a spring acting upon said rods and tending to hold said gripping-jaws closed, substantially as described.

605,087. AIR-TIGHT HEATING-STOVE. JOHN W. WILSON and WILLIAM W. WILSON, Dallas, Tex. Filed July 23, 1897. Serial No. 645,264. (No model.)



Claim.—1. A hot-air stove comprising a casing, the hot-air drum and tubes situated therein and having external and internal communications, and a regulating member adapted to control the said interior and exterior communications, the parts operating in the manner substantially as described.

2. A hot-air stove comprising a casing, a hot-air drum extending across the upper portion thereof and having communication with the atmosphere outside of the casing, depending tubes connected therewith and within the said casing, and tubes extending transverse the lower end of the depending tubes, the said transverse tube having internal and external communications, and means for controlling the said communications of the transverse tube, substantially as described.

3. A hot-air stove comprising a casing; a hot-air tube or drum situated therein and having an external communication, a tube having internal and external communications at the lower portion of the stove, and communicating with the hot-air tube or drum, and a member for controlling the internal and external communications of said tubes, substantially as described.

4. A hot-air stove comprising a casing, a hot-air tube or drum extending transverse the upper portion of the stove and having communication with the atmosphere outside of the stove-casing, tubes extending downward near the ends of the air-tube and within the casing, and tubes extending transverse the lower ends of the downwardly-extending tubes, the said transverse tubes having internal and external communications or openings, and valves situated within the tubes for closing the internal or external openings, substantially as described.

5. A hot-air stove comprising a hot-air drum and tubes forming a U in shape, the transverse portion of the U being at the upper portion of the casing, and the lower ends or extremities of the U provided with internal and external communications, and means for controlling the said communications, substantially as described.

6. In a hot-air stove, the combination of a hot-air drum or tube extending across the upper portion of the casing and having external communication, tubes extending downward from the said air-tube and having transverse internal screw-threaded sockets, external screw-threaded tubes passing through the said sockets, and external clamps placed upon the outer ends of the transverse tubes and clamping them in position, substantially as described.

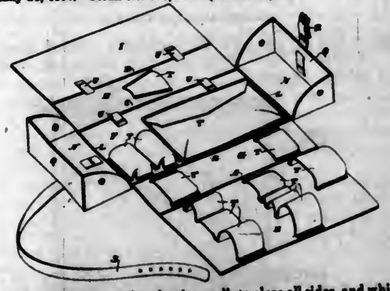
7. A hot-air stove comprising a hot-air drum spanning the upper portion thereof and having exterior communications, tubes depending from said drum to the lower portion of the stove, transverse screw-threaded tubes at the lower ends of the depending tubes, the screw-threaded tubes passing through the stove, and screw-threaded clamping-caps upon the projecting ends of the screw-threaded tubes, the caps having openings, substantially as described.

8. A hot-air stove comprising a casing, a hot-air tube or drum extending across the upper portion thereof and communicating with the atmosphere, and a tube extending downward therefrom within the casing, the lower end of the tube having an interior and exterior communication, substantially as described.

9. A hot-air stove comprising a casing, a hot-air drum and tubes forming substantially a U in shape, the transverse portion of the U extending across the casing and having its ends communicating with the atmosphere, the tubes having one end communicating with the drum and their opposite ends having interior and exterior communications, substantially as described.

10. A hot-air stove comprising a casing, a drum and tubes forming substantially a U in shape, the drum extending across the casing and communicating with the atmosphere, the tubes having one end communicating with the drum and their opposite ends communicating with the atmosphere, substantially as described.

605,038. BAG OR BOX. JOHN L. WIRT, Washington, D. C. Filed May 26, 1897. Serial No. 636,251. (No model.)



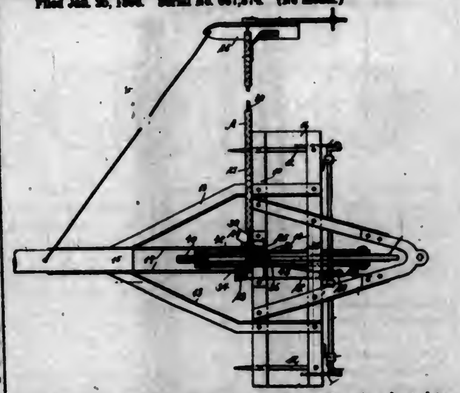
Claim.—1. A bag or box having walls to close all sides, and which are hinged or flexibly connected together, two of which, forming opposite ends of the box, being hinged on lines that intersect the lines on which the other walls are hinged, and having each portions that are rigidly held in fixed relation thereto, that overlap the ends of all of the other walls, except the one to which it is hinged, when the box is in a closed position, to hold or restrain the same from opening on their flexible connections, substantially as and for the purpose specified.

2. A bag or box having all of its walls connected in one piece, the walls that form the four sides of the bag or box being flexibly connected on parallel lines, and the two walls that form the ends of the same being flexibly connected on lines at right angles to the others, and having each rigid portions that overlap three of the box or bag sides, substantially as and for the purpose specified.

3. A bag or box having walls that are flexibly connected on parallel lines, and walls that are flexibly connected on lines at right angles to the connections of the others, and swing in opposite directions to each other, and having portions to overlap other walls to hold the same in a closed position, said two sets of walls, forming all of the sides of the box and a strap connecting said holding-walls to secure them in holding position, substantially as and for the purpose specified.

4. A bag or box formed of a single piece of material having the shape of a parallelogram with prolongations on opposite sides, the parallelogram being scored on parallel lines, and the prolongations being each scored on lines at right angles to, and lines parallel with said other scores, the parts of each prolongation being folded on certain of said scores to bring their free edges together, said edges being fastened together to hold the parts in fixed relation, substantially as and for the purpose specified.

605,089. CORN-PLANTER. SAMUEL M. WILSON, Marcus, Iowa. Filed Jan. 25, 1896. Serial No. 577,574. (No model.)



Claim.—1. In a planter, a marker consisting of a tube adapted to be pivoted to a support, a runner attached to the tube, and a shaft extending loosely through the tube and through the runner, the shaft being provided with a crank-arm parallel with the runner and arranged to receive a hoe, as and for the purpose set forth.

2. In a planter, the combination, with a seed-drop mechanism, of a marker consisting of a pivoted tube, a rock-shaft within the said tube, provided with a crank-arm at its outer end, and a hoe carried by the said crank-arm of the shaft, substantially as described.

3. In a planter, the combination, with a seed-dropping mechanism, of a marker consisting of a tube pivotally attached to the machine, a runner attached to the outer end of the tube, a rock-shaft loosely mounted in said tube and extending through said runner, the shaft at its outer end being provided with a crank-arm parallel with the runner, a hoe adjustable upon the said crank-arm, and a connection, substantially as described, between the said shaft and the seed-dropping mechanism of the planter, as and for the purpose specified.

4. In a planter, the combination, with the seed-dropping mechanism thereof, and wheels mounted in the frame on the said planter, one near the rear and the other near the front, of an endless check-belt passed over the said wheels, projections from the check-belt adapted for engagement with the ground, offsets formed at intervals on the said check-belt, a connection between the crank-shaft and the seed-dropping mechanism, a marker pivoted to a support of the said machine, the marker consisting of a tube carrying a runner, a shaft loosely mounted in the said tube, a hoe carried by the said shaft, and a crank-and-link connection between the said marker and the seed-dropping mechanism, as and for the purpose specified.

5. In a seed-planter, the combination with a frame, of a check-belt mounted to run on the frame and driven by contact with the ground, a rock-shaft, a post attached to the rock-shaft and engaged by the belt to turn the rock-shaft, a seed-drop shaft having connection with the rock-shaft and mounted on the frame, a tube attached to the frame and outrunning laterally therefrom, a runner attached to the outer end of the tube, a rock-shaft extending through the tube and having connection with the said drop-shaft, and a hoe carried at the outer end of the rock-shaft.

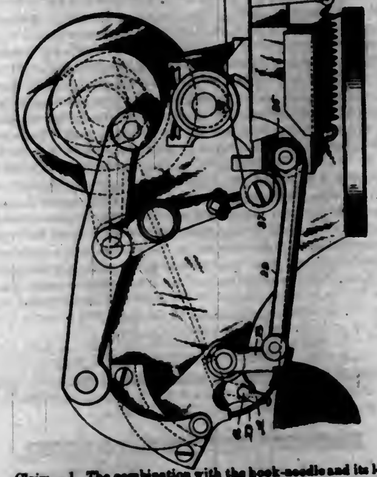
6. In a seed-planter, the combination with a frame of a tube pivotally mounted thereon and outrunning laterally therefrom, a rock-shaft extending through the tube, a runner attached to the outer end of the tube, means for operating the rock-shaft, and a hoe carried at the outer end of the rock-shaft.

7. In a seed-planter, the combination with the frame, of a tube mounted thereon and outrunning laterally therefrom, a rock-shaft extending through the tube, means for turning the rock-shaft, and a hoe carried at the outer end of the rock-shaft and periodically engaged with the ground by the movement of the rock-shaft.

8. In a seed-planter, the combination with a frame, of a check-belt mounted thereon and driven in unison with the movement of the planter, a checking device mounted on the frame and running out laterally therefrom, and means engaged by the check-belt for periodically operating said checking device.

9. In a seed-planter, the combination with a frame, of a check-belt mounted thereon and driven in unison with the movements of the planter, and a checking device mounted on the frame and driven from the check-belt, the checking device being run out laterally beyond the frame to mark the earth at the check-row contiguous to that on which the planter is traveling.

605,040. SEWING-MACHINE. FRANK CHASE, Malden, Mass., assignor to Walter Shaw, trustee. Filed May 22, 1895. Renewed Aug. 12, 1896. Serial No. 602,562. (No model.)



Claim.—1. The combination with the hook-needle and its looper, of a loop-keeper, located on that side of the work to which the loop is pulled by the needle, having a movement to and from the work with an intermediate period of rest during its loop-rendering movement, and actuating mechanism therefor, timed in their movements relatively to, and operating in connection with, the needle substantially as described, and means by which the slack or surplus of the old loop rendered by the loop-keeper before it attains its intermediate position of rest is drawn back to the side of the stock on which the needle takes its loops before the needle pulls the new loop through the stock; all substantially as hereinbefore set forth.

2. The combination with the hook-needle and its looper and the take-up for tightening the stitch, of a loop-keeper, located on that side of the work to which the loop is pulled by the needle, having a movement to and from the work with an intermediate period of rest during its loop-rendering movement, and actuating mechanism therefor, timed in their movements relatively to the needle and take-up substantially as described, whereby the loop-keeper retains that portion of the old loop needed to furnish the requisite supply of thread to one leg of the new loop, and at the same time takes the strain occasioned by the action of the take-up in setting the stitch, as set forth.

605,041. MUSICAL INSTRUMENT. THOMAS H. DOHERTY, Forsyth, Mont. Filed Nov. 27, 1896. Serial No. 613,809. (No model.)

Claim.—1. In a musical instrument of the character described, the combination with the instrument proper, of a rod or bar extending longitudinally of the body part on the under side of the head, a mute having a pair of arms surrounding said bar and a spring for holding said arms in frictional contact with said bar, whereby said mute may be adjusted back and forth or up or down, substantially as described.

2. In a musical instrument of the character described, the combination with a body part having the usual head and an opening in its under side, a neck secured to said body part, a rod or bar extending longitudinally of the body part on the under side of the head, of a mute having a pair of arms surrounding said bar and a spring for holding the said arms in frictional contact therewith.



3. In a musical instrument of the character described, the combination with a body part having the usual head and an opening in its under side, a neck secured to said body part, a rod or bar extending longitudinally of the body part on the under side of the head, of a mute made up of a single strip of metal having a flat upper surface and two arms projecting rearwardly therefrom and a spring for holding said arms in frictional contact with said bar.

4. In a musical instrument of the character described, the combination with the body part thereof, a head secured in said body part and a neck attached to said body, of a tailpiece made up of a single sheet of metal, bent at one point, one part thereof fitting against the rear end of said body part and formed with slots for the purpose described, and the other part bent forwardly and provided with end pieces having hooks substantially as described.

5. In a musical instrument of the character described, the combination with the body part thereof, a head secured in said body part and a neck attached to said body, of a tailpiece made up of a single sheet of metal, bent at one point, one part thereof fitting against the rear end of said body part and formed with loops for the purpose described, and the other part bent forwardly and provided with notches therein through which the strings of the instrument pass and a pivoted cap connected to said loops, substantially as and for the purpose set forth.

605,042. MINERAL WOOL. DAVID P. DEAN, St. Louis, Mo., assignor to the Missouri Smelting Company, same place. Filed May 20, 1897. Serial No. 637,459. (Specimens.)

Claim.—1. A mineral wool containing in chemical combination, silica, iron, lime, aluminium and lead.

2. A mineral wool containing in chemical combination, silica from thirty to forty per cent., iron from fifteen to twenty-five per cent., lime from thirty to forty per cent., and aluminium and lead from ten to fifteen per cent.

605,043. PIN OR PEG FOR STRINGS OF MUSICAL INSTRUMENTS. CHARLES GITTUS, London, England, assignor of one-third to Charles Gittus, Jr., and Louis C. Gittus, Golden Gate, Cal. Filed Dec. 29, 1897. Serial No. 664,461. (No model.)



Claim.—1. In a stringed musical instrument, a double-acting apparatus of the nature described consisting of a screw-plug having an

external thread and an internal thread in opposite directions, a string-holding pin provided with a screw-thread adapted to engage in the interior screw of the said plug, and a wrest-plank with a suitable hole into which the plug is screwed and wherein it may be turned either forward or backward so the pin and string will be moved with it at the same time and in the same direction by its opposite threads, substantially as set forth.

2. In an apparatus of the nature described, a string-holding pin made with a double-spiral groove the channels of which are suitably joined and in which the string may be coiled in opposite directions, substantially as set forth.

3. In a stringed musical instrument, a device for the purpose described comprising a screw-plug having an external thread engaging a screw-threaded hole in the wrest-plank, a string-holding pin provided with a screw-thread engaging a screw-thread on said screw-plug running in opposite direction to the first-mentioned external thread, said string-holding pin being provided with a spiral groove, substantially as set forth.

4. In an apparatus of the nature described, a pin having a hole cut obliquely from a point at its circumference toward its center and in the direction of its axis and a recess or slot forming a continuation thereof, and having a spiral groove combined with a string one end of which is passed through the said hole and recess or slot and thence wound about the said pin in said spiral groove, and a wrest-plank into which the pin is driven at an angle to the direction of the main part of the string and having a sloping way or passage through which is led the end of the string that is attached to the pin, substantially as set forth.

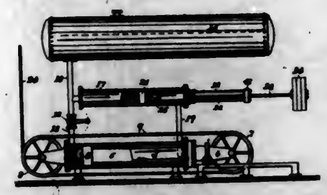
5. In an apparatus of the nature described, a wrest-plank provided with a screw-threaded hole, combined with a spirally-grooved pin inserted therein, a string coiled in the groove of said pin, a screw-plug engaging in the said hole, and means connecting the said pin and screw-plug whereby the same may be driven in and out of the wrest-plank together, substantially as set forth.

6. In an apparatus of the nature described, the combination of a wrest-plank having a suitable hole, a socket provided with a circumferential groove and packing therein that will take cement whereby the same may be firmly secured in the said hole, and a string-holding pin arranged to enter the said socket, substantially as set forth.

7. In an apparatus of the nature described, a wrest-plank having a suitable number of pin-holes and string-holding pins provided with means whereby said pins can be driven at a variable depth therein, combined with covers or cases of uniform height or length bearing on the face of the wrest-plank about the holes thereof and covering the heads of the several pins, substantially as shown.

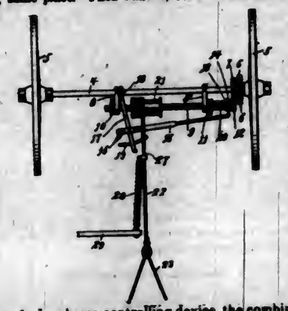
8. In a stringed musical instrument, a double-acting apparatus of the nature described consisting of a screw-plug having an external thread and an internal thread in opposite directions, a string-holding pin provided externally with a spiral groove and also provided with a screw-thread adapted to engage in the interior screw-thread of the said plug, and a wrest-plank with a suitable hole into which the plug is screwed and wherein it may be turned either forward or backward so that the pin and string will be moved with it at the same time and in the same direction.

605,044. APPARATUS FOR OPERATING ELEVATORS. CORBAN I. HALL, San Francisco, Cal., assignor to the Cahill & Hall Elevator Company, same place. Filed Apr. 29, 1897. Serial No. 634,428. (No model.) Patented in England Jan. 17, 1894, No. 1,040, and in France Jan. 17, 1894, No. 235,580.



Claim.—In apparatus to operate elevators, a hydraulic cylinder and a piston therein, said cylinder in communication with a receiver containing fluid under pressure communicating with one side of the hydraulic piston to counterbalance a predetermined load on an elevator to which the apparatus is attached, a second hydraulic cylinder, and a piston in communication with the receiver and with the other side of the main hydraulic piston so that movements of the auxiliary piston produce or permit like movements of the main piston, in combination with an electric motor or other power connected to the second or auxiliary piston, substantially as specified.

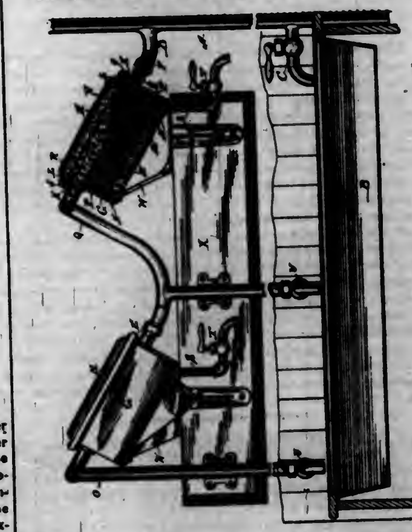
605,045. HORSE-CONTROLLING DEVICE. GEORGE A. HIDDEN, Phœnix, Ariz., assignor of two-thirds to A. H. Lawrence and Enoch Hidden, same place. Filed June 9, 1897. Serial No. 639,905. (No model.)



Claim.—1. In a horse-controlling device, the combination, of the driving-wheels of a vehicle, a gear wheel rotatable with the driving-wheels, a shaft having a pinion slidable thereon and normally out of mesh with the gear-wheel, a lever engaging the pinion and extending parallel with the shaft of the pinion, said lever adapted to throw the pinion into and out of mesh with the gear-wheel, a pivoted operating arm at an angle to and intersecting the inner end of the lever and pivoted at an intermediate point to said lever, the outer end of the arm having an upturned vertical handle portion, a segment over which the horizontal portion of the operating-arm works and is adapted to engage, so as to be held in adjusted position, a drum mounted on the shaft, and a controlling-strap connected at one end to the drum.

2. In a horse-controlling device, the combination, of vehicle driving-wheels, a winding-drum, a gearing between the driving-wheels and the drum, for imparting rotation to said drum, means for throwing said gearing out of connection to prevent the rotation of the drum by the gearing, a controlling-strap secured at one end to the drum and connected at its opposite end to the harness, and a coiled spring secured at one end to an intermediate point of the controlling-strap and having its opposite end secured to a fixed part, said spring adapted, when the drum is not rotated by the gearing, to cause a pull on the strap and an independent rotation of the drum, and a consequent unwinding or slackening of the controlling-strap.

605,046. FILTER. LYSANDER JOHNSTON, Chicago, Ill., assignor of one-half to Gustine I. Ladd and Henry A. Buell, same place. Filed Nov. 1, 1897. Serial No. 657,089. (No model.)



Claim.—1. A filter comprising the filter-plate having the inclined upper surface, the layer of abrading material thereon, the supply-pipe having the nozzle directed upward upon the upper surface of the filter-plate and into said layer of abrading material, one or more exhaust-pipes opening into the filter above said filter-plate, and the filter discharge-pipe opening into the filter at the under side of said filter-plate, substantially as shown and described.

2. A filter comprising the filter-plate having an inclined upper surface, a layer of coarse abrading material thereon, the supply-pipe opening into the filter just above the lowest portion of the surface of the plate and having the contracted nozzle directed thereon, the exhaust-pipe opening into the filter just above the highest portion of the plate, and the filter discharge-pipe opening into the filter at the under side of said plate, substantially as shown and described.

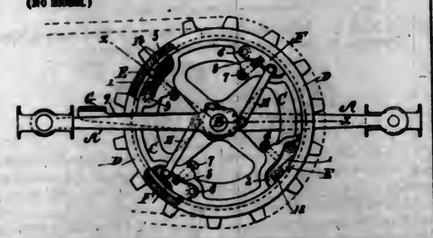
3. A filter comprising the filter-plate having an inclined upper surface, a layer of coarse abrading material thereon, the supply-pipe opening into the filter just above the lowest portion of the surface of the plate and having the contracted nozzle directed thereon, the exhaust-pipe opening into the filter just above the highest portion of the plate, screens to prevent the escape of the abrading material from the filter, and the filter discharge-pipe opening into the filter at the under side of said plate, substantially as shown and described.

4. A filter comprising the body portion set in an inclined position, the filter-plate thereon having the inclined upper surface, a layer of coarse abrading material thereon, the supply-pipe having the nozzle directed upon the upper surface of the filter-plate and into the abrading material, the exhaust-pipe opening into the filter just above the filter-plate, and the filter discharge-pipe opening into the lowest angle of the filter at the under side of said plate, substantially as shown and described.

5. A filter comprising a layer of solid filtering material, with the layer of abrading material thereover, the supply pipe having a contracted nozzle directed upon the surface of said filtering material and into the abrading material for reciprocating the abrading material over the surface of said plate, the discharge-pipe, and the cock, C, for drawing off the water located between the head of water and the filter, substantially as described.

6. A filtering system comprising the cock, C, located in the supply-pipe, the contracted nozzle, E connected to said supply-pipe and opening into the filter, the inclined filter-plate, O, having the abrading material, V, thereon, the discharge-pipe, Q, opening into the filter just above the upper surface of the filter-plate, O, the discharge-cock, U, and the outlet, S, for the filtered water opening into the filter beneath the plate, O, all cooperating substantially as and for the purpose described.

605,047. BICYCLE-BRAKE. HERMANN A. KLEMM, New York, N. Y., assignor of three-fourths to John Mottauer, same place, and F. R. Gintz, Brooklyn, N. Y. Filed June 24, 1896. Serial No. 596,730. (No model.)



Claim.—1. In a bicycle propelling and brake mechanism, the combination of pedal-cranks, a rotary driving part, and a rotary driven part, and a clutch having balls with inclined seats in one of said parts, and bearing on the other said part, adapted to positively engage by the forward propelling motion of the pedal, and spring-pressed shoes on the one said part in constant engagement with the other said part, and adapted to act as a brake when the pedals are retarded substantially as set forth.

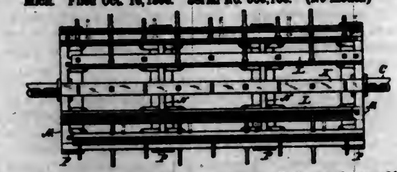
2. In a bicycle propelling and braking mechanism, the combination of pedal-cranks, a rotary driving part, and a rotary driven part, clutch-balls having inclined seats upon the one said part and bearing upon the other said part, the inclined part of said seats being adjustably pivoted, spring-pressed brake-shoes in constant engagement between the driving and driven parts, and means for adjusting the tension of the springs, substantially as set forth and shown.

3. In a bicycle, the combination of pedal-cranks and a rotary shaft to which said cranks are fixed, of an auxiliary brake-pedal loosely mounted upon said shaft in movable relation to said cranks and rotative therewith and located adjacent to a crank-pedal in a position accessible to the foot of the rider without removing said foot from said crank-pedal, a rotary brake shoe bearing part fixed to said crank-shaft and brake-shoes mounted thereon, an independently rotary driven part mounted on said bearing part, and operative connection between said brake-pedal and said brake shoes, all arranged whereby the pedal-cranks may be arrested while the bicycle is in motion and the brake-shoes may then be pressed with friction upon said driven part by the application of the foot of the rider to said brake-pedal.

4. In a bicycle propelling mechanism, the combination of pedal-cranks, a rotary brake-shoe bearing part fixed to the crank-shaft carrying a driven part independently rotary, the brake-shoes, a toggle mechanism substantially as described, and an auxiliary pedal connected to said toggle and located on or near the pedal-crank accessible to the foot of the rider.

5. In a bicycle propelling and brake mechanism, the combination of pedal-cranks, a rotary driving part, a rotary driven part, clutch-balls having inclined seats in the one said part and bearing on the other said part, said seats consisting in pivoted shoes and adjusting-screws arranged to regulate the pressure of said shoes on the driven part, substantially as and for the purposes described.

605,048. THRESHING-MACHINE. MYRON H. HASE, Vicksburg, Mich. Filed Oct. 16, 1896. Serial No. 609,109. (No model.)



Claim.—1. In a threshing-machine a cylinder made up of heads M, M, having elongated ears with a series of holes therein, and intermediate supporting-plates N, with ears N', thereon containing a series of holes, bars K, carrying cylinder-teeth and extending the length of the cylinder to serve as a permanent support for the same and bars L, adjacent to said bars K, of less length than the cylinder and bearing cylinder-teeth and capable of adjustment lengthwise on the cylinder to vary the rows of teeth around the cylinder to change the same from a grain to a bean thresher and vice versa as specified.

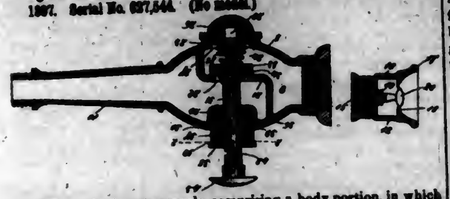
2. In a threshing-machine a cylinder made up of heads M, M, having elongated ears with a series of holes therein, and intermediate supporting-plates N, with ears N', thereon containing a series of holes, bars K, carrying cylinder-teeth to serve as a permanent support for the same, and bars L, adjacent to said bars K, of less length than the cylinder and bearing cylinder-teeth and capable of adjustment lengthwise on the cylinder to vary the rows of teeth around the cylinder and suitable bands P, P, P, around the cylinder to retain the bars in place to change the same from a grain to a bean thresher and vice versa as specified.

3. In a bean-threshing machine the combination of a suitable cylinder with teeth in rows around the same the teeth in rows alternating with each other; and a concave supported in suitable side plates D, and consisting of plate E, to the front with teeth thereon a single tooth to each row of cylinder-teeth positioned alternately toward the front and rear of the plate E, and the plate F, with a pair of teeth set a little to each side midway between the path of the cylinder-teeth and plate G, with teeth-plate F, only closer to the path of the cylinder-teeth and the plate H, with heavy teeth I, bearing ridges *a*, *a'*, corresponding to the rows of cylinder-teeth, the said concave containing large openings *s*, along the path of the cylinder-teeth and spaces *r*, between the plates, coacting as specified.

4. In a threshing machine the combination of a suitable cylinder with teeth in rows around the same the teeth in the rows alternating with each other; and a concave supported in suitable side plates D, and consisting of plate E, to the front with teeth thereon a single tooth to each row of cylinder-teeth positioned alternately toward the front and rear of the plate E, and the plate F, with a pair of teeth to each row of cylinder-teeth set a little to each side midway between the path of the cylinder-teeth and plate G, with teeth-like plate F, only closer to the path of the cylinder-teeth the said concave containing large openings *s*, along the path of the cylinder-teeth and spaces *r*, between the plates coacting as specified.

5. In a bean-thresher the combination of a cylinder with teeth separated into regular rows the teeth in the rows alternating with each other; a concave provided with irregular rows of teeth beginning with single alternate teeth to each row of cylinder-teeth and increased in number toward the rear of the concave and varied in position in an increasing ratio from side to side toward the rear of the concave till the last teeth are in close proximity to the path of the cylinder-teeth the concave being suitably perforated for the passage of the beans as specified.

605,049. NOZZLE. RUDOLF HEINTZMANN, New York, N. Y., assignor of one-half to Edwin Farris, Montclair, N. J. Filed Mar. 15, 1897. Serial No. 627,544. (No model.)



Claim.—1. A water-nozzle, comprising a body portion, in which is formed an enlarged chamber and one end of which is provided with means for securing it to a flexible tube or pipe, and the other end with an extension to which the discharge-nozzle proper is secured, said chamber being provided centrally thereof, with a longitudinal partition-plate which is provided with a central opening through which passes a spring-operated shaft which is provided with a valve which is adapted to close said opening, said shaft being projected through an opening in said chamber at one side thereof, which is closed by a screw-threaded plug, in which is formed a transverse slot or groove, in which is mounted a spring-operated lever, and said shaft being provided with an annular groove in connection with which said lever operates, substantially as shown and described.

2. A nozzle, comprising an enlarged body portion, at one end of which is a head by means of which the nozzle may be connected with a tube or pipe, the other end of said body portion being provided with an extension adapted to receive a discharge-nozzle proper, said enlarged body portion being provided with a chamber, in which is a partition-plate provided with a central opening, said body portion being also provided at one side with an opening which is closed by a screw-threaded plug in which is formed a cavity or recess, and at the opposite side with a tubular inwardly-directed casing, and a spring-operated shaft passing through said chamber, one end of which enters the cavity or recess in said screw-threaded plug, and the other end of which passes through said tubular casing, and through a screw-threaded plug mounted therein, said last-named screw-threaded plug being provided at one side with a transverse slot or groove in which is placed a spring-operated lever, and said shaft being provided with an annular groove in connection with which said lever operates, and with a valve by which the opening in the partition-plate is closed, substantially as shown and described.

3. A discharge-nozzle, comprising an enlarged portion 16, bell-shaped mouth 17, flange 18, bar 19 and disk 20, substantially as and for the purpose set forth.

4. A nozzle provided with an enlarged body portion, in which is formed a partition which is provided with a central opening, and a transversely-movable spring-operated shaft which is provided with a valve adapted to close said opening, and means for locking said shaft and said valve in an opening position, consisting of a screw-threaded plug mounted in one side of the body portion of the nozzle through which said shaft passes, said plug being provided with a spring-operated lever, and said shaft with a groove in which said lever operates, substantially as shown and described.

605,050. MACHINE FOR MAKING METAL SPOKES. WILLIAM G. ALLEN, Hartford, Conn. Filed May 9, 1893. Serial No. 590,944. (No model.)

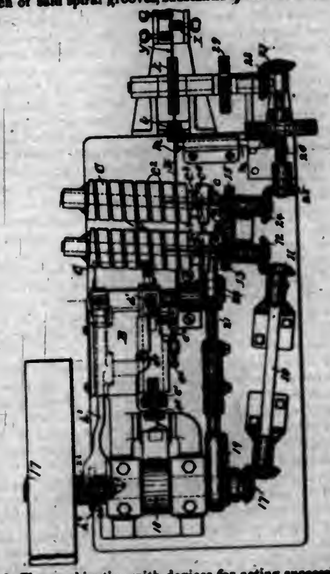
Claim.—1. In a machine for making wire spokes, the combination of devices for forming a head on one end of the spoke, devices for bending the headed end to form a shoulder, and feed mechanism for feeding the blanks to said devices in succession, substantially as described.

2. In a machine for making wire spokes, the combination of devices for forming a head on one end of the spoke, devices for bending the headed end to form a shoulder, and feed mechanism for feeding the blanks to said devices in succession, the action of the heading devices and bending devices taking place simultaneously upon different blanks, substantially as described.

3. The combination of the heading devices, the bending devices, feed mechanism for presenting the blanks successively to the heading devices and bending devices, and automatically-operated gripping devices for holding the blanks during the heading and bending operations, and for releasing the same upon the completion thereof, substantially as described.

4. The combination with heading and bending devices arranged to act successively upon each spoke, and simultaneously upon different spokes, of means for feeding the blanks to said devices in a direction transverse to the length of the blanks, by an intermittent movement, substantially as described.

5. The combination with heading and bending devices arranged to act successively upon the spoke-blanks, of rotary feed-cylinders having spiral grooves thereon in which the blanks are laid, means for moving the cylinders forward longitudinally, whereby the spoke-blanks are advanced by an intermittent movement, and means for gradually returning the cylinders by a movement commensurate with the pitch of said spiral grooves, substantially as described.



6. The combination with devices for acting successively upon a wire-blank, of feeding mechanism for the blanks comprising horizontal rollers movable lengthwise of their supporting-shafts and having spiral peripheral grooves, means for rotating said rollers, and means for imparting to them an intermittent forward motion and for returning them at a speed corresponding with the pitch of the spiral grooves, substantially as described.

605,051. BICYCLE-SADDLE. HENRY A. CHENEY, Jackson, Mich. Filed Apr. 17, 1897. Serial No. 632,646. (No model.)



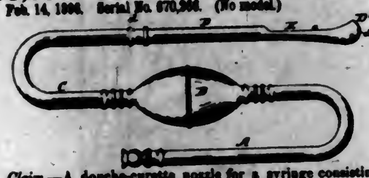
Claim.—1. As a new article of manufacture, a metallic saddle seat or top consisting of a main body portion formed with a sunken portion or recess in its upper surface at each side of its seat portion to receive a cushion or pad, and having its marginal portion or outer edge turned down so as to form an integral pendent marginal flange extending around and overhanging the edge of the seat, and having also a centrally-disposed recess or depression in its upper surface extending longitudinally thereof from a point between said sunken portions to near its front pendent edge, substantially as described.

2. As a new article of manufacture, a solid metallic saddle seat or top formed in a single piece having convex sides which merge into a shortened-up or truncated horn and a sunken portion or recess at each side, and having a centrally-disposed recess or depression formed in its upper surface extending longitudinally thereof from a point between said sunken portions to a point adjacent to the terminus of said horn, together with an integral pendent flange or skirt extending around and overhanging the outer edge of the seat, substantially as described.

3. As a new article of manufacture, a solid metallic saddle seat or top formed in a single piece having convex sides which merge into a shortened or truncated horn, and a sunken portion or recess at each side, and having a centrally-disposed recess or depression formed in its upper surface extending longitudinally thereof from a point between said sunken portions to a point adjacent to the terminus of said horn, together with an integral pendent flange or skirt extending around and overhanging the outer edge of the seat and the sides and end of the horn, substantially as described.

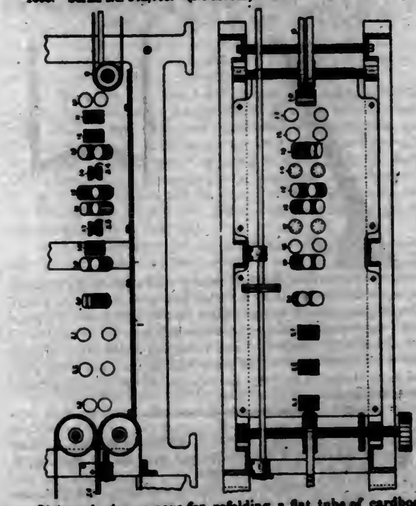
4. A metallic saddle seat or top formed of a single piece of metal having convex sides which merge into a shortened-up or truncated horn and having its upper surface formed with a sunken portion or recess at each side of its seat portion to receive a cushion or pad and with a centrally-disposed recess or depression extending longitudinally thereof from a point between said sunken portions to a point adjacent to the terminus of said horn, together with an integral pendent flange or skirt extending around and overhanging the edge of the seat, said flange having its pendent edge turned up against itself or "seamed," substantially as described.

605,052. SYRINGE. HORATIO R. COOK, Lake City, Fla. Filed Feb. 14, 1898. Serial No. 670,266. (No model.)



Claim.—A douche-curette nozzle for a syringe consisting of a tube D having a douche-point D^2 of larger diameter than the body of said tube and provided with small perforations, and in the rear of said point D^2 a semicylindrical opening, about one-third the length of the nozzle, the edges of said opening being sharpened substantially as described.

605,053. MACHINE FOR REFOLDING PAPER TUBES. HENRY R. CORNELL, Jr., Rochester, N. Y. Original application filed Apr. 1, 1895, Serial No. 544,083. Divided and this application filed Dec. 20, 1895. Serial No. 572,763. (No model.)



Claim.—1. As a means for refolding a flat tube of cardboard, previously creased longitudinally, a die composed of a series of plain-faced cylindrical positively-driven rollers with their axes of rotation disposed at various angles around the longitudinal axis of the die, said die changing in shape from front to rear, from approximately a line to rhomboidal, then rectangular and then rhomboidal again with the angles reversed from the previous one and then approximately a line, substantially as described.

2. As a means for refolding a flat tube of cardboard, previously creased longitudinally, a die composed of a series of plain-faced cylindrical positively-driven rollers with their axes of rotation disposed at various angles around a longitudinal axis, said die changing in shape from front to rear, from approximately a line to rhomboidal, then rectangular, then rhomboidal again with the angles reversed, then approximately a line, and a series of other cylindrical driven rollers having their surfaces approximately at right angles to the longer axis of the last rhomboidal shape of the die, for flattening the blank to first position, substantially as described.

3. As a means for refolding a flat tube of cardboard previously creased longitudinally, a die composed of a series of plain-faced cylindrical positively-driven rollers with their axes of rotation disposed at various angles around the longitudinal axis of the die, said die changing gradually in shape from approximately a line to rhomboidal, then rectangular, then rhomboidal again with the angles reversed, then approximately a line, and two pairs of rollers intermediate the length of the die having grooves formed therein, the walls of which are at a lesser angle than the portions of the tube with which they contact, whereby the tube will be refolded and the corners protected from direct contact with the rollers when moving to and from a right angle, substantially as described.

4. As a means for folding or "breaking back" a flat cardboard tube, the opposite sides of which have been previously creased longitudinally near opposite edges, a die having four moving sides, composed of plain-faced cylindrical rollers, with their axes of rotation disposed at various angles to and extending gradually around the longitudinal axis of the die, two of said sides at the entrance being close together, and two separated, and the two separated ones gradually approaching and the two close together gradually separating until the die is of rectangular form, and then the two previously-separated ones approach and the two formerly close together separate again to normal width, and two pairs of rolls with their axes in a plane approximately at right angles to the plane of the exit end of the die, the rolls of the first pair being more widely separated than those of the second pair, the whole arranged and operating to bend the tube in rectangular form, then flatten it, bending it on the creased lines, and finally flatten it again in the form in which it entered the die, substantially as described.

605,054. PROTECTIVE SEAL FOR BICYCLES. CHARLES W. DAVISON, Minneapolis, Minn., assignor to Freeman P. Lane, same place. Filed May 5, 1897. Serial No. 636,167. (No model.)



Claim.—1. The combination, in a protective seal for bicycles, of a casing, with means for securing the same to the frame of a bicycle, a device within said casing for securing the said means, and a frangible cap or seal internally locked in said casing and covering said device, substantially as described.

2. The combination, in a protective seal for bicycles, of a casing, with means for securing the same to a bicycle, a lock provided within said casing, a frangible seal arranged in said casing and secured therein by said lock, and said seal having identification-marks, substantially as described.

3. The combination, in a protective seal for bicycles, of a casing, with means for securing the same to a bicycle, a lock provided within said casing, and a frangible seal arranged in said casing, secured therein by said lock, and, covering the same, and also covering the means for securing the casing, substantially as described.

4. The combination, with the casing and means for securing the same to the bicycle or other article, said casing being provided with a recess, of a lock or latch within said recess, and a hollow internal shouldered seal secured in said recess by said lock or latch and provided with identification-marks, substantially as described.

5. The combination, with the casing to be secured to the frame of a bicycle and having a recess or opening, of a hollow internally-shouldered glass cap or seal, provided in said recess, a lock or latch in said recess to engage the shoulder of said seal, and identification-marks provided upon the inside of said seal and visible through the top thereof, substantially as described.

6. The combination, with the casing, of the clamp having one end within said casing, a nut for securing the parts together, means to prevent the turning of the nut, and a seal to cover said nut and having identification-marks, substantially as described.

7. The combination, in a protective seal for bicycles, of the ring or clamp made of hardened material, with the casing secured thereby and also made of hardened material, and a frangible seal secured to said casing, as and for the purpose specified.

8. The combination, with the ring parts 4 and 5, of the casing, said parts being of hardened steel, means for locking the ends of said parts 4 and 5, and a frangible seal provided in said casing substantially as described.

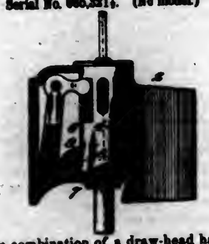
9. The combination, of the ring parts 4 and 5, one provided with a hook and the other with an eye to receive the same, and the opposite ends of said parts 4 and 5 forming a screw, with the casing covering said screw, the nut thereon and within the casing, a lock within the casing, and a frangible seal secured within the casing by said lock, substantially as described.

10. In a protective seal for bicycles, the combination, of the clamp and the casing secured thereby, both made of hardened steel, with the glass cap provided in said casing and removable only after

the cap is broken, and the marked paper provided within the seal and visible through the top thereof, substantially as described.

11. The combination, with the ring or clamp parts 4 and 5, of the casing, the nut for securing said clamp parts, the lock or latch held by said nut within said casing, means to prevent the movement of the lock, a filling to prevent the turning of the nut, and a transparent frangible seal secured in the casing by said lock and having marks within it, substantially as described.

605,055. CAR-COUPLING. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company. Filed Jan. 3, 1898. Serial No. 666,321. (No model.)



Claim.—The combination of a draw-head having an opening, a knuckle having a tail formed with a downwardly and inwardly inclined surface at its inner end, and a pin formed with a curved recess at the lower end of the body, so formed as to permit the lower end of the body of the pin at the side where the tail bears, to rest on the bottom wall of the opening in the draw-head, and also with an upwardly and inwardly inclined surface extending from the lower end of the body of the pin and receiving the inclined surface of the tail of the knuckle; substantially as described.

605,056. ABRADING-SHOE FOR TRUING UP CAR-WHEELS. WILLIAM M. HOUFNAR, Detroit, Mich., assignor to Judson M. Griffin, same place. Filed Mar. 1, 1897. Renewed Mar. 17, 1898. Serial No. 674,262. (No model.)



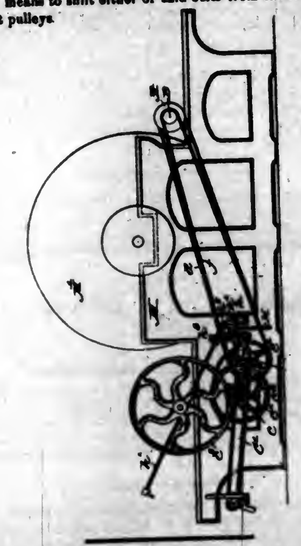
Claim.—1. An abrading-shoe adapted to be used for truing up car-wheels, having in combination a metallic shell and a filling of abrading material and provided with clearance-holes, substantially as described.

2. In an abrading-shoe adapted to be used for truing up car-wheels, the combination of a shell provided with a plurality of cavities adapted to be filled with abrading material, blocks of abrading material set therein, cavities intermediate the blocks, provided with openings whereby accumulated material may be discharged, substantially as described.

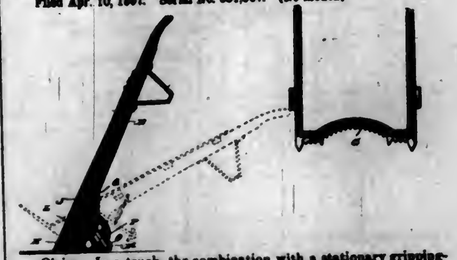
3. In an abrading shoe adapted to be used for truing up car-wheels, the combination of a shell, abrading material set therein, and clearance-holes between adjacent portions of the abrading material, substantially as described.

605,057. DOFFER-DRIVING MECHANISM FOR CARDING-ENGINES. WILLIAM HOPKINSON and RICHARD TYACK, Accrington, England, assignors to the Howard & Bullough Machine Company, Limited, of England. Filed Mar. 25, 1897. Serial No. 629,148. (No model.)

Claim.—In a carding-engine, the doffer-lever, a stud fast thereon, a fast pulley rotatably mounted on said stud and provided with an extended sleeve-like hub having an attached pinion, the doffer connections between it and the pinion attached to said fast pulley, and loose pulleys one at each side of said fast pulley and mounted rotatably on the hub thereof, combined with fast and slow speed driving-belts, and means to shift either of said belts from the loose pulleys to the fast pulleys.



605,058. TRUCK. HENRY W. HORTON, Wilkesborough, N. C. Filed Apr. 10, 1897. Serial No. 631,567. (No model.)



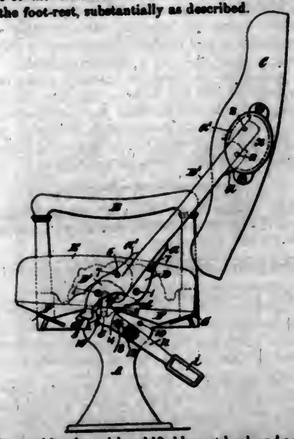
Claim.—In a truck, the combination with a stationary gripping-plate secured to the front of the truck and provided with a central concaved portion, said gripping-plate formed with teeth of various sizes, of a swinging gripping member comprising a rod pivoted to the truck adjacent its handle end and extending forwardly to a point adjacent the forward end of the truck, said forward end being bifurcated at its extremity to form downwardly-curved prongs, substantially as set forth.

605,059. CAR-SEAT. JOHN S. JOHNSTON, New York, N. Y., assignor to the Pettler & Stymus Company, same place. Filed Apr. 16, 1896. Serial No. 677,793. (No model.)

Claim.—1. The combination with a shiftable seat-back and a pair of back-shifting arms pivoted to the seat-frame, of a lever carrying a foot-rest bar and mounted to swing the rest-bar from one side of the seat to the other into position for use at the rear of the seat, and extensions on said arms below the frame-pivots by which the lever is rocked in opposite directions when the back is shifted and the pressure on the rest-bar supported during use, said extensions and lever being constructed and arranged to transmit the pressure on the rest-bar to the supporting extension in a direction substantially radial to the arc of movement of the extension, substantially as described.

2. The combination with a shiftable seat-back and a pair of back-shifting arms pivoted to the seat-frame, of a lever carrying a foot-rest bar and mounted to swing the rest-bar from one side of the seat to the other into position for use at the rear of the seat, extensions on said arms below the frame-pivots and on opposite sides of the lever for rocking the lever in opposite directions when the back is shifted, and stops on the frame for limiting the movement of the foot-rest in both directions, substantially as described.

3. The combination with a shiftable seat-back and a pair of back-shifting arms pivoted to the seat-frame, of a foot-rest mounted to swing from one side of the seat to the other into position for use at the rear of the seat, and extensions on the arms below the frame-pivots for actuating the foot-rest in opposite directions when the back is shifted and arranged to engage the foot-rest when in position for use by one of the extensions with the other extension out of contact with the foot-rest, substantially as described.



4. The combination with a shiftable seat-back and a pair of back-shifting arms pivoted to the seat-frame, of a foot-rest mounted to swing from one side of the seat to the other into position for use at the rear of the seat, and extensions on the arms below the frame-pivots for actuating the foot-rest in opposite directions when the back is shifted and arranged to support the pressure on the foot-rest in use by one of the extensions in a direction substantially radial to the arc of movement of the extension and with the other extension out of contact with the foot-rest, substantially as described.

5. The combination with a shiftable seat-back and a pair of back-shifting arms pivoted to the seat-frame, of a foot-rest mounted to swing from one side of the seat to the other into position for use at the rear of the seat, extensions on the arms below the frame-pivots for actuating the foot-rest in opposite directions when the back is shifted and arranged to engage the foot-rest when in position for use by one of the extensions with the other extension out of contact with the foot-rest, and stops on the frame at opposite sides of the foot-rest, substantially as described.

6. The combination with the seat frame and back and reversing-arms pivoted to said seat frame and back and each having two stops thereon adapted to arrest the movement of and support the other arm, of a foot-rest mounted to swing from one side of the seat to the other into position for use at the rear of the seat, and extensions on the arms below the frame-pivots to actuate the foot-rest and arranged to engage the foot-rest when in position for use by one of the extensions with the other extension out of contact with the foot-rest, substantially as described.

7. The combination with the seat frame and back and reversing-arms each pivoted to the seat frame and back on opposite sides of the vertical center, the portions of said arms between the seat and back lying in parallel planes and overlapping each other and being of such width as to avoid separation at their inner edges during the reversing operation, of a foot-rest mounted to swing from one side of the seat to the other into position for use at the rear of the seat, and extensions on the arms below the frame-pivots to actuate the foot-rest and arranged to engage the foot-rest when in position for use by one of the extensions, with the other extension out of contact with the foot-rest, substantially as described.

8. The combination with a seat frame and back and reversing-arms each pivoted to the seat frame and back on opposite sides of the vertical center and having two stops thereon on opposite sides of the line of intersection with the other arm adapted to arrest the movement of and support the latter, the portions of said arms between the seat and back lying in parallel planes and overlapping each other and being of such width as to avoid separation at their inner edges during the reversing operation, of a foot-rest mounted to swing from one side of the seat to the other into position for use at the rear of the seat, and extensions on the arms below the frame-pivots to actuate the foot-rest and arranged to engage the foot-rest when in position for use by one of the extensions with the other extension out of contact with the foot-rest, substantially as described.

9. The combination with a shiftable seat-back and back-shifting arms pivoted to the seat-frame and having extensions *d*, *d'* below the frame-pivots, of levers H having heads *h* engaged by said extensions *d*, *d'* to swing the levers from one side of the seat to the other and toward the rear of the seat as the back is shifted and a foot-rest actuated by said levers H, said extensions *d*, *d'* and heads *h* being provided with concave and convex surfaces 3, 4, forming extended bearing-surfaces for the swinging and support of the foot-rest, substantially as described.

10. The combination with a shiftable seat-back and back-shifting arms pivoted to the seat-frame and having extensions *d*, *d'* below the frame-pivots, of levers H carrying a rest-bar and having heads *h* engaged by said extensions *d*, *d'* to swing the rest-bar from one side of the seat to the other and into position for use at the rear of the seat, said extensions *d*, *d'* and heads *h* being formed with curved surfaces forming extended bearing-surfaces for the support of the foot-rest and by which the pressure of the foot-rest is supported in a direction substantially radial to the arc of movement of the extensions, substantially as described.

11. The combination with a shiftable seat-back and back-shifting arms pivoted to the seat-frame and having extensions *d*, *d'* below the frame-pivots, of levers H carrying a rest-bar and having heads *h* engaged by said extensions *d*, *d'* to swing the rest-bar from one side of the seat to the other and into position for use at the rear of the seat, said extensions *d*, *d'* and heads *h* being formed with bearing-surfaces by which the pressure of the foot-rest is supported in a direction substantially radial to the arc of movement of the extensions, substantially as described.

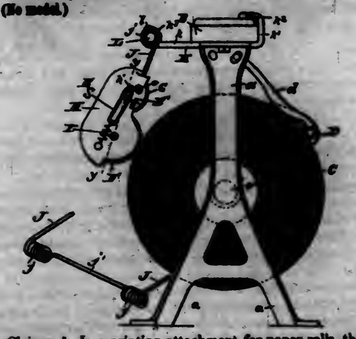
12. The combination with a shiftable seat-back and back-shifting arms pivoted to the seat-frame and having extensions *d*, *d'* below the frame-pivots, of levers H carrying a rest-bar and having heads *h* engaged by said extensions *d*, *d'* to swing the rest-bar from one side of the seat to the other and into position for use at the rear of the seat, said extensions *d*, *d'* and levers H being constructed and arranged for engagement of the heads *h* by only the extension *d* or *d'* on the rear side of the seat when the foot-rest is in position for use, substantially as described.

13. The combination with a shiftable seat-back and back-shifting arms pivoted to the seat-frame and having extensions *d*, *d'* below the frame-pivots, of levers H carrying a rest-bar and having heads *h* engaged by said extensions *d*, *d'* to swing the rest-bar from one side of the seat to the other and into position for use at the rear of the seat, said extensions *d*, *d'* and levers H being constructed and arranged for engagement of the heads *h* by only the extension *d* or *d'* on the rear side of the seat when the foot-rest is in position for use, and stops 10, engaging the opposite sides of the heads from the extensions, substantially as described.

605,060. COMPOSITION FOR IMPREGNATING WOOD AND FIBER. EUGENE KLEIN, Grand Rapids, Mich., assignor to Pauline Klein, same place. Filed Apr. 26, 1897. Serial No. 634,015. (No specimens.)

Claim.—The herein-described composition of matter consisting of gum-amber, with soda, lime, and water, substantially as and for the purpose set forth.

605,061. PRINTING ATTACHMENT FOR PAPER-ROLLS. ALBERT R. MARTIN, Beaver Falls, Pa., assignor to the Automatic Roller Printer Company, same place. Filed Apr. 12, 1897. Serial No. 631,853. (No model.)



Claim.—1. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the spring-carrier, means for securing it to the roll-frame and the printing mechanism vertically adjustably secured to the spring-carrier, substantially as set forth, whereby it can be held in a higher or lower position.

2. In a printing attachment for paper-rolls, the combination with

the frame which supports the paper-roll, of the spring-carrier having downward-extending projections, means for securing the spring-carrier to the frame, the printing-roll, the inking-roll, and the holder for the rolls having guides for adjustably receiving the said downwardly-extending projections of the spring-carrier, substantially as set forth.

3. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the spring-carrier for the printing mechanism having the coils *j j* and the abutment part *j'* integral with and situated between the coils, the spring-gripper detachably fastened to the roll-frame and provided with eyes, and the rod or mandrel L passing through the spring-coils *j* and the said eyes, substantially as set forth.

4. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the spring-actuated carrier connected to the printing mechanism, and the holder for the spring-actuated carrier, having the arms *k*, the legs *k'* and the elastic gripper k^3 connected to both legs *k'* and adapted to engage the supporting-frame all formed from a single piece of wire and detachably connected to the spring-carrier, substantially as set forth.

5. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism having the printing-roll, the inking-roll and the housing which holds said rolls, the carrier for said housing having the legs *J*, the coils *j*, and the abutment-arms *j'* all formed of a single piece of wire, and the holder K having the arms *k*, the eyes k^3, the legs *k'* and the gripper k^3 all formed from a single piece of wire, and means for detachably fastening together the said holder and carrier, substantially as set forth.

6. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the holder formed of best elastic metal, of relatively low flexibility, providing a clutch detachably engaging with the roll-frame, and a carrier for the printing mechanism having a best elastic wire or rod of relatively high flexibility, and a connecting device for detachably connecting together the said carrier and the holder which engages with the frame, substantially as set forth.

7. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the holder, K, formed of a rod, of relatively low flexibility, best to form an elastic friction-clutch, detachably engaging with the roll-frame, and a carrier for the printing mechanism having a wire or rod of relatively high flexibility, and a hinging device interposed between the carrier of the printing-frame and the holder secured to the roll frame, whereby the carrier and the holder can move freely relatively to each other, substantially as set forth.

605,062. THREAD-GUIDE. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Oct. 18, 1897. Serial No. 655,563. (No model.)



Claim.—1. In a yarn-guide, the combination with a fixed jaw, of a movable jaw, a pivotal connection between them, and means on said pivotal connection to adjust the movable jaw with relation to the fixed jaw.

2. In a yarn-guide the combination with a fixed jaw, of a movable jaw pivoted thereto by means of a rotatable stud, said stud being provided with means serving to adjust the pivoted jaw with relation to the fixed jaw.

3. In a yarn-guide, the combination with a fixed jaw, of an opposing jaw adapted to be moved transversely to said fixed jaw, and a rotatable support upon which the movable jaw is pivotally mounted, rotation of said support varying the distance between the jaws in a plane substantially perpendicular to the plane of said transverse movement.

4. In a yarn-guide, a fixed jaw, a movable jaw pivoted to move transversely thereto, means to attach the yarn-guide to its support, independent means to move the movable jaw bodily toward or from the fixed jaw, the movable jaw having a shoulder to limit its outward movement, and means to keep the jaws normally in alinement with each other.

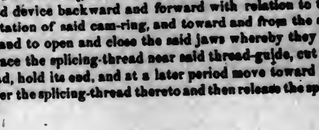
5. In a yarn-guide, a fixed jaw, an eccentric adjusting-stud, and a movable jaw pivoted on said stud.

6. In a yarn-guide, a fixed jaw, a movable jaw normally in alinement with the fixed jaw, whereby movement of one jaw will not materially change the width of the space between the jaws while exposing the edge of the movable jaw to be readily cleaned, an eccentric pivot upon which the movable jaw is mounted, and means to normally retain said jaws in alinement.

7. In a yarn-guide, a fixed jaw, an eccentric adjusting-stud mounted parallel thereto and provided with a shoulder, a weighted movable jaw pivoted on said stud and held thereon by the said shoulder, and means to clamp the stud in adjusted position.

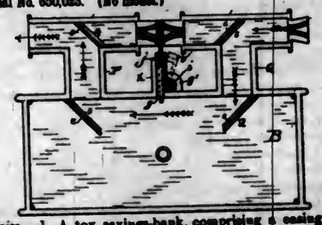
8. In a yarn-guide, two jaws, an eccentric pivotal support for one of them, whereby said jaws have an operative relation to each other to present a slot of definite width between them by which to clean a strand of yarn passed therethrough, and means to permit a restricted movement of one relatively to the other, without appreciably changing the width of the slot between them.

605,068. FARM-GATE. JACOB W. PARLER, Williamsville, Ill., assignor of one-half to G. G. Council, same place. Filed Mar. 19, 1896. Serial No. 674,483. (No model.)



Claim.—The combination of a gate; a swinging frame to which the gate is attached, and which has a vertical notched pintle-rod at its outer end; a clevis engaging on the pintle-rod affording both a vertical and a horizontal movement, and connected to the gate, and thus attaching the gate to the swinging frame; a spring attached to the clevis, its unattached end forked and straddling the pintle-rod and pressing against said rod and adjusted to fit into the notches on the pintle-rod substantially as and for the purposes described and set forth.

605,064. TOY SAVINGS-BANK. CHARLES SMITH, Dayton, Ohio, assignor of one-half to Lena Hyman, same place. Filed Aug. 30, 1897. Serial No. 650,023. (No model.)

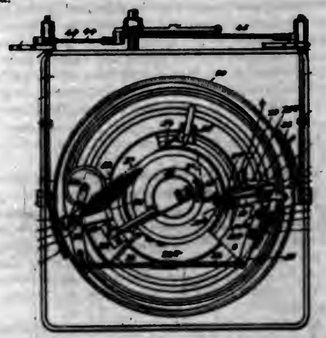


Claim.—1. A toy savings-bank, comprising a casing having a slot in its upper side, and provided with upwardly-projecting hollow extensions F and G, terminating in horizontal sight-tubes B and C, the latter having an intervening space between their inner ends in line with said slot, and a trigger mounted above said slot and adapted to support a coin in position between the inner ends of said sight-tubes, and to permit said coin to drop into the interior of the case, through the slot *g* when said trigger is pressed downward, as herein shown and described.

2. In a toy savings-bank, a casing having a coin-slot in its upper side, and hollow extended portions projecting from said upper side and terminated in horizontal sight-tubes having space between their inner ends, sight-deflectors located in the casing on inclines below the said hollow extensions, and in the sight-tubes above said hollow extensions, and a spring-pressed trigger adapted to normally close the coin-slot in the casing, and to support a coin between the inner ends of the sight-tubes, all arranged substantially as and for the purposes specified.

605,065. KNITTING-MACHINE. CHARLES TERROT, Cannstadt, Germany, assignor to Moritz Boas, St. Hyacinthe, Canada. Filed Oct. 8, 1894. Renewed Dec. 28, 1897. Serial No. 664,111. (No model.) Patented in England Apr. 6, 1894, No. 6,573.

Claim.—1. The combination with a circular series of needles, a needle-actuating cam-ring, and a splicing-thread guide, of a splicing-thread-introducing device having jaws, means to move said splicing-thread device backward and forward with relation to the direction of rotation of said cam-ring, and toward and from the series of needles, and to open and close the said jaws whereby they are made to embrace the splicing-thread near said thread-guide, cut the splicing-thread, hold its end, and at a later period move toward said needles, deliver the splicing-thread thereto and then release the splicing-thread preparatory to returning to the said thread-guide, substantially as described.



2. In a circular-knitting machine, a circular series of latched needles, a needle-actuating cam-ring, a splicing-thread-introducing device mounted on said ring, a splicing-thread guide, means to move the said thread-introducing device at predetermined intervals in a direction opposite the rotation of a needle-actuating cam-ring to introduce the thread to the needles at a distance from the said thread-guide, and when taken by the needles, to retire from the splicing-thread and return to its starting-point near the said thread-guide, and means to thereafter cause the thread-introducing device to regrasp, cut and hold the said splicing-thread, substantially as described.

3. In a splicing apparatus for circular-knitting machines, a device provided with jaws for introducing the thread to the needles and holding it until it is engaged thereby, and means for moving the said device back again into the track of the thread, and means for opening and closing the jaws to regrasp and sever the thread in the manner described, substantially as described.

4. In a circular-knitting machine, a series of circularly-arranged latched needles, a splicing-thread guide, a needle-actuating cam-ring, and a splicing-thread-introducing device mounted thereon and having jaws, combined with a splicing cam-track having eccentric surfaces and with mechanism interposed between said track and said thread-introducing device to actuate the latter and cause it to travel back and forth from the needles to the spacing-thread guide, substantially as described.

5. In a knitting-machine, a splicing-thread-introducing device adapted to present its thread directly to the needles of the machine, two splicing-thread cam-tracks, actuating mechanism operated by the latter to cause the thread-introducing device to grasp and present the thread to the needles, and retire from the thread, and means to cause the said thread-introducing device to cut and reclamp the same, combined with devices to raise and lower said actuating mechanism to be operated by one or the other of said cam-tracks to determine the part of the tubular fabric to receive the splicing-thread, substantially as described.

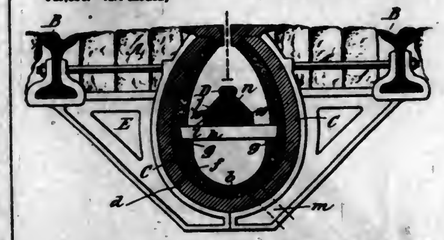
6. In a splicing apparatus for circular-knitting machines, a splicing-thread device for introducing a splicing-thread to the usual machine-needles, two splicing-thread cam-tracks and an interposed circular ring, a lever having one end cooperating with one of said tracks, mechanism interposed between the said lever and the said splicing-thread device to actuate the latter, and means for automatically moving the said lever into and out of contact with the said tracks for the purpose described.

7. In a splicing apparatus for circular-knitting machines, a device for introducing a splicing-thread to the needles, splicing-thread cam-tracks, mechanism interposed between them and the said splicing-thread device to actuate the latter, combined with a cam-slide for causing the said interposed mechanism to be actuated by one or other of the said cam-tracks as desired, substantially as described.

8. In a splicing apparatus for circular-knitting machines, a splicing-thread device for introducing the thread to the needles, cam-tracks and mechanism interposed between them and the said splicing-thread device to actuate the latter, slides having cams for placing the said interposed mechanism in and out of contact with one of said cam-tracks, a pattern-chain, and devices between it and the slides having cams to operate the latter, substantially as and for the purpose described.

9. In a circular-knitting machine, a thread-introducing device composed of jaws to grasp the splicing-thread, means to move said thread-introducing device in the direction of travel of the needle-actuating cam-ring and present said thread to the needles, means to open said jaws to release the thread, means to move said device back to its starting-point in opposition to the movement of the said needle-actuating cam-ring, and means to grasp and sever the said splicing-thread near the thread-guide, substantially as described.

605,066. THIRD-RAIL UNDERGROUND ELECTRIC-RAILWAY SYSTEM. LOUIS B. WALKINS, Springfield, Mass., assignor of one-half to Francis W. Dickinson, same place. Filed Aug. 21, 1897. Serial No. 649,088. (No model.)



Claim.—1. In a third-rail electric-railway system, the combination with the track-rails and the top-slotted conduit, of the cross-ties supported within the conduit above the base thereof, the trough *i* of wood, mounted on said ties and longitudinally extending, the rail D set in the trough, and the filling of insulating material provided in the trough and covering the base and neck of the rail, the upper portion of said rail extending above said filling of insulating material which is downwardly and outwardly inclined from its junction with the exposed portion of the rail, substantially as and for the purpose set forth.

2. In a third-rail electric-railway system, in combination, the track-rails B B and the underground top-slotted conduit C, of cement, comprising the inner wall thereof composed of a solidified insulating substance and molded with the rests or ledges *g g*, the wooden cross-ties A A, supported on said ledges above the base of the conduit, the trough *i* of wood having its top edges downwardly and outwardly inclined, and the third-rail conductor supported in the trough and having its top portion extending higher than the side walls of said trough, the cement or concrete filling covering the base and neck of the rail having the upper portion thereof exposed, which filling together with said trough edges by being downwardly and outwardly inclined constitute a watershed and guard for the rail, substantially as described and shown and for the purposes set forth.

3. In combination with a rail conductor, a trolley or shoe having terminals or binding-posts, a holder-plate for the shoe, on which the same is vertically yieldingly supported, arms for the holder-plate, whereby the same may be supported from the motor car or truck, and wires running to connection with the binding-posts of the shoe, independent of the holder-plate and its supporting-arms, substantially as described.

4. In combination with the third-rail conductor of the shoe 24, having the squared shank 25, and stem 25a, and having the connection-posts or terminals 33, the arms 30, and holder-plate 23, having the pillars 26 and top plate 27, the squared shank of the shoe playing through a socket therefor in the holder-plate and having its stem guided through the top plate, the spring 29, between the top plate and said collar, and an independent current-conductor running to one of said connection-posts, substantially as described.

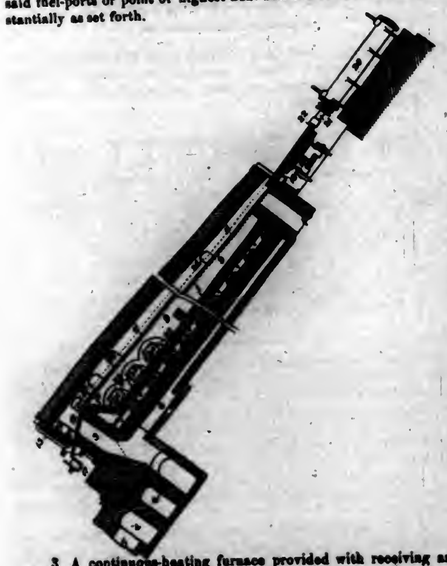
REISSUES.

11,666. HEATING-FURNACE. ALEXANDER LAUGHLIN, Sewickley, and JOSEPH REBLEAUX, Wilkinsburg, Pa.; said Reblaux assignor to said Laughlin. Filed Nov. 19, 1897. Serial No. 659,102. Original No. 582,476, dated May 11, 1897.

Claim.—1. A continuous-heating furnace provided with receiving and discharge openings at or near the ends of the furnace, supports extending from the receiving to the discharge opening, mechanism for pushing the billets along the supports to or adjacent to the fuel-ports or point of highest heat, and means independent of the pushing mechanism for more quickly moving the billets past said fuel-ports or point of highest heat and out of the furnace, substantially as set forth.

2. A continuous-heating furnace provided with receiving and discharge openings at or near the ends of the furnace, supports extending from the receiving to the discharge opening, mechanism for pushing the billets along the supports to or adjacent to the fuel-ports or point of highest heat, and means independent of the pushing mechanism for effecting a quicker automatic movement of the billets past

said fuel-ports or point of highest heat and out of the furnace, substantially as set forth.



3. A continuous-heating furnace provided with receiving and discharge openings at or near the ends of the furnace, supports extending from the receiving to the discharge opening, the supports adjacent to the discharge-opening being inclined to cause the automatic movement of the billets past the fuel-ports or point of highest heat through the discharge-opening and mechanism for pushing the billets along the supports to the point of automatic discharge, substantially as set forth.

4. A continuous-heating furnace provided at its opposite end walls with receiving and discharge openings, and having in combination a series of flues or ports through which the combustibles enter the heating-chamber, arranged adjacent to the rear or discharge opening of the furnace and transversely thereto, supports for the articles to be heated extending from the receiving-opening to points adjacent to the flues, mechanism for pushing the articles along the supports, and bridge-pieces adapted to receive the article from said supports and support it while passing over the flues to the discharge-opening, said bridge-pieces being sufficiently inclined to cause the automatic movement of the article over the flues and through the discharge-opening, substantially as set forth.

5. A continuous-heating furnace, having in combination a series of flues or ports through which the combustibles enter the heating-chamber adjacent to the rear or discharge end of the furnace, supports for the article to be heated, extending from the front end to points adjacent to the rear end of the furnace, and supplemental supports arranged parallel, or approximately parallel, with the main supports, but in different planes, and extending from the rear ends of the main supports over the flues, substantially as set forth.

6. A continuous-heating furnace having in combination a series of flues or ports through which the combustibles enter the heating-chamber arranged adjacent to the rear or discharge end of the furnace, supports for the article to be heated, extending from the front end to points adjacent to the rear end, supplemental supports extending from the main supports to and over the flues at the rear end of the furnace, the rear ends of the main supports being raised above the adjacent parts of the supplemental supports, thereby forming a drop for the article being heated, substantially as set forth.

7. A continuous-heating furnace having in combination a series of flues or ports through which the combustibles enter the heating-chamber arranged adjacent to the rear or discharge end of the furnace and transversely thereof, supports extending from the front end of the furnace to points adjacent to said flues, and supplemental supports or bridge-pieces extending from the main supports over the flues, said supplemental supports being inclined, substantially as set forth.

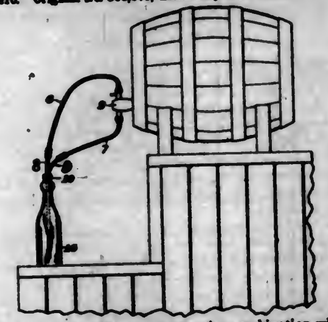
8. A continuous-heating furnace having in combination continuous piers or supporting-walls extending longitudinally from the front toward the rear end of the furnace, one or more piers arranged transversely of the furnace between the bridge-wall and the ends of the longitudinal piers, and bearing-pieces or supports for the billets, &c., arranged on the longitudinal and transverse piers, substantially as set forth.

9. The combination of a continuous-heating furnace having openings in its opposite ends, supports for the billets, &c., extending through the furnace from the discharge to the receiving opening, the supports adjacent to the discharge-opening being sufficiently inclined to cause the automatic movement of the article past the fuel-ports through said opening, a fore-plate arranged at the front end of the furnace on or approximately on a level with the billet-supports, a truck movable into line with the fore-plate and having its bed or platform on or approximately on a level with the fore-plate, and mechanism for pushing the billets, &c., from the truck into and through the furnace, substantially as set forth.

10. A continuous-heating furnace having receiving and discharge openings at or near the ends of the furnace, and pipes or supports for the billets extending from the receiving or charging opening toward the discharge-opening, and provided with one or more cinder-pockets arranged adjacent to and below the rear ends of the pipes or billet-supports and extending below the latter, and openings through the side walls of the furnace into said pockets, thereby permitting of the removal of the cinder during the operation of the furnace, substantially as set forth.

11. A continuous-heating furnace having in combination continuous piers or supporting-walls extending longitudinally from the front toward the rear end of the furnace, pipes or billet-supports arranged on the longitudinal piers and extending beyond the ends of said piers toward the rear end of the furnace, thereby forming a cinder-pocket in the rear of the piers and below the pipes or supports, substantially as set forth.

11,667. BOTTLE-FILLING APPARATUS. HENRY SEARS and CASPER DURNEY, Allegheny, Pa., assignors, by mesne assignments, to Thomas McKeaon, Pittsburg, Pa. Filed Aug. 24, 1897. Serial No. 649,410. Original No. 580,070, dated May 13, 1896.



Claim.—1. In bottling apparatus, the combination with a plug arranged to be driven into the tapping bung-hole of the keg or barrel, and having separated channels therein which open at the inner portion of the plug so as to be below the level of the liquid in the barrel, of a bottle-stopper having similar separate channels therethrough, connections between the corresponding channels in the plug and stopper, and valve mechanism arranged to control the flow of liquid through the bung or plug.

2. In bottling apparatus, a spigot having separated passages formed in its body, said passages extending through projecting nozzle portions of the spigot and opening at the inner portion of the same so as to be below the level of the liquid in the keg or barrel, flexible tubes connected to the nozzles and a bottle-stopper having separate passages therethrough to which the flexible tubes lead.

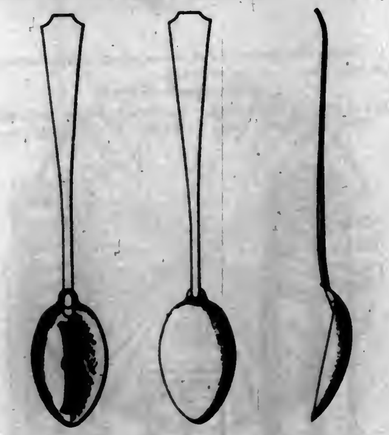
3. In bottling apparatus, a spigot-plug having separate passages opening at the inner end of the same so as to be below the level of the liquid in the keg or barrel and connecting with similar passages in a way-cock located in the plug, a bottle-stopper, and tubes extending from the channels of the way-cock through the stopper.

4. In a device of the character described, a spigot having longitudinal air and liquid passages and an exterior shoulder, a turn-plug having an air-passage in its top, a liquid-passage in its bottom and provided with a lug to engage the shoulder of the spigot, said passages in the plug being separated by a partition, tubes connecting with the air and liquid passages and in combination, a stopper having a central aperture to receive a pipe having an interior tube, the pipe conveying liquor into the bottle and the interior tube conveying the air from the bottle, the tubes of the spigot being connected with the pipe and tube of the stopper, as and for the purpose described.

5. In a bottling device, a spigot having longitudinal ways to convey liquid and air, a turn-plug having an opening at the top communicating with the air-passage, and an opening in its bottom communicating with the liquid-passage, the openings at the top and bottom being separated, a lug on the turn-plug to engage the shoulder of the spigot, tubes connecting with the top and bottom passages of the turn-plug, and in combination, a stopper having a central aperture, a pipe extending through the aperture and adapted to convey liquid, an internal tube cast with the pipe, said tube protruding above the stopper and having an opening through the wall of the pipe below the stopper to convey air from the bottle to the air-tube of the spigot, as and for the purpose described.

DESIGNS.

28,719. SPOON. EDWARD TODD, Jr., New York, N. Y., assignor to Edward Todd & Co., same place. Filed Apr. 16, 1898. Serial No. 677,894. Term of patent 7 years.



Claim.—The design for a spoon, substantially as herein shown and described.

28,720. BRACELET OR SIMILAR ARTICLE. FRANK H. LA FIEGRA, East Orange, N. J. Filed Apr. 21, 1898. Serial No. 678,208. Term of patent 7 years.



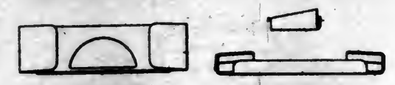
Claim.—The design for a bracelet or similar article as herein shown and described.

28,721. THIMBLE. JOHN F. SIMMS, Philadelphia, Pa., assignor to himself and THOMAS MADDOCK, same place, FREDERIC H. SIMMS, Swarthmore, Pa., and EDGAR G. SIMMS, Orange, N. J. Filed May 2, 1898. Serial No. 679,548. Term of patent 14 years.



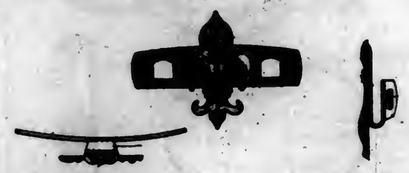
Claim.—The design for a thimble substantially as described and shown in the accompanying drawings.

28,722. BUCKLE-PLATE. JAMES FLEMMING, New York, N. Y. Filed Apr. 13, 1898. Serial No. 677,602. Term of patent 14 years.



Claim.—The design for a buckle-plate, substantially as herein shown and described.

28,723. BELT-HOOK. IDA M. FIELD, New York, N. Y. Filed Mar. 28, 1898. Serial No. 675,182. Term of patent 7 years.



Claim.—The design for a belt-hook herein shown and described.

28,724. HOOK. PETER HEATON, Allegheny, Pa. Filed Apr. 16, 1898. Serial No. 677,892. Term of patent 3½ years.



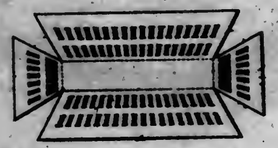
Claim.—The design for a hook, as herein shown and described.

28,725. CUFF-HOLDER. HERBERT C. FRANK, New York, N. Y. Filed Apr. 8, 1898. Serial No. 676,908. Term of patent 14 years.



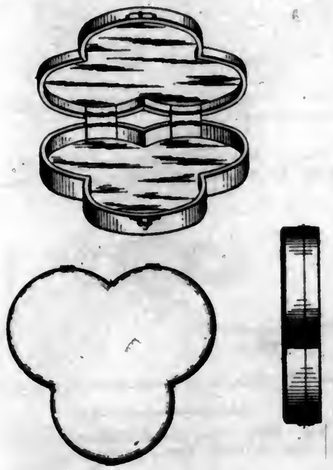
Claim.—The design for a cuff-holder, substantially as herein shown and described.

28,726. PIN OR NEEDLE CARD. ROBERT HEISS, Aachen, Germany. Filed Feb. 12, 1898. Serial No. 670,149. Term of patent 7 years.



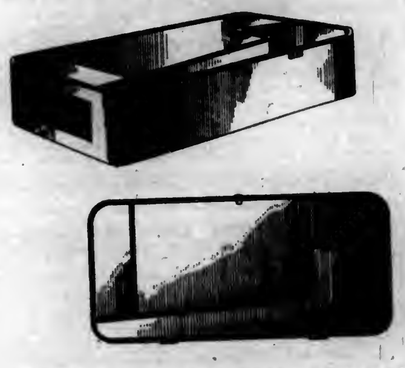
Claim.—The design for a pin or needle card as herein shown and described.

28,727. BOX. THEODORE W. FOSTER, Providence, R. I. Filed Mar. 31, 1898. Serial No. 676,001. Term of patent 3½ years.



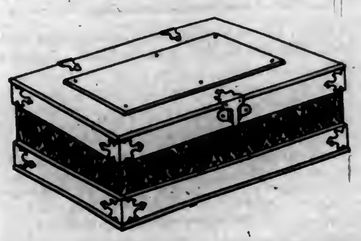
Claim.—The design for a box for manicure or similar articles herein shown and described.

28,728. BOX. MERRITT M. TANNER, Hawkinsville, N. Y. Filed Apr. 2, 1898. Serial No. 676,250. Term of patent 14 years.



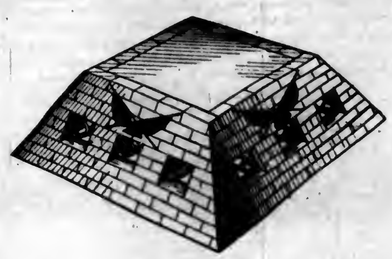
Claim.—The design for a box, substantially as shown and described.

28,729. CIGAR-BOX. ADAM H. HIRDING, Cleveland, Ohio. Filed Jan. 29, 1898. Serial No. 668,488. Term of patent 14 years.



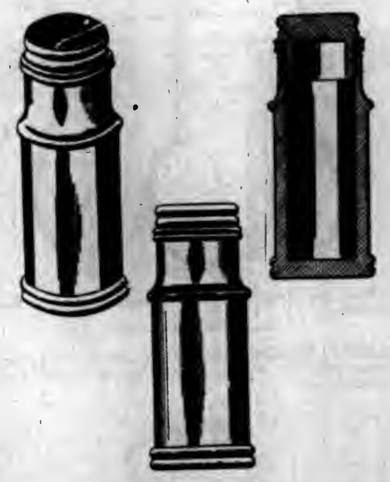
Claim.—The design for a cigar-box, as herein shown and described.

28,730. PAPER BOX. PHINEAS R. MYERS, New York, N. Y. Filed Apr. 27, 1898. Serial No. 679,044. Term of patent 3½ years.



Claim.—The design for a paper box, substantially as herein shown and described.

28,731. PILL-BOTTLE. MATTHEW J. BOGERT, Demarest, N. J. Filed Apr. 30, 1898. Serial No. 679,404. Term of patent 7 years.



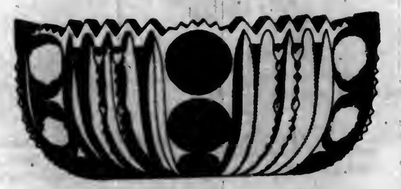
Claim.—The design for a pill-bottle herein shown and described.

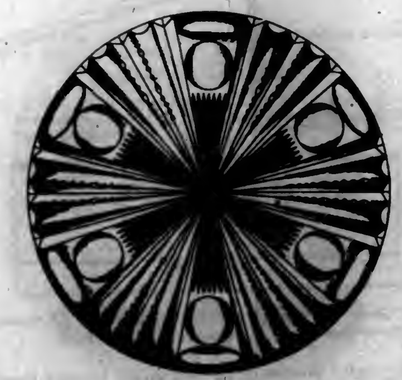
28,732. LOVING-CUP. LEWIS P. COOK, New York, N. Y. Filed Apr. 20, 1898. Serial No. 678,209. Term of patent 3½ years.



Claim.—The design for a loving-cup as herein shown and described.

28,733. BOWL OR VESSEL. BENJAMIN DAVIES, West Hoboken, N. J., assignor to L. Straus & Sons, New York, N. Y. Filed Mar. 28, 1898. Serial No. 675,508. Term of patent 7 years.





Claim.—The design for a bowl or vessel having the decorations thereon, substantially as shown and described.

28,734. LAMP-HOLDER. HERMANN O. MÜLLER, New York, N. Y. Filed Oct. 30, 1897. Serial No. 656,970. Term of patent 14 years.



Claim.—The design for an ornamental lamp-holder, substantially as shown and described.

28,735. LAMP-BODY. WILLIAM A. RAYNER, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Mar. 7, 1898. Serial No. 673,012. Term of patent 14 years.



Claim.—The design for a lamp-body as herein shown and described.

28,736. DRY MEASURE. JOSEPH A. DIEFFENBACHER, York, Nebr. Filed May 11, 1897. Serial No. 636,111. Term of patent 14 years.



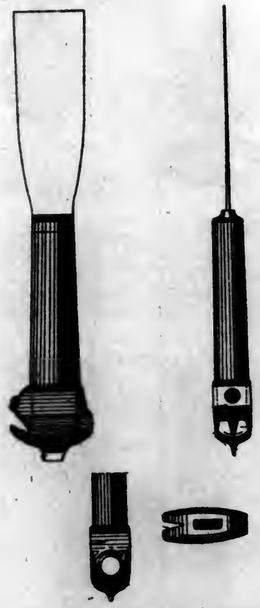
Claim.—The unitary design for a dry measure, herein shown and described.

28,737. HOLDER FOR CURLING-TONGS HEATERS. LYMAN H. SNYDER, Bristol, Conn. Filed Apr. 21, 1898. Serial No. 678,393. Term of patent 7 years.



Claim.—The design for a holder for curling-tongs heaters as herein shown and described.

28,738. TIP FOR TOOL-HANDLES. JOHN HENRY HAHLIN, Salt Lake City, Utah. Filed Apr. 26, 1898. Serial No. 678,918. Term of patent 7 years.



Claim.—The design for a tip for tool-handles herein shown and described.

28,739. HANDLE FOR PUNCHES. JAMES W. IVORY, Philadelphia, Pa. Filed July 6, 1897. Serial No. 643,663. Term of patent 14 years.



Claim.—The design for the handle of a punch substantially as shown and described.

28,740. PUNCH. JOHN H. HUBER, St. Louis, Mo. Filed Oct. 22, 1897. Serial No. 656,106. Term of patent 7 years.



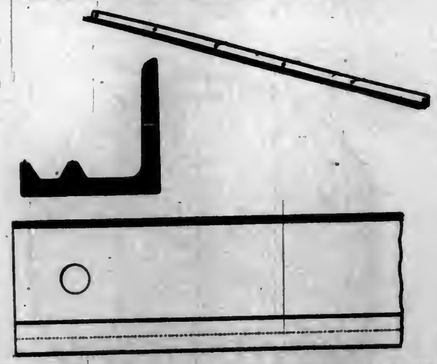
Claim.—The design for a punch, substantially as herein shown and described.

28,741. TRACE-FASTENER. WORTHINGTON BROWN, Hannibal, Mo. Filed Apr. 26, 1898. Serial No. 678,914. Term of patent 7 years.



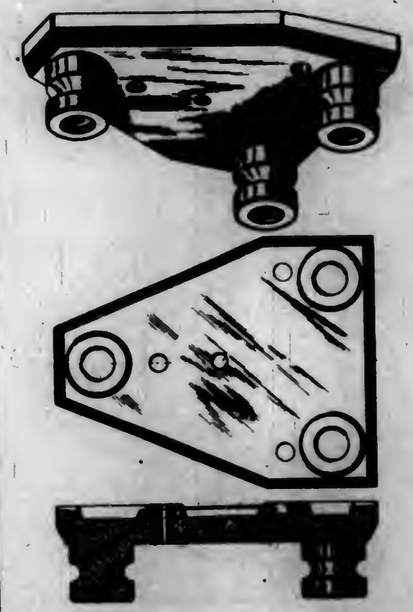
Claim.—The design for a trace-fastener, substantially as herein shown and described.

28,742. CAR-DOOR TRACK. EDWARD S. MARSHALL, St. Louis, Mo., assignor to the Missouri Railway Equipment Company, same place. Filed Apr. 4, 1898. Serial No. 676,466. Term of patent 14 years.



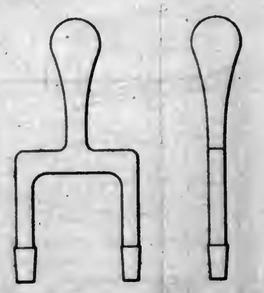
Claim.—The design for a car-door track, substantially as herein shown and described.

28,743. INSULATOR-PLATE. WILLIAM B. MCDONALD, Chicago, Ill. Filed Dec. 18, 1896. Serial No. 616,199. Term of patent 7 years.



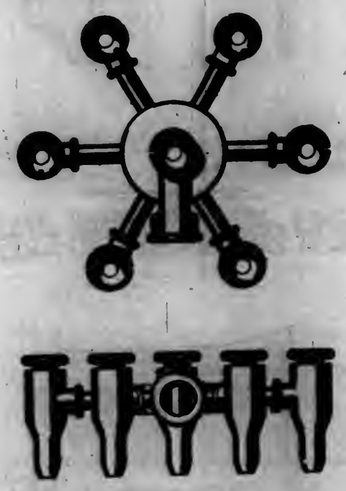
Claim.—The design for an insulator-plate for electric lamps as herein shown and described.

28,744. PLUG FOR ELECTRICAL PURPOSES. MIRAM PERRY MAKER, Hartford, Conn. Filed Apr. 9, 1898. Serial No. 677,006. Term of patent 14 years.



Claim.—The design for a plug for electrical purposes, substantially as shown and described.

28,745. CASING FOR STEAM-JET BLOWERS. BENJAMIN K. VAN BOSKERCK, Underhill, N. J. Filed Nov. 17, 1897. Serial No. 658,570. Term of patent 7 years.



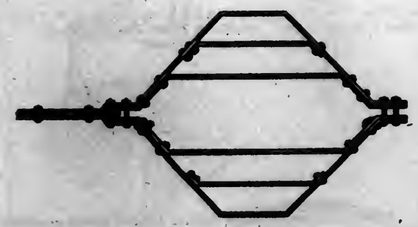
Claim.—The design for a casing for steam-jet blowers, substantially as herein shown and described.

28,746. BARREL-CLOSURE RING. EDWARD BLOUNT, Herron, Ga., assignor to Duncan J. McEachern, same place. Filed Apr. 18, 1898. Serial No. 678,063. Term of patent 14 years.



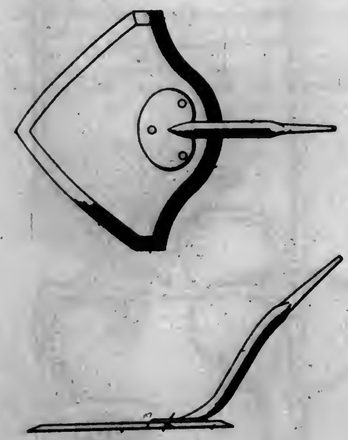
Claim.—The design for a barrel-closure ring substantially as herein shown and described.

28,747. GANG-FRAME FOR CULTIVATORS. CHARLES WOOD DAVIS and MORTON B. DAVIS, Pontiac, Kans. Filed May 27, 1897. Serial No. 638,476. Term of patent 14 years.



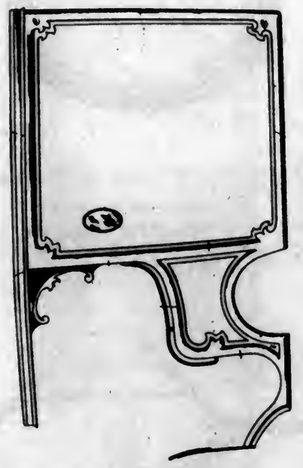
Claim.—The design for a gang-frame for cultivators substantially as herein shown and described.

28,748. GRASS AND WEED CUTTER. JESSE K. PALMER, Julesburg, Colo. Filed Apr. 27, 1898. Serial No. 678,048. Term of patent 7 years.



Claim.—The design for the grass and weed cutter, herein shown and described.

28,749. BODY FOR DELIVERY-WAGONS. JOHN C. KOEHAR, New York, N. Y., assignor to Clarence Wainright Wood, same place. Filed Feb. 19, 1898. Serial No. 670,975. Term of patent 7 years.



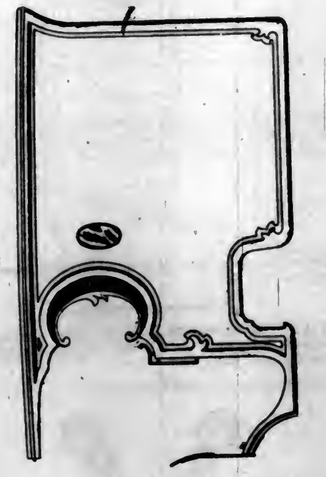
Claim.—The design for the body of a delivery-wagon, substantially as shown and described.

28,750. BODY FOR DELIVERY-WAGONS. JOHN C. KOEHAR, New York, N. Y., assignor to Clarence Wainright Wood, same place. Filed Feb. 19, 1898. Serial No. 670,976. Term of patent 7 years.



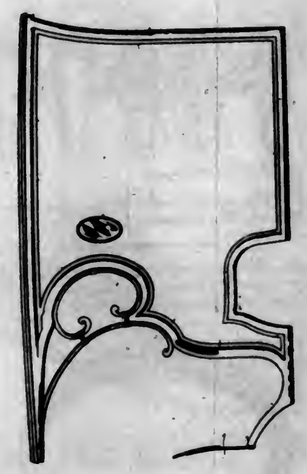
Claim.—The design for the body of a delivery-wagon, substantially as shown and described.

28,751. BODY FOR DELIVERY-WAGONS. JOHN C. KOEHAR, New York, N. Y., assignor to Clarence Wainright Wood, same place. Filed Feb. 19, 1898. Serial No. 670,977. Term of patent 7 years.



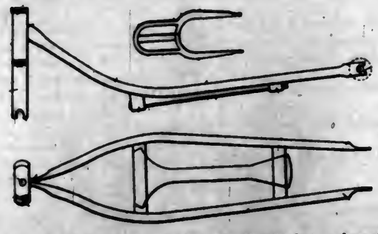
Claim.—The design for the body of a delivery-wagon, substantially as shown and described.

28,752. BODY FOR DELIVERY-WAGONS. JOHN C. KOEHAR, New York, N. Y., assignor to Clarence Wainright Wood, same place. Filed Feb. 19, 1898. Serial No. 670,978. Term of patent 7 years.



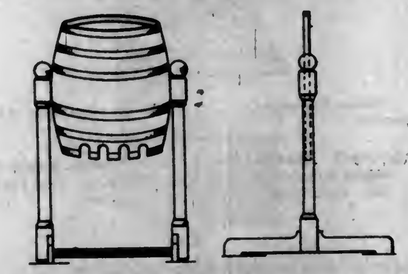
Claim.—The design for a body for delivery-wagons, substantially as shown and described.

28,753. FRAME OR BODY FOR BICYCLE-SKATES. STANLEY W. FISH, Washington, D. C. Filed Mar. 11, 1898. Serial No. 673,898. Term of patent 14 years.



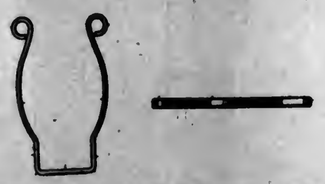
Claim.—The design for the body of a bicycle-skate, substantially as shown and described.

28,754. BICYCLE-STAND. ALBERT G. BOOKHOW, Saginaw, Mich. Filed Jan. 6, 1898. Serial No. 665,895. Term of patent 3½ years.



Claim.—The design for a bicycle-stand as shown and described.

28,755. BICYCLE-HOLDER SPRING. LYMAN H. SEYMER, Bristol, Conn. Filed Apr. 21, 1898. Serial No. 678,204. Term of patent 7 years.



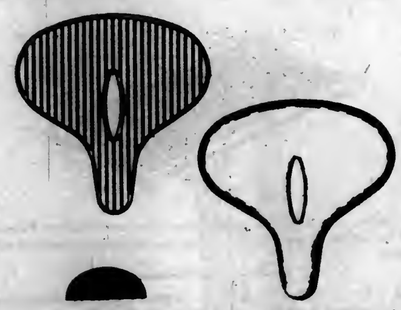
Claim.—The design for a bicycle-holder spring as herein shown and described.

28,756. SADDLE-SEAT. WILLIAM I. BOOKER, La Grange, Ill. Filed Apr. 30, 1898. Serial No. 679,498. Term of patent 14 years.



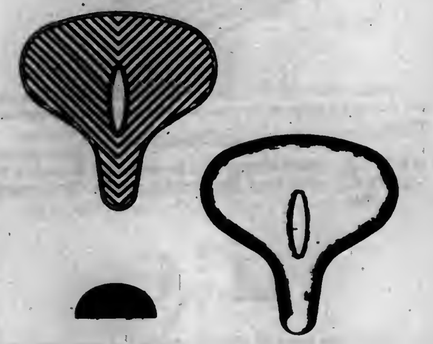
Claim.—The design for a saddle-seat, substantially as herein shown and described.

28,757. SADDLE-SEAT. WILLIAM I. BOOKER, La Grange, Ill. Filed May 2, 1898. Serial No. 679,547. Term of patent 14 years.



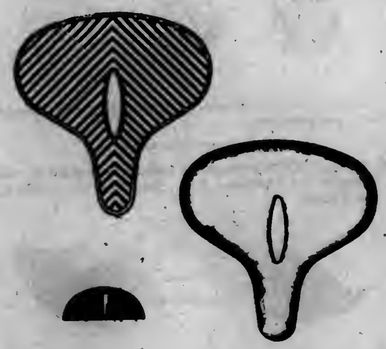
Claim.—The design for a saddle-seat substantially as herein shown and described.

28,758. SADDLE-SEAT. WILLIAM I. BOOKER, La Grange, Ill. Filed May 4, 1898. Serial No. 679,734. Term of patent 14 years.



Claim.—The design for a saddle-seat substantially as herein shown and described.

28,759. SADDLE-SEAT. WILLIAM I. BOOKER, La Grange, Ill. Filed May 5, 1898. Serial No. 679,853. Term of patent 14 years.



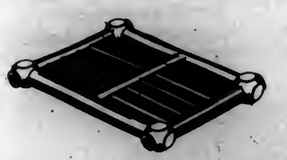
Claim.—The design for a saddle-seat substantially as herein shown and described.

28,760. RADIATOR-SECTION. ARTHUR H. FOWLER, Philadelphia, Pa., assignor to the Fowler & Webb Manufacturing Company, of Pennsylvania. Filed Dec. 15, 1897. Serial No. 662,095. Term of patent 14 years.



Claim.—The design for a radiator-section consisting of a flat section having the shape or conformation substantially as described and shown.

28,761. RADIATOR-SECTION. ARTHUR H. FOWLER, Philadelphia, Pa., assignor to the Fowler & Webb Manufacturing Company, of Pennsylvania. Filed Dec. 15, 1897. Serial No. 662,096. Term of patent 14 years.



Claim.—The design for a radiator-section consisting of a flat section having the shape or conformation substantially as described and shown.

28,762. PLATE-KEEPER SHELL. RAIMBRIDGE W. BURDICK, Albany, N. Y. Filed Mar. 4, 1898. Serial No. 672,608. Term of patent 14 years.



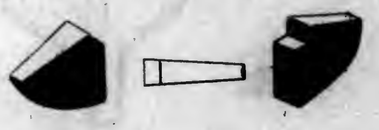
Claim.—The design for a plate-keeper shell as herein shown and described.

28,763. FOUNDER'S CORE-SUPPORTING SHELL. RAIMBRIDGE W. BURDICK, Albany, N. Y. Filed Mar. 4, 1898. Serial No. 672,609. Term of patent 14 years.



Claim.—The design for a founder's core-supporting shell as herein shown and described.

28,764. STOVE-DOOR-CATCH SHELL. RAIMBRIDGE W. BURDICK, Albany, N. Y. Filed Mar. 4, 1898. Serial No. 672,611. Term of patent 14 years.



Claim.—The design for a stove-door-catch shell as herein shown and described.

28,765. STOVE-URN. DAVID M. IRELAND, Detroit, Mich. Filed Sept. 27, 1897. Serial No. 653,262. Term of patent 3½ years.



Claim.—The design for an urn substantially as herein shown and described.

28,766. HEATING-STOVE. BRADLEY WOODRELL, Dunmore, Pa., assignor to the Scranton Stove Works, Scranton, Pa. Filed Feb. 25, 1898. Serial No. 671,701. Term of patent 14 years.



Claim.—1. In a design for a stove, the design for the base; substantially as shown and described.

2. In a design for a stove, the design for the top base-section B; substantially as shown and described.

3. In a design for a stove, the design for the ash-pit section; substantially as shown and described.

4. In a design for a stove, the design for the ash-pit door; substantially as shown and described.

5. In a design for a stove, the design for the central body-section; substantially as shown and described.

6. In a design for a stove, the design for the front door of the lower part of the body-section; substantially as shown and described.

7. In a design for a stove, the design for the side door of the lower part of the body-section; substantially as shown and described.

8. In a design for a stove the design for the front door of the upper portion of the body-section; substantially as shown and described.

9. In a design for a stove, the design for side door of the upper portion of the body-section; substantially as shown and described.

10. In a design for a stove, the design for the jacket; substantially as shown and described.

11. In a design for a stove, the design for the top ring; substantially as shown and described.

12. In a design for a stove, the design for the cover K; substantially as shown and described.

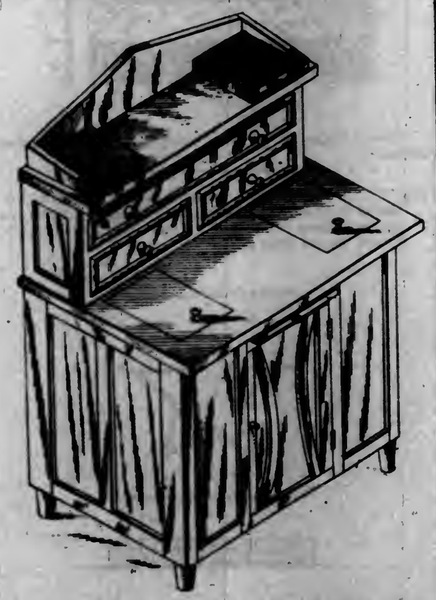
13. The design for a stove, substantially as herein shown and described.

28,767. KITCHEN-CABINET. SAMUEL RAMBERG, Leavenworth, Kans. Filed Apr. 23, 1898. Serial No. 678,677. Term of patent 7 years.



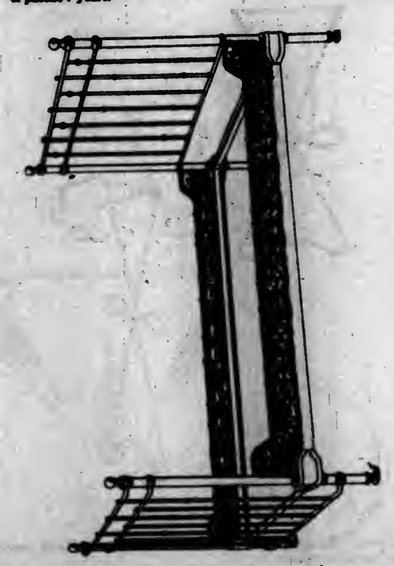
Claim.—The design for a kitchen-cabinet, as herein shown and described.

28,768. KITCHEN-CABINET. JOHN P. MURRAY, Newton, Ill. Filed Feb. 11, 1898. Serial No. 669,894. Term of patent 14 years.



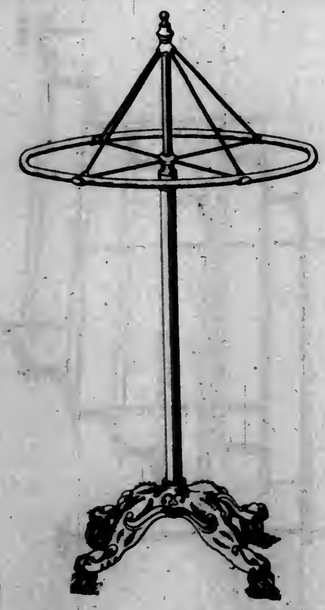
Claim.—The design for a kitchen-cabinet, substantially as shown and described.

28,769. BEDSTEAD. WILLIAM W. BALDWIN, Cleveland, Ohio, assignor to the Cleveland Co-Operative Stove and Hollow Ware Foundry Company, same place. Filed June 4, 1897. Serial No. 639,478. Term of patent 7 years.



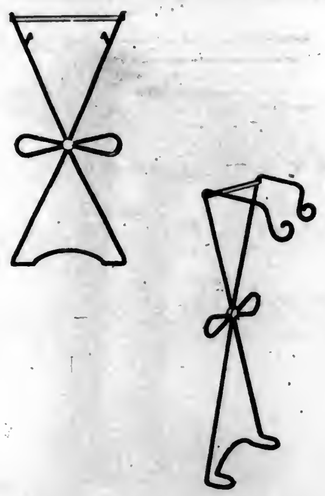
Claim.—The design for a bedstead, substantially as herein shown and described.

28,770. GARMENT-RACK. EDWARD LEDER, Chicago, Ill. Filed Mar. 21, 1898. Serial No. 674,683. Term of patent 14 years.



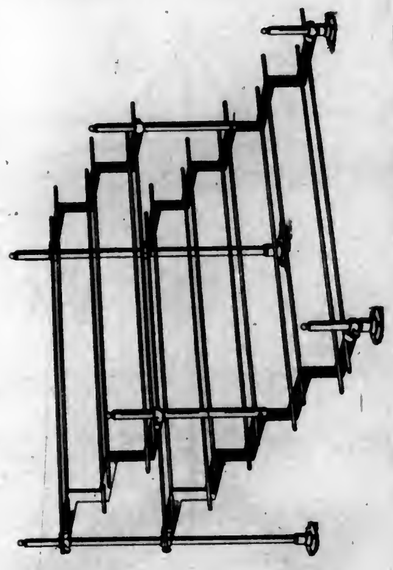
Claim.—The design for a garment-rack, substantially as herein shown and described.

28,771. DISPLAY-RACK. AMERIGUS C. MILLS, JR., Rochester, N. Y. Filed Apr. 28, 1898. Serial No. 678,143. Term of patent 7 years.



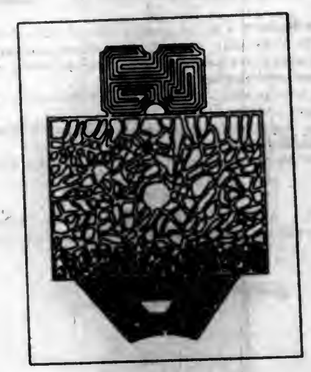
Claim.—The design for a display-rack, substantially as herein shown and described.

28,772. DISPLAY-RACK. CHARLES B. MORROW, Chicago, Ill., assignor to the Great Western Fixture Works, same place. Filed Apr. 11, 1898. Serial No. 677,237. Term of patent 7 years.



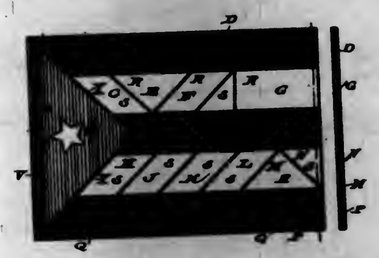
Claim.—The design for a display-rack, substantially as shown and described.

28,773. PUZZLE BOARD OR CARD. HENRY D. HOUSEN, Brooklyn, N. Y. Filed Dec. 20, 1897. Serial No. 662,702. Term of patent 3½ years.



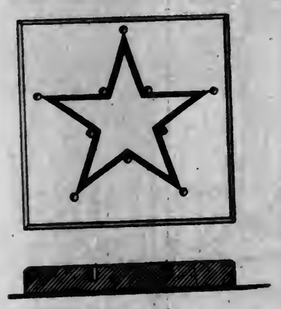
Claim.—The design for a puzzle board or card, as herein shown and described.

28,774. PUZZLE-BOARD. OTTO SHELLHORN, Philadelphia, Pa. Filed Apr. 14, 1898. Serial No. 677,669. Term of patent 7 years.



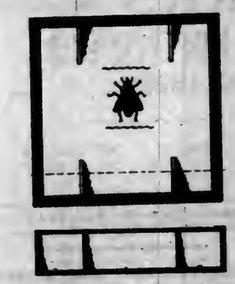
Claim.—The design for a puzzle-board, substantially as described and shown.

28,775. PUZZLE-BLOCK. OSMYN GATEWOOD, Washington, D. C., assignor to himself, and Robert H. Davis, Alexander T. Harms, and Thomas B. Harms, New York, N. Y. Filed Apr. 11, 1898. Serial No. 677,240. Term of patent 3½ years.



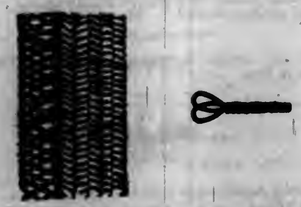
Claim.—The design for a puzzle-block, herein shown and described.

28,776. TOY. HENRY CLAYTON BIRTH, Toronto, Canada. Filed Feb. 16, 1898. Serial No. 670,568. Term of patent 3½ years.



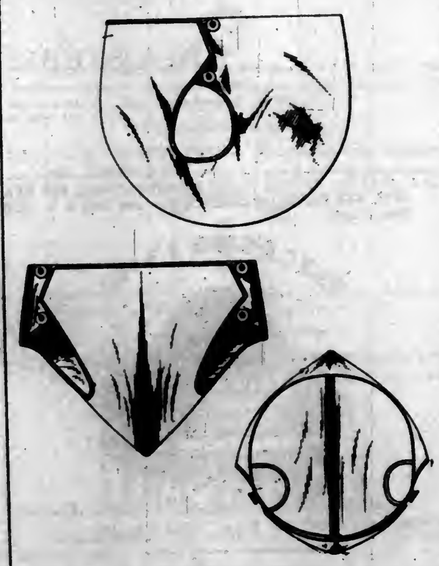
Claim.—The design for a toy, as herein shown and described.

28,777. BRAID. FREDERICK WM. KLEIN, Reading, Pa., assignor to the Reading Braid Company, same place. Filed Mar. 5, 1898. Serial No. 672,753. Term of patent 14 years.



Claim.—The design for braid, substantially as herein shown and described.

28,778. CHILD'S NAPKIN. ELLA MATILDA YARRINGTON and THOMAS HALL, New York, N. Y. Filed June 11, 1897. Serial No. 640,267. Term of patent 14 years.



Claim.—The design for a child's napkin as herein shown and described.

TRADE-MARKS

REGISTERED MAY 31, 1898.

81,608. CERTAIN NAMED WEARING-APPAREL FOR MEN, BOYS, AND YOUTHS. M. Ballin & Sons, New York, N. Y. Filed Feb. 16, 1898.

BEE HIVE



Essential feature.—The representation of a beehive, either with or without the words "Bee Hive." Used since 1865.

81,609. CERTAIN NAMED ARTICLES OF LADIES' WEAR. Franklin K. Hixon, New Haven, Conn. Filed Mar. 12, 1898.

CENTURY

Essential feature.—The word "Century." Used since February 1, 1896.

81,610. CERTAIN NAMED UNDERWEAR AND UMBRELLAS. Sibley, Lindsay & Curr Company, Rochester, N. Y. Filed May 20, 1897.

VIVE UT POSTEA VIVAS.

Essential feature.—The motto "Vive ut Postea Vivas." Used since May 12, 1894.

81,611. MEN'S AND WOMEN'S SHOES. William J. Martens, New Orleans, La. Filed Apr. 6, 1898.

ORANGE BLOSSOM

Essential feature.—The words "Orange Blossom." Used since September 10, 1896.

81,612. COTTON SHEETINGS. Boston Manufacturing Company, Waltham, Mass. Filed Apr. 5, 1898.

HARVEST HOME

Essential feature.—The words "Harvest Home." Used since February 1, 1898.

81,618. COTTON SHEETINGS. Boston Manufacturing Company, Waltham, Mass. Filed Apr. 5, 1898.

GREAT MOGUL

Essential feature.—The words "Great Mogul." Used since February 1, 1898.

81,614. DOLLS. Hausburg & Company, New York, N. Y. Filed Feb. 19, 1898.



Essential feature.—The picture of an eagle in connection with the word "Imperial." Used since February 4, 1896.

81,615. INDIA-RUBBER PRODUCTS. Hose Rubber Company, Boston, Mass. Filed Feb. 9, 1898.

HELMET.

Essential feature.—The word "Helmet." Used since October 1, 1897.

81,616. INDIA-RUBBER PRODUCTS. Hose Rubber Company, Boston, Mass. Filed Feb. 9, 1898.

TUFF

Essential feature.—The word "Tuff." Used since March 1, 1897.

81,617. ART PHOTOGRAPHS. Curtis & Cameron, Boston, Mass. Filed Apr. 7, 1898.



Essential feature.—A portrait of the late John Singleton Copley. Used since March, 1898.

81,618. WRITING-PAPER. Whiting Paper Company, Holyoke, Mass. Filed Mar. 8, 1898.

EXPOSITION

Essential feature.—The word "Exposition." Used since August, 1894.

81,619. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

TIMES

Essential feature.—The word "Times." Used since January, 1875.

81,620. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

FIGARO

Essential feature.—The word "Figaro." Used since January, 1875.

81,621. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

HERALD

Essential feature.—The word "Herald." Used since January, 1875.

81,622. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

GLOBE

Essential feature.—The word "Globe." Used since January, 1875.

81,623. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

SCRIBBLER

Essential feature.—The word "Scribbler." Used since October, 1877.

81,624. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

MAIL

Essential feature.—The word "Mail." Used since January, 1875.

81,625. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

REVIEW

Essential feature.—The word "Review." Used since January, 1875.

81,626. METALLIC PENS. C. Brandauer & Co., Birmingham, England. Filed Mar. 14, 1898.

POST

Essential feature.—The word "Post." Used since January, 1875.

81,627. OPAL GLASSWARE. G. F. Meriden Company, Meriden, Conn. Filed Mar. 14, 1898.

WAVE CREST

Essential feature.—The words "Wave Crest." Used since October 1, 1892.

81,628. SOAP POWDERS. Joseph M. Woolfe and Rosser F. Kenney, Philadelphia, Pa. Filed Aug. 14, 1897.



Essential feature.—The letters and character "W. & K.," with a representation of the aurora borealis, showing a bank or mountain of snow or ice. Used since January 1, 1897.

81,629. WASHING-POWDER. H. C. Lehnert & Co., Cincinnati, Ohio. Filed Mar. 5, 1898.

WASHING GAS

Essential feature.—The words "Washing Gas," with the representation of a Greek cross. Used since August, 1896.

81,630. CALCIMINE—A MIXTURE OF DRY POWDER WITH WATER. F. O. Pierce Company, New York, N. Y. Filed Apr. 7, 1898.

PLASTINITE

Essential feature.—The word "Plastinite." Used since March 1, 1898.

81,631. MUCILAGE AND PASTE. Theodore Davis Company, New York, N. Y. Filed Apr. 8, 1898.



GENERAL

Essential feature.—The representation of a bust of a man and the word "General." Used since December, 1868.

81,632. VEGETABLE ACIDS. Charles Lichau, Paris, France. Filed Mar. 14, 1898.

OENOLIC

Essential feature.—The word "Oenolic." Used since November 15, 1897.

81,633. HAVANA CIGARS. Chicago Athletic Association, Chicago, Ill. Filed Feb. 7, 1898.



Essential feature.—The letter "C" in a circle, the width of the "C" being the same as the circle, and the width between the "C" and the circle is the same as the width of the "C." Used since August, 1892.

81,634. PREPARED POPCORN. ST. LOUIS POP CORN COMPANY, St. Louis, Mo. Filed Apr. 4, 1898.

ANGEL

Essential feature.—The word "ANGEL." Used since February 3, 1898.

81,635. COMBINATION OF MILK AND MOLASSES CANDY. THE P. C. WIENT COMPANY, York, Pa. Filed Mar. 26, 1898.

P
M K

Essential feature.—The letters "P M K." Used since January 1, 1898.

81,636. WHISKY. ALFRED R. HORNE, Philadelphia, Pa. Filed Mar. 22, 1898.



Essential feature.—A cut or design inclosing the picture of a mounted trooper and the word "TROOPER" directly over it. Used since February 14, 1898.

81,637. MEDICATED TONIC WINES. MARKAR G. DARNEHAM, New York, N. Y. Filed Apr. 7, 1898.

SHARTONE

Essential feature.—The word "SHARTONE." Used since March 14, 1898.

81,638. COFFEE. C. F. BLAKE'S TEA AND COFFEE COMPANY, St. Louis, Mo. Filed Apr. 8, 1898.

MAKOBA

Essential feature.—The word "MAKOBA." Used since March 21, 1898.

81,639. ROASTED COFFEE AND ROASTED AND GROUND COFFEE. THE ENTERPRISE COFFEE COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Mar. 26, 1898.



Essential feature.—The letters "O K" in an oval. Used since July 9, 1877.

81,640. ROASTED AND GROUND COFFEE. THE ENTERPRISE COFFEE COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Mar. 26, 1898.



Essential feature.—The word "ATLAS" and the pictorial representation of Atlas. Used since September, 1876.

81,641. INTERNAL REMEDY FOR RHEUMATISM. THE JAMES T. REGAN CO., Boone, Iowa. Filed Feb. 14, 1898.

James T. Regan's RADICAL RHEUMATISM RELIEF.

Essential feature.—A copy of the signature of "JAMES T. REGAN" written in backhand, with the words "RADICAL RHEUMATISM RELIEF" printed across the face of the signature. Used since January 1, 1898.

81,642. BICYCLES. THE AMERICAN NEWS COMPANY, New York, N. Y. Filed Mar. 30, 1898.

ARENA

Essential feature.—The word "ARENA." Used since May 1, 1896.

81,643. BICYCLES. THE AMERICAN NEWS COMPANY, New York, N. Y. Filed Mar. 30, 1898.

CHAMPION

Essential feature.—The word "CHAMPION." Used since May 1, 1896.

81,644. SAFETY-BICYCLES AND THEIR COMPONENT PARTS. GEORGE M. HENDEE, Springfield, Mass. Filed Apr. 1, 1898.

SILVER KING

Essential feature.—The words "SILVER KING." Used since December, 1893.

81,645. DROP-FORGINGS, WRENCHES, AND BICYCLE PARTS. SPRINGFIELD DROP FORGING COMPANY, Springfield, Mass. Filed Apr. 2, 1898.



Essential feature.—The representation of the letter "S" inclosed by the letter "D." Used since March 1, 1898.

THE HORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

PARK v. CAIN.

Decided April 20, 1898.

1. APPLICATIONS—SECOND APPLICATION—ABANDONMENT.

Park filed an application May 8, 1895, which disclosed but did not claim the subject-matter of the issue and which was passed to issue November 16, 1895. The application in the interference was filed July 30, 1896, containing and claiming the subject-matter of the first application, and in addition thereto new matter. The first application became abandoned after the second application was filed. *Held* that the subject-matter of the first application being a part of the second application, any idea that Park intended to abandon the subject-matter of the application is negatived.

2. SAME—SAME—CONTINUING APPLICATION.

Held, further, that while, strictly speaking, the second application for all purposes may not be susceptible of being treated as a continuation of the first application, yet for many purposes it can be so treated.

3. SAME—SAME—SAME—INTERFERENCE—CONSTRUCTIVE REDUCTION TO PRACTICE—PRIORITY.

Held, further, that the second application is, for the purpose of showing a constructive reduction to practice, a continuation of the first application, and that Park, having disclosed the subject-matter of the issue in his first application at a date prior to any date that can be given to Cain, is entitled to an award of priority.

APPEAL from Examiners-in-Chief.

BOILERS.

Application of Kennedy Park filed July 30, 1896, No. 601,089. Patent granted to John J. Cain June 2, 1896, No. 561,257.

Messrs. Wright, Brown & Quinby for Park.

Mr. Charles W. Forbes for Cain.

DUELL, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Cain on the following issue:

In a sectional boiler, the combination of vertical pipes or chambers, rectangular headers, the ends of each of which are in substantially the same horizontal plane and connected to and securing together the front vertical pipes, rectangular headers, the ends of each of which are in substantially the same horizontal plane and connected to and securing together the rear vertical pipes, said headers being angularly set so that the inner faces of the front headers are opposite and parallel to the inner faces of the rear headers in lower planes, and a series of tubes longitudinally and angularly arranged and connected at their ends to each opposite pair of headers, each series of tubes and their connected headers constituting a section of the boiler.

In arriving at their conclusion the Examiners-in-Chief affirmed the decision of the Examiner of Interferences.

Several reasons of appeal are assigned by the attorneys for Park, only one of which, in view of the conclusion at which I have arrived, is necessary to be considered. That one is as follows:

The Examiners-in-Chief erred in not giving due weight to the Park exhibit, first application.

In order to fully understand the point raised by this reason of appeal, it will be necessary to briefly set forth the facts in the case.

Park filed the application involved in this interference July 30, 1896, and it was placed in interference with patent to Cain, No. 561,257, granted June 2, 1896, on an application filed December 11, 1895. Testimony was taken on behalf of Park, and his testimony proves beyond a doubt that he disclosed to others the invention in issue some time in the year 1893. The Examiner of Interferences and the Examiners-in-Chief concurred in finding that he reduced the invention to practice some time in the summer of 1896. Both tribunals concurred in finding that Park had not been diligent in reducing the invention to practice, and therefore awarded priority to Cain, who was the second to conceive and disclose the invention, but the first, according to their view, to reduce to practice.

The record shows that Park filed an allowable application for patent on May 8, 1895, which application disclosed the invention in issue. No claim, however, for the subject-matter of the issue was made in that application, and it was passed to issue November 16, 1895. The present application was filed July 30, 1896, after the allowance of the prior application, but before it had become abandoned.

On comparing the drawings and specification of Park's first application with the drawings and specification of the second application—the one involved in this interference—it is found that the drawings of the first application are the same as the first sheet of the drawings of the second application and that the specification of the first application is incorporated substantially word for word in the second application. It is true that additional drawings were filed with the second application and that additional matter is found in the second specification. The fact, however, that the drawings and specification of the first application form a part of the second application negatives any idea that Park intended to abandon the subject-matter of his first application. Without doubt Park, having devised certain additional features of invention, decided to combine all in one application instead of reviving the first application and filing the second application for the purpose of embodying the new features.

While, strictly speaking, the second application for all purposes may not be susceptible of being treated as a continuation of the first application, yet for many purposes it can be so treated. For example, had a patent issued to Park on his second application, (no interference having been declared,) suit been brought upon the patent, and the defense of two years' public use been raised by the answer I take it that the party making that defense would have had to show a two years' public use prior to the date when Park's first application was filed. I think the court would have been compelled to take into account the fact that the subject-matter of the second application was embraced in the first and that the invention in controversy was described in the specification and drawings which constituted a part of the first application. (*Smith* v. *Goodgear Dental Vulcanite Co.*, 93 U. S., 500; *Graham* v. *McCormick et al.*, 21 O. G., 1533.)

This interference was declared February 3, 1897, and at that time the prior application, filed May 8, 1895, could have been renewed, and when a claim warranted by the specification and drawings of that application had been made that application could have been placed in interference with the patent to Cain.

It is contended by Park that this prior application, which clearly discloses the issue of this interference, was a constructive reduction to practice and that therefore the finding of the Examiner of Interferences and the Examiners-in-Chief that he was not diligent in reducing his invention to practice is not well founded. If Park is entitled to the date of May 8, 1895, as the date of a reduction to practice, then he would be clearly entitled to an award of priority, for the reason that he conceived the invention and disclosed it to others and also reduced it to practice by filing an allowable application before Cain filed his application for the patent involved in this interference. If the lower tribunals are correct in their finding, which, in effect, is that because Park did not make the claim which has become the issue of this interference in his first application he is therefore not entitled to have the benefit of the filing date of such prior application as the date of a constructive reduction to practice, then their ruling in favor of Cain was correct. If, however, Park is entitled to a date of constructive reduction to practice as of the date of filing his first application disclosing this invention, which is the issue of the interference, then their ruling was wrong and priority should be awarded to Park.

In my opinion Park is entitled to claim a constructive reduction to practice as of May 8, 1895, for in that application there was clearly disclosed the issue of this interference. It was certainly an allowable application, for the Office records show that it was allowed, and at the time when this interference was declared, as has been stated, the application could have been renewed. Instead of renewing that application Park saw fit to file a new application embodying what was disclosed in the prior application, with certain new matter, which of course he could not have incorporated into the prior application by renewing it. It seems to me that the second application is, for the purpose of showing a constructive reduction to practice, a continuation of the first application, and that, having disclosed the subject-matter of the issue in the first application at a date prior to any date that can be given to Cain, he is entitled to an award of priority.

I believe that an injustice would be done Park by holding that by filing the second application he is deprived of the earlier date of a constructive reduction to practice, which he would clearly have been entitled to by renewing his first application. Park was the first to conceive and disclose to others, the first also to reduce to practice, and guilty of no laches.

The decision of the Examiners-in-Chief awarding priority to Cain is reversed.

EX PARTE WILLIAMS.

Decided April 28, 1898.

DIVISION—INDEPENDENT DEVICES.

Where two devices are independent of each other and they do not mutually contribute to produce a single result and the action of one does not in any manner modify or affect the action of the other, *Held* that division should be required.

ON petition.

HAME ATTACHMENTS.

Application of Charles W. Williams filed May 19, 1897, No. 637,296.

Messrs. C. A. Snow & Co. for the applicant.

DUELL, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring division between claims 1 and 2 and claims 3 and 4 of the above-entitled application.

The invention relates to attachments for hames by which the lines or other parts of a harness may be held in place on the hames when it is desired to unhitch the horse. The device covered by claims 1 and 2 consists of a bar or rod pivotally attached at its lower end to the upper outer end of the hame and means for engaging the upper end of the bar to hold or lock it in place in close engagement with the upper end of the hame. Claims 3 and 4 cover a device consisting of a strip of spring metal pivoted or otherwise secured to the outer edge of the hame, having its upper end bent over the upper end of the hame and downwardly inside the hame and a loop or link pivoted to the inner end of this strip and adapted to engage or lie loosely against the inner surface of the hame.

The Examiner's ruling is that the two devices are different species of the same invention, and he required division under *ex parte Eagle*, (C. D., 1870, 170.) No generic claim to cover both forms of the device has been made by applicant, and whether or not the two devices can be covered by such a claim or whether they are for different species, I am not willing, nor is it necessary, to say. I am of opinion, however, that the two devices are independent of each other and that they do not mutually contribute to produce a single result. The action of one does not in any manner modify or affect the action of the other. Of these two devices applicant states in his specification that—

I may provide my hames with either the attachment 6 on the outside thereof, or with the extension 8 on the inside thereof, or may employ both, as desired.

I am of the opinion that the subject-matter of the two sets of claims should be in separate applications. The petition is therefore denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

DENTON v. COMMISSIONER OF PATENTS.

Decided April 4, 1898.

1. REISSUE—ABANDONMENT OF INVENTION—SCOPE OF CLAIM.

Where the claim sought by reissue was not as broad as the claim made in the original application and canceled, *Held* that this is of no consequence where the reissue claim was included in the original claim. It is well-settled law that a reissue cannot be allowed for the restoration of claims once rejected and withdrawn.

2. SAME—LIMITING SCOPE OF CLAIM—ABANDONMENT.

Where an applicant for a reissue had amended and limited an original claim to a greater extent than was necessary, *Held* that such limitation may have been a mistake of judgment, but it was certainly an abandonment of all that was contained in the original claim and which was not contained in the subsequent amendment. There can be no middle ground or retrogression to take back part of what has been abandoned any more than to take back the whole.

Mr. Fred L. Chappell for the appellant.

Mr. W. A. Megrath for the Commissioner of Patents.

MORRIS, *J.:*

This is an appeal from a decision of the Commissioner of Patents refusing to the appellant the reissue of a patent granted for an improvement in sleeping-garments, which reissue was sought in order to cover a broader claim than that contained in the specification annexed to the patent.

It appears from the record that on March 20, 1895, the appellant applied to the Patent Office for Letters Patent for an alleged improvement in sleeping-garments which he claimed to have devised, and which consisted in the attachment of pockets to the lower portion of such garments for the insertion therein of the feet of the wearer, so as to insure them against accidental uncovering of the bedclothes and also their protection in the event that the person had occasion to leave the bed and to walk about the room or house. The invention contemplated the use of the device upon two classes of garments—the gown and the bifurcated garment composed of a combination of the nightshirt and night-drawers—and the original specification filed with the application contained six claims, which seem substantially to have been no more than six different ways of stating the same invention. Subsequently the applicant abandoned the claim with reference to the combination-garment in view of the fact that in this he had been anticipated by a previous patent issued to a previous inventor. In fact, by repeated modifications and amendations all the original claims were abandoned and others, reduced in number, were substituted in their place. Finally the specification was reduced to one claim, and for this a patent was allowed and issued to the applicant on July 2, 1895. This claim is in the following terms:

A sleeping-garment consisting of a gown extending from the neck to the feet of the wearer and having its lower portion provided with vertical slits forming a front and a rear flap, and a pocket for one of the feet secured on the inside of each flap near said slits as set forth and shown.

The function of the slits, it may be noted, was for the purpose of securing freedom and facility of locomotion, as otherwise it would be as if one were incased in a bag.

By an instrument of writing, without date, but recorded in the Patent Office on October 2, 1896, the patentee assigned his rights under the patent to a company of which he was himself the principal stockholder. Subsequently, on October 14, 1896, acting on behalf of his company, he made an application to the Patent Office for leave to surrender the patent and for its reissue to him with modifications. The proposed modifications were to the effect that in addition to the claim in the specification annexed to the patent there should be a second claim inserted of a broader and more comprehensive character, which was stated to be comprised in the invention, but to have been omitted from the specification through inadvertence and mistake on the part of the applicant, and which was in the following terms, as set forth with the application for reissue:

In a garment a gown adapted to extend to the feet of the wearer with foot-pockets secured to the bottom thereof and opening toward the inside of said gown, for the purpose specified.

The substantial difference between this claim and that contained in the specification annexed to the patent, as will be noted, consists in this, that while the latter limits the invention to garments containing slits at the bottom the claim now proposed has no such limitation, and it is said that the invention itself has, in fact, no such limitation. It seems to have been discovered that the slits were not an essential element of the garment, and it may be presumed that the applicant's patent had been evaded by the construction of garments without the slits.

With the application for reissue was filed an affidavit by Denton to the effect that the patent was invalid and inoperative by reason of the defective specification and that the error arose through inadvertence and mistake on the part of the applicant, without any fraudulent intention on his part, such error having been occasioned by the applicant's illness, ultimately resulting in his death, as appears from the record, on account of which he failed to communicate to his attorney the fact that the improvement was applicable to other garments than those having slits at the bottom, and there were other affidavits also in support of the application intended to support the theory of the applicant's inadvertence and to account for the delay in the application.

The application for reissue was rejected by all

the tribunals of the Patent Office, and from the final decision of the Commissioner appeal has been taken to this court.

The controversy before us has been very greatly narrowed by the elimination of several of the questions that were raised in the Patent Office. It is conceded on behalf of the appellant that all reasonable care was exercised in the prosecution of the application for a patent, and it is conceded that there was no inadvertence or mistake or error of any kind on the part of the applicant if substantially the same claim now made was included in the original application. The theory of the Patent Office is that there could have been no inadvertence or mistake if such claim had, in fact, been made and had subsequently been abandoned or withdrawn, and that the withdrawal or abandonment, even though improvidently done, must be regarded as an error of judgment, which would constitute no ground in law for a reissue of the patent. There is no controversy between the parties as to the law. It is conceded that the reissue of the patent should not be granted if the claim now sought to be incorporated in it was substantially made in the original application for the patent or in the course of the proceedings thereupon and was subsequently abandoned and the patent taken for the only claim contained in it. The appellant contends that no such claim was advanced or abandoned, and to the determination of this question the controversy has been reduced. In fact, the controversy may be regarded as being still further narrowed by the parties, for it is conceded—a concession of course made necessary by the record—that there were in the original specification two claims apparently broad enough to cover that which is now contended for. These are the following:

A sleeping-garment having pockets in the lower portion thereof for the feet, as set forth and shown.

A sleeping-garment extending from the neck to the feet of the wearer and provided with sleeves and with socks formed partly of blanks sewed to the lower ends of the garment, as set forth.

It is claimed on behalf of the appellant that the Patent Office virtually substitutes the word "gown" for the word "garment" in these two claims and that it is error so to do, so that in the ultimate analysis of the controversy the question to be determined is whether a claim for a "garment having pockets in the lower portion thereof for the feet" covers and includes a claim for "a gown having pockets in the lower portion thereof for the feet," and to our minds the answer to the question does not seem difficult. The term "garment" includes the term "gown." This appears conclusively from the very claim now sought to be established. The express words of it are, "In a garment, a gown adapted," etc. The claim originally made by the applicant is broader than that now made, but it includes this claim, and it is well-settled law that reissue cannot be allowed for the restoration of claims once rejected and withdrawn. The authorities are unanimous on this point and need not here be cited.

That the claim sought in the reissue is not as broad as the original claim is of no consequence. It was included in it. When the applicant amended and limited that original claim, if he limited it to a greater extent than was necessary, such extreme limitation may have been a mistake of judgment; but it was certainly an abandonment of all that was contained in the original claim and which was not contained in the subsequent amendment. There can be no middle ground. There can be no retrogression to take back part of what has been abandoned any more than to take back the whole.

It may be that it was a mistake on the part of the applicant to limit the invention to the extent only of the claim contained in the specification annexed to the patent; but with this of course we have nothing to do here. The only question for us is whether the claim now put forward on his behalf was so far contained in his original claims that were abandoned by him as to be itself thereby necessarily abandoned, and this we must answer in the affirmative, for the abandonment of the whole necessarily implies and involves the abandonment of all the parts except such as are expressly and specifically retained.

Being of this opinion, we are constrained to affirm the decision of the Commissioner of Patents in the premises.

This opinion and the proceedings in the cause in this court will be certified to the Commissioner for record in his Office, according to law.

Court of Appeals of the District of Columbia.

DICKEY v. FLEMING.

Decided April 5, 1898.

INTERFERENCE—PRIORITY.

After reviewing the testimony, *Held* that the explanation of Dickey as to delay in applying for a patent, while plausible, was not satisfactory; but the proofs show that he was the first inventor, and priority awarded to him over the patentee, Fleming.

Mr. H. C. Townsend for the appellant.

Mr. Frederic Carragan for the appellee.

SHEPARD, *J.*:

This is an appeal from a decision of the Commissioner of Patents in an interference proceeding involving the following issues:

1. A dynamo-brush consisting of successive layers of wire-gauze formed into the desired shape, and then compacted by pressure.

2. A dynamo-brush consisting of successive layers of wire-gauze in which the wires are disposed diagonally to the length of the brush, compacted together by pressure.

The appellee, Fleming, filed his application November 13, 1893, and obtained a patent January 30, 1894. The appellant, Dickey, filed his application December 4, 1894, and the interference was soon after declared.

Fleming claims to have invented the brush of the two issues about December, 1891, and to have reduced to practice in March, 1892. Dickey alleges invention about the last of December, 1892, and reduction to practice from January to March, 1893.

The Examiner of Interferences decided in favor of Fleming, and on appeal was reversed by the Examiners-in-Chief. They in turn were reversed by

the Commissioner, and final award of priority was made to Fleming.

The question is one of fact, and there is quite a conflict in the evidence.

After careful examination of the evidence and the views in respect of its credibility and weight, set out at length in the separate opinions of the tribunals of the Patent Office, our conclusion is with the Examiners-in-Chief, that Dickey is entitled to the award of priority.

Concurring generally in the views expressed by them, no useful purpose would be subserved by an elaborate review of the voluminous evidence. We shall content ourselves, therefore, by referring to the opinion of the Examiners-in-Chief, with some additional comments more fully explaining the grounds of our conclusion.

Fleming was an expert electrician or electrical engineer and was the general manager and agent of a partnership called the "International Supply Co." during 1891, 1892, and part of 1893. This company dissolved and was succeeded in March, 1893, by a corporation called the "International Trading and Electrical Company," of which Fleming, who was an incorporator also, became manager and agent. Having some difference with his associates, he retired about the last of March, 1894, and contracted for the sale of his brushes with the Manhattan General Construction Company.

Dickey was a skilled mechanic who made a specialty of electrical work. He contracted with the Supply Co. in 1892 for work on jobs, and soon after moved into a machine-shop owned by one Herkner, who was the financial "backer" of that company. There he remained, working for that company, its successor, and the Manhattan Company, until August 31, 1894.

During that time those companies paid for his room in the shop and use of machinery, furnished materials, and paid him by the piece, he furnishing his own help.

All orders and materials came to him from the company through Fleming. His dealings were with Fleming, and he followed the latter's fortunes when he changed to the Manhattan Company and continued to make the brushes upon similar terms.

While Dickey was so employed in March, 1893, he unquestionably made his first brushes of the kind described in the second issue. About January 1, 1893, Fleming came to him with an order for some brushes to be furnished the navy-yard at Brooklyn. He produced a sample brush made of a wire bundle or wire-gauze and solid metal. Dickey said that he found he could stiffen the brush by compressing the folds of gauze and dispense with the solid metal, which was for stiffening merely. He without doubt made the brushes to the number ordered in this manner. They were received and put in use on several Government vessels. They were better than the sample, but still objectionable on account of stiffness.

About March, 1893, Dickey claims to have discovered the construction of the second issue. Instead of rolling the wire-gauze straight, as before, he cut it diagonally in strips and then rolled it. When compressed, it was found that the objectionable stiffness of the first had disappeared. It is certain that Dickey had not before seen a brush constructed in either of the above ways, for Fleming admits that the sample given to Dickey was substantially as described.

Notwithstanding the patent to Fleming, applied for long after this date, this evidence would give priority to Dickey unless it appears either that Fleming furnished him the idea or that Fleming actually invented and reduced to practice in April, 1892, as he claims.

Fleming in giving evidence said that some time late in 1891 he produced a wire-cloth brush of foreign construction on some one of the Atlantic steamers. The folds were not compressed, but were held together by stitches of strong copper wire; that he conceived the idea of improving by compressing and took the brush to the shop of one Beinert, who was a repairer of electrical machinery; that after some trials in compressing the gauze cut straight he discovered the great advantage in cutting diagonally before rolling or folding. The compressing was first done with the aid of a wooden box and a vise and clamps, which is the same process used by Dickey until he resorted to a hydraulic press; that sixteen of these improved brushes were sent to the electrician of the steamship *City of Paris* on or before April 6, 1892, for trial on its outward passage.

It appears that Beinert had two assistants—a man and a boy—in the shop at the time. These were called as witnesses by Dickey. They neither saw nor heard of these brushes, the construction of which was public, according to Beinert, and occupied some time. Assistance in making them, while probably not necessary, must have been desirable. Fleming, who testified to difficulty in procuring the wire-gauze, was unable to tell where or from whom he purchased it. He had no memorandum, bill, or receipt. There was no entry in the books of his company showing purchase of goods, expense of manufacture, or receipt or delivery of the brushes from or to any one. He accounts for the absence of charge against the ship by saying that they were experimental and for his benefit. Beinert corroborated Fleming in respect of the manufacture of the brushes, which, he says, were delivered by him to the company at its office. His books had been burned and he had no memorandum of the transaction; said that he sent a bill to the company for the work, received pay, and gave a receipt. No such receipt was produced, nor was search made for it. Fleming said that in moving offices he had destroyed a number of such papers, and, further, that the company's books had been badly kept.

Again, no brush of this new construction was preserved by Fleming or Beinert, and hence, as we have seen, Fleming had to furnish Dickey a sample of general likeness to that which he had shown to Beinert.

It is true that the two electricians of the *City of*

Paris testified to the receipt of the brushes aforesaid on board of that ship in April, 1892; but the sales-books of the International Electric Company show the delivery of brushes made by Dickey to that ship on April 8, 1893, and none prior thereto. Following that date are similar entries of sales to the *Paris* and sister ships. The two electricians could refer to nothing which would certainly establish the date given by them, and without reflecting upon their integrity it is at least not improbable that they made a mistake of a year in the date.

Considering, however, the burden that is upon him who claims priority over a patentee whose date of issue is prior to his own application, the foregoing evidence is such that we would not disturb the decision in favor of Fleming were it not for certain circumstances connected with the subsequent manufacture by Dickey with which it cannot be reconciled.

Having, strangely, preserved no sample of the new construction by Beinert, Fleming says that upon procuring the navy-yard order he furnished Dickey the wire-gauze with which to fill it, and a sample brush, as before described, and directed him how to cut and compress the wire as Beinert had done. Now, certainly, if Fleming had made such a brush and sent it for trial to the *City of Paris*, April 6, 1892, as claimed, there had been ample time for the satisfactory test which he says the electricians of that ship made and reported. Knowing it to be successful, he would no doubt have described it to Dickey and directed him to finish his order in the same way. The construction is so simple that Fleming himself says an ordinary mechanic could readily understand and accomplish it. Dickey was certainly too good a mechanic not to understand it if explained to him in a general way. Yet, notwithstanding the statement of Fleming that he gave such explanation and instruction, the fact is proved beyond doubt that the wire-gauze brushes made by Dickey, sent to the navy-yard, and accepted there were not rolled from material cut diagonally at all. Grant that Fleming may have suggested to Dickey the idea of compressing the folds, still if he had pointed out and directed the far greater improvement in the cutting and folding of the wire-gauze it is not reasonable to believe that Dickey would either misunderstand or refuse to obey. The brushes as first made were accepted by the navy-yard officers, and Fleming made no suggestion to Dickey or any one else of the failure to follow his instructions in respect of this last improvement.

Shortly after the delivery of the next set of brushes in March, which Dickey had made after the plan of the second issue, Fleming called the attention of the navy-yard electrician to this improvement. Fleming said to him:

> I have had an improvement made on these brushes, which is, having them cut on the bias, making the brush more pliable—

and asked him what he thought of it. There was not one word of the earlier date of invention or of the experiment made with it upon the *Paris* nearly a year before. Evidently the remark made created and was calculated to create the impression that the improvement had been discovered during or since the construction of the lot delivered in January and February, 1893.

A circumstance against Dickey is his long delay in applying for a patent even after learning that Fleming claimed the invention. His explanation is that he was not familiar with the patent law and was poor; that he understood from Fleming that he was to be interested in the patent and was content to share with him, and that he was doing all the work on satisfactory terms. As we have seen, he did all the work on Fleming's orders, and when Fleming went to the Manhattan Company he followed him there and continued to make all the brushes until they had a misunderstanding, about August 31, 1894. Dickey's own words are:

> So long as I was connected in the business with Mr. Fleming I had hopes that he would rectify the matter and give me my rights. I had no money myself to carry on any proceedings, but after Mr. Fleming had seen fit to throw me out of the business entirely, or at least tried to do so, I at once made it a point to find some one who was willing to take up the case with me and furnish the money to carry it to a point where I could obtain my rights.

The explanation is plausible, though not satisfactory. Turning to Fleming and considering all the surrounding circumstances, his delay is hardly so well accounted for, if he in fact made the invention at the date claimed, and that date he cannot depart from. He was not ignorant of the value of a patent or of the steps necessary to procure it. His reasons for not applying earlier than November 13, 1893, are that he wanted to thoroughly satisfy himself as to the behavior of the brushes furnished the *City of Paris* for trial in April, 1892; that he did not at the time know that there would be a demand justifying the expense, and that he was much occupied with other work.

The first reason is not at all satisfactory, for if true that the experimental brushes were delivered to the *Paris* in April, 1892, there had been ample time for their complete test before he gave Dickey the navy-yard order to fill.

The second reason is quite plausible, but under the circumstances applies more strongly in favor of Dickey's delay than his own. Dickey had no means and easily filled all the orders taken by Fleming. Fleming, however, had the money, and, in fact, when he did apply paid the fees with the funds of the company, with which he was still employed.

The third reason is of no practical importance.

During the conversation before referred to between Fleming and the navy-yard electrician concerning the improvement in the brush the latter remarked that no doubt he would soon be getting a patent. Fleming laughed and walked away. Returning two weeks later, he handed the electrician his card with a drawing of the brush and the words "The Fleming patent wire-gauze brush." In the opinion of the Commissioner stress is laid on the fact that Fleming had advertised his invention. The above is the only evidence of advertisement that we have found in the record. No one else saw this card, and if its exhibition to the witness was really in or about March, 1893, it was about six months before a patent was even applied for.

For the reasons given the decision will be reversed, and this decision, with the proceedings herein, will be certified to the Commissioner of Patents, as required by law. It is so ordered.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., May 27, 1898.

SIR: The Secretary of the Interior has ordered that Bernard D. O'Connell, of Lowell, Mass., be not recognised after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Notice to Show Cause.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 7, 1898.

The following notice to show cause is published in the OFFICIAL GAZETTE for the reason that it has been found impracticable to serve notice in the usual way, a registered letter containing notice to the same effect, mailed to Mr. Holgate at his last-known address, having been returned with the report that it could not be delivered.

To George H. Holgate, doing business under the name of the Association American Inventors, last known address Betz Building, Philadelphia, Pennsylvania, present address unknown:

SIR: Copies of charges filed against you as representative of the Association American Inventors by the following-named persons were sent you on the dates mentioned below, and you were given until February 12, 1898, to answer the same, if you desired to do so:

L. N. Fickes, of Holland, Kans.....January 21, 1898.
Nathan Lloyd, of Greenbrier, Mo.....January 22, 1898.
J. L. Zeiger, of Cleveland, Ohio.....January 28, 1898.
John McWilliams, of Egypt Mills, Mo..February 5, 1898.

You were informed in the letters accompanying the charges of McWilliams, Lloyd, and Fickes that, inasmuch as you were not registered as a patent attorney, disbarment proceedings would not be instituted. It has been determined, however, that inasmuch as you still represent a number of applicants before this Office in applications filed before the 1st of January, 1898, as is shown by a list of such cases filed by your representative on January 14, 1898, and in which registration was waived, said list numbering 171 cases, you are practicing before the Office and within the provisions of the statute you are subject to disbarment proceedings. In view of this fact and in view of the fact that in some of the foregoing cases the filing of the answer was made optional with you you are hereby required to show cause on or before the 15th day of June, 1898, in each of these cases, why you should not be disbarred from practice and why the Commissioner of Patents should not refuse to recognize you as patent agent in accordance with the statutes in such cases made and provided.

C. H. DUELL,
Commissioner.

Attorneys' Use of Assignment Records.

(ORDER No. 1,207.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 31, 1898.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED JUNE 7, 1898.

Label.

6,594.—Title: "GER-AMERICAN HERB COMPOUND, THE GREAT BLOOD PURIFIER, LIVER AND SYSTEM REGULATOR." *Charles F. Myers*, Washington, D. C. Application filed April 22, 1898.

Print.

60.—Title: "MY LADY'S GLOVE." *Joseph P. Knapp*, New York, N. Y. Application filed April 16, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business May 31, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	In arrears—Between two and three months.			
255	XII. Mechanical Engineering, Store-Service, etc.	Mar. 18	May 18	241
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 4	May 18	299
108	XIX. Stoves and Furnaces	Mar. 2	May 16	227
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Mar. 9	May 16	195
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Mar. 5	May 16	253
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Mar. 9	May 9	220
	Between three and four months.			
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Feb. 1	May 23	340
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 26	May 18	472
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 19	May 18	223
246	I. Tillage and Fences	Feb. 18	May 17	228
288	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 17	May 17	316
248	XVIII. Steam-Engineering, etc	Feb. 3	May 17	225
38	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Feb. 2	May 17	350
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 26	May 16	305
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 12	May 13	541
253	X. Carriages and Wagons	Feb. 7	ay 4	325
	Between four and five months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 3	May 24	701
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 24	May 19	203
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 22	May 18	197
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 28	May 17	204
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 20	May 17	302
106	II. Farm Stock, Products, etc.	Jan. 17	May 16	513
256	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Jan. 3	May 16	446
98	XXI. Textiles, etc	Jan. 29	May 12	344
217	XXXIII. *Trade Marks, etc., †Designs, Drafting, and Optics.	Jan. 3	Apr. 26	231
	Between five and six months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 16	May 23	497
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 11	May 18	264
128	XXIV. Sewing-Machines, Apparel, and Toilet.	Dec. 27	May 17	469
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 24	May 16	553
240	VII. Velocipedes	Dec. 28	May 10	503
	Between six and seven months.			
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Nov. 26	May 21	263
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 26	May 16	545
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Mar. 21	516
	Between seven and eight months.			
221	XXIII. Instruments of Precision, Acoustics, etc.	Oct. 14	May 17	498
	Between eight and nine months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 29	May 18	595

Applications Under Examination—Continued.

Total number of applications awaiting action			13,421
Under one month.			
†Designs	May 19	May 25	76
*Trade-Marks	May 7	May 19	195

ISSUE OF JUNE 7, 1898.

Patents	398	No. 605,067 to No. 605,464, inclusive.
Designs	57	No. 32,779 to No. 32,835, inclusive.
Trade-Marks	31	No. 31,647 to No. 31,677, inclusive.
Labels	1	No. 6,594.
Prints	1	No. 69.
Reissues	None.	
Total issue	488	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	1	New Hampshire	1	
Arizona Territory	1		New Jersey	16	1
Arkansas	2		New Mexico Territ'y		
California	15		New York	66	12
Colorado	4	1	North Carolina	4	
Connecticut	13	1	North Dakota		
Delaware	2		Ohio	26	3
District of Columbia	3	1	Oklahoma Territory	1	
Florida			Oregon	1	
Georgia	4		Pennsylvania	49	2
Idaho	2		Rhode Island	2	
Illinois	20	1	South Carolina		
Indian Territory			South Dakota	2	
Indiana	12		Tennessee	1	
Iowa	8		Texas	5	
Kansas	5		Utah	1	
Kentucky	6		Vermont	1	
Louisiana	1		Virginia	2	
Maine	2		Washington	5	
Maryland	6		West Virginia	2	
Massachusetts	21	2	Wisconsin	7	1
Michigan	14		Wyoming		
Minnesota	5		U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	10	1			
Montana	2		Total to citizens of the United States	412	26
Nebraska	4				
Nevada	1				

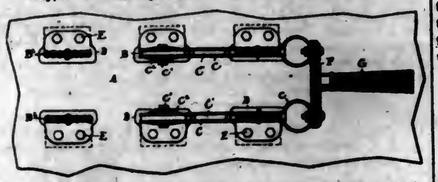
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia			Mexico		
Austria-Hungary			Netherlands	1	
Barbadoes			Newfoundland		
Belgium			New South Wales		
Brazil			New Zealand		
Canada	7		Norway		
Cape Colony			Portugal		
Chile, Republic of			Queensland		
China			Russia	1	
Colombia			Scotland		
Cuba			South African Republic		
Denmark			South Australia		
Egypt			Spain		
England	18	3	Sweden		1
Finland			Switzerland	3	
France	5		Turkey		
Germany	6	3	Victoria	2	
Guatemala					
Hawaii			Total to citizens of foreign countries	49	7
India					
Ireland					

PATENTS

GRANTED JUNE 7, 1898.

605,067. ELECTRIC SWITCH. CHARLES C. BARNAM, Schenectady, N. Y. Filed Sept. 17, 1897. Serial No. 651,903. (No model.)



Claim.—1. In an electric switch, the combination of a switchboard, stationary switch members secured to said board, a pivoted switch-blade cooperating with said switch members and made from a strip of metal bent lengthwise upon itself, and of substantially uniform width throughout, and a handle secured to the switch-blade at the bend, substantially as herein specified.

2. In an electric switch, the combination of a switchboard, stationary switch members bent into L shape and passed through holes in the switchboard and held in position by bolts screwed into the parts of the switch members underneath the switchboard, the bolts being provided with nuts for clamping circuit-terminals to the parts of the switch members underneath the switchboard, a pivoted switch-blade made from a strip of metal bent lengthwise upon itself, and a handle secured to the switch-blade at the bend, substantially as herein specified.

3. In an electric switch, the combination of a switchboard, stationary switch members bent into L shape and passed through holes in the switchboard and held in position by bolts screwed into the parts of the switch members underneath the switchboard, the bolts being provided with nuts for clamping circuit-terminals to the parts of the switch members underneath the switchboard, a pivoted switch-blade made from a strip of metal bent lengthwise upon itself, and having a loop formed at the bend, and a handle secured to the switch-blade at the bend, substantially as herein specified.

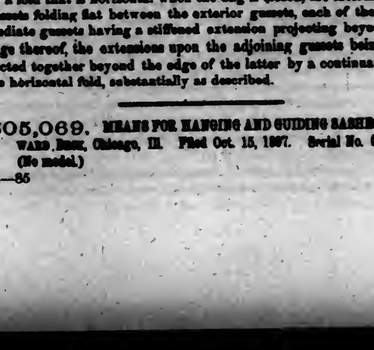
4. In an electric switch, the combination of a switchboard, stationary switch members bent into L shape and passed through holes in the switchboard and held in position by bolts screwed into the parts of the switch members underneath the switchboard, the bolts being provided with nuts for clamping circuit-terminals to the parts of the switch members underneath the switchboard, a pivoted switch-blade made from a strip of metal bent lengthwise upon itself, and having a loop formed at the bend, a spacing-block between the switch-blade, and a handle secured at the bend, substantially as herein described.

5. In an electric switch, the combination of a switchboard, L-shaped stationary switch members passed through a slot in the switchboard formed by drilling a series of holes, a slotted covering-plate for each stationary switch member for covering said holes and which plates are provided with bolt-holes, bolts passing through said plates and the switchboard and screwed into the parts of the stationary switch members underneath the board whereby said members and the covering-plates are secured to the board, and a pivoted switch-blade made from a strip of metal bent lengthwise upon itself, the two ends being pivoted to one of the stationary switch members, and having a handle secured to it at the bend, substantially as herein specified.

605,068. BAG OR POUCH. WILLIAM F. BRADLEY, Baltimore, Md. Filed Nov. 6, 1897. Serial No. 657,867. (No model.)

Claim.—1. A bag having a series of gussets around its upper edge, the intermediate gussets being formed by folding in the edges of the bag and being provided with stiffened extensions toward the medial line of the mouth, and folding flat between the exterior gussets, substantially as described.

2. The combination with a bag having a series of gussets, around its upper edge, the intermediate gussets being formed by folding in the corners of the bag and folding flat between the exterior gussets, the said intermediate gussets being stiffened, of male members upon two of the gussets upon each side of the bag, and female members upon the gussets opposite thereto, substantially as described.



3. The combination with a bag having a series of gussets around its upper edge, the intermediate gussets being formed by folding in the corners of the bag and folding flat between the exterior gussets, the intermediate gussets having stiffened extensions thereon projecting toward the medial line of the bag, of means for locking the exterior gussets together passing through the extensions on the intermediate gussets, substantially as described.

4. The combination with a bag having a series of gussets around its upper edge, the intermediate gussets being formed by folding in the corners of the bag and folding flat between the exterior gussets, of male members on two gussets on each side of the bag, and female members upon the gussets opposite to the gussets having the male members, whereby the intermediate gussets are held against lateral motion and means for locking the exterior gussets together, substantially as described.

5. A bag having a series of gussets around its upper edge, the intermediate gussets being formed by folding in the corners of the bag and folding flat between the exterior gussets, the intermediate gussets having plates thereon extending toward the medial line of the mouth and projections on the said plates adapted to form a positive engagement with the exterior gussets, substantially as described.

6. A bag having a series of gussets around its upper edge, the intermediate gussets being formed by folding in the corners of the bag, and folding flat between the exterior gussets, of undercut shoulders and overhanging shoulders upon the opposite gussets whereby they are held against lateral displacement, in combination with means for locking the exterior gussets together, substantially as described.

7. A bag having a series of gussets around the upper edge thereof, the intermediate gussets being formed by oblique folds uniting them with the exterior gussets and being connected to each other by a fold that is horizontal when the bag is closed, the intermediate gussets folding flat between the exterior gussets, each of the intermediate gussets having a stiffened extension projecting beyond the edge thereof, the extensions upon the adjoining gussets being connected together beyond the edge of the latter by a continuation of the horizontal fold, substantially as described.

605,069. MEANS FOR HANGING AND GUIDING SASHES. EDWARD BENT, Chicago, Ill. Filed Oct. 15, 1897. Serial No. 655,206. (No model.)

Claim.—1. The combination of guide rods or tubes situated at one side of a window-frame, a sash having a grooved stile fitted to said rod or tube, plates attached to said sash and provided with rolls which ride upon the rod or tube and serve to guide the sash in its vertical play and to connect the sash with said rod or tube when the sash is turned horizontally, and a weight-cord connected to the opposite side of the sash, as and for the purposes described.



2. The combination with a window casing or frame, of guide tubes or rods attached within the casing adjacent to one of the jambs thereof, sashes each having one stile thereof grooved to receive one of the rods or tubes, plates attached to the sash and carrying rolls which ride upon said guide rods or tubes, and independent weight-cords connected with the opposite sides of the sashes from the guide tubes or rods, as and for the purposes described.

3. The combination with a guide rod or tube, a sash, and a weight-cord attached to the opposite side of the sash from the guide rod or tube, of carrying-plates attached to the sash at top and bottom and fitting the rod or tube, and a pair of rollers journaled in each plate and arranged to ride against opposite faces of the rod or tube, as and for the purposes described.

4. The combination with a guide rod or tube, a sash, and a weight-cord attached to one edge or side of the sash, of the adjustable carrying-plates fastened to the top and bottom of the sash and having openings or slots which fit loosely around said rod or tube, and a pair of rollers journaled in each plate and arranged to ride against opposite sides of the rod or tube, one of said rollers being grooved to closely embrace the rod or tube and enable the sash to turn in a horizontal direction thereon, as and for the purposes described.

5. The combination with a window frame or casing, of the sashes each having one stile provided with a continuous channel and its other stile with a groove which extends only part way of the length of the sash, guide-rods fitted in the channeled stile of the sashes, rollers carried by the sashes to ride against the guide-rods, and weight-cords detachably connected to the grooved edges of the sashes, for the purposes described, substantially as set forth.

6. The combination with a window-frame, and guides therein, of vertically-movable plates fitted to said guides, and a sash fitted to said plates to slide thereon and to turn at an angle to the plates, for the purposes described, substantially as set forth.

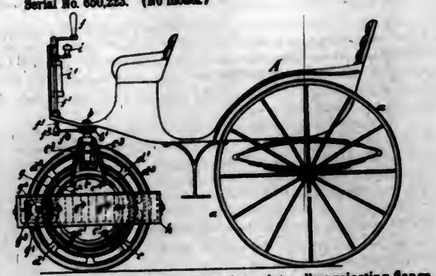
7. The combination with a frame, and guides therein, of extensible supports or carriers fitted to the guides to travel vertically thereon and to turn outwardly at an angle to the guides, and a sash carried by one member of the extensible support or carrier and adapted to turn pivotally thereon in a horizontal plane to occupy a position substantially parallel to the plane of the window-frame when projected therefrom into a room, substantially as described, for the purposes set forth.

8. The combination with a frame, guides therein, and plates fitted to said guides to travel vertically and to turn horizontally thereon, of sash-plates fitted to the traveling plates to slide thereon in a horizontal direction and to turn on said traveling plates when the sash-plates have reached the limit of their sliding play, and a sash attached to and carried by the sash-plates, whereby the sash may be projected into a room and thence turned to a position substantially parallel to the plane of the frame, for the purposes described, substantially as set forth.

9. The combination with a frame, and a guide-rod therein, of roller-plates fitted to the guide-rod to travel vertically and to turn horizontally thereon and provided with longitudinal slots, box-like sash-plates fitted to the traveling roller-plates to slide horizontally thereon and constructed with recesses to permit of angular adjustment of the sash-plates on the roller-plates, pins carried by the sash-plates and fitted in the slots of the roller-plates, and a sash carried by the sash-plates, for the purposes described, substantially as set forth.

10. The combination with a frame, and a guide rod or tube therein, of plates fitted to said rod or tube to travel vertically and turn horizontally thereon, and a sash slidably fitted to said plates, whereby the sash may travel with the plates vertically within the frame and be extended therefrom when the plates are turned inwardly on the rod or tube, substantially as described.

605,070. VEHICLE-WHEEL. JOHN E. M. BECKER, New York, N. Y., assignor to Emily M. Dunton, Hollis, N. Y. Filed Sept. 1, 1897. Serial No. 650,223. (No model.)



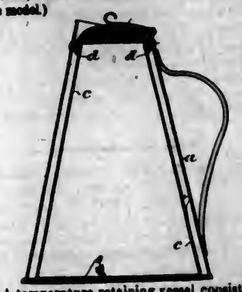
Claim.—1. A vehicle-wheel having a laterally-projecting flange combined with a frame having a correspondingly-projecting flange that surrounds the wheel-flange, and antifriction-balls interposed between the flanges, substantially as specified.

2. A vehicle-wheel having a laterally-projecting flange combined with a duplex frame having a pair of inwardly-projecting flanges that surround the wheel-flange, and antifriction-balls interposed between the wheel-flange and the frame-flanges, substantially as specified.

3. A vehicle-wheel having a laterally-projecting doubly-grooved flange combined with a duplex frame having a pair of inwardly-projecting flanges that surround the wheel-flange, and antifriction-balls interposed between the wheel-flange and the frame-flanges, substantially as specified.

4. In a vehicle, the combination of a wheel having a laterally-projecting flange, with a pivoted frame having a correspondingly-projecting flange that surrounds the wheel-flange, antifriction-balls interposed between the flanges, means for imparting rotary motion to the wheel, and means for turning the frame on its pivot, substantially as specified.

605,071. JUG OR VESSEL FOR CONTAINING LIQUIDS. WILLIAM A. S. BENSON, London, England. Filed July 26, 1897. Serial No. 646,022. (No model.)

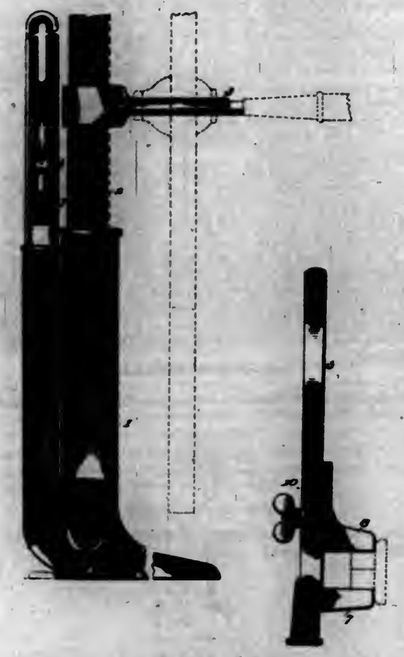


Claim.—1. A temperature-retaining vessel, consisting of a jacket and a receiver, both tapered and smaller at the neck than below, the receiver being formed with an annular flange at its upper end turned outwardly, and the jacket being formed with an annular recess opposite the flange of the receiver, an elastic compressible ring embracing the receiver at its neck or smallest diameter below the flange and arranged in the recess in the jacket, and a plate closing the lower end of the jacket after the receiver has been inserted.

2. The combination of a tapered receiving vessel having an annular outwardly-turned flange at its upper end, an outside tapered jacket formed with an annular recess opposite the flanged end of the receiving vessel, an elastic compressible ring seated in the recess of the jacket and arranged below the flange of the receiving vessel, and means for closing the bottoms of the jacket and the receiving vessel.

3. A temperature-retaining vessel consisting of a jacket and a receiver both tapered and smaller at the neck than below, an elastic ring embracing the receiver at its neck or smallest diameter, an annular recess or seating in the neck of the jacket to receive the elastic ring when the receiver is thrust up into its place within the jacket, and a plate closing the lower end of the jacket after the receiver has been inserted.

605,072. LIFTING-JACK. PERRY BROWN, Wilmington, Del. Filed June 6, 1896. Serial No. 594,575. (No model.)

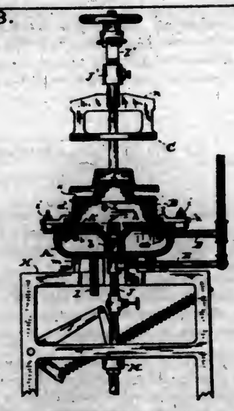


Claim.—In a wagon-jack, a two-part lever for operating the same, one part being detachable and the other part pivoted to the standard, the detachable part being provided with a fixed jaw and a movable jaw forming a wrench, and one of the two parts having a socket independent of the jaws of the wrench to receive the end of the other part, whereby the nut of the wagon-axle may be held in the wrench while the two parts are in operative connection, substantially as described.

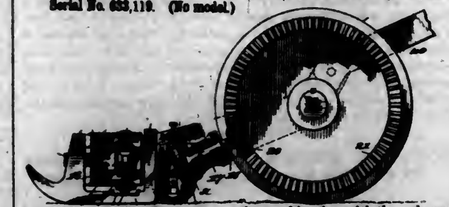
605,073. HAT-BODY-SHAPING APPARATUS. JOSEPH B. BOWMAN, Cleveland, Ohio. Filed Mar. 20, 1896. Renewed Nov. 17, 1897. Serial No. 658,200. (No model.)

Claim.—In a hat-shaping apparatus, a heating-chamber, and suitable supply and exhaust pipes connected thereto, combined with a shaping-chamber, placed upon the top of the heating-chamber, and having a perforated top, a spring-valve located in the shaping-chamber, a sprayer located over the valve, supply and exhaust pipes connected to the shaping-chamber, a follower for descending upon the top of the shaping-chamber, and a mechanism for operating the mold, substantially as described.

605,078.



605,074. LAWN-MOWER. PAUL C. BURNAM, Sedgwick, Kans., assignor of one-half to William Finn, same place. Filed Apr. 21, 1897. Serial No. 633,119. (No model.)

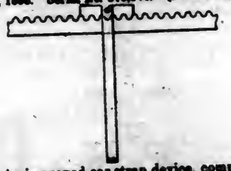


Claim.—1. In a lawn-mower, the combination with the axle and the draft-wheels secured thereto, one of said draft-wheels being also a driving-wheel, of an arm pivoted on the axle adjacent to the inner face of the driving-wheel and extending down in front thereof and having spaced ears extending laterally therefrom across and beyond the outer face of the wheel, a sprocket-wheel journaled between said spaced ears, an arm pivoted on the axle outside of the other draft-wheel and having spaced ears at its forward end, a roller journaled between said ears, an endless cutter-chain mounted on the said sprocket-wheel and roller, a guide for the chain extending across between the arms and secured at its ends between the spaced ears of the respective arms, and gearing interposed between the driving-wheel and said sprocket-wheel to drive the chain, substantially as described.

2. In a lawn-mower, the combination with the axle and the draft-wheels secured thereto, one of said draft-wheels having teeth on its outer face, of an arm pivoted on the axle adjacent to the inner face of the toothed draft-wheel and extending down in front thereof and having spaced ears extending laterally therefrom across and beyond the outer face of the wheel, a sprocket-wheel journaled between said spaced ears, the shaft of said sprocket-wheel having a gear exterior of the rear ear, a bracket extending laterally from the said arm across the toothed draft-wheel, a shaft journaled in said bracket and having gears on its ends meshing with the gear on the sprocket-shaft and the teeth on the draft-wheel respectively, an arm pivoted on the axle outside of the other draft-wheel and having spaced ears at its forward end, a roller journaled between said ears, an endless cutter-chain mounted on the said sprocket-wheel and roller, and a guide for the chain extending across between the spaced ears of the respective arms, substantially as described.

3. In a lawn-mower, the combination with the axle and the draft-wheels secured thereto, one of said draft-wheels being also a driving-wheel, of an arm pivoted on the axle adjacent to the inner face of the driving-wheel and extending down in front thereof and having spaced ears extending laterally therefrom across and beyond the outer face of the wheel, said ears each having a horizontal slot extending transversely of the machine, bearing-blocks adjustably supported in said slots, an idle-roller journaled in said blocks, a sprocket-wheel journaled between said spaced ears, an arm pivoted on the axle outside of the other draft-wheel and having spaced ears at its forward end, a roller journaled between said ears, an endless cutter-chain mounted on the said sprocket-wheel and roller, and running under the idle-roller, a guide for the chain extending across between the arms and secured at its ends between the spaced ears of the respective arms, and gearing interposed between the driving-wheel and said sprocket-wheel to drive the chain, substantially as described.

605,075. CAR-STRAP. FREDERICK W. BURKE, Rochester, N. Y. Filed Feb. 15, 1898. Serial No. 670,570. (No model.)



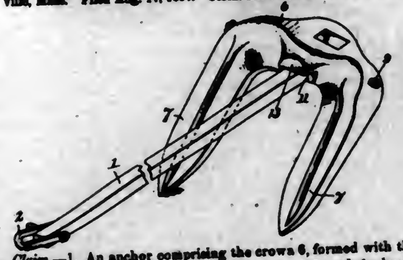
Claim.—1. An improved car-strap device, comprising a sustaining rod or bar, and a supporting-strap carried upon a clamp or block adapted to interlock with said sustaining-rod, substantially as and for the purpose set forth.

2. An improved car-strap device, comprising a sustaining rod or bar, a clamp or block adapted to interlock with said rod or bar, and a supporting-strap carried by and depending from said clamp or block and embracing the rod or bar, substantially as and for the purpose set forth.

3. An improved car-strap device, comprising a sustaining rod or bar provided with a corrugated or toothed top edge, a clamp or block having a corresponding corrugated or toothed bottom edge adapted to interlock with the top edge of the rod or bar, and a supporting-strap carried by said clamp or block, substantially as and for the purpose set forth.

4. An improved car-strap device, comprising a sustaining rod or bar having a corrugated or toothed top edge, a clamp or block having a corresponding corrugated or toothed bottom edge adapted to interlock with the top edge of the rod or bar, said clamp being movable or adjustable with relation to said sustaining member, and a supporting strap connected with the sides of the clamp or block and depending therefrom and embracing the sustaining member, substantially as and for the purpose set forth.

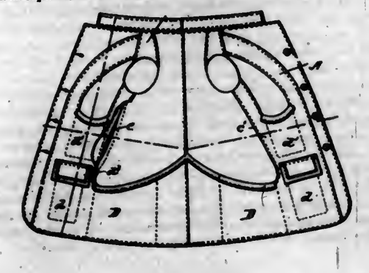
605,076. STOCKLESS ANCHOR. GEORGE H. BURROWS, Somerville, Mass. Filed Aug. 17, 1897. Serial No. 648,526. (No model.)



Claim.—1. An anchor comprising the crown 6, formed with the integral parallel and rearwardly-extending flukes 7 7, and the longitudinal rectangular orifice 8, formed between the parallel walls 11, 11, and having V-shaped recesses formed in their opposite faces, in combination with the rectangular shank 1, provided with the T-shaped head 3, having lateral lugs 4 4, adapted to engage said V-shaped recesses, substantially as shown and described.

2. An anchor comprising the crown, the flukes, the shank, and the shackling-pin, the crown having a central aperture formed with stop-shoulders and the shank having a head pivoted in said aperture at the rear of the stop-shoulders by said shackling-pin, whereby, should the shackling-pin break, the head will engage said shoulders and prevent the parts separating.

605,077. HUNTING-COAT. WILLIAM S. CARTER, Lebanon, N. H. Filed Sept. 17, 1896. Serial No. 606,122. (No model.)



Claim.—As an improved article of manufacture, the hunting-coat herein described having the outer pockets D, d, d', the inner pocket D' and the entrance c' to the inner pocket with its flap, the whole formed of three layers of cloth made by the patterns A, B, C, each pattern forming with a corresponding pattern one layer of the coat, substantially as described.

605,078. NUT-LOCK. CHARLES H. CHARLTON, Jr., and JOHN F. CHARLTON, New Orleans, La. Filed Aug. 17, 1897. Serial No. 648,566. (No model.)



Claim.—1. In a nut-lock, the combination with a bolt having a longitudinal groove along its screw-threaded portion; of a metallic plate provided with an opening adapted to fit over said screw-threaded portion of the bolt, and having a lug extending into said opening, adapted to take in said groove on the bolt; and a spring-arm at one side of said plate bent first toward the back of the plate and then toward the front and having its free end extending outward from the face of the said plate, substantially as described.

2. In a nut-lock the combination with a bolt having a plurality of longitudinal grooves along its screw-threaded portion; of a metallic plate provided with an opening adapted to fit over said screw-threaded portion of the bolt, and having a plurality of lugs extending into said opening adapted to take in said grooves in the bolt; and a plurality of spring-arms upon side edges of said plate bent first toward the back of the plate and then toward the front and having their free ends extending outward from the face of the said plate, substantially as described.

3. A combined nut-lock and washer comprising the flat metallic plate C, having central opening C^0, and lugs c protruding into said opening; and spring-arms C' bent first toward the back of the plate and then toward the front and having their free ends c' extending outward from the face of the said plate, substantially as described.

4. A combined nut-lock and washer comprising a flat metallic plate having a central opening therethrough for the passage of the bolt; a plurality of lugs thereon protruding into said central opening; and a plurality of spring-arms upon side edges of said plate bent first toward the back of the plate and then toward the front and having their free ends turned outward from the face thereof, substantially as described.

605,079. WINDMILL. JOHN COATES, Olive, Cal. Filed June 26, 1897. Serial No. 642,381. (No model.)



Claim.—1. As an improvement in windmills, a divided pitman or pump rod comprising two sections, a joint mechanism comprising a connecting-rod secured to the top section and having a sliding connection with the lower section and a pivotally-mounted ratchet-bar adapted to engage and actuate the lower section, and mechanism for controlling the operation of the ratchet-bar, substantially as and for the purpose set forth.

2. As an improvement in windmills, a divided pitman or pump rod comprising two sections, a joint mechanism comprising a connecting-rod secured to the top section and having a sliding connection with the lower section and a pivotally-mounted ratchet-bar adapted to engage and actuate the lower section, spring devices governing the ratchet-bar, and mechanism for actuating the ratchet-bar against the tension of said spring devices, substantially as and for the purpose set forth.

3. An improved windmill, comprising a divided pitman or pump rod embodying an upper and lower section, a joint mechanism connecting said sections and embodying a connecting-rod secured to the top section and having a sliding connection with the lower section and a pivotally-mounted ratchet-bar adapted to engage and actuate the lower section, spring devices for throwing the ratchet-bar out of engagement with the lower section, connecting cords or rods extending between the ratchet-bar and a controlling mechanism, and a controlling mechanism for drawing upon said cords or rods to cause the same to actuate the ratchet-bar against the tension of the spring, substantially as and for the purpose set forth.

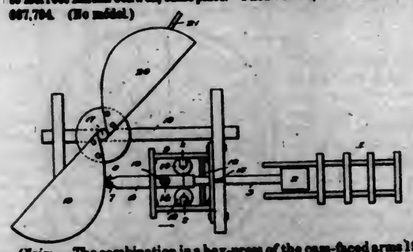
4. An improved windmill, comprising a divided pitman or pump rod embodying two sections, a joint mechanism permanently connecting said sections but permitting an independent movement of the lower section with relation to the upper section and embodying a device for intermittently bearing upon the lower section, mechanism for retaining said intermittently-bearing device out of engagement with the lower section, devices connected with said intermittently-bearing device and adapted to draw against the action of said retaining mechanism, and means for operating said connection devices, substantially as and for the purpose set forth.

5. As an improvement in windmills, a divided pitman or pump rod comprising upper and lower sections, a joint mechanism permanently connecting said sections and comprising a connecting rod or device having a movable connection with the lower section and permitting an independent movement of the same with relation to the upper section and a device intermittently bearing upon the lower section, and means for governing the operation of said intermittently-operating device, substantially as and for the purpose set forth.

6. An improved windmill, comprising a divided pitman embodying an upper section and a lower section, the upper section being connected to the main operating mechanism of the windmill, devices supporting the lower section independently of the upper section, a sliding joint connecting said sections, devices for intermittently engaging the lower section, and means for operating the devices which engage the lower section in their intermittent movement, substantially as and for the purpose set forth.

7. An improved windmill, comprising a divided pitman embodying an upper section and a lower section, the upper section being connected to the main operating mechanism, devices supporting the lower section independently of the upper section, a sliding joint connecting said sections, a ratchet-bar pivotally carried upon the upper section and adapted to engage the lower section, and mechanism for throwing said ratchet-bar into and out of engagement with the lower section, substantially as and for the purpose set forth.

605,080. HAY-PRESS. JOHN D. CORWELL, Augusta, Ga., assignor to Harriett Instin Corwell, same place. Filed Jan. 24, 1898. Serial No. 667,794. (No model.)



Claim.—The combination in a hay-press of the cam-faced arms 19, 20, the press-box and the guide-frame 9, with the follower, the follower-rod, the sleeve 4 formed with socket 13 and the set-screw 14, the roller 8 journaled in the front end of said sleeve, the spring 5 interposed between the head of the sleeve and the end of the follower-rod and the retractile spring 15, extending from the frame 9 to the follower-rod 3, substantially as shown and described.

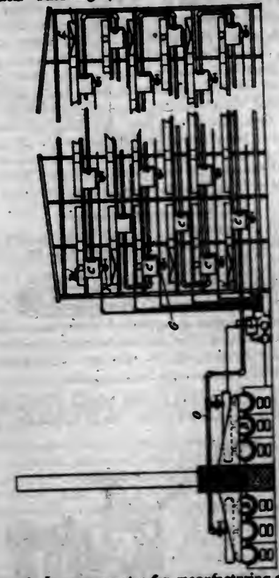
605,081. TONGS FOR STRETCHING WIRES. ELIAS CRAMER, Dundee, N. Y. Filed Nov. 18, 1897. Serial No. 658,903. (No model.)

Claim.—1. A pair of tongs for stretching wire consisting of two jaws pivotally connected to each other and provided with two extended legs or handles, two opposing grooves formed across the inner faces of the jaws, said grooves being adapted to hold the wire, a series of wedge-shaped teeth situated on the upper end and on one side of the said jaws, said teeth being made flush with the inner faces of the said jaws and tapering toward the top faces of the jaws, substantially as described and for the purpose set forth.



2. A pair of tongs for stretching wires comprising two jaws pivotally connected to each other and provided with two extended legs or handles, two or more opposing grooves formed across the inner faces of the jaws, a series of teeth tapering toward the top faces of the jaws, located on one or more sides of the jaws, substantially as described and for the purpose set forth.

605,082. SALT-MAKING APPARATUS. THOMAS CRANEY, Bay City, Mich. Filed Aug. 1, 1896. Serial No. 601,334. (No model.)



Claim.—1. In an apparatus for manufacturing salt from brine, the combination of a horizontally-extending grainer, a circulating-heater depending from the under side at one end of said grainer and communicating with the bottom thereof, an open return-conduit entering through the walls of the grainer to a point above the heater, a vertical inflow-pipe connecting the end of said conduit with the bottom of the heater and a mechanical device for impelling the brine in said inflow-pipe.

2. In an apparatus for making salt from brine, the combination of a horizontally-extending grainer, a heater contained within an outer shell secured to the under side at one end of the grainer, and containing an upper heating chamber a lower brine-chamber, a series of outflow-pipes from the brine-chamber into the bottom of the grainer through the heating-chamber, a return-conduit from the grainer with the end to which the heater is attached and an inflow-pipe communicating therewith and extending down through the heater into the brine-chamber.

3. In an apparatus for making salt from brine, the combination of a horizontally-extending grainer, a heater depending from the bottom at one end of the grainer and comprising a cylindrical outer shell formed with diaphragms dividing the shell into an upper and lower chamber means for supplying the upper chamber with steam, a system of vertical circulating-pipes from the lower chamber communicating with the bottom of the grainer, a vertical inflow-pipe for the lower chamber centrally of the heater and a horizontal open return-conduit communicating with said inflow-pipe.

4. In an apparatus for manufacturing salt from brine, the combination of a horizontally-extending grainer, a cylindrical vessel attached to the under side at one end of the grainer and formed with

a conical bottom having a valve-controlled discharge-opening, diaphragms dividing the vessel into a lower brine-chamber and an upper steam-chamber provided with means for admitting steam thereto, an inflow-pipe for the brine-chamber centrally of the heater and extending into the grainer, an open return-conduit leading from the grainer into the end to which the heater is connected and communicating with the inflow-pipe and a series of vertical circulating-pipes from the brine-chamber through the heating-chamber into the bottom of the grainer.

5. In an apparatus for manufacturing salt from brine, the combination of a series of horizontally extending loop-shaped grainers grouped side by side upon a common floor and with the last grainer extended into proximity to the first grainer and provided with a supply of fresh brine, a heater in one end of each grainer provided with a circulating system of pipes and passages connected in circuit with the adjacent grainer for heating the brine and circulating it through all the grainers, a source of steam supplying the heaters with steam and a system of scrapers operating to remove the granulated salt from the grainers.

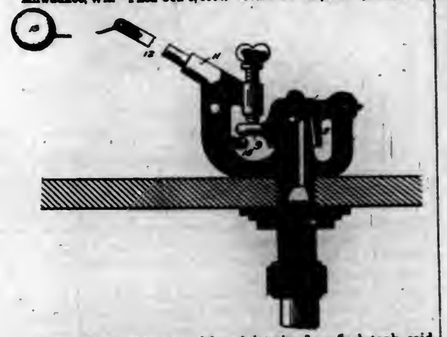
6. A plant for manufacturing salt from brine, comprising a plurality of circulating systems of grainers supported one above the other and on different floors of a building, each system being composed of a series of loop-shaped grainers grouped side by side and provided with means for removing the granulated salt, the last grainer being extended into proximity to the first grainer of the series and connected to the source of brine-supply, each grainer being provided in one end with a circulating steam-heater depending from the under side of the grainer, said heaters connecting the grainers into a closed system for heating and circulating the brine therein, the arrangement being such that the heaters are all nested in one and the same end on each floor contiguous to a common source of steam while the scraper devices operate all toward the opposite end to remove and collect the granulated salt separately on each floor.

605,083. HARMONICA. CHARLES L. CURTIS, New York, N. Y., assignor to Ferdinand Strauss, same place. Filed Jan. 6, 1896. Serial No. 665,738. (No model.)



Claim.—A harmonica composed of a continuous case having closed outwardly-bulged ends to form centering-pockets, and of a reed-block which projects with its ends into such pockets, substantially as specified.

605,084. INLET-VALVE FOR FLUSH-TANKS. BERT DALE, Milwaukee, Wis. Filed Oct. 6, 1897. Serial No. 654,236. (No model.)



Claim.—The combination with an inlet-pipe for a flush-tank, said pipe having upwardly-extending arms on its opposite sides, a cup-valve pivoted to one of said arms and provided with a lug, a lever pivoted to the other arm and provided with a toe projecting under said lug and with a screw projecting over said lug, and a float connected with the lever, whereby when the float is elevated the valve will be closed, and when lowered it will be opened, substantially as set forth.

605,085. SULKY-PLOW. WILHELM G. DANIELSEN and WILLIAM MERRILL, Richmond, Utah; said Merrill assignor to said Danielsen. Filed May 6, 1897. Serial No. 635,383. (No model.)

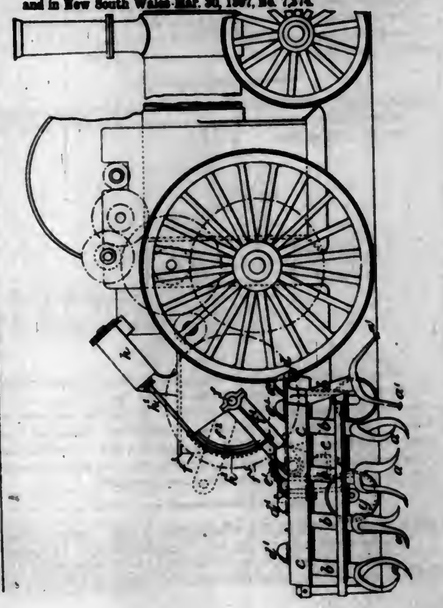
Claim.—1. In a sulky-plow, the combination with the plow-frame and its carrying-wheels, of the plow-standard connected rigidly thereto, the plow attached rigidly to said standard, a wheel arranged in rear of said plow and mounted upon an inclined axle, and a hollow cap secured to said wheel and inclosing the end of said axle, said cap being arranged to bear against the end of the axle for taking the lateral thrust on said wheel, and also constituting an oil-cup, substantially as described.



2. In a sulky-plow, the combination with a share-carrying standard, of a presser-wheel having a beveled rim, an inclined angular hanger arranged to extend in front of the presser-wheel and provided at its rear extremity with a transverse inclined axle on which the presser-wheel is mounted, and a clamp attached to the standard and engaging with the front part of the hanger to hold the latter rigidly on the standard, substantially as described.

3. In a sulky-plow, the combination with a frame and a plow-share, of a hanger attached to the frame and provided with a transverse axle, an inclined landside pressure-wheel journaled on the axle of said hanger, a supporting-arm attached to the frame and extending rearwardly therefrom over the landside pressure-wheel, a scraper hung on the supporting-arm, a treadle-shaft journaled on the plow-frame and provided with a crank-arm, and a pitman connected to the crank-arm of said treadle-shaft and to the scraper, for the purpose described, substantially as set forth.

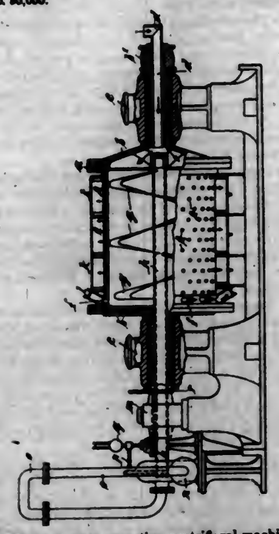
605,086. IMPLEMENT FOR DIGGING OR CULTIVATING LAND. THOMAS A. DARBY and SIDNEY C. DARBY, London, England. Filed Mar. 11, 1897. Serial No. 626,969. (No model.) Patented in England Dec. 13, 1895, No. 23,923; in France Dec. 11, 1896, No. 262,100; in Belgium Dec. 11, 1896, No. 126,123; in Germany Dec. 12, 1896, No. 93,986; in Hungary Feb. 10, 1897, No. 5,571; in Austria Feb. 26, 1897, No. 47/625; in Canada Mar. 26, 1897, No. 55,439; in Victoria Mar. 30, 1897, No. 14,046, and in New South Wales Mar. 30, 1897, No. 7,374.



Claim.—1. In implements for digging or cultivating land, the combination of a suitable supporting-frame, a series of rotating tools mounted upon slightly-inclined shafts and arranged in rows and carried by said frame, the cutting members of said tools in each row being so arranged with relation to each other as to act upon the ground one after another, and gearing connected with said shafts and adapted to rotate them in a direction to cause said tools to act upon the ground in a rearward direction only to aid in propelling the implement forward, substantially as described.

2. In implements for digging or cultivating land, the combination of a V-shaped frame, a series of inclined shafts carried by said frame in diagonal lines or rows, a series of tools carried by said shafts, the cutting members of said tools in each row being so arranged with relation to each other as to act upon the ground one after another in succession, and gearing connected with said shafts and adapted to rotate them in a direction to cause the corresponding tools of each row to act simultaneously upon the ground in a rearward direction to aid in propelling the implement forward, substantially as described.

605,087. CENTRIFUGAL MACHINE. MEYER DAVIDSEN, Paris, France. Filed Dec. 20, 1897. Serial No. 664,724. (No model.) Patented in France Apr. 15, 1896, No. 255,563, and in Germany Nov. 20, 1896, No. 95,055.

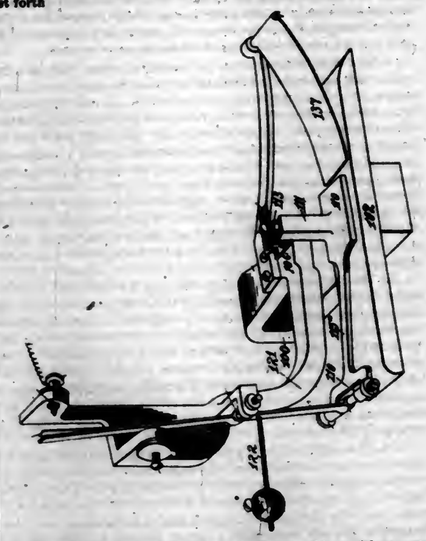


Claim.—In continuous-operating centrifugal machines, the combination with the drum *a* and the screw *g*, of brake mechanism, connected to the shaft *h* substantially as and for the purpose hereinbefore set forth.

605,088. PAPER-FEEDING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Apr. 17, 1897. Serial No. 632,699. (No model.)

Claim.—1. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising an electromagnetic trip mechanism, a lower stationary calipering member over which the sheets pass, an upper adjustably-supported sliding calipering member supported over the stationary member and capable of moving in a plane parallel with and in the direction of travel of the sheets and an electric contact device comprising a contact-point, and a contact-lever connected with the sliding calipering member, the contact point and lever being in circuit with the electromagnetic trip mechanism, substantially as set forth.

2. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising an electromagnetic trip mechanism, a lower stationary calipering member over which the sheets pass, an upper adjustably-supported calipering member supported over the stationary member and capable of moving in the direction of travel of the sheets, an arm extending from the movable calipering member, and an electric contact device in circuit with the electromagnetic trip mechanism and comprising a contact-lever extending transversely to the line of movement of the sheets and pivotally connected with the arm of the movable calipering member, and a contact-point with which the lever is brought into contact by the movement of the calipering member, substantially as set forth.



3. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising an electromagnetic trip mechanism, a lower stationary calipering member over which the sheets pass, an upper adjustably-supported calipering member supported over the stationary member and capable of moving in the direction of travel of the sheets and an electric contact device in circuit with the electromagnetic trip mechanism comprising a contact-point, a contact-lever connected with the movable calipering member, and a weighted arm extending from the contact-lever and arranged to hold the parts in normal position, substantially as set forth.

4. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising a lower stationary plate over which the sheets pass, a rigidly-supported slotted plate above the stationary plate, a movable calipering member, a pin or screw passing through the slotted plate and engaging the movable calipering member and supporting it in proper relation to the stationary plate, and means connected with the movable calipering member for tripping the clutch mechanism, substantially as set forth.

5. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising a lower stationary plate over which the sheets pass, a calipering-wheel journaled in a movable support above the stationary plate, means for adjusting the movable support for regulating the distance between the periphery of the wheel and the stationary plate, means of engagement between the wheel and its support to arrest the rotation of the wheel and cause the support to move, and means operatively connecting the movable support with the trip mechanism of the clutch, substantially as set forth.

6. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising a lower stationary plate over which the sheets pass, a vertically-adjustable calipering-plate supported above the stationary plate and arranged to move with the sheets, means connecting the movable calipering-plate to the clutch mechanism, a friction-wheel freely journaled upon the plate with its periphery projecting below the lower face, and a stop device adapted to arrest the rotation of the wheel and cause the calipering-plate to move with the sheets, as set forth.

7. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising a lower stationary plate over which the sheets pass, a vertically-adjustable calipering-plate supported above the stationary plate and arranged to move with the sheets, means connecting the movable cali-

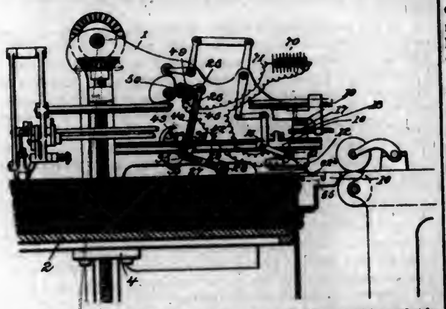
pering-plate to the clutch mechanism, posts or lugs on the calipering-plate, a slot in the plate between the lugs or posts, a friction-wheel journaled between said posts or lugs with its periphery projecting through said slot below the under surface of the plate, and a pin extending from one face of the wheel and adapted to engage one of the posts or lugs, substantially as and for the purpose set forth.

8. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering clutch-controlling device comprising a lower stationary plate over which the sheets pass, a vertically-adjustable calipering-plate supported above the stationary plate and arranged to move with the sheets, means connecting the movable calipering-plate to the clutch mechanism, posts or lugs on the calipering-plate, a slot in the plate between the lugs or posts, a friction-wheel journaled between said posts or lugs with its periphery projecting through said slot below the under surface of the plate, a friction-block of soft rubber inserted in the periphery of the friction-wheel, and a pin extending from one face of the wheel and adapted to engage one of the posts or lugs, substantially as and for the purpose set forth.

9. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering device, a rock-shaft adapted to operate the clutch, a constantly-reciprocating driving-rod operatively connected with the machine and formed with a detent-shoulder, a bar connected with the rock-shaft, a detent pivoted to said bar and adapted to engage the shoulder of the driving-rod, and an electromagnetic trip device under the control of the calipering device, and adapted to hold the detent out of engagement with the driving-rod, substantially as set forth.

10. The combination, in a paper-feeding machine, with an automatic clutch mechanism constructed to throw the machine out of operation, of a sheet-calipering device, a rock-shaft adapted to operate the clutch, a constantly-reciprocating driving-rod operatively connected with the machine and formed with a detent-shoulder, a bar connected with the rock-shaft, a detent pivoted to said bar and adapted to engage the shoulder of the driving-rod, and an electromagnetic trip device under the control of the calipering device and adapted to hold the detent out of engagement with the driving-rod, and a cam-shoulder on the operating-rod adapted to engage the detent and throw it into engagement with the trip mechanism, substantially as set forth.

605,089. PAPER-FEEDING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Sept. 16, 1896. Renewed Oct. 16, 1897. Serial No. 655,490. (No model.)



Claim.—1. The combination, in a paper-feeding machine, of suitable feeding devices, having a normally-active frictional engagement with the paper on their forward stroke, means for imparting a uniform stroke to the feeding devices, and means for automatically rendering the frictional engagement of the feeding devices inactive at certain points on their forward stroke without elevating them from the paper or arresting their uniform motion, said automatic means being controlled by the advance edge of the paper being fed off, substantially as set forth.

2. The combination, in a paper-feeding machine, of suitable feeding devices, means for imparting a uniform feeding motion thereto, and suitable electric controlling devices operated by a passing sheet for rendering the feeding devices active or inactive according to the position of the sheet being fed off and without interfering with or interrupting their uniform feeding motion or elevating the feeding devices from the paper, substantially as set forth.

3. In a paper-feeding machine for automatically moving sheets of paper from a pile, the combination of a feeding-finger, means for operating it, a friction feed-roller journaled in said finger and adapted to bear upon the paper, an automatic device for holding said roller against rotation to cause it to move the paper, and suitable means operated by the moving sheet for automatically controlling the action of said automatic device causing it to release the roller to free rotation over the paper when the sheet has a certain position, and to hold the roller against rotation when in another position to cause it to feed the succeeding sheet, substantially as set forth.

4. In a paper-feeding machine for automatically moving sheets of paper from a pile, the combination of two feeding-fingers arranged transversely of the line of feed a suitable distance apart above the pile of paper, means for operating said feeding-fingers in parallel planes, feed-rollers journaled in said feed-fingers and adapted to bear upon the paper, independent automatic devices for holding the respective rollers against rotation to cause them to move the paper, and suitable independent controlling devices operated by the moving sheet for automatically controlling said automatic holding devices and causing them to free the roller for rotation and thereby arrest the feed of each roller when the edge of the sheet in front of it reaches a certain point, substantially as set forth.

5. In a paper-feeding machine, the combination of a feeding-finger, a friction feed-roll journaled in said finger, a dog or detent carried by the finger and adapted to hold the roller against rotation, and suitable automatic means operated by a moving sheet for controlling the operation of the dog and consequent action of the feed-roll, substantially as set forth.

6. In a paper-feeding machine, the combination of a feeding-finger, a friction feed-roll journaled in the finger, a ratchet-wheel secured to the journal of the feed-roll, a spring-released dog or detent carried by the feed-finger and adapted to be moved into engagement with the ratchet-wheel for holding the roll against rotation, and a suitable automatic device controlling the dog or detent and operated by the advance edge of the sheet being fed off for releasing the dog from engagement with the ratchet to allow the rotation of the roll, substantially as set forth.

7. In a paper-feeding machine, the combination of a feeding-finger, a friction feed-roll journaled in the feed-finger and provided with a ratchet-wheel on one of its journals, a dog or detent carried by the feeding-finger and adapted to engage the ratchet, an electromagnetic device adapted to move the dog into engagement with the ratchet, and an electric-contact controlling device operated by a passing sheet for controlling the action of the electromagnetic device, substantially as set forth.

8. In a paper-feeding machine, the combination of a feeding-finger, a rock-arm upon which said finger is mounted, a friction feed-roll journaled in said finger and having a ratchet-wheel secured to its journal, a dog or detent supported on the feed-finger and adapted to engage the ratchet, an armature-lever pivoted to the rock-arm and engaging the dog or detent and carrying an armature, an electromagnet supported on the rock-arm, and an electric-contact-controlling device operated by a passing sheet for controlling the action of the electromagnet, substantially as set forth.

9. In a paper-feeding machine, the combination of a feeding-finger, a friction feed-roll journaled in said finger and having a ratchet-wheel secured to its journal, a dog or detent supported upon the finger and adapted to engage the ratchet-wheel, a pivoted lever engaging the dog or detent, an armature on said lever, an electromagnet, a normally-closed electric circuit including the electromagnet, and a circuit making and breaking arm or lever in said circuit supported in the path of the paper to be operated thereby, substantially as set forth.

10. In a paper-feeding machine, the combination of a feeding-finger, a friction feed-roll journaled in the feed-finger, an electromagnetic device for holding the feed-roll against rotation in the feed-finger, an electric battery, a contact-point, a contact-lever supported in the path of the paper formed with a curved lower end adapted to be engaged by the paper, and an electric circuit including the magnetic device, the battery and contacts, substantially as set forth.

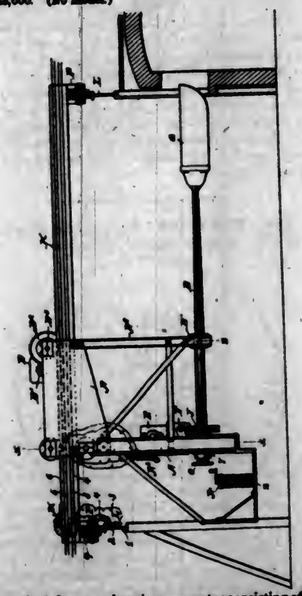
11. In a paper-feeding machine, the combination of a feeding-finger having a friction feed-roll journaled in it, means for automatically elevating the feed-finger from the surface of the paper at the end of its forward stroke and for lowering the feed-finger upon the paper at the end of the rear stroke, means for holding the roller against rotation in the feed-finger, and an automatic controlling device operated by the passing sheet for regulating the roller-holding device, substantially as set forth.

12. In a paper-feeding machine, the combination of a paper-feeding finger having a feed-roll journaled in its end, a suitable device for holding the roll against rotation, an automatic controlling device operated by a passing sheet for regulating the action of the roller-holding device, and suitable buckling mechanism for separating the rear corners of the sheet from the pile, substantially as set forth.

13. In a paper-feeding machine, the combination of paper-feeding fingers having friction feed-rolls journaled in their ends, means operated by the passing sheet for automatically holding said rollers against rotation or allowing them to rotate, with a sheet-separator

comprising a bed disposed in front of the delivery end of the machine, and a friction-pad reciprocating over said bed and moving vertically at the ends of its stroke, substantially as set forth.

605,090. ELECTRICAL APPARATUS FOR CHARGING FURNACES. JOSEPH P. ROE, Muncie, Ind. Filed Aug. 12, 1897. Serial No. 648,000. (No model.)



Claim.—1. A furnace-charging apparatus consisting of a charger-track adapted to travel across the face of the furnace, a charger-frame adapted to run upon said track, a charger-bar pivotally suspended within said frame, a rod rotatable in the charging-bar, a cam adapted to enter the wall of the charging-bar and engage the shank of the pan, means for raising and lowering the outer end of said charger-bar, and suitable electric motors in proper circuit for operating the various parts of the apparatus, as specified.

2. In combination, supporting-tracks arranged parallel with the front of the furnace, a charger-track mounted upon trucks adapted to travel upon said supporting-tracks, a charger-frame, a truck from which said frame is suspended, said truck being adapted to run upon the charger-track, a casting suitably pivoted within the charger-frame, a charger-bar journaled within said pivoted casting, a vertically-movable casting fitted to slide within the charger-frame, and through which the charger-bar passes, and mechanism for revolving the charger-bar, an electric motor for operating said mechanism, and an electric motor for causing the charger-truck to travel upon its track, and an electric motor for causing the charger-truck to move to and fro upon the supporting-track, as specified.

3. In combination with a charging apparatus, two charging-trucks, two trucks adapted to run thereon, a shaft for connecting the trucks, a hollow charging-bar, an operating-rod journaled in the ends of the charging-bar, a cam formed at one end of the operating-rod adapted to engage the shank of the charging-pan, substantially as described.

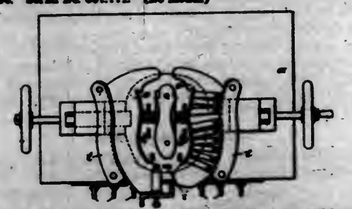
4. In combination with a traveling charger-truck of the character described, a truck adapted to run thereon, an electric motor carried by said truck, suitable gearing connecting the wheels of said truck with said motor, a trolley carried by the truck and adapted to travel upon suitable line-wires for transmitting an electric current to and from said motor, a charger-frame depending from the truck, a casting pivoted within the frame, a hollow charging-bar journaled within said pivoted casting, a vertical movable casting in which the rear end of the charger-bar is journaled, suitable mechanism for raising and lowering said casting, an electric motor for operating said mechanism, a trolley carried by the charger-frame for transmitting an electric current from suitable line-wires, and a platform containing the controller and switchboards upon which the operator may stand for bringing about the proper movements of the charger, substantially as shown and described.

5. In combination with a charger-frame of the character described, a casting pivoted to said frame, a hollow charger-bar journaled in said pivoted casting, a vertical movable frame fitted to slide within the charger-frame and in which the rear end of the charger-bar is journaled, suitable mechanism for raising and lowering said frame, an electric motor carried by the charger-frame for operating this last-named mechanism, suitable gearing connected with the charger-bar for turning the same upon its axis, an electric motor suitably mounted for operating this gearing, suitable trolleys for transmitting an electric current from line-wires to the motors, a cam-rod journaled within the hollow charging bar, a cam carried upon the inner end thereof adapted to enter into engagement with the shank of the charging-pan, thereby locking the same upon the charger-bar, a hand-wheel upon the outer end of the cam-rod for manipulating the same, and a platform upon which the operator may stand, for controlling the movements of the apparatus, as specified.

6. In combination with a charger-frame of the character described, a charger-bar pivotally attached thereto, mechanism for raising and lowering the outer end thereof, mechanism for turning said charger-bar upon its axis, a charger pan with which the outer end of the charger-bar is adapted to engage, a rod journaled within the hollow charger-bar, a cam carried upon the inner end thereof and adapted to enter into engagement with the shank of the charging-pan for locking the same upon the charger-bar, and means for bringing about the several movements of the charger-bar, as shown and described.

7. In combination with a hollow charging-bar of the character described, a rod journaled therein, a cam carried upon the inner end of said rod and adapted to be turned upward through an opening in said bar, a hand-wheel for manipulating said rod, and a charging-pan having a shank in which is formed a square hole for the entrance of the square end of the charger-bar and also having a notch formed therein, with which the cam may engage for locking the pan upon the charger-bar, substantially as and for the purpose set forth.

605,091. LASTING-MACHINE. CHRISTIAN BERNSDORF, Berlin, Germany, assignor to Schönfliess Brothers, same place. Filed Oct. 3, 1896. Serial No. 607,771. (No model.)



Claim.—1. A machine for manufacturing shoes, comprising a last-holder, stretching-clamps, devices for drawing down said clamps, frames corresponding in shape to the sides of the sole, and devices for bringing said frames up to said sole, and pin-driving devices mounted in said frames and adapted to drive pins through the inner sole and upper in directions substantially parallel to the bottom of the shoe.

2. The combination in a shoe pulling-over and fastening machine, of two stretching-clamps, bars connected thereto, a pedal, and a bar connected to said pedal, and an arm connected to the pedal-bar and engaging with either of the stretching-clamp bars.

3. The combination in a shoe-fastening machine, of pin-holders, pin-driving devices operating in substantial parallelism to the bottom of the shoe, and a frame engaging with a number of said devices and driving the same simultaneously.

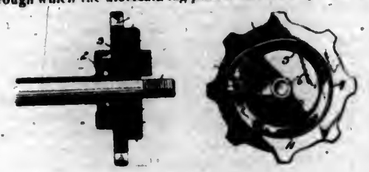
4. The combination in a shoe-fastening machine, of a sole-plate having rounded recesses in its side, and pin-drivers operating to drive pins against the sides of said sole-plate and into said recesses.

5. The combination in a shoe-fastening machine, of a pin-driving device for driving pins in substantial parallelism to the bottom of the shoe, and adjusting devices for said pin-driving device whereby the same can be adjusted vertically and longitudinally.

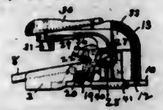
605,092. BICYCLE-BRAKE. CHARLES M. PERRY, West Williamsfield, Ohio. Filed Aug. 5, 1896. Serial No. 601,781. (No model.)

Claim.—In a brake for bicycles and similarly-propelled machines, the combination of a disk applied to the hub of the drive-wheel and having its periphery screw-threaded, a sprocket-rim internally threaded and mounted upon the said disk to turn thereon, cooperating stops applied to the sprocket-rim and disk to limit the forward movement of the rim, a friction-disk concentrically mounted with the drive-wheel and having a lateral leg entering the slot in the fork member of the frame adjacent to the brake, a brake-strap surrounding the friction-disk and normally held out of action, and having its termi-

nals secured, respectively, to the sprocket-rim and disk, and a casing inclosing the friction-disk, brake-strap and stops, and having an opening through which the aforesaid lug passes, substantially as set forth.



605,093. ENVELOP-OPENER. WILLARD H. FOX, New Haven, Conn. Filed Feb. 21, 1896. Serial No. 580,224. (No model.)

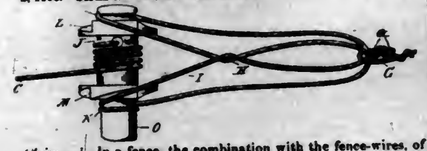


Claim.—1. In an envelop-opener, the combination with a suitable frame, of the stationary knife 15 adjustably mounted upon said frame, knife-bar 25 pivotally mounted upon said frame and carrying the knife 22, said knife-bar being provided with the operating-handle 29 to the under side of which is secured the elastic buffer 31, the closely-coiled spring 13 for retracting said knife-bar, and table 8 mounted upon said frame in front of said knives, substantially as described.

2. The combination with the frame provided with the end pieces 1 1 and cross-bars 5 6, of the knife-bar 17 supported at its ends by the conical-pointed screws 19 passing through said end pieces and carrying the knife 15, adjusting-screws 21 passing through said cross-bars 5 6 and bearing against opposite sides of said knife-bar, and knife-bar 25 supported at its ends by the conical-pointed screws 27 and having knife 22 mounted thereon at an angle to its axis of movement, substantially as described.

3. The combination with the frame having mounted thereon the stationary cutter 15 and the rotary cutter 22, with means for operating the latter in opposite directions, of the bottom piece 40 pivotally secured to the under side of said frame, substantially as and for the purpose described.

605,094. FENCE. DANIEL D. FREMEN, Detroit, Mich. Filed Mar. 2, 1898. Serial No. 672,266. (No model.)



Claim.—1. In a fence, the combination with the fence-wires, of a tension device for each fence-wire, comprising a piece of wire bent into the form of a link and doubled upon itself, a spool having journals supported in the loops formed by doubling the link, flanges having side teeth on the ends of the spool with which the sides of the loop are adapted to engage, the fence-wire having its adjacent ends connected to the loop and the spool respectively.

2. In a fence, the combination with the fence-wires, of a tension device for each fence-wire, comprising a closed loop of wire doubled upon itself, its ends connected to one end of the fence-wire and the spool connected to the other end of said wire, bearings on the end of the spool engaging in the loops in the doubled portion of the link, flanges on the end of the spool having inclined side teeth, one side of the doubled loop being contracted as by twisting at H to form the inclinded portions I which engage with the ratchet-teeth on the flanges, substantially as described.

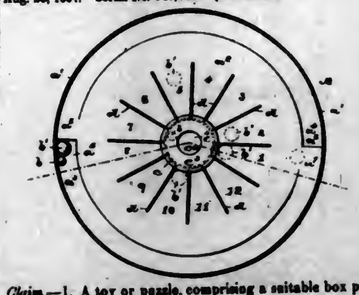
605,095. SEAT FOR COUCHES. JOSEPH R. GARDINER, Boston, Mass., assignor of one-half to Albert H. Sawyer, Newburyport, Mass. Filed Oct. 20, 1897. Serial No. 656,804. (No model.)

Claim.—1. A seat for an article of furniture, composed of a base or frame having rails a and a^2, and a series of springs each consisting of a single piece of spring-wire bent to form coils 2, 4 and 6 with intermediate arms 3 and 5 and having a short end 1 and a long arm 7 terminating in a coil 8, the said springs having their ends 1 secured to the said rails a and a^2 alternately, the arms 7 alternating in their direction of extension across the top, rigid rods passing through the coils 2 and flexible wires or rods passing through the coils 6 and 8 to string them together.



2. A seat for an article of furniture, composed of a base or frame having rails a, a^2 and a^3, and a series of springs each consisting of a single piece of spring-wire bent to form coils 2, 4 and 6 with intermediate arms 3 and 5 and having a short end 1 and a long arm 7 terminating in a coil 8, the said springs having their ends 1 secured to said rails a and a^2 alternately, the arms 7 alternating in their direction of extension across the top, rigid rods passing through the coils 2, flexible wires or rods passing through the coils 6 and 8 to string them together, and springs s interposed between the rail a^2 and the arms 7 of the springs.

605,096. PUZZLE. OTTO J. HAARLANDER, Newark, N. J. Filed Aug. 23, 1897. Serial No. 649,142. (No model.)



Claim.—1. A toy or puzzle, comprising a suitable box provided with a base, a raised central pen or chamber upon said base, having an opening in one side, and radially-arranged partitions on said base, forming compartments disposed around the outside of said central pen or compartment, and a tapering channel or groove on said base and concentric with said central pen or compartment, substantially as and for the purposes set forth.

2. A toy or puzzle, consisting, essentially, of a base a and surrounding side a', said base having a raised portion a^2, and tapering channels or grooves, a central pen or chamber upon said part a^2 of the base, having an opening in one side, radially-arranged partitions on said part a^2 forming compartments around the outside of said central pen or chamber, and a ball or balls movable on said base and in said channels or grooves, substantially as and for the purposes set forth.

3. A toy or puzzle, consisting, essentially, of a base a and surrounding side a', said base having a raised portion a^2, and tapering channels or grooves, a central pen or chamber upon said part a^2 of the base, having an opening in one side, radially-arranged partitions on said part a^2 forming compartments around the outside of said central pen or chamber, a large ball or marble b' and a smaller ball or marble b, both movable on said base and in said channels or grooves, substantially as and for the purposes set forth.

605,097. TELEPHONE SYSTEM. EDWIN W. HAM, Worcester, Mass. Filed Apr. 22, 1897. Serial No. 633,236. (No model.)

Claim.—1. In a telephone-switchboard, the combination of a base-plate, a plurality of plungers mounted therein, each plunger having a conical operating-section and a detent for holding the same in its operative position, two spring-arms engaging the conical section of each plunger to normally force said plungers outwardly, a contact-piece cooperating with each spring-arm, whereby each plunger is adapted to make two electrical connections when pushed in, a single stop-bar engaging said detents, and means for actuating said stop-bar, substantially as described.

2. The combination of a yoked contact piece 19, a telephone-hook and a piece of insulating material mounted on said telephone-hook, said parts being arranged so that the piece of insulating material will lift the contact-piece when the telephone-hook rises, and so that said piece of insulating material will move the contact-piece out of engagement with the telephone-hook after the same has had a momentary contact therewith when said telephone-hook is moved down, substantially as described.

3. The combination of a switchboard comprising a base-plate, a plurality of plungers mounted therein, each plunger having a conical section, and a detent for holding said plunger in its operative position, two normally open spring-terminals engaging the conical section of each plunger to normally force said plunger outwardly, a single stop-bar engaging said detents, releasing-magnets having armatures arranged to actuate said stop-bar, and connections for energizing said magnets from a telephone-hook, substantially as described.



4. The combination of a switchboard comprising a base-piece, a plurality of plungers mounted therein, each plunger having a conical section and a detent for holding said plunger in its operative position, two normally open spring-terminals engaging the conical section of each plunger to normally force said plunger outwardly, a single stop-bar engaging said terminals, and releasing-magnets for operating said stop-bar, a telephone-hook, and a contact-piece cooperating therewith to momentarily energize said magnets, substantially as described.

5. The combination of a switchboard comprising a base piece or plate, a plurality of plungers mounted therein, each plunger having a conical, operating-section and a detent for holding said plunger in its operative position, two normally open spring-terminals engaging the conical section of each plunger to normally force said plunger outwardly, a single stop-bar engaging said detents, and releasing-magnets for operating said stop-bar, a telephone-hook, a contact-piece cooperating therewith, an insulated, operating-piece carried by the telephone-hook, said parts being arranged so that when the telephone-hook rises, the contact-piece will be moved into position to momentarily close a circuit through the magnets when the telephone-hook is again moved down, substantially as described.

605,098. PIPE-JOINT AND UNION. TRONVALD F. HANNER, Branford, Conn. Filed July 30, 1897. Serial No. 646,460. (No model.)



Claim.—1. In unions for pipe-joints and the like, two tubular members having adjacent ends, and having concave sockets in said ends, and a nut coupling said ends together, in combination with a ring clamped between said ends, unattached to either of said members, and having a convex exterior fitting in said sockets and separating the ends of said members, said members clamped by said nut against said ring, and relatively movable laterally of each other, said nut permitting relative lateral movement of said members and said ring free to move in said sockets to compensate for imperfections.

2. In unions for pipe-joints and the like, two tubular members the one having an external screw-thread and the other an external head on their adjacent ends, and having opposite sockets in such ends, in combination with a separate ring between and separating said ends, and seated in said sockets, and a nut screwing on said thread and having a flange embracing said head and drawing said parts together against said ring, said nut and head having engaging faces j and k for drawing said parts together, and separated walls f g h and i permitting lateral movement of the headed member relatively to the nut.

3. In unions for pipe-joints and the like, the combination with two tubular members having adjacent ends having flaring sockets in such ends, the one having an external screw-thread and the other an external head at such ends, of a ring between and separating said ends, having a bulbous exterior entering said sockets and free to move therein to seat itself, and a nut screwing on the end of the threaded member, and having a flange engaging the head of the headed member for drawing the members together against said ring, said nut loosely engaging the headed member and permitting axial tilting thereof, and said nut and headed member having engaging concave and convex faces, whereby the headed member can be tilted around said ring.

4. In unions for pipe-joints and the like, two tubular members having adjacent ends having opposite sockets, the one member having an external screw-thread and the other an external head near their ends, in combination with a ring having a bulbous exterior between and separating said ends and fitting in said sockets, and a nut screwing on said thread and having a flange engaging said head and clamping said members against said ring, said head having a bearing-surface engaged by said flange which is parallel with the adjacent bulbous-shaped surface of said ring, whereby said headed member can be tilted around said ring within said flange.

5. In unions for pipe-joints and the like, two tubular members having adjacent ends having opposite sockets in said ends, the one having an external screw-thread and the other an external head, in combination with a ring between and separating said members, having a bulbous-shaped exterior fitting in said sockets, and a nut screwing on said thread and having a flange engaging said head and clamping said members against said ring, said flange having a bearing-surface engaging said head and parallel with the adjacent bulbous-shaped surface of said ring, whereby the headed member can be tilted axially without disturbing said ring.

6. In unions for pipe-joints and the like, two tubular members having adjacent ends, and having concave sockets in said ends, and means coupling said ends together, in combination with a separate ring clamped between said ends, unattached to either of said members, and having a convex exterior fitting in said sockets and separating the ends of said members, said members clamped by said means against said ring and movable laterally relatively to each other, said means permitting relative lateral movement of said members, and said ring free to move in said sockets to compensate for imperfections.

605,099. SINGLE-WHEEL SULKY AND DEVICE FOR ATTACHING HORSES THERETO. THOMAS S. HEATH, Cross Timbers, Mo. Filed Sept. 28, 1897. Serial No. 653,335. (No model.)



Claim.—1. The herein-described combination of a vehicle-frame, a single wheel upon which said frame is mounted, means for varying the relative position of said wheel to the frame, two arches attached to the thills, a girth secured upon the horse, and ball-bearings connecting said girth and arches, as specified.

2. In combination with a vehicle of the character described, an upperly-curved arch attached to the thills, a corresponding arch extending downward also attached to the thills, a girth adapted to be secured around the body of a horse, a saddle carried by said girth, balls also carried by the girth and fitted to the arches so as to form swiveled points, and means for staying the upper arch, as specified.

3. In combination, a vehicle-frame, housings projecting downward therefrom, boxes fitted to slide within said housings, springs arranged above and below the boxes, an axle adapted to revolve within the boxes, a single wheel secured to the axle, rods connected to the boxes, bell crank levers to which said rods are attached, a turn-disk pivoted to the frame of the vehicle, rods for connecting said turn-disk with the bell-crank levers, and a foot-lever connected by rods to the turn-disk, whereby the position of the axle relative to the vehicle-frame may be varied, as specified.

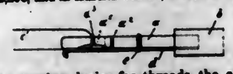
4. In combination with a vehicle of the character described, a turn disk or lever, a bell-crank lever, rods for connecting the first-named member to said bell-crank lever, each of said rods being made in two sections having a spring interposed therebetween, substantially as and for the purpose set forth.

605,100. TABLE ATTACHMENT FOR CHAIRS OR BEDS. FRANCIS T. HEATLY, Camanche, Iowa. Filed Oct. 19, 1897. Serial No. 655,707. (No model.)



Claim.—In an attachment for chairs, beds, and the like, the combination of a support or rest, a ball applied thereto, a ball-socket clamp of tubular form comprising an end sleeve, an end clamp consisting of separated parts, and an intermediate ball-socket formed in the meeting faces of the separated parts of the end clasp, said ball-socket receiving the ball applied to the support or rest, clamp-screws connecting the separated parts of the aforesaid end clamp upon opposite sides of the ball-clamp to contract the ball-socket and grip the aforesaid ball and hold the support in an adjusted position, and a standard having an adjustable connection with the sleeve portion of the said socket-clamp, substantially as set forth.

605,101. THREAD-TENSION DEVICE. ISAAC HERR, Zurich, Switzerland. Filed Mar. 30, 1897. Serial No. 629,954. (No model.) Patented in France July 24, 1896, No. 253,330; in Switzerland Aug. 26, 1896, No. 12,858; in Germany Aug. 28, 1896, No. 92,008; in Italy Sept., 1896, LV, 42,290, and in Austria Oct. 24, 1896, No. 46/4,272.



Claim.—In a tension device for threads, the combination with the rigid bar *a* having eye *a'* and open slit a^2, of the flat spring *d* secured fixedly at one end and adjustably at the other end to the bar *a* and the keeper or runner *e* embracing bar and spring and capable of being shifted along the same, and means for confining said runner in engagement with said bar and said spring, substantially as set forth.

605,102. APPARATUS FOR MAKING CAUSTIC SODA. WILLIAM F. JOHNSEN, Aurora, Ill., assignor of one-half to Joseph Van Ruymbeke, same place. Filed Oct. 6, 1897. Serial No. 654,347. (No model.)

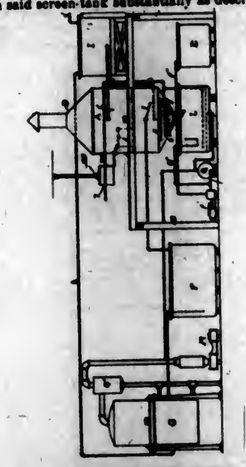
Claim.—1. In an apparatus for making caustic lye, the combination with a converting or causticizing kettle, a basket within said kettle for removing the lime, and a chute for directing the lime into said basket, of a screen-tank located adjacent to said kettle for receiving the sludge therefrom, substantially as set forth.

2. In an apparatus for making caustic lye, the combination with a converting or causticizing kettle, a perforated pipe or pipes located within said kettle, and a swinging pipe in said kettle for decanting the liquid therefrom, of a screen-tank located adjacent to said kettle for receiving the sludge therefrom, substantially as set forth.

3. In an apparatus for making caustic-soda lye, the combination with a converting or causticizing kettle having heating and agitating devices therein of the screen-tank adjacent thereto provided with a false bottom therein and an exhaust-pump connected with said screen-tank below said false bottom substantially as described.

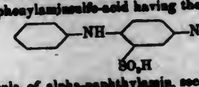
4. In an apparatus for making caustic-soda lye, the combination with a converting or causticizing kettle having heating and agitating devices therein of the screen-tank adjacent thereto provided with a false bottom therein and an exhaust-pump connecting with said screen-tank below said false bottom and a wash-water tank connected with said screen-tank substantially as described.

5. In an apparatus for making caustic-soda lye, the combination with a converting or causticizing kettle having heating and agitating devices therein of the screen-tank adjacent thereto provided with a false bottom therein and the exhaust-pump connecting below said false bottom and a wash-water tank adjacent to said screen-tank and having connections thereto, and the concentrators or condensers connecting with said screen-tank substantially as described.



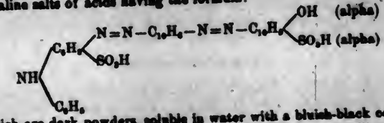
605,103. BLACK DISAZO DYE AND PROCESS OF MAKING SAME. MYRTIL KAHN and KARL HEUSSNER, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, of New York. Filed Dec. 24, 1897. Serial No. 662,403. (Specimens.)

Claim.—1. The process for producing new disazo dyestuffs which process consists in first combining one molecule of the diazo derivative of amidodiphenylamin-sulfo-acid having the formula



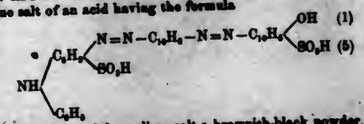
with one molecule of alpha-naphthylamin, secondly diazotizing the resulting amidoazo compound and finally coupling the diazoazo compound thus obtained with an alpha-naphthol-alpha-monosulfo-acid such as 1.4 naphtholsulfo-acid, 1.5 naphtholsulfo-acid substantially as hereinbefore described.

2. As new articles of manufacture the new disazo dyestuffs being alkaline salts of acids having the formula:



which are dark powders, soluble in water with a bluish-black color, dyeing wool in acid-baths black shades which are fast to milling and against the action of light substantially as described.

3. As a new article of manufacture the specific dyestuff being an alkaline salt of an acid having the formula



being in the form of the sodium salt a brownish-black powder, soluble in water with a bluish-black color, in concentrated sulfuric acid (66° Baumé) with a greenish-black color which changes into violet-black on adding a small quantity of ice while a violet-black precipitate is obtained on the addition of a larger quantity of ice to the sulfuric-acid solution, dyeing wool in acid-baths black shades fast to milling and against the action of light substantially as described.

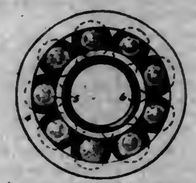
605,104. PULLEY. JOHN C. KNOBLOCK, South Bend, Ind. Filed Nov. 29, 1897. Serial No. 660,107. (No model.)

Claim.—A pulley, having opposite air-channels formed within the rim and leading from the edge of said pulley to a point of intersection at the center, and a series of perforations through the rim communicating with said channels, substantially as described.

605,104.



605,105. ANTIFRICTION-WASHER FOR HINGES. HENRY LEFFERT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Aug. 16, 1897. Serial No. 648,672. (No model.)



Claim.—The herein-described antifriction-washer consisting of the outer ring, the series of balls projecting from said ring, and an inner holding-ring consisting of a short tube formed in a single piece of thin metal, with both ends of the said tube curved over the said series of balls, substantially as described.

605,106. BENCH-VISE. MONTIMER G. LEWIS, New York, N. Y. Filed Dec. 24, 1897. Serial No. 663,305. (No model.)



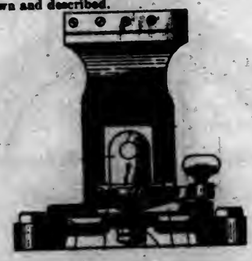
Claim.—1. In a bench-vise, the sliding bar having the flat top and bottom parts united on one side by the upright piece, the top being provided with a flange extending down part way on the other side and bearing against the adjacent vertical wall of the opening in the rear vise-head, substantially as shown and described.

2. In a bench-vise, the combination of the screw, the sliding bar having a flange on one side, and the nut located within the stationary head and at the side thereof, said nut being braced or extended in the direction of the length of the bar, substantially as shown and described.

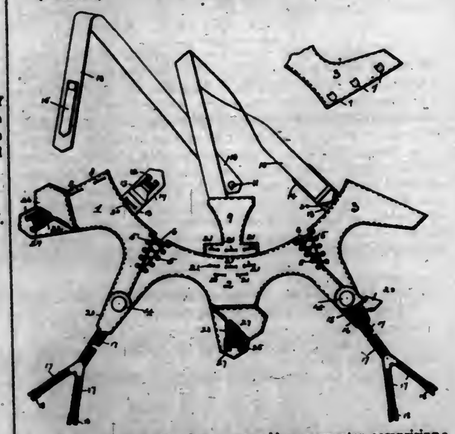
605,107. BENCH-VISE. MONTIMER G. LEWIS, New York, N. Y. Filed Mar. 2, 1898. Serial No. 672,222. (No model.)

Claim.—1. In a bench-vise, the combination with the base and the vise-head mounted thereon, of a central bolt and a lever engaging with said bolt, the lever extending outside the head and provided with means for raising its outer end, substantially as and for the purpose set forth.

2. In a bench-vise, the combination with the base and vise-head mounted thereon, of a clamping-lever fulcrumed within the head, located in a recess in the lower portion of the head, engaging the head of the central bolt, and extending to the exterior where it is provided with means for raising its outer end, said means arranged to bear upon the extended lower portion of the vise-head, substantially as shown and described.



605,108. COMBINED GARMENT AND HOSE SUPPORT. CORA A. W. LINDSAY, Pittsburg, Pa. Filed Oct. 7, 1897. Serial No. 654,906. (No model.)



Claim.—1. A combined garment and hose supporter, comprising a head or body portion consisting of sections laced together at their proximate edges, in combination with depending hose-supporting straps pivotally secured to the body portion, and depending front and rear napkin-supporting attachments, substantially as described.

2. The combination with the body portion consisting of the sections 1, 2 and 3 secured together by rivets and lacing-cords, of hose-supporting straps pivotally secured to the body portion by the rivets which secure the sections of the body portion together, depending napkin-supporting attachments at the front and rear of the body portion, an upwardly-extending tab-piece 9 secured to the rear section of the body, shoulder-straps the rear ends of which are adapted to be secured to the piece 9, and fastenings 12 and 13 secured to the front sections of the body portion, to which the front ends of the shoulder-straps are secured, substantially as described.

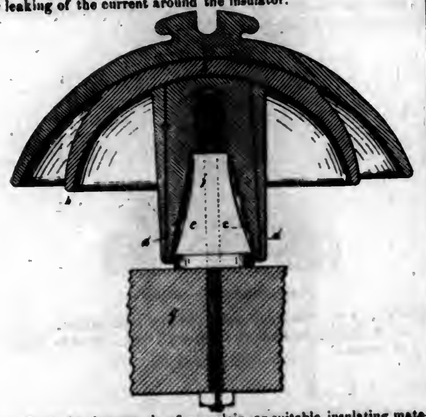
3. The combination with the body portion consisting of the sections 1, 2 and 3, secured together by rivets and lacing-cords, said sections 1 and 2 being provided with elastic straps 22 and 23 having secured thereto napkin-supporting attachments 24 and 25, and with flap-protectors 26 and 27 for covering the elastic straps, substantially as described.

605,109. INSULATOR. FRED M. LOCKE, Victor, N. Y. Filed Apr. 23, 1898. Serial No. 678,547. (No model.)

Claim.—1. An insulator made of porcelain or suitable insulating material, constructed of two or more parts fitted one into the other, and secured together, the inner part being provided with a socket by which it is mounted, said inner part or shell extending down to a point adjacent to the cross-arm, forming a sleeve for the purpose of protecting the pin from static discharge, or arcing, or leaking of the current around the insulator.

2. An insulator made of porcelain, or suitable insulating material, constructed of two or more parts fitted one into the other, and

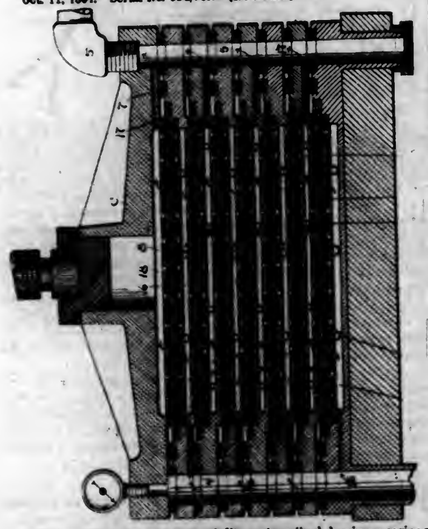
secured together, said inner part extending down to a point adjacent to the cross-arm, or resting upon the cross-arm, and forming a sleeve for the purpose of protecting the pin from static discharge, or arcing or leaking of the current around the insulator.



3. An insulator made of porcelain, or suitable insulating material, having one or more petticoats, the inner petticoat being constructed of two or more parts secured together, and extending down to a point adjacent to the cross-arm, or resting upon the cross-arm forming a sleeve for the purpose of protecting the pin from static discharge, or arcing, or leaking of the current around the insulator.

4. An insulator made of porcelain, or other suitable insulating material, constructed of two or more shells, fitted one into the other, and fused together with glaze, the inner shell extending down to a point adjacent to the cross-arm, or resting upon the cross-arm forming a sleeve for the purpose of protecting the pin from static discharge, or arcing, or leaking of the current around or through the insulator.

605,110. FILTER. CHARLES H. LOEW, Cleveland, Ohio. Filed Oct. 11, 1897. Serial No. 654,749. (No model.)



Claim.—1. A filter, substantially as described, having a series of primary perforated filtering-plates and a series of secondary filtering-plates forming together an alternately-open chamber between them for liquid, and chambers for filtering material, in combination with a series of stepped borders supporting said plates and packing between said borders, said borders having fluid-passages, substantially as described.

2. A filter for fermented and other liquids, consisting of a series of primary plates having each a perforated body and a raised border, a series of secondary perforated plates resting against said border and apart from the body of the primary plate to provide a chamber between them, and filtering material held between the perforated portions of said plates on opposite sides of said chambers, substantially as described.

3. The filter substantially as described, consisting of a series of primary plates having each a ledge about its border and a perforated body within said ledge, secondary perforated plates resting on said ledges and spanning the body of said primary plates, filtering material overspreading said primary plates packing about the borders of said primary plates and inlet and outlet passages to the spaces between said plates, substantially as described.

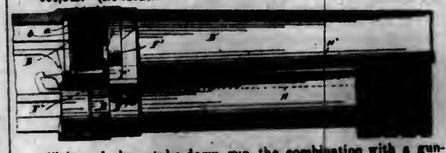
4. The filter-base, a series of perforated primary filtering-plates resting on said base having each a ledge at its border forming a support for a series of secondary filtering-plates and packing between said borders, in combination with a series of secondary filtering-plates and a layer of filtering material between each of said primary and secondary filtering-plates, the said borders being provided with vertical inlet and outlet passages, respectively, and packing about said passages, substantially as described.

5. The filter consisting of the base and the uprights and a cross-beam connecting the uprights at their top, in combination with a series of perforated primary and secondary plates arranged alternately and having open spaces between them on one side and filtering material between them on the other side, a cap for the filter and a screw in said cross-head to press said plates and filtering material together, the said primary plates having integral borders and the passages 4, 5, and 20 through the same, substantially as described.

6. In a filter substantially as described, the filter-base and a plate above said base to support the filtering material, in combination with means to pack the material on said plate comprising a casing to inclose the said material at the sides and a follower to press the material into said plate, substantially as described.

7. The filter-base, a perforated plate supported in said base at its sides and at intervals over its surface and having a space for liquid beneath it, in combination with a casing upon said plate to receive the filtering material in saturated condition, and a follower to enter said casing and press the liquid out of said material and produce a layer of compact filtering material on said plate, substantially as described.

605,111. DETACHABLY UNITING BARRELS TO STOCKS. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Dec. 13, 1897. Serial No. 661,645. (No model.)



Claim.—1. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, an internally and externally threaded take-up sleeve mounted upon the threaded butt-end of the gun-barrel, and taking into the threads of the said barrel-receiving opening, and a locking-ring formed independently of but coupled with the said sleeve, and mounted upon the butt-end of the gun-barrel at a point forward of the sleeve.

2. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, an internally and externally threaded take-up sleeve mounted upon the threaded butt-end of the gun-barrel, taking into the threads of the barrel-receiving opening, and having its forward edge formed with coupling-slots, and a locking-ring mounted upon the threaded butt-end of the gun-barrel at a point forward of the said sleeve, and having rearwardly-projecting coupling-lugs which enter the said coupling-slots of the sleeve.

3. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, an internally and externally threaded take-up sleeve mounted upon the threaded butt-end of the gun-barrel, and taking into the threads of the said barrel-receiving opening, a locking-ring formed independently of but coupled with the said sleeve for rotating the same, and means for holding the ring and hence the sleeve normally against rotation in either direction.

4. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, an internally and externally threaded take-up sleeve adjustably mounted upon the threaded butt-end of the gun-barrel, and taking into the threads of the said barrel-receiving opening, a locking-ring mounted upon the said threaded butt-end of the gun-barrel at a point forward of the said sleeve, and a spring-actuated dog engaging with a serrated portion of the locking-ring for holding the same against rotation.

5. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, a tubular magazine located below the gun-barrel, a band uniting the butt-ends of the barrel and magazine and having the rear face of its upper end recessed, an internally and externally threaded take-up sleeve mounted upon the threaded butt-end of the gun-barrel, and taking into the threads of the said barrel-receiving opening, and a locking-ring made independently of but coupled for rotation with the sleeve, mounted upon the butt end of the barrel at a point forward of the sleeve, and located within the recess formed in the said band.

6. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, and a magazine-receiving opening, of a gun-barrel, a magazine located below the same, a sliding supporting and operating handle mounted upon the magazine, an action-bar connected with and extending rearwardly from the said handle, and adapted at its rear end to be connected with the action mechanism of the gun, an internally and externally threaded take-up sleeve, adjustably mounted upon the threaded butt-end of the gun-barrel, and taking into the threads of the said barrel-receiving opening, and a locking-ring formed independently of the said sleeve, mounted upon the threaded butt-end of the gun-barrel at a point forward of the said sleeve, and coacting with the said action-bar which holds it against rotation except when the handle and bar are at the limit of their rearward excursions when the bar clears the ring and permits the same to be turned.

7. In a take-down gun, the combination with a gun-barrel, of a tubular magazine which is formed with external screw-threads at a point forward of its rear end, and a band applied to the rear ends of the barrel and magazine, formed in its lower portion with an internally-threaded magazine-opening into which the magazine is screwed, having its lower portion split for the expansion and contraction of the said opening, and provided with a clamp by means of which the said opening is contracted and the lower portion of the band firmly clamped upon the threaded portion of the magazine.

605,112. WHEEL. GEORGE MILLER, San Antonio, Tex., assignor of one-half to Louis Bergstrom, same place. Filed July 3, 1897. Serial No. 643,409. (No model.)



Claim.—1. In a wheel, the combination with the spokes, the tire, and the fellies provided with longitudinal vertical slots opening out at their ends and with recesses in the lower portions of their ends, of a clip having horizontally-disposed flanges to receive and support the ends of adjacent fellies, said flanges having openings to register with the slots in the fellies, a spoke-receiving socket extending above the flanges to seat in the said recesses in the ends of adjacent fellies, and a vertically-disposed plate extending across the socket to fit in the said slots in the fellies, and bolts passing through the tire, the slots in the fellies and the openings in the flanges, substantially as and for the purpose specified.

2. In a wheel, the combination with the spokes, the tire, and the fellies provided with longitudinal vertical slots opening out at their ends and with recesses in the lower portions of their ends, of a clip having horizontally-disposed flanges to receive and support the ends of adjacent fellies, said flanges having openings to register with the slots in the fellies, vertical ears extending up from the flanges to engage opposite sides of the adjacent ends of the fellies, a spoke-receiving socket extending above the flanges to seat in the said recesses in the ends of adjacent fellies, and a vertically-disposed plate extending across the socket midway between the said ears to fit in the said slots in the fellies, bolts passing through the tire, the slots in the fellies, and the openings in the flanges, and a horizontal bolt passing through the said ears, the vertical plate, and the abutting ends of the fellies, substantially as and for the purpose specified.

605,118. RIB FOR UMBRELLAS. JACOB G. MESSNER, Philadelphia, Pa. Filed Jan. 22, 1898. Serial No. 667,563. (No model.)

Claim.—A rib of the character stated, having thereon a cylindrical eye, the same extending at a right angle to the longitudinal direction of the rib, and a coiled neck intermediate of said eye and the body of the rib.

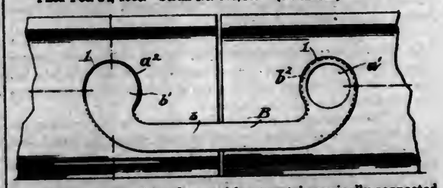


605,114. BUCKLE. WILLIAM A. MITCHELL, Weaverville, N. C. Filed July 8, 1897. Serial No. 643,572. (No model.)



Claim.—A buckle for the purpose set forth, consisting of a rectangular frame having a recess in the inner side of one of the end cross-bars and recesses in the side bars near the opposite cross-bar, the latter being disposed at an inclination with respect to the frame, as shown; together with an independent plate presenting a cross-bar which engages the recesses in the side bars of the frame and a central tongue which engages the recess in the end cross-bar, the parts being placed in engagement with the straps, substantially as herein shown and described.

605,115. RAIL-BOND. GEORGE MOFFAT, New York, N. Y. Filed Feb. 24, 1898. Serial No. 671,445. (No model.)



Claim.—1. A rail-bond comprising two telescopically-connected members, the said members adapted for engagement with openings in adjacent rail-sections, substantially as shown and described.

2. A rail-bond comprising two members composed of metallic loops having projections and recesses arranged opposite to each other, whereby they may be telescopically connected for engagement with apertures in two adjacent sections of a railway-rail, substantially as shown and described.

3. A rail-bond comprising two metallic loops, each loop having a tapering plug on one end thereof, and a tapering sleeve upon the other, the plugs and sleeves of the oppositely-arranged loops adapted for telescopic engagement with each other, and the sleeves adapted to respectively pass through openings in adjacent rail-sections for the purpose of connecting said sections to each other, substantially as shown and described.

4. As a rail-bond, a combination of two loops arranged parallel with each other, each loop being supplied upon its respective ends with a plug of tapering contour and a sleeve with a tapering opening, the said sleeves and plugs engaging telescopically with each other: with adjacent sections of a railway-rail, said sections having apertures leading therethrough engaging the sleeves of the rail-bond, substantially as shown and described.

605,116. HAT-FASTENER. WILLIAM H. MURDOCK, Boston, Mass., assignor to John C. Hollings, same place. Filed Aug. 4, 1897. Serial No. 647,045. (No model.)



Claim.—As an article of manufacture, a hat-fastener, comprising a comb having a band to embrace the comb above and transversely of the teeth of the comb, said band having slender, sharp-pointed teeth punched therefrom in a series along the middle of the band and from end to end of the comb, said teeth being integral at their bases with the band, substantially as described.

605,117. VEHICLE-TIRE. WILLIAM H. MURDOCK, Boston, and JOHN G. HOLLINGS, Cambridge, Mass.; said Murdock assignor to said Hollings. Filed Aug. 26, 1897. Serial No. 649,894. (No model.)



Claim.—1. The combination with a vehicle-wheel, of a yielding, compressible tire mounted directly flat upon and coextensive with the width of the felly of the wheel in immediate contact with the felly, and free to move longitudinally thereon, and provided at the edges of the felly with retaining devices to prevent the tire from being moved transversely to the felly, without interfering with said longitudinal movement, substantially as described.

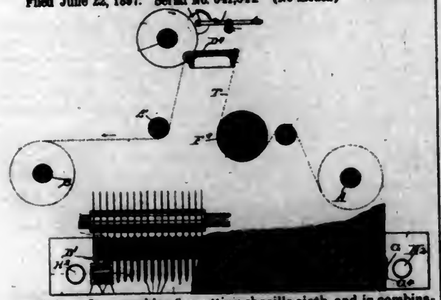
2. The combination with a vehicle-wheel, of a yielding, compressible tire mounted thereon and free to move longitudinally of the felly, said tire being provided at its inner annular side with retaining-flanges permanently secured thereto, and said felly being provided with overhanging portions at its edges lapped over toward each other and on top of said flanges to form ways for said flanges to travel within substantially as described.

3. The combination with a wheel, of a yielding, compressible tire mounted thereon to move freely along its felly, said tire having a holding-rib permanently secured to its inner side, said holding-rib being provided with lateral flanges throughout its length, and overhanging portions bent in toward each other in a plane approximately parallel to the bearing-surface of the felly to embrace and retain said flanges, substantially as described.

4. A tire having a holding-rib permanently formed on its inner side, said rib having fixedly embedded therein a wire bent sharply zigzag, the angular portions thereof projecting out laterally from the edges of the said rib and overhanging the adjacent portions of the tire proper, substantially as described.

5. The combination with a vehicle-wheel, of a tire mounted immediately upon and against the felly or rigid rim of the wheel, said tire being freely yielding and resilient throughout its entire cross-section from its tread to and including the portion in contact with the felly, and free to move longitudinally on the felly, and retaining means preventing lateral movement but not interfering with the said free resiliency and yielding of the entire tire nor with said longitudinal movement, substantially as described.

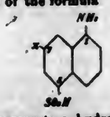
605,118. CHENILLE-CUTTING MACHINE. WILLIAM MCCLEARY, Amsterdam, N. Y., assignor to McCleary, Wallin & Crouse, same place. Filed June 22, 1897. Serial No. 641,844. (No model.)



Claim.—In a machine for cutting chenille cloth, and in combination, a series of rotary disk cutters; a bed-plate slotted on one edge to receive the several cutters and having its opposite edge plain and formed by the intersection of the plane upper and side surfaces of the plate, the slotted edge and neighboring upper surface of the plate being provided with warp-thread grooves located intermediately of the cutter-slots and terminating in the upper plane surface of the plate; transverse feed mechanism located in the path of the cloth near the cutters; a cloth-roll; and a brake-controlled tension-roll having a roughened cloth engaging surface located between the bed-plate and cloth-roll, substantially as described.

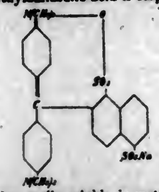
605,119. DIPHENYLNAPHTHYLMETHANE DYE. OSCAR NASTVOGEL, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Nov. 23, 1897. Serial No. 659,547. (Specimens.)

Claim.—1. The process for producing a new diphenylnaphthylmethane dye by first condensing tetralkyldiamidobenzhydrol with a naphthylaminsulfo-acid of the formula



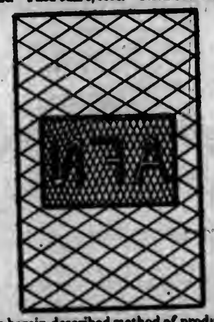
in which formula x represents a hydrogen atom or a sulfo group, secondly diazotizing the resulting leuco compound, thirdly transforming the diazo group of the body thus obtained into the sulfonic group and finally changing the so-produced leuco sulfonic-sulfonic acid into the corresponding dyestuff sulfonic acid by means of oxidizing agents.

2. As a new article of manufacture the new dyestuff obtainable from tetramethyldiamidobenzhydrol having in the form of the sodium salt in case 1.5 naphthylaminsulfo-acid is employed the formula



being a brown powder, easily soluble in water with a greenish-blue color, in concentrated hydrochloric acid with a yellow color, in concentrated sulfuric acid with a yellowish-color which changes into green on the addition of a sufficient quantity of ice, being partly dissolved with a reddish-violet color under evolution of dimethylamin when heated with a strong soda-lye (35° Baumé) dyeing wool in acid-baths clear greenish-blue and even shades fast to alkalies.

605,120. METHOD OF MARKING MEATS. ALBERT F. NATHAN, Kansas City, Mo. Filed Jan. 6, 1898. Serial No. 665,902. (No model.)



Claim.—The herein-described method of producing a distinguishing-mark on meats, which consists in placing the meat while fresh on a support having on its face a projection or projections of the form of the mark to be produced, letting the meat lie thereon until the projections indent the mark in the meat, and then rendering the mark permanent by drying and hardening the meat by smoke or otherwise.

605,121. CORN-HARVESTER. ADAM HEER, St. Paris, Ohio. Filed Sept. 21, 1897. Serial No. 652,465. (No model.)

Claim.—1. In a corn-harvester, the combination of a platform having side passages, guards at the sides of the said passages and having their front ends inclining in opposite directions, forming flaring mouths, cutting apparatus at the inner ends of the side passages, an elevated holder at the rear end of the platform and having side spaces between its front ends and the rear edges of the outer guards, means for closing the side spaces, and a horizontal bar intermediate of the platform and dividing the holder longitudinally, substantially as set forth.

2. In a corn-harvester, the combination of a platform having side passages, guards at the sides of the said passages, the inner guards having their rear end portions inclining inwardly and rearwardly, cutting apparatus at the inner ends of the side passages, a holder at the rear end of the platform and having side spaces between its ends and the rear edges of the outer guards, means for closing the side spaces, and a horizontal bar dividing the holder longitudinally and having the rear converging ends of the inner guards secured thereto, substantially as set forth.



3. In a corn-harvester, the combination of a platform having side passages provided at their inner ends with cutting apparatus, guards at the sides of the said passages having their front ends flaring, the inner guards having their rear ends inclining inwardly, a horizontal bar intermediate of the platform and having the rear ends of the inner guards secured thereto, standards for supporting the horizontal bar at a distance above the platform, a rod bent intermediate of its ends forming a substantially U-shaped holder having its middle portion supported by the rear standard, and having its front end portions bent vertically and attached to the platform and disposed so as to provide side spaces in the rear of the outer guards, means for closing the side spaces, substantially as and for the purpose set forth.

4. In a corn-harvester, the combination of a platform having a passage provided at its inner end with a cutting apparatus, guards at the sides of the passage, a holder at the rear end of the platform and having a space between its front end and the rear edge of the outer guard, and a bar for closing the said space and adapted to be turned aside to admit of access to the platform, substantially as set forth.

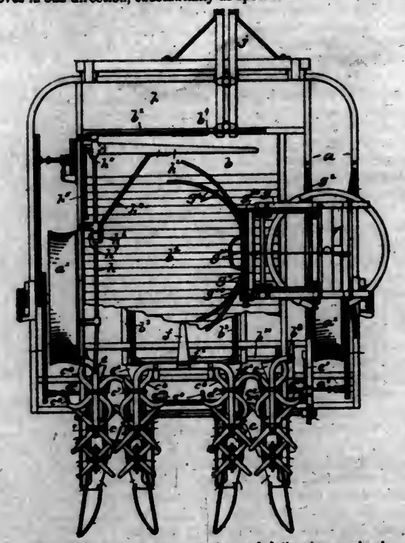
5. In a corn-harvester, the combination with a platform having side passages at its front end provided with cutting and stalk-feeding mechanisms, an elevated holder over the platform to receive the stalks, a longitudinal bar subdividing the holder and separating the stalks and having its rear end inclined, and an arm pivoted to the rear portion of the longitudinal bar and having its rear end beveled to match with the beveled extremity of the said longitudinal bar to support and hold the pivoted arm horizontally, said arm being adapted to fold upon the longitudinal bar and assist in supporting the stalks as they are received upon the platform, substantially as set forth.

605,122. CORN-HARVESTER. JOHN H. NEWELL, Urbana, Ohio. Filed Jan. 14, 1896. Serial No. 576,080. (No model.)

Claim.—1. In a corn-harvester having projecting guides and cutting mechanism between said guides, hinged gathering-fingers pivoted at the front of said guiding projections, said fingers being each formed of a single piece, the rear end of which is bent in the arc of a circle, and a bearing in the guide through which the bent portion is adapted to slide, and means for raising and lowering said fingers on their pivoted connections, substantially as specified.

2. In a corn-harvester, a cutting apparatus and a gathering apparatus, said gathering apparatus consisting of vertical shafts having radial arms arranged on each side of and above said cutting apparatus, with the radial arms adapted to overlap and cross the throat of said cutting apparatus, in combination with packers, each consisting of a series of arms mounted on vertical shafts arranged in the rear of said cutting apparatus, each of said arms being radial for a portion of its length and curved concentric to the axis of its supporting-shaft for the remainder of its length, with the radial portion adapted to overlap the radial arms of the gathering device, substantially as and for the purpose specified.

3. The combination with the cutting mechanism, and the reciprocally-movable platform having an abutment, as described, of a hinged arm mounted adjustably above said platform and abutment and adapted normally to remain stationary to retard the tops of the corn while the butts move with the platform when the said platform moves in one direction, substantially as specified.



4. The combination with a cutting and delivering mechanism, of a movable platform and abutment as described, a shocking device adapted to be turned to different positions with relation to said platform, said abutment being formed in two parts, one of said parts being movable to permit the free movement of said shocking device, substantially as specified.

5. The combination with a movable platform, a movable shocker and an abutment, said abutment being formed in two parts, one of which is adjustable as described, and an adjustable arm or bar arranged above said platform and above said abutment, said arm being provided with a brace, substantially as and for the purpose specified.

6. In a corn-harvester, the combination with a movable platform and abutment, a movable shocking device having a hinged frame as described, of a spreader consisting essentially of a frame hinged to the frame of said shocking device, said spreader-frame having mounted therein pivoted arms, and means for moving said arms in said spreader-frame independent of the hinged movement of said frame, substantially as specified.

7. In a corn-harvester, a shocking device consisting essentially of a main frame and a movable frame, a compressing device on said movable frame, and a spreader hinged to said movable frame, said spreader consisting essentially of a frame having pivoted arms therein, and means for retracting and extending said arms, substantially as specified.

8. The combination with a shocking device having a movable part on which the shock is formed, of a pivoted frame hinged to said movable part and having a slotted opening therein, a series of pivoted arms connected to a sliding bar arranged within said slotted opening, a backwardly-extending arm having holding devices for said bar, said pivoted arms being so constructed as to be drawn wholly within said slotted opening or extended therefrom by means of said bar, substantially as and for the purpose specified.

9. The combination with the main frame and a cutting device, of a tongue connected to the rear of said frame, a guiding-wheel supporting said tongue, said wheel being formed in sections, each section being journaled independently on the same axle, one or more of said sections having a plain periphery and the remaining section or sections being flanged on the periphery, substantially as specified.

10. A caster or guiding-wheel for corn-harvesters or similar devices consisting essentially of a yoke, and an axle extending through the same, three independent wheels or wheel-sections journaled loosely on said axle, the middle section having a plain periphery and the outer sections having peripheral flanges, substantially as specified.

11. A caster or guiding-wheel for corn-harvesters or similar machines consisting essentially of a pivoted yoke and an axle therein, independent wheel-sections journaled on said axle, one or more of

said wheel-sections having a plain periphery and the remaining sections being flanged on the periphery, substantially as specified.

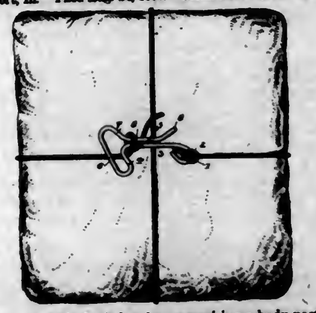
12. In a shocking device, the combination with a main traveling frame, an auxiliary frame sliding in bearings on said main frame, intermediate bars on said sliding auxiliary frame arranged slightly in advance and removed from said auxiliary frame and connected thereto at a point above said sliding bearings, and shock-supporting arms on said intermediate bars, one of said arms being connected to said intermediate bars below the point of connection to said sliding frame, substantially as specified.

13. The combination with a main traveling frame, and a sliding auxiliary frame hinged thereto, intermediate bars connected to said auxiliary frame and adapted to extend downwardly in front of and parallel with said auxiliary frame to a point below the bearings in which said frame slides, and a spreader and shocking-arms supported on said intermediate bars, said shocking-arms being secured to said intermediate bars below the point of attachment to said auxiliary frame, substantially as specified.

14. The combination with a cutting device, and a backwardly-moving platform having an abutment as described, a series of radial arms supported on vertical shafts arranged on each side of said cutting apparatus, with the radial arms extending across and above said cutting apparatus, a series of packer-arms also mounted on vertical shafts in the rear of said radial arms and adapted to coact therewith, said packer-arms being formed radial for a portion of their lengths and concentric with their axes on their outer peripheries, with the radial portions adapted to overlap the adjacent radial arms, the concentric portions being adapted to deliver and press the stalks operated on onto said movable platform, substantially as specified.

15. The combination with a traveling platform and an abutment thereon, a cutting mechanism having vertical shafts arranged in series on each side thereof, a portion of said shafts having radial arms adapted to move across and above said cutting apparatus, and the remaining shafts being provided with radial arms having curved concentric extremities as described, reciprocating butters also arranged on each side of said cutting apparatus and arranged below said arms having the curved extremities, and means for simultaneously reciprocating said butters, substantially as specified.

605,123. TIE FOR BALES, BUNDLES, &c. ANTHONY NICKLAS, Freeport, Ill. Filed Aug. 24, 1897. Serial No. 649,209. (No model.)



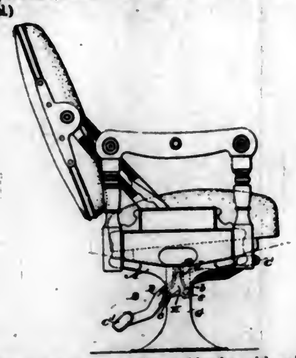
Claim.—1. A tie for bales, &c., comprising a body portion having at one end a shoulder and having on the side opposite the shoulder a spring-tongue, said tongue extending adjacent to the body portion parallel or substantially so to the same; whereby a cord or band may be passed around the body portion and tongue and against the shoulder and have its end firmly secured between the tongue and body portion.

2. A tie for bales, &c., formed from a single piece of wire bent to form a body portion 3, an inclined shoulder 4 at one end, and a spring-tongue 5 extending adjacent to the body portion toward its opposite end parallel or substantially so to the same.

3. A tie for bales, &c., formed from a single piece of wire bent to form a body portion 3, an eye 1 at one end arranged to one side of the longitudinal axis of the body portion, a shoulder at the opposite end of the body portion extending in the same direction as the eye, and a spring-tongue on the side of the body portion opposite the eye, said tongue extending from the shoulder parallel or substantially so to the body portion.

4. A tie for bales, &c., consisting of a single piece of wire bent to form an eye 1, and extending straight to form a body portion 3, then laterally at an acute angle, as at 4 to form a hook 4×, then returning on itself and extending toward the body portion at an inclination as at 6, then parallel or substantially so to the body portion as at 5 in the form of a spring-tongue.

605,124. FOOT-REST FOR CAR-SEATS. WILLIAM M. NEWMANN, Philadelphia, Pa., assignor to the Hale & Kilburn Manufacturing Company, of Pennsylvania. Filed July 28, 1897. Serial No. 646,165. (No model.)



Claim.—1. In a car-seat, the combination with end supports, of a rocking-foot-rest frame, and connecting supporting devices between the rocking-foot-rest frame and the end supports, consisting of a trifurcate groove or slot on the end support and a pair of pins or projections on the foot-rest frame adapted to engage simultaneously two arms of the trifurcate groove or slot.

2. In a car-seat, the combination with end supports each provided with a trifurcate slot or groove H, of a rocking-foot-rest frame B, composed of two longitudinal foot-rest bars C, C, and cross-bars D, D each provided with projections *d*, *e*, adapted to engage the trifurcate grooves or slots H, substantially as and for the purposes described.

605,125. STOPPER. WILLIAM HUTZ, Indianapolis, Ind. Filed Jan. 14, 1896. Serial No. 666,700. (No model.)

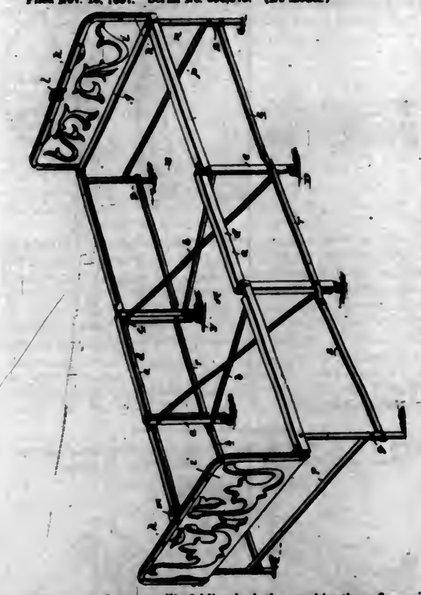


Claim.—1. The combination with a flexible stopper having a socket therein, of an expanding device in said socket, said expanding device comprising a split thimble, a thumb-piece adapted to turn freely therein, and a screw adapted to enter the thimble and a socket in the thumb-piece, said screw having a head to engage the inner wall of the thimble and force the same outwardly or permit it to contract according to the direction in which the thumb-piece is turned, substantially as set forth.

2. The combination with a flexible stopper having a socket therein, of an expanding device for said stopper, said expanding device comprising a slit thimble, having a portion of its interior made tapering, an internally-screw-threaded thumb-piece adapted to enter said thimble, and a screw adapted to enter the tapering interior of the thimble and bear against the wall thereof, said screw being also adapted to enter the screw-threaded interior of the thumb-piece, whereby the turning of the thumb-piece will move the screw and cause the split thimble to be expanded or contracted, substantially as set forth.

3. The combination with a flexible stopper having a socket therein, of an expanding device adapted to enter said socket, said expanding device comprising a thimble having longitudinal slits, an annular shoulder within said thimble, the portion of the thimble below said shoulder being tapering internally, a thumb-piece having a screw-threaded socket and adapted to loosely enter the upper end of the thimble and rest on said internal annular shoulder, a screw adapted to enter said screw-threaded socket in the thumb-piece, a head on said screw disposed within the tapering portion of the thimble and a pin or projection on said head of the screw and adapted to move in one of the longitudinal slots in the thimble whereby to prevent said screw from turning, substantially as set forth.

605,126. FOLDING BED. ROBERT C. ORELL, New York, N. Y. Filed Nov. 19, 1897. Serial No. 658,875. (No model.)

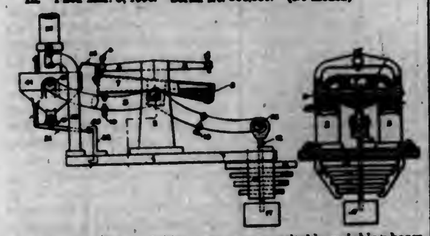


Claim.—1. In a metallic folding bed, the combination of a main frame comprising a body and end sections pivotally connected with the body and adapted to swing in a vertical plane, a suitable means for supporting the end sections in their horizontal position, and end boards connected to the end sections and each comprising a thin plate of sheet metal susceptible of being embossed and possessing resiliency and a suitable marginal reinforcement; one of said boards being provided with a keeper-loop and the other with a hook whereby they may be connected when the bed is folded, substantially as specified.

2. In a metallic bed, the combination of a frame having an angle-iron leg, a caster having a shank provided with an aperture, a piece of sheet metal looped to form a bight and having its ends riveted to the leg, and a pintle extending through the aperture of the caster-shank and having a head at its lower end and also having its upper portion held by frictional contact in the loop of sheet metal, substantially as specified.

3. In a metallic bed, the combination of a frame having a suitable leg, a pintle, a caster loosely mounted on the pintle so as to turn thereon, and a piece of sheet metal tightly looped around the pintle so as to hold the same by frictional contact and having its ends connected to the legs, substantially as specified.

605,127. WEIGHING APPARATUS. FRANKLIN W. OLIN, Alton, Ill. Filed Mar. 5, 1896. Serial No. 581,980. (No model.)



Claim.—1. In a weighing apparatus, a suitable weighing-beam, a tilting receptacle independent of said beam, a shifting liquid contents for said receptacle adapted to be shifted from one end of the receptacle to the other upon the successive tiltings of the weighing-beam, and mechanism arranged to be operated by such tilting receptacle, substantially as set forth.

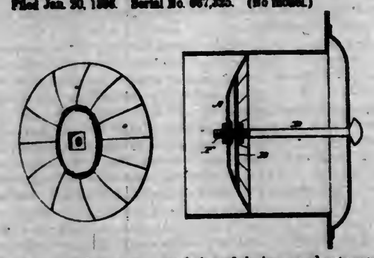
2. In a weighing apparatus, a suitable weighing-beam, a tilting receptacle independent of said beam, a liquid contents for said receptacle independent of said beam actuated by the swinging of the beam, a mercury contents for said receptacle adapted to shift from one end of the receptacle to the other with each swing of the beam or tilting of the receptacle, a suitable source of supply for the material to be weighed, and intermediate connections between the mercury-receptacle and said source of supply whereby the latter is controlled with each oscillation of the receptacle, substantially as set forth.

4. In a weighing apparatus, a suitable receptacle pivoted at its medial portion, a bottom for the same inclining downward on each side from the pivotal line of the receptacle, means for limiting the degree of tilt or inclination for said receptacle, a mercury contents for said receptacle, the surface of said mercury when resting on the inclined bottom on one side of the pivotal line being substantially on a level with the inclined bottom on the opposite side of the pivotal line, whereby upon a sufficient impact against the bottom on which the mercury rests the latter will gradually shift to the opposite end of the receptacle, substantially as set forth.

5. In a weighing apparatus, a suitable weighing-beam pivoted on a suitable frame, a receptacle pivoted independently on said frame and actuated by the swinging of the beam, a mercury contents for said receptacle adapted to shift the center of gravity of the receptacle with each swing of the beam, a suitable source of supply for the material to be weighed, and intermediate connections between the receptacle and said source of supply for controlling the latter, substantially as set forth.

6. In a weighing apparatus, a suitable frame, a receptacle pivoted on the same and having a shifting contents, an oscillating or swinging beam actuating said receptacle, suitable arms carried by the frame and having adjustable bolts for limiting the degree of oscillation of the receptacle, a suitable hopper, a spring-actuated plate for closing and opening the mouth of said hopper, a conical head carried at one end of the plate, a spring-arm having a terminal catch adapted to engage the head, a trigger pivoted on the outer wall of the hopper and having one arm interposed permanently between the mouth of the hopper and the base of the conical head, an arm carried by the adjacent end of the receptacle, a finger carried at the end of the arm adapted to engage the second arm of the trigger upon oscillation of the receptacle in one direction, and an extension forming a part of the arm carried by the receptacle adapted to actuate the catch and release the conical head therefrom upon the oscillation of the receptacle in the opposite direction, substantially as set forth.

605,128. FLUE-STOPPER. JAMES M. PADGETT, Topeka, Kans. Filed Jan. 30, 1896. Serial No. 667,295. (No model.)



Claim.—A flue-stopper consisting of the inner and outer sections, the inner section being dished and slit radially from its edge toward its center, a clamping-disk fitted to the dished side of the inner section of the stopper, said sections and the clamping-disk provided with alined openings, the said inner section of the stopper being provided on its outer convex face around its opening with a nut-seat, a bolt extending through the holes in the stopper-sections and the disk, a stop shoulder or nut secured on the bolt at the inner side of the disk, and a nut seated in the recess of the inner section of the stopper against rotation, whereby when said bolt is rotated the circumference of the inner section of the stopper will be varied, substantially as set forth.

605,129. HEAT OR COLD INDICATOR. EMIL B. PETERSEN, Kearny, N. J. Filed Aug. 11, 1897. Serial No. 647,862. (No model.)

Claim.—1. In a heat or cold indicator, the combination, with an indicating mechanism, of a base-plate, a longitudinal channel or chamber therein, a metallic strip in said channel or chamber, secured at one end to said base, and a pivoted lever on said base, with which

the other end of said strip is connected, and said lever being adapted to actuate said indicating mechanism.



2. In a heat or cold indicator, the combination, with an indicating mechanism, of a channeled base-plate *a*, a tension device at one end of said base, a pivoted lever at the opposite end of said base, and a strip supported at its ends by said tension device and said lever, said lever being adapted to actuate said indicating mechanism, substantially as and for the purposes set forth.

3. In a heat or cold indicator, the combination, with an indicating mechanism, of a channeled base-plate *a*, a tension device at one end of said base, consisting, essentially, of a hook-shaped rod *b* and an adjusting screw or nut thereon, a pivoted lever *c* at the opposite end of said base, having a hook-shaped end *c'*, and a strip supported at its ends by said hook-shaped rod *b* and the hook end of said lever *c*, said lever being adapted to actuate said indicating mechanism, substantially as and for the purposes set forth.

4. In a heat or cold indicator, in combination, with a base, having a longitudinal channel or chamber therein, a metallic strip in said channel or chamber, secured at one end to said base, a pivoted lever on said base, with which the other end of said strip is connected, and an electrical-contact device, adapted to be actuated by said lever, substantially as and for the purposes set forth.

5. In a heat or cold indicator, in combination, with a base, having a longitudinal channel or chamber therein, a metallic strip in said channel or chamber, secured at one end to said base, a pivoted lever on said base, with which the other end of said strip is connected, and an electrical-contact device, consisting, essentially, of a fixed contact-arm f^5 and a pivoted contact-arm f^6 adapted to be engaged by the end of said lever, to cause said arms to make electrical contact, substantially as and for the purposes set forth.

6. In a heat or cold indicator, in combination, with a base, an index-dial, a metallic strip, secured at one end to said base, a pivoted lever on said base, a tension device on said base, a strip supported at its ends by said tension device and said lever, and an electrical-contact device, adapted to be actuated by said lever, substantially as and for the purposes set forth.

7. In a heat or cold indicator, in combination, with a channeled base, an index-dial, and a tension device at one end of said base, a pivoted lever at the other end of said base, a strip supported at its ends by said tension device and said lever, and an electrical-contact device, consisting, essentially, of a fixed contact-arm f^5 and a pivoted contact-arm f^6 adapted to be engaged by the end of said lever, to cause said arms to make electrical contact, substantially as and for the purposes set forth.

8. In a heat or cold indicator, in combination, with a channeled base, an index-dial and a tension device at one end of said base, consisting of a hook-shaped rod *b* and an adjusting screw or nut thereon, a pivoted lever *c* at the opposite end of said base, having a hook end *c'*, a strip supported at its ends by said hook-shaped rod *b* and the hook end of said lever *c*, and an electrical-contact device, adapted to be actuated by said lever substantially as and for the purposes set forth.

9. In a heat or cold indicator, in combination with a channeled base, an index-dial and a tension device at one end of said base, consisting of a hook-shaped rod *b* and an adjusting screw or nut thereon, a pivoted lever *c* at the opposite end of said base, having a hook end *c'*, a strip supported at its ends by said hook-shaped rod *b* and the hook end of said lever *c*, and an electrical-contact device consisting, essentially, of a fixed contact-arm f^5 and a pivoted contact-arm f^6 adapted to be engaged by the end of said lever, to cause said arms to make electrical contact, substantially as and for the purposes set forth.

605,180. BUTTON. LEWIS A. PLATT, Waterbury, Conn., administrator of Irving G. Platt, deceased. Filed June 10, 1897. Serial No. 640,179. (No model.)



Claim.—1. A button formed with a hub or shank in the form of a truncated cone, and containing a movable severed ring, and a tack or fastener passed through the bottom of said button and through said ring, and bearing against said ring, and means for retaining said ring in position, substantially as described.

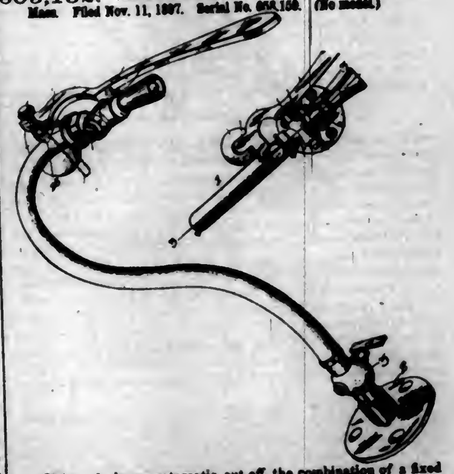
2. A button having a hollow hub or shank in the form of a truncated cone, and provided with an internal rib, a movable severed ring contained in said hub, between the bottom thereof and said rib, and a conical tack or fastener adapted to pass through said ring and be held thereby, substantially as described.

605,181. SPARK-EXTINGUISHER. MAX PEMBER, Marxville, Wis. Filed Dec. 6, 1897. Serial No. 660,889. (No model.)



Claim.—The combination with a smoke-stack, and an exhaust-nozzle below said stack, of an insertible spark-arrester slipped into the stack to rest upon the exhaust-nozzle and comprising an elongated tube, 5, of less diameter than the stack, a short lower tube, 6, situated below the tube, 5, and arranged in the plane of the vertical axis thereof to rest upon the exhaust-nozzle, the inclined arms which join the tubes rigidly together and are spaced to provide large openings for the passage of the products of combustion to the elongated tube, an inverted conical deflector, 7, with its apex extending into the elongated tube, and arms which join the deflector to the tube, substantially as described.

605,182. CUT-OFF FOR GAS-JETS. LAWSON RANAGE, Holyoke, Mass. Filed Nov. 11, 1897. Serial No. 658,159. (No model.)



Claim.—1. In an automatic cut-off, the combination of a fixed stand-pipe, a valve attached to said pipe, a burner-tip secured to the valve, a horizontal vertically-movable lever attached to the valve-plug and projecting in advance of the burner-tip, and a retractor for the lever and valve, substantially as described.

2. In an automatic cut-off, the combination of a fixed stand-pipe, a valve attached thereto, a horizontal burner projecting from the pipe and valve, a horizontal vertically-movable lever attached to the valve-plug and having one end thereof extending in advance of the burner-tip, a retractor for returning the lever and valve to their normal positions, and means for limiting the return movement of the valve under the influence of the retractor, substantially as described.

3. In an automatic cut-off, the combination with a fixed stand-pipe, a valve thereon, of a horizontal burner-tip projecting in advance of the pipe and valve, a horizontal vertically-movable operating-lever fixed at a point intermediate of its length to the valve-plug to turn therewith and having its front end projecting in advance of the burner-tip, a retractor connected with the heel of the lever, and an adjustable stop-screw carried by the heel of the lever and adapted to engage with the stand-pipe, substantially as described.

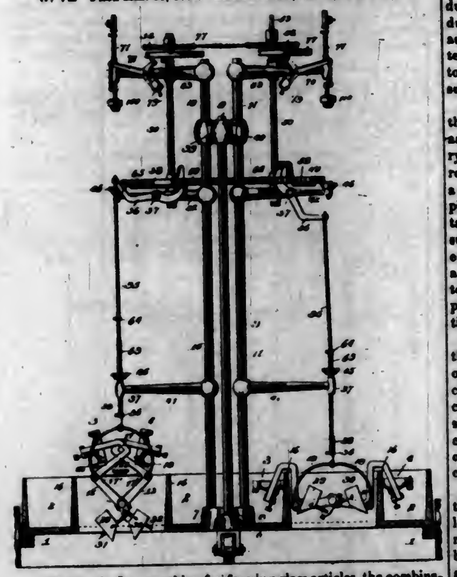
4. In a cut-off for gas-burners, the combination with a stand-pipe and a valve, of a horizontally-arranged burner, a horizontal protector-hood attached to the valve and surrounding the burner, and an operating-lever connected to the valve and having its free end projecting in advance of the hood, for the purpose described, substantially as set forth.

5. In a cut-off for gas-burners, the valve having an axially-turning plug, a valve-shell in which the plug is seated, the horizontal nozzle attached to the valve-shell, a burner tip attached to the nozzle, and a horizontal flame-protector hood attached to the nozzle to surround the burner-tip, in combination with a vertically-movable lever provided, at an intermediate point of its length, with a lug which is attached to the valve-plug, means for returning the lever and valve-plug to a position to insure a limited flow of gas to the burner-tip, and means for limiting the play of the lever and valve, substantially as described.

6. In a cut-off for gas-burners, the combination with a valve, and a burner, of a vertically-movable lever attached to a turning plug of said valve and provided, at its rear end, with branches or arms, an adjustable stop-screw mounted in one of said arms, and a drop-weight carried by the other arm, substantially as described.

7. In a cut-off for gas-burners, the combination with a fixed stand-pipe, a valve and a burner, of a lever operatively connected with the valve-plug to open the same, and having one end extending in advance of the burner, a flexible stop-chain attached to the stand-pipe and the lever, for arresting the movement of the lever and the valve-plug when the former is operated to open said valve, and a retractor to return the lever and valve-plug to their normal positions, substantially as and for the purposes described.

605,183. GLASS-MOLD. HENRY I. REINHARDT, Wheeling, W. Va. Filed Mar. 18, 1897. Serial No. 628,163. (No model.)



Claim.—1. In a machine for forming glass articles, the combination with the mechanically-operated mold-sections, of a blowpipe, means for supporting the same, means for imparting to said blowpipe a rotary movement, and an air-conduit adapted to automatically lower on and raise from the blowpipe after the placing of said blowpipe in its operative position in the machine, substantially as specified.

2. In a machine for forming glass articles, the combination with the mold-sections, of a blowpipe, an air-conduit, and means for automatically opening and closing the mold sections, rotating the blowpipe, and coupling and uncoupling the air-conduit, said means comprising a lever suitably connected with the mold-sections, a lever connected with the air-conduit, and a driven shaft having assembled thereon and operating therewith, a cam for imparting a periodic movement to the said mold-operating lever, a wheel adapted to rotate the blowpipe, and a segment or cam for engaging and operating the lever for raising and lowering the air-conduit, substantially as and for the purpose set forth.

3. In a machine for forming glass articles, the combination with the mold-sections, of a blowpipe, means for supporting the same in operative position to the said mold-sections, an air-conduit adapted to be lowered onto the blowpipe and raised therefrom during the operation of the machine, a lever for operating said air-conduit, a lever for operating the mold-sections, a shaft carrying means, substantially as described, for operating said levers and rotating the blowpipe, and a clutch mechanism carried by said shaft for imparting an intermittent movement thereto and adapted to be automatically thrown into engagement with a constantly-driven shaft by the introduction of the blowpipe, and automatically thrown out of engagement with said constantly-driven shaft upon the completion of each revolution of the shaft carrying the clutch, substantially as set forth.

4. In a machine for forming glass articles, the combination with the rotatable blowpipe, air-conduit, and means for operating the same, of a two-part mold having the sections thereof mounted upon pivoted operating-arms, a spring-yoke connecting said operating-arms, a reciprocatory rod connecting said spring-yoke, a lever for reciprocating said rod, and a rotatable shaft, and a cam mounted on said shaft adapted to impart an intermittent movement to said lever, substantially as set forth.

5. In a machine for forming glass articles, the combination with the mold formed in sections, means for operating the same, and an air-conduit, of a removable blowpipe adapted to be supported in operative position relative to said mold and air-conduit, means for automatically imparting rotation to said blowpipe, the same comprising a gear-wheel carried by a rotatable shaft, and a pinion carried by said blowpipe and adapted to be engaged by said gear, substantially as set forth.

6. In a machine for forming glass articles, the combination with the mold formed in sections, means for operating the same, and a blowpipe supported in operative position to the mold, of an air-conduit and means for automatically lowering and raising the said conduit, the same comprising a lever to which said air-pipe is connected, and a rotatable shaft carrying a cam for imparting to said lever an intermittent movement, whereby to raise the air-conduit and permit it to descend by gravity at the proper point of the machine's operation, substantially as set forth.

7. In a machine for forming glass articles, the combination with the two-part mold and its operating means, a removable blowpipe, an air-conduit, and their operating means, of a rotatable shaft carrying mechanism for automatically opening and closing the mold, rotating said blowpipe, and coupling and uncoupling the air-pipe, and a clutch mechanism comprising a constantly-driven pulley, a locking pin or bolt vertically movable in a support carried by the said rotatable shaft, a sliding block in which said pin is mounted, means such as a spring, for normally exerting a pressure to keep the pin in engagement with the said pulley, and a stationary projection having a cam-face, arranged in the path of the said sliding block, whereby to force it down against the pressure of said spring and release the pin from its engagement with said constantly-driven pulley, substantially as set forth.

8. In a machine for forming glass articles, the combination with the two-part mold having each section thereof carried by a pivoted operating-arm, a spring-yoke connecting said arms, a vertically-reciprocatory rod connected to said yoke and operating to open and close the sections of the mold through the same, a lever to which said rod is connected, a rotatable shaft having mounted thereon a cam, whereby, as the said shaft rotates, the said lever will be acted on by the cam and movement imparted to the rod for opening and closing the mold, substantially as set forth.

9. In a machine for forming glass articles, the combination with the two-part mold having each section carried by pivoted arms or levers, an operating-rod suitably connected thereto, and a lever for reciprocating said rod, of a blowpipe carrying a pinion, adapted to be supported in operative position to said mold, a rotatable shaft, a gear carried thereby adapted to mesh with the blowpipe-pinion, and a cam carried by said gear, and adapted to engage the lever for reciprocating said mold-operating rod, substantially as set forth.

10. In a machine for forming glass articles, the combination with the two-part mold, of a lever, a rod connected thereto and to the mold-sections, and a cam carried by a rotatable shaft, for operating upon the lever, said cam having a vertical face for raising the mold-sections to a position to receive the gathering of glass, an engaging face lying in a horizontal plane, whereby the sections are held against further movement at that point, an inclined face for bringing the mold-sections together through the agency of the lever operated upon thereby, and a segmental track portion lying in a horizontal plane, adapted to hold said lever in the position assumed when the mold is closed and during the time said segmental portion is traveling over the engaged lever, substantially as set forth.

11. In a machine for molding glass articles, having the mold-sections of which adapted to dip into a cooling-tank, and having a blowpipe held in operative position to said mold, the combination of a rod for operating the mold-sections, a lever for reciprocating said rod, a pinion carried by said blowpipe, a main operating-shaft carrying a mutilated gear-wheel, adapted to rotate said blowpipe during a part of the shaft's rotation, and a cam carried by said gear, adapted to engage said lever and through it raise the mold-sections,

bring them into a closed position and hold them closed, said cam being so arranged upon the mutilated gear as to allow the mold-sections to open slightly after the rotation of the blowpipe ceases, and to raise the sections to the position in which they receive the gathering of glass, before there is rotation of the blowpipe, substantially as set forth.

12. In a machine for forming glass articles, the combination with pivoted mold-operating arms, of a divided mold, the sections of which are pivotally mounted upon said arms, respectively, whereby the sections are adapted to turn upon their pivots in a vertical plane during the operation of the machine, and means for opening and closing the mold, as and for the purpose set forth.

13. In a machine for forming glass articles, the combination with a tank, of a sectional mold, pivoted arms carrying the mold-sections and formed with a bend whereby they are adapted to straddle the wall of the tank, and dip the mold-sections into the tank, and means for operating the said arms, substantially as set forth.

14. In a machine for forming glass articles, the combination with a tank, of a sectional mold, pivoted arms carrying the mold-sections, the same having a hooked portion for straddling the wall of the tank, and an extension formed at the end of said hook portion adapted to project over the tank at all times, and means for operating the arms, substantially as set forth.

15. In a machine for forming glass articles, the combination with the tank having a depression in the side wall thereof, of a two-part mold, pivoted arms supporting the same, working in said depression, and means for operating the said arms, substantially as set forth.

16. In a machine for forming glass articles, the combination with the pivoted arms, of a mold-section carried by each arm, and means intermediate the sections and the arms, for adjusting said sections relatively to each other and to the arms, substantially as set forth.

17. In a machine for forming glass articles, the combination with a tank, of a two-part mold, pivoted arms carrying the sections of mold, a spring-yoke connecting said arms, adapted to normally exert a pressure to bring the mold-sections together, a rod connected to said yoke for operating the mold-sections, means for raising said rod, and means for normally exerting the power to force said rod down after it has been raised, whereby the mold-sections may be actuated by gravity in their dipping movement, substantially as set forth.

18. In a machine for forming glass articles, the combination with a tank and the mold-sections adapted to dip therein, of a water-tight chamber extending down into said tank, and having supported therein a foot-rest, substantially as set forth.

19. In a machine for forming glass articles, the combination with the tank and the mold-sections adapted to dip therein, of a water-tight chamber extending down into the tank, a foot-rest supported in said chamber and operating in conjunction with the mold, and a burner, substantially as described, whereby the foot of the article being formed and the foot-rest are kept heated

20. In a machine for forming glass articles, the combination with the mechanically-operated mold-sections, a blowpipe, means for rotating the same, and an air-conduit, of a horizontally-movable coupling carried by said air-conduit, said coupling consisting of a rigid bearing attached to and projecting laterally from the end of the conduit, and a mouthpiece movable thereon, adapted to receive the end of the blowpipe, as and for the purpose set forth.

21. In a machine for forming glass articles comprising mold-sections, a blowpipe, an air-conduit, and means for automatically operating the said specified parts, of the horizontally-movable coupling consisting of a flanged disk and an inclosing portion adapted to slide thereon, having formed therein an opening for the reception of the blowpipe, substantially as set forth.

605,134. MECHANICAL MUSICAL INSTRUMENT. ADOLF RICHTER, Rudolstadt, Germany. Filed Sept. 21, 1896. Serial No. 606,565. (No model.)



Claim.—1. In a mechanical musical instrument, the combination with a steel comb, of a vibratory lever, a star-wheel carried thereby and adapted to rotate thereon and an abutment adapted to engage a tooth of said star-wheel and hold the same against movement to enable the vibratory lever to move the star-wheel into contact with a tongue of the comb to vibrate the same.

2. In a mechanical musical instrument, the combination with a steel comb, of a vibratory lever, a star-wheel carried thereby and adapted to rotate thereon and a pawl adapted to engage a tooth of the star-wheel and hold the same against movement to enable the vibratory lever to move the star-wheel into contact with a tongue of the comb to vibrate the same.

3. In a mechanical musical instrument, the combination of a steel comb, a vibratory lever, a star-wheel carried thereby and adapted to rotate thereon and a pawl pivoted to said lever and controlled by the note-sheet, said pawl being adapted to engage a tooth of the said star-wheel and hold the same against movement to enable the vibratory lever to move the star-wheel into contact with a tongue of the comb to vibrate the same.

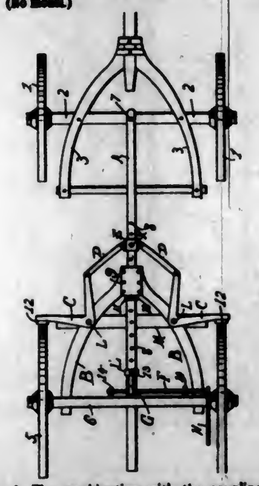
4. In a mechanical musical instrument, the combination with a plurality of steel combs, of a vibratory lever, a plurality of star-wheels carried thereby and adapted to rotate thereon, an abutment adapted to engage a tooth of each of said star-wheels and hold the same against movement to enable the vibratory lever to move the star-wheels into contact with a plurality of tongues of the combs to vibrate the same.

5. In a mechanical musical instrument, the combination with a steel comb, of a vibratory lever, a star wheel carried thereby and adapted to rotate thereon, an abutment adapted to engage a tooth of said star-wheel and hold the same against movement to enable the vibratory lever to move the star-wheel into contact with a tongue of the comb and vibrate the same and a damper controlled by the movement of said lever.

6. In a mechanical musical instrument, the combination of a plurality of guide-pins each of which is adapted to constitute a pivot for a note sheet or disk and means for throwing one of said pins into operative position and for maintaining the other pin or pins out of operative position, substantially as described.

7. In a mechanical musical instrument, the combination of a plurality of movable guide-pins each of which is adapted to constitute a pivot for a note sheet or disk and mechanical means for moving said guide-pins to throw one of said pins into operative position and to maintain the other pin or pins out of the operative position.

605,185. AUTOMATIC WAGON-BRAKE. JOHN G. ROBINSON, Warsaw, Ky. Filed Apr. 10, 1897. Renewed May 2, 1898. Serial No. 680,281. (No model.)



Claim.—1. The combination with the coupling-pole and hind wheels and axle provided with hounds slidingly secured to the coupling-pole, of a brake mechanism including elbow brake-levers pivotally mounted at their elbows on the opposite limbs of the hounds, a sleeve rigidly but removably attached to the coupling-pole in front of the said hounds and connecting-links between said sleeve and the inner arms of the elbow brake-levers, whereby when the hind carriage is moved forward the brakes are automatically applied to the hind wheels.

2. The combination with the coupling-pole and hind wheels and axle provided with hounds slidingly secured to the coupling-pole, of a brake mechanism comprising elbow brake-levers pivotally mounted at their elbows on the opposite limbs of the hounds, a sleeve rigidly but detachably arranged on the coupling-pole in front of the said hounds, connecting-links between said sleeve and the inner arms of the elbow brake-levers and a suitable connection between the axle and the coupling-pole to prevent the hind carriage from moving forward the sliding sleeve on the coupling-pole.

3. The combination with the coupling-pole, hind wheels and axle provided with hounds, of a sleeve uniting the forward end of the hounds and slidingly arranged on the coupling-pole, elbow brake-levers fulcrumed at their elbows on the opposite limbs of the hounds, a sleeve on the coupling-pole in front of the hounds, fastening means to hold said sleeve to a set position on the coupling-pole, links between said sleeve and the inner arms of the brake-levers, a stop on the coupling-pole to prevent the hounds from sliding backward beyond a determined point and means on the axle and coupling-pole to stop the hind carriage from moving forward on the coupling-pole.

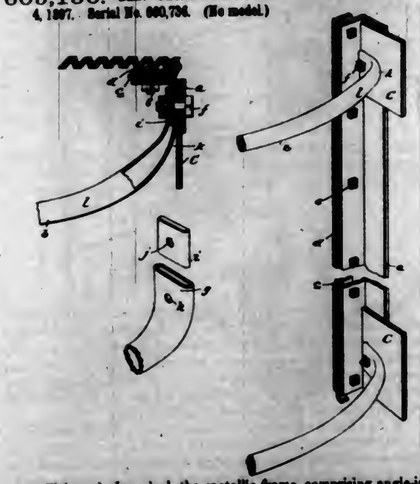
4. The combination with the coupling-pole, hind wheels and axle provided with hounds, of a sleeve uniting the forward end of the hounds and slidingly arranged on the coupling-pole, elbow brake-levers fulcrumed at their elbows on the opposite limbs of the hounds, a sleeve on the coupling-pole in front of the hounds and adjustably secured thereto, an adjustable sleeve or pin to stop the backward movement of the hounds, a stop on the coupling-pole adjacent to the hind axle, a bar supported and journaled to the brake, and provided with a lug to engage the said stop on the coupling-pole and prevent the forward movement of the hind carriage on the coupling-pole.

5. The combination with the brake mechanism arranged to be operated by a forward-sliding movement of the hind carriage of the vehicle, of a stop on the coupling-pole adjacent to the front of the hind axle, bearings secured to the hind axle, a rocking bar journaled and secured in the bearings, and provided with a lug or arm to engage the stop on the coupling-pole and a lever to rock the bar and throw the lug into and out of engagement with the stop on the coupling-pole.

6. The combination with the brake mechanism arranged to be operated by the forward-sliding movement of the hind carriage, of the front-bolster bearing-plate on the under face of the bolster formed with a transverse, T-shaped slot, and a king-bolt having its head disposed in the slot.

7. The combination with the coupling-pole, hind wheels, and axle provided with hounds slidingly secured to the coupling-pole, of a brake mechanism comprising elbow brake levers fulcrumed at their elbows to the opposite limbs of the hounds, a sleeve adjustably secured to the coupling-pole in advance of the hounds, links between the said sleeve and the elbow brake-levers, and a cross-piece secured to the hounds with its ends projecting to serve as supports for the braking-arms of the elbow brake-levers.

605,186. BED. PATRICK B. ROONEY, New York, N. Y. Filed Dec. 4, 1897. Serial No. 660,736. (No model.)



Claim.—1. In a bed, the metallic frame comprising angle-iron end bars having upper portions for the attachment of a mattress and also having other, depending portions and depending extensions thereon adapted to bear on the rails of a bedstead and form supports for elevating the mattress above the rails, the said mattress connected to the upper portions of the angle-iron end bars, and longitudinal bars interposed between the depending portions of the angle-iron end bars and connected with said end bars, substantially as and for the purpose described.

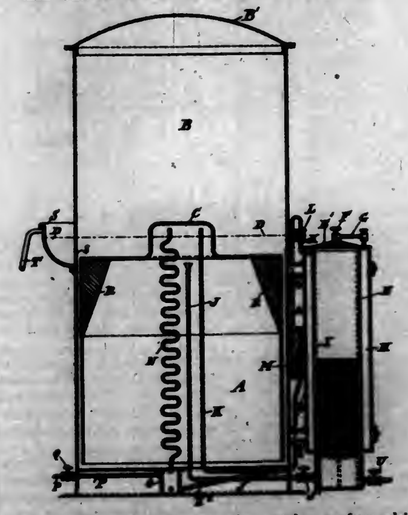
2. In a bed, a suitable mattress, and a metallic frame comprising end bars of angular form in cross-section having portions for the attachment of a mattress and also having depending portions adapted to bear on the rails of a bedstead and form supports for elevating the mattress above said rails, tubular, longitudinal bars having their end portions flattened and bent upwardly, and bolts taking through and connecting the flattened ends of the longitudinal bars and the depending portions of the end bars, substantially as specified.

3. In a bed, a suitable mattress and a metallic frame comprising end bars of angular form in cross-section having portions for the attachment of a mattress and also having depending portions adapted to bear on the rails of a bedstead and form supports for elevating the mattress above said rails, the longitudinal truss-bars having their end portions bent upwardly and flattened and also having reinforcing-pieces welded in said flattened portions, and bolts taking through and connecting the flattened and reinforced end portions of the truss-bars and the depending portions of the end bars, substantially as specified.

4. In a bed, a metallic frame comprising end bars of angle-iron having a horizontal portion and a depending vertical portion, a mattress connected to the horizontal portions of said angle-irons, plates arranged adjacent to the ends of the angle-irons and extending below the same whereby they are adapted to bear on the rails of a bedstead and support the mattress in an elevated position, longitudinal truss-bars having the upwardly-directed end portions, and bolts connecting the said end portions of the truss-bars, the depending portions of the end bars and the plates or supports, substantially as specified.

5. In a bed, a mattress, and the metallic frame comprising angle-iron end bars having upper portions for the attachment of the mattress and also having other, depending portions, the metallic plates connected to the depending portions of the angle-iron end bars and adapted to bear on the rails of a bedstead and form supports for elevating the mattress above the rails, and the longitudinal, tubular bars interposed between the depending portions of the angle-iron end bars and also between the metallic plates thereon and connected with said end bars, substantially as specified.

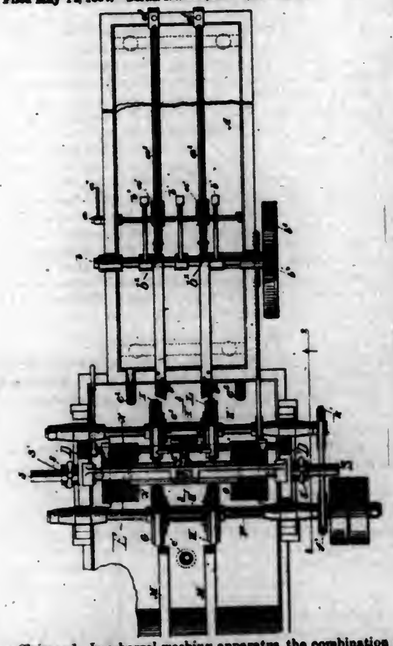
605,187. APPARATUS FOR GENERATING ACETYLENE GAS. JOHN W. SCARTH, Pudsey, and WILLIAM A. THORNTON, Wetherby, England. Filed Oct. 25, 1897. Serial No. 656,239. (No model.)



Claim.—In apparatus for generating acetylene gas from calcium carbid, the combination of the gas-holder A inclosed within a water-cylinder B partially filled with water and provided with an inlet-funnel S and overflow-pipe T, a gas-chamber C in top of the said gas-holder, a conical displacer E arranged within the said gas-holder near its top, a gas-generating chamber E arranged at the side of the said water-cylinder, closed at its top by lid E' and provided with a water-jacket H in communication at its top and bottom by means of pipes A A' with the said water-cylinder, bridge G and screw F for retaining the lid E' in position, perforated carbid-holder I inserted within the generator E, a cartridge-case V constructed as described, and provided at its base and sides with strengthening-pieces W and at its top with a loop Y, for receiving the charge of calcium carbid, water-pipe J communicating respectively with the bottom of generator E, and interior of the gas-holder A, and armed with a stop-cock J', gas-pipe K divided into two portions, one of which is armed with a stop-cock

L, said gas-pipe being in communication at its extreme ends respectively with the gas-chamber C and top of the generating-chamber I, a water-lock M interposed between the extremities of the said gas-pipe for receiving the divided ends, a gas-cooling coil N in communication with the gas-chamber C and a collecting-box, a collecting-box O arranged at the base of the water-cylinder, a service-pipe P armed with a stop-cock Q in communication with said collecting-box, and a discharge-cock U arranged at the bottom of the generator, all arranged and operating as set forth.

605,188. BARREL-WASHER. GUSTAV SCHOCK, New York, N. Y. Filed May 14, 1897. Serial No. 636,435. (No model.)



Claim.—1. In a barrel-washing apparatus, the combination of a barrel-feed tank, an inclined run in said tank adapted to support a plurality of barrels and to enable them to move thereon in one direction and revolving hooks and means for revolving them in the opposite direction so that they will mechanically pick the first of said barrels off of the inclined run in the feed-tank, substantially as described.

2. In an apparatus for soaking, scrubbing and washing barrels at one continuous operation, the combination of a scrubbing device, a feed-tank, mechanism for transferring the barrels from the feed-tank to the scrubber and gravity-runs within the feed-tank for automatically feeding barrels in one direction to the transferring mechanism moving in the opposite direction.

3. In a barrel-washing apparatus, the combination of a barrel-feed tank, gravity-runs therein in pivotal connection with the tank, and means for adjusting the said runs so as to give the keg the desired quantity of water so that large and small packages can be supplied with water to the desired extent, substantially as described.

4. In a barrel-washing apparatus, the combination of a barrel-feed tank, movable gravity-runs therein, means for raising and lowering one end of the runs whereby to supply the barrels on the runs with the desired quantity of water, and means for lifting the barrels off of said runs.

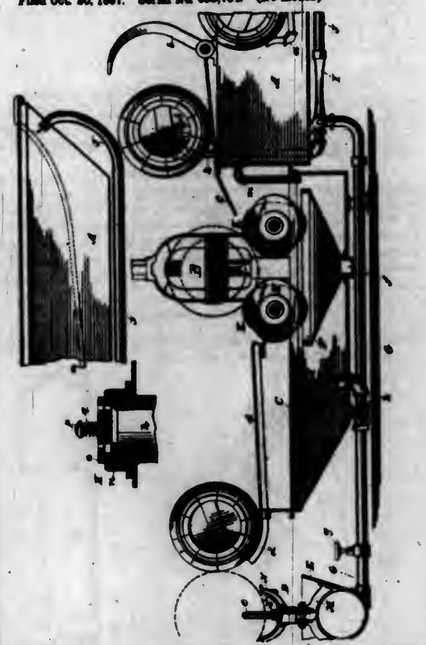
5. In a barrel-washing apparatus, the combination of a barrel-feed tank, gravity-runs therein, arms for picking up barrels from the gravity-runs and delivering the same from the tank, and gear for operating the arms in a direction opposite to the motion of the barrels on the gravity-runs.

6. In a machine of the character described, the combination of barrel-carrying wheels comprising a spider grooved at the edge and provided with dowel-pins n^2, a plurality of adjacent blocks n^3 embracing the dowel-pins, and key-blocks n^4 secured to the wheels to lock the blocks in place.

7. In an apparatus for soaking, scrubbing and washing barrels by one continuous operation, the combination of a barrel-feed tank, inclined runs therein, means for adjusting the runs to various inclinations, means for lifting the barrels from the barrel-feed tank, and a barrel-scrubber to which the barrels are delivered by the lifting mechanism, the barrel in the scrubber being automatically discharged and replaced by the next succeeding barrel delivered from the lifting means.

8. In an apparatus for soaking, scrubbing and washing barrels by one continuous operation, the combination of a barrel-feed tank adapted to contain a plurality of barrels, inclined gravity-runs within said tank along which runs the barrels are free to move from end to end, a barrel-scrubber, revolving hooks moving in a direction opposite to that of the feed of the barrels, said hooks being adapted to lift the first barrel of the series off the runs and deliver it from above to the scrubber, the barrel in the scrubber being automatically replaced by the next succeeding barrel delivered from the revolving hooks.

605,189. BARREL-WASHER. GUSTAV SCHOCK, New York, N. Y. Filed Oct. 20, 1897. Serial No. 655,784. (No model.)



Claim.—1. In an apparatus for handling and cleaning barrels, the combination of a soaking-tank, an intermediate tank having a barrel-scrubbing apparatus, and a sprinkling-tank, having a sprinkling apparatus in operative combination with each other and a circulating system connecting the sprinkling-tank and the soaking tank, whereby the clean water employed for sprinkling the barrels is drawn off for use in the soaking-tank, substantially as described.

2. In a barrel handling and cleaning apparatus, the combination of a soaking-tank, an intermediate tank containing a barrel-scrubbing device and a sprinkling-tank having a sprinkling apparatus and combined together in operative relation and a water-circulating system connecting the sprinkling-tank with the soaking-tank and the soaking-tank with the intermediate tank.

3. In a barrel handling and cleaning apparatus, the combination of a soaking-tank, an intermediate tank provided with a barrel-scrubbing apparatus, a sprinkling-tank having a sprinkling apparatus, a water-circulating system connecting the sprinkling-tank and the intermediate tank and a steam-injector in the water-circulating system for heating and effecting the circulation of the water, substantially as described.

4. In a barrel-scrubbing apparatus, the combination of a scrubbing device, a tank and a mud hopper beneath said scrubbing device, the said mud hopper having an outlet adapted to discharge its contents outside of the tank.

5. In a barrel-scrubbing apparatus, the combination of a scrubbing device, a tank therefor and a mud-hopper contained within said tank and located beneath the scrubbing device, the said mud-hopper having an outlet adapted to discharge its contents outside of the tank.

6. In a barrel-scrubbing apparatus, the combination with a supporting frame of a plurality of elliptical barrel-supporting rolls mounted in pairs on separate shafts and placed at right angles to each other on said shafts respectively.

7. In a barrel-scrubbing apparatus, the combination with a supporting-frame of a plurality of elliptical barrel-supporting rolls mounted in pairs on separate shafts and placed at right angles to each other on said shafts respectively, in combination with a pivoted self-adjusting top-brush adapted to bear upon the top of the barrel and to adjust itself to the oscillations of the said barrel.

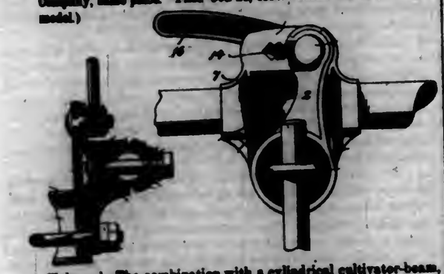
8. In a barrel soaking, washing and scrubbing apparatus, the combination of a soaking-tank, a scrubbing device, an intermediate tank therefor, a mud-hopper beneath said scrubbing device, said mud-hopper having an outlet adapted to discharge its contents outside of the intermediate tank, a sprinkling device, a tank for said sprinkling device and connections between said tanks for conveying water therethrough.

9. In a barrel soaking, washing and scrubbing apparatus, the combination of a soaking-tank, a scrubbing device, an intermediate tank therefor, a mud-hopper beneath said scrubbing device, said mud-hopper having an outlet adapted to discharge its contents outside of the intermediate tank, a sprinkling device, a tank for said sprinkling device, connections between said tanks for conveying water therethrough, the inlet of the soaking-tank being at one end and an outlet in the nature of an overflow at the other end, a steam-injection nozzle in said tank connections for heating the water and maintaining a circulation thereof through and between the tanks and means for controlling the efflux of water from said intermediate and sprinkling tanks.

10. In a sprinkler, the combination of a sprinkler-support, a water-inlet in said support, a valve-section carried by the support, a second coöperating valve-section provided with means for conveying water to the nozzle, barrel-supporting arms separable from but adapted to be supported by said last-named valve-section and a nozzle adapted to be secured to the second-named valve-section and to secure the valve-supporting arms thereto.

11. In a sprinkler, the combination of a sprinkler-support, a water-inlet in said support, a removable valve-section adapted to be secured against movement in the support, a second coöperating valve-section provided with a coned bearing and with means for conveying water therethrough to a nozzle, barrel-supporting arms separable from but adapted to be supported by the cone-bearing of said valve-section and a nozzle adapted to be secured to the second-named valve-section and to secure the barrel-supporting arms upon its cone-bearing.

605,140. ADJUSTABLE CULTIVATOR-TOOTH SEAT. JAMES D. SEMPERLA, Dallas, Tex., assignor to the Texas Implement and Machine Company, same place. Filed Oct. 28, 1897. Serial No. 656,606. (No model.)



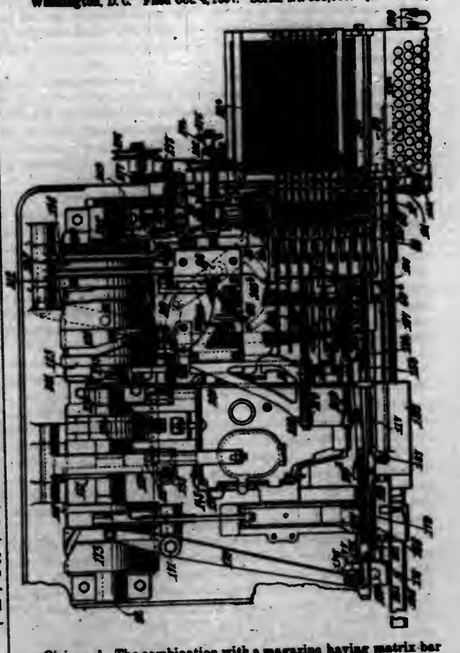
Claim.—1. The combination with a cylindrical cultivator-beam, of a tooth-fastening having a concaved seat fitting said beam, the seat of said fastening being provided with an elongated opening, a bolt passed through the beam and the opening and of less diameter than the length of the opening, and a clamping-washer interposed between the head of the bolt and that portion of the tooth-fastener surrounding the elongated opening.

2. The combination with a cylindrical cultivator-beam, of a cultivator-tooth seat mounted and adapted for circumferential adjustment thereon, and means for securing the said tooth-seat at any point of its said circumferential adjustment.

3. The combination with a cultivator-beam cylindrical in cross-section, of a tooth-fastener having a concaved seat fitting the beam and provided with a vertically-elongated opening having a raised toothed surrounding surface and aligned with smaller, transverse open-

ings formed in the beam, a bolt passing through the openings in the beam and fastener and having a diameter less than the length of the opening in the latter, a nut on the rear end of the bolt and a concaved, toothed washer having an opening fitting the bolt and designed to interlock with the teeth surrounding the opening in the fastener and interposed between the head of the bolt and the fastener.

605,141. MONOLINE COMPOSING-MACHINE. WILBUR S. SWEDER, Brooklyn, N. Y., assignor to the Monoline Composing Company, Washington, D. C. Filed Oct. 4, 1897. Serial No. 653,969. (No model.)



Claim.—1. The combination with a magazine having matrix-bar chambers and channels leading therefrom to the front of the magazine, and pins on the front of the latter, of a transparent door vertically hinged to the magazine and constructed to swing open for access to said channels, and a gravitating door-locking slide having oblique slots receiving said pins, and provided with a projection to be struck by the door when it is closed for moving the slide so that the door will pass thereby and the slide then gravitate to locking position, substantially as described.

2. The combination with a matrix-bar magazine having separate chambers for each species of matrix and a delivery-channel arranged substantially at right angles to each matrix-chamber, and an assembling-box below the delivery-point into which the matrix-bars from all the channels are received, of spring-retracted matrix-bar-delivery gates having projecting lugs, pivoted pawls having hooked extremities engaging said lugs to hold the delivery-gates advanced, detent-levers for operating said pivoted pawls to release the delivery-gates, and means for operating the detent levers, substantially as described.

3. The combination with a magazine having separate chambers for each species of matrix and a delivery-channel extending from each chamber to the point of delivery, and an assembling-box arranged below the delivery-point of said channels, of spring-retracted-delivery-gates which support the matrix-bars in the channels, pivoted pawls having hooked extremities engaging the delivery-gates to hold them advanced against the tension of their springs, detent-levers for operating the pawls to disengage them from the delivery-gates, and a finger-key mechanism connected with the detent-levers, substantially as described.

4. The combination with a space-bar magazine-chamber having a delivery channel, of a space-bar lifter and a space-bar pusher connected together, and a pusher for pressing the space-bar into the delivery-channel when it is raised by the lifter, substantially as described.

5. The combination with a space-bar magazine-chamber having a delivery-channel, of a space-bar lifter, and a spring-pusher moved out of the path of the space-bar by the lifter and serving to press

the space-bar into the delivery-channel when it is raised by the said lifter, substantially as described.

6. The combination with a space-bar magazine-chamber having a delivery-channel, of a space-bar lifter and a space-bar pusher connected together, a spring-pusher for pressing the space-bar into the delivery-channel when it is raised by said lifter, and a friction leaf-spring located in the delivery-channel and acting to temporarily arrest and support the space-bar until it is thrust downward by the space-bar pusher, substantially as described.

7. The combination with a space-bar magazine-chamber having a delivery-channel, of an elbow space-bar lever having one arm overhanging the magazine, a vertical slide connected with one end portion of the overhanging arm and provided with a space-bar lifter and a space-bar pusher, and means for operating said lever, substantially as described.

8. The combination with a magazine space-bar chamber having a delivery-channel, of an elbow space-bar lever pivoted at or near its angle to the rear portion of the magazine and having one arm overhanging the latter, a vertical slide loosely connected with the end portion of the overhanging arm and provided with a space-bar-lifting horn and a space-bar-pushing arm, and means for oscillating the lever, substantially as described.

9. The combination with a space-bar magazine-chamber having a delivery-channel, of an elbow space-bar lever pivoted at or near its angle to the rear portion of the magazine and having one arm overhanging the same, a vertical slide loosely connected with the end portion of the overhanging arm and provided with a space-bar-lifting horn and a space-bar-pushing arm, a retaining device for holding the lever with its overhanging arm lifted, means for releasing said retaining device by the action of the space-bar key, and an oscillator which in its forward motion acts on the lever and resets the same, substantially as described.

10. The combination with the space-bar magazine-chamber having a delivery-channel, of an elbow space-bar lever having one arm overhanging the magazine and the other arm extending vertically in rear thereof, a space-bar lifter and pusher connected with the front end portion of the overhanging arm, a detaining dog or pawl for engaging and retaining the vertical arm of the lever to normally hold the lifter and pusher elevated, means for disengaging the dog or pawl from the lever, a spring connected with the lever for throwing the overhanging arm downward when the lever is disengaged from the dog or pawl, and means for resetting the lever in operative connection with the dog or pawl, substantially as described.

11. The combination with a space-bar magazine-chamber having a delivery-channel, of an elbow space-bar lever having one arm overhanging the magazine and the other arm extending vertically in rear thereof, a space-bar lifter and pusher connected with the front end portion of the overhanging arm, a detaining dog or pawl for engaging and retaining the vertical arm of the lever to normally hold the lifter and pusher elevated, a spring connected with the lever for throwing the overhanging arm downward when the lever is released from the dog or pawl, and an oscillator which in its forward motion acts on the vertical arm of the lever to reset the same and raise the lifter and pusher, substantially as described.

12. The combination with a space-bar magazine-chamber having a delivery-channel, of an elbow space-bar lever pivoted at or near its angle to the magazine and having one arm overhanging the latter, a space-bar lifter and pusher connected with the front end portion of the overhanging arm, a spring connected with the lever to throw the overhanging arm downward, a lever-detaining dog or pawl for holding the lever against the tension of the spring, a space-key connected with the dog or pawl, and an oscillator which in its forward motion resets the lever after it is released by the detaining dog or pawl, substantially as described.

13. The combination with a magazine space-bar chamber having a delivery-channel, a slide having means for first lifting and subsequently pushing downward a space-bar, and means for operating said slide, of a spring-pusher for pressing the space-bar into the delivery-channel when raised by the slide, substantially as described.

14. The combination with a magazine having matrix-bar-delivery gates, means for holding the delivery-gates and throwing them rearward when released, and an oscillator which in its forward movements resets the gates, of means for arresting the back stroke of the oscillator, and means for automatically releasing the said arresting means to permit the oscillator to complete its back stroke, substantially as described.

15. The combination with a magazine, matrix-delivery gates, an oscillator, means by which the oscillator is moved rearward, and a rotary cam and roller by which the oscillator is moved forward, of a stop for arresting the rearward stroke of the oscillator after it is moved forward by the cam and roller, and means for automatically operating said stop to release the oscillator and permit it to complete its rearward stroke, substantially as described.

16. The combination with a magazine having matrix-bar-delivery gates, means for holding the delivery gates to support the matrix-bars and forcing the said gates rearward when released, an oscillator having a rotary cam, and means for operating said cam to throw the oscillator forward, of an arresting device for arresting the back stroke of the oscillator and holding the cam from engagement with its operating means, and means for automatically operating the arresting device to permit the oscillator to complete its back stroke and cause its cam to engage said operating means, substantially as described.

17. The combination with a magazine, matrix-bar-delivery gates, means for holding the delivery-gates advanced to support the matrix-bars, means for moving the delivery-gates rearward when released, and an oscillator which in its forward motions resets the gates, of an arresting device arranged to arrest the back stroke of the oscillator and constructed to be operated by the delivery-gates to release said oscillator, substantially as described.

18. The combination with a magazine, matrix-bar-delivery gates, means for holding the gates advanced to support the matrix-bars, and means for forcing the gates rearward when released, of an oscillator having at its upper portion a series of pivotally mounted levers which respectively act upon the gates when the oscillator is moved forward for advancing said gates into position to support the matrix-bars, substantially as described.

19. The combination with a magazine, matrix-bar-delivery gates, means for holding the gates advanced to support the matrix-bars, and means for forcing the delivery-gates rearward when released, of an oscillator having at its upper end portion a series of independently-movable spring-pressed lever-arms which respectively act on the delivery-gates to advance them to support the matrix-bars when the oscillator is moved forward, substantially as described.

20. The combination with a magazine, matrix-bar-delivery gates, means for holding the delivery-gates advanced to support the matrix-bars, and means for moving the delivery-gates rearward when they are released, of an oscillator having at its upper portion a plurality of spring-pressed pivotally-mounted lever-arms which respectively act upon the delivery-gates to advance them to support the matrix-bars when the oscillator is thrown forward, and an automatic arresting device which arrests the back stroke of the oscillator and is operated by the delivery-gates, to release said oscillator, and permit it to complete its back stroke, substantially as described.

21. The combination with a magazine having matrix-bar chambers and delivery-channels, matrix-bar-delivery gates, devices which hold the delivery-gates advanced, and a keyboard mechanism for releasing the gate-holding devices, of an oscillator having a rotary cam and provided at its top portion with a series of pivotally-mounted lever-arms which act upon the delivery-gates to advance them when the oscillator is swung forward, an arresting device for arresting the back stroke of the oscillator after it has been moved forward to advance a delivery-gate, means for actuating the arresting device to release the oscillator and permit it to complete its back stroke, and means for operating said cam of the oscillator, substantially as described.

22. The combination with a magazine, of spring-pressed delivery-gates arranged side by side and each having a lug, a pawl for each gate, having a hooked end to engage the lug of the gate, and levers constructed to press against the tail ends of said pawls, substantially as described.

23. The combination of a serrated or toothed roller, and means for rotating the same, with an oscillator having a serrated or toothed cam to engage with and be rotated by the serrated or toothed roller, a magazine, matrix-bar-delivery gates which are advanced to support the matrix-bars by the forward motion of the oscillator, and an arresting device which arrests the back stroke of the oscillator and is operated by the delivery-gates to automatically release said oscillator, substantially as described.

24. The combination with a magazine having matrix-bar chambers and delivery-channels, spring-retracted gates, means for retaining the delivery-gates advanced to support the matrix-bars, and means for releasing the gates, of an oscillator having a rotary cam and provided in its top portion with a series of double-armed spring-pressed levers which respectively act upon the rear ends of the gates to advance the same when the oscillator is moved forward, a stop dog or pawl constructed to arrest the back stroke of the oscillator, and provided with a pendent portion arranged in the path of the delivery-gates for operating the stop dog or pawl to release the oscillator, and means for operating the cam of the oscillator, substantially as described.

25. The combination with a magazine having matrix-bar chambers and delivery-channels, of spring-retracted matrix-bar-delivery gates having the lower portions of their rear ends cut away, an oscillator having a series of independently-acting lever-arms at its upper portion, each of which when a gate is retracted rearward, acts upon the uncut portion of the rear end of the said gate, substantially as described.

26. The combination with the delivery-gates, the oscillator having a rotary cam, and means for operating the cam, of a series of double-armed levers pivotally mounted in the upper portion of the oscillator, springs connected respectively with said double-armed levers, and an arresting device which automatically engages the oscillator and arrests its back stroke after it has been moved forward to reset a delivery-gate, said arresting device being operated when a delivery-gate moves rearward to release the oscillator and permit it to complete its back stroke, substantially as described.

27. The combination with the main or line shaft, the drive-gearing for rotating the same, of the oscillator having a rotary cam, a spindle having a roller to operate said cam and provided with means to drive it independent of the drive-gearing which rotates the main or line shaft, a magazine, matrix-bar-delivery gates held advanced to support the matrix-bars, and means for releasing the gates, substantially as described.

28. The combination with the stop-bars for arresting the matrix-bars, means for advancing the stop-bars, and a yoke for retracting the bars, of an oscillator pivotally mounted intermediate its upper and lower end portions, and a loose connection between the said yoke and the lower end of the oscillator below the pivotal point thereof for retracting the yoke by the rearward motion of the lower end of the oscillator, substantially as described.

29. The combination with a main shaft, drive mechanism therefor, the oscillator having a rotary cam, and the roller for operating said rotary cam, of mechanism disconnected from the drive mechanism of the main shaft, for operating said cam-actuating roller, at the will of the operator, independent of the motion of the main-shaft-driving mechanism, substantially as described.

30. The combination with an assembly-box, a reciprocatory ejector therein, an oscillator, and means for operating said oscillator, of a bell-crank lever having one arm loosely engaged directly with the ejector, and a slide-bar connection between the other arm of the lever and the oscillator, for reciprocating the ejector, substantially as described.

31. The combination with an assembly-box, a reciprocatory ejector therein, an oscillator pivoted between its upper and lower ends, and means for operating said oscillator, of a bell-crank lever having one arm connected with the ejector, and a slide-bar joined to the other arm of said lever and connected with the lower end of the oscillator below its pivotal point, substantially as described.

32. The combination with the assembly-box having opening and closing jaws, and an ejector for opening the jaws and ejecting the matrices, of a bar spanning the box and having spring holding-shoulders by which undue spreading of the jaws is prevented and the jaws are closed when the ejector is retracted, substantially as described.

33. The combination with an assembly-box, and means for introducing the matrix-bars therefrom and ejecting them therefrom, of a line-abutment carriage or slide-block having a spring-projected line-abutment finger, a look for locking the finger projected, means for releasing the look, a vibrating lever, means for moving the lever in one direction after the line-abutment finger is released, and a link connection between the carriage or slide-block and the lever, substantially as described.

34. The combination with an assembly-box, and means for introducing the matrix-bars therefrom and ejecting them therefrom, of a line abutment carriage or slide-block having a spring-projected line-abutment finger, a look for locking the finger projected, means for releasing the look, a vibrating lever, means for moving the lever in one direction after the line-abutment finger is released, and a link connection between the carriage or slide-block and the lever, and an audible signal operated by the action of said vibrating lever, substantially as described.

35. The combination with an assembly box, and means for introducing the matrix-bars therefrom and ejecting them therefrom, of a line abutment carriage or slide-block having a spring-projected line-abutment finger, a look for locking the finger projected, means for releasing the look, a vibrating lever, means for moving the lever in one direction after the line-abutment finger is released, a link connection between the carriage or slide-block and the lever, a bell or gong, and a bell hammer or striker operated when the line is approximately of the required length, substantially as described.

36. The combination with a magazine, of a movable line abutment carriage, an angular spring-projected line-abutment finger pivoted to the carriage, a device for locking said finger projected, means for actuating said locking device to release the finger, a spring-actuated vibrating lever, and a connection between said lever and the line-abutment carriage, substantially as described.

37. The combination with a sliding line-abutment carriage, of an angular line-abutment finger pivoted at one extremity thereto, a spring acting on one end of the finger to project the same, a pivoted dog for locking the finger projected, means for swinging the dog to release the finger, a spring-actuated vibratory lever, and a connection between the lever and the said carriage, substantially as described.

38. The combination with a magazine for containing matrix-bars, and an assembling-box, of a carriage or slide having a yielding line-abutment, means for holding and releasing the abutment, a spring-actuated vibratory lever for restoring the carriage to normal position after the line-abutment is released, and a connection between the lever and the carriage, substantially as described.

39. The combination with a magazine for containing matrix-bars, and an assembling-box, of a carriage or slide having a yielding line-abutment, means for holding and releasing the line-abutment, a spring-actuated vibratory lever for restoring the carriage to normal position after the abutment is released and yields inwardly, and audible-signal devices operated by the said vibratory lever for indicating when the line-abutment has nearly reached the point required for producing a line of the necessary length, substantially as described.

40. The combination with the line-carriage having a wing which swings vertically into and out of the line-raceway, of a spring-bolt mounted on a part of the line-carriage and springing into engagement with the wing when it is raised into the line-raceway, a bolt-actuating lever arranged on the carriage and connected with the bolt, and a device in the path of the said lever for retracting the bolt to unlock the wing as the line-carriage is shifted toward the assembly-point, substantially as described.

41. The combination with a line-carriage, means for assembling a line of matrix-bars, a casting mechanism, a primary line-releasing mechanism, and a distributing mechanism, of a secondary line-releasing mechanism by which the line is released as the line-carriage moves from the casting-point to the distributer, substantially as described.

42. The combination with an assembling or composing mechanism, a line-carriage, a casting mechanism, a line-depressor, and a distributer, of two line-releasing mechanisms, one operating to release the line in proper relation to the depressor and the other to release the line in proper relation to the distributer, substantially as described.

43. The combination with the line-depressor, and the distributer, of a line-casting machine, of a traveling line-carriage, and primary and secondary line-releasing mechanisms for releasing the line at two different points in the travel of the line-carriage, substantially as described.

44. The combination with a line-carriage having devices between which the line of matrix-bars is seized, a slide movable vertically on the line-carriage and provided with projecting studs, means operated by the motion of the slide for expanding the line-carriage to release the line, a transversely-movable dog for raising the slide, and a pivoted dog or pawl mounted on the front of the machine and acting on one of said studs to raise said slide and thus effect a second release of the line as the line-carriage is restored to normal position, substantially as described.

45. The combination with a distributer, and a main or primary line-depressor, of a safety or secondary line-depressor, and means for advancing and retracting the safety or secondary line-depressor, substantially as described.

46. The combination with a distributer, and a main or primary line-depressor, of a safety or secondary line-depressor for insuring the correct depression of all the matrix-bars in the line after the main or primary line-depressor has acted, substantially as described.

47. The combination with a distributer, and a main or primary line-depressor, of a safety or secondary line-depressor arranged in the path of the line of matrices to insure their correct depression as the line moves from the main or primary line-depressor toward the distributer, substantially as described.

48. The combination with a distributer, a main or primary line-depressor, a casting-pot, a movable mold-carrying frame, and a mold mounted in said frame, of a safety or secondary line-depressor mounted on the movable mold-carrying frame and advanced and retracted by the movements thereof, substantially as described.

49. The combination with a distributer, a main or primary line-depressor, a casting-pot, a movable mold-carrying frame, and a mold mounted in said frame, of a safety or secondary line-depressor consisting of a plate secured to the mold-carrying frame and having a beveled under side, for insuring the correct depression of all the matrix-bars in the line as the latter moves from the main or primary line-depressor toward the distributer, substantially as described.

50. The combination with the distributer-levers carrying horizontal distributing rods or wires, of mechanism for raising and lowering the outer ends of the distributer-levers and constructed to release the levers and permit loose motion or play of the distributing-wires between their highest and lowest positions, to avoid clamping or holding the matrix-bars as they are elevated, substantially as described.

51. The combination with the distributer-levers carrying the distributing rods or wires, and mechanism for raising and lowering the outer ends of the levers and the distributing-wires, of devices constructed to slightly release the levers and permit a limited loose motion or play of the distributing-wires between their highest and lowest

positions to avoid clamping or gripping the matrix-bars, as the rods or wires rise to the distribution-point, substantially as described.

52. The combination with the pivoted distributer-levers carrying the horizontal distributing rods or wires and provided with tail ends having studs, a vertically-movable slide-bar for raising and lowering the outer ends of the levers, and release-blocks mounted on the slide-bar and having cut-away portions for releasing the tail ends of the levers as the distributing-wires rise to the point of distribution for the purpose of preventing the distributing rods or wires clamping or gripping the matrix-bars as they are moving to the distributing-point, substantially as described.

53. The combination with the pivoted distributer-levers having tail ends provided with roller-studs and carrying at their outer ends the distributing rods or wires, a vertically-movable slide-bar for raising and lowering the outer ends of the levers, and means for operating the slide-bar, of lever-release blocks fixed in the slide-bar and constructed with release-surfaces by which the tail ends of the levers are released between the highest and lowest positions of the distributing rods or wires, substantially as described.

54. The combination with the casting-pot, of a line-casting machine, of the well suspended in the pot and having a bottom wall bodily elevated some distance above and separated from the bottom wall of the pot, said well having the metal-delivery channel or throat, whereby a body of molten metal will lie in the pot between the bottom wall of the latter and the bottom wall of the well, substantially as described.

55. The combination with the mold, and the pot-jacket, of a casting-pot suspended in the jacket, and means for adjusting the pot in the jacket in two planes at right angles to each other, substantially as described.

56. The combination with the mold, and the pot-jacket, of the casting-pot suspended in the jacket, and screws for adjusting the pot in the jacket in two planes at right angles to each other, substantially as described.

57. The combination with a movable justifying-shoe, a casting-pot, and a mold, of a pot cut-off plate, and devices actuated by the justifying-shoe when it unduly rises, due to the presence of a loose line, to move said cut-off plate into position to close the mouth of the casting-pot, substantially as described.

58. The combination with a justifying mechanism, a casting-pot, and a mold, of a pot cut-off mechanism operated by the justifying mechanism to close the mouth of the pot when the justifying mechanism unduly moves due to the presence of a loose line, substantially as described.

59. The combination with a justifying-shoe, a casting-pot, and a mold, of a pot cut-off arranged to close the mouth of the casting-pot, a spring-actuated lever connected with the pot cut-off, a bell crank lever connected with the said lever for operating the same when the justifying-shoe unduly rises due to the presence of a loose line, a trip-pawl with which one arm of the bell-crank lever engages, and audible-signal devices operated by said trip-pawl, substantially as described.

60. The combination with the movable justifying-shoe, casting-pot, and mold, of a line-casting machine, of a pot cut-off arranged to close the mouth of the casting-pot, a loose-line signal, and devices operated by the undue movement of the justifying-shoe, incident to the presence of a loose line, for moving the pot cut-off to close the mouth of the pot and for operating the loose-line signal, substantially as described.

61. The combination with the justifying mechanism, casting-pot, and mold, of a line-casting machine, of an arm or dog mounted on a movable part of the justifying mechanism, a bell-crank lever constructed to be operated by said arm or dog, a trip-pawl engaged with an arm of the bell-crank lever, a vibratory lever actuated in one direction by said bell-crank lever, a pot cut-off plate arranged to move and close the mouth of the casting-pot, and a connection between the pot cut-off plate and said vibratory lever, substantially as described.

62. The combination with the casting-pot, the mold, and the justifying mechanism, of a line-casting machine, of an arm or dog on a movable part of the justifying mechanism, a bell-crank lever constructed to be operated by the arm or dog, a spring-actuated trip-pawl with which an arm of said lever engages, a rock-shaft having a tappet and a bell hammer or striker, a bell or gong, a vibrating lever moved in one direction by said bell-crank lever, a pot cut-off plate arranged to move and close the mouth of the casting-pot, and a connection between the pot cut-off plate and the vibrating lever, substantially as described.

63. The combination with the casting-pot, the mold, and the justifying mechanism, of a line-casting machine, of an automatic pot cut-off constructed and arranged to close the mouth of the casting-pot and actuated by a part of the justifying mechanism when a loose line is present, substantially as described.

64. The combination with a casting-pot, a mold, a justifying mechanism and a line-carriage, of a pot cut-off and a loose-line signal both operated when a loose line is present in the line-carriage, said pot cut-off being constructed and arranged to close the mouth of the casting-pot, substantially as described.

65. The combination with the casting-pot, mold, assembly mechanism, and traveling line-carriage, of a line-casting machine, of a main shaft having a cam-sleeve for operating the line-carriage, and means actuated by the operator for throwing the cam-sleeve out of operative connection with the main shaft, whereby any desired number of printing-bars can be cast from one and the same line of assembled matrices while the line-carriage remains motionless, substantially as described.

66. The combination with a casting-machine, a line-carriage, and a line-carriage lever, of a main or line shaft having a cam-sleeve thereupon and constructed to actuate the line-carriage lever to shift the line-carriage, and devices thrown into action by the operator to disconnect the cam-sleeve from the main or line shaft and permit the line-carriage to remain motionless at the casting mechanism, for the purpose of recasting any desired number of printing-bars from one and the same line of matrices, substantially as described.

67. The combination with a line-carriage, a casting-pot, and a mold, of a main or line shaft having a cam-sleeve thereupon for actuating the line-carriage, a notched collar rigid on the main or line shaft, a slidable locking-bar which normally engages the notched collar, and mechanism under control of the operator for disengaging the locking-bar from the notched collar for recasting purposes, substantially as described.

68. The combination with a main or line shaft, of a cam-sleeve mounted on the shaft, a notched collar rigid on the shaft, a locking-bar movable on the cam-sleeve and constructed to engage the notch in the rigid collar, an arm having an incline for pressing the locking-bar out of engagement with the notched collar, and means for swinging the said arm into and out of the path of the locking-bar, substantially as described.

69. The combination with a movable casting-pot, and a movable mold-frame, of a mold shiftable longitudinally on the mold-frame, and a connection between a part of the casting-pot and the mold-frame, for directly operating the latter from the pot, substantially as described.

70. The combination with a movable casting-pot, a pivoted swinging mold-frame, and a mold slidable longitudinally in the mold-frame, of a pivoted connection between a part of the pot and the pivoted mold-frame, substantially as described.

71. The combination with a movable casting-pot having a lateral projection, a pivoted swinging mold-frame having an attached projecting bracket, and a mold mounted in the mold-frame, of a link pivotally connecting the bracket of the mold-frame with the lateral projection of the casting-pot, substantially as described.

72. The combination with a trimmer, a printing-bar ejector, a sliding casting-pot, a pivoted swinging mold-frame, and a mold slidable in the mold-frame from the pot to the ejector and conversely, of a connection between the pot and the pivoted mold-frame, substantially as described.

73. The combination with trimming-knives, a mold-frame, and a sliding mold mounted in the mold-frame, of a traveling, pivotally-mounted knife-wiper, substantially as described.

74. The combination with trimming-knives, a mold-frame, and a mold sliding in the latter, of a longitudinally-movable wiper-arm, and means for raising the lower end of the wiper-arm as it moves in one direction, substantially as described.

75. The combination with trimming-knives, a mold-frame, and a mold carried by the latter, of a pivoted wiper-arm normally standing substantially vertical, and means for swinging the wiper-arm to an inclined position as it moves in one direction and holding it substantially vertical when it moves in the opposite direction, substantially as described.

76. The combination with a printing-bar trimmer, and a printing-bar ejector, of a shifting mold, a pivoted wiper-arm normally standing substantially vertical, a spring-pressed pin carried by the wiper-arm, and a guide-rail constructed to act on the pin when the wiper moves in one direction to raise the lower end thereof, and having means to press the pin outward as the wiper-arm moves in the opposite direction, to enable the pin to resume normal position for a subsequent operation, substantially as described.

77. The combination with a printing-bar trimmer, a printing-bar ejector, a mold-frame, and a mold shiftable in the frame, of a wiper-arm, and means acting on the wiper-arm for raising its lower end to clear the printing-bar trimmer when the wiper-arm moves in one direction, substantially as described.

78. The combination with a printing-bar trimmer, a printing-bar ejector, and a shifting mold, of a movable carrier provided with a movable wiper-arm, means for moving the mold and the carrier back and forth, and means for raising and lowering the wiper-arm, substantially as described.

79. The combination with a printing-bar trimmer, a printing-bar ejector, a mold-frame, and a mold shiftable in the mold-frame, of a wiper-carrying slide, means for moving the slide back and forth, a wiper-arm movably mounted on the slide, and means for raising and lowering the wiper-arm, substantially as described.

80. The combination with a printing-bar trimmer, and a printing-bar ejector, of a wiper-carrier movable longitudinally of the machine, a wiper arm pivotally mounted on the carrier, a spring-pressed pin connected with the wiper-arm, and a guide-rail having an incline to act on the pin to tip the wiper-arm as the mold moves in one direction, and a bevel to press the pin outward as the mold moves in the opposite direction, substantially as described.

81. The combination with a printing-bar trimmer, a printing-bar ejector, a mold-frame, and a mold shiftable in the latter, of a guide-rod carried by the mold-frame, a wiper-arm carrier slidable on the guide-rod, a spring-actuated wiper-arm pivoted to said carrier, a spring-pressed pin connected with the wiper-arm, and a guide-rail having an incline and a bevel, the incline operating on the pin to tip the wiper-arm as the mold moves in one direction and the bevel acting to press the pin outward as the mold moves in the opposite direction, substantially as described.

82. The combination with the movable mold-carrying frame, and the mold slidable longitudinally in said frame, of a lever pivoted between its ends at the upper side of the bed-plate, a cam engaging one end of said lever, and a link connecting the other end of said lever with the mold for sliding the latter longitudinally, substantially as described.

83. The combination with a horizontally-sliding mold, and a horizontally-sliding wiper-carrier, of a lever pivoted between its ends at the upper side of the bed-plate of the machine, a cam engaging one end of the lever, and connections between the other end of the lever and the mold and the wiper-carrier, whereby the one lever serves to slide both the mold and the wiper-carrier, substantially as described.

84. The combination with a bracket or shelf projecting from the front of the machine and provided with a spring-pressed locking-pin, of a galley-box detachably mounted on said bracket or shelf and locked in position thereupon by said locking-pin, a sliding block moving in the galley-box, a rock-shaft having an attached upwardly-projecting finger, an arm on the rock-shaft, and a sliding mold provided with a device for acting on said arm to rock the shaft and thereby vibrate said finger, substantially as described.

85. The combination with a galley-box mounted on the machine, of a vibrating finger, a horizontally-sliding mold, and devices operated by said sliding mold to vibrate said finger, substantially as described.

86. The combination with a galley-box supported at the front of the machine, and devices for detachably holding the galley-box in position, of a vibrating finger, a rock-shaft with which said finger is connected, a horizontally-sliding mold, and devices operated by said mold for rocking said shaft and thereby vibrating said finger, substantially as described.

87. The combination with a galley-box supported at the front of the machine, of a vibrating finger, a rock-shaft with which said finger is connected, a rigid tappet-arm secured to said rock-shaft, a horizontally-sliding mold carrying a tappet-dog for acting on the rigid tappet-arm to move it in one direction, and a spring for moving said tappet-arm in the opposite direction, whereby the rock shaft is rocked and the finger is vibrated, substantially as described.

88. The combination with a bracket or shelf at the front of the machine, and a galley-box detachably mounted on said bracket or shelf and constructed with a longitudinal slot in its bottom wall, of a finger working in the slot of the galley-box, a rock-shaft to which said finger is attached, a tappet-arm secured to the rock-shaft, and a horizontally-sliding mold carrying a device which acts upon the tappet-arm to turn the rock-shaft and swing the vibrating finger, substantially as described.

89. The combination with a bracket or shelf arranged at the front of the machine and provided with a leaf-spring attached at one end and having a locking-pin at the opposite end, of a galley-box supported by said bracket or shelf and detachably held thereupon by said locking-pin, a vibrating finger, a rock-shaft to which said finger is attached, a movable mold, and devices for rocking the rock-shaft to vibrate the finger, substantially as described.

90. The combination with the main shaft, having a drive-wheel, a drive-gearing, a clutch between the drive-gearing and the drive-wheel on the main shaft, a clutch-shaft, and a lever for moving the clutch-shaft to operate the clutch, of a spring-actuated dog or pawl pivotally mounted on the drive-wheel of the main shaft and serving to operate the lever to move the clutch and automatically stop the main shaft, and means for subsequently moving said lever to permit the dog or pawl to snap or spring past said lever for restarting the main shaft, substantially as described.

91. The combination with a main shaft having a drive-wheel, a drive-gearing, a clutch, and a clutch-operating lever, of a spring-actuated dog or pawl pivotally mounted on the drive-wheel of the main shaft, substantially as described.

92. The combination of a main shaft having a drive-wheel, drive-gearing, a clutch for connecting the drive-gearing with the drive-wheel of the main shaft, a lever for operating the clutch, means under control of the operator for actuating the clutch-operating lever, and a spring-actuated dog or pawl pivotally mounted on said drive-wheel of the main shaft, to automatically stop the main shaft, substantially as described.

93. The combination with the main shaft having a drive-wheel, a clutch mechanism, and a clutch-operating lever, of a spring-actuated dog or pawl pivotally mounted on the drive-wheel of the main shaft and provided with a projecting beveled finger for automatically operating the clutch-operating lever, substantially as described.

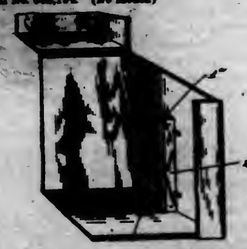
94. The combination with a main shaft having a drive-wheel, driving mechanism having a clutch, a spring-pressed clutch-shaft, a pivoted lever for pressing the clutch-shaft inward, a sliding bar for operating said lever, and means for moving the sliding bar at the will of the operator, of a spring-actuated dog or pawl pivoted on the drive-wheel and having a segmental slot and a beveled finger constructed to automatically operate the lever, and a guide-pin passing through the slot of the dog or pawl into the drive-wheel, substantially as described.

605,142. PIPE-HANGER AND SHIELD FOR BICYCLE-RIDERS. FRANK SKINNER, Philadelphia, Pa. Filed Oct. 13, 1897. Serial No. 655,091. (No model.)



Claim.—In combination a badge, acting as a shield to protect the garment and furnished with means for being attached to said garment, a tobacco-pipe bowl provided with a horizontal annular groove, and a removable, resilient, open, wire loop, said badge and bowl being connected by means of said wire loop, which engages with said groove and by its hooked ends with a slot in said badge, substantially as described.

605,148. TRUNK. PAUL H. SMITH, Columbus, Ohio. Filed Dec. 16, 1897. Serial No. 662,194. (No model.)



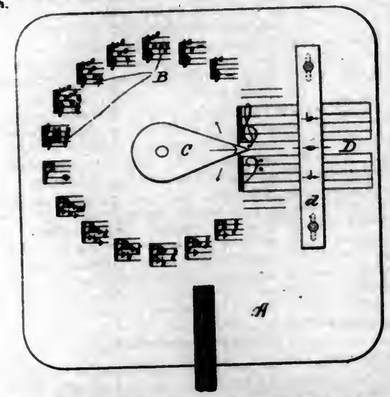
Claim.—In a trunk, a device for containing a tray-supporting spindle, consisting of a tubular portion 1 having a notch or opening at its lower edge and a pulley-chamber having walls 2, 2 and connecting-wall 3 communicating with said tubular portion, the said tubular portion having solid prolongations 1ª of said tubular portion 1, substantially as shown and described.

605,144. INSTRUCTING DEVICE. RICHARD SPRINGHORN, Cleveland, Ohio. Filed June 23, 1897. Serial No. 641,533. (No model.)

Claim.—1. In an instructing device, the combination with a plane or sheet having on one face a series of questions and on the opposite face a series of answers corresponding to said questions, of means for coincidently indicating a question and an answer, substantially as set forth.

2. In an instructing device, the combination with a plane or sheet having two faces, said faces so disposed that but one is visible to a beholder at one time, one of said faces provided with a series of questions, the other of said faces provided with a series of answers

corresponding to said questions, of an indicator for coincidently indicating a question and its corresponding answer, substantially as set forth.



3. In an instructing device, the combination with two faces oppositely disposed, one of said faces provided with a series of questions and the other with a series of answers corresponding with said questions, of a double pointer one portion of which is adapted to point to a question on one of said sides and the other portion adapted to point to its corresponding answer on the other side, substantially as set forth.

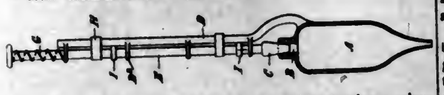
605,145. SUPPORT FOR ENDS OF RAILWAY-RAILS. JOHN B. SQUIRE, London, England. Filed Dec. 21, 1897. Serial No. 662,808. (No model.)



Claim.—1. In a rail-joint, the combination with the adjoining ends of adjoining rails and the sleepers, of the metal plate having its ends resting upon the sleepers, and the chairs seated upon the ends of said plate and holding the rails above the upper surface of the plate, said plate having a central portion struck up above the main body of the plate and forming a seat for the adjoining ends of the rails, substantially as described.

2. The support consisting of the plate *a*, bent at *f*, *f*, to fit against the beveled inner edges of the sleepers *b*, *b'*, the central part of the plate being curved or arched up sufficiently to support the ends of the rails, the ends of the plate *a* resting upon the opposite sleepers, substantially as set forth.

605,146. PIPETTE. ALFRED W. STORER, London, England, assignor to R. A. Lister & Co., Limited, Dursley, England. Filed Oct. 27, 1897. Serial No. 656,565. (No model.)



Claim.—1. A pipette consisting of a measuring-chamber, a valve-seat in the upper end thereof, a continuation above the measuring-chamber and a valve and stem guided in said continuation, for the purpose set forth.

2. A pipette consisting of a measuring-chamber, a valve-seat in the upper end thereof, a continuation above the measuring-chamber, a valve and stem guided in said continuation, and means for holding said valve normally open, for the purpose set forth.

3. A pipette consisting of a measuring-chamber provided with a valve-seat in its upper part, and having an upper cylindrical continuation, a valve therefor and a valve-stem guided in the upper end of the said cylindrical continuation, substantially as set forth.

4. A pipette consisting of the measuring-chamber A, with continuation-tube D having openings D' and provided with valve seat B, the valve C with stem E, the latter guided in the upper end of the tube D, and a spring G for holding the valve open, substantially as set forth.

605,147. ROLLER-BEARING. FRANCIS G. SUERBIEL and ADOLPHUS TORREY, Detroit, Mich. Filed Feb. 26, 1898. Serial No. 671,739. (No model.)



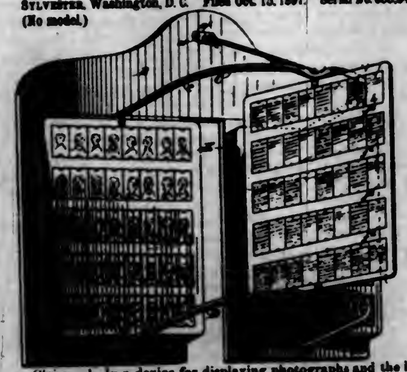
Claim.—1. In a roller-bearing comprising upper and lower bearing-plates and a roller-carriage between, a longitudinally-extensible or telescopic coupling-bar pivotally secured at its ends to said upper and lower plates respectively and having an intermediate pivotal connection with said roller-carriage.

2. In a roller-bearing comprising upper and lower bearing-plates and a roller-carriage between, the combination of a transversely-slotted head swiveled to said carriage and a coupling-bar formed in two sections pivotally secured respectively to said upper and lower plates and telescopically engaging with said slotted swiveled head.

3. The combination with the upper and lower bearing-plates, of the roller-carriage between said plates comprising the rolls, a transversely-slotted swiveled head and a carriage-frame formed in two like sections, each having formed therein half-bearings for said rolls and head and adapted when united to hold the same in position and a coupling-bar formed in two sections pivotally secured respectively to said upper and lower plates and telescopically engaging with said slotted head.

4. In a car side bearing the combination with the upper and lower bearing-plates, the latter being secured to the truck, the roller-carriage between, and the coupling-bar uniting the three, of a securing-plate attached to the transom or body portion of the car and vertically, separably engaging said upper bearing-plate.

605,148. DEVICE FOR DISPLAYING PICTURES, &c. RICHARD SYLVESTER, Washington, D. C. Filed Oct. 15, 1897. Serial No. 655,342. (No model.)



Claim.—1. In a device for displaying photographs and the like the combination with a frame-support having upper and lower parallel curved guide-rails extending outward therefrom, of frames slidably mounted on said guide-rails, substantially as described.

2. In a device for displaying photographs and the like, the combination with a frame-support having upper and lower parallel curved guide-rails, extending outward therefrom, of frames slidably and rotatably mounted on said guide-rails, substantially as described.

3. In a device for displaying photographs and the like, the combination with a frame-support having upper and lower parallel curved guide-rails extending outward and upward therefrom, of frames slidably mounted on said guide-rails, substantially as described.

4. In a device for displaying photographs and the like, the combination with a frame-support having upper and lower parallel and approximately semicircular guide-rails extending outward therefrom and provided at their outer central portions with recesses, of frames slidably and rotatably mounted on said rails, substantially as described.

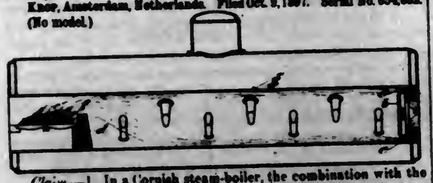
5. In a device for displaying photographs and the like, the combination with a frame-support having upper and lower parallel guide-rails extending outward therefrom and provided on their inner surfaces with guide-grooves, of frames slidably and rotatably mounted on said guide-rails and having centrally of their upper and lower ends headed projections adapted to work in said guide-grooves, substantially as described.

6. In a device for displaying photographs and the like, the combination with a frame-support having upper and lower parallel and approximately semicircular guide-rails extending outward and upward therefrom, and having in their outer central portions recesses and on their inner surfaces guide-grooves, of frames slidably and rotatably mounted on said guide-rails and having headed projections adapted to work in said guide-grooves, substantially as described.

7. In a device for displaying photographs and the like, the combination with a frame-support having upper and lower parallel and approximately semicircular guide-rails extending outward therefrom, of frames slidably mounted on said guide-rails and a cover for locking and protecting all of the frames at one side of the frame-support, substantially as described.

8. The combination with a frame-support having upper and lower parallel guide-rails extending outward therefrom, of frames slidably and rotatably mounted on said rails, comprising side and end frame-pieces, cross-strips extending between said side frame-pieces, apertured clips formed on the end frame-pieces and cross-strips, and means for attaching a photograph to said clips, substantially as described.

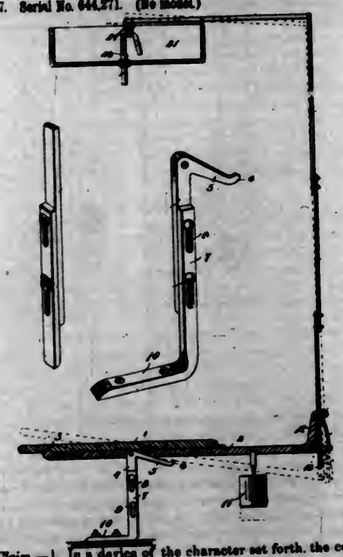
605,149. CORNISH BOILER. HERMANUS THOMASSEN and JACOBUS KROP, Amsterdam, Netherlands. Filed Oct. 9, 1897. Serial No. 654,632. (No model.)



Claim.—1. In a Cornish steam-boiler, the combination with the flame-tube, of the fire-bridge, a sectional disk, wedge-pieces for arranging the same centrally in the flame-tube, a suitable space being left between said disk and said tube, and a ring arranged behind the disk, substantially as set forth.

2. In a Cornish steam-boiler, the combination with the flame-tube, of the fire-bridge, a disk arranged centrally in the flame-tube, an annular space being left between said disk and said tube, and a ring arranged behind the disk the free space over the fire-bridge, the annular space around said disk and the central aperture of said ring being of substantially equal areas, all as set forth.

605,150. SEAT TRIP MECHANISM FOR FLUSHING-TANKS OF WATER-CLOSETS. ELVIN E. TOWNSEND, Captain, Cal. Filed July 12, 1897. Serial No. 644,271. (No model.)

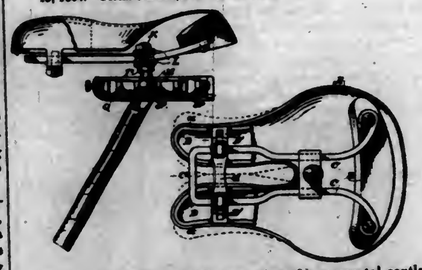


Claim.—1. In a device of the character set forth, the combination of a seat trip-lever, an adjustable fulcrum-support having a stop-arm, a weight attached to said seat trip-lever, a connecting-rod with a slot therein arranged to engage said trip-lever, a spring bearing against said rod, a siphon, and a siphon trip-lever attached to said siphon and adapted to be operated by the said connecting-rod, substantially as described.

2. In a device of the character set forth, the combination of a seat trip-lever to which a seat is attached, a weight connected to said seat trip-lever, a clasp and lug extending rearwardly from the said seat trip-lever, a connecting-rod having a slot therein engaged by the said lug, a spring attached to the said clasp and bearing upon the said connecting-rod, a siphon, and a siphon trip-lever adapted to be operated by the upper end of said connecting-rod, substantially as described.

3. In a device of the character set forth, the combination of a seat trip-lever adapted to support a seat and having a rear clasp a lug and an upwardly-projecting extension also provided with a clasp, a weight pivotally connected to said trip-lever, a connecting-rod having a slot therein adapted to be engaged by the said lug, a spring attached to the clasp on the trip-lever and bearing against the said connecting-rod within the clasp on the extension of said lever, a siphon, and a siphon trip-lever connected to said siphon and adapted to be operated by the upper end of said connecting-rod, substantially as described.

605,151. BICYCLE-SADDLE. JOSEPH F. TWIST, San Francisco, Cal., assignor of one-half to Lewis D. Radgesky, same place. Filed Jan. 15, 1897. Serial No. 619,320. (No model.)



Claim.—1. A bicycle-saddle consisting of a segmental cantle, a leather covering, the rear portion of which coincides in shape with the cantle and is fixed thereto, said covering converging from the outer edges of the cantle to the front end, and divided forwardly from the front of the cantle to form independently-adjustable pommels, hollow concave supports for said pommels, having yokes connecting their side edges and slotted transversely, a spring consisting of a continuous piece united at the front end and having arms extending rearwardly from said end and passing through said yokes and united, at their rear, to the cantle, a transverse bar extending from one yoke to the other and bolts passing through the bar and slotted yokes and provided with nuts whereby the pommels may be moved to and from each other and locked, substantially as herein described.

2. A saddle consisting of a continuous rear portion, separated pommels having concavo-convex rigid shaping-pieces fitted into and substantially conforming to the cross-sectional shape of the front ends of the pommels, transversely-slotted yokes joining the free edges of the shaping-pieces at the bottom thereof, a bar extending from one of said yokes to the other having screw-threaded bolts passing through its ends and through the slots in the yokes, a spring consisting of two parallel bars united transversely beneath the front end of the saddle-pommels, extending rearwardly and having its rear ends fixed to the saddle-cantle, yokes through which the bars of the spring pass, formed upon the holding-bolts of the pommel-adjusting device, and adapted to clamp upon the saddle-spring when the nuts are tightened whereby the tension of the saddle may be simultaneously regulated.

3. In a bicycle-saddle, a concavo-convex leather surface with divided front and mechanism for adjusting and fixing the two parts with relation to each other, a spring having essentially parallel bars united at the front extending rearwardly and connected with the cantle of the saddle, means for securing the saddle to the saddle-post consisting of a shank with clamping-bars to grip the spring sides and a holding-nut therefor, a channeled casing formed with or fixed upon the top of the saddle-post, independent blocks slidable therein having concaved ends, a ball formed upon the lower end of the saddle-supporting shank adapted to be fitted between either of the pairs of blocks, and a device whereby the blocks are forced together so as to clamp the ball in position between them.

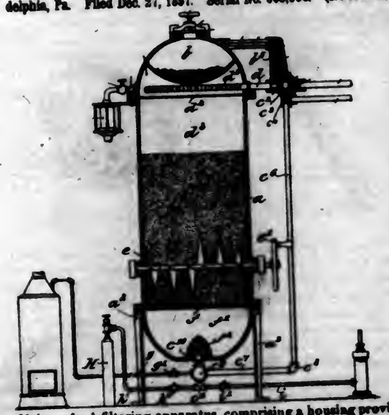
4. A clamping and adjusting device for bicycle-saddles consisting

of a channeled casing fixed to the upper end of the vertically-adjustable saddle-post in an approximately horizontal position, longitudinally-movable blocks fitting in said casing having the ends made concave, a screw-bolt with means for clamping the saddle upon the upper end, a ball formed upon the lower end adapted to be fitted between either pair of the sliding blocks whereby an adjustment may be made forward or back, and an inclined plane and locking-nuts whereby the blocks are caused to clamp the ball and hold it in any position of adjustment.

5. A clamping and adjusting device for bicycle-saddles consisting of a channeled casing fixed to the upper end of the vertically-adjustable saddle-post in an approximately horizontal position, longitudinally-movable blocks fitting in said casing having the ends made concave, a screw-bolt with means for clamping the saddle upon the upper end, a ball formed upon the lower end adapted to be fitted between either pair of the sliding blocks whereby an adjustment may be made forward or back and an inclined plane and locking-nuts whereby the blocks are caused to clamp the ball and hold it in any position of adjustment, and set-screws passing into the casing to engage and lock the ball after it is clamped in place.

6. In a bicycle, a saddle, a vertically-adjustable saddle-post, a channeled casing at the upper end of the post, longitudinally-movable blocks within the casing and having their ends made concave, a spherical part carried by the saddle and adapted to fit the concave ends of the blocks and means for securing the blocks in position.

605,152. FILTERING APPARATUS. SELDEN TWITCHELL, Philadelphia, Pa. Filed Dec. 27, 1897. Serial No. 663,806. (No model.)



Claim.—1. A filtering apparatus, comprising a housing provided with a coagulant-chamber, a perforated inlet-pipe, a filtering-media chamber having a perforated roof and bottom, a filtered-fluid receptacle beneath said filtering-media chamber, an outlet from said chamber, a valve provided with an operating-lever and a series of ports and connections from said valve with said coagulant and filtering-media chambers and the outlet of the latter chamber, substantially as and for the purposes described.

2. A filtering apparatus provided with a valve having a series of ports and an operating-lever, said valve adapted to be connected with the supply and discharge from the apparatus, sterilizing, carbonating and aerating appliances connected with the apparatus and outlet for the filtered fluid, substantially as and for the purposes described.

3. A filtering apparatus, comprising a housing provided with a coagulant-chamber having a removable clamp-plate, a perforated pipe located beneath said chamber, a filtering-media chamber provided with a removable perforated roof and bottom, a filtered-fluid-receiving chamber located beneath the same, and a valve with internal ports and an operating-lever connected with said chambers and with the fluid-supply and filtered-fluid discharge of said receiving-chamber, substantially as and for the purposes described.

4. A filtering apparatus, comprising a housing provided with a coagulant chamber, means for presenting a fluid to a filtering media through a chamber provided with a perforated roof and bottom, a filtered fluid or water receiving chamber provided with a rose, and a combined inlet and outlet therefrom, a valve provided with a series of ports leading by pipe connections to and connected with said apparatus, and means for carbonating, sterilizing or aerating said filtering media, substantially as and for the purposes described.

5. A filtering apparatus, comprising a housing provided with a coagulant-chamber, a valve provided with ports and an operating-lever and said coagulant-chamber connected with said valve-casting and with the supply for the fluid to a filtering-media chamber having a perforated roof and bottom, a rotatable agitating device mounted therein, a filtered-water-receiving chamber located beneath said filtering-media chamber having an outlet to and from said valve-casting, and a waste-outlet above said filtering-media chamber provided with a stop-cock and sight-gage, substantially as and for the purposes described.

605,153. SUSPENSION-BRIDGE. JOHN A. L. WADDELL and IRA G. HENDRICK, Kansas City, Mo. Filed Oct. 14, 1897. Serial No. 655,138. (No model.)



Claim.—1. In a suspension-bridge, the combination of one or more towers, pivoted at their lower ends so as to tilt lengthwise of the bridge, with cables connecting the upper ends, and cables connecting the lower ends of the towers, and suspenders holding the upper and lower cables in inverted curves as to each other, as shown.

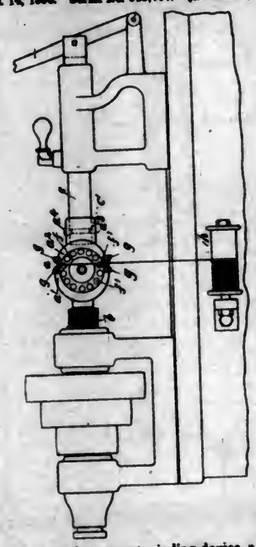
2. In a suspension-bridge, the combination of one or more towers, pivoted at their lower ends so as to tilt lengthwise of the bridge, cables connecting the upper ends and cables connecting the lower ends of the towers, and suspenders holding the upper and lower cables in inverted curves as to each other, with weights at the lower connection of the cables, to take up the slack and distribute the load over the whole bridge, substantially as shown.

3. In a suspension-bridge of the construction substantially as set forth, the rockers *g g*, the weights *w w*, the beam *h*, and the guides *i*.

4. In a suspension-bridge having lower cables, a connection between spans, which is above the bearing of a pivoted anchorage, so as to permit an adjustment of those cables lengthwise of the bridge, substantially as shown.

5. The combination of the lower cables *b b*, the rocker-beats *d d*, the small rockers *g g*, and the automatic adjustment composed of the weights *w w*, the beam *h*, and the guides *i i*, in a suspension-bridge as herein described.

605,154. INSTRUMENT-WINDING DEVICE. HENRY H. WAIT, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 14, 1896. Serial No. 615,707. (No model.)



Claim.—1. In an instrument-winding device, a chuck formed in two parts or sections which are adapted to engage a core, each of said parts being provided with a lip, said lips being oppositely placed, the opposing surfaces of the lips diverging outwardly from the core-receiving surfaces of the chuck, substantially as described.

2. The combination of a chuck formed in two parts or sections which are adapted to engage a core, with two diametrically opposite lips provided upon each section, the lips upon one section being opposed to the lips upon the other section, while the opposing surfaces of said lips diverge outwardly from the core-receiving surfaces of the chuck, substantially as and for the purpose set forth.

3. The combination of a chuck formed in two parts or sections which are adapted to engage a core, with two diametrically opposite lips provided upon each section, the ends whereof are rounded, the lips upon one section being opposed to the lips upon the other section while the opposing surfaces of said lips diverge outwardly from the core-receiving surfaces of the chuck, substantially as and for the purposes specified.

4. In an instrument-winding device, a chuck formed in two parts which may be closed together to secure a core between them and separated to remove said core, the members of said chuck being provided with opposing lips constructed to direct wire upon said core, substantially as described.

5. In an instrument-winding device, the combination with a chuck, of means for causing the rotation thereof with relation to the material that is to be wound upon the core in a plane substantially parallel with the plane of the winding, and diametrically-opposed lips provided upon said chuck at the places where the material is to be wound upon the core, said lips being constructed to direct the material upon the core as the core is relatively rotated, substantially as described.

605,155. VELOCIPEDE. JOHN I. WARMAN, Chicago, Ill. Filed Oct. 26, 1896. Serial No. 610,283. (No model.)



Claim.—1. In a velocipede, the combination of two parallel, laterally opposite, upright frames and rear driving-wheels mounted therein a saddle above each of said wheels, pedal mechanism for driving each wheel independently of the other, horizontal transversely-arranged supporting-bars extending between and rigidly connecting said upright frames at points between the driving-wheels and at their front ends respectively, a steering-truck connected with the central part of the foremost one of said transverse members, steering-wheels connected with said steering-truck at each side thereof, steering-handles in front of each saddle and interconnecting means between said handles and the steering-wheels whereby the latter may be turned by either rider, the arrangement of the transverse supporting-bars, and the steering-truck being such that an open space is provided between the pairs of wheels adapted to receive a stretcher arranged horizontally at full length with the head and foot ends of the same projecting beyond the axes of the front and rear pairs of wheels respectively.

2. In a velocipede, the combination of two parallel, laterally opposite, upright frames and rear driving-wheels mounted therein a saddle above each of said wheels, pedal mechanism for driving each wheel independently of the other, horizontal transversely-arranged supporting-bars extending between and rigidly connecting said upright frames at points between the driving-wheels and at their front ends respectively, a steering-truck connected with the central part of the foremost one of said transverse members, vertically-arranged steering-wheel spindles revolubly mounted one at each side of said steering-truck, steering-wheels mounted upon said spindles so as to oscillate about the latter, steering-handles in front of each saddle and interconnecting means between said handle and the steering-wheel whereby the latter may be turned by either rider, the arrangement of the transverse supporting-bars and steering-truck being such that an open space is provided between the pairs of wheels adapted to receive a stretcher arranged horizontally to rest at full length upon said members with the head and foot ends of the same projecting beyond the axes of the front and rear ends of wheels respectively.

3. A carrier-velocipede comprising two laterally-supported transversely opposite upright driver-supporting frames, each embracing wheel-forks, steering-spindle, handle-bars and pedals, a driving-wheel mounted in the forks of each upright supporting-frame and driving connections between the pedals thereof and said driving-wheel, a horizontal supporting-frame suspended between said upright frames and supported at its front by means of a pair of transversely opposite steering-wheels arranged to oscillate upon separate vertically-arranged steering-spindles located at each side of and in rear of the front end of the horizontal frame and interconnections between the individual steering mechanism of the upright frame and said steering-spindles whereby the steering-wheels are caused to move in unison.

4. The combination of the upright frames A A', provided with the driving-wheels and driving mechanism, the transverse rear and front frame members B B², respectively, the truck-frame member B³ rigidly connected with the transverse frame member B²; the vertical oscillatory spindles B⁵ connected with the opposite sides of said truck-frame member and the interconnected steering mechanism, whereby the vehicle may be steered by either driver, substantially as described.

605,156. COUPLING FOR PNEUMATIC TIRES. FRANK WARNOCK, Elyria, Ohio. Filed Feb. 3, 1897. Serial No. 621,822. (No model.)



Claim.—The herein-described coupling for the purposes set forth, comprising a casing having a tapering opening and a longitudinally-bored stem, a pin rotatably mounted in the tapering opening and having its end portions exterior to the casing and its intermediate portion of a corresponding taper to snugly fit the tapering opening, exteriorly grooved, and formed with a transverse opening, and having a projecting end portion exteriorly threaded and longitudinally bored, and a nut mounted upon the threaded end portion to hold the pin in place and provide for taking up wear, substantially as set forth.

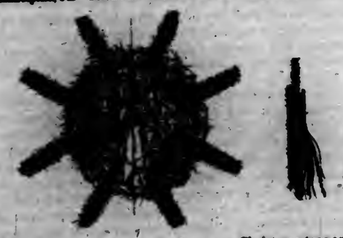
605,157. VOCAL AND INSTRUMENTAL NOTE-READING DEVICE. ROSS G. WINKELMAN, Grover Hill, Ohio. Filed May 17, 1897. Serial No. 637,013. (No model.)



Claim.—1. The combination with a musical chart having perforated notes as a musical staff through which notes may be read of a slide or card beneath provided with characters indicating the names of notes, fingering, or chords, substantially as set forth.

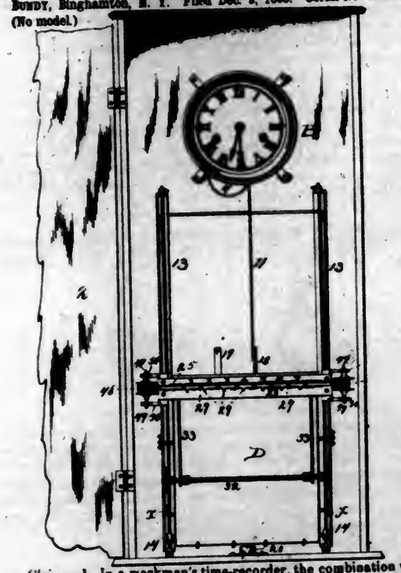
2. The combination, in a musical chart, of the slide *i*, having the different signatures in sharps and flats and their corresponding scales and lettering of the instrument; with the face-card A, having scales with perforated notes, through which the various scales may be viewed, substantially as described, and for the purpose specified.

605,158. CHRISTMAS-TREE ORNAMENT. BERNHARD WILMSEN, Philadelphia, Pa. Filed June 18, 1897. Serial No. 641,310. (No model.)



Claim.—As an article of manufacture, a Christmas-tree ornament consisting of a foundation, a supporting-block therefor to which it is secured and beyond which it extends, garlands secured to the inner face of said foundation and extending radially beyond the same, a facing ornament attached to said block opposite said foundation, and a backing ornament secured on said foundation.

605,159. WORKMAN'S TIME-RECORDER. WILLARD LE GRAND BUNDY, Binghamton, N. Y. Filed Dec. 9, 1895. Serial No. 571,455. (No model.)



Claim.—1. In a workman's time-recorder, the combination with a case, a horizontal bar across it provided with a multiple series of separate keyholes, a clock mechanism, a flat record-sheet suspended therefrom and raised by it, an ink-ribbon in the plane of said keyholes and in front of said sheet, of an impression-frame consisting of a rock-shaft transverse to said case, arms thereon, an impression-platen upon said arms, in rear of said record-sheet, and common to all of said keyholes whereby it is actuated to strike an impression-blow by the insertion of a workman's designating-key into any keyhole and print the numeral of the key onto that part of the moving record-strip, which is opposite the keyhole used.

2. In a workman's time-recorder, a record-sheet and a rectangular frame having a series of spring-hooks upon its cross-bars whereby said sheet is mounted upon said frame and held taut, flat and smooth by the spring tension of said hooks in combination with a suitable drum to which said frame is connected and means to rotate said drum and thereby raise said frame and sheet.

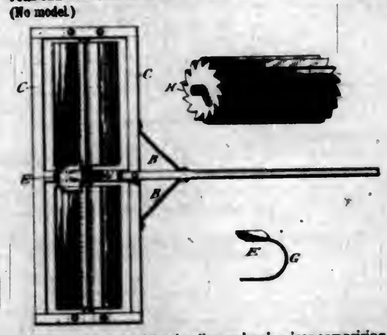
3. In a workman's time-recorder, a vertically-movable frame, a record-sheet removably mounted thereon, a clock-movement, a drum rotated thereby, a cord connecting said drum to said frame, and means to trip said drum at a predetermined time and permit said frame to return to its starting-point, in combination with a vibratory platen of a length equal to the width of the sheet, actuated by the manual thrust of a key inserted into a keyhole in alinement with said platen to strike a blow upon and print the workman's designating-numeral of said key onto said sheet.

4. In a workman's time-recorder, a flat record-sheet vertically movable, and parallel bars and connecting-partitions creating a series of keyholes extending the entire width of the sheet, in combination with a bell-hammer actuated to strike a blow by the insertion of a key into any one of said keyholes, and a bell normally out of the path of said hammer and mounted upon a swinging frame by which it is brought into position to receive the hammer-blow, by the insertion of said key.

5. In a workman's time-recorder, the combination with a rock-shaft having crank-arms upon its ends and an impression-platen mounted upon said shaft, of a parallel rock-shaft, bell-cranks upon its ends, the rearward arms of which are suitably connected to said crank-arms and having their vertical arms connected by a key-bar parallel with the face of the platen, whereby when a key is inserted into a keyhole it swings said key-bar and platen in parallelism.

6. In a workman's time-recorder, a flat record-sheet, an ink-ribbon transverse thereto, a horizontal key bar across the front of said sheet and ribbon and parallel therewith, combined with an impression-platen across the rear of said sheet and ribbon, and parallel with them and with said key-bar, and means to connect said key-bar, and platen whereby the insertion of a key into a keyhole will actuate said key-bar to vibrate said platen to strike an impression-blow against said sheet to imprint the numeral of the inserted key upon said sheet.

605,160. COMBINED DIRT ROLLER AND PULVERIZER. LAFFORD CHAMBERS, Bartlett, Iowa. Filed May 23, 1896. Serial No. 592,893. (No model.)



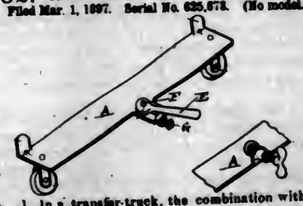
Claim.—A combined land roller and pulverizer comprising a cylindrical body or bodies, the surface of which is fluted, thereby forming longitudinal crushing blades or bars arranged tangentially mounted in a suitable supporting-frame provided with a draft device whereby when the roller is drawn in one direction the soil is cut and pulverized, and in the reverse direction the soil is smoothed, substantially as described.

605,161. NIPPLE FOR NURSING-BOTTLES. ARCHIE CLEMENT and WILLIAM R. WILKINSON, Chicago, Ill. Filed May 22, 1897. Serial No. 637,774. (No model.)



Claim.—A rubber nipple having a flange *d* at the base, and three ribs placed on the interior walls, extending from the orifice to the neck of the nipple, each rib recessed at C, the point of contact with the gums of the infant, as and for the purpose specified.

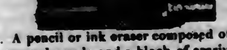
605,162. TRANSFER-TRUCK. HERBERT C. DEANE, Fitchburg, Mass. Filed Mar. 1, 1897. Serial No. 625,678. (No model.)



Claim.—1. In a transfer-truck, the combination with the body of the same, of ears or lugs formed upon one side thereof, an adjustable pintle upon the other side, and a cam swiveled upon said pintle to clamp the truck to the article desired.

2. In a transfer-truck, the combination with the body portion thereof, of ears or lugs formed upon one side of the same, an extension upon the other side formed with a longitudinal slot, a bolt having a pintle passing through said slot, a screw passing through a hole tapped through the end of said extension and engaging said bolt to adjust the pintle in the slot, a cam swiveled upon said pintle, and a lever to operate the cam.

605,163. ERASER. BYRON R. GOLDSMITH, New York, N. Y. Filed May 16, 1895. Serial No. 549,763. (No model.)



Claim.—1. A pencil or ink eraser composed of a holder having a tapering, contracted nozzle and a block of erasing material with a body portion of such size as to pass freely through the mouth of the nozzle, and a head or enlargement conforming in shape to the tapered nozzle and too large to pass through the mouth thereof, substantially as described.

2. A pencil or ink eraser composed of a holder having a contracted nozzle and an inwardly-projecting ledge behind the same, and a block of erasing material having a body portion of such size as to pass freely through the mouth of the nozzle and formed with a head conforming to the nozzle and too large to pass through the mouth thereof, and engaging the ledge, substantially as described.

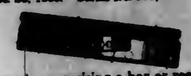
3. A pencil or ink eraser composed of a holder consisting of two pieces of such shape that, when secured together, they conspire to form a contracted nozzle, and a block of erasing material formed with a body portion free to pass through the nozzle and a head or enlargement conforming to the nozzle too large to pass through the mouth thereof, substantially as described.

4. A pencil or ink eraser composed of a holder consisting of two pieces of such shape that, when placed together, they conspire to form a number of contracted nozzles, and blocks of erasing material, one for each nozzle, each block being formed with a body portion of such size as to freely pass through the nozzle and a head or enlargement conforming to the nozzle and too large to pass through the mouth thereof, substantially as described.

5. A pencil or ink eraser, composed of a holder consisting of two pieces of such shape that, when placed together, they conspire to form a number of contracted nozzles each with an inwardly-projecting ledge behind it, and blocks of erasing material, one for each nozzle, each block being formed with a body portion of such size as to freely pass through the nozzle and a head or enlargement conforming to the nozzle, too large to pass through the mouth thereof, and engaging the ledge, substantially as described.

6. A pencil or ink eraser composed of a holder having a contracted nozzle, a block of erasive material having a body portion of such size as to pass freely through the mouth of the nozzle and a head conforming to the nozzle and too large to pass through the mouth thereof, and means for preventing rearward movement of the erasive block in the nozzle, substantially as described.

605,164. GAME OR PUZZLE. BYRON R. GOLDSMITH, New York, N. Y. Filed Sept. 26, 1895. Serial No. 563,968. (No model.)



Claim.—1. A puzzle, comprising a box or receptacle, a cage universally supported within the receptacle, and one or more easily-movable bodies also within the receptacle, substantially as described.

2. A puzzle, comprising a box or receptacle with a transparent cover, a cage universally supported within the receptacle, and one or more easily-movable bodies also within the receptacle, substantially as described.

3. A puzzle, comprising a box or receptacle, a universally-hung cage within the same, provided with seats in its periphery, and one or more movable bodies also within the receptacle, substantially as described.

4. A puzzle, comprising a box or receptacle with a transparent cover, a cage universally supported within the same and having seats in its periphery, and spherical or other easily-movable bodies within the box, substantially as described.

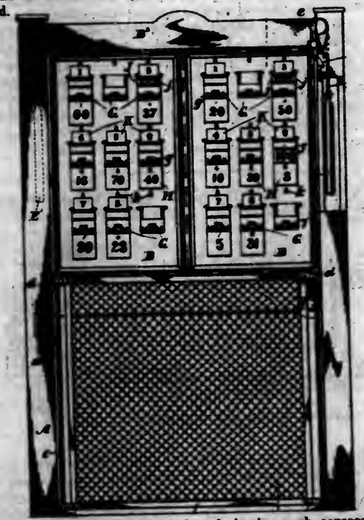
5. A puzzle, comprising a box or receptacle, containing a cage supported in a manner to be capable of universal movement in all vertical planes passing through the point of support, and one or more spherical or other easily-movable bodies of greater height than the mean distance of the edge of the cage from the bottom of the box, substantially as described.

6. A puzzle, comprising a box or receptacle containing a cage, loosely supported upon a pin at a point above its center of gravity, and a number of spherical or other easily-movable bodies of greater height than the mean distance of the edge of the cage from the bottom of the box, substantially as described.

7. A puzzle comprising a box or receptacle, a cage, supported within the receptacle, free to swing in vertical planes and to rotate in a horizontal plane and one or more easily-movable bodies also within the receptacle, substantially as described.

605,165. TICKET RACK AND REGISTER. EDWARD C. HOPPER, Covington, Ky., and CHARLES P. McLEAN, Cincinnati, Ohio. Filed June 30, 1897. Serial No. 643,870. (No model.)

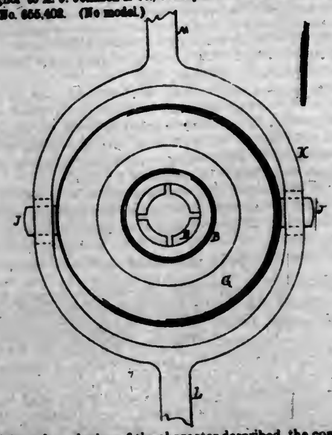
Claim.—1. In a ticket and registering rack the combination of the board, the ticket-clips secured thereon, the name-plate holders above each clip, and the hinged shutters having numerals to indicate the number of the clip when thrown up and closed over the plate when no tickets are held by the clip, substantially as shown and described.



2. The combination of the boards having each consecutively-numbered ticket-clips secured thereon, the swinging member of the clip having a leg projecting therefrom to open the clip and form a hook to suspend the last ticket and block when a new block of tickets is to be inserted, the name-plate holders above said clips, and the hinged shutters having numbers on their faces corresponding to the number of the clip when thrown up, but adapted to be thrown down over the name-plate holders when no tickets of the kind or class are for sale.

3. The combination of the uprights, the cross-piece bracing the uprights in position, the board between the uprights above said cross-piece, the ticket-clips secured upon said board, the guide-rods secured to said uprights, the screen fitted to slide between said guide-rods to cover or uncover the board, the fixed electromagnet, the armature secured to the screen-frame to hold it in its lower position, the sheaves in the top of said uprights, cords secured to the screen and passing over the sheaves, weights to overbalance the weight of the frame and carry it to its upper position in front of the board, and catches to retain it in the upper position, substantially as shown and described.

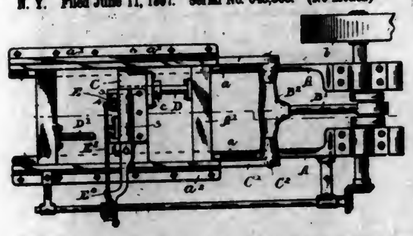
605,166. LATHE-CHUCK. ANDREW J. JOHNSON, Cleveland, Ohio, assignor to A. J. Johnson & Co., same place. Filed Oct. 16, 1897. Serial No. 655,402. (No model.)



Claim.—In a device of the character described, the combination of the chuck-body A, adapted to be removably secured to the spindle of a lathe, a sleeve C slidingly engaging the bore of said body A

and adapted to receive a grip-jaw D, the periphery of which is tapered or wedge shape at its outer end, a removable cap B, upon the outer end of the chuck-body A and slidingly engaging said tapered jaws D, oscillating or rocking tumblers E, pivotally secured in the body A with their inner ends engaging the sleeve C, a ring G encircling the body A and in close proximity to the outer ends of the tumblers E, and a non-rotatable ring H, engaging said ring G and provided with trunnions J for engagement with an actuating spanner-lever K, the parts being constructed, arranged and operating in the manner, and for the purpose, substantially as described.

605,167. REDUCING-PRESS. LEWIS J. KINGSLEY, Binghamton, N. Y. Filed June 11, 1897. Serial No. 640,308. (No model.)



Claim.—1. The combination, in a press, of two male and two female dies, mechanism whereby they are caused to approach and recede from each other alternately, one pair of dies being arranged to operate at one end of the stroke, and the other pair at the other end of the stroke, and means whereby the device being operated upon as it emerges from one set of dies will be transferred to the other set of dies for further operation, whereby the same press is caused to perform work while moving in both directions.

2. The combination, in a press, of a reciprocating and two stationary die-supports, the reciprocating support carrying two dies, and each of the stationary supports carrying a single die and arranged upon opposite sides of the reciprocating die-support, and means whereby the article being operated upon as it emerges from one die shall be transferred to the other die.

3. The combination, in a press, of a framework having two heavy transverse bars, one at each end, a male die fixed upon the inner surface of each of said transverse bars, one upon one side and the other upon the other side of a central line drawn through the machine, a reciprocating structure carrying two female dies arranged respectively to operate with said male dies, and mechanism whereby the article being operated upon will as it emerges from the orifice behind one of the female dies be transferred to in front of the other female die ready to be operated by the other male die, substantially as set forth.

4. The combination, in a press, with two stationary dies and a reciprocating die-carrier carrying the dies forming the other members of the press, of a mechanism for transferring the article being operated upon from one pair of dies to the other consisting of a transversely-moving carriage mounted on said reciprocating structure and containing a rock-shaft bearing the gripping-fingers, an arm for preventing said rock-shaft from revolving beyond ninety degrees, and mechanism for operating said carriage.

5. The combination, in a press, of three die-carriers one of which has two die parts and the other two one die part each the dies whereof are adapted to operate successively upon the same article, mechanism for driving two of said die parts toward the other two, and a mechanism for automatically transferring the article being operated upon from the first to the second set of dies.

6. The combination, in a double-die press, with the two sets of dies, of a gripper-carriage E, a revoluble shaft mounted in said carriage and carrying the gripper-fingers, a revolution-stopping arm on said shaft whereby its capability of rotary movement is limited, a frictionally-mounted pinion on said shaft, a rack-bar engaging with said pinion, whereby said shaft is revolved during that portion of the travel of said carriage while said revolution-stopping device is free from contact with any adjacent part and is permitted to travel with said carriage without revolving when the revolution-stopping devices are in engagement, and said revolution-stopping devices.

7. The combination, with a double-die press, of mechanism for transferring the article being made from one die to the other consisting of a reciprocating gripper-carriage, a gripper-shaft revolubly mounted therein, a revolution-stopping arm or projection thereon, overhanging projections adapted to engage with said revolution-stopping projection, a loosely-mounted pinion also on said shaft, and a fixed rack-bar alongside said pinion whereby it is caused to revolve, said pinion being thus adapted to revolve said shaft when free from the revolution-stopping devices but to revolve on said shaft when said revolution-stopping devices are in engagement.

8. The combination, in a press, of the framework, the crank-shaft, the fixed die-carriers, the reciprocating die-carrier, the shaft F, the gripper-carriage mounted on the reciprocating die-carrier, a cam on the shaft F for operating said gripper-carriage, and connections from said cam to said carriage, substantially as set forth.

605,168. GAS-REGULATOR. ADOLPH KUEBLER, New York, N. Y., assignor of one-half to James C. Meeks, same place. Filed July 15, 1897. Serial No. 644,627. (No model.)



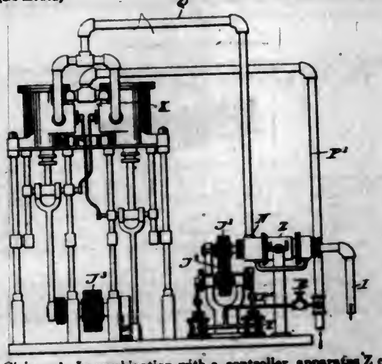
Claim.—1. In a gas-regulator, the combination with a tubular shell, of a hollow, perforated ball freely movable both rotarily and lengthwise therein, substantially as specified.

2. In a gas-regulator, the combination of an outer shell, an inner concentric perforated shell, and a ball movable freely in the former shell, substantially as specified.

3. In a gas-regulator, the combination of an outer shell, an inner concentric perforated shell, and a hollow perforated ball, substantially as specified.

4. In a gas-regulator, the combination of an outer shell, an inner concentric perforated shell, a hollow perforated ball, and a valve situated at the bottom of said inner shell, substantially as specified.

605,169. HYDRAULIC-MOTOR-REGULATING DEVICE. ARTHUR J. L. LORETZ, Brooklyn, N. Y. Filed Apr. 14, 1898. Serial No. 677,567. (No model.)



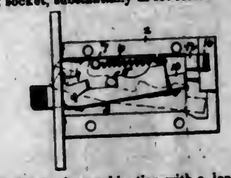
Claim.—1. In combination with a controller apparatus Z composed of a central chamber B divided into compartments, and arranged with inlet and outlet ports; a double revolving valve, consisting of an inlet disk valve D' and outlet disk valve D², all provided with their respective inlet and outlet ports, and located in their respective balancing-chambers A and C, when all constructed for the purpose herein described.

2. The combination with a hydraulic motor, of a controller which regulates the discharge therefrom at a uniform rate, and means for operating said controller independent of said motor or of the fluid passing therethrough, as herein described.

3. The combination with a hydraulic motor and controller which regulates the discharge therefrom at a uniform rate, and the means for operating said controller independent of said motor or of the fluid passing therethrough; of a valve R whereby the speed of the controller with its operating means is regulated, as herein set forth.

605,170. LATCH. NATHAN J. MEIGS, West Haven, Conn., assignor of one-half to Elmer L. Knowles, New Haven, Conn. Filed July 15, 1897. Serial No. 644,598. (No model.)

Claim.—1. In a door-latch, the combination with a latch-bolt adapted for both longitudinal and a rocking movement, of a knob-spindle adapted for a limited longitudinal movement in a plane at a right angle to that of the movement of said latch-bolt and having means for engaging the latch bolt at one end of its movement to lock the latter against movement, and a striker-plate having a socket to receive the outer end of said latch-bolt and inclined surfaces for causing both an upward and an inward movement of the latch-bolt as it approaches said socket, substantially as set forth.



2. In a door-latch, the combination with a longitudinally-movable and pivotally-supported latch-bolt and a spring for imparting outward movement thereto, of a non-revoluble knob-spindle adapted for a limited endwise movement and carrying a lug or projection which, at one extremity of its movement engages the end of said latch-bolt and locks it against inward movement, and a striker-plate having a socket to receive the end of said latch-bolt, an incline for raising the outer end of the latter, and inclined surfaces for forcing the latch-bolt inwardly as it approaches and leaves said socket, substantially as set forth.

3. The combination with the casing 1 having stud 5, of latch-bolt 3 having the recess 4 and ear 9, spring 6, and knob-spindle 12 having the lug 13, substantially as set forth.

4. The combination with the latch-bolt 3 having a V-shaped outer end and provided with the incline 8, of knob-spindle 12 having lug 13, spring 6, and striker-plate 17 having socket 19, incline 21, and inclined surfaces 20 and 22, substantially as set forth.

605,171. DENTAL PLUGGER. FRANCIS S. AVIL, Philadelphia, Pa. Filed Nov. 10, 1897. Serial No. 657,982. (No model.)



Claim.—1. In a dental mallet, a casing, a perforated rotatable collar mounted in the outer end thereof, a nose-piece secured to said collar and rotatable therewith, a point or tool fitted to slide in said nose-piece, a sliding pin in said collar, means for freely connecting said collar with said casing, a plunger, and means for transmitting a blow from said plunger to said pin and consequently to said point.

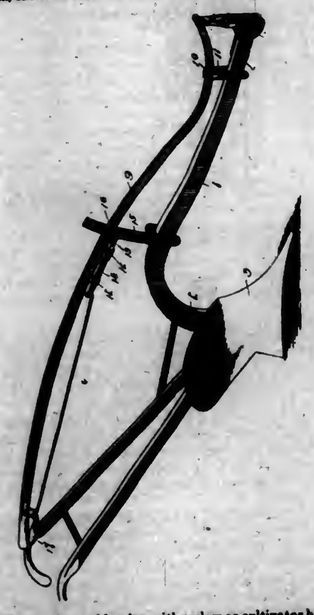
2. In a dental mallet, a casing, a perforated rotatable collar mounted in the outer end thereof, a nose-piece secured to said collar and rotatable therewith, a point or tool fitted to slide in said nose-piece, a sliding pin in said collar, swinging plates at opposite ends of said pin in said nose and casing respectively, and a plunger, the latter being adapted to strike the plate in the casing.

3. In a dental mallet, a casing, a perforated rotatable collar mounted in the outer end thereof, a nose-piece secured to said collar and rotatable therewith, a point or tool fitted to slide in said nose, a sliding pin in said collar, a flanged rim secured to said casing, a plunger, and means for transmitting a blow from said plunger to said pin and from said pin to said point, said collar having a peripheral flange which is freely engaged by said flanged rim.

4. In a dental mallet, having a casing, a nose rotatably mounted thereon, and a movable pin fitted in said casing, swinging plates at opposite ends of said pin, one plate being mounted on said casing and the other plate being mounted on said nose, the plate on the casing being adapted to be engaged by the blow-delivery mechanism of the device, and furthermore adapted to be removed from the action of said mechanism.

5. In a dental mallet, a swinging plate mounted in the casing, adapted to be engaged by the blow-delivery mechanism, and to transmit the blow to the plugger-point or mallet proper, said plate having a finger-piece thereon, which may be engaged from outside of the casing to remove said plate from the action of said mechanism and avoid the impartation of a blow or blows to said point.

605,172. ATTACHMENT FOR PLOWS. JESSE H. BALL, Kendrick, Idaho. Filed June 21, 1897. Serial No. 641,679. (No model.)



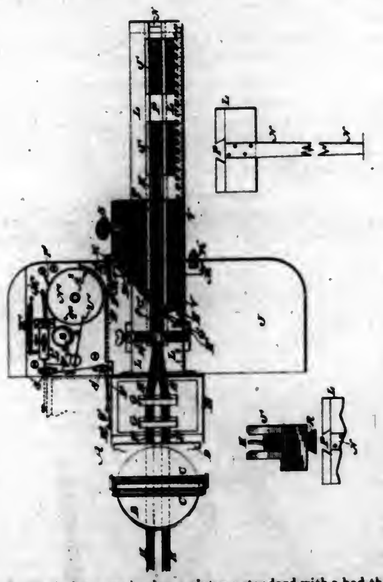
Claim.—In combination with a plow or cultivator having a beam, of a clevis pivotally mounted on the front end of the said beam and consisting of opposite side plates connected to each other at their outer ends by a bifurcated bar extended upwardly to form a connection, a bracket supported by the said beam, a lever pivotally mounted in the said bracket and having its forward end attached to the said bifurcated bar of the clevis, a toothed segment over which the rear part of the said lever extends, and a sliding dog mounted on the rear portion of the lever and adapted to engage the toothed segment, the said lever being operated to elevate or depress the clevis and hold the latter in a predetermined adjusted position to regulate the depth of cut of the plowshare in its movement upwardly or downwardly over a hill by changing the draft.

605,178. PRINTING-PRESS FOR CUTTING RIBBONS AND COUNTING SAME. FERDINAND BERKEMEYER, Bellerville, Pa., assignor of one-half to Charles H. Crossman, same place. Filed June 10, 1897. Serial No. 640,148. (No model.)

Claim.—1. In an attachment for a printing-press having a platen, a bed suitably supported on said press, a body portion carried by said bed, a cutter mounted on said body portion, connections from said platen to said cutter, whereby the latter is operated by the movement of the said platen, and means for returning said cutter to its normal position.

2. In an attachment to a printing-press having a platen, a bed suitably supported on said press, a groove in said bed, a body por-

tion having a tongue entering said groove and carried by said bed, a cutter mounted on said body portion, connections between said cutter and platen, whereby the latter is operated by the movement of said platen and means for returning said cutter to its first position.



3. A printing-press having a platen a standard with a bed thereon, a block having a tongue movable in a groove in said bed, guides on said block forming a passage-way, a cutting device on said block, and a flexible connection from the movable member of said cutting device to the movable platen of a printing-press.

4. In an attachment to a printing-press having a platen, a bed suitably supported on said press, a body portion carried by said bed, means for adjusting said body portion thereon, a cutter mounted on said body portion, means for operating said cutter means for returning said cutter to its normal position, and an adjustable guide mounted on said body portion.

5. In an attachment to a printing-press, having a platen, guides thereon, a bed suitably supported on said press, a groove in said bed, a body portion having a tongue entering said groove, had carried by said bed, means for adjusting said body portion thereon, a cutter mounted on said body portion, means for operating said cutter means for returning said cutter to its first position, and an adjustable guide mounted on said body portion.

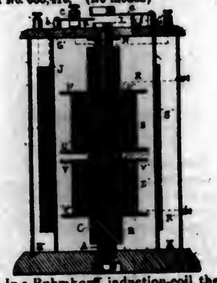
6. In an attachment to a printing-press having a platen, a bed suitably supported on said press, a groove in said bed, a body portion having a tongue entering said groove and carried by said bed, means for adjusting said body portion thereon, a cutter mounted on said body portion means for operating said cutter, means for returning said cutter to its first position, an adjustable guide mounted on said body portion, and a registering device operated by the movement of the platen.

7. An attachment to a printing-press for the purpose set forth, consisting of a block having a body with a tongue thereon and provided with guides in its upper face forming an adjustable passage-way, one end of said body being at an oblique angle to its sides, and provided with a cutting device having connections with the movable platen of the press for operating the same.

8. A printing-press having a movable platen, a standard with a bed thereon, a block having a tongue adjustable in a groove in said bed, guides on said block forming a passage-way, a cutting device on a slanting end of said block, a movable member provided with a flexible connection adapted to be secured to the said platen.

9. The swinging platen E with guides G having openings therein, the bed L with the groove N therein, the block Q having the tongue R in said groove and provided with the clamping-screw S, a cutting device having a movable member C' with flexible connection D' secured to said platen E, the returning-spring G', for said member, the guide K' movably secured to said bed L, and the fixed guide T and adjustable guide U forming the passage-way W.

605,174. INDUCTION-COIL. ADRIAN L. BOGART, Jamaica, N. Y., assignor to William R. M. Jordan, New York, N. Y. Filed Apr. 22, 1897. Serial No. 633,416. (No model.)



Claim.—1. In a Ruhmkorff induction-coil, the combination with the primary and secondary coils, of a condenser arranged in the same plane therewith and partially inclosing the same, substantially as set forth.

2. In an induction-coil, the combination of a primary and secondary, with a condenser and an interrupter comprising an armature mounted upon a relatively light spring, a second and heavier spring carrying a movable contact-point and arranged in the path of movement of the first spring, and a fixed contact-point normally making contact with said movable contact-point, substantially as set forth.

3. In an induction-coil, the combination with a base and head, of a bolt securing the same and surrounded by the primary and secondary, a casing of insulating material inclosing the said primary and secondary, and a condenser located upon said casing, substantially as set forth.

4. In an induction-coil, the combination with the primary coil, of a secondary coil in sections, each section comprising an insulating-spool with its conductor wound thereon, several sections being properly connected, and a condenser partially inclosing said primary and secondary coils, substantially as set forth.

5. In an induction-coil, the combination with the primary and secondary, of a casing inclosing the same, a condenser adjacent to said casing, and an outer casing surrounding the whole, with a base and top inclosing the ends of said casing, to which said casings are secured, substantially as set forth.

6. In an induction-coil, the combination with the working parts of a head and base, a bolt or bolts connecting the same, a condenser partly inclosing the coils and a casing inclosing the condenser and coils and held in place by the head and base, substantially as set forth.

7. An interrupter for induction-coils, comprising an armature mounted upon a relatively light spring, a second and heavier spring carrying a movable contact-point and arranged in the path of movement of the first spring, and a fixed contact-point normally making contact with said movable contact-point, substantially as set forth.

605,175. PORTABLE COAL-SIFTER. LUDIE BUCHTEL, New York, N. Y. Filed Mar. 11, 1897. Serial No. 626,963. (No model.)

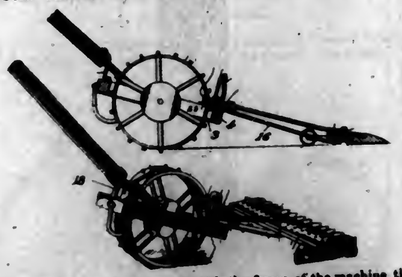


Claim.—1. A portable coal-sifter comprising a casing provided with a cylindrical body having an upper section formed with a horizontal peripheral lower flange, and a lower section formed with a horizontal peripheral upper flange, the perforated diaphragm located between the peripheral flanges, secured thereto and projecting beyond the flanges to provide a peripheral collar whereby the casing is lifted for removing and replacing the sifter; the removable cover, and a stirrer journaled in the diaphragm and in the cover, substantially as described.

2. A portable coal-sifter comprising a casing provided with a cylindrical body, and a perforated diaphragm, the conical covering having a circular opening at its apex, the bushing having a beveled socket at its lower end and secured in the circular opening, the stirrer-stem formed with an upwardly-tapering enlargement fitting in the beveled socket, a bearing-bar for the lower end of the stirrer-stem, and a stirrer-head secured to the stirrer-stem; substantially as described.

3. A portable coal-sifter comprising a stirrer having a stem formed with side recesses near its lower end, and a head consisting of three twisted radial arms, each having a gathering-lip at its outer end, two of the arms being formed in one piece and fitted in one of the side recesses, and the other arm having an angular extension fitting in the other recess and also against one of the other arms, a bolt extending through the angular extension through the stirrer-stem and through the integral arms, and a bolt extending through the extension and through one of the integral arms; substantially as described.

605,176. LAWN-MOWER. WILLIAM W. CROCKETT, Falls City, Nebr. Filed Sept. 14, 1897. Serial No. 651,630. (No model.)



Claim.—1. The combination with the frame of the machine, the operating-wheel journaled in suitable bearings in said frame and provided with a sinuous groove, and the reciprocating cutter, of means for giving the motion to the cutter when the operating-wheel is rotated, and an arm or finger secured to the frame and extending into the groove to keep the same clear, substantially as and for the purpose set forth.

2. In a mower, a movable cutter, a sway-bar pivoted to the mower-frame and having its front end connected to the cutter, means for vibrating the sway-bar, a support above the sway-bar, a link pivoted to the said support having at its lower end a foot pressing upon the sway-bar, for the purpose set forth.

605,177. INKSTAND. EBEN DAVIS, New York, N. Y. Filed June 19, 1897. Serial No. 641,057. (No model.)



Claim.—1. An inkstand comprising the combination of an exteriorly-cylindrical air-filled funnel-float centrally tubular, and an interiorly-cylindrical reservoir provided with a base, and in which the float closely fits to slidably engage the interior walls thereof, the said float being of a form and adapted to substantially wholly occupy the interior of said reservoir whereby air is excluded from said fluid other than through the center of the float, substantially as shown and described.

2. An inkstand formed of a cylindrical body or reservoir provided with a base 6, and an annular flange 8, at top in combination with an exteriorly-cylindrical float substantially occupying the interior of the reservoir and fitting wholly within the same, the said float being provided with an annular flange 14 at top adapted to rest upon and project above the flange 8 of the reservoir, and the said float being vertically movable in and freely removable from the said reservoir, substantially as shown and described.

3. In an inkstand, a reservoir consisting of a cylinder open at the top and provided with a closed lower end supported by a base, in combination with a funnel-float having exteriorly longitudinal and lateral dimensions and form approximately corresponding to those of the interior of the reservoir, substantially as shown and described.

4. In an inkstand, the combination with a reservoir having a uniform width at and upward from the bottom thereof, and open at the top throughout its width, of a centrally-tubular air-filled float having exterior longitudinal and lateral dimensions and form approximately corresponding to those of the interior of the reservoir, whereby the whole of said reservoir is occupied by the float, the said float normally resting upon the bottom of said reservoir and projecting above the top of the same, whereby it is adapted to deliver the ink from its lowest level, without the top of said float being movable below the top of the reservoir or below the ink at its highest level, and the delivery of said float being wholly from the center thereof, said float fitting closely in the reservoir whereby the walls of the same engage therewith.

5. An inkstand consisting of an interiorly-cylindrical vertical reservoir, and a hollow cylindrical air-filled float mounted therein and closely fitting said reservoir, and adapted to move vertically therein, and consisting of an outer tube, the upper end of which is closed by a conical cap, the base of which extends upwardly, and the apex of which extends downwardly and inwardly and is provided with a tubular extension which projects downwardly and centrally through said outer tube, said outer and inner tubes being each open at the bottom, the longitudinal and lateral dimensions of the float being substantially equal to the corresponding dimensions of the interior of the reservoir, substantially as shown and described.

6. An inkstand consisting of an interiorly-cylindrical vertical reservoir, and a hollow cylindrical air-filled float mounted therein and closely fitting said reservoir, and adapted to move vertically therein, and consisting of an outer tube, the upper end of which is closed by a conical cap, the base of which extends upwardly, and the apex of which extends downwardly and inwardly and is provided with a tubular extension which projects downwardly and centrally through said outer tube, said outer and inner tubes being each open at the bottom, the longitudinal and lateral dimensions of the float being substantially equal to the corresponding dimensions of the interior of the reservoir, and said reservoir being provided at the top thereof with an annular overflow-chamber, the inner wall of which is formed by said float, substantially as shown and described.

7. In an inkstand the combination with a reservoir wholly open at the top, and interiorly cylindrical, of an exteriorly-cylindrical hollow air-filled float, having a central vertical delivery, said float laterally fitting the walls of the reservoir, and longitudinally formed so that when resting upon the bottom of the reservoir it will project above the top of the same, the upper end of said float being provided with an annular flange whereby the upper portion of said float and said flange conjunctively form the closure of the open top of the reservoir.

8. An inkstand consisting of two parts one adapted to receive the other within it, the same being wholly open at one end and closed at the other, said part forming the ink-reservoir, and the other part of the device being formed to telescope within said first part or reservoir, and closely fit the wall thereof, said part being of a length corresponding with the depth of the reservoir and being provided with a flange to limit the telescoping of the parts and permit their mutual detachment, said inner part being adapted to deliver or supply the ink, and being formed into a funnel at the top, into a float throughout its length, and into a tube throughout its center.

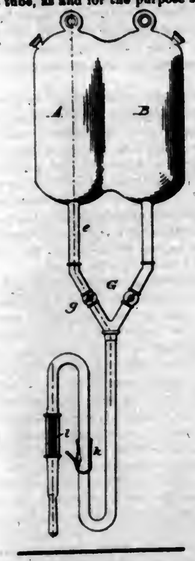
9. In an inkstand the combination with a float of the character described, of a reservoir formed to receive the said float within it, and to closely surround the same, said reservoir being provided with a base on which said float is adapted to rest, and extending approximately to the top of said float, said reservoir being of a uniform width throughout the major portion of its interior, and being of an increased width at the top thereof to form a vertical annular groove or recess itself of uniform width, said upper recessed portion of the reservoir being wholly open at the top to permit the free insertion and removal of the float.

605,178. FOUNTAIN-SYRINGE. FRANK C. FERGUSON, Indianapolis, Ind. Filed Feb. 2, 1897. Serial No. 621,654. (No model.)

Claim.—1. A fountain-syringe consisting of a chambered bag, each chamber having at its upper portion an induction-opening and at its lower portion an eduction or discharge tube, a branched, or Y-shaped discharge-tube coupled to the eduction-tubes depending from the bag, a pair of turn-valves, one of each located in the upper branched portion of the Y-shaped tube, a transparent cylinder or tube connected with and depending from the discharge end of said tube, a thermometer located in said transparent tube or cylinder and a discharge-nozzle connected with the lower end of said cylinder, as and for the purpose set forth.

2. A fountain-syringe consisting of a divisional or chambered receptacle having induction and eduction nozzles or posts connected with the respective divisions or chambers, a discharge-tube having a Y-shaped branched portion connected with said eduction-nozzles and having a valve in each branch, a transparent tube or cylinder connected at its inner end with the lower, or outer, end of said discharge-tube, a pair of transversely-bored soft-rubber disks contained and frictionally held within said transparent tube, a thermometer passed through and flexibly supported by said rubber disks within said transparent

tube, and a discharge-nozzle connected with the lower, or outer, end of said transparent tube, as and for the purpose set forth.



605,179. BOTTLE-WASHER. CHARLES H. FISCHER and HENRY R. FISCHER, Cincinnati, Ohio. Filed Mar. 6, 1897. Serial No. 626,205. (No model.)



Claim.—1. In a bottle-scouring device, the combination of a vessel containing the scouring medium, a continuous water-pipe entering and passing through said vessel, terminating above it in a discharge-nozzle, having lateral openings in its wall at such height as to be within that part of the vessel occupied by the scouring medium, so that when water is permitted to pass through said pipe, portions of the scouring medium are drawn in through said lateral openings and a bottle-support for sustaining the bottle in an inverted position above the discharge end of said pipe.

2. In a bottle scouring and rinsing device the combination of a vessel 8, pipes 9 and 12, the former having openings 11 in its wall for communication with vessel 8, the two pipes ending in a single discharge spout or nozzle, a support for sustaining a bottle in an inverted position above the latter, a spreader 19 secured to pipe 9 below this support, a pipe 13 supplying pipes 9 and 12, and a cut-off device for admitting the supply to either one of these pipes.

3. In a bottle scouring and rinsing device, the combination of a vessel 8 to receive the scouring medium, two continuous pipes 9 and 12 passing through the former, pipe 9 having openings 11 in its wall at such height as to be in communication with vessel 8 to admit the scouring medium, the two pipes connected above holes 11 to form a single discharge spout or nozzle, a support for sustaining a bottle in an inverted position above the latter, a pipe 13 supplying pipes 9 and 12 and a cut-off device for admitting the supply to either one of the pipes.

4. In a bottle scouring and rinsing device, the combination of a vessel 8, pipes 9 and 12, the former having openings 11 in its wall for communication with vessel 8, the two pipes ending in a single discharge spout or nozzle, a support for sustaining a bottle in an inverted position above the latter, overflow-openings in vessel 8, a shield 21 in front of them, a pipe 13 supplying pipes 9 and 12 and a cut-off device for admitting the supply to either one of the pipes.

605,180. BOTTLE-WASHER. HENRY R. FISCHER and CHARLES H. FISCHER, Cincinnati, Ohio. Filed Nov. 15, 1897. Serial No. 658,590. (No model.)



Claim.—1. In a bottle-cleaning device, the combination of a vessel to contain the scouring medium, a water-pipe passing through the same, having lateral openings which communicate with the lower part of the vessel, means to open and close these openings and supporting means for holding an inverted bottle above the discharge end of the water-pipe.

2. In a bottle-cleaning device the combination of a vessel 13 a water-pipe 8, lateral openings 14 therein, lids 16 for these openings means to open and close them and a support for holding an inverted bottle above the water-pipe.

3. In a bottle-cleaning device, the combination of a vessel 13 a water-pipe 8, lateral openings 14 therein, lids 16 for these openings levers 28 which carry these lids, means to swing the levers for closing or uncovering openings 14 and a support for holding an inverted bottle above the water-pipe.

4. In a bottle-cleaning device, the combination of a vessel 13 a water-pipe 8, lateral openings 14 therein, lids 16 for these openings, levers 28 which carry these lids, a cam-plate 32 with an accessible handle for operating these levers to open or close openings 14 and a support for holding an inverted bottle above the water-pipe.

5. In a bottle-cleaning device the combination of a vessel 13, a water-pipe 8, lateral openings 14 therein, lids 16 for these openings means to open and close them, a spreader 22 supported on pipe 8 and a support for holding an inverted bottle above the water-pipe.

6. In a bottle-cleaning device, the combination of a vessel 13 a water-pipe 8 having lateral openings 14, a member 17 superposed upon vessel 13 to add to the height of the latter and provided with overflow-openings 18 and a support for holding an inverted bottle above the water-pipe.

7. In a bottle-cleaning device, the combination of a vessel 13, the height of which is increased by the superposition of additional members fitted thereto, a water-pipe 8 having lateral openings 14, and the curved spring-wire bottle-supports 26 projecting upwardly and turned over the uppermost member and extending downwardly within the same.

8. In a bottle-cleaning device, the combination of a vessel 13, a water-pipe 8 having lateral openings 14, a member 17 superposed upon vessel 13 to add to the height of the latter and provided with overflow-openings 18 an annular drain-gutter 19 with waste-pipe 21 below them and a support for holding an inverted bottle above the water-pipe.

9. In a bottle-cleaning device, the combination of a series of vessels 13, a water-pipe 8 for each, a supply-pipe 11 for all these water-pipes, lateral openings in these latter, means to open and close them, a connecting-rod attached to these means in a manner to cause all of them to operate together, and bottle-supports above each vessel.

10. In a bottle-cleaning device, the combination of a series of vessels 13, a water-pipe for each, a supply-pipe 11 for all these water-pipes, lateral openings 14 in these latter, bottle-supports above each vessel, a superposed member 17 on each of the latter to increase their height overflow-openings in them and a drainage-gutter with waste-pipe surrounding the whole series of vessels below the overflow-openings in the latter.

11. In a bottle-cleaning device the combination of a vessel adapted to contain the scouring medium, a water-pipe communicating with the same, supporting means for holding an inverted bottle above the discharge end of the water-pipe and a tip on this latter so mounted as to be capable of being rotated by the force of the discharging current.

12. In a bottle-cleaning device, the combination of a vessel 13, a water-pipe 8 having lateral openings 14, a member 17 superposed upon vessel 13, to add to the height of the latter and provided with overflow-openings 18, a guard 23 interposed in front of them and a support for holding an inverted bottle above the water-pipe.

605,181. BICYCLE-WHEEL BELT. WILLIAM F. GLIDDEN, Ingersoll, Canada. Filed Jan. 23, 1896. Serial No. 576,618. (No model.)



Claim.—1. In a bicycle-wheel belt, a flexible shield which fits snugly over the tire of the wheel, and two series of straps secured to the shield, and extending laterally thereto, combined with cords which connect the outer ends of the extensions at a suitable distance from the edge of the shield, substantially as shown.

2. A belt composed of the shield, A, straps, B, provided with the loops or eyes, B', and the cords, C, in combination with and extending around a wheel-tire and over an antifriction roller or pulley, and means for supporting the latter, the periphery or outer face of the antifriction roller or pulley being wider than the periphery or outer face of the wheel-tire for the purpose of spreading the belt as it passes from and on to the wheel-tire to prevent the latter from being rubbed or injured, substantially as set forth.

3. In a bicycle, a belt, the front wheel around which the belt extends, and an antifriction-roller arranged over the wheel, and over which roller the belt passes, combined with a supporting-spring for the roller, and which spring extends over the top of the wheel; an eccentrically-pivoted bearing which supports the spring at a point in between its two ends, and by which the tension of the roller upon the belt is regulated; and means connected to the inner end of the spring for securing it in position, substantially as shown.

4. A belt consisting of a shield, A, straps, B, provided with the loops or eyes, B', and cords, C, extending around the tread of the wheel-tire and over the antifriction roller or pulley, in combination with a spring, and an eccentrically-pivoted bearing and means for supporting and operating the latter, substantially as and for the purpose set forth.

5. In a bicycle, the front forks D, D, the standards E, E, secured thereto at their lower ends and projecting upwardly, and the braces 1, 1, connected both to the forks at one end, and to the standards at the other, combined with a shaft G which passes through both the braces and the forks, a spring, means for securing it to the bicycle-frame, a roller supported by its front end, a belt, the front wheel of the bicycle around which and pulley, the belt passes; an eccentric bearing placed upon the shaft, a suitable support for the front of the eccentric bearing, and a support for the forks I, which is attached at its upper end to the support for the bearing, substantially as shown.

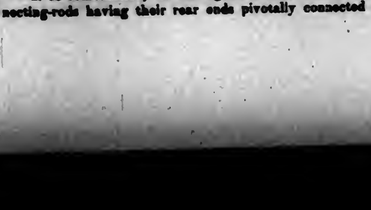
6. The front forks D, D, the standards E, E, secured thereto at their lower ends, the braces I, I, secured to the forks at their rear ends, and to the upper ends of the braces at their front ones, the rod G which connects the front ends of the braces and the front ends of the standards, combined with an eccentric bearing that is pivoted upon the rod at its rear end, a support for the front edge of the bearing, a support which is secured to the forks at its lower end, and connects at its upper end with the support for the front edge of the bearing, a spring that rests upon the eccentric bearing and has its rear end secured to the forks by means of the vertical support, a pulley attached to the outer end of the spring, and a belt which passes around the front wheel of the bicycle, and pulley, substantially as shown.

7. In a bicycle-frame, the standards E secured thereto at their lower ends, the braces I secured to the frame at their rear ends, and the rod G which connects the front ends of the braces and the upper ends of the standards, combined with an eccentrically-pivoted bearing placed on the rod; a spring resting upon the bearing, the pulley secured to the outer end of the spring, a support which rises from the braces and serves to connect the inner end of the spring to the braces, substantially as described.

8. The bicycle frame, the standards E, the braces I, and clasps for securing the standards and the braces to the frame, and the rod G for rigidly connecting the ends of the standards and the braces, combined with an eccentrically-pivoted bearing, means for regulating the position of the bearing, a spring resting upon the bearing, means for connecting the spring to the bicycle-frame, a roller secured to the outer end of the spring, and a belt which passes around the roller and the wheel of the bicycle, substantially as described.

9. In a bicycle, the standards E, the crossed braces I, suitable clasps for connecting the standards and braces to the bicycle-frame, the rod G for connecting the ends of the standards and braces, and the eccentrically-pivoted bearing, having a rounded top and end flanges, combined with a flat spring that has its rear end secured to the braces, a roller secured to its outer end, a belt which passes around the roller, the rod d which passes through the spring and secures it to the braces, and the rod d^3 connected to the bearing and provided with means at its upper end for holding the bearing in any desired position, substantially as shown.

605,182. BICYCLE. AMBER JOHNSTON, Jersey City, N. J., assignor of five-eighths to George B. Fielder, same place, and E. Guy Foster, New York, N. Y. Filed Apr. 8, 1897. Serial No. 631,908. (No model.)



Claim.—1. In a bicycle, the front wheel having its hub provided with a slot which extends from the center, radially toward one edge thereof, combined with the front axle, which passes through the slot, and is adjustable therein, and means for rigidly securing the axle in any desired position in the slot, whereby the front end of the frame is given a rising-and-falling movement when the bicycle is in motion, substantially as shown.

2. In a bicycle, a hub of a wheel having slots made therein, and which slots have notches along their edges, combined with an axle-bearing which passes through the slots, and supporting devices for said bearing, provided with means for catching in the notches and supporting the axle-bearing in any desired position, whereby the position of the axle with relation to the center of the wheels is changed, substantially as described.

3. In a bicycle the combination of the frame, the hub of the front wheel composed of end plates having openings 10 and 11, an axle-bearing having flange 13 to rest against the inner side of said plates, and having a projection extending out of said plate to hold the washer 16 having lugs 17 which enter corresponding openings 11 in said plate, an axle passing through said axle-bearing, as and for purposes set forth.

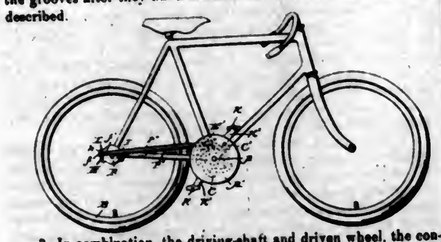
4. In a bicycle the combination of the frame, the hub of the front wheel composed of plates 5 and 6 having an opening 10 through which the axle-bearing passes, a washer 16 having lugs 17 on the inner side to correspond with and enter the openings 11 on said plate, nuts to hold said washer and axle-bearing in place, an axle 23 passing through said axle-shell and secured to front fork of said frame, substantially as set forth.

605,188. DRIVING CONNECTION FOR BICYCLES. HUGH W. JOHNSTON, Atlanta, Ga., assignor of one-half to Paul H. Johnstone, Idylwild, Ga. Filed Mar. 12, 1897. Serial No. 627,191. (No model.)

Claim.—1. In combination with the driving-shaft and driven wheel, the connecting-rods having their rear ends pivotally connected to the driven wheel, disks upon the driving-shaft having continuous ways in their faces provided with approximately radial portions forming shoulders, the forward ends of said connecting-rods having a sliding connection with the ways and being arranged to alternately engage with said shoulders to exert a longitudinal pull upon the rods during the entire forward movement thereof, and to be released therefrom to permit the rods to move freely backward to their initial position, substantially as described.

2. In combination, the driving-shaft and driven wheel, the connecting-rods having their rear ends pivotally connected with the

driven wheel, the disks upon the driving-shaft having grooves in their faces with angular portions forming shoulders, extensions or offsets upon the forward ends of the rods adapted to alternately engage said shoulders and slide in the intermediate portions of the grooves, and means for holding the ends of the rods against reverse movement in the grooves after they have reached the shoulders, substantially as described.



3. In combination, the driving-shaft and driven wheel, the connecting-rods having their rear ends pivotally connected with the driven wheel, the disks upon the crank-shaft having continuous grooves in their faces with approximately radial portions forming shoulders, extensions or offsets upon the forward ends of the rods traveling in the grooves adapted to alternately engage the shoulders to exert a pull upon the rods and to disengage the shoulders to permit the rods to move rearwardly, and means for preventing the disengagement of each rod from the shoulders until the rear wheel has made a semirevolution, substantially as described.

4. In combination, the driving-shaft and driven wheel, the disks or crank-arms carried by the driven wheel, the disks on the crank-shaft, having continuous grooves in their faces provided at intervals with shoulders, connecting-rods pivotally connected to the disks on the driven wheel and having extensions or offsets at their front ends adapted to travel in the grooves and alternately engage the shoulders, and slide in the intermediate portions of the grooves, and springs carried by the disks of the rear wheel adapted to engage the end of the rod in rear of its pivot and prevent the front end from disengaging the shoulders until the driven wheel has made a semirevolution, substantially as described.

5. In combination, the driving-shaft and driven wheel, disks carried by said parts, continuous grooves in the faces of the driving-shaft disks having shoulders at intervals, connecting-rods pivotally connected at their rear ends to the driven-wheel disks or crank-arms and having offsets at their front ends adapted to travel in the grooves and to engage the shoulders, and springs carried by the driven-wheel disks and adapted to engage the rods in rear of their pivots, said rods having recessed portions to permit the passage of said springs in front of the said pivots, substantially as described.

6. In combination, the driving-shaft and driven wheel, disks carried by said parts, continuous grooves in the faces of the driving-shaft disks having shoulders at intervals, connecting-rods pivotally connected at their rear ends to the driven-wheel disks or crank-arms and having offsets or extensions traveling in the grooves of the driving-disks and adapted to alternately engage the shoulders and to disengage the same and slide in the intermediate portions, and pawls located in proximity to the shoulders adapted to engage the rods and hold them against reverse movement until the rear wheel has made a semirevolution, substantially as described.

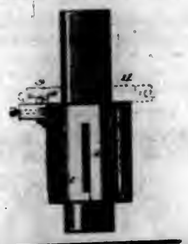
7. In combination, the driving-shaft, the driven wheel, the disks carried by the driving-shaft having grooves in their faces provided at intervals with approximately radial shoulders, the connecting-rods having their rear ends pivotally connected to the rear wheel, and having offsets traveling in the grooves and adapted to abut against the shoulders to exert a longitudinal pull upon the rods, said grooves having overhanging edges adapted to retain the offset ends in the grooves, substantially as described.

605,184. RECESSING-TOOL FOR LATHES. GEORGE R. MILLER, Middletown, Pa., assignor of one-half to John W. Allright, same place. Filed Dec. 18, 1896. Serial No. 616,180. (No model.)

Claim.—1. In a recessing-tool, the combination with a tap having a recess or pocket, of a tool-holder carried thereby provided with a tenon engaging said recess or pocket and with a tool slot or opening, independently-adjustable recessing and facing tools superposed one in relation to the other and in diametrical relation to the tap in said opening, and a clamping-screw passing through the tool-holder and binding on said tools.

2. In a recessing-tool, the combination with a tap, of a tool holder or post having a portion received in said tap, a screw whose shank passes through the tap and into the post and is adapted for holding the latter in position, and a tool secured in said tool-holder.

3. In a recessing-tool, the combination with a tap provided with a recess, of a tool holder or post having a reduced portion which fits in said recess and said post extending diametrically in relation to the tap and provided with an opening, an inclined screw whose shank passes through the tap and into the reduced portion of the post, independent recessing and facing tools located in the holder, and a clamping-screw threaded into the said post or holder and binding on the tools.



605,185. BRUSH. HORACE R. MILLER, Newark, N. J., assignor to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 12, 1897. Serial No. 623,063. (No model.)



Claim.—A back for brushes, consisting of (1) an upper half-shell which has sufficient raised portions to support a metal covering on its exterior surface, and (2) a lower half-shell into which the bristles are drawn or attached: both half-shells being composed of a pyroxylin compound and secured together at their meeting edges; in combination with an upper thin sheet of metal which approximately fits over the raised portions of the surface of the upper half-shell and has its edges folded over upon the edges of the lower half-shell and is secured thereto, substantially as described.

605,186. WICK-LIFTING DEVICE. WILLIAM A. PENFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., New Haven, Conn. Filed Oct. 25, 1897. Serial No. 656,269. (No model.)

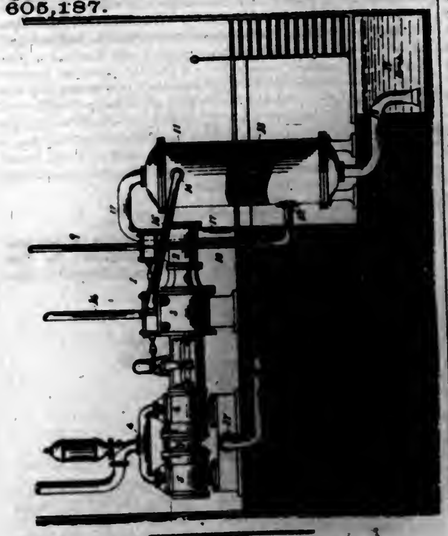


Claim.—In a wick-lifting device for central-draft lamps, the combination with a pair of horizontally-arranged cast-metal jaws, each of which has a transversely-arranged spring-recess formed in its upper face, and with an outwardly-projecting extension located in line with the said recess, a transversely-arranged spiral spring located in the said recesses of the jaws, and connected at its outer ends with the outer ends of the said extensions, and a vertically-arranged drawbar with the lower ends of which one or both of the said jaws is pivotally connected.

605,187. PNEUMATIC PUMPING-ENGINE. EDWARD A. REX, San Francisco, Cal. Filed July 16, 1897. Serial No. 644,812. (No model.)

Claim.—In combination with the high and low pressure cylinders of a pneumatic engine, a water-pump driven thereby, and a chamber or vessel provided with two sets of adjacent passages, through one set of which passes the water being pumped, the other set being connected on one side with the exhaust of the high-pressure air-cylinder, and on the other side with the inlet of the low-pressure air-cylinder, whereby the temperature of the high-pressure exhaust-air is raised by that of the water being pumped, substantially as specified.

605,187.



605,188. BUNDLE-CARRIER FOR BICYCLES. CARL ROSDELL, Minneapolis, Minn. Filed Mar. 18, 1897. Serial No. 628,102. (No model.)



Claim.—1. A bundle-carrying attachment for cycles, comprising a fixed bed or bottom section, a pair of spring-closed leaves or wings, hinged to the opposite sides of said bed-section and folding toward each other, and means for securing said bed-section to the cycle, substantially as described.

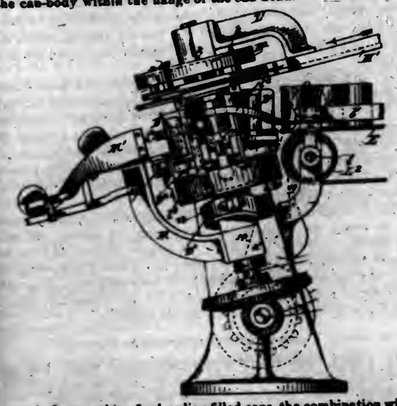
2. A bundle-carrying attachment for cycles, comprising a fixed bed-section, a pair of leaves or wings hinged to the opposite sides of said bed-section and folding toward each other, means for simultaneously opening both of said wings, and means for securing the bundle-carrier to the cycle, substantially as described.

3. A bundle-carrying attachment for cycles, comprising a bed or bottom section, a pair of clamping-leaves hinged to said bottom-section and under spring tension to close, a handpiece with link-and-lever connections to said leaves, for simultaneously opening the same, said connections involving slot-and-pin joints, which permit the said leaves to be opened independently when force is applied thereto, substantially as described.

4. An attachment for cycles, comprising the pair of parallel pronged brackets, the prongs of which are securable to the prongs of the front fork of the cycle, the bed or bottom section secured to the upper prongs of said brackets, and the pair of spring-closed leaves or wings hinged to said bed-section, substantially as described.

605,189. CAN ENDING OR HEADING MACHINE. HENRY SCHAAER, New Westminster, Canada. Filed Oct. 27, 1897. Serial No. 656,541. (No model.)

Claim.—1. In a machine for heading or ending filled cans, the combination with the rotating shaft, of the hub fastened thereon, the vertical can-holders, the can-head holders, of mechanism for placing the filled cans in the holders in a vertical position and of devices for moving the can-holders toward the can-head holders in order to place the inner edge of the can within the inner portion of the flange of the retained can-head and throwing the can-holders from an inclined position into a vertical position, so as to force the entire circumference of the can-body within the flange of the can-head.



2. In a machine for heading filled cans, the combination with the rotary shaft, of the hub fastened thereto, the vertical slide-plates working within guide-channels in the hub, the can-holders fulcrumed at one end to the slide-plates, the can-head holders connected to the rotary shaft, of devices for imparting a vertical reciprocating movement to the slide-plates so as to move the can-holders toward and from the can-head holders, and of devices for throwing the can-holders from an inclined to a vertical position so as to force the entire circumference of the can within the flange of the retained can-head.

3. In a machine for heading cans, the combination with the rotary shaft, of the can-head holders connected therewith, the vertically-movable slide-plates carried by the rotary shaft, the can-holders fulcrumed to the slide-plates, devices for imparting a vertical movement to the slide-plates to raise and lower the can-holders, and of the device for forcing the headed or ended can from within the can-holders.

4. In a machine for heading cans, the combination with the rotary shaft, of the can-head holders connected to and carried by said shaft, the movable face-plate hinged to the stationary section of the can-head holder, devices for throwing the movable face-plate inward and outward in order to lock and release the can-head, and of the plunger-rod for forcing the headed can-body from within the can-head holder.

5. In a machine for heading cans, the combination with the vertically-movable slide-plates, of the can-holders fulcrumed thereto, the can-head holders, of mechanism for moving the slide-plates toward and from the can-head holders, and of devices for throwing the can-holders from an inclined to a vertical position.

6. In a machine for heading cans, the combination with the vertically-movable slide-plates, of the can-holders fulcrumed at one end to the slide-plates, the can-head holders, mechanism for moving the slide-plates toward and from the can-head holders and moving the can-holders from an inclined to a vertical position, and of devices for forcing the headed can from within the can-holder.

7. In a heading-machine for cans, the combination with the rotary shaft, of a series of cam-rings, each having an eccentric groove therein, the hub fastened upon the rotatig shaft, vertically-movable slide-plates working within a guide-channel formed in the hub of the rotating shaft, a roll connected to the slide-plates, the can-holder fulcrumed at one end to the slide-plates, a roll secured to an arm projecting from the can-holder, the roll of the can-holder and slide-plate working in eccentric grooves, the can-head holder connected to the rotating shaft, the movable face-plate secured thereto, the roll secured to an arm projecting from the movable face-plate, a cam-ring having an eccentric groove therein within which the said roll works, and of devices for forcing the headed end of the can from within the can-head holder and the can from within the can-holder.

8. The combination with the fulcrumed can-holders, of mechanism for throwing the can-holders from an inclined to a vertical position, of the can-extracting device working within the can-holders and of devices for moving the extracting device in and out of the said can-holder.

9. The combination with the rotating shaft, of the can-head holders carried thereby, the movable can-holders, mechanism for imparting rotary motion to the said shaft, the can-conveyer or feed-belt which delivers filled cans to the holders, mechanism for driving the conveyer or feed-belt at a higher speed than the rotating shaft, and of devices for moving the can-holder toward and from the can-head holders.

10. The combination with the rotating shaft, of the can-head holders secured thereto, the fulcrumed can-holders, devices for imparting vertical movement to the can-holders, mechanism for delivering filled cans to the can-holders in a vertical position, and of devices for retaining the cans in the can-holders during the heading operation.

11. In a machine for ending or heading cans, the combination with the rotating shaft, of the vertical can-holders secured to and carried thereby, the can-head holders carried by the shaft, devices for moving the can-holders toward and from the can-head holders, the can-conveyer or feed-belt which delivers cans to the can-holders during the rotary travel thereof, and of mechanism for imparting greater speed to the conveyer or feed-belt than to the rotary shaft carrying the can and can-head holders.

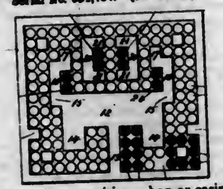
12. In a machine for ending or heading cans, the combination with the rotary traveling mechanism carrying can-holders, and can-head holders, of devices for moving can-holders toward and from the can-head holders, during the travel of the rotary traveling mechanism, and of the can-conveyer or feed-belt for delivering the cans to the can-holders in a vertical position, said conveyer or feed-belt traveling at a greater speed than that of the can-holders.

605,190. PROCESS OF PREPARING LIQUID FOOD. WILLIAM BELLHAM, Darking, England. Filed Dec. 27, 1897. Serial No. 663,778. (No specimens.) Patented in England Feb. 5, 1897, No. 3,095.

Claim.—1. The process or method herein described of manufacturing a food product which consists in placing new-laid eggs in their shells in a receptacle, covering said eggs with lemon peel and juice, placing more eggs in their shells in the receptacle and covering with orange-juice and salt, to assist in dissolving the egg-shells; hermetically sealing the receptacle for seven days; adding to this mass castor sugar, extract of beef, mutton, rabbit and chicken, crushed cereals, cream, boiling milk, honey and cognac, thoroughly mixing and filtering the mass and placing it in an old sherry-cask to mellow, as described.

2. The process or method herein described of manufacturing a liquid food (say five gallons) which consists in placing thirty-six new-laid eggs in their shells in a receptacle and covering said eggs with the peel of thirty-six lemons and the juice of seventy-two lemons, placing on the lemon peel thirty-six more new-laid eggs and spreading over same the juice of twelve oranges and two ounces of salt to assist in dissolving the egg-shells, hermetically sealing the receptacle and keeping same closed for about seven days to allow the mass to become gelatinized by the action of the fruit and salt; adding to this mass two and one-half pounds of castor sugar; boiling twenty-five pounds each of beef, mutton, rabbit and chicken until reduced to about two ounces per pound and then well admixing same with the gelatinous body; adding thereto one pint of crushed cereals, three pints of cream, three pints of boiling milk, one-half pound of honey and one-half gallon of cognac; filtering the mass and placing same in an old sherry-cask to mellow for about four weeks, substantially as set forth.

605,191. PUZZLE. EDGAR A. SHIELDS, New York, N. Y. Filed Sept. 15, 1897. Serial No. 651,737. (No model.)



Claim.—1. A puzzle, comprising a box or casing composed of a bottom and vertical side walls, said box or casing being provided interiorly with an angular raised body portion having upon one side angular extensions which project first toward the end walls of the box or casing, and then toward one of the side walls, and an extension upon the other side which is connected with the other side wall, the interior of said box or casing being also provided with detached angular vertical walls partially inclosed by said angular extensions between which is a rectangular space having side openings, and with four sets of bodies or figures, three sets of which are equal in number and each designated from the other by coloring or otherwise, and the other set being also designated from the first three by coloring or otherwise, said box or casing being also provided with one vacant space, substantially as described.

2. A puzzle, comprising a box or casing composed of a bottom and vertical side walls, said box or casing being provided interiorly with an angular raised body portion having upon one side angular extensions which project first toward the end walls of the box or casing, and then toward one of the side walls, and an extension upon the other side which is connected with the other side wall, the interior of said box or casing being also provided with detached angular vertical walls partially inclosed by said angular extensions between which is a rectangular space having side openings, and with four sets of bodies or figures, three sets of which are equal in number and each designated from the other by coloring or otherwise, and the other set being also designated from the first three by coloring or otherwise, said box or casing being also provided with one vacant space, and in each corner thereof with angular detached raised bodies or portions, substantially as described.

605,192. TALKING WATCH OR CLOCK. CASIMIR BYAR, Geneva, Switzerland, assignor to Joseph A. Vincent, Philadelphia, Pa. Filed Aug. 24, 1897. Serial No. 649,288. (No model.) Patented in Switzerland Feb. 21, 1892, No. 4,918.



Claim.—1. In combination with the mechanism of a watch or clock, a sound-reproducing machine comprising a record-disk, means for rotating the same, a diaphragm, a stylus-lever provided with a stylus adapted to the record and to said diaphragm, a cam driven by the watch mechanism adapted to move the stylus and stylus-lever across the record, and means as shown for moving the record-disk into and out of engagement with the stylus.

2. In combination with the watch or clock mechanism, a record-disk, means as shown for rotating the same, a stylus-lever provided with a stylus adapted to the record-disk, a diaphragm acted upon by the stylus-lever, a cam driven by suitable gearing from the minute-hand shaft, said cam being arranged to move the stylus and its lever across the face of the record-disk, and means as shown and described for moving the record-disk into and out of engagement with the stylus.

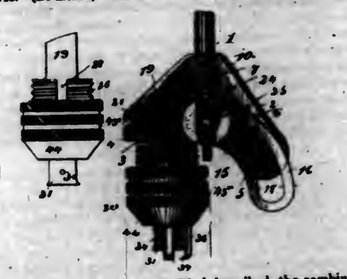
3. In combination with a clock or watch, a record-disk mounted upon a central shaft rotated by spring means through a train of gearing, a stylus-lever provided with a stylus adapted to traverse concentric rings upon the record-disk, a diaphragm adapted to be acted upon by the stylus-lever, means as shown and described to move the record-disk into and out of engagement with the stylus, a cam controlled by the minute-hand shaft through the medium of gearing for conveying the stylus across the face of the record-disk; means as shown to convey the stylus into and out of engagement with said cam, and a pawl adapted to a spur-wheel carrying said cam to determine the position of the stylus with respect to the record.

4. In combination with the clock or watch mechanism a record-disk mounted upon a central shaft, spring mechanism for rotating said shaft, a stylus-lever as shown, provided with a stylus adapted to the record, a diaphragm adapted to be vibrated by the stylus-lever, a cam controlled by the clock or watch mechanism through the medium of the minute-hand shaft, said cam being arranged to carry the stylus-lever and stylus across the face of the record-disk, a spring-actuated lever adapted to move the record-disk into and out of engagement with the stylus and simultaneously move the stylus-lever into and out of engagement with said cam, and a pawl to engage the spur-wheel carrying said cam, for the purpose specified.

5. In combination with the clock or watch mechanism, a record-disk mounted upon a shaft, spring mechanism for rotating said shaft, a stylus-lever as shown, provided with a stylus adapted to the record, a vibrating diaphragm adapted to be acted upon by the stylus-lever, a cam for operating the stylus-lever controlled by the watch mechanism, through the medium of the minute-hand shaft and gearing, and a lever adapted to move the record-disk into and out of engagement with the stylus and simultaneously move the stylus into and out of engagement with said cam.

6. In combination with the clock or watch mechanism, a record-disk mounted upon a central shaft, spring mechanism for rotating said shaft, a stylus-lever as shown, provided with a stylus adapted to the record, a diaphragm in contact with the stylus-lever, a cam for operating the stylus-lever controlled by the watch mechanism through the medium of the minute-hand shaft and gearing; a lever adapted to move the record-disk into and out of engagement with the stylus and simultaneously move the stylus-lever into and out of engagement with said cam, and a winding-stem provided with mechanism as shown so as to be capable of winding the spring of the watch mechanism when turned in one direction, and the spring controlling the record-disk when turned in the opposite direction.

605,193. MACHINE FOR GRINDING AND POLISHING DIAMONDS. LEOPOLD H. STERN and THOMAS W. G. COOK, New York, N. Y.; said Cook assignor to said Stern. Filed Aug. 27, 1897. Serial No. 649,713. (No model.) Patented in Belgium Nov. 30, 1897, No. 131,964.



Claim.—1. In a device of the kind described, the combination of the supporting-rod 1, the stationary dop-section secured thereto, and having a segmental recess in its lower edge, a movable dop-section, a segmental plate provided with a segmental slot forming part of the movable dop section, means for securing the plate and stationary dop-section together, and a chuck having a plurality of independently-movable gripping-fingers movable in the direction of their length, extending radially from said plate, substantially as described.

2. In a device of the class described, the combination with the rod 1, the dop-section 2 secured to the rod, a segmental recess formed in the lower edge of said section, a plate having an upper edge coincident with said recess, a concentric slot, and a solid projection opposite the slot, a set-screw passing through the slot and into said section, and a chuck with movable holding-fingers extending from said projection, substantially as described.

3. The combination, in a clutch, of a threaded stem, longitudinal grooves formed in said stem, the cap movable on the stem, a plurality of movable gripping-fingers maintained in said grooves and moved by said cap, said fingers projecting outwardly from said cap, each being independently movable in the groove in the direction of their lengths, and a spring held by the stem and bearing against each of the fingers, substantially as described.

4. The combination, in a clutch, of a threaded stem, a plug having a seat rotatably secured in the end of the stem, a cap on the stem and longitudinally-movable gripping-fingers adapted to be moved toward said seat by said cap, substantially as described.

5. The combination, in a clutch, of a threaded stem, longitudinal grooves formed in said stem, a plug rotatably secured in a recess in the end of the stem, said plug having a seat formed in its outer end, a cap on the stem, and longitudinally-movable gripping-fingers in the grooves having ends extending beyond the end of the plug, and adapted to be bodily moved in said grooves in the direction of their length by said cap, substantially as described.

6. The combination, in a clutch, of a threaded stem, longitudinal grooves formed in said stem, a cap movable on the stem, a plurality of gripping-fingers, each being independently movable in said grooves in the direction of their lengths, and springs interposed between one side of the groove and the opposing side of the finger for pressing said fingers against the cap, substantially as described.

7. The combination in a clutch, of the grooved stem, a cap movable thereon, of a plurality of gripping-fingers held between the cap and stem and each capable of an independent sliding movement in the grooves in the direction of their lengths, the stem being interposed between each of said fingers and separating them from each other, and a spring held by the stem and bearing against each of said fingers, substantially as described.

8. The combination, in a chuck, of a grooved stem, a cap movable thereon, the stem extending through the cap, of one or more gripping-fingers held in said groove between the stem and cap, said finger being movable in the direction of its length independent of the cap and bearing against the cap at two points, and a seat secured to the stem exterior of the cap, the point of the finger being adapted to bear against said seat, substantially as described.

9. The combination in a chuck, of a stem having solid center and a longitudinal groove formed between the exterior of the stem and said center a cap movable on the stem over the groove, of a sliding gripping-finger maintained in said groove between the stem and cap, and a spring secured to the stem, loosely engaging the inner side of the finger, and adapted to press it against said cap, substantially as described.

10. The combination with the grooved and threaded stem, of the threaded cap movable on the exterior of said stem, a gripping-finger in said groove, a spring secured to the stem and interposed between the stem and inner side of the finger, a seat formed on the stem and projecting out beyond the cap, the finger extending beyond said seat, a contracted head on the cap, and a shoulder on the outer side of the finger between its ends engaging said head, substantially as described.

11. The combination with the grooved stem, of the cap movable on said stem, a gripping-finger in said stem-groove, said finger having a longitudinal groove facing the stem and an exterior shoulder engaging the cap, and a spring secured to the stem and resting in the groove in the finger between it and the stem, substantially as described.

12. In a clutch, the combination with the stem, of the cap movable on the stem, a groove formed in said stem, a gripping-finger having a groove adjacent said stem and a shoulder on the opposite edge, a rounded shoulder on the end of the cap engaging the shoulder on the finger, and a spring on the stem lying in the groove in the finger, substantially as described.

13. The combination with the grooved stem, of the cap movable on the stem over the groove, a spring secured to the stem at one end within the groove, its free end projecting outwardly therefrom, a grooved gripping-finger engaging the said spring and movable lengthwise thereon, a shoulder on the finger engaging a shoulder on the cap, and an inclined shoulder at the inner end of the finger adjacent the stem, substantially as described.

14. The combination with the dop-section 2 having the head 10, of a transverse aperture 9 formed in the head and extending partially therethrough, a threaded aperture 11 formed in the head alining with the aperture 9, a screw having a threaded stem 12 movable in the aperture 11 and adapted to enter the aperture 9, a plug movable in the aperture 9, said plug having a transverse aperture 8, said head 10 having a roof 14 and a crown-piece 6, alining apertures 1^a, 2^a in the crown-piece and roof, and a rod 1 passing through the apertures 1^a, 2^a and 8, the stem 12 abutting against the plug 7, substantially as described.

605,194. ELECTRIC TRANSFORMER. JOHN J. BELLHAM and CHARLES T. RITTENHOUSE, New York, N. Y. Filed June 30, 1897. Serial No. 642,573. (No model.)



Claim.—1. The combination in a transformer, of a ferromagnetic field built up of integral plates so mortised that when the plates are properly assembled the core of the magnetic field will be approximately circular in cross-section, substantially as set forth.

2. The combination in a transformer, of a ferromagnetic field, composed of mortised plates, a divided spool or spools interlinking with the magnetic field, and means for causing the spool or spools to revolve, substantially as set forth.

3. The combination in a transformer, of a ferromagnetic field, a spool or spools interlinking with such field and rollers for supporting the said spool or spools and for causing them to revolve about the core or cores of the magnetic field, substantially as set forth.

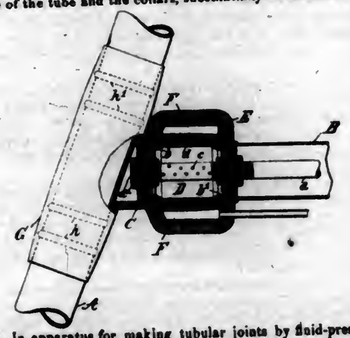
4. The combination in a transformer, of a ferromagnetic field of integral plates each having a mortise through it and a sectional or divided spool or spools interlinking with the ferromagnetic field and primary and secondary wires wound upon said spool or spools by rotating said spool or spools around the core or cores of said ferromagnetic field, substantially as set forth.

5. The combination in a transformer, of a ferromagnetic field built up of plates, and a sectional or divided spool or spools interlinking with the ferromagnetic field and the winding of wire around the core or cores of said ferromagnetic field by the turning of said spool or spools on the core or cores, substantially as set forth.

6. The combination in a transformer of a ferromagnetic field built up of plates, a sectional or divided spool or spools interlinking with the core and rollers for supporting the spool while being rotated, substantially as set forth.

605,195. TOOL FOR MAKING JOINTS. JOHN BIRTWELL, Manchester, England. Filed Aug. 20, 1897. Serial No. 649,644. (No model.) Patented in England Mar. 20, 1897, No. 7,067.

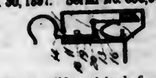
Claim.—1. In apparatus for making tubular joints by fluid-pressure, a tool for applying such pressure to a short portion of a tube, comprising a pipe having a perforated portion, a collar at each end of said perforated portion, said collars being smaller in diameter than the tube, and means for making fluid-tight joints between the inner surface of the tube and the collars, substantially as described.



2. In apparatus for making tubular joints by fluid-pressure, a tool for applying such pressure to a short section of a tube, comprising a pipe having a perforated portion, and a flexible water-tight tube, surrounding said portion and adapted to enter the joint, substantially as described.

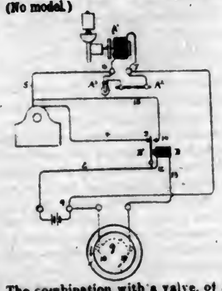
3. An apparatus for making tubular joints, consisting of an internal tool D comprising a perforated pipe *a* carrying two packed collars and closed at one end *a'*, and an external tool E comprising an annular shell containing the closed annular pipe F of flexible material, and means for conveying fluid-pressure into the pipes *a* and F.

605,196. COMBINATION SASH LOCK AND LIFT. IRA W. BROWN, New York, N. Y., assignor of one-half to Robert Latta, same place. Filed Oct. 30, 1897. Serial No. 656,947. (No model.)



Claim.—A combination lift and lock for a window-sash consisting of a case adapted to be secured to the sash-stile, a bell-crank lever fulcrumed in said case and having one of its arms depending from the fulcruming-point, the free end of said arm being hooked and projecting from said case, a detachable V-shaped spring arranged between said arm of the lever and the wall of the case, a vertically-movable lift arranged in said case and projecting therefrom, the inner end of said lift being hooked and operatively engaging the other of said lever-arms, lugs 18 and 20 situated on the side walls of said case in contiguity to said lift and upon opposite sides thereof, the under faces of said lugs 18 being beveled, beveled lugs 19 arranged on said lift and adapted to wipe on the lugs 18, and a keeper adapted to be engaged by said hooked arm of the lever and secured to the stile of the window-frame, substantially as described.

605,197. ELECTRICAL VALVE-CONTROLLING DEVICE. ARTHUR E. COLGATE, New York, N. Y., assignor to George J. Schoeffel, Brooklyn, N. Y. Filed May 28, 1896. Renewed Apr. 1, 1898. Serial No. 676,136. (No model.)



Claim.—1. The combination with a valve, of a magnet for controlling the same, a circuit extending thereto, an automatic circuit-controller for periodically opening and closing said circuit, and a single hand-operated switch for controlling the operation of the valve at will and also for controlling the connection of the automatic controller with the valve-magnet circuit, substantially as set forth.

2. The combination with a valve, of a magnet for controlling the same, a circuit extending thereto, an automatic circuit-controller for periodically opening and closing said circuit, a magnet for cutting said automatic controller out of circuit, and a single hand-operated switch for controlling the operation of the valve at will and also for controlling the operation of said last-named magnet to connect or disconnect the automatic controller in circuit, substantially as set forth.

3. The combination with a valve, of a magnet for controlling the same, a circuit extending thereto, an automatic circuit-controller for periodically closing said circuit, and a hand-switch having three contacts and a contact-plate adapted to bridge one pair of said contacts to place said automatic controller in the magnet-circuit to periodically open and close said circuit and to bridge another pair of said contacts to close the magnet-circuit at will, and which contact-plate assumes intermediate positions at which both the automatic controller is cut out of circuit and the magnet-circuit is opened, substantially as set forth.

4. In a weatherproof electrical switch, the combination with a cylindrical and practically water-tight casing, of a set of contacts within the casing carried by a base of insulation, a rotating switch-plate adapted to make contact with said set of contacts, a spindle projecting through the casing for rotating said switch-plate, said plate and set of contacts being adapted to move relatively to each other in a direction lengthwise of the spindle, a hood on said spindle extending over the top of the switch-casing, and a handle for rotating the spindle, substantially as set forth.

5. In a weatherproof electrical switch, the combination with a cylindrical and practically water-tight casing, of a set of contacts within the casing carried by a base of insulation, a rotating switch-plate adapted to make contact with said set of contacts, a spindle projecting through the casing for rotating said switch-plate, said plate and set of contacts being adapted to move relatively to each other in a direction lengthwise of the spindle, a hood on said spindle extending over the top of the switch-casing, a handle for rotating the spindle, and means cooperating with said hood for holding the spindle in its various positions, substantially as set forth.

6. In a weatherproof electrical switch, the combination with a practically water-tight casing, of a series of contacts within said casing carried by a stationary base of insulation, a rotating switch-plate adapted to make contact with said series of contacts, a spindle projecting through the casing for rotating said switch-plate, said switch-plate and said series of contacts being adapted to move relatively to each other in a direction lengthwise of the spindle in addition to the relative movement of rotation, and an operating-handle for said spindle, substantially as set forth.

7. In an electrical switch, the combination with a stationary base of insulation carrying a series of spring-seated contacts, of a rotating switch-plate adapted to make contact with said series of contacts, a spindle for rotating said switch-plate, said series of contacts being held in intimate contact with said switch-plate by the springs upon which they are seated, sockets carried by said stationary base of insulation, contact-posts adapted to enter said sockets, said sockets and contact-posts being arranged to permit slight movement toward and away from each other without breaking contact, and an operating-handle for said spindle, substantially as set forth.

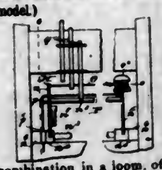
605,198. SAND-BOARD. LILIAN M. ELLIOT, New York, N. Y. Filed May 27, 1897. Serial No. 638,344. (No model.)



Claim.—As an educational device, a sand-board A, adapted to contain sand and provided with a backing *a*, a surrounding flange *a'* extended from the backing, straps B secured to the rear edge, straps B adapted to be looped into straps C and attached to the wall, a recep-

tacle a^2, a flexible binding E on said flange, adapted to prevent the escape of the sand, a cover, F, hinged to said board and means for supporting the board, comprising swinging brackets, H, attached to a support and adapted to permit the device to rest between them against the wall, substantially as shown and described.

605,199. SLACK-ALARM AND STOP-MOTION FOR LOOMS. JOSIAH HARRIMAN and JOHN HARRIMAN, Lowell, Mass.; said John Harriman assignor to said Josiah Harriman. Filed Feb. 7, 1896. Serial No. 578,354. (No model.)



Claim.—1. The combination in a loom, of a vibrator operated by a moving part of the loom, drops, each adapted to be supported by a warp of normal tension, and an audible signal supported on said vibrator, and a cord carried by said vibrator and connected to said signal and arranged to strike and to be pulled by a fallen drop, as and for the purpose specified.

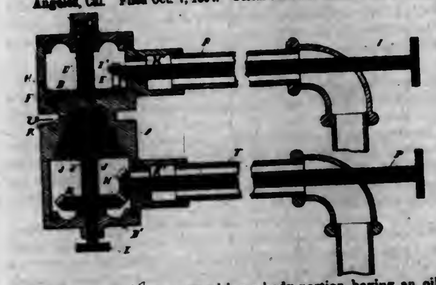
2. The combination in a loom, of the lay, a vibrator, operated by the movement of said lay, drops, each adapted to be supported by a warp of normal tension, and an audible signal supported on said vibrator, and a cord carried by said vibrator and connected to said signal and arranged to strike and to be pulled by a fallen drop, as and for the purpose specified.

3. The combination in a loom, of a vibrator operated by a moving part of the loom, a cord, stretched across said vibrator, a mechanical buzz-bell, supported on said vibrator and adapted to be operated by the pulling of said cord, and drops, each normally supported by a warp-thread and adapted upon the slacking of said warp-thread, to fall in the path of said cord and to pull the same, as and for the purpose specified.

4. The combination in a loom, of a vibrator, operated by a moving part of said loom, a cord carried thereby, an audible signal operated by the pulling of said cord, another cord carried by said vibrator, below said first-named cord, the shipping-lever, intermediate mechanism connected to said second-named cord and engaging said shipping-lever and operated by the pulling of said second-named cord, to disengage said shipping-lever, and drop-wires, each adapted to be supported by a warp of normal tension and to fall and engage said first-named cord upon the slacking of such warp and to engage said second-named cord upon the breaking of such warp, as and for the purpose specified.

5. The combination of a main shaft, a loose pulley, a fast pulley, a shipping-lever, a shipping-rod, to move said shipping-lever, a spring, to operate said rod in one direction, to move the belt from said fast pulley to said loose pulley, a collar fast on said shipping-rod, a bolt, normally engaging said collar, a lever, engaging said bolt to draw the same out of engagement with said collar, the lay, another lever, pivoted on said lay, a vibrator, operated by the movement of said lay, a cord connecting said vibrator and said last-named lever, and drops, each adapted to be supported by a warp-thread of normal tension and when unsupported to engage said cord and to raise said last-named lever into a position to strike said bolt-engaging lever and disengage said bolt from said collar, as and for the purpose specified.

605,200. HYDROCARBON-BURNER. CHARLES B. KITTLE, Los Angeles, Cal. Filed Oct. 7, 1897. Serial No. 654,484. (No model.)



Claim.—1. A burner comprising a body portion having an oil-chamber in its upper part, a steam-chamber in its lower part, a vertical oil-discharge port, and a horizontal steam-discharge port, the steam-discharge port discharging across the axis of the oil-discharge port, in combination with a valve having a spiral at its top and arranged to govern the steam-discharge port, substantially as described.

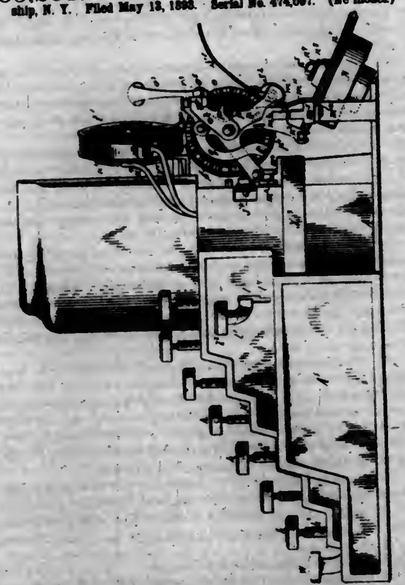
2. In a hydrocarbon-burner, the combination with the frame, A, having main discharge-port, U, a horizontal steam-discharge port, K, and vertical oil-discharge port, F, leading to discharge-port, U, and arranged to cause the steam and oil discharged therefrom to intermingle at the main discharge-port, the frame having a chamber in the upper part thereof adapted to receive an oil-valve, and a chamber in the lower part adapted to receive a steam-valve; a rotary oil-valve, D, having oil-passages, H, located in the upper chamber; and rotary steam-valve, J, having steam-passages, J', and having spiral top, located in the lower chamber, the said valves rotatively operated by stems, I, and P, respectively having means therefor substantially as shown and described.

3. A burner, comprising a body portion having an oil-chamber in its upper part; a steam-chamber in its lower part; a vertical oil-discharge port and a horizontal steam-discharge port, the oil-discharge port discharging across the axis of the steam-discharge port, in combination with the rotary valve D, being in the form of a disk having passages therethrough adapted to register with the oil-discharge port and thereby govern the discharge of oil, substantially as shown and described.

4. A burner, comprising a body portion having an oil-chamber in its upper part; a steam-chamber in its lower part; a vertical oil-discharge port; and a horizontal steam-discharge port, both discharging into a main discharge-port, adapted to mingle the oil and steam at the mouth of the main discharge-port, in combination with a conical-shaped valve being spiral at the top and having passages therethrough and arranged to govern the steam-discharge port, substantially as shown and described.

5. In a burner, comprising a body portion having oil and steam chambers; oil and steam discharge ports, the cone-shaped valve, J, having a spiral top, and having passages, J' J', therethrough for the passage of steam and arranged to govern the steam-discharge port, substantially as shown and described.

605,201. TYPE-WRITING MACHINE. HENRY C. LATTA, Friendship, N. Y. Filed May 13, 1893. Serial No. 474,097. (No model.)



Claim.—1. The combination with the platen, of two sets of alternating type-bars having thin body portions and thickened pivot portions, and a supporting-segment having guide-slots, the inner portions of which are narrow and receive the body portions of the type-bars and the outer portions of which are wider and receive the thick pivot portions of the bars, substantially as set forth.

2. The combination with the platen, and a supporting-segment provided with radial guide-slots, having narrow inner portions and

wide outer portions, of separate pivot-wires arranged one in advance of the other and intersecting said guide-slots, and independent groups of type-bars mounted on said pivot-wires respectively, each type-bar having a thin body portion and a thickened pivot portion and the bars of one group alternating with those of the other group, substantially as set forth.

3. The combination with the type-bars and their support, of a pivot-wire passing through openings in the hubs of the type-bars and in said support, capable of being shifted lengthwise in said support for bringing different portions thereof within the pivot-holes of the type-bars, and having screw-threaded ends, and adjusting-nuts applied to the threaded ends of said wire and bearing against said support, substantially as set forth.

4. The combination with the platen and the slotted supporting-segment, of independent pivot-wires arranged one in advance of the other and intersecting said slots, and independent sets of type-bars pivoted in said slots and having crank-arms, the form as one set of type-bars having notches which engage over the pivot-wire of the adjacent set, substantially as set forth.

5. The combination with the frame of the machine and a type-bar, of a key-lever having angular end portions which are pivoted to the frame, the intermediate body portion of the lever being offset with reference to said end portions throughout its length and a connection extending from said type-bar to the body portion of the key-lever, substantially as set forth.

6. The combination with the frame of the machine and a type-bar, of a key-lever having angular or offset end portions which are pivoted to the frame, the intermediate body portion of the lever being offset with reference to said end portions throughout its length, a key connected with the offset body portion of said lever and a connection extending from the body portion of said lever to said type-bar, substantially as set forth.

7. In a type-writing machine, the combination with the key-lever, of a split tubular shank attached to the lever and having an internal screw-thread and a key having a screw-threaded stem engaging with the internal thread of said split shank, substantially as set forth.

8. The combination with the platen and the type-bars, of a rebounder normally intercepting the type-bars but allowing the type on the bars to strike the platen, a normally rigid support carrying said rebounder and capable of vertical movement, whereby the rebounder may be raised above its normal position, and a retaining device whereby the rebounder is held in said abnormal position, substantially as set forth.

9. The combination with the platen and its carriage, the type-bars and the key-levers, of a vertically-movable rebounder intercepting the type-bars and a lifting device whereby the rebounder is automatically elevated when the carriage reaches the end of its movement, substantially as set forth.

10. The combination with the platen and its carriage, the type-bars and the key-levers, of a vertically-movable rebounder intercepting the type-bars, a spring tending to raise the rebounder above its normal height, a catch for holding the rebounder in its normal position, and a releasing device connected with the carriage, whereby said catch is released, substantially as set forth.

11. The combination with the platen and its carriage, the type-bars and their operating-levers, of a horizontal rebounder intecepting the type-bars and having a notched guide-rod, a spring tending to elevate said rebounder, a detent engaging with the notched guide-rod for holding the rebounder in its lowered position, and a trip device arranged on the carriage and adapted to release said detent, substantially as set forth.

12. The combination with the platen and its carriage, the type-bars and the key-levers, of a vertically-movable rebounder intercepting the type bars, an elevating device whereby the rebounder is raised above its normal height when the carriage reaches the end of its movement, and a return device connected with the carriage, whereby the rebounder is automatically depressed upon returning the carriage to its initial position, substantially as set forth.

13. The combination with the platen and its carriage, the type-bars and their operating-levers, of a rebounder intercepting the type-bars and capable of rising above its normal height, means for elevating the rebounder to such abnormal height when the carriage reaches the end of its movement, and a lever for lowering the rebounder to its normal position, substantially as set forth.

14. The combination with the platen-carriage, the type-bars and their operating-levers, of an intercepting device for preventing the type-bars from reaching the platen when the carriage reaches the end of its movement, and a stop connected with said intercepting device, adapted to engage against the carriage and arrest its movement, substantially as set forth.

15. The combination with the platen and its carriage, the type-bars and their operating-levers, of a movable intercepting device arranged in the path of the type-bars and having a guide-rod, and a stop-rod extending rearwardly from said guide-rod, and adapted to arrest the movement of the carriage, means for elevating said intercepting device, a depressing-lever engaging with said guide-rod, and a key-lever connected with said depressing-lever, substantially as set forth.

16. The combination with the platen and its carriage, the type-bars and the key-levers, of a vertically-movable rebounder intercepting the type-bars, an elevating device whereby the rebounder is raised above its normal height when the carriage reaches the end of its forward movement, a locking device for holding the rebounder in its depressed position, a trip device arranged on the carriage, and a pivoted inclined tooth connected with the rebounder and arranged in the path of said trip device when the rebounder is elevated, said tooth yielding in one direction but being rigid in the opposite direction, substantially as set forth.

17. In a type-writing machine, the combination with the platen, of an elastic rebounding device, and type-bars adapted to strike said rebounding device and having impact faces of different areas, whereby the latter offers a correspondingly greater or less resistance to the type-bars, substantially as set forth.

18. In a type-writing machine, the combination with the carriage having a step-by-step feed movement, of a device for shifting the carriage backward, a lever connected with said shifting device for operating the same, and stops which limit the movement of the lever when the carriage is set back either a whole space or half a space, substantially as set forth.

19. In a type-writing machine, the combination with the carriage having a step-by-step feed movement, of a device for shifting the carriage backward, a lever for operating said shifting device and a guide for said lever having a stop for limiting the movement of the carriage when the carriage is set back half a letter-space, and a second stop for limiting the movement of said lever when the carriage is set back a whole space, substantially as set forth.

20. The combination with the carriage having a ratchet-bar, of a set back pawl adapted to engage with said ratchet-bar, and capable of moving lengthwise of said bar, and a shifting-lever interlocking with said pawl, substantially as set forth.

21. The combination with the carriage having a ratchet-bar, of a set-back pawl adapted to engage with said ratchet-bar, and capable of moving lengthwise of said bar, a shifting-lever interlocking with said pawl, and a key-lever connected with said shifting-lever, substantially as set forth.

22. The combination with the carriage having a ratchet-bar, of a set-back pawl adapted to engage with said bar and capable of sliding lengthwise thereof, a shifting-lever interlocking with said pawl for moving it backward, and a spring for retracting the pawl, substantially as set forth.

23. The combination with the carriage having a ratchet-bar, of a set-back pawl adapted to engage with said bar and capable of sliding lengthwise thereof, a shifting-lever having a spur interlocking with said pawl and a cam whereby the pawl is moved into engagement with said rack-bar, a spring for retracting the pawl, and a key-lever connected with said shifting-lever, substantially as set forth.

24. In a type-writing machine, the combination with the platen and the ribbon-spools and their intermittent feed mechanism, of a reversing-bar for alternating the feed of the ribbon from one spool to the other and a ribbon-guide mounted upon said bar opposite the printing-point, over which the ribbon passes, whereby both edge portions of the ribbon are brought over the printing-poiat by the movement of the reversing-bar, substantially as set forth.

25. In a type-writing machine, the combination with the platen, the type-bars and the universal bar or frame, of ribbon-spools arranged on opposite sides of the printing-point, actuating-pawls connected with the universal bar or frame and adapted to engage alternately with the ribbon-spools, a sliding reversing-bar controlling said pawls and having loops or apertures, and shifting-arms adapted to bear against the periphery of the ribbon-coils upon said spools and passing through the loops of the reversing-bar, substantially as set forth.

26. In a type-writing machine, the combination with the platen, the type-bars and the universal bar or frame, of ribbon-spools arranged on opposite sides of the printing-point, actuating-pawls connected with the universal bar or frame and adapted to engage alternately with the ribbon-spools, a sliding reversing-bar controlling said pawls and having loops or apertures, and flexible shifting-arms adapted to bear with their free portions against the ribbon-coils on said spools and passing through the loops or apertures of the reversing-bar, substantially as set forth.

27. In a type-writing machine, the combination with the platen, the type-bars and the universal bar or frame, of ribbon-spools arranged on opposite sides of the printing-point, actuating-pawls connected with the universal bar or frame and adapted to engage alternately with the ribbon spools, a sliding reversing-bar controlling said pawls and operated by the enlargement of the ribbon-coils of the spools,

and a yielding catch for holding said reversing-bar in place, substantially as set forth.

28. In a type-writing machine, the combination with the carriage and the rotary platen, of a shaft passing axially through the platen and capable of turning in the same, a device for turning said shaft, arranged at one end thereof and a shifting device arranged at the opposite end of said shaft and engaging with the platen, substantially as set forth.

29. In a type-writing machine, the combination with the carriage and the platen, of an axle for the platen passing loosely through the latter, journaled on the carriage, and provided at both ends with cranks or levers for turning it, and a connection whereby the movement of the axle is transmitted to the platen, substantially as set forth.

30. In a type-writing machine, the combination with the carriage and the platen provided at one end with a toothed rim, of an axle, passing loosely through the platen and having at one end a device for turning it, and a radial arm attached to the other end of the axle and carrying an actuating-pawl which engages with the toothed rim of the platen, substantially as set forth.

31. In a type-writing machine, the combination with the carriage and the rotary platen, of a shaft passing axially through the platen and capable of turning backwardly in the same, a connection whereby the platen is caused to turn forwardly with the axle, and a spring whereby the axle is returned to its normal position, substantially as set forth.

32. In a type-writing machine, the combination with the carriage and the platen provided at one end with a toothed rim, of an axle passing loosely through the platen and having at one end a device for turning it, a radial arm attached to the other end of the axle and carrying an actuating-pawl which engages with the toothed rim of the platen, and a spiral return-spring secured at one end to the axle of the platen and at its other end to the carriage, substantially as set forth.

33. The combination with the carriage and the platen, of an axle passing loosely through the platen and journaled on the carriage, a crank arranged at one end of said axle, a shifting device attached to the other end of the axle and engaging with the platen, a detent device for preventing backward movement of the platen and a spring for returning the platen-axle to its normal position, substantially as set forth.

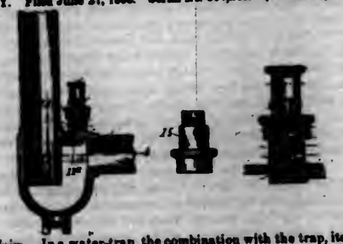
34. The combination with the carriage-frame having a number of locking recesses, of the platen and its shifting device, and an elastic stop-arm pivoted concentrically with the platen and having a projection adapted to engage in one of said locking-recesses, substantially as set forth.

35. The combination with the carriage and the platen, of a rotary scale-bar of round cross-section flattened on one side and having a spiral screw-thread engaging in a threaded bearing on the carriage, and a lever pivoted to the carriage and adapted to bear against one end of said scale-bar, substantially as set forth.

36. The combination with the carriage and the platen, of a rotary scale-bar of round cross-section flattened on one side and having a spiral screw-thread engaging in a threaded bearing on the carriage, a lever pivoted to the carriage and adapted to bear against one end of said scale-bar, and a spring for returning the bar to its normal position, substantially as set forth.

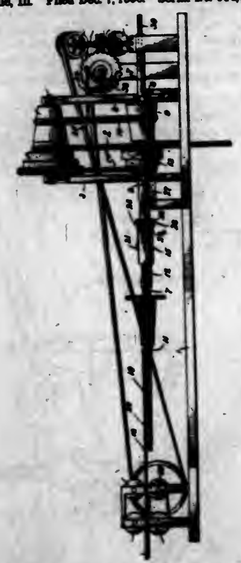
37. The combination with the main frame of the machine provided with a U-shaped slot forming a projecting tongue, of a pair of key-levers, and a duplex elevating-spring having arms bearing against said key-levers respectively and connected at their rear ends by a bar interlocking with said tongue and provided in front of said bar with a stop bearing against the main frame, whereby said connecting-bar is locked in place, substantially as set forth.

605,202. TRAP FOR SINKS, &c. LEOPOLD MULLENHOFF, Buffalo, N. Y. Filed June 27, 1896. Serial No. 597,205. (No model.)



Claim.—In a water-trap, the combination with the trap, its valve and valve-chamber, of a screw-cap for closing the top opening in said valve-chamber, and having a reduced portion extending vertically from the top thereof, tubular portions adapted to seat and be seated upon the reduced portion, and provided with a transverse slot, and a circular opening and a cap provided with a pin fitting in said slot and an opening adapted to register with the opening in the tubular portion, when the cap is rotated to the proper position upon said tubular portion, as set forth.

605,208. WOOL-SPINNING MACHINE. WILLIAM W. HEW, Morrellville, Ill. Filed Dec. 7, 1896. Serial No. 614,903. (No model.)



Claim.—1. The bobbin-shaft having provision at one end for the attachment of a bobbin and provided at or near its opposite end with a worm-wheel, in combination with a flier having a feather-and-spline engagement with a hollow shaft which surrounds the bobbin-shaft and is driven independently thereof, a spur gear-wheel meshing with and driven by said worm-wheel, and connections between said spur-gear and the flier, whereby said flier is reciprocated as the bobbin-shaft is rotated, substantially as described.

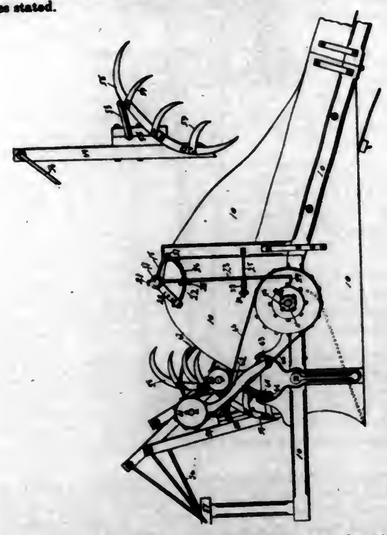
2. The bobbin-shaft having provision at one end for the attachment of a bobbin and provided at or near its opposite end with a worm-wheel, means for actuating said bobbin-shaft, a hollow shaft surrounding said bobbin-shaft, actuating means therefor, a flier revolving around the bobbin and having a feather-and-spline connection with said hollow shaft, a spur gear-wheel meshing with and driven by said worm-wheel, a shipping-fork engaging said flier, and a pitman or connecting-rod interposed between said spur gear-wheel and shipping-fork, whereby the flier is reciprocated as the bobbin is rotated, substantially as described.

3. The bobbin-shaft having provision at one end for the attachment of the bobbin, and provided with a worm-wheel in combination with means for actuating said shaft, a hollow shaft surrounding said bobbin-shaft, a flier having a feather-and-spline connection with said hollow shaft, means for actuating said shaft, a shipping-fork engaging said flier at one end and connected at its opposite end to a slide-block, a longitudinally-grooved guide in which said block reciprocates, a spur gear-wheel meshing with and actuated by said worm-wheel, and a connecting-rod interposed between said slide-block and spur gear-wheel, substantially as described.

605,204. SELF-FEEDER FOR THRESHING-MACHINES. GEORGE W. FARNESS, Newton, Iowa, assignor of one-third to Fred Sims Rich, same place. Filed May 7, 1897. Serial No. 635,490. (No model.)

Claim.—1. In a self-feeder for threshing-machines, a device for automatically stopping the motion of the endless conveyer when an excessive quantity of grain is found thereon, comprising in combination, a self-feeder frame, an endless conveyer thereon, trip-bars arranged above the conveyer to be engaged by an excessive quantity of grain upon the conveyer, a detent-arm connected with the said trip-bars to be moved in unison therewith, yielding pressure devices

for returning the said detent-arm to its normal position after it has been moved rearwardly by the motion imparted to the trip-bars, a sprocket-wheel loosely mounted on the shaft of the endless conveyer, a series of rollers on one side of said sprocket-wheel arranged at points equidistant from its center, a wheel keyed to the same shaft of the endless conveyer, peripheral teeth thereon to be engaged by said detent-arm when the detent-arm is moved rearwardly, a trip device pivoted to the face of the said keyed wheel and capable of moving outwardly in the path of the aforesaid rollers on the loosely-mounted wheel or of moving inwardly so as not to engage said rollers, a spring for normally holding said trip device outwardly to intercept the path of the said rollers, and means whereby the said trip device may be thrown inwardly so as to not enter the path of the said rollers when the said detent-arm engages the teeth on the periphery of the said keyed wheel, substantially as and for the purposes stated.



2. In a self-feeder for threshing-machines, a device for automatically throwing the endless conveyer thereof in and out of gear, comprising in combination, a self-feeder frame, an endless conveyer thereon, trip-bars pivotally mounted above the endless conveyer to be engaged by an excessive quantity of grain on the conveyer and moved upwardly, a detent-bar connected with the said trip-bars, yielding pressure devices for normally holding the said detent-bar to its forward limit, a sprocket-wheel loosely mounted on the shaft of the endless conveyer, a number of rollers on its outer face at points equidistant from its center, a disk keyed to the same conveyer-shaft and having a number of notches in its periphery, a trip device pivoted thereto and having an enlarged head and a pocket, a spring fixed at one end to the said disk and at its other end to the said trip device, a rim rotatably mounted upon the said disk and having peripheral teeth, a series of projections formed on or fixed to the outer surface of the said rim inwardly over the disk and to be capable of entering the said notches in the disk, and a pin on the said rim to enter the pocket of the trip device, all arranged and combined to operate in the manner set forth and for the purposes stated.

3. In a self-feeder for threshing-machines, the combination of a frame, a conveyer, trip-bars positioned above the rear extremity of the conveyer, mechanism connecting with said trip-bars whereby a rearward pressure upon the trip-bars, such as would be caused by an excessive quantity of grain carried by the conveyer, will operate to retard the movement of the conveyer, means for limiting the rearward movement of said trip-bars so that when at the rearward limit of their movement they will engage and positively hold an excessive quantity of grain from passing beyond the conveyer, for the purpose stated.

4. A self-feeder for threshing-machines, comprising in combination, a frame, an endless conveyer thereon, an inclined bottom or pan leading from the rear turn of the conveyer downwardly and rearwardly, a shaft pivotally mounted above the rear turn of the endless conveyer, a series of trip-arms thereon to project downwardly and rearwardly, a detent-bar mounted on the said shaft, an arm fixed to said shaft, a segmental rod fixed to said arm and extended through an opening in the said detent-bar, a yielding pressure device for holding the trip-bars, to their forward limit and for returning them when pressed rearwardly, a sprocket-wheel loosely mounted on the endless conveyer shaft, a disk fixed to the endless conveyer shaft and arranged to be engaged by the said detent-bar, mechanism whereby, when the detent-bar is in engagement with the said disk, the sprocket-wheel and the said disk are disengaged, and when the detent-bar is not in engagement therewith the said disk and sprocket-wheel are connected for rotation, a crank-shaft rotatably mounted in the rear of the said trip-bars, a sprocket-wheel fixed to one end thereof, an adjustable idler pivoted to the machine-frame, a sprocket-chain passed around the idler and around the sprocket on the conveyer-shaft and beneath the sprocket on the crank-shaft, means for adjusting the said idler to take up the slack in the chain, a feed-bar pivoted to each of the cranks of the said crank-shaft, a pair of feed-hooks on each of said feed-bars, and rods pivoted to the upper ends of the said feed-bars and to fixed supports in the rear thereof, all arranged and combined substantially in the manner set forth and for the purposes stated.

605,205. FIFTH-WHEEL FOR RAILWAY-CARS. LEVI R. PERRY and JAMES C. MITCHELL, Lewiston, Me., assignors of three-twentieths to Herbert R. Chase, same place. Filed Sept. 14, 1897. Serial No. 651,613. (No model.)



Claim.—1. A swivel for the purposes set forth, comprising two parts, one having a depending annular flange forming a depressed surface within the same, said surface being provided with a concentric series of concave recesses, and the other part having a central raised portion fitting within the flange; together with balls seated within the recesses of the first-mentioned part to bear upon the raised portion of the last-mentioned part, substantially as shown and described.

2. A swivel for the purposes set forth, comprising two parts having registering central openings to receive a king-bolt or pivot-pin, one of the parts presenting an annular flange forming a depressed surface surrounding the opening, said surface being provided with concave recesses, balls seated within the concave recesses, and a retaining-plate fitting within the flange and having openings through which the balls project slightly beyond said plate; together with the other part having a central raised portion fitting within the flange and presenting a surface provided with a circular groove or runway, substantially as shown and described.

3. A swivel for the purpose set forth, comprising two circular plates, one having a depending annular flange forming a central depressed portion and surrounding web, the depressed portion being provided with a concentric series of concave recesses, bearing-surfaces located in said recesses, balls bearing within the recesses, and a retaining-plate fitting within the flange and having openings through which the balls pass; together with the other plate having a surrounding web and a central raised portion forming a circular shoulder, the upper surface of the raised portion being provided with a circular groove; both of the aforesaid plates having central openings through which passes a king-bolt or pivot-pin, substantially as shown and described.

4. A swivel for the purpose set forth, the combination, of a circular plate having a depending annular shoulder near its outer edge forming a depressed surface surrounding a central opening in the plate, said surface being provided with a concentric series of concave recesses, bearing-posts extending into said recesses centrally, balls seated within the recesses upon the posts, a retaining-plate fitting within the flanges and having openings through which the balls project slightly beyond said plate, and means for holding the retaining-plate in place; together with a circular plate presenting a surrounding web and a central raised portion forming a circular step or shoulder, the upper surface of the raised portion having a circular groove surrounding a central opening in the plate which registers with the central opening in the other plate, the raised portion of the last-mentioned plate fitting within the annular flange of the first-mentioned plate, as herein shown and described.

5. The rub-plates, for the purpose set forth, comprising a member having a series of concave recesses and projecting ears, bearing-posts extending into the center of the concave recesses, a retaining-plate having openings through which the balls project, and means for holding the retaining plate in place; together with a second member having a plain upper surface and projecting ears, as shown and described

605,206. FURNACE. ANDREW PILLATT, Nottingham, England. Filed Aug. 6, 1896. Serial No. 601,912. (No model.) Patented in England July 18, 1896, No. 13,571; in Germany Aug. 20, 1896, No. 87,545; in France Sept. 14, 1896, No. 260,260; in Belgium Nov. 11, 1896, No. 118,268; in Italy Nov. 16, 1896, No. 40,171; in Austria Jan. 11, 1898, No. 46,106, and in Canada Feb. 14, 1898, No. 57,337.



Claim.—1. A grate-bar adapted to be fitted in a furnace with one end communicating with an opening through the bridge-wall leading to the combustion-chamber, and having a longitudinal passage extending to said end and constructed to receive air below the top substantially uniformly throughout its length and deliver it for combustion beyond the fuel-chamber, substantially as specified.

2. The combination of a furnace and a hollow grate-bar with an end bearing adapted to a hollow bearing formed through a bridge-wall and open to receive air from the ash-pit substantially uniformly throughout its length, substantially as specified.

605,207. CLOTHES PIN OR CLAMP. LOGAN B. REESE, Fulton, Ky. Filed Feb. 8, 1897. Serial No. 622,677. (No model.)



Claim.—A metal clothes-pin consisting of a single piece of wire bent into two complete coils each lying in proximity to the other, the free ends of the wire being curved back to points opposite each other and within the plane of the sides of the coils and having their extreme ends formed with loops or eyes lying close to the coils, substantially as described.

605,208. WHEEL-HUB. SOLOMAN A. SEARLS, Buffalo, N. Y. Filed July 16, 1897. Serial No. 644,703. (No model.)



Claim.—1. The combination with the barrel, of a sprocket-wheel mounted on said barrel and provided with an inwardly-projecting annular flange which bears against the end of the barrel, and a bearing-cap connected with the barrel and provided with an outwardly-projecting flange which bears against the outer end of the sprocket-wheel, substantially as set forth.

2. The combination with the barrel provided at one end with serrations, of a sprocket-wheel mounted on said barrel and provided with an internal annular flange having serrations which engage with the serrations of the barrel, and a bearing-cap having a screw connection with the barrel and provided with an external annular flange which bears against the outer end of the sprocket-wheel, substantially as set forth.

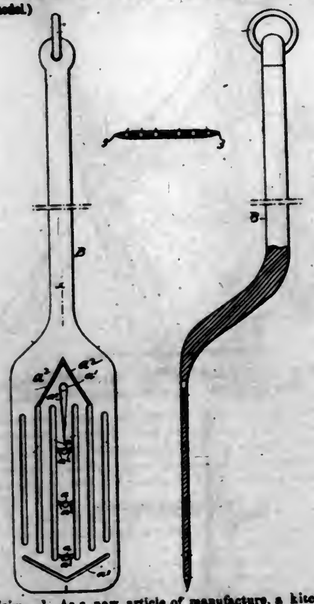
3. The combination with the hub-barrel having an opening in its wall, of a locking-washer arranged in the barrel and having an oblong opening which is narrower than said barrel-opening and which coincides therewith, and a spoke-fastening button rotatably seated in said coinciding openings and having an oblong inner portion which is constructed to pass through the oblong opening of the locking-washer when turned in line therewith and which interlocks with the washer when turned out of line with said oblong opening, substantially as set forth.

4. The combination with the hub-barrel provided with openings, of spoke-fastening buttons arranged in said openings and connected with spokes, each of said buttons being provided with a contracted portion forming inwardly and outwardly facing shoulders, and a locking device arranged in said barrel and engaging with said buttons between the shoulders thereof, substantially as set forth.

5. The combination with the hub-barrel provided with circular openings, of a locking-ring arranged in said barrel and provided with slots arranged in line with said openings, and spoke-fastening buttons each of which is provided with a circular head which fits into one of said openings, a cross-bar bearing against the inner side of the locking-ring on opposite sides of the adjacent slot and a contracted neck arranged in said slot and connecting the head and cross-piece, substantially as set forth.

6. The combination with the hub-barrel provided with openings, of spoke-fastening buttons arranged in said openings, a locking-ring arranged in the barrel and engaging with the inner ends of the buttons, and a dust-guard consisting of a ring and two outwardly-projecting annular flanges which bear against the inner side of the locking-ring on opposite sides of the buttons, substantially as set forth.

605,209. COMBINED KNIFE AND SCOOP. JAMES A. SWINBURNE, New York, N. Y., assignor of one-half to James A. Cambridge, same place. Filed June 1, 1897. Renewed May 9, 1898. Serial No. 680,232. (No model.)



Claim.—1. As a new article of manufacture, a kitchen implement comprising a thin flat metal plate adapted for use as a cutter having parallel longitudinal apertures in the central portion and an angular aperture in one end thereof, grooves on its upper surface leading to the said parallel apertures, a knife-edge surrounding the said plate and a projected handle, substantially as shown and described.

2. As a new article of manufacture, a culinary implement comprising a flat metallic plate having a knife-edge thereon and lateral and longitudinal and central apertures leading therethrough for the escape of drippings, surface grooves on one side communicating with the central and longitudinal apertures and a handle projected from one end, substantially as shown and described.

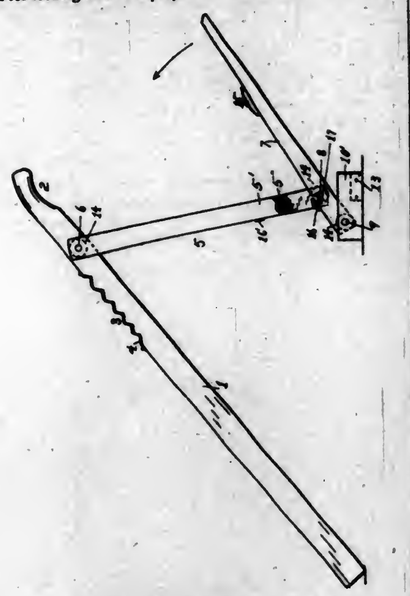
605,210. LIFTING-JACK. WILLIAM B. TYLER, Aldie, Va., assignor of three-fourths to Hugh B. Hutchison same place, and John A. Hiesl and French E. Randall, Manassas, Va. Filed Dec. 18, 1897. Serial No. 662,500. (No model.)

Claim.—1. In a lifting-jack the combination of levers 1 and 7 and the intermediate prop 5 pivotally connecting the levers, a pivot-pin fixed in the prop, said lever 7 being formed with a slot to receive said pin, and means for removably holding the pin in the slot, substantially as described.

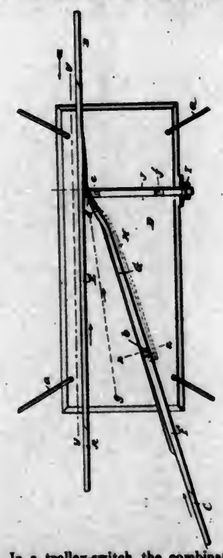
2. In a lifting-jack the combination of base 10, levers 1 and 7 and the intermediate prop 5 pivotally connecting the levers, the lever 7 being adapted to be folded parallel with and contiguous to the prop, and a button carried by lever 7 for securing it in the folded position, substantially as described.

3. In a lifting-jack, base 10, levers 1 and 7, and prop 5 pivotally

connecting the levers, said prop being constructed of two parallel members, said lever 7 being adapted to be turned upward beyond the vertical position and housed between the members of prop 5, and means for locking lever 7 to prop 5.



605,211. TROLLEY-SWITCH. JACOB H. VANAMBLE, Seattle, Wash. Filed Oct. 2, 1897. Serial No. 653,841. (No model.)

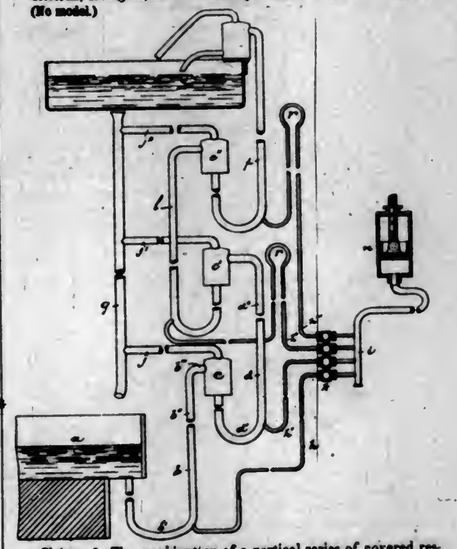


Claim.—1. In a trolley-switch, the combination of a suitably-supported switch-plate provided with a keeper, a guide arranged at the under side of the plate, a movable, spring-pressed switch-point arranged at the under side of the switch-plate and normally bearing against the guide, and a latch also arranged at the under side of said plate and connected with the switch-point and adapted to engage the keeper and hold the switch-point away from the guide, substantially as specified.

2. In a trolley-switch, the combination with the main-line and turnout conductors; of a suitably-supported switch-plate having a guide on its under side interposed between the main-line conductors, a guide abutting against the turnout-conductor, and a keeper, a switch-point pivotally connected with and disposed at the under side of the plate, a spring for normally holding said point against the first-named guide of the plate, and a latch-bar loosely connected to the switch-point and resting on the keeper and adapted to engage said keeper, substantially as specified.

3. In a trolley-switch, the combination with the main-line and turnout conductors; of a suitably-supported switch-plate provided with the slot *e* and having, on its under side, a guide interposed between the main-line conductors, a guide forming the terminal of the turnout-conductor, and a keeper, a switch-point pivotally connected with and disposed at the under side of the plate and having its heel arranged contiguous to the second-named guide of the switch-plate, and a latch also arranged at the under side of said plate and connected with the switch-point and adapted to engage the keeper, and the flat spring H disposed above the switch-plate and connected at one end to the same and having a depending portion at its opposite end loosely arranged in the slot *e* and connected to the switch-point, substantially as specified.

605,212. PNEUMATIC ELEVATING DEVICE FOR LIQUIDS. ANTOINE WARTER, Newark, N. J., assignor of one-half to William L. Glorieux, Irvington, N. J. Filed Sept. 29, 1897. Serial No. 653,432. (No model.)



Claim.—1. The combination of a vertical series of covered reservoirs, connecting-pipes each leading downward from the bottom of a reservoir and being turned upward and entering the reservoir next higher, and compressed-air tubes leading from an air-compressor to each of said connecting-pipes, branch overflow-ducts leading from the tops of the reservoirs and a main overflow-duct connecting with each of said branch ducts, whereby liquid may flow from the filled reservoirs without being elevated, substantially as set forth.

2. The combination of the series of covered tanks or reservoirs *c*, *c'*, *c''*, one elevated above another, the connecting-pipes *b*, *d*, *l*, each leading downward from the bottom of a tank and being turned upward and entering the upper part of the tank next higher, the compressed-air tubes leading into said connecting-pipes at the points where they are turned upward, and escape-ducts leading from the top of each tank to a vertical main duct which communicates at its lower end with the source of supply, the whole forming a closed passage for the liquid from the source of supply to the point of elevation, substantially as set forth.

3. In a pneumatic elevating device for liquids, the combination with a series of bent pipes *h*, *d*, *l*, each having long and short arms, the long arm of one communicating with the short arm of the next upper pipe of the series and conducting the liquid thereto, closed enlargements *c*, *c'*, *c''*, being arranged at the connections, the long arms entering at the sides of said enlargements and the short arms extending down from a point at or near the bottom thereof, vent-tubes *j*, *j'*, *j''*

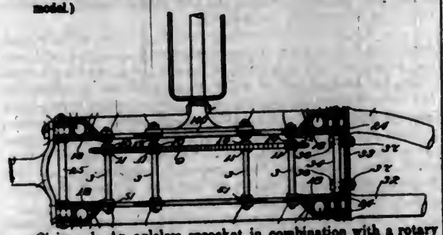
extending from the upper parts of said enlargements to a common vent and drip pipe *g*, extending down to an initial tank or body of fluid to be elevated, and a series of compressed-air pipes *h*, *h'*, *h''*, turned upward at one series of extremities and entering the bases or bottoms of the longer upward extensions of the fluid-elevating pipes *b*, *d*, *l*, and at the other extremities extending into close adjacency where they are provided with cut-off valves, a common compressed-air pipe connecting with each of said pipes *h*, *h'*, *h''*, and with a pump *n*, the upper pipes of the series of compressed-air pipes being bowed or bent double to extend above the points of egress from the fluid-elevating pipe into the said enlargements, substantially as set forth.

605,213. LABEL-HOLDER. JOSEPH B. WELLER, De Graff, Ohio. Filed Sept. 3, 1897. Serial No. 650,454. (No model.)



Claim.—As an article of manufacture, a label-holder comprising a base of thin elastic material, a pocket secured to the base and adapted to contain a number of labels, the base forming the rear wall of said pocket, and a tongue cut in the base and projecting into the pocket.

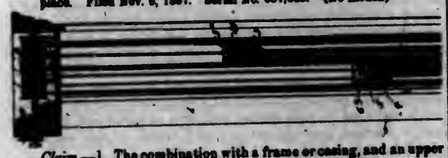
605,214. AXLELESS SPROCKET FOR BICYCLES. JOHN P. ARCHIBALD, Boston, Mass., assignor of one-half to Frank L. Whitcomb, same place. Filed Sept. 23, 1897. Serial No. 652,603. (No model.)



Claim.—1. An axleless sprocket in combination with a rotary member on each side thereof and transverse supports which pass through said sprocket and connect the rotary side members whereby the sprocket is supported and caused to rotate with said members, substantially as described.

2. In a bicycle or velocipede, rotary ring-cones to which the pedal-cranks are attached, fixed ring-boxes combined with the cones to hold the ball-bearings, and bolts which connect the cones, in combination with an axleless sprocket supported on said connecting-bolts, substantially as described.

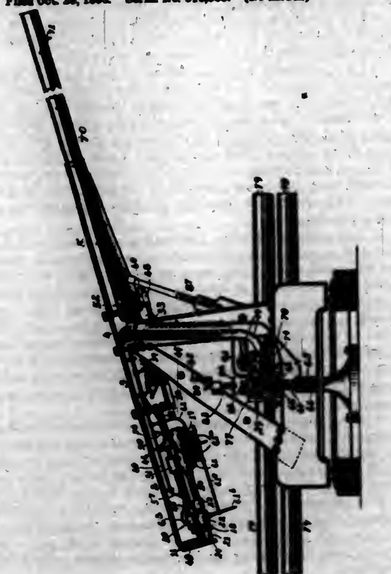
605,215. SASH-BALANCE. MELVIN BARBER and JOHN P. ASHBY, Oklahoma, Okla., assignors of one-third to Joseph B. Rointer, same place. Filed Nov. 6, 1897. Serial No. 657,695. (No model.)



Claim.—1. The combination with a frame or casing, and an upper sash, of a lower sash having the guide devices, a rotatable, double, spring-controlled drum mounted on the head of said casing, guide-sheaves on the frame-head over the sashes, and a single continuous running cord coiled on the sections of the drum, extending thence around the guides of the lower sash, thence over the guide-sheaves, and attached to the upper sash, substantially as described.

2. In a sash-balance, the combination of a winding drum provided with an extended shaft, a tubular winding-shaft fitted loosely on the drum-shaft to rotate independently thereof and provided with means by which the tubular shaft may be rotated, a coiled spring fitted on the drum-shaft and attached at its ends to the tubular shaft and the drum respectively, and a detent device connected with said winding-shaft to restrain the latter from rotation under the recoil of the spring, substantially as described.

605,216. PNEUMATIC GUN. EDMUND M. T. BOGDAN, Melbourne, Victoria, assignor of one-tenth to George Garibaldi Turri, same place. Filed Oct. 29, 1896. Serial No. 610,505. (No model.)



Claim.—1. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore, and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, and means for connecting the said ports *seriatim* to the said source of fluid-pressure, substantially as described.

2. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore, and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, and means for connecting the said ports *seriatim* to the said source of fluid-pressure, and for automatically shutting off the fluid-pressure from the gun as the projectile leaves the bore, substantially as described.

3. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, means for connecting said ports *seriatim* to the source of fluid-pressure and means operated by the pressure in the bore of the gun in rear of the projectile for automatically shutting off the fluid-pressure from the gun as the projectile leaves the bore, substantially as described.

4. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore, and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, and means operated by the pressure in the bore of the gun in rear of the projectile for automatically shutting off the fluid-pressure from the gun as the projectile leaves the bore, substantially as described.

5. In a pneumatic gun, the combination with a central tube provided with a plurality of fluid-pressure inlets therethrough arranged along the said tube, of jackets inclosing the rear portion of said tube, hollow trunnions integral with or secured to one of said jackets, passages connecting said inlets with one or both of said hollow trunnions, a source of fluid-pressure connected to one or both of said hollow trunnions, means for normally closing the connection between said air-inlets and said source of fluid-pressure, firing mechanism for admitting fluid-pressure to the said passages and also to the bore of the gun in rear of said projectile, and means operated by the pressure in the bore in rear of the projectile for opening said inlets *seriatim*, substantially as described.

6. In a pneumatic gun, the combination with a central tube provided with a plurality of fluid-pressure inlets therethrough arranged

along the said tube, of jackets inclosing the rear portion of said tube, hollow trunnions integral with or secured to one of said jackets, passages connecting said inlets with one or both of said hollow trunnions, a source of fluid-pressure connected to one or both of said hollow trunnions, means for normally closing the connection between said air-inlets and said source of fluid pressure, firing mechanism for admitting fluid-pressure to the said passages and also to the bore of the gun in rear of said projectile, and means operated by the pressure in the bore in rear of the projectile for opening said inlets *seriatim*, with means for shutting off the supply of fluid-pressure automatically as the projectile leaves the gun, substantially as described.

7. In a pneumatic gun, the combination with a source of fluid-pressure, of a gun-body provided with hollow trunnions and air-passages leading from one of said trunnions to the interior of the bore, the said passages opening at intervals along the bore, of valves controlling all of said openings, a pipe connecting the said hollow trunnion with the source of fluid-pressure, and a main valve controlling the flow of fluid through said pipe, firing mechanism for operating said main valve, and means operated by the pressure in the gun in rear of the projectile for operating the other valves *seriatim*, substantially as described.

8. In a pneumatic gun, the combination with a source of fluid-pressure, of a gun-body provided with hollow trunnions and air-passages leading from one of said trunnions to the interior of the bore, the said passages opening at intervals along the bore, of valves controlling all of said openings, a pipe connecting the said hollow trunnion with the source of fluid-pressure, and a main valve controlling the flow of fluid through said pipe, firing mechanism for operating said main valve, and means operated by the pressure in the gun in rear of the projectile for operating the other valves *seriatim*, and for closing said main valve as the projectile leaves the gun, substantially as described.

9. In a pneumatic gun, the combination with a source of fluid-pressure, of a gun-body provided with hollow trunnions and air-passages leading from one of said trunnions to the interior of the bore, the said passages opening at intervals along the bore, of valves controlling all of said openings, a pipe connecting the said hollow trunnion with the source of fluid-pressure, and a main valve controlling the flow of fluid through said pipe, a firing-lever for operating said main valve, and means operated by the pressure in the gun in rear of the projectile for operating the other valves *seriatim*, substantially as described.

10. In a pneumatic gun, the combination with a source of fluid-pressure, of a gun-body provided with hollow trunnions and air-passages leading from one of said trunnions to the interior of the bore, the said passages opening at intervals along the bore, of valves controlling all of said openings, a pipe connecting the said hollow trunnion with the source of fluid-pressure, and a main valve controlling the flow of fluid through said pipe, a firing-lever for operating said main valve, and means operated by the pressure in the gun in rear of the projectile for operating the other valves *seriatim* and for closing said main valve as the projectile leaves the gun, substantially as described.

11. In a pneumatic gun, the combination with a source of fluid-pressure, of a gun-body provided with hollow trunnions and air-passages leading from one of said trunnions to the interior of the bore, the said passages opening at intervals along the bore, of valves controlling all of said openings, a pipe connecting the said hollow trunnion with the source of fluid-pressure, and a main valve controlling the flow of fluid through said pipe, firing mechanism for operating said main valve, and means operated by the pressure in the gun in rear of the projectile for operating the other valves *seriatim*, a pipe leading from the bore of the gun near the muzzle, a cylinder connected to said pipe, and a piston in said cylinder moving said firing mechanism in the reverse direction and closing said main valve as the projectile leaves the gun, substantially as described.

12. In a pneumatic gun, the combination with a source of fluid-pressure, of a gun-body provided with hollow trunnions and air-passages leading from one of said trunnions to the interior of the bore, the said passages opening at intervals along the bore, of valves controlling all of said openings, a pipe connecting the said hollow trunnion with the source of fluid-pressure, and a main valve controlling the flow of fluid through said pipe, a firing-lever for operating said main valve, and means operated by the pressure in the gun in rear of the projectile for operating the other valves *seriatim*, a pipe leading from the bore of the gun near the muzzle, a cylinder connected to said pipe, and a piston in said cylinder moving said firing-lever in the reverse direction and closing said main valve as the projectile leaves the gun, substantially as described.

13. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore, and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, and means for connecting the said ports *seriatim* to the said source of fluid-pressure, and means for automatically closing said ports before a fresh projectile can be inserted in the breech of the gun, substantially as described.

14. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore, and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, and means for connecting the said ports *seriatim* to the said source of fluid-pressure, and for automatically shutting off the fluid-pressure from the gun as the projectile leaves the bore, and means for automatically closing said ports before a fresh projectile can be inserted in the breech of the gun, substantially as described.

15. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, and means operated by the pressure in the bore of the gun in rear of the projectile for automatically shutting off the fluid-pressure from the gun as the projectile leaves the bore, and means for automatically closing said ports before a fresh projectile can be inserted in the breech of the gun, substantially as described.

16. A pneumatic gun provided with a plurality of ports for fluid-pressure arranged along and opening into the bore, and increasing in size from the breech toward the muzzle, in combination with a source of fluid-pressure, means for connecting said ports *seriatim* to the source of fluid-pressure and means operated by the pressure in the bore of the gun in rear of the projectile for automatically shutting off the fluid-pressure from the gun as the projectile leaves the bore, and means for automatically closing said ports before a fresh projectile can be inserted in the breech of the gun, substantially as described.

17. In a pneumatic gun with slotted-screw breech mechanism, the combination with a source of fluid-pressure connected both to the bore of the gun and to the breech mechanism, and adapted both to propel the projectile and to operate the breech mechanism, of a pivoted carrier-ring, a slotted-screw breech-block adapted both to slide and to rotate in said ring, a fluid-pressure cylinder and piston operated from the source of fluid-pressure, and means operated by said piston for first rotating said breech-block and moving it rearward in said ring, and then swinging said ring outward about its pivot or vice versa, substantially as described.

18. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure connected both to the bore of the gun and to the breech mechanism, and adapted both to propel the projectile and to operate the breech mechanism, of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, and means operated by said piston operated from the source of fluid-pressure for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

19. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure connected both to the bore of the gun and to the breech mechanism, and adapted both to propel the projectile and to operate the breech mechanism of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston operated from the source of fluid-pressure, a valve and operating mechanism therefor for admitting fluid-pressure to said cylinder, and means operated by said piston for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

20. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure connected both to the bore of the gun and to the breech mechanism, and adapted both to propel the projectile and to operate the breech mechanism of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston operated from the source of fluid-pressure, a valve for admitting fluid-pressure to said cylinder, and a hand-lever and connecting parts for moving said valve, and means operated by said piston for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

21. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a screw fast to said piston, and means operated by said screw for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

22. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a screw fast to said piston, means for holding said screw against rotation, a revoluble collar mounted on said screw, and means operated by said screw and by said revoluble collar for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

23. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a screw fast to said piston and provided with a transverse notch therein, means for holding said screw against rotation, an arm on the breech-block adapted to engage in said notch when the block is unlocked, and means operated by said screw for turning said breech-block from the locking to the unlocking position, or vice versa, and for swinging said carrier and said block about the pivot of the carrier, substantially as described.

24. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a screw fast to said piston and provided with transverse notch therein, means for holding said screw against rotation, an arm on the breech-block adapted to engage in said notch when the block is unlocked, a revoluble collar on said screw and mechanism operated by said revoluble collar for turning the breech-block from the locking to the unlocking position or vice versa, and for swinging said carrier and said block about the pivot of the carrier, substantially as described.

25. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure, of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve and operating mechanism therefor for admitting fluid-pressure to said cylinder, a screw fast to said piston, and provided with a transverse notch therein, means for holding said screw against rotation, an arm on the breech-block adapted to engage in said notch when the block is unlocked, and means operated by said screw for turning said breech-block from the locking to the unlocking position, or vice versa, and for swinging said carrier and said block about the pivot of the carrier, substantially as described.

26. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve for admitting fluid-pressure to said cylinder, and a hand-lever and connecting parts for moving said valve, a screw fast to said piston and provided with a transverse notch therein, means for holding said screw against rotation, an arm on the breech-block adapted to engage in said notch when the block is unlocked, and means operated by said screw for turning said breech-block from the locking to the unlocking position, or vice versa, and for swinging said carrier and said block about the pivot of the carrier, substantially as described.

27. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve and operating mechanism therefor for admitting fluid-pressure to said cylinder, a screw fast to said piston, and means operated by said screw for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

28. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve for admitting fluid-pressure to said cylinder, and a hand-lever and connecting parts for moving said valve, a screw fast to said piston, and means operated by said screw for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

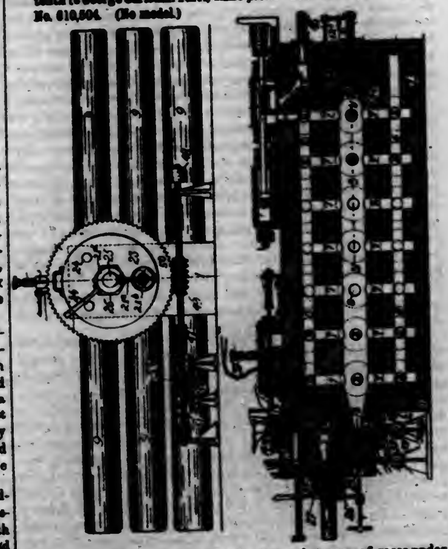
29. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve and operating mechanism therefor admitting fluid-pressure to said cylinder, a screw fast to said piston, means for holding said screw against rotation, a revoluble collar mounted on said screw, and means operated by said screw and by said revoluble collar for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

30. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve for admitting fluid-pressure to said cylinder, and a hand-lever and connecting parts for moving said valve, a screw fast to said piston, means for holding said screw against rotation, a revoluble collar mounted on said screw, and means operated by said screw and by said revoluble collar for first partially rotating said breech-block, then drawing said block rearward on said carrier, and then swinging said block and carrier outward about the pivot of said carrier, or vice versa, substantially as described.

31. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve and operating mechanism therefor for admitting fluid-pressure to said cylinder, a screw fast to said piston and provided with a transverse notch therein, means for holding said screw against rotation, an arm on the breech-block adapted to engage in said notch when the block is unlocked, a revoluble collar on said screw and mechanism operated by said revoluble collar for turning the breech-block from the locking to the unlocking position or vice versa, and for swinging said carrier and said block about the pivot of the carrier, substantially as described.

32. In a gun of the character described, provided with a slotted-screw breech mechanism, the combination with a source of fluid-pressure of a pivoted carrier, a slotted-screw breech-block adapted both to slide and to rotate on said carrier, a fluid-pressure cylinder and piston, a valve for admitting fluid-pressure to said cylinder, and a hand-lever and connecting parts for moving said valve, a screw fast to said piston and provided with a transverse notch therein, means for holding said screw against rotation, an arm on the breech-block adapted to engage in said notch when the block is unlocked, a revoluble collar on said screw and mechanism operated by said revoluble collar for turning the breech-block from the locking to the unlocking position or vice versa, and for swinging said carrier and said block about the pivot of the carrier, substantially as described.

603,217. PRODUCING AND STORING GAS UNDER HIGH PRESSURE. RICHARD M. T. BURBAN, Melbourne, Victoria, assignor of one-tenth to George Garibaldi Turri, same place. Filed Oct. 20, 1896. Serial No. 610,004. (No model.)



Claim.—1. The method of production and storage of gases under pressure which consists in successively firing a number of small charges of a smokeless explosive into a receiver or storage-chamber of sufficient strength, and automatically stopping the further firing of said

charges when the pressure in said receiver exceeds a predetermined limit, substantially as described.

2. The method of production, storage, and distribution of gases under pressure which consists in successively firing a number of small charges of explosive into a main receiver, and in automatically charging from said main receiver one or more secondary receivers whenever the pressure in said secondary receivers falls below a predetermined limit, substantially as described.

3. The method of production, storage, and distribution of gases under pressure which consists in successively firing a number of small charges of explosive into a main receiver, and in automatically charging from said main receiver one or more secondary receivers whenever the pressure in said secondary receivers falls below a predetermined limit, and also automatically stopping the further firing of said charges when the pressure in the main receiver exceeds a predetermined limit, substantially as described.

4. An apparatus for the production and storage of gases under pressure, comprising a plurality of strong hollow cylinders secured to a heavy chambered central piece, the chambers in said cylinders and in said central piece communicating with one another, means for successively firing a plurality of small charges into the said system of chambers, and means for automatically stopping the further firing of said charges when the pressure of the gases exceeds a predetermined limit, substantially as described.

5. An apparatus for the production and storage of gases under pressure, comprising a plurality of strong hollow cylinders secured to a heavy chambered central piece, the chambers in said cylinders and in said central piece communicating with one another, a firing-chamber in said central piece, a chambered disk for holding a plurality of small explosive charges, means for rotating said disk and causing said charges to register *seriatim* with said firing-chamber and means for firing said charges, substantially as described.

6. An apparatus for the production and storage of gases under pressure, comprising a plurality of strong hollow cylinders secured to a heavy chambered central piece, the chambers in said cylinders and in said central piece communicating with one another, a firing-chamber in said central piece, a chambered disk for holding a plurality of small explosive charges, means for rotating said disk and causing said charges to register *seriatim* with said firing-chamber, and means for firing said charges, means for successively firing a plurality of small charges into the said system of chambers, and means for automatically stopping the further firing of said charges when the pressure of the gases exceeds a predetermined limit, substantially as described.

7. An apparatus for the production and storage of gases under pressure, comprising a plurality of strong hollow cylinders secured to a heavy chambered central piece, the chambers in said cylinders and in said central piece communicating with one another, means for successively firing a plurality of small charges into the said system of chambers, and means for automatically stopping the further firing of said charges when the pressure of the gases exceeds a predetermined limit, comprising a piston, heavy springs bearing against the rear face of said piston and resisting the pressure in the central chamber, and stop mechanism operated by said piston and controlling the further movement of said chambered disk, substantially as described.

8. An apparatus for the production and storage of gases under pressure, comprising a plurality of strong hollow cylinders secured to a heavy chambered central piece, the chambers in said cylinders and in said central piece communicating with one another, a firing-chamber in said central piece, a chambered disk for holding a plurality of small explosive charges, means for rotating said disk and causing said charges to register *seriatim* with said firing-chamber, means for firing said charges, and means regulated by the rise of pressure of the gases for stopping the rotation of the chambered disk and the further firing of said charges, and thus automatically regulating the pressure to a predetermined limit, substantially as described.

9. An apparatus for the production and storage of gases under pressure, comprising a plurality of strong hollow cylinders secured to a heavy chambered central piece, the chambers in said cylinders and in said central piece communicating with one another, a firing-chamber in said central piece, a chambered disk for holding a plurality of small explosive charges, means for rotating said disk and causing said charges to register *seriatim* with said firing-chamber, and means for firing said charges, and means for automatically stopping the further firing of said charges when the pressure of the gases exceeds a predetermined limit, comprising a piston, heavy springs bearing against the rear face of said piston and resisting the pressure in the central chamber, and stop mechanism operated by said piston and controlling the further movement of said chambered disk, substantially as described.

10. An apparatus for the production, storage, and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, means for successively firing a plurality of small charges of explosive material into said main receiver, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver when the pressure in the secondary receiver or receivers falls below a predetermined limit, substantially as described.

11. An apparatus for the production, storage and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, means for successively firing a plurality of small charges of explosive material into said main receiver, means for automatically checking the firing of said charges when the pressure in the main receiver exceeds a predetermined limit, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver when the pressure in the secondary receiver or receivers falls below a predetermined limit, substantially as described.

12. An apparatus for the production, storage, and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, each of said receivers comprising a heavy chambered central piece and a plurality of strong hollow cylinders secured thereto, the chambers in said cylinders and in said central piece communicating with one another, means for successively firing a plurality of small charges of explosive material into said main receiver, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver when the pressure in the secondary receiver or receivers falls below a predetermined limit, substantially as described.

13. An apparatus for the production, storage and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, each of said receivers comprising a heavy chambered central piece and a plurality of strong hollow cylinders secured thereto, the chambers in said cylinders and in said central piece communicating with one another, means for successively firing a plurality of small charges of explosive material into said main receiver, means for automatically checking the firing of said charges when the pressure in the main receiver exceeds a predetermined limit, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver when the pressure in the secondary receiver or receivers falls below a predetermined limit, substantially as described.

14. An apparatus for the production, storage, and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, means for successively firing a plurality of small charges of explosive material into said main receiver, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver when the pressure in the secondary receiver or receivers falls below a predetermined limit, comprising a safety-valve on the secondary receiver, a spring-operated valve on the main receiver normally closing the connecting-passage from the main receiver to the secondary receiver, and means operated by the escape of fluid past said safety-valve for closing the former valve against the action of said spring, substantially as described.

15. An apparatus for the production, storage and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, means for successively firing a plurality of small charges of explosive material into said main receiver, means for automatically checking the firing of said charges when the pressure in the main receiver exceeds a predetermined limit, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver when the pressure in the secondary receiver or receivers falls below a predetermined limit, comprising a safety-valve on the secondary receiver, a spring-operated valve on the main receiver normally closing the connecting-passage from the main receiver to the secondary receiver, and means operated by the escape of fluid past said safety-valve for closing the former valve against the action of said spring, substantially as described.

16. An apparatus for the production, storage, and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, means for successively firing a plurality of small charges of explosive material into said main receiver, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver when the pressure in the secondary receiver or receivers falls below a predetermined limit, comprising a perforated safety-valve on the secondary receiver, a spring-operated slide-valve on the main receiver and normally closing the connecting-passage from the main receiver to the secondary receiver, a piston-rod fast to said valve, a piston on said rod, and a cylinder inclosing said piston and connected to the escape-pipe from said safety-valve, substantially as described.

17. An apparatus for the production, storage and distribution of gases under pressure, comprising a main receiver and one or more secondary receivers connected thereto, means for successively firing a plurality of small charges of explosive material into said main receiver, means for automatically checking the firing of said charges when the pressure in the main receiver exceeds a predetermined limit, and means for automatically charging and recharging said secondary receiver or receivers from the main receiver, when the pressure in the secondary receiver or receivers falls below a predetermined limit, comprising a perforated safety-valve on the secondary receiver, a spring-operated slide-valve on the main receiver and normally closing the connecting-passage from the main receiver to the secondary receiver, a piston-rod fast to said valve, a piston on said rod and a cylinder inclosing said piston and connected to the escape-pipe from said safety-valve, substantially as described.

18. In an apparatus of the character described the means for controlling the pressure in the main receiver which consists of a piston, subjected on one side to the pressure of the gases, strong cup-springs bearing on the other side of said piston, a piston-rod projecting from said piston and apparatus regulated by the motion of said piston against said springs for checking the further discharge of pressure-producing charges, substantially as described.

19. In an apparatus of the character described the means for controlling the pressure in the main receiver which consists of a piston subjected on one side to the pressure of the gases, strong cup-springs bearing on the other side of said piston, a piston-rod projecting from said piston and stop mechanism operated by the motion of said piston-rod for stopping the operation of the pressure-producing apparatus, substantially as described.

20. In an apparatus of the character described, the combination with a firing-chamber, of a centrally-pivoted disk provided with a plurality of cartridge-chambers grouped in a circle about said pivot, means for imparting a step-by-step motion to said disk, means for separately supplying primers to the apparatus, and means for firing said primers, substantially as described.

21. In an apparatus of the character described, the combination with a firing-chamber, of a centrally-pivoted disk provided with a plurality of cartridge-chambers grouped in a circle about said pivot, means for imparting a step-by-step motion to said disk, means for separately supplying primers to the apparatus, and means for automatically firing said primers, substantially as described.

22. In an apparatus of the character described, the combination with a firing chamber, of a centrally-pivoted disk provided with a plurality of cartridge-chambers grouped in a circle about said pivot, means for simultaneously imparting a step-by-step motion to said disk, and for separately supplying primers to the apparatus, and means for firing said primers, substantially as described.

23. In an apparatus of the character described, the combination with a firing-chamber, of a centrally-pivoted disk provided with a plurality of cartridge-chambers grouped in a circle about said pivot, means for imparting a step-by-step motion to said disk, means for separately supplying primers to the apparatus, and means for firing said primers with means operated by the pressure of the gases for stopping the motion of said disk when the pressure exceeds a predetermined limit, substantially as described.

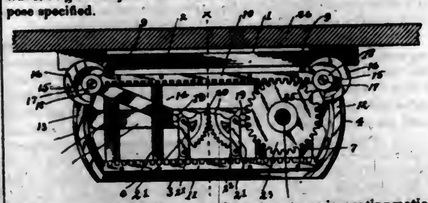
24. In an apparatus of the character described, the combination with a firing-chamber, of a centrally-pivoted disk provided with a plurality of cartridge-chambers grouped in a circle about said pivot, means for imparting a step-by-step motion to said disk, means for separately supplying primers to the apparatus, and means for automatically firing said primers, with means operated by the pressure of the gases for stopping the motion of said disk when the pressure exceeds a predetermined limit, substantially as described.

25. In an apparatus of the character described, the combination with a firing-chamber, of a centrally-pivoted disk provided with a plurality of cartridge-chambers grouped in a circle about said pivot, means for simultaneously imparting a step-by-step motion to said disk, and for separately supplying primers to the apparatus, and means for firing said primers, with means operated by the pressure of the gases for stopping the motion of said disk when the pressure exceeds a predetermined limit, substantially as described.

26. In an apparatus of the character described, the combination with a firing-chamber, of a centrally-pivoted disk provided with a plurality of cartridge-chambers grouped in a circle about said pivot, means for simultaneously imparting a step-by-step motion to said disk, and for separately supplying primers to the apparatus, and means for automatically firing said primers, with means operated by the pressure of the gases for stopping the motion of said disk when the pressure exceeds a predetermined limit, substantially as described.

605,218. MECHANISM FOR CONVERTING ROTARY TO RECIPROCATING MOTION. JOHN W. BUTTERFIELD, Columbus, Ohio. Filed Jan. 19, 1898. Serial No. 667,147. (No model.)

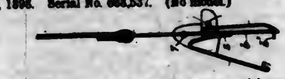
Claim.—1. In a mechanism for converting rotary to reciprocating motion, the combination with a frame 1 having curved end tracks, driving-arms fulcrumed to said frame and having a segmental gear connection at their inner ends, heads on the outer ends of said driving-arms, said heads having a sliding connection with said tracks, and a pin projecting from each of said heads, of a vertically-movable frame 6, an upper and lower rack-bar carried thereon, bars 21 jointedly connecting said frame 6 and driving-arm a power-shaft and a pinion-wheel on said shaft having a peripheral recess, the teeth of said pinion adapted to engage alternately with said rack-bars, the pins of said driving-arm heads adapted to engage as described with said pinion-recesses and a guide projection on said pinion adapted to travel in guideways on said heads, substantially as and for the purpose specified.



2. In a mechanism for converting rotary to reciprocating motion, the combination with a frame 1, a curved track on each end thereof, opposing driving-arms fulcrumed to said frame 1 and having a segmental gear connection at their inner ends, and a head on each of said driving-arms, a guideway on each of said heads said heads having a sliding connection with said end tracks and a projecting pin on each of said heads, of a frame 6 vertically movable in said frame 1, bars 21 jointedly connecting said driving-arms and said movable frame, a rotating shaft 24, a pinion carried thereon, the latter having a peripheral recess and a guide-roller projecting therefrom adapted to travel in the guideways of the arm-heads, substantially as and for the purpose specified.

3. In a mechanism for converting rotary to reciprocating motion, the combination with a frame 1, a curved track on each end thereof, opposing driving-arms fulcrumed to said frame 1, driving-arm heads having a sliding connection with said tracks, a curved flange on each of said heads, and a pin projecting from each of said heads concentric with the curve of said flange, of a vertically-movable frame 6 connected with said frame 1 and having a jointed connection with the driving-arms, a rotary shaft 24, a pinion 23 thereon, a peripheral recess in said pinion adapted to receive as described said head-pins and a roller projecting from said pinion and adapted to travel against said head-flanges, substantially as and for the purpose specified.

605,219. CLASP. JAMES L. CARNEY, New York, N. Y. Filed Jan. 31, 1898. Serial No. 668,537. (No model.)



Claim.—The clasp herein set forth comprising a body-plate having a slot at one end for a webbing or elastic fabric, jaw-teeth at the other end and pivots upon opposite edges, the clamping-plate having jaw-teeth at one end and integral pivot-ears and a spring at the other end, there being holes in the ears receiving the pivots of the body-plate and a lever-plate pivoted to the ears of the clamping-plate and having cams to act on the surface of the body-plate as the lever-plate is swung from one position to the other to open and close the jaws, substantially as set forth.

605,220. FODDER-COMPRESSOR. JAMES B. CARTER, Culpeper, Va. Filed Aug. 9, 1897. Serial No. 647,822. (No model.)



Claim.—1. A bundle-compressor comprising two levers, two curved compressing-arms intermediately connected to the inner sides of the levers, the inner ends of the compressing-arms swingingly connected to each other, substantially as described.

2. A bundle-compressor comprising two levers, rectangular in cross-section, curved compressor-arms connected to the inner sides of one end of the levers, the inner ends of the compressor-arms swingingly connected to each other, whereby the levers form a base when the compressor is unfolded for receiving the material to be compressed, substantially as described.

3. A bundle-compressor comprising two levers, curved compressor-arms secured intermediate their ends to the inner sides of the levers, one end of the compressor-arms swingingly connected to each other, substantially as described.

4. A bundle-compressor comprising two levers, curved compressing-arms secured to the inner sides of one end of the levers and having one of their ends swingingly connected to each other, and a holding-loop at the opposite or handle ends of the levers, substantially as described.

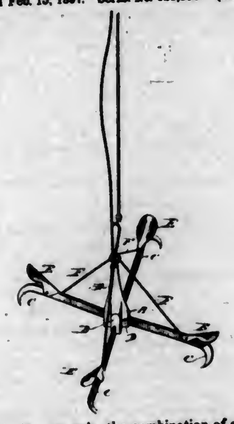
5. A bundle-compressor comprising two levers, curved compressing-arms having at their outer sides two connecting-points attached to the inner sides of the levers to hold the arms rigid therewith, one end of the compressing-arms swingingly connected to each other, and their opposite ends left free to separate, substantially as described.

6. A bundle-compressor comprising two levers, curved compressing-arms secured to the inner sides of the levers at one end thereof, the compressing-arms swingingly connected to each other at one end, one end of the levers having a hook to receive one end of a binding-twine and the other a friction device to receive the other end of the cord, the parts operating in the manner and for the purpose described.

7. A bundle-compressor comprising two levers, curved compressing-arms secured intermediate their ends to the inner sides of the levers, and at one end thereof, one end of the compressing-arms swingingly connected to each other and the other and free ends of the compressing-arms being elongated and curved outward, substantially as described.

8. A bundle-compressor comprising two levers, curved compressing-arms secured to the inner sides of the levers near one end thereof, the inner ends of the compressing-arms swingingly connected to each other, and the adjacent ends of the levers extended to form projections to prevent the rolling of the bundle after being compressed, substantially as described.

605,221. GRAPPLING-HOOK. THEOPHILE DAVID, Corunna, Canada. Filed Feb. 15, 1897. Serial No. 623,533. (No model.)



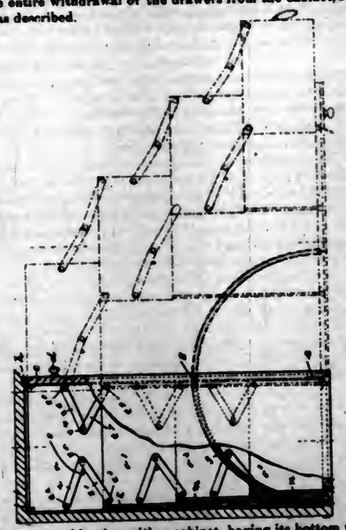
Claim.—1. In a grapple, the combination of a head, hooks pivoted to said head, at angles to each other, and having pivoted spreaders, and means adapted to spread said hooks, substantially as set forth.

2. In a grapple, the combination of a head, hooks pivoted to said head, at angles to each other, and having pivoted spreaders and spreading cords or lines adapted to spread said hooks, substantially as set forth.

605,222. EXHIBITING-CABINET. ALFRED GARTNER, Paterson, N. J., assignor to the Inventor's Novelty Manufacturing Company, same place. Filed Aug. 16, 1897. Serial No. 648,354. (No model.)

Claim.—1. The combination with a cabinet, of a door or front hinged to the front portion of the bottom of said cabinet, a series of drawers in said cabinet, means for pivotally connecting said drawers, a leg downwardly projecting from the rear portion of each drawer, a pin inwardly projecting from the front portion of each side of the cabinet, and a slotted arc-shaped link engaging its respective pin and secured with its forward end to the hinged front or door, substantially as described.

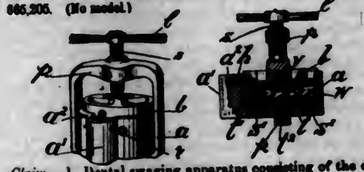
2. The combination with a cabinet, of a door or front hinged to the front portion of the bottom of said cabinet, a series of drawers in said cabinet, means for pivotally connecting said drawers, a leg downwardly projecting from the rear portion of each drawer, a pin inwardly projecting from the front portion of each side of the cabinet, a slotted arc-shaped link engaging its respective pin and secured with its forward end to the hinged front or door, and means carried by one of said drawers and by the cabinet respectively for preventing the entire withdrawal of the drawers from the cabinet, substantially as described.



3. The combination with a cabinet, having its bottom provided with a central groove or recess, of a door or front hinged to the front portion of said bottom and provided with a groove or recess communicating and in alinement with the groove or recess in said bottom, a series of drawers in said cabinet, means for pivotally connecting said drawers, a leg downwardly projecting from the rear portion of each drawer and provided at its lower end with an enlargement engaging the groove or recess in the bottom of the cabinet, a pin inwardly projecting from the front portion of each side of the cabinet, a slotted arc-shaped link engaging its respective pin and secured with its forward end to the hinged front or door, and means carried by one of said drawers and by the cabinet respectively for preventing the entire withdrawal of the drawers from said cabinet, substantially as described.

4. The combination with a cabinet having its bottom provided with a central groove or recess, of a door or front hinged to the front portion of said bottom and provided with a groove or recess communicating and in alinement with the groove or recess in said bottom, a series of drawers in said cabinet, means for pivotally connecting said drawers, a leg downwardly projecting from the rear portion of each drawer and provided at its lower end with an enlargement engaging the groove or recess in the bottom of the cabinet, a pin inwardly projecting from the front portion of each side of the cabinet, and a slotted arc-shaped link engaging its respective pin and secured with its forward end to the hinged front or door, substantially as described.

605,223. APPARATUS FOR SWAGING DENTAL PLATES. JOHN H. GARTRELL, Penzance, England. Filed Dec. 31, 1897. Serial No. 666,205. (No model.)

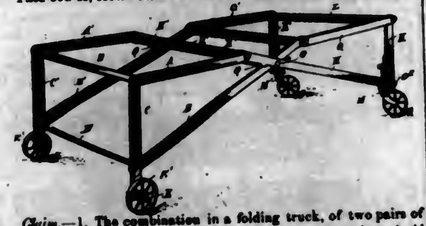


Claim.—1. Dental swaging apparatus consisting of the cylinder *a* having a recess *a'* closed by a plug a^2 held in position by the rod *r*, the plunger *b* and screw-press *p* as described.

2. A dental swaging apparatus comprising the cylinder *a* having a recess *a'* in one side thereof, the tray in the bottom of the cylinder having a handle projecting into said recess, the plug adapted to close said recess, the plunger, the water-cushion adapted to be placed between the plunger and the article to be pressed and the metal balls adapted to encircle the article to be pressed, substantially as described.

3. A dental swaging apparatus comprising the cylinder *a* having a recess in the side thereof, the plug a^2 having a rounded face and a sustaining-rib *f*, the plunger and the screw, for applying pressure thereto, substantially as described.

605,224. COLLAPSIBLE TRUCK. CASPER GREEN, Dublin, Ind., assignor of one-half to Ottis Craner and James Hammon, same place. Filed Oct. 15, 1897. Serial No. 655,285. (No model.)



Claim.—1. The combination in a folding truck, of two pairs of end uprights C, C' and K, K', two pairs of horizontal top bars A, A' and G, G', each pair being pivoted at its outer ends to the upper ends of the end uprights, the inclined bars B, B' pivotally connected at their outer lower ends to the end uprights C, C' and at their inner upper ends to the inner ends of the horizontal top bars G, G', and the inclined bars H and H' pivoted at their lower outer ends to the uprights K, K' and at their inner upper ends to the inner ends of the top bars A, A', the two pairs of bars B, B' and H, H' being crossed near their inner upper ends and pivotally connected together at their crossing, substantially as described.

2. The combination in a folding truck, of end uprights and horizontal top bars, with inclined bars pivotally connecting the inner ends of the top bars with the lower ends of the opposite end uprights, said inclined bars being crossed near their inner upper ends and pivoted together, and each of them being provided with a laterally-projecting stop, substantially as described.

3. The combination in a folding truck, of end uprights C, C' and K, K', top bars A, A' and G, G' and inclined bars B, B' and H, H', cross-bar D' pivotally connecting the outer lower ends of the inclined bars B, B' with the lower ends of the upright bars C, C', the cross-bar D pivotally connecting the outer ends of the top bars A, A' with the upper ends of the end uprights C, C', the cross-bar N' pivotally connecting the inner ends of the top bars A, A' with the upper ends of the inclined bars H and H', the cross-bar O pivotally connecting the two sets of inclined bars B, B' and H, H' at their point of crossing near their inner upper ends, the cross-bar N pivotally connecting the upper ends of the inclined bars B, B' with the inner ends of the top bars G, G', the cross-bar L pivotally connecting the outer ends of the top bars G, G' with the upper ends of the end uprights K, K', the pins O^2 pivotally connecting the lower ends of the inclined bars H, H' with the lower ends of the uprights C, C', and casters M, M' mounted on the lower ends of the uprights K, K', substantially as described.

605,225. GARMENT-SUPPORTER. MYRON B. HARMON, Bridgeport, Conn. Filed Sept. 17, 1897. Serial No. 652,096. (No model.)

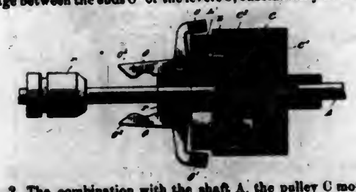


Claim.—1. A garment-support comprising a stud and a slotted metal plate carried by a tape, and the flexible non-elastic loop secured in position intermediate of said plate and stud which loop does not extend to the bottom of the slot in said plate, substantially as set forth.

2. In a garment-support comprising a stud and a metal plate carried by a tape, said plate having a slot enlarged at the top and contracted at the bottom, the flexible non-elastic loop secured in position in parallelism with said slot, the lower end wall of the latter extending beyond the lower end of the loop whereby said stud will be suspended wholly by said loop and without contact against said wall, substantially as set forth.

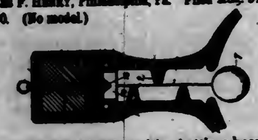
605,226. REVERSING-GEAR. JOHN H. HARE, Noblesville, Ind. Filed Oct. 1, 1896. Serial No. 607,883. (No model.)

Claim.—1. The combination of the shaft A, the pulley C mounted to rotate thereon having enlarged hub C' on one side and internal gear-teeth C^2 on the other, the sleeve D on the shaft adjacent to the hub C', the elbow brake-levers E having the beveled outer ends, a sliding collar F' having a conical end to pass between said levers, brake-shoes E' on the opposite end of the levers engaging the hub C', the disk L mounted on the shaft, the disk L provided with annular flanges L', the pinions M journaled on the disk L and meshing with the interior gear-teeth C^2 and the pinion N, the sleeve P, the elbow brake-levers O pivoted to sleeve P having their outer ends O^2 beveled and carrying brake-shoes O' to engage the flange L', and the sliding collar R on the shaft provided with tapered or conical end to engage between the ends O^2 of the levers O, substantially as described.



2. The combination with the shaft A, the pulley C mounted to rotate thereon having enlarged hub C' on one side and internal gear-teeth C^2 on the other, the sleeve D on the shaft adjacent to the hub C', the elbow brake-levers E having the beveled outer ends, a sliding collar F' having a conical end to pass between said levers, brake-shoes E' on the opposite end of the levers engaging the hub C', the disk L mounted on the shaft, provided with flanges L', the pinion N rigidly mounted on the shaft, the disk L provided with annular flanges L', the pinions M journaled on the disk L and meshing with the interior gear-teeth C^2 and the pinion N, the sleeve P, the elbow brake-levers O pivoted to sleeve P having their outer ends O^2 beveled and carrying brake-shoes O' to engage the flange L', the sliding collar R on the shaft provided with tapered or conical end to engage between the ends O^2 of the levers O, the shifting rod H parallel with the shaft, the lever I pivoted to the shaft-hanger and attached to the rod H, and the bifurcated arms G and S whose forks operate in annular grooves in the sliding collars F' and R, substantially as described.

605,227. NON-REFILLABLE BOTTLE. GEORGE E. HENRY and CHARLES F. HENRY, Philadelphia, Pa. Filed Aug. 31, 1897. Serial No. 650,100. (No model.)



Claim.—1. In combination with a bottle, a keeper secured in the mouth thereof, said keeper having grooves formed in its sides, wires extending across said grooves, a detector secured to the keeper whereby when said keeper is withdrawn the detector will indicate the fact, a stopper carrying catches adapted to engage the cross-wires of the keeper, as and for the purpose described.

2. In combination, a bottle having a neck in which a circuitous passage is formed, a mouth of larger interior diameter, a keeper located within the mouth and resting upon shoulders, a wire, a detector suspended from the keeper by said wire, a protector adapted to fit upon the keeper, means for attaching said protector to the keeper, and a stopper to which the protector is secured, substantially as shown and described.

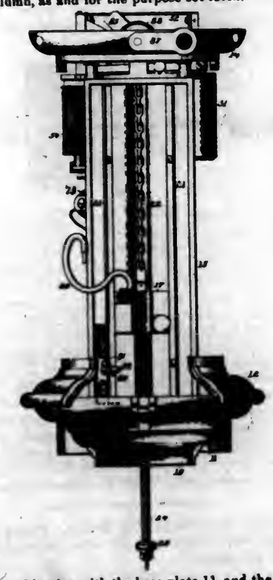
3. In combination with a bottle of the character described, a keeper adapted to fit within the mouth thereof and rest upon suitable shoulders, said keeper having grooves formed in its sides, cross-wires extending across said grooves, a protector adapted to fit upon the keeper, catch-hooks carried by said protector for engagement with the cross-wires, a stopper secured to the protector, a wire suspended from the keeper, and a detector secured to the lower end of this wire, substantially as and for the purpose set forth.

4. In combination with a bottle, a keeper secured in the mouth thereof, said keeper having grooves formed in its sides, wires extending across said grooves, a detector secured to the keeper whereby when said keeper is withdrawn the detector will indicate the fact, a protector, a cork secured on said protector, and catches formed of a single piece of sheet metal, said piece of metal being secured between the cork and protector, the ends thereof being bent downwardly and hooked to engage the cross-wires of the keeper, substantially as set forth.

605,228. ELECTRIC-ARC LAMP. WILLIAM HOCHHAUSEN, Brooklyn, N. Y. Filed Jan. 22, 1897. Serial No. 620,222. (No model.)

Claim.—1. In an arc-lamp, the casing containing the operating mechanism in combination with a vertical partition dividing the space inclosed by said casing into two chambers one of them containing the mechanism to which access must be had in trimming, and means for gaining ready access to said chamber from the exterior without opening into the other chamber, substantially as set forth.

2. In the arc-lamp substantially as shown and described, the combination with the upper and lower ends or plates, of the chambered column 13, connecting them and the casing A extending from one plate to the other and provided with the door for closing the chamber in said column, as and for the purpose set forth.



3. The combination with the base-plate 11, and the top plate 14, suitably capped, of the chambered column joining said plates, the ring 12, provided with the door, and the casing extending from the ring 12, to the plate 14, and provided with a door which coöperates with the aforesaid door to close the chamber in said column, as and for the purpose set forth.

4. The combination with the connected carbons, of the longitudinally-movable shaft from which they are suspended, a clutch member fixed upon said shaft, the coöperating clutch member sleeved upon the shaft, means for moving said shaft longitudinally to throw the clutch members together as the arc is struck, and an electric motor operated by the current of the lamp and geared to said sleeve, for the purpose set forth.

5. The combination with the pivoted frame, the longitudinally-movable shaft journaled thereon, the carbons operated from said shaft, a spring resting against one end of the shaft, a triangular lever pivoted to the frame and bearing against the other end of the shaft, means for tilting the frame and thereby causing longitudinal movement of the shaft, feeding mechanism for rotating the shaft, and a clutch device operated by said longitudinal movement to engage the shaft with the feeding mechanism, for the purpose set forth.

6. The combination with the arc-striking magnet 31, the feeding-magnets 54 and their armature, of a supplemental armature located out of the normal field of said feeding-magnets and operated thereby only under an abnormal strength of current through said magnets, a shunt around the feeding-magnets completed by the movement of said supplemental armature, and a magnet in said shunt for holding the armature in circuit-closing position, substantially as set forth.

7. The combination with the feeding-magnets in a shunt from the arc-circuit, of the elbow-armature having one arm opposite the poles of the feeding-magnets to be attracted thereby under an abnormal strength of current through the shunt, a shunt around the feeding-magnet maintained normally open, a fixed contact, and a contact carried by said armature for closing said normally open shunt, and a magnet in circuit with said contacts and acting upon the other arm of said armature for holding them in engagement.

8. In an arc-lamp, the combination with the arc-circuit, of the feeding-magnet shunt, the normally open safety-shunt around the feeding-magnet, a resistance in said shunt so proportioned with relation to the arc-circuit as to insure the resumption of the regular feeding operation, and the automatic cut-out shunt for the lamp around the arc inclosing the feeding-magnet circuit and said resistance, substantially as set forth.

9. A terminal clamp consisting of a plate folded upon itself to receive a terminal wire in the fold, in combination with a triangular lever pivoted at one angle between said folds and bearing at an outer angle against an inserted terminal wire, and a screw mounted between the folds of the plate and bearing against the other outer angle of said lever, substantially as set forth.

605,229. PHOTOGRAPHIC-PRINT WASHER. WILLIAM H. LEIGH, Beaver Falls, Pa. Filed June 9, 1897. Serial No. 640,063. (No model.)



Claim.—1. In a device of the class described, the combination with a rockably-mounted tray, of partitions extending thereacross which have overflow-openings near their upper edges that lead into the pockets formed by said partitions, and valves unseated when the tray is rocked to discharge the fluid from the pocket filled.

2. The herein-described device comprising a tray, a perforated false bottom therefor, partitions in the tray which divide the same into a central tank and end pockets, pipes leading from the space between the main and false bottoms into the pockets and provided with open ends, pockets having outlet or discharge openings, valves adapted to close the openings of the pipes and the outlet-openings aforesaid, said valves having tripping-stems which extend through the outlet-openings, and a fulcrum located intermediate the ends of the tray.

3. The combination with the rockably-mounted tray having transverse partitions near each end with perforations near their upper edges, a perforated false bottom with an outlet between the bottoms, vertical pipes located between the said partitions and ends of the tray and connecting with the space between the two bottoms, outlet-pipes connected with the said pipes and extended downwardly with their lower ends over openings in the bottom of the tray, and valves slidingly mounted on the outlet-pipes and provided each with a perforation, a head and a depending stem, all substantially as shown and described.

4. The combination of a tray having partitions and perforated false bottom, the outlet-pipes and the sleeves surrounding the same and provided each with a perforation in its side wall, a bottom adapted to close the end of the pipe and an opening in the bottom of the tray, and a stem depending from the said bottom and through the opening in the bottom of the tray, substantially as and for the purpose specified.

605,230. BRUSH. LAVINE A. LIGHTENDORF, Olney, Pa. Filed Oct. 18, 1897. Serial No. 655,506. (No model.)

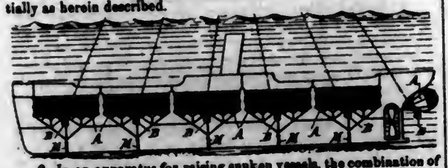


Claim.—1. In a brush, the combination with a cap having a handle, of a tapered ferrule having an abrupt contraction e, at its smaller end, and adapted for engagement with a portion of said cap, bristles having their cemented butts within said ferrule, and a concavo-convex disk interposed between the cap and mass of cemented butts, substantially as herein specified.

2. In a brush, the combination with a cap having a handle and provided with an externally-threaded flange c, of an interiorly-threaded tapered ferrule in engagement with the flange, bristles having their cemented butts within said ferrule, and a concavo-convex disk E, bearing on the flange and exerting a pressure on the mass of cemented bristles, substantially as herein specified.

605,231. MEANS FOR RAISING SUNKEN VESSELS. LAURENT MATHESON, La Garenne-Colombes, France. Filed Nov. 30, 1897. Serial No. 660,308. (No model.)

Claim.—1. In an apparatus for raising sunken vessels, the combination of a float, an acetylene-generator connected and having communication with said float and comprising a cylindrical receiver containing an eccentric compartment with perforated walls and an opening in its bottom, a perforated basket for carbid adapted to be introduced into said compartment through the said opening, a hermetic seal between the said opening and the bottom of said basket, a valve for admitting water to said receiver, and means for operating said valve from a point above the level of the water distant from the vessel and float for the purpose of admitting water to said receiver, substantially as herein described.



2. In an apparatus for raising sunken vessels, the combination of a float, an acetylene-generator attached to and having communication with said float, a valve for admitting water to said generator, a normally open electric circuit in which is an electromagnet the armature of which is attached to said valve, a circuit-closer in said circuit and means for operating said circuit-closer at a point above the level of the water distant from the vessel and float, substantially as herein described.

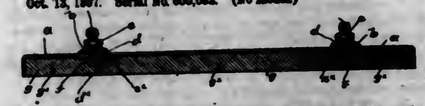
3. In an apparatus for raising sunken vessels, the combination of a float having rigid walls, an acetylene-gas generator within said float, a water-escape valve in said float, a second valve between said float and generator for the admission to the latter of water from the former, a third valve between said float and generator to admit to the former acetylene gas from the latter, and means for operating the said second and third valves from a point above the level of the water distant from the vessel and float, substantially as herein described.

605,232. ATTACHMENT FOR RUBBER SHOES. CHARLES R. POST, Winfield, Kans. Filed Mar. 23, 1897. Serial No. 628,705. (No model.)



Claim.—An overshoe provided with an attachment mounted in the walls of the overshoe so that the latter will present smooth inner surfaces to the foot of the wearer, and constructed from a single piece of spring sheet metal, and comprising a vertically-disposed stem having its lower end bent to form a step, and curved arms extending laterally from each side of the stem at the upper end thereof and arranged around the upper edge of the heel portion of the overshoe and reinforcing and stiffening such edge and forming a clamp to engage the foot of the wearer, the step being supported on the sole of the overshoe and the stem being arranged midway between the sides of the latter and extending from the sole to the upper edge of the overshoe to prevent the heel from breaking down, substantially as described.

605,233. RAILWAY-TIE. MICHAEL RILEY, London, Ohio. Filed Oct. 13, 1897. Serial No. 655,023. (No model.)



Claim.—1. In a railway-track support, the combination with a metallic tie-plate and a tongue cut therefrom and shaped to conform to the side of a track-rail, of a doubled metallic strip *d* shaped to conform to and bear against the inner side of said track-rail, a key-plate *c* passing through the doubled lower end of said strip *d* beneath said plate *a* and transverse bolts *e* adapted to clamp said tongue and strip end portions against opposite sides of said track-rail web, substantially as and for the purpose specified.

2. In a railway-track support, the combination with a metallic tie-plate or casing and a tongue cut therefrom and shaped to conform to the side of a track-rail, a metallic strip *d* extending through the opening formed by the cutting of said tongue and secured in connection with said plate, a bolt *e* uniting the strip *d*, tongue *b* and a track-rail web, of a filling for said flange plate or casing *a* of concrete or similar material, substantially as and for the purpose specified.

605,234. SMOKE-BELL. TRUMAN C. O. SHERK, Buffalo, N. Y. Filed Dec. 14, 1897. Serial No. 661,810. (No model.)



Claim.—1. A smoke-bell, comprising a bell portion, a suspending medium, an asbestos-supporting device, and devices for detachably securing the suspending medium to the bell portion and the asbestos-supporting device within the bell portion.

2. A smoke-bell, comprising a bell portion provided with a series of draft-openings, a net suspended within said bell portion and a series of asbestos portions loosely suspended from said net.

3. A smoke-bell, comprising a bell portion, provided with a series of openings in its top, a net, a series of asbestos portions loosely suspended from said net, a supporting chain or chains, and devices passed through the openings in the top of the bell portion for detachably securing the chain or chains to the bell portion and the net within the interior of the bell portion, as set forth.

605,235. AUTOMATIC WAGON-BRAKE. EDGARD SUNNER, Tipton, Kans. Filed May 19, 1897. Serial No. 637,261. (No model.)



Claim.—1. In a wagon-brake, the combination of the brake-lever loosely supported from the wagon-body and carrying the brake-shoes at its ends, and a suitable connection between the brake-lever and thills, whereby any back draft on them will apply the brake-shoes, substantially as shown and described.

2. In a wagon-brake, the combination of the brake-lever loosely supported from the wagon-body and carrying the brake-shoes at its ends, an arc-shaped piece having a loose connection with the brake-lever, and a connection with the thills substantially as shown and described.

3. In a wagon-brake, the combination with a rock-shaft mounted upon the wagon-body and carrying brake shoes at its ends, a transversely-extending rod having its extremities bent to extend beneath the front axle, and a loose connection between said transverse bar and the rock-shaft, of the thills connected to the extremities of the transverse bar and adapted by their longitudinal movement to actuate the rock-shaft and apply the brake-shoes, substantially as set forth.

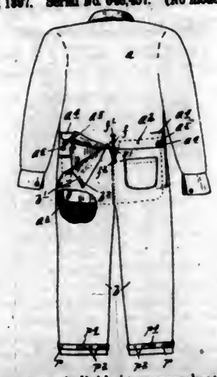
4. In a wagon-brake, the combination with the rock-shaft carrying brake-shoes at its extremities, clips secured upon the front axle and perforated, a transversely-extended rod having its extremities bent to pass beneath the axle, said bent ends passing through the perforated clips and movable therein, and a loose connection between the transverse rod and the rock-shaft, of the thills connected to the extremities of the transverse rod, substantially as set forth.

5. In a wagon-brake, the combination with a rock-shaft having an intermediate crank portion and carrying brake-shoes at its extremities, an arc-shaped piece having its extremities bent to extend forwardly, guides carried by the axle in which said forwardly-extending ends move, and a longitudinally-extending bar secured to the arc-shaped piece and loosely connected to the crank of the rock-shaft, of the thills connected to the extremities of the arc-shaped piece, substantially as set forth.

6. In a wagon-brake, the combination with a rock-shaft mounted upon the body of the wagon and carrying brake-shoes at its extremities, a transversely-extending rod having its forwardly-extending ends bent, guides carried by the axle in which said forwardly-extending ends move, a connection between the transversely-extending rod and the rock-shaft, and springs arranged about the ends of the

transversely-extending rod between the extremities thereof and the guides, of the thills connected to the extremities of said transversely-extending rod, substantially as set forth.

605,236. OVERALLS. CHARLES G. SMITH, Minneapolis, Minn.
Filed July 30, 1897. Serial No. 646,457. (No model.)

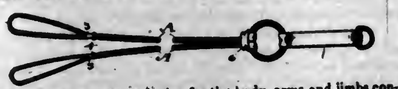


Claim.—1. A union-suit divided transversely at the back between the body and leg portions, and having an expansion-fold extending downwardly from the body portion and folded upon itself so as to form the plait a^2, a drop-flap extending from the leg portion and closing upwardly, and fastenings for releasably closing the expansion-fold and drop-flap together at the sides of the garment, the plait a^2 being permanently attached to the body portion at its ends in line with the side fastenings, and being unattached thereto between its ends, whereby the garment is adapted to be opened and closed at the rear as desired, and is rendered vertically expansible at the back, and non-expansible at the sides.

2. A union-suit divided transversely at the back between the body and leg portions, and having an expansion-fold extending downwardly from the body portion below the line of division and folded upon itself so as to form a plait a^2 and the tailpiece a^3, a drop-flap extending from the leg portion and closing upwardly, and fastenings for releasably closing the expansion-fold and drop-flap together at the sides of the garment, the plait a^2 being permanently attached to the body portion at its ends in line with the side fastenings, and being unattached thereto between its ends, whereby the garment is adapted to be opened and closed at the rear as desired, and is rendered vertically expansible at the back, and non-expansible at the sides.

3. A union-suit divided transversely at the back between the body and leg portions, and having an expansion-fold extending downwardly from the body portion below the line of division and folded upon itself so as to form the plait a^2 and the tailpiece a^3, a drop-flap extending from the leg portion and closing upwardly between the plait a^2 and the tailpiece a^3, non-elastic fastenings for releasably closing the expansion-fold and drop-flap together at the sides, and elastic fastenings for releasably securing said plait and flap together at the middle, the plait a^2 being permanently attached to the body portion at its ends in line with the side fastenings, and being unattached thereto between its ends, whereby the garment is adapted to be opened and closed at the rear as desired, and is rendered vertically expansible at the back, and non-expansible at the sides.

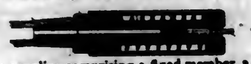
605,237. EXERCISING DEVICE. FENTON R. SPINK, Cleveland, Ohio.
Filed Jan. 11, 1896. Serial No. 534,536. (No model.)



Claim.—An exercising device for the body, arms and limbs consisting of an elastic strap or strand, means to engage one end thereof to a fixed object, a ring at the opposite end thereof, an elastic strap or strand provided with elastic handholds and secured by looping to the ring, substantially as set forth.

605,238. AUTOMATIC HOSE-COUPLING. WILLIS A. SUTTER, Marysville, Cal.
Filed Mar. 1, 1897. Serial No. 625,457. (No model.)

Claim.—1. An improved coupling, comprising a uniting and holding device, a socket portion carried thereby open from end to end, a tube longer than the socket and extending therethrough and provided with enlargements on opposite sides of the socket, the space between the enlargements being longer than the socket, and a spring arranged between the forward enlargement and the socket for holding the tube normally extended toward the holding device, the opposite end of the tube being adapted to connect with a hose or other pipe.



2. A pipe-coupling comprising a fixed member, a movable member adapted to move within the fixed member, the fixed member provided with gripping members for holding one section of the piping to be coupled, the other section of the piping to be coupled adapted to be attached to the movable member, and means for holding the movable member in engagement with the section of piping secured by the gripping members substantially as shown and described.

3. A hose-coupling, comprising a gripping member adapted to receive and hold one section of the pipe to be coupled, a section of pipe or tube movable upon the gripping member and adapted to receive the other section of pipe to be coupled, and means for holding the opposite end of the movable pipe pressed against the pipe held by the gripping member, substantially as described.

4. The combination of a collar, spring-arms secured to said collar, jaws carried by the opposite end of said arms and adapted to receive one section of the pipe to be coupled, a tube movable in said collar and adapted to receive the other section of the pipe to be coupled, at its outer end and at its inner end adapted to engage the section of pipe held by the jaws, and means for holding said tube pressed against said pipe, substantially as described.

5. The combination of a collar, spring-arms secured thereto, jaws formed on the opposite ends of said arms and adapted to hold one section of the pipe to be coupled, a tube movable through the collar and adapted to receive the other section of the pipe to be coupled, means for holding the opposite end of said tube in engagement with the section of pipe held by the jaws, and a ring movable upon said spring-arms for the purpose of preventing their disengagement from the section of pipe held thereby, substantially as described.

6. A pipe-coupling comprising a collar, gripping members carried thereby and adapted to hold one section of the pipe to be coupled, a tube movable through the collar to which the other section of the pipe to be coupled is adapted to be secured, means for holding said tube normally in engagement with the section of pipe held by the gripping member, a perforated cap upon the opposite end of said tube, a perforated pin movable in the tube and normally pressed outward and a stop upon said pin for limiting its outward movement, substantially as described.

605,239. PNEUMATIC DISPLAY-LAST. WILLIAM J. THILL, Waukon, Iowa.
Filed June 30, 1897. Serial No. 642,980. (No model.)



Claim.—1. A display-last for shoes comprising in its construction an inflatable bag formed to approach in shape the interior of the shoe, when inflated, a wooden supporting-plug within said bag, and a metallic frame secured to said plug within said bag, and means for adjusting the size of the metallic frame, substantially as described.

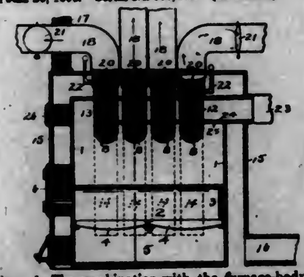
2. A display-last for shoes comprising in its construction an inflatable bag formed to approach the shape of the interior of the shoe, when inflated, a wooden supporting-block having front notches, and an elastic metallic supporting-frame attached to the supporting-block within said bag and having its upper end inserted in one of said recesses, substantially as described.

3. A display-last for shoes comprising in its construction an inflatable bag formed to approach the shape of the interior of the shoe, when inflated, a wooden supporting-block having a rear recess, an elastic, metallic, supporting-frame attached to the supporting-block within the bag, having its rear end extending up the back part of the bag, and an adjusting-screw projecting from the recess in the block and bearing against said rear end, substantially as described.

4. The combination with the inflatable bag, of the wooden plug

secured therein and provided with a series of recesses in its front end, the flexible metallic frame F having its front end inserted in one of said recesses, an adjusting-screw G projecting rearwardly from the plug and serving to distend the rear end of said metallic frame, and suitable means for connecting a pump for the purpose of inflating the bag, substantially as described.

605,240. FURNACE. CHARLES W. TROTTER, Rochester, N. Y.
Filed Jan. 29, 1898. Serial No. 668,423. (No model.)



Claim.—1. The combination with the furnace-body having the fire-box and smoke-pipe, of the pipes arranged substantially horizontally over the fire-box provided with the vertical extensions, the partitions therein, and the depending supply pipes at the ends, the outer casing, the conductor-pipe leading therefrom, and means for connecting the extensions directly with the conductors, substantially as described.

2. The combination with the furnace-body having the fire-box and the smoke-pipe, the horizontal air-pipes arranged over the fire-box, and forming a smoke-flue between said pipes and the top of the furnace-body, and a cleaning-aperture arranged in the body in line with the smoke-flue over the pipes, substantially as described.

3. The combination with the furnace-body having the fire-box and smoke-pipe, the substantially horizontal air-pipes having the depending supply-pipes at the ends, and the central discharge extensions, of the outer casing, the air-conductors leading therefrom, and movable pipe collars or sleeves for connecting the discharge extensions of the horizontal pipes with the conductor-pipes, substantially as described.

4. The combination with the furnace-body and the fire-box and smoke-pipe, of the horizontal air-pipes extending over the fire-box and below the smoke-pipe and forming a flue at the top of the body and between it and the pipes, a casing around the furnace-body, conductor-pipes leading from the top thereof, and detachable pipe connections between the horizontal air-pipes and the conductor-pipes, substantially as described.

5. The combination with the furnace-body having the fire-box, the horizontal air-pipes arranged above the fire-box having the vertical extensions passing through the furnace-body, and the partitions therein, of the outer casing, the conductor-pipes connected thereto and having dampers therein, and means for connecting the vertical extensions of the horizontal pipes directly with the conductor-pipes or permitting them to discharge into the casing, substantially as described.

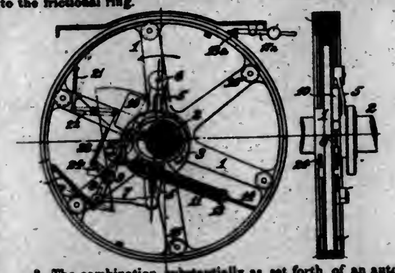
6. The combination with the furnace-body having the fire-box, the horizontal air-pipes arranged above the fire-box, having vertical extensions passing above the furnace-body, of the outer casing, the conductor-pipes leading therefrom, the vertically-adjustable collars cooperating with the pipe extensions and with the conductor-pipes, substantially as described.

7. In a furnace, the combination with the furnace-body, and the fire-box, air-pipes passing over the fire-box and discharging above the furnace-body, of the outer casing, the conductor-pipes connected therewith and adjustable collars for connecting the pipe extensions with the conductor-pipes, substantially as described.

605,241. FLUID-MOTOR GOVERNOR. EDWIN F. WILLIAMS, New York, N. Y.
Filed Mar. 2, 1897. Serial No. 626,662. (No model.)

Claim.—1. The combination, substantially as set forth, of an automatic cut-off governor, an adjustable eccentric controlled thereby, a frictional mechanism for effecting the retardation of speed of a member rotating with the governor and independent thereof, and independently-operable and oppositely-acting connections from said frictional mechanism to the eccentric.

2. The combination, substantially as set forth, of an automatic cut-off governor, an adjustable eccentric controlled thereby, sheaves journaled on the carrier or frame of the governor, a frictional ring mounted freely upon said sheaves, connections coupling said frictional ring with the eccentric, and a brake-lever fitted to apply resistance to the frictional ring.



3. The combination, substantially as set forth, of an automatic cut-off governor, an adjustable eccentric controlled thereby, two frictional rings fitted to rotate with the governor, each having the capacity of independent circumferential movement thereon, connections coupling the frictional rings, in opposite directions, to the eccentric, and means for applying resistance to either of the frictional rings.

605,242. STOVE OR OTHER GRATE. ANTONIO ALITTO, Chicago Ill.
Filed Oct. 18, 1897. Serial No. 655,613. (No model.)



Claim.—1. The combination with grate-sections arranged side by side, bearings located in line with the central longitudinal ends of each section, upon which they rock, and means for rocking said sections simultaneously, of a clearing-rake reciprocable on ways beneath said sections and having teeth extending up between the longitudinal grate-bars, and means whereby said rake is allowed to pass beyond one end of said sections, to permit them to be rocked.

2. The combination with grate-sections arranged side by side, an inclosing fire-box, a journal-plate set out from the rear wall of said fire-box to form a guard-recess, pierced frame-plates for the rear ends of the grate-bars, bearings in the journal-plates and in the front wall of the fire-box in line with the central longitudinal axis of each grate-section for the support of such section, means for rocking the sections simultaneously, and a reciprocable clearing-rake arranged to pass said pierced support and into the guard-recess.

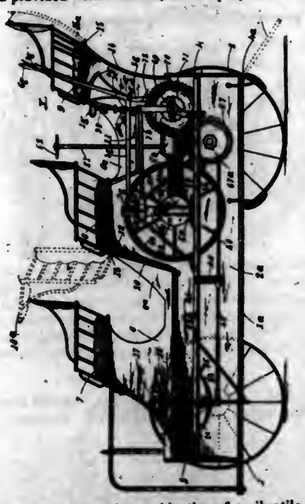
605,243. MOTOR-CARRIAGE. HENRY R. REED, Buffalo, N. Y.
Filed Mar. 8, 1897. Serial No. 626,494. (No model.)

Claim.—1. In a motor-carriage, the combination of the operating-motor, an arm adapted to be vibrated by said motor; a pawl-arm and toothed driving-wheel mounted on the same shaft, a pawl mounted on the pawl-arm and capable of a rotating and a vertical movement and having its upper end pivoted to a slotted bar and its lower end in engagement with the driving-wheel, a vertically-movable bar having its lower end connected by a pin with the slot in the slotted bar and its upper end provided with a handle, and a connection between the vibratile arm and the pawl-arm for operating the pawl-arm, as set forth.

2. In a motor-carriage, the combination of a vibratile arm pivoted to a support on the carriage-frame, a motor for giving it a uniform vibrating movement, a toothed driving-wheel an arm mounted on said driving-wheel shaft and carrying a pawl adapted to engage with the teeth in said driving-wheel, means for keeping the pawl in engagement with a yielding force, a connecting-arm pivotally connected with the pawl-arm and having its opposite end pivoted to a sliding piece adapted to slide up or down on the vibratile arm, and means for moving its pivotal center on the sliding piece in a line with the pivotal center of the vibratile arm, and thereby stopping the vehicle, or moving it from the pivotal center of the vibratile arm, for the purpose of varying the speed of the vehicle, as above set forth.

3. In a motor-carriage, the combination with the motor and mechanism for operating the pawl-arm, of a pawl-arm and toothed driving-wheel mounted on the same shaft, a pawl mounted on the pawl-arm and capable of a rotating and a vertical movement and having its upper end pivoted to a slotted bar and its lower end in

engagement with the driving-wheel, a vertically-movable bar having its lower end connected by a pin with the slot in the slotted bar and its upper end provided with a handle, for the purposes described.



4. In a motor-carriage, the combination of a vibratile arm pivoted to the supporting-frame, a motor and means for operating said arm, a toothed driving-wheel, a pawl-arm mounted on the same shaft with the driving-wheel and carrying a pawl in engagement with the teeth in said driving-wheel, a connecting-arm pivotally connected with the vibratile arm and the pawl-arm, and means within reach of the operator for lifting said pawl out of engagement with the teeth in the driving-wheel and thereby instantly stopping the propelling force of the vehicle.

5. In a motor-carriage, the combination of a vibratile arm pivoted to the support on the supporting-frame, a motor and connecting means for operating said arm, a toothed driving-wheel, a pawl-arm carrying a pawl adapted to engage with the teeth on said driving-wheel and mounted on the same shaft therewith, and an arm pivotally connecting it with the vibratile arm, a rod extending up from said pawl above the pawl-arm and pivoted to a slotted bar, a vertical bar provided with a handle, mounted in bearings so it can be moved easily up or down or turned therein, and connected with the slot in said slotted bar by a pin, and means for securing it when turned and set for either a forward or backward movement of the carriage, as above described.

6. In a motor-carriage, the combination with the supporting-frame, the operating-motor having its shaft provided with a crank device and the rear wheels of the carriage and their shaft, of a vibratile arm pivoted at or near its upper end to the frame and having a longitudinal slot at or near its lower end in which the crank device is supported and travels, a spur gear-wheel rigidly mounted on the rear-wheel shaft, a short supplementary shaft journaled upon the frame, a spur gear-wheel also mounted upon said supplementary shaft, and adapted to gear with the gear-wheel upon the main shaft, a second gear-wheel mounted upon the supplementary shaft, a forked arm adapted to fit over each side of the gear-wheel and pivotally mounted on the supplementary shaft so as to swing thereon, a pawl supported by said forked arm and adapted to engage with the teeth in the gear-wheel, a connecting-rod pivoted at or near the top of the forked arm, a spring to give a slight amount of elasticity to the forward thrusts of said arm, a slideway portion at the opposite end of the connecting-rod adapted to fit the vibratile arm and means for longitudinally moving said slideway upon the vibratile arm, as set forth.

7. In a motor-carriage, the combination with the supporting-frame, the operating-motor, and the wheels of the carriage, of a vibratile arm pivoted at one end to the frame and connected at the other to the motor-crank, a shaft journaled in the frame, a gear-wheel connected with the carriage-wheels, a pawl having a beveled lower end forming a driving edge on one side, a supporting device for said pawl, swinging pivotally from the gear-wheel shaft, means for nominally holding said pawl driving edge in engagement with the gear-wheel, a connecting-rod pivoted to the upper end of the supported device, a slideway on the opposite end of said rod adapted to fit and move longitudinally on the vibratile arm, an arm within reach of the operator for moving said rod and slideway portion upon the vibratile arm to vary the length of the strokes of the connecting-rod and thereby vary the speed of the carriage, and an arm within reach of the operator for disengaging the pawl from the gear-wheel and thereby stopping the transmission of power, or for disengaging and half-rotating the pawl, to reverse the running direction of the carriage, as set forth.

8. In a motor-carriage, the combination of a slotted vibratile arm pivoted to a support on the carriage-frame, an operating-motor having a crank-arm adapted to slide in the slot in the vibratile arm for imparting a uniform vibrating movement to said arm, a driving-wheel, an operating-arm mounted on said driving-wheel shaft and carrying a device adapted to detachably engage with the driving-wheel, means for keeping said device in engagement with a yielding force, a connecting-arm pivotally connected with the operating-arm and having its opposite end pivoted to a sliding piece adapted to slide up or down on the vibratile arm, means for moving its pivotal center on the sliding piece in a line with the pivotal center of the vibratile arm, and thereby stopping the movement of the operating-arm, or moving it from the pivotal center of the vibrating arm, for the purpose of varying the speed of the vehicle, and means for disengaging the operating-arm and its device from or changing its position thereon and thereby stopping the transmission of power or reversing the running direction of the carriage, as set forth.

9. The combination with the supporting-frame, the operating-motor and its shaft, and the driven wheels of the carriage, of a vibratile arm swinging from a pivot on the supporting-frame and having a slot in which the crank of the operating motor-shaft is sustained and travels, a toothed gear-wheel, a pawl-arm provided with a pawl having a beveled lower end forming a driving edge on one side, a rod connecting said pawl-arm to the vibratile arm to vibrate the same and means for rotating the pawl to present its driving edge to one side or the other of the teeth on the gear-wheel, as set forth.

10. In a motor-carriage, the combination with the supporting-frame, the operating-motor, and the wheels of the carriage, of an arm vibrated by the operating-motor, a gear-wheel in connection with the driven wheels of the carriage, a swinging arm having a pawl engaging with the gear-wheel, a connecting-rod between the vibratile arm and an arm within reach of the operator for varying the position of the connecting-rod with respect to the vibrated arm to lengthen or shorten the strokes of the swinging arms and correspondingly increase or decrease the speed of the carriage, as set forth.

11. In a motor-carriage, the combination with the carriage body and frame, of a shaft rotatably supported in the frame, and provided with a steering-wheel at its upper end and a bevel-gear at or near its lower end, a screw-bar unrotatably supported while free to move longitudinally, a bevel-gear held in engagement with the bevel-gear on the shaft and engaging with the screw-thread on the bar to control the longitudinal movement of said bar, and rods connecting said screw-bar with the front wheels to steer the vehicle, as set forth.

12. In a motor-carriage, the combination with the carriage and its frame, of a steering-wheel shaft mounted in suitable bearings near the rear of the carriage and carrying a steering-wheel at its top and a bevel gear-wheel at its foot, a screw-bar mounted in boxes in a substantially horizontal position, provided with a screw-thread on a portion of its surface and adapted to move back and forth in its bearings without turning therein, a bevel gear-wheel in engagement with the bevel gear-wheel at the foot of the steering-wheel shaft, mounted on said screw-bar and in engagement with the screw-thread thereon, means for preventing it from moving longitudinally in its bearings while free to rotate, a connecting-rod having one end pivoted to the screw-bar, and its opposite end pivoted to a transverse bar centrally pivoted to the under side of the carriage-frame, two short axle-bars pivoted to the frame, front wheels rotatably mounted on the outer ends of said axle-bars, and connecting the ends of the transverse bar with the axle-bars for turning them, and thereby steering the vehicle.

13. In a motor-carriage, the combination with the frame of two short axle-bars pivotally sustained by the front portion of said frame, the front wheels rotatably mounted at the outer ends of said bars, a transverse bar centrally pivoted to the frame, rods connecting the ends of said bar with the inner ends of the axle-bars, a bar having a peripheral screw-thread mounted at or near the rear of the frame and having a longitudinal movement only, a rod connecting the front end of said screw-threaded bar with the transverse bar, a gear-wheel engaging with the screw-thread upon said bar, and means within reach of the operator for rotating said gear-wheel and moving the screw-threaded bar longitudinally, as set forth.

14. In a motor-carriage, the combination with the frame, of two short axle-bars pivotally sustained by the front portion of said frame, the front wheels rotatably mounted at the outer ends of said bars, a transverse bar centrally pivoted to the frame, rods connecting the ends of said bar with the inner ends of the axle-bars, a bar having a peripheral screw-thread mounted at or near the rear of the frame and having a longitudinal movement only, a rod connecting the forward end of said screw-threaded bar with the transverse bar, a bevel gear-wheel engaging with the screw-thread upon the bar, and an arm within control of the operator and provided with a bevel gear-wheel meshing with the bevel gear-wheel engaging with the screw-threaded bar, as set forth.

15. In a motor-carriage, the combination with the frame and the steering-wheels, and their supporting-axles, of a peripherally-screw-threaded bar, unrotatably supported by said frame while free to move longitudinally, devices connecting said bar to the axles, a bevel gear-wheel inclosed within the frame portion supporting the screw-threaded bar and having an interiorly-screw-threaded opening encircling the screw-bar and adapted to engage with the screw-thread thereon, and an operating-rod provided at its lower end with a bevel gear-wheel meshing with the gear-wheel encircling the screw-bar, as set forth.

16. In a motor carriage, the combination with the frame, of two short front axles pivotally supported at their ends by said frame, wheels journaled at the outer ends of said axles, a transverse bar pivoted centrally to the frame, rods connecting the bar to the axles, a peripherally-screw-threaded bar, unrotatably supported by said frame while free to move longitudinally, rods connecting said screw-bar to the transverse bar, a bevel gear-wheel inclosed within the frame portion supporting the screw-threaded bar and having an internally-screw-threaded opening encircling the screw-bar, and adapted to engage with the screw-thread thereon and an operating-rod provided with a hand-wheel at its upper end and at its lower end with a bevel gear-wheel meshing with the gear-wheel encircling the screw-bar, whereby the rotation of the hand-wheel upon the operating-rod in either direction will cause its gear-wheel to rotate the gear-wheel encircling the screw-bar, and thereby move the screw-bar backward or forward according to the direction of the rotation, and through the connecting-rod move the transverse bar upon its central pivot and correspondingly the front axles and wheels, thereby steering the carriage, as set forth.

17. In a motor-carriage the combination with the front wheels, of a carriage, of two short axle-bars supporting the said front wheels, a brace extending down from the bolster and laterally each way in which the lower extension portions of the axle-bars are pivoted, two connecting-rods each having one end pivoted to a horizontal axle-bar and their opposite ends pivoted to a transverse bar pivoted centrally to the machinery platform, a connecting-bar pivoted to one end of the transverse centrally-pivoted bar and having its opposite end pivoted to a screw-bar carrying a bevel gear-wheel mounted in a support so that while it cannot move backward or forward it is free to rotate, a vertical steering-bar mounted in suitable bearings and having at its top a hand-wheel and at its foot a bevel gear-wheel in engagement with the bevel gear-wheel on the screw-bar, as set forth.

18. In a motor-carriage, the combination of a steering-wheel shaft mounted in suitable bearings near the rear of the carriage, and carrying a steering-wheel at its top and a bevel gear-wheel at its foot, a screw-bar mounted in boxes in a substantially horizontal position, provided with a screw-thread on a portion of its surface and adapted to move back and forth in its bearings without turning therein, a bevel gear-wheel in engagement with the bevel gear-wheel at the foot of the steering-wheel shaft, mounted on said screw-bar and in engagement with the screw-thread thereon, means for preventing it from moving longitudinally in its bearings while free to rotate, a connecting-rod having one end pivoted to the screw-bar, and its opposite end pivoted to a transverse bar centrally pivoted to the under side of the carriage-frame, and connecting-rods connecting the ends of the transverse bar with the front wheels for turning them and thereby steering the vehicle.

19. In a motor-carriage, the combination with the front wheels of a carriage, of two short axle-bars carrying the front wheels, each provided with an upper and lower pivotal extension, ball-bearings in the upper extensions upon which the ends of the bolster rest and are pivotally secured, a brace extending down from the bolster and laterally each way in which the lower extension portions of the axle-bars are pivoted, and mechanism pivoted to the inner ends of the axle-bars and having pivotal connections with the steering mechanism, for operating the two front wheels simultaneously and thereby steering the carriage.

20. In a motor-carriage, the combination with the front wheels of a carriage, of two short axle-bars carrying the front wheels, each provided with an upper and lower pivotal extension, ball-bearings in the upper extensions upon which the ends of the bolster rest and are pivotally secured, a brace extending down from the bolster and laterally each way in which the lower extension portions of the axle-bars are pivoted, two connecting-rods each having one end pivoted to a horizontal axle-bar and their opposite ends pivoted to a transverse bar pivoted centrally to the machinery platform, a connecting-bar pivoted to one end of the transverse centrally-pivoted bar and having its opposite end pivoted to a screw-bar carrying a bevel gear-wheel mounted in a support so that while it cannot move forward or back it is free to rotate, a vertical steering-bar mounted in suitable bearings and having at its top a hand-wheel and at its foot a bevel gear-wheel in engagement with the bevel-wheel on the screw-bar, as set forth.

21. In a motor-carriage, the combination with the engine and its supporting-platform, of spring mechanism for limiting the upward movement of said engine and platform and means for adjusting said spring mechanism to regulate its limiting movement.

22. In a motor-carriage, the combination of the carriage-body, its supports, springs interposed between said carriage-body and said support, the operating-engine, an independent supplementary support for said engine, springs interposed between said engine-support and the carriage-support, and an india-rubber cushion interposed between the engine and its support to deaden and partially prevent the transmission of the sound and vibration of the engine.

23. In a motor-carriage, the combination with the engine, its supporting-platform and springs interposed between said engine and supporting-platform, of supplementary springs for limiting the upward movement of said engine and supporting-platform, and means to adjust said springs to regulate their limiting movement.

24. In a motor-carriage, the combination of the engine and its supporting-platform, a layer of india-rubber between said engine and its supporting-platform, and springs for limiting the upward movement of said engine and platform.

25. In a motor-carriage, the combination with the engine, its supporting-platform and the rubber cushion interposed between said engine and supporting-platform, of supplementary springs for limiting the upward movement of said engine, and supporting-platform.

26. In a motor-carriage, the combination with the engine, its supporting-platform and the rubber cushion interposed between said engine and supporting-platform, of supplementary springs for limiting the upward movement of said engine and supporting-platform, and means to adjust said springs to regulate their limiting movement.

27. In a motor-carriage, the combination with the semi-elliptic springs, secured below the bolster and supporting-frame, upon which the frame or platform for supporting the engine and operating mechanism rests, of a bolt extending up from the lower spring and bolster and up above the top of the supporting-frame, a spiral spring resting on said supporting-frame and over said bolt, and a nut for readjusting said springs

28. In a motor-carriage, the combination with the engine, its supporting-platform and springs interposed between said engine and supporting-platform of supplementary springs for limiting the upward movement of said engine and supporting-platform, and means to adjust said springs to regulate its limiting movement.

29. A motor-carriage, comprising the body provided with removable end, side and top portions, an operating-motor supported upon springs within said body, the carriage-supporting frame and running-gear and springs interposed between said frame and gear and the carriage-body.

30. A motor-carriage, comprising a carriage-body forming an inclosing case, a motor within said case, a motor-supporting frame, springs supporting said supporting-frame and means for allowing a slight backward or forward movement to said springs, as set forth.

31. A motor-carriage, comprising a carriage-body, its support, the operating machinery, an independent support for said machinery, and springs interposed between said independent support and the carriage-support, means for allowing a slight backward or forward movement to said springs and supplemental springs for limiting the upward movement of said independent support.

32. A motor-carriage, comprising the carriage-body, its support, the operating-motor, an independent support for said motor, double-acting springs for restraining said independent support with a spring force in both an upward and downward direction, means for regulating said springs and means for allowing a slight forward or backward movement thereto, as set forth.

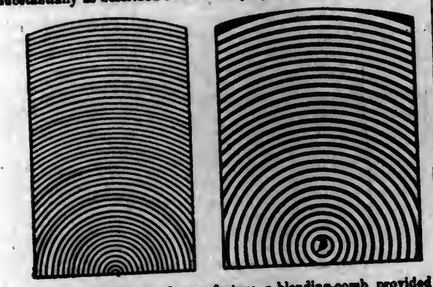
33. In a motor-carriage, the combination with the motor, of the body, forming an inclosing case for said motor, and comprising the bottom, sides, front portion, rear portion hinged at its lower edge to the bottom, the side pieces, seats supported upon said side pieces and forming removable portions of said body or inclosing case, and a removable platform, as set forth.

34. In a motor-carriage, the combination with the motor and operating mechanism, of the carriage-body forming an inclosing case for said motor and operating mechanism, and having hinged seats and rear end portion whereby the motor and operating mechanism are exposed when required, as set forth.

605,244. GRAINING. JOHN J. CALLOW, Cleveland, Ohio. Filed Nov. 13, 1896. Serial No. 611,944. (No model.)

Claim.—1. The method of graining in imitation of wood, which consists in coating the surface thereof to be grained, with graining color then drawing over said colored surface, a flexible pad provided with concentric lines on its under side, and at the same time drawing a grainer's comb over the top surface of said pad at a speed different from that at which the pad is moving, substantially as described.

2. The method of graining in imitation of wood, which consists in coating the surface thereof to be grained, with graining color then drawing over said coloring surface a flexible pad provided with concentric lines on its under side, and at the same time drawing a grainer's comb over the top surface of said pad at a speed different from that at which the pad is moving, and finally striking the said grained work against the grain thereof with a flexible bleeding-comb, substantially as described and for the purpose herein set forth.



3. As a new article of manufacture, a bleeding-comb, provided with flexible teeth, a hook on the end of each of said teeth, and a band or web of rubber tightly stretched around said comb and covering said hooked teeth, substantially as described.

605,245. PHOTOGRAPHIC FINDER. HARVEY B. GARLTON, Rochester, N. Y. Filed Mar. 27, 1897. Serial No. 629,509. (No model.)



Claim.—1. A finder for a camera, consisting of a body having a lens tube and a mirror, in combination with a plate pervious to light above the mirror, the plate being made hollow at its upper surface and a body adapted to roll placed therein, substantially as shown and described.

2. A finder for a camera, consisting of a hollow body provided with a lens-tube and an inclined mirror, in combination with a plate pervious to light, above the mirror, the plate being made hollow at its upper surface, and a body, as a sphere, adapted to roll placed in said hollow, and four retaining walls or sides together forming a rectangular inclosure for the sphere, substantially as shown and described.

3. A finder for a camera, consisting of a body provided with a lens-tube and a mirror, in combination with a plate pervious to light, above the mirror, made hollow at its upper surface, and a body, as a sphere, adapted to roll placed in said hollow, and four walls or sides together forming a rectangular inclosure for the sphere, the plate being provided with two intersecting lines one parallel with two opposing retaining walls or sides and the other parallel with the remaining two walls or sides, substantially as specified.

4. In combination a lens and an inclosed mirror, a plate pervious to light, above the mirror, made hollow at its upper surface, and a body, as a sphere, adapted to roll placed in said hollow, and means for confining said sphere upon the plate, substantially as shown and described.

5. In a finder for cameras, the combination, with a support, of a plate therein pervious to light, the upper surface of the plate being hollowed, a body adapted to roll within the hollow, and means for passing rays of light through the plate from the bottom to form an image, substantially as set forth.

6. In a finder for cameras, the combination, with a lens-tube provided with an inclosure, the bottom of the inclosure being pervious to light and having its upper surface hollowed, of a spherical body within the hollow, and means for passing rays of light through the plate from within the tube to form an image, substantially as described.

7. The combination, with a camera, of a lens-tube, provided with an inclosure, the bottom of said inclosure being pervious to light and having its upper surface provided with a hollow, of a spherical body within the hollow, and a mirror within the tube below the bottom of the inclosure and adapted to throw rays of light through said bottom, substantially as set forth.

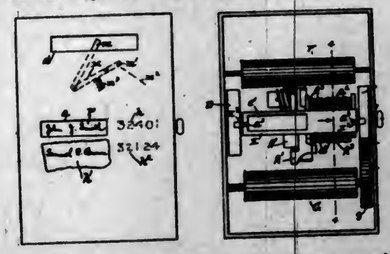
8. The combination, with a camera, of a tube secured thereto, provided with an inclosure, the bottom of the inclosure being pervious to light and hollow upon its upper surface, the hollow portion being provided with intersecting lines, of a spherical body within the hollow, and an inclined reflector below the bottom of the inclosure, substantially as set forth.

605,246. BISMUTH METHYLENE-DI-GALLATE AND PROCESS OF MAKING IT. RENNE DÜRRENT, Darmstadt, Germany, assignor to The Firm of E. Merck, same place. Filed May 26, 1896. Serial No. 593,174. (Specimens.) Patented in Germany June 18, 1895, No. 87,009.

Claim.—1. The process of making a new astringent and antiseptic chemical compound directly from a freshly-prepared hydroxid of bismuth and methylene-di-gallic acid; by precipitating such hydroxid from a bismuth salt through the action of an alkali in the presence of water; washing the precipitate; and then allowing methylene-di-gallic acid to act in the presence of water upon such precipitate, by gradual addition and slow digestion at a moderately-elevated temperature, until the reaction is found to be completed; substantially as described.

2. The new chemical product, a bismuth-hydroxid methylene-di-gallate, consisting of bismuth-hydroxid in chemical union with methylene-di-gallic acid, and being further characterized by a voluminous powdery form; a blue-gray color; insolubility in water; solubility in alkaline solutions with an orange color; from which solutions it is reprecipitable in its original form by acids; substantially as described.

605,247. FARE-RECORDER. WILLIAM J. FORDNEY, Lancaster, Pa. Filed Aug. 11, 1897. Serial No. 647,795. (No model.)



Claim.—1. The combination, in a car-fare register, of revoluble dies having figures thereon, a presser supporting a movable ribbon and located opposite the figures, and means for actuating the presser to force the ribbon against said figures, a portion of said ribbon being exposed, whereby a name may be written on the ribbon in position to refer to the figures pressed thereon, for the purpose specified.

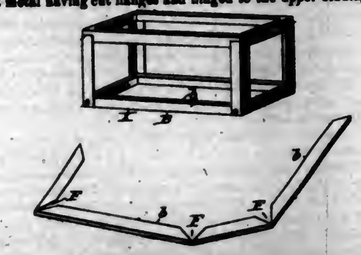
2. The combination, in a car-fare register, of revoluble dies having figures thereon, a presser supporting a movable ribbon and located opposite the figures, and means for actuating the presser to force the ribbon against said figures, the case of said register having a slot therein, whereby a name may be written on said ribbon and in line with the part thereof pressed against said figures, for the purpose specified.

3. The combination, in a car-fare register, of revoluble dies having figures thereon, a presser having a movable ribbon passing through the same, said presser having a slot through the back thereof and opposite said figures, guide-studs passing loosely through perforations in the presser, and means for actuating the presser to force the ribbon against said figures, the front plate of the presser having a slot therein, whereby a name may be written on the ribbon, for the purpose specified.

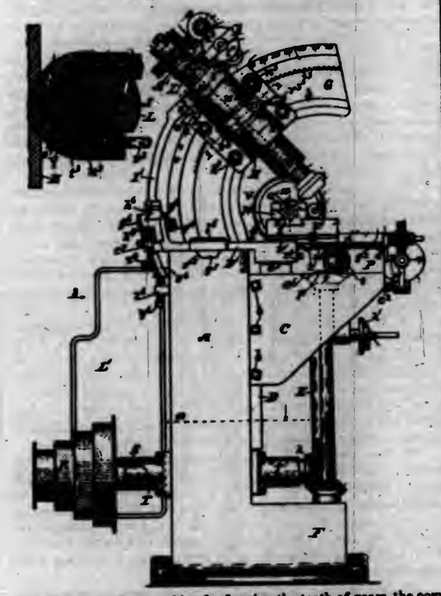
4. The combination, in a car-fare register, of revoluble dies having figures thereon, a presser having a slot in its back plate and opposite a line of said figures and a slot in its front plate in line with the slot in the back plate, pins passing loosely through perforations in the presser, wheels opposite the ends of the presser and provided with cam-slots having depressions formed therein toward the dies, arms on the presser and engaging said cam-slots, a roller above the dies, a roller below the dies, a ribbon being secured to the two rollers and passing loosely through a slot between the front and back plates of the presser, a gear-wheel on the lower roller, a segment of teeth on one of the cam-wheels and adapted to mesh with the teeth of the gear-wheel, and means for actuating said mechanism, all substantially as and for the purpose specified.

605,248. DISPLAY-BOX. GEORGE W. FROELICH, Chicago, Ill. Filed May 10, 1897. Serial No. 636,970. (No model.)

Claim.—A display-box in which the upright walls are bound and held by upper and lower binding-bars, each formed of a single piece of sheet metal having a base and two parallel flanges, the inner flange and base cut away at intervals that the bar may be bent upon the outer flange to conform to the shape of the box; said binding-bars being held together by angular sheet-metal cross-sections B, forming posts and feet, said box having a bottom fastened to the inner flange of lower binding-bar; and a cover bound with a single piece of sheet metal having cut flanges and hinged to the upper binding-bar.



605,249. MACHINE FOR FORMING GEAR-TEETH. JAMES H. GLEASON, Rochester, N. Y., assignor to the Gleason Tool Company, same place. Filed Feb. 23, 1897. Serial No. 624,897. (No model.)



Claim.—1. In a machine for forming the teeth of gears, the combination with a gear-blank holder, of a cutter, and means for simultaneously moving the cutter circularly and tangentially relatively to the periphery of the gear-blank, substantially as set forth.

2. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, and means for simultaneously moving the cutter circularly, tangentially, and radially, substantially as set forth.

3. In a machine for forming the teeth of gears, the combination with a gear-blank holder, of a cutter movable circularly, tangentially, and radially, and means for varying the circular movement relatively to the radial movement while the tangential movement remains the same, substantially as set forth.

4. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, and means for moving the holder axially, and means for moving the cutter circularly and tangentially relatively to the periphery of the gear-blank, substantially as set forth.

5. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, and means for moving the holder axially, and means for moving the cutter circularly, tangentially, and radially, the tangential movement being relatively to the periphery of the gear-blank and the radial movement being relatively to the circular movement, substantially as set forth.

6. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, and means for moving the cutter circularly, and tangentially, the tangential movement being relatively to the periphery of the gear-blank, substantially as set forth.

7. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, and means for moving the cutter circularly, tangentially, and radially, the tangential movement being recurrent, and the circular movement varying in extent relatively to the radial movement, substantially as set forth.

8. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, and means for simultaneously moving the cutter circularly and tangentially, and stops for limiting the amount of tangential movement, substantially as set forth.

9. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, and means for moving the cutter toward and from the holder at right angles to the point of the tooth to be cut, and means for moving the cutter circularly and tangentially relatively to the periphery of the gear-blank, substantially as set forth.

10. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a cutter, means for moving the cutter toward and from the holder at right angles to the point of the tooth to be cut, and means for moving the cutter circularly, tangentially, and radially, the tangential movement being relatively to the periphery of the gear-blank and the radial movement being relatively to the circular movement, substantially as set forth.

11. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a swinging base-block pivotally secured adjacent thereto, a cutter-support mounted upon the block and movable at a tangent to the periphery of the gear-blank, and means for simultaneously moving said block and cutter-support, substantially as set forth.

12. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a swinging base-block pivotally secured adjacent thereto, a cutter-carrier mounted upon the block and movable tangentially to the periphery of the gear-blank, and a cutter-spindle in the carrier, substantially as set forth.

13. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a swinging base-block pivotally secured adjacent thereto, a carrier mounted upon the block to move tangentially to the swinging movement of the block, a projection upon the carrier, a stem movable longitudinally through said projection, stops upon the stem, a spindle in the carrier, and means for moving said stem, substantially as set forth.

14. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a swinging base-block pivotally secured adjacent thereto, a carrier mounted upon the block, a cutter mounted on the carrier, a longitudinally-movable stem adjacent to the carrier and adapted to engage therewith, a cam-wheel adjacent to one end of the stem provided with a groove for moving the stem, said groove being provided with two throws and two dwells, substantially as set forth.

15. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a rotary cutter movable circularly, tangentially, and radially, and means for simultaneously stopping the rotary, tangential and radial movement of the cutter, substantially as set forth.

16. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a radially-movable rotary cutter, and means for rocking the holder axially at variable rates of speed, substantially as set forth.

17. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a laterally-movable cutter, an arm for locking the holder axially, and means for moving the free end of said arm at different rates of speed, substantially as set forth.

18. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a swinging base-block pivotally secured adjacent thereto, a cutter upon the base-block, an arm connected with the blank-holder, a wheel connected with the base-block for moving the arm, and means for locking the wheel against rotation during a portion of the swinging movement of the base-block, substantially as set forth.

19. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a swinging base-block pivotally secured adjacent thereto, an arm for moving the block, a wheel upon said arm, an arm connected with the blank-holder, a rack between the end of the blank-holder arm and the wheel, and means for locking the wheel against rotary movement during a portion of the swinging movement of the arm on the base-block, substantially as set forth.

20. In a machine for forming the teeth of gears, the combination with a gear-blank holder, of a base-block pivotally secured adjacent thereto, an arm for swinging the block, the free end of which is provided with a wheel, a track for the wheel, an arm connected with the blank-holder, a rack between the end of the blank-holder arm and the wheel, and arresters adjustably secured to the wheel and adapted to engage with and slide upon the track, substantially as set forth.

21. A machine for forming the teeth of gears, having a rotary cutter adapted to move sidewise in the line of the axis of its rotation, and means to give it said sidewise motion, and a feed motion for the cutter, in combination with a holder for the blank-gear, and means for rocking the latter, said sidewise motions of the cutter being timed with reference to the rocking of the gear, said motions being automatically variable relatively to each other, substantially as described.

22. A machine for forming the teeth of gears, having a rotary cutter adapted to move sidewise in the line of the axis of its rotation, and means to give it said sidewise motion, and a feed motion for the cutter, in combination with a holder for the blank-gear, and means for reciprocally swinging the cutter and for rocking the blank-gear upon its axis, the said sidewise motion of the cutter being made at the termination of each swing of the cutter, substantially as shown and described.

23. A machine for forming the teeth of gears, having a rotary cutting-tool adapted to have sidewise motion in line with the axis of its rotation, and means to give it said sidewise motion, in combination with a holder for the blank-gear to be acted upon by the cutter, and a feed motion for the cutter, and means for micrometrically adjusting or regulating the extent of said sidewise motions of the cutter, substantially as set forth.

24. A machine for forming the teeth of gears, having a cone-center, and a rotary cutter and feed mechanism therefor, in combination with a holder for the blank-gear to be cut, and means for turning said gear upon its axis, and to alternately move the cutter in parallel positions from one side to the other of a plane at right angles with the axis of the cutter and passing through the cone-center of the machine, substantially as described.

25. A machine for forming the teeth of gears, having a spindle for holding the gear to be cut, a spindle-barrel, and a holder for both spindle and spindle-barrel, in combination with a clamping-ring carried by said holder to control the spindle-barrel, and means for moving the spindle-barrel longitudinally through said holder, substantially as set forth.

26. A machine of the class described, a column, a reciprocating bar at the top of the column, a frame pivotally secured at an angle to the bar, a revolving cutter on the frame movable toward and from the pivotal point, and means for connecting the bar with the frame whereby the frame is swung upon its axis as the bar is reciprocated, substantially as set forth.

27. A machine of the class described having a prismatic column for supporting the operating parts, formed with a horizontal upper surface and with a horizontal race therein, in combination with a reciprocating bar or reciprocator occupying said race and adapted to slide therein, with means to give said bar a rectilinear reciprocal motion in the race, substantially as shown and for the purpose specified.

28. A machine of the class described, a column, a reciprocating bar at the top of the column, a frame pivotally secured adjacent to the bar, and means for connecting the bar and the frame so that when the bar is reciprocated the frame is moved upon its pivot, a revolving cutter movable toward and from the pivotal point of the frame, a gear-blank holder above the cutter, and an arm connected with the holder at one end and adjustably connected with the frame at the other, and means for simultaneously moving said bar, arm and holder, substantially as set forth.

29. A machine for forming the teeth of gears, having a circular segment mounted upon a base, and a holder for the blank-gear to be cut secured movably to said segment, a spindle-barrel in said holder, a spindle in said barrel, and a blank-gear arbor secured to said spindle, with a rack and pinion to move said holder and dependent parts along the segment, substantially as specified.

30. A machine of the class described, a gear-blank holder, a spindle therein, one end of which is provided with means for holding the gear-blank and the opposite end is provided with a worm-gear, a worm for operating said gear, a yoke secured to the holder, a toothed wheel adjustably secured in the yoke provided with as many teeth as there are teeth in the worm-gear, and a removable wheel upon the end of the worm for determining the number of teeth of the gear upon the spindle, substantially as set forth.

31. A machine of the class described, a gear-blank holder, an arm secured thereto, the free end of which is provided with a segmental gear, a segmental rack for engaging therewith, a track below the rack, a laterally-movable frame provided with a rotary cutter, and means for moving the cutter thereon, a wheel upon the frame, a portion only of the periphery of which is provided with teeth to engage with the rack, and stops adjustably secured to the wheel for limiting its rotation upon the track, substantially as set forth.

32. A gear-tooth-forming machine, having a supporting-column, a knee or bracket at one side of the column, a base-block adapted to swing upon the knee, and a cutter supported by the base-block, in combination with an oscillating arm connected with said parts upon the knee and resting upon the column, and means to reciprocate said arm and parts above the knee, substantially as shown and described.

33. A gear-tooth-forming machine having a supporting-column, a knee or bracket held by the column, a vertical shaft held by the column and the knee, a base-block upon the knee, and a cutter supported by the base-block, in combination with an oscillating arm on the column connected with the base-block, and means to reciprocate said arm and base-block around the axis of said shaft as a center, substantially as specified.

34. A machine for forming gear-teeth, having a supporting-column, a knee held by the column, a vertical geared shaft held by the column and the knee, a base-block on the knee, a horizontal geared shaft at the side of the base-block, a shaft in the base-block connecting said vertical shaft and said horizontal shaft, in combination with a cutter, and a cutter-spindle supported by the base-block, and gearing connecting said spindle and said horizontal shaft, and means to turn the vertical shaft, substantially as set forth.

35. A machine of the kind described, a column provided at its top with a segmental upright, a holder adjustably secured thereto and provided with a split sleeve, a toothed spindle-carrier in the holder, a pinion journaled in the sleeve in engagement with the carrier, and a locking-bolt through the split portion of the ring for clamping the carrier in its adjusted position, substantially as set forth.

36. A machine for forming gear-teeth, having a supporting-column, a base-block supported by the column, a carriage on the base-block for supporting a cutter, a feed-screw for the carriage, a feed-shaft to coact with the feed-screw, provided with a disk at one end, a back shaft at right angles to the axis of the disk, a friction-ring on the back shaft movable across the face of the disk, a holder for said shaft, pivoted so as to allow the shaft motion toward or from the feed-screw and the back shaft, and means for controlling said holder, substantially as described.

37. In a machine for forming the teeth of gears, a cutter-carrier, a carriage for holding the cutter-carrier, a spindle in the carrier, an internally-toothed cam free on the spindle, a pinion on the spindle to turn the cam, an intermediate gear for the pinion and the cam, a block or body actuated by the cam, a stem in the block or body occupying a place in said carriage, and stops to control said stem whereby the cam acts to move the spindle-carrier upon the carriage, substantially as and for the purpose set forth.

38. In a machine for forming gear-teeth, having a supporting-column, a movable bracket held by the column, parts for supporting a cutter resting upon the bracket and adapted to swing thereon, an oscillating arm upon the column connected with the parts supporting the cutter, means for reciprocating said arm, a segment-carrier secured to said arm, a toothed segment held by said carrier, a toothed wheel held by the carrier to engage said segment, and a track for said wheel to roll upon, substantially as and for the purpose specified.

39. In a machine for forming gear-teeth, having a supporting-column, a movable bracket held by the column, parts for supporting a cutter resting upon the bracket and adapted to swing thereon, an oscillating arm upon the column connected with the parts supporting the cutter, means for reciprocating said arm, a segment-carrier secured to said arm, a toothed segment held by said carrier, a toothed wheel held by the carrier to engage said segment, and arresters for controlling said wheel, as described.

40. In a machine for forming gear-teeth, having a supporting-column, and a rotary cutter, an oscillating arm upon the column for actuating said cutter, a segment-carrier secured to the arm, a toothed segment on said carrier, a toothed wheel held by said carrier to actuate the segment, a blank-gear spindle, and parts connecting said spindle and the toothed segment, substantially as shown and described.

41. In a machine for forming the teeth of gears, the combination, with a support, of a base-block pivotally secured thereto, a gear-blank holder above the block, a motor-shaft journaled at the pivotal point of the block, a cutter upon the block movable tangentially relatively to the periphery of the gear-blank and radially relatively to said pivotal point, and means connected with said motor-shaft for moving the cutter simultaneously in said directions in all positions of the block around its pivot, substantially as set forth.

42. In a machine for forming the teeth of gears, the combination, with a support, of a base-block pivotally secured thereto, a gear-blank holder above the block, a motor-shaft journaled at the pivotal point of the block provided with a gear-wheel, a rotary cutter upon the block, mechanism for rotating the cutter, moving it tangentially relatively to the gear-blank and moving it radially relatively to the pivotal point, a shaft for operating said mechanism the inner end of which is provided with a gear in engagement with the gear on the motor-shaft, and means for swinging the block around its pivotal point, substantially as set forth.

43. In a machine for forming the teeth of gears, the combination, with a support, of a base-block pivotally secured thereto, a motor-shaft journaled at the pivotal point of the block, a rotary cutter on the block, two parallel shafts, one of which rotates the cutter and the other one moves it radially relatively to the pivotal point of the block, mechanism for operating said shafts, and a shaft for communicating motion from said motor-shaft to said mechanism in all positions of the block around its pivotal point, substantially as set forth.

44. In a machine for forming the teeth of gears, the combination, with a support, of a base-block pivotally secured thereto, four shafts rectangularly arranged relatively to each other, one of said shafts being a feed-screw, a cutter upon one of the other shafts, a friction-disk and a friction-ring upon the other shafts, and means for operating said shafts from a common source of power, substantially as set forth.

45. In a machine for forming the teeth of gears, the combination, with a gear-blank holder, of a rotary cutter provided with two oppositely-located cutting-faces, and means for automatically and reciprocatingly moving said cutter in the line of its axis between two adjacent teeth of the blank being cut, substantially as set forth.

46. In a machine for forming the teeth of gears, the combination with a gear-blank holder, of a rotary cutter provided with two oppositely-located cutting-faces, and means for reciprocatingly moving said cutter in the line of its axis simultaneously with the forward feeding movement of the cutter, substantially as set forth.

605,250. INCANDESCENT GAS-LAMP.

FERDINAND CHRISTOPH VON HEYDEBRAND UND DER LASA, New York, and JOSEPH LOCH, Brooklyn, N. Y., assignors to the Heydebrand Incandescent Light Company, New York, N. Y. Filed May 24, 1897. Serial No. 637,920. (No model.)



Claim.—1. In a gas-lamp, the combination of an apertured mixing-chamber, an apertured sleeve independent of the burner and freely movable thereon, a pin-and-slot connection between the sleeve and mixing-chamber, whereby the said sleeve may be moved longitudinally on the mixing-chamber when it is rotated thereon, and means for fixing the sleeve in a predetermined position.

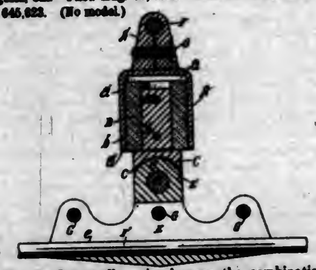
2. In a gas-flow regulator, the combination of a valve-chamber having a frusto-conical valve-seat, the opening in which is at the apex thereof, a conical check-valve apertured at its sides and of a diameter sufficient to reach contact with the side walls of said valve-chamber and entered into the valve-seat of the chamber, and a stop for preventing the check-valve from contacting with the said valve-seat and closing the opening therein.

3. As a means for securing the efficient burning of the gas in a gas-burner, the combination of a mantle, and a foraminous spreader provided with apertures *t*, which apertures *t* are at different inclinations to the surface of the spreader, the apertures near the middle of the spreader being generally more inclined to the axis of the spreader than those at the edge thereof so as to spread the gas out into a sheet, whereby the gas will burn in a comparatively flat flame in the direction of the mantle.

4. In a burner of the character described, the combination with a cup provided with burner-orifices, of a flash-back pan having a central imperforate downwardly-extending dished portion surrounded by perforated rim, said pan being located within the said cup, whereby the said downwardly-extending dished portion of the pan will distribute the gas outward to the perforated rim, substantially as described.

605,251. TROLLEY-WIRE HANGER.

GEORGE E. JOHNSON, Los Angeles, Cal. Filed Aug. 19, 1896. Renewed July 22, 1897. Serial No. 645,623. (No model.)



Claim.—1. In a trolley-wire hanger, the combination set forth of an insulator; a stud fastened within said insulator, one end of the stud being formed into one-half of a hinge; a clamp for clamping upon a trolley-wire, composed of one piece with its upper portion formed into one-half of a hinge to unite with the half-hinge of the stud; a pintle for pivoting the members of the hinge together; and screws for drawing the clamp tightly upon a trolley-wire, substantially as set forth.

2. In a trolley-wire hanger, the combination set forth of a cylindrical insulator provided with suitable threads on its outside; a stud fastened within said insulator, one end of the stud being formed into one-half of a hinge; a clamp for clamping upon a trolley-wire, composed of one piece with its upper end formed into a one-half hinge for uniting with the stud; a pintle pivoting the hinge members to each other; screws for drawing the clamp tightly upon a trolley-wire; and a screw-threaded socket adapted to receive the screw-threaded plug.

3. In a trolley-wire hanger, the combination set forth of a cylindrical insulator provided with suitable threads on its outside; a stud fastened within said insulator and having its lower end formed into one-half of a hinge; a clamp for clamping upon a trolley-wire, having its upper end formed into a one-half hinge for uniting with the stud; a pintle pivoting the hinge members to each other; a screw-threaded socket adapted to receive and chamber the insulator; and means for drawing the clamp tightly upon a trolley-wire.

4. In a trolley-wire hanger, the combination set forth of an insulator; a stud fastened within said insulator by the introduction of pins through both the insulator and the stud, one end of the stud being formed into one-half of a hinge; a clamp for clamping upon a trolley-wire, composed of one piece with its upper portion formed in one-half of a hinge to unite with the half-hinge of the stud; a pintle for pivoting the members of the hinge together; and screws for drawing the clamp tightly upon a trolley-wire, substantially as set forth.

5. In a trolley-wire hanger, the combination of a cylindrical insulator with suitable threads on its outside; a stud fastened within the said insulator by the introduction of pins through both the insulator and the stud, one end of the stud being formed into one-half of a hinge; a clamp for clamping upon a trolley-wire, composed of one piece with its upper end formed into a one-half hinge for uniting with the stud; a pintle pivoting the hinge members to each other; screws for drawing the clamp tightly upon a trolley-wire; and a screw-threaded socket adapted to receive the screw-threaded plug.

6. In a trolley-wire hanger, the combination with the trolley-supporting wire, of the cap and clamp combined; the screws for clamping the clamp upon such wire; the insulating-plug; the stud; the pins passing through the stud and the plug; the clamp for clamping upon the trolley-wire; the screws for said clamp; and the pin pivoting the trolley-wire clamp to the stud.

7. In a trolley-wire hanger, the combination of an interiorly-screw-threaded cap; a plug of insulating material exteriorly screw-threaded and screwed into the cap; a trolley-wire hanger having its stud secured in the plug; the rim of the cap being beveled outward and downward away from the plug to form a drip edge.

8. In a trolley-wire hanger, the combination set forth of the interiorly-threaded cap; a plug of insulating material provided with exterior screw-threads and screwed into the cap; a trolley-wire clamp having a stud seated in the plug with its end arranged below the top of the plug; and the pins passing through the plug and the stud and

having their ends arranged at a distance from the exterior of the plug, substantially as set forth.

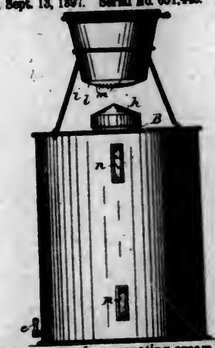
9. In a trolley-wire hanger, the combination of an integral cap and clamp adapted to be clamped upon a guy-wire, the cap being interiorly screw-threaded; a plug of insulating material provided with exterior screw-threads and screwed into the cap; a stud secured in the plug and having its lower end provided with one member of a hinge; a clamp adapted to clamp upon a trolley-wire and provided with the other member of a hinge; and a pintle pivoting the hinge members together.

10. In a trolley-wire hanger the combination of the cap and clamp combined D D, the insulator F, the stud G, the pins H H, the pin I, the screws E E, the screws J J J and the clamp K, all assembled together in the manner and for the purpose as specified.

11. As means for holding a trolley-wire in the proper position in relation to a trolley-supporting wire and insulating one from the other, the combination set forth of a cylindrical insulator, with suitable threads cut upon its outside, a stud fastened within the said insulator by the introduction of suitable pins through both the insulator and the stud, with one end of the said stud formed into one-half of a hinge, a clamp for uniting with a trolley-wire composed of one piece with its upper end formed into a one-half hinge for uniting with the stud G and suitable screws for drawing the said clamp tightly upon a trolley-wire, substantially as described and for purpose as specified.

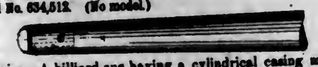
12. In a trolley-wire hanger, the combination with the trolley-supporting wire A of the cap and clamp combined D D, the screws E E, the insulator F, the stud G, the pins H H the pin I, the screws J J J and the clamp K, substantially as described.

605,252. APPARATUS FOR SEPARATING CREAM FROM MILK. CHESTER I. LEE, Elfleburg, and FREDERICK G. LEE, Pierrepont Manor N. Y. Filed Sept. 13, 1897. Serial No. 651,446. (No model.)



Claim.—An apparatus for separating cream from milk comprising a milk-can provided with a centrally-depressed bottom and having an outlet in the center of said bottom, a cooler within said can and provided on its bottom with feet supporting the cooler over said outlet with passages under the cooler, said feet serving to prevent eddying of the outflowing liquid and causing a draft of said liquid equally from all sides of the can to the outlet and also promoting the discharge of the sediment from the bottom of the can substantially as described.

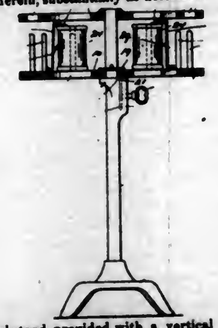
605,253. BILLIARD CUE. FREDERICK LEU, College Point, N. Y., assignor to Felix Mainella, New York, N. Y. Filed Apr. 30, 1897. Serial No. 634,512. (No model.)



Claim.—A billiard-cue having a cylindrical casing mounted in the end thereof and an aperture in the side thereof, said casing having a tapering channel leading therethrough, and an aperture in the side thereof registering with the apertures in the cue, in combination with a removable tip having a tapering pin extended therefrom for engagement with said channel, and the apertures in the casing and cue adapted to admit the entrance of an instrument beneath the pin, substantially as shown and described.

605,254. SPOOL-STAND. THOMAS MASON, New York, N. Y. Filed June 21, 1897. Serial No. 641,695. (No model.)

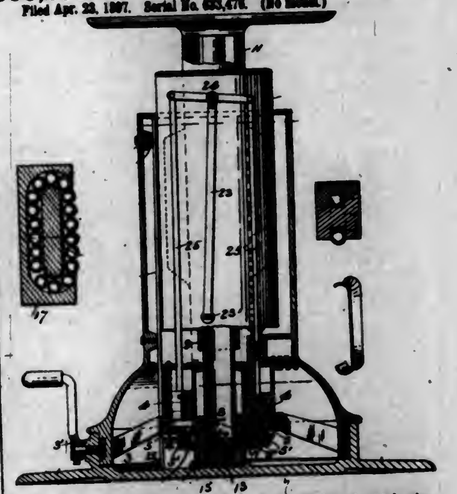
Claim.—1. In a spool-stand, the combination of a base, an upright standard, a revoluble plate mounted thereon, upwardly-directed pins supported by said plate, an upper disk or plate mounted on said standard above said revoluble plate and having an opening through which spools of thread may be passed and means for locking said revoluble plate in position, said upper plate being in such relation to the top of said pins as to prevent the removal of a spool except through said openings therein, substantially as described.



2. A spool-stand provided with a vertical standard having a shoulder formed thereon, a plate or disk revolubly mounted on said shoulder and standard having a socket therein adjacent to said standard, and provided with vertical pins adapted to receive spools another disk or plate secured to the top of said standard and provided with an opening through which the spools may be placed upon said standards, and a lock mounted in said shoulder and the bolt of which is adapted to enter the socket in said plate, substantially as and for the purpose described.

3. A spool-stand provided with a vertical standard, a revoluble disk or plate mounted thereon, and provided with vertical pins which are adapted to receive spools, another disk or plate secured to the top of said standard above said pins, and provided with an opening through which the spools may be inserted, and means for locking the lower disk or plate in position on said standard, the bottom disk or plate being also provided with spring-arms, the upper ends of which overlap the ends of the spools, and said spring-arms being provided with holes or openings through which the thread is passed, said upper plate being in such relation to the top of said pins as to prevent the removal of a spool, substantially as shown and described.

605,255. DENTAL CHAIR. MONT C. MERKEL, Philadelphia, Pa. Filed Apr. 22, 1897. Serial No. 633,478. (No model.)



Claim.—1. The combination of the pedestal, the tube 11 having a flattened exterior surface to provide a bearing for two laterally-adjacent series of balls, and the pedestal extension-tube, said pedestal extension-tube having channels provided with antifriction-balls adapted to bear on the tube 11 and mediately on the pedestal, substantially as described.

2. The combination of the pedestal, the tube 11, and the pedestal extension-tube, said latter tube having channels provided with antifriction-balls adapted to bear on said tube 11 and mediately on the pedestal, and with adjustable bearing-plates for the balls intermediate the pedestal and its movable extension, substantially as described.

3. The combination of the pedestal, the tube 11, and the pedestal extension-tube, said latter tube having channels provided with antifriction-balls adapted to bear on tube 11 and mediately on the pedestal, and with adjustable bearing-plates for the balls intermediate the pedestal and its movable extension, one of the plates being made wide to furnish a bearing for two laterally-adjacent series of balls, substantially as described.

4. The combination of the pedestal provided with interior tracks for antifriction devices, the seat-tube 11 supporting the chair-seat, the pedestal extension-tube intermediate the pedestal and seat-tube, antifriction-balls carried by said pedestal extension, said balls situated near the top and bottom of the extension-tube being oppositely situated and bearing respectively on tube 11 and on the pedestal-tracks, and the oil-reservoir situated in the path of the extension-tube, substantially as described.

5. In a dental chair, the combination of tubes to hold a liquid column for the raising and lowering of a seat, a pump to force liquid into said tubes, a lever having a fulcrum supported by the pedestal and connected to the pump-piston, a lever having a fulcrum in the pedestal-wall with one arm extended outside thereof and provided with an operating-crank, the other arm of said lever being situated within the pedestal and slotted, a lever having a fulcrum in the pedestal-wall below and adjacent the slotted lever and provided with a pin situated in the slot of said slotted lever the arm of said lever with a pin being extended below its pin and loosely connected to the first-named lever, substantially as described.

6. In a dental chair, a supplemental seat-frame pivoted to the main seat-frame and adapted to support a supplemental seat above the main seat or to fold down within the foot-rest frame, substantially as described.

7. In a dental chair, a supplemental seat-frame pivoted to the main seat-frame and adapted to support a supplemental seat above the main seat or to fold down within the foot-rest frame, and a supplemental foot-rest pivoted to the supplemental seat-frame, substantially as described.

8. In a dental chair, a supplemental seat-frame pivoted to the main seat-frame and adapted to support a supplemental seat above the main seat or to fold down within the foot-rest frame, a supplemental foot-rest pivoted to the supplemental seat-frame, said supplemental foot-rest being adapted to be folded when the supplemental seat-frame is turned down and between the two frames, substantially as described.

9. A dental chair having a main seat-frame and a supplemental seat-frame, a detachable arm-rest, said rest and frames being provided with means whereby the rest may be connected to either seat-frame, substantially as described.

10. In a head-rest support, the ball of the ball-and-socket joint provided with an arm and ring the latter having an angular opening, the rod provided with an angular part intermediate its ends to movably fit the said angular opening, pad-supports having rings embracing said rod, and means for locking said rings together, the ball-arm ring being situated between said locking-rings, substantially as described.

11. In a head-rest the head-supporting pads provided with several arms movably held on a rod and the arm extending from the ball of a ball-and-socket joint, said rod and arm being rigidly connected circumferentially and loosely connected lengthwise the rod at a point near its center and means for fastening the arms together, substantially as described.

12. In a dental chair, the combination of the approximately cylindrical pedestal provided with a lateral enlargement 24′ having relatively long and short sides 24″ and 24‴, one side being approximately tangential to the main body of the pedestal-wall, the pumps situated partly in the recess formed in the enlargement and adjacent said latter side, and the two-armed lever having a fulcrum in said side and movable parallel therewith, substantially as described.

13. The combination of telescoping tubes and means for moving a tube or tubes by fluid-pressure to extend them with a device for displacing a part of the fluid in the larger tube or tubes, substantially as described.

14. The combination of telescoping tubes and means for moving a tube or tubes by fluid-pressure to extend them with a device for displacing a part of the fluid in a larger tube or tubes, said device being attached to and movable with a tube, substantially as described.

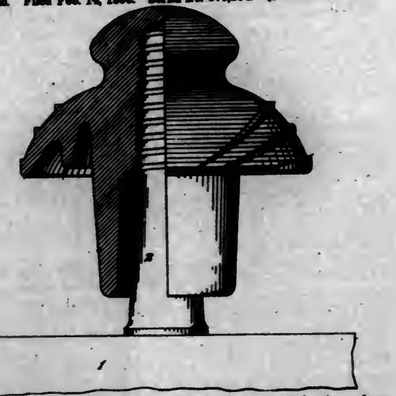
15. The combination with telescoping tubes and means for moving a tube or tubes by fluid-pressure to extend them of a fluid-displacing plunger situated in the larger tube, said means for producing the pressure comprising one or more pumps and a compound lever to operate the same, substantially as described.

16. In combination the base having a flange 3′ constituting with said base an oil-reservoir and having integral with its bottom an annular closed seat 13′, the casting 13 rotatable in said seat and having pump-ports, a pump and tube 8 supported in said casting and the latter having an extension fixed to the pedestal whereby the casting supports the tube and pumps and moves with the pedestal, substantially as described.

17. The compound lever having a pivoted member 29, and a pivoted member 26, said members being loosely connected and each provided with a separate pivot or fulcrum, and a lever 23 having a fulcrum 24 and loosely connected to the lever 26 intermediate said levers 23 and 29, substantially as described.

18. In combination with a separable casting having an opening in its bottom and interior conduits, with inlet and outlet valve seats for a pump-cylinder, one of said seats being immediately over the said opening, an upwardly-closing valve provided with a stem and a removable plug having a larger diameter than the valve situated in the bottom of the casting immediately below the valve, said plug having a socket with closed bottom to receive the end of the valve-stem, substantially as described.

605,256. INSULATOR. RALPH D. MERSHON, Colorado Springs, Colo. Filed Feb. 14, 1898. Serial No. 670,204. (No model.)



Claim.—1. An insulator for high-tension circuits having a long, tubular petticoat adjacent to the supporting-pin and a short outer petticoat of much greater diameter the edge of which is approximately the same striking distance from the cross-arm and the supporting-pin.

2. An insulator for high-tension circuits having two or more ridges on its outer surface which extend transversely to the cross-arm, a long, tubular petticoat adjacent to the supporting-pin and an outer petticoat of much greater diameter the edge of which is approximately the same striking distance from the supporting-pin and the cross-arm.

3. An insulator for high-tension circuits having outer ridges transverse to the cross-arm, a long tubular petticoat adjacent to the supporting-pin and a plurality of short petticoats, the outer one of which has a much greater diameter than the long petticoat and is approximately the same striking distance from the supporting-pin and the cross-arm.

605,257. TUBE-CUTTER. JEREMIAH MILLER, Cleveland, Ohio. Filed Mar. 31, 1897. Serial No. 630,069. (No model.)



Claim.—1. A tube-cutter comprising in combination a tubular body having a reduced neck and a number of radiating channels extending through the body intermediate of its length, cutters seated in said channels and having radial movement therein, springs pressing said cutters inward, a gage revolubly fitting on the neck, a sliding collar fitting on the neck and having a binding-screw, and a tapering wedge having peripheral flat faces engaging and actuating each of the cutters and adapted to be turned to rotate the apparatus, substantially as described.

2. In a tube-cutter the combination of a tubular body having a neck of less diameter with external flat faces, and having intermediate radial channels extending through the body-wall, cutters fitting said channels and movable radially therein, annular flat springs seated in grooves on the cutter-body and pressing the cutters inward, a gage revolubly fitting on said neck, a sliding collar fitting on said neck and having a binding-screw, and a tapering wedge having peripheral flat faces engaging the cutters and adapted to be turned to rotate the apparatus, substantially as described.

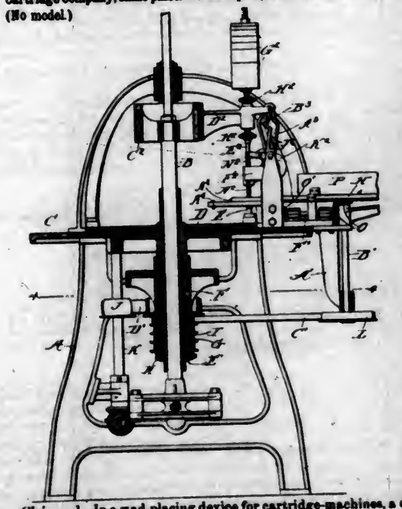
3. In a tube-cutter the combination of a tubular body having a neck of less diameter with external flat faces, and having intermediate radial channels extending through the body-wall, cutters fitting said channels and movable radially therein, annular flat springs seated in grooves on the cutter-body and pressing the cutters inward, a gage revolubly fitting on said neck and having forward-extending arms, a sliding collar fitting on said neck and having a binding-screw, and a tapering wedge having peripheral flat faces engaging the cutters and adapted to be turned to rotate the apparatus, substantially as described.

4. A tube-cutter comprising in combination a tubular body having a neck of less diameter, a number of radiating channels extending through the solid body-wall intermediate of its length, cutter-cages fitting said channels and movable radially therein, rotary cutters journaled in said cages, springs seated in grooves on the cutter-body and pressing said cutters inward, a gage revolubly fitting on said neck, a sliding collar fitting on said neck and having a binding-screw, and a tapering wedge having peripheral flat faces engaging the cutter-cages and adapted to be turned to rotate the apparatus, substantially as described.

5. In a tube-cutter the combination of a tubular body or barrel transversely grooved externally and having intermediate radial channels extending through its body-wall, cutters fitting said channels and movable radially therein, said cutters having external shoulders and flat axially-inclined inner faces, flat annular springs seated in the grooves on said barrel and bearing on the shoulders of the cutters, and a tapering wedge having flat peripheral faces engaging each of the cutters and adapted to be turned to rotate the apparatus in the tube, substantially as described.

6. In a tube-cutter the combination of a tubular body or barrel transversely grooved externally and having intermediate radial channels extending through its body-wall, cutters having external shoulders and an intermediate cutting edge and flat axially-inclined inner faces, flat annular springs seated in the grooves on said barrel and bearing on the shoulders of the cutters, a revolubie gage and a clamping-collar fitting on the barrel, and a tapering wedge having flat peripheral faces engaging each of the cutters and adapted to be turned to rotate the apparatus in the tube, substantially as described.

605,258. WAD-PLACING MECHANISM FOR CARTRIDGE-MACHINES. GRANSON M. PETERS, Cincinnati, Ohio, assignor to the Peters Cartridge Company, same place. Filed Apr. 5, 1897. Serial No. 630,750. (No model.)



Claim.—1. In a wad-placing device for cartridge-machines, a distributing-disk and a feeding-disk, said disks arranged in substantially the same horizontal plane, the wads to be distributed and fed adapted to rest upon the top surface of the said disks, and to be delivered from the top surface of said distributing-disk to that of the feeding-disk, and means for actuating said disks; as and for the purpose set forth.

2. In a wad-placing device for cartridge-machines, a distributing-disk and a feeding-disk, the supporting-surfaces of said disks arranged in substantially the same horizontal plane, the wads to be distributed and fed adapted to rest upon said surfaces, and means for rotating said disks in opposite directions, whereby the wads are delivered from the top surface of said distributing-disk to the top surface of said feeding-disk, as and for the purpose set forth.

3. In a wad-placing device for cartridge-machines, a hopper, a disk arranged to form the bottom of said hopper and adapted to support upon the top surface thereof the wads to be distributed, and a feeding-disk arranged adjacent to and in substantially the same horizontal plane with the said first-mentioned disk and adapted to receive on the top surface thereof the wads from said feeding-disk, and means for rotating said disks in opposite directions, as and for the purpose set forth.

4. In a machine of the class described, a hopper, a channel or guideway, a disk forming the bottom of said hopper and channel, a gate or opening communicating between said hopper and channel, in combination with a wad-feeding disk arranged to receive upon the top surface thereof the wads from the said first-mentioned disk and means for rotating said disks, as and for the purpose set forth.

5. In a machine of the class described, a hopper, a channel or guideway, a gate or opening communicating between said hopper and channel, means for adjusting the area of said opening, in combination with a disk forming the bottom of said hopper and channel, and means for rotating said disk, as and for the purpose set forth.

6. In a machine of the class described, a hopper, a channel, an opening formed in said hopper and communicating with said channel, a top plate or guard for said channel, and means for adjusting the same, in combination with a distributing-disk forming the bottom of said hopper and channel, and means for rotating said disk, as and for the purpose set forth.

7. In a machine of the class described, a stationary flange, a stationary hopper arranged within said flange and concentric therewith, said flange and hopper forming the side walls of a channel, a gate forming a communication between said hopper and channel, a disk arranged to form a bottom for said hopper and channel in combination with a wad-feeding disk arranged to receive upon the top surface thereof the wads from the said first-mentioned disk and means for rotating said disks, as and for the purpose set forth.

8. In a machine of the class described, a stationary flange, a stationary hopper arranged within said flange forming a channel therewith, said hopper provided with a gate opening communication between said hopper and channel, a disk arranged to form a bottom for said hopper and channel, and a second disk arranged adjacent to said first-mentioned disk and upon the top surface of which said channel delivers, and means for rotating said disks, as and for the purpose set forth.

9. In a machine of the class described, a circular distributing-disk, a stationary flange arranged to conform to the curvature of said disk, a hopper arranged within said flange and in conjunction therewith forming a channel, said hopper provided with a gate opening communication between said channel and the interior of said hopper, said distributing-disk arranged to form a bottom for said hopper and channel, an adjustable top or guard for said channel, a feeding-disk arranged adjacent to said distributing-disk and upon which said channel delivers, and means for rotating said disks in opposite directions, as and for the purpose set forth.

10. In a machine of the class described, a guideway for the wads, means for feeding the wads through said guideway, a top guard for said guideway, whereby said wads are fed singly and in single column, and means for adjusting said top guard to accommodate wads of different thicknesses, as and for the purpose set forth.

11. In a machine of the class described, a distributing-disk, and a feed-disk, in combination with devices for placing the wads, and devices for inserting the wads in the shells, as and for the purpose set forth.

12. In a machine of the class described, the combination with means for feeding the shells, of a wad-distributing disk, a wad-feeding disk, means for receiving the wads and placing the same in position to be inserted in the shells, means for inserting the wads in the shells, and means for actuating said several devices, as and for the purpose set forth.

13. In a wad-placing device for cartridge-machines, the combination with a feed-disk, a distributing-disk for delivering the wads thereto and means for actuating the same, of a wad-placing device comprising a pair of jaws, adapted to receive therebetween the wads singly from such feed-disk, and means for actuating said jaws, as and for the purpose set forth.

14. In a wad-placing device for cartridge-machines, the combination with a feedway or channel, a feed-disk arranged to form the bottom of said feedway or channel, means for automatically delivering the wads upon said feed-disks and means for rotating said disk, of a wad-placing device comprising a pair of jaws arranged to reciprocate transversely of the delivery end of such channel, and adapted to receive the wads therebetween, and means for reciprocating said jaws, as and for the purpose set forth.

15. In a wad-placing device for cartridge-machines, the combination with means for feeding the wads singly and in single column, of a placing mechanism, including a pair of clamping-jaws yieldingly coupled together, a stop for one of said jaws, and means for reciprocating said jaws, as and for the purpose set forth.

16. In a wad-placing device for cartridge-machines, the combination with means for feeding the wads singly and in single column, of a guideway arranged transverse to the line of feed of the wads, a pair of clamping-jaws arranged to operate therein, a yielding connection between said jaws whereby they are moved in unison but are permitted to yieldingly separate, a stop for one of said jaws adapted to engage a stationary part, and means for reciprocating said jaws, as and for the purpose set forth.

17. In a wad-placing device for cartridge-machines, the combination with means for feeding the wads singly and in single file, a guideway arranged transversely to the line of feed of the wads, clamping-jaws mounted to reciprocate in said guideway, a link connected to one of said jaws, a spring interposed between said link and the other of said jaws, a stop for one of said jaws, and means for reciprocating said jaws, as and for the purpose set forth.

18. In a wad-placing device for cartridge-machines, the combination with means for feeding the wads singly and in single file, a guideway arranged transverse to the line of feed of the wads, clamping-jaws mounted to reciprocate in said guideway, a link pivoted to one of said jaws, and carrying a threaded rod, a spring arranged on said rod and adapted to bear against a lug on the other of said jaws, means for regulating the tension of said spring, a stop carried by said last-mentioned jaw, and means for reciprocating said jaws, as and for the purpose set forth.

19. In a machine of the class described, a distributing-disk and an adjacent, oppositely-moving feeding-disk, and a placing mechanism in combination with a guideway for receiving the wads singly from the distributing-disk and extending to and across the feeding-disk, and delivering to the placing mechanism, as and for the purpose set forth.

20. In a wad-placing device for cartridge-machines, clamping-jaws, a slotted lever pivotally mounted and connected to said jaws, the slot in said lever being cam-shaped, a reciprocating head, means carried thereby and adapted to ride in said cam-slot whereby said lever is rocked, a stop for said jaws, and a spring mounted to act on said lever and normally acting to press said jaws against said stop, whereby lost motion is taken up, as and for the purpose set forth.

21. In a wad-placing device for cartridge-machines, a stationarily-held tube, having the upper end thereof slightly flared, clamping-jaws arranged to transport and hold the wads in alinement with said tube and a rammer arranged to force the wads from said pivot and through said tube, in combination with means for presenting the shells in longitudinal alinement with said tube, as and for the purpose set forth

22 In a wad-placing device for cartridge-machines, a stationarily-held tube, having the upper end thereof flared, means for placing and holding the wads in line with the tube and over the upper flared end thereof, a rammer arranged in line with said tube, means for actuating the same to force the wads through said tube, and means for presenting the shells in line with said tube, as and for the purpose set forth.

23. In a machine of the class described, means for placing and inserting the wads in cartridge-shells, in combination with a movable cap arranged to slip over the end of a shell during the operation of said inserting means whereby the shell is rounded up and steadied, as and for the purpose set forth.

24. In a machine of the class described, wad placing and inserting devices, means for actuating the same, and means for presenting the shells to said devices, in combination with means for rounding up a shell and maintaining the same in alinement with the inserting devices, comprising a movable cap, and means for slipping the same over the shell preparatory to the introduction of the wads thereto, as and for the purpose set forth.

25. In a machine of the class described, wad placing and inserting devices and shell-feeding mechanism, in combination with a perforated cap arranged to be slipped over the end of the shell during the operation of the inserting mechanism, whereby the shell is rounded up and maintained in proper alinement and means for actuating said cap, as and for the purpose set forth.

26. In a machine of the class described, wad placing and inserting devices, and shell-feeding mechanism, in combination with a perforated cap-plate, the lower mouth of said cap-plate being flared, and means for slipping said cap over the shell during the action of the inserting mechanism, as and for the purpose set forth.

27. In a machine of the class described, wad placing and inserting devices, and shell-feeding mechanism, in combination with an alining-cap, and means for depressing said cap upon the shell during the operation of the inserting devices, as and for the purpose set forth.

28. In a machine of the class described, an alining-cap, means normally acting to maintain said cap elevated above the path of feed of the shell, and means for depressing said cap, as and for the purpose set forth.

29. In a machine of the class described, an alining-cap, a lever, connected to said cap, a spring arranged to act on said lever and normally operating to maintain said cap elevated, and means for rocking said lever to depress said cap, as and for the purpose set forth.

30. In a machine of the class described, an alining-cap for the shells, reciprocating rods carrying said cap, a pivotally-mounted lever connected to said rods, and means for actuating said lever, as and for the purpose set forth.

31. In a machine of the class described, an alining-cap for the shells, rods upon which said cap is mounted, a bell-crank lever, having one arm connected to said rods and the other arm thereof provided with a cam-slot, a reciprocating head and means carried thereby for engaging said cam-slot, whereby said cap-plate is actuated, as and for the purpose set forth.

32. In a machine of the class described, a framework, a reciprocating head mounted therein, a bearing formed in said head, a rammer mounted to slide loosely through said bearing, a removable weight mounted on said rammer, and a guide formed in said framework for said rammer, as and for the purpose set forth.

33. In a machine of the class described, a framework, a reciprocating head mounted therein, a bearing formed in said head, a rammer loosely mounted to slide in said bearing, a series of removable weights mounted on said rammer, and a guide for said rammer formed in said framework, as and for the purpose set forth.

34. In a machine of the class described, a framework, a reciprocating head mounted therein, a bearing formed in said head, a rammer loosely mounted to slide in said bearing, a plurality of variously-sized weights removably mounted on said rammer, and a guide formed in said framework for said rammer, as and for the purpose set forth.

35. In a machine of the class described, a reciprocating head, a bearing formed therein, a rammer loosely mounted to slide in said bearing, a weight carried by said rammer and means for adjustably regulating the amount of the relative movement of said rammer and head, as and for the purpose set forth.

36. In a machine of the class described, a reciprocating head, a bearing formed therein, a rammer loosely mounted to slide in said bearing, an adjustable weight mounted on said rammer, and a check-nut arranged to adjustably regulate the relative movement of said rammer and head, as and for the purpose set forth.

37. In a machine of the class described, a reciprocating head, having a bearing therein, a rammer mounted to slide in said bearing, check-nuts carried by said rammer above and below said bearing, and removable weights carried by said rammer, as and for the purpose set forth.

38. In a wad-placing device for cartridge-machines, a table for feeding the shells, a series of wad distributing and wad-feeding disks arranged around the periphery of said table, a pulley, means for driving said pulley, and belt connections from said pulley for actuating said several wad distributing and feeding disks, as and for the purpose set forth.

39. In a wad-placing device for cartridge-machines, a table having an extension and adapted to support and feed the shells, wad distributing and feeding disks mounted on each extension, a pulley mounted on said extension, means for driving said pulley, and means driven by said pulley for actuating said wad distributing and feeding disks, as and for the purpose set forth.

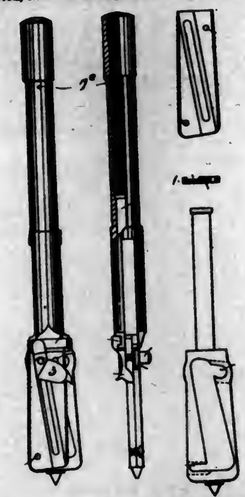
40. In a machine of the class described, a wad-distributing disk, a wad-feeding disk, a channel arranged to extend from one of said disks to the other and adapted to contain and feed the wads singly and in single file, wad-placing jaws, a rammer, a guiding-tube, an alining-cap, a shell-case-feeding table, and means for actuating said several devices, all combined and arranged as and for the purpose set forth.

41. In a machine of the class described, two oppositely-rotating disks arranged adjacent to each other, and in substantially the same horizontal plane and a guideway arranged to extend over the surface of both disks, as and for the purpose set forth.

42. In a machine of the class described, two oppositely-rotating disks arranged adjacent to each other, and in substantially the same horizontal plane and a guideway arranged to extend over the surface of both disks, and conforming to the direction of rotation of said disks, as and for the purpose set forth.

43. In a machine of the class described, a framework, a reciprocating head mounted therein, a bearing formed in said head, a rammer loosely mounted to slide in said bearing and a plurality of variously-sized weights removably mounted on said rammer, as and for the purpose set forth.

605,259. TOOL FOR BORING CONICAL HOLES. LOUIS F. C. RIEM, Cheltenham, England, assignor to himself and JOHN HENRY HALL, New York, N. Y. Filed Sept. 27, 1897. Serial No. 653,110. (No model.)



Claim.—1. An auger comprising a spindle or rod provided near its lower end with a guide-surface or guide-surfaces inclined to the axis of the said spindle or rod, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter or cutters attached to the lower end of the said holder, means for keeping the said cutter or cutters to the said guide-surface or guide-surfaces, and a spring adapted to force apart the upper ends of the said spindle or rod and the said holder, substantially as and for the purpose set forth.

2. An auger comprising a spindle or rod provided near its lower end with a guide-surface or guide-surfaces inclined to the axis of the said spindle or rod, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter or cutters attached to the lower end of the said holder, means for keeping the said cutter or cutters to the said guide-surface or guide-surfaces, a spring adapted to force apart the upper ends of the said spindle or rod and the said holder, and means for limiting the downward movement of the said holder on the said spindle or rod, substantially as and for the purpose set forth.

3. An auger comprising a spindle or rod provided near its lower end with a guide-surface or guide-surfaces inclined to the axis of the said spindle or rod, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter or cutters attached to the lower end of the said holder, means for keeping the said cutter or cutters to the said guide-surface or guide-surfaces, a spring adapted to force apart the upper ends of the said spindle or rod and the said holder, and means for limiting the separation produced by the said spring, substantially as and for the purpose set forth.

4. An auger comprising a spindle or rod provided near its lower end with a guide-surface or guide-surfaces inclined to the axis of the said spindle or rod, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter or cutters attached to the lower end of the said holder, means for keeping the said cutter or cutters to the said guide-surface or guide-surfaces, a spring adapted to force apart the upper ends of the said spindle or rod and the said holder, and a screw inserted in the upper end of the said spindle or rod and having a head adapted to bear against a shoulder on the said holder, substantially as and for the purpose set forth.

5. An auger comprising a spindle or rod provided near its lower end with a guide-surface or guide-surfaces inclined to the axis of the said spindle or rod, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter or cutters attached to the lower end of the said holder, means for keeping the said cutter or cutters to the said guide-surface or guide-surfaces, a spring adapted to force apart the upper ends of the said spindle or rod and the said holder, and an adjustable stop for limiting the downward movement of the said holder on the said spindle or rod, substantially as and for the purpose set forth.

6. An auger comprising a spindle or rod provided near its lower end with a guide-surface or guide-surfaces inclined to the axis of the said spindle or rod, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter or cutters attached to the lower end of the said holder, means for keeping the said cutter or cutters to the said guide-surface or guide-surfaces, a screw-plug closing the upper end of the said holder, adjustable longitudinally therein, and carrying a downwardly-projecting spindle, and a spring surrounding the said downwardly-projecting spindle and pressing with its upper end against the said screw-plug and with its lower end against the said spindle or rod, substantially as and for the purpose set forth.

7. An auger comprising a spindle or rod provided near its lower end with a guide-surface or guide-surfaces inclined to the axis of the said spindle or rod, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter or cutters provided or each provided with a projection that engages in a transverse groove in the lower end of the said holder, and means for keeping the said cutter or cutters to the said guide-surface or guide-surfaces, substantially as and for the purpose set forth.

8. An auger comprising a spindle or rod, a guide-surface near the lower end of the said spindle or rod and inclined to the axis thereof, means for varying the inclination of the said surface to the said axis, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter provided with a projection that engages in a transverse groove in the lower end of the said holder, and means for keeping the said cutter to the said guide-surface, substantially as and for the purpose set forth.

9. An auger comprising a spindle or rod, a guide-surface near the lower end of the said spindle or rod and inclined to the axis thereof, means for varying the distance of the upper end of the said guide-surface from the said axis, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, a cutter provided with a projection that engages in a transverse groove in the lower end of the said holder, and means for keeping the said cutter to the said guide-surface, substantially as and for the purpose set forth.

10. An auger comprising a spindle or rod, a guide-piece attached thereto near the lower end thereof, a guide-plate which is provided with a guide-groove inclined to the axis of the said spindle or rod and is secured to the said guide-piece at its upper or lower end by means of a set-screw passing through a transverse slot in one of them and fitting a hole in the other, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, and a cutter secured in the said guide-groove, capable of being slid longitudinally therein, and provided with a projection that engages in a transverse groove in the lower end of the said holder, substantially as and for the purpose set forth.

11. An auger comprising a spindle or rod, a guide-piece attached thereto near the lower end thereof, a guide-plate which is provided with a guide-groove inclined to the axis of the said spindle or rod and is secured at both ends to the said guide-piece by means of a set-screw passing through a transverse slot in one of them and fitting a hole in the other, a tubular holder mounted on the said spindle or rod and capable of being slid longitudinally thereon, and a cutter secured in the said guide-groove, capable of being slid longitudinally therein, and provided with a projection that engages in a transverse groove in the lower end of the said holder, substantially as and for the purpose set forth.

605,260. MOUNTING FOR THIRD RAILS. SIDNEY H. SHORT, Cleveland, Ohio. Filed Nov. 5, 1897. Serial No. 657,510. (No model.)



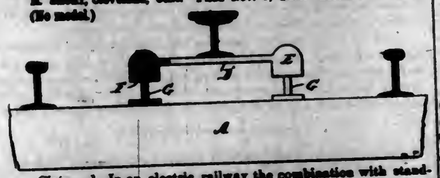
Claim.—1. In a mounting for third or contact rails, the combination with standards, a bar supported by but insulated from said standards, an insulating strip or board supported by said bars and arranged to extend lengthwise with respect to the third or contact rail, said rail being arranged to rest on said strip or board, as and for the purpose set forth.

2. A supporting-bar for a third or contact rail having ball or cup shaped castings at the end thereof, insulating material arranged in said castings, and supporting-standards arranged to be received in said insulating material, as and for the purpose set forth.

3. A supporting-bar for a third or contact rail having inverted-ball or cup shaped castings arranged to project from the ends and on the same side thereof, insulating material arranged in said castings, and supporting-standards arranged to be received in said insulating material, as and for the purpose set forth.

4. The combination with a third or contact rail, a supporting-bar therefor having inverted-ball or cup shaped castings arranged to project from the ends and on the same side thereof, insulating material arranged in said castings, supporting-standards arranged to be received in said insulating material, and an insulating-strip interposed between said bar and rail, as and for the purpose set forth.

605,261. THIRD RAIL FOR ELECTRIC RAILWAYS. SIDNEY H. SHORT, Cleveland, Ohio. Filed Nov. 5, 1897. Serial No. 657,511. (No model.)



Claim.—1. In an electric railway the combination with standards, a bar supported by but insulated from said standards, a third or contact rail supported upon said bar, said rail presenting a side surface for contact with the shoe or collector, and a strip or plate laid lengthwise upon said rail and extending over the top edges thereof, as and for the purpose set forth.

2. In an electric railway the combination with standards, a bar supported by but insulated from said standards, a third or contact rail supported upon said bar, said rail provided with a channel or groove in the side thereof extending lengthwise of said rail, and an insulating-plate resting upon the top of said rail, said insulating-plate extending lengthwise of said rail and being of a width greater than that of the rail whereby its edges project over the edges of the rail and form a protecting-cap therefor, as and for the purpose set forth.

3. In an electric railway the combination with standards, a bar carrying inverted-cup-shaped castings at the ends thereof, said castings adapted to be filled with insulation, said standards arranged to project into said castings and to be embedded in the insulation contained therein, a third or contact rail supported by said bar, said rail presenting a side surface for contact with the shoe or collector, and a plate of insulation wider than said rail, said plate resting upon the top surface of said rail and extending lengthwise thereof, thereby forming a protecting-cap for said rail, as and for the purpose set forth.

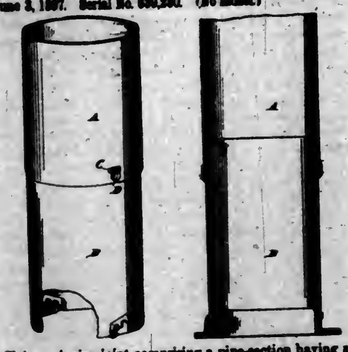
605,262. MEANS FOR FASTENING NECKTIES AND COLLARS TO SHIRTS. CHRISTOPHER H. SUPP, Brooklyn, N. Y. Filed Oct. 8, 1897. Serial No. 654,886. (No model.)



Claim.—1. The herein-described means for securing a collar and a necktie to the neckband of a shirt or shirt-front; said means consisting of inwardly-directed loops formed on or secured to the collar, outwardly-directed loops formed on or secured to the neckband, and inwardly-directed loops formed on or secured to the necktie which are passed inwardly through the collar, and an open spring-ring which is passed through said loops, substantially as shown and described.

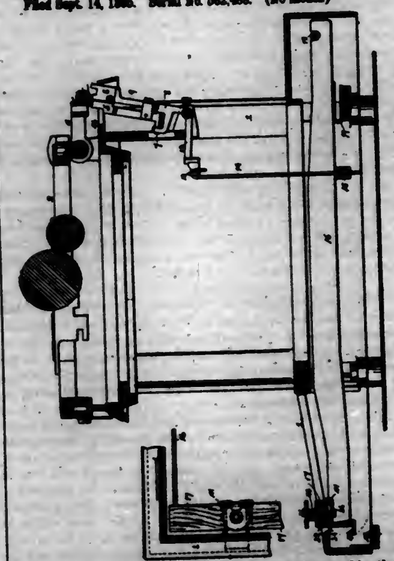
2. The herein-described means for securing a collar and a necktie to the neckband of a shirt or shirt-front; said means consisting of inwardly-directed loops formed on or secured to the collar, outwardly-directed loops formed on or secured to the neckband, and inwardly-directed loops formed on or secured to the necktie which are passed inwardly through the collar, and an open spring-ring which is passed through said loops, means attached to the respective ends of said ring whereby they may be detachably connected, substantially as shown and described.

605,268. STOVEPIPE-JOINT. FRANK THARP, Elkin, N. C. Filed June 3, 1897. Serial No. 639,280. (No model.)



Claim.—A pipe-joint comprising a pipe-section having a tongue cut therefrom, and an overlapping section provided with a slot having one of its walls bent inward to permit the entrance of said tongue in the longitudinal movement of the pipe-sections; substantially as specified.

605,264. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to The Wyckoff, Seamans & Benedict, same place. Filed Sept. 14, 1895. Serial No. 562,468. (No model.)



Claim.—1. In a type-writing machine, the combination of a power-driven carriage having a feed-rack and also one or more column-stops, a feed-dog normally in engagement with said feed-rack to effect step-by-step feeding movements to the carriage, and a column-stop dog directly attached to said feed-dog and moving always therewith and adapted to engage a column-stop when the said feed-dog is moved out of engagement with the feed-rack; substantially as described.

2. In a type-writing machine, the combination of a power-driven paper-carriage having a feed-rack and also one or more column-stops, a vibratory feed-dog mounted in the framework and carrying a column-stop dog adapted to cooperate with the column stop or stops when the feed-dog is vibrated out of engagement with the feed-rack; substantially as described.

3. In a type-writing machine, the combination of a power-driven paper-carriage having a feed-rack and also one or more column-stops, a feed-dog holder or rock-er pivotally mounted in the framework and carrying a feed-dog and also a column-stop dog adapted to act when the feeding devices are separated; substantially as described.

4. In a type-writing machine, the combination of a power-driven paper-carriage having a feed-rack and also one or more column-stops, the feed-dogs 5 and 6 and the column-stop dog 30 attached to the latter and adapted to act when the feeding devices are separated.

5. In a type-writing machine, the combination of a power-driven paper-carriage having a feed-rack and also one or more column-stops, the point or points of which are arranged above the plane of the points of the teeth of the feed-rack, a vibratory feed-dog and a column-stop dog attached to the latter to move therewith and projecting above or beyond the end of said feed-dog and adapted to act when the feeding devices are separated; substantially as described.

6. In a type-writing machine, the combination of a power-driven paper-carriage having a feed-rack, a slidable column-stop bar provided with a plurality of column-stops, and having a lug, a stem attached to said feed-rack or its support and passing through said lug parallel with said slidable column-stop bar, an intermediate spring, a feed-dog, and a column-stop dog; substantially as described.

7. In a type-writing machine and in a column-stop mechanism, the combination of the column-stop rod having the series of semicircular circumferential grooves and the longitudinal groove, and the sleeve or eye having an interior radially-arranged fixed pin, to engage said circumferential grooves, and said sleeve having also a column-stop; substantially as described.

8. In a type-writing machine, the combination of a column-stop rod having a series of circumferential grooves and a longitudinal groove, the column-stop having a sleeve and an interior fixed pin adapted to be locked or engaged at any of said circumferential grooves, a column-stop dog, and a separable carriage-escapement mechanism; substantially as described.

9. In a type-writing machine, the combination of a power-driven paper-carriage having a feed-rack and a column-stop rod supported thereby and having the circumferential grooves and the longitudinal groove, the column stop or stops provided with a sleeve having an interior radial fixed pin and adapted to be locked or engaged at said circumferential grooves, the feed-dog, and the column-stop dog; both dogs being mounted to move together; substantially as described.

10. In a type-writing machine and in a column-stop mechanism, the combination with the column stops and the column-stop dog normally out of line therewith, of a detached reinforcing device to support said dog at the time of impact therewith by the column-stop during the forward jumping movement of the carriage; substantially as described.

11. In a type-writing machine and in a column-stop mechanism, the combination with the column stops and the column-stop dog, of a fixed arm or abutment attached to the framework of the machine and arranged to lie close to the side of the movable column-stop dog to support it when struck by the column-stop on the forward jump of the carriage; substantially as described.

12. In a type-writing machine and in a column-stop mechanism actuated by the spacing-bar, the combination with said spacing bar, of means for limiting the depression of said spacing-bar, during spacing between words, and a key or finger-piece mounted on said bar for moving said limiting means and enabling the spacing-bar to be depressed a greater distance, for the purpose of disengaging the escapement mechanism and throwing into action the column-stop mechanism; substantially as described.

13. In a type-writing machine and in a column-stop mechanism actuated by a spacing-bar, the combination of a stop or abutment on the framework, a hinged or independently movable stop or contact-piece on the spacing-bar adapted normally to engage said stop or abutment on the framework and limit the descent of the spacing-bar, so that ordinarily the carriage may feed step by step only, and a key or finger-piece on said spacing-bar adapted to move said hinged or movable stop out of reach of the stop or abutment on the framework, and thereby permit a further depression of the spacing-bar, and the separation of the carriage-escapement mechanism and the throwing into action of the column-stop mechanism; substantially as described.

14. In a type-writing machine and in a column-stop mechanism actuated by the spacing-bar, the combination of the fixed stop or abutment, the hinged stop or contact-piece, and the spring-actuated key or finger-piece mounted on said spacing-bar; substantially as described.

15. In a type-writing machine and in a column-stop mechanism, the combination of a relatively-fixed stop or abutment, a movable stop or contact connected to the spacing-bar, and a key or finger-piece adapted when pressed upon to move the stop or contact and also by continued pressure to depress the spacing-bar; substantially as described.

16. In a type-writing machine, the combination of a power-driven paper-carriage having a feed-rack and one or more column-stops, a vibratory feed-dog, a vibratory column-stop dog connected thereto and to the dog rocker or holder, a universal bar, a spacing-key carrying a movable stop or contact, and a stop or abutment on the framework; substantially as described.

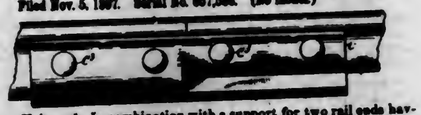
17. In a type-writing machine, the combination of a power-driven paper-carriage having a column stop or stops, a separable escapement mechanism, a column-stop dog mounted on one part of the escapement mechanism, a spacing-key, and a means mounted on said spacing-key for limiting its depression for word-spacing and movable to permit of its further depression for the purpose of throwing the column-stop mechanism into action; substantially as described.

18. In a type-writing machine, the combination of two keys connected or mounted to travel together, and a movable stop operating normally to limit the downward movement of said keys and being connected to and controlled by one of said keys; substantially as and for the purpose set forth.

19. In a type-writing machine, the combination of a spacing-bar, a supplemental key carried thereby or attached thereto, and a stop connected to and controlled by said key; the arrangement being such that when the spacing-bar is pressed upon the stop acts to limit its depression, but when the supplemental key is pressed upon the stop is removed or thrown out of action and the spacing-bar is enabled to descend a greater distance; substantially as described.

20. In a type-writing machine, the combination of a stop-rod having a series of transverse grooves and a longitudinal groove or depression communicating therewith, and an adjustable stop provided with a sleeve and an interior radial fixed pin for holding it at or in engagement with any of said grooves; substantially as described.

605,265. RAIL-JOINT. GEORGE A. WEBB, New York, N. Y. Filed Nov. 5, 1897. Serial No. 657,886. (No model.)



Claim.—1. In combination with a support for two rail ends having two integral portions forming bearing-surfaces in different planes, of fish-plates for securing the ends of the rails together and adapted to compensate for differences in position of the remaining parts when the inner faces of the heads of said rails are in alinement, substantially as specified.

2. The combination of a rail-chair having a bolt-holding flange and a stepped bearing or rail-supporting surface upon which the ends of the rails rest, fish-plates and fastening-bolts, said fish-plates being adapted to compensate for differences in position of the rails when in position on the chair, substantially as specified.

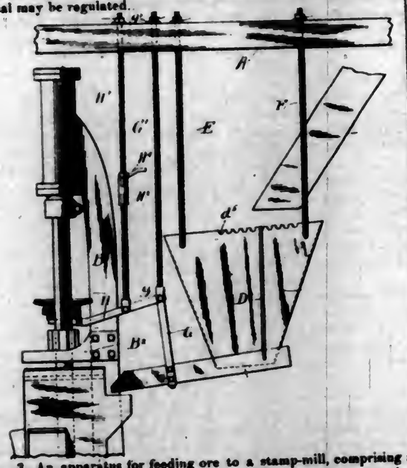
3. The combination with a support for two rail ends having integral portions forming bearing-surfaces in different planes and with a bolt-holding flange at one edge thereof, fish-plates for securing the ends of the rails together and adapted to compensate for differences of position of the rail ends when the inner faces of the heads of said rails are in alinement, one of said fish-plates being adapted to have its edges bear against the bolt-holding flange, substantially as specified.

4. The combination of a rail-chair having a bolt-holding flange and a stepped bearing or rail-supporting surface, upon which the ends of the rails rest, fish-plates adapted to compensate for differences in position of the rails when in position on the chair, a packing or washer strip interposed between the bolt-holding flange and the adjacent fish-plate, and fastening-bolts, substantially as described.

605,266. FEEDER FOR STAMP-MILLS. GEORGE WEED, Prescott, Ariz. Filed June 13, 1897. Serial No. 640,449. (No model.)

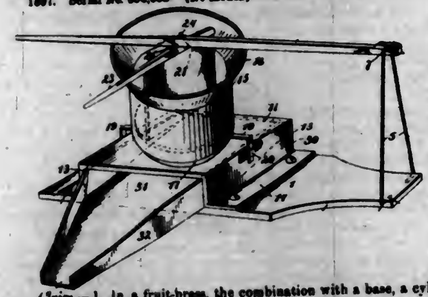
Claim.—1. An apparatus for feeding ore to a stamp-mill, comprising a hopper open at both ends and suspended from a superstructure between an ore-bin and the stamp-mill, means for delivering ore to said hopper, a chute for delivering ore from said hopper to the stamp-mill, means for suspending said chute under the hopper comprising supporting-rods pivotally engaged at their lower ends with the rear end of said chute and engaging at their upper ends the upper edges of opposite walls of said hopper, and a flexible support engaging the forward end of said chute and movably mounted at its upper end in said superstructure, and means for oscillating said chute comprising a tappet-lever pivoted between its ends and engaging at one end said movable support, and adapted to be intermittingly engaged at its opposite end by a moving part of said stamp-mill.

2. An apparatus for feeding ore to a stamp-mill, comprising a hopper open at both ends and suspended from a superstructure between an ore-bin and the stamp-mill, means for delivering ore to said hopper, a chute for delivering ore from said hopper to the stamp-mill, means for suspending said chute under the hopper comprising supporting-rods pivotally engaged at their lower ends with the rear end of said chute and engaging at their upper ends with the upper edges of opposite walls of said hopper, and a flexible support engaging the forward end of said chute and movably mounted at its upper end in said superstructure, and means for oscillating said chute comprising a tappet-lever pivoted between its ends and engaging at one end said movable support and adapted to be intermittingly engaged at its opposite end by a moving part of said stamp-mill, said hopper being provided in its walls engaged by said supporting-rods with inclined serrated edges, by means of which the angle of the chute to the horizontal may be regulated.



3. An apparatus for feeding ore to a stamp-mill, comprising a hopper suspended from a superstructure and open at its lower end, a chute pivoted at its rear end below the open end of said hopper by means of rods which are pivotally engaged at their lower ends with said rear end of the chute, and pivoted at their upper ends to said hopper, a supporting-bail engaging the forward end of said chute, a supporting-rod movable in said structure and pivotally engaged with said bail, a lever pivoted between its ends and engaging at one end said supporting bail and rod at the junction thereof, and means on the stamp-stem for intermittingly engaging the opposite end of said lever.

605,267. FRUIT-PRESS. ALANSON H. BALES, Glen Elder, Kans., assignor of one-half to John C. Krell, Fairbury, Nebr. Filed Oct. 22, 1897. Serial No. 655,032. (No model.)



Claim.—1. In a fruit-press, the combination with a base, a cylinder thereon having an interior strainer, and a follower working within the cylinder: of an A-shaped bail having inturned feet entering holes in and pivotally connected with the base, a lever having a notch in its upper side at one end for the reception of the angle of said bail, a swivel connection between the follower and the lever near the center of the latter, and a button on the lever adapted to be turned over said angle when the bail is in place, as and for the purpose set forth.

2. In a fruit-press, the combination with a flat base with suitable supports, a main lever pivotally connected to the base, and a follower carried by the lever; of a stand comprising a flat body with a hole therethrough, two upright ends, and two feet attached to the base, a cylinder having a contracted lower end mounted within the hole in the stand its body receiving the follower and its upper end being flaring, a hook-and-eye connection between the cylinder and stand, a supporting-bar across within the stand, and a chuté resting at its upper end on said bar and having an inclined body with raised edges and contracted delivery end passing out from the stand, as and for the purpose set forth.

3. In a fruit-press, the combination with a follower, comprising an upright body, a round flat bottom, ribs on the under side thereof, and packing seated in a groove around its edge, and means for giving it a vertically-reciprocating motion and an axially-rotating motion; of an upright cylinder comprising a truly cylindrical body, a flaring upper end, and a contracted or tapering lower end, and a strainer removably inserted within the cylinder-body and resting on said lower end thereof, as and for the purpose set forth.

4. In a fruit-press, the combination with a stand, a cylinder carried thereby and containing a strainer, a main lever extending across the upper end of the cylinder, and connections between the stand and one end of the lever; of a follower within the cylinder, a handle rigidly attached to the upper end of the follower, and a swivel connection between the handle and lever, as and for the purpose set forth.

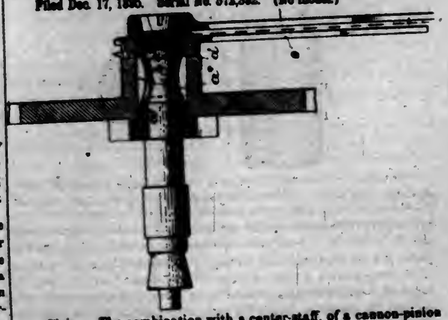
5. In a fruit-press, the combination with a stand comprising a flat body with an aperture therethrough, and downturned ends, and eyes on such ends; of a support for the stand, a main lever pivotally connected with the support, a follower carried by said lever, a cylinder mounted within the aperture in the stand and receiving the follower, and hooks projecting from the cylinder and adapted to enter said eyes, as and for the purpose set forth.

605,268. COMBINED SCHOOL DESK AND SEAT. JOSEPH B. BURPOOT, Mobile, Ala. Filed Jan. 24, 1898. Serial No. 667,785. (No model.)



Claim.—The legs 1 and 2 and the integral brace 3 formed with a series of arched recesses alternating with the depending lugs 4 4 and the centrally-arranged socket 5 formed with the countersunk recess 7 and internally-threaded cylindrical orifice 8, the alined plane faces of said legs, lugs and socket being provided with a series of depending spurs 6 6, in combination with the screw 10 formed with the threaded cylindrical shank 9, countersunk collar 12 and rectangular slotted head 13, substantially as shown and described.

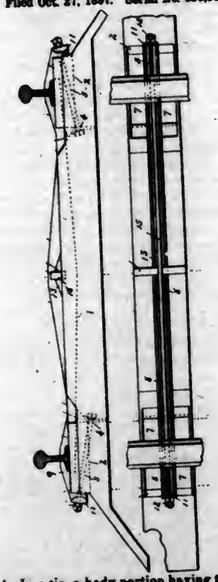
605,269. WATCH-HAND. DUANE H. CHURCH, Newton, Mass. Filed Dec. 17, 1895. Serial No. 572,382. (No model.)



Claim.—The combination with a center-staff, of a cannon-pinion having its hub extended outwardly beyond the center-staff and pro-

vided with an internal screw-thread, and a minute-hand having a screw formed to engage said thread.

605,270. METALLIC RAILROAD-TIE. JOHN M. CLARK, Duvall's Bluff, Ark. Filed Oct. 27, 1897. Serial No. 656,555. (No model.)

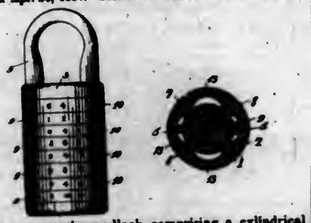


Claim.—1. In a tie, a body portion having two seats at the ends thereof, blocks resting upon said seats, rail-clamping bars situated between said blocks, and bolts secured to said body portion and to the outer ends of said rail-clamping bars.

2. In a tie, a body portion having the depressed seats at the ends thereof, the guards at the sides of said seats, the blocks resting upon said seats, the clamping-bars situated between said blocks, and the bolt secured to said body portion and to the outer ends of said clamping-bars.

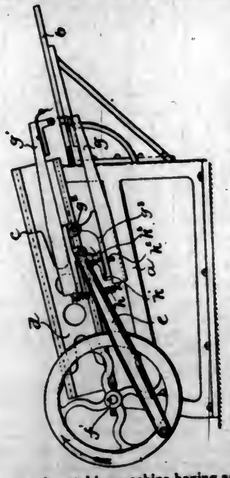
3. In a tie, the clamping-bars provided with the hooks upon their upper edges to engage the base-flange of a rail, an uprising central portion having a notch situated at the center of the bar, an auxiliary fastening-bar having the upper sides of the end portions flat, an uprising central portion having an opening at the center of the bar, a key for passing through said opening, notches, and the body portion, and means for securing said clamping-bars thereon.

605,271. COMBINATION-LOCK. ISAAH H. CLEVELAND, Union, Miss. Filed Apr. 26, 1897. Serial No. 633,968. (No model.)



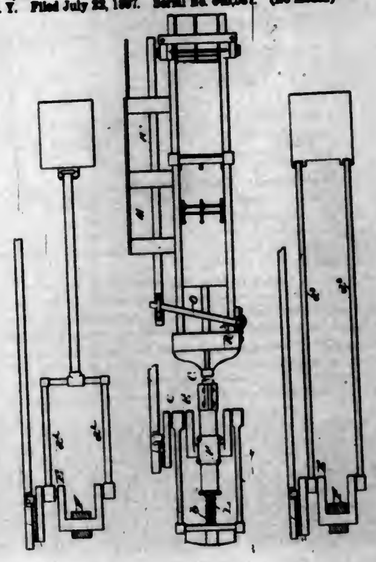
Claim.—A permutation-padlock comprising a cylindrical core provided with a base, a central threaded socket at its upper end, the shackle-seats, 6, of different cross-sectional area in diametrically opposite faces of the core, and the series of longitudinal V-shaped channels, 7, in the faces of the core between and parallel to the shackle-seats; the spacing-rings each having its inner edge formed of a series of arc-shaped faces, 13, struck from different centers and intersecting one with another forming a plurality of spurs, 8, spaced correspondingly to the channels, 7, in which the spurs are fitted and said arc-shaped faces producing clearance-spaces opposite to the shackle-seats; a series of tumblers alternating with the spacing-rings and having shackle-notches, 12, of corresponding cross-sectional area to the shackle-seats; a cap, 3, with a threaded stem which is screwed into the core-socket; and a shackle with its legs of different cross-sectional area fitted in the seats of the core, substantially as described.

605,272. LEATHER-STAKING MACHINE. MICHAEL H. CONNOR, Haverhill, Mass., assignor, by mesne assignments, to Elizabeth T. Connor, same place. Filed Sept. 27, 1897. Serial No. 653,100. (No model.)



Claim.—In a leather-staking machine having an inclined guideway and an inclined operating-table, the combination with the pivotally-connected working jaws and the slide rigidly secured to the upper jaw, and operating in the guideway, of a pitman-rod pivotally connected with the slide, a roll carried by said pitman-rod, a contact-plate pivotally connected to the lower jaw and having an abutment provided with a concave inclined side against which said roll bears, and means for adjusting said contact-plate to regulate the pressure of the jaws upon the work.

605,273. BALING-PRESS. PETER K. DODGSON, Louisville, N. Y. Filed July 22, 1897. Serial No. 645,587. (No model.)



Claim.—1. In a baling-press the combination with the press-case traverser working therein, pitman for operating said traverser and cross-head connected with said pitman, of a double crank journaled in fixed bearings, links connecting said crank and cross-head and a power lever or sweep mounted on and entirely supported by one of the crank-pins of the crank; substantially as described.

2. In a baling-press the combination with the press-case, traverser and pitman mounted in bearings to slide longitudinally, of a crank journaled in fixed bearings, a link connecting the crank-pin and pitman and a horse-lever or sweep mounted on and entirely supported by said crank-pin on the end opposite the bearing in which the crank is journaled; substantially as described.

3. In a baling-press, the combination with the press-case, traverser and pitman journaled to slide longitudinally, of a crank journaled in fixed bearings, a link connecting the crank-pins and pitman, an independently-movable horse-lever mounted on and entirely supported by said crank-pin and a clutch interposed between said horse-lever and crank-pin; substantially as described.

4. In a baling-press the combination with the press-case, traverser, pitman mounted to slide longitudinally, crank journaled in fixed bearings and a link connecting the crank-pin and pitman, of a bearing carried by said crank-pin and suspended in line with the center on which said crank rotates, a horse-lever or sweep mounted on said bearing with means for connecting the horse-lever or sweep and crank-pin for simultaneous rotation; substantially as described.

5. In a baling-press the combination with the press-case, traverser, pitman mounted to slide longitudinally, crank journaled in a fixed bearing and link connecting the crank-pin and pitman, of a suspended support mounted on the crank-pin and extending back in line with the center of rotation of the crank and a horse-lever or sweep mounted on said support; substantially as described.

6. In a baling-press, the combination with the press-case, traverser, pitman mounted to slide longitudinally, crank journaled in a fixed bearing and link connecting the crank-pin and pitman, of a suspended support mounted on the end of the crank-pin opposite the bearing in which the crank is journaled and extending back in line with the center of rotation of the crank, and a horse-lever or sweep, journaled on said support with means for connecting the support and lever; substantially as described.

7. In a baling-press, the combination with the press-case, traverser, pitman mounted to slide longitudinally, crank journaled in a fixed bearing and link connecting the crank-pin and pitman, of a suspended support mounted on the end of the crank-pin opposite the bearing in which the crank is journaled and extending back in line with the center of rotation of the crank, a horse-lever or sweep journaled on said support and a clutch interposed between said support and horse-lever to permit the crank to rotate at a higher rate of speed than the horse-lever; substantially as described.

8. In a baling-press, the combination with the press-case, pipe connection rigidly connected therewith, traverser and pitman extending through the pipe connection, of a double crank journaled on the pipe connection, links connecting the crank-pins and pitman, a suspended support mounted on one of the crank-pins opposite the journal for the crank, a horse-lever journaled on said support, and in line with the axis of the crank, and a clutch interposed between the horse-lever and support; substantially as described.

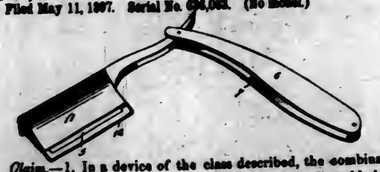
9. In a baling-press, the combination with the press-case, traverser and power mechanism for advancing the traverser, of a reciprocating condenser, a spring for returning said condenser to its retracted or open position, a lever journaled on the press-case and adapted to be moved by the traverser when retracted, and a connection between said lever and condenser for advancing the condenser against the tension of its retracting-spring; substantially as described.

10. In a baling-press, the combination with the press-case, traverser, and power mechanism for advancing the traverser, of a reciprocating condenser, a spring for moving said condenser to its retracted or open position, and side slides connected with said condenser, of levers journaled at the lower end at the bottom of the press-case, and connected at their upper ends with said side slides, and coöperating contacting surfaces on the bottoms of the levers and traverser respectively, adapted to contact when the traverser is at the extreme retracted position, whereby when the traverser is in this position the condenser is advanced to condense a preliminary charge of matter.

11. In a full-circle press, or press in which the horse moves constantly in one direction, the combination with the press-case, traverser, pipe connection and pitman working through said pipe connection, of a crank journaled on the pipe connection and connected with the pitman by a link, of a horse-lever journaled on an axis coincident with the axis of the crank and a clutch connection between the horse-lever and the crank; substantially as described.

12. In a baling-press power, the combination of the double crank-shaft journaled to a rigid extension from the press-frame, with connections to reciprocate the traverser, and provided with a horse-lever pivoted on a suspended center extending from and supported by the upper crank-wrist, and an automatic connection between said horse-lever and extension from the crank-wrist, whereby the crank is free to move forward faster than the horse-lever, substantially as and for the purpose set forth.

605,274. SAFETY-RAZOR. ELIJAH E. DEPUTY, Milford, Del. Filed May 11, 1897. Serial No. 636,063. (No model.)



Claim.—1. In a device of the class described, the combination of a blade-receiving frame provided with arms, an adjustable blade arranged within the frame and provided with a threaded socket, and a centrally-arranged adjusting-screw mounted on the frame and engaging the threaded socket, and forming a pivot for the blade, whereby the latter is adapted to be turned transversely of the frame, substantially as described.

2. In a device of the class described, the combination of a frame, an adjustable blade arranged therein and provided with a threaded socket, a spring interposed between the blade and the frame, and a screw mounted on the frame and engaging the threaded socket to adjust the blade, said screw retaining the spring in place and serving as a pivot for the blade, whereby the latter is adapted to be partially rotated, substantially as described.

3. In a device of the class described, the combination of a frame, a blade pivotally mounted in the frame and arranged to swing outward therefrom to expose the inner edges of the blade and the frame, whereby the parts may be thoroughly wiped and dried after use, and a removable casing covering the blade and the frame and locking the former in its operative position, substantially as described.

4. In a device of the class described, the combination of a frame having arms provided with tapering recesses, a blade mounted in the frame, and a guard extending in advance of the blade and pivoted in the said recesses, whereby it is permitted to swing laterally of the blade, substantially as and for the purpose described.

5. In a device of the class described, the combination of a frame provided at its ends with recesses, a blade arranged in the frame, and a substantially rectangular guard having its ends arranged in the said recesses and provided at their terminals with pivots to permit the guard to swing in the recesses, said guard being adapted to be sprung into and out of engagement with the recesses, substantially as described.

6. In a device of the class described, the combination of a substantially rectangular frame provided with a shank, an adjustable blade mounted in the frame, and a removable casing conforming to the configuration of the frame and provided at opposite sides with longitudinal ribs, substantially as described.

7. In a device of the class described, the combination of a frame having a shank, an adjustable blade mounted in the frame, a casing removably mounted on the frame and conforming to the configuration thereof, a detachable guard interlocked with the frame, and a handle pivoted to the shank and provided at the inner faces of its sides with recesses, substantially as and for the purpose described.

605,275. PAPER-REGISTERING MACHINE. TALBOT C. DEXTER, Pearl River, and JAMES J. PARKER, Brooklyn, N. Y., assignors to the Dexter Folder Company, New York, N. Y. Filed Aug. 6, 1897. Serial No. 647,316. (No model.)

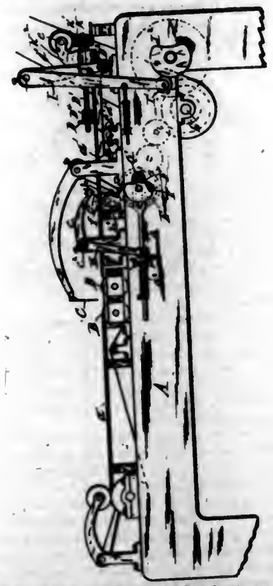
Claim.—1. A paper-registering instrument consisting of a rotary roller disposed to receive upon the top of its periphery the slitted portion of the sheet in transit, and a pin or point carried over said roller and to and from the same to enter into the slit made in the paper for that purpose.

2. A paper registering instrument comprising a soft-rubber-faced roller disposed to receive upon the top of its periphery the slitted portion of the paper, a registering-pin over said roller and moving intermittently to said roller to press the paper upon it and enter into the slit in the paper, and mechanism imparting motion to said roller and pin.

3. A paper-registering instrument comprising a soft-rubber-faced roller disposed to receive the slitted portion of the paper upon the top of its periphery, a bridge rising from the plane of the travel of the paper adjacent to the aforesaid roller, a registering-pin moving intermittently to the roller to press the paper upon it and in conjunction with the bridge open the slit in the paper preparatory to the entering of the pin into the slit, and mechanism imparting motion to the said roller and pin, as set forth.

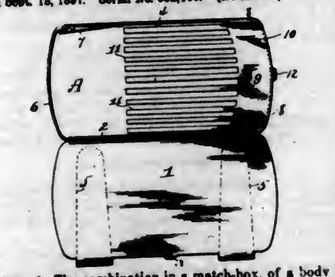
4. A paper-registering instrument consisting of a rotary roller

provided with a friction-surface on its periphery and receiving upon it the slitted portion of the sheet, a rock-arm over said roller moving intermittently toward and from the roller and a pin attached to the free end of said rock-arm and entering into the slit in the sheet, as set forth.



5. In combination with the sheet-delivering tapes, sheet-supporting bars and alternately advancing and receding end-gage, a rotary shaft extending across the machine, rubber-faced rollers secured to said shaft and receiving upon their peripheries the slitted portions of the sheet, rock-arms over said rollers moving intermittently to and from the rollers, and pins attached to the free ends of said arms and entering into the slits in the sheet, as set forth.

605,276. MATCH-BOX. RANDALL M. DIXON, Philadelphia, Pa. Filed Sept. 18, 1897. Serial No. 652,169. (No model.)



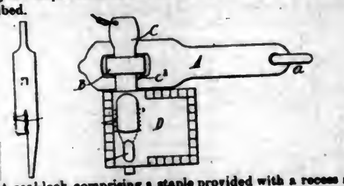
Claim.—1. The combination in a match-box, of a body portion having a lid at one end, guides in said body portion and a comb removably placed in said guides and having spring-fingers to bear against the matches in said body portion, substantially as set forth.

2. The combination in a match-box, of a body portion having a lid at one end, guides in the other end of said body portion, a comb having spring-fingers to bear on matches in the body portion and adapted to slide freely in said guides, and a finger-piece on said comb whereby to remove it from the body portion when the box is to be filled with matches, substantially as set forth.

3. As an article of manufacture, a match-box comprising a main body portion or receptacle having a hinged side and end, and a removable comb.

605,277. SEAL-LOCK. PRESTON C. DOCKSTADER, Colorado Springs, Colo. Filed Aug. 26, 1897. Serial No. 649,556. (No model.)

Claim.—1. A seal-lock comprising a staple, a pin having a toothed slot, a seal adapted to engage said slot, and a shoulder on the pin for engaging the staple in the manner and for the purpose substantially as described.



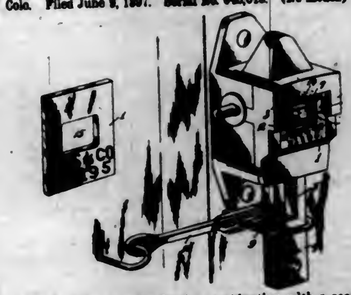
2. A seal-lock comprising a staple provided with a recess at one side of its opening, a pin having a projection and having a toothed slot, and a seal having webs for engaging the slot-teeth, substantially as described.

3. A seal-lock comprising a staple, a pin adapted to enter the staple-opening and provided with a toothed slot and a reduced lower end below said slot, and a seal provided with webs for engaging the slot-teeth and with perforations for engaging said lower end, in the manner and for the purpose substantially as described.

4. A seal-lock comprising a staple provided with arms extending downwardly therefrom, a seal having openings for said arms, and webs intermediate of said openings, and a pin having a toothed slot adapted to engage the webbed portion of the seal and having a reduced lower end for engaging perforations in the seal, substantially as described.

5. In a seal-lock, the combination of a staple, a pin having a toothed slot, a seal adapted to engage said slot, a shoulder on the pin for engaging the staple, and a stop-piece pivotally secured in the path of the pin and adapted to be moved to engage the same, substantially as set forth.

605,278. SEAL-LOCK. WILLIAM K. EDGAR, Colorado Springs, Colo. Filed June 9, 1897. Serial No. 640,013. (No model.)



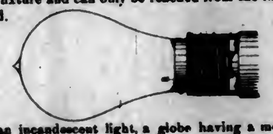
Claim.—1. In a seal-lock, the combination with a seal-seat and a movable member arranged in rear thereof, for advancement in a direction intersecting the plane of the same, of a seal having an opening to receive, and expose for inspection, the front end of said movable member, the opening in the seal being of greater area than the cross-section of the engaging portion of the movable member, to fit loosely on the latter and prevent the temporary fitting of a false plug, of the same cross-sectional area as the movable member, in said opening, substantially as specified.

2. A frangible seal having an opening extending entirely therethrough, in combination with a lock-casing having a seat into which the seal may be slid, a locking-pin mounted in rear for advancement in a direction intersecting the plane of the seal, and adapted to engage and fit loosely at its front end in the opening of the seal to prevent the unseating thereof, and locking devices for the locking-pin, including actuating means arranged in rear of and held inoperative by the seal, and visible through said opening in the seal between the sides of the opening and the engaging pin, substantially as specified.

3. As a new article of manufacture, a frangible seal having an opening for engagement by the movable member of a lock, which opening is of greater area than the cross-section of the engaging portion of said member, to allow view through the opening, between its walls and the sides of the engaging member, and prevent fitting the opening with a false plug of the same, or approximately the same, cross-sectional area as said movable member, substantially as specified.

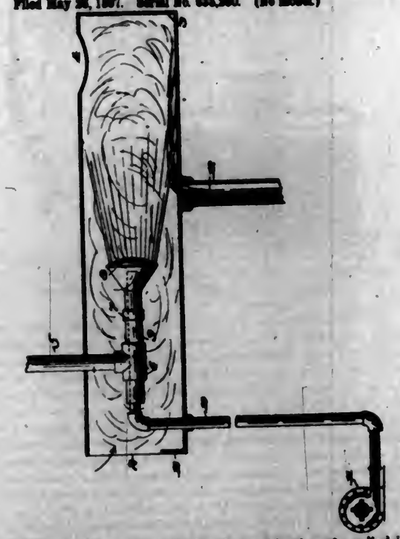
605,279. SAFETY-LOCK FOR INCANDESCENT LAMPS. ERNST FALLER and HERRMANN HERRSTATT, San Francisco, Cal. Filed Sept. 17, 1897. Serial No. 651,968. (No model.)

Claim.—1. An incandescent-light globe having a metallic end adapted to engage with the corresponding portion of the permanent fixture, a catch formed in one of the engaging parts and a corresponding automatically-engaging tongue upon the other, said tongue projecting inwardly whereby it is concealed within the exterior portion of the fixture and can only be reached from the interior of said metallic end.



2. In an incandescent light, a globe having a metallic screw-threaded end or base, the permanent fixture having the corresponding screw-threaded portion into which the globe portion is adapted to interlock, a shoulder or catch formed upon the entering interlocking portion, and an elastic automatically-engaging tongue projecting inwardly from the other portion of the fixture so that it can only be reached from the interior of said end or base whereby the two are engaged and permanently locked when the globe is in position for operation.

605,280. SMOKE-CONDENSER. JOHN C. GREEN, Cleveland, Ohio. Filed May 26, 1897. Serial No. 638,260. (No model.)

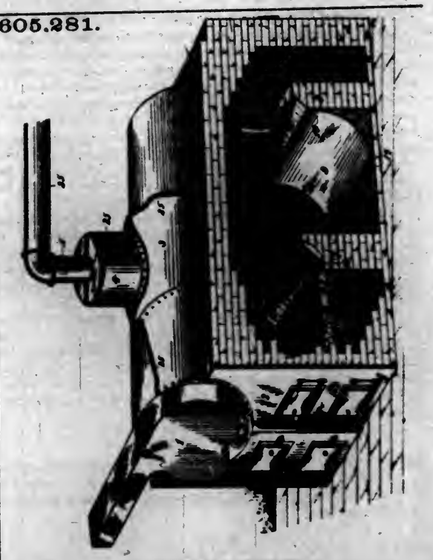


Claim.—In a smoke-condenser, the combination of a cylindrical condensing-chamber having its axis in a horizontal plane and provided with inlet and outlet openings at opposite extremities, a water-pipe extending into said chamber near its inlet, an air pipe projecting into said chamber near its inlet and extending into and encircled by said water-pipe and having an open annular air-space intermediate of air-pipe and water-pipe, said water-pipe provided on its extremity with a spray-nozzle discharging into said chamber, and an escape-pipe opening from the bottom of said condensing-chamber immediately of said inlet and outlet openings, substantially as set forth.

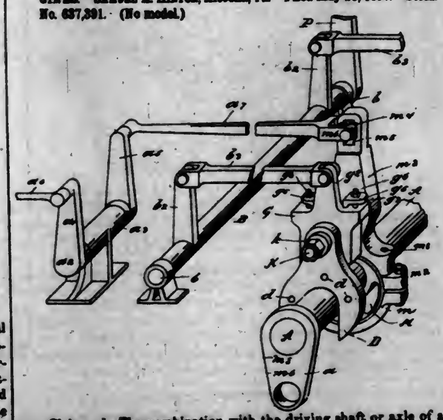
605,281. BOILER-FURNACE. JOHN W. KARBER and WILLIAM J. GALLOWAY, Pekin, Ill. Filed July 22, 1897. Serial No. 645,532. (No model.)

Claim.—The combination with a boiler-setting, a grate, and a boiler, of a front bridge-wall supporting the grate and terminating below the boiler to provide a passage of sufficient area for the free escape of the products of combustion from the grate-chamber, a rear wall arranged within the setting parallel to the bridge-wall to form the combustion-chamber, said rear wall terminating on a plane above the front bridge-wall and close to the boiler, and forming with the latter a contracted throat or passage of an area greater than the cross-sectional area of the boiler-tubes, and a curved deflector within the combustion-chamber and terminating below the upper edges of the front and rear walls, whereby the rear wall intercepts the products of combustion as the flow from the combustion-chamber and the restricted throat or passage avoids undue checking of the draft, substantially as described.

605,281.



605,282. STEAM-VALVE FOR LOCOMOTIVES OR OTHER ENGINES. SAMUEL A. HIPPEN, Altoona, Pa. Filed May 20, 1897. Serial No. 637,391. (No model.)



Claim.—1. The combination with the driving shaft or axle of a locomotive or engine, of brackets or supports mounted thereover, a roller box or frame pivotally connected thereto, an eccentric mounted on said shaft or axle adjacent to said roller box or frame, a strap or band encompassing the same, an upwardly-directed extension, an antifriction-roller supported thereby and operating in said roller box or frame, connections between said upwardly-directed extension and the steam-chest, means for operating said roller box or frame and means for taking up the wear on the bearing-surfaces of said roller box or frame, substantially as described.

2. The combination with the driving shaft or axle of a locomotive or engine, of brackets or supports mounted thereover, a roller box or frame pivotally connected thereto, an eccentric mounted on said shaft or axle adjacent to said roller box or frame, a strap or band encompassing the same, an upwardly-directed extension, an antifriction-roller supported thereby and operating in said roller box or frame, connections between said upwardly-directed extension and the steam-chest, means for operating said roller box or frame, adjustable wedges for taking up the wear on the bearing-surfaces of said roller box or frame, and means for securing said wedges in position, substantially as described.

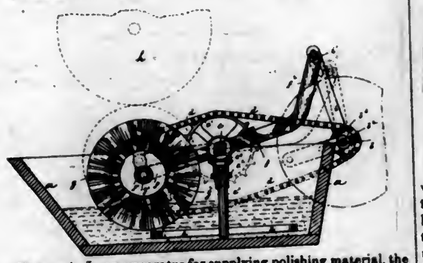
3. The herein-described valve-operating mechanism for locomotives or engines, comprising the main drive shaft or axle of the loco-

motive or engine, brackets or supports mounted thereover, roller boxes or frames pivotally connected with said brackets or supports, eccentrics mounted on said shaft or axle adjacent to said roller boxes or frames, and provided with straps or bands having outwardly-directed extensions, rollers connected with said upwardly-directed extensions, and operating in said roller boxes or frames, operative devices connecting said extensions of the eccentric straps or bands with the valves, and means for operating said roller boxes or frames, consisting of a shaft, suitably supported and provided with crank-rods which are connected with said roller-boxes said shaft being also provided with means for operating the same, substantially as shown and described.

4. In a valve-gear for locomotive or other engines a roller box or frame comprising a plate, guide-flanges supported thereon, a well for oil or other lubricant attached to the lower portion thereof, a roller operating in said frame and connections between said roller and the power-shaft, and between said roller and the steam-chest, substantially as described.

5. In a valve-gear for locomotive or other engines a roller box or frame comprising a plate, guide-flanges supported thereon, wedge-shaped bars bearing against said flanges and removably attached thereto, a well for oil or other lubricant attached to the lower portion thereof, a roller operating in said frame, and connections between said roller and the power-shaft, and between said roller and the steam-chest, substantially as described.

605,283. SUPPLYING POLISHING COMPOUNDS TO POLISHING OR CUTTING TOOLS. FRANK HOLLAND, Brooklyn, N. Y., assignor to James Cavanagh, same place. Filed Aug. 24, 1897. Serial No. 649,309. (No model.)



Claim.—1. In an apparatus for supplying polishing material, the combination of a box with a pivoted frame having a bearing, a revoluble brush hung within said bearing, means for oscillating the frame, and means for revolving the brush during the oscillation of the frame, substantially as specified.

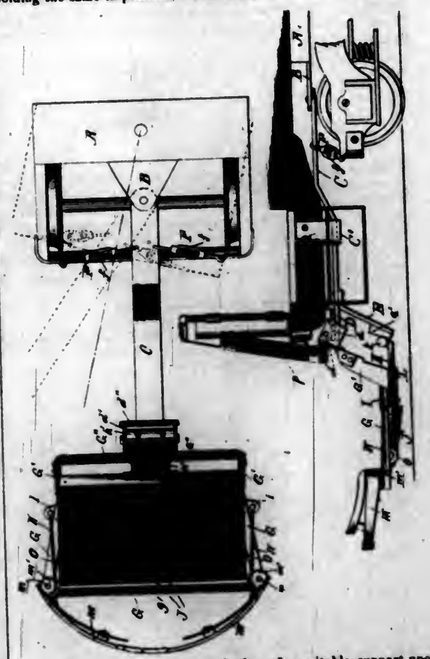
2. An apparatus for supplying polishing material composed of a box, a power-shaft having sprocket-wheel b^3, a shaft c, having sprocket-wheel c', a mixing-blade e, having shaft e', intergeared with shaft c, an oscillating frame f, a brush having shaft g', hung in said frame, a sprocket-wheel g^3, on shaft g', a chain engaging wheels b^3, c', g^3, and a crank connection between shaft b, and frame f, for imparting an oscillating motion to said frame, substantially as specified.

605,284. CAR-FENDER. GEORGE C. HUTCHESON, St. Louis, Mo., assignor, by mesne assignments, of one-half to J. Reed Elliott, same place. Filed Oct. 7, 1897. Serial No. 654,433. (No model.)

Claim.—1. The combination with a car-body and its truck, of a support connected to said car-body and truck so as to swing laterally when the car is going around a curve, a fender pivotally mounted on the front end of said support and movable therewith, mechanism for holding said fender in an elevated position, and a trip arranged in advance of the fender for releasing the same and permitting it to drop when the trip strikes an object, substantially as described.

2. The combination with a fender, of a suitable support to which the same is pivoted, means on the fender for engaging said support at its lower end for holding the fender in an elevated position, a lever operatively connected with said elevating mechanism, a swinging arm projecting out in front of the fender in its normal position, and a connection between said swinging arm and said lever; substantially as described.

3. The combination with a fender of a suitable support to which the same is pivoted, means on the fender for engaging said support at its lower end, for holding the fender in an elevated position, a lever operatively connected with said elevating mechanism, a swinging arm projecting out in front of the fender in its normal position, a connection between said arm and said lever, and another swinging arm cooperating with the free end of said first-mentioned swinging arm for holding the same in position; substantially as described.



4. The combination with a fender, of a suitable support upon which said fender is pivotally mounted, a movable piece arranged on the bottom of the fender and engaging the lower end of said support, levers for holding said movable piece against the support to elevate the fender, spring for retracting said levers, two arms pivotally mounted on the front outer edge of the fender, one of said arms having spring-jaws on its end for engaging the end of the other arm, and connections between said arms and levers; substantially as described.

5. The combination with the fender-support comprising the brackets D and E, the former of which consists of pivot projections d'', a laterally-extending plate d and curved studs d'' on said plate, the latter comprising lateral wings having flanged edges d', of a fender carrying a bracket H', which bracket is provided with side bearing edges h' and a bar h'', said parts cooperating with the bracket D and its associate parts, and a sliding piece K having the bearing-pieces k for cooperating with the wings d' on the bracket E, and a lever or levers for engaging the said piece K, substantially as described.

6. The combination with the car-body, of a pivoted truck arranged thereunder, a feeder-carrying tongue pivoted on the car-body in advance of the pivotal point of the truck, and a connection between said pivoted truck and said fender-carrying tongue, substantially as described.

7. The combination with a car-body, of a tongue C pivoted thereon, a fender-basket carried at the front end of the tongue, a truck pivotally mounted on the car-body back of the pivotal point of the tongue C, and a connection or connections between said pivotal tongue and the forward end of the truck, said connection including turnbuckles, substantially as described.

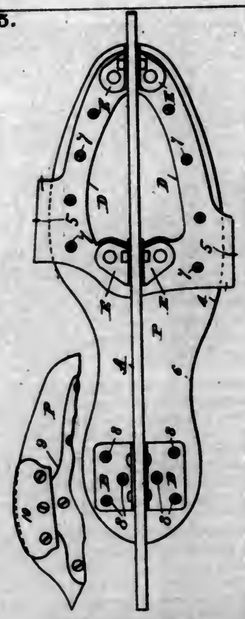
605,285. HOCKEY-GAME SKATE. EVERETT H. BARNEY, Springfield, Mass. Filed Dec. 3, 1897. Serial No. 660,607. (No model.)

Claim.—1. In a skate of the class described, a sole-plate therefor having on one edge thereof a laterally-projecting substitute runner-section, substantially as and for the purpose set forth.

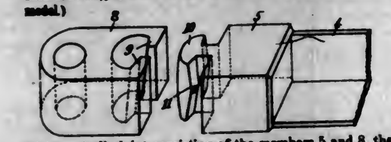
2. In a skate of the class described, a sole-plate therefor having on its opposite edges laterally-projecting substitute runner-sections, integral therewith, substantially as set forth.

3. In a skate of the class described, a sole-plate therefor combined with one or more exchangeable substitute runner-sections, and means for securing said section or sections at the outer border of said sole-plate, substantially as set forth.

605,285.



605,286. REVERSIBLE RAIL-GRIP FOR BEDSTEADS. GEORGE BRAHN, Brooklyn, N. Y. Filed Oct. 26, 1897. Serial No. 656,475. (No model.)



Claim.—A slip-joint consisting of the members 5 and 8, the former provided with a head 10, having central bearing-surfaces from which the head tapers toward each end and a face abutting against the second member, and the second member having wedge-shaped portions entering between said bearing-surfaces and said abutting face, and engaging said head at the central bearing-surfaces only substantially as and for the purpose set forth.

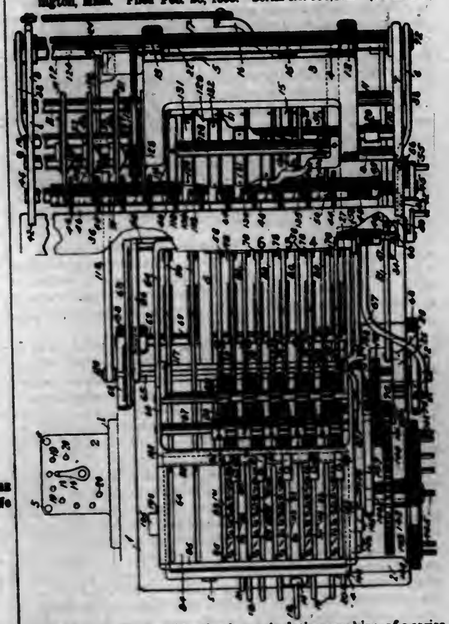
605,287. CAR-COUPLING. JAMES H. CUNNINGHAM, Worcester, Mass. Filed Nov. 24, 1897. Serial No. 659,667. (No model.)



Claim.—1. In a coupling device for cars, the combination of a draw-head 10 having a socket for a coupling-link, a guide 12 for a coupling-pin extending up from the upper surface of the draw-head 10, a perforated slide 14 on the upper surface of the draw-head 10, and an operating-lever 16 pivoted in the draw-head above the coupling-link socket, and having a tailpiece 17 normally tending to retract the slide 14, and located in position to be engaged by a coupling-link to move the slide in the opposite direction from that traversed by the coupling-link so as to release the coupling-pin, substantially as described.

2. In a coupling device for cars, the combination of a draw-head 10 having a flaring mouth 11 and a socket for a coupling-link, a guide 12 extending up from the upper surface of the draw-head 10 for supporting and directing a coupling-pin, a perforated slide 14 mounted on the upper surface of the draw-head 10, a lever 16 pivotally mounted in the draw-head 10, and having a tailpiece 17 normally extending down below the pivot of the lever 16 in position to be engaged by the coupling-link to force the slide forward in the opposite direction from that traversed by the coupling-link, a lifting-link 18 for raising the coupling-pin from the top of the car, a rock-shaft 20 for lifting the coupling-pin from the side of the car, and means for locking said connections to support the coupling-pin in its raised position, substantially as described.

605,288. CALCULATING-MACHINE. GEORGE B. GRANT, Lexington, Mass. Filed Feb. 20, 1896. Serial No. 580,162. (No model.)



Claim.—1. The combination in a calculating-machine, of a series of toothed numeral-wheels, a series of corresponding toothed adding gears independently adjustable relatively to their corresponding numeral-wheels, and mechanism to move the series of adding-gears in unison throughout a fixed distance, whereby each numeral-wheel will be operated by its adding-gear an amount determined by the adjustment of the latter, substantially as described.

2. The combination in a calculating-machine, of a series of toothed numeral-wheels, a series of corresponding toothed adding-gears independently adjustable relatively to their corresponding numeral-wheels, a locking device to lock said adding-gears in adjusted position, and mechanism to move the series of adding-gears in unison throughout a fixed distance, the locking device retaining said gears in fixed position relatively to each other during such movement, substantially as described.

3. The combination in a calculating-machine of a series of toothed numeral-wheels, a corresponding series of adjustable toothed adding-gears, mechanism to move the series of adding-gears as a whole through a limited fixed distance with respect to the series of numeral-wheels from an original position, and mechanism to disengage the gears and the numeral-wheels at a definite point of the movement and to maintain them disengaged during the return of the gears to their original position, substantially as described.

4. The combination in a calculating-machine, of a series of toothed numeral-wheels, a series of corresponding toothed adding-gears independently adjustable relative to their corresponding numeral-wheels, means to reciprocate the series of adding-gears in unison through a fixed distance, whereby each numeral-wheel will be operated in accordance with the adjusted position of its corresponding gear, mechanism to disengage the wheels and gears at a definite point in the movement, and to maintain them disengaged during the return of the gears to original position, and connections between the disengaging mechanism and the means for reciprocating the series of gears to automatically operate said mechanism, substantially as described.

5. The combination in a calculating-machine of a series of

toothed numeral-wheels, a corresponding series of adjustable toothed adding-gears, and mechanism to give the series of adding-gears a reciprocating motion as a whole through a limited fixed distance with respect to the series of numeral-wheels, whereby each adding-gear acts upon the corresponding numeral-wheels and returns to its original position, substantially as described.

6. The combination in a calculating-machine, of a series of adding-gears, a series of numeral-wheels to be engaged and driven by the adding-gears, actuating mechanism to move the series of adding-gears in unison throughout the whole of a fixed distance with respect to the numeral-wheels, and disengaging means controlled by said actuating mechanism to disengage the wheels and gears when the latter have reached and are stationary at the end of their operative stroke, substantially as described.

7. The combination in a calculating-machine, of a series of numeral-wheels, a series of independently-adjustable adding-gears, means to lock them in adjusted position, and a crank and connecting mechanism to give the series of locked adding-gears a reciprocating motion in unison throughout a fixed distance with respect to the series of numeral-wheels, and mechanism to disengage the wheels and gears at the end of the reciprocation, whereby the adding-gears act upon the numeral-wheels, are disengaged therefrom while stationary, and finally are returned to their original position, substantially as described.

8. The combination in a calculating-machine, of a series of numeral-wheels, a series of independently-adjustable straight-adding rack gears, means to lock said gears in adjusted position, and mechanism to give one of the series a reciprocating motion in unison throughout a fixed distance with respect to the other series, substantially as described.

9. The combination in a calculating-machine, of a series of toothed numeral wheels, a series of corresponding toothed adding-gears independently adjustable relatively to their numeral-wheels, means to lock said gears in adjusted position, and mechanism to move one of said series through a fixed distance relatively to and to cooperate with the other series, whereby each of the numeral-wheels will be operated by and to an extent depending upon the adjustment of its corresponding adding-gear, substantially as described.

10. The combination in a calculating-machine of a series of numeral-wheels, a sliding and oscillating numeral-carriage, an adding-carriage, a crank, and a cam and connecting mechanism, whereby the adding-carriage is given a reciprocating motion, and the numeral-carriage an oscillating motion, substantially as described.

11. The combination in a calculating-machine of a series of numeral wheels, two series of adding devices, each member of one series being geared to the corresponding member of the other series, in pairs, and being adjustable in position with respect to the numeral-wheels, whereby the adjustable member when being adjusted moves the other member in the contrary direction, substantially as described.

12. The combination in a calculating-machine of a series of numeral-wheels, two series of adding devices and connecting mechanism between the two series, whereby when one series is adjusted to represent any number the other is automatically adjusted to represent the arithmetical complement of that number, substantially as described.

13. The combination in a calculating-machine of a series of numeral-wheels, a series of positive adding-gears and a series of negative adding-gears, and a train of gears connecting each positive adding-gear with a corresponding negative adding-gear, whereby when either positive adding-gear is adjusted the corresponding negative adding-gear is adjusted a like distance in the opposite direction with respect to the numeral-wheels, substantially as described.

14. The combination in a calculating-machine of the adding-carriage carrying a double series of positive and negative adding devices, the series of numeral-wheels and mechanism to shift the adding-carriage with respect to the numeral-carriage to bring either series of adding devices into working position, substantially as described.

15. The combination in a calculating-machine of a positive rack and a negative rack each provided with teeth on its edge, a gear meshing with the positive rack, and a gear meshing with that gear and in engagement with the teeth of the negative rack, whereby the two racks are simultaneously moved in opposite directions, substantially as described.

16. The combination in a calculating-machine of the indicator-wheels 58 on the laterally-adjustable indicator-bar 36, the fixed post 40 holding the indicator-bar, the oscillating numeral-carriage 6 and means for laterally adjusting it, and the arms 38 attached to the numeral-carriage and to the indicator-bar, substantially as described.

17. The combination in a calculating-machine of the reciprocating adding-carriage 64, the link 119, the lever 122, the gear 126 attached to the lever 122, the carry-shaft 128 and the gear 127 on the carry-shaft and running in the gear 126, whereby the carry-shaft is oscillated in unison with the reciprocation of the adding-carriage, substantially as described.

18. The combination in a calculating-machine of the cam-wheel 25, the frame 3 the lever 21, pivoted upon the frame 3, the laterally-adjustable numeral-carriage 6, the guide-rod 10 upon the numeral-carriage and the link 29 sliding upon the guide-rod and attached to the lever, substantially as described.

19. The combination in a calculating-machine of the frame 3, the lever 21 pivoted upon the frame 3, mechanism to oscillate the lever the numeral-carriage 6, and means for laterally adjusting it with respect to the lever, substantially as described.

20. The combination in a calculating-machine of the driving-shaft 26, the ratchet-wheel 25 having a single tooth 74 and one or more holding-teeth at a distance from the tooth 74, and the detent 73, whereby reverse motion of the driving-shaft is permitted only near the single tooth, substantially as described.

21. The combination in a calculating-machine, of a toothed adding-gear, and a setting-pin attached thereto and adjustable in a setting-slot, the opposite walls of the slot being notched in a predetermined manner at points between the ends of the slot, the notches to be entered by the setting-pin, substantially as described.

22. The combination in a calculating-machine of the setting-pin 82, the setting-slot 83, the pin 92, and the shoulder 93, substantially as described.

23. The combination in a calculating-machine, of a series of numeral-wheels, a sliding and oscillating numeral-carriage, an adding-carriage, and means to reciprocate the adding-carriage and to oscillate the numeral-carriage, substantially as described.

24. The combination in a calculating-machine of the adding-gear 78, the setting-pin 82, setting-plate 84 having a slot 83, and setting index-wheel 86 geared to the adding-gear, whereby the position of the pin in the slot is shown upon the index-wheel, substantially as described.

25. The combination in a calculating-machine of an adding-carriage, a series of toothed adding-gears carried by the carriage and separately adjustable in position upon it, a correcting-bar and mechanism forcing it into the teeth of the adding-gears, whereby the correcting-bar corrects any error of less than half a tooth in the position of the adding-gears, substantially as described.

26. The combination in a calculating-machine of an adding-carriage means for reciprocating the adding-carriage, a toothed adding-gear carried by the adding-carriage, a device locking the adding-gear to the adding-carriage and releasable by the momentum of the adding-gear, and a checking-weight operating upon the locking device and opposing its momentum to that of the adding-gear, whereby the effort of the adding-gear to move itself in the adding-carriage by its own momentum is overcome by the momentum of the locking device, substantially as described.

27. The combination in a calculating-machine of the toothed adding-gear 78, the locking-bar 102, and the momentum-check 105, substantially as described.

28. The combination in a calculating-machine of an adding-carriage, a series of toothed adding gears carried by the adding-carriage and separately adjustable in position upon it, mechanism to move the adding-carriage from a fixed position and return it to that position again, and devices locking all the toothed adding-gears in their adjusted positions when the adding-carriage moves from the said fixed position and releasing them when it returns to that position again, substantially as described.

29. The combination in a calculating-machine of an adding-carriage, a series of toothed gears carried by the carriage and separately adjustable in position upon it, mechanism to move the adding-carriage from a fixed position and to return it to that position again, a locking-bar engaging in the teeth of all the adding-gears, and devices engaging the locking-bar and adding-gears when the carriage moves from the said fixed position and releasing them when it returns to that position, substantially as described.

30. The combination in a calculating-machine of the reciprocating adding-carriage 64, the toothed adding-gears 78, the locking V-bar 102, the swinging locking-lever 102', and the locking-guide 107, substantially as described.

31. The combination in a calculating-machine of the reciprocating adding-carriage 64, the toothed adding-gears 78, the locking V-bar 102, the swinging locking-lever 102', the locking-guide 107, and the releasing-weight 104, substantially as described.

32. The combination in a calculating-machine of the shifting handle 14, the numeral carriage 6, mechanism connecting the shifting handle with the numeral carriage, and the indicating-pins 19 placed close to the path of motion of the shifting handle 14, whereby the position of the numeral-carriage is indicated by the position of the shifting handle with respect to the pins, substantially as described.

33. The combination in a calculating-machine of the shifting handle 14 at the front of the machine, the lever 16 at the back of the machine, the rock-shaft 15 connecting the shifting handle and the lever, the numeral-carriage 6, and the link 17 connecting the lever and the numeral-carriage, substantially as described.

34. The combination in a calculating-machine of an operating-shaft one rotation of which causes the machine to perform one operation of addition, a speed-wheel having several equidistant driving-handles, a train of gears connecting the speed-wheel and operating-shaft and having a velocity ratio equal to the number of said driving-handles, whereby the rotation of the speed-wheel by moving any one of the several driving-handles from its position to a fixed position causes the machine to perform a definite number of operations of addition, substantially as described.

35. The combination in a calculating-machine of an operating-shaft one rotation of which causes the machine to perform one operation of addition, a speed-wheel having nine driving-handles, a train of gears connecting the speed-wheel and the operating-shaft and having a velocity ratio of nine to one, whereby the rotation of the speed-wheel by moving any handle from its position to a fixed position causes the machine to perform from one to nine operations of addition according to the handle moved, substantially as described.

36. The combination in a calculating-machine of a speed-wheel having several handles, and a fixed and figured dial indicating the position of the handles, substantially as described.

37. The combination in a calculating-machine of a series of numeral-wheels, each numeral-wheel having a carrying-pin upon it, a series of carrying-levers, a wing upon the side of each carrying-lever, a series of helically-arranged carrying-teeth, a series of carrying-lever returners, and a series of carrying-tooth returners, whereby when a carrying-lever has been moved by a carrying-pin a carrying-tooth will be thrown between the teeth of the next numeral-wheel for the purpose of carrying the tens, substantially as described.

38. The combination in a calculating-machine of a series of numeral-wheels, a series of oscillating carrying-teeth and mechanism for oscillating the two series with respect to each other, whereby the numeral-wheels are in working position with the carrying-teeth during the oscillation of the latter in one direction, but are all removed from working position during their return oscillation, substantially as described.

39. The combination in a calculating-machine of a series of reciprocating adding-gears, a series of oscillating numeral-wheels, and a series of oscillating carry-teeth, whereby the numeral-wheels are in working position with the adding-gears during their motion in one direction and are put into working position with the carry-teeth during the return motion of the said gears, substantially as described.

40. The combination in a calculating-machine of a series of adding-gears and an adding-carriage, means for adjusting and means for locking the adding-gears in adjusted position in the addiag-carriage, a series of numeral-wheels, mechanism to move the addiag-carriage with respect to the series of numeral-wheels, and mechanism to move the series of numeral-wheels into position to mesh with the series of adding-gears and to remove them from that position at fixed points in the motion of the adding-carriage, whereby the adding-gears and numeral-wheels are in meshing position during a limited and fixed part of the motion of the adding-carriage, and the adding-rack is in actual mesh with the numeral-wheel during an adjusted and limited part of that motion, substantially as described.

41. The combination in a calculating-machine of a series of adding-racks and an adding-carriage, means for adjusting and means for locking the addieg-gears in adjusted position in the adding-carriage, a series of numeral-wheels, mechanism to give the addieg-carriage a reciprocating motion with respect to the series of numeral-wheels through a limited and fixed distance, and mechanism to move the series of numeral-wheels into position to mesh with the adding-racks and to remove them from that position at fixed points in the motion of the adding-carriage whereby the adding-gears and numeral-wheels are in meshing position during a limited and fixed part of the reciprocating motion of the adding-carriage, and the adding-rack is in actual mesh with the numeral-wheel during an adjustable and limited portion of that motion, substantially as described.

42. The combination in a calculating-machine of the shaft 45 rotatable in bearings in the numeral-carriage 6, the zero-setting crank 55 and the detent 56 by which the shaft and crank are fixed to the numeral-carriage, the series of numeral-wheels 44 on the shaft 45, the carrying-pins 50 on the numeral-wheels, and the series of carrying-levers 51 yielding to the motion of the numeral-wheels upon the shaft in one direction and holding against their motion in the other direction, whereby the carrying-levers strike the carrying-pins and hold the numeral-wheels when the shaft is turned by means of the zero-setting crank, and the wheels are set to zero by means of the same carrying-levers and carrying-pins that act in the operation of the carriage of tens, substantially as described.

43. The combination in a calculating-machine of an oscillating numeral carriage laterally adjustable in guides, an index-bar separate from the numeral-carriage and laterally adjustable in guides, and mechanism connecting the numeral carriage and the index-bar, whereby the numeral-carriage and the index-bar receive a simultaneous lateral adjustment, substantially as described.

605,289. KNIFE, SCISSORS, OR SKATE SHARPENER. MOSES L. HAWES, Chicago, Ill. Filed Oct. 30, 1897. Serial No. 656,966. (No model.)



Claim.—The herein-described sharpener consisting of the bracket, A, having a hardened metal sharpening-disk pivotally secured thereto, the bracket being cut away at the top forming the aperture, D, the line at one side being perpendicular to the base and adapted to the sharpening of skates, and that of the opposite side forming an acute angle adapted to the sharpening of scissors and shears, with the inclined notches at the sides adapted to the sharpening of knives, all substantially as set forth.

605,290. MACHINE FOR WRINGING CLOTHES. JAMES HEMMINGWOOD, Leeds, England. Filed Dec. 23, 1897. Serial No. 663,165. (No model.) Patented in England May 22, 1897, No. 12,716.

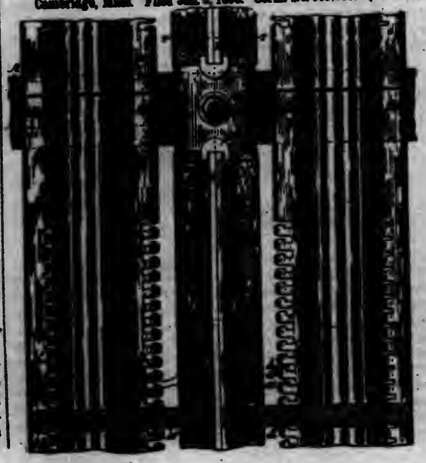


Claim.—1. The combination with the two rollers in a wringing-machine and a feed-board to the same, of the rocking frame E having trunnions at the ends, the brackets G for supporting the rocking frame, the fingers H and stop-hinges for connecting the fingers to the rocking frame and a handle for turning the rocking frame, substantially as set forth.

2. The combination in a machine for wringing clothes with the two rollers and a flange at the end of the lower roller, of a tangential plate and two arms supported on the axle of the upper roller and resting on the flanges of the lower roller and carrying such tangential plate and a weight to keep the inner edge of the tangential plate in contact with the surface of the upper roller, substantially as set forth.

3. The combination in a wringing-machine having two rollers and a feed-board, of a rocking frame E and trunnions for the same, fingers and stop-hinges for connecting the fingers to the rocking frame, a handle for turning the rocking frame and a tangential plate and arms for suspending the same with the edge of the tangential plate adjacent to the surface of the upper roller, substantially as set forth.

605,291. LIBRARY SHELVING, STACK, &c. DAVID B. HUSTED, Cambridge, Mass. Filed Jan. 4, 1898. Serial No. 665,793. (No model.)



Claim.—1. A library-standard having adjacent its vertical edges longitudinal projections rigidly spaced apart and each provided with a series of transverse notches in its rear edge, the respective notches of the two projections being in substantial horizontal alinement, and the rear notches having engaging shoulders, said notches being adapted to receive shelf-lugs slid into them horizontally from the rear, and locked therein by dropping into engagement with said shoulders, substantially as described.

2. A library-standard comprising a central web having at its edges longitudinal projections or beads, the front projection having a series of horizontal notches formed therein on its rear edge at each side of said web, and the rear projection having a series of notches cut transversely thereof across its rear edge, the latter series of notches containing locking-offsets in their lower sides, substantially as described.

3. A library-standard composed of sheet metal rolled over at its opposite vertical edges to form hollow beads or projections, the front roll having on its opposite sides at the rear part of the roll opposite series of horizontal notches, and the rear roll having at its rear part and extending into its opposite sides series of horizontal notches, the said notches having flaring lips at their rear ends for the ready reception of shelf-lugs, substantially as described.

4. A support for library-shelving comprising opposite standards, shelves to be supported thereby, said shelves having adjacent their four corners fixed lugs projecting therefrom, and said standards having recesses with openings at the rear only for the reception of said lugs, whereby a shelf is put in position by forward movement from the rear and is removed by movement toward the rear, certain of said recesses having offsets and shoulders to receive and engage certain of said lugs and lock the shelf in position when properly placed, substantially as described.

5. In a library-stack, a plurality of standards for supporting the shelves, said standards being arranged vertically one above the other, floor-beams in pairs, said standards being rigidly clamped at their upper ends between said floor-beams and extending loosely between said floor beams at their lower ends, and means to prevent lateral movement in any direction of said lower ends while permitting vertical movement due to contraction and expansion thereof, substantially as described.

6. In a library-stack, a standard for supporting the shelves, having hollow rolls or beads at its opposite vertical edges, filling-blocks rigidly clamped in said rolls at the upper ends of said standard, said filling-blocks having reduced portions projecting above said standard adapted to receive the lower end of a similar standard placed vertically thereabove, substantially as described.

7. In a library-stack, horizontal floor-beams, separators therefor, clamping-blocks engaging said beams on their outer sides, in combination with supporting-posts vertically alined, said blocks having vertical projections at their top and bottom sides to inclose and form pockets for the said posts, retaining the latter from relative lateral displacement, and means to clamp said blocks and beams together, substantially as described.

8. In a library-stack, horizontal floor-beams, separators therefor, clamping-blocks engaging said beams on their outer sides, said blocks having inwardly-projecting ledges on which said beams may rest, in combination with supporting-posts vertically alined, said blocks having vertical projections at their top and bottom sides to inclose and form pockets for the said posts, retaining the latter from relative lateral displacement, and means to clamp said blocks and beams together, substantially as described.

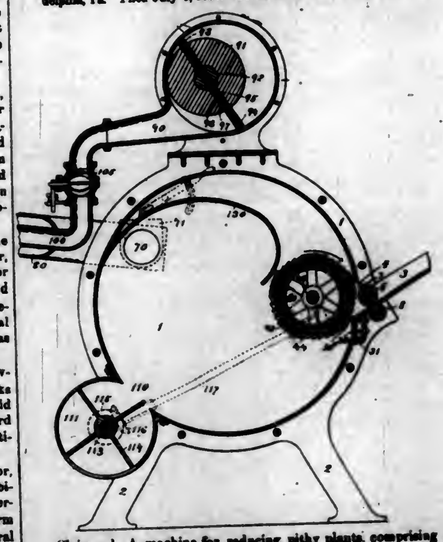
605,292. BUTTON. NATHAN D. INGRAM, Holyoke, Mass. Filed Aug. 9, 1897. Serial No. 647,541. (No model.)



Claim.—1. A detachable button consisting of a body comprising a face and a rear-side collet, having a clear space therebetween, said collet having two parallel transverse slots therethrough, near the center of said collet, and two other slots in line with the former terminating by one end within the border-bead of said face, and a loop-catch on its inner surface, combined with a transversely-movable, wire, button-attaching element having a looped end contained within said body, having a part for engagement with said loop-catch, and button-attaching hooks extending in curved lines from said looped end through two of said slots and near to said border-bead for engagement therewith within the ends of said last-named slots, substantially as set forth.

2. A detachable button consisting of a body comprising a face and a rear side collet, having a clear space therebetween, said collet having two parallel transverse slots therethrough, near the center of said collet, and two other slots in line with the former, terminating by one end within the border-bead of said face, and a loop-catch on its inner surface, combined with a transversely-movable, wire, button-attaching element having a looped end contained within said body, having a part for engagement with said loop-catch, and button-attaching hooks extending in curved lines from said looped end through two of said slots and near to said border-bead for engagement therewith within the ends of said last-named slots, and having shoulders thereon for engagement with a border of the last-named slots, substantially as set forth.

605,298. MACHINE FOR REDUCING PITHY PLANTS. ALBERT F. MADDEN, Newark, N. J., assignor to the Marsden Company, Philadelphia, Pa. Filed July 8, 1897. Serial No. 643,810. (No model.)



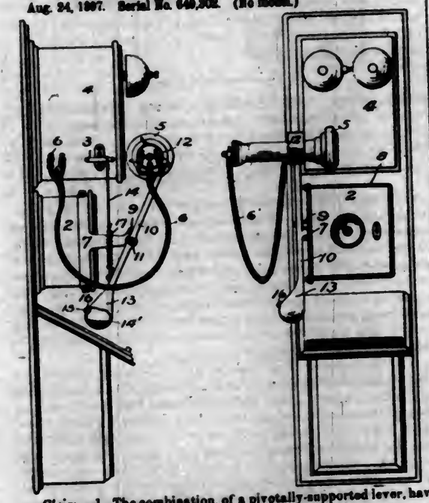
Claim.—1. A machine for reducing pithy plants, comprising a separating-chamber having an opening for the passage of plant material, feeding and supporting devices adjacent to said opening for feeding the plant material through the opening and supporting it in position to be operated upon by the disintegrator, a rotary disintegrator having alternate groups of cutting-teeth and wire brushes, and an air-ejector communicating with the upper part of the separating-chamber to remove the lighter parts of the disintegrated plant, said separating-chamber having an opening in its lower part for the removal of the disintegrated fiber.

2. In a machine for reducing pithy plants, the combination of a separating-chamber, a disintegrating mechanism discharging into the separating-chamber, an outlet adjacent to the bottom of the separating-chamber for the discharge of the heavier particles, an outlet adjacent to the top for the discharge of the lighter particles, air-exhausting mechanism communicating with the outlet for the lighter particles, a valve controlling the air-exhausting mechanism, and a suitable valve controlling the said exhaust-outlet for lighter particles, as set forth.

3. A machine for reducing pithy plants, comprising an approximately cylindrical separating-chamber, an inlet-opening for the plants, a disintegrating mechanism in the separating-chamber into which the plants are fed through the inlet, an outlet for heavier particles in the lower part of the separating-chamber, and a shield or guard within the separating-chamber extending from the exhaust-outlet partially around the disintegrating mechanism, as set forth.

4. A machine for reducing pithy plants, comprising a disintegrating roll or cylinder having a series of cutting-teeth and wire brushes arranged alternately circumferentially upon the periphery of the roll or cylinder, the brush-wires extending radially beyond the working edges of the cutting-teeth, and an adjustable plate upon which the plants are supported against the action of the disintegrating-roll, as set forth, in combination with a chamber containing said disintegrating-roll and having an opening through which fibrous plant material may be fed to the disintegrator, and an air-ejector communicating with the upper part of said chamber.

605,294. TELEPHONE-HOLDER. JESSE T. MOORE, Minneapolis, Minn., assignor of one-half to Harry L. Jenkins, same place. Filed Aug. 24, 1897. Serial No. 649,202. (No model.)



Claim.—1. The combination, of a pivotally-supported lever, having a balance-weight on one end and a telephone-receiver clasp on the other end, with a telephone-switch-operating connection, substantially as described.

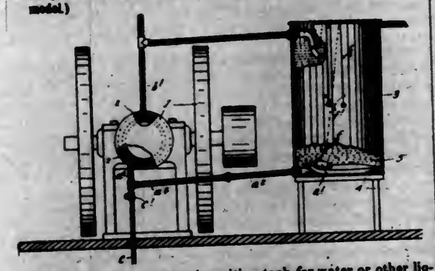
2. The combination, of a plate, arm, or bracket, with a lever pivoted thereon, one end of said lever being provided with a weight to counterbalance a telephone-receiver on the opposite end of said lever, whereby when said receiver is freed, the same will be lifted automatically, substantially as described.

3. The combination of the support, with a lever pivoted to swing freely thereon, said lever having a clasp, or holder, on one end for a telephone-receiver, and having a weight-holder on its opposite end and a telephone-switch connection, substantially as described.

4. The combination, with a plate, arm, or bracket, provided with a lever-stop, of a lever pivoted upon said bracket, said lever having a telephone-receiver, clasp, or holder, upon its outer end, and having an adjustable weight upon its inner end, and, a telephone switch connection upon said inner end of the lever, substantially as described.

5. The combination, of a plate, arm, or bracket, with a lever pivoted thereon, a receiver-clasp upon the outer end of said lever, a hollow weight-holder upon the inner end of said lever, and a yielding or adjustable switch connection, substantially as described.

605,295. DRAINABLE PIPE FOR TANKS. THOMAS J. MURPIN, Sleepy Eye, Minn. Filed Dec. 14, 1897. Serial No. 661,832. (No model.)

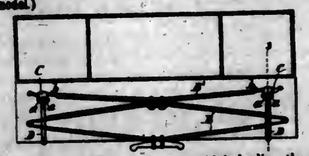


Claim.—1. The combination with a tank for water or other liquids, of a pipe having, within the tank a section normally submerged, but capable of extension to a point above the liquid-level in the tank, for draining the pipe without emptying the tank, substantially as described.

2. The combination with a tank and an engine having a water-jacket, of circulating connections from said tank to said jacket, which circulating connections include sections of pipe within the tank normally submerged, but capable of extension to a point above the liquid-level, and a discharge-opening, outside the tank, for draining the circulating connections in the water-jacket of the engine, without emptying the tank, substantially as described.

3. The combination with a water-tank and a water-jacketed engine, of circulating connections from the tank to the engine, which connections are provided with flexible sections of pipe within the tank normally submerged, but capable of being elevated to bring their mouths above the liquid-level in the tank, and a valve-controlled discharge-opening, at the lowest point in the circulating connections outside the tank, substantially as and for the purposes set forth.

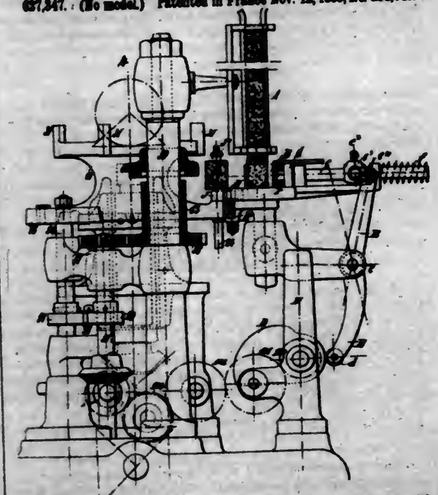
605,296. SPRING-HANGER FOR VEHICLE-BODIES. JAMES McCAUSEEN, Pontiac, Mich. Filed June 24, 1897. Serial No. 642,022. (No model.)



Claim.—1. In a spring-hanger for vehicle-bodies, the combination with the cross-spring, of the hanger having a socket in which the end of said spring is secured, said hanger also having the depending lugs, the body-loop attached to the vehicle-body at one end and pivoted at the other end between the lugs of said hanger.

2. In a spring-hanger for vehicle-bodies consisting of an integral head or hanger having a horizontal socket to receive the end of a cross piece or spring and provided with opposed depending lugs between which the end of the body-loop may be pivoted.

605,297. MACHINE FOR CUTTING CORKS. CHARLES HOLL, Paris, France, assignor to La Société Industrielle du Liège et de La Bouchonnerie Parisienne, same place. Filed Mar. 13, 1897. Serial No. 627,347. (No model.) Patented in France Nov. 12, 1896, No. 261,648.



Claim.—1. In a machine for cutting corks, the combination, with a carrier and guide mechanism for the cork blocks, of an intermittently-rotating platform provided with four pairs of equidistant grippers, two endless cutting-blades arranged at right angles to each other and adapted to act successively on said blocks, horizontal rotary trimming-knives acting on the block after the third stop, and clamping-holders for delivering the cork from the grippers and supporting it for the action of the trimming-knives, substantially as set forth.

2. In a machine for cutting corks, the combination, with a guide-frame for feeding the cork blocks, of a horizontal guideway for re-

ceiving the cork blocks, a horizontal reciprocating pusher-plate for feeding the cork blocks forward to the grippers, a spring-pressed side plate connected with and reciprocating with said pusher-plate, and means for intermittently actuating said plates, substantially as set forth.

3. In a machine for cutting corks, the combination, with an intermittently-rotating platform provided with a series of upper and lower grippers arranged in pairs, each of the lower grippers having a screw-spindle provided with thread of slow pitch, a vertically-guided screw-sleeve surrounding and engaging said threaded spindle, and an intermittently-rotating cam actuating said sleeve so as to impart rotary motion on its axis to the lower gripper and by the cork block to the upper spindle, substantially as set forth.

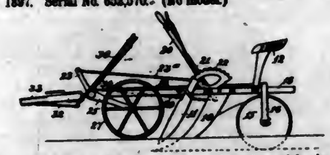
4. In a machine for cutting corks, the combination, with an intermittently-rotating platform, said rotating platform having four pairs of grippers for holding the cork blocks, means for releasing the cork blocks from the grippers, clamping-holders for transferring the corks from the grippers, a pair of horizontal parallel trimming-knives for cutting off the ends of the corks delivered to said holders, and means for releasing the corks from the holders after they are trimmed, substantially as set forth.

5. In a machine for cutting corks, the combination, with an intermittently-rotating platform having pairs of grippers, means for intermittently arresting and locking said platform, a pair of rotary clamping-holders moving into the path of the cork, means for actuating the grippers so as to release the corks to said holders, a pair of horizontal parallel trimming-knives for cutting off the ends of the corks, and means for releasing the corks after the same have been trimmed at the ends, substantially as set forth.

6. In a machine for cutting corks, the combination, with a supporting-frame, a power-driven shaft stepped in said frame, an intermittently-rotating platform sleeved on said power-shaft and supported by said supporting-frame, means for locking the platform after each partial rotation, a large gear carried by said platform, a small gear carried by the said power-shaft and nested in said large gear, a combined full and mutilated gear the full teeth meshing with the small gear and the mutilated teeth meshing with the large gear whereby an intermittent rotation is imparted to said platform, substantially as set forth.

7. In a machine for cutting corks, the combination with a pillar, of a gear-wheel provided with a sleeve loosely mounted on said pillar and provided with springs two extensions carried by said sleeve and terminating in holders, grooved clamps working in said extensions, and a cam-faced piece fixed on said pillar above the said sleeve and adapted to operate said clamps in one direction, said springs being adapted to operate the clamps in the reverse direction, substantially as set forth.

605,298. SULKY-PLOW. WILLIAM H. PERRIN, Smith's Falls, Canada, assignor of one-half to John R. Lavell, same place. Filed Sept. 23, 1897. Serial No. 652,570. (No model.)



Claim.—1. In a sulky-plow, the combination with the axle 25ª having depending arms at the ends on which the wheels are journaled, an arm 23 secured to the said axle, a lever fulcrumed on the plow-beam attached to the said axle, a toothed segment and spring-catch holding the said lever in any desired position, a rod connecting the said lever to the said arm 23, above the fulcrum, and a chain connecting the said lever below the fulcrum with a hook on the said axle, substantially as set forth.

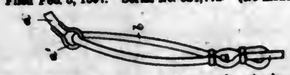
2. In a sulky-plow, the combination with the axle 25ª on the depending arms of which the front wheels are journaled, of the tongue pivotally connected to the said axle, the lever 30 fulcrumed on a rod 31, a toothed segment adapted to be engaged by the said lever and secured to the said axle, and a brace-rod 32, pivoted to the said lever below the fulcrum and to the tongue a short distance from its rear end, substantially as set forth.

605,299. CORSET-SHIELD. MARIE L. PERROTTET, New York, N. Y. Filed Oct. 22, 1895. Serial No. 566,551. (No model.)

Claim.—A corset-shield consisting of two inner superimposed layers of soft projecting material having a series of separated pockets; a series of parallel non-resilient pliable strips disposed one in each of said pockets, and all extending in the same direction, and an outer covering of soft material completely inclosing said inner material and strips, whereby when the shield is bent the strips will retain said shield in its bent position.



605,300. STRAP-FASTENER. GEORGE S. SARGIS, Bloomfield, N. J. Filed Feb. 3, 1897. Serial No. 621,772. (No model.)



Claim.—1. The improved parcel-fastener herein described, comprising a strap, a plate with ears projecting laterally from the opposite longer sides thereof, the ears on one of said sides being bent downward and inward toward the central longitudinal axis of said plate, and permanently clamping one end of said strap against the under surface of said plate, and the two ears on the opposite side being bent upward and inward toward the central longitudinal axis of the plate and forming hooks overlying said plate, and a keeper-stud projecting upward from the surface of said plate and having a biting edge to engage said strap, substantially as set forth.

2. The improved parcel fastener herein described, comprising a plate of sheet metal having a flat oblong body portion, the opposite longitudinal edges of which are provided with ears lying to or near the opposite extremities of said body portion, said ears projecting outwardly from said edges and being returned substantially parallel to the plane of said body portion, the ears *d*, *d*, of one edge being bent toward the opposite surface of the body portion from that toward which the ears *c*, *c*, of the opposite edge are turned, a tongue struck up from the central part of the body portion and forming a keeper-stud *f*, which stands at a point about midway between the returned ears *c*, *c*, with its plane at substantially right angles to the longitudinal axis of said body portion, substantially as set forth.

605,301. TICKET-CASE. NELSON R. SPRINGSTEEN, Royal Oak, Mich. Filed Oct. 25, 1897. Serial No. 656,574. (No model.)



Claim.—1. A ticket-case comprising a casing and cover, partitions therein forming receptacles for the ticket-rolls, a pin or shaft passing through the center of a roll, and friction-springs on the sides of each receptacle bearing against the sides of the roll, and constituting bearings for the roll-shaft, to give tension to the unwinding.

2. A ticket-case comprising a casing and cover, partitions therein forming receptacles for the ticket-rolls, a pin or shaft passing through the center of a roll, friction-springs on the sides of the receptacle bowed out at the middle to bear against the side of the roll, and longitudinal slots in the springs from the end to at or near the middle, forming entering slots and bearings for the shaft of the roll, substantially as described.

3. A ticket-case comprising a casing and cover, a receptacle for a ticket-roll, friction devices for retarding the unwinding of the roll, a toothed wheel over which the ticket-strip passes, and a bell-ringing mechanism adapted to be operated by the wheel upon the drawing thereover of a length of paper equal to the length of a ticket, and means for guiding said ticket-strip and holding a portion thereof exposed whereby it can be engaged for the purpose of drawing the ticket-strip out.

4. A ticket-case comprising a casing, a cover, and a ticket-roll receptacle, a toothed wheel opposite the receptacle guides for the paper around the wheel so as to lead the paper off from the wheel in a plane at an acute angle to the entering place, and a bell-ringing mechanism operated by the wheel upon the drawing over the same a length of paper equal to the length of a ticket, and means for guiding said ticket-strip and holding a portion thereof exposed whereby it can be engaged for the purpose of drawing the ticket-strip out.

5. In a ticket-case, the combination of the casing, having a roll-compartment and a trough-shaped section L, a wheel journaled to

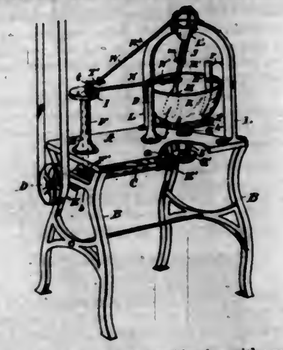
have its periphery project through a slot in this section L, a cover having a hooked section adapted to inclose the trough-shaped section to leave a guideway for the paper between, and guides on the casing for the edges of the strip beyond this guide under the hooked edge of the cover.

6. In a ticket-case the combination of the casing having a ticket-roll compartment therein and a trough-shaped section, a wheel journaled to have its periphery project through a slot in this section L, a cover having a hooked section adapted to inclose said trough-shaped section and leave a guideway for the ticket-strip between, and the finger or bar T on the cover adapted to press the strip into contact with said trough-shaped section for the purpose described.

7. A ticket-case comprising a casing having a receptacle therein for a plurality of ticket-rolls friction devices for retarding the unwinding of said rolls, a toothed wheel for each roll over which the ticket-strip is led, and a single bell-ringing device adapted to be operated by the drawing over any one of said wheels a length of strip equal to one ticket.

8 A ticket-case comprising a casing having receptacles therein for a plurality of ticket-rolls, friction devices for retarding the unwinding of said rolls, toothed wheels for said rolls over which the ticket-strips are led, a common shaft to which said wheels are secured, a bell adapted to be sounded by the turning of said shaft caused by the drawing over of any one of said wheels a length of strip equal to one ticket, and guides for holding said strip so as to be unaffected by the turning of said wheels but allowing said strip to be free to engage with said wheels when drawn out from the case.

605,302. TRITURATOR. CHARLES L. TREMLER, Indianapolis, Ind. Filed Nov. 14, 1896. Serial No. 612,092. (No model.)



Claim.—1. In a triturator, the combination, with a revolving support and a mortar detachably secured thereto, of a rotary swinging pestle adapted to traverse the inner surface of the mortar, the longitudinal axis of the pestle being always approximately at right angles to the surface of the mortar at the point of contact, a crank-wheel and a pestle-lever connected with and actuated by the crank-wheel and provided with a pivotal bearing through which longitudinal movement of the pestle-lever is permitted and said pestle-lever having a hinge-joint permitting vertical movement and a swivel-joint permitting rotary movement, the axis of revolution of the mortar being out of alinement with the centers of the crank-wheel and pivotal bearings of the pestle-lever, all substantially as described and for the purposes specified.

2. In a triturating-machine, the combination with a revolving mortar and a rotary swinging pestle, of a pulley supported above the pestle, a wrist-pin having a horizontally-pivoted bar and a vertical pin to engage the bar and force it around during part of each circuit of revolution of the wrist-pin and a cable or chain passing over the pulley and having one end connected by means of a swivel with the pivoted bar and having the other end of the chain connected with the top of the pestle-handle, all substantially as described and specified.

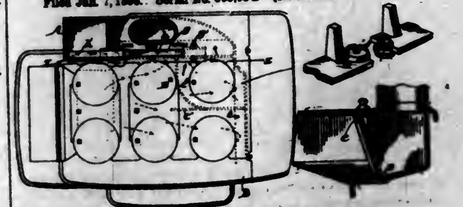
3. In a triturating-machine, the combination, with a revolving mortar, a pestle having rotary swinging movement and mechanism for actuating the mortar and pestle, of means consisting of a pulley elevated above the pestle, a cable or chain passing over the pulley and connected at one end to the pestle and at the other end to mechanism substantially as described, which will alternately pull on the chain or cable and then release it, whereby the pestle will be raised and lowered.

4. The combination, with a revolving mortar of a funnel-shaped collar above and at one side of the center of the mortar, a pestle traversing the inner surface of the mortar in an epicycloidal path and having a stem or arm projected up through the funnel-shaped collar, an adjustable collar on the pestle-arm, a spiral spring on said arm between the funnel shaped and the adjustable collar, and means, substantially as described, for compressing the spring and elevating the pestle and then releasing it suddenly whereby a pounding movement will be imparted to the pestle, all substantially as and for the purposes specified.

5. A cover for mortars having an opening through which the pestle-arm will be projected, said cover being split from its outside edge into the opening for pestle-arm, and having the edges made by said split, bent whereby they can be joined by hooking them together.

6. In a triturating-machine, the combination, with a revolving mortar, a pestle having rotary swinging movement and mechanism for actuating the mortar and pestle, a wrist-pin moving in a circular path, a horizontal bar pivoted to the wrist-pin, and a vertical pin to engage the bar and force it around during part of each circuit of revolution of the wrist-pin, of means consisting of a pulley elevated above the pestle, a cable or chain passing over the pulley and connected at one end to the pestle and at the other end to the horizontal bar, said cable or chain having an elastic portion whereby the length of the cable or chain can be increased within predetermined limits, all substantially as described and specified.

605,303. COOKING-STOVE. ARTHUR W. WALKER, Malden, Mass. Filed Jan. 7, 1898. Serial No. 665,934. (No model.)



Claim.—1. In a stove, a wall interposed in the path of the smoke from the fire to the smoke-pipe and provided with two openings, combined with one damper to substantially cover either or both said openings, substantially as described.

2. In a stove, an inclined partition or wall located in the path of the smoke from the fire to the smoke-pipe, and provided with a direct-draft opening and a baking-draft opening, combined with one damper coöperating with both said openings, substantially as described.

3. In a stove, an inclined partition or wall located in the path of the smoke from the fire-box to the smoke-pipe, said wall being provided with a direct-draft opening and a baking-draft opening and having a groove at the base of said partition or wall, combined with a damper, the lower edge of which enters and slides in said groove, said damper resting by its gravity on and being free to slide on said partition or wall, substantially as described.

4. The combination with a stove provided with a slot for a damper-knob, and a damper located below said slot, of a damper-operator composed of a jointed two-part bar coöperating with said damper to move it and at the same time keep said slot closed, substantially as described.

5. The combination with a stove, of a damper having a lug, combined with a damper-operator made as a sliding bar having two fingers embracing said lug, substantially as described.

6. A stove having a straight longitudinal partition or wall provided with a direct-draft opening and a baking-draft opening arranged side by side, and other walls c^4 and c^5 to form flues, combined with a damper moving against one side of said partition and means to move it in a straight line to cover or to uncover the direct-draft opening and uncover more or less of the baking-draft opening, substantially as described.

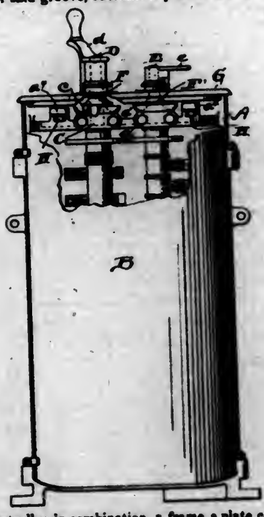
605,304. CONTROLLER. THORSTEN VON ZWIEDENECK, Cleveland, Ohio, assignor to the Walker Company, same place. Filed Feb. 23, 1898. Serial No. 671,238. (No model.)

Claim.—1. In a controller, the combination with the controller-shaft of a collar tightly surrounding the shaft and a trough below the collar and adapted to receive water passing from it and convey it beyond the controller, substantially as described.

2. In a controller, the combination with the controller-frame, the top plate, and the controller-shaft projecting through that top plate, of a collar tightly surrounding the shaft below the top plate, and a trough below the collar adapted to receive water passing from it and convey it outside of the controller, substantially as described.

3. In a controller, the frame A, the plate *a*, the cap-block C form-

ing a portion of the bearing for the controller-shaft, said cap-block having a U-shaped groove in its upper side terminating over the plate *a*, in combination with the controller-shaft carried in such bearing and a collar tightly secured to the shaft above the bearing and having its edge over said groove, substantially as described.



4. In a controller, in combination, a frame, a plate carried thereby near its upper end, a bearing at the front of said plate, a shaft in said bearing, means for conveying water trickling down the said shaft to said plate, and an orifice leading from said plate, substantially as described.

5. In combination, the frame A, the plate *a* projecting forward from the rear side of the controller, the wall *a'* around the front and ends of said plate, the opening a^2 at the rear of said plate, a cap-block C secured at the front of said plate and forming therewith a bearing for the controller-shaft said cap-block extending rearward over said plate, a U-shaped groove on the upper side of the said cap-block, and a flaring collar surrounding the shaft and extending over said U-shaped groove at its forward side and over said plate *a* at its rear side, substantially as described.

6. The combination, in a controller, of a frame, a plate *a* carried thereby near the upper end of the frame, a top plate G above the plate *a*, a packing between said top plate and the top of the frame, a shaft journaled within the controller and projecting through said top plate, means for conveying water passing through the plate G around the shaft from the shaft to the plate *a*, and an exit-orifice for the water from said plate *a*, substantially as described.

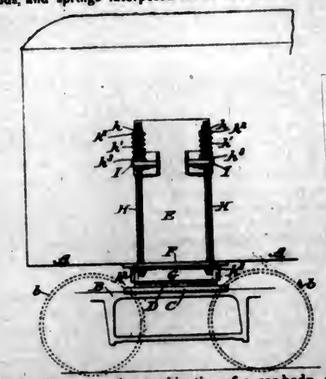
7. The combination, in a controller, of a frame A, a plate *a* projecting forward therefrom, a wall *a'* around the front and sides of said plate, a lug a^4 carried by the said plate, a top plate G secured to said lug, and packing J between said top plate and the top of the frame, a bearing carried by said plate *a*, a shaft journaled therein and projecting through said plate G, and means for conveying water trickling down the shaft from the shaft to the plate *a*, substantially as described.

605,805. RAILWAY-CAR. WILLIAM L. AUSTIN, Philadelphia, Pa., assignor to himself, George Burnham, Edward H. Williams, William P. Henneey, John H. Converse, Samuel M. Vauclain, Alba B. Johnson, and George Burnham, Jr., same place. Filed Mar. 7, 1896. Serial No. 672,534. (No model.)

Claim.—1. In a railway-car, the combination of a car-body, a truck swiveled upon a central guide, and suspension-hangers connected to said central guide and to the floor of the car-body and by which said body is supported from said truck.

2. In a railway-car, the combination of a car body, a truck, a support resting centrally upon said truck and projecting through and above the floor of the car-body and suspension-hangers connected at their upper ends to said support and carrying the car-body at their lower ends.

3. In a railway-car, the combination of a car-body, a truck, a support resting centrally upon said truck and projecting through and above the floor of the car-body, suspension-hangers connected at their upper ends to said support and carrying the car-body at their lower ends, and springs interposed between said hangers and the support.



4. In a railway-car, the combination of a car-body, a truck, a support resting centrally upon said truck, suspension-hangers connected to said support and carrying the car-body, and ball-joint bearings interposed between the support and the hangers and between the hangers and the car-body.

5. In a railway-car, the combination of a car-body, a truck, a support resting on said truck, a plate secured to the car-body and having a collar to fit about the support, suspension-hangers connected at their upper ends to said support and at their lower ends to said plate, the contact-surface of said collar being rounded.

6. In a railway-car, the combination of a car-body, a truck, a boiler resting on said truck, and suspension-hangers connected to said boiler and carrying the car-body.

7. In a railway-car, the combination of a car-body, a truck, a boiler resting on said truck, suspension-brackets secured to said boiler, and suspension-hangers connected to said brackets and supporting the car-body at their lower ends.

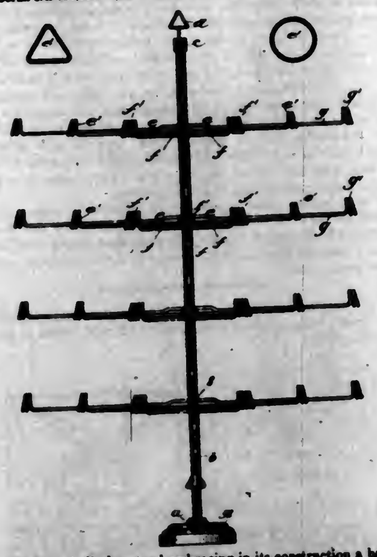
605,806. ADJUSTABLE FURNITURE. GABRIEL A. BOSSICK, Boston, Mass. Filed Dec. 26, 1896. Serial No. 616,963. (No model.)



Claim.—1. An adjustable support or standard for furniture, comprising a lower member adapted to be rigidly secured to the floor, a movable member adapted to be secured to the article of furniture and sliding on the fixed lower member, the adjacent faces of said members being parallel to the direction of adjustment of the furniture, a clamping device between which and the member of the standard to which it is attached the other member is locked, said latter member being wedge shaped, and means to prevent movement of the said member opposite to the direction of taper of the wedge, substantially as described.

2. An adjustable support or standard for furniture, comprising a lower member adapted to be rigidly secured to the floor, a movable member adapted to be secured to the article of furniture and sliding on the fixed lower member, the adjacent faces of said members being parallel to the direction of adjustment of the furniture, a clamping device between which and the member of the standard to which it is attached the other member is locked, said latter member being wedge-shaped and having a toe or projection thereon, and a vertical series of teeth formed on the fixed member, engagement of the toe with a tooth preventing displacement of the movable member opposite to the direction of taper of its wedge, substantially as described.

605,807. DISPLAY-STAND. GEORGE H. DURGIAN, Lawrence, Mass., assignor to Elizabeth Rogers, Lynn, Mass. Filed Mar. 17, 1897. Serial No. 627,868. (No model.)



Claim.—A display-stand embracing in its construction a base, a standard extending up from the base, radial arms *c*, *f*, *g*, screwed at their inner ends into the standard and provided on their outer ends with clip-coils, the shank of the arms *c* extending through the clip of the arm *f*, and the shank of the arm *g* extending through the clips of the arms *c* and *f*, as set forth.

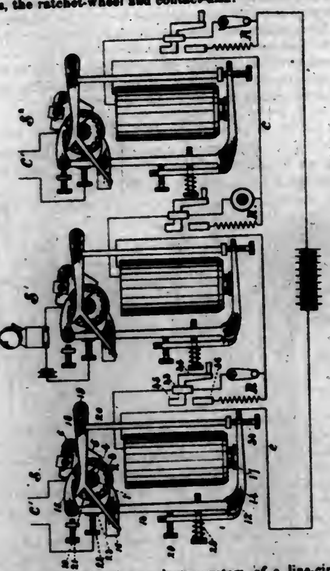
605,808. CYCLIST'S POUCH. PERCY W. DEACON and ADOLF TIEPE, Manchester, England. Filed Dec. 20, 1896. Serial No. 617,436. (No model.) Patented in England June 12, 1896, No. 13,056.



Claim.—A cyclist's pouch consisting of and comprising an oblong strip of leather forming the outer part of the pouch, a transverse strip sewed thereon in such a manner as to produce a pocket between the two strips, holders or receptacles on the transverse strip such as *c c'* and D, flaps on the transverse strip to fold over said holders, and a pocket E formed on the lower part of the outer oblong strip which folds over at each end above the flaps of the transverse strip, together with straps and buckles for securing the pouch and for attaching it to the machine.

605,809. ELECTRIC SELECTOR SYSTEM. THOMAS C. DRAKE, Malta, Ohio. Filed Feb. 26, 1897. Serial No. 624,260. (No model.)

Claim.—1. The combination of a series of step-by-step mechanisms and a series of restoring mechanisms at a series of stations respectively, means for moving the series of stepping mechanisms to a predetermined position by an intermittent current, and means for operating the restoring mechanism to return the parts to normal by a current of greater strength than the intermittent current, the stepping and unison mechanisms comprising a magnet, angle-lever and armature, the vertical lever and pawls, the stress-spring to combine the levers, the ratchet-wheel and contact-disk.



2. The combination in a selector system, of a line-circuit connecting a series of step-by-step and restoring mechanisms at a series of stations respectively, an operating-battery located in said circuit, a series of contact-cranks, and a series of switches located at said stations by means of which the said circuit may be opened and closed, and the current pulsated through the mechanisms, means located at each station, by which the normal current in the line-circuit may be diminished when it is desired to step the mechanisms, and restored when it is desired to restore the mechanisms, the step-by-step and restoring mechanisms comprising the ratchet-wheel, levers and pawls, to rotate the contact-disk when pulsating the diminished current, the contact-disk and contact-screw to close the signaling-circuit at a predetermined position of rotation of said series of mechanisms, the bifurcated lever operated by the said normal current to disengage the pawls, and the segment-gear to return the ratchet-wheel and contact-disk to normal position on operating the restoring mechanisms to reset the system.

3. The combination with vertical lever 13, the angle-lever and armature, the contact-screw 22, insulated therefrom, of the retractile spring 24, in electrical connection with said contact-screw, and insulated from said levers to form a conductor for circuit C', substantially as specified.

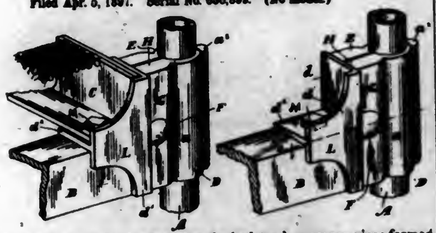
4. In a selector system, the combination of the electromagnet and armature, the vertical lever to step the ratchet-wheel, the angle-lever, stress-spring and suitable adjustments, the shaft 1, ratchet-wheel 2, contact-disk 3, pinion-gear 4, the pointer 7, the weighted segment-gear to return the revolving parts to normal position, the bifurcated lever and its lifting-rod to disengage the pawls from the teeth of the ratchet-wheel, the contact-screw 22, and contact-segment of disk 3, to close the circuit C', substantially as specified.

5. In a selector system the combination at each station of the face plate and pointer, the ratchet-wheel, pawls and lever to step the contact-disk, the contact-disk and contact-screw to close the circuit C', the bifurcated lever and lifting-rod operating through the influence of the electromagnet to disengage the pawls, the pinion-gear and segment-gear to return the pointer, ratchet-wheel and contact-disk to normal position, the electromagnet, angle-lever and armature operating under the influence of the diminished current to step the ratchet-wheel, and operating under the influence of the normal current to disengage the pawls from the teeth of the ratchet-wheel, the stress-spring and its adjusting-screw, the resistance to diminish the current, and means of keeping said resistances normally out of circuit, substantially as set forth.

6 In a selector system, the combination of a plurality of devices connected in series with suitable source of current, each of said de-

vices consisting of an electromagnet and armature, a shaft carrying a ratchet-wheel, contact-disk, pointer and pinion-gear, the angle-lever, vertical lever and strem-spring with its adjustments, pawls carried on said vertical lever to step said ratchet, a contact carried by said vertical lever to make contact with said disk, a bifurcated lever to disengage the said pawls from the teeth of said ratchet-wheel, a weighted segment-gear meshing with said pinion-gear to return said ratchet-wheel, contact-disk and pointer to normal position, a resistance located at each of said devices to diminish the current in circuit C, for the purpose specified, and means as described to make the current intermittent through the system.

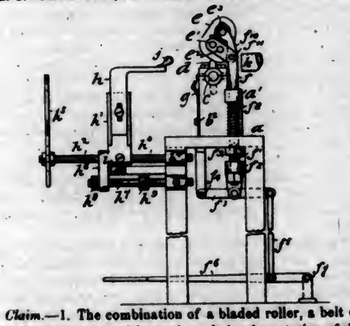
605,810. CORNER-PIECE FOR BEDSTEADS. FREDERICK EAGON, Chicago, Ill., assignor of one-third to Herman Holmagel, same place. Filed Apr. 5, 1897. Serial No. 630,899. (No model.)



Claim.—1. In a corner-piece for bedsteads, a corner-piece formed like an angle-iron, having flanges *d*, *d'*, seat d^3, lug K', hook K, in combination with a clamp composed of two jaws having flanges G, G, curved parts D, E; part D having a flange d^4 and part E having channel d^5, into which flange d^4 of part D, fits, and interlocks and bolt connection F, the corner-piece being detachably connected to the said clamp, as set forth.

2. In a corner-piece for iron bedsteads, angle-iron L formed substantially as set forth and hook K, in combination with the sides and ends of the bedstead; and a clamp connected to the iron bed-post, the clamp being composed of the interlocking jaws D and E, bolt F, the bolt F connecting the jaws D and E, the hook K on the corner-iron engaging the bolt F, all combined and operating as set forth.

605,811. PLUCKING-MACHINE. ISIDOR DRESSNER, Brooklyn, N. Y. Filed Dec. 24, 1897. Serial No. 663,297. (No model.)



Claim.—1. The combination of a bladed roller, a belt of elastic material which is moved intermittently by the rotation of the blades of said roller, and rollers supporting the said belt and arranged to cause the said blades to bear against the belt with a gradually-increasing pressure during the time they roll in contact together, substantially as described.

2. The combination of a bladed roller, a belt of elastic material which is moved intermittently by the rotation of the blades of said roller, and rollers supporting the said belt, one of said rollers being arranged above the shaft of the bladed roller in a perpendicular line therewith, and another of said rollers being arranged in closer proximity to the blades than the latter, whereby as the blades rotate they will engage the belt and compress it gradually from the time they are in line with the first-mentioned roller until they are in line with the last-mentioned roller, substantially as described.

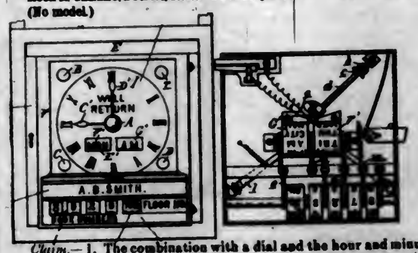
3. The combination of a bladed roller, an elastic belt and rollers supporting the same, said rollers comprising an inner perforated tubular oil receptacle secured by set-screws in supports and an outer sleeve fitted to rotate on the said inner tube between the sides of the supports, one of said rollers being adjustable toward or from the other rollers and provided with collars to tighten and retain the belt in position, substantially as described.

4. In combination, a bed-plate, standards erected thereon, a bladed roller mounted in said standards; an elastic belt supported by rollers and coöperating with said bladed roller; vertically-adjustable standards for carrying the belt-supporting rollers, secured in bearings formed in the bed-plate and united by a cross-bar; springs controlled by stop-nuts to press the standards upwardly; a foot-lever adapted to move the same downwardly, and a supporting-roller for the skin mounted in an arm secured to one side of a sliding carriage and open to admit skins sidewise around its free end, substantially as described.

5. In combination, a bladed roller, an elastic belt cooperating with said roller, a carriage comprising two slide-rods united by a cross-bar and working in fixed bearings; arms secured to said slide-rods and adapted to slide on stationary rods provided with adjustable stops; a spring to move the carriage in one direction, and a skin-supporting roller mounted on the free end of an arm secured to one of the said slide-rods, substantially as described.

6. A bladed roller consisting of two collar portions between which extend arms to which blades are secured, said blades being formed with a concave recess along their outer edges in which are placed rods of elastic material inclosed by a flexible cover, substantially as described.

605,812. ILLUMINATED CLOCK-DIAL FOR INDICATORS, &c. ROCH R. GARBAU, Detroit, Mich. Filed May 26, 1897. Serial No. 638,186. (No model.)



Claim.—1. The combination with a dial and the hour and minute hands thereof, of hollow arbors carrying the hands, a hollow tube stationarily secured within said arbors, an incandescent lamp supported by said tube and an electric conductor connecting said lamp with the source of electricity, and a switch for controlling the lamp.

2. In an indicator, the combination of the frame or casing, a clock-dial provided with indicator-hands and with openings in the dial-indicator, rollers in said opening, and setting devices for said indicator-hands and rollers operated by buttons located on the face of the dial in proximity thereto, a miniature electric lamp mounted on the clock-face in the axial center of the indicator-hands and a transparent curtain supported in front of the clock-dial.

3. In an indicator, the combination with a primary indicating means, and a light therefor, of a supplemental indicator movably held in relation to the primary indicator and arranged in front thereof and of the light and adapted to be moved to expose the primary indicator, substantially as described.

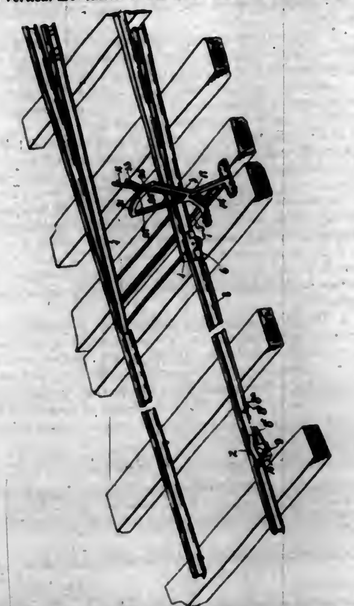
4. In an indicator, the combination with a clock-dial, of indicating-hands, mechanism for imparting to said hands the proper relative movement provided with an operating device located in front of the clock-dial, an indicating-roll mounted in proximity to said dial and adapted to be seen through the latter, and means in front of the dial for setting said roller, substantially as described.

5. In an indicator, the combination with a clock-dial, and index-hands, of hollow arbors for the hands, means for rotating said arbors to impart the proper relative movements to the hands, an electric light located at the front or outer end of the arbors, and a support and conductors for the light passing through said arbors.

6. The combination with a clock-dial and the hour and minute hands thereof, of a hollow arbor carrying the minute-hand, electric conductors passing through said hollow arbor, and an incandescent lamp connected to and supported by said conductors in the center of the dial independent of the minute-hand and its arbor, substantially as described.

605,818. AUTOMATIC-LEVER SWITCH. JOHN F. GAYLORD, Portsmouth, Va., assignor, by mesne assignments, of one-fourth to Meyer L. Straus, Baltimore, Md. Filed Jan. 26, 1897. Renewed Mar. 3, 1898. Serial No. 673,145. (No model.)

Claim.—1. In a railway-switch, the combination with pivoted switch-rails, of a pivoted switch-lever connected to said rails and adapted to be moved vertically upon the operation of the switch, a projection mounted upon said switch-lever and adapted to lock in suitable notches on the switch-stand but be disengaged from the same upon the vertical movement of said lever, substantially as described.



2. In a railway-switch, the combination with pivoted switch-rails, of a trip mounted in proximity to one of the main rails and connected to said pivoted rails, a pivoted switch-lever connected to said movable rails and adapted to move vertically upon the operation of the switch, a switch-stand, an inclined strip mounted on said stand, a projection connected to the pivoted lever and adapted to rest on said inclined strip, and other projections mounted on the lever and adapted to engage notches in the switch-stand, substantially as described.

3. In a railway-switch, the combination with pivoted switch-rails, of a trip mounted in proximity to one of the main rails and connected to said pivoted rails, a pivoted switch-lever connected to said movable rails and adapted to be moved vertically upon the operation of the switch, and a projection mounted upon said switch-lever and adapted to lock in suitable notches on the switch-stand, but be disengaged from the same upon the vertical movement of said lever, substantially as described.

4. In a railway-switch, the combination with pivoted switch-rails, of a trip mounted in proximity to one of the main rails and connected to said switch-rails for operating the same, a pivoted vertically-movable switch-lever connected to said switch-rails, means for moving said lever vertically upon being operated, a stationary projection on said lever adapted to engage notches on the switch-stand, and a sliding pawl mounted on said lever and also adapted to engage notches upon the switch-stand to lock said lever in position, substantially as described.

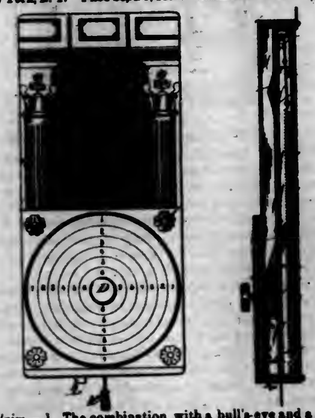
5. In a railway-switch, the combination with pivoted switch-rails, of a trip mounted in proximity to one of the main rails and connected to said switch-rails for operating the same, a switch-stand, a switch-lever pivotally mounted in the same and capable of vertical movement, a rod connecting the movable switch-rails and said lever and provided with a laterally-projecting pin, a plate having an inclined slot in which said pin operates to raise and lower the lever, and a projection upon said lever adapted to engage notches formed on the switch-stand, substantially as described.

6. In a railway-switch, the combination with pivoted switch-rails, and a trip mounted in proximity to one of the main rails and connected to said pivoted rails, a switch-stand having inclined slots formed in the same, a switch-lever having trunnions mounted in said slots, means for moving said lever vertically upon being operated, and projections mounted upon said lever and adapted to lock in suitable notches formed in the switch-stand, substantially as described.

7. In a railway-switch, the combination with a switch-stand having a segmental upper surface, of a lever pivoted in said stand so as to be capable of vertical movement, and an antifriction-roller mounted on said lever and supporting the same in position by resting upon the upper segmental surface of the switch-stand, substantially as described.

8. In a railway-switch, the combination with pivoted switch-rails, of a trip mounted in proximity to one of the main rails and connected to said pivoted rails, a pivoted switch-lever connected to said movable rails and adapted to be moved vertically upon the operation of the switch, projections upon said lever adapted to engage notches formed in the switch-stand, but be lifted out of the same upon the vertical movement of said lever, and an antifriction-roller mounted on said lever and adapted to roll over the top of the switch-stand during the operation of throwing the lever, substantially as described.

605,814. TARGET. WILLIAM F. HOOMPETER, Jersey City, N. J., assignor to Frederick Meneenhauer, same place, and Oscar Schmidt, New York, N. Y. Filed Sept. 9, 1897. Serial No. 651,013. (No model.)



Claim.—1. The combination, with a bull's-eye and a spring-plate fixed at one end, said bull's-eye being mounted between the ends of the spring, of a movable curtain or shield, means for connecting the free end of the spring with the curtain or shield, and means for actuating said curtain or shield when the connection between the bull's-eye and the curtain is broken, substantially as set forth.

2. The combination, with a movable bull's-eye and a spring-plate fixed at one end and provided with a projecting nose or catch, said bull's-eye being fixed to the spring between the ends thereof, of a movable body provided with a pin, adapted to be engaged by said catch, and means for operating said movable body when the pin is released from said catch, substantially as set forth.

3. The combination, with a movable bull's-eye and a spring-plate carrying the same and provided with a nose or catch bent up from its free end, of a movable body or curtain provided with a projection adapted to be engaged by said nose or catch, and means for actuating the curtain when the nose or catch is disengaged from said projection, substantially as set forth.

4. The combination with a movable bull's-eye, and a spring for actuating the same, of a curtain, means for detachably connecting the curtain and the spring, a winding-up roller for the curtain, and means for operating said roller, substantially as set forth.

5. The combination with a movable bull's-eye, of a spring for actuating said bull's-eye, and means for changing the tension of said spring, substantially as set forth.

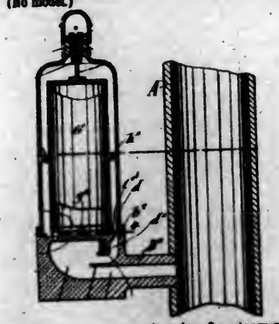
6. The combination with a movable bull's-eye, of a spring for actuating the same, and a second spring adapted to move into and out of engagement with the bull's-eye spring, substantially as set forth.

7. The combination with a box or case, having a front opening and an object behind said opening, a face plate adjacent to the opening, and a bull's-eye, the stem of which is guided in an opening in the face plate, of a movable curtain or shield adapted to cover said opening, means for connecting the bull's-eye with the curtain or shield, and means connected with the curtain or shield for actuating the same and uncovering the opening when the connection between the bull's-eye and the curtain is broken, substantially as set forth.

8. The combination with a box or case, provided with a front opening, a face plate adjacent to said front opening, a movable bull's-eye guided in the opening in the front plate, and an actuating-spring for said bull's-eye, said spring being provided with a nose or catch, of a movable curtain or shield arranged to cover said opening and

adapted to be engaged by said nose or catch, and means for raising said curtain when the nose or catch is disengaged from the same, substantially as set forth.

605,315. AUTOMATIC AIR-VALVE FOR STEAM-RADIATORS. LEONARD G. KIRK, New York, N. Y. Filed Jan. 15, 1898. Serial No. 666,782. (No model.)



Claim.—1. In an automatic air-valve for steam-radiators, the combination with a base-piece provided with suitable passages, a deflector at the upper part of the base-piece, an opening at one side of the deflector, an auxiliary deflector in said passages arranged below said opening, and a casing mounted on the base-piece above the deflector and provided at its upper end with an air-duct, of a float arranged within the casing above the said deflector, to one side of said opening and provided with a needle-valve at its upper end adapted to close said air-duct, substantially as set forth.

2. In an automatic air-valve for steam-radiators, the combination with a base-piece, provided with suitable passages, a deflector arranged in a horizontal plane at the upper part of the base-piece, said deflector having an opening at one side and provided adjacent to said opening with an upwardly-projecting lip, and a casing supported on said base-piece above said deflector and provided at its upper end with an air-duct, of a float arranged within the casing above said deflector and to one side of said lip and being provided with a needle-valve adapted to close said air-duct, substantially as set forth.

3. In an automatic air-valve for steam-radiators, the combination with a base-piece, provided with passages through the same, a casing arranged on the base-piece, and provided with an air-duct at its upper end, and baffle-plates projecting inwardly from the inner surface of said casing, of a float arranged in said casing and guided by said baffle-plates in its up-and-down motion, said float being provided with a needle-valve adapted to close said air-duct, substantially as set forth.

605,316. WHEELBARROW. RENUS A. KNEELAND, Benton Harbor, Mich. Filed Apr. 3, 1896. Serial No. 586,004. (No model.)



Claim.—1. The combination with a wheelbarrow: of an auxiliary wheel B; a frame composed of side pieces C, secured to the axle of said wheel; and having notches at their upper ends; cross-bar H, between the side pieces C, above the said wheel B; arms D, D, pivoted to the axle at each side of the wheel extending upwardly and forwardly and pivotally connected to the handles of the wheelbarrow; loop-guides G, G, on the handles of the wheelbarrow for receiving the side pieces C, C, and engaging the ratchet-notches thereon; levers E, E, pivoted to the handles of the wheelbarrow positioned to act upon the side pieces C, C, and throw them out of engagement with the guides G, all coacting together substantially as described for the purpose specified.

2. The combination with a wheelbarrow: of an auxiliary wheel B; a frame composed of side pieces C, secured to the axle of said wheel; and having notches in their upper ends; arms D, D, pivoted to the axle at each side of the wheel extending upwardly and forwardly and pivotally connected to the handles of the wheelbarrow; loop-guides G, G, on the handles of the wheelbarrow for receiving the side pieces C, C, and engaging the ratchet-notches therein; levers E, E, pivoted to the handles of the wheelbarrow positioned to act upon the side pieces C, C, and throw them out of engagement with the guides G, all coacting together substantially as described for the purpose specified.

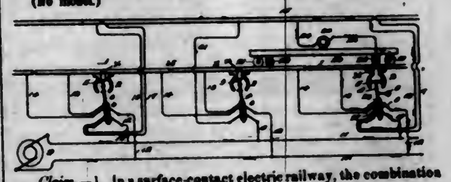
3. The combination in a wheelbarrow of an auxiliary rear wheel; bars D, D, pivoted to said wheelbarrow and extending downwardly and rearwardly and connecting to the said auxiliary wheel and arms C, C, extending upwardly said wheel; and suitable means of adjustably connecting the same to the handle of the wheelbarrow to adjust the same to any height desired as specified.

4. The combination of a wheelbarrow of an auxiliary wheel downwardly and rearwardly extending bars pivotally connecting said wheel and wheelbarrow together; loop-guides on the handle of said wheelbarrow; upwardly-extending bars from said wheel having ratchet-notches to engage the loop-notches on the handles; and levers E, pivoted to the handles to throw said ratchet bars out of engagement for the purpose specified.

5. In an attachment for a wheelbarrow, a wheel B, with side pieces D, D and C, C, pivotally secured to the axle thereof; and suitable means of securing the opposite ends of said sides to the barrow as specified.

6. The combination of a wheelbarrow; an auxiliary wheel to the rear of said wheelbarrow; a frame for carrying said rear wheel freely movable vertically in relation to the handles of said wheelbarrow, a suitable ratchet connection for securing said rear wheel automatically to the handles of the wheelbarrow to control the height of the handles as they are raised, and means of releasing the ratchet connection to permit the handles to be lowered with relation to the rear wheel for the purpose specified.

605,317. ELECTRIC-RAILWAY SYSTEM. WILLIAM LAWRENCE, New York, N. Y., assignor to the Universal Surface Electric Railway Company, of West Virginia. Filed Dec. 1, 1897. Serial No. 660,348. (No model.)



Claim.—1. In a surface-contact electric railway, the combination of a moving vehicle, field-magnet poles located between the tracks at suitable intervals, an armature mounted for movement between the faces of each pair of poles, and a magnet carried by the moving vehicle supplying a magnetic flux to the field-poles for moving the armature.

2. The combination of feeder-rail sections, pole-pieces upon each of said sections, an armature pivoted at its center and disposed between the adjacent ends of said pole-pieces normally at right angles to said sections, wire connections, and a source of energy, whereby the armature is caused to swing into line with said sections and find its relative poles.

3 The combination of feeder-rail sections, pole-pieces upon said sections, an armature hung between said pole-pieces, and means for energizing said sections, whereby the armature is caused to swing into line with said sections.

4. The combination of a sectional track-rail, feeder-rail sections, pole-pieces upon said sections, an armature pivotally hung between said pole-pieces, an oscillating shaft upon which the armature is hung, means for normally holding the armature at right angles to said sections, switch-pieces upon said shaft and oscillating therewith, fixed switch-pieces, wires leading from the switch-pieces to adjacent sectional track-rails, a source of electrical energy, and wires leading therefrom to the oscillating switch-pieces upon the armature-shaft.

5. The combination of feeder-rail sections, pole-pieces upon said sections, a centrally-pivoted armature hung between said poles, an oscillating shaft upon which the armature is hung, a switch-piece upon the shaft, wire connections, a source of energy for energizing the feeder-rail sections and causing the armature to find its relative poles and actuate the switch, and a car carrying a motor and a current-collector.

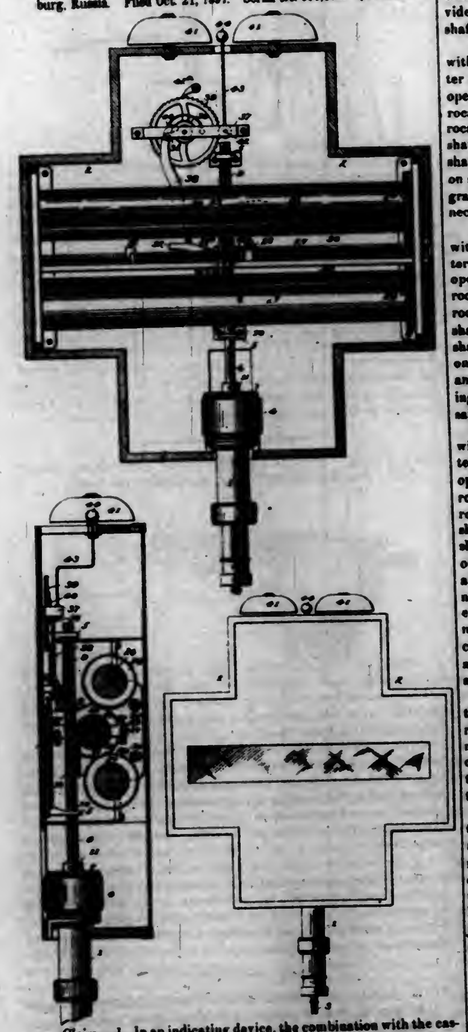
6. In an electric-railway system the combination of a junction-box having a top provided with a cover and a seat for the feeder-section, an oscillating shaft mounted therein carrying an armature and a switch, and a secondary box within the junction-box inclosing the switch.

7. In an electric-railway system, a junction-box having a seat for a feeder-rail extending longitudinally across one side of the same, a secondary box within the junction-box inclosing a switch mechanism, and a removable cover for the junction-box.

8. A junction-box for surface-contact railways provided with a seat at one side for the surface contact, a cover-plate alongside thereof, and having a removable secondary switch-box within the junction-box, a shaft within the secondary switch-box carrying a switch, and extending out across the junction-box and carrying an armature.

9. A junction-box for surface-contact railways provided with a seat at one side for the surface contact, a cover-plate alongside thereof, a secondary switch-box within the junction box having a removable cover lying under the removable cover of the junction-box; a shaft extending across the junction-box and through the secondary box, having a switch within the secondary box, and an armature within the junction-box.

605,318. STATION-INDICATOR. OSSEME LEDOWSKY, St. Petersburg, Russia. Filed Oct. 21, 1897. Serial No. 656,112. (No model.)



Claim.—1. In an indicating device, the combination with the casing and with a revoluble roll or rolls journaled therein and carrying the matter of indication, of a revoluble horizontal shaft journaled in said casing and operatively connected with said roll or rolls, a longitudinally-reciprocatory vertical rack-carrying rod also mounted in said casing means for operating said reciprocatory rod, a pinion loosely mounted on said shaft and engaging the rack on said rod, a pair of reversely-disposed laterally-movable ratchet-wheels arranged one on each side of said pinion and keyed on the shaft, pawls carried by said pinion and adapted to alternately engage said ratchet-wheels, and automatic means for throwing said pawls into engagement with said ratchet-wheels, substantially as described.

2. In an indicating device, the combination with the casing and with a revoluble roll or rolls journaled therein and carrying the matter of indication, of a revoluble horizontal screw-threaded shaft journaled in said casing, intermeshing gears mounted on said rolls and the shaft, a longitudinally-reciprocatory vertical rack-carrying rod also mounted in said casing, means for operating said reciprocatory rod, a pinion engaging the rack of said shaft, a pawl carried on each face of said pinion, a laterally-movable sleeve keyed on the shaft, constituting the journal for said pinion and provided at its ends with reversely-disposed ratchet-wheels, and a pair of adjustably-connected brackets mounted on said shaft, the one loosely and the other provided with internal screw-threading engaging the threading of said shaft, substantially as described.

3. In an indicating device, the combination with the casing and with a revoluble roll or rolls journaled therein and carrying the matter of indication, of a revoluble shaft journaled in said casing and operatively connected with said roll or rolls, a longitudinally-reciprocatory rod mounted in said casing, means for operating said reciprocatory rod, means for transmitting motion from said rod to said shaft, automatic means for reversing the direction of rotation of said shaft, an arm carried by said reciprocatory rod, a pair of bells mounted on said casing, a hammer for said bells trunnioned in said casing and gravity-actuated means for operating said hammer operatively connected with said arm, substantially as described.

4. In an indicating device, the combination with the casing and with a revoluble roll or rolls journaled therein and carrying the matter of indication, of a revoluble shaft journaled in said casing and operatively connected with said roll or rolls, a longitudinally-reciprocatory rod mounted in said casing, means for operating said reciprocatory rod, means for transmitting motion from said rod to said shaft, automatic means for reversing the direction of rotation of said shaft, an arm carried by said reciprocatory rod, a pair of bells mounted on said casing, a vertical elastic hammer trunnioned in said casing and situated between the bells, a toothed wheel journaled in the casing and engaging said hammer and operative connection between said toothed wheel and the arm, substantially as described.

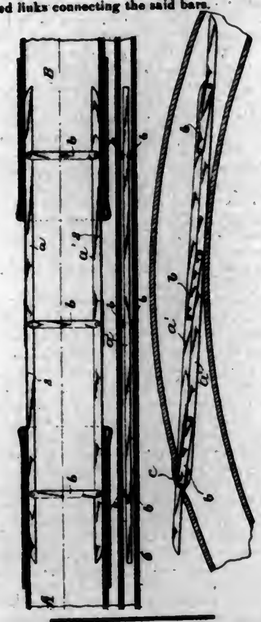
5. In an indicating device, the combination with the casing and with a revoluble roll or rolls journaled therein and carrying the matter of indication, of a revoluble shaft journaled in said casing and operatively connected with said roll or rolls, a longitudinally-reciprocatory rod mounted in said casing, means for operating said reciprocatory rod, means for transmitting motion from said rod to said shaft, automatic means for reversing the direction of rotation of said shaft, an arm carried by said reciprocatory rod, a pair of bells mounted on said casing, a vertical elastic hammer trunnioned in said casing and situated between the bells, a toothed block mounted on the trunnion for said hammer, a toothed wheel journaled in the casing and engaging the toothed block of said hammer, a ratchet-wheel journaled concentrically with said toothed wheel, a spring actuated pawl carried by said toothed wheel and engaging the ratchet-wheel, and a system of gravity-actuated levers connected to said ratchet-wheel and adapted to be engaged by said arm, substantially as described.

6. In an alarm mechanism for an indicating device, the combination with the case for said device and with a vertically-reciprocatory rod mounted therein, of an arm carried by said rod, a pair of bells mounted on said casing, a vertical elastic hammer trunnioned in said casing and situated between the bells, a toothed wheel journaled in the casing and engaging said hammer and operative connection between said toothed wheel and the arm, substantially as described.

7. In an alarm mechanism for an indicating device the combination with the case for said device and with a vertically-reciprocatory rod mounted therein, of an arm carried by said rod, a pair of bells mounted on said casing, a vertical elastic hammer trunnioned in said casing and situated between the bells, a toothed block mounted on the trunnion for said hammer, a toothed wheel journaled in the casing and engaging the toothed block of said hammer, a ratchet-wheel journaled concentrically with said toothed wheel, a spring-actuated pawl carried by said toothed wheel and engaging the ratchet-wheel, and a system of gravity-actuated levers connected to said ratchet-wheel and adapted to be engaged by said arm, substantially as described.

605,319. APPARATUS FOR SECURING ENDS OF BICYCLE-TIRES. RICHARD A. LEIGH, Boston, Mass., assignor, by mesne assignments, to the Consolidated Rubber Works, same place. Filed Oct. 4, 1897. Serial No. 653,981. (No model.)

Claim.—As a means for holding the separated ends of a tire in the process of construction, a collapsible holder comprising parallel bars and pivoted links connecting the said bars.



605,820. COMPOSITION FOR REMOVING BOILER INCRUSTATIONS. GEORGE LINDE, Omaha, Nebr. Filed Jan. 6, 1898. Serial No. 666,096. (No specimens.)

Claim.—The herein-described compound, consisting of gallic powder, sal-ammoniac, soda, salt, acetic acid, catechu, and Irish moss, in about the proportions stated.

605,821. OILER. JOHN LEES, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed July 24, 1897. Serial No. 645,755. (No model.)



Claim.—1. An oiler, comprising a liquid-receptacle, a detachable closer therefor, a longitudinally-shifting spout guided by said closer, a pin within said liquid-receptacle projecting into said spout, and extending to a point above the limit of outer movement of the lower end of the spout, and a recess in the side of said pin toward its upper end, the spout and pin forming an oil-tight joint when the spout is pushed inwardly beyond said recess said pin assisting in holding the spout in the latter's outermost position.

2. An oiler, comprising a liquid-receptacle, an extensible spout therefor guided in a detachable closure at one end of said liquid-receptacle, a stuffing-box at the inner end of said spout, a stationary pin within said liquid-receptacle projecting through said stuffing-box and into the spout, the length of said pin being sufficient to project beyond the limit of outer movement of said stuffing-box, and a recess in the side of said pin whereby the liquid may be ejected from said receptacle through said spout when the latter is moved to its outer limit.

3. In an oiler having a longitudinal extensible spout, a curved nozzle end, a stop to limit the inward movement of said spout, comprising a pin held within said receptacle, projecting up into said spout and engaging the bent end of the spout when the same is moved to its inward position.

4. In combination, an oil receptacle, an extensible nozzle, a pin in said receptacle having a reduced upper end and entering said nozzle when in its extended position, said reduced upper end engaging and holding said nozzle in said nozzle's extended position but allowing oil to then pass by said reduced portion.

5. In an oiler, in combination, a receptacle for oil, an extensible nozzle, a pin in said receptacle having part of its periphery at its upper end cut away, and extending into said nozzle at all times, said nozzle closely fitting the periphery of said pin at all times and aiding in retaining said nozzle in its extended position, but allowing oil to pass at the point where said periphery is cut away.

6. In an oiler, in combination, an oil-receptacle, an extensible hollow nozzle, a pin in said receptacle extending into said nozzle and closely fitted as to its periphery by said nozzle, said nozzle, in its extended position, fitting said pin and partially held in this position thereby but uncovering a passage in said pin for oil to flow from said receptacle.

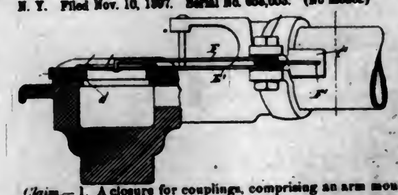
605,822. GRAIN-DRILL. JOHN F. MONTGOMERY and WILLIAM T. BERRY, Cocsawattee, Ga. Filed Mar. 14, 1898. Serial No. 673,819. (No model.)



Claim.—1. A grain-drill having, in combination, a standard, a furrow-forming shoe carried thereby, and a pair of fender strips or blades secured at their front ends to the heel end of the standard and having their rear ends flared outwardly and upwardly on a gradually-increasing curve from the lower to the upper edges thereof, substantially as described.

2. A grain-drill having, in combination, a standard, a furrow-forming shoe carried thereby, a lug on the heel end of the standard formed with parallel sides and a transverse bolt-hole, vertical fender-carrying strips arranged on the opposite sides of the lug and formed with longitudinal slots, a bolt passing through said slots and transverse hole in the lug and securing the strips to said lug, and a pair of fender-plates secured at their front ends to said strips and extending rearwardly therefrom, said plates being flared outwardly and upwardly at their rear ends on a gradually-increasing curve from the lower to the upper edges thereof, substantially as described.

605,823. CLOSURE FOR COUPLINGS. JOSEPH MUHR, Dunkirk, N. Y. Filed Nov. 10, 1897. Serial No. 658,053. (No model.)



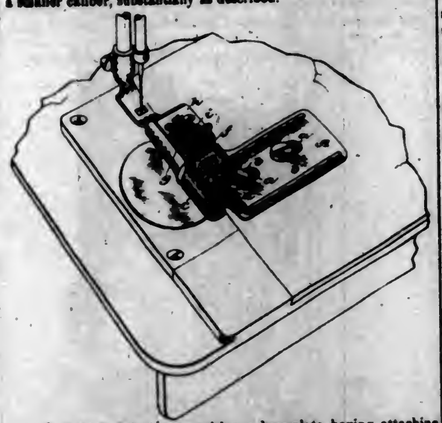
Claim.—1. A closure for couplings, comprising an arm mounted to swing, and formed with a cap, a spring for pressing against the said cap, and an upwardly-turned flange on the said cap, for moving the latter out of engagement with the face of the coupling, substantially as shown and described.

2. A closure for hose-couplings, the closure comprising a cap mounted to swing edgewise toward and from the coupling member to command the mouth thereof, the cap having a downwardly-projecting flange engaging the coupling member to limit the movement of the cap and the cap also having an upwardly-projecting flange adapted to be engaged by the companion coupling member to push the cap out of place.

3. A closure for couplings, the closure comprising a cap mounted to swing edgewise toward and from the coupling members to command the mouth thereof, the cap having an upwardly-projecting flange capable of being engaged by one of the coupling members as the two members are moved to connection, whereby the cap is moved edgewise out of active position.

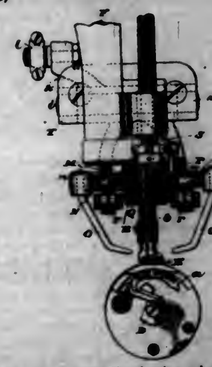
605,824. FOLDING-GUIDE FOR SEWING-MACHINES. LORENZ MUTHER, Oak Park, Ill., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Feb. 10, 1898. Serial No. 670,726. (No model.)

Claim.—1. A folding device comprising a base-plate having attaching means and carrying a folding-guide, and a supplemental guide hinged to the main guide and having its guiding-channel when in operative position in longitudinal alinement with the guiding-channel of the main guide and being of the same character as the latter, but of a smaller caliber, substantially as described.



2. A folding device comprising a base-plate having attaching means and carrying a folding-guide, a plate removably secured to said folding-guide, a supplemental guide hinged to said plate and having its guiding-channel when in operative position in longitudinal alinement with the guiding-channel of the main folding-guide, substantially as described.

605,825. SEWING-MACHINE. LORENZ MUTHER, Oak Park, and ELIAS C. HOLLAND, Austin, Ill., assignors to The Union Special Sewing Machine Company, Chicago, Ill. Filed Feb. 28, 1898. Serial No. 672,009. (No model.)



Claim.—1. A sewing-machine having a bed-plate, a feeding device working longitudinally thereof, stitch-forming mechanism including a looper-shaft arranged longitudinally of the bed-plate and having a reciprocating and oscillating movement therein, a looper on said shaft, a plurality of vertically-arranged needles, and a set of thread or cord guiding devices, reciprocating back and forth across the longitudinal axis of the bed-plate and depositing threads or cords in position to be secured to the fabric by the rows of stitching, substantially as described.

2. A sewing-machine having a bed-plate, a feeding device working longitudinally thereof, stitch-forming mechanism which includes a looper-shaft having a reciprocating and oscillating movement in the bed-plate, a vertically-arranged needle, a rocking shaft arranged transversely of the bed-plate and above the same and a set of thread-carrying devices operatively connected with the rocking shaft and adapted to reciprocate across the longitudinal axis of the bed-plate, with means for rocking said shaft, substantially as described.

3. A sewing-machine comprising a main shaft, a gear-wheel thereon, a gear-wheel in mesh therewith arranged on an axis parallel with the axis of the main shaft, a rocking crank-frame with its axis also parallel with the axis of the main shaft, universal-joint connections between the second gear-wheel and the rocking crank-frame, thread-carrying fingers, a connecting-rod between the fingers and the rocking crank-frame universally jointed at each end respectively to said frame and fingers; substantially as described.

4. A sewing-machine having a suitable head, a lug thereon, a sleeve secured in said lug, angle-arms with thread-carrying fingers secured at their outer ends and provided with collars embracing the sleeve and journaled thereon, and means for oscillating said angle-arms, substantially as described.

5. A sewing-machine having a suitable head, a lug thereon, a sleeve secured on said lug and having a head on its lower end, angle-arms with thread-carrying fingers secured at their outer ends and provided with collars embracing the sleeve and journaled thereon between the lug and the head, and means for oscillating said angle-arms, substantially as described.

6. A sewing-machine having a driving shaft a suitable head, a lug thereon, a sleeve secured in said lug, angle-arms with thread-carrying fingers secured at their outer ends and provided with collars embracing the sleeve and journaled thereon, said angle-arms being provided with downwardly-extending ball-studs, connecting-rods secured thereto, a rocking crank-frame arranged to swing on an axis transverse to the axis of the machine-frame and having ball-stud connections with the said connecting-rods, and connections between the rocking crank-frame and the driving shaft; substantially as described.

7. A sewing-machine comprising a driving shaft, a suitable stitch-forming mechanism and an overhanging frame or gooseneck, a bracket secured upon said frame or gooseneck, said bracket having downwardly-extending lugs, a pin or rod *i* secured to said lugs, a crank-frame sleeved on said pin or rod and having downwardly-extending arms *n* and an upwardly-extending lug or arm *k*, a connecting-rod attached to the arm *k* and connections between said connecting-rod and the driving-shaft for oscillating the crank-frame, connection-rods, as *q*, operatively connected with the downwardly-extending arms *n* and thread-carrying finger-supporting levers secured to said connection-rods *q*, substantially as described.

8. A sewing-machine having a bed plate, a feeding device working longitudinally thereof, a looper-shaft arranged longitudinally of the bed-plate and having a reciprocating and oscillating movement therein, a looper on said shaft, and complemental stitch-forming mechanism which includes a device reciprocating back and forth across the longitudinal axis of the bed-plate to make a cross-stitch; substantially as described.

605,826. TROLLEY CONNECTION FOR ELECTRIC CARS. JOHN G. MCLAUGHLIN, Brooklyn, N. Y., assignor of one-half to Robert W. Gleason, same place. Filed Dec. 28, 1897. Serial No. 663,916. (No model.)



Claim.—1. The combination of the trolley-pole P, the swinging frame 3 having cheeks 3^a extending upward above and beyond the extremity of the trolley-pole, and the wheel 6 mounted between the upwardly-projecting cheeks 3^a of the swinging frame as set forth.

2. The combination of the trolley-pole P, the swinging frame 3 pivoted to the trolley-pole near its extremity, the sliding frame 4 guided by the frame 3; and the trolley-wheel 6, mounted in the upwardly-projecting cheeks 4^a of the sliding frame, by an axis 5, at a point above the pivot 2 by which the swinging frame is connected to the pole substantially as set forth.

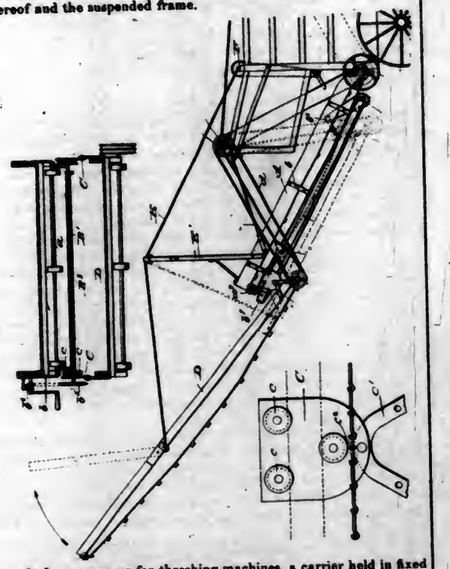
3. The combination of the trolley-pole P with the pivoted frame 3, sliding frame 4, trolley 6 running therein, the spring 7 and the trolley-rope 8, connected to the sliding frame 4, substantially as described.

605,827. FOLDABLE STRAW-CARRIER FOR THRESHING-MACHINES. ALBERT R. MCMULLEN, Lemmon, S. D. Filed Dec. 22, 1897. Serial No. 663,015. (No model.)

Claim.—1. In a conveyer for threshing-machines, the combination of a carrier attached to and supported from the threshing-machine, a frame suspended beneath said carrier, a pair of slides mounted on the suspended frame, a second carrier pivotally attached to the slides, an end section hinged to the second carrier and adapted when folded to lie over the same so that it may be housed beneath the suspended frame, substantially as shown.

2. In a conveyer for threshing-machines, a carrier held in fixed engagement with the threshing-machine, a frame suspended beneath

said fixed carrier and provided with side bars, slides having rollers for engagement with the side bars, means for moving the slides upon the side bars of the suspended frame, in combination with an adjustable carrier of greater length than the fixed carrier, the adjustable carrier being pivotally attached to the slide and provided with an end section which is hinged thereto so as to be folded upon the lower section and when so folded to be housed between the lower section thereof and the suspended frame.



3. In a conveyer for threshing-machines, a carrier held in fixed engagement with the threshing-machine, a frame suspended from said carrier, slides mounted on the side bars of the suspended frame, a second carrier pivotally attached to the slides, chains attached to the slides, a shaft with sprocket-wheels over which the chains pass, a spring attached to the shaft so as to be coiled thereon when the slides are moved toward the same and means for manually rotating the shaft, substantially as shown and for the purpose set forth.

4. In combination with a carrier-section, a frame suspended therefrom, slides mounted on said frame, a second carrier-section pivoted to the slides, of means for moving the slides on the suspended frame comprising endless chains which are connected to the slides, a shaft having sprocket-wheels over which the chains pass, means for turning the shaft and a spring attached to the shaft so as to exert a tension thereon and retard its rotation when the slides are moved toward said shaft, substantially as set forth.

5. In a straw-conveyer for threshing-machines, the combination with a fixed section, its conveyer-belt, a frame suspended from the fixed section, slides mounted on the suspended frame, chains attached to the slides, a shaft having sprocket-wheels with which the chains engage, a second carrier-section pivotally attached to the slides, a drive pulley for the conveyer-belt of the second section, a belt which passes over said pulley and a driven pulley on the threshing-machine, said belt being looped as shown, a pulley which engages with the loop of the belt and a flexible connection attached to said pulley, substantially as shown and for the purpose set forth.

6. In a straw-conveyer for threshing-machines, the combination with a fixed carrier, of a frame attached thereto, slides mounted on the frame, means for moving the slides, a pair of standards with rollers carried by the fixed carrier, an extensible conveyer-section the lower end of which is held in pivotal engagement with the slides, a flexible connection attached to the extensible conveyer, a drum mounted on the threshing-machine with which the flexible connection engages, a looped driving-belt between the threshing-machine and the extensible carrier, a pulley mounted on the looped portion of said belt and a flexible connection attached to the pulley, substantially as shown and for the purpose set forth.

605,328. PAPER-FEEDING MACHINE. JOHN F. MCNUTT, Warren, Ohio, assignor to the Harris Automatic Press Company, Niles, Ohio. Filed July 3, 1897. Serial No. 643,272. (No model.)

Claim.—1. A feeder comprising a longitudinally-movable rod, a head mounted on said rod so as to move axially thereon, and having an upper, forward edge forming a shoulder, means for adjusting said head perpendicularly to said rod and a block on the forward end of said head having its inner edge adjacent to said shoulder and tapered on its upper surface toward its outer edge, and means for adjusting said block relatively to said shoulder, substantially as set forth.



2. A feeder comprising a longitudinally-movable rod, a head mounted on said rod so as to move axially thereon and having an upper forward edge forming a shoulder, a block on the forward end of said head extended in advance of said shoulder and having its upper surface tapered, a spring interposed between said head and block exerting an upward pressure on the latter, and means for adjusting said block at its sides, substantially as set forth.

3. A feeder comprising a longitudinally-movable rod, a head mounted on said rod so as to move axially thereon and having a forward edge, means for adjusting said head perpendicularly to said rod, a block on the forward end of said head extended in advance thereof and having its upper surface inclined, and means engaging the sides of said block for adjusting and holding the same relative to the forward edge of said head, substantially as set forth.

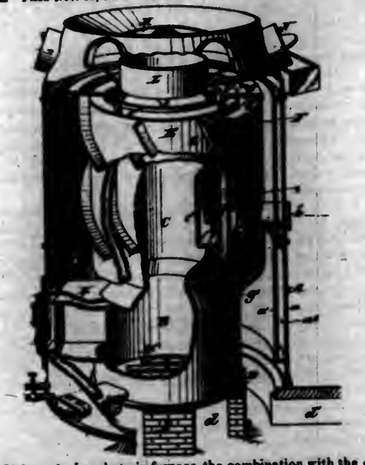
4. A feeder comprising a longitudinally-movable rod, a sleeve loose on said rod so as to move axially thereon, a head from which said sleeve extends having an upper forward edge forming a shoulder, a block on said head having an upper inclined surface, said block being extended in advance of said head, a spring interposed between said head and block exerting an upward pressure on the latter, and screws carried by said block at its sides for adjusting said block bodily or at either side, as set forth.

5. A feeder comprising a longitudinally-movable rod, a sleeve loose on said rod and having a bifurcated end a head adjustably held to said bifurcated end and having a forward edge forming a shoulder, and a block on said head capable of being raised and lowered thereon, substantially as and for the purpose stated.

6. The combination with the rod, of the head mounted on said rod having forward grooved ends and an upper forward edge forming a shoulder, a block having its upper surface inclined and formed with a longitudinal recess to accommodate said head, a spring between said head and block bearing upwardly on the latter, and screws carried by said block at its sides and engaging said head, whereby the block may be adjusted bodily or at either side, substantially as set forth.

7. The combination with the rod, of a sleeve swiveled thereon having a bifurcated end, a head having a lip, and a screw adjustably holding said lip within said bifurcated end, a block fitted on said head so as to be moved up and down thereon, said block having its upper surface inclined, a spring fitting in a recess of said block and bearing at one end against a shoulder of said head, and screws carried by said block and engaging said head for adjusting the former, substantially as set forth.

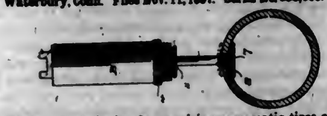
605,329. HOT-AIR FURNACE, &c. THOMAS G. NEAL, Warren, Pa. Filed Nov. 11, 1897. Serial No. 658,166. (No model.)



Claim.—1. In a hot-air furnace, the combination with the outer casing and inner heating drum, of a plurality of vertically-disposed radiators encircling said drum and each other, a plurality of deflectors circuitously arranged between said radiators, outlets connecting, respectively, the heating-drum with the adjacent radiators and the radiators with each other and an outlet connecting the outermost radiator with the chimney; said outlets being located in the lower portions of said radiators whereby to provide an indirect circulation of the products of combustion, substantially as described.

2. In a hot-air furnace, the combination with the outer casing and inner heating-drum, of a plurality of vertically-disposed radiators encircling said drum and each other, a plurality of deflectors circuitously arranged between said radiators, outlets connecting, respectively, the heating-drum with the adjacent radiator and the radiators with each other and an outlet connecting the outermost radiator with the chimney, said outlets being located in the lower portions of said radiators, and vertical partitions in each radiator located between the inlet and outlet openings thereof, substantially as described.

605,330. DEVICE FOR REPAIRING PNEUMATIC TIRES. PHILO NEWELL, Oakville, Conn., assignor of one-half to Frederick J. Wooster, Waterbury, Conn. Filed Nov. 11, 1897. Serial No. 658,165. (No model.)



Claim.—1. A device for repairing pneumatic tires comprising a hub threaded at each end and having at one end a stem threaded at its outer end, and a shell adapted to engage the other end of the hub and to serve as a magazine, substantially as shown, for the purpose specified.

2. A device for repairing pneumatic tires comprising a hub threaded at each end and having at one end a stem threaded at its outer end, a shell adapted to engage the hub and inclose the stem, and a shell adapted to engage the other end of the hub and to serve as a magazine, substantially as shown, for the purpose specified.

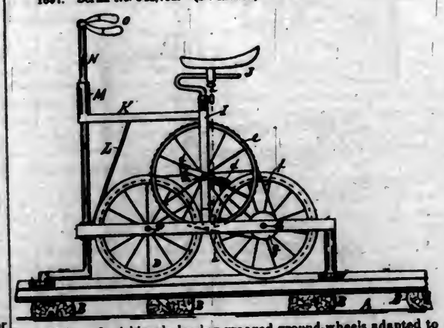
3. A device for repairing pneumatic tires comprising a hub having a circular rib and threaded at each end and having at one end a stem threaded at its outer end, a shell adapted to engage the hub and inclose the stem and having at its outer end a cutter and a shell adapted to engage the other end of the hub and to serve as a magazine substantially as shown, for the purpose specified.

4. A device for repairing pneumatic tires comprising a hub threaded at each end and having at one end a stem threaded to engage the shank of the plug, a shell adapted to engage the hub and inclose the stem and a shell adapted to engage the other end of the hub and to serve as a magazine for plugs and having at its outer end prongs adapted to engage the outer head of the plug.

5. The plug C comprising an inner head having a shank formed integral therewith and threaded internally and externally and an outer head threaded to engage the external thread upon the shank.

6. A device for repairing pneumatic tires comprising a hub threaded at each end and having at one end a threaded stem, a shell adapted to engage the other end of the hub and serve as a magazine for plugs and having at its outer end prongs and a plug consisting of an inner head and a shank internally threaded to engage the stem and externally threaded to engage an outer head which is itself adapted to be engaged by the prongs.

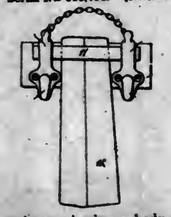
605,331. BICYCLE. CARL F. NILSON, Gile, Wis. Filed June 21, 1897. Serial No. 641,732. (No model.)



Claim.—1. A bicycle having grooved ground-wheels adapted to ride on a rail, a frame supported by said wheels and having horizontal motion to either side, guiding-rollers mounted on horizontally-swinging arms and touching the sides of the rail, said arms being operatively connected with a pair of handles within easy reach of the rider, substantially as and for the purpose set forth.

2. In a bicycle, the combination of a suitable frame, a pair of grooved ground-wheels carrying same, and being adapted to run on a rail and having lateral motion in direction of their shafts, a crank-shaft mounted in the frame and geared to one of the ground-wheels, a seat for the rider, mounted on said frame, a pair of handles for the rider to have hold of and horizontally-swinging arms operated by said handles and carrying guide rollers adapted to touch the sides of the rail and throw the frame from side to side, substantially as and for the purpose set forth.

605,332. GARMENT-HANGER. THOMAS G OWEN, Newport, R. I. Filed Dec. 4, 1897. Serial No. 660,751. (No model.)



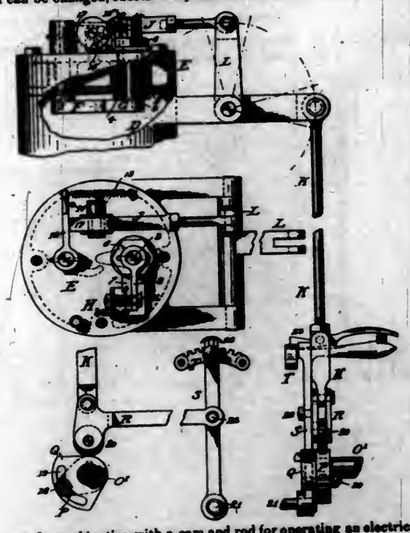
Claim.—A garment-hanger having a body and a bracket fixed thereto and provided with a forwardly projecting hook and the bracket also having a forwardly and upwardly projecting hook both hooks being adapted to carry garments and the forwardly and upwardly projecting hook being provided with a wall inclined toward the body, so that a cleat may be forced between the body and said wall.

605,333. IGNITER FOR EXPLOSIVE-ENGINES. OSCAR OWEN, San Francisco, Cal., assignor to the American Type Founders Company. Filed Nov. 27, 1896. Serial No. 613,671. (No model.)

Claim.—1. In an igniter for explosive-engines, the combination with two pivotal terminal electrodes having returning-springs, and operating arms or levers, of a reversible push-bar, having cam curves on opposite edges placed out of line with each other, a guide-roller for said push-bar, and connections from the engine-shaft for operating said push-bar, substantially as described.

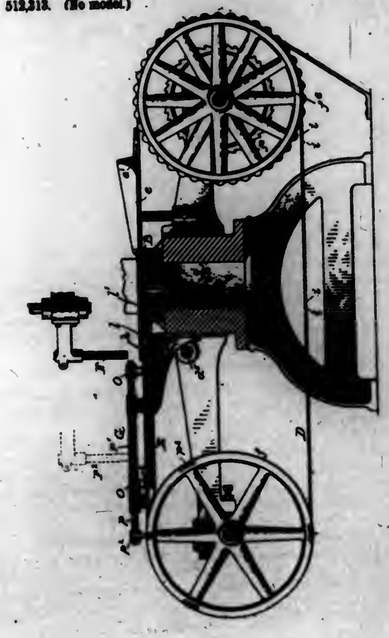
2. In an igniter for explosive-engines, and in combination, movable igniting-electrodes, a rod for operating said electrodes, a cam mounted on a geared-down shaft, for operating said rod, and means for adjusting the end of said rod relatively to the cam, in order to vary the time of its operation by the cam, substantially as described.

3. In an explosive-engine having an electrical igniter, a shaft geared down from the engine-shaft, a cam mounted on said shaft, a rod connected to the igniter, an adjustable lever, means for locking said lever in different adjustments, and a connection from said lever to the said rod, adapted, by the adjustment of said lever, to be placed in different positions relatively to the cam, whereby the time of ignition can be changed, substantially as described.



4. In combination with a cam and rod for operating an electrical igniter, a lever connected to said rod, a latch carried by said lever, and a toothed sector for locking said latch and lever, substantially as described.

605,884. SHEET-FEEDING MECHANISM FOR PUNCHING-MACHINES. WILLIAM PAINTER, Baltimore, Md., assignor to the Crown Cork and Seal Company, same place. Filed May 24, 1894. Serial No. 512,313. (No model.)



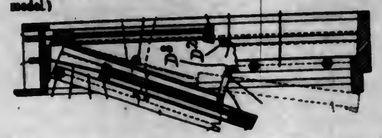
Claim.—1. In a sheet-feeding mechanism, the combination substantially as hereinbefore described, of a feeding belt or belts provided with upwardly-projecting feeding-studs, capable of puncturing the material to be fed, and a reciprocating socket punch or punches coöperating with said studs for forcing them through, and into controlling engagement with each sheet of the material.

2. In a sheet-feeding mechanism, the combination substantially as hereinbefore described, of a pair of parallel endless bands provided with upwardly-projecting feeding-studs; means for intermittingly moving said bands; and a pair of socket-punches reciprocated toward and from said studs, the organization being such that when said studs and punches register with each other, the studs will be forced through a sheet of material resting thereon thereby uniting the sheet at its side edges to said bands.

3. In an organization wherein sheets of material are to be intermittingly fed to tools adapted to operate thereon, the combination with intermittingly-operated sheet-feeding bands provided with puncturing studs, of coöperating socket-punches, a stationary sheet-supporting bed between said bands, a stationary end gage and side edge gages, the organization being such, that when a sheet of material has been placed upon said bed, the side gage will present gaging-contacts against one side edge of the sheet, the latter will be properly located with relation to the puncturing-studs, and enable the socket-punches to force said studs through the sheet of material at precisely accurate points for assuring a proper delivery of the sheet to the tools.

4. In an organization wherein sheets of material are to be intermittingly fed to tools adapted to operate thereon, the combination with intermittingly-operated sheet-feeding bands provided with punching-studs and of coöperative socket-punches, automatically-operated side edge gages substantially as hereinbefore described, the organization being such, that when a sheet of material has been fed to said gages previously retired from their gaging position, they will be automatically restored to the gaging position before the engagement of the socket-punches with the punching-pins.

605,885. WINDOW-FRAME. FRANCIS X. PAYMENT and JOHN C. HARTIG, Chicago, Ill. Filed Nov. 9, 1896. Serial No. 611,602. (No model.)



Claim.—1. A window-frame provided with grooves at each side thereof in which fits the window-sash, the upper part of the grooves on each side being associated with a strip, said strips connected with the window-frame so that they may be moved to an angular position, an arm pivotally connected to the lower end of one of said strips, said arm adapted to engage the window-frame when the strip containing the groove is in such a position that the two parts of the groove are in line so as to lock said strip in this position, said arm adapted to be moved so as to release the strip and allow it to be moved to its angular position.

2. A window-frame provided with grooves at each side thereof in which fits the window-sash, the upper part of the grooves on each side being associated with a strip, said strips connected with the window-frame so that they may be moved to an angular position, an arm pivotally connected to the lower end of one of said strips, said arm adapted to engage the window-frame when the strip containing the groove is in such a position that the two parts of the groove are in line so as to lock said strip in this position, said arm adapted to be moved so as to release the strip, and allow it to be moved to its angular position, said arm adapted to be rotated about its pivotal point until it projects toward the window, the arm engaging the window-frame so as to hold said strip in its angular position.

3. A window-frame provided at its sides with grooves in which the window-sashes move, the upper part of each groove being associated with a strip which is pivotally connected with the window-frame in such a manner that it has a slight longitudinal movement, said strips constructed so that they can be moved to an angular position, one or more plates connected with the inner surface of each of said strips and provided with a beveled edge, projections on the window-frame adapted to engage the beveled edges of said plate when the strips are moved to their normal position and force said strips against the side of the frame.

4. A window-frame provided with grooves at the sides thereof, in which fit the window-sash, a portion of each groove associated with a movable part and adapted to be moved to an angle with the frame, an arm pivotally connected to each of said movable parts and provided with a projecting piece, adapted to engage a portion of the window-frame and hold the movable parts so that the parts of each groove are in line, said arm adapted to be moved about its pivotal point so as to project rearwardly from said movable parts and engage a portion of said frame when the parts are moved to an angular position so as to hold said parts and prevent them from returning to their normal position.

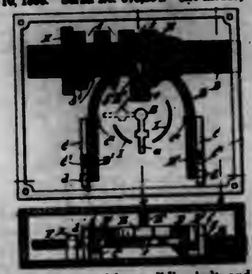
605,886. DISH-DRAINER. MARIN I. PERROTTET, New York, N. Y. Filed Oct. 11, 1897. Serial No. 654,891. (No model.)



Claim.—1. A dish-drainer comprising a reservoir, a tray fitted in the reservoir, provided with openings in its bottom, deflecting plates or partitions adjacent to one of the walls of the said openings, and cross-bars located above and between the deflecting-plates, as and for the purposes specified.

2. A dish-drainer consisting of a reservoir adapted to receive water, a tray supported by the reservoir, the tray being provided with openings in its bottom and deflecting-plates at one side of the said openings, cross-bars located above and between the said plates, and shelves hinged to the sides of the reservoir and adapted to fold upward against the tray, and swing-supports arranged for engagement with the bottom portions of the shelves to hold the said shelves in a substantially horizontal position, for the purpose specified.

605,887. LOCK. GEORGE L. B. PIERCE, San Francisco, Cal. Filed Mar. 10, 1898. Serial No. 673,594. (No model.)



Claim.—1. A lock, comprising a sliding bolt, and a pivoted and spring-pressed yoke-shaped locking-lever provided with a central body, one portion of which has an interlocking engagement with the bolt, and the other portion extending to within a short distance of the keyhole, substantially as described.

2. A lock, comprising a sliding bolt, and a pivoted and spring-pressed yoke-shaped locking-lever provided with a central body, one portion of which has an interlocking engagement with the bolt and the other portion extending to within a short distance of the keyhole and provided with pins on one face, substantially as and for the purpose set forth.

3. A lock, comprising a casing, a sliding bolt provided with notches on opposite sides, a yoke-shape lever having its members loosely pivoted in supports on the casing and provided with a central body, one portion of which is provided with a pin engaging one set of notches of the bolt, the other portion of the body extending to within a short distance of the keyhole and provided on one face with pins, and a spring between the said body and casing, substantially as described.

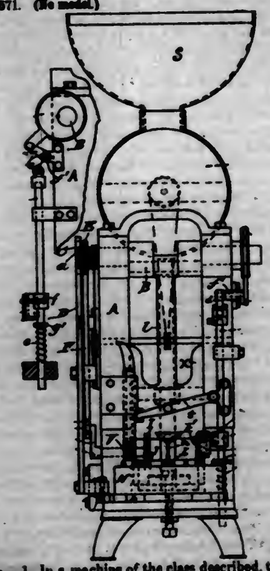
4. A lock, comprising a bolt, having locking projections, a yoke-shaped locking-lever pivoted to swing upon pivots substantially parallel to the bolt, and adapted to engage at its free end said locking projections upon the bolt, a central arm or body projecting near the keyhole and adapted to be engaged by the key before the latter engages the bolt to throw it, and a spring adapted to normally hold said lever in locking engagement with the bolt, in combination with a key having lockings upon the edges of its bit, adapted as the key is rotated, to engage said lever and raise it free of the bolt before engaging the bolt to throw it, substantially as described.

5. A lock, comprising a bolt having locking projections thereon, a yoke-shaped locking-lever pivoted to swing upon pivots substantially parallel to the bolt and adapted to engage at its free end said locking projections upon the bolt, a central body projecting from the yoke-shaped lever near the keyhole and adapted to be engaged by the key before the latter engages the bolt to throw it, said central body having downwardly-projecting pins disposed across the same, and a spring adapted to normally hold said lever in locking engagement with the bolt, in combination with a key having a blade cross-shaped or formed with a central cross-web, the end corners of said cross-web being inclined and adapted to engage said lever to swing it free of the bolt before engaging the bolt to throw it, substantially as described.

6. A lock, comprising a bolt provided with means for engagement of a locking-lever and a key therewith, pivot-flanges at one side of the bolt extending substantially at right angles thereto, said flanges having each an undercut notch, a yoke-shaped lever having its arms adapted to fit within said flanges and having pins at the ends of said arms adapted to enter the notches in said flanges, the other end of said lever being adapted to engage and lock the bolt, and the lever being adapted to be engaged by the key and swung upon its pivot to free the bolt, substantially as described.

7. A lock, comprising a bolt provided with means for engagement of a locking-lever and a key therewith, pivot-flanges at one side of the bolt extending substantially at right angles thereto, said flanges having each an undercut notch, a yoke-shaped lever having its arms adapted to fit within said flanges and having pins at the ends of said arms adapted to enter the notches in said flanges, the other end of said lever being adapted to engage and lock the bolt, and the lever being adapted to be engaged by the key and swung upon its pivot to free the bolt, the pivot-flanges having retaining-lugs at the end opposite the pivot-notch, and the yoke having shoulders engaging said lugs, to prevent longitudinal movement of the yoke, substantially as described.

605,888. MACHINE FOR HEADING CARTRIDGE-SHELLS. WILLIAM B. PLACE, King's Mills, Ohio. Filed Nov. 20, 1891. Serial No. 412,571. (No model.)



Claim.—1. In a machine of the class described, the combination of the extractor with the lever having one of its ends connected with said extractor and its other end pivoted to the frame and its fulcrum secured to a sliding head connected to the main shaft, substantially as and for the purpose set forth.

2. In a machine of the class described, a combined reducing and crimping mechanism consisting of a sleeve and rod fastened through the sleeve and limited in its downward movement, a spring normally pressing the rod downward, and a die internally formed so as to reduce and crimp the end of the shell, such die resting against the spring-pressed rod, and mechanism connected with the main shaft for actuating the reducing and crimping mechanism, substantially as and for the purpose set forth.

3. In a machine of the class described and in combination with a wad-gage, a shell-case crimper, a head-setting plunger and an extractor, a revoluble shell-case-carrying dial, shell-case supports arranged therein comprising two portions elastically supported with reference to each other, and means arranged in the path of revolution of said dial for projecting said supports above the surface of said dial during the action of said wad-gage, crimper and extractor and for withdrawing said support below the surface of said dial during the action of said head-setting plunger, as and for the purpose set forth.

4. In a machine for heading cartridge shells, the combination with a vertically-disposed hopper adapted to receive the caps or heads therein, a revoluble disk having rotating corrugations in said hopper and forming one wall of the cap or head receiving chamber a vertically-arranged chute or raceway, all of size adapted to receive the heads or caps in single file, and connected at its upper end with the cap or head chamber of the hopper, a spring-pressed plunger arranged to project transversely across the lower end of said raceway and forming a cut-off for the column of caps or heads contained therein, a shell case carrier, means for depressing said plunger and for receiving and transferring a head or cap from said raceway to said carrier, and means for applying the transferred head to the end of the shell-case, substantially as and for the purpose set forth.

5. In a machine of the class described, the combination with a vertically-disposed hopper, a revoluble disk mounted therein and forming one wall of a chamber adapted to receive the caps or heads, a vertically-arranged chute or raceway communicating at its upper end with said chamber, means yieldingly mounted for supporting a column of caps or heads in said chute or raceway, a shaft arranged adjacent to the lower end of said raceway, clamping-fingers mounted thereon to rock therewith, and adapted to receive and transfer the heads or caps from the raceway to the shell-cases, a main operating-shaft and eccentric mounted thereon, a pivotally-mounted lever arranged to be engaged and rocked by said eccentric and means actuated by the rocking motion of said lever for imparting a quarter-revolution and return to said clamping-finger-supporting shaft, as and for the purpose set forth.

6. In a machine of the class described, a revoluble dial, a series of shell-case supports arranged therein, said supports comprising an exterior sleeve and an interior pin and a spring interposed between said sleeve and pin, a stationarily-held cam arranged in the path of travel of the shell-case supports and adapted to elevate and depress said supports as said dial revolves, as and for the purpose set forth.

7. In a machine of the class described, a framework, a shell case-feeding mechanism, a main driving-shaft mounted in said framework, a plunger-head arranged to be actuated by said shaft, a shell-case head-setting mechanism mounted on said plunger-head, a fixed guide mounted on said framework, a rod mounted to slide in said guide, a spring arranged to maintain said rod yieldingly in elevated position, a rocking shaft mounted in said framework and having an arm arranged to engage said rod, an eccentric mounted on said main shaft and connected to a crank-arm on said rocking shaft, whereby when said main shaft is actuated said rod is depressed against a yielding resistance, and a shell-case crimping-die carried by said rod, as and for the purpose set forth.

8. In a machine of the class described, a head-setting mechanism, a head-feeding device and means for transferring the heads from said feeding device to said setting mechanism and for holding and guiding the same during the action of said setting mechanism comprising two pairs of clamping-jaws superposed the one pair upon the other, a rocking support for said clamping-jaws, means for simultaneously opening both pairs of jaws to receive a head, and means for rocking said support comprising a pivotally-mounted lever, means for rocking the same about its pivot and connections between said lever and support, as and for the purpose set forth.

9. In a machine of the class described, the combination with a chute or raceway adapted to receive a column of heads or caps, a plunger mounted to reciprocate transversely therethrough, a spring arranged to yieldingly maintain said plunger in position to form a support for the column of heads, clamping-fingers and means for actuating the same, as and for the purpose set forth.

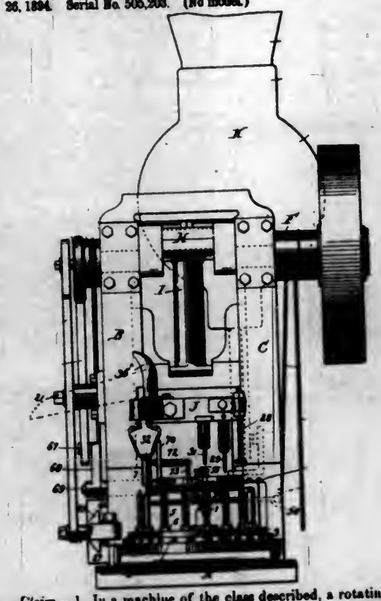
10. In a machine of the class described, the combination with a plunger-head and head-setting devices carried thereby, of a plunger-rod, a crimping-die carried thereby and arranged to crimp the end of the shells preparatory to receiving the heads thereon, means for projecting said rod longitudinally, whereby said crimping-die is advanced to its work, and means for yieldingly resisting the longitudinal projection of said rod and for returning the same to normal position, as and for the purpose set forth.

11. In a machine of the class described, a chute, a support for the end of said chute, a spring-pressed cut-off device carried by said support, said cut-off device cut away upon its upper surface and adapted to be projected across the end of said chute, a pivotally-mounted head-transferring device, means for rocking the same, said head-transferring device adapted to be rocked to engage and force said cut-off device back out of the line of travel of the heads in said chute, thereby permitting the head to drop into the jaws of the transferring device, as and for the purpose set forth.

12. In a head-assembling machine, a chute, a pivoted finger at the end thereof, a movable support for the column of heads and a pivotally-mounted head-transferring device and means for rocking the same, all combined and arranged, as and for the purpose set forth.

605,839. MACHINE FOR PRIMING OR CAPPING HEADS OF CARTRIDGE-SHELLS.

WILLIAM B. PLACE, King's Mills, Ohio, assignor to the Peters Cartridge Company, Cincinnati, Ohio. Filed Mar 26, 1894. Serial No. 505,203. (No model.)



Claim.—1. In a machine of the class described, a rotating cap-feeding table, a feed-chute, means for delivering the caps from said chute to said table in a single column, and a reciprocating device for feeding the caps singly from the end of said column upon said table, and placing them in position to be inserted in a head, as and for the purpose set forth.

2. In a machine of the class described, a cap-feeding table horizontally arranged and provided with a groove, a vertical feeding-chute arranged to deliver the caps upon said table and into said groove in a single column, and reciprocating placing mechanism, as and for the purpose set forth.

3. In a machine of the class described, a rotating cap-feeding table, a grooved plate, a feed-chute arranged to deliver the caps to said table and within the groove in said plate, and reciprocating placing mechanism, as and for the purpose set forth.

4. In a machine of the class described, a cap-feeding table, a cap-feeding chute arranged to deliver the caps upon said table in a single column, a cap-placing mechanism comprising a head having clamping-jaws, one of said jaws being pivoted thereto, and means for reciprocating said head transversely the column of caps upon said table, said pivoted clamping-jaw having a prolonged end whereby said jaws are opened to receive a cap, as and for the purpose set forth.

5. In a machine of the class described, cap feeding and placing mechanism comprising a continuously-rotating table, a stationary grooved plate, and a head having clamping-jaws adapted to reciprocate across the top of said table and transverse to the groove in said plate, and means for delivering the caps singly to said table and within said groove, as and for the purpose set forth.

6. In a machine of the class described, a stationary grooved feeding-plate provided with a yielding part in the wall of said groove, as and for the purpose set forth.

7. In a machine of the class described, a stationary grooved feeding-plate having a portion of the wall of said groove cut away, in combination with a spring-supported lip or tongue adapted to be received in said cut-away portion as and for the purpose set forth.

8. In a machine of the class described, a cap placing device comprising a head, a plate secured to said head and grooved or cut away in one of the projecting corners thereof, a spring-pressed jaw pivoted to said head, said jaw provided with an extended end and also grooved to correspond with the groove in said plate and adapted to form therewith a clamp, and means for reciprocating said head, and means adapted to engage the extended end of said pivoted jaw at the limit of movement of said head, whereby it is rocked about its pivot to open said jaws, as and for the purpose set forth.

9. In a machine of the class described, a main driving-shaft, a rotary eccentric mounted thereon, a reciprocating cap-placing clamp and means operated by said eccentric for reciprocating said clamp, as and for the purpose set forth.

10. In a machine of the class described, a main driving-shaft, an eccentric and strap mounted thereon, a lever pivoted intermediate its ends and connected at one end to said strap, a cap-placing clamp and means operated by the other end of said lever for reciprocating said clamp, as and for the purpose set forth.

11. In a machine of the class described, a rock-shaft, a slotted crank-arm carried thereby, a cap-placing clamp, a link pivoted at one end to the clamp and at the other end attached to said slotted crank-arm, and means for rocking said rock-shaft, whereby said clamp is reciprocated, as and for the purpose set forth.

12. In a machine of the class described, a feeding-chute having an enlarged chamber, a cap-agitating disk arranged in said chamber having a flanged crank-arm connected to the hub thereof, a rod adapted to pass through a perforation in said flange and having collars, springs interposed between said flange and collars, and means for reciprocating said rod comprising a rotating shaft and a crank-arm thereon, all combined and arranged as and for the purpose set forth.

13. In a machine of the class described, the combination with a table having a perforation therethrough, of a punch arranged to operate in line with said perforation, and a shell-supporting pin adapted to present the shells to the action of said punch, said pin provided with a central longitudinal bore therethrough increasing in size from one end to the other, as and for the purpose set forth.

14. In a machine of the class described, a shell-feeding disk provided with suitably-spaced screw-threaded perforations through the outer rim thereof, and longitudinally-bored shell-supporting pins screw-threaded at the lower end, to be received in said screw-threaded sockets, as and for the purpose set forth.

15. In a machine of the class described, a feeding-chute, an agitating-disk arranged therein, a flanged crank-arm connected to said disk, a rod arranged to pass through a perforation in said flange, means for reciprocating said rod and springs interposed between said rod and flange, as and for the purpose set forth.

16. In a machine of the class described, a cap-feeding device comprising a table, means for delivering the caps thereto in a single column, a reciprocating clamp having a pivoted jaw adapted to grasp the caps singly from the end of said column, and to place them in position to be inserted in a shell, and connections for reciprocating said clamp, as and for the purpose set forth.

17. In a machine of the class described, a main driving-shaft, a reciprocating cap-feeding device comprising a clamp having a pivoted jaw, means for reciprocating said device from said shaft, a cap-feeding chute arranged to deliver the caps to said feeding device in a single column, means actuated by said main shaft for feeding the caps singly down said chute, and means whereby the pivoted jaw of said clamp is opened at one limit of movement of said clamp to receive a cap therein, as and for the purpose set forth.

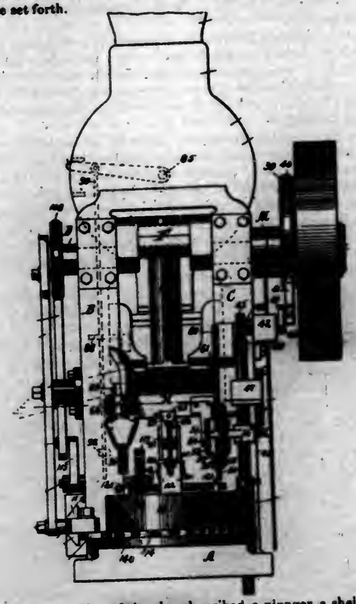
605,840. MACHINE FOR ASSEMBLING HEADS OF CARTRIDGE-SHELLS.

WILLIAM B. PLACE, King's Mills, Ohio, assignor to the Peters Cartridge Company, Cincinnati, Ohio. Filed Mar. 26, 1894. Serial No. 505,204. (No model.)

Claim.—1. In a machine of the class described, a plunger-head, a head-setting die carried thereby, a plunger rod, a shell-crimper carried thereby, shell feeding and extracting devices, means for reciprocating said plunger-head and means for reciprocating said plunger-rod independently of the reciprocations of the plunger-head, as and for the purpose set forth.

2. In a machine for placing heads on cartridge-shells having the wads previously inserted therein, a reciprocating plunger-head, a head-setting die carried thereby, shell-case feeding and extracting devices, and means for actuating these several parts, in combination with an independent plunger, a gage carried thereby and arranged to gage the depth of the wads in the shell-cases in advance of the action of the head-setting die and means for reciprocating the said independent plunger, as and for the purpose set forth.

3. In a machine of the class described, a driving-shaft having an eccentric disk mounted thereon, a strap for said disk, a plunger-rod, a crimping-die carried thereby, means operated by said eccentric-strap for moving said rod and a yielding resistance against which said rod is moved and adapted to return the same, as and for the purpose set forth.



4. In a machine of the class described, a plunger, a shell-crimping die carried thereby, yielding means for normally keeping said plunger elevated, means for periodically advancing said plunger against said yielding resistance, a head placing and setting mechanism, and shell extracting and feeding devices, all combined and arranged as and for the purpose set forth.

5. In a cartridge-shell-head-assembling machine, a plunger-head, carrying a head-setting die and a shell-extractor a rod independent of said plunger-head, a crimping-die carried thereby, a shell-feeding mechanism and means for independently operating said plunger head, rod and feeding mechanism, as and for the purpose set forth.

6. In a machine of the class described, a plunger-rod, a shell-crimping die carried thereby, devices for moving said plunger in one direction to its work and a yielding resistance arranged to oppose said movement and normally acting to return said plunger, a plunger-head carrying a setting-die, a shell-extractor and a shell-feeding mechanism, all combined and arranged as and for the purpose set forth.

7. In a cartridge-head-assembling machine, a grooved, reciprocating plunger, a crimping-die carried thereby, a stationarily-held feathered box through which said plunger reciprocates, means for reciprocating said plunger, and cartridge-shell-feeding mechanism, all combined and arranged as and for the purpose set forth.

8. In a machine of the class described, a reciprocating plunger-head, shell-extracting and head-setting mechanisms carried thereby, a plunger-rod, shell-crimping mechanism carried thereby, and means for moving said plunger-rod independently of the reciprocations of the plunger-head, and a yielding resistance against which said rod is moved, as and for the purpose set forth.

9. In a machine of the class described, a plunger, a block adjustably supported by said plunger, a shell-crimping device carried thereby, means for moving said plunger, a yielding resistance against which said plunger is moved, shell feeding and extracting devices and head placing and setting mechanism, all substantially as and for the purpose set forth.

10. In a machine of the class described, a plunger, a block adjustably carried thereby, a crimping-die and a wad-gage carried by said block, reciprocating head-setting and shell-extracting devices, shell-feeding devices and means for moving said plunger against a yielding resistance independent of the reciprocations of the head setting and extracting devices, as and for the purpose set forth.

11. In a machine of the class described, a plunger adapted to be periodically moved against a yielding resistance, a crimping-die and a wad-gage adjustably carried thereby, and means for securing a yielding motion of said gage, as and for the purpose set forth.

12. In a machine of the class described, a plunger adapted to be

moved periodically against a yielding resistance, a block adjustably carried thereby, a crimper-die carried by said block, a wad-gage yieldingly supported by said block, all in combination, as and for the purpose set forth.

13. In a machine of the class described, a plunger, a hollow crimper-die carried thereby, a shell-stripper stationarily held and adapted to be projected longitudinally through said hollow die and means for moving said plunger positively in one direction and a spring arranged to return said rod to its normal position, as and for the purpose set forth.

14. In a machine for placing heads on cartridge-shells having the wads previously placed therein, a reciprocating plunger-head, a head-setting die carried thereby, means for reciprocating said plunger-head, a shell crimper and stripper arranged in advance of the head-placing mechanism, an independent reciprocating plunger, a wad-gage carried thereby and adapted to gage the depth in the shells of the wads previously placed therein, means for actuating said independent plunger, and shell-extracting mechanism, all combined and arranged as and for the purpose set forth.

15. In a machine of the class described, a short shaft journaled in a stationary bearing and having a crank-arm on each end thereof, means connected with one of said crank-arms for rocking said shaft, a plunger adapted to be moved by the other of said arms against a yielding resistance, a crimping-die and a wad-gage carried by said plunger, all combined and arranged as and for the purpose set forth.

16. In a machine of the class described, a main shaft, an eccentric mounted thereon, an eccentric-strap mounted on said eccentric and provided with a pitman, a spring-supported plunger adapted to slide in a stationary bearing, a rock-shaft journaled in a stationary bearing and provided with a crank-arm on each end thereof, one of said crank-arms connected to said pitman and the other adapted to contact with said plunger and force the same in a direction opposed to its spring-supports, as and for the purpose set forth.

17. In a cartridge-shell-head-assembling machine, the combination with wad-gaging, shell-crimping, head-setting and shell-extracting mechanisms of a shell-feeding mechanism for successively presenting a shell to said several mechanisms, comprising a dial having sockets formed therein and having a continuous groove upon the under side thereof, pins loosely mounted in said sockets, a cam-surface stationarily mounted and arranged to be received in said groove and upon which said pins are supported, whereby when said dial is rotated, said pins are projected or retracted, and means for rotating said dial, as and for the purpose set forth.

18. In a cartridge-shell-head-assembling machine, the combination with a plunger, a wad-gaging device and a shell-crimping device actuated thereby, a reciprocating plunger-head, shell-case-head setting and extracting devices actuated thereby, of means for successively presenting the shell-cases to said several devices, comprising a dial, pins carried thereby and means for projecting said pins and withdrawing the same to properly present the shell-cases, and means for rotating said dial, as and for the purpose set forth.

19. In a cartridge-shell-head-assembling machine, the combination with a plunger, wad-gage and shell-crimping devices carried thereby, and a reciprocating plunger-head, head-setting and shell-extracting devices carried thereby, of means for successively presenting a shell-case to said several devices, comprising a shell-carrier having sockets formed therein, pins loosely mounted in said sockets, cam-plates mounted in the path of travel of said sockets upon which said pins are supported, and means for actuating said carrier, as and for the purpose set forth.

20. In a cartridge-shell-head-assembling machine, the combination with wad-gaging, shell-crimping, head-setting and extracting devices, and means for actuating the same, of means for successively presenting the shells to said several devices, comprising a table, a shell-carrier mounted thereon and having a groove upon the under side thereof, sockets formed through said carrier and communicating with said groove, cam-plates stationarily mounted upon said table and arranged to register with and to be received in the groove in said carrier, pins loosely mounted in said sockets and arranged to rest upon said cam-plates, and means for actuating said carrier, as and for the purpose set forth.

21. In a cartridge-shell-head-assembling machine, the combination with wad-gaging, shell-crimping, head-setting and extracting devices, and means for actuating the same, of means for successively presenting the shell-cases to said several devices, comprising a table, a rotary dial arranged to rest thereon and having a circularly-arranged groove on the under side thereof, peripherally-arranged sockets formed through said dial and opening into said groove, cam-plates stationarily mounted on said table and arranged to project into said groove, pins loosely mounted in said sockets and arranged to rest on and to be supported by said cam-plates, and means for rotating said dial, as and for the purpose set forth.

22. In a cartridge-shell-head-assembling machine, the combination with wad-gaging, shell-crimping, head-setting and extracting devices, and means for actuating the same, of means for successively presenting the shell-cases to said several devices, comprising a table, a carrier arranged to rest thereon and having a groove or recess upon the under surface thereof, sockets formed through said carrier and opening into said groove, fixed cam-plates mounted on the top surface of the said table and arranged to project into said groove, headed pins arranged in said sockets and having the heads thereof arranged in said groove and resting upon said cam-plates, and means for actuating said carrier, as and for the purpose set forth.

23. In a cartridge-shell-head-assembling machine, the combination with wad-gaging, shell-crimping, head-setting and extracting devices and means for actuating the same, of means for successively presenting the shells to the said several devices, comprising a perforated table, a shell-case carrier mounted thereon, said carrier provided with sockets, pins loosely mounted in said sockets, said sockets and perforations being so relatively arranged as to be brought into register with each other when said carrier is suitably actuated, whereby said pins may be inserted in or withdrawn from said sockets, means for closing said perforations, cam-plates arranged in the path of travel of said carrier and upon which said pins are supported, and means for actuating said carrier, as and for the purpose set forth.

24. In a machine of the class described, a plunger, a head-setting die actuated thereby and means for feeding a head, in combination with a table, a shell-feeding device mounted thereon and arranged to present the shells to the action of said setting-die and a stationary support for the shell adjustably mounted in said table and arranged in line with the head-setting die, said support adapted to resist the action of said die, as and for the purpose set forth.

25. In a cartridge-shell-head-assembling machine, a head transferring and placing device, a shaft upon which said device is mounted, a gear-wheel mounted on said shaft and means for operating the same, comprising a rock-shaft, a gear-wheel mounted thereon and meshing with said first-mentioned gear and a rocking-lever for rocking said shaft, as and for the purpose set forth.

26. In a machine of the class described, a head-setting mechanism, a head transferring and placing device, a shaft upon which said device is mounted, a gear-wheel mounted on said shaft, a second gear-wheel meshing with the first mentioned gear and means for rocking said last-mentioned gear at each operation of said head-setting mechanism, as and for the purpose set forth.

27. In a machine for heading shells in which the wads have been previously placed, the combination with wad-gaging, shell-crimping, head-setting and extracting devices and a main shaft for actuating the same, of a head transferring and placing device and means for actuating the same, comprising a pivotally-mounted lever having connection at one end with said transferring device, an eccentric mounted on said main shaft and connections between said eccentric and the other end of said lever, as and for the purpose set forth.

28. In a machine for heading shells in which the wads have been previously inserted, a head-setting mechanism, a head-transferring device, a shaft for supporting the same, a rock-shaft, intermeshing gear-wheels respectively mounted on said shafts, and means for rocking said rocking shaft at each actuation of said head-setting mechanism, comprising an eccentric and a pivotally-mounted lever, as and for the purpose set forth.

29. In a machine of the class described, a head-setting mechanism, a head-transferring mechanism and supporting-shaft therefor, a rock-shaft, a gear-wheel mounted thereon for angular adjustment and adapted to mesh with a gear-wheel on the first-mentioned shaft and means for rocking said rock-shaft at each actuation of said head-setting mechanism, as and for the purpose set forth.

30. In a cartridge-shell-head-assembling machine, the combination of a reciprocating plunger, a head-setting die and shell-extracting devices carried thereby, means for actuating said plunger, means for crimping the ends of the shell-cases and means for presenting the heads to the said setting mechanism, comprising pivoted jaws having oppositely-beveled meeting projections or flanges and means for engaging said oppositely-beveled flanges for opening said jaws, as and for the purpose set forth.

31. In a cartridge-head-assembling machine, a reciprocating plunger, a head-setting die and shell-extracting devices carried thereby, means for actuating said plunger, a crimper and a wad-gage arranged in advance of said die and means for presenting the shell-cases to these several parts, in combination with means for presenting the heads to the said head-setting die comprising pivoted jaws having oppositely-beveled meeting projections or flanges, springs arranged to normally close said jaws and means for engaging said oppositely-beveled flanges for opening said jaws, as and for the purpose set forth.

32. In a cartridge-head-assembling machine, a reciprocating plunger a head-setting die and shell-extracting devices carried thereby, means for actuating said plunger, a crimper and a wad-gage arranged in advance of said head-setting die and means for successively presenting a shell-case to these several devices, in combination with means for presenting the heads to the action of said setting-die, comprising pivotally-mounted, spring-pressed jaws, having oppositely-beveled meeting projections or flanges, said jaws being cut away on their meeting edges to conform to the shape of the head, and means arranged to engage said oppositely-beveled projections or flanges upon said jaws, as and for the purpose set forth.

33. In a cartridge-shell-head-assembling machine, a shell-crimping device, a head-setting die, a shell-extracting mechanism, means for actuating these several parts, and means for successively presenting the shell-cases to the action of these several devices, in combination with a head-transferring device, comprising pivotally-mounted spring-pressed jaws having oppositely-beveled meeting projections or flanges, and an adjustably-fixed part arranged to enter the space between the beveled meeting edges of said flanges or projections when said jaws are rocked, whereby said jaws are forced apart, and means for rocking said jaws upon their pivotal support, as and for the purpose set forth.

34. In a machine of the class described, a crimper, a head-setting die, a shell-extractor, means for actuating these several devices, in combination with a rocking, head-transferring device comprising pivotally-mounted spring-pressed jaws arranged with the edges thereof opposed to each other, said edges provided with projections or flanges oppositely beveled on the meeting edges thereof, an adjustable pointed screw or pin arranged in the path of movement of said transferring device and adapted, when said jaws are rocked about their pivotal support, to enter the space between the beveled meeting edges of said projections or flanges, whereby said jaws are forced apart, and means for rocking said jaws, as and for the purpose set forth.

35. In a cartridge-head-assembling machine, a shell-crimping device, a head-setting die and a shell-extractor, means for reciprocating these several parts, and means for successively presenting the shells to the action of the several parts, in combination with means for feeding the heads to the said head-setting die, comprising a stationary raceway having a delivery-mouth and adapted to receive the heads in single column, a support for said raceway, a recess formed in said support adjacent to the delivery-mouth of said raceway, a yieldingly-mounted block arranged in said recess and normally held across the delivery-mouth of said raceway, and a head-transferring device arranged, when actuated, to displace said block from across the delivery-mouth of the said raceway, whereby the heads are permitted to pass singly from said raceway to said head-transferring device, and means for actuating said head-transferring device, as and for the purpose set forth.

36. In a machine of the class described, a feeding-chute comprising a stationary chamber having a mouth, a removable tray adapted to receive the articles to be fed and to be telescoped into the mouth of said stationary chamber to deliver the articles therein, means for supporting the movable part in the mouth of said stationary part and means arranged within said chamber for agitating the heads contained therein, as and for the purpose set forth.

37. In a machine of the class described a feeding-chute, comprising a chamber, means for delivering the heads to said chamber with their open ends all presented in one direction, a raceway communicating with said chamber, a disk arranged in said chamber and means for rocking or agitating said disk, whereby the heads are prevented from clogging the mouth of said raceway, as and for the purpose set forth.

38. In a machine of the class described, a head-feeding chute comprising an enlarged chamber, a raceway communicating with the lower part of said chamber and a rocking disk mounted in said chamber and provided with a pin in the face thereof, and means for rocking said disk, as and for the purpose set forth.

39. In a machine of the class described, a feeding-chute comprising a chamber, a receiver communicating with said chamber, an agitating-disk arranged in said chamber, a reciprocating plunger and yielding connections between said plunger and disk for yieldingly rocking the latter, as and for the purpose set forth.

40. In a machine of the class described, a feeding-chute, an agitating-disk arranged to rock therein, a reciprocating plunger and yielding connections intermediate said plunger and said disk for rocking the latter, as and for the purpose set forth.

41. A head-feeding chute having an enlarged chamber, a rocking disk mounted therein, a crank-arm sleeved on the disk-support, a rod connected to said crank-arm, a reciprocating plunger, a perforated arm carried thereby, said rod adapted to pass through said perforation and springs interposed between said arm and collars on said rod, as and for the purpose set forth.

42. In a head-feeding device, a raceway adapted to receive a single column of heads, a slidable spring-pressed plunger normally held transversely across the mouth of said raceway and adapted to support said column of heads and a transferring device arranged to periodically engage said support and slide the same out of line with said column of heads, whereby said heads are delivered to said transferring device, as and for the purpose set forth.

43. In a head-feeding device, a raceway adapted to receive a single column of heads, a support for the said column of heads comprising a spring-pressed, cylindrical block provided with a flat upper side, as and for the purpose set forth.

44. In a machine of the class described, a raceway, a spring-pressed lip mounted thereon at the end thereof, a spring-pressed support for the column of heads contained in said raceway, and a head-transferring device adapted to force said support out of the line of travel of the heads in said raceway and to receive therefrom a single head, all combined and arranged as and for the purpose set forth.

45. In a machine of the class described, a plunger-head in combination with a shell-extracting mechanism mounted thereon, said extracting mechanism comprising loosely-mounted, gravity-operated blocks, as and for the purpose set forth.

46. In a cartridge-shell-extracting mechanism, a sleeve provided with oppositely-inclined passages and gravity blocks or pins loosely mounted therein, as and for the purpose set forth.

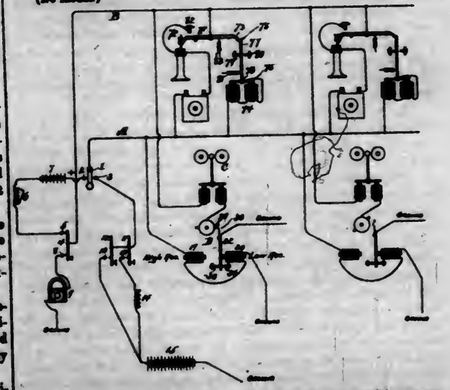
47. In a shell-extracting mechanism, a sleeve provided with oppositely-inclined passages and gravity-blocks loosely mounted therein, said blocks being beveled upon their opposing faces, as and for the purpose set forth.

48. In a shell-extracting mechanism, a reciprocating sleeve provided with oppositely-inclined passages and blocks loosely mounted to slide therein, said blocks being beveled on their meeting faces and provided with hooks at their lower ends, as and for the purpose set forth.

49. In a shell-extracting mechanism, a reciprocating plunger carrying a sleeve, said sleeve provided with oppositely-inclined passages, blocks loosely mounted to slide in said passages, means for guiding and supporting said blocks, said blocks being beveled on their inner or meeting faces and also on the ends thereof, and provided with hooks or shoulders, as and for the purpose set forth.

50. In a machine of the class described, the combination with a reciprocating, shell-crimping, head-setting and shell-extracting mechanism and means for operating the same, of shell-feeding mechanism and means for elevating the shells to the crimping mechanism, lowering the shells for the setting operation and again elevating the shells for the action of the extracting mechanism, as and for the purpose set forth.

605,841. TELEPHONE SYSTEM. ROBERT T. REES and JAMES L. MCDONNELL, Tacoma, Wash., assignors of one-half to Frank C. Corbin and John T. Bibb, same place. Filed Sept. 25, 1897. Serial No. 653,073. (No model.)



Claim.—1. In a telephone system, the combination with a party-line and subscriber's signal, of a controller for each signal, each controller having a normally open circuit-closer for controlling the circuit of the subscriber's signal, a step-by-step device for each circuit-closer, having a part adapted to move always in the same direction, an electromagnet of high resistance for operating said step-by-step device, a stop device adapted to arrest the circuit closer of each controller, a magnet of low resistance in series with the high resistance magnet for controlling said stop device and devices at the central office for controlling current through the coils of said magnets whereby to cause one signal controller at a time to close the circuit of the cooperating subscriber's signal, substantially as set forth.

2. In a telephone system, the combination with a party-line and subscribers' signals, of a controller for each signal, each controller comprising a circuit-closer in a normally open circuit for controlling the cooperating signal, stop devices, step-by-step devices having a part to move always in the same direction, an electromagnet for oper-

ating the circuit-closer and step-by-step devices, an electromagnet of lower resistance than the first-mentioned one for operating the stop devices to release the circuit-closer, said magnets being included in series with each other in a multiple-arc circuit and means at the central office for causing currents of different electromotive force to flow over the circuit of said electromagnets, substantially as set forth.

3. In a telephone system, the combination with a party-line and subscribers' signals, of a controller for each signal, each controller comprising a circuit closer for controlling the circuit of the cooperating subscriber's signal, a step-by-step device for operating said circuit-closer, an electromagnet for operating said circuit-closer, a stop device for the circuit-closer, an electromagnet for operating said stop device and of lower resistance than the first-mentioned magnet, coils of said magnets being arranged in series, a generator at the central office, a resistance at the central office and devices at the central office for including said resistance in the circuit of said magnets and battery at one time and for excluding said resistance from said circuit at another time, substantially as set forth.

4. In a telephone system, the combination with two conductors of a party-line and telephones included in parallel between said conductors, of a signal-controller at each subscriber's station, each controller comprising a normally open circuit-closer, step-by-step devices for operating said circuit-closer, high-resistance electromagnetic devices for operating said step-by-step devices, stop devices for the circuit-closer and low-resistance electromagnetic devices for controlling said stop devices and included in series with the high-resistance electromagnetic devices, a signal in a multiple-arc circuit from one of the line conductors to the ground and including said circuit-closer, devices at the central office for causing currents of different electromotive force to flow over the circuit of said electromagnetic devices, and means for causing a pulsatory current to pass over the circuit of the multiple-arc circuit including the subscriber's signal and circuit-closer, substantially as set forth.

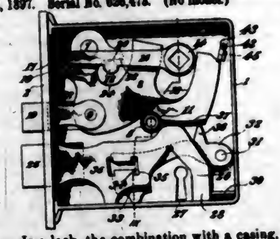
5. In a telephone system, the combination with a party-line and subscribers' signals, of a controller for each signal, each controller comprising a circuit-closer, a step-by-step device for operating said circuit-closer, a lock device for the circuit-closer, electromagnets for the step-by-step devices and the lock devices respectively, a signal-transmitter at the central office comprising a make-and-break wheel, an arm carried thereby, a contact-arm to engage the make-and-break wheel, a lock-lever for the arm carried by the make-and-break wheel, means for stopping said arm and the make-and-break wheel at the desired point, a normally open circuit including one line-wire, the make-and-break wheel, the contact-arm which cooperates therewith, a resistance and a battery, a contact-arm connected with said line-wire and adapted to be engaged by said first-mentioned arm whereby to short-circuit the resistance and a normally closed circuit including both line-wires, a battery, an annunciator, the lock-lever, the first-mentioned arm the make-and-break wheel and the resistance, substantially as set forth.

6. In a telephone system, the combination with a party-line and subscribers' signals, of a controller for each signal each controller comprising a step-by-step circuit-closer, a lock device, an electromagnet of high resistance to operate the step-by-step circuit-closer, an electromagnet of low resistance to operate the lock and complete the circuit through the circuit-closer and signal, a transmitter at the central office for operating said signal-controllers, said transmitter comprising a motor, a make-and-break wheel and a double arm carried by the shaft of said motor, a contact-arm cooperating with said make-and-break wheel, said contact-arm and make-and-break wheel being included in a normally open circuit with a battery, a resistance and one of the line-wires, a locking-lever for the double arm, a contact-arm connected with said line-wire and cooperating with the double arm to short-circuit said resistance, a plate having a series of sockets or perforations, a metallic pin to enter one or another of said sockets or perforations whereby to stop the double arm and make-and-break wheel, an electromagnet included in circuit with said plate and said line-wire and an armature-lever for said magnet included in a normally open circuit with the other line-wire and a magneto generator, substantially as set forth.

7. In a telephone system, the combination with the conductors of a party-line, of a series of telephones arranged in parallel between said conductors, a switch-arm for each multiple-arc telephone-circuit, an electromagnet, a polarized armature for said magnet, an arm on said armature normally disposed under one end of said switch-arm, and a circuit in parallel with the telephone-circuit and including said electromagnet, the arm on the armature thereof and said switch-arm, substantially as set forth.

8. In a telephone system, the combination with the conductors of a party-line, of a series of telephones arranged in normally open circuits in parallel between the line conductors, a switch-arm or hanger forming part of each telephone-circuit and beveled at one end, an electromagnet, a polarized armature therefor, an arm projecting from said armature and having a tooth at its free end normally disposed under the beveled end of the switch-arm or hanger and a circuit in parallel with the telephone-circuit and including said electromagnet, the arm on the armature thereof, the switch-arm or hanger and said line conductors, substantially as set forth.

605,842. LOCK. HENRY B. RICHARDSON, Keytesville, Mo. Filed Mar. 8, 1897. Serial No. 626,473. (No model.)



Claim.—In a lock, the combination with a casing, of a counterweight pivoted at its upper forward corner within the upper forward corner of the casing and extending rearwardly adjacent to the rear wall of the casing, a latch-bolt pivotally secured to the lower forward corner of the counterweight, counterweight-actuating mechanism having positive connection with said counterweight, a lock-bolt, a tumbler pivoted at its rear extremity adjacent to the rear wall of the casing and operatively connected with the lock bolt, said tumbler being limited in its downward movement by contacting with the lower wall of the casing, an upwardly-extending projection upon the tumbler adjacent to its pivot and in positive contact with the extreme rear end of the counterweight when the tumbler is in its lowest position, and a detent designed to lock the counterweight in position to confine the tumbler immovably between said counterweight and the lower wall of the casing whereby the entire assemblage of operative parts within the casing may be locked positively against movement, vibrational or otherwise, substantially as specified.

605,843. BAG-CLOSURE. ARCHIA L. ROSS, New York, N. Y., assignor of one-half to David Hyams, same place. Filed June 25, 1897. Serial No. 642,266. (No model.)



Claim.—1. A bag-closure, comprising a frame having two members pivotally connected with each other, and each formed of spring metal, one member being provided at or near its middle with a pivoted loop, and the other with a transversely-extending catch having a shoulder adapted to snap under the other frame member, between the members of the said loop to lock the members and keep the frame in a closed position, and a cord packing arranged on the inside of the frame and following the line of the members thereof, so that when the bag is closed, the said packing hermetically seals the mouth of the bag, substantially as shown and described.

2. A bag-closure, comprising a frame having two members pivotally connected with each other, and each formed of spring metal, one member being provided at or near its middle with a U-shaped keeper and the other with a transversely-extending catch formed by doubling a portion of the member, then bending the doubled-up portion and forming the same with a shoulder adapted to snap under the keeper of the other frame member, to lock the member and keep the frame in a closed position, a loop pivoted on the other frame member for suspending the bag and for conveniently opening the frame members and a cord packing on the inside of the frame and following the line of the members thereof, substantially as shown and described.

605,844. COMBINED BURGLAR-ALARM AND LOCK. CHAUNCEY R. SAMM, St. Louis, Mo., assignor of two-thirds to William B. Knight and Edward B. Knight, same place. Filed Jan. 8, 1896. Serial No. 666,018. (No model.)

Claim.—1. A burglar-alarm and lock comprising an alarm-box provided with a cartridge-receptacle, a locking-bolt adapted to be thrown into said alarm-box, a spring-controlled bolt having an arm and located in said box and normally retracted by said spring, a firing-pin carried by said arm, and a trigger carried by said box, adapted to bear on said locking-bolt and on said spring-controlled bolt and trip the latter, substantially as described.

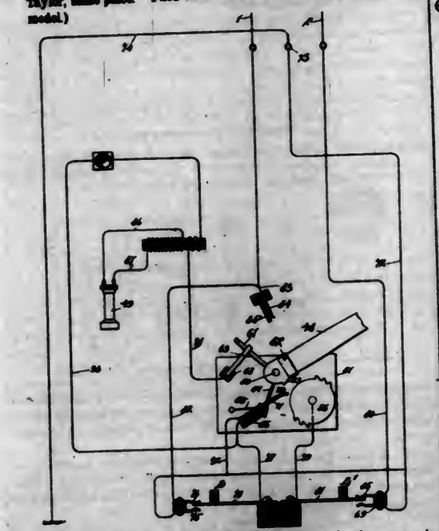


2. A burglar-alarm and lock comprising an alarm-box provided with a cartridge-receptacle, a locking-bolt adapted to be thrown into said alarm-box, a spring-controlled bolt having an arm and located in said box and normally retracted by said spring, a firing-pin carried by said arm, a stud carried by said bolt, and a trigger carried by said box adapted to bear on said locking-bolt and on said stud and to trip said spring-controlled bolt, substantially as described.

3. A burglar-alarm and lock comprising an alarm-box provided with a cartridge-receptacle and containing a recess in one of its sides, a locking-bolt adapted to enter said recess, a spring-controlled bolt having an arm and located in said box and normally retracted by said spring, a firing-pin carried by said arm, a guide-pin carried by said arm, and a trigger carried by said box and adapted to bear on said locking-bolt and on said spring-controlled bolt and trip the latter, substantially as described.

4. A burglar-alarm and lock comprising an alarm-box containing a cartridge-receptacle, a spring-controlled bolt having an arm and located in said box and normally retracted by said spring, a trigger carried by said box adapted to engage and trip said spring-controlled bolt, said box being provided with a recess in one of its sides, a locking-bolt adapted to enter said recess and contact with said trigger, said recess being of sufficient extent to permit sufficient travel of said locking-bolt to bear on said trigger and to trip said spring-controlled bolt, substantially as described.

605,845. CALL-BOX SYSTEM. EDGAR R. SALISBURY and ALBERT R. DEAN, Tacoma, Wash., assignors to themselves and Frank R. Taylor, same place. Filed June 22, 1897. Serial No. 641,773. (No model.)



Claim.—1. The combination of a signaling mechanism, comprising a call-box movement, a receiver, a supporting-lever mounted on the main arbor of said movement, a circuit-closer extended from the inner end of the lever, a contact-finger in the main line for engagement therewith, a circuit-closing switch for the main line comprising contact-fingers and adapted to be operated by the circuit-closer carried by the lever upon the downward movement of said lever, and connections comprising a grounding-switch between the main line and said circuit-closer carried by the lever, substantially as specified.

2. In a call-box system, the combination of a swinging hinge-lever for supporting a receiver, a call-box movement for moving said lever in one direction, a circuit-closer operated by said lever, circuit-closing fingers for the main line, means operated by a downward movement of the lever to operate said fingers and momentarily close the main line, and means comprising two switches for grounding and opening the circuit should the main line become inoperative, substantially as specified.

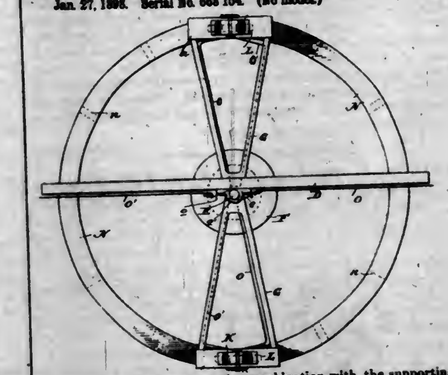
3. In a call-box system, a call-box mechanism comprising a lever containing a hinge and adapted to support a telephone-receiver, a movable insulating-block, and supporting circuit-closers arranged in a shunt-circuit from the main line and adapted to a change of position by engagement with the support-lever when said lever is at its extreme downward movement, substantially as specified.

4. A call-box mechanism, comprising a hinged receiver-supporting lever, a circuit-closing finger carried by the said lever and having connection with the main line, a fixed finger with which such movable circuit-closing finger is designed to engage, a wire extended from the fixed finger to a transmitter, the said wire comprising a resistance, a wire extended from the transmitter to another fixed contact-finger arranged for connection with the main line, means for closing a central office-signaling-device circuit upon a downward movement of the hinged lever, and a local circuit comprising a resistance and receiver, said resistance being wound in close proximity to the resistance contained in the wire leading to said transmitter, substantially as specified.

5. A messenger-call system, comprising main wires, a battery in the main wires for operating all the call-boxes, an ordinary call-box circuit, normally-closed contact-fingers arranged in said circuit, an auxiliary circuit 25, 36, 37, comprising a resistance and transmitter, and means for connecting said auxiliary circuit with the main-line wires, substantially as specified.

6. A messenger-call system, comprising main wires, a battery in the main wires for operating all the call-boxes an ordinary call-box circuit containing the usual apparatus for operating the same, normally-closed contact-fingers arranged in said circuit, an auxiliary circuit 25, 36, 37, comprising a resistance and transmitter, means for connecting said auxiliary circuit with the main-line wires, and a local circuit comprising a resistance and receiver, said resistance being wound in close proximity to the resistance of the auxiliary circuit, substantially as specified.

605,846. CAPSTAN. JAMES B. SAMPLE, Columbus, Ga. Filed Jan. 27, 1898. Serial No. 668,154. (No model.)



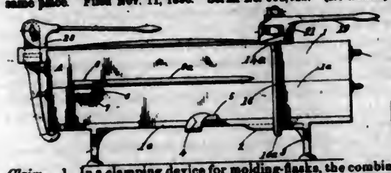
Claim.—1. In a capstan, the combination with the supporting-frame, of an upright shaft, sweeps connected to the shaft, a motor carried by the outer end of each of the sweeps, means for supplying the motors with motive power, drive-wheels driven by the motors and a track on which the wheels move, substantially as described.

2. In a capstan, the combination with a frame, of a vertical shaft loosely mounted therein, sweeps connected to the shaft and extending in opposite directions therefrom, platforms on the outer ends of the sweeps, a motor mounted on each of the platforms, a drive-wheel secured below each platform and having driving connections with the motor thereon and a circular track on which the drive-wheels move, substantially as described

3. The combination with a frame, of a vertical shaft mounted therein, a sweep fixedly secured to the shaft and extending outwardly therefrom, a motor on the outer end of the sweep, means for supplying the motor with motive power, a drive-wheel carried by the outer end of the sweep and having a gear connection with the motor, a circular track on which the wheel moves and a drum on the shaft.

605,847. HAND CLAMPING DEVICE FOR MOLDING-FLASKS.

JOSEPH SCHERER, Buffalo, N. Y., assignor to himself and John Heider, same place. Filed Nov. 11, 1896. Serial No. 611,712. (No model.)



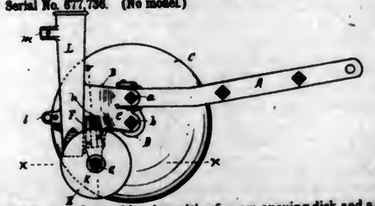
Claim.—1. In a clamping device for molding-flasks, the combination with a longitudinal supporting-frame for supporting the operating parts and holding the top of the mold in place, of a head cross-bar carrying a cam at each end, substantially vertical arms having clamping-hooks at their lower ends and mounted in openings at each end of said cross-bar so that while their lower ends are capable of a free swinging movement to bring their hook ends toward or from the the sides of the flask they cannot turn out of the plane of their swinging movement, cam-arms mounted on the upper ends of the hook-arms adapted to turn horizontally thereon and engage with the cams for raising or lowering the hook-bars and simultaneously swinging their hooks toward or away from the flask, a clamping hook-arm at the opposite end of the clamping device, and means for operating it, substantially as described.

2. A molder's flask and clamping device therefor, comprising a flask formed in two sections, means for alining the sections when united, a supporting base or table having side projections, portions extending from the lower flask portion and engaging with the side projections of the table for limiting the forward longitudinal movement of said flask upon said table, a side clamping device having hooked arms for preventing transverse movement of the flask upon the table, and a forward clamp for preventing the rearward longitudinal movement of the flask upon the table, as set forth.

3. In a molder's flask and clamping device therefor, the combination with the flask formed in two separable halves and having means of alinement and wedge-shaped portions projecting from the lower half, of a supporting-base provided with a transverse ledge, longitudinal ledges, and hooks adapted to catch over the wedge portions projecting from the lower half, a cross-bar adapted to seat upon the top of the flask, a cam at each end of said bar, clamping-arms provided with hooks at their lower ends, adapted to fit over the longitudinal ledges, levers journaled to the upper ends of said clamping-arms and having portions adapted to travel upon the cams, a longitudinal bar or bars extending from the cross-bar to and over one end of the flask, a clamping-arm provided with a hook at its lower end adapted to fit over the transverse ledge and a lever for raising or lowering said clamping arms, as set forth.

605,848. SEEDING-MACHINE.

WALTER W. SCHULTS, Richmond, Ind., assignor to The Wayne Works, same place. Filed Apr. 15, 1896. Serial No. 577,736. (No model.)



Claim.—1. In combination with a furrow-opening disk and a seed-tube of a seeding device, the rotating guard-disk E journaled on an independent center, below and in rear of the center of the furrow-opening disk and opposite the mouth of the seed-tube, substantially as specified.

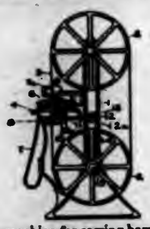
2. In a seeding device in combination with a furrow-opening disk journaled upon a hanger, and a seed-tube mounted thereon, the rotating disk-guard E journaled upon an independent center, below and eccentric to the plane of the furrow-opening disk, substantially as specified.

3. In a seeding device, in combination with a furrow-opening disk journaled upon a hanger, and a seed-tube mounted thereon, the rotating disk-guard E journaled upon an independent center, below and eccentric to the plane of the furrow-opening disk and having its forward edge in frictional contact with said furrow-opening disk, substantially as specified.

4. In a seeding-machine, in combination with a furrow-opening disk and a seed-tube connected to a hanger and a drag-bar support, a seed-guard disk journaled upon a secondary hanger detachably connected to the main hanger and having its center of rotation below and in rear of the axis of the furrow-opening disk, substantially as specified.

605,849. MACHINE FOR SAWING BARREL-HOOPS.

THEODORE C. SPENCER, Bay City, Mich. Filed Sept. 2, 1897. Serial No. 650,444. (No model.)



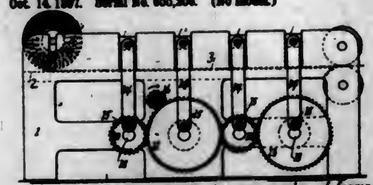
Claim.—1. In a machine for sawing barrel-hoops from poles, the combination with a band-saw having a horizontal sawing-table and a yielding whip-roller; of a yielding-surfaced guide-roller opposite the whip-roller, with its axis parallel with and at the side of the saw-teeth, said guide roller being adapted to be rotated toward the saw by connection with the band-wheel shaft, and serving both as a fulcrum about which the hoop may be swerved in sawing and also as a friction feeding-roller, substantially as described and for the purpose set forth.

2. In a machine for sawing barrel-hoops from poles, having a band-saw and a flexibly-mounted whip-roller; the combination feeding and guiding mechanism herein described, consisting of a vertical guide-roller at the side of the saw and substantially on the same transverse line with the saw-teeth and the axis of the whip-roller, forming a fulcrum about which to swerve the pole being sawed, and having a yielding surface adapted to seize the pole, said roller being rotated from the band-saw shaft and by the friction of its yielding surface feeding the pole at a speed proportional to the velocity of the saw, substantially as described.

3. In a hoop sawing machine, a combined feeding and guiding roller having a yielding surface for feeding the pole by frictional contact therewith, together with means of rotating said roller at a speed proportional to the speed of the saw, the roller being mounted substantially on a line with the teeth of the saw, and forming a fulcrum about which to swerve the pole in feeding, substantially as described.

605,850. PRINTING-PRESS.

ANOS H. SMITH, Brooklyn, N. Y., assignor of one-half to Frederick T. Van Hoesen, same place. Filed Oct. 14, 1897. Serial No. 655,206. (No model.)



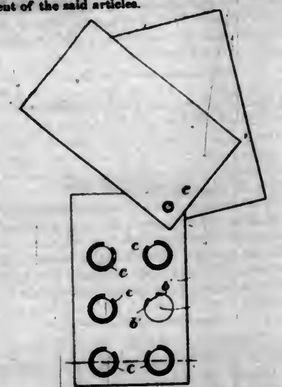
Claim.—1. A printing-press having a succession of forms, actuating-gears of varying diameters for the forms, and crank-pins and links for connecting the forms and gears, said crank-pins being placed equidistant from the centers or shafts of their respective gears substantially as described.

2. A printing-press having a succession of forms, a gear for each form, and crank-pins and links for connecting each form to its respective gear, said gears being made differential or variously speeded, substantially as described.

605,851. DISPLAY-CARD.

HENRY T. SMITH, Pawtucket, R. I., assignor to the Standard Seamless Wire Company, same place. Filed Nov. 11, 1897. Serial No. 658,194. (No model.)

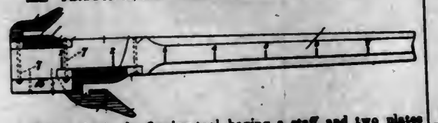
Claim.—1. A display-card having orifices for the reception of articles to be held by the card, said orifices extending through the card, so that articles inserted therein are exposed at both sides of the card, and movable covers hinged to the card at opposite sides thereof, the axis of the hinge being at a right angle to the plane of the card so that the covers will swing in the plane of the card whereby both sides of the card may be simultaneously covered to secure the articles in said orifices, and simultaneously uncovered to permit the displacement of the said articles.



2. A display-card having orifices formed to receive curved articles, such as watch-bows, the said orifices having curved walls formed to bear on the outer surfaces of the watch-bows, and shoulders or abutments formed to bear on the ends of said bows.

605,852. WIRE-FENCING TOOL.

JAMES R. SMITH, Jefferson, Ala. Filed Dec. 13, 1897. Serial No. 661,710. (No model.)



Claim.—1. A wire-fencing tool having a staff, and two plates rigidly secured to the head thereof, each plate having a hook thereon, and the hook of one plate having a recess therein capable of receiving the wire and of holding the wire to permit stretching the same, the other hook being capable of receiving the wire to handle the wire.

2. A wire-fencing tool having a staff, two plates respectively engaging opposite edges of the staff, each plate having a hook thereon, a clamping-plate overhanging one of the first-named plates, and fastening devices passing through the staff and through said plates to securely hold the same.

3. A wire-fencing tool having a staff, the head of which is provided with a recess, a plate rigidly secured in said recess and having the middle portion of its sides beveled oppositely with reference to each other, and a projection on the plate, the projection forming a hook thereon.

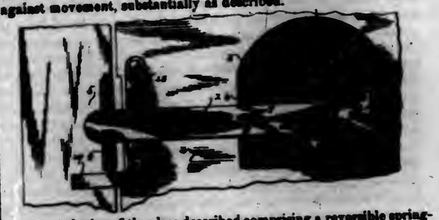
4. A wire-fencing tool having a staff provided with a recess, a plate secured in said recess, an arm or projection extending from the plate, the arm or projection forming a hook, and a clamping-plate rigidly secured against the staff and overhanging one end of the first-named plate, the clamping-plate having a recess receiving the base of said arm or projection.

605,853. COMBINED LATCH AND LOCK.

WILLIAM L. SMITH and HARRY M. PUTT, Huntingdon, Pa., assignors of one-third to Frank H. McGraw, same place. Filed Aug. 28, 1897. Serial No. 649,190. (No model.)

Claim.—1. A device of the class described comprising a casing provided at opposite sides with openings, a pair of pivots mounted within the casing and located adjacent to the openings, a reversible latch-bar provided between its ends with a pivot-opening and adapted to be arranged on either of the said pivots, the rear end of the latch-bar being arranged within the casing, and a spring connected with the casing and the rear portion of the latch-bar and adapted to swing to either side of the former to accommodate itself to the position of the latter, substantially as described.

2. A device of the class described comprising a casing provided at opposite sides with openings and having pivots arranged adjacent to the openings, a latch-bar provided between its ends with a pivot-opening to receive one of the pivots and having a transverse opening at its inner end to receive the other pivot, said latch-bar being reversible from one pivot to the other, and means for locking the latch-bar against movement, substantially as described.



3. A device of the class described comprising a reversible spring-actuated latch-bar, a casing receiving the same, a tumbler pivotally mounted in the casing and provided with a lug adapted to be swung into and out of engagement with the latch-bar, and a reversible stop adapted to be mounted at either side of the keyhole of the casing to limit the swing of the lug, substantially as described.

4. In a device of the class described, the combination with a keeper, of a guide designed to be mounted at the free edge of a gate and provided with a rigid arm extending beneath the keeper, a pivoted latch-bar mounted on the gate, passing through the guide and engaging the keeper, and means for locking the latch-bar against movement, substantially as and for the purpose described.

605,854. SELF-ADJUSTABLE BICYCLE-LAMP.

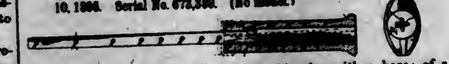
FRANK S. SNYDER, Brice, Ohio. Filed June 26, 1897. Serial No. 643,263. (No model.)



Claim.—A bicycle-lantern embracing the combination of a body part, an oil-reservoir, a ball connected with the reservoir, the said ball having a passage through which oil is supplied to the burner and a socket for the ball connected with the body of the lantern, substantially as described.

605,855. FENCE-POST.

JAMES H. SPARKS, Hobbieville, Ind., assignor of one-half to Asbury F. Mood, Buena Vista, Ind. Filed Mar. 10, 1898. Serial No. 673,389. (No model.)



Claim.—1. In a fence-post, the combination with a base; of a post supported thereby and flat and tapering in cross-section, holes through the post, oblique slots cut from the thinner edge of the post into the holes, and fence-wires removably passing through the latter, substantially as described.

2. In a fence-post, the combination with a base having an aperture in its lower end leading upward to a shoulder and a slot in its upper end leading downward through the shoulder; of a post proper of a shape to fit said slot and having an eye at its lower extremity, a removable stop in said eye and of a size to pass into the aperture and strike the shoulder, and a fence supported by the post, as and for the purpose set forth.

3. In a fence-post, the combination with a base having an aperture in its lower end leading upward to a shoulder and a slot in its upper end leading downward through the shoulder, said slot tapering in width from one edge to the other; of a post proper of a shape to fit said slot and having an eye at its lower extremity, a removable stop in said eye and of a size to pass into the aperture and strike the shoulder, holes through the post where it projects above the base, fence-wires supported in said holes, and a key removably inserted in the lowermost hole at a point just above the upper end of the base, as and for the purpose set forth.

4. The herein-described fence-post base of clay or the like, the same consisting of a body substantially round in cross-section at its

upper end and oval in cross-section near its lower end, a bottom horizontal flange on said body, and upright side wings thereon, substantially as described.

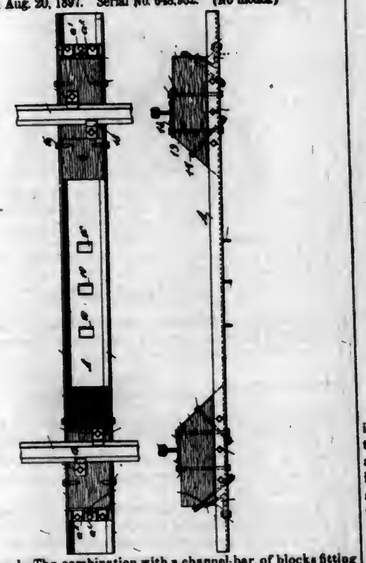
5. The herein-described fence-post base of clay or the like, the same consisting of a body substantially round in cross-section, and upright wings on diametrically opposite sides of said body, said wings being beveled off at their upper ends and thinner at that point and growing thicker to their lower ends, substantially as described.

6. The herein-described fence-post base of clay or the like, the same consisting of a body substantially round in cross section at its upper end and oval in cross-section near its lower end, and upright wings on diametrically opposite sides of said body and corresponding with the longest diameter at its lower end, the outer edges of said wings standing on substantially parallel lines, substantially as described.

7. The herein-described fence-post base of clay or the like, the same consisting of a body substantially round in cross-section at its upper end and oval in cross-section near its lower end, and upright wings on diametrically opposite sides of said body and corresponding with the longest diameter at its lower end, the outer edges of said wings standing on substantially parallel lines and their bodies being thinner at their upper ends and thicker at their lower ends, substantially as described.

8. The herein-described fence-post base, the same comprising an upright body substantially round at its upper end and oval near its lower end, a horizontal bottom flange at its lower end, and upright side wings corresponding with the longest diameter of the body and extending from its upper end where the wings are thinner down to and merging into the flange at its lower end where the wings are thicker, the outer edges of said wings standing in parallel lines and the whole being of clay or the like, substantially as described.

605,356. RAILWAY-RAIL TIE. EDWARD R. STILES, Decatur, Ill. Filed Aug. 20, 1897. Serial No. 648,932. (No model.)



Claim.—1. The combination with a channel-bar, of blocks fitting in said bar, each block having the lower portion of its outer end inclined upwardly and outwardly and its inner end inclined from top to bottom, shoes secured in the channel-bar and having an inclined face resting against the outer inclined portion of the block, and bolts extending through the blocks and bottom of the channel-bar, substantially as described.

2. The combination, with a channel-bar provided with fillets upon its inner face at its flanges, of blocks fitted to the said bar, each block having the lower portion of its outer end inclined, shoes secured to the said bar and fitting between the flanges thereof, the said shoes comprising a horizontal member and an inclined member engaging with the inclined portions at the outer ends of the blocks, clamps secured upon the upper surfaces of the blocks, and fastening devices auxiliary to the said shoes, arranged to hold the blocks firmly in engagement with the said channel-bar, as and for the purpose specified.

3. The combination, with a channel-bar having fillets formed upon its inner face at its flanges, portions of the bottom of the bar being struck downward forming anchors for the bars, of blocks fitted in the said channel-bar, shoes secured to the channel-bar between its flanges and having inclined faces engaging with the corresponding faces at the lower portion of the outer ends of the blocks, bolts passed through the blocks and through and beyond the bottom of the channel-bar, serving as auxiliary anchors for the bar, clamps adapted for engagement with the rails, secured upon the upper surface of the blocks nearer their inner than their outer ends, and bolts passed through the said clamps, through the blocks and through the bottom of the channel-bar, for the purpose set forth.

605,357. STEP-PAD. HENRY C. SWAN, Oshkosh, Wis. Filed Mar. 19, 1898. Serial No. 674,463. (No model.)

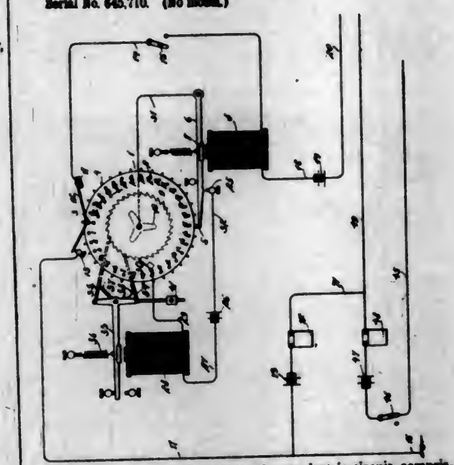


Claim.—1. The combination with a pad having a projecting lip, of a shank having its end arranged to fit under this lip and provided with a hole arranged to receive a bolt upon the pad.

2. The combination with a pad having an intermediate lip struck up therefrom and a bolt secured in said pad; of a shank having a flattened end portion arranged to fit under the lip, and a hole to receive the pad-bolt

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605,358. SIGNALING DEVICE. FRANK B. TAYLOR, EDGAR E. SALISBURY, and ALBERT R. DEAN, Tacoma, Wash. Filed July 23, 1897. Serial No. 645,710. (No model.)



Claim.—1. A controlling device for an electric circuit, comprising a wheel having a number of stop-pins, an armature-lever adapted to engage with the respective stop-pins, an electromagnet located in a main circuit and coacting with said armature-lever, a local circuit in which the armature-lever is comprised and for which it serves as a circuit-closer, and a motor in the local circuit for operating the wheel, substantially as specified.

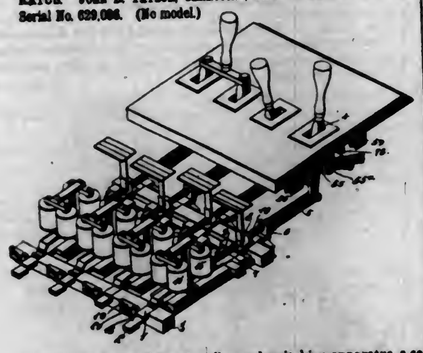
2. In a call-box, a controlling-wheel having a number of stop-pins, an armature-lever adapted to engage with the respective stop-pins, an electromagnet located in the main circuit at the central office and coacting with said armature-lever and a local circuit in which the armature-lever is comprised, the said armature-lever also forming an opening and closing switch for said local circuit, an electromagnet in said local circuit, a motor armature-lever coacting with said electromagnet, a ratchet-wheel movable with the stop-wheel, and a pair of ratchet-bars pivotally connected to the armature-lever and having yielding engagement with the ratchet-wheel, substantially as specified.

3. A central-office controlling device for an electric circuit having a number of call-boxes, comprising an indicator-wheel having a series of holes near its periphery, a series of pins extended radially from the periphery of the wheel, the number of pins being equal to that of the number of holes, a plug for insertion into either one of said holes, a spring contact-plate in the main circuit and adapted to be moved by said plug to break the circuit, an armature-lever actuated by the current through the main circuit, a local circuit in which said armature-lever is comprised, the said armature-lever forming a circuit-closer for the local circuit and also providing a stop for the indicator-wheel by engaging with one of its pins, an electromagnet in said local circuit, a motor armature-lever coacting with said electromagnet, a ratchet-wheel carried by the indicator-wheel, spring-pressed ratchet-bars pivotally connected to extensions from the motor armature-lever and engaging with the ratchet-wheel, and a retarding device for the wheels, substantially as specified.

4. In a call-box located in an electric circuit controlled from a central station, a wheel having a series of stop-pins, a contact-plate carried by said wheel, a motor located in a local circuit for rotating said wheel, a call-wheel having projections on its periphery corresponding to the number of the box, a local circuit for operating a motor to rotate said call-wheel, an armature-lever for closing said local circuit, and an electromagnet for drawing said armature to its closing position, the said electromagnet being located in the same circuit, the circuit through which is closed by the contact-plate carried by the first-named wheel, substantially as specified.

5. In a call-box, the combination with an electric circuit controlled from a male office, of a circuit-closing wheel, a motor for operating said wheel, comprising an electromagnet in a local circuit controlled from the main circuit, an armature-lever coacting with said electromagnet, a ratchet-wheel connected to the circuit-closing wheel, a ratchet-bar extended from the ratchet-wheel to a downwardly-extended arm of the armature-lever, another ratchet-bar extended from the ratchet-wheel to an upwardly-extended arm of the armature-lever, an adjustable pendulum-like governor for the motor, carried by the armature-lever, and a contact-plate having connection with the electromagnet and adapted for intermittent contact with the ratchet-wheel, to open and close the circuit through the electromagnet, substantially as specified.

605,359. RAILWAY SIGNALING AND SWITCHING APPARATUS. JOHN D. TAYLOR, Chillicothe, Ohio. Filed Mar. 24, 1897. Serial No. 629,096. (No model.)



Claim.—1. In a railway signaling and switching apparatus, a series of operating-levers, primary and secondary locking-bars, connections between the primary bars and levers, yielding connections between the primary and secondary bars, holding-latches for the secondary bars, and electrical means for releasing the latches, substantially as specified.

2. In a railway signaling and switching apparatus, a series of operating-levers, primary and secondary locking-bars arranged in pairs, one upon the other, connections between the primary bars and levers, spring-yielding connections between the pairs of bars, and electrically-actuated locking devices for the secondary bars, substantially as specified.

3. In a railway switching apparatus, a series of operating-levers, primary and secondary locking-bars arranged in pairs, one upon the other, link connections between the primary bars and levers, spring-yielding connections between the primary and secondary bars, two latches for controlling the opposite movements of each secondary bar, spring-pressed pawls, one at each end of each primary bar, adapted to engage notches in the primary bars and hold said primary bars until released by the secondary bars and electromagnetic means for lifting the latches and releasing the secondary bars substantially as specified.

4. A railway switching mechanism, comprising operating-levers, primary and secondary locking-bars, link connections between the primary bars and levers, spring-yielding connections between the primary and secondary bars, holding-latches for the secondary bars, electromagnets for raising the latches, and a switch-operating motor by means of which the magnets are energized at the proper time by currents generated by the rotation of the switch-motor momentum, substantially as specified.

5. In a railway-switch-operating mechanism, a series of operating-levers, circuit-closers carried by the levers, primary and secondary locking bars, link connections between the primary bars and levers, spring-yielding connections between the primary and secondary bars, holding-latches for the secondary bars, spring pressed pawls for holding the primary bars until the secondary have made complete movement, electromagnets for lifting the latches, and electric circuits comprising the switch-operating motor, an automatic electric reversing-switch operated by the motor, the circuit-closers attached to the operating-levers, the electromagnets and the electrical connections substantially as specified.

6. In a railway signaling apparatus, a signal, a motor for reversing the same, a counterbalanced lever for restoring the signal to normal position and rotating the motor in the reverse direction, a signal-operating lever, a two-position circuit-closer attached to the lever, a primary locking-bar, a secondary locking-bar, a link connection between the primary bar and lever, a spring-yielding connection between the two bars, a latch for controlling the movement of the secondary bar, and an electromagnet for raising said latch, the said magnet being in a circuit leading from the motor and energized by a current generated by the reverse rotation of the motor, substantially as specified.

7. In a railway signaling apparatus, two semaphores or signals, a motor, sheaves loosely mounted on the shaft of the motor, a clutch mechanism between said shaft and the sheaves, the said clutch mechanism operating to rotate the sheaves in opposite directions when the motor is reversed, and connections between said sheaves and semaphores or signals, substantially as specified.

8. A railway-signal, comprising two swinging signals, a motor for operating the same, two sheaves loosely mounted on the shaft of the motor, a single-toothed ratchet-wheel arranged at one side of each sheave, pawls carried by the sheaves for engaging the said teeth, counterbalanced levers on the support for the signals, connections between the sheaves and levers, and connections between the levers and signals, substantially as specified.

9. In a railway-signal-operating mechanism, two semaphores or signals, a reversible electric motor for operating the signals, a clutch mechanism on the shaft of the motor for selecting either one or the other signal depending on the direction of rotation of the motor, a polarized pole-changing relay for determining the direction of current through the motor-armature, a two-position circuit-closer attached to each of the two signal-operating levers, one for each signal, said circuit-closers acting conjointly to control the circuit through the polarized relay and severally to control circuits through the motor, a generator and the electrical connections, substantially as specified.

605,360. BURIAL APPARATUS. RICHARD H. THORNE, El Paso, Tex. Filed Mar. 2, 1898. Serial No. 672,253. (No model.)

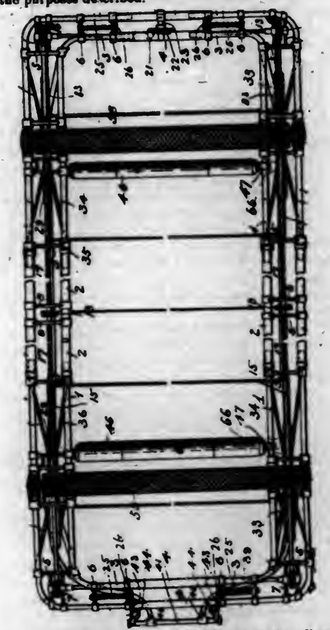
Claim.—1. In a burial device, a frame composed of side members formed in sections and having a sliding connection with each other, end members formed in sections having a sliding connection with each other, and screws operatively connected with the sliding members for moving both the side and the end members and holding the same to their adjustment, and means for supporting a casket between the side and end members of the frame, substantially as and for the purposes described.

2. In a burial device, a frame composed of centrally-located stationary members at both the sides and ends of the frame, adjustable members extended along a portion of the sides and a portion of the ends of the frame and adjustably connected at their ends to the stationary members at the sides and the ends of the frame, and mechanically-operated means for simultaneously shifting the movable members either longitudinally or laterally for the purpose of varying the dimensions of the frame, substantially as and for the purposes described.

3. In a burial device, the frame composed of end and side members, the side members being formed in sections which have a sliding connection with each other, screw-shafts provided with gear-wheels and formed with right and left handed threads which engage with the movable sections of the side members so as to adjust the same longitudinally, rotatable shafts located adjacent to said screw-threaded shafts and provided with gear-wheels adapted to be thrown into and out of gear with the wheels on the screw-shafts, a shaft extending transversely at the end of the frame and provided with gear-wheels engaging with wheels on the rotatable shafts at the sides of the frame, and means for rotating said end shaft so as to transmit motion to the rotatable side shafts and the adjusting-screws, substantially as and for the purposes described.

4. In a burial device, the frame composed of the side and end members, the end members having a sliding connection with each other to permit lateral adjustment of the frame to vary its width, screws provided with gear-wheels and having a connection with the movable

members of the frame so as to adjust the same laterally, shafts located at opposite ends of the frame and each provided with shiftable gear-wheels adapted to be brought into and out of engagement with the gear-wheels on the adjusting-screws, means connecting the said end shafts with each other so that motion may be transmitted from one to the other, and mechanism for rotating the shafts, substantially as and for the purposes described.



5. In a burial device, the frame composed of the adjustable side members and end members, screw-shafts for adjusting the side members and provided with gear-wheels, rotatable shafts located at opposite sides of the frame and provided with spools carrying straps adapted to be wound upon and unwound from the spools by the rotation of said shafts, a transverse rotatable shaft geared with said side shafts, movable gears on said side shafts adapted to be moved into and out of engagement with the gears on the screw-shafts, and means for rotating the transverse end shaft so as to transmit motion to the side shafts, substantially as and for the purposes described.

6. In a burial device, the combination of the frame provided with rotatable shafts carrying spools, straps or bands secured to said spools so as to be wound upon and unwound therefrom, said straps being secured at one end to the spools and formed with a separable intermediate strap-section, the meeting ends of the straps being provided one with hooks and the other with eyes to permit the connection and separation of the parts of the straps, said eyes being formed of tips with cut-out portions and a rod passed transversely across the cut-out portions, substantially as and for the purposes described.

7. In a burial device, the combination with the frame, of rollers suspended between the opposite sides of the frame, hangers secured to one side of the frame and having one end of the rollers secured thereto to permit rotation of the rollers and swinging of the same when released at one end, and journal-pins located at the opposite side of the frame and adapted to be inserted and withdrawn from the ends of the rollers so as to support the rotatable rollers and when retracted release the rollers, substantially as and for the purposes described.

8. In a burial device, the combination with the frame, of rollers supported between the opposite sides of the frame, said rollers being formed in telescopic sections and provided with means for securing the sections at their adjustment, substantially as and for the purposes described.

9. In a burial device, the combination with the frame, of the rollers supported between opposite sides of the frame, said rollers being formed in telescopic sections, one section having a screw extending therefrom into the other section, a nut in said section to receive the screw, and means for locking the screw to its adjustment, substantially as and for the purposes described.

10. In a burial device, the combination of the frame laterally adjustable to vary its width, supporting-wheels for the frame, pivoted tongues extending in front of one set of wheels and provided with brake-shoes to bear against the wheels to steady the frame, and a handle connecting the opposite tongues and permitting the adjustment of the tongues thereon to correspond with the width adjustment of the frame, substantially as and for the purposes described.

11. In a burial device, the combination of the frame for supporting the casket, wheels supporting the frame, the tongues hinged at one end to a portion of the frame of the wheels, a handle having a hinged connection with the tongues so as to move the casket-supporting frame, and means for limiting the movements of the handle both vertically and horizontally, substantially as and for the purposes described.

12. In a burial device, the combination with the frame, of the mantle formed with an outer and an inner curtain adapted to lie respectively to the outside and the inside of the frame and formed in sections so as to be adjustable to vary the dimensions thereof, substantially as and for the purposes described.

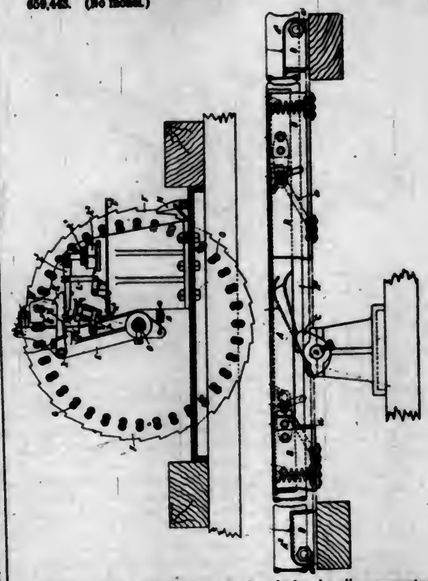
13. In a burial device, the combination with the frame, of the mantle enveloping the frame and having an inside curtain, and swinging arms adapted to contact with the inside curtain and when raised to elevate the inside curtain and form a canopy over the space inside of the frame, substantially as and for the purposes described.

14. In a burial device, the combination with the frame, of the curtain, the rotatable shafts, the arms attached thereto, means to rotate said shafts to elevate said arms, and means for holding the arms in their elevated position, substantially as and for the purposes described.

15. In a burial device, the combination with the casket-supporting frame and its supporting-wheels, of the track-rails adapted to lie on opposite sides of a grave and receive said wheels to support the burial device over the grave, and means attached to the rails for suspending a curtain inside the grave, substantially as and for the purposes described.

605,861. FOG SIGNALING APPARATUS FOR RAILWAYS.

HERBERT TOMLINS, London, England, assignor to the Electric Fog-Signal Syndicate, Limited, same place. Filed Nov. 22, 1897. Serial No. 659,443. (No model.)



Claim.—1. In the herein-described explosive signaling apparatus, a revolving cartridge holding disk having pairs of cartridge-holding chambers or barrels arranged in a circle, the two members or barrels of each pair being on the same radius, in combination with a breech-block common to the two chambers or barrels, and hinged to swing ontward toward the circumference when opened, firing-pins for the two barrels yoked together, and a firing-hammer adapted to act on both firing-pins substantially as specified.

2. In the herein-described explosive signaling mechanism the combination, with a revolving cartridge-holding disk provided with breech-closing and firing mechanisms as described, of a spring-projected retractable wiper for acting on the firing-hammer as described, the wiper being carried by an arm on a treadle-operated rock-shaft, an electromagnet whereof the armature is connected to the wiper so as, when attracted, to retract the wiper from operative position, a switch connected to the signal-operating mechanism so as to close the circuit of the electromagnet when the signal is moved to "all right," and of retaining mechanism consisting of a lever-bolt caused to engage the wiper and retain it in the retracted inoperative position until, by the oscillation of the rock-shaft by the depression of the treadle, the lever-bolt is tripped by contact with a fixed abutment and the wiper is permitted to resume its operative position in readiness for acting when next the signal is put to "danger" substantially as specified.

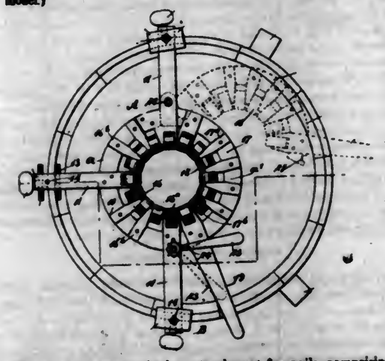
3. In the herein-described explosive signaling apparatus the combination with a revolving cartridge-holding disk, of a gravity or spring operated pawl-arm, engaging with the disk so as to give step-by-step motion thereto, and fast on a rock-shaft provided with another arm adapted when raised to be acted on by a wheel-depressed treadle, retaining mechanism consisting of a latch-lever engaging with a catch for preventing the action of the lever, and of electromagnetic releasing mechanism for disengaging the latch on the closure of the magnet-circuit by a switch operated by the movement of the signal to "danger" so that when the pawl-arm is thus permitted to act, the cartridge-carrying disk will be partially rotated to bring the next chamber to firing position and raise the other arm on the rock-shaft into position to be acted on by the depression of the treadle as specified.

4. In the herein-described explosive signaling mechanism, the combination with a revolving disk having cartridge-holding chambers provided with breech-closing blocks, fire-pins and a spring-actuated hammer pivoted in position to act on the firing mechanism which is in firing position, of a radial wiper mounted on a rock-shaft concentric with the cartridge-disk so as to swing through an arc by the rocking motion of the shaft, the wiper being mounted adjustably in such position that it may either be projected so as to act on the said fire-hammer, or be retracted so as to pass clear of the hammer without acting on it, according as the fog-signal is or is not to be fired, as specified.

5. In the herein-described explosive signaling mechanism, the combination with each breech mechanism having its own firing-hammer, of an indicator consisting of a spring-plate pivoted to the breech-block in position to be swung beneath the fire-hammer of the mechanism to which it pertains, a spring tending to swing such indicator-plate from beneath the hammer, and a lip on the indicator-plate adapted to be swung into locking engagement with the said hammer and to be released therefrom by the cocking of said hammer, substantially as specified.

605,862. MOP-WRINGING ATTACHMENT FOR PAILS.

FRANK TRIBBLE, Greensburg, Ind. Filed Feb. 3, 1896. Serial No. 663,922. (No model.)



Claim.—1. A mop-wringing attachment for pails, comprising a section arranged for attachment to a pail, and a pivotal section, both sections being provided with rollers at their inner edges, and means for locking the two sections together, for the purpose specified.

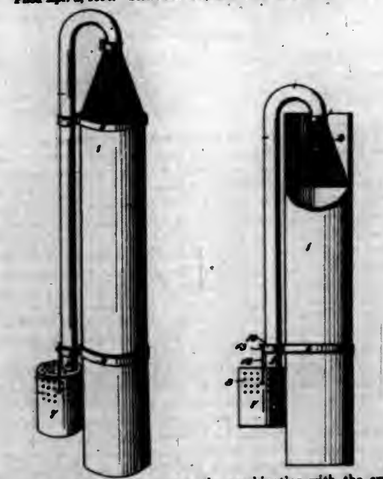
2. A mop-wringing attachment for pails and like receptacles, consisting of pivotally-connected semicircular sections, a locking device for the two sections, rollers located at the inner edges of the sections, and arms projected from one of the sections, provided with clamps, for the purpose specified.

3. A mop-wringing attachment for pails and like vessels, consisting of two segmental pivotally-connected sections, both sections being provided at their inner edges with rollers, one section having arms projected therefrom and clamps attached to the said arms, the other section being provided with a handle whereby it may be readily opened from the opposing section, for the purpose specified.

4. A mop-wringing attachment for pails and like receptacles, consisting of pivotally-connected segmental sections, rollers held to revolve at the inner edges of the said sections, arms projected from one of the said sections, clamps adjustable upon said arms, a handle projected from the opposing section, each section being provided with recesses adapted to register, and a lock-lever pivoted upon one section and provided with a member arranged to enter the recesses of the two sections when said recesses are brought in registry, as specified.

605,868. SPARK-ARRESTER.

JAMES W. TROUTT, Elkton, Ky. Filed Apr. 2, 1897. Serial No. 630,363. (No model.)



Claim.—In a spark-arrester, the combination with the smoke-stack, of a conical sieve, a deflector arranged at or near the top thereof, a pipe leading from the reduced end of said sieve downward along and in parallel relation to the stack, a metallic band extending around the stack adjacent to the discharge end of said pipe and having a portion which embraces the pipe for supporting the latter, and also provided with an upwardly-pointed hook, and a perforated water-receptacle having an opening in its upper end to receive the discharge end of said pipe, and also provided with a bail to be received upon the hook of the band, substantially as described.

605,864. BOOKBINDING.

JOSHUA R. WALES, Marlborough, Mass. Filed Oct. 2, 1897. Serial No. 653,882. (No model.)



Claim.—The combination, with the body of a book and the covers proper, of the back-binding, composed of the strip of fabric having transversely-separated portions or tongues, 4 and 5, which are secured on the covers and body, respectively, and the tapes 7, which are arranged within such binding, and passed through longitudinal slits in the tongues 4, and glued down on such tongues, as shown and described.

605,865. BICYCLE.

ALBERT S. WEAVER, Hamilton, Canada. Filed Sept. 9, 1896. Serial No. 605,281. (No model.)

Claim.—1. A bicycle provided with a front frame extending transversely and having side arms and top and bottom cross-arms connecting the side arms, a center brace located between and parallel with the side arms and connecting the top and bottom cross-arms, a brace connecting the said center brace with the upper part of the

steering-head for the front wheel, braces connecting the said steering-head with the bottom cross-arm at each side of the said center brace, and a saddle and a pedaling device carried at each side of the said frame substantially as shown and described.



2. In a bicycle, the combination with a front frame extending transversely and provided with side arms and top and bottom cross-arms, a center brace connecting the said top and bottom cross-arms, and a brace connecting said center brace with the steering-head of the front wheel to leave the side of the frame open at the front on both sides of the said brace, of a rear frame extending transversely and adapted to carry the rear or drive wheel, a longitudinally-extending brace connecting the middle portion of the top of the rear frame with the middle portion of the top of the front frame, and braces connecting the lower portions of the sides of the front and rear frames with each other, whereby an open space is left between the sides of the front and rear frames, the sides of the front and rear frames being arranged to carry saddles and pedaling devices, substantially as shown and described.

3. In a bicycle, a frame comprising a transversely-extending front frame adapted to carry saddles and pedaling devices, the said front frame being provided with side arms and top and bottom cross-arms connecting the side arms, a center brace connecting the top and bottom cross-arms, a steering-head for the front wheel, a brace connecting the upper part of the steering-head with the said center brace, braces connecting the lower part of the steering-head with the bottom cross-arm of the frame at each side of the center brace, and a transversely-extending rear frame connected with the front frame and arranged to carry the rear wheel and also arranged to carry saddles and pedaling devices, substantially as shown and described.

4. In a bicycle, a transversely-extending front frame adapted to carry saddle and pedaling devices and having side arms connected by top and bottom cross-arms, a center brace connecting the top and bottom cross-arms, a steering-head provided with forks for the front wheel, a cross-arm held on the upper end of the steering-head and provided at each end with a head for the handle-bars, a brace connecting the upper part of the steering-head with the said center brace, braces connecting the lower part of the steering-head with the bottom cross-arm of the frame at each side of the center brace, and a transversely-extending rear frame connected with the front frame and arranged to carry the rear wheel and also arranged to carry saddles and pedaling devices, substantially as shown and described.

5. A bicycle, comprising a transversely-extending front frame having side arms connected by top and bottom cross-arms, a center brace connecting the top and bottom cross-arms a steering-head provided with forks for the front wheel, a brace connecting the upper part of the steering-head with the said center brace, a lower brace connecting the said steering-head with the bottom cross-arm, a transversely-extending rear frame connected with the front frame and carrying the rear or drive wheel, saddles and pedaling devices carried by each side of the front and the rear frame, and steering devices for the said front fork, substantially as shown and described.

6. In a bicycle, a transversely-extending front frame having side arms connected by top and bottom cross-arms, a center brace connecting the top and bottom cross-arms, a steering-head provided with forks for the front wheel, a brace connecting the upper part of the steering-head with the said center brace, a lower brace connecting the said steering-head with the bottom cross-arm of the front frame, a transversely-extending rear frame connected with the front frame and carrying the rear or drive wheel, saddles and pedaling devices carried by each side of the front and the rear frame, a handle-bar for each of the saddles, and steering devices for the front fork, substantially as shown and described.

7. A bicycle-frame comprising a transversely-extending front frame provided with side arms and a top and bottom cross-arm, a center brace connecting the top and bottom cross-arms, a steering-head for the front fork, inclined braces connecting the said steering-head with the bottom cross-bar at each side of the said center brace, a brace connecting the upper end of the steering-head with the center brace of the said front frame, a transversely-extending rear frame connected by longitudinally-extending braces with the front frame and comprising side arms and a cross-arm connecting the side arms, the said rear frame having a rearward extension at each side in which the rear wheel of the bicycle is adapted to be journaled, the sides of the front and the rear frame being arranged to carry saddles and pedaling devices, substantially as shown and described.

8. A bicycle, comprising a transversely-extending front frame carrying saddles and pedaling devices at its sides, a transversely-extending rear frame carrying the rear wheel of the bicycle and likewise carrying saddles and pedaling devices at its sides, a central longitudinally-extending brace connecting the upper parts of the front and the rear frames, braces connecting the sides of the said front and rear frames near the bottoms thereof, arms extending rearwardly from each side of the front frame and carrying the rear handle-bars, a steering-head in which the fork of the front wheel is mounted, a rearwardly-extending brace connecting the said steering-head with the front frame, and a cross-arm held on the upper end of the steering-head and provided at each end with a head for the front handle-bars, substantially as shown and described.

9. A bicycle, comprising a transversely-extending front frame carrying saddles and pedaling devices at its sides, a transversely-extending rear frame carrying the rear wheel of the bicycle and also carrying saddles and pedaling devices at its sides, a central longitudinally-extending brace connecting the top portions of the front frame with the top portion of the rear frame, longitudinally-extending braces connecting the side of the said front and rear frames, at the lower portion thereof, horizontally-arranged arms extending rearwardly from the sides of the front frame and carrying the rear handle-bars, a steering-head in which the fork of the front wheel is mounted, a brace connecting the said steering-head with the front frame, a cross-arm held on the upper end of the steering-head and provided at each end with a head for the front handle-bars, and a connection between the stems of the front handle-bars and the front fork for steering the bicycle, substantially as shown and described.

10. In a bicycle, a frame frame comprising side arms connected by a top and a bottom cross-arm, a center brace connecting the said top and bottom cross-arms, the said side arms being arranged to carry saddles at their upper ends, and pedaling devices near their lower ends, a rear frame having side arms connected by a top cross-arm, the said rear frame being likewise arranged to carry saddles and pedaling devices at the sides, a central longitudinally-extending brace connecting the top cross-arm of the rear frame with the top cross-arm of the front frame, lower braces attached to the bosses carrying the pedal-shafts and connecting the side arms of the front and rear frames, longitudinal bottom braces connecting the extreme lower ends of the side arms of the front and rear frames with each other, the extreme rear ends of the said bottom braces extending upwardly and rearwardly to connect with rear lower braces extending rearwardly from the bosses of the pedal-shafts of the rear frame, the rear ends of the said rear lower braces being arranged to carry the rear wheel of the bicycle, upper rear braces connecting the rear ends of the said lower rear braces with the upper ends of the side arms of the rear frame, arms extending rearwardly from the upper part of the side arms of the front frame and adapted to carry the rear handle-bars, a steering-head for the fork of the front wheel, rearwardly-extending braces connecting the lower part of said steering-head with the lower cross-arm of the front frame, a brace connecting the upper part of the steering-head with the center brace of the front frame, and a cross-arm held on the upper end of the steering-head and provided at each end with a head for the front handle-bars substantially as shown and described.

605,866. BARRICADE-ALARM FOR DOORS. GEORGE D. WILTSEE, Reno, Nev. Filed Jan. 21, 1898. Serial No. 667,456. (No model.)

Claim.—1. A barricade-alarm for doors comprising a strut-bar having at its upper end a sliding connection with the door and an alarm mechanism supported on the door and including a trip-bar arranged for operation by the upper end of the strut-bar substantially as set forth.

2. A barricade-alarm for doors, comprising an alarm mechanism adapted to sound the alarm repeatedly and having a trip-bar adapted to release the alarm and a catch or detent for holding said bar when adjusted to release the alarm and a strut-bar for operating the trip-bar substantially as set forth.

3. In an apparatus substantially as described the combination of the door, a strut-bar having at its upper end a sliding connection with said door and the alarm supported independently of the strut-bar and having a trip portion arranged to be released by said strut-bar substantially as described.



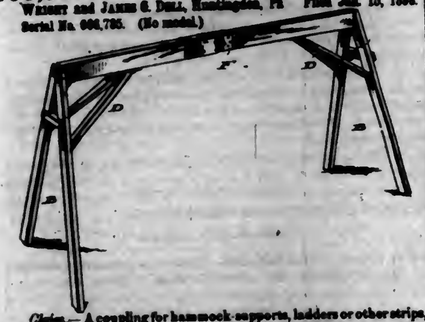
4. A barricade-alarm for doors comprising a frame-plate supporting the alarm mechanism and provided with brackets, a strut-bar having a longitudinally-elongated slot and fitted between said brackets, the pin or bolt passed through said slot whereby the strut-bar has a sliding connection with the frame-plate, and the alarm mechanism having a trip portion arranged for operation by the strut-bar substantially as described.

5. A barricade-alarm for doors comprising the bell, the spring for sounding the bell, the detent-pawl for restraining said spring, the trip-bar arranged at one end to release said detent-pawl, the strut-bar for operating said trip-bar to release the detent-pawl, and a detent for holding said trip-bar when adjusted by the strut-bar substantially as set forth.

6. In an alarm mechanism the combination of the strut-bar having at its upper end a sliding connection with the door, alarm mechanism arranged to be released by such upper end of the strut-bar, and a seat-plate to receive the lower end of the strut-bar substantially as set forth.

7. A barricade-alarm for doors, comprising the door, the strut-bar, the alarm mechanism arranged for operation by the strut-bar, a seat-plate in the floor, an eye or staple on the door and a bolt at the swinging end of the strut bar arranged to engage the seat-plate when the strut-bar is lowered and the eye or staple when the strut-bar is raised substantially as set forth.

605,867. COUPLING FOR HAMMOCK-SUPPORTS. WILLIAM H. WRIGHT and JAMES G. DELL, Huntingdon, Pa. Filed Jan. 15, 1898. Serial No. 666,795. (No model.)



Claim.—A coupling for hammock-supports, ladders or other strips, consisting of the two sections hinged together the notched plates fastened to the sides of the sections, the plates and loops passing through the same and secured to the sections, and the two interlocking spring-strips on the upper edges of the said sections, as shown and described.

605,868. CROSSCUT-SAW. RUDOLF WIESELER, Chicago, Ill. Filed Aug. 5, 1897. Serial No. 647,288. (No model.)



Claim.—1. In a crosscut-saw, the combination of a saw-blade rigidly attached to a handle, an opposing saw-blade pivotally attached to said handle, and a spring pressing upon said pivoted blade.

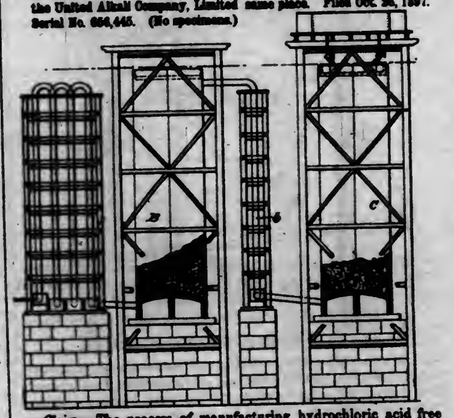
2. In a crosscut-saw, the combination of a crescentic saw blade attached to a handle, an opposing segmental saw-blade pivotally attached to said handle, and a spring pressing upon said pivoted blade.

3. In a crosscut-saw, the combination of a crescentic saw-blade attached to a handle, an opposing segmental saw-blade pivotally attached to said handle, a spring pressing upon the pivoted blade, and means for determining the tension of said spring.

4. In a crosscut-saw, the combination of a crescentic saw-blade attached to a handle, an opposing segmental saw-blade pivoted to said handle, a spring pressing upon said pivoted blade, a gear-wheel to the hub of which the heel end of said spring is attached, an idle-wheel engaging with said gear-wheel, a crank-handle for turning the pinion, a ratchet-wheel on the pinion-shaft and a pawl upon the handle, which engages with the ratchet-wheel.

5. In a crosscut-saw, the combination of a handle carrying ratchet and gear wheels, a spring controlled by said wheels, crescentic and segmental blades adapted to encircle a tree, and one of which is pivoted and pressed upon by said spring and a flat chain rest or support, as and for the purpose described.

605,869. PROCESS OF MAKING HYDROCHLORIC ACID. JOHAN R. WYLDE and JOHAN W. KYNASTON, Liverpool, England, assignors to the United Alkali Company, Limited same place. Filed Oct. 26, 1897. Serial No. 656,445. (No specimens.)



Claim.—The process of manufacturing hydrochloric acid free from arsenic from gases evolved by the treatment of an alkaline chlorid with ordinary arsenical sulfuric acid or the gases known as "roaster-gas," or the gases evolved during the calcination of a mixture of bisulfate of soda with common salt, consisting in first cooling the said gases, and then passing them in the presence of chlorin through or in contact with coke, in a "dry tower" in which the arsenic is retained, and thence to a wet tower, in which the hydrochloric acid is condensed, substantially as hereinbefore described.

605,870. TRESTLE. HARRY L. ADAMS, Wilmington, Vt. Filed Sept. 20, 1897. Serial No. 653,239. (No model.)



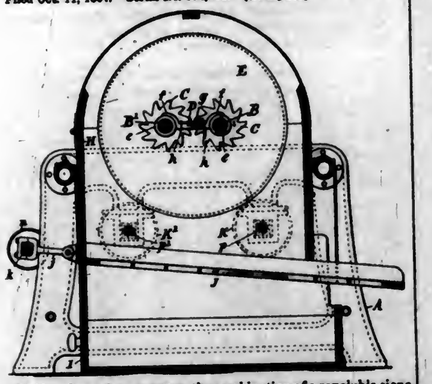
Claim.—1. A saw-bench consisting of a top, legs hinged thereto having a four-way movement, a toggle-joint interposed between each pair of legs, a brace-rod connected at one end to the joint and means for engaging the rod in position for holding the joint in the open or folded position of the legs, substantially as described.

2. In combination, a top, two pairs of legs hinged thereto so as to have a four-way motion; a toggle-joint interposed between each pair of legs, a brace-rod pivoted to the center of each of the toggle-joints, and a guide-strip having a slot formed therein through which the inner end of said brace-rod passes and is adapted to slide, as specified.

3. The herein-described combination of the top A, the legs B hinged thereto so as to have a four-way motion, clips G swiveled to said legs, a toggle-joint, the members of which are pivoted to the clips and to each other, a brace-rod K having its outer end bifurcated and pivoted to the center of the toggle-joint, a guide-strip secured to the under side of the top and having a slot formed therein, said slot terminating at each end in an enlargement, and a reduced end L formed with the brace-rod adapted to run within said groove and be locked in one of said enlargements, substantially as and for the purpose set forth.

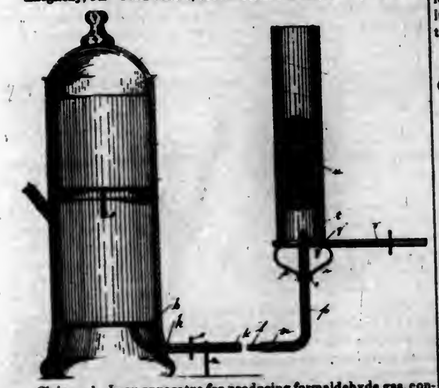
4. In combination with a saw-bench of the character described, hinged legs, toggle-levers for forcing said legs apart, a brace-rod connected to the levers, an angle-iron through which the outer end of said rod passes, said iron having a slot and locking-notches formed therein, a cam-lever pivoted upon the end of the brace-rod, and a cam formed with said lever adapted to force this end of the brace-rod into the locking-notches, and a spring adapted to hold the cam-lever in its locked position, as specified.

605,371. TOBACCO-CUTTER. JOHN B. ADT, Baltimore, Md. Filed Oct. 11, 1897. Serial No. 654,773. (No model.)



Claim.—In a tobacco-cutter, the combination of a revoluble sieve, a pair of revoluble shafts within the sieve, saws on the said shafts, spacing-collars between the saws, and removable bridge cutters of a width corresponding with that of the spacing-collars situated between the saws with their ends resting on and supported by the said spacing-collars, substantially as specified.

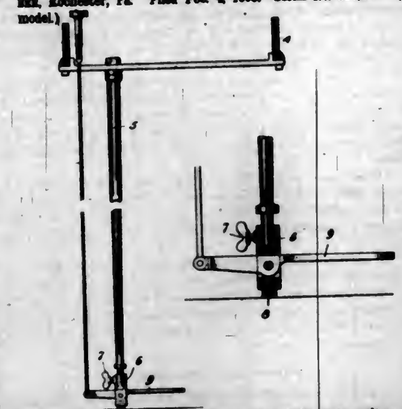
605,372. FORMALDEHYDE-GENERATOR. OSCAR I. AFFELDER, Allegheny, Pa. Filed June 1, 1897. Serial No. 639,064. (No model.)



Claim.—1. In an apparatus for producing formaldehyde gas, consisting of a tank having two compartments, the upper tank receiving and supplying the lower tank with alcohol, a pipe connected to the lower tank and carrying a wick at its free end, a burner surrounding said free end of the pipe, and connected thereto by means of braces, a gas-supply connected to said burner, supports projecting inwardly from said burner, a metallic chimney engaging said supports, so that the flame acts upon the outside of said chimney and having a foraminous mantle arranged thereto, said chimney producing a draft so that the vaporized alcohol will come in contact with the mantle or casing, whereby formaldehyde gas will be generated and will pass out through the top of the chimney, substantially as shown and described.

2. In an apparatus for generating formaldehyde gas, consisting of a tank having two compartments, a discharge-pipe leading from the lower compartment and carrying a wick in the discharge and a burner having suitable connections with a gas-supply, said burner surrounding the end of the discharge-pipe and connected thereto, a metallic chimney supported within said burner so that the flame acts upon the outside thereof and having a foraminous mantle arranged therein, said chimney producing a draft so that the vaporized alcohol will come in contact with said foraminous casing or mantle, whereby formaldehyde gas will be generated and pass out through the chimney, substantially as shown and described.

605,373. TYPE-WRITER ATTACHMENT. FREDERICK G. BARBER, Rochester, Pa. Filed Feb. 4, 1895. Serial No. 537,156. (No model.)



Claim.—1. In a platen-shifting attachment for type-writers, the combination with a shifting mechanism, of a foot-lever arranged to receive the toe portion of the foot beneath it and to shift the platen by an upward lift.

2. The combination with a shifting device for a type-writer, of a foot-lever arranged to receive the forward part of the foot beneath its projecting end, the other end of the lever having a direct link connection to the shifting device so that an upward lift of the foot will shift the platen.

3. The combination with a shifting device for a type-writer, of a foot-lever arranged to receive the toe portion of the foot beneath its projecting end, an adjustable fulcrum for said lever, and a connection between the lever and the shifting device.

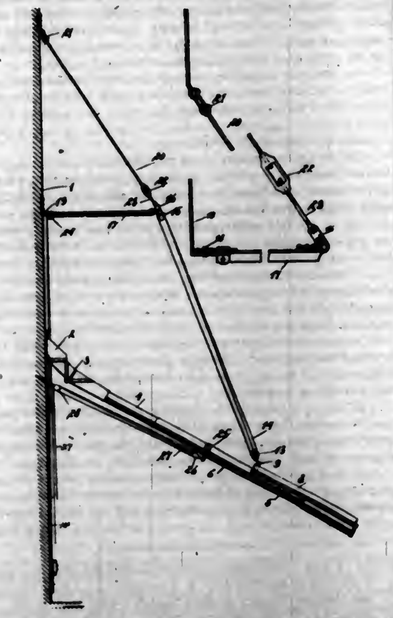
605,374. TRACE-HOLDER. GRANVILLE BARTLETT, Lexington, Ky. Filed Nov. 27, 1897. Serial No. 659,947. (No model.)



Claim.—1. A trace-holder consisting of a single piece of wire having its middle portion constructed in the form of a helical spring forming a shank, and having at one end of said spring two attaching-eyes one on either side, and at the other end a hook with a prolonged beak formed of the wire doubled on itself and having its free end turned back and housed within the helix substantially as and for the purpose described.

2. The combination with a singletree having a vertical hole through its end; of a trace-holder consisting of a helical spring with attaching-eyes at one end, and a hook at the other whose beak is made double with the free end of the wire extended into the coil of the spring, said beak being extended vertically past the level of the coil or shank portion and adapted to pass through the hole in the singletree substantially as and for the purpose described.

605,375. GRAIN-SPOUT. ALBERT D. BELLINGER, West Superior, Wis. Filed Nov. 29, 1897. (Serial No. 660,053. (No model.)



Claim.—1. A grain-spout, comprising two telescopic sections, one of said sections being longitudinally slotted at the top and adapted to slide on the other section, an arm extended from the lower end of the upper section through said slot, means for raising and lowering the spout, and means for moving the movable section on the other section, substantially as specified.

2. A grain-spout, comprising a section having a hinged connection with an elevator-wall, a lower section having an extension engaging around the first-named section, the said lower section being longitudinally slotted, plates extended upward at opposite sides of the slot, an arm extended from the hinged section and extended through the slot, a lifting-rope having connection with said arm and a draw-rope having connection with the extension of the slotted section, whereby said slotted section may be moved longitudinally of the hinged section.

605,376. GUN-CARRIAGE. WILLIAM H. BEVANS, Washington, D. C. Filed Sept. 23, 1897. Serial No. 652,757. (No model.)

Claim.—1. The combination of a gun, a fluid recoil-check located beneath and in close proximity to said gun, said gun directly actuating the mechanism of said recoil-check, said recoil-check being provided with a cylinder arranged substantially at right angles to the axis of the gun, substantially as described.

2. The combination of a gun, a fluid recoil-check located beneath and in close proximity to said gun, said recoil-check being provided with a rotatable cylinder arranged at substantially right angles to the axis of the gun, substantially as described.

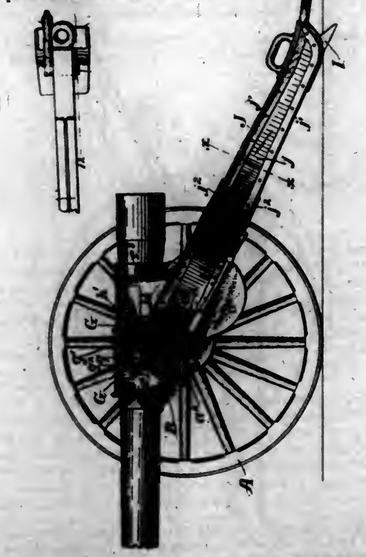
3. The combination of a gun, a fluid recoil-check having a cylinder arranged substantially at right angles to the axis of the gun, and means for transmitting the recoil of the gun to said check, causing said cylinder to rotate partially, substantially as described.

4. The combination of a gun, a fluid recoil-check provided with a cylinder located at substantially right angles to the axis of the gun, means for transmitting the recoil of the gun to said cylinder, causing the latter to rotate partially, and means for restoring the gun to its normal position, substantially as described.

5. The combination of a gun, a fluid recoil-check provided with a cylinder located substantially at right angles to the axis of the gun, and a stationary piston in said cylinder, substantially as described.

6. The combination of a gun, a recoil-check provided with a rotatable cylinder located at substantially right angles to the gun, a stationary piston in said cylinder, and means for rotating said cylinder by the recoil of the gun, substantially as described.

7. The combination of a gun, a recoil-check provided with a rotatable cylinder arranged at substantially right angles to the gun, a stationary piston in said cylinder, means for rotating said cylinder by the recoil of the gun, and means for restoring said gun to its normal position, substantially as described.



8. The combination with a gun, of a casing in which said gun is mounted and adapted to slide, a recoil-cylinder journaled in said casing at right angles to the gun, and means for transmitting the recoil of the gun to said cylinder, substantially as described.

9. The combination with a gun, of a casing in which said gun is mounted and adapted to slide, a recoil-cylinder journaled in said casing and provided with teeth upon its periphery, and a rack secured to said gun and adapted to engage with the teeth on said cylinder, so that the recoil of said gun will tend to rotate the cylinder, substantially as described.

10. The combination with a gun, of a casing in which said gun is mounted and adapted to slide, a recoil-cylinder journaled in said casing and provided with teeth on its periphery, a stationary piston in said cylinder, a rack secured to said gun and meshing with the teeth on said cylinder and means for restoring the gun to its normal position after firing, substantially as described.

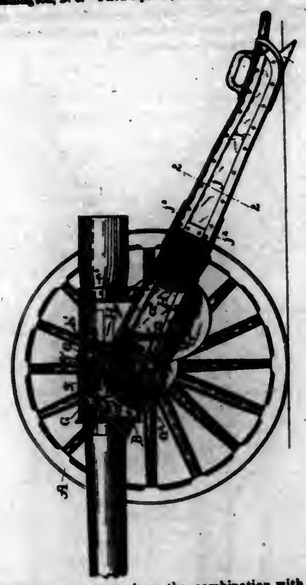
11. The combination with a gun, of a casing in which said gun is mounted and adapted to slide, a recoil-cylinder journaled in said casing and provided with teeth on its periphery, said cylinder being provided with a groove in its inner surface, a stationary piston in said cylinder, a rack secured to said gun and engaging the teeth on said cylinder, and a ring shrunk onto the gun to which said rack is fastened, substantially as described.

12. The combination with a gun, of a casing in which said gun is mounted and adapted to slide, a recoil-cylinder journaled in said casing, means for transmitting the recoil of the gun to the said cylinder to cause the latter to rotate and spiral springs connected to said cylinder and said casing to restore the gun to its normal position after firing, substantially as described.

13. Recoil mechanism for guns, consisting of a stationary piston and shaft having screw-threaded and enlarged portions supporting said piston, supports for said shaft, a cylinder provided with gear-teeth on a part of its periphery inclosing said piston, stops in the interior of said cylinder to limit its motion, said cylinder also being provided with a groove of varying area on its inner surface and the ends of said cylinder being provided with a circular groove, with which extensions on the piston engage, substantially as described.

14. A casing for a gun, having the upper part made substantially circular in shape and provided with two grooves, one for the reception of an enlarged part of the gun and the other for the reception of a rack attached to said gun, projections on said casing adapted to receive a shaft for elevating and depressing said gun, said casing being also provided with journals, for the reception of the main axle and for the reception of the shaft of the recoil mechanism, substantially as described.

605,877. FIELD-MOUNT FOR ARTILLERY. WILLIAM H. BEVANS, Washington, D. C. Filed Apr. 19, 1898. Serial No. 678,144. (No model.)



Claim.—1. In a gun-carriage the combination with a casing mounted upon the axle of the carriage and carrying the gun, and a shaft provided with gearing mounted in the said casing, of a trail also mounted on the said axle, a flask on the said trail, teeth on the said flask meshing with the gearing on the casing, and ratchet mechanism for operating the said gearing, substantially as described.

2. In a gun-carriage the combination with a casing mounted upon the axle of the carriage and carrying the gun, bearings on the said casing, a shaft mounted in the said bearings, and a worm-gear on the said shaft; of a trail also mounted on the said axle, a flask on the said trail, teeth on the said flask to mesh with the gearing on the casing, and ratchet mechanism for operating the said gearing, substantially as described.

3. In a gun-carriage the combination with a casing mounted upon the axle of the carriage and carrying the gun, extensions on the said casing having bearings therein, a shaft mounted in the said bearings, a worm-gear on the said shaft, a spring located between one of the extensions and the worm-gear; of a trail also mounted on the said axle, a flask on the said trail, teeth on the said flask to mesh with the gearing on the casing, and ratchet mechanism for operating the said gearing, substantially as described.

4. The combination with the axle of a gun-carriage having screw-threads thereon, of a ratchet-gear correspondingly screw-threaded engaging the said screw-threads, and provided with teeth, a casing surrounding the said gear and prolonged into a hollow handle, a rod in the said hollow handle, a pointed end on the said rod within the said handle to engage the said ratchet-teeth and means for normally keeping the end of said rod out of engagement with said ratchet-teeth, substantially as described.

5. The combination with the axle of a gun-carriage having screw-threads thereon, of a ratchet-gear correspondingly screw-threaded engaging the said screw-threads, and provided with teeth, a casing surrounding the said gear and prolonged into a hollow handle, a rod in the said hollow handle, a pointed end on the said rod within the said handle to engage the said ratchet-teeth, a spring in the said handle to normally keep the end of said rod out of engagement with the said ratchet-teeth, and a lever for operating the said rod to bring the pointed end thereof into engagement with the said ratchet-teeth, substantially as described.

6. Means for training a gun in a horizontal plane, consisting of screw-threads on the axle of the carriage, a wheel correspondingly threaded to engage the said screw-threads, and means to operate the latter whereby by operating the gearing the carriage will be swung around the spade as a center, substantially as described.

7. Means for training a gun in a horizontal plane consisting of screw-threads on the axle thereof a ratchet-gear correspondingly threaded and meshing with the said threads on the axle, and a ratchet and pawl for operating said ratchet-gear, substantially as described.

8. Means for training a gun in a horizontal plane consisting of a relatively-fixed spade resting upon the ground, gearing upon the said spade, gearing upon the trail meshing with the said gearing on the spade, and means for operating the latter, whereby the trail will be moved along upon the spade, substantially as described.

9. Means for training a gun in a horizontal plane consisting of a relatively-fixed spade resting upon the ground, worm-teeth upon the said spade, a worm-gear mounted in the trail and meshing with the teeth upon the spade and a ratchet and pawl for operating the said worm-gear, substantially as described.

10. Means for training a gun in a horizontal plane consisting of screw-threads on the axle of the carriage, a wheel engaging the said screw-threads, and means for turning the said wheel to cause the carriage to slide upon the axle, and a spade resting upon the ground, gearing on the said spade, gearing on the trail meshing with the gearing on the spade and means for turning the latter to cause the trail to swing around upon the spade, substantially as described.

11. A trail for a gun-carriage, the upper part of which is horse-shoe-shaped and the part which is supported by the axle curved substantially into the arc of a circle around the center of which the gun is moved when it is elevated or depressed, and the lower part consisting of one member shaped like an I-beam and attached to the center of the upper part, triangular plates fastened above and below the junction of the two parts and a foot attached to said lower part, substantially as described.

12. In a gun-carriage the combination with a trail and gearing upon the said trail, of a relatively-fixed spade resting upon the ground, gearing upon the said spade meshing with the gearing upon the trail to move the trail upon the spade, substantially as described.

13. In a gun-carriage the combination with a trail and a worm-gear upon the said trail, of a relatively-fixed spade resting upon the ground, teeth on the said spade meshing with the said worm-gear to swing the trail around upon the spade, substantially as described.

605,878. PROCESS OF MAKING ALUMINIUM SULFID. HENRY S. BLACKMORE, Mount Vernon, N. Y., assignor to the Pure Aluminium and Chemical Company, of West Virginia. Filed June 12, 1896. Renewed Apr. 21, 1898. Serial No. 678,481. (No specimens.)

Claim.—1. The process for transforming aluminium oxid into aluminium sulfid which consists in simultaneously conveying into a chemically inert molten bath capable of dissolving aluminium sulfid, a mixture of aluminium oxid and carbon bisulfid substantially as described.

2. The process for transforming aluminium oxid into aluminium sulfid which consists in introducing simultaneously heated aluminium oxid and carbon bisulfid into a molten bath capable of dissolving the aluminium sulfid produced, without reacting or decomposing either the materials introduced or product produced, substantially as described.

3. The process for transforming aluminium oxid into aluminium sulfid which consists in blowing a heated mixture of aluminium oxid and carbon bisulfid into a retort containing a molten bath capable of dissolving the aluminium sulfid produced but not reacting or combining with or decomposing either the aluminium oxid or carbon bisulfid introduced or the aluminium sulfid produced substantially as described.

605,879. RETORT AND METHOD OF MAKING SAME. HENRY S. BLACKMORE, Mount Vernon, N. Y., assignor to the Pure Aluminium and Chemical Company, of West Virginia. Filed June 12, 1896. Renewed Apr. 21, 1898. Serial No. 678,482. (No model.)

Claim.—1. A retort of refractory material such as fire-clay lined with an enamel or glaze of lead sulfid substantially as described.

2. The method of producing an impervious, non-corrodible retort, for manufacture of carbon bisulfid or similar corrosive material, which consists in exposing the inner surface of a retort of refractory material such as fire-clay to the alternate action of lead oxid and carbon-bisulfid vapor or gas while in a heated state substantially as described.

3. A retort, for the manufacture of volatile corrosive materials such as carbon bisulfid, having a lining or coating of lead sulfid substantially as described.

605,880. PROCESS OF PRODUCING ALUMINIUM SULFID AND REDUCING SAME TO METALLIC STATE. HENRY S. BLACKMORE, Mount Vernon, N. Y., assignor to the Pure Aluminium and Chemical Company, of West Virginia. Filed July 22, 1896. Renewed Apr. 21, 1898. Serial No. 678,484. (No specimens.)

Claim.—1. The process of producing aluminium sulfid and reduction of the same to metallic state which consists in simultaneously converting insoluble aluminium oxid into soluble aluminium sulfid while in a molten bath and dissociating the soluble aluminium sulfid by electrolytical action substantially as described.

2. The process of producing aluminium sulfid and reducing the same to metallic state which consists in dissolving aluminium sulfid in a molten bath not capable of dissolving aluminium oxid, and mixing aluminium oxid in the same, then subjecting the mass to electrolytic action whereby the aluminium sulfid is dissociated, metallic aluminium being produced and insoluble aluminium oxid converted into soluble aluminium sulfid by secondary reaction substantially as described.

3. The process of producing aluminium sulfid and reducing the same to metallic state which consists in exposing aluminium oxid to the action of a molten bath of alkali salts capable of dissolving aluminium sulfid, having dissolved therein sulfids-of-alkali bases containing the combined elements of carbon bisulfid and subjecting the same to electrolytic action substantially as described.

4. The process of producing aluminium sulfid and reduction of the same to metallic state which consists in transforming aluminium oxid into aluminium sulfid by action of thiocarbonate-of-alkali bases, then dissociating the sulfid by electrolysis simultaneously producing metallic aluminium at the cathode and thiocarbonate-of-alkali bases at the anode by secondary reaction, and then adding more aluminium oxid and continuing the electrolysis substantially as described.

5. The process of producing aluminium sulfid and reduction of the same to metallic state which consists in supplying aluminium oxid to a molten bath of sulfid-of-alkali bases during process of electrolysis while employing carbon anodes substantially as described.

6. The process of producing aluminium sulfid and reduction of the same to metallic state which consists in introducing aluminium oxid into a molten bath of sulfid-of-alkali bases containing the combined elements of carbon bisulfid, and electrolyzing the aluminium sulfid produced, thus producing metallic aluminium and regenerating the bath with the combined elements of carbon bisulfid substantially as described.

7. The process of producing aluminium sulfid and reduction of the same to metallic state which consists in simultaneously converting aluminium oxid into sulfid by chemical action while suspended in a molten bath of alkali salts, containing sulfid-of-alkali bases and combined elements of carbon bisulfid, and dissociating the sulfid produced by electrolytic action employing carbon anodes substantially as described.

8. The process of producing aluminium sulfid and reduction of the same to metallic state which consists in producing aluminium sulfid in a molten bath of sulfid-of-alkali bases during electrolytic action by adding insoluble aluminium oxid to said bath substantially as described.

9. In the process of producing aluminium sulfid and reduction of the same to metallic state the process for producing aluminium sulfid which consists in transforming aluminium oxid into aluminium sulfid by chemical action of thiocarbonate-of-alkali bases and reduction of aluminium and reproduction of thiocarbonate-of-alkali bases by electrolysis of aluminium sulfid substantially as described.

10. In the process of producing aluminium sulfid and reduction of the same to metallic state, the art of producing aluminium sulfid which consists in introducing aluminium oxid into a molten bath of sulfid-of-alkali bases containing thiocarbonates, and separating the aluminium from the sulfid produced, by electrolysis substantially as described.

11. In the process of producing aluminium sulfid and reduction of the same to metallic state, the process of transforming aluminium oxid into sulfid by chemical action of thiocarbonates, (or sulfid-of-alkali bases containing combined carbon bisulfid) and finally eliminating the metallic aluminium from the product by process of electrolysis substantially as described.

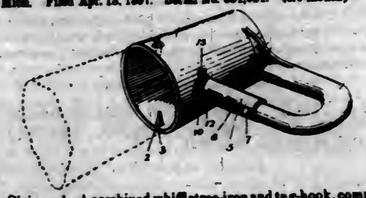
12. In the process of producing aluminium sulfid and reducing the same to metallic state the process of subjecting a molten bath containing dissolved aluminium sulfid to electrolytic action at a temperature sufficient to produce carbon bisulfid at the anode while in a molten bath capable of taking up the combined elements of carbon bisulfid so produced at the temperature employed and suspending aluminium oxid in said bath said bath being maintained at a temperature sufficient to permit reaction substantially as described.

13. In the process of producing aluminium sulfid and reduction of same to metallic state, the art of producing thiocarbonate-of-alkali bases which consists in dissociating aluminium sulfid by electrolysis while dissolved in a molten bath of sulfid-of-alkali bases at a temperature sufficient to produce carbon bisulfid but not so high as to prevent the absorption of the same by the sulfid-of-alkali bases substantially as described.

14. The herein-described process of converting metallic oxid into sulfid and effecting final elimination of metallic base which consists in introducing said oxid into a molten bath containing the thiocarbonate-of-alkali bases and subjecting the product to electrolytic action substantially as described.

15. The process of producing aluminium sulfid herein described which consists in exposing aluminium oxid to the action of thiocarbonate-of-alkali bases in a heated state.

605,881. WHIFFLETREE-HOOK. CALVIN O. BOLTON, Denver, Mich. Filed Apr. 13, 1897. Serial No. 631,921. (No model.)



Claim.—1. A combined whiffletree-iron and tag-hook, comprising a tapering ferrule or sleeve adapted to be secured to the whiffletree, an inturned hook formed integral with said ferrule at its outer end, a thimble movable upon the free end of the hook, said thimble being provided with a beveled outer or rear end and with a longitudinal slot, a pin on the hook passing through said slot in the thimble, and means for holding the thimble normally extended to substantially close the space between the extremity of the hook and the ferrule, substantially as described.

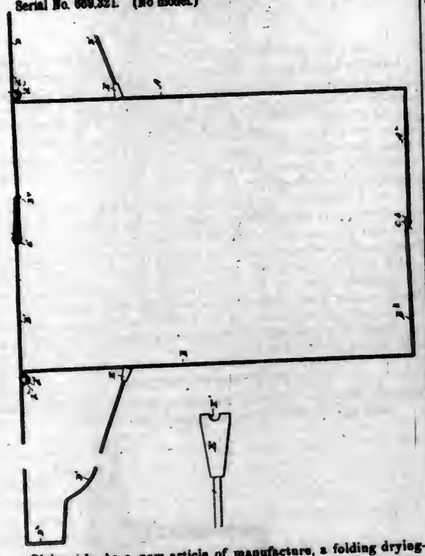
2. A whiffletree-iron and tag-hook, comprising a ferrule adapted to be secured to the whiffletree, a hook formed integral with said ferrule near its outer end, a thimble movable upon the free end of said hook, said thimble having its free end beveled, the ferrule being provided with an opening through which the thimble can be inserted to be positioned upon the hook, a spring for holding the thimble normally extended for substantially closing the space between the end of the hook and the surface of the ferrule, and a hook or projection on the thimble adapting it to be operated by hand for releasing the tug, substantially as described.

605,882. MOTOR. FRANCIS A. BRENNAN, Brockville, Canada. Filed Aug. 14, 1897. Serial No. 648,289. (No model.)

Claim.—1. A motor, comprising a hollow cone, a pitman connecting the apex of said cone with a crank-arm on the main shaft, a cone of a flexible material united at its base with the base of the said hollow cone, a pipe connected with the apex of the said flexible cone to admit and exhaust the motive agent to and from the said cones, the end of the said pipe when the motive agent is admitted extending within the hollow cone to a point near the apex thereof, and a valve mechanism for controlling the admission and exhaust of the motive agent to and from the said pipe, substantially as shown and described.

2. A motor, comprising a hollow cone of rigid or non-flexible material, a pitman extending from the apex of the said cone and connected with a crank-arm on the main shaft, a flexible cone having its base secured to the base of the said non-flexible cone, a fixed pipe rigidly connected with the apex of the said flexible cone to admit and exhaust the motive agent to and from the cones, the end of the said pipe on the return movement of the pitman extending within the non-flexible cone to a point near the apex end, whereby the motive agent admitted exerts its force directly on the apex end of the said cone, and a valve mechanism for controlling the admission and exhaust of the motive agent to and from the said pipe, the said valve mechanism being actuated from the main shaft of the motor, substantially as set forth.

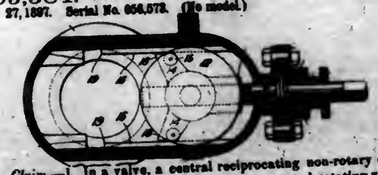
605,388. **FOLDING DRYING-FRAME FOR WOOLEN GARMENTS.** HENRY BRISTOL, New Haven, Conn. Filed Feb. 7, 1898. Serial No. 669,321. (No model.)



Claim.—1. As a new article of manufacture, a folding drying-frame for woolen garments, consisting of two body members and two sleeve members, each of the said members being formed from a single piece of wire, all of the said members being hinged together to permit the frame to be folded, and the sleeve members comprising upper and lower arms, the inner ends of their upper arms being hinged to the upper corners of the body members so as to permit the sleeve members to be folded and unfolded in the planes thereof, and the inner ends of the lower arms of the sleeve members being free but adapted to be engaged with the side bars of the body members.

2. As a new article of manufacture, a folding drying-frame for woolen garments, the said frame consisting of two body members and two sleeve members, each formed from a single piece of wire, and pivotally connected together for being folded to prepare the frame for transportation or storage, and one of the said members being provided with an integral coupling-hook for locking the body members in their open positions, and the lower arms of the sleeve members terminating in safety-buttons adapted to be engaged with portions of the body members for supporting the sleeve members in their open positions.

605,384. **VALVE.** ROBERT C. BROWLEY, Pittsburg, Pa. Filed Oct. 27, 1897. Serial No. 656,573. (No model.)



Claim.—1. In a valve, a central reciprocating non-rotary disk-base provided with cam-faces and centrally-mounted rotating valve-disks thereon provided with corresponding cam-faces, substantially as set forth.

2. In a valve, a central reciprocating non-rotary disk-base provided with cam-faces and centrally-mounted rotating valve-disks thereon provided with corresponding cam-faces and means for rotating the disks, substantially as set forth.

3. A valve comprising a case having oppositely-located seats, a non-rotary central base adjustably mounted on a valve-stem having inclined faces on opposite sides, and centrally-mounted rotating valve-disks thereon provided with corresponding inclined faces, and means for rotating the disks, substantially as set forth.

4. A valve comprising a case having oppositely-located seats, a non-rotary central base adjustably mounted on a valve-stem having inclined faces on opposite sides, and centrally-mounted rotating valve-disks thereon provided with corresponding inclined faces, and means for rotating and seating the disks on their inward travel and reversing and unseating the disks on their backward travel, substantially as set forth.

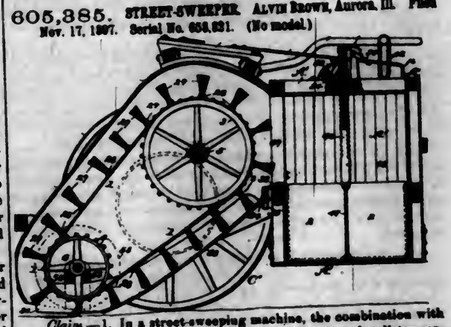
5. A valve comprising a case having oppositely-located seats, guides along the inner sides of the case terminating in abutting ends, abutments beyond such ends, with an intervening recess, and a non-rotary central base adjustably mounted on a valve-stem with rotating valve-disks mounted thereon having projecting arms adapted to engage such abutments and abutting ends on the forward and back travel respectively, substantially as set forth.

6. A valve comprising a case having oppositely-located seats, guides along the inner sides of the case terminating in abutting ends, abutments beyond such ends, with an intervening recess, and a non-rotary central base adjustably mounted on a valve-stem having inclined faces on opposite sides, centrally-mounted rotating valve-disks thereon provided with corresponding inclined faces, and projecting arms adapted to engage such abutments and abutting ends on the forward and back travel respectively, substantially as set forth.

7. In a valve provided with guiding edges terminating in abutting ends, abutments beyond such abutting ends, with an intervening space: rotating disks mounted on a non-rotating base and having lateral arms adapted to engage the abutments and to bear upon the abutting ends, and to reverse the disks upon backward movement, substantially as set forth.

8. In a valve provided with rotating disks having lateral arms with rollers mounted therein and adapted to be seated upon the valve-faces, guiding edges for the lateral arms terminating in abutting ends, substantially as set forth.

605,385. **STREET-SWEEPER.** ALVIN BROWN, Aurora, Ill. Filed Nov. 17, 1897. Serial No. 658,631. (No model.)



Claim.—1. In a street-sweeping machine, the combination with the rear casing, a rotary brush arranged within it and a dirt-receptacle in the front casing, of a dirt-pan arranged under said rear casing and brush, a hinged apron at the front end of the pan, a transverse support for the apron and pan, vertical slots in the casing through which said supports project, and means for clamping the support in any vertical adjustment, as specified

2. In a street-sweeping machine, the combination with the casing, an endless traveling brush-belt, front and rear sprocket-wheels, on which such belt runs, the shaft of such front wheels projecting through the slotted sides of the casing, frame-bars extending along the sides of the latter and having a lengthwise slot, brackets connected with the shaft ends and having a projecting portion or rib that slides in the slots of said bars, a screw-bolt working horizontally in a threaded lug on such bars, and connected with the aforesaid bracket, for adjusting the latter as described, for the purpose of regulating the tension of the belt, as specified.

3. In a street-sweeping machine, the combination with the casing, frame, endless brush, and front and rear brush-shafts, of the means for adjusting the rear shaft vertically, which consists of vertical hangers or threaded rods, fixed perforated lugs to receive said rods and nuts applied to the latter and arranged in the space between said lugs, as shown and described.

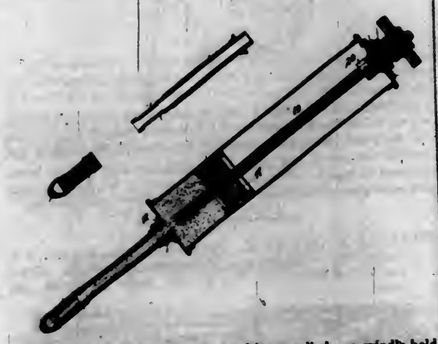
4. In a street-sweeping machine, the combination with carrier-chains and cross-bars attached thereto, of brush-sockets brush-tufts and brush-holding wires or rods passing through said sockets and means for securing the ends of such rods to the aforesaid bars, substantially as shown and described.

5. In a street-sweeping machine, the combination with parallel carrier-chains, transverse bars which connect them as shown, a series of brush-sockets attached to said bars, and having end slots, and tufts of wires or rods passing through said slots and the brushes proper and having eyes at their extremities, and screws passing through the said eyes, for securing the rod and brushes, as specified.

6. In a street-sweeping machine, the combination, with a casing having sides adapted to open as desired, of two trays arranged transversely therein and hinged at their outer ends, their closed inner ends abutting as shown, and a hoisting device connected with such inner ends for tilting and discharging both trays simultaneously, in opposite directions laterally, as shown and described.

7. In a street-sweeping machine, the combination with a casing and brush and tray-like dirt-receptacles arranged within said casing and hinged at their open outer ends, the rack-bar arranged vertically and connected with the closed inner ends of the receptacle, a pinion provided with a crank-shaft and arranged on top of the casing, and meshing with the rack-bar, and a locking-pawl and rollers for resisting lateral thrust of the rack-bar, as shown and described.

605,886. **APPLICATOR.** CYRIL P. BROWN, Spring Lake, Mich. Filed June 19, 1897. Serial No. 641,414. (No model.)



Claim.—1. An instrument comprising a cylinder, a spindle held against end movement in the cylinder, a plunger mounted to travel on said spindle, a tube secured at the outlet of the cylinder and having ports in its sides near its outer end, and a cap mounted on the tube and having a closed outer end, the said cap being provided with similar ports in its sides capable of being brought into register with the ports in the sides of the tube, substantially as described.

2. An applicator, consisting of a cylinder, plunger, a spindle on which said plunger is mounted to travel, the said spindle being held against end movement, means for turning said spindle, and a click-pawl for indicating each revolution of the spindle.

3. In an applicator, a cylinder, a threaded spindle mounted to turn in said cylinder and held against end movement, a plunger held to travel on said spindle, a tube secured at the outlet end of the cylinder and having ports in its sides near its outer end, and a cap mounted on the tube and provided with similar ports in its sides adapted to register with the ports in the sides of the tube.

4. In an applicator, a cylinder, a plunger having a threaded opening, and a threaded spindle upon which the plunger is mounted, the said threaded spindle being held against end movement in the cylinder, and means for turning the said spindle.

5. In an applicator, a cylinder, a plunger having threaded opening, a threaded spindle upon which the plunger is mounted, the said threaded spindle being held against end movement in the cylinder, means for turning said spindle, and a device engaging with the spindle and carried by the cylinder, arranged to indicate when the said spindle has completed a revolution, as and for the purpose specified.

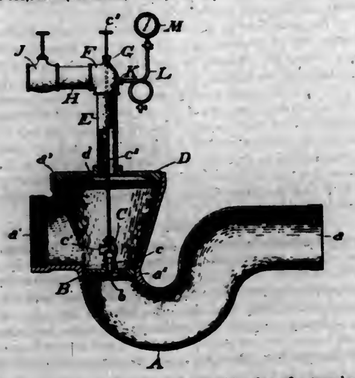
6. The combination, with a cylinder, of a plunger held to slide in the said cylinder, a screw-spindle held against end movement within the said cylinder and capable of rotary movement, the said threaded spindle engaging a threaded surface in the plunger, an outlet for the cylinder, and means for controlling the extent of the opening of the said outlet and for closing the same as desired.

7. The combination, with a cylinder, a plunger held to slide in the said cylinder, and a threaded spindle engaging with a threaded surface of the plunger, the said spindle being capable of revolving within the cylinder and of being held against end movement, of a cam-surface formed near the outer end of the said threaded spindle, and a spring-pressed pawl held in engagement with said cam-surface, for the purpose specified.

8. The combination, with a cylinder, a plunger held to slide in the said cylinder, and a threaded spindle engaging with a threaded surface of the plunger, the said spindle being capable of revolving within the cylinder and of being held against end movement, of a cam-surface formed near the outer end of the said threaded spindle, a spring-pressed pawl held in engagement with the cam-surface, a tube secured at the outlet end of the cylinder, having ports in its lower portion, and a cap adjustable on the said tube, provided with ports corresponding to those in the tube and capable of being brought in registry therewith, for the purpose described.

9. The combination with a cylinder having an outlet, a spindle mounted to turn in said cylinder and held against end movement, and a plunger mounted to travel on said spindle, of means for turning said spindle, and a device for indicating when the spindle has completed a revolution, substantially as set forth.

605,887. **TESTING-TRAP.** DAVID BUNT, Bernardsville, N. J., and EDWARD BERAKELL, New York, N. Y. Filed Jan. 31, 1898. Serial No. 668,562. (No model.)



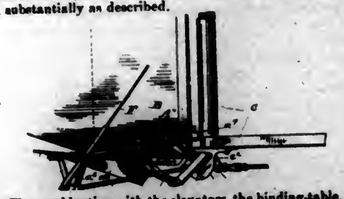
Claim.—1. In a testing-trap, the combination of a trap bend or casing having ends constructed for connection with a plumbing system and sewer-pipe, said trap having a hand-hole, a hand-hole plug, a water-retaining plug having a threaded orifice, a valve connected with said orifice, said trap having an interior portion fashioned to engage said water-retaining plug, water-supply piping opening into said trap above said water-retaining plug, a stuffing-box opening into said trap above said water-retaining plug, and a valve-stem passing through said stuffing-box whereby the valve borne by said water-retaining plug may be operated, substantially as described.

2. In a testing-trap, the combination of a trap-bend having ends constructed for connection with a plumbing system and sewer-pipe, said trap having a hand-hole c^3, a threaded hand-hole plug D having a threaded orifice d, water-supply piping connected with orifice d, an elbow included in said water-supply piping, a stuffing-box attached to said elbow, a water-retaining plug having a threaded orifice, a valve connected with said orifice, said trap having an interior portion fashioned to engage said water-retaining plug, and a valve-stem passing through said stuffing-box whereby the valve borne by said water-retaining plug may be operated, substantially as described.

605,888. **BUTT-ADJUSTER FOR SELF-BINDING HARVESTERS.** WILLIAM BUTTERFIELD, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed June 21, 1897. Serial No. 641,781. (No model.)

Claim.—1. The combination with the elevators the binding-table and the grain-cover, of a grain-adjusting device consisting of a plurality of orbitally-moved boards arranged one above the other and adapted to move in close relation to each other and also adapted to act alternately, and thus engage the butts of the straws in the receptacle, move them endwise and advance them deliveryward, each of

said boards having a plate attached to the edge adjoining its fellow board, substantially as described.



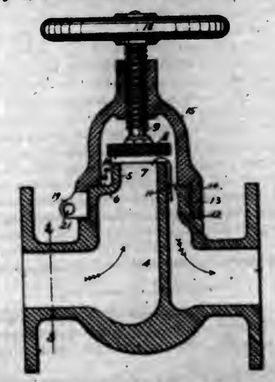
2. The combination with the elevators, the binding-table, and the grain-cover, of a grain-adjusting device consisting wholly of two orbitally-moving boards placed edgewise in close proximity to each other; the plane of said boards being substantially perpendicular to the binding-table, and said boards being operated so as to act alternately upon the butts of the straw upon the table, to simultaneously move the same endwise and sidewise, whereby only one portion of the adjuster is active upon the grain at a time, the other portion being meanwhile out of action, substantially as described.

3. The combination with the elevating-conveyers, the binding-table, and the grain-cover, of a grain-adjusting device consisting wholly of orbitally-moving boards placed edgewise in close proximity to one another, the plane of said boards being substantially perpendicular to the binder-table, and said boards being operated so that, although the entire face of the adjuster is constantly in motion, the individual boards of which it is composed act alternately upon the butts of the straw upon the table to simultaneously move the same endwise and sidewise, substantially as described.

4. In a grain-binding harvester, the combination with the receiving-table, the grain-cover, and the upper and lower elevating-conveyers, of a grain-adjusting device composed wholly of a plurality of orbitally-moving boards, one placed immediately above the other, the lower board located and adapted to sweep in close contact with the table, and the upper board located and adapted to sweep across the plane of the lower conveyer toward and near the end of the upper conveyer in close contact with the cover, and the two boards thus cooperating to clear the space between the roller of the upper conveyer and the overhead cover and between the roller of the lower conveyer and the edge of the receiving-table, substantially as described.

5. In a grain-binding harvester the combination with the binder receiving-table, grain-cover and upper and lower elevating-conveyers, of a grain-adjusting device composed of two orbitally-moving boards, one above the other, the lower one adapted to clear the space between the grain-receiving table and the lower conveyer-roller, and the upper one to keep clear the space between the upper elevator-roller and the grain-cover, and plates attached to the adjoining edges of said boards and projecting outwardly and adapted to prevent straws from getting between said boards, substantially as described.

605,889. GLOBE-VALVE. CORNELIUS M. CALLAHAN, Buffalo, N. Y. Filed May 15, 1897. Serial No. 636,736. (No model.)



Claim.—1. In combination a valve-casing and a cap therefor screw-threaded to the said casing, one of the said parts being slitted and having clamping-lugs projecting from opposite sides of the slit, and a screw-bolt designed to be received by the lugs as and for the purpose set forth.

2. The combination with a valve-casing provided with an externally screw-threaded dome, of a valve-cap provided with a slit and internally-screw-threaded flange, a pair of clamping-lugs projecting from the threaded flange of the cap upon the opposite sides of the slit, and a screw-bolt, designed to be received by the clamping-lugs, substantially as specified.

3. The combination with a valve-casing provided with a dome-plate having ports and a projecting annular valve-seat, of a valve-cap provided with an internally-screw-threaded and transversely-slitted thread-flange, clamping-lugs projecting from the threaded flange of the cap and a clamping screw-bolt designed to be received by the lugs, substantially as specified.

4. The combination with a valve-casing provided with a dome-plate having ports and an upwardly-projecting annular valve-seat, of a valve-cap provided with a slitted thread-flange internally screw-threaded and designed to engage corresponding threads upon the dome of the valve-casing, clamping-lugs upon the threaded flange, a bolt designed to be received by the lugs, a wrench-collar upon the upper extremity of the cap, a valve-stem carried by said cap and provided with a valve in operative proximity to the valve-seat and means for actuating said valve, substantially as specified.

605,890. BICYCLE TOE-CLIP. HARRY W. CALVERT, McKees Rocks, Pa. Filed June 23, 1897. Serial No. 641,948. (No model.)



Claim.—In a toe-clip, a strap secured to the pedal, bent to form a pocket for the front part of the foot, arms formed integral with the strap and being bent outwardly and downwardly to form side guards, the ends of said arms being bent upwardly to form hooks adapted to engage underneath the cross-plate of the pedals to limit the movement of the strap, substantially as shown and described.

605,891. CAR-WHEEL. FERDINAND R. CARDA, New York, N. Y. Original application filed Sept. 11, 1896, Serial No. 605,486. Divided and this application filed Sept. 27, 1897. Serial No. 653,148. (No model.)



Claim.—1. A car-wheel having a cast-steel hub and rim connected by a series of spokes formed separately from the hub and rim, from a tough welding metal, and welded into the hub and rim so as to produce an integral wheel, substantially as described.

2. A car-wheel having a cast-steel hub and rim connected by a series of spokes formed separately from the hub and rim, from a tough welding metal, bent to offset the hub from the rim, and welded into the hub and rim so as to produce an integral wheel, substantially as described.

3. A car-wheel having a cast-steel hub and rim and T-section spokes, formed separately from the hub and rim, from a tough welding metal, and welded into the hub and rim so as to produce an integral wheel, substantially as described.

605,892. PROPELLING MEANS FOR BICYCLES OR SIMILAR VEHICLES. HERCULES CAVIGNI, Plattsburg, N. Y. Filed Mar. 31, 1897. Serial No. 630,121. (No model.)

Claim.—1. In a bicycle or similar vehicle, a pair of rock-arms journaled in the frame, treadle-levers carried by said shafts upon opposite sides of the frame, arms carried by said shafts upon one side and extending in opposite directions, a wheel journaled in the frame, pitmen having their forward ends connected to the extremities of the arms and their rear ends connected to the said wheel by a common pivot, and driving connections from the said wheel to the rear wheel of the bicycle, substantially as described.

2. In a bicycle or similar vehicle, a pair of rock-shafts journaled in the frame, one above the other, treadles carried by said shafts upon

opposite sides of the frame, an arm carried by the upper shaft extending upwardly and a similar arm carried by the lower one extending downwardly, a sprocket-wheel journaled in the frame, a pitman extending from the extremity of each arm to the said wheel, a sprocket-wheel connected to the hub of the driving-wheel, and a chain connecting said wheels, the said oppositely-extending arms being on the same side of the frame, substantially as described.



3. In a bicycle, a frame having two bars or rods extending from the steering-head to the rear wheel, a box or hanger supported from the said bars or rods, a cross-bar connecting said bars in rear of the hanger or box; and a saddle-post rod having its lower end extending through the cross-bar and carried forward between the said bars and connected to the said box or hanger, substantially as described.

605,893. FENCE. FRANK CHILDERS, Wolf Creek, Ill. Filed Feb. 20, 1893. Serial No. 671,609. (No model.)



Claim.—1. In a wire fence, a fence-post made up of two flat sections located at right angles one to the other throughout the greater part of their length, the upper end of one of the sections being twisted forming a portion which lies parallel to the other section, a bolt extending through the two parallel portions of said section for securing the same together, and line wires located between said sections, as and for the purpose set forth.

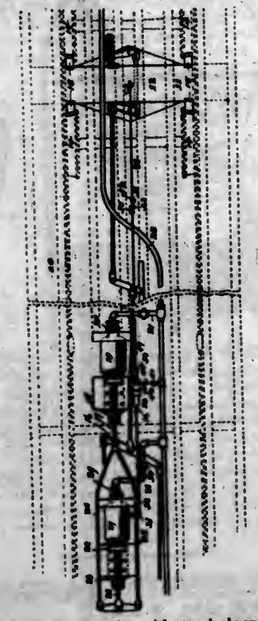
2. In a wire fence, a fence-post made up of two flat sections lying at right angles one to the other throughout the greater portion of their length, one of said sections being bent at right angles at its lower end forming a wing or anchor, and the other of said sections having its upper end twisted forming a portion which lies parallel to the first section, a securing-bolt extending through the parallel portions of said sections, and line-wires passing between said sections, as and for the purpose set forth.

3. In a wire fence, a fence-post made up of two flat sections lying at right angles one to the other throughout the greater portion of their length, one of said sections having a laterally-extending wing at its lower end constituting an anchor, and the other of said sections having notches formed in the edge thereof which abuts against the side of the first section, and has its upper end twisted forming a portion which lies parallel to the first section, a securing-bolt extending through the parallel portions of said sections, and line-wires passing between said sections and fitting within said notches, as and for the purpose set forth.

4. In a wire fence, the combination with one of the posts thereof, having notches in one of its side edges, of line-wires secured to said post, a diagonally-disposed bracing rod or bar whose pointed upper end is adapted to engage said notches and whose lower end is secured to a stationary support, and connections between said bracing-rod and said line-wires, as and for the purpose set forth.

5. A fence-post, made up of two sections, one of which is provided with notches for the passage of line-wires, and both of which are provided with notches for the reception of securing-loops which embrace said sections for the purpose of holding the line-wires in place.

605,894. AIR-BRAKE. WILLIAM H. CLOWRY, Chicago, Ill. Filed Jan. 3, 1898. Serial No. 665,563. (No model.)



Claim.—1. The combination, with a car body and truck, and air-braking mechanism therefor, of an auxiliary brake-cylinder having its piston connected with the braking mechanism, a valve controlling the connection between said auxiliary cylinder and the train brake-pipe, a fluid-motor for operating said valve, and means operated by the variations in height of the car-body for actuating said fluid-motor, substantially as described.

2. The combination, with a car body and truck, and air-braking mechanism therefor, of an auxiliary brake-cylinder and reservoir provided with a triple valve connected with the train brake-pipe, an outlet-valve and a valve controlling the connection with the train brake-pipe, and means operated by the variations in height of the car-body for actuating said controlling-valve and outlet-valve, substantially as described.

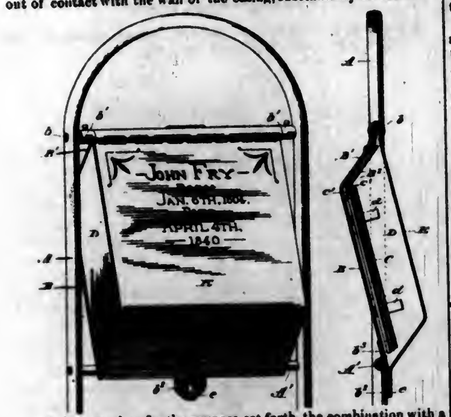
3. The combination, with a car body and truck, and air-braking mechanism therefor, of an auxiliary brake-cylinder having its piston connected with the braking mechanism, a valve controlling the connection between said auxiliary cylinder and the train brake-pipe, means whereby a normal depression of the car-body will open said controlling-valve, and means whereby an abnormal depression of the car-body will cut out said auxiliary brake-cylinder, substantially as described.

605,895. MARKER FOR GRAVES, LANDS, &c. JOHN A. COFFEY, Anaconda, Mont. Filed Nov. 11, 1897. Serial No. 658,143. (No model.)

Claim.—1. In a marker for the purpose set forth, the combination with a supporting-frame having a cross-bar *b* attached thereto, a casing rigidly attached to the bar and frame, the casing consisting of rear, front and side pieces, the rear plate B being bent to present a downward and rearward inclined top and a downward and forward inclined portion below, the side pieces D being attached to the rear plate and a covering-plate E held in swinging engagement with the cross-bar and adapted to lie over the side pieces D carried by the rear plate, hooks B^3 attached to the under side of the upper portion of the rear plate and tablets suspended from the hook said tablets being maintained in an inclined position, substantially as shown.

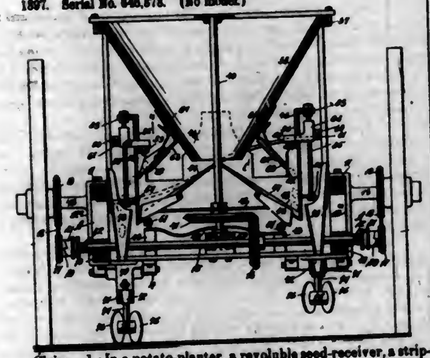
2. In combination with a casing and suspended covering plate therefor, hooks attached to the inner upper wall of the casing, cross-bars *d d* attached to the side wall of the casing, said cross-bars extending over the inner wall thereof and out of contact therewith, of

tablets having eyes for engagement with the hooks said tablets resting upon the cross-bar so as to be maintained in an inclined position out of contact with the wall of the casing, substantially as shown.



3. In a marker for the purpose set forth, the combination with a casing and its support, the casing comprising a rear plate bent so that its upper portion will incline rearward and downward the continuation of the plate extending from the bend downward and toward the front, means as shown for rigidly attaching the rear plate to the support, lozenge-shaped side pieces rigidly attached to the edges of the back plate, a covering-plate in swinging engagement with the rear plate, the same adapted to swing by gravity downward so as to lie over the front edges of the side pieces, hooks attached to the upper portion of the rear plate within the casing and tablets which engage with the hooks and depend therefrom in an inclined position, substantially as shown.

605,896. POTATO-PLANTER. JOHN A. COOPER, Summit, Iowa, assignor of one-half to Arthur C. Savage, Adair, Iowa. Filed Aug. 3, 1897. Serial No. 646,873. (No model.)



Claim.—1. In a potato-planter, a revoluble seed-receiver, a stripping device carried by the receiver, a picking device also carried by the receiver, and means for moving one of said devices to or from the other as the receiver revolves.

2. In a potato-planter, a revoluble seed-receiver, a stripping device stationary on said receiver, a picking device adapted to take up seed from the receiver and mounted on the receiver for movement to and from the stripping device, and means, substantially as described, for carrying the picking device to the stripping device and subsequently releasing the picking device.

3. In a potato-planter, a revoluble seed-receiver, a stripping device secured to said receiver, a picking device mounted to slide on said receiver to and from the picking device, said picking device being provided with a projection, and inclined tracks independent of the receiver, said tracks being in engagement with the projections from the picking device.

4. In a potato-planter, the combination, with a revoluble seed-receiver, a stripping device secured to said receiver, and a picking device mounted to slide on the receiver to and from the stripping device, said picking device being provided with a lateral projection, of spiral tracks arranged one at each side of the receiver, independent thereof, the lower end of one track being beneath the higher end of the opposing track, the tracks being engaged by the projection from the picking device.

5. In a potato-planter, a revoluble seed-receiver, a picker and a stripping device for the picker, carried by said receiver, the receiver being provided adjacent to the path of each picker with an opening in its bottom, a cleaning device located in each of said openings, and means, substantially as described, for imparting vertical movement to the said cleaning devices as the receiver is revolved.

6. In a potato-planter, the combination, with a revoluble seed-receiver, a stationary stripping device carried thereby, a picking device having movement to and from the stripping device, and means for operating the said picking device, of cleaning-blades located in the bottom of the receiver adjacent to that portion at which the picking device has movement, the said cleaning-blades being capable of vertical movement within the receiver, an undulating stationary track, and rollers carried by the cleaning-blades, arranged to travel on said track.

7. In a potato-planter, the combination, with a rotatable seed-receiver, and picking and stripping devices carried by said receiver, of platforms independent of and located within the said seed-receiver, said platforms being arranged to receive the seed when stripped from the picker.

8. In a potato-planter, the combination, with a seed receiver or receptacle provided with stationary strippers and picking devices movable to and from the said strippers, of platforms located within yet independent of the said seed-receiving receptacle, being adapted to receive the seed when dropped from the pickers, and means, substantially as described, for adjusting the position of the platforms relative to the pickers.

9. In a potato-planter, the combination, with a hopper, a seed-receiving receptacle mounted to revolve around said hopper, stationary strippers carried by said receptacle, pickers also carried by the receptacle, having movement to and from the strippers, and means, for operating said pickers, the seed-receptacle being provided with openings between the sections at which the strippers and pickers are located, of platforms adjustably supported from the hopper, and levers for adjusting said platforms.

10. In a potato-planter, the combination, with a hopper, a seed-receiving receptacle mounted to revolve around said hopper, stationary strippers carried by said receptacle, pickers also carried by the receptacle, having movement to and from the strippers, and means, for operating said pickers, the seed-receptacle being provided with openings between the sections at which the strippers and pickers are located, of platforms adjustably supported from the hopper, levers connected one with each platform, cleaning-blades having vertical movement in the bottom of the seed-receptacle, an undulating track upon which the said blades travel, for the purpose specified.

11. In a potato-planter, the combination, with a chute adapted to receive the seed-potatoes, and a runner pivotally connected with the frame of the machine, the said runner being provided with an opening registering with the outlet of said chute, of a covering device located at the rear of the opening in the runner, the covering device consisting of a post and cupped disks having their concaved faces opposite each other, the disks being pivoted to the said post at an angle one to the other so that their rear ends converge and their forward ends diverge.

12. The combination, with the pole of a wheeled vehicle, of an arm pivoted over said pole, a draft device pivoted to the free end of the said arm, and levers having a shifting connection with the said arm.

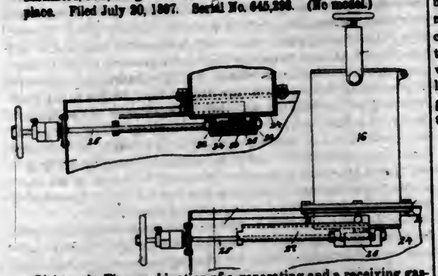
13. In a planter or like machine adapted to plant seed or deliver material from opposite sides, an arm pivoted over the tongue or pole of the vehicle, a draft device pivoted to the free end of the said arm, a shifting lever, and a flexible connection between said lever and said arm, whereby the arm may be held over the tongue, or at the right or the left of the tongue to control the draft of the machine.

14. In a potato-planter, the combination with a revoluble receiver having openings in its bottom, of cleaning-blades pivoted in said openings, rollers secured to the under face of the free ends of the blades, and an undulating track below the receiver and upon which the said rollers travel, substantially as described.

15. In a potato-planter, the combination with a revoluble receiver, a stripper secured to the receiver and provided with tines, a picker mounted on the receiver to slide vertically and provided with downwardly-projecting tines, spiral tracks one at each side of the receiver, and a roller carried by the picker and traveling on said tracks, substantially as described.

16. In a potato-planter, the combination with a hopper, a revoluble receiver below the hopper, a chute adjacent to the receiver, and a picker and stripping device carried by the receiver, of an inclined platform adjustably secured to the hopper, substantially as and for the purpose set forth.

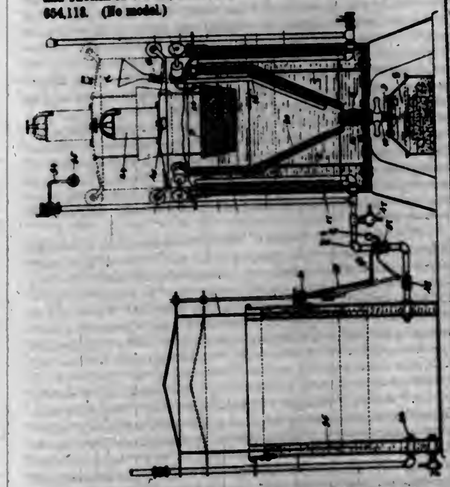
605,897. ACETYLENE-GAS GENERATOR. JAMES H. COOPER, Baltimore, Md., assignor to the Bryan Manufacturing Company, same place. Filed July 20, 1897. Serial No. 645,226. (No model.)



Claim.—1. The combination of a generating and a receiving gasometer, a pipe connecting the gas-spaces of both, a valve in said pipe, operating mechanism for the valve controlled by the movable part of the receiving-gasometer, a receptacle mounted on the movable part of the generating-gasometer, the top of said receptacle opening outward and bottom inward, means for clamping the top in place, a hand-wheel and rod extending from the bottom to the exterior of the gasometer, a nut operated by the rod said nut engaging with a lug on the bottom of the receptacle in such a way that when the rod is turned in one direction the nut engages with the lug and clamps the bottom, and when turned in the opposite direction unclamps the bottom which may then be drawn from under the receptacle by means of the rod, a perforated partition carried by the movable part of the generating-gasometer to receive calcium carbid or other material from the receptacle, and a safety-valve connected to the gas-space of generating-gasometer and operated mechanically by the movable part thereof.

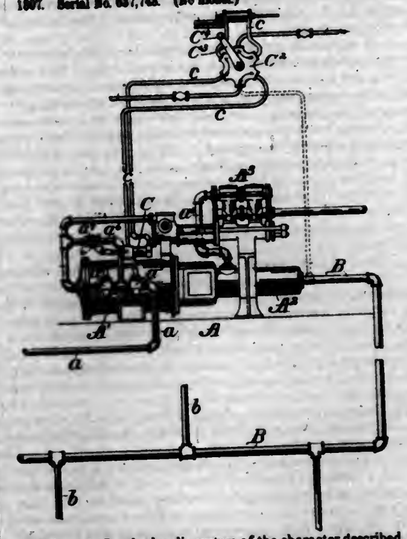
2. In a calcium-carbid receptacle having a removable bottom, the combination of a pair of parallel guides one on each side of the receptacle at its lower edge, a yoke the ends of which rest in and slide in said guides, said yoke being provided with perforated lugs, a threaded rod passing through said lugs, and secured therein so as to turn, but not move laterally, a nut upon said rod adapted to move in a direction parallel to the rod and having its upper surface beveled, and the bottom resting upon and guided by the yoke, and provided with a beveled lug on its under side, which engages with the beveled surface of the nut; the whole yoke and bottom being moved back and forth by the rod in a direction parallel to it, and the bottom being clamped in position by the nut, substantially as described.

605,898. ACETYLENE-GAS GENERATOR. JAMES H. COOPER and THOMAS A. BRYAN, Baltimore, Md. Filed Oct. 5, 1897. Serial No. 654,113. (No model.)



Claim.—An acetylene-gas generator composed of a stationary wall and a gas holder, adapted to float therein, the walls of said well being packed with a suitable non-conductor of heat and constructed to be filled with a fluid having a low freezing temperature, a water-receptacle submerged in said fluid, and contained within the well and holder, the walls of said receptacle also constructed to contain a material which is a poor non-conductor of heat, and a perforated receptacle for calcium carbid suspended from the holder and adapted to be dipped into the water as the gas is drawn off, in combination with a gasometer connected to the generator by a pipe with a self-lubricating valve located therein and operated by the float of the gasometer in such a way as to open the pipe when the float is down, thereby admitting gas from the generator.

605,899. HYDRAULIC MECHANISM FOR CLOSING BULK-HEAD-DOORS. WILLIAM B. COWLES, Cleveland, Ohio. Filed May 22, 1897. Serial No. 637,743. (No model.)



Claim.—1. In a hydraulic system of the character described, the combination with a receptacle adapted to contain a body of fluid under pressure, and means for regulating the pressure of said fluid, of an emergency-cylinder, with piston therein, and emergency mechanism operated by said piston, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a door, and means operated by the emergency mechanism for moving said door, with additional means operated by the fluid-pressure and controlled by hand for moving said door independently of the emergency mechanism, substantially as described.

2. In a hydraulic system of the character described, the combination with a receptacle adapted to contain a body of fluid under pressure, and means for regulating the pressure of said fluid, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main, branch pipes leading from said main, a bulk-head-door, and mechanism operated by the fluid in said branch pipes for moving said door, and mechanism operated by the piston in the emergency-cylinder for controlling the pressure in all of said branch pipes, substantially as described.

3. In a hydraulic system of the character described, the combination with a receptacle adapted to contain a body of fluid under pressure, and means for regulating the pressure of said fluid, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main, branch pipes leading from said main, a bulkhead-door, and mechanism operated by the fluid in said branch pipes for moving said door, mechanism operated by the piston in the

emergency-cylinder for controlling the pressure in all of said branch pipes, and a releasing-valve connected to each of said branch pipes and adapted to control the flow of fluid through said branch pipe and thus to control the mechanism operated thereby, substantially as described.

4. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein and emergency mechanism operated by said piston, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe, a bulk-head-door, and mechanism operated by fluid-pressure in the system for moving said door, an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, substantially as described.

5. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, an emergency-valve operated by said piston, and a hydraulic system controlled by said emergency-valve, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe, a bulkhead-door, and mechanism operated by fluid-pressure in the system for moving said door, an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, substantially as described.

6. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein and emergency mechanism operated by said piston, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe, a bulk-head-door, and mechanism operated by fluid-pressure in the system for moving said door, an exhaust-pipe, and a six-way valve for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, substantially as described.

7. In a hydraulic system of the character described, the combination with a receptacle adapted to contain a body of fluid under pressure, and means for regulating the pressure of said fluid, of an emergency-cylinder, with piston therein and emergency mechanism operated by said piston, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe, a bulkhead door, and mechanism operated by fluid-pressure in the system for moving said door, an exhaust-pipe, and a six-way valve for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, substantially as described.

8. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe, and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main leading from the ram-cylinder, branch pipes leading from said main, bulkhead-doors, and mechanism operated by the fluid in said branch pipes for moving said doors and mechanism operated by the piston in the emergency-cylinder for regulating the pressure in the steam-cylinder and so controlling the pressure in all of said branch pipes, substantially as described.

9. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe connected to said ram-cylinder and an exhaust-pipe, and a six-way valve for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main, leading from the ram-cylinder, branch pipes leading from said main, bulkhead doors, and mechanism operated by the fluid in said branch pipes for moving said doors, and mechanism operated by the piston in the emergency-cylinder for regulating the pressure in the steam-cylinder and so controlling the pressure in all of said branch pipes, substantially as described.

10. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with pistons therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of the cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main leading from the ram-cylinder, branch pipes leading from said main, a plurality of bulkhead-doors, door opening and closing mechanism operated by the fluid in said branch pipes and mechanism operated by the piston in the emergency-cylinder for controlling the pressure in the ram-cylinder and so in all of said branch pipes, substantially as described.

11. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, and means for indicating the flow of fluid through said pipes, a fluid-pressure main leading from the ram-cylinder, branch pipes leading from said main, a plurality of bulkhead-doors, door opening and closing mechanism operated by the fluid in said branch pipes and mechanism operated by the piston in the emergency-cylinder for controlling the pressure in all of said branch pipes, substantially as described.

12. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main connected to said ram-cylinder, branch pipes leading from said main, bulkhead-doors, mechanism operated by the fluid in said branch pipes for moving said doors, mechanism operated by the piston in the emergency-cylinder for controlling the pressure in all of said branch pipes, and a releasing-valve connected to each of said branch pipes and adapted to control the flow of fluid through said branch pipe and to control the mechanism operated thereby, substantially as described.

13. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main connected to said ram-cylinder, branch pipes leading from said main, a plurality of bulkhead-doors, door opening and closing mechanism operated by the fluid in said branch pipes and mechanism operated by the piston in the emergency-cylinder for controlling the pressure in all of said branch pipes, and a hand-operated releasing-valve connected to each of said branch pipes and adapted to control the flow of fluid through said branch pipe and to control the door opening and closing mechanism operated thereby, substantially as described.

14. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main connected to said ram-cylinder, branch pipes leading from said main, a plurality of bulkhead-doors, door opening and closing mechanism operated by the fluid in said branch pipes and mechanism operated by the piston in the emergency-cylinder for controlling the pressure in all of said branch pipes, and a hand-operated releasing-valve connected to each of said branch pipes and adapted to control the flow of fluid through said branch pipe and to control the mechanism operated thereby, with springs adapted to automatically return said releasing-valve to the initial position, substantially as described.

15. In a hydraulic system of the character described, the combination with a ram-cylinder adapted to contain a body of fluid under pressure, and a steam-cylinder for exerting pressure upon said fluid, with valves for regulating the said pressure, of an emergency-cylinder, with piston therein, pipes respectively connected to each end of said cylinder and adapted to contain fluid under pressure, a fluid-pressure pipe and an exhaust-pipe, and means for connecting the pipe from one end of said cylinder to the fluid-pressure pipe and from the other end of the cylinder to the exhaust-pipe, or vice versa, a fluid-pressure main leading from the ram-cylinder, branch pipes leading from said main, doors provided with cylinders operated by the fluid in said branch pipes, a valve operated by the piston in the emergency-cylinder for controlling the pressure in the steam-cylinder and thus regulating the pressure in the ram-cylinder and in all of said branch pipes, and a hand-operated releasing-valve connected to each of said branch pipes and adapted to control the flow of fluid through said branch pipe and to control the mechanism operated thereby, substantially as described.

16. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, means for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, a branch pipe from said main, a bulkhead-door, and mechanism operated by the fluid in said branch pipe for moving said door, and releasing-valve mechanism located in said branch pipe and operated by hand at low pressures and automatically operated at high pressures, substantially as described.

17. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, means for operating said valve, a bulkhead-door, and mechanism operated by the fluid-pressure from the accumulator for moving said door, substantially as described.

18. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, means for operating said valve, a fluid-pressure main connected to said accumulator, branch pipes connected to said main, bulkhead-doors, and mechanism operated by the fluid-pressure in said branch pipes for moving said doors, substantially as described.

19. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, means for operating said valve, a fluid-pressure main connected to said accumulator, branch pipes connected to said main, bulkhead-doors and door opening and closing mechanism operated by the fluid-pressure in said branch pipes, substantially as described.

20. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, means for operating said valve, a fluid-pressure main connected to said accumulator, branch pipes connected to said main, bulkhead-doors, and mechanism operated by the fluid-pressure in the branch pipes for opening and closing said doors, and a hand-operated releasing-valve in each of said branch pipes, whereby said doors may be operated by hand when desired, substantially as described.

21. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, means for operating said valve, a fluid-pressure main bulkhead-doors connected to said accumulator, branch pipes connected to said main, and door opening and closing mechanism operated by the fluid-pressure in said branch pipes, and a hand-operated releasing-valve in each of said branch pipes, substantially as described.

22. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, a plurality of reducing-valves interposed between the source of fluid-pressure and the accumulator, with a by-pass between said valves and the accumulator, for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, a branch pipe from said main, a bulkhead-door, mechanism operated by the fluid in said branch pipe for opening and closing said door, and a releasing-valve located in said branch pipe and operated by hand at low pressures and automatically operated at high pressures, substantially as described.

23. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, a plurality of reducing valves interposed between the source of fluid-pressure and the accumulator, for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, a branch pipe from said main, a bulkhead-door, door opening and closing mechanism operated by the fluid in said branch pipe, and a releasing-valve located in said branch pipe and operated by hand at low pressures and automatically operated at high pressures, substantially as described.

24. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, a plurality of reducing-valves interposed between the source of fluid-pressure and the accumulator, with a by-pass between said valves and the accumulator, for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, a branch pipe from said main, a sliding door, a cylinder and piston one of which is fast to the door and the other to the framework or bulkhead surrounding the door, and the movable part being operated by the fluid in said branch pipe, and a releasing-valve located in said branch pipe and operated by hand at low pressures and automatically operated at high pressures, substantially as described.

25. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, a branch pipe from said main, a bulkhead-door and door opening and closing mechanism operated by the fluid in said branch pipe, and a releasing-valve located in said branch pipe and operated by hand at low pressures and automatically operated at high pressures, substantially as described.

26. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure, means for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, a branch pipe from said main, a sliding door, a cylinder and piston one of which is fast to the door and the other to the framework or bulkhead surrounding the door, and the movable part being operated by the fluid in said branch pipe, and a releasing-valve located in said branch pipe and operated by hand at low pressures and automatically operated at high pressures, substantially as described.

27. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, means for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, branch pipes from said main, bulkhead-doors, and mechanism operated by the fluid in said branch pipes for moving said doors, and releasing-valves located in each of said branch pipes and separately operated by hand at low pressures and simultaneously automatically operated at high pressures, substantially as described.

28. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, a plurality of reducing-valves interposed between the source of fluid-pressure and the accumulator for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, branch pipes from said main, bulkhead-doors, and mechanism operated by the fluid in said branch pipes for moving said doors, and releasing-valves located in each of said branch pipes and separately operated by hand at low pressures and simultaneously automatically operated at high pressures, substantially as described.

29. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, means for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, branch pipes from said main, bulkhead-doors, and door opening and closing mechanism operated by the fluid in said branch

pipes, and releasing-valves located in each of said branch pipes and separately operated by hand at low pressures and simultaneously automatically operated at high pressures, substantially as described.

30. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, means for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, branch pipes from said main, a sliding door, a cylinder attached to said door, a fixed piston, and a hollow piston rod connected to said branch pipe and opening into the cylinder, whereby the door is operated by the fluid in said branch pipes, and releasing-valves located in each of said branch pipes and separately operated by hand at low pressures and simultaneously automatically operated at high pressures, substantially as described.

31. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain fluid under pressure and itself operated by fluid from the source of fluid-pressure, means for regulating the pressure of the fluid in the accumulator, a fluid-pressure main leading from the accumulator, branch pipes from said main, a sliding door, a cylinder attached to said door, a fixed piston, and a hollow piston-rod connected to said branch pipe and opening into the cylinder, whereby the door is operated by the fluid in said branch pipes, and releasing-valves located in each of said branch pipes and separately operated by hand at low pressures and simultaneously automatically operated at high pressures, substantially as described.

32. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, means for operating said valve, bulkhead-doors, and door opening and closing mechanism operated by the fluid-pressure from the accumulator, substantially as described.

33. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, a hydraulic system for operating said valve, bulkhead-doors, and door opening and closing mechanism operated by the fluid-pressure from the accumulator, substantially as described.

34. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a pair of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, a hydraulic system operated by pressure from the accumulator for operating said valve, a fluid-pressure main connected to said accumulator, branch pipes connected to said main, bulkhead-doors and mechanism operated by the fluid-pressure in said branch pipes for moving said doors, substantially as described.

35. In a hydraulic system of the character described, the combination with a source of fluid-pressure, of an accumulator adapted to contain a body of fluid under pressure, a plurality of reducing-valves for regulating the admission of fluid-pressure from said source to said accumulator, a by-pass opening from between said reducing-valves into said accumulator, a valve controlling said by-pass, a hydraulic system operated by pressure from the accumulator for operating said valve, a fluid-pressure main connected to said accumulator, branch pipes connected to said main, bulkhead-doors and door opening and closing mechanism operated by the fluid-pressure in said branch pipes, substantially as described.

36. In a hydraulic system of the character described, the combination with a fluid-pressure main and a branch pipe leading therefrom, and means for raising and lowering the pressure in said main, of a bulkhead-door, and door opening and closing mechanism operated by the pressure in said branch pipe, and a releasing-valve located in said branch pipe, and adapted to be operated by hand at all pressures and to be operated automatically at high pressures only, substantially as described.

37. The combination with a frame secured to the bulkhead and provided with guides for the edges of the door, of a door sliding in said guides and provided with a plurality of inclined bearing-surfaces with projections at the base of said surfaces, a plate sliding between said inclined surfaces and the frame and itself having inclined surfaces oppositely disposed to those on the door, balls or rollers interposed between the inclined surfaces on the door and on the said plate, and means for starting the door before said plate, in opening the door, and for stopping the door after said plate, in closing the door, substantially as described.

38. The combination with a frame secured to the bulkhead and provided with guides for the edges of the door, of a door sliding in said guides and provided with a plurality of inclined bearing-surfaces with projections at the base of said surfaces, a plate sliding between said inclined surfaces and the frame and itself having inclined surfaces oppositely disposed to those on the door, balls or rollers interposed between the inclined surfaces on the door and on the said plate, and a pivoted toe adapted to lock said plate against motion when the door is in the early stages of opening or the late stages of closing, substantially as described.

39. The means for tightening the sides of a sliding door which consists in providing oppositely-inclined surfaces on the door and next the framework, with balls or rollers interposed between the said oppositely-inclined surfaces, substantially as and for the purposes described.

40. The means for tightening the bottom or edge of a sliding door comprising a wedge-shaped heel-piece on the door and a pivoted flap-piece adapted to engage the said heel-piece, substantially as described.

41. The means for tightening the bottom or edge of a sliding door comprising a wedge-shaped heel-piece on the door, and a pivoted flap-piece adapted to engage the said heel-piece, with inclined inner face, and springs normally pressing said inner face against the door-sill when the door is open, substantially as described.

42. The means for tightening the bottom or edge of a sliding door comprising a wedge shaped heel-piece on the door and a pivoted flap-piece adapted to engage the said heel-piece, with inclined inner face, and springs normally pressing said inner face against the door-sill when the door is open, and rollers engaging said heel-piece and pressing said flap-piece back against the action of said springs as the door descends, substantially as described.

43. The means for tightening the top or edge of a sliding door which comprise wedge-shaped rib or ribs secured to the door-frame and a hook or hooks secured to the door and adapted to engage said rib or ribs when the door nears the closed position, substantially as described.

44. In a hydraulic system for opening and closing sliding doors or moving other bodies, the combination with a supply-pipe from the source of fluid-pressure, and an exhaust-pipe, of a fixed hollow piston-rod with separate passages therethrough to the upper and lower sides of the piston, respectively, a cylinder secured to the door or other body to be moved, double pipes connecting the passages in the piston-rod to the supply-pipe, and a four-way valve for connecting one of the passages in the piston-rod to the supply-pipe, and the other to the exhaust, or vice versa, substantially as described.

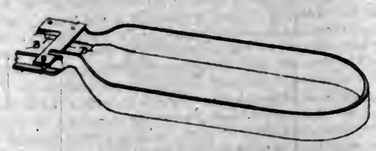
45. In a hydraulic system for opening and closing sliding doors or moving other bodies, the combination with a supply-pipe from the source of fluid pressure, and an exhaust-pipe, of a fixed hollow piston-rod with separate passages therethrough to the upper and lower sides of the piston, respectively, a cylinder secured to the door or other body to be moved, double pipes connecting the passages in the piston-rod to the supply-pipe, and a four-way valve for connecting one of the passages in the piston-rod to the supply-pipe, and the other to the exhaust, or vice versa, with means for operating this valve by hand at all pressures, or automatically at high pressures only, substantially as described.

46. In a hydraulic system for opening and closing sliding doors, the combination with a door and rigid guides therefor, of a supply-pipe from the source of fluid-pressure and an exhaust-pipe, a fixed hollow piston-rod with separate passages therethrough to the upper and lower sides of the piston, respectively, a cylinder secured to the door, double pipes connecting the passages in the piston-rod to the supply-pipe, a four-way valve for connecting one of the passages in the piston-rod to the supply-pipe, and the other to the exhaust, or vice versa, and tightening devices automatically operated by the motion of the door, substantially as described.

47. In a hydraulic system for opening and closing sliding doors, the combination with a door and rigid guides therefor, of a supply-pipe from the source of fluid-pressure and an exhaust-pipe, a fixed hollow piston-rod with separate passages therethrough to the upper and lower sides of the piston, respectively, a cylinder secured to the door, double pipes connecting the passages in the piston-rod to the supply-pipe, a four way valve for connecting one of the passages in the piston-rod to the supply-pipe, and the other to the exhaust, or vice versa, and tightening devices automatically operated by the motion of the door, with means for operating this valve by hand at all pressures, or automatically at high pressures only, substantially as described.

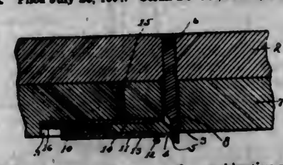
605,400. CUTTER AND HOLDER FOR FRUIT, FLOWERS, &c. WILLIAM W. CROCKETT, Falls City, Nebr. Filed Oct. 23, 1897. Serial No. 656,208. (No model.)

Claim.—1. A cutting apparatus, having a handle composed of two members mounted to move toward and from each other, each member terminating in a flat jaw, arranged with their faces in parallel planes, the jaws being capable of grasping between them the stem of a plant, and one of the jaws having at its upper edge an outwardly-bent flange, and the other of the jaws having at its lower edge an outwardly-bent flange and at its upper edge a slot extending horizontally therein, and a cutter proper or blade secured rigidly on the outwardly-bent flange at the upper edge of the first-named jaw, said cutter or blade extending horizontally toward the other jaw and having an arm normally projecting over the said other jaw and through the slot in the upper edge thereof, the free end of said arm carrying a pin to limit the movement of the jaws away from each other.



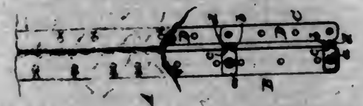
2. A cutting apparatus, having a handle formed of two members movable toward and from each other, each member terminating at its free end in a jaw and the jaws having flat faces in parallel planes, between which faces the stems of plants may be engaged and held, one of the jaws having in its upper edge a horizontally-extending slot, and a cutter proper or blade secured to the other jaw and horizontally disposed so as to engage the upper edge of the jaw with the slot, the cutter or blade having a horizontally-projecting arm extending over the upper edge of the jaw with the slot and through the slot, the end of the arm having a pin to limit the movement of the jaws away from each other.

605,401. BOX-FASTENER. CHESTER M. CUNNINGHAM, Peora, W. Va. Filed July 26, 1897. Serial No. 645,922. (No model.)



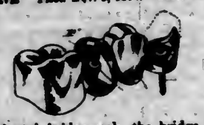
Claim.—In a fastener for crates, the combination with the cover of the bolt 3, mounted in an aperture in a cross-strip thereof, the free end of said bolt being reduced and a notch formed therein, of the cross-strip of the crate, the casing secured in a recess in the under side of said cross-strip of the crate, the spring-actuated bolt in said casing, the free end of which bolt is disposed in the path of the hooked end of bolt 3, and designed to engage with said hooked end, of the pin 12 secured to the head of the bolt extending through a slot in the casing, and the rotary screw 14 fastened at its lower end to the casing, and the nut 15 carried on the upper end thereof and countersunk in the cross-strip of the crate, as shown and described.

605,402. STAY AND FASTENER. PARLEY A. DAILEY, Brooklyn, N. Y. Filed Mar. 14, 1898. Serial No. 673,185. (No model.)



Claim.—A stay and fastener consisting of the member C formed of longitudinally-extending sections D pivoted together at their adjacent overlapped ends, said sections each having on the lower end of its outer edge an integral eye *d*, a similar eye on the upper end of the upper section D; the eyes *d* intermediate the upper and lower members D being located in transverse alinement with the pivot-points of the members D, and the mating non-sectional member B provided with a series of fastenings in transverse alinement with said pivots and eyes and each comprising a transverse plate *a* on the outer side of said member and having at its outer end a transverse tongue *c* to project inwardly through an eye *d*, and a longer spring-plate *b* at the under side of said member and extending at its free end across the end of tongue *c*; said plates *a*, *b* being riveted together through the member B; substantially as described.

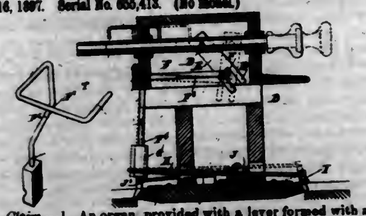
605,403. DENTAL BRIDGEWORK. CHARLES A. DAVIS, Pasadena, and EMORY L. TOWNSEND, Los Angeles, Cal.; said Townsend assignor to said Davis. Filed Nov. 9, 1897. Serial No. 657,866. (No model.)



Claim.—1. In dental bridgework, the bridge, the integrally-formed sockets thereon, a corrugated pin integral with the base of each socket, and a double-ended pin extending through the base of one of the said sockets, combined with the crowns fitted in said sockets and means for holding same on the socket-pins, as set forth.

2. In dental bridgework, the bridge made up of a series of sockets, integral corrugated and shouldered pins, one in each socket, one of the sockets being double with a common base and a double-ended pin extending through the said base thereof, combined with crowns secured as shown and described.

605,404. ORGAN. JOHN E. DAVIS, Washington, N. J. Filed Oct. 16, 1897. Serial No. 655,413. (No model.)



Claim.—1. An organ, provided with a lever formed with a pivot portion, and arms extending therefrom and at angles to each other, one of said arms having a bent portion extending parallel and in alinement with said pivot portion and arranged for connection with the actuating part, and the other arm being formed with a bend by which it is brought in line with the center of the pivot portion, said latter arm being arranged for connection with the part to be actuated, as set forth.

2. In an organ, the herein-described lever formed with a transversely-extending pivot portion held to rotate on its longitudinal axis in a bearing in the organ, an arm extending from one end of said pivot portion and at an angle thereto, said arm having its end bent parallel and in alinement with the pivot portion and by which it is connected with the actuating part, and a second arm extending from the opposite end of said pivot portion and at an angle thereto, said second arm being formed with a bend by which it is brought in line with the center of the pivot portion and being arranged for connection with the part to be actuated, as set forth.

3. In an organ, the combination with a frame and a stop fitted in said frame and having a link pivoted thereon, of a lever formed of a single piece of wire bent to form a transverse pivot portion mounted to rotate on its longitudinal axis in a bearing in said frame and having its center in line with said link, and two arms extending in opposite directions from the ends of said pivot portion and at an angle thereto, one of said arms being provided with a pin extending parallel with said pivot portion and arranged for connection with said link, and the other arm having its end bent in line with the center of said pivot portion and arranged for connection with the part to be actuated, as set forth.

605,405. WATER-JACKET FOR CYLINDERS OF ENGINES. WILLIAM F. DAVIS, Waterloo, Iowa, assignor to the Davis Gasoline Engine Works Company, same place. Filed May 7, 1897. Serial No. 636,519. (No model.)



Claim.—1. A gas-engine the cylinder whereof is provided at its ends with raised annular ribs or flanges, and at its inner end with a

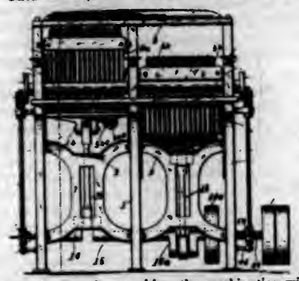
raised part extending beyond the adjacent rib or flange, a jacket resting upon said flanges and having beveled ends terminating inside the cylinder-head and said raised part, packing-rings encircling said flanges of the cylinder and bearing against the beveled ends of the jacket, and a cylinder-head having its face abutting against the packing-ring that rests upon the flange at the outer end of the cylinder, substantially as described.

2. In an engine the combination with a cylinder provided at its ends with raised annular ribs or flanges and at its front end with a cylinder-head and having a raised shoulder adjacent the inner annular rib or flange, of a jacket formed of longitudinal sections shorter than the space between said raised shoulder and the cylinder-head, packing-rings encircling said ribs or flanges of the cylinder and against which the end portions of said jacket-sections bear and means for clamping said sections securely against said packing-rings and together whereby water-tight joints are formed at the ends of the jacket-sections and whereby the jacket-sections can be removed without disturbing the remaining parts, substantially as described.

3. In an engine the combination with a cylinder provided at its ends with suitable raised annular ribs or flanges, of a jacket formed of longitudinal sections having beveled ends, packing-rings encircling said flanges of the cylinder and bearing against the beveled ends of said jacket-sections and bolts for clamping said jacket-sections against said ring, substantially as described.

4. In an engine the combination of a cylinder provided upon its exterior with raised annular ribs or flanges and at its inner end with a raised part adjacent the corresponding annular rib or flange, a jacket formed of longitudinal sections having beveled ends terminating inside the cylinder-head and inside said raised part, said jacket-sections being also formed with grooved opposing edges, packing-rings encircling said flanges or ribs of the cylinder and bearing against the beveled ends of the jacket-sections, a cylinder-head having its face abutting against the packing-ring that rests against the flange at the outer end of the cylinder and. means for clamping said jacket-sections upon said packing-rings, substantially as described.

605,406. SAWING-MACHINE. LORENZ A. DEUTHER, Buffalo, N. Y. Filed June 28, 1897. Serial No. 642,575. (No model.)



Claim.—1. In a sawing-machine, the combination with the supporting-frame and the reciprocating saws, of a supplementary circular saw located behind the reciprocating saws for removing the sawdust between the side edges of the slats as they come from the reciprocating saws, as set forth.

2. In a sawing-machine, the combination with the frame, the reciprocating saws and the saw-table, provided with an opening located at the rear of the reciprocating saws, of a shaft mounted in said table and passing through said opening, and one or more circular saws adjustably supported on said shaft to remove the caked sawdust from between the slats as they come from the reciprocating saws, as set forth.

3. In a sawing-machine, the combination with the frame, the reciprocating saws and the saw-table, provided with an opening at the rear of the reciprocating saws, of a shaft mounted in the opening in said table and passing through said opening and one or more circular saws, adjustably supported on said shaft, said saws being provided with a series of slots or openings and having the side edges of said slots slightly offset or bent alternately to each side to afford means to remove the sawdust and smooth the side edges of the slats as they come from the reciprocating saws, as set forth.

4. In a sawing-machine, the combination with the reciprocating saws and the supporting saw-gates, of a series of spacing-plates placed between the saws, each provided with a top edge inclining diagonally downwardly toward the front and terminating in a projecting nose, and a rear depression or dovetail, a supporting portion fitting in said depression or dovetail, a cross-bar provided with a groove fitting over said nose and a screw device for rigidly securing said portion and cross-bar to the saw-gates, as set forth.

5. In a sawing-machine, the combination with the supporting-frame, provided with a slideway portion and table, of a saw-gate, mounted in said slideway and supporting a gang of reciprocating saws, a circular saw mounted in the table at the rear of the reciprocating saws, to remove the sawdust from between the slats as they come from the reciprocating saws, and an operating-shaft in connection with the saw-gate and the circular saw, as set forth.

6. In a sawing-machine, the combination with the reciprocating saws and the supporting saw-gates, of a series of spacing-plates placed between the saws, each provided with a depression and a projecting nose, a supporting portion fitting in said depression, a cross-bar provided with a groove fitting over said nose and screw means for rigidly securing said portion and cross-bar to the saw-gates, as set forth.

7. In a double sawing-machine, the combination of the double frame, two saw-gates mounted in slideways in said frame, a series of reciprocating saws supported in each gate, a driving-shaft, a cam at each end thereof, two cranks extending at diametrically opposite directions from said shaft, two rods each pivotally connected at its lower end to one of the cranks and at its upper end to one of the saw-gates, feed-rollers provided with crown-wheels, and rods having their lower ends provided with gear-wheels engaging with the cams on the driving-shaft, and their upper ends with pinions engaging with the crown-wheels on the feed-rollers, as set forth.

605,407. COUNTERSINKER. CHARLES DUNAW, Jr., Cheboygan, Mich., assignor of one-half to Isaac Piercy, same place. Filed Dec. 23, 1897. Serial No. 663,217. (No model.)



Claim.—1. A countersinking-tool comprising relatively-adjustable members, adapted to have their end portions fitted within the bore or opening to be countersunk, means for securing the members in an adjusted position, and a bit applied to and projecting laterally from one of the members a short distance from its active extremity, substantially as set forth.

2. A countersinking-tool comprising relatively-adjustable members having their active ends reduced to readily enter the bore to be countersunk, said tool having a shank at its opposite end to be fitted into a bit-stock, means for holding the members in an adjusted position, and a bit applied to a member a short distance from its extremity, substantially as set forth.

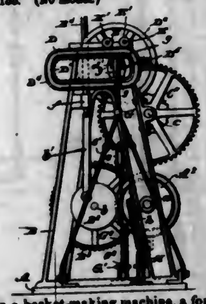
3. A countersinking-tool comprising pivoted members adapted to have their end portions fitted within the bore or opening to be countersunk, one of the members having a shank to admit of the tool being fitted to a bit-stock, means for holding the members at the required distance apart, and a bit applied to and projecting laterally from a member a short distance from its extremity, substantially as set forth.

4. A countersinking-tool comprising a member having a head provided with a shank to be fitted into a bit-stock, and having a slot, a second member pivoted within the slotted head, both members adapted to have their end portions fitted within the bore or opening to be countersunk, means for holding the members at the required distance apart, and a bit applied to and projecting outwardly from a side of a member a short distance from its active extremity, substantially as set forth.

5. In a countersinking-tool, the combination of members relatively adjustable, and adapted to have their end portions fitted within the bore or opening to be countersunk, one of the members having a transverse opening a short distance from its active end, a bit having a substantially horizontal and vertical cutting edge and fitted into the opening of the member to which it is secured, and means for fastening the bit in position, substantially as described.

6. The herein-described countersinking-tool, comprising a member having a slotted head formed with a shank to be fitted into a bit-stock, a second member pivoted within the slotted head, the extremities of the members being adapted to be fitted within the bore or opening to be countersunk, a curved bar secured to one of the members and passing loosely through an opening in the opposite member, a set-screw for securing the curved bar within the opening and holding the members at the required distance apart, and a bit having an approximately horizontal and a vertical cutting edge and having adjustable connection with and projecting laterally from one of the members a short distance from its active end, substantially as set forth.

605,408. BASKET-MAKING MACHINE. JOHN R. DURHAM and JOSEPH R. DEVINE, Douglas, Mich., assignors to Elmer E. Weed, D. Milton Gerber, and Cornelius Gerber, same place. Filed July 19, 1897. Serial No. 645,123. (No model.)



Claim.—1. In a basket-making machine, a form having internal racks rotatably mounted beneath a stapling-machine, a shaft having pinions which engage with the racks of the form and means for holding the form in engagement with said pinions, substantially as set forth.

2. In a basket-making machine, a form having racks, a recess in the form, a plate engaging with said recess and a shaft which passes through the plate, said shaft having pinions for actuating the form, substantially as shown.

3. In a basket-making machine, the combination with a form having parallel sides and rounded corners, a shaft having pinions for engagement with racks which project from the inner side of the form; together with a retaining-plate upon which the form moves and a stapling-machine mounted above the form, substantially as shown.

4. In a basket-making machine, a form upon which the parts of the basket are assembled, a stapling-machine mounted above the form and in gear therewith, the gear including mechanism for imparting to the form an intermittent movement between the strokes of the staple drivers, the range of movement of the form being alternately horizontal beneath the staple-drivers and in quadrant arcs in turning the corners thereof.

5. In a basket-making machine, a form having internal racks, a recess and circumferential flange, a plate carried by a support said plate engaging the recess, a shaft which passes through the plate and is provided with pinions which engage with the racks so that the plate and pinions on the shaft provide a support for the form, a pair of rollers mounted so as to engage with the flange and a stapling-machine mounted above the form, substantially as shown.

6. In a basket-making machine, the combination with a stapling-machine, of a form mounted beneath the same and in gear therewith, means for supporting and actuating the form so as to impart thereto a longitudinal movement for the length of each side and an intermediate turning or rotative movement at the corners.

7. In a basket-making machine the combination with a form and means for moving said form longitudinally turning the same and again moving the opposite side longitudinally, of rollers carried by the frame and adapted to engage with said form and a pair of rollers carried by a pivoted support for engagement with the bottom of a basket when placed on the form; together with a stapling-machine operating above said form and in conjunction therewith.

8. In a basket-making machine, the combination with a stapling-machine and driving-gear therefor, of a basket form in gear with the mechanism for driving the stapling-machine, the form being so supported and geared that there will be imparted thereto an intermittent movement rotatably about its four corners alternately with a movement horizontally for the length of its sides and ends.

9. In a basket-making machine, the combination with driving mechanism having means or devices for imparting an intermittently-rotary movement to a shaft, a basket-form having a horizontal and partially-rotary movement imparted thereto from the intermittently-rotating shaft, a shaft in gear with the driven shaft and provided with a pitman for imparting a reciprocating movement to a stapling-machine, a foot-lever and means for holding the foot-lever raised so that the driving-shaft will be held against movement with the driving-pulley free to turn thereon, the brake being released when the driving-pulley is in operative engagement therewith by the depression of the foot-lever, substantially as shown and for the purpose set forth.

10. In a basket-making machine a frame or support having a plate, a form having a recess with which said plate engages, a rotary shaft having a pinion, the form having inward-projecting racks for engagement with the pinion on the shaft so that the form will be given when the shaft is rotated a longitudinal movement and a swinging movement on different axes; together with a stapling-machine having hoop-rollers and hoop-guides, for the purpose set forth.

11. In a basket-making machine, the combination with a form, a stapling-machine having staple-drivers positioned above the same, of a support for a shaft carried by the stapling-machine so as to project beyond the staple-drivers thereof, hoop rollers and guides carried by said shaft and a spring for forcing the shaft toward the form, for the purpose set forth.

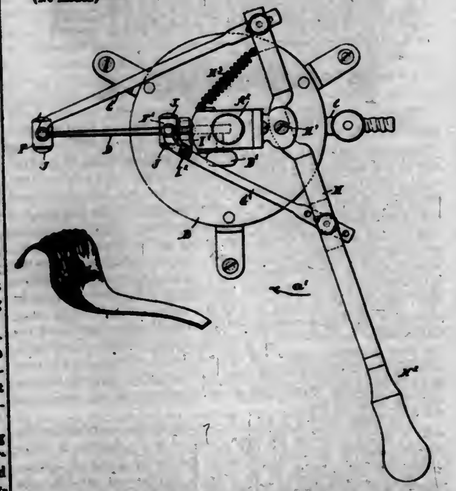
12. In a basket-making machine, the combination with a form, of a stapling-machine mounted on a support above the form so that the staple-drivers will project over the form, a tube carried by the frame of the stapling-machine and positioned between the staple-drivers, a shaft-spring actuated in one direction, a cross-bar attached to the shaft and provided with rollers, said cross-bar also carrying a plate with guide-pins, substantially as shown and for the purpose set forth.

13. In a basket-making machine, the combination with a frame having shaft-bearings as shown in which are journaled shafts *a b e* and *d*, pitmen attached to the shaft *a* one for imparting a reciprocating motion to the staple-drivers of a stapling-machine the other having a pawl for engagement with a ratchet-wheel to drive the shaft *c*, a gear-wheel on the shaft *c* which meshes with a pinion on the shaft *d*, and a basket-form in gear with the pinions on the shaft *d*, the parts being organized, substantially as shown and for the purpose set forth.

14. In a basket-making machine, a form upon which the parts of the basket are manually assembled, mechanism for imparting to the form a step-by-step movement longitudinally and a movement rotatably about the corners of the form, a guide or plate upon which the form moves and turns, a pair of guide-rollers in direct engagement with the form one on each side of the longitudinal center of the driving-shaft which imparts movement to the form, substantially as set forth.

15. In a basket-making machine, the combination with a form having its bottom-receiving portion disposed in a vertical plane, of an arm movable to and from the form, a plate and rollers carried by the arm so that they may engage with the bottom board of the basket, substantially as set forth.

605,409. ARTIFICIAL-FLOWER-CRIMPING MACHINE. LUCIEN RIBERY, New York, N. Y. Filed Jan. 28, 1896. Serial No. 668,297. (No model.)



Claim.—1. A crimping-press, provided with bars for holding the blanks loosely between them, and heads on said bars, for pressing the blanks endwise while held between the bars, substantially as shown and described.

2. A crimping-press, provided with bars, one of which is movable relatively to the other to hold the blanks loosely between the bars, and heads held on said bars, for pressing the blanks endwise, substantially as shown and described.

3. A crimping-press, provided with a fixed bar, a pivoted bar adapted to swing toward and from the fixed bar to hold the blanks between the bars, heads mounted to slide on the bars to press the blanks endwise, and means for imparting a swinging motion to the pivoted bar, substantially as shown and described.

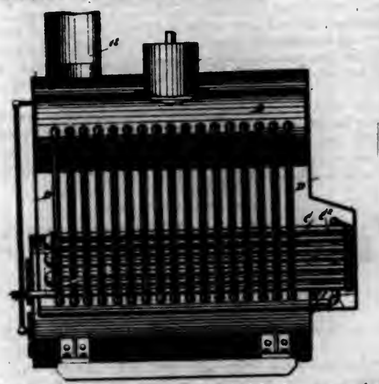
4. A crimping-press, provided with a fixed bar, a pivoted bar adapted to swing toward and from the fixed bar to hold the blanks between the bars, heads mounted to slide on the bars to press the blanks endwise, means for imparting a swinging motion to the pivoted bar, and an adjusting device for regulating the position of the movable bar relatively to the fixed bar, substantially as shown and described.

5. A crimping-press, provided with bars, one of which is movable relatively to the other to hold the blanks loosely between the bars, heads held on said bars, for pressing the blanks endwise, a lever under the control of the operator, and links connecting said lever with the said heads to move the latter simultaneously toward or from each other upon imparting a swinging motion to the lever, substantially as shown and described.

6. A crimping-press, provided with bars, one of which is movable relatively to the other to hold the blanks loosely between the bars, heads held on said bars, for pressing the blanks endwise, a post carrying said bars, and means for heating the post and bars carried thereby, substantially as shown and described.

7. A crimping-press, provided with crimping-bars, heads held movable thereon, and jaws carried by the said heads and riding loosely between the bars, substantially as shown and described.

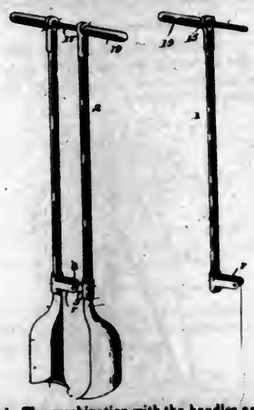
605,410. BOILER. BENJAMIN P. BERRY, Kennebunk, Me. Filed Jan. 22, 1898. Serial No. 667,562. (No model.)



Claim.—1. A boiler having a cylindrical fire-box, a water-jacket encircling the fire-box, a casing inclosing the upper portion of the fire-box and extending upward above the same, a bridge at the rear end of the fire-box and leading into an extension at the rear of the casing, a coil of pipe extending around the fire-box and into the said extension of the casing so as to pass rearward of the fire-box, the coil of pipe communicating with the water-jacket, a boiler proper located in the upper portion of the casing and having a steam-dome projected through the casing, upright or stand pipes running from the water-jacket of the fire-box to, and communicating with the boiler proper, the said upright or stand pipes being divided into two sets located respectively at each side of the boiler proper and fire-box, secondary stand-pipes communicating with the upper portion of the water-jacket and extending upwardly to, and having communication with the boiler proper, and two additional coils of pipes located between the secondary stand-pipes and extending between the fire-box and the boiler proper and communicating with the latter and with the water-jacket.

2. A boiler, having a fire-box, a water-jacket surrounding the same, a casing inclosing the upper portion of the fire-box, a boiler proper located in the upper portion of the casing, a coil of pipe extending around the sides of the fire-box and around the rear end thereof, and communicating with the water-jacket, stand-pipes located at each side of the fire-box, and extending upwardly to, and communicating with the boiler proper, the stand-pipes also communicating with the water-jacket, and coils of pipes located between the boiler proper and the fire-box and also between the stand-pipes, the said coils of pipes communicating with the water-jacket and with the boiler proper.

605,411. POST-AUGER. JAMES EVANS, Davis City, Nebr. Filed June 18, 1897. Serial No. 641,214. (No model.)

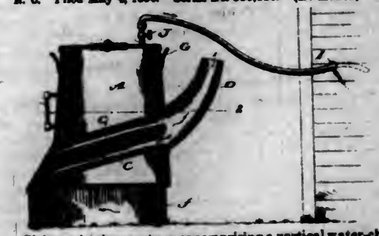


Claim.—1. The combination with the handles and screw-sleeves at their lower ends having lateral arms, and an adjustable pivot connecting them, of shells having screw-threaded shanks engaging sockets in said sleeves, and means adjustably connecting the opposite ends of said handles, as set forth.

2. The combination with the handles pivoted together near their lower ends and the shells carried by said handles, of hollow handles projecting laterally from the upper ends of the handles one of which is interiorly threaded, a sleeve movably mounted in the other handle and a screw-rod entering said sleeve at one end and the other end engaging the threads of the other handle, substantially as specified.

3. The combination with the handles pivoted together at their lower ends and the shells carried thereby, of hollow grip-handles projecting laterally from the upper ends of the handles and one of which is interiorly threaded a nut held in the inner end thereof, a sleeve movably mounted in the other handle and a screw-rod entering the sleeve at one end and the other end engaging said nut and the threads of the other grip-handle, all substantially as shown and described.

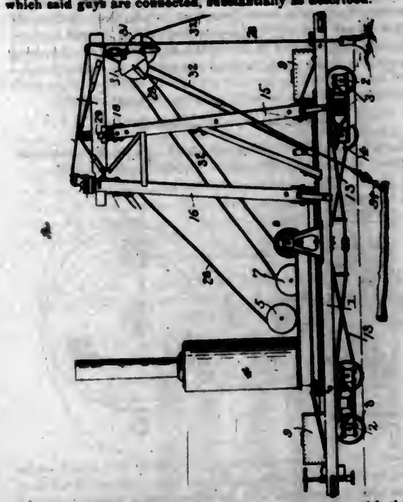
605,412. TOBACCO-STEAMER. ANDREW J. FAIR, Walnut Cove, N. C. Filed May 4, 1896. Serial No. 590,110. (No model.)



Claim.—A tobacco-steamer comprising a vertical water-chamber, a depending casing to support the water-chamber and form a fire-box beneath the same, a stack located upon one side of said chamber, a series of diagonally-extending flues in the lower part of said chamber and communicating with the fire-box and stack, and a steam-conducting pipe extending from the upper part of said chamber, substantially as and for the purposes set forth.

605,413. LOG-HAULING LOCOMOTIVE. WILLIAM A. FLETCHER, Beaumont, Tex. Filed Oct. 23, 1897. Serial No. 656,043. (No model.)

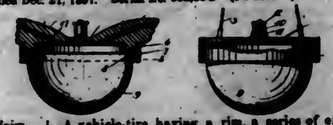
Claim.—1. In a log-hauling locomotive, the combination with the platform, the connected shears and the crane, of the hollow pin secured to the rear shears, passing through said crane, the sheaves connected with said shears above and below the crane, the sheaves at the front of the crane at an angle to the sheaves connected with the shears, the guys passing around the sheaves connected with the shears at opposite sides thereof and through the hollow pin, and around the sheaves connected with the cranes, and the hauling-chains, substantially as described.



2. In a log-hauling locomotive, the combination with the platform, the connected shears, the crane, the hollow pivot-pin passing through said crane, the grooved sheaves connected above said shears above and below the crane and in different vertical planes, the sheaves at the front of the crane at an angle horizontally to the sheaves of the shears, the guys and the drums to which they are secured, of the sheaves connected with the under side of the crane at the front end thereof, the hauling-chains, and the drums with which they are connected, substantially as described.

3. In a log-hauling locomotive, the combination with the platform, the axle provided with sprocket-pinions, the sprocket-chains, the transverse shaft, the sprocket-wheels thereon, the guy-rope drums mounted on a common shaft, the hauling-rope drums located in rear thereof and means for operating the same, of the connected shears, the crane, the hollow pin secured to the rear shears, passing through said crane, the sheaves connected with said shears above and below the crane, the sheaves at the front of the crane at an angle to the sheaves connected with the shears, the guys passing around the sheaves connected with the shears at opposite sides thereof and through the hollow pin and around the sheaves connected with the cranes, and the hauling-chains, substantially as described.

605,414. VEHICLE-TIRE. HERMAN A. FOUTHUS, Auburn, N. Y. Filed Dec. 21, 1897. Serial No. 662,954. (No model.)



Claim.—1. A vehicle-tire having a rim, a series of expansible bulbs, means for independently securing the bulbs to the rim, and a series of passages formed in the rim and connecting the bulbs with each other, one of said bulbs being in communication with a nipple, whereby all the bulbs may be inflated, substantially as described.

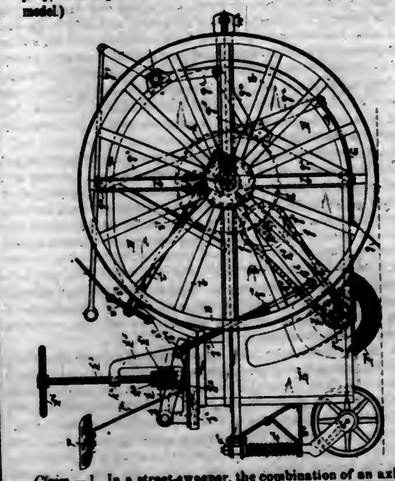
2. A vehicle-tire having a rim provided with a series of ridges or enlargements each having a passage extending through it, and a series of inflatable bulbs independently secured to the said rim, the passages in the said ridges or enlargements respectively connecting with adjacent bulbs, whereby the bulbs are all placed in communication with each other, substantially as set forth.

3. A vehicle-tire having a rim provided on its outer face with a series of annular ribs, a clamping-band screwing over each annular rib, and a series of inflatable bulbs provided at their base edges with beads arranged to be held between the respective ribs and clamping-bands, substantially as specified.

4. A vehicle-tire having a rim provided on its outer face with a series of annular ribs exteriorly threaded, expansible bulbs provided at their base edges with beads, clamping-rings adapted to screw on the said annular ribs and having inwardly projected or contracted portions at their outer edges serving to hold the beads against the said annular ribs, the said bulbs being in communication with each other, substantially as set forth.

5. A vehicle-tire provided with a rim, a series of expansible bulbs, means for securing said bulbs on the outer surface of the rim, the said rim being provided on its inner face with a series of equidistant arc-shaped enlargements leading between the contiguous bulbs, and each having a passage forming a communication between the interior of contiguous bulbs, respectively, substantially as described.

605,415. STREET-SWEEPER. WILLIAM FRAHS, Allegheny, Pa., assignor, by mesne assignments, to the Improved Street Sweeper Company, Pittsburg, Pa. Filed Nov. 27, 1897. Serial No. 659,804. (No model.)



Claim.—1. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle, a tank or dirt-receptacle rigidly secured to the axle, a conveyer between the casing and the tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the rotatable broom, and gearing mechanism connected to the driving wheels and to gear-wheels loosely mounted around the axle and rigidly connected to the conveyer, substantially as and for the purposes set forth.

2. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle, a tank or dirt-receptacle rigidly secured to the axle, a conveyer between the casing and the tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the rotatable broom, gearing mechanism connected to the driving-wheels and adapted to operate gear-wheels loosely mounted around the axle, and ratchet-wheels having pawls engaging therewith connected to said gear-wheels and rigidly connected to the conveyer or frame, substantially as and for the purposes set forth.

3. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle, a tank or dirt-receptacle rigidly secured to the axle, a conveyer between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the rotatable broom, gear-wheels connected to the driving-wheels and meshing with pinions mounted on shafts supported on said casing, pinions on said shafts and meshing with gear-wheels loosely mounted around the axle, and ratchet-wheels having pawls engaging therewith connected to said last-named gear-wheels and rigidly connected to the conveyer, substantially as and for the purposes set forth.

4. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of said axles, connections from the driving-wheels to the broom, a cross-bar supported by and in front of said casing, and bars removably secured to said cross-bar and having collars thereon rigidly secured to the axle for dumping and holding the tank or dirt-receptacle in place, substantially as set forth.

5. In a street-sweeper, the combination of an axle, supporting

and driving wheels loosely mounted around the axle, a casing supported around the axle, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the broom, a cross-bar supported by and in front of said casing, bars removably secured to said cross-bar having collars thereon rigidly secured to the axle, and bolts removably connected to the cross-bars and bars for dumping and holding the tank or dirt-receptacle in place, substantially as set forth.

6. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the broom, a cross-bar supported by and in front of said casing, bars removably secured to said cross-bar having collars thereon rigidly secured to the axle, slots in said cross-bars, and bolts removably connected to the cross-bars and bars having elongated heads thereon engaging the said slots in the cross-bars for dumping and holding the tank or dirt-receptacle in place, substantially as set forth.

7. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the broom, a cross-bar supported by and in front of said casing, bars removably secured to said cross-bar having collars thereon rigidly secured to the axle, bolts removably connected to the cross-bar and bars having elongated heads thereon engaging with said slots in the cross-bar, and wrench-nuts engaging the said bolts for dumping and holding the tank or dirt-receptacle in place, substantially as set forth.

8. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a rotatable broom mounted in the rear of the axle, connections from the driving-wheels to the broom, and adjustable spring-rods secured to the said rotatable broom and pivotally swiveled in sleeves pivoted in arms secured to a shaft supported above the rotatable broom, substantially as set forth.

9. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a rotatable broom mounted in the rear of the axle, connections from the driving-wheels to the broom, adjustable spring-rods secured to said broom and pivotally swiveled in arms secured to a shaft supported above the broom, and a worm gear-wheel on said shaft meshing with a worm on an upright shaft having an operating-wheel thereon for raising and lowering the broom, substantially as set forth.

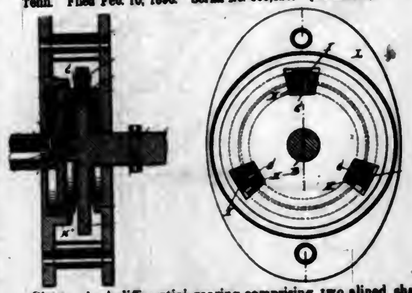
10. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle and provided with an opening in the bottom thereof, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the broom, means on said axle for dumping and holding the tank in place, and a removable door pivoted to said casing and fitting over the opening in the bottom of the casing to allow the tank to be emptied, substantially as set forth.

11. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle and provided with an opening in the bottom thereof, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the broom, means on said axle for dumping and holding the tank in place, a removable door pivoted to said casing and fitting over the opening in the bottom of the casing to allow the tank to be emptied, and means connected to said door for raising and lowering the same, substantially as set forth.

12. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle, a casing supported around the axle and provided with an opening in the bottom thereof, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of the axle, connections from the driving-wheels to the broom, means on said axle for dumping and holding the tank in place, a removable door pivoted to said casing and fitting over the opening in the bottom of the casing to allow the tank to be emptied, and a series of levers pivoted to the door and casing for raising and lowering the door, substantially as set forth

13. In a street-sweeper, the combination of an axle, supporting and driving wheels loosely mounted around the axle and provided with an opening in the bottom thereof, a tank or dirt-receptacle rigidly secured to said axle, a conveyer-frame between the casing and tank carrying buckets thereon, a rotatable broom adjustably mounted in the rear of said axle, connections from the driving-wheels to the broom, means on said axle for dumping and holding the tank in place, a removable door pivoted to said casing and fitting over the opening in the bottom of the casing to allow the tank to be emptied, and a flexible apron secured to the rear end of said removable door to direct the sweepings into the buckets, substantially as set forth.

605,416. DIFFERENTIAL GEARING. DANIEL FYFE, Covington, Tenn. Filed Feb. 10, 1898. Serial No. 669,836. (No model.)

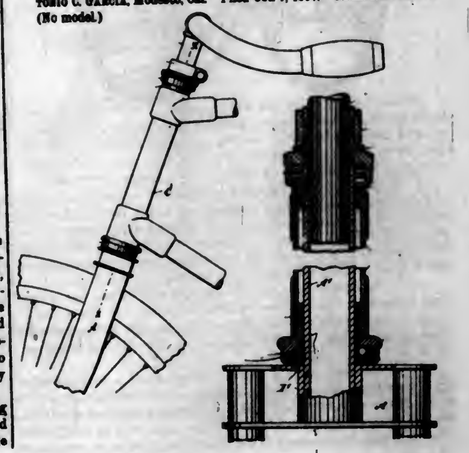


Claim.—1. A differential gearing comprising two alined shafts arranged to rotate independently of each other, and one of which is provided with a gear-wheel and the other with a support carrying pinions, one of which pinions is in mesh with said gear-wheel, and fixed gear-wheels of different diameters, adapted to be alternately engaged by said pinions, substantially as shown and described.

2. A differential gearing comprising two alined shafts arranged to rotate independently of each other, and yieldingly connected with each other to permit of shifting the shafts longitudinally, one of the shafts being provided with a gear-wheel and the other with a support, pinions journaled in said support, one of said pinions being in mesh with the gear-wheel on the shaft, and fixed gear-wheels of different diameters, adapted to be engaged alternately by said pinions, substantially as shown and described.

3. A differential gearing comprising two alined shafts arranged to rotate independently of each other, and yieldingly connected with each other to permit of shifting the shafts longitudinally, one of the shafts being provided with a gear-wheel and the other with a support, pinions journaled in said support one of said pinions being in mesh with the gear-wheel on the shaft, fixed gear-wheels of different diameters, adapted to be engaged alternately by said pinions, and means for moving the shafts longitudinally, to bring said pinions in mesh with either of said fixed gear-wheels, one of said pinions, however, remaining in mesh at all times with the gear-wheel on the shaft, substantially as shown and described.

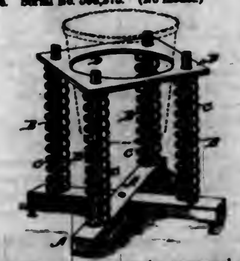
605,417. AUTOMATIC STEERING-HEAD FOR BICYCLES. ANTONIO C. GARCIA, Modesto, Cal. Filed Oct. 7, 1897. Serial No. 654,358. (No model.)



Claim.—1. A bearing for the steering-head of a bicycle, consisting of a plate having a series of radially-extending grooves with inclined sides in its face, a plate having corresponding recesses and balls therein adapted to normally rest in said grooves, and an interposed absorbent washer apertured to receive the balls, said plates being connected respectively to the fork and frame of the bicycle, substantially as described.

2. A steering-head for bicycles, comprising a plate attached to the fork at the lower end of the head, and having hemispherical recesses in its upper surface and balls in said recesses projecting above the surface of the plate, a cup embracing said plate and attached to the frame, the bottom of said cup having radially-extending grooves with sloping sides adapted to receive said balls, a cup attached to the steering-bar and having downwardly-projecting flanges, and a spiral spring within said cup and engaging the upper end of the frame-head, substantially as described.

605,418. EGG-CARRIER. CHARLES GOSEY, Viola, Idaho. Filed July 6, 1896. Serial No. 598,575. (No model.)



Claim.—The improved egg-carrier composed of the cruciform base, four vertical posts set in the end portions thereof, coiled springs encircling the posts, the horizontal platform, having holes for reception of said posts, and provided with a large central opening for reception and support of an egg-basket, the upper portions of the posts projecting a considerable distance above the platform, as and for the purpose described.

605,419. FRUIT-PICKER. LEE S. HAGAN, Brewer, Me. Filed June 10, 1897. Serial No. 640,208. (No model.)



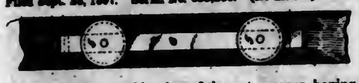
Claim.—1. A fruit-picker comprising a body portion made up of two sections substantially semicircular in cross-section, pivoted one to the other at points intermediate of their ends and provided with picking-fingers, and a delivery-tube made up of two sections substantially semicircular in cross-section, pivoted one to the other intermediate of their ends and pivoted respectively to the sections of the body portion, as and for the purpose set forth.

2. A fruit-picker comprising a body portion made up of two sections substantially semicircular in cross-section, pivoted one to the other at points intermediate of their ends, provided with picking-fingers, guides on said sections for holding them in alinement one with the other, a handle for operating said sections, and a delivery-tube made up of two sections, substantially semicircular in cross-section, pivoted to each other at a point intermediate of their ends and pivoted respectively to the sections of the body portion, as and for the purpose set forth.

3. A fruit-picker comprising a body portion made up of two sections substantially semicircular in cross section pivoted together at points intermediate of their ends, provided with picking-fingers at one end and with handles at their opposite ends, and a delivery-tube made up of two sections substantially semicircular in cross-section pivoted one to the other at points intermediate of their ends, and having their lower ends contracted and pivoted at their opposite ends respectively to the sections of the body portion.

4. In a fruit-picker, the combination with tubular pivoted sides, of telescopic extensions thereto, held within said sides, guide-pieces on said extensions, clipping-fingers on the ends thereof, means for adjusting said extensions within said tubular sides, handles upon said sides, a delivery-tube comprising two sides approximately semicircular in cross-section pivoted together, flexible springs each joining one of said sides to one side of the telescopic body portion, guide-pieces carried on one of said sides and an extension thereon provided with cushioning material, substantially as shown and for the purpose set forth.

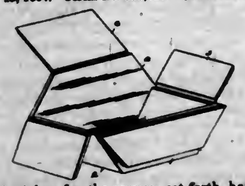
605,420. GATE-HINGE. JOHN R. HALDEMAN, Springfield, Mo. Filed Sept. 28, 1897. Serial No. 653,266. (No model.)



Claim.—1. The combination of the gate proper, having longitudinal guide-bars, with a vertical supporting pivot-bar or hanger, which is provided with parallel horizontal flanges having perforations arranged at diagonally opposite points, as and for the purpose specified.

2. The gate-supporting pivot-bar or hanger arranged vertically in a suitable fixed support, and having parallel, horizontal flanges provided with perforations arranged in diagonal relation, as shown and described for the purpose specified.

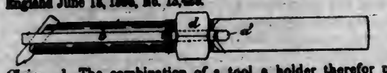
605,421. CIGAR-BOX. EUGENE F. HARBURG, Rochester, N. Y. Filed May 15, 1897. Serial No. 636,729. (No model.)



Claim.—1. A box for the purpose set forth, having hinged sections forming the upper part of the sides said hinged sections being inclined inwardly the upper part of the front and back being shaped to correspond thereto, said front having also a hinged section forming the upper part of the same, the box constructed with the hinged side and front sections, as described, having also a hinged lid, substantially as shown and described.

2. A box for the purpose set forth, having sides which are inclined outwardly from the bottom and then inwardly the upper sections being hinged to the lower sections, in connection with the front and back shaped at its ends to correspond with the inclinations of the sides, the front having an upper hinged section; together with a top or lid attached to the box so formed, substantially as shown and described.

605,422. TOOL AND HOLDER FOR USE IN CUTTING, BORING, AND SLOTTING METALS. WILLIAM H. HARDY, Hartlepool, England. Filed Dec. 28, 1897. Serial No. 664,083. (No model.) Patented in England June 18, 1896, No. 13,629.



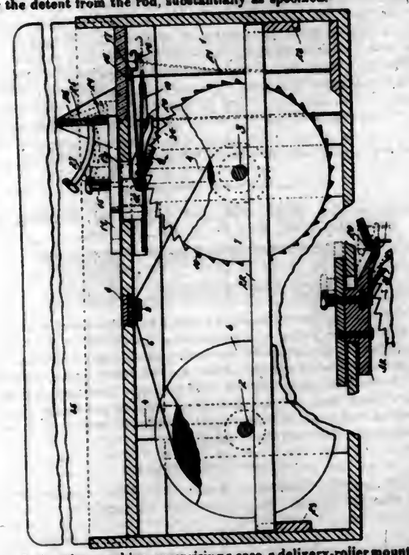
Claim.—1. The combination of a tool, a holder therefor provided with grooves in its end and sides, a clamp adapted to slide in the side grooves and means for operating said clamp to adjust the holder, substantially as described.

2. The combination of a tool, a holder therefor provided with a groove in one of its ends and with side grooves, said holder being also provided with screw-threads for a part of its length, a clamp provided with notches and a nut engaging said notches and said screw threads, substantially as described.

605,423. VOTING-MACHINE. ANDREW H. HART, Winchester, Ky. Filed Aug. 13, 1897. Serial No. 648,136. (No model.)

Claim.—1. A voting-machine, comprising a case, a delivery-roller and a take-up roller mounted in the case, a numbered tape extended between the rollers, a block movable in a slot in the top of the case, a dog mounted to swing on said block and adapted to engage with ratchet-teeth formed in a flange of the take-up roller, a resilient detent-strip extended from the block and having a hook end, a rod

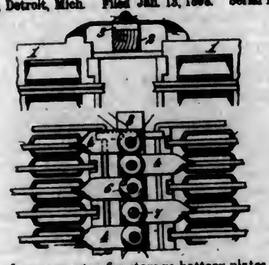
over which said hook end is designed to engage, and means for lifting the detent from the rod, substantially as specified.



2. A voting-machine, comprising a case, a delivery-roller mounted in said case, a take-up roller mounted in the case, a plate arranged in the case below a sight-opening in the top of the case, a numbered tape extended between the rollers and over said plate, a block movable in a slot in the top of the case, a dog mounted to swing on said block and adapted to engage with ratchet-teeth formed on one of the flanges of the take-up roller, a resilient detent-plate extended forward of the block and having a hook end, a rod over which said hook end is designed to engage, a resilient lifting-strip extending from the block underneath the detent, means for raising said lifting-plate, and a spring for returning the block to its normal position, substantially as specified.

3. A voting-machine, comprising a case, a number of delivery-rollers in said case, a number of take-up rollers in said case, numbered tapes extended between feed and take-up rollers, a slide-block for operating each take-up roller, a spring-yielding detent extended from the block and adapted to engage with a bar extended across the case, a swinging bar engaging underneath the several detents, another sliding block, and a cam-finger extended from said other block and engaging with the swinging bar to lift the same and release the detents, substantially as specified.

605,424. CONNECTOR FOR STORAGE-BATTERY PLATES. GILBERT HART, Detroit, Mich. Filed Jan. 13, 1898. Serial No. 666,536. (No model.)



Claim.—1. In a connector for storage-battery plates, the combination of an insulating base-bar, a lead or metallic plate superimposed upon the said base-bar, connector-plates alternately extending in opposite directions and resting at one end upon the lead or metallic plate, and screws passing through the connector-plates and the superimposed lead or metallic plate into the insulating base-bar, substantially as described.

2 In a connector for storage-battery plates, the combination of an insulating base-bar, a lead or metallic plate superimposed upon said base-bar, connector-plates alternately extending in opposite directions and resting at one end upon the lead or metallic plate, washers arranged upon the ends of the connector-plates which rest on the lead or metallic plate, and screws passing through the washers, the connector-plates and the lead or metallic plate into the insulating base-bar, substantially as and for the purposes described.

605,425. COVER FOR MILK-CANS. ELMER E. HARVEY, Dolington, Pa. Filed Dec. 9, 1897. Serial No. 661,291. (No model.)



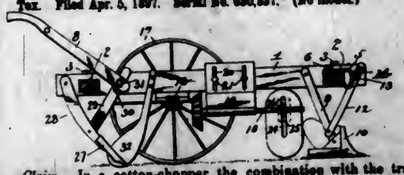
Claim.—1. A cover for milk-cans, the cover having a stopper or main portion with an orifice therein, two closures connected with each other and respectively capable of extending over said orifice, one of the closures being foraminated and the other being capable of effecting a hermetic sealing.

2. A cover for milk-cans, having a stopper or main portion with an orifice therein, a shield held above the stopper or main portion and supported thereon, and two closures joined to each other and capable of extending between the stopper or main portion and the shield, one of said closures being foraminated to ventilate the can and the other closure being capable of effecting a hermetic sealing of the can.

3. A cover for milk-cans, the cover having a stopper or main portion with an orifice in the top thereof, legs upon the stopper or main portion, a shield supported by the legs, and two interchangeable closures rigidly joined to each other by braces extending between them, the closures being each capable of covering the orifice of the stopper or main portion, one closure being capable of effecting a hermetic sealing and the other closure being foraminated to permit the ventilation of the can.

4. In a cover for milk-cans, the combination of a stopper or main portion having an orifice, two interchangeable closures rigidly connected with each other, and a spring attached to the stopper or main portion and capable of engaging the closures to hold them removably in position, one closure being foraminated to permit the ventilation of the can and the other closure being capable of effecting a hermetic sealing of the can.

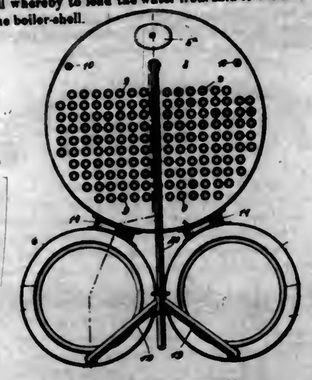
605,426. COTTON CHOPPER AND CULTIVATOR. JOSEPH J. HOLLAND, Edge, Tex., assignor of one-half to Henry Mitchell, Wheelock, Tex. Filed Apr. 5, 1897. Serial No. 630,897. (No model.)



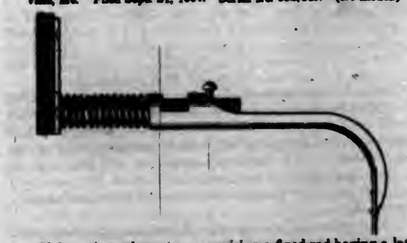
Claim.—In a cotton-chopper, the combination with the transverse beams, the side beams one of which is laterally adjustable, the axle, the wheels, one of which is laterally adjustable, and the adjustable bevel-gear on said axle and means for adjusting the same, of the slotted plate, the set-screws for securing it to one of the side beams, the shaft journaled thereto, the bevel-gear at the rear end meshing with the adjustable bevel-gear, the choppers, at the front end of said shaft, formed with slots, the clamping-plates and the set-screws passing through said slots and through the clamping-plates, substantially as described.

605,427. STEAM-BOILER AND FURNACE THEREFOR. WILLIAM HOPKINS, Dubuque, Iowa. Filed Sept. 14, 1897. Serial No. 651,686. (No model.)

Claim.—A boiler having a cylindrical boiler-shell, a series of fire-tubes run through said shell, two exterior furnace-shells located beneath the boiler-shell and running parallel therewith and communicating therewith at each end, a fire-wall within each furnace-shell, the spaces inclosed by the front portions of the fire-walls serving as fire-boxes, means engaging said shells and forming a passage establishing communication between the fire-walls and the fire-tubes of the boiler-shell, and pipes passing respectively from the rear bottom portion of each furnace-shell upward to the upper portion of the boiler-shell whereby to lead the water from said lower rear portions back to the boiler-shell.

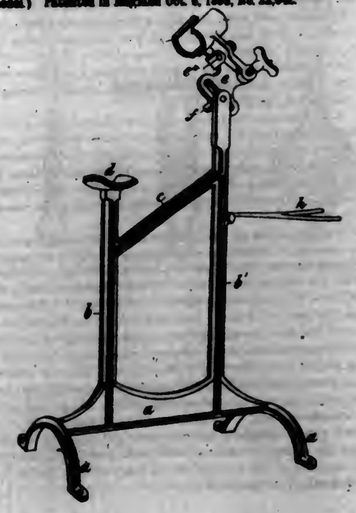


605,428. CARRIAGE-STEP. WILLIAM F. HOPKINS, Caruthersville, Mo. Filed Sept. 21, 1897. Serial No. 652,449. (No model.)



Claim.—A carriage-step comprising a fixed rod having a lateral projection, a shank formed with two downwardly-inclined cam-surfaces approaching each other at their adjacent ends, said shank being mounted to slide and turn on said rod with the cam-surfaces above said projection and in engagement therewith, whereby said shank will be rotated simultaneously with longitudinal movement, a foot-piece attached to said shank and a spring on said rod and engaging said shank to press the same against the projection, as and for the purpose set forth.

605,429. STAND FOR BICYCLES. WILLIAM H. HOWARD, Wokingham, England. Filed June 15, 1897. Serial No. 640,573. (No model.) Patented in England Oct. 6, 1896, No. 23,042.



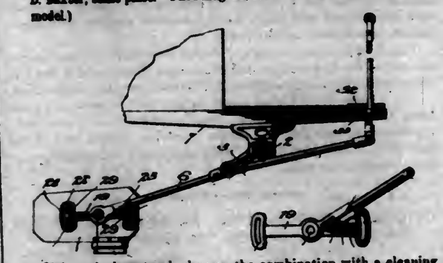
Claim.—A bicycle-support, consisting of a rigid base-frame, two substantially perpendicular standards rigid therewith and rising therefrom, said standards being of different heights, a curved plate mounted on the shortest standard for supporting the crank-bracket of the bicycle, a slotted plate mounted on the longest standard, a thumb-screw adjustably connecting the slotted plate with said longest standard, two opening and closing jaws carried by the slotted plate for clamping the bicycle-frame above the crank-bracket, and a thumb-screw for operating one of said jaws, substantially as and for the purposes described.

605,430. AMMONIA AND WATER PISTOL. ALEXANDER F. HUMPHREY, Allegheny, Pa. Filed Aug. 3, 1897. Serial No. 646,905. (No model.)



Claim.—In a liquid-pistol, a shell or casing formed in two halves, each of said halves consisting of a portion of a handle or grip, a socket *b*, a bulged portion *d*, forming a receptacle, a barrel secured in said socket, a pocket *g*, formed in the inner end of said barrel, a flexible bulb, said flexible bulb being provided with a nipple registering with the opening in the barrel, a trigger journaled at the lower part of the bulged portion and between the two sections, said trigger being provided with a spoon-shaped extension being adapted to engage the rear of the flexible bulb to compress the same, whereby the liquid is ejected through the barrel, substantially as shown and described.

605,431. TRACK-CLEANER. WILLIS T. HURST, Mansfield, Ohio, assignor of two-thirds to Betty A. Baxter, Bennett C. Baxter, and Edwin D. Baxter, same place. Filed Aug. 23, 1897. Serial No. 649,217. (No model.)



Claim.—1. In a track-cleaner, the combination with a cleaning device, of a leaf-spring securely connected to said cleaning device and also connected to the car, an independent brace securely connected to the cleaning device and pivoted to the car, and a lever mechanism for actuating the cleaning device.

2. In a track-cleaner, the combination with independent cleaning devices, of a rock-shaft, leaf-springs secured to the rock-shaft and to the cleaning devices, and affording yielding connection for the latter, independent brace-rods secured to the cleaning devices and loosely hung on the rock-shaft, and means for turning the rock-shaft and locking the same, whereby the cleaning devices can be raised or lowered simultaneously, and are adapted for independent action when in operative position, substantially as described.

3. In a track-cleaner, the combination with a vertically-disposed cleaning-blade, of an adjustment member pivoted thereto and having an open serrated link, a bolt projecting from the blade and passing loosely through the link, a serrated washer on the bolt adapted to engage with the link and a connection between the adjustment member and the car, substantially as described.

4. In a track-cleaner, the combination with a cleaning-blade, of an adjustment member connected thereto and having a slot and a shoulder, a rod connected to the car and fitted in the slot, and provided with a bent end which abuts on the shoulder, and means for preventing the displacement of the rod, substantially as described.

5. In a track-cleaner, the combination with a cleaning-blade, of an adjustment member detachably connected thereto which has its face lying next the blade slotted inwardly and provided with a shoulder, a bar connected to the car and having a portion fitted in the slot and abutting on the blade and its end bent and lying against the shoulder, and a key passed into the member and fitted against the

bent end aforesaid to prevent displacement thereof, substantially as described.

6. In a track-cleaner, the combination with a cleaning-blade of a rock-shaft, a coupling-box consisting of sections detachably connected together and clamped around the rock-shaft, one of which has a slot and recess in its inner face, and a rod connected to the cleaning-blade and having its other end fitted in the slot and provided with a bent extremity received in the recess, substantially as described.

7. In a track-cleaner, the combination with a vertically-disposed cleaning blade or fender located above the track-rail, of a detachable or removable shoe connected to the bottom of said blade or fender in stationary relation thereto, substantially as described.

8. In a track-cleaner, the combination with a vertically-disposed cleaning-blade, of a casting connected thereto which is provided with a dovetail seat, and a shoe detachably fitted in said seat, substantially as described.

9. In a track-cleaner, the combination with a cleaning device, of a rock-shaft, a rod connecting the rock-shaft to the cleaning device, a pull-rod, means for automatically locking said pull-rod, and a connecting-rod pivoted to the pull-rod and having serrated jaws that tightly embrace the rock-shaft, and are fastened together, substantially as described.

605,482. BOILER-BRACE. ABRAM F. HUSTON, Contesville, Pa. Filed Jan. 21, 1898. Serial No. 667,480. (No model.)



Claim.—1. A boiler-brace made of sheet metal and having a flat head at one end and a head at the opposite end having flanges on each side thereof, said heads being connected together by a body-section, substantially as described.

2. A boiler-brace having a U-shaped body-section, a flat head at one end of the body-section and at an angle thereto, and a head at the opposite end having flanges at each side, substantially as described.

3. A boiler-brace having a body portion and two heads, one head being flat and at an angle to the body portion, the other head having flanges at each side, said flanges extending along a part of the body portion, said body portion being U-shaped at the opposite end, substantially as described.

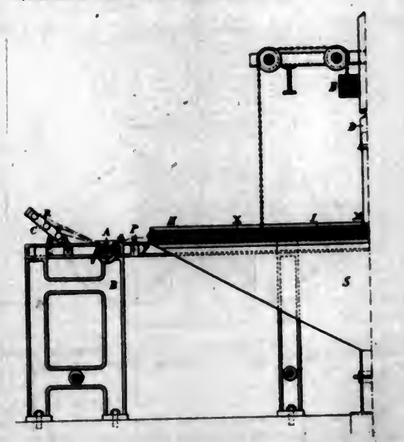
605,483. BICYCLE-SUPPORT. JOSEPH H. ILER, Troy, N. Y. Filed Jan. 16, 1897. Serial No. 619,501. (No model.)



Claim.—1. In a bicycle-support, the combination with bearings connected to the opposite members of the rear fork, of horizontally-disposed shafts mounted in said bearings and located on opposite sides of said fork, front and rear legs carried at the opposite ends of said shafts, a reciprocable shifting bar or rod located in advance of the rear fork and passing vertically through the adjacent parts of the frame, said rod having an upper head and a notch therein below the head, a catch to engage the said notch in the shifting bar or rod, rocker-arms connected to the front portion of the shafts, and links pivotally connected to the rocker-arms and the lower end of the shifting bar on a single pivot, substantially as described.

2. In a bicycle-support, the combination with bearings connected to members of the rear fork, of horizontal shafts positioned on opposite sides of said fork and rotatably mounted in said bearings, legs connected to the opposite ends of said shafts, and means located in advance of the rear fork for operating said shafts and legs, substantially as described.

605,484. APPARATUS FOR APPLYING FINISHING SUBSTANCES TO COTTON FABRICS. CHARLES H. JACOB, Lyons, France. Filed Nov. 14, 1896. Serial No. 612,126. (No model.) Patented in France July 17, 1896, No. 258,123; in England Oct. 22, 1896, No. 23,499; in Italy Oct. 22, 1896, LXXXIV, 462; in Switzerland Nov. 10, 1896, No. 13,313, and in Belgium Dec. 5, 1896, No. 124,964.



Claim.—1. In an apparatus for sizing cotton thread, the combination with a frame carrying at one end suitably-supported bobbins of thread and sizing apparatus therefor, and at its other spool-winding mechanism, of a drier for the threads comprising a vessel having a heater therein, a cover removably secured to said drier a perforated plate arranged over the heater and beneath the cover, and thread-guides arranged between said cover and plate, substantially as described.

2. In an apparatus for sizing cotton thread, the combination with a frame carrying at one end suitably-supported bobbins of thread and sizing apparatus therefor, and at its other spool-winding mechanism, of a drier for the threads comprising a vessel having a heater therein, a cover removably secured to said drier, a perforated plate arranged over the heater and beneath the cover, thread-guides arranged between said cover and plate, and means for supporting said threads in their passage through the drier, substantially as described.

3. In an apparatus for sizing cotton thread, the combination with a frame carrying at one end suitably-supported bobbins of thread and sizing apparatus therefor, and at its other spool-winding mechanism, of a drier for the threads comprising a vessel having a heater therein, a cover removably secured to said drier, a perforated plate arranged over the heater and beneath the cover, thread-guides arranged between said cover and plate and means for supporting and guiding said threads in their passage through the drier comprising wheels or rollers suitably supported on the inner surface of said cover and plate, the wheels carried by the cover being above, and those carried by the plate below the plane of travel of the threads through the drier, substantially as described.

4. In an apparatus for sizing cotton thread, the combination with a frame carrying at one end suitably-supported bobbins of thread and sizing apparatus therefor, and at its other spool-winding mechanism, of a drier for the threads, means for conducting the threads therethrough, a cover removably secured to said drier, and counterbalance mechanism connected with the cover for raising the same, substantially as described.

5. In an apparatus for sizing cotton thread, the combination with a frame carrying at one end suitably-supported bobbins of thread and sizing apparatus therefor, and at its other spool-winding mechanism, of a drier for the threads, means for conducting the threads therethrough, a cover removably secured to said drier, a telescoping escape-flue carried by the cover and counterbalance mechanism connected with the cover for raising the same, substantially as described.

6. An apparatus for sizing cotton thread comprising, in combination, a hinged frame carrying a plurality of bobbins on which the thread is wound, a sizing device, drainers for removing the surplus sizing after the threads leave said vessel, a drier, comprising a vessel having a heater therein, a cover removably secured to said drier, a perforated plate arranged over the heater and beneath the cover, thread-guides arranged between said cover and plate, and spool-winding mechanism for winding the threads after they leave the drier, substantially as described.

605,485. SHEET-METAL VEHICLE-WHEEL TIRE. JAMES JAMIESON, Hamilton, Canada. Filed Mar. 17, 1897. Serial No. 627,988. (No model.)



Claim.—1. A series of tubular-shaped elastic sheet-metal sections formed with openings at the ends, each surrounded with a concavo-convex-shaped depression, for corresponding bolt-heads and nuts, grooves on the sections for strength and elasticity, and lugs or projections to hold a pad all constructed when spokes and hubs are attached thereto to form a wheel-tire for bicycles or other vehicles, substantially as specified.

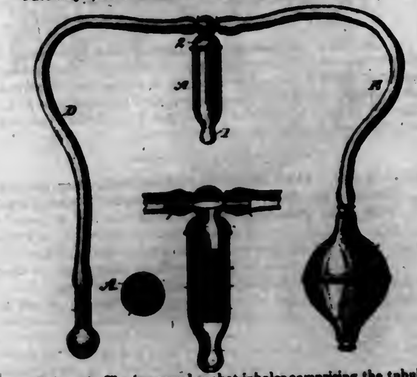
2. A series of elastic sheet-metal sections constructed with raised lugs *b*, for clasping a pad attached to each section, grooves *a*, *a*, for elasticity, lugs *b'*, *b'*, to clasp the sides when bent in tubular form, bolt-openings *c*, *c*, surrounded with concavo-convex recesses for corresponding bolt-heads and nuts, and openings *d*, *d*, for screws or rivets to fasten the sides together with a pad, and a lap *e*, substantially as and for the purpose specified.

3. A series of metallic tubular sections, A, each provided with a socket, *c*, for the end of a spoke, and each provided with a solid-rubber pad-section, B, secured directly and detachably thereto, these sections, A and B, collectively constituting a continuous, combined rim and tire, requiring no additional parts substantially as set forth.

4. In combination with the sheet-metal elastic sections, having bolt openings surrounded with concavo-convex recesses, bolts having the under side of the head formed convex to fit said recesses, a screw-thread on the outside for a concavo-faced threaded nut to screw thereon and a threaded hole on the inside to receive a spoke, substantially as and for the purposes specified.

5. A series of tubular sections, A, each having formed therewith one or more spoke-sockets, *c*, and two rows of outwardly-bent parts, *b*, in combination with rubber pads, B, fitted between these outwardly-bent parts and fastened to the said sections, the latter and the pads thereon forming a complete, continuous, combined tire and rim with rubber tread substantially as set forth.

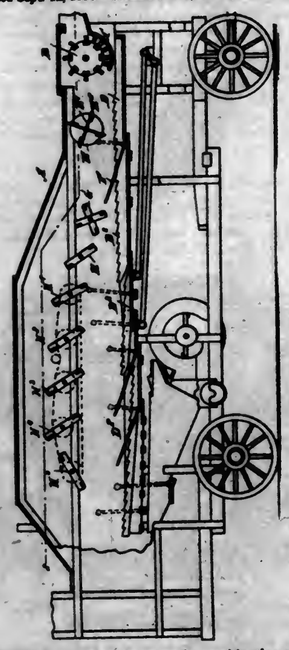
605,486. INHALER. JOHN H. KELLOGG, Battle Creek, Mich. Filed July 2, 1897. Serial No. 643,910. (No model.)



Claim.—1. The improved pocket-inhaler comprising the tubular mouthpiece having a longitudinal passage, and an absorbent and holder for the vaporizable medicament, which holder is contained in said mouthpiece, the nose-piece, and compressible air-bulb, and separate flexible tubes connecting the latter two directly with each other and also with one of the open ends of the mouthpiece, as shown and described, whereby air may be forced from the bulb directly through the mouthpiece, or directly to the nose-piece, or from the patient's mouth through the mouthpiece to the nose-piece, as required.

2. The improved inhaler, composed of the tubular mouthpiece, and the absorbent and holder therein, said mouthpiece having two nipples which communicate directly with each other, the nose-piece and its flexible tube connected with one of said nipples, and the air-bulb and its flexible tube connected with the opposite nipple, as shown and described, whereby air-pressure in the nasal cavity produced by expulsion of air directly through the mouthpiece and nose-piece may be augmented at pleasure, by compression of the air-bulb, as specified.

605,487. GRAIN-SEPARATOR. JACOB F. KOCH, New Athens, Ill., assignor to himself, and the Harrison Machine Works, Belleville, Ill. Filed Sept. 13, 1898. Serial No. 605,580. (No model.)



Claim.—1. In a grain-separator, the combination of a threshing-cylinder and concave, a vibrating separating-pan located below the cylinder and concave and receiving the straw and grain from the cylinder and concave, a straw-beater located above the separating-pan in rear of and adjacent to the cylinder, the straw-beater serving to throw the grain and straw downward upon the separating-pan and to spread the straw, a vibrating lifting-rack located in rear of the straw-beater and serving to raise the straw and other coarse material from the separating-pan, and an elevated straw-carrier over the separating-pan and receiving the straw from the said lifting-rack.

2. In a grain-separator, the combination of a threshing-cylinder and concave, a vibrating separating-pan located below the cylinder and concave, the separating-pan receiving the straw and grain from the cylinder and concave, a vibrating lifting-rack located in rear of the point on the separating-pan, which point first receives the straw and grain, and serving to raise the straw and other coarse material from the separating-pan, and an elevated straw-carrier located over the separating-pan and receiving the straw from said lifting-rack.

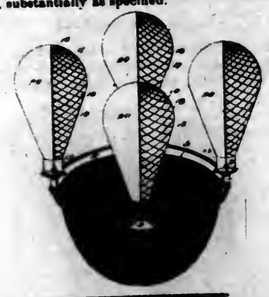
3. In a grain-separator, the combination with the threshing-cylinder and its concave, of a separating-pan having one end extending under the concave, a revolvable beater in rear and adjacent to the cylinder for throwing the straw and grain down upon the separating-pan, a series of revolvable straw-lifters in rear of the beater and above the separating-pan, the lifters being of gradually-increasing diameters, and the front and rear lifters having their axes below the intermediate ones, and a vibrating rack arranged between the beater and the first lifter and serving to raise the straw and other coarse material from the pan and guide it onto the said lifters, substantially as herein shown and described.

605,488. AIR-SHIP. ADOLPH KOEHLER, New York, N. Y. Filed Sept. 17, 1897. Serial No. 652,043. (No model.)

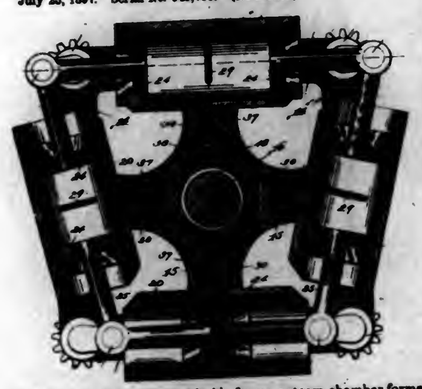
Claim.—1. The combination with a basket, of a balloon-rail surrounding the same, a plurality of balloon-brackets adjustably mounted upon the rail, and balloons connected with said brackets, substantially as specified.

2. The combination with a basket, of a balloon-rail surrounding

the same, balloon-brackets adjustably mounted upon the rail, rotatably-adjustable heads carried by said brackets, and balloons secured to the heads, substantially as specified.



605,489. MOTOR. JOHN F. W. KOETTER, St. Louis, Mo. Filed July 23, 1897. Serial No. 645,735. (No model.)



Claim.—1. In a motor, a suitable frame, a steam-chamber formed in the center of said frame, bearings formed in the sides of said frame, suitable cylinders, trunnions formed integral with the centers of said cylinders, which trunnions operate in the previously-mentioned bearings, in which trunnions are formed ports that are arranged to communicate with ports formed in the frame, certain of which ports communicate with the steam-chamber in the frame, shafts journaled in the corners of the frame, on which shafts are formed cranks, pistons operating in each end of each of the cylinders, piston-rods connecting said pistons with the cranks, pinions mounted upon the shafts on the opposite end from the cranks, a rotatable shaft passing through the motor-frame, and a gear-wheel mounted upon said shaft, which gear-wheel meshes with the pinions, substantially as specified.

2. In a motor, a suitable frame, in the center of which is formed a suitable steam-chamber and in which frame are formed suitable steam-ports, certain of which ports communicate with said chamber, a plate located upon the front of the frame to form a chamber with which the remaining ports communicate, bearings formed in the sides of the motor-frame, suitable steam-cylinders, trunnions formed integral with the centers of said cylinders, which trunnions operate in the bearings of the frame, in which trunnions are formed ports that communicate with the hereinbefore-mentioned ports, pistons operating in each end of each cylinder, crank-shafts rotatably mounted in the corners of the motor-frame, piston-rods connecting the pistons with said crank-shafts, pinions located upon said crank-shafts, a rotatable shaft passing through the center of the motor-frame, a gear-wheel fixed upon said shaft, a bearing-plate carried by the motor-frame, a bearing-plate carried by the gear-wheel, and ball-bearings interposed between said bearing-plates, substantially as specified.

3. In a motor, a plurality of cylinders arranged radially relative to a given point, pistons operating in each end of each of said cylinders, piston-rods for said pistons, the end of each piston-rod being connected to the next adjacent piston-rod, and means whereby fluid is introduced between said pistons, substantially as specified.

4. In a motor, a plurality of cylinders arranged radially relative to a given point, pistons operating in each end of each of said cylinders, piston-rods for said pistons, each piston-rod being connected to the next adjacent piston-rod, which cylinders, pistons and piston-rods form connections whereby their force is united, and means of injecting fluid between said pistons, substantially as specified.

5. In a motor, a shaft rotatably mounted, a frame carried by said shaft, a plurality of cylinders carried by said frame and arranged radially relative to the shaft, pistons operating in each end of each of said cylinders, piston-rods for said pistons, each one of said piston-rods being connected to the next adjacent piston-rod to unite the force of the pistons, means whereby fluid is injected into the cylinders between the pistons, and means for transmitting the united force of the pistons to the rotatably-mounted shaft, substantially as specified.

605,440. PENCIL-SPLICER. FRANK W. WARREN, San Francisco, Cal. Filed July 1, 1897. Serial No. 643,068. (No model.)



Claim.—1. A pencil-holder consisting of a short tube internally threaded and with the threads cut transversely to present a sharp angle which forms a cutting-die.

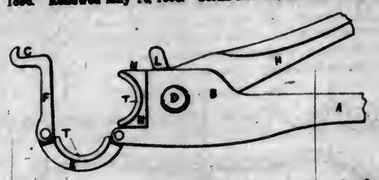
2. A pencil-splicer consisting of a short tube having a threaded interior and a many-sided exterior, said internal threads being grooved transversely to present a sharp angle forming a cutting-die.

3. A pencil-splicer consisting of a short tube with internal screw-threads adapted to engage pencils introduced from opposite ends and having transverse cuts made across the threads to form a die to cut the threads upon said pencils.

4. A pencil-splicer consisting of a short tube internally threaded and having a diverging or bell-shaped end and transverse cuts made across the threads to present a sharp angle which forms a cutting-die.

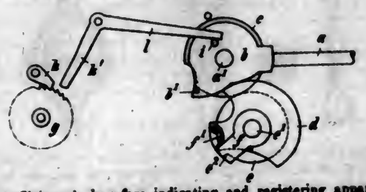
5. A pencil-splicer consisting of a short tube having internal screw-threads and having its opposite ends bell-shaped or diverging whereby pencils may be introduced from both ends, and having interior transverse cuts or grooves forming cutting-dies for the threads.

605,441. PIPE-WRENCH. ATWATER B. BROCKETT, Everett, Mass., assignor to William G. Hixon, Braintree, Mass. Filed May 14, 1896. Renewed May 14, 1898. Serial No. 680,761. (No model.)



Claim.—In a pipe-wrench, the handle A having the flanges B and provided with the pivoted clamp-jaw E having the pivoted coupling-link F, and the pivoted lever-handle H, having the eccentric K and projecting stud L, the sliding clamp-jaw N having flanges P, fulcrum-bolt D, and the removable face-pieces T, all constructed combined and arranged, substantially as set forth

605,442. FARE INDICATING AND REGISTERING APPARATUS FOR CABS, &c. FRIEDRICH W. G. REDER, Berlin, Germany. Filed Jan. 26, 1898. Serial No. 667,945. (No model.)

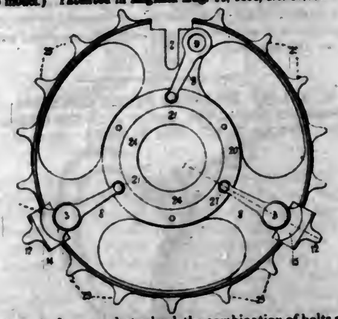


Claim.—1. In a fare indicating and registering apparatus for cabs, carriages and the like, the combination of the signal device *a*, the shaft *a'*, the disks *b* and *c*, with the shaft *c'* and disks *e* and *d*, substantially as and for the purpose specified.

2. In a fare indicating and registering apparatus for cabs, carriages and the like, the combination of the signal device *a*, the shaft *c'*, the disk *b* and pin *b'*, with the shaft *c'*, disk *d*, cam *f* and spring *f'*, substantially as and for the purpose specified.

3. In a fare indicating and registering apparatus for cabs, carriages and the like, the combination of the signal device *a*, shaft *a'*, disk *b* and catch *i*, with the lever *k l*, pawl *h* and disk *g*, substantially as and for the purpose specified.

605,443. SPROCKET-WHEEL. LOUIS COOPER and EDWARD W. COOPER, Coventry, England. Filed Mar. 2, 1897. Serial No. 625,776. (No model.) Patented in England Aug. 11, 1896, No. 17,706.



Claim.—1. In a sprocket-wheel, the combination of bolts adapted to move radially, nuts to lock the bolts, movable driving-teeth carried by the said bolts, links pivotally connected at their outer ends with the said bolts, a boss formed concentrically with the said wheel, a ring rotatably mounted on the said boss and pivotally connected with the inner ends of the said links, and guide-teeth situated between the driving teeth, substantially as described and for the purpose set forth.

2. In a sprocket-wheel having driving-teeth adjustable radially to the pitch of the chain and guide-teeth situated between such driving-teeth, the combination with such driving-teeth of bolts to carry the said driving-teeth, nuts to screw on the bolts, links pivotally connected by their outer ends to the said bolts, a boss concentric with the wheel, and a ring rotatably mounted on the said boss and pivotally connected to the inner ends of the said links substantially as described and for the purpose set forth.

605,444. RATCHET MONKEY-WRENCH. CLAYTON E. FREDERICKSON, Denver, Colo. Filed Jan. 7, 1898. Serial No. 665,902. (No model.)



Claim.—1. The combination of the rotatable head-stock having a transverse channel, with the oppositely-moving sliding jaws sustained in and guided by said channel, the bolt movable axially of said head-stock above the jaws, and links connecting said bolt to said jaws, for the purpose and substantially as described.

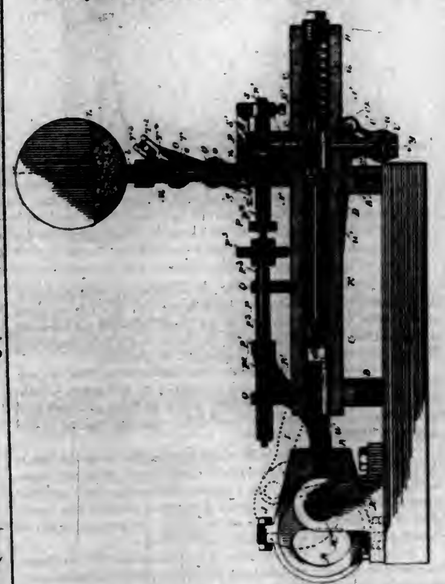
2. The combination of the handle, the rotatable head-stock thereon having a transverse channel, with the oppositely-moving jaws guided in said channel, the bolt movable axially of said head-stock above the jaws, and links connecting said bolt to said jaws; with means for rotating said head-stock by vibrating the handle, all substantially as and for the purpose described.

3. The combination of the head having a transverse channel provided with opposite ribs inclining upwardly and inwardly from circumference to center; the sliding jaws having heads moving in said channel provided with grooves engaging the ribs therein, a bolt above the jaws movable substantially at right angles thereto, and the links pivotally connected to the lower end of said bolt at their upper ends, and respectively connected at their lower ends to the opposite jaws, and means for adjusting said bolt, substantially as described.

4. The combination of the handle, the rotatable head-stock journaled in the end thereof having a transverse groove provided with ribs on its sides, inclined upwardly from periphery to center, sliding jaws having heads provided with lateral grooves engaging the ribs in said channel, a bolt movable axially of the head-stock and connected to the respective jaws by means of pivoted links; a nut for actuating said bolt, and means for securing said nut to the head-stock while allowing it to rotate thereon; with means for rotating said head-stock when the handle is vibrated, substantially as described.

5. The combination of the handle, the rotatable head-stock journaled in the end thereof, and a retaining-plate for securing said head-stock to the handle; said head-stock having a circumferential ratchet, and a transverse groove in its under face provided with ribs on its sides inclined upwardly from periphery to center; sliding jaws having heads moving in said channel and provided with lateral grooves engaging the ribs therein; a bolt movable axially of the head-stock, links connecting said bolts to the respective jaws, a nut on said bolt and means for rotatably securing said nut to the head-stock; with opposite dogs adapted to engage the ratchet on the head-stock, the spring interposed between the ends of the dogs; and the connected catches adapted to hold either dog out of engagement with the ratchet, all for the purpose and substantially as described.

605,445. POWDER-MOTOR. THOMAS M. FREEBLS, Latrobe, Pa., assignor of one-fourth to Thomas B. Atterbury, Jr., Pittsburg, Pa. Filed July 14, 1897. Serial No. 644,512. (No model.)



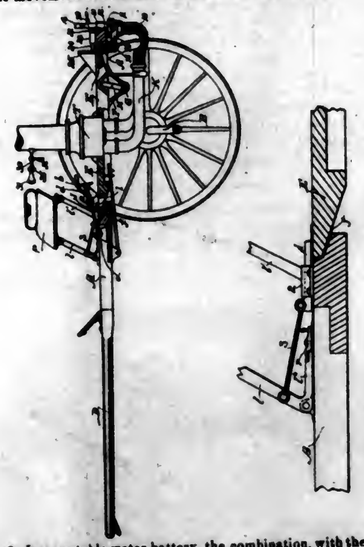
Claim.—1. In a powder-engine, the combination with a cylinder, an igniting device, and a piston or pistons to transmit the power derived from the explosion of the charges of powder, of powder feed and exhaust mechanisms, and powder feed and exhaust openings in said cylinder, said powder-feed opening being formed vertically over said exhaust-opening, whereby accumulation of successive charges in the cylinder is prevented, substantially as described.

2. In a powder-engine, the combination with a cylinder, powder feed and exhaust mechanisms, powder feed and exhaust openings in said cylinder formed in vertical line, and an igniting device of oppositely-acting pistons within said cylinder stationed one on either side of said igniting mechanism, one of said pistons being detached or not connected with power, a piston-rod attached to one of said pistons, a crank-pin projecting therefrom, guides therefor formed by an opening in the walls of said cylinder, connection between said crank pin and a power-shaft, a spring for normally holding said detached piston pressed forward and for returning it to its forward position after the successive explosions, and means for introducing water into said cylinder after each explosion, substantially as described.

3. In a powder-engine, the combination with a cylinder having powder feed and exhaust openings therein, said openings being placed in line with each other, powder feed and discharge valves, a power-shaft, and means for rotating said powder feed and exhaust valves from the rotation of said shaft, substantially as described.

605,446. PORTABLE WATER-BATTERY. HENRY H. GORTER, San Francisco, Cal., assignor to Mary E. Gorter, same place. Filed Dec. 10, 1897. Serial No. 661,468. (No model.)

Claim.—1. In a portable water-battery, the combination, with the frame, the siamesing-chamber, and the platform therefor movably mounted on the frame, of a movable seat on the frame, and a bolt for locking the platform to the frame, said bolt being operated by the movement of said seat, substantially as described.



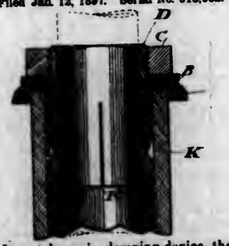
2. In a portable water-battery, the combination, with the frame, the siamesing-chamber, and the platform therefor movably mounted on the frame, of a driver's seat on the frame, mounted on vibrating legs, a bolt locking the platform to the frame, and a link connecting the bolt with one of the legs, substantially as described.

3. In a portable water-battery, the combination, with the supply-pipes, of flexible hose-sections connected to said pipes, a rock-shaft, arms extending from said shaft, said arms being provided with sockets, and studs on the free ends of the sections, resting in said sockets, substantially as described.

4. In a portable water-battery, the combination, with the frame, the platform movable therein and the supply-pipes, of flexible hose-sections connected to said pipes, a support for the free ends of all the pipes, a latch holding said support, and means whereby the movement of the platform relatively to the frame operates said latch to release said free ends, substantially as described.

5. In a portable water-battery, the combination, with the frame, the platform movable therein, and the supply-pipes, of flexible hose-sections connected to said pipes, a support for the free ends of all the pipes, and a latch holding said support, and adapted to be operated independently of the movement of the platform to release the free ends of the hose-sections, substantially as described.

605,447. TELESCOPIC CLAMP. GEORGE W. KORTRIGHT, Sioux City, Iowa. Filed Jan. 12, 1897. Serial No. 618,962. (No model.)



Claim.—1. In a telescopic clamping device, the combination of an outer tubular member, a ring fastened inside its end, an inner tubular slotted clamping member having a beveled shoulder thereon engaging said ring, and a nut threaded on the projecting end of said inner member and bearing against the outer member, as set forth.

2. In a telescopic clamp, the combination with the inner and outer tubings, the slitted shell D threaded at its upper end and fitted into the outer tubing, the recessed cap G mounted on the end of the said outer tubing, the clamping-shell B having a flanged upper end, the cylindrical portion of shell B slitted and fitted about the contracted portion of shell D, and the tightening-nut threaded on the upper end of the inner shell and bearing against the flange of the outer shell, as shown and described.

605,448. INSULATING HANDLE CONNECTION. WILLIAM MCAUSLAND, Taunton, Mass., assignor to the Reed & Barton Corporation. Filed Apr. 30, 1897. Serial No. 634,631. (No model.)



Claim.—1. In an insulated handle the combination of the members secured to the vessel, the handle proper, the insulated section and means for securing the parts together, said insulated section having a cup-shaped chamber and carrying the insulating material, the chambered section concealing the insulating material and arranged out of contact with one of the members of the handle, substantially as described.

2. In an insulated handle, the combination of the members secured to the vessel, the handle proper, the insulated section and means for securing the parts together, the said insulating-section having a cup-shaped chamber and carrying the insulating material, the chambered section concealing the insulating material, and arranged out of contact with one of the members of the handle, and an insulated washer F, for insulating the securing means, substantially as described.

605,449. PRESSER-FOOT AND THROAT-PLATE FOR SEWING-MACHINES. CHESTER MCNEIL, Rogers Park, Ill., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Aug. 9, 1894. Serial No. 519,844. (No model.)



Claim.—1. In a sewing-machine, the combination with mechanism for passing a plurality of rows of loops through the fabric of a presser-foot and work-plate, a guiding-fin on one of said elements arranged in the line of the seam, the other element being provided with a slot with which said fin is in alinement, and means for varying the width of said slot; substantially as described.

2. In a sewing-machine, the combination with mechanism for making a plurality of rows of stitching, of a presser-foot and work-plate, a guiding-fin on one of said elements arranged in a line between the rows of stitching, the other element being provided with a slot with which said fin is in alinement, means for varying the width of said slot, and means also for adjusting the guiding-fin; substantially as described.

3. In a sewing-machine making two parallel rows of stitching the combination with a presser-foot having a longitudinal slot of a throat-plate provided with a longitudinal guiding-fin registering with said slot and arranged in a line between the rows of stitching and means for varying the width of said slot; substantially as described.

4. The combination with a presser-foot having a longitudinal slot of a throat-plate provided with a longitudinal guiding-fin adapted to register with said slot, means for adjusting the walls of, and thus varying the width of said slot, and for adjusting the guiding-fin; substantially as described.

5. The herein described presser-foot having the bifurcated forward end, the rigid side pieces and the removable spring-plate secured to the presser-foot and conforming at the front to the shape of the foot, and adjusting-screws for regulating the distance apart of the ends of said spring; substantially as described.

6. The combination with a presser-foot and throat-plate, one of said elements being provided with a longitudinal slot and the other element having a fin adapted to register with said slot, with means for adjusting said parts; substantially as described.

605,450. NUT. REE R. PARRISH, Independence, Oreg. Filed July 21, 1897. Serial No. 645,205. (No model.)

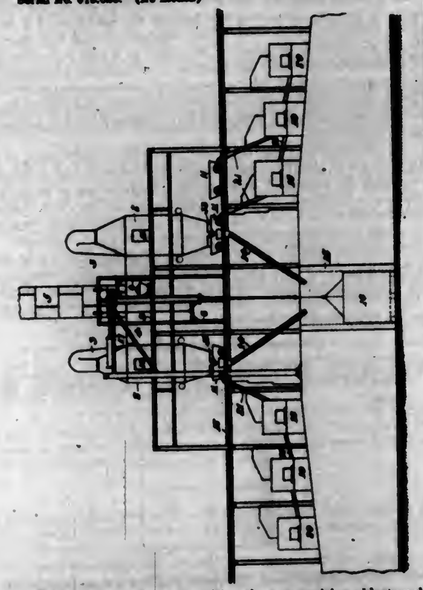


Claim.—1. As a new article of manufacture, a nut, said nut having two or more contiguous front corners, front and rear edges, a wrench-knob located between two contiguous corners, not extending to either of said corners, wrench-space between said knob and said rear edge, substantially as and for the purposes set forth.

2. The combination in a nut having a circular rear edge, a front edge provided with two or more contiguous front corners, of a wrench-knob located adjacent to two contiguous front corners, not extending to either of said corners, substantially as and for the purposes set forth.

3. The combination in a nut having an enlarged rear edge, a front edge provided with two or more contiguous front corners, of a wrench-knob located adjacent to two contiguous front corners, not extending to either of said corners, substantially as and for the purposes set forth.

605,451. CONTINUOUS SMELTING PLANT. WILLIAM B. REESE and EDWARD R. ARMSTRONG, Natrona, Pa., assignors to the Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. Filed Jan. 5, 1897. Serial No. 618,026. (No model.)



Claim.—1. A continuous smelting plant, comprising a blast smelting-furnace, a movable settler therefor, a series of reducing-furnaces, and means for feeding the metal from the settler into any one of said reducing-furnaces.

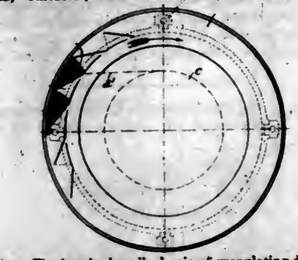
2. A continuous smelting plant, comprising an elevated smelting-furnace, a movable settler therefor, a series of reducing-furnaces at successively lower levels, and means for feeding metal from the settler into any one of the reducing-furnaces.

3. The combination with a blast smelting-furnace, of a wheeled settler therefor resting upon a track, a series of reducing-furnaces at successively lower levels than the smelting-furnace and located along the track, and means for feeding the metal from the settler into any one of said reducing-furnaces.

4. A continuous smelting plant, comprising a smelting-furnace, a movable settler therefor, a series of reducing-furnaces, means for feeding the metal from the settler into any one of said reducing-furnaces, a slag-pit arranged to contain water, and means for feeding slag from the settler to said pit.

5. A continuous smelting plant comprising two elevated smelting-furnaces located side by side and provided with wheeled settlers resting on a common track, a series of reducing-furnaces for each smelting-furnace and located at successively lower levels than the smelting-furnace, and feeders arranged to transfer the metal from the settlers to the reducing-furnaces, and from one reducing-furnace to the next lower one.

605,452. GRANULATING-DISK. HENRI ROSE and GEORGES ROSE, Poissy, France. Filed June 11, 1896. Serial No. 595,200. (No model.) Patented in France Oct. 24, 1889, No. 201,532.



Claim.—The herein-described pair of granulating-disks for corn and other mills, the same consisting of the stationary granulating-disk having its acting face composed of an annular crown provided with rectilinear furrows radiating from the central portion of the disk to the circumference, and the rotary granulating-disk having its acting face constituted by an annular crown provided with a series of furrows which are directed from the circumference tangentially to an imaginary circle concentric with the said disk and having depressed triangular inlets interrupting said tangential furrows at regular intervals, the said stationary disk and rotary disk being arranged to operate with their acting faces opposite to and parallel with each other, and each disk having the exterior acting edges of all its furrows in the same plane, substantially as specified

605,458. COMBINATION-TOOL FOR BICYCLES. EMANUEL W. SWEHARD, Chicago, Ill. Filed Mar. 20, 1896. Renewed Jan. 31, 1898. Serial No. 668,672. (No model.)



Claim.—1. In a pump-wrench, the hollow pump-body, a wrench-stem arranged to traverse the pump-body, a plunger secured to the end of the stem within the body, a fixed jaw and a movable jaw at

the other end of the stem, and a finger-piece for operating the movable jaw, the opening in the body through which the wrench-stem passes being large enough to permit the jaws and finger-piece to pass therethrough, whereby the said jaws and finger-piece can be housed within the pump-body to some degree, substantially as described.

2. In a device of the class described, the combination with a flat pump-cylinder approximately rectangular in transverse section, of a piston-rod sliding and guided in said pump-cylinder and provided at one end with a piston and at the opposite end with a transverse member adapted to serve as the stationary jaw of a wrench, a shank sliding and adjustable in said piston-rod and provided with a terminal jaw adapted to cooperate with said transverse terminal member on the piston-rod, and a nut lying within the piston-rod and engaging the shank sliding therein, the pump-cylinder being adapted to receive within it the entire piston-rod with the exception of said transverse terminal jaw, whereby when the parts are closed together the adjusting-nut is within the pump-cylinder and covered and protected thereby.

605,454. GRIPPING DEVICE. ERNEST A. THOMPSON, Englewood, N. J. Filed Apr. 29, 1897. Serial No. 634,467. (No model.)



Claim.—1. In an organized device for holding objects on work-benches, the combination of a vertically-adjustable serrated bench-stop, an independent vertically-adjustable gripping device, pivoted so as to automatically cooperate therewith horizontally, and means for locking the same in position, substantially as described.

2. In an organized device for holding objects, the combination of a vertically-adjustable serrated bench-stop, an independent vertically-adjustable gripping device adapted to move horizontally and automatically cooperate with the bench-stop, and a stop adapted to engage with the body of the device, controlling the lateral movement of the gripping device.

3. In an organized device for holding objects on a work-bench, the combination of a tray countersunk to receive the component parts, a vertically-adjustable rigid serrated bench-stop, a vertically-adjustable gripping device, pivoted so as to move horizontally and cooperate with the serrated stop, and a locking device adapted to engage with serrations in the body of the tray to regulate the lateral movement of the gripping device.

4. In an organized device for holding objects on work-benches, the combination of a tray countersunk to receive the component parts flush with the surface of the bench, a bench stop fitted therein, and adapted to be adjusted perpendicularly thereto, an independent perpendicularly-adjustable clamp, adapted to cooperate with the bench-stop to secure an object between them by means of the insertion thereof, and means for adjusting the clamp laterally in said tray.

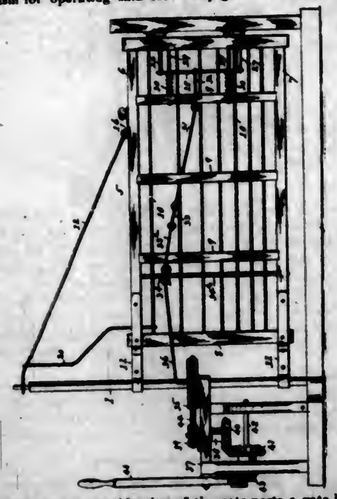
5. In combination, for the purposes described, a countersunk tray adapted to receive the component parts flush with the upper surface, a rigid but vertically-adjustable serrated bench-stop, having its interior face concaved in the direction of its length, a vertically-adjustable clamp having its interior face similarly concaved and adapted to cooperate with the bench-stop to grip an object between them by its insertion, a sliding block bearing the clamp, and a lever on said block adapted to engage with the tray, substantially as described.

6. In an organized device for holding objects on work-benches, the combination of a vertically-adjustable serrated bench-stop: an independent vertically-adjustable gripping device pivoted so as to rotate horizontally and automatically cooperating therewith, and means for locking the same in position, substantially as described.

7. The combination of a vertically-adjustable bench-stop, an independent vertically-adjustable clamp, adapted to cooperate with the bench-stop to secure an object between them by means of the insertion thereof, and means for adjusting the clamp laterally.

605,455. GATE. HENRY B. WESTON, Kenton, Ohio, assignor of one-half to Bessie W. Thomson, same place. Filed Aug. 25, 1897. Serial No. 649,510. (No model.)

Claim.—1. In gates, the combination of the gate-posts, a gate hinged or pivoted to one post, latch mechanism on the gate to engage the other post, a gear-wheel loosely mounted on the hinging-post to oscillate, a lever centrally pivoted on the gate, rods pivoted to the said gear and connected with opposite ends of said lever, a connecting-plate, link-rods connecting the said lever and connecting-plate, a connection between the connecting-plate and latch mechanism, and mechanism for operating said oscillatory gear, substantially as described.



2. In gates, the combination of the gate-posts, a gate hinged or pivoted to one post and provided with latch mechanism to engage the other post, an oscillatory gear-wheel on the hinging-post, a pivoted lever on the gate, connecting-rods between the gear-wheel and said lever, a retractor-rod connecting said pivoted lever and latch mechanism, a vertical shaft having at its upper end a gear in connection with said oscillatory gear and carrying at its lower end a bevel-gear, a horizontal drive-shaft having a bevel-gear meshing with said bevel-gear on the vertical shaft, pivoted operating-levers, and a connection between said levers and drive-shaft for operating the latter, substantially as described.

3. In swinging gates, the combination with the gate-posts, of a gate hinged or pivoted to one post and provided with a latch device to engage the other post, an oscillatory sprocket-wheel on the hinging-post, a connection between said gear-wheel and the latch device to retract the latter and swing the gate, a vertical shaft carrying at its upper end a sprocket-pinion and at its lower end a bevel-gear, a horizontal drive-shaft carrying a bevel-gear meshing with said bevel-gear on the vertical shaft and a drum or pulley, a chain connecting said sprocket-pinion and oscillatory sprocket-wheel, pivoted operating-levers, and connections between said levers and the said drum or pulley, substantially as described.

605,456. KEY-OPENING CAN. EDWARD BARRATH, Chicago, Ill. Filed Sept. 10, 1894. Renewed June 26, 1897. Serial No. 642,523. (No model.)



Claim.—1. The combination with the body portion of a can provided with an oblique flange, of a cover provided with an oblique rim extending upward and outward, a circumferential line of reduced strength extending about said rim and a free lip adapted to be grasped to tear the cover along said line of reduced strength, substantially as described.

2. The combination with the body portion of a can provided with an oblique flange, of a cover provided with an oblique rim extending upward and outward, an offset being provided on said cover between the rim and the face thereof, said cover being provided with a line of reduced strength extending circumferentially about said rim, and a free lip adapted to be grasped to tear the cover along said lines of reduced strength, substantially as described.

605,457. KEY-OPENING CAN. EDWARD BARRATH, Chicago, Ill. Filed Sept. 10, 1894. Renewed June 26, 1897. Serial No. 642,580. (No model.)

Claim.—1. The combination with the body portion of a can, of a cover provided with an upwardly-extending rim, the edge of said rim being turned down and secured to the can-body, said rim carrying two lines of reduced strength extending circumferentially about the same, and a free lip adapted to be grasped to tear said cover along said lines of reduced strength to remove the material of the cover lying between the same, substantially as described.



2. The combination with the body portion of a can, of a cover provided with an oblique rim extending upward and outward, the edge of said rim being turned down and secured to said can-body, said rim being provided with two circumferential lines of reduced strength extending about the same, and a free lip adapted to be grasped to tear said cover along said lines of reduced strength to remove the material of the cover lying between the same, substantially as described.

605,458. PROCESS OF MAKING SULFIDS. HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed July 22, 1896. Renewed Apr. 21, 1898. Serial No. 678,438. (No specimens.)

Claim.—1. The process for producing aluminium and other sulfids which consists in exposing a molten aluminate to the action of carbon-bisulfid vapor or gas substantially as described.

2. The process for producing aluminium and other sulfids which consists in making or fusing a metallic aluminate and passing through the same a compound of carbon and sulfur in vaporized or gaseous state substantially as described.

3. The process for producing aluminium and other sulfids which consists in exposing a molten aluminate to the combined action of sulfur and carbon in a volatilized or gaseous state, substantially as described.

4. The process for producing aluminium and alkali sulfids which consists in exposing a molten mixture of sodium and potassium aluminate to the action of carbon bisulfid substantially as described.

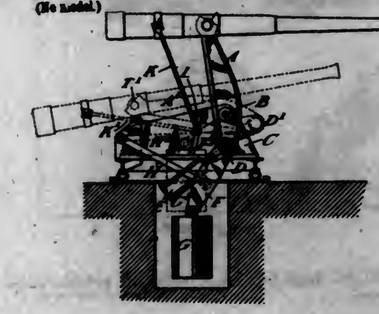
5. The process for producing aluminium and other sulfids which consists in transforming compounds of aluminium oxid with more electropositive element, the said aluminium oxid existing as electronegative or acid in the compound, by passing through said compound in a molten state a current of carbon-bisulfid vapor or gas substantially as described.

6. The process for producing aluminium and other sulfids which consists in passing vapor of carbon bisulfid through a fluid mass of an oxy compound of aluminium with an element or elements of more electropositive nature, such as sodium aluminate, substantially as described.

7. The process for producing aluminium and other sulfids which consists in fusing a compound produced by combining aluminium oxid with an oxid of an element or elements of more electropositive nature and exposing the same in a fused condition to the action of carbon-bisulfid vapor or gas substantially as described.

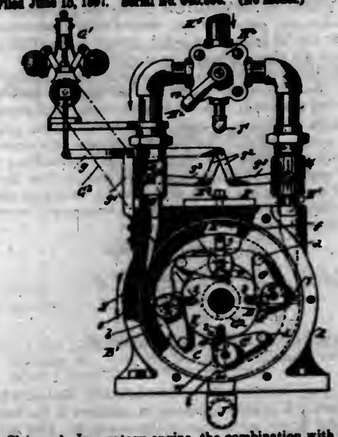
8. The process for producing aluminium and other sulfids which consists in exposing a compound of aluminium oxid with an oxid or oxids of metal or metals of more electropositive nature, to the action of carbon bisulfid substantially as described.

605,459. MOUNTING FOR DISAPPEARING GUNS. ARTHUR T. DAWSON, Sheffield, England. Filed Feb. 19, 1896. Serial No. 670,947. (No model.)



Claim.—In the mounting of a disappearing gun the combination of a pair of pivoted levers having bearings at their upper ends for the trunnions, and jointed at their lower ends to the plunger of a recoil-cylinder and also to another pair of pivoted levers which carry a weight and are pivoted on a pair of radius-rods, said radius-rods being connected to the gun-carriage, substantially as and for the purpose set forth.

605,460. ROTARY ENGINE. MELVIN R. GILBERT, San Francisco, Cal., assignor of one-half to Frank P. Winchenbaugh, Fresno, Cal. Filed June 15, 1897. Serial No. 640,896. (No model.)



Claim.—1. In a rotary engine, the combination with the casing having in its opposite end walls cam-grooves 11, 11, of the radially-slotted disk, the rings or flanges C having radial grooves in their inner faces only, the radially-slidable wings movably secured in the said slots and grooves, the cam-arms pivotally fulcrumed in the rings or flanges, rolls working in the cam-grooves mounted on the cam-arms, and a pivotal sliding connection between the cam-arms and wings, substantially as described.

2. In a rotary engine, the combination with the casing, of the drive-shaft passing therethrough, the disk secured to the drive-shaft and located within the casing so as to leave an annular passage-way between the periphery and the inner face of the casing, rings or flanges secured within the casing at each side of the disk, radial slots cut in the disk and radial grooves or channels cut in the inner face of the rings or flanges, a series of wings or blades mounted to slide vertically in the radial slots and grooves or channels, the oscillatory cam-arms fulcrumed to the outer face of the rings or flanges, pivotal sliding connection between the oscillatory cam-arms and the movable wings or blades, devices for raising and lowering the fulcrumed oscillating cam-arms, and of the inlet and outlet ports in the casing.

3. In a rotary engine, the combination with the casing thereof, of the face-plates therefor, the eccentric groove formed in the inner face of the face-plates, the disk mounted to rotate within the casing, the rings or flanges located at each side of the disk, radial slots cut in the disk and radial channels in the inner face of the rings or flanges, a series of vertically-movable wings or blades working in said radial slots and channels, oscillatory cam-arms fulcrumed to the outer face of the rings or flanges, pivotal sliding connection between the oscillatory fulcrumed cam-arms and the wings or blades, bearing-rolls carried by the fulcrumed oscillatory cam-arms which travel within the eccentric groove of the face-plates, and of the inlet and outlet ports in the casing.

605,461. FRUIT-PICKER. OSCAR W. HUDGINS and JAMES A. JONES, Harrison, Ark. Filed Aug. 12, 1896. Serial No. 602,467. (No model.)



Claim.—1. In a fruit-picker, the combination with the sectional adjustable handle, of the side pieces at the upper end thereof, the semicircular pieces secured to the side pieces, the horizontal rods con-

necting the side pieces and having the handle secured thereto and the curved grabbers mounted on the semicircular pieces, substantially as specified.

2. In a fruit-picker, the combination with the sectional adjustable handle, of the side pieces at the upper end thereof, the cross rods connecting said side pieces and to which the handle is attached, the semicircular pieces secured to the side pieces, and the curved grabbers mounted on the semicircular pieces, and the sack secured at its upper end to the side pieces, substantially as specified.

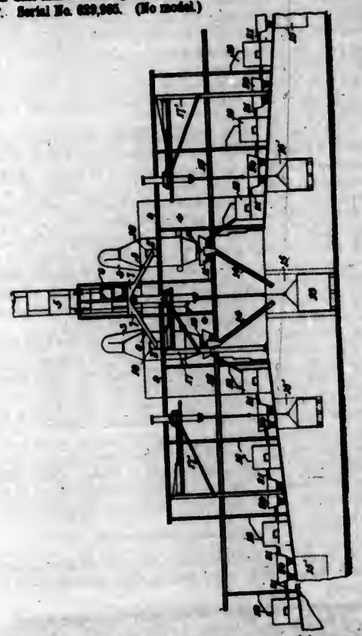
3. In a fruit-picker, the combination with the sectional adjustable handle, of the side pieces at the upper end thereof, the semicircular pieces secured to the side pieces, and the curved grabbers mounted on the semicircular pieces, the sack secured at its upper end to the side pieces, and the cross-pieces passed through the handle and connecting said side pieces, substantially as specified.

4. The herein-described fruit-picker comprising a handle, transverse rods passed through the handle near the upper end thereof, side strips secured to the ends of said rods, semicircular bands secured to the side strips at their upper ends and near their centers, grabbers arranged at right angles to said semicircular pieces and secured to each thereof and having their free ends curved forwardly, a transverse rod secured to the pole or handle at a distance from the first-mentioned cross-rods, and a sack secured to the lowermost semicircular band and to the side pieces and to the lowermost cross-rod, all substantially as herein shown and described.

605,462. WITHDRAWN.

605,463. WITHDRAWN.

605,464. CONTINUOUS SMELTING PLANT. WILLIAM S. REESE and EDWARD R. ARMSTRONG, Natrona, Pa., assignors to the Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. Filed Mar. 30, 1897. Serial No. 629,905. (No model.)



Claim.—1. A continuous smelting plant comprising a smelting-furnace, a series of reducing-furnaces, a movable settler for the smelting-furnace arranged to discharge into any of the reducing-furnaces, settlers respectively arranged to receive the metal from each reducing-furnace, and means for tapping the charge from each receiving-settler into another furnace of the series.

2. A continuous smelting plant comprising an elevated smelting-furnace, a series of reducing-furnaces at successively lower levels, a movable settler for the smelting-furnace arranged to discharge into any of the reducing-furnaces, and settlers between and connected to the reducing-furnaces.

3. A continuous smelting plant comprising two elevated smelting-furnaces, a series of reducing-furnaces for each smelting-furnace, a movable settler for each smelting-furnace arranged to discharge into any of the reducing-furnaces therefor, and settlers located between and connected to the said reducing-furnaces.

4. A continuous smelting plant, comprising a smelting-furnace, a settler therefor, a series of reducing-furnaces having settlers between the same, and means for feeding the metal from any settler of the reducing-furnaces into any furnace of the series.

DESIGNS.

28,779. BADGE. WILLIAM LESLIE FRENCH, New York, N. Y. Filed Nov. 19, 1897. Serial No. 659,203. Term of patent 14 years.



Claim.—The design for an ornament or badge herein described and shown.

28,780. BADGE. FRANCIS H. MERRIMAN, Boston, Mass., assignor to the Sovereign Grand Lodge of the Independent Order of Odd Fellows, Baltimore, Md. Filed Mar. 22, 1898. Serial No. 674,228. Term of patent 14 years.



Claim.—The design for a badge or similar article, substantially as herein shown and described.

28,781. BADGE. CHARLES D. SPRAGUE, Minneapolis, Minn., assignor of one-half to Otto G. Bookworth, same place. Filed Oct. 26, 1897. Serial No. 656,370. Term of patent 7 years.



Claim.—The design for a badge, substantially as herein shown and described.

28,782. OFFICIAL CERTIFICATE. JAMES FRANK GRAFF, Baltimore, Md., assignor to the Sovereign Grand Lodge of the Independent Order of Odd Fellows, of Maryland. Filed Mar. 18, 1898. Serial No. 674,387. Term of patent 14 years.



Claim.—The design for an official certificate substantially as herein shown and described.

28,783. BOOK-COVER. ALBERT M. BOCKIUS, Philadelphia, Pa. Filed Apr. 15, 1898. Serial No. 677,750. Term of patent 3½ years.



Claim.—The design for a book-cover, substantially as herein shown and described.

28,784. TRADING-STAMP. WILLIAM C. BROWN, Bridgeport, Conn. Filed Apr. 27, 1898. Serial No. 679,042. Term of patent 3½ years.



Claim.—The design for a trading-stamp, substantially as shown in the accompanying drawing.

28,785. WAFER. HENRY D. PERKY, Worcester, Mass. Filed Mar. 3, 1898. Serial No. 672,236. Term of patent 14 years.



Claim.—The design for a wafer substantially as herein shown and described.

28,786. CIGAR OR SIMILAR ARTICLE. CHRISTIAN G. SINGLEY, Manheim, Pa. Filed Feb. 26, 1898. Serial No. 671,861. Term of patent 7 years.



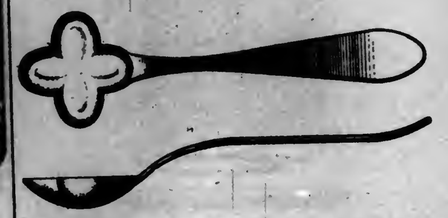
Claim.—The design for a cigar, or similar article, substantially as herein shown and described.

28,787. PIPE. JULIUS ROCKER, New York, N. Y. Filed Apr. 26, 1898. Serial No. 678,804. Term of patent 3½ years.



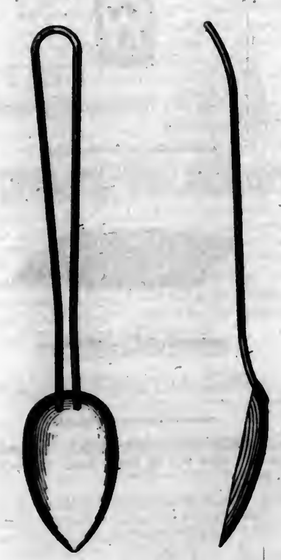
Claim.—The design for a pipe or similar article herein shown and described.

28,788. SPOON. HENRY H. WILLIAMS, Fort Wayne, Ind., assignor of one fourth to Franz Berger, same place. Filed Jan. 13, 1898. Serial No. 666,573. Term of patent 14 years.



Claim.—The design for a spoon or similar article substantially as shown and described.

28,789. SPOON. HENRY MOSER, Milwaukee, Wis., assignor to the Kieckhefer Brothers Company, same place. Filed Feb. 26, 1898. Serial No. 672,108. Term of patent 14 years.



Claim.—The design for a spoon substantially as herein shown and described.

28,790. BOTTLE. GEORGE MILLER, Jersey City, N. J. Filed May 9, 1898. Serial No. 680,227. Term of patent 7 years.



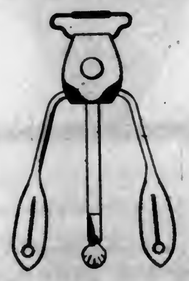
Claim.—The design for a bottle herein shown and described.

28,791. HAT-FASTENER. JOHN HOUGHTON CLARKE, Framingham, Mass. Filed June 9, 1897. Serial No. 640,071. Term of patent 14 years.



Claim.—The design for a hat-fastener, substantially as herein shown and described.

28,792. SUSPENDER-END. CHARLES F. EDGARTON, Shirley, Mass., assignor to the C. A. Edgarton Manufacturing Company, same place. Filed Mar. 14, 1898. Serial No. 673,570. Term of patent 14 years.



Claim.—The design for a suspender-end, substantially as herein shown and described.

28,793. SHOE-LACE FASTENING. BERNARD JOHNSON, Boston, Mass. Filed May 5, 1898. Serial No. 679,305. Term of patent 14 years.



Claim.—The design for a shoe-lace fastening herein shown and described.

28,794. NECKTIE-SHIELD. FREDERICK H. ISAACS, Newark, N. J. Filed Sept. 13, 1897. Serial No. 651,544. Term of patent 14 years.



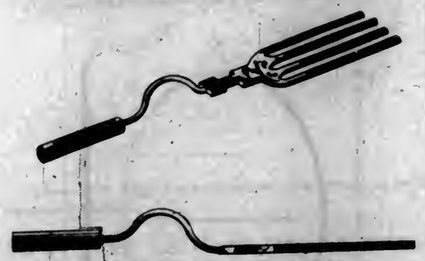
Claim.—The design for a necktie-shield, substantially as herein shown and described.

28,795. SKIRT-PROTECTOR. EMIL FISCHERHAUS, Philadelphia, Pa., assignor to the Wm. H. Horstmann Company, same place. Filed May 4, 1898. Serial No. 679,736. Term of patent 7 years.



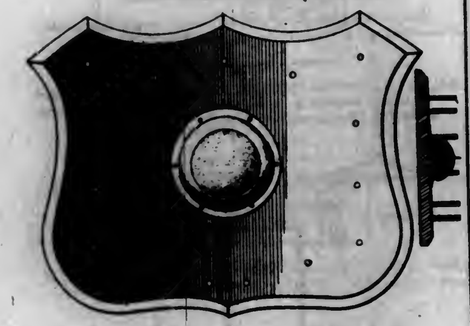
Claim.—The design for a skirt-protector substantially as described and as shown in the accompanying drawing.

28,796. HAIR-CRIMPER MEMBER. ROBERT H. OGDEN, Poughkeepsie, N. Y. Filed Aug. 31, 1896. Serial No. 604,490. Term of patent 14 years.



Claim.—The design for a hair-crimper member, herein shown and described.

28,797. SPOOL-STAND. JAMES HAMILTON, Newburg, N. Y. Filed Jan. 6, 1898. Serial No. 665,856. Term of patent 14 years.



Claim.—The design for a spool-stand as herein shown and described.

28,798. KNIFE FOR OPENING SEAMS. PATRICK J. MCSHANE, Stapleton, N. Y. Filed May 6, 1898. Serial No. 679,964. Term of patent 7 years.



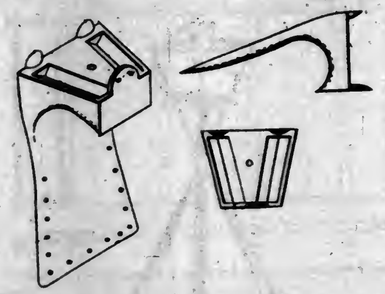
Claim.—The design for a knife for opening seams, substantially as herein shown and described.

28,799. SEAL-PRESS CASE. ALEXANDER H. MACKINNON, Olympia, Wash. Filed Apr. 6, 1898. Serial No. 676,962. Term of patent 14 years.



Claim.—The design for a seal-press case, substantially as shown and described.

28,800. INSTEP-STIFFENER. LEWIS HAHN, Custer, S. D. Filed Jan. 21, 1898. Serial No. 667,402. Term of patent 14 years.



Claim.—The design for an instep-stiffener, as herein shown and described.

28,801. STAIR-CARPET BUTTON. ROBERT H. WARREN, Newark, N. J. Filed May 5, 1898. Serial No. 679,850. Term of patent 7 years.



Claim.—The design for a stair-carpet button, substantially as herein shown and described.

28,802. BEARING-SCREW FOR SHADE-ROLLERS. JACOB A. THOMAS, Reading, Pa. Filed Apr. 29, 1898. Serial No. 679,346. Term of patent 7 years.



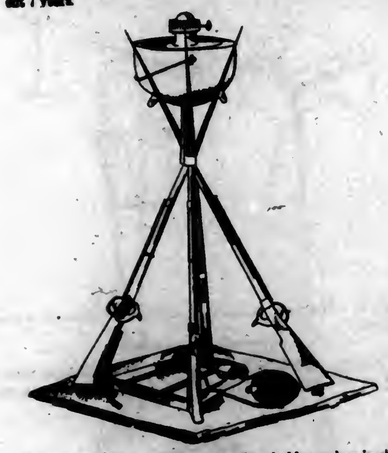
Claim.—The design for a bearing-screw for shade-rollers, substantially as herein shown and described.

28,803. GAS-BURNER. FRANK W. LAW, Pittsburg, Pa. Filed Mar. 26, 1898. Serial No. 675,198. Term of patent 14 years.



Claim.—The design for a gas-burner, substantially as herein shown and described.

28,804. LAMP STAND OR HOLDER. CHARLES H. SEBASTIAN, Boston, Mass. Filed Sept. 30, 1897. Ser'al No. 653,642. Term of patent 7 years.



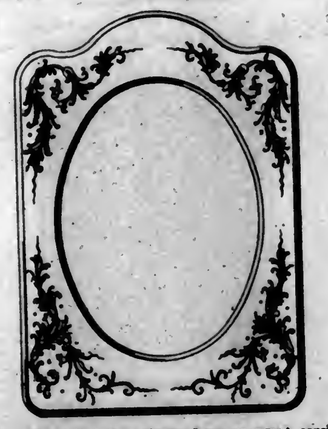
Claim.—The design for a lamp stand or holder as herein shown and described.

28,805. LAMP-BODY. CHARLES BURGESS, Rochester, N. Y., assignor to the C. T. Hess Manufacturing Company, same place. Filed Aug. 12, 1897. Serial No. 648,054. Term of patent 14 years.



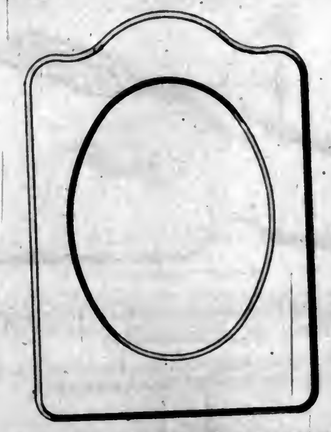
Claim.—The design for a lamp-body substantially as herein shown and described.

28,806. PICTURE FRAME OR MOUNT. MANUEL A. T. GILLESE, Philadelphia, Pa. Filed Apr. 6, 1898. Serial No. 676,704. Term of patent 7 years.



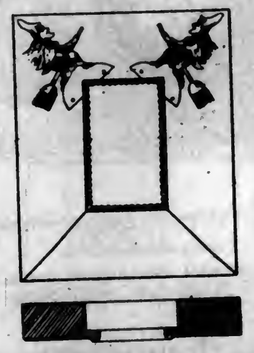
Claim.—The design for a picture frame or mount, consisting of a card having ornamentation thereon, substantially as herein described and shown in the accompanying drawing.

28,807. PICTURE FRAME OR MOUNT. MANUEL A. T. GILLESE, Philadelphia, Pa. Filed Dec. 17, 1896. Serial No. 616,973. Term of patent 7 years.



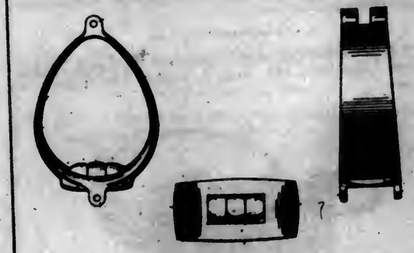
Claim.—The design for a picture frame or mount, substantially as described and as shown in the accompanying drawing.

28,808. PICTURE OR MIRROR FRAME. ANNIE H. GARDNER and WILLIAM H. GARDNER, Jr., Salem, Mass. Filed Jan. 20, 1898. Serial No. 667,243. Term of patent 7 years.



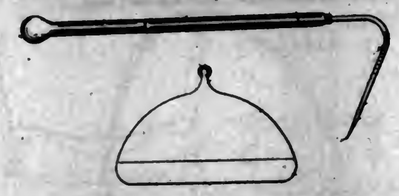
Claim.—The design for a picture or mirror frame as herein shown and described.

28,809. SHAFT-TUG. CHARLES WASHBURN, Chicago, Ill. Filed Apr. 18, 1898. Serial No. 678,067. Term of patent 7 years.



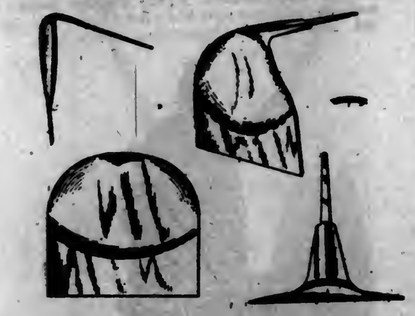
Claim.—The new and original design or useful shape for a shaft-tug substantially as herein shown and described.

28,810. CORN-CUTTER. CHARLES HENRY SMITH, Park City, Mont. Filed Apr. 12, 1898. Serial No. 677,574. Term of patent 14 years.



Claim.—The design for a corn-cutter, substantially as herein shown and described.

28,811. HON. HENRY CLAY DOWD, Carthage, N. C. Filed May 5, 1898. Serial No. 679,893. Term of patent 14 years.



Claim.—The design for a bee herein shown and described.

28,812. LAWN-RAKE HEAD. FREDERICK H. KOEHLER, Canton, Ohio. Filed Oct. 31, 1896. Serial No. 610,705. Term of patent 7 years.



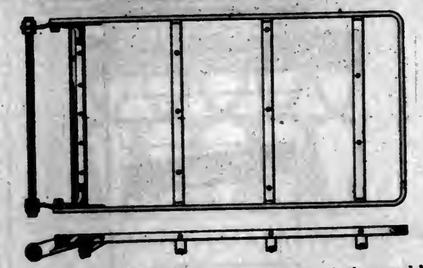
Claim.—The design for a lawn-rake head, as herein shown and described.

28,813. LAWN-RAKE HEAD. FREDERICK H. KOEHLER, Canton, Ohio. Filed Oct. 31, 1896. Serial No. 610,706. Term of patent 7 years.



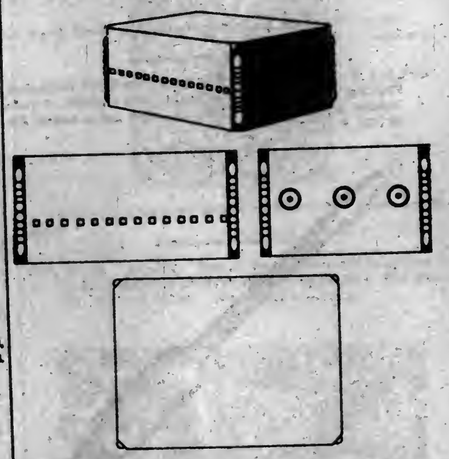
Claim.—The design for a lawn-rake head, as herein shown and described.

28,814. HARROW-FRAME. CHARLES S. SHARP, Auburn, N. Y., assignor to the D. M. Osborne & Company, same place. Filed July 2, 1897. Serial No. 643,689. Term of patent 14 years.



Claim.—The design for a harrow-frame as herein shown and described.

28,815. MEAT-BLOCK. WILLIAM J. HUFF, Decatur, Ill. Filed May 9, 1898. Serial No. 680,221. Term of patent 7 years.

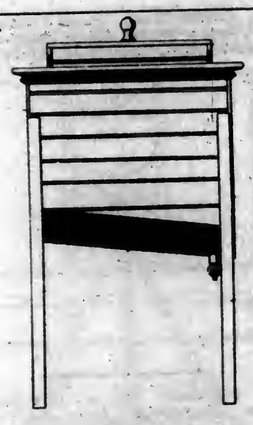


Claim.—The design for a meat-block substantially as herein shown and described.

28,816. CREAM-SEPARATOR. ARTHUR CLARE WIMMER, Knoxville, N. Y., assignor of one-half to Harvey Franklin Frost, same place. Filed Apr. 26, 1898. Serial No. 678,917. Term of patent 14 years.

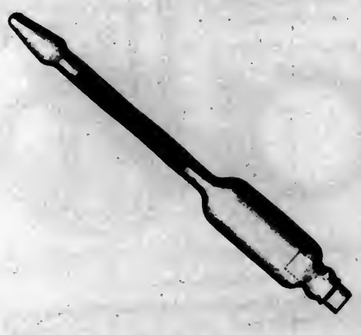


28,816.



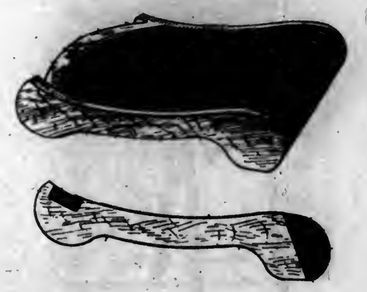
Claim.—The design for a cream separator, as herein shown and described.

28,817. BUTYROMETER. NICHOLAS GERBER, Zurich, Switzerland. Filed Sept. 7, 1897. Serial No. 650,857. Term of patent 14 years. Patented in England Aug. 16, 1896, No. 19,283, and in Austria Mar. 14, 1897, No. 47/877.



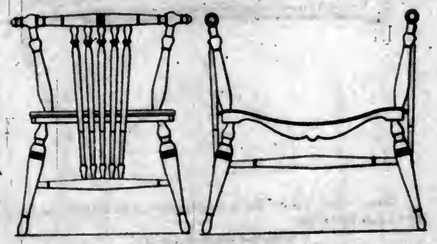
Claim.—The design for a butyrometer, substantially as shown and described.

28,818. CHAIR-SEAT. JOHN FRAZE, Cochran, Ind., assignor to the Cochran Chair Co., same place. Filed Apr. 25, 1896. Serial No. 678,906. Term of patent 7 years.



Claim.—The design for a chair seat, substantially as shown and described.

28,819. CHAIR. WILLIAM THOMSEN, Port Washington, Wis., assignor to the Wisconsin Chair Company, same place. Filed May 10, 1898. Serial No. 680,235. Term of patent 7 years.



Claim.—The design for a chair, substantially as herein shown and described.

28,820. HEATING-STOVE. BRADLEY WOODWELL, Dunmore, Pa., assignor to the Scranton Stove Works, Scranton, Pa. Filed Feb. 25, 1898. Serial No. 671,899. Term of patent 14 years.



Claim.—1. In a design for a stove, the design for the base; substantially as shown and described.

2. In a design for a stove; the design for the top base-section D; substantially as shown and described.

3. In a design for a stove, the design for an ash-pit section; substantially as shown and described.

4. In a design for a stove, the design for the ash-pit door; substantially as shown and described.

5. In a design for a stove, the design for the body-section; substantially as shown and described.

6. In a design for a stove, the design for the lower front door; substantially as shown and described.

7. In a design for a stove, the design for the upper front door; substantially as shown and described.

8. In a design for a stove, the design for the jacket; substantially as shown and described.

9. In a design for a stove, the design for the top ring; substantially as shown and described.

10. In a design for a stove, the design for the cover L; substantially as shown and described.

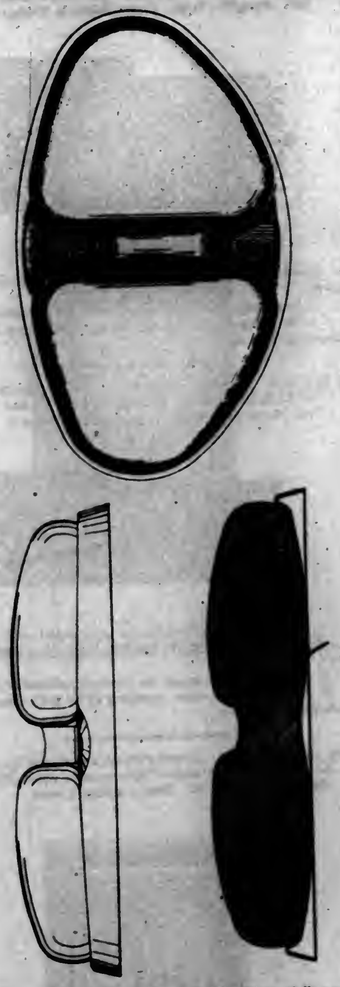
11. The design for a stove, as substantially herein shown and described.

28,821. GRATE-FRONT. JOSEPH F. HEWITT, Allegheny, Pa. Filed Nov. 11, 1898. Serial No. 611,722. Term of patent 7 years.



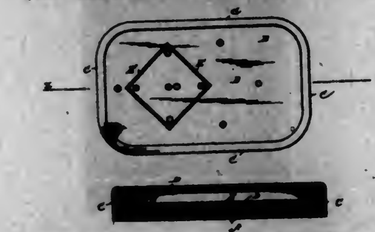
Claim.—The design for grate-front substantially as herein shown and described.

28,822. BICYCLE-SADDLE. JONATHAN A. HOYT, Westborough, Mass. Filed Apr. 8, 1898. Serial No. 676,963. Term of patent 14 years.



Claim.—The design for a bicycle-saddle substantially as shown and described.

28,823. GAME-BOARD. SAMUEL H. LEHMER, Springfield, Ohio, assignor to George S. Bowers and Albert Mates, same place. Filed Oct. 7, 1897. Serial No. 654,405. Term of patent 7 years.



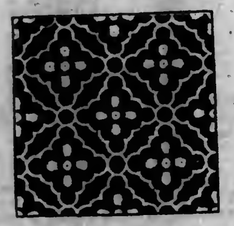
Claim.—The design for a game-board, substantially as shown and described.

28,824. FRINGE. FRANK H. MAURER, Philadelphia, Pa., assignor to Joseph W. Maurer, William H. Maurer, Alexander G. Maurer, and Frank H. Maurer, same place. Filed Jan. 26, 1898. Serial No. 668,206. Term of patent 3½ years.



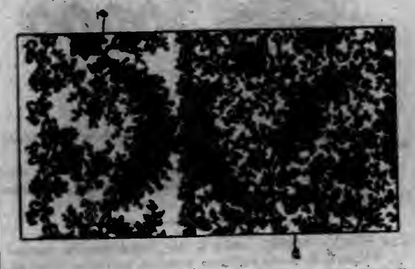
Claim.—The design for a fringe as herein shown and described.

28,825. TEXTILE FABRIC. HENRY STANTON LAWSON, Jersey City, N. J., assignor to the Fontanelle Leather Company, Passaic, N. J. Filed Apr. 25, 1898. Serial No. 678,807. Term of patent 7 years.



Claim.—The design for textile fabric as herein shown and described.

28,826. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to William H. McCallum and Irving McCallum, same place. Filed May 3, 1898. Serial No. 679,641. Term of patent 3½ years.

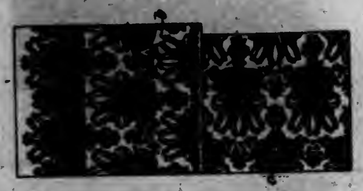


Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

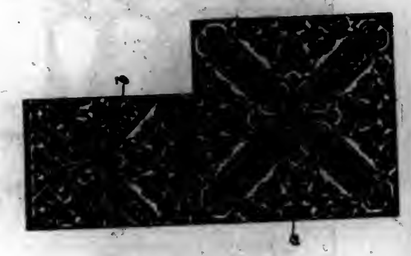
28,827. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to William H. McCallum and Irving McCallum, same place. Filed May 3, 1898. Serial No. 679,642. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

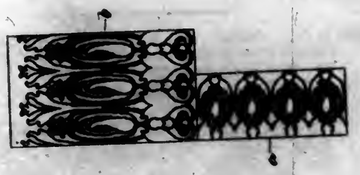
2. In a design for a carpet, the border *b*, substantially as shown.
3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

28,828. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to William H. McCallum and Irving McCallum, same place. Filed May 3, 1898. Serial No. 679,643. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.
2. In a design for a carpet, the border *b*, substantially as shown.
3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

28,829. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to William H. McCallum and Irving McCallum, same place. Filed May 3, 1898. Serial No. 679,644. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.
2. In a design for a carpet, the border *b*, substantially as shown.
3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

28,830. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to William H. McCallum and Irving McCallum, same place. Filed May 3, 1898. Serial No. 679,645. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.
2. In a design for a carpet, the border *b*, substantially as shown.
3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

28,831. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to William H. McCallum and Irving McCallum, same place. Filed May 3, 1898. Serial No. 679,646. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.
2. In a design for a carpet, the border *b*, substantially as shown.
3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

28,832. CARPET. ANNA K. MAY, Philadelphia, Pa., assignor to William H. McCallum and Irving McCallum, same place. Filed May 3, 1898. Serial No. 679,647. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.
2. In a design for a carpet, the border *b*, substantially as shown.
3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

28,833. RUG. ADOLPH PRESSELA, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, same place. Filed Apr. 30, 1898. Serial No. 679,403. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

28,834. RUG. ROBERT H. ROMLEY, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa. Filed Apr. 30, 1898. Serial No. 679,404. Term of patent 3½ years.



Claim.—The design for a rug, substantially as set forth.

28,835. CASKET-BODY. LEO SEMS and CLAYTON F. WHITNER, Bordentown, N. J., assignors to the National Casket Company, same place. Filed Feb. 26, 1898. Serial No. 672,697. Term of patent 14 years.



Claim.—The design for a casket-body substantially as herein described and shown.

28,836. CASKET-BODY. LEO SEMS and CLAYTON F. WHITNER, Bordentown, N. J., assignors to the National Casket Company, same place. Filed Feb. 26, 1898. Serial No. 672,698. Term of patent 14 years.

Claim.—The design for a casket-body substantially as herein described and shown.

28,837. CASKET-BODY. LEO SEMS and CLAYTON F. WHITNER, Bordentown, N. J., assignors to the National Casket Company, same place. Filed Feb. 26, 1898. Serial No. 672,699. Term of patent 14 years.



Claim.—The design for a casket-body substantially as herein described and shown.

28,838. CASKET-BODY. LEO SEMS and CLAYTON F. WHITNER, Bordentown, N. J., assignors to the National Casket Company, same place. Filed Feb. 26, 1898. Serial No. 672,700. Term of patent 14 years.

Claim.—The design for a casket-body substantially as herein described and shown.

28,839. CASKET-BODY. LEO SEMS and CLAYTON F. WHITNER, Bordentown, N. J., assignors to the National Casket Company, same place. Filed Feb. 26, 1898. Serial No. 672,701. Term of patent 14 years.



Claim.—The design for a casket-body substantially as herein described and shown.

28,840. CASKET-BODY. LEO SEMS and CLAYTON F. WHITNER, Bordentown, N. J., assignors to the National Casket Company, same place. Filed Feb. 26, 1898. Serial No. 672,702. Term of patent 14 years.



Claim.—The design for a casket-body substantially as herein described and shown.

TRADE-MARKS

REGISTERED JUNE 7, 1898.

81,647. PRINTED DRAPERY FABRIC. THE BRETTINGHAM MANUFACTURING COMPANY, Philadelphia, Pa. Filed Feb. 7, 1898.



GOBELIN

ART DRAPERY

Essential feature.—The words "GOBELIN ART DRAPERY" and the representation of a horseshoe and a four-leaf clover. Used since July 1895.

81,648. WOOLEN PIECE GOODS AND GARMENTS. LAW, RUSSELL & Co., Bradford, England. Filed Feb. 18, 1898.

Perramus

Essential feature.—The word "PERRAMUS." Used since August 22, 1892.

81,649. LININGS. J. W. GODDARD & SONS, New York, N. Y. Filed Apr. 11, 1898.

OPALESCENT

Essential feature.—The word "OPALESCENT." Used since January 1, 1897.

81,650. CERTAIN NAMED RUBBER GOODS. THE DIAMOND RUBBER COMPANY, Akron, Ohio. Filed Mar. 24, 1898.

SPHINX

Essential feature.—The word "SPHINX." Used since January 1, 1898.

81,651. CERTAIN NAMED RUBBER GOODS. THE DIAMOND RUBBER COMPANY, Akron, Ohio. Filed Mar. 24, 1898.



Essential feature.—The words and character "TITAN & SPHINX" and the representation of a sphinx. Used since January 1, 1896.

81,652. TOYS. PETER F. PIA, New York, N. Y. Filed Apr. 21, 1898.



Essential feature.—The representation of a teapot. Used since April 1, 1896

81,653. CERTAIN PAPER GOODS FOR HOTEL CHECKING SYSTEMS. JOHN T. HINES, Boston, Mass. Filed Feb. 26, 1898.

H S

C Co

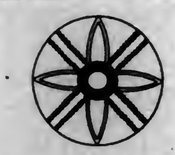
Essential feature.—The letters and abbreviation "H. S. C. Co." Used since February 19, 1898.

81,654. PHOTOGRAPHIC PRINTING-PAPER. WESTERN CAMERA MANUFACTURING COMPANY, Chicago, Ill., and New York, N. Y. Filed Feb. 26, 1898.

ROYAL

Essential feature.—The word "ROYAL." Used since February 1, 1897.

81,655. CERTAIN PHOTOGRAPHIC APPARATUS AND MATERIAL. RADIOTYPE, LIMITED, London, England. Filed Mar. 22, 1898.



Essential feature.—A figure which represents the Assyrian symbol of the sun. Used since October, 1897.

81,656. STYLOGRAPHIC AND FOUNTAIN PENS. J. ULLRICH & Co., New York, N. Y. Filed Apr. 18, 1898.



Essential feature.—A heart-shaped figure with the letters, character, and abbreviation "J U & Co" arranged within it. Used since March 1, 1898.

81,657. PENS. A. S. ABERN & Co., New York, N. Y. Filed Feb. 7, 1898.

P.D&S.

Essential feature.—The letters and character "P. D. & S." Used since January 1, 1856.

81,658. BLACK INK. THADDEUS DAVIDS COMPANY, New York, N. Y. Filed Apr. 14, 1898.

MAGIC

Essential feature.—The word "MAGIC." Used since September, 1883.

81,659. CERTAIN NAMED CHEMICAL COMPOUNDS. FARBENFABRIKEN OF ELBERFELD COMPANY, New York, N. Y. Filed Apr. 13, 1898.

SAPHIROL

Essential feature.—The word "SAPHIROL." Used since March 1, 1898.

81,660. ANTISEPTIC PREPARATION. PER HAKANSSON, Enköf, Sweden. Filed Mar. 26, 1898.

SALUBRIN

Essential feature.—The word "SALUBRIN." Used since January, 1893.

81,661. MEDICINAL HERB COMPOUNDS PREPARED AFTER A CERTAIN NAMED SYSTEM. ELISABETH MEYER-RIEGK, Berlin, Germany. Filed Feb. 2, 1898.



Essential feature.—The representation of a medallion containing a branch of herbs and the letter "G." Used since April, 1897.

81,662. TONICS AND RESTORATIVES. MAX CRAMER, Boston, Mass. Filed Apr. 13, 1898.



Essential feature.—The word "CORPUSSANUM" and the representation of outspread wings surmounted by a burning torch. Used since April 1, 1896.

81,663. MEDICINAL TONICS. CHARLES TREVISANELLO, Newark, N. J. Filed Mar. 11, 1898.

ELISIR DELL'EREMITA

Essential feature.—The words "ELISIR DELL EREMITA." Used since January 1, 1897.

81,664. STOMACH-BITTERS. RAFFAELE NAPOLITANO, New York, N. Y. Filed Mar. 8, 1898.

Marshall

Essential feature.—The word "MARSHALL" and the representation of a shield surmounted by a machicolation tower. Used since February 15, 1898.

81,665. REMEDY IN TABLET FORM. ROBERT A. WALKER, Buffalo, N. Y. Filed Mar. 4, 1898.

BRAINERVINE

Essential feature.—The word "BRAINERVINE." Used since September 1, 1893.

81,666. PILLS. WILLIAM ANDREW PROUT, London, England. Filed Mar. 31, 1898.

BLAIR'S

Essential feature.—The word "BLAIR'S." Used since 1810.

81,667. HEMORRHOIDAL SUPPOSITORIES. WILHELM ERNST, Hanover, Germany. Filed Apr. 15, 1898.



Essential feature.—The words "ANUSOL HEMORRHOIDAL SUPPOSITORIES." Used since September 1, 1896.

81,668. ILLUMINATING-OIL. S. HOFFBURG & Co., New York, N. Y. Filed Apr. 19, 1898.

BRITELITE

Essential feature.—The word "BRITELITE." Used since March 23, 1896.

81,669. CIGARS. WILLIAM W. ARNOLD, Denver, Colo. Filed Jan. 28, 1898.

NATIONAL



Essential feature.—The word "NATIONAL," taken in connection with a large hotel building having a heavy cornice, a sloping roof, and a rectangular cupola in front extending above the roof. Used since October, 1897.

81,670. CEYLON TEA. ANDERSON BROS. & Co., New York, N. Y. Filed Mar. 29, 1898.



Essential feature.—The representation of a palm-tree inclosed within a circle. Used since March, 1897.

81,671. TEA. LONDON & JOHNSON, New York, N. Y. Filed Mar. 24, 1898.

OWL 

Essential feature.—The designation "OWL" represented by word or figure. Used since December 4, 1894.

81,672. ROLLED SHEET-GLASS AND WIRED GLASS. MISSISSIPPI GLASS COMPANY, St. Louis, Mo. Filed Apr. 11, 1898.

APPROBATUM M.G.CO.

Essential feature.—The word "APPROBATUM" and the letters and abbreviation "M. G. Co." Used since March 28, 1898.

81,673. EXPLOSIVES AND CARTRIDGES. EXPLOSIVSTOFF-WERKE SPIRALIT, GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Hamburg, Germany. Filed Feb. 12, 1898.

SPIRALIT

Essential feature.—The word "SPIRALIT." Used since August, 1893.

81,674. AMMUNITION FOR SMALL-ARMS. WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn. Filed Apr. 4, 1898.

PIGEON

Essential feature.—The word "PIGEON." Used since March 23, 1898.

81,675. PIG-IRON. THE WOODSTOCK IRON WORKS, Anniston, Ala. Filed Jan. 5, 1898.

WIW

Essential feature.—The letters "W I W" either raised upon the surface of a casting of pig-iron or embedded therein. Used since March 1, 1897.

81,676. BICYCLES, TRICYCLES, AND VELOCIPEDES. SUPPLEE HARDWARE COMPANY, Philadelphia, Pa. Filed Mar. 30, 1898.



Essential feature.—The word "GIRARD." Used since January 1, 1895.

81,677. ENGINES AND THRESHING MACHINERY. J. I. CASE THRESHING MACHINE Co., Racine, Wis. Filed Mar. 5, 1898.



Essential feature.—The representation of an eagle with folded wings perched on a globe. Used since March, 1894.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SCHMERTZ v. APPERT.

Decided March 22, 1898.

1. INTERFERENCE—FOREIGN PATENT—DATE OF REDUCTION TO PRACTICE—PRIORITY.

Appert took no testimony, but relied upon a French patent dated October 19, 1893, which was issued and published on January 12, 1894. Schmertz proved conception on January 10, 1894, and reduction to practice on January 17, 1894. *Held* that Appert's date of invention is January 12, 1894, the date of the publication of his foreign patent, and as there was no delay on Schmertz's part between the date of his conception and the date of his reduction to practice priority is awarded to Schmertz.

2. SAME—SAME—SAME.

It is the settled rule of the Office that it is the date of the publication of the foreign patent and not the date of the application therefor that controls in interference proceedings. (*De Ferranti* v. *Westinghouse, Jr.*, 82 O. G., 457; *Appert* v. *Parker*, 74 O. G., 1587.) This is also the rule of the courts. (*Am. Bell Telephone Co.* v. *Cushman et al.*, 65 O. G., 135.) The case of *Hanifen* v. *Godshalk* (79 O. G., 510) seems to hold the contrary; but the weight of authority is clearly as first above stated.

APPEAL from Examiners-in-Chief.

APPARATUS FOR AND PROCESS OF MANUFACTURING WIRE-GLASS.

Applications of Edmund C. Schmertz filed March 19 and April 1, 1895, Nos. 542,335 and 543,946. Application of Leon Appert filed April 27, 1894, No. 509,244.

Mr. William L. Pierce for Schmertz.
Messrs. Pollok & Mauro for Appert.

DUELL, *Commissioner:*

This is an appeal by Appert from the decision of the Examiners-in-Chief awarding priority of invention to Schmertz.

The issue in controversy is defined as follows:

1. The process of making glass sheets with wire inclosed therein, consisting in simultaneously forming a layer of glass and introducing wire thereto, and completing the sheet by forming another layer upon the first layer of glass, the process being carried on progressively.

2. An apparatus for making sheets of glass with wire inclosed therein, consisting of a table, a leading-roll to roll a layer of glass, means to support and introduce wire to the said layer, a second roll, behind the leading-roll, to form a layer of glass on the first or underneath layer, the periphery of the second roll being higher above the table than that of the leading-roll, and the two rolls being far enough apart to allow the glass for the second or upper layer to be poured between them.

Claims 4 and 5 of Schmertz's application No. 542,335 and claims 3 and 4 of his application No. 543,946 are put in interference with claim 1 of Appert's application under count 1 of this issue.

In the decision of the Examiners-in-Chief the meaning and scope of this issue have been referred to at length, and they have held that the second application of Schmertz does not claim the process of the issue and that there is no interference in fact between claims 3 and 4 of that application and claim 1 of Appert's application.

I am of the opinion, however, that the issue is and has been understood by the parties to the interference, and as both parties have accepted the issue as drawn by the Primary Examiner and as neither has presented a motion to dissolve it is not necessary to consider these matters here, but the interference will be determined on the issue as made and accepted.

Appert, the senior party, took no testimony to prove his case, but relied on Patent No. 233,528, taken out by him in France. This patent is dated October 19, 1893, and was issued and published January 12, 1894. It is stipulated that the invention described and claimed in Appert's application in this interference is the same invention described and claimed in the French patent, with the exception that the modified form of apparatus shown in Figs. 7 and 8 of the application in interference is not described in the French patent, but in a certificate of addition thereto dated April 6, 1894.

January 12, 1894, is therefore Appert's date of invention for the purposes of this controversy.

It is the settled rule of the Office that it is the date of the publication of the foreign patent and not the date of the application for it that controls in interference proceedings. (*De Ferranti* v. *Westinghouse, Jr.*, 52 O. G., 457; *Appert* v. *Parker*, 74 O. G., 1587.) This is also the rule of the courts. (*Am. Bell Telephone Co.* v. *Cushman et al.*, 65 O. G., 135.)

The case of *Hanifen* v. *Godshalk* (79 O. G., 510) seems to hold the contrary; but the weight of authority is clearly as first above stated.

Schmertz's alleged date of conception of the invention is June, 1893, when he states that he first made sketches and disclosed the invention to others. He also alleges that at subsequent times during July, 1893, from August 1, 1893, to December 1, 1893, and from January 1 to January 10, 1894, he made other sketches and explained the invention to others. His alleged date of reduction to practice is January 16, 1894.

The Examiner of Interferences and the Examiners-in-Chief held that the proofs show that Schmertz had a conception of the invention as early as July, 1893, and that he reduced it to practice on the 16th or 17th of January, 1894. The Examiner

of Interferences held that Schmertz did not exercise reasonable diligence in reducing to practice and awarded priority to Appert. The Examiners-in-Chief found, however, that during the week of January 5, 1894, Schmertz was taking steps to reduce the invention to practice, and as from that time to January 17, 1894, he used reasonable diligence in reducing to practice they reversed the Examiner of Interferences and awarded priority of invention to Schmertz.

The testimony on behalf of Schmertz is given solely from memory, and such testimony is, as usual, unsatisfactory. Without setting forth in detail the testimony in reference to the sketches claimed to have been made during the summer and fall of 1893 it is sufficient to state that after a careful examination of the same I do not consider the testimony sufficiently exact and positive to warrant a finding that Schmertz had a clear conception of the process and apparatus prior to 1894. However this may be, there is evidence in the case that satisfies me that prior to the reduction to practice claimed by Appert Schmertz had a conception of the invention in controversy.

Schmertz produces a sketch—"Schmertz Exhibit Trial Balance, January 1st, 1894"—which he testifies was made between January 1 and January 10, 1894. This sketch differs from the other exhibit sketches in that the two rolls are connected together, so that, as he states, other power than hand can be used in the operation of the apparatus. Hutchison identifies this exhibit and states that it was completed between the 1st and 10th of January, 1894; but his statements are made solely from memory and therefore can have little weight. Schmertz says that in order to carry out his invention the only additional apparatus required at the works in New Kensington beyond what was there and used in the manufacture of ribbed glass was one roll recessed at each end. As the Brownsville factory was not in operation, he concluded to obtain a roll from there, and on January 5, 1894, he telegraphed to the manager of the glassworks at Brownsville to ship a roll by steamer. This order was carried out, and the roll was received at Pittsburg on January 6, 1894, and taken to the works of the Scaife Foundry and Machine Company, where it was recessed at each end. The roll was then shipped to New Kensington on the 9th of January and received on the 10th. The telegram, the freight-bills, and Scaife's bill are offered as exhibits and fix these dates. The roll remained on the car until January 15, 1894, when it was taken into the factory and put on the casting-table in readiness to make wire-glass. On the 16th of January the apparatus was operated, and wire-glass was made by introducing wire behind the first roll. On the 17th glass was made by introducing wire in front of the leading or first roll. During the next few days about thirty sheets of glass were made by the apparatus carrying out this process.

Swearer identifies "Schmertz Exhibit Trial Balance, January 1st, 1894" as sketches shown to him by Schmertz prior to his (Swearer's) visit to the American Glass Company's works at Tacony, near Philadelphia, when they talked about this process and Schmertz told him that he intended to get a roll at their Brownsville factory. He left Pittsburg for Tacony on January 10, 1894, and left Philadelphia January 12, 1894, for Pittsburg, and on the 13th he was at the works at New Kensington. He first saw the roll which Schmertz had told him he proposed to order from the Brownsville factory on the siding of the Brownsville Plate Glass Company's works on Saturday, January 13, 1894, immediately on his return from Tacony. On Monday, January 15, 1894, he had this roll taken from the car to the works, where it was placed on the casting-table. On Tuesday, January 16, 1894, they began to make glass with the apparatus, including this roll. At this trial they made glass successfully by running the wire in over the front roll. Afterward they tried running the wire in under the front roll.

Toynbee, a ladler at the Brownsville Plate Glass Company's factory at New Kensington, testifies that when they began making wire-glass at that place the first roll used on the table had a recess at each end; that he first saw this roll on Monday of the week following Swearer's trip to Philadelphia; that on Tuesday, the next day, he saw it on a casting-table, and that on that day they used it in making wire-glass. He describes the operation of the apparatus and states that merchantable glass was made on that day by the method of this issue.

From this testimony I am of the opinion that between January 1 and January 10, 1894, Schmertz had a conception of the invention in controversy. Prior to January 12, 1894, he was taking steps to embody his conception in an operative machine, and on January 16 or 17 he had such a machine as the issue calls for, which was successfully operated and produced wire-glass by the process of this issue. Appert has taken testimony to show that the machine did not operate successfully. While the testimony shows that merchantable wire-glass was not made in every instance, yet such glass was made at times, and it is clear that the reasons why it was not made in every instance were understood by the parties who were operating the apparatus, all of whom were expert glass-makers. The reasons of the failures are specifically and fully explained by Swearer. Without going into the details on this point, it is held that the machine was operated successfully to carry out the process of the issue and that what was done was an actual reduction to practice. Although this reduction to practice was later than that claimed by Appert, yet as Schmertz was the first to conceive and used reasonable diligence in reducing his invention to practice it is held that he is the first inventor.

It has been urged on behalf of Appert that Schmertz never conceived the invention and that he and his witnesses have conspired to give such testimony as would defeat Appert's claim to invention and have intentionally testified falsely and changed and added to the exhibits in the case; but I agree with the conclusions of the lower tribunals that there is no justification in the record

for this contention. It is also contended on behalf of Appert that Schmertz conducted the prosecution of his applications and of this interference proceeding in a deceitful and misleading manner; but I find no warrant for these contentions.

The decision of the Examiners-in-Chief in awarding priority to Schmertz is affirmed.

EX PARTE JENKS.

Decided April 29, 1898.

DESIGN—DESCRIBING PREFERRED FORMS OR MODIFICATIONS.

Words or phrases referring to or describing preferred forms or modifications of designs should not be permitted in an application for a design. Modifications of designs do not exist, and applicants should restrict their drawing and description to one design.

ON petition.

DESIGN FOR CANDELABRA.

Application of Barton P. Jenks filed May 15, 1897, No. 636,795.

Mr. A. P. Browne for the applicant.

DUELL, *Commissioner:*

This is a petition from the action of the Examiner requiring the cancellation of certain matter from the specification.

In describing the design applicant states in his specification that—

> two of the opposite panels are preferably left plain while the other two are given an ornamentation hereinafter more particularly described. * * * Two of the opposite panels are preferably left unornamented. * * * To form the entire candlestick the body portion just described may be united to another portion C, similarly shaped, but preferably shortened in its vertical dimensions. Except for the change in its vertical dimensions, the body portion C is formed on substantially the same lines as the body portion A. The ornamented panels of said portion C may, however, be modified if desired by fluting them to correspond with the ribs and depressions c^x and c^4 as shown. The upper portion of the body C is contracted into a neck portion c', which is provided with a flaring mouth c^3. The base B preferably has its horizontal lines similar to those of the body portion as shown in Fig. 2, and its edge may be scalloped as shown at *b*. Each of the body portions A and C may be provided at its bottom with an ornamental beading *m*, *m'* as shown.
>
> I do not consider my design to be limited to the form of base shown, nor to a candlestick formed of the two body portions A and C used unitedly, as a candlestick may be formed of either of said body portions combined with any desired form of base or support, my design residing primarily in the contour and ornamentation of the body portion as shown in either of the forms A and C.

The Examiner has required that the word "preferably" where it occurs in this description, the sentence "The ornamented panels of said portion C may, however, be modified if desired by fluting them to correspond with the ribs and depressions c^x and c^4 as shown," and the last paragraph of that part of the specification above quoted be canceled and that the words "may be" be changed to the word "*is*."

The Examiner's objection to this part of the specification is substantially that it sets forth preferred forms or modifications of the design not shown. I think the Examiner's objection is well founded. It seems clear to me that by having this matter in the specification applicant does not intend to confine his description to one design, but this matter is placed in the description so that the specification will be broad enough to refer to modifications of the design not shown.

As was said in the case of *ex parte Hill and Renner*, (82 O. G., 1968,) there is abundant authority for holding that modifications of designs do not exist and should not be shown and described in one patent, and the decisions of this Office require applicants to restrict their drawings and description to one design, leaving out all reference to modifications. See in addition to *ex parte Hill and Renner*, *ex parte Coe* (81 O. G., 2086) and *ex parte Brand*, (83 O. G., 747.)

The requirement of the Examiner is sustained and the petition is denied.

EX PARTE MERIWETHER & COMPANY.

Decided May 21, 1898.

1. TRADE-MARK—"PEACH GREENVILLE."

The words "Peach Greenville" refused registration as a trade-mark for plug-tobacco on the word "Peach," previously registered, as it is not a safe practice to permit the registration of a compound trade-mark, one of the distinguishing features of which has already been registered, as purchasers using ordinary caution might easily be deceived.

2. SAME—REGISTERING DECEPTIVE TRADE-MARKS CONDEMNED.

The Patent Office should not give its stamp of approval to a class of trade-marks the use of which has a tendency to mislead or deceive the public, and thus take a position antagonistic to well-settled rules of law.

ON petition.

TRADE-MARK FOR PLUG-TOBACCO.

Application for registration filed September 29, 1897, No. 54,868.

Messrs. C. A. Snow & Co. for the applicants.

DUELL, *Commissioner:*

Registration having been refused for the words "Peach Greenville" as a trade-mark for plug-tobacco, applicants have taken this appeal, and in an elaborate brief have sought to show that the action of the Examiner was erroneous and therefore should be reversed on appeal.

It appears that the word "Peach" as a trade-mark for plug-tobacco, etc., was registered in 1884, based upon a use from 1845. Registration has been refused upon this mark and upon the ground that the word "Greenville" is geographical. That the word "Greenville" is geographical cannot be successfully controverted, for the reason that it appears from the *United States Official Postal Guide* that there are some thirty post-offices of that name in the United States; but I do not base my decision in this case upon the geographical character of the word "Greenville."

Applicants seek to register a compound mark, and the rule which should control in such cases is well set forth in *Bush & Co.*, (10 O. G., 164,) in which the Commissioner held that it was not—

> a safe practice to permit the registration of a compound trade-mark, one of whose distinguishing features has already been registered.

A cursory examination of the decisions of this Office relative to the registration of trade-marks shows many instances in which the correct practice above referred to has been followed. The words "Golden Star" were refused registration in view of a prior registration showing the word "Star" and the representation of a star. Registration of the words "Railway Timekeeper" and the representation of a locomotive was refused in

view of the prior registration of the word "Railway" and of the fact that the word "Timekeeper" was descriptive of the article to which the mark was applied. The word "Puff" was refused registration in view of the previously-registered words "Opera Puff." The words "Black Swan" were refused registration in view of the prior registration of the word "Swan."

It has also been held by the Office that the word "Royal" was infringed by the use of the words "Royal Dutch." It was stated in the case then under consideration that the word "Royal" was the essential part of the trade-mark, while the word "Dutch" was merely descriptive. The words "Old Taylor" were refused registration on the prior registration of the word "Taylor." The words "Royal-Salted-Codfish," with hyphens between the words, were refused registration in view of the prior registration of the word "Royal."

As I view it, if a call were made for "Peach" tobacco it could properly be filled by handing the customer the "Peach Greenville" brand. In other words, the purchaser using ordinary caution could easily be deceived.

In *ex parte Caire*, (15 O. G., 248,) in which registration was refused of the words "Black Swan," the Commissioner thus correctly enunciated the law as repeatedly held by the courts relative to the class of purchasers to be protected against misleading trade-marks.

It has been held that even if wholesale buyers are not misled, but retailers or consumers are, by the resemblance which one mark bears to another, the right of action exists.

He also said, citing various authorities:

And it has also been held that if a mark is calculated to mislead, even if no one has actually been deceived, the courts will presume the resemblance to be not accidental, but intentional, and for the purpose of deception, and for this purpose the whole trade-mark need not have been counterfeited.

This Office should not give its stamp of approval to a class of trade-marks the use of which has a tendency to mislead or deceive the public, and thus take a position antagonistic to well-settled rules of law.

I am clearly of the opinion that the words should not be registered, and the action of the Examiner refusing registration is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MCCORMICK *v.* CLEAL.

Decided February 24, 1898.

1. INTERFERENCE—PROVING DATES—REFRESHING MEMORY BY DOCUMENTS—PRODUCING DOCUMENTS.

It is not necessary that documents from which a witness may have refreshed his memory as to dates be produced at the examination; but the failure to do so would often cause the facts to be regarded as of little weight. When produced and used to assist the memory, they need not be offered as evidence, and in a majority of instances they would be inadmissible if offered.

2. SAME—REDUCTION TO PRACTICE—DRAWINGS.

Perfected drawings showing an invention cannot be regarded as a reduction to practice of the invention.

3. SAME—REDUCTION TO PRACTICE—DILIGENCE.

The question of diligence cannot be determined by any general rule applicable to all cases, but necessarily depends upon the special circumstances of each case as it arises.

4. SAME—DILIGENCE—PRIORITY.

Cleal's conception and reduction to practice is the date of his application, July 6, 1894. McCormick prepared two applications for patent in February, 1894. One he filed on March 5, 1894, for what is called "machine No. 4." The other application, the one involved in this interference, under which "machine No. 3" had been begun but laid aside for No. 4, was not filed until October 6, 1894. On April 8, 1894, he began "machine No. 5," which contained the locking mechanism of No. 4 and differs from the mechanism of the issue merely in the time of the operation of the two sets of keys, in the issue the department-key being first pressed and the cash-key thereby unlocked, while in machines Nos. 4 and 5 the cash-keys are first pressed and the department-keys thereby unlocked. *Held* that machine No. 3 fell short of being a reduction to practice; but as, judging by McCormick's actions, he neither saw the superiority of one mode of operation over the other at the time he was working on the machines nor apprehended that there was a substantial difference between the functions of the mechanism in merely reversing the time of the locking action upon the distinct sets of keys, the locking device being the important improvement, and he appreciating its value, though he may have been mistaken as to the most advantageous mode of its operation and may also for a time have supposed that it was the same invention when operated reversely, also *Held* that under such circumstances what McCormick was doing during the eight months from the date of preparing his application to the filing of it in the Patent Office was not unreasonable delay, and priority awarded to him over Cleal.

Messrs. Staley & Shepherd for the appellant.
Mr. Edward Rector for the appellee.

SHEPARD, *J.*:

1. This is an interference proceeding in the matter of an improvement in department cash-registers, and the controversy is on the following issue:

In a cash-register, the combination of a series of numbered keys representing different amounts, a series of special keys, and locking means controlled by the special keys to prevent operation of the numbered keys until a special key has been operated.

The object of the "department" cash-register is to preserve in a single machine distinct and separate records of the sales of different classes of articles. For example, in a drug-store there may be special departments, say, of drugs, of soda-water, cigars, etc.

Registers called "department-machines" were old when the invention in controversy was made. In these there were provided separate registering mechanisms for each department, which were operated by special keys appropriately labeled. There is one set of numbered keys called "cash-keys." In order to register a sale in the proper department, it is necessary that the register assigned thereto shall be thrown into coöperation with the cash-keys before the registration can take place. If, therefore, a department-register is not thrown into coöperation, as aforesaid, the amount of the sale expressed on the cash-key will not be added upon the same, and so, the cash-keys being free to operate whenever pressed, if at the end of an operation of the machine any one of the department-registers shall be left in position to coöperate with the cash-keys the registration will take place therein, whether it be the appropriate one or not.

2. The improvement in the invention in controversy consists in the introduction of a locking device between the different sets of keys, whereby the operation of the cash-keys is prevented until the special department-register has been thrown into coöperation. The cash-keys are normally locked and can only be operated when a department-key is pressed and the register thrown into coöperation. There is a connection between the locking device and the department-keys by which the latter in moving the register unlock the cash-keys and thus permit of their operation.

3. The applications for patents for this improvement out of which the interference grew were filed three months apart. The first was filed by appellee, Joseph P. Cleal, July 6, 1894; the second by the appellant, John H. McCormick, October 6, 1894. Cleal's application is a constructive reduction to practice and must be taken also as the date of his conception, because he has introduced no evidence in respect thereof. McCormick, being the junior applicant, had the burden of showing conception before Cleal's date of filing, together with reduction to practice, or such diligence in following up his conception as will support his right founded thereon.

4. The Examiner of Interferences and the Examiners-in-Chief on appeal from him awarded priority to McCormick on the ground that he was the first to conceive and had not been wanting in diligence in reduction to practice.

The Commissioner reversed the decision of the Examiners-in-Chief and awarded priority to Cleal. He was of the opinion, first, that McCormick's evidence of conception was not satisfactory, and, second, that had he conceived as alleged he would have lost his right for lack of diligence in reduction to practice.

McCormick had been at work upon cash-registers since 1892 and claims to have conceived the idea of the locking device of the issue in or about October, 1893. He claims that he explained it to others in December, 1893, and made drawings illustrating it about the same time.

The doubt of the Commissioner in respect of this claim of invention is founded on the evidence concerning these first drawings, called 1 and 2. These illustrate several features of complicated department-machines. No. 2 is in ink and pencil. The part in ink is said to have been traced from or after No. 1. The part in ink does not show the detail of the subject-matter of the controversy at all. That appears in a pencil sketch added to the ink drawing some time after its execution. Appellant's witnesses did not explain when this pencil sketch was added and they were not cross-examined with regard to it. Those witnesses were not contradicted or impeached. Giving them credence, as we must, the testimony is overwhelming that this detail was in drawing No. 2 in February, when the drawings were made for use in the Patent Office and the specifications were prepared in the office of appellant's solicitor. These latter dates were fixed with certainty by the draftsman, by a mechanic who worked on the McCormick machines, two stenographers, and the solicitor, as well as by McCormick himself. Dates were fixed by the solicitor's office records and the note-books of the two stenographers. The mechanic assisted his memory by a receipted bill for certain patterns made for his use, and the draftsman testified to referring to drawing No. 2 in preparing the drawings and identified two "blue-prints" made at the time as copies thereof. The note-books, records, bill, and blue-prints were not offered in evidence, and for that reason the Commissioner was of the opinion that the proof of dates by reference to them should be disregarded. This view is clearly erroneous. It is not even necessary that documents from which a witness may have refreshed his memory be produced at the examination; but the failure to do so would often cause the evidence to be regarded as of little weight. When produced and used to assist the memory, they need not be offered as evidence, and in the majority of instances they would be inadmissible if offered. (1 Greenl. Ev., sec. 437; *Commonwealth* v. *Ford*, 130 Mass., 64, 66; *White* v. *Tucker*, 9 Iowa, 100.)

The documents referred to by the witnesses were all produced, as the record shows. Counsel for the appellee had an opportunity to inspect them and to cross-examine the witnesses in respect of them. He did not cross-examine, and it does not appear that he inspected the instruments; but the record does not show that he offered or asked leave to do so. So far as that shows any action by him it is that he objected to the reference to them on the ground that they were secondary evidence. We cannot indulge any other presumption from his conduct than that he was at the time satisfied in respect of the genuineness of the records and of their dates.

On this issue our conclusion necessarily is that McCormick conceived the idea of the invention in controversy, communicated it to others, and made a satisfactory drawing illustrating it as early at least as February, 1894.

5. Appellant's claim that the perfected drawings showing forth his invention must be regarded as a reduction to practice is inadmissible. Unless he can show an actual reduction to practice or diligent endeavor to that end commencing before his rival's application was filed and continuing to the date of filing his own the decision must be against him.

It appears from the evidence that McCormick did not make a machine embodying this particular detail before Cleal's date of application. He worked on a machine which is called "machine No. 3" in the testimony; but he did not make and attach the locking device thereto. The construction admitted of the attachment and seems to have been made with that view. Machine No. 3, then, was not a reduction to practice. Of his two sets of specifications made in February, 1894, for applications for patents he filed one on March 5, 1894, for what is called his "machine No. 4," upon which he has obtained a patent. The specifications under which No. 3 had been begun are those contained in the application in interference, which, as

we have seen, was not filed until October 6, 1894. "Machine No. 5" was begun by McCormick in April, 1894, and finished some time during the summer. This differed from No. 4 in the mechanism of the drawer in respect of its action in opening and closing and in some other details not affecting the matter at issue. Both had the same locking device, however, operating in the same way. In each the department-keys are normally locked, and the cash-keys are free. The operation is first to press in the cash-key. This does not register, but sets the machine so that when a department-key is pressed the registration takes place.

In the issue of the interference the specific description is—

a locking means controlled by the special keys to prevent operation of the numbered keys until a special key has been operated.

This means a mechanism whereby the cash-keys are kept locked until the department-key is pressed in. Here the department or special key sets the machine for registration and unlocks or releases the cash or numbered keys, so that when pressed in the desired registration is accomplished.

It appears that the locking mechanism of the issue aforesaid and those of machines 4 and 5 are alike. They differ merely in the time of the operation of the two sets of keys. The operation of one is simply reversed in the other. In the former the department-key is first pressed, and the cash-keys are thereby unlocked. In the latter the cash-keys are first pressed, and the department-key is thereby unlocked. The change in the time of the operation is by a process requiring nothing more than ordinary mechanical skill. The locking of the keys is accomplished by means of a hook attached to a rod, and the change in the time is worked by a change of the hook. If this hook engages at the bottom, the keys are locked before the operation; if at the top, they are locked afterward.

Notwithstanding the conditions shown above, each tribunal of the Patent Office agreed in holding that on account of the state of the art and the terms of the applications—

the words of the issue, [as said by the Commissioner,] instead of being a mere statement of function, are a specific limitation of the claim to means to control the numbered keys until the special key is operated.

We are not satisfied of the correctness of this view, but will pass the point, because its determination is not necessary in our view of the question of diligence. There was no testimony from the mechanical experts on the point beyond that of McCormick himself, and to go into the question would involve the consumption of much space in the discussion of the descriptions contained in the elaborate specifications of each application.

6. This brings us to the consideration of the final question: Did McCormick lose the advantage of his earlier conception through lack of diligence in reduction to practice before his rival's application was filed? This question of diligence cannot be determined by any general rule applicable to all cases. It necessarily depends upon the special circumstances of each case as it arises. Now if we had nothing else in the case than the fact that McCormick made the invention and had his drawings and specifications prepared as early as February 20, 1894, and yet withheld them from the Patent Office for about eight months, we would be compelled to decide against him, for no ample excuse for delay can be found in the situation and conditions of the parties or the business engagements of their solicitor apart from other considerations. (*Dodge* v. *Fowler*, 82 O. G., 595.)

In our opinion, however, there are other important considerations that tend to excuse the delay.

As we have seen, McCormick began with sufficient promptness the construction of his machine No. 3, with the intent to apply therein the locking device of his drawing No. 2 in the very manner described in the issue. This fell short of being a reduction to practice, because he did not in fact apply the mechanism thereto. He had also worked on machine No. 4, and the Patent Office drawings were drawn therefor and the application was speedily filed. In the meantime No. 3 was laid aside for No. 4, which contained some additions respecting the operation of the machinery of the registers in connection with the cash-drawer that were novel and supposed to be valuable. Reversing the action of the locking mechanism between the keys from that contemplated in the proposed construction of No. 3 was caused by the changes in the aforesaid action of the registering machinery in coöperation with the drawer. Part of the machinery used in No. 4 was taken off and used in machine No. 5, which was supposed to improve thereon in some slight particulars. The operation of the locking machinery was the same in No. 5 as in No. 4 and for the same reason.

Conceding, as we have done, that there may be a substantial difference of means in the different times of the operation of the locking device upon the cash-keys as carried out in machines 4 and 5 and in the machine of the issue, and conceding, further, that the latter mode of operation is superior, yet it does not appear that this superiority was then apparent.

Judging by the action of McCormick we may conceive that he neither saw the superiority of one mode of operation over the other at the time nor apprehended that there was a substantial difference between the functions of the mechanism in merely reversing the time of the locking action upon the distinct sets of keys. He was certainly diligent in constructing and perfecting his machine along the line of its then apparent importance to him. The locking device was the important improvement. He appreciated its value, though he may have been mistaken as to the most advantageous mode of its operation, and may also have for a time supposed that it was the same invention when operating reversely.

In the light of these circumstances we cannot regard his delay as inexcusable. It would be unjust to do so. Some reasonable indulgence where lapse of time only is in the way ought to be extended to an inventor who was thus engaged in perfecting and attempting to bring out all of the merits of his invention.

For the reasons given we are of the opinion that priority should be awarded to the appellant.

The decision appealed from will therefore be reversed, and the proceedings and decision of this court will be certified to the Commissioner of Patents, as required by law. It is so ordered.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 11. TUESDAY, JUNE 14, 1898. PRICE—$5 per year.

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Disclaimer.

568,546.—*Clark M. Platt*, Waterbury, Conn. IMPROVEMENT IN BUTTONS. Patent dated September 29, 1896. Disclaimer filed June 6, 1898, by the present assignee, *The Patent Button Company*, of Waterbury, Conn.

Enters its disclaimer to—

"The following words 'or again, if desired, to the same extent,'" in lines 59–60 of the printed specification.

Notice to Show Cause.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 7, 1898.

The following notice to show cause is published in the OFFICIAL GAZETTE for the reason that it has been found impracticable to serve notice in the usual way, a registered letter containing notice to the same effect, mailed to Mr. Holgate at his last-known address, having been returned with the report that it could not be delivered.

To George H. Holgate, doing business under the name of the Association American Inventors, last known address Betz Building, Philadelphia, Pennsylvania, present address unknown:

SIR: Copies of charges filed against you as representative of the Association American Inventors by the following-named persons were sent you on the dates mentioned below, and you were given until February 12, 1898, to answer the same, if you desired to do so:

I. N. Fickes, of Holland, Kans.....January 21, 1898.
Nathan Lloyd, of Greenbrier, Mo.....January 22, 1898.
J. L. Zeiger, of Cleveland, Ohio .....January 28, 1898.
John McWilliams, of Egypt Mills, Mo ..February 5, 1898.

You were informed in the letters accompanying the charges of McWilliams, Lloyd, and Fickes that, inasmuch as you were not registered as a patent attorney, disbarment proceedings would not be instituted. It has been determined, however, that inasmuch as you still represent a number of applicants before this Office in applications filed before the 1st of January, 1898, as is shown by a list of such cases filed by your representative on January 14, 1898, and in which registration was waived, said list numbering 171 cases, you are practicing before the Office and within the provisions of the statute you are subject to disbarment proceedings. In view of this fact and in view of the fact that in some of the foregoing cases the filing of the answer was made optional with you you are hereby required to show cause on or before the 15th day of June, 1898, in each of these cases, why you should not be disbarred from practice and why the Commissioner of Patents should not refuse to recognise you as patent agent in accordance with the statutes in such cases made and provided.

C. H. DUELL,
Commissioner.

Roster of Registered Attorneys.

As an alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 6, 1897, is about to be published, it is directed that one copy of such list be furnished to each registrant free of charge, and that copies be furnished to the public at the nominal price of five cents each, a five-cent coupon being acceptable in payment therefor. One copy of each subsequent edition will be furnished gratuitously to each registrant whose name appears thereon for the first time in any edition.

Registrants are requested to give notice of any errors that may have occurred in the list as published.

CERTIFICATES OF REGISTRATION ISSUED JUNE 14, 1898.

Labels.

6,595.—Title: "YELLOWSTONE GEMS." (For Cigars.) *The M. Hyman Cigar and Importing Company*, Denver, Colo. Application filed May 2, 1898.

6,596.—Title: "THE AMERICAN BOY." (For Cigars.) *Latmer Cigar Co.*, Cincinnati, Ohio. Application filed April 27, 1898.

6,597.—Title: "QUEEN JENNY." (For Cigars.) *American Lithographic Company*, New York, N. Y. Application filed May 17, 1898.

6,598.—Title: "BLACK & TAN." (For Beer.) *Anheuser-Busch Brewing Association*, St. Louis, Mo. Application filed April 21, 1898.

6,599.—Title: "REGAL LAGER." (For Beer.) *Long Island Brewery*, New York, N. Y. Application filed May 9, 1898.

6,600.—Title: "EUREKA HAIR RESTORER." *Lydia Phillips*, Fort Plain, N. Y. Application filed May 5, 1898.

6,601.—Title: "HERBARIUM SYSTEM BITTERS." *William Bold*, Chicago, Ill. Application filed March 26, 1898.

6,602.—Title: "PEARLS OF HEALTH TABLETS." *American Chemical Co.*, Cleveland, Ohio. Application filed May 2, 1898.

6,603.—Title: "LOG CABIN BAKING POWDER." *Winfred Scott Corbett*, Kansas City, Mo. Application filed May 2, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 7, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between two and three months.			
102	XIX. Stoves and Furnaces	Mar. 9	May 25	225
255	XII. Mechanical Engineering, Store-Service, etc.	Mar. 19	May 24	284
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 8	May 24	250
30	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 7	May 23	208
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Mar. 14	May 21	194
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Mar. 8	May 21	251
98	XXXIV. Railway-Brakes, Draft-Appliances, and Rolling-Stock.	Mar. 10	May 20	228
	Between three and four months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 25	May 27	287
250	VIII. Furniture, Beds, Store Furniture, etc.	Mar. 5	May 25	460
26	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Feb. 28	May 25	250
248	XVIII. Steam-Engineering, etc	Feb. 7	May 25	321
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 18	May 24	300
190	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 12	May 24	280
246	I. Tillage and Fences	Feb. 26	May 23	256
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 19	May 23	490
98	XXI. Textiles, etc	Feb. 8	May 16	220
208	X. Carriages and Wagons	Feb. 17	May 13	321
	Between four and five months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 10	June 1	729
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Feb. 2	May 26	317
97	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 29	May 25	166
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Feb. 2	May 23	333
128	XXIV. Sewing-Machines, Apparel, and Toilet.	Jan. 15	May 23	455
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Feb. 2	May 19	413
106	II. Farm Stock, Products, etc.	Jan. 20	May 17	531
	Between five and six months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 20	May 28	466
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 11	May 27	232
240	VII. Velocipedes	Dec. 28	May 21	786
256	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Jan. 4	May 23	360
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 28	May 16	566
217	XXXIII. *Trade Marks, etc., †Designs, Drafting, and Optics.	Jan. 3	May 3	243
	Between six and seven months.			
96	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Nov. 27	May 26	371
248	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 20	May 25	541
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Apr. 18	321

Applications Under Examination—Continued.

	Between seven and eight months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 8	May 31	527
221	XXIII. Instruments of Precision, Acoustics, etc.	Oct. 14	May 17	502

Total number of applications awaiting action 12,179

Under one month.			
†Designs	June 1	June 3	65
*Trade-Marks	May 16	May 26	171

ISSUE OF JUNE 14, 1898.

Patents	369—No.	605,465 to No. 605,833, inclusive.
Designs	47—No.	28,590 to No. 28,636, inclusive.
Trade-Marks	26—No.	31,676 to No. 31,701, inclusive.
Labels	9—No.	6,595 to No. 6,603, inclusive.
Prints	None.	
Reissues	2—No.	11,668 to No. 11,669, inclusive.
Total issue	453	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			New Hampshire	4	
Arizona Territory			New Jersey	23	1
Arkansas	2		New Mexico Territory		
California	6	1	New York	46	9
Colorado	6	2	North Carolina		
Connecticut	19		North Dakota	24	5
Delaware			Ohio		
District of Columbia	2		Oklahoma Territory		
Florida			Oregon		
Georgia	3		Pennsylvania	51	3
Idaho			Rhode Island	4	
Illinois	38	2	South Carolina	1	
Indian Territory	1		South Dakota	2	
Indiana	13		Tennessee	7	
Iowa	9		Texas	1	
Kansas	3		Utah		
Kentucky	3		Vermont	3	
Louisiana	1		Virginia	2	
Maine	3	1	Washington	3	
Maryland	4	1	West Virginia	5	
Massachusetts	46	2	Wisconsin		
Michigan	12	2	Wyoming	1	
Minnesota	7	1	U. S. Army		
Mississippi			U. S. Navy		
Missouri	11	2	Total to citizens of the United States	305	32
Montana					
Nebraska	1				
Nevada					

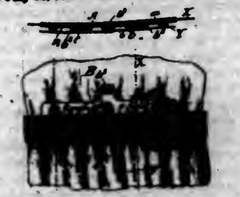
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	1	
Australia			Mexico	1	
Austria-Hungary			Netherlands		
Barbadoes			Newfoundland		
Belgium	1		New South Wales	1	
Brazil			New Zealand		
Canada	5		Norway		
Cape Colony			Portugal		
Chile, Republic of			Queensland	1	
China			Russia	1	
Colombia			Scotland	1	
Cuba			South African Republic		
Denmark	1		South Australia		
Egypt			Spain		
England	16	1	Sweden	1	
Finland			Switzerland		
France	6	1	Turkey		
Germany	15	1	Victoria		
Guatemala			Total to citizens of foreign countries	51	3
Hawaii					
India					
Ireland					

PATENTS

GRANTED JUNE 14, 1898.

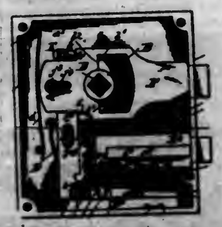
605,465. SKIRT-SUPPORTER. MILDRED M. ANDERSON, New York, N. Y. Filed July 31, 1897. Serial No. 646,043. (No model.)



Claim.—1. As an improved article of manufacture, a skirt-supporter, comprising a removable clip for attachment to the waist, and a hook for attachment to the skirt, said clip consisting of an inner member having headed studs on its outer face, and an outer member, having open slots adapted to engage the stems of the respective studs when the fabric of the waist is clamped between the clip members, and having also a keeper to receive the hook on the skirt.

2. The combination with a hook to be secured to a dress-skirt, of a clip adapted to be removably secured to the dress-waist for supporting the skirt, said clip comprising the inner member A, provided with headed studs *a'* on its outer face, and the outer member B, consisting of a plate *b*, having in its lower edge open slots *b'*, spaced to engage the studs on the inner member A, and keepers *b²*, on its outer face to receive the supporting-hooks on the skirt, substantially as set forth.

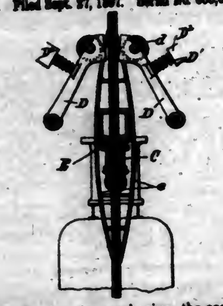
605,466. LOCK. ANGUS H. BARNES, Reno, Nev. Filed Mar. 20, 1897. Serial No. 628,748. (No model.)



Claim.—1. In a lock, the combination with a case having a keyhole, of a horizontally-sliding latch-bolt provided on its under side with a shoulder *f*, a vertically-sliding tumbler adapted in its raised position to engage said shoulder and hold the latch-bolt from inward movement, a horizontally-sliding lock-bolt below the latch-bolt and above the keyhole and on the same side of the vertically-sliding tumbler as the keyhole, and a horizontally-sliding lock-bar below the keyhole of a length when thrown back to extend under the vertically-sliding tumbler when the latter is raised and hold it in engagement with the shoulder *f*, said lock-bolt, tumbler, and lock-bar adapted to be operated by a key in said keyhole, substantially as described.

2. In a lock, the combination with a case having a keyhole, and the latch-bolt, of a sliding lock-bolt situated between the latch-bolt and the keyhole, a sliding tumbler moving in a direction substantially at right angles to that of the lock-bolt and adapted to hold the latch-bolt from inward movement, and a sliding lock-bar situated on the side of the keyhole opposite the lock-bolt and moving in a direction parallel with that of the lock-bolt and adapted to hold the sliding tumbler from movement, said lock-bolt, tumbler and lock-bar being adapted to operate by the key.

605,467. ELEVATING MECHANISM. OREN G. BRATTY, Cleveland, Ohio. Filed Sept. 27, 1897. Serial No. 653,099. (No model.)



Claim.—1. In elevating mechanism, the combination of an elevator-car, an elevator-shaft, a screw extending longitudinally in said shaft, a nut secured to said car and meshing with said screw, means for rotating said nut, and means for bracing said screw between its extremities, substantially as set forth.

2. In elevating mechanism, the combination of an elevator-car, an elevator-shaft, a screw extending longitudinally in said shaft, a nut secured to said car and meshing with said screw, means for rotating said nut, means for bracing said screw between its extremities and means for removing said bracing means on the passage at the braced point, of the said nut, substantially as set forth.

3. In elevating mechanism, the combination of an elevator-car, an elevator-shaft, screw extending longitudinally in said shaft, a nut secured to said car and meshing with said screw, means for rotating said nut, separable means for bracing said screw at points intermediate of the extremities thereof, and means for separating said bracing means thereby permitting the passage on said screw of said nut, substantially as set forth.

4. In elevating mechanism, the combination of an elevator-car, an elevator-shaft, a screw extending longitudinally in said shaft, a nut secured to said car and meshing with said screw, means for rotating said nut, pairs of bracing-levers located at intervals along said screw, a separator secured to the car on each side of said nut, whereby said levers are separated on the approach of said nut, substantially as set forth.

5. In elevating mechanism, the combination of an elevator-car, an elevator-shaft, a screw extending longitudinally in said shaft, a nut secured to said car and meshing with said screw, means for rotating said nut, pairs of bracing-levers located at intervals along said screw and journaled to the side of the shaft, a double-wedge separator secured to the car, one wedge portion located on each side of the nut, said wedges adapted to separate the bracing-levers on approach of the nut, substantially as set forth.

6. In elevating mechanism, the combination of an elevator-car, an elevator-shaft, a screw extending longitudinally in said shaft, a nut secured to said car and meshing with said screw, means for rotating said nut, pairs of bracing-levers, each provided with a roller, located at intervals along said screw and journaled to the side of the shaft, a double-wedge separator secured to said car, one wedge portion located on each side of the nut, said wedges adapted to engage said rollers and separate said levers on approach of the nut, substantially as set forth.

605,468. BONDING AND TYING. JOHN BENNETT, Paris, Me. Filed Dec. 20, 1897. Serial No. 662,602. (No model.)

Claim.—1. A bond for joining and bracing bodies, consisting of a two-part bonding-bar, one cast over and inclosing the other bar

and both bars engaging invisible excavations in the joining ends of the bodies.



2. A bond for joining and bracing bodies having excavations in their joining-surfaces, consisting of a double-ended solid tie-bar entering said excavations, and a fastening part cast over and enveloping the entire body of said solid bar within said excavations and crossing the joining-surfaces, the enveloping bond forming a tubular engaging-body within the joined parts.

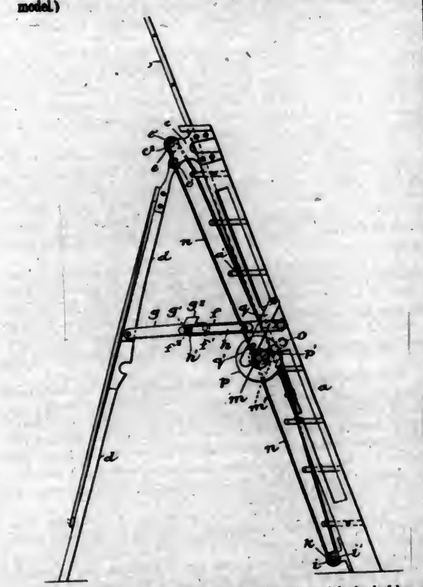
3. For joining and bracing bodies having excavations, in their joining-surfaces, a solid bar entering alike said excavations and a bond cast of tubular form crossing the joining-surfaces as a fastening for the solid bar to the surrounding walls of the excavations in the way stated.

4. For joining and bracing bodies having excavations in their joining-surfaces and grooves or channels opening into said excavations and a filling-duct opening at the surface of the joined parts, a solid bar entering alike said excavations, and a bond cast of tubular form crossing the joining-surfaces for fastening the solid bar to the walls of the excavations and forming circumferential projections or arms upon said cast bond at the joining of the bonded bodies.

5. For joining and bracing bodies having excavations in their joining-surfaces, a tubular fastening-bond cast over a strengthening-blood within and crossing the joining-surfaces.

6. A bond for joining and bracing bodies consisting of a solid bar and a bar formed around it having circumferential arms, both bars and arms engaging the joined parts.

605,469. EXTENSION-LADDER. PHILIP BOURNE, Brooklyn, N. Y., assignor of one-half to Charles L. Dubar and Eugene F. Vacheron, of New York. Filed Aug. 18, 1897. Serial No. 648,677. (No model.)



Claim.—1. In a step-ladder, the combination with the ladder and support, of two arms pivoted respectively to the ladder and the support, and the end of one of said arms pivoted to the other arm intermediate the extremities thereof, there being openings in said arms adapted to correspond with each other when the arms are in extended position, a spring-clip carried by one of said arms and provided with a lug adapted to enter both openings when the same correspond, and an angular projection upon the other arm adapted to guide said lug into the opening upon the arm provided with the angular projection, substantially as described.

2. In a step-ladder, the combination of an extension-ladder adapted to slide therein, a windlass mounted upon said step-ladder, pulleys at the upper and lower ends of the step-ladder, and a cord wound on said windlass and having its ends leading respectively over said pulleys and fastened to the lower end of the extension-ladder, substantially as described.

3. In a step-ladder, the combination of an extension-ladder adapted to slide therein, a windlass mounted upon said step-ladder, pulleys at the upper and lower ends of the step-ladder, a cord wound on said windlass and having its ends leading respectively over said pulleys and fastened to the lower end of the extension-ladder, a face-plate fixed to one end of the windlass-shaft and provided with an opening therein, and a spring-clip fixed to the ladder and having a lug adapted to engage with said opening, substantially as described.

4. In a step-ladder, the combination of an extension-ladder adapted to slide therein, a windlass mounted upon said step-ladder, pulleys at the upper and lower ends of the step-ladder, a cord wound on said windlass and having its ends leading respectively over said pulleys and fastened to the lower end of the extension-ladder, a face-plate fixed to one end of the windlass-shaft and provided with an opening therein, a spring-clip fixed to the step ladder and having a lug adapted to engage with said opening, a support pivoted to said step-ladder, two arms pivoted respectively to the step-ladder and the support and the end of one of said arms pivoted to the other arm intermediate the extremities thereof, there being openings in said arms adapted to correspond with each other when the arms are in extended position, a spring-clip carried by one of said arms and provided with a lug adapted to enter both openings when the same correspond, and an angular projection upon the other arm adapted to guide said lug into the opening upon the arm provided with the angular projection, substantially as described.

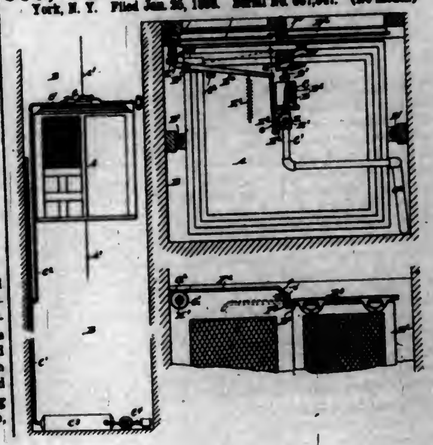
605,470. FASTENING DEVICE FOR TUBS, BOXES, &c. FREDERICK T. BRADLEE, Boston, Mass., assignor of two-thirds to Alonzo G. Bradish, Medford, and C. Fred Fellows, Malden, Mass. Filed Aug. 11, 1897. Serial No. 647,334. (No model.)

Claim.—1. The herein-described staple-like fastener, comprising two driving-legs, a connecting integral crown provided with serratices or depressions to form transverse lines of weakness and facilitate bending of the fastener, and a strengthening rib extended longitudinally of and integral with the crown, substantially as described.

2. The herein-described staple-like fastener comprising two driving-legs, and a connecting-crown provided with transverse indentations or depressions to form lines of weakness, said crown also having an integral longitudinal strengthening-rib crossing the indentations or depressions, substantially as and for the purpose described.

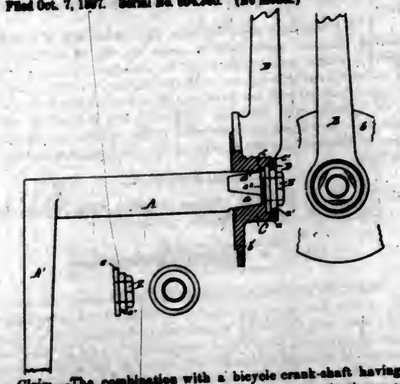
3. A staple-like fastener having two driving-legs, and a connecting-crown, the main portion of which has transverse lines of weakness in hardened and comparatively brittle metal, an integral longitudinal strengthening-rib of relatively soft and readily-bent metal crossing such lines of weakness, substantially as and for the purpose described.

605,471. ELEVATOR-CONTROLLER. FOUNTAIN S. BRAID, New York, N. Y. Filed Jan. 25, 1898. Serial No. 667,847. (No model.)



Claim.—In an elevator-controller of the character herein set forth, a clamp carried by the car and adapted to grasp and hold the operating-rope, a cylinder also carried by the car and receiving pressure, a piston mounted in said cylinder and moved by said pressure to actuate said clamp, and mechanism operated by the door in opening and closing, controlling the admission of pressure to said cylinder, so that the operating-rope will be clamped when said door is open and released when closed, all combined and arranged to serve substantially as and for the purposes herein specified.

605,472. BICYCLE-CRANK. JAMES G. BROWN, Reading, Pa., assignor to the Reading Cycle Manufacturing Company, same place. Filed Oct. 7, 1897. Serial No. 654,205. (No model.)



Claim.—The combination with a bicycle crank-shaft having a tapered body portion of angular cross-section and a projecting screw-threaded portion, of an engaging crank having a hub adapted to engage said tapered body, a counterbore in said hub forming a shoulder *c*, and screw-threaded at *c'*; a nut having a flange seating against said shoulder, and a cylindrical body portion adjacent to the flange, and a collar loose upon said cylindrical body of the nut and having its periphery screw-threaded to engage the threaded counterbore of the hub; substantially as set forth.

605,473. PIE-RACK. JOSEPH M. BROWN, Cleveland, Ohio. Filed July 26, 1897. Serial No. 645,891. (No model.)



Claim.—1. A pie-rack composed of the following: a semicylindrical upright stationary screen or cage having a horizontally-arranged top and horizontally-arranged base; a semicylindrical revolving screen having a top arranged horizontally above the top of the stationary screen, and a base arranged horizontally below the base of the stationary screen, and the wire fabric arranged concentrically of the said revolving screen's axis and outside of the wire fabric of the stationary screen, and the pivotal centers or bearings for the revolving screen projecting from the top and base of the stationary screen into the top and base, respectively, of the revolving screen, substantially as and for the purpose set forth.

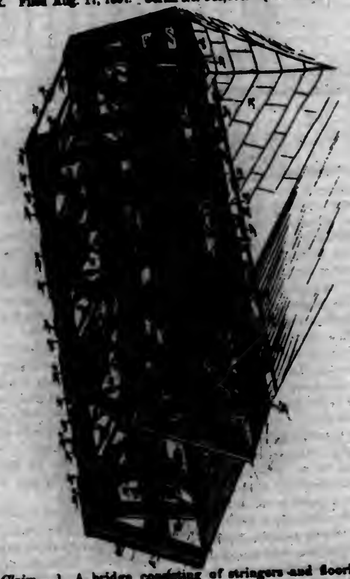
2. A pie-rack consisting of the following: a stationary screen or cage comprising the base b, the top b', the wire fabric b^2 and the two upright slats or bars b^3 b^3, shelf-forming frames suitably arranged within said screen, and one of said frames having two members that extend through the base and top, respectively, and form bearings, and the revolving screen comprising the base C', the top C^2, wire fabric C^3 and the slats or bars C^4 C^4, and having its top and base mounted upon the aforesaid bearings, all arranged and operating substantially as shown, for the purpose specified.

3. A pie-rack comprising a stationary screen having a top and base that are composed of wood, and have V-shaped notches centrally of their edges at the screen's open side; metallic pieces fixed within said notches and provided with angular vertical holes; shelf-forming frames arranged within the said screen, and one of said frames having lugs that engage and extend through the aforesaid holes and terminate in coincident bearings beyond the said holes, and the revolving screen mounted upon the said bearings, substantially as and for the purpose set forth.

4. A pie-rack comprising a stationary screen having a top and base that are composed of wood, and having V-shaped notches centrally of their edges at the screen's open side; metallic pieces fixed within said notches and provided with angular vertical holes; shelf-forming frames arranged within the said screen, and one of said frames having lugs that engage and extend through the aforesaid holes and terminate in coincident bearings beyond the said holes; the revolving screen large enough to embrace the stationary screen and having a top and a base that are composed of wood, and have V-shaped notches centrally of their edges at the screen's open side, and metallic pieces fixed within the said last-mentioned notches and having holes engaged by the aforesaid bearings, substantially as shown, for the purpose specified.

5. The combination with the stationary screen having a horizontally-arranged top, a horizontally-arranged base and wire fabric extending between and secured to said base and top; and the revolving screen having a base arranged below the base of the stationary screen, a top arranged above the top of the stationary screen, and the wire fabric stretched between and secured to the said top and base; of metallic pieces fixed within the tops and bases of said screens centrally of the latter's open sides; upright metallic frames secured to the top and base of the stationary screen, and one of said frames being provided, at its upper end, with an upwardly-projecting lug that extends through and is stationary with the metallic piece set within the top of the stationary screen, and has a seat formed at its upper end and instrumental in supporting the revolving screen, and has the upper pivotal center or bearing of the revolving screen formed thereon; a lug or member rigid with and depending from the lower end of one of the shelf-forming frames and extending through and stationary with the metallic piece fixed within the base of the stationary screen, and having the lower pivotal center or bearing of the revolving screen formed thereon, and the legs-forming frame attached to the said lower bearing, substantially as shown, for the purpose specified.

605,474. BRIDGE CONSTRUCTION. JAMES A. DAVIDSON, Millsap, Tex. Filed Aug. 17, 1897. Serial No. 648,626. (No model.)



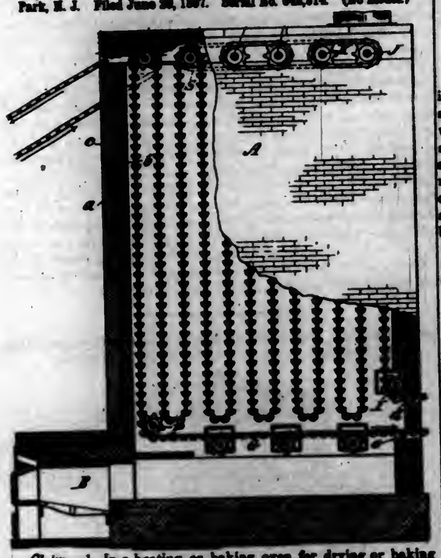
Claim.—1. A bridge consisting of stringers and flooring supported between double-walled trusses composed of longitudinal rails

secured in duplicate and parallel alinement by means of angular supports and inner plates, and held together by means of outer plates and bolts passing therethrough, and supplemental vertical, longitudinal and diagonal brace-rods adapted to be made taut by means of turnbuckles, all substantially as herein shown and set forth.

2. The combination in a double-walled truss-bridge, of rail portions supported in duplicate and parallel to each other by means of inner and outer plates and angular supporting portions, other plates adapted to secure the top and bottom rails to said supporting angular portion, and a system of braces consisting of rods projected transversely, vertically and diagonally, said rods being provided with turnbuckles for tightening the same, all substantially as herein shown and set forth.

3. The combination in a double-walled truss-bridge, of stringers and flooring supported between said trusses, the latter consisting of longitudinal rail-plates A in duplicate supported by angular portions B secured thereon separated from each other by plates C centrally and through plates E at the top and bottom portions of the truss, also separated laterally by means of spacers G, and connected and braced laterally, diagonally and longitudinally by means of brace-rods K, K' and M, said rods being provided with turnbuckles L for making taut the same, the whole, constructed, arranged and adapted for operation substantially as herein shown and set forth.

605,475. DRYING APPARATUS. THOMAS A. EDISON, Llewellyn Park, N. J. Filed June 30, 1897. Serial No. 642,814. (No model.)



Claim.—1. In a heating or baking oven for drying or baking pulverized ore and similar material in bulk, the combination of a vertically-disposed heating-chamber, means for heating the same, a series of shafts passing through the interior of the chamber near the upper end thereof, a continuous conveying-chain near each side of the chamber extending over said shafts and hanging in free loops, a series of swinging buckets carried by said chains, and means for driving the chains at an approximately constant speed throughout their lengths, substantially as and for the purposes set forth.

2. In a heating or baking oven for drying or baking pulverized ore and similar material in bulk, the combination of a vertically-disposed heating-chamber, a furnace adjacent to said chamber, the products of combustion of which are directed through the chamber, shafts mounted in the heating-chamber near its upper end and in the same horizontal plane, a continuous conveying-chain near each side of the chamber extending over said shafts and hanging in free loops, a series of swinging buckets carried by said chains, and means for driving the chains at an approximately constant speed throughout their lengths, substantially as and for the purposes set forth.

3. In a heating and baking oven, the combination of a vertical heating-chamber, shafts passing through the interior of the chamber, sprocket-wheels on said shafts within the chamber, chains hanging in free loops from said sprocket-wheels, a series of flights for carrying material attached to the chains, and means for driving the shafts positively at the same rate of speed, substantially as set forth.

4. In a heating and baking oven, the combination of a vertical heating-chamber, shafts passing through the interior of the chamber, sprocket-wheels on said shafts within the chamber, endless chains hanging in free loops from said sprocket-wheels, a series of swinging flights for carrying material attached to the chains, means for driving one of the shafts outside of the chamber, and sprocket-wheels and chains connecting the several shafts outside the chamber arranged alternately on opposite sides of the chamber, whereby all the shafts will be driven at the same rate of speed, substantially as set forth.

5. In a heating and baking oven, the combination of a vertical heating-chamber, shafts passing across the top of said chamber, sprocket-wheels on said shafts within the chamber, chains hanging in free loops from said sprocket-wheels, and a series of swinging perforated U-shaped buckets carried by said chains, substantially as set forth.

6. In a heating and baking oven, the combination of a vertical heating-chamber, shafts passing across the top of said chamber, sprocket-wheels on said shafts within the chamber, a conveyer formed of endless chains passing over said sprocket-wheels with a series of swinging buckets between them, said conveyer hanging in free loops in the chamber, and means for supporting and conducting part of such conveyer without the oven, whereby the material may be placed upon or removed from the buckets of the conveyers, substantially as set forth.

605,476. SYRINGE. EUGÈNE FOURNIER, Paris, France. Filed May 13, 1897. Serial No. 636,965. (No model.)



Claim.—In a hypodermic syringe, the combination with the cylinder or tube having one end shaped as described and being flanged at the other end to provide finger-rests, of a tubular rod arranged within the cylinder and provided with a recess toward its inner end, a second rod arranged within the first, a head on the inner end of the second rod a projection also on the latter rod engaging within the recess in the tubular rod, an elastic washer on the said second rod confined between the head and the inner end of the tubular rod, and an adjusting-nut screwed upon the outer end of the second rod and bearing against the outer end of the tubular rod.

605,477. BICYCLE-SUPPORT. JAMES F. PURLEY, North Sydney, and ROBERTS FORSYTH, Willoughby, New South Wales. Filed Nov. 26, 1897. Serial No. 660,040. (No model.)



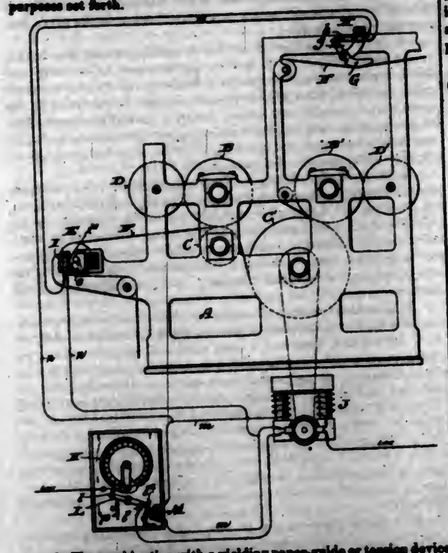
Claim.—1. In combination with a bicycle, sleeves secured thereto, the central leg or rod guided vertically in said sleeves, the spring-pressed yoke vertically movable on said rod and the side legs or rods having their upper ends pivotally connected with the yoke and their lower ends linked to the central rod, substantially as described.

2. A bicycle-support with a vertical rod or center leg, passing through vertically-secured sleeves and a head-piece H, having hinged thereto the outer legs K, K, connected at or near their lower ends with the vertical rod or center leg, the downward movement of same being regulated by a spiral spring placed around a part of the vertical rod or center leg, between one of the vertical sleeves and the head-piece, the said vertical rod or center leg being governed in its downward passage by a collar placed above the head-piece, substantially as herein described, explained, and illustrated in the drawings.

3. In combination with a bicycle a pair of sleeves secured thereto, one above the other, a center leg vertically guided in said sleeves, a spring-pressed yoke movably carried on said leg, the side legs hinged to said yoke at their upper ends, links connecting said side legs with the center leg at the lower end, and the folding or jointed backstay P having a hinge connection with the central leg and with the bicycle-frame, substantially as described.

605,478. AUTOMATIC STOP MECHANISM FOR PRINTING-PRESSES. GEORGE GIBB, Milwaukee, Wis., and IRVING STONE, Chicago, Ill., assignors to the Gibbs Electric Company, Milwaukee, Wis. Filed June 12, 1897. Serial No. 640,494. (No model.)

Claim.—1. The combination with a machine for operating upon material fed thereto and an electric motor for driving said machine, of a movable device arranged to bear or press against the material upon which the machine operates, a switch in the motor-circuit having a tendency to open, a detent for holding said switch normally closed, a magnet arranged when energized to disengage said detent and having its winding in a shunt of the motor-circuit, and a circuit-breaker normally short-circuiting said shunt around the magnet and arranged to be opened by said movable bearing device whenever the material on which it bears is withdrawn, substantially as and for the purposes set forth.



2. The combination with a yielding paper-guide or tension device of a web-printing press and an electric motor for driving the press, of a switch in the motor-circuit having a constant tendency to open, a detent for holding said switch normally closed, a magnet for disengaging said detent and releasing said switch, having its winding in a shunt of the motor-circuit, a short circuit tapping said shunt on opposite sides of said magnet, and a circuit-breaker in said short circuit arranged to be opened by said tension device or guide whenever it is released by the breaking or tearing of the paper, substantially as and for the purposes set forth.

3. The combination with a machine adapted to operate upon a continuous web or strip of material, and a motor for driving said machine, of a motor-stopping device, a magnet for operating said stopping device, having its winding connected with a source of current, a circuit-controller normally closed and short-circuiting said magnet, and a movable device normally supported by said web or strip and arranged whenever the web or strip is severed or slackened to open said circuit-controller and thus cause the magnet to be energized, substantially as and for the purposes set forth.

605,479. WARP STOP-MOTION FOR NARROW-WARE LOOMS. JOSIAH HARRIMAN, Lowell, Mass. Filed Feb. 7, 1896. Serial No. 578,236. (No model.)



Claim.—In a loom the combination of a conducting-plate, a conducting-guide, conducting drop-wires, arranged in said guide and each adapted to be supported normally by a warp-thread out of contact with said plate, an electric circuit including said guide and plate, an alarm device arranged in said circuit and operated by the closing of the same, when a drop-wire falls, into contact with said plate on the breaking or slacking of the thread which normally supports said drop-wire, said plate being of elastic material and inclined to the path of a falling drop-wire in order that the fall of said wire may scrape said plate and make a perfect contact between said wire and plate as and for the purpose specified.

605,480. HOSE-SUPPORTER. DORA HARRISON, Lansing, Mich., assignor to the Harrison Manufacturing Company, Grand Rapids, Mich. Filed Apr. 22, 1897. Serial No. 633,399. (No model.)



Claim.—In a hose-supporter, the combination with an attaching device, of a link pivoted thereto, a ball-supporting plate having an eye pivotally receiving the link, a pneumatic ball comprising a base, a shank, and a head, the base being laid on the ball-supporting plate and being held by flanges formed on the latter, the said ball-supporting plate having an orifice registering with the cavity in the ball, and a loop hung from said attaching device and capable of embracing the pneumatic ball.

605,481. BOTTLE-STOPPER. PARLEE G. HERSEY, Bayota, N. J. Filed Sept. 10, 1896. Serial No. 605,397. (No model.)



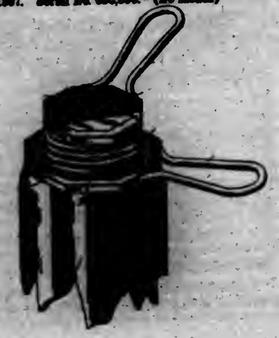
Claim.—1. As an article of manufacture, a bottle or like receptacle for liquids, closed at its mouth by an imperforate elastic cap, provided with one or more longitudinal indentations, said indentations serving to indicate where the cap is to be slitted to form a longitudinal automatically-closing vent therefor, substantially as shown and described.

2. The combination with a bottle or other liquid-holder, of an elastic cap fitted over the mouth of the bottle and closed at its outer end, and formed near its closed outer end with one or more longitudinal indentations, said indentations serving to indicate where the cap is to be slitted to form longitudinal automatically-closing vents for the discharge of the liquid, and an annular indentation near the lower end of said elastic cap to receive a retaining-wire.

3. The combination with a bottle or liquid-holder, of an imperforate elastic cap, provided with one or more longitudinal indentations, said indentations serving to indicate where the cap is to be slitted to form a longitudinal automatically-closing vent therefor, said cap being also provided with a contracted or flattened portion to form the edges S, substantially as shown and described.

4. As an article of manufacture, a bottle or like receptacle for liquids, closed at its mouth by an imperforate elastic cap, provided with a top of inverted-cone shape, said cone-shape portion having longitudinal indentations serving to indicate where the cap is to be slitted to form longitudinal automatically-closing vents therefor, substantially as shown and described.

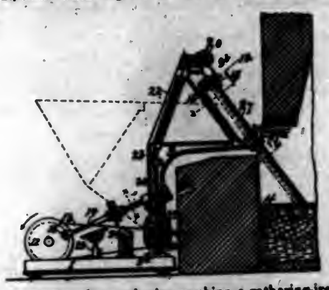
605,482. JAR, TOP, AND WRENCH FOR PRESERVING FRUITS OR THE LIKE. SAMUEL P. JAGGARD, Blackwood, N. J. Filed Sept. 4, 1897. Serial No. 650,898. (No model.)



Claim.—1. A jar comprising a body, a polygonal ring of less diameter than the body formed at the top thereof, a threaded neck of still smaller diameter formed on said body and a slanting surface formed between said neck and said ring on which a washer is adapted to rest, a cover for said jar threaded to fit the threaded neck, said cover having a top polygonal in shape and of less diameter than the body thereof producing a shoulder, as and for the purpose described.

2. The herein-described combination of a jar having a threaded neck and cover threaded to fit said neck, said jar and cover having surfaces formed thereon, adapted to be engaged by wrenches, said surfaces being formed in such a manner as to prevent the wrenches from slipping downward, substantially as described.

605,483. GLASS-GATHERING MACHINE. EDWIN H. JEWETT, Toledo, Ohio. Filed Aug. 13, 1897. Serial No. 648,117. (No model.)



Claim.—1. In a glass-gathering machine, a gathering-iron holder, means to move the holder toward and from the glass, and means to move the holder farther forward at each successive forward movement thereof.

2. In a glass-gathering machine, a rotary gathering-iron holder, means to rotate the holder, means to move the holder forward and back, and adjustable means independent of the mechanism for moving the holder forward and back, to regulate the period at which the holder will begin to move back, substantially as described.

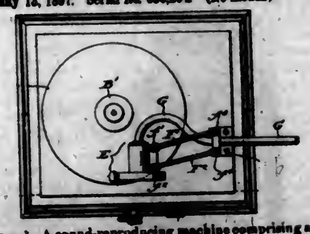
3. In a glass-gathering machine, a frame pivotally supported, a revoluble gathering-iron holder thereon, means to revolve the holder, a crank-wheel, a rod intermediate the said wheel and frame, screw connections between said rod and frame, and adjustable means for actuating the said screw connections.

4. In a glass-gathering machine, a pivoted frame, a gathering-iron holder thereon, a crank-wheel, a nut upon said frame, a hollow screw within said nut, a connecting-rod journaled on said crank-wheel and sliding within said hollow screw, a stop limiting the throw of said frame, and a spring adapted to press said holder normally away from the fire-pot.

5. In a glass-gathering machine, a gathering-iron holder, means to rotate the same, means to move the holder forward and back, a compound cam having segmental extensible faces, adjustable in the arc of a circle, and connections intermediate said cam and said holder whereby the period of the dip of the gathering-iron may be adjustably controlled.

6. In a glass-gathering machine, a swinging frame, two gathering-iron socket-pieces journaled side by side on said frame, in combination with suitable driving mechanism for swinging said frame backward and forward and for rotating said socket-pieces, substantially as and for the purpose specified.

605,484. SOUND-REPRODUCING MACHINE. JOSEPH W. JOHNS, Philadelphia, Pa., assignor to himself and Joseph A. Vincent, same place. Filed May 13, 1897. Serial No. 636,394. (No model.)



Claim.—1. A sound-reproducing machine comprising a rotatable table, a record thereon, spring means for rotating said table, a sound-box provided with a diaphragm and stylus, a bracket secured to the framework of the machine and short parallel rods pivoted to said bracket and to the sound-box, substantially as specified.

2. A sound-reproducing machine comprising a rotatable table, a record-disk detachably secured thereto, spring means for rotating said table, a sound-box provided with a diaphragm, and stylus, the latter having a bar interposed between the diaphragm and sound-box provided with an annular cushion supported by the rim of the sound-box, and cushions at the point where the bar is united to the diaphragm, a bracket connected to the framework of the machine, parallel rods pivoted to said bracket and to a projecting ledge upon the sound-box, substantially as specified.

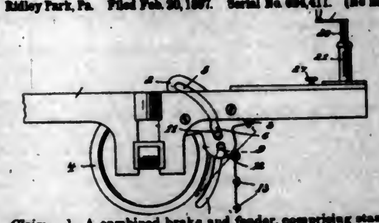
3. A sound-reproducing machine comprising a rotatable table, a record detachably secured thereto, spring means for rotating said table, a sound-box provided with a diaphragm and stylus operated upon by the record, a flexible bracket secured to the frame of the machine, two parallel rods each of which is pivoted at opposite ends to the sound-box and flexible bracket, a governor upon the operating mechanism and means independent of the action of the governor for regulating the speed of the mechanism.

4. A sound-reproducing machine comprising a rotatable table mounted upon a vertical shaft, a record-disk detachably secured thereto, a driving-disk feathered to said shaft and held in frictional contact with the driving mechanism by a spring, spring mechanism for operating the driving-disk, a sound-box provided with a diaphragm and stylus operated upon by the record and parallel rods pivoted to the sound-box and to a bracket mounted upon the framework of the machine.

5. A sound-reproducing machine comprising a rotatable table, mounted upon a vertical shaft, a record-disk detachably secured thereto, a driving-disk feathered to said shaft and operated upon by a spring, a pulley for rotating said disk mounted upon a horizontal shaft, rotated by spring mechanism, a governor driven by a flexible belt from said shaft, a disk upon one of the movable parts of said governor, an adjusting-screw having upon one end a disk and pad which is capable of being brought into and out of contact with the disk of the governor for regulating the speed of the operating mechanism, a sound-box provided with a diaphragm and stylus, operated upon by the record, and parallel rods for guiding the sound-box, pivoted to the latter and to a bracket mounted upon the framework of the machine.

6. A sound-box for a sound recording or reproducing machine, consisting of a flexible stylus-lever inclosed within the sound-box and fulcrumed to the wall of the same by an annular ring of elastic material, one end of said stylus being connected to the diaphragm through the medium of a screw and cushion, and the opposite end being provided with a detachable stylus.

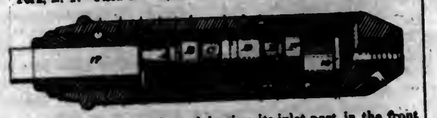
605,485. BRAKE FOR TROLLEY-CARS. ALONZO H. KLINGLER, Ridley Park, Pa. Filed Feb. 20, 1897. Serial No. 624,411. (No model.)



Claim.—1. A combined brake and fender, comprising standards adapted to be secured to a car-truck frame and having slots of different radii as to the upper and lower portions thereof, brake-shoes provided with cross-bars to form a fender and said shoes having grooves or recesses in the walls of the same of different radii as to the upper and lower portions thereof, pins carried by said shoes and standards for engaging and moving in the slots and grooves respectively of said standards and shoes and means for actuating said brake-shoes in the slots of said standards, substantially as and for the purposes described.

2. A combined brake and fender, comprising standards adapted to be secured to a car-truck frame and provided with irregular slots, pins carried by said slotted standards, brake-shoes in the rear grooved out to contour with the car-wheels and in front provided with transverse means to form a fender, said shoes in the outer surfaces provided with irregular grooves or recesses adapted to be engaged by the pins of said standards, pins carried by said shoes and adapted to engage the irregular slots of said standards, whereby when said shoes are elevated said pins working in said irregular slots will cause the brake and fender to clear the car-wheels and means for actuating and controlling the positions of said fender and brake, substantially as and for the purposes described.

605,486. PNEUMATIC HAMMER. HERMAN C. KOTTER, New York, N. Y. Filed Oct. 22, 1897. Serial No. 656,023. (No model.)



Claim.—1. A pneumatic tool having its inlet-port in the front end of the cylinder, substantially one-quarter the size of the inlet-port on the back end of the cylinder, and the exhaust-port on the back end of said cylinder substantially one-quarter the size of the exhaust-port on the front or chisel end of the cylinder and all of said ports being controlled by the piston-hammer, whereby a comparatively slow backward movement and a very fast forward movement of the hammer are obtained.

2. In a pneumatic tool, a cylinder having a piston-hammer therein, the striking-face or nose of said hammer being of reduced diameter, a chisel-bushing in which said nose has an air-tight fit when the hammer is in its extreme forward or downward position, an exhaust-port controlled by said nose and leading to the atmosphere, said nose being adapted to be moved out of said bushing and other inlet and exhaust ports whereby movement is imparted to said hammer.

3. In a pneumatic tool, a cylinder, a piston-hammer contained therein, said hammer consisting of the grooved portions or necks C, E, the solid portions B, D, F of greater diameter and the nose A of reduced diameter, in combination with inlet and exhaust ports for admitting and exhausting the motive fluid to and from said cylinder, certain of said exhaust-ports being controlled by the nose of said hammer.

4. In a pneumatic tool, a cylinder and a main inlet-port having an enlarged supply-chamber communicating therewith, said chamber being located within the interior periphery of the cylinder, whereby no side pressure on the hammer exists, and other inlet and exhaust ports located within said cylinder, in combination with a hammer having a nose of reduced diameter, said nose being adapted to control certain of said exhaust-ports.

5. In a pneumatic tool, a cylinder having a chisel-bushing secured therein, a piston-hammer having a nose adapted to have an air-tight fit in said bushing when said hammer is in its extreme forward position, an exhaust-port passing through said bushing, and communicating with a main exhaust-passage in said cylinder, a main inlet and other inlet and exhaust ports for enabling motion to be imparted to said hammer.

6. A pneumatic tool, consisting of a cylinder having an inlet-port in the front end thereof, substantially one-quarter the size of the inlet-port on the back end thereof, and an exhaust-port at the back end thereof substantially one-quarter the size of the exhaust-port on the front or chisel end thereof, and a hammer in said cylinder provided with a reduced nose, the latter being adapted to control said exhaust-port at the chisel end of said cylinder.

7. In a pneumatic tool, a cylinder, a piston-hammer contained therein and provided with a nose of reduced diameter, exhaust-ports in said cylinder controlled by said nose and means for actuating said hammer.

8. In a pneumatic tool a cylinder having a main inlet-port for the motive fluid, an enlarged supply-chamber communicating therewith, and located within the interior periphery of said cylinder, a piston-hammer movable in said cylinder and provided with a reduced nose, a chisel-bushing in said cylinder, which said nose is adapted to enter and an exhaust-port in said bushing controlled by said nose.

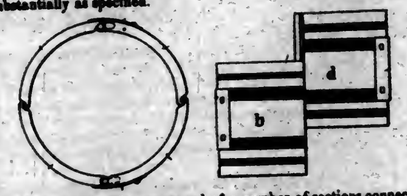
9. In a pneumatic tool, the combination of a cylinder having a chisel-bushing with an exhaust-port therein, a piston-hammer having a nose of reduced diameter controlling said port, and means for reciprocating said hammer.

10. In a pneumatic tool, the combination of a cylinder, a chisel-bushing, inserted therein, a plurality of exhaust-ports extending through said bushing and communicating with an annular passage, the latter leading to the atmosphere, a solid hammer in said cylinder provided with a nose of reduced diameter adapted to control said ports, and means for imparting to said hammer a comparatively slow backward movement and a very fast forward movement.

11. In a pneumatic tool, a cylinder, a piston-hammer adapted to reciprocate therein, said hammer being provided with a projecting striking-face, an exhaust-port in said cylinder controlled by said striking-face and other ports controlled by said hammer for actuating the latter.

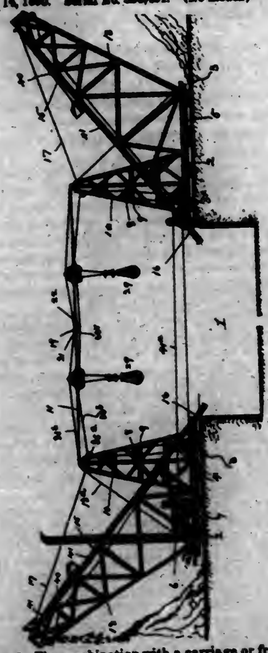
605,487. COMBINED NAPKIN RING AND HOLDER. OTTMAR KNORR, Ohligs, Germany. Filed Feb. 5, 1898. Serial No. 669,230. (No model.)

Claim.—1. A napkin-ring composed of a number of jointed sections, rearwardly-extending noses on some of the sections, and springs adapted to engage said noses and secured to the adjoining sections, substantially as specified.



2. A napking-ring composed of a number of sections connected by hinges and by hook-shaped slip-joints, noses on some of the sections, and springs on the adjoining sections that are adapted to engage said noses, substantially as specified.

605,488. CABLEWAY SYSTEM AND APPARATUS FOR EXCAVATING AND CONVEYING. JAMES H. LAMBERTON, New York, N. Y. Filed Feb. 14, 1896. Serial No. 579,461. (No model.)



Claim.—1. The combination with a carriage or frame on a cableway, of an attached cable 35^b, operated by a driving wheel or drum to cause the carriage to travel back and forth, together with a second cable suspending a grapple or equivalent and guided through the carriage, said second cable being positively held at one end of the cableway-span, extending to the other end thereof and connected with operating means, substantially as set forth.

2. The carriage or frame on a cableway and adapted to travel back and forth thereon under the action of the driven cable 35^b, in combination with a pair of cables in operative relation with a grapple or equivalent for respectively closing and elevating the same, said pair of cables being positively held at one end of the span, and winding mechanism for either independently or conjointly operating the cables of said pair, substantially as set forth.

3. The combination with a suspended cableway, of a carriage or frame adapted to travel thereon, means for positively moving said carriage or frame back and forth, a grapple having sheaves connected with its head and blade-sections, and closing and elevating chains or cables passing around the respective sheaves and guided through the carriage, and positively held at one end, substantially as set forth.

4. A carriage or carrier comprising side frames, upper rollers and lower pairs of pulleys, a cableway upon which the upper rollers bear and travel, in combination with a double-chain digging or excavating device having the sheaves as described, and the closing and

raising cables of which, are guided through the longitudinal pairs of lower pulleys and positively secured at one end, together with means for operating said closing and raising cables, and the carriage-operating cable, substantially as set forth.

5. The combination with a cableway, of a carrier or frame adapted to travel thereon, a cable for moving the same and connected at one end thereto, passing around a fixed bearing-pulley, thence through a top guide of said carriage, next around a suitable operating-drum and finally again connected to the carriage; together with a second cable positively held beyond the carriage at one side thereof, passing through guides in said carriage and suspending and operating a grapple, substantially as set forth.

6. In operating apparatus for grapples, grabs, dredges and the like, the combination with an elevated cableway, of a carrier having rollers and pulleys as described, the former bearing on the cableway, a grapple or dredge having closing and raising sheaves and chains, closing and raising cables and a cable 35^b, for positively moving the carrier back and forth on the cableway, substantially as set forth.

7. In a system for operating a grapple upon a suspended cableway, the combination with the carrier having the pulleys, of the closing and elevating cables positively held at one end and guided through said pulleys and engaging the closing and elevating sheaves, the frames of which are connected by chains to the grapple, substantially as set forth.

8. In an excavating, hoisting and conveying apparatus, the combination of two movable-truck structures 4 and 5, cableway 11, load-carriage thereon, and a grapple, together with means controlled from one of the truck structures for shifting the load-carriage to, and closing or opening and cables or chains positively held at one end for elevating or lowering the grapple, at any point of the cableway, substantially as set forth.

9. In an excavating, hoisting and conveying apparatus, the combination of two movable truck structures 4, and 5, cableway 11, load-carriage thereon and its propelling-cable 35^b, means for actuating said cable, together with a grapple having closing and opening and elevating and lowering chains or cables positively held at one end to permit the charging and discharging and vertical movements of the grapple at any point along the cableway, said operating-cables being guided through the load-carriage to actuating mechanism on one of the truck structures, substantially as forth.

10. In an excavating, hoisting and conveying apparatus, the combination of two movable structures 4 and 5, cableway 11, load-carriage thereon and having upper rollers and lower pairs of pulleys, propelling-cable 35^b, means for actuating the same, together with a grapple or dredge having closing and raising sheaves and chains, and closing and opening and elevating and lowering chains or cables positively held at one end and passing around the respective sheaves, guided by the lower pairs of the carriage-pulleys, and led to one of the truck structures whereby the several movements of the grapples may be controlled from said structure to work the grapple at any point along the cableway, substantially as set forth.

11. In a system for operating a grapple upon a suspended cableway, the combination with the carrier having the supporting-rollers and lower pairs of guide-pulleys, of the cable for positively moving the carrier back and forth on the cableway, together with a grapple and cables for respectively closing and elevating the same, each of said cables passing over a front and rear guide-pulley and led oppositely along the cableway-span, substantially as set forth.

12. The combination with the carriage or frame on a cableway, of an attached cable 35^b, passing around a pulley secured to the cableway, and operated by a driving wheel or drum to cause the carriage to travel back and forth, together with a second cable suspending a grapple or equivalent and guided through the carriage, said second cable being positively held beyond and at one side of the carriage and extending to the other side thereof and connected with operating means, substantially as set forth.

13. In a system for operating grapples, upon a suspended cableway-span, the combination with a pair of carriers mounted on the same, a pair of pulleys secured intermediately thereof, a grapple suspended from each carrier by operating chains or cables positively held contiguous to said intermediate pulleys and guided in each carrier, and distinct carrier-moving cables connected to their respective carriers and passing around said pulleys, substantially as set forth.

14. In a system for operating grapples upon a suspended cableway-span, the combination with a pair of grapple-carriers and grapples, and their suspending and operating chains or cables positively held at one end and guided through their carriers, of carrier-operating cables and actuating mechanism adapted to move one carrier into, as the other is passed out of position, substantially as set forth.

15. In a suspended cableway system for operating grapples, the combination with a pair of truck structures between which the cableway is extended; of primary grapple-operating mechanism located on a truck structure and geared by a belt or cable transmission to similar mechanism on the second truck structure, together with a plurality of carriers on said cableway and from which the grapples are suspended, substantially as set forth.

16. The combination with a carrier on the suspended cableway, of a grapple, and a truck structure having a conveying way or chute for the material discharged from the grapple, and provided with carrier and grapple operating mechanism controlling cables adapted to raise and hold the grapple in relation to the carrier irrespective of the movement or position of the latter, and operate the grapple at any point of the cableway-span, substantially as set forth.

605,489. GRAPPLE, BUCKET, &c. JAMES H. LANCASTER, New York, N. Y. Filed Feb. 9, 1897. Serial No. 622,697. (No model.)



Claim.—1. In a bucket, grapple or similar construction, the combination with a head, of bucket-sections pivotally suspended therefrom by depending bars 10, movably connected to the outer upper edges of said bucket-sections, operating-levers secured to the bucket-shaft and connected by links to a sheave to be positively controlled by the rising or descending movement of the same, together with a chain connected with said head, passing around the sheave and led through an independent opening in the head, substantially as set forth.

2. In a bucket, grapple or similar construction the combination with a head having an opening 3, and parallel extensions terminating in ears, the extensions having square openings 6, a suspending-yoke rigidly engaged by a shaft 8 seated in said openings and an opening and closing chain connected to a pin bearing in said ears, passing around a sheave controlling the bucket-sections, and thence guided through the opening 3, substantially as set forth.

3. In a bucket, grapple or similar construction, the combination with a head, of bucket-sections, pivotally suspended therefrom by depending bars 10, movably connected to the outer upper edges of the bucket-sections, operating-levers positively secured to the bucket-shaft and attached to links, the upper ends of which are secured in the same horizontal plane as the journals of an operating-sheave to positively control the opening and closing of the bucket-sections, together with a chain connected to said head, passed around the sheave and led through the head, substantially as set forth.

4. In a grapple, bucket or similar construction, the combination with a head, of bucket-sections pivotally suspended therefrom by depending bars 10 movably connected to the outer edges of said bucket-sections, operating-levers secured to the bucket-shaft and connected by links to a sheave-containing case or housing for positively opening and closing the bucket-sections, together with a chain connected with said head, passed around the sheave and led through the head substantially as set forth.

5. In a grapple, bucket or similar construction, the combination with bucket-sections pivotally suspended from a head and having operating-levers connected by links to a sheave-carrying housing, provided with a lower projection or offset; of a chain connected to said head and passed around the sheave in the housing and led through the head, substantially as set forth.

6. In a grapple, bucket or similar construction, the combination with a head in a single piece and having square openings in which bear the square portions of a shaft 8, from which the bucket-sections are suspended, of a lifting-yoke having square perforations engaged by the square portions of the shaft, together with levers 15, and connections operated by a closing and opening chain, substantially as set forth.

7. In a grapple, bucket or similar construction, the combination with a head in a single piece and having shaft 8, bad bolt 24 the former square bearing in openings 6, said head having an opening 3, bucket-sections pivotally suspended from the shaft 8, and having operating-levers connected by links to a housing carrying a sheave, a lifting yoke secured by shaft 8, and a closing and opening chain attached to the bolt 24, passed around the sheave and led upward through the opening 3, substantially as set forth.

8. In a grapple, bucket or similar construction, the combination with sections pivotally suspended from the head and having the operating-levers actuated by the raising and lowering chain, of a series of castings carrying the blade or digging sections and recessed as described, together with independent shoe or point sections, flush with the digging-sections and having a shoulder bearing against the castings, and a fish or tie plate 31, the whole being arranged and bolted, substantially as set forth.

605,490. NECK-YOKE. GEORGE A. LAWSON, Toronto, Canada, assignor of one-half to William Douglas, same place. Filed Sept. 7, 1897. Serial No. 650,941. (No model.)



Claim.—The combination with a neck-yoke, and a pole, of a ring arranged on the pole and provided with an upwardly-extending rearwardly-inclined stem formed integral with the ring, a solid ball arranged at the upper end of and formed integral with the stem and being of much greater diameter than the same, and a socket receiving the ball and provided at its back with a narrow slot receiving the stem and extending downward from the top of the socket to the center of the bottom portion thereof, said socket being provided at its top with a flange D' secured to the lower face of the neck-yoke, substantially as described.

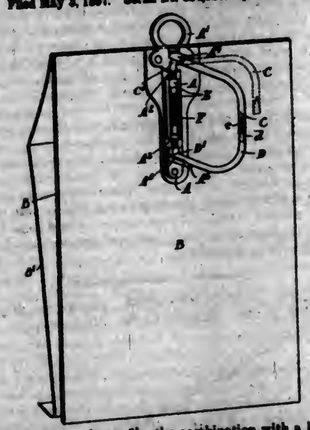
605,491. QUININ DERIVATIVE AND PROCESS OF MAKING SAME. EMIL LANDSBERG, Stegitz, Germany. Filed Oct. 18, 1895. Serial No. 566,252. (Specimens.)

Claim.—1. The method of manufacturing derivates of quinin which consists in making a quinin solution and treating said solution with ozonized gas until precipitation will not be caused by an alkali.

2. The method of manufacturing derivates of quinin which consists in making a solution of quinin hydrochlorid in a mixture of water and alcohol and treating it with ozonized gas until precipitation will not be caused by an alkali.

3. The new derivate of quinin being an amorphous powder of yellowish color, very soluble in water, alcohol, ether, and benzene, having an acid reaction, and with the chemical formula $C_{19}H_{20}N_2O_3$.

605,492. LETTER-FILE. HERBERT P. LAVENDER, Walsall, England. Filed May 3, 1897. Serial No. 634,559. (No model.)



Claim.—1. In a letter-file, the combination with a base or support, and filing-arms pivotally connected with the support, of a spring carried by the support and compressed between the inner ends of the arms and tending to press said arms apart, and stops for limiting the movement of the arms away from each other.

2. In a letter-file, the combination with a base or support, of filing-arms having angularly-bent inner ends, a tube carried by the support into which tube the said bent ends of the arms project, a spring within the tube and bearing upon the bent ends of the arms and a stop on the support both above and below the tube against which the arms are pressed by the spring.

3. In a letter-file, the combination with a base or support, of a pair of grooved abutments A^a A^a, a tube E, filing-arms C, D, pivoted in the tube and movable in the direction of its axis, and means to keep the arms and abutments in engagement.

4. In a letter-file, the combination with a base or support, and a stop, of independent filing-arms arranged one above the other in substantially the same vertical plane and normally extending at substantially right angles to the support, one of said arms having a pivotal connection with the support and adapted to be moved first in a direction toward the other arm to free it from the stop and then to be swung upon its pivot laterally toward the face of the support, and a spring arranged to act upon the pivoted arm so as to tend to force the latter away from the other arm and to hold the pivoted arm in engagement with the stop when said pivoted arm is in its normal position over the other arm, substantially as described.

5. In a letter-file, the combination with a base or support, and stops, of filing-arms each pivotally connected with the support and adapted to be normally held by the stops in a position at right angles to the support, said arms being arranged one above the other in substantially the same vertical plane, and each arm being adapted to be moved toward the other arm to free it from its respective stop and to be swung upon its pivot laterally toward the face of the support, and a spring arranged to act upon both arms to tend to force the same in opposite directions and to cause them to engage their stops when in normal position one above the other, as described.

605,498. PERMUTATION-PADLOCK. MONROE LE VEE, New York, N. Y. Filed Aug. 3, 1897. Serial No. 646,983. (No model.)



Claim.—1. A permutation-padlock comprising a suitable casing, tumblers movably mounted within the casing, an adjustable back plate supported in the casing and formed with a gate or notch with which the tumblers register, and a bolt adapted to be engaged by the tumblers, as set forth.

2. A permutation-padlock comprising a suitable casing, suitably-controlled rotary tumblers supported in the casing and formed with gates or notches, a removable adjustable back plate formed with a gate or notch adapted to register with the gates of the tumblers, a bolt adapted to enter the gates of the back plate and tumblers, and a connection connecting the bolt with a part of the lock, as set forth.

3. In a permutation-padlock, the combination with a casing, suitable tumblers mounted therein and held against removal, a removable adjustable back plate having a notch or gate, and a bolt adapted to enter said notch or gate and engage said tumblers and having a flange adapted to engage the back plate, the tumblers holding the bolt and the bolt holding the back plate in the casing, substantially as set forth.

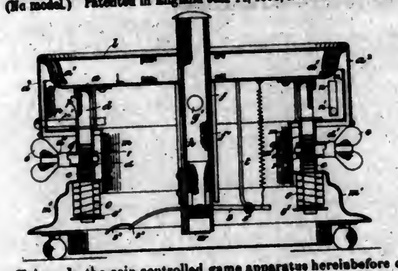
4. A permutation-padlock comprising a suitable casing, suitable controlling-tumblers rotatably mounted within the casing and formed with suitable gates or notches, a removable adjustable back plate formed with a gate or notch, a bolt formed with a flanged head adapted to engage the back plate, a head upon the removable back plate, and a suitable connection connecting the bolt with the head on the back plate, substantially as set forth.

5. In a permutation-padlock, the combination of a suitable casing having a circular opening at back, a circular back plate adapted to engage therewith held from rotation only by close contact with its sides and capable of being set in an unlimited number of positions therein, tumblers held within the casing, the tumblers and back plate having corresponding gates or notches and a suitable bolt adapted to engage said gates or notches, substantially as set forth.

6. In a permutation-padlock, the combination of a casing having a dial-face, a plurality of arbors having individual hands adapted to move over said dial, rotatable tumblers fixed to the separate arbors, a circular back plate engaging the rear of the casing and capable of removal from and return to any position therein and held from turning only by close contact with its walls, the back plate and the tumblers having suitable corresponding gates or notches, and a bolt having a retaining chain or member and adapted to enter said gates or notches, substantially as set forth.

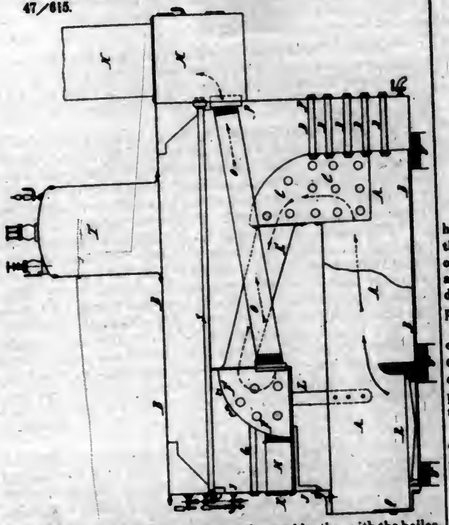
7. In a permutation-padlock, the combination of a suitable casing, tumblers therein, a back plate removable to enable the changing of the combination and having a flanged head adapted to engage the edge of the casing and prevent the back plate from bearing upon the tumblers, substantially as set forth.

605,494. COIN-CONTROLLED GAME APPARATUS. CHARLES M. LESLEY, London, England. Filed Mar. 18, 1897. Serial No. 627,695. (No model.) Patented in England Jan. 11, 1896, No. 730.



Claim.—In the coin-controlled game apparatus hereinbefore described, the table *a* having the holes *b*; the balls *b'*; the vertical racks *c*; the pinions *d* and levers or finger-grips *e*; the vertical tube *f*; the tubes *g* leading to the vertical tubes *f* and *h*; the central or inner raising and lowering tube *h* having the platform *x'* on which rests the coin *x*; the plunger *i* having the projection *z*; the coin-chute *k* attached at one end to a^2, and extending toward but not touching the platform *x'*; the glass cover *l*; the casing *m* provided with slots or apertures *n*; the stand *m'*; the guide-pins *n'*; the springs *o*; the brackets *p p'*; the tubes *q* and *r*; the tip s^2 and heel s^3 of the pivoted arm *s*; the bracket *t* and spring *u*; the box *v* and the stop *w*.

605,495. STEAM-GENERATOR. JEAN B. LOQUET and JEAN B. KESTELAIR, Antwerp, Belgium. Filed June 8, 1897. Serial No. 639,859. (No model.) Patented in Belgium May 28, 1896, No. 121,612; in England May 29, 1896, No. 11,733; in France June 16, 1896, No. 257,323; in Hungary Sept. 23, 1896, No. 7,504, and in Austria Feb. 27, 1897, No. 47/615.

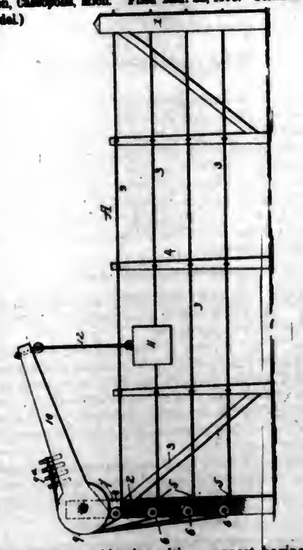


Claim.—1. In a steam-generator, the combination with the boiler-shell B bent inwardly at its lowest part to form the furnace-chamber A, of a combustion-chamber arranged toward the back of the boiler and at a distance from the walls thereof adapted to be surrounded by water, a combustion-chamber arranged toward the front of the boiler above the chamber A and in position to be surrounded by water, a tube connecting the said combustion-chambers, and a tube to conduct products of combustion from the front combustion-chamber.

2. In a steam-generator, the combination with the boiler-shell B bent inwardly at its lowest part to form the furnace-chamber A, of a combustion-chamber arranged toward the back of the boiler at a distance from the walls thereof adapted to be surrounded by water, a combustion-chamber arranged toward the front of the boiler above the chamber A in position to be surrounded by water, a tube connecting the two combustion-chambers, a smoke-box, and tubes leading from the front combustion-chamber to the smoke-box, the end of the tube leading into the front combustion-chamber from the rear combustion-chamber being at a higher level than the ends of the tubes leading to the smoke-box.

3. In a steam-generator, the combination with the furnace-chamber A, of a combustion-chamber C arranged toward the rear of the boiler in position to be surrounded by water, a combustion-chamber F arranged toward the front of the boiler above the chamber A, and adapted to be surrounded by water, a tube E connecting the chambers C and F and entering the latter chamber toward its upper end, and tubes O leading from the chamber F, at a point below the end of the tube E and crossing the latter as described.

605,496. WIRE-STRETCHER. BENJAMIN F. MANNING and JOHN MANNING, Elkhart, Ind.; said John Manning assignor to said Ebenezer F. Manning; said Ebenezer F. Manning assignor of one-half to R. C. Atkinson, Cassopolis, Mich. Filed Mar. 22, 1898. Serial No. 674,810. (No model.)

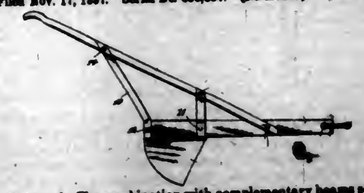


Claim.—1. The combination with a support having a series of holes and a pulley mounted in each hole, of a series of wires passing through said holes and over said pulleys, a drum mounted in the end of said support and having all of said wires connected therewith and adapted to wind thereon, and a weighted lever projecting from said drum whereby to maintain said wires taut during all changes of temperature to which they may be exposed, substantially as set forth.

2. In a fence, the combination with two end posts and wires secured to one of said posts and passing loosely through the other, a drum mounted in the top of said last-mentioned post and having all of said wires secured thereto and adapted to wind thereon, a lever projecting from said drum and over the fencing, and a weight attached to the free end of said lever, substantially as set forth.

3. In a wire-stretcher, the combination with a post, of a drum supported thereby, a series of keys carried by said drum for the reception of the fence-wires, and a weighted arm projecting from said drum, substantially as set forth.

605,497. ROOT OR SOD CUTTER. PINK MELTON, Winkler, Tex. Filed Nov. 17, 1897. Serial No. 658,837. (No model.)



Claim.—1. The combination with complementary beams secured side by side and having portions of their opposing sides cut away at their front ends, forming a space, of a clevis comprising a fibat bar having a series of openings, a middle bar having its rear end entering the said space, and side bars embracing the sides of the beams, and a bolt passing through transversely-alining openings in the side bars of the clevis and front ends of the beams and connecting all together, substantially as set forth.

2. The herein-described sod-cutter, comprising complementary beams having portions removed from their opposing faces at their front and rear ends, forming spaces, a cutter having its upper end inserted in the rear space, handles, front and rear braces secured at their upper ends to the handles, bolts securing the lower ends of the handles and braces to the beams and holding the latter together, the bolts passing through the lower ends of the braces serving as securing means for the cutter, a clevis comprising a middle bar having its rear end fitted into the front space formed between the beams, and side bars embracing the sides of the beams, and a bolt passing through transversely-alining openings in the beams and side bars of the clevis, substantially as described.

605,498. INCANDESCENT ELECTRIC LAMP. OTTO H. MICHAELSON, Charleston, W. Va. Filed July 17, 1897. Serial No. 644,953. (No model.)



Claim.—In an incandescent lamp, a base of insulating material having an annular groove in its outer end, a metal shell in which the base is secured, conductor-wires extended through the base-piece, a ring of insulating material in the shell, a metal ring on said insulating-ring and with which one of the wires connects, a metal ring in the insulating-ring and with which the other wire connects, a globe having a channel around the wall of its open end, and a packing-ring engaging said channel and in the groove of the base, substantially as specified.

605,499. AXLE-BEARING AND HUB. JACOB R. MIKESELL, Charlotte, Mich. Filed Jan. 21, 1898. Serial No. 667,462. (No model.)



Claim.—1. In a device of the class described, the combination of a reversible journal-box having a smooth bearing-opening and provided with an opening adapted to receive an end of an axle, said axle-opening being adapted to be arranged above or below the bearing-opening, a spindle arranged in the bearing-opening of the journal-box, and a hub secured to and rotating with the spindle, substantially as described.

2. In a device of the class described, the combination of a reversible journal-box provided with a smooth bearing-opening and having a threaded axle-opening and adapted to be reversed to bring either opening at the top, an axle having a threaded end fitting in the threaded opening of the journal-box, a spindle arranged in the bearing-opening, and a hub fixed to the spindle, substantially as described.

3. In a device of the class described, the combination of a journal-box having a bearing-opening and designed to be secured to an axle, a spindle arranged in the bearing-opening and provided at its inner end with an annular flange engaging the inner end of the journal-box, a cap or nut arranged on the inner end of the journal-box, a hub mounted on the spindle and arranged at the outer end of the journal-box, and a nut mounted on the outer end of the spindle and engaging the hub, substantially as described.

4. In a device of the class described, the combination of a journal-box having a bearing-opening, a spindle fitting in the bearing-opening and provided with a polygonal outer portion, a hub mounted on the polygonal portion of the spindle and provided with inner and outer tubular extensions, the inner tubular extension receiving the adjacent end of the journal-box, and a nut mounted on the outer end of the spindle and fitting within the outer tubular extension, substantially as described.

5. In a device of the class described, the combination of a journal-box, having a bearing-opening, a spindle fitting in the bearing-opening and provided with a polygonal outer portion, a cap or washer mounted on the inner end of the polygonal portion of the spindle and fitting over the adjacent end of the journal-box, and a hub arranged on the polygonal portion of the spindle and provided at its inner end with a tubular extension fitting over the cap or washer and the adjacent end of the journal-box, substantially as described.

6. In a device of the class described, the combination of a journal box, a spindle arranged in a bearing-opening of the same and provided with a polygonal outer portion and having its outer end threaded, a hub fitting on the polygonal portion of the spindle and provided with an outer tubular extension, and a nut arranged on the threaded portion of the spindle, fitting within the tubular extension of the hub and provided at its inner end with an annular flange, said nut being provided at its outer end with an annular flange L-shaped in cross-section and forming a cap for the outer end of the hub, substantially as described.

7. In a device of the class described, the combination with a spindle having a polygonal portion, of a hub having a polygonal opening to fit the spindle and comprising inner and outer sections provided at their inner faces with recesses, the recess of one section being larger than that of the other, and a central section provided with spoke-sockets and having one end fitting in the smaller recess, and provided at its other end with a flange fitting in the other recess, substantially as described.

8. In a device of the class described, a hub comprising inner and outer sections provided at their inner faces with recesses one of the recesses being smaller than the other, and a central section provided with spoke-sockets and having one end fitting in the smaller recess and provided at its other end with a flange arranged in the larger recess, substantially as described.

605,500. FILTER. DAVID B. MORRISON, Kansas City, Mo. Filed Sept. 21, 1897. Serial No. 652,468. (No model.)



Claim.—1. The combination with a cooler of a filter-frame supported on the bottom of the cooler, the top portion of the frame forming a water-tight joint with the side of the cooler, a filtering-wall supported by the filter-frame and the removable pan supported by the filter-frame and located adjacent the lower portion of the filter-wall.

2. The combination with a cooler of a filter-frame resting on the bottom of the cooler having its upper portion forming a water-tight joint with the sides of the cooler, a filtering-wall supported by the filter-frame, a convexed bottom for the filter-frame, a removable pan resting on the bottom and a drain-pipe leading through the various walls to the outside of the cooler.

3. The combination with a cooler of a filter-frame resting on the bottom of the cooler having its upper edge forming a water-tight joint with the sides of the cooler, a filtering-wall supported by the filtering-frame, a removable pan resting on the bottom of the filter-frame and a brush on the outside of the pan bearing against the filter-wall and adapted to clean the same when the pan is removed.

4. The combination with a cooler of a filter-frame resting on the bottom of the cooler having its upper edge forming a water-tight joint with the sides of the cooler, a suitable wall supported by the filter-frame, an air-pipe passing at its lower end through the filter-frame, and opening into the compartments above and below the filter-frame.

605,501. CUTTER FOR TRIMMING OR CUTTING BOILER-TUBES. JOSEPH G. MORRISS, Akron, Ohio. Filed May 26, 1897. Serial No. 638,507. (No model.)



Claim.—1. A wedge formed by inclined planes 14, the bottoms of inclined slots and portions between the slots fitted to slide within bearing in casing, the sides of the slots made to coincide with the

sides of the openings in the casing, substantially as set forth and for the purpose specified.

2. In an inside tube-cutting device the combination of an outside casing with openings for cutters; a sleeve fitted to revolve freely in the breech of the outer casing, this sleeve having an inside screw-thread through which passes the feed-screw and this feed-screw secured immovably to the core which carries the cutters, becoming the spindle by which these cutters are revolved, with the core having grooves with inclined bottoms formed in its mass and in the direction of its length that they may act as feed-wedges on the flanged cutter blocks which are fitted into and engage them and also hold the cutter-blocks so firmly that the core may carry them in their working as well as their feeding motion; together with a gage as described.

605,502. SAFETY-GATE. PETER MOTLEY, Philadelphia, Pa. Filed Oct. 8, 1897. Serial No. 654,581. (No model.)

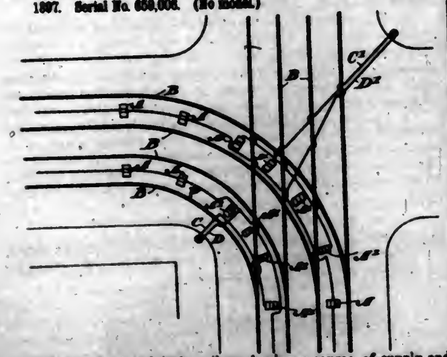


Claim.—1. In combination with the body of a gate of the character described, a sliding member consisting of the sliding bars fitting within the body of the gate, an upright connecting said bars, and bolts arranged on the body of the gate to engage said bars and hold the sliding member in adjustment, substantially as set forth.

2. In combination with the body of the gate of the character described, a sliding member consisting of the upright, bars projecting therefrom and telescopically arranged in the body of the gate, stops carried by the bars adapted to abut an upright of the body to limit the movement of the sliding member, bolts arranged on said body, a turnbuckle threaded on the inner ends of the bolts forcing the outer ends into engagement with the sliding bars, and a spring between the body of the gate and the upright of the sliding member, as and for the purpose set forth.

3. In combination with the body of a gate of the character described, a sliding member consisting of the bars E and an upright B^3, a spring arranged to force said member outward, sliding bars M attached to the body having pointed ends, and a turnbuckle for forcing said ends into the bars E, substantially as and for the purpose set forth.

605,503. ELECTRIC RAILWAY. ARTHUR J. MCKEAN, Lorain, Ohio, assignor to the Johnson Company, same place. Filed Nov. 15, 1897. Serial No. 658,008. (No model.)



Claim.—1. An electric railway having a source of supply and connections from the terminals thereof to conductors extending along the line of way, a series of contacts adapted to be placed in circuit with one of said conductors by the passing vehicle, in combination with a second series of contacts located adjacently to portions of the other of said conductors and having their circuit connections arranged so as to be unaffected by the passing vehicle.

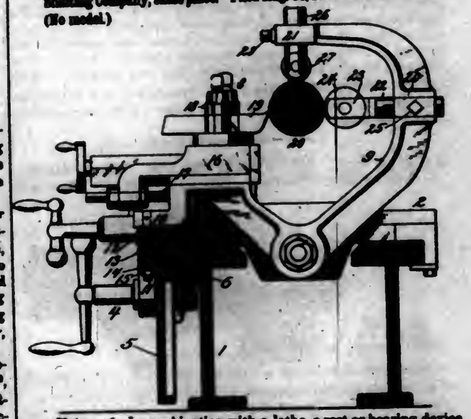
2. An electric railway having a bared sectional conductor in series with one side of the circuit through a current-conveyer which is closed by the passing vehicle, and track-rails connected to the opposite side of the circuit, contacts placed adjacently to crossing track-rails and in circuit with the source of supply through a hand-operating device.

3. In an electric railway, the combination of the crossing track-rails, the contacts adjacent thereto, and the hand-operating switch in series with said contacts.

4. In an electric railway, the combination of disconnected contacts connected to the high-potential side of the circuit, main track-rails connected to the low-potential side of the same, track-rails crossing the main track-rails, and a hand-operating device interposed between the high-potential side of the circuit and such of the disconnected contacts as are adjacent to the crossing-rails.

5. In an electric railway, in combination, disconnected contacts connected to one side of the main circuit through suitable current-conveyers, main track-rails and crossing track-rails in connection with the opposite side of the main circuit and a hand-operating switch, normally held open by a suitable spring device, in circuit with such of the contacts as are adjacent to the said crossing track-rails.

605,504. TOOL HOLDER OR CARRIER. WALTER J. MUSGASTER, Cumberland, Md., assignor of one-half to the Cumberland Iron and Steel Shafting Company, same place. Filed Aug. 31, 1897. Serial No. 650,199. (No model.)



Claim.—1. In combination with a lathe, a rest or bearing device at one side of the spindle-axis; a tool at the opposite side thereof; a connection between the rest and the tool whereby they are caused to move in unison; and a spring arranged to hold the rest normally in contact with the work in the lathe.

2. In combination with the tool-slide of a lathe, a tool-holder or carrier pivotally supported upon said slide, having a tool-support at one side of the axis of the lathe-spindles, and a roller at the opposite side of said axis adapted to bear upon the work carried by the lathe, the tool-support and the roller being held in fixed relation to each other while the device is in operation.

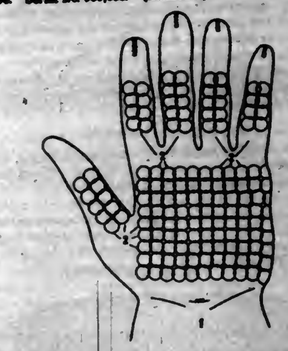
3. In combination with the tool-slide of a lathe, a tool holder or carrier pivotally supported upon said slide, having a tool-support at one side of the axis of the lathe-spindles, and rollers respectively at the opposite side of and above said axis adapted to bear upon the work carried by the lathe, the tool-holder and the rollers being clamped and held in fixed relation to each other preparatory to operation of the device.

4. In combination with the bed of a lathe, a tool-slide 2; means for moving said slide lengthwise of the lathe-bed; a frame or lever 9 pivotally supported upon said slide; a tool-support carried by said frame or lever; and bearing-rollers 24 and 27 also carried by said lever and serving to hold the tool against the work between it and the rollers.

5. In combination with lathe-bed 1, tool-slide 2; means for moving said slide along the bed; frame or lever 9 pivotally supported upon said bed; a spring serving to rock the frame or lever forward upon its pivot; a tool-holder carried by said frame; and cylindrical stems 22 and 26 adjustably mounted in the frame or lever and provided at their inner ends with rollers 24 and 27, substantially as described and shown.

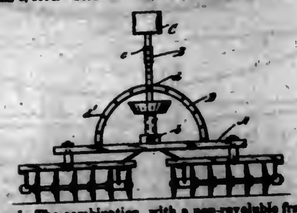
6. The herein-described tool holder or carrier consisting of a tool-slide 2; a lever or frame 9 pivotally supported thereon and provided with tail or extension 10; a rod or stem 11 extending from said tail through a flange or projection on the tool-slide and encircled by a spring 13; a nut or enlargement upon said stem beneath the spring; a tool-slide adjustable upon the lever; a cylindrical stem movable horizontally through the lever and carrying a bearing-roller 24 at the rear of the work; a cylindrical stem at the upper end of the roller carrying a bearing-roller 27 above the work; and binding-screws for securing said stems at the desired adjustments, substantially as set forth.

605,505. GLOVE. MAY MURRAY, Detroit, Mich. Filed Oct. 21, 1896. Serial No. 609,603. (No model.)



Claim.—As a new article of manufacture, a glove provided with guards upon its palm, inner thumb and finger portions, each guard consisting of rings interwoven with each other and means for securing said rings to said portions of the glove, substantially as described.

605,506. HARROW. MARK R. MCCLELLAND, Zanesville, Ohio. Filed Jan. 6, 1896. Serial No. 625,720. (No model.)



Claim.—1. The combination, with a non-revolvable frame which carries devices for operating on the ground, such as harrow disks or teeth; of a weighted lever pivoted to the middle part of the said frame, and means for supporting the said lever in a vertical position and at an angle, so as to equalize the down pressure at each side of the said frame, substantially as set forth.

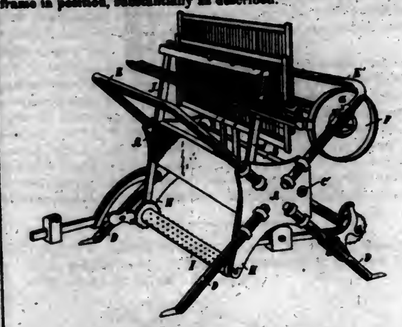
2. The combination, with a non-revolvable frame which carries devices for operating on the ground, such as harrow disks or teeth; of a curved support secured to the said frame, a weighted lever formed in two parts which straddle the said support and which are pivoted to the middle part of the said frame, and means for connecting the said lever to the said support when said lever is in a vertical position and at an angle, so as to equalize the down pressure at each side of the said frame, substantially as set forth.

605,507. CARPET-LOOM FRAME. CHARLES H. HEWEBER, Davenport, Iowa. Filed Oct. 2, 1897. Serial No. 653,898. (No model.)

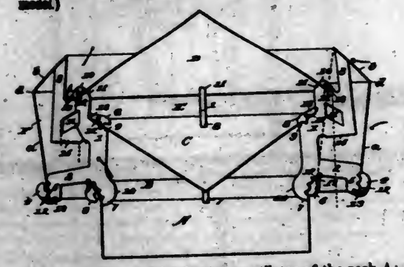
Claim.—1. In a loom, end plates provided with sockets, legs to fit in the sockets, said end plates being provided with downward extensions; combined with the standards, a shuttle-frame, and a tension-roller, the tension-roller being journaled in the extension upon the end plates, and made removable with the standards, substantially as described.

2. In a carpet-loom frame the castings or end plates provided with suitable sockets, combined with the back beam, and the adjustable angle-irons which are inserted into the ends of the beam and the sockets and the warp-roller supports secured to the beam, substantially as set forth.

3. In a carpet-loom frame, the end plates provided with suitable sockets to receive the legs, combined with the removable legs, the shuttle-carrying frame, and the tension-roller journaled in the shuttle-carrying frame; the end plates or castings being provided with slots or sockets which support the roller and the shuttle-carrying frame in position, substantially as described.



605,508. VENTILATOR AND VENTILATOR-BRACE. RICHARD M. PANCOAST, Camden, N. J., assignor to the Pancoast Ventilator Company, of New Jersey. Filed Aug. 31, 1896. Serial No. 604,371. (No model.)



Claim.—1. The combination in a ventilator of the neck A; the cone C; the cone D made separate from cone C and with an open space E between; the deflector F; and means for securing the several enumerated parts in their proper relative positions, substantially as described.

2. An edgewise brace for holding in their proper relative positions the constituent elements of a ventilator, cowl, or cap, said brace being made of malleable metal and provided with jaws adapted to be closed down upon and to firmly grip the edges of the said elements, substantially as described.

3. An edgewise brace for ventilators having jaws adapted to be closed down upon the edges of constituent parts of a ventilator, said jaws being serrated, substantially as described.

4. An edgewise brace for ventilators having jaws adapted to be closed down upon the edges of constituent parts of a ventilator, said jaws being reinforced adjacent the bending points of the jaws, substantially as described.

5. An edgewise brace for uniting the constituent parts of a ventilator, said brace being provided with arms, as 2 and 3, and pairs of jaws adapted to be closed upon and to finally grip the edges of the said parts of a ventilator, substantially as described.

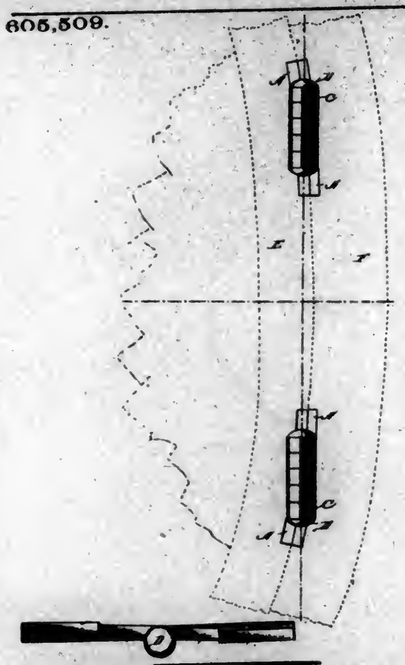
6. An edgewise brace for securing together in their proper relative positions constituent parts of a ventilator, said brace being provided with pairs of jaws, one jaw of each pair made rigid and the other adapted to be bent down, substantially as described.

7. The combination in a ventilator of a neck, two cones, a deflector, and edgewise braces provided with jaws which grip the edges of the neck, cones and deflector and securely hold them in their proper relative positions, substantially as described.

605,509. HINGE. RICHARD G. PARR, West Chester, Pa. Filed Oct. 12, 1897. Serial No. 654,942. (No model.)

Claim.—The herein-described hinge or hinges for oval, elliptical, semi-elliptical, circular or curved window frame and sash, or doors and blinds, having curved leaves provided with twisted arms or offsets, said arms or offsets having knuckles the pin-holes of which register in a right line which is tangential to the curve of said leaves.

605,509.

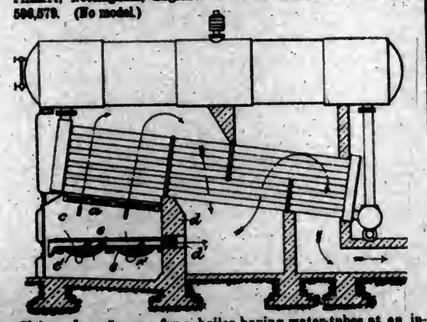


605,510. FASTENING DEVICE. SAMUEL PATCHETT, Easton, Md. Filed Dec. 10, 1896. Serial No. 615,122. (No model.)



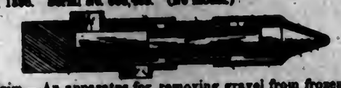
Claim.—The combination with two contiguous parts to be connected together, each provided with one or more projecting headed lugs or screws, of a fastening-plate having two or more contracted openings adapted to receive the said screws, the surfaces of the plate at the sides of the contracted portions of the openings being inclined in the direction of the length of the openings whereby when the plate is moved longitudinally, when the screws are in the openings thereof, the two parts will be secured together and simultaneously tightened against the inner face of the plate, substantially as described.

605,511. FURNACE FOR WATER-TUBE BOILERS. ANDREW PILLATT, Nottingham, England. Filed June 23, 1896. Serial No. 596,579. (No model.)



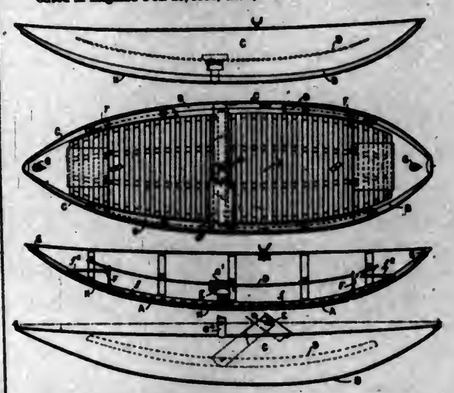
Claim.—In a furnace for a boiler having water-tubes at an inclination above the bridge-wall, a perforated arch of refractory material over the fire-chamber and below the water-tubes of the boiler, the back edge being closely adjacent to the bridge-wall, and hollow grate-bars having inlets for the air passing up from below the grate-bars and opening through the bridge-wall, so that the air is highly heated and combines with the products of combustion as they descend from the perforated arch, substantially as set forth.

605,512. APPARATUS FOR REMOVING GRAVEL FROM FROZEN GROUND. RALPH H. PINKHAM, Wakefield, Mass. Filed Jan. 29, 1898. Serial No. 668,468. (No model.)



Claim.—An apparatus for removing gravel from frozen ground comprising inner and outer pipes terminating in a tapering perforated shoe adapted to be driven into the ground, a hot-water supply communicating with the space between the pipes, said space having outlet-openings, a pump for raising the material through the interior pipe and an intermediate gravel-receptacle between the pump and the tube, substantially as described.

605,513. COLLAPSIBLE BOAT. MILLARD T. READE, Liverpool, England. Filed Dec. 15, 1896. Serial No. 615,790. (No model.) Patented in England Feb. 26, 1896, No. 4,250.



Claim.—1. In a folding boat, the combination of three or more superficially rigid, but longitudinally flexible pieces or sections forming the bottom and main sides, and an intermediate piece or stringer with edge or edges of different shape or curvature to adjacent edge or edges of side and bottom when laid flat, between each main side and the bottom, the said pieces being of such a form that when hinged together and opened out, they form a boat having lines curved lengthwise from end to end, but which when folded, will close up and lie flat in compact form, substantially as described.

2. The combination in a folding boat, of two superficially comparatively rigid, but longitudinally flexible pieces or sections with an intervening stringer between forming the bottom, and two superficially rigid, but longitudinally flexible sections forming the sides, with an intervening stringer between each of them and the bottom, said pieces or sections being of such a form that when hinged together at their adjacent edges, they shall form a boat which can be folded into compact form or opened out when required for use, substantially as described.

3. The combination with a folding boat, of a flexible but superficially comparatively rigid longitudinal stringer so disposed in a curve and hinged to the laterall-bent folding sides, that as the sides straighten in folding the boat, the stringer straightens in unison and folds up against the side, but when the boat is expanded it lies edgewise to the side, and distributes the thrust and tension of the stretcher and seats, substantially as described.

4. In a folding boat, having longitudinal stringers hinged to the main sides inside, the combination therewith of a stretcher in two parts with a central pivot and overlapping ends, the extremities being pin-jointed to the stringer on either side of boat, and adapted to keep the boat open in its extended position, or fold when the boat is collapsed, substantially as set forth.

5. In a folding boat, the combination with the main sides and bottom of bilge-stringers which are located between the sides and bottom of two layers with two layers of waterproof canvas riveted between, the edges of said canvas being bifurcated and riveted over the adjacent edges of the sides and bottom to form a hinge, or hinges, substantially as described.

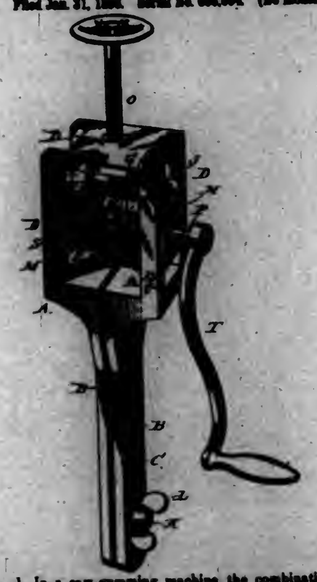
6. In a folding boat, the combination with the sides and bottoms of bilge-stringers which are located between the sides and bottom, of one or more layers in combination with strips of waterproof canvas, the opposite edges of which are secured to the layer or layers at their adjacent edges, forming the subsidiary hinge, and strips of balata belting or other suitable material riveted through the planking on the inner side at the joint to form the hinges proper, substantially as described.

605,514. COMBINATION-LOCK. JOHN REITZENSTEIN, Two Harbors, Minn. Filed Jan. 5, 1897. Serial No. 618,093. (No model.)



Claim.—In a combination-lock the combination of a hasp secured to the lid of a chest or trunk a lock placed on the body of a chest or trunk provided with a dial a turning knob, a hub having a projection 26 extending out and turned over at a right angle, three circular tumblers, two of them having circular holes in their centers one having a slot extending from the central circular hole placed on the hub, two of said tumblers being provided with circular slots adjacent to the center hole for receiving the right-angular projection of the hub, three washers having their ends turned out, placed between said tumblers all of said tumblers having a slot cut in their outer edge into which the hasp adapted to pass said hasp being provided with suitable notches for the tumblers, a suitable casing secured to the face-plate provided with lugs by which the cover is secured, substantially as described and shown.

605,515. SAW-GUMMING MACHINE. ADOLPHUS RIGGS, Kenosha, Wis. Filed Jan. 31, 1898. Serial No. 668,604. (No model.)



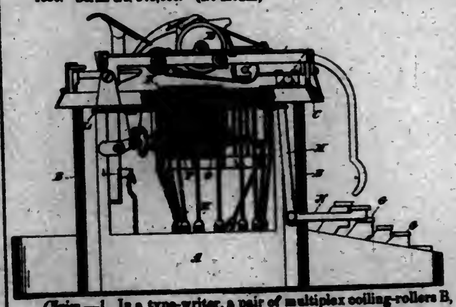
Claim.—1. In a saw-gumming machine, the combination of a frame comprising two main sections provided with depending legs having elongated slots formed therein; a bolt adjustably mounted in said slots; a cutter mounted in the upper portion of the frame; means for raising and lowering the cutter; means for imparting motion thereto; and a gage located to one side of the cutter designed to engage the teeth of the saw-blade.

2. In a saw-gumming machine, the combination of a frame comprising two main sections provided with depending legs having elongated slots formed therein; a bolt adjustably mounted in said slots; a cutter mounted in the upper portion of the frame; means for raising and lowering the cutter; means for imparting motion thereto; slotted arms extending out from the frame at approximately right angles thereto; and an adjustable bolt mounted in said arms.

3. In a saw-gumming machine, the combination of a frame comprising two main sections A provided with depending legs B having elongated slots formed therein; a bolt mounted in said slots; slotted arms H extending out from the frame; a bolt mounted in said arms; a cutter; and means for raising and lowering the cutter, substantially as described.

4. In a saw-gumming machine, the combination of a frame comprising two main sections A provided with depending legs B having elongated slots formed therein; a bolt mounted in said slots; uprights D extending up from sections A; a plate E connecting said sections; sliding blocks M mounted between said uprights and connected by a cross-bar N; a threaded spindle working in said plate E and swiveled in the cross-bar; a shaft journaled in the blocks M; a cutter carried by said shaft; slotted arms H extending out from the frame at right angles thereto; and a bolt mounted in said arms.

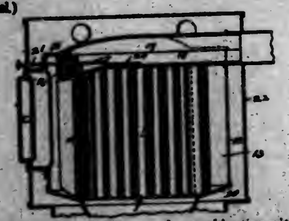
605,516. TYPE-WRITER. WILLIAM T. ROBERTSON, Washington, D. C., assignor to John T. Underwood, Brooklyn, N. Y. Filed Jan. 16, 1896. Serial No. 575,660. (No model.)



Claim.—1. In a type-writer, a pair of multiplex coiling-rollers B, having a division between the compartments and constructed and adapted to receive ribbons or inkers coiled upon them in different compartments separated by said division, whereby the coiled parts of the ribbon are kept separate and the exposed part guided, substantially as described.

2. The combination in a type-writer, of a pair of multiplex coiling-rollers constructed to receive and hold ribbons or inkers coiled upon them in separate compartments, in combination with the lever and intermediate connection, substantially as described between said lever and the rollers to give the same endwise motion, as and for the purpose set forth.

605,517. HOT-AIR FURNACE. ROBERT ROBINSON and EDWARD H. ROBINSON, Chicago, Ill. Filed Mar. 22, 1897. Serial No. 630,571. (No model.)



Claim.—1. In a hot-air furnace the combination with a suitable casing, of a series of tubes constituting air-passages and separated at the rear to provide a passage for the products of combustion and from the casing to provide annular passages and a central duct or flue communicating with the front ends of said passages and extending thence rearwardly across the fire-chamber at the top thereof, substantially as described.

2. In a hot-air furnace the combination with air-tubes arranged in series at the sides of the furnace and the individual tubes being in contact with each other concentrically to the fire-pot, a shell forming with said tubes annular passages and said tubes being separated to provide a rear exit for the products of combustion communicating with said passages, partitions closing the front ends of said annular passages and ducts leading from the front and upper ends of said passages to a central smoke-flue and said flue extending above the

fire chamber and delivering out of the furnace toward the rear thereof, substantially as described.

3. In a furnace of the class described, the combination of a suitable shell or casing, a series of air-tubes separated at the rear to provide a passage for the products of combustion and from the casing to provide annular lateral passages, a central dome and a central flue having its upper portion formed integral with said dome on the lower side thereof and provided with a separable lower portion, and external tubular branches connecting said central flue with the front ends of the lateral passages, substantially as described.

4. The combination with a furnace-dome having a portion of a smoke-flue formed integrally with the lower side thereof, an attachable portion completing said flue, external branches also formed integrally with the dome and a clean-out opening at the junction of said branches and in line with the flue, substantially as described.

5. In a furnace of the character described, the combination, with a suitable shell or casing and a series of air-tubes therein separated at the rear and forming annular passages within the casing closed at their front ends, of a dome having a smoke-flue on its under side connected at its front end with said annular passages and having an opening in its lower wall near the front end communicating directly with the fire chamber, and a damper controlling said opening, substantially as described.

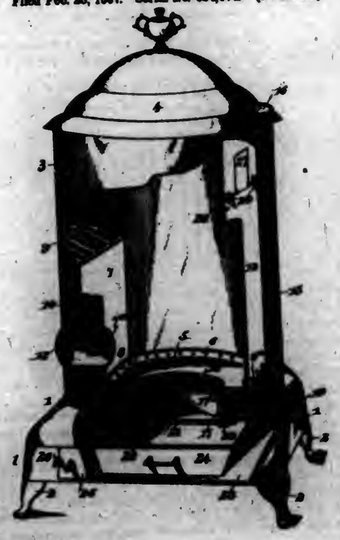
605,518. BICYCLE-SEAT CLAMP. BENJAMIN S. SEAMAN, Canton, Ohio. Filed Oct. 14, 1897. Serial No. 655,115. (No model.)



Claim.—1. A clamping-block for bicycle-seat supports, consisting of a clamping head provided with laterally-depending screw-threaded prongs having slotted apertures therein, clamping-bits adapted to pass through said slotted apertures and provided with outwardly-projecting grooved portions to engage the post on either side of the head, and curved grooved inner edges to receive the springs of the seat-support, washers provided with grooves upon their inner surfaces to engage said springs, and screw-threaded binding-nuts to engage the prongs of the clamping-head, substantially as described and for the purpose set forth.

2. The combination in a bicycle-seat support, of a clamping head provided with screw-threaded laterally-projecting prongs having slotted apertures therein, with clamping-bits adapted to pass through said slotted apertures and provided with outwardly-projecting grooved portions to engage the post on both sides of the head and binding-nuts, substantially as described and for the purpose set forth.

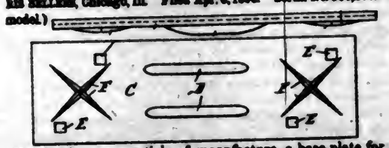
605,519. STOVE OR FURNACE. WALLACE J. SELBY, Burr Oak, Mich. Filed Feb. 23, 1897. Serial No. 624,674. (No model.)



Claim.—1. In a heating device comprising a base provided with a horizontal diaphragm 19, the shell mounted upon the base, the horizontal diaphragm 5 arranged within the shell at the bottom thereof and located above the diaphragm 19 said diaphragm 5 terminating short of the sides of the shell, the short vertical partition 7 extending upward from one side of the diaphragm 5, forming a flue and provided at its upper end with a grating, the vertical partition 13 located at the opposite side of the diaphragm 5 and extending to the top of the shell and forming a flue between it and the latter, said partitions 7 and 13 and the shell forming a fire-pot between them, and the depending annular flange 17, located in the space between the diaphragms 5 and 19 and connected with the same and forming an ash-passage, substantially as described.

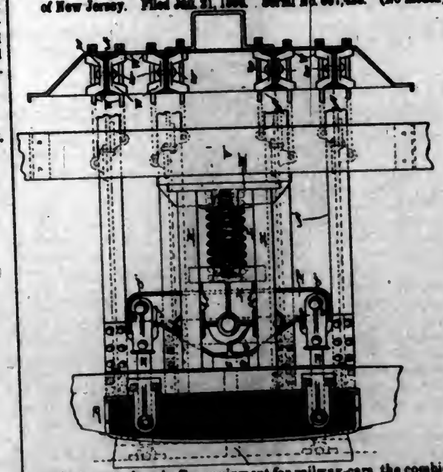
2. A heating device, comprising a base provided above its bottom with a horizontal diaphragm 19, a shell mounted upon the base, the horizontal diaphragm 5 located within the shell above the base parallel with the diaphragm 19 and terminating short of the sides of the shell, partitions extending upward from the diaphragm 5 and forming with the shell a fire-pot, and the depending annular flange 17 located in the space between the diaphragms 5 and 19 and forming a communication between the base of the stove and the fire-pot, substantially as described.

605,520. BASE-PLATE FOR RAILWAY-RAIL JOINTS. MOSES SELLERS, Chicago, Ill. Filed Apr. 6, 1896. Serial No. 586,260. (No model.)



Claim.—As a new article of manufacture, a base-plate for rail-joints, comprising a plate adapted to rest upon two adjacent cross-ties, having a longitudinal socket on its upper surface to receive the rail and provided on its bottom at the ends thereof with tapering cross-ribs adapted to engage the respective ties, substantially as described.

605,521. BUFFER EQUIPMENT FOR RAILWAY-CARS. HENRY H. SIMMONS, Chicago, Ill., assignor to the Standard Coupler Company, of New Jersey. Filed Jan. 21, 1896. Serial No. 577,428. (No model.)



Claim.—1. In a buffer equipment for railway-cars, the combination with the buffer-plate, the stems therefor and the centrally-pivoted spring-supported equalizer, of substantially straight transversely-arranged bearings interposed between the stems and equalizer whereby a differential leverage is exerted by the equalizer when moved into an inclined position; substantially as described.

2. In a buffer equipment for railway-cars, the combination with the buffer-plate having the rearwardly-extending stems provided with substantially straight horizontal bearing-surfaces at their rear ends, of a centrally-pivoted spring-supported equalizer having substantially straight horizontal bearing-surfaces at its ends on the forward edges for cooperation with the corresponding surfaces on the stems; substantially as described.

3. In a buffer equipment for railway-cars, the combination with the buffer-plate and the rearwardly-extending stems having substantially straight horizontal bearing-surfaces and arms extending rearwardly above and below said bearing-surfaces, of the centrally-pivoted spring-supported equalizer having its ends located between the rearwardly-extending arms on the stems and provided with substantially straight horizontal bearings cooperating with the corresponding bearings on the stems and pins loosely uniting the stems and equalizers; substantially as described.

4. In a buffer equipment for railway-cars the combination with the centrally-pivoted spring-supported equalizer having substantially straight bearing-surfaces on its front edge at the center and each end respectively, of the buffer-plate and the side and central buffer-stems each having a substantially straight horizontal bearing-surface for cooperating with the corresponding bearing-surface on the front edge of the equalizer; substantially as described.

5. In a buffer equipment for railway-cars the combination with the supporting-beams of a depending yoke for the draw-bar adapted to be moved laterally, and a central spring adapted to be put under compression by the movement of the yoke in either direction; substantially as described.

6. In a buffer equipment for railway-cars the combination with the supporting-beams and a laterally-movable yoke depending therefrom, of a central spring and a telescoping connection between said yoke and each end of the spring whereby lateral movement in either direction will put the spring under compression; substantially as described.

7. In a device such as described adapted to be applied to the buffer equipment of railway-cars the combination with the sleeve having the depending yoke for the draw-bar, the thimbles telescoping in said sleeve and the central spring for holding said sleeves extended; substantially as described.

8. The combination with the sleeve having the depending yoke and internal end flanges, of the thimbles having the external end flanges and adapted to telescope with the sleeve, of the central spring for holding said thimbles extended and the bolt for maintaining the parts in position; substantially as described.

9. The combination with the sills of a car-body frame and I-beams passing longitudinally beneath said sills, of I-beam brackets united to the webs of the I-beam by through bolts or rivets and having eyes extending beyond the flanges of the I-beams and supporting or tie bolts passing through said eyes outside of said flanges and into the sills of the car-body framing; substantially as described.

10. The combination with the car-body frame and I-beams of I-beam brackets secured on opposite sides of said I-beam and preferably arranged out of line with each other, of a bolt or rivet passing through the web of the I-beam and through both of said brackets at the point where they overlap and bolts or rivets uniting each of said brackets and said web of the I-beam, said I-beam brackets having lateral projections extending beyond the flanges of the I-beam and tie or supporting bolts passing through said extensions and uniting the I-beams to the car-body frame; substantially as described.

605,522. CENTER-BEARING FOR RAILWAY-CARS. HENRY H. SIMMONS, Chicago, Ill., assignor to the Standard Coupler Company, of New Jersey. Filed Jan. 21, 1896. Serial No. 577,429. (No model.)



Claim.—1. The combination with the truck-bolster mounted on swing-hangers whereby it may move transversely, of swing links or yokes journaled on said bolster and the center-bearing mounted on said swing-links to move transversely; substantially as described.

2. The combination with the truck-bolster or center-bearing support, the channel-irons incorporated therein with their flanges turned outwardly and the swing links or yokes suspended on and between said channel-irons to swing transversely of the car-body, of the center-bearing mounted directly on the depending portions of said swing links or yokes and cooperating with the inner faces of the channel-irons to prevent movement longitudinally of the car; substantially as described.

3. The combination with the truck-bolster or center-bearing support, the swing links or yokes journaled therein and having at their lower portions flattened bearing-surfaces, of the center-bearing resting directly upon said swing links or yokes and having flattened bearing-surfaces cooperating with the flattened bearing-surfaces of the swing links or yokes, whereby the center-bearing is caused to return to its central position; substantially as described.

4. The combination with the truck-bolster or center-bearing support and the swing links or yokes journaled therein and having flat bearing-surfaces on their depending portions, of the center-bearing, the supporting-plate underlying said center-bearing and the recessed bearings on said supporting-plate having flat bearing-surfaces on which the depending portions of the swing links or yokes seat; substantially as described.

5. The combination with the truck-bolster or center-bearing support and the swing links or yokes journaled therein and having the flattened depending portions, of the center-bearing, the supporting-plate underlying the center-bearing and the inverted channel-irons on said supporting-plate, in which channel-irons the flattened portions of the swing links or yokes seat; substantially as described.

605,523. PNEUMATIC TIRE. URBIN P. SMITH, Chicago, Ill. Filed Dec. 20, 1897. Serial No. 664,163. (No model.)



Claim.—As a new article of manufacture, a pneumatic tire provided with an outer sheath slitted circumferentially at its inner surface and provided with two continuous flat metallic flaring bands the inner diameter of which is smaller than the outer diameter of the wheel-rim and embedded in the sheath at or near its lateral edges, and a wheel-rim provided with a concave peripheral groove of larger diameter at its lateral edges than the inner diameters of the flaring rings, substantially as described.

605,524. GRAIN-DRILL. BYRON T. SPILMAN, Jacksonville, Ill. Filed Sept. 23, 1897. Serial No. 652,702. (No model.)



Claim.—1. In a grain-drill, the combination with the main frame, of the independently-pivoted supporting-frames arranged within the main frame and the hopper, the dropper and the operating mechanism arranged within each pivoted frame, substantially as shown and described.

2. In a grain-drill, the combination with the main frame of the independently-pivoted frames arranged within the main frame, the grain-hopper arranged upon each frame, the drum provided with covering-bands, the operating-sprockets and chain and the dropper arranged also in each frame, said dropper being connected to the hopper, substantially as shown and described.

3. In a grain-drill, the combination with the main frame of the independent frames pivoted within the main frame, the hopper and

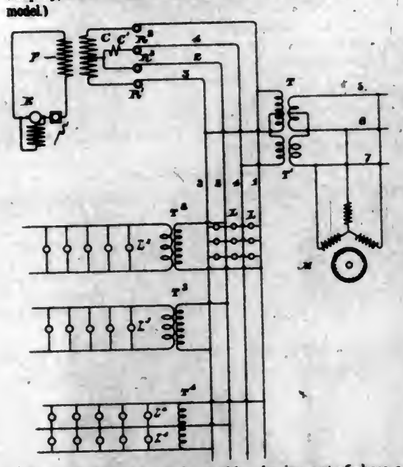
drum arranged in each frame the discharge and connecting tubes, the delivery-tube and the plows or furrow-openers to which the delivery-tubes are attached, substantially as shown and described.

4. In a grain-drill, the combination with the standard of the plow or furrow-opener arranged upon the lower end of said standard and the delivery-tube arranged beneath the said plow or furrow-opener the forward end of said plow being bent downwardly at a point below the forward end of the delivery-tube, substantially as shown and described.

5. In a grain-drill, the combination with the standard of the plow or furrow-opener having the side flanges and the forward end bent downwardly and the delivery-tube arranged upon the under side of the said plow, the bottom of said delivery-tube being pressed inwardly at the forward end, substantially as shown and described.

6. In a grain-drill, the combination with the main frame of the independent frames pivoted within the main frame, the hopper arranged upon each frame, the drum provided with covering-bands, the sprockets and drive-chain, the agitating-shaft having arms sliding cut-off valve, the discharge and connecting tubes, the delivery-tube and furrow opener, the standard to which the said furrow-opener is attached the cross-beam O^3, and the hinge board O^2 through which the standard passes, the hand-lever for raising said standard and the coiled spring surrounding the standard below the hinge-board O^2 all arranged and adapted to operate substantially as shown and described.

605,525. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 28, 1895. Serial No. 536,441. (No model.)



Claim.—A dynamo-electric machine, having out-of-phase coils connected to three collector-rings, and the remaining terminal of one coil connected to an intermediate point in the second coil, and a fourth collector-ring likewise connected to the intermediate point in the last-named coil.

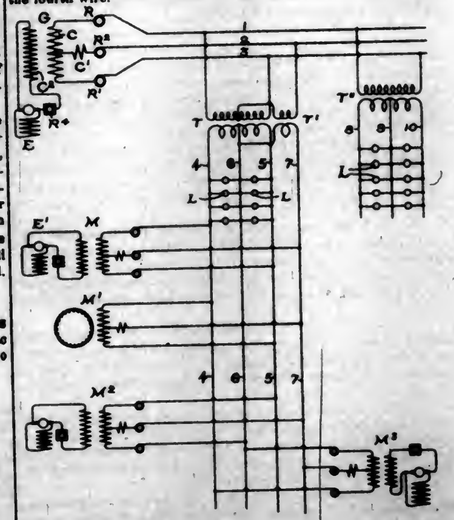
605,526. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed June 17, 1897. Serial No. 641,120. (No model.)

Claim.—1. In a system of electrical distribution, and in combination, a generator having a main coil, and a supplemental coil at an angle thereto connected at one end to an intermediate point in the main coil, a three-wire distribution system fed from the main coil, and a multiphase translating device fed from both coils.

2. In a system of electrical distribution, a source of current having a main coil, and a supplementary coil connected to an intermediate point in the main coil, means for producing an electromotive force of displaced phase in the supplemental coil, a three-wire single-phase distribution system fed from the main coil, and a multiphase translating device fed from both coils.

3. The combination of a source of single-phase currents, a two-wire circuit leading therefrom, a transformer connected to said circuit, a three-wire single-phase system fed from the secondary of the transformer, and a fourth or supplementary wire on which a dephased electromotive force is maintained interconnected with the three-wire system.

4. The combination of a generator of single-phase currents having a main coil, an additional coil on said generator so displaced as to be the seat of an out-of-phase electromotive force, a two-wire circuit leading from said generator to a transformer, a three-wire single-phase system fed from the secondary of the transformer, and a fourth or supplementary wire fed from the said additional coil, and multiphase translating devices fed from the three-wire system and from the fourth wire.



5. The combination of a source of single-phase current, a single-phase three-wire distribution system fed therefrom, a single supplementary wire, and a source of dephased electromotive force connected between the three-wire system and the supplementary wire; single-phase translating devices and multiphase translating devices, the single-phase translating devices being fed from the three-wire system, and the multiphase translating devices being fed from the three-wire system and from the supplemental wire.

6. The combination with the main single-phase armature-winding of an alternating-current generator, of a transformer which on one side is connected to the said armature-winding and on the other side to a single-phase three-wire system, and an additional source of dephased electromotive force connected to the neutral wire of the three-wire system, and to a fourth or supplementary wire which forms, with two wires of the three-wire system, a multiphase distribution system.

7. The combination with an alternating-current three-wire system of a source of dephased electromotive force connected between the neutral wire of said system and a fourth or supplementary wire, single-phase translating devices connected to the three-wire system, and multiphase translating devices connected to the three-wire system and to the supplementary wire, whereby the four said wires form a complete system suitable for the distribution of light and power.

8. The combination with the main armature-winding of a monocyclic generator, of two rings connected to the terminals of said winding, an additional armature-coil connected at one end to an intermediate point on the said winding and at its other end to a third ring, a field-magnet in inductive relation to said armature, connections from two of the first-mentioned rings to a transformer, a three-wire single-phase system fed from the secondary of said transformer, an additional transformer connected at one end to a wire leading from the third ring and at the other end to an intermediate point in the primary of the first-mentioned transformer, a connection from one terminal of the secondary of said additional transformer to the neutral wire of the three-wire system and from the other terminal to a fourth or supplementary wire, single-phase translating devices connected to the three-wire system, and multiphase translating devices connected to the three-wire system and to the fourth or supplementary wire.

605,527. BALL-AND-SOCKET CLAMP. ROBERT E SWARTS, Creston, Iowa, assignor of one-half to H. E. W. Barnes, same place. Filed May 22, 1897. Serial No. 637,771. (No model.)

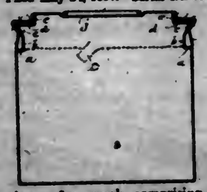
Claim.—1. The combination with a base-support having a recess, of a plate secured to the base and provided with an opening registering with said recess, threaded bolts secured to and extending upwardly from opposite ends of the said plate, a ball seated in said opening and recess and having a shank adapted to be secured to an object, such as a chair-seat, spaced plates provided with openings to fit over the ball and bolts respectively, means to adjustably support and hold the spaced plates at one end on the bolts, and a head-nut working on the bolt at the other end of the plates to force them simultaneously into tight frictional engagement with the ball, substantially as described.



2. The combination with a base-support having a recess, of a plate secured to the base and provided with an opening registering with said recess, a series of threaded bolts secured to and extending upwardly from the said plate at one side, and a single threaded bolt secured to and extending upwardly from the plate at the opposite end, a ball secured in said opening and recess and having a shank adapted to be secured to an object, such as a chair-seat, a pair of spaced plates provided at their opposite ends with openings to fit over the said bolts, and with central openings to fit over the upper portion of the ball and engage it at different points, nuts adjustable on the said series of bolts to support and hold the ends of the spaced plates fitted over them, a thimble fitted over the said single bolt between the spaced plates, and a nut working on the last-named bolt and engaging the upper plate to simultaneously force the spaced plates into tight frictional engagement with the ball, substantially as described.

3. The base provided with a recess for the ball, combined with the ball partially seated therein, an upper or end plate engaging the ball at a point opposite the base, an intermediate plate engaging with the ball between the upper or end plate and the base, bolts rigidly seated in the base and connecting the intermediate plate and the upper or end plate, and means for spacing or separating the intermediate plate from the end plate and also for clamping the parts together, substantially as described.

605,528. CLOSURE FOR VESSELS. FRANCIS A. WALSH, Milwaukee, Wis. Filed May 24, 1897. Serial No. 637,821. (No model.)



Claim.—1. A closure for vessels, comprising a cover having a downward-extending sheet-metal flange, provided with an inward bend or contraction for contact with the exterior surface of the vessel to be closed, and a tongue projecting beyond the lower line of said flange, and united to said flange on a readily-separable line, for forcible detachment therefrom, in the opening of the vessel.

2. The combination with a vessel of a cover having a downward-extending sheet-metal spring-flange provided with an inward bend for wedging contact with the upper exterior part of said vessel on a plane below the top thereof, said top being of greater diameter than that at the place of contact, whereby the said cover is held in place by mere contact, but incapable of removal without partial destruction thereof, and a tongue projecting from said flange and united thereto on a readily-separable line, for forcible detachment in the said destructive removal of the cover.

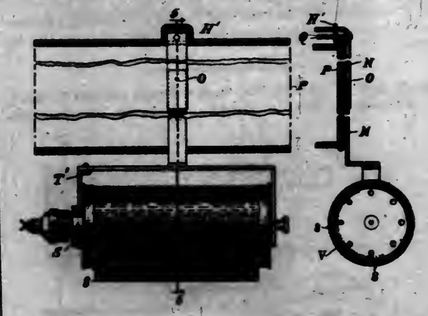
3. The combination with a vessel provided with an outwardly-flaring flange having an inwardly-extended portion terminating in a longitudinally-extended collar, of a cover having a longitudinally-extended portion conforming to said collar, an outwardly-extended portion in line with and extending beyond the projection of the said inwardly-extended portion and a downwardly-extended flange provided with an inward bend or contraction for contact with the said outwardly-flaring vessel-flange.

4. The combination with a vessel provided with an outwardly-flaring flange having an inwardly-extended portion terminating in a longitudinally-extended collar, of a gasket surrounding said collar and a cover having a longitudinally-extended portion conforming to said collar and an outwardly-extended portion in line with and extending beyond the projection of the said inwardly-extended portion, and in contact with said gasket, and terminating in a downwardly-extended flange provided with an inward bend or contraction for contact with the said outwardly-flaring vessel-flange.

5. The combination with a vessel provided with an outwardly-flaring flange having an inwardly-extended portion terminating in a longitudinally-extended collar, of a cover having a longitudinally-extended portion conforming to said collar and an outwardly-extended portion in line with and extending beyond the projection of the said inwardly-extended portion and terminating in a downwardly-extended flange, provided with an inward bend or contraction for contact with the said outwardly-flaring vessel-flange, and said cover-flange having a tongue projecting therefrom, and united thereto on a readily-separable line, the said cover being held in place by mere contact, but incapable of removal without partial destruction thereof, and the said tongue affording the means for the said destructive removal of the cover.

6. The combination with a vessel provided with an outwardly-flaring portion, of a cover having a downwardly-extending sheet-metal flange provided with an inward bend or contraction for contact with the exterior surface of said outwardly-flaring portion of said vessel, a ring or gasket of suitable flexible material, interposed between the said vessel and cover, and means for the ready separation of a portion of the said flange when the cover is to be removed from the vessel.

605,529. DESK-LAMP. WILLIAM R. WARD, Montclair, N. J. Filed Jan. 2, 1897. Serial No. 617,798. (No model.)



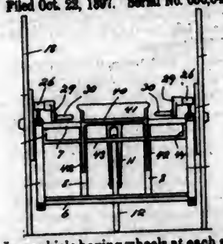
Claim.—1. The combination with the supporting-bracket, of the casing having capped ends, a set-screw adjustably connecting one end thereof to the bracket, the other one of said caps being provided with a flanged opening by which it is journaled in the bracket, set-screws passing through said flange, and an incandescent-lamp socket removably held in place by said screws.

2. The combination with the bracket, of the outer semicylindrical shell mounted thereon and adjustable about its axis and provided with the reflecting projection S, the detached complementary opaque shell or shield mounted within the outer shell and axially adjustable therein irrespective of the adjustment of the outer shell and provided with the reflecting projection S, circular caps covering the ends of said outer shell and serving to confine the complementary shell within the outer one, and the electric-lamp socket secured in one of said caps, substantially as set forth.

3. A lamp-supporting bracket consisting of the arm N, having a portion thereof bent downwardly, the clip H', fitted to slide upon said downwardly-bent portion and projecting along the other portion, and a clamping-screw passing through the arm and clip, substantially as and for the purpose set forth.

4. The combination with the supporting-yoke provided with a set-screw in one end and a bearing in the other, of a lamp-casing pivoted at one end upon said set-screw and provided at the other with means for holding the socket of an electric light and for projecting into said bearing to serve as a trunnion for the casing, substantially as set forth.

605,530. TRICYCLE FOR INVALIDS. CHARLES A. WAY, Charlestown, N. H. Filed Oct. 22, 1897. Serial No. 656,042. (No model.)

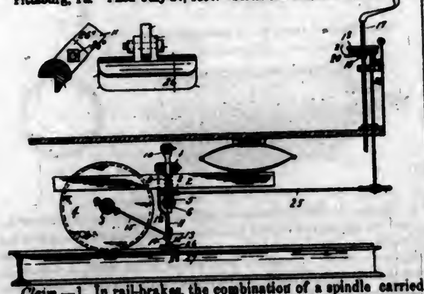


Claim.—1. In a vehicle having wheels at each side thereof, outer and inner gear-wheels carried by each of said wheels and concentric therewith, a gear-pinion mounted in a fixed position and in gear with said inner gear-wheel, and a driving gear-pinion movably supported between said outer and inner gear-wheels whereby it may be thrown into gear with either.

2. In a vehicle having wheels at each side thereof, outer and inner gear-wheels carried by each of said wheels and concentric therewith, a gear-pinion mounted in a fixed position and in gear with said inner gear-wheel, and a driving gear-pinion carried by a lever pivotally mounted upon the frame of the vehicle and situated between said outer and inner gear-wheels, and an operating-lever connected with said lever.

3. A tricycle for invalids, consisting of a frame which is provided centrally of its opposite sides with main side wheels, a seat mounted centrally of said frame, pinions connected with the hubs of the side wheels, circular gears connected with said side wheels concentrically of said pinions, and provided with internal gear-teeth, pinions supported rearwardly of the hubs of said wheels and adapted to operate in connection with the pinions on said hubs, pivoted standards in front of the hubs of said wheels and provided with pinions, cranks mounted on the shafts of said pinions and rods connected with said standards and projected backwardly and connected with levers pivotally connected with the frame, and segmental rack-bars in connection with which said levers operate, substantially as shown and described.

605,531. CAR-BRAKE. JESSE S. WICKES and JOHN KETTERLY, Pittsburg, Pa. Filed July 27, 1897. Serial No. 646,137. (No model.)



Claim.—1. In rail-brakes, the combination of a spindle carried by the truck-frame and capable of vertical movement; brake-rods pivoted to the upper extremity of said spindle and extending obliquely toward the rails and capable of longitudinal motion, and shoes on the lower extremities of said brake-rods capable of bearing against the upper and inner faces of said rails.

2. In rail-brakes, the combination of a spindle carried by the truck-frame; brake-rods pivoted to the upper extremity of said spindle and extending in an oblique direction toward the rails and capable of longitudinal motion, shoes on the ends of said brake-rods capable of bearing against the upper and inner faces of said rails, and means for moving said spindle in a vertical direction.

3. In rail-brakes, the combination of a threaded spindle carried vertically by the truck-frame; brake-rods pivoted to said spindle and extending in an oblique direction toward the rails; shoes on the lower extremities of said brake-rods capable of bearing against the rails; a power-wheel, internally threaded, mounted to travel on said spindle, a coiled spring encircling said spindle, interposed between said truck-frame and said power-wheel, and a second power-wheel operatively connected with said first power-wheel and revoluble from the car.

4. In rail-brakes, the combination of a spindle mounted in the truck-frame; brake-rods pivoted to said spindle and extending in an oblique direction toward the rails; braces extending from the truck-frame to said brake-rods and having a sliding connection therewith; additional braces journaled on the car-axle and connecting with said first braces, and means for moving said spindle in a vertical direction.

5. In rail-brakes, the combination of a hand-wheel, a shaft revoluble by said hand-wheel; a power-wheel mounted on said shaft; a vertically-moving threaded spindle carried by the truck-frame; a second power-wheel internally threaded and mounted on said threaded spindle; brake-rods pivoted to the upper extremity of said spindle and extending obliquely toward the rail, and brake-shoes on the lower extremities of said brake-rod adapted to bear against the rail.

605,532. PNEUMATIC TIRE. WILLIS S. WILLIAMS, London, England. Filed Dec. 20, 1897. Serial No. 662,591. (No model.) Patented in England Jan. 29, 1897, No. 2,427.



Claim.—1. In a tire, the combination, with a cover C, of a series of blocks arranged inside the cover and having wide bases and narrow projecting tread portions, the said cover being stretched to conform to the said tread portions, the said blocks and cover both having sharp or angular corners at the edges of their tread portions for preventing side slip, and a band secured to the bases of the said blocks, substantially as set forth.

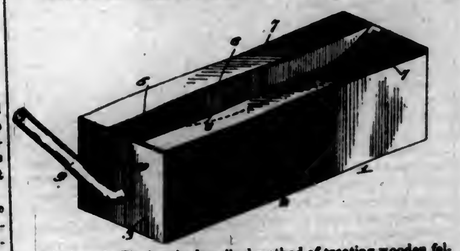
2. In a tire, the combination, with a cover C, of a series of blocks arranged inside the cover and having wide bases and narrow projecting tread portions, the said cover being stretched to conform to the said tread portions, a band secured to the bases of the said blocks, and a series of metallic plates secured over the said tread portions outside the said cover, substantially as set forth.

605,533. SHOE-BRUSH. WILLIAM W. WORCESTER, Jeffersonville, Ind. Filed Aug. 19, 1897. Serial No. 648,818. (No model.)



Claim.—As an improved article of manufacture, a brush, provided with a series of rows of bristles 2, convolutions of fabric 3, covering said bristles and wires 6, set between the rows of bristles to hold the convolutions in place, substantially as described.

605,534. METHOD OF TIGHTENING TIRES. JOHN W. ALLEN, Davis, Ind. Ter. Filed Dec. 2, 1896. Serial No. 614,234. (No model.)



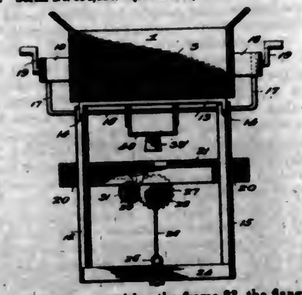
Claim.—1. The herein-described method of treating wooden fellies, the same consisting in submerging the felly in boiling water for swelling the same, and then submerging the felly in boiling oil having combined therewith a soluble filling agent, substantially as described.

2. The herein-described method of treating wooden fellies, the same consisting of revolving the same in boiling water and thereafter submerging or revolving the same in boiling oil impregnated with gum-arabic and resin, whereby the oil is caused to expel the water and fill the interstices of the felly with the gum-arabic and resin, the latter serving when hardened, to prevent the contraction of the felly to its normal size, substantially as described.

3. A method of treating wooden fellies, consisting in swelling the wood and then forcing therein heated oil having combined therewith a soluble filling agent, substantially as described.

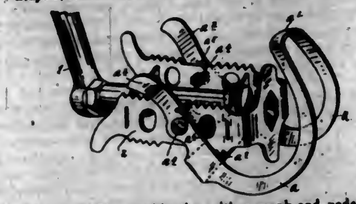
4. A method of treating wooden fellies, consisting in swelling the wood and then forcing therein heated oil containing a soluble filling agent such as resin and gum-arabic, substantially as described.

605,535. CHUTE-WAGON. CHARLES BERNHARDT, Philadelphia, Pa., assignor of one-half to Julius Kaufmann, same place. Filed Sept. 16, 1897. Serial No. 651,827. (No model.)



Claim.—A vehicle, comprising the frame 23, the flanged rollers 22 horizontally mounted in said frame, the turn-table 21 revolubly mounted on said rollers, the horizontal shaft 27 journaled in said frame, the parallel rods 15 15 having bearing in said table, the bar 24 connecting said rods, and the chain 26 connecting said bar and shaft 27, in combination with the body 1, centrally hinged to the upper ends of said rods, and means, as described, for supporting said body in an inclined position, when elevated, substantially as and for the purpose set forth.

605,536. CLIP FOR BICYCLE-PEDALS. ALFRED L. REED, Minneapolis, Minn. Filed July 20, 1896. Serial No. 600,472. (No model.)



Claim.—1. The combination with a crank and pedal, of a clip pivoted to said pedal, transversely of the pedal's axis, with its center of gravity on one side of its own pivot and substantially in a vertical plane passing through the axis of said pedal which clip is provided, at its light end, with a part normally projecting above the working face of the pedal, and, at its heavy end, with a shoe or foot clamping portion, whereby, when out of use, said clip will throw and hold said pedal right side up, and when stepped upon, will engage the rider's foot, substantially as described.

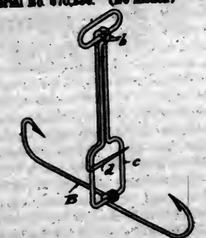
2. The combination with a crank and pedal, of a clip pivoted to said pedal, transversely of the pedal's axis, with its center of gravity on one side of its own pivot and substantially in a vertical plane passing through the axis of said pedal which clip is provided, at its light end, with a part normally projecting above the working face of the pedal, and, at its heavy end, with a shoe or foot clamping portion, and a spring tending to throw said clip into its normal position, whereby, when out of use, said clip will throw and hold said pedal right side up, and when stepped upon, will engage the rider's foot, substantially as described.

3. The combination with a crank and pedal, of a clip pivoted to said pedal, transversely of the pedal's axis, with its center of gravity on one side of its own pivot and substantially in a vertical plane passing through the axis of said pedal, the light end of which clip normally projects above the working face of the pedal, and the heavy end of which clip is curved upward and inward and is adapted to transversely engage the top of the rider's foot; whereby, when out of use, said clip will throw and hold said pedal right side up, and when stepped upon, will engage the rider's foot, substantially as described.

605,537. INSECTICIDE. JOSEPH B. CARMICHAEL, Benita, Tex. Filed Feb. 26, 1898. Serial No. 672,071. (No specimens.)

Claim.—An insecticide consisting of cyanid of potash, camphor, benzin, turpentine, ether, oil of sassafras, oil of spike, in about the proportions hereinbefore set forth.

605,538. ANGLING DEVICE. JAMES J. DEMPSEY, Hartford, Wis., assignor of one-half to Adolph G. Loubenstein, same place. Filed Feb. 14, 1898. Serial No. 670,236. (No model.)



Claim.—1. An angling device comprising a hanger having a lower loop portion, a bait-pin crosswise of the loop, and a shank in pivotal connection with said loop having fish-hook terminals.

2. An angling device comprising a hanger having a lower loop portion, a pin crosswise of the loop but free at one end for impalement of bait when sufficient clearance is had, and a shank in pivotal connection with said loop having fish-hook terminals.

3. An angling device comprising a line-attaching link, a single wire bent to form link-engaging eyes, a loop and a bait-pin crosswise of the loop; together with a shank in pivotal connection with said loop having fish-hook terminals.

4. An angling device comprising a bait-holder, and a double fish-hook having pivotal connection with the bait-holder and extending in opposite directions therefrom.

605,539. BRAKE. ANTOINE DESILETS, Montreal, Canada, assignor to William James Lewis, same place. Filed Sept. 20, 1897. Serial No. 652,587. (No model.)



Claim.—1. In combination with a car-truck, a car-brake comprising a brake-shoe, mounted upon one end of a suitably-supported sliding bar and located in close proximity to the periphery of the wheel to which it is to be applied, a shaft mounted transversely of the truck, a cam mounted upon said shaft, means for causing the free end of said sliding bar to normally yieldingly bear upon said cam, means actuated by the rotation of said wheel for rotating said shaft, for the purpose set forth.

2. In combination with the truck of a car, a car-brake comprising a brake-shoe, mounted upon one end of a suitably-supported slid-

ing bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; and means for operatively connecting said arm to one of the axles of the truck whereby said arm and with it said shaft may be oscillated to either side of the vertical according to the direction of rotation of the wheels mounted upon said axle, for the purpose set forth.

3. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; and means comprising a buffer-section for operatively connecting said arm to one of the axles of the truck whereby said arm and with it said shaft may be oscillated to either side of the vertical according to the direction of rotation of the wheels mounted upon said axle, for the purpose set forth.

4. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; a pinion mounted loosely upon one of the axles of the truck and having one of its ends formed with a clutch-face; a clutch-block mounted loosely upon but keyed to said axle; a toothed rack adapted to intermesh with said pinion and operatively connected to the aforesaid arm; and means for shifting said clutch-block into and out of engagement with the clutch-face of said pinion, for the purpose set forth.

5. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; a pinion mounted loosely upon one of the axles of the truck and having one of its sides formed with a clutch-face; a clutch-block mounted loosely upon but keyed to said axle; a toothed rack adapted to intermesh with said pinion, and operatively connected to the aforesaid arm; a lever leaving one end forked to straddle and take into a groove in the clutch-block, and the other end fulcrumed to the truck-frame, a cross-bar secured upon and transversely of said lever, the end of said cross-arm being connected to the lower end of a vertical lever mounted upon the end of the truck, substantially as described and for the purpose set forth.

6. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; and means including a buffer-section, for operatively connecting said arm to one of the axles of the truck whereby said arm and with it said shaft may be oscillated to either side of the vertical according to the direction of rotation of the wheels mounted upon said axle, for the purpose set forth.

7. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; a pinion mounted loosely upon one of the axles of the truck and having one of its sides formed with a clutch-face; a clutch-block mounted loosely upon but keyed to said axle; a toothed rack adapted to intermesh with said pinion and connected to a buffer-section which is connected to the aforesaid arm; and means for shifting said clutch-block into and out of engagement with the clutch-face of said pinion, for the purpose set forth.

8. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; a pinion mounted loosely upon one of the axles of the truck and having one of its sides formed with a clutch-face; a clutch-block mounted loosely upon but keyed to said axle; a toothed rack adapted to intermesh with said pinion and connected to a buffer-section consisting of a sleeve having one end permanently closed and pivotally connected to the aforesaid arm, a rod connected rigidly at one end to said rack and having its other end located within said sleeve and provided with a head, a cap adapted to take over said rod and close the open end of said sleeve, and a spiral spring encircling the portion of said rod within said sleeve and bearing between said cap and the head of said rod; a lever having one end forked to straddle and take into a groove in the clutch-block and the other end fulcrumed to the truck-frame, a cross-bar secured upon and transversely of said lever, the end of said cross-arm being connected to the lower end of a vertical lever mounted upon the end of the truck, substantially as described, and for the purpose set forth.

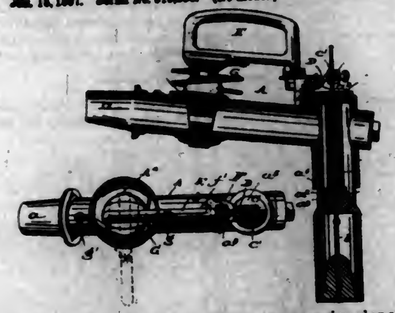
9. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; a pinion mounted loosely upon one of the axles of the truck and having one of its sides formed with a clutch-face; a clutch-block mounted loosely upon but keyed to said axle; a toothed rack adapted to intermesh with said pinion and connected to a buffer-section consisting of a sleeve having one end permanently closed and pivotally connected to the aforesaid arm, a rod connected rigidly at one end to said rack and having its other end located within said sleeve and provided with a head, a cap adapted to take over said rod and close the open end of said sleeve, and a spiral spring encircling the portion of said rod within said sleeve and bearing between said cap and the head of said rod; a lever having one end forked to straddle and take into a groove in the clutch-block and the other end fulcrumed to the truck-frame, a cross-bar secured upon and transversely of said lever, the end of said cross-arm being connected to the lower end of a vertical lever mounted upon the end of the truck, for the purpose set forth.

10. In combination with the truck of a car, a car-brake comprising a brake-shoe mounted upon one end of a suitably-supported sliding bar, and located in close proximity to the periphery of the wheel to which it is to be applied; a shaft mounted transversely of the truck; a cam mounted rigidly upon said shaft, means for causing the free end of said sliding bar to normally bear upon said cam; a hub mounted rigidly upon said shaft; an arm extending laterally from and connected rigidly to said hub; a pinion mounted loosely upon one of the axles of the truck and having one of its sides formed with a clutch-face; a clutch-block mounted loosely upon but keyed to said axle; a toothed rack adapted to intermesh with said pinion and connected to a buffer-section consisting of a sleeve having one end permanently closed and pivotally connected to the aforesaid arm a rod connected rigidly at one end to said rack and having its other end located within said sleeve and provided with a head, a cap adapted to take over said rod and close the open end of said sleeve, and a spiral spring encircling the portion of said rod within said sleeve and bearing between said cap and the head of said rod; a lever having one end forked to straddle and take into a groove in the clutch-block and the other end fulcrumed to the truck-frame, a cross bar secured upon and transversely of said lever, the end of said cross-arm being connected to the lower end of a vertical lever mounted upon the end of the truck, for the purpose set forth.

11. The combination of a car-truck comprising a truck-frame, a series of axles mounted transversely of said frame, and a pair of wheels mounted rigidly upon each of said axles; a shaft mounted transversely of said truck-frame and centrally thereof; a pair of cam-disks mounted rigidly upon said shaft and in line with said wheels; two pairs of sliding bars mounted in brackets carried upon said truck-frame one pair being located at each side of the frame; a brake-shoe mounted upon one end of each of said bars and located in close proximity to the periphery of one of the wheels the other end of each of said bars being located in contact with one side of one of the cams means for maintaining said bars in constant yielding contact with said cams; a hub mounted rigidly upon said shaft an arm extending laterally from and connected rigidly to said hub; a pinion mounted loosely upon one of the axles of the truck and having one of its ends formed with a clutch-face; a clutch-block mounted loosely upon but keyed to said axle; a toothed rack adapted to intermesh with said pinion and connected to a buffer-section consisting of a sleeve having one end permanently closed and pivotally connected to the aforesaid arm, a rod connected rigidly at one end to said rack and having its other end located within said sleeve and provided with a head, a cap adapted to take over said rod and close the open end of said sleeve, and a spiral spring encircling the portion of said rod within said sleeve and bearing between said cap and the head of said rod; a lever having one end forked to straddle and take into a groove in the clutch-block and the other end fulcrumed to the truck frame, a cross-bar secured upon and transversely of said lever, the end of said cross-arm being connected to the lower end of a vertical lever mounted upon the end of the truck, substantially as described, and for the purpose set forth.

12. The combination of the truck S; brake-shoes 5, sliding bars 6, bearing-sections 9, with bearing-faces 10; shaft 11; cam-disks 12; springs 13; hub 14; arm 15; sleeve 16; rod 17; collar 18; spring 19; cap 20; rack 22; rod 23; bracket 41; spring 25; pinion 26; clutch-face 28; axle 27; clutch-block 29; lever 30, 33, 35, 36; rods 37, 38; lever 39; bracket 40; roller 42; rods 45, 46; chain 47; crank-spindle 48; ratchet 49 and pawl 50, all arranged substantially as described and for the purpose set forth.

605,540. AUTOMATIC FAUCET. JOHN HARKER, Cedar Rapids, Iowa, assignor of one-half to William B. Douglas, same place. Filed Jan. 18, 1897. Serial No. 619,858. (No model.)



Claim.—In an automatic faucet, a casing, a turning plug contained therein, a spring-actuated handle secured to and projecting from the turning plug, a depending projection carried by the outer free end of the handle, a post projecting upwardly from the casing, a horizontally-arranged catch pivotally secured upon the upper end thereof and having a limited rotative movement, a float, a lever actuated thereby when the float is lowered to normally hold the catch in its rotated position in one direction and a projection extending upwardly from the catch against which the projection upon the turning-plug handle abuts against the tension of the spring, for holding the handle in parallel alinement with the casing and consequently the turning plug in an open position, substantially as described.

605,541. SOCKET-JOINT OR COUPLING FOR RODS, &c. JOSEPH BUNBAIN, London, England. Filed Dec. 28, 1897. Serial No. 663,877. (No model.)



Claim.—In a rod-coupling, the combination of the socket-pieces, one of which is adapted to receive the other and provided with undercut edges, and a set-screw having expansible wings which engage under the said undercut edges of the socket-piece, substantially as described.

605,542. CAR-WHEEL. JAMES FAIRFIELD, Manchester, N. H. Filed May 17, 1897. Serial No. 636,930. (No model.)



Claim.—A car-wheel composed of a body portion and a hub, the former being provided with a central tapering aperture and with an integral annular shoulder surrounding said aperture and provided with projections and bolt-holes, and the latter being tapering in form and adapted to the central aperture, and provided with an annular flange having recesses adapted to receive the projections of the body portion, and bolt-holes registering with the bolt-holes of the body portion, and bolts passing through the annular flange of the hub and the annular shoulder of the body of the wheel, substantially as set forth.

605,543. BOUQUET-HOLDER. SAMUEL C. FERGUS, Wenona, Ill. Filed Nov. 16, 1897. Serial No. 658,085. (No model.)



Claim.—1. A bouquet holder formed of two opposing trough-shaped sections arranged to clamp positively the stems of flowers, the edges of which sections overlap each other and are hinged together at their lower ends and provided with interlocking devices at their upper ends, said sections forming a tube when locked together, and a pad of absorbent material supported in each section, said pads forming a yielding clamp for the stems of the flowers, substantially as described.

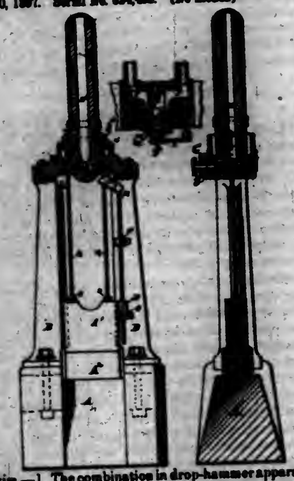
2. A bouquet-holder formed of two opposing trough-shaped sections formed of spring sheet metal and arranged to clamp positively the stems of flowers, the edges of which sections overlap each other and are hinged together at their lower ends, and provided with interlocking devices at their upper ends adapted to be sprung into or out of engagement, said sections forming a tube when locked together, and a pad of absorbent material supported in each section, said pads forming a yielding clamp for the stems of the flowers, substantially as described.

3. A bouquet-holder formed of two opposing trough-shaped sections, the edges of which overlap each other and are hinged together at their lower ends and provided with interlocking devices at their upper ends, said sections forming a tube when locked together, and a pad of absorbent material supported in each section, said pads forming a yielding clamp for the stems of the flowers, combined with a clamp adjustably connected to one of the sections of said holder, substantially as described.

4. A bouquet-holder comprising two substantially trough-shaped sections closed at their lower ends and hinged together at that point at the inner edges of the sections, said sections being adapted to swing apart and capable of positively clamping the stems of the flowers, substantially as described.

5. A bouquet-holder comprising two substantially trough-shaped sections hinged together at their lower ends adjacent to their inner edges and adapted to swing apart, and the absorbent pads mounted within the trough-shaped sections and adapted to engage the stems of flowers, whereby the latter are supplied with moisture and a yielding engagement is effected, substantially as described.

605,544. DROP-HAMMER. ROBERT J. GOSS, Watertown, N. Y., assignor to the Stiles & Field Press Company, of New York. Filed Feb. 20, 1897. Serial No. 624,462. (No model.)



Claim.—1. The combination in drop-hammer apparatus, of a movable cylinder, a hammer operatively connected therewith, a stationary piston provided with a steam-passage delivering into the cylinder, a

chamber communicating with the said steam-passage, a three-way valve in said chamber controlling the movement of steam through said passage, and devices on said hammer adapted to throw said valve, substantially as described.

2. The combination in a drop-hammer apparatus, of a movable cylinder constructed of tubing with a spherical end and a stationary ported piston therein, substantially as described.

3. The combination in a drop-hammer apparatus, of a stationary ported piston, a valve controlling the distribution of the operating fluid through said piston, a cylinder adapted to work on said piston, a hammer operatively connected with said cylinder, a valve-operating rod, and adjustable collars thereon adapted to be actuated by the hammer, substantially as described.

4. The combination in a drop-hammer apparatus of the type described, of a movable cylinder consisting of a closed-end tube, a stuffing-box sleeve on the open end of said tube and provided with bosses, a hammer, and rods connecting said hammer with said stuffing-box sleeve and said rods being threaded at one end and headed at the other end, substantially as described.

5. The combination in a drop-hammer apparatus, of the type described, of a movable cylinder, a hammer, rods connecting the hammer with the cylinder, chambers in the hammer in which the ends of said rods work, and thrust-cushions in said chambers, substantially as described.

6. The combination in a drop-hammer apparatus, of a hammer, a wedge surface thereon, a valve controlling the movement of the hammer, a valve-operating rod, a stationary support for said rod, adjustable collars on said rod and at least one of said collars having a wedge surface adapted to be engaged by the wedge surface on the hammer, whereby the rod is pushed off the support, substantially as and for the purpose described.

7. The combination in a drop-hammer apparatus, of a hammer, a wedge surface thereon, a valve controlling the movement of the hammer, a valve-operating rod, a stationary support for said rod, adjustable collars on said rod at least one of which has a wedge surface adapted to be engaged by the wedge surface on the hammer for pushing the rod off the support, a lever controlled by the operator and adapted to receive and support said rod, whereby the operator may control the valve independently of its operation by the movement of the hammer, substantially as described.

8. The combination in a drop-hammer apparatus, of a hammer, a trigger device for sustaining the hammer, means controlled by the operator for throwing the trigger device to release the hammer, and a spring tending to throw the said trigger device in the opposite direction to that of release, substantially as described.

9. The combination in a drop-hammer apparatus, of a hammer, a hook thereon, a vertically-adjustable movable hook, a spring adapted to press the movable hook into engagement with the hook on the hammer, and devices controlled by the operator for releasing the movable hook from the hook on the hammer, substantially as described.

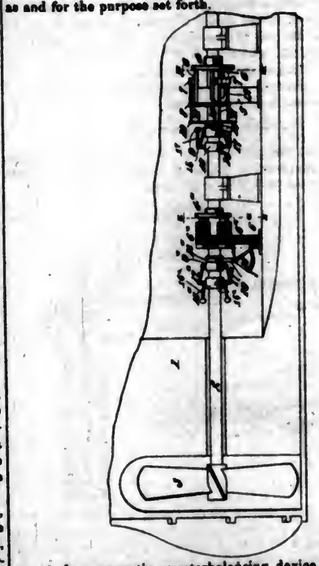
10. The combination in drop-hammer apparatus, of a hammer, a hook thereon, a movable hook adapted to engage with the hook on the hammer, a cam for releasing the movable hook, a spring for moving the movable hook in the direction opposite to that of release, and devices controlled by the operator for moving the cam so as to release the movable hook, substantially as described.

605,545. FRICTION-LESSENING DEVICE AND BRAKE FOR PROPELLER-SHAFTS. GEORGE M. GUERRANT, Danville, Va., assignor of two-thirds to Charles O. Evans and John M. Sheppard, St. Louis, Mo. Filed Mar. 3, 1897. Serial No. 625,909. (No model.)

Claim.—1. In combination with a propeller-shaft, a friction-lessening and braking device comprising a disk or collar fixed upon the shaft and magnets located adjacent to the shaft in the line of the face of said disk or collar so as to draw longitudinally thereon and in position to contact with said disk for producing a braking effect, substantially as herein explained.

2. In combination with a propeller-shaft; a magnetic counterbalance operating upon said shaft in a direction opposite to the end thrust resulting from resistance of the water to the propeller, and consisting of a suitable armature disposed circumferentially about the shaft, a similarly-disposed magnetic field in inductive relation to the side of the armature toward the propeller, and means regulated by the velocity of the shaft, for varying the effect of the magnetic field upon the armature, substantially as and for the purposes set forth.

3. In a combined end-thrust counterbalance and brake to prevent racing; the combination with a propeller-shaft, of a disk of magnetic material fixed upon said propeller-shaft, one or more magnets arranged in inductive relation to said disk on the side toward the propeller, and in such proximity to said disk as to cause contact and produce a braking effect when a strong attractive force is exerted, and means under control of the shaft for varying the degree of magnetic action of said magnet or magnets upon said disk, substantially as and for the purpose set forth.



4. In a magnetic counterbalancing device for propeller-shafts, the combination of an armature, fixed upon said shaft, magnets arranged in proximity to said armature and in position to attract the same in a direction opposite to the end thrust of the shaft, means for controlling the degree of magnetic action of said magnets, and a governor actuated by the shaft for operating said controlling means, substantially as and for the purpose set forth.

5. In a device of the character described, the combination with a propeller-shaft of a disk carried thereby, magnets arranged in proximity to said disk and having their poles opposed thereto, armatures arranged to slide upon said magnets, and a governor arranged to control the movement of said armatures, substantially as and for the purpose set forth.

6. In a device of the character described, the combination with a propeller-shaft, of a disk carried thereby, magnets arranged in proximity to said disk and having their poles opposed thereto, armatures arranged to slide upon said magnets, a loose collar on said propeller-shaft, a fixed collar on said shaft, weighted arms carried by said fixed collar, links connecting said weighted arms to said loose collar, and rods forming a connection between said loose collar and said armatures, substantially as and for the purpose set forth.

7. In combination with a propeller-shaft, an end-thrust counterbalance, a centrifugal governor whereby said counterbalance is actuated by the rotation of said propeller-shaft, and a clutch which uncouples said governor when the shaft reverses, as herein explained.

8. In combination with a propeller-shaft, an end-thrust counterbalance substantially as herein described, a centrifugal governor for actuating said counterbalance from the propeller-shaft, and a toothed clutch one member of which is loose upon the propeller shaft and carries the centrifugal governor, and the other member of which is keyed on the propeller-shaft but longitudinally movable thereon, and is spring-pressed against the member first named, whereby the counterbalance operates only when the shaft rotates to send the vessel forward, as explained.

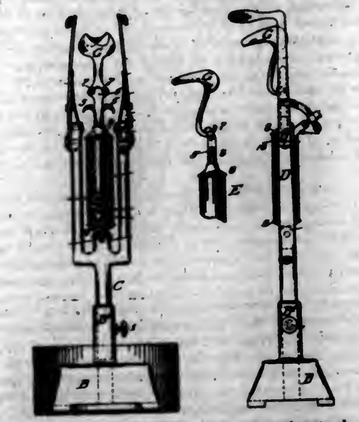
605,546. ELASTIC WHEEL-TIRE. WILLIAM HANCOCK, JOHN C. HANCOCK, and EDMONDSON SCHOLES, Hollinwood, England, assignors of two-fifths to John Edward Lees and Frederick Newton Tweedale, Oldham, England. Filed Jan. 26, 1896. Serial No. 577,268. (No model.)



Claim.—1. The improved means for positively actuating and locking the extensible flexible ribbon *a* for securing resilient tires, said means consisting of a screwed spindle formed with right and left hand threads engaging with nuts formed on or secured to said ribbon *a* to which screwed spindle is secured a connection made flexible by means of universal joints, the outer protruding end of the flexible connection being arranged to revolve within a sleeve secured to the rim and operated by means of a key so as to revolve the screwed spindle whereby the flexible ribbon *a* is expanded or contracted in diameter for the purposes and substantially as set forth.

2. In combination the ribbon *a* for securing resilient tires, the nuts *b c* formed on or secured to the ribbon *a* the screwed spindle *d* formed with right and left hand screw-threads engaging with the nuts *b c*, the flexible connection *f* and protruding link *f'* revolving within a sleeve *j'* secured to the rim *e*, and dust-cap *m* arranged and acting in the manner for the purposes and substantially as set forth.

605,547. VAGINAL DILATOR. ALEXANDER F. HOLLAND, Berkeley, Cal. Filed Apr. 26, 1897. Serial No. 634,269. (No model.)



Claim.—1. In combination, the vertical supporting-standard having a forked upper end, a dilating-arm removably pivoted to the upper end of each fork, springs for pressing said arms apart, and means for independently adjusting each arm to any desired degree upon the fork, substantially as described.

2. In combination, the forked standard, the elastic dilating-arms carried upon the extremities of the fork, the vertically-movable spring-pressed support, and the speculum flexibly connected to said support, substantially as described.

3. In combination, the vertical supporting forked standard, a vertical elastic dilating-arm secured to the upper end of each fork and having a lateral wing at its upper end, a vertically-movable member between the arms, and a blade or speculum secured to said vertically-movable member, substantially as described.

4. In a dilator and in combination, a forked standard, a spring-actuated dilating-arm connected to each fork, a cylinder pivoted between the forks, a spring-actuated stem within said cylinder and means for attaching a speculum to said stem.

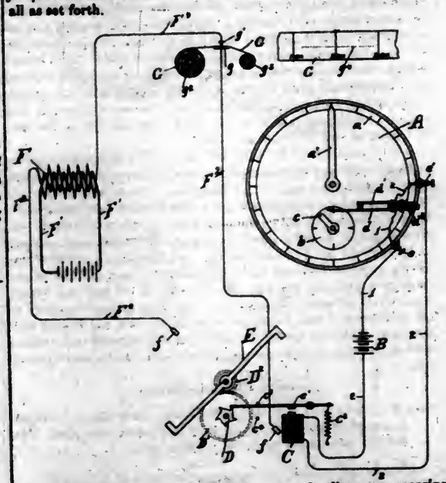
5. In a dilator the combination with the forks of the supporting-standard, of dilating-arms, having slotted lower ends and pivot-pins, upon which said arms are mounted, whereby said arms can be adjusted and removed, and means for locking said arms at different adjustments.

6. In a dilator, and in combination, a forked support, a dilating-arm pivoted to each fork and removable therefrom, a quadrant secured to each arm, and a bolt carried by each fork and adapted to lock the quadrant and arm at different adjustments

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605,548. ELECTRIC RECORDING INSTRUMENT. CHARLES L. JAGER, Maywood, N. J. Filed Aug. 5, 1897. Serial No. 647,160. (No model.)

Claim.—1. In a speed indicator and recorder, the combination with an electric circuit, a magnet forming part of the same, and means for closing and breaking said circuit, two contacts adapted to be connected and disconnected instantly by the armature of said magnet, an induction-coil terminating in said contacts and having a break, and means for moving a strip through the break, whereby the making and breaking of the circuit through said coil will cause sparks to jump across its break and through the strip making holes in the same, all as set forth.



2. In combination with the moving arm of a distance-measuring or speed-indicating device, of an electric circuit adapted to be closed and broken by said arm, a magnet forming part of said circuit, two contacts adapted to be connected and disconnected instantly by the armature of said magnet, an induction-coil terminating in said contacts and having a break, and means for regularly moving a strip through the break; whereby the making and breaking of the circuit through said coil will cause sparks to jump across its break and through the strip making holes in the same, all as set forth.

3. In combination with the moving arm of a distance-measuring or speed-indicating device, of an electric circuit adapted to be closed and broken by said arm, a magnet forming part of said circuit, two contacts adapted to be connected and disconnected instantly by the armature of said magnet, an induction-coil terminating in said contacts and having a break, and means for moving a strip divided into sections of equal lengths through the break the length of each section in a certain time; whereby the making and breaking of the circuit through said coil will cause sparks to jump across its break, and through the strip, making holes in the same, all as set forth.

4. In combination with the moving arm of a distance-measuring or speed-indicating device, of an electric circuit adapted to be closed and broken by said arm, a magnet forming part of said circuit, a toothed wheel adapted to be rotated by said armature, a revolving contact-arm caused to rotate by the rotation of said wheel, two contact-plates adapted to be connected by said arm at a certain point of its revolution, an induction-coil terminating in said plates and having a break, and means for moving a strip through said break, all combined and operating in the manner set forth.

5. In combination with the moving arm of a distance-measuring or speed-indicating device, of an electric circuit adapted to be closed and broken by said arm, a magnet forming part of said circuit, a toothed wheel engaging with said armature and adapted to be operated by the same, the gear D' adapted to rotate in unison with said wheel, the pinion D^2 engaging with said gear, the diametric arm E mounted to revolve in unison with said pinion, the contacts *f f*, an induction-coil terminating in said contacts, and a recording device adapted to be operated by making and breaking the circuit of said coil, all as set forth.

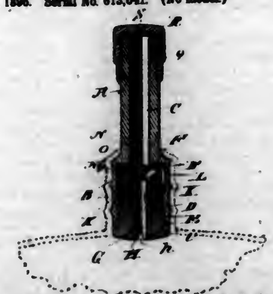
6. In combination with the moving arm of a distance-measuring or speed-indicating device, said arm being adapted to travel in two opposite directions, of three contact-plates, one being between the other two and extending over the course of said arm, two electric circuits each having the middle plate for one terminal and the two other plates for the other terminals respectively, two magnets adapted to be respectively vitalized by the closing of the two circuits, an induction-coil having a branch line, and the two terminals of said coil and branch being provided with contacts, and said contacts of the coil and branch being respectively adapted to be connected and disconnected instantly by the armatures of the respective magnets, and a recording device adapted to be operated by making and breaking the circuits of said coil and branch, all as set forth.

7. In combination with the moving arm of a distance-measuring or speed-indicating device, said arm being adapted to travel in two

opposite directions, of three contact-plates, one being between the other two and extending over the course of said arm, two electric circuits each having the middle plate for one terminal and the other two plates for the other terminals respectively, two magnets adapted to be vitalized by the closing of the two circuits, an induction coil having a branch line, and the two terminals of said coil and branch being provided with contacts, and said contacts of the coil and branch being respectively adapted to be connected and disconnected instantly by the armatures of the respective magnets, the coil and branch each having a break, and means for moving a strip through said breaks, all combined and operating as set forth.

8. In combination with the moving arm of a distance measuring or speed-indicating device, said arm being adapted to travel in two opposite directions, of three contact-plates, one being between the other two and extending over the course of said arm, two electric circuits each having the middle plates for one terminal and the two other plates for the other terminals respectively, two magnets adapted to be vitalized by the closing of the two circuits, an induction-coil having a branch line and the two terminals of said coil and branch being provided with contacts; the contacts of the coil and branch respectively adapted to be connected and disconnected instantly by the armatures of the respective magnets, the coil and branch each having a break, and means for moving a strip through said breaks a uniform distance in a certain time, all combined and operating as set forth.

605,549. VALVE GUSTAF JOHANSSON, Jersey City, N. J., assignor to himself, Willard P. Smith, and De Witt Romaine, same place. Filed Nov. 21, 1896. Serial No. 613,041. (No model.)



Claim.—1. In a valve of the class described, the combination with a suitable hollow valve-stem or inlet-pipe, of an imperforate elastic valve-disk normally under rigid mechanical annular pressure so as to close the inlet but adapted to yield by compression of its own substance at the point of annular pressure under the pressure of incoming fluid so as to allow of the entrance of the fluid to the receptacle past the annular seat or seats at the point or points of compression, substantially as shown and described.

2. In a valve of the class described, the combination with a hollow valve-stem or inlet-pipe A having the longitudinal passage C and the enlarged bottom chamber D, of a plug G secured in the end of the chamber D so formed as to leave a passage L, such plug having the cup shaped cavity I at the top, and passages H and K, and a suitable valve or disk N located in the chamber D between the inner end of the plug G and the passage above the same, substantially as shown and described and for the purposes set forth.

3. In a valve of the class described, the combination with a hollow valve-stem or inlet-pipe A having the longitudinal passage C and the enlarged bottom chamber D of a plug G secured in the end of the chamber D, and provided with a small-sized upper portion so as to leave an annular space L, surrounding the same when in position in the chamber D, also having the cup-shaped cavity I at the top, and passages H and K, and a suitable valve-disk N of a soft flexible material such as rubber located in the chamber D between the inner end of the plug G and the passage above the same, substantially as shown and described and for the purposes set forth.

4. In a valve of the class described, the combination with a spindle or valve-stem A having the longitudinal passage C and the enlarged bottom chamber D, of a plug G secured in the inner end of the chamber D and provided with a space or passage L and cup-shaped cavity I at the top, and passages H and K, the passage H communicating with the central portion of the cavity I and the passage or passages K with the space or passage L and passage H, and a suitable valve or disk N located in the chamber D between the inner end of the plug G and the passage above the same, substantially as shown and described and for the purposes set forth.

5. In a valve of the class described, the combination with a spindle or valve-stem A having the longitudinal passage C and the enlarged bottom chamber D, of a plug G secured in the inner end of the chamber D and provided with a space or passage L and cup-shaped cavity I at the top, and passages H and K, the passage H communicating with the central portion of the cavity I and the passage or passages K with the annular space L and passage H, and a suitable valve-disk N of a soft flexible material such as rubber located in the chamber D between the inner end of the plug G and the passage above the same, substantially as shown and described and for the purposes set forth.

6. In a valve of the class described, the combination with a hollow valve-stem or inlet-pipe having a bottom chamber at the top of which bottom chamber is an inward-faced valve-seat, of a plug secured in said bottom chamber having a valve-seat faced toward the first-named valve-seat, an imperforate valve-disk of compressible elastic material normally compressed between the two valve-seats, and a passage or passages formed in or through the plug for the entrance of the fluid to the receptacle when the elastic compressible valve-disk is compressed by the pressure of the incoming fluid, substantially as shown and described and for the purposes set forth.

7. In a valve of the class described, the combination with a hollow valve-stem or inlet-pipe having a bottom chamber at the top of which bottom chamber is an inward-faced valve-seat, of a plug having a central passage secured in said bottom chamber and having a valve-seat faced toward the first-named valve-seat and a central depression within the valve-seat, an imperforate valve-disk of compressible elastic material normally compressed between the two valve-seats, and a passage or passages formed in or through the plug for the entrance of the fluid to the receptacle when the elastic compressible valve disk is compressed by the pressure of the incoming fluid, substantially as shown and described and for the purposes set forth.

8. In a valve of the class described, the combination with a hollow valve-stem or inlet-pipe having a bottom chamber at the top of which bottom chamber is an inward-faced valve-seat, of a plug secured in said bottom chamber having a valve seat faced toward the first-named valve-seat, an imperforate valve-disk of compressible elastic material normally compressed between the two valve-seats, and means for permitting the fluid forced through the inlet-pipe and between the valve-seat at the top of the chamber and the valve-disk to thereafter pass to the rear of the plug, substantially as shown and described.

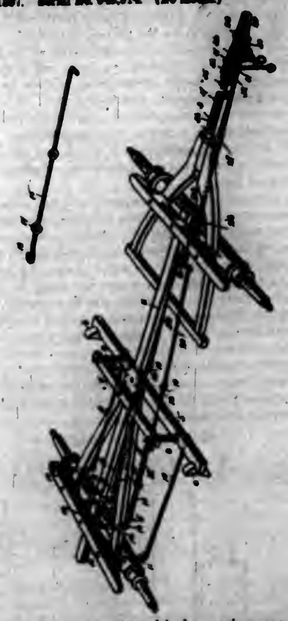
9. In a valve of the class described, the combination with a hollow valve-stem or inlet-pipe having a bottom chamber at the top of which bottom chamber is an inward-faced valve-seat, of a plug secured in said bottom chamber having a valve-seat faced toward the first-named valve-seat, an imperforate valve-disk of compressible elastic material normally compressed between the two valve-seats, means for permitting the fluid forced through the inlet-pipe and between the valve-seat at the top of the chamber and the valve-disk to thereafter pass to the rear of the plug, and means for transmitting the back pressure of the fluid within the receptacle to the rear of the valve-disk so as to force the same against the valve-seat at the top of the chamber, substantially as shown and described.

605,550. SAW-JOINTER. RUFUS D. KIRK, Bowman, Ga. Filed Dec. 16, 1897. Serial No. 662,125. (No model.)



Claim.—A saw-jointer comprising the yoke 2, formed with the integral parallel arms 3 4, having the alined shoulders 6 6, in combination with the guide plates 9 and 10 formed with the enlarged orifices 13 13, the thumb-screws 11 11′ and 12 12′ provided with collars 14, and adapted to secure said guide-plates to said arms so that the former may be both laterally and longitudinally adjustable thereon, the set-screw 8 secured in said yoke, and the file-blade 7 adjustably secured on said shoulders by said set-screw 8, substantially as shown and described.

605,551. WAGON-BRAKE. JOHN R. KINKADE, Geneva, Ky. Filed July 26, 1897. Serial No. 645,914. (No model.)



Claim.—1. The combination with the running-gear of a wagon, of brake mechanism, rods extending from the brake mechanism forwardly to the front of the pole, a movable ring mounted on the front of the pole and to which said rods are attached, inclined guides on the pole, and a stay-chain connected to said guides and ring, substantially as and for the purpose specified.

2. The combination with the running-gear of a wagon, of brake mechanism, including brake-chains, rods connected to the brake mechanism and extending forwardly to the pole, a ring movably engaging the front end of the pole and to which said rods are connected, inclined guides on the pole, stay-chains attached to said ring and guides and adapted to be connected to harness, and means for limiting the movement of the ring to permit backing of the vehicle, substantially as described.

3. The combination with the running-gear of a wagon, of brake mechanism, rods connected therewith and extended forwardly to the front end of the pole, a ring movably engaging said front end of the pole to which said rods are attached, a chain connected to said ring, means for adjusting said chain and ring, and stay-chains attached to said ring and adapted to be connected to harness, substantially as described.

4. The combination with the running-gear of a wagon, of the brake beam or rod having brake-shoes thereon, a rock-shaft connected to said brake-beam, rods attached to pendent arms on said rock-shaft, a ring movably engaging the front end of the pole and to which the front ends of said rods are connected, a stay-chain connected to said ring, and means for suspending said stay-chains separate from said pole-ring, substantially as described.

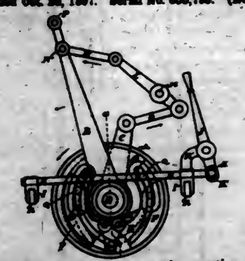
5. The combination with the running-gear of a wagon, of a rock-shaft 12 having pendent arms secured to the brake beam by suitable connecting-rods, pendent lever-arms 14, rods extending from said lever-arms, and having their forward portions connected with a ring sliding on the front end of the pole, stay-chains connected with said ring, pendent chains connected with said stay-chains and movable on angle-irons connected with the pole, and means connected with said pole-ring for limiting its throw for preventing the application of the brakes in backing the vehicle, substantially as described.

605,552. COMBINED FOOT SCRAPER AND WIPER. ISRAEL KINSEY, Detroit, Mich., assignor to Joseph S. Stockwell, Edward M. Weatherhead, Frederick W. Durrant, and Edward P. H. Pearson. Filed Feb. 14, 1898. Serial No. 670,280. (No model.)

Claim.—In a foot scraper and wiper, the combination of the plate, the scraper on said plate, the frame at the end of said plate, the bar formed integral therewith and extending across the opening in said frame, the wiping material extending under said bar and over the sides of said frame, as set forth.



605,553. DEVICE FOR CONVERTING MOTION. GEORGE R. LAIDLAW, Marion, Ind., assignor of two-fifths to Lee Stevens, same place. Filed Oct. 20, 1897. Serial No. 655,795. (No model.)



Claim.—1. In a device for converting motion, the combination with a pulley, of a lever rotatably secured on the hub of the pulley, oppositely-extending clutch-shoes having one of their ends pivoted to the lever and their free ends adapted to bear against the inner surface of the pulley and adapted to rotate the pulley when the lever is moved in one direction and have a sliding contact with the pulley when the lever is moved in the opposite direction, and means for disengaging one of the shoes or both of the shoes from operative contact with the surface of the pulley.

2. In a device for converting motion, the combination with a pulley, of a pair of reciprocating levers, oppositely-extending clutch-shoes having one end pivotally secured to each lever and adapted to engage the inner surface of the pulley, and means for disengaging all of the shoes or one of the shoes of each lever from operative contact with the inner surface of the pulley

3. In a device for converting motion, the combination with a rotatable pulley, of a pair of reciprocating levers, oppositely-extending clutch-shoes pivotally secured to each lever and adapted to engage the pulley, and shifting rods engaging the shoes to disengage all of the shoes or one of the shoes of each lever from operative contact with the pulley.

4. In a device for converting motion, the combination with a rotatable pulley, of a pair of reciprocating levers, oppositely-extending clutch-shoes pivotally secured to the levers and adapted to engage the inner surface of the pulley, shifting rods slidingly secured, and curved links engaging each shoe for disengaging them from operative contact with the pulley.

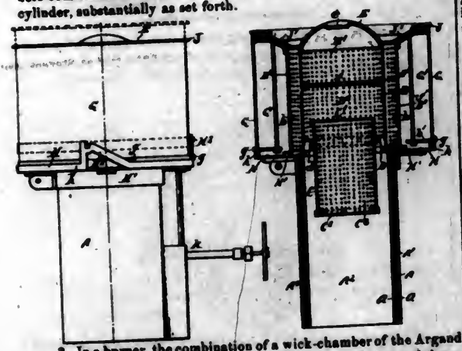
5. In a device for converting motion, the combination with a rotatable pulley, of a pair of reciprocating levers, oppositely-extending clutch-shoes having one end pivotally secured to the levers and adapted to engage the inner surface of the pulley and on opposite sides of the inner surface thereof, and means for disengaging the corresponding shoe of each lever from operative contact with the surface of the pulley.

6. In a device for converting motion, the combination with a rotatable pulley, of a pair of reciprocating levers, oppositely-extending clutch-shoes adapted to engage the inner surface of the pulley and having one end pivotally secured to the levers, a projection on the opposite ends of the shoes, sliding shifting rods, curved links secured to the rod and adapted to engage the projections on the shoes adapted to guide the shoes into operative contact with the pulley or disengage them from the pulley.

605,554. HYDROCARBON-BURNER. JAMES M. MERRITT and BENJAMIN F. GOODRICH, Homer, Mich.; said Merritt assignor to said Goodrich. Filed June 28, 1898. Serial No. 598,403. (No model.)

Claim.—1. In a burner, the combination of a wick-chamber of the Argand type, forming an interior air-chamber, foraminous walls located above the wick-chamber forming a combustion-chamber therebetween, an interior air-chamber formed by and within the inner wall, a foraminous cylinder at the adjacent ends of said air-chambers, said two air-chambers communicable the one with the other through said cylinder, substantially as set forth.

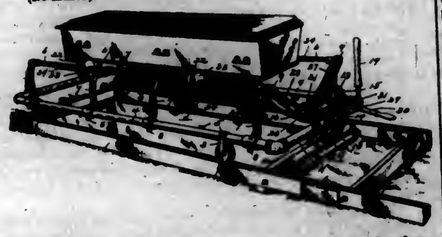
2. In a burner, the combination of a wick-chamber of the Argand type, forming an interior air-chamber, foraminous walls located above the wick-chamber, forming a combustion-chamber therebetween, an interior air-chamber formed by and within the inner wall, a foraminous cylinder provided with solid heads at the top and bottom thereof, located at the adjacent portions of said two air-chambers, said cylinder spaced from the interior walls of the wick-chamber and the combustion-chamber, and a diaphragm located exterior to said cylinder to divert the circulation of air through said cylinder, said air-chambers communicable the one with the other through said foraminous cylinder, substantially as set forth.



3. In a burner, the combination of a wick-chamber of the Argand type, forming an interior air-chamber, foraminous walls located thereabove, forming a combustion-chamber therebetween, an interior air-chamber formed by and within the inner wall, a foraminous cylinder located at the adjacent ends of said air-chambers, through which said air-chambers communicate, the one with the other, and a cap located above the air-chamber within the combustion-chamber, said cap provided with an opening to permit the circulation of air therethrough, substantially as set forth.

4. In a burner, the combination with foraminous walls or tubes B, B', of a cylinder or casing G thereabout, forming an air-chamber therebetween, a top plate J connecting said cylinder or casing to said foraminous walls, and a perforated plate H at the base of said air-chamber, said plate formed with cam-flanges H^3, and said casing or cylinder G provided with lugs g to ride on the upper edge of said flanges to lift the cylinder or casing, substantially as set forth.

605,555. **BURIAL APPARATUS.** CHARLES L. MOORE and CORTES V. POAN, Bowling Green, Mo. Filed May 18, 1897. Serial No. 637,065. (No model.)



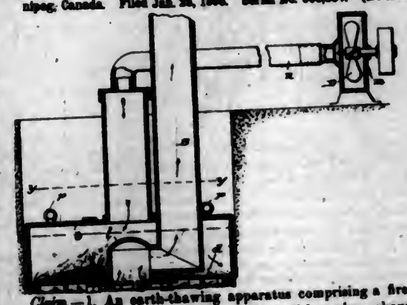
Claim.—1. In a burial apparatus, the combination of a frame comprising longitudinal bars to come upon opposite sides of the grave, knees having bearings at both ends and mounted at their inner ends upon the said longitudinal bars to slide and turn thereon to secure any longitudinal adjustment and to spread their free ends more or less, means for securing the knees in an adjusted position upon the frame-bars, longitudinal shafts parallel with each other and with the side frame-bars, mounted in the bearings at the free or outer ends of the knees, and actuating mechanism applied to the frame for simultaneously turning the shafts at equal speed, substantially in the manner set forth.

2. In a burial apparatus, the combination of a rectangular frame, knees mounted to turn and slide upon side bars of the frame, means for securing the knees in an adjusted position, parallel shafts mounted in bearings at the free ends of the knees, spools adjustable on said shafts and caused to revolve therewith at any adjusted position by a feather-and-spline connection, actuating mechanism for positively rotating the shafts in reverse directions at an equal rate of speed, a detent and a brake device applied to the actuating mechanism, and straps or tapes having their end portions secured to and wound in reverse directions upon corresponding or transversely-alining spools, substantially as set forth for the purpose described.

3. In a burial apparatus, the combination of longitudinally-disposed shafts, straps or tapes having their end portions reversely wound upon the said shafts, intermeshing pinions having sprocket-pinions revolving therewith, sprocket-chains for connecting the sprocket-pinions with corresponding sprocket-pinions on the ends of the longitudinal shafts, a detent mechanism applied to one of the pinions for holding the mechanism in check, and actuating mechanism for positively operating the said pinions, substantially as and for the purpose set forth.

4. In a burial apparatus, the combination of a frame, longitudinal shafts journaled upon the frame, straps or tapes having their end portions reversely wound upon the shafts, a sleeve secured upon a frame-bar and having extensions, a shaft journaled in the extensions and provided with a gear-wheel and a pinion, the latter having a hub portion formed with spurs, a pawl for engaging with the spurs, a ring on the side of the gear-wheel, a strap engaging with the ring, a lever having the strap connected therewith, a second pinion meshing with the first-mentioned pinion, sprocket-pinions revolving with the aforesaid pinions and connected by means of sprocket-chains with sprocket-pinions on the said longitudinal shafts, and a crank having a pinion operatively connected therewith and adapted to be thrown in and out of mesh with the said gear-wheel, substantially as set forth for the purpose described.

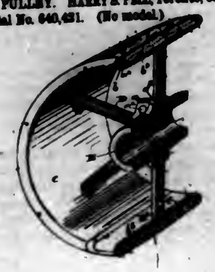
605,556. **THAWING APPARATUS.** ROBERT B. ORMISTON, Winnipeg, Canada. Filed Jan. 26, 1898. Serial No. 668,237. (No model.)



Claim.—1. An earth-thawing apparatus comprising a fire-box having a side wall and a bottom wall disposed in a plane above the lower edge of said side wall so as to form an inclosed space between said bottom wall and the ground and also having an open passage between the edge of said bottom wall and the side wall, a suitable blower connected with the interior of the fire-box, and a smoke-pipe connected with the space below the bottom of the fire-box at the center thereof and extending through said fire-box, substantially as specified.

2. An earth-thawing apparatus comprising a fire-box having its bottom wall disposed in a plane above the lower edge of its side wall so as to form an inclosed space between said bottom wall and the ground and also having an annular passage between the edge of said bottom wall and the side wall, an aperture in the center of its bottom wall, and partition-strips connected to and depending from its bottom wall and forming ways intermediate of the annular passage and the central aperture, a smoke-pipe connected with the central aperture in the bottom wall of the fire-box, and a blower connected with the interior of the fire-box, substantially as specified.

605,557. **PULLEY.** HARRY S. PELL, Toronto, Canada. Filed June 12, 1897. Serial No. 640,631. (No model.)



Claim.—1. In combination in a pulley, the belt-face of light material, and a metal sheathing having side flanges, and beaded edges fitting the edges of said light material, substantially as described.

2. In a pulley, in combination the face provided with edge flanges, and the broad cross-notches made across the interior wall of the face, the spoke cross-heads fitting into such notches, the interior sheathing having retaining edges to hold the face in place the spokes and means for connecting the spokes to the cross-heads as and for the purpose specified.

3. In a pulley, in combination the face provided with edge flanges, and the broad cross-notches made across the interior wall of the face, the spoke cross-heads having threaded central bosses, the interior sheathing through which the bosses extend and the tubular spokes into which the threaded bosses extend and a suitable hub to receive the inner ends of the spokes as and for the purpose specified.

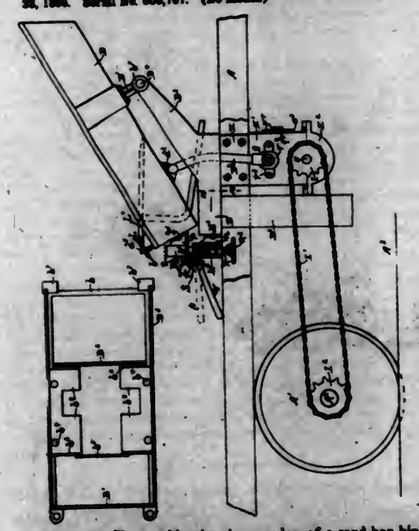
4. In a pulley, in combination the face provided with edge flanges, and the broad cross-notches made across the interior wall of the face, the spoke cross-heads fitting into such notches, the interior sheathing having retaining edges to hold the faces in place the spokes and means for connecting the spokes to the cross-heads and the hub divided on the plane of the axes of the spokes and having flanges and bolts for securing the two parts of such hub together as and for the purpose specified.

5. In a pulley in combination, the face provided with edge flanges, the broad cross-notches made across the interior wall of the face, the spoke cross-heads fitting into such notches and provided with inwardly-turned lips designed to embrace the flanges, the spokes suitably secured to the same and the interior sheathing through which the spokes extend as and for the purpose specified.

6. In a pulley, in combination, the face provided with the inner circumferential edge flanges and the outer circumferential edge grooves located within the flanges and the interior sheathing provided with the edge flanges and beads at their inner ends fitting within the grooves of the edges of the face, the spokes, and hub, and means for connecting the spokes to the interior sheathing as and for the purpose specified.

7. A rim for a pulley comprising a metal interior sheathing having inwardly-turned flanges reinforced by being turned back upon themselves and a filling of suitable material for such chamber forming the belt-face, said reinforced edges extending up flush with the face of said filling and over the edge thereof, substantially as described as and for the purpose specified.

605,558. **TRACK-SANDER.** CHARLES V. ROTH, Lancaster, Pa., assignor of one-half to Richard Blickenderfer, same place. Filed July 26, 1896. Serial No. 600,767. (No model.)



Claim.—1. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel, and a brush connected with the sand-box and at one side of the hinged support, the brush bearing against the cam-wheel and acting, approximately, in line with its connection with the sand-box, for the purpose specified.

2. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel, and a rigid brush connected with the sand-box and at one side of the hinged support, the brush bearing against the cam-wheel and acting, approximately, in line with its connection with the sand-box, for the purpose specified.

3. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel, a brush connected with the sand-box and at one side of said hinged support, the brush being located vertically, approximately, beneath its connection with the sand-box and bearing downward on the cam-wheel, for the purpose specified.

4. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel, a rigid brush connected with the sand-box and at one side of said hinged support, the brush being located vertically, approximately, beneath its connection with the sand-box and bearing downward on the cam-wheel, for the purpose specified.

5. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel, and uprightly-disposed brush connected with the sand-box and at one side of the hinged support, the brush bearing downward on the cam-wheel, for the purpose specified.

6. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel, an uprightly-disposed rigid brush connected with the sand-box and at one side of the hinged support, the brush bearing downward on the cam-wheel, for the purpose specified.

7. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel having the swell thereof terminating in an abrupt shoulder, a brush connected with the sand-box and at one side of said hinged support, the brush bearing downward on the cam-wheel, for the purpose specified.

8. The combination, in a sander, of a sand-box hinged to a support, a cam-wheel having the swell thereof terminating in an abrupt shoulder having the face thereof approximately radial to the axis of said cam-wheel, a brush connected with the sand-box and at one side of the hinged support, the brush bearing downward on the cam-wheel, for the purpose specified.

9. The combination, in a sander, of a hinged sand-box, a reciprocating rod, a cam-wheel adapted to impart motion to the reciprocating rod when the sander moves in one direction and a cam-wheel adapted to impart motion to said rod when the sander moves in the opposite direction, and an actuating connection between the reciprocating rod and the sand-box, for the purpose specified.

10. The combination, in a sander, of a hinged sand box, a reciprocating rod, a cam-wheel below the reciprocating rod, a rigid brush on said reciprocating rod and adapted to be engaged by the cam-wheel, and an actuating connection between the reciprocating rod and the sand-box, for the purpose specified.

11. The combination, in a sander, of a hinged sand-box, a reciprocating rod, a wheel below the reciprocating rod, provided on its periphery with a cam having a sloping face and a shoulder, a rigid brush on said reciprocating rod and adapted to bear on the periphery of the cam-wheel, and an actuating connection between the reciprocating rod and the sand-box, for the purpose specified.

12. The combination, in a sander, of a hinged sand-box, a revoluble reciprocating rod, wheels below said rod, provided on their peripheries with cams having shoulders and sloping faces, the sloping face and shoulder of the cam of one wheel being set in the direction opposite to those on the other wheel, rigid brushes set at an angle with each other on said rod, one of said brushes being located above each wheel, the brushes being adapted to alternatively engage the peripheries of the cam-wheels beneath them, and an actuating connection between said rod and the sand-box, for the purpose specified.

13. The combination, in a sander, of a hinged sand-box, a case, a revoluble reciprocating rod having its bearing in slots in the ends of the case, wheels below said rod, provided on their peripheries with series of cams having shoulders and sloping faces, the shoulders and sloping faces of the cams of one wheel being set in a direction opposite to those on the other wheel, rigid brushes set at an angle with each other on said rod, one of said brushes being located above each wheel, the brushes being adapted to alternatively engage the peripheries of the cam-wheels beneath them, a stud on the rod and adapted to engage a stop on the side of the case when one of the brushes is engaged with a cam-wheel, a stop engaging the other brush when the same engages a cam-wheel, and an actuating connection between said rod and the sand-box, for the purpose specified.

14. The combination, in a sander, of a hinged sand-box, a case, a shaft in the case, a wheel on the center of said shaft, provided on its periphery with a series of cams having shoulders and sloping faces, wheels on said rod and at the sides of the center wheel and having cams similar to those thereon and set in an opposite direction, a revoluble reciprocating rod above the shaft, a rigid brush on the center of the rod and adapted to engage the cams of the center wheel, rigid side brushes set on said rod at an angle with the center brush and adapted to engage the cams on the side wheels, a stop on the rear wall of the case and bearing against the center brush when engaged with its cam-wheel, stops on the ends of the case, studs on said rod and adapted to engage the stops on the end of the case when the end

brushes are engaged with their cam-wheels, and an actuating connection between said rod and the sand-box, substantially as and for the purpose specified.

15. The combination, in a sander, of an inclined sand-box having a delivery-opening in the lower end, rocking arms toward the upper end of the sand-box and hinged on a support, wrist-pins on the sand-box between the rocking arms and the delivery-opening, a case below the sand-box, a shaft in the case, a wheel on the center of said shaft, provided on its periphery with a series of cams having shoulders and sloping faces, wheels on said shaft and at the sides of the center wheel and having cams similar to those thereon and set in an opposite direction, a revoluble reciprocating rod having its bearings in vertical slots in the end walls of the case, a rigid brush on the center of the rod and adapted to engage the cams of the center wheel, rigid side brushes on said rod at an angle with the center brush and adapted to engage the cams on the side wheels, a stop on the rear wall of the case and bearing against the center brush when engaged with its cam-wheel, stops on the ends of the case, studs on said rod and adapted to engage the stops on the end of the case when the end brushes are engaged with their cam-wheels, and rods connecting the ends of said revoluble reciprocating rod and said wrist-pins, substantially as and for the purpose specified.

16. The combination, in a sander, of an inclined sand-box having a delivery-opening in the lower end thereof, and teeth raised above the lower end of the delivery-opening and extending back across the same to the bottom of the sand-box and above the delivery-opening, the said teeth being broad and with narrow spaces between them back of said opening, and narrow and with wider spaces between them over said opening, for the purpose specified.

17. The combination, with a sander, of a sand-box having a delivery-opening, a series of bars extended across said opening, and a second series of bars located below the first series, the bars of the second series being located closer together than those of the first series, for the purpose specified.

18. The combination, in a sander, of an inclined sand-box having a delivery-opening in the lower end thereof, a series of teeth raised above the lower end of the delivery-opening and extending back across the same to the bottom of the sand-box and behind the delivery-opening, and a second series of teeth below the first series and set closer together than those of said first series, said lower series of teeth having their front ends adjacent to the front wall of the sand-box and their rear ends extending behind said delivery-opening, for the purpose specified.

19. The combination, in a sander, of an inclined sand-box having a delivery-opening in the lower end thereof, a series of teeth raised above the lower end of the delivery-opening and extending back across the same to the bottom of the sand-box and behind the delivery-opening, and a second series of teeth below the first series and set closer together than those of said first series, said lower series of teeth having their front ends adjacent to the front wall of the sand-box and their rear ends extending below the bottom of said sand-box behind said delivery-opening, for the purpose specified.

20. The combination, in a sander, of an inclined sand-box having a delivery-opening in the lower end thereof, a chute below the delivery-opening, a series of teeth having their shanks secured in a head, the head being raised above the lower end of the delivery-opening, said teeth extending back over the delivery-opening and having their rear ends resting on the bottom of the sand-box and above said delivery-opening, the teeth being broad and with narrow spaces between them back of said opening, and narrow and with wider spaces between them over said opening, and a second series of teeth below the first and having their front ends adjacent to the front wall of the sand-box and thence extending downward and backward through the opening and with their ends projecting behind said chute, the lower series of teeth being set closer together than the upper, substantially as and for the purpose specified.

21. The combination, in a sander, of a sand-box, a hinged support for the sand-box, a support located on a side of the hinged support, a cushion interposed between said side support and the sand-box, and a device adapted to vibrate the sand-box about the hinge-support.

22. The combination, in a sander, of a sand-box, a hinged support for the sand-box, a resilient support on one side of the hinged support, and a device adapted to vibrate said sand-box about the hinged support.

23. The combination, in a sander, of a sand-box, a hinged support for the sand-box, a resilient support on one side of the hinged support, means for regulating the play of the resilient support, and a device adapted to vibrate said sand-box about the hinged support.

24. The combination, in a sander, of a sand-box, a hinged support for the sand-box on one side of the center thereof, a resilient support on the other side of said center, and a device connected with the sand-box between said supports and adapted to vibrate said sand-box about the hinged support.

25. The combination, in a sander, of a sand-box, a hinged support for the sand-box, a hollow cap attached to the sand-box on one side of the hinged support, a stationary base below the cap, a threaded adjusting-rod engaging a threaded opening through said base, the stem of said rod extending into the cap, a resilient connection between said stem and the cap, and means for vibrating the sand-box about its hinged support, for the purpose specified.

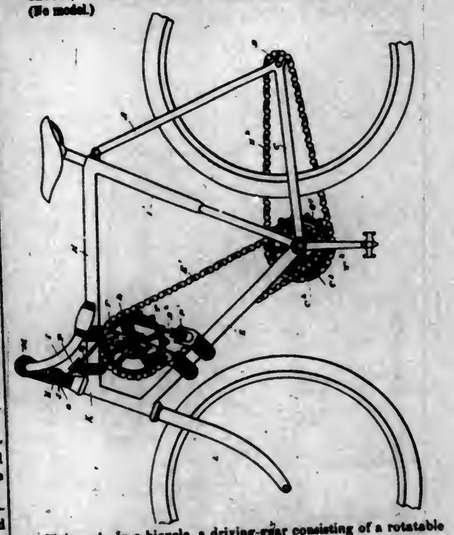
26. The combination, in a sander, of a sand-box, a hinged support for the sand-box, a hollow cap attached to the sand-box on one side of the hinged support, a stationary base below the cap, a threaded adjusting-rod engaging a threaded opening through said base, the stem of said rod extending into the cap, a resilient connection between said stem and the cap, an elastic sleeve around the stem of said rod and between the cap and base, and means for vibrating the sand-box about its hinged support, for the purpose specified.

27. The combination, in a sander, of a sand-box, a hinged support for the sand-box, a hollow cap attached to the sand-box on one side of the hinged support, a stationary base below the cap and having a socket in the top thereof, a threaded adjusting-rod engaging a threaded opening through said base, the upper end of said rod forming a shoulder in the socket in the base, the stem of the adjusting-rod extending into the cap and having a removable head thereon, a washer on said shoulder, an elastic sleeve embracing the stem of the adjusting-rod and having one end bearing on the bottom of the cap and the other end on said washer, a spring coiled around the stem of the rod and having its ends bearing on the head of the said stem and on the bottom of the cap, and means for vibrating the sand-box about its hinged support, substantially as and for the purpose specified.

28. The combination, in a sander, of a sand-box, a hinged support for the sand-box, a resilient support for said sand-box, mechanism for vibrating the sand-box about the hinged support, and a device for disconnecting the resilient support and thereby disengaging the vibrating mechanism, for the purpose specified.

29. The combination, in a sander, of a sand-box, a hinged support for the sand-box and adjacent to one end thereof, mechanism for vibrating said sand-box about the hinged support, a cap on the vibrating end of the sand-box and having a lug thereon, a stationary base below the cap and having jaws thereon, a resilient mechanism housed in said cap and base, and a cam-lever fulcrumed between the jaws and adapted to engage said lug and disconnect the resilient mechanism by raising said cap, substantially as and for the purpose specified.

605,559. HAND DRIVING-GEAR FOR CYCLES. WALTER TAYLOR, Brisbane, Queensland. Filed Apr. 12, 1897. Serial No. 631,239. (No model.)



Claim.—1. In a bicycle, a driving-gear consisting of a rotatable handle-bar, provided with a cam, a sprocket-wheel mounted on an independent frame between the forward reach-bars of the bicycle-frame and provided with rotatable toothed wheels mounted on either side of the said sprocket-wheel, duplicate quadrants mounted on the opposite sides of the said sprocket-wheel and provided with pawls to engage the said ratchet-wheels on the said sprocket-wheel, flexible attachments between the said quadrants and the cam on the handle-bar, a guide-pulley mounted on the frame of the bicycle to the side of the said quadrant removed from said handle-bar, a flexible connection between the two quadrants to pass under the said guide-pulley, and a flexible connection between the said sprocket-wheel and the crank-shaft of the bicycle, substantially as described.

2. In a bicycle, a driving-gear, consisting in the combination of the handle-bar, I, rotatably mounted in the head of the bicycle-frame, the elongated cam, M, mounted rigidly on the said handle-bar, guide-pulleys, N, N, sprocket-wheel, T, detachable frame, F, forming bearings for the wheel, T, ratchets, U, U', secured to the said sprocket, quadrants R, R', mounted on the shaft with the sprocket, T, and provided with pawls, A^4, A^4, to engage the said ratchet, flexible connections, Q, Q, attached to the said quadrants and connecting them with the cam, M, after passing under the pulleys, N, N, guide-pulley, P^7, mounted on the frame of the bicycle, flexible connection, B^9, passing under said guide-pulley and connecting the ends of the quadrants, R, R', sprocket-wheel, O', mounted on the crank-shaft of the bicycle, and sprocket-chain, E', connecting the sprocket-wheels, T and O', all substantially as described.

605,560. GAS-HEATER. MICHAEL ZIPPLER, Allegheny, Pa. Filed May 10, 1897. Serial No. 636,794. (No model.)



Claim.—1. In a gas-heater, the combination of a base or support, a mixing chamber thereon, a gas-supply for supplying gas to the mixing-chamber, a heating-chamber connected to the upper portion of the mixing-chamber, a cone-shaped resistance-plate within the mixing-chamber and provided with an opening therein, a spreader within the heating chamber adapted to direct the flame and products of combustion against the walls of the heating-chamber, and a deflecting-plate within the heating-chamber above the spreader, substantially as and for the purposes set forth.

2. In a gas-heater, the combination of a base or support, a mixing-chamber thereon, a gas-supply pipe for supplying gas to the mixing-chamber, a heating-chamber connected to the upper portion of the mixing-chamber, a cone-shaped resistance-plate within the mixing-chamber provided with an opening therein, a gauze between the heating-chamber and resistance-plate, a concavo-convex spreader within the heating-chamber above the gauze having openings adjacent to its outer edge for the passage of the products of combustion through the same into the heating-chamber, and a deflecting-plate within the heating-chamber above the spreader having an opening therein for the escape of the waste products of combustion, substantially as and for the purposes set forth.

3. In a gas-heater, the combination of a base or support, a mixing-chamber thereon, a gas-supply pipe for supplying gas to the mixing-chamber, a heating-chamber connected to the upper portion of the mixing-chamber, a gauze between the heating-chamber and mixing-chamber, a concavo-convex spreader within the heating-chamber above the gauze and provided with openings adjacent to its outer edge for the passage of the products of combustion through the same into the heating chamber, and a deflecting-plate above the spreader and adapted to form spaces or openings between the upper surface of the same and the inner walls of the heating-chamber for the escape of the waste products of combustion, substantially as and for the purposes set forth.

605,561. CASH-RECEIVER. MANNERS ANDERSON, Chicago, Ill. Filed Feb. 20, 1897. Serial No. 624,423. (No model.)

Claim.—1. A cash-receiver comprising a cash-box receptacle, a chute connected therewith, said cash-box receptacle provided with a projecting part which engages the end of the cash-box, a partition extending across said cash-box receptacle, an opening through said partition, said partition and projection so positioned that the cash-box passes through the opening in the partition so as to enter the chute upon its side.

2. A cash-receiver comprising a cash-box receptacle, provided with a projecting part adapted to engage the end of the cash-box, an inclined partition extending across said cash-box receptacle and having an opening therethrough, said partition so positioned that the lower end of the cash-box enters said opening when the box engages said projection, said projection so positioned that the box is unbalanced when resting thereon, a chute below said cash-box receptacle, the whole so constructed that the cash-box is received in one position and delivered into the chute in another position.



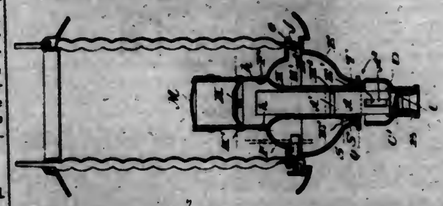
3. A cash-receiver comprising a cash-box receptacle, a projecting part in said cash-box receptacle adapted to engage the end of the cash-box, a partition extending across said cash-box receptacle, and provided with an opening for said cash-box, a chute connected with said cash-box receptacle and provided with a discharge opening, said cash-box receptacle so constructed and positioned as to receive the cash-box endwise and discharge it sidewise into said chute whereby the first cash-box received in the first one to be delivered.

4. A cash-receiver comprising a cash-box receptacle, a projecting part on said cash-box receptacle adapted to engage the end of the cash-box, a partition extending across said cash-box receptacle and provided with an opening for said cash-box, said opening being enlarged at the ends so as to allow the enlarged ends of the box to pass therethrough, a platform beneath said cash-box receptacle, an opening opposite said platform, a chute connected with said opening and adapted to receive the cash-box, said chute provided at its lower end with an opening so that the cash-box may be removed therefrom.

5. A cash-receiver comprising a cash-box receptacle, a projecting part on said cash-box receptacle adapted to engage the end of the cash-box, a partition extending across said cash-box receptacle and provided with an opening for said cash-box, said opening being enlarged at the ends so as to allow the enlarged ends of the box to pass therethrough, a platform beneath said cash-box receptacle, an opening opposite said platform, said opening enlarged at each end so as to allow the enlarged ends of the box to pass therethrough, a chute connected with said cash-box receptacle, and having a receiving end opposite said opening, the parts so constructed that the cash-box is received endwise into the cash-box receptacle and is then changed in position so as to enter the chute upon its side.

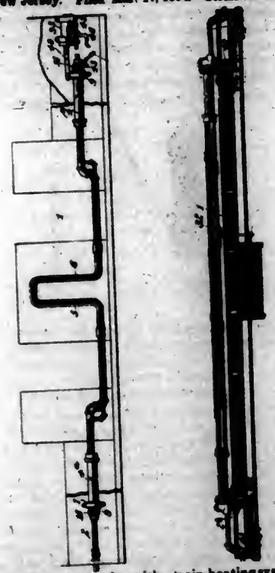
6. A cash-receiver provided with a receiving and a discharge opening, the receiving-opening constructed so as to receive the cash-box on end, a position-changing device for changing the position of the cash-box so that it arrives at the discharge-opening on its side, said position-changing device comprising an arresting or checking device between the receiving and discharge openings, and a receiving-platform upon which the cash-box is received before passing through said discharge-opening.

605,562. INCANDESCENT GAS-BURNER. JOHN W. BRADLEY, Watertown, N. Y., assignor to the Welsbach Lamp Company, same place. Filed Oct. 30, 1897. Serial No. 656,903. (No model.)



Claim.—An incandescent gas-burner, comprising in combination with the base, the burner-tube A and gas-tip C supported on a shoulder therein, the cup D with its lower flanged end upturned and fitted about said tube A, the cylindrical jacket B with beaded end, the disk Q thereon, means for supporting the jacket, and the mixing-chamber supported by the beads on said tube and jacket, as shown and described.

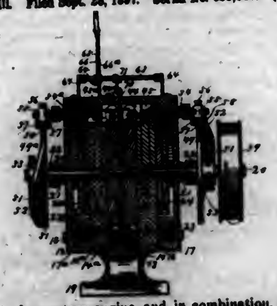
605,563. CAR-HEATING APPARATUS. ROBERT M. DIXON, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, of New Jersey. Filed Mar. 17, 1894. Serial No. 504,050. (No model.)



Claim.—1. The combination with a train-heating system, of drainage-tanks upon the cars thereof, means of communication between each of said drainage-tanks, and a single discharge-port for all of the tanks, of valves interposed between the drainage-tanks and their means of communication, adapted to shut off or establish drainage communication between the same, and mechanism for simultaneously operating each of said valves, substantially as set forth.

2. The combination with a train-heating system, of communicating drainage-tanks upon the cars of the system, and drainage-valves adapted to control the communication between the drainage-tanks, of a source of pneumatic energy, mechanism for pneumatically actuating the valves, and means of communication between the source of pneumatic energy and the pneumatic actuating mechanism, all substantially as set forth.

605,564. ROTARY STEAM-ENGINE. FREDERIC GALPIN, Willamsfield, Ill. Filed Sept. 28, 1897. Serial No. 653,267. (No model.)



Claim.—1. In a rotary engine, and in combination, a rotatable shaft, a wheel fixed to said shaft, a piston on the periphery of said wheel, an annular steam-chamber in which said piston revolves, a slidable abutment, a cylinder-head with twin steam-supply conduits for said piston, exhaust-conduits for said annular steam-chamber, a valve with steam-passages loosely mounted on said shaft, a valve fixed to said shaft and provided with a steam-passage, and a steam-chamber in which said valves are located, substantially as described.

2. In a rotary engine, and in combination, a rotatable shaft, a wheel fixed to said shaft, a piston on the periphery of said wheel, an annular steam-chamber in which said piston revolves, a cylinder-head with twin steam-supply conduits 30, 30ª therethrough for said piston, exhaust-conduits for said annular steam-chamber, valves 24 and 25, constructed and mounted substantially as described, and a steam-chamber in which said valves are located, substantially as described.

3. In a rotary engine, and in combination, a rotatable shaft, a wheel fixed to said shaft, a piston on the periphery of said wheel, an annular steam-chamber in which said piston revolves, a cylinder-head with steam-supply conduits 30, 30ª therethrough for said piston, exhaust-conduits for said annular steam-chamber, a valve loosely mounted on said shaft and having steam-passages 29, 29ª, means for adjusting said valve, a valve fixed to said shaft and having a steam-passage 27, a steam-chamber in which said valves are located, and a valved steam-supply pipe leading to said chamber.

4. In a rotary engine, and in combination, a rotatable shaft, twin wheels fixed to said shaft, a piston on the periphery of each of said wheels, twin annular steam-chambers in which said pistons revolve, slidable abutments, means for operating said abutments, twin cylinder-heads each having steam-supply conduits 30, 30ª, twin valves loosely mounted on said shaft, and each having steam-passages therethrough, means for simultaneously adjusting said valves, and twin valves fixed to said shaft and each having a steam-passage therethrough, substantially as described.

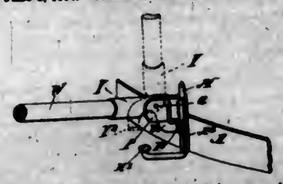
5. In a rotary engine, and in combination, a rotatable shaft, twin wheels fixed to said shaft, a piston on the periphery of each of said wheels, twin annular steam chambers or cylinders, slidable abutments, means for actuating said abutments, twin cylinder-heads each having steam-conduits 30, 30ª, twin pairs of valves, 24, 25, mounted on said shaft, a hand actuating-lever for said valves, means for operatively connecting said valves 25 with said lever, exhaust-ports at each side of said annular steam chambers or cylinders, exhaust-valves for said exhaust-ports and means for operatively connecting said exhaust-valves with said lever, whereby said valves 24, 25 and exhaust-valves are simultaneously adjusted, substantially as described.

6. In a rotary engine, and in combination, a cylinder provided with exhaust-ports, a rotary shaft, a cylinder-head having steam-supply conduits 30, 30ª, a valve adjustably mounted on said shaft and provided with steam-passages 29, 29ª, a valve fixed to said shaft and provided with a steam-passage 27, substantially as and for the purpose described.

7. In a rotary engine and in combination, a cylinder provided in its periphery with an exhaust-port, a valve therefor, a rotary piston, a cylinder-head having therein a steam-supply conduit, a valve therefor secured to the said shaft of said rotary piston, a second valve movable relative to said shaft, an operating-lever and connections for said second valve, and connections between said lever and said exhaust-valve whereby the valves are operated simultaneously, substantially as described.

8. In a rotary engine, and in combination, a cylinder having in the periphery thereof exhaust-ports, valves therefor, a rotary piston, a cylinder-head on one side of said rotary piston having steam-supply conduits therein, valves for said supply-conduits mounted on the shaft of said rotary piston, one fixed and the other loose thereon, a steam-chest surrounding said supply-valves, and means for operating said exhaust-valves and said loose valve, substantially as described.

605,565. TOWEL-RACK. JAMES W. LYON, Brooklyn, N. Y. Filed June 8, 1897. Serial No. 639,849. (No model.)



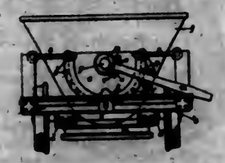
Claim.—1. In a towel-rack, a flexible strap A and adjustable connecting means, said strap being bent to present the vertical eyes A^2, upright pins bearing in the strap-eyes, a clip embracing each of the pins, and towel-supporting arms W, carried by said clips, substantially as herein specified.

2. In a towel-rack, the combination with the flexible strap A, presenting the vertical eyes A^2, of strap-connecting means, and upright pins M bearing in the strap-eyes, a clip embracing each of the pins M, and towel-supporting arms W, each pivoted to swing vertically in a clip, each arm having a heel or stop Y^2 to limit its downward movement, substantially as herein specified.

3. In a towel-rack, the flexible strap A, carrying the upright pins M, strap-connecting means, a clip P, for each pin and including a flat projection, in combination with a bar W having the thimble Y with flattened portion Y' pivoted on said projection to swing vertically, substantially as herein specified.

4. In a towel-rack, the flexible strap A carrying the upright pins M, strap-connecting means, a clip P, for each pin and including a flat projection, in combination with a bar W, having the thimble Y with flattened portion pivoted on each projection, and having an integral head or contacting part for limiting its downward movement, substantially as herein specified.

605,566. SLAG-TRUCK. JOHN H. MENZIES, Denver, Colo., assignor to the Colorado Iron Works Company, same place. Filed Jan. 7, 1898. Serial No. 665,911. (No model.)

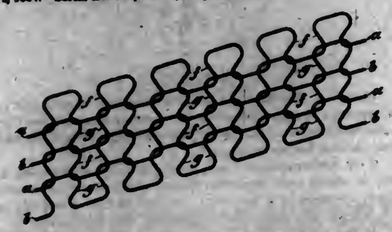


Claim.—1. In a slag truck or car, a frame, a pot, projecting trunnions at each end, wheels or segments secured to said trunnions, transverse tracks supporting the said wheels, means for centering the pot and a lever for tilting the pot with means for engaging the lever with the wheel or segment, substantially as described.

2. In a slag truck or car, a tilting pot, wheels or segments supporting the same, transverse tracks on which the segments roll and a lever having a pivotal connection at one end and reversible to tilt the car from one side or the other and having also provision for engaging one of the segments, substantially as described.

3. In a slag truck or car, a tilting pot, wheels or segments supporting the same, transverse tracks on which the segments roll, a lever pivoted in proximity to one of the segments to have movement transversely of said segment and a pawl carried by said lever adapted to engage ratchet-teeth on the segment, substantially as described.

605,567. FABRIC. Otto A. Mosse, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,031. (No specimens.)



Claim.—1. A fabric composed of wool and an absorbent material which are so disposed with respect to each other that both extend from one face of the fabric to the other and present a contacting surface on each face composed of separate portions of wool and of the absorbent material, substantially as described.

2. A fabric composed of wool and linen yarns which are so interlocked that both extend from one face of the fabric to the other and present a contacting surface on each face thereof that is composed of separate portions of wool and of linen, substantially as described.

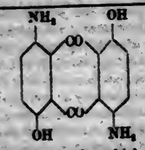
3. A knitted fabric composed of wool and linen yarns which are so interknitted that both extend from one face of the fabric to the other and present a contacting surface on each face thereof that is composed of separate portions of wool and linen, substantially as described.

605,568. ANTHRAQUINONE DYE. ROBERT R. SCHMIDT, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Dec. 20, 1897. Serial No. 664,417. (No specimens.) Patented in Germany Dec. 20, 1893, No. 83,695; in England Jan. 16, 1894, No. 976; in France Jan. 20, 1894, No. 235,893, and May 17, 1897, No. 266,809, and in Italy Mar. 31, 1894, XXVIII, 36,093, LXX, 93, and June 30, 1897, XXXIII, 44,893, LXXXVII, 393.

Claim.—1. The production of paradiamideanthrarufin-monosulfo-acid by sulfonating paradiamideanthrarufin.

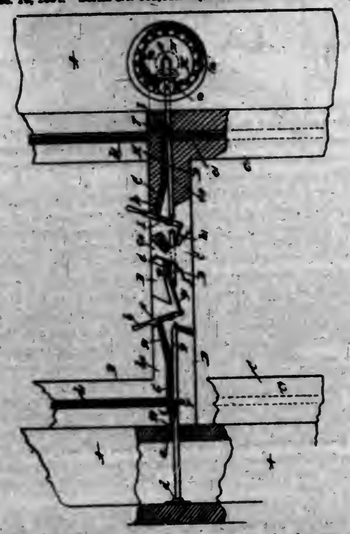
2. The process for producing a monosulfo-acid of paradiamideanthrarufin which process consists in sulfonating the said body by means of fuming sulfuric acid with the addition of boric acid, substantially as hereinbefore described.

3. As a new article of manufacture the new dyestuff, being a monosulfo-acid of paradiamideanthrarufin of the formula



and representing a blackish powder which when rubbed assumes a metallic luster, insoluble in alcohol, ether, benzene, nitrobenzene and in glacial acetic acid, soluble in anilin and pyridin with a pure greenish-blue color, in dilute alkalies with a blue color, yielding with concentrated sulfuric acid (66° Baumé) a yellow solution, which assumes a blue color on the addition of boric acid and shows in this state a characteristic absorption spectrum, dyeing unmordanted wool in acid-baths beautiful blue shades very fast to light, yielding on chrome mordanted wool greenish-blue shades very fast to light and milling.

605,569. WINDOW LOCK AND OPERATOR. ALBERT J. WILLIAMS, JOHN J. THOMAS, and MORGAN RICHARDS, Uniontown, Pa. Filed Dec. 16, 1897. Serial No. 662,112. (No model.)



Claim.—1. An improved window sash mechanism, comprising a rotary shaft arranged with respect to the sash and carrying gears, vertical rack-bars carried by the sash, and adapted to be engaged by said gears, the relative arrangement being such that said rack-bars terminate at a point beyond connection with the gears when the sash is in normal position, in combination with a slidable bar carried by the sash and provided with a rack-section adapted to be brought into connection with the gears upon the rotary shaft and into alinement with the vertical rack-bar upon the sash, and means for operating said bars carrying the rack-bar section, substantially as and for the purpose set forth.

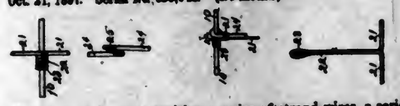
2. An improved window-sash mechanism, comprising a rotary shaft arranged with respect to the sash and provided with gears, vertical rack-bars carried by the sash and adapted to be engaged by said gears, the relative arrangement being such that said rack-bars terminate at a point beyond engagement with the gears upon the rotary shaft when the sash is in normal position, bars slidably mounted in the end cross-bar of the sash-frame and carrying rack-sections adapted to be brought into connection with the gears upon the rotary shaft and into alinement with the vertical rack-bars upon the sash, and an operating-lever fulcrumed upon the sash and connected by pivotal connecting-bars with said slidable bars, substantially as and for the purpose set forth.

3. An improved window-sash hoist and lock mechanism, comprising a rotary shaft carrying gears, vertical rack-bars carried by the sash and adapted to be engaged by said gears, the relative arrangement being such that the vertical rack-bars terminate at a point beyond engagement with the gear upon the rotary shaft when the sash is in normal position, bars slidably mounted upon the sash and carrying rack-sections adapted to be brought into connection with

the gear upon the rotary shaft and into alinement with the vertical rack-bars upon the sash, and means for operating said slidable bars, in combination with the window-frame having recesses or holes, said slidable bars being extended so that they will engage said recesses or holes when their rack-sections are out of connection with the gear upon the rotary shaft, substantially as and for the purpose set forth.

4. An improved window-sash mechanism, comprising a rotary shaft arranged with respect to the sash and provided with gears, vertical rack-bars carried by the sash and adapted to be engaged by said gears, the relative arrangement being such that said rack-bars terminate at a point beyond the gear upon the rotary shaft when the sash is in normal position, bars slidable upon the sash and carrying rack-sections adapted to be brought into engagement with the gear upon the rotary shaft and into alinement with the vertical rack-bars upon the sash, means for operating said slidable bars, an operating-shaft transversely arranged with relation to the rotary shaft and connected therewith, an actuating handle or device carried by said operating-shaft, and means for locking said operating-shaft in adjusted position, substantially as and for the purpose set forth.

605,570. FENCE. ENOS B. WILLIX, Mount Vernon, Iowa. Filed Oct. 21, 1897. Serial No. 655,942. (No model.)



Claim.—1. A fence comprising a series of strand-wires, a series of auxiliary stays each formed of a single length of rod and provided with a central circular loop, the body portions of the stay tangent to the loop being spaced apart, and means for connecting the end portions of the stay to the strand-wires.

2. A fence comprising the following elements in combination, to wit, the strand-wires; a plurality of ordinary stays, each of which comprises a single length of wire offset at graduated distances of separation to form tongues 22, the side bars or members of the tongues being parallel throughout the major portions of their lengths and twisted at their extremities to form an elongated loop 23, the axis of which loop is at right angles to a plane tangential to the common points of contact of the side bars of the tongues, the portions of the sides between the tongues being overlapped at their ends and thereby positioned in parallel planes successively throughout the length of the stay; the end portions of the ordinary stays projecting beyond the outer strand-wires; auxiliary stays of less number than the ordinary stays and positioned parallel therewith; loops on the central portions of the auxiliary stays embracing one of the central strand-wires; loops on the ends of the auxiliary stays engaging the outer strand-wires; a means for connecting the auxiliary and ordinary stays, which means consists of bending the projecting end portions of the ordinary stays around the auxiliary stays and body portions of the ordinary stays, as set forth.

3. As a new article of manufacture, a fence-stay made of a single length of rod and formed with a single central loop, the body portions of the stay tangent to the central circular loop being spaced apart, the extremities of the stay being wound about strand-wires.

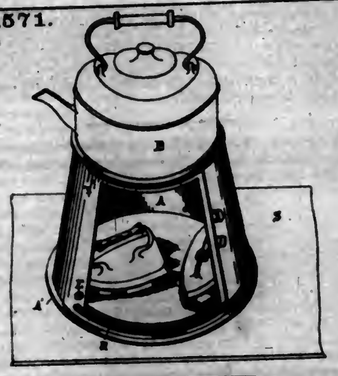
4. In a fence the combination of the strand-wires parallel with each other, auxiliary stays each formed with a central loop arranged and so shaped as to engage one of the central strand-wires and the end loops arranged and so shaped as to engage the outer strand-wires, and the stays 21 fixed to the strand-wires, a number of which stays 21 project at their ends beyond the marginal strand-wires, the remainder of which stays 21 have their end portions wound about the end portions of adjacent auxiliary stays and the body portions of the ordinary stays rigidly to connect the marginal strand-wires and the end portions of the auxiliary stays.

5. A fence comprising a series of strand-wires, a series of stay-wires arranged at right angles on the strand-wires and provided with a series of integral tongues, which tongues are wrapped upon the strand-wires, in combination with a series of auxiliary stays provided with central loops engaging one of the intermediate strand-wires and end loop engaging marginal strand-wires, the extremities of some of the ordinary stay-wires being wrapped upon and connecting the body portions of the ordinary stay-wires and the end portions of the auxiliary stays.

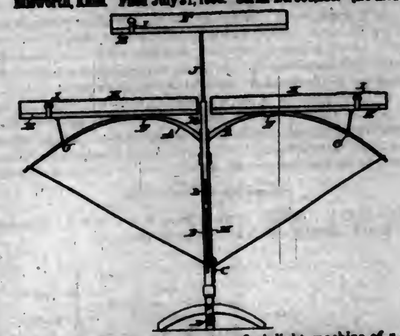
605,571. HEATING UTENSIL. JULIA H. ALEXANDER, Louisville, Ky. Filed Aug. 3, 1897. Serial No. 646,891. (No model.)

Claim.—The reversible heater, consisting of a frusto-conical metallic shell, open at top and bottom, and provided with a side door, whereby the heater is adapted for use with different-sized cooking utensils, and on a stove-top or on griddle-holes of different sizes, all substantially as described.

605,571.



605,572. AERIAL FLASH-LIGHT MACHINE. EDWARD C. BROWN, Ellsworth, Kans. Filed July 31, 1896. Serial No. 601,326. (No model.)



Claim.—1. The combination in a flash-light machine of a central support, and a plurality of elastic wooden arms supported thereby in mortises formed at an angle of about twenty-two and one-half degrees above a horizontal plane.

2. In combination in a flash-light machine, a central post, a plurality of elastic arms supported thereby and adapted to be simultaneously operated by a bow-cord attached to their free ends, and a lock, trigger, and check-wire cooperating with said bow-cord.

3. The combination in a flash-light machine, of a central post a plurality of elastic arms supported thereby, and simultaneously operated by a bow-cord attached to their free ends, and a powder-trough carried by each arm.

4. The combination in a flash-light machine of a powder-trough, a wire-netting supported above the trough, and means for violently throwing up the trough to force the powder through the netting.

5. The combination in a flash-light machine of a powder-trough, a wire-netting supported above the trough, lamps in said trough for heating the netting, and means for throwing up the trough, to force the powder through the netting, thereby igniting the powder.

6. The combination in a flash-light machine, of a post, a spring therein, a rod resting on said spring, a trough carried by said rod, a lamp in said trough, wire gauze placed above the lamp to be heated thereby, and means for operating the spring whereby the trough may be thrown up, forcing the powder through the heated netting.

605,578. BICYCLE-SUPPORT. JOSEPH S. CRAWFORD, New Kensington, Pa. Filed Sept. 23, 1897. Serial No. 652,346. (No model.)



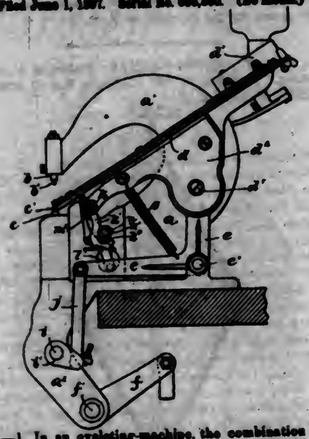
Claim.—1. A bicycle-support comprising the base or rest, the standards extended upwardly therefrom having their upper ends

curved outwardly and upwardly, to form claws, said claws being provided with the bent ends to form hooks to enter openings of the pedal-arms, and an additional claw formed of a piece of wire having its lower portion secured to one of the standards, then coiled in an upward direction and around both standards and bent upwardly and outwardly and formed with a hook end, substantially as and for the purpose set forth.

2. A bicycle-support comprising the base or rest, the upwardly-extended standards formed integrally with said base and provided at their upper ends with the upwardly and outwardly curved portions to form the claws having the hooked ends, and an additional claw secured substantially as described to the upper portion of the support as and for the purpose set forth.

3. As a new article of manufacture, a bicycle-support made of spring-wire, the same comprising a base or rest, the standards upwardly extended from said base and formed integrally therewith, said standards at their upper ends being curved outwardly and upwardly to form the claws having the bent-over ends to serve as hooks to enter the openings of the pedal box or arms, and an additional claw formed of wire, the lower end of said wire being secured to one of the standards of the support and then coiled around both standards in an upward direction, the upper free end thereof branching out to form said additional claw, as and for the purpose set forth.

605,574. EYELETING-MACHINE. SETH W. FIELD, Quincy, Mass. Filed June 1, 1897. Serial No. 638,503. (No model.)



Claim.—1. In an eyeleting-machine, the combination with the eyelet-setting devices, the eyelet-chute, and mechanism for operating said parts, of means for guiding the chute horizontally and vertically and for preventing a rebound of the chute at the end of its forward movement.

2. In an eyeleting-machine, the combination with the eyelet-setting device, the eyelet-chute, and mechanism for operating said parts, of a guide for said chute to cause it to move horizontally forward and then vertically downward, and a lock for locking said chute at the end of its downward movement.

3. In an eyeleting-machine, the combination with the eyelet-setting device, the eyelet-chute, and mechanism for operating said parts, of a link for guiding said chute in its movements toward and from the eyelet-setting devices, and a lock for locking said chute at the forward end of its movement.

4. In an eyeleting-machine, the combination with the eyelet-setting device, the pivoted eyelet-chute, and mechanism for operating said parts, of a link connected to the chute and to an oscillating pivot for supporting and guiding the chute in its movements toward and from the eyelet-setting devices.

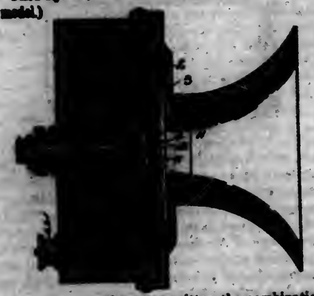
5. In an eyeleting-machine, the combination with the eyelet-setting devices, the eyelet-chute and mechanism for operating said parts, of a disk having a crank-pin and a link pivoted to the chute and to the crank-pin, said link supporting the lower end of the chute and guiding it in its movements toward and from the eyelet-setting devices.

6. In an eyeleting-machine, the combination with the eyelet-setting devices, the eyelet-chute and mechanism for operating said parts, of a disk having a stop and a crank-pin, a link pivoted to the chute and to the crank-pin, and a pawl for engaging the stop, and arranged to be operated by the chute for releasing it from engagement with the stop.

7. In an eyeleting-machine, the combination with the eyelet-setting devices, the eyelet-chute and mechanism for operating said parts, of a rotatable disk having a crank-pin, and a link connected to a pivot on the chute and to the crank-pin, and means for holding the parts with the axes of the disk, the crank-pin, and the pivot on a dead-center to lock the chute.

8. In an eyeleting-machine, the combination with the eyelet-setting devices, the eyelet-chute and mechanism for operating said parts, of a disk l having a stop l' and a crank-pin l^2, of a link l^3 pivoted to the chute and to the crank-pin and having a stop l^4, a pawl m having an arm m^2, and a stop or pin n', all cooperating for the purpose set forth.

605,575. CARBON TRANSMITTER. COURTNEY W. CRAN, Kahoma, Ind. Filed Apr. 30, 1897. Renewed Feb. 7, 1898. Serial No. 669,452. (No model.)



Claim.—1. In a carbon transmitter, the combination of a carbon-holder having a chamber to receive the powdered carbon, and an agitating device separate from the carbon-holder and arranged within the chamber thereof for agitating the powdered carbon in said chamber, independently of any movement of said carbon-holder, substantially as set forth.

2. In a carbon transmitter, the combination of a carbon-holder having a chamber to receive the powdered carbon, and a stirring device disassociated from said carbon-holder and arranged in said chamber to agitate the carbon therein without affecting the adjustment of the carbon-holder, substantially as set forth.

3. In a carbon transmitter, the combination of a carbon-holder having a chamber for the reception of powdered carbon, and a rotative stirring device disassociated from said carbon-holder and arranged in said chamber to agitate the powdered carbon therein without affecting the adjustment of said carbon-holder, substantially as set forth.

4. In a carbon transmitter, the combination of a carbon-holder having a chamber to receive the powdered carbon, a movable stem or spindle, and a stirring device carried on said stem or spindle and extending in said chamber, said stirring device being independent of the carbon-holder and arranged when the stem or spindle is moved to agitate the powdered carbon in the chamber without affecting the adjustment of said carbon-holder, substantially as set forth.

5. In a carbon transmitter, the combination of a carbon-holder having a chamber for the reception of powdered carbon, a rotatively-mounted stem or spindle, and a stirring device carried by the stem or spindle and arranged in the chamber, said stirring device being independent of the carbon-holder and adapted when the stem or spindle is turned to agitate the powdered carbon in said chamber without affecting the adjustment of said carbon-holder, substantially as set forth.

6. In a carbon transmitter, the combination of a carbon-holder having a chamber for the reception of powdered carbon, a sleeve carried by the carbon-holder and having one end adapted for communication with the chamber thereof, a stem or spindle movable in said sleeve, and a stirring device carried by the stem or spindle and extending in said chamber, said stirring device being arranged when the stem or spindle is moved to agitate the powdered carbon in said chamber, substantially as set forth.

7. In a carbon transmitter, the combination of a carbon-holder having a chamber for the reception of powdered carbon, a sleeve connected electrically with the carbon-holder and having one end adapted for communication with the chamber thereof and its opposite end provided with a binding-post, a stem or spindle movable in the sleeve, and a stirring device carried on said stem or spindle and extending in said chamber, said stirring device being adapted when the stem or spindle is moved to agitate the powdered carbon in said chamber, substantially as set forth.

8. In a carbon transmitter, the combination of a carbon-holder having a chamber for the reception of powdered carbon, a sleeve con-

nected with the carbon-holder and having one end adapted for communication with the chamber thereof, a stem or spindle arranged to turn in said sleeve and having one end projecting beyond the rear end of the sleeve and provided with an enlargement by means of which it may be turned, and a stirring device carried on the opposite end of the stem or spindle and extending into the chamber in the carbon-holder, said stirring device being arranged, when the spindle or stem is turned, to agitate the carbon contained in said chamber, substantially as set forth.

605,576. DOOR FOR STEAM-BOILER FURNACES. FRANCIS L. HOSFORD, Ogden, Utah, assignor of one-half to Geo. J. Kelly, same place. Filed Sept. 23, 1897. Serial No. 652,717. (No model.)



Claim.—1. The combination in a steam-boiler furnace with the door-frame, of a door comprising an upper and a lower section, the lower section being hinged at its lower edge to the door-frame, and the upper section being hinged at its lower edge to the upper edge of the lower section, and bell-crank levers pivoted near the upper corners of the door-frame having their horizontal arms which pass along the upper edge of the door-frame arranged to move synchronously and provided at the lower end of their vertical arms with horizontal points adapted to project outside of and lock the lower section of the door, substantially as described.

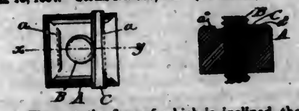
2. The combination of a steam-boiler furnace with the door-frame, of a door comprising an upper and a lower section, the lower section being hinged at its lower edge to the door-frame, and the upper section being hinged at its lower edge to the upper edge of the lower section, the lower section being provided with draft-openings, a slidable plate on the inside of said door-section for regulating said draft-openings, and a lever pivoted on the outside of the door and connected through the slot in the door with said slidable plate whereby the same is operated, substantially as described.

605,577. SAW. EDWIN H. HUTCHINSON, Jamestown, Ark. Filed Nov. 20, 1897. Serial No. 659,220. (No model.)



Claim.—An adjustable handle for saws consisting of a clamping-plate slotted to straddle the saw-blade and formed on its upper edge at its respective ends with ears, a cylindrical handle mounted between said ears through the medium of a pin passing therethrough, and clamping-screws carried by the plate, substantially as set forth.

605,578. NUT AND NUT-LOCK. HENRY A. HUDSON, Chicago, Ill. Filed Jan. 15, 1897. Serial No. 619,344. (No model.)



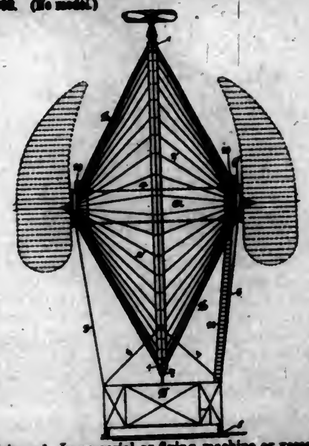
Claim.—1. The nut the face of which is inclined, the opposite inclined margins having ribs *a a* extending across the inclined face of the nut, and grooved or undercut in an acute angle on the sides of the ribs facing the center of the nut, substantially as described and for the purposes set forth.

2. The combination of a flat tapering key *c* with acute-angled edges beveled on the upper side; with a nut flat on its face, provided with marginal ribs *a a* on two opposite sides, undercut in correspondence with the bevel of key *c*, on the sides facing the center of the nut; and bolt B; the edges of the key on one side sliding in the grooves of the ribs, and on the other side cutting an angular recess obliquely across the thread of the bolt, and engaging the recess cut in the thread, locking the nut, the small end of key *c* bent down over the margin of the nut; all constructed, combined and operating substantially as described.

3. The combination of a flat tapering key *c*, with acute angled edges, beveled on the upper side, serrated; and a nut flat on its face, provided with marginal ribs *a a* on two opposite sides, undercut in correspondence with the bevel of key *c*, on the sides facing the center of the nut; and bolt B; the edges of the key on one side sliding in the grooves of the ribs and on the other side cutting an angular recess obliquely across the thread of the bolt and engaging the recess cut in the thread, locking the nut, the small end of key *c* bent down over the margin of the nut; all constructed, combined and operating substantially as described.

4. The combination of a flat tapering key *c*, with acute angular edges, beveled on the upper side; with a nut A, having its face inclined and provided with ribs *a a* on the inclined margins of the nut, undercut or grooved on the sides of the ribs facing the center of the nut, the angular section of the grooves corresponding with the bevel of the key *c*; and bolt B; the key *c* driven and cutting obliquely across the thread of the bolt, cutting an oblique recess across the thread of the bolt and engaging the recess so cut by the key, locking the nut, upon the bolt, the small end of key *c* bent down over the margin of the nut; all constructed, combined and operating substantially as and for the purposes set forth.

605,579. FLYING-MACHINE. FRIEDRICH A. JOSE, Dresden, Germany. Filed Mar. 18, 1897. Renewed May 17, 1898. Serial No. 680,992. (No model.)



Claim.—1. In an aerial or flying machine or vessel, the combination with the gas-container, of the lateral propelling mechanism located at the axial center of said container; substantially as described.

2. In an aerial or flying machine or vessel the combination with the lens-shaped gas-container, of the lateral propelling mechanism located at the axial center of said container; substantially as described.

3. An aerial or flying machine or vessel consisting of a lens-shaped gas-container, having a central tubular space for machinery, passengers and the like and for securing and operating lateral propelling mechanism and a rudder partially surrounding the circumference of the vessel substantially as described.

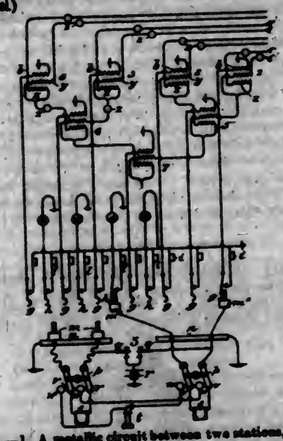
4. In an aerial or flying machine or vessel, of the character described, a framing surrounding the gas-container, constituted by an outer rim connected with the central tube by means of spokes and supporting the car by means of rods substantially as described.

5. In an aerial or flying machine or vessel, the combination with the gas-container, the central hub, the propelling wings adjustable relatively to the hub and mechanism for operating said wings; substantially as described.

6. In an aerial or flying machine or vessel, the combination with the gas-container, the central hub, the pivoted propelling-wings, the cross-beam attached to the wings, a shaft carried by the hub, cranks on said shaft, connecting-rods each connected at one end to the cross-beam and at the other to the cranks, a motor and gearing interposed between the motor and shaft; substantially as described.

7. In an aerial or flying machine or vessel, the combination with the gas-containers, the central hollow hub, an inner ring within the hub, the wings carried by said ring and means for rotating said ring to adjust the wings; substantially as described.

605,580. TELEPHONE CIRCUIT AND APPARATUS. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Mar. 23, 1897. Serial No. 628,093. (No model.)



Claim.—1. A metallic circuit between two stations, in which are included the secondary coils of two translators, one at each station, each translator containing a core and a primary coil and a secondary coil each wound around the core, each secondary coil having two parts and having its inductive center determined, and each point or portion of each part having a corresponding point or portion in the other part, which pairs of points or portions are equivalently in the same position with relation to every point or portion of the core, in combination with another circuit into which said metallic circuit is connected at the two inductive centers of said translators, transmitting apparatus sending varying currents through the two sides of said metallic circuit in series, and other transmitting apparatus sending at the same time varying currents through said other circuit into which said metallic circuit is connected.

2. A metallic circuit between two stations, in which are included the secondary coils of two translators, one at each station, each translator containing a core and a primary coil and a secondary coil each wound around the core, each secondary coil having two parts and having its inductive center determined, and each point or portion of each part having a corresponding point or portion in the other part, which pairs of points or portions are equivalently in the same position with relation to every point or portion of the core, in combination with another circuit into which said metallic circuit is connected at the two inductive centers of said translators, and rheostat apparatus in said metallic circuit whereby the resistances of the two derived circuits from one of said inductive centers to the other inductive center are made equal.

3. A metallic circuit between two stations, transmitting and receiving apparatus for respectively transmitting and receiving currents over said circuit, two coils, one at each station, included in said circuit, each coil comprising a core and wound around the core a coil with all its convolutions in the same direction and consisting of two parts, said two parts each having substantially an equal number of convolutions, and every convolution in one part having substantially its mate in the other part; which pairs of convolutions are equivalently in the same position and relation with reference to every portion of the core, in combination with another circuit into which said metallic circuit is connected at the two points, respectively, between said two parts of said coils.

4. A metallic circuit between two stations, transmitting and receiving apparatus for respectively transmitting and receiving currents over said circuit, two coils, one at each station, included in said circuit, each coil comprising a core and wound around the core a coil with all of its convolutions in the same direction, and consisting of two parts, said two parts each having substantially an equal number of convolutions and every convolution in one part having substantially its mate in the other part, which pairs of convolutions are equivalently in the same position and relation with reference to every portion of the core, in combination with another circuit into which said metallic circuit is connected at the two points, respectively, between said two parts of said coils, and rheostat apparatus in said metallic circuit whereby the resistance of the two derived circuits from one of said points to the other point are made equal.

5. A metallic circuit between two stations, in which are included the secondary coils of two translators, one at each station, each translator containing a core and a primary coil and a secondary coil each wound around the core, each secondary coil having two parts and having its inductive center determined, and each point or portion of each part having a corresponding point or portion in the other part, which pairs of points or portions are equivalently in the same position with relation to every point or portion of the core, in combination with another circuit into which said metallic circuit is connected at the two inductive centers of said translators, transmitting apparatus sending varying currents through the two sides of said metallic circuit in series, and other transmitting apparatus sending at the same time varying currents through said other circuit into which said metallic circuit is connected.

6. A metallic circuit between two stations, in which are included the secondary coils of two translators, one at each station, each translator containing a core and a primary coil and a secondary coil each wound around the core, each secondary coil having two parts and having its inductive center determined, and each point or portion of each part having a corresponding point or portion in the other part, which pairs of points or portions are equivalently in the same position with relation to every point or portion of the core, and the resistance of the two sides or branches of said metallic circuit from one of said inductive centers to the other inductive center being equal, in combination with another circuit into which said metallic circuit is connected at the two inductive centers of said translators, transmitting apparatus sending varying currents through the two sides of said metallic circuit in series, and other transmitting apparatus sending at the same time varying currents through said other circuit into which said metallic circuit is connected.

7. A metallic circuit between two stations, in which are included two coils, one at each station, each coil having a core and wound around the core a coil with all its convolutions in the same direction and consisting of two parts, said two parts each having substantially an equal number of convolutions, and every convolution in one part having substantially its mate in the other part, which pairs of convolutions are equivalently in the same position and relation with reference to every portion of the core, in combination with another circuit into which said metallic circuit is connected at the two points, respectively, between said two parts of said coils, and the resistance of the two sides or branches of said metallic circuit between said two points being equal, transmitting apparatus sending varying currents through the two sides of said metallic circuit in series, and other transmitting apparatus sending at the same time varying currents through said other circuit into which said metallic circuit is connected.

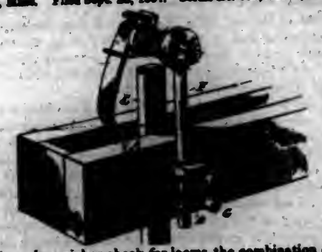
8. In a telephone system, two stations, a metallic circuit with balanced conductors between them in which are included the secondary coils of two translators, one translator at each station, each translator containing a core and a primary coil and a secondary coil each wound around the core, said secondary coil having two parts and said parts having substantially an equal number of convolutions and every convolution in one part having substantially its mate in the other part, which pairs of convolutions are equivalently in the same position and relation with reference to every portion of the core, in combination with another circuit into which said metallic circuit is connected at the two points, respectively, between said two parts of said secondary coils, subscribers' lines centering at each of said stations and switching apparatus at each station whereby the subscribers' lines centering there may at will be connected into the circuit of the primary of the induction-coil.

9. A metallic circuit between two stations, in which are included the secondary coils of two translators, one at each station, each translator containing a core and a primary coil and a secondary coil, each secondary coil having two inductive parts permanently fixed and determined, and each point or portion of each part having a corresponding point or portion in the other part, which pairs of points or portions are equivalently in the same position with relation to every point or portion of the core, and the resistances of the two sides or branches from a point between said two parts of the secondary of one coil to a point between said two parts of the secondary of the other coil being such and the coils being so constructed as to number of convolutions that when current passes in branch or derived circuit from one of said points to the other point, the inductive effect of the two parts of the secondaries connected into one of the derived circuits, balances and counteracts the inductive effect of the two other parts connected into the other derived circuit and no magnetic effect is produced in the core, in combination with another circuit into which said metallic circuit is connected at said two points between said parts of said secondary coils, transmitting apparatus sending changing current through said last-mentioned circuit and other transmitting apparatus sending at the same time telephone-currents over said metallic circuit.

10. A metallic circuit between two stations, in which are included

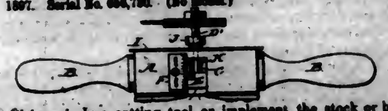
two coils, one at each station, each coil containing a core and wound around the core, a coil with all its convolutions in the same direction, said coil having two inductive parts permanently fixed and determined, and each point or portion of each part having a corresponding point or portion in the other part, which pairs of points or portions are equivalently in the same position with relation to every point or portion of the core, and the resistances of the two sides or branches from a point between said two parts of one coil and a point between said two parts of the other coil being such and the coils being so constructed as to number of convolutions that when current passes in branch or derived circuit from one of said points to the other point the inductive effect of the two parts of the two coils connected into one of the derived circuits balances and counteracts the inductive effect of the two other parts connected into the other derived circuit, and no magnetic effect is produced in the core, in combination with another circuit into which said metallic circuit is connected at said two points between said two parts of said two coils, transmitting apparatus sending changing current through said last-mentioned circuit and other transmitting apparatus sending at the same time telephone-currents over the two sides of said metallic circuit.

605,581. PICKER-CHECK FOR LOOMS. WILLIAM LOMBA, Fitchburg, Mass. Filed Sept. 23, 1897. Serial No. 652,725. (No model.)



Claim.—In a picker-check for looms, the combination of the lay of a loom, a bracket secured to the face of the lay and provided with a vertical bore, a vertical stem, adjustable longitudinally and rotatable in said bore and provided with a circular head on its upper end, having a concentric series of small horizontal openings, a plate located parallel to said head at a short distance therefrom, provided with a horizontal stem projecting beyond the plate, across the lay and through a central bore in the circular head, an arm projecting from the periphery of the plate, a curved latch pivoted upon the projecting end of the stem and having a lug adapted to engage the arm, and a spring coiled around the stem between the vertical head and plate, having one end engaging the outside of the latch and the other end engaged in one of the openings of the concentric series in the circular head, substantially as described.

605,582. CUTTING-TOOL. FRANCIS E. MERRIMAN, Boston, Mass., assignor to Herbert H. Kingsbury, Westfield, Mass. Filed Oct. 20, 1897. Serial No. 656,780. (No model.)



Claim.—1. In a cutting tool or implement, the stock or body having an opening made transversely through it, in combination with a block or gage adjustable in said opening, a knife or cutter beneath the block or gage, a screw, threaded in the stock or body and engaging the block or gage, and a plate or follower connected to and movable with the block or gage and engaged by the screw whereby the block or gage is adjusted with relation to the knife or cutter, and means for indicating the extent of said adjustment.

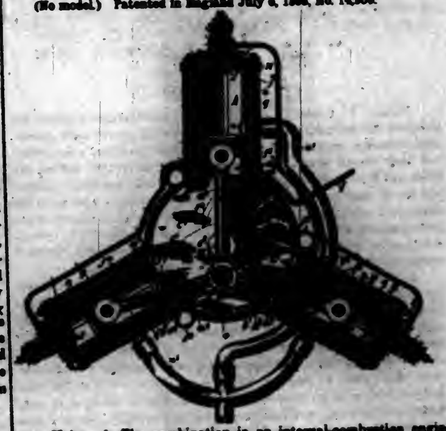
2. In a cutting tool or implement, the combination of the stock or body, a knife or cutter fitted thereto, a block or gage movable within the stock or body toward and from the knife or cutter, and means whereby the block or gage may be continuously moved during the cutting operation, consisting of a screw, threaded in the stock or body and engaging said block and a finger-piece for operating the screw.

3. The stock or body having a transverse opening, a block or gage adjustable in said opening and provided with upwardly-extending studs or guide-pins, a plate or follower fitted to the upper ends of the studs or pins exterior of the stock or body, a screw passing through a threaded opening in the stock or body and engaging said block or gage, for adjusting the latter, a knife or cutter beneath the block or gage and means for indicating the extent of movement of the block or gage.

4. The stock or body having the vertically-adjustable block or gage, a scale or series of graduations proximate to the block or gage, a screw and connections for adjusting the block or gage, a knife or cutter and means for securing it in place and means for determining the adjustment of the block or gage with reference to the knife or cutter, consisting of radial lines on the top of the stock and a pointer movable with the screw and adapted to be aligned with said lines.

5. A leather-cutting tool or implement comprising a handled stock or body having a transverse central recess and threaded top opening, a block or gage adjustable in said recess and provided with guide-pins or studs, extending through the top of the stock, a plate or follower connecting said pins or studs and having a central opening, a screw working in the threaded opening of the stock and passing loosely through the opening in the follower, and having a shoulder bearing under the latter, whereby the block is raised and lowered, a knife or cutter and means for securing it in position below the block or gage, a scale or series of graduations on the stock proximate to the block or gage, a plate on the top of the stock, having radial lines, and a finger-piece on the screw having a pointer to be moved over the radial lines, for indicating the relation of the block to the cutter.

605,583. INTERNAL-COMBUSTION ENGINE. FRANCIS L. MERRITT, London, England, assignor of three-eighths to Henry Arthur Naismith, Croydon, England. Filed Mar. 12, 1897. Serial No. 627,208. (No model.) Patented in England July 6, 1896, No. 14,959.



Claim.—1. The combination in an internal-combustion engine working on the two-stroke cycle specified of working cylinder, a combustible-supply port, a piston-valve therein normally held from closing the said supply-port, a valve-controlled supply-port to the working cylinder, a single valve J normally holding the said supply-port closed, a port through the said valve adapted to establish communication between the combustible-supply cylinder and the working cylinder when the single valve is off its seat, an air-supply to the working cylinder, a cam-tooth making one revolution for each two-stroke cycles of the engine and adapted by intermediate valve-gear to push the single supply-valve off its seat a little to make the piston-valve close the combustible-supply port, then to establish the above-mentioned communication between the combustible-supply cylinder and the working cylinder, to leave the supply-valve to be closed, and to leave the piston-valve to open the combustible-supply port.

2. The combination of a centrifugal governor on a crank-shaft arm, a fixed sleeve thereon, two inclosing cups fixed thereto, a double inclined block inclosed inside the said cups and protected by same to stop the block at each end of its transverse motion, a double inclined wedge-block mounted on a fixed sleeve and giving it motion connected to governor through the said cups by rods giving longitudinal motion and a cam on the double inclined block, a double inclined block inclosed between two cups and to a fixed sleeve having its longitudinal motion from the governor and transmitting the same to the cam which is also held between the edges of the said two cups to prevent a longitudinal motion to the said cam, a cam-block carried by and rotating with the crank-shaft and held by the said cups that each longitudinal motion of the wedge-block becomes a transverse one in the cam, an antifriction-roller and valve-gear transmitting the motion of the cam to the single supply-valve of the engine as described.

3. The combination of a centrifugal governor, a cam-tooth of variable projection under the action of the same, a valve-gear actuated by the said tooth, a valve controlling the only supply-port to the working cylinder adapted to be opened first by a given projection of the said tooth and a piston-valve controlling the combustible supply to an intermediate cylinder adapted to be opened only by a longer projection of the said tooth.

4. The combination of a compressor (consisting of radial arm, air-supply ports and blades) mounted on the engine-shaft and capable of being subdivided into as many subchambers as there are cylinders to the engine, with as many ducts therefrom as there are subdivisions, a radial arm mounted on the said shaft inside a surrounding shell of a compressor revolving concentric to the same, an air duct concentric to and in the axial line of the said shaft from the outside air to a series of air-ducts diverging outward from the said shaft and through the radial arm delivering its air into the compressor on the reverse side of the said arm's line of motion filling the vacuum caused by the forward motion, as many blades as there are subdivisions, each blade constructed to maintain a constant sliding contact with the radial arm, air-tight and to deliver its air to its own working cylinder through its own air-duct up to a supply-port and valve in each working cylinder, a casing suitably constructed according to the number of subdivisions, with recesses to receive the blades so that the radial arm may ride smoothly over them, and a return spring to maintain air-tight contact between the blades and the radial arm, a radial arm constructed of such a form that the blade may rise very quickly and deliver its air, the return motion being regulated by the outline of the said arm to produce a smooth action, the function of the compressor being to supply the engine with air for combustion and air-currents for the various operations of the engine when working, both such supply and currents being under pressure.

5. The combination in an internal-combustion engine working on the two-stroke cycle specified, of working cylinder, a constant and independent air-compressor, single valve controlling the only supply-port to the said cylinder, a piston-valve controlling the combustible-supply port to an intermediate chamber, a valve-gear actuated by a single-tooth cam and opening the only single supply-valve to the cylinder according to the projection of the said cam, and an automatic igniting device.

605,584. KEY-HOLDER. CLARENCE M. MOSELY, Howard, Pa. Filed Nov. 15, 1897. Serial No. 658,603. (No model.)



Claim.—The herein-described key-holder consisting essentially of the annular body or annulus A formed by bending a piece of wire into circular form with its ends connected together, and the plurality of snap-hooks B each formed by a single strip of resilient metal bent to form an eye at one end receiving the annular body or annulus A whereby they are permanently connected to the annular body and while held against endwise movement on said annular body are free to move entirely around upon the same, substantially as specified.

605,585. ROTARY ENGINE. WILLIS H. PHILLIPS, Wampum, Pa. Filed May 14, 1897. Serial No. 637,979. (No model.)



Claim.—1. In a rotary engine, the combination of a case having the inner sides of its heads formed with circular recesses, a cylinder located within the case and secured between the heads thereof with its bore eccentric to the recesses in the heads of the case, a piston concentric with the circular recesses in the heads of the case and eccentric with reference to the cylinder and having its end portions projecting beyond the cylinder into the recesses of the heads of the case, end rotary heads secured upon the shaft of the piston to revolve therewith and located in the aforesaid recesses and bearing against the ends of the cylinder, substantially as set forth.

2. In a rotary engine, the combination of a case having circular recesses formed in the inner sides of its heads, a cylinder located within the case and secured between the heads thereof and eccentrically disposed with reference to the said circular recesses, a piston concentric with the circular recesses and eccentric with respect to the cylinder and having its end portions projecting beyond the ends of the cylinder and entering the recesses formed in the heads of the case, and having a diametrical slot extending beyond the extremities of the cylinder, wings slidably mounted in the said diametrical slot, and rotary heads secured to the end portions of the piston-shaft and located in the afore described circular recesses with their inner faces abutting against the ends of the cylinder, and recessed to receive the projecting end portions of the piston and having radially-disposed grooves in which operate the end portions of the wings, substantially as set forth.

3. In a rotary engine, the combination of a case having circular recesses formed in the inner sides of its heads, a cylinder located within the case and secured between the heads thereof with its bore eccentric to the said circular recesses, a piston concentric with the said circular recesses and eccentric to the cylinder and having its end portions projecting beyond the ends of the cylinder into the recessed heads of the case, and having a diametrical slot, wings slidably mounted in the said diametrical slot, rotary heads mounted upon the end portions of the piston-shaft and located in the aforesaid circular recesses with their inner faces bearing against the ends of the cylinder and having their inner faces recessed to receive the projecting end portions of the piston and formed with radial grooves, and notches, the latter corresponding with similar notches in the projecting ends of the piston, and keys fitted in the notches of the rotary heads and piston to cause these parts to revolve in unison, substantially as set forth.

4. In a rotary engine, the combination with a cylinder, and a slotted hub, of a wing comprising side plates having their outer edge portions thickened on their inner sides, a rocker-bearing, a follower forming a seat for the rocker-bearing, and a spring exerting an outward pressure on the follower, substantially as set forth.

5. In a rotary engine, the combination with a cylinder, and a slotted hub, of a wing comprising side plates thickened on their inner faces at their outer edges, an intermediate strip between the thickened portions of the side plates, a rocker-bearing having seats to receive the inner edges of the thickened parts of the side plates and the inner edge of the intermediate strip, a follower, and a spring exerting an outward pressure on the follower, substantially as set forth.

6. In a rotary engine, the combination with a cylinder, and a piston having a diametrical slot, of a strip movable laterally in the said slot and of a corresponding width thereto, packing-strips located in grooves in the sides of the said strip and bearing against the walls of the aforesaid slot, wings at opposite sides of the strip and bearing against the inner wall of the cylinder, and springs housed and protected by the wings and interposed between the latter and the aforesaid strip, substantially as set forth.

7. In a rotary engine, the combination with a cylinder, and a slotted hub, of a strip located and movable transversely within the slotted hub, wings upon opposite sides of the strip, each comprising side plates thickened at their outer edges on their inner sides, a strip intermediate of the thickened portions, a rocker-bearing provided with seats to receive the inner edges of the intermediate strip and thickened portions, a follower, and a spring interposed between the follower and a side of the strip, substantially as and for the purpose set forth.

605,586. STUMP-EXTRACTOR. GEORGE H. ROLLINS, Pittsville, Wis. Filed Nov. 13, 1896. Serial No. 612,092. (No model.)



Claim.—In a stump-extractor, the combination of the standards having runners at their lower ends, their upper ends being brought

together at a common center, of the cap-plate arranged upon the top of said standards, a short rod screw-threaded at its upper end and passing through said plate, a nut for holding said rod and adjusting it in said cap-plate, a supporting-rod loosely connected to the opposite end of said short rod, an operating-lever pivotally attached at its center to the lower end of the supporting-rod, the bearing-plates at the middle of said lever having notches arranged at each side of the supporting-rod, the power-box through which the supporting-rod extends, said box being freely movable vertically upon said rod and having a series of perforations arranged in longitudinal parallel rows, the removable lift-pins fitting in said perforations, the pulley-block M, the cross-piece N, chain L connected to the lower end of the power-box, passing around the block and having its opposite end attached to cross-piece N, and the chain O connecting the block with the stamp, substantially as shown and described.

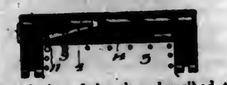
605,587. FLEXIBLE METALLIC PIPE. CHARLES RUDOLPH and GEORGES LEVAVASSEUR, Paris, France. Filed Sept. 3, 1897. Serial No. 650,544. (No model.) Patented in France Aug. 3, 1896, No. 258,770.



Claim.—1. A flexible metallic pipe, comprising in its construction a metallic strip having an inwardly-facing groove and an outwardly-facing groove, the said inwardly and outwardly facing grooves being of considerable width, the metal of the strip being bent so as to form another groove upon the edge of the outwardly-facing groove, and adapted to receive a packing, said edge groove then formed having its bottom flush with the bottom of the said outwardly-facing wide groove, the construction being such that when the metal strip is wound upon itself to form the flexible pipe the narrow groove will be arranged interiorly of the said pipe and will permit of the pipe being bent or curved in any direction as well as extended or collapsed, substantially as described.

2. A flexible metallic pipe produced by spirally winding a metallic strip having inner and outer facing grooves, the metal of the said strip being shaped so as to form an edge groove upon the outwardly-facing groove, the said edge groove having its bottom upon the same plane with the bottom of the outwardly-facing groove, said groove containing a tight packing capable of sliding over the slightly-curved face of the adjacent spiral, the pressure of the spirals one against the other, resulting from their respective displacements, taking place between the metallic parts of each spiral, substantially as described.

605,588. MAIL-BAG FASTENER. CHARLES A. STRASBURG, Cridersville, Ohio. Filed Nov. 4, 1897. Serial No. 657,405. (No model.)



Claim.—1. In a device of the class described, the combination of a casing composed of two hinged sections, a rotary bolt or shaft journaled in the casing and provided with a lug arranged at an angle to it and adapted to engage the free edges of the sections to lock the same closed, and a spring-actuated tumbler engaging the bolt or shaft and holding the same against rotation in either direction, said tumbler being adapted to be disengaged from the shaft or bolt by a key, substantially as described.

2. In a device of the class described, the combination of a casing, a bolt or shaft journaled therein and provided with engaging lugs, said bolt or shaft having a polygonal portion, and a spring-actuated tumbler provided with a bifurcated arm straddling the polygonal portion of the shaft or bolt and locking the same against rotation in either direction, said tumbler being adapted to be engaged by a key, substantially as described.

3. In a device of the class described, the combination of a casing having a keyhole, a shaft or bolt journaled in the casing at one side of the keyhole and provided with lugs, said shaft or bolt having a rectangular portion adjacent to the said keyhole, a spring-actuated tumbler mounted in the casing at the opposite side of the keyhole and provided with an arm engaging the rectangular portion of the shaft or bolt, and a key adapted to be interposed between the tumbler and the shaft or bolt and provided with opposite lugs for engaging the same, one of the lugs being beveled and arranged to rotate the shaft or bolt, substantially as described.

4. In a device of the class described, the combination of a casing composed of two hinged sections, one of the sections being provided with a perforated flange, a bolt or shaft journaled on the other section, provided with an exteriorly-arranged handle and having a series of lugs for engaging the perforations of said flange, and a spring-actuated tumbler engaging the shaft or bolt and locking the same against rotation, substantially as described.

605,589. BURGLAR-ALARM. ALBERT V. TOOD, Colwich, Iowa. Filed Oct. 4, 1897. Serial No. 653,909. (No model.)



Claim.—1. In a combined burglar-alarm and door-fastener, a casing provided with a keeper-slot, a cartridge-socket out of line with said slot and an elevated rest-post adjacent to said socket, in combination with a spring-controlled bolt fitted in the casing to slide and turn therein, said bolt provided with an angular head adapted to fit in the keeper-slot and enable the foot of the bolt to be projected sufficiently beyond the casing to engage with the floor, and also adapted, when the bolt is turned in one direction, to engage with the rest-post and sustain the bolt in a raised position, and means to turn the bolt and move the striker-hammer on the bolt-head into alinement with the cartridge-socket, substantially as and for the purposes described.

2. In a combined burglar-alarm and door-fastener, a casing provided in its head with a cartridge-socket, the parallel rest-post and guide-pin adjacent to said socket, and a longitudinal keeper-slot, combined with a spring-controlled bolt provided with an angular head and arranged to project below the casing, a friction-foot carried by the lower end of the bolt, and a striker-hammer carried by said head of the bolt, substantially as described for the purposes set forth.

3. In a combined burglar-alarm and door-fastener, a casing provided with an enlarged head, a central keeper-slot, cartridge-sockets in the head and on opposite sides of the keeper-slot, rest-posts adjacent to the cartridge-sockets and on opposite sides of said keeper-head, and guide pins or studs parallel to the rest-posts, in combination with a spring-controlled bolt fitted loosely in said casing to slide and turn therein and provided with an angular head adapted to project beyond either of said rest-posts when the bolt is raised for said head to engage with the rest-post, a striker-hammer carried by the bolt-head, and a detent in the path of said angular bolt-head, substantially as described for the purposes set forth.

4. The combination of a casing provided with a keeper-slot which extends below an enlarged head of said casing and with a cartridge-socket in said enlarged head, a spring-controlled bolt carrying at its upper end a striker-hammer, a friction-foot attached to the lower end of said bolt and an elevated rest-post supported by the casing at one side of the keeper-slot and adjacent to the cartridge-socket, whereby said bolt may be fitted in the keeper-slot and projected sufficiently beyond the casing for the friction-foot on said bolt to engage with the floor, or said bolt may be raised to engage with the rest-post and be held in position for the striker-hammer to enter the cartridge-socket, substantially as described for the purposes set forth.

605,590. WEATHER-STRIP. JOHN T. WARTH, Golden, Ill. Filed June 18, 1897. Serial No. 641,248. (No model.)



Claim.—In a weather-strip, the combination with a stationary section, having a securing-face by means of which it is attached to the door, an intermediate portion inclined outwardly and downwardly from the securing portion, a downwardly-extending stop member, a movable section having its inner end bent at an angle to form an attaching portion, hinges secured to the outer surface of the attaching portion, and to the under side of the intermediate portion of the stationary section, whereby said sections are hinged together, said attaching portion adapted to abut against the stop member when the door is open, a spring-rod having its end bent at an angle and extending in reverse directions, one of said angular ends being secured to the under side of the intermediate portion of the stationary section adjacent one end of the weather-strip, and the opposite angular end secured to the under side of the movable section adjacent the opposite end of the strip, of an angular stop-plate secured to the door-frame and adapted to be engaged by the movable section of the weather-strip, whereby said section is held in engagement with the door-sill when the door is closed, substantially as described.

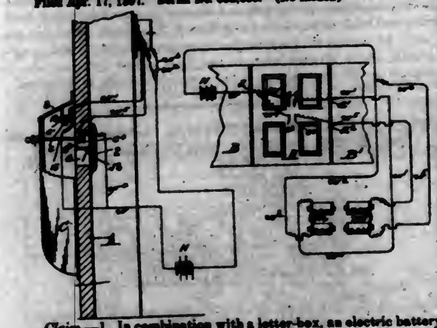
605,591. NON-REFILLABLE BOTTLE. WILLIAM G. WEBSTER, Grand River, Ohio. Filed Jan. 20, 1898. Serial No. 667,237. (No model.)



Claim.—1. A bottle provided with a neck, the outer portion of which is elliptical in cross-section, having a weakening-groove extending from the mouth along the neck, around one side thereof and back on the opposite side to the mouth, and a non-elastic, rigid plug, elliptical in cross-section, fitting in the elliptical portion of the neck, and means for turning the plug whereby the neck is broken at the weakening-groove, substantially as described.

2. A bottle provided with a neck, the outer portion of which is elliptical in cross-section, having a weakening-groove extending from the mouth along the neck, around one side thereof and back on the opposite side to the mouth, a non-elastic, rigid plug, elliptical in cross-section, fitting in the elliptical portion of the neck, provided in its outer end with a nick or groove to receive the blade of a screw-driver for the purpose of turning it, whereby the neck is broken at the weakening-groove, substantially as described.

605,592. LETTER-BOX. MILETUS J. WISE and CHARLES A. THOMPSON, Washington, D. C.; said Thompson assignor to said Wise. Filed Apr. 17, 1897. Serial No. 632,622. (No model.)



Claim.—1. In combination with a letter-box, an electric battery, a signal-box located adjacent to the letter-box, a signal in the signal-box, a hinged lid on the letter-box provided with an arm, a door on the letter-box provided with an arm, an electrical circuit, oppositely-disposed electromagnets in the circuit within the signal-box, a pivotally-supported armature to contact with the poles of the magnets and engage the signal with its free end to move the signal into and out of sight, and contacts in the circuit within the letter-box in the path of the arms on the lid and door thereof to make and break the circuit.

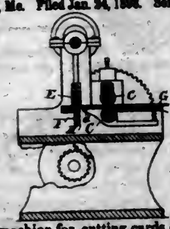
2. In combination with a letter-box, a lid on the letter-box provided with an arm, a door opening into the letter-box and provided with an arm, a signal-box, a signal in the signal-box, oppositely-disposed electromagnets mounted in the signal-box, a pivotally-hung armature between the poles of the magnets and formed with a sector-rack on its free end, a pinion on the shaft of the signal actuated by the armature, a battery, circuits from the battery to the magnets, and contacts in the circuits in the path respectively, of the arms on the letter-box lid and said door.

3. In a letter-box, a lid thereon provided with an arm, a door opening into the letter-box and provided with an arm, a source of electric energy, circuits therefrom made and broken through the agency of said arms respectively, a signal-box adjacent to the letter-box, oppositely-disposed electromagnets in the circuits within the signal-box, a pivotally-supported armature to contact with either magnet and provided with a sector-rack on its free end, a pinion journaled in the signal-box to mesh with said rack, and a signal on the pinion-shaft to be moved thereby.

4. The combination with a letter-box, and electrical circuits made and broken through the agency of movable parts of the letter-box, of a signal-box, electromagnets oppositely arranged in the signal-box and interposed in the circuits, a pivotally-hung armature between the poles of the magnets and formed with a sector-rack on its free end, a pinion journaled to mesh with the said rack, a signal on the pinion-shaft formed with an arm, and a lamp in the path of the arm whereby when the arm is moved down it covers the flame of the lamp and extinguishes it.

5. In a letter box and in combination with electrical circuits made and broken therefrom, a signal-box, oppositely-disposed electromagnets in the signal-box in said circuit, a pivotally-supported armature between the poles of the magnets and formed with a sector-rack on its free end, a pinion journaled to mesh with the said rack, an arm on the journal of the pinion formed with an inverted cup on its free end, and a lamp in the path of the cup.

605,598. MACHINE FOR MAKING MATCH-CARDS. SOLOMON W. BATES, Portland, Me. Filed Jan. 24, 1898. Serial No. 667,710. (No model.)



Claim.—1. In a machine for cutting cards of pointed matches from veneer strips, the combination of a cutting-block and a splitting-knife adapted to reciprocate, one with relation to the other, means for feeding the veneer strip between them and a V-shaped notching-knife set one or more spaces ahead of said splitting-knife and having the open end of the V turned outward, whereby the notches are cut with a single stroke of said knife.

2. In a machine for cutting cards of pointed matches from veneer strips, the combination of a cutting-block and a splitting-knife adapted to reciprocate, one with relation to the other, means for feeding the veneer strip between them, a V-shaped notching-knife set one or more spaces ahead of said splitting-knife and having the open end of the V turned outward and an ejector for knocking out from said V-shaped knife the triangular pieces cut by said knife at each reciprocation of the machine.

605,594. TELEPHONE-RECEIVER. PETER C. BUNN, Chicago, Ill. Filed Nov. 30, 1897. Serial No. 659,948. (No model.)



Claim.—1. In a telephone-receiver, a permanent magnet, a collar mounted thereon, a diaphragm-cap, a diaphragm and a cup-shaped member to which the diaphragm and cap are secured, and a screw connection between the cup-shaped member and the collar whereby the diaphragm may be adjusted in proper position relative to the pole-piece together with a disk on the collar and stop-screws in said disk adapted to bear against the cup-shaped member and lock the parts in adjusted position.

2. In a telephone-receiver, the combination with the permanent magnet and its accessories of the insulating-disk secured to the heel thereof and carrying the binding-screws, the insulating-sleeve bored lengthwise to slip over said disk, the collar upon which said sleeve

screws, and the adjusting-ring also screwing upon said collar and adapted to slip over said disk, and the diaphragm and diaphragm-cap.

3. In a telephone-receiver the combination with the permanent magnet and its accessories of the insulating-disk secured to the heel thereof, the sleeve adapted to slip over said disk, the screw-threaded collar, the adjusting-ring, the stop-screws, the diaphragm and the diaphragm-cap.

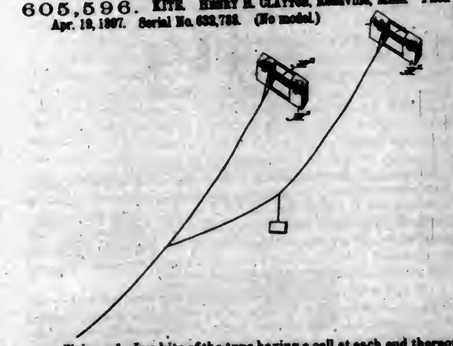
605,595. WIRE FENCE. P FRANK CLARKIN, Pontiac, Mich. Filed Mar. 7, 1898. Serial No. 673,240. (No model.)



Claim.—1. In a wire fence, the combination with the fence-wires of the picket formed of a vertical tie-wire, and a series of short strands twisted thereon, such twisted portion extending from one fence-wire to the adjacent fence-wire and the ends extending upon opposite sides of the picket forming portions which may be twisted about the fence-wires to secure the stay thereto.

2. In a wire fence, the combination with the fence-wires, of a picket formed of a single vertical tie-wire having its upper end bent upon itself and intertwisted, and a projecting end beyond the twisted portion, and a series of binding-wires on the tie-wire, extending the whole length thereof, each binding-wire being intertwisted a distance corresponding to the space between the adjoining fence-wires and having its ends extending out on opposite sides of the tie-wire to form means for binding the stay upon the fence-wires, substantially as described.

605,596. KITE. HENRY H. CLAYTON, Readville, Mass. Filed Apr. 19, 1897. Serial No. 633,788. (No model.)



Claim.—1. In a kite of the type having a cell at each end thereof, a frame comprising a corner-post at each corner of said cells, each of said posts extending lengthwise of the kite from end to end thereof, and braces connected with and to maintain said corner-posts rigid, substantially as described.

2. A kite having cells at its opposite ends, said cells being supported by a frame including corner-posts one for each corner of the cells, said posts extending from end to end of the kite, and struts or braces separating said posts and holding the kite rigid, said struts or braces being removably connected to said posts at their respective ends, whereby a knockdown kite-frame is provided so that the kite may be readily and quickly folded together in small compass or stretched out into operative position at will, substantially as described.

3. In a multicellular kite, the cells, and a supporting-frame therefor including corner-posts extending the whole length of the frame, and lateral bracing extended between and connecting the corner-posts to maintain the frame in rigid position, said bracing being located in substantially parallel planes and within the cells.

4. The combination, with a rectangular kite-frame having corner-posts extending the whole length of the kite, and braces for the corner-posts, said braces being located at opposite sides of the longitudinal center of the frame, of material stretched around the corner-posts at the ends of the frame to constitute cells, the forward edges of said cells being reinforced to present yielding cutting edges to the wind.

5. The combination with a rectangular kite-frame having corner-posts extending from end to end of the kite, and braces extending between said corner-posts to maintain said frame in proper rectangular position, said braces being slightly resilient and provided at their meeting portions with interlocking joints whereby they may be sprung into fixed relation with each other or may be separated therefrom at will, of material attached to the corner-posts at the ends of the frame to constitute cells, substantially as described.

6. In a multicellular kite, a quadrilateral frame including corner-posts extending the whole length of the kite, cross-bars connecting and rigidly spacing apart oppositely-located pairs of said posts, braces rigidly connecting the said cross-bars, and material attached to the corner-posts at the ends of said quadrilateral frame, to constitute the cells, the braces lying in substantially parallel planes located midway of the depths of the cells respectively.

7. In a kite having an open-ended, angular cell at each end thereof, a frame to support said cells, comprising a corner-post for each longitudinal corner of the kite, said posts extending the whole length of the kite from cell to cell, and braces to keep said corner-posts apart, the meeting portions of said braces and posts having cooperating interlocking joints and means for detachably securing them together, substantially as described.

8. In a multicellular kite, the cells, a plurality of longitudinal members at the corners of and extending from end to end of the kite, to prevent relative movement of the cells and catching of the flying-line between them, and a flying-line connected to the kite by a transverse loop extending from adjacent corner members to the said flying-line, substantially as described.

605,597. SAW-FRAME. GEORGE R. CLEMENTS, Rock Creek, Minn. Filed Aug. 24, 1897. Serial No. 649,268. (No model.)

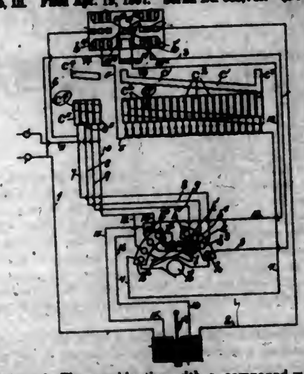


Claim.—1. As an improved article of manufacture, a saw-frame consisting of a grip, curved spring-arms independent of said grip and having their adjacent ends secured to the ends of the grip and their other ends slotted to engage over the edge of a saw, and means movably mounted on one of said arms for detachably connecting said slotted ends to the ends of a saw, as set forth.

2. As an improved article of manufacture, a saw-frame consisting of a grip, curved spring-arms independent of the grip and having their adjacent ends secured to the ends of the grip and their other ends slotted to engage over the edge of a saw, and a latch pivoted on the outer end of one of said arms to engage an opening in the saw, the other arm being frictionally held upon the saw, substantially as specified.

3. The combination with a saw having an upright handle at one end and openings near the upper edge at the opposite end, of a saw-frame consisting of a grip with ferrules at its ends, curved spring-arms independent of the grip and secured to opposite ends thereof, the outer ends of the arms being slotted, the slotted end of one arm being frictionally held against the securing device of the said upright handle, and a pivoted latch on the outer end of the other arm to engage one of the openings in the saw, substantially as described.

605,598. ELECTRIC ELEVATOR. HAYWARD COGSWELL, Chicago, Ill. Filed Apr. 19, 1897. Serial No. 633,769. (No model.)



Claim.—1. The combination with a compound-wound electric motor, of a starting resistance for the armature-circuit, and a switch for successively short-circuiting the series-field coils to cut the same out of circuit, and means for first cutting the resistance from the armature-circuit in starting and then successively short-circuiting the series-field coils and for successively removing the short circuits around said series-field coils in stopping and then cutting resistance into the armature-circuit, substantially as described.

2. The combination with a compound-wound electric motor, of a starting resistance for the armature-circuit, and switch for successively cutting the series-field coils into and out of circuit a resistance adapted to be cut into and out of the shunt-field circuit and means for cutting the resistance from the shunt-field circuit in starting then cutting the resistance from the armature-circuit and cutting out the series-field coils and for cutting in the series-field coils in stopping, cutting the resistance into the armature-circuit and including the resistance in the shunt-field circuit, substantially as described.

3. The combination with a series of brushes or contacts between which the coils of the armature-resistance are connected, of a series of brushes or contacts between which the series-field coils of an electric motor are connected, an oblique contact-bar making continuous contact with the end rheostat-brush and moving laterally to successively make and break contact with the brushes and a second oblique contact-bar adapted to make contact with the brushes connected with the series-field coils to cut the same into and out of circuit, substantially as described.

4. In a reversing-switch, the combination with a roller carrying at each end a pair of electrically-connected contact-plates, of two groups of three brushes each, one brush of each group being connected with the opposite side of the current-supplying circuit, the second brush of each group being connected with one side of the supplied circuit and the third brush of each group being connected with the opposite side of the supplied circuit, and means for moving the contact-plates into contact with the two brushes of the supply-circuit and the contact-plate at one end into contact with a brush of one side of the supplied circuit and the contact-plate at the other end into contact with a brush of the opposite side of the supplied circuit, substantially as described.

5. The combination with an electric motor, of a brake therefor, an armature or solenoid core connected with the operating-lever of said brake, and arranged to lift the brake-shoes, a stationary coil acting upon said core and included in series with the armature of said motor and a second stationary coil acting upon said core and included in shunt with the armature of the motor, substantially as described.

6. The combination with a compound electric motor, of a brake therefor, a brake-magnet provided with two coils, one in series with the armature and the other in shunt therewith, and switching apparatus for cutting the starting-resistance into and out of the armature-circuit and for cutting the series-field coils into and out of circuit, substantially as described.

7. The combination with a compound electric motor, of a brake therefor, a brake-magnet provided with a series and a shunt-winding, and switching apparatus for cutting the starting-resistance into and out of the armature-circuit for cutting the series-field coils into and out of circuit, and for cutting a resistance into and out of the shunt-field circuit, substantially as described.

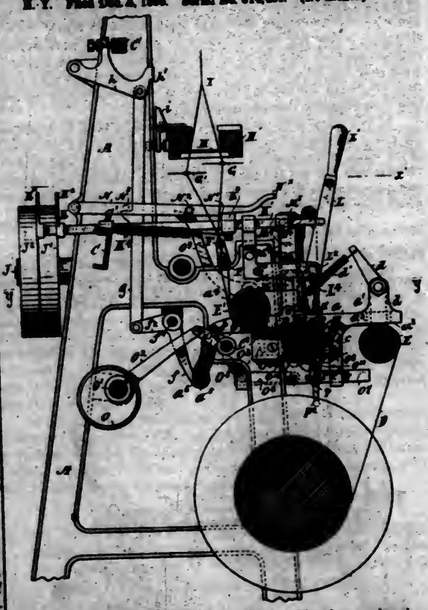
605,599. AUTOMATIC RAILWAY-SWITCH. JOSEPH DELLER, Hopetown, Ind. Filed Mar. 19, 1898. Serial No. 674,394. (No model.)



Claim.—1. A switch mechanism including a main shaft provided with starter and tread-plates, and a counter-shaft geared to said main shaft and coupled to the switch proper, said starter-plate being adapted to be operated by a car-trip, substantially as herein described, and for the purpose stated.

2. A switch mechanism including a main shaft G, provided with a tread-plate M, and starter-plate I, notched at *i*, *i'*, a mortised and longitudinally-grooved third rail H A *h'*, within which mortise A, said plate I *i* *i'* is fitted, a flap J that covers this plate, a counter shaft D *d*, a rod *e* that couples said shaft to the switch O, a spring L for retaining said flap in its closed position, and bevel-gears F, E, for communicating motion from said main shaft to said counter-shaft, all as herein described, and for the purpose stated.

605,600. WARP STOP-MOTION FOR LOOMS. ADRIAN D. HENRY, Taunton, Mass., assignor to the Universal Loom Company, New York, N. Y. Filed Dec. 4, 1896. Serial No. 614,621. (No model.)



Claim.—1. In an upright loom, the combination as herein set forth, of a progressively-acting stopping instrumentality adapted to bring the operative parts of the loom to rest by its progressive action during a prescribed part of one revolution of the lay driving shaft; a master trip-lever for normally holding said stopping instrumentality out of action; a warp stop-motion adapted to be, by the breaking of a warp-thread, rendered operative for tripping said master trip-lever, and so timed as to perform said tripping function at such predetermined stage in the revolution of the lay-driving shaft as will result in stopping the loom with the shed closed whenever a warp-thread breaks.

2. In an upright loom, a warp stop-motion comprising the following devices; warp-guides for guiding a section of warp through an approximately horizontal plane; a system of pins suspended upon the threads of said section of warp; a horizontally-sliding frame arranged beneath said system of pins; guides for guiding said pins in vertical paths; a horizontal rock-shaft mounted on said frame; a feeler-blade affixed to and projecting upwardly from said rock-shaft; connections between said frame and a constantly moving part of the loom, whereby said frame is constantly vibrated when the loom is in operation; a weighted dog pivotally mounted upon said frame and having its weighted end adapted to engage a radius-arm affixed to said feeler-blade rock-shaft, whereby by such engagement said feeler-blade is held in an upright position and said dog is held in an inoperative position; a progressively-acting stopping instrumentality and connections therewith projecting into the operative path of motion of said dog, as and for the purposes set forth.

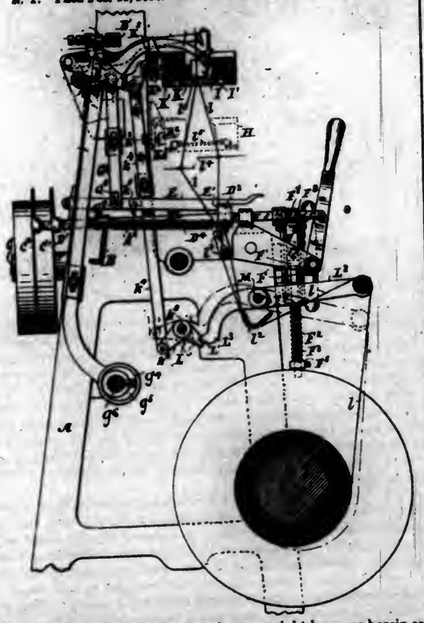
3. In an upright loom, mechanism for automatically stopping the loom with the shed closed whenever a warp-thread breaks, comprising essentially a group of pins suspended upon a section of warp occupying an approximately horizontal plane; a horizontally-sliding constantly-reciprocating frame arranged beneath said system of pins; a dog pivotally mounted upon said frame and partaking of the reciprocating motions thereof; means carried by said frame for normally holding said dog in inoperative position, said means embracing an upright feeler-blade traversing a path adapting it to be carried into collision with any warp stop-pin which by the breaking of the warp-thread on which it was suspended has been permitted to fall below its normal position; a progressively-stopping instrumentality and connections therewith projecting into the operative path of motion of said dog, as and for the purposes set forth.

4. In an upright loom, the combination, as herein set forth, of guides for maintaining a section of warp in an approximately horizontal plane; a series of stop-pins provided at their upper ends with return-bends and suspended upon the threads of said approximately

horizontal section of warp; guides for said pins, the same consisting of parallel vertical slots extending through a guide-board arranged beneath said section of warp and adapted to receive the longer legs of the said stop-pins, and parallel vertical grooves in the top of said guide-board for receiving the return bends or shorter legs of the said stop-pins; a stopping instrumentality for stopping the loom, and connections between said stopping instrumentality and said system of warp stop-pins, whereby if a warp-thread breaks the stop-pin originally suspended thereon by dropping from its normal position throws said loom-stopping instrumentality into action.

5. In a warp stop mechanism, substantially such as described, the group of return-bend pins, R, severally supported by the threads of the warp, in combination with the guide-bar, Q, provided with the vertical slots, Q^4, and the parallel grooves, Q^5, whereby the bights of said pins are made to extend diagonally across the warp-threads upon which they are respectively supported.

605,601. WEFT STOP-MOTION FOR LOOMS. ABRAM D. EMERY, Taunton, Mass., assignor to the Universal Loom Company, New York, N. Y. Filed Feb. 18, 1897. Serial No. 624,113. (No model.)



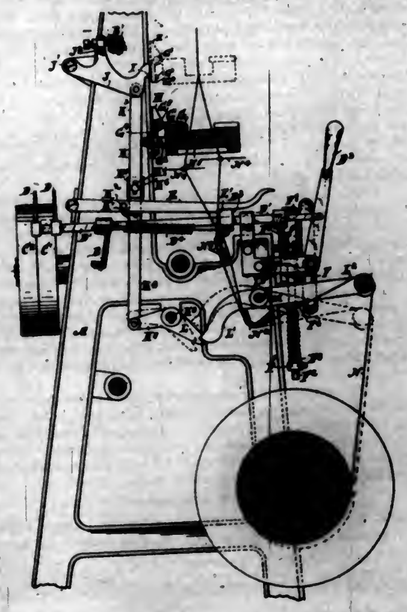
Claim.—1. The combination, in an upright loom, as herein set forth, of a spring-actuated progressively-acting stopping instrumentality, adapted to bring the operative parts of the loom to rest by its progressive action during a prescribed part of one revolution of the lay-driving shaft; a trip-lever for normally holding said stopping instrumentality out of action; a weft-fork and connections between said weft-fork and said stopping instrumentality, whereby if the weft-thread breaks or runs out the loom will be stopped with the lay down and the shed open.

2. The combination, in an upright loom, of a spring-actuated progressively-acting stopping instrumentality, adapted to stop the loom by its progressive action during a prescribed part of one revolution of the lay-driving shaft; a trip-lever for normally holding said stopping instrumentality out of action; a weft-fork and connections between said weft-fork and said trip-lever, whereby if a weft-thread breaks or runs out said trip-lever will be tripped at the conclusion of one beat of the lay, and the loom brought to rest before the lay can make another beat.

3. In an upright loom, the combination, as herein set forth, of a spring-actuated progressively-acting stopping instrumentality adapted to stop the loom by its progressive action during a prescribed part of one revolution of the lay-driving shaft; a trip-lever for normally holding said stopping instrumentality out of action; a weft-fork-carrying lever; a constantly-vibrating lever arranged in proximity to said weft-fork-carrying lever; a weft-fork pivotally mounted upon the free end of said weft-fork-carrying lever, and adapted to connect said weft-fork-carrying lever with said constantly-vibrating lever during the latter part of the beating motion of the lay if the weft-thread has run out or been broken; connections between said weft-fork-carrying lever and said trip-lever; a weighted detent adapted to engage a ratchet-wheel connected to the take-up roller for preventing said take-up roller from turning backwardly while the loom is in normal operation, and connections between said weft-fork-carrying lever and said detent, whereby the breaking or running out of the weft-thread effects the instant disengagement of said detent from said ratchet-wheel, and concurrently trips into action the said progressively-acting stopping instrumentality.

4. The combination, in an upright loom, as herein set forth, of a spring-actuated progressively-acting stopping instrumentality adapted to bring the operative parts of the loom to rest by its progressive action during a prescribed part of one revolution of the lay-driving shaft; a weft-fork arranged at one side of the warp and connections between said weft-fork and said stopping instrumentality, whereby if a weft-thread breaks or runs out the loom will be stopped with the shuttle in the box adjacent to the side of the warp opposite that where the weft-fork is arranged.

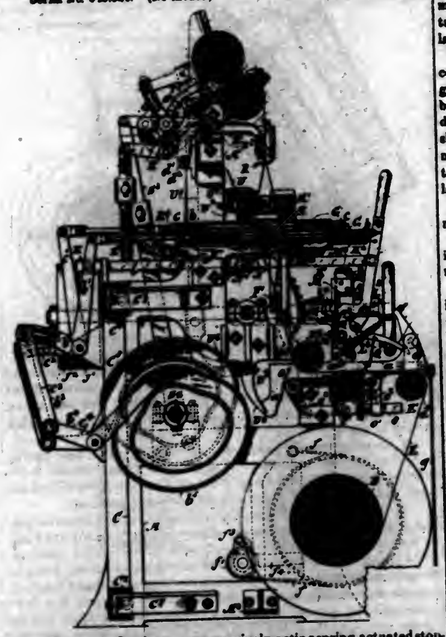
605,602. SHUTTLE STOP-MOTION FOR LOOMS. ABRAM D. EMERY, Taunton, Mass., assignor to the Universal Loom Company, New York, N. Y. Filed Feb. 20, 1897. Serial No. 624,264. (No model.)



Claim.—1. In a loom, the combination, as herein set forth, of a progressively-acting stopping instrumentality adapted to stop the loom by its progressive action during a prescribed part of one revolution of the lay-driving shaft; a shuttle stop-motion adapted to be brought into operation during the latter part of the beating-stroke of the lay, warp-slacking mechanism controlled by the said shuttle stop-motion, and connections between said shuttle stop-motion and said progressively-acting stopping instrumentality, whereby, if the shuttle fails to box properly, the operative parts of the loom are brought to rest just after the lay has commenced to recede from the beating-line.

2. In a loom, the combination, as herein set forth, of a progressively-acting stopping instrumentality adapted to stop the loom by its progressive action during a prescribed part of one revolution of the lay-driving shaft; a shuttle stop-motion adapted to be brought into operation during the latter part of the beating-stroke of the lay; a whip-roller for normally holding the warp under suitable tension; connections between said whip-roller and said shuttle stop-motion and connections between said shuttle stop-motion and said progressively-acting stopping instrumentality, whereby, if the shuttle fails to box properly, the warp is slacked and the operative parts of the loom are brought to rest just after the lay has commenced to recede from the beating-line.

605,603. LOOM. ABRAM D. EMERY, Taunton, Mass., assignor to the Universal Loom Company, New York, N. Y. Filed July 3, 1897. Serial No. 643,320. (No model.)



Claim.—1. In a loom, a progressively-acting spring-actuated stopping instrumentality adapted to bring the operating parts of the loom to rest by its progressive action during a prescribed part of a single revolution of the lay-driving shaft, in combination with a stop-motion for automatically tripping said stopping instrumentality into action at a predetermined stage in the revolution of said lay-driving shaft, whereby the loom is stopped with its operating parts in prescribed positions.

2. An upright loom having a progressively-acting spring-actuated stopping instrumentality adapted to bring the operating parts of the loom to rest by its progressive action during a prescribed part of a single revolution of the lay-driving shaft, and a stop-motion adapted to trip said stopping instrumentality into action at a predetermined stage in the revolution of said lay-driving shaft, whereby the loom is stopped with its operating parts in prescribed positions.

3. In a loom, a plurality of stop-motions, a progressively-acting spring-actuated stopping instrumentality adapted to bring the operating parts of the loom to rest by its progressive action during a prescribed part of a single revolution of the lay-driving shaft, and connections common to all of said stop-motions for tripping said stopping instrumentality into action at predetermined stages in the revolution of said lay-driving shaft.

4. In a loom, a warp stop-motion, a weft stop-motion, a shuttle stop-motion and warp-slacking mechanism controlled by said shuttle stop-motion, a progressively-acting spring-actuated stopping instrumentality adapted to bring the operating parts of the loom to rest by its progressive action during a prescribed part of a single revolution of the lay-driving shaft, and connections common to said warp stop, shuttle stop and weft stop motions, whereby the said stopping instrumentality is automatically tripped into action at predetermined stages in the revolution of said lay-driving shaft, as and for the purposes set forth.

5. In a loom, a warp stop-motion, a shuttle stop-motion, warp-slacking mechanism controlled by said shuttle stop motion, a progressively-acting spring-actuated stopping instrumentality adapted to bring the operating parts of the loom to rest by its progressive action during a prescribed part of a single revolution of the lay-driving shaft, and connections common to said warp stop and shuttle stop motions, whereby the said stopping instrumentality is automatically tripped into action at predetermined stages in the revolution of said lay-driving shaft, as and for the purposes set forth.

6. In a loom, a warp stop motion and a weft stop-motion, a progressively-acting spring-actuated stopping instrumentality adapted to bring the operating parts of the loom to rest by its progressive action during a prescribed part of a single revolution of the lay-driving shaft, and connections common to said warp stop and weft stop motions, whereby the said stopping instrumentality is automatically tripped into action at predetermined stages in the revolution of said lay-driving shaft, as and for the purposes set forth.

7. In a loom, a shuttle stop-motion, warp-slacking mechanism controlled by said shuttle stop-motion, and a weft stop-motion, a progressively-acting spring-actuated stopping instrumentality adapted to bring the operating parts of the loom to rest by its progressive action during a prescribed part of a single revolution of the lay-driving shaft, and connections common to said shuttle stop and weft stop motions, whereby the said stopping instrumentality is automatically tripped into action at predetermined stages in the revolution of said lay-driving shaft, as and for the purposes set forth.

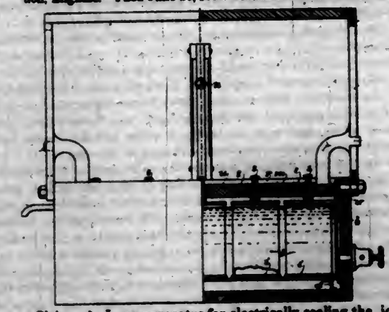
8. In a loom, a lay and a yielding breast-beam adapted to be moved in the direction of the beat-up.

9. In a loom, a lay, a yielding breast-beam adapted to be moved in the direction of the beat-up, and means for limiting the range of movement of the said breast-beam toward the lay.

10. In a loom employing a warp stop-motion and a self-tightening spring-actuated brake-strap, substantially such as described; a manually-operative lever for releasing said brake-strap from the brake-wheel; a link connecting said lever with a part of said warp stop-motion, whereby when the said lever is lifted to release the brake-strap, the warp stop-motion is concurrently adjusted in position to be brought into operation if a warp-thread breaks after the loom has been again started.

11. In a loom, in combination with the warp roll, a rope secured at one end to the frame and wound around the hub of the warp-roll; a windlass to which the other end of said rope is affixed, and an adjustably-weighted lever having a pawl-and-ratchet connection with said windlass, as and for the purposes set forth.

605,604. MEANS FOR HERMETICALLY SEALING METAL BOXES, &c. JULES GUESSANT, Deal, and ARCHIBALD C. BUTTIFANT, London, England. Filed June 29, 1896. Serial No. 597,264. (No model.)



Claim.—1. In an apparatus for electrically sealing the joints or seams of metal boxes or cans, a trough or receptacle, a basket removably placed therein and composed of conducting material, and a movable cover or lid for the trough or receptacle adapted to be supported upon the box or can, and carrying a contact, said basket and cover or lid being connected with the opposite poles of an electric circuit.

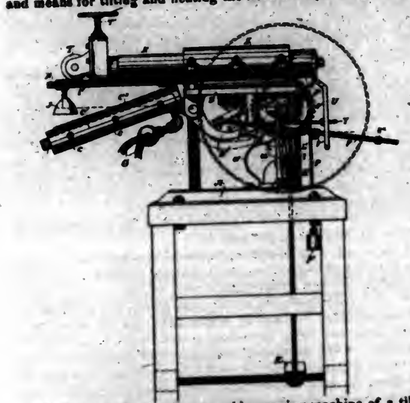
2. In an apparatus for electrically sealing the joints or seams of metal boxes or cans, the combination of a trough or receptacle, a metallic basket removably supported therein, having a projection or stand for retaining the box or can in position, and a movable lid or cover for the trough having a yielding pin or contact to rest upon the top portion of the box or can, said pin and basket being electrically connected with the opposite poles of an electric circuit.

3. In an apparatus for electrically sealing the joints or seams of metal boxes or cans, the combination, of a trough or receptacle, a metallic basket removably supported therein, having a series of movable stands or projections for retaining a series of boxes or cans in position, a movable cover or lid for the trough having a series of yielding pins or contacts to rest one upon each box or can, and a metal plate on the lid or cover in contact with the pins, said plate and basket being electrically connected with opposite poles of circuit.

605,605. CAN-SIDE-SEAM-FUSING MACHINE. JULES GUESSANT, Deal, and ARCHIBALD C. BUTTIFANT, London, England. Filed Dec. 27, 1897. Serial No. 663,573. (No model.)

Claim.—1. In a can-side-seaming machine, a slotted perforated

tiltable cylindrical horn, guides along the slot, a hinged counterweighted plate covering the guides, a roller passing over said plate, and means for tilting and heating the horn and operating the roller.



2. The combination in a can-side-seaming machine of a tiltable horn having a longitudinal slot on its upper surface, perforations on each side, guides on the horn parallel with the slot and at a short distance from its edges so as to form a channel adapted to receive the seam of a can, and a perforated burner-pipe in the horn with one or more tubes attached to the burner-pipe and connected with a suitable supply of inflammable vapor.

3. The combination in a can-side-seaming machine of a tiltable horn having a longitudinal slot on its upper surface, perforations on each side, guides on the horn parallel with the slot and at a short distance from its edges and a perforated burner-pipe in the horn with tubes attached to the burner-pipe and connected with a suitable supply of inflammable vapor and means for tilting the horn.

4. In the can-side-seaming machine, the combination of a tiltable cylindrical horn having a longitudinal slot on its upper surface, and perforations on each side, guides on the horn parallel with the slot and at a short distance from its edges, and a perforated burner-pipe inside the horn, with tubes attached to the burner-pipe and connected with a suitable supply of inflammable vapor, means for tilting the horn, and a horizontal rack-bar having a roller attached to its forward end and adapted to pass over said seam of the can.

5. In a can-side-seaming machine the combination of a tiltable cylindrical horn having a longitudinal slot on its upper surface, perforations on each side, guides on the horn parallel with the slot and a perforated burner-pipe inside the horn, with tubes attached to the burner-pipe and connected with a supply of inflammable vapor, means for tilting the horn, a horizontal rack-bar having a roller attached to its forward end and adapted to pass over said seam of the can and a presser connected with said roller so as to regulate its action on the seam of the can.

6. The combination in a can-side-seaming machine of a tiltable cylindrical horn having a longitudinal slot on its upper surface, perforations on each side, guides on the horn parallel with the slot and a perforated burner-pipe inside the horn with tubes attached to the burner-pipe and connected with a supply of inflammable vapor, means for tilting the horn, a horizontal rack-bar having a roller attached to its forward end and adapted to press over said seam of the can, a presser connected with said roller so as to regulate its action on the seam of the can, a toothed wheel meshing with said rack-bar and loosely mounted to a shaft connected with driving power and mechanism for reversing the motion of said wheel.

605,606. ICE-CREAM FREEZER. EDGAR C. HILL, Horse Cave, Ky. Filed Apr. 21, 1897. Serial No. 633,067. (No model.)

Claim.—1. In an ice-cream freezer, the combination with a central standard, of an ice vessel having a thimble provided with a cap, a non-removable cover for said ice vessel, a cream vessel removably secured to said cover and having an interior beater and scraper and a sleeve having a tip removably fitted into said cup whereby a tight but severable joint is formed so that the cream vessel may be removed.

2. In an ice-cream freezer, the combination with a centrally-shouldered standard, of an ice vessel having a thimble mounted on the standard and upon its shoulder, a cream vessel removably secured to the cover of the ice vessel, a yoke on the upper end of the standard, a sleeve rotatably mounted in said yoke at one end and connected to the cream vessel at the other, a tight but separable joint between said thimble and sleeve between the two vessels, a lower yoke on the sleeve and a spring-controlled pivoted beater and scraper carried by said yoke.

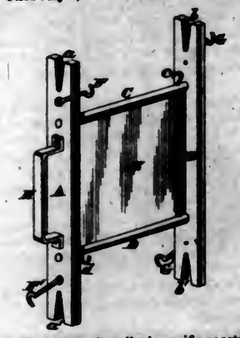


3. In an ice-cream freezer, the combination with an ice vessel having a cover and turn-buttons, of a cream vessel removably fitted in said cover and having inclined lugs projecting from the cream vessel for said turn-buttons, and an annular body fitted upon a gasket carried by the cover.

4. In an ice-cream freezer, the combination with a base having a bracket provided with separate wings, of a standard pivoted in the bracket between the said wings, the wing having a series of perforations, and a pin to hold the standard in adjusted positions.

5. In an ice-cream freezer, the combination with a central standard, of an ice vessel having a thimble extending through it, and a cup on the thimble with a conical mouth, of a cream vessel a sleeve secured thereto and a tip on the sleeve having a conical end fitted to the cup, said central standard passing through said sleeve, cup and thimble, substantially as shown and described.

605,607. CLOTHES-LINE HOLDER. WILLIAM KOOB, Lawrenceburg, Ind. Filed July 2, 1897. Serial No. 643,941. (No model.)



Claim.—1. The within-described specific construction of non rotatable clothes-line holder, which device includes a bar provided with a retainer, a pair of laterally-projecting pins and a longitudinal passage widest at its receiving end, and converging toward its other end, said parts being so combined and arranged as to enable a line to be wound around said pins, then bent at a right angle to traverse said passage, near its narrowest end, and to be secured therein by said retainer, in order that said holder may be hung up by said line without causing it to uncoil from said pins, all as set forth.

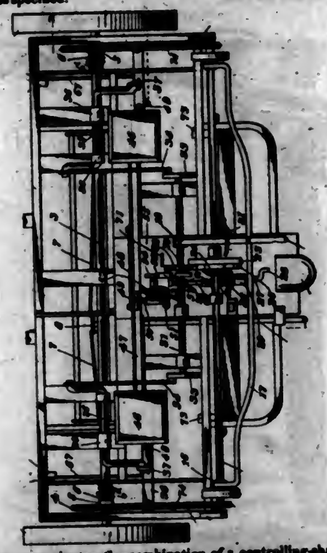
2. A suspension clothes-line holder comprising the side bar A, having notched ends *a a'*, and hooks F, F', another and parallel side bar B, having notched ends *b, b'*, and hooks G, G', and stretchers C, D, rigidly uniting said bars, the whole constituting a non-rotatable device capable of being held by hand, in the manner herein described

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605,608. CORN-PLANTER. LARS H. LARSON, Hartland, Minn. Filed Aug. 31, 1897. Serial No. 650,133. (No model.)

Claim.—1. In a corn-planter, the combination of a shaft having clutch-heads thereon, disks with which the said clutch-heads engage.

means for operating the said disks, another shaft operated by the aforesaid shaft and having disks on the ends thereof, crank-shafts attached to said disks, and vertically-reciprocating markers connected to and operated by the said crank-shafts, substantially as and for the purposes specified.



2. In a corn-planter, the combination of a controlling-shaft provided with an arm, a pawl supported by a slide-rod, a keeper engaging said pawl, a ratchet-wheel, a seed-slide, gearing in connection with said ratchet-wheel and seed-slide, and seedboxes with which said slide coacts, substantially as and for the purposes specified.

3. In a corn-planter, the combination of a drive-shaft, another shaft in connection therewith having a gear thereon, a controlling-shaft engaging said gear, crank-shafts connected to said controlling-shaft, vertically-reciprocating markers operated by the said crank-shafts, and an adjustable turn-rod carrying a pinion adapted to engage the said gear, and to adjust the said markers, substantially as and for the purposes specified.

4. In a corn-planter, the combination of a shaft having a gear thereon, means for operating said shaft, a controlling-shaft carrying the pinion adapted to mesh with said gear, and provided with an arm, crank-shafts connected to said controlling-shaft, vertically-reciprocating markers attached to and operated by said crank-shafts, a yielding pawl adapted to be engaged by the arm of the controlling-shaft, a ratchet-wheel and gearing actuated by the said yielding pawl, a feed-slide connected to the gearing actuated by the pawl, seedboxes with which the said slide engages, and means for throwing the several parts in and out of gear, substantially as and for the purposes specified.

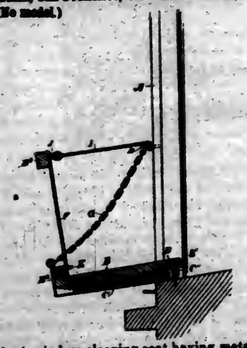
605,609. FASTENER FOR STRAPS. FRANK L. MOORE, Chatham, N. J. Filed Mar. 19, 1898. Renewed May 13, 1898. Serial No. 680,632. (No model.)



Claim.—1. The strap-attaching plate formed with a strap-receiving keeper and provided with means for attachment to the strap, in combination with a straining-lever hinged to said attaching-plate, carrying a strap-buckle intermediate its ends, and its end adapted to engage said keeper and be secured thereto by the strap passing over it and through said keeper.

2. The strap-attaching plate formed with a strap-receiving keeper and provided with means for attachment to the strap, in combination with a straining-lever hinged to said attaching-plate, carrying a strap-buckle intermediate its ends and formed with a slot in its free end to receive the said keeper and be held down thereon by the strap passing therethrough.

605,610. WINDOW-CLEANING SEAT. CARL A. MÜLLER and GEORGE HINMAN, San Francisco, Cal. Filed Jan. 21, 1898. Serial No. 667,900. (No model.)



Claim.—1. A window-cleaning seat having metallic strips across the ends, said strips projecting interior to the inner edge of the seat and being upturned and slotted as shown, in combination with screws fixed in the window-sill and having heads with which the upturned slotted ends engage and lock.

2. A window-cleaning seat consisting of a seat-piece having transverse strips of metal across the ends, projecting beyond the interior edge and upturned and slotted, headed screws or bolts fixed in the window-seat with which said slotted bars engage and lock, chains fixed to the outer edge of the seat extending diagonally upward having hook attachments upon the upper ends and wall attachments with which they are engaged so as to support the outer edge of the seat.

3. In a window-cleaning seat, a bottom board having transverse metallic strips across the ends, said strips extending beyond the inner edge of the seat and being upturned and slotted, headed screws fixed in the window-sill with which said slotted ends engage and lock, vertical posts extending upwardly from the outer edge of the seat having a transverse bar fixed across the upper ends, chains connecting with the outer edge of the seat and with attachments fixed to the outer part of the wall above the level of the seat, and hooks connecting with the top of the vertical bars at the ends of the transverse rail having the inner ends connected with the attachments upon the wall to form a support and guard.

4. In a window-cleaning seat, a base having metal strips secured across its ends, the inner ends of said strips being turned upwardly and slotted, screw-eyes with which said inner slotted ends are adapted to engage and lock, supplemental flaps hinged to the inner edge of the seat adapted to fold down over the screw-eyes and slotted metal ends, and suspending chains and hooks connecting with the outer edge of the seat and connecting with attachments upon the wall above the level of the seat.

605,611. STREET-SPRINKLING, IRRIGATING, AND FIRE-EXTINGUISHING SYSTEM. ALEXANDER MCGOUN, Oakland, Cal. Filed Aug. 10, 1897. Serial No. 647,575. (No model.)



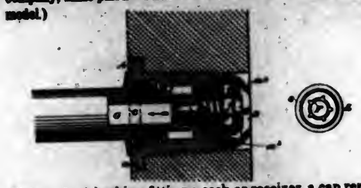
Claim.—1. In a system of water-supply, a pipe having one or more rows of holes of decreasing diameters, said holes provided with counterbored bushings, and polygonal collars on the pipes adapted to receive a tool or device whereby they may be rotated.

2. In a system of water-supply for extinguishing fires, a perforated pipe connected with a source of supply and journaled on the apex of the roof of a building, and means whereby the discharge from the pipe may be directed to either slope of the roof.

3. A sprinkling device consisting of a pipe section or sections, having a line of perforations along one side, brackets by which said pipe is supported along the ridge of a house, a direction-board sup-

ported and turnable beneath the pipe with attachments to tilt the board and direct the discharge-jets to either side of the ridge.

605,612. BUSHING AND FAUCET FOR BARRELS. WILLIAM C. RAWLEY, San Francisco, Cal., assignor to the American Faucet Company, same place. Filed Oct. 22, 1897. Serial No. 656,008. (No model.)



Claim.—1. A bushing fitting a cask or receiver, a cap removably fitting the inner end of said bushing having a central aperture with an interiorly-formed valve-seat, a second seat formed within the bushing and opposed to the first-named valve-seat with a space between the two, a valve movable between the two seats so as to close upon one or the other and an annular shoulder formed around the inner surface of the removable cap so as to close against and form a joint with the outer periphery of the inner valve-seat.

2. A bushing fitting a cask or receiver having screw-threads upon the inner end, and an annular groove or channel adapted to receive a removable annular ring forming a seat against which the interior face of a valve movable within the bushing is adapted to close, a removable screw-threaded cap fitting the threads upon the inner end of the bushing having a central opening and a ledge or shoulder adapted to fit against the removable seat when the cap is screwed in place.

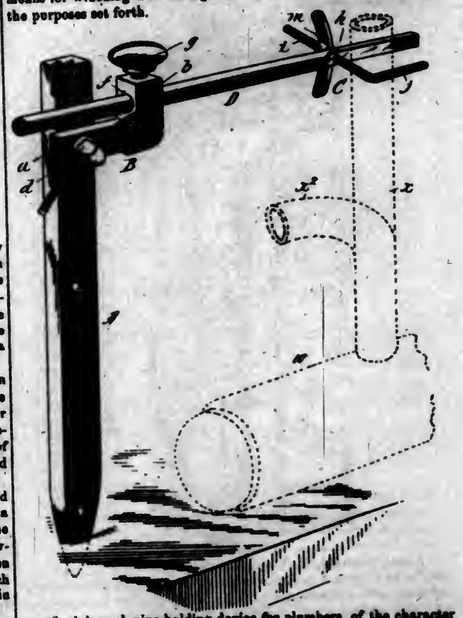
3. A bushing fitting a cask or receiver having a screw-threaded interior end and a correspondingly-threaded removable cap with a centrally-formed opening and valve-seat, shoulders formed upon the interior of the cap and upon the inner end of the bushing, a removable ring adapted to fit and be clamped between said shoulders when the cap is in place, said ring forming an inner seat for a valve which is movable between the said inner seat and the outer one formed in the cap.

4. A bushing fitting a cask or receiver having a screw-threaded removable cap upon the inner end, shoulders formed upon the inner end of the bushing and upon the interior of the cap, an annular ring adapted to be clamped between said shoulders and forming a seat, a double-faced valve having a tubular stem, and movable inwardly to close one face against said seat and outwardly to close the other face against a corresponding seat formed centrally through the cap, screw-threads upon the enlarged central portion of the valve-stem engaging corresponding threads in the interior of the bushing, a head formed upon the inner end of the tubular valve-stem, a faucet-barrel having a corresponding formation upon the inner end to engage said head and turn the valve, spiral locking lugs upon the faucet-barrel, corresponding lugs upon the inner surface of the bushing, and an annular elastic disk inclosing the faucet-stem interior to the locking-lugs to prevent leakage.

5. A bushing fitting a cask or receiver having a removable cap on the inner end with a central aperture and an interior valve-seat, a second seat opposed thereto within the bushing and forming a space between the two, said cap having an internal shoulder opposing the valve-seat within the bushing, to make a joint therewith, a valve movable between the two seats, and passages through which liquid may pass when the valve stands intermediate between the seats, a chamber within the bushing adapted to receive the inner end of a faucet, a head upon the valve-stem and a correspondingly-shaped formation upon the inner end of the faucet which will engage the head of the valve-stem when the faucet is introduced, spiral lugs in the interior of the bushing and also around the faucet-barrel adapted to engage and lock the faucet simultaneously with the movement of the valve when the faucet is turned, and a washer adapted to make a tight joint between the faucet and the bushing, said washer having an inclosing cap turnable upon the faucet-barrel, whereby the latter is movable within the washer after the latter has become seated.

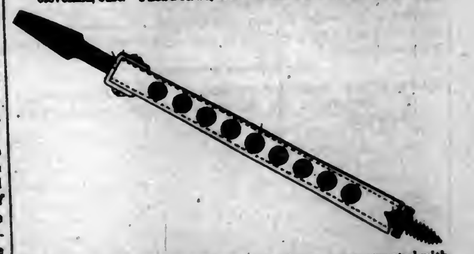
605,618. BRANCH-PIPE-HOLDING DEVICE FOR PLUMBERS' USE. OTTO F. RICHTER, Holyoke, Mass. Filed Nov. 26, 1897. Serial No. 660,771. (No model.)

Claim.—1. A branch-pipe-holding device for plumbers, of the character described, consisting of a spike constituting an upright support, a member pivotally mounted and adjustably confined on the side of the support, having the perforation *f* therethrough in a line coincident with the plane of swinging movement of the said adjustable member, the rod D having a supporting engagement, and endwise, and also rotational adjustments in and through said perforation, and a thumb-screw for confining the rod in its adjusted positions, and a clamp provided at the extremity of the said rod and means for widening and closing the clamp, substantially as and for the purposes set forth.



2. A branch-pipe-holding device for plumbers, of the character described, consisting of a spike-support A, the L-shaped member B pivotally mounted and adjustably confined on the side of the support, having the perforation *f* through a member thereof in a line coincident with the plane of swinging movement of the said adjustable member, the round rod D having a supporting engagement, and endwise adjustment, in and through said perforation, and a thumb-screw for confining the rod in its endwise position, the L-shaped clamp C having its screw-threaded shank passed through a perforation A which is transversely provided in the end portion of the rod D and the thumb-nut *m* screwing on said shank and against the rod, all substantially as and for the purposes set forth.

605,614. COMBINED AUGER AND CUTTER. LOUIS H. SEGLER, Cleveland, Ohio. Filed Dec. 24, 1897. Serial No. 663,413. (No model.)

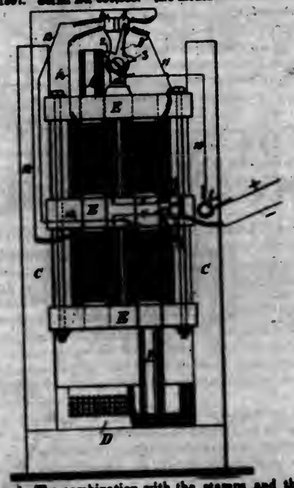


Claim.—1. The chisel-edged casing for the auger constructed with greater cross-section at its lower cutting end than higher up, whereby the casing is given clearance its entire length, in combination with the auger having a lead-screw of a size and length sufficient to draw the said casing through the wood, substantially as described.

2. The chisel-edged casing provided with openings in its sides to discharge the cuttings and reduced from its lower to its upper end to form a clearance thereof in the hole it cuts, in combination with the auger having a lead-screw constructed to feed the auger and draw the chisel through the wood and square the hole while the auger is at work, substantially as described.

3. The auger having a shoulder on the neck thereof above the thread, the casing having openings in its top and securing-pieces connecting said casing and auger entering said openings and engaging said shoulder, whereby the endwise thrust of the casing comes on said pieces, substantially as described.

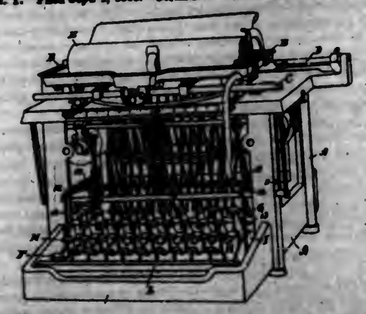
605,615. CRB-STAMP. DAVID M. SMITH, Pasadena, Cal. Filed June 9, 1897. Serial No. 639,285. (No model.)



Claim.—1. The combination with the stamps and the electro-magnets for actuating the same, of a switch that is actuated by an upward movement of one stamp to change the circuit connections for raising another stamp, substantially as specified.

2. The combination with two stamps and the electro-magnets for actuating the same, of circuit connections and a switch that is changed by the upward movements of the stamps alternately, for energizing the magnets and raising one stamp and accelerating the fall of the other, substantially as specified.

605,616. TYPE-WRITING MACHINE. PHILIP W. SOUTHGATE, Worcester, Mass., assignor to The Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed Sept. 1, 1893. Serial No. 484,694. (No model.)



Claim.—1. In a type-writing machine, the combination of character-controlling keys, a space-key, and means operated by or from the space-key for indicating whether or not the space-key should be operated or struck next, substantially as described.

2. In a type-writing machine, the combination of character-controlling keys, a space-key, and a signal operated by or from the space-key for indicating whether or not the space-key should be operated or struck next, substantially as described.

3. In a type-writing machine, the combination of character-controlling keys, a space-key, and a visual signal operated by or from the space-key for showing whether or not the space-key should be operated or struck next, substantially as described.

4. In a key-operated type-writing machine, the combination of a signal, and means controlled by a space-key for operating said signal for indicating whether or not the space-key should be operated or struck next, substantially as described.

5. In a type-writing machine, the combination of character-controlling keys, a space-key, a plate or frame having an opening therein, an indicator behind said plate or frame and partially exposed through said opening, and connections between said indicator and said keys, whereby the character-keys and the space-key respectively move said indicator to expose different or unlike portions thereof to view, substantially as described.

6. In a key operated type-writing machine, the combination of a signal, means for giving a step-by-step feed movement to the carriage, and connections whereby said signal is operated or controlled to indicate whether or not the space-key should be operated or struck next, substantially as described.

7. In a type-writing machine, the combination with a paper-carriage and the printing and feeding devices, and means for indicating to the operator whether or not the paper-carriage has been spaced after a character has been printed to provide for a blank space before the beginning of the next word, substantially as described.

8. The combination of an indicator and means for connecting said indicator with the operative parts of a type-writing machine so that the indicator will be moved into one position to show that the machine was last operated to print, and into a different position to show that the machine was last operated to space, substantially as described.

9. The combination of a keyboard having character-keys and a space-key, an indicator constructed to show whether the space-key or character-key was last operated, and connections for moving the indicator into position to show that the machine was last operated to print when a character-key is operated, and into a different position to show that the machine was last operated to space when the space-key is operated, substantially as described.

10. In a type-writing machine, the combination of character-keys, a space-key, a universal bar actuated by the character-keys, an indicator constructed to show whether the character-key or the space-key was last operated, and connections for moving the indicator into position to show that the machine was last operated to space when the space-key is operated, and into a different position to show that the machine was last operated to print when the universal bar is operated, substantially as described.

11. In a type-writing machine the combination of a rock-shaft, an indicator controlled thereby, means for turning the rock-shaft in one direction when a character is printed and means for turning the rock-shaft in the opposite direction when a blank space is left, substantially as described.

12. In a type-writing machine the combination of a keyboard having character-keys and a space-key, a rock-shaft and universal bar operated by the character-keys and connected to the rock-shaft for turning it in one direction, means controlled by the space-key for turning the rock-shaft in the opposite direction and an indicator connected to the rock-shaft, substantially as described.

13. In a type-writing machine the combination of a keyboard having character-keys and a space-key, a rock-shaft having arms extending in opposite directions, a frame controlled by the character-keys and secured to the arms which extend from the rock-shaft in one direction, a frame controlled by the space-key and secured to the arms which extend from the rock-shaft in the opposite direction and an indicator connected to the rock-shaft, substantially as described.

14. The combination in a type-writing machine of a rock-shaft 10 mounted on center-screws 11 in the side frames of the machine and provided with arms 12, carrying frames which are controlled by the character-keys and the space-key respectively and an arm 9 secured to the rock-shaft and connected to an indicator by a rod 18, substantially as described.

15. The combination of the keyboard having character-keys, upper and lower case keys, located one at each side of the keyboard of a spacing-frame carrying a space-bar extending across the front of the keyboard of a rock-shaft located above the keyboard and carrying wires 15 which extend down between the upper and lower case key levers and the character-key levers and are connected by a bar 16, of a frame 13, also connected to the rock-shaft and having bends or offsets 14 which are adapted to be engaged by the spacing-frame and an indicator connected to the rock-shaft, substantially as described.

16. The combination of a type-writing machine and an indicator constructed to show whether the machine was last operated to print a character or to leave a space, the parts of the indicator being substantially counterbalanced, substantially as set forth.

605,617. APPARATUS FOR POPPING CORN. RASMUS O. STORMAN, Des Moines, Iowa. Filed Nov. 14, 1891. Serial No. 411,867. (No model.)

Claim.—1 An apparatus for popping corn, comprising a con-

taining-receptacle into which kernels of corp to be treated are deposited which receptacle is rotatably mounted, means for rotating said receptacle, said receptacle having an opening or openings in the side which is parallel to the axis of the same and separating and discharging mechanism, whereby the popped corn is automatically removed from the receptacle through the said opening or openings and in advance of the said separating and discharging mechanism, the unpopped corn remaining within the receptacle.



2. An apparatus for popping corn, comprising a cylindrical containing vessel having an opening in the side thereof conveying mechanism rotatably mounted within said receptacle, clearing mechanism connected to and extending within said receptacle, and means for rotating said conveying mechanism in order that the popped corn may be separated out from the mass within the receptacle caused to fall upon the clearing mechanism and discharged through the said opening.

3. In an apparatus for popping corn, the combination with a pivotally-mounted cylindrical containing-receptacle having a discharge-opening in one side thereof, of a revolving rake rotatably mounted concentrically within said receptacle, clearing mechanism connected to said receptacle and acted upon by the rake-teeth to clear the same, conjunctively-operating gear-wheels for rotating the rake and means for causing one of said gear-wheels to oscillate the receptacle.

4. In an apparatus for popping corn, the combination with a corn containing receptacle and means of ingress thereto and egress therefrom, of a revolving rake concentrically mounted within said receptacle, and means for rotating said rake, and a plurality of slats fixed to the interior of said receptacle at slight differences of separation the teeth of the rake traveling in the spaces between said slats, whereby the ends of the rake-teeth are prevented from contacting with the corn.

5. An apparatus for popping corn, comprising a containing-receptacle pivotally mounted upon a suitable support and having means of ingress thereto and egress therefrom, a rake rotatably mounted concentrically within said receptacle, a train of gearing connected to and operating said rake, pins fixed to and projecting from one of the members of said gearing, which pins in their traverse successively engage with and impart a rotary motion to the said receptacle, and means for causing said receptacle to resume its normal position after each contact of the several pins.

605,618. JUSTIFYING DEVICE FOR TYPE-SETTING OR OTHER MACHINES. ERNST WERTHEIMER, Berlin, Germany. Filed Mar. 12, 1896. Serial No. 582,956. (No model.) Patented in England Mar. 6, 1895, No. 4,754

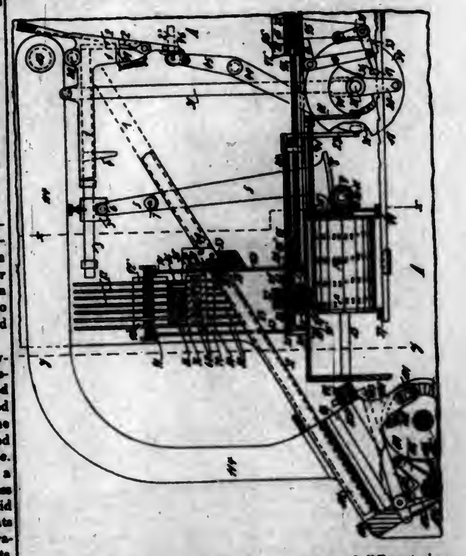
Claim.—1. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, substantially as described.

2. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with readable signatures at different places, indicating each independently of the other by its place a particular size and by its readable signature the number of that size of spaces, substantially as described.

3. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with indentures of different depths at different places, indicating each independently of the other by its place a particular size and by its depth a certain number of that size of spaces, substantially as described.

4. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with projections of different heights at different places, indicating each independently of the other by its place a particular size and by its height a certain number of that size of spaces, substantially as described.

5. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, and means for selecting that portion of the register which contains the signs or marks indicating the spaces to justify a given line, substantially as described.



6. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, and means for bringing into sight of the operator that portion of the register which contains the signs or marks indicating the spaces required to justify a given line, substantially as described

7. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, a space-feeding mechanism, and means for presenting or connecting to the said space-feeding mechanism that portion of the register which contains the signs or marks indicating the spaces required to justify a given line, substantially as described.

8. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, means for selecting that portion of the register which contains the signs or marks indicating the spaces required to justify a given line, a space-feeding mechanism, and means for stopping the line at each spacing, substantially as described.

9. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, and means for shifting the register by the line to be justified, substantially as described.

10. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, and means for shifting the register in one direction by the line to be justified and in another direction in accordance with the number of word-spacings contained in that line, substantially as described.

11. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, a plate or block for adjusting the line to be justified, and means for controlling the register by the line-adjusting movement, substantially as described.

12. In an apparatus employing movable spaces of different sizes to justify composed lines a space selecting or predetermining register provided with different signs or marks at different places, indicating each independently of the other by its place a particular size and by its character a certain number of that size of spaces, a space-feeding mechanism, means for presenting or connecting to the said space-feeding mechanism that portion of the register which contains the signs or marks indicating the spaces required to justify a given line, and means for controlling the space-feeding mechanism by the register, substantially as described.

13. In an apparatus for justifying lines composed by setting-machines the combination of movable stops controlling the feeding of spaces, ratchet devices intermittingly actuating the said stops, and means for oscillating the said ratchet devices by the common key-stroke of the setting machine, substantially as and for the purposes described.

14. In an apparatus for justifying lines composed by setting-machines the combination of movable stops controlling the feeding of spaces, ratchet devices intermittingly actuating the said stops, and an escapement or catch for stopping the line at each spacing, substantially as and for the purposes described.

15. In an apparatus for justifying lines composed by setting-machines the combination of movable stops controlling the feeding of spaces, an escapement or catch for stopping the line at each spacing, and means for actuating the said escapement or catch by the common key-stroke of the setting-machine, substantially as and for the purposes described.

16. In an apparatus for justifying lines composed by matrix or die setting machines an inclined matrix or die channel for assembling the provisional line, means for justifying the same and means for forwarding and delivering the line by gravity, substantially as and for the purposes described.

17. In an apparatus for justifying lines composed by matrix or die setting machines the combination of an inclined matrix or die channel, a space-feeding mechanism, and an escapement or catch for stopping at each spacing the line descending by gravity, substantially as and for the purposes described.

18. In an apparatus for justifying lines composed by matrix or die setting machines the combination of an inclined matrix or die channel, a space-feeding mechanism, and an escapement or catch for detaching word by word at each spacing, the matrices or dies descending by gravity, substantially as and for the purposes described.

19. In an apparatus for justifying lines composed by matrix or die setting machines the combination of an inclined matrix or die channel, a space-feeding mechanism, an escapement or catch for stopping at each spacing the line descending by gravity and means for withdrawing the provisional spaces, substantially as and for the purposes described.

20. In an apparatus for justifying lines composed by matrix or die setting machines the combination of a horizontal matrix or die assembling receptacle, an inclined channel for justifying the line and delivering the same by gravity, and means for bringing the assembling-receptacle into line with the said inclined channel, substantially as and for the purposes described.

21. In an apparatus for justifying lines composed by matrix or die setting machines the combination of an inclined matrix or die channel, an escapement or catch for stopping at each spacing the line descending by gravity, and a letter-matrix or letter-die provided with a nick or recess in its upper shoulder, substantially as and for the purposes described.

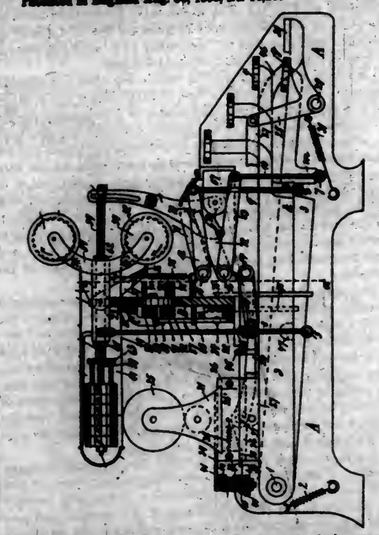
22. In an apparatus for justifying lines composed by matrix or die setting machines the combination of an inclined matrix or die channel, a space provided with a nick and means for withdrawing the space by way of the said nick, substantially as and for the purposes described.

23. In an apparatus for justifying lines composed by setting-machines the combination of two levers swinging in opposite directions and pushers or drivers connected to the said levers and entering into the type-channel, substantially as and for the purposes described.

24. In an apparatus for justifying lines composed by setting-machines the combination of provisional spaces extending at the top and the bottom of the line and bridges for stopping the line at each spacing, substantially as and for the purposes described.

25. In an apparatus for justifying lines composed by setting-machines the combination of provisional spaces extending at the top and the bottom of the line, movable bridges for stopping the line at each spacing, and means for actuating the said bridges at each spacing, substantially as and for the purposes described.

605,619. TYPE-WRITING MACHINE. ERNST WERTHEIMER, Berlin, Germany. Filed Apr. 2, 1896. Serial No. 585,697. (No model.) Patented in England Aug. 30, 1895, No. 16,209



Claim.—1. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging toothed segment, pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the swinging toothed segment, of frames suspended from the said levers, each of the said frames being actuated by the keys corresponding to one and the same longitudinal row of types of the type-cylinder, and of means for controlling the turning movement of the type-cylinder by the said swinging segment.

2. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging lever, pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the swinging lever, of frames suspended from the said levers, each of the said frames being actuated by the keys corresponding to one and the same circular section of types of the type-cylinder, and of means for controlling the longitudinal shifting movement of the type-cylinder.

3. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging part, pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the said swinging part, of frames suspended from the said levers and depressed by the key stroke, of springs inserted between the said frames and the said levers, and of means for controlling the type-cylinder by the said swinging part.

4. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging part pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the said swinging part, of levers controlling by pin-and-cam or by roller-and-cam action the movement of the said swinging and stopping levers, of frames suspended from the said controlling-levers and depressed by the key stroke, and of means for controlling the type-cylinder by the said swinging part.

5. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging toothed segment pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging

and stopping the swinging toothed segment, of levers controlling by pin-and-cam or by roller-and-cam action the movement of the said swinging and stopping levers, of frames suspended from the said controlling-levers, each of the said frames being actuated by the keys corresponding to one and the same longitudinal row of types of the type-cylinder, and of means for controlling the turning movement of the type-cylinder by the said swinging segment.

6. In a type writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging lever pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the swinging lever, of levers controlling by pin-and-cam or by roller-and-cam action the movement of the said swinging and stopping levers, of frames suspended from the said controlling-levers, each of the said frames being actuated by the keys corresponding to one and the same circular section of types of the type-cylinder, and of means for controlling the longitudinal shifting movement of the type-cylinder.

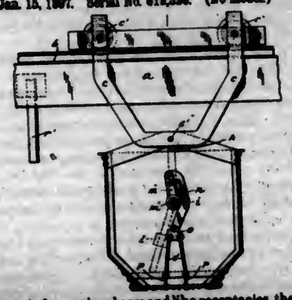
7. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging part pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the swinging part, of toggle-levers controlling the movement of the said swinging and stopping levers, of frames suspended from the toggle-levers and depressed by the key stroke, and of means for controlling the type-cylinder by the said swinging part.

8. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging toothed segment, pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the swinging toothed segment, of toggle-levers controlling the movement of the said swinging and stopping levers, of frames suspended from the toggle-levers, each of the said frames being actuated by the keys corresponding to one and the same longitudinal row of types of the type-cylinder, and of means for controlling the turning movement of the type-cylinder by the said swinging segment.

9. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging lever, pivoted to the stationary frame of the machine and provided with a pin or pins, of levers likewise pivoted to the stationary frame of the machine and engaging with the said pin or pins for swinging and stopping the swinging lever, of toggle-levers controlling the movement of the said swinging and stopping levers, of frames suspended from the toggle-levers, each of the said frames being actuated by the keys corresponding to one and the same circular section of the types of the type-cylinder, and of means for controlling the longitudinal shifting movement of the type-cylinder.

10. In a type-writing machine, in which the types are arranged in a plurality of circular sections and of longitudinal rows on the surface of a type-cylinder, the combination of a swinging frame carrying the type cylinder and an adjustable stop for stopping the upward-swinging movement of the type-cylinder at different points.

605,620. OVERHEAD CAR OR LIKE RECEPTACLE. ALFRED M. ACKLIN, Pittsburg, Pa., assignor to Heyl & Patterson, same place. Filed Jan. 15, 1897. Serial No. 619,236. (No model.)



Claim.—1. In overhead cars and like receptacles, the combination with a suitable receptacle, of a downwardly-opening door, a rocking shaft mounted on said receptacle, a toggle connected to said door, and connections between said shaft and said toggle, substantially as set forth.

2. In overhead cars and like receptacles, the combination with a suitable receptacle, of a downwardly-swinging door, a rocking shaft mounted on said receptacle, a trip-lever mounted on said shaft, a weight on the lower end of said trip-lever, a toggle-joint connected to said door, and connections between said shaft and said toggle-joint, substantially as set forth.

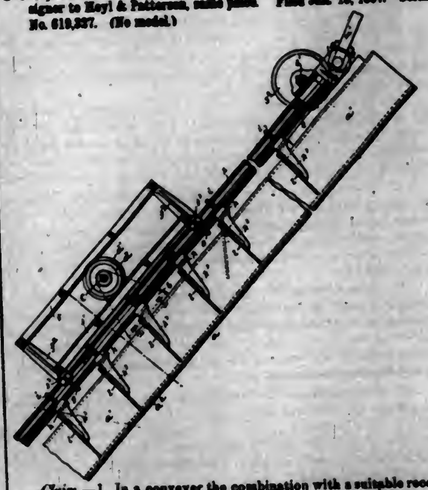
3. In overhead cars and like receptacles, the combination with a suitable receptacle, of a downwardly-opening door, a rocking shaft mounted on said receptacle, an arm on said shaft, and connections between said arm and said door, the upper end of said arm being normally beyond the center of said shaft, substantially as set forth.

4. In overhead cars and like receptacles, the combination with a suitable receptacle, of a downwardly-opening door, a rocking shaft mounted on said receptacle, a trip-lever mounted on said shaft, an arm on said shaft, a toggle connected to said door, connections between said arm and said toggle, the upper end of said arm being normally beyond the center of said shaft, substantially as set forth.

5. In overhead cars and like receptacles, the combination with a suitable receptacle, of a downwardly-swinging door, a rocking shaft mounted on said receptacle, a trip-lever mounted on said shaft, an arm on said shaft, a bent lever pivoted to the upper end of said arm, a toggle connected to the lower end of said bent lever and to said door, the upper end of said arm being normally beyond the center of said shaft, substantially as set forth.

6. In overhead cars and like receptacles, the combination with an overhead beam, of a trolley moving thereon, a receptacle suspended from said trolley, a downwardly-swinging door, a rocking shaft mounted on said receptacle, a trip-lever on said shaft, connections between said shaft and said door and a trip on said overhead beam in the path of said trip-lever, substantially as set forth.

605,621. CONVEYER. ALFRED M. ACKLIN, Pittsburg, Pa., assignor to Heyl & Patterson, same place. Filed Jan. 15, 1897. Serial No. 619,237. (No model.)



Claim.—1. In a conveyer the combination with a suitable receptacle, of a reciprocating bar, a U-bolt engaging said bar, a flight-frame secured to said U-bolt, nuts engaging the free ends of said U-bolt to hold said flight-frame thereon, a swinging flight on said flight-frame, said flight being supported against backward movement, substantially as set forth.

2. In a conveyer the combination with a suitable receptacle, of a reciprocating bar having a rounded contour, a U-bolt engaging the rounded portion of said bar, a flight-frame secured to said U-bolt, nuts engaging the free ends of said U-bolt to hold said flight-frame thereon, said flight-frame having a concave recess with which said reciprocating bar engages, a swinging flight on said flight-frame, said flight being supported against backward movement, substantially as set forth.

3. In a conveyer, the combination with a suitable receptacle of a reciprocating frame, flight-frames supported thereby, flights, hinges of flexible material connecting said flight-frames and flights, and means on said flight-frames for supporting said flights against backward movement, substantially as set forth.

4. In a conveyer, the combination with a suitable receptacle of a reciprocating bar, a flight-frame supported thereby, a flight, a hinge of flexible material connecting said flight-frame and flight, means on said flight-frame for supporting said flight against backward movement, and a projection on the rear face of said flight engaging the rear face of said flight frame to support said hinge, substantially as set forth.

5. In a conveyer, the combination with a suitable receptacle of a reciprocating frame, a flight-frame supported thereby, a flight, a hinge of flexible material connecting said flight-frame and flight, means on said flight-frame for supporting said flight against backward movement, and a projection on the rear face of said flight engaging an inclined face of said flight frame to support said hinge, substantially as set forth.

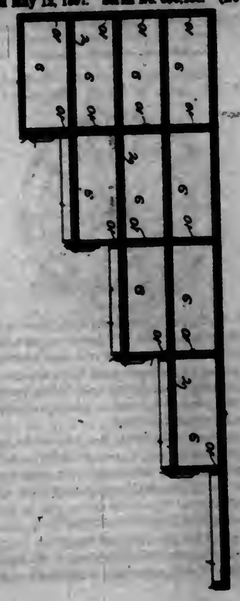
6. In a conveyer, the combination with a suitable receptacle of a reciprocating frame, a flight-frame supported thereby, a flight, a hinge of flexible material connecting said flight-frame and flight, said flexible material being interposed between the rear face of said flight and a strip secured to said flight, said strip having a projection thereon adapted to engage with an inclined face on said flight-frame, substantially as set forth.

7. In a conveyer, the combination with a suitable receptacle, standards on said receptacle, a wheel journaled in said standards, a frame supported by said wheel, a bar supported thereby, swinging flights depending from said bar, said flights being supported against backward movement, and mechanism for reciprocating said bar, substantially as set forth.

8. In a conveyer, the combination with a suitable receptacle of standards on said receptacle, shaft in said standards, wheel on said shaft, said wheel having an annular rib on its periphery, a frame supported by said wheel, said frame having a slot into which the rib on said wheel enters, a bar supported by said frame, flights depending from said bar and entering said trough, said flights being supported against backward movement, and mechanism for reciprocating said frame; substantially as set forth.

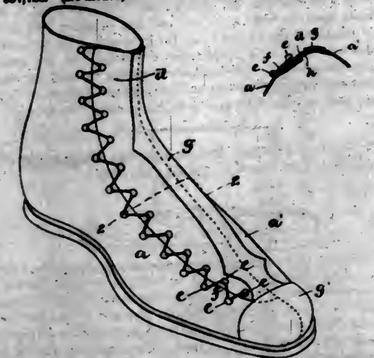
9. In a conveyer, the combination with a suitable receptacle, of standards on said receptacle, a shaft in said standards, a wheel on said shaft, said wheel having an annular rib on its periphery, a frame supported by said wheel, said frame being composed of parallel bars, the upper of said parallel bars having a slot therein into which the rib on said wheel enters, the lower of said parallel bars having a like slot therein into which the rib on said wheel is adapted to enter, a bar supported by said frame, flights depending from said bar and entering said trough, said flights being supported against backward movement and mechanism for reciprocating said frame, substantially as set forth.

605,622. DISPLAY-STAND. WHITMORE M. BAKER, Waltham, Mass. Filed May 12, 1897. Serial No. 636,126. (No model.)



Claim.—A display-stand having a stepped series of horizontal slideways, vertical cross-pieces respectively located at and below the front ends of the respective steps and adapted to receive designation-bearing panels, the forward portions of each pair of slideways projecting outward beyond the forward ends and cross-piece of the pair of slideways next above, stock-containing trays sliding upon the rear-ward portions of said slideways behind the said cross-pieces, and display-trays resting upon said projecting portions of the said slideways in front of the cross-pieces and movable beneath said cross pieces as well as movable rearward and forward upon the said slideways to permit of withdrawal or insertion from the rear after removal of the stock-containing trays, substantially as described.

605,623. BOOT OR SHOE. CHARLES RALSON, Lynn, Mass., assignor of forty-nine one-hundredths to William W. Crocker, same place, and C. A. L. Brown, Boston, Mass. Filed May 22, 1897. Serial No. 637,723. (No model.)



Claim.—1. A boot or shoe upper comprising, first, the two side pieces *a a'* extending continuously from the toe to the heel and having their forward ends united by a short seam *b*, terminating below the instep portion, the said pieces being separated above said seam by an elongated opening *c*; and secondly, the flap or fly *d* attached to the piece *a'* along one edge of said opening and extending across the latter overlapping the corresponding edge of the piece *a*, and means for adjustably securing the flap to the piece *a* along the entire distance from the toe to the ankle.

2. A boot or shoe upper comprising, first, the two side pieces *a a'* extending continuously from the toe to the heel and having their forward ends united by a short seam *b*, terminating below the instep portion, the said pieces being separated above said seam by an elongated opening *c* extending over the instep portion and to the upper ends of the said side pieces; and secondly, the flap or fly *d* attached to the piece *a'* along one edge of said opening and extending across the latter overlapping the corresponding edge of the piece *a*, the said flap and the piece *a* having alternating studs or lacing-engaging projections whereby they may be adjustably connected along the entire length of the opening *c* by a lacing-cord.

3. A boot or shoe upper comprising, first, the two side pieces *a a'* extending continuously from the toe to the heel and having their forward ends united by a short seam *b*, terminating below the instep portion, the said pieces being separated above said seam by an elongated opening *c* extending over the instep portion and to the upper ends of said side pieces; and secondly, the flap or fly *d* attached to the piece *a'* along one edge of said opening and extending across the latter overlapping the corresponding edge of the piece *a*, said flap having a lining of dust-excluding material such as chamois skin arranged to bear on the outer surface of the piece *a*, and means for adjustably securing the flap to the piece *a*.

605,624. CAR-COUPLING. JOHN F. BALL, Jr., Turtle Creek, W. Va. Filed Dec. 20, 1897. Serial No. 662,638. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head, a lever fulcrumed at its rear end on the draw-head, a coupling-pin connected with the lever at a point between the ends of the latter, and a link provided between its ends with a lug or projection ar-

ranged to engage and lift the lever, said link being provided at its ends beyond the lug with an opening adapted to receive the coupling-pin, substantially as described.

2. In a car-coupling, the combination of a draw-head, a lever fulcrumed at its rear end on the draw-head, a coupling pin connected with the lever at a point between the ends thereof, and a link provided between its ends with a beveled lug arranged to lift the lever and interlocking with the front end thereof, said link being provided at its end beyond the lug, with an opening adapted to receive the coupling-pin, substantially as described.

3. In a car-coupling, the combination of a draw-head, a lever fulcrumed at its rear end on the draw-head and provided at its front end with a depending hook, a coupling-pin connected with the lever at a point between the ends thereof, and a link provided with a beveled lug adapted to raise the lever and engaging the hook, said link being provided beyond the lug between the same and its end with a perforation to receive the coupling-pin, substantially as described.

4. In a car-coupling, the combination of a draw-head, a lever fulcrumed upon the same at its rear end and provided with an upwardly-extending arm having a lug, the front end of the lever being provided with a hook, a coupling-pin connected with the lever, a spring mounted on the draw-head and engaging the said lug, and a link provided with perforations and having lugs adapted to engage the said hook, substantially as and for the purpose described.

605,625. AWNING. EDWARD BILLSBURY, Grand Rapids, Mich. Filed Oct. 4, 1897. Serial No. 654,052. (No model.)



Claim.—1. In a window-awning, rods secured, vertically, to the window-frame, slides upon said rods, an arm projecting out from said slide to support the awning, arms projecting back from the slides to engage projections on the frame to actuate the arm D, said arms pivoted in the slides so that they may pass the projections when the awning is lowered and projections on the frame, substantially as and for the purpose set forth.

2. In a window-awning, rods secured, vertically, to the frame, projections on the window-frame, slides upon said rods, arms pivoted to said slides, a covering on said arms and extending the length of the window, cords for manipulating said awning, one end of which is secured at the ends of the arms to fold the awning before raising it and the other end in convenient reach of the operator, rings for guiding the awning on the rods, and a cleat inserted at the line of folding to hold the awning to position along this line, substantially as and for the purpose set forth.

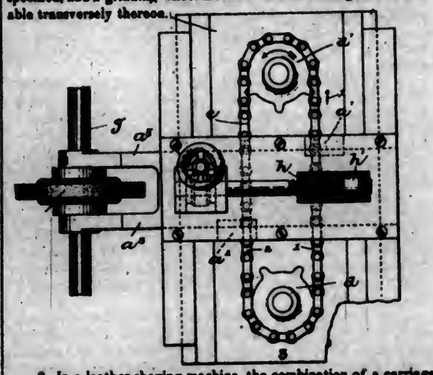
605,626. REMOVABLE BICYCLE-HANDLE. JOHN C. BLANCHARD, Jr., Hyde Park, Mass. Filed Mar. 31, 1897. Serial No. 630,057. (No model.)



Claim.—A bicycle handle complete as a new article of manufacture, and comprising a support in the form of a tubular socket extending from end to end of the handle, said support having adjacent to but slightly removed from each end thereof an inclosing ring, material surrounding said support and retained by said inclosing rings suitable to be grasped by the hand, said support having at each end beyond said rings a tapered threaded portion, and end pieces interiorly threaded and correspondingly tapered to fit over the said threaded ends of the support, one of said end pieces being ring-like, and the other of said end pieces being closed to constitute the free end of the handle when the latter is secured in place on a handle-bar, substantially as described.

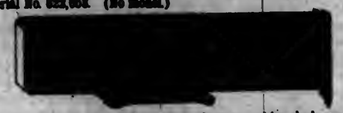
605,627. KNIFE-SHARPENING MECHANISM FOR LEATHER-SHAVING MACHINES. JOHN BOYLE, Peabody, Mass. Filed Mar. 11, 1897. Serial No. 626,904. (No model.)

Claim.—1. In a leather shaving machine, the combination of an endless chain provided with a lug or projection, horizontal sprocket-wheels engaged with said chain and dividing the same into two parallel straight reaches, means for rotating one of said wheels to drive the chain continuously in one direction, a carriage mounted to slide on guides and having two abutments on its under side located in the same horizontal plane, one of said abutments being arranged in operative relation to one reach of the chain, and the other being arranged in operative relation to the other reach of the chain, for the purpose specified, and a grinding-wheel mounted on said carriage and adjustable transversely thereon.



2. In a leather-shaving machine, the combination of a carriage mounted to slide on guides and having two abutments located in the same horizontal plane on its under side, an endless chain provided with a lug or projection adapted to alternately engage the said abutments to reciprocate the carriage, means for driving said chain continuously in one direction, a slide mounted transversely of the carriage in suitable guides thereon, a grinding-wheel carried by said slide, and means for adjusting said slide in its guides.

605,628. BICYCLE-KEEPER. ROBERT D. BRADLEY, Chicago, Ill., assignor of one-half to Frank X. Mudd, same place. Filed Feb. 8, 1897. Serial No. 622,662. (No model.)



Claim.—As a new article of manufacture, a bicycle-keeper comprising two slotted plates each of which is substantially L-shaped in cross section and adapted to be secured to an upright to provide a recess to receive a portion of the wheel rim and tire, a staple on one of the plates adjacent to the slot therein, a link-hasp on said staple and adapted to be passed through the slots in both plates to secure the wheel in the recess, and locking means for said hasp, substantially as described.

605,629. CIRCLE-CYCLE. EDWARD I BRANHAM, Richmond, Va. Filed Sept. 17, 1897. Serial No. 651,906. (No model.)



Claim.—1. In an apparatus as described, the combination with the turn-wheel, the post and the overhead support secured to and rotatable with the turn-wheel, the radial arms and the wheeled frames, of the hanger members having springs at their upper end connected to the overhead support, their lower ends being connected to the radial arms and provided with tension devices, all substantially as shown and for the purposes described.

2. In an apparatus as described, the combination with the turn-wheel and a wheeled carriage or bicycle, of radial arms arranged in series of three secured at their inner end to the turn-wheel, the ends of the outer arms being detachably connected with the front and rear axles of the carriage or frame, the center one to the top of such frame, and spanners connecting the two outer or bottom arms, substantially as shown and for the purposes described.

3. An apparatus as described, consisting of the central post the top of which is provided with a support, the base of said post having

rotatably secured thereon a turn-wheel, radial arms, arranged in series, having one of their ends secured to said turn-wheel, their other ends being attached to vehicles, a detachable spanner connecting the outer arms of each series, a separate cable connecting the several series, and spring-hangers attached to the said support at the top of the central post adapted to form supports for the said radial arms.

4. An apparatus as described, consisting of the central post, the top of which is provided with an apertured head, the base of said post being provided with a turn-wheel, radial arms attached to said turn-wheel, and means for supporting said radial arms, consisting of hangers having one of their ends attached to the said radial arms, their other ends being provided with springs adapted to be hooked within the said apertures in the said head at the top of the central post.

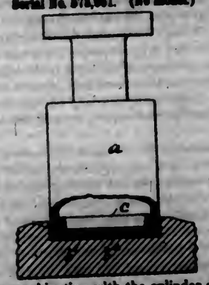
5. An apparatus as described, consisting of the central post, the top of which is provided with a circular head provided with apertures, the base of said post having rotatably mounted thereon a turn-wheel, radial arms attached to the said turn-wheel, their outer ends being attached to suitable vehicles, said radial arms being arranged in series and provided with detachable braces, cables connecting each of said series to the other, and hangers having one of their ends secured to said radial arms, their other ends being provided with a spring adapted to be hooked within the said supporting-head.

6. An apparatus as described, consisting of a central post, the top of which is provided with an annular supporting-head having apertures therein, the base of said post being provided with a turn-wheel, radial arms connected to said turn-wheel, said radial arms being arranged in series of three, detachable braces for said radial arms, and pendent hangers provided with yoked ends adapted to support the said radial arms.

7. An apparatus as described, consisting of a central post the top of which is provided with an annular head having apertures therein, the base of said post being provided with a turn-wheel, radial arms connected to said turn-wheel, braces detachably secured to said radial arms, and hangers having one of their ends provided with yokes adapted to be attached to the said radial arms their other ends being provided with a spring having a hooked end adapted to be hooked with the said apertures in the said annular head.

8. An apparatus as described, consisting of the central post having a turn-wheel at its base and a supporting-head at its top, said supporting-head being provided with apertures, radial arms connected to the said turn-wheel, said radial arms being arranged in series of three, a detachable brace for each series of radial arms, a yielding cable adapted to connect one series to the other, said pendent hangers, the upper ends of which are provided with springs adapted to be hooked within the said apertures in the said supporting-head, their lower ends being provided with yoke-hangers adapted to be attached to the outer members of each of said radial arms.

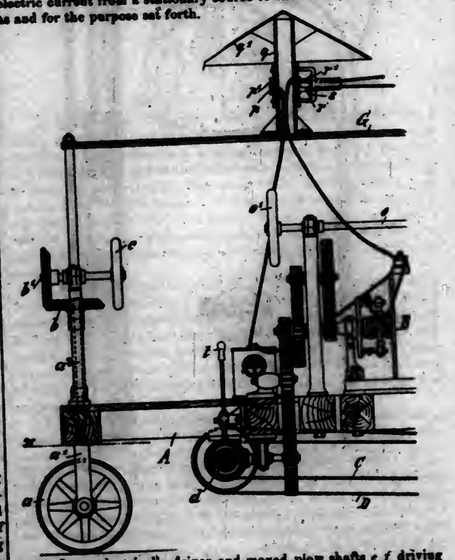
605,630. HYDRAULIC JACK. FRANK C. RECORD, Dayton, Ohio, assignor of one half to the Joyce-Cridland Company, same place. Filed Feb. 10, 1896. Serial No. 578,661. (No model.)



Claim.—The combination with the cylinder of a hydraulic jack having a removable base, of a continuous metallic cup packing covering the base within the cylinder, and fitting against the inner surface of the cylinder by a rim or flange having its interior inclined, and a continuous expanding plug of harder metal having a reversely-inclined periphery adapted to partially descend under hydraulic pressure to expand the cup-rim against the cylinder and to force the packed end of the cylinder laterally against its base-support, whereby leakage in any direction is prevented and the cylinder more firmly held in its seat, substantially as specified.

605,631. ELECTRICALLY DRIVEN AND MOVED PLOW. RUDOLF DALLMANN, Bromnitz, Germany, assignor to The Firm of T. Conrad, same place. Filed Oct. 9, 1897. Serial No. 654,673. (No model.)

Claim.—1. In an electrically driven and moved plow a guidable plow-carriage A, a plurality of shafts *e f* arranged behind each other in the rear part of said carriage, frames F F' pendulously suspended and devices for adjusting and securing them, shafts *g* lodged in said frames so as to be prevented from coaxial shifting and bearing firmly attached to their lower end conical plow-screws E, a contrivance for moving forwardly and backwardly plow-carriage A, which bears all parts of the plow, an electromotor B driving said carriage and actuating the plow-screws and means for conveying the electric current from a stationary source to the motor, substantially as and for the purpose set forth.



2. In an electrically driven and moved plow shafts *e f* driving conical plow-screws in the rear part, and principal driving-shafts *d*, actuated by an electric motor B by means of a communicator in the fore part of the plow-carriage A, belt-gearings D D' transmitting the movement from said driving-shafts *d* unto shafts *e f* and another belt-gearing *b* transmitting the movement from *d* to the carriage's rear axis and finally means for reversing principal driving-shaft *d*, substantially as and for the purpose described.

3. In an electrically driven and moved plow shafts *e f*, arranged behind each other and driving a plurality of conical plow-screws E, frames F, pendulously suspended at these shafts and coupled by guide-bars *i*, plow-screws E at the lower end of driving-shafts *g*, the latter being lodged at said frames F in such a manner as to be prevented from coaxial shifting and means for adjusting and securing said frames, substantially as and for the purpose described.

4. In an electrically driven and moved plow frames F in which are lodged a plurality of plow screw-shafts *g*, guide-bars *i* for connecting said frames with each other and means for adjusting and securing them, consisting in a vertical screw-spindle *k*, lodged at the framing of the plow-carriage so as to be prevented from coaxial shifting, a screw-nut *l* traveling upon the same and being secured against turning round a guide *m* connecting said nut with the foremost frame F, a shaft *o* having a hand-wheel *o'* at its upper end and a pair of conical wheels *n* for transmitting the movement from said shaft *o* to screw-spindle *k*, substantially as and for the purpose set forth.

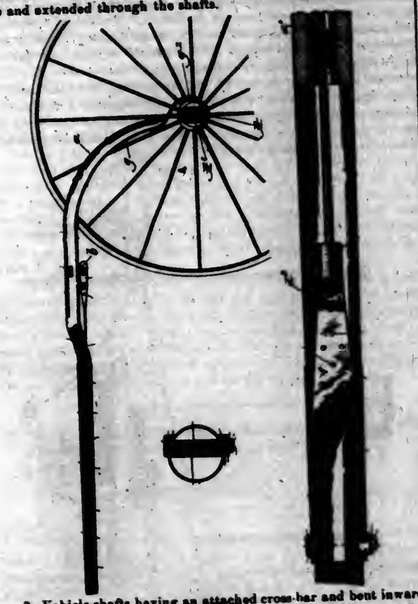
5. In an electrically driven and moved plow a roof G protecting plow-carriage A, a hollow post *q* secured upon G and covered by another smaller roof *q'*, two rings *p p'* serving as sliding contacts and being disposed on pole *q*, springs *r r'* sliding upon said rings and acting as sliding brushes and finally a bow S, turning loosely around pole *q* and bearing these sliding brushes *r r'* to which the conducting-wires are fastened, substantially as and for the purpose set forth.

605,632. VEHICLE-SHAFT. WILBUR S. DAVIS, Concord, Mass. Filed Nov. 6, 1897. Serial No. 657,613. (No model.)

Claim.—1. Vehicle-shafts having longitudinal bores through their straight portions, draft members concealed therein, and a whiffletree to which the rear exposed ends of said draft members are attached.

2. The combination with vehicle-shafts having a cross bar, and a

whiffletree mounted thereon, of draft members attached to the whiffletree and extended through the shafts.



3. Vehicle-shafts having an attached cross-bar and bent inward and downward in front of said bar, attaching means mounted on the cross-bar in the plane of the straight outer portions of the shafts extended from the inward bends, and draft members connected with said attaching means and extended through longitudinal bores in the straight portions of the shafts.

4. Vehicle-shafts having longitudinal bores in their straight portions and open at their tips, draft members permanently retained in the shafts and extended through the open tips, and an antifriction-bearing located at or near the tip of each shaft, for the adjacent portion of the draft member.

5. Vehicle-shafts having an attached cross-bar, a whiffletree mounted thereon, said shafts being bent in front of the cross-bar to bring their straight portions into the plane of the whiffletree, and permanent draft members attached to the whiffletree and led through the straight portions of the shafts.

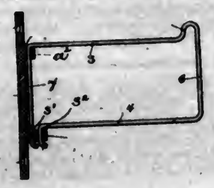
6. Vehicle-shafts comprising wooden body portions having straight, longitudinally-bored forward ends, draft members passed through the said straight portions of the shafts, and a metallic envelop or sheath for the straight portion of each shaft.

7. Vehicle-shafts, draft members extended therethrough and having laterally-flexible extensions at their front ends to be attached to the harness, antifriction-bearings for said extensions mounted on the shafts, and means to secure the rear ends of the draft members to the vehicle.

8. Vehicle-shafts downturned at their rear ends and rigidly connected by a cross-bar, said shafts being bent inward and downwardly between said bar and the straight front ends of the shafts, the shafts having longitudinal openings in their straight portions.

9. Vehicle-shafts having straight, longitudinally-bored portions, and draft-members extended therethrough and exposed at their front and rear ends respectively.

605,688. CLOTHES-HANGER. ERNEST J. DERAGON, Fitchburg, Mass. Filed July 26, 1897. Serial No. 645,973. (No model.)

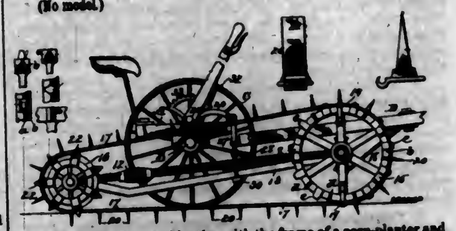


Claim.—1. A clothes-hanger comprising a socketed holder adapted for attachment to a fixed support, and a wire frame bent to form two substantially parallel arms, a bar connecting the outer ends of said arms, and pintles at the inner ends of the arms engaged with sockets in the holder, the said pintles being out of alinement with each other.

2. A clothes-hanger comprising a socketed holder adapted for attachment to a fixed support, and a wire frame bent to form two substantially parallel arms, a guard at the outer end of the upper arm, a bar connecting the said guard with the outer end of the lower arm, and pintles at the inner ends of the arms engaged with sockets in the holder, the said pintles being out of alinement with each other.

3. A clothes-hanger comprising a plate adapted for attachment to a fixed support and provided with an upper flange having a single row of sockets and a lower flange having two rows of sockets and a series of two-armed wire frames, the upper arms having elongated pintles extending through the sockets in the upper flange and the inner sockets in the lower flange, while the lower arms have shorter pintles extending through the outer sockets in the lower flange, in front of the said elongated pintles.

605,684. CHECK-ROWER FOR CORN-PLANTERS. WILBUR O. DURYEA, Morning Sun, Iowa. Filed Nov. 12, 1897. Serial No. 658,294. (No model.)



Claim.—1. The combination with the frame of a corn-planter and a tongue, of a frame connected with said tongue, wheels carried at each side of said last-mentioned frame, a chain passing over each pair of wheels and adapted to engage the ground, markers on one wheel of each pair, and means for raising said last-mentioned frame, substantially as set forth.

2. The combination with the frame and tongue of a corn-planter, of a movable frame attached to the tongue, wheels carried by said movable frame, markers carried by one of said wheels, a chain passing over said wheels and adapted to engage the ground, a crank-shaft mounted on the frame of the planter, a rod or link connected with said crank-shaft, chains connecting said rod or link with said movable frame, and an operating-lever secured to said crank-shaft, substantially as set forth.

3. The combination with the frame and tongue of a corn-planter, of a screw passing through said tongue and having an eye or loop at its upper end, a casting secured to the lower end of said screw, a revoluble shaft having a central bearing in said casting, lateral bearings for said shaft, a trans-rod secured at its ends to said lateral bearings and passing through the eye or loop on the screw, wheels carried by said shaft and markers carried by said wheels, substantially as set forth.

4. The combination with the frame and tongue of a corn-planter, of a casting secured to said tongue, a revoluble shaft having a central bearing in said casting, lateral bearings for said shaft, a fixed shaft, bearings therefor, adjustable connections between the lateral bearings for the revoluble shaft and the bearings of the fixed shaft, wheels secured to the revoluble shaft, markers on said wheels, wheels mounted loosely on the fixed shaft, chains passing over said wheels and means for causing said chains to engage the ground, substantially as set forth.

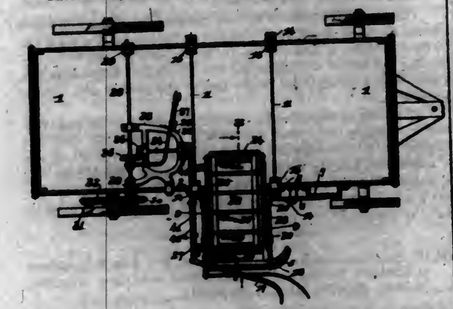
5. The combination with the frame and tongue of a corn-planter, of a casting secured to the tongue, a revoluble shaft having a central bearing in said casting, lateral bearings for said shaft, a fixed shaft, lateral bearings for the fixed shaft, connections between said lateral bearings, and rods or bars connected at one end to said casting and at the other end to said fixed shaft, wheels mounted loosely on the fixed shaft, wheels secured to the revoluble shaft and carrying markers and chains passing over said wheels and adapted to engage the ground, substantially as set forth.

6. In a check-rower for corn-planters, the combination with suitable framework, of two wheels carried by said framework, one of said wheels having a rim triangular in cross-section so as to present inclined faces, sprocket-teeth projecting from said rim, enlargements between said sprocket-teeth and having beveled or inclined faces, a sprocket-chain passing over said wheels, and lugs projecting from links of said chain and adapted to enter the ground, substantially as and for the purpose set forth.

7. In a check-rower for corn-planters, the combination with suitable framework, of two wheels carried by said framework, each wheel having a rim provided with inclined or divergent faces, a chain passing over said wheels, and lugs on said chain to engage the ground, substantially as set forth.

8. In a check-rower for corn-planters, the combination with suitable framework, of wheels carried thereby, one of said wheels carrying markers, a chain passing over said wheels, each wheel having a rim made triangular in cross-section, and U-shaped projections on one of said wheels and adapted to guide the chain, substantially as set forth.

605,685. CORN-HEADER. CHARLES E. BOKLAGE, Vliet, Kans. Filed Jan. 20, 1897. Serial No. 619,948. (No model.)



Claim.—1. The combination with a wagon-body, and a harvesting attachment, of the following means for detachably connecting the harvesting attachment with the wagon-body, consisting of plates, fastenings for securing the harvesting attachment to the plates, vertical rods threaded at their upper ends and having a series of openings at their lower ends, tie-rods connecting the lower ends of the vertical rods and passing through corresponding openings therein, angle-plates placed upon the upper ends of the vertical rods and having their vertical portions engaging with the inner faces of the side pieces of the wagon-body, and rods connecting oppositely-disposed angle-plates, substantially as set forth.

2. In a corn-harvester, the combination of longitudinal cutters having their front ends curving outwardly, and longitudinal guide-bars placed below the cutters and spaced apart, forming a passage for the stalks, and having their front ends curving forwardly, outwardly and downwardly to gather in leaning stalks, and having a space between their rear ends, substantially as set forth.

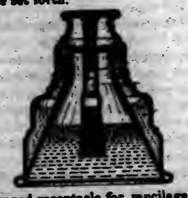
3. In a harvesting mechanism, the combination of a cutting apparatus comprising an oscillating part, an elevator for receiving the grain as cut and directing it into a receptacle, actuating mechanism, and a single pitman for transmitting motion from the actuating mechanism to the elevator and cutting apparatus for simultaneously operating each, substantially in the manner specified.

4. In a harvesting mechanism, the combination of a cutting apparatus comprising an oscillating part, an elevator for conveying the grain to a receptacle, actuating mechanism, a pitman for transmitting motion from the actuating mechanism to the cutting apparatus, an extension having pivotal connection with the pitman, and a ratchet mechanism between the pivoted extension and elevator, whereby the latter is operated simultaneously with the cutting apparatus by means of the same pitman, substantially as set forth.

5. In a harvesting mechanism, the combination of the cutting apparatus, an elevator for conveying the grain to a receptacle, a ratchet-wheel applied to a journal of the elevator, actuating mechanism, a pitman for transmitting motion from the actuating mechanism to the cutting apparatus, an extension having pivotal connection with the pitman and provided with a toothed portion for direct engagement with the said ratchet-wheel, a pivoted arm applied to the pivoted extension and having a toothed portion to engage with the said ratchet-wheel and move it when the pivoted extension is returning to a normal position, and a spring interposed between the pivoted arm and extension, substantially as set forth.

605,686. MUCILAGE-BOTTLE. THOMAS A. FINK, Paris, Canada, assignor to John Lindsay, same place. Filed Sept. 18, 1897. Serial No. 652,152. (No model.) Patented in Canada June 26, 1897, No. 56,482.

Claim.—1. In an improved receptacle for mucilage and like material, a hollow cap-piece having its top portion forming an interior socket or seat, and a flat disk corresponding to the top portion of said cap and coextensive in area therewith, said disk being seated and secured in the interior socket of the cap and provided with a depending shank or stem adapted to carry a brush, substantially as and for the purpose set forth.



2. In an improved receptacle for mucilage and like material, a hollow cap-piece having an exterior flat and unobstructed top portion of sufficient area to form a supporting-base when the cap is inverted, and provided with an interior socket or seat, said cap-piece carrying an interiorly projecting and depending brush, sustained from a head portion fitted in said interior socket or seat, whereby the cap-piece may be inverted so that its exterior flat and smooth top face is adapted to rest upon any corresponding surface and sustain the projecting brush in upright position, substantially as and for the purpose set forth.

3. In an improved receptacle for mucilage and like material, a brush member comprising a flat disk top portion having a flat and unobstructed top surface without projections and of sufficient area to form a supporting-base when the brush member is inverted, said cap-piece being provided with an interior socket or seat, and a stem depending from a head portion fitted in said interior socket or seat of said top disk and carrying a brush, substantially as and for the purpose set forth.

4. In an improved receptacle for mucilage and like material, a brush member, comprising a flat top disk of sufficient area to form a supporting-base when the brush member is inverted, said disk carrying a depending tapering stem mounted upon a head portion seated in an interior socket or seat in the top disk, in combination with a brush having a cylindrical portion adapted to receive and bind upon said tapering stem, substantially as and for the purpose set forth.

5. An improved receptacle for mucilage and like material, comprising a hollow cap-piece having an interior socket or seat in its top portion and a flat and unobstructed exterior top surface of sufficient area to form a supporting-base when the cap is inverted, and a disk corresponding to said flat top portion of the cap and of coextensive area therewith, said disk being seated and secured within the socket of the cap and provided with a depending stem carrying a brush, substantially as and for the purpose set forth.

6. An improved receptacle for mucilage and like material, comprising a hollow cap-piece having an interior socket in its top portion and a flat and unobstructed top surface of sufficient area to form a supporting-base when the cap-piece is inverted, a disk corresponding to said flat top portion of the cap and of coextensive area therewith, said disk being seated and secured in the interior socket of the cap and provided with a depending tapering stem, and a brush having a cylindrical stem or portion receiving and binding upon said tapering stem, substantially as and for the purpose set forth.

7. In an improved receptacle for mucilage and like material, a hollow cap piece having an imperforate top wall with an exterior flat and unobstructed top surface of sufficient area to form a supporting-base when the cap is inverted, said exterior flat top surface of the hollow cap-piece having no projections or obstructions extending from or beyond the exterior surface of the flat disk forming its top wall, and a brush member interiorly carried within said hollow cap-piece and having its top portion within the plane of the flat disk forming the top wall of the cap-piece and its lower portion projecting from the latter, substantially as and for the purpose set forth.

8. An improved receptacle for mucilage and like material, comprising a body portion having a neck-flange at the base of which is formed an annular depression or seat, a cap-piece having a depending flange with an edge corresponding to and fitting said depression and provided with an interior socket in its top portion, and a disk corresponding to said top portion of the cap and coextensive in area therewith and seated and secured in said interior socket, said disk being provided with a depending stem carrying a brush, substantially as and for the purpose set forth.

9. An improved receptacle for mucilage and like material, comprising a body portion having a neck-flange at the base of which is formed an annular depression or seat, a cap-piece having a depending flange with an edge corresponding to and fitting said depression or seat and provided with an interior socket or seat at its top, the exterior top surface of said cap being flat and unobstructed and of sufficient area to form a supporting-base when the cap is inverted, a flat

disk corresponding to said flat top portion of the cap and coextensive in area therewith and seated and secured in the interior socket thereof, said disk having a depending tapering stem, and a brush having a cylindrical portion or stem receiving and binding upon said tapering stem of the disk, substantially as and for the purpose set forth.

10. An improved receptacle for mucilage and like material, comprising a body portion having a neck-flange at the base of which is formed an annular depression, a hollow cap-piece having a depending flange provided with a beaded edge fitting said depression and with an exteriorly flat and unobstructed top face, a disk corresponding to and carried in the flat top portion of the cap-piece and having a tapering stem with a rounded end, and a brush having a cylindrical portion or stem receiving said tapered and rounded stem, substantially as and for the purpose set forth.

11. An improved receptacle for mucilage and like material, comprising a receptacle, a casing inclosing the body of said receptacle and forming a water-tight compartment open at its top with respect to said inclosed receptacle, a hollow cap-piece fitting said exterior casing and having an interior socket or seat at its top, and a disk corresponding to and fitting the top portion of the cap-piece and secured in said interior seat, said disk being provided with a depending stem carrying a brush, substantially as and for the purpose set forth.

12. An improved receptacle for mucilage and like material, comprising a receptacle, a casing inclosing the body of said receptacle and forming a water-tight compartment and open at its top with respect to said inclosed receptacle, said casing having a neck-flange, a hollow cap-piece having a depending flange fitting said neck-flange and interiorly provided with a socket or seat in its top portion and having a flat and unobstructed exterior top face of sufficient area to form a supporting-base when the cap-piece is inverted, and a disk corresponding to the free top portion of the cap and coextensive in area therewith, said disk being seated and secured in the interior socket of the cap and provided with a depending stem carrying a brush, substantially as and for the purpose set forth.

13. An improved receptacle for mucilage and like material, comprising a receptacle, a casing inclosing the body of said receptacle and forming a water tight compartment and open at its top with respect to said inclosed receptacle, said casing being provided with a neck-flange at the base of which is formed an annular depression or seat, a hollow cap-piece having a depending flange with an edge conforming to and fitting said annular depression or seat, said cap-piece being provided with an interior socket at its top portion and with a flat and unobstructed exterior face of sufficient area to form a supporting-base when the cap is inverted, and a disk corresponding to said flat top portion of the cap and coextensive in area therewith and seated and secured in said interior socket, said disk being provided with a depending stem carrying a brush, substantially as and for the purpose set forth.

14. An improved receptacle for mucilage and like material, comprising a receptacle having a neck-flange provided with an inwardly and diagonally projecting annular flange, a casing inclosing the body of said receptacle and forming a water-tight compartment and open at its top with respect to said inclosed receptacle, said casing being provided with a neck-flange at the base of which is formed an annular depression or seat, a hollow cap-piece having a depending flange fitting the neck-flange of the casing and provided with an edge conforming to and fitting said annular depression or seat, said cap-piece being provided with an interior socket at its top portion and with a smooth and unobstructed exterior top face of sufficient area to form a supporting-base when the cap is inverted, and a disk corresponding to the flat top portion of the cap and coextensive in area therewith, said disk being seated and secured in the interior socket of the cap and provided with a depending stem carrying a brush, substantially as and for the purpose set forth.

15. An improved receptacle for mucilage and like material, comprising a receptacle having a neck-flange provided with an interiorly and diagonally projecting annular flange, a casing inclosing the body of said receptacle and forming a water-tight compartment and open at its top with respect to said inclosed receptacle, said casing being provided with a neck-flange at the base of which is formed an annular depression or seat, a hollow cap having a depending flange fitting the neck-flange of the casing and provided with an edge conforming to and fitting said annular depression or seat, said cap being provided with an interior socket at its top portion and with a flat and unobstructed exterior top face of sufficient area to form a supporting-base when the cap is inverted, a disk corresponding to said flat top portion of the cap and coextensive in area therewith, said disk being seated and secured in the interior socket of the cap and provided with a tapering depending stem, and a brush having a cylindrical portion or stem receiving and binding upon said tapering stem of the disk, substantially as and for the purpose set forth.

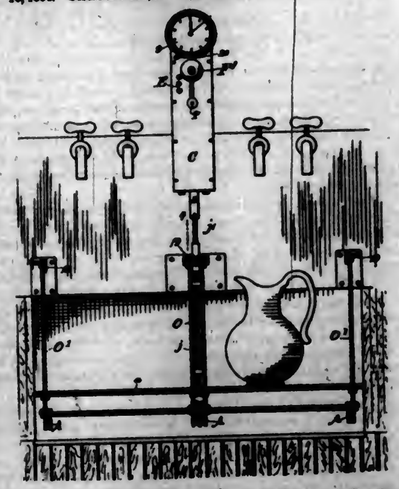
16. An improved receptacle for mucilage and like material, comprising a receptacle having a neck portion provided with an interiorly and diagonally projecting annular flange, a casing inclosing said receptacle and forming a water-tight compartment, said casing being provided with a neck-flange projecting with relation to the neck-flange of the inclosed receptacle and terminating below the top plane thereof, and a cap-piece having a depending flange fitting the neck-flange of the casing and forming a closure for the flanged projecting neck portion of the receptacle, said cap-piece carrying an interiorly-depending brush carried by a head portion seated in an interior socket or seat in the cap-piece and projecting within the flanged neck portion of the receptacle, substantially as and for the purpose set forth.

605,687. PROCESS OF MANUFACTURING CEMENT. HUGO GALLUSOWSKY, St. Louis, Mo., assignor, by mesne assignments, to the Lithosite Manufacturing Company, same place. Filed Oct. 14, 1897. Serial No. 655,113. (No specimens.)

Claim.—1. The herein-described process of making oxychlorid cement, the same consisting in initially heating chlorid of magnesium, or its equivalent, to drive off water, adding oxid of magnesium, reheating the chlorid of magnesium and the oxid of magnesium to a higher degree of heat, and finally mixing the product with oxid of magnesium.

2. The herein-described process of making cement, the same consisting in mixing oxalic acid or oxalate of ammonia with chlorid of magnesium, to neutralize the calcium chlorid present in the chlorid of magnesium, heating the mass to drive off water, then adding oxid of magnesium, and again heating the mass to a higher degree of heat, and finally grinding the product with oxid of magnesium, substantially as described.

605,688. SCALE. LOUIS HAGENBURGER, New York, N. Y., assignor to Edward F. Watkins and Lawson Bradford, same place. Filed Nov. 16, 1896. Serial No. 612,177. (No model.)



Claim.—1 A weighing apparatus comprising an indicating device, a support for the body to be weighed, a connection intermediate of said support and the indicating device made in two sections slidably connected to permit motion of the section in connection with the support without imparting motion to the indicating device, means for locking said sections together by hand, and means adapted to engage with the locking means for automatically unlocking the same when the weighed body is removed from the support, a stop for the section in connection with the indicating device for determining the zero position of the hand, a counter, and an operative connection between the rod-section in connection with the indicating device and said counter, substantially as described.

2. A weighing apparatus comprising an indicating device, a support for the body to be weighed, a connecting-rod intermediate of the support and the indicating device and made in two sections slidably connected to permit motion of the section in connection with the support without imparting motion to the indicating device, means for locking said sections together by hand, means adapted to engage with said locking means for automatically unlocking the same when the weighed body is removed from the support, a stop for the section in connection with the indicating device for determining the zero position of the hand, a counter, a sounding device, and operative connections between the rod-section in connection with the indicating device and said counter and sounding device, substantially as described.

3. A weighing apparatus comprising an indicating device, a support for the body to be weighed, a connecting-rod intermediate of the support and the indicating device and made in two sections slidably connected to permit motion of the section in connection with the support without imparting motion to the indicating device, means for locking said sections together by hand, means adapted to engage with said locking means for automatically unlocking the same when the weighed body is removed from the support, a stop for the section in connection with the indicating device for determining the zero position of the hand, a counter, a sounding device, and operative connections between the rod-section in connection with the indicating device and said counter and sounding device, substantially as described.

4. A weighing apparatus comprising an indicating device, a support for the body to be weighed, a connection intermediate of said support and the indicating device made in two sections slidably connected to permit motion of the section in connection with the support without imparting motion to the indicating device, means for locking said sections together by hand, means arranged across the path of said locking means for unlocking the same when the weighed body is removed from the support, a cross-head pivoted to the section in connection with the support, and springs attached to a fixed part of the apparatus and to said cross-head, substantially as described.

5. A weighing apparatus comprising an indicating device, a support for the body to be weighed, a connecting-rod intermediate of the support and the indicating device and made in two sections slidably connected to permit motion of the section in connection with the support without imparting motion to the indicating device, means for locking said sections and for automatically unlocking the same, and a stop for the section in connection with the indicating device for determining the zero position of the hand, substantially as described.

6. A weighing apparatus comprising an indicating device, a pan or platform, a connecting-rod intermediate of the pan or platform and the indicating device and made in sections slidably connected, and a locking and unlocking device for the rod-sections composed of a cam adapted to press the sections together, and a pawl adapted to engage with said cam on the descent of the connecting-rod, substantially as described.

7. A weighing apparatus comprising an indicating device, a pan or platform, a connecting-rod intermediate of the pan or platform and the indicating device and made in sections slidably connected, means for locking and unlocking said sections, a disk provided with sockets, a pin or pins adapted to be inserted in said sockets, a sounding device adapted to be engaged by said pins, and an operative connection between the upper rod-section and said disk, substantially as described.

605,639. BURIAL-CASKET. SAMUEL W. HERRELL, Bull Run, Tenn. Filed June 19, 1897. Serial No. 641,491. (No model.)



Claim.—1. A casket consisting of shells arranged one within the other and having a filling or core of plastic material, a protruding flange around the bottom of the casket, cross-bars united to the bottom and extended beneath said flange to reinforce the same, and handles fastened to said protruding flange, for the purposes described, substantially as set forth.

2. The combination of a casket having a protruding flange around the bottom thereof, the cross-bars united to said bottom and extended beneath said protruding flange, and handles passing through the flange and united to the ends of said cross-bars, for the purposes described, substantially as set forth.

605,640. PIPE-THIMBLE. LEWIS T. HOUGHTON and WILLARD H. BENTON, Worcester, Mass. Filed Aug. 6, 1897. Serial No. 647,167. (No model.)



Claim.—1. In a pipe-thimble composed of a sheet-metal cylinder and a sheet-metal collar-plate, the cylinder portion A having its end turned outward as a flat annular flange *a*, and the collar-plate B formed with the upward circular flange *b* adapted to fit the interior of said cylinder, said flanged parts matching upon each other, as shown, with the flanges *a* and *b*, together with the collar and cylinder-plates, forming a double-ply angle along the junction-line, and the parts secured in such connection by clench-points cut and turned up from the collar-plate and clenched over the edge of said annular flange, as shown and described.

2. In combination with a pipe thimble, the retaining wire or spring having the curved portion arranged around the side of the cylinder and supported thereon by suitable clips, and having ends that project laterally therefrom, substantially as and for the purpose set forth.

3. In a pipe-thimble, the combination, with two half-collar sections united by a slip-joint, and comprising the underlying part 1 having the lips *c*, and the overlying part 2 having the groove *d*, and adapted for support one upon the other; of the single spring-wire formed with the curved portion *f* and resilient projecting end portions 5, said spring-wire having its curved portion attached to the half-collar section representing the underlying part, for supporting the thimble, substantially as set forth.

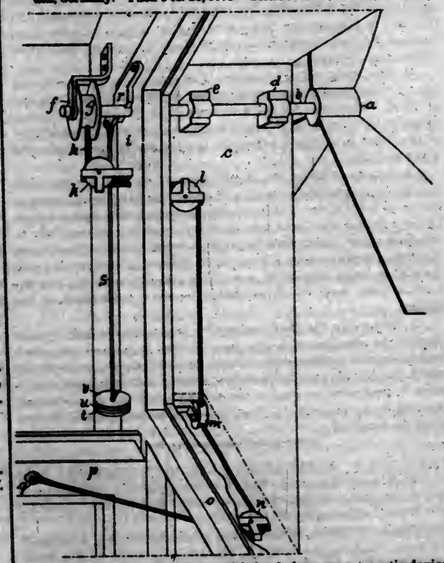
605,641. POLISHING-WHEEL. ALBERT KORTUM, Brooklyn, N. Y., assignor to the Straker & Levett & Loeb Company, New York, N. Y. Filed Dec. 21, 1897. Serial No. 662,846. (No model.)



Claim.—1. A polishing-wheel having a wooden core, a radially-extending polishing body secured to the core, and wooden clamping-rings fitted upon the ends of the core and surrounding the same, the grain of the clamping-rings running in a direction different from the grain of the core.

2. A polishing-wheel comprising a wooden core having reduced ends, a radially-extending polishing-body secured to the core by means of a waterproof cement, wooden clamping-rings fitted upon the reduced ends of the core, with the grain of the rings running in a direction different from the grain of the core.

605,642. AUTOMATIC WINDOW-CLOSER. EMIL KURASCH, Dresden, Germany. Filed Feb. 25, 1898. Serial No. 671,582. (No model.)

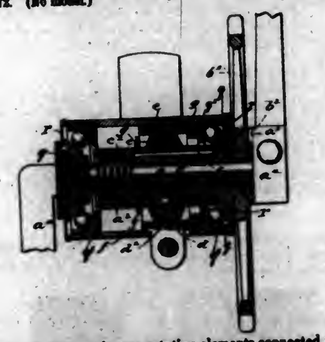


Claim.—1. In combination with a window, an automatic device for closing the same on the arising of a wind comprising a wind-wheel and operating connections therefrom to the window-sash whereby the movement of the wind-wheel effects the closing of the window, substantially as described.

2. In combination, with a window, a wind-wheel, a drum carried

by the shaft thereof, a cord adapted to be wound on said drum and operatively connected with the window sash, and a brake to prevent the too free movement of said wind-wheel, substantially as described.

605,643. BACK-PEDALING BRAKE. WILLIAM A. LEGGO, Jr., Hartsdale, N. Y., assignor of one-fourth to the Long Island Rubber and Cycle Company, of New York. Filed May 11, 1896. Serial No. 590,972. (No model.)



Claim.—1. In a cycle, two rotating elements connected together by a screw-thread, whereby their relative movement will cause one of them to move laterally, in combination with two brake elements carried respectively by the two rotating elements, and a third brake element interposed between said two brake elements and adapted to be moved slightly in a lateral direction whereby the relative lateral movement of said rotating element will cause said third brake element to be clamped between the other two brake elements, substantially as described.

2. In a bicycle the combination of a crank-axle and cranks, a sprocket-wheel loosely mounted on the axle, interlocking abutments whereby the cranks and wheel will rotate together or differentially, at will, and a fixed screw-thread on the axle, a brake member engaging with said thread and adapted to rotate with the sprocket-wheel, but to move independently thereof to operate a brake, a drum and fixed strap surrounding the same for producing a constant friction, said brake member being arranged to engage with the drum to cause it to rotate with the sprocket-wheel and against the friction of the strap thereon.

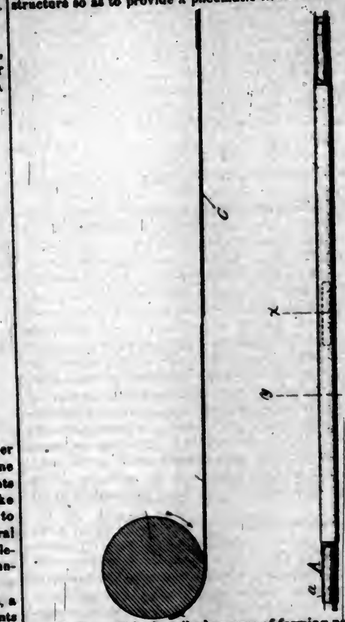
3. In a cycle, the combination of an axle, a sleeve thereon, carrying a sprocket-wheel, a brake member feathered to the sleeve and provided with a screw-thread, a corresponding thread on the axle, a second brake member and means for rotating the axle independently of the sleeve to a limited extent for the purpose of moving the first brake member.

4. In a cycle-brake, the combination of an axle, a sleeve surrounding it and normally rotating therewith, a sliding brake member feathered to the sleeve, a corresponding brake member, means whereby the axle and the sleeve may be caused to rotate differentially to a limited extent, and a screw-thread connection between the axle and the sliding brake member whereby such differential motion will cause the sliding brake member to move longitudinally upon the axle toward or away from its corresponding member, substantially as described.

5. In a cycle, the combination of a brake element held against rotation by attachment to the frame of the cycle, and two other brake elements rotating with a rotary part of the cycle and between which the first element is interposed, driving mechanism and mechanism whereby the reversal of the driving power will cause the two rotating brake elements to clamp the fixed brake element, substantially as described.

605,644. MANUFACTURE OF PNEUMATIC-TIRE TUBES. FRED W. MORGAN, Chicago, and ERNEST W. YOUNG, Austin, Ill., assignors to the Morgan & Wright, Chicago, Ill. Filed Mar. 10, 1896. Serial No. 573,231. (No model.)

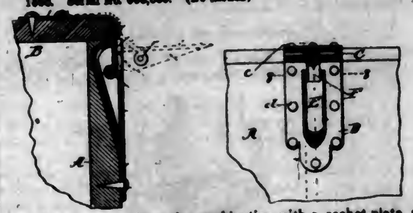
Claim.—1. The within-described process of forming pneumatic-tire tubes consisting essentially in the following steps, to wit: forming a strip of textile material and strips of rubber severally of less width than the strip of textile material; producing a composite fabric by applying the strips of rubber respectively to opposite sides of the strip of textile material, and respectively over different portions of the width of the latter so as to relatively alternate in position thereon; rolling up this composite fabric into tubular form by rolling a pole or mandrel over such composite fabric spread out upon a bed or table; removing such tubular structure from the mandrel and uniting its ends; and then molding and vulcanizing the endless tubular structure so as to provide a pneumatic-tire tube.



2. The within-described process of forming pneumatic-tire tubes consisting essentially in the following steps, to wit: forming a strip of textile material and strips of rubber severally of less width than the strip of textile material: producing a composite fabric by applying the strips of rubber respectively to opposite sides of the strip of textile material, and respectively over different portions of the width of the latter so as to relatively alternate in position thereon; rolling up this composite fabric into tubular form by rolling a pole or mandrel over such composite fabric spread out upon a bed or table; removing such tubular structure from the mandrel and uniting its ends; inflating this endless tubular structure thus formed by hypodermically injecting air therein; and then molding and vulcanizing this inflated tubular structure, so as to produce a pneumatic-tire tube.

3. An endless, annular pneumatic-tire tube comprising in its structure and characterized by a strip of textile material having upon one side a thin rubber strip extending from one of its longitudinal edges part way across its width, and having upon its opposite side a strip of rubber extending from one of its longitudinal edges part way across its width, the composite fabric thus formed being rolled into tubular form with contiguous tubular plies of textile material arranged between inner and outer plies or layers of rubber provided by the rubber strips on opposite sides of the strip of textile material, and the whole molded and vulcanized, substantially as described.

605,645. HASP-FASTENER. JOHN A. MOSHER, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Jan. 26, 1898. Serial No. 668,089. (No model.)

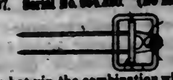


Claim.—1. In a hasp the combination with a socket-plate, and a latch-piece adapted to hook into the recess of the socket-plate, of an attaching-plate having a spring-shank, and a link connecting the latch-piece with the attaching-plate.

2. In a hasp, the combination with a hinge-plate having a spring-shank, and a socket-plate having overhanging shoulders at its upper end, of a latch-piece adapted to be caught under the shoulders of the socket-plate and a link for uniting the latch-piece with the shank.

3. The combination with a socket-plate having an overhanging forwardly-projecting shoulder, and a hinge-plate adapted to be secured in a plane perpendicular to the plane of the socket-plate and having an elastic shank normally curved outwardly from its plane of attachment, of a latch-piece adapted to enter the socket-plate and being constructed to engage the shoulder thereof, and a link pivotally attached to the outer end of the hinge-plate and to the latch-piece intermediate of its ends, the pivots of the link being both within the plane of the shoulders of the socket-plate when the parts are in engagement, substantially as described and for the purpose specified.

605,646. HAT-PIN. HELENA C. MCCARREN, Jersey City, N. J. Filed Oct. 7, 1897. Serial No. 654,220. (No model.)



Claim.—1. In a hat-pin, the combination with a frame, of a transverse rod supported thereby, a sleeve revolubly mounted on said rod, a pin attached to said sleeve, having an oblong head in which a slot or opening is formed, and a headed lug or projection attached to said frame and adapted to cooperate with the opening in said head, substantially as described.

2. In a hat-pin, the combination with a frame, of a transverse rod supported thereby, a sleeve revolubly mounted on said rod, a pin attached to said sleeve, having an oblong head in which a slot or opening is formed, and a headed lug or projection attached to said frame and adapted to cooperate with the opening in said head, said pin being provided adjacent to its oblong head with an ogee curve, substantially as described.

605,647. CUTTER FOR TRIMMING HEEL-SEATS AND BANDS FOR BOOTS OR SHOES. OMAR LE GRAND HOBLE, Winthrop, Mass., assignor to Frank Wood, trustee, Boston, Mass. Filed Jan. 26, 1897. Serial No. 620,570. (No model.)



Claim.—A cutting-tool of the character described, comprising a support, a flat non-perforated guard, a flat cutting-disk abutting against the guard and having cutting edges for the rand, there being a clearance or recess between the guard and the disk, and a cutter having cutting edges for the heel-seat and having a concave inner face.

605,648. MACHINE FOR MANUFACTURING GLASSWARE. FRANK O'NEILL, Cicero, Ind. Original application filed Oct. 5, 1897, Serial No. 654,169. Divided and this application filed Mar. 23, 1898. Serial No. 674,223. (No model.)

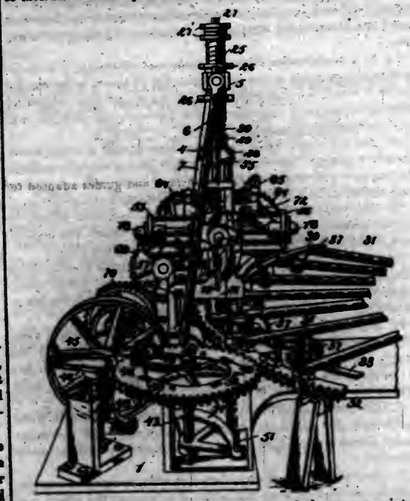
Claim.—1. In a machine for the manufacture of glassware, alined plungers adapted to be moved, successively, in and out of operative position, means for so moving the plungers, and depressing mechanism operatively engaging an inactive plunger for actuating the alined active plunger.

2. In a machine for the manufacture of glassware, pressing mechanism including a revoluble shaft, pressing-plungers arranged radially thereon with each plunger alining with another plunger through the shaft and adapted, successively, to move to operative position, and mechanism for longitudinally pressing one plunger for actuating the alined active plunger.

3. In a machine for the manufacture of glassware, a movable series of plungers, the plungers being arranged in pairs, cam members movable with the plunger series, and actuating mechanism adapted to engage one plunger of a pair for actuating the other plunger, the actuating mechanism also imparting movement to the cam members for bringing the plungers, successively, to operative position.

4. In a machine for the manufacture of glassware, pressing mechanism including a revolubie series of reciprocating plungers, and plunger-reciprocating mechanism operatively connected to the plunger series for rotating the same.

5. In a machine for the manufacture of glassware, pressing mechanism including a revolubie shaft, pressing-plungers thereon adapted, successively, to move to operative position, and plunger-reciprocating mechanism operatively connected to the shaft for imparting thereto intermittent rotary movement.



6. In a machine for the manufacture of gla ssware, an intermittently-revolubie vertically-reciprocating shaft, pressing-plungers arranged radially on the shaft, each plunger alining with another plunger through the shaft the plungers becoming successively active, and reciprocating mechanism adapted to engage the plunger alining with the active plunger.

7. In a machine for the manufacture of glassware, pressing mechanism including a shaft, pressing-plungers thereon, spiders on the shaft, and plunger-reciprocating mechanism operatively connected with the spiders for intermittently rotating the shaft.

8. In a machine for the manufacture of glassware, pressing mechanism including rotatable pressing-plungers, spiders rotatable therewith, and plunger-reciprocating mechanism operatively connecting with the spiders for intermittently rotating the plungers.

9. In a machine for the manufacture of glassware, pressing mechanism including rotatable plungers, spiders rotatable therewith having curved arms, plunger-reciprocating pitmen, and bolts on the pitmen operatively engaging the curved spider-arms for intermittently rotating the plungers.

10. In a machine for the manufacture of glassware, pressing mechanism including rotatable plungers, spiders rotatable therewith having curved arms, plunger-reciprocating pitmen, spring-actuated bolts on the pitmen operatively engaging the spider-arms for intermittently rotating the plungers, and means for automatically engaging and disengaging the bolts from the spiders.

11. In a machine for the manufacture of glassware, pressing mechanism including rotatable plungers, and two spiders rotatable therewith, two plunger-reciprocating pitmen, one adjacent each spider and operatively connected thereto to alternately partially rotate the spiders and plungers.

12. In a machine for the manufacture of glassware, pressing mechanism including rotatable vertically-reciprocating plungers, plunger-depressing mechanism, and reciprocating means for the plungers and the depressing mechanism adapted to impart longer upward movement to the latter than to the plungers so as to free the plungers for rotation

13. In a machine for the manufacture of glassware, pressing mechanism including rotatable plungers, vertically-reciprocating supports therefor, and eccentrics beneath the supports for reciprocating them and the plungers.

14. In a machine for the manufacture of glassware, pressing mechanism including rotatable plungers, reciprocating supports in which the same rotate, a plunger-depressor and actuating mechanism therefor, rotatable eccentrics for reciprocating the supports, and plunger-rotating mechanism.

15. In a machine for the manufacture of glassware, pressing mechanism including rotatable plungers, vertically reciprocating supports in which the plungers rotate, a depressor adapted to engage an inactive plunger for actuating another plunger, actuating-wheels, pitmen connecting the wheels and the depressor, and eccentrics rotatable with the wheels for reciprocating the supports.

16. In a machine for the manufacture of glassware, pressing mech-

anism including a series of radially-arranged rotatable plungers, a head carrying a plunger-depressor, reciprocating mechanism for the plungers, head-reciprocating mechanism adapted to raise the depressor clear of the plungers for the purpose described, and plunger-turning means.

17. In a machine for the manufacture of glassware, a series of rotatable plungers and means for rotating the plungers, reciprocating supports in which the plungers rotate, a plunger-depressor, actuating mechanism operatively connected to the depressor and plungers, and support-reciprocating eccentrics.

18. The combination of a carrier, molds mounted to swing therein, members adapted to swing the molds and having straight surfaces extending at right angles to the mold-axes, and guides adapted to engage said straight surfaces for holding the molds against swinging.

19. The combination of a carrier, molds mounted therein to swing vertically, and mechanism for righting the molds and holding them upright as they are presented to the pressing-machine.

20. The combination of a carrier, molds rotatable therein, disks rotatable with the molds and flattened on one edge, and guides which the flats of the disks are adapted to engage for holding the molds in fixed position.

21. The combination of a carrier, molds revoluble therein, disks revoluble with the molds and flattened on a line parallel with the mold-top, and guides out of the plane of the mold-axes but in line with the disks, the flats of the latter engaging the guides and holding the molds fixed.

22. The combination of a carrier, molds revoluble therein, disks turnable with the molds and flattened on one edge, and vertically-yieldable guides in line with the disks and adapted to hold the molds as described.

23. The combination of a mold-carrier, wheel 42 geared thereto, a vertically-movable locking-bolt adapted to engage the wheel, and actuating mechanism common to the wheel and bolt.

24. The combination of a mold carrier geared to wheel 42, a wheel-locking bolt, and mechanism actuating simultaneously the wheel and bolt.

25. The combination of a mold-carrier geared to intermittently-rotating wheel 42, a locking-bolt for the wheel, and vibrating cam 54 for actuating the bolt.

26. The combination of a mold-carrier geared to wheel 42, a shaft, an arm adapted to vibrate the shaft, a dog on the arm engaging and intermittently rotating the wheel, cam-spider 54 secured to the vibratory shaft, and a locking-bolt for the wheel actuated by the cam-spider.

27. The combination of a mold-carrier, a wheel geared thereto formed with beveled depressions in one face, a vibratory arm, means for vibrating the arm, and a spring-actuated bolt carried by the arm and adapted automatically to successively engage the wheel depressions.

28. Molten-glass-feeding mechanism, consisting of oppositely-revoluble wheels, a feeding-box between the wheels, pins revoluble with and projecting beyond the wheel-peripheries, and means for retracting the pins so as to pass the feeding-box.

29. Molten-glass feeding mechanism, including knives, and cam-wheels operatively connected to the knives for actuating the same.

30. Molten-glass-feeding mechanism, including knives having projecting pins, and wheels formed with cam-grooves into which the pins project for actuating the knives when the wheels are set in motion.

31. Molten-glass-feeding mechanism, including feeding-wheels, intermeshing gears on the wheel-journals, shaft 68 operatively connected to the gears, knives beneath the wheels, and actuating mechanism for the knives operatively connected to the said shaft.

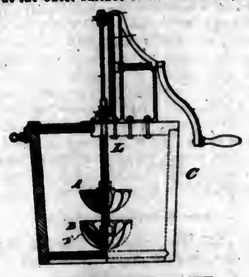
32. Molten-glass-feeding mechanism, including intermittently-rotating wheels, cut-off knives beneath the wheels, and actuating mechanism common to the wheels and knives.

33. In a machine for the manufacture of glassware, pressing mechanism, molten-glass-feeding mechanism, a mold-carrier, molds on the carrier, and means for intermittently moving the carrier so as to pass the molds, successively, from the feeding mechanism to the pressing mechanism.

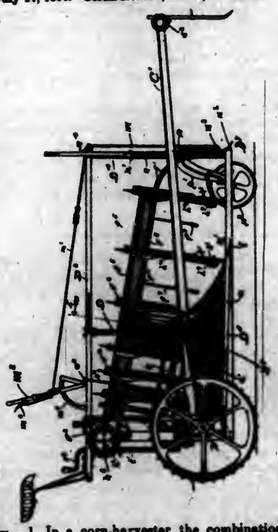
34. In a machine for the manufacture of glassware, pressing mechanism, molten-glass-feeding mechanism, a mold-carrier, molds on the carrier, and actuating mechanism common to the pressing mechanism, the feeding mechanism and the carrier, and adapted to intermittently move the carrier to pass the molds from the feeding mechanism to the pressing mechanism.

605,649. CHURN. JOHN W. OTTO, Altoona, Pa. Filed Sept. 25, 1897. Serial No. 653,084. (No model.)

Claim.—In a churn, the combination with the operating-shafts and bowl-shaped dasher A, which has a series of spirally-arranged scalloped recesses about its outer wall, the dasher B, which is concaved and provided with a series of spirally-arranged scalloped recesses F in its interior wall, with ridges between said scallops, and the blades B' about the outer surface of said dasher B, as shown and described.



605,650. CORN-HARVESTER. DARIUS T. PHILLIPS, Chicago, Ill. Filed July 17, 1896. Serial No. 599,552. (No model.)



Claim.—1. In a corn-harvester, the combination with the axle and its supporting-wheels, of an adjustable frame carrying the operating parts of the machine supported at its rear end portion upon the axle, to be raised and lowered upon its support, a driver's seat on the adjustable frame, a downward-extending bar at the front end portion of the adjustable frame, a wheel provided with a frame sliding upon said bar, a spring confined between the said wheel-frame and bar and tending to raise the front end of the supporting-frame upon the wheel-frame, pulley-and-cable mechanism on the said bar and wheel-frame, and a lever on the adjustable frame, adjacent to the said seat, with which the said mechanism is operatively connected, substantially as and for the purpose set forth.

2. In a corn-harvester, the combination with the frame carrying the operating parts of the machine, of a hollow rotary axle upon which said frame is mounted, and provided with supporting-wheels, and a flexible cable, or the like, extending loosely through and beyond opposite ends of said axle and provided at its ends with horse-attaching means, substantially as and for the purpose set forth.

3. In a corn-harvester, the combination with the frame carrying the operating parts of the machine, of a hollow rotary axle upon which said frame is mounted at its rear end portion and provided with traction-wheels, shafts pivotally connected with the axle on opposite sides of said frame, a flexible cable, or the like, extending loosely through and beyond opposite ends of said axle, a supporting-wheel for the front end portion of the frame, and draft attachments for horses on the free ends of said cable and front end portions of said shafts, substantially as described.

4. In a corn-harvester, the combination with the axle and its supporting-wheels, of a frame in which the operating parts of the machine are mounted, provided with a rear supporting-frame portion having legs adjustably mounted in guides upon the axle, and a divider-frame, comprising a substantially continuous bar secured at opposite ends to said legs and presenting inclined guide-surfaces k', substantially as described.

5. In a corn-harvester, the combination with the axle and its supporting-wheels, of a frame carrying the operating parts of the machine provided with a supporting-frame portion having legs adjustably mounted upon said axle, a divider-frame portion comprising a substantially continuous bar connected at opposite ends with said legs and extending forward to present guide-surfaces k', a forward-extending bar or strip connected at its rear end portion with said supporting-frame portion, and a wheeling support for the forward end portion of said strip, substantially as described.

6. In a corn-harvester, the combination with the axle and its supporting-wheels, of a frame carrying the operating parts of the machine provided with a supporting-frame portion having legs adjustably mounted upon said axle, a divider-frame portion comprising a substantially continuous bar connected at opposite ends with said legs and extending forward to present guide-surfaces k', a forward-extending bar or strip connected at its rear end portion with said supporting-frame portion, parallel brace rods or bars f' f', and a wheeling support for the forward end portion of said strip, substantially as described.

7. In a corn-harvester, the combination with the axle and its supporting-wheels, of a frame carrying the operating parts of the machine provided with a supporting-frame portion having legs adjustably mounted upon said axle, a divider-frame portion comprising a substantially continuous bar connected at opposite ends with said legs and extending forward to present guide-surfaces k', a forward-extending bar or strip connected at its rear end portion with said supporting-frame portion, parallel forward-extending guide-bars D^6 connected at their rear ends to the said supporting-frame portion, guides D^6 extending from the said strip laterally downward and forward to the guides D^4, and a wheeling support for the forward end portion of said strip, substantially as described.

8. In a corn-harvester, the combination with the axle and its supporting-wheels, of a frame carrying the operating parts of the machine provided with a supporting-frame portion having legs adjustably mounted upon said axle, a divider-frame portion comprising a substantially continuous bar connected at opposite ends with said legs and extending forward to present guide-surfaces k', a forward-extending bar or strip connected at its rear end portion with said supporting-frame portion, parallel elevator-shafts journaled at their rear end portions upon the said supporting-frame portion, and at their forward ends supported from the said divider-frame portion, sprocket-wheels upon the elevator-shafts, brackets upon the divider-frame portion, sprocket-wheels upon the said brackets, elevator-chains traveling upon the sprocket-wheels, and a wheeling support for the forward end portion of said strip and divider-frame portion, substantially as described.

9. In a corn-harvester, the combination with the axle, supporting-wheels, shafts C C', and the frame carrying the operating parts of the machine mounted toward its rear end portion on the axle, of a bar or strip D^5 forming the upper portion of said frame, and pick-up bars a' fastened to said strip and extending from opposite sides thereof upward, laterally and downward, and guides a^2 on the shafts C C' through which said pick-ups extend, substantially as and for the purpose set forth.

10. In a corn-harvester, the combination with the frame carrying the operating parts of the machine, outside stalk-guides D^2, divider D^3, cutters and elevators, of guide-boards G G' pivotally mounted toward their forward end portions upon the guides D^2 to swing at their rear end portions over the cutters, springs pressing the said guide-boards normally in the direction of the inside divider, guide-cords, or the like, c^3, attached to the said guide-boards and extending thence upward at opposite sides of the elevators, and a spring connection between the said cords, at the top of the frame, substantially as and for the purpose set forth.

11. In a corn-harvester, the combination with the cornstalk cutting and elevating mechanisms, of a binder for the cornstalks, and a guard for the binder-needle, comprising plates mounted to slide one upon the other in the movement of the needle, and forming an always-closed wall behind the needle, substantially as and for the purpose set forth.

12. In a corn-harvester, the combination with the cornstalk cutting and elevating mechanisms, of a binder for the cornstalks, and a guard for the binder-needle, comprising a pivotal plate e provided with stops in the path of the needle, and a plate e', across which the plate e slides the plates forming an always-closed wall behind the needle, substantially as described.

13. In a corn-harvester, the combination with the cornstalk cutting and elevating mechanisms, of a binder for the cornstalks, a hopper in which the bundle is formed, comprising spring-rods which support the cornstalks and separate to release the bundle, and mechanism for discharging the bundle from the hopper, comprising an eccentric upon one of the binder-shafts, an eccentric-ring in which the eccentric rotates, a bundle engaging and discharging finger b^3 on the ring, and a pivotal swinging support b^2 for the ring at the side thereof opposite the discharging-finger, substantially as and for the purpose set forth.

605,651. HARROW. WILLIS R. PHILLIPS, Saguache, Colo. Filed Apr. 3, 1899. Serial No. 686,014. (No model.)



Claim.—1. In a harrow, the combination with a frame, of a plurality of rotating harrow-teeth journaled in the frame so that the paths of teeth in successive order transverse to the harrow-frame overlap, the several teeth being inclined inwardly toward the median line of the frame, each tooth having a plurality of prongs spreading from its axis, each of the prongs being straight.

2. In a harrow, the combination with a frame, of a plurality of rotatable teeth having their axes laterally oblique as to the frame, each tooth having a plurality of pointed prongs spreading from its axis, each of the prongs being straight.

605,652. ENDOSCOPIC INSTRUMENT. THOMAS S. PITT, Boston, Mass. Filed June 1, 1897. Serial No. 638,591. (No model.)



Claim.—1. A light holder or receptacle for use on an endoscopic instrument, having a curved body portion to receive an incandescent, and a freely-removable concavo-convex guard having inwardly-turned edges fitting on said body portion and having one or more upwardly-turned lugs which operate as reflectors to throw the light upward and forward.

2. A light holder or receptacle for use on an endoscopic instrument, having a curved body portion to receive an incandescent, and a concavo-convex guard fitting on said body portion and having a series of light-emitting apertures and a reflector in the rear of each aperture to throw the light upward and forward.

3. A light holder or receptacle for use on an endoscopic instrument, having a curved body portion to receive an incandescent, and a concavo-convex guard fitting on said body portion and having one or more reflectors bent up therefrom, and having one or more light-emitting apertures.

4. A detachable light holder or receptacle for use on an endoscopic instrument comprising a concavo-convex body portion for receiving the incandescent, and having an extended shank with bayonet-slots for attaching it in place, and a removable sliding cover formed with upwardly-turned reflectors.

605,653. DECKER FOR WOOL-WASHING MACHINES. FREDERICK G. SARGENT, Graniteville, Mass. Filed Mar. 26, 1898. Serial No. 675,057. (No model.)



Claim.—The decker-box 23 having the outlet 27 and inclined bottom 24, with oppositely-inclined bottom piece 25.

605,654. CEMENT ROOFING-TILE. GUSTAV SCHULZE, Hoisten, Germany. Filed Jan. 9, 1896. Serial No. 574,836. (No model.) Patented in Germany Oct. 24, 1894, No. 83,980; in Hungary Nov. 11, 1894, No. 1,576; in Belgium Nov. 15, 1894, No. 108,463; in Switzerland Nov. 30, 1894, Nos. 9,490 and 9,800; in Austria Dec. 1, 1894, No. 44/6,196; in Italy Dec. 31, 1894, No. 37,694, and in France Feb. 8, 1895, No. 242,534.

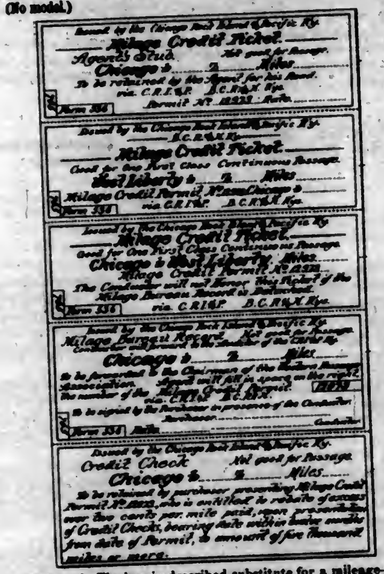


Claim.—1. A tile made in the form of a square plate having its side corners cut away, two upper lap edges having an inner channel

and a raised head, and two lower lap edges, each having a head to fit the said channels of the upper lap edges, a retaining-nose extending downwardly from the under side and lower corner of the tile and recesses adjoining the upper ends of the said corners to receive said retaining-nose, substantially as described.

2. A tile made in the form of a square plate having its side corners cut away and mortar-grooves formed in the edge thereof; two upper lap edges having an inner channel, a raised bead and an outer mortar-groove, and two lower lap edges, each having a bead to fit the said channels of the upper lap edges, a retaining-nose extending downwardly from the under side and lower corner of the tile and recesses adjoining the upper ends of the side corners to receive said retaining-nose, substantially as described.

605,655. RAILWAY-TICKET. JOHN SEBASTIAN and BENJAMIN B. ANDERSON, Chicago, Ill. Filed Mar. 18, 1897. Serial No. 628,300. (No model.)



Claim.—1. The herein-described substitute for a mileage-ticket, comprising a mileage-credit permit and a mileage-credit ticket mutually identified by corresponding characters, substantially as and for the purpose set forth.

2. A substitute for mileage-tickets, comprising a mileage-credit permit, and a ticket provided with a passenger's mileage-credit check and a company's mileage record check, said ticket and checks being provided with a number or the like identifying them with said permit, substantially as and for the purpose set forth.

3. The combination with a railway-ticket, of a passenger's mileage-credit check and a company's mileage-credit record-check, said checks being mutually identified by corresponding characters and one of said checks, at least, being provided with markings from which to determine the amount of credit or rebate and with a purchaser's signature-blank whereon is required the purchaser's signature for prevention of fraudulent manipulation, substantially as and for the purpose set forth.

4. An interchangeable mileage-credit ticket, comprising passage-coupons over the several roads, a passenger's mileage-credit check, and a mileage-bureau credit-record check, said checks being mutually identified by corresponding characters and one of said checks at least provided with markings from which to determine the amount of credit or rebate and with a purchaser's signature-blank, substantially as and for the purpose set forth.

5. The combination with a railway-ticket, of a mileage-credit permit, and a passenger's mileage-credit check, substantially as and for the purpose set forth.

6. The combination with a railway-ticket, of a mileage-credit permit and a mileage-bureau record-check, substantially as and for the purpose set forth.

7. The combination with a railway-ticket, of a mileage-credit permit, a mileage-bureau record-check, and a passenger's mileage-credit check, substantially as and for the purpose set forth.

605,656. CLEVIS. GEORGE H. TAYLOR, near Rockdale, Tex., assignor of two-thirds to R. C. Wallis and D. R. Wallis, Rockdale, Tex. Filed Dec. 2, 1896. Serial No. 614,337. (No model.)

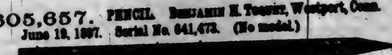


Claim.—1. The combination with a clevis having upper and lower arms, a circular aperture in the end portion of said lower arm, a longitudinal slot in the end portion of said upper arm, extending a little distance to the rear of said aperture, an overhanging lip upon the upper arm of said clevis, said lip extending rearwardly from the front end of the clevis and over said slot whereby it covers one end portion of the slot, said lip being also situated above the upper face of the upper arm to leave a space between said arm and lower face of said lip, of a headed pin having its lower end fitting within the aperture in the lower arm of the clevis, the head of said pin having flat upper and lower faces and adapted to pass into the space between the upper face of the arm and the lower face of the lip, substantially as described.

2. The combination with a clevis having registering apertures at its upper and lower ends, an overhanging lip at the upper end of said clevis, and an under backwardly-extending lip at the lower end of said clevis, of a headed pin to pass through said aperture and to be held in place by said upper lip, while the lower end of said pin is situated to approximately meet the inner face of the under lip.

3. The combination of a clevis having upper and lower arms, the lower arm being provided with an opening and the upper arm having a slot registering with the opening and extending inward beyond the same, the L-shaped flange mounted upon the upper arm of the clevis at the outer end of the slot and forming a lip 2 extending inward over the outer portion of the slot, and a pin arranged in the slot and the opening and provided at its upper end with a head extending beneath the lip and cut away at one side, the cut-away portion and the inward extension of the slot cooperating to permit the head to be disengaged from the lip, substantially as described.

605,657. PENCIL. BENJAMIN H. TOOMEY, Westport, Conn. Filed June 19, 1897. Serial No. 641,473. (No model.)



Claim.—1. A pencil having a sheath open at the back end for the insertion of a push-rod, a core in the sheath and a movable pawl within the bore of the sheath and in the rear of the core, as and for the purpose described.

2. A pencil having a sheath of wood or other such material open at the back end for the insertion of a push-rod, a core movable lengthwise in the sheath, and a movable pawl within the bore of the sheath and in the rear of the core, as and for the purpose described.

3. A pencil having a sheath of wood or other such material open at the back end for the insertion of a push-rod, a core movable lengthwise in the sheath, a movable pawl within the bore of the sheath and in the rear of the core, and a friction means for the core near the point of the sheath, substantially as described.

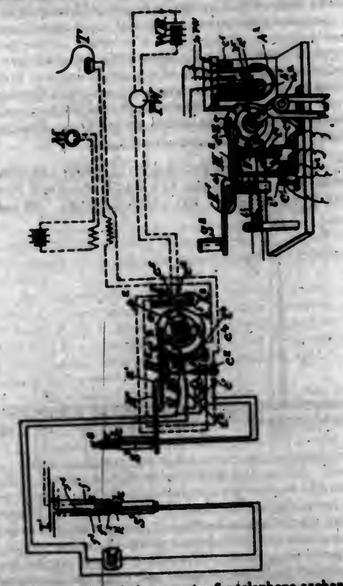
605,658. WITHDRAWN.

605,659. AUTOMATIC APPARATUS FOR TELEPHONE-SWITCH-BOARDS. JULIUS H. WEST, Berlin, Germany. Filed July 8, 1896. Serial No. 598,448. (No model.)

Claim.—1. The combination of telephone-lines, spring-jacks to which the lines are connected, switch-plugs, connecting-wires therefor, a switch operated in one direction by a spring and in the opposite direction by the weight of one of said plugs, an operator's telephone normally connected between said plugs by said switch and disconnected when the switch is operated on the lifting of the plug, an automatic switch adapted to connect a signal-generator between the plugs, and a detent for said automatic switch directly controlled by the weight of the plug which controls said first-mentioned switch.

2. In a telephone system the combination with the subscriber's lines and their respective jacks and plugs, of an automatic switch or contact-making apparatus comprising a continuously-rotating shaft, a disk or disks held frictionally thereon and having a cam-surface and stops, and means for holding said disk from rotation comprising the levers H' H^2, contacts carried by said levers, and contacts actuated by said cam-surface.

3. The combination of plugs S' S^2, connecting-wires therefor, an automatic switch between said plugs comprising a driving-shaft with a cam-disk frictionally mounted thereon, a pivoted stop-lever H^3 normally held in position to stop the cam-disk by the weight of one of the plugs acting thereon, contacts H^2 H^4 normally in connection with plugs S' S^2 and also with the operator's telephone, contacts H^3 H^4 being connected to lever H^3 so as to move therewith, thereby breaking connection with the operator's telephone, and switch-contacts controlled by the cam-disks for connecting and disconnecting a signal-generator to and from the plugs, as described.



4. An automatic switch apparatus for telephone-exchanges consisting of the combination with the plug or connection-cords, the operator's telephone and the call-battery, of a number of contacts inserted in the said connecting-cords, a shaft continuously rotated by a suitable motor, disks loosely mounted on said shaft and having suitable cam-surfaces, means for coupling said disks with said shaft automatically by the action of lifting up the connection-plug, and means for operating said contacts by the rotation of the said disks, substantially as and for the purpose set forth.

605,660. METALLIC BED. WILLIAM W. BALDWIN, Cleveland, Ohio, assignor to the Cleveland Co-Operative Stove and Hollow Ware Foundry Company, same place. Filed June 4, 1897. Serial No. 639,410. (No model.)

Claim.—1. A side rail for a bed, adapted to be removably secured to the bed, and consisting of a longitudinal bar having secured to it separate contacting sections of metal, substantially as described.

2. A bed-rail composed of separate contacting sections of metal free at their lower ends and bound together by a longitudinal bar, substantially as described.

3. A bed-rail composed of separate sections of metal secured at or near their upper ends to a longitudinal bar and having their lower ends free, said sections engaging with each other near their lower ends, substantially as described.

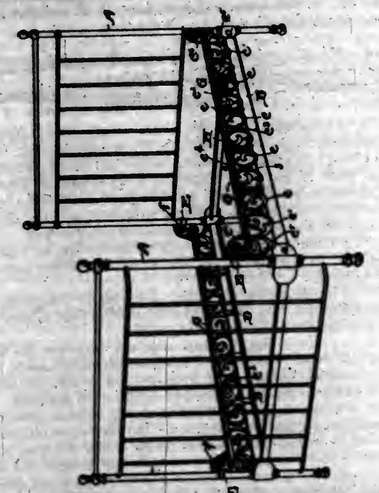
4. A bed-rail composed of a plurality of sections having lugs on one of their ends by which they are adapted to engage with their next neighbor, and a longitudinal bar to which they are all secured, substantially as described.

5. A bed-rail composed of a plurality of sections secured near their upper ends to a longitudinal bar, and some of said sections having near their upper ends the lug c^3 which extends over the next section and near the lower ends the lug c^3 which extends behind that section, substantially as described.

6. A bed-rail composed of a plurality of sections secured to a longitudinal bar and having on its rear side clips adapted to engage with the side bar of a metal bed, and having near its ends clips adapted to engage with the bed-posts, substantially as described.

7. The combination with a bed having posts A and a side bar B, of a separable rail engaging with and supported by the bar B, and secured to the posts A, substantially as described.

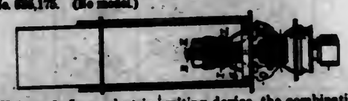
8. The combination with a bed having posts A and a side bar B, of a separable rail embracing the said side bar between the lower edge of the rail, and clips D carried on the inner side of the rail and embracing the said posts between the ends of the rail and clips E carried on the inner side of the rail, substantially as described.



9. The combination with a bed having posts A, plates a and a side bar B, of a separable rail C supported by the bar B and having its lower edge extending upwardly at its ends to clear the plates a, said rail having its upper edge extending upwardly at the ends and being secured to the posts at said upwardly-extending ends, substantially as described.

10. A section for a bed-rail, consisting of a body C having integrally the leg c^3, the leg c^2 and the beveled portion c^4 arranged substantially as shown.

605,661. INSULATING ELECTRODES FOR ELECTRIC GAS-LIGHTING BURNERS. ADRIAN L. BOSART, Jamaica, N. Y., assignor to William R. M. Jordan, New York, N. Y. Filed May 5, 1897. Serial No. 635,175. (No model.)



Claim.—1. In an electric igniting device, the combination with one of the electrodes formed of a metal wire or strip, of an insulating-shield through which said wire or strip is threaded, substantially as set forth.

2. In an electric igniting device, the combination with one of the electrodes formed of a metal wire or strip, of a mica shield through which said wire or strip is threaded, substantially as set forth.

3. The combination with an electrically-ignited gas-burner, of a flexible insulating shield or screen between the burner and one of the electrodes, substantially as set forth.

4. The combination with an electrically-ignited gas-burner, of a flexible insulating sheet-like shield or screen to which one of the electrodes is secured, substantially as set forth.

5. The combination with an electrically-ignited gas-burner, of an insulating screen or shield between the burner and the other electrode, substantially as set forth.

6. The combination with an electrically-ignited gas-burner, of a mica screen or shield between the burner and the other electrode, said electrode being carried by the shield, substantially as set forth.

7. The combination in an electric gas-lighting device, of a conducting-electrode, an insulating flexible shield supporting the said electrode and insulating it from adjacent metallic parts by having the same threaded therethrough, as described, and means for securing said strip in place, substantially as set forth.

605,662. LOCK-RAIL FROG. JOHN W. CLOSE, Buffalo, N. Y., assignor of one-half to George L. Lovejoy, same place. Filed Mar. 16, 1898. Serial No. 673,682. (No model.)

Claim.—1. In a railway-frog, a metal bed bearing on the bases or flanges of the wing-rails, 2, and of the diverging rails, 14 15, having the form described and shown, provided with recesses, 3, for securing the wing-rails, 2, with the lugs, 4, and receptacle, 11, for securing the point, 12, also the receptacle, 13, for securing the diverging point-rail, 14, with keyway, 19, and recess, 21, all constructed and arranged substantially as shown and described.



2. In a railway-frog, the bed or base resting on and supported by the lower flanges of the wing-rails, 2, and diverging rails, 14 15, and having a receptacle adapted to receive and closely conforming to the point, 12, and a point-rail resting in said receptacle, in combination with a combined wedge and foot-guard fitting into a recess between and securing the diverging rails, 14 15, in place, all constructed and arranged substantially as shown and described.

3. In a railway-frog, a wedge, 16 having the lug, 25, with the recesses, 20 26, keyway, 19, and pins, 29, all substantially as shown and described.

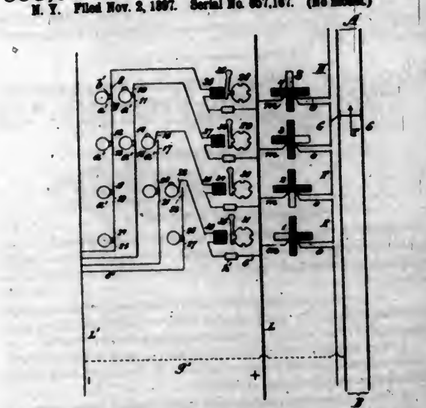
4. In a railway-frog, the wedge, 16, having the foot-guard, 24, integral with said wedge and in line with one of its sides, all as shown and described.

5. In a railway-frog, the combination of a wedge with the frog-point, said wedge extending past the point, thereby protecting the joint formed with the obtuse end of the point, and the diverging point-rail to which the point is conjoined, all as shown and described.

6. A railway-frog provided with an opening or recess formed by diverging arms of said frog, adapted to receive and secure the diverging rails, 14 15, and resting on the flanges of said diverging rails; together with the wedge, 16, and foot-guard, 24, integral with said wedge, which rest on and are supported by the flanges of said diverging rails, all constructed, arranged and secured to operate as shown and described.

7. The combination of pins, 17, in recess, 13, of the base-plate with the wedge, 16, as shown and described.

605,668. ELECTRIC RAILWAY. CHARLES H. DAVIS, New York, N. Y. Filed Nov. 2, 1897. Serial No. 657,167. (No model.)



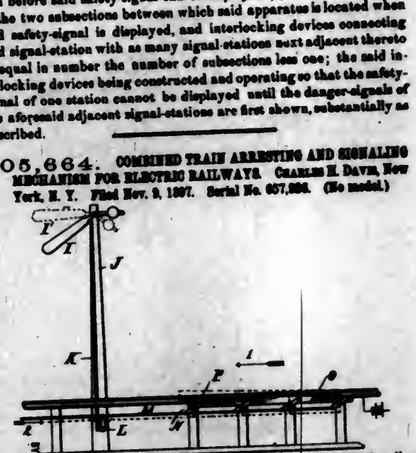
Claim.—1. In an electrical railway a line divided into insulated divisions, signal devices respectively located between the successive divisions, means for actuating said signal devices successively to give a definite indication, and means controlled by each signal device for then establishing electrical circuit in the line-divisions between which it is located, substantially as described.

2. In an electrical railway, a line divided into insulated divisions, signal devices respectively located between successive divisions, each device being constructed to exhibit a danger-signal and a safety-signal, and means controlled by each signal device for establishing current in the two line-divisions between which said device is located, when the safety-signal of that device is exhibited, substantially as described.

3. In an electrical railway a line divided into insulated divisions, a signal device associated with each division and constructed to exhibit a danger-signal and a safety-signal, and means controlled by said signal device for interrupting electrical circuit through the associated line-division when the danger-signal of that device is exhibited, substantially as described.

4. In an electrical railway, a line divided into insulated sections, each section having two or more insulated subsections, signal-stations located at the boundaries of said sections and subsections, a signal apparatus located at each substation and constructed (1) to exhibit a danger-signal and a safety-signal (2) to show said danger-signal successively as many times less one as there are substations in each section before said safety-signal can be displayed (3) to establish current in the two subsections between which said apparatus is located when said safety-signal is displayed, and interlocking devices connecting said signal-station with as many signal-stations next adjacent thereto as equal in number the number of subsections less one; the said interlocking devices being constructed and operating so that the safety-signal of one station cannot be displayed until the danger-signals of the aforesaid adjacent signal-stations are first shown, substantially as described.

605,664. COMBINED TRAIN ARRESTING AND SIGNALING MECHANISM FOR ELECTRIC RAILWAYS. CHARLES H. DAVIS, New York, N. Y. Filed Nov. 2, 1897. Serial No. 657,204. (No model.)



Claim.—1. The combination in an electric railway with a line conductor and an electric-motor vehicle receiving current therefrom through a traveling contact bearing on said conductor, of means for controlling the closing and breaking of electrical circuit between said contact and said conductor from a station on the line, thereby permitting continued progress of said vehicle over, or causing its arrest at, the point of circuit establishment and breakage, substantially as described.

2. The combination in an electric railway with a line conductor and signal in proximity thereto and an electric-motor vehicle receiving current from said conductor through a traveling contact bearing on said conductor, of means for actuating said signal and also simultaneously controlling the closing and breaking of electrical circuit between said contact and said conductor at a point distant from said signal, substantially as described.

3. The combination in an electric railway with a line conductor and a movable guard device, of a signal located at a distance from said guard device, and means for actuating said signal and said guard device simultaneously; whereby when said signal is set in danger position said guard device is also placed in position to separate and so break electrical circuit between said line conductor and a body moving upon and along the surface of said conductor and meeting the said device, substantially as described.

4. The combination in an electric railway of a line conductor and an electric-motor vehicle, a contact-arm on said vehicle normally closing circuit between said vehicle-motor and said line conductor, and a brake mechanism on said vehicle controlled by said arm; the aforesaid parts being constructed and arranged so that when circuit is open between said contact-arm and said conductor said brake mechanism shall be controlled thereby to arrest the motion of said vehicle, substantially as described.

5. The combination in an electric railway of a line conductor and electric-motor vehicle, a movable arm on said vehicle normally closing circuit between said vehicle-motor and said line conductor, a stop movably secured in proximity to said conductor, a signal in proximity to said conductor and means for simultaneously actuating said signal in predetermined manner and also for adjusting said stop in position to cause said arm on meeting it to move out of contact with said conductor, substantially as described.

6. The combination in an electric railway of a line conductor and electric-motor vehicle, an arm on said vehicle normally closing circuit between said vehicle-motor and said line conductor, a movable cam in proximity to said conductor having its upper surface normally below the upper surface of said conductor, and means for actuating said cam to carry its upper surface above the upper surface of said conductor, and thereby causing said arm in moving over said cam to break electrical connection with said conductor, substantially as described.

7. The combination in an electric railway of a line conductor and electric-motor vehicle, an arm on said vehicle normally closing circuit between said motor-vehicle and said line conductor, a signal in proximity to said line conductor, a movable cam in proximity to said conductor having its upper surface normally below the upper surface of said conductor, and mechanism for simultaneously actuating said signal in a predetermined manner and also for actuating said cam to carry its upper surface above the upper surface of said conductor and thereby causing said arm in moving over said cam to break the electrical connection with said conductor, substantially as described.

8. The combination of a line conductor, an electromotor-vehicle, a movable arm on said vehicle normally making electrical contact with said line conductor, a movable body in proximity to said conductor having its upper surface normally below the upper surface of said conductor, means for displacing said movable body so that it shall move said arm out of contact with said conductor, and a brake mechanism on said vehicle; the said brake mechanism being controlled by said arm when moved as aforesaid, to arrest the motion of said vehicle, substantially as described.

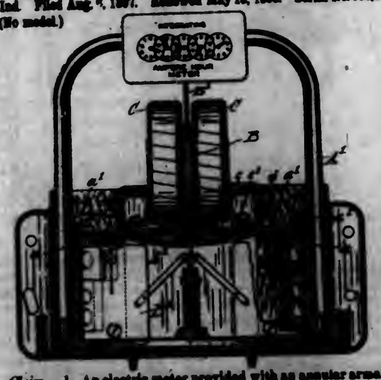
9. The combination in an electric railway wherein current is taken from a charged conductor by a traveling contact thereon, of the conductor B, bar O having inclined surface F, pivoted levers N supporting said bar, and rod M for actuating said levers, substantially as described.

10. The combination in an electric railway wherein current is taken from a charged conductor by a traveling contact thereon, of the conductor B, bar O, pivoted levers N supporting said bar, rod M actuating said levers, pivoted signal-arm I, rod K for moving said arm, and mechanism for transmitting the motion of rod K to rod M, substantially as described.

11. The combination in an electric railway of a car, having a brake mechanism, a conductor's valve R controlling the same, a contact-arm F actuating said valve with conductor B along which said contact-arm F travels, bar O supported in proximity to said conductor, and means for raising said bar to move said contact-arm out of contact with said conductor, substantially as described.

12. The combination in an electric railway of a car, having a brake mechanism, a conductor's valve R controlling the same, a contact-arm F actuating said valve with conductor B along which said contact-arm F travels, bar O supported in proximity to said conductor means for raising said bar to move said contact-arm out of contact with said conductor and a visual signal constructed to be exhibited in definite position by said means, substantially as described.

605,665. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed Aug. 9, 1897. Renewed May 18, 1898. Serial No. 681,090. (No model.)



Claim.—1. An electric motor provided with an annular armature and a plurality of magnetic fields part of which are set up within and part without the armature, one field being on an axis extending between two other fields that are set up on separate axes on the opposite side of the annular wall of the armature from the first field, circuit connections energizing part of the fields with currents of differing phase, and means for inductively energizing the other part.

2. An electric motor provided with an annular armature and a plurality of coils part of which are located within and part without the armature, one coil being arranged on an axis extending between two other coils that are arranged on separate axes on the other side of the annular wall of the armature from the first coil, circuit connections for energizing two of the coils by currents of differing phase, and means for inductively energizing the third coil.

3. An electric motor provided with an annular armature, a magnetic field set up exterior to the armature, upon an axis extending between two fields set up within the armature upon separate axes, circuit connections for energizing the outer and one inner field by currents of differing phase, and means for inductively energizing the third field by a current of still different phase.

4. An electric motor provided with an annular armature, coils exterior to the armature, coils within the armature, circuit connections for energizing said outer and inner coils, a magnetic core having part of its poles inclosed by said inner coils, and closed circuits on the other poles of said core.

5. An electric motor provided with an annular armature, coils exterior to the armature, coils within the armature, circuit connections for energizing said outer and inner coils by currents of differing phase, closed circuits within the armature apart from the first inner coil, and means for inductively energizing said closed circuits.

6. An electric motor provided with an annular armature, coils exterior to the armature connected in circuit, a cross-shaped magnetic core within the armature, coils on two poles of the core, also connected in circuit and closed circuits on the other poles of the core.

7. An electric motor provided with an annular armature, coils exterior to the armature, arranged upon an axis intersecting the latter and connected in circuit, a cross-shaped magnetic core arranged with its axes at an angle to the axis of the outer coils, coils on two poles of the core, also connected in circuit, and closed circuits on the other poles of the core.

8. An electric motor provided with an annular armature, coils exterior to the armature arranged upon an axis intersecting the latter and connected in circuit, a cross-shaped magnetic core within the armature arranged with its axes at an angle to the axis of the outer coils, coils on two poles of the core also connected in circuit, closed circuits on the other poles of the core, and means for adjusting the angular arrangement of the core with respect to the axis of the outer coils.

9. An electric motor provided with an annular armature, a series field exterior to the armature, a magnetic core within the armature made of cross shape with its axes intersecting each other and the axis of the series field at the center of the armature, coils on two opposite poles of the core connected in circuit, and closed circuits on the other two poles of the core.

605,666. THILL-COUPLING. JOHN EDGAR, Rochester, Minn. Filed Oct. 26, 1897. Serial No. 656,268. (No model.)



Claim.—1. The combination, of the shackle, provided with slots or notches to receive the thill-iron, with vertically-movable clamping-jaws, having arms extending across the slots or notches in the shackle, and means for drawing down said movable member or jaw, substantially as described.

2. The combination, of the shackle, provided with the vertical slots or notches, with the jaw provided with horizontal slots or notches, a screw upon said movable jaw, and a swiveled nut upon said shackle, as and for the purpose specified.

3. The combination, of the relatively movable shackle and clamp, having opposed slots or openings to receive a thill-iron, with a swiveled member on one of said parts, engaging a threaded part on the other for the adjustment thereof, substantially as described.

4. The combination, of the shackle, and the movable jaw, provided with vertically and rearwardly opening slots, with means for locking said movable jaw, substantially as described.

5. The combination, with a shackle having slots 6 and a swiveled nut 5, of a clamp 9 having slots 10 and screw 11 to engage said nut 5, and said slots 6 and 10 being substantially at right angles to each other and adapted to receive the studs or trunnions upon a thill-iron, substantially as described.

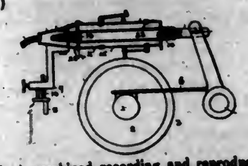
6. The combination, of a shackle, with a clamp, a screw for adjusting said clamp, said shackle and clamp having openings to receive a thill-iron, and having opposed portions to engage and hold said iron, and said clamp being adapted to support said thill-iron and raise the same out of engagement with said shackle, substantially as described.

7. The combination, of a shackle and clamp, having oppositely-extending thill-iron slots, and having opposed portions to engage and hold a thill-iron, means for adjusting said clamp, and said clamp being adapted to support said thill-iron and move it into engagement

with said shackle and raise it out of engagement therewith, substantially as described.

8. The combination, of a shackle having slots to receive a thill-iron, and a movable bar or clamp, provided with slots extending oppositely with respect to those in the shackle, means for adjusting said movable clamp and said clamp being adapted to carry a thill-iron into engagement with said shackle and move the same out of engagement therewith, substantially as described.

605,667. PHONOGRAPH. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Dec. 3, 1890. Renewed Feb. 4, 1897. Serial No. 622,621. (No model.)



Claim.—1. A combined recording and reproducing device for phonographs, comprising a reversible diaphragm-holder, a recording-point on one side and a reproducing-point on the other side, whereby by reversing the holder either the recording or reproducing point may be brought into operative position, substantially as set forth.

2. The combination, in a phonograph having a suitable phonogram-blank, of a hollow structure, and recording and reproducing devices in different sides thereof, said structure being arranged to move on its axis to bring the recorder or the reproducer into operative position, substantially as described.

3. The combination with a support for a phonograph recorder and reproducer, consisting of a tube, of said recorder and reproducer mounted in different sides of the tube, substantially as described.

4. The combination of a support for a phonograph recorder and reproducer, consisting of a tube mounted to rotate in different sides of which said recorder and reproducer are mounted, and an inner tube, substantially as described.

5. The combination of a support for a phonograph recorder and reproducer, consisting of a tube mounted to rotate, in different sides of which said recorder and reproducer are mounted, said tube being connected to the phonograph-feeding devices, substantially as described.

6. A recorder and reproducer carrying arm, a portion of which is tubular in combination with the recorder and reproducer, substantially as described.

7. A recorder and reproducer carrying arm having end sections and a journaled tube interposed between said sections in combination with a recorder or reproducer supported by the tube, substantially as described.

8. The combination of a support for a phonograph recorder and reproducer, consisting of a tube mounted to rotate, and a speaking or hearing tube communicating with one end of said tube, substantially as described.

9. The combination of a support for a phonograph recorder and reproducer, consisting of a tube mounted to rotate, an inner tube, and a speaking or hearing tube communicating with the space between the two tubes, substantially as described.

10. The combination with a guide-rod, a sleeve thereon to which the recorder-supporting arm is connected, and a guide-bar on which the arm bears, of said supporting-arm, and a recorder and reproducer mounted on different sides thereof but movable into and out of operative position, substantially as described.

11. The combination with a support mounted to rotate repeatedly in the same direction, of a phonograph-recorder on one side thereof and a reproducer on another side, substantially as described.

12. The combination, with a support movable repeatedly in the same direction, of a recorder thereon at one side, and a reproducer thereon on a different side, and means for holding the support in the position to which it is turned, substantially as described.

13. In a talking-machine, the combination with the carriage and the tablet-carrying cylinder, of a pivoted holder adapted to carry a recording and transcribing diaphragm and so formed that said diaphragms will be held in a different plane with respect to each other, and means for bringing either of said diaphragms into contact with the tablet, as and for the purpose set forth.

605,668. MIXER. THOMAS A. EDISON, Llewellyn Park, N. J. Filed June 20, 1897. Serial No. 642,513. (No model.)

Claim.—1. In a mixer, the combination of a trough, a shaft mounted longitudinally within the trough, a plurality of longitudinal bars supported by said shaft parallel therewith and mixing devices carried by said bars and working within the trough, substantially as set forth.



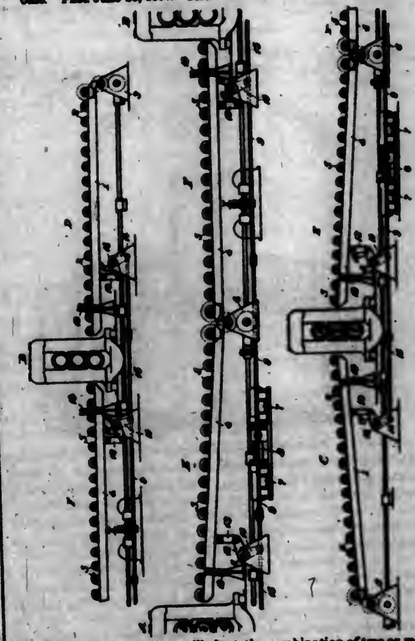
2. In a mixer, the combination of a trough, a shaft mounted within said trough, a plurality of longitudinal bars supported by the shaft parallel therewith and a plurality of mixing devices removably secured to said bars and adjustable longitudinally thereon, substantially as set forth.

3. In a mixer, the combination with the trough and the shaft, of longitudinal bars supported by the shaft parallel therewith, and plows and spreaders carried by the bars, substantially as set forth.

4. In a mixer the combination of a trough, a shaft mounted longitudinally therein, longitudinal bars supported by the shaft parallel therewith and plows and spreaders removably secured to said longitudinal bars and alternately arranged thereon, substantially as and for the purpose set forth.

5. In a mixer, the combination with the trough, of the shaft, spiders on the shaft carrying longitudinal bars, plows and spreaders supported by these bars, and truss-rods lengthwise of the shaft to stiffen the shaft, substantially as set forth.

605,669. ROLLING-MILL. EDWARD V. HYNES, Youngstown, Ohio. Filed June 30, 1897. Serial No. 643,571. (No model.)



Claim.—1. In a rolling-mill plant, the combination of two or more stands of rolls arranged in, or approximately in, a common line of

feed, two or more feed-tables forming a continuous line of feed arranged between adjacent stands of rolls and means for shifting the ends of the feed-tables adjacent to the rolls in the same or in opposite directions, substantially as set forth.

2. In a rolling-mill plant, the combination of two or more stands of rolls arranged in, or approximately in, a common line of feed, feed-tables having reversible feed-rollers and forming a continuous line of feed arranged between adjacent stands of rolls, and mechanism for shifting the ends of the table adjacent to the rolls in the same or in opposite directions, substantially as set forth.

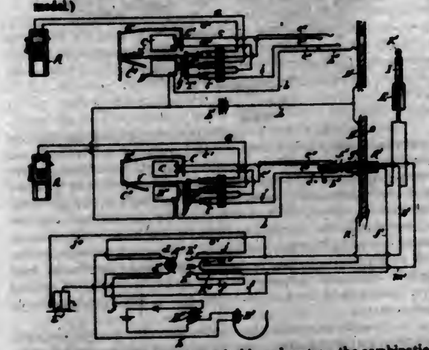
3. In a rolling-mill plant, the combination of two or more stands of rolls arranged in a common line of feed, two or more feed-tables forming a continuous line of feed arranged between adjacent stands of rolls, means for shifting the ends of said tables adjacent to the rolls in the same or in opposite directions, feed-tables arranged at the ends of the line or train of rolls, and means for shifting the roll ends of the tables in the same or in opposite directions, substantially as set forth.

4. In a rolling-mill plant, the combination of two or more stands of rolls arranged in or approximately in a common line of feed, a feed-table having reversible feed-rollers arranged between adjacent stands of rolls and forming a continuous line of feed, and mechanism for shifting the ends of the table adjacent to the rolls in the same or opposite directions, substantially as set forth.

5. In a rolling-mill plant, the combination of two or more stands of rolls arranged in a common line of feed, two or more feed-tables arranged between adjacent stands of rolls, feed-tables arranged at the ends of the line or train of rolls and mechanism for shifting the ends of the intermediate table or tables independently of each other, but simultaneously with the inner ends of the end tables, substantially as set forth.

6. In a rolling-mill plant, the combination of two or more stands of rolls arranged in a common line of feed, two or more pivotally-mounted feed-tables arranged between adjacent stands of rolls, and mechanism for independently shifting the free ends of those feed-tables, substantially as set forth.

605,670. TELEPHONE-SWITCHBOARD SYSTEM. FRED G. HOLMS, Detroit, Mich. Filed July 3, 1897. Serial No. 643,886. (No model.)



Claim.—1. In a telephone-switchboard system, the combination of a line-circuit including an annunciator-actuating coil, a circuit-breaker, and a spring-jack, a second circuit including opposed contact-terminals and a restoring-coil having an armature adapted to actuate the circuit-breaker of the line-circuit, means actuated by said restoring-coil for restoring the annunciator-shutter to its normal position, and a plug having a contact-surface which normally passes into and out of contact with the terminals of said second circuit and alternately closes and opens the circuit of the restoring-coil when inserted in the spring-jack of the line-circuit and actuates the circuit-breaker therein to open said line-circuit.

2. In a telephone-switchboard system, the combination of a telephone-circuit including a spring-jack and an annunciator-actuating coil, a second circuit including a spring-contact terminal and an annunciator-restoring coil adapted to actuate the annunciator-restoring mechanism, a switchboard apertured to receive a plug and having upon the face thereof around said aperture a conductor forming part of the circuit of the restoring-coil and standing opposed to the spring-contact terminal of said second circuit, a plug adapted to enter said aperture to engage said spring-jack having a contact-surface thereon which passes but momentarily into contact with the spring-terminal of the circuit of the restoring-coil and with said opposed conductor around said aperture, thereby alternately closing and opening the circuit of the restoring-coil when said plug is inserted in or withdrawn from said spring-jack.

3. The combination of a telephone-line including a spring-jack and an annunciator-coil adapted to actuate the annunciator-shutter, a restoring-coil included with a source of electricity and a contact-terminal in a normally open circuit, a ringing-key, a plug having a contact-surface adapted to engage said terminal and carrying a line connected with said contact-surface which is adapted to form a portion of the circuit of said restoring-coil and which is connected with the ringing key, to enable the circuit of said restoring-coil to be closed by said ringing-key to restore the annunciator-shutter through the cord of said plug.

4. In a telephone system, the combination of a telephone-line including an annunciator-actuating coil and a circuit-breaker, an electromagnet included with a source of electricity in a normally open circuit, means operated by said electromagnet for actuating said circuit-breaker when said magnet is energized, a ringing-key adapted to close the circuit of said electromagnet when said key is in a ringing position, whereby the line-circuit of the calling subscriber is opened when the operator rings the subscriber called.

5. The combination of an annunciator consisting of a centrally-pivoted angle-plate or shutter whose opposed faces stand in separate planes and one of which faces carries an indicating character, means for moving said shutter on its pivot, a movable opaque screen having an opening which registers with said shutter, an indicating character on a transparent panel in line with said opening, a source of light behind said screen, and means for moving said drop or shutter to permit the light to shine through said opening and reveal said character on said panel and means for moving said screen to reveal the character on said shutter.

6. In an annunciator, the combination of a transparent plate having an indicating character on a portion of the surface thereof, a source of light, a movable drop or shutter consisting of an angle-plate one face of which is interposed between said light and character, the other face of said shutter carrying an indicating character corresponding with the character on said plate, means for actuating said shutter to move one face thereof from between said light and the character on said transparent plate and expose the character on the other face of said shutter through said transparent plate, and means for restoring said shutter to its normal position.

7. In an annunciator, the combination of an indicating character upon a transparent plate, a source of light behind said character, a movable drop or shutter consisting of a pivoted angle-plate one face of which is normally held in a vertical position interposed between said light and character, and the other face of which is of greater specific gravity and stands in a substantially horizontal position, means for releasing said shutter to cause the horizontal face thereof to swing downward and carry the vertical face to a horizontal position to permit the rays of light to shine upon and reveal said character, and means for restoring said shutter to exclude the light from said character, substantially as set forth.

8. In an annunciator, the combination of the annunciator magnet or coil, the pivoted shutter or drop consisting of an angle-plate having an indicating character upon its lower face, the armature of the annunciator-coil adapted to engage and retain said shutter in a normal position, in which the upper face of said shutter stands vertically, a strip of glass in front of said shutter the upper portion of which is frosted, an indicating character upon the frosted glass, a movable opaque screen in front of said glass having an opening therethrough which registers with said character on the glass and with the upper face of said shutter when in its normal position and with the lower face of said shutter when said screen is moved downward, a source of light behind said shutter, means for energizing the annunciator-coil to drop said shutter rendering visible the character on the lower face of said shutter through the strip of clear glass when the opening in said screen is placed in front of the lower face of said shutter, substantially as set forth.

9. In an annunciator, the combination of an indicating character visible by illumination, a normally open electric circuit containing a source of light, which source of light stands adjacent to said character, a movable shutter interposed between said light and character, means for moving said shutter to reveal said character, means connected with said shutter for closing the light-circuit upon the moving of said shutter from before said character, and means for restoring said shutter and simultaneously opening said circuit.

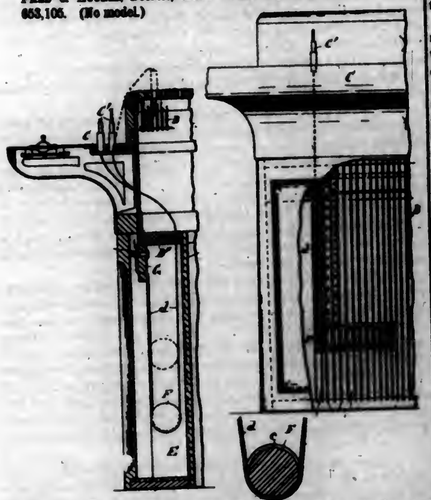
10. In an annunciator, the combination of the movable shutter consisting of an angle-plate whose opposed faces stand substantially at right angles to each other, said plate being pivoted near the point of angle and supported so that one of its faces normally stands in a vertical position and the other of its faces in a horizontal position, means for causing said shutter to swing on its pivot so as to present its normally vertical face in a horizontal position and its normally horizontal face in a vertical position, a hook projecting from the inner angle of said plate, a restoring coil or magnet having an arma-

ture provided with an arm which engages the hook of said plate or shutter when its normally vertical face is in a horizontal position, and means for energizing said magnet to actuate said arm and restore said shutter, substantially as set forth.

11. The combination in a series of spring-jacks, of a continuous supporting-rod common to all of the springs of said jacks, said rod being supported at its opposite ends and covered throughout its length with a continuous casing of insulating material, a series of springs mounted upon said insulating-covering, intermediate the supports at the ends of said rod, means for preventing the springs from turning upon said rod, a series of insulating-collars upon said covering dividing said springs, and means for binding said parts together.

12. The combination in a spring-jack, of a supporting-rod common to all of the springs of said jack, an insulating-covering upon said rod flattened upon one face, a series of springs mounted upon said insulating-covering having an aperture therein provided with a straight face which coincides with the flat portion of said insulating-covering, a series of insulating-collars mounted upon the insulating-covering of said rod and interposed between said springs, and the nuts on the ends of said rod for binding said parts together.

605,671. CORD-WEIGHT FOR TELEPHONE-SWITCHBOARDS. FRED G. HUGHES, Detroit, Mich. Filed Sept. 27, 1897. Serial No. 653,105. (No model.)



Claim.—1. In a cord-weight for telephone-switchboards, the combination of a narrow confining-way composed of smooth parallel plates, a thin heavy disk located in said way whose opposed faces are smooth and stand contiguous to the wall of said way, and the cord passing around the arc of said disk in said way and supporting said disk.

2. In a cord weight for telephone-switchboards, the combination with a suitable supporting frame, a series of dividing-partitions arranged parallel within said frame forming a series of vertical ways between their adjacent faces, a series of disks located in said ways and having peripheral grooves, the opposed faces of said disks being free from elevations and standing contiguous to the vertical walls of said ways, the looped cords depending within said ways passing around the arcs of said disks and supporting said disks within the depending loops thereof.

605,672. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Aug. 21, 1897. Serial No. 649,089. (No model.)



Claim.—1. In a saddle for bicycles, the combination with the castle-plate, and the pommel-plate, or plate at the front end of the saddle, having an adjusting-screw mounted and turning therein, and the spring-rods extending between the castle-plate and pommel-plate, and secured thereto, of a nose-piece having a hole therein to receive the front end of said adjusting-screw on which it is supported, and a central portion or bar in line with the adjusting-screw, and the two upwardly-extending side portions, each having an opening or perforation therethrough for the passage of the strips of lacing, and the upper ends of said side portions being in a plane above the central bar, and strips of lacing secured to the castle-plate, and passing through the openings in the nose-piece to extend upon the under side of the central bar thereof, and a cover extending over the lacing, and depressed longitudinally through its central portion, substantially as shown and described.

2. In a spring-support for a bicycle-saddle, the combination with a spring made out of one piece of wire, forming two pairs of integral rods, the lower pair connected and forming a loop at their forward ends, and bent or curved outwardly at their rear ends to form horizontal spiral springs, and the rear ends of the upper pair of rods bent to form eyes for the attaching-screws, and the forward ends disconnected and free, to be attached to the front or pommel of the saddle, of a supplemental spring, bent at its middle portion to form a loop, to be connected with or locked into the loop at the forward ends of the lower pair of rods of the first-mentioned spring, and having two vertical spiral coils formed therein, intermediate the loop portion and the ends, substantially as shown and described.

3. A clamp for bicycle-saddle springs, &c., comprising an external split body or shell 16, having recesses in its inner edges to receive the rods of the spring, and two perforated ears 16' to receive the clamping-bolt, and an internal shell or clamp-jaw 18 within the shell 16, made in one part, and split or divided at one point only, and provided with recesses to receive the rods of the spring, and also recessed projection 18' to receive the clamping-bolt; and the contiguous surfaces of the ears 16', and of the clamp-jaw 18, being tapered or beveled, substantially as shown and described.

605,673. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Aug. 21, 1897. Serial No. 649,090. (No model.)



Claim.—1. In a saddle for bicycles, the combination with the castle-plate, the pommel-plate, a spring intermediate the castle and pommel, and a nose-piece supported on the end of an adjusting-screw turning in the pommel-plate, of a wire loop connected at its front end to the nose-piece, and provided at its rear end with vertically-extending eyes, the tops of which extend above the plane of said loop, and a transverse holder attached to said eyes, and strands of leather or lacing extending from the castle-plate and looped around said holder, and a top or cover having two elevated or raised portions, the front ends of which rest upon and are held up by the top of the vertical eyes in the loop at the front end of the saddle, substantially as shown and described.

2. In a bicycle-saddle, the combination with the pommel-plate, and the metal castle-plate of curved or partial tubular shape in cross-section, of a spring made out of one piece of wire, and forming two pairs of integral rods, one pair below the other, and the forward free ends of the upper pair secured to the pommel-plate, and vertical attaching-eyes formed at the rear ends to extend within the castle-plate, and be secured thereto, and horizontal spiral coils intermediate the two pairs of rods at their rear ends, and a loop at the front ends of the lower pair of rods, substantially as shown and described.

3. In a bicycle saddle, the combination with the pommel-plate, and the metal castle-plate of curved or partial tubular shape in cross-section, of a spring made out of one piece of wire, and forming two pairs of integral rods, one pair below the other, and the forward free ends of the upper pair secured to the pommel-plate, and vertical attaching-eyes formed at the rear ends to extend within the castle-plate, and be secured thereto, and horizontal spiral coils intermediate the two pairs of rods at their rear ends, and a loop at the front ends of the lower pair of rods, said loop connected with the upper pair of rods by a supplemental spring, and said supplemental spring, substantially as shown and described.

4. In a clamp for bicycle-saddle springs, &c., the combination with the external solid or unsplit shell or casing of substantially triangular shape, and having a threaded boss or extension on one side thereof, and a bolt or clamping device for said boss, of a clamp-shell

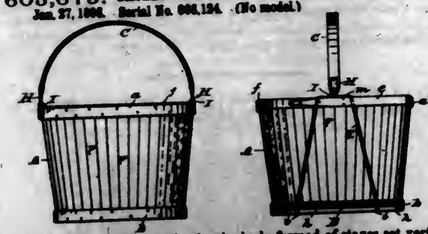
or device extending within the external shell, and having an opening therethrough to receive the horizontal support of the saddle-post, and centrally split or divided through its upper portion only above said opening, and having recesses in its outer edges to receive the rods of the spring, said recesses and the split or divided portion of the clamp-shell, and the clamping-bolt being in the same horizontal plane, substantially as shown and described.

605,674. COMBINED PENCIL-CASE AND COMB-CASE. NATHAN D. INGRAM, Holyoke, Mass. Filed Dec. 30, 1897. Serial No. 664,716. (No model.)



Claim.—As a new article of manufacture a combined pencil-case and comb-case comprising a pencil-holding tube adapted to receive at one end a pencil, and provided with a longitudinal slot extending part way the length of the tube from the opposite end thereof, and a reversible comb having a longitudinally-grooved back which fits in, and engages the edges of, the slot in the pencil-holding tube, and can slide back and forth therein, and provided with an end tube or plug adapted to fit the end of the pencil-tube to which the comb is applied, substantially as hereinbefore set forth.

605,675. BASKET. TALBOT B. JOHNSON, Vandersburg, Ind. Filed Jan. 27, 1898. Serial No. 668,134. (No model.)

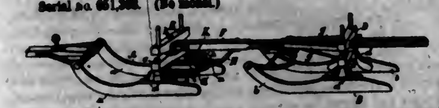


Claim.—1. A basket having its body formed of staves set vertically and an inset bottom secured thereto, said staves being each composed of a parallel strip having thin and flexible edges and each stave overlapping at one edge the adjacent edge of the adjoining stave and being overlapped at its opposite edge by the adjacent edge of the adjoining stave, hoops binding and securing said staves together, draft-rods engaging the bottom of said basket and drawing against the top hoops thereof, and a suitable bail or handles attached to said draft-rods, substantially as shown and described.

2. A basket composed of staves set vertically and each stave comprising a strip having parallel edges and rendered thin and flexible by being dressed down at the outside, said edges overlapping adjacent edges so that each stave has one edge overlapped and one edge overlapping adjacent edge, a solid bottom secured inside somewhat above the bottom of the staves, hoops binding said staves together and the bottom thereto, and draft-rods drawing against the top of said basket and against the bottom and set angularly so that they diverge from the top downward and engage the bottom at points approximately equidistant, substantially as shown and described.

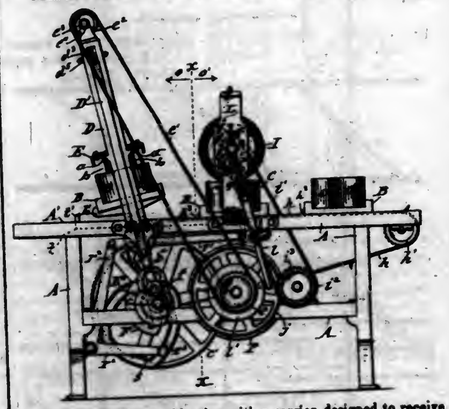
3. In a basket, the combination of the body formed of the staves F having the straight inner side J and the curved outer side K and edges N P, one edge overlapping the other, the bottom B having grooves at the periphery, the draft-rods E drawing against said bottom and against the top of said body, the loop I in said rods above said body, the binding-hoops, and the bail C provided with the binder G and having the plates H engaging the loop in said draft-rods, substantially as shown and described.

605,676. SLEIGH. TABOR G. MANDT, Stoughton, Wis., assignor to the T. G. Mandt Vehicle Company, same place. Filed Sept. 11, 1897. Serial No. 651,202. (No model.)



Claim.—In an oscillating sleigh, the runners and knees secured thereto, the beams secured to the knees, and the bolster pivoted upon the beam, combined with the reach, the angular plate pivoted at its front end to the under side of the front beam and having its rear end rigidly secured to the reach; the semicircular plate G secured at its front end to the knees, the hanger K which passes through the reach and the plate H, and the lock upon the plate; the front ends of the semicircular plate being thickened, substantially as shown and described.

605,677. CAN-CLEANER. FRANK A. ODIN, Bridgeton, N. J. Filed Nov. 17, 1897. Serial No. 658,796. (No model.)



Claim.—1. The combination with a carrier designed to receive the can open at the top and filled with the substance to be canned, of a plunger sustained in an inclined position over said carrier, and mechanisms adapted to lift the can in an inclined position to the plunger, as set forth.

2. The combination with the carrier designed to receive the can open at the top and filled with the substance to be canned, of a plunger sustained in an inclined position over said carrier, means imparting lateral movement to the plunger, and mechanisms adapted to lift the can in an inclined position to the plunger, as set forth.

3. The combination of the main supporting-frame formed with horizontal ways, a tray riding on said ways and carrying the filled cans, mechanisms adapted to lift the tray from the ways and simultaneously tilt the tray to support the cans in an inclined position, laterally-movable plungers disposed correspondingly inclined over the tray to enter the open tops of the cans, means for placing the plungers normally central over the cans, and mechanisms releasing the cans from the centering means and imparting lateral movement to the plungers, as set forth.

4. The combination of the main frame formed with horizontal ways, a tray riding on said ways and carrying the filled cans, parallel guides rising from said frame and inclined in the direction of the lengths of the ways, a plate supported at its ends in an inclined position on said guides and movable laterally thereon, conical sockets, respectively, on the top and bottom of said plate, reciprocating slides on the aforesaid guides, pins connected to the slides and entering the lower sockets during the upward movement of the slides and thereby setting the plate into its normal position, rotary shafts supported on the slides and entering the upper sockets during the downward movement of the slides and cranked to impart lateral movement to the plate, plungers attached to said plate, and mechanism lifting and tilting the tray to cause the plungers to enter the open tops of the cans, as set forth.

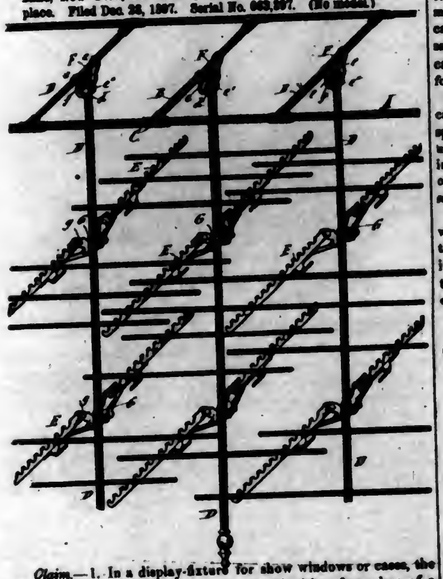
5. In combination with the main frame, horizontal ways and can-trays riding on said ways, standards mounted on the sides of the main frame, journal-boxes adjustably supported on said standards, a rotary cylindrical brush disposed axially at right angles to the aforesaid ways and having its shaft mounted in the said journal-boxes, a lever fulcrumed on the side of the main frame and formed with a longitudinally-sliding extension receiving through it the end of the brush-shaft, collars fixed to said shaft at opposite sides of the lever extension, and a rotary cam imparting oscillatory motion to said lever substantially as set forth and shown.

6. The combination with the main frame formed with parallel horizontal ways, plungers over the ways and inclined in the direction of the ways, a reciprocating feeder depositing the can-trays under the plungers, mechanism lifting and tilting the trays to cause the plungers to enter into the open tops of the cans and resetting the trays upon the ways, a rotary brush beyond the plungers, and conveyers moving the tray from under the plungers to the brush, as set forth.

7. The combination with the main frame formed with parallel horizontal ways, plungers disposed over said ways and inclined in

the direction of the ways, a reciprocating feeder depositing the tray under the plungers, mechanism lifting and tilting the trays to cause the plungers to enter the cans, a rotary cylindrical brush disposed beyond the plungers and axially parallel with the tray, means for imparting longitudinal reciprocating motion to said brush, and conveyers moving the tray from under the plungers to the brush, as set forth.

605,678. DISPLAY-FIXTURE FOR STORES. EMIL T. PALMENBERG, New York, N. Y., assignor to J. R. Palmenberg's Sons, same place. Filed Dec. 28, 1897. Serial No. 663,997. (No model.)



Claim.—1. In a display-fixture for show windows or cases, the combination with the main frame provided with a frame-bar, of a depending bracket-supporting bar, and a clamp for connecting the bracket-supporting bar adjustably to the frame-bar, said clamp consisting of a hook member provided with a head having a screw-opening for receiving the screw-threaded neck of the bracket-supporting bar and a shoe member opposing the hook member and provided with a guide-pin guided through an opening in the said head for the hook member, substantially as set forth.

2. In a display-fixture for show windows or cases, a bracket-supporting bar provided with a screw-threaded end or neck, in combination with a clamp comprising a hook member provided with a head having a screw-threaded opening for receiving said screw-threaded neck, and a shoe member opposing said hook member and provided with a guide-pin guided through a guide-opening in the head of said hook member, substantially as set forth.

605,679. MOUNTING FOR ELECTRIC MOTORS. EMIL B. W. REICHEL and FRIEDRICH W. V STEIN, Berlin, Germany, assignors to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Jan. 27, 1896. Serial No. 668,153. (No model.)



Claim.—1. In a support for electric motors, the combination with a spring-carriage carried upon a relatively stationary part maintained between the said motors, of a supporting-rod, means for connecting the said motors upon opposite sides of the spring-carriage with the supporting-rod, and a supplemental connection tending to secure the conjoint movement of said motors, substantially as described.

2. The herein-described mounting for motors of electrically-propelled vehicles, consisting of a spring-carriage mounted upon the truck of the said vehicle, a supporting-rod carried by said spring-carriage whereon the motors are mounted upon either side of said spring-carriage, a non-rigid mounting connecting said supporting-rod and motors, and a supplemental or secondary connecting part uniting said motors.

3. In a motor-support for electrically-propelled vehicles, the combination with a spring-carriage having opposing springs *f f'* mounted upon a cross-beam *d'*, of supporting-rods *d* carried by said spring-carriage, motors *c* mounted at either end of the supporting-rods by means of link connections *d'*, and lugs *g* forming secondary connections for said motors, substantially as described.

4. The combination with the truck of an electrically-driven vehicle, of motors *c* connected with the axles of the wheels, spring-carriages *e* consisting of supporting parts *e'* and opposing springs *f f'* mounted upon a cross-beam *e'* of the said truck, supporting-rods *d* carried upon said spring-carriages, link connections *d'* uniting the said motors with the supporting-rods upon either side of the spring-carriages, and slotted lugs *g* united to form a supplemental connection for the said motors, substantially as described.

5. The herein-described motor-supporting truck, having a spring-carriage supported upon a relatively stationary part, two motors respectively disposed upon either side thereof, a supporting-rod mounted upon the spring-carriage, non-rigid connections uniting the supporting-rod and motors approximately in the planes of the motors' centers of gravity, and a supplemental or secondary connecting part uniting said motors.

6. The combination in a truck for electrically-driven vehicles with two propelling-motors, of a supporting rod or rods connected thereto approximately in the vertical planes of their centers of gravity, means for supporting said rod or rods, and supplemental connections uniting the said motors, whereby their motions are substantially equalized, substantially as described.

605,680. BED-BOTTOM. JAMES B. RYAN, New York, N. Y. Filed July 1, 1897. Serial No. 643,173. (No model.)



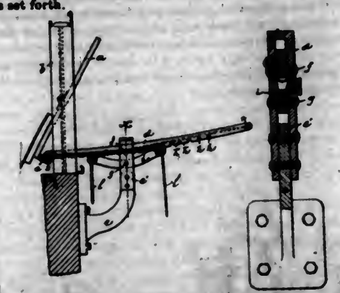
Claim.—1. In a bed-bottom the combination of a frame and an elastic fabric stretched thereon, and two or more endwise-elastic cables disposed beneath the fabric, and having their ends secured to the end rail, a hook at or near the center through which said cables pass and by means of which they are connected to each other; said hooks being lengthwise adjustable and adapted to regulate the distance between the parts of the cables passing through it.

2. In a bed-bottom the combination of a frame and an elastic woven-wire fabric stretched thereon, and a plurality of endwise-elastic cables; two or more being secured to each end rail of the frame and connected centrally in pairs, extending from opposite end rails, and hooks connecting said cables; said hooks being secured together by means of a transverse tie.

605,681. LIFT FOR SASHES, TRANSOMS, OR SKYLIGHTS. GEORGE SEWING, Newark, N. J. Filed Nov. 20, 1897. Serial No. 659,322. (No model.)

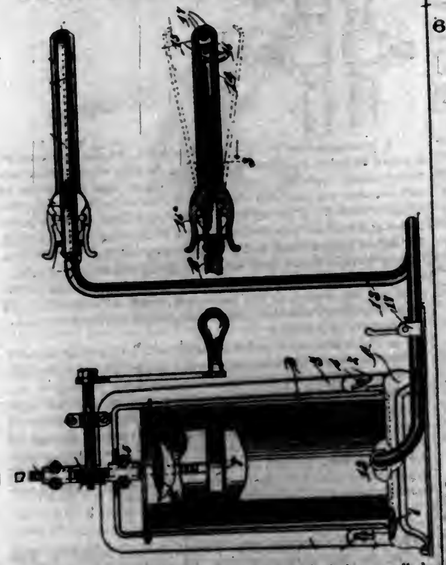
Claim.—1. The combination of the rack *d*, having a series of notches or recesses in its lower edge, a keeper *d'*, for said rack and having a transverse pin to enter said notches, a lever arranged in said keeper and having its opposite ends grooved or forked at the upper edges to engage said rack, and means for operating said lever, substantially as set forth.

2. In a sash-operator, the combination with a rack *d*, pivoted at one end to the sash, and supporting-pin *f*, of a lever upwardly curved and having its opposite ends grooved or forked at the upper edges to engage said rack, and cords attached to the opposite ends of said rack and passed over the sheaves on the ends of said lever, substantially as set forth.



3. In a sash-operator, the combination with a keeper *d'*, arranged on the wall of a rack *d*, sliding longitudinally in said keeper, a transverse pin *f*, to support said rack and a lever *i*, pivoted in said keeper in the same vertical plane with the rack, the ends of said rack having means for fastening the ends of cords thereto, and the ends of the lever having sheaves to receive the cords, and said cords, substantially as set forth.

605,682. VAGINAL SYRINGE. ELISABET SEIBERT, Chicago, Ill. Filed June 17, 1897. Serial No. 641,159. (No model.)

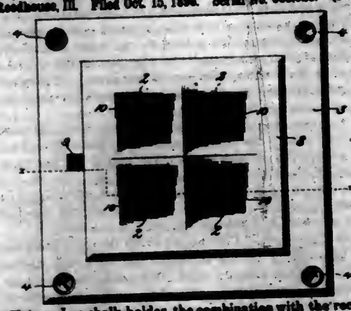


Claim.—1. A vaginal syringe comprising a bed-plate, a cylinder mounted thereon, an annular groove in said bed-plate surrounding said cylinder and adapted to receive alcohol, a plunger in said cylinder connected with a rack-bar, and a crank-shaft carrying a pinion adapted to intermesh with said rack-bar to operate said plunger.

2. A vaginal syringe comprising a bed-plate, a removable standard carried thereby, a cylinder on said bed-plate, an annular groove in said bed-plate surrounding said cylinder and adapted to receive alcohol, a plunger in said cylinder, a rack-bar on said plunger, a crank-shaft on said standard carrying a pinion adapted to intermesh with said rack-bar to operate said plunger, an inlet-port in the upper end of said cylinder below the upper limit of movement of said plunger, and an outlet-port in the lower end of said cylinder.

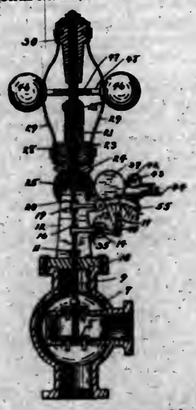
3. In a vaginal syringe, the combination with a nozzle provided with means for expanding the vagina beyond the delivery end thereof, of a syringe comprising a cylinder, a plunger therein, means for operating said plunger to force said water out of said nozzle, and a groove in the bed-plate of said syringe and surrounding said cylinder adapted to receive alcohol for heating the contents of said cylinder, substantially as described.

605,688. BILLIARD-CHALK HOLDER. GEORGE B. SEVERLING, Reedhouse, Ill. Filed Oct. 15, 1896. Serial No. 608,886. (No model.)



Claim.—In a chalk-holder, the combination with the rectangular base 3 having screw-receiving holes by which it may be secured to a support and provided with the series of four rectangularly-arranged chalk-receiving pockets 1 beyond which said base extends, of the follower-plates 5, and coil-springs 6, located in the pockets and adapted to support the chalk blocks 2, the retaining-plate 8 hinged at one side of the pockets 2, and having flared or bevel openings 10 coincident with and smaller than the same and adapted to overlap the chalk blocks, and a fastening device for retaining the free end of the plate 8 in a closed position against the said springs.

605,684. GOVERNOR. FRED W. SPACKE, Indianapolis, Ind. Filed Oct. 1, 1897. Serial No. 653,794. (No model.)



Claim.—1. In a governor, the combination with a valve and speed-controlled means, of intermediate adjustable connecting mechanism between said valve and said speed-controlled means whereby, when the said parts are in their normal working positions, the throw of the valve may be made greater or less for any given change of speed of said speed-controlled means without changing the relative positions of the speed-controlled means and valve.

2. In a governor, the combination with a valve and a rotating speed-controlled means, of intermediate adjustable connecting mechanism between said valve and speed-controlled means whereby, when the said parts are in their normal working positions, the throw of the valve may be made greater or less for any given change of speed of said speed-controlled means without changing the relative positions of the speed-controlled means and valve.

3. In a governor, the combination with a valve and governor-balls operated by the engine, of intermediate adjustable connecting mechanism between said valve and said governor-balls whereby, when the said parts are in their normal working positions, the throw of the valve may be made greater or less for any given change of speed of the engine without altering the relative positions of the governor-balls and valve.

4. In a governor, the combination with the valve and governor-balls, of a lever connected at one end with said balls, and an adjustable connection between said lever and the valve whereby, when the valve and balls are in their normal working positions, the throw of the valve may be made greater or less for any change of speed of the

governor-balls without altering the relative positions of the governor-balls and valve.

5. In a governor, the combination with the valve and governor-balls, of a lever having one arm in engagement with the stem of said valve, a second lever, a link carried by the other arm of the first lever and adjustably connected with one arm of the second lever whereby the throw of the valve may be increased or diminished, and a connection between the other arm of the second lever and the governor-balls, substantially as described.

6. In a governor, the combination with the valve and governor-balls, a lever having one arm adjustably connected with said valve, a second lever, a link carried by the other arm of the first lever and adjustably connected with one arm of the second lever whereby the throw of the valve may be increased or diminished, a stem adjustably connected to the other end of the second lever, and a connection between said balls and stem, substantially as described.

7. In a governor, the combination with the valve and governor-balls, a lever having one end adjustably connected with said valve, a second lever, a link carried by the other arm of the first lever and adjustably connected with one arm of the second lever whereby the throw of the valve may be increased or diminished, a stem adjustably connected to the other end of the second lever, and a spring engaging said first lever in position to open the valve and to hold the stem in engagement with the governor-balls.

8. In a governor, the combination with the valve and governor-balls, a lever having one end adjustably connected with said valve, a second lever, a link carried by the other arm of the first lever and adjustably connected with one arm of the second lever whereby the throw of the valve may be increased or diminished, a stem adjustably connected to the other end of the second lever, a spring engaging said first lever in position to open the valve and to hold the stem in engagement with the governor-balls, and means for adjusting the tension of said spring, substantially as and for the purpose set forth.

9. In a governor, the combination with the valve, of a weight, an arm carried by said weight and adjustable thereon, means carried by said arm for engaging the governor-belt and sustaining said weight, and intermediate connecting mechanism between said weight and valve whereby, upon the breaking of the belt, the said weight will close the valve.

10. In a governor, the combination with the valve, of a weight, an arm carried by said weight and angularly adjustable thereon, means carried by said arm for engaging the governor-belt and sustaining said weight, a shaft, an arm carried by said shaft in engagement with said valve, a second arm carried by said shaft, and a link between said arm and weight whereby, upon the breaking of said belt, the said weight will operate to close the valve, substantially as described.

11. In a governor, the combination with the frame thereof, of a spring 29, eye 47 provided with an arm 48 extending through said spring, nut 49 mounted upon said arm, weight 46 adapted to engage said nut and to clamp the spring between the weight and nut, and a collar 51 secured to the arm, all combined and arranged to cooperate substantially as and for the purpose set forth.

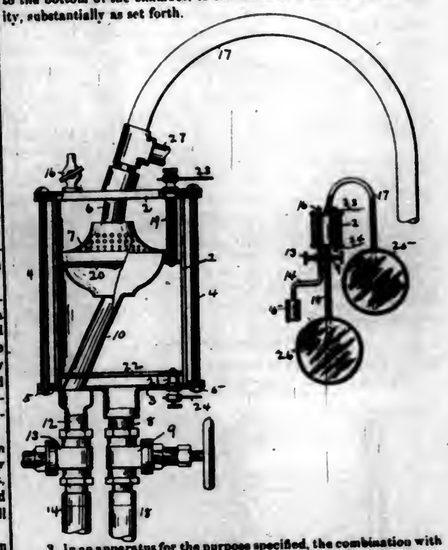
12. In a governor, the combination with the frame thereof, of a spring 29, eye 47 provided with an arm 48 extending through said spring, nut 49 mounted upon said arm, weight 46 adapted to engage said nut and to clamp the spring between the weight and nut, a collar 51 secured to the arm, a notch formed in the periphery of the weight, and an ear carried by the nut and adapted to be bent down into said notch and thereby lock the weight upon the nut, substantially as described.

13. In a governor, the combination with the spring 29, of a net 49 provided with a stem 50 extending through said spring, a weight adapted to engage said stem, a notch formed in the weight, and an ear carried by the nut and adapted to be bent down into said notch and thereby lock the weight upon the stem.

605,685. APPARATUS FOR COOLING AND PURIFYING LIQUIDS. ORRIN W. SWIFT, New Haven, Conn. Filed July 16, 1897. Serial No. 644,702. (Model.)

Claim.—1. In an apparatus for the purpose specified, the combination with a chamber having means whereby air can be exhausted therefrom and having an outlet-pipe leading therefrom, of a hollow head located within said chamber near the top thereof and provided with a series of jet or spray openings, an inlet-pipe leading to said head, a contact device located adjacent to said head and adapted to be engaged by a liquid issuing from the latter, a second contact device located near the bottom of said chamber, and means for connecting said contact devices respectively with the opposite poles of a generator of electricity, said inlet-pipe forming the short leg and said chamber and its outlet-pipe the long leg of a siphon, substantially as set forth.

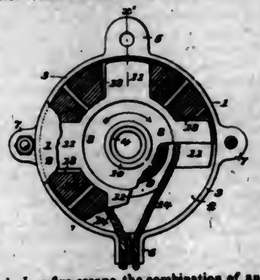
2. In an apparatus for the purpose specified, the combination with a closed chamber having means whereby air can be exhausted therefrom and admitted thereto, of an outlet-pipe leading from the bottom of said chamber and provided with a valve, a spray-head located within said chamber near the top thereof, an inlet-pipe leading to the interior of said spray-head, said inlet-pipe forming the short leg and said chamber and outlet-pipe forming the long leg of a siphon, and means for subjecting a liquid, in its descent from said spray-head to the bottom of the chamber, to the action of a current of electricity, substantially as set forth.



3. In an apparatus for the purpose specified, the combination with a closed chamber provided with a valve through which the air can be exhausted therefrom, an outlet-pipe leading from the bottom of said chamber and provided with a valve, a hollow head located within said chamber and having in its upper side a series of jet or spray openings, a sediment-pipe leading from the bottom of said head through the wall of said chamber and provided with a valve, a heat inlet-pipe leading to said hollow head and forming the short leg of a siphon, two contact-rings located within said chamber between said hollow head and the bottom of the latter, and means for connecting said rings respectively with the opposite poles of a generator of electricity, substantially as described.

4. The combination with a chamber, as 1, of an atomizer, as 7, located within said chamber near the top thereof, an outlet-pipe leading from the bottom of the chamber, an inlet-pipe leading to said atomizer, the insulated binding-post 19 passing through the upper head of the chamber and carrying at its lower end a contact device, as the ring 20, and the insulated binding-post 21 passing through the lower head of said chamber and carrying at its upper end a contact device, as the ring 22, said inlet-pipe forming the short leg and said chamber and its outlet-pipe forming the long leg of a siphon, substantially as and for the purpose described.

605,686. FIRE-ESCAPE. DAVID L. WESTERN, Chicago, Ill. Filed Feb. 28, 1898. Serial No. 672,092. (No model.)



Claim.—1. In a fire-escape, the combination of an inclosing casing provided with an interior cylindrical track-surface, a sheave mounted to rotate within said housing and provided with duplicate series of radial guide projections, and a rope-groove arranged centrally between said series of projections, and duplicate series of friction shoes arranged to slide radially on said projections and adapted to contact with the cylindrical track-surface of the housing, substantially as set forth.

2. In a fire-escape, the combination of an inclosing casing formed in counterpart halves, each provided with a central tubular neck and an interior cylindrical track-surface, a sheave arranged to rotate on said necks and provided with duplicate series of radial projections, and with a rope-groove arranged centrally between said series of projections, and duplicate series of friction-shoes arranged to slide radially on said projections and adapted to contact with the cylindrical track-surface of the housing, substantially as set forth.

3. In a fire-escape, the combination of an inclosing casing formed in counterpart halves, each provided with a central tubular neck, marginal connecting-lugs, tubular guide-lugs, suspension-lug and an interior cylindrical track-surface, a sheave arranged to rotate on said necks and provided with duplicate series of radial projections, and with a rope-groove arranged centrally between said series of projections, and duplicate series of friction-shoes arranged to slide radially on said projections, and adapted to contact with the cylindrical track-surface of the housing, substantially as set forth.

605,687. COTTON SCRAPER AND CULTIVATOR. ESEK W. DEVINEY, Augusta, Ga. Filed Feb. 7, 1898. Serial No. 669,402. (No model.)



Claim.—1. A cotton-scraper consisting of a plow-beam and handles, a standard, a cultivator-point in front of said standard, a head formed of two parts G and G^3, each of said parts of the head provided with a lug projecting from its face, and blades therefor, each blade having a recess in its upper edge to receive the said projecting lug substantially as described.

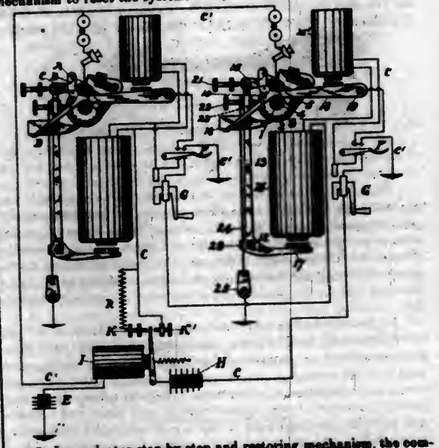
2. In a cotton-scraper the combination of the two divergent blades, each one provided with a segmental recess in its upper edge and a perforation alongside of said recess, with the head provided with segmental lugs projecting from its face substantially as described.

3. A cotton-scraper blade having its top and bottom edges parallel, and within its upper edge a segmental recess, with a perforation alongside of said recess substantially as described.

605,688. SELECTOR SIGNALING SYSTEM. THOMAS C. DRAKE, Malta, Ohio. Filed Sept. 17, 1897. Serial No. 652,017. (No model.)

Claim.—1. The combination in a selector system, of a line-circuit connecting a series of step-by-step and restoring mechanisms at a series of stations respectively, means for moving the series of step-by-step mechanisms to a predetermined position by an intermittent current, and means for operating the series of restoring mechanisms to reset the series of step-by-step mechanisms to normal on passing a current of greater strength than said intermittent current, the stepping and restoring mechanisms comprising the electromagnets M, and M', connected in said line-circuit whereby said diminished current may operate the ratchet-wheel, lever and pawls to rotate the contact-disk, and the normal current may operate the bifurcated lever to disengage the pawls respectively, the contact-disk and contact-screw to close a signaling-circuit at a predetermined position of rotation of said series of mechanisms, and the segment-gear to return the ratchet-wheel and contact-disk to normal position on operating the restoring mechanism to reset the system.

2. The combination in a selector system of a line-circuit connecting a series of step-by-step and restoring mechanisms at a series of stations respectively, means for moving the series of step-by-step mechanisms to a predetermined position by an intermittent current, and means for operating the series of restoring mechanisms to reset the series of step-by-step mechanisms to normal on passing a current of greater strength than said intermittent current, the stepping and restoring mechanisms comprising the ratchet-wheel, lever and pawls to rotate the contact-disk, the contact-disk and contact-screw to close the signaling-circuit at a predetermined position of rotation of said series of mechanisms, the pawl with protuberance B, acting with the stop-pin A, whereby the said pawl is locked into the teeth of said ratchet-wheel to check the momentum of the said ratchet-wheel and contact-disk, the bifurcated lever operated by said normal current to disengage the pawls, and the segment-gear to return the ratchet-wheel and contact-disk to normal position on operating the restoring mechanism to reset the system.



3. In a selector step-by-step and restoring mechanism, the combination of the ratchet-wheel and contact-disk, the pawls, lever and electromagnet M, to step the ratchet-wheel and contact-disk, the bifurcated lever 18, and electromagnet M' to disengage the pawls, the weighted segment-gear and pinion-gear to return the ratchet and contact-disk to normal position, the contact-disk and contact-screw 22, to close the circuit through the auxiliary signaling devices, and the means to check the momentum of the ratchet and contact-disk which consists of the pawl 15, with the protuberance B, operating in relation with the pin A, carried by the bifurcated lever 18, whereby the said pawl is locked into the teeth of said ratchet, substantially as specified.

4. In a selector system, the combination of a series of mechanisms connected by a line-circuit, a battery and switches located in said line-circuit, a supplemental circuit connected to each of said mechanisms or switches, a current-controlling relay located in said supplemental circuit and adapted to diminish the normal current through said line-circuit when said switches are in position to close said supplemental circuit, and to pass the normal current through said line-circuit when said switches are in position to leave said supplemental circuit open, means at each mechanism to pulsate said diminished current through the series of mechanisms, said mechanisms adapted to be synchronously stepped to a predetermined position by the diminished intermittent current, and synchronously restored to normal position by the said normal current.

5. The combination in a selector system, of a line-circuit connecting a series of step by-step and restoring mechanisms at a series of stations respectively, an operating-battery located in said circuit, a series of contact-cranks, and a series of switches located at said stations by means of which the said line-circuit may be opened and closed and the current pulsated through the step-by-step mechanism, a supplemental circuit connected to each of said mechanisms or switches, a battery-controlling relay with its operating-battery located in said supplemental circuit by means of which the normal current in the line-circuit may be diminished when it is desired to step the mechanisms and restored when it is desired to restore the mechanisms, the step-by-step and restoring mechanisms comprising the ratchet-wheel, lever and pawls to rotate the contact-disk, the contact-disk and contact-screw to close the signaling-circuit at a predetermined position of rotation of said series of mechanisms, the bifurcated lever operated by the said normal current to disengage the pawls, and the segment-gear to return the ratchet-wheel and contact-disk to normal position on operating the restoring mechanism to reset the system.

6. In a selector step-by-step and restoring system the combination of a station apparatus consisting of the ratchet-wheel and contact-disk the pawls and lever operated by the electromagnet M to step the said ratchet and contact-disk, the contact-disk and contact-screw 22 to close the circuit C, the bifurcated lever 18 operated by

the electromagnet M' to disengage the pawls, the pinion-gear and segment-gear to return the ratchet and contact-disk to normal position, the means of checking the momentum of the ratchet-wheel consisting of the pawl 15 with the protuberance B operating with the pin A carried by the lever 18, the contact-crank to pulsate the current through the system, and the switch F to normally close the circuit C.

605,689. BICYCLE-SADDLE. THOMAS J. KIRKPATRICK, Springfield, Ohio. Filed July 15, 1897. Serial No. 644,739. (No model.)



Claim.—1. The combination in a saddle such as described having a flexible seat, of a spring-frame formed of two substantially parallel plates connected by a circular body which lies substantially in the same vertical plane with both of said plates but which projects above and below the points of connection with said plates, and a coil-spring connecting the free ends of said plates, said coil-spring being arranged beneath the pommel end of said seat, substantially as specified.

2. The combination with the flexile seat, a spring-frame having two substantially parallel plates each forming the entire saddletree and supporting-base, respectively, said plates being formed integral with a circular spring portion, a cantle for said seat secured to one of said plates adjacent to said circular body, and a hook or clip adjustably connected to the opposite end of said plate, and a flexile seat extending from said hook or clip to said cantle, and a coil-spring connecting the free ends of said plates, said coil-spring being arranged beneath the pommel end of said saddle, substantially as specified.

605,690. SELF-THREADING LOOM-SHUTTLE. MITCHAEL H. LEVEILLE, Worcester, Mass., assignor of one-half to John G. Smith, same place. Filed Nov. 18, 1897. Serial No. 658,942. (No model.)



Claim.—1. A shuttle-threader comprising an outer plate, which is adapted to be attached to the side of a shuttle-body, said plate having a projecting portion embodying a guide-plate and a tubular thread-guide, the outer plate and tubular thread-guide having a thread-receiving slot or kerf.

2. In a shuttle-threader, the combination with a shuttle-body, of an outer plate attached to the side thereof, and having an angular projecting guide-plate with a tubular thread-guide at the base thereof, the outer plate and tubular thread-guide having a kerf or slot on a line with one of the side walls of the guide-plate, and a spring carried by the outer plate so as to lie over the kerf or slot therein, substantially as shown.

3. A shuttle-threader, comprising an outer plate having an eye, a guide-plate and a tubular thread-guide, the guide-plate being provided with a prong which projects from the upper inner end thereof, the outer plate and tubular thread-guide having a kerf or slot, substantially as shown.

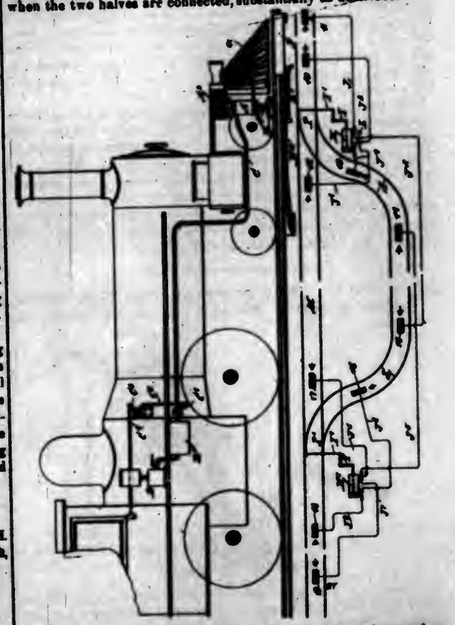
4. In combination with a shuttle-body having a recess, of a shuttle-threader rigidly secured in said recess and comprising an outer plate B having an eye, a slot or kerf which extends from said eye through the plate, a plate B' which projects at an angle from the first-mentioned plate the kerf being on a line with one edge thereof, said plate B' having a prong d' and a tubular thread-guide d on a line with the eye in the plate B, said plate above the eye having a recess and an intersecting spring for the kerf secured within the recess, substantially as shown and for the purpose set forth.

605,691. PNEUMATIC SWITCH-THROWING MECHANISM. GEORGE R. BARTHOLOMEW, Ridge, Pa. Filed Oct. 19, 1897. Serial No. 656,729. (No model.)

Claim.—1. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine, comprising a coupling in two halves adapted to be temporarily connected while the engine is moving, one half mounted on the engine and having a valve normally closed and the other half mounted along the track, one of said halves having movement on its support lengthwise the track, and means for automatically opening said valve when the two halves are connected, substantially as described.

2. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine, comprising a coupling in two halves, one half mounted on the engine and having a valve normally closed and the other half mounted along the track, one of said halves having movement upon its support lengthwise the track, a lock upon the two halves of the coupling adapted to hold them together temporarily, and means for automatically opening said valve when the two halves are connected, substantially as described.

3. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine comprising a coupling in two halves, one half mounted on the engine having a valve normally closed and the other half mounted along the track, one of said halves having movement upon its support lengthwise the track, a lock upon the two halves of the coupling adapted to hold them together temporarily, and means for automatically opening said valve when the two halves are connected, substantially as described.



4. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine, comprising a coupling in two halves, one half mounted on the engine and having a valve normally closed, the other half mounted along the track, and means for projecting the engine-coupling to engage the track-coupling, one of the said couplings having movement upon its support lengthwise the track, a lock upon the two halves of the coupling adapted to temporarily lock them together, and means for automatically opening the valve when the two halves are connected, substantially as described.

5. The combination with a pneumatic switch-throwing mechanism, of a coupling in two halves, one half connected with a compressed-air supply upon the engine and the other with a pneumatic switch-throwing mechanism, and means for automatically connecting the two halves while the engine is passing, substantially as described.

6. The combination with a pneumatic switch-throwing mechanism of a connecting-coupling between the same and the engine comprising two parts, one part mounted upon the engine and one alongside the track, the engine-coupling being movable to engage the track-coupling and one part of the coupling being movable upon a support along the track when in contact, substantially as described.

7. The combination with a pneumatic switch-throwing mechanism, of a connecting-coupling between the same and the engine, comprising two parts, one part mounted upon the engine and one alongside the track, the engine-coupling being movable to engage the track-coupling, one part of the coupling being movable upon a support along the track when in contact with the track, and a valve connected to the engine-coupling, and means for opening said valve while the two parts of the coupling are connected, substantially as described.

8. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine, comprising a coupling in two parts, one part mounted upon the engine and the other along the track, a valve in the engine-coupling, normally closed and having a projecting opening-pin, a bar on the track-coupling adapted to engage said pin when the two parts of the coupling are connected, and means for temporarily connecting the two parts of the coupling as the engine passes, substantially as described.

9. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine, comprising a coupling in two parts, one part mounted upon the engine and the other along the track, a valve in the engine-coupling, normally closed and having a projecting opening-pin, a bar on the track-coupling, adapted to engage said pin when the two parts of the coupling are connected, locking projections upon the track-coupling, and pivoted catches upon the engine-coupling, adapted to temporarily lock the two together, substantially as described.

10. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine, comprising a coupling in two halves, one half mounted on the engine and having a valve normally closed, the other half mounted along the track, one of said halves having movement upon its support lengthwise the track, locking projections upon the track-coupling, and catches upon the engine-coupling, adapted to temporarily lock the two together, substantially as described.

11. The combination with a pneumatic switch-throwing mechanism, of a connecting means between the same and a moving engine, comprising a coupling in two parts, one part mounted upon the engine, and the other along the track, a guide having overhanging flanges for the track-coupling to slide in, a valve in the engine-coupling, normally closed and having a projecting opening-pin, a bar on the track-coupling, adapted to engage said pin when the two parts are connected, locking projections upon the track-coupling, and pivoted catches upon the engine-coupling, adapted to engage the guiding-flanges to temporarily lock the two together, substantially as described.

12. The combination with a pneumatic switch-throwing mechanism, of a flanged guide located lengthwise the track, a shoe movable therein and forming one part of the coupling, a support for returning said shoe to its normal position, a shoe mounted upon the engine and connected to the air-supply and forming the other half of the coupling, means for projecting said shoe to enter beneath the flanges of the guide, and means for locking the shoes forming the coupling while in the guide, substantially as described.

13. The combination with a pneumatic switch-throwing mechanism, of a flanged guide located lengthwise the track, a shoe movable therein and forming one part of a coupling, a spring for returning said shoe to its normal position, a shoe mounted upon the engine and connected to the air-supply and forming the other half of the coupling, a valve in said latter half of the coupling which is normally closed, a valve-opening pin adapted to open the valve when the two shoes forming the coupling are locked together, and means for locking said shoes together while in the flanged guide, substantially as described.

14. The combination with a pneumatic switch-throwing mechanism, of a flanged guide located lengthwise the track, a shoe movable in said guide and forming one part of a coupling, a spring for returning said shoe to its normal position, a shoe mounted upon the engine and connected to the air-supply and forming the other half of the coupling, a pneumatic piston mounted upon the engine and carrying the shoe forming the engine-coupling, said piston having a hollow rod and a normally-closed valve in the same, and means for locking the two coupling-shoes together and for opening said valve, substantially as described.

15. A pneumatic switch-operating mechanism, comprising an air-cylinder connected to the switch-points to operate them in either direction, pipes connecting the same with coupling members located along the track, and a complementary coupling member mounted upon the engine and adapted to be momentarily connected with the fixed coupling member at will, while the engine is in motion, substantially as described.

16. A pneumatic switch-operating mechanism, comprising an air-cylinder connected to the switch-points to operate them in either direction, a piston connecting the mechanism with coupling members located along the track, a check-valve between the cylinder and each of said coupling members, a releasing-valve in said air-cylinder, set to open at a pressure below the working pressure and to close by the working pressure, said valve having a small air-escape or leakage opening, and means whereby the connection may be temporarily made from an air-supply on the engine to the pipes leading to the cylinder, substantially as described.

17. A cylinder for pneumatic switch-throwing mechanism, having a releasing-valve provided with a small leakage-hole, a spring acting on the valve to open it and set to permit closing under working pressure, a check-valve preventing backflow in the supply-pipe, and means for connecting the cylinder with an air-supply, substantially as described.

18. A releasing-valve for pneumatic cylinders, consisting of an inwardly-opening valve having a small leakage-orifice, and a spring or similar constantly-acting means, acting upon said valve to open it when the internal pressure is reduced below a certain point, substantially as described.

605,692. DRAWING INSTRUMENT. JOHN A. BENEDICT, Passaic, N. J. Filed Nov. 13, 1897. Serial No. 658,475. (Model.)



Claim.—1. A divider, compass or like instrument provided with legs, and means for maintaining them various distances apart, one of the legs being capable of flexure independent of the said means in opposite directions from its adjusted position, substantially as shown and described.

2. A drawing instrument of the class described, provided with two legs joined together, and one of which carries an inking-pen, the other being provided with a needle-point carried by a spring capable of flexure in one direction by its own resiliency, and in the opposite direction against the tension of a second spring, substantially as shown and described.

3. A drawing instrument of the class described, provided with two legs joined together, and one of which carries an inking-pen, the other being provided with a needle-point carried by a spring capable of flexure in one direction by its own resiliency, and in the opposite direction against the tension of a second spring, and a device for adjusting the springs relatively to each other, as set forth.

605,698. VALVE. JOHN L. BLACK, St. Louis, Mo., assignor to the Black Manufacturing Company, same place. Filed Oct. 11, 1897. Serial No. 654,735. (No model.)



Claim.—The combination consisting of a flexible tube, and a solid spherical body 2, said body 2 being of somewhat greater diameter than the interior of said tube, and adapted to close said interior, but to permit passage therethrough upon pressure being applied to opposite external sides of said tube, substantially as described.

605,694. PROCESS OF MAKING CYANIDS. HENRY S. BLACKMER, Mount Vernon, N. Y. Filed July 22, 1896. Renewed Apr. 21, 1898. Serial No. 678,426. (No specimens.)

Claim.—1. The process for converting metallic sulfids into metallic cyanids, sulfocyanids, and ferrocyanids, which consists in exposing molten sulfids to the combined action of a metallic carbid and nitrogen gas substantially as described.

2. The process for converting metallic sulfids into metallic cyanids, sulfocyanids, and ferrocyanids, which consists in exposing said sulfids in a heated or molten state to the action of metallic carbids in the presence of nitrogen gas substantially as described.

3. The process for converting metallic sulfids into metallic cyanids, sulfocyanids, and ferrocyanids, which consists in passing nitrogen gas into and through a molten mass of metallic sulfid containing metallic carbid substantially as described.

4. The process for converting alkali sulfids into cyanids, sulfocyanids, and ferrocyanids, which consists in introducing into a molten both of alkali sulfid, iron carbid and passing nitrogen gas through the mass substantially as described.

5. The process for converting metallic sulfids into cyanids, sulfocyanids, and ferrocyanids, which consists in melting the metallic sulfid and introducing into the same iron carbid and nitrogen gas substantially as described.

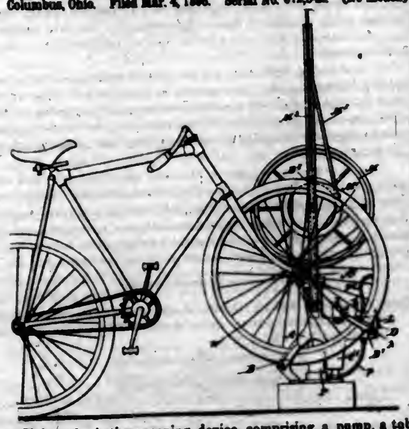
605,695. SECONDARY BATTERY. CAMILLE BRAUN, Paris, France. Filed Dec. 26, 1896. Serial No. 617,268. (No model.) Patented in France Aug. 14, 1896, No. 260,694; in Belgium Jan. 16, 1896, No. 119,276; in England Jan. 16, 1896, No. 719, and in Switzerland Jan. 16, 1896, No. 11,572.



Claim.—1. In an electric accumulator, or storage battery, a frame having secondary frames to receive the active material, a fabric of asbestos filaments free from extraneous matter, inclosing the same, perforated plates of celluloid to inclose and support the asbestos, and cross pieces or rods, of the same material as the plates, having their ends lying in openings in the celluloid plates and secured thereto by a solvent of the celluloid, substantially as described.

2. In an electric accumulator, or storage battery, the combination with a body of active material of an inclosing fabric of asbestos, an outer covering or inclosure of perforated neutral material and cross rods, or bars, lying in openings in the active material their ends being connected to the neutral plates by a solvent of the material of which said plates are composed, substantially as described.

605,696. COIN-CONTROLLED TIRE-PUMP. LEWIS S. BROWN, Columbus, Ohio. Filed Mar. 4, 1896. Serial No. 672,542. (No model.)



Claim.—1. A tire-pumping device, comprising a pump, a tube leading therefrom and adapted to be connected with a tire, a valve interposed in said tube, a wheel-lock, connections between the wheel-lock and the valve, whereby the tire connections are broken when the wheel-lock is open, and a coin-released mechanism for controlling said parts, substantially as described.

2. A tire-pumping device, comprising a pump, a tube connecting the pump and tire, a valve interposed in said tube, a wheel-lock, connections from the valve to the wheel-lock, a lever adapted to prevent opening of said valve, and a coin-chute adapted to deliver a coin upon said lever to swing it clear of the valve, to permit the opening of the valve, substantially as described.

3. A tire-pumping device, comprising a pump, a tube connecting the pump and tire, a valve interposed in said tube, a wheel-lock, connections from the valve to the wheel-lock, a pivoted coin-operated lever, a segment-arm mounted upon the valve-stem and normally engaged by said coin-operated lever to prevent opening of the valve, and a coin-chute for delivering a coin to said coin-operated lever, substantially as described.

4. A tire-pumping device, comprising a pump, a tube connecting the pump and tire, a valve interposed in said tube, a wheel-lock, connections from the valve to the wheel-lock, a pivoted coin-operated lever, a segment-arm mounted upon the valve-stem and normally engaged by said coin-operated lever to prevent opening of the valve, an arm upon the valve-stem, engaging the coin-operated lever to prevent discharge of the coin until the valve is moved by hand, and a coin-chute for delivering a coin to said coin-operated lever, substantially as described.

5. A tire-pumping device, comprising a wheel-support having a pivoted locking-hook adapted to secure the wheel in place, a pump, a tube connected to the pump and adapted for attachment to a tire, a valve interposed in said tube, connections from the valve to the locking-hook, whereby the wheel is released when the valve is turned to cut off the air-supply, and a coin-operated mechanism controlling the valve, substantially as described.

6. A tire-pumping device, comprising a wheel-support having a pivoted locking-hook adapted to secure the wheel in place, a pump, a tube connected to the pump and adapted for attachment to a tire, a valve interposed in said tube, having an extended stem, connections from the valve to the locking-hook, whereby the wheel is released when the valve is turned to cut off the air-supply, a coin-operated lever, a coin-chute leading thereto, a segment-arm upon the valve-stem, normally engaging the side of the coin-operated lever, and an arm upon the valve-stem, normally extending under the coin-operated lever and stopping its swing short of the position where the coin is discharged, substantially as described.

7. A tire-pumping device, comprising a wheel-support having a pivoted locking-hook adapted to secure the wheel in place, a pump, a tube connected to the pump and adapted for attachment to a tire, a three-way valve interposed in said tube and adapted to connect the pump either with the tire connection or the open air, connections from the valve to the locking-hook, whereby the wheel is released when the valve is turned to cut off the air-supply, and a coin-operated mechanism controlling the valve, substantially as described.

605,697. PROCESS OF UTILIZING ACID SULFATES OF SODA. ROBERT R. CRAFFIELD, Gowerstone, England. Filed Dec. 20, 1897. Serial No. 663,722. (No specimens.) Patented in England Oct. 17, 1895, No. 19,530; in Belgium Apr. 27, 1894, No. 109,705, and in Germany May 11, 1894, No. 82,443.

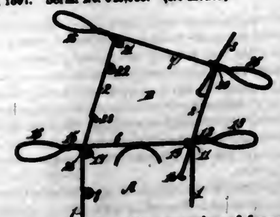
Claim.—1. The herein-described process for treating acid sulfates of soda, by acting on their solutions with ammoniacal compounds, thereby producing mixed sulfates of ammonia and soda, and separating sulfate of soda and sulfate of ammonia therefrom by fractional crystallization.

2. The herein-described process for treating acid sulfates of soda, which consists in acting upon their solutions with ammoniacal compounds to produce mixed sulfates of ammonia and soda, evaporating the solution of said mixed salts to a specific gravity of about 1,380 at boiling temperature, to crystallize out sulfate of soda, removing the sulfate-of-soda crystals, continuing the evaporation to crystallize out the mixed salts, then dissolving the crystals of the mixed salt in cold mother-liquor to a specific gravity of 1,285 and evaporating the resultant solution to crystallize out sulfate of ammonia, substantially as described.

3. The herein-described process of treating acid sulfates of soda which consists in acting upon their solutions with ammoniacal compounds to produce mixed sulfates of ammonia and soda, evaporating the solution of said mixed salts to a specific gravity of about 1,380 at boiling temperature, to crystallize out sulfate of soda, and removing the sulfate-of-soda crystals from the solution, substantially as described.

4. The herein-described process of treating acid sulfates of soda which consists in acting upon their solution with ammoniacal compounds, to produce mixed sulfates of soda and ammonia, removing a portion of the sulfate of soda by crystallization, and crystallizing out mixed sulfates of soda and ammonia, treating said mixed sulfate crystals with cold mother-liquor, to produce a solution of a specific gravity of about 1,285, evaporating the solution to crystallize sulfate of ammonia and removing the sulfate-of-ammonia crystals, substantially as described.

605,698. TRELLIS. FRED D. CLARK, Erattsburg, N. Y. Filed Aug. 30, 1897. Serial No. 649,985. (No model.)



Claim.—1. A trellis comprising a number of frames connected in vertical series and adapted to be turned to position to increase the height of the trellis, substantially as described.

2. A trellis comprising a number of frames connected in vertical series and adapted to be turned to position to increase the height of the trellis, and means for maintaining each frame in its adjusted position, substantially as described.

3. A trellis comprising a number of frames connected in vertical series and adapted to be turned into and out of operative positions whereby, respectively, to increase or diminish the height of the trellis, and means on one of the frames for engaging a suitable support by which the trellis is maintained in an upright position, substantially as described.

4. A trellis comprising a number of frames connected in vertical series and adapted to be turned into and out of operative positions whereby, respectively, to increase or diminish the height of the trellis, and clamping devices on the lower or base frame for engaging a suitable receptacle, substantially as described.

5. A trellis comprising a number of frames connected in vertical series and adapted to be turned into and out of operative positions whereby, respectively, to increase or diminish the height of the trellis, clamping devices on the lower or base frame, and a brace-frame connecting the arm members and arch member of said lower or base frame, substantially as described.

6. A trellis comprising a number of frames connected in vertical series and adapted by being turned laterally to be brought to position for use, and means operating both to hold and to brace the frames when in this position, substantially as described.

7. A trellis comprising a number of frames each composed of side arm members connected at the top by a transverse arch member, the arms of the base or lower frame having means to engage a suitable receptacle, and an arm of each remaining section having pivoted connection with the adjacent frame, substantially as described.

8. A trellis comprising a number of frames each composed of side arm members connected at the top by a transverse arch member, the base or lower frame having means for supporting the trellis in an upright position, one arm of each remaining frame having a pivotal connection with the adjacent frame and means on the other arm for retaining the frame in an upright position, substantially as described.

9. A trellis comprising a number of frames each composed of side arm members connected at the top by a transverse arch member, means on the base or lower frame for supporting the trellis in an upright position, one arm of each remaining frame having a pivoted connection with the adjacent frame, and means on the other arm for maintaining the frame in an upright position comprising hooks or projections for engaging eyes or recesses in the adjacent frame.

10. A trellis comprising a number of connected frames each frame consisting of a single piece of wire bent to form two parallel side arm members and a top arch member, one side arm member being provided at its bend with a shoulder, at its end with a hook or clasp, and intermediate of its ends with an eye, and the other member being provided adjacent to its bend with eyes and at its end with hooks or projections, substantially as described.

605,699. TANDEM ATTACHMENT FOR BICYCLES. THOMAS V. COWDEN, Philadelphia, Pa., assignor to Catherine A. Fischer, same place. Filed Sept. 16, 1897. Serial No. 651,993. (No model.)

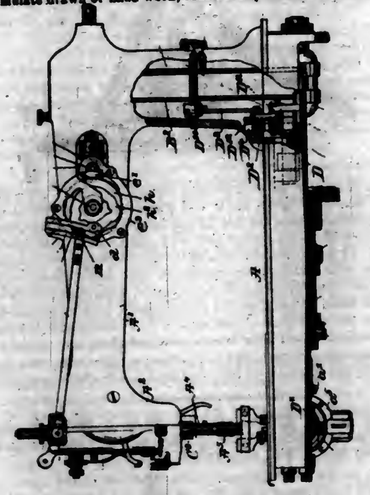


Claim.—The herein-described tandem attachment consisting of a tubular socket, in which a saddle-post may be fitted and adjusted vertically, forks formed with the lower portion of said socket, a clip slidably fitted on said tubular socket, a brace-rod secured to said clip, and a second clip carried on the forward end of the rod, as and for the purpose described.

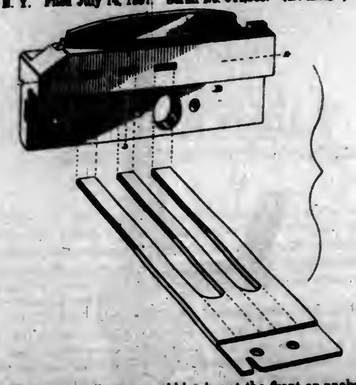
605,700. SEWING-MACHINE FOR HEMSTITCHING. GEORGE H. DIMOND, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed Oct. 8, 1892. Serial No. 448,193. (No model.)

Claim.—1. A hemstitch-sewing machine, comprising a work-support, a needle bar, an eye-pointed needle, complemental stitch-forming mechanism, means to reciprocate said needle and needle-bar vertically, a gate in which said needle-bar is arranged to slide vertically, means to vibrate said gate horizontally about vertical pivots, which means includes a cam-path A^3, a pivoted arm and a link, the cam-path being shaped substantially as described to impart to the gate, needle-bar and needle while the needle is in the fabric, a movement at right angles to the edge of the hem being stitched, to thereby displace laterally from the edge of the hem some of the threads of the material being acted upon, combined with a presser-foot and a feed-dog to engage the fabric and hold it during the lateral movement of the needle, and means for actuating said feed-dog comprising pattern-cams to impart to the fabric forward and backward movements of different lengths while the needle is out of the fabric, said forward and backward movements given to the fabric being transverse to the vibratory movements of the needle, substantially as described.

2. A machine for hemstitching, containing the following instrumentalities, namely: suitable stitch-forming mechanism, including a needle and means to reciprocate it, a gate in which the needle-bar carrying the needle is reciprocated, a rotary cam having a plurality of acting surfaces, and connections actuated by said acting surfaces and located between the said cam and said gate, for imparting to said gate a plurality of movements at each rotation of said cam, whereby the needle when in the fabric will be moved to displace the threads of the fabric parallel to the line of stitching and to form openings in said fabric at right angles to the line of stitching, thereby to simulate drawn or hand work, substantially as described.



605,701. LINOTYPE-MACHINE. PHILIP T. DODGE, New York, N. Y. Filed July 14, 1897. Serial No. 644,803. (No model.)



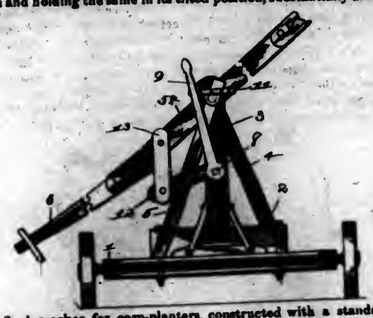
Claim.—1. A linotype-mold having at the front an unobstructed slot or opening, and at the rear one or more filling-pieces forming part thereof to produce cavities in the base of the slug or linotype.

2. A linotype-mold having a continuous slot or opening at its front to produce a slug with an unbroken face, and having the back closed for a portion of its length with two or more openings for the admission of an ejector.

3. A linotype-mold containing an elongated slot or mold proper, its face adapted to cooperate with a series of matrices, and its rear side having a plurality of openings, in combination with an ejector, disconnected from the mold and having a plurality of fingers or blades adapted to enter and withdraw from said mold-openings, substantially as described and shown.

605,702. MARKER FOR CORN-PLANTERS. HENRY T. DONALDSON, Fillmore, Ill. Filed Apr. 5, 1898. Serial No. 676,505. (No model.)

Claim.—1. A marker for corn-planters, constructed with a standard, a beam fulcrumed in the upper end of said standard, marking-runners carried by the ends of said beam, and means for tilting said beam and holding the same in its tilted position, substantially as specified.



2. A marker for corn-planters, constructed with a standard, a beam fulcrumed in the top of said standard, arms hinged so as to swing upwardly from the ends of said standard, and marking-runners carried by the outer ends of said arms, substantially as specified.

3. An attachment for corn-planters, constructed with a standard carried by the frame of the planter in front of the driver's seat, a beam fulcrumed in the top of said standard, arms hinged to the ends of said beam so that they will fold upwardly, marking-runners carried by the outer ends of said arms, a rock-shaft passing through the standard, a hand-lever fixed to said rock-shaft, and hinged connections from said rock-shaft to the beam to allow said beam to be tilted by the operation of the hand-lever, substantially as specified.

605,703. SPINDLE-BEARING. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 22, 1897. Serial No. 637,707. (No model.)



Claim.—A bolster-case provided at its upper end with a screw-thread; a bolster placed in said case and provided with a tapering bore; a spindle having a tapered pintle to enter the tapering bore of said bolster; a step for the lower end of said spindle, and a spring interposed between said step and the open lower end of said bolster, combined with an adjustable collar engaging the screw-thread at the upper end of said bolster-case, said collar cooperating with the said bolster to determine its ascent in the bolster-case under the action of said spring, and thereby regulate the fit between the tapered surface of the bolster and the tapered pintle of the spindle substantially as described.

605,704. CORN MASHER AND CUTTER. JOHN ESSEGER, Chambersburg, Pa. Filed June 18, 1897. Serial No. 641,262. (No model.)

Claim.—1. In a machine of the class described, the combination of a frame, an oscillatory jaw mounted at the lower end thereof upon a pivot-bolt in said frame and provided at its upper end with a slot and at one side with a working or crushing face, a tilting jaw adjoining one end of the frame and pivoted centrally upon an adjustable pivot-bolt and provided with a working or crushing face beveled at the upper and lower end thereof, and set-screws projecting through said end wall of the face and adapted to bear upon the said tilting jaw above and below the pivotal point thereof, for limiting the tilting movement of said jaw, substantially as described.



2. In a machine of the class described, the combination of a frame, an oscillatory jaw pivotally mounted in said frame and provided at the upper end thereof with a slot and at one side with a working or crushing face and at the other side with a head, an adjustable tilting jaw acting in conjunction with the said working or crushing face of the oscillatory jaw, a crank-shaft operating in the slot of the oscillatory jaw, a cutting-blade on the frame adjoining the head of said oscillatory jaw, and a push-block acting in conjunction with said blade and jaw, substantially as described.

3. In a machine of the class described, the combination of an oscillatory jaw, and a crank-shaft for operating said jaw, a cutting-blade adapted to cut the corn forced toward it by said jaw, and a spring-actuated push-block normally resting upon the blade and adapted to force the corn toward the jaw, substantially as described.

4. In a machine of the class described, the combination of a frame, an oscillatory jaw mounted therein, a crank-shaft for operating said jaw, a cutting-blade extending transversely of the frame in juxtaposition to said jaw and adapted to cut the corn forced toward it by the jaw, and a push-block carried by a spring-arm and adapted to yield or give when the corn is pressed toward the cutting-blade, and to automatically press the remaining part of the corn-ear forward, so that it will drop between the jaw and blade, substantially as described.

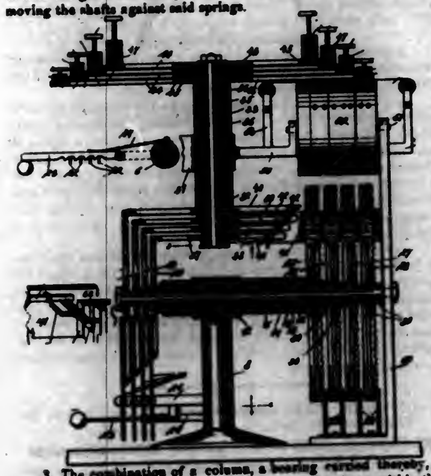
5. In a machine of the class described, the combination of a frame, an oscillatory jaw mounted in said frame and provided with a table, a crank-shaft for operating the said jaw, a cutting blade or bar extending transversely of the frame and adapted to cut the ear of corn pressed toward it by the jaw, and a spring-arm projecting upward from the interior of the frame and carrying at its upper end a push-block normally resting upon the surface of the cutting-blade and adapted to press the corn toward the jaw as the said jaw recedes from the cutting-blade, substantially as described.

6. In a machine of the class described, the combination of a frame, an oscillatory jaw mounted in said frame and provided at the upper end thereof with a slot, a head at one side and a working face at the opposite side, a tilting jaw mounted upon an adjustable pivot-bolt adjoining one end of the frame and provided with a working face adapted to act in conjunction with the working face of the oscillatory jaw, a tilting table mounted on the oscillatory jaw, a crank-shaft operating in the said slot of the oscillatory jaw, a cutting-blade extending transversely of the frame adjoining the head side of the oscillatory jaw and adapted to guide the ear of corn pressed toward it by said jaw so that the lower portion thereof will drop upon the said tilting table, and a spring-arm secured to the frame and provided at the end thereof with a push-block normally resting upon the said cutting-blade and adapted to push the uncut portion of the ear of corn toward the oscillatory jaw as the latter recedes from the cutting-blade, substantially as described.

605,705. ADDING AND RECORDING APPARATUS. WILLIAM J. HOWORTH, Erie, Pa., assignor, by direct and mesne assignments, to the Erie Cash Register Company, Limited, same place. Filed Aug. 11, 1897. Serial No. 647,892. (No model.)

Claim.—1. The combination of a series of shafts inclosed one within the other and independently revolvable, registering-wheels respectively carried on said shafts, a second series of shafts inclosed one within the other and independently revolvable, gearing connecting the shafts of each series in pairs, recording-wheels respectively mounted on the members of the second series of shafts, and keys carried by the recording-wheels.

2. The combination of a series of gears, a series of shafts inclosed one within the other and independently revolvable, a gear fixed to each member of the said series of shafts and respectively meshing with the first series of gears, a spring pressing each shaft endwise to hold the gears out of engagement with each other, and means for moving the shafts against said springs.



3. The combination of a column, a bearing carried thereby, a series of shafts mounted in the bearing and inclosed one within the other and being independently movable, a gear fixed to each shaft, a lever pressing each gear, a latch-plate holding the levers, and a spring pressing the shafts respectively against the levers.

4. The combination of a series of shafts inclosed one within the other, a gear fixed to each shaft, a fingered plate held adjacent to the gears, and a hair-spring connected to each finger of the plate, the hair-springs respectively being in connection with the shafts whereby to hold the same in a normal axial position.

5. The combination of a series of shafts inclosed one within the other, a series of recording-wheels respectively fixed to the shafts, each recording-wheel comprising a hub and a rim connected by spokes, and keys carried by the rims of the wheels, and recording devices carried by the recording-wheels, some of said recording devices being capable of moving across the plane of a portion of the wheels.

6. The combination of a series of wheels turning on a common center, the wheels being of different sizes and each wheel comprising a hub and a rim connected by spokes, and keys carried by the wheels, a portion of said keys being capable of moving through the plane of a portion of the wheels.

7. The combination of a series of recording-wheels having different diameters, recording-keys carried by the wheels, and a plate movable in the vicinity of the keys so as to cover certain parts thereof.

8. The combination of a series of levers, spring-pressed parts respectively engaged thereby, a ratchet-latch coacting with the levers to hold the same, and a spring pressing the ratchet-latch.

9. The combination of a plurality of recording-wheels, turning on a common center, boxes carried by each wheel, spring-pressed keys respectively movable in the boxes, and a die to which each key is attached.

10. The combination of a series of shafts revolvable on a common axis, a wheel turning with each shaft, recording devices mounted on each wheel, and springs in connection with the shafts whereby to return the wheels to a normal position.

11. The combination of a series of shafts inclosed one within the other and revolvable on a common axis, a series of wheels respectively fixed to the shafts, the wheels having varying diameters and having spokes, and recording devices carried by each wheel, the recording devices being movable transversely to the planes of the wheels, and some of the recording devices being capable of extending between the spokes of some of the wheels.

12. The combination of a series of wheels turning on a common axis and having spokes, the wheels also having varying diameters, and recording devices carried by the wheels and movable transversely to the planes thereof, some of the recording devices being capable of extending between the spokes of some of the wheels.

13. A recording-wheel having a rim, a box secured to the rim and extending transversely to the plane of the wheel, and a recording-key mounted in said box and movable through the same.

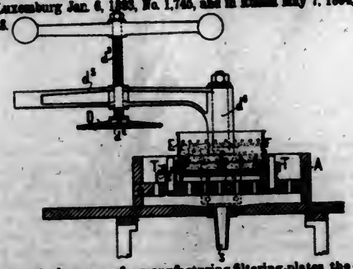
14. The combination of a series of shafts, a series of registering-wheels respectively carried on the shafts, a second series of shafts, recording-wheels respectively carried on said second series of shafts, and gearing connecting the two series of shafts in pairs so that the members of the several pairs of shafts with their corresponding recording and registering wheels will turn in unison.

15. The combination of a series of shafts inclosed one within the other, and revolvable on a common axis, registering-wheels respectively carried by the shafts, a second series of shafts inclosed one within the other and revolvable on a common axis, recording-wheels respectively carried by the second series of shafts, and gearing connecting the members of the two series of shafts in pairs.

16. The combination of a series of shafts revolubly mounted one within the other, a registering-wheel carried at one end of each shaft, the registering-wheels being located in close proximity with each other, a gear-wheel carried by each of said shafts, a second series of shafts, the members of which are revolubly mounted one within the other, a gear fixed to each shaft of said second series and respectively meshed with the first-named gears, and recording-wheels respectively carried one by each shaft of said second series.

17. The combination of a series of shafts revolubly mounted one within the other, a registering-wheel carried by each shaft of said series, expansive springs situated between the registering-wheels and maintaining the relative positions thereof, a gear-wheel fixed to each shaft of said series, a second series of shafts revolubly mounted one within the other, a gear fixed to each shaft of said second series and respectively capable of meshing with the first-named gears, means for independently sliding the shafts of said first-named series to engage the gears with each other, and recording-wheels respectively carried by the members of said second series of wheels.

605,706. APPARATUS FOR MANUFACTURING FILTERING-PLATES. LORENZ A. ENNINGER, Worms, Germany. Filed July 26, 1892. Serial No. 441,332. (No model.) Patented in Germany Apr. 26, 1892, No. 69,045; in France Apr. 27, 1892, No. 221,221; in Belgium May 18, 1892, No. 99,716; in Sweden May 23, 1892, No. 4,459; in Norway May 23, 1892, No. 2,726; in Italy May 23, 1892, LXII, 497; in England June 20, 1892, No. 11,459; in Switzerland July 2, 1892, No. 5,503; in Austria Oct. 21, 1892, No. 38,099; in Hungary Oct. 21, 1892 No. 40,807; in Luxemburg Jan. 6, 1893, No. 1,745, and in Russia May 7, 1894, No. 6,948.



Claim.—1. In a press for manufacturing filtering-plates, the combination of a casing, a perforated bottom plate below the casing, a perforated pressure-plate working in the casing, and means for conducting off the expressed liquid, the casing and bottom plate being separated to permit a filter-plate frame to be inserted between them, substantially as set forth.

2. In a press for manufacturing filtering-plates, the combination of a perforated bottom plate G, a receiver T fitting loosely around said plate, resilient means of support for said receiver, a casing E above the receiver T, and a presser-plate working in the casing E, so as to compress the filtering material between itself and the bottom plate G, and cause the casing E and receiver T to move downwardly, substantially as set forth.

3. In a press for manufacturing filtering-plates, the combination of a movable casing and a movable receiver between which the frames of the plates are confined, a presser-plate adapted to move the casing and receiver downwardly through the working medium of the filtering material, and a perforated bottom plate on which the filtering-plate frames are pressed, substantially as set forth.

4. In a press, the combination of a casing and a bottom plate separated from the casing to permit a frame to be inserted between them, and a presser-plate adapted to reciprocate in the casing to compress material upon the frame, substantially as described.

5. In a press, the combination of a casing and a bottom plate separated therefrom to permit a frame to be inserted between them, a presser-plate within the casing, and means for reciprocating said plate within the casing and for moving it laterally to one side thereof, substantially as described.

6. In a press, the combination with a casing and a bottom plate separated therefrom to permit a frame to be inserted between them, a presser-plate adapted to be reciprocated in the casing, and means for positively holding the frame against displacement, substantially as described.

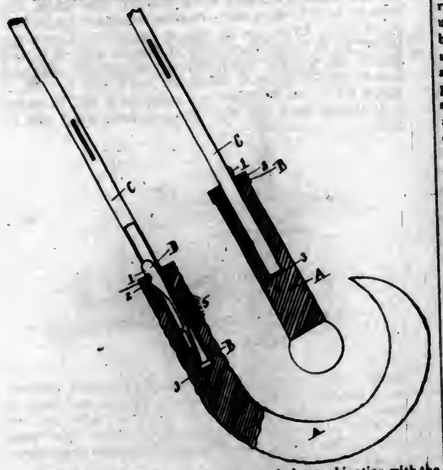
7. In a press, the combination of a bottom plate adapted to support a filter-plate frame, a receiver surrounding and normally extending above the bottom plate, a casing separated from the receiver to permit a filter-plate frame to be inserted between the two, a presser-plate within the casing, and means for moving said presser-plate vertically therein, substantially as described.

605,707. RUBBER PUMP-BUCKET. HENRY C. FREMOUR, Bridgeport, Conn. Filed Nov. 11, 1897. Serial No. 658,149. (No model.)



Claim.—A chain-pump bucket comprising a table, a hub, and a series of radial ribs or brackets integral with the said hub and table, said ribs or brackets being disposed edgewise vertically or at right angles to said table, and being highest or deepest at their inner ends and sloping thence outwardly.

605,708. DETACHABLE HANDLE FOR UMBRELLAS OR PARASOLS. SAMUEL S. FRETZ, Philadelphia, Pa. Filed Jan. 5, 1898. Serial No. 665,690. (No model.)

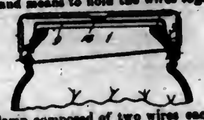


Claim.—1. In an umbrella or a parasol, the combination with the tubular umbrella-rod and the handle provided with a socket to receive the same, of a catch placed in the said socket, and a spring fitted within said tubular rod and provided with two projections one of which projections being intended to receive the pressure of the finger, and the other of the said projections engaging with the catch in said socket and a slot in said tubular rod through which said spring moves, substantially as described.

2. In an umbrella or parasol, the combination with the tubular umbrella-rod and the handle provided with a socket to receive the same, of a tube placed within the said socket, and forming a lining, a catch placed in said socket, and a spring fitted within said tubular rod and provided with two projections, one of which projections being intended to receive the finger and the other of said projections engaging with the catch in said socket and a slot in said tubular rod through which said spring moves substantially as described.

605,709. SEALING DEVICE. GEORGE W. GOMBER, Conyngham, Pa., assignor to Harry Gomber, same place. Filed Feb. 11, 1898. Serial No. 669,969. (No model.)

Claim.—1. A wire clamp for jars and the like composed of a substantially horizontal top, depending sides separating and each forming a half-circle, and means to hold the wires together, as set forth.



2. A wire clamp composed of two wires each forming one-half the clamp fitting the spiral threads of a jar and means to hold the threaded parts of the clamp together, as set forth.

3. The combination of a jar having a screw-threaded top, a rib formed around the edge of said top, an inclined seat disposed immediately below said rib and directed outward, of a gasket resting in said seat, a top having a flange contacting with said gasket and a clamp composed of two wires bent to have a horizontal section and a curved section adapted to encircle one-half of the jar and fit said threaded top, and means for holding the two wires forming said clamp into operative relationship with each other, substantially as and for the purpose set forth.

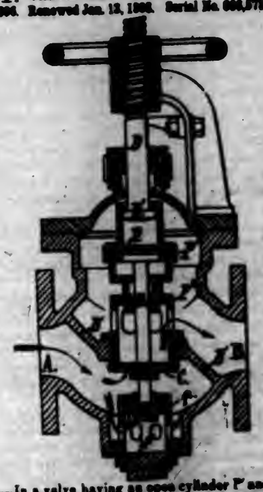
4. As an article of manufacture, a clamp composed of two wires so bent that the middle portions thereof will provide a collar for encircling the mouth of the jar and following the threaded grooves provided in the outer surface thereof, said clamp being further provided with upwardly-extending sections and overlapping horizontally-disposed sections, and suitable means for holding said wires into operative relationship with each other, substantially as specified and for the purpose set forth.

605,710. PLUSH FABRIC. GEORGE B. GOODALL, Sanford, Me. Filed Oct. 15, 1897. Serial No. 655,271. (No specimens.)

Claim.—1. The herein-described method of producing plush fabric showing at its face a figure or design, which consists in sizing the uncut pile-loops, drying said sized fabric, depressing or crushing down below the level of adjacent pile-loops, a portion of said dried, sized, uncut loops, thus leaving some of the sized and dried loops standing and stiff and others depressed; cutting the standing loops to form the plush face; and removing the size from the fabric which softens the same and permits the previously-depressed uncut loops of pile to rise and show uncut loops in a field of cut loops in design, substantially as described.

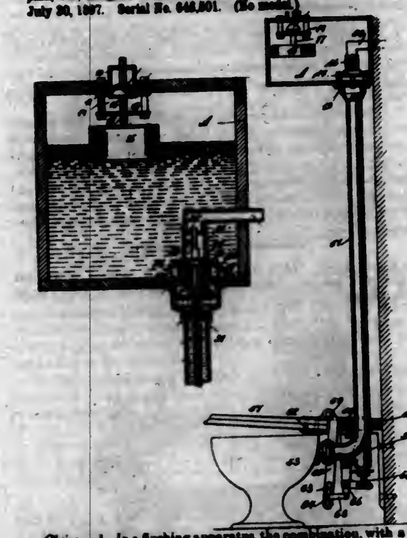
2. The herein-described method of producing plush fabric, which consists in heavily sizing the uncut pile-loops forming the face of the fabric; drying said heavily-sized pile-loops, rendering them stiff for standing against the cutting operation; cutting the loops to form the plush face; and removing the size, leaving the cut loops soft and pliable, substantially as described.

605,711. VALVE. MARIUS GROSSMARD, Marseilles, France. Filed Apr. 17, 1896. Renewed Jan. 13, 1898. Serial No. 666,578. (No model.)



Claim.—In a valve having an open cylinder P' and a body P'' integral therewith, a hollow piston P working in said cylinder, a rod Q secured to said hollow piston, a piston *p* secured to opposite end of said rod, a cylinder *p'* having openings *p''* and adapted to inclose said piston *p* and a valve-plate suitably mounted on said rod, all of said parts being combined and for the purposes substantially as described and set forth.

605,712. FLUSHING APPARATUS. HENRY HAYNES, Philadelphia, Pa., assignor of one-half to Thomas Frost, same place. Filed July 30, 1897. Serial No. 646,801. (No model.)



Claim.—1. In a flushing apparatus, the combination, with a tank, a water-supply pipe leading into the tank, the said tank being provided with an opening in its bottom, and a plate having a valve-seat supported within the tank above the opening, forming a cap for the outlet end of the supply-pipe, of a discharge-pipe fitted in the opening in the tank and provided at its top with an apertured cap having a valve-seat formed therein, connected valves, one valve being arranged to close the outlet for the water-supply pipe and the other valve being arranged to close the inlet of the discharge-pipe, one valve seating when the other is unseated, and a pull-rod connected with the valve, whereby the valves are operated, for the purpose specified.

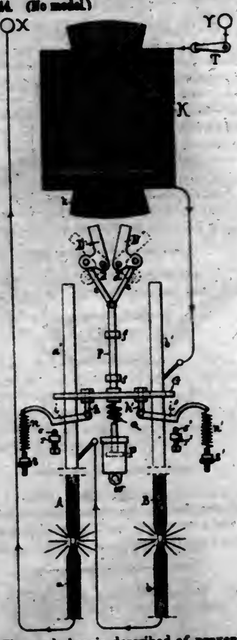
2. In a flushing apparatus, the combination, with a tank, a water-supply pipe leading into the tank, the said tank being provided with an opening in its bottom and a plate having a valve-seat supported within the tank above the opening, forming a cap for the outlet end of the supply-pipe, of a discharge-pipe fitted in the opening in the tank and provided at its top with an apertured cap having a valve-seat formed therein, connected valves, one valve being arranged to close the outlet for the water-supply pipe and the other valve being arranged to close the inlet of the discharge pipe, one valve seating when the other is unseated, a pull-rod connected with the valve whereby the valves are operated, a tension device normally holding the pull-rod in a downward direction, causing the supply-valve to be normally seated, a lever, and a connection between the said lever and pull-rod, whereby the said rod may be forced upward against the resistance of the said tension device, as and for the purpose specified.

605,718. FIREPLACE-HEATER. JOHN H. HEITLAND, Quincy, Ill. Filed Oct. 20, 1897. Serial No. 656,514. (No model.)



Claim.—In a fireplace-heater, the combination with the heating-box, of the deflector-plate located below said box extending from a short distance from the front to the chimney-back, whereby the products of combustion may be caused to pass from front to rear beneath the box, the damper in said deflector-plate and the check having the curved toothed arm adapted to engage with the damper to adjust said check; substantially as described.

605,714. ELECTRIC-ARC LAMP. DANIEL HIGHAM, Boston, Mass., assignor to Howard H. Higham, Philadelphia, Pa. Filed Oct. 26, 1897. Serial No. 656,444. (No model.)



Claim.—1. The mode herein described of preventing excessive variations in consumption of two or more sets of electrodes connected in series and supplied from a direct-current constant-potential source, said mode consisting of extinguishing the current by opening the circuit, then bringing the points of the two or more sets of electrodes to contact, to reëstablish the current, and then separating the points of the said two or more sets of electrodes an approximately equal distance apart, substantially as described.

2. An electric-arc lamp for direct-current constant-potential circuits, having two or more sets of electrodes connected in series and magnetic means for controlling the current passing, in combination with means for momentarily extinguishing the current by opening the circuit at suitably frequent intervals, for the purpose described.

3. An electric-arc lamp for direct-current constant-potential circuits, having two or more sets of electrodes connected in series and magnetic means for controlling the current passing, in combination with means for momentarily extinguishing the current at suitably frequent intervals by preventing advance of the movable electrodes, substantially as and for the purpose described.

4. An electric-arc lamp for direct-current constant-potential circuits, having two or more sets of electrodes connected in series and magnetic means for controlling the movable electrodes through suitable intervening clutch mechanism, in combination with means for preventing disengagement of said clutch mechanism while current is passing, substantially as and for the purpose described.

5. An electric-arc lamp for direct-current constant-potential circuits, having two or more sets of electrodes connected in series and magnetic means for controlling the movable electrodes through suitable intervening clutch mechanism, in combination with means for momentarily extinguishing the current at suitably frequent intervals, by opening the circuit before the movable clutch mechanism reaches the position necessary to disengage the same, substantially as and for the purpose described.

6. In an electric arc lamp for direct-current constant-potential circuits, having two or more sets of electrodes connected in series,

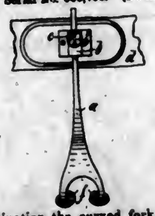
the combination of magnetic means possessing high self-induction, for the purpose described, and acting to regulate the amount of current passing, with means for momentarily extinguishing the current by opening the circuit at suitably frequent intervals, for the purpose described.

7. In an electric-arc lamp for direct-current constant-potential circuits, having two or more sets of electrodes connected in series, the combination of series magnet-windings possessing high self-induction, for the purpose described, and acting to regulate the amount of current passing, with means for momentarily extinguishing the current by opening the circuit at suitably frequent intervals, for the purpose described.

8. In an electric-arc lamp for direct-current constant-potential circuits, having two or more sets of electrodes connected in series, the combination of series magnet-windings possessing high self-induction, for the purpose described, and acting to regulate the amount of current passing, with means for momentarily extinguishing the current at suitably frequent intervals, by preventing advance of the movable electrodes, for the purpose described.

9. In an electric-arc lamp for direct-current constant-potential circuits, the combination of three sets of electrodes connected in series and inclosed at the arcs, magnetic windings possessing high self-induction, for the purpose described, and acting to regulate the current passing, with means for extinguishing the current momentarily at suitably frequent intervals, for the purpose described.

605,715. SPECULUM. KARL HOHMANN, Neukirchen, Germany. Filed Dec. 4, 1897. Serial No. 660,795. (No model.)



Claim.—In combination the curved fork *a*, having two hook-shaped ends *i* and a narrowed upper part *f*, the guide-piece *b*, with the thumb-screw *c* and the head-band *d*, all substantially as set forth.

605,716. TROLLEY-WHEEL. ALEXANDER F. HUMPHREY, Allegheny, Pa. Filed Dec. 9, 1897. Serial No. 661,262. (No model.)



Claim.—A trolley comprising a fork with a shaft mounted therein, a trolley-wheel mounted on said shaft, springs arranged on said shaft and adapted to retain said trolley-wheel in a central position thereon, arms pivotally secured in the upper ends of said fork and having coiled springs attached to their rear faces thereby preventing the wheel from leaving the wire, rollers mounted on the upper ends of said fork and extending above the same, said rollers assisting the trolley in passing switches arranged on the wire, and means whereby said arms can be operated to pass the trolley-wheel into or out of engagement with the wire, substantially as herein shown and described.

605,717. FILE AND BINDER. ADOLPH A. HUEBLER, St. Louis, Mo. Filed Nov. 20, 1897. Serial No. 660,112. (No model.)

Claim.—1. A file and binder, comprising covers connected by a back, and fasteners for the leaves arranged on one of the covers adjacent to the back, said fasteners consisting of bent or curved members pivoted together in a recess in the cover and having an interlocking engagement at their free ends.

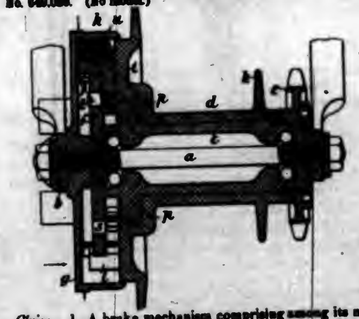


2. The file and binder comprising suitable covers, a plate fastened to one cover, and fasteners for the leaves, composed of members of approximately U shape pivoted together beneath the plate and held to the latter, the free ends of the fastener members being formed to engage each other.

3. The file and binder comprising suitable covers, a plate fastened to one cover, and fasteners for the leaves, composed of members of approximately U shape pivoted together beneath the plate and held to the latter, the free ends of the fastener members being formed to engage each other, the plate being recessed at opposite sides and bent upward between the recesses to accommodate the fastener members, and the free ends of the fastener members being formed to engage each other

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605,718. BACK-PEDALING BRAKE. JOHN R. HUBBEY and ARTHUR I. SUMMERS, Bristol, England. Filed Aug. 21, 1897. Serial No. 649,089. (No model.)



Claim.—1. A brake mechanism comprising among its members, a fixed disk provided with a friction-flange, a wheel-hub, a disk secured to said hub and provided with movable brake-blocks, a cam provided with grades for forcing said blocks into engagement with said flange and with cam-slots engaging studs on said blocks for positively withdrawing the same, a sleeve within said hub, having a limited rotary movement with respect thereto, a driving device on said sleeve, and connections between said sleeve and said cam, substantially as described.

2. A brake mechanism comprising among its members, a fixed disk provided with a friction-flange, a wheel-hub, a disk connected with said hub provided with a series of guides, radially-movable brake-blocks engaging said guides and provided with studs, a cam-disk having cam-slots engaging said studs and cam-grades for engaging said blocks to force them against the friction-flange, a sleeve extending through said hub, limited rotary movement in respect thereto, a driving device on said sleeve, said sleeve being secured to said cam-disk, substantially as described.

605,719. SUSPENDER-CLASP. JOHN V. JAMES, Goldbasin, Wash., assignor to himself and John Gleave, same place. Filed Sept. 2, 1897. Serial No. 650,331. (No model.)



Claim.—1. A suspender-clasp, comprising two clamping members slotted at like ends, and hinged together near their opposite ends, a coiled spring the limbs of which engage the said members near their hinge to normally spread them apart, and a detent-hook on one member adapted to be brought into engagement with an edge of the other member, and hold the two members in clamped condition against the stress of the spring, as specified.

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2. A clasp for suspenders, comprising clamping-sections slotted near one end to receive a hook on a suspender-band, each section having two spaced limbs which limbs are indented at opposite points, the limbs of one section being cross-slotted to loosely receive the limbs of the other section and thus provide a hinged joint between said sections, a wire spring located in the indents of opposed limbs and engaging its ends therewith to normally spread said limbs apart and a detent-hook on one section adapted for interlocking engagement with an edge of the other section to hold the limbs thereon in clamped condition and the spring-limbs compressed, as specified.

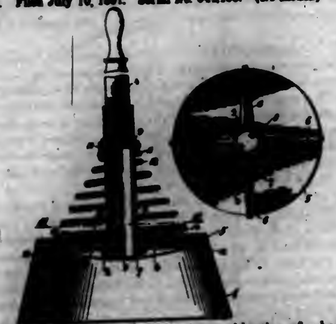
605,720. LOCK ATTACHMENT. WILLIAM S. JENKINS, Licking, Mo. Filed Oct. 6, 1897. Serial No. 654,306. (No model.)



Claim.—1. The combination of a face-plate having a slideway, a lock-plate mounted in the slideway and having two slots, one of which is L-shaped and adapted for coaction with a key, and the other of which is V-shaped, a shank mounted to rock in the face-plate, and an arm fixed to the shank and having a portion engaged in the V-shaped slot of the lock-plate,

2. The combination with a latch and keeper, of a face-plate adjacent to the latch, a lock-plate sliding on the face-plate and capable of engagement with the keeper, the lock-plate having two slots one of which is L-shaped and juxtaposed to the keyhole of the latch and the other of which is V-shaped, a shank mounted in the face-plate, and an arm fixed to the shank and engaged in the V-shaped slot of the lock-plate.

605,721. WASHING-MACHINE. HANS C. JOHNSON, Wanton, Iowa. Filed July 10, 1897. Serial No. 644,153. (No model.)



Claim.—In a washing-machine, the combination of a body having an aperture in its top, a tube loosely fitting said aperture and having a collar on its upper end and an agitating-disk on its lower end, a coiled spring disposed around the tube and located between said collar and body, a yielding gasket encircling the tube and resting on the upper surface of the body and a plate having an enlarged central aperture and an upturned flange resting on said gasket, all arranged as set forth.

605,722. GEARING. HENRY B. KEPNER, Lancaster, Pa. Filed Mar. 7, 1898. Serial No. 672,998. (No model.)



Claim.—1. A gear comprising a body portion having a groove, balls in said groove, and screws entering the latter and capped for engagement with the balls to confine the same in place, substantially as described.

2. A gear comprising a body portion having a groove, balls in said groove, and screws entered through opposite sides of the groove and capped in their confronting ends for engagement with the balls to confine the same in place, substantially as described.

3. A gear comprising a body portion having a groove with sockets in the base thereof, balls seating in said sockets, and screws entering the groove and capped for engagement with the balls to confine the same in place, substantially as described.

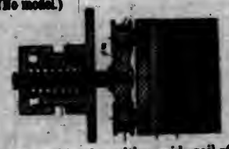
4. A gear-wheel comprising a body portion having a peripheral groove, balls therein, and screws arranged in pairs entered through opposite sides of the groove and capped in their confronting ends for engagement with the balls to confine the latter in place, substantially as described.

605,723. GAME APPARATUS. CLARA L. KLAUDER, Philadelphia, Pa. Filed Sept. 1, 1897. Serial No. 650,278. (No model.)



Claim.—A game apparatus consisting of a board, sides secured around the edges of the board, ledges of greater width than the sides secured to the tops thereof, said ledges having their upper faces beveled whereby they slant upward toward the center, pins set in the central part of the board, and rings adapted to be projected from the ledges, as and for the purpose described.

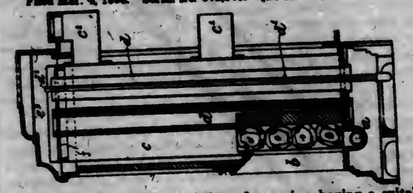
605,724. BRUSH. JULES LAFAURIE, Castelmoron, and GUILLAUME GIROD-LANAURE, Monflanquin, France. Filed Dec. 13, 1893. Serial No. 616,362. (No model.)



Claim.—1. In combination with a guide-rail of any desired curvature, a flexible brush provided with rollers adapted to clamp the edges of the guide-rail and be guided thereon substantially as described.

2. In combination with a guide-rail, a flexible brush provided with rollers adapted to clamp the edges of the guide-rail, said guide-rail being provided with headed pins, a frame provided with adjustable caps or sleeves within which the pins pass, and springs within the caps or sleeves pressing against the headed pins, whereby the guide-rail may yield, substantially as described.

605,725. GAS-STOVE. JOHN LANGSTAFF, Manchester, England. Filed Mar. 4, 1898. Serial No. 672,575. (No model.)



Claim.—A gas-stove consisting of a casing having a suitable burner and a fireplace located directly above the burner, a partition near the top dividing the casing into a heating-chamber and a hot-air chamber, vertical air-heating pipes passing through the heating-chamber behind the fireplace and communicating with the hot-air chamber above the partition, a perforated top to which said air-heating pipes lead, a fine screen interposed between the perforated top and the upper ends of the air-heating pipes in the hot-air chamber,

an outlet for the products of combustion at such height in the air-heating chamber as to form a column of heat around a considerable portion of the air-heating pipes, and a safety-outlet communicating with the heating chamber slightly below the partition and leading to the outside of the casing, and there provided with a valve, whereby force of explosion within the heating-chamber will be prevented from disrupting the parts, substantially as described.

605,726. CAR-COUPLING. EDWARD B. LAUGHTER, Langhlin, Ark. Filed Dec. 30, 1897. Serial No. 664,537. (No model.)



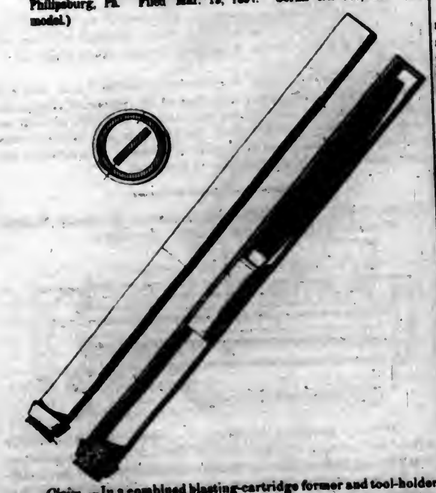
Claim.—1. In a car-coupler the combination with the draw-head having spring-jaws pivoted therein, of means for opening said jaws comprising a rod carrying a cam adapted to operate one jaw, and means, such as a chain for connecting said cam with the rear end of the opposite jaw whereby to operate it, substantially as described.

2. In a car-coupler the combination with the draw-head of spring-jaws pivoted therein having lateral slots, a stop-block within the draw-head having tongues adapted to fit in said slots, a rod journaled in bearings on the side of the draw-head and carrying a cam, contacting with one of the jaws and means, such as a chain, for connecting the cam with the rear end of the opposite jaw, substantially as described.

3. In a car-coupler the combination with the draw-head of jaws pivoted therein having slots, a stop-block having in its forward portion outwardly-extending tongues adapted to fit in said slots, and in its rear a cut-away portion to permit lateral movement of the jaws, springs located in such cut-away portion and normally pressing the rear ends of the jaws outward, and means for forcing said rear ends inward to open the coupler, substantially as described.

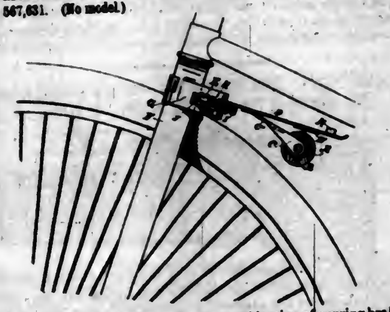
4. In a car-coupler, the combination with the draw-head having spring-jaws pivoted therein of means for opening said jaws comprising a vertically-extending rod journaled in bearings in the draw-head, a cam carried by said rod and normally contacting with one jaw, means such as a chain, connecting the cam with the rear end of the opposite jaw, a supplemental rod journaled in the draw-head, and extending horizontally outward to the side of the car, and a chain connecting said rod with the cam, whereby, in the operation of the device the jaws may be opened from the top or side of the car, substantially as described.

605,727. COMBINATION BLASTING-TOOL. GEORGE LAWS, Philipsburg, Pa. Filed Mar. 19, 1897. Serial No. 628,249. (No model.)



Claim.—In a combined blasting-cartridge former and tool-holder, the combination of the hollow squib-container handle, a retaining-shoulder thereon, a stopper therefor, a tool-holder closing the opposite end of said handle and the tool-covering cap closely engaging said tool-holder and abutting against said handle forming therewith a continuous even-surface former for the purpose set forth.

605,728. BICYCLE-BRAKE. DAVID H. LE BALLISTER, Fort Bragg, Cal., assignor, by mesne assignments, to Daniel H. Haynes and Arthur D. Stebbins, Baltimore, Md. Filed Nov. 1, 1895. Serial No. 567,631. (No model.)



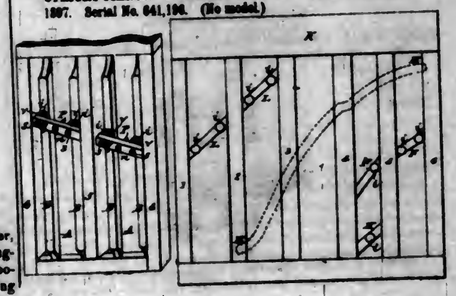
Claim.—1. In a bicycle-brake, the combination of a spring brake-lever, an arm fixed to the brake-lever, a roller carried by the arm, the brake-lever having a part engaging the roller, to retard the rotation thereof, and an operating device connected with that part of the brake-lever which engages the roller.

2. In a bicycle-brake, a flat spring-plate fixedly suspended at one end from the frame of the machine and having its opposite end free and adapted to be depressed, a second flat spring-plate secured at one end to the first-named plate and having its outer portion turned to form side lugs, a roller mounted to turn between said lugs and suspended between the tire and the under side of the first-named plate, and normally out of contact with both, and means whereby the free end of the first named plate may be depressed to force one side of the roller into contact with the tire and simultaneously bring its own wearing-surface into contact with the opposite side of the roller.

3. In a bicycle-brake, a roller turnable upon a shaft which is fixed to an elastic plate, a main plate extending substantially parallel with and fixed to and overhanging the first-named plate, having a wearing-surface upon the lower side, said roller being normally out of contact with the wearing-surface of the main plate, a transverse bar, to the central portion of which the main plate is secured, while the ends project so as to form foot-rests, and a clamp in which the transverse bar is movable horizontally and by which the bar and plate are secured to the forks of the machine.

4. In a bicycle-brake, an elastic plate fixed to a transverse foot-rest and having a wearing-surface upon the lower side, a roller turnable upon a shaft which is fixed to a supplemental spring-plate, said plate being fixed to the main plate so that the roller is suspended between the main plate and the wheel of the machine, a mechanism for adjustably securing the device to the forks of the bicycle consisting of inclosing plates adapted to fit and clasp each of the forks, slots made in said plates through which the foot-rest bar extends and in which it is movable horizontally, screws turnable in nuts at the rear of the clamping-plate, the points of said screws pressing against the bar and adapted to force it against the forks so to clamp it securely thereon.

605,729. DEVICE FOR CORRECTING SOUNDING-BOARDS IN UPRIGHT PIANOS. RAPHAEL B. LETTON, Quincy, Ill. Filed June 17, 1897. Serial No. 641,196. (No model.)

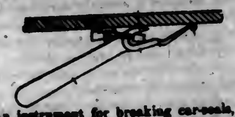


Claim.—1. In a device for correcting the sounding-boards of upright pianos, the combination of the frame-standards, sounding-board, ribs, braces secured between said standards, bolts connecting said sounding-board to said braces, pressure-blocks seated between said braces and said ribs, and set-screws in said braces adapted to bear against said blocks, substantially as described.

2. In a device for correcting the sounding-boards of upright pianos, the combination of the frame-standards, sounding-board, ribs, pliable pressure-blocks arranged to bear against said ribs, and caps adapted to protect said pliable pressure-blocks, substantially as described.

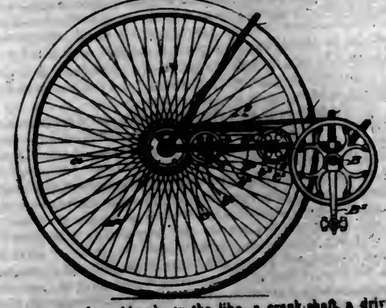
3. In a device for correcting the sounding-boards of upright pianos, the combination of the frame-standards, sounding-board, ribs, pressure-blocks arranged to bear against said ribs, protecting-caps against which said pressure-blocks are seated, a brace seated against said caps, and a bolt forming a connection between said brace and said sounding-board; substantially as described.

605,730. INSTRUMENT FOR BREAKING CAR-SEALS. THOMAS A. LEATHERMAN, Laredo, Tex. Filed Jan. 26, 1898. Serial No. 667,909. (No model.)



Claim.—An instrument for breaking car-seals, the instrument having a handle provided with two legs extending in approximate parallelism with each other and disposed at an obtuse angle to the handle, one of said legs being flat and being longer than the other leg, and having its outer end provided with a roll forming a fulcrum whereon the tool may rock, the said flat leg being disposed so that the roll will engage with the surface of the car at all points along the length of the roll.

605,731. VEHICLE-PROPELLING MECHANISM. JOSEPH A. LITTLE, Lawrence, Mass., assignor of one-half to Hugh P. Simpson, same place. Filed Oct. 19, 1894. Serial No. 526,261. (No model.)



Claim.—1. In a bicycle or the like, a crank-shaft, a driving-wheel, a sheave on each, a belt connecting said sheaves, a clutch intermediate said driving-wheel and its sheave whereby rotation of the belt in one direction positively rotates the driving-wheel, free rotation of the belt in the reverse direction being permitted, a guide-roll for and to be rotated by the belt, a brake on the drive-wheel, and connections between said roll and brake, whereby rotation of the belt in the reverse direction and consequent rotation of the roll sets the brake, substantially as described.

2. In a bicycle or the like, a driving-wheel, normally operative clutch mechanism to rotate it in one direction, a crank-shaft, a driving-belt between said shaft and clutch mechanism, combined with a hand-brake for the driving-wheel, and an actuator therefor, mounted independently of the driving-wheel and crank-shaft, connections between said actuator and said belt, to positively operate the former by said belt and controlled by the direction of movement thereof, retrograde movement of the belt simultaneously releasing the propelling clutch mechanism and throwing into continuous operation the actuator of the hand-brake, substantially as described.

3. In a bicycle or the like, a driving-wheel and a driving-shaft, a sheave on each, a slack belt connecting said sheaves, and a guide-roll adjacent to and to hold the belt against each sheave, with the slack of the belt between the rolls, combined with a peripherally-grooved friction-surface rotatable with the driving-wheel, a V-shaped flexible band cooperating therewith, and connections between said band and one of the guide-rolls, to tighten the V-shaped band, when the direction of rotation of the roll is reversed, substantially as described.

4. In a bicycle or the like, a driving-wheel, a brake member secured thereto, a clutch-sheave loosely mounted upon the wheel-hub, dogs carried by said sheaves to engage the hub and rotate the wheel in one direction, a crank-shaft, a sheave fast thereon, and a slack driving-belt connecting said sheaves, combined with a compressible brake member, a guide-roll adjacent to and to hold the belt against the clutch-sheave and forming one member of a normally inoperative clutch, and a second member of said clutch connected to the compressible brake member, retrograde movement of the driving-belt reversing the direction of rotation of said guide-roll and simultaneously releasing the clutch-sheave on the driving-wheel and actuating the normally inoperative clutch to set the brake, and maintain it set, substantially as described.

5. In a bicycle or the like, a driving-wheel, normally operative clutch mechanism to rotate it in one direction, a crank-shaft, and connections between said shaft and clutch mechanism, combined with a brake for the driving-wheel, and an actuator therefor comprising a normally inoperative clutch controlled by the direction of rotation of the crank-shaft, retrograde movement of the crank-shaft simultaneously releasing the propelling clutch mechanism and throwing into operation the brake-actuator clutch, substantially as described.

6. In a coasting and braking device for cycles, the combination with a driving-belt, a clutch, and a brake, of means engaging the driving-belt and connected with the brake, for operating the same when the driving movement of the belt is reversed.

7. In a cycle, a driving-wheel and its shaft, an independent pedal-shaft, and a connection between said pedal-shaft and the driving-wheel, including a clutch and a power-transmitting member, combined with a brake, and means controlled by the pedal-shaft to operate the brake.

8. In a cycle, a driving-wheel and its shaft, an independent pedal-shaft, and a connection between said pedal-shaft and the driving-wheel, including a clutch and an endless flexible power-transmitting member, combined with a brake, and means controlled by the pedal-shaft to operate the brake.

605,732. TREAD FOR STAIRS, &c. CHARLES W. LOUER, Lowell, Mass., assignor to the American Mason Safety Tread Company, Saco, Me. Filed June 1, 1897. Serial No. 638,857. (No model.)



Claim.—1. A tread for stairs and other purposes consisting of a plate of hard metal provided with holes extending through said metal and tapering upwardly in combination with a soft material placed in said holes to produce a non-slippable surface, and grooves around each hole.

2. A tread for stairs and other purposes, consisting of a plate of hard metal provided with holes in combination with a soft material placed in said holes to produce a non-slippable surface, and means for holding a body of lead on the under side of said plate.

3. A tread for stairs and other purposes consisting of a plate of hard metal provided with holes extending through said metal and tapering upwardly in combination with a soft material placed in said holes to produce a non-slippable surface, means for holding said soft material in place, and longitudinal and transverse grooves between said holes.

4. A tread for stairs and other purposes consisting of a plate of hard metal provided with holes extending through said metal and tapering upwardly in combination with a soft material placed in said holes to produce a non-slippable surface, means for holding said soft material in place, longitudinal and transverse grooves between said holes, and means for holding a body of lead on the under side of said plate.

605,733. CUTTER. LOUIS MAUK, Canyon City, Tex. Filed Sept. 3, 1897. Serial No. 650,522. (No model.)

Claim.—1. The combination in a cutter of the upper and lower hinged sections, each section carrying two halves of the journal-bear-

ings, supports for said lower section, the support on one side forming clamps to clamp it to the edge of a table, and the supports on the opposite sides having flanges and adapted to be screwed to the surface of the table, one of said supports on each side extending above the upper section to receive a clamping-bolt to retain the said sections in position, and the other two supports extending above the lower section forming guides and stops for the upper section, against lateral pressure from the disk said disk being mounted upon a shaft in said bearings, all arranged for joint operation as set forth.



2. The combination in a cutter such as described having the upper and lower sections supports for the lower sections, the cutter-disks carried in the journals of said sections, the spindle of each disk having a removable sleeve, said sleeve being screw-threaded on the end for the interchange of cutter-disks, said disks having corresponding female screw-threads in their hubs, and adjustable on the spindle, and provided with adjustable cutter-knives the knives resting in slanting grooves, the backs of said grooves forming supports for the knives whereby the strain is taken from the holding-screws, the upper sections being secured from lateral strain by the said support, substantially as set forth.

605,784. TAKE-DOWN GUN. WILLIAM MARSH, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Nov. 22, 1897. Serial No. 659,269. (No model.)



Claim.—1. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, and an internally and externally threaded normally-fixed take-up sleeve mounted upon the threaded butt-end of the gun-barrel, taking into the threads of the said barrel-receiving opening and normally fixed upon the barrel but adjustable thereupon for taking up wear.

2. In a take down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, and an internally and externally threaded normally-fixed take-up sleeve mounted upon the threaded butt-end of the gun-barrel, taking into the threads of the said barrel-receiving opening, and means for normally holding the said sleeve against rotation upon the said barrel upon which it is turned only for taking up wear.

3. In a take-down gun, the combination with a gun-frame, having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded; and a normally-fixed take-up sleeve internally threaded for mounting upon the gun-barrel, and externally threaded for taking into the threads of the said opening, the external threads of the sleeve being coarser in pitch than the internal threads thereof.

4. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, and a normally-fixed take-up sleeve internally threaded for mounting upon the gun-barrel, externally threaded for taking into the threads of the said opening, and having an annular locking-shoulder formed at its forward end and engaged for normally locking the sleeve against rotation.

5. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, a normally-fixed take-up sleeve internally threaded for mounting upon the butt-end of the barrel and externally threaded for taking into the threads of the said opening, and formed at its forward end with an annular shoulder, and a dog engaging with the said shoulder for locking the sleeve against rotation and in any desired position of adjustment.

6. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having its butt-end threaded, a tubular magazine, a yoke uniting the butt-end of the barrel and the rear end of the magazine, a take-up sleeve internally threaded for being mounted upon the butt-end of the barrel, and externally threaded for taking into the threads of the said opening, and a dog adapted to engage with the sleeve for locking the same in any desired position of adjustment, and located in a slot formed in the rear face of the said yoke.

7. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, and shaped at its forward end to form a recoil-face, of a gun-barrel and a tubular magazine, a yoke for uniting the butt-end of the barrel and the rear end of the magazine, and having a recoil-face conforming to that of the gun-frame, a normally-fixed take-up sleeve internally-threaded for being mounted upon the butt-end of the barrel and externally threaded for taking into the threads of the said opening and a stop projecting forward from the recoil-face of the gun-frame for limiting the rotation of the gun barrel with respect to the gun-frame in assembling the gun.

8. In a take-down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, of a gun-barrel having an externally-threaded butt-end, a tubular magazine, a yoke uniting the butt-end of the barrel with the rear end of the magazine, and having its rear face conformed to the front face of the frame, a normally-fixed take-up sleeve internally threaded for mounting upon the gun-barrel and externally threaded for taking into the threads of the said barrel-receiving opening, a dog mounted in a slot formed in the rear face of the yoke, engaging with the sleeve for locking it against rotation, and formed with a stop-recess, and a stop projecting from the forward face of the gun-frame and entering the said stop-recess to limit the movement of the yoke, barrel and magazine in assembling the gun.

9. A gun provided with a cartridge-chamber the rear portion of which is located in the frame of the gun and formed with one or more extractor-receiving slots, the remaining or forward portion of the cartridge-chamber being located in the butt-end of the gun-barrel which may be removed from the gun-frame without disturbing the said rear portion of the said cartridge-chamber.

10. In a gun, the combination with the frame thereof, of a ring located within the said frame, forming the rear portion of the cartridge-chamber and furnished with one or more extractor-receiving slots, and a removable gun-barrel containing the remaining portion of the cartridge-chamber, and abutting against the forward face of the said ring when in its home position.

11. In a take-down gun, the combination with a gun-frame having a threaded barrel receiving opening and a threaded tubular magazine-opening, of a gun-barrel adapted to be entered into and secured within the said barrel-opening, a magazine threaded for entrance into the said magazine-opening and formed with an annular drawing-shoulder located at a right angle to the longitudinal axis of the magazine, a yoke rigidly secured to the barrel and having a magazine-passage for the passage through it of the magazine, and engaged by the said drawing-shoulder of the magazine for being drawn solidly against the gun-frame when the magazine is turned into its home position.

12. In a take-down gun, the combination with a gun-frame having a threaded barrel-receiving opening, and a tubular-magazine opening formed with interrupted threads, of a gun-barrel adapted to be inserted into and secured within the said barrel-opening and a normally-fixed take-up sleeve internally threaded for being mounted upon the butt-end of the barrel and externally threaded for taking into the threads of the barrel-receiving opening, a tubular magazine having its rear end formed with interrupted threads for coaction with the interrupted threads of the said magazine-opening, and a yoke uniting the butt-end of the barrel with the rear end of the magazine.

13. In a take-down gun, the combination with a gun-frame having a threaded barrel-receiving opening, and a tubular-magazine opening formed with interrupted threads, of a gun-barrel adapted to be inserted into and secured within the said barrel-opening, and a tubular magazine having its rear end formed with interrupted threads, and also with an annular drawing-shoulder located in a plane intersecting the longitudinal axis of the magazine at a right angle, a yoke firmly connected with the barrel and having a magazine-passage through which the magazine passes and which is formed with segmental drawing-shoulders separated by clearance-spaces, the said annular shoulder of the magazine and the said segmental shoulders of the yoke coacting to draw the lower end of the yoke solidly against the lower portion of the gun-frame when the magazine is turned into its home position.

14. In a tubular-magazine gun, the combination with the barrel and tubular magazine thereof, of a band embracing the said magazine and barrel a tie interposed between the barrel and magazine between the arms of the band, and having its upper face recessed for the clearance of the barrel and its lower face recessed for the clearance of the magazine, two screws respectively entering the opposite ends of the said tie and engaging with the arms of the band for drawing the same together, and at their inner ends emerging into the said upper recess and entering notches formed in the barrel for preventing the band from moving.

15. In a tubular-magazine gun, the combination with the barrel thereof, of a tubular magazine, a magazine-plug located in the forward end of the magazine, and a pin-lever mounted in the plug in which it is longitudinally movable and provided for turning the magazine into its home and take-down positions.

16. In a tubular-magazine gun, the combination with the barrel thereof, of a tubular magazine, a magazine-plug located in the forward end of the magazine, a pin passing diametrically through the plug in which it is longitudinally movable and provided for turning the magazine into its home and take-down positions and a spring for controlling the position of the said pin-lever.

17. In a tubular-magazine gun, the combination with the barrel thereof, of a tubular magazine, a magazine plug located in the forward end of the magazine, and formed with a diametric pin-lever hole, the ends of which are counterbored, a longitudinally-movable pin-lever located in the said hole in which it is movable, and a spring mounted in the said lever, and adapted at one end to spring into the counterbored ends of the hole for holding it in its operating and retired positions.

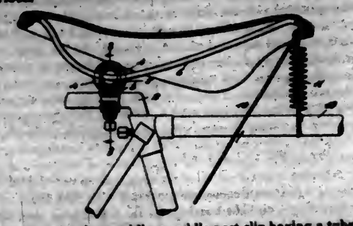
18. In a tubular-magazine gun, the combination with the barrel thereof, of a tubular magazine, a magazine-plug located in the forward end of the magazine, a lever mounted in the said plug for rotating the magazine, and a stop-ring mounted upon the plug and engaging with the barrel which prevents it from rotating upon its own axis and coacting with the plug to limit the rotation of the magazine in one direction or the other.

19. In a take down gun, the combination with a gun-frame having an internally-threaded barrel-receiving opening, and shaped at its forward end to form a recoil-face, of a gun-barrel and a magazine, a yoke for uniting the butt-end of the barrel and the rear end of the magazine, and having a recoil-face conforming to that of the gun-frame, and an internally and externally threaded normally-fixed take-up sleeve mounted upon the threaded butt end of the gun-barrel, and taking into the threads of the said barrel-receiving opening, and made adjustable for performing the twofold function of compensating for wear falling upon the internal threads of the opening, and upon the external threads of the sleeve, and upon the two recoil-faces.

605,785. VEHICLE-BRAKE. FRANK H. MATHS, Denver, Colo. Filed Jan. 26, 1897. Serial No. 619,993. (No model.)

Claim.—1. In a bicycle, a saddle-support, comprising a clip provided with a tubular portion having opposite openings, and a rocking shaft mounted in the tubular portion of the clip, the seat-spring being adapted to be secured in the rock-shaft and project out through the openings of the tubular portion of the clip, substantially as and for the purpose set forth.

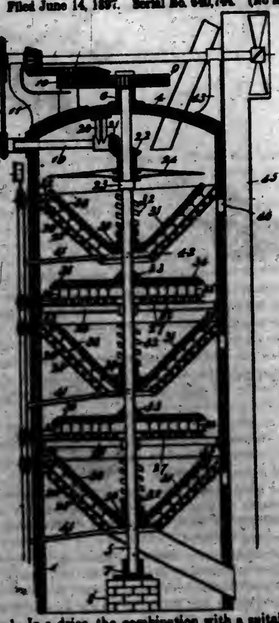
2. In a bicycle, a seat-support, comprising a clip provided with a tubular portion having opposite openings, and a tubular rocking shaft mounted in the tubular portion of the clip and provided with opposite openings, said openings being smaller than the openings of the tubular portion of the clip, the said shaft being slitted longitudinally and having one end threaded to receive a nut, substantially as described.



3. In a bicycle, a saddle, a saddle-post clip having a tubular portion provided with opposite slot-openings, a rocking and clamping clip in said tubular portion and having openings through which the saddle-spring extends, the said openings being smaller than those of the tubular portion of the clip, a brake designed to be engaged with a portion of a wheel of a bicycle, and a connection between said brake and one end of the saddle, substantially as specified.

4. In a bicycle, the combination with the rear axle having a bearing between the hub of the wheel and a member of the fork, of a saddle, a clip having a rocking shaft in which the spring of the saddle is secured, a strap engaging the bearing of the axle, and a connection between the forward end of the saddle and the strap, substantially as described.

605,736. DRYING APPARATUS. ANDREW J. MILLER, Metamora, Ind. Filed June 14, 1897. Serial No. 640,744. (No model.)



Claim.—1. In a drier, the combination with a suitable housing of a rotatable shaft mounted therein, a spreader and radial vertically-inclined arms keyed on said shaft, said arms carrying blades or agitators, an inwardly-inclined hollow floor having heating-coils therein, said floor being open at its center, and means for operating the foregoing devices, as set forth.

2. In a drier, the combination with a suitable housing of a rotatable shaft vertically mounted in the housing, a spreader and radial arms vertically inclined carrying blades or agitators keyed to said shaft, an inwardly-inclined hollow floor having heating-coils therein, said floor being open at its center, horizontal arms carrying spreaders or agitators, a horizontal floor having heating-coils therein, and means to operate the foregoing devices, all arranged as set forth.

3. In a drier, the combination with a suitable housing of a rotatable shaft therein, a hopper for the admission of the grain, a horizontal spreader and arms radially and vertically disposed, said arms

carrying agitators and keyed to said shaft, floors cooperating with said agitators and separate and independent means to rotate respectively the spreader and the radial arms, all arranged as set forth.

4. In a drier, the combination with a suitable housing of a rotatable shaft vertically mounted therein, a hopper for the grain, radial arms vertically disposed carrying agitators and keyed to said shaft, floors cooperating with said agitators, and means to actuate the foregoing devices consisting of a crank-shaft carrying beveled gearing operating said rotatable shaft and a sprocket and chain acting on bevel-gearing operating the spreader, all arranged as set forth.

5. In a drier, the combination with a suitable housing of a rotatable shaft vertically mounted therein, a series of inclined and horizontally-disposed floors, a series of rotating arms keyed to said shaft and carrying agitators designed to cooperate with said floors, an air-shaft cooperating with said housing and an exhaust-fan mounted in said shaft and adapted to withdraw the moisture-laden atmosphere from said housing, all operatively arranged as set forth.

6. In a drier, the combination with a suitable housing of a rotatable shaft journaled therein, a horizontal spreader loosely mounted on said shaft, and means to lock the spreader in operative condition, radial arms keyed to said shaft carrying agitators, floors designed to cooperate with said agitators, and means to operate the foregoing devices, all arranged as set forth.

7. In a drier, the combination with a suitable housing of a horizontal spreader-disk, a series of radial arms carrying agitators, means to simultaneously adjust and secure in position all of said blades at any desired angle, and means for imparting greater speed to the disk than that imparted to the agitators, all arranged as set forth.

605,737. CAR-COUPLING. CHARLES R. MOORE and JOHN DOYLE, Chicago, Ill. Filed Aug. 12, 1897. Serial No. 647,967. (No model.)



Claim.—1. A coupler, having a jaw, a jaw-recess, a ledge at the bottom of the jaw-recess, and a fork arranged to straddle the jaw-recess and confine the jaw of a counterpart coupler; substantially as and for the purposes specified.

2. A coupler having a jaw, a jaw recess, and a tapering fork arranged to straddle the jaw-recess and pinch the jaw of a counterpart coupler whereby the jaws are forced together laterally; substantially as and for the purposes specified.

3. A coupler having a jaw, a jaw-recess, a ledge at the bottom of the jaw-recess, and a tapering fork arranged to straddle the jaw-recess and confine the jaw of a counterpart coupler, substantially as and for the purposes specified.

4. The combination with a coupler stem comprised of longitudinally-adjustable sections, of a resilient ball, and a ball socket or bracket whereby the stem is attached to the car, substantially as and for the purposes specified.

5. The combination, with a coupler-stem, of a resilient ball, and a ball-socket: substantially as and for the purposes specified.

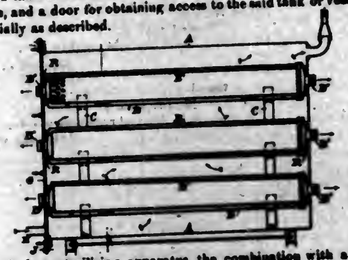
6. The combination with a coupler-stem, of convex follower-disks, an interposed spring, and a suitable pocket for said disks and spring: substantially as and for the purposes specified.

7. The combination with a coupler-stem of a resilient ball, and a bracket having a ball-socket and provided with a horizontally-projecting ledge in advance of the ball-socket, substantially as and for the purposes specified

8. The combination with a coupler having a jaw and a jaw-recess provided at its bottom with a ledge to support the jaw of a counterpart coupler, of a drop-fork arranged to straddle the jaw-recess and confine the jaw of the counterpart coupler, and a horizontally-projecting ledge arranged to support the stem of the coupler adjacent to its point of attachment to the car: substantially as and for the purposes specified.

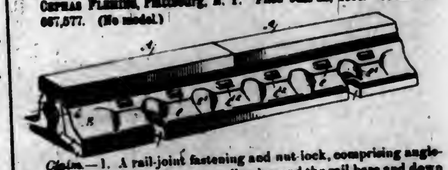
605,738. STERILIZING APPARATUS. ALFRED MOLET, Lyons, France. Filed Dec. 20, 1897. Serial No. 662,667. (No model.)

Claim.—1. In a sterilizing apparatus, the combination with a suitable tank or vessel having a steam-inlet and a steam-outlet, of a plurality of perforated and jacketed cylinders suitably supported within said tank or vessel and having their ends open to the outer atmosphere, and a door for obtaining access to the said tank or vessel, substantially as described.



2. In a sterilizing apparatus, the combination with a suitable tank or vessel having a steam-inlet and a steam-outlet, of a plurality of perforated and jacketed cylinders removably supported within the tank or vessel and each cylinders provided with hollow end extensions which extend through the side walls of the tank or vessel, and a door for obtaining access to the interior of the said tank or vessel.

605,739. RAIL-JOINT AND NUT-LOCK. MICHAEL MULLINS and CEPHAS FLEMING, Plattsburg, N. Y. Filed Jan. 22, 1898. Serial No. 667,577. (No model.)



Claim.—1. A rail-joint fastening and nut-lock, comprising angle-iron fish-plates having a foot extending beyond the rail-base and down toward the tie, and having spike-receiving notches in the outer edge, one of said plates having squared bolt-head recesses about its bolt-holes, and the other plate having an outwardly-projecting rib or lip at its upper edge, and a nut locking plate fitting the angle of the latter fish-plate with its upper edge beneath the rib or lip and having squared recesses adapted to receive the nuts on the bolts, and with the walls thereof removed to expose the upper outer corner of the nuts, the lower flange of the nut-locking plate having notches corresponding with those in the fish-plates to receive the spikes, and also having an under concave groove extending longitudinally, substantially as described.

2. A rail-joint, having a nut-lock comprising angle-iron fish-plates having a foot extending beyond the rail base and down toward the tie, and having spike-receiving notches in their outer edges, one of said plates having squared bolt head recesses about its bolt-holes, and the other plate having an outwardly-projecting rib or lip at its upper edge, and a nut-locking plate fitting the angle of the latter fish-plate with its upper edge beneath the rib or lip, and having squared recesses adapted to receive the nuts on the bolts, the lower flange of the nut-locking plate having notches corresponding with those in the fish-plates, to receive the spikes, substantially as described.

605,740. PADLOCK. JAMES MURPHY, Terryville, Conn., assignor to the Eagle Lock Company, same place. Filed Dec. 28, 1897. Serial No. 663,139. (No model.)



Claim.—1. In a padlock, the combination with the case, of a shackle pivoted therein, said shackle provided at its pivot end with a locking-lug and at its nose with a locking-notch, a tumbler also pivoted in the said case and adapted to engage with the nose of the shackle, and a locking-guard pivotally mounted in the case and adapted to be turned by the key and formed with two oppositely-extending arms, one of which is engaged by the locking-lug of the shackle and the other coupled with said tumbler for moving it, substantially as described.

2. In a padlock, the combination with the case, of a shackle pivoted therein, said shackle provided at its pivot end with a locking-lug and at its nose with a locking-notch, a tumbler also pivoted in said case and adapted to engage with the nose of the shackle, and a locking-guard pivotally mounted on the key-hub and so as to be turned by the key and formed with two oppositely-extending arms, one of which is engaged by the locking-lug of the shackle and the other end projecting over said tumbler with which it is coupled, substantially as described.

3. In a padlock the combination with the case thereof, of a shackle pivoted in the case and provided at its pivot end with a locking-lug and at its nose with a locking-notch, of a tumbler also pivoted in said case, and formed with a flange at its upper end for engagement with the locking-notch in the shackle, and with an inclined slot, a locking-guard also mounted in the case for movement by the key, said guard formed at opposite sides with arms one of which is adapted to engage with the locking-lug and the other provided with a stud to engage the inclined slot in the tumbler, and a spring, the tendency of which is to hold the locking-guard in its normal position, substantially as described.

605,741. STRAIN-INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed Jan. 18, 1898. Serial No. 667,041. (No model.)

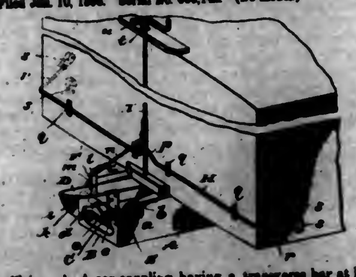


Claim.—1. An insulator comprising metallic portions separated from each other by interposed insulating material, a case, as 7, secured to the projecting end of one of said connections outside said insulating material, a sleeve secured at one end within said case and provided with a screw-threaded bolt whereby as the sleeve is turned the bolt may be screwed into or out of the sleeve to tighten or loosen the supporting-wire, substantially as described.

2. In an insulator the combination of metallic portions separated from each other by interposed insulating material, the case 7 having the inwardly-projecting flange 8, the sleeve 6 and bolt 9, substantially as described.

3. A strain-insulator comprising metallic portions separated from each other by interposed insulating material, a coupling member connected with a projecting part of one of said metallic portions outside of the insulating material by a swivel-joint, and a connector having an adjustable screw-threaded union with the said coupling member, substantially as described.

605,742. CAR-COUPLING. FRANCIS MCFARLANE, Iroquois, S. D. Filed Jan. 10, 1898. Serial No. 666,142. (No model.)

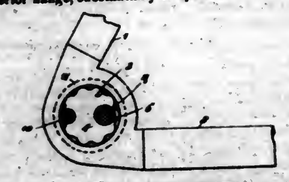


Claim.—1. A car-coupling having a transverse bar at its front end and vertical sides extending above said end, the transverse bar rounded at *c* and the side cut away at *b*, and a wearing-plate detachably applied to the front end on the inside thereof, in combination with a hook provided with a rounded inner and a rounded under side and a right-angled plate attached to the inner side of the hook.

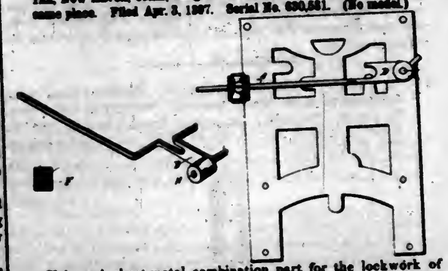
2. A car-coupling provided with a vertically-movable hook, a shaft having a crank thereon and a chain attached to said crank, in combination with a hook connected to said chain and having an eye *w* and an eye *w'* in the body thereof, a tongue connected to the eye *w'* of the hook and engaging the eye *w* at its free end and a guard surrounding the body of the hook and the tongue.

605,743. CHAIN-ADJUSTING DEVICE. ALEXANDER PERVIER, New York, N. Y. Filed Sept. 21, 1896. Serial No. 606,503. (No model.)

Claim.—In a bicycle, a connection between the lower bar of the frame and a member of the rear fork, said connection having a circular opening, an annular flange on the wall of said opening intermediate of the sides of the connection, the said flange being provided with transverse notches, a pair of disks inserted in the opening, one at one side and the other at the other side of the connection, each disk having an annular flange bearing on the outer surface of its side of the connection and each disk having a hole eccentrically through it, and a screw passing through an opening in the periphery of one disk and engaging with a tapped opening near the periphery of the other disk, the said screw also engaging in one of the notches of the interior flange, substantially as specified.

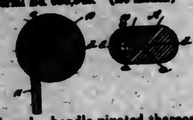


605,744. HAMMER FOR STRIKING-CLOCKS. WILSON R. POTTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed Apr. 3, 1897. Serial No. 630,581. (No model.)



Claim.—A sheet-metal combination part for the lockwork of striking-clocks, the said part comprising a body portion, a long hammer-arm formed integral with the said body portion with which it is parallel, a lifting-finger formed integral with the said body portion and bent inward at a right angle thereto, a stop also formed integral with the said body portion and bent inward at a right angle thereto in the same direction as the said lifting-finger, an independently-formed hammer mounted upon the said hammer-arm, and an independently-formed hub rigidly secured by upsetting its reduced inner end, to the outer face of the said body portion, and providing a long bearing for the stud on which the combination part is hung, and on which it oscillates.

605,745. HANDLE. FREDERICK READ, Brooklyn, N. Y. Filed Oct. 27, 1897. Serial No. 656,548. (No model.)

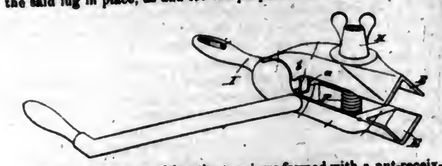


Claim.—A ball, and a handle pivoted thereon eccentrically and having a preponderance of material on the same side of the pivot as the center, the material being so disposed that the diameter through the pivot shall be longer than a line drawn through the handle at the pivot perpendicular to the said diameter, whereby the fingers of the user have a purchase to press inward on said diameter to hold the ball adjacent to the palm.

605,746. WRENCH. WALTER H. ROBBINS, New York, N. Y., and EDWARD J. LAWLESS, Orange, N. J. Filed Dec. 9, 1897. Serial No. 661,205. (No model.)

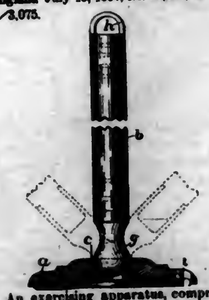
Claim.—1. A wrench provided with two jaws, one of said jaws being cast in one piece with converging sides forming one half of a nut-receiving socket, a partition flush with the opposite edges of said sides and forming a vise-surface and a rear wall for the nut-receiving socket, flanges at its rear end and separated from each other and an undercut curved socket between said flanges, and the other jaw being cast also in one piece with correspondingly-shaped sides and partition, whereby the other half of the nut-socket and the other vise-surface are provided, and at its rear end with a central curved lug fitting in the socket between said flanges, there being provided ad-

justing means for said jaws, which means prevents longitudinal movement of one jaw with respect to the other, whereby to securely hold the said lug in place, as and for the purpose set forth.



2. A wrench comprising the two jaws formed with a nut-receiving socket and a partition extending across each jaw and flush with the edges of the same, one of said jaws having side flanges separated from each other and having formed between them a curved undercut socket, a steadying-handle integral with said jaw and extending rearwardly from the point where the said socket is located, a crank-handle integral with said jaw and extending laterally therefrom at a point in advance of said socket, and the other jaw being formed with a curved lug extending from its rear end and removably received in said socket and with a curved surface on each side of said lug, said curved surfaces having bearing upon the said flanges, and a spring-encircled adjusting-bolt inserted through said jaws and preventing longitudinal movement of either jaw with respect to the other and the removal of the said lug from its place, as and for the purpose set forth.

605,747. EXERCISING APPARATUS. STANISLAW SACHS, Berlin, and HERMANN JAFFÉ, Parchim, Germany. Filed Oct. 16, 1897. Serial No. 655,469. (No model.) Patented in Germany Dec. 12, 1896, No. 94,583; in England July 13, 1897, No. 16,057, and in Austria Aug. 26, 1897, No. 47/3,075.



Claim.—1. An exercising apparatus, comprising a heavy base-plate having a flat under side, and provided with a central circular opening therethrough, having a thickened rounded mouth upon its upper side; of a pole or stock having a spherical knob at one end adapted to rest in the mouth of said opening, and have a universal movement therein, the weight of said pole or stock or the pressure imparted thereto by the operator, serving to hold said knob in said opening, substantially as and for the purposes described.

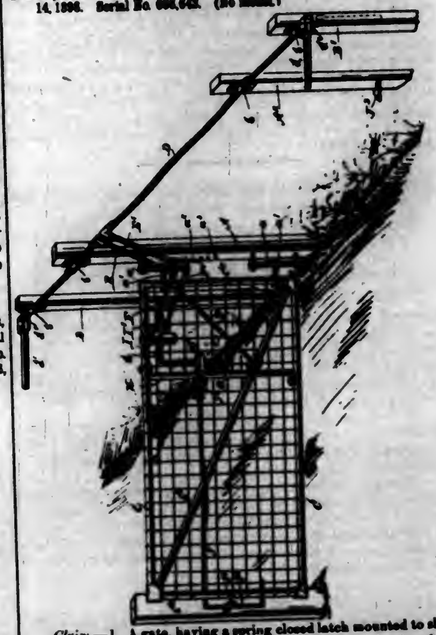
2. An exercising apparatus comprising a heavy base-plate, having a flat under side, and a soft annular ring partially embedded in said flat under side; and provided with a central circular opening therethrough having a thickened rounded mouth upon its upper side; of a pole or stock having a spherical knob at one end adapted to rest in the mouth of said opening, and have a universal movement therein, the weight of said pole or stock or the pressure imparted thereto by the operator, serving to hold said knob in said opening, substantially as and for the purposes described.

3. An exercising apparatus comprising a heavy base-plate having a flat side, and an opening therethrough near its periphery for suspending said plate from a hook or the like in some upright; and provided with a central circular opening having a thickened rounded mouth upon its other side; of a pole or stock having a spherical knob at one end adapted to rest in the mouth of said opening and have a universal movement therein while being used by the operator, substantially as described.

4. An exercising apparatus comprising a heavy base-plate having a flat under side, and provided with a central circular opening therethrough having a thickened rounded mouth, upon its upper side; of a pole or stock having a spherical knob at one end adapted to rest in the mouth of said opening, and have a universal movement therein, the weight of said pole or stock or the pressure imparted thereto by the operator, serving to hold said knob in said opening, and a jointed hand-grip upon the other end of said pole or stock, substantially as and for the purposes described.

5. An exercising apparatus comprising a heavy base-plate having a flat under side, and provided with a central circular opening therethrough having a thickened rounded mouth upon its upper side; of a pole or stock having a jointed hand-grip at one end and a spherical knob at the other end adapted to rest in the mouth of said opening, and have a universal movement therein, and an adjustable weight mounted upon said pole or stock, substantially as and for the purposes described.

605,748. GATE. THEODORE SAWYER, Towanda, Ill. Filed Jan. 14, 1898. Serial No. 666,642. (No model.)

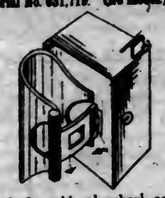


Claim.—1. A gate, having a spring closed latch mounted to slide longitudinally upon the gate, an eye attached to said latch, a bent lever composed of a vertical and a horizontal member pivoted by the lower end of the vertical member below said latch, the vertical member of said lever passing through the eye, a yoke fixed to the frame and embracing the upper horizontal member to form a guide therefor, a shaft mounted horizontally above the gate and extending at right angles to the gate when in its closed position, a crank-arm upon the shaft near the gate-pivot, and a link connecting the said crank-arm with the upper end of the latch-operating lever on the gate, substantially as described.

2. A gate, having a spring-closed latch mounted to slide longitudinally upon the gate, an eye attached to said latch, a bent lever pivoted by its lower end below said latch, the vertical member of said lever passing through the eye, a yoke fixed to the frame and embracing the upper horizontal member to form a guide therefor, a shaft mounted horizontally above the gate and extending at right angles to the gate when in its closed position, a crank-arm upon the shaft near the gate pivot, a link connecting the said crank-arm with the upper end of the latch-operating lever on the gate, a crank-arm mounted loosely on the shaft outside the fixed crank-arm, and a link connecting the end of said crank-arm with the gate outside the connection of the other link thereto, the same acting as a guard for the first crank-arm and link, substantially as described.

3. A gate having a spring-closed latch mounted to slide longitudinally upon the gate, an eye attached to said latch, a bent lever composed of a vertical and a horizontal member pivoted by the lower end of the vertical member below said latch, the vertical member of said lever passing through the eye, a yoke fixed to the frame and embracing the upper horizontal member to form a guide therefor, a shaft mounted horizontally above the gate and extending at right angles to the gate when in its closed position, operating-arms pivoted to the ends of said shaft so as to swing in a plane which includes the shaft, a crank-arm upon the shaft near the gate-pivot, and a link connecting said crank-arm with the upper end of the bent latch-operating lever on the gate, substantially as described

605,749. COIN-OPERATED LOCK FOR VEHICLE-WHEELS. REICH SCHNIPP and ADOLPH F. SCHNEIDER, New York, N. Y. Filed Apr. 12, 1897. Serial No. 631,719. (No model.)



Claim.—1. A lock for a bicycle-wheel, comprising a socket, a gate therefor, a bolt for engagement with said gate, and a coin-controlled means for locking the key of the lock, substantially as described.

2. A casing, a keeper adapted to receive a vehicle-wheel, a bolt adapted for engagement with the keeper and carried by the casing, and a coin-controlled lock-lever adapted to engage the key and prevent its turning or withdrawal, substantially as described.

3. A casing, a keeper for a vehicle-wheel, provided with a gate, a lock carried by the casing, the bolt of which is adapted for engagement with the gate of the wheel-keeper, a coin-receptacle, a lock-lever preventing the withdrawal of the key from the lock, said lever being adapted to receive the coin from the said receptacle, and a plunger arranged to move the coin in a direction to raise the lock-lever from the key, as and for the purpose set forth.

4. The combination, with a casing, a keeper for a vehicle-wheel, and a gate for the said keeper, of a lock contained in the casing, the bolt whereof is adapted for engagement with the said gate, a lock-lever normally engaging with the key of the lock and preventing its movement, and a plunger operating upon the said lock-lever through the medium of a coin, to raise the lever from the path of the key, as and for the purpose set forth.

5. The combination, with a casing, a keeper adapted to receive the tire and rim of a bicycle-wheel, a gate for the said keeper, and a key-operated lock located in the casing, the bolt whereof is adapted for engagement with the gate of said keeper, of a coin-chute, a lock-lever pivoted below the coin-chute, having a recess to receive a coin and a head which is normally in the path of the key of the lock, a weighted arm arranged for engagement with one face of the said coin, and a plunger adapted to act upon a coin when seated upon the lock-lever, as and for the purpose set forth.

6. The combination, with a casing, a keeper adapted to receive the rim and tire of a bicycle or other wheel, a gate provided for the keeper, and a key-operated lock located in the casing, the bolt whereof is adapted for engagement with said gate, of a lock-lever having a portion thereof normally held in the path of the key, preventing its withdrawal and preventing its turning, said lock-lever being provided with a recess adapted to receive the coin, and a vertical wall at one side of the recess, a gravity-arm, the foot portion whereof is arranged for engagement with the coin carried by the lock-lever, engaging said coin at the face opposite that in contact with the said wall, and a plunger arranged to carry the coin in a direction for lifting the lock-lever out of the path of the key, substantially as shown and described.

7. A lock for bicycle-wheels a lock lever for the key, which lever in its normal position prevents the key from being withdrawn or turned, said lever being operated by a coin acting directly upon it for carrying it out of the path of the key, and a plunger operating on the coin, as and for the purpose specified.

8. The combination with a casing, and a lock therein, of a lever arranged in the casing and adapted to engage the key to prevent its movement or withdrawal, said lever being operated by a coin acting directly upon it for carrying it out of the path of the key, substantially as described.

9. The combination with a casing, and a lock therein, of a pivoted and spring-pressed lever adapted to engage the key of the lock and to be engaged by a coin, a coin-chute above the said lever, and a plunger in said coin-chute, substantially as described.

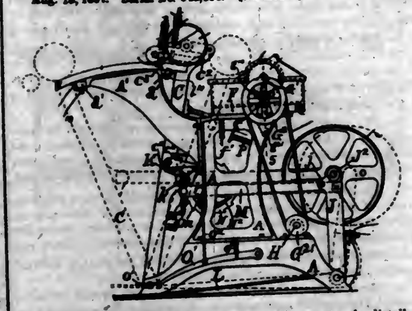
10. The combination with a casing and a lock therein, of a coin-chute having one wall slotted, a weighted arm pivoted in the slot of the coin chute, a plunger in the said chute and a pivoted and spring-pressed lever below the coin-chute and adapted to receive a coin therefrom, said lever being adapted to engage the key of the lock and prevent its movement or withdrawal, substantially as herein shown and described.

605,750. TILED ROOF. CHRISTIAN W. SIMON, Aalborg, Denmark. Filed Dec. 10, 1896. Serial No. 615,289. (No model.) Patented in Germany Apr. 25, 1895, No. 90,730.

Claim.—Tiles for roofing, made of baked and hardened plastic material and with recesses inclined downward toward their sides and adapted to receive tightly the bent-over flanges of metal strips, combined with metal strips whose bent edges or flanges are secured in such slits, and which strips tend to draw the tiles together, and also cover the joints.



605,751. STARCHING-MACHINE. ARTHUR B. SELDEN, Rochester, N. Y., assignor to Francis S. Macomber, trustee, same place. Filed Aug. 13, 1897. Serial No. 648,150. (No model.)



Claim.—1. The combination of a table, a starch-distributer, means for supplying starch to said distributer, devices for moving said distributer to and fro over said table, and mechanism for moving said distributer from said table and to and from said means for supplying starch.

2. The combination of a table, a starch-distributer, means for supplying starch to said distributer, devices for moving said distributer to and fro over said table, mechanism for moving said distributer to and from said means for supplying starch, and locking mechanism for retaining said devices for moving said distributer to and fro over said table in operating position.

3. The combination of a table, a starch-distributer, means for supplying starch to said distributer, devices for moving said distributer to and fro over said table, mechanism for moving said distributer to and from said means for supplying starch, locking mechanism for retaining said devices for moving said distributer to and fro over said table in operating position, and automatic releasing mechanism for releasing said locking mechanism.

4. The combination of a table, a starch-distributer, means for supplying starch to said distributer, devices for moving said distributer to and fro over said table, mechanism for moving said distributer to and from said means for supplying starch, locking mechanism for retaining said devices for moving said distributer to and fro over said table in operating position, and automatic releasing mechanism comprising a counting apparatus for releasing said locking mechanism after a predetermined number of movements of said devices.

5. The combination of a table, a starch-distributer, means for moving said distributer to and fro over said table, mechanism for producing an extra movement of said distributer in one direction for moving the same off said table, and means for supplying starch to said distributer at the end of said extra movement.

6. The combination of a table, a starch-distributer, means for moving said distributer to and fro over said table, mechanism for producing an extra movement of said distributer in one direction for moving the same off said table, means for supplying starch to said distributer at the end of said extra movement, and locking mechanism for retaining said means for moving said distributer to and fro over said table in operating position.

7. The combination of a table, a starch-distributer, means for moving said distributer to and fro over said table, mechanism for producing an extra movement of said distributer in one direction for moving the same off said table, means for supplying starch to said distributer at the end of said extra movement, locking mechanism for retaining said means for moving said distributer to and fro over said table in operating position, and automatic releasing mechanism for releasing said locking mechanism.

8. The combination of a table, a starch-distributer, means for moving said distributer to and fro over said table, mechanism for producing an extra movement of said distributer in one direction for moving the same off said table, means for supplying starch to said distributer at the end of said extra movement, locking mechanism for retaining said means for moving said distributer to and fro over

said table in operating position, and automatic releasing mechanism involving a counting device for releasing said locking mechanism after a predetermined number of operations of said means for moving said distributer.

9. The combination of a table, a starch-distributer, means for moving said distributer to and fro over said table, a starch-box, a starch-feeding mechanism for delivering starch from said box to said distributer, and mechanism for moving said distributer to and from said table and to and from said starch-feeding mechanism.

10. The combination of a table, a starch-distributer, means for moving said distributer to and fro over said table, a starch-box, a starch-feeding mechanism for delivering starch from said box to said distributer, mechanism for moving said distributer to and from said table and to and from said starch-feeding mechanism, and locking mechanism for retaining said devices for moving said distributer to and fro over said table in operating position.

11. The combination of a table, a starcher-roll, devices for moving said roll to and fro over said table, means for supplying starch to said roll, and mechanism for moving said roll from said table and to and from said means for supplying starch.

12. The combination of a table, a starcher-roll, devices for moving said roll to and fro over said table, mechanism for producing an extra movement of said roll in one direction off said table, and means for supplying starch to said roll at the end of said extra movement.

13. The combination of a table, a starcher-roll, devices for moving said roll to and fro over said table, mechanism for producing an extra movement of said roll in one direction off said table, means for supplying starch to said roll at the end of said extra movement, and locking mechanism for retaining the said devices for moving said roll to and fro over said table in operating position.

14. The combination of a table, a starcher-roll, devices for moving said roll to and fro over said table, mechanism for producing an extra movement of said roll in one direction off said table, and means for supplying starch to said roll at the end of said extra movement, locking mechanism for retaining said devices for moving said roll to and fro over said table in operating position, and automatic releasing mechanism for releasing said locking mechanism.

15. The combination of a table, a starch-distributer, a movable frame for carrying said starch-distributer to and fro over said table, a driving mechanism, connections between said driving mechanism and said movable frame, a locking mechanism for retaining said connections in operating position, and a releasing mechanism actuated by said movable frame.

16. The combination of a table, a starch-distributer, a movable frame for moving said distributer to and fro over said table, a driving mechanism, connections between said driving mechanism and said frame, locking mechanism for retaining said connections in operating position, and a cam device actuated by said connections for releasing said locking mechanism.

17. The combination of a table, a starch-distributer, a movable frame for moving said distributer to and fro over said table, a driving mechanism, connections between said driving mechanism and said frame, locking mechanism for retaining said connections in operating position, and a wheel actuated by movement of said connections and provided with a cam device for releasing said locking mechanism.

18. The combination of a table, a starch-distributer, a movable frame for moving said distributer to and fro over said table, a driving mechanism, connections between said driving mechanism and said frame, locking mechanism for retaining said connections in operating position, a ratchet-wheel having a cam for releasing said locking mechanism, a dog carried by said frame for moving said wheel step by step to release said locking mechanism after a predetermined number of movements of said frame.

19. The combination of a table, a starch distributer, a movable frame for moving said distributer to and fro over said table, a driving mechanism, connections between said driving mechanism and said frame, locking mechanism for retaining said connections in operating position, a ratchet-wheel provided with adjustable stop mechanism for determining the point whereat said wheel may commence to turn, a stationary cam device upon said wheel for releasing said locking mechanism, and a dog carried by said frame for moving said ratchet-wheel step by step to release said locking mechanism after a predetermined number of movements of said frame.

20. The combination of a table, a starch-distributer, a movable frame for moving said distributer to and fro over said table, a driving mechanism, connections between said driving mechanism and said frame, locking mechanism for retaining said connections in operating position, a wheel provided with adjustable stop mechanism for determining the point whereat said wheel may commence to turn, a stationary cam device upon said wheel for releasing said locking mechanism, means normally tending to move said wheel in one direction, and mechanism actuated by said connections for turning said wheel step by step in the other direction.

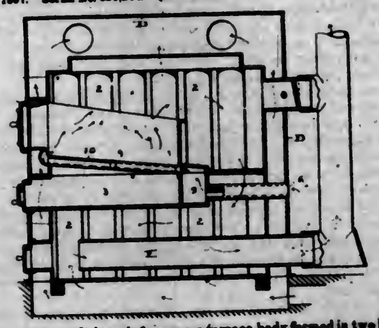
21. The combination of a bed, a starcher-roll frame oscillating along one side of said bed, a starcher-roll carried by said frame and projecting over said bed, and pivoted means for said bed adapted to permit said bed to oscillate transversely with reference to the oscillations of the said frame, and spring for retaining said bed in normal position.

605,752. HANDLE-BAR FOR CYCLES. HARVEY G. SHEPARD, New Haven, Conn., assignor to H. G. Shepard & Sons, same place. Filed Jan. 18, 1898. Serial No. 673,955. (No model.)



Claim.—The combination in a handle-bar bearing, with a rigid lower member formed with a horizontally-arranged, semicircular or substantially semicircular groove, and with a long, upwardly-projecting integral knife-like rib or tooth arranged longitudinally in the center of the bottom of the said groove, of a removable upper member or cap having a semicircular or substantially semicircular groove formed in it, and provided with a long longitudinally-arranged, downwardly-projecting integral knife-like rib or tooth located in the center of its bottom and therefore opposite the rib or tooth aforesaid, and means for securing the said upper member to the said lower member, the ends of the said member and cap being beveled to avoid biting the bar at the points where the same emerges from the bearing, substantially as described.

605,758. FURNACE. ROBERT L. SHARP, Cleveland, Ohio, assignor to the Cartland Foundry Company, same place. Filed June 3, 1897. Serial No. 639,264. (No model.)



Claim.—1. In hot-air furnaces, a furnace-body formed in two horizontal sections, fresh-air tubes in each section extending the full depth of the sections and matching to make continuous passages, a horizontal diaphragm about said flues to cut off downdraft about them a downdraft-opening in the rear of the furnace and no exit for the products of combustion leading from the bottom section of the furnace near its front, whereby the outgoing heat reaches the fresh-air flues in the bottom of the furnace and is absorbed, substantially as set forth.

2. The furnace-casing consisting of two horizontal sections, fresh-air tubes extending through both sections in series along both sides thereof and a horizontal diaphragm between said sections closing the downdraft about said tubes and leaving a draft-opening for the products of combustion from the upper to the lower section, a fire-box in said upper section having side walls to protect the fresh-air flues, and an ash-pit in the lower section, and an exit for the products of combustion having its entrance in the end of the said lower section opposite said downdraft, whereby the fresh-air tubes in the lower section are heated and the heat is taken up, substantially as set forth.

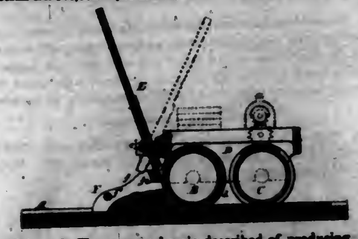
3. In air-heating furnaces, a furnace-body having fresh-air flues extending vertically through the same and open at both ends, a fire-chamber between said flues and apart therefrom and a downdraft at the rear of the furnace whereby the flame is kept from said tubes, and tubular grate-bars at the bottom of said chamber constructed to discharge into said heat-chamber at their front ends over the fuel, in combination with air-supply connections with the rear ends of said grate-bars traversing the said downdraft from the fire-chamber, whereby the air entering the grate-bars is heated and fed over the fuel, substantially as described.

4. In air-heating furnaces, the body of the furnace having fresh-air flues through from bottom to top and a horizontal division between said flues midway their elevation to cut off downdraft about said tubes and having a downdraft-passage centrally at its rear, and an exit-flue in its bottom having its mouth at the front of the furnace, in combination with air-supplying grate-bars constructed and arranged to discharge air over the fuel in the furnace, and air-supply connections for said grate-bars directly exposed to the outgoing heat from the furnace, substantially as described.

5. In air-heating furnaces, the body consisting of two separate sections placed one on top of the other and having air-flues passing vertically through them, said sections closed horizontally about said tubes midway their elevation, the exit-flue in the lower section having its mouth in the front of the furnace, the fire-chamber in the upper section and the hollow grate-bars at the bottom of said chamber constructed to carry finely-divided coal and to discharge air over the coal at their front ends, and a draft-passage for the products of combustion with the furnace and air-supply connections for said hollow grate-bars exposed to said draft-passage, whereby the air entering the grate-bars is heated, substantially as described.

6. In heating-furnaces, a furnace-body having upper and lower horizontal chambers and a down-passage at its rear from one chamber to the other, a fire-box in the upper chamber and an exit-flue in the lower chamber and fresh-air flues extending along its sides through both chambers, in combination with a grate for said fire-box consisting of hollow bars having their front ends turned upward and inward to discharge into the fire at their front and air-supply connections for said grate-bars at the rear ends, traversing the said down-passage, whereby the air entering the grate-bars is heated, substantially as described.

605,754. PROCESS OF AND MACHINE FOR EMBEDDING WIRE IN GLASS. FRANK SHUMAN, Philadelphia, Pa. Filed Jan. 20, 1898. Serial No. 678,128. (No model.)

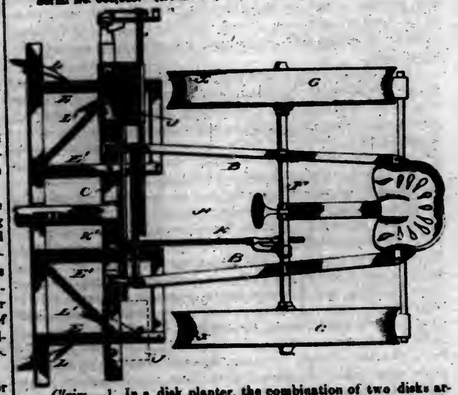


Claim.—1. The process herein described of producing what is known as "wire-glass," said process consisting in simultaneously and coincidently forcing the wire into the glass until it reaches the position in which it is to remain therein and rolling the glass into a sheet, and then covering the embedded wire by rolling down that surface of the glass through which the wire was forced.

2. In a wire-glass-making machine, the combination of a table, a roller mounted to travel at such a fixed distance above the same that the wire to be forced into the glass will be forced to the place where it is to remain therein, said roller having spaced ribs on its periphery, and means for feeding a sheet of wire down in front of the roller and to be forced thereby into a mass of glass placed on the table in front of the same, whereby the wire will be pressed into the glass until it reaches the position in which it is to remain therein, and the glass will, at the same time and place, be rolled into a sheet of uniform thickness, substantially as described.

3. In a wire-glass-making machine, the combination of a table, a roller mounted to travel at such a fixed distance above the same that the wire to be forced into the glass will be forced to the place where it is to remain therein, said roller having spaced ribs on its periphery, means for feeding a sheet of wire down in front of the roller, and to be forced thereby into a mass of glass placed on the table in front of the same, and a roll following the ribbed roll, and having its surface closer to the table than the bases of the ribs on said ribbed roll, whereby the wire is pressed into the glass until it reaches the position in which it is to remain therein, the glass is at the same time and place rolled into a sheet of uniform thickness, and the projecting ribs in the upper surface of the glass are finally rolled down, so as to cover and inclose the embedded wire, substantially as described.

605,755. DISK PLANTER. MATTHEW P. SIMPSON, ELI P. WILLIAMS, and JAMES M. SIMPSON, McPherson, Kans. Filed Jan. 14, 1898. Serial No. 666,865. (No model.)



Claim.—1. In a disk planter, the combination of two disks arranged in different longitudinal planes one behind the other, said front disk being adjustable laterally toward and from the rear disk, and a seed-delivery device or spout arranged to discharge behind or on the convex side of said rear disk, substantially as described.

2. In a disk planter, the combination of two disks arranged in different longitudinal planes one behind the other, and adjustable laterally toward or from each other, a seed-delivery device or spout arranged to discharge behind or on the convex side of said rear disk, and a presser-wheel arranged to follow directly behind the disks, substantially as described.

3. In a disk planter, the combination, with the front and rear disks arranged in different longitudinal planes, of a seed-delivery device or spout arranged behind or on the convex side of said rear disk, whereby the furrow formed by the front disk will be covered by the earth thrown back by the rear disk and the seed deposited in the furrow formed in a loose ridge of earth by said rear disk, substantially as described.

605,756. OIL WELL-TUBING ATTACHMENT. ANDY C. SMITH, Sigel, Pa. Filed Dec. 17, 1897. Serial No. 662,320. (No model.)



Claim.—1. The improvement in well-tubing herein described comprising the packer, having the left-hand thread at its upper end.

the tube fixed to and projected upward from said packer and provided at its upper end with a downwardly-facing shoulder, such tube being provided with an opening and the cover-sleeve sliding on said tube provided at its lower end with a left-hand thread to engage that of the packer and having at such end an internal upwardly-facing shoulder to engage that at the upper end of the tube, substantially as set forth.

2. In an apparatus substantially as described the combination of the packer having the left-hand thread at its upper end, the packer tube-section connected with and extended from the upper end of the packer and having an opening, the main tube-section and the cover-sleeve adapted at its lower end to engage the left-hand threads of the packer and also arranged to engage the upper end of the packer tube-section when the cover-sleeve is lifted, the cover-sleeve being independent of the packer whereby it may be moved without affecting the packing operation, substantially as described.

3. The improved apparatus herein described consisting of the packer having the left-hand thread at its upper end, the packer tube-section extended upward from the packer and having an opening and provided at its upper end with a downwardly-facing shoulder, the main tubing, and the cover-sleeve connected therewith and fitting down over the packer tube-section, such cover-sleeve being adapted at its lower end to engage the left-hand thread at the upper end of the packer and also having at its lower end an internal upwardly-facing shoulder whereby to engage the downwardly-facing shoulder at the upper end of the packer tube-section, the cover-sleeve being independent of the packer whereby it may be moved without affecting the packing operation, substantially as shown and described.

4. The combination of the packer, the tube projected up from the packer, and provided with longitudinal slots, and having the shoulder at its upper end, the left-hand thread at the upper end of the packer, and the cover-sleeve independent of the packer and movable over the tube above said packer, such cover-sleeve being arranged at its lower end to jar upon the packer, provided internally near such end with threads to fit those at the top of the packer and having near such end an internally upwardly-facing shoulder to bind beneath that at the top of the tube substantially as set forth.

605,757. JOURNAL-BOX. WALTER W. SMITH, Detroit, Mich. Filed Feb. 5, 1898. Serial No. 669,265. (No model.)

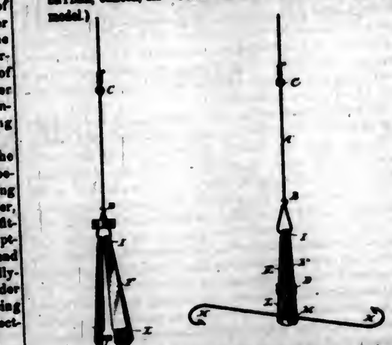


Claim.—1. In a journal-box, the combination with a box forming a portion of the bearing and provided in the bottom thereof with an opening, of a cellar fitted in said opening and secured to the box and forming the complemental bearing, said cellar being formed with imperforate bottom, side and end walls and an open top, perforated plates secured to the side walls of the cellar and forming therewith oil-reservoirs, one of which is adapted to be replenished with oil through an opening in the cellar, packing in the cellar, a follower-plate adapted to press the packing against the journal, and means independent of the bottom of the cellar and interposed between the same and follower-plate for conveying oil from one reservoir to the other, substantially as described.

2. In a journal-box, the combination of a cellar comprising imperforate bottom, side and end walls, and an open top, said end walls serving as a portion of the bearing for the journal and one of the walls being provided with an oil-inlet opening, detachable perforated plates secured to the side walls thereof and forming therewith two oil-reservoirs, one of which is in communication with said inlet-opening, a packing of absorbent material in the cellar, a spring-pressed follower-plate adapted to hold the same in engagement with the journal, and a pipe arranged below the follower-plate and communicating between the oil-reservoirs, substantially as described.

3. In a journal-box, the combination of the cellar, perforated plates secured therein to the side walls thereof and flaring outwardly therefrom to form oil-reservoirs, an inlet for one of said reservoirs, a pipe connecting said reservoirs, a packing of absorbent material positioned in the compartment formed between the oil-reservoirs, guide-posts in the cellar, a plate movable thereon, and springs engaging said plate and holding the packing pressed against the journal, substantially as described.

605,758. DEVICE FOR HOLDING FISH-HOOKS. JOHN H. SNYDER, Canton, Ill. Filed June 19, 1897. Serial No. 641,294. (No model.)



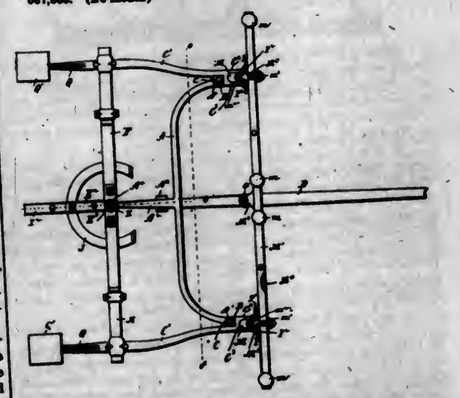
Claim.—1. A fish-hook holder comprising means for clamping a fish-hook rigidly at an angle thereto and having an engaging portion adapted to project through the eye of the hook to hold the same against separation from the holder, substantially as described.

2. A combination fish-hook holder and sinker comprising means for holding the shank of a hook rigidly at any angle with respect thereto, substantially as described.

3. A fish-hook holder comprising two half-round sections one of said sections being provided with a pin and the other with a recess for reception of the hook and an opening for reception of said pin and means for securing the sections together, substantially as described.

4. The combination with a fish-hook, of a holder therefor capable of sustaining itself in a vertical position when submerged in water and adapted for attachment to the end of a line or snell, said holder also comprising means for securing the hook rigidly with the shank thereof at an angle to the axis of the holder, substantially as described.

605,759. CONVERTIBLE RUNNING-GEAR FOR VEHICLES. ANTHONY V. SPARS, New Haven, Conn. Filed Jan. 26, 1898. Serial No. 667,895. (No model.)



Claim.—1. In a convertible running-gear for vehicles, the combination with two fore hounds extending forward from the fore axle, and adapted to have a draw-bar or shafts interchangeably connected with their forward ends, of a yoke permanently connected with the hounds, and formed with a rearwardly-extending combined supporting and draft arm connected at its rear end with the running-gear at a point above the head-block thereof.

2. In a convertible running-gear for vehicles, the combination with two hounds extending forward from the fore axle and adapted at their forward ends to have shafts or a draw-bar interchangeably connected with them, and a yoke connected with the said hounds, and also connected with a stud located above and in line with the king-bolt of the gear.

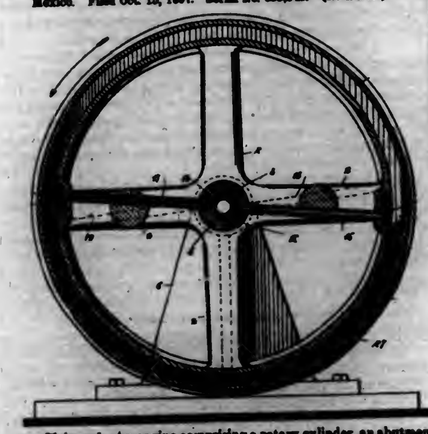
3. In a convertible perch running-gear for vehicles, the combination with the head-block thereof, of a spring mounted thereupon, a spring-plate attached at its rear end to the perch, and at its forward end resting upon the said spring, and secured to the said head-block, and provided with an upwardly-extending stud and with a recess located below the same, a king-bolt extending upward through the said head-block and into the said recess which receives the nut applied to the upper end of the said king-bolt which is located below and in line with said stud, a yoke adapted at its rear end to be directly connected with the said stud, and fore hounds having the forward ends of the yoke connected with them, and being themselves adapted to interchangeably receive shafts or a draw-bar.

4. In a convertible running-gear for vehicles, the combination with the fore axle, the head-block and the king-bolt thereof, of fore hounds connected at their rear ends with the fore axle, and having their forward ends adapted for interchangeable connection with them, of shafts or a draw-bar, and a yoke having its members bent downwardly and forwardly, and connected at their ends with the said hounds, the said yoke being provided with a rearwardly-extending, centrally-arranged arm adapted to be connected with the gear at a point above the head-block and over the king-bolt.

5. In a convertible running-gear for vehicles, the combination with the head-block thereof, of a spring-plate connected with the said head-block, provided with an upwardly-projecting stud, and formed with a recess located below the same, a yoke having a rearwardly-extending arm adapted to be connected directly with the said head, and with two forwardly-extending members, and fore hounds having the forwardly-extending members of the yoke connected with them, and connected at their rear ends with the fore axle of the gear.

6. In a running-gear for vehicles, the combination with a plate adapted to be attached at its rear end to the perch and at its forward end to rest upon the head-block spring, and provided with an upwardly-extending stud or auxiliary king-bolt and formed with a recess located below the said stud and receiving the upper end of the king-bolt and the nut applied thereto, the said stud or auxiliary king-bolt being adapted to take a portion of the draft or strain imposed upon the running-gear.

605,760. ROTARY ENGINE. ALEJANDRO STEPHENS, Guadalajara, Mexico. Filed Oct. 15, 1897. Serial No. 655,245. (No model.)



Claim.—1. An engine comprising a rotary cylinder, an abutment therein, a controlling-valve, a gear-wheel secured to the controlling-valve, a piston-valve mounted to swing in the cylinder and means for imparting movement to the said gear-wheel from the said piston-valve to actuate the controlling-valve, substantially as specified.

2. A rotary engine comprising a rotary cylinder, a segmental abutment loosely mounted in the cylinder, the said abutment being formed with independent sections at its steam-pressure end, the said sections having their ends oppositely inclined and the end of one section bearing upon the end of another section, substantially as specified.

3. An engine comprising a rotary cylinder, means for controlling the inlet and outlet of steam, and a segmental abutment in the cylinder having short bearing portions for engaging the opposite walls of the cylinder, the said abutment being formed with sections at its steam-pressure end, the said sections having their ends oppositely inclined and the end of one section bearing upon the end of another section, substantially as specified.

4. A rotary engine comprising a wheel-like cylinder, a segmental abutment in the cylinder having short bearing portions for engaging the opposite walls of the cylinder, the said abutments being formed with sections at its steam-pressure end, the said sections having their ends oppositely inclined and the end of one section bearing upon the end of another section, piston-valves mounted to swing in the cylinder, steam-inlet pipes extending through the inner wall of the cylinder in line with the piston-valves, a controlling-valve and means for giving a rocking motion to the said controlling-valve substantially as specified.

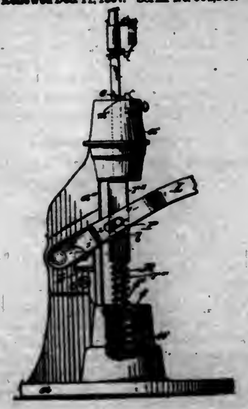
5. An engine comprising a rotary cylinder, a segmental abutment loosely mounted in the cylinder and formed with sections at its steam-pressure end, the said sections having their ends oppositely inclined and the end of one section bearing upon the end of another section, a tubular hub in which the cylinder is mounted, said tubular hub having steam-chambers formed in its inner walls, said chambers having communication with the interior of the cylinder, piston-valves in the cylinder adapted to engage over the inner ends of said communications, a tubular valve in the hub portion having steam inlet and exhaust ports, and means whereby the movement of the piston-valves imparts a rocking movement to the said tubular valve, substantially as specified.

6. An engine, comprising a rotary cylinder, a segmental abutment loosely mounted in the cylinder, oppositely-arranged piston-valves movable in the cylinder, steam-inlet pipes, a controlling-valve for the steam, a gear-wheel rigidly secured to the said controlling-valve, and gear-wheels meshing with the gear secured to the controlling-valve and actuated from the said piston-valves, substantially as specified.

7. A rotary engine, comprising a rotating cylinder, an abutment therein, a controlling-valve engaged in the hollow hub of the cylinder, a gear-wheel attached to said valve, gear-wheels mounted on studs carried by the cylinder and engaging at opposite sides with the first-named gear-wheel, segmental racks on said outer gear-wheel, piston-valves mounted to swing in the cylinder, arms extended from the shafts of said piston-valves, fingers extended at substantially right angles to said arms, and teeth on said fingers for engaging the segment-racks on the wheels, substantially as specified.

8. An engine comprising a rotary cylinder, an abutment therein, piston-valves mounted to swing in the cylinder, a tubular hub on which the cylinder is mounted, a tubular valve engaging the opening in the hub, a partition intermediate of the ends of the tubular valve, the said valve being provided with a steam-inlet port at one side of the partition and an exhaust-port at the other side of the partition, pipes providing communication between said ports and the interior of the cylinder, a steam-pipe connecting with the said valve a spring for holding the valve yieldingly in its seat, a tension-adjusting device for the steam-pipe, and a connection between the said piston-valves and the said tubular valve, whereby the swinging of the piston-valves imparts a rocking motion to the said tubular valve, substantially as specified.

605,761. TOOL FOR CUTTING AND BINDING METALLIC STRIPS. THEODORE L. SEWARD, Brooklyn, N. Y., assignor, by mesne assignments, to the Venetian Iron Company, of New Jersey. Filed Jan. 14, 1896. Renewed Dec. 11, 1897. Serial No. 661,580. (No model.)



Claim.—1. In a binding-tool the combination with a bar, of two jaws provided with angular pockets adjoining said bar, and means for bringing the jaws toward each other.

2. The combination with a bar carrying a jaw having an angular pocket adjoining said bar, of another jaw also having an angular pocket adjoining said bar and mounted on a guide-head through which said bar passes.

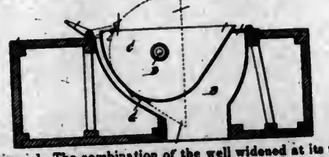
3. The combination with a bar and means for moving the same, of two jaws each provided with an angular pocket adjoining said bar, one detachably mounted on said bar and the other similarly mounted on the guide for said bar.

4. In a binding-tool the combination with a bar of a jaw provided with an angular pocket adjoining said bar and means for detachably securing the jaw to said bar.

5. In a binding-tool the combination with a bar of two jaws each provided with an angular pocket adjoining said bar, means for actuating said bar and means for normally keeping the jaws apart when not in use.

6. The combination with a standard of a bar, two jaws provided with pockets adjoining said bar, a lever provided with a knife-edge and adapted to actuate said bar, and a corresponding knife-edge mounted on the standard.

605,762. DUMPING-SCOW. MATT STICKNEY, Bradford, Mass. Filed Nov. 20, 1897. Serial No. 659,262. (No model.)

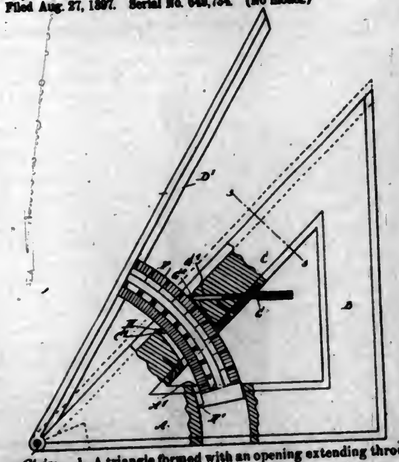


Claim.—1. The combination of the well widened at its top, and the dumping-receptacle mounted to turn in said widened portion and so arranged that in the discharging position the outlet of the receptacle is within the well and substantially at the lower end of the widened portion thereof.

2. A dumping-scow provided with a well, open at the bottom, a receptacle pivoted at its ends in the hold, and having its discharge side arranged to overbalance the opposite side, so that upon releasing the receptacle from a normal position, it will turn automatically on its pivots into a dumping position and discharge the load, and means, substantially as described, for locking the receptacle in a dumping position, as set forth.

3. The combination of the support, the dumping-receptacle movably mounted thereon and constructed with a tendency to assume the receiving position when empty and to rock into the discharging position when filled, and means for locking the receptacle in the discharging position.

605,763. TRIANGLE. BENJAMIN W. TRUNK, St. Joseph, Mo. Filed Aug. 27, 1897. Serial No. 649,734. (No model.)



Claim.—1. A triangle formed with an opening extending through its hypotenusal side from the outer to the inner edge of the same and into an adjacent side, an edge or section hinged to said triangle at one of the acute angles of the same, a pin in the opening of the hypotenusal side, a protractor carried by said hinged edge or section and fitted to slide in said openings, said protractor being formed at its free end with a lug which engages with said pin to limit its outward movement, a spring in the opening of the hypotenusal side and bearing against an edge of said protractor, and a thumb-screw in said latter side and by which the spring is brought to press upon said protractor to hold the same in adjusted position as and for the purpose set forth.

2. A triangle formed along the edge of one side with a longitudinal recess extending from end to end thereof and an opening extending through said recessed side and into an adjacent side, a section or edge hinged to said triangle and formed with a tongue by which it fits into the said recess, a pin in the opening of the recessed side, a protractor carried by said hinged edge or section and fitted to slide in the said openings, said protractor being formed at its free end with a lug adapted to engage said pin to limit its outward movement, a spring in the opening of the recessed side and bearing against the edge of said protractor, and a thumb-screw in said latter side and by which the spring is brought to press upon said protractor to hold the same in adjusted position, as and for the purpose described.

605,764. VIOLIN OR MANDOLIN CITHERN. ALEXANDER WASGINDT, Jersey City, N. J., assignor to Elizabeth Hahner, Carl Franck, and Jacob Veith, New York, N. Y. Filed Oct. 22, 1897. Serial No. 656,052. (No model.)



Claim.—1. A stringed musical instrument, provided with a bow-guide extending transversely of the strings on one side thereof, movable dampers normally engaging the strings on the other side, and means for removing the dampers from the strings, substantially as described.

2. A stringed musical instrument, provided with spaced bow-guides extending transversely of the strings on one side thereof, movable dampers arranged on the other side of the strings and having spaced damping-cushions normally engaging the strings at points substantially registering with the bow-guides, and means for removing the dampers from the strings, substantially as described.

3. A stringed musical instrument, provided with a bridge normally engaging the strings, another bridge normally out of engagement therewith, dampers normally engaging the strings, pressers arranged between the two bridges and each adapted to engage a string to force it against the last-named bridge, and an operative connection between the presser and the corresponding damper whereby the latter will be removed from the string before the presser engages the same, substantially as described.

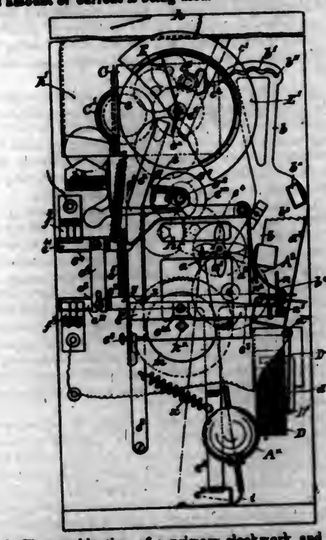
4. A stringed musical instrument, provided with a bridge normally engaging the strings, another bridge normally out of engagement with the strings, dampers normally engaging the strings, spring-levers carrying said dampers, and pressers carried by said levers and each adapted to engage a string to force it against the last-named bridge, substantially as described.

5. A bow for musical instruments, consisting of a toothed strip of soft rubber and a back or body carrying said strip.

605,765. APPARATUS FOR SUPPLYING OR MEASURING CURRENTS OF ELECTRICITY. WILLIAM D WATSON and THOMAS HUMPHREYS, Rochdale, England; said Humphreys assignor to said Watson. Filed Dec. 23, 1897. Serial No. 663,972. (No model.)

Claim.—1. Mechanism for supplying and measuring electricity, consisting of primary clockwork, auxiliary clockwork, a governing-lever actuated by said primary clockwork and controlling the escapement of the auxiliary clockwork, in combination with a cut-out device actuated by the auxiliary clockwork and a device (controlled by the strength of the current used) whereby the governing-lever remains inactive when no current is being used and allows the aforesaid escapement to work quickly or slowly according as a greater or less amount of current is being used.

2. Mechanism for supplying and measuring electricity consisting of primary clockwork, auxiliary clockwork, a governing-lever actuated by said primary clockwork and controlling the escapement of the auxiliary clockwork, in combination with a cut-out device and an indicator actuated by the auxiliary clockwork and a device controlled by the strength of the current used, whereby the governing-lever remains inactive when no current is being used, and allows the aforesaid escapement to work quickly or slowly according as a greater or less amount of current is being used.



3. The combination of a primary clockwork and an ampere-meter, with a governing-lever controlled by the said ampere-meter, the said primary clockwork adapted to actuate the said lever subject to the control thereof by the ampere-meter, and a secondary clockwork controlled by the said lever.

4. The combination of a primary clockwork, a cam actuated thereby, and an ampere-meter, with an auxiliary clockwork, a lever governing the same, the said lever adapted to engage with more or less of the surface of said cam according to the control of the said ampere-meter, substantially as and for the purpose set forth.

5. The combination of the clockwork A and C and their adjuncts with the setting-disk c, arbor c', projection c^x, handle g', sector g and shaft g^2.

6. The combination of the clockwork A and C and their adjuncts with an electric switch, the setting-disk c projection c^x, arbor c' and lever c^3 for tripping the electric switch to shut off the current.

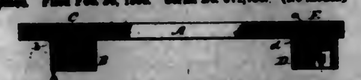
7. The combination of the clockwork A and C and their adjuncts, with the setting-lever c^3, plates f', f^2, and switch-levers c^4, c^5 linked together and connecting the plates f' f^2 to complete the electric circuit.

8. The combination of the clockwork A and C and their adjuncts, with mechanism for cutting off the current-supply and means actuated by the key of the clockwork A when applied thereto for working the cut-out, substantially as hereinbefore described.

9. The combination of the clockwork A and C and their adjuncts, with mechanism for cutting off the current-supply and means for simultaneously stopping the clockwork A, substantially as hereinbefore described.

10. The combination of a primary clockwork, an ampere-meter, and a governing-lever controlled by the ampere-meter and actuated by the primary clockwork subject to the control of the said ampere-meter, the said lever being provided with a cam, with an auxiliary clockwork, the escapement-lever of which is adapted to engage with and be operated by more or less of the said cam according to the control of the said ampere meter over the said lever, substantially as and for the purpose set forth.

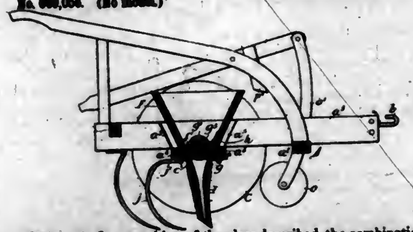
605,766. HORSESHOE-CALK. RICHARD WHITAKER, New Brunswick, N. J., assignor to the Novelty Manufacturing Company, same place. Filed Feb. 26, 1898. Serial No. 671,788. (No model.)



Claim.—1. A removable horseshoe-calk consisting of a polygonal tubular shell having an inwardly-projecting collar on its upper end, in combination with a polygonal-headed screw having the flat projecting part of its head adjacent to its body bearing against said collar and its faces in engagement with the polygonal inner sides of the calk, substantially as described.

2. A horseshoe-calk consisting of a tubular shell having an inwardly-projecting collar on its upper end and a hollow polygonal head on top of said collar, substantially as described.

605,767. COMBINED PLOW, PLANTER, AND CULTIVATOR. CHARLES H. WHITNEY, Cookeville, Tenn. Filed Feb. 4, 1898. Serial No. 669,056. (No model.)



Claim.—1. In a machine of the class described, the combination of a frame, a wheel supporting said frame, axles carried by the wheel and journaled in bearings the outer ones of which are laterally removable whereby the ends of the axle may be free, seed-rings slidably adjustable and removably mounted on the axles, seed-hoppers above the rings, and drills at said rings adjustably secured to the frame, substantially as set forth.

2. In a machine of the class described, the combination of a frame, a wheel supporting said frame, axles carried by the wheel and journaled in bearings the outer ones of which are laterally removable whereby the ends of the axle may be free, seed-rings adjustably and removably mounted on the axles, seed-hoppers above the rings having deflectors and brushes as described, and drills having concaved upper ends located at the rings, said drills being adjustably and removably secured to the frame, substantially as set forth.

3. In a machine of the class described, the combination of a frame, a wheel supporting said frame, axles carried by the wheel and journaled in bearings the outer ones of which are laterally removable whereby the ends of the axles may be free, seed-rings mounted on the axles to be adjusted and removed longitudinally thereof, each seed-ring having seed-cups and set-screws therein to adjust the depth thereof, seed-hoppers above the rings, drills at said rings, coverers at the rear of the drills, and means for adjustably and removably attaching said drills and coverers to the frame to permit of vibration, substantially as described.

4. In a machine of the class described, the combination with a frame carrying transverse rods, of a drill provided at its upper end with a hook slidably and removably connected with one of the rods, a plate slidably connected with the other rod and carrying a set-screw and staple, an eye on the drill engaging the staple, and a break-pin for the latter, substantially as described.

5. In a machine of the class described, the combination with a frame and a single supporting-wheel therefor, of a caster-wheel in advance of the aforesaid wheel, a lever for elevating and depressing said wheel as described, and means for locking the lever in its positions, substantially as set forth.

6. In a machine of the class described, the combination with a frame and a single supporting-wheel therefor, of a caster-wheel in advance of the aforesaid wheel, carried by an arm, a lever connected to said arm, a brake-shoe carried by the lever and adapted to be brought into engagement with the supporting-wheel when the caster-wheel is depressed, and means for locking the lever consisting of a slotted guide having offsets provided with inclined sides, substantially as described.

605,768. LAST. ELBERT C. WRIGHT, Brockton, Mass. Filed May 22, 1897. Serial No. 637,857. (No model.)

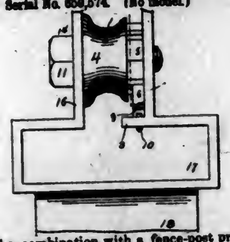


Claim.—1. The combination with a last and its socket, of a socket-supporting truss member extending transversely through the last in vertical alinement below said socket, constructed to provide resistance to endwise leward movement of the ends of said truss member thereby to resist transverse depression of said truss member between its ends under the settling tendency of said socket.

2. In a last, having a socket, a pressure-resistance member extending transversely of and from side to side of the last to constitute a combined support for the bottom of the socket and stay or binder for the sides, each end thereof having a laterally-extended abutment countersunk in the side of the last, substantially as described.

605,769. COMBINED POST AND WINDING APPARATUS.

WILLIAM L. YERKES and JOHN R. WADSWORTH, La Porte, Ind. Filed Nov. 30, 1897. Serial No. 659,574. (No model.)



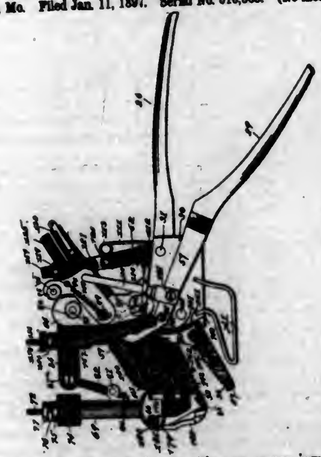
Claim.—1. The combination with a fence-post provided with a lip or flange, of a winding-drum provided with a ratchet and mounted in said post, a gravity-pawl resting against said lip or flange and means carried by the post to limit the movement of said pawl, all arranged as set forth.

2. The combination with a fence-post having a pin, of a winding-drum provided with a ratchet and mounted in said post, and a gravity-pawl having a recess in which said pin works to limit the movement of said pawl, all arranged as set forth.

3. A fence having separate vertical posts, one of said posts having a lip 3, devices located between said posts and connecting the same, and a gravity-pawl resting against said lip designed to control the movement of said devices, all combined as set forth.

605,770. HAND LASTING-MACHINE.

GEORGE H. ABEEL, St. Louis, Mo. Filed Jan. 11, 1897. Serial No. 618,865. (No model.)



Claim.—1. In a hand lasting-machine, an upper jaw, a handle rigidly connected to said upper jaw, a lower jaw pivotally mounted in position to engage said upper jaw, a lever pivotally mounted in position to operate said lower jaw, a handle hinged to the end of said lever opposite the end which engages said lower jaw, an arm projecting forwardly from said last-mentioned handle, and a yielding connection between said arm and the first-mentioned handle, whereby said lower jaw is yieldingly operated by the opposition of said last-mentioned handle, substantially as specified.

2. In a hand lasting-machine, a suitable frame, an upper jaw rigidly connected to said frame, a handle rigidly connected to said frame, a lower jaw pivotally mounted in position to engage said upper jaw, a lower handle pivotally connected to said frame, and a yielding connection between said lower handle and said lower jaw, substantially as specified.

3. In a hand lasting-machine, an upper jaw having a rigid handle, a lower jaw pivotally mounted in position to engage said upper jaw, a second handle mounted to yieldingly operate said lower jaw, a tubular block rigidly connected to said upper jaw, a plunger operating in said block, a hammer carried by said plunger, connections between said plunger and said second handle whereby the hammer is elevated and caused to rebound by the operation of said second handle, and a tack-chute leading to a point within said tubular block and below said hammer when in its elevated position, substantially as specified.

4. In a hand lasting-machine, a suitable frame, an upper jaw rigidly connected to said frame, a lower jaw pivotally mounted in position to engage said upper jaw, a lever pivotally mounted in said frame and operating said lower jaw, a lower handle hinged to said lever, a yielding connection between said lower handle and said frame whereby the lower jaw is yieldingly operated and a foot extending from said frame below said lower jaw, substantially as specified.

5. In a hand lasting-machine, a suitable frame, an upper jaw rigidly connected to said frame, a tubular block mounted in position above the point of said upper jaw, a hammer operating in said tubular block, a tack-chute leading into said tubular block below said hammer, a lower jaw pivotally mounted in position to engage said upper jaw, a lever pivotally mounted in said frame and operating said lower jaw, a lower handle hinged to said lever, a second lever pivotally mounted above said rigid jaw, a connection between the front end of said second lever and said hammer, an arm projecting forwardly from said lower handle, a yielding connection between the forward end of said second lever and said arm, and a trigger connection between the rear end of said second lever and said arm, substantially as specified.

6. In a hand-lasting machine, a suitable frame, an upper jaw rigidly connected to said frame, a tubular block mounted in position above the point of said upper jaw, a hammer operating in said tubular block, a tack-chute leading into said tubular block below said hammer, a lower jaw pivotally mounted in position to engage said upper jaw, a lever pivotally mounted in said frame and operating said lower jaw, a lower handle hinged to said lever, a second lever pivotally mounted above said rigid jaw, a connection between the front end of said second lever and said hammer, an arm projecting forwardly from said lower handle, a yielding connection between the forward end of said second lever and said arm, a trigger connection between the rear end of said second lever and said arm, a picker mounted to slide horizontally and feed tacks one at a time from said tack-chute into said block, a connection between the forward end of said second lever and said picker whereby the picker is pressed forwardly and a projection carried by said picker to engage the forward end of said arm and hold the picker in position to close the throat in said tubular block while the tack is being driven, substantially as specified.

7. In a hand lasting-machine, a suitable frame, the upper jaw 25, the handle 26 formed integral with said upper jaw, the lower jaw 27 pivotally mounted in an operative position relative to said upper jaw, the lever 28 pivotally mounted in position to form a knuckle-joint with the rear end of the jaw 27, the handle 29 hinged to the rear end of said lever 28, the foot 41 mounted in position below the lower jaw, the arm 57 projecting forwardly from the handle 29 and a yielding connection between the forward end of said arm and the frame of the machine, substantially as specified.

8. In a hand lasting-machine, the upper jaw 25, having the slot 141 formed in its front face in a substantially horizontal line, the tubular block 66 rigidly connected to said jaw, a tack-chute leading into said tubular block, the picker-bar 142 slidingly mounted in said slot 141, the picker 145 attached to the front end of the picker-bar, the shipper-bar 146 mounted for vertical reciprocation and the lug 165 projecting outwardly from the picker-bar and engaging the front face of the shipper-bar and in position to engage the front end of the arm 57, substantially as specified.

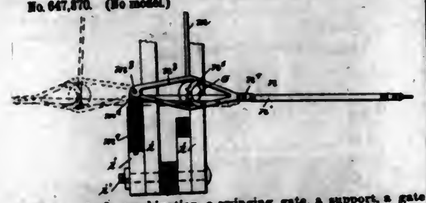
9. In a hand lasting-machine, the picker-bar 142 slidingly mounted in a horizontal position, the shipper-bar 146 mounted for vertical reciprocation, the lug 165 projecting from the picker-bar and engaging the front face of the shipper-bar and the spring 160 connecting said picker-bar with said shipper-bar, substantially as specified.

10. In a hand lasting-machine, the picker-bar 142 slidingly mounted in a horizontal position, means for operating said bar, the picker 145 attached to the front end and inner face of said bar, the lugs 170 and 171 formed upon the upper and lower faces of the forward end of said bar, the picker-shifter 172 yieldingly mounted, the diagonal lugs 175 and 176 carried by said picker-shifter in position to be engaged by the lugs 170 and 171 carried by the picker-bar, substantially as specified.

11. In a hand lasting-machine, the lever 84 pivotally mounted, the segmental portion 89 arranged concentric to the pivot of said lever and projecting downwardly, the ratchet-teeth 90 formed upon the lower edge of said segment, said teeth pointing downwardly and backwardly, the pawl 91 pivotally mounted in position to engage said teeth, means for operating said lever, and means of operating said pawl, substantially as specified.

605,771. GATE.

JOSHUA F. BARNES, Shannon, Ill., assignor of one-half to Henry B. Gaull, same place. Filed Aug. 11, 1897. Serial No. 647,870. (No model.)



Claim.—1. In combination, a swinging gate, a support, a gate opening and closing toggle loosely joined to the support and gate, said toggle comprising a member joined at one end to the support and at the opposite end to an intermediate portion of the longer member which is joined to the gate, said longer member beside and parallel with the short member and resting on and upheld by said support when the gate is both completely opened and closed, one member having a cross-head on which the other member closes when the gate is opened and closed, and toggle-actuating means connected with said cross-head, substantially as described.

2. In combination, a swinging gate, a support, a tarn-head on the support, a gate opening and closing toggle comprising a member joined to the gate and having a longitudinal opening, a power member in the opening of said member and at one end pivoted to said tarn-head and at the other end pivoted to said first-mentioned member a distance inwardly from the free end thereof so that said power member lies within and parallel with said first-mentioned member which rests on said tarn-head when the gate is completely opened and closed, and toggle-actuating means, substantially as described.

3. In combination, a swinging gate, a support, a gate opening and closing toggle comprising a long member loosely joined to the gate and a short member loosely joined to the support and at one end joined to an intermediate point of the long member so that said members are side by side and parallel when the gate is completely opened and closed, a cross-head confined to the short member and beneath and down on which the long member closes, and toggle-actuating means connected to said cross-head.

4. A gate and its posts, in combination with an upright triangular supporting-frame, arranged beside the gate, means for opening and closing the gate coupled to the lower portion of said frame, sweeps pivoted at the upper horizontal portion of said frame with their inner ends arranged about at the central portion of said upper horizontal part of the frame and loosely connected to said gate-operating means, substantially as described.

5. A gate, in combination with two parallel upright posts, a sill connecting the lower portions thereof, an upright triangular supporting-frame having two inclined sides meeting and secured together at or about the center of said sill, said sides also secured respectively to the upper portions of the posts and having their upper ends connected by the horizontal sides, gate opening and closing means connected to said frame, and sweeps controlling said means and mounted at the upper corners of said frame, substantially as described.

6. In combination, a swinging gate, a supporting-frame adjacent thereto, a gate opening and closing toggle, a connection provided with toggle-operating means, said connection having a loose eccentric connection with one member of the toggle for the purpose substantially as described.

7. A swinging gate having a gate opening and closing toggle, a toggle-actuating connection having operating means, and a shifting eccentric connection between said toggle and said actuating connection, combined substantially as described.

8. In combination, a swinging gate, a support, a gate opening and closing toggle comprising a long lever with a longitudinal opening coupled to the gate, a short power-lever coupled to the support and arranged within said opening of the long lever and pivoted thereto and arranged in and parallel with said long lever when the gate is closed and when at its limit of opening swing, and operating means loosely joined to said power-lever, substantially as described.

9. In combination, a swinging gate, a support, a gate opening and closing toggle having one member loosely joined to the gate and the other member loosely joined to the support, one member having a wheel mounted to turn therein, an operating connection eccentrically and loosely connected to said wheel, and actuating means for said connection, substantially as described.

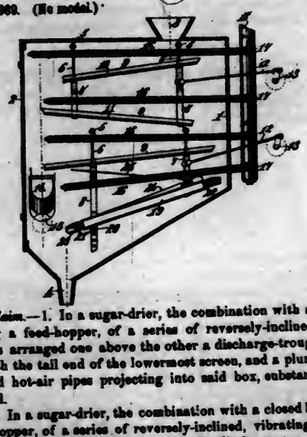
10. In combination, a swinging gate, a support, a gate opening and closing toggle comprising the long lever coupled to the gate and formed with the longitudinal opening, the short power-lever within said opening and at one end pivoted to said long lever at a distance from its outer end and at its opposite end pivoted to the support, and an operating connection having a cross-head beneath and against which the long lever locks, which cross-head is loosely and eccentrically joined to the power-lever, substantially as described.

11. In combination, a gate, a support, a gate opening and closing toggle comprising a member coupled to the gate and a power-lever coupled to the support and having an open central portion, a rotary wheel mounted in said open central portion, a cross-shaft eccentrically mounted in said wheel and against which said member is arranged to lock or rest when the gate is completely opened or closed, and an operating connection confined to said cross-shaft, substantially as described.

12. In combination, a swinging gate, a support, a gate-operating toggle confined to the gate and the support and comprising members of unequal lengths, one member joined to the other at an intermediate point thereof, and toggle-actuating means provided with a cross-head confined at an intermediate point in one member so that the other member closes down thereon when the gate is open and closed, substantially as described.

605,772. SUGAR-DRIER.

LOUIS J. BARTHELEMY and ARISTIDE L. BARTHELEMY, New Orleans, La. Filed Mar. 30, 1897. Serial No. 629,969. (No model.)



Claim.—1. In a sugar-drier, the combination with a closed box having a feed-hopper, of a series of reversely-inclined, vibrating screens arranged one above the other a discharge-trough arranged beneath the tail end of the lowermost screen, and a plurality of perforated hot-air pipes projecting into said box, substantially as described.

2. In a sugar-drier, the combination with a closed box having a feed-hopper, of a series of reversely-inclined, vibrating screens arranged one above the other, a vibrating discharge-trough arranged beneath the tail end of the lowermost screen, and a plurality of perforated hot-air pipes projecting into said box, substantially as described.

3. In a sugar-drier, the combination with a closed box having a feed-hopper, of a series of reversely-inclined, vibrating screens arranged one above the other, a discharge-trough arranged beneath the tail end of the lowermost screen, and an inclined steam-box arranged beneath said lowermost screen, substantially as described.

4. In a sugar-drier, the combination with a closed box having a feed-hopper, of a series of reversely-inclined, vibrating screens arranged one above the other, a discharge-trough arranged beneath the tail end of the lowermost screen, and an inclined vibrating steam-box arranged beneath said lowermost screen, substantially as described.

5. In a sugar-drier, the combination with a closed box having a feed-hopper, of a series of reversely-inclined vibrating screens arranged one above the other, a discharge-trough arranged beneath the tail end of the lowermost screen, an inclined steam-box arranged beneath said lowermost screen, and a plurality of perforated hot-air pipes projecting into said closed box, substantially as described.

6. In a sugar-drier, the combination with a closed box having a feed hopper 3 and a discharge-spout 4, of the cross-rods 5 fixed in the sides of the box, the hangers 6 suspended therefrom, the brackets 7 8 pivoted to said hangers, the frames 9 fixed to the upper and lower ends of said brackets and carrying screens, cranks 13, and connecting-rods 12 attached to the brackets 8, substantially as described.

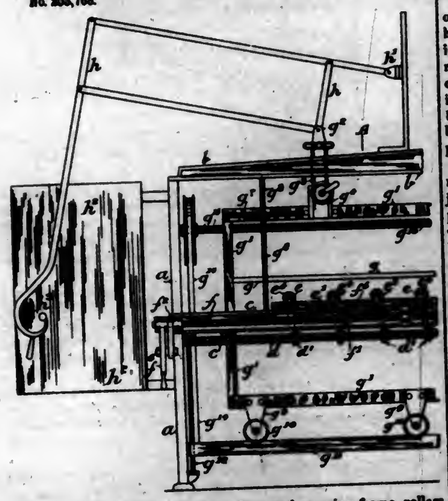
7. In a sugar-drier, the combination with a closed box having a feed-hopper 3 and a discharge-spout 4, of a series of reversely-inclined vibrating screens arranged one above the other, a discharge-trough arranged transversely to and beneath the tail end of the lowermost screen, said trough being hinged at one end to the side of the box and projecting at its other end through an aperture in the opposite side, and an eccentric engaging and supporting the free end of said trough, substantially as described.

8. In a sugar-drier, the combination with a closed box having a feed-hopper 3 and discharge-spout 4, of a series of reversely-inclined vibrating screens arranged one above the other, a discharge-trough arranged beneath the tail end of the lowermost screen, and an inclined steam-box 19 supported at its upper end in the lowermost bracket 8 and adjustably attached at its lower end to the corresponding bracket 7, and means for vibrating said brackets, substantially as described.

9. In a sugar-drier, the combination with a closed box having a feed-hopper 3 and a discharge-spout 4, of a series of reversely-inclined vibrating screens arranged one above the other, a discharge-trough arranged beneath the tail end of the lowermost screen, and an inclined steam-box 19 supported at its upper end in the lowermost bracket 8 and having attached to the under side of its opposite end perforated lugs 20 attached to the brackets 7 by bolts 21, nipples 22 and 23 at the upper and lower ends of said steam-box, vertical flanges 24 at the sides of the steam-box, and means for vibrating the steam-box substantially as described.

10. In a sugar-drier, the combination with a closed box having a feed-hopper 3 and discharge-spout 4, of a series of reversely-inclined vibrating screens arranged one above the other, a discharge-trough arranged beneath the tail end of the lowermost screen, an inclined shelf 25 arranged beneath said lowermost screen, and a vibrating steam-box disposed beneath said shelf, substantially as described.

605,773. CARVING-MACHINE. William Berry, Nottingham, England. Filed Sept. 27, 1897. Serial No. 653,194. (No model.) Patented in England Nov. 5, 1894, No. 21,168, and in France Feb. 7, 1896, No. 253,768.

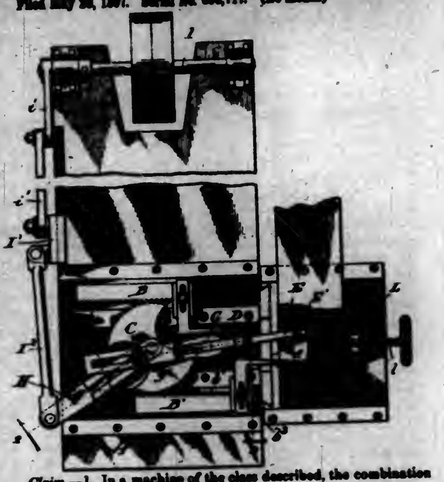


Claim.—1. The combination of a wood-carrying frame, rollers attached thereto, a bar for the rollers to run on, guides for the bar, balance-weights attached to the bar by flexible bands, pulleys for the bands to run over, roller-guides for the upper part of the frame a pantograph arrangement of levers and rotating cutters substantially as described.

2. The combination of a wood-carrying frame, rollers, roller-bar, guides and balance-weights for the frame, a pantograph arrangement of levers a rack and slide between the frame and pantograph, rotating cutters, a cutter-spindle frame adjustable longitudinally on a bed fitted to slide transversely on fixed pins lever for adjusting the relative positions of the bed and frame and a shaft for driving the cutters substantially as described.

3. The combination of a wood-carrying frame fitted to move in any direction in the same plane, rollers attached thereto, a bar for the rollers to run on guides which permit the bar to move vertically, weights for balancing the frame and attached to the bar supporting it by flexible bands which pass over pulleys on a shaft, roller-guides for the upper part of the frame, a pantograph for moving the frame, a slide-and-rack connection, rotating cutters carried by a spindle which runs in brackets longitudinally adjustable on a bed transversely adjustable relatively to the frame, levers for moving the bed, means for holding the bed, and a cutter-spindle-driving shaft substantially as described.

605,774. MORTISING-MACHINE. Walter Blake, Chicago, Ill. Filed May 20, 1897. Serial No. 638,717. (No model.)



Claim.—1. In a machine of the class described, the combination of two reciprocating slides having racks thereon and arranged to hold projecting cutter portions in line with their motion, an oscillating-gear portion mounted between the same and engaging with the racks on the slide to impart the desired reciprocating motion, a pivotal tool-holder mounted independently and adjacent to the oscillating gear and provided with an extending-arm portion such holder being arranged to vibrate a cutter, and means for securing the vibrating-cutter-holder portion to the gear portion whereby the desired proportional motions are given such parts, substantially as described.

2. In a machine of the class described, the combination of two reciprocating slides having racks thereon and arranged to hold projecting cutter portions in line with their motion, an oscillating-gear portion mounted between the same and engaging with the racks on the slide to impart the desired reciprocating motion, a pivotal tool-holder mounted independently and adjacent to the oscillating gear and provided with an extending-arm portion such holder being arranged to vibrate a cutter at right angles to the movement of the slides, means for securing the vibrating-cutter-holder portion to the gear portion whereby the desired proportional movements are given to such parts, means for holding the material, means for adjusting the material to the desired position, and means for feeding the material-holder with the material into contact with the cutters, substantially as described.

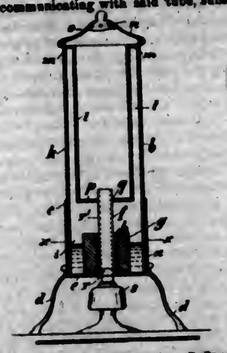
3. In a machine of the class described, the combination of two reciprocating slides having racks thereon, cutter portions adjustably secured to the rack-slides, an oscillating-gear portion mounted between the racks and engaging with the same so as to impart the desired reciprocating motion to the slides, a pivotal tool-holder mounted independently and adjacent to the oscillating gear and provided with an extending-arm portion, such holder being arranged to vibrate a cutter, and means for adjustably securing the vibrating cutter-holder to the gear portion so as to obtain variable vibratory motions of the vibrating cutter, substantially as described.

605,775. STEAM-RADIATOR. Carl Bodmer, Odessa, Russia. Filed May 1, 1897. Serial No. 634,703. (No model.)

Claim.—1. In a steam-radiator, the combination with a reservoir of a radiator communicating therewith, a generator located in said reservoir and provided with a central opening, a tube extending though said opening and of smaller diameter than the same forming an annular chamber communicating with said reservoir, and a source of heat communicating with said tube, substantially as set forth.

2. In a steam-radiator, the combination with a reservoir, of a radiator communicating therewith, a generator located in said reservoir and having channels in its under surface and provided with a central opening, a tube of smaller diameter located within said opening and communicating with a perforation in the bottom of the reservoir and a source of heat communicating with said tube, substantially as set forth.

3. In a steam-radiator, the combination with a reservoir of a radiator communicating therewith, a generator located in said reservoir and channeled upon its under surface and provided with a central opening, a tube of smaller diameter located within said opening and communicating at its lower end with an opening in the bottom of the reservoir, a cylinder located within the radiator and provided with an opening in its base through which the said tube extends, and a source of heat communicating with said tube, substantially as set forth.



605,776. TREE-PROTECTOR. John R. Brader, Ronan, Iowa. Filed Aug. 27, 1897. Serial No. 649,748. (No model.)



Claim.—A tree-protector, composed of the woven wire A, the metal binding-strip B having an extension B^2, and fixed studs a, a', and a'', a metal binding-strip C, cross-wires d, d', and d'', terminating in hooks f, f', f'', and a flexible piece of fabric H fixed to the top of the woven wire A, as and for the purposes stated.

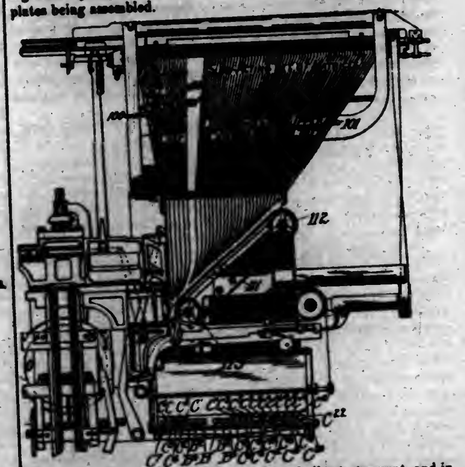
605,777. LINOTYPE-MACHINE, LINE-CASTING MACHINE, AND MACHINE FOR MAKING TYPE-BARS, LINOTYPES, AND MATRICES. Theodore Cahill, New York, N. Y. Original application filed Oct. 31, 1896, Serial No. 610,489. Divided and this application filed Aug. 11, 1897. Serial No. 647,982. (No model.)

Claim.—1. In a line-casting machine or other similar instrument, two sets of circulating matrices or type-plates of the same case and face in combination with composing mechanism constructed to assemble matrices or type-plates of the two sets aforesaid in due order into the same line.

2. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including two sets of circulating matrices or type-plates of the same case and composing mechanism, whereby matrices or type-plates of the two sets aforesaid are simultaneously arranged in due order in a line.

3. In a line-casting machine or other similar instrument, two sets of circulating matrices or type-plates of the same case and face in combination with composing mechanism constructed to assemble matrices or type-plates of the two sets aforesaid in due order into the same line; the matrices or type-plates of one of the two sets aforesaid being normally disposed in proximity to the line of matrices or type-plates being assembled, and the matrices or type-plates of the other set aforesaid being normally disposed more remote from the line of matrices or type-plates being assembled.

4. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination with suitable composing mechanism, two sets of circulating matrices or type-plates of the same case; the matrices or type-plates of the one set being normally disposed in proximity to the line of matrices or type-plates being assembled, and the matrices or type-plates of the other set being normally disposed more remote from the line of matrices or type-plates being assembled.



5. In a line-casting machine or other similar instrument, and in combination, two sets of circulating matrices or type-plates of the same case and face; the matrices or type-plates of one set being normally disposed in proximity to the line of matrices or type-plates being assembled, and the matrices or type-plates of the other set being normally disposed more remote from the line of matrices or type-plates being assembled; releasing devices for the set of matrices or type-plates above mentioned as disposed in proximity to the line of matrices or type-plates being assembled; keys controlling said releasing devices; other releasing devices for the other set of matrices or type-plates above mentioned, and other keys controlling said releasing devices; and means constructed to assemble the matrices released from the two sets aforesaid in due order in the same line.

6. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination with suitable composing mechanism, two sets of circulating matrices or type-plates of the same case; the matrices or type-plates of one set being normally disposed in proximity to the line of matrices or type-plates being assembled, and the matrices or type-plates of the other set being normally disposed more remote from the line of matrices or type-plates being assembled; releasing devices for the set of matrices or type-plates above mentioned as disposed in proximity to the line of matrices or type-plates being assembled; keys controlling said releasing devices; other releasing devices for the other set of matrices or type-plates above mentioned, and other keys controlling said releasing devices; the whole being constructed, arranged and operating in such a manner that when matrices or type-plates of the two sets aforesaid are released by or in consequence of simultaneous actions of the operator upon keys of the two sets aforesaid, one matrix or type-plate from each set the matrix or type-plate released from the set of matrices or type-plates before mentioned as being disposed in proximity to the line of matrices or type-plates being assembled, reaches a position in the line of matrices or type-plates being assembled, in advance of the matrix or type-plate of the other set, released by the simultaneous action of the operator; so that two matrices or type-plates released by or in consequence of simultaneous actions of the operator, follow each other in due order in the line of matrices or type-plates being assembled.

7. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (a) two sets of matrices or type-plates of the same case; (b) primary-letter-releasing devices, whereby the matrices or type-plates corresponding to the first letters of the

consecutive pairs of letters are released; (*c*) secondary-letter-releasing devices, whereby the matrices or type-plates corresponding to the second letters of the consecutive pairs of letters are released; and (*d*) suitable composing mechanism, whereby the matrices or type-plates of the two sets aforesaid are simultaneously assembled into line; the whole being constructed, arranged and operating in such a manner that when matrices or type-plates of the two sets are released by or in consequence of simultaneous actions of the operator, one matrix or type-plate from each set, the matrix or type-plate released by the primary-letter-releasing devices reaches a position in the line of matrices or type-plates being assembled, in advance of the matrix or type-plate of the other set, released by the secondary-letter-releasing devices; so that the two matrices or type-plates released by or in consequence of simultaneous actions of the operator are made to follow each other in due order in the line of matrices or type-plates being assembled.

8. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination with suitable composing mechanism, two sets of matrices or type-plates of the same case; the matrices or type-plates of one set being disposed in proximity to the assembling-block, and the matrices or type-plates of the other set being disposed more remote from the assembling-block.

9. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination with suitable composing mechanism, two sets of matrices or type-plates of the same case; the matrices or type-plates of one set being disposed in proximity to the assembling-block, and the matrices or type-plates of the other set being disposed more remote from the assembling-block; releasing devices for the set of matrices or type-plates above mentioned as disposed in proximity to the assembling-block; keys, controlling said releasing devices; other releasing devices for the other set of matrices or type-plates above mentioned; and other keys controlling said releasing devices; the whole being constructed, arranged and operating in such a manner that when matrices or type-plates of the two sets are released by or in consequence of simultaneous actions of the operator, one matrix or type-plate from each set, the matrix or type-plate released from the set of matrices or type-plates before mentioned as being disposed in proximity to the assembling-block, reaches a position in the line of matrices or type-plates being assembled, in advance of the matrix or type-plate of the other set, released by the simultaneous action of the operator; so that two matrices or type-plates released by or in consequence of simultaneous actions of the operator, follow each other in due order in the line of matrices or type-plates being assembled.

10. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including two sets of matrices of type-plates of the same case, to wit, a set of primary-letter matrices or type-plates and a set of secondary-letter matrices or type-plates, in combination with suitable composing mechanism whereby matrices or type-plates of the two sets aforesaid are simultaneously assembled into the same line.

11. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination with suitable composing mechanism, two sets of matrices or type-plates of the same case, to wit, a set of primary-letter matrices and a set of secondary-letter matrices; keys and releasing mechanism controlled by them, operating to release the primary-letter matrices or type-plates aforesaid; other keys and releasing devices controlled by them, operating to release the secondary-letter matrices or type-plates aforesaid; and means operating when keys of the two sets aforesaid are acted upon simultaneously by the operator; thereby to release two matrices, or type-plates, one from each of the two sets of matrices or type-plates above mentioned, to cause the matrix or type-plate released from the primary-letter set of matrices or type-plates, to reach a position in the line of matrices or type-plates being assembled in advance of the matrix or type-plate released, by or in consequence of the simultaneous action of the operator upon the appropriate key or keys, from the secondary-letter set of matrices or type-plates.

12. In a line-casting machine or other similar instrument, two sets of matrices or type-plates of the same case and face, in combination with composing mechanism, including (*a*) a set of keys for the right hand, controlling one of the two sets of matrices or type-plates above mentioned (*b*), a set of keys for the left hand, controlling the other set of matrices or type-plates above mentioned, and (*c*) means constructed to assemble matrices or type-plates of the two sets aforesaid, in due order in the same line.

13. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including two sets of matrices or type-plates of the same case, to wit, a set of primary-letter matrices or type-plates, and a set of secondary-letter matrices or type-plates in combination with suitable composing mechanism, including a set of keys for the right hand, controlling one of the two sets of matrices or type-plates above mentioned, and a set of keys for the left hand, controlling the other set of matrices or type-plates above mentioned; and means operating when keys of the two sets aforesaid are acted upon simultaneously by the operator, thereby to release two matrices or type-plates, one from each of the two sets above mentioned, to cause the matrix or type-plate released from the primary-letter set of matrices or type-plates to reach a position in the line of matrices or type-plates being assembled in advance of the position reached by the matrix or type-plate released by the simultaneous action of the operator, from the secondary-letter set of matrices or type-plates.

14. In a line-casting machine or other similar instrument, and in combination, (*a*) two sets of matrices or type-plates of the same case and face; (*b*) a set of keys and releasing mechanism controlled by said keys and acting to release the matrices or type-plates of one of the two sets aforesaid; (*c*) another set of keys, and releasing mechanism controlled by said last-mentioned keys, and acting to release the matrices or type-plates of the other one of the two sets aforesaid; and (*d*) additional composing mechanism constructed to assemble the matrices or type-plates released from the two sets aforesaid, in due order in the same line.

15. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (*a*) two sets of matrices or type-plates of the same case; (*b*) a set of keys and releasing mechanism controlled by said keys, acting to release the matrices or type-plates of one of the two sets aforesaid; (*c*) another set of keys and releasing mechanism controlled by said last-mentioned keys, acting to release the matrices or type-plates of the other one of the two sets aforesaid; and (*d*) additional composing mechanism whereby the matrices or type-plates released from the two sets aforesaid are arranged in due order in the line; the whole being constructed arranged and operating in such a manner that when keys of the two sets aforesaid are depressed by the operator simultaneously, thereby to free one matrix or type-plate of each set, the matrices or type-plates released, belonging to one set and controlled by the one set of keys, are regularly assembled or disposed in advance, in the line of the matrices or type-plates released simultaneously or substantially simultaneously, but belonging to the other set of matrices or type-plates and controlled by the other set of keys aforesaid.

16. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (*a*) two sets of matrices or type-plates of the same case; (*b*) a set of keys for the right hand, and releasing mechanism controlled by said keys and acting to release the matrices or type-plates of one of the two sets aforesaid; (*c*) a set of keys for the left hand and releasing mechanism, controlled by said keys, and acting to release the matrices or type-plates of the other one of the two sets aforesaid; and (*d*) additional composing mechanism whereby the matrices or type-plates released from the two sets aforesaid are arranged in due order in the line; the whole being constructed, arranged and operating in such a manner that when keys of the two sets aforesaid are depressed by the operator simultaneously, thereby to free one matrix or type-plate of each set, the matrices or type-plates released belonging to one set and controlled by the one set of keys, are regularly assembled or disposed in advance, in the line of matrices or type-plates, and controlled by the other set of keys, by the simultaneous acting of the operator upon the other set of keys.

17. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (*a*) a set of keys adapted to be operated by the right hand, and a set of lower-case matrices or type-plates controlled by such keys; (*b*) a set of keys adapted to be operated by the left hand and another set of lower-case matrices or type-plates controlled by such left-hand keys; (*c*) means controlled by the right-hand keys, acting to release the matrices or type-plates of the one set, each as required; (*d*) means, controlled by the left-hand keys, acting to release the matrices or type-plates of the other set, each as required; and (*e*) additional composing mechanism whereby the matrices or type-plates released, of the two sets aforesaid are arranged, in due order in the line; the whole being constructed, arranged and operating in such a manner that when keys of the two sets aforesaid are depressed by the operator simultaneously, thereby to free one matrix or type-plate of each set, the matrices or type-

plates released, belonging to the one set of matrices or type-plates, and controlled by the one set of keys, are regularly assembled or disposed in advance, in the line, of the matrices or type-plates released by or in consequence of a simultaneous action of the operator, but belonging to the other set of matrices or type-plates and controlled by the other set of keys aforesaid.

18. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination, (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for each set of matrices or type-plates; (*c*) two sets or groups of keys; (*d*) quick-acting connections between the keys of one set and the releasing devices controlling one of the sets of matrices or type-plates before mentioned; and (*e*) slow-acting connections between the keys of the other set and the releasing devices controlling the matrices or type-plates of the other set, before mentioned.

19. In a line-casting machine and in combination, (*a*) two sets of matrices or type-plates of the same case and face; (*b*) a set of keys and releasing devices controlled thereby, and acting to control the matrices or type-plates of one of the two sets aforesaid; (*c*) another set of keys and other releasing devices controlled by said keys, and acting to control the matrices or type-plates of the other one of the two sets aforesaid; (*d*) a conveyer in operative relation to the matrices of the two sets aforesaid, and serving to convey the matrices or type-plates of the two sets aforesaid, when they are released, to the mechanism for arranging them in line, and (*e*) means constructed to assemble the matrices or type-plates released from the two sets aforesaid in due order into a line.

20. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination with mechanism for arranging the matrices or type-plates in line, (*a*) two sets of matrices or type-plates of the same case; (*b*) two sets of keys; (*c*) releasing devices for each set of matrices or type-plates, controlled by the corresponding set of keys; and (*d*) a carrier serving to convey the matrices or type-plates of the two sets aforesaid, after they have been released, to the mechanism before mentioned for arranging them in line; the matrices or type-plates of the two sets aforesaid being disposed in such relation to the carrier before mentioned that the matrices or type-plates of the one set regularly fall upon said carrier nearer to the mechanism before mentioned for arranging the matrices or type-plates in line, (and to which mechanism the matrices or type-plates are being conveyed by the carrier,) than the matrices or type-plates do of the other set, released by a simultaneous action of the operator.

21. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for each set of matrices or type-plates; (*c*) two sets of keys; (*d*) quick-acting connections between one set of keys and the releasing devices controlled by said keys and which serve to control one of the two sets of matrices or type-plates aforesaid; (*e*) slow-acting connections between the other set of keys aforesaid and the releasing devices controlled by such keys and which serve to control the other set of matrices or type-plates aforesaid; and (*f*) a carrier, serving to convey the matrices or type-plates of the two sets aforesaid, when they are released, to the mechanism whereby they are arranged in line; the matrices or type-plates of the two sets aforesaid being disposed in such relation to the carrier before mentioned that the matrices of the set whose releasing devices are connected with the keys controlling them by quick-acting connections, regularly fall upon said carrier nearer to the mechanism before mentioned whereby said matrices are arranged or composed in line, and to which mechanism the matrices or type-plates are being conveyed by the carrier aforesaid, than the matrices or type-plates do of the other set, whose releasing devices are connected with the keys controlling them by slow-acting connections.

22. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination, with suitable composing or assembling mechanism, (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for each of the sets of matrices or type-plates aforesaid; (*c*) two sets of keys; (*d*) quick-acting connections between one set of keys aforesaid and the releasing devices controlling one of the sets of matrices or type-plates aforesaid; and (*e*) slow-acting connections between the other set of keys aforesaid and the releasing devices controlling the other set of matrices or type-plates aforesaid; the set of matrices or type-plates aforesaid whose releasing devices are connected with the keys controlling them by quick-acting connections, being disposed in proximity to the line of matrices or type-plates being assembled, and the matrices or type-plates of the other set, whose releasing devices are connected with the keys controlling them by slow-acting connections, being disposed more remote from the line of matrices or type-plates being assembled.

23. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices, for the two sets of matrices or type-plates aforesaid, whereby the matrices or type-plates of each set are released, as required; (*c*) two sets of keys, serving to control the two sets of matrices or type-plates aforesaid; and (*d*) permutational selecting devices intermediate at least one set of keys and the releasing devices controlled thereby; whereby a few keys are made to control a large number of releasing devices, each as required.

24. In a line-casting machine or other similar instrument, and in combination, (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for the two sets of matrices or type-plates aforesaid, whereby the matrices or type-plates of each set are released, as required; (*c*) two sets of keys serving to control the two sets of matrices or type-plates aforesaid, respectively; (*d*) permutational selecting devices intermediate one set of keys at least, and the releasing devices controlled thereby, whereby a few keys are made to control a large number of releasing devices, each as required; and (*e*) means constructed to assemble the matrices or type-plates released from the two sets aforesaid in due order into a line.

25. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for the two sets of matrices or type-plates aforesaid, whereby the matrices or type-plates of each set are released, as required; (*c*) two sets of keys, serving to control the two sets of matrices or type-plates aforesaid; (*d*) permutational selecting devices intermediate one set of keys at least and the releasing devices controlled thereby, whereby a few keys are made to control a large number of releasing devices, each as required; and (*e*) additional composing mechanism whereby the matrices or type-plates of the two sets released, are arranged in due order in a line; the whole being constructed, arranged and operating in such a manner that when keys of the two sets aforesaid are depressed by the operator simultaneously, thereby to free one matrix or type-plate of each set, the matrices or type-plates released belonging to the one set of matrices or type-plates, and controlled by the one set of keys are regularly assembled or disposed in advance, in the line, of the matrices or type-plates released from the other set of matrices or type-plates by the simultaneous acting of the operator upon the other set of keys.

26. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination, (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for each set of matrices or type-plates; (*c*) two sets of keys; (*d*) quick-acting connections between the keys of one set and the releasing devices controlling one of the sets of matrices or type-plates before mentioned; (*e*) slow-acting connections between the keys of the other set and the releasing devices controlling the other set of matrices or type-plates before mentioned; the connections between at least one of the sets of keys before mentioned and the releasing devices controlled by them, being permutational selecting devices, whereby a few keys, acting singly and in different combinations are made to control a large number of releasing devices, each as required.

27. In a line-casting machine or other similar instrument, and in combination, (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for each set of matrices or type-plates aforesaid, whereby the different matrices or type-plates are released, as required; (*c*) a set of keys for the right hand; (*d*) permutational selecting devices intermediate the keys of the right hand and the releasing devices controlled thereby, whereby a few keys acting singly and in different combinations are made to control a large number of releasing devices, each as required; (*e*) a set of keys for the left hand; (*f*) permutational selecting devices, intermediate the keys of the left-hand set and the releasing devices controlled thereby, whereby a few keys are made to control a large number of releasing devices, each as required, and (*g*) means constructed to assemble the matrices or type-plates released from the two sets aforesaid in due order into a line.

28. In a line-casting machine, or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including in combination, (*a*) two sets of matrices or type-plates of the same case; (*b*) releasing devices for each set of

matrices or type-plates aforesaid, whereby the different matrices or type-plates are released, as required; (c) a set of keys for the right hand; (d) permutational escapement-selecting devices, intermediate the keys of the right hand and the releasing devices controlled thereby, whereby a few keys acting singly and in different combinations are made to control a large number of releasing devices, each as required; (e) a set of keys for the left hand; and (f) permutational escapement-selecting devices, intermediate the keys of the left-hand set and the releasing devices controlled thereby, whereby a few keys are made to control a large number of escapement devices, each as required; the connections between one set of keys and the releasing devices controlled thereby being quick-acting; and the connections between the other set of keys and the releasing devices controlled by them being slow-acting.

29. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word simultaneously, and including (a) a set of lower-case matrices or type-plates; (b) storing devices for said matrices or type-plates, said storing devices being disposed in proximity to the line of matrices or type-plates being assembled; (c) another set of lower-case matrices or type-plates; and (d) storing devices for said last-mentioned matrices or type-plates, disposed more remote from the line of matrices or type-plates being assembled.

30. In a line-casting machine or other similar instrument, and in combination, (a) a set of lower case matrices or type-plates; (b) storing devices for said matrices or type-plates, said storing devices being disposed in proximity to the line of matrices or type-plates being assembled; (c) another set of lower-case matrices or type-plates of the same face; (d) storing devices for said last-mentioned matrices or type-plates, disposed more remote from the line of matrices or type-plates being assembled; and (e) composing mechanism constructed to assemble matrices or type-plates of the two sets aforesaid in due order into the same line.

31. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word, simultaneously, and including (a) a set of lower-case matrices or type-plates; (b) storing devices for said matrices or type-plates, said storing devices being disposed in proximity to the line of matrices or type-plates being assembled; (c) another set of lower-case matrices or type-plates; (d) storing devices for said last-mentioned matrices or type-plates, disposed more remote from the line of matrices or type-plates being assembled; and (e) composing mechanism whereby the matrices or type-plates of the two sets aforesaid are arranged in due order in the line.

32. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word simultaneously, and including (a) two sets of matrices or type-plates of the same case, to wit, a set of primary-letter matrices or type-plates and a set of secondary-letter matrices or type-plates; (b) releasing devices controlling the primary-letter matrices or type-plates aforesaid, said releasing devices being disposed in proximity to the line of matrices or type-plates being assembled; and (c) other releasing devices controlling the secondary-letter set of matrices or type-plates aforesaid; the last-mentioned releasing devices being disposed more remote from the line of matrices or type-plates being assembled than the releasing devices controlling the primary-letter set of matrices.

33. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word simultaneously, and including (a) two sets of matrices or type-plates of the same case, to wit, a set of primary-letter matrices or type-plates and a set of secondary-letter matrices or type-plates; (b) releasing devices controlling the primary-letter matrices or type-plates aforesaid, said releasing devices being disposed in proximity to the line of matrices or type-plates being assembled; (c) other releasing devices controlling the secondary-letter set of matrices or type-plates aforesaid; the last-mentioned releasing devices being disposed more remote from the line of matrices or type-plates being assembled than the releasing devices controlling the primary-letter set of matrices; and (d) means whereby the matrices or type-plates released from the two sets aforesaid are arranged in due order in the line.

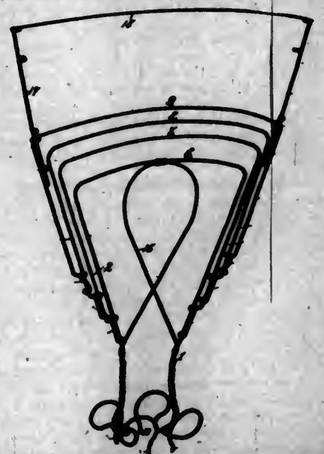
34. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word simultaneously, and including (a) two sets of matrices or type-plates of the same case; (b) quick-acting selecting mechanism, controlling one set of said matrices, and (c) slow-acting selecting mechanism, controlling the other set of matrices aforesaid.

35. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word simultaneously, and including (a) two sets of matrices or type-plates of the same case; (b) a quick-acting permutational selecting mechanism, controlling one set of said matrices or type-plates, and (c) a slow-acting permutational selecting mechanism, controlling the other set of said matrices or type-plates.

36. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word simultaneously, and including (a) two sets of matrices or type-plates of the same case, one of said sets of matrices or type-plates being disposed in proximity to the line of matrices or type-plates being assembled, and the other of said sets of matrices or type-plates being disposed more remote from the line of matrices or type-plates being assembled; (b) quick-acting selecting mechanism controlling that set of matrices or type-plates before mentioned as being disposed in proximity to the line of matrices or type-plates being assembled, and (c) slow-acting selecting mechanism controlling the other set of matrices or type-plates aforesaid.

37. In a line-casting machine or other similar instrument, means constructed to afford facility to the operator to select a plurality of matrices or type-plates, corresponding to consecutive letters of a word simultaneously, and including (a) two sets of matrices or type-plates of the same case, one of said sets of matrices or type-plates being disposed in proximity to the line of matrices or type-plates being assembled, and the other of said sets of matrices or type-plates being disposed more remote from the line of matrices or type-plates being assembled; (b) quick-acting permutational selecting mechanism controlling that set of matrices or type-plates before mentioned as being disposed in proximity to the line of matrices or type-plates being assembled; and (c) slow-acting permutational selecting mechanism controlling the other set of matrices or type-plates aforesaid.

605,778. TRELLIS. FRED D. CLARK, Fruitsburg, N. Y. Filed May 22, 1897. Serial No. 637,782. (No model.)



Claim.—1. A trellis, consisting of a plurality of frames constructed to support a plant or vine and slidable vertically in operative connection with one another, for the purpose of lengthening, or shortening the trellis to increase or diminish its height, the lowermost frame having opposite arms provided at their lower ends with clutches to engage a flower-pot, substantially as and for the purpose described.

2. A trellis, consisting of a plurality of frames constructed to support a plant or vine and slidable vertically in operative connection with one another for increasing or diminishing the height of the trellis, the base or lower frame having opposite arms formed integral at their lower ends with spring-clutches for engaging a flower-pot or receptacle by which the trellis is supported upright, substantially as and for the purpose described.

3. A trellis, consisting of a plurality of wire frames, each having arms or members, the arms or members of the base or lower frame having spring-clutches to engage opposite sides of a flower-pot or receptacle and the arms or members of the other frames having sliding engagement with one another, for increasing or diminishing the height of the trellis, substantially as and for the purpose described.

4. A trellis, consisting of a plurality of wire frames each composed of side arms or members connected at the top by a transverse member, the arms or members of the base or lower frame having spring clutches to engage opposite sides of a flower-pot or receptacle and the arms or members of the remaining frames having sliding engagement with one another, substantially as and for the purpose described.

5. A trellis, consisting of a plurality of wire frames, each composed of converging side arms or members and a transverse member, the base or lower frame having spring-clutches by which it may be supported upright and the remaining frames having their side arms or members provided with guide-eyes, so that said eyes of one frame may slide vertically upon the arms of another frame for increasing or diminishing the height of the trellis, substantially as and for the purpose described.

6. A trellis, consisting of a plurality of frames slidable longitudinally one upon another for increasing or diminishing the height of the trellis, and an extension-frame movably connected with the top portion of the uppermost slidable frame, substantially as and for the purpose described.

7. A trellis, consisting of a plurality of frames slidable longitudinally with relation to one another for increasing or diminishing the height of the trellis, the base or lower frame having clutches constructed to engage the bead or rib on the mouth of a flower-pot, substantially as and for the purpose described.

8. A trellis, consisting of a wire base or lower frame, and a plurality of upper frames, each composed of two arms connected by a transverse member, and the arms of each frame bent into eyes which engage and slide longitudinally on the arms of another frame, all of the frames being composed of wire, and the slidable frames mounted on the base or lower frame, substantially as and for the purpose described.

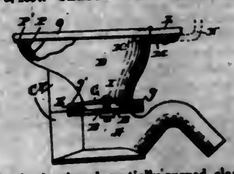
9. A trellis, consisting of a plurality of wire frames, each composed of two converging arms connected at the top by a transverse member, the arms of one frame having eyes sliding longitudinally on the arms of another frame for increasing or diminishing the height of the trellis, substantially as and for the purpose described.

605,779. BURGLAR-ALARM. WILLIAM U. COOPER, Shell Knob, Mo. Filed Sept. 16, 1897. Serial No. 651,861. (No model.)



Claim.—A burglar-alarm, comprising the bell 1 provided with the controlling-arm 2, the trip-lever 3 having its free end projecting into the path of the free end of said arm 2, the spring 4 connected to one side of said lever, and the cord 5 connected at one end to the opposite side of said lever and having its opposite end extending under tension over a fixed pulley 6 thence over a pulley 6' mounted on the movable bottom sash and its immediate end provided with a hook 9 adapted to be removably secured to the upper sash whereby a movement of either sash will slacken the cord to release the trip-lever 3 and sound an alarm, substantially as shown and described.

605,780. WATER-CLOSET. ALONZO W. CRAM, Haverhill, Mass. Filed June 5, 1897. Serial No. 639,594. (No model.)



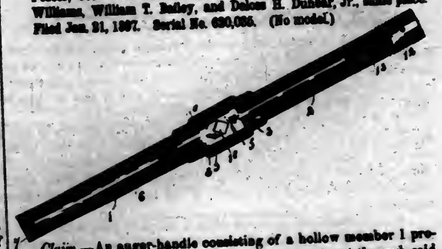
Claim.—1. An improved partially-curved clamping device for the purpose described, consisting of the crescent-shaped plate formed with perforations at points backward from its ends, the plate being sprung upward slightly on a line intersecting the perforations, the back center of the plate and also its points thus depending in the manner and for the purpose herein shown and described.

2. The combination of a trap formed with projected ears, a bowl formed with a base peripheral flange, and a crescent-shaped clamping-plate adapted to embrace the bowl and rest on the flange, the plate being formed with perforated laterally-projecting ears at points backward from the ends of the clamping-plate, said ears aligning with

the trap-ears, the plate being sprung upward in the manner and for the purpose described, and the securing-screws, substantially as set forth.

3. An improved coupling for uniting flanged closet bowls and traps, including a yoke adapted to embrace one of said parts and rest on the flange thereof, said yoke being sprung between its ends so as to stand away from the flange, and securing means uniting with the spring portion of the yoke and adapted to compress the same toward the flange, substantially as shown and described.

605,781. AUGER-HANDLE. THOMAS A. GARNER, Bradford, Pa., assignor of one-half to Elmer E. Bryner, Samuel T. Boris, William Foster, Otto Peterson, Frank Morse, Phineo L. Billings, Agnes W. Williams, William T. Bailey, and Delcos H. Dunbar, Jr., same place. Filed Jan. 21, 1897. Serial No. 620,055. (No model.)



Claim.—An auger-handle consisting of a hollow member 1 provided with a head 3 at one end thereof, an opening 4 through said head to receive the end of a bit or auger, a rod 6 secured within the hollow member 1 and projecting beyond the inner end of the same, said rod 6 being provided with an opening 10 that is situated opposite the opening 4 in the head of the member 1 and having a screw-threaded outer end, a hollow member 2 provided at one end with a head 3 to fit within the head 3 of the member 1, the end of said head 3 of the member 2 being notched to engage the end of a bit or auger that is inserted within the opening 4, a nut 12 having a stem 13 situated within the outer end of the member 2 and having a shoulder bearing against the end of said member 2, said nut 12 being screw-threaded interiorly to receive the screw-threaded end of the rod 6.

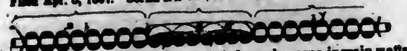
605,782. PROPELLING MECHANISM FOR VESSELS. FRANK GRAY, Atlantic City, N. J. Filed May 14, 1897. Serial No. 636,581. (No model.)



Claim.—In a propelling mechanism for vessels, the combination of a cylinder closed at its inner end and open at its outer end, said end being exposed in an opening at the stern of the vessel, a steam-cylinder arranged in line with the water-cylinder, a piston-rod movable in axial line with said cylinders through stuffing-boxes in the adjacent heads thereof, a plunger upon the outer end of said movable

rod within the water-cylinder, a piston on the other end movable within the steam-cylinder, a steam-chest upon one end of the steam-cylinder having connection with the boiler, a sliding valve in said chest, a sliding valve controlling an exhaust-port on the opposite side of said cylinder and having connection with the condenser, connecting devices between the piston-rod and the valve-rods intermediate the two cylinders for automatically opening and closing said valves, and air and water supply pipes connected with the water-cylinder at the inner end thereof, all substantially as shown and described.

605,783. WOVEN FABRIC. ALFRED HEALD, Philadelphia, Pa. Filed Apr. 5, 1897. Serial No. 630,786. (Specimens.)



Claim.—1. A woven fabric in which damask warps, ingrain wefts, fine binding-warps, and a fine damask binding-weft are combined so as to form the face of the fabric in part of damask warps compressed and deeply indented by the fine binding-weft, and in part of ingrain wefts bound by the fine warps, substantially as specified.

2. A woven fabric in which damask warps, ingrain wefts in sets, fine binding-warps and a fine damask binding-weft are combined so as to form the face of the fabric in part of damask warps compressed and deeply indented by the fine binding-wefts and in part of ingrain wefts independently displayed and bound by the fine warps, substantially as specified.

3. A woven fabric in which damask warps, ingrain wefts in sets, ingrain binding-warps, and a fine damask binding-weft, are combined as described whereby the face of the fabric is composed in part of damask warps, compressed and deeply indented by the fine binding-weft, and in part of ingrain wefts independently displayed and bound by the fine warps, the ingrain wefts of each set lying side by side in the same horizontal plane on the back of the fabric where the damask warps appear upon the face, substantially as specified.

4. A woven fabric in which damask warps, ingrain wefts in sets, ingrain binding-warps, and a fine damask binding-weft, are combined as described whereby the face of the fabric is composed in part of damask warps compressed and deeply indented by said fine binding-weft, and in part of ingrain wefts independently displayed and bound by the fine warps, the ingrain wefts of each set being inserted in the same shed of binding-warp and said ingrain wefts lying side by side in the same place on the back of the fabric where the damask warps appear upon the face, substantially as specified.

5. A woven fabric comprising damask warps, ingrain wefts in sets, ingrain binding-warps, and a fine damask binding-weft, the face of the fabric being composed in part of damask warps compressed and deeply indented by the fine binding-weft, and in part of ingrain wefts independently displayed and bound by the fine warps, the damask warps lying between ingrain wefts upon the face of the fabric and ingrain wefts upon the back of the fabric wherever such damask warps do not appear upon the face, substantially as specified.

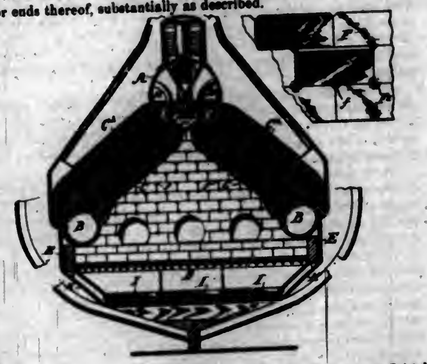
6. A woven fabric comprising damask warps, ingrain wefts in sets, ingrain binding-warps and a fine damask binding-weft, the face of the fabric being composed in part of damask warps compressed and deeply indented by the fine binding-weft, and in part of ingrain wefts independently displayed and bound by the fine warps, said ingrain wefts lying side by side in the same plane at the back of the fabric where the damask warps appear upon the face, and said damask warps lying between ingrain wefts on the face of the fabric and ingrain wefts upon the back of the same, wherever they do not appear upon the face, substantially as specified.

7. A woven fabric comprising damask warps, ingrain wefts comprising repetitions of two pairs with a like thread in each pair, ingrain binding-warps and a fine binding-weft combined as described whereby the face of the fabric is composed in part of damask warps compressed and deeply indented by the fine weft, and in part of the ingrain wefts independently displayed, said wefts lying side by side at the back of the fabric when the damask warps are on the face, and said damask warps lying between ingrain wefts of the face and back of the fabric wherever they do not appear upon the face, substantially as specified.

605,784. STEAM-BOILER. NATHANIEL G. HERRESHOFF, Bristol, R. I., assignor to the Herreshoff Manufacturing Company, same place. Filed Sept. 28, 1897. Serial No. 653,267. (No model.)

Claim.—1. In a steam-boiler, in combination with a central drum, side drums at a lower level, and a set of water-tubes between said central drum and each of said side drums, a fire-grate extended under said side drums so as to expose the same to the fire-gases, and baffle-plates arranged to concentrate the fire-gases at the lower portions of said water-tubes, substantially as described.

2. In a steam-boiler, in combination with a central drum, side drums at a lower level, and a set of water-tubes between said central drum and each of said side drums, a fire-grate extended under said side drums so as to expose the same to the fire-gases, and baffle-plates arranged between said water-tubes and extending downward from the said central drum so as to concentrate the fire-gases at the lower portions of said water-tubes while at the same time exposing said tubes to the fire-gases partly within the fire-chamber and partly within the flues outside said baffle-plates, said flues having their intakes at the lower ends and their gas-discharge openings at the upper ends thereof, substantially as described.



605,785. STEAM-BOILER. NATHANIEL G. HERRESHOFF, Bristol, R. I., assignor to the Herreshoff Manufacturing Company, same place. Filed Sept. 28, 1897. Serial No. 653,268. (No model.)



Claim.—1. In a dry-steam separator, a dome or inclosing casing, a deflector located at the base thereof, presenting an inclined passage to impart a helical movement to the ascending current of steam and leaving a circular clear space above said deflector, in combination with a foraminous screen K, in the interior near the periphery of the dome or casing, and against the inner face of which the steam is whirled in circulating contact, a lower water-discharge external to the screen, and a dry-steam-eduction pipe leading from the upper part of the dome or casing, substantially as herein specified.

2. In a dry-steam separator, a dome or inclosing casing closed at the top, a deflector located at the base thereof, presenting an inclined passage to impart a helical movement to the ascending current of steam and leaving an annular clear space above said deflector, in combination with a foraminous screen K extending around in the interior near the periphery, a lower water-discharge external to the screen, and a dry-steam-eduction pipe leading downward from the upper part of the dome or casing in the axis thereof, substantially as herein specified.

3. In combination with a steam-boiler having a water-surface insufficient for the proper disengagement of the steam, the dome A' extending upward from the body of the boiler, the steam-pipe J extending downward from near the top in the center of the dome, a foraminous screen K in the interior near the periphery of the dome leaving an annular space exterior thereto, a pipe L leading downward from such exterior space to a point below the water-level in the boiler, and a series of inclined deflectors P arranged in the bottom of the annular space between such screen and the central pipe leaving the upper portion of such space clear, adapted to impart a helical motion to a large quantity of steam ascending therethrough while requiring little vertical height in the series, all arranged for joint operation substantially as herein specified.

4. In combination with a steam-boiler having a water-surface insufficient for the proper disengagement of the steam, the dome A' extending upward from the body of the boiler, a pipe J extending downward in the center, the foraminous screen K in the interior near the periphery of the dome, leaving an annular space exterior thereto, the pipe L leading downward from such exterior space to a point below the water-level in the boiler, and a substantially annular series of inclined deflectors P arranged in the base of the dome between such screen and the central pipe, adapted to impart a helical motion to the steam ascending therethrough leaving an unobstructed space above such deflectors in which the particles of water may freely move tangentially to reach the screen, all substantially as herein specified.

5. In a steam-boiler, a dome A' covering a portion of the drum or body A outside of the aperture for such dome and a foraminous screen K extending around within the dome and joined to the body at the edge of the aperture, in combination with a series of inclined deflectors P arranged to cause the steam rising through it to travel helically in a clear space above so that the inclosing foraminous screen shall receive the particles of water and allow them to move outward through it and descend in a quiet space outside thereof, and one or more pipes L communicating between such quiet space and a point in the body or drum below the water-line, such pipes being set in the portion of the boiler-shell within the dome, all substantially as herein specified.

605,786. STEAM-BOILER. NATHANIEL G. HERRESHOFF, Bristol, R. I., assignor to the Herreshoff Manufacturing Company, same place. Original application filed Sept. 28, 1897, Serial No. 653,268. Divided and this application filed Jan. 11, 1898. Serial No. 666,307. (No model.)



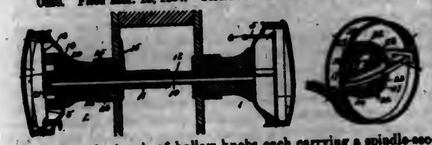
Claim.—1. In a steam-boiler having a central drum A and lower side drums B with connections C C, the front and rear walls F containing fire-bricks having their corners beveled, in combination with an exterior shell of metal F' and with a continuous intermediate air-space in free communication with the ash-pit, arranged to serve substantially as herein specified.

2. In a steam-boiler having a central drum A and lower side drums B, with connections C C, the front and rear walls F containing fire-bricks provided with recesses f' in their mid-thickness, in combination with an exterior shell F' of metal held at a little distance outside of such bricks, bolts F^2 having their heads and the adjacent portions of the shanks recessed into the bricks of the wall, and their opposite ends adjustably secured in the metallic shell, and adjusting-nuts F^3, F^4, all arranged to serve substantially as herein specified.

3. In a steam-boiler furnace a brick wall F having bricks formed and matched together so as to provide air-spaces f at the angles, a continuous metallic shell F' exterior to such wall, and standing at a sufficient distance therefrom to provide an intermediate air-space connecting the several apertures in the brick wall with the ash-pit, a series of holding-bolts F^2 having their heads and adjacent portions engaged with the brick wall and their opposite ends engaged with the metallic shell, and adjusting-nuts F^3, F^4, all combined and arranged to serve substantially as herein specified.

4. In a steam-boiler ash-pit, the damper Q, of arched form adapted to automatically open by the incoming air and assume a horizontal position within a recess provided, and close and resist archwise any back pressure of the gases, combined and arranged to serve substantially as herein specified.

605,787. COMBINATION-LOCK. CHARLES F. HILL, Middle Branch, Ohio. Filed Mar. 13, 1897. Serial No. 627,294. (No model.)

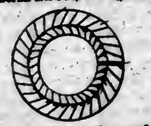


Claim.—1. A pair of hollow knobs each carrying a spindle-section, one of which is tubular, in combination with levers mounted in said knobs, a connection between said levers for simultaneously operating them, and locking mechanism arranged in one of the knobs and adapted to be engaged by one of said levers, substantially as and for the purpose specified.

2. Two hollow knobs, each having spindle-sections, one of which is tubular, in combination with levers arranged one in each knob, a connection between said levers for simultaneously operating them, means projecting exteriorly of one of the knobs for operating one of the levers, and locking mechanism in the other knob adapted to be engaged by the lever therein, substantially as and for the purpose described.

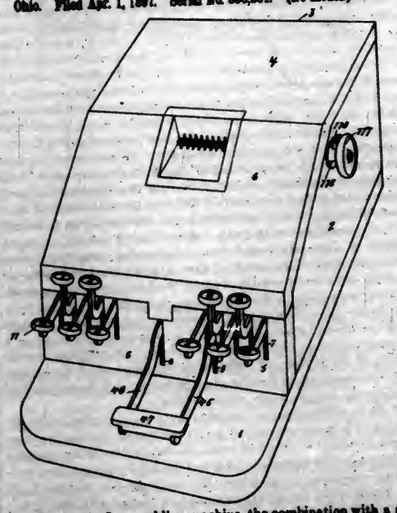
3. The combination with a hollow door-knob, of a plurality of rotatable tumblers mounted therein and notched, a lever mounted in said knob for engagement with the notches in the tumblers, a spring for giving said lever a normal tendency, and an operating connection for said lever extending through the knob-spindle and adapted to be operated from the opposite knob, substantially as described.

605,788. NUT-LOCK. FRANK O. JOHNSON, North Clarendon, Pa. Filed July 12, 1897. Serial No. 644,264. (No model.)



Claim.—As an improved article of manufacture, a nut-lock of the type comprising a split spiral ring or washer formed upon its opposite faces with ratchet-teeth of angular shape extending in opposite directions from the central line of said ring, with the meeting-point of said teeth upon one face of the nut-lock elevated and those upon the opposite side depressed, all substantially as and for the purpose specified.

605,789. ADDING-MACHINE. ROBERT H. KINBALL, Cleveland, Ohio. Filed Apr. 1, 1897. Serial No. 630,231. (No model.)



Claim.—1. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage, whereby the latter is moved forwardly upon the depression of any of the keys, spring-actuated mechanism for automatically returning the carriage to its initial position, a series of numeral-pinions arranged upon the shaft for independent rotation, a pinion-actuating device mounted upon the carriage, and an intermittent lateral feed for said device, adapted to throw the latter in engagement with one of the pinions before the forward movement of the carriage, and out of engagement with the pinion upon the return movement of the carriage.

2. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage, whereby the latter is moved forwardly upon the depression of any of the keys, spring-actuated mechanism for automatically returning the carriage to its initial position, a series of numeral-pinions arranged upon a shaft for independent rotation, a pinion-actuating device mounted upon the carriage, and an intermittent lateral feed for said device, adapted to throw the latter in engagement with one of the pinions before the forward movement of the carriage, and between said pinion and the next successive pinion before the return movement of the carriage.

3. In an adding-machine, the combination with a series of oper-

ating-keys, of a longitudinally-reciprocating carriage, a series of numeral-pinions arranged for independent rotation, a carriage-driving mechanism connecting the keys with the carriage, and adapted upon depression of any one of said keys to drive the carriage forward beneath the series of pinions to rotate one of the latter, spring-actuated mechanism for automatically returning the carriage to its initial position, a pinion-operating device upon the carriage, and lateral shifting mechanism for said device.

4. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for horizontal reciprocation, intermediate connections between the keys and carriage, whereby the latter is moved forwardly upon the depression of any of the keys, spring-actuated mechanism for automatically returning the carriage to its initial position, a series of numeral-pinions arranged upon a shaft for independent rotation, a rack upon the carriage adapted to engage with and rotate one of the pinions during the forward movement of said carriage, and lateral intermittent feed mechanism for moving the rack out of engagement with one pinion and in engagement with its next successive pinion, comprising an escapement 42 upon which the rack is secured, an escapement-key 44, and intermediate connections between the operating-keys and said escapement-key, and between the carriage-returning mechanism and the escapement-key, whereby the escapement is given an intermittent lateral movement.

5. In an adding-machine, the combination with a pinion-operating carriage mounted for horizontal reciprocation, and the driving mechanism for moving said carriage forwardly, comprising a series of operating-keys, lever 13, arm 37, a gear connection between the arm and lever, carriage-arm 28, and pin 41, substantially as described.

6. In an adding-machine, the combination with a pinion-operating carriage mounted for horizontal reciprocation, and the mechanism for reciprocating said carriage, comprising a series of operating-keys, a spring-actuated toothed lever 13, lever-arm 37, segment-gear 38, carriage-arm 28, and connecting-pin 41, substantially as described.

7. In an adding-machine, the combination with a carriage mounted for horizontal reciprocation, of a series of numeral-pinions sleeved upon a shaft for independent rotation, a pinion-operating rack mounted upon the carriage, and mechanism for feeding said rack laterally, and for operating the pinions successively comprising a series of operating-keys, the spring-actuated lever 13, lever-arm 37, a gear connection between levers 13 and 37, the slotted carriage-arm 28, an escapement-key slidingly supported beneath the escapement, carrying a pin 41 engaging the lever 37 and arm 28 and a stud 53 upon the key extending within said escapement, substantially as described.

8. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage whereby the latter is moved forwardly upon the depression of any of the keys, a series of numeral-pinions arranged upon a shaft for independent rotation, a pinion-actuating device upon the carriage adapted to engage with and rotate one of the pinions during the forward movement of the carriage, a stop mechanism adapted to limit the travel of the carriage, and the rotation of the pinion, and spring-actuated mechanism for moving the pinion-actuating device out of engagement with the pinion, and returning the carriage to its initial position.

9. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage, whereby the latter is moved forwardly upon the depression of any of the keys, a series of numeral-pinions arranged upon a shaft for independent rotation, a pinion-actuating device upon the carriage adapted to engage with and rotate one of the pinions during the forward movement of said carriage, and stop mechanism for limiting the travel of said carriage and the rotation of the pinion, comprising a single series of stop-bars having intermediate connections with the keys, whereby, upon the depression of any key, its corresponding stop-bar will be thrown in the path of the advancing carriage.

10. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage, whereby the latter is moved forwardly upon the depression of any of the keys, a series of numeral-pinions arranged upon a shaft for independent rotation, a pinion-actuating device upon the carriage, adapted to engage with and rotate one of the pinions during the forward movement of the carriage, and stop mechanism for limiting the travel of the carriage, comprising a series of bars resting and the rotation of the pinion, normally upon the keys, substantially as described.

11. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage whereby the latter is moved forwardly upon the depression of any of the keys, a series of numeral-pinions arranged upon a shaft for independent rotation, a pinion-actuating device upon the carriage, adapted to engage with and rotate one of the pinions during the forward movement of the carriage, and a stop mechanism for limiting the travel of the carriage, and the rotation of the pinion, comprising a series of bars resting normally upon the keys, and a series of spring-clips connecting each bar with its key, whereby, upon the depression of the latter, the bar will be drawn downwardly in the path of the carriage.

12. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage whereby the latter is moved forward upon the depression of any of the keys, a series of numeral-pinions arranged upon a shaft for independent rotation, a pinion-actuating device upon the carriage adapted to engage with and rotate one of the pinions during the forward movement of said carriage, and a stop mechanism for limiting the travel of the carriage and the rotation of the pinion, comprising a series of bars, provided with depending fingers, adapted to rest upon the keys, and a projecting arm 56, said arm being provided with a longitudinal slot, in which a portion of the carriage is adapted to travel, and with a series of transverse slots in which the bars are drawn upon the depression of the keys, substantially as described.

13. In an adding-machine, the combination with a reciprocating carriage, a series of numeral-pinions, a rack and a lateral feed therefor mounted upon the carriage, actuating mechanism for operating said carriage and feed, a carrying-key, a rack-returning device having intermediate connections with the key, whereby the said device is moved in one direction upon the depression of the key, and means for automatically returning the device and rack to their initial positions upon the releasement of the key.

14. In an adding-machine, the combination with a reciprocating carriage, a series of pinions, a rack and a lateral feed therefor mounted upon the carriage, actuating mechanism for operating the carriage and feed, a carrying-key, a rack-returning frame having intermediate connections with the key whereby, upon the depression of the latter, the frame is moved in one direction, and means for automatically returning the frame and rack to their initial positions upon the releasement of the key.

15. In an adding-machine, the combination with the carriage, the numeral-pinions, a rack, and a lateral feed therefor, arranged upon the carriage, actuating mechanism for operating the carriage and feed, and means for returning the rack, after its lateral travel, to its initial position, comprising a carrying-key, a frame mounted for reciprocation, a latch upon said frame, intermediate connections between the frame and key, whereby, upon the depression of the latter, the frame is moved in one direction, and a spring for automatically returning the frame and rack to their initial positions upon the releasement of the key.

16. In an adding-machine, the combination with the carriage, the numeral-pinions, a rack, and a lateral feed therefor, arranged upon the carriage, actuating mechanism for operating the carriage and feed, and means for returning the rack, after its lateral travel, to its initial position, comprising the carrying-key provided with a lever-arm 46, a projecting piece 53 carried on said arm, the carrying-frame, the latch thereon, lever 90, strap 95, and a spring 98, substantially as described.

17. In an adding-machine, the combination with a carriage, a series of numeral-pinions, and actuating mechanism for reciprocating the carriage and rotating the pinions, a series of carrying pawl-levers arranged in proximity to the pinions, carrying-pawls upon said levers engaging the pinions, a cam mechanism in connection with each pinion, adapted, at certain periods, to throw back the carrying-levers, a reciprocating frame, and a carrying device arranged thereon, adapted, during the reciprocation of said frame, to return the carrying-levers to their initial position.

18. In an adding-machine, the combination with a carriage, a series of numeral-pinions, and actuating mechanism for reciprocating the carriage and rotating the pinions, a series of carrying pawl-levers arranged in proximity to the pinions, carrying-pawls upon said levers engaging the pinions, and cam mechanism in connection with each pinion, adapted, at certain periods, to throw back the carrying-levers, a reciprocating frame, and an inclined face thereon, adapted, during the reciprocation of the frame, to return the carrying-levers to their initial positions.

19. In an adding-machine, the combination with the carriage, a series of numeral-pinions, and actuating mechanism for reciprocating the carriage and rotating the pinions, a series of carrying pawl-levers arranged in proximity to the pinions, carrying-pawls upon said levers engaging the pinions, a cam mechanism in connection with each pinion, adapted, at certain periods, to throw back the carrying-levers, a reciprocating frame, an inclined face thereon, adapted, during the reciprocation of the frame, to operate the pawl-levers, and a shoulder on said frame opposite the inclined face adapted to engage with the pinions, substantially as described.

20. In an adding-machine, the combination with a series of numeral-pinions, a reciprocating carriage for rotating the pinions a series of carriage-operating keys, and differential stops controlled by the keys for limiting the travel of the carriage.

21. In an adding-machine, the combination with a series of numeral-pinions, a reciprocating carriage, a series of carriage-operating keys, differential stops controlled by the keys for limiting the travel of the carriage, a pinion-actuating device upon said carriage, and a shifting mechanism for moving said pinion-actuating device laterally.

22. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage, whereby the latter is moved forwardly upon the depression of any of the keys, spring-actuated mechanism for automatically returning the carriage to its initial position, a series of numeral-pinions arranged upon a shaft for independent rotation, a rack mounted upon the carriage, a lateral feed for said rack adapted to throw the latter in engagement with one of the pinions before the forward movement of the carriage, and a safety device for preventing said forward movement of the carriage until the rack is in engagement with one of the pinions.

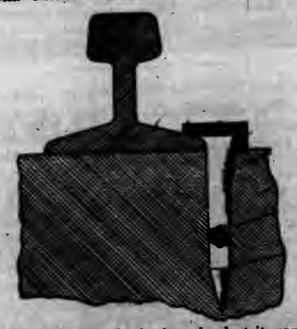
23. In an adding-machine, the combination with a series of operating-keys, of a carriage mounted for reciprocation, intermediate connections between the keys and carriage, whereby the latter is moved forwardly upon the depression of any of the keys, spring-actuated mechanism for automatically returning the carriage to its initial position, a series of numeral-pinions arranged upon a shaft for independent rotation, a rack mounted upon the carriage, and a lateral feed for said rack adapted to throw the latter in engagement with one of the pinions before the forward movement of the carriage, and a safety device for the purpose of preventing the forward movement of said carriage until the rack is in engagement with one of the pinions, said device consisting of the toothed bar 69 swingingly supported from the casing, and located as described.

24. In an adding-machine, the combination with a series of numeral-pinions, a reciprocating carriage for rotating said pinions, and a carrying mechanism for the pinions adapted to rotate such of the latter as are involved in the operation of carrying, comprising a series of pinion-rotating devices, a cam mechanism in connection with each pinion for moving its rotating device outwardly, and a reciprocating frame for returning each rotating device to its initial position.

25. In an adding-machine, the combination with a series of numeral-pinions, operating-keys therefor, and a carrying mechanism comprising devices for rotating said pinions, and means independent of said pinions and actuated by said keys for actuating said devices.

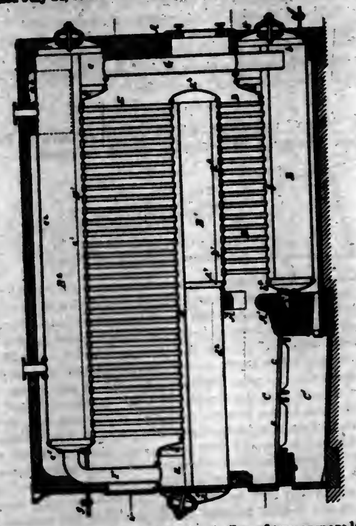
26. In an adding-machine, the combination with a plurality of numeral-pinions mounted for independent rotation in one direction, a series of carrying-levers arranged in proximity to the pinions and having intermediate connections with the latter, an independent automatically-reciprocated frame for operating said carrying-levers and a pinion-operating device for completing, without moving the carrying-levers, the revolutions of all the pinions left partially rotated after the operation of adding has been completed.

605,790. RAIL-ROAD-SPIKE. JAMES H. MALVIN, Arkansas Junction, Colo. Filed Mar. 19, 1897. Serial No. 628,264. (No model.)



Claim.—A railroad-spike having a head at its upper end, with a side flange thereon, a shoulder located just beneath said head on the edge opposite said flange having an angularly-arranged flat surface, a shank which is rectangular in cross-section throughout its entire length, and with an angularly-arranged reinforcing portion extending entirely across said shank having a flat surface and located just beneath said shoulder, and an arrow-shaped lower end formed by triangular converging faces which terminate in a point and separated from the shank of the spike by shoulders formed by angularly-arranged notches extending entirely across said shank, the outer edges of said shoulders lying in the same plane with the sides of the shank.

605,791. STEAM-BOILER. EDWARD J. MOORE, Philadelphia, Pa. Filed July 31, 1897. Serial No. 645,622. (No model.)



Claim.—1. The combination in a boiler, of two or more longitudinal water-drums one mounted above another, water-tubes connecting the drums, the lower drum being short with a fire-chamber in advance of said lower drum, substantially as described.

2. The combination in a boiler, of three longitudinal drums, one mounted above another, vertical tubes connecting the central drum with the top and bottom drums, the bottom drum being short, with a fire-chamber in front of the bottom drum, substantially as described.

3. The combination in a boiler, of three drums, tubes connecting the central drum with the top and bottom drums, a fire-chamber in advance of the bottom drum, the central drum terminating short of the top and bottom drums so as to allow for the passage of the products of combustion around the end of the central drum, substantially as described.

4. A steam-boiler drum semicircular in cross-section and having a tube-plate on its flat side, and a short circular section at one end, substantially as described.

5. A steam-boiler drum semicircular in cross-section and having a tube-plate on its flat side, and a short circular section at one end, with dished head at each end, substantially as described.

6. A steam-boiler drum having one portion semicircular in cross-section, the circle extending beyond the center and having a flat tube-plate coupling the two edges of the semicircular portion, substantially as described.

7. A drum for a boiler having a long tube sheet extending nearly the full length of the drum, and a short tube-sheet connected to the long tube-sheet at one end by curved side plates, and a semicircular section coupled to the other end of the long tube-sheet and secured to the short tube-sheet by a gusset-plate, substantially as described.

8. A gusset for a steam-boiler in the shape of a crescent having a flange extending in one direction from the upper portion of the gusset and a flange extending in the opposite direction from the opposite portion of the gusset, said flanges being attached to the boiler-plates, substantially as described.

9. The combination in a steam-boiler, of three drums, tubes connecting the central drum with the upper section and with the lower section, with a fire-chamber in advance of the lower drum, the portion of the central drum above the fire-chamber being semicircular in cross-section, substantially as described.

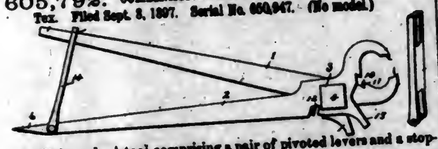
10. The combination in a steam-boiler, of three longitudinal drums, the fire-chamber, circulating-tubes extending from the lower drum to the middle drum and from the middle drum to the upper drum, a tube forming communication between the forward end of the central drum and the upper drum and a tube forming communication between the rear end of the upper drum and the rear end of the lower drum, substantially as described.

11. The combination of three drums arranged one above another, vertical circulating-tubes connecting the central drum to the upper and lower drums, with a series of vertical deflecting-plates arranged between the upper and the central drums whereby the products of

combustion will pass between the tubes in a serpentine path, substantially as described.

12. The combination in a steam-boiler, of the fire-chamber, its bridge-wall, a drum back of the bridge-wall, a drum over the fire-chamber and the first-mentioned drum, vertical tubes extending from one drum to the other, an arch directly over the bridge-wall, and an upper drum with vertical tubes extending from the central drum to the upper drum, substantially as described.

605,792. COMBINATION-TOOL. WILLIAM H. MCCARTY, Hanbot, Tex. Filed Sept. 8, 1897. Serial No. 650,947. (No model.)



Claim.—1. A tool comprising a pair of pivoted levers and a stop-link pivoted to one of said levers and provided with a slot or opening in its free end, through which passes the other of said levers, the outer end of the said stop-link being free to move upon the arc of a circle, with the pivotal point of said link as a center, whereby the end of the lever which passes through the slot therein may be positively adjusted at any point relative to the other of said levers.

2. A wire-twisting tool comprising a pair of levers pivoted one to the other and having laterally-extending overlapping twisting-fingers thereon, the said twisting-fingers being formed integral respectively with said levers and lying in the same plane therewith, and means for adjusting the relative positions of said twisting-fingers.

3. A tool of the character described, comprising a pair of pivoted levers having jaws formed upon their forward ends, having twisting-fingers located adjacent to the said jaws and adapted to coact one with the other, the said fingers extending laterally of said levers, formed integral therewith and lying in the same plane therewith, and a locking-link pivoted at one end to one of said levers and having a slot or opening in its opposite end, through which the other of said levers is adapted to pass, the free end of said link being capable of movement upon the arc of a circle, with its pivotal point as a center, whereby said levers and the twisting-fingers attached thereto may be positively adjusted relatively, one to the other.

605,793. RAIL-HOLDER. CHARLES MCLENNON, Spring Gulch, Colo. Filed Jan. 29, 1898. Serial No. 668,468. (No model.)



Claim.—1. A rail-chair made from a flat plate, having a seat in one edge thereof, and having legs extending laterally in the same direction from opposite ends of opposite sides of the plate.

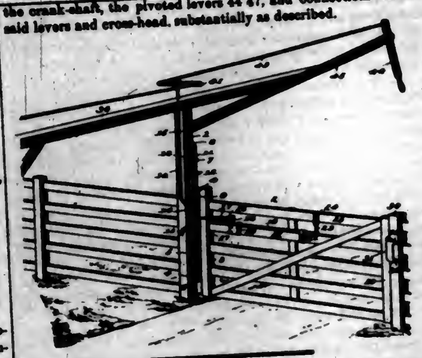
2. A rail-chair composed of a flat plate provided with legs extending laterally in the same direction from the opposite ends of the opposite sides of the plate, and with an intermediate longitudinally-disposed beak located above the upper edge of the plate and defining one side of the rail-seat, substantially as specified.

3. A rail-chair, composed of a flat plate provided with a chair-seat and with inclined notched ends, substantially as specified.

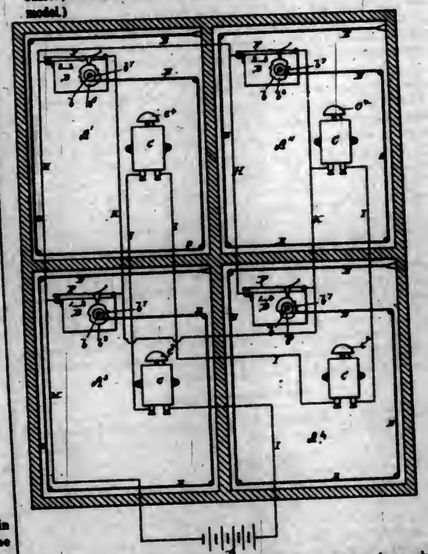
4. A rail-chair composed of a flat plate provided with laterally-extending legs located at the opposite ends of its opposite sides, a longitudinally-disposed beak located at the front end of its upper side, and defining one side of a chair-seat, the plate being provided with parallel inclined end walls having notches for the reception of spikes, substantially as specified.

605,794. GATE. FRANCIS F. MCMULLEN, Bondville, Ill. Filed July 15, 1897. Serial No. 644,700. (No model.)

Claim.—In a gate, the combination with the hinging-post 1 and the keeper-post 30, of the gate 2 hinged to the former and provided with the reciprocating latch-rail 22 to engage the latter, the crank-shaft 15 journaled in bearing-brackets on the hinging-post, the latch-rod 19 mounted in the brackets 20 21 on the latch-rail and pivoted at its front end to the connecting-rod 23, the rod 17 connecting the rear end of the latch-rod and crank-arm 16 of the crank-shaft, the spring 26 bearing against said bracket 20, the cross-head 41 fixed to the crank-shaft, the pivoted levers 44 47, and connections between said levers and cross-head, substantially as described.



605,795. AUTOMATIC ELECTRIC FIRE-ALARM. HERMAN A. CLARKE, Quincy, Mass. Filed June 17, 1897. Serial No. 641,135. (No model.)



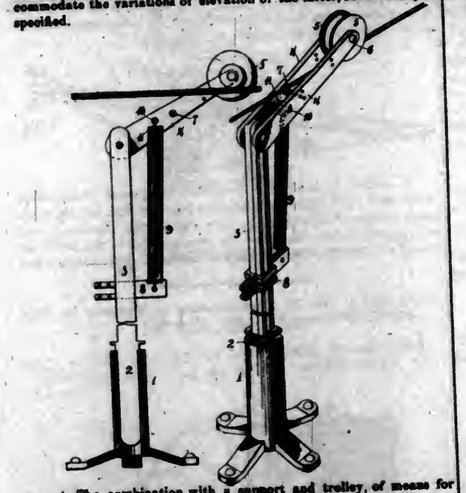
Claim.—In an automatic-electric-fire-alarm system in combination, an electric current generator, a series of current-interrupters and alarms electrically connected to the current-generator one in each room of the building, each such current-interrupter having a spring-actuated circuit breaking and closing disk differing from the others in the series and a fusible cord or wire for normally holding each disk stationary and to cause it to be released when said cord or wire is ignited or fused by which the circuit is alternately closed and opened to cause an alarm corresponding to the number of the room in which the fire occurs to be automatically sounded in all the other rooms in the circuit substantially as and for the purpose set forth.

605,796. TROLLEY-POLE. JOHN H. PERM, Johnstown, Pa. Filed Feb. 8, 1897. Serial No. 622,456. (Model.)

Claim.—1. The combination with a suitable support and trolley, of means for retaining the trolley in contact with the wire either from above or from below, substantially as specified.

2. The combination with a suitable support and trolley, of mechanism for retaining the trolley in contact with the wire from above under pressure, and means for automatically dropping the trolley below the wire and for urging it against the under side of said wire, substantially as specified.

3. The combination with a support and trolley, of means for automatically shifting said trolley above and below the wire to accommodate the variations of elevation of the latter, substantially as specified.



4. The combination with a support and trolley, of means for shifting said trolley both above and below the wire, and for retaining it in contact with said wire from above or below under pressure, substantially as specified.

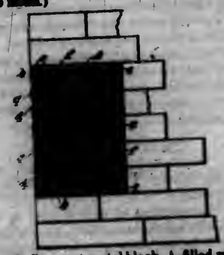
5. In a trolley-pole, two pivoted arms, a trolley-wheel consisting of two independent disks adapted to normally abut against each other, and means to hold said disks in connection, whereby the said wheels may be separated so as to be positioned above the conductor-wire, substantially as shown.

6. In a trolley-pole, a swivel-post, arms pivoted thereto, consisting of two separable sections, a spring for holding said sections normally in contact, and a spring bearing against the arms to lift the same whereby the said sections of the trolley-wheel may be separated to enable said wheel to take position above the conductor-wire, substantially as described.

7. In a trolley-pole, a socket having a swiveled post, an adjustable bracket upon said post, swinging arms secured to said post, and a spring bearing against a plate carried by said arms and against said bracket.

8. In a trolley-pole, the combination of a swivel-post, two arms pivoted thereto and extending parallel to each other, a trolley-wheel consisting of two separable disks one rotatably mounted on each arm, a spring engaging said arms to normally hold the disks in contact, a bracket on the swivel-post, and a spring connecting between the said bracket and the arms to lift the latter, substantially as described.

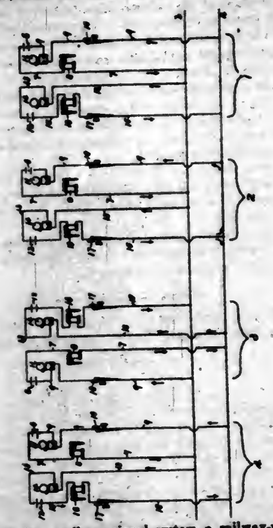
605,797. INDESTRUCTIBLE BLOCK FOR BOILER-FURNACES. JAMES REAGAN, Philadelphia, Pa. Filed Sept. 7, 1897. Serial No. 650,811. (No model.)



Claim.—1. A hollow cast-metal block, A, filled with ashes or other non-conductors of heat, and provided on one side or top with an opening and sliding lid E, and on the opposite side with a series of inclined ribs or projections *c c*, to form ledges and grooves or channels for the retention of ashes, substantially as and for the purpose specified.

2. The hollow block, A, packed with ashes or other suitable material, provided with ribs *c c*, and grooves or channels *d d*, inclining inwardly, and chipping strips *e e*, in combination with the side walls of a boiler-furnace, substantially as shown and described.

605,798. ELECTRIC RAILWAY-SIGNAL. CHARLES I. REDREW, East Windsor, Conn. Filed Mar. 2, 1897. Serial No. 625,711. (No model.)



Claim.—1. In a railway signal system, a railway-vehicle provided with two branch circuits, each containing a generator and an indicating device, the branches being connected into complete circuit with the generators in series through the conductors, and the indicating devices requiring more current to operate them than is generated by the generators, substantially as described.

2. In a railway signal system, a railway-vehicle provided with two branch circuits, each containing a generator and an indicating device, the branches being connected into complete circuit with the generators in series through the conductors, and the indicating devices requiring more current to operate them than is generated by the generators, and a circuit-breaker for cutting out one of said generators substantially as described.

3. In a railway signal system, the combination of two conductors suitably insulated, of a railway-vehicle, two generators on said vehicle, connections from each of said generators to said conductors arranged to connect said generators in series through said conductors, an indicator connected with each of said generators, and an auxiliary indicator connected with each of said generators, said auxiliary indicators requiring more current to operate the same than is required to operate the other indicators, substantially as described.

4. In a railway signal system, the combination with two conductors suitably insulated, a railway-vehicle, two electric generators on said vehicle, connections from each of said generators to said conductors arranged to connect said generators in series through said conductors, an indicator connected with each of said generators, and a circuit-breaker for cutting out one of said generators, substantially as described.

5. In a railway signal system, the combination with two conductors suitably insulated, a railway-vehicle, two electric generators on said vehicle, connections from each of said generators to said conductors arranged to connect said generators in series through said conductors, an indicator connected with each of said generators, and circuit-breakers for cutting out either of said generators, substantially as described.

6. In a railway signal system, a railway-vehicle, two generators on said vehicle, conductors leading from each of said generators and arranged for connection with stationary conductors, an indicator in the conductors leading from each of said generators comprising an electromagnet and its armature, and a single spring connected to the armature of both magnets, substantially as described.

7. A circuit-breaker comprising a movable member, two conducting-surfaces on said movable member insulated from each other, a non-conducting surface adjacent each conducting-surface and out of line with each other, brushes bearing on each of said conducting-surfaces out of the path of said non-conducting surface, and brushes bearing on said conducting-surfaces and in the path of said non-conducting surfaces, substantially as described.

8. In a railway-signal system, the combination of a bracket, a support for a conductor mounted thereon, an arm extending from

said bracket, a stationary jaw on said arm, guides on said arm, a movable jaw on said guides, and a bolt for forcing said movable jaw against the base of the railway-rail, substantially as described.

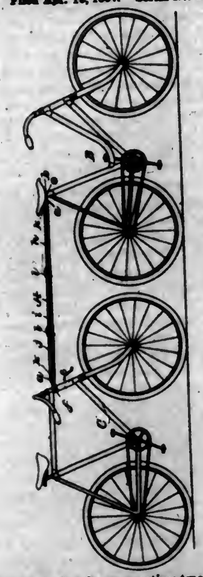
9. In a railway signal system, a support for a conductor, a bracket, means securing said bracket to the railway-rail, insulating material between the support and bracket, and a water-guard above said insulating material, substantially as described.

10. In a railway signal system, a bracket, means for securing said bracket to the railway-rail, a support for a conductor provided with a stud passing through said bracket, insulating material between said stud and bracket, and a water-guard above said insulating material, substantially as described.

11. In a railway signal system, a conductor, a trolley for engaging said conductor, and means comprising a V-shaped recess and a stud for centering said trolley when it leaves the conductor, substantially as described.

12. In a railway signal system, a slide, a trolley carried by said slide, an inverted-V-shaped recess in said slide, and a pin projecting into said recess, substantially as described.

605,799. COUPLING FOR BICYCLES. PRESTON T. RIPLEY, Cambridge, Mass. Filed Apr. 19, 1897. Serial No. 632,861. (No model.)



Claim.—1. A coupling for connecting two bicycles (one forward of the other), formed of parts and having universal joints at its ends, one of said parts being provided with means for securing it to the frame of one bicycle, and another of said parts provided with a tubular portion to enter upon the seat-post of the other bicycle, substantially as set forth.

2. In a coupling for connecting two bicycles, one forward of the other, the combination of several tubes, one to slide within another, a clasp and pin to maintain the tubes in suitable relation to each other when extended, a piece connected with one of said tubes by a ball-and-socket joint and provided with a tubular part to enter upon the seat-post, a piece connected with another of said tubes by a ball-and-socket joint and provided with a clasp to encircle the steering-head, and means as a strap for retaining said tubular part on the seat-post, substantially as specified.

605,800. BRAKE-BEAM. HENRY B. ROSENBURG, Kalamazoo, Mich., assignor to the Chicago Railway Equipment Company, Chicago, Ill. Filed July 23, 1896. Serial No. 600,126. (No model.)

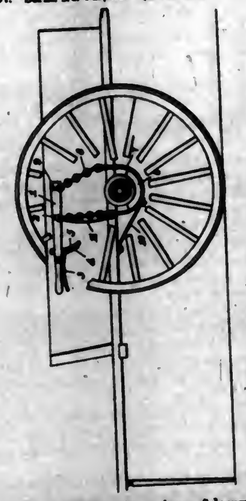
Claim.—1. In a trussed brake-beam the combination with a post or strut and tension-rod, of a longitudinally-slotted tubular compression member having the slot edges in opposition except at the points where the tension-rod enters the compression member; substantially as and for the purposes specified.

2. In a trussed brake-beam, having a strut or post and a tension-rod, the combination therewith of a high-carbon longitudinally-slotted tubular compression member, the slot edges thereof in apposition except where the tension-rod enters the compression member; substantially as and for the purposes specified.



3. A blank for making the compression members of trussed brake-beams, said blank having parallel sides provided with notches at opposite points and adjacent to its ends, whereby the notches thereof will register to form slots when the parallel edges of the blank are brought in apposition; substantially as and for the purposes specified.

605,801. BRAKE. JOHN SANDFORD, Sr., Wyndmoor, Pa. Filed July 21, 1897. Serial No. 645,462. (No model.)



Claim.—1. In a vehicle-brake, a lever fulcrumed intermediate its ends and means for engaging and holding said lever, in combination with a brake-shoe for engagement with one of the vehicle-wheels, flexible connections between the ends of said shoe and the brake-lever, one of which is connected to the fulcrum of the lever, and the other to the shorter arm of said lever, and a stay-rod or brace connected at its forward end to the running-gear, and at its opposite end to said brake-shoe, substantially as described.

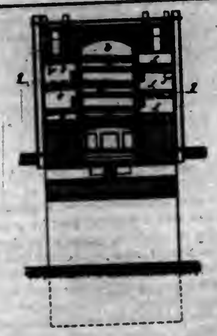
2. In a vehicle-brake, the combination with a lever fulcrumed intermediate its ends, of a brake-shoe, a strap secured to the outer surface of said shoe and projecting at its ends beyond the ends of said shoe, a flexible connection between one end of said strap and the fulcrum of the lever, a second flexible connection between the opposite end of said strap and the short arm of the lever, and a stay-rod or brace in front of said shoe, connected at one end thereto and at its opposite end to the running-gear, all arranged for joint operation, substantially as described.

605,802. FURNACE FOR WORKING ZINC AND LEAD. REINHARD SCHNEIDER, Dresden, Germany. Filed Mar. 15, 1897. Serial No. 628,213. (No model.)

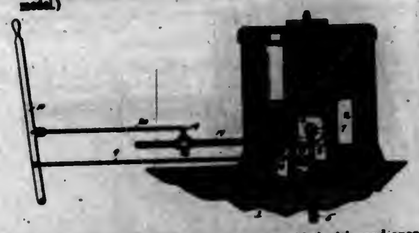
Claim.—1. The combination in a furnace for working zinc, of the retorts for containing the ore to be treated, each provided with an upper receiver *e* for the zinc-vapors to be condensed therein arranged on one end of the retort and a lower receiver *f* on the opposite end for the lead which emolts from the ore, and with means for collecting the zinc and the lead separated from one another; substantially as described.

2. In a furnace for working zinc; the combination with the retorts *c* of an upper receiver *e* for the zinc-vapors and a lower receiver *f* for the liquid lead, and of troughs *e'*, *f'* on the soles of said receivers for simultaneously collecting one the metallic zinc and the other the metallic lead; substantially as and for the purpose set forth.

605,802.

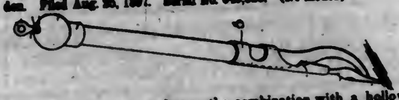


605,808. SAND-BOX FOR LOCOMOTIVES. CHARLES P. WEBB, Hornellsville, N. Y. Filed Jan. 24, 1898. Serial No. 668,053. (No model.)



Claim.—In a sand-box for locomotives provided with sand-openings and sand-pipes leading therefrom, of sand-valves controlling said openings, an operating-lever, connection between said valves and lever, an air-jet pipe located within the sand-box and having nozzles arranged in line with the sand-openings, an air-supply pipe communicating with the jet-pipe and provided with a valve, a rod connection between said valve and the operating-lever, whereby the air-pipe valve is adapted to be opened by said lever after the latter has opened the sand-valves.

605,804. FOUNTAIN-PEN. OLOF WIKLER, Helsingborg, Sweden. Filed Aug. 26, 1897. Serial No. 649,220. (No model.)

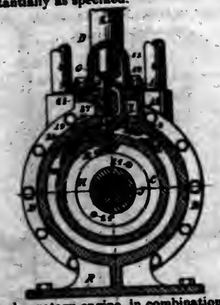


Claim.—1. In a reservoir-pen, the combination with a hollow body portion, of a flexible cap or bulb upon one end of said body portion, and an adjustable air-inlet valve projecting through an opening in said cap, the said valve provided with an inclined recess, substantially as and for the purpose set forth.

2. In a reservoir-pen, the combination with a hollow body portion, of a flexible closing-cap upon the upper end of said body portion provided with an opening, and a plug-valve adapted to fit within said opening provided with an inclined recess in one of its sides, whereby by a change of position of said plug-valve in said cap said opening may be completely closed or the size thereof regulated, as and for the purpose set forth.

605,805. ROTARY STEAM-ENGINE. ALFRED LEE, New Whatcom, Wash. Filed June 25, 1897. Serial No. 642,224. (No model.)

Claim.—1. In a duplex rotary engine, in combination, the sectional cylinder-casings A, B B and heads C C through which shaft J turns, the annular chambers 14 14 in which the piston-followers G G rotate, these piston-followers having packing-strips 15 15 and 16 16 held apart and against the exterior and interior circumference walls of the annular chambers 14 14, the flange I which is fixed stationary on the shaft J by being shrunken on the same and also by being keyed to the shaft-disks 26 by means of keys 24 24, this flange having a recess to receive the disk 26 and having bolted to it one of the piston-followers G at 23, the flange H having a recess to receive the shaft-disk 25, and having bolted to it one of the piston-followers G at 21, being keyed to the shaft-disk 25 by means of keys 24 24 so that the shaft shall rotate with it, but keyed loosely enough as to be longitudinally adjustable. this flange H also having a sleeve 31 which fits on shaft J so as to be movable longitudinally, this sleeve 31 having an adjusting-nut 32 threaded into its outer end with a left thread and onto the end of shaft J with a right thread, the shaft J having the fixed disks 25 and 26 onto which the flanges H and I are keyed, having one part 34 reduced to receive the sleeve 31, and having its extremity still further reduced and threaded to receive the adjusting-nut 32, substantially as specified.



2. In a duplex rotary engine, in combination, the sectional cylinder-casings, the annular chambers 14 14, the piston-followers G G, the rotating flanges H and I, the key-pins marked 24, the shaft J, the cam K of the shaft J located between the two shaft-disks 25 and 26, having the projections 27 and 28, the yoke F, having an irregularly-curved opening in which the cam K rotates, having a projection 30 against which the two projections 27 and 28 of the cam in its rotation impinge for the purpose of lifting the yoke and the valve and giving the valve its two unequal movements in each revolution of the piston, substantially as specified.

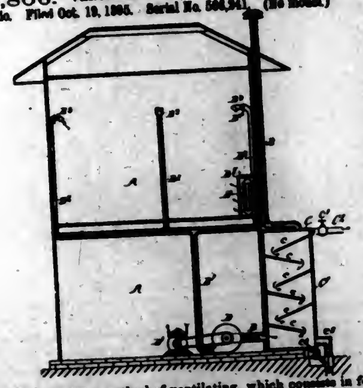
3. In a duplex rotary engine, in combination, the shaft J, the cam K of the shaft J located between the shaft-disks 25 and 26, having the projections 27 and 28, the yoke F having an irregularly-curved opening in which the cam K rotates, having a projection 30 against which the two projections 27 and 28 of the cam in its rotation thrust for the purpose of lifting the yoke F and the valve, this yoke consisting of two pieces securely bolted together so as to act as one, the lower portion having a bore 57 which fits about and reciprocates upon a stationary piston L, this bore having openings marked 56 about its circumference to admit steam within the bore above the piston L for the purpose of cushioning the stroke of valve, the stationary piston L, having packing-rings of the usual character, having the screw-adjustment extension 59 with jam-nut 60, for the purpose of adjusting the piston vertically and regulating the amount of steam compression in the bore of yoke, the cylinder-casing A to which this stationary piston is attached, substantially as specified.

4. In a duplex rotary engine, in combination, the shaft, the cam K of shaft, the yoke F having projections 30, in which yoke the cam K having projections 27 and 28 rotates to lift the same, having a bore in its lower portion to receive the piston L, the piston L having screw-adjustment extension 59 and jam-nut 60, the cylinder-casing A supporting the piston L, the slide-valve E securely bolted to yoke F so as to reciprocate with it, this valve having a top rib 52, a spring-lug 51, a coil-spring 44, and having ports 9 9 connecting with steam-space O and the ports 11 11 in the casing, having ports 10 10, connecting with ports 12 12 and 13 13 in the casing, having slots in its lower edge to receive the flanges H and I, having beveled edges 39 39, the packing-pieces 37 37 of valve, each having a projection 38 on one side at an angle of forty-five degrees, to which fit the beveled edges of valve at 39 39, each having also an L-shaped extension 40, which extend downward and are covered by the edges of flanges H and I, having also the springs 41 41 which hold the two pieces 37 37 against the valve, substantially as specified.

5. In a duplex rotary engine, in combination, the cylinder A, having an inlet steam-chamber N, the steam-chamber O in the cap-casing D, the channel in which the valve E reciprocates connecting the chambers N and O, the slide-valve E securely bolted to the yoke F so as to reciprocate with it, this valve having the top rib 52, the spring-lug 51 for receiving the spring 44, and the coil-spring 44 for the purpose of securing the positive movement of the valve, having slots in its lower edge for the purpose of receiving the flanges H and I, having beveled edges 39 39, the packing-pieces 37 37 of valve fitting against the beveled edges, this valve having also ports 9 9 communicating with the steam-chamber O and the ports 11 11 in the casing, having the ports 10 10 communicating with the ports 12 12 and 13 13 in the casing, the ports 11 11 and 13 12 in the casing and the channel connecting the same, the ports 15 13 between the valve and the casing

leading into the annular chambers 14 14, the sectional cylinder-casing and the rotating flanges H and I forming the annular chambers 14 14, the annular chambers 14 14, having the exhaust-ports 8 8, the piston-followers G G bolted to the rotating flanges H and I and rotating within the annular chambers 14 14 for the purpose of rotating the shaft, substantially as specified.

605,806. VENTILATING SYSTEM. JOSEPH MCCREERY, Toledo, Ohio. Filed Oct. 19, 1895. Serial No. 566,241. (No model.)



Claim.—1. The method of ventilating, which consists in forcing into an apartment streams of air at varying angles to one another whereby air-pressure from several streams in the same direction is avoided, as set forth.

2. A system of ventilation, which consists in an induct-pipe; a blower; an educt-pipe from such blower; and branch pipes leading from the educt, each branch pipe provided with an outlet, the several outlets being adjustable at varying angles to one another whereby the streams of air may be forced out at varying angles to one another and draft avoided, as set forth.

3. The combination of an air-induct and an air-educt, and a blower between them, of an air-supply pipe leading from the educt-pipe and having branch pipes, the latter being provided with nozzles or outlets which are adjustable on the branch pipes, whereby air may enter an apartment in streams of varying or different directions, as set forth.

4. In a ventilating system, the combination with an air-supply pipe, of an adjustable nozzle located at the end of the supply-pipe, said nozzle constructed of a plurality of sections articulated together, a guideway, an air gate or slide, and means to prevent the removal of the slide from the guideway, substantially as set forth.

605,807. SUPPORT FOR CURLING OR CRIMPING IRONS. JAMES H. PAIGE, Manchester, N. H., assignor to Lorin Edson Charles, Bedford, N. H. Filed Oct. 11, 1897. Serial No. 654,867. (No model.)



Claim.—1. A holder for curling or crimping irons during the operation of heating, comprising an enlarged non-elastic base, a smaller substantially tubular body portion formed as a continuation thereof, and an arm or support at the top for receiving and supporting the iron, substantially as described.

2. A holder for curling or crimping irons during the operation of heating, composed of a continuous piece of wire, having an enlarged base of a single coil, a series of smaller coils above the base, and a lateral loop or support extending on each side of the body portion, substantially as and for the purposes described.

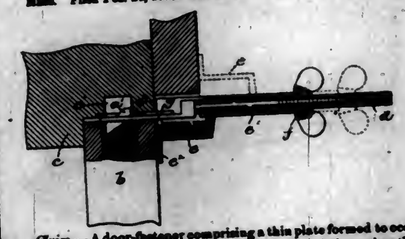
605,808. BROOM-SUPPORT. JAMES H. PAIGE, Manchester, N. H., assignor to Lorin Edson Charles, Bedford, N. H. Filed Oct. 11, 1897. Serial No. 654,868. (No model.)

Claim.—1. As a new article of manufacture, a broom-support having a base-block provided with a diagonal kerf or groove, holes or apertures through the base intersecting the groove, and a clasp, substantially as shown and described, provided with a loop which rests in said groove and passes through said apertures, said loop bent to lock the clasp on the base.



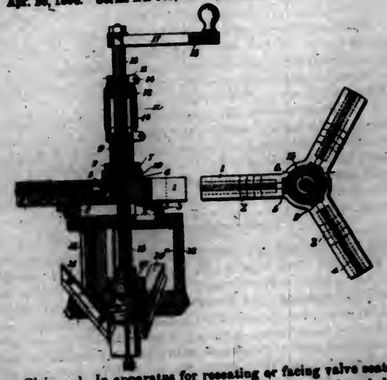
2. As a new article of manufacture, a broom-support having a base-block provided with a diagonal kerf or groove at the rear or back thereof, holes or apertures through the base and intersecting said groove, and a clasp, of one piece, inserted in the diagonal groove, the protruding ends or spring-arms of which are bent on a parallel plane to cross each other upon the base-block forming the head or loop, said spring-arms thence bent outward, thence inward and again outward to form the holding-arms and guide-fingers, substantially as shown and described.

605,809. DOOR-FASTENER. WALTER H. PLIMPTON, Boston, Mass. Filed Feb. 21, 1898. Serial No. 671,025. (No model.)



Claim.—A door-fastener comprising a thin plate formed to occupy the crevice between the swinging edge of a door and the casing thereof, and having at one side a spur formed to enter a recess in the casing, a screw-threaded shank affixed to said plate and offset therefrom, the shank being at the same side of the plate as the spur and the plate being substantially in line with one side of the shank, a recessed head movable on said shank, the recess of the head having a diameter exceeding the width of the plate, and a head-adjusting nut engaged with the shank, the said head having at its outer end a segmental flange which partially surrounds the plate and is formed to bear simultaneously on the door and on the casing, and said head being rotatable about the said plate in a plane at a right angle to the axis of the shank.

605,810. APPARATUS FOR RESEATING VALVES, BORING CYLINDERS, &c. PERCIVAL J. PURDY, Manchester, England. Filed Apr. 20, 1896. Serial No. 679,234. (No model.)



Claim.—1. In apparatus for reseating or facing valve seats and disks, the combination of stepped gripping-jaws, screw-threaded arms provided with bevel gear-wheels carrying said jaws, a hollow stem, a spindle in said stem, means for rotating and feeding said spindle, a nut provided with a bevel-gear mounted on said stem and means for holding the nut in position against the thrust of the bevel-gears, substantially as described.

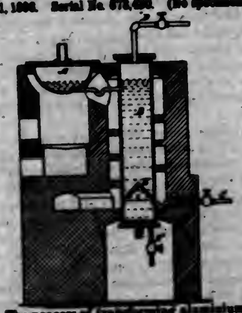
2. In an apparatus for reseating or facing valve-seats, the combination of a casing provided with adjustable cutting-tools, stepped gripping-jaws, means for moving said jaws inwardly or outwardly in unison, a screw-threaded hollow stem, a spindle passing through said stem, means for feeding said spindle in said stem, consisting of an open-sided nut mounted on said stem, a collar mounted on said spindle and means for securing said collar to said spindle and an adjustable crank-handle for rotating said spindle, substantially as described.

605,811. NUT-LOCK. GEORGE B. BURTON, Brooklyn, N. Y., assignor of one-half to George S. Elliott, New York, N. Y. Filed Jan. 26, 1897. Serial No. 621,038. (No model.)



Claim.—In a nut-lock, the combination of a bolt having a screw-threaded longitudinally-grooved end, a nut with a groove registering with said bolt-groove, and a key having a body portion adapted to enter said registering grooves, and provided with a spring portion having a downwardly-extending fork adapted to simultaneously engage the threads on said bolt on opposite sides of said grooves, substantially as described.

605,812. PROCESS OF MAKING ALUMINIUM SULFID. HENRY S. BLACKMORE, Mount Vernon, N. Y., assignor to the Pure Aluminium and Chemical Company, of West Virginia. Filed Dec. 31, 1895. Renewed Apr. 21, 1896. Serial No. 587,620. (No specimens.)



Claim.—1. The process of transforming aluminium oxid into aluminium sulfid which consists in exposing a fused bath containing dissolved aluminium oxid to the action of carbon-bisulfid vapor or gas substantially as described.

2. The process of transforming aluminium oxid into aluminium sulfid which consists in liquefying aluminium oxid by the action of heat and fused solvent fluxes, thus exposing the liquefied aluminium oxid to the action of carbon-bisulfid vapor or gas substantially as described.

3. The process for transforming aluminium oxid into aluminium sulfid which consists in fusing a mixture of cryolite (aluminium sodium fluorid) and potassium fluorid dissolving therein aluminium oxid and exposing the liquefied aluminium oxid to the action of carbon-bisulfid vapor or gas substantially as described.

4. The process for transforming aluminium oxid into aluminium sulfid which consists in passing carbon-bisulfid vapor or gas through a molten bath capable of liquefying aluminium oxid and introducing aluminium oxid into the same substantially as described.

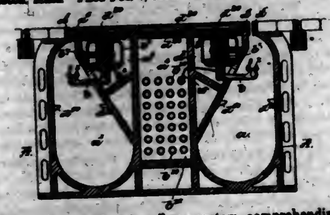
605,813. BASIN-PLUG THIMBLE. FREDERICK S. CHASE, Waterbury, Conn. Filed Nov. 22, 1897. Serial No. 659,494. (No model.)



Claim.—1. A basin-plug thimble formed with two openings located opposite each other, and containing a sheet-metal strainer provided with flanges adapted to enter the said openings with which they are permanently engaged by flattening the strainer, which is concaved to permit its initial assemblance with the thimble.

2. A basin-plug thimble formed from sheet metal, having its upper end flanged and its lower end externally threaded, and formed at opposite points with two horizontally-arranged openings, and containing a sheet-metal strainer formed with two oppositely-projecting flanges adapted to enter the said openings with which they are engaged by flattening the strainer, which is concaved for its initial introduction into the thimble.

605,814. ELECTRIC-RAILWAY SYSTEM. HENRY A. CHASE, Boston, Mass. Filed Feb. 7, 1891. Serial No. 380,581. (No model.)



Claim.—1. An electric-railway system, comprehending the following instrumentalities, viz: a conduit having a slot-chamber; a conductor and guide having conducting and guiding surfaces located in said slot-chamber and in line vertically with the slot of the slot-chamber, independent tie-bars to connect the said surfaces at intervals, and a trolley-frame and trolley, the trolley and frame being adapted to be withdrawn or be inserted into the slot of the slot-chamber and to drop directly against and ride upon the said conductor, substantially as described.

2. An electric-railway system, comprehending the following instrumentalities, viz: a conduit having a slot-chamber; a conductor and guide having conducting and guiding surfaces located in said slot-chamber and in line vertically with the slot of the slot-chamber, independent tie-bars to connect the said surfaces at intervals, and insulated arms to support the said tie-bars, and a trolley-frame, and a trolley made as a wheel, free to roll on the conductor, substantially as described.

3. An electric-railway system, comprehending the following instrumentalities, viz: a conduit having a slot-chamber; a conductor located in said slot-chamber and in line vertically with the slot of said slot-chamber, and a guide substantially equidistant therefrom, a trolley arm or frame of a width less than the width of the opening between the slot-rails, an insulated conductor carried by said arm, a trolley adapted to enter wholly within said slot-chamber and ride on both the said conductor and guide, the guide aiding in keeping the trolley seated on the conductor, substantially as described.

4. The combination in an electric-railway system, of the following instrumentalities, viz: a series of yokes forming parts of a slot-chamber and having openings at one side in communication with accessible chambers forming parts of said yokes; a conductor, and a guide having a surface substantially equidistant therefrom; arms sustained in said accessible chambers and extended through the openings in one of the walls of said yokes, said arms presenting separated portions for the connection thereto of the ends of the material forming said conductor, a trolley-frame and trolley-wheel both free to drop bodily into the slot of the slot-chamber with the trolley-wheel fully within said slot-chamber, and free to roll on the parallel surfaces of said conductor and guide, substantially as described.

5. In an underground-conduit system for electric railways, the combination with a series of yokes forming parts of a slot-chamber, and a series of braces located between the opposite walls of the said yokes, of substantially parallel conducting and guiding surfaces, tie-bars to support the same entirely independent of one of the side walls of the yokes, the said tie-bars being supported by arms extended into accessible chambers near one of the sides of the yokes, the said surfaces being separated at intervals for the passage of water and dirt between them, and a trolley-wheel and its carrying-arm, both free to drop bodily into and through the slot-chamber and fall directly upon the said parallel conducting-surfaces, the conducting-surfaces being located above the said braces or struts, to operate, substantially as described.

6. In a conduit system for electric railways, the combination with a trough-like conductor presenting surfaces 3 and 2, separated for the whole or a portion of their length to leave an opening for the passage of dirt, &c., of a trolley-frame provided with a trolley or current-collector to make contact with the said conductor, and a plow, carried by the said trolley-frame, to enter the space between the said surfaces, substantially as described.

7. In a conduit system for electric railways, the combination with a conductor, and an independent guide separated for the whole or a portion of its length from said conductor to leave an opening for the passage of dirt, &c., of a trolley-frame provided with a trolley to make contact with the said conductor and guide, a plow carried by said trolley-frame to enter the space between the said conductor and guide, and means to raise the said plow, substantially as described.

8. In a conduit system for electric railways, the combination with a conduit having a slot-chamber, and a conductor presenting surfaces 3 and 2, one surface serving as a guide for the other, of a frame extended through the said slot and a brush carried by the said frame and engaging the said surfaces, substantially as described.

9. In a conduit system of electric railways, the combination with a slot-chamber, a conductor located therein and in line vertically with the slot in the slot-chamber, of a trolley-frame provided with a rolling-contact surface and adapted to descend freely through said slot and make a rolling contact with the said conductor, a trolley-arm adapted to be fastened to the car and to which the said trolley-frame is pivoted, an insulated conductor connected to said car extended through said trolley-frame and in communication with the said trolley-wheel, the said trolley-wheel and its frame being free to drop bodily through the slot-chamber and upon the said conductor, substantially as described.

10. In a conduit system of electric railways, the combination with a slot-chamber, a conductor located therein and in line vertically with the slot in the slot-chamber, of a trolley-frame provided with a rolling-contact surface and adapted to descend freely through said slot and make a rolling contact with the said conductor, and a trolley-arm adapted to be fastened to the car and to which the said trolley-frame is pivoted, and springs to act on opposite sides of the trolley-frame, substantially as described.

11. In a conduit system of electric railways, the combination with a main conductor located in the slot-chamber of the conduit, of a trolley-frame provided with a rolling-contact surface to make a rolling contact with the said conductor, a trolley-arm adapted to be fastened to the car and to which the said trolley-frame is pivoted, springs connected to the trolley frame and arm, and means to regulate or adjust the tension of said springs, substantially as described.

12. In a conduit system of electric railways, a trolley-frame consisting of metallic plates or pieces c^3, c^3; trolley-wheels c having bearings in antifriction-bushings carried by said plates; means to electrically connect the trolley-wheels to the plates c^3, c^3, insulating material to which said plates are secured, a conducting strip or piece extended through said insulating material, and metallic wear-plates c^5, c^5 secured to the insulating material, substantially as described.

13. In a conduit system of electric railways, a trolley-frame consisting of metallic plates or pieces c^3, c^3; trolley-wheels c having antifriction-bushings, means to electrically connect the trolley-wheels to the said plates or pieces, insulating material to which said plates are secured; a conducting strip or piece extended through said insulating material, plates c^5 c^5 secured to the insulating material, and a reinforcing or guard bar c, substantially as described.

14. The herein-described trolley-frame, it consisting of the plates c^3 c^3, an insulating piece or bar c^4 to which said plates are secured, contact-wheels c carried by the said plates, plates c^5 c^5, secured to the insulating plate or bar c^4, and a conducting strip or bar c^{10} extended through the insulating piece or bar and electrically connected to one or both of the plates c^3 c^3, substantially as described.

15. In a conduit system for electric railways, the combination with a conduit having a slot-chamber and an accessible chamber; of a conductor composed of surfaces 2, 3, having an opening between them, tie-bars to unite and strengthen the said members, and an insulator in the accessible chamber provided with an arm, to which said members are secured, substantially as described.

16. In a conduit system for electric railways, the combination with a series of yoke-shaped supporting-frames each provided with a slot-chamber and an accessible chamber, of strengthening-bars located in the slot-chamber to prevent inward buckling of the walls of the slot-chamber, substantially as described.

17. In a conduit system for electric railways, the combination with a conductor and guide 2, 3 made in sections, of insulators having split or bifurcated arms to form spring portions and to which the adjacent ends of adjoining sections may be rigidly secured, substantially as described.

18. The combination with a pipe and a conducting-wire therein, of a series of independent insulators mounted upon the said wire substantially in contact with each other, and having communicating external grooves to form passages for the circulation of air through the tubes from end to end, substantially as described.

19. In a conduit system for electric railways, a conduit and parallel guide having branches connected by a bridge, substantially as described, whereby a trolley may run from a main conductor upon a branch conductor, substantially as described.

20. In an electric street-railway system, a conductor presenting a series of yokes provided each with a slot-chamber, slot-rails connecting said yokes to thus provide a continuous slot-chamber from one to the next yoke, said slot-rails communicating with a chamber in the roadway between said yokes to form a continuous slot-chamber for the reception of the arm of a current-collector connecting with and depending from the car, a conductor and a guideway located in said slot-chamber each at opposite sides of a vertical plane intersecting the exposed slot at the surface of the slot chamber, the current-collector working between said conductor and guideway, a series of accessible chambers having removable covers, a series of insulated arms supported in said accessible chambers, and extending therefrom laterally to support said conductor in said slot-chamber, insulated feed-wires extended through a series of separate wireways laid in the street between said slot-chambers and yokes, and an accessible wire-chamber at intervals in which the feed-wires are accessible and from which they may be led to the insulated arms sustaining said conductors, substantially as described.

21. In a conduit for electric wires the following instrumentalities, viz: a yoke having a slot-chamber and an insulating-chamber communicating therewith through the side walls of the yoke, and below the slot-rails supported by said yoke, an insulated arm extended from said insulating-chamber through the wall of the yoke, a conductor mounted upon the end of said arm between it and the slot-rails, and shaped to permit a trolley-wheel to roll thereon, and a strut extended across the upper part of said slot-chamber from one to the other side of the yoke below and independent of said conductor-arm, substantially as described.

22. In a conduit system for electric railways, the combination with a conductor made in sections, of insulators having split or bifurcated arms to form spring portions and to which the adjacent ends of adjoining sections may be rigidly secured, substantially as described.

23. In a conduit system for electric railways, an underground conduit having a slot and slot-chamber, and a main conductor, and branches, to cooperate with a switch, said branches having an uninterrupted connection with said main conductor by means of a bridge, said conductor, bridge and branches affording an unbroken line of travel for a traveling contact carried by a car, substantially as described.

24. In a conduit system for electric railways, the combination with an underground conduit and a conductor therein adapted to receive a trolley, and branches, connected to said conductor by a bridge, of an inclined spur or arm, adjacent said conductor at the point of departure of said branch to receive said trolley and automatically raise it to enable it to run on said bridge, substantially as described.

25. In a conduit system for electric railways, an underground conduit having a slot and slot-chamber, and a main conductor, and branches, to cooperate with a switch, said branches having an uninterrupted connection with said main conductor by means of a bridge, said conductor, bridge and branches affording an unbroken line of travel for a traveling contact carried by a car and inclined spurs or arms adjacent said bridge to raise said contact thereon, substantially as described.

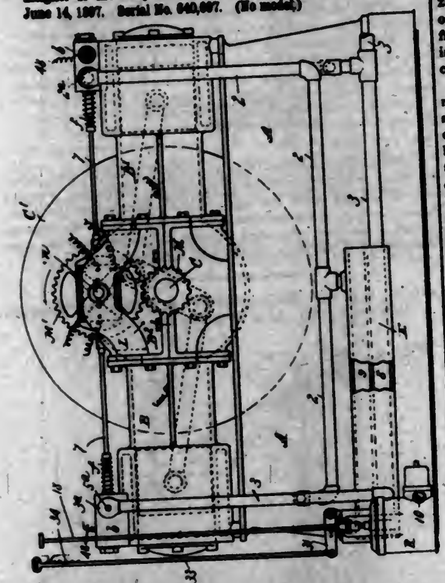
26. In an electric street-railway system, a conduit presenting a series of yokes presenting two slot-chambers, each chamber having as part of it two lines of slot-rails and sheet-metal plates shaped to conform to the outlines of the slot-chambers and connecting the yokes; a conductor and a guide occupying parallel positions in said slot-chambers and located each at opposite sides of a vertical plane intersecting the center of said slot-chamber at the street; a series of accessible chambers having removable covers; a series of insulated arms located in said accessible chambers and extended therefrom toward and to support the conductors of said slot-chambers; a series of insulated feed-wires extended through the street in wireways buried therein between said slot-chambers and said yokes; a series of accessible wire-chambers in which access may be had to said feed-wires and from which they may be led and connected to said insulated arms, and covers for said accessible wire-chambers, substantially as described.

27. In an electric street-railway system, a conduit presenting a series of yokes provided with slot-chambers, sheet-metal plates, and slot-rails connecting said yokes to thus provide a continuous slot-chamber for the reception of the arm of a current-collector connected with and depending from a car; a conductor and a guide located in said slot-chamber each at opposite sides of a vertical plane intersecting the exposed slot at the surface of the slot-chamber; a series of accessible chambers having removable covers; a series of insulated arms supported in said accessible chambers and extended therefrom laterally to sustain said conductor in said slot-chamber; insulated feed-wires extended through a series of separate wireways laid in the earth between said yokes, and accessible wire chambers at intervals in which the feed-wires are accessible and from which they may be led to the insulated arms sustaining said conductor, substantially as described.

28. A frame or carrier composed of two metallic plates, a current-collector carried thereby, a conductor in communication with said current-collector and insulation covering said conductor and located between it and said plates, wear-plates applied to said insulation, outside of said conductor and out of contact with said metallic plates, and a coupling connected with the said insulated conductor by which to couple to said conductor or the wire leading to the motor of the car, said wear-plates obviating the easy destruction of the insulation of the conductor, substantially as described.

29. A frame or carrier composed of two metallic plates, a current-collector carried thereby, a conductor in communication with said current-collector and insulation covering said conductor and located between it and said plates, wear-plates applied to said insulation outside of said conductor and out of contact with said metallic plates, combined with a coupling to couple said conductor with the electric motor on the car, and a hood serving said coupling to exclude dirt, &c., substantially as described.

605,815. GAS-ENGINE. JAMES F. DURYEA, Springfield, Mass., assignor to the Duryea Motor Wagon Company, same place. Filed June 14, 1897. Serial No. 640,697. (No model.)



Claim.—1. In a hydrocarbon-engine, means for supplying volatilized hydrocarbon to said engine consisting of a supply-tank, a reservoir placed below the level of the bottom of said tank, a pipe connection from said tank to said reservoir, a float-actuated valve for automatically maintaining a quantity of liquid hydrocarbon in said reservoir, a pipe connection from said reservoir to the cylinders of said engine, an atomizer-tube in said pipe, communicating with the interior of said reservoir, an opening in said pipe for the admission of air, and means for regulating the quantity of air so admitted, a valve in said pipe for regulating the quantity of atomized hydrocarbon and air to be drawn into the said cylinders, and a heating-chamber in said pipe connection for heating said atomized hydrocarbon between said reservoir and said cylinders, substantially as described.

2. In a hydrocarbon-engine in combination, a supply-tank for liquid hydrocarbon, an intermediate reservoir between said tank and said engine, located on a lower level than said tank, suitable pipe connections between said engine, reservoir, and tank, means in said reservoir for regulating the quantity of hydrocarbon which can be drawn therefrom by one stroke of the piston of said engine, and means for automatically controlling the quantity of hydrocarbon in said reservoir, consisting of a float therein, an inlet-port communicating with said tank, a suitably-pivoted valve having a seat in said port, and a spring-arm attached thereto by one end and whose opposite end has a free engagement with said float, substantially as described.

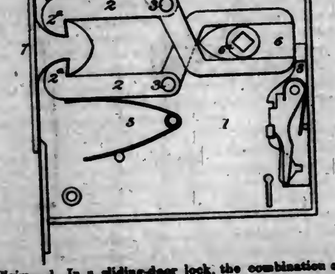
3. In a hydrocarbon-engine, means for operating the exhaust-valves consisting of the rod 7 having a suitable endwise movement, a valve 6 thereon, a beveled shoulder d', on said rod 7, the valve 5, closing the exhaust-port, the stem of which valve is engaged by said beveled shoulder for opening the valve, and a suitable spring 5^a on said valve-stem against which said opening movement takes place, combined with a suitable cam-operated rod 7, for opening said valve 6, and permitting said valve 5 to close before the closing of said first-named valve, substantially as described.

4. In a hydrocarbon-engine, means for atomizing liquid hydrocarbon and regulating the quantity of air to be mixed therewith, consisting of an atomizer-tube connected with a suitable reservoir containing a supply of hydrocarbon, a neck on said reservoir inclosing said tube, a plate 21 axially rotatable in said neck, a plate 24 fixed in said neck, and in contact with said plate 21, as shown, air-passages 25, in said plates, a central air-passage 22 through said plate 21, an opening R', through the side wall of said neck, and a pipe connection from said neck to the cylinder of said engine, substantially as described.

5. In a hydrocarbon-engine, means for atomizing liquid hydrocarbon and regulating the quantity of air to be mixed therewith, consisting of an atomizer-tube connected with a suitable reservoir containing a supply of hydrocarbon, a neck on said reservoir inclosing said tube, a plate 21 axially rotatable in said neck, a plate 24 fixed in said neck, and in contact with said plate 21, as shown, air-passages 25 in said plates, a central air-passage 22, through said plate 21, an opening R', through the side wall of said neck, and a pipe connection from said neck to the cylinder of said engine, a valve 29, and a heating-chamber in said pipe connection between said atomizer and the cylinder of said engine, substantially as described.

6. A gasolene or other hydrocarbon engine consisting of a plurality of cylinders connected to a common crank-shaft, a gasolene-supply tank, one exhaust-chamber common to said cylinders, pipe connections between the latter and said chamber, pipe connections between said supply-tank and said cylinders, a heating-chamber interposed in said last-named connection and adjoining said exhaust-chamber, an atomizer in said connections between said heating-chamber and said tank, means for regulating the supply and relative proportions of gasolene and air, a float-valve for automatically controlling the flow of gasolene from the supply-tank to said atomizer, and a closed-circuit electric igniting device in said cylinders, and means outside of the latter for automatically opening said circuit at a predetermined point in the stroke of the pistons of said engine, substantially as described.

605,816. SLIDING-DOOR LOCK. PLATO G. HENRY, Chicago, Ill. Filed Jan. 18, 1898. Serial No. 667,079. (No model.)



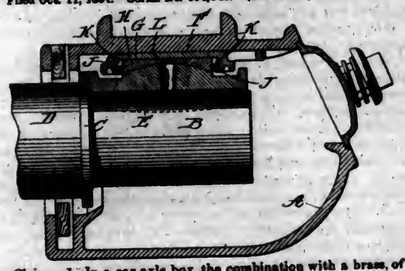
Claim.—1. In a sliding-door lock, the combination of pivoted catches one of which is capable at all times of pivotal movement, a rocking cam for opening the catches, and means adapted to engage the cam to hold the same against movement, substantially as set forth.

2. In a sliding-door lock, the combination of pivoted catches one of which is capable at all times of pivotal movement, a cam mounted on the knob-spindle hub and adapted to open the catches, and means for locking the cam against movement, substantially as set forth.

3. In a sliding-door lock, the combination of pivoted catches capable at all times of pivotal movement, a cam having a flat rear face and adapted to open the catches, springs to hold the catches normally closed, and a locking-bolt adapted when thrown to slide across the flat rear face of the cam and hold the cam against movement, substantially as set forth.

4. In a sliding-door lock, the combination of pivoted catches, a rocking cam operating to open the catches, and a key-bolt adapted, when thrown, to lock the cam, one of said catches being at all times free to have pivotal movement irrespective of the position of the cam or the key-bolt, substantially as set forth.

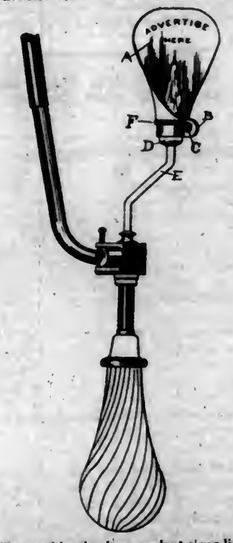
605,817. CAR-AXLE BEARING. HARRY A. FRITH, Chicago, Ill., assignor to the Universal Car Bearing Company, New York, N. Y. Filed Oct. 11, 1897. Serial No. 654,848. (No model.)



Claim.—1. In a car-axle box, the combination with a brass, of a key having a circular recess and an inwardly-extending flange, a bearing located between the brass and the key, lips on said bearing, and lugs turned down from the flange to permit the passage of the lips and adapted to be turned up to prevent the bearing from becoming disengaged from the key, substantially as described.

2. In a car-axle box, the combination with a brass, of a bearing provided with laterally-extending lips, a key having a circular recess on its under side to receive the bearing, an inwardly-extending annular flange around the lower edge of the circular recess in the key, said flange having one or more lugs turned down therefrom to permit the bearing to be inserted in the recess in the key, said lugs being kerfed and turned up after the bearing is arranged in place to prevent the bearing from becoming disengaged from the key, substantially as described.

605,818. PENDENT CIGAR-LIGHTER. HOWARD GIDDINGS, Chicago, Ill. Filed Nov. 3, 1897. Serial No. 657,207. (No model.)

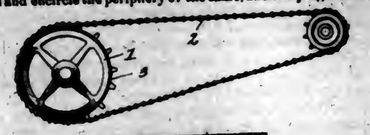


Claim.—The combination in a pendent cigar-lighter of the shield A, having a bead on the neck and lugs on the flaps, said lugs provided with a clamp-screw C, the bell-shaped cup having a screw-thread in the bottom part and a rim on the upper or top part, adapted to fit the said bead on the neck of said shield, the gas-tip E provided with a thread adapted to receive the said cup and shield, substantially as described.

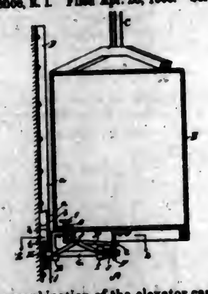
605,819. SPROCKET-WHEEL FOR BICYCLES. WILLIAM GRADY, Cortland, N. Y., assignor of one-half to Irving B. Fairchild. Filed Oct. 16, 1897. Serial No. 655,395. (No model.)

Claim.—1. The combination with a sprocket-wheel and chain of a band of fibrous material encircling the periphery or pitch-line of said wheel and carrying a lubricant.

2. The combination, with a sprocket-wheel and driving-chain, of a band of felt, suitably apertured to fit over the teeth or cogs of the wheel and encircle the periphery of the same, and carrying a lubricant.

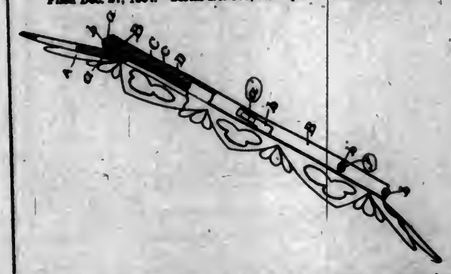


605,820. SAFETY-BRAKE FOR ELEVATORS. GEORGE HADCOCK, Providence, R. I. Filed Apr. 23, 1898. Serial No. 678,663. (No model.)



Claim.—The combination of the elevator car, the slotted clamping-track, arranged exteriorly of the car, the sliding bar provided with the clamping-head, the toggle-links for operating the sliding bar in one direction, means for operating the sliding bar in the opposite direction, the lever connected with the toggle-links, and the pedal connected with the lever, substantially as described.

605,821. PICTURE-FRAME. MAX HERSKOVITS, Chicago, Ill. Filed Dec. 27, 1897. Serial No. 663,736. (No model.)



Claim.—As an article of manufacture, the combination in a glass frame of the rim *c*, having lugs on the outside and horizontal apertures; the binding-ring B provided with inclining grooves *b*, adapted to engage the said lugs; the perforations in said ring adapted to receive the pins; the pins *f* adapted to fix the ring to the frame; substantially as described.

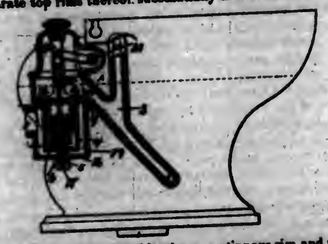
605,822. REGISTERING-RING. WILLIAM G. HOMAN, Meriden, Conn. Filed Mar. 3, 1898. Serial No. 672,967. (No model.)



Claim.—In combination a transversely-slotted resilient ring, and a numeral-ring slightly less in its internal diameter when said parts are unassembled, than the external diameter of said first ring, slipped thereover.

605,823. WATER-CLOSET. JOSEPH W. SHARP, Jr., and JOHN W. GRAFFLAND, Philadelphia, Pa., assignors to the Haines, Jones & Cadbury, same place. Filed Nov. 2, 1897. Serial No. 657,159. (No model.)

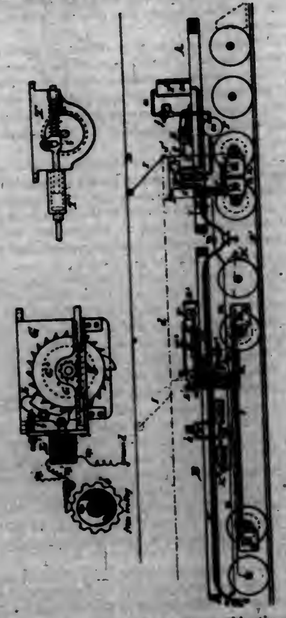
Claim.—1. A water-closet fixture comprising a neck having its top part depressed, a bowl integral with the neck and having its top rim continuous and elevated above the neck, a water-chamber and valve-support integral with said neck and having a continuous top rim separate from the bowl-rim and elevated above the neck, and a water-inlet communicating with the bowl and chamber below the complete and separate top rims thereof, substantially as described.



2. In combination a bowl having a continuous rim and provided with an integral valve-support having a continuous top rim independent of and located below the bowl-rim and having a bottom rim, a two-part valve-casing whereof the parts are respectively seated all around the rims of the valve-support, and a screw connection for clamping the parts of the casing onto the last mentioned rims, whereby compressive stress is evenly distributed, substantially as described.

3. In combination a bowl, as earthenware, integrally provided with an open-ended valve-support, a two-part valve-casing whereof the respective parts are clamped together and onto opposite ends of the support, and an operating-handle wholly supported by and pivotally attached to one of said parts, substantially as described.

605,824. ELECTRIC RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Dec. 14, 1897. Serial No. 661,791. (No model.)



Claim.—1. In an electric railway, the combination of a pilot-car and a self-propelled railway-car adapted to be operated as a train, a controller on the self-propelled railway-car to govern the speed of the electric motors thereon, a fluid-pressure device for operating the controller, an electromagnetic device for governing the operation of the controller, and an electric circuit leading from the electromagnetic device to the pilot-car for governing the operation of said electromagnetic device from a distance.

2. In an electric railway, the combination of a pilot-car and a self-propelled railway-car adapted to be operated as a train, a controller on the self-propelled railway-car to govern the speed of its electric motors, a fluid-pressure device for operating the controller, an electromagnetic device for governing the operation of the controller, an electric circuit leading from the electromagnetic device to the pilot-car for governing the operation of said electromagnetic device from a distance, one or more electric motors to propel the pilot-car, a hand-regulator to regulate the speed of the motors of the pilot-car, and connecting devices between the hand-controller and the aforesaid electric circuit leading from the electromagnetic device whereby the distant controller is caused to move in accordance with the action of the hand-controller on the pilot-car.

3. In an electric railway, the combination of a pilot-car and a self-propelled railway-car adapted to be operated as a train, a controller on the self-propelled railway-car to govern the speed of its electric motors, a fluid-pressure device for operating the controller, an electromagnetic device for governing the operation of the controller, an electric circuit leading from the electromagnetic device to the pilot-car for governing the operation of said electromagnetic device from a distance, devices on the pilot-car for supplying the fluid under pressure, and connecting-pipes leading from the said devices to the fluid-pressure device for actuating the controller of the self-propelled car.

4. In an electric railway, the combination of a pilot-car and a self-propelled railway-car adapted to be operated as a train, a controller on the self-propelled railway-car to govern the speed of its electric motors, a fluid-pressure device for operating the controller, an electromagnetic device for governing the operation of the controller, an electric circuit leading from the electromagnetic device to the pilot-car for governing the operation of said electromagnetic device from a distance, devices on the pilot-car for supplying the fluid under pressure, connecting-pipes leading from the said devices to the fluid-pressure device for actuating the controller of the self-propelled car, and means also on the pilot-car for varying the fluid-pressure supplied to the said fluid-pressure devices on the self-propelled car.

5. The combination of two cars, one of which is provided with electric motors to propel it and an air-brake device to arrest its momentum and the other of which cars is provided with means to compress and store air under pressure, an electric controlling device to control the current supplied to the motors, a pneumatic device for operating said controller under a different pressure than that required to operate the brake, air-pipes leading from the compressing and storing devices on one car to the pneumatic devices and brake devices of the other car, and means for controlling the pressure of air in the pipe leading to the pneumatic devices for operating the controller and brake devices whereby either may be put into action at different times.

6. The combination of a main car provided with air-brake devices and electric motors to propel it, a braking-controller for converting the motors into braking-dynamos, pneumatic devices for operating the braking-controller, a pilot-car, devices for compressing and storing air under pressure on the pilot-car, air-pipes leading from the devices for storing the air on the pilot-car to the pneumatic devices of the electric-brake controller and the air-brake, and means on the pilot-car for governing the pressure of the air supplied to the main car whereby the electric brake and air-brake may be operated and controlled from the front of the train.

7. The combination of a main car provided with air-brake devices and electric motors to propel it, a braking-controller for converting the motors into braking-dynamos, pneumatic devices for operating the braking-controller adapted to operate when the pressure has been reduced below that necessary to apply the air-brake, a pilot-car, devices for compressing and storing air under pressure on the pilot-car, air-pipes leading from the devices for storing the air on the pilot-car to the pneumatic devices of the electric-brake controller and air-brake, and means on the pilot-car for governing the pressure of the air supplied to the main car whereby the electric brake and air-brake may be operated and controlled independently or simultaneously from the front of the train.

8. The combination of a car or vehicle, one or more electric motors to propel the car or vehicle, a speed-controller for varying the speed of the motors, an air-brake apparatus for arresting the momentum of the car or vehicle, a pneumatic device for operating the controller under a pressure in excess of that necessary for the air-brake, a common source of air-supply, and means to vary the pressure of the air-supply whereby the motors are cut out of operation as propelling-motors when the air-brake is applied.

9. The combination of a car or vehicle, one or more electric motors to propel it, a speed-controller for varying the speed of the motors, an air-brake apparatus for arresting the momentum of the car or vehicle, a pneumatic device for operating the controller under a pressure in excess of that necessary for the air-brake, a common source of air-supply whereby the motors are cut out of operation as propelling-motors when the air-brake is applied, and automatic valve de-

vices for limiting the maximum pressure of air capable of acting on the air-brake apparatus whereby all pressures in excess of that necessary for the air-brake alone are employed for operating the electric controller.

10. The combination of a car or vehicle, one or more electric motors to propel the car or vehicle, a speed-controller for varying the speed of the motors, an air-brake apparatus for arresting the momentum of the car or vehicle, a pneumatic device for operating the controller under a pressure in excess of that necessary for the air-brake, a common source of air-supply whereby the motors are cut out of operation as propelling-motors when the air-brake is applied, a braking electric controller for transforming the electric motors into braking-dynamos to retard or arrest the momentum of the car or vehicle, and pneumatic devices for governing the operation of the electric braking-controller under a pressure less than that necessary to apply the air-brake whereby the electric braking action may come into play after the car or vehicle has been partly slowed down.

11. In a car or vehicle, the combination of one or more electric motors to propel it, a speed-controller for governing the speed of the motors, a braking-controller for transforming the motors into braking-dynamos, independent fluid-pressure devices for governing the operation of the speed and braking controllers respectively under different pressures whereby the speed-controller may be cut out of action when the braking-controller is in action and vice versa, and means for varying the pressure of the fluid upon the independent fluid-pressure devices.

12. In a car or vehicle, the combination of one or more motors to propel the car or vehicle, an electric speed-controller governing the speed of the motors, a reversing-switch for reversing one of the elements of the motors to change the direction of travel of the car or vehicle, a pneumatic device for operating the speed-controller, an electromagnetic device for controlling the operation of the speed-controller, an electromagnetic device for operating the reversing-switch, and a pneumatic device for locking the reversing-switch in either of its positions.

13. In a car or vehicle, the combination of one or more motors to propel the car or vehicle, an electric speed-controller governing the speed of the motors, a reversing-switch for reversing one of the elements of the motors to change the direction of travel of the car or vehicle, a pneumatic device for operating the speed-controller, an electromagnetic device for controlling the operation of the speed-controller, an electromagnetic device for operating the reversing-switch, a pneumatic device for locking the reversing-switch in either of its positions, a source of pneumatic pressure common to both of the pneumatic devices, and means to vary the pressure of the fluid within the said devices whereby the reversing-switch is locked against movement excepting when the speed-controller is out of operation.

14. In a car or vehicle, the combination of one or more motors to propel the car or vehicle, an electric speed-controller governing the speed of the motors, a reversing-switch for reversing one of the elements of the motors to change the direction of travel of the car or vehicle, a pneumatic device for operating the speed-controller, an electromagnetic device for controlling the operation of the speed-controller, an electromagnetic device for operating the reversing-switch, a pneumatic device for locking the reversing-switch in either of its positions, a source of pneumatic pressure common to both of the pneumatic devices, means to vary the pressure of the fluid within the said devices whereby the reversing-switch is locked against movement excepting when the speed-controller is out of operation, and an electric circuit common to the electromagnetic device for controlling the operation of the speed-controller and for operating the reversing-switch.

15. In an electrically-propelled train, the combination of a pilot-car, two tanks adapted to contain a fluid under different pressures, a compressor to supply air to both tanks, pipes leading from both tanks to a pipe-coupling at the end of the pilot-car, valve devices to connect either one of the tanks or the atmosphere with the pipe terminating in said coupling whereby different pressures may be supplied to the train or the pressure in the pipes of the train may be relieved to any degree, electric motors to propel the train, and regulating devices for controlling the operation of the electric motors operated by the fluid-pressures controlled on the pilot-car.

16. In a pilot-car for trainwork, the combination of two tanks adapted to contain a fluid under different pressures, a compressor to supply air to both tanks, pipes leading from both tanks to a pipe-coupling at the end of the car, valve devices to connect either one of the tanks or the atmosphere with the pipe terminating in said coupling whereby different pressures may be supplied to the train or the pressure in the pipes of the train may be relieved to any degree, an electric circuit carried on the pilot-car and terminating at the rear in an electric coupling whereby electric connection may be made with circuits on the cars of the train, and a hand-controlled switch for governing the current supplied to said circuit.

17. In a pilot-car for trainwork, the combination of two tanks adapted to contain a fluid under different pressures, a compressor to supply air to both tanks, pipes leading from both tanks to a pipe-coupling at the end of the car, and valve devices to connect either one of the tanks or the atmosphere with the pipe terminating in said coupling whereby different pressures may be supplied to the train or the pressure in the pipes of the train may be relieved to any degree, an electric circuit carried on the pilot-car and terminating at the rear in an electric coupling whereby electric connection may be made with circuits on the cars of the train, a hand-controlled switch for governing the current supplied to said circuit, one or more cars supplied with electric motors, pneumatically-actuated controlling and air-brake devices, and means on said cars receiving supply of air and electric current from the pipes and circuits on the pilot-car for governing the operation of the motors and air-brakes on the cars.

18. In a pilot-car for trainwork, the combination of two tanks adapted to contain a fluid under different pressures, a compressor to supply air to both tanks, pipes leading from both tanks to a pipe-coupling at the end of the car, and valve devices to connect either one of the tanks or the atmosphere with the pipe terminating in said coupling whereby different pressures may be supplied to the train or the pressure in the pipes of the train may be relieved to any degree, and an automatic pressure-valve interposed between the compressor and the tank to contain the lower pressure whereby communication with the reservoir is automatically shut off when its pressure reaches a maximum.

19. In a car or vehicle, the combination of one or more electric motors to propel the car or vehicle, a speed-controller to govern the speed of the motors, an independent braking-controller for transforming the motors into braking-dynamos by changing their electrical connection, and connecting means common to both controllers adapted to operate the said controllers alternately to put either into action but only at different times.

20. In a car or vehicle, the combination of one or more electric motors to propel the car, a speed-controller to govern the speed of the motors, an independent braking-controller for transforming the motors into braking-dynamos by changing their electrical connections, and connecting means common to both controllers adapted to operate the said controllers alternately to put either into action but not both into action at the same time and also to permit both to be out of action at one time.

21. The combination in a car or vehicle, of one or more electric motors to propel the car or vehicle, a controller to govern the speed of the motors, an automatic reversing-switch to reverse one of the elements of the motors, and an independent hand reversing-switch to modify the action of the automatic reversing-switch to compensate for cases where the car or vehicle has been turned end for end in making up the train.

22. In a car or vehicle, the combination of one or more motors to propel the car or vehicle, means to govern the speed of the motors, a main reversing-switch for reversing one of the elements of each of the motors, means under the control of the operator at a distance to operate the reversing-switch, and an independent reversing-switch which may be set in either of its extreme positions and unacted upon by the main reversing-switch or its operating devices.

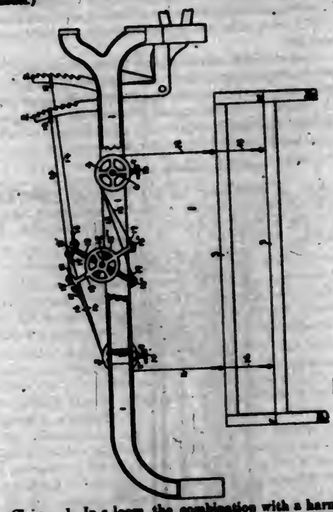
23. In an electrically-propelled train, the combination of two or more cars each provided with one or more motors, means to simultaneously reverse one of the elements of all of the motors on the train from the front of the train, and an independent current-reversing switch on each of the cars for reversing the polarity of one of the elements of the motors so that the polarity in the motors of any car may be changed or set upon making up the train to insure all of the motors propelling all of the cars in their proper direction under the control of the main reversing-switches.

24. In a car or vehicle, the combination of one or more motors to propel the car or vehicle, means to govern the speed of the motors, a reversing-switch for reversing one of the elements of each of the motors, a high-pressure pneumatic device for operating the means for governing the speed of the motors, a low-pressure pneumatic device for permitting the reversing-switch to be operated for reversing the motors, and means under the control of the operator for alternately operating the pneumatic devices for governing the speed of or reversing the motors.

25. In a car or vehicle, the combination of one or more motors to propel the car or vehicle, means to govern the speed of the motors, a reversing-switch for reversing one of the elements of each of the motors, a high-pressure pneumatic device for operating the means for governing the speed of the motors, a low-pressure pneumatic device for permitting the reversing-switch to be operated for reversing the motors, and means under the control of the operator for alternately operating the pneumatic devices for governing the speed of or reversing the motors consisting of an air-pipe, a source of compressed air of maximum pressure for operating the pneumatic device of means for governing the speed of the motors, and valve devices for supplying air at maximum pressure to the air-pipe or reducing the pressure in said air-pipe for the purpose of operating the pneumatic device of the reversing-switch.

26. The combination of a car or vehicle, one or more motors to propel the car or vehicle, a speed-controller for governing the speed of the motors, an air-brake device for arresting the momentum of the car or vehicle, a pneumatic device for operating the speed-controller of the motors when the pressure is greater than that necessary for the normal operation of the air-brake, a source of maximum air-pressure, an air-pipe leading from the source of maximum air-pressure to the pneumatic devices for the controller and also the air-brake devices, and means under the control of the operator for permitting air to flow to the air-pipe under a pressure greater than that necessary for the air-brake or to permit the air to escape from the air-pipe to relieve it from pressure to any point below a maximum pressure, and suitable means to limit the reduction of pressure to that which would throw the controller out of action but insufficient to put the brakes into action.

605,825. SHEDDING MECHANISM FOR LOOMS. GEORGE F. HOTCHKISS, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Feb. 10, 1897. Serial No. 622,812. (No model.)

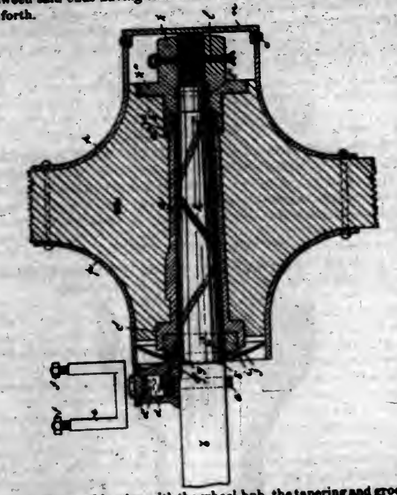


Claim.—1. In a loom, the combination with a harness lever or jack, having its upright notched edge curved, two sheaves mounted on shafts in the loom-arches, and a harness-frame, of a two-armed lever centrally pivoted intermediate said sheaves, and a connection between the harness-lever and the upper end of the two-armed lever, a second connection from said upper end leading over a sheave to the harness-frame, and a third connection from the lower end of said two-armed lever leading over a sheave to the harness-frame, substantially as shown and described.

2. In a shedding mechanism for looms, the combination with the harness-frame, two sheaves supported between the arches, connections from said frame, leading over the outer edges of said sheaves to the lower and upper arm of a two-armed lever centrally pivoted between the loom-arches intermediate said sheaves, and having a circular portion intermediate its ends, and a connection from said lever to the harness lever or jack, of said harness lever or jack, having a curved notched edge, the curvature of which, at the central position of the harness lever or jack, corresponds to the arc of a circle, the center of which is at the point of connection, between the connection leading from the harness-lever and the two-armed lever, when said two-armed lever is in its central position, substantially as shown and described.

605,826. SELF-OILING AXLE. BENJ JAMIESON, Newark, N. J., assignor of two-fifths to Adolph Fuchs, same place. Filed Oct. 9, 1897. Serial No. 654,647. (No model.)

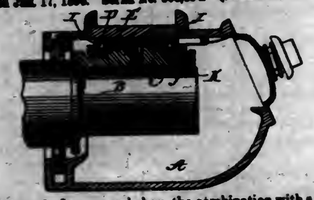
Claim.—1. The combination with the tapering axle having a spiral groove terminating at the smaller end of said axle at a chamber or recess *l'*, a wheel having a box *c*, a nut having its inner end fitted over said box, and its outer end secured to said axle and interiorly between said ends having said chamber or recess *l'*, substantially as set forth.



2. The combination with the wheel-hub, the tapering and grooved axle, the box *c*, having the cup-shaped inner end, the collar *j*, fitting said cup-shaped extremity and having the recess *j'*, and the guard *i*, concaved at the side toward said wheel-hub, of the lubricant-receptacle having the spout extending through said guard and into said collar and conducting the said lubricant into the groove of the axle, substantially as set forth.

3. The combination with the tapering axle having a reduced and threaded end and grooved periphery, of a hub having the box *c*, with a reduced outer end, a nut *k* adapted to be keyed to said axle and having a flange *k'*, and at its inner end forming a cylindrical socket receiving the reduced end of the box and interiorly having a recess or chamber *l'*, in connection with the groove of the axle, and means for supplying said groove with lubricant, substantially as set forth.

605,827. CAR-AXLE BEARING. FRANK B. HOLMES, St. Louis, Mo., assignor to the Universal Car Bearing Company, New York, N. Y. Filed Jan. 17, 1898. Serial No. 666,954. (No model.)



Claim.—1. In a car-axle box, the combination with a key having an inwardly-extending flange provided with an opening, of a bearing provided with lips and adapted to be held in the key by said flange, a plate for closing the opening in the flange, and means for securing said plate to the key, substantially as described.

2. In a car-axle box, the combination with a key having an inwardly-extending flange provided with an opening, of a bearing provided with lips and adapted to be held in the key by said flange, a plate for closing the opening in the flange and a pin adapted to secure the plate to the key to close the opening in the flange, substantially as described.

3. In a car-axle box, the combination with a key having an inwardly-extending flange provided with an opening, of a bearing provided with lips and adapted to be held in the key by said flange, a plate for closing the opening in the flange, a pin formed integral with the key and adapted to receive the plate and be riveted thereon to secure the plate to the key and close the opening in the flange, substantially as described.

605,828. VESSEL-HANDLE. ALBERT R. PRITCHARD, Rochester, N. Y. Filed May 10, 1897. Serial No. 636,905. (No model.)

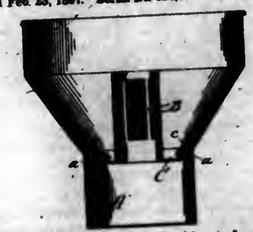
Claim.—1. The combination of a handle having a conical end

largest at the extremity and a longitudinal slot in the conical end; and a conical ferrule adapted for attachment to a vessel having its edges overlapping and fastened together and a portion of the ferrule forced into the slot, whereby the ferrule is contracted to fit tightly upon said conical end.



2. The combination of a handle having a conical and largest at the extremity and a longitudinal slot in said end; and a ferrule adapted for attachment to a vessel having its edges double-seamed together and the double-seamed edges of the ferrule forced into the slot, whereby the ferrule is contracted to fit tightly upon said end.

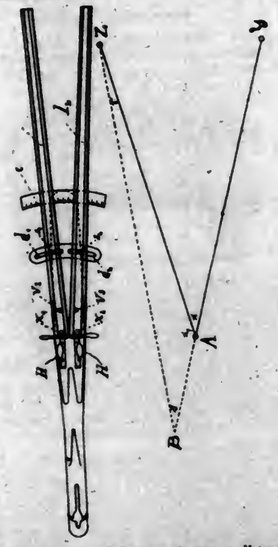
605,829. MILK-STRAINER. ARTHUR I. ROWLING, Waukegan, Ill. Filed Feb. 23, 1897. Serial No. 624,510. (No model.)



Claim.—1. The combination of a funnel and of a strainer provided with a cup arranged below the perforated portion of the strainer having an annular lip resting against the funnel when in use.

2. The combination of a funnel provided with an interior annular ledge and a strainer having a cup arranged below the perforated portion of the strainer and provided with an annular lip resting on the annular ledge when in use.

605,830. DISTANCE-MEASURING INSTRUMENT. ALESSANDRO GIOVANNI BATTISTA SOLDI, Gravedona, Italy. Filed Oct. 31, 1896. Serial No. 610,720. (No model.)



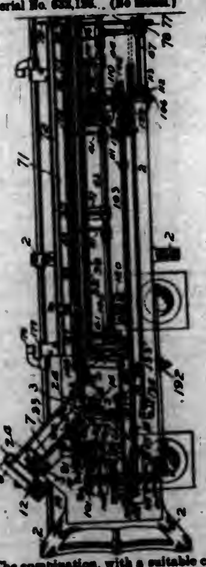
Claim.—1. As a new article of manufacture, a distance-measuring device having a stock, a chamber therein provided with a horizontally-extending slot, a shaft in said chamber, a drum having an angular slot therein mounted on said shaft, a lever adapted to rotate said drum, barrels pivotally secured to said stock, pins on the under side of said barrels entering said drum-slots, and means for determining the angular opening of said barrel; all of the said parts being combined substantially as and for the said purpose described.

2. A distance-measuring instrument having a stock provided near its forward end with a chamber having a horizontally-extending slot in the bottom part thereof, a shaft mounted in said chamber, a drum mounted on said shaft provided with an angular V-shaped slot, a lever rotatably actuating said shaft and drum and extending downwardly through said slot in the bottom of said chamber, a button on the end of said lever; pins on the under side of said barrels entering said angular slot, annularly-extending angular recesses in the upper surface of said stock near the central and forward end respectively thereof, a segmentally-curved slider in the centrally-located recess, said slider being provided with slots therein; other pins on the under surface of said barrels adapted to enter said slots, and a segmentally-formed scale in the remaining said angular recess, all of the said parts being combined as and for the purpose as described.

3. As a new article of manufacture a distance-measuring instrument having a stock pivotally secured thereto, barrels, pins on the under side of said barrels; said stock having a chamber therein under said pins, a shaft mounted in said chamber, a drum on said shaft having an angular V-shaped slot therein adapted to receive the aforesaid pins, means for rotatably actuating said drum, a lever on the under side of said stock near its forward end, annularly-extending recesses in the upper surface of said stock and a guide-arm and a scale respectively secured therein; all of the said parts being combined substantially as described.

4. As a new article of manufacture a distance-measuring instrument, barrels pivotally secured thereto, pins on the under surface of said barrels adapted to move in annular grooves in the upper surface of the stock, means for actuating said pins and a scale adapted to measure the angle included by said barrels, all of the said parts being combined substantially as and for the purpose described.

605,831. APPARATUS FOR WEAVING COILED-WIRE FABRIC. CLARENCE G. WHITE and MARSHALL B. LLOYD, Minneapolis, Minn., assignors to the Woven Wire Machinery Company, same place. Filed Apr. 14, 1897. Serial No. 632,198. (No model.)



Claim.—1. The combination, with a suitable coiler, of a receiver into which the coiled wire passes after it leaves the coiler, a series of pins or projections located in said receiver in the path of the advancing wire, and means for moving said receiver and said pins toward or from said coiler.

2. The combination, with a suitable coiler, of a receiver into which the coiled wire passes after it leaves said coiler, two series of transverse pins arranged to project into said receiver from the opposite sides thereof, means for moving said pins into and from said receiver, and means for giving said receiver a back-and-forth longitudinal movement and for moving said pins with said receiver.

3. The combination, with a coiler, of the longitudinally-movable guide or receiver 34, the vertical pins 35 arranged in said receiver, the oppositely-projecting transverse pins 55, and the plate 39 arranged to project over the opening of said receiver and provided with the beveled edge 40, and means for moving said receiver toward and from said coiler.

4. The combination, with the longitudinally-movable receiver 34 and the transverse pins 55, and means for alternately moving said pins, of means whereby either set of said pins may be moved independently of the other.

5. The combination, with the receiver, of the transverse pins, the rock-shafts for moving said pins, and means whereby either of said rock-shafts may be moved independently of the other.

6. The combination, with the receiver and the transverse pins 55, the rock-shafts 56 and 57 for moving said pins provided with the arms 59 and 60, and the link 61 connecting said arms and provided with the T-shaped slot 62, for the purpose set forth.

7. The combination, with the longitudinally-movable receiver, of the transverse pins 55, the bars 52 to which said pins are secured, and the rock-shafts provided with arms having forked ends engaging said bars 52, whereby said bars are permitted to move longitudinally with said receiver.

8. The combination, with a suitable coiler, of the receiver comprising the stationary section and the movable section arranged in line therewith.

9. The combination, with the coiler, of the stationary section 34', the movable section 34, and the roll 142 arranged in said stationary section.

10. The combination, with a suitable coiler, of the stationary section 34', the movable section 34 arranged in line therewith, the roll 142 arranged in said stationary section, and the projections 144 and 145 provided with the spiral passage 146'.

11. The combination, with the receiver, of the roll 142 arranged therein, the projections 144 and 145 provided with the spiral passage 146', and means for severing the wire after it passes through said spiral passage, for the purpose specified.

12. The combination, with the receiver having a spiral passage provided therein through which the wire must pass, of a knife arranged to move across the end of said passage for severing the wire, and means whereby said knife covers the end of said passage until just before the next wire moves through said spiral passage.

13. The combination, with the receiver, of the shaft 149, means for moving said shaft, the plate 155 arranged upon said shaft, the finger 156 pivotally supported upon said plate and provided with a weighted lower end, and the spring 158', for the purpose set forth.

14. The combination, with the coiler and the receiver, of the vertical plate 32 pivotally supported between said coiler and said receiver at one side of the path of the moving wire, and a stop mechanism arranged to be operated by the movement of said plate, for the purpose set forth.

15. The combination, with the coiler and receiver, of the vertical plate 32 pivotally supported upon the frame of the machine, the stop mechanism, the latch controlling said stop mechanism, the lever 31 connected to said latch and adapted to be operated by said plate 32, for the purpose set forth.

16. In a machine for weaving coiled-wire fabric, the combination, with the feed-rolls and means for driving said rolls, of means for cutting the wire, and means for imparting the necessary movement to the fabric, and mechanism for operating the wire-cutting and fabric-moving devices, and means for connecting or disconnecting said last-named mechanism with the means for driving the feed-rolls.

17. The combination, with the feed-rolls and coiler, and means for driving said feed-rolls, of the shaft 28 from which the wire-cutting and fabric-moving devices are operated, the shaft 92 arranged to be driven from the shaft of one of the feed-rolls and provided with the bevel-gear 91 and the pinion 93, said pinion and gear being loosely mounted on said shaft, the movable arm 96 carrying the pinion 94 arranged to engage said pinion 93 and to be thrown into or out of connection with the gear upon said shaft 28, whereby the wire-cutting and fabric-moving devices may be disconnected from or connected with the means for driving the feed-rolls.

18. The combination, with the feed-rolls and the shafts 7 upon which said rolls are mounted, one of said shafts being movable for the purpose of permitting said rolls to be separated, the short shaft 17 provided with a projection engaging the bearing of said movable shaft and provided with the arm 19 carrying the roll 20, and the reciprocating rod 22 provided with the projection 21 arranged thereon, for the purpose specified.

19. The combination, with the feed-rolls, of means for separating said rolls, said means comprising a suitable cam, an operating-rod controlled by said cam, and a belt or chain provided with projections arranged to engage and move said cam at suitable intervals.

20. The combination, with means for separating the feed-rolls, of operating means therefor comprising a suitable cam, an endless chain or belt provided with suitable projections arranged to engage and move said cam at suitable intervals, and means for supporting and moving said belt.

21. The combination, with the rotatable cam 27 provided with the plate 27', the chain or belt having projections arranged to engage said plate 27', means for supporting and moving said chain or belt, and means controlled by said cam for separating the feed-rolls, cutting the wire, and moving the last coil of wire in the receiver, for the purpose set forth.

22. The combination, with the coiler and receiver, of means for alternately moving said receiver to or from said coiler, and means operating at desired intervals for intermitting the movements of said receiver, for the purpose set forth.

23. The combination, with the coiler and receiver, provided with the oppositely-projecting transverse pins, of means for moving said receiver toward or from said coiler, means for moving said pins into or from said receiver, and means operating at desired intervals for intermitting the movements of said receiver and said pins.

24. The combination, with the coiler and the receiver, of the transverse pins adapted to project from opposite sides into said receiver, a plate arranged upon said receiver and adapted to partially cover the open top thereof, means for longitudinally moving said receiver, means for moving said pins into or from said receiver, means for moving said plate, and means operating at desired intervals for intermitting the movements of said receiver, said pins and said plate.

25. The combination, with the longitudinally-removable receiver, of means for moving said receiver, comprising the shaft 106, a connection between said shaft and said receiver, the plate 110 secured upon said shaft, the loosely mounted sprocket-wheel 105 arranged upon said shaft, and the chain or belt 103 provided with suitable projections 111 adapted to engage the plate 110 for the purpose of turning said shaft.

26. The combination, with the receiver, of means for moving said receiver, comprising a suitable shaft 106, the plate 110 secured upon said shaft, a sprocket-wheel mounted loosely upon said shaft, a chain or belt passing over said sprocket-wheel and provided with projections arranged to engage the ends of said plate, and means for moving said plate at suitable intervals out of the path of the projections upon said chain or belt.

27. The combination, in a machine for weaving coiled-wire fabric, with means for feeding and severing the wire, of a receiver into which said wire passes and in which it is interlocked with the coils of the preceding wire, of connected mechanism for operating the wire feeding and severing devices and for moving said receiver in the intervals between the feeding of the wire, for the purpose set forth.

28. In a machine for weaving coiled-wire fabric, the combination with means for feeding, coiling, and severing the wire, of a receiver into which said wire passes and in which it is interlocked with the preceding coils, means for moving said receiver toward and from said coiling means in the intervals between the operation of the feeding and coiling mechanism, and means for intermitting the movement of said receiver.

29. The combination, with the receiver and the pins arranged therein, of the wires connected to said pins.

30. The combination, with the receiver and the pins arranged in said receiver, of the wires connected to said pins, and the spring-loops connected to said wires, for the purpose set forth.

31. The combination, with means for forming the fabric, of means for longitudinally moving the wires after the fabric is formed for the purpose of evening the ends of the fabric.

32. The combination, with means for forming the fabric, of means operating upon the ends of the wires for evening up the fabric, for the purpose set forth.

33. The combination, with means for forming the fabric, of means for evening the ends of the fabric, and means for trimming one or both ends of the wire, for the purpose set forth.

34. The combination, with means for forming the fabric, of means for evening the fabric, means for trimming one or both ends of the wires, and means for crushing the ends of the coils, for the purpose set forth.

35. The combination, with means for forming the fabric, of means for forming a slack in one portion of the fabric, and means for moving the wires in such slack portion of the fabric, for the purpose of evening the fabric.

36. The combination, with means for forming the fabric, of the movable evening-plate, and means for operating said plate.

37. The combination, with the wires and the spring-loops over which the fabric passes, of the movable evening-plate, and means for operating said plate.

38. The combination, with means for forming a slack in the fabric, of the movable evening-plate arranged to engage the ends of the wires in the slack portion of the fabric, and means for moving said plate.

39. The combination, with the wires and the spring-loops over which the fabric passes, of means for moving the wires for evening

the fabric, and means for trimming the ends of the wires at one edge of the fabric.

40. The combination, with the movable evening-plate 162, of the rod 165 connected thereto, the spring 168, the projection 170 secured upon said rod, and the ratchet-wheel 175 engaging said projection, for the purpose set forth.

41. In a machine of the class described, the combination, with a reel and a wire-coiler, of a tripping mechanism arranged between said reel and said coiler, and over which the wire passes, said tripping mechanism being adapted to be moved and operated when the wire becomes caught or tangled or too great a tension is placed thereon, and a stop mechanism controlled by said tripping mechanism.

42. In a machine of the class described, the combination, with the coiler and the reel, of a tripping mechanism arranged between said coiler and reel and adapted to be operated by the wire when it does not feed freely from said reel.

43. In a machine of the class described, the combination, with a coiler, of independent reels, a tripping mechanism arranged between said reels and said coiler, and adapted to be engaged by the wires passing from both reels and to be operated when either wire does not feed freely from its reel, for the purpose set forth.

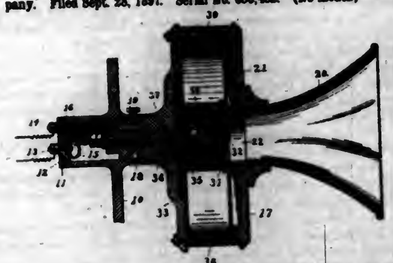
44. In a machine of the class described, the combination, with the coiler, of the rolls 199 over which the wires pass before reaching said coiler, the slides upon which said rolls are mounted, and the tripping mechanism controlled by said slides

45. In a machine for making coiled-wire fabric, the combination with parallel independent coiling-mandrels, of a rotatable section provided upon each mandrel, means upon said rotatable section for engaging the running wire, and independent means for adjusting said sections.

46. In a wire-coiler, the combination, with the parallel spirally-grooved mandrels, each provided at its forward end with a rotatable adjustable section, having a lug or shoulder thereon, of means for independently adjusting each of said sections, for the purpose set forth.

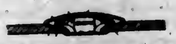
47. The combination, with the spirally-grooved mandrel 207 and means for feeding the wire thereto, of the adjustable pin 221 arranged over said groove and adapted to press upon the wire as it passes through said groove, for the purpose set forth.

605,882. TELEPHONE-TRANSMITTER. WILLIAM H. SUNDERS, Worcester, Mass., assignor to Lars M. Petterson and Carl J. Ekstedt, same place, as trustees for the Reliable Electric Manufacturing Company. Filed Sept. 28, 1897. Serial No. 653,402. (No model.)



Claim.—In a telephone-transmitter, the combination of a casing 17 having a mouthpiece 20, a metallic diaphragm 21, a plurality of screws having springs adjustably coiled thereon for holding the diaphragm in place, a contact-plate 31 carried by said diaphragm, a diaphragm 33, a contact-plate 35 secured thereon, a central adjusting-screw having nuts for regulating the distance between said contact-plates, a body of powdered carbon confined between the contact-plates, and a felt washer 34 secured on the contact-plate 35 in position to confine the body of powdered carbon, and to engage an inclined or chamfered edge on the contact-plate 31, substantially as described.

605,883. FASTENER FOR GLOVES, &c. WILLIAM S. RICHARDSON, Boston, Mass. Filed Mar. 13, 1897. Serial No. 627,295. (No model.)



Claim.—1. As an improved article of manufacture, a socket-piece from which a complete socket member of a ball-and-socket fastener is formed in the act of securing said piece to the glove or other article on or with which said member is used, having a preformed separable flange surrounding a yielding socket-entrance, a top section, separate, foldable, resilient sides substantially parallel with each other, integral with the top section and preformed flange, which sides are adapted in the act of setting the piece to be separated in relation to each other, folded outwardly to form a fastening-flange, provide a ball-holding cavity within the material between the flanges, complete the socket-entrance and impart resiliency thereto.

2. A socket-piece from which a complete socket member of a ball-and-socket fastener is formed in the act of securing said piece to the glove or other article on or with which said member is used, having a preformed separable flange surrounding a yielding socket-entrance, the side edges of which flange abut when in their normal relation to each other, a top section, separable, foldable, resilient sides substantially parallel with each other integral with the top section and preformed flange, as and for the purposes set forth.

3. A socket-piece from which a complete socket member of a ball-and-socket fastener is formed in the act of securing said socket-piece to the glove or other article on or with which the member is used, having a preformed separable flange surrounding a yielding socket entrance, a top section, separate, foldable, resilient sides integral with the top section and preformed flange, and shaped to slightly bulge outward, as and for the purposes set forth.

4. A socket-piece from which a complete socket member of a ball-and-socket fastener is formed in the act of setting said piece to the glove or other article on or with which the member is used, having a preformed separable flange surrounding a yielding socket-entrance, a top section, separate, foldable, resilient sides integral with the top section and preformed flange, and an outwardly-rounded bead or corrugation in the flange about the socket-entrance, all as and for the purposes set forth.

5. A socket member of a ball-and-socket fastener made from one piece of metal and having a top, separate arms or sections extending from said top outwardly and then back upon themselves, providing a sectional fastening-flange upon one surface of the glove or other article to which the member is secured, the said arms or sections extending through a hole in the said glove or other article at the lower edge of which hole they assemble and form a yielding socket-entrance, and from which socket-entrance they extend radially and make a fastening-flange upon the surface of the material opposite that upon which the said sectional fastening-flange bears, and which cooperates with the sectional folded flange in the fastening of the socket member.

6. The combination of a cap having an inwardly extending flange upon its under side forming a cavity, and a socket member having a top and resilient folded sides within said cavity, and which folded sides lap upon the inner surface of the flange and sections of which sides extend from said flange toward each other and provide a ball-receiving space or cavity.

7. A socket member of a ball-and-socket fastener having a preformed separable flange surrounding a yielding socket-entrance upon one surface of the glove or other article to which the socket member is secured, a top section, and folded resilient arms extending from said top section outwardly and inwardly and through a hole in said glove, the said arms being integral with the top section and preformed flange and forming a fastening-flange upon the surface of said glove opposite that against which the preformed flange bears, yielding sides and a ball-holding cavity.

8. The combination, in a fastener, of a cap having a flange extending inwardly from its outer edge, with a socket member formed from a socket-piece having a preformed separable flange surrounding a yielding socket-entrance, a top section, separate, foldable, resilient sides integral with the top section and preformed flange, and which cap-section is combined with said socket-piece in the act of attaching it to a glove or other article by outwardly-extended folds of the said resilient sides within the cavity of the cap and upon the surface of the glove opposite that against which the preformed flange bears.

9. The combination of a socket member of a ball-and-socket fastener made from one piece of metal and having a top, separate arms or sections providing a sectional flange upon one surface of the glove and a yielding socket-entrance and a finishing-flange upon the other surface of the glove, and a support or backing upon which said first-named sectional fastening-flange bears, and having a hole through which the said arms extend, and which washer is of a size not to restrict or impede the yielding action of said arms.

10. The socket member above described, consisting of a socket-piece comprising the angular arms extending outwardly from a connecting portion and returning upon themselves to form an upper flange and a socket-entrance, each arm being farther extended outwardly at its extremity to form a finishing-flange, between which and said upper flange the material is to be held, with a part having yielding reinforcing-arms located immediately below said upper flange and held in contact with the yielding arms of the socket-piece and adapted to lie on the opposite side of said material from said finished flange, as and for the purposes set forth.

11. A socket member comprising a set socket-piece having when set yielding sides, an upper and a lower flange, said upper flange being formed by the upset sections of said yielding sides and said lower flange by extensions thereof, a cap adapted to inclose said upper flange, and yielding sections upon said cap which reinforce said yielding sides, as and for the purposes set forth.

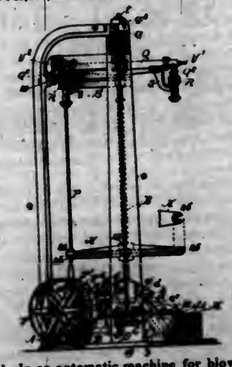
12. In a socket member of a ball-and-socket fastener, a cap having a divergent flange, combined with a socket member having a top section and separate resilient sides folded down or extended laterally against said divergent flange within said cap, said folded sides when thus extended laterally within said cap serving to retain the latter in place, and said divergent flange when pressed against the material being flattened against the said folded sides and serving to form an extended fastening-flange upon the upper side of said material.

13. A socket-piece having sectional sides, a socket-entrance, a predetermined sectional flange surrounding the socket-entrance, and means such as a rib or bead in or upon said flange adapted to cooperate with a holding or setting die having an opposing rib or shoulder to maintain the predetermined shape of the flange and the bore of the socket during the setting of the socket-piece.

14. In a fastener, the combination of a cap having a cavity provided with a conical wall surrounding the entrance thereto and a closed top which is above said entrance, with a socket member in one piece comprising a closed end or top section which is inclosed within the cavity of the cap and bears against said top part of the cap, and separate arms which extend outwardly from the said top section to bear against the inner surface of said conical wall and then inward toward each other to form a conical cavity.

REISSUES.

11,668. MACHINE FOR BLOWING GLASS. MICHAEL J. OWENS, Toledo, Ohio, assignor, by direct and mesne assignments, to the Toledo Glass Company, same place. Filed May 5, 1896. Serial No. 679,572. Original No. 548,561, dated Oct. 22, 1895.



Claim.—1. In an automatic machine for blowing glass, an air-conduit, a sectional mold, a removable blowpipe, means for supporting the blowpipe in operative relation to the air-conduit and to the mold and means for automatically closing said mold after the introduction of the blowpipe in its support and for automatically opening the mold prior to the removal of said blowpipe.

2. In an automatic machine for blowing glass, an air-conduit, a sectional mold, a removable blowpipe, means for supporting the blowpipe in operative relation to the air-conduit and to the mold, means for automatically closing said mold after the introduction of the blowpipe in its support and for automatically opening the mold prior to the removal of said blowpipe, and means for cooling the mold while open.

3. In an automatic glass-blowing machine, a sectional mold, an air-conduit, a removable blowpipe, a support by which the removable pipe may be temporarily sustained in connection with the air-conduit and in operative relation to the mold, means for automatically opening and closing the mold, and means for imparting, with respect to the blowpipe and mold, a rotational movement of the one relative to the other.

4. In a glass-blowing machine, in combination, a mold and a mold-carrier, means for imparting movements to the carrier, an air-conduit that is movable in unison with the mold and a removable blowpipe which may be temporarily placed in connection with the air-conduit and in cooperative proximity to the mold, for the purpose substantially as set forth.

5. In a glass-blowing machine, a mold-carrier, with the mold thereon, and an air-supplying conduit, both movable, and having means for imparting traveling movements thereto in unison, a removable blowpipe, and means comprised in said machine for affording a support for the blowpipe whereby one end thereof may be in communication with the air-supplying conduit and the other in cooperative proximity to the mold, substantially as described.

6. In a glass-blowing machine, the combination with the vertical rotatable shaft having at its bottom a revoluble mold-carrier with the mold thereon, having at its top an air-conduit which is revoluble in conjunction with the mold-carrier, and having an intermediate part, supported by, and revoluble by reason of the rotation of the shaft, for affording a temporary support for the blowpipe whereby the top thereof may be in connection with said conduit, and the bottom in operative proximity to the mold, substantially as described.

7. In a glass-blowing machine, in combination, a mold-carrier, and a sectional opening and closing mold thereon, means for imparting movements to the carrier, an air-conduit that is movable in unison with the mold, a removable blowpipe which may be temporarily placed in connection with the air-conduit and in cooperative proximity to the mold, and mechanism for periodically and automatically opening and closing the mold-section, substantially as described.

8. In a glass blowing machine, in combination, a mold and a mold-carrier, means for imparting movements to the carrier, an air-conduit that is movable in unison with the mold, a removable blowpipe which may be temporarily placed in connection with the air-conduit and in cooperative proximity to the mold, a valve in said conduit and means for automatically and periodically operating the valve, substantially as described.

9. In a glass-blowing machine, in combination, a mold and a mold-carrier, means for imparting a traveling movement to the carrier, an air-conduit that is movable in unison with the mold, a blowpipe which may be placed in connection with the air-conduit and in cooperative proximity to the mold, and means for imparting a rotary movement to the blowpipe, substantially as and for the purposes set forth.

10. In a glass-blowing machine, in combination, a mold and mold-carrier, means for propelling the carrier to which the carrier is articulated whereby it may have a vertical swinging movement, a basin for a cooling liquid in the course of travel of the carrier, an air-conduit that is movable in unison with the mold, and a removable blowpipe which may be temporarily placed in connection with the air-conduit, and in cooperative proximity to the mold, for the purpose substantially as set forth.

11. In a glass-blowing machine, in combination, a sectional mold and a mold-carrier, means for propelling the carrier to which the carrier is articulated whereby it may have a vertical swinging movement, to descend into the basin, a basin for a cooling liquid in the course of travel of the carrier, an air-conduit that is movable in unison with the travel of the mold, a removable blowpipe which may be temporarily placed in connection with the air-conduit and in cooperative proximity to the mold and means for automatically opening the mold-sections as they approach the basin for the purposes substantially as set forth.

12. In a glass-blowing machine, in combination, the base A, the central vertical rotatable shaft having connected thereto near its bottom a revoluble mold-carrier with a mold thereon, having at its top an air-conduit which is revoluble in conjunction with the mold-carrier and having an intermediate horizontally-extended part for affording a temporary support for the blowpipe whereby the top thereof may be in connection with said air-conduit and the bottom in operative proximity to the mold, a gear, C, on said vertical shaft, the horizontal counter-shaft E, geared to the lower end of the vertical shaft, the driving-shaft, F, and gearing connecting it with the counter-shaft, substantially as described.

13. In a glass-blowing machine, the combination with the base having the track *m*, of the vertical shaft, B, connected to and radially extended from the shaft and having a friction-roll which runs on the track, the mold mounted on the carrier, a radial air-conduit carried by and extended from the upper part of the shaft and means for supporting, removably, a blowpipe in connection with the said conduit and in proximity to the mold, substantially as described.

14. In a glass-blowing machine, the combination with the base having the basin, M, therein and the track *m*, which runs around the top of the base and has its course contained in the basin of the vertical shaft, B, hinge-connected to, and radially extended from, the shaft and having a running bearing on said track, a mold mounted on the carrier and means for turning said shaft, substantially as described.

15. In a glass blowing machine, in combination, the rotary shaft, the carrier having a mold thereon, connected to and outwardly extended from a member of the shaft, and having a slide movably guided thereon which is provided with a projection or roller, a rib-like part along which the said projection runs for a portion of its course whereby the slide is outwardly maintained, and a cam in engagement with which the roller at another part of its course runs for forcing the slide inwardly and connections between the slide and

mold-sections whereby the outward and inward movements of the slide close and open the sectional mold, substantially as described.

16. In a glass-blowing machine, in combination, the base, A, the shaft, B, the collar, G, fixed on the shaft having the ear-lugs, *d*, the mold-carriers, H, H, with bifurcated inner ends, hinged to the ear-lugs, *d*, and having the slideways, *g*, the sliding block, L, on each of the carriers having combined therewith the stud, *h*, roller, *j*, and the annularly-arranged arms, *i i*, clamped on the upper end of the stud above the slide-block, by the nut, i^2, the mold-sections, *e e*, hinged on the mold-carriers, each having the outwardly-extending lug, e^2 and the connecting-rods, e^3, all substantially as described and shown.

17. In a glass-blowing machine, in combination, a mold and mold-carrier, means for imparting revoluble movements to the carrier, and an air-conduit that is movable in unison with the mold, a removable blowpipe which may be placed in connection with the air-conduit and in cooperative proximity to the mold, a depending tubular part, Q^2, rotatably mounted upon the revolubly-carried air-conduit, to form a continuation thereof and the part which receives the engagement therewith of the upper end of the blowpipe, a wheel or roller secured on said depending tubular rotatable part, and the arc-shaped fixture, S, on which the said wheel runs during a portion of the revoluble movement of the mold-carrier and air-conduit, substantially as described.

18. In a glass-blowing machine, the combination with the mold-carrier and the air-conduit Q, horizontally thereabove, and means for revolubly moving both in unison of the depending rotary tubular continuation of the conduit Q, having its lower end constructed for the engagement therewith of the upper end of a blowpipe, substantially as and for the purposes set forth.

19. In a glass-blowing machine, the combination with the base having the upstanding hub, *b*, with the outstanding arc-formed flange b^4, and the eccentrically-arranged cam-rib, *n*, of the mold carriers having the slide, L, with the rollers, *j* the sectional molds hinged together and mounted on the mold-carriers and means intervening between the slides and mold-sections actuated by the movements of the slide for opening and closing the mold-sections, substantially as described.

20. In a glass-blowing machine, the combination with the base, formed with the basin, of the revolubly-movable mold-carriers and hinged molds thereon, the mold-carriers being jointed to the support which revolubly propels it, whereby it may descend into the basin, means for opening the molds prior to such descent, springs for exerting a pressure to restrain the open molds from closing while in their lowered positions, and means for closing the molds after ascending from within the basin, substantially as described.

21. In a machine for blowing glass, one or more molds each consisting of hinged sections, a base on which said molds may move, having a depression in a portion of its surface in which said molds fall in succession when moved as aforesaid, means for moving said molds on said base and for causing the same, severally, to open and close automatically while descending into and rising out of said depression, combined and operating substantially as set forth.

22. In a machine for blowing glass, the combination of a sectional mold adapted to be opened and closed, a blowpipe, means for detachably supporting the blowpipe in operative relation to a source of air-supply and to the mold, the air-supply device, means for imparting to said blowpipe or mold a rotational movement, the one relative to the other, and means for wetting the mold between blowing operations.

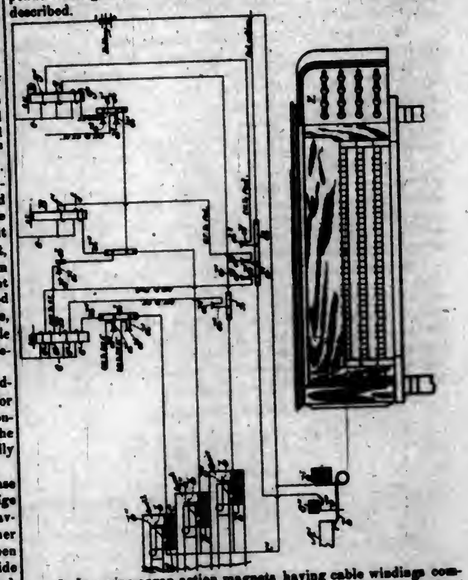
11,669. PIPE-ORGAN. ERNEST M. SKINNER, Boston, Mass., assignor of one-half to George S. Hutchings, Cambridge, Mass. Filed Jan. 26, 1898. Serial No. 667,945. Original No. 595,660, dated Dec. 14, 1897.

Claim.—1. In a pipe-organ a series of keys A having each a side recess a^3 combined with spring-contact wires *b* b^2 secured to supporting-blocks *b'* as and for the purpose set forth and described.

2. In a pipe-organ a series of keys A having each a side recess a^3 combined with spring-contacts wires *b* b^2 secured to supporting-blocks *b'*, and wires, having switch-plates *d*, switches d^3 and electromagnets in the circuit substantially as and for the purpose set forth and described.

3. In a pipe-organ action electromagnets having a plurality of independent windings, an independent energizing-circuit for each winding, including a key-contact and an intermediate switch-plate or switch, a return-wire common to all the independent energizing-circuits, and a suitable source of electric energy, substantially as described.

4. In a pipe-organ action, electromagnets having cores which are provided with multiple windings, a common return-wire to which all of said windings are connected, an independent energizing-wire for each winding, a key-contact and an intermediate switch or switch-plate interposed in said wire, and a suitable source of electric energy to the opposite poles of which the common return-wire and the independent energizing-wires are respectively connected, substantially as described.



5. In a pipe-organ action magnets having cable windings composed of two or more insulated strands of wire each in electrical circuit with a single one of the various keys or stops of the organ-action, and so connected that a current through any one of the said strands will energize the magnet, substantially as described.

6. In an organ-action, a magnet having a plurality of windings each in electrical circuit with a single one of the various keys or stops of the organ-action, and so connected that a current through any one of said windings will fully energize the magnet, substantially as described.

7. In an organ-action, an electrical crescendo device, consisting of a movable switch-lever combined with a contact leading to and through a battery or electric generator, and a succession of contacts, each in series with a magnet controlling one of the various stops and couplers of the organ action, substantially as described.

8. In a pipe-organ, in combination, a magnet-box containing an electromagnet, an armature-block above said box, a perforated veneer interposed between said box and block and a movable armature-valve arranged in said perforated veneer substantially as and for the purpose set forth and described.

9. In a pipe-organ in combination a magnet-box containing an electromagnet, an armature-block above said box, a perforated veneer interposed between said box and block and a movable armature having a central valve adapted to close an opening leading to the exit-opening, substantially as and for the purpose set forth and described.

10. In a pipe-organ action in combination a magnet-box containing an electromagnet, a magnet-plate secured to said box and metal circuit-plates arranged between said box and magnet-plate for the purpose of establishing electrical connection between the inside and outside of said box as herein set forth and specified.

11. In a pipe-organ action, the combination with a battery or other generator of electricity, of an electromagnet, a winding *q* for the same, a resistance-coil S" in series with the winding, an intermediate return R" common to said winding and resistance-coil and connected to a return-plate *q''*, a return-circuit for said electromagnet, a pneumatic-diaphragm S' and contact-springs q^3 and *r'*, on the return-plate, whereby the resistance-coil S" in the return-circuit is normally shunted through the intermediate return R", but is thrown in series with the winding *q* while the intermediate retard R" is opened at q^3, *r'* as soon as the pneumatic operates, substantially as described.

12. In an organ-action, the combination with a valve *t*, of a pneumatic diaphragm or bellows T, to control said valve, a magnet-chamber T" containing magnets controlling stops or couplers, and an automatic device to break the return-wire of said magnets simultaneously with the exhaustion of said chamber by said valve *t*, substantially as described.

13. In an organ-action the combination with a pneumatic-diaphragm, U, of an air-passage V, having a small vent or air-passage V" and a pair of electromagnets *u*, *u'*, and armature-valves, serving in turn to exhaust and inflate the air-passage V, substantially as described.

14. In an organ-action a pneumatic-diaphragm U and channels V V' and a pair of electrically-operated armature-valves serving respectively as exhausting and inflating devices for the pneumatic-diaphragm U, in combination with a vent or windway V" serving as a communication between channels V and V' substantially as and for the purpose set forth and described.

15. In an organ-action a pneumatic-diaphragm U and channel V and a pair of electrically-operated armature-valves serving respectively as exhausting and inflating devices for the pneumatic-diaphragm U, and a vent V" combined with the electrical connections V^3 and V^4 and pneumatically-controlled contact-spring W substantially as and for the purpose set forth.

16. In an organ-action the combination with a diaphragm or equivalent pneumatic U and a valve U^2 connected thereto, of an air-passage V controlling said pneumatic, a channel V' controlled by said valve, and a means of communication V", between said passage and channel, substantially as and for the purpose set forth.

17. In an organ-console swing sides having grooves for the reception of the roll or lid, and containing and supporting within themselves the draw-stops or registers and their suitable contact devices substantially as and for the purpose set forth.

18. In an organ-console swing sides and draw-stops or registers and their suitable contact devices carried thereby, substantially as described.

19. In an organ-console swing sides and draw-stops or registers and their suitable contact devices contained and supported within said sides, substantially as described.

20. In an organ-console swing sides, draw-stops or registers and their suitable contacts carried thereby, and a lid, substantially as described.

21. In an organ-console swing sides carrying draw-stops or registers.

DESIGNS.

28,836. CIGAR. HENRY HEITHAUS, Miamisburg, Ohio. Filed May 2, 1898. Serial No. 679,548. Term of patent 3½ years.



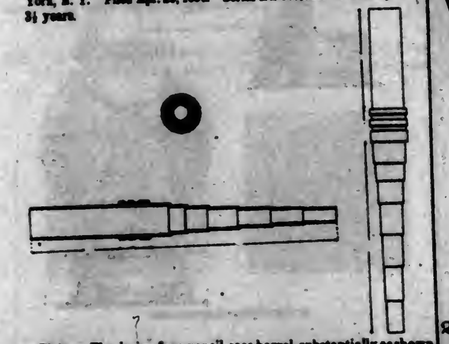
Claim.—The design for a cigar as herein shown and described.

28,837. PIN. WOODBURY MILLIKEN, East Orange, N. J. Filed Mar. 31, 1898. Serial No. 675,997. Term of patent 7 years.



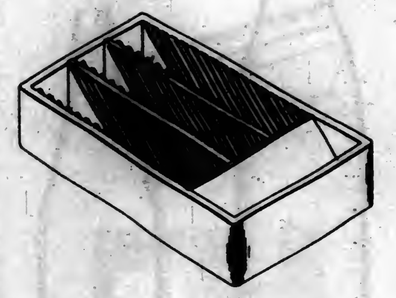
Claim.—The design for a pin herein shown and described.

28,838. PENCIL-CASE BARREL. LE ROY C. FAIRCHILD, New York, N. Y. Filed Apr. 20, 1898. Serial No. 679,246. Term of patent 3½ years.



Claim.—The design for a pencil-case barrel, substantially as shown and described.

28,839. FILE-CASE FOR SALES-BOOKS. EDWIN KIRKWOOD, Minneapolis, Minn. Filed July 3, 1897. Serial No. 643,494. Term of patent 7 years.



Claim.—The design for a file-case for sales-books, substantially as shown and described.

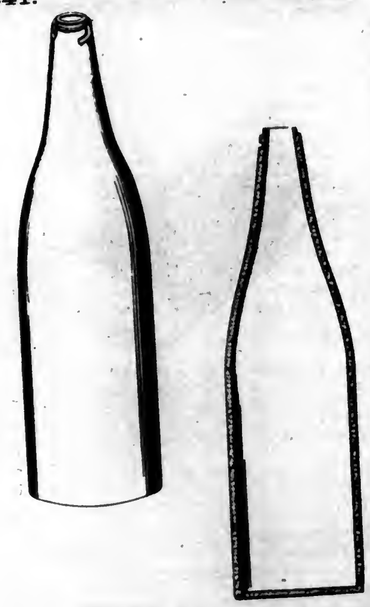
28,840. PLATE. HENRY REMY, Baltimore, Md. Filed May 6, 1898. Serial No. 679,961. Term of patent 3½ years.



Claim.—The design for a plate herein shown and described.

28,841. BOTTLE. PHILIP LIPPENCOTT, Baltimore, Md., assignor to the Monarch Manufacturing Company, same place. Filed Apr. 16, 1898. Serial No. 677,781. Term of patent 7 years.

28,841.



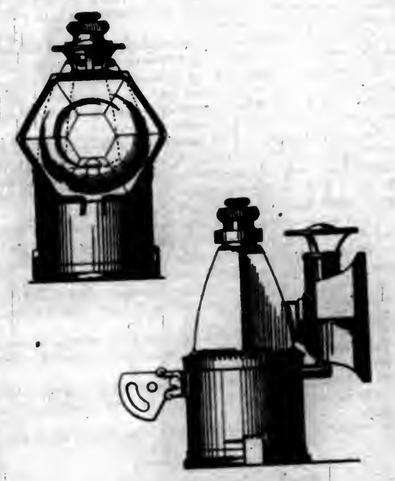
Claim.—The design for a bottle as herein shown and described.

28,842. BOTTLE OR JAR. MARTIN R. GRIFFITH, Manor Station, Pa. Filed Aug. 26, 1897. Serial No. 649,645. Term of patent 14 years.



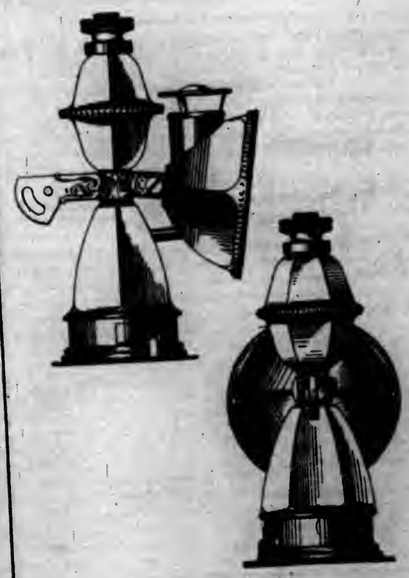
Claim.—The design for a bottle or jar as herein shown and described.

28,843. LAMP. CHARLES W. IDEN, New York, N. Y., assignor to the Electro Lamp Company, of West Virginia. Filed Mar. 28, 1898. Serial No. 674,944. Term of patent 14 years.



Claim.—The design for a lamp substantially as shown and described.

28,844. LAMP. CHARLES W. IDEN, New York, N. Y., assignor to the Electro Lamp Company, of West Virginia. Filed Mar. 28, 1898. Serial No. 674,945. Term of patent 14 years.



Claim.—The design for a lamp, substantially as shown and described.

28,845. CHIMNEY. ANDREW HOWARD, Wilkinsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,103. Term of patent 14 years.



Claim.—The design for a chimney herein shown and described.

28,846. SURFACE ORNAMENTATION OF GLASS. ANTHONY DIXON BROGAN and ANDREW MURRAY MALLOCH, Glasgow, Scotland. Filed May 13, 1898. Serial No. 680,642. Term of patent 14 years.



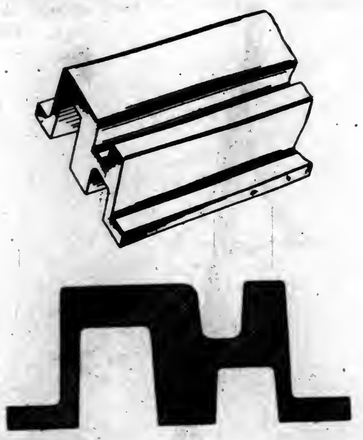
Claim.—The design for the surface ornamentation of glass substantially as herein shown and described.

28,847. SHEET OR PLATE GLASS. WILLIAM BUTLER, Red Key, Ind. Filed Feb. 17, 1898. Serial No. 670,713. Term of patent 14 years.



Claim.—The design for sheet and plate glass, substantially as herein shown and described.

28,848. RAILROAD-RAIL. GEORGE B. TAYLOR and HENRY B. HUMPHREYS, Philadelphia, Pa. Filed Apr. 20, 1898. Serial No. 678,311. Term of patent 14 years.



Claim.—The design for a railroad-rail, substantially as illustrated and herein described.

28,849. ANTIRATTLER. FRANK P. JOHNSON, Danville, Pa. Filed Nov. 27, 1897. Serial No. 660,012. Term of patent 14 years.



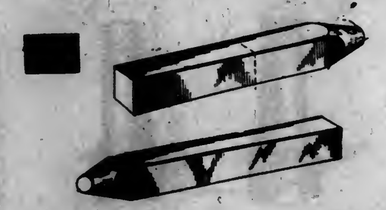
Claim.—A design for an antirattler for thill-couplings, as herein shown and described.

28,850. ANTIRATTLER PLATE. CHARLES T. REDFIELD, Glen Haven, N. Y. Filed May 12, 1898. Serial No. 680,516. Term of patent 7 years.



Claim.—The design for an antirattling plate as herein shown and described.

28,851. SPIKE-HOLE PLUG. OBIE ASHLEY, New Albany, Pa. Filed May 12, 1898. Serial No. 680,522. Term of patent 3½ years.



Claim.—The design for a spike-hole plug substantially as herein shown and described.

28,852. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,104. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,853. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,105. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,854. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,106. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,855. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,107. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,856. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,108. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,857. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,109. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,858. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,110. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,859. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,111. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,860. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,112. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,861. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,113. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,862. BOTTLE. ALBERT C. WILSON, Pittsburg, Pa. Filed Dec. 28, 1897. Serial No. 663,114. Term of patent 14 years.

Claim.—The design for a bottle as herein shown and described.

28,852. FURNACE BAR GRATE-SUPPORT. John W. Holabay, Akron, Ohio. Filed May 12, 1898. Serial No. 680,518. Term of patent 7 years.



Claim.—The design for a furnace bar grate-support, substantially as shown and described.

28,853. HORSESHOE-CALK. Thomas J. Gilsenan, Scranton, Pa. Filed Feb. 10, 1897. Serial No. 622,850. Term of patent 14 years.



Claim.—The design for a horseshoe-calk, substantially as shown and described.

28,854. CAP FOR COLLAPSIBLE TUBES. Abram I. Shrimpton, Asbury Park, N. J., assignor to Barrang & Zacharias, same place. Filed Sept. 30, 1897. Serial No. 653,651. Term of patent 7 years.



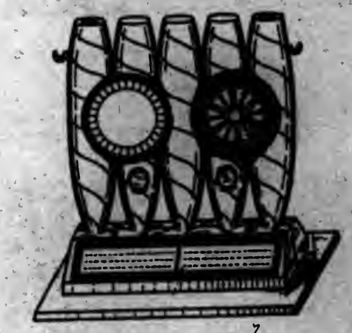
Claim.—The design for a cap for collapsible tubes, as herein shown and described.

28,855. ADVERTISING-STAND. William H. Updegrave, Johnstown, Pa. Filed Oct. 20, 1897. Serial No. 656,042. Term of patent 7 years.



Claim.—The design for an advertising-stand, substantially as herein shown and described.

28,856. CASING OR FRAME FOR VENDING-MACHINES. Edward Rosenberg, Cincinnati, Ohio. Filed April 15, 1898. Serial No. 677,702. Term of patent 7 years.



Claim.—The design for a casing or frame for vending-machines substantially as shown and described.

28,857. WINDOW-STOP ADJUSTER. Clarence A. Taplin, Putnamville, Conn., assignor to the Taplin Manufacturing Company, same place. Filed May 13, 1898. Serial No. 681,081. Term of patent 14 years.



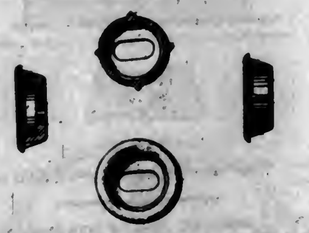
Claim.—The design for a window-stop adjuster herein shown and described.

28,858. BRACKET FOR CURTAIN-POLES AND SHADE-ROLLERS. Albert C. Smith, Boulder, Colo. Filed May 14, 1898. Serial No. 680,746. Term of patent 14 years.



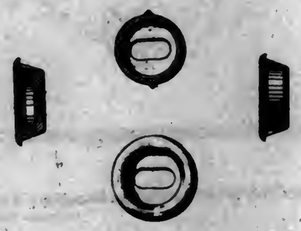
Claim.—The design for a curtain-pole and shade-roller bracket, substantially as herein shown and described.

28,859. BEAD-ENGAGING THIMBLE. Hobart B. Ives, New Haven, Conn. Filed Dec. 31, 1897. Serial No. 665,341. Term of patent 14 years.



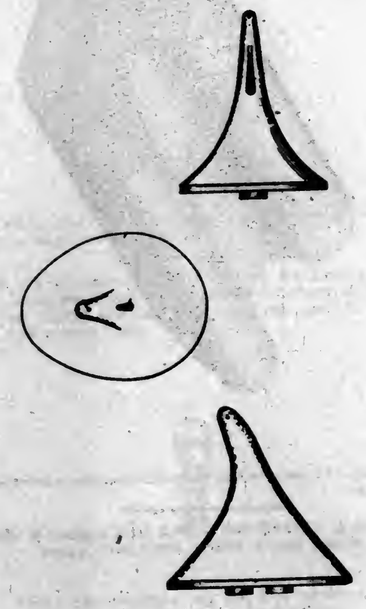
Claim.—The design for bead-engaging thimble for adjustable window-bead fasteners, as herein shown and described.

28,860. BEAD-ENGAGING THIMBLE. Hobart B. Ives, New Haven, Conn. Filed Dec. 31, 1897. Serial No. 665,342. Term of patent 14 years.



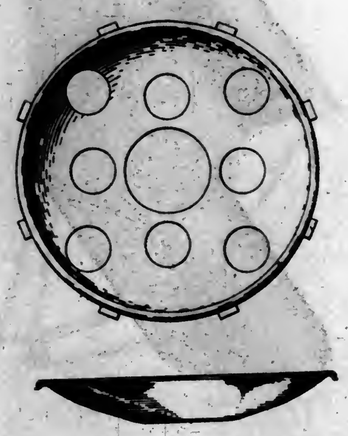
Claim.—The design for a bead-engaging thimble for adjustable window-bead fasteners, as herein shown and described.

28,861. SYRINGE-NOZZLE. James T. Westerfield, Boston, Mass. Filed Feb. 14, 1898. Serial No. 670,333. Term of patent 14 years.



Claim.—The design for a syringe-nozzle, as herein shown and described.

28,862. SPITTOON-COVER. Karl Riehle, Sandusky, Ohio. Filed Jan. 26, 1898. Serial No. 668,078. Term of patent 7 years.



Claim.—The design for a spittoon-cover, as herein shown and described.

28,863. CHANNEL-IRON. JAMES H. BAKER, Allegheny, Pa. Filed Oct. 30, 1897. Serial No. 656,967. Term of patent 14 years.



Claim.—The design for a channel-iron, substantially as shown and described.

28,864. CHANNEL-IRON. JAMES H. BAKER, Allegheny, Pa. Filed Oct. 30, 1897. Serial No. 656,968. Term of patent 14 years.



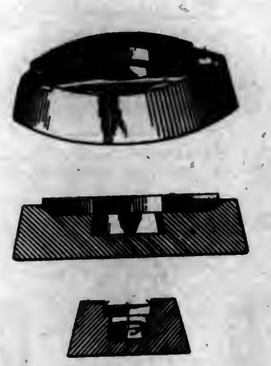
Claim.—The design for a channel-iron for railroad-coupling substantially as shown and described.

28,865. ANGLE-IRON. JAMES H. BAKER, Allegheny, Pa. Filed Oct. 30, 1897. Serial No. 656,969. Term of patent 14 years.



Claim.—The design for an angle-iron, substantially as shown and described.

28,866. SAD-IRON. JAMES F. BLISS, Newark, N. J. Filed May 17, 1898. Serial No. 680,991. Term of patent 7 years.



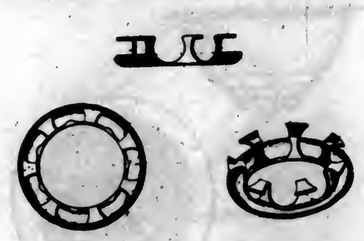
Claim.—The design for an sad-iron: substantially as shown and described.

28,867. LOCK-CLASP. HARRY G. PRICE, Philadelphia, Pa. Filed May 13, 1898. Serial No. 680,641. Term of patent 14 years.



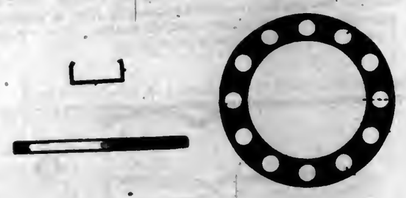
Claim.—The design for a lock-clasp, substantially as shown and described.

28,868. BALL-RETAINER. HENRY B. KNUPH, Lancaster, Pa., assignor of one-half to John Hertzler, same place. Filed May 17, 1898. Serial No. 680,989. Term of patent 14 years.



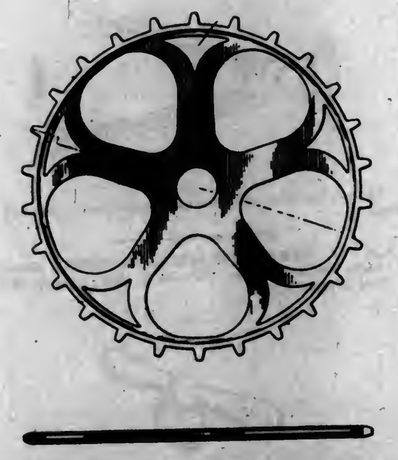
Claim.—The design for a ball-retainer substantially as shown and described.

28,869. CAGE FOR BALL-BEARINGS. ALBERT PERKINS, Chicopee, Mass. Filed May 10, 1898. Serial No. 680,294. Term of patent 7 years.



Claim.—The design for a cage for ball-bearings, substantially as shown and described.

28,870. SPROCKET-WHEEL. LEE STURGES, Elmhurst, Ill. Filed Apr. 20, 1898. Serial No. 679,401. Term of patent 3½ years.



Claim.—The design for a sprocket wheel or gear, substantially as shown and described.

28,871. BICYCLE WRENCH AND SCRAPER. LOUIS HOLMES, Chicago, Ill. Filed Apr. 4, 1898. Serial No. 676,473. Term of patent 3½ years.



Claim.—The design for a bicycle wrench and scraper substantially as herein shown and described.

28,872. HEAD AND SHANK MEMBER FOR BICYCLE-PUMPS. JOHN H. GOSS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Mar. 7, 1898. Serial No. 673,016. Term of patent 7 years.



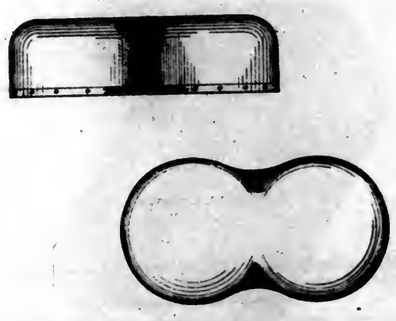
Claim.—The design for a head and shank member of a swivel connection for bicycle-pumps as shown and described.

28,873. BICYCLE-FRAME. CHARLES HERBERT OGDEPAUGH, Rochester, N. Y. Filed Apr. 20, 1898. Serial No. 679,245. Term of patent 14 years.



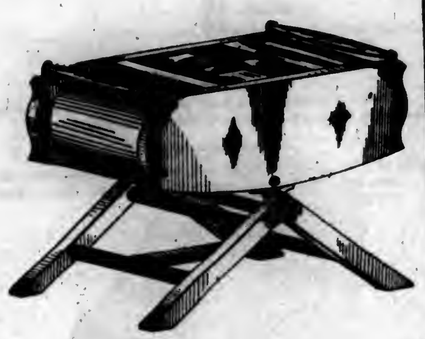
Claim.—The design for a bicycle-frame, as herein shown and described.

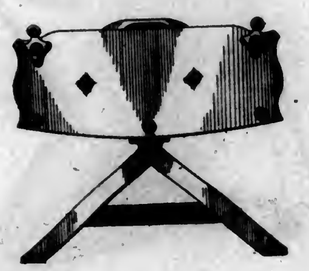
28,874. BICYCLE-SADDLE. LE ROY M. HILBURN, New Haven, Conn. Filed May 2, 1898. Serial No. 679,545. Term of patent 14 years.



Claim.—The design for a bicycle-saddle as herein shown and described.

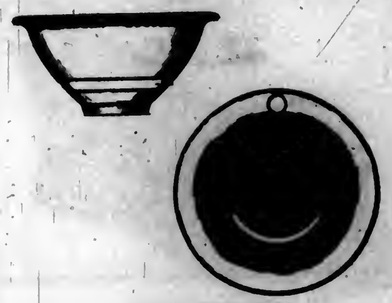
28,875. CHURN-BODY AND SUPPORT. THOMAS H. BUFFY, Manchester, Va. Filed Oct. 30, 1896. Serial No. 610,638. Term of patent 7 years.





Claim.—The design for a churn-body and support, substantially as shown and described.

28,876. EGG-SEPARATOR. BERNARD F. MAGY, Smithdale, Mass. Filed Sept. 30, 1897. Serial No. 653,303. Term of patent 7 years.



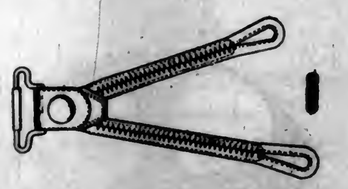
Claim.—The design for an egg-separator substantially as herein shown and described.

28,877. SUSPENSION-HOLDER FOR UMBRELLAS. JULIUS H. SCHMIDT, Bayonne, N. J., assignor of one-half to Peter H. Schaffer, same place. Filed Apr. 22, 1898. Serial No. 678,198. Term of patent 7 years.



Claim.—The design for a suspension-holder for umbrellas, substantially as shown and set forth.

28,878. SUSPENDER-END. FRANK P. KNOWER, New York, N. Y. Filed Oct. 12, 1897. Serial No. 654,993. Term of patent 7 years.



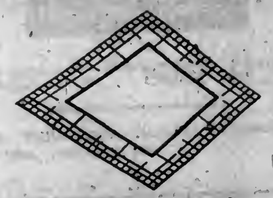
Claim.—The design for a suspender-end as herein shown and described.

28,879. TRIMMING FOR GARMENT-SUPPORTERS. GEORGE E. ADAMS, New Britain, Conn. Filed Jan. 19, 1898. Serial No. 667,174. Term of patent 7 years.



Claim.—The design for a metal trimming for a garment-supporter, substantially as herein shown and described.

28,880. PATTERN-PLATE FOR GARMENTS. FREDERICK HAHNE, New York, N. Y. Filed May 12, 1898. Serial No. 680,510. Term of patent 7 years.



Claim.—The design for a pattern-plate for garments, substantially as herein shown and described.

28,881. BRAID. MEYER W. SELIGSON, New York, N. Y. Filed May 11, 1898. Serial No. 680,417. Term of patent 3½ years.



Claim.—The design for a braid as herein shown and described.

28,882. CARPET. ANDREW C. PROUDFIT, Philadelphia, Pa., assignor to John Dunlop & Son, same place. Filed Apr. 21, 1898. Serial No. 678,300. Term of patent 3½ years.



Claim.—The design for a carpet substantially as herein shown and described.

TRADE-MARKS

REGISTERED JUNE 14, 1898.

81,678. CORSETS. BELLE J. MONTGOMERY, Toledo, Ohio. Filed Apr. 23, 1898.

VENO

Essential feature.—The word "VENO." Used since March 1, 1898.

81,679. CERTAIN NAMED RUBBER GOODS. THE DIAMOND RUBBER COMPANY, Akron, Ohio. Filed Mar. 24, 1898.

TITAN

Essential feature.—The word "TITAN." Used since January 1, 1898.

81,680. EFFERVESCENT GRANULES FOR BEVERAGES AND MEDICINAL PURPOSES. ARMSTRONG MANUFACTURING COMPANY, Berwick, Me., and Boston, Mass. Filed May 5, 1898.

BOAC

Essential feature.—The word "BOAC." Used since April 1, 1898.

81,681. DENTIFRICES. HALL & RUCKEL, New York, N. Y. Filed May 5, 1898.

SOZODONT

Essential feature.—The word "SOZODONT." Used since October, 1863.

81,682. HAIR-TONIC. MÜLHENS & KROPFF, New York, N. Y. Filed Mar. 4, 1898.



Essential feature.—The representation of a Medusa's head. Used since January 7, 1898.

81,688. OINTMENT. MICHAEL ARTHUR WHEELER, Troy, N. Y. Filed Apr. 25, 1898.

PIXINE

Essential feature.—The word "PIXINE." Used since April 19, 1898.

81,684. COMBUSTIBLE POWDERS FOR FLASH-LIGHTS. GEORGE P. PARTON, Scranton, Pa. Filed Mar. 26, 1898.

ACTINO

Essential feature.—The word "ACTINO." Used since January, 1897.

81,685. DISINFECTING AND ANTISEPTIC PREPARATIONS. FRIEDR. REISSER, New York, N. Y. Filed Mar. 31, 1898.

HYDRO=SOL

Essential feature.—The compound word "HYDRO-SOL." Used since August 1, 1896.

81,686. INDIGO BLUING. ADAM PFROMM, Philadelphia, Pa. Filed Apr. 5, 1898.

BARLOW'S

Essential feature.—The word "BARLOW'S." Used since October 1, 1853.

81,687. PORTLAND CEMENT. THE FRANK H. MORSE COMPANY, Newark, N. J., and New York, N. Y. Filed Apr. 7, 1898.

PATRIOT

Essential feature.—The word "PATRIOT." Used since April 1, 1898.

81,688. DIETETIC ALBUMINOUS PREPARATIONS. EBNER & GIE, Berlin, Germany. Filed Feb. 26, 1898.

SANATOGEN

Essential feature.—The word "SANATOGEN." Used since October 26, 1897.

81,689. CEREAL FOOD FOR HUMAN CONSUMPTION. POSTUM CEREAL COMPANY, Limited, Battle Creek, Mich. Filed Jan. 31, 1898.

[redacted]

Essential feature.—The compound word "GRAPE-NUTS." Used since December 1, 1897.

81,690. WHEAT-FLOUR. CONSOLIDATED MILLING COMPANY, Minneapolis, Minn. Filed Apr. 19, 1898.



Essential feature.—The representation of a child seated, wearing a large hat, and cutting a slice from a loaf of bread. Used since August 1, 1896.

81,691. OLIVE-OIL. SEWELL & PETER, Limited, Philadelphia, Pa. Filed Mar. 4, 1898.

BONDURANT FRÈRES

Essential feature.—The words "BONDURANT FRÈRES." Used since June 12, 1893.

81,692. ROASTED AND GROUND COFFEE. THE RETREPPERS COFFEE COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Mar. 26, 1898.



Essential feature.—A picture of a plantation scene in an oval with negroes gathering and carrying coffee to a shed, above which a palm-tree spreads its leaves, and the words "PLANTATION GROUND COFFEE." Used since November, 1874.

81,693. SUGAR-SYRUP. J. D. HAGG & CO., New York, N. Y. Filed Apr. 30, 1898.

APOLLO

Essential feature.—The word "APOLLO." Used since October 5, 1896.

81,694. FLUID EXTRACT OF MALT. ALLEN & HANBURYS, Limited, London, England. Filed Feb. 15, 1898.

BYNIN

Essential feature.—The word "BYNIN." Used since November, 1884.

81,695. WHISKY. FRANK H. RINKER & CO., Boston, Mass. Filed May 2, 1898.

GOV. RUSSELL BLENDS

Essential feature.—The words "GOV. RUSSELL BLENDS." Used since April 13, 1898.

81,696. WHISKY. WISE & MEYER, New York, N. Y. Filed Mar. 6, 1898.

INGLESIDE

Essential feature.—The word "INGLESIDE" and a monogram formed by the letters and character "W & M" interwoven. Used since December 1, 1897.

81,697. CIGARS, TOBACCO, AND CIGARETTES. WILLIAM W. ARNOLD, Denver, Colo. Filed May 2, 1898.

SCENIC LINE

Essential feature.—The words "SCENIC LINE." Used since January 1, 1898.

81,698. PHOTOGRAPHIC CAMERAS. WESTERN CAMERA MANUFACTURING COMPANY, Chicago, Ill., and New York, N. Y. Filed Feb. 26, 1898.

Cyclone

Essential feature.—The word "CYCLONE." Used since February 1, 1897.

81,699. CERTAIN NAMED APPARATUS AND SUPPLIES. LA SOCIÉTÉ CHIMIQUE DES USINES DU RHÔNE, Assignment Gillard, P. Monnet et Cartier, Lyons, France. Filed Apr. 26, 1898.

TRILLAT

Essential feature.—The word "TRILLAT." Used since May 16, 1896.

81,700. AXES, SAWS, AND HATCHETS. DUNBAR, CARRIGAN & HAYDEN COMPANY, San Francisco, Cal. Filed Mar. 18, 1898.

CLEAN CUT

Essential feature.—The words "CLEAN CUT." Used since April 9, 1884.

81,701. TYPE-WRITING MACHINES AND NAMED SUPPLIES. ROBERT G. HOPKINS, Boston, Mass. Filed Mar. 23, 1898.



Essential feature.—The autograph signature of the registrant "ROBERT G. HOPKINS." Used since June, 1896.

81,702. CARPET-SWEEPERS. BISSELL CARPET SWEEPER COMPANY, Grand Rapids, Mich. Filed Mar. 12, 1898.

AMERICAN QUEEN

Essential feature.—The words "AMERICAN QUEEN." Used since September 15, 1897.

81,708. SEWING-MACHINES. THE HAVEN SEWING MACHINE COMPANY, Dayton, Ohio. Filed Apr. 4, 1898.

CRESCENT

Essential feature.—The word "CRESCENT." Used since November 16, 1897.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE WHITNEY.

Decided May 13, 1898.

1. INTERFERENCE—RESTRAINING AN EXAMINER FROM DECLARING AN INTERFERENCE—JURISDICTION OF THE COMMISSIONER.

The Commissioner is warranted in taking jurisdiction of and granting a petition to restrain an Examiner from declaring an interference when it clearly appear that the Examiner's intended action is contrary to the practice of the Office as indicated by the decisions of the Commissioner. (Citing *ex parte Baker*, 64 MS. Dec., 71.)

2. SAME—PATENT AND APPLICATION—PROTECTING RIGHTS OF PATENTEE.

The Office is not bound to declare an interference between a patent and an application in order to give the patentee the opportunity of contesting the grant of a patent to the applicant because in its judgment the patentee's rights would be infringed or abridged by granting a patent on a pending application.

3. SAME—MAKING THE INTERFERENCE ISSUE.

The Examiner should not make an issue for the purpose of bringing about an interference. The applicants should make the issues by their claims. If an Examiner desires the issue to be different, he should arrive at that result by requiring the claims to be amended by the applicants. (Citing *Hammond* v. *Hart*, 83 O. G., 743.)

4. SAME—SAME—PATENTEE AND APPLICANT.

The Office has no control over a patentee to require him to amend his claims. Unless an applicant make substantially the same claim as the patentee no interference can be declared.

5. SAME—SAME—SAME—CONSTRUING CLAIMS OF THE PATENT.

For the purpose of declaring an interference the claims of a patent must be taken as they read. The Office has no authority to say that any of the limitations contained in the claims of a patent are immaterial and unessential. Presumably the patentee did not put any unnecessary limitations in his claims.

6. PRACTICE—OPINIONS OF AN EXAMINER—FOLLOWING DECISIONS OF THE COMMISSIONER.

Whatever may be the individual opinions of an Examiner the orderly course of business requires that the decisions of the Commissioner should be followed.

ON petition.

COVERINGS FOR DRIVING-CHAINS FOR USE WITH BICYCLES AND MOTOR-CARRIAGES.

Application of George E. Whitney filed January 20, 1897, No. 619,895.

Messrs. Crosby & Gregory for the applicant.

DUELL, *Commissioner:*

The applicant seeks by petition to have the Examiner restrained from the declaration of what is said to be an absolutely improper interference.

The facts show that the applicant was rejected on a patent issued after his application was filed. The patent as a reference was overcome by affidavit made under and in accordance with Rule 75, whereupon the Examiner indicated his intention of declaring an interference between the patent and the application. The Commissioner, under the facts stated, will be warranted in granting the petition if it clearly appear that the Examiner's intended action is contrary to the practice of the Office as indicated by the decisions of the Commissioner; otherwise the petition should be refused.

Turning to the Examiner's statement, he urges that he "can find no precedent for such petition." The Examiner's attention is called to *ex parte Baker*, (64 MS. Dec., 71,) which it is thought will satisfy him on this point. The Examiner further states that—

> the Office is bound to declare the interference, if in its judgment the patentee's rights would be infringed or abridged by the granting of a patent on a pending application, in order to give him the opportunity of contesting this grant.

Interferences are not delared for any such purpose. The Examiner's attention is called to *Hammond* v. *Hart*, (83 O. G., 743,) where it is expressly stated that—

> an interference can only be instituted for the purpose of determining the question of priority of invention between two or more parties *claiming* substantially the same patentable invention.

If the applicant is *claiming* substantially the same patentable invention *claimed* by the patentee, then the Examiner is justified in declaring an interference; otherwise not.

This leads us to the main question raised by the petition, whether or not an interference is warranted by the practice and the law as laid down by the statutes and the decisions of the Commissioner relating to interferences. In order to bring about the interference, the Examiner proceeds to make an issue for the purpose. This practice was condemned and the proper course indicated in *Hammond* v. *Hart*, *supra*, in the following terms:

> In other words, the Examiner has made two new issues, neither of which is an allowed claim made by either party. I believe this to be bad practice. The applicants should make the issues by their claims. If an Examiner for any reason desires the issues to be different, he should arrive at that result by requiring the claims to be amended by the applicants.

In the present case one of the parties to the proposed interference is a patentee, and the Office has no control over him. Therefore the Examiner cannot take the course above indicated. Unless the applicant is making substantially the same claim or claims as the patentee has made no interference can be declared. The Examiner admits that the claims of applicant could not be read literally upon the construction shown by the patentee, and, *vice versa*, that the claims of the patentee would not read literally upon applicant's construction; but

he says that the limitations in the claims are entirely immaterial and unessential ones. Unfortunately for patentees the courts have too often held that limitations incorporated into the claims of their patents cannot be treated as immaterial and unessential. I fail to see what authority the Patent Office has, after it has issued a patent, to say that any of the limitations contained in the claims are immaterial and unessential. For the purpose of declaring an interference the claims of a patent must be taken as they read. Presumably the patentee did not put any unnecessary limitations in his claims. Whether or not the subject-matter of the proposed issue might have been claimed by the patentee or can be claimed by the applicant is not the question under discussion. The patentee did not claim it and now could claim it, if at all, only by reissue. No interference in fact exists between the claims of the patentee and the applicant, and therefore it would be manifestly improper for the Examiner to declare one under the decisions which must control his action. (*Reed* v. *Landman*, 55 O. G., 1275; *Hammond* v. *Hart*, 83 O. G., 743.)

The Examiner in his answer makes the following statement, which I cannot pass unnoticed:

> It would be manifestly unfair to issue applicant's patent on any such *ex parte* proceedings as the one now proposed if there is even a reasonable doubt as to the existence of an interference between the application and the reference, which was valid until overcome by affidavit.

This statement is not in accord with the controlling authorities heretofore cited. Whatever may be the individual opinions of an Examiner, the orderly course of business requires that the decisions of the Commissioner should be followed.

The petition is granted.

EX PARTE CONKLIN.

Decided May 26, 1898.

1. CAVEAT—STATUTE CONSTRUED—RIGHT OF PERSONAL REPRESENTATIVE TO FILE.

Section 4902 of the Revised Statutes of the United States, under the terms of which caveats may be filed, does not give the right to file a caveat to any one other than the inventor, and in the absence of any expressed right being vested under the statute in the personal representative of an inventor to file a caveat no such right exists, nor can it be implied.

2. SAME—STATUTE AND RULE CONSTRUED—RENEWAL.

Section 4902 of the Revised Statutes does not provide for the renewal of a caveat, and although the rules of the Patent Office provide for such renewal yet in the absence of any express language in the statutes giving the right of renewal in order to validate the rule the word "renewal," as employed in the rule, must be taken to mean not an extension of the caveat originally filed, but rather considered as referring to and making the so-called renewal a new caveat, based upon the papers originally filed.

3. SAME—SAME—RIGHT OF PERSONAL REPRESENTATIVE TO RENEW A CAVEAT.

If the so-called renewal must be considered in effect as a new filing of the original caveat, an executor cannot renew the caveat filed by a deceased inventor, for the reason that the executor, under the statutes, could not have filed the caveat in the first instance.

4. SAME—SAME—SAME.

An executor or an administrator of a deceased inventor is not deprived of any substantial right if he be not allowed to renew a caveat; but even if he were the remedy cannot be found in the Patent Office, but rather should be the subject of legislation by Congress. If at the time of the death of a caveator an invention had not been perfected, his executor could not file an application for patent in his representative capacity. If the invention had been perfected, then the executor could file an application for a patent, and in either case no injury that would flow from the denial of a right to renew the caveat would follow.

IN the matter of the petition for renewal of caveat of Egbert W. Conklin, deceased, by his executors, Horace E. Conklin and Charles W. Loomis.

Messrs. Edson Bros. for the petitioner.

DUELL, *Commissioner:*

The petitioners seek to renew a caveat, and in passing upon their right to so do it is necessary to briefly review the facts.

It appears that the petitioners are the executors of the estate of Egbert W. Conklin, deceased, who on June 24, 1884, filed a caveat for an improvement in sieves. The caveat was renewed yearly, but in several cases not until after the expiration of the previous year. In October, 1893, Conklin having died, the petitioners, Horace E. Conklin and Charles W. Loomis, were duly appointed executors of his estate, and letters testamentary under his will were granted and issued to them on December 16, 1896. On March 22, 1897, the petitioners, as executors, renewed the caveat, no question at that time being raised as to their right to so do. On March 24, 1898, they made a second application for the renewal of the caveat, paying the renewal fee of $10; but it was then held that under the statute the right to file a caveat was limited to the inventor and no authority for filing a caveat was vested in his legal representatives, and the renewal fee was returned to the attorneys representing the executors.

The question presented by the petition is whether or not an executor has a right to renew a caveat. It has heretofore been held by the Office that there was no authority vested in an executor to file a caveat. Section 4902 of the Revised Statutes of the United States, under the terms of which caveats may be filed, does not give such right to any one other than the inventor, and I am entirely clear that in the absence of any expressed right being vested under the statute in the personal representative of an inventor to file a caveat no such right exists, nor can it be implied.

The section referred to does not provide for a renewal of a caveat; but the rules of the Patent Office since prior to July 8, 1870, have provided for the renewal (so called) of a caveat. Rule 185 says:

> 185. The caveat may be renewed, on request in writing, by the payment of a second caveat fee of $10, and it will continue in force for one year from the date of the payment of such second fee. Subsequent renewals may be made with like effect. * * *

In the absence of any express language in the statute giving the right of renewal I am of the opinion that in order to validate the rule the word "renewal" as employed in the rule must be taken to mean not an extension of the caveat originally filed, but rather considered as referring to and making the so-called renewal a new caveat, based upon the papers originally filed.

Upon an examination of the decisions of the Commissioners of Patents I find that Mr. Commissioner Fisher in *Cyrenus Wheeler, Jr.*, v. *G. M. Peters* (C. D., 1870, 141) has so held, and as the Office rule at that time in force relative to the renewal of caveats was in substance the same as the present rule, 185, I see no reason for declining to give full weight to this ruling as an authority. The Commissioner there said:

> Wheeler filed a caveat in June, 1865. He refiled it by an additional payment in 1868, and again in 1867. This is sometimes erroneously called a renewal of a caveat. It is in effect a new filing. The law gives effect to a caveat only for a single year, and makes no provision for an extension or renewal of the term. As, however, it does not declare that one caveat only shall be filed for each invention, it is within the power of the caveator to file as many as he pleases, and therefore as fast as one expires he may file another. This is usually done by a payment of a new fee and the adoption of the old papers as the papers for the new caveat; but, as before remarked, it is in legal effect a new, independent caveat, having but a single year to run, and relating back only to the date of the payment of the fee.

If a so-called renewal must be considered in effect as a new filing of the original caveat, it is clear that an executor cannot renew the caveat filed by a deceased inventor, for the reason that such executor under the statutes could not have filed the caveat in the first instance.

I do not see that an executor or administrator of a deceased inventor is deprived of any substantial right if he be not allowed to renew a caveat; but even if he were the remedy cannot be found in the Patent Office, but rather should be the subject of legislation by Congress. If at the time of the death of a caveator an invention has not been perfected, his executor could not file an application for patent in his representative capacity. If the invention has been perfected, then the executor could file an application for patent; and I do not see in either case any injury that would follow from a denial of the right to renew a caveat.

For the reasons above set forth I am of the opinion that the petitioners have no right to renew the caveat, and the petition is therefore dismissed.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

HUBBELL *v.* THE UNITED STATES.

Decided May 31, 1898.

SECOND SUIT—RES ADJUDICATA—ESTOPPEL.

Claimant filed a petition in the Court of Claims for royalty upon cartridges and primers alleged to have been manufactured by the United States under his patent. The petition was dismissed. A motion for new trial was filed by claimant and was also dismissed. Application for appeal was filed; but appeal was not allowed. A second petition was filed after the first petition had been dismissed and was based upon the same patent involved in the first petition. This petition was also dismissed by the Court of Claims. Appeal from this judgment was taken to the Supreme Court. The defense was that of *res adjudicata*. *Held* that even if a somewhat different theory or state of facts were developed upon the trial of the second petition the judgment in the former petition would not operate the less as an estoppel, since the patentee cannot bring suit against an infringer upon a certain state of facts and after a dismissal of his action bring another suit against the same party upon the same state of facts and recover upon a different theory. The judgment in the first action is a complete estoppel in favor of the successful party in a subsequent action upon the same state of facts. (Walk. on Pats., sec. 468; *Dubois* v. *Railway Co.*, 5 Fish., 200; *Bradley Mfg. Co.* v. *Eagle Mfg. Co.*, 66 O. G., 315; 57 Fed. Rep., 980.)

APPEAL from the Court of Claims.

STATEMENT OF THE CASE.

This was an appeal from a judgment of the Court of Claims dismissing the petition of William Wheeler Hubbell, who, as patentee of an "improvement in cartridges," claimed that the United States had manufactured and used cartridges covered by his patent under an implied contract to pay a reasonable royalty therefor.

The petition contained, among others, the following allegations: That—

> your petitioner is the first and original inventor of an improvement in cartridges, for which Letters Patent of the United States were granted to him in due form of law, and, according to law, dated and issued the 16th day of February, A. D. 1879, vesting in him the exclusive right to make, vend and use the same for seventeen years from the date thereof.
>
> Your petitioner has pending a suit for compensation up to March 31, 1893, case No. 12,793, in the Court of Claims, and has never sued any officer nor brought any other suit than that before this present petition.
>
> Your petitioner prays for an account of the full and entire number of the said cartridges made or used by the defendant, its officers or employees in its service, or for distribution to the States, since the said March 31, 1893, to be separately stated when ordered, and for leave to make the same a part of this petition when precisely ascertained by amendment.
>
> Your petitioner further claims a just compensation for the making or use by the defendant, its authorized officers or employees, for its service, of his said patented invention of cartridge, to wit: he claims the sum of one hundred and ten thousand dollars due to him on this behalf by the United States from the 31st March, 1893, up to May 31, 1898.
>
> And he prays for judgment for all making or use of his said patented invention from the said 31st March, 1893, to said 31st May, 1898, by the defendant, its authorized officers or employees in its service, or on its behalf, in pursuance of law, in the sum of one hundred and ten thousand dollars, with leave to amend his petition in this behalf when the precise numbers have been duly reported by the proper departments of the United States.

Upon the trial of this case the Court of Claims made, among others, the following finding:

> The facts in this case are the facts already found in case No. 12,793, between the same parties as to the same subject-matter, except as to the time since the beginning of the other action, during which time, to wit, from the beginning of the other action to the beginning of this action, the Government manufactured cartridges of the same form and kind as those described in these findings, known as the "reloading-cartridge," in which said case No. 12,793 the following proceedings were had and the following facts were found, which facts are now found herein and are hereto annexed, as follows, to and including finding VIII.

The IXth finding is as follows:

> The following are, in substance, the proceedings had in case No. 12,793 between the same parties:
>
> April 19, 1893. Petition filed.
> May 18, 1893. Amendment to petition filed by allowance of judge at chambers.
> June 4, 1893. Traverse filed.
> July 25, 1893. Amendment to petition filed and allowed.
> October 2, 1894. Amendment to petition filed and allowed.
> December 15, 1894. Amendment to petition allowed.
> January 10, 1895. Claimant's requests for facts and brief filed.
> April 9, 1895. Additional brief for claimant filed.
> April 13, 1895. Defendant's requests for facts and brief filed.
> April 16, 1895. Argued and submitted.
> April 16, 1895. Claimant's brief of argument filed.
> April 20, 1895. Waiver filed by claimant.
> June 1, 1895. Davis, J., filed the opinion of the court. Petition dismissed. Findings of fact filed.
> August 14, 1895. Motions for new trial, amendment of findings and for reversal of judgment filed by claimant.
> August 21, 1895. Application for appeal filed by claimant.
> December 14, 1895. Motion of claimant for new trial overruled, with leave to submit to the consideration of the court. Findings II, III, IV amended in the form requested by claimant in his motion, subject to objection of the defendant to their allowance.
> October 6, 1896. Claimant's request for findings of fact filed under order of court.
> March 15, 1897. Requests, etc., of October 6, 1896, ordered to law-docket.
> April 15, 1899. Motion to amend findings continued.
> November 18, 1899. Continued.
> November 12, 1901. Motion of claimant to amend order of court filed.
> November 16, 1901. Motion of claimant to amend order of court heretofore entered as to the evidence to be used on the trial allowed, subject to objections of defendant on the argument.

Upon these and other facts found, the court dismissed the petition, but as no opinion was filed, the reasons for this judgment do not appear.

Subsequently additional findings were made, but as they are not material, they are not here repeated.

From the judgment of the Court of Claims dismissing his petition, petitioner applied for and was allowed an appeal to this Court.

Mr. George S. Boutwell, *Mr. F. P. Dewees*, and *Mr. W. W. Hubbell* for the appellant.

Mr. Charles C. Binney and *Assistant Attorney-General Pradt* for the appellee.

Mr. Justice BROWN delivered the opinion of the Court.

As the claimant in his petition relies only upon the patent of February 18, 1879, No. 212,313, for an improvement in cartridges, and as the proceedings in the former suit in the Court of Claims were based, in part at least, upon this patent, it will not be necessary to refer to any prior patents.

The only defense we are called upon to consider is that of *res adjudicata*. As bearing upon this defense the following facts are pertinent;

April 19, 1883. Claimant filed his petition in the Court of Claims for a royalty upon cartridges and primers alleged by him to have been manufactured by the United States under his patents, between February 18, 1879, and March 31, 1883.

June 1, 1885. This petition, after having been several times amended, was dismissed and findings of facts filed.

August 14, 1885. Motions for new trial, amendment of findings, and for reversal of judgment were filed by the claimant.

August 21, 1885. Application for appeal was filed by claimant, but such appeal does not appear to have been allowed.

December 14, 1885. Motion for new trial was overruled by the court, and the claimant was given leave to submit to the consideration of the court certain amended findings, subject, however, to objection of the defendant as to their allowance.

October 8, 1886. Claimant's request for findings was filed under order of the court, and on March 15, 1887, it was ordered to the law-docket.

The argument was deferred from time to time until November 16, 1891, when the motion of claimant to amend an order of court as to evidence was allowed subject to the objections of the defendants on the argument.

The petition under consideration was filed June 11, 1888, after the first petition had been dismissed by the Court of Claims, and is based upon the patent issued February 18, 1879, which was one of the patents involved in the first petition. A claim is made in this petition for royalty upon cartridges manufactured, in accordance with this patent, and used by the United States for nearly six years prior to the filing of this petition, but subsequent to the time of the filing of the first petition.

In this connection the court has found that the facts in the case under consideration are the same as those in the prior case, except as to the time since the beginning of the other action, during which time, to wit, from the beginning of the other action to the beginning of this action, the Government manufactured cartridges of the same form and kind as those described in these findings.

1. As the prior action was between the same parties, and was based in part, at least, and principally, upon the same patent, it would appear that the judgment of the court dismissing the petition would operate as a complete estoppel to the present suit, unless the proceedings subsequent to the judgment in the former suit in some way deprived that judgment of its force and effect as *res adjudicata*. (3 Rob. on Pats., sec. 1017.)

While the record of the former case was not sent up with the transcript from the Court of Claims, it appears from the petition in the case under consideration that, at the time the petition was filed, there was a suit pending by the petitioner in the Court of Claims in case No. 13,793, for compensation up to March 31, 1883; and, in the findings, that the facts in both cases were the same, except as to the time covered by the petitions. The identity of the two actions with respect to the parties, the subject-matter and the facts sufficiently appear. As it further appears that the petition in the former case was dismissed upon an opinion filed and certain findings of fact, it will be presumed to have been dismissed upon the merits, (*Loudenback* v. *Collins*, 4 Ohio St., 251;) and that such dismissal covered every question put in issue by the pleadings, including the validity of the patent and its use by the defendant.

But if there were any doubt with regard to this point, it would be resolved by an inspection of the opinion of the court (which may be examined for the purposes of identification), as it is published in 20 Court of Claims, 354, wherein it not only appears that the case was considered and disposed of upon the merits, but the court concludes its opinion (p. 370) in the following language:

> Upon our construction of the patent in issue the Government cartridges do not infringe the claimant's; but if we are in error as to this, still the claimant cannot recover, as the essential characteristics of his invention now found in the Government cartridges were developed by officers of the army in 1864. That is, if the relative position of the vents and the wall of the fulminate-chamber is a material part of the claimant's patent, the Government has not infringed, this feature not appearing in its cartridges; but if this position is not material, still the claimant cannot recover, as the other characteristics of his invention, found in the cartridge now used by the defendant, were introduced by them prior to the use of the patent or the filing of the application for it, and even prior to the application of 1865.

Whether the reasons given by the Court of Claims for the dismissal of this petition are correct or not; whether, indeed, this judgment were right or wrong upon the facts presented, is of no importance here. If such judgment were based upon an erroneous view of the claimant's patent, it was his duty to have promptly taken an appeal to this Court, where the whole case would have been reopened and the error of the Court of Claims, if such there was, would have been rectified.

It is insisted by the claimant that in the former action the main contention arose upon the manufacture and use of what was known as the "cup-anvil cartridge," together with a certain reloading-cartridge, which had been experimentally manufactured, and that no claims for the "cup-anvil cartridge" or for the reloading-cartridge in that suit are in issue in the case at bar. The suit, however, was upon the same patent, and it was found by the Court of Claims to have been upon the same facts, and we think the estoppel operates upon

everything which was, if not upon everything which might have been, put in issue in the former case. The presumption is that the issues were the same, and if they were in fact different, it was incumbent upon the claimant to show that the prior case was decided upon questions not involved herein. We have before us only a decision upon the merits, and upon the same state of facts, of a claim identical with this, and we perceive no reason why it should not operate as an estoppel.

But there seems to be nothing upon which to base claimant's argument that the issues were not the same. The findings show that the manufacture of the reloading-cartridge with the grooved anvil-disk, referred to in finding VI, commenced at the Frankfort Arsenal in the month of July, 1879, and that from February, 1879, to March 31, 1883, being the period covered by the first suit, the United States manufactured 3,866,352 reloading-cartridges. We see nothing to indicate that these reloading-cartridges were manufactured experimentally, or that the issue as to these cartridges was not presented and decided in the former case. The claim in the present suit is also for reloading-cartridges.

But, even if a somewhat different theory or state of facts were developed upon the trial of the second case, the former judgment would not operate the less as an estoppel, since the patentee cannot bring suit against an infringer upon a certain state of facts, and after a dismissal of his action, bring another suit against the same party upon the same state of facts, and recover upon a different theory. The judgment in the first action is a complete estoppel in favor of the successful party in a subsequent action upon the same state of facts. (Walk. on Pats., sec. 468; *Duboise* v. *Railroad Co.*, 5 Fish., 200; *Bradley Mfg. Co.* v. *Eagle Mfg. Co.*, 66 O. G., 315; 57 Fed. Rep., 989.)

2. It only remains to consider, then, whether any proceedings taken in the Court of Claims since the dismissal of such petition deprived its judgment of its character as an estoppel. A motion for a new trial was made August 14, 1885, but as this motion was overruled in the following December, clearly this would not deprive the judgment of its efficacy as a plea in bar. Indeed, it may well be doubted whether the pendency of a motion for a new trial would interfere in any way with the operation of the judgment as an estoppel. (*Harris* v. *Barnhart*, 97 Cal., 546; *Chase* v. *Jefferson*, 1 Houst., Del., 257; *Young* v. *Brehe*, 19 Nev., 379.)

3. It further appears that on August 21, 1885, an application for an appeal was filed by the claimant, but as this appeal was never allowed or perfected, and as it does not appear that a transcript of the record was ever filed in this Court, it is obvious that the authorities which hold that an appeal perfected to a superior court vacates the judgment of the court below, have no application to this case.

We are therefore of opinion that the defense of *res adjudicata* is sustained, and the judgment of the Court of Claims dismissing the petition is, accordingly, affirmed.

U. S. Circuit Court of Appeals—Eighth Circuit.

DICKERSON v. TINLING.

Decided December 13, 1897.

1. PRELIMINARY INJUNCTION—ARTICLES IMPORTED FROM ABROAD.
Preliminary injunction granted where a party purchases abroad articles covered by a United States patent and imports them for sale in this country.

2. SALE ABROAD BY PATENTEE—RESTRICTIONS AS TO USE.
Even if a party who buys a patented article without restriction in a foreign country from the owner of the United States patent has the right to use and vend it in this country he has no such right if he bought it with the express condition that it be not imported into the United States.

3. CONDITIONAL SALE—RIGHTS OF PATENTEE.
The patentee has the same right and power to sell the patented article upon conditions or with restrictions that he has to sell it at all.

APPEAL from the Circuit Court of the United States for the District of Colorado.

STATEMENT OF THE CASE.

This was a suit by Edward N. Dickerson against Hugh L. Tinling for alleged infringement of a patent. The court below denied a motion for preliminary injunction, and the plaintiff thereupon appealed to this court.

Before SANBORN, THAYER, and RINER, Judges.

Mr. Edward N. Dickerson (*Mr. Anthony Gref* and *Mr. James H. Brown*, on the brief) in *pro per.*

Mr. Sam B. Berry for the appellee.

SANBORN, *J.*:

This is an appeal from an order denying a motion for a preliminary injunction to restrain the defendant from infringing Letters Patent No. 400,086, issued March 26, 1889, to the Farbenfabriken, vormals Friedr. Bayer & Co., a corporation of Germany, hereinafter called Bayer & Co., as assignee of Oskar Hinsberg. The Letters Patent secure to Bayer & Co. the monopoly of the manufacture and sale of phenacetin or paracet-phenetidin in the United States. The appellant, Edward N. Dickerson, alleged in his bill that these Letters Patent had been issued and assigned to him and that the appellee was infringing upon his rights by vending in the United States the improvement described in the patent. The appellee answered that Bayer & Co. was the sole owner and manufacturer of phenacetin, which he averred was the same substance which was manufactured by others in Germany and elsewhere as paracet-phenetidin; that Bayer & Co. was the real owner of the patent in suit, and the appellant was its agent and held the assignment of all rights under the patent for its benefit; that the appellee had been informed and believed that about March 26, 1889, Bayer & Co., or Hinsberg for it—

> obtained a patent on, or registered, in the German Empire, this name "phenacetin,"

and that the German patent or registration had expired or been rendered void by the authorities of the German Empire, and—

> that he, in common with many citizens of the United States, has bought small quantities of said "phenacetin" from persons outside of the United States, who had perfect and legal right to deal in the same, being the legal purchasers and sellers thereof, and that he has brought the same into the United States, and that he has resold a small quantity thereof in the United States for a legitimate profit.

The answer contains some other allegations, but none that are material to the issue, and it contains no other denial of infringement. To this answer the appellant filed the usual replication, and upon these pleadings and certain affidavits, from which it appears that no patent had ever been issued in Germany, as alleged in the answer, and that every package of phenacetin that had ever been sold by Bayer & Co. in a foreign country had a prohibition against its importation into and sale within the United States printed upon it and was sold subject to that prohibition, the motion for the temporary injunction was heard and denied.

If it were conceded that Bayer & Co. is the real owner of the Letters Patent in suit, as alleged in the answer, it would be difficult, upon the facts disclosed by this record, to justify a sale of phenacetin in the United States by this appellee. Section 4884 of the Revised Statutes provides that—

> every patent shall contain * * * a grant to the patentee, his heirs or assigns, for the term of seventeen years, of the exclusive right to make, use and vend the invention or discovery throughout the United States, and the Territories thereof.

The answer avers that the appellee bought the phenacetin he is selling in a foreign country, either from Bayer & Co. or from others who had a legal right to sell it in that country. He must have bought it, therefore, of Bayer & Co., or its vendees, or of others. If he bought it of others than Bayer & Co. or its vendees, he bought with it no right to sell it in the United States, because no one but Bayer & Co. and its vendees had that right in this country. The right to sell the patented article in the United States is not governed by the laws of Germany or of England, but by the laws of this nation, and under those laws and the patent before us Bayer & Co. has the "exclusive right to make, use and vend" phenacetin in the United States. Thus in *Boesch* v. *Graff*, (51 O. G., 477; 133 U. S., 697, 703; 10 Sup. Ct., 378,) a case in which the defendant had purchased in Germany, from one Hecht, who had the legal right to sell them there, certain burners which had been patented in both Germany and the United States, Chief Justice Fuller said:

> The right which Hecht had to make and sell the burners in Germany was allowed him under the laws of that country, and purchasers from him could not be thereby authorized to sell the articles in the United States, in defiance of the rights of the patentees under a United States patent.

The cases of *Adams* v. *Burke*, (33 O. G., 114; 17 Wall., 453, 456,) *Hobbie* v. *Jennison*, (63 O. G., 1207; 149 U. S., 355, 362; 13 Sup. Ct., 879,) and *Keeler* v. *Folding-Bed Co.*, (157 U. S., 659, 664; 15 Sup. Ct., 738,) in which it was held that one who purchases patented articles of a territorial assignee within the district of the United States assigned to him may sell them again in the territory owned by another, do not rule the case in hand. They rest upon the principle that one who buys the patented article of a party who is legally empowered to sell it under the patent has once paid tribute to the monopoly and has thereby acquired the right to use and sell the article he buys elsewhere within the United States; but one who purchases in a foreign country of others than the owners of the United States patent or their vendees pays nothing, either directly or indirectly, to the owners of the patent, and therefore he acquires no right to make, use, or vend the article which he buys within the territorial limits of their monopoly. It follows that if the appellee bought the phenacetin he is selling of others than Bayer & Co. or its vendees he is infringing upon the exclusive right of this patentee and an injunction should issue.

On the other hand, if the appellee bought the phenacetin he is selling in a foreign country from Bayer & Co. or from its vendees, subject to the express condition that it should not be imported into the United States or sold within their limits, the exclusive right to sell the patented article within the United States which was granted to Bayer & Co. by the patent was not abridged by that purchase. Conceding, but not deciding, that one who buys a patented article without restriction in a foreign country from the owner of the United States patent has the right to use and vend it in this country, upon the general principle that a patented article purchased from the patentee passes without the limit of the monopoly, (*Holiday* v. *Matheson*, 24 Fed. Rep., 185; *Dickerson* v. *Matheson*, 57 O. G., 1724; 6 C. C. A., 466; 57 Fed. Rep., 524, 527,) there can be no doubt that a patentee has the same right and power to sell the patented article upon conditions or with restrictions that he has to sell it at all. Bayer & Co. had the right to sell its phenacetin in Germany without restriction. It had an equal right to sell it subject to the limitation that it should not be sold or used in any way that would curtail or affect the exclusive right which that corporation held under this patent to make, use, and vend the phenacetin in the United States. If the corporation sold the patented article subject to such a restriction, the purchasers, with notice of this limitation, whether immediate or remote, could acquire no better right than strangers to infringe upon the monopoly secured by the patent. That monopoly would still remain intact, and purchasers of the phenacetin which had been sold under the restriction must be liable for its use and sale in the United States to the same extent as those who made it or bought it of strangers within their limits. (*Dickerson* v. *Matheson*, 57 O. G., 1724; 6 C. C. A., 466; 57 Fed. Rep., 524, 526, 528; *Id.*, 50 Fed. Rep., 78, 77; *Id.*, 47 Fed. Rep., 819.) The record is that every package of this article sold by Bayer & Co. in a foreign country was sold on the express condition that it should not be imported into or sold within the United States, and that this prohibition was plainly printed upon every package. The necessary result is that whether the appellee bought in a foreign country the phenacetin which he is now selling in the State of Colorado from Bayer & Co. or its vendees subject to this restriction, or from others without restriction, he is alike an infringer upon the exclusive right to make, use, and vend the phenacetin within the United States which was granted to this corporation by the Letters Patent.

The order denying the motion for a temporary injunction must accordingly be reversed, and the case must be remanded to the court below, with directions to issue the injunction, and it is so ordered.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 12. TUESDAY, JUNE 21, 1898. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., June 15, 1898.

SIR: The Secretary of the Interior has ordered that L. C. Weltner, of Uniontown, Pa., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Attorneys' Use of Assignment Records.

(ORDER No. 1,207.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 31, 1898.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED JUNE 21, 1898.

Labels.

6,604.—Title: "CUBAN DAISY." (For Cigars.) *American Lithographic Company*, New York, N. Y. Application filed May 27, 1898.

6,605.—Title: "BLUE POINT RACCOON CREEK RYE WHISKEY." *Henry H. Elliott*, Washington, D. C. Application filed May 25, 1898.

6,606.—Title: "DEWEY'S VICTORY." (For Whisky.) *Alfred B. Sheaffer*, Philadelphia, Pa. Application filed May 16, 1898.

6,607.—Title: "OLD GLORY." (For Whisky.) *Alfred B. Sheaffer*, Philadelphia, Pa. Application filed May 20, 1898.

6,608.—Title: "OUR CHOICE T, GOOD LUCK AND SWAN CHOP." *W. J. Butterfield*, New York, N. Y. Application filed May 12, 1898.

6,609.—Title: "GOLDEN ROD." (For Syrup.) *Charles W. Shaw & Co.*, Baltimore, Md. Application filed May 25, 1898.

6,610.—Title: "HOLLAND FLOUR." *Wolf, Sayer & Heller*, Chicago, Ill. Application filed April 11, 1898.

6,611.—Title: "IMPERIAL SILVER POLISH." *Asher Green* and *Woolf Green*, New York, N. Y. Application filed May 16, 1898.

6,612.—Title: "FAIRY QUEEN." (For Brooms and Dusters.) *Lee Broom and Duster Company*, Davenport, Iowa, and Lincoln, Nebr. Application filed May 6, 1898.

6,613.—Title: "MEDICATED FRENCH TISSUE." (For a Preparation for Corns and the Like.) *The Silver Suds Manufacturing Co.*, Philadelphia, Pa. Application filed May 5, 1898.

Print.

70.—Title: "DEWEY'S CHEWING." (For Confections.) *Thomas H. McInnerney*, New York, N. Y. Application filed May 16, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 14, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between two and three months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Mar. 17	June 4	198
38	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Mar. 15	June 2	221
255	XII. Mechanical Engineering, Store-Service, etc.	Mar. 19	June 1	220
102	XIX. Stoves and Furnaces	Mar. 15	June 1	202
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 14	June 1	204
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Apr. 4	May 31	190
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 15	May 31	209
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Mar. 14	May 27	249
	Between three and four months.			
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Feb. 15	June 6	301
248	XVIII. Steam-Engineering, etc	Feb. 14	June 6	309
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Feb. 14	June 4	336
250	VIII. Furniture, Beds, Store Furniture, etc.	Mar. 12	June 2	443
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Mar. 1	May 31	250
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 26	May 31	502
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 21	May 28	200
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 18	May 28	272
253	X. Carriages and Wagons	Mar. 7	May 27	296
246	I. Tillage and Fences	Mar. 1	May 27	253
	Between four and five months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 29	June 6	153
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 15	June 7	728
129	XXIV. Sewing-Machines, Apparel, and Toilet.	Feb. 1	June 1	403
240	VII. Velocipedes	Jan. 15	June 1	741
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Feb. 11	May 31	400
268	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Feb. 10	May 31	384
92	XXI. Textiles, etc	Feb. 8	May 21	299
106	II. Farm Stock, Products, etc.	Jan. 20	May 17	545
	Between five and six months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 30	June 6	479
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 29	June 2	532
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 27	June 2	231
217	XXXIII. *Trade Marks, etc., †Designs, Drafting, and Optics.	Jan. 3	May 7	251
	Between six and seven months.			
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Dec. 9	June 8	365
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Dec. 13	May 27	555
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	Apr. 18	537

Applications Under Examination—Continued.

	Between seven and eight months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 18	June 3	548
221	XXIII. Instruments of Precision, Acoustics, etc.	Oct. 14	June 1	481

Total number of applications awaiting action 12,827

Under one month.			
†Designs	June 10	June 10	27
*Trade-Marks	May 16	June 9	177

ISSUE OF JUNE 21, 1898.

Patents	346—	No. 605,834 to No. 606,179,	inclusive.
Designs	24—	No. 28,892 to No. 28,915,	inclusive.
Trade-Marks	25—	No. 31,704 to No. 31,728,	inclusive.
Labels	10—	No. 6,604 to No. 6,613,	inclusive.
Prints	1—	No. 70.	
Reissues	2—	No. 11,670 to No. 11,671,	inclusive.
Total issue	408		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			New Hampshire	1	
Arizona Territory			New Jersey	16	1
Arkansas			New Mexico Territory		
California	11		New York	36	16
Colorado	2		North Carolina	2	
Connecticut	19		North Dakota	2	
Delaware	2		Ohio	26	2
District of Columbia	1	2	Oklahoma Territory	1	
Florida	3		Oregon	2	
Georgia			Pennsylvania	46	4
Idaho	1		Rhode Island	3	2
Illinois	37	2	South Carolina	3	
Indian Territory			South Dakota	1	
Indiana	11		Tennessee	2	
Iowa	3	2	Texas	3	
Kansas	10		Utah	1	
Kentucky	3		Vermont	2	
Louisiana	1	2	Virginia	2	
Maine	2		Washington	2	1
Maryland	6	4	West Virginia	10	
Massachusetts	22	4	Wisconsin		
Michigan	6		Wyoming		
Minnesota	9		U. S. Army		
Mississippi			U. S. Navy		
Missouri	6	1			
Montana	2		Total to citizens of the United States	333	43
Nebraska	3				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia			Mexico		
Austria-Hungary	1		Netherlands		
Barbadoes			Newfoundland		
Belgium			New South Wales	1	
Brazil	6		New Zealand		
Canada			Norway		
Cape Colony			Portugal		
Chile, Republic of			Queensland		
China			Russia	3	
Colombia			Scotland		1
Cuba			South African Republic		
Denmark			South Australia		
Egypt	12	1	Spain		
England			Sweden		
Finland	7		Switzerland	1	
France	16	1	Turkey		
Germany			Victoria		
Guatemala					
Hawaii			Total to citizens of foreign countries	47	3
India					
Ireland					

PATENTS

GRANTED JUNE 21, 1898.

605,834. FISH-TRAP. FREDERICK L. ALBERT, Tampa, Fla., assignor of one-half to Ernest H. Hester and Calvin B. Barnard, same place. Filed Apr. 22, 1897. Serial No. 633,412. (Model.)



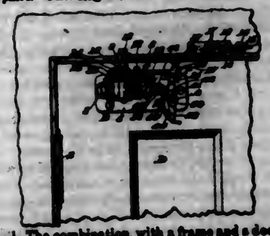
Claim.—A reticulated fish-trap having an inlet located at the reëntrant angle *i k l* formed by the junction of two of its sides, the outer end or entrance of said inlet being at or near the top of the trap and the inner end of said inlet being within the trap not far from its bottom, in combination with an outlet by which the fish may be removed, substantially as described.

605,885. ELECTROLYTIC PRODUCTION OF AMALGAMS, &c. EMILE ANDREOLI and GABRIEL ANDREOLI, London, England. Filed Sept. 17, 1895. Serial No. 562,514. (No model.) Patented in England Aug. 9, 1895, No. 15,094.



Claim.—An apparatus for the production of amalgam consisting of a cell provided with positive and negative compartments separated by porous diaphragms, the negative compartments having a raised middle portion in the form of a table or block between the sides of which and the said partitions are narrow vertical spaces, the top of the block or table and the vertical spaces being covered and filled with a continuous body of mercury forming a cathode, substantially as described.

605,886. COMBINED DOOR-CLOSER AND CHECK. GEORGE ASHLEY, New Britain, Conn., assignor of one-third to George B. Ashley, Jr., same place. Filed Aug. 28, 1897. Serial No. 649,169. (No model.)



Claim.—1. The combination, with a frame and a door, of a spring mounted on the door and operatively connected with the frame; a slide on the door, operated by the spring and having a catch-face; and a spring-actuated detent disposed in the path of movement of said catch-face.

2. The combination, with a frame and a door, of a spring mounted on the door and operatively connected with the frame; a slide on the door, operated by the spring and having a catch-face; and a spring-actuated detent disposed in the path of movement of said catch-face and mounted for longitudinal movement.

3. The combination, with a frame and a door, of a spring-case carrying a shaft operatively connected with the frame; a spring fixed, respectively, to the case and to the shaft; a gear on said shaft; a sliding rack on the door, meshing with the gear and having a projection; and a detent disposed in the path of movement of said projection.

4. The combination, with a frame and a door, of a spring-case mounted on the door and carrying a shaft operatively connected with the frame; a spring fixed to the case and shaft, respectively; a slide on the door; means operated by said shaft for actuating the slide; a by-pass projection carried by the slide; and a detent disposed in the path of movement of said projection.

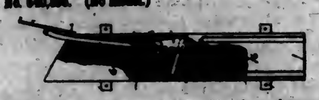
5. The combination, with a frame and a door, of a spring-case mounted on the door and having a shaft operatively connected with the frame; a spring fixed, respectively, to the case and the shaft; a longitudinally-slotted rack on the door; a gear on said shaft, meshing with said rack; means extending through the slot for guiding the rack; a projection on the rack; and a detent disposed in the path of movement of said projection.

6. The combination, with a frame and a door, of a spring-case mounted on the door and having a shaft operatively connected with the frame; a spring fixed, respectively, to the case and to the shaft; a slide; means on the shaft for operating said slide; a detent having a slot; a pin passing through said slot; a spring acting against said detent; and a projection on the slide, adapted to be engaged by said detent.

7. The combination, with a frame and a door, of a spring-case mounted on the door and having a shaft operatively connected with the frame; a spring fixed, respectively, to the case and to the shaft; a slide provided with a projection; means on the shaft for operating said slide; a detent supported between its ends, one of the arms of said detent being disposed in the path of movement of said projection; a stop against which said arm acts; and a spring bearing against the detent.

8. The combination, with a frame and a door, of a spring mounted on the door and operatively connected with the frame; a slide on the door, operated by the spring and having a catch-face; a detent disposed in the path of movement of the catch-face and longitudinally slotted; a stud passing through the longitudinal slot; and a spring acting against said detent and of less strength than the door-operating spring.

605,887. MAIL-BOX. JOHN AVERY, Galesburg, Ill., assignor of one-half to George W. Hudson, same place. Filed June 15, 1897. Serial No. 640,288. (No model.)



Claim.—1. In a mail-box, and in combination, a box, a top therefor hinged to one side of the box, a mail-receiving plate hinged to the side of the box opposite to that to which the top is hinged and extending across and dividing the box when closed into an upper mail-receiving box and a lower mail-delivery box, and a direct link connection connecting said top and plate for moving one by the movement of the other.

2. In a mail-box, and in combination, a box, a hinged lid, a hinged mail-receiving plate dividing the box when closed, into an upper mail-receiving box and a lower mail-delivery box, a link operatively connecting said lid and plate, a signal, a swinging signal-hood, an arm projecting from said hood, and a lug on said link for actuating said hood, substantially as described.

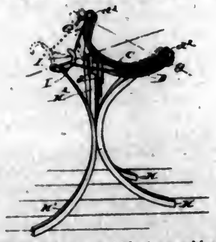
3. In a mail-box, and in combination, a box, a hinged lid, a hinged mail-receiving plate dividing the box when closed, into an upper mail-receiving box and a lower mail-delivery box, a link operatively connecting said lid and plate, a signal, a swinging signal-hood, an arm projecting from said hood, a door to the delivery-box, a chain connecting said door and the arm projecting from the signal-hood, and a lug projecting from said link, substantially as described.

4. In a mail-box, and in combination, a box, a hinged lid therefor, a hinged mail-receiving plate within the box, a link operatively connecting said lid and plate, a swinging signal-hood, means operated by said link-rod for swinging said hood in one direction upon the opening of the lid, a delivery-door, and a connection between said hood and delivery-door for swinging the hood in the other direction upon the opening of the delivery-door, substantially as described.

5. In a mail-box and in combination, a box, a signal, a receiving-door, movable means operated positively by the receiving-door for disclosing the signal, a delivery-door, and means operatively connecting said delivery-door and means whereby opening the delivery-door will obscure the signal, substantially as described.

6. In a mail-box, and in combination, a box, a hinged lid, a hinged mail-receiving plate dividing the box when closed, into an upper mail-receiving box and a lower mail-delivery box, a link operatively connecting said lid and hinged plate, a signal, a swinging signal-hood, and a lug on said link operatively connecting said link and signal, substantially as described.

605,888. BAG HOLDER OR CLAMP. William J. Ayers, Bryan, Ohio. Filed July 20, 1897. Serial No. 645,257. (No model.)



Claim.—1. In a clamp or holder the combination with the jaws or clamps, one movable toward and from the other, of a mechanism for advancing the movable jaw embodying a pivoted member movably connected with its support and jaw respectively, and adapted when swung on its center to have its free end move across its center of motion to form a lock, and a spring for supporting the jaw with a yielding pressure; substantially as described.

2. In a clamp or holder the combination with the jaws or clamps one movable toward and from the other, of a yielding support embodying a toggle for advancing said movable jaw, said toggle being adapted to move across its dead-center to form a lock; substantially as described.

3. In a clamp or holder the combination with the jaws or clamps one movable toward and from the other of a toggle pivotally connected with the jaw at one end and with its support at the opposite end and a spring interposed at one end of the toggle whereby the jaw is supported with a yielding pressure, said toggle being movable across its dead-center to form a lock; substantially as described.

4. In a clamp or holder the combination with the jaws or clamps one movable toward and from the other, of a toggle having one of its members jointed to the movable jaw and having its other member jointed to an elastic arm on a suitable support, said toggle being adapted to move across its center of motion to constitute a lock; substantially as described.

5. In a bag-holder the combination with the stand or support and the fixed jaw, of a yielding movable jaw, a yoke having its ends pivotally connected with the ends of the movable jaw and constituting one member of a toggle and a second toggle member pivotally connected with the stand or support at one end and with the yoke at the opposite end; substantially as described.

605,889. TELESCOPE-BOX FASTENER. Sidney F. Baker, Santa Barbara, Cal. Filed June 9, 1897. Serial No. 640,092. (No model.)

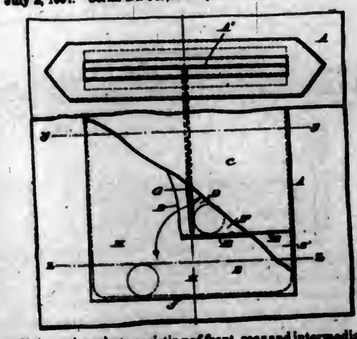
Claim.—1. A fastening device and lock for the purpose set forth, comprising a raised sheet-metal plate, or keeper with side angle elevations, and a series of transverse slots or openings with their upper edges slightly projected or lipped; in connection with a hook-plate and spring or clasp attached thereto, both to engage in keeper, and a lock for permanently engaging all the parts as shown and described.

2. A fastening device and lock for satchels or telescopes comprising a raised metal plate or keeper having a series of transverse slots, carried by and rigidly fastened one at each end of inner section, and a metal hook-plate with a transverse slot therein, a hook formed at the lower end thereof and carrying a fastening spring or clasp, said plate rigidly fastened one at each end of the other or outer section, to engage in respective and relative slots in keepers as one section is passed down over the other, in connection with a lock, substantially as shown and described.



3. A fastening device and lock for satchels or telescopes, comprising a raised metal plate or keeper having a series of transverse slots carried by and rigidly fastened one at each end of inner section, and a metal hook-plate with a transverse slot, a hook at lower end, and a spring or clasp attached to plate, carried by and rigidly fastened one at each end of outer section to engage in keepers, and a lock presenting a pivoted bolt or bar operated with a key and attached upon hook-plate at the slot or opening, to permanently engage all the parts, as shown and for the purpose set forth.

605,840. POCKET. Henry Bandler, Philadelphia, Pa. Filed July 2, 1897. Serial No. 643,226. (No model.)



Claim.—A pocket consisting of front, rear and intermediate pieces having their sides connected, the intermediate piece having a vertical passage therein, and the rear piece extending above said passage and below the intermediate piece and folded upwardly, and connected with the bottoms of the front and intermediate pieces.

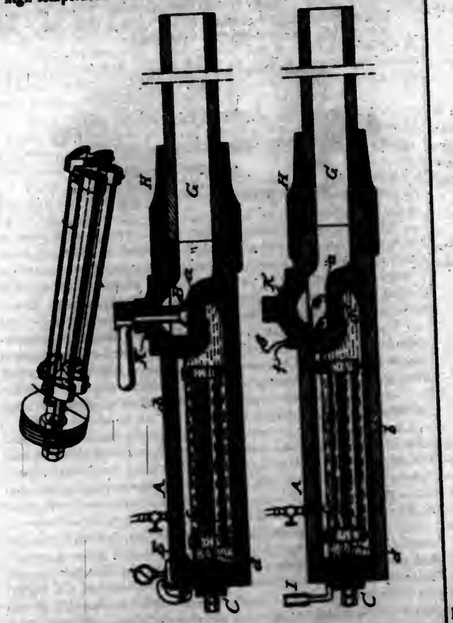
605,841. METHOD OF AND APPARATUS FOR FIRING PNEUMATIC ORDNANCE. Lemoe W. Bates, Chicago, Ill. Filed June 26, 1896. Renewed Nov. 18, 1897. Serial No. 660,016. (No model.)

Claim.—1. The art of propelling projectiles, which consists in confining a body of water or other suitable agent in a strong chamber constituting a portion of the gun; subjecting the same to the heating effect of an electric current until it is converted into gas or vapor; and lastly, permitting the gas or vapor to enter the projectile tube or barrel and to act upon a projectile therein.

2. The art of propelling missiles and projectiles, which consists in confining a suitable agent in a strong chamber or receptacle of limited capacity; subjecting the same to high heat generated in said containing-receptacle; maintaining the heat until by reason thereof and of the vaporization of the agent a pressure is developed which converts the agent into a high-tension gas or vapor; and finally, permitting the gas or vapor to enter the projectile tube or barrel and to act upon the projectile therein.

3. A gun, having a strong pressure-generating chamber within it, to contain suitable agent, and capable of being placed in or out of communication with the projectile tube or barrel at will; and an electric heater applied to said generating-chamber, and adapted to heat the contents thereof and thereby to generate pressure within said chamber.

4. In a gun, the combination of a barrel or projectile-tube; a pressure-chamber; a sealing device interposed between the barrel and the pressure-chamber; and an electric heater adapted to produce a high temperature within the pressure-chamber.



5. In combination with the barrel or projectile-tube of a gun, a pressure-generating chamber directly attached thereto and forming a permanent part of the gun; a passage-way or opening connecting the chamber with the projectile-chamber or barrel; a seal applied to said opening; means for opening said seal from outside the gun; and an electric heater applied to the generating-chamber and serving to heat the contents thereof.

6. In combination with the barrel or projectile-chamber of a gun; a pressure-generating chamber directly attached thereto; an electric heater applied to said chamber and serving to heat its contents; a pressure-indicating device serving to show the pressure existing within the chamber; and a sealing device serving to close and open communication between the generating-chamber and the barrel or projectile-chamber.

7. In combination with the barrel of a gun; a pressure-generating chamber; a wall or diaphragm separating the barrel and said chamber; a liquid-chamber in rear of the fluid-pressure chamber; a diaphragm separating the two chambers; a differential valve mechanism sealing the openings in the two diaphragms; and a valve controlling escape of liquid from the liquid-chamber; whereby the differential valve is controlled, substantially as set forth.

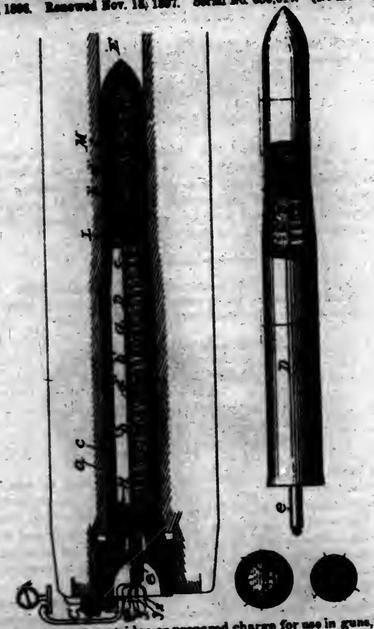
8. In combination with pressure-chamber A, liquid-chamber L; and barrel or tube G; differential valve h, i, j, controlling communication between the pressure-chamber and the barrel; and ventvalve N, controlling escape of liquid from chamber L, all substantially as described and shown.

9. In combination with the barrel of a gun, a plurality of pressure-chambers permanently connected with and forming part of the gun, each provided with an electric heater within the gun, and with a sealing device controlling communication with the barrel.

10. In combination with the barrel of a gun mounted upon trunnions; a pressure-generating chamber connected therewith; an electric heater applied to said chamber; electric supply-wires passing from the trunnion of the gun to the heater; and contact-plates located at the trunnion and permitting rise and fall of the barrel without disturbing the electrical connections.

11. In a gun, the combination of a barrel or projectile-tube; a pressure-generating chamber constituting a permanent and integral part of the gun; a wall or partition separating said chamber from the projectile-tube; and a sealing device serving to close and open a passage through said partition, substantially as and for the purpose set forth.

605,842. ELECTRICALLY-HEATED CHARGE FOR CARTRIDGES OR SHELLS. Lemoe W. Bates, Chicago, Ill. Filed June 30, 1896. Renewed Nov. 18, 1897. Serial No. 659,017. (No model.)



Claim.—1. A cartridge or prepared charge for use in guns, comprising a suitable projectile; a shell or casing; an agent contained within said shell or casing, adapted to be converted by heat into a vapor or gas; means for retaining and releasing the gas or vapor as required; and an electric heater applied to said shell or casing, substantially as and for the purpose set forth.

2. The combination of a cartridge shell or casing provided with an orifice or vent; a sealing device adapted to close or open said vent as required; an electric heater applied to the shell or casing; and an agent or substance contained within said shell or casing and adapted to be converted into a gas or vapor under the action of the electric heater, substantially as set forth.

3. A cartridge shell or casing provided near its rear end with a diaphragm or partition, and with a liquid-chamber in rear thereof; a valve-controlled vent for said liquid-chamber; an opening through the diaphragm, connecting the liquid-chamber and the interior of the shell; an opening at the forward end of the shell; connected valves applied to and sealing said openings, that of the partition being of larger area than the other; an electric heater applied to the shell or casing; conductors for supplying electricity to the heater; and water or other suitable agent contained within the shell or casing, all substantially as set forth.

4. In combination with a hollow shell or casing adapted to be introduced into a gun; a sealing device serving to seal the chamber within the shell or casing; an electric heater within the shell or chamber; an agent contained within the shell or chamber, and adapted to be vaporized by the heat of the electric heater; means for retaining and releasing the pressure at will; and a gage adapted to indicate in suitable units the pressure within the shell or chamber.

5. A prepared charge or cartridge for guns and ordnance comprising the following elements in combination; an outer shell or casing; an inner shell or casing; an intermediate insulating substance; an electric heater; a differential valve mechanism for sealing and unsealing the chamber within the inner shell; a liquid-chamber in rear of the larger valve; and a valve-controlled vent for said liquid-chamber; whereby the liquid may be retained within its chamber and the valves thereby held to their seats until the requisite pressure is attained within the shell or chamber, and then released, substantially as set forth.

605,843. NON-REFILLABLE BOTTLE. John W. Bear, Udell, Iowa. Filed Mar. 8, 1898. Serial No. 673,042. (No model.)

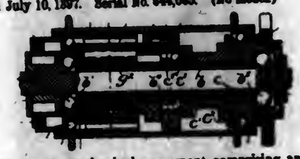
Claim.—1. A non-refillable bottle having an internal annular groove in its neck, a lock-casing placed in said neck with one end in

said groove, a bolt having a sliding engagement in said casing, and a key for projecting the bolt into said groove at a point opposite to the engagement of the casing with said groove, substantially as set forth.



2. A non-refillable bottle having an internal annular groove in its neck, a lock-casing placed in said neck with one end in said groove and provided with a notch in its side, a bolt having a sliding engagement in said casing and provided with a marginal spring-tongue adapted to engage said notch when the bolt is projected, and a key for projecting said bolt, substantially as set forth.

605,844. MECHANICAL MOVEMENT FOR BICYCLES. VICTOR DELARDEN, Boston, Mass., assignor to Josiah Quincy, same place. Filed July 10, 1897. Serial No. 644,065. (No model.)



Claim.—1. A mechanical movement comprising an outer hub or wheel having inwardly-projecting gear teeth, an eccentrically-arranged externally-toothed ring meshing with the internal teeth on the hub or wheel, antifriction rollers or balls having graded diameters for sustaining the toothed ring in its eccentrical arrangement, and means controllable at will for causing said ring to revolve on its own axis or else on the axis of the said hub.

2. A mechanical movement comprising a stationary spindle, a bearing-sleeve rotatable about said spindle, a hub arranged concentrically with relation to the spindle and sleeve, and internally toothed, an eccentrically-arranged externally-toothed ring intermeshing with the internal teeth on the hub, antifriction devices of graded diameters for supporting said ring by said bearing in its eccentrical arrangement, a sprocket-wheel, means for imparting power from said sprocket-wheel to said ring, and a brake for intermittingly holding said bearing-sleeve stationary.

3. A mechanical movement comprising a stationary spindle, a sleeve rotatable relatively to said spindle, antifriction devices inserted between said sleeve and said spindle, an eccentrically-arranged toothed ring, antifriction devices of graded or varying diameters for supporting said ring by said bearing in its eccentric arrangement, a rotatable hub, internally toothed and intermeshing with the eccentrical ring, a sprocket-wheel, means for connecting the sprocket-wheel with the toothed ring, antifriction devices between the said hub and the said sleeve, and a brake for intermittingly holding said sleeve against rotation.

4. A mechanical movement comprising a hub having internal gear-teeth, an eccentric externally-toothed ring intermeshing with the gear-teeth, an eccentric sleeve to which said toothed ring is secured, means for driving said eccentric sleeve, a bearing sleeve or ring concentric with the hub and surrounding the eccentric sleeves, means for holding said bearing-sleeve stationary temporarily and antifriction devices having varying diameters and interposed between said sleeves.

5. A mechanical movement comprising a hub having internal gear-teeth, an eccentric externally-toothed ring intermeshing with the gear-teeth, a sleeve concentric with the hub and extending through the toothed ring and having a flange, a bearing ring or sleeve concentric with the first-named sleeve and secured to said flange, antifriction devices having varying diameters and interposed between the toothed ring and the said second-named bearing ring or sleeve, and means for locking said first-mentioned sleeve or ring against movement.

6. A mechanical movement comprising a bicycle-hub having internal gear-teeth, a sprocket-wheel, an eccentric toothed ring intermeshing with the said gear-teeth and connected with the sprocket, a brake-wheel having a bearing-sleeve concentric with the hub, graded antifriction rollers or balls inserted between said bearing-sleeve and said toothed ring, and spacing graded rolls arranged alternately with the antifriction devices.

7. A mechanical movement including a toothed gear, an eccentric toothed ring intermeshing therewith, a bearing ring concentric with the toothed gear, means for holding said ring stationary, antifriction-rolls having varying diameters for holding said ring in its eccentric relationship, and reduced rolls *f'* for spacing the antifriction-rolls.

605,845. CHANGE-SPEED MECHANISM. VICTOR DELARDEN, Boston, Mass., assignor to Josiah Quincy, trustee, same place. Filed Nov. 1, 1897. Serial No. 657,017. (No model.)



Claim.—1. A mechanical movement comprising a driving member, a driven member, one of which is arranged eccentrically with relation to the other, and rotary devices having graded diameters arranged to maintain the eccentric relation of said members, said devices being also arranged to transmit to said driven member, either their movement of revolution or of rotation and revolution.

2. A mechanical movement comprising two members each circular in cross-section, one driving and the other driven, with rotary devices having graded diameters whereby motion may be transferred from one said member to the other, either the movement of rotation or of revolution or both of said movements of said rotary device may be transmitted to the driven member.

3. A mechanical movement comprising two members each circular in cross-section, and one within the other, and one driving and the other driven, with rotary devices traveling in a common path about the axis of one of said members, said devices having graded diameters whereby motion may be transferred from one said member to the other and an eccentric relation maintained between them.

4. A mechanical movement comprising a driving member, a driven member, an eccentric for transmitting motion to said driven member, and antifriction devices having graded diameters for maintaining said eccentric in a position eccentric to said driving member, and freely revoluble about the axis of said driving member to transmit to the driven member either their movement of rotation or of revolution or both of said movements.

5. A mechanical movement comprising a rotary member, an eccentric revoluble about the axis of the said member and controllable means for varying the speed of revolution of the eccentric independently of the speed of rotation of the said member.

6. A mechanical movement comprising a rotary member, an eccentric connected positively with said member and rotated thereby, and controllable means loose relatively to said rotary member for varying the revolutions of said eccentric about the axis of said rotary member without changing the number of its rotations.

7. A mechanical movement comprising a driving member, a driven member, one of which is eccentric to the other, and positively-rotated rotary devices freely revoluble about the axis of one of said members in a common path, and inserted between said members for transmitting movement from the driving to the driven member.

8. A mechanical movement comprising a driving member, a driven member, an eccentric for transmitting motion to said driven member, antifriction devices having graded diameters for maintaining said eccentric in a position eccentric to said driven member, and means for causing said eccentric to revolve either in unison with the rotation of the driving member, or at a different speed therefrom.

9. A mechanical movement comprising a driving member, a driven member, an eccentric for transmitting motion to said driven member, antifriction devices having graded diameters for maintaining said eccentric in a position eccentric to said driven member, a bearing-sleeve concentric with said driving member, and on which said antifriction devices are adapted to roll, and means for temporarily holding said sleeve against rotation.

10. A mechanical movement comprising a driven member, a driving member, a bearing concentric with said driven member, and antifriction devices of varying diameters inserted between said eccentric and said bearing, and means for connecting one or more of said antifriction devices with said driven member.

11. A mechanical movement comprising a rotatable driven member, a driving member, a bearing concentric with and normally rotating with the driven member, an eccentric for transmitting movement from the driving member to the driven member, antifriction devices inserted between the eccentric and the said bearing, and means for alternately holding the bearing against movement and locking it to the driving member.

12. A change-speed device for vehicles comprising a wheel-hub, a driving-wheel and friction mechanism independent of the driving-wheel interposed between said hub and said driving-wheel, for transmitting different speeds to said hub relatively to the speed of the driving-wheel.

13. A change-speed device, comprising a hub, a driving-wheel, and friction mechanism independent of said driving-wheel inside of said hub for causing said hub to rotate either in unison with the driving member or at a different speed therefrom.

14. A change-speed device comprising a hub, a driving-wheel, and friction mechanism independent of said driving-wheel located within said hub for causing said hub to rotate either in unison with the driving-wheel or at a slower speed relatively thereto.

15. A change-speed device comprising a rotating driving-wheel, a rotatory hub concentric therewith, and a friction-eccentric located within one of the said parts for imparting power from the driving-wheel to the driven hub.

16. A change-speed mechanism comprising a fixed spindle, a driving wheel or sprocket, a hub, a rotatable bearing concentric with the driven member and detachably connected with the driving-wheel, an eccentric driven by the driving-wheel revoluble rotary devices between the eccentric and the bearing for imparting motion to the hub, and means for disconnecting said bearing from the driving-wheel and holding it stationary.

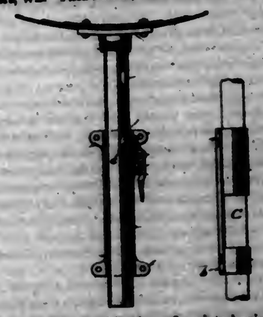
17. A change-speed mechanism comprising a driven hub, a driving-wheel, a bearing-sleeve concentrically arranged in said hub, an eccentric in said hub connected therewith, antifriction devices of varying diameters interposed between said eccentric and the bearing-sleeve, a power-transmitting sleeve connected to said driving-wheel and said eccentric, a lock for said sleeves, and mechanism for operating said lock and holding said bearing-sleeve stationary.

18. A change-speed mechanism, comprising a spindle, a hub rotatable around said spindle, a bearing-sleeve on said spindle, an eccentric, antifriction-rolls of different diameters between said eccentric and the bearing-ring, means between the eccentric and the hub for causing the hub to rotate in unison with the revolutions of the eccentric, a driving-wheel, a sleeve on the first-mentioned sleeve connected to said driving-wheel for rotating the eccentric in unison with the said driving-wheel, and means for holding said bearing-sleeve stationary at will.

19. A mechanical movement comprising a driving member, an eccentric, a bearing, antifriction devices of different diameters between said eccentric and said bearing, and means of connection between said driving member and said eccentric, comprising pins projecting from one of said parts into enlarged apertures in the other of said parts.

20. A change-speed mechanism, comprising a driven hub, a driving-wheel, a spindle about which the hub and wheel rotate, a sleeve on said spindle relatively to which the wheel may rotate, a ring connected to said driving-wheel to rotate therewith, rotary devices inserted between the said sleeve and the ring, means connecting one or more of said rotary devices with the said hub, and means for temporarily holding the said sleeve against movement, whereby the revolution of the rotary devices thereabout will transmit motion from the said driving-wheel to the said hub at a reduced rate of speed.

605,846. WAGON-SEAT SUPPORT. CHARLES BERGER, Two Corners, Wis. Filed Dec. 27, 1897. Serial No. 663,447. (No model.)



Claim.—1. The combination of a plate having at least one cylindrical guide protuberance and lateral apertured ear extensions, a gas-pipe standard apertured at intervals of its length and engageable with the plate protuberance, a spring-latch in pivotal connection with said plate protuberance for engagement with any one of the standard-apertures, and a head in screw-thread connection with said standard.

2. The combination of a plate having upper and lower cylindrical guide protuberances and lateral apertured ear extensions, a gas-pipe standard apertured at intervals of its length and engageable with both plate protuberances, a spring-latch in pivotal connection with said upper plate protuberance for engagement with any one of the standard-apertures, and a head in screw-thread connection with said standard.

605,847. RAILWAY-SIGNAL. ALBERT W. BIDDINGER, Harrison, Ohio, assignor of one-half to Robt. C. Frederick, West Harrison, Ind. Filed Nov. 3, 1897. Serial No. 657,854. (No model.)



Claim.—1. The combination with a signal, of a tripping-lever therefor which is adapted to be actuated by the train, a lock for said lever, and operating-levers positioned on opposite sides of said tripping-lever, and actuated by the train, one of said operating-levers adapted to lock the tripping-lever and the other to unlock the same, substantially as described.

2. The combination with a signal, of a tripping-lever therefor, actuated by the train, a lock for said lever, an operating-lever positioned on each side of said tripping-lever and operated by the depression of the rail, bell-crank levers pivoted adjacent said operating-levers with their outer ends supporting the same, said operating-levers alternately engaging the rail, and an operative connection between the inner ends of the bell-crank levers and the lock, substantially as described.

3. The combination with the rail, of a tripping-lever adapted to engage said rail and be depressed thereby, a lock for preventing the depression of the lever, means operated by the train for operating said lock to engage and release the tripping-lever, and a signal operated by the tripping-lever, substantially as described.

4. The combination of the rail, the ties positioned a slight distance therebeneath to permit the rail to swing downwardly, a tripping-lever pivotally mounted and extending beneath the rail and transversely thereof, a block positioned a slight distance beneath said lever, a locking-bar pivoted to said lever and adapted to swing therebeneath between the under side thereof and the block and prevent the depression of said lever, operating means actuated by the train and positioned on opposite sides of the tripping-lever for the purpose of swinging said locking-bar, and a signal operated by the tripping-lever, substantially as described.

5. The combination of a support, a series of sections pivoted thereto, a reversing-bar to which the sections are connected, a spring for holding the sections with their faces outward, substantially as described.

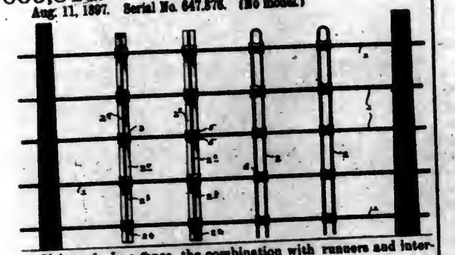
605,848. WIRE-STRETCHER. CHARLES L. BOSSE, Ackerland, Kans. Filed Nov. 29, 1897. Serial No. 660,265. (No model.)

Claim.—The combination with the casing having oppositely-located extensions, rack-bars seated in said extensions, a gear-wheel engaging the rack-bars to actuate them in opposite directions, clamp-blocks on the outer ends of the rack-bars, clamping-levers pivoted to said blocks, and an anchor having its inner end bifurcated to strad-

dle the rack-bar and bent to embrace the clamp-blocks, and its outer end formed into a hook to engage a post, all substantially as described.



605,849. FENCE. HERMAN H. BRANDES, Corydon, Ky. Filed Aug. 11, 1897. Serial No. 647,876. (No model.)



Claim.—1. In a fence, the combination with runners and intersecting stays or pickets, each having parallel spaced bearing-points arranged in contact with the runners at one side, of clamps arranged at the intersections of the stays or pickets with the runners, and in contact with the runners at the opposite sides from the stays, and each clamp having a body portion transversely spanning the stay, in contact with the bearing-points thereof at the same side as the intersecting runner, and engaging the opposite side of the runner from said stay, and provided with terminal upper and lower ears engaging the side edges of the stay respectively above and below the plane of the intersecting runner, substantially as specified.

2. As a new article of manufacture, a clamp for securing stays or pickets to wire fence-runners, the same consisting of a plate having a flat body portion or bearing-face, provided at each end with spaced upper and lower engaging ears separated by an intervening slot, the slots at opposite ends of the plate being extended inwardly beyond the bases of said engaging ears, and the body portion or bearing-face of the plate being longitudinally crimped, in alinement with and between the contiguous ends of said slots, substantially as specified.

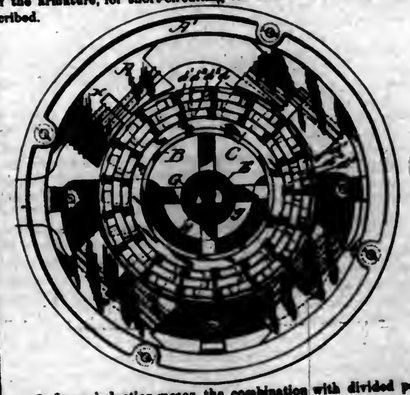
3. In a fence, the combination with runners and intersecting stays or pickets, each having parallel spaced bearing-points arranged in contact with each runner, of clamps arranged at the intersections of the stays or pickets with the runners, and each clamp having a flat body portion transversely spanning the stay in contact with the bearing-points thereof, terminal upper and lower ears engaging the side edges of the stay or picket and spaced apart to occupy positions above and below the intersecting runner, the portions of the clamp between the ears at each end thereof being cut away to form alined slots extending inwardly beyond the bases of the ears, and the bearing portion of the clamp being crimped between and in alinement with said slots to receive the runner, and being deflected rearwardly or toward the stay to bow the runner rearwardly between the bearing-points of the stay, substantially as specified.

4. In a fence, the combination with runners and intersecting stays, each having parallel spaced bearing-points in contact with each runner, of clamps each consisting of a plate provided at its opposite ends with alined inwardly-extending slots, engaging ears deflected from the plane of the body portion of the clamp at points between the outer and inner ends of said slots and engaging the opposite side edges of the stay, the body portion of the plate between the inner ends of and in alinement with said longitudinal slots being forwardly crimped to form a seat for the runner, substantially as specified.

5. In a fence, the combination with runners, of a connecting stay or picket consisting of a continuous metallic strap, provided with a continuous longitudinal crimp and parallel spaced bearing-points, upon opposite sides of said crimp, for contact with the runners, and a clamp comprising a flat body portion spanning the interval between the bearing-points of the stay, provided at each end with upper and lower ears engaging the opposite side edges of the stay, said clamp being cut away between the ears at each end to form inwardly-extending slots, and being crimped between the inner ends of and in alinement with the slots to receive the runner, said crimped portion of the clamp and the inclosed portion of the runner being deflected rearwardly into the space formed by the longitudinal crimp of the stay, and between the bearing-points of the latter, substantially as specified.

605,850. ELECTRIC MOTOR. FREDERICK B. REMER, St. Louis, Mo., assignor to the Emerson Electric Manufacturing Company, same place. Filed Aug. 21, 1897. Serial No. 648,004. (No model.)

Claim.—1. In an induction-motor, the combination with a field-core formed with divided polar projections, a winding on said polar projections, which windings preponderates on one of the halves of each of said polar projections, the windings on alternate polar projections being in opposite directions, and an armature comprising a laminated core and induced-current-conducting bars whose ends are bent one upon the other, to form a continuous conductor at the ends of the armature, for short-circuiting said bars, substantially as described.



2. In an induction-motor, the combination with divided polar projections, of a winding thereon which embraces a portion of a polar projection, and then the entire polar projection, said winding being wound in opposite directions on alternate polar projections, an armature comprising a laminated core with transverse grooves in its periphery, and induced-current-conducting bars which are arranged in each of said transverse grooves the ends of said induced-current-conducting bars in adjacent grooves being bent one upon the other to form an unbroken contact through the ends of said bars at each side of the armature, for short-circuiting the currents induced in said bars, substantially as described.

3. The herein-described armature for induction-motors, the same comprising a laminated core formed with transverse grooves in its periphery, and induced-current-conducting bars arranged in said grooves and having their ends bent so as to form a continuous short-circuiting band at each side of armature, for said induced-current-conducting bars, substantially as described.

4. The herein-described armature for induction-motors, the same comprising a laminated core provided with suitable seats at, or near, its periphery for the reception of induced-current-conducting bars, and induced-current-conducting bars arranged in said seats, one end of said bars being formed with a bent portion d, and the other end of said bars being provided with tongues d', d^3, and d^3, to cooperate with each other and the bent portions d of adjacent bars, substantially as described.

5. The herein-described armature for induction-motors, the same comprising an elongated core, and induced-current-conducting bars whose ends are bent one upon the other, said ends interlocking with each other; substantially as described.

6. The herein-described armature for induction-motors, the same comprising a laminated core formed with grooves in its periphery, the mouths of which grooves are contracted, and induced-current-conducting bars D which are inserted endwise through said grooves below their mouths, a solid end d of said induced-current-conducting bars being bent upon the armature in one direction on one side thereof, and tongues d', d^3, and d^3 on said induced-current-conducting bars which are bent on each side of the armature, to cooperate with their companions and with the solid bent portions d of adjacent induced-current-conducting bars, substantially as described.

7. The herein-described armature for induction-motors, the same comprising a core formed with radially-elongated openings, and two companion induced-current-conducting bars which are inserted through the said openings, the ends of said bars terminating a short distance beyond the core where they are bent in opposite directions, the bars in adjacent openings being bent, one upon the other; substantially as described.

8. The herein-described armature for induction-motors, the same comprising an elongated core and induced-current-conducting bars which are inserted through radially-elongated openings in the said core from opposite sides and bent one upon the other, said bars being formed with a bent portion d on one end and tongues d', d^3, and d^3 on the other end; substantially as described.

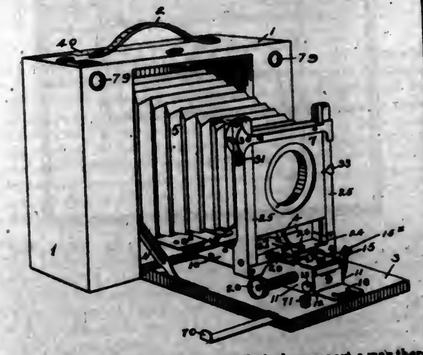
9. The herein-described armature for induction-motors, the same comprising an elongated core formed with openings for the induced-current-conducting bars, and induced-current-conducting bars which are inserted through said openings from opposite sides in pairs, said current-conducting bars being formed with a bent portion d at one end, and tongues d', d^3, and d^3 at its other end, the tongue d^3 being provided with lateral wings d^4, and tongues d' and d^3 being provided with recesses d^5 on their under edges for receiving the wings d^4 of adjacent tongues; substantially as described.

10. In an electric motor, the combination with the armature and its shaft, a frame-plate formed with eccentric openings for said shaft, and bearings introduced in said eccentric openings for the armature-shaft, said bearings being bored axially correct; substantially as described.

11. In an electric motor, the combination with a frame-plate provided with a hub having an eccentric opening, of bushings arranged in the ends of said hub and bored so as to be axially correct, and an armature shaft mounted in said bushings; substantially as described.

12. In an electric motor, the combination with a frame-plate provided with an elongated hub having an eccentric opening formed through it, of bearings having recesses formed on their under sides, said bearings being bored axially correct for the armature-shaft, and an armature-shaft; substantially as described.

605,851. PHOTOGRAPHIC CAMERA. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed Apr. 5, 1897. Serial No. 630,602. (No model.)



Claim.—1. The combination with the bed or support, a way thereon, a carriage adjustable on the way, and means for securing it thereto, of the slide on the carriage, the rack-and-pinion connection between them, the frame on the slide and laterally adjustable thereof, and the front board vertically adjustable in the frame, and means for securing said parts rigidly, substantially as described.

2. The combination with the bed or support, a way thereon, the carriage adjustable on the way, and means for securing it, the slide on the carriage having the rack, the arbor and the pinion cooperating therewith, the plate on the carriage adjustable laterally thereof, the standards secured to the plate, the front board vertically adjustable on the standards and securing devices between them, substantially as described.

3. In a camera, the combination with the bed or support, the way thereon, the carriage adjustable on the way, the arbor mounted in stationary bearings on the carriage, having the extensible outer portion and the pinion on said arbor, of the slide movable on the carriage, the rack thereon in constant engagement with the pinion and the front board carried by the slide, substantially as described.

4. In a camera, the combination with the casing, having the way, the folding door having the way thereon, cooperating with the way on the casing, the carriage adjustable on the way, and securing devices therefor, of the slide carrying the front board movable on the carriage, a rack-and-pinion connection between the slide and carriage, an extensible arbor to which the pinion is connected, and a spring for retracting the outer member of the arbor within the edge of the door, whereby the latter may be closed, substantially as described.

5. In a camera, the combination with the casing having the way, the hinged door, the way thereon cooperating with the way in the casing, the carriage movable on said ways, a locking device for the carriage, the arbor on the carriage, and the pinion thereon, of the slide movable on the carriage having the rack engaging the pinion, the sleeve on the arbor movable longitudinally thereof, and having the wheel at its outer end, the spring for retracting the sleeve, and the front board carried by the slide, substantially as described.

6. In a camera, the combination with the carriage, the slide adjustable thereon, the plate 16^a having spring-fingers 16^b thereon, in frictional engagement with the carriage, the rack on the plate 16^c, the movable pinion on the carriage cooperating with the rack, and the front board carried by the slide.

7. In a camera, the combination with the carriage, the slide adjustable thereon, the transverse plate 24 having the slot and adjustable transversely of the slide, the standards 25 thereon, and the bolt for securing the plate to the slide, of the front board sliding between the standards, and securing devices for fastening the board to the standards, substantially as described.

8. In a camera, the combination with the standards and the front board sliding vertically between them, of the strap 30 secured to the board passing around the standards, and the cam 31 for securing the parts together, substantially as described.

9. In a camera, the combination with the casing, of the hinged door narrower than the casing, ways in the casing, and on the said door, and the camera-front movable on said ways, of the extensible rod 70 mounted on the door and adapted to be extended to substantially the width of the casing to support the forward end of the door when the camera is on its side, as set forth.

10. In a camera, the combination with the casing having the central exposing-chamber, the open film-chambers on opposite sides thereof, and the casing-back for closing them, of the spool-centering projection 42 in one of the film-chambers, the sliding frame having the end piece 44 provided with the spool-centering projection, and the adjustable spring for operating the end piece 44 to hold the spool, substantially as described.

11. In a camera, the combination with the casing having the spool-chamber, of the spool-centering device therein, the frame sliding in the chamber and having the end piece for cooperating with a film-spool, the spring connected to said frame and the plate having a series of apertures with which the spring may be connected to regulate the tension of the springs, substantially as described.

12. In a camera, the combination with the casing open at front and back having ways in the front, and the hinged door at the front having the ways, the carriage movable on said ways, and the camera-front on the carriage, of the bellows connected to the front, the frame 6 at the rear of the casing narrower than the latter, film-chambers in the casing on opposite sides of the frame and open at the rear, the removable frame 56 having rollers at opposite sides, detachable connections between the frames 6 and 56, and the removable back for the casing adapted when removed to permit access to the film-chambers and to the frame 56, substantially as described.

13. In a camera, the combination with the casing open at the rear and the sliding door for closing it, of the frame 6 at the rear of the casing, the film-chambers on opposite sides of the frame 6 open at the rear, and the removable frame 56 having the rollers at opposite sides thereof, and detachable connections between said frames 5 and 56, substantially as described.

14. In a camera, the combination with the casing open at the back, having the central exposing-chamber, and the film-chambers at the sides thereof, also open at the back, of the removable casing-back 61 sliding in ways on the casing, having the removable door 63, and the springs 62, substantially as described.

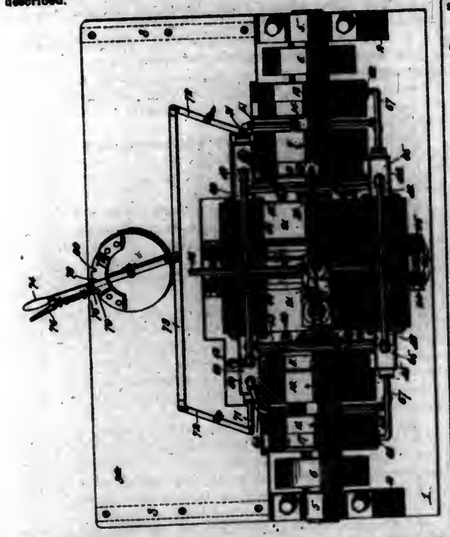
15. In a camera, the combination with the casing open at front and rear, the hinged door at the front having ways, and the camera-front movable on said ways, of the removable back for the casing, and the locking-bolt 66 for securing the casing-back, accessible from within the front of the casing, substantially as described.

16. In a camera, the combination with the casing open at the back, having the central exposing-chamber and the film-chambers at the sides thereof, all said chambers being open at the back, of the removable frame 56, having rollers 59 at the sides, between the film and exposing chambers, detachable connections between the frame and the rear of the exposing-chamber, and a removable back for the casing permitting access to both the frame and film chambers when removed, substantially as described.

605,852. ROTARY STEAM-ENGINE. LOUIS K. GARRAHAN and CHARLES S. GARRAHAN, McLouth, Kans. Filed Apr. 20, 1897. Serial No. 634,621. (No model.)

Claim.—1. A rotary engine, comprising a stationary casing provided with a cylinder extending concentrically of the axis of the casing, and of circular form in cross-section, an annular groove at and communicating with the inner side of said cylinder, a shaft extending axially through the casing, an annular packing-ring within the cylinder geared to said shaft, and of segmental form in cross-section, its curved surface corresponding to and fitting snugly against the inner surface of the cylinder, and provided with an annular rib projecting inwardly from the center of its curved surface, and fitting

snugly in the groove communicating with said cylinder, and a piston having a flat surface secured against the flat surface of the said packing-ring; said piston and packing ring conjointly forming a complete circle and a steam tight partition for the cylinder, substantially as described.

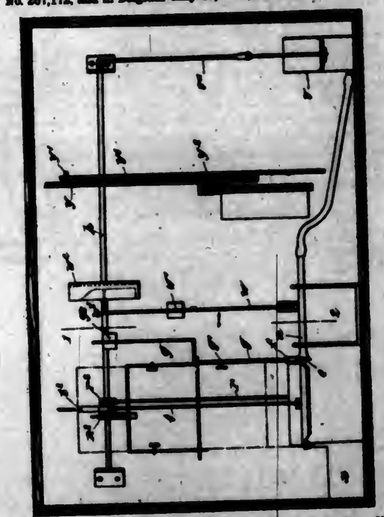


2. A rotary engine, comprising a stationary casing provided with a circular cylinder having steam-ports, a shaft journaled in the casing axially of the cylinder, a piston in the cylinder and geared to said shaft, a reciprocating abutment partitioning said cylinder at times between the steam-ports, a steam-chest connected to the steam-supply, a second steam-chest, a pair of pipes connecting them, a pair of pipes connecting the last-named steam-chest with the ports of the engine, an exhaust-pipe also communicating with the last-named steam-chest, a slide-valve in said last-named steam-chest, and connecting the exhaust-pipe with one of the pipes connected to the ports of the engine, and closing one of the pipes leading from the first-named to the last-named steam-chest, and a reciprocatory valve in said first-named steam-chest, which once in each revolution of the piston cuts off the supply of steam to the cylinder, substantially as described.

3. A rotary engine, comprising a stationary casing provided with a circular cylinder having steam-ports, a shaft journaled in the casing axially of the cylinder, a piston in the cylinder and geared to said shaft, a reciprocating abutment partitioning said cylinder at times between the steam-ports, a steam-chest connected to the steam-supply, a second steam-chest, a pair of pipes connecting them, a pair of pipes connecting the last-named steam-chests with the ports of the engine, an exhaust-pipe also communicating with the last-named steam-chest, a slide-valve in said last-named steam-chest, and connecting the exhaust-pipe with one of the pipes connected to the ports of the engine, and closing one of the pipes leading from the first-named to the last-named steam-chest, a reciprocatory valve in the first-named steam-chest, which once in each revolution of the piston cuts off the supply of steam to the cylinder, and means to shift the position of the valve in the last-named steam-chest, and consequently reverse the movement of the engine, substantially as described.

4. A rotary engine, comprising a casing provided with a plural number of circular cylinders provided with steam-ports, a shaft journaled in the casing axially of said cylinders, pistons set at an angle to each other in the cylinders and geared to said shaft, reciprocating abutments arranged opposite each other, and between the ports of and partitioning their respective cylinders, a pair of reverse-valve steam-chests, pipes connecting the same with said ports, exhaust-pipes leading from said steam-chests, a second pair of steam-chests connected to a steam-supply pipe, a pair of pipes connecting each of said steam-chests with the reverse-valve steam-chests, slide-valves in the reverse-valve steam-chests cutting off the passage of steam through one of the pipes leading from each of the other steam-chests, and connecting one of the pipes leading to each cylinder with their respective exhaust-pipes, reciprocating valves in the other steam-chests, and means to alternately and automatically operate said valves so that the supply of steam to each cylinder will be cut off once in each revolution of the piston, but never from both pistons at the same instant, and to shift the abutment out of the path of their respective pistons during the time the supply of steam is cut off, and a lever connected to the reverse-valves, whereby their positions may be reversed and the engine caused to operate in the opposite direction, substantially as described.

605,853. MACHINE FOR VENDING LIGHTED CIGARS OR CIGARETTES. ACHILLE CAUDE, Carbon, France. Filed Nov. 24, 1897. Serial No. 659,705. (No model.) Patented in France May 21, 1897, No. 267,172, and in Belgium May 21, 1897, No. 126,326.



Claim.—An automatic coin-freed machine for vending lighted cigars or cigarettes consisting in the combination of coin-freed mechanism whereby the machine may be set into action; a supply-hopper having a delivery-spout controlled by a distributing-drum giving passage to one cigar or cigarette at a time; means for communicating shaking motion to the contents of the hopper, means adapted to receive and grip the cigar or cigarette and to present one end thereof to the flame of a lamp; a longitudinally-sliding suction-tube adapted to fit onto the other end of the cigar or cigarette and connected to an air-pump; and cam and lever mechanisms operated from a main shaft whereby the operation of the delivery, gripping, and suction devices in proper order is effected substantially as specified.

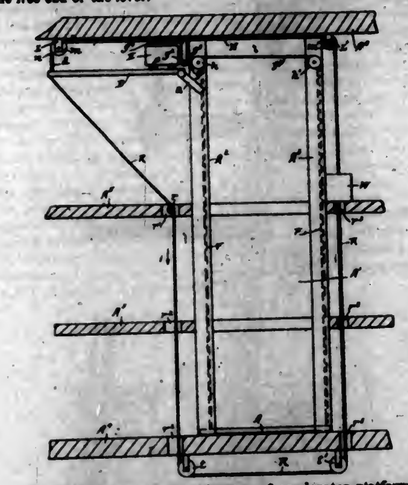
605,854. ELEVATOR. WILLIAM CLINE, Lancaster, Pa., assignor to Daniel D. Good, John J. Stewart, and Joseph Breidhamer, same place. Filed Aug. 19, 1896. Serial No. 602,512. (No model.)

Claim.—1. The combination, in an elevator, of a lever, a traveler on the lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and a connection between the elevator platform or car and the traveler, whereby said platform or car is raised by lowering the free end of the lever.

2. The combination, in an elevator, of a lever, a traveler on the lever, a connection between the elevator platform or car and the traveler, whereby said platform or car is raised by lowering the free end of the lever, a counterpoise-weight connected with said end of the lever, and a hand-rope connecting said weight and said free end of the lever, substantially as and for the purpose specified.

3. The combination, in an elevator, of an elevator platform or car, a drum located above the platform or car, lift-ropes connecting the drum and the elevator platform or car, a lever hinged at one end, a traveler on said lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and a connection between the drum and the traveler, whereby said platform or car is raised by lowering the free end of the lever.

4. The combination, in an elevator, of an elevator platform or car, parallel drums located above said platform or car, lift-ropes connecting the platform or car and said drums, a lever hinged at the ends adjacent to the drums, a traveler on the lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and connections between the drums and the traveler, whereby said platform or car is raised by lowering the free end of the lever.



5. The combination, in an elevator, of an elevator platform or car, parallel drums located above opposite sides of said platform or car, lift-ropes connecting the sides of the platform or car with the drums above said sides, a lever hinged at the end adjacent to the drums, a traveler on the lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, a sheave located adjacent to the hinged end of the lever, ropes connecting the drums and the traveler and passing over said sheave, and means for raising and lowering the free end of the lever, for the purpose specified.

6. The combination, in an elevator, of an elevator platform or car, a drum located above said platform or car, lift-ropes connecting the elevator platform or car and the drum, a lever hinged at the end adjacent to the drum, a traveler on the lever and having a connection with the drum, whereby said platform or car is raised by lowering the free end of the lever, a counterpoise-weight, a rope passing above the lever and connecting the free end thereof with said weight, and a hand-rope passing below the lever and connecting said free end with the counterpoise-weight, substantially as and for the purpose specified.

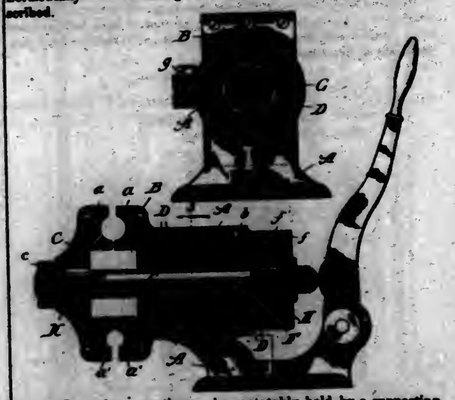
7. The combination, in an elevator, of an elevator platform or car, drums located above opposite sides of the platform or car, lift-ropes connecting the sides of said platform or car with the drums above the same, a lever hinged at the end adjacent to said drums, a traveler on the lever, connections between the drums and the traveler, whereby said car or platform is raised by lowering the free end of the lever, a rope passing over sheaves above the lever and connecting the free end thereof and a counterpoise-weight, and a hand-rope passing around sheaves beneath the lever and said free end of the lever and the counterpoise-weight, substantially as and for the purpose specified.

8. The combination, in an elevator, of an elevator platform or car, a drum located over the platform or car, lift-ropes connecting the drum and said platform or car, a lever comprising two parallel members having rails lengthwise thereof, a traveler between said parallel members and having wheels engaging said rails, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and a connection between said drum and the traveler, whereby the platform or car is raised by lowering the free end of the lever.

605,855. VISE. OLIVER COLBURN, Chicago, Ill. Filed Dec. 30, 1897. Serial No. 663,576. (No model.)

Claim.—1. In a vise, a stationary jaw rotatably held by a supporting-base, a guide passing through and having a loose guided bearing within the said stationary jaw-piece, a movable jaw mounted on or made integral with the said guide, in combination with a spring associated with the said jaws and adapted to hold them together, and a means for adjusting the tension of the said spring, substantially as and for the purpose described.

2. In a vise, a stationary jaw, rotatably held by a supporting-base, a guide-rod passing through and having a loose guided bearing within the said stationary jaw-piece, a spring adapted to hold the jaws together, and a means for adjusting the tension of the said spring; in combination with a movable jaw mounted on and moving horizontally with the said guide-rod, substantially as shown and described.



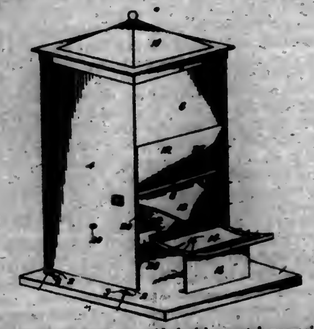
3. In a vise, a stationary jaw rotatably held by a supporting-base, a guide-rod passing through and having a loose guided bearing within the said stationary jaw-piece, a spring surrounding the said rod and adapted to hold the jaws together, and a means for adjusting the tension of the said spring; in combination with a movable jaw, mounted on and moving horizontally with the said guide-rod, substantially as shown and described.

4. In a vise, the combination of a stationary jaw, rotatably held in a base-piece, a movable jaw mounted on and moving with a guide-rod, the said guide-rod passing through the stationary jaw, a spiral spring surrounding the said guide-rod and adapted to exert a pressure between the said jaws for holding them together, a means for adjusting the tension of the said spring, and a lever for separating the said jaws, substantially as shown and described.

5. In a vise, the combination of a base-piece A, provided with an adjustable supporting-ring, the jaw-piece B, rotatably supported therein, a guide-rod G, having a reciprocating bearing within the said jaw-piece B, a jaw C carried by the said guide-rod and a spring D adapted to hold the jaws together, substantially as shown and described.

6. In a vise, the combination of a base containing a ring, a stationary jaw-piece supported therein, a guide-rod passing through the said stationary jaw, a horizontally-movable jaw mounted on the said guide-rod, a spring adapted to hold the said jaws together, and a lever for separating the said jaws, substantially as shown and described.

605,856. MATCH-SAFE. ERNEST P. COMEY and FRANK A. GREEN, Seward, Nebr. Filed May 15, 1897. Serial No. 636,645. (No model.)



Claim.—1. A match-safe, provided with a match-magazine, having a converging bottom, a rotary cylinder therein, provided with a peripheral groove to receive one match at a time, an igniting-surface arranged to oppose the headed end of the match and in its path as it is conveyed by the rotatable movement of the cylinder, and a gravity-dog interposed between the match-chamber and said igniting-sur-

face, and pivoted at its upper end to the front wall of the safe, and provided with a rearwardly-projecting arm to engage the front wall and limit the back swing of the dog, substantially as described.

2. A snatch-safe, consisting of a slotted base, side walls provided with hinge-lugs which engage said base, a back wall and a front wall connecting said side walls, tie-bolts clamping said side walls in place, and a cover pivotally mounted upon one of said bolts and provided with a lock, whereby it may be secured in its closed position, substantially as described.

605,857. FIRE-EXTINGUISHER. GUSTAVUS W. COOK, Herndon, Va., assignor to Henry P. Holden, Washington, D. C. Filed Sept. 17, 1897. Serial No. 651,884. (No model.)



Claim.—1. In a fire-extinguisher, an alkali-tank in combination with an acid-bottle adapted to rest in a seat in the upper part of the alkali-tank when the tank is in its normal position and to gravitate from the seat when the tank is turned upside down, said bottle having discharge-vents in its side so arranged as to be automatically closed when the bottle is in the seat, substantially as described.

2. The alkali-tank, having a chamber at its top provided at the side with a distributing hose-pipe and at the bottom with a vapor-tight partition having a beveled opening as a seat for the acid-bottle, in combination with an acid-bottle adapted to fit snugly into and rest in said seat when the tank is in its normal position and to gravitate from said seat when the tank is turned upside down, said bottle having discharge-vents around that part of it which rests against said seat and being provided with guides to direct it in moving into and out of said seat and with a stop to limit its outward movement, substantially as described.

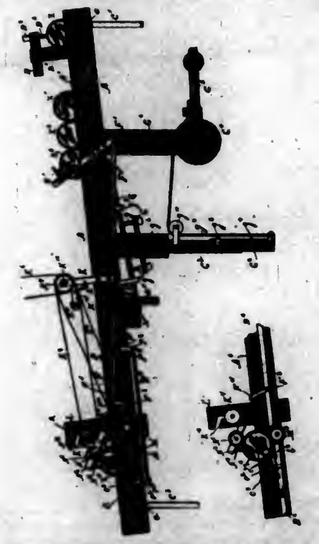
605,858. MACHINE FOR LABELING CANS. WILLIAM S. CRAIG, Chicago, Ill., assignor to Frederick G. Libbs and Dietrich H. Brunjes, same place. Filed May 7, 1895. Serial No. 548,409. (No model.)

Claim.—1. In a machine for labeling cans, the main frame of the machine provided with inclined tracks down which the cans roll; a locking device for holding the unlabeled cans and releasing them one at a time to pass down the inclined tracks; comprising the yielding detent-rod E^3, the rod E^3 which is swung into detaining position at each operation, and supports for said rods; a tripping device operated by a can rolling down the tracks, said tripping device itself operating the above locking device, substantially as described.

2. In a machine for labeling cans, the main frame of the machine provided with inclined tracks down which the cans roll; a locking device for holding the unlabeled cans and releasing them one at a time to pass down the inclined tracks; comprising the yielding detent-rod E^4, the rod E^3 which is swung into detaining position at each operation, and supports for said rods; a tripping device comprising the trip F^4, placed in the path of the rolling cans, the rock-shaft F^5, crank-arm F^3 and a connection between the said crank-arm and the said locking device, substantially as described.

3. In a machine for labeling cans, an escapement for single cans consisting of pivoted arms carrying a cross-bar for checking the cans, a frame pivoted to the arms, and having means for engaging a can, a link pivoted to said frame and to the machine-body, whereby movement of the arms in one direction will cause said frame to rise over the can, and movement thereof in the opposite direction will cause said frame to descend between the cans, and means for oscillating said escapement.

4. In a machine for labeling cans, a locking device for holding the unlabeled cans and releasing them one at a time, consisting of one or more pivoted arms E'; one or more arms E^3 and E^4 pivoted thereto; the brace E^5, and the cross-rods E^3 and E^4, substantially as described.

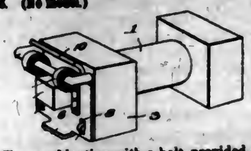


5. In a machine for labeling cans, a locking device for holding the unlabeled cans and releasing them one at a time, consisting of one or more pivoted arms E'; one or more arms E^3 and E^4 pivoted thereto; the brace E^5, and the cross-rods E^3 and E^4; in combination with a tripping device adapted to operate the said locking device, substantially as described.

6. In a machine for labeling cans, the rolls M^4 and M^5 placed in the path of the cans and rotated by appropriate mechanism; a roller N' yieldingly supported above and rotated in the same direction as the rolls M^4 and M^5; the said rolls bearing against the bottom and the said roller against the top of a can which has received its label for pressing down and smoothing the said label; a non-rotating brush bearing against the can and acting in conjunction with the roller N' for the same purpose; and movable stop-rolls for holding the can in position while it is rotated during the said smoothing, and for releasing it subsequently, substantially as described.

7. As an organized can-labeling apparatus, a framework carrying downwardly-inclined tracks, a paste-box for supplying paste to the surface of the can, a locking device for holding the cans in place and releasing one can while the rest are so held, a label-holder and labels, an endless belt mounted on revolving rollers above the tracks for pressing the label upon the can, a trip device in the track of the can for operating the locking mechanism above, a trip device for operating the stop-rolls hereinbelow mentioned, an upper roller for pressing the label upon the can as the said can is revolved, lower rolls for so revolving the said can, and stop-rolls for holding the can in position during such operation, substantially as described.

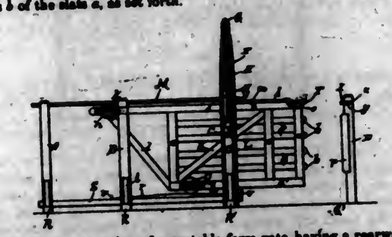
605,859. NUT-LOCK. PETER OVERAN, Hanticoke, Pa., assignor of one-half to Paul Barrall, same place. Filed Jan. 27, 1896. Serial No. 668,136. (No model.)



Claim.—The combination with a bolt provided with a squared end, of a nut having a loop on its top and hook-studs, a plate having a squared aperture and holes to receive the hooks, said plate being connected to the loop by coiled springs, substantially as set forth.

605,860. GATE. GRANVILLE DAVIS, North Salem, Ind., assignor of one-half to David D. Thomson, same place. Filed Aug. 30, 1897. Serial No. 649,961. (No model.)

Claim.—1. In a portable farm-gate of the class described, having a double inclined single track with upturned ends, and suitable braced supporting-posts mounted on sills, the combination of the gate L, consisting of the slats *a*, the diagonal brace *g*, the uprights *c*, the rearwardly-projecting top slats *d*, supported by the diagonal brace *l*, and the bottom slats *d'*, with the slotted brackets *s* and *t*, in which are mounted the rollers K and O; the track-rail M, secured between the tops of the posts A, B, and C, to engage the roller K; the stringer S, secured upon the sills R and E', between the posts A, B, and C, to support the track *r r'*; the horizontal bar E, secured at its center to the tops of the posts C, the double, diagonal arms F and F', secured to the sill E', and to the horizontal bar E, the pulleys G and G', upon the upper ends of the arms F and F', the swivel-pulleys J, secured to the inner end of the track-rail M, the ropes H and H', passing over the pulleys G, G', and J, and secured to the pivotal lever *m*; the lever *m*, pivotally mounted between the top slats *d*; the pivotally-mounted latch T, connected with the lever *m*, by the wire *k*, and the locking-post D, having an adjustable loop I secured by a bolt *x*, and adjusted by the set-screw *y*, and having guide-blocks P, to receive the projecting ends *b* of the slats *a*, as set forth.



2. The combination of a portable farm-gate, having a rearward triangular extension, provided at its outer extremity with a bracket *s* carrying a loose roller K, and a bracket *t* secured upon the lower rail at its rear end, carrying a loose roller O, with the straight upper track M, and the double inclined lower track *r*, against which bear said rollers K and O, substantially as set forth.

605,861. NUT-LOCK. JAMES DURAN, Pullman, Ill. Filed May 26, 1897. Serial No. 638,691. (No model.)



Claim.—1. A nut-lock consisting of a locking-bar, retaining-blocks adjustably mounted thereon one near each end and each having its lower edge cut away to receive a nut, and a supplemental locking member mounted on the locking-bar near its center with a nut-receiving notch upon its under side, substantially as described.

2. A nut-lock consisting of a locking-bar, retaining-blocks adjustably mounted thereon one near each end and each having its lower edge cut away to engage over a nut, and a supplemental locking member mounted on the locking-bar between its ends and formed upon its under face with a notch to engage a nut and having a vertical slot at its other end to receive a rectangular shank of a bolt held in the locking-bar, substantially as and for the purpose specified.

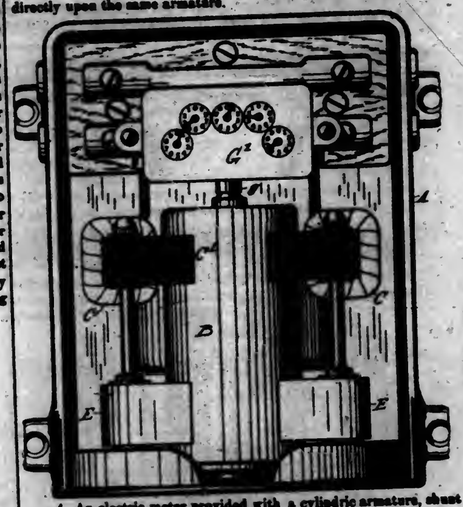
3. The combination with the rails and fish-plates, of a locking-bar having a central enlargement, retaining-blocks adjustably mounted on the ends of said bar and having notches on their lower edges to engage nuts on the bolts that secure the fish-plates to the rails, the bolt passed through the enlargement of the locking-bar, a nut on said bolt, the supplemental locking member having upon its under face a notch to engage the said bolt and provided at the other end with a vertical slot, and a bolt held in the locking-bar and having a rectangular shank engaging in said slot, all substantially as and for the purpose specified.

605,862. ELECTRIC MOTOR. THOMAS DUNCAN, Fort Wayne, Ind. Filed May 20, 1897. Serial No. 637,313. (No model.)

Claim.—1. An electric motor provided with a cylindric armature, a shunt-field within the armature, and a series field without the armature comprising separate horseshoe-shaped cores partially embracing the armature, and series coils wound upon said cores.

2. An electric motor provided with a cylindric armature, a shunt-field within the armature, and a series field without the armature comprising separate wide-backed cores having converging poles partially embracing the armature, and series coils wound upon said cores.

3. An electric motor provided with a cylindric armature, shunt and series fields actuating said armature, and a magnetic drag acting directly upon the same armature.



4. An electric motor provided with a cylindric armature, shunt and series fields actuating said armature, exterior drag-magnets acting directly upon the same armature, and an interior magnetic conductor opposite said drag-magnets.

5. An electric motor provided with a cylindric armature, shunt and series fields actuating said armature, exterior drag-magnets made wide at the back and with converging poles partially embracing said armature, and a magnetic conductor upon the interior of the armature opposite said drag-magnets.

6. An electric motor provided with a cylindric armature closed at its upper end and having a supporting-spindle revolubly mounted in bearings permitting a rising movement of the armature, a nut of larger diameter than the armature and adapted to be screwed up against the lower edge of the armature to lift and close the latter, and a stop between which and the nut the armature may be rigidly clamped.

7. An electric motor provided with a cylindric armature, a series field without the armature, drag-magnets without the armature, a magnetic conductor within the armature opposite the drag-magnets, a standard carried by said conductor and supporting a magnetic core, and shunt-coils wound upon said core.

8. An electric motor provided with a cylindric armature, a series field without the armature comprising opposite horseshoe-shaped cores and series coils wound upon said cores, a shunt core and coil within the armature and means for adjusting the relative angular positions of the cores and shunt cores.

9. An electric motor provided with a rotary armature, a lower bearing therefor carried by the motor-frame, and an upper bearing carried by an arm, a lug on the motor-frame against which the inner end of the arm is rigidly seated, and a removable clamping-nut holding the arm in place.

10. An electric motor provided with a cylindric armature open at its lower end, a series field without the armature, a shunt coil and core supported upon a standard rising within the armature from its open lower end, a bearing within said standard for the lower end of the armature-spindle, and a detachable arm carrying the bearing for the upper end of the spindle.

11. The combination with the cylindric armature, of the series coils wound upon apertured cores, standards upon which the cores are bolted, drag-magnets also secured to said standards, a magnetic conductor rising within the armature opposite the drag-magnets, a standard mounted upon said conductor and supporting the shunt coil and core within the armature, a lower spindle bearing within the standard, and a detachable arm carrying the upper spindle-bearing.

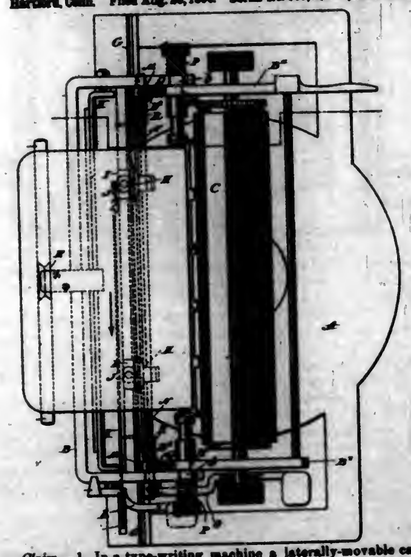
605,863. AXLE-GAGE. JAMES F. DUNHAM, Torrington, Conn. Filed July 21, 1897. Serial No. 645,203. (No model.)

Claim.—A gage consisting of a beam, a T-shaped bracket having a tapered socket fitting on one end of said beam, the arms of said bracket being slotted to produce ears, graduated segmental strips secured to said blades, thumb-screws threaded into the bracket through slots in the segmental strips, a pointer secured on the end

of each arm and projecting out over the segmental strips to indicate the angle at which the blades are held, and a second bracket adapted to slide upon the beam, said bracket having curved shoes, as and for the purpose described.



605,864. TYPE-WRITING MACHINE. JOHN M. FAIRFIELD, Hartford, Conn. Filed Aug. 26, 1896. Serial No. 603,949. (No model.)



Claim.—1. In a type-writing machine a laterally-movable carriage having a plurality of bearings on one side of the printing-center, a platen-frame hinged thereto forward of said bearings, said platen being located above the type, said platen-frame overhanging said printing-center, means for normally moving the carriage in one direction, said means being located between said bearings, and means for normally swinging the platen-frame into an upright position, and a locking means for detachably holding said platen-frame in the printing position.

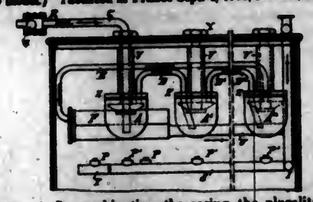
2. In a type-writing machine a carriage-frame susceptible only of lateral movement, a platen-frame overhanging the printing-center, said platen being above the type, a plurality of bearings for said carriage, the bearing portion of said carriage being located on one side of the printing-center, the overhanging platen-frame being hinged to the forward portion of the carriage, and to one side of the bearings, means for normally swinging the platen-frame into an upright position, and a hook detachably engaging the rear or bearing portion of the platen-frame for holding the platen down rigidly in position over the printing-center.

3. In a type-writing machine a carriage-frame susceptible of lateral movement only, a plurality of bearing-points for said carriage, said bearing-points being located on one side of the printing-center, means for laterally moving the carriage in one direction, said means being located in line with the movement of said carriage and between its bearing-supports, a platen-frame in the same plane with and hinged to said carriage-frame, springs for normally causing the overhanging portion to assume an upright position, and hooks engaging with the bearing portion of said platen-frame for locking it in the printing position, substantially as described.

4. In a type-writing machine, a carriage-frame, a bearing-rail underneath the forward edge of said carriage, an overhead bearing-rail to the rear thereof, a platen-carrying frame hinged to the forward portion of said carriage adjacent to said forward bearing-rail, the weight of said platen and frame being sufficient to hold said carriage against said bearing-rail, in combination with a spring for normally swinging the platen-frame into an upright position, and a lock for positively holding said platen in the printing plane.

5. In a type-writing machine, a carriage, an underneath bearing-rail therefor toward its forward edge, an overhead bearing-rail therefor toward its rear edge, a counterweight for said carriage to hold the same against its bearings when in operative position, said counterweight comprising a platen-carrying frame hinged at the forward edge of said carriage adjacent said underneath bearing-rail, in combination with a means for normally causing said platen-carrying frame to swing into an upright position to expose the printing, and means for detachably holding said platen-carrying frame in a proper printing plane, substantially as described.

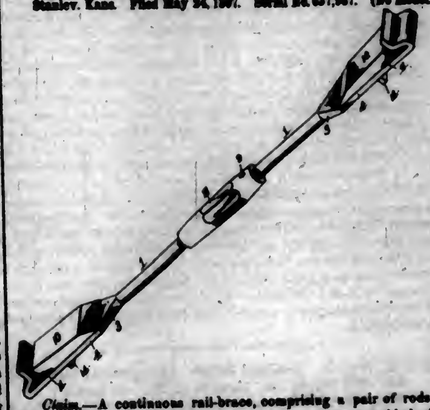
605,865. APPARATUS FOR VAPORIZING OILS. LOUIS E. FRAIPONT, Paris, France. Filed May 26, 1897. Serial No. 637,260. (No model.) Patented in France Sept. 4, 1896, No. 260,438.



Claim.—1. In combination, the casing, the plurality of retorts connected in series, each being a complete retort in itself, means for feeding hydrocarbon to the first retort of the series, a drain-pipe connected with the retorts, a superheater connected with the last retort of the series and arranged to receive the volatilized hydrocarbon therefrom, a gas burner or jet beneath each retort and the superheater for independently heating said retorts and superheater, said burners being supplied with gas from the superheater, substantially as described.

2. In combination, the casing, the plurality of retorts, each complete in itself, said retorts being connected in series, means for feeding hydrocarbon to the first retort of the series, a drain-pipe connected with the retorts, the superheater comprising three tubes, two above and one centrally below and connected in series, connections from the last retort of the series to one of the upper tubes, the gas flowing thence through the second upper tube and finally into the lower one, the gas-jet beneath each retort, the jets beneath the superheater adapted to impinge against the said lower tube, and the pipe connections from the superheater to the burners, substantially as described.

605,866. CONTINUOUS RAIL-BRACE. WILLIAM G. GRAHAM, Stanley, Kans. Filed May 24, 1897. Serial No. 637,967. (No model.)



Claim.—A continuous rail-brace, comprising a pair of rods 1, flattened to form the base-plates 4, said base-plates provided with openings 7, their inner ends being adapted to be received by a turnbuckle 8, which is mounted upon said inner ends thereof, a key or cotter 9, adapted to be inserted through an opening in one end of the turnbuckle, and a corresponding opening through one end of rod 1, clamp-block 10, provided with pendent lugs 12, adapted to be inserted through the openings in base-plates 4, said lugs provided with openings also to receive split wedge 14, to prevent disengagement as fully set forth and described.

605,867. TIRE FOR CYCLES OR OTHER VEHICLES. CHARLES H. GRAVES and GEORGE GRAVES, Cotteril, England. Filed Apr. 12, 1898. Serial No. 677,249. (No model.)



Claim.—1. The combination of hollow india rubber sections or balls E, having air-holes E', with the india-rubber rings or washers F between each ball, forming a resilient cushion or support for the covers of tires of cycles and other vehicles as shown and described.

2. The construction of tires consisting of strips of canvas B, upon the metal rim A, binding-strip C with wires or cords D, balls E and washers F, stretched cover G, and outer cover H, substantially as shown and described.

3. Outer covers for balls or sectional tires consisting of strips of canvas B upon the metal rim A, binding-strip C with cord or wire D, stretching cover G and outer cover H substantially as shown and described.

605,868. PROCESS OF AND APPARATUS FOR BURNING ACETYLENE GAS. MAXIMILIAN GRIEB, West Hoboken, N. J., assignor to Edward H. Dickerson and Julius J. Seubert, New York, N. Y. Filed Jan. 15, 1897. Serial No. 619,297. (No model.)



Claim.—1. The process of burning acetylene gas, which consists in ejecting the same at suitable pressure through a burner, and in preventing the gas from reaching its kindling temperature at its point of escape to the atmosphere, substantially as described.

2. The process of burning acetylene gas, which consists in causing the gas to reach its kindling temperature only at a distance from the burner-surface and not in contact with the orifice where the escape occurs, substantially as described.

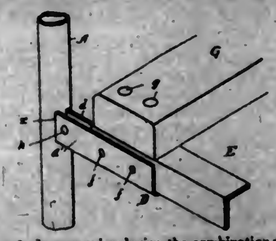
3. The process of burning acetylene gas, which consists in preventing the burning gas from reaching its kindling temperature in contact with the burner by cooling the gas by a jet of air under pressure and thereby preventing its reaching its kindling temperature until it has left the burner-surface, substantially as described.

4. The process of burning acetylene gas, which consists in cutting off the flame from the burner-surface by means of two opposed jets of air under pressure, approximately horizontally directed toward each other at about the point of delivery of the burner, substantially as described.

5. A burner for acetylene gas, which consists of a gas-jet and two separate air-jets having their delivery-points approximately at right angles to each other at about the surface of the burner, substantially as described.

6. The combination in a gas-burner of the jet A, the horizontally-delivering pipes B, B, the pipes D, C, and the single stop-cock for controlling both the air and gas pressure, substantially as described.

605,869. SECURING DEVICE FOR BREECHBANDS. ROBERT S. GROVE, Philadelphia, Pa. Filed Dec. 22, 1897. Serial No. 663,063. (No model.)



Claim.—1. In a securing device, the combination of the hook or catch having an upwardly-projecting slot angularly disposed, a supporting-plate formed of pressed steel bent into substantially U-shaped form and having parallel side walls or flanges, *d*, *d'*, to embrace the said hook or catch and a pin transversely disposed secured at its opposite ends in said flanges adapted to said hook or catch, substantially as specified.

2. As a new article of manufacture, a supporting-plate for a bedstead-fastening formed of a sheet of metal pressed or stamped into substantially U-shaped form and having side walls or flanges, *d*, *d'*, the connecting metal between the side walls or flanges being cut away for a portion of the length of the plate, and a holding-pin secured to said side walls or flanges, adapted to a catch provided in the bed-post, substantially as specified.

3. The combination of the supporting-post, a flattened hook-plate, *b*, having an inclined slot therein and provided with a rearwardly-extending rivet-shank squared for a portion of its length and adapted to suitably shaped openings in the supporting-post, a plate, D, bent up from pressed steel to form two flanges or side walls, *d*, *d'*, a pin, *h*, carried between said flanges or side walls and adapted to enter the inclined slot, *b'*, and side rails, E, formed of angle-iron and having one web adapted to be secured between said flanges or side walls, *d*, *d'*, substantially as specified.

605,870. BALL-BEARING. WILLIAM S. GUNDLACH, Buffalo, N. Y. Filed Mar. 9, 1897. Serial No. 626,666. (No model.)



Claim.—1. The combination with an outer tubular member provided on its inner side between its ends with an annular row of lugs leaving the end portions of the tubular member extending from opposite sides of the lugs, of an inner tubular member arranged in one end of the outer tubular member and provided at its inner end with an annular row of longitudinal lugs which fit into the spaces between the lugs of the outer tubular member, substantially as set forth.

2. The combination with an outer tubular member provided on its inner side between its ends with an annular row of radial lugs leaving the end portions of this member extending from opposite sides of the lugs, of an inner tubular member fitted into the inner end portion of the outer member and provided with an annular row of longitudinal lugs which engage with said radial lugs, and a bearing-cup having an external screw-thread which engages with an internal screw-thread in the outer end portion of the outer tubular member and bearing against the shoulder formed by the lugs of the inner and outer tubular members, substantially as set forth.

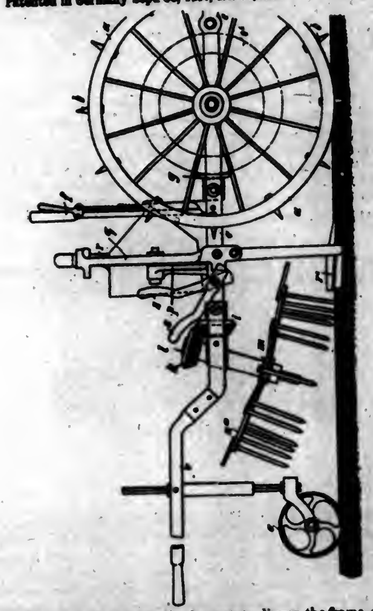
3. The combination with the casing and the axle having its end portion provided with an external screw-thread, of a bearing-cup connected with the casing and provided with an axial opening, an internally-screw-threaded adjusting-sleeve mounted on the screw-threaded portion of the axle and consisting of inner and outer sections arranged in the axial opening of the bearing-cup, a cone arranged on the inner end of the inner sleeve-section and having a diameter larger than the axial opening of said cup, a head arranged on the outer end of the outer sleeve-section and having a diameter greater than the diameter of the axial opening of the bearing-cup, and a coupling device connecting the opposing ends of the inner and outer sections of the adjusting-sleeve, substantially as set forth.

4. In a bearing, the combination with the casing and the axle or spindle having its end provided with an external screw-thread, of a bearing-cup connected with the casing and provided with an axial opening the outer portion of which is of larger diameter than the inner portion thereof forming an outwardly-facing shoulder in said opening, an internally-screw-threaded adjusting-sleeve mounted on the threaded portion of the axle or spindle and consisting of an inner and an outer section, the outer section of which is larger in diameter than the inner section forming an inwardly-facing shoulder on the outer section, a packing-ring bearing against the outwardly-facing shoulder of the cup and the inwardly-facing shoulder of the outer sleeve-section, an interlocking leg and recess formed on the opposing ends of the sleeve-sections, a cone arranged on the inner sleeve-section, and a row of balls arranged between said cup and cone, substantially as set forth.

5. In a bearing, the combination with the axle and the casing journaled on the axle, of an absorbent lubricating-tube arranged within the casing, and a spiral wire which bears against the inner side of

the lubricating-tube and presses the same against the inner side of the casing, substantially as set forth.

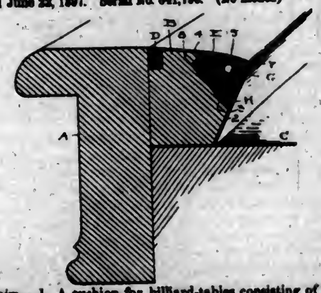
605,871. POTATO-DIGGING MACHINE. ERNST HANPEL, Hannoid, Germany. Filed Oct. 9, 1897. Serial No. 654,710. (No model.) Patented in Germany Sept. 30, 1897, No. 94,501.



Claim.—1. In combination in a potato-digger, the frame, a rotary harrow, the shaft therefor and the two sets of teeth extending downwardly and substantially parallel with the shaft of the rotary harrow, said teeth being long and short, the short teeth being at a greater distance from the shaft than the long teeth, substantially as described.

2. In combination in a potato-digger, the frame, a rotary harrow, a shaft therefor, the two sets of teeth extending downwardly and substantially parallel with said shaft, some of said teeth being shorter than the others, and being arranged at a greater distance from the shaft than the long teeth and an inclined rod over the short teeth adapted to take the weeds and potato-tops and direct them laterally, substantially as described.

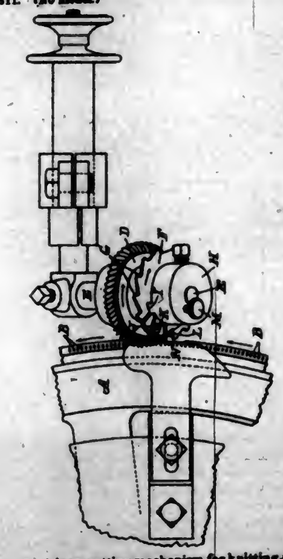
605,872. BILLIARD-TABLE. AUGUST HAND, Cleveland, Ohio. Filed June 23, 1897. Serial No. 641,796. (No model.)



Claim.—1. A cushion for billiard-tables consisting of a strip of india-rubber having a bore longitudinally through the same from end to end, a coiled-wire spring vulcanized in said rubber about said bore and a flat canvas-covered strip of spring metal vulcanized in the rubber in front of said coiled wire, said flat strip and coiled wire being located directly behind the portion of the cushion which receives the stroke of the ball and having a wall of rubber between them, substantially as described.

2. In a billiard-table, a cushion-strip B with a longitudinal rabbet having inclined converging sides 3 and 4 terminating in a point 8 directly at the rear of the line of stroke by the ball, in combination with a rubber cushion fixed in said rabbet and having a longitudinal bore in the stroke-line with said point 8, a coiled spring in the wall of said bore and a flat metal spring in front of said coiled spring, substantially as described.

605,878. LOOP-CUTTING ATTACHMENT FOR KNITTING-MACHINES. SETH T. HARSHAW, Lansingburg, N. Y., assignor of one-half to Campbell & Cluts, Cohoes, N. Y. Filed Nov. 26, 1897. Serial No. 659,811. (No model.)



Claim.—1. A loop-cutting mechanism for knitting-machines consisting of a rotary cutter and a stationary cutter, means for actuating said rotary cutter in a line that is radial in respect to the center line of the knitting-cylinder, and adapted to sever each loop at, or near, the middle of the latter, as and for the purpose specified.

2. In a knitting-machine, the combination, with a knitting-cylinder and a shield or guard held in a stationary position and extended beyond the line of the needles of said cylinder, of a loop-cutting mechanism provided with a stationary cutter and a revolubie cutter operated by the knitting-cylinder; the said loop-cutting mechanism being arranged to sever the loops on a line that is radial to the center of the knitting-cylinder and so that the separation will practically be at the middle of the loop, as and for the purpose specified.

3. In a loop-cutting mechanism, the combination of a rotary cutter provided with a series of peripheral cutting-teeth, a stationary cutter adapted to engage successively in the loops formed by the knitting-machine, means for actuating said rotary cutter to effect the cutting of the loops at, or near, the middle of the latter, and means—substantially as set forth—for maintaining said cutters in facial contact, as herein specified.

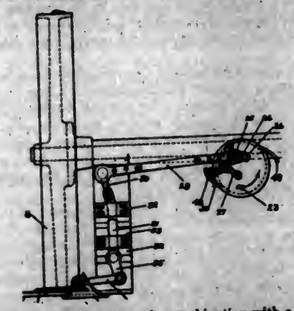
605,874. MOWER. ALFRED HART, Chicago, Ill., assignor to Frederick B Hart and Ralph W. Hart, same place. Filed Nov. 24, 1894. Serial No. 529,295. (No model.)

Claim.—1. In a harvesting-machine, a reciprocating sickle, mechanism for reciprocating said sickle, and means which act automatically to adjust the operating mechanism for changing the length of the stroke of the sickle, substantially as described.

2. In a harvesting-machine, a reciprocating sickle having a stroke of variable length dependent upon the speed of the machine, substantially as described.

3. In a harvesting-machine, the combination with a reciprocating sickle, of means for reciprocating said sickle by the movement of the machine, and mechanism whereby increase of speed of the machine increases the length of stroke of the sickle, substantially as described.

4. In a harvesting-machine, the combination with a sickle, and means for driving said sickle by the movement of the machine, of mechanism operated by variation of the speed of the machine for driving the sickle with the greatest power when the machine moves slowly and for driving the sickle with less power when the speed of the machine is increased, substantially as described.



5. In a harvesting-machine, the combination with a reciprocating sickle, of means for reciprocating said sickle by the motion of the machine, a governor, and devices controlled by the governor, whereby increase of speed of the machine increases the length of stroke of the sickle, substantially as described.

6. In a harvesting-machine, the combination with a reciprocating sickle, and means for reciprocating said sickle by the movement of the machine, of mechanism which acts to drive the sickle with a short stroke when the machine moves slowly and to suddenly increase the length of stroke of the sickle when the machine moves more rapidly, substantially as described.

7. In a harvesting-machine, a reciprocating sickle, mechanism for reciprocating said sickle, and means for adjusting the sickle-operating mechanism while the harvester is in motion to change the length of stroke of the sickle, substantially as described.

8. In a harvesting-machine, the combination with a reciprocating sickle, a rotary shaft, means for driving said shaft by the forward movement of the machine, a driving-disk, and a wrist-pin carried thereby, of mechanism connected to said wrist-pin for reciprocating said sickle, and means for moving said wrist-pin toward and from the axis of the driving-shaft while the machine is moving, substantially as described.

9. In a harvesting-machine, the combination with a reciprocating sickle, a rotary shaft, means for driving said shaft by the forward movement of the machine, a driving-disk, and a wrist-pin carried thereby, of mechanism connected to said wrist-pin for reciprocating said sickle, a governor, and cam mechanism operated by said governor to move said wrist-pin toward and from the axis of the driving-shaft, substantially as described.

10. In a harvesting-machine, the combination with a reciprocating sickle, a rotary shaft, means for driving said shaft by the forward movement of the machine, and a driving-disk mounted upon said shaft, of a segment 24 pivoted upon said disk, a wrist-pin carried by said segment, and mechanism whereby the segment is operated and the position of the wrist-pin, relatively to the axis of the driving-shaft, is regulated by the speed of the machine in traversing the field, substantially as described.

11. In a harvesting-machine, the combination with a reciprocating sickle, a rotary shaft, means for driving said shaft by the forward movement of the machine, and a driving-disk mounted upon said shaft, of a segment 24 pivoted upon said disk, a wrist-pin carried by said segment, a lever 46 pivoted to said disk, said lever being connected to said segment, and a cam movable into engagement with said lever, substantially as and for the purpose specified.

12. In a harvesting-machine, the combination with a reciprocating sickle, a rotary shaft, means for driving said shaft by the forward movement of the machine, and a driving-disk mounted upon said shaft, of a segment 24 pivoted upon said disk, a wrist-pin carried by said segment, a lever 46 pivoted to said disk, said lever being connected to said segment, a cam 39, having an ear 49 and groove 51, and means for moving said cam toward and from said disk, substantially as described

13 In a harvesting-machine, the combination with a reciprocating sickle, a rotary shaft, means for driving said shaft by the forward movement of the machine, and a driving-disk mounted upon said shaft, of a segment 24 pivoted upon said disk, a wrist-pin carried by said segment, a lever 46 pivoted to said disk, said lever being connected to said segment, a cam movable into engagement with said lever, and guides controlling the points at which said lever may be moved into and out of engagement with said cam, substantially as described.

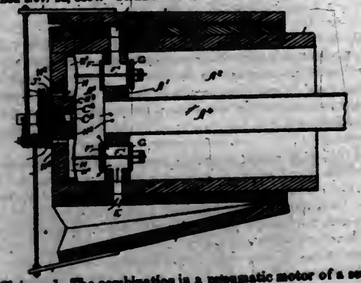
14. The combination with a rotary disk and a reciprocating pitman connected to and actuated by said disk, of means controlled by the speed of said disk for automatically varying the length of the stroke of the pitman, substantially as described.

605,875. VEHICLE-WHEEL. EDWARD C. HAYES, Chicago, Ill. Filed Feb. 26, 1897. Serial No. 625,108. (No model.)



Claim.—The combination with the channel-rim of a vehicle-wheel, of an elastic or cushion tire, said elastic tire being provided with an opening through which a retaining-band having overlapping ends is inserted, the overlapping ends of said band being pierced to receive a bolt inserted through an opening in the rim of the wheel registering therewith and in the plane of the abutting ends of the elastic tire, said tire being adapted to be drawn back to afford access to the overlapping ends of the retaining-band for adjusting the position thereof and thereby the clamping action of the band upon the portion of the tire which is compressed between the said band and the channel-rim, and permitting the piercing of one of the overlapping ends of the retaining-band after such adjustment has been made, whereby the tire is independently adjusted and secured in position upon the wheel with the desired force or clamping action, substantially as and for the purpose specified.

605,876. PNEUMATIC MOTOR. FREDERICK W. HENDELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed Nov. 13, 1897. Serial No. 658,991. (No model.)



Claim.—1. The combination in a pneumatic motor of a series of pneumatics, a series of valves corresponding to the pneumatics and controlling the inflating and deflating thereof, a series of motors controlling said valves and a rotating valve controlling said motors, substantially as specified.

2. The combination in a pneumatic motor of a series of pneumatics, a series of valves corresponding to the pneumatics and controlling the inflating and deflating thereof, a series of motors controlling said valves and a single valve controlling said motors, substantially as specified.

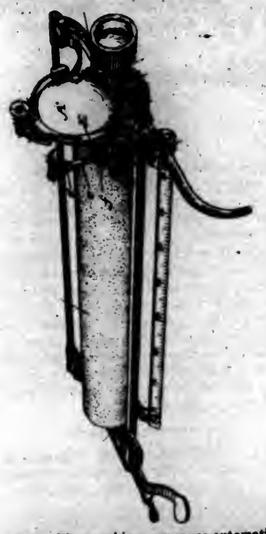
3. The combination with a pulley or other rotating device, of a wind-motor for driving the same, and consisting of a series of pneumatics, valves controlling the pneumatics, and membrane-motors for operating said valves, said membranes being each provided with a large valved air-passage and a small permanently-open air-passage whereby the membrane-chambers may be alternately inflated and deflated, substantially as specified.

4. The combination with the valve controlling the power-pneumatic of a wind-motor, of a membrane-motor having both a large valve-controlled passage to the outer air and a small permanently-open passage to the exhaust-pressure chamber through which it is alternately inflated and deflated, substantially as specified.

605,877. TYPE-WRITING MACHINE. EDWARD E. HORTON, Toronto, Canada. Filed June 12, 1897. Serial No. 640,577. (No model.)

Claim.—1. A type-writing machine embracing in its construction a line-spacing lever, a ratchet-wheel rotated a distance equal to one line-space by each operation of the line-spacing lever, and means for adjusting the rotation of the ratchet-wheel to the predetermined number of lines, substantially as specified.

2. A type-writing machine embracing in its construction a line-spacing lever, a ratchet-wheel rotated a distance equal to one line-space by each operation of the line-spacing lever means for adjusting the rotation of the ratchet-wheel to the predetermined number of lines, and an indicator operated by the completion of the movement of the ratchet-wheel, substantially as specified.



3. In a type-writing machine a means to automatically announce the completion of a page of writing consisting of a ratchet-wheel and an indicator, operated by the completion of the movement of the ratchet-wheel, in combination with the line-spacing lever, a pawl carried by the line-spacing lever to actuate the ratchet-wheel, and an adjustable stop to limit the reversal of the ratcht-wheel, substantially as specified.

4. In a type-writing machine a means to automatically announce the completion of a page of writing, consisting of a ratchet-wheel, a gong, and a striker operated by the ratchet-wheel to sound the gong on the completion of the movement of the ratchet-wheel, in combination with the line-spacing lever, a pawl carried by the line-spacing lever to actuate the ratchet-wheel, and an adjustable stop to limit the reversal of the ratchet-wheel, substantially as specified.

5. In a type-writing machine a means to automatically announce the completion of a page of writing consisting of a ratchet-wheel and an indicator, operated by the completion of the movement of the ratchet-wheel, in combination with the line-spacing lever, a pawl carried by the line-spacing lever to actuate the ratchet-wheel, a detent-pawl normally engaging the teeth of the ratchet-wheel during its forward rotation, and a trip raised by the ratchet-wheel into position on the completion of a page of writing to upset the detent-pawl and allow of the reversal of the ratchet-wheel, substantially as specified.

6. In a type writing machine a means to automatically announce the completion of a page of writing, consisting of a ratchet-wheel, a gong, and a striker operated by the ratchet-wheel to sound the gong on the completion of the movement of the ratchet-wheel, in combination with the line-spacing lever, a pawl carried by the line-spacing lever to actuate the ratchet-wheel, a detent-pawl normally engaging the teeth of the ratchet-wheel during its forward rotation, and a trip raised by the ratchet-wheel into position on the completion of a page of writing material to upset the detent-pawl and allow of the reversal of the ratchet-wheel, substantially as specified.

7. In a type-writing machine a means to automatically announce or intimate the completion of a page of writing, consisting of a standard connected to the carriage of the machine, a stud projecting from the side face of the standard, a gong connected to the outer end of the stud, a ratchet-wheel revolubly mounted on the stud between the standard and the gong, and a striker actuated by the completion of movement of the ratchet-wheel to sound the gong, substantially as specified.

8. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the line-spacing mechanism, a ratchet-wheel actuated by the operation of the line-spacing mechanism, a gong, a striker for the gong operated by the movement of the ratchet-wheel, and an adjustable stop to limit the reverse movement of the ratchet-wheel, substantially as specified.

9. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of a ratchet-wheel actuated by the operation of the line-spacing mechanism, and a series of adjustable stops to limit the reverse rotation of the movement of the ratchet-wheel, substantially as specified.

10. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the carriage of the machine, a ratchet-wheel revolubly connected to the carriage, actuated by the operation of the line-spacing mechanism, a series of adjustable stops to limit the reverse rotation of the movement of the ratchet-wheel, a gong, and a striker operated by the completion of movement of the ratchet-wheel to sound the gong, substantially as specified.

11. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of a ratchet-wheel, a detent-pawl engaging the teeth of the ratchet-wheel, a trip adapted to be raised toward the detent-pawl during the rotation of the ratchet-wheel, the line-spacing lever, having a line-spacing pawl, and an auxiliary pawl adapted to engage and raise the trip against the end of the detent-pawl, and lift it out of engagement with the teeth of the ratchet wheel, substantially as specified.

12. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of a ratchet-wheel, a detent-pawl engaging the teeth of the ratchet-wheel, a trip adapted to be raised toward the detent-pawl during the rotation of the ratchet-wheel, the line-spacing lever, having a line-spacing pawl, an auxiliary pawl adapted to engage and raise the trip against the end of the detent-pawl, and lift it out of engagement with the teeth of the ratchet-wheel, and means for reversing the ratchet-wheel to return it to its starting position, substantially as specified.

13. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of ratchet-wheel, a detent-pawl engaging the teeth of the ratchet-wheel, a trip adapted to be raised toward the detent-pawl during the rotation of the ratchet-wheel, the line-spacing lever, having a line-spacing pawl, an auxiliary pawl adapted to engage and raise the trip against the end of the detent-pawl, and lift it out of engagement with the teeth of the ratchet-wheel, means for reversing the ratchet-wheel to return it to its starting position, a gong, and a striker actuated by the completion of the movement of the ratchet-wheel to sound the gong, substantially as specified.

14. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of a ratchet-wheel, a detent-pawl engaging the teeth of the ratchet-wheel, a trip adapted to be raised toward the detent-pawl during the rotation of the ratchet-wheel, the line-spacing lever, having a line-spacing pawl, an auxiliary pawl adapted to engage and raise the trip against the end of the detent-pawl, and lift it out of engagement with the teeth of the ratchet-wheel, means for reversing the ratchet-wheel to return it to its starting position, a gong, a striker actuated by the completion of the movement of the ratchet-wheel to sound the gong, and a series of adjustable stops to limit the reverse rotation of the ratchet-wheel, substantially as specified.

15. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, a ratchet-wheel having a series of teeth, in combination with a line-spacing lever, having an auxiliary pawl adapted to engage the teeth of the ratchet-wheel during the forward rotation of its movement, a detent-pawl to engage the teeth of the ratchet-wheel during its forward rotation, a trip to be engaged by the auxiliary pawl and raised against the detent-pawl to lift it out of engagement with the teeth of the ratchet-wheel on the completion of its rotation, a gong, a striker actuated by the movement of the ratchet-wheel to sound the gong, and an adjustable stop to limit the reverse rotation of the ratchet-wheel, substantially as specified.

16. In an attachment for a type-writing machine to intimate or announce the completion of a page of writing, the combination of the carriage of the machine, a standard connected to the carriage, a stud extending from the side face of the standard, a ratchet-wheel revolubly mounted in the stud, a spring connected to the stud and to the ratchet-wheel to reverse it, a second stud projecting from the top of the side face of the standard, a detent-pawl pivotally mounted on the stud engaging the teeth of the ratchet-wheel, a striker the hub of which is pivotally mounted on the said second stud, an arm depending from the hub of the striker, a pin connected to the side face of the ratchet-wheel, adapted to engage the said arm to raise the striker into an elevated position during the forward rotation of the ratchet-wheel, a gong adapted to be sounded by the fall of the striker, and a pawl connected to the line-spacing lever to rotate forwardly the ratchet-wheel, substantially as specified.

17. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the carriage of the type-writing machine, a standard connected to the carriage, a stud projecting from the side face of the standard, a ratchet-wheel pivotally mounted on the said stud, a spring connected to the stud and to the ratchet wheel to reverse it after the completion of its movement, a stud projecting from the top of the standard, a detent-pawl pivotally mounted on the stud engaging the teeth of the ratchet-wheel, a striker, the hub of which is rotatably mounted on the second stud, an arm depending from the hub of the striker, a pin connected to the side face of the ratchet-wheel to engage the said arm to lift the striker into an elevated position, a pin connected to the standard to arrest the return movement of the striker and arm, a gong adapted to be sounded by the fall of the striker, and an auxiliary pawl connected to the line-spacing lever to actuate the ratchet-wheel, substantially as specified.

18. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the carriage of the type-writing machine, a standard connected to the carriage, a stud projecting from the side face of the standard, a ratchet-wheel pivotally mounted on the said stud, a spring connected to the stud and to the ratchet-wheel to reverse it after the completion of its movement, a stud projecting from the top of the standard, a detent-pawl pivotally mounted on the stud engaging the teeth of the ratchet-wheel, a striker, the hub of which is rotatably mounted on the second stud, an arm depending from the hub of the striker, a pin connected to the side face of the ratchet-wheel to engage the said arm to lift the striker into an elevated position, a pin connected to the standard to arrest the return movement of the striker and arm, a gong adapted to be sounded by the fall of the striker, and an auxiliary pawl connected to the line-spacing lever to actuate the ratchet-wheel, and a spring connected to the pin and to the striker to prevent its movement when the carriage has been upset, substantially as specified.

19. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of a ratchet-wheel, a detent-pawl engaging the teeth of the ratchet-wheel, the line-spacing lever, an auxiliary pawl carried by the line-spacing lever, a trip brought into position during the rotation of the ratchet-wheel to be engaged by the auxiliary pawl, and move against the end of the detent-pawl, and lift the detent-pawl out of engagement with the teeth of the ratchet-wheel, substantially as specified.

20. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the carriage of the machine, a standard connected to the carriage, a stud projecting from the side face of the standard, a ratchet-wheel revolubly mounted on the stud, a detent-pawl engaging the teeth of the ratchet-wheel, a trip pivoted to the standard eccentric to the ratchet-wheel, a pin connected to the side face of the ratchet-wheel to bring the trip into position during the forward rotation of the ratchet-wheel, an auxiliary pawl connected to the line-spacing lever adapted to engage the trip after the completion of the forward rotation of the ratchet-wheel, and bring it against the detent-pawl to lift the detent-pawl out of engagement with the teeth of the ratchet-wheel to allow of its reverse rotation, substantially as specified.

21. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the line-spacing lever, an auxiliary pawl carried by the line-spacing lever, a ratchet-wheel adapted to be rotated by the auxiliary pawl during the operation of the line-spacing lever, an adjustable stop to limit the reverse rotation of the ratchet-wheel, and means for reversing the ratchet-wheel after completing its forward rotation, substantially as specified.

22. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the carriage of the machine, a standard connected to the carriage, a plate slidably mounted on the said standard, a clamp for holding the plate in any set position, a stop-pin carried by the plate, a stud projecting from the side face of the standard, a ratchet-wheel revolubly mounted on the stud, the web of the ratchet-wheel having a series of step-shoulders cut in it adapted to engage the pin in its set position to limit the reverse rotation of the ratchet-wheel, the line-spacing lever, an auxiliary pawl carried by the line-spacing lever adapted to engage the teeth of the ratchet-wheel and cause its forward rotation, a detent-pawl engaging the teeth of the ratchet-wheel, a trip pivoted to the standard eccentric to the ratchet-wheel, a pin carried by the adjacent side face of the ratchet-wheel to bring the trip into position to be engaged by the auxiliary pawl on the completion of the movement of the ratchet-wheel, to bring it against the detent-pawl, and lift the detent-pawl out of engagement with the ratchet-wheel, to allow of its reversal, substantially as specified.

23. In an attachment for a type-writing machine to automatically intimate or announce the completion of a page of writing, the combination of the carriage of the machine, a standard connected to the carriage, a stud projecting from the outer side face of the standard, a ratchet-wheel revolubly mounted on the stud, a spring connected to the stud and to the ratchet-wheel to reverse it after the completion of its movement, a gong mounted on the outer end of the stud, the web of the ratchet-wheel cut away to form a series of step-shoulders, a second stud extending from the top of the standard, a detent-pawl pivotally mounted on the said stud engaging the teeth of the ratchet-wheel, a striker, the hub of which is mounted on the second stud, an arm depending from the hub of the striker, a pin connected to the side face of the ratchet-wheel to engage the said arm and raise the striker into an elevated position, a pin projecting from the standard to engage the arm and limit the return movement of the striker, a spring connected to the pin and to the striker to hold it when the carriage is upset, a trip pivoted to the standard eccentric to the ratchet-wheel, a pin connected to the adjacent face of the ratchet-wheel to bring the trip into position during the rotation of the ratchet-wheel, the line-spacing lever, an auxiliary pawl carried by the line-spacing lever to engage the teeth of the ratchet-wheel and move it during its forward rotation, adapted to engage the trip when brought into position and move it against the detent-pawl and lift it out of engagement with the teeth of the ratchet-wheel to permit of its reversal and the fall by gravity of the striker on the gong, a plate slidably mounted on the standard a clamp to hold the plate in any set position, a stop-pin projecting from the plate adapted to engage any one of the step-shoulders of the ratchet-wheel, substantially as specified.

605,878. AX. EDWIN J. JOHNSON, Elmore, S. C. Filed Sept. 13, 1897. Serial No. 651,517. (No model.)



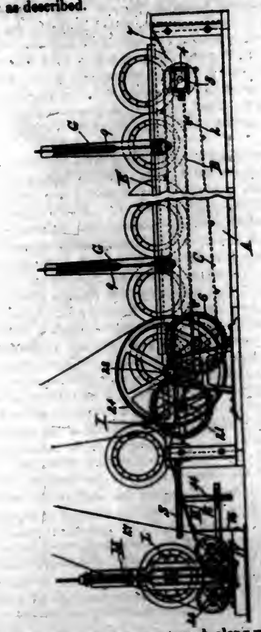
Claim.—1. In an ax having a detachable blade the combination of the head having a groove therein, the blade having a projection adapted to enter said groove, a recess in the said head and blade at their intersection, an undercut groove in the wall of said recess and a cam adapted to be pivotally held between the wall of said groove and the projection, of the head and blade, and enter the undercut groove in the recess in the said head and blade, locking them together substantially as shown and described.

2. A detachable ax and blade comprising the head having a groove therein, a blade having a projection corresponding to said groove an incline bearing or double bevel on blade and head and adapted to snugly fit, a recess in the head and blade at their intersection, an undercut groove in the wall of said recess, a cam having a pivotal tapering pin adapted to wedge between the projection of the blade and the wall of the groove of the head and a flange on said cam adapted to enter the undercut groove in the wall of the recess in the head and blade and a spring adapted to hold said cam in place, substantially as described.

3. An ax having a detachable blade comprising the head and blade having tongue-and-groove connections, a recess in said head and blade, an undercut groove in the wall of said recess, a cam adapted to enter the undercut groove in the wall of said recess, a tapering pin formed integral with said cam forming a pivot on which said cam turns when locking and unlocking and a spring adapted to hold said cam in position, substantially as described.

605,879. BARREL-WASHER. CHARLES KAESTNER, Chicago, Ill., assignor to Charles Kaestner & Co., same place. Filed June 1, 1897. Serial No. 638,972. (No model.)

Claim.—1. In a keg or barrel cleaner, a trough along which the kegs or barrels are moved; means for moving the kegs or barrels; longitudinally-extending guides arranged to lie opposite the ends of the kegs or barrels and adjustable with reference to kegs or barrels of different sizes; and means for simultaneously adjusting the guides, substantially as described.



2. In a keg or barrel cleaner, a trough along which the kegs or barrels are moved; means for moving the kegs or barrels; longitudinally-extending guides arranged to lie opposite the ends of the kegs or barrels and adjustable laterally with reference to kegs or barrels of different sizes; and means for adjusting the guides, comprising bent levers having pendent arms to which the guides are attached, and means for operating and holding the levers in adjustment, substantially as described.

3. In a keg or barrel cleaner, a trough along which the kegs or barrels are moved; means for moving the kegs or barrels; longitudinally-extending guides arranged to lie opposite the ends of the kegs or barrels and adjustable laterally with reference to kegs or barrels of different sizes; and means for adjusting the guides comprising a pair of pivotally-supported bent levers P having pendent arms to which the guides are attached; a hinge connection between the upper arms of the levers; and an adjustable operating-lever connected with the hinge connection between said upper arms of the bent levers, substantially as described.

4. In a keg or barrel cleaner, the trough containing a track which is adjustable in width and along which the kegs or barrels are moved, means for moving the kegs or barrels along the trough and guides arranged to lie opposite the ends of the kegs or barrels on said track and adjustable laterally, whereby the track and guides can be correspondingly adjusted with reference to kegs or barrels of different sizes, as set forth.

5. In a keg or barrel cleaner, the trough containing a longitudinally-extending track; means for moving the kegs or barrels along such track; a rotary transfer device comprising a plurality of arms arranged to engage the kegs or barrels and deliver them in succession from the soaking-trough; suitable means for rotating said transfer device, and an incline along which the kegs or barrels are rolled by the transfer device, as set forth.

6. A keg or barrel cleaner comprising a brushing or scouring device provided with a brush or brushes and means for revolving a keg or barrel which has been delivered to the brushing or scouring device; and an ejector arranged to eject a keg or barrel from the brushing or scouring device and automatically actuated by the weight of a keg or barrel delivered to the brushing or scouring device, substantially as described.

7. A keg or barrel cleaner comprising a soaking-trough wherein the kegs or barrels are soaked; a brushing or scouring device provided with a brush or brushes and means for revolving a keg or barrel which has been delivered to the brushing or scouring device from the soaking-trough; means for successively transferring kegs or barrels from the soaking-trough to the brushing or scouring device; an automatic ejector arranged to eject a keg or barrel from the brushing or scouring device; and means for successively operating the automatic ejector by the weight of the kegs or barrels passing from the soaking-trough to the brushing or scouring device, substantially as described.

8. In a keg or barrel cleaner, rolls for rotating a keg or barrel; suitable means for operating the rolls; a brush or brushes for acting upon the keg or barrel while the latter is under rotation; means for bringing the brush or brushes into position to thus act upon the keg or barrel; an ejector which serves both to move the brush or brushes away from the keg or barrel and to eject the latter from the rolls; and means for operating the ejector from the weight of a keg or barrel passing to the rolls which serve to rotate the keg or barrel, substantially as described.

9. In a keg or barrel cleaner, means for rotating a keg or barrel; an ejector for removing the keg or barrel from the rotating means; means for operating the ejector; an incline leading downwardly to the latter; and a movable abutment arranged in the path of a keg or barrel rolling down from the incline, and connected with the ejector-operating means, so as to operate the same when actuated by a keg or barrel rolling upon the incline, as set forth.

10. In a keg or barrel cleaner, means for rotating a keg or barrel; a vertically-movable ejector adapted for lifting the keg or barrel from the rotating means and provided with an operating-lever; an incline leading downwardly to the latter; and a vertically-swinging track-section having its free end arranged normally in the path of a keg or barrel passing down the incline and connected with the operating-lever of the ejector so as to operate the same when it is swung downwardly by a keg or barrel upon the incline, substantially as described.

11. In a keg or barrel cleaner, means for rotating a keg or barrel; a brush or brushes for acting upon the ends of the keg or barrel; an overhead gravity-brush for acting upon the sides of the keg or barrel; vibratory levers supporting the side brushes and having upwardly-extending arms; and a chain or cable attached to the said arms of the vibratory levers and passing both over guide-pulleys upon a suitable support, and under guide-pulleys upon the said overhead gravity-brush, substantially as described.

12. In a keg or barrel cleaner, rolls for supporting and rotating a keg or barrel; an ejector Q arranged to rise and fall between the rolls; a lever for operating the vertically-sliding ejector; and a tilting track connected with the said lever and arranged to deliver a keg or barrel to the rolls, substantially as described.

13. In a keg or barrel cleaner, rolls for supporting and rotating a keg or barrel; an ejector arranged to rise and fall between the rolls; means for operating the ejector; levers connected with and operated by said means; brushes upon said levers; and a gravity-brush connected with the upper ends of said levers which latter are caused to swing in a direction to remove the brushes from a keg or barrel upon the rolls when the ejector is moved upwardly, substantially as described.

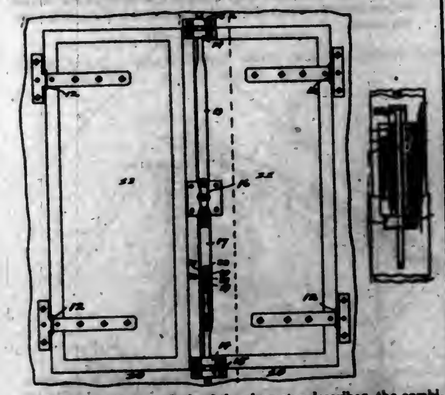
14. In a keg or barrel cleaner, means for rotating a keg or barrel; a vertically-movable ejector provided with rolls 38 and having a base 41; means for moving the ejector and the base; elbow-levers P having their lower arms 40 connected with the base of the ejector by shifting connections; and a set of brushes operated by the elbow-levers, substantially as described.

15. A keg or barrel cleaner comprising a soaking-trough and a brushing or scouring device; means for successively delivering the kegs or barrels from the soaking-trough to the brushing or scouring device; a track for rolling the kegs or barrels from the soaking-trough to the brushing or scouring device; a movable abutment normally in the path of a keg or barrel passing from the soaking-trough to the brushing or scouring device; an ejector arranged for successively ejecting kegs or barrels from the brushing or scouring device and means for moving the ejector connected with and operated by the movable abutment when the latter is actuated by the weight of a keg or barrel passing from the soaking-trough to the brushing or scouring device, substantially as described.

16. A keg or barrel cleaner comprising a soaking-trough in which the kegs or barrels are soaked; means for moving the kegs or barrels along the soaking-trough; means for successively transferring the kegs or barrels from the soaking-trough to a device for brushing or scouring the kegs or barrels; a brushing or scouring device having means for rotating a keg or barrel which has been transferred from the soaking-trough; a brush or brushes for brushing or scouring such keg or barrel while under rotation; and an ejector arranged to eject a keg or barrel from the rotating means; means for automatically operating the ejector from and by the weight of a keg or barrel passing from the soaking-trough to the brushing or scouring device; and means for automatically moving the brush or brushes away from a keg or barrel upon which they have been operating, simultaneously with the ejector serving to eject such keg or barrel, substantially as described.

17. In a keg or barrel cleaner, the rotary beveled or tapered rolls for rotating a keg or barrel in a horizontal position; a vertically-adjustable brush adapted for application to the side of the keg or barrel; a couple of horizontally-adjustable brushes arranged opposite the ends of the keg or barrel, and adapted for application thereto; a vertically-movable ejector adapted for lifting the keg or barrel from the rotary rolls, and provided with an operating-lever; a couple of pivotally-supported bell-crank levers having vertically-arranged swinging arms to which the horizontally-adjustable brushes are attached, and to whose upper ends the vertically-adjustable brush is connected by means of a flexible connector and having also horizontally-arranged swinging arms connected with the operating-lever of the ejector so as to withdraw the brushes from the keg or barrel being cleaned when the ejector is actuated; an incline leading downwardly toward the rotary rolls; and a vertically-swinging track-section having its free end arranged normally in the path of a keg or barrel rolling down the incline, and connected with the operating-lever of the ejector so as to actuate the same, and thereby withdraw the brushes from the keg or barrel being cleaned when it is swung downwardly by a keg or barrel upon the incline, substantially as described.

605,880. CAR-LOCK. THOMAS B. KENDT, Chicago, Ill. Filed Nov. 15, 1897. Serial No. 658,572. (No model.)



Claim.—1. In a car-lock of the character described, the combination, with the locking-bar having a loop or staple and the hinged slotted operating-lever, of a guide or keeper mounted on said lever adjacent to the slot therein, and a locking-pin mounted to slide in said guide or keeper, substantially as described.

2. In a car-lock of the character described, the combination, with the locking-bar having a loop or staple and the hinged slotted operating-lever, of a guide or keeper mounted on said lever adjacent to the slot therein, a locking-pin mounted to slide in said guide or keeper, and means for holding the said locking-pin in an elevated position clear of the slot, substantially as described.

3. In a car-lock of the character described, the combination, with the locking-pin having a loop or staple with a vertical opening and the hinged slotted operating-lever, of a guide or keeper on said lever extending vertically upward from the slot therein, when the lever is in its locked position, and provided with a notch, and a locking-pin mounted to slide vertically in said guide or keeper and having a projection to engage the notch thereof whereby said pin may be held in an elevated position, substantially as described.

4. In a car-lock of the character described, the combination, with the locking-bar having a loop or staple, of the hinged slotted operating-lever having a keeper or guide thereon composed of integral inclined flanges provided with notched slots, and a locking-pin adapted to engage said flanges, and provided with projections to engage the slots and notches, substantially as described.

605,881. RUBBER TIRE. ALVIN V. KNOX, Springfield, Ohio. Filed June 4, 1897. Serial No. 638,902. (No model.)

Claim.—1. In a rubber-tire attachment for vehicle-wheels, the combination with two rings or cheek-pieces adapted to engage with the ordinary iron tire of a wheel, of keys or rivets insertible in perforations in said rings or cheek-pieces and at one end riveted to one of said cheek-pieces and at their other end spread apart to engage with the other cheek-piece, and having shoulders between said cheek-pieces and engaging therewith respectively.



2. In a rubber tire attachment for vehicle-wheels, the combination with rings or cheek-pieces adapted to engage with the ordinary iron tire and having perforations and plates secured to the rings or cheek-pieces to hold their ends together, of rings or keys in said perforations and having shoulders engaging the inner faces of said rings or cheek-pieces respectively, and also engaging their outer faces, a rubber tire fitted between said rings or cheek-pieces, one or more retaining-wires extending through said rubber tire and fastened at their ends.

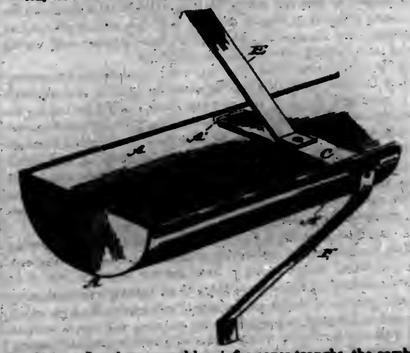
3. In a rubber-tire attachment for vehicle-wheels, the combination with the rings or cheek-pieces adapted to engage with the ordinary iron tire and having perforations, of keys adapted to pass through said perforations and at one end to be riveted to one ring or cheek-piece and at the other end to be spread to interlock with the other ring or cheek-piece, and means to hold the same spread.

4. In a rubber-tire attachment for vehicle-wheels, the combination with rings or cheek-pieces adapted to engage with the ordinary iron tire, one of them having plain perforations and the other having perforations with a struck-up leg, of keys insertible through said perforations and adapted to be riveted at one end to one ring or cheek-piece and slitted at the other end and having a neck adapted to be spread to bind the same in the adjacent perforations and being held and protected by said leg.

5. In a rubber-tire attachment for vehicle-wheels, the combination with rings or cheek-pieces adapted to be connected at their ends, and having perforations, those of one ring or cheek-piece having struck-up legs, of keys adapted to fit in said perforations and to be riveted at one end and spread at the other end and held and protected by said leg at the latter end.

6. In a rubber-tire attachment for vehicle-wheels, the combination with a ring or cheek-piece having perforations with a struck-up leg having a tooth, of a key having a neck with a slit, shoulders at one end of the neck and projections at the other, the neck being spreadable to receive said tooth in the slit.

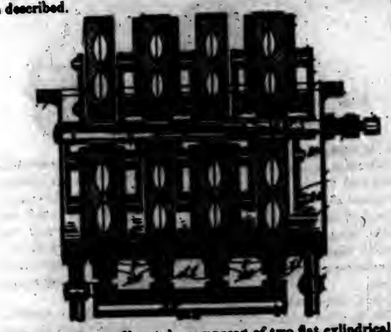
605,882. EAVES-TROUGH HANGER. CHARLES KNOWLES, Chilton, Wis. Filed Feb. 16, 1898. Serial No. 670,590. (No model.)



Claim.—In a hanger and bracket for eaves-troughs, the combination with the trough, the forked member formed by bending the wire upon itself, passing the same horizontally through registering apertures on opposite sides of the trough, the ends of the fork being clenched on the outside of the trough, a bracket mounted on the arms of the fork, a strap for supporting the trough, and a loop outside of the trough, to which a strap may be connected, as shown and for the purpose specified.

605,888. FILTER. HUGO R. KUEHNERT, Chicago, Ill., assignor to Andrew M. Knabe, same place. Filed Nov. 20, 1897. Serial No. 659,093. (No model.)

Claim.—1. In a filter, a filter-tube composed of two flat cylindrical disks of clay each provided on one of its flat faces with annular and radial grooves which when said disks are fitted together to form a tube, form annular and radial passages therein, substantially as described.



2. In a filter, a filter-tube composed of two flat cylindrical disks of clay each provided in one of its flat faces with wide annular grooves bordered by narrow grooves adapted to receive material to cement said disks together to form said tube, said wide annular grooves forming annular passages in said finished tube, and radial passages connecting said annular passages and forming an outlet from said tube, substantially as described.

3. In a filter, a filter-tube comprising a flat cylindrical disk having internal annular passages and radial passages connecting said annular passages and forming an outlet from said tube, a metal ring or band around said tube, and a nipple on said band having an opening adapted to communicate with the outlet of said tube, substantially as described.

4. In a filter, a filter-tube comprising a flat cylindrical disk having internal annular passages and radial passages connecting said annular passages and forming an outlet from said tube, a metal ring or band around said tube, an exteriorly-screw-threaded nipple on said band communicating with said outlet of said tube, a casing adapted to contain said tube and having an opening through which said nipple is adapted to pass and means for securing said tube firmly within said casing, substantially as described.

5. In a filter, a filter-tube comprising a flat cylindrical disk having internal annular passages and radial passages connecting said annular passages and forming an outlet from said tube, a metal ring or band around said tube, an exteriorly-screw-threaded nipple on said band communicating with said outlet of said tube, a casing adapted to contain said tube and having an opening through which said nipple is adapted to pass and means for securing said tube firmly within said casing comprising a union adapted to couple said nipple with an outlet-pipe and clamp said ring or band firmly against said casing around said opening, substantially as described.

6. In a filter, a casing, a filter-tube within said casing comprising a hollow flat cylindrical disk having a central opening therethrough and a peripheral outlet, a ring or band around said tube having an outwardly-extending nipple provided with an opening communicating with said peripheral outlet, an opening in said casing through which said nipple is adapted to pass, means for coupling said nipple with an outlet-pipe and serving to firmly secure said tube within said casing, valve-controlled inlet and outlet pipes for said casing, and an exhaust-valve on said casing adapted to permit the exit of air therefrom, substantially as described.

7. In a filter, a casing, a filter-tube within said casing comprising a hollow flat cylindrical disk having a central opening therethrough and a peripheral outlet, a ring or band around said tube having an outwardly-extending nipple provided with an opening communicating with said peripheral outlet, an opening in said casing through which said nipple is adapted to pass, means for coupling said nipple with an outlet-pipe and serving to firmly secure said tube within said casing, a shaft passing centrally through said casing and through said central opening in said tube, and devices carried by said shaft adapted to remove sediment from the outer faces of said tube when said shaft is revolved, substantially as described.

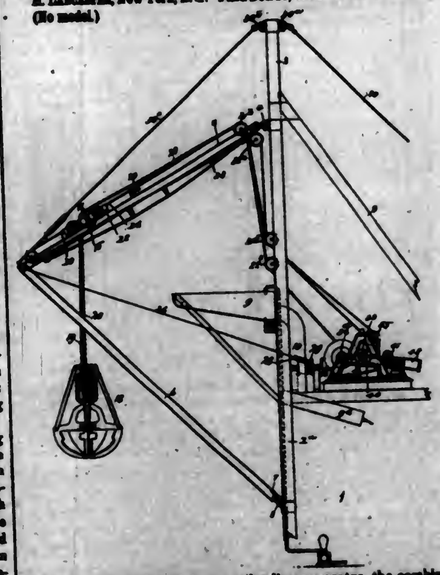
8. In a filter, the combination with a plurality of parallel filter-tubes comprising hollow flat cylindrical disks having central openings and firmly mounted within a casing, of a shaft passing longitudinally through said casing and through said central openings in said tubes and carrying devices adapted to scrape the outer faces of said tubes to clean the same when said shaft is revolved, substantially as described.

9. In a filter, the combination with a plurality of parallel filter-tubes comprising hollow flat cylindrical disks having central openings and firmly mounted within a casing, of a shaft passing longitudinally through said casing and through said central openings in said tubes and carrying arms extending outwardly between said tubes, and devices carried by said arms and bearing against said tubes to clean the same when said shaft is revolved, substantially as described.

10. In a filter, the combination with a plurality of parallel filter-tubes comprising hollow flat cylindrical disks having central openings and firmly mounted within a casing, of a shaft passing longitudinally through said casing and through said central openings in said tubes and carrying arms extending outwardly between said tubes, and movable spring-actuated scrapers carried by said arms and bearing against said tubes to clean the same when said shaft is revolved, substantially as described.

11. In a filter, a casing made in two parts, a plurality of filter-tubes mounted within said casing and consisting of hollow flat cylindrical disks surrounded by peripheral bands having nipples communicating with the outlets of said tubes and passing through openings in said casing, means for coupling said nipples with branches of an outlet-pipe for filtered water, central openings in said tubes, a crank-shaft passing through said casing and through said central openings in said tubes, arms on said shaft, scrapers carried by said arms and bearing against said tubes to clean the same when said shaft is revolved, valve-controlled inlet and waste pipes for said casing, and an air-outlet valve on said casing adapted to be closed automatically by the rise of water in said casing, substantially as described.

605,884. HOISTING AND CONVEYING APPARATUS. JAMES H. LANCASTER, New York, N. Y. Filed Dec. 26, 1894. Serial No. 532,923. (No model.)



Claim.—1. In a dredging or unloading apparatus, the combination with a vertical standard or support, of an inclined trolley-way pivotally connected thereto at its higher end to swing laterally, a rectangular boom-frame supporting the free end of the trolley-way and also pivotally connected to swing coincident therewith without changing its shape, together with a sheave-equipped carriage on said way, grapple-operating chains guided through the carriage and suspending a grapple, and an independently-controlled cable for propelling the carriage and adapted to hold the same at any point on the way to permit the operation of the grapple, substantially as set forth.

2. In a dredging or unloading apparatus, the combination with the inclined trolley-way and supporting rectangular boom both pivotally secured at their inner ends to coincidently swing laterally without altering the shape of the boom, of a sheave-equipped carriage movably mounted on said way, means for laterally adjusting the trolley-way and boom, a grapple and grapple and carriage operating connections disposed with reference to the carriage, together with operating mechanism for said connections adapted to positively hold the carriage at any point throughout the length of the trolley-way, substantially as set forth.

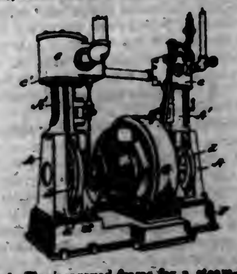
3. In a dredging or unloading apparatus, the combination with an inclined trolley-way and supporting rectangular boom both pivotally secured at their inner ends to coincidently swing laterally without alteration in the shape of the boom, of a sheave-equipped carriage on said way, means for laterally adjusting the trolley-way and boom, a grapple, and grapple and carriage operating cables, together with drums therefor adapted for both independent and joint rotation, substantially as set forth.

4. In a dredging or unloading apparatus, the combination with the laterally-swinging inclined trolley-way pivotally secured at its inner end and braced by a lower boom-frame pivoted in vertical line with the trolley-way, means for horizontally adjusting said boom and way, a sheave-equipped carriage movably mounted on the latter, a grapple, and grapple and carriage operating connections disposed with reference to the carriage together with operating mechanism for said connections adapted to positively hold the carriage at any point throughout the length of the trolley-way and cause the ascent or descent of the grapple, substantially as set forth.

5. In apparatus substantially as described, the combination with suitable conveying and discharge means, of a receiving-hopper 9, having a lower deep-formed portion $9^{\times}$, closed at the rear by a pivotally-depending door, and a jointed brace secured to said door to swing the same to an open position when the brace breaks joint, substantially as set forth.

6. The combination with the inclined trolley-way, carriage and grapple as described, of operating mechanism including the wheel 87, having double friction-disks, and independently-movable drums at each side thereof, and carriage and grapple operating cables guided to the rear of the trolley-way, led around inclined rollers contiguous thereto and thereby diverted to their drums, substantially as set forth.

605,885. STEAM-ENGINE. HENRY M. LANE, Cincinnati, Ohio. Filed July 9, 1896. Serial No. 598,502. (No model.)



Claim.—1. The improved frame for a steam-engine embodying an extended base in combination with a hollow pedestal extending symmetrically about the projected axis of the cylinder supported upon and above the base and having a lateral vertical slot extended oppositely through the sides of the pedestal for the reception and play of the crank-plate, a recess at the bearing side of the frame opening outwardly from the shaft-bearing to admit the shaft and crank-plate without disconnection, and an upward axial tubular extension of the pedestal for supporting the working cylinder and carrying the cross-head guides, substantially as set forth.

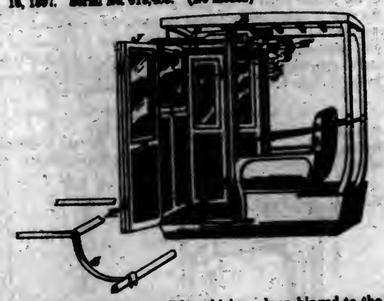
2. The improved frame for a double, vertical, reciprocating engine coupled to the same shaft, embodying two independent, hollow, columnar frames, supported above and upon a common base and extended above by tubular prolongations supporting the cylinders centrally, respectively; the lower part of each frame being oppositely slotted to permit the play of the crank-plates, and the proximate sides of the frames adjacent to the slots being provided with recesses opening outwardly to contain the journal-bearings, of the shaft and permit the removal of the latter without disconnecting the crank-plates, substantially as set forth.

605,886. BURNER FOR ACETYLENE OR OTHER GASES. GUSTAVE LEBRUN and FERDINAND CORMBAULT, Paris, France. Filed Oct. 6, 1897. Serial No. 654,102. (No model.) Patented in France Mar. 4, 1897, No. 264,602, and in Belgium Mar. 5, 1897, No. 126,720.

Claim.—A burner for acetylene gas and other gases rich in carbon, consisting of a hollow cylindrical body having thin walls, and made of a material which is a poor conductor of heat, and having its upper rounded extremity made of parabeloidal form and provided with an eminion-orifice for the gas made trumpet-shaped on the exterior and rounded on the interior, the walls of the nose of the burner at the center of which is the orifice being made of less thickness, so that the heating of the burner during combustion and the accumulation of carbon deposits are minimized, said burner being sealed in a metal socket having a central perforation at its base to act as a moderator and insure the interior of the burner being kept clean and free from deposit.



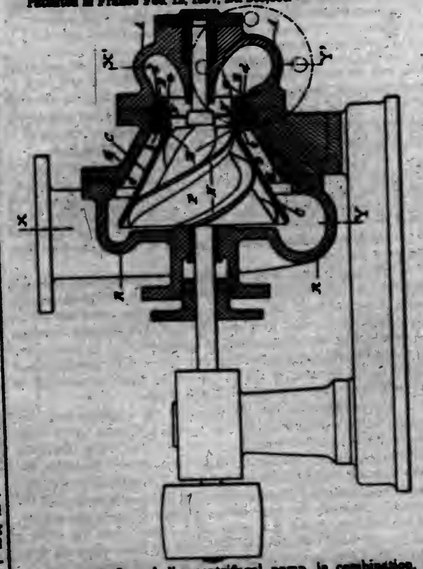
605,887. VEHICLE. GERAV LEWIS, Belleville, Ill. Filed Jan. 16, 1897. Serial No. 619,403. (No model.)



Claim.—1. In a convertible vehicle, a door hinged to the body thereof, another door hinged to said first-named door, an auxiliary hinge connected with the second-named door and with a sliding sleeve, and a support on the body on which said sleeve is mounted, said doors being adapted to be folded on each other and project from the body outside of the same.

2. In a convertible vehicle, a door adapted to be folded outside of the body thereof and formed in sections hinged together, one of said sections being hinged to said body, an auxiliary sliding hinge connected with the other section, a sleeve attached to said hinge and a support on said body, on which said sleeve is adapted to slide, in combination with thills which are depressed, so as to turn under said door when so folded outside of said body.

605,888. HELICO-CENTRIFUGAL PUMP. ALBERT MARIOT, Vesoul, France. Filed Dec. 14, 1897. Serial No. 661,883. (No model.) Patented in France Feb. 12, 1897, No. 262,880.



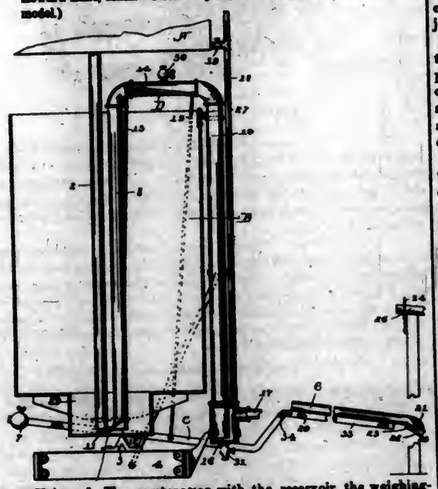
Claim.—1. In a helico-centrifugal pump, in combination, the casing, the helical chamber removably bolted thereto, the propeller within the casing, the jacket fitted to the propeller and turning with

the same, and the ring B removably clamped between the casing and helical chamber and having a bell-mouth projecting into said chamber, substantially as described.

2. In a helico-centrifugal pump, in combination, the casing, the helical chamber removably bolted thereto, the propeller within the casing, the jacket fitted to the propeller and turning with the same, and the ring B removably clamped between the casing and helical chamber and having a bell-mouth projecting into said chamber and the removable flange plate or ring E carried by the jacket and co-acting with the ring B, substantially as described.

3. In a helico-centrifugal pump, in combination, the casing, the helical chamber removably bolted thereto, the propeller within the casing, the jacket fitted to the propeller and turning with the same, and the ring B removably clamped between the casing and helical chamber and having a bell-mouth projecting into said chamber and a ring E removably connected to the jacket, said rings E and B having interlocking tongues and grooves adapted to form a packing and also permit a slight lateral play, substantially as described.

605,889. MILK-WEIGHING MACHINE. ROBERT C. MEALEY, Howard Lake, Minn. Filed July 26, 1897. Serial No. 645,916. (No model.)



Claim.—1. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir to said tank, of the siphon-pipe leading from said tank, the connections for allowing an inlet of liquid to start said siphon, the valves closing said supply and siphon pipes, and means actuated by the weight of the liquid in said tank to close said supply-pipe and open said siphon-pipe.

2. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir to said tank, of the siphon-pipe leading from said tank, the valve closing said supply and siphon pipes, the means adapted to be actuated by the weight of the liquid in said tank to close said supply-pipe and open said siphon-pipe, and the connections for allowing an inlet of milk to said siphon-pipe independent of the tank.

3. The combination with the reservoir, the weighing-tank and supply-pipe leading from the reservoir to said tank, of the siphon-pipe leading from said tank, the chamber inclosing the outlet end of the siphon-pipe, and provided with an outlet-pipe, the connection between said chamber and the source of supply adapted for use in starting the siphon, the valves closing said supply and siphon pipes and the means adapted to be actuated by the weight of the liquid in said tank to close said supply-pipe and open said siphon-pipe.

4. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir to said tank, of the lever supporting said tank, the pivotal point for said tank being offset from the fulcrum-point of said lever to give the desired leverage, the means upon the end of the lever for holding a weight, the outlet-pipe for said tank, the valves closing said supply and outlet pipes, and the connections between the same and said lever, whereby the supply-pipe valve is opened and the outlet-valve closed when the lever is tilted by said weight, the reverse action taking place when the lever is oppositely tilted by the weight of the milk in the tank.

5. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from the reservoir thereto, of the lever fulcrumed below said tank, the tank being supported upon said lever at a point offset from its fulcrum, the outlet-pipe leading from said tank, the valves closing said supply and outlet pipes, the connection between said valves and lever, the means upon the power end of said lever for holding a weight, and the means for releasing said weight when said lever is tilted by the overbalancing weight of the milk in the tank.

6. The combination with the reservoir, the weighing-tank, of the lever supporting said tank, the pivotal point of said tank being offset from the fulcrum-point to give the desired leverage, the pipe for supplying liquid to, and the port for discharging the liquid from, the tank, the valves for closing the same, the connection between said valves and lever, the means for tilting said lever to open the supply-pipe valve, said outlet-port valve being opened by means of the weight of milk in said tank.

7. The combination with the reservoir, the weighing-tank, and the supply-pipe leading from said reservoir thereto, of the lever fulcrumed below said tank and supporting the same, the siphon-pipe leading from said tank, the valves closing said supply and siphon pipes, and operatively connected with said lever, the means for lowering the power end of said lever to actuate said valves and allow inlet of fluid to the tank, the valves being actuated to allow an escape of such fluid by the reverse motion of the lever, and the adjustable weight upon the opposite end of said lever.

8. The combination with the reservoir, the weighing-tank and the supply-pipe leading from the reservoir thereto, of the lever supporting said tank, the siphon-pipe leading from said tank, the valves closing said supply and siphon pipes, and the connections between said valves and lever whereby the supply-pipe valve will be closed and the siphon-pipe valve opened when said lever is tilted by a predetermined weight of milk in said tank.

9. The combination with the reservoir, the weighing-tank and the supply-pipe leading from said reservoir thereto, of the lever fulcrumed below said tank and supporting the same, the siphon-pipe leading from said tank, the valves closing said supply and siphon pipes, and the connections between said valves and lever whereby when the lever is turned to lift the tank the supply pipe valve will be opened and the siphon-valve closed, and when the lever is oppositely tilted by the weight of the milk in the tank, the supply-pipe valve will be closed and the siphon-pipe opened to cause the siphonage of the milk from the tank.

10. The combination with the reservoir, the weighing-tank and the supply-pipe leading from the reservoir thereto, of the lever fulcrumed below said tank and supporting the same, the means upon the power end of said lever for holding a weight, the siphon-pipe leading from said tank, the valves closing said supply and siphon pipes, the connections between said valves and lever whereby the supply-pipe valve is opened and the siphon-valve closed when said lever is tilted by said weight, said siphon-pipe valve being opened and the supply-pipe valve closed when the lever is oppositely tilted by the overbalancing weight of the milk in the tank.

605,890. ANIMAL-DESTROYER. ORA J. MERRITT, Genesee-town, Idaho, assignor of one-half to Andrew A. Merritt, same place. Filed Dec. 13, 1897. Serial No. 661,688. (No model.)



Claim.—1. In an animal-destroyer, the combination of a base, a lever pivotally supported intermediate of its ends, a blade carried by one arm of the lever, and a treadle mounted on the other arm of the lever and adapted to be depressed by an animal, whereby the blade will be thrown upward and disembowel said animal, substantially as described.

2. In an animal destroyer, the combination of a base, a lever pivotally supported intermediate its ends on said base, a treadle on one end of the lever, a curved and pointed blade on the opposite end, the blade end of the lever being normally depressed, and means to secure the base in position, substantially as described.

3. In an animal-destroyer, the combination of an oblong base, a plate secured to the base and having upwardly-extending spaced ears, a lever pivoted intermediate its ends between said ears, a treadle on one end of the lever, a curved blade secured to the other end of the lever, said blade being pointed and having a knife-edge on the inside of the curve, the end of the lever carrying the blade being normally depressed, and means to secure the base in position, substantially as described.

605,891. STEAM-PACKING. CHARLES H. MEDWARTH, South Bethlehem, Pa. Filed Jan. 4, 1898. Serial No. 665,555. (No model.)



Claim.—1. A packing for steam and hydraulic joints comprising an annular compressible metal portion of less diameter than the exterior diameter of the pipe ends to be joined, and a thin comparatively wide retaining and centering portion of less thickness than said compressible portion united thereto as a separate piece and adapted to hold the latter in proper position for compression concentric with the interior diameter of the pipe ends without itself being compressed, substantially as described.

2. A packing for steam and hydraulic joints comprising an annular compressible soft-metal portion of less diameter than the exterior diameter of the pipe ends to be joined, and a series of eyes or loops to receive the fastening bolts by which the pipe ends are joined together and adapted to retain the annular packing concentric with the interior diameter of the pipe ends, substantially as described.

3. A packing for steam and hydraulic joints comprising an annular compressible soft-metal portion of less diameter than the exterior diameter of the pipe ends to be joined, and an annular portion of this metal having a series of correspondingly thin eyes or loops arranged exteriorly of the soft-metal packing to receive the fastening-bolts by which the pipe ends are joined together, and adapted to retain the annular packing concentric with the interior diameter of the pipe ends without itself being compressed, substantially as described.

4. A packing for steam and hydraulic joints comprising an annular soft-metal portion of less diameter than the exterior diameter of the pipe ends to be joined, and a thin metal ring inclosing and joined to said packing-ring and having thin exterior eyes or loops for receiving bolts by which the packing may be retained concentric with the interior of the pipe, substantially as described.

5. A packing for steam and hydraulic joints comprising an annular copper ring comparatively large in cross-section but of less diameter than the exterior diameter of the pipe ends to be joined, and a thin metal ring inclosing and joined to said packing-ring and having thin exterior eyes or loops integral therewith for receiving bolts by which the packing may be retained concentric with the interior of the pipe, substantially as described.

6. A packing for steam and hydraulic joints comprising a soft-metal ring arranged within a larger soft-metal ring, and an intermediate ring of thin metal encircling and secured to the inner ring and provided with integral eyes or loops spanning the space between the two packing-rings and secured to the outer ring, substantially as described.

605,892. EYELET. GEORGE B. MILLER, Waterbury, Conn., assignor to the American Ring Company, same place. Filed Dec. 24, 1896. Serial No. 616,932. (No model.)

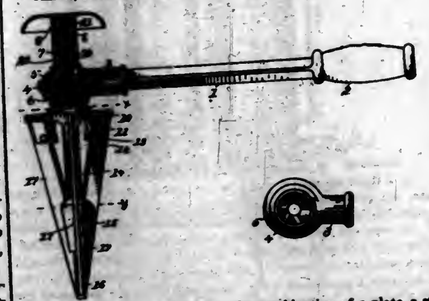


Claim.—1. An eyelet composed of a metal part and a ring of hardened plastic material, the metal part consisting of a tubular body, and a top having the outline of a convex polygon, the top being embedded in the ring, and having the outermost portions of its perimeter near the outer margin of the ring, and the innermost portions nearer to the inner than to the outer margin of the ring, substantially as described.

2. An eyelet comprising a head which is composed of the top of the metal part of the eyelet and an annular covering of hardened plastic material, said top having the outline of a polygon and having some of its sides longer than others, whereby some of the sections of the covering surrounding the top are rendered broader than others, substantially as described.

3. An eyelet composed of a metal part and a ring of hardened plastic material, the metal part consisting of a tubular body and a thin top or flange, the top having a polygonal perimeter comprising sides 11 bearing to each other the relations of the sides of a square, and the ring covering both the upper and under faces and the perimeter of the top, and the layers of material on the faces of the top, and the sections 20 in contact with the sides 11 of the top, being an integral mass, substantially as described.

605,893. PIPE-REAMER. PHILIP MUELLER, Decatur, Ill. Filed Jan. 27, 1898. Serial No. 668,110. (No model.)



Claim.—1. In a pipe-reamer the combination of a plate, a stem extended from the center of the plate at right angles therewith, and cutting-blades secured to the plate and resting against the stem, substantially as set forth.

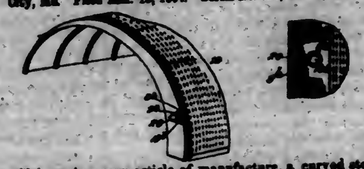
2. In a pipe-reamer, the combination of a plate grooved in its periphery, a stem extended from the center of the plate at right angles therewith and grooved near its extended end in directions coinciding with the grooves of the plate, and cutter-blades fastened in the grooves of the plate and resting in the grooves of the stem, substantially as set forth.

3. In a pipe-reamer, the combination of a plate grooved in its periphery, a stem extended from the center of the plate at right angles therewith, a grooved enlargement of the stem near the termination thereof, a diminished extension of the stem beyond the enlargement thereof and cutter-blades fastened in the grooves and bearing against the diminished extension, substantially as set forth.

4. In a pipe-reamer, the combination of a plate grooved in its periphery of the plate, a stem extended from the center of the plate at right angles therewith, a grooved enlargement on the stem near the end thereof, a diminished extension of the stem beyond the enlarged portion and cutter-blades fastened in the grooved lugs and resting in the grooves of the enlargement of the stem, substantially as set forth.

5. In a pipe-reamer, the combination with a stock having cutter-blades, of shaft 7 forming an axial extension of the stock, ratchet-collar 6 on the shaft near the stock, handle-head 4 fitting around the shaft and over the collar 6, ratchet-teeth in the head adapted to engage the teeth of the collar, boss 18 having a sleeve 19 fitting over the end of the shaft, grooved collar 8 on the end of the shaft, pin 21 extending through the sleeve and into the groove of the collar 8 and spring 20 around the shaft between collar 8 and head 4, substantially as set forth.

605,894. STEREOTYPE-PLATE. CHARLES T. MURRAY, Kansas City, Mo. Filed Mar. 15, 1897. Serial No. 627,726. (No model.)

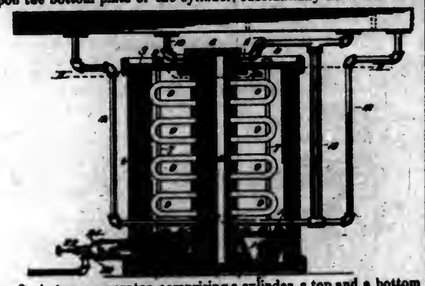


Claim.—As a new article of manufacture, a curved stereotype-plate provided with one or more legs projecting outwardly from its edge, and pins provided with cavities projecting upwardly from said legs, substantially as described.

605,895. STEAM-GENERATOR. CHARLES T. MURRAY, Kansas City, Mo. Filed Sept. 10, 1897. Serial No. 651,194. (No model.)

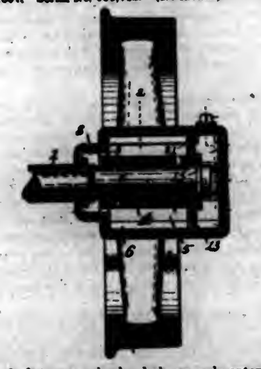
Claim.—1. A steam-generator, comprising a cylinder, a top and

a bottom plate clamped thereon, a cap stepped into the bottom plate, a cap stepped into the top plate, a generating-tube screwed into and closed by said caps and arranged centrally of the cylinder, pipes communicating with said tube and projecting laterally therefrom, outlet and inlet pipes communicating with the upper and lower end of the tube, respectively, and a burner surrounding said tube and resting upon the bottom plate of the cylinder, substantially as described.



2. A steam-generator, comprising a cylinder, a top and a bottom plate clamped thereon, a cap stepped into the bottom plate, a cap stepped into the top plate, a generating-tube screwed into and closed by said caps and arranged centrally of the cylinder, pipes communicating with said tube and projecting laterally therefrom, outlet and inlet pipes communicating with the upper and lower ends of the tube, respectively, a gas-burner, and a valve controlling the passage of gas into said burner, substantially as described.

605,896. CAR-WHEEL. JAMES H. MCEWEN, Du Bois, Pa. Filed Sept. 7, 1897. Serial No. 650,712. (No model.)

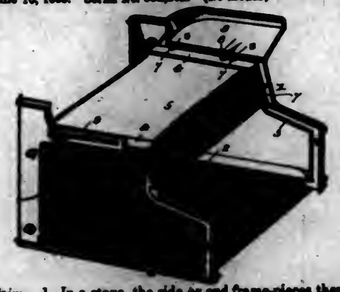


Claim.—1. In a car-wheel a hub, an axle entering the bore of the hub and projecting beyond the outer end thereof, a chamber integral with the hub and surrounding the projecting end of the axle but not the hub, a removable collar on the axle within said chamber, a pin passing through the axle and retaining the collar in place, and a plug closing an opening in the peripheral wall of the chamber, said opening being of less diameter than the axle, substantially as described.

2. In a car-wheel, the combination, substantially as set forth, of a hub, a shell forming a chamber surrounding said hub and forming a chamber at the outer end of said hub and forming a chamber at the inner end of said hub, all said chambers and the bore of the hub being in communication through apertures for the passage of oil, the inner wall of the inner chamber having an outwardly-projecting lip within said inner chamber, an axle projecting through said inner chamber and through the bore of said hub and into said outer chamber, a removable collar on said axle within said outer chamber and bearing against the outer end of said hub, and a pin through said axle at the outer face of said collar.

3. In a car-wheel, the combination, substantially as set forth, of an axle having at its end a journal and having a collar and groove at the inner end of the journal, a hub free to revolve on said journal and having a surrounding shell forming an oil-chamber around the hub, said hub and shell having formed at their inner ends an oil-chamber in communication with said surrounding chamber, the end wall of said end chamber freely encircling the body of the axle inwardly beyond said collar and groove and having an annular outwardly-projecting lip upon its inner surface.

605,897. COOKING STOVE OR RANGE. JOHN J. MCGOWN, Lexington, Ky., assignor of one-half to O. W. Snyder, same place. Filed June 10, 1895. Serial No. 552,302. (No model.)



Claim.—1. In a stove, the side or end frame-pieces thereof provided with inwardly-extending flanges corresponding approximately to the configuration of the oven, in combination with an oven sheet or plate disposed around said flanges, and separable binding-frames surrounding said oven, said frames being arranged in approximal relation to the edges of said oven sheet or plate and secured to the stove-frame, substantially in the manner and for the purpose described.

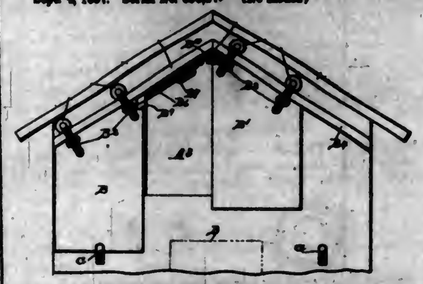
2. In a stove, the end frame-pieces thereof provided with integral inwardly-projecting flanges corresponding to the configuration of the oven, in combination with an oven plate or sheet extending around said flanges, and separable binding-frames extending around said oven and removably secured to the stove-frame, said binding-frames being formed with tapering notches which cooperate with beveled or inclined inwardly-projecting spurs on the stove-frame, substantially in the manner and for the purpose specified.

3. The combination with a cooking-stove having its side plates provided with bolts adjacent to the oven-space, of a sheet-metal oven composed of a single sheet of metal corresponding to the contour of the oven-space, and binding-frames extending continuously about the exterior of the oven on each edge thereof, said binding-frames being formed with lugs to take over the bolts of the side plates, substantially as set forth.

605,898. COMPOSITION OF MATTER FOR PLASTERING. HENRY C. MCMILLIN, Lima, Ohio. Filed July 20, 1897. Serial No. 645,420. (No specimens.)

Claim.—A composition of matter to be used to form a coating on walls, consisting of plaster of paris, Louisville cement, Portland cement, sand, cream of tartar, borax, lime, hair and water, and combined in the proportions and manner substantially as hereinbefore specified.

605,899. GABLE-DOOR. ALEXANDER MCGEE, Salem, N. Y. Filed Sept. 4, 1897. Serial No. 650,579. (No model.)



Claim.—1. The combination with the side wall of a building provided with a door-aperture, and a projecting inclined roof overhanging said wall, of a track parallel with and adjacent to said overhanging inclined roof, and a door movable along said track to and from the door-aperture and having an inclined upper edge parallel with and adapted to fit up immediately under said inclined, overhanging roof, substantially as described.

2. The combination with the side wall of the gable end of a building, and the oppositely-inclined eaves overhanging said wall, of a pair of tracks parallel and adjacent to the respective inclined eaves, and a pair of doors movable along the respective tracks to and from each other, the upper edges of the doors being parallel with the respective eaves of the gable and adapted to fit up immediately thereunder, substantially as described.

3. The combination with the side wall of a building provided with a door-aperture, and a projecting inclined roof overhanging said wall, of a track parallel with and adjacent to said overhanging inclined roof, a door movable along said track to and from said door-aperture and having an inclined upper edge parallel with and adapted to fit up immediately under said roof, an inclined way on the inner side of said door, and a roller pivotally mounted upon said wall and engageable with said way, said way and roller being located wholly between said door and wall, substantially as described.

605,900. BAKER'S OVEN. WERNER HEUSS, Cleveland, Ohio. Filed Feb. 28, 1898. Serial No. 671,813. (No model.)



Claim.—In a baker's oven, a base A of masonry, a fireplace A' at the back, a central arched flue A^2 extending forward with branches A^3 leading into the upward side flues A^4, longitudinal bars C supported in the front and back walls, a sheet-metal plate D, forming the oven-bottom, supported on said bars, posts d also supporting said plate and bars, longitudinal bars E supported by front and rear walls, a covering-plate F supported on said bars E, a metal plate G, forming top of oven, hangers g suspended from said bars E and supporting said plate G, downward openings A^5 A^5 connecting the space under the oven with the oven outlet-flue K, all constructed to operate substantially as and for the purpose specified.

605,901. PIPE-WRENCH. JOHN G. HOWELL, New Haven, Conn., assignor of one-half to Frederick B. Street and Charles B. Seville, same place. Filed Apr. 5, 1897. Serial No. 630,726. (No model.)



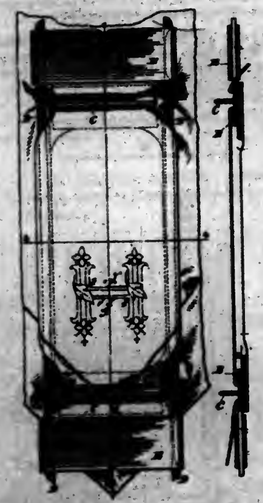
Claim.—1. In a pipe-wrench, the combination of a handle member having an integral toothed jaw upon its outer end, an adjustable jaw provided with an integral arm, a frame or box surrounding the handle member and said arm, a filling-block rigidly secured to the sides of the said frame or box, a pawl having a vertical motion within said block, a lever pivotally secured to said block, one end of which engages with said pawl, a pin rigidly secured to said handle member and operating in a slot within the sides of said box or frame, a spring secured to said handle member and bearing on said frame or box so as to keep it in an upright position, substantially as described.

2. In a pipe-wrench, the combination of the handle member 17, having the toothed jaw 3 upon its outer end, the jaw 2 and integral arm 4, having teeth upon its outer side, the frame or box 1 surrounding said handle member and said arm, and having a slot in either side in which the pin 14 is movable, a filling-block 21, pawl 6 operating in said block, a lever 10 secured to said block and engaging with said pawl, the spring 16 secured to said handle member and pressing against the bottom of said frame or box to keep the same in an upright position, substantially as described.

605,902. FABRIC-HOLDING FRAME FOR EMBROIDERING-MACHINES. JOHN J. EISENMAN, New York, N. Y. Filed Sept. 13, 1898. Serial No. 690,988. (No model.)

Claim.—1. A fabric-holding frame for embroidering-machines, comprising a main frame, removable bowed side bars independent of the main frame and clasps for uniting the bowed side bars at the ends thereof and causing a pressure to be exerted thereby to hold the fabric in place.

2. A fabric-holding frame for embroidering-machines, comprising a main frame, a C-shaped locking-frame carried upon each end thereof, the outer arm of each of said C-shaped locking-frames being shorter than the inner arm, and a clamping-strip movable laterally in and cooperating with each of the C-shaped locking-frames to hold the fabric in place so that a movement of the clamping-strip in one direction will cause a locking of the parts, whereas a movement of the strip in an opposite direction will allow of the parts being disconnected.



3. A fabric-holding frame for embroidering-machines, comprising a main frame, bowed side bars, removable clasps at each end for uniting said bowed side bars and causing a pressure to be exerted thereby to hold the fabric in place, a C-shaped locking-frame carried upon each end of the main frame and a clamping-strip of sufficient size to be received within each of the C-shaped locking-frames and to extend across an opening in a wall thereof to hold the fabric in place.

4. A fabric-holding frame for embroidering-machines, comprising a main frame, a rigid C-shaped locking-frame and a clamping-strip independent of the main frame and of sufficient size to be received and move laterally in said locking-frame and to extend across an opening in a wall thereof to hold the fabric in place.

605,908. METHOD OF AND APPARATUS FOR ENAMELING. ALBERT P. OTTO, Trenton, N. J. Filed Oct. 16, 1897. Serial No. 655,478. (No model.)



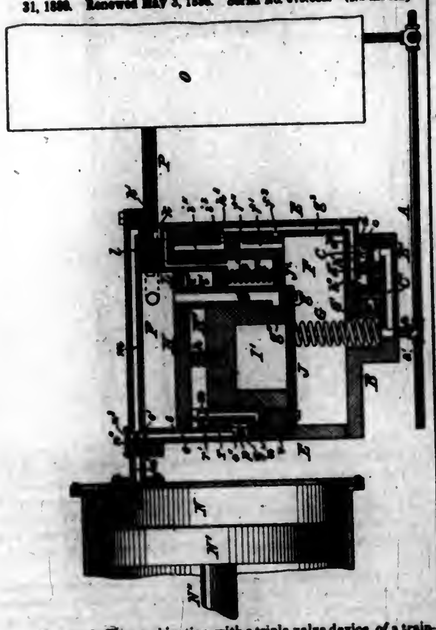
Claim.—1. In the art of enameling the method of applying finely divided enamel by heating the article to be enameled, confining the article, projecting throughout the space surrounding the same the ingredients of enamel in a finely-divided condition, and then in more closely confining the article, thereby limiting the quantity of enamel applied, and allowing the enamel ingredients to settle on the article, substantially as described.

2. An apparatus for enameling comprising a closed apartment, a receptacle adjacent to the apartment for receiving the ingredients of the enamel, means for projecting the ingredients throughout the apartment, and movable shutters for decreasing the size of the apartment, substantially as described.

3. An apparatus for enameling comprising a closed apartment, movable shutters for decreasing the size of the apartment, a receptacle arranged below the apartment for receiving the ingredients of the enamel, a perforated partition separating the apartment and the receptacle, and revolvable wings arranged in the receptacle whereby the ingredients of the enamel are projected through the perforations

in the partition and throughout the apartment, substantially as described.

605,904. AIR-BRAKE. HARVEY S. PARE, Chicago, Ill., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa. Filed Dec. 31, 1888. Renewed May 3, 1898. Serial No. 679,652. (No model.)



Claim.—1. The combination, with a triple-valve device, of a train-pipe release-valve for releasing fluid under pressure to the atmosphere, a supplemental piston for opening the release-valve, which is normally exposed on its opposite sides to fluid under pressure, and means whereby the release-valve may be closed automatically when a limited quantity of fluid has been released from the train-pipe, substantially as set forth.

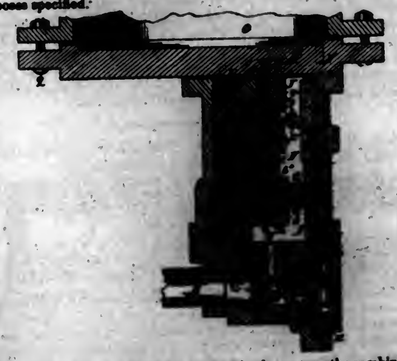
2. The combination, with a triple-valve device, of a train-pipe release-valve for releasing fluid under pressure to the atmosphere, a supplemental piston for opening the release-valve, and means for closing the release-valve automatically when the pressure of the train-pipe has been reduced sufficiently to effect a full application of the brakes and before the fluid is completely exhausted from the train-pipe, substantially as set forth.

3. The combination, with a triple-valve device, of a train-pipe release-valve for releasing fluid under pressure to the atmosphere, a supplemental piston for opening the release-valve, and means for closing the release-valve automatically when a portion of the fluid is released from the train-pipe and a reduction of pressure is effected on one side of the supplemental piston, substantially as set forth.

4. The combination, with a triple-valve device, of a train-pipe release-valve for releasing fluid under pressure to the atmosphere, a supplemental piston for opening the release-valve which is normally exposed on its opposite sides to fluid under pressure, a spring tending to close the valve, and means whereby the pressures on opposite sides of the supplemental piston may be equalized so as to permit the spring to close the valve after a limited quantity of fluid has been released from the train-pipe, substantially as set forth.

605,905. AIR-BRAKE. HARVEY S. PARE, Chicago, Ill., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa. Filed Mar. 7, 1889. Renewed May 3, 1898. Serial No. 679,653. (No model.)

Claim.—1. The combination in an air-brake mechanism, of a train-pipe, a chamber communicating with the train-pipe and with the main-valve chamber, a main-valve chamber, a piston in such chamber, a slide-valve carried by the piston, a passage in the slide-valve, a port in the valve-casing communicating with the brake-cylinder and controlled by the slide-valve, two ports and passages leading from the main-valve chamber in front of its piston, one to a vent-chamber and the other to the main-valve chamber back of the piston, a vent-chamber, a piston in the vent-chamber which is normally exposed to fluid under pressure, a vent-opening, a valve carried by the piston and controlling the vent-opening, and a passage between the vent-chamber and the train-pipe chamber, substantially as and for the purposes specified.



2. In an automatic fluid-pressure brake system, the combination, with a triple valve, of a vent-valve controlling a passage through which fluid under pressure may be vented from the train-pipe, a piston for operating the vent-valve, which piston is normally exposed to pressure on both sides, and a valve operative by a reduction of train-pipe pressure for releasing pressure from one side of the piston to the train-pipe and thereby effecting closing movement of the vent-valve, substantially as set forth.

3. In an automatic fluid-pressure brake system, the combination, with a triple valve, of a vent-valve controlling a passage through which fluid under pressure may be vented from the train-pipe, a piston for operating the vent-valve, which piston is normally exposed on one side to auxiliary-reservoir pressure and on the other side to train-pipe pressure, and a valve for releasing the reservoir-pressure from one side of the piston to the train-pipe, substantially as set forth.

4. In an automatic fluid-pressure brake system, the combination, with a triple valve, of a vent-valve controlling a passage through which fluid under pressure may be vented from the train-pipe under each car, a piston for operating the vent-valve, and a valve operative by a reduction of train-pipe pressure and controlling the admission of fluid under pressure to the piston and its release therefrom to the train-pipe, substantially as set forth.

5. In an automatic fluid-pressure brake system the combination, with a triple valve, of a vent-valve controlling a passage through which fluid under pressure may be released from the train-pipe, a piston for operating the vent-valve and which is exposed on one side to train-pipe pressure and on the other side to auxiliary-reservoir pressure, and a valve controlling communication between one side of the piston and the train-pipe, substantially as set forth.

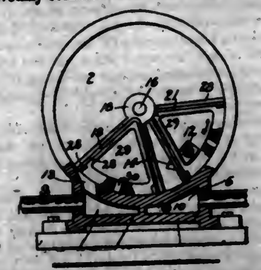
6. In an automatic fluid-pressure brake system, the combination, with a triple valve, of a vent-valve controlling a passage through which fluid under pressure may be released from the train-pipe, a piston working in a chamber for operating the vent-valve, and passages from the valve-chamber of the triple valve to one side of the piston and to the train-pipe respectively, which passages are controlled by the main valve of the triple valve, substantially as set forth.

7. In an automatic fluid-pressure brake system, the combination, with a triple-valve device, of a vent-valve controlling a passage through which fluid may be released from the train-pipe, a piston for operating the vent-valve, which is normally exposed to fluid under pressure, and a valve operated by a reduction of train-pipe pressure for releasing pressure from one side of the piston and thereby effecting closing movement of the vent-valve, substantially as set forth.

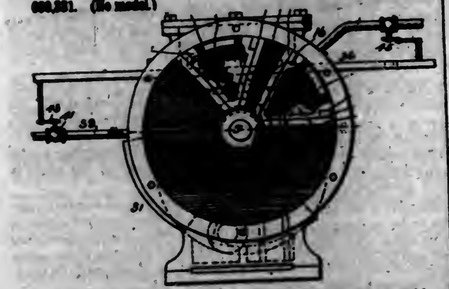
605,906. ROTARY ENGINE. JOHN H. PARSONS, Wilmington, Del., assignor of one-half to Charles Wilmer Gosling, Alfred D. Warner, and Charles Warner, Jr., same place. Filed Aug. 3, 1897. Serial No. 646,866. (No model.)

Claim.—1. In a rotary engine, the combination with the stationary cylinder, the base of which is formed with an inlet and exhaust chamber communicating therewith, of the rotatable shaft, the sleeve journaled thereon, the hollow pistons adapted to receive steam from the inlet-chamber and formed with inlets in the rim, the eccentric driving-shaft, the disk secured thereto, the links pivotally connected with said disk at diametrically opposite points, and the cranks secured to said shaft and sleeve and pivotally connected with the links, substantially as described.

2. In a rotary engine, the contemboss with the cylinder, the base formed with an inlet and exhaust chamber, and the rim formed with an exhaust-opening, and the cylinder-head formed with an inlet-opening with a contracted end, and the inlet-pipe communicating therewith and with the inlet-chamber, of the rotatable shaft, the sleeve, the alternately-operating pistons formed with steam-chambers and with openings in the rims, the eccentric driving-shaft, the disk secured thereto, the links pivotally connected with said disk at diametrically opposite points, and the cranks secured to said shaft and sleeve and pivotally connected with said links, substantially as described.



605,907. ROTARY ENGINE. JOHN H. PARSONS, Wilmington, Del., assignor of one-half to Charles Wilmer Gosling, Alfred D. Warner, and Charles Warner, Jr., same place. Filed Nov. 30, 1897. Serial No. 660,351. (No model.)



Claim.—1. In an alternating-piston rotary engine, the combination with the pistons and the cylinder having inlet-openings and exhaust-pipes and the turning plugs or valves in the exhaust-pipes, of the steam-chest, the slide for opening and closing said inlet-openings and the cranks connected with said slide and turning plugs, substantially as described.

2. In an alternating-piston rotary engine, the combination with the cylinder provided with inlet and exhaust openings, the exhaust-pipes and the turning-plugs in said pipes, the rotatable shaft, the sleeve journaled thereon, and the pistons, of the eccentric driving-shaft, the disk secured thereto, the links pivotally secured thereto at diametrically opposite points, and the counterbalance-cranks secured to the shaft and sleeve, and located opposite the pistons secured to the sleeve and shaft respectively, and the steam-chest, together with a slide and the cranks connected with said slide and turning plugs, substantially as described.

3. In an alternating-piston rotary engine, the combination with the cylinder having inlet-openings and exhaust-pipes, the steam-chest, the slide, the cranks connected therewith and the turning-plugs located in the exhaust-pipes and connected with said cranks, of the rotatable shaft, the sleeve, the pistons secured thereto, cut away at the peripheries and sides, the apertured web, the packing-strips, the counterbalance-cranks secured to said shaft and sleeve, the links and the eccentric driving-wheel, substantially as described.

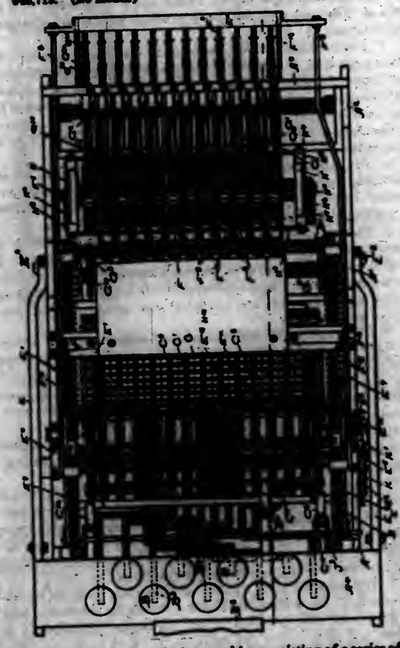
605,908. BOTTLE-STOPPER. JOHN F. PERRY, Chicago, Ill. Filed Aug. 5, 1897. Serial No. 647,314. (No model.)



Claim.—1. A bottle-stopper consisting of a rigid top portion with lugs on its sides and a lower elastic plug portion with a rigid facing on its lower end, combined with a bottle-neck having vertical channels and transverse locking-grooves, and a shoulder lower down in the bottle-neck adapted to receive the rigid facing on the lower end of the elastic plug to compel the lateral expansion of said plug substantially as and for the purpose described.

2. A bottle-stopper consisting of a rigid top portion with lugs on its sides and a lower elastic plug portion with a rigid facing on the lower end, combined with a bottle-neck provided with vertical channels and transverse locking-grooves having their entering portions inclined and terminating in locking-seats d' substantially as and for the purpose described.

605,909. CALCULATING-MACHINE. GEORGE B. PETERS and EDWIN B. PETERS, Emporia, Kans. Filed Aug. 2, 1897. Serial No. 646,719. (No model.)



Claim.—1. The calculating-machine consisting of a series of keys, several series of digital steps adapted to be adjusted in their operative positions by said keys, means for moving said steps a denominational space at each operation of the keys, means controlled by said steps for actuating the wheels, and said wheels, substantially as specified.

2. The calculating-machine, consisting of digital keys, a series of numeral-wheels, a series of devices for controlling and operating the wheels, each devices being movable by the keys across the denominational field to bring them successively into operative relation with the wheels, and each of them being provided with means for determining when the wheel with which it is in operative relation shall be operated and the extent of the operation, and means for actuating said devices in thus operating the wheels, substantially as specified.

3. The calculating-machine, consisting of digital keys, a series of numeral-wheels, a series of devices for controlling and operating the wheels, each devices being movable from denomination to denomination at each actuation of the keys to bring them successively into operative relation with the wheels to be operated, and each of said devices being provided with means for determining when the wheel with which it is in operative relation shall be operated and the extent of the operation, and means for actuating all said devices simultaneously in thus operating the wheels, substantially as specified.

4. The calculating-machine comprising the following elements in combination: first, a keyboard of nine digital keys; second, a series of slides, each containing nine steps adapted to be set by the keys, and arranged to feed over a denominational space; third, a series of denominational wheels or registers whose movements are determined by said steps, and fourth, means for actuating said wheels, substantially as specified.

5. In a calculating-machine, the combination with a single se-

ries of digital keys, of a series of movable slides carrying stops or pins adapted to be set in operative position by the keys, means for moving the series of slides across the denominational field of the machine a single denominational space at each impulse, a series of numeral-registers one for each denomination, means for operating said numeral-registers adapted to be connected to said slides, and means for operating the slides whose stops have been set, substantially as specified.

6. The calculating-machine wherein are combined a set of nine keys, one for each digit, a series of numeral-wheels one for each denomination, a transversely-moving series of slides each provided with nine adjustable stops and each movable independently in a longitudinal direction, means whereby the keys set said stops, means whereby the keys move the series of slides transversely, mechanical connections between said slides and the wheels, and a bar movable over the series of slides and engaging the stops which have been set, substantially as specified.

7. The combination with the numeral-wheels and keys of a calculating-machine, of a series of slides one for each denomination, each carrying stops adapted to be set by the keys, and each mechanically connected to the corresponding wheels so as to operate the latter, and a hand-operated device engaging the set stops and moving the slides to the extent determined by the position thereon of set stops, substantially as specified.

8. The combination with the keys, of several series of adjustable digital stops all movable over a common setting-point, and levers operated by the keys and acting to adjust the stops when the latter are positioned at the setting-point, substantially as specified.

9. The combination with the keys, of several series of stops all adjustable by power from the keys and all movable stop by stop, in one of the pauses of which movement they are positioned over a common setting-point, and levers operated by the keys and acting to adjust the stops when they are located at said setting-point, substantially as specified.

10. The combination with the keys, of several series of adjustable digital stops all movable over a common setting-point, means whereby the keys may adjust said stops when the latter are positioned at said setting-point, means whereby the keys may also move the several series over said point, and numeral-wheels whose movements are controlled by said stops, substantially as specified.

11. The combination in a calculating-machine, with the adjustable stops C, of means for adjusting said stops and means for depressing them, substantially as specified.

12. The calculating-machine consisting of a series of keys, several series of digital stops adapted to be adjusted in their operative positions by said keys, means for moving said stops a denominational space at each operation of the keys, means controlled by said stops for actuating the wheels, said wheels, and means for returning the stops to their normal position, substantially as specified.

13. The combination in a calculating-machine, with the adjustable stops C, of the pusher-bar E' and a device for depressing said stops positioned over the stops by said pusher-bar, substantially as specified.

14. The combination with the adjustable stops of slides carrying said stops and notched as at C^3, and a notched plate engaging said notches in the slides and acting to depress the stops, substantially as specified.

15. The combination with the adjustable stops of slides carrying said stops and notched as at C^3, the pusher-bar E' and a notched plate positioned by the pusher-bar and engaging said notches in the slides and acting to depress the stops, substantially as specified.

16. The calculating-machine consisting of a series of keys, several series of digital stops adapted to be adjusted in their operative positions by said keys, means for moving said stops a denominational space at each operation of the keys, means controlled by said stops for actuating the wheels, said wheels, and means for returning the stops to their normal position, said returning means being also adapted to be thrown out of operation at will, substantially as specified.

17. The combination with the keys and numeral-wheels, of a series of slides each carrying digital stops, rods upon which said slides are movably supported, means for adjusting the stops and means for moving the slides along the rods, substantially as specified.

18. The combination with the keys and numeral-wheels of a calculating-machine, of an endless series of devices carrying stops for controlling the movements of the wheels, and means for moving said devices across the denominational field of the machine, substantially as specified.

19. In a calculating-machine, the series of slides in combination with the rods supporting and forming ways for said slides, and links uniting the rods, substantially as specified.

20. In a calculating-machine, the series of slides in combination with the rods supporting and forming ways for said slides, links uniting the rods in an endless chain, sprocket-wheels meshing with the rods, and means for operating the chain, substantially as specified.

21. In a calculating-machine, the series of slides in combination with the rods supporting and forming ways for said slides, links uniting the rods in an endless chain, sprocket-wheels meshing with the rods, means for operating the chain, the keys actuating said operating means, and denominational wheels to whose spaces the slides are carried by the movement of the chain, substantially as specified.

22. The combination with numeral-wheels having peripheral notches, of pins for arresting the wheels, a bar passing across the series of pins and provided with a spring-bumper opposite each pin, and means for actuating said bar, substantially as specified.

23. The combination with the numeral-wheels, of duplicate pinions for each wheel, pawls for locking the pinions to their corresponding numeral-wheels, a separate rack for each pinion, means for throwing either series of racks into operation at will, and a series of slides movable across the denominational field and engaging the racks, and also capable of a sliding movement in which they operate said racks, substantially as specified.

24. The combination with the numeral-wheels of duplicate carrying-pawls acting thereon in opposite directions, and means for shifting said pawls at will to bring one set into and throw the other out of operation, substantially as specified.

25. The combination with the numeral-wheels of duplicate actuating devices and duplicate carrying devices adapted to rotate the wheels in opposite directions, and means for shifting the same to bring one set into operation and to throw the other set out of operation, substantially as specified.

26. The combination with the numeral-wheels, of the duplicate series of operating-racks, the guide-plates H^3 and H^4, supported from the numeral-wheel shaft, and means for raising and lowering said plates, substantially as specified.

27. The combination with the numeral-wheels, of the duplicate series of operating-racks, the guide-plates H^3 and H^4, and the eccentrics and hand-lever for raising and lowering said plates, substantially as specified.

28. The combination with the numeral-wheels and duplicate carrying-pawls for each wheel, either of which can be used at will, of a shaft having spirally-arranged pins adapted to operate successively a series of levers corresponding to the wheels, mechanical connections between the pawls and said levers, and means for imparting a sufficient amount of rotation to said shaft to operate all the levers at each actuation substantially as specified.

29. The combination with the numeral-wheels, of a series of carrying-pawls for carrying the wheels in a reverse direction as in subtraction, and means other than the numeral-wheels for actuating either series of said pawls in succession one after another, substantially as specified.

30. The combination with the series of stop-carrying slides, of duplicate devices adapted to move the same in opposite directions, and means controlling said devices and whereby either device may be put into operation while the other is kept out of operation, substantially as specified.

31. The combination with the series of stop-carrying slides, of duplicate devices adapted to move the same in opposite directions and also adapted to be used in alternation, substantially as specified.

32. The calculating-machine having a series of stops movable across the denominational field and acting to control the actuations of the registering devices, and means for reversing the direction in which the stops move, substantially as specified.

33. The calculating-machine wherein are combined a series of registers adapted to be moved in either direction according to the nature of the calculation being made, means for actuating said registers, and a series of controlling devices movable both transversely and longitudinally of the machine, the transverse movement serving to position the controlling devices and the longitudinal movement serving to operate said register-actuating devices, substantially as specified.

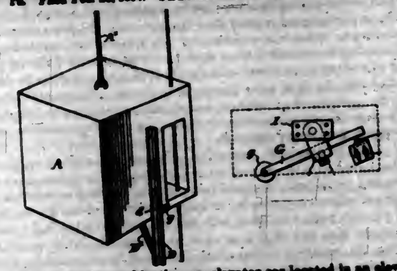
34. The combination with the numeral-wheels and carrying-pawls, of the cams on the wheels, the connecting-rods G^{11}, the levers actuated by said cams and acting to shift the connecting-rods G^{11} into operative position, means for actuating said rods, and means for carrying motion from said rods to the pawls, substantially as specified.

35. The combination with the numeral-wheels and carrying-pawls, of the cams on the wheels, the levers actuated by said cams and acting to shift the connecting-rods G^{11} into operative position, said rods, the springs and pins for shifting the rods back to their normal position, means for actuating said rods, and means for carrying motion from said rods to the pawls, substantially as specified.

36. The combination with the peripherally-notched register-wheels, the hand-lever giving the power for actuating the wheels, of arresting-pins F^7 and means whereby said pins are moved into operative position at the close of the downstroke of said lever, substantially as specified.

37. The combination with the peripherally-notched register-wheels, of the arresting-pins F^7, means for carrying said pins into operative position, and springs whereby the contact of the pins with the wheels is made yielding, substantially as specified.

605,910. ELEVATOR. ADRIAN L. PIERE and GEORGE H. NOBLE, Bryn Mawr, Pa., assignors of one-third to Walter Bevan, Rosemont, Pa. Filed Feb. 26, 1897. Serial No. 624,692. (No model.)



Claim.—1. In combination, an elevator car located in an elevator shaft and provided with a rib or flange extending down its side and for some distance below its floor, a notch or recess being formed in said flange, a door to the elevator shaft, and a horizontally-disposed bar carried by said door and adapted in the movement of said door to pass through said notch, substantially as set forth.

2. In combination, an elevator car, a shaft door, a controlling device, a block or jaw mounted on said car in the vicinity of said controlling device, a lever mounted on said car and adapted to be operated by the movement of the shaft door to engage the controlling device between itself and said block, and a bar mounted upon said shaft door, the car being provided with a notch or recess which registers with said bar when the car is in a predetermined position,—substantially as set forth.

3. In combination, an elevator car, a controlling device, a block fixedly secured to said car in the vicinity of said controlling device, an oscillating block pivotally secured to said car, a lever adjustably mounted on said oscillating block, and means for occasioning the throw of said lever, to grip the controlling device between itself and said block, substantially as set forth.

4. In combination, the elevator shaft provided with doors each carrying a horizontally extending bar, an elevator car provided with a vertically extending rib embodying a notch adapted to be engaged by said bars, a controlling device, a fixed jaw or block, a lever operating in connection with said block to bind upon the controlling device, said lever having a protruding end adapted to be encountered by said bars in the movement of the elevator shaft doors, substantially as set forth.

605,911. SAFETY DEVICE FOR ELEVATORS. ADRIAN L. PIERE and GEORGE H. NOBLE, Bryn Mawr, Pa., assignors of one-third to Walter Bevan, Rosemont, Pa. Filed May 13, 1897. Serial No. 637,022. (No model.)

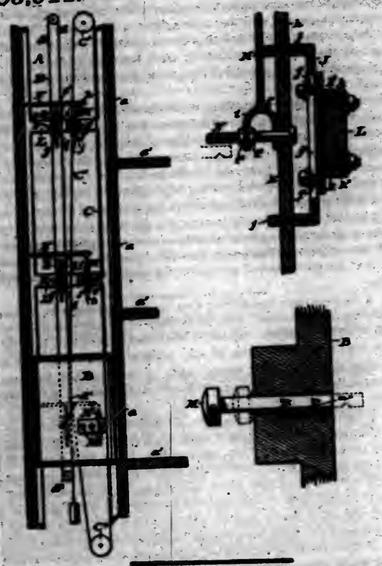
Claim.—1. In combination, an elevator car, an operating rope, an automatic rope connected with said operating rope, a lever mounted in the elevator shaft and connected to said automatic rope, a trip stud, connections between said trip stud and said lever, and a key mounted in the elevator car and adapted to be protruded to encounter said trip stud,—substantially as set forth.

2. In combination, an elevator car in the wall of which are situated a series of keys adapted to be protruded, an operating rope, an automatic rope connected therewith a series of levers connected to said automatic rope, a series of trip studs, connections between each trip stud and one of the levers, each trip stud being arranged in vertical alinement with one of the keys of the car,—substantially as set forth.

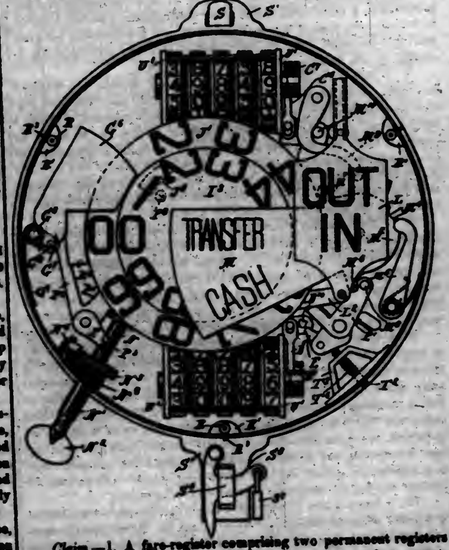
3. The combination, in an elevator shaft, of the operating rope, the automatic rope secured thereto, a lever, a clamp mounted upon the automatic rope, a link connecting said clamp and lever, a guide rod for said clamp, a trip stud, a link connecting said trip stud and said lever, a guide rod for said trip stud, and guide plates for said guide rods,—substantially as set forth.

4. In combination, the operating rope, the automatic rope, the levers F, the driver links, the driven links, the trip studs, a guide rod for each driver link, and to which the driver link is connected, guide plates in which said guide rods are mounted for vertical movement, base plates upon which said guide plates are mounted free for vertical adjustment, and frames upon which said base plates are secured free for lateral adjustment,—substantially as set forth.

605,911.



605,912. FARE-REGISTER. CHARLES H. PRATT, Chicago, Ill., assignor, by mesne assignments, to the International Register Company, same place. Filed Apr. 17, 1897. Serial No. 632,669. (No model.)



Claim.—1. A fare-register comprising two permanent registers adapted to register different classes of fares, an independent operating-lever for each of said permanent registers, a locking-dog associated with said operating-levers and so positioned that a movement of one of said levers moves the dog to lock the other lever, a trip-register adapted to register the total number of fares during a trip, and a connection between said trip-register and each of said operating-levers whereby the trip-register is operated each time each of said permanent registers is operated.

2. A fare register comprising a case containing two permanent registers adapted to register different classes of fares, and a trip-register for registering the total number of fares during a trip, two con-

trolling-levers within said case connected respectively with said permanent registers so as to operate the same, and a connection between said controlling-levers and the trip-register, a locking-dog for said controlling-levers so positioned that the movement of one moves the dog to lock the other and prevent its movement, an operating-lever for each controlling-lever outside the case and operatively connected therewith.

3. A fare-register comprising a case containing two permanent registers adapted to register different classes of fares, and a trip-register for registering the total number of fares during a trip, two controlling-levers within said case connected respectively with said permanent registers so as to operate the same, and a connection between said controlling-levers and the trip-register, a locking-dog for said controlling-levers so positioned that the movement of one moves the dog to lock the other and prevent its movement, an operating-lever for each controlling-lever outside the case and operatively connected therewith, a locking-dog for said operating-levers so positioned that the movement of one moves the dog to a position to lock the other.

4. A fare-register comprising two register mechanisms, means for operating the same, two toothed portions relatively movable and located in different planes, one above the other, one of said toothed portions connected with each of said register mechanisms, and a single safety-dog adapted to engage both of said toothed portions and prevent their backward movement before the registers have been actuated.

5. A fare-register comprising two permanent registers for registering different classes of fares, a controlling-lever for each of said registers, two toothed portions, relatively movable and located in different planes, one above the other, one of said toothed portions connected with each of said controlling-levers, a single safety-dog adapted to engage both of said toothed portions on both of said controlling-levers and prevent their backward movement before the registers have been actuated, a trip-register adapted to register the total number of fares for all classes during a trip, and operating-levers for actuating either one of said permanent registers and the trip-register at will.

6. A fare-register comprising two permanent registers adapted to register different classes of fares, a bell associated with each permanent register, a bell-hammer operated by each permanent register mechanism, a visual fare-indicator or distinguishing device adapted to indicate the class of fare last registered and a connection between said fare-indicator and the bell-hammers whereby said indicator is shifted by the movement of said bell-hammers.

7. A fare-register comprising two register mechanisms adapted to register different classes of fares, a bell associated with each register mechanism, said bells both mounted upon a common support, a bell-hammer connected with each register mechanism so as to be operated when said register mechanism is operated, a fare-indicator or distinguishing device adapted to indicate the class of the fare last registered and mounted upon the bell-support, a connection between said fare-indicator and the bell-hammers whereby said indicator is shifted by the movement of said bell-hammers.

8. A fare-register comprising a registering device, means for operating the same, a blind connected with said operating means so as to be moved to a position to conceal the registrations each time the register is actuated, and a resetting or canceling device for said register, and a connection between said resetting device and said blind so that the blind is moved to a position to conceal the registrations of the register during the operation of resetting or canceling.

9. A fare-register comprising two permanent registers adapted to register the different classes of fares, a trip-register for registering the total number of fares of all kinds during a trip, means for actuating either one of said permanent registers and the trip-register at will, a resetting or canceling mechanism for said trip-register, a blind connected with the register-actuating mechanism so as to be moved to conceal the fares indicated by the trip-register each time said register is operated, and a connection between said blind and said resetting mechanism so that the blind is moved and held in its concealing position during the operation of resetting or canceling.

10. A fare-register comprising two permanent registers adapted to register different classes of fares, means for independently-operating said registers, a trip-register for registering the total number of fares during a trip, a blind for said trip-register adapted to be moved so as to conceal the registrations of the trip-register, each time the trip-register is operated, a connecting-piece between the trip-register and the two permanent registers adapted to be connected with either of said permanent register mechanisms so as to be moved thereby, an actuating-dog for the trip-register attached to said connecting-piece and a connection from said connecting-piece to the blind.

11. A fare-register comprising a trip-register, a blind adapted to be moved so as to conceal the registrations of the trip-register each time a fare is registered, a canceling or resetting mechanism for said trip-register, a locking-piece associated with said canceling or resetting mechanism and adapted to lock the register so that it cannot be operated during the operation of resetting or canceling, and a connection between said resetting mechanism and said blind so that the blind is moved to its concealing position and held in such position during the operation of resetting or canceling.

12. A fare-register comprising two permanent registers adapted to register different classes of fares, a trip-register adapted to register the number of fares during a trip, means for actuating either one of said permanent registers and the trip-register at will, a blind adapted to be moved so as to conceal the registrations of the trip-register, a canceling or resetting mechanism for said trip-register comprising a longitudinally-movable shaft, a three-part lever associated therewith, one of said parts connected with the shaft, another of said parts connected with the blind so as to move it to its concealing position during the resetting or canceling operation, the remaining part adapted to engage the register mechanism during the resetting operation and prevent it from being operated.

13. A fare-register, comprising a trip-register, a blind adapted to be moved so as to conceal the registration of the trip-register, a canceling or resetting mechanism for said trip-register comprising a longitudinally-movable shaft, a three-part lever associated therewith, one of said parts connected with the shaft, another of said parts connected with the blind so as to move it to its concealing position during the resetting or canceling operation, the remaining part adapted to engage the register mechanism and prevent it from being operated.

14. A fare-register comprising a case containing the register mechanism, a glass or dial for the same, and an adjusting device interposed between said glass or dial and the register.

15. A fare-register comprising a base-plate containing the register mechanism, a lid or cover for the same, a dial-plate interposed between said base-plate and said lid or cover, and a series of springs interposed between said base-plate and said dial-plate so as to normally force the dial-plate toward said lid or cover.

16. A fare-register comprising a base-plate supporting the register mechanism, a lid or cover for the same, a glass interposed between said base-plate and said lid or cover, and supported upon a series of movable parts, said movable parts being provided with springs which normally tend to force the glass toward the lid.

17. A fare-register comprising a base-plate supporting the register mechanism, a lid or cover for the same, a lock to connect said base-plate and lid or cover together, comprising a movable spring-actuated pin connected with the base-plate adapted to engage said lid or cover when in position.

18. A fare-register comprising a base-plate supporting the register mechanism, a lid or cover for the same, a lock for locking the base-plate and lid or cover together, comprising a movable spring-actuated pin connected with the base-plate and adapted when in its locking position to engage said lid or cover, said lid or cover provided with a glass seal opposite said pin so that the pin is accessible when the glass seal is broken.

19. A fare-register comprising a base-plate supporting the register mechanism, a lid or cover for the same, a lock for locking the base-plate and lid or cover together, comprising a movable spring-actuated pin connected with the base-plate and adapted when in its locking position to engage said lid or cover, said lid or cover provided with a glass seal opposite said pin so that the pin is accessible when the glass seal is broken, and an arm connected with said pin and adapted to engage a holding device and hold said pin in its unlocking position.

20. A registering device comprising a hollow counting-wheel, actuating mechanism therefor contained within said hollow wheel and completely inclosed thereby, said actuating mechanism comprising an actuating-dog adapted to engage a ratchet-wheel connected with the counting-wheel and rotate the wheel step by step when operated, a locking-dog to prevent the backward movement of said wheel, and a holding device associated with one of said dogs, and adapted to engage it and prevent it from being freed from said ratchet-wheel while the other dog is changing position thereon.

21. A fare-register comprising a permanent register provided with a series of counting-wheels rotatably mounted upon a shaft, an actuating-dog connected with the shaft and adapted to engage a ratchet-wheel associated with one of said counting-wheels so as to actuate the same, a locking-dog to prevent the backward movement of said wheel, and a holding device associated with each of said dogs, each adapted when in a predetermined position to hold its associated dog in contact with said ratchet-wheel, said holding devices so positioned that when one is operative, the other is inoperative so that one dog is at all times held in contact with the ratchet-wheel, said dogs and associated parts completely inclosed within one of said counting-wheels so that they cannot be tampered with.

22. A fare-register comprising a permanent register provided with a series of counting-wheels rotatably mounted upon a shaft, a dog connected with the shaft and adapted to engage a ratchet-wheel connected with one of said counting-wheels, a locking-dog adapted to engage the ratchet-wheel and prevent backward movement of the counting-wheel, said dogs completely inclosed within said counting-wheel so that they cannot be tampered with, a holding device for each of said dogs separate therefrom, each holding device adapted to engage its associated dog at predetermined times, said holding devices so positioned that one of the dogs is always held in contact with the ratchet-wheel so that the counting-wheels cannot be moved except in the process of registering fares.

23. A fare-register comprising a base-plate supporting the register mechanism, a base-plate rim projecting therefrom, a series of pins projecting from said base-plate rim, a cover adapted to fit loosely over the rim and tightly over the pins, a series of lugs on said cover adapted to pass back of said pins when the cover is given a partial rotation and a locking device adapted to lock said cover against rotation.

24. A fare-register comprising a permanent register provided with a hollow units-wheel, two dogs associated with said wheel, one the actuating-dog and the other the locking-dog, a movable or rocking plate contained within said wheel with which said actuating-dog is connected, a ratchet-wheel adapted to be engaged by said dogs and two holding devices, one associated with each of said dogs, said holding devices so positioned that when one dog is free to be disengaged from the ratchet-wheel, the other is held in position, whereby the shaft can only be rotated one tooth at a time.

25. A fare-register comprising a permanent register provided with a hollow units-wheel, actuating mechanism therefor contained within said wheel so that it cannot be tampered with, said actuating mechanism comprising a movable or rocking plate, an actuating-dog connected therewith, a ratchet-wheel adapted to be engaged by said dog, a locking-dog also adapted to engage said ratchet-wheel, two pins relatively movable and associated one with each dog, each pin so positioned as to engage its associated dog and hold it in engagement with the ratchet-wheel when the other dog is moving from one tooth to the other whereby the register cannot be actuated except in the process of registering fares.

605,918. TELEPHONE-TRANSMITTER. PERRY A. RAY, Boston, Mass. Filed Aug. 18, 1897. Serial No. 648,714. (No model.)



Claim.—1. In a telephone-transmitter, the combination with the fixed and vibratory electrodes consisting of substantially plane conducting-plates; of an oblong coil formed of insulating material, closely confining comminuted resistance-varying material between the said electrodes, the long axis of said coil being horizontally positioned and parallel to said plates, substantially as described.

2. In a telephone-transmitter, the combination with an outer case, of a vibrating electrode and a fixed electrode both within the said case, a flattened ring of yielding material between and in contact with the said electrodes, the longer axis of said ring being horizontal, and comminuted resistance-varying material completely filling the space inclosed by the said electrodes and the said ring, substantially as described.

3. In combination with a telephone-transmitter, a coil for comminuted resistance-varying material, said coil comprising a flattened ring of soft spongy material, said comminuted material to be contained within a narrow oblong space having one or more upright extensions, for purposes described.

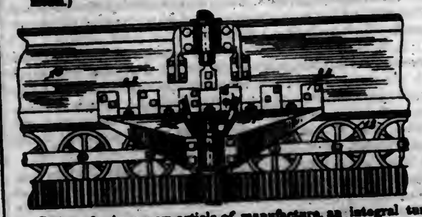
4. In a telephone-transmitter, an outer casing, a vibrating electrode, a fixed electrode, both within the casing, a bridge to support the fixed electrode, combined with a second bridge transversely of the first, means for securing the second bridge to the arm of the instrument, and a flattened ring to create a coil for comminuted resistance-varying material, said coil to have its longer axis horizontally positioned, as set forth.

5. In a telephone-transmitter, an outer casing composed of two separable parts, back and front, a bridge diametrically of but within the casing, combined with a screw-threaded boss to receive the arm of the instrument, and a screw which unites the bridge with the boss to hold back and front of the casing together as a unit.

6. In a telephone-transmitter, a separable case comprising a back and front part, two bridges transversely of each other secured to the front part, an interiorly-screw-threaded boss to admit the arm of the instrument, and a screw which unites said boss with one of the bridges, combined with a fixed electrode secured to the other bridge, a vibrating electrode attached to the front part of the case, and a flattened ring of felt interposed between the two electrodes to contain comminuted resistance-varying material, the longer axis of the ring to be horizontally positioned, substantially as described.

7. In a telephone-transmitter, the combination with a front casing member, of means for securing the vibratory electrode thereto, a bridge-piece secured thereto provided with an opening to receive the supporting-block for the fixed electrode, a set-screw in said bridge-piece to secure said supporting-block, another bridge-piece also secured to said front casing member, a threaded opening in the bridge-piece last named, said opening being in line with the supporting-block for the fixed electrode, a rear casing member provided with a socket to receive the arm of the instrument, and a screw extending through an opening at the bottom of the socket into said threaded opening, substantially as described.

605,914. PINION-BRACKET FOR TURN-TABLES. JULIUS E. ROTHERS, Chicago, Ill. Filed Nov. 5, 1897. Serial No. 657,563. (No model.)

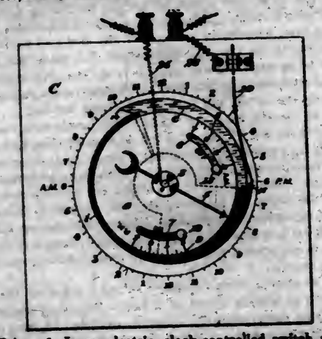


Claim.—1. As a new article of manufacture, an integral turn-table pinion-bracket of cast-steel, comprising a downwardly-inclined web or body portion which is V-shaped or of increasing width from its free end, which carries the bearing of the pinion-shaft, to its base, which is provided, with a horizontal flange whereby it may be secured to the turn-table, substantially as set forth.

2. As a new article of manufacture, an integral turn-table pinion-bracket of cast-steel, comprising a downwardly-inclined web or body portion which is V-shaped or of increasing width from its free end, which carries the bearing of the pinion-shaft, to its base, which is provided with a horizontal flange adapted to be bolted to the bottom flange of the turn-table drum and vertical lugs intermediate the vertical bolts adapted to bear against and be bolted to the face of said drum, substantially as set forth.

3. As a new article of manufacture, an integral turn-table pinion-bracket of cast-steel, comprising a downwardly-inclined web or body portion V-shaped or of increasing width from its free end to its base, a bearing for the pinion-shaft on said free end, ribs radiating from said free end to the base, and a horizontal base-flange having vertical bolt-apertures and intermediate vertical projections, substantially as and for the purposes set forth.

605,915. ELECTRIC CLOCK-CONTROLLED SWITCH MECHANISM. ROBERT W. ROLLINS, Hartford, Conn. Filed Sept. 27, 1897. Serial No. 653,194. (No model.)



Claim.—1. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying three cooperative circuit-controllers two of

which are separately adjustable relatively to each other and are connected with one side of the circuit and control, respectively, the making and the breaking of the latter, and the other of which is connected with the other side of the circuit, indicating means having a pair of slots for receiving, and controlling the adjustments of, the adjustable circuit controllers, and means for rotating at least one of the circuit-controllers.

2. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying three cooperative circuit-controllers two of which are separately adjustable relatively to each other and are connected with one side of the circuit and control, respectively, the making and the breaking of the latter and the other of which is connected with the other side of the circuit, indicating means having a pair of slots disposed in concentric arcs and adapted for receiving, and controlling the adjustments of, the adjustable circuit-controllers, and means for rotating at least one of the circuit-controllers.

3. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying three cooperative circuit-controllers two of which are adjustable and are connected with one side of the circuit and the other of which is connected with the other side of the circuit, a rotary indicating-dial having a pair of slots controlling the adjustments of the adjustable circuit-controllers, and means for rotating the adjustable circuit-controllers and the dial.

4. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying a rotary indicating-dial, an adjustable circuit-controller connected with one side of the circuit and movable in unison with said dial, a contact-arm in the path of said circuit-controller and connected with the other side of said circuit, and means for rotating the dial.

5. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying a rotary slotted indicating-dial, an adjustable circuit-controller connected with one side of the circuit and movable in unison with said dial and adjustable with respect to said slot, a contact-arm in the path of said circuit-controller and connected with the other side of said circuit, and means for rotating the dial.

6. In an electric clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying a rotary indicating-dial; a pair of cooperating circuit-controlling elements connected with opposite sides of the circuit, one of said elements embodying a pair of members adjustable relatively to each other and each having a long gradually-rising circuit-controlling cam-face defined by a curve eccentric to the axis of said dial, and the other of said circuit-controlling elements having a contact-face spanning the cam-faces of both members of the other circuit-controlling element; and means for rotating the dial and one of said circuit-controlling elements in unison.

7. In an electric clock-controlling switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying a rotary indicating-dial; a pair of circuit-controlling cams adjustable relatively to each other and connected with one side of the circuit and movable in unison with the dial, and each having a long gradually-rising circuit-controlling cam-face defined by a curve eccentric to the axis of rotation of the dial; a contact-arm having a contact-face spanning the cam-faces of both of said cams, and connected with the other side of the circuit; and means for rotating the dial.

8. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying a rotary indicating-dial, a pair of adjustable circuit-controlling cams movable in unison with the dial and having cam-faces eccentric to the axis of rotation of the dial, one of said circuit-controllers being connected with one side of the circuit, a contact-arm cooperative with said circuit-controlling cams and connected with the other side of the circuit, and means for rotating the dial.

9. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying a rotary indicating-dial, a circuit-controlling conducting-cam movable in unison with the dial and having a peripheral cam-face eccentric to the axis of rotation of the dial and connected with one side of the circuit, an insulating-cam also movable in unison with the dial and adjustable independently of the conducting-cam and having a peripheral cam-face eccentric to the axis of rotation of the dial, a contact-arm cooperative with the cam-faces of said cams, and means for rotating the dial.

10. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying three cooperative circuit-controllers at least one of which is rotatable and one of which circuit-controllers is connected with one side of the circuit, and a pair of relays connected with two of said circuit-controllers and with the other side of the circuit and in parallel of said circuit and having coacting pivoted armatures interlocking at their free ends and controlling a third circuit.

11. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying three cooperative circuit-controllers at least one of which is rotatable and one of which circuit-controllers is connected with one side of the circuit, and a pair of alternately-energized relays connected with two of said circuit-controllers and with the other side of the circuit and in parallel of said circuit and having coacting interlocking armatures controlling a third circuit.

12. In an electric, clock-controlled switch mechanism, the combination, with an electric circuit, of a clock controlling said circuit and embodying three cooperative circuit-controllers at least one of which is rotatable and one of which circuit-controllers is connected with one side of the circuit, and a pair of relays connected with two of said circuit-controllers and with the other side of the circuit and in parallel of said circuit and having coacting pivoted armatures interlocking at their free ends and controlling a third parallel branch of the main circuit.

13. In an electric, clock-controlled switch mechanism, the combination, with a pair of electric circuits, of a clock controlling said circuits and embodying a driving-arbor and two independently-regulable circuit-controlling mechanisms mounted on said arbor and insulated from each other, one for each of said circuits.

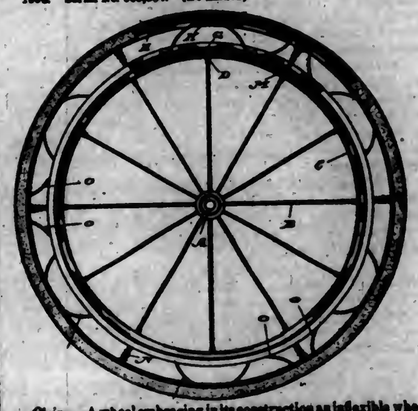
605,916. BINDER FOR LOOSE SHEETS. WILLIAM H. RUSSELL, Chicago, Ill., assignor to Moses C. Baker, same place. Filed July 19, 1897. Serial No. 645,186. (No model.)



Claim.—1. The temporary binder for perforated slitted sheets, consisting of the covers provided with telescoping standards, part of which have the exterior tube attached to one cover and part to the other cover, substantially as and for the purpose specified.

2. The combination with the covers, of the telescoping standards, two of which are provided with stop-bolts and springs for causing and limiting the separation of said covers, and the other two of which are provided with locking devices, substantially as specified.

605,917. TIRE. ARMITH RYAN, Preston, Canada. Filed Jan. 3, 1898. Serial No. 665,807. (No model.)



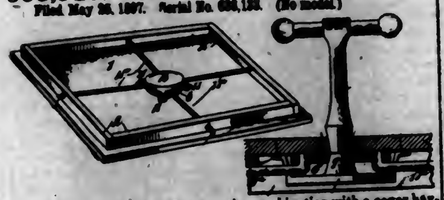
Claim.—A wheel embracing in its construction an inflexible wheel-rim, having its perimeter channeled circumferentially, a ribbon of anti-friction metal located in the channel, a supplemental rim concentric with the wheel-rim having an annular channel in its inner face corresponding to the channel in the perimeter of the wheel-rim, a plurality of undulated ribbon-springs interposed between the rims, each having its bolted portion fastened in the groove of the supplemental rim and its ends freely resting on the antifriction metal in the groove of the wheel-rim, a series of helical springs interposed between the rims, each held in position by a stud projecting inwardly from the under side of the adjacent undulated spring holding its outer end, and a socket in the antifriction-ribbon holding its inner end, a plurality of chains connected to the wheel-rim and supplemental rim, to prevent the supplemental rim creeping on the wheel-rim, a flexible shoe secured to the perimeter of the supplemental rim, and a curtain depending from each side of the shoe, covering the opening between the concentric rims, the inner edge of which is fitted with a wire sprung into grooves cut in the inner faces of the wheel-rim, the ends of each wire connected by springs, substantially as specified.

605,918. YARN GUIDE, TENSION, AND CLEARER. PARDON A. SAWYER, Fall River, Mass. Filed July 10, 1897. Serial No. 644,051. (No model.)



Claim.—In a yarn guide, tension and cleaner, the combination with an inclined stationary surface, of a loose flat weight rotatable thereon, and a pair of thin elastic metal blades having rounded edges lying in the plane of said inclined surface, substantially as described.

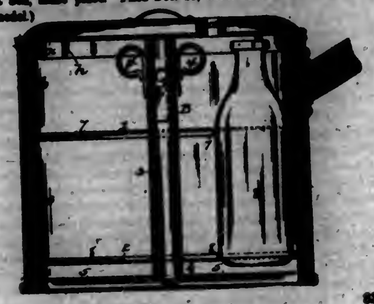
605,919. BOX-FASTENER. THOMAS E. SAYRE, Janesville, Wis. Filed May 25, 1897. Serial No. 638,128. (No model.)



Claim.—1. In a box-fastener, the combination with a cover having a central opening, of a rotary hub provided with a central opening and having an annular flange or sleeve fitting in the opening of the cover, said hub being adapted to be engaged by a key, a casing secured to the cover, receiving the hub and provided with a stud fitting in the central opening of the same and forming a pivot said casing being provided with a series of openings, and sliding bolts guided on the cover and having their inner portions extended through the openings of the casing and connected with the hub, substantially as described.

2. In a box-fastener, the combination with a cover provided with a depending flange having perforations, a casing provided with a central vertical pivot-stud and having feet forming openings and secured to the cover, a hub provided with an annular sleeve or flange and having a central opening to receive the pivot-stud and provided with perforations, said hub being journaled on the stud and in an opening of the cover, and pointed rods guided in the perforations of said flange and having upturned inner ends arranged in the perforations of the hub, substantially as described.

605,920. APPARATUS FOR PASTEURIZING AND STERILIZING MILK, &c. OSCAR R. SOMERS, Baltimore, Md., assignor to H. P. Miller & Son, same place. Filed Dec. 28, 1897. Serial No. 663,970. (No model.)



Claim.—1. The combination with a boiler, of a rack adapted to contain bottles and support them above the bottom of the boiler, a pipe within the boiler and open at both ends, the lower end of said pipe terminating above the bottom of the boiler, a cover on the boiler and extending over the upper end of said pipe and means for confining heat within the boiler, substantially as set forth.

2. The combination with a boiler, of a rack adapted to support bottles in the boiler, and a tubular post forming part of said rack and communicating with the boiler under the rack, said tubular post having holes above the supporting-disks of the rack, substantially as set forth.

3. The combination with a boiler, of a rack adapted to support bottles above the bottom of the boiler, a tubular post open at both ends forming part of the rack, a bent pipe adapted to be detachably connected with said tubular post and a funnel at the upper end of said pipe, substantially as set forth.

4. The combination with a boiler, of a rack adapted to be removably placed therein, said rack comprising perforated disks, spaced apart and an unperforated disk below the lower perforated disk, uprights connecting said disks and projecting below the lower disk and adapted to form legs for the rack, and a tubular post secured to said disk and open at both ends, substantially as set forth.

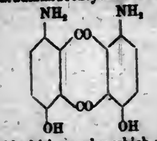
5. The combination with a boiler comprising two shells and interposed heat-non-conducting material, of a cover for the boiler having a depending flange and a groove between said depending flange and the body of the cover, and two disks placed in said groove, one of said disks being of metal and the other being of heat-non-conducting material, substantially as set forth.

605,921. BLUE ANTHRAQUINONE DYE. ROBERT E. SCHMIDT and PAUL TIED, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, of New York. Filed Dec. 29, 1897. Serial No. 664,482. (No specimens.) Patented in France May 17, 1897, No. 266,966, and in Italy June 30, 1897, XXXIII, 44,886, and LXXXVII, 382.

Claim.—1. The production of paradiamidochrysazin-monosulfo-acid by a sulfonation of paradiamidochrysazin.

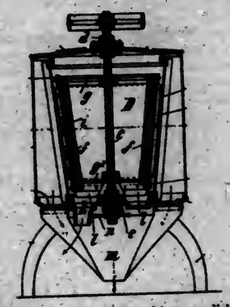
2. The process for producing a monosulfo-acid of paradiamidochrysazin which process consists in sulfonating the said body by means of fuming sulfuric acid with the addition of boric acid, substantially as hereinbefore described.

3. As a new article of manufacture the new dyestuff, being a monosulfo-acid of paradiamidochrysazin of the formula



and representing a blackish powder which when rubbed assumes a metallic luster, soluble in anilin, pyridin and in dilute alkalies with blue color, yielding with concentrated sulfuric acid (66° Baumé) a yellow solution which assumes a violet-red color on the addition of boric acid, dyeing unmordanted wool in acid-baths beautiful blue shades very fast to light, yielding on chrome mordanted wool greenish-blue shades very fast to light and milling.

605,922. GRAIN-POLISHING APPARATUS. FRIEDRICH H. SCHULZ, Hamburg, Germany, assignor to Pembroke Jones, New Hanover County, N. C. Filed Apr. 17, 1897. Serial No. 632,625. (No model.)

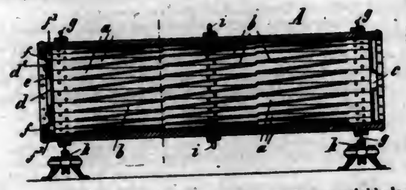


Claim.—1. In a grain-polishing machine, a polishing drum composed of two heads, the upper head provided on its under face with

a circular groove the inner wall of which is higher than the outer wall and forms a bearing, the lower head provided with a stepped peripheral seat and with a downwardly-projecting peripheral flange, staves stepped in said seat and having bearing on the inner flange of the peripheral groove in the upper head, a polishing fabric clamped between said staves, and clamping hoops or bands detachably secured to the outer peripheral flanges of the heads, for the purpose set forth.

2. In a grain-polishing machine a polishing-drum composed of two heads, staves having bearing on said heads, and clamping devices for clamping the staves removably to the heads; in combination with a flexible strip of polishing material between each two staves of such a width relatively to the thickness of said staves as to project from opposite faces thereof, whereby said strips can be drawn out from between the staves, for the purpose set forth.

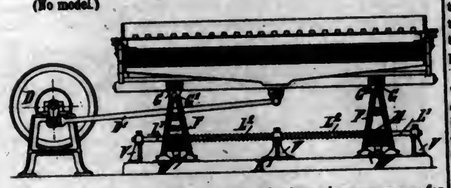
605,923. DRUM FOR GLAZING GRAINS, &c. FREDERICH H. SCHULE, Hamburg, Germany, assignor to Pembroke Jones, New Hanover County, N. C. Filed Apr. 17, 1897. Serial No. 632,636. (No model.)



Claim.—1. A grain-glazing machine comprising a revolvable drum made up of suitable heads provided with feed and discharge apertures, and of wooden staves each provided on its inner face with a plurality of ribs *b* extending lengthwise across said inner face from edge to edge, so that when assembled about the said heads the said ribs will form unbroken spirals, and the receiving end of a rib of a stave will lie immediately below and in contact with the delivery end of a preceding rib on an adjacent stave, for the purpose set forth.

2. A grain-glazing machine comprising a revolvable drum made up of suitable heads each provided with an axial aperture of different cross-sectional area, the cross-sectional area of the larger or discharge aperture adapted to be decreased, and auxiliary apertures adapted to be more or less obstructed arranged around said discharge-aperture, and of wooden staves each provided on its inner face with a plurality of ribs *b* extending lengthwise across said inner face from edge to edge, so that when assembled about said heads the said ribs will form unbroken spirals, and the receiving end of a rib of a stave will lie immediately below and in contact with the delivery end of a preceding rib on an adjacent stave, for the purpose set forth.

605,924. OSCILLATING SUPPORT FOR SHAKING-SIEVES. FREDERICH H. SCHULE, Hamburg, Germany, assignor to Pembroke Jones, New Hanover County, N. C. Filed June 22, 1897. Serial No. 641,782. (No model.)



Claim.—1. The combination with a horizontal screen, means for imparting motion thereto, toothed rocking sectors supporting said screen, and correspondingly-formed supporting-bearings therefor, of a standard or bracket intermediate the sectors, a rod supported by said standard or bracket and in pivotal relation to the sectors, and coiled springs on said rod, substantially as and for the purpose set forth.

2. The combination with a horizontal screen, means for imparting a reciprocating motion thereto, sector-shaped legs pivoted to said screen near opposite ends, a base on which said legs are adapted to rock, and a forked bearing projecting inwardly from the proximate faces of the legs; of rods carrying sleeves, blocks in which said sleeves are journaled, said blocks seated in the aforesaid forked bearings, fixed supports for said rods intermediate of the legs, and coiled springs on said rods intermediate of the sleeves thereon and their fixed supports, for the purpose set forth.

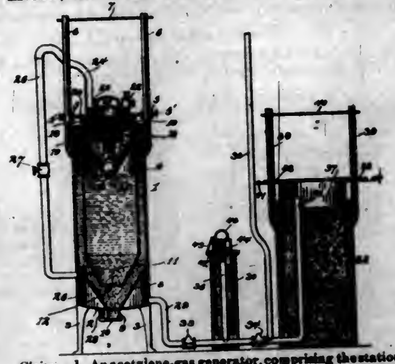
605,925. FAN FOR PNEUMATIC STRAW-STACKERS. JOSEPH K. SHARPE, Jr., Indianapolis, Ind., assignor to the Indiana Manufacturing Company, same place. Filed Mar. 23, 1897. Serial No. 628,811. (No model.)



Claim.—1. The combination, of the fan-casing formed with a central eye as an entrance and a peripheral discharge, a fan mounted therein with its blades extending beyond the edge of said eye, a disk mounted on the outside edge of said blades and formed of a diameter greater than that of said eye, whereby the material entering is prevented from contacting with said blades, and the driving mechanism, substantially as set forth.

2. The combination, of the fan-casing, the fan proper arranged to revolve therein, and a plate or disk secured upon said fan proper and covering the blades thereof, said plate or disk being provided with ribs to accelerate the motion of the straw, substantially as set forth.

605,926. ACETYLENE-GAS GENERATOR. ELMER E. SHULER, Havelock, Nebr. Filed Oct. 6, 1897. Serial No. 654,254. (No model.)



Claim.—1. An acetylene-gas generator, comprising the stationary tank 1, in combination with the movable drum 4 concentrically mounted within said tank, the conical diaphragm 13 fixed in the upper end of said drum, and provided with the orifice 14, the ball-float 15 adapted to close said orifice, and the carbid-basket 16 arranged in said drum above said diaphragm, as and for the purpose set forth.

2. An acetylene-gas generator, comprising the tank 1 provided with the concave bottom 2, the conical diaphragm 8 fixed in the lower end of said tank so as to form an annular chamber 26, and terminating in a pipe 9 extending through the bottom 2 and the gate 10 fixed to its projecting end, in combination with the drum 4, having a closed top, a carbid-receptacle located in said drum, and a pipe connecting the upper end of said drum with the chamber 26, as and for the purpose set forth.

3. An acetylene-gas generator, comprising the tank 1 provided with the concave bottom 2, the conical diaphragm 8 fixed in the lower end of said tank so as to form an annular chamber 26, and terminating in a pipe 9 extending through the bottom 2 and the gate 10 fixed to its projecting end, in combination with the drum 4, having a closed top, and a conical bottom 11, provided with a central orifice 12, a carbid-receptacle located in said drum, and a pipe connecting the upper end of said drum with the chamber 26, as and for the purpose set forth.

4. An acetylene-gas generator, comprising the cylindrical tank 1 formed with the concave bottom 2, provided with the drip-cock 26, the conical diaphragm 8 fixed in the lower end of said tank, so as to form an annular condensing and cooling chamber for the gas, and provided with an outlet-pipe 9, extending through the bottom 2 and terminating in a gate-valve 10, and the vertical parallel guide-rods 6, 6, fixed to the upper end of said tank and connected at their upper ends by the transverse brace 7, in combination with the concentric drum 4 formed with the converging bottom 11 provided with the central orifice 12, the conical diaphragm 13 fixed in the upper end of said drum and provided with the central orifice 14 and the float-valve 15 seated in said diaphragm, the reticulated or foraminous carbid-basket 16, fixed in said drum between its closed top 20 and the diaphragm 13 and formed with a series of shelves for containing the calcic carbid in different horizontal planes, the guide-eyes 5, 5 fixed to said drum and provided with set-screws 5', 5', the vent-cock 22, and the screw-cap 21 secured to the top 20 of said drum, the flexible pipe 24 leading from said top and the fixed pipe 25 leading from the cooling-chamber 26 and provided with the valve 27 and communicating with said flexible pipe 24, as and for the purpose set forth.

605,927. LAWN-MOWER. NEAL P. SHULER, Butte, Mont. Filed July 22, 1897. Serial No. 645,551. (No model.)



Claim.—1. In a lawn-mower, the combination with the frame consisting of two side pieces mounted on driving-wheels and provided with outwardly-projecting flanged, downwardly-projecting arms at the rear thereof, a roller adjustably journaled in said arms, a brace-rod connecting them and extending across the frame, downwardly-projecting arms at the front of said pieces, a finger-bar secured near the lower ends of the front arms and extending across the frame, and a cutter-bar movable thereover; of levers pivoted to the front arms, connections between the lower ends of the levers and the reciprocating cutter-bar, a cross-bar connecting the upper ends of the levers, rollers on the inner face of this bar in proximity to each other, a shaft journaled in and across the frame above the main axles and rotated by the driving-wheels, a cam-wheel on said shaft and standing between the rollers, collars on the shaft inside the side pieces, and set-screws for clamping said collars to their shaft so as to hold them against the side pieces and the latter distended, substantially as described.

2. In a lawn-mower, the combination with a frame, geared drive-wheels journaled therein, outwardly-extending flanges on the frame above the wheels, arms projecting downwardly from the rear thereof, a roller adjustably journaled in the arms and across the frame, and downwardly-extending arms at the front of the frame; of a shaft journaled in and extending across the frame above the main axles, gear-wheels on the ends of this shaft meshing with the geared driving-wheels, a double-faced cam-wheel secured to the shaft between its ends, a backing-ratchet between one gear and drive wheel, a finger-bar secured to the lower ends of the front arms, a cutter-bar moving thereover and provided on its upper face with a rounded projection near each end, levers pivoted to the front arms and provided in their lower ends with bifurcations standing astride said projections, a cross-bar connecting the levers, and rollers on said cross-bar one on either side of and in engagement with the cam-wheel, all substantially as described.

3. In a lawn-mower, the combination with the frame mounted on driving-wheels, a cam-wheel rotated thereby, a finger-bar carried by the frame and having a dovetailed rib on its upper face, a cutter-bar having a longitudinal groove fitting over said rib, and rounded projections on the upper face of the cutter-bar; of levers pivoted to the frame and having arc-shaped bifurcations in their lower ends receiving said projections, a cross-bar connecting said levers, bolts mounted in said cross-bar, and rollers journaled thereon on opposite sides of the cam-wheel, as and for the purpose set forth.

605,928. DEVICE FOR METAL STRAIGHTENING AND CUTTING-OFF MACHINES. FRANKLIN B. SHUMWAY, New Haven, Conn. Filed May 21, 1897. Serial No. 637,503. (No model.)

Claim.—1. In a machine for feeding and cutting off metal strips or rods into predetermined lengths, of independently-operating feeding and cutting-off mechanisms adapted to operate alternately, a system of electric wires connected with a battery or other source of electrical energy, a circuit-closer adapted to be engaged by the end of the metal strip or rod and thereby close the circuit and bring the feeding mechanism to a standstill, while the cutting-off mechanism is operating to sever a section from such strip or rod for the purpose set forth.



2. In a machine for feeding and cutting off metal into predetermined lengths, of independently-operating feeding and cutting-off mechanism adapted to operate alternately, a circuit-closer adapted to close an electric circuit when the metal has been fed a predetermined distance and instantly bring the feeding mechanism to a standstill, mechanism for bringing the cutter into operation to sever a section from such metal, and mechanism for restarting the feed-rolls, for the purpose set forth.

3. In an automatic machine for alternately feeding and cutting off sections from a metal strip or rod, of feeding-rolls and cutting-off mechanism, a circuit-closer adapted to close an electric circuit when the metal has been fed a predetermined distance and instantly bring the feed-rolls to a standstill, mechanism for bringing the cutter into operation to sever a section from such metal, a delivery-table over which such metal is fed, said table adapted to deliver such severed section, means for restarting the feed-rolls, for the purpose set forth.

4. In an automatic machine for alternately feeding and cutting off sections from a metal strip or rod, of feeding-rolls and their operating mechanism, a cutter and its operating mechanism, a delivery-table and its operating mechanism, a system of electric wires connected with a source of electrical energy, a circuit-closer adapted to close the electric circuit when the metal has been fed a predetermined distance and instantly bring the feed-rolls to a standstill, means for instantly bringing the cutter into operation to sever a section therefrom, means for restarting the feeding-roll mechanism so as to feed forward another section, for the purpose set forth

5. In an automatic machine for alternately feeding and cutting off sections from the end of a metal strip or rod, of feeding-rolls and their operating mechanism, a cutter and its operating mechanism, a delivery-table and its operating mechanism, a system of electric wires connected with a battery or other source of electrical energy, a circuit closer adapted to be engaged by the end of the metal strip or rod and close the electrical circuit and bring the feed-rolls to a standstill, means for bringing the cutter into operation to sever a section from such strip or rod, means for resetting and restarting said feed-rolls so as to feed forward another section, for the purpose set forth.

6. In an automatic machine for alternately feeding and cutting off sections from the end of a metal strip or rod, of feeding-rolls and their operating mechanism, a cutter and its operating mechanism, a delivery-table and its operating mechanism, a system of wires connected with a source of electrical energy, fulcrumed levers pivotally and adjustably connected together, the end of one of said levers adapted to engage with a cam on the cutter-driving shaft, the other lever adapted to engage with means connected with an electric latch or other like device, means, substantially as shown, for connecting one of said levers with the feed-roll-driving mechanism, a circuit-

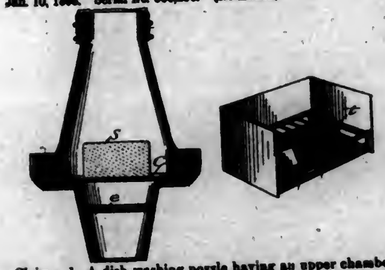
closer adapted to close the circuit when the metal has been fed a predetermined distance and thereby release the levers held by the said latch and bring the feed-rolls to a standstill, and means for releasing the cutting-off mechanism to sever a section from the metal strip, and means for stopping said cutting-off mechanism and restarting the feed-rolls, for the purpose set forth.

7. In an automatic machine for alternately feeding a metal strip or rod and cutting off sections therefrom, of feeding-rolls and their operating mechanism, a cutter and its operative mechanism, a delivery-table and its operative mechanism, shipping mechanism for alternately bringing the feeding-rolls and cutting-off mechanism into operation, combined with a system of wires connected with a battery or other source of electrical energy, a circuit-closer adapted to close the circuit when the metal strip or rod has been fed a predetermined distance and stop the feed-rolls through the medium of the said shipping mechanism and bring the cutter into operation, said shipping mechanism adapted to restart the feed-rolls for the feeding of another section, for the purpose set forth.

8. In an automatic machine for alternately feeding a metal strip or rod and cutting off sections therefrom, of feeding-rolls and their operating mechanism, a cutter and its operating mechanism, shipping mechanism for alternately bringing the feeding-rolls and cutting-off mechanism into operation, a shaft carrying on its outer end a loose clutch-face driving-gear, a pinion-gear to register with one of the feed-roll gears, a shipping-rod passing through said shaft and connected with the shipping mechanism—one end of said rod adapted to engage the said clutch-face of the loose driving-gear, a spring-buffer on such rod, for the purpose set forth.

9. The combination, in a two part table, of a feeding and cutting-off machine for sheet-metal, of longitudinal narrow strips or rods attached to the upper surface of such table to reduce the friction of the metal sheets, and a trip-plate whose lower edge is shaped to conform to such strips, so that very thin metal sheets may be fed without getting between the lower edge of such trip-plate and said strips, substantially as set forth.

605,929. DISH-CLEANER. ISAAC D. SHEAD, Toledo, Ohio. Filed Jan. 10, 1898. Serial No. 666,290. (No model.)



Claim.—1. A dish-washing nozzle having an upper chamber for holding a piece of soap, and a lower chamber to receive the soapy water, and having its lower or delivery end provided with a limited number of small perforations for the purpose of delivering the water in a series of forcible jets, substantially as shown and described.

2. An apparatus for washing and rinsing dishes, comprising a nozzle adapted to receive and hold a piece of soap, said nozzle being secured to a flexible tube and provided at its delivery end with a limited number of small perforations, and a tray provided with a perforated bottom and a rack having two or more rows of horizontal bars arranged in different vertical planes, for holding the dishes in an inclined position, whereby the dishes can be both washed and rinsed by one continuous operation, substantially as shown and described.

605,930. WIRE-PICKET-TWISTING DEVICE. JOHN H. STAUFFER, Gap, Pa. Filed Sept. 21, 1897. Serial No. 652,436. (No model.)



Claim.—1. In a wire-picket-twisting device, the combination of a base provided with a fixed head at one end and a longitudinal slot at the other, an adjustable head and a hook thereon mounted over said slot, bolts passing through the hook, the head and the slot and secured on the under side of the base by nuts, a longitudinal shaft journaled in the fixed head, a clamp secured upon the inner end of the shaft, and means for turning the shaft, substantially as described.

2. In a wire-picket-twisting device, the combination of a base provided with a fixed head at one end and a head and hook adjustable longitudinally of the base at the other end a longitudinal shaft seated in a semicircular groove in the fixed head, a clamping-plate provided with a semicircular groove secured to the fixed head and forming the upper half of the shaft-bearing, a plate secured upon the inner end of the shaft and provided with a central opening, a second plate parallel with the shaft-plate having a screw-threaded stem to pass through the opening in the shaft-plate, a thumb-nut engaging the screw-threaded stem to draw the two plates together, a clamping-ring to prevent the shaft from being drawn inward, and a handle for turning the shaft, substantially as described.

3. In a wire-picket-twisting device, the combination of a base provided with a fixed head at one end and a longitudinal slot at the other, an adjustable head and a hook thereon mounted over said slot, bolts passing through the hook, the head, and the slot and secured on the under side of the base by nuts, a longitudinal shaft seated in a semicircular groove in the fixed head, a clamping-plate provided with a semicircular groove secured to the fixed head and forming the upper half of the shaft-bearing, a plate secured upon the inner end of the shaft and provided with a central opening, a second plate parallel with the shaft-plate having a screw-threaded stem to pass through the opening in the shaft-plate, a thumb-nut engaging the screw-threaded stem to draw the two plates together, a clamping-ring to prevent the shaft from being drawn inward, and a handle for turning the shaft, substantially as described.

605,931. PROCESS OF PURIFYING NITROCELLULOSE. JOHN H. STEVENS, Newark, N. J., assignor to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed Oct. 9, 1897. Serial No. 654,688. (No specimens.)

Claim.—1. The process for the purification of nitrocellulose which consists in subjecting the nitrocellulose to an aqueous solution of urea, substantially as described.

2. The process for purifying nitrocellulose which consists in washing the nitrocellulose with water and then subjecting it to an aqueous bath containing urea, substantially as described.

3. In the manufacture of a purified nitrocellulose, the process which consists of the following steps: (a) removing the acids by washing with water, (b) subjecting it to an aqueous bath containing urea, (c) drying the pyroxylin by removing the urea solution.

605,932. FIRE-EXTINGUISHER. SAMUEL M. STEVENS, Manchester, N. H. Filed May 26, 1898. Serial No. 680,807. (No model.) Patented in Canada May 3, 1898, No. 48,579.



Claim.—1. A portable tank having the plate secured on its upper end with the flange depending into and held in the tank-top, a seat in the upper surface in said plate, a soft-metal suction-pipe extending into the tank and through said plate with its upper end upset into said seat, and the pump-body secured to said plate so that said upset end of the soft-metal pipe forms a bearing and packing, substantially as described.

2. The fire-extinguishing apparatus comprising the portable tank having the hand-pump on its upper end, supporting-rollers at its bottom, and springs carrying a foot-stirrup at their free ends provided with points on its under side and arranged at the rear side of the tank for the purpose set forth.

3. In a fire-extinguisher, the combination of a tank, a hole in the upper end thereof, the plate secured on the tank-top with an opening registering with said tank-opening and countersunk at its upper end, said plate provided with upwardly-extending bolts, suction-pipe *i'* from the lower portion of the tank with its upper end upset into said countersunk portion, and the pump secured on said plate by said bolts, substantially as described.

4. A portable house-fire-extinguisher tank, comprising in combination, the vertical tank having the bottom supporting-rollers, a hand-pump rigidly mounted on the tank, a foot-operated floor-lock arranged beneath and secured to the bottom of the tank and located between the supporting-rollers, and provided with a spring device yieldingly and normally holding the lock up from engagement with the floor so that the tank is instantly released, when the foot is removed from the lock, and can be easily rolled about on the floor, substantially as described.

5. A portable fire-extinguisher tank having bottom supporting-rollers, and a hand-pump, and arranged to be pushed along the floor to the location desired for operation of the pump, in combination with a foot-operated floor-lock carried by the tank and normally raised from the floor, and arranged to lock the tank to the floor against movement on its supporting-rollers, during the operation of the pump, substantially as described.

6. The portable fire-extinguisher comprising the movable upright tank having rolling supports at its bottom or lower end, a hand-pump at its upper end, and a normally-elevated foot-operated floor-lock arranged beneath and secured to the bottom of the tank so that the tank can be pushed along the floor, and the lock and the pump operated from behind, substantially as described.

7. The portable fire-extinguisher tank having a pump and bottom rolling supports, in combination with a foot-operated floor-lock arranged beneath and secured to the bottom of the tank and comprising horizontally-arranged spring-arms rigidly secured to the under side of the tank with their free ends springing upwardly and carrying the foot-piece or stirrup elevated from the floor in a position to be easily engaged and forced down by the foot of the operator to lock the tank to the floor and against movement, substantially as described.

8. A portable fire-extinguisher tank having a pump and bottom rolling supports, in combination with a foot-operated floor-lock carried by the tank and provided with a spring mechanism normally holding the lock elevated from the floor, said lock so arranged as to be easily forced down to lock and hold the tank against movement on its supports and to immediately move up and release the tank, automatically, when the foot is removed from the lock, substantially as described.

9. The vertical fire-extinguisher tank, in combination with a pump on the upper end thereof provided with an operating-handle, the handle at the rear side of the tank, the bottom supporting-rollers arranged with the single central forward roller with the remaining rollers in rear thereof at the bottom of the tank, and a floor-lock carried by the tank and normally elevated from the floor, so that the tank can be pushed forward by a single person, who by grasping said rear handle can tilt the tank onto said single roller and turn it quickly in any direction and force said lock down to the floor and hold the tank against movement while the pump is being operated with one hand and the hose directed with the other hand, substantially as described.

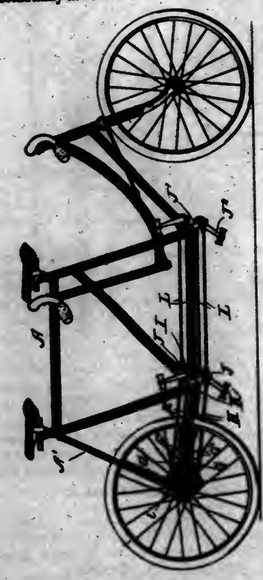
10. A tank having a plate thereon with a transverse opening into the tank, said plate countersunk or recessed around the upper end of the opening, in combination with a suction-pipe passing through said opening and having a soft-metal upper end upset down into said recess, and a pump having its base secured rigidly on said plate and onto said upset soft-metal end of the pipe, for the purpose stated, and having a passage in continuation of the suction-pipe, substantially as described.

605,933. GEARING FOR VELOCIPEDES. JESSE W. SUTHERLAND, Chicago, Ill., assignor of one-half to Andrew J. McDuffee, same place. Filed Feb. 26, 1897. Serial No. 625,110. (No model.)

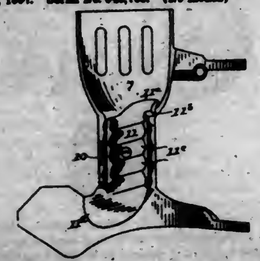
Claim.—1. In a velocipede, the combination with the frame and a threaded drive-wheel shaft, of a ball-bearing interposed between said frame and shaft, a closed housing provided at its inner side with a shaft-opening and at its outer side with a gear-hub opening, a pinion within the housing rigidly attached to said shaft, ball-bearings between the housing and shaft, a gear meshing with the pinion and antifrictionally journaled in the housing, a rod rigidly joined to the outer side of said gear at said hub-opening, and means for reciprocating the rod, substantially as and for the purpose set forth.

2. In a velocipede, the combination with the frame and a threaded drive-wheel shaft, of a ball-bearing interposed between said frame and shaft, a housing, a housing-cone fitted in the inner shaft-opening of said housing, a bearing-cone on the shaft cooperating with said inner housing-cone, an outer housing-cone fitting a recess in the inner surface of the opposite side of the housing, a bearing-cone on the end of the shaft cooperating with said housing-cone, a pinion fixedly secured to the shaft within said housing, a gear-wheel mounted in ball-bearings at opposite sides in said housing and engaging the pinion, and an operating-rod fixedly secured to said gear-wheel, all substantially as set forth.

3. In a velocipede, the combination with the frame and a threaded drive-wheel shaft, of a bearing interposed between said frame and shaft and comprising a race member carried by the frame and bearing-cones on said shaft, a housing, a flanged bearing-cone fitted in the shaft-opening of said housing, a bearing-cone on the shaft cooperating with the flanged cone, a bearing-cone fitting a recess in the opposite side of the housing, a bearing-cone on the end of the shaft cooperating with said housing-cone, a pinion fixedly secured to the shaft within said housing, a gear-wheel mounted in ball-bearings at opposite sides in said housing and engaging the pinion, a crank-shaft journaled in the frame and provided with a crank-arm, a pedal-arm removably secured to said crank-arm and carrying a bearing-sleeve, and a connecting-rod fixedly secured to the gear wheel and journaled on said crank-arm and provided with bearing-cones cooperating with said sleeve, all substantially as set forth.



605,934. CORN-SHELLER. FELIX B. TAFF, Decatur, Ill. Filed Aug. 18, 1897. Serial No. 648,705. (No model.)

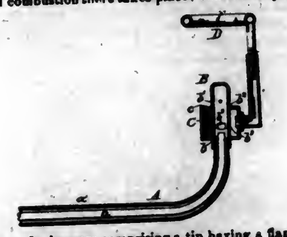


Claim.—The combination with a disk-and-concave sheller, of the concaved shell 11 transversely corrugated and having the flared upper end 11^a, the inward-extended tooth-like part 11^b and the sidewise lower extension 11^c, together with a bolt for securing the shell in the throat of the concave of the sheller, substantially as set forth.

605,935. BLOWPIPE. WILLIAM M. TILLMAN, Salt Lake City, Utah. Filed Mar. 13, 1896. Serial No. 582,131. (No model.)

Claim.—1. In combination with a blowpipe or the like, a tip, a primary burner located a considerable distance from said tip, and in the direction toward which the gas flows after passing through the tip, means for supplying gas to the primary burner and means for varying the distance between the tip and the primary burner, whereby a flame is maintained at the primary burner, and the gas which passes through the tip, after leaving said tip, passes through the air to the primary burner and combustion there takes place; substantially as described.

2. A burner comprising in combination, a gas-receiving chamber having means for attachment to the pipe, a tip upon said chamber, a pipe leading from said chamber, and a primary burner supported by said pipe a considerable distance from the tip but in the direction toward which the gas passes after leaving the tip, whereby a flame is maintained at the primary burner, and the gas which passes through the tip, after leaving said tip, passes through the air to the primary burner and combustion there takes place: substantially as described.

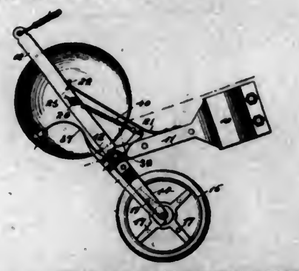


3. A cap for burners comprising a tip having a flame-opening, a drum surrounding said tip and communicating therewith and provided with openings c and a primary burner situated above the drum, the said drum and burner producing concentric flames, substantially as described.

4. A cap for burners comprising a tip having a flame-opening, a drum surrounding said tip and communicating therewith and provided with openings c and a primary burner situated above the drum, the said drum and burner producing concentric flames, said tip having also auxiliary openings b', substantially as described.

5. A burner comprising in combination, a receiving-chamber having means for attachment to the pipe, a tip upon said chamber, a pipe leading from said chamber, a second pipe adjustably telescoping with the first-mentioned pipe, and a primary burner supported by said second pipe a considerable distance from the tip but in the direction toward which the gas passes after leaving the tip, whereby a flame is maintained at the primary burner, and the gas which passes through the tip, after leaving said tip, passes through the air to the primary burner and combustion there takes place; substantially as described.

605,986. BICYCLE-BELL. WILLIAM G. TOEPFER, New York, N. Y., assignor to himself and Ella M. Sanger, same place; Antoinette Toepfer administratrix of said William G. Toepfer, deceased. Filed Dec. 30, 1896. Serial No. 617,479. (No model.)



Claim.—1. In a bicycle-bell, a rocking support, a gong attached to said support, a trip-wheel carried by said support and adapted for engagement with a supporting or driving wheel of the bicycle, means for carrying the trip-wheel into engagement with the bicycle-wheel, a striking-arm for the gong, and a spring-actuated lever fulcrumed upon the pivot of the said rocking support and connected with the said striking-arm, the trip-wheel serving to operate the said striking-arm, substantially as described.

2. In a bicycle bell, a rocking support, a gong attached to said rocking support at one side of its pivot-point, a trip-wheel carried by said support at the opposite side of the pivot-point and adapted to operate by engagement with a wheel of the bicycle, a striking-arm for the gong, and a spring-actuated lever fulcrumed upon the pivot of the said rocking support and connected with the said striking-arm, the striking-arm of the gong being operated by the said trip-wheel, as and for the purpose set forth.

3. In a bicycle bell, a rocking support adapted for attachment to the frame of a bicycle, gongs attached to opposite sides of the said support, a trip-wheel carried by the said support and adapted for engagement with a wheel of the bicycle, a striking-arm for each gong, levers connected with the striking-arms and fulcrumed on the pivot of the said rocking support, springs connected with the levers and with a fixed support and controlling the movement of the striking-arms, and trip devices carried by the trip-wheel at opposite sides thereof and extending into the paths of the said striking-arms and arranged to operate the latter in one direction, as and for the purpose specified.

4. In a bicycle-bell, a rocking support, gongs attached to opposite sides of said support and facing each other, the said gongs being spaced apart a predetermined distance, a trip-wheel carried by said support and adapted for engagement with the tire of a bicycle-wheel, a spring having sliding engagement with the said rocking support and normally holding said trip-wheel out of engagement with the tire, and pivoted and spring-actuated striking-arms for the said gongs the said striking-arms being fulcrumed upon the pivot of the said rocking support and having their lower ends extending at opposite sides of the trip-wheel, the striking-arms being operated alternately from the said trip-wheel, as and for the purpose specified.

5. In a bicycle-bell a rocking support, a gong attached to said support, a trip-wheel carried by said support and adapted to operate by engagement with a supporting or driving wheel of the bicycle, and a spring-actuated striking-arm for the gong fulcrumed upon the pivot of the said rocking support and adapted to be operated from the said trip-wheel, substantially as described.

6. A bicycle-bell, consisting of a support, a clip adapted to be secured to the frame of a bicycle and having a rearwardly-extending bifurcated arm to which the said support is pivoted, gongs attached to opposite sides of the said support, a trip-wheel journaled at the lower end of the said support, hammers for the gongs extending at opposite sides of the said trip-wheel and adapted to be actuated thereby, spring-controlled levers connected with the said hammers and fulcrumed on the pivot of the said support, and means for moving the said support to carry the trip-wheel to and from the bicycle-wheel, as and for the purpose specified.

7. A bicycle-bell, consisting of a rocking support arranged for attachment to a bicycle-frame, the said rocking support having a bifurcated lower end, gongs attached to opposite sides of the said rocking support, a trip-wheel journaled between the members of the bifurcated portion of the said rocking support and adapted to engage with the periphery of a bicycle-wheel, hammers for the gongs extending at opposite sides of the said trip-wheel and adapted to be actuated thereby, spring-controlled levers connected with the said hammers, and fulcrumed on the pivot of the said rocking support, and means for moving the trip-wheel to and from the bicycle-wheel, as and for the purpose specified.

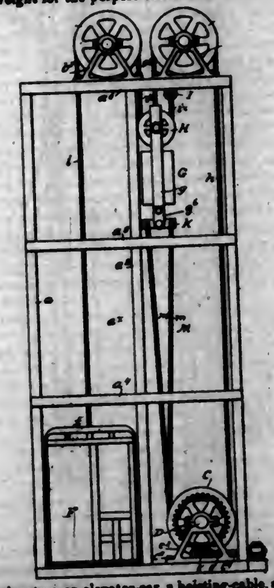
8. In a bicycle-bell, a rocking support, a gong attached to said support, a trip-wheel carried by said support and adapted for engagement with a supporting or driving wheel of the bicycle, a shifting device, means for attaching the shifting device to the handle-bar of the machine, a connection between the said shifting device and the said rocking support, and a spring-actuated striking-arm for the gong fulcrumed upon the pivot of the said rocking support and adapted to be operated from the said trip-wheel, substantially as described.

9. The combination with an adjustable clamp adapted for attachment to a bicycle-frame and having a rearwardly-extending arm, a rocking support pivoted to the said arm, a spring controlling the movement of the support in one direction, gongs carried by the said rocking support at opposite sides thereof and facing each other, a trip-wheel also carried by the said rocking support and arranged for engagement with the periphery of a bicycle-wheel, the said trip-wheel being provided with pins projecting from opposite sides, and striking-arms for the gongs fulcrumed upon the pivot of the said rocking support and having their lower ends extending at opposite sides of the trip-wheel, the said striking-arms being operated alternately from the said trip-wheel, of a shifting device, means for attaching the shifting device to the handle-bar of the machine, and a flexible connection between the shifting device and the said rocking support as and for the purpose set forth.

10. In a bicycle-bell, a rocking support, a gong attached to said support, a trip-wheel carried by said support and adapted for engagement with a supporting or driving wheel of the bicycle, means for moving said trip-wheel into and out of engagement with the bicycle-wheel, and a spring-actuated striking-arm for the gong fulcrumed upon the pivot of the said rocking support and having a head at one end, the other end of said arm extending at the side of the trip-wheel and adapted to be engaged by a trip device carried by said trip-wheel, substantially as described.

605,987. ELEVATOR. FREDERICK H. TURNER, Kansas City, Mo. Filed Dec. 17, 1897. Serial No. 662,358. (No model.)

Claim.—1. The combination with an elevator-car of car operating devices comprising hoisting-cables and suitable carrying-pulleys therefor having stationary bearings, said cables each having one end secured to a fixed point, said hoisting-cable having loops a counterweight suspended in said loops, and a winding-drum adapted to control the movement of said weight means for operating said drum and separate cables one of which is wound in one direction around said drum and connected with said counterweight and the other cable wound around said drum in the other direction and extended over another carrying-pulley having suitable bearings and connected with said counterweight for the purpose described.



2. In elevators, an elevator-car, a hoisting-cable, separate carrying-pulleys, each having stationary bearings, one end of which carrying-cable is secured to a fixed point and the other end extended over one of said carrying-pulleys and connected with said elevator-car, said cable having a loop, a sheave suspended in said loop, a counterweight connected with said sheave, a motor and alternate cable winding and unwinding mechanism and separate weight-controlling cables the upper end portion of one of which cables is extended over the other cable-carrying pulley and connected with said counterweight and the upper end of the other cable connected direct with the counterweight and the lower ends of said cables connected with the said winding and unwinding mechanism and adapted to be wound and unwound in a corresponding degree as described.

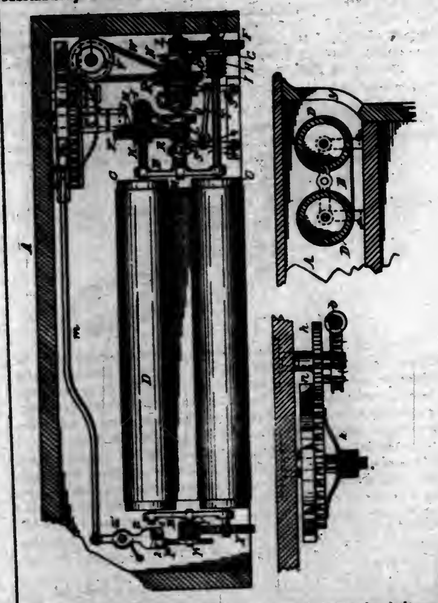
605,988. STATION-INDICATOR. HERBERT C. TURNER, San Francisco, Cal., assignor to the American Indicator Company, same place. Filed Jan. 2, 1894. Renewed Nov. 12, 1897. Serial No. 658,208. (No model.)

Claim.—1. Station-indicating mechanism driven from a car-axle so arranged as to be operated periodically during the trip of a conveyance, and provided with automatic means for positively stopping it at or within a limited distance from the end of the route without affecting the movement of the means for driving it, substantially as set forth.

2. Station-indicating mechanism arranged so as to indicate a prescribed number of streets or stations upon a route with approximate accuracy to a point near the terminus, and having a positive stop automatically operated for holding it stationary at the said point, whereby it is placed in correct position for commencing the indication upon the return trip, substantially as set forth.

3. In a street or station indicator the combination with a shaft geared to the axle of a car of a rotary controlling-disk driven from said shaft by frictional gearing, a traveling indicator-belt deriving its motion from said shaft, a latch for holding the belt stationary, and a connection from the controller to said latch for releasing the belt and permitting it to derive motion at intervals from the main shaft, substantially as set forth.

4. In a street or station indicator a controller geared frictionally to a continuously-moving shaft, an indicator-belt geared frictionally to said shaft, a latch for holding the indicator-belt stationary, a connection from the latch to the controller for periodically releasing the belt and permitting it to move, and a stop for limiting the movement of the controller and belt without affecting the rotation of the shaft, substantially as set forth.



5. In a street or station indicator a movable indicating-belt geared to a driving shaft, a controlling-disk having its periphery provided with devices spaced according to the points in a route to be indicated, and frictionally geared to said driving-shaft, a latch for alternately holding and releasing the belt and operated by the controller, and a stop whereby the controller and belt are stopped at or near the end of a route without affecting the rotation of the driving-shaft substantially as set forth.

6. The combination with the rollers carrying the indicating-belt of a driving-shaft a, a shaft M, a shaft for each roller geared frictionally to said shaft M, and a sliding clutch upon the shaft M connected to the driving shaft and communicating motion to either roller according to the direction of rotation of the driving-shaft a, substantially as set forth.

7. In combination with the reversibly-movable driving-shaft and the rollers carrying an indicating-belt, the shaft M, having gearing for driving the rollers independently, a sliding clutch upon the shaft M, connected to the driving-shaft, a worm upon the shaft M and connected levers $8'$ 8^2, engaging respectively with said worm and said clutch, substantially as and for the purposes set forth.

8. A street or station indicator comprising a reversibly-rotatable driving-shaft geared to a car-axle; reversibly-movable rollers carrying an indicating-belt and driven by gearing from the driving-shaft which includes a frictional connection; a movable latch for temporarily stopping the rollers, a reversibly-movable toothed controlling-disk driven by gearing, part of which is frictional, from the driving-shaft, and a lever operated by the controlling-disk and connected to said latch, substantially as set forth.

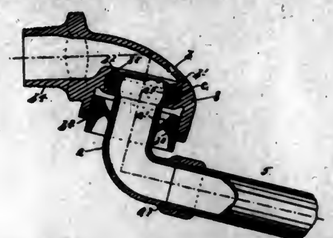
9. In a street and station indicator the combination with driven rollers carrying an indicating-belt of a latch for periodically stopping said rollers, a driving-shaft, a train of gearing driven by said shaft, a loose controlling-disk in frictional contact with one member of said train, a spring for increasing the frictional contact and a lever connected to said latch and operated by said disk, substantially as set forth.

10. In a street or station indicator rollers carrying a belt and geared partly by friction-gearing to driving-shaft, a latch for alternately holding and releasing the rollers, and a controller operated independently of the rollers by the common driving-shaft and having means for periodically moving said latch to release said rollers, substantially as set forth.

11. In a street or station indicator of the continuous type and in combination with a box or case adapted to be mounted within a car and with an actuating rod or shaft geared to an axle of the car, an indicating-belt carried by rollers and driven by said actuating-rod, a latch for alternately holding and releasing said rollers, and a con-

troller connected to said latch, all contained within said case or box substantially as set forth.

605,939. BALL-JOINT FOR BRAKE-COUPLINGS OR OTHER USES. HENRY H. VAUGHAN and JOSEPH O. PATTEE, St. Paul, Minn. Filed Oct. 29, 1896. Serial No. 610,468. (No model.)



Claim.—1. A ball-and-socket joint constructed for a limited oscillation, one member of which has two concentric spherical surfaces of different radii, which are acted on, respectively, by a packing and a bearing surface carried by the other joint member, with said packing and the joint-surface packed thereby located inward of said bearing-surfaces, substantially as and for the purposes set forth.

2. The ball-and-socket joint comprising the ball member having the two concentric spherical surfaces a' and a^2 separated from each other with the latter inward of the former, the socket member having the ring-seat or groove b', the packing-ring c seated in said groove and bearing against said surface a^2 on the ball member, and the nut b^2 forming part of the socket member and provided with the bearing-surface b^3 for coöperation with said surface a' on the ball member, all substantially as described.

3. In metallic brake-pipe coupling connections, a ball-joint uniting the angle-cock or fixed car pipe-section to the primary or adjacent section of the coupling-pipes through a nipple or fitting on one member of said joint set at such an angle to the axis of the joint that, when the pipes are coupled together, in working position, the angle of oscillation of the couplings will be substantially equal on either side of the vertical plane through the two angle cocks or the normal line of said coupling connections, substantially as described.

605,940. BEARING. BYRON A. WALKER, Erie, Pa. Filed Jan. 4, 1898. Serial No. 574,372. (Model.)



Claim.—1. In a ball bearing, a bearing-box comprising two centrally-apertured halves secured together face to face and each flared outwardly around its central opening, thereby forming the annular space or raceway for the balls; substantially as described.

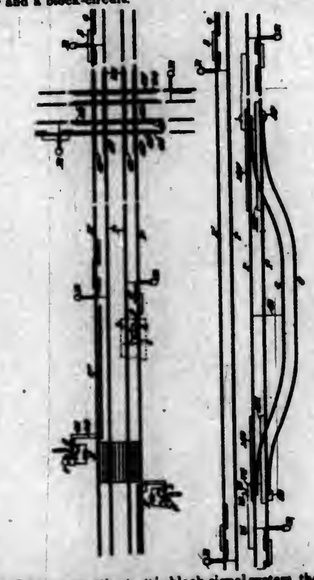
2. In a ball-bearing, a bearing-box comprising two centrally-apertured rectangular plates secured together face to face and each having its central portion flared outwardly concentric with its aperture to form the annular raceway; openings being formed in the marginal edges of the box and leading into said raceway; substantially as described.

3. A bearing comprising a sleeve provided with an annular groove, a box having an internal annular groove coinciding with the sleeve-groove, and balls in the raceway thus formed; the said box being formed of two halves secured together face to face and flared outwardly around their central sleeve-opening; substantially as described.

4. A bearing consisting of an annularly-grooved sleeve, a box having an internal annular groove coinciding with the sleeve-groove, and balls in the raceway thus formed; the said box being formed of two centrally-apertured halves secured together face to face at diagonally opposite points, flared outwardly around their sleeve-openings and spaced apart between their connecting portions to form openings leading into the internal groove or raceway; substantially as described.

605,941. ELECTRIC BLOCK-SIGNAL SYSTEM FOR RAILWAYS. LOUIS C. WEBBER, Broad Brook, Conn. Filed July 22, 1897. Serial No. 645,496. (No model.)

Claim.—1. In an automatic electric block-signal system, the combination, with a track having a sectional conductor forming insulated blocks, of a vehicle movable along said track; a primary electrical register controlled by a block-circuit; and a separately-operative secondary electrical register controlled conjointly by the primary register and a block-circuit.



2. In an automatic electric block-signal system, the combination, with a track having a sectional conductor forming insulated blocks, of vehicles movable along said track; a primary electrical register for each block and controlled by the block-circuit; and a separately-operative secondary electrical register for each block and controlled conjointly by the primary register and the block-circuit.

3. In an automatic electric block-signal system, the combination, with a track having a sectional conductor forming insulated blocks, of vehicles movable along said track; a primary electrical recorder for each block and controlled by the block-circuit; and a separately-operative secondary electrical recorder for each block and controlled conjointly by the primary recorder and the block-circuit.

4. In an automatic electric block-signal system, the combination, with a track having a sectional conductor forming insulated blocks, of vehicles movable along said track, and electrical recorders one for each block and each embodying separately-operative primary and secondary recording devices controlled by the block-circuit, each secondary recording device being controlled also by its respective primary recording device.

5. In an automatic electric block-signal system, the combination, with a track having a sectional conductor forming insulated blocks, of vehicles movable along said track; and electrical recorders, one for each block, and each embodying a primary recording device in a circuit controlled by said block, and a separately-operative secondary recording device in another circuit controlled conjointly by the primary recording device and by said block.

6. In an automatic electric block-signal system, the combination, with a track having a sectional rail forming insulated blocks, of sectional conductors one at the beginning of each block; vehicles movable along said track; contact-makers carried by said vehicles and adapted to make traveling contact with said sectional conductors; and electrical recorders one for each block and each embodying a primary recording device in circuit with the track-rails, an auxiliary recording device in circuit with the sectional conductor and with one of said rails, and an automatic circuit-closer controlling the circuit of the auxiliary recording device and controlled by the primary recording device.

7. In an automatic electric block-signal system, the combination, with a track having a sectional rail forming insulated blocks, of pairs of sectional conductors at the beginning of each block one connected with the block-rail and the other with an auxiliary recording device; vehicles movable along said track; contact-makers carried by said vehicles and adapted to make traveling contact with said sectional conductors; a signaling device on each vehicle and in circuit with its contact-maker and with the track-rails; and electrical recorders one for each block and each embodying a primary recording device in circuit with the track-rails, an auxiliary recording device in circuit with one of the sectional conductors and with one of said rails, and an automatic circuit-closer controlling the circuit of the auxiliary recording device and controlled by the primary device.

8. In an automatic electric block-signal system, the combination, with a track having a sectional conductor forming insulated blocks, of vehicles movable along said track; and electrical recorders, one for each block, and each embodying a primary recording device in a circuit controlled by said block, a separately-operative secondary recording device in another circuit controlled conjointly by the primary recording device and by said block, a recording-tape, and tape-feeding means controlled by one of said recording devices.

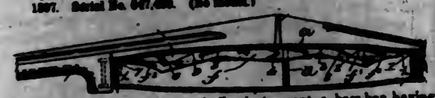
9. In an automatic electric block-signal system, the combination, with a track having a sectional conductor forming insulated blocks, of vehicles movable along said track; and electrical recorders, one for each block, and each embodying a primary and a secondary puncturing recording device disposed in fixed positions longitudinally of the tape to puncture said tape in corresponding positions, the primary recording device being located in a circuit controlled by such block, and the secondary recording device in another circuit controlled conjointly by the primary recording device and by each block, a recording-tape, and tape-feeding means controlled by one of said recording devices.

10. In an automatic electric block-signal system, the combination, with a pair of tracks running in the same direction, side by side, and crossing each other, one having a sectional rail forming insulated blocks and the other having an interfering track-section electrically connected with a section of the first track to form therewith a common block, of sectional conductors connected with the block-rails of the first track, one at the beginning of each block; vehicles movable along said tracks; contact-makers carried by said vehicles, respectively, and adapted to make traveling contact with said sectional conductors; and signaling devices on said vehicles, respectively, and in circuit with said respective contact-makers and with the track-rails.

11. In an automatic electric block-signal system, the combination, with a pair of tracks running in the same direction, side by side, and crossing each other, each having a sectional rail forming insulated blocks and both having interfering track-sections electrically connected to form at each a point a common block, of sectional conductors connected with the block-rails of each tracks, one at the beginning of each block; vehicles movable along said tracks; contact-makers carried by said vehicles, respectively, and adapted to make traveling contact with said sectional conductors; and signaling devices on said vehicles, respectively, and in circuit with said respective contact-makers and with the track-rails.

12. In an automatic electric block-signal system, the combination, with a track having a sectional rail forming insulated blocks, of sectional conductors at opposite sides of the center of the track and connected with said sectional rail alternately at the beginning and at the end of each block; a vehicle movable along said track; a pair of contact-makers carried by said vehicle and adapted to make traveling contact, respectively, with said respective sectional conductors; a pair of automatic circuit-closers carried and controlled, respectively, by said respective contact-makers and operative alternately in opposite directions from their respective open positions to close their respective circuits in accordance with the direction of movement of the vehicle; and a pair of signaling devices on said vehicle and in circuit with the track-rails and controlled by said circuit-closers.

605,942. VIOLIN. HARRISON W. WEBB, Somerville, Mass., assignor of one-half to Frederick A. Gatt, Boston, Mass. Filed Aug. 7, 1897. Serial No. 647,609. (No model.)



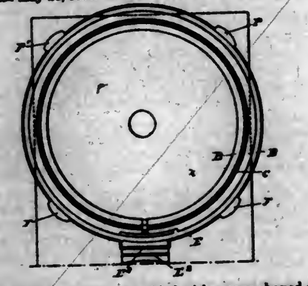
Claim.—1. In a violin or similar instrument, a bass-bar having end portions each consisting of a foot or brace attached to the belly of the instrument and extending from a point adjacent to the end block to a point distant therefrom one-third of the inside length of the belly between said end block and the bridge, and a middle portion attached to the belly, the bar being separated from the belly between the middle portion and the end portions.

2. In a violin or similar instrument, a bass-bar extending for substantially the whole length of the belly of the instrument and attached thereto at all portions of its own length excepting two portions, each of which begins at a point distant from the end block one-third of the inside length of the belly between the end block and the bridge, and ending at a point nearer the bridge.

3. In a violin or similar instrument, an arched belly, in combination with a bass-bar attached along its middle and end portions to the belly and having at each end a recess forming a gap in the line of attachment which extends from a point distant from the end block one-third of the inside length of the belly between the end block and bridge to a point distant from said end block one-half of that length, the said recesses extending on either side of the straight line joining the ends of the belly.

4. In a violin or similar instrument, a bass-bar having reduced portions each distant from the bridge one-third of the inside length of the belly between said bridge and the end block and having two recesses forming gaps in the line of attachment between said reduced portions and the ends of the bar.

605,948. BALANCED VALVE. JOHN T. WILSON, Jersey Shore, Pa. Filed May 13, 1897. Serial No. 636,355. (No model.)

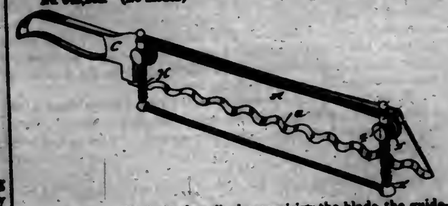


Claim.—1. A slide-valve provided with a cone-shaped extension on its upper surface the sides of which are beveled inward toward the apex, in combination with a ring having a corresponding internal bevel and adapted to fit snugly the beveled surface of the cone, said ring being divided at one point and recessed on its under side at the point of division and a joint-plate attached to one end of the ring thus divided and overlapping the other end to close the joint, the said joint-plate being provided with an inwardly-extending flange D', which fits into the said recess and extends inwardly to the said cone substantially as set forth.

2. In combination with a slide-valve having a cone-shaped extension on its upper surface, a ring having a corresponding internal bevel and adapted to fit snugly the said cone and a metal ring E of greater diameter than the said beveled ring and provided with inwardly extended flanges E' divided by slots or cuts yet forming a practically continuous guard for the purpose set forth.

3. In combination with a slide-valve having a cone-shaped extension on its upper surface, and raised lugs F provided with inward flanges, a metal ring internally beveled to fit the said cone and an exterior sheet-metal ring provided with a practically continuous inwardly-presented guard or flange and held in place by said lugs and their overlapping flanges F' substantially as set forth.

605,944. KNIFE. AARON WEBSTER, Hudson, N. Y., assignor of two-thirds to William H. Hearn, same place. Filed July 20, 1897. Serial No. 645,282. (No model.)

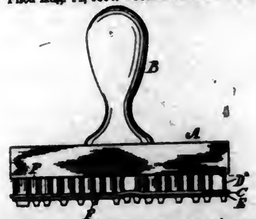


Claim.—1. The knife described comprising the blade, the guide-arms connected to and extending laterally from the blade and having apertures disposed in a plane parallel to that of the blade, hanger-rods arranged in said apertures of the guide-arms and having stops above the arms, a gage carried by said hanger-rods, and coiled springs, surrounding the hanger-rods below the guide-arms, for normally holding the gage in a plane below the cutting edge of the blade, substantially as specified.

2. The knife described comprising the blade, the guide-arms connected to and extending laterally from the blade, and having apertures disposed in a plane parallel to that of the blade, the sleeves coöperating in said apertures and having their lower ends reduced in di-

ameter, hanger-rods arranged in said sleeves and having stops adapted to engage the upper ends of the sleeves, a gage carried by said hanger-rods, and coiled springs for normally holding the gage in a plane below the cutting edge of the blade: the said springs surrounding the hanger-rods and having their upper ends seated in the spaces afforded between the reduced lower ends of the sleeves and the walls of the apertures in the guide-arms, substantially as specified.

605,945. PRINTING-STAMP. LAWRENCE R. BLACKMORE, Newark, N. J. Filed Aug. 11, 1897. Serial No. 647,772. (No model.)



Claim.—1. A hand-stamp having the type-plate supported upon a series of independent yielding hollow columns with interspaces F adapting the columns to yield laterally, as and for the purpose set forth.

2. A hand-stamp having a stamp-block A and a yielding bed-plate C with a series of independent yielding hollow columns having interspaces F and cemented air-tight to the stamp-block, and forming independent pneumatic cushions beneath the bed-plate, substantially as herein set forth.

3. In a hand-stamp, the combination, with a stamp-block A, of an elastic rubber bed-plate C having a series of independent hollow rubber columns integral therewith, and cemented air tight to the stamp-block, and a type-plate attached to the bed-plate, as and for the purpose set forth.

4. A bed-plate for hand-stamps formed of elastic rubber having integral therewith parallel series of square hollow columns with interspaces F, substantially as herein set forth.

5. A bed-plate for hand-stamps, formed of elastic rubber having integral therewith parallel series of independent square hollow columns with interspaces F and their longitudinal and transverse sides in alinement, as and for the purpose set forth.

6. In a hand-stamp, the combination, with a stamp-block A, of an elastic rubber bed-plate C having integral therewith parallel series of independent square hollow columns having interspaces F with their longitudinal and transverse sides in alinement, the ends of the columns being cemented air-tight to the stamp-block, and a type-plate being cemented to the surface of the bed-plate, as and for the purpose set forth.

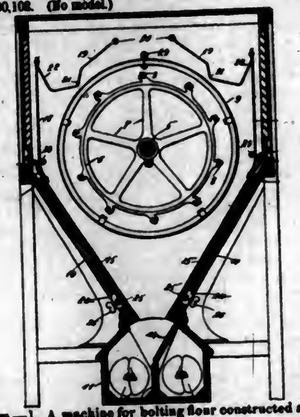
7. In a hand-stamp, the combination, with a stamp-block A, of a rubber bed-plate having yielding cells formed upon the back, and attached to such stamp-block, with an opening from one of said cells through the said bed-plate, a type-plate secured to a portion of such bed-plate, and a removable dating attachment having an elastic hollow shank fitted through such opening to the interior of such cells, as and for the purpose set forth.

8. In a hand-stamp, the combination, with a stamp-block A, of a rubber bed-plate having yielding cells formed upon the back and attached to such stamp-block, with openings from certain of said cells through the said bed-plate, a type-plate secured to a portion of such bed-plate, and a removable dating attachment having a plurality of elastic hollow shanks fitted through said openings to the interior of such cells, as and for the purpose set forth.

9. In a hand-stamp, the combination, with a stamp-block A, of a rubber bed-plate having yielding square cells formed upon the back and attached to such stamp-block, with an opening from one of said cells through the said bed-plate, and a removable dating attachment having an elastic square shank adapted to fit within such cell and to be held from turning by the flat sides of the same, as and for the purpose set forth.

10. In a hand-stamp, the combination, with a stamp-block A, of a rubber bed-plate having yielding cells formed upon the back and attached to such stamp-block, with square openings from certain of said cells through the said bed-plate, a type-plate secured to a portion of such bed-plate, and separate dating attachments having rubber type-plates with hollow square elastic shanks fitted detachably through such openings to the interior of the said cells, the attachment for the name of the month having a plurality of said shanks, and the attachment for the day of the month having a single square shank adapted to hold it from turning when fitted through the square opening, substantially as herein set forth.

605,946. BOLTING-MACHINE. ALEXANDER BOSANKO, Mariner's Harbor, N. Y., assignor of one-half to Edward John Dawson Mountford and William Morgan Pindar, same place. Filed Mar. 31, 1897. Serial No. 630,102. (No model.)



Claim.—1. A machine for bolting flour constructed as herein described, and provided with stationary cant-boards and supplemental, movable cant-boards mounted thereon and provided with arms or projections adapted to be engaged by similar devices on the reel, whereby the said cant-boards may be reciprocated, substantially as and for the purpose described.

2. A machine for bolting flour constructed as herein described, and provided with a reel, and stationary cant-boards, and movable cant-boards mounted on said stationary cant-boards, said movable cant-boards being provided at their upper edges with spring-arms which are connected with levers which are adapted to be operated by said reel, substantially as shown and described.

3. In a machine for bolting flour constructed as herein described, and provided with a reel, stationary cant-boards, and a conveyer or conveyers, supplemental movable cant-boards mounted on said stationary cant-boards, and provided with arms adapted to be engaged by lugs or projections on said reel, during a part of its revolution, substantially as and for the purpose described.

4. In a machine for bolting flour, constructed as herein described, and provided with a reel, stationary cant-boards, and a conveyer or conveyers, and supplemental movable cant-boards mounted on said stationary cant-boards and adapted to be operated by said reel, said supplemental cant-boards being provided at their upper edges with arms which are connected with levers which are adapted to be operated by a roller secured to the casing of the reel, substantially as shown and described.

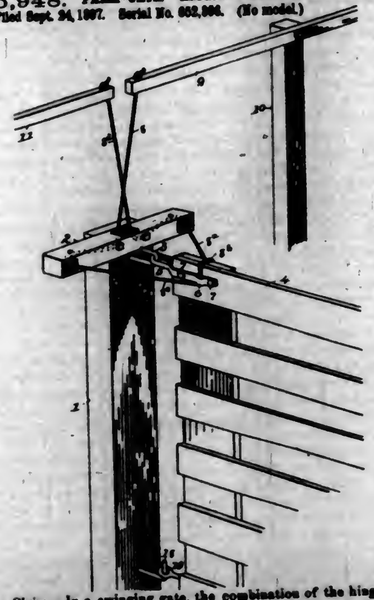
5. In a machine for bolting flour, constructed as herein described, and provided with a reel, stationary cant-boards, and a conveyer or conveyers, and supplemental movable cant-boards mounted on said stationary cant-boards and adapted to be operated by said reel, said supplemental cant-boards being provided at their upper edges with arms which are connected with levers which are adapted to be operated by a roller secured to the casing of the reel, and said supplemental cant-boards being provided at their upper edges with strips of canvas or similar material which are secured thereto, and to the frame of the machine, substantially as shown and described.

605,947. NECKTIE. CHARLES W. T. DAVIES, San Francisco, Cal., assignor of one-half to Stephen Loring Harris, same place. Filed July 29, 1897. Serial No. 646,367. (No model.)



Claim.—As an article of manufacture, a necktie consisting of a neckband and two end portions, these end portions being adapted to form a knot, and the connections, C, C, secured to the inner face of the band portion adjacent to each end portion, and provided at their free ends with rings adapted to fit over a collar-button, substantially as set forth.

605,948. FARM-GATE. ANDREW A. DOWNEY, Armstrong, Ill. Filed Sept. 24, 1897. Serial No. 652,898. (No model.)



Claim.—In a swinging gate, the combination of the hinge-post 1 having the cross-head 2, the gate 4 having the permanent lower hinge 18, 19, the upper hinge composed of the hooked rod 3 attached to the post and the loop 5 engaging the hooked portion of the rod and fitting on opposite sides of the gate, and the rope extending from the cross-head over the gate and between the gate and the bars of the loop, substantially as described.

605,949. ELECTRIC METER. THOMAS DUNCAN, Fort Wayne, Ind. Filed June 24, 1897. Serial No. 642,212. (No model.)



Claim.—1. An electric meter provided with a cylindric armature, a series field without the armature, and a shunt-field within the armature comprising a cross-shaped core, and shunt-coils upon said core.

2. An electric meter provided with a cylindric armature, a core extending around the armature and having inserting poles on opposite sides thereof and series coils upon said poles, a cross-shaped core within the armature, and shunt-coils upon the several poles of said cross-shaped core.

3. An electric meter provided with a cylindric armature, series coils without the armature, and two pairs of shunt-coils within the armature, one pair adjacent to each series coil, and the two members of each pair being arranged on opposite sides of the common axis of the series coils.

4. An electric meter provided with a cylindric armature, a core extending around the armature and having inserting poles on opposite sides thereof and series coils upon said poles, a cross-shaped core within the armature, and two pairs of shunt-coils upon the poles of said cross-shaped core, one pair adjacent to each of the field-poles and the two coils of each pair being arranged on opposite sides of the axis of said field-poles.

5. An electric meter provided with a cylindric armature, a series field without the armature and a shunt-field within the armature, drag-magnets exerting a retarding influence on the armature, and a magnetic shield apertured for the passage of the armature inserted between the series field and drag-magnets.

6. The combination with the meter-frame A, the armature B', and the series and shunt coils C and D, of the series core C', the standard C^3 supporting said core, tubes c^4 upon said standard, magnetic plate F resting on the upper ends of said tubes, upper tubes c^5 upon the standard, and cap-nut c^6 clamping the core C' down upon said upper tubes.

7. The combination with the meter-frame and armature, of the series and shunt fields and drag-magnets, the core G projecting from the base of the meter-frame up into the cylindrical armature, the tubular standard d' screwed into the upper side of said core and supporting a shunt-field, the screw B^3 seated in a screw-threaded bore of the core and projecting upward into the tubular standard, the enlarged counterbore and registering aperture in the base of the frame giving access to said screw, the spring-supported jewel in said screw, the armature-spindle B' resting upon said jewel, and the detachable upper bearing of said armature.

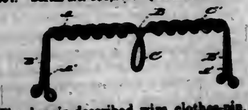
8. In an induction-motor meter, the combination with a rotary armature and two fields for actuating said armature, of an impedance-coil provided with a U-shaped core having a separable keeper, non-magnetic space-blocks inserted between the keeper and the poles of the core and means for detachably clamping the parts in this relation.

9. In an induction-motor meter, the combination with the rotary armature and two fields for actuating said armature, of an impedance-coil provided with a U-shaped core having a detachable keeper, non-magnetic space-blocks inserted between the keeper and core, and a screw-bolt r' and nut r^2 for adjustably clamping the keeper in place.

10. A meter for three-wire systems of electric distribution, comprising a cylindric armature, a series coil without the armature connected in each of the outer main leads and two pairs of volt-coils within the armature, one pair connected in shunt between one of the main leads and the neutral wire and the other in shunt between the other main lead and the neutral wire.

11. A meter for three-wire systems of electric distribution, comprising a cylindric armature, a core and coil without the armature connected in series in each of the main leads, a cross-shaped core within the armature having two pairs of volt-coils upon its poles, one pair of volt-coils being connected in shunt between one main lead and the neutral wire and the other pair in shunt between the other main lead and the neutral wire.

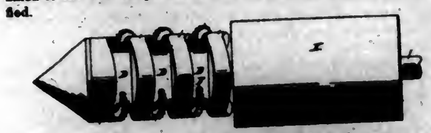
605,950. WIRE CLOTHES-PIN. SOPHIE B. FAVELL, Statesville, N. C., assignor of one-half to Elizabeth Abernathey, same place. Filed May 12, 1897. Serial No. 636,262. (No model.)



Claim.—The herein-described wire clothes-pin, consisting of a piece of wire bent to form depending ends A', spiral coils C' and downward-depending loop C between said coils, in combination with a piece of wire bent to form depending ends B', and a straight connecting-bar B, said connecting-bar being passed through the coils C' and the loop C, depending below said coils and parallel with and between the depending ends A' and B', whereby the pin may be strung upon a clothes-line by passing the line through the loop C, the ends A' and B' passing downward over the line and being pressed together by the torsional resiliency of the wire, substantially as described.

605,951. BOILER-TUBE CLEANER. WILBER D. FORSYTH and ROSS T. BELL, Pittsburg, Pa., assignors to the Union Boiler Tube Cleaner Company, same place. Filed Sept. 17, 1897. Serial No. 652,041. (No model.)

Claim.—1. In a pipe or tube cleaner, the combination with a plate or carrier having a rearwardly-inclined face, of a cutter-carrying arm pivoted to the said face to move in a plane parallel with the plane of inclination of said face, and one or more rotary cutters journaled to the free end portion of the said arm, substantially as specified.



2. In a pipe or tube cleaner, the combination with a plate or carrier having a rearwardly-inclined face, and a pin or stud projecting perpendicularly therefrom, of an arm pivoted to the said stud to move in a plane parallel with the plane of inclination of the said face, and one or more cutter-wheels journaled to the free end portion of the said arm and working in a plane or planes parallel with the plane of movement of the said arms, substantially as specified.

3. In a pipe or tube cleaning device, the combination with a shaft or hub, of a plate or carrier secured thereto and adapted to be moved through and rotated within the pipe or tube to be cleaned, said plate or carrier having an inclined face, a number of arms pivoted to the said plate or carrier upon its inclined face and capable of swinging outwardly in planes parallel with the plane of the inclination of the face to which they are pivoted, stops for limiting the movement of the said arms, and one or more toothed cutters journaled to the free end portion of each of the said arms, substantially as specified.

4. In a pipe or tube cleaning device, the combination with a suitable shaft or hub, of a number of pyramidal plates or carrying devices secured thereto at intervals and having parallel front and rear faces, one or more arms pivoted eccentrically to each of said plates or carriers and arranged to swing outwardly in planes parallel with the planes of the inclination of the said faces, and one or more rolling cutters journaled to the free end portion of each of the said arms, substantially as specified.

5. In a pipe or tube cleaning device, a pyramidal carrier-plate whose plane outer or forward faces are inclined rearwardly, a stud projecting perpendicularly from each of the said faces, and a cutter-carrying arm pivoted to each of the said studs to move in a plane parallel with the plane of the face which carries the stud, substantially as specified.

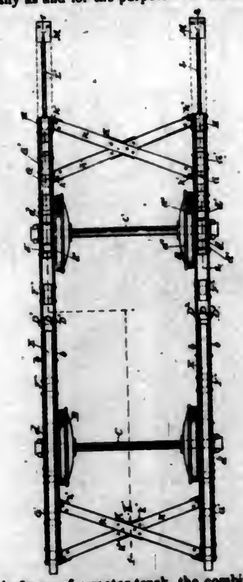
6. In a pipe or tube cleaning device, a shaft, a number of trihedral pyramidal plates secured thereto at short intervals from each other, cutter-carrying arms pivoted to the inclined faces of said plates to swing outwardly and rearwardly in the planes thereof, and cutter journaled to the free end portions of the said arms, the rear faces of the plates adjacent to said arms being of concave pyramidal form, substantially as specified.

605,952. TRUCK FOR MOTOR-CARS, &c. HORACE L. GEE, Kingston, N. Y., assignor to the Diamond Truck and Car Gear Company, same place. Filed Jan. 10, 1896. Serial No. 574,998. (No model.)

Claim.—1. In a motor-truck, a side frame formed by the combination with two duplicate frames D' D², comprising each the two bar members *b b* rigidly secured together at a point midway in the length of said frames and having their outer end portions *c* extended horizontally forward, and the bar members *b' b'* at an angle to the outer end portions of bar members *b b* and having each an extended horizontal end portion *c* arranged parallel with portion *c* of bars *b* with the lower edge of the latter bearing against the upper edge of the former, of pedestals *d d* rigidly secured by their outer and inner side flanges to the respective bar members of said duplicate frames, spring seating-blocks serving as ties between the horizontal end portions *c c* of the said bar members of said frames, and spring-blocks G' serving as tie-pieces between the inclined portions of the bar members *b b'* which are between portions *c c* and the pedestals, substantially as and for the purposes set forth.

2. In a car-truck, the combination with the bar members *b b'* of the two duplicate side frames D' D² having their respective end portions *c c* horizontal and parallel, with an edge of each said end portions bearing against an edge of the other, of a block and rivets rigidly securing together the said end portions of the respective bar members, of each duplicate frame, and those of each duplicate frame with those of the other, substantially as and for the purposes set forth.

3. In a side frame of a motor-truck, the combination with two pedestals and two duplicate frames having in each outer end portion of each said frames bracing bar members *b' b'* secured to the lower and forward side flanges of said pedestals and having their forward end portions *c* extended horizontally and with their upper edges bearing against the lower edges of the outer end portions *c* of the bar members of said duplicate frames, of spring seating-block and rivets holding said outer end portions *c c* of the said two bar members together, edge to edge in each duplicate frame and also holding the outer ends of each duplicate frame rigidly secured to those of the other, substantially as and for the purposes set forth.



4. In a side frame of a motor-truck, the combination with two pedestals and two duplicate frames comprising each similar bar members *b b'* rigidly secured respectively to the outer and inner side flanges of the said pedestals and arranged in such relation to each other that the bar members *b'* may brace the forward portions of the bar members *b* and have their horizontal outer end portions *c* bear against the lower edges of the outer end portions of the respective bar members *b* of spring seating-blocks and rivets rigidly securing together the outer ends of the respective bar members of both duplicate frames, and blocks between said pedestals and spring seating-blocks and arranged and secured by means of rivets between the respective bar members *b* and *b'* of the duplicate frames, whereby the respective bracing bar members may be rigidly secured to the respective bar members above them, in said duplicate frames, and rigidly secure each duplicate frame with the other at points, in the side frame, between said pedestals and outer end spring seating-blocks, substantially as and for the purposes set forth.

5. In a motor-truck, the combination with a dual side frame D comprising duplicate frames D' D², formed each by the combination with pedestals *d d* of bar members *b b* and *b' b'*, which have their horizontal end portions *c c* parallel in each duplicate frame and also the dual side frame, and have said horizontal portions in each duplicate frame edge against edge, of blocks secured by rivets and serving as ties rigidly holding the assembled said horizontal parallel end portions together, and spring-seats arranged and rigidly secured by rivets between the said two bar members *b b'* of said duplicate frames at points between the respective pedestals and tie-serving blocks, substantially as and for the purposes set forth.

6. In a motor-truck, in each end portion of each side frame thereof from the respective pedestals outward, the combination with a pedestal of two parallel longitudinal bar members *b b* secured each to the upper inner and outer flanges of said pedestal, two parallel inclined bar members *b' b'* having their outer end portions C extended horizontal and parallel with the extended end portions *c* of bar members *b b*, with their edges bearing against edges of the latter, and having their rearward ends rigidly secured to outer and inner flanges integral with the lower end of the pedestal, of a spring seating-block rigidly secured between the assembled pairs of parallel end portions *c c* of said bar members *b b'*, a spring-block having a body which is rigidly secured, by means of rivets, to and between the parallel pair of inclined bar members and to and between the parallel longitudinal bar members *b b*, and two guiding-sleeves which are secured each in alinement with each other, with one between each pair of bar members *b b* and the other between the inclined bar members *b' b'*, the said spring-blocks being adapted to support, one, an elliptic spring and the other a spiral spring between said end portion of the truck-frame and a bolster-plate above, and the said sleeves being adapted to jointly receive and hold with a vertically extended guiding-post secured to the said bolster-plate, substantially as and for the purposes set forth.

7. In a motor-truck, in each end portion thereof outward from the respective pedestals, the combination with a pedestal, bar members *b* secured to the upper end flanges of the pedestal, inclined bar members *b'* secured by their lower ends to the lower end of the pedestal and bracing the bar members *b*, a block rigidly secured to the outer ends of the said bar members *b* and those of the inclined bracing bar members *b'* and adapted to serve as a vertical sleeve, of a jointed brace, comprising an oscillating bar member and an inclined bar member which has its forward end secured to the sill of a car-body at a point forward of the truck, a vertically-moving post serving as a king-post and working in said vertical sleeve and secured to a plate adapted to be secured to the car body and having its lower end secured to the lower end of said inclined bar member of the jointed brace, a fixed forwardly and downwardly incline faced abutment L^4 rigidly secured between the inclined bracing bar members of the end portion of the truck, and a forwardly and downwardly incline faced abutment L^4 secured to the lower end of the said inclined bar member of the jointed brace; the said oscillating bar member of said brace having its respective ends provided with rocker-form faces which bear, respectively against the said inclined faced abutments L^2 L^4, substantially as and for the purposes set forth.

8. In a motor-truck, the combination with the portion of the truck-frame forward of the pedestal *d*, a sleeve rigidly secured to the outer end of said forward frame portion and the forwardly and downwardly incline faced abutment L^2 which is rigidly secured to said forward frame portion at a point near the lower end of said pedestal, of a vertically-movable post secured to a plate adapted to be secured to the sill of a car-body and freely working in said sleeve, a jointed brace comprising the inclined bar L, having its forward end secured to the sill of a car-body and its rearward end to the said post and having with its rear end a forwardly and downwardly incline faced abutment L^4, the oscillating bar L^2, having its opposite ends provided with rocker-form faces which abut against the inclined faces of the said abutments, substantially as and for the purposes set forth.

9. In a motor-truck, the combination with an inclined bracing-bar which has its forward end adapted to be secured to a sill of a car-body and is provided at its rear end with the downwardly and forwardly inclined bearing-face l', of a vertical post which is fixed from moving in relation to inclined bracing-bar and sill of a car-body to which said post may be secured, yet movable in relation to the truck-frame, the oscillating bar L^2 having its opposite ends provided with similar rocker-form faces, and piece L^3 rigidly secured to the frame of the truck, at a point near the lower end of the pedestal in the frame, and provided with the downwardly and forwardly inclined bearing-face *l*, substantially as and for the purposes set forth.

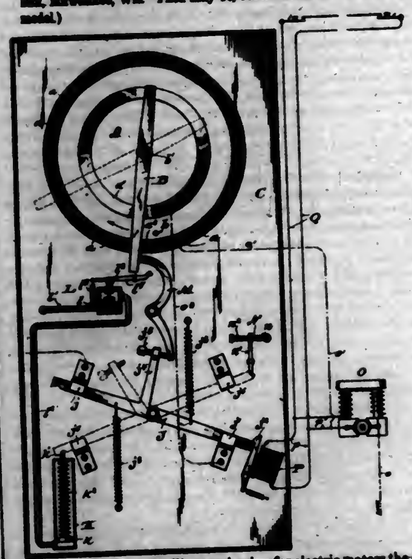
10. In a motor-truck, the combination with the bar members of the truck-frame, a spring seating-piece which is rigidly secured to said bar members, and holding with their assembled outer ends and having in its body below the seat thereof a spring-receiving chamber *i*, a load-bearing spring seated on said spring seating-piece for support of the sill of a car-body, a reacting spring I, wholly contained within said spring-receiving chamber, and the vertical movable spring seating piece I', of the reacting spring I, of diameter corresponding with that of said chamber and also wholly contained within the same, of the upper spring seating-piece H^3, vertical post H^3 secured by its upper end to said upper seating-piece and supporting the said vertically-movable spring seating-piece within the said spring-receiving chamber and against the compressed reacting spring therein, an inclined bracing-bar having its forward and upper end adapted to be secured to the sill of a car-body and having its lower end secured to said vertical post, and a vertical oscillating bracing-bar interposed between the rear end of said inclined bracing-bar and the truck-frame, substantially as and for the purposes set forth.

11. In a motor-truck and arranged as a tie-piece between two parallel bar members of the truck-frame, a block having in it a vertical perforation for passage of a vertical moving post and also having with its forward side of body a bearing-face adapted to abut against a vertical oscillating bracing-bar, substantially as and for the purposes set forth.

12. In a motor-truck, the combination with the two side frames of the truck, of a horizontal X-form brace formed by the combination of the two bars *k k*, crossing each other at their middle, the reinforcing tie-plate K', rivets k^3 rigidly securing the said reinforcing tie-plate to the crossed bars at their crossing portions, and tie-pieces *k' k* rigidly secured by means of rivets to the said side frames of the truck, substantially as and for the purposes set forth.

13. In a motor-truck; the combination with the two side frames of the truck in which two pedestals are secured to bar members of each side frame for receiving the journal-bearings of the wheel-axles, of two horizontal X-form bracing mechanisms, comprising, each, two bars crossing each other at their middle, a reinforcing tie-piece K' provided with flanges k^3 k^3 and secured to the crossing portions of said bars by means of rivets and the flanged tie-pieces *k'* which are respectively rigidly secured, by means of rivets, to the outer ends of said crossed bars and to the portions of both the said side frames which are extended forwardly from said pedestals, substantially as and for the purposes set forth.

605,953. CONTROLLING MECHANISM FOR ELECTRIC MOTORS. GUSTAV GEIGER, WARREN S. JOHNSON, and HENRY WINKELMANN, Milwaukee, Wis. Filed May 10, 1897. Serial No. 636,888. (No model.)



Claim.—1. In controlling mechanism for electric motors the combination with a rheostat comprising a movable contact-arm of a switch in circuit with the armature of the motor, means tending to open said switch, a detent for holding said switch closed, a releasing-magnet having a winding of high resistance in a shunt of the motor-circuit, a circuit-breaker through which said magnet is normally short-circuited, and means for automatically returning said rheostat-arm to starting position whenever the switch is opened, substantially as and for the purposes set forth.

2. In controlling mechanism for electric motors the combination with a rheostat comprising a series of contacts and connected resistances and a movable contact arm, of an emergency-switch, means tending to open said switch, a detent for holding the switch normally closed, means for disengaging said detent and releasing said switch and means for automatically shifting the rheostat-arm into starting position when said switch is opened and for closing the switch when the rheostat arm is returned, substantially as and for the purposes set forth.

3. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of said resistance into circuit, of a fluid-motor for operating the rheostat-arm consisting of a chamber, a movable part in said chamber connected with the rheostat-arm, an air-supply connection with the motor, a liquid medium between said supply connection and the movable part of the motor and valve mechanism for controlling the operation of the fluid-motor, substantially as and for the purposes set forth.

4. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of said resistance into circuit, of a fluid-motor for operating the rheostat-arm consisting of a cylinder provided with a piston which is connected with said arm, two reservoirs connected with opposite ends of said cylinder, and each having an air-supply and waste connection, and valve mechanism controlling an air connection of each reservoir, substantially as and for the purposes set forth.

5. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of said resistance into circuit, of a fluid-motor consist-

ing of a cylinder containing a liquid and provided with a piston which is connected with said arm, and two chambers or reservoirs connected with opposite ends of said cylinder, and each having a restricted air-supply connection and a waste connection of larger area provided with a valve, substantially as and for the purposes set forth.

6. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of said resistance into circuit, a fluid-motor for operating said arm, a valve in a fluid connection of said motor, a switch in the motor-circuit having a tendency to open and arranged when opened to shift said valve and cause the fluid-motor to return the rheostat-arm to starting position, and a detent holding said switch normally closed, substantially as and for the purposes set forth.

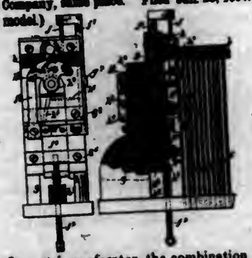
7. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of such resistance into the motor-circuit, of a fluid-motor for operating said arm, an emergency-switch in the motor-circuit having a tendency to open, and arranged when opened to start said fluid-motor and to return the rheostat-arm into starting position, a detent holding said switch normally closed, a fluid-motor for closing said switch, and a valve controlling the operation of the switch closing motor arranged to be operated by the return of the rheostat arm to its starting-point, substantially as and for the purposes set forth.

8. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of said resistance into the motor-circuit, a fluid-motor for operating said arm, a switch in the motor-circuit having a tendency to open and arranged when opened to start said fluid-motor and cause it to return the rheostat-arm to starting position, a detent for holding said switch normally closed, a fluid-motor for closing said switch, a supply and waste valve mechanism in the fluid connection of said motor arranged to be operated by the return of the rheostat-arm into starting position to open the supply and close the waste port, and a lever operated by the closing of said switch to advance the rheostat-arm and permit said valve mechanism to resume its normal position, closing the supply and opening the waste port, substantially as and for the purposes set forth

9. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of said resistance into circuit, a fluid-motor for operating said arm, a valve in a fluid connection of said motor, a switch in the motor-circuit arranged when opened to shift said valve and cause the fluid-motor to return the rheostat-arm to starting position, substantially as and for the purposes set forth.

10. In mechanism for controlling electric motors, the combination with a rheostat comprising resistance and a movable arm for bringing more or less of such resistance into the motor-circuit, of a fluid-motor for operating said arm, an emergency-switch in the motor-circuit arranged when opened to start said fluid-motor and to return the rheostat-arm into starting position, a fluid-motor for closing said switch and a valve controlling the operation of the switch-closing motor, arranged to be operated by the return of the rheostat-arm to its starting-point, substantially as and for the purposes set forth.

605,954. COMPOSING-MACHINE FOR TYPE CASTING AND SETTING MACHINES. George A. Goodson, Minneapolis, Minn., assignor, by mesne assignments, to the Goodson Type Casting and Setting Machine Company, same place. Filed Jan. 25, 1897. Serial No. 620,612. (No model.)

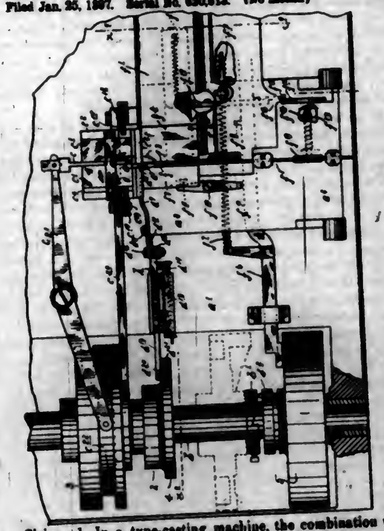


Claim.—1. In a strip-perforator, the combination with a resistance-roller, of a cooperating feed disk mounted for rocking and sliding motion against retracting-springs, and a reciprocating punch-plunger cooperating with said springs to impart the strip-releasing and strip-feeding movements to said feed-disk, substantially as described.

2. In a strip-perforator, the combination with a strip guide and resistance-roller, of a spring-held disk-carrier sliding substantially at right angles to the strip, a spring-held feed-disk pivoted to said carrier for rocking motion in the line of feed, and a reciprocating punch-plunger subject to a magnet and a spring, with said plunger arranged to slide said carrier against its retracting-spring and to rock said disk against its retracting-spring, at opposite limits of the plunger's stroke, substantially as and for the purposes set forth.

3. In a strip-perforator, the combination with a strip-guide, of the resistance-roller h, the rocking feed-disk h', the sliding carrier h^2 for said disk, the stop-arm h^3 on the journal of said disk and working against one or more adjustable stops h^4, the spring h^5 applied to said disk, the pin h^3 on said disk, the spring h^6 applied to said carrier, the punch-plunger f^6 mounted for a longer stroke than the carrier and engageable therewith at the opposite limits of the plunger's stroke, the arm f^5 on the plunger engageable with the pin h^3 on the disk, the magnet f^4 and the spring f^7, all arranged and cooperating substantially as described.

605,955. TYPE CASTING AND SETTING MACHINE. George A. Goodson, Minneapolis, Minn., assignor, by mesne assignments, to the Goodson Type Casting and Setting Machine Company, same place. Filed Jan. 25, 1897. Serial No. 620,613. (No model.)



Claim.—1. In a type-casting machine, the combination with a type-body mold and a type-receiving ledge, with its face at a lower level than the bottom of the mold-cell, of a type-seating device, and means for operating the same with a four-motion action, to wit, first to retreat from the last seated type, second, to rise into an idle position, third, to move forward and engage the last cast type as ejected, and fourth, to move downward, thereby seating and holding the engaged type on said ledge until the next cast type is being ejected, substantially as and for the purposes set forth.

2. In a type casting and setting machine, the combination with the body-mold and a type-receiving ledge, with its face at a lower level than the bottom of the mold-cell, of a yielding abutment against which the cast type are ejected, and a type-seating device arranged to engage with the cast type as ejected, and seat and hold the same on their feet on said ledge, against said abutment, until the next cast type is being ejected, substantially as described.

3. In a type-casting machine, the combination with the body-mold and a type-receiving ledge, at a lower level than the mold, of a type-seating device operative to engage the cast type as ejected and seat the same on said ledge, comprising an arm carried by a pivoted lever, for the in-and-out motion, and subject to a second lever, for the up-and-down motion, a cam with a double face and a pair of spring-held slides operative on said levers and subject to said cam, substantially as described.

4. In a type-body mold, the combination with the movable members c c', of the fixed angle-block member c^3 having a delivery-channel d^6 extending outward beyond the side of the mold-cell, and a type-seating device mounted to move through one wall of said channel, at substantially right angles to the type, for engaging the type against the opposite wall of said channel as a base of resistance, substantially as and for the purposes set forth.

5. The combination with the movable mold members c c', of the fixed angle-block mold-section c^3 having the delivery-channel d^6 extending outward beyond the bottom face-plate of the mold, and provided on its back with the countersunk guideway d^5 intercepting one wall of said channel, the type-receiving ledge d^3 located with its face at a lower level than the bottom of the mold-cell, the type-seating lever-arm d^3 working in said guideway d^5, and means for imparting to said arm d^3 a four-step motion, substantially as and for the purposes set forth.

6. The combination with the fixed mold-section and a suitable base of resistance, of the movable mold-sections c' yieldingly clamped together, with the plunger e embraced by the blocks c', and a stop-bar secured to one of said blocks c', for cooperation with the base of resistance when the mold is clamped in its ejecting position, substantially as and for the purposes set forth.

7. The combination with the mold-plunger e and the blocks c' embracing the same, of the draw-bolt c^9 and spring c^8 yieldingly clamping the said parts together, the stop-bar c^{10} fixed to one of said blocks c' and working in a guideway c^{11} of the other, and a stop c^{12} in the path of said bar c^{10}, for cooperation in taking the clamping action from the mold-shifting device when the mold is in its ejecting position, substantially as and for the purposes set forth.

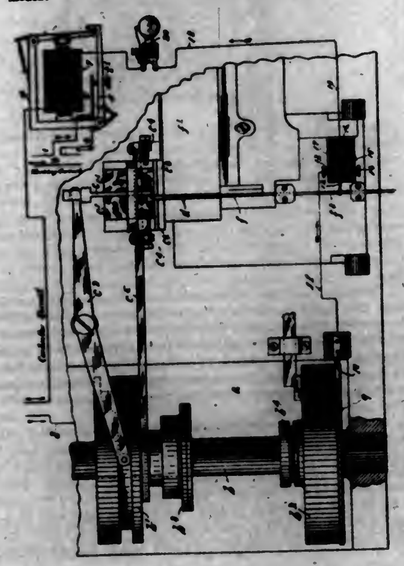
8. The combination with the fixed mold-section, of the movable mold-sections c c', movable on the said fixed section and the spring-top bar c^3 operating to yieldingly clamp the said movable sections to the said fixed section, substantially as described.

9. In a type casting and setting machine, the combination with the mold including a movable plunger, of an abutment-rack against which the type are ejected by the mold-plunger, a spring tending to throw said rack to its innermost position, and a friction device for holding the said rack, without backlash, in whatever position it may be set, under the type-ejecting action, substantially as described.

10. In a type casting and setting machine, the combination with the mold including a movable plunger, of the spring-held abutment-rack against which the type are ejected by the mold-plunger, a pinion-shaft having a friction-disk, and a spring-held friction-pawl engaging said disk, substantially as and for the purposes set forth.

11. In a type casting and setting machine, the combination with the mold, of a spring-held abutment-rack against which the type are ejected by the mold-plunger, a friction-disk and friction-pawl, cooperating to hold the said rack, without backlash, in whatever position it may be set, a movable galley-head with slide for forcing the assembled line into the galley, and a releasing device for said friction-pawl, operative by the galley-head slide for releasing the said abutment-rack, substantially as and for the purposes set forth.

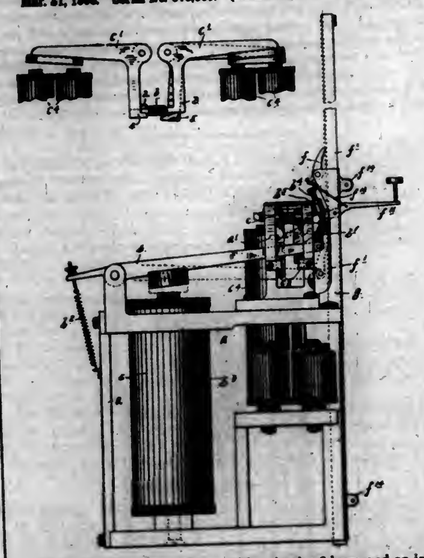
605,956. CONTROLLER FOR TYPE CASTING AND SETTING MACHINES. George A. Goodson, Minneapolis, Minn., assignor, by mesne assignments, to the Goodson Type Casting and Setting Machine Company, same place. Filed Jan. 26, 1897. Serial No. 620,614. (No model.)



Claim.—1. The combination with an electrically-operated type casting and setting machine and its supply or working circuit, of an electric controller in said supply or working circuit, and circuit connections for said controller including a pair of contacts normally separated to open the controller-circuit, during the casting action, but which engage to close the controller-circuit, at that point, during the line-delivery action, and a switch, operated by the type-delivery devices, for cooperation with said pair of contacts to close the controller-circuit if the line of type be of other than normal length, and to open the controller-circuit, at the switch, if the line of type be of normal length, substantially as and for the purposes set forth.

2. The combination with an electrically-controlled type casting and setting machine and its supply or working circuit, of a controller in said supply or working circuit and connections for said controller, including the switch-contacts 12, 13 and 14, with the pivoted member 13 thereof subject to the abutment-rack f against which the type are ejected, as described, and the pair of contacts 9 and 10 with the member 9 carried by the cam-wheel h^2 and separated from the contact 10 during the casting action, but engaging with the contact 10 under the movement of the cam-wheel, in the line-delivery action, all substantially as and for the purposes set forth.

605,957. DIFFERENTIAL LETTER-SPACE REGISTER FOR COMPOSING-MACHINES. George A. Goodson, Minneapolis, Minn., assignor, by mesne assignments, to the Goodson Type Casting and Setting Machine Company, same place. Filed Jan. 25, 1897. Renewed Mar. 31, 1898. Serial No. 676,009. (No model.)



Claim.—1. The combination with a bank of keys and an indicator, of differential feed devices for the same, comprising a spring-actuated driver operative on a movable part of the indicator, and electric devices, under the control of said keys, adapted to variably set said driver against its actuating-spring, when the keys are depressed for variably feeding the movable part of the indicator when the keys are released, substantially as described.

2. The combination with a bank of keys and an indicator, of a spring-actuated feed or driving lever operative on the movable part of the indicator, a retracting-magnet for said feed or driving lever adapted to set the same for a maximum feed stroke, spring-held stop-levers operative to variably intercept said feed-lever, on its return or idle stroke, for variably setting the same to make feed strokes of different lengths, magnets for said stop-levers, and electric connections for all of said magnets, under the control of said keys, substantially as described.

3. The combination with a bank of keys and an indicator, of a spring-actuated feed or driving lever operative on the movable part of said indicator, a magnet tending to retract said feed-lever to a maximum distance, for setting the same to make its greatest feed stroke, spring-held stop-levers operative to variably intercept said feed-lever on its idle or return stroke, for variably setting the same to make feed strokes of different lengths, magnets for said stop-

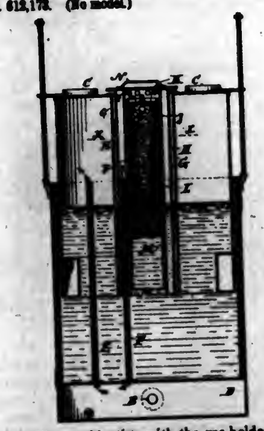
levers a relay, an electric circuit controlled by said keys, with branches through said stop and relay magnets, and an electric circuit through said feed-lever magnet controlled by said relay, for timing the action, substantially as described.

4. The combination with a bank of keys, of a differential letter-space register comprising a differential driving or feed mechanism, and a pair of indicators operated thereby, the primary member of which indicators, operates throughout the entire line of composition, for denoting the distance from the beginning of the line in units of type-face, and the secondary of which indicators operates only through a predetermined final part of the line of composition, for denoting distance from the end of the line in units of type-face, substantially as and for the purpose set forth.

5. In a differential letter-space register, the combination with a differential feed or driving mechanism, of a pair of indicators operated thereby, the primary member of which indicators is constantly subject to said driving or feed mechanism for denoting distance in units, from the beginning of the line, and the secondary member of which indicators is controlled from said primary member, during only a predetermined final part of the primary indicator's movement, for denoting distance, in units, from the end of the line, substantially as described.

6. In a differential letter-space register for composing-machines, the combination with the differential driving mechanism, of a divided or two-section rack operated thereby, and a corresponding pair of scales and pointers operated by said rack-sections, the primary member of which rack-sections is constantly subject to said driving mechanism, for indicating the distance in units of type-face, from the beginning of the line, and the secondary member of which rack-section is operated by the primary member only through a definite final part of the primary rack-section's travel, for indicating the distance in type-units from the end of the line, with the primary rack movable beyond the line-limit, and with the secondary dial graduated in positive numbers within the line-limit, and in negative numbers beyond the line-limit, substantially as described.

605,958. APPARATUS FOR GENERATING ACETYLENE GAS. ARTHUR R. GRIFFEN, Verona, N. J., assignor to the Acetylene Apparatus Manufacturing Company, of West Virginia. Filed Nov. 16, 1896. Serial No. 612,178. (No model.)

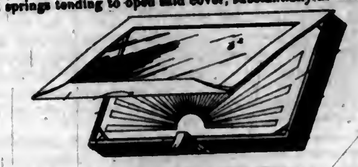


Claim.—1. The combination with the gas-holder of the removable bell H and a cylinder J, a carbid-receptacle supported by the cylinder J, an annular chamber between the walls of the cylinder J and the bell H, the pipe F, the pipe E, and an intermediate chamber D communicating with said pipes, substantially as specified.

2. The combination of a series of gas-holders, each of which is provided with a removable bell H and a cylinder J, and having an annular chamber between them, a carbid-receptacle supported by the said bell, the pipe F, the pipe E, and a chamber D intermediate said pipes and with which they communicate, and a supply-pipe with which each of the chambers D of the holders are in communication through a valved connection, substantially as specified.

605,959. MUSIC OR COPY HOLDER. ARTHUR S. HENDERSON, London, Tenn. Filed Aug. 12, 1897. Serial No. 648,062. (No model.)

Claim.—In a music or copy holder, the combination of a receptacle of appropriate form having sides and a bottom, a transparent cover hinged to one of its sides, separable means for holding the cover closed, a false bottom arranged within the receptacle under the transparent cover thereof and adapted to form a rest for one or more sheets or a book, springs arranged between the bottom of the receptacle and the false bottom adapted to normally press the latter outward, and springs tending to open said cover, substantially as described.

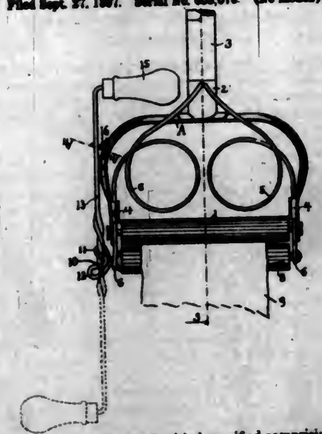


605,960. INCANDESCENT GAS-LIGHT TASSEL. LEVI HOOKER, Sydney, New South Wales. Filed Sept. 24, 1897. Serial No. 652,915. (No model.)



Claim.—An attachment for a gas-burner consisting of a fibrous material saturated with a compound while in solution, consisting of liquid acetate of magnesium, sulfate of chromium, and calcine of magnesia, in the proportion, substantially as described.

605,961. MOP HOLDER AND WRINGER. OTTO KUHL, Chicago, Ill. Filed Sept. 27, 1897. Serial No. 653,078. (No model.)



Claim.—1. A device of the kind specified comprising an arched frame provided with a socket-piece on its upper or arched portion and recessed at its ends, spiral springs mounted within said frame and provided with loops projecting beyond the ends of said frame, a roller journaled in said recessed ends of said frame, a roller journaled in said loops of said springs and adapted normally to be held in engagement with said first-named roller, and a crank-handle on one of said rollers to turn the same.

2. A device of the kind specified, comprising an arched frame provided with a socket-piece on its upper or arched portion adapted to receive a handle, spiral springs mounted within said frame the upper ends of which enter openings in said socket-piece and recesses in said handle to hold the latter against removal, and the lower ends of which form loops which project below the recessed ends of said frame, a roller journaled in said recesses in said frame, a roller journaled in said loops and adapted to be held by said springs normally

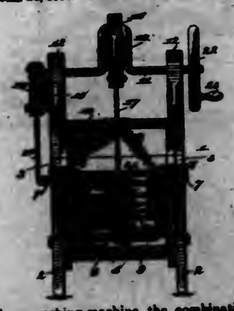
in engagement with said first-named roller, and a crank-arm on one of said rollers to turn the same.

3. A device of the kind specified, comprising an arched frame provided with a socket-piece on its upper or arched portion adapted to receive a handle, spiral springs mounted within said frame the upper ends of which enter openings in said socket-piece and recesses in said handle to hold the latter against removal, and the lower ends of which form loops which project below the recessed ends of said frame, a roller journaled in said recesses in said frame, a roller journaled in said loops and adapted to be held by said springs normally in engagement with said first-named roller, and a crank-arm pivotally mounted in one ear of a key on one of said rollers and provided with a slot adapted to receive the other ear thereof whereby said crank-arm can be placed in rigid engagement with said key to turn said roller.

4. A device of the kind specified, comprising an arched frame provided with a socket piece on its upper or arched portion adapted to receive a handle, spiral springs mounted within said frame the upper ends of which enter openings in said socket-piece and recesses in said handle to hold the latter against removal, and the lower ends of which form loops which project below the recessed ends of said frame, a roller journaled in said recesses in said frame, a roller journaled in said loops and adapted to be held by said springs normally in engagement with said first-named roller, and a crank-arm pivotally mounted in one ear of a key on one of said rollers and provided with a slot adapted to receive the other ear thereof, and a lug on said frame adapted to enter a slot in said arm and engage the same to lock said arm against said frame, substantially as described.

5. In a mop holder and wringer, a roller journaled within a frame and provided at one end with a key having two ears, a crank-handle pivoted in one of said ears and provided with a slot adapted to receive said other ear, a projection on the frame of said device, and a slot in said crank-arm adapted to receive said projection and engage the same to lock said crank-arm in a position folded against said frame when out of engagement with said last-named ear of said key.

605,962. WASHING-MACHINE. THOMAS LAUDER, Kutztis, Pa. Filed Jan. 28, 1897. Serial No. 621,071. (No model.)

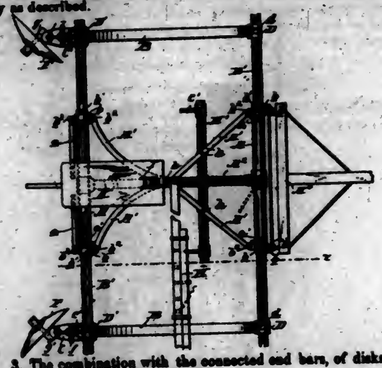


Claim.—In a washing-machine, the combination of a washing-machine body provided at its sides with vertical slots, a lower rubber having an inner concave rubbing-surface and provided with journals arranged in said slots, an upper rubber mounted in the slots of the washing-machine body and provided with a convex rubbing-surface consisting of a series of transverse bars 10 provided at their lower edges with longitudinal curves substantially sigmoidal, the projections of one bar being disposed opposite the depressions of the adjacent bars to form enlarged pockets, the rubbing-surface of the upper rubber being more pronounced than that of the lower rubber and capable of obtaining a greater hold on the clothes to cause them to be carried by the upper rubber, the arms 17 and 20 connected with and extending upward from the upper and lower rubbers, the arm 17 of the upper rubber being shorter than that of the lower rubber, whereby the said upper rubber is caused to travel faster and farther than the lower one, a double-crank shaft, and pitmen connecting the arms 17 and 20 with the crank-shaft, substantially as and for the purpose described.

605,968. COMBINED FURROWER, MARKER, AND COVERER. SWINNER LAWRENCE, Jr., Wolfman's Cross Roads, Md. Filed Apr. 6, 1897. Renewed Feb. 24, 1898. Serial No. 671,541. (No model.)

Claim.—1. In a combined marker and furrower, the combination with connected end bars, of adjustable extensions at the sides, runners on the extensions, and disks adjustable and loosely secured to the extensions, substantially as described.

2. The combination with the connected end bars, of adjustable extensions carried thereby, runners on the extensions, disks adjustably and loosely secured on an extension, and a bar secured intermediate the end bars, and to which the disks can be adjusted, substantially as described.



3. The combination with the connected end bars, of disks carried by a bar, and means for adjustably and loosely securing the disks to the bar, substantially as described.

4. The combination with a supporting-bar, of disks, arms for supporting the disks, a hook connection between the arm and bar, and means for maintaining the arm in adjusted positions.

5. The combination with a supporting-bar, of a disk, arms pivotally and loosely connected with the bar, and means for maintaining the arm in adjusted positions, and retaining the same on the bar, substantially as described.

6. The combination with the connected end bars, of the bar H', the adjustable and removable disks, and the angular and curved braces A', substantially as described.

7. The combination with the end supporting-sections, of boxes D removably secured to the sections, and having depending flanges formed with side ribs, the runners having their ends resting against the flanges, and means for securing the runners to the flanges, substantially as described.

8. The combination with a supporting-bar, of a disk-carrying arm having hook-shaped branches, engaging over the bar, a bolt between the branches, a segment on the box, and a pin engaging the segment, and carried by the arm.

9. The combination with a supporting-bar, of a disk-carrying arm adjustably secured thereon, and having an upwardly-extending outer end, a horizontal spindle adjustably secured to the outer end of the inclined portion of the arm, and a disk on the spindle.

10. The combination with the hollow end bars, of the reducing-castings consisting of the portions b engaging over the ends of the bars, the reduced portions b', the ears b^2, the oppositely-located axes b^3, the braces A', and the seat-braces a, substantially as described.

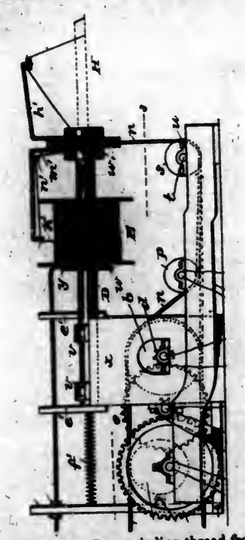
605,964. TRACK FRICTION-BRAKE. EDWARD B. LOOMIS, Hoosick, N. Y., and THOMAS J. MOORE, Hamburg, Pa. Filed Feb. 7, 1898. Serial No. 669,902. (No model.)



Claim.—1. A brake mechanism comprising a reciprocating brake-shoe holder, a guideway therefor, a cam operating in an L-shaped slot in the holder, and a lever to operate the cam to set and release the brake, substantially as described.

2. A brake mechanism, comprising a pair of side brackets, brake-shoe holders guided in the brackets and provided with L-shaped slots, a shaft journaled in the brackets, cams attached to the shaft to operate upon the holders within said slots, and an operating-lever attached to the shaft, substantially as described.

605,965. MACHINE FOR UNWINDING WARP-THREADS. ENOS H. MASON, Chester, S. C. Filed Dec. 27, 1897. Serial No. 663,604. (No model.)



Claim.—1. A machine for unwinding thread from a chain, consisting of a non-revoluble spool or receiver, means for reciprocating said spool, in combination with a revoluble head provided with arms extending from both sides thereof in opposite directions and having suitable eyes and a passage through said head for supporting and winding the thread upon the spool.

2. A machine for unwinding thread from a chain, consisting of a non-revoluble spool or receiver, a fixed tube supporting said spool, a revoluble head on said tube beyond the spool and provided with arms extending from both sides of the head in opposite directions, one toward the chain and the other toward the spool and having eyes through which the thread passes, and a passage through the head for supporting and winding the thread upon the spool, in combination with means for reciprocating said spool.

3. A machine for unwinding thread from a chain, consisting of a fixed tube, a non-revoluble reciprocatory spool or receiver supported on said tube, a revoluble head on the tube beyond the spool and provided with arms extending from both sides thereof in opposite directions, one toward the chain and the other toward the spool and having eyes through which the thread passes and a passage through the head for supporting and winding the thread upon the spool, in combination with a rod engaging the spool at one end, an arm or lever engaged by said rod at its opposite end and means for operating said arm.

4. A machine for unwinding thread from a chain, consisting of a fixed tube, a non-revoluble reciprocatory spool or receiver supported on said tube and having a flange at one end, a revoluble head on said tube provided with arms extending from both sides thereof in opposite directions, one toward the chain and the other toward the spool and a passage through the head for supporting and winding the thread upon the spool, in combination with a rod having a yoke at one end engaging the flange on the spool, an arm or lever to which said rod is connected, means for adjusting the length of said rod, means for applying friction to the spool through the medium of said yoke and means for operating said lever.

5. A machine for unwinding thread from a chain, consisting of a fixed tube, a non-revoluble reciprocatory spool supported on said tube, a revoluble head on the tube having a thread-passage therethrough and provided with suitable arms which revolve with the head for supporting and winding the thread upon the spool, a flange on one end of the spool, a rod having a yoke engaging the spool between one of its ends and said flange, a screw-thread at the opposite end of the rod, and an arm or lever to which said rod is adjustably connected, in combination with a cam for operating the lever and a spring connected to the lever and the frame of the machine for regulating tension of the wrapped thread on the spool.

605,966. BOTTLE-STOPPER. GEORGE W. MASON, Sharon, Pa. Filed Apr. 16, 1898. Serial No. 677,812. (No model.)

Claim.—In combination with a bottle, a stopper arranged in the neck of the same, consisting of an annular shell 3, having a suitable packing, a valve-seat formed at the base of the said shell, a valve 6, and stem having bearings within the shell 3, a spring 13, to hold the said valve to its seat, a concaved plate 8, attached to the valve 6 projecting into the body of the bottle, a weight 19 to open the said valve, when the bottle is inverted, a removable wire 18, attached to the valve as a means of elevating the same from its seat, a cover 14, placed over the mouth, the meeting edges of which are fused, to make the same integral with the bottle, perforations formed through the neck of the bottle, and a cap 16, said cap having a contracted neck 17, in which a cork is placed, all arranged and combined for service, substantially as and for the purpose described.



605,967. CURTAIN-POLE RING. JAMES E MILLER, Hinton, W. Va. Filed Feb. 15, 1897. Serial No. 623,516. (No model.)



Claim.—A curtain-pole ring made from a single piece of wire which is formed into the ring E at its center, and which has one of its ends given an outward bend d', and then formed into the loop d, while the other end of the wire is given an outward bend d^2 and is then formed into the end D which is provided with a downward bend d^3 at its center, substantially as described.

605,968. GATE-VALVE. ARTHUR J. MCKEAN, Lorain, Ohio, assignor to the Cochran Company, same place. Filed Dec. 15, 1897. Serial No. 661,969. (No model.)



Claim.—1. The combination in a gate-valve, of the pipes A and A', the annular gaskets, the gate, the collars engaging the pipes and the gaskets, the flanges E and E', and the bolts connecting said flanges.

2. A gate-valve comprising the combination of the pipe ends, a gasket bearing against each of the same, a collar secured to each pipe, an annular recess in each collar engaging the periphery of one of the gaskets, projections H and H' on the collars forming a guideway, a gate having an orifice and sliding in said guideway, flanges engaging said collars, and bolts and nuts connecting said flanges.

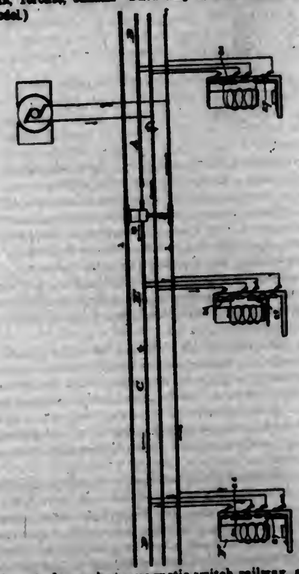
605,969. MAP-HOLDER. HARRY C. MCCAFFERTY, Montclair, N. J. Filed July 13, 1897. Serial No. 644,203. (No model.)



Claim.—1. An improved map-holding device for attachment to a bicycle or similar vehicle, comprising an open framework embodying the open rectangular ends, means for attaching the frame to a bicycle or similar vehicle, the transverse bearing-rods extending across said open ends and formed of wire provided with a central loop forming a bearing-eye, the rollers mounted in said bearing-eyes of the transverse rods, and the map wound upon the rollers, whereby the map may be detachably arranged in and carried by said open framework, substantially as and for the purpose set forth.

2. An improved map-holding device for attachment to a bicycle or similar vehicle, comprising an open or skeleton framework embodying side pieces connected together at their ends by bars forming open end portions, two transverse connecting-rods extending across the open ends of said framework and between said bars, said rods being formed of wire and provided centrally with an open loop forming a bearing-eye, and the rollers mounted in said bearing-eyes of the transverse rod and provided with projecting end heads or knobs by means of which the rollers may be turned, substantially as and for the purpose set forth.

605,970. ELECTROMAGNETIC-SWITCH RAILWAY. ADONIS NORMAN, Toronto, Canada. Filed July 3, 1897. Serial No. 643,698. (No model.)

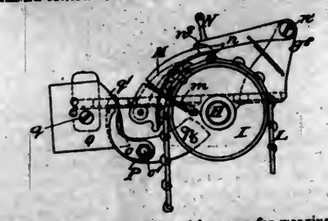


Claim.—1. In an electromagnetic-switch railway, a supply-conductor, a sectional working conductor, switch-boxes containing an L-shaped arm, four spring-arms carried by the box and the arm respectively having a contact with each other in pairs, and two plates and means for moving the plates vertically in an upward direction by the bridging of two of the sections of the working conductor and lowering the same by gravitation, substantially as described.

2. In an electromagnetic-switch railway, the combination of the rails, the supply-conductor and a sectional conductor, of switch boxes, each containing four bars connected respectively with the rail, the supply-conductor and two of them with the working conductor, an electromagnet having a winding, each end connected with a similar bar, and plates adapted to form two alternate circuits, one from the sectional conductor in rear of the box to the rail, and another from the supply-conductor to the rail, substantially as described.

3. In an electric railway the combination of switch-boxes, each containing four springs which are attached to but insulated from them for the purpose of connecting up the electromagnetic switches, placed therein, with the rails and conductors and having wires attached to each spring, two of said wires passing to the working conductors and being secured to them, and one each in like manner to the rail and supply-conductor as set forth.

605,971. FRINGE-MAKING ATTACHMENT FOR HAMMOCK-LOOMS. ISAAC R. PALMER, Middletown, Conn. Filed Jan. 2, 1897. Serial No. 617,790. (No model.)



Claim.—1. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the strip as it is being woven and means for looping the separate thread in the body of the fabric at a distance from the edge of the fabric independently of the weft-threads of the fabric, substantially as set forth.

2. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the weave to form a fringe, comprising a swinging needle, a rocking plate for moving the thread-carrying needle into and out of engagement with the edge of the strip of fabric, hooks carried by the rocking plate in position to engage the said thread and draw it out into looped form as the plate is rocked and means for rocking the plate, substantially as set forth.

3. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the fabric to form a fringe, comprising a swinging thread-carrying needle, a rocking plate for moving the needle into and out of engagement with the fabric, hooks carried by the rocking plate in position to engage the thread and draw it out into looped form as the plate is rocked, a cutting-blade in position to sever the thread which forms the loops, and means for rocking the said plate, substantially as set forth.

4. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the fabric to form a fringe, comprising a suitable supporting-plate, the thread-carrying needle hinged thereto, a rocking plate, a spring-actuated cam carried by said plate in position to move the said needle into and out of engagement with the fabric, a cutting-blade carried by said supporting-plate, hooks carried by the rocking plate in position to engage the thread and draw it out into looped form as the plate is rocked, the said hooks bringing the thread into engagement with the cutting-blade as the thread is drawn outwardly to sever the thread and means for rocking the said rocking plate substantially as set forth.

5. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the strip of fabric to form a fringe comprising a swinging thread-carrying needle, a rocking plate for moving the needle into and out of engagement with the strip of fabric, hooks carried by the rocking plate in position to engage the thread and draw it out into looped form as the plate is rocked, a guard located in position to protect the fabric from being engaged by the hooks, and means for rocking the said plate, substantially as set forth.

6. The combination with means for weaving a strip of fabric, of means for introducing a separate thread into the edge of the strip of fabric as it is being woven, to form a fringe, comprising a swinging thread-carrying needle, a rocking plate in position to move the said needle into and out of engagement with the fabric, a pair of hooks in position to engage the thread upon one side of the needle to draw it outwardly into a loop as the plate is rocked, a cutting-blade in position to enter the space between the pair of hooks as they are swung outwardly to sever the thread at the outer end of the loop and means for rocking the said plate, substantially as set forth.

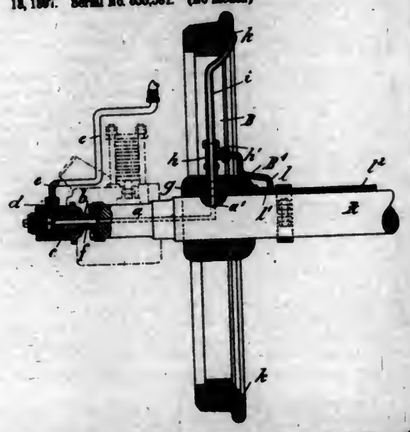
605,972. FLUSHING-CISTERN. EDGAR H. PARKINSON, Bradford, England. Filed Aug. 17, 1896. Serial No. 602,942. (No model.)

Claim.—In a flushing-cistern, the combination with a tank, and

two siphons having an air-trap between them, of a pipe communicating at one end with the air-trap, a vessel into which the other end of the pipe leads, said vessel containing mercury surrounding and sealing the said end of the pipe, a second vessel containing mercury into which latter the first vessel dips and in which it floats, means for depressing the first vessel to break the seal around the end of the pipe, an annular shield or baffle-plate carried by the first vessel and surrounding the sealed end of the pipe and having openings, and an annular shield on the said end of the pipe surrounding the shield on the vessel.



605,973. CONTRIVANCE FOR AUTOMATICALLY STOPPING TRAINS, &c. STEFFAN POJARKOW, Yekaterinoslav, Russia. Filed Oct. 13, 1897. Serial No. 655,581. (No model.)



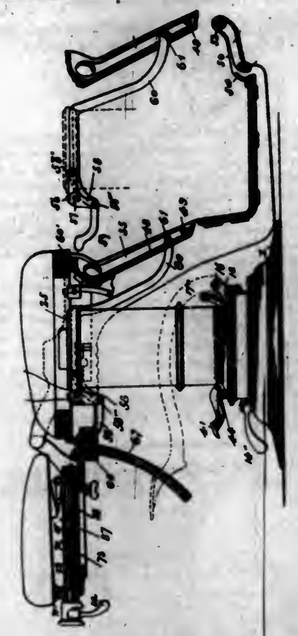
Claim.—In a contrivance for automatically stopping trains at the breakdown of rolling parts means for connecting the latter with the air-brake suitably-arranged pipings *c b*, a stuffing-box *c*, borings *a a'* provided in the axle-head, pipings *l' k* embedded into the body of the wheel and means *i k l* for connecting those pipings with each other, substantially as and for the purpose set forth.

605,974. DENTAL CHAIR. FRANK RITTER, Rochester, N. Y. Filed Jan. 18, 1897. Serial No. 619,008. (No model.)

Claim.—1. In combination the rotatable pedestal, opposite ways situated in a vertical flange of the base and an oil-reservoir wall respectively, and rotating friction-wheels movable around the base in said ways, said wheels having their axes extended upwardly and attached to and movable with the pedestal, substantially as described.

2. In combination the rotatable pedestal, the base provided with ways, friction-wheels movable in said ways and having their axes attached to and movable with the pedestal, and devices for locking a wheel to the base to prevent its rotation, said devices being also adapted to hold the pedestal stationary in the base, substantially as described.

3. The combination of the rotating pedestal, the base provided with oppositely-situated ways, a plurality of antifriction-wheels movable in said ways, wheel-axes having bearings in the pedestal, a cam secured to an axis, and a bearing for the cam on the pedestal, whereby the antifriction-wheels prevent the pedestal from tipping and whereby one of the wheels can be forced against the walls of its ways to prevent its rotation and also lock the pedestal and base together, substantially as described.



4. In combination, the pedestal, the pump-cylinder, the piston-rod fitting an opening in the pedestal, a ring sliding on the exterior of the cylinder, the operating-lever pivoted to the rod outside the pedestal, a rigid connection between the rod and ring, and a like connection of the rod and piston whereby the rod is moved through the pedestal-wall in a straight line, substantially as described.

5. In combination the pump-cylinder, the piston-rod, a flanged ring sliding on the exterior of the cylinder and a rigid connection between the rod and ring, and returning-springs connecting the ring-flange and pedestal-wall on opposite sides of the cylinder, substantially as described.

6. The combination of a chair-base, a rotatable pedestal having telescoping sections, a bearing on the base for one of said sections, separate telescopic plunger-tubes comprising a cylinder connected to the seat-frame, a device to lock together the telescoping pedestal-sections, and a device to lock the upper pedestal-section to the said cylinder, said locking devices being operative at any desired elevation of the upper pedestal-section and cylinder respectively, substantially as described.

7. The combination of a chair-base, a rotary pedestal made in telescoping sections, a cylinder fixed to the seat-frame, and a device to lock the upper pedestal-section to the cylinder at any desired elevation of either the section or cylinder, said locking device comprising a movable part, a rod fixed to said part, a spring to maintain the locking, and devices to overcome the spring and release the lock upon the descent of the said upper section, substantially as described.

8. The combination of a pedestal made in separately-movable sections, a cylinder fixed to the seat-frame, and a device to lock the upper pedestal-section to the cylinder at any elevation of the said section, a spring to maintain the locking, and devices for automatically releasing the lock upon the descent of said section whereby the cylinder and the seat-frame may descend independently, substantially as described.

9. The combination of the fixed plunger-tube, the plunger-tube extension, the plunger, the seat-frame, means for moving the plunger, rods fixed to the movable extension and passing through openings in the fixed plunger-tube, and stops on the lower ends of said rods, substantially as described.

10. In combination with a chair-seat frame, a seat pivoted to said frame, a pivoted foot-rest adapted to be turned into an inoperative position, a bar pivotally connected to said rest and mediately to an oscillating bar pivotally connected to the seat-frame, said bar having arms extended under and approximately parallel with the seat-frame, and a push-bar having a connection below the pivot of the oscillating bar, said arms being adapted to raise the seat when the push-bar and oscillating bar are moved to turn the foot-rest into an operative position, substantially as described.

11. In combination with the chair-seat frame, the seat pivoted at its front to the said seat-frame, a pivoted foot-rest adapted to be turned into an inoperative position, a bar pivotally connected to said rest and mediately to an oscillating bar pivotally connected to the seat-frame, said bar having arms extended under the seat, and a push-bar having a connection below a pivot of the oscillating bar, said arms being adapted to raise the seat when the push-bar and oscillating bar are moved to turn the foot-rest into an inoperative position, and also arranged and adapted to receive the pressure due to the weight of the seat and its occupant on their front sides to prevent the return of the parts, substantially as described.

12. The combination in a chair-back having two connected independently-movable extension parts, of a rod supported to turn in one of said parts and provided with a conical point, a block situated between said parts, transverse webs connected to the exterior part to loosely hold the block, said block having a seat for the point of the rod, and means for rotating the rod and moving it endwise relatively to said exterior part to crowd the block laterally, substantially as described.

13. In a ball-and-socket joint of a head-rest, two hemispheres each provided with a pad-supporting arm, a pin fixed in one hemisphere and movably held in the other to connect the hemispheres, and a spring to force said hemispheres together and increase their friction, substantially as described.

14. In combination with the pad-holding plate having lugs, the split block, the wedge situated between the arms of the split block and provided with a stem, the lugs, block and wedge having a common pivot and the wedge and pivot-receiving opening made larger than the diameter of the pivot to permit the wedge to be moved transversely thereof, and a handle adapted to draw the wedge between the arms and thereby lock the parts together, substantially as described.

15. In combination with the pad-holding plate having lugs, the split block, the wedge situated between the arms of the split block and provided with a stem, said parts having a common pivot, and a handle adapted to draw the wedge between the arms and thereby lock the parts together, and a pad-supporting arm embracing the split block, said arm and block being adapted to be locked together by the said operation of the handle, substantially as described.

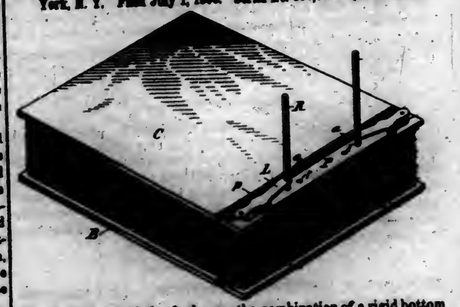
16. In combination the block having a socket in its top and a recess in its bottom separated from the socket by a perforated diaphragm, means for securing it to a chair, the swinging bracket-arm having a stud to fit the block-socket said stud having a screw-threaded opening, a screw for the said opening situated in the recess having a diameter less than that of the perforation in the diaphragm to pass freely therethrough, and a spring surrounding the screw below said diaphragm and bearing against the same to pull the screw and hold the stud in its socket in a yielding manner, substantially as described.

17. The hollow bracket-arm in combination with the spittoon-supporting ring provided with a grooved stem to enter said arm, a transverse stop normally situated in the groove, a push-pin to move the stop transversely to the stem, and a retaining-spring, the spring being adapted to be compressed and the stop pushed into an inoperative situation by the thumb acting against the push-pin and mediately against a finger of the same hand to support the bracket-arm against the thumb-pressure whereby one hand can be used to disengage the ring without disturbing the arm, substantially as described.

18. In combination a bracket, a spittoon-holder comprising a ring situated within the wall of the spittoon and bearing on its interior, said ring having an extension 96 passing through said wall, a separate fastening passing through the wall to secure the ring and spittoon together, and means for detachably connecting the extension to the bracket or the like, said means being operative and the spittoon removable from the bracket with its mouth maintained in a horizontal plane, substantially as described.

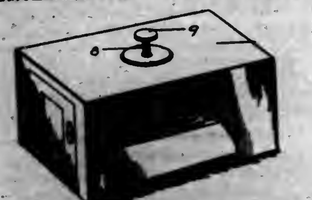
19. In combination a bracket, a spittoon-holder comprising a ring situated within the wall of the spittoon, said spittoon having a mouth *a* provided with an extension forming a skirt within the spittoon, said ring being covered by the skirt and situated between it and the wall of the spittoon and having an extension 96 passing through said wall, a separate fastening passing through the wall to secure the ring and spittoon together, and means for detachably connecting the extension to the bracket or the like, said means being operative and the spittoon removable from the bracket with its mouth maintained in a horizontal plane, substantially as described.

605,975. BINDER FOR LEAVES. FRANK B. ROBINSON, New York, N. Y. Filed July 1, 1896. Serial No. 597,573. (No model.)



Claim.—In a binder for leaves, the combination of a rigid bottom piece or back, vertical rods or posts supported thereby, a perforated rigid companion piece or strip threaded upon the vertical rods, and a lever for each post hinged to the companion piece upon a transverse pivot at a point between the vertical rod and the end of the companion piece or strip, a notch in the contact end of each lever conforming to the outline of its vertical rod, the exterior end of each lever forming a thumb contact located near the end of said strip, substantially as and for the purpose described.

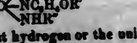
605,976. SOAP-RECEPTACLE. CLARA SOMERNER, Brownville, Neb. Filed Mar. 31, 1897. Serial No. 630,091. (No model.)



Claim.—A soap-receptacle, comprising a casing, a wire bottom for the same, a door by means of which the soap is inserted within the casing, a means for locking the door, a board or strip within the receptacle, an operating-handle connected to one side of the board and extending through the casing, and a knob upon the extremity of the operating-handle, the parts adapted to operate substantially as described.

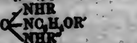
605,977. OXYPHENYL-GUANIDIN AND PROCESS OF MAKING SAME. HUGO R. SCHULZ, Radebeul, Germany, assignor to the Chemische Fabrik von Heyden, Gesellschaft mit Beschränkter Haftung, same place. Filed Nov. 16, 1897. Serial No. 658,753. (Specimens.)

Claim.—1. The process herein described for the production of oxyphenyl-guanidins of the formula



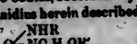
in which R and R' represent hydrogen or the univalent residue of a fatty or aromatic compound, and R' hydrogen or alkyl or alkylene, said process consisting in the addition of a carbodiimid to an amidophenol $NH_2C_6H_4OR'$, in which R' represents hydrogen, alkyl or alkylene.

2. The process of making oxyphenyl-guanidins of the formula



in which R and R' represent hydrogen or the univalent residue of a fatty or aromatic compound, and R' represents hydrogen or alkyl or which consists in subjecting the reaction products from carbon bisulfid and amidophenol bodies to the action of desulfurizing agents in the presence of aromatic amido bodies, substantially as herein described.

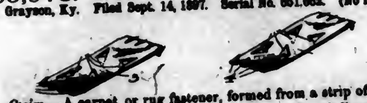
3. The oxyphenyl-guanidins herein described having the formula



in which R and R' represent hydrogen or the univalent residue of a fatty or aromatic compound, and R' represents hydrogen or alkyl or alkylene, and adapted to cause anesthesia, their chlorids forming white crystalline powders soluble in water and alcohol, from which

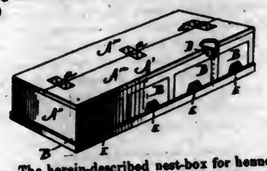
solutions alkaline lyes precipitate free oxyphenyl-guanidins as oily substances insoluble in water and soon becoming solid.

605,978. CARPET OR RUG FASTENER. GEORGE B. SHEPHERD, Grayson, Ky. Filed Sept. 14, 1897. Serial No. 651,602. (No model.)



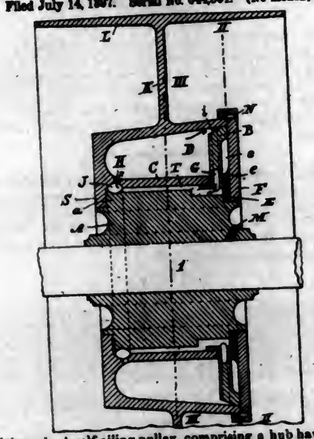
Claim.—A carpet or rug fastener, formed from a strip of sheet metal having pointed teeth at each end, and a series of diagonally-disposed teeth struck up from the strip within its edges near each end, the teeth at one end and the adjacent diagonally-disposed teeth being bent in the opposite direction to the similar teeth at the other end portion of the strip, substantially as described.

605,979. NEST-BOX FOR HENNERIES. ALEX J. SILBERSTEIN, Framingham, Mass. Filed Oct. 23, 1897. Serial No. 656,141. (No model.)



Claim.—The herein-described nest-box for henneries, consisting of the top A‴ provided with the lid or cover A⁴; front wall A′ provided with doors B hinged at their upper ends to said wall and adapted to swing inward only; rear wall A provided with doors C hinged at their upper ends to said wall and adapted to swing outward only; end walls A″; and transverse partitions dividing the interior of the box into compartments each furnished with an inwardly-opening door and an outwardly-opening door, said doors B being provided with openings or perforations whereby the nest can be seen from the outside, substantially as described.

605,980. SELF-OILING PULLEY. FRED H. SPEAR, Burlington, Vt. Filed July 14, 1897. Serial No. 644,501. (No model.)



Claim.—1. A self-oiling pulley, comprising a hub having therein an oil-chamber of greater diameter at one end than at the other, and having a bearing-surface and a separate bushing or sleeve within said surface and adapted to be fixed on a shaft or support, one of said parts having a longitudinal duct along said bearing-surface, and said parts having at the inner portion of the smaller end of the chamber a communication with one end of said duct and at the outer portion of the larger end of the chamber a communication with the other end of said duct.

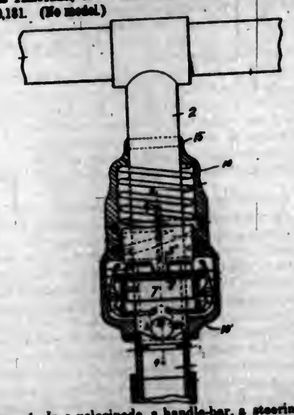
2. In a self-oiling pulley, the combination with a bushing having a disk formed with inwardly-extending ducts leading from its periphery, and transverse ducts or grooves leading longitudinally across its bearing-face, of a pulley having a hub fitting on said bushing, an oil-chamber of larger diameter at one end than at the other inclosing said disk at its larger end, the smaller end of said chamber communicating with the rear ends of the said ducts in the bushing, substantially as set forth.

3. In a self-oiling pulley, the combination of a bushing having the disk B and formed with the ducts G, the grooves T, and the annular groove J, the pulley fitting on said bushing and having the oil-chamber D of greater diameter at one end, than at the other, and formed with the openings H by which said chamber communicates at its smaller end with said groove J, and an inclosing cap engaging the bushing and secured to the hub of the pulley, substantially as set forth.

4. The combination with the pulley having the oil-chamber D, of the bushing having the disk B, inclined ducts G formed in the disk, transverse grooves leading from the inner ends of said ducts across the hub and bushing between their bearing-surfaces, and means whereby the rear ends of said grooves communicate with the smaller end of the oil-chamber D, substantially as set forth.

5. In a self-oiling pulley, the combination of the bushing having the disk B formed on its outer face with the chamber O, ducts formed in the bushing and extending from the outer portion of the disk inwardly and across the bushing and communicating with the rear end of the oil-chamber, the ring E situated at the outer side of the disk and serving to cover the ends of the ducts, holes G formed in the disk and leading from the chamber O to the chamber D and an inclosing cap F secured to the hub of the pulley and having the filling-aperture, substantially as set forth.

605,981. DEVICE FOR TEMPORARILY DISABLING BICYCLES. CHARLES TRAUTNER, Terre Haute, Ind. Filed Jan. 22, 1897. Serial No. 620,181. (No model.)



Claim.—1. In a velocipede, a handle-bar, a steering-post made in sections one of which is rotatable, a clutch member movable on one of the sections, a fixed counterpart clutch member, a case inclosing the clutch, devices intermediate the case and a clutch member to release the clutch, mechanism for automatically locking said clutch member from operative engagement, and a lock for said mechanism, the handle-bar and a post-section being freely rotatable when the clutch members are uncoupled, substantially as described.

2. In a bicycle, a steering-post, or the like, made in sections, one having fixed thereto a clutch member, a counterpart clutch member movable on the other section whereby the two sections may be coupled or uncoupled, mechanism for separating said clutch members at will, comprising an exterior rotatable case operatively connected to the movable clutch-section and inclosing the same, substantially as described.

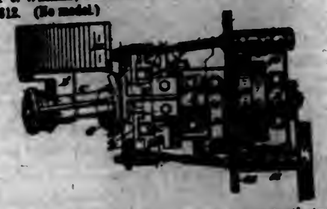
3. In a bicycle, a steering-post, or the like, made in sections, one having fixed thereto a clutch member, a counterpart clutch member movable on the other section whereby the two sections may be coupled or uncoupled, mechanism for separating said clutch members at will, comprising an exterior rotatable case operatively connected to the movable clutch member and inclosing the same, a lock for said mechanism, a key to unlock the separating mechanism, and a spring to move the movable clutch member into engagement with its counterpart, substantially as described.

4. The sectional steering-post provided with clutch members one of which is movable for engaging and disengaging the post-sections either to prevent or permit independent rotation of the movable section, in combination with the inclosing case, said case having an independently-rotatable section 10 and connections between the rotatable case-section and the movable clutch member whereby the latter may be moved out of engagement, substantially as described.

5. The sectional steering-post provided with clutch members one of which is movable for engaging and disengaging the post-sections either to prevent or permit independent rotation of the movable section, in combination with the inclosing case, said case having an independently-rotatable section 10 and connections between the rotatable case-section and the movable clutch member whereby the latter may be moved out of engagement, and devices for holding said clutch disengaged, substantially as described.

6. The sectional steering-post provided with clutch members one of which is movable for engaging and disengaging the post-sections either to prevent or permit independent rotation of the movable section, in combination with the inclosing case, said case having an independently-rotatable section 10 and connections between the rotatable case section and the movable clutch member whereby the latter may be moved out of engagement, and devices for holding said clutch disengaged, a lock to keep said devices operative, said lock being concealed and also operative until unlocked by a key, substantially as described.

605,982. MACHINE FOR GENERATING GEAR-TEETH. HERBERT C. WARREN, Hartford, Conn. Filed June 26, 1897. Serial No. 643,612. (No model.)



Claim.—1. In a machine for generating gear-teeth, two carriers supported for oscillatory movements, in combination with an actuating-connector between said carriers and comprising two members in direct operative engagement with each other and fixedly secured one to each carrier, and means for actuating one carrier, and, through the connector, the other carrier.

2. In a machine for generating gear-teeth, two oscillatory carriers having their axes of oscillation in intersecting lines, in combination with two intermeshing gear segments fixed one to each carrier, and means for actuating one of said carriers.

3. In a machine for generating gear-teeth, two oscillatory carriers having relatively oblique axes of oscillation, in combination with two intermeshing gear-segments fixed one to each carrier, and means for actuating one of said carriers.

4. In a machine for generating gear-teeth, the combination, with two oscillatory carriers having relatively oblique axes located in the same plane, of two intermeshing gear-segments fixed one to each carrier, and means for actuating one of said carriers.

5. In a machine for generating gear-teeth, the combination, with two oscillatory carriers having their axes of oscillation in intersecting lines, of two bevel-gear segments connected one to each carrier with the apex of their angles coincident with the point of intersection of the axial lines of the two carriers, and means for actuating one of said carriers.

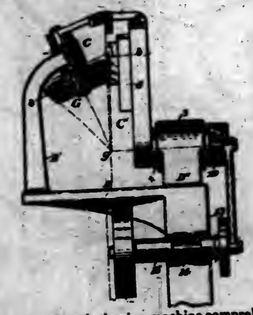
6. The combination, with an oscillatory cutter-carrier and an oscillatory gear-blank carrier, of two intermeshing bevel-gear segments connected one to each carrier, and a carrier-actuating device in operative connection with one of said carriers and embodying means for changing the range of movement of said carrier.

7. In a machine for generating gear-teeth, the combination, with a cutter-carrier supported for oscillatory movement, of a gear-blank carrier supported for oscillatory movement with its axis oblique to the axis of movement of the cutter-carrier; means for effecting a change in the angular relation of the axis of the two carriers; two removable gear-segments carried one by each carrier with their teeth in intermeshing relation; and actuating means in connection with one carrier.

8. In a machine for generating gear-teeth, the combination, with two oscillatory carriers having their axes of movement in intersecting lines, of an actuating-connector between, and directly connecting, the two carriers and embodying two cooperative oscillatory members one of which is fixed to each carrier; means in connection with one carrier for adjusting the same with its axis at different angles relatively to the other carrier; and an actuating device in connection with one carrier and embodying means for changing the range of movement of said carrier.

9. In a machine for generating gear-teeth, the combination, with a cutter-slide carrier supported for oscillatory movement, of a cutter-slide mounted on said carrier for reciprocatory movements in a path intersecting the path of oscillatory movement thereof; a rotary cutter supported on the cutter slide; means for rotating the said cutter; a gear-blank carrier with its axis oblique to the axis of movement of the cutter-slide carrier; means for changing the angle of the gear-blank-carrier axis relatively to the angle of the cutter-slide-carrier axis; two intermeshing gears carried one by the cutter-slide carrier and the other by the gear-blank carrier; and means for actuating one carrier to impart synchronous oscillatory movements to both carriers.

605,988. GEAR-TOOTH-GENERATING MACHINE. HERBERT C. WARREN, Hartford, Conn. Filed Dec. 15, 1897. Serial No. 661,966. (No model.)



Claim.—1. A gear-tooth-shaping machine comprehending a carrier for the gear-blank; a non-rotary shaping-tool mounted, with respect to the blank, to have a working stroke in a curvilinear path transverse to the longitudinal plane of the tooth being operated upon; and means for actuating the tool.

2. An apparatus of the class specified comprehending an oscillatory gear-blank carrier; an oscillatory tool-carrier; a non-rotary shaping-tool mounted on the tool-carrier in position to operate upon toothed portions of the blank carried by said blank-carrier; and actuating means for imparting to the tool a curvilinear working stroke along the side face of the tooth from the crown to the base, and in a plane transversely of the length of, said tooth, and for concurrently oscillating the gear-blank carrier on its axis.

3. The combination, in a machine of the class specified, of an oscillatory blank-carrier; an oscillatory tool-carrier; a planing-tool mounted on the tool-carrier in position for operating upon the side face of the tooth of the blank carried by the blank-carrier, and having a serrated cutting-face; and actuating mechanism embodying a connector between the two carriers, and effective for simultaneously oscillating said carriers in a manner whereby the gear-blank and tool will have a rolling action, one upon the other, and whereby the tool simultaneously will have an advancing working stroke crosswise of the length of the tooth, and from the top toward the bottom of the tooth-face, whereby to remove successive face portions of said tooth at successive points in such movement.

4. An apparatus of the class specified comprehending a carrier for the gear-blank; a tool-carrier; a non-rotary shaping or dressing tool mounted on the tool-carrier in position for operating on the blank; and means, embodying a connector between the two carriers, for imparting to the tool a tooth-shaping stroke in a path transverse to the longitudinal plane of the tooth operated upon, and from the crown toward the base of said tooth, and for simultaneously imparting to the gear-blank a rocking motion relatively to the tool.

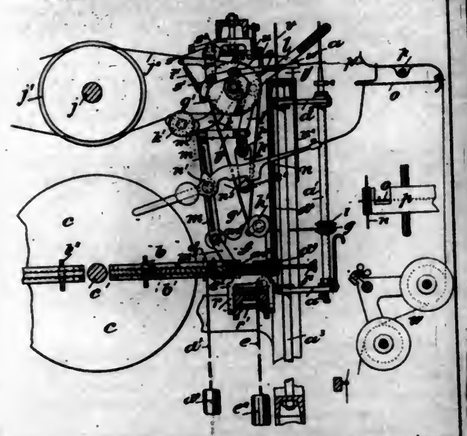
5. An apparatus of the class specified comprehending a carrier for the gear-blank; a tool-carrier; a planing-tool mounted on the tool-carrier in position to operate upon the side face of a tooth of the gear-blank, and having a serrated cutting or dressing face; and actuating means for imparting to the tool a working stroke in a curvilinear path transverse to the longitudinal plane of said tooth, and from the crown to the base thereof.

6. An apparatus of the class specified comprehending a gear-blank carrier; a tool-carrier; a planing-tool mounted on the tool-carrier in position to operate upon the side face of a tooth of the gear-blank carried by the carrier, and having a serrated cutting-face of a length not less than the length of the tooth-face being operated upon; and actuating means operatively connecting the two carriers and effective for imparting to the tool a curvilinear working stroke transversely of the length of the tooth-face, without movement of said tool longitudinally of the tooth, and from the crown to the base thereof, and for concurrently oscillating the gear-blank carrier whereby to effect a rolling action between the blank and tool.

7. A gear-tooth-shaping machine embodying, in addition to a carrier for the gear-blank, a non-rotary shaping-tool mounted to have a curvilinear working stroke, with respect to the tooth to be shaped,

in the direction of curvatures of said tooth and transverse to the longitudinal plane thereof, and means embodying an actuating-connector between the two carriers for effecting a motion of the gear-blank concurrently with, and corresponding to, the curvilinear motion of the tool.

605,984. YARN-WINDING MACHINE. JOHN D. WHITE, Urmston, England. Filed Sept. 22, 1897. Serial No. 652,580. (No model.) Patented in England Oct. 5, 1896, No. 21,992.



Claim.—1. In combination in a yarn winding apparatus, a movable frame, a spindle carried thereby, a cord and winding-drum, said cord being connected to the movable frame, a friction-pulley connected to said cord-winding drum, a weight acting to raise the frame and a weight acting in opposition thereto to hold the frame in equilibrium, and the driving-disk for engaging the friction-pulley, substantially as described.

2. In combination with the spindle, the frame carrying the same and movable vertically, a yarn-guide, a swinging support therefor to which said yarn-guide is pivoted, said support comprising the finger e^3, a copping-plate r arranged to reciprocate with the spindle-carrying frame and having connection with the finger e^3 for canting the same, and the device having an inclined surface for giving the yarn-guide different lengths of throw when brought into engagement with different parts thereof by the canting of the finger e^3, substantially as described.

3. In combination, the vertically-movable spindle, the carrier therefor, means for moving the carrier comprising the friction-disk c and the adjustable pulley with connections to the movable frame, the bracket r carrying the friction-pulley adjustably, the pivotal support for said bracket by which the friction-pulley may be swung to and from contact with the friction-disk, means for rotating the spindle comprising the pulleys and belts, the tension device acting on the said belt and means for controlling said tension device and the pivoted bracket of the friction-pulley comprising a drop-lever controlled by the thread, a device for operating the same when in its lowest position and the connections between the said drop-lever and the said tension device and bracket, substantially as described.

4. In combination, the vertically-movable spindle, the carrier therefor, means for moving the carrier comprising the friction-disk c and the adjustable pulley with connections to the movable frame, the bracket r carrying the friction-pulley adjustably, the pivotal support for said bracket by which the friction-pulley may be swung to and from contact with the friction-disk, means for rotating the spindle comprising the pulleys and belt, the tension device acting on the said belt and means for controlling said tension device, and the pivoted bracket of the friction-pulley comprising a drop-lever controlled by the thread, a device for operating the same when in its lowest position and the connections between the said drop-lever and the said tension device and bracket comprising the lever m carrying the drop-lever pivotally, the incline and roller between the lever m and the bracket, the upper end of said lever m engaging the said tension device, substantially as described.

605,985. APPARATUS FOR FILTERING OR PURIFYING AND AERATING WATER. JOHN A. WIESENEGGER, Philadelphia, Pa. Filed Feb. 25, 1898. Serial No. 671,907. (No model.)

Claim.—1. A casing containing filtering or purifying material or both such materials, a supply-pipe leading thereinto from below, a well above said material communicating with said casing, and an auxiliary supply-pipe leading to said well above the same, the top of said well being open to the atmosphere.



2. A casing containing filtering or purifying material or both such materials, a well above said material or materials communicating with said casing, a supply-pipe for said casing, provided with a two-way cock, a supplemental supply-pipe leading from said cock to the top of said well, a two-way cock interposed between the first-named cock and the bottom of said casing, and a discharge-pipe connected with the second-named cock.

3. A casing containing filtering or purifying material or both such materials, a well on the casing above said material or materials, a supply-pipe connected with a casing below said material or materials, a terrace around said well and a splash-bed on said terrace.

4. In an apparatus for filtering or purifying or both filtering and purifying water, a well for receiving the filtered or purified water, and discharging it in running condition therefrom, a terrace around said bed, and a splash-bed on said terrace.

5. In an apparatus for filtering or purifying or both filtering and purifying water, a casing with a filter or purifying bed therein, a main supply-pipe connected with the bottom of said casing below said bed, a well above said bed communicating with said casing, an auxiliary supply-pipe connected with said main supply-pipe, a two-way cock connected with said pipes, a discharge-pipe connected with the main supply-pipe, a two-way cock connected with the main supply and discharge pipes, and a terrace around said well, the auxiliary supply-pipe having its discharge end above said well.

6. In a filter and purifying apparatus adapted to discharge the filtered or purified water or fluid above the filtering or purifying bed through a well or reservoir, and in running condition from the latter, a terrace around said well, and a splash-bed on said terrace.

7. In a filter, a casing, a well thereover, a terrace around said well, a supply-pipe leading to the bottom of said casing, the top of said well forming an overflow for filtered or purified water or both adjacent to the top of said terrace and a discharge for unfiltered water and deposits leading from the bottom of said casing, said terrace being above a storage-basin, into which said water, as filtered or purified or both filtered and purified water is discharged.

8. A storage-basin, a filter or purifying device, a well above said device in communication therewith, a terraced wall surrounding said well and means for directing water in opposite directions into said device.

9. A storage-basin, a filter or purifying device, a well above said device in communication therewith, a terraced wall surrounding said well and means for directing water into said device, said terraced wall being sustained on the support of said filtering or purifying device, and forming an upward continuation thereof.

10. A storage-basin, a filtering or purifying device, a well above said device in communication therewith, and an elevated wall around said well and sloping from the top of said wall toward said basin, the latter containing said filtering or purifying device and surrounding said well.

605,986. TIRE. WILHELM AAS, New Ulm, Minn. Filed Feb. 14, 1898. Serial No. 670,573. (No model.)



Claim.—1. In a vehicle-tire, the combination with a tire, blocks secured to the ends of said tire, and a sleeve arranged to extend over said blocks, said sleeve and blocks having coacting wedge surfaces, of means for moving the sleeve with relation to said blocks, substantially as described.

2. In a vehicle tire, the combination, with a tire, blocks secured to the ends of said tire, and a sleeve arranged to extend over said blocks, said sleeve and blocks having coacting wedge surfaces, of a tire-plate, a bolt extending through the tire-plate and between the blocks, and a nut on the bolt and arranged to draw up the sleeve on the blocks, substantially as described.

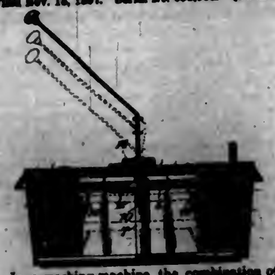
3. In a vehicle-tire, the combination, with a tire, blocks secured to the ends of said tire, a sleeve arranged to extend over said blocks, said sleeve and blocks having coacting wedge surfaces, and a felly provided with a slot arranged to receive the blocks, of means for moving the sleeve with relation to the blocks, substantially as described.

4. In a vehicle-tire, the combination, with a tire, blocks secured to the ends of said tire, a sleeve arranged to extend over said blocks, and means for moving the sleeve with relation to the blocks, of a filling-block between said blocks and within the sleeve, substantially as described.

5. In a vehicle-tire, the combination with a tire, whose ends are chamfered, blocks secured to the end of the tire and arranged to project beyond said ends, a sleeve arranged to extend over said blocks, said blocks and sleeve having coacting wedge surfaces, and a tire-plate provided with sloping ends corresponding to the chamfered ends of the tire, and resting on the projecting portions of the blocks, of means connected to the tire-plate for drawing the sleeve toward it, substantially as described.

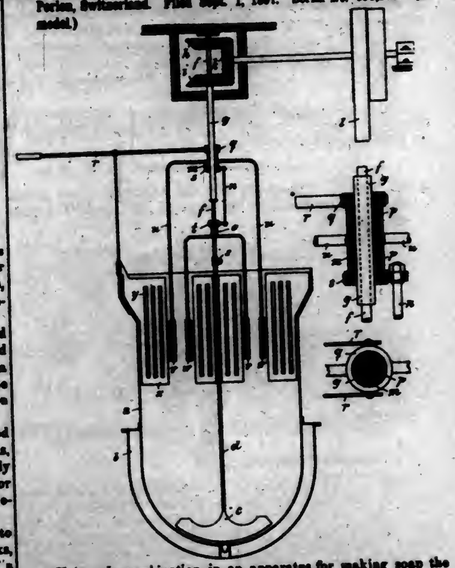
6. In a vehicle-tire, the combination, with a tire, blocks secured to the ends of the tire, and a sleeve arranged to extend over said blocks, said sleeve and blocks having coacting wedge surfaces, of a tire-plate arranged between the ends of the tire, a felly having a slot into which the blocks project, a bolt passing through the tire-plate, through the slot in the felly, between the blocks and through the sleeve, a washer-plate on the bolt, and engaging the sleeve, and a nut for pressing the washer-plate and sleeve toward the tire-plate substantially as described.

605,987. WASHING-MACHINE. REASBUS W. ALLEN, Holton, Kans. Filed Nov. 18, 1897. Serial No. 658,961. (No model.)



Claim.—In a washing-machine, the combination of a washing-machine body having a rubbing-surface, a cover having a bearing-opening, an agitator, and a shaft extending through the bearing-opening of the cover and having its upper portion bent at an angle and arranged at an inclination to form a crank, the lower end of the shaft being passed through the agitator and bent at an angle to form a substantially L-shaped arm or hook arranged on the lower face of and supporting the agitator and extending into and engaging the same, whereby the agitator is rigidly connected with the shaft, substantially as described.

605,988. APPARATUS FOR MAKING SOAP. FRITZ ARLOVEN, Perlen, Switzerland. Filed Sept. 1, 1897. Serial No. 650,268. (No model.)



Claim.—In combination, in an apparatus for making soap the boiler, the slitted plates extending vertically therein, the two sets of agitators movable in the boiler in opposite directions, the shafts carrying the said agitators, one shaft passing through the other, means for rotating the shafts and means for raising and lowering the agitators consisting of the sleeves about the shafts and connected together with means for raising and lowering the said sleeves, substantially as described.

605,989. VALVE. IVORY BEAN, Brookline, Mass. Filed Oct. 30, 1897. Serial No. 656,949. (No model.)



Claim.—1. A tank having in its bottom an outlet-tube, and a valve located in the upper end of said tube, provided with a flange or ledge presenting a square or plane surface for the direct impinging action of the liquid, in combination with a cushioning-shank or tapering portion for closing the open end of the tube, whereby the same outlet-opening which cooperates with the ledge cooperates with the shank to cushion in one and the same valve-piece, substantially as described.

2. The combination with a tank and its tubular outlet-pipe, the latter being provided at its upper end within the tank with a flange containing a valve-seat, of a valve, means suspending the same within the tank above said valve-seat, said valve comprising a heavy columnar body, a reduced and long conical portion secured to and projecting downward from the lower end of said body and adapted to enter the upper end of said tubular outlet-pipe, and having at its lower end a transverse collar slightly smaller than the outlet-tube, and a casing corresponding in shape to said body and fitting close about said body and secured to said flange, said casing having inlet-ports for the water at its lower end, said body sliding over said ports, opening them as it lifts and gradually closing them as it lowers, and the long tapered conical portion gradually cutting off the flow of water through the outlet-pipe, as the valve is pulled down by the uniform choking of the tubular outlet by the said collar, substantially as described.

605,990. HAND-STRAP FOR CARS. FRANCIS E. BENTON, Stoughton, Mass. Filed Nov. 19, 1897. Serial No. 659,143. (No model.)



Claim.—A car-handhold consisting of two straps A B and a two-plate hinge with a coil-spring on the pivot thereof substantially as and for the purpose described

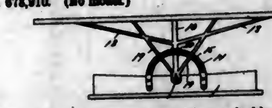
605,991. APPARATUS FOR GAS ANALYSIS. OTTO BLEIER, Vienna, Austria-Hungary. Filed June 10, 1897. Serial No. 640,276. (No model.)



Claim.—1. An apparatus for complete analysis of gas mixtures comprising the measuring vessel, the plurality of absorbing vessels, the valve-casing connected with the measuring vessel, an independent pipe connection from each absorbing vessel to said valve-casing, and a turning cock adapted to place each of said absorbing vessels separately in communication with said measuring vessel, substantially as described.

2. An apparatus for complete analysis of gas mixtures comprising the measuring vessel, the plurality of absorbing vessels, the valve-casing connected with the measuring vessel, an independent pipe connection from each absorbing vessel to said valve-casing, and a turning cock adapted to place each of said absorbing vessels separately in communication with said measuring vessel and a separate cock for each pipe connection, substantially as described.

605,992. CARRYING-FRAME. HENRIK R. H. BORGSTRÖM, Helsingfors, Russia. Filed Feb. 12, 1897. Renewed Apr. 26, 1898. Serial No. 678,910. (No model.)



Claim.—1. The combination with a suitable bar or frame, of a support for carrying persons, objects or things, which is connected therewith, and adapted to retain a horizontal position, regardless of the position in which the ends of the bar or frame are held, substantially as shown and described.

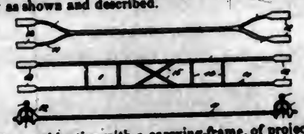
2. A carrying-frame provided with a suitable support for the object to be carried, said support being connected therewith, and adjustable therein or thereon, so that it will remain in a horizontal position, regardless of the position in which the ends of the carrying-frame are held, substantially as shown and described.

3. The combination with a suitable carrying-frame, of a support pivotally connected therewith, and suspended therefrom, said support being also provided with devices whereby it may be held in a horizontal position, at all times, regardless of the position of the frame, substantially as shown and described.

4. A carrying-frame, consisting of two separate side frames, between which is mounted a suitable support for a person or object to be carried, said support being provided with a curved or segmental plate adjacent to the frame in which is formed a curved or segmental slot, and a set-screw which passes through said frame, and said slot, whereby the support may be adjusted to, and held in a horizontal position, regardless of the position of the frame, substantially as shown and described.

605,993. CARRYING-FRAME. HENRIK R. H. BORGSTRÖM, Helsingfors, Russia. Filed Feb. 12, 1897. Renewed Apr. 26, 1898. Serial No. 678,911. (No model.)

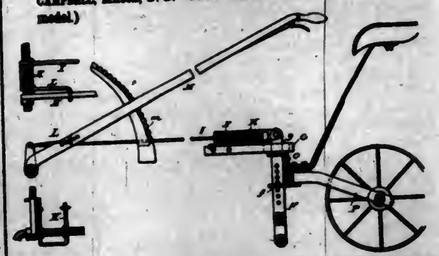
Claim.—1. A carrying-frame provided at each end with two or more projecting rods or bars, said rods or bars being each provided at their outer ends with curved or yoke-shaped shoulder-pieces, said shoulder-pieces being provided with adjustable pads on their under sides or surfaces, which are also curved or yoke-shaped in form, substantially as shown and described.



2. The combination with a carrying-frame, of projecting rods or bars connected with the ends thereof, each of said rods or bars being provided with yoke-shaped shoulder-pieces, and semicircular or segmental pads, substantially as shown and described.

3. The combination with a carrying device, from which a load of any kind may be suspended, or to which a load may be attached or secured, of a plurality of shoulder-pieces at each end thereof, said shoulder-pieces being curved or yoke-shaped in form, substantially as shown and described.

605,994. SEAT ATTACHMENT FOR PLOWS. WILLIAM J. CAMPBELL, Milton, N. D. Filed Jan. 7, 1898. Serial No. 666,572. (No model.)



Claim.—1. In a plow, the combination with a plow-beam, a plowshare, front wheels and a rear or furrow wheel, of an adjustable connection between said rear wheel and said plow-beam, whereby said rear wheel can be brought closer to or removed farther from said plow-beam, and the position of the plowshare relative to the ground correspondingly altered, substantially as described.

2. In a plow, the combination with a plow-beam, a plowshare, front wheels, and a rear wheel, of a rod attached to the landside of the plowshare, an adjustable bracket mounted thereon, and connection between said bracket and said rear or furrow wheel, substantially as described.

3. In a plow, the combination with a plow-beam, a plowshare, front wheels and a rear wheel, of a rod attached to the landside of said plowshare, an adjustable bracket mounted thereon, a seat secured thereto, and pivotal connection between said rear wheel and said seat-support, substantially as described.

4. In a plow, the combination with a plow-beam, a plowshare, front wheels and a rear wheel, of a vertical rod attached to the landside of said plowshare, means for permitting vibration of the upper end of said rod, an adjustable bracket mounted thereon, and a seat secured to said bracket, substantially as described.

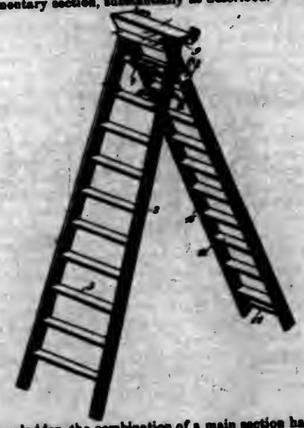
5. In a plow, the combination with a plow-beam, a plowshare, front wheels and a rear wheel, of a vertical rod attached to the landside of said plowshare, means for permitting vibration of the upper end of said rod, an adjustable bracket mounted thereon, a seat secured to said bracket, and pivotal connection between said rear wheel and said seat-support, substantially as described.

6. In a plow, the combination with a plow-beam, a plowshare, front wheels and a rear wheel, of a vertical rod pivotally attached to the landside of said plowshare, a bracket attached to the upper end of said rod, a rod passing through said bracket, a spring mounted on said rod and bearing against said bracket, and means for controlling the position of said rod and consequently the strength of said spring, substantially as described.

7. In a plow, the combination with a plow-beam, a plowshare, front wheels and a rear wheel, of a vertical rod pivotally attached to the landside of said plowshare, a bracket attached to the upper end of said rod, a rod passing through said bracket, and the hand-lever M, U-shaped bracket K, and rod L for controlling the position of said rod and consequently the strength of said spring, substantially as described.

605,995. COMBINED STEP AND EXTENSION LADDER. EMILIO CARBARELLI, Boston, Mass. Filed Oct. 18, 1897. Serial No. 655,578. (No model.)

Claim.—1. In a ladder, the combination of a main section having a step secured upon the upper ends of its side rails, clips hinged to the main section below the top step, a supplementary section slidably supported between the clips, and its upper end engaging the lower face of said upper step when the lower ends of the sections are spread apart, and means to limit the inward movement of the upper end of the supplementary section, substantially as described.



2. In a ladder, the combination of a main section having a step secured upon the upper ends of its side rails, and provided with a downwardly-extending flange, clips hinged to the main section below the top step, and a supplementary section slidably supported between the clips, and its upper end engaging the said upper step and flange when the lower ends of the sections are spread apart, substantially as described.

3. In a ladder, the combination of a main section, clips hinged thereto near its upper end, clips rigidly secured thereto above the hinged clips and having vertically-disposed grooves, a supplementary section slidably supported by the said clips, pins projecting from the side rails of the supplementary section near its upper end and adapted to engage the hinged clips and to pass through the grooves in the fixed clips, and a catch on the lower end of the supplementary section adapted to engage the step on the main section, when the ladder is extended, substantially as described.

4. In a ladder, the combination of a main section having inclined shoulders on the inner faces of the side rails between two steps near its upper end, a supplementary section adapted to pass between the rails of the first section and be supported on said shoulders, and set-screws in the rails of the main section above said shoulders adapted to engage the rails of the supplementary section, substantially as and for the purpose specified.

605,996. JOURNAL AND BEARING. JOHN R. CARTER, Cincinnati, Ohio. Filed Apr. 1, 1898. Serial No. 676,107. (No model.)



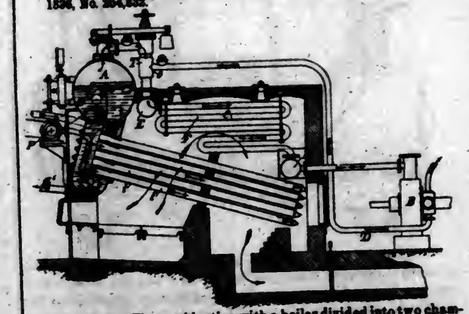
Claim.—1. The combination with a bearing having a curved bottom and an inwardly-projecting curved lip, of a hanger having a journal adapted to rest in the bearing and a curved recess to receive the lip on the bearing.

2. The combination with a bearing having an open top and a lip projecting inwardly from adjacent the bottom of the bearing, of a hanger having a journal and a recess below the journal to receive the lip on the bearing.

3. The combination with a bearing having an open top, side flanges and an inwardly-projecting lip, of a hanger having a journal and curved recess below the journal to receive the lip on the bearing.

4. The combination with a bearing having an open top and an inwardly-projecting curved lip, of a hanger having a journal and a lip below the journal, the lip on the hanger adapted to rest below the lip on the bearing.

605,997. STEAM-GENERATOR. DOMINGUE A. CABALLERO, Paris, France. Filed Dec. 28, 1897. Serial No. 663,940. (No model.) Patented in England Sept. 17, 1895, No. 17,276, and in France Mar. 17, 1896, No. 254,832.



Claim.—1. The combination with a boiler divided into two chambers, of concentrically-arranged heating and circulating tubes, the outer tubes communicating with one of the boiler-chambers, and the inner tubes communicating with the other boiler-chamber and being perforated whereby jets of water are projected at right angles against the heating-surfaces of the outer tubes, and a pump connected respectively with said chambers and through which they communicate and by which a mechanical circulation of the liquid from one chamber to the other and through the heating and circulating tubes is maintained, substantially as described.

2. The combination with a boiler divided into two independent chambers by an internal partition, of concentrically-arranged heating and circulating tubes projecting at one end into said boiler, the outer tubes communicating with one chamber, and the inner tubes communicating with the other chamber, said inner tubes being perforated so as to project jets of water at right angles against the inner surfaces of the outer heating-tubes, and a pump connected respectively with said chambers and through which they communicate and by which a mechanical circulation of the liquid from one chamber to the other and through the heating and circulating tubes is maintained, substantially as described.

605,998. BUTTON OR STUD. CHARLES C. CHAMPENOIS, Newark, N. J. Filed Nov. 6, 1897. Serial No. 657,804. (No model.)



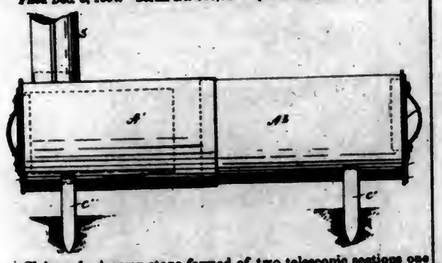
Claim.—1. A button or stud, comprising a back-plate or shoe and a tubular post formed integral therewith, said post having slots a^3, and a pair of clamping lugs or jaws a^4, a bracket or bearing having a post portion arranged in said tubular post and fitted in said slots a^3 and said lugs or jaws being clamped and secured against the sides of said post portion of the bracket or bearing, and a head pivotally connected with said bracket or bearing, substantially as and for the purposes set forth.

2. A button or stud, comprising a back-plate or shoe and a tubular post formed integral therewith, said post having slots a^3, and a pair of clamping lugs or jaws a^4, a bracket or bearing having a post portion arranged in said tubular post and fitted in said slots a^3 and said lugs or jaws being clamped and secured against the sides of said post portion of the bracket or bearing, a pair of loops or eyes c^4 connected with said bracket or bearing, said loops or eyes having flattened surfaces c^5, a spring plate or disk d, having a loop d' pivotally arranged on a pin or rivet in said loops c^4, and a head b secured to said plate or disk d, substantially as and for the purposes set forth.

3. A button or stud, comprising a back-plate or shoe and a tubular post formed integral therewith, said post having slots a^3, and a pair of clamping lugs or jaws a^4, a bracket or bearing having a post portion arranged in said tubular post and fitted in said slots a^3 and

said lugs or jaws being clamped and secured against the sides of said post portion of the bracket or bearing, a pair of loops or eyes c^4 connected with said bracket or bearing, said loops or eyes having flattened surfaces c^5, a spring plate or disk d, having a loop d' pivotally arranged on a pin or rivet in said loops c^4, and said disk or plate d having slots d^2 contiguous to the ends of the loop d', and a head b secured to said plate or disk d, substantially as and for the purposes set forth.

605,999. CAMP-STOVE. FRANK B. CHARBOIN, Fairhaven, Wash. Filed Dec. 3, 1897. Serial No. 660,647. (No model.)

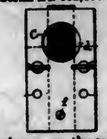


Claim.—1. A camp-stove formed of two telescopic sections one of which is provided with a fuel or fire door and the other with a smoke-outlet and a longitudinally-extending oven spaced from the interior of the oven-section to allow the products of combustion to pass around it and permit telescoping of the sections, substantially as described.

2. A camp-stove comprising a horizontal body formed of two telescopic sections, a door at the front end of the fire-box section, a longitudinally-extending oven within and spaced from the other section, a door closing the front end of the oven, and a smoke-outlet at the front end of the oven-section, substantially as described.

3. A horizontal body-stove formed in two cylindrical telescopic sections having flat top portions, an oven extending inwardly into one section and spaced from the interior thereof, a door or cap for the open front end of the oven and a door or cap for the front end of the fire-box section, substantially as described.

606,000. TOOL-SHARPENER. ALFRED H. CLARK, Athens, Mich. Filed Sept. 18, 1897. Serial No. 652,100. (No model.)



Claim.—1. In a tool-sharpener, the combination with a flat sharpening-surface, and a guide on each side of said sharpening-surface for holding the tool at the proper angle against said surface, whereby the blade of the tool is free and clear of the guides as it passes across said sharpening surface, substantially as set forth.

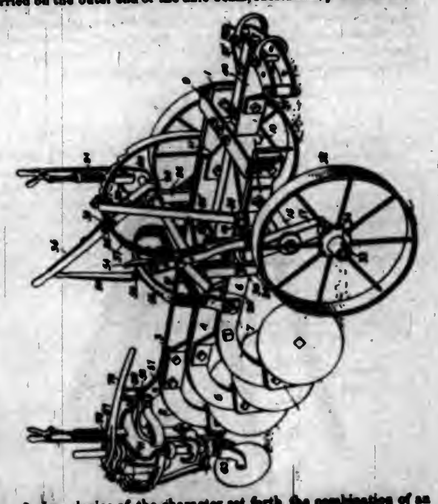
2. In a tool-sharpener, the combination with a flat sharpening-surface, a guide on each side of said sharpening-surface for holding the tool at the proper angle against said surface whereby the blade of the tool is free and clear of the guides as it passes across said sharpening-surface, and means permitting the adjustment of the sharpener with respect to said guides, substantially as set forth.

3. A tool-sharpener having in combination a sharpener with two or more flat sharpening-faces, blocks rigidly fitting upon said sharpener having guides formed therein for holding the edge of the tool in proper position against the sharpener and free and clear as it passes across the face of the said sharpener, and means permitting the adjustment of the sharpener between the blocks, substantially as set forth.

606,001. HILLSIDE CULTIVATOR OR PLOW. MARK C. DEUSLER, Willow, Cal. Filed Aug. 14, 1897. Serial No. 648,312. (No model.)

Claim.—1. In a device of the character set forth, the combination of a frame, a longitudinal draft-beam pivoted to the frame and adapted to swing horizontally, a transversely-arranged axle-beam having ground-wheels at its ends and pivoted between its extremities to turn in a horizontal plane, and means for connecting and simultaneously adjusting said draft-beam and axle-beam, substantially as set forth for the purpose described.

2. In a device of the character set forth, the combination of a frame, a draft-beam movably mounted thereon, an axle-beam having ground-wheels adjustably carried thereby, means for simultaneously adjusting said draft and axle beams, and apertured segmental plates carried on the outer end of the axle-beam, substantially as described.



3. In a device of the character set forth, the combination of an axle-beam, arms movably mounted on the ends thereof having stub-axles extending therefrom, ground-wheels mounted on said stub-axles, links movably attached to said arms, and a rod adjustably connected to said links, substantially as described.

4. In a device of the character set forth, the combination of an axle-beam, arms movably carried by said axle-beam and having stub-axles projecting therefrom arranged in reverse positions, ground-wheels mounted in said stub-axles, links movably attached to said arms, a rod adjustably connected to one of said links, a lever adjustably connected to the opposite link and adapted to be operated to move one arm independently of the other, and devices attached to said rod for unitedly operating both arms, substantially as and for the purposes specified.

5. In a device of the character set forth, the combination of a frame, an axle-beam adjustably carried thereby, a draft-beam simultaneously movable with said axle-beam, and an adjusting-clamp intermediate of the connections between the said axle-beam and draft-beam to impart an initial adjustment to said axle-beam, substantially as described.

6. In a device of the character set forth, the combination of a frame, a rectangular brace surrounding the front of the frame, posts or bolts mounted in said brace and spaced apart from each other, a draft-beam adjustably carried by said frame and pivoted to the rectangular brace between said posts or bolts, and a lever having connection with the rear portion of the draft-beam for adjusting it laterally and holding it in a located position, substantially as described.

7. In a device of the character set forth, the combination of a frame comprising a series of bars having rear depending curved ends, plows or cultivators attached to said ends, a trailer adjustable laterally and rotatably, an adjustable draft-beam, an adjustable axle-beam having ground-wheels movably attached thereto, and means for adjusting the several parts, substantially as described.

8. In a device of the character set forth, the combination of a frame, an adjustable axle-beam having a post movably engaging a socket on one side of the frame, means for initially adjusting the opposite end of the axle-beam, an adjustable draft-beam, and devices for simultaneously moving said axle and draft beams, substantially as and for the purposes specified.

9. In a device of the character set forth, the combination of a frame a brace-bar extending rearward from a part of said frame, a toothed segment supported by said brace-bar, a curved toothed frame extending to the rear of said toothed segment, a post movably supported by said brace-bar and segment and carrying a trailer, and means for laterally and rotatably adjusting the said post and trailer, substantially as described.

10. In a device of the character set forth, the combination of a frame, a brace bar extendingly rearwardly therefrom, a segment vertically disposed on the said brace-bar, a horizontally-toothed frame movably carried in rear of said segment, a post rotatably mounted in bearings carried by the said brace-bar and toothed frame, and levers for adjusting said devices, substantially as described.

11. In a device of the character set forth, the combination of a frame, a brace-bar extending therefrom, a vertically-disposed toothed segment on said brace-bar having guides, a horizontally-disposed toothed frame movably mounted in said guides and carrying a bearing, another bearing movably carried by the lower part of said brace-bar, a trailer-post rotatably mounted in said bearings adapted to have a lateral adjustment, a shifting-lever attached to the said horizontally-disposed toothed frame and coacting with the said segment, a yoke engaging the post and provided with a rearwardly-extending arm having a flange to engage the teeth of the said toothed frame and also formed with a front tooth, a lever attached to said yoke, a collar secured to the post and having a slot therein adapted to be engaged by the tooth on the yoke, and a spring surrounding the post between a part of the yoke and the upper bearing, substantially as described.

12. In a device of the character set forth, the combination of a frame, an axle-beam carried thereby, arms movably mounted on the ends of said axle-beam and having stub-shafts extending from the same in reverse positions, ground-wheels engaging said stub-shafts, and means for simultaneously adjusting both arms and also for individually adjusting one of the arms, substantially as described.

13. In combination, a frame bearing a gang of earth-treating devices, a transversely-disposed axle having its spindle-arms out of line with and relatively loosely connected to the axle and bearing ground-wheels, a transverse rod having an arm in connection with one of the spindle-arms, means for turning the rod and holding it in an adjusted position, a lever loosely mounted upon the opposite end of the said rod and having connection with the other spindle-arm for independent adjustment thereof, and means for connecting the said lever with the rod, whereby after the ground-wheels have been independently adjusted they may be simultaneously moved, substantially as described.

14. In combination, a frame bearing a gang of earth-treating devices, a transversely-disposed axle, crank-arms loosely connected with the ends of the axle and bearing ground-wheels, a rod parallel with the axle, means for adjustably connecting one of the crank-arms with an end portion of the rod, a lever loosely mounted upon the opposite end of the rod and having adjustable connection with the other crank-arm, and means for connecting the lever with the said rod, substantially as described.

15. In combination, a frame bearing a gang of earth-treating devices, a transversely-disposed axle, crank-arms loosely connected with the ends of the axle and bearing ground-wheels, a rod parallel with the axle, and having one end bent, a link adjustably connecting the bent end of the rod with a crank-arm, a toothed segment secured to the opposite end of the rod, a lever loosely mounted upon the rod and having a latch to engage with the toothed segment, and a link adjustably connecting the said lever with the other crank-arm, substantially as specified.

16. In combination, a draft-bar, a gang of earth-treating devices, a transverse bar having pivotal connection with the draft-bar and rigidly attached to the gang, a toothed arched bar secured to the extreme or outer gang-bars, an upright lever fulcrumed to a brace connecting the ends of the arched bar, and having a toothed portion to engage with the teeth of the said arched bar, and means connecting the upright lever with the draft-beam, substantially as described.

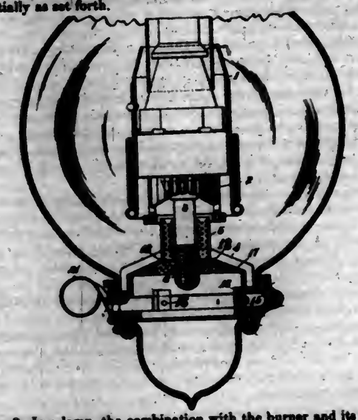
17. In combination, a draft-beam, an axle mounted to turn upon a vertical pivot, a lever for turning the draft-beam upon a vertical pivot, a bell-crank lever fulcrumed to the frame and having its longitudinal arm connected with the draft-beam, a clamping-loop adjustably connected with the lateral or transverse arm of the bell-crank lever, and adjustable connections between the said loop and the axle, substantially as and for the purpose specified.

18. In combination, a draft-beam mounted to turn upon a vertical pivot, an axle mounted to swing upon a vertical axis, a bell-crank lever fulcrumed to the frame and having its longitudinal arm connected with the rear end of the draft-beam, a loop, a screw-shank connecting the rear end of the loop with the lateral or transverse arm of the bell-crank lever, and an eyebolt clipped to the aforesaid axle and having its threaded portion making adjustable connection with the front end of the said loop, substantially as and for the purpose described.

606,002. LAMP. ROBERT M. DUNN, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, of New York. Filed Nov. 11, 1893. Serial No. 611,088. (No model.)

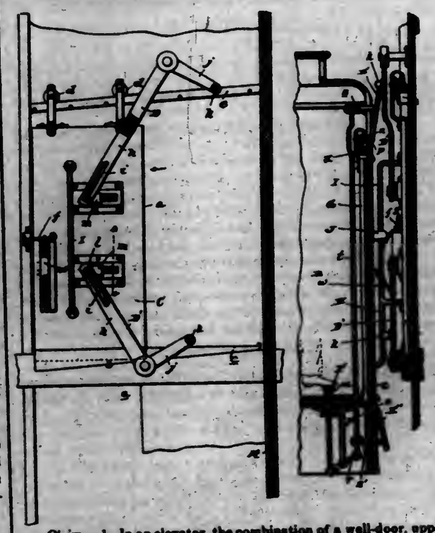
Claim.—1. In a lamp, the combination with a burner and its stem, of a spider and globe-supporting ring, the vertical portion of the spreader carried upon the spider, a hinged frame secured to the ring, and the lower portion of the foraminous spreader carried upon the frame, and adapted to form a continuation of the first-named portion when the frame is closed, substantially as set forth.

2. In a lamp, the combination with the burner and its stem extending centrally below the burner, of a spider supported by the stem below the burner, a globe open at its lower end and supported upon the spider, a frame hinged to the spider, and a closing device carried by such frame for closing the lower open end of the globe, substantially as set forth.



3. In a lamp, the combination with the burner and its stem extending centrally below the burner, of a ring supported from such stem and arranged below the burner, a globe open at its lower end and supported by said ring, a frame hinged to such ring, a cup arranged to close the lower open end of the globe, carried by such frame, and a catch by which the said frame and cup are held in their closed positions, substantially as set forth.

606,008. MEANS FOR OPERATING DOORS FOR ELEVATOR-WELLS. FREDERICK T. ELLINGWOOD, Newark, N. J. Filed Mar 26, 1898. Serial No. 675,212. (No model.)



Claim.—1. In an elevator, the combination of a well-door, upper and lower levers connected with said door, and upper and lower tappets on the elevator-car for engaging the upper and lower levers on the up and down movements, respectively, of the car, substantially as specified.

2. In an elevator, the combination of a well-door, cushioned slides or buffers on said door, upper and lower levers connected with the cushioned slides or buffers, and upper and lower tappets on the elevator car for engaging the upper and lower levers on the up and down movements, respectively, of the car, substantially as specified.

3. In an elevator, the combination of a well-door, upper and

lower levers connected with said door, upper and lower tappets on the elevator-car for engaging the upper and lower levers on the up and down movements, respectively, of the car; said tappets normally resting in a position to pass the levers without engaging the same, and suitable means under the control of the elevator-conductor for extending the tappets when it is desired to have them engage the levers, substantially as specified.

4. In an elevator, the combination of a gravitating self-closing well-door, cushioned slides or buffers thereon, upper and lower levers connected with said slides or buffers, upper and lower tappets on the elevator car for engaging the upper and lower levers on the up and down movements, respectively, of the car; said tappets normally resting in a position to pass the levers without engaging the same, and suitable means under the control of the elevator-conductor for extending the tappets when it is desired to have them engage the levers, substantially as specified.

5. In an elevator, the combination of a well-door, a device thereon movable in the same direction as the door, a spring backing the movable device, a car, and coacting devices on the wall of the elevator-well and the car for opening the door; the device on the wall of the well being connected with the movable device on the door, substantially as specified.

6. In an elevator, the combination of a well-door, a vertically-movable latch therefor, a vertical spring having one end fixed and its opposite end connected directly to the latch; said spring being normally bowed in a direction away from the door, a car, and a shoe arranged on the car in the same vertical plane as the bowed spring so as to engage said spring on the up and down movements of the car, substantially as specified.

7. In an elevator, the combination of a well-door, upper and lower levers connected with said door, upper and lower, oppositely-disposed tappets pivotally connected with the elevator-car, springs for normally holding the tappets against the car, a pedal and devices connected with the pedal for extending the tappets, substantially as specified.

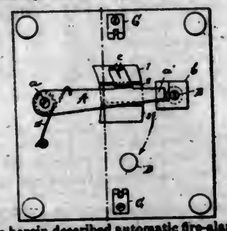
8. In an elevator, the combination of a well-door, a device thereon movable in the same direction as the door, a spring backing the movable device, a lever having one of its arms connected with the movable device on the door, a car, a tappet on the car normally resting in a position to pass the lever without engaging the same, and suitable means, under the control of the elevator-conductor, for extending the tappet so as to enable the same to engage the lever, substantially as specified.

9. In an elevator, the combination of a well-door, a lever connected with said door, a tappet for engaging the lever pivotally connected with the elevator-car, a spring for normally holding the tappet against the car, a lever fulcrumed on the car and engaging the tappet, and suitable means under the control of the elevator-conductor for rocking said lever.

10. In an elevator, the combination of a gravitating, self-closing well-door, levers fulcrumed above and below and loosely connected with said door, upper and lower tappets on the car for engaging the upper and lower levers on the up and down movements, respectively, of the car; said tappets normally resting in a position to pass the levers without engaging the same, and suitable means under the control of the elevator-conductor for extending the tappets when it is desired to have them engage the levers, substantially as specified.

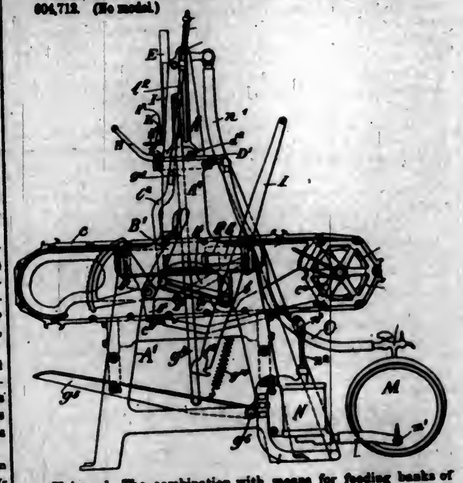
11. In an elevator, the combination of a track inclined upwardly from its middle, well-doors hung from said track and arranged at opposite sides of the middle thereof, levers connected to said doors, a pitman connecting the said levers, a car, and a tappet on the car for engaging and moving one of the levers, substantially as specified.

606,004. THERMAL CIRCUIT-CLOSER. LAUREL REDEN and JOHN A. DAWSON, Reading, Pa. Filed Nov. 19, 1897. Serial No. 659,082. (No model.)



Claim.—The herein-described automatic fire-alarm, comprising a base having a series of plates secured thereto and in circuit with the alarm system, a lever pivoted to said base and also in circuit with the alarm system, a spring designed to actuate said lever, a fusible block having a shoulder designed to engage and hold said lever in a normally raised position, said lever being provided with depending arms or members having lower curved ends designed to engage said plates, and means adapted to limit the movement of said lever under the action of said spring, substantially as set forth.

606,005. MACHINE FOR FILLING AND CORKING BOTTLES. WILLIAM M. FOWLER, Stamford, Conn. Filed Sept. 3, 1896. Serial No. 604,712. (No model.)



Claim.—1. The combination with means for feeding banks of bottles step by step into position to be filled, of a filling mechanism, a corking mechanism and a cork-fastening mechanism and means for bringing the said filling, corking and cork-fastening mechanisms into and out of alinement with the bank of bottles while held in position, substantially as set forth.

2. The combination with the bottle-filling mechanism and a corking mechanism arranged to coöperate with the filling mechanism, of a reservoir for cork-fasteners and means for conveying the fasteners from their reservoir into position to be operated upon by the corking mechanism, substantially as set forth.

3. The combination with means for feeding bottles step by step into position to be filled and a sealing-plate for receiving the mouths of the bottles, of plungers for forcing the bottles toward the sealing-plate, a hydraulic press for operating the plungers and means for filling and corking the bottles while held in contact with the sealing-plate, substantially as set forth.

4. The combination with the corking-plunger and means for operating it, of a reservoir for cork-fasteners and a turn-table mounted in position to convey the fasteners successively from the fastener-reservoir to a position beneath the plunger, substantially as set forth.

5. The combination with the filling reservoir mounted to reciprocate, the fillers connected therewith and means for holding the bottles in position to be filled, of a supply-reservoir, a connection between the supply-reservoir and filling-reservoir, a pump interposed in said connection and an operating-lever common to said pump and to the reciprocating filling-reservoir, substantially as set forth.

6. The combination with a corking-plunger comprising a central driving-rod and a sleeve loosely surrounding said rod, of means for reciprocating the plunger and means for automatically locking the sleeve to the plunger throughout a portion of its movement and leaving it free to slide on the plunger throughout a portion of its movement, substantially as set forth.

7. The combination with the filling mechanism and the supply-reservoir, of means for forcing the liquid to the filler comprising a cylinder, a reciprocating piston within the cylinder and an operating-lever arranged to engage the piston during a portion of its stroke only in each of two opposite directions, substantially as set forth.

606,006. HAT-FASTENER. DAVID V. SAGER, Philadelphia, Pa., assignor of one-half to Charles L. Schwarz, same place. Filed Feb. 16, 1897. Renewed Apr. 14, 1898. Serial No. 677,826. (No model.)

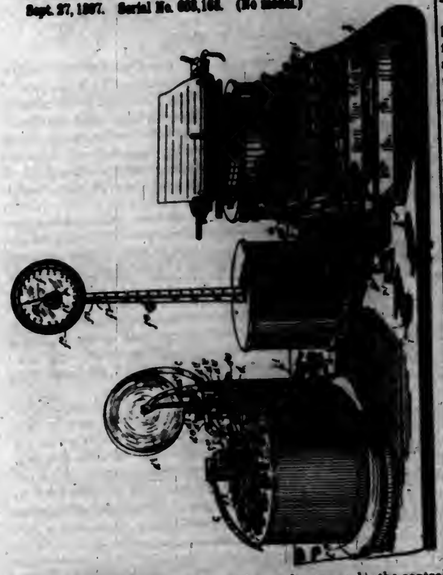
Claim.—1. A hat-fastener consisting of a bow having limbs with eyes and provided with a brace continuous of said eyes, and a pin having a head which latter is mounted on said eyes.

2. In a hat-fastener, the bow B having the eyes C and brace and stop D continuous therebof, and the pin F having, on its upper portion, the contracted neck with the confining-clasp G therefor and a head above said neck mounted on said eyes, said pin normally closing toward said bow.



3. A hat-fastener consisting of the limbs B, B, with the eyes C, C, and depending brace D integral with said limbs and eyes, and the pin F having a looped head portion, and depending limbs E, E, said head portion being journaled in the eyes C, C and the clasp G on said limbs E, E.

606,007. COMPOSING-MACHINE FOR TYPE CASTING AND SETTING MACHINES. GEORGE A. GOODSON, Minneapolis, Minn. Filed Sept. 27, 1897. Serial No. 653,168. (No model.)



Claim.—1. The combination with a perforator, under the control of an ordinary keyboard having character and space keys, of a justifier comprising a connection-box, having connections to the perforator for the possible amounts of justification-space in lines of the possible number of spaces, according to an arbitrary predetermined scheme of distribution, and a traveling keyboard having a step-by-step movement, in respect to said box, at word-spaces, and provided with keys representing the different amounts of justification-space, for coöperation with said box, to produce the justification-holes required, substantially as described.

2. The combination with an electrically-controlled perforator, and an ordinary keyboard controlling the connections thereto for characters and word-spaces, of a justifier comprising a contact-box having contacts with wires to the perforator, for the possible amounts of justification-space, in lines of the possible number of spaces, according to an arbitrary predetermined scheme of distribution, and a traveling keyboard having a step-by-step movement, in respect to said box, at word-spaces, and provided with contact-keys representing the different amounts of justification-space, for coöperation with said box, substantially as described.

3. The combination with a perforator, under the control of an ordinary keyboard having character and space keys, of a justifier comprising a connection-box, with connections to the perforator, for the possible amounts of justification-space, in lines of the possible number of spaces, according to a predetermined scheme of distribution, a traveling keyboard with contact-keys representing the different amounts of justification-space, for coöperation with said box, and an escapement, under the control of the space-key of the ordinary keyboard, and adapted to impart a step-by-step movement to said traveling keyboard, at word-spaces, substantially as and for the purposes set forth.

4. The combination with the perforator and the ordinary keyboard, of the justifier comprising the connection-box with connections to the perforator for the possible amounts of justification in lines of the possible number of word-spaces, according to an arbitrary predetermined scheme of distribution, a traveling keyboard representing the different amounts of justification-space, the escapement, for said traveling keyboard, controlled by the space-key of the ordinary keyboard, strip-feeding devices on the perforator, under the control of said ordinary keyboard, for characters and spaces, and a special feed-key, for charging the justifier-keyboard and operating said strip-feed devices, substantially as described.

5. The combination with the electrically-controlled perforator, the ordinary keyboard and the justifier, as described, of the feed-circuit connections for the perforator, the relay-circuit connections for controlling the feed-circuit, with said relay connections arranged to be operated at every key action on the ordinary keyboard, and a special feed-key for closing said relay-circuit, at will, as required for coöperation with the justifier or other purposes, substantially as described.

6. The combination with the electrically-controlled perforator having the bank of punches and punch-magnets, arranged on a bifactored principle one set for making the row-selecting holes in the strip and the other set for making the holes to select the individual type from the row, as described, of an ordinary keyboard having character and space keys, circuit connections from said keyboard to said punch-magnets, arranged on a bifactored principle for coöperation with said sets of punch-magnets, and an electrically-controlled differential letter-space indicator, having the unit-magnets thereof connected up in series, with said row-selecting punch-magnets, substantially as and for the purposes set forth.

7. The combination with the electrically-controlled perforator and the ordinary keyboard, of the differential letter-space indicator, electrically controlled, the strip-feeding devices on the perforator, the feed-magnet for the indicator, the feed-circuit connections for said perforator and said indicator, with the latter connected up in multiple with the former, a relay, in said feed-circuit, and relay-circuit connections controlled by the ordinary keyboard, for controlling said feed-circuit, all substantially as described.

8. The combination with the electrically-controlled perforator, the ordinary keyboard and the justifier-keyboard, of the circuit connections to the punch-magnets of the perforator, controllable by the keys of both of said keyboards, the electric escapement for the traveling keyboard of the justifier, controlled by the space-key of the ordinary keyboard, the feed-circuit connections for the strip-feeding devices of the perforator, the relay and the circuit connections for controlling said feed-circuit, with said relay connections arranged to be operated at every key action of the ordinary keyboard, the special feed-key for charging the justifier-keyboard and closing said relay-circuit, when a justifier-key is to be struck, and the electrically-controlled differential letter-space indicator, with circuit connections for the same, controlled by the key action of the ordinary keyboard, substantially as described.

9. The combination with the perforator and the type-writer, as described, of the justifier comprising the contact-box g, with the stack of insulated contact-plates g^{16} and the hard-rubber face-plate g^{17}, with mercury-wells g^{18}, the contact-pins g^{20} and g^{21}, disposed as described, the separate wires from said several plates to the corresponding punch-magnets of the perforator, the traveling keyboard with the keys g^{14} having the contacts g^{19}, the escapement for said keyboard, including the magnet g^{12}, with circuit connections controlled by the space-key of the type-writer and the special key b', for charging the justifier-keyboard and controlling the feed-circuit of the perforator, all substantially as and for the purposes set forth.

10. The combination with the electrically-controlled perforator and an ordinary keyboard, of the trip-hole punch and punch-magnet on the perforator, the trip-circuit connections for the same, the special trip-key, feed-circuit connections for the perforator and a special

feed-key for operating the same, in cooperation with said trip-key, when required, substantially as described.

11. A slack-provider, for a strip of flexible material, comprising a magnet, a spring-held feed-lever subject to said magnet, a feed-roller subject to said lever, a resistance-roller subject to said magnet, for frictionally clamping said strip against the feed-roller, and circuit connections for said magnet controlled by the slack section in the strip to start the action when the slack is used up and stop the same when a new slack section is accumulated, substantially as described.

12. A slack-provider, for a strip of flexible material, comprising a magnet, a spring-held feed-lever subject to said magnet, a feed-roller subject to said lever, a resistance-roller subject to said magnet for clamping the strip against the feed-roller, and circuit connections for said magnet, including a circuit-closer, subject to a spring for closing the circuit and subject to the weight of the accumulated slack section of the strip, for opening the circuit, to stop the action, substantially as described.

13. The combination with a magnet, of a resistance and a feed roller, between which passes a strip of flexible material, with said resistance roller subject to said magnet, for frictionally clamping the strip against the feed-roller, a spring-held feed-lever, subject to said magnet and adapted to act on said feed-roller, and a circuit maker and breaker, in the connections for said magnet, operated at the opposite limits of said feed-lever's throw, for making and breaking the circuit, as required, to keep up the motions of said feed-lever, substantially as described.

14. A slack-provider, for a strip of flexible material, comprising a magnet, a spring-held feed-lever, subject to said magnet, a feed-roller subject to said lever, a resistance-roller, subject to said magnet, for clamping the strip against the feed-roller, and circuit connections for said magnet, comprising a circuit-controller, subject to a spring for closing the circuit, and subject to the accumulated slack section for opening the circuit, and a circuit maker and breaker, subject to said feed-lever, at the opposite limits of its strokes, for making and breaking said circuit, to maintain the action of said feed-lever until the circuit is opened by the weight of the slack, acting on said circuit-controller, substantially as described.

15. The combination with the strip-holding spool, of the magnet d, the spring-held feed-lever, subject to said magnet, the feed-roller subject to said lever, the resistance-roller carried by the arms, which are subject to said magnet, and the circuit connections for said magnet, comprising the controller d^{14} d^{15} d^{16}, operating as described, under the control of the strip, and the circuit maker and breaker d^{19} d^{20}, subject to the action of said feed-lever, by means of the parts d^{21}, d^{22}, d^{23} and d^{24}, all substantially as described.

606,008. COIN-FREED AUTOMATIC MACHINE. EDUARD VON HAKEN, Charlottenburg, Germany. Filed Dec. 15, 1897. Serial No. 662,066. (No model.)



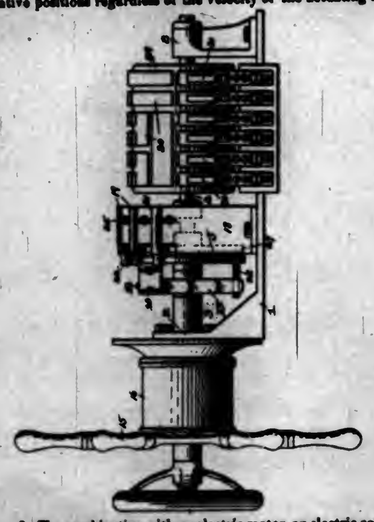
Claim.—1. A device for securing bicycles comprising the box or casing, the swinging arm pivoted thereto and designed to swing down against said box or casing, the swinging member hinged to the inside of said swinging arm and cooperating with said swinging arm to form a loop for engaging the bicycle, and coin-released mechanism within the casing adapted to hold the arm in contact with the casing to prevent the use of the same until a coin has been inserted, substantially as described.

2. In combination, the casing, the swinging arm hinged thereto and adapted to normally hang down against said casing, the swinging member hinged thereto to form a loop and adapted to be held closed by the wall of the casing when the arm is in normal position, the catch projecting from the back of the arm into the casing, the lever pivoted within the casing and having an end adapted to engage said catch, and the coin-chute adapted to deliver a coin upon the opposite end of said lever to release the swinging arm, substantially as described.

606,009. ELECTRIC CONTROLLER. MARSHALL W. HAMER, Madison, Wis. Filed Dec. 17, 1897. Serial No. 662,345. (No model.)

Claim.—1. In an electric controller, the combination with a contact-cylinder mounted on a rotatable shaft, of a second shaft provided with actuating means, and mechanism, interposed between the actuating means and the contact-cylinder, comprising a projecting part on the cylinder-shaft engaging with a spring on the second shaft whereby the contact-cylinder may be instantaneously rotated, in either direction, to its consecutive positions regardless of the velocity of the actuating means.

2. In an electric controller, the combination with a cylinder provided with contact-plates, mounted on a rotatable shaft, of a shaft concentric with the cylinder-shaft and provided with actuating means, and mechanism, interposed between the actuating means and the contact-cylinder, comprising a projecting part on the cylinder-shaft engaging with a spring on the concentric shaft whereby the contact-cylinder may be instantaneously rotated, in either direction, to its consecutive positions regardless of the velocity of the actuating means.



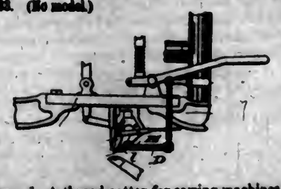
3. The combination with an electric motor, an electric controller, a contact-cylinder provided with contact-plates lying in the path of fixed contact-points, said cylinder revolubly mounted on a rotatable shaft, a shaft concentric with the cylinder-shaft, provided at one end with actuating means and at its other end with mechanism engaging with means on the cylinder-shaft, whereby the cylinder is instantaneously rotated, in either direction, to its consecutive positions, regardless of the rotative velocity of the shaft engaging with the cylinder-shaft.

4. In an electric-controller, the combination with a contact-cylinder mounted on a rotatable shaft, of a second shaft having actuating means and a disk provided with springs, said springs engaging with a pin extending from an arm on the cylinder-shaft, substantially as set forth.

5. In an electric controller, the combination with a contact-cylinder mounted on a rotatable shaft, of a second shaft having actuating means and a disk provided with springs, said springs engaging with a pin extending from an arm on the cylinder-shaft, a trip-arm, and stop-levers to lock the arm on the cylinder-shaft, substantially as set forth.

6. In an electric controller, the combination with a contact-cylinder having contact-plates lying in the path of fixed contacts, said cylinder mounted on a rotatable shaft, of a shaft concentric with the cylinder-shaft and having actuating means at one end and a disk provided with springs at its other end, the springs engaging with a pin extending through the disk from an arm on the cylinder-shaft, a trip-arm, a standard provided with longitudinal slots, and pivoted stop-levers in said slots, substantially as set forth.

606,010. THREAD-CUTTER FOR SEWING-MACHINES. VALENTIN HERRER and SOLOMON B. MOYER, Orwigsburg, Pa., assignors of one-third to H. A. Weller, same place. Filed Aug. 17, 1897. Serial No. 648,533. (No model.)



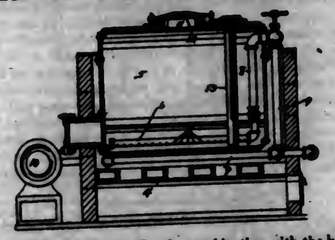
Claim.—1. A thread-cutter for sewing-machines, consisting of a plate having slots therein, one of which is inclined, a bar having a knife attached thereto, supported by said plate and movable in said slots, and a vertical and oscillatory shaft supported by said plate and connected to the knife-bar for projecting the knife.

2. A thread-cutter for sewing-machines, consisting of a plate having slots therein, one of which is inclined, a bar having a knife attached thereto, supported by said plate and movable in said slots, a vertical and oscillatory shaft supported by said plate and connected to the knife-bar, for projecting the knife, and a spring connected to the plate and the knife-bar.

3. A thread-cutter for sewing-machines, consisting of a plate having slots therein, one of which is inclined, a bar having a knife attached thereto, supported by said plate and movable in said slots, and a vertical and oscillatory shaft supported by said plate and connected to the knife-bar, in combination with the presser below the bed of the machine and to which the supporting-plate is connected.

4. A thread-cutter for sewing-machines, consisting of a bar having an offset at its front end, a knife attached to said bar, a plate provided with slots for directing the knife inward and laterally and in which the knife-bar is movably secured to the plate, and a lug, a vertical and oscillatory shaft supported by said plate and connected to the knife-bar and a bar for connecting the shaft to a sewing-machine, in combination with the presser to which said lug is attached.

606,011. HEATING-KETTLE FOR PREPARING ASPHALT. FREDERICK A. HAUSSMANN, Indianapolis, Ind. Filed June 24, 1897. Serial No. 642,073. (No model.)



Claim.—In a melting-kettle the combination with the kettle, a suitable setting therefor containing a furnace, means for producing a blast of air or other gas, a pipe leading from said means around within said furnace and into the kettle, the said pipe discharging near the bottom of the kettle, a discharge-pipe leading from near the bottom of the kettle, and means for rendering the kettle air-tight, substantially as described.

606,012. ELECTRIC-CURRENT CONTROLLER. JOHN J. HOGAN, New Haven, Conn., assignor of one-fourth to Thomas W. Corbett, same place. Filed July 15, 1897. Serial No. 644,616. (No model.)



Claim.—1. In a current-controller, an operating-shaft, a resistance-coil concentrically mounted upon said shaft and revolubly therewith, a screw-shaft parallel with said operating-shaft and having a thread corresponding in pitch with that of the convolutions of said resistance-coil, a carrier movable in a plane parallel with the axes of said shafts and actuated by the thread of said screw-shaft, a contact-finger mounted upon said carrier and engaging said resistance-coil, and intermediate connections between said operating-shaft and said screw-shaft for causing the latter to revolve in synchronism with the former, substantially as set forth.

2. In a current-controller, the combination with an operating-shaft carrying a resistance-coil, of a carriage movable in a plane parallel with the axis of said shaft and carrying a contact-finger which engages said coil, a screw feeding mechanism and a rack-and-pinion feeding mechanism both of which are actuated by said operating-shaft, and means for interchangeably connecting said carriage to said feeding mechanisms, whereby either mechanism can be utilized to impart movement to the carriage, substantially as set forth.

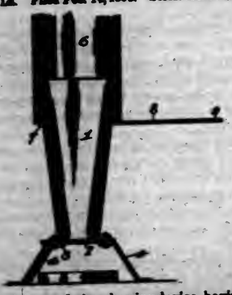
3. The combination with the operating shaft carrying the resistance-coil, of the screw-shaft, the toothed wheel, as 36, gear connections between said operating-shaft and said screw-shaft and toothed wheel respectively whereby both of the latter are actuated from the former, the movable carriage carrying a contact-finger which engages said resistance-coil, a half-nut for engaging said screw-shaft and a rack-bar for engaging said toothed wheel, both connected with said carriage, and means for interchangeably engaging said half-nut and said rack-bar with said screw-shaft and toothed wheel respectively, substantially as set forth.

4. In a current-controller, a suitable base having located thereon an incandescent lamp, a plug-socket, two binding-posts, one of which posts is electrically connected to said lamp and the other to said plug-socket, and a switch which opens and closes electrical communication between said lamp and plug-socket, in combination with a suitable frame secured to said base, an operating-shaft journaled on said frame and carrying an insulated resistance-coil, a carriage movable upon said frame in a plane parallel with said shaft and carrying a contact-finger which engages said coil, means for transmitting movement from said shaft to said carriage, and means for electrically connecting the contact-finger on said carriage with one of the binding-posts on the base and for similarly connecting one end of said resistance-coil with the other of said binding-posts, substantially as set forth.

5. The combination with shaft 18 carrying the coil 21, of carriage 24 carrying finger 27 and rack-bar 59, screw-shaft 28 for moving said carriage, dial 55, and shaft 56 carrying pointer 57 and wheel 58 which engages said rack-bar 59, substantially as set forth.

6. The combination with shaft 18 and the cylinder 19 and coil 21 carried thereby, screw-shaft 28, toothed wheel 36, intermediate gear connections substantially as described between said shaft 18 and said screw-shaft and toothed wheel respectively, carriage 24 carrying the finger 27, shaft 26 supporting said carriage at one end of the latter, an arm 33 having a spline-and-groove connection with said shaft 26, said arm carrying at one end the half-nut 34 and at its opposite end the rack-bar 35, substantially as set forth.

606,018. PIPE AND FLUE CLEANER. THOMAS H. KANE, Shreveport, La. Filed Feb. 14, 1898. Serial No. 670,363. (No model.)



Claim.—1. A flue and pipe cleaning device, having a barrel adapted to fit into a flue or pipe, and provided, in communication with its interior, with a priming-receptacle, substantially as specified.

2. A flue and pipe cleaning device having an inverted conical or upwardly-flared barrel, and a communicating priming-receptacle, substantially as specified.

3. A flue and pipe cleaner having an inverted conical barrel closed at its lower end by a head provided with a priming-groove in communication with the interior of the barrel, and supporting-legs depending from said head, substantially as specified.

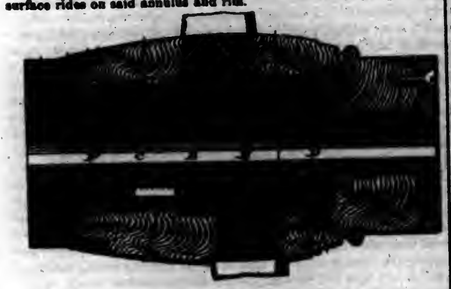
4. A flue and pipe cleaner having a barrel adapted to be fitted into a flue or pipe, and having a communicating priming-receptacle, and a supporting-rod secured to the barrel at an intermediate point to form a bearing for the lower end of a pipe-section, substantially as specified.

606,014. SPOKE-EXPANDER AND WHEEL-TIGHTENER. JOHN KELLEY, Philadelphia, Pa. Filed Feb. 16, 1897. Serial No. 623,503. (No model.)

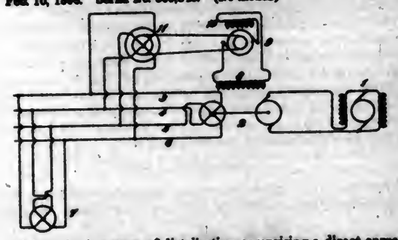
Claim.—1. In a spoke-expander and tire-tightener, a sliding sleeve having a wedge connected therewith, a loose annulus and a rim concentric on the outer end of the hub, in combination with a nut which engages said sleeve and has its head bearing against said rim and annulus.

2. A hub having a metal rim on its end, and a recess around the box thereof, a threaded sleeve with a pyramidal wedge connected therewith, adapted to slide on said box, wedge-shaped plates on said wedge adapted to have the spokes bear thereagainst, a nut engaging said sleeve, and a rotatable metallic annulus freely fitted within said

rim and surrounding said nut, the latter having a tread whose inner surface rides on said annulus and rim.



606,015. SYSTEM OF ELECTRICAL DISTRIBUTION AND REGULATION. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Feb. 10, 1898. Serial No. 669,848. (No model.)



Claim.—1. A system of distribution comprising a direct-current generator, a rotary transformer receiving current therefrom and supplying alternating currents to translating devices a generator for exciting the field-magnet of said rotary transformer and means dependent upon changes in the amount of inductive load on the alternating-current circuit or circuits for automatically varying the speed of the exciting-generator.

2. An electrical transforming and distributing system, a source of direct currents, a rotary transformer receiving current from said source and supplying alternating-current translating devices, a direct-current generator for exciting the field-magnet of said rotary transformer and means for automatically varying the speed of the exciting-generator as the amount of inductive load on the alternating-current circuit varies.

3. In an electrical transforming and distributing system, the combination with a source of direct current, a rotary transformer, an exciting generator for the field-magnet of such transformer operated to produce an electromotive force corresponding to a field-magnet excitation much below saturation and means for controlling the speed of said exciter in accordance with changes in the amount of inductive load on the alternating-current circuit or circuits supplied by the rotary transformer.

4. The method of maintaining constant speed in a rotary transformer for transforming direct to alternating currents, which consists in exciting its field-magnet by a direct-current generator and varying the speed of such generator as the amount of inductive load on the alternating-current circuit varies.

606,016. DETACHABLE HEEL FOR BOOTS OR SHOES. ALEXANDER MARBERT, Jersey City, N. J. Filed July 24, 1897. Serial No. 645,842. (No model.)



Claim.—1. The combination with a boot or shoe, of a heel-plate secured thereto, and provided at the sides and rear portion thereof, with a downwardly and inwardly directed flange or rim, said plate being also provided centrally thereof, with a downwardly and forwardly directed spring-tongue, and adjacent to each side of said tongue with downwardly and outwardly curved flanges or wings, and a detachable heel which is adapted to be connected with said plate, said detachable heel being provided with a plate which is secured thereto, and which is provided centrally with an opening through which said tongue is adapted to pass, and adjacent to each side thereof, with longitudinal flanges or wings with which the longitudinal flanges or wings formed on said first-named plate are adapted to engage, substantially as shown and described.

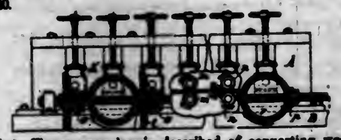
2. A shoe or boot provided with a heel-plate, which is secured thereto, and a heel provided with a corresponding plate which is secured thereto, the plate which is secured to the shoe or boot, and the plate which is secured to the heel being provided with interlocking flanges or wings, and the plate which is secured to the boot or shoe being also provided on its sides and rear edge with a downwardly and inwardly directed flange or rim with which the plate which is secured to the heel is adapted to engage, substantially as shown and described.

3. A shoe or boot provided with a heel-plate and a detachable heel also provided with a plate, one of said plates being provided with a centrally-disposed locking-tongue and with an interlocking flange or wing arranged on each side of said tongue, the other of said plates being provided with a central opening for said tongue and a flange or wing on each side of said opening adapted to interlock with said interlocking flanges and means for locking the heel to the heel-plate, substantially as and for the purpose set forth.

4. A shoe or boot provided with a heel-plate, which is secured thereto, and a heel provided with a corresponding plate which is secured thereto, the plate which is secured to the shoe or boot, and the plate which is secured to the heel being provided with interlocking flanges or wings and with a locking-tongue and an opening therefor the plate which is secured to the boot or shoe being also provided on its sides and rear edge with a downwardly and inwardly directed flange or rim with which the plate which is secured to the heel is adapted to engage, substantially as and for the purpose set forth.

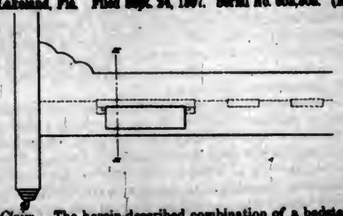
5. A boot or shoe, provided with projecting flanges or wings and a detachable heel constructed to receive said projecting portions and to be thereby secured upon said boot or shoe, said projecting flanges or wings ranging diagonally or at an incline to wedge or tighten the heel upon the shoe in the operation of attaching, and means for locking the heel to the boot or shoe, substantially as and for the purpose set forth.

606,017. PROCESS OF CONVERTING WOOD INTO FIBERS SUITABLE FOR USE IN THE ARTS. ALEXANDER MITSCHERLICH, Freiburg, Germany. Filed Feb. 24, 1894. Serial No. 501,453. (No specimens.) Patented in France Feb. 23, 1891, No. 211,631; in Germany June 9, 1891, No. 66,217; in Switzerland June 27, 1891, No. 4,120; in England July 4, 1891, No. 11,231; in Norway July 6, 1891, No. 2,643; in Italy Sept. 30, 1891, XXV, 30,046, LIX, 305; in Belgium July 5, 1892, No. 100,375, and in Austria-Hungary Sept. 30, 1892, No. 19,145, and No. 38,640.



Claim.—The process herein described of converting wood or woody parts into fibers suitable for use in the arts, which consists in splitting the wood into small boards or slabs, superposing two or more boards or slabs one above the other so that the projecting darker parts of the annual rings are at the outside, and then subjecting the so-arranged superposed boards or slabs by means of quickly-applied blows to a successively-repeated bending or cracking operation until a disintegrated fibrous mass is obtained, substantially as set forth.

606,018. CABINET FOR MEDICINE, &c. GLENN B. MURRAY, Lakeland, Fla. Filed Sept. 24, 1897. Serial No. 653,303. (No model.)



Claim.—The herein-described combination of a bedstead, a slat of considerable width secured therein, a cabinet adapted to pass through an opening in one of the side rails, cleats secured to the under side of the slat for guiding the cabinet, a series of partitions secured within the cabinet for dividing it into compartments, a lamp-support hinged in one of said compartments, and a spring for holding said support in its active position, substantially as shown and described.

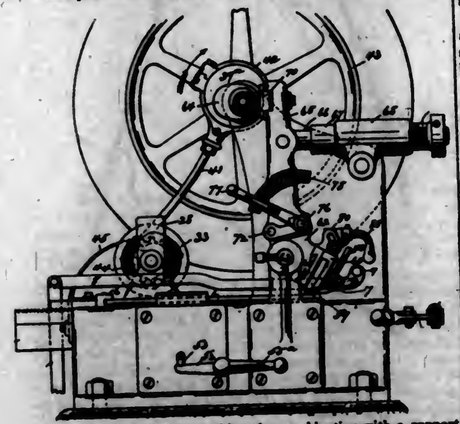
606,019. ANTISEPTIC SURGICAL DRESSING. THOMAS W. MCCUE, Akron, Ohio. Filed Sept. 20, 1895. Serial No. 564,103. (No specimens.)

Claim.—1. A composition of matter consisting of a mixture of finely-powdered litharge and cereal flour, substantially as and for the purpose specified.

2. A composition of matter consisting of a mixture of finely-powdered litharge, cereal flour and flint clay, substantially as and for the purpose specified.

3. A composition of matter consisting of a mixture of finely-powdered litharge, cereal flour, flint clay and boracic acid, substantially as and for the purpose specified.

606,020. RASP-MACHINE. JAMES A. MCHARDY, Providence, R. I., assignor, by mesne assignments, to the Nicholson File Company, same place. Filed May 25, 1896. Serial No. 593,093. (No model.)



Claim.—1. In a rasp-machine the combination with a support for the blank, of an oscillating head mounted to oscillate about a fixed axis, a cutter rigidly mounted on said head and having its rear face in or within the arc described by its point, and means for oscillating said head to force said cutter into said blank to lift the metal and form a tooth, substantially as described.

2. In a rasp-machine, the combination with a support for the blank, of an oscillating head mounted to oscillate about a fixed axis, a cutter rigidly mounted on said head and having its rear face in or within the arc described by its point, means for oscillating said head to force said cutter into said blank to lift the metal and form a tooth, and means for regulating the depth to which the cutter shall enter the blank, substantially as described.

3. In a rasp machine, the combination with a support for the blank, of an oscillating head mounted to oscillate about a fixed axis, a cutter rigidly mounted on said head and having its rear face in or within the arc described by its point, means for forcing said cutter into the blank, and a spring for returning said cutter, substantially as described.

4. In a rasp-machine the combination with a support for the blank, of an oscillating head mounted to oscillate about a fixed axis, a cutter rigidly mounted on said head and having its rear face in or within the arc described by its point, means for oscillating said head to force said cutter into said blank to lift up the metal and form a tooth, and means for intermittently changing the relative positions of the cutter and blank, substantially as described.

5. In a rasp-machine the combination with a support for the blank, of an oscillating head mounted to oscillate about a fixed axis, a cutter rigidly mounted on said head and having its rear face in or within the arc described by its point, an arm secured to said head, a cam for rocking said arm, whereby said cutter is forced into said blank and the metal lifted to form a tooth, substantially as described.

6. In a rasp-machine the combination with a support for the blank, of an oscillating head mounted to oscillate about a fixed axis, a tool-carriage mounted on said head, a cutter rigidly secured in said carriage and having its rear face in or within the arc described by its point, means for oscillating said head to force said cutter into the blank to lift the metal and form a tooth, and means for intermittently moving said carriage on said head, substantially as described.

7. In a rasp-machine, the combination of an oscillating head, means for securing a cutter to said head, an arm adjustably secured to said head, means for adjusting said arm without stopping the machine, substantially as described.

8. In a rasp-machine the combination of an oscillating head, means for securing a cutter to said head, an arm pivoted to said head, and an adjustable connection between said arm and head, substantially as described.

9. In a rasp machine the combination of an oscillating head, an arm pivoted to said head, a stud pivoted in said head, a cam on said stud engaging said arm, and means for adjusting said stud, substantially as described.

10. In a rasp-machine the combination of a reciprocating head a tool-carriage mounted on said head, means for feeding said carriage on said head, and means for regulating the action of said feeding means without stopping the machine, substantially as described.

11. In a rasp-machine the combination of a reciprocating head, a tool-carriage on said head, a sliding bar, an adjustable connection between said bar and head, and means for intermittently moving said bar, substantially as described.

12. In a rasp-machine the combination of a reciprocating head, a tool-carriage on said head, a slot in said carriage, a sliding bar, a stud projecting through said slot and adjustably connected to said bar, substantially as described.

13. In a rasp-machine the combination of a reciprocating head, a tool-carriage on said head, a sliding bar, a stud connected to said carriage and mounted in said bar and a handle for regulating the position of said stud, substantially as described.

14. In a rasp-machine the combination of a reciprocating head, a tool-carriage mounted thereon, a cam for moving said carriage on said head, connections between said cam and carriage, means for regulating the action of said cam, and means for adjusting the length of said connections, substantially as described.

15. In a rasp-machine the combination with a reciprocating head, a tool-carriage mounted on said head, a lever, connections between said lever and said carriage, means for adjusting said connections radially and transversely of said lever, and means for oscillating said lever, substantially as described.

16. The combination of an arm, a block adjustably mounted on said arm, and provided with a stud, a second block pivoted on said stud, and a movable part on which said second block is adjustably mounted, substantially as described.

17. The combination with a carriage, of means for feeding said carriage comprising a spring, means independent of the carriage for energizing said spring, and means for restraining and releasing said spring, substantially as described.

18. The combination with a carriage, of means for feeding said carriage comprising a spring, means independent of the carriage for energizing said spring, a dog for restraining said spring, and means for releasing the dog, substantially as described.

19. The combination with a carriage, of means for feeding said carriage forward comprising a spring, means independent of the carriage for energizing said spring, and means for holding said carriage against the action of said spring and releasing said carriage, substantially as described.

20. The combination with a carriage, of a rack secured to said carriage, a pawl engaging said rack, means for reciprocating said pawl comprising a spring, means for energizing said spring, and means for holding and releasing said carriage, substantially as described.

21. The combination with a carriage, of a rack secured thereto, a pawl engaging said rack, a rock-shaft, a spring connection between said shaft and pawl, means for holding said carriage against the action of said pawl and spring, and means for releasing said carriage by the rocking of said shaft, substantially as described.

22. The combination with a carriage, of a spring for feeding said carriage forward, means independent of the carriage for energizing said spring, a dog for holding said carriage against the action of the spring, and means for releasing said dog, substantially as described.

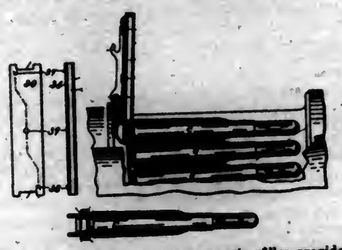
23. The combination with a carriage, racks secured to said carriage, dogs arranged to engage said racks and tappets directly engaging said dogs for alternately moving the dogs out of engagement with the racks, and means for feeding the carriage forward, substantially as described.

24. The combination with a carriage, of means for feeding said carriage forward, means for stopping and releasing said carriage, and mechanism for throwing said feeding and stopping and releasing means out of operation, substantially as described.

25. In a rasp-machine the combination with a support for the blank, of a head mounted to oscillate about a fixed axis, a cutter rigidly mounted on said head and having its point adjacent a vertical line passing through the axis of the head, and means for oscillat-

ing said head whereby the cutter is carried both downward and with an inward sweep.

606,021. CARTRIDGE-PACKET. EDWARD G. PARKHURST, Hartford, Conn. Filed Feb. 23, 1897. Serial No. 624,538. (No model.)



Claim.—1. A cartridge-containing magazine-filler, provided with a clip for engaging with a supporting-lug on the magazine of the gun, so as to form a detachable hinge-like connection therewith, for the purpose specified.

2. A cartridge-containing magazine-filler provided with a flexible clasp for springing over and partially encircling a supporting-lug adjacent to the magazine, for the purpose specified.

3. A magazine-filler, consisting of a body portion having a cartridge-head-receiving channel, a latch which normally projects over an end of the channel, and an actuator for retracting the latch, provided with a clasp for attaching the actuator to the firearm.

4. A magazine-filler consisting of a body portion having a cartridge-head-receiving channel, and provided with latches extending over the ends of the channel, an actuator longitudinally movable with relation to the latches and engaging therewith to independently retract the respective latches by its longitudinal movement in opposite directions, the locker when in its intermediate or central position being disengaged from both latches so as to allow them to remain closed.

5. A magazine-filler, consisting of a body portion having a cartridge-head-receiving channel, a backwardly-movable latch mounted thereon, and normally projecting over an end of the channel, and a latch-actuator supported for longitudinal movement upon the filler-body, and engaging with the latch whereby the latter is laterally retracted by that longitudinal movement.

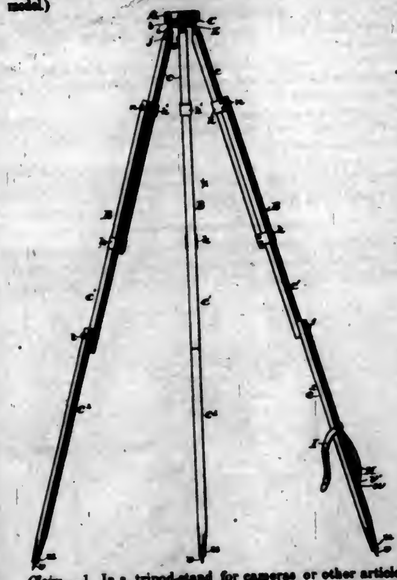
6. A magazine-filler, consisting of a body portion having a cartridge-head-receiving channel, and provided with latches supported for lateral movement only at the ends of the body portion, and normally extending over the ends of the channel, an actuator supported for longitudinal movement upon the filler-body, provided with clasps for attaching it to the firearm, and operatively engaging with the latches, whereby longitudinal movement of the filler-body and its latches relative to the actuator operates to retract the leading latch from over the end of the channel.

7. In a cartridge-packet, the combination of a body portion provided with a longitudinal channel for receiving the heads of a file of superimposed cartridges, each end of the filler-body being provided with a resilient latch attached thereto and normally projecting over the ends of the cartridge-channel, the latches being bent or curved backwardly from the back plate of the filler-body so as to form recesses and inclined abutments adjacent thereto, and an actuator provided with clasps for attaching it to the firearm, fitted movably upon the back plate of the filler body with its latch-actuating members in the recess of the latch adjacent to the inclined abutments thereof, whereby longitudinal movement of the filler-body and its latches relative to the actuator operates to retract the leading latch from over the end of the cartridge-channel, substantially as described.

8. In a cartridge-packet, the combination of a body portion provided with a longitudinal channel for receiving the heads of a file of superimposed cartridges, a locker therefor attached at or near the center of its length to the back plate of the filler-body, provided with resilient latches extending over the ends of the cartridge-channels and provided with inclined abutments adjacent to the latches, a link-shaped latch-actuator provided with clasps for attaching it to the firearm, its end cross members engaging between the back plate of the filler-body and the latches adjacent to the inclined abutments thereof, whereby the longitudinal movement of the filler-body and its attached locker relative to the actuator operates to retract the leading latch from over the end of the cartridge-channel, substantially as described.

9. The herein-described link-shaped locker-actuator, provided with oppositely-disposed clasps upon its side members for attaching it to a firearm, the opposite end or cross members of the link being adapted to actuate the locker, substantially as described.

606,022. TRIPOD-STAND FOR CAMERAS, &c. ROBERT B. PARSONS, Cambridge, Mass., assignor of one-half to Charles S. Howcomb, same place. Filed Nov. 26, 1897. Serial No. 659,742. (No model.)



Claim.—1. In a tripod-stand for cameras or other articles the combination of a table for supporting said camera or other article having a plurality of hemispherical sockets in its under side; a plurality of legs provided at their upper ends with spherical or ball-like heads fitted to said sockets; a clamping-plate constructed and arranged to bear upon all of said spherical heads below their centers; and a clamping screw and nut constructed and arranged to act upon the center of said plate and equidistant from all of said heads to clamp said plate thereto.

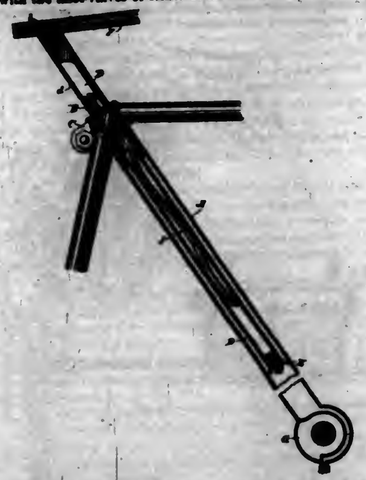
2. The combination in a tripod of the table A having the hemispherical sockets *a a* in its under side the legs B provided with the spherical heads *b* and the shanks *b'*; the tubular screw D set in a fixed position in said table; the plate C provided with the openings *d d'* to receive the heads *b* and shanks *b'*; the nut E fitted to said screw D and bearing upon the plate C; the screw *g* provided with the milled head *g'* and the shoulder *g*^{2}; and the collar *h* fitted tightly in the lower end of the screw D and surrounding the screw *g* below the shoulder *g*^{2} as and for the purposes specified.

3. The combination in a tripod of the leg-sections *c* and *c'*; the loop-strap *k* secured to the section *c* and extending around the section *c'*; the loop-strap *k'* secured to the section *c'* and extending around the section *c*; the nut *m* set in a recess in the section *c'*; the set-screw *n* working in said nut the plate *l* interposed between the inner end of said set-screw and the section *c* and secured at one end to the section *c'* substantially as described.

4. The combination in a tripod of the leg-section *c'* provided in its outer face, at its lower end, with the recesses *p*, *p'*, and *p*^{2}, and having secured thereto and partially covering said recesses the metal plate F provided with the slots *o*, *o*, and *o'*; the leg-section *c*^{2} having the metal plate G, provided with the hole *s*, secured to its inner face at its upper end; the headed stud *q* set in said section *c*^{2} through said plate G and arranged to alternately engage each of the slots *o* in the plate F, to lock said section *c*^{2} in extended or folded position; the bolt *r* extending through said section *c*^{2} the hole *s* in the plate G and the slot *o'* in the plate F, with its head beneath said plate F and in the recess *p'*; and the thumb-nut *t*, all arranged and operating as set forth.

606,023. BICYCLE PUMP ATTACHMENT. LEWIS A. PAYNE, San José, Cal., assignor of one-half to Martin V. Davis, same place. Filed July 8, 1897. Serial No. 643,886. (No model.)

Claim.—1. The combination with the seat-post standard of a bicycle-frame, of a vertically-adjustable tubular seat-support, a clamp by which it may be held at any desired point, a supplemental interior tube having the upper end fitted to receive and hold the saddle and the lower end provided with an air-forcing plunger whereby the reciprocation of this tube will compress air within the seat-post standard, a tubular connection curving around the crank-hanger bearing with a connecting-nipple, and a flexible tube adapted to connect said nipple with the inlet-valves of either of the wheel-tires.



2. The combination with the seat-post standard of a bicycle-frame, of a tubular standard slidable therein, a clamp by which it may be adjusted for height, said standard having longitudinally-disposed grooves or channels in the upper end, an interior tubular plunger-rod the lower end of which is adapted to compress air when reciprocated within the seat-post standard and connections from said standard whereby air may be delivered into either of the wheel-tires, the plunger having the approximately-horizontal seat-bar at its upper end, said bar being adapted to fit snugly in the channel at the upper end of the adjustable tubular portion whereby the saddle is held rigidly in place when the pump is not in operation.

3. The combination with the seat-post standard of a bicycle-frame of an interior tubular adjustable post with a clamp whereby it may be held in position, a hollow plunger-rod slidable within said adjustable post having the lower end adapted to compress air in the lower part of the seat-post standard and the upper end carrying the saddle-supporting bar with means for locking the whole together, and an opening in the side of the plunger-tube with a chamber wherein the flexible connecting-tube is stored when not in use.

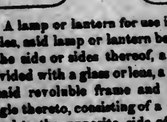
606,024. SOAP-HOLDER. MARTINO PERLMAN and FERDINAND BARNS, New York, N. Y. Filed Apr. 3, 1897. Serial No. 630,590. (No model.)



Claim.—1. The combination with a cake of soap, of a looped band embedded therein the material of the soap lying partially within the band to firmly anchor the latter, a tubular socket secured to the loop and having its outer end flush with the surface of the soap, whereby access to said socket may be had, lateral openings at the inner end of the socket, a spring-catch adapted to enter the socket, consisting of a strip of metal bent upon itself to form an eye, and a flexible connection in said eye, the ends of the strip being bent outwardly to engage the openings in the socket when passed into the latter.

2. The combination with a cake of soap of a looped band having transverse openings and embedded in the cake, the material of the soap entering the openings in the band and lying partially within the loop, a tubular socket lying in the plane of the loop secured to the loop and having its outer end flush with the surface of the soap, whereby access to said socket may be had, lateral openings at the inner end of the socket, a spring-catch entering the socket, consisting of a strip of metal bent upon itself to form an eye, and a permanent flexible connection in said eye, the ends of the strip being bent outwardly and engaging the openings in the socket.

606,025. WATER-FAUCET. JOEL C. PERRY, South River, N. J. Filed Jan. 26, 1898. Serial No. 668,027. (No model.)



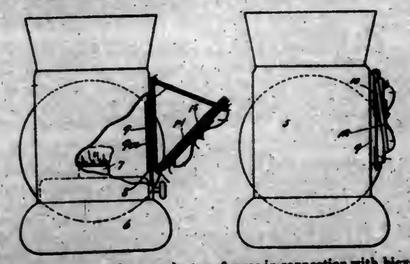
Claim.—A faucet consisting of a faucet-head having a tubular extension and segmental supporting-flange upon its front side, a drip-opening formed in the flange, a pivoted valve-plate having a suitable packing upon its inner side, and a removable segmental collar secured to the segmental flange, substantially as and for the purpose described.

606,026. ANTIREFILLING DEVICE. JOHN H. POOLE, Randolph, Mass., assignor of one-third to Fred S. Hiwell, Malden, Mass. Filed Jan. 10, 1898. Serial No. 666,167. (No model.)



Claim.—A non-refillable bottle having, first, a collar in the inner portion of its neck, said collar being formed internally to present a valve-seat, and a valve-guide above the seat and of greater diameter than the latter, the collar being reduced externally to form the inner wall of an annular pocket surrounding the valve-guide; secondly, a ball-valve formed to move in said guide and fit the valve-seat; thirdly, stops attached to the bottle-neck above the valve seat and guide; and fourthly, a loose spherical valve-guard adapted to play between said stops and the outer end of the valve-guide, said guard being of greater diameter than the valve-guide and adapted to deflect a wire inserted in the bottle-neck into said annular pocket, the guard being proportioned to permit a liquid releasing movement of the valve and to prevent the escape of the valve from the valve-guide.

606,027. REFLECTOR ATTACHMENT FOR LAMPS OR LANTERNS. WILLIAM PREWETT, Cheriton, England. Filed Oct. 28, 1897. Serial No. 656,180. (No model.)



Claim.—1. A lamp or lantern for use in connection with bicycles or similar vehicles, said lamp or lantern being provided with a circular opening in the side or sides thereof, a revoluble frame mounted therein and provided with a glass or lens, a reflector pivoted or hinged at one side of said revoluble frame and means for holding said reflector at an angle thereto, consisting of a supplemental frame or link pivoted or hinged to the opposite side of the revoluble frame, substantially as shown and described.

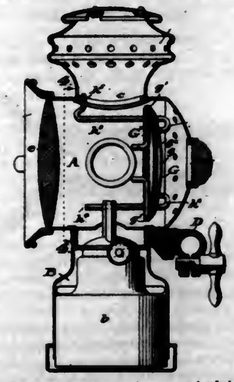
2. A lamp or lantern for use in connection with bicycles or similar vehicles, said lamp or lantern being provided with a circular opening in the side or sides thereof, a revoluble frame mounted therein and provided with a glass or lens, a reflector pivoted or hinged at one side of said revoluble frame and means for holding said reflector at an angle thereto, consisting of a supplemental frame or link piv-

oted or hinged to the opposite side of the revoluble frame, and a locking-plate pivotally connected with the reflector, substantially as shown and described.

3. A lamp or lantern for use in connection with bicycles and similar vehicles, said lamp or lantern being provided in the side thereof with a circular opening, a revoluble frame mounted therein, a glass or lens in said frame, a reflector-frame pivotally connected with or hinged to one side of said revoluble frame and means for holding said reflector-frame at an angle to said revoluble frame, substantially as shown and described.

4. A lamp or lantern for use in connection with bicycles and similar vehicles, said lamp or lantern being provided in the side thereof with a circular opening, a revoluble frame mounted therein, a glass or lens in said frame, a reflector-frame pivotally connected with or hinged to one side of said revoluble frame and means for holding said reflector-frame at an angle to said revoluble frame, and for locking the same thereover, substantially as shown and described.

606,028. LANTERN. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Filed Nov. 6, 1897. Serial No. 657,590. (No model.)



Claim.—1. In combination, a lamp, embodying a combustion chamber having an opening formed in its wall, a reflector, and a holder for said reflector which consists of wire spring arms at their inner ends connected with the reflector, and a locking projection formed as part of said reflector holder and adapted to engage in said opening in the wall of the combustion chamber, substantially as set forth.

2. In combination, a lamp, embodying a combustion chamber having an opening formed in its wall, a reflector, and a holder for said reflector which consists of wire spring arms at their inner ends connected with the reflector, and a locking projection formed as part of said reflector holder and as a continuation of two of said arms and adapted to engage in said opening in the wall of the combustion chamber, substantially as set forth.

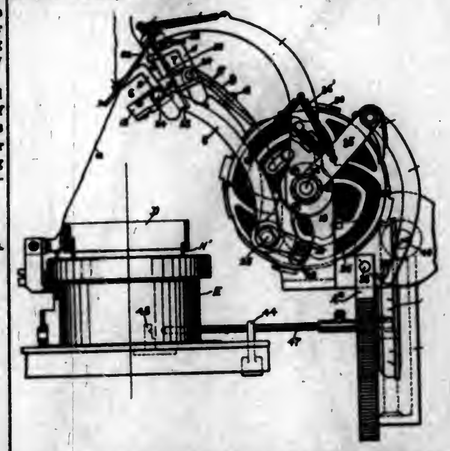
3. In combination, a lamp, a reflector, and a holder for said reflector which consists of a series of spring arms at their inner ends connected with the reflector, and as to their bodies extending away from it, and at its rear formed with return bends which are adapted to make contact with the rear wall of the combustion chamber, substantially as set forth.

4. In combination, a lantern or lamp, a reflector, and a holder for said reflector which consists of a series of wire arms disposed in substantial parallelism with the axis of the reflector, extending to the front and rear of said reflector, at the rear provided with return bends which are connected to the marginal portion of the reflector, and at the front diverging from each other, substantially as set forth.

5. In combination, a lantern or lamp, a reflector, and a holder for said reflector which consists of a series of wire arms disposed in substantial parallelism with the axis of the reflector, extending to the front and rear of said reflector, at the rear provided with return bends which are connected to the marginal portion of the reflector, and at the front diverging from each other, and the front or forward extremity of one of which is equipped with or formed into a locking projection adapted in the predetermined set of the parts to expand to place within a suitable recess in the body of the lantern, substantially as set forth.

606,029. THREAD-CHANGER FOR KNITTING-MACHINES. JAMES R. ROWE, Pawtucket, R. I., assignor to the R. Jenckes Manufacturing Company, same place. Filed Aug. 9, 1897. Serial No. 647,861. (No model.)

Claim.—1. In a knitting-machine, the combination with a traveling carrier for the needle-operating cams, of a plurality of thread-carriers mounted independent of said cam-carrier, and means for operating said carriers successively to carry the threads to the needles, substantially as described.



2. In a knitting-machine, the combination with a rotary carrier for the needle-operating cams, of a plurality of thread-carriers mounted independent of said cam-carrier, and means for operating said carriers successively to carry the threads to the needles, substantially as described.

3. In a knitting-machine, the combination with a rotary carrier for the needle-operating cams, of means independent of the cam-carrier for guiding a plurality of threads, a plurality of thread-carriers, and means for operating said carriers successively to carry the threads to the needles, substantially as described.

4. In a knitting-machine, the combination with a rotary cam-carrier, of means independent of the cam-carrier for guiding a plurality of threads, a thread-guide moving with said carrier, a plurality of thread-carriers, and means for operating said carriers successively to carry said threads to said guide and to the needles, substantially as described.

5. In a knitting machine, the combination with a rotary cam-carrier, means independent of said carrier for guiding a plurality of threads, a thread-guide moving with said carrier, a plurality of thread-carriers, and means for operating said carriers successively to carry said threads to said guides and to the needles, and means for severing the threads, substantially as described.

6. In a knitting-machine, the combination with a traveling cam-carrier, of means independent of said carrier for guiding a plurality of threads, a thread-guide moving with said carrier, a plurality of thread-carriers, and a series of cams for successively reciprocating said carriers to carry said threads to the needles, substantially as described.

7. In a knitting-machine, the combination with a traveling cam-carrier, of means independent of said carrier for guiding a plurality of threads, a thread-guide moving with said carrier, a plurality of pivoted thread-carriers, and means for successively rocking said carriers on their pivots to carry said threads to said guide and to the needles, substantially as described.

8. In a knitting-machine, the combination with a traveling cam-carrier, of means independent of said carrier for guiding a plurality of threads, a thread-guide moving with said carrier, a plurality of pivoted carriers, and a series of cams for successively rocking said carriers on their pivots to carry said threads to said guide and to the needles, substantially as described.

9. In a knitting machine, the combination of a plurality of thread-carriers, each comprising a thread-engaging device, and a thread-holder, and means for successively operating said carriers to carry threads to the needles, substantially as described.

10. In a knitting-machine, the combination of a plurality of thread-carriers each comprising a thread-guide and a thread-holder, and means for successively operating said carriers to carry threads to the needles, substantially as described.

11. In a knitting-machine, the combination of a plurality of pivoted thread-carriers each comprising a thread-guide and a thread-holder, and a plurality of cams for successively operating said carriers to carry threads to the needles, substantially as described.

12. In a knitting machine, the combination of a plurality of thread-carriers each embodying a gripper, a disk, means for intermittently operating said disk, means secured to said disk for reciprocating said carriers, and cams secured to said disk for operating the movable jaws of the grippers, substantially as described.

13. In a knitting-machine, the combination of a plurality of arms, a thread-engaging device and a thread-holder on each arm, and means for moving said arms successively to carry the engaging devices and holders upon opposite sides of the needles, substantially as described.

14. In a knitting-machine, the combination of two thread-carriers each embodying a gripper, means for operating the carrier for the non-knitting thread to carry said thread to the needles, and means for simultaneously carrying the knitting-thread between the jaws of its grippers, substantially as described.

15. In a knitting-machine, the combination of two thread-carriers each embodying a gripper, means for operating the carrier for the non-knitting thread to carry said thread to the needles, means for simultaneously carrying the knitting-thread between the jaws of its gripper, and means for severing the thread, substantially as described.

16. In a knitting-machine, the combination of two thread-carriers each embodying a thread-guide and a gripper, means for operating the thread-carrier for the non-knitting thread to carry said thread to the needles, and return said carrier to active position, means for simultaneously moving the carrier for the knitting-thread, out of active position, and carrying the thread between the jaws of its gripper, substantially as described.

17. In a knitting-machine, the combination of an arm, a thread-engaging device rigidly secured thereto, a holder rigidly secured to said arm, and means for moving said arm to carry said holder and thread-engaging device into position upon opposite sides of the needles, substantially as described.

18. In a knitting-machine, the combination of a pivoted arm, a thread engaging device rigidly secured to said arm, a thread-holder rigidly secured to said arm, and means for rocking said arm about its pivot to carry said holder and engaging device into position upon opposite sides of the needles, substantially as described.

19. In a knitting-machine, the combination of an arm, a thread-guide rigidly secured thereto, a holder rigidly secured to said arm, and means for moving said arm to carry said guide and holder into position upon opposite sides of the needles, substantially as described.

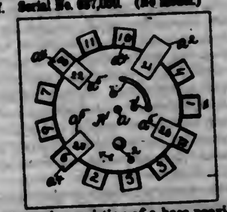
20. In a knitting-machine, the combination of a pivoted arm, a thread-engaging device secured to said arm, a gripper secured to said arm, a cam for rocking said arm, and a cam for operating the movable jaw of the gripper, substantially as described.

21. In a knitting-machine, the combination of a pivoted thread-carrier embodying a gripper, a disk, means for intermittently operating said disk, a cam secured to said disk for rocking said carrier, and a cam on said disk for operating the movable jaw of the gripper, substantially as described.

22. In a knitting-machine, the combination, of a thread-carrier embodying a gripper, an adjustable stop for adjusting the force of the grip upon the thread and means for moving the carrier to and from the needles substantially as described.

23. In a knitting-machine, the combination of a thread-carrier embodying a gripper, an adjustable stop for limiting the approach of the jaws of the gripper to each other and means for moving the carrier to and from the needles, substantially as described.

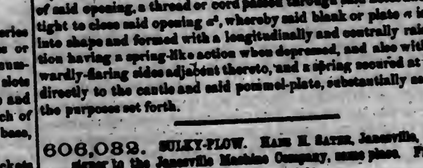
606,030. PUZZLE. SAMUEL C. ROWELL, Boston, Mass. Filed May 13, 1897. Serial No. 637,269. (No model.)



Claim.—1. A puzzle consisting of a base provided with a series of pockets or receptacles, a plurality of distinguishable pieces or parts adapted to fit into said receptacles or pockets said less in number than said pockets, and a carrier provided with a number of slots which is a divisor of the number of pockets less one in the base and having a limited movement in opposite directions to permit each of its slots to register with only a portion of the pockets in the base, substantially as described.

2. A puzzle consisting of a base provided with a series of pockets arranged in a circle, movable parts or pieces adapted to fit into said receptacles, and less in number than the same, a disk or circular carrier pivoted to move within the circle of pockets and provided with slots at its circumference of a number which is a divisor of the number of pockets less one in the base, and means to limit the movement of the said disk in opposite directions to permit each of the slots in said disk to register with only a portion of the pockets in the base, substantially as described.

606,031. BICYCLE-SADDLE. HENRY A. RUSCH, Newark, N. J., assignor of one-half to Nicholas Schrader, Brooklyn, N. Y.; Sarah E. Rusch administratrix of said Henry A. Rusch, deceased. Filed Sept. 22, 1896. Serial No. 606,636. (No model.)



Claim.—1. The improved saddle for a bicycle or the like, consisting, of a main body portion or plate *a* formed from a blank of resilient and flexible material, having the outline of a saddle-seat, supported at the rear by a cantle secured directly to the under surface of said plate and at the front by a pommel-plate, said plate *a* having a longitudinally-arranged opening of a segmental contour, a thread or cord stitched through the opposite edges of said opening, whereby said blank or plate *a* is drawn into shape and formed with a longitudinally-arranged and centrally-raised portion having a spring-like action when depressed, and also with downwardly-flaring sides adjacent thereto, a spring secured at its ends directly to said cantle and the pommel-plate, substantially as and for the purposes set forth.

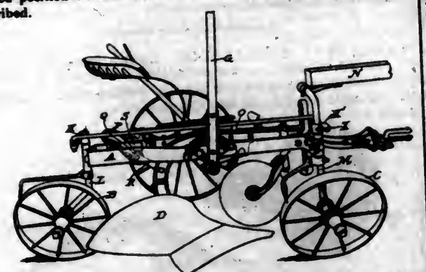
2. The improved saddle for a bicycle or the like, consisting, of a main body portion or plate *a* formed from a blank of resilient and flexible material, having the outline of a saddle-seat, supported at the rear by a cantle secured directly to the under surface of said plate and at the front by a pommel-plate, said plate *a* having a longitudinally-arranged opening of a segmental contour, a thread or cord stitched through the opposite edges of said opening, whereby said blank or plate *a* is drawn into shape and formed with a longitudinally-arranged and centrally-raised portion having a spring-like action when depressed, and also with downwardly-flaring sides adjacent thereto, a spring secured at its ends directly to said cantle and the pommel-plate, and a top cover *a'* secured upon the top of said resilient plate *a* to cover said central row of stitching, substantially as and for the purposes set forth.

3. The improved saddle for a bicycle or the like, consisting, of a main body portion or plate *a* formed from a blank of resilient and flexible material, having the outline of a saddle-seat, supported at the rear by a cantle secured directly to the under surface of said plate and at the front by a pommel-plate, said plate *a* having a longitudinally-arranged opening of a segmental contour, a thread or cord stitched through the opposite edges of said opening, whereby said blank or plate *a* is drawn into shape and formed with a longitudinally-arranged and centrally-raised portion having a spring-like action when depressed, and also with downwardly-flaring sides adjacent thereto, a spring secured at its ends directly to said cantle and the pommel-plate, and a top cover *a'* secured upon the top of said resilient plate *a*, to cover said central row of stitching, said cover *a'* having a depression a^2 to form a recessed portion or indentation, substantially as and for the purposes set forth.

4. The improved saddle for a bicycle or the like, consisting, of a main body portion or plate *a* formed from a blank of resilient and flexible material, having the outline of a saddle-seat, supported at the rear by a cantle secured directly to the under surface of said plate and at the front by a pommel-plate, said plate *a* having a longitudinally-arranged opening a^3 of a segmental contour, and having small holes a^4 contiguous to the opposite edges thereof, said holes being obliquely placed and having their inner ends terminating in the sides a^3 of said opening, a thread or cord passed through said holes and drawn tight to close said opening a^3, whereby said blank or plate *a* is drawn into shape and formed with a longitudinally and centrally raised portion having a spring-like action when depressed, and also with downwardly-flaring sides adjacent thereto, and a spring secured at its ends directly to the cantle and said pommel-plate, substantially as and for the purposes set forth.

606,032. SULKY-PLOW. HANS H. SAUER, Janesville, Wis., assignor to the Janesville Machine Company, same place. Filed July 24, 1897. Serial No. 645,256. (No model.)

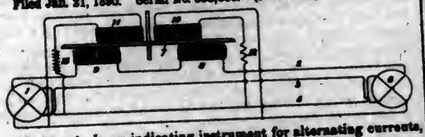
Claim.—1. In a sulky-plow, the combination with a main frame, of front and rear furrow-wheels mounted on standards provided with offset arms extending in opposite directions, a connecting-rod having its ends freely secured to, and movable lengthwise of, said arms, and springs adapted to hold the ends of said connecting-rod in the desired position on said offset arms, substantially as shown and described.



2. In a sulky-plow, the combination with a main frame, of front and rear furrow-wheels mounted on standards provided with offset slotted arms extending in opposite directions, and a connecting-rod having offset ends extending through said slots and engaging eye-bolts having springs mounted thereon, substantially as shown and described.

3. In a sulky-plow, the combination with a main frame, of a plow-beam mounted upon an arched axle having a lever connected therewith, an inclined yoke secured to said frame, a rearwardly-extending arm secured to said beam and provided with a roller or other projection, and an adjustable block adapted to be secured within said yoke so as to bear against said roller or projection and prevent the plow from rising, substantially as shown and described.

606,083. MEANS FOR COMPENSATING FOR TEMPERATURE-RESISTANCE CHANGES. CHARLES F. SCOTT, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Jan. 21, 1895. Serial No. 535,606. (No model.)



Claim.—1. In an indicating instrument for alternating currents, the combination with the rotatable closed-circuit armature of two actuating-circuits in inductive relation to said armature and containing non-inductive resistances, one of which has a greater value and a higher temperature-resistance coefficient than the other, substantially as described.

2. The combination with a movable armature, of shunt and series connected circuits in inductive relation thereto and non-inductive resistances of different values in the respective shunt-circuits and one of which has a different temperature-resistance coefficient from the other.

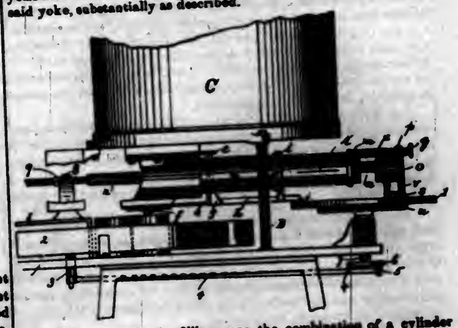
3. The combination with a movable armature, of series and shunt connected actuating-coils therefor and a non-inductive resistance in series with each of said shunt-connected coils one of which has a greater temperature-resistance coefficient than the other, substantially as described.

4. In an electrical indicating or measuring instrument, a movable armature, series-connected coils upon one side of said armature, and shunt-connected coils upon the other side thereof, a resistance having a relatively small temperature-resistance coefficient in series with one of the shunt-coils and a greater resistance having a relatively large temperature-resistance coefficient in series with the other shunt-coil, substantially as described.

606,084. CAN-FILLING MACHINE. FRANK W. SMITH, Portland, Me., assignor of one-half to Frederick O. Conant, same place. Filed Mar. 22, 1897. Serial No. 628,636. (No model.)

Claim.—1. In a machine for filling cans, the combination of a horizontal cylinder having openings upon the upper and lower sides, valves adapted to open and close said openings, both said valves being rigidly connected to a rod or arm operated by a path-cam, a filling-nozzle beneath said lower opening, a plunger within said cylinder, said plunger having a link with a yoke adapted to receive a roller fixed upon the surface of said cam, substantially as described.

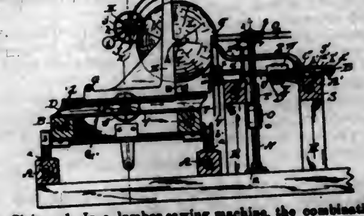
2. In a machine for filling cans, the combination of a cylinder having openings upon the adjacent or opposite sides, valves to open and close said openings, a filling-nozzle registering with one of said openings, a yoke connecting said valves and terminating in an arm provided with a pin, a path-cam adapted to receive said pin, a plunger within said cylinder, said plunger having a link provided with a yoke and a roller upon the surface of said cam adapted to play within said yoke, substantially as described.



3. In a machine for filling cans, the combination of a cylinder having openings upon the adjacent or opposite sides, valves to open and close said openings, a filling-nozzle registering with one of said openings, a yoke connecting said valves and terminating in an arm provided with a pin, a path-cam adapted to receive said pin, a plunger within said cylinder, said plunger having a link provided with a yoke and a roller upon the surface of said cam adapted to play within said yoke and a rod fixed to said plunger and having a threaded end passing through an aperture in an ear fixed to said link, substantially as described.

4. In a machine for filling cans, the combination of the cylinder *a* having the port *b* with the valve *c* and the port *d* and nozzle *f* with the valve *e*, the latter being provided with the opening *b'*, the arm *h* connecting said valves and having the pin *i*, the plunger *k* within said cylinder with link *o*, yoke *p*, and cam *l* with path *y* and rollers *s'*, substantially as described.

606,085. SAWING-MACHINE. DAVID S. STEWART, Clintonville, Wis., assignor of one-half to the G. W. Jones Lumber Company, same place. Filed Aug. 4, 1897. Serial No. 647,004. (No model.)

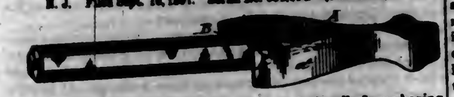


Claim.—1. In a lumber-sawing machine, the combination of a revolvable vertical arbor carrying a pair of horizontally-arranged saws, a revolvable horizontal arbor carrying a pair of vertically-arranged saws, means for varying the distance between the saws of each pair, a log-carriage adapted to reciprocate past said saws, means for moving said carriage laterally toward or from said saws, a frame pivotally secured to the saw-supporting frame and having upwardly-extending side pieces with a front straight-edged bar forming a gage, and means for adjusting the vertical and lateral projection of said gage to correspond to the distance between the saws of each pair, substantially as set forth.

2. In a lumber-sawing machine, the combination with the vertical end pieces of the log-carriage of centering-screws passing through said ends to revolubly support the log, an arm on said carriage carrying a revolvable shaft, a log-turning wheel, ratchet-wheel and hand-wheel on said shaft, and a dog or pawl on said arm for engagement with said ratchet-wheel to lock said shaft against rotation when desired, substantially as set forth.

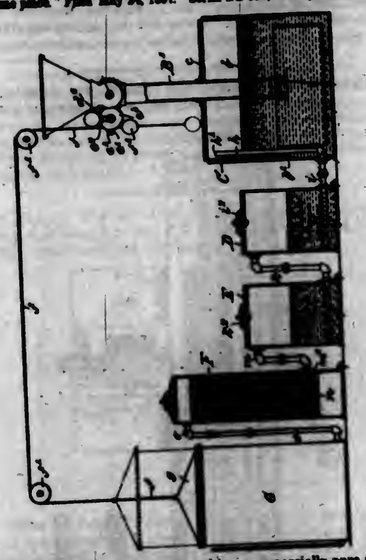
3. In a lumber-sawing machine, the combination with a suitable frame of a revolvable vertical arbor carrying a pair of horizontally-arranged saws, a revolvable horizontal arbor carrying a pair of vertically-arranged saws, means for varying the distance between the saws of each pair, a frame pivotally secured to the saw-supporting frame and having upwardly-curved side pieces with a front straight-edged bar forming a gage, and means for adjusting the vertical and lateral projection of said gage to correspond to the distance between the saws of each pair, substantially as set forth.

606,086. PENCIL-SHARPENER. LOUIS STOECKEL, Jersey City, N. J. Filed Sept. 16, 1897. Serial No. 651,994. (No model.)



Claim.—A pencil-sharpener, consisting of a handle-frame having an enlarged handle portion and spring-arms diverging therefrom, a cutting-blade sprung in between said spring-arms and having its ends seated in sockets at the outer ends of said arms and its cutting edge toward the handle portion, and a gage for regulating the length of the cut, said gage being formed by said spring-arms between the blade and handle portion, substantially as set forth.

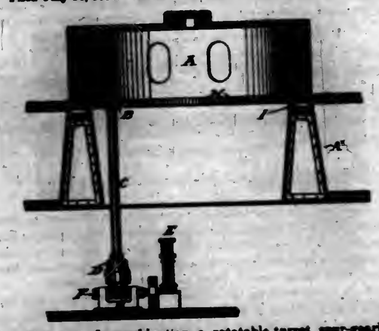
606,087. APPARATUS FOR GENERATING ACETYLENE GAS. HENRY H. SUPPLEE, Philadelphia, Pa., assignor to Cornelius H. Baird, same place. Filed May 24, 1897. Serial No. 637,269. (No model.)



Claim.—1. An apparatus for making commercially-pure acetylene gas, comprising a generating-chamber provided with a feed-hopper having a discharge-chute, a feeding device, consisting of a wheel mounted on a shaft journaled to said chute and provided with paddles, the spaces between two being sufficient to contain a predetermined quantity of carbid delivered thereto from said hopper, a gage-wheel mounted on said paddle-wheel shaft and gearing at intervals with a pinion having teeth on half of the periphery of the same and mounted on a shaft carrying a tumble-bob lever, a ratchet-wheel mounted on said pinion-shaft, an arm carrying a pawl adapted to engage with said ratchet-wheel, means for actuating said feeding device, purifying and drying appliances a gasometer, a pipe connection from said generating-chamber with said purifying and drying appliances and gasometer, the extensions of the pipe connection in said purifying and drying appliances perforated so that in each, the gas is conducted into and through matter in liquid and crystallized form and moisture or liquid is drained off from said drying appliances from the bottom of the same, substantially as and for the purposes described.

2. An apparatus for making commercially-pure acetylene gas, comprising a generating-chamber provided with a feed-hopper having a discharge-chute, feeding device, consisting of a wheel mounted on a shaft journaled to said chute and provided with paddles, the spaces between two of the same being sufficient to contain a predetermined quantity of carbid delivered thereto from said hopper, a gear-wheel mounted on said paddle-wheel shaft and gearing with a pinion mounted on a shaft carrying a tumble-bob lever, a ratchet-wheel mounted on said pinion-shaft, an arm carrying a pawl adapted to mesh with said ratchet-wheel, a piston adapted to slide in a cylinder in communication with said generating-chamber, the rod of said piston provided with a rack meshing with a gear-wheel mounted on said pinion-shaft, purifying and drying appliances, a gasometer, a pipe connection from said generating-chamber with said purifying and drying appliances and gasometer, the extensions of the pipe connections in said purifying and drying appliances perforated so that in each, the gas is conducted into and through matter in liquid and crystallized form and moisture or liquid is drained off from said drying appliance from the bottom of the same, substantially as and for the purposes described.

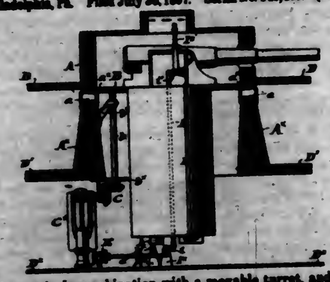
606,088. GUN-TURRET. NATHAN P. TOWNE, Philadelphia, Pa. Filed July 30, 1897. Serial No. 646,469. (No model.)



Claim.—1. In combination, a rotatable turret, spur-gearing for rotating said turret, a motor, a connective gearing between said motor and said turret, and a yielding connection applied to said connective gearing intermediate of said turret and motor which protects both the motor and the connective gearing from injury arising from the abnormal rotation of the turret, substantially as set forth.

2. In combination, a rotatable turret, spur-gearing for rotating said turret, a motor, a connective gearing between said motor and said turret, a yielding connection applied to said connective gearing intermediate of said turret and motor which protects both the motor and the connective gearing from injury arising from the abnormal rotation of the turret, and a locking device applied to said yielding connection for at will positively locking it out of action, substantially as set forth.

606,089. TURRET-DRIVING MECHANISM. NATHAN P. TOWNE, Philadelphia, Pa. Filed July 30, 1897. Serial No. 646,470. (No model.)



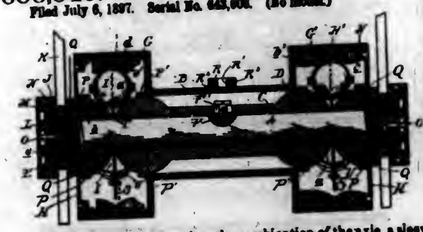
Claim.—1. In combination with a movable turret, and a motor and motor controlling devices carried by said turret, stationary devices arranged to trip or throw said controlling devices at predetermined points in the travel of the turret substantially as set forth.

2. In combination with a turret, a motor carried by said turret, a controlling mechanism for said motor also carried by said turret, and a tripping device for said controlling mechanism which consists of two parts one of which is mounted upon and carried by the turret and the other of which is stationary and exterior to the turret, and one of which also is formed as a cam pivotally connected at one end to its support, and as to its body is provided with devices by which it may be set to various positions of adjustment, substantially as set forth.

3. In combination with a turret, a motor, a controlling device for said motor, and a trip consisting of two parts one of which is stationary and formed as a cam pivotally connected at one end to its support, and as to its body provided with devices by which its set may be adjusted, and the other of which travels with the turret and the contact of which two parts trips the controlling device and reverses the motor, substantially as set forth.

4. In combination, a rotatable turret, a motor mounted upon and carried by said turret, a motor-controlling device mounted upon and carried by said turret, a cam supported in the vicinity of said turret, and a train of devices connected with said controller and terminating in a rock arm which depends in such position as to encounter the cam in the travel of the turret, substantially as set forth.

606,040. BALL-BEARING. EDWARD L. TRUBA, Detroit, Mich. Filed July 6, 1897. Serial No. 643,608. (No model.)



Claim.—1. In a ball-bearing, the combination of the axle, a sleeve thereon having at opposite ends oppositely-inclined ends or heads, complementary cones for each end adjustably secured in relation thereto, the sleeve being secured against rotation, but free to have a limited endwise movement, outer ball-races and the balls.

2. In a ball-bearing, the combination with the axle and its inclosing casing or hub, of inner ball-races formed by an endwise-movable sleeve such as C having opposite inclines at the ends, cones adjustable to and from these inclines on the sleeve, rings in the hub or casing opposite the inclines and cones and each having a groove to form an outer double oppositely-inclined bearing-face for the balls, one of these rings having an endwise movement, and the balls between the bearing-faces having four points of contact therewith, substantially as described.

3. In a ball-bearing, the combination with the casing or hub, and ball-races and balls therein, of washers such as Q carried by and moving with the shaft, the dust-rings H secured to the casing or hub and having their inner faces in close proximity to the washers Q, substantially as described.

4. In a ball-bearing, the combination with the shaft and the casing or hub, of the ways, the balls therein, the dust-rings H adapted to close the spaces between the casing and the shaft and having the inwardly-extending flanges P, and the washers Q on the inner members of the ways with which said flanges are in close proximity, substantially as described.

5. In a ball-bearing, the combination with the shaft and the casing or hub, of the sleeve C on the shaft having the end bearing-surfaces, the cones E secured to the ends of the shaft and having exterior grooves, the washers Q in these grooves the dust-rings H secured to the casing or hub and having the flanges P approximately contacting the washers, the balls, and outer bearing-surfaces for the balls, substantially as described.

6. In a ball-bearing, the combination of the axle having an inner bearing-surface for the balls, the casing or hub having an outer bearing-surface therefor, balls between said surfaces, the dust-rings H each having the inwardly-projecting flange P, and the flanges P on the hub or casing B opposite the flanges P for the purpose described.

7. The combination with a vehicle-frame, of a ball-bearing comprising a shaft, the balls, their ways including the outer cones E, each having an outwardly-extending end embraced by the frame, and clamping-nuts J screw-threaded onto the outer ends of the cones securing the bearing to the frame of the vehicle and locking the cones in position, substantially as described.

8. In a ball-bearing, the combination with the shaft, the hub, the balls, and their ways including the outer cones E projecting beyond the ends of the shaft and interiorly screw-threaded, of the nuts L engaging in these interior screw-threads and packing material adapted to be compressed by said nuts, substantially as and for the purpose described.

9. In a ball-bearing, the combination with the shaft, the way including outer cones interiorly screw-threaded, the balls, the centrally-apertured nuts L engaging such interior screw-threads and contacting the ends of the shaft, the dust-caps M having overhanging flanges, and the screws O engaging the screw-threads in the ends of the shaft and passing through the apertures in the nuts L, substantially as described.

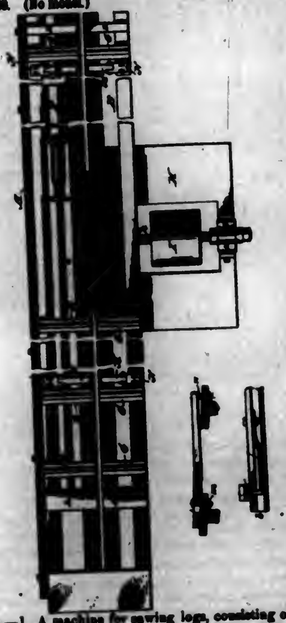
10. In a ball-bearing, the combination, with the shaft, the hub, the balls, the ways including interiorly-screw-threaded end cones being adjustable on the shaft and projecting beyond the ends of the same, of the nuts L engaging with the screw-threads and contacting the ends of the shaft and having their inner faces beveled, and packing-rings compressed by such beveled faces against the cones and the ends of the shaft, substantially as described.

11. In a ball-bearing, the combination with the shaft, the hub or casing the balls, and their ball-races, of a spacing-disk having open-sided recesses or notches for the balls, arms or yokes carried by the disk adapted to have side contact with the balls and overhanging bearing portions such as U' on the disk whereby the disk acts as a ball-retainer, substantially as described.

12. In a ball-bearing, the combination with the shaft, the hub or casing, the ball-races and the balls therein, of a spacing-disk recessed to receive the balls and being supported on the shaft or inner bearing-surface, yokes on the disk having side contact with the balls and the convex projections V in the recesses of the disk for the purpose described.

13. In a ball-bearing, the combination of the hub or casing, the shaft, the endwise movable sleeve C having a slot therein, the screw F engaging said slot in the sleeve to permit the endwise movement but to prevent rotation, the hub or casing having an aperture opposite said slot, the bushing in the aperture interiorly screw-threaded, the cap R fitting in the bushing and the packing-ring R^3 fitting in a groove in the under side of the cap, substantially as described.

606,041. MACHINE FOR SAWING LOGS. JAMES ALLEN, Wilmington, and MILTON L. JOHNS, Troy, N. C. Filed Feb. 10, 1898. Serial No. 669,868. (No model.)



Claim.—1. A machine for sawing logs, consisting of two longitudinal and parallel tables connected so that they will move together upon a suitable track one upon each side of the saw, each table near its inner edge having a series of gages normally presenting a rigid gaging-surface toward the plane of the saw but mounted so as to yield downward under the weight of the log, substantially as and for the purpose set forth.

2. A machine for sawing logs, consisting of two longitudinal and parallel tables connected so that they will move together upon a suitable track, each table near its inner edge having a series of adjustable and automatically-operating or spring-actuated gages arranged opposite each other, and a circular saw located between the tables, substantially as and for the purpose described.

3. In a machine for sawing logs, a suitable traveling table upon which the log is supported, and a series of gages to regulate the thickness of the sawed lumber, consisting of a carrier adjustable toward and from the plane of the saw, a gage-arm pivotally connected thereto, and a suitable spring supporting the free end of the arm and adapted to operate substantially as and for the purpose specified.

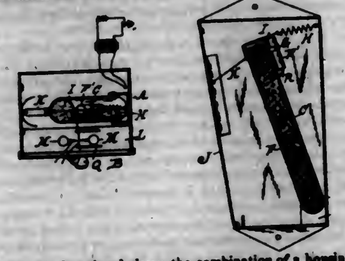
4. A machine for sawing logs, consisting of two longitudinal and parallel tables connected together at one end only so that they will move as one table and allow the same to run past the saw, adjustable and automatically-acting gages connected to the tables near their inner edges and located opposite each other, V-shaped guide-rails and flat bearing-supporting rails connected to the under side of the tables near their inner and outer edges respectively, and grooved guide-rollers and smooth-faced supporting-rollers with which the rails engage, and a circular saw located between the tables, substantially as and for the purpose set forth.

606,042. DIPHTHERIA ANTITOXIN AND PROCESS OF MAKING SAME. EMIL BEHRING, Halle-on-the-Saale, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed Jan. 11, 1890. Serial No. 336,577. (No specimens.)

Claim.—1. The process herein described of producing diphtheria antitoxin, which consists in inoculating horses or other animals capable of being infected with diphtheria with repeated doses of diphtheria poison or living diphtheria bacilli of gradually-increasing quantity and strength, so as to immunize them and form in the blood a counter poison for destroying the poison secreted by said bacilli, drawing off the blood from said animals, separating the serum from the blood-corpuscles, and concentrating the former for use, substantially as set forth.

2. As a new substance, diphtheria antitoxin, consisting of the concentrated serum of the blood of animals treated with diphtheria poison and having the characteristic of immunizing test animals against infection with diphtheria, and curing them when artificially infected with diphtheria, said serum containing a counter poison having the property of destroying the poison secreted by the diphtheria bacilli, substantially as set forth.

606,043. SIGNAL-ALARM. FREDERICK BOSSERT, Detroit, Mich., assignor of one-half to John B. F. Uthes, same place. Filed Dec. 6, 1897. Serial No. 660,944. (No model.)



Claim.—1. In a signal-alarm, the combination of a housing, having an opening in one side, a torch hinged within the housing free to fall in the direction of said opening, a combustible connection securing the torch against falling and adapted to be destroyed by the burning of the torch, and means for lighting the torch.

2. In a signal-alarm, the combination of a housing having an opening in one side, a torch hinged within the housing free to fall in the direction of said opening and project out through the same, a door normally closing said opening and adapted to be opened by the falling of the torch, means securing the torch against falling and adapted to release the same by the burning of the torch and means for lighting the torch.

3. In a signal-alarm, the combination of a housing having an opening formed in one side, a torch hinged within the housing free to fall in the direction of said opening and project out through the same, a torpedo secured to and carried by the torch and adapted to be exploded by the burning of the torch, means securing the torch in inclined position and adapted to release the same by the burning of the torch, a fuse for lighting the torch and means for lighting the fuse operated by the closing of an electric circuit.

4. In a signal-alarm, the combination of a housing, a torch inclosed therein and hinge connected at its lower end, means securing the torch in inclined position within the housing and adapted to release the torch when burning, an opening in the housing through which the torch is adapted to project, a door normally closing said opening and adapted to be opened by the falling of the torch from its inclined position, a fuse for lighting the torch and electrically-operating means for lighting the fuse.

5. In a signal-alarm, the combination of a housing having an opening in one side, a torch comprising an outer metallic tube hinged at its lower end in the housing and adapted to receive a charge of colored fire and a fuse leading into said charge, a door normally closing the opening in the side of the housing and connected to the torch, a torpedo carried by the torch and adapted to be exploded by the burning of the torch, a combustible connection for holding the torch in an inclined position, electrodes and means for producing a spark between the electrodes, the arrangement being such that the spark lights the fuse, the fuse lights the torch, the torch burns the connection holding it in position and allows the torch to fall open the door and show the light outside the housing and fire also the torpedo.

6. In a signal-alarm, the combination of a housing having an opening in one side, a torch movably secured within the housing, and provided with means, operating automatically, for projecting it out through the opening in the housing, a string or like connection of combustible material for holding the torch in its retracted position within the housing and adapted to be severed by the burning of the torch and thereby release the same and means for lighting the torch.

606,044. MECHANICAL MOVEMENT. HENRY F. BRAMER, Davenport, Iowa. Filed Dec. 31, 1897. Serial No. 665,087. (No model.)



Claim.—1. In a mechanical movement, a continuously-revolving shaft and a pinion upon its inner end, combined with a vertical shaft having a rotary movement, and which shaft is made angular at its upper end, a casting loose upon the shaft and provided with teeth of unequal size upon both of its ends, and which casting is adapted to have a rising-and-falling movement upon the shaft; the two toothed wheels of the casting being adapted to alternately come in contact with the pinion, and thus reverse the movement of the shaft, substantially as shown.

2. In a mechanical movement, a continuously-rotating shaft provided with a pinion upon its inner end; the shaft G and the casting N loose upon and adapted to have a rising-and-falling movement upon the shaft, but revolving therewith; each end of the casting being provided with wheels which face toward each other, and having the teeth P Q of greater height than the other teeth, substantially as described.

3. The continuously-rotating shaft D, provided with the pinion F, the vertical shaft G, the casting N placed loosely thereon and adapted to have a rising and-falling movement upon the shaft but turning therewith, each end of the casting being provided with wheels which are set facing each other, the teeth being of unequal size; and the flange upon the lower end of the casting; and the supports U, V, upon the frame, substantially as set forth.

606,045. WORK-SUPPORT FOR NAILING-MACHINES. LOUIS A. CASGRAIN, Winchester, Mass., assignor to James W. Brooks, Peterboro, and Frank P. Stanley, Swampscott, Mass., trustees. Filed Aug. 4, 1896. Serial No. 601,576. (No model.)



Claim.—1. In an apparatus of the class described, a spindle, an upturned work-support pivotally mounted thereon, to swing in a vertical plane, and a retaining device at the lower end of and to automatically hold the work-support in operative or inoperative position until released by positive movement of said work-support, substantially as described.

2. In an apparatus of the class described, a spindle a work-support mounted thereon to rock in a vertical plane, and a yielding connection between said spindle and work-support, whereby the latter

may give laterally relatively to the spindle when subjected to positive force, to thereby provide at all times a support for the work, the plane of movement of said support being in line with the path of movement of the device for inserting the fastenings into the work, substantially as described.

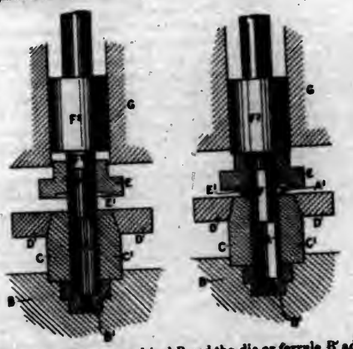
3. In an apparatus of the class described, a spindle, a work-support pivotally mounted thereon to swing in a vertical plane, a spring-controlled plunger carried by and longitudinally movable in the lower end of said support, and a stationary, cooperating member, engagement therewith by the plunger maintaining the work-support in operative or inoperative position, until released by positive movement of the work-support to overcome the force of the spring, substantially as described.

4. A spindle, a hub thereon having laterally-extended bearings, a work-support mounted to be rocked on said bearings, a shouldered abutment on the hub, and a cooperating spring-controlled plunger carried by the work-support and having its outer end shouldered, to retain the work-support in operative or inoperative position, substantially as described.

5. In an apparatus of the class described, a spindle, a work-support bent in the direction of its length and pivotally mounted thereon, a fixed, shouldered abutment extended laterally from the spindle, and a yielding plunger carried by the work-support, having a shouldered end to cooperate with the shoulder of said abutment when the work-support is in inoperative position, and to bear with substantially vertical yielding pressure upon the abutment at one side of the spindle when the work-support is in operative position, substantially as described.

606,046. MEANS FOR MANUFACTURING WHEEL-HUBS.

RUDOLF CHILLINGWORTH, Nuremberg, Germany, assignor to the Standard Weldless Tube and Cycle Components, Limited, London, England. Filed May 27, 1897. Serial No. 638,268. (No model.) Patented in England Dec. 15, 1896, No. 28,696.

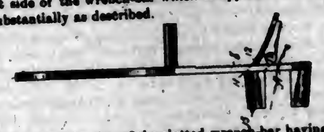


Claim.—1. The recessed bed B and the die or ferrule B' adapted to receive the end of the tube that is to be flanged, the two-part casing C C' received at its lower end into a recess in the bed, the ring D having a tapering opening and fitting the upper part of the two-part casing, the plunger having a portion F' corresponding to the exterior of the tube and a portion F fitting the interior of the tube, and the ring-die E surrounding the upper end of the tube and the plunger and having an annular recess E' in its under surface into which the tube is expanded in a folded condition to form a flange, substantially as set forth.

2. The bed B and the die B' received into a recess in the bed, in combination with the two-part casing C^2 C^4 passing at its lower end into a recess in the bed B and of a length adapted to set between the two flanges of the tubular hub, the ring D having a tapering opening and holding the upper ends of the two-part casing C^3 C^4 together, a plunger having a portion F' corresponding to the exterior diameter of the tube to be acted upon, and the portion F to pass into such tube, and the ring-die E having an annular recess in its under surface adapted to the formation of a second flange upon the tubular hub, substantially as set forth.

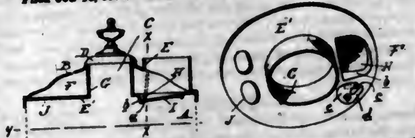
606,047. AXLE-NUT WRENCH. EDWARD P. CONWAY, Southington, Conn. Filed Sept. 4, 1897. Serial No. 650,562. (No model.)

Claim.—1. The combination of the slotted wrench-bar having the fixed jaw on one side thereof and the toothed face on the opposite side of said wrench-bar, with the movable jaw having the offset shank 12 extending through the slot in the wrench-bar, the cross-arm 13 extending from said shank inside of the inner face of said jaw and having an edge for engaging the teeth of the bar, said shank having also a projecting handle portion, the said cross-arm and handle being on that side of the wrench-bar which is opposite the said movable jaw, substantially as described.



2. The combination of the slotted wrench-bar having a toothed face and the fixed jaw with a V-shaped inner face, the movable jaw having a like V-shaped inner face and the offset shank extending through the slot in the wrench-bar, the cross-arm 13 having a thin edge for engaging the teeth of the wrench-bar, and a spring set in the apex of the inner face of one of the jaws and acting in connection with the nut held in the wrench to hold the edge of the cross-bar in engagement with the teeth of the wrench-bar, substantially as described.

606,048. HEATING-STOVE. THOMAS H. CONWAY, Detroit, Mich. Filed Oct. 11, 1897. Serial No. 654,907. (No model.)



Claim.—1. The combination with a heating-stove wherein the body forms the combustion-chamber and which is provided with a top and a stovepipe connection at or near the top, of a plate conformable to the horizontal section of the body and located therein below the stove-top and stovepipe connection and dividing the stove into a lower combustion-chamber and upper smoke-flue communicating directly with each other by means of two apertures in said plate, one of said apertures being in direct-draft relation with the stovepipe connection, a partition in said smoke-flue arranged to cause an indirect passage therein to the stovepipe connection from the other aperture, and a damper for the direct-draft aperture.

2. The combination with a heating-stove wherein the body forms the combustion-chamber and which is provided with a top having a boiler-hole centrally therein and a stovepipe connection, of a plate conformable to the horizontal section of the stove-body and located therein below the stove-top and dividing the stove into a lower combustion-chamber and an upper smoke-flue communicating with each other directly by means of two apertures in said plate, a circular flange or partition surrounding a central opening in said plate and extending to the stove-top and registering with the boiler-hole therein and forming an annular passage in the smoke-flue, one of said apertures in the plate being in direct-draft relation with the stovepipe connection, and the other of said apertures being in indirect-draft relation with said stovepipe connection, and a damper for the direct-draft aperture.

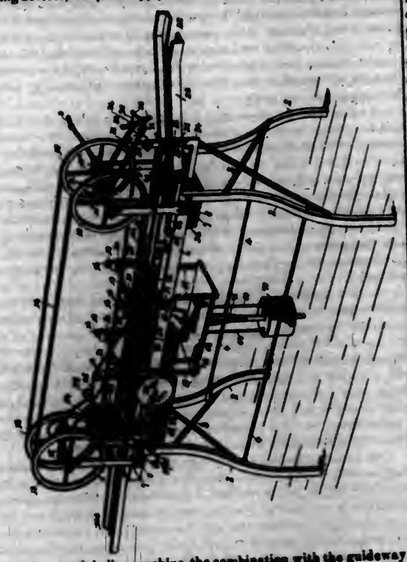
3. The combination with a heating-stove having a top provided with a central boiler-hole, and a stovepipe connection, of a baffle-plate E' located within said stove below the top thereof and dividing an upwardly-extending circular partition above said plate forming an annular passage, said baffle-plate having an aperture J on one side of said partition and an aperture H on the other side of said partition below the stovepipe connection, and a damper for the aperture H.

4. The combination with a stove of a baffle-plate therein having an aperture, a damper for said aperture, a crank *c* secured to said damper, a plate pivotally secured to said baffle-plate and provided with a slot in which said crank loosely engages, and an operating-handle for said slotted plate detachably engaging the same and extending without the stove, substantially as described.

606,049. CAN-LABELING MACHINE. WILLIS J. CONKRAN, Hambleton, Md. Filed May 20, 1897. Serial No. 636,709. (No model.)

Claim.—1. In a can-labeling machine, the combination with a guideway along which the cans move, of vertically-adjustable belt-pulleys supported to revolve at each end of the guideway, spaced upwardly-bowed springs in the guideway below the pulleys at the receiving end of the machine to form a yielding support for the ends of the can at its entrance below the belt-pulleys, a cement-receptacle supported below said springs, devices to apply cement to the can between the springs as the can rolls over them, an upwardly bowed, spring-supported smoothing-pad below the pulleys at the delivery

end of the machine, vertically-adjustable and spring-controlled idle-pulleys intermediate the belt-pulleys, endless belts traveling around said belt-pulleys and under the idle-pulleys, label supporting and guiding devices, and paste-applying devices, substantially as described.



2. In a can-labeling machine, the combination with the guideway, label-supporting devices and the endless propelling-belts, of a cement-receptacle supported below the guideway at the receiving end of the machine, a pair of horizontal rods journaled in the sides of the receptacle, an arm connected to one of said rods and extending above the guideway in the path of the moving cans, a cement-applying bar connected to the other horizontal rod within the receptacle, a spring to normally hold the bar in the cement, and gearing connecting the two horizontal rods to elevate the cement-applying bar into contact with the can when the said arm is depressed by the same can, substantially as described.

3. In a can-labeling machine, the combination with the guideway, the label-supporting devices and the endless propelling-belts, of a cement-receptacle supported below the guideway at the receiving end of the machine, a shaft journaled in the receptacle transversely of the machine, a segmental gear on one end of the shaft, an arm rigidly secured to said shaft and extending above the guideway in the path of the moving cans, a second shaft also journaled in the receptacle parallel to the first shaft, a pinion on the second shaft meshing with the said segmental gear, spaced arms rigidly secured to the second shaft and extending parallel with the said arm on opposite sides thereof, a cement-applying bar connecting the forward ends of said spaced arms, and a spring to normally hold said cement applying bar depressed, substantially as described.

4. In a can-labeling machine, the combination with a paste-applying roller, of a label-supporting plate, a vertical bar to the upper end of which the plate is pivoted, an adjustable link connected to said bar and plate to hold the plate in an inclined position, the depressed end of said plate projecting below the paste-roller, and guide-plates on each side of said supporting-plate to engage the side edges of the labels, each of said guide-plates having an inwardly-projecting flange at its upper edge the inner face of which inclines downwardly and outwardly, and a weight to elevate said bar, the construction being such that the labels will be held against upward movement at one end by the paste-roller and at their other ends by the inclined faces of said flanges, substantially as described.

5. In a can-labeling machine, a label-supporting plate, a bar pivoted at its upper end to said plate and supported in suitable guides to have vertical movement, a link pivoted at its upper end to said plate and adjustably connected at its lower end to the said bar whereby the inclination of the plate may be varied, pulleys connected to a fixed support, a weight, and a rope running over said pulleys and connected to the weight and bar, substantially as described.

6. In a can-labeling machine, a label supporting and guiding mechanism consisting of a vertically-movable plate on which the labels are supported, and side plates each having a flange at its upper end projecting on each side thereof, said flanges being rabbeted at their inner edge to form a guideway for the cans and the outwardly-projecting parts being adapted to rest on the frame of the machine, means to adjustably secure the said flanges to the frame, and the inwardly-projecting parts of said flanges having their inner edges inclined downwardly and outwardly, substantially as and for the purpose described.

7. In a can-labeling machine, the combination of a revoluble pasting-roller beneath which the forward ends of the labels are supported, a paste-receptacle, a rock-shaft, a paste-applying roll connected to said rock-shaft within the said receptacle and adapted to engage the pasting-roller, and suitable means to rock the shaft to apply paste to the pasting-roller at each quarter-revolution of the latter, substantially as described.

8. In a can-labeling machine, the combination of a revoluble pasting-roller beneath which the forward ends of the labels are supported, a paste-receptacle, a shaft journaled in the frame of the machine, a crank on one end of the shaft, a gear-wheel on one end of the pasting-roller shaft, a pinion journaled on a stub-shaft and meshing with said gear, the teeth on the gear being four times as many as those on the pinion, a crank on the pinion, a link connecting the said cranks, arms extending from said shaft into the paste-receptacle, a paste-applying roll carried by said arms and adapted to engage the pasting-roller, and means to revolve the pasting-roller, substantially as described.

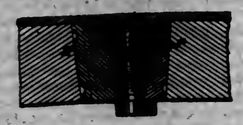
9. In a can-labeling machine, the combination of a vertically-movable inclined plate on which the labels are supported, a revoluble pasting-roller beneath which the labels project at one end, said roller having an annular groove near each end, and vertical bars supported at their lower ends by the machine frame and fitting in said grooves at their upper ends, the said upper ends being bent over and pointed to engage the ends of the labels, substantially as and for the purpose specified.

10. In a can-labeling machine, the combination with can propelling belts, label supporting and guiding devices, and a pasting mechanism, of a brush mounted to revolve in advance of the pasting mechanism in an opposite direction to the movement of the can, and adapted to engage the pasted edge of the label, a smoothing-pad in advance of the said brush, and an upwardly-bowed spring to which said pad is removably attached, substantially as described.

11. In a can-labeling machine, the combination of shafts journaled in vertical standards at each end of the machine, a pair of belt-pulleys on each shaft, means to adjust the said pulleys longitudinally of their shafts, can-propelling belts traveling over said pulleys, a smoothing-pad below the belt pulley at the delivery end of the machine, means to positively rotate one of said shafts, a revolving can-separator at the receiving end of the machine, a revolving brush near the delivery end of the machine, and a revolving paste-roller intermediate said separator and brush, and belt-and-pulley connections between said shafts and the can-separator, pasting-roller, and the brush, to transmit movement from the former to the latter, substantially as described.

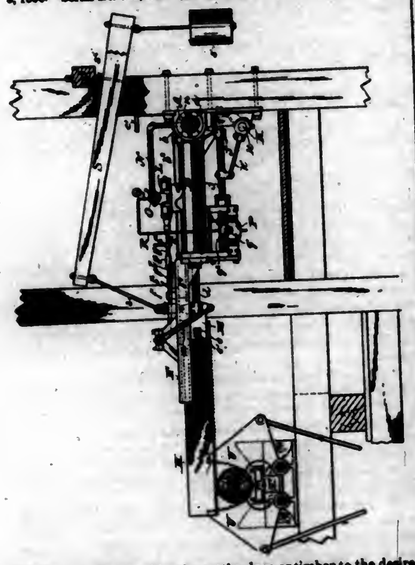
12. In a can-labeling machine, the combination with the guideway, the label-supporting devices and the endless propelling-belts, of a cement-receptacle supported below the guideway at the receiving end of the machine, means to adjust the receptacle longitudinally of the guideway toward or away from the label-supporting devices, a pair of horizontal rods journaled in the sides of the receptacle, an arm connected to one of said rods and extending above the guideway in the path of the moving cans, a cement-applying bar within the receptacle connected to the other horizontal rod, gearing connecting the two horizontal rods to each other to elevate the cement-applying bar when the said arm is depressed, and means to normally hold the cement-applying bar in the cement, substantially as described.

606,050. TIRE-TIGHTENER. WILLIAM J. CRAWFORD, Asheville, N. C. Filed Dec. 3, 1897. Serial No. 661,163. (No model.)



Claim.—A tire-tightener, consisting of two metal sections and a movable wedge-shaped block located between the same for moving the sections in a lateral or outward direction, one of said sections having laterally-extending flanges, guide-shoulders at right angles therewith, and inwardly-beveled sides, and the opposite section having recess, guide-mortises upon the side walls thereof which extend inwardly at their lower ends to adapt them to the bevel sides of the opposite section, substantially as and for the purpose set forth.

606,051. DRAG-SAW. ALBERT CUSHINGHAM, Milwaukee, Wis., assignor to the Filer & Stowell Company, of Wisconsin. Filed Nov. 9, 1896. Serial No. 611,499. (No model.)



Claim.—1. In a machine for cutting logs or timber to the desired length, the combination with a suitable support, of a main cylinder pivoted thereto so as to swing vertically, a piston fitted to work in said cylinder, a saw rigidly attached to the piston-rod, an auxiliary cylinder attached to the working cylinder and provided with a piston which is connected with a fixed support, substantially as and for the purposes set forth.

2. In a machine for cutting logs or timber to length, the combination of a hollow trunnion supported horizontally in suitable bearings, a cylinder mounted at one end upon and movable endwise of said trunnion, a piston fitted to work in said cylinder, and a saw rigidly attached to the piston-rod, substantially as and for the purposes set forth.

3. In a machine for cutting logs and timber to length, the combination with a trunnion supported and adapted to turn in suitable bearings, a main cylinder provided at one end with a transverse box fitted to slide endwise upon said trunnion, a piston fitted to work in said cylinder, a saw rigidly attached to the rod of said piston, an auxiliary cylinder attached to the main cylinder and provided with a piston which has a sliding pivot connection with a rod parallel with said trunnion, substantially as and for the purposes set forth.

4. In a machine for cutting logs and timber to length, the combination with a trunnion supported horizontally in suitable bearings and formed or provided with a longitudinal rack, a cylinder having a transverse box at one end mounted upon and movable endwise of said trunnion, a shaft journaled in said box and provided with a pinion engaging said rack, a piston fitted in said cylinder and provided with a rod and a saw attached to the piston-rod, substantially as and for the purposes set forth.

5. In a machine for cutting logs and timber to length, the combination with a trunnion supported horizontally and adapted to turn in suitable bearings, of a main cylinder having a box at one end fitted to slide endwise upon said trunnion, a shaft journaled in said box and provided with a pinion which meshes with a longitudinal rack on said trunnion, an auxiliary cylinder attached lengthwise to the main cylinder and provided with a piston, a stationary rod parallel with said trunnion, a sleeve or collar movable endwise thereon and linked to the auxiliary piston, a piston fitted in the main cylinder and provided with a rod, and a saw attached to the rod of the main piston, substantially as and for the purposes set forth.

6. In a machine for cutting logs and timber to length, the combination of a horizontally-arranged trunnion, a main cylinder having a transverse box mounted upon and movable endwise of said trunnion, an auxiliary cylinder attached lengthwise to the main cylinder and provided with a piston, a stationary rod parallel with said trunnion, a sleeve or collar movable endwise thereon, linked to the auxiliary piston-rod and having a guide loosely engaging it, a piston fitted in the main cylinder and provided with a rod, and a saw attached to the main piston-rod, substantially as and for the purposes set forth.

7. In a machine for cutting logs and timber to length, the combination with a hollow trunnion, a vertically-swinging and laterally-movable cylinder mounted thereon at one end and provided with a piston, a saw attached to the piston-rod, a valve controlling the supply and exhaust of the actuating medium to and from opposite ends of said cylinder, and a telescoping fluid-pressure-supply connection through said trunnion with the valve-chamber, substantially as and for the purposes set forth.

8. In a machine for cutting logs and timber to length, the combination with a hollow or recessed trunnion supported horizontally in suitable bearings, a cylinder having a transverse box mounted upon and movable endwise of said trunnion, a valve-chamber connected with opposite ends of said cylinder by passages, a valve for controlling the supply and exhaust of the actuating medium to and from the cylinder, a fluid-pressure-supply pipe attached to one end of said trunnion, a pipe telescoping with said supply-pipe and connecting it with the valve-case, a piston fitted to work in said cylinder and a saw attached to the piston-rod, substantially as and for the purposes set forth.

9. In a machine for cutting logs and timber to length, the combination with a trunnion supported horizontally and adapted to turn in suitable bearings, a laterally-adjustable cylinder mounted at one end upon said trunnion, a valve-chamber connected by passages with the ends of said cylinder, a valve controlling communication between said chamber and cylinder through said passages, a fluid-pressure-supply pipe, a pipe arranged axially in said trunnion to turn and telescope in said supply-pipe and connecting it with said valve-chamber, a piston fitted to work in said cylinder and a saw attached to the piston-rod, substantially as and for the purposes set forth.

10. In a machine for cutting logs and timber to length, the combination with a cylinder and piston of a slotted head attached to the outer end of the piston rod and formed with a transverse opening through it, a saw having a corresponding opening through one end, a key passing transversely through the opening in the head and saw, two wedge-blocks inserted in said opening on opposite sides of the saw, and a bolt connecting said blocks for drawing them together, clamping the sides of the head against the saw and forcing and holding the key against the back of the opening in the saw and the end of the saw against the end of the slot in the head, substantially as and for the purposes set forth.

11. In a machine for cutting logs and timber to length, the combination of a vertically-swinging cylinder and piston having laterally-adjustable pivot connections with a suitable support, a saw attached to the outer end of the piston-rod, and a lever having a flexible or jointed connection at one end with said cylinder, a counterweight at the other end and a universally-jointed fulcrum connection with a suitable support at an intermediate point, substantially as and for the purposes set forth.

12. In a machine for cutting logs and timber to length, the combination of a vertically-swinging cylinder and piston pivotally connected at one end with a suitable support, a saw attached to the outer end of the piston-rod, a valve controlling the admission and exhaust of the actuating medium to and from opposite ends of said cylinder and having operating connections with the piston-rod, a fluid-pressure-supply connection with the valve-chamber, an auxiliary cylinder attached to the main cylinder and provided with a piston which is connected with a support so as to swing the main cylinder and its attachments on their pivot-bearing, a fluid-pressure-supply connection communicating with opposite ends of the auxiliary cylinder, and a valve in said connection for controlling the admission and exhaust of the actuating medium to or from either end of said cylinder, substantially as and for the purposes set forth.

13. In a machine for cutting logs and timber to length, the combination of a vertically-swinging cylinder and piston having at one end a laterally-movable pivot connection with a suitable support, a saw attached to the piston-rod, an auxiliary cylinder attached to the main cylinder and provided with a piston the rod of which is guided at its outer end in a bearing attached to the main cylinder, a rod parallel with the axis on which the main cylinder swings, a sleeve mounted upon and movable endwise of said rod and having a guiding projection loosely engaging the auxiliary piston-rod, and a link pivoted at the ends to and connecting said sleeve and auxiliary piston-rod, substantially as and for the purposes set forth.

14. In a machine for cutting logs and timber to length the combination with a log way and conveyer and dogging device for immovably holding logs thereon, of a vertically-swinging cylinder pivotally connected with a suitable support, a piston fitted to work in said cylinder, a saw rigidly attached to the piston-rod and extending therefrom transversely over said log way and conveyer, and an auxiliary cylinder attached to the main cylinder and provided with a piston which is connected with a fixed support and is adapted to turn the main cylinder and saw up and down upon their pivot connection, substantially as and for the purposes set forth.

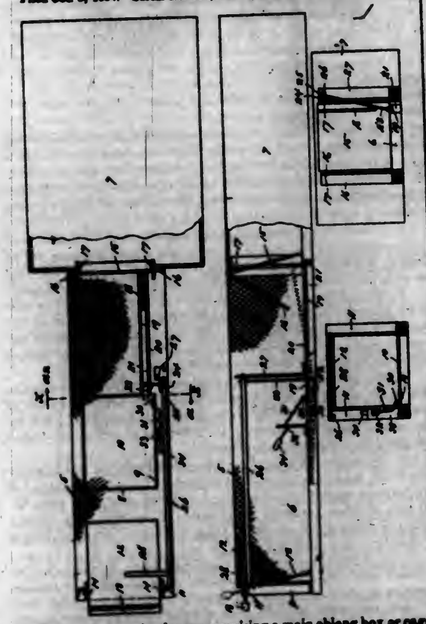
15. In a machine for cutting logs and timber to length, the combination of a vertically-swinging cylinder and piston having a pivot connection at one end with a suitable support, a saw attached at one end to the piston-rod, and an auxiliary cylinder and piston connected with the main cylinder and arranged to swing it and the saw vertically, substantially as and for the purposes set forth.

16. In a machine for cutting logs and timber to length, the combination of a vertically-swinging cylinder and piston having a laterally-adjustable pivot connection with a suitable support, a saw attached to the piston-rod, and an auxiliary cylinder and piston connected with said main cylinder in such manner as to swing it vertically and permit of its lateral adjustment, substantially as and for the purposes set forth.

17. The combination in a log way and conveyer of a vertically-swinging cylinder and piston arranged transversely to and adjustable lengthwise of said logway, and a saw rigidly attached at one end to the piston-rod, substantially as and for the purposes set forth.

18. The combination with a log way, conveyer and dogging device for immovably holding logs upon said logway, of a vertically-swinging cylinder and piston arranged transversely to and adjustable lengthwise of said logway, and a saw rigidly attached at one end to the piston-rod, substantially as and for the purposes set forth.

606,052. ANIMAL-TRAP. JOHN DAVIDSON, Holtham, England. Filed Oct. 5, 1897. Serial No. 654,126. (No model.)

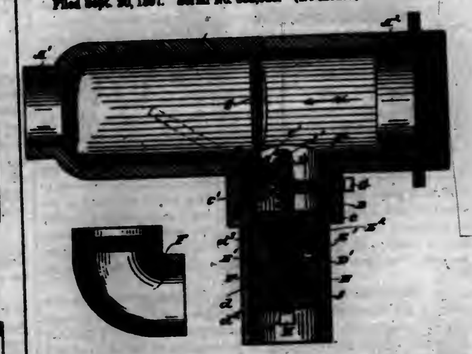


Claim.—1. An animal-trap comprising a main oblong box or cage which is in communication at one end with a supplemental box or cage, a weighted drop-door normally held open at its outer end, a drop-door 15 normally closed at the other end, a revoluble rod pivotally mounted at one side of said first-mentioned door having an arm projecting over said door and connections between said rod and said door 15 whereby the opening of said door 15 will rotate said rod; whereby said first-named door will automatically reopen, substantially as described.

2. An animal-trap, comprising a main oblong box or cage which is in communication at one end with a supplemental box, said main box or cage being provided at its outer end with a weighted drop-door which is normally held in a horizontal position, and which opens inwardly, and at its inner end with a drop door which is normally closed and which opens into the supplemental box, and which is provided with an outwardly-directed arm, said main box or cage being also provided centrally of the bottom thereof with a pivoted table which is normally held in a horizontal position, a lever pivoted in the bottom of the main box or cage, one end of which projects beneath the free edge of said table, and the other beneath the arm of the door at the inner end of said main box or cage, and devices connected with said lever for closing the door at the outer end of the main box or cage when the pivoted table is depressed, said devices being actuated by the door at the inner end of the main box or cage so as to reopen the door at the outer end thereof, substantially as shown and described.

3. An animal-trap comprising a main oblong box or cage which is in communication at one end with a supplemental box or cage, said main oblong box or cage being provided with a weighted drop-door which is normally held in an open position and at its inner end with a drop-door which is normally closed, and which opens inwardly into the supplemental box or cage, and which is provided with an outwardly-directed arm, said main box or cage being also provided centrally of the bottom thereof with a pivoted table, and with a lever which is pivotally supported, and one end of which projects beneath the free edge of said table, and the other beneath the arm of the door at the inner end of the main box or cage, said table being also provided with a pivoted rod which passes upwardly through a seitable support, and by which the table is held in a horizontal position, and a rod pivotally connected with said lever and in operative connection with a horizontal rod by which the door at the outer end of the main box or cage is closed, said parts being constructed, combined and arranged substantially as shown and described.

606,053. RELIEF-VALVE. LOUIS O. DERRER, Sandusky, Ohio. Filed Sept. 20, 1897. Serial No. 652,312. (No model.)



Claim.—1. In a relief-valve of the character described, the combination with the main water-passage having a flap-valve located and operating therein, said flap-valve provided at its upper portion with a segmental gear, of an auxiliary casing extending from and communicating with the main water-passage, said auxiliary casing being provided with a relief-valve having at its lower end a rack meshing with the segmental gear of the flap-valve whereby the movement of the flap-valve will operate to close the valve in the auxiliary chamber when the water has free outlet, substantially as and for the purpose shown and described.

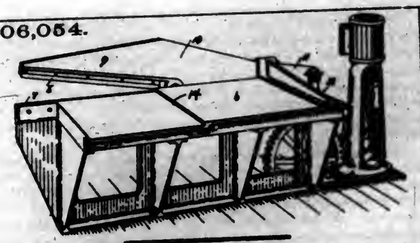
2. A relief-valve for fire-hose and the like comprising, a main waterway, an auxiliary chamber extending from and communicating with said main waterway, a flap-valve located in the main waterway and provided with a segmental gear, a relief-valve located in the auxiliary chamber and provided with a rack meshing with the gear of the flap-valve whereby the valves operate in unison, an adjusting-screw located at the rear of the rack and an adjusting-screw located at the end of the relief-valve, all operating substantially as and for the purpose shown and described.

3. In a relief valve of the character described, the combination with the casing A, of flap-valve C, rack D, and valve or piston D', said valve or piston D' operated by the flap-valve C through the rack D and thus operated to open or close port-holes E' E' in the cylinder E, substantially as shown, for the purpose described.

606,054. DOUBLING-SHEARS. FRANK DOSSER, Anderson, Ind. Filed Sept. 3, 1897. Serial No. 650,468. (No model.)

Claim.—The combination with a pair of shears, of a table for supporting the material to be sheared, the said table having one end thereof in a plane lower than the other thus forming a shoulder against which the material to be sheared may be held and presented to the shears.

606,054.



606,055. OFFICE-INDICATOR. THEODORE B. FLOYD, Syracuse, N. Y., assignor of one-half to Stewart S. Ribbens, same place. Filed Mar. 1, 1897. Serial No. 626,537. (No model.)



Claim.—1. The combination of a back plate, an opaque front plate provided with a plurality of transparent panels and secured to said back plate with a space between them, strips attached to the edges of said plates and closing the aforesaid space, display devices in said space and disposed interchangeably opposite one of the transparent panels, and display-disks pivoted to the front plate and arranged to traverse some of the aforesaid transparent panels, as set forth.

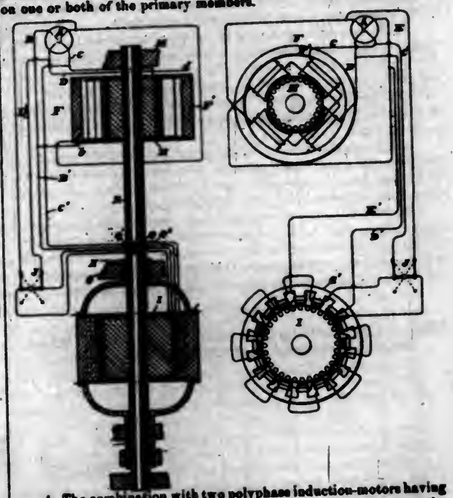
2. The combination of a back plate, an opaque front plate provided with a plurality of transparent elongated transverse panels and circular, or approximately circular panels, and secured to the back plate with a space between them, strips attached to the edges of said plates and closing said space and provided in the vertical strips with grooves inclined toward the front plate, a display-roller polygonal-shaped in cross-section and provided on its ends with trunnions riding in the aforesaid grooves, a handle on the protruding end of one of said trunnions for turning said roller, a spring holding said trunnions normally in the lower ends of the grooves, display-disks pivoted to the front plate and traversing the circular panels, a case projecting from the front of the lower portion of the aforesaid back plate and provided with a slot in its top and with a door to afford access to the interior of the case, substantially as described and shown.

606,056. ALTERNATING-CURRENT ELECTRIC MOTOR. ROBERT H. HAMILTON, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Sept. 6, 1895. Serial No. 561,676. (No model.)

Claim.—1. The combination with two alternating-current induction-motors, one of which comprises primary and secondary independently-movable members, and the other, primary and secondary members, one of which is movable and the other stationary, one of said primary members having a greater number of magnetic poles than the corresponding member of the other motor, of means for mechanically connecting one of the members of the first motor with the movable member of the second, a source of alternating currents and means for electrically connecting the primary member of each motor with said source of currents.

2. The combination with two alternating-current induction-motors, one of which comprises two independently-movable members, and the other, a stationary and a movable member, of means for mechanically connecting one of the members of the first motor with the movable member of the second, a source of alternating currents, means for electrically connecting the primary member of each motor with said source of currents, and a switch for reversing one of the circuits.

3. The combination with two induction-motors, one comprising two independently-movable members and the other a stationary and a movable member, of means for mechanically connecting one of the members of the first motor with the movable member of the second, means for electrically connecting one member of the first with one member of the second, and means for varying the number of poles on one or both of the primary members.



4. The combination with two polyphase induction-motors having rotatable members which are mechanically connected to rotate at the same speed, and means for electrically connecting one member of one motor to one member of the other, of means for reversing one of the circuits and means for varying the number of magnetic poles in either or both of the primary members.

5. The method of controlling the speed of a rotating shaft or axle which consists in subjecting the same to the resultant torque of two rotating magnetic fields for one rate of speed and changing the number of poles of one of said rotating fields for a different rate of speed.

6. The method of varying the speed of a rotating shaft or axle which consists in subjecting the same to the resultant torque of two rotating magnetic fields having a different number of poles for one rate of speed, and changing the number of poles of either or both of said rotating fields for different rates of speed.

7. The method of regulating the speed of rotation of a shaft or axle which consists in subjecting the same to the resultant torque of two rotating magnetic fields having a different number of poles for one rate of speed and changing the direction of rotation of one of said fields for a different rate of speed.

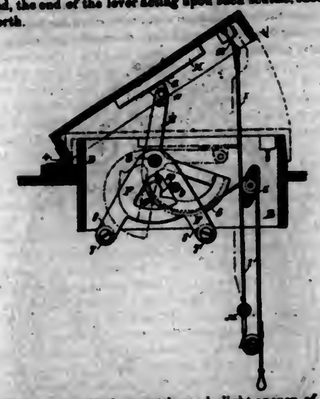
8. The method of regulating the speed of rotation of a shaft or axle which consists in subjecting the same to the resultant torque of two rotating magnetic fields having a different number of poles for one rate of speed, reversing the direction of rotation of one of the fields and changing the number of poles of either or both of said fields for different rates of speed.

9. In an induction-motor, the combination of a primary member provided with slots and with distributed windings therein, a circuit-changing device, leads for each phase of current, less in number than the slots, connected through such circuit-changing device to such windings, the windings being so arranged and connected to said leads that when the direction of current-flow therein is changed, the number of magnetic poles is changed, substantially as described.

10. In an induction-motor, the combination of a primary member provided with slots and with distributed windings therein, a circuit-changing device, leads for each phase of current, less in number than the slots, connected through such circuit-changing device to such windings, the windings being so arranged and connected to said leads that when the direction of current-flow therein is changed, the number of magnetic poles is changed from x to $3x$ and vice versa, substantially as described.

606,057. SCUTTLE OR SKYLIGHT OPERATOR. FERDINAND HAYES, New York, N. Y. Filed Feb. 12, 1896. Serial No. 579,095. (No model.)

Claim.—1. The scuttle or skylight opener composed of a lever and sheave-segment, a frame and pivot for supporting the lever and sheave-segment, and a cord or chain passing from the sheave-segment and over a pulley by which the parts are moved and the scuttle raised, the end of the lever acting upon such scuttle, substantially as set forth.



2. The combination in a scuttle or skylight opener, of a triangular frame adapted to being connected at either side of the scuttle-way or coaming, a lever and sheave-segment, a pivot for the same passing through the triangular frame, a stop upon the frame for limiting the movement of the lever, a cord or chain connected at one end to the sheave-segment, and a pulley over which such cord or chain passes for raising the scuttle, substantially as set forth.

3. The combination in a scuttle or skylight opener, of a triangular frame adapted to being connected at either side of the scuttle-way or coaming, a lever and sheave-segment, a pivot for the same passing through the triangular frame, a stop upon the frame for limiting the movement of the lever, a cord or chain connected at one end to the sheave-segment, a pulley over which such cord or chain passes for raising the scuttle, a connection upon the scuttle for the other end of the cord or chain, and a clamp for holding the same, substantially as set forth.

606,058. CARTRIDGE-PACKET. WILLIAM H. HOSER, Hartford, Conn. Filed Feb. 22, 1897. Serial No. 624,057. (No model.)



Claim.—1. In combination with a magazine-filler, a locker mounted to slide thereon, and means coacting between the filler and the locker which retract the latter upon its said movement.

2. A magazine-filler consisting of a body portion for receiving a file of cartridges, provided with a longitudinally-movable latch located at the end of the filler-body and normally projecting into the pathway of the file of cartridges, with means coacting between the filler and the latch which retract the latter when it is moved longitudinally by the cartridges.

3. A magazine-filler consisting of a body portion and of a locker supported thereon for longitudinal movement relatively thereto, the filler-body being provided with a longitudinal cartridge-head-receiving channel, and the locker being provided with latches which normally extend over the opposite ends of the cartridge-channel, the filler-body being provided with a locker-actuator at each of its ends for engaging with and retracting the leading latch as the locker is moved longitudinally.

4. A magazine-filler consisting of a body portion provided with a longitudinal cartridge-receiving channel, and of a locker supported for longitudinal movement upon the filler-body, provided with latches which normally project over the opposite ends of the channel, the locker being provided with inclined abutments adjacent to its ends for engaging with locker-actuating members upon the filler-body, whereby the longitudinal movement of the locker relative to the filler-body operates to retract the leading latch laterally out of the plane of the cartridge-channel, substantially as described.

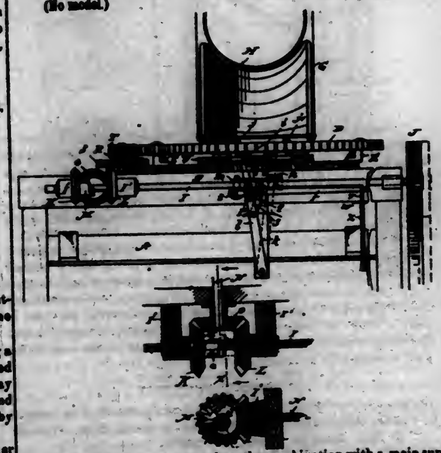
5. In a magazine-filler, the combination of a body portion provided with a longitudinal channel for receiving the heads of a file of superimposed cartridges, and with a longitudinal channel or space b^2 between the cartridge-channel and the back plate, a locker located in the space b^2, and having its ends bent forward so as to form locking-latches which normally project over the opposite ends of the cartridge-channel, the filler-body being provided with a locker-actuator at each end for engaging with the corresponding ends of the locker, whereby the longitudinal movement of the locker relative to the filler-body operates to retract the leading latch, substantially as described.

6. A magazine-filler, consisting of a body portion having a cartridge-head-receiving channel, and having a clasp for engaging with the receiver of the firearm, a cartridge-locker supported upon the filler-body and movable longitudinally thereof, having locking-faces at its opposite ends, which normally project forward and over the opposite ends of the cartridge-head-engaging channel.

7. A magazine-filler, consisting of a body portion having a cartridge-head-receiving channel formed by the flanged edges thereof, and provided with a clasp for attaching the filler to the firearm, a cartridge-locker longitudinally movable thereon therefor, having locking-faces at its opposite ends which normally project forwardly over the opposite ends of the cartridge-channel, with means for retracting the leading end of the cartridge-locker as it is pushed longitudinally with relation to the filler-body, substantially as described.

8. A cartridge-containing-magazine filler, consisting of a body portion having a cartridge-receiving channel, and of two latches combined in an integral double-ended locker, mounted for longitudinal movement upon the body portion with its latches normally extending over the opposite ends of the cartridge-receiving channels thereof, each end of the filler being provided with means substantially as described for retracting its adjacent latch when the locker is moved toward that end, clearance being provided behind the latch-retracting means, whereby the locker may be moved toward either end without retracting the latch upon the opposite end, substantially as described and for the purpose specified.

606,059. SWINGING STRAW-STACKER. EDWARD HUBER and JACOB W. MILLER, Marion, Ohio. Filed Dec. 20, 1897. Serial No. 662,512. (No model.)



Claim.—1. In a straw-stacker, the combination with a main supporting-frame and a turn-table mounted thereon, of a driving shaft, a double clutch secured thereon, a plurality of gear-wheels loosely sleeved on said shaft, a gear connection between the gear-wheels and the turn-table, and actuating mechanism for shifting the shaft through said gear-wheels, whereby said double clutch engages with a different gear and whereby the direction of rotation of said turn-table is reversed.

2. In a straw-stacker, the combination with the main supporting-frame and a turn-table mounted thereon, of a driving-shaft, a double clutch fixedly secured thereto, a plurality of gear-wheels loosely sleeved on said shaft, said gear-wheels being arranged upon opposite sides of the clutch, and a gear connection between the gear-wheels and the turn-table, and actuating mechanism for shifting the shaft through the gear-wheels.

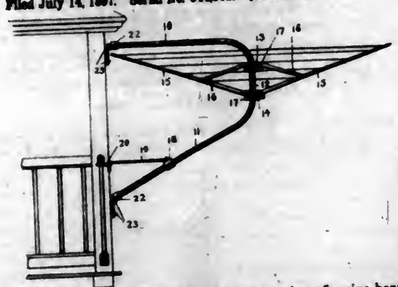
3. In a straw-stacker, the combination with a main supporting-frame and a turn-table mounted thereon, of a driving and a driven shaft journaled in bearings in the frame, said driving-shaft having longitudinal movement, means for transmitting motion from said driv-

ing-shaft to said turn-table, a gear on each end of said shaft one of which is beveled, two bevel-gears loosely mounted upon said driving-shaft and adapted to engage on opposite sides of the bevel-gear on said driving-shaft, a fixedly-mounted double clutch carried by said driving-shaft between its said gears, and actuating mechanism for automatically throwing the clutch alternately into engagement with said adjacent gear-wheels.

4. In a straw-stacker of the kind described, the combination with the supporting-frame and a turn-table arranged thereon, of a driving-shaft mounted in bearings upon the frame, stops secured to the shaft, and a shifting block loosely sleeved thereon between said stops, a shifter mounted upon the frame, a tripping-lever adapted to engage with the shifting block and shifter, and pins arranged on the turn-table adapted to engage with the shifter, substantially as and for the purpose described.

5. In a straw-stacker of the kind described, the combination with the supporting-frame and a turn-table arranged thereon, of a driving-shaft journaled in bearings upon the frame, stops adjustably secured to the shaft, and a shifting block loosely sleeved thereon between the stops, a shifter mounted upon the frame, a tripping-lever engaging with the block and shifter, a spring-lever connected to the tripping-lever for the purpose described, and pins arranged in the turn-table adapted at certain periods to engage with the shifter, all constructed and arranged in the manner described.

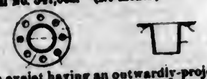
606,060. CLOTHES-DRIER. PIERRE JOBOIN, Worcester, Mass. Filed July 14, 1897. Serial No. 644,503. (No model.)



Claim.—1. In a clothes-drier, the combination of a pipe bent to form outwardly-extending arms, and a vertical section connecting said arms, a reel, supporting-collars for said reel, the bends in the pipe being formed so as to permit the reel and its supporting-collars to be slipped onto the vertical section thereof, and hinge-pieces secured on the ends of the pipe for pivotally supporting the same, substantially as described.

2. In a clothes-drier, the combination of a pipe bent to form a horizontally-extending arm 10, an inclined arm 11, and a vertical section 12 connecting said arms, a reel journaled on said vertical section and comprising castings 13 and 14 carrying reel-arms 15 and supporting-arms 16, supporting-collars 17 for securing the reel in place, a collar 18 secured on the inclined arm 11, an adjusting-link 19 carried thereby, and hinge-pieces 22 secured on the ends of the pipe, substantially as described.

606,061. EYELET. BENAIAH KENDRALL, Sharon, Mass., assignor to the Boston Fast Color Eyelet Company, Boston, Mass. Filed Apr. 26, 1895. Serial No. 547,022. (No model.)



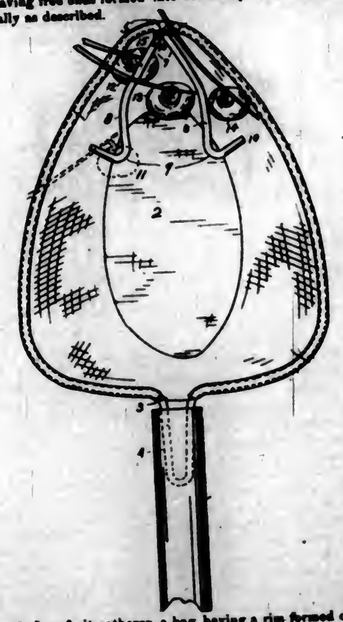
Claim.—1. An eyelet having an outwardly-projecting flange provided with bosses projecting from its inner side, and a covering molded on said flange, the said bosses forming channels under the flange through which the material of the covering finds access to the inner portion of the inner side of the flange.

2. An eyelet having a flange at its outer end, means upon said flange for engaging a die-plate, whereby a covering of plastic material may be molded about the top and bottom of said flange.

3. As an article of manufacture, a fastener-body formed with a flange, and supporting-feet projecting from the under or inner side of said flange, substantially as and for the purpose set forth.

606,062. FRUIT-GATHERER. LEVI B. LAIB, Lyons, N. Y., assignor of one-half to George F. Munn, same place. Filed Dec. 18, 1897. Serial No. 662,465. (No model.)

Claim.—1. In a fruit-gatherer, a bag having a rim formed of wire provided with interned ends joined together and extended backward from their junction to a situation over the bag mouth and rim and having free ends formed into forwardly-extending hooks, substantially as described.

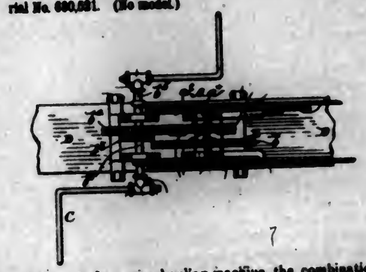


2. In a fruit-gatherer, a bag having a rim formed of wire provided with interned ends joined together and extended backward from their junction to a situation over the bag mouth and rim and having free ends formed into forwardly-extending hooks, said backward wire extensions having bends 8, substantially as described.

3. In a fruit-gatherer, a bag, a rim therefor, hooks situated at the forward end of the rim and integral therewith to engage the stem of the fruit and detach it by a pull, and means integral with said hooks for detaching the fruit from its stem by a push, said means being situated at said forward end above and over the bag-mouth, substantially as described.

4. In a fruit-gatherer, a bag provided with a handle and with a rim having stem-breaking hooks situated at the front end of the rim, and adapted to engage and break stems by a pull, and reversely-situated hooks near the front end of the rim and over the bag adapted to engage and break stems by a push, the mouth of the bag between the latter hooks and handle being unobstructed, substantially as described.

606,068. ROPE-HAULING MACHINE. WILLIAM R. LAPEL, Gloucester, Mass. Filed May 12, 1897. Renewed May 13, 1898. Serial No. 680,881. (No model.)



Claim.—1. In a rope-hauling machine, the combination with a suitable frame, of grooved rope-hauling wheels mounted in said frame, gear-wheels connected with said rope-hauling wheels, a slip-gearing mounted in said frame for actuating the said gear-wheels, a ratchet formed upon one of said rope-hauling wheels, a pawl for engaging said ratchet, the teeth of said ratchet being so formed as to hold the said gear-wheels in the proper position to permit of the change of the slip-gearing, substantially as described.

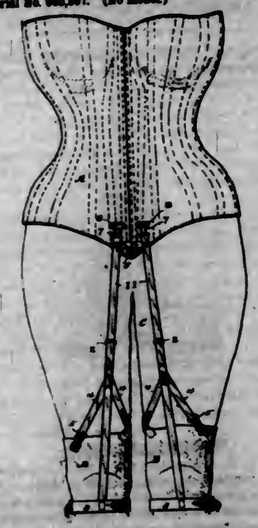
2. In a rope-hauling machine, the combination with a suitable frame, of rope-hauling wheels mounted thereon, gear-wheels of different diameters connected with the said hauling-wheels, a slip-gearing adapted to engage said gear-wheels for changing the power and speed of the machine, and means for closing certain of the intervals between the teeth of one of the said gear-wheels at predetermined points upon one side of the periphery of said gear-wheel to prevent the movement of the said slip-gearing at these points, substantially as described.

3. In a rope-hauling machine, the combination with a suitable frame, of a shaft mounted therein, rope hauling wheels on said shaft, gear-wheels mounted upon said shaft and a slip-gearing also mounted in said frame and adapted to engage the said gear-wheels, for changing the speed and power of the machine, the said gear-wheels being placed so close together that teeth of the slip-gears will always be in engagement with one or the other of said gear-wheels and means for preventing the slip-gearing from being changed except at predetermined intervals, substantially as described.

4. In a rope-hauling machine, the combination with a suitable frame, of a shaft mounted therein, rope-hauling wheels on said shaft, gear-wheels of different diameters secured to said shaft for rotating the same, a slip-gearing for engaging the said gear-wheels to change the speed and power of the machine, the intervals between some of the teeth of one of the gear-wheels being closed at one side so as to leave open teeth at one or more predetermined points upon the periphery of the said gear-wheel, the construction being such that the slip-gearing can only be changed at these intervals, a ratchet secured to the side of one of the rope-hauling wheels, a pawl mounted on the machine and adapted to engage said ratchet, the teeth of the ratchet being so arranged as to hold the gearing only at the points where the slip-gearing can be changed, substantially as described.

5. In a rope-hauling machine, the combination with a suitable frame, of a shaft mounted in said frame, rope-hauling wheels secured to said shaft, a gear-wheel mounted on said shaft and having an elongated hub, a gear-wheel of different diameter mounted upon said hub and keyed thereto whereby the two gear-wheels are adapted to move as one wheel, a second shaft mounted in the said frame, gear-wheels of different diameters mounted upon said shaft and adapted to mesh with the gear-wheels connected with the rope-hauling wheels, the said second shaft being free to move longitudinally in its bearings whereby the gear-wheels secured thereto may be changed with relation to the gear-wheels connected to the rope-hauling wheels and means upon one of said gear-wheels connected to the rope-hauling wheels for preventing the slip-gears upon the said second shaft being changed except at certain predetermined intervals, substantially as described.

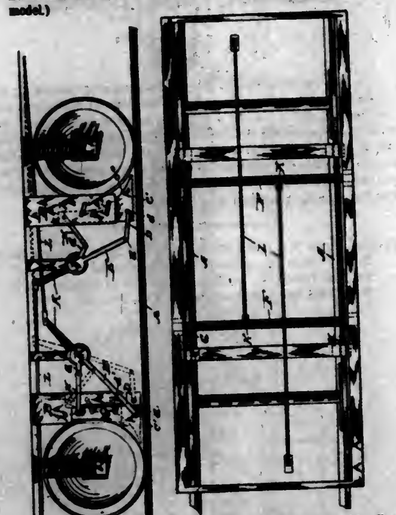
606,064. COMBINED CORSET-RETAINER AND STOCKING-SUPPORTER. NELLIE M. LEMON, Bridgeport, Conn. Filed Jan. 7, 1898. Serial No. 666,867. (No model.)



Claim.—1. A combined corset-retainer and stocking-supporter comprising retaining-straps provided at their upper ends with catches for engagement with a corset and at their lower ends with bands which encircle the leg below the knee, and side straps provided with clasps for engaging a stocking on opposite sides of the retaining-straps.

2. A device of the character described comprising retaining-straps adapted to pass centrally over the knee-caps and provided at their upper ends with catches for engagement with a corset and at their lower ends with leg-bands whereby the retaining-straps are held in place and the corset is held down, a connecting-strap between the retaining-straps, and side straps connected to each retaining-strap and adapted to engage a stocking.

606,065. EMERGENCY-BRAKE FOR STREET-CARS. HERMANN LOEFFLER, Pittsburg, Pa. Filed Sept. 8, 1897. Serial No. 650,916. (No model.)



Claim.—1. In a car-brake, the combination of the guides B, provided with the inclined slots b^2 b^2, a brake-shoe C, carrying pins c, c, adapted to operate in said slots b^2 b^2, levers D, H pivotally attached to said brake-shoe, and arms G, and E of the rocker-shaft F, connecting said levers D and H, an operating-lever K, connected to the brake-rods L, all parts being arranged operating substantially as shown and described.

2. In a car-brake, the combination of the guides B, a cross-piece b, extending slightly beyond the sides of said guides, the latter provided with inclined slots b^2 b^2 a brake-shoe C, carrying pins c adapted to operate in the said slots b^2 b^2, the underneath face of said shoe being serrated, levers D and H pivotally secured to said brake-shoe, arms E and G set at an angle of approximately forty-five degrees to each other, and secured to the ends of the rocker-shaft, a lever K secured to said rocker-shaft, and a bracket J, substantially as described and for the purpose set forth.

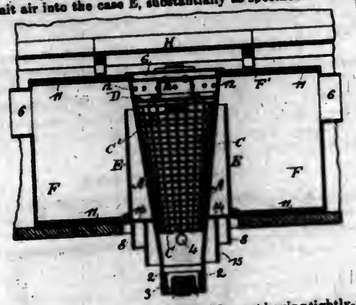
606,066. CAR-HEATER. JOSEPH A. LOSE and LOWMAN H. LOSE, Brooklyn, N. Y. Filed Apr. 21, 1897. Serial No. 633,126. (No model.)

Claim.—1. The combination with the air-box having an opening at the bottom for admitting air, of a fire-pot with tightly-fitting covers at the upper end and air-inlets at the lower end, the lower end of such fire-pot projecting below the bottom of the car, and a shield 15 surrounding the fire-pot and closely connected to the same at the upper end to prevent any gases passing into the air-box, substantially as specified.

2. The combination with the conical fire-pot having tightly fitting covers at its upper end, of a box with air-inlets at the bottom around the fire-pot, and a case E within the box and surrounding the air-inlets and open at the top, for directing the air against the outside of the fire-pot as it passes into the box, substantially as specified.

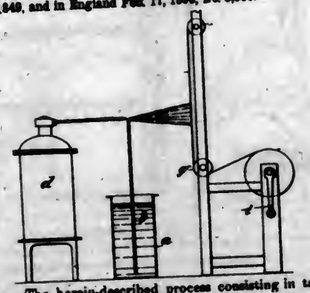
3. The combination with the conical fire-pot having tightly-fitting covers at its upper end, of a box with air-inlets at the bottom around the fire-pot, and a case E within the box and surrounding the air-

inlets and open at the top, for directing the air against the outside of the fire-pot and a shield 15 surrounding the lower part of the fire-pot and the openings thereinto, and extending below the openings that admit air into the case E, substantially as specified.



4. The combination with the conical fire-pot having tightly-fitting covers at its upper end, of a box with air-inlets at the bottom around the fire-pot, and a case E within the box and surrounding the air-inlets and open at the top for directing the air against the outside of the fire-pot, a skirt 8 extending below the bottom of the car, and a shield 15 within the same and surrounding the lower part of the fire-pot and its openings and extending below the openings that admit air into the case E, substantially as specified.

606,067. FIBROUS MATERIAL. JULES A. MAQUAIRE, Paris, France. Filed Dec. 3, 1896. Serial No. 614,248. (Specimens.) Patented in France Feb. 14, 1896, No. 253,979; in Belgium Feb. 15, 1896, No. 119,849, and in England Feb. 17, 1896, No. 3,533.



Claim.—The herein-described process consisting in taking the fibrous parts of the eucalyptus plant, subjecting the same to a bath of tepid water, heating to the point of ebullition, then subjecting the material to the action of an alkaline bath, an acid-bath, and a soap-bath, and then restoring the essential principles which have been removed from the fiber in the several baths as the resins by applying the same to the fibers, substantially as described.

606,068. AUTOMATIC WATER-HEATER. WILLIAM I. MILLER, Pittsburg, Pa. Filed Oct. 1, 1897. Serial No. 653,670. (No model.)

Claim.—1. In an automatic water-heater, the combination, with a water-receptacle, having inlet and outlet passages communicating therewith, of a heat-supplying device, a heat-regulator, and direct connections with opposite sides of the regulator, outside of the water-receptacle, from the inlet and outlet passages to the heat-regulator whereby the supply of heat may be controlled by a difference in the inlet and outlet pressures of the water, substantially as set forth.

2. In an automatic water-heater, the combination, with a water-receptacle, of inlet and outlet passages communicating with the receptacle, means for heating the water-receptacle, a heat regulator outside of the direct flow of water, comprising a valve for controlling the supply of heat and a movable abutment for actuating the valve, a direct connection from the outlet-passage to one side of the abutment and a connection from the inlet-passage to the opposite side of the abutment, whereby the abutment may be operated by variations of pressure in the outlet from the water-receptacle, substantially as set forth.

3. In an automatic water-heater, the combination, with a heating-coil, of a heat-supply, a heat-regulator, outside of the direct flow of water, comprising a valve for controlling the supply of heat to the coil and a movable abutment for operating the valve, which is exposed to the pressure of the water at or near the inlet and outlet portions of the coil, substantially as set forth.

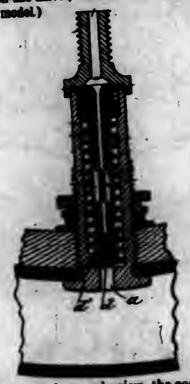


4. In an automatic water-heater, the combination, with a water-receptacle provided with an inlet and an outlet, of a heat-supply, a heat-regulator outside of the direct flow of water and subjected on one side to the pressure of water flowing to the water-receptacle and on the other side to the pressure of water flowing from the receptacle, substantially as set forth.

5. In an automatic water-heater, the combination, with a water-receptacle having inlet and outlet passages, of a water-supply pipe, means for heating the water-receptacle, a heat-controlling device outside of the water-supply pipe and the direct flow of water, and connected with the inlet and outlet passages of the water-receptacle whereby variations of pressure between the inlet and outlet passages will operate the controlling device, substantially as set forth.

6. In an automatic water-heater, the combination, with a water-receptacle having inlet and outlet passages, of an unobstructed water-passage from the water-main to the delivery valve, or faucet, a heat-supplying device, a heat-regulating device for controlling the supply of heat to the coil located outside of the water-passage and having connections to the inlet and outlet of the coil, and adapted to be operated by variations of pressure in the outlet-passage of the water-receptacle, substantially as set forth.

606,069. VALVE FOR PNEUMATIC TIRES. JULIUS MOSS, Brandenburg-on-the-Havel, Germany. Filed Aug. 16, 1897. Serial No. 648,453. (No model.)



Claim.—1. In a valve mechanism, the combination, with a valve-casing and a nipple secured therein, of an elastic valve-tube, and a spring engaging the valve-tube at its end adjacent the nipple and arranged to hold said tube against the nipple, substantially as described.

2. In a valve mechanism, the combination, with an elastic tube closed at one end and provided intermediate its ends with a series of slits, of an external ring surrounding the tube and provided with yielding prolongations extending between the slits in the tube, substantially as described.

3. In a valve mechanism, the combination with a valve-casing, and a nipple secured therein, of an elastic tube and means independent of the tube for forming an enlargement on one end of the tube, and a spring engaging the enlargement and arranged to hold the tube in close contact with the nipple.

4. In a valve mechanism, the combination with a valve-casing, and a nipple secured therein and provided with a cup-shaped recess at the inner end, of an elastic tube and means independent of the tube for forming an enlargement at one end of the tube, said enlarged end being in close contact with the nipple and entering the cup-shaped recess.

5. In a valve mechanism, the combination with a valve-casing, and a nipple secured therein, of an elastic tube closed at one end and provided intermediate its ends with a series of slits, an external ring surrounding the tube and provided with yielding prolongations extending between the slits in the tube, and a spring engaging the tube at its end adjacent to the nipple and arranged to hold said tube against the nipple.

606,070. IMPLEMENT FOR STRETCHING WIRE-FENCE STRANDS. WILLIAM HERR, Cross Plains, Tex. Filed Nov. 26, 1897. Serial No. 659,899. (No model.)



Claim.—1. The herein-described wire-stretching implement, comprising a lever-bar having its lower end bent into a circle that is arranged in the same plane with the shank or body portion of said bar, a double hook pivotally supported in said bar and projecting from each side, and a pawl pivotally attached to the said lever-bar, substantially as and for the purpose specified.

2. A wire-stretching implement comprising a lever-bar having its lower end bent into a circle that is arranged in the same plane with the shank or body portion of said bar, a double hook pivotally supported in said bar at the junction between its body portion and its curved end, and a pawl pivotally attached to said lever-bar at a point above the said circle, substantially as and for the purpose specified.

3. A wire-stretching implement adapted to have a bearing against one side of a fence-post opposite where the fence-wire passes and comprising a lever-bar having a claw at one end and bent at its other end into a circle that is arranged in the same plane with the shank or body portion of said bar, a double hook pivotally supported in said bar, chains to engage with said double hook and with the fence-wire at each side of the fence-post, and a pawl pivotally attached to said lever-bar at a point above the said circle, substantially as specified.

4. In a wire-stretching implement, the combination of a lever-bar adapted to have a bearing against one side of a fence-post opposite where the fence-wire passes and provided with a claw at its upper end and with a circle at its lower end, a double hook pivotally supported in said bar and projecting on each side, chains adapted to adjustably engage said double hook and each provided at one end with a hook to engage the fence-wire, and a pawl pivotally attached to the said lever-bar and provided with a broadened chisel end, substantially as and for the purpose specified.

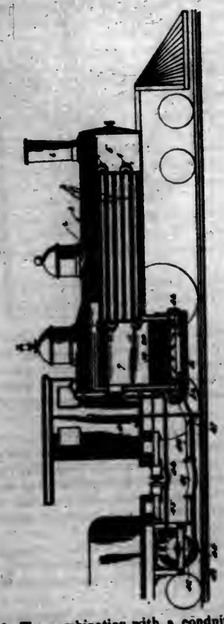
5. The combination of a lever-bar provided at one end with a circle arranged in the same plane with the shank or body portion of said bar, a double hook supported in said bar near the said circle and projecting from each side, and a pawl pivotally attached to the said lever-bar, substantially as described.

606,071. STEP-LADDER. WILLIAM HERRING, Evansville, Ind. Filed Jan. 26, 1898. Serial No. 668,245. (No model.)

Claim.—In a hinge, the combination with one member comprising a right-angled plate provided with perforated lugs extending from said plate, a second lug also extending from the plate in an opposite direction to that of the first-named lugs, there being a groove formed in the second-named lug, and a slot in the bottom of said groove through the lug, and a bolt secured in said groove by means of a set-screw, of the other member comprising a right-angle plate provided with perforated lugs extending from said plate and a second lug extending in an opposite direction to the first-named lugs and formed with notches or recesses in its edge, substantially as described.



606,072. AIR-FEEDING APPARATUS FOR BOILERS. JOSEPH S. NEWLIN, Crookstville, S. C. Filed July 23, 1897. Serial No. 645,669. (No model.)



Claim.—1. The combination with a conduit and an elongated blast-nozzle, of a series of nozzle-adjusting bolts designed to adjust the relative width of the nozzle to equalize the pressure of the blast from end to end of said nozzle, substantially as specified.

2. The combination with a conduit, and an elongated blast-nozzle, of a deflector supported above said nozzle upon a series of independently-adjustable bolts adapted to adjust the relative distance of the deflector from the blast-nozzle to equalize the pressure of the blast from end to end of said nozzle, substantially as described.

3. The combination with a conduit and an elongated blast-nozzle having a series of independently-adjustable bolts adapted to adjust the width of the nozzle; of a deflector supported above said nozzle upon a series of independently-adjustable bolts adapted to allow of the adjustment of the distance between said deflector and said nozzle, substantially as described.

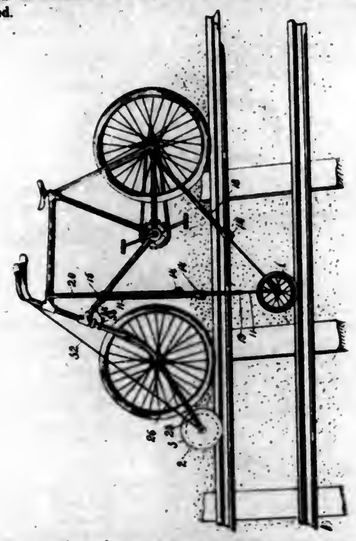
4. In an apparatus of the character described, the combination with a blast-nozzle extending into the furnace from beneath, of a water-jacket inclosing said blast-nozzle, and means for adjusting the width of said nozzle, substantially as described.

5. In an apparatus of the character described, the combination with an elongated blast-nozzle extending into the furnace through the grate-bars thereof; of a water-jacket inclosing said blast-nozzle; and an adjustable deflector mounted over the mouth of said nozzle, substantially as described.

606,073. RAILWAY ATTACHMENT FOR BICYCLES. CHARLES R. RUSSELL, Milan, Wash. Filed Feb. 15, 1897. Serial No. 623,435. (No model.)

Claim.—1. The combination with a bicycle, of a flanged guiding-

wheel located in advance of the steering-wheel of the machine, spaced rods or bars connecting the axles of said wheels and jointed intermediate their ends to admit of the folding of the guiding wheel, and means on the machine for lifting said guide-wheel, substantially as described.



2. The combination with a bicycle, of a guiding-wheel arranged in advance of the steering-wheel of the machine, spaced rods or bars connecting the axles of said wheels and jointed intermediate their ends, and a cord or flexible connection interposed between said rods or bars and the frame of the machine, whereby the guiding-wheel may be lifted, substantially as described.

3. The combination with a bicycle, of a guiding-wheel arranged in advance of the steering-wheel of the machine, and provision for adjusting the said guiding-wheel laterally, substantially as described.

4. The combination with a bicycle, of a frame extending to a point in advance of the steering-wheel, and a guiding-wheel adjustably mounted on said frame and made laterally movable, substantially as described.

5. The combination with a bicycle, of a frame projecting in advance of the steering-wheel, a guiding-wheel carried by said frame, and means for adjusting said guiding-wheel laterally, substantially as described.

6. The combination with a bicycle, of a frame projecting in advance of the steering-wheel and having a connecting portion or cross-bar, a guiding-wheel, a frame in which said guiding-wheel is journaled having a connecting portion or cross-bar, and a clamp connecting the cross-bars of said frames and adapting the same to be adjusted relatively to each other for permitting the guiding-wheel to be moved laterally or across the plane of the steering-wheel of the bicycle, substantially as and for the purpose specified.

7. The combination with a bicycle, of a balancing-frame extending upon one side thereof, a balancing-wheel journaled on said frame and means whereby said wheel may be tilted vertically, substantially as described.

8. The combination with a bicycle, of an adjustable and extensible frame secured thereto and projecting laterally therefrom, a balancing-wheel, and a plate carrying the axle of said wheel, said plate being pivotally connected to the frame and comprising a segmental slotted portion adapted to receive a clamping-bolt, whereby said plate may be adjustable as to its angle for correspondingly changing the angle of the balancing-wheel, substantially as described.

9. The combination with a bicycle, of an adjustable and extensible frame connected thereto and projecting laterally therefrom, said frame comprising a plurality of bars provided at their inner ends with clips for engaging the frame of the bicycle, said clips being connected to their respective bars or braces by means of ball-and-socket joints, substantially as described.

10. The combination with a bicycle, of a balancing-wheel arranged at one side of the machine frame, diverging braces connecting the axle of said balancing-wheel with the machine-frame, and detachably connected to the latter at the rear axle and upon the reach-bar of the machine-frame, and a brace interposed between the top run of the machine-frame and one of the balancing-wheel braces, substantially as described.

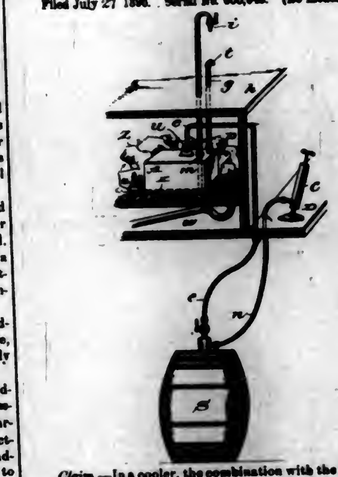
11. The combination with a bicycle, of a balancing-wheel arranged at one side of the machine and connected thereto by a suitable frame detachably connected to the machine-frame, a guiding-wheel located in advance of the steering-wheel of the machine and connected to the steering-fork by suitably-spaced bars, and a spring interposed between the frame and the steering-fork, whereby a pressure is exerted to maintain the guiding-wheel in engagement with the rail upon which the machine is traveling, substantially as described.

12. The combination with a bicycle, of a balancing-wheel arranged at one side thereof and connected to the machine-frame by one or more brace-rods, a guiding-wheel arranged in advance of the steering-wheel of the machine and connected to the machine-frame by spaced bars, and a spring interposed between the bars of the guiding-wheel and the machine-frame, substantially as and for the purpose described.

13. The combination with a bicycle, of a balancing-wheel, a frame connecting said wheel with the machine-frame, a guiding-wheel located in advance of the steering-wheel, an arm connecting said wheel with the steering-fork, a laterally-projecting spring on the steering-fork, and a flexible connection interposed between said spring and the machine-frame, substantially as described.

14. The combination with a bicycle, of a side balancing-wheel, one or more braces connecting said wheel with the machine-frame independent of the steering-wheel whereby to leave the steering-wheel free, a flanged guiding-wheel connected to the steering-wheel, and means for automatically controlling the guiding-wheel.

606,074. LIQUID-COOLER. FRANCIS OAKLEY, Newport, R. I. Filed July 27, 1896. Serial No. 600,643. (No model.)



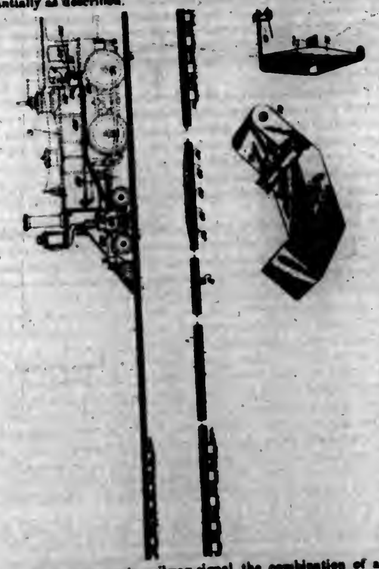
Claim.—In a cooler, the combination with the box A, mounted on suitable legs within an ice-box, the pipes *b* and *g* communicating with the interior of said box, the internally-threaded neck portion of the box and shoulder *f*, the cap B with integral nut extension *c* which is centrally apertured, the pipe *c* having screw-threaded connection with the said cap in said aperture, of the alternately-disposed screens and filters *h* and *d* respectively, held within the said neck portions and between the shoulder *f* and cap B, and the pump and connection with the supply-tank and box A, all substantially as shown and described.

606,075. RAILWAY-SIGNAL. MATHEW C. CRUM, Wahpeton, N. D. Filed Mar. 16, 1896. Serial No. 674,090. (No model.)

Claim.—1. In an automatic railway-signal, the combination of a signal-operating mechanism adjacent to a track and having a normally-concealed trip-lever, a switch-operated setting mechanism connected with said signal-operating mechanism, and a wheel-operated setting mechanism also connected with said signal-operating mechanism, substantially as described.

2. In an automatic railway-signal, the combination of a switch-operated setting mechanism, a wheel-operated setting mechanism adjacent to a track and a single signal-operating mechanism having a trip-lever adapted to be thrown into the path of a signal mechanism and provided with a controlling arm or lever which is operatively connected with said setting mechanism, substantially as described.

3. In an automatic railway-signal, the combination of a trip-lever, a controlling-lever arranged to normally hold the trip lever in its depressed position and to engage therewith and lock the same in its raised position, and means for operating said controlling-lever, substantially as described.



4. In an automatic railway-signal, the combination of a trip-lever, a controlling-lever normally engaging with said trip-lever to hold the latter in its depressed position, a spring to elevate the trip-lever when free from the controlling-lever, and means for engaging with said trip-lever to lock the latter in its exposed raised position, substantially as described.

5. In an automatic railway-signal, the combination of a spring-controlled trip-lever, a controlling-lever mounted above the trip-lever and engaging with the latter under normal conditions to depress and lock the trip-lever when lowered out of the path of a locomotive signal mechanism, and devices carried by said controlling-lever to engage with the trip-lever when raised, substantially as described.

6. In an automatic railway-signal, the combination of a trip-lever provided at its free end with a heel, a cross-bar rigid with said lever, a controlling-lever fulcrumed above the trip-lever and arranged to ride upon the cross-bar thereof, locking devices carried by the controlling-lever, a projection on the trip-lever to engage with said devices, and a spring to lift the trip-lever, substantially as described.

7. In an automatic railway-signal, the combination of a trip-lever, a controlling-lever engaging therewith, a switch-operated lever connected at one end with a switch-rail, a wire or cable between the controlling-lever and said switch-operated lever, and a spring, substantially as described.

8. The combination with a trip-lever and a controlling device therefor, of a switch-operated lever having at one end an offset, a clip-formed rod attached to a switch-rail and to the other end of said switch-operated lever, a spring connected to the offset end of the switch-operated lever, and a rod, wire or cable between said spring and the controlling device for the trip-lever, substantially as described.

9. The combination with a trip-lever and a controlling device therefor, of a wheel-operated track mechanism comprising a vertically-movable bar, levers in the path of said bar to be actuated thereby, and connections between said bar and the controlling device for the trip-lever, substantially as described.

10. The combination with a trip-lever and a controlling device therefor, of a wheel-operated track mechanism comprising a vertically-movable bar lying adjacent to a track-rail and normally in the path of wheels adapted to travel thereon, a series of connected levers in the path of said vertically-movable bar, means for sustaining the said bar normally free from the series of levers, and connections between said levers and the controlling device for the trip-lever, substantially as described.

11. The combination with a trip-lever, and a controlling device therefor, of a series of casings fixed to a track and forming vertical guides at one side of the head of a rail, a vertically-movable bar confined in said guides provided by the casings, means for normally lifting said bar, a series of connected levers supported below said bar, in the path thereof, and provided with antifriction devices for contact and normally free from engagement with, said bar, and connections between said levers and the controlling device for the trip-lever, substantially as described.

12. The combination with a trip adjacent to a track and means for controlling the same, of a signal mechanism embodying a rock-shaft having tappets adapted to contact with said trip, a signal and connections between said signal and the rock-shaft, substantially as described.

13. The combination with a trip and means for controlling the same, of a signal mechanism including a rock-shaft provided with tappet-arms, a lever carried by said shaft, a spring-controlled lever operatively connected with a signal device, and connections between the lever of the rock-shaft and the signal-device lever, substantially as described.

14. The combination with a trip, of a signal mechanism including suitable bearings, a rock-shaft mounted in said bearings for turning and sliding movement, a clutch on the shaft and one of the bearings, a spring acting against the shaft, tappet-arms carried by said shaft, a signal device, and connections between the shaft and said signal device, substantially as described.

15. The combination with a trip, of a signal mechanism including a rock shaft having suitable tappets, a signal device, a plate provided with a ratchet, a lever fulcrumed to said plate and having one arm thereof arranged to engage with said ratchet of the plate, connections between said signal device and said lever, a spring connected with said lever, and connections between the signal-lever and the rock-shaft, substantially as described.

16. In a signal-operating device for railway-signals, a housing or case struck up from a single piece of sheet metal and provided with a clip adapted for attachment to a track-rail, substantially as described.

17. In a signal-operating mechanism for railway-signals, a housing or case struck up from a single piece of sheet metal and provided with a clip, and a hood united to said case at one side of the clip thereof, substantially as described.

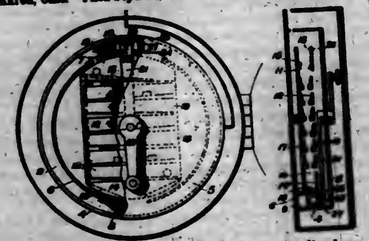
18. In an automatic railway-signal, the combination with switch-operated setting devices, of a signal-operating mechanism between said switch-operated devices, and spring-controlled wires or coils connected to the signal-operating mechanism and the switch-operated setting devices, substantially as described.

19. In an automatic railway-signal, the combination with switch-operated setting devices at a suitable interval from each other, a signal-operating mechanism, a wheel-operated track mechanism, connecting wires or cables between said devices, and coiled springs connected with said wires or cables to hold all the devices under tension and in operative positions, substantially as described.

20. The combination with a suitable signal mechanism on a locomotive including a crank-arm, of a yieldable clearer-plow arranged in advance of said crank-arm, substantially as described.

21. The combination with a signal mechanism on a locomotive, including a tappet or crank arm, of a clearer-plow arranged in advance of the tappet or crank arm, a spindle by which the clearer-plow is revolubly held in position, and a retracting-spring connected to said clearer-plow, substantially as described.

606,076. ELECTRIC ALARM SYSTEM. ALBERT OVENDEN, Akron, Ohio. Filed Sept. 24, 1897. Serial No. 652,866. (No model.)



Claim.—1. In an electric-circuit closer, an inclined way composed of a plurality of oppositely-extending superimposed separate members, one side of which is composed of conducting material throughout, while the other side is composed of non-conducting material having a portion of the engaging face formed of conducting material, and a roller circuit-closer.

2. In an electric-circuit closer, an inclined way consisting of a plurality of independent superimposed members each comprising a

conducting-rail and a non-conducting rail having a portion of its face composed of conducting material, and a roller circuit-closer.

3. In an electric-circuit closer, an inclined way consisting of a plurality of independent superimposed members, each comprising a conducting-rail and a non-conducting-rail, and having a plurality of conducting portions flush with the face thereof, and a roller circuit-closer.

4. In a circuit-closer for an electric alarm, a plurality of inclined ways independent of each other and extending in opposite directions, each of said inclined ways having one side composed of conducting material, and the other side composed of non-conducting material having conducting portions, a roller circuit-closer, and means for guiding said roller circuit-closer from the lower termination of one inclined way to the upper beginning end of the next.

5. In a circuit-closer for an electric alarm, a plurality of inclined ways independent of each other, and extending in opposite directions, and having conducting and non-conducting portions, a roller circuit-closer, an inclined guide extending from the lower end of one way to the upper end of the next.

6. A circuit-closer for an electric alarm, comprising a frame composed of inclined ways superimposed and independent of each other, said ways extending in opposite directions and having conducting and non-conducting portions, a roller circuit-closer, and a movable elevator adapted to receive said roller circuit-closer from the lower way and to deliver it to the upper way.

7. A circuit-closer for an electric alarm, comprising a plurality of inclined ways superimposed and independent of each other, the said ways extending in opposite directions and having conducting and non-conducting portions, a roller circuit-closer, hoppers at the upper and lower ends of said inclined ways, and a movable elevator to receive said roller circuit-closer from the lower hopper and to deliver it to the upper hopper.

8. A circuit-closer for an electric alarm, comprising a plurality of inclined ways having conducting and non-conducting portions, a roller circuit-closer, an elevator comprising a pivoted arm having a cup at one end thereof that normally stands below the lower inclined way to receive said roller circuit-closer, and adapted to swing above the upper inclined way to deliver said circuit-closer.

9. A circuit-closer for an electric alarm, comprising a plurality of inclined ways having conducting and non-conducting portions, a roller circuit-closer, an annular passage surrounding said inclined ways having openings above and below the same, a pivoted arm having a cup at one end that is situated within said annular passage, and which normally stands with the cup below the lower opening therein.

10. A circuit-closer for an electric alarm, comprising a plurality of inclined ways having conducting and non-conducting portions, a roller circuit-closer, an annular passage surrounding said inclined ways, having openings above and below the same, guide-faces at the upper side of said annular passage and opposite the upper opening therein and situated at opposite sides of the center thereof, a swinging arm having a swinging cup at one end that is situated within said annular passage, a projection upon said swinging cup, a projection in said annular passage situated at the upper side of the same and in the path of the projection upon said cup, and guide-fingers upon said cup situated to engage the stop-faces of said passage.

11. A circuit-closer for an electric alarm, comprising a swiveled frame carrying a plurality of inclined ways independent of each other and extending in reverse directions, and having conducting and non-conducting portions, a roller circuit-closer, and an elevator for delivering said circuit-closer from the lower to the upper end of said inclined ways.

12. In an electric-circuit closer, a frame provided with a plurality of inclined ways, superimposed and independent of each other, the said ways extending in reverse directions, each of which is composed of two rails, one of conducting material, and the other of non-conducting material having conducting portions, said conducting-rails and conducting portions of the non-conducting rails being connected in an electric circuit, and a roller circuit-closer.

13. In an electric-circuit closer, a frame having a plurality of inclined ways independent of each other and extending in opposite directions, the lowermost end of one being located adjacent to the highest end of the one next succeeding, and provided with conducting and non-conducting portions, said inclined ways being adjustably secured to said frame, and a roller circuit-closer.

14. In an electric-circuit closer, a frame having uprights, a plurality of inclined ways having conducting and non-conducting portions and slotted ends, fastening devices passing through the slotted end portion of the inclined ways for adjustably securing the same to said uprights, and a roller circuit-closer.

15. In an electric-circuit closer, an inclined way, consisting of a plurality of independent superimposed members, each comprising a conducting-rail and a non-conducting rail having a removable conducting-strip inlaid therein.

16. In an electric-circuit closer, an inclined way comprising a conducting-rail having a laterally-extending plate, a non-conducting rail secured to said plate, and having conducting portions.

17. In an electric alarm, a circuit in which are situated the alarm mechanism and a circuit closer, said circuit-closer comprising inclined ways superimposed and independent of each other, said ways extending in reverse directions, and having conducting and non-conducting portions, a valve above the upper inclined way adapted to retain the roller circuit closer which forms a part of the circuit, and an electromagnet for controlling said valve situated in the circuit formed by said roller circuit-closer.

18. In an electric alarm, a circuit in which are situated the alarm mechanism and a circuit-closer, said circuit-closer comprising a plurality of inclined ways having conducting and non-conducting portions, circuit-terminals situated above the upper inclined way, a movable valve at the ends of the said terminals, a circuit-closer resting upon said terminals and held thereon by said valve, and an electromagnet controlling said valves and situated in the circuit formed by said roller circuit-closer.

19. In an electric alarm system, a circuit having a plurality of branch circuits, an alarm mechanism in said circuit, a plurality of circuit-closers in said circuit and from which the branch circuits lead, said circuit-closers comprising inclined ways and a roller circuit-closer controlled by the branch circuits, and a valve for each of said circuit-closers controlling the passage of the roller circuit-closer to the inclined ways, said valve being controlled by an electromagnet situated within the circuit in which said inclined ways are placed.

20. In an electric alarm system, a circuit having a plurality of branch circuits, an alarm mechanism in said circuit, a plurality of circuit-closers in said circuit and from which the branch circuits lead, said circuit closers comprising inclined ways and a roller circuit-closer controlled by the branch circuits, and a valve for each of the said circuit-closers controlling the passage of the roller circuit-closer to the inclined ways, said valve being controlled by an electromagnet situated within the circuit in which said inclined ways are placed, and devices to permit said valve to close quickly but which retard the opening of the same.

21. In an electric alarm system, a circuit having a plurality of branch circuits, an alarm mechanism in said circuit, a plurality of circuit-closers in said circuit and from which the branch circuits lead, said circuit-closers comprising inclined ways and a roller circuit-closer controlled by the branch circuits, and a valve for each of the said circuit-closers controlling the passage of the roller circuit-closer to the inclined ways, said valve being controlled by an electromagnet situated within the circuit in which said inclined ways are placed, and devices to permit said valve to close quickly but which retard the opening of the same, the connections between said valves and said device being arranged to cause the valves to open at different periods.

22. In an electric alarm system, a plurality of circuit-closers composed of inclined ways having conducting and non-conducting portions, a roller circuit-closer, a valve comprising a plate situated at the upper end of the upper inclined way of each of said circuit-closers, an armature connected with the valve, an electromagnet in the circuit controlled by said inclined ways and roller circuit-closers, and an arm upon the pivot of the valve and connected with the dash-pot.

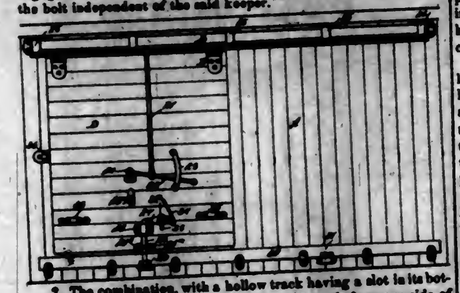
23. In an electric alarm system, a plurality of circuit-closers composed of inclined ways having conducting and non-conducting portions, a roller circuit-closer, a valve comprising a plate situated at the upper end of the upper inclined way of each of said circuit-closers, an armature connected with the valve, an electromagnet in the circuit controlled by said inclined ways and roller circuit-closers, and an arm upon the pivot of the valve and connected with the dash-pot, said arms in the different circuit-closers varying in length.

24. In an electric alarm system, a plurality of circuit-closers, composed of inclined ways having conducting and non-conducting portions, a roller circuit-closer, a valve comprising a plate situated at the upper end of the upper inclined way of each of said circuit-closers, an armature connected with the valve, an electromagnet in the circuit controlled by said inclined ways and roller circuit-closers, an arm upon the pivot of the valve and connected with the dash-pot, and a counterbalance-weight.

25. In an electric alarm system, a plurality of circuit-closers composed of inclined ways having conducting and non-conducting portions, a roller circuit-closer, a valve comprising a plate situated at the upper end of the upper inclined way of each of said circuit-closers, an armature connected with the valve, an electric magnet in the circuit controlled by said inclined ways and roller circuit-closers, an arm upon the pivot of the valve and connected with the dash-pot, and an adjustable counterbalance-weight.

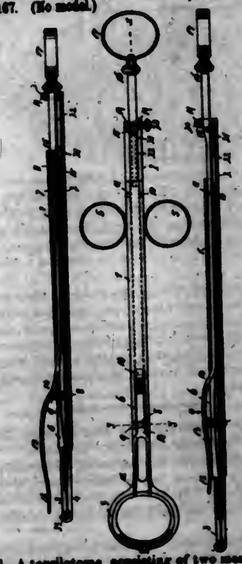
606,077. DOOR-HANGER. JAMES E. OWEN, JOHN C. GABEL, JR., and GEORGE F. MCKINNEY, Ottawa, Ill. Filed Mar. 26, 1897. Serial No. 630,373. (No model.)

Claim.—1. The combination, with the body of a car, a trolley and track, a door connected with the said track and a lift-lever for the door, of a keeper located near the door-opening, a bolt held to slide and rock upon the said door, the bolt being adapted to enter the said keeper, a lateral cam projection upon the bolt, adapted to engage the door when the bolt is rotated, and a locking device for the bolt independent of the said keeper.



2. The combination, with a hollow track having a slot in its bottom and brackets extending around the said track from one side of the slot to the other, and a carriage held to travel in the said track, consisting of a body-bar which extends within the slotted portion of the track, and wheels at each side of the carriage, traveling in the bottom portion of the track, of a drop-door, hinges connecting the said drop-door with the carriage, each hinge consisting of three members having a knuckle connection, the lower member of each hinge being secured to the upper portion of the door, and the upper member of each hinge being attached to the carriage, and a lift-lever fulcrumed upon the door, a rod connecting the lever with the carriage, a bolt held to slide and rock upon the door, said bolt being provided with a lateral cam projection adapted to engage the door when the bolt is rotated, a keeper for the bolt independent of the door, and a locking device for the said bolt, substantially as shown and described.

606,078. TONSILOTOME. CHRISTIAN PATTERSON, Brooklyn, N. Y., assignor to Friedrich A. Kosh, same place. Filed Nov. 19, 1897. Serial No. 659,167. (No model.)



Claim.—1. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another and having loop-shaped cutters, and a fork having a shank housed between the said two members or shanks and slidable longitudinally thereof, substantially as and for the purpose described.

2. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another and having loop-shaped cutters, one of the members or shanks having in its inner side a longitudinal grooved guideway, and a fork having a shank housed between said two members or shanks and slidable longitudinally in the said grooved guideway, substantially as and for the purpose described.

3. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another and one provided with a longitudinal slot, a stem secured to the other member or shank and provided with a cross-head to pass through the said slot for connecting and disconnecting the parts, and a fork having a shank portion housed between said two members or shanks and resting upon the cross-head of the stem, substantially as and for the purposes described.

4. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another and one provided with a longitudinal slot, a screw-stem secured to the other member or shank and provided with a cross-head to pass through the said slot for connecting and disconnecting the parts, and a fork having a shank portion housed between said two members or shanks and resting upon the cross head of the screw-stem, substantially as and for the purposes described.

5. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another, a lock for connecting the two members or shanks to prevent them sliding longitudinally with respect to one another, and a fork having a shank interposed between said two members or shanks and provided with means for opening said lock when said fork-shank is moved forward, substantially as and for the purposes described.

6. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another, one of said members or shanks having a recess and the other a tongue to engage the recess to lock the two members or shanks against longitudinal movement relatively to one another, and a fork having a shank interposed between said two members or shanks and having an inclined or wedge-shaped portion to disengage the tongue from the recess when the fork-shank is slid forward, substantially as and for the purposes described.

7. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another and one provided in its inner side with a longitudinal grooved guideway and a recess and the other with a tongue constructed to enter the recess to lock the two members or shanks together, and a fork having a shank located in the said longitudinal grooved guideway and having an inclined or wedge-shaped portion to disengage the tongue from the recess, substantially as and for the purposes described.

8. A tonsilotome, consisting of two members or shanks slidable longitudinally with respect to one another and having loop-shaped cutters, one of the shanks provided at the end opposite its loop-shaped cutter with a longitudinal groove 22, and a fork having a shank interposed between said two members or shanks and having a pin 21 fitted into said groove and designed to strike either end thereof when the fork-shank is moved longitudinally between said two members or shanks, substantially as and for the purposes described.

606,079. BUGGY-TOP-BOW SUPPORT. JOHN A. PAULIS, St. Louis, Mo. Filed Apr. 20, 1898. Serial No. 679,155. (No model.)



Claim.—The herein-described support for buggy-tops, consisting of the hub D provided with the angular opening E, the oppositely-extended arms F and G, the U-shaped cradles or seats H and I at their outer ends, and the soft lining J in said seats, said support being adapted to be secured to the ends of the seat-frame by means of square bolts passed through the openings E and into the seat-frame, substantially as described.

606,080. ROTARY ENGINE. WILLIAM J. PEARCE, Clinton, Ind., assignor of one-half to John A. Hurth, same place. Filed Aug. 19, 1897. Serial No. 648,797. (No model.)

Claim.—1. In a rotary engine the combination of a piston with an abutment, provided with steam and exhaust ports, being actuated directly by the piston and rotatable to reverse the engine, substantially as shown and described.

2. In a rotary engine the combination of the eccentric piston, the reciprocating rotatable abutment provided with steam and exhaust ports and operated directly by the piston, and means for rotating the abutment to reverse the engine, substantially as shown.

3. In a rotary engine the combination of an eccentric piston, an

abutment provided with a steam-valve projecting therefrom and operated directly by the piston and an exhaust-passage in the abutment, substantially as shown and described.



4. In a rotary engine the combination of the piston with an abutment provided with steam and exhaust passages, a longitudinally-fixed reversing-rod upon which the abutment can reciprocate extending into the same, and means for rotating the rod to reverse the engine.

5. In a rotary engine the combination of a piston with an abutment provided with a valve in its steam-passage, a projection on the end of the same, upon which the piston acts to operate it.

6. In a rotary engine the combination of a piston with an abutment provided with grooves connecting with the steam and exhaust pipes, and with steam and exhaust passages, the steam-passage having a steam-valve projecting therefrom and operated directly by the piston.

7. In a rotary engine the combination of the eccentric piston, the ported abutment which is provided with a square recess in its outer end, a square-ended rod entering the recess and provided with a collar which seats against the abutment-cylinder head and means for turning the rod.

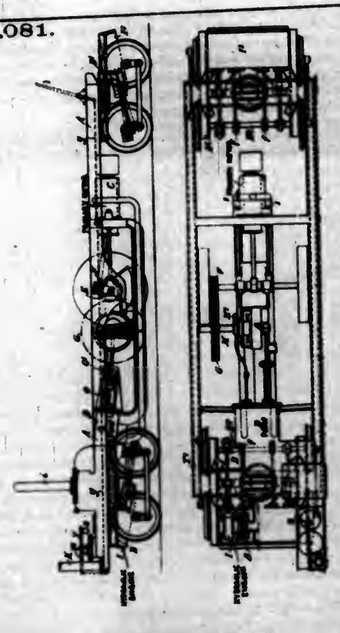
8. In a rotary engine the combination of the ported abutment, the rod entering the same, and projecting beyond the abutment-cylinder head, a segmental gear on the end of the rod, a reversing-lever connected to a shaft, and a segmental gear on the shaft meshing with the gear on the rod, whereby the engine is reversed.

606,081. ENGINE FOR DRIVING TRAMWAY-CARS. BUTLER F. PEEL, London, England. Filed Mar. 17, 1896. Serial No. 583,612. (No model.)

Claim.—1. In motive-power engines for driving tram-cars and other vehicles, the combination of a primary motor and a pump driven thereby, with a bogie carrying a hydraulic engine and provided with communicating passages between the pump and the hydraulic engine, and through the center of the bogie and a valve in the said passages under the control of the driver for controlling the flow of liquid to the hydraulic engine, all substantially as hereinbefore described.

2. In apparatus for starting, driving, regulating the speed, and reversing the motion of tramway-cars and other vehicles, the combination of a gas or oil engine, a pump operated thereby, a hydraulic engine supplied with water by the pump, a supply-tank, and connecting-passages, with a self-acting valve connecting the passage leading from the reservoir to the pump to the passage connecting the pump to the engine, and in the event of the hydraulic engine racing and thereby requiring more water than that supplied by the pump or pumps adapted to open and admit water from the supply-tank to make up the deficiency, substantially as hereinbefore described.

606,081.



606,082. CLASP. JOSEPH H. PILKINGTON, Waterbury, Conn. Filed Sept. 7, 1897. Serial No. 650,720. (No model.)



Claim.—1. A clasp consisting of a front plate and a back plate, a projection on the back plate having a vertical slot, and a spring locking-lever pivoted to the back plate and lying within said vertical slot when in locked position, said spring-lever having locking-prongs which extend upward parallel with the locking-lever and then inward so that the action of the prongs in engaging a garment is in an arc of a circle.

2. A clasp provided with a front and back plate between which the material to be engaged by said clasp is held, a locking-lever pivoted to said back plate and lying parallel therewith when in locked position, said locking-lever having prongs which span said plate and engage the material, spring-arms carried by said lever, and a projection on said back plate having a slot into which said spring-arms fall and are locked.

606,083. REGENERATOR. JOHN A. POTTER, Cleveland, Ohio. Filed Apr. 6, 1897. Serial No. 630,940. (No model.)

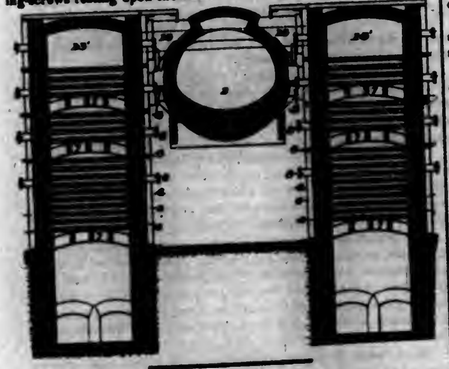
Claim.—1. In a single surface-regenerator, a portable open-ended section provided in its lower portion with inwardly-projecting supports, said section being filled with a series of separate bricks stacked to form checker-work, said bricks being entirely carried by the said inner supports.

2. A vertically-extending regenerator composed of horizontally-divided separate sections, each having in its lower portion an arch supporting the checker-work therein.

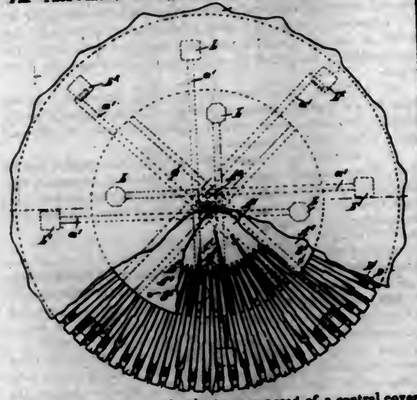
3. The combination with two flues having registering ends, one of said flues being movable relatively to the other, of a block between the ends of the flues, and having projecting lugs supported upon said flues.

4. The combination with two flues having registering ends, of a wedge-shaped block held between the same and having lugs supported upon the flues.

5. The combination with two flues having registering ends, of a block held between the same and having lugs provided with adjusting-screws resting upon the flues.



606,084. EXTENSION-TABLE. CHARLES POUPOS, Eagle Lake, Fla. Filed June 7, 1897. Serial No. 639,753. (No model.)



Claim.—1. A table having its top composed of a central cover-plate and a series of sectors retractible beneath the cover-plate said sectors all lying and moving in the same plane, means for uniformly moving them outward on radial lines, and fixed radial ribs forming guides controlling the position of said sectors and supporting the cover-plate.

2. A table having a central fixed structure, extension members comprising sectors flexibly connected to each other, and means for synchronously moving them in a radial direction.

3. A table having a top comprising sectors flexibly connected to each other, means for synchronously moving them outward in a radial direction, and a central cover-plate adapted to cover said sectors when in their retracted position.

4. A table having a central fixed structure, extension members comprising sectors movable on radial lines and flexible connections between their outer ends limiting their separation.

5. A table having a central fixed structure, extension members comprising sectors movable on radial lines and springs between the sectors pressing the same apart.

6. A table having a central fixed structure, extension members comprising sectors hinged to each other at their inner ends, and all occupying the same plane.

7. A table having its top formed of a central cover-plate and sectors movable on radial lines, and springs between the sectors pressing the same apart, substantially as described.

8. A table having its top composed of a central cover-plate and sectors hinged to each other at their inner ends, substantially as described.

9. A table having its top composed of a central cover-plate and sectors hinged to each other at their inner ends, and means for synchronously moving the sectors outward or inward, substantially as described.

10. A table having its top composed of a central cover-plate and sectors hinged to each other at their inner ends, fixed guides for the sectors, and means for synchronously moving the sectors outward or inward, substantially as described.

11. A table having its top composed of a central cover-plate and sectors, and spring-hinges connecting the inner ends of the sectors, substantially as described.

12. A table having its top composed of a central cover-plate and sectors, spring-hinges connecting the inner ends of the sectors, and means for synchronously moving the sectors in a radial direction, substantially as described.

13. A table having its top composed of a central cover-plate and sectors having shallow recesses on their sides, and flat springs within said recesses and forcing the sectors apart, substantially as described.

14. A table having its top composed of a central cover-plate and sectors movable on radial lines, and connections between the outer ends of the sectors and defining their maximum spread, substantially as described.

15. A table having its top formed of a central cover-plate and sectors movable on radial lines, and a chain attached to the outer ends of the sectors and defining their maximum spread, substantially as described.

16. A table having a central fixed structure, extension members comprising sectors hinged to each other at their inner ends, and a chain attached to the outer ends of the sectors and defining their maximum spread, substantially as described.

17. A table having a central fixed structure, extension members comprising sectors hinged to each other at their inner ends, means for synchronously moving the sectors outward and inward, and a chain attached to the outer ends of the sectors, and defining their maximum spread, substantially as described.

18. A table having a central fixed structure, extension members comprising sectors hinged to each other at their inner ends, fixed guides for the sectors, means for synchronously moving the sectors inward and outward, and a chain attached to the outer ends of the sectors and defining their maximum spread, substantially as described.

19. A table having a central fixed structure, extension members comprising sectors movable on radial lines, springs between the sectors and pressing the same apart, and a chain attached to the outer ends of the sectors and defining their maximum spread, substantially as described.

20. A table having a central fixed structure, extension members comprising sectors movable on radial lines, springs between the sectors and pressing the same apart, and means for synchronously moving the sectors outward or inward, substantially as described.

21. A table having a central fixed structure, extension members comprising sectors movable on radial lines, springs between the sectors and pressing the same apart, fixed guides for the sectors, and means for synchronously moving the sectors outward or inward, substantially as described.

22. A table having a central fixed structure, extension members comprising sectors movable on radial lines, springs between the sectors and pressing the same apart, means for synchronously moving the sectors outward or inward, and a chain attached to the outer ends of the sectors and defining the maximum spread, substantially as described.

23. A table having a top comprising sectors, means for synchronously moving the sectors outward or inward, guiding-ribs lying between sectors, and a thin plate above the sectors and upon the guiding-ribs, and secured to the table at its center, substantially as described.

24. A table having a top comprising sectors, guiding-ribs between the sectors, means for simultaneously moving the sectors outward or inward, a central hub having its upper surface level with the tops of the ribs, and a thin plate covering the sectors and ribs and fixed to the central hub, substantially as described.

25. A table having a top comprising sectors, guiding-ribs between the sectors, means for simultaneously moving the sectors outward or inward, a central hub having its upper surface level with the tops of the ribs, and a thin plate covering the sectors and ribs, and fixed to the central hub and at its outer edge to the table by pins passing through between the sectors, substantially as described.

26. A table having a central fixed structure, extension members comprising sectors, an expansible ring connected to said sectors, and means for expanding and contracting said ring, substantially as described.

27. A table having a central fixed structure, extension members comprising sectors, an expansible ring connected to said sectors, radial rods engaging said ring at intervals, and means for moving the rods inward or outward at will, substantially as described.

28. A table having a central fixed structure, extension members comprising sectors, an expansible ring connected to said sectors, toothed rods extending from the center outward and engaging said

ring at intervals, a central pinion engaging said rods, and means for turning the pinion, substantially as described.

29. A table having a central fixed structure, extension members comprising sectors, an expansible ring, staples upon the sectors embracing said ring, and means for expanding and contracting said ring, substantially as described.

30. A table having a central fixed structure, extension members comprising sectors, an expansible ring consisting of overlapping bars sliding upon each other, staples upon the sectors and embracing said ring, and means for expanding and contracting the ring, substantially as described.

31. A table having a central fixed structure, extension members comprising sectors, an expansible ring consisting of outer and inner parts which telescope, staples upon the sectors embracing said ring, and means for expanding and contracting the ring, substantially as described.

32. A table having a central fixed structure, extension members comprising sectors, two expansible rings, one within the other, each ring being composed of sections which telescope, the inner section of one ring being located adjacent to the tubular or outer section of the other ring, and staples attached to the sectors and embracing the outer or tubular sections of the rings, substantially as described.

33. A table having a central fixed structure, extension members comprising sectors, an expansible ring, staples upon the sectors embracing the said ring, arms extending from the center outward and engaging said ring, and means for operating said arms simultaneously, substantially as described.

34. A table having a central fixed structure, extension members comprising sectors, two expansible rings one within the other, each ring being composed of sections which telescope, the inner section of one ring being located adjacent to the tubular or outer section of the other ring, staples attached to the sectors and embracing the outer or tubular sections of the rings, arms extending from the center outward and engaging said rings, and means for extending or withdrawing said arms simultaneously, substantially as described.

35. A table having a central fixed structure, extension members comprising sectors, two expansible rings one within the other, each ring being composed of sections which telescope, the inner section of one ring being located adjacent to the tubular or outer section of the other ring, staples attached to the sectors and embracing the outer or tubular sections of the ring, toothed arms extending from the center outward and engaging said rings, a central pinion engaging said arms, and means for turning said pinion, substantially as described.

36. A table having a central fixed structure, extension members comprising sectors, two expansible rings one within the other, each ring being composed of sections which telescope, the inner section of one ring being located adjacent to the tubular or outer section of the other ring, staples attached to the sectors and embracing the outer or tubular sections of the rings, toothed arms extending from the center outward and engaging said rings, a central shaft carrying a spur-pinion engaging said arms, a bevel-pinion, a horizontal shaft having a bevel-pinion engaging the first-named bevel-pinion, and means for turning the shaft, substantially as described.

37. A table having a central fixed structure, extension members comprising sectors, an expansible ring connected to said sectors, toothed arms extending from the center outward and engaging said rings, a central shaft carrying a spur-pinion engaging said arms, a bevel-pinion, a horizontal shaft having a bevel-pinion engaging the first-named bevel pinion, and means for turning said shaft, substantially as described.

38. A table having a central fixed structure, extension members comprising sectors, an expansible ring connected to said sectors, arms extending from the center outward and connected to said ring, means for extending and withdrawing said arms, and legs connected to said arms, substantially as described.

39. A table having a central fixed structure, extension members comprising sectors, an expansible ring connected to said sectors, toothed arms extending from the center outward and connected to said ring, a central pinion engaging said arms, means for turning said pinion, and legs connected to the outer ends of said arms, substantially as described.

40. A table having a central fixed structure, extension members comprising sectors, two expansible rings one within the other, each ring being composed of sections which telescope, the inner section of one ring being located adjacent to the tubular or outer section of the other ring, loops attached to the sectors and embracing the outer or tubular sections of the rings, arms extending from the center outward and connected to said rings, means for extending and withdrawing said arms and legs connected to the outer ends of the arms, substantially as described.

41. A table having a central fixed structure, extension members comprising sectors, two expansible rings one within the other, each ring being composed of sections which telescope, the inner section of one ring being located adjacent to the tubular or outer section of the other ring, loops attached to the sectors and embracing the outer or tubular sections of the rings, toothed arms extending from the center outward and engaging said rings, a central shaft carrying a spur-pinion engaging said arms, a bevel-pinion, a horizontal shaft having a bevel-pinion engaging the first-named bevel-pinion, means for turning said horizontal shaft, and legs connected to the said arms and rings, substantially as described

42. A table having a central fixed structure, extension members comprising sectors, expansible rings connected to said sectors, arms extending from the center outwardly, means for extending and withdrawing said arms, and rollers connected to the outer ends of said arms and embracing the rings, substantially as described.

43. A table having an expansible top, legs supporting the expansible outer sections of the said top, toothed arms extending from the center outward and connected to said legs at top and bottom, central pinions engaging said toothed arms, and means for turning said pinions, substantially as described.

44. A table having an expansible top, legs supporting the expansible outer sections of said top, toothed arms extending from the center outward and connected to said legs at top and bottom, central pinions engaging said toothed arms, a common shaft for said pinions, a horizontal shaft provided at its outer end with means by which it may be turned, and bevel-gears connecting the two shafts, substantially as described.

45. A table having an expansible outer section, legs pivoted thereto, and means by which the pivoted legs may be locked in a horizontal or vertical position, substantially as described.

46. A table having an expansible outer section, arms extending from the center outward and connected to the expansible outer section to operate it, means for moving said arms synchronously, legs pivoted to the outer ends of said arms, and means for locking the arms in either a horizontal or vertical position, substantially as described.

47. A table having an expansible top section composed of sectors, means for moving said sectors inward or outward, and peripherally-expansible supporting-rails extending about the table beneath said sectors, substantially as described.

48. A table having an expansible top section composed of sectors, means for moving said sectors inward or outward, expansible supporting-rails extending about the table beneath said sectors, and shoes attached to the under side of the sectors, and engaging said rails, substantially as described.

606,085. ANTIRATTLING NUT-LOCKING DEVICE FOR THILL-COUPLINGS. CHARLES T. REMFIELD, Glenhaven, N. Y. Filed Dec. 28, 1897. Serial No. 663,974. (No model.)



Claim.—1. A bearing and locking plate for thill-couplings, consisting of a spring-body provided with a tongue-section between its ends and with wings at the ends, one adapted as a means of support and the other for locking engagement with the nut of the pivot-bolt of the thill-coupling, as described.

2. In a bearing and locking plate for thill couplings, a body-section provided with a tongue and wings at its ends, the free end of the tongue extending beyond the plane of the upper surface of the body, one wing being longer than the other and provided with an opening and a flange, substantially as described.

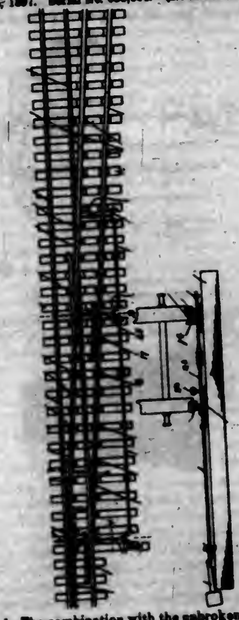
3. The combination, with the barrel of a thill-coupling and the pivot-bolt and nut of the said barrel, of an attachment consisting of a plate provided with a body portion having a tongue arranged for engagement with the barrel, a wing at one end adapted to receive the bolt, and a wing at the opposite end, adapted for contact with the nut of the said pivot-bolt, for the purpose specified.

4. In an antirattling and nut-locking device for thill-couplings, a double spring, each spring extending parallel with and acting independently of the other, one spring locking the nut on the coupling-bolt and the other spring acting to prevent rattling of the coupling.

5. In an antirattling and nut-locking device for thill-couplings, a spring-body divided longitudinally to form a tongue adapted to engage with the barrel of the coupling and a section adapted to lock the nut on the bolt of the said coupling, as and for the purpose specified.

6. An antirattling nut-locking device having a body or connecting portion and end wings and having such body provided between its sides with a tongue whose free end is deflected for engagement with the barrel of the coupling substantially as described.

606,086. FROGLESS SWITCH. MICHAEL RILEY, London, Ohio. Filed Oct. 13, 1897. Serial No. 655,081. (No model.)



Claim.—1. The combination with the unbroken main-track rails, and the movable switch-rail sections elevated as described, one being adapted to be moved over the main-track rail and the others to contact with the side of the main-track rails, of a guard-rail between the main-track rails independent of but connected to and movable with one of the last-mentioned sections, as and for the purpose specified.

2. In a frogless switch, the combination with the unbroken main-track rails, of the movable switch-rail sections having their ends beveled to engage the sides of the main-track rails, the movable switch-rail section elevated to move over the main-track rail, means for moving all of said sections simultaneously, and a guard-rail between the main-track rails, independent of but connected to and movable with one of said sections, substantially as shown and described.

3. The combination with the unbroken main-track rails, of the movable sections of the switch-rails, a rod secured to the under side of the said sections and passed loosely through openings in the main-track rails, means for actuating said rod and sections, and an adjusting-nut on the outer end of said rod to contact with the main-track rail, substantially as and for the purpose specified.

606,087. GARBAGE-CLOSET. CORNELIA S. ROBINSON, New York, N. Y. Filed July 2, 1897. Serial No. 643,215. (No model.)



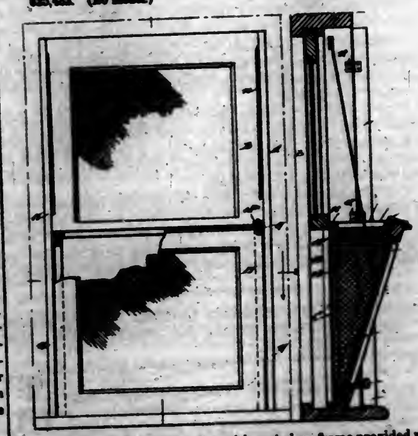
Claim.—1. A garbage-closet formed in a wall of a building and having a portion of its outer wall inclined downwardly and outwardly forming a hood projecting out beyond the outer face of the wall of the building and having its bottom closed by a screen, the said closet being provided with a flue leading from its top, substantially as described.

2. A garbage-closet formed in a wall of a building and having the upper portion of its outer wall inclined downwardly and outwardly forming a hood projecting out beyond the outer face of the wall of the building, terminating short of the bottom of the closet and having its bottom closed by a screen, the said closet being provided with a flue leading from its top, substantially as described.

3. A garbage-closet formed in the wall of a building and being of a depth about equal to the thickness of the said wall, the outer wall of the closet inclining from the top downwardly and outwardly forming a hood projecting beyond the outer face of the wall of the building, said hood terminating short of the bottom of the closet and having its bottom closed by a screen, the said closet being provided with a flue leading from the top out through the wall of the building, substantially as described.

4. A garbage-closet formed in the wall of a building and comprising a casing fitting in an opening in the wall and having its outer wall inclined downwardly and outwardly from the top forming a hood projecting beyond the outer face of the wall of the building and terminating short of the bottom of the said casing, a screen extending from the lower outer portion of the hood to the vertical portion of the outer wall of the casing, a flue leading from the top of the casing, and a door in the inner wall of the said casing, substantially as herein shown and described.

606,088. VENTILATING ATTACHMENT FOR WINDOWS. KARIE C. SAMSON, Brooklyn, N. Y. Filed Mar. 1, 1897. Serial No. 625,622. (No model.)

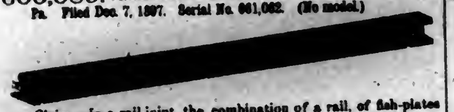


Claim.—1. The combination with a window-frame provided with stop-beads hinged to the inner edge of the frame and adapted to be carried parallel with the inner vertical faces of the sides of the window-frame, and a lower sash held to slide in said frame and adapted to rest with its lower edge on the lower part of the said window-frame, the said sash being arranged to be given an inward inclination when the stop-beads are swung inward on their hinges, of a removable ventilating attachment comprising a framework covered with a reticulated or perforated material and shaped to fit between the inclined lower sash and the window-frame, and locking devices whereby the ventilating attachment may be secured to the sashes, substantially as described.

2. The combination with a window-frame provided with inner stop-beads having a hinged connection with the window frame at the inner edge thereof, whereby said stop-beads may be carried parallel with the inner vertical faces of the sides of the window-frame, and a lower sliding sash for said window-frame having its lower edge adapted to rest in a groove in the lower part of the window-frame, the said lower sash being arranged when in its lowermost position to be given an inward inclination when the inner stop-beads are swung inward out of the way, of a ventilating attachment for the said lower sash consisting of ventilating side frames covered with a reticulated or perforated material and shaped to approximate a right-angled triangle, the straight sides of the frames being arranged for engagement with the face of the window-frame and the inclined sides with the outer face of the lower sash when the latter is inclined from the window-frame, a cover ventilating-frame arranged to rest upon the side ventilating-frames and also provided with a reticulated or perforated

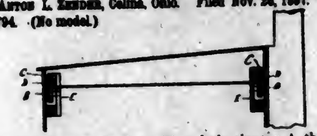
covering, the inclined sides of the ventilating-frame being each provided with an extension at its upper part, and latches attached to the extensions and adapted to engage with the lower sash, substantially as set forth.

606,089. RAIL-JOINT. ERNST J. SCHINDERÜTTE, McKee's Rocks, Pa. Filed Dec. 7, 1897. Serial No. 661,062. (No model.)



Claim.—In a rail-joint, the combination of a rail, of fish-plates engaging the web of the rail, said fish-plates being provided with a flange conforming to the base of the rail, said fish-plate being also provided on one end with an aperture, the opposite end with a transversely-extending lug, said lug passing through an aperture formed in the web of the rail at or near the center thereof and through the aperture of the fish-plate on the opposite side of the rail, and a wedge or key for securing the fish-plates in position, substantially as shown and described.

606,090. MOVABLE-TOP WRITING-DESK. JACOB M. SCHUPCK and ANTOS L. ZENDER, Celina, Ohio. Filed Nov. 26, 1897. Serial No. 659,794. (No model.)

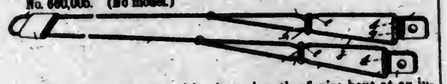


Claim.—1. In combination with a desk, the top A, the supporting-rollers B and means for holding the top upon said rollers, said top being movable endwise in either direction to uncover the desk, substantially as described.

2. In combination with a desk the top A, the supporting-rollers B and means for holding the top upon said rollers, comprising rollers C supported on the desk and bearing upon a part connected to the top, said top being movable endwise in either direction to uncover the desk substantially as described.

3. In combination with a desk, the top A, the supporting-rollers B and means for holding the top upon said rollers, comprising rollers C supported on the desk and bearing upon a part connected to the top, said part consisting of rails D and said top being movable endwise in either direction to uncover the desk substantially as described.

606,091. MUD-GUARD FOR BICYCLES. CHARLES I. SEAQUIST and ALFRED L. SEAQUIST, Portland, Oreg. Filed Nov. 27, 1897. Serial No. 660,005. (No model.)



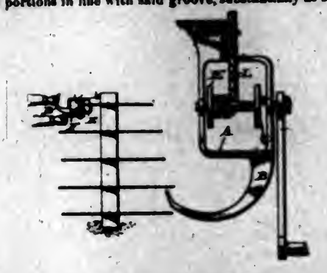
Claim.—1. A mud-guard having a length of wire bent at an intermediate point, a web attached to the wire adjacent to said bend and forming the mud-guard proper, two additional wires respectively connected with the arms of the first-named wire, a link embracing each of said additional wires and each arm of the first-named wire, and two clips each having a tubular portion, and each end of the first-named wire and the free ends of the second-named wires being bent transversely to fit into said tubular portions.

2. A mud-guard for wheels having a member capable of running around each side of the wheel and provided at its outer end with a guard proper, an additional member mounted to swing on each side of the first-named member at the inner end thereof, a link embracing each of said additional members and also embracing the adjacent side of the first-named member to hold said parts together, and a clip engaging the free and inner end of each of said additional members and also engaging each side of the first-named member to support the mud-guard.

3. In a mud-guard for wheels, the combination of two clips adapted to be supported adjacent to the axle of the wheel, a member capable of extending around each side of the wheel and having each of its inner ends held by one of the clips, a guard proper carried at the outer end of said member, and two additional members carried respectively by the sides of the first-named member and extending downwardly and inwardly to engage the respective clips.

606,092. MACHINE FOR STRETCHING WIRE OR OTHER PURPOSES. CHARLES W. SELVIDGE, Mexia, Tex. Filed Oct. 20, 1897. Serial No. 656,236. (No model.)

Claim.—The herein-described device for use as a wire-stretcher, and for other purposes, consisting of the centrally-open frame, having a claw extension at one corner portion, and a lug extension at the opposite corner portion, said extension having a broadened square end adapted to take a bearing against a fence-post, and having its lateral edge longitudinally grooved, said frame having a hole through its end portions in line with said groove, substantially as specified.

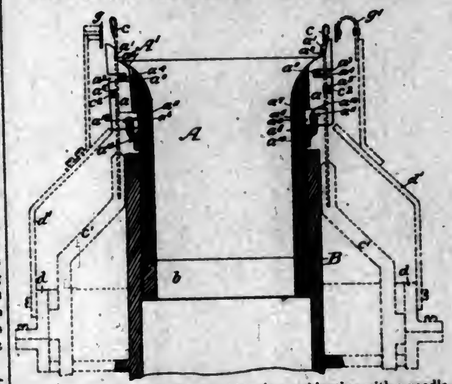


606,093. BOILER-FLUE CLEANER. WILLIAM SEEKER, Harrison, Kans. Filed Dec. 28, 1897. Serial No. 663,966. (No model.)



Claim.—In a boiler-tube cleaner, a head consisting of an outer section flaring toward and approximately to its front edge, which is beveled inwardly, and formed in the rear of its flaring portion with an internally-threaded nipple, and an inner section screwing into the said nipple, and closed at its outer end, said latter section flaring forwardly in a less degree than the outer section to a point near its front edge, at which point it is given a decided outward flare and closely approaches the beveled edge of the outer section, forming therewith a forwardly and outwardly extending steam-passage, and provided with annular series of openings through which the steam is adapted to flow into the space between the said shells, as and for the purpose set forth.

606,094. SINKER-TOP FOR HOSIERY-KNITTING MACHINES. HENRY H. SERVISS TON and WILLIAM L. WHITEHEAD, Philadelphia, Pa. Filed July 19, 1897. Serial No. 645,198. (No model.)



Claim.—1. In a knitting-machine the combination with a needle-cylinder and sinker-top of sinkers, an annular flange on the said top, a wedge-shaped notch in the bottom of each sinker fitting over the said flange, and allowing the top end of the sinker to move a certain distance outwardly, and means for holding the upper ends of the sinkers toward the center of the needle-cylinder, substantially as and for the purposes set forth.

2. In a knitting-machine the combination with a needle-cylinder and sinker-top, of sinkers, an annular flange on the said top, a groove in the lower end of each sinker to fit over the said flange and allowing the top end of the sinker to move a certain distance outwardly,

a shoulder on said sinker-top, a projection on each sinker abutting said shoulder to prevent the sinker from moving upwardly and means for holding the upper ends of the sinkers toward the center of the needle-cylinder, substantially as and for the purposes set forth.

3. In a knitting-machine, the combination with a needle-cylinder and sinker-top, of sinkers, an annular flange on the said top, a groove in the lower end of each sinker to fit over the said flange and allowing the top end of the sinker to move a certain distance outwardly, a shoulder on said sinker-top, a projection on each sinker abutting said shoulder to prevent the sinkers from moving upwardly an annular groove in the sinker-top, a groove or notch in each of the sinkers corresponding with the said groove of the top and a coiled annular spring located in said groove substantially as and for the purposes set forth.

4. In a knitting-machine, the combination with a needle cylinder and sinker-top, of a diametrically-extended portion at the top of the sinker-top, slots in said extended portion, sinkers located in said slots, an annular flange removably held against a shoulder of the sinker-top, a groove in the lower end of each sinker, to fit over the said flange, and allowing the top end of the sinker to move a certain distance outwardly, a shoulder on said sinker-top, a projection on each sinker abutting said shoulder to prevent the sinkers from moving upwardly, an annular groove in the sinker-top, a notch in each of the sinkers corresponding with the said groove of the top, and a coiled annular spring located in said groove, substantially as and for the purposes set forth.

5. In a knitting-machine, the combination with needles, a needle-cylinder and means for operating the said needles, of a sinker-top mounted inside the needle-cylinder and having an extended portion at the top, slots in said portion, sinkers located in said slots, an annular flange on said top for supporting the said sinkers and allowing the top ends of the sinkers to move a certain distance outwardly and means for normally maintaining the top ends of the sinkers toward the center of the machine, substantially as and for the purposes set forth.

6. In a knitting-machine, the combination with a needle-cylinder and sinker-top of an extension on said top, slots therein, sinkers located in said slots, an annular flange on said top for supporting the said sinkers and allowing the top ends thereof to move a certain distance outwardly, means to prevent the sinkers from moving upwardly and means for normally maintaining the top ends of the sinkers toward the center of the machine, substantially as and for the purposes set forth.

606,095. PENCIL-HOLDER. WASHINGTON B. B. SMITH, Liberty, N. Y. Filed Jan. 7, 1897. Serial No. 618,268. (No model.)



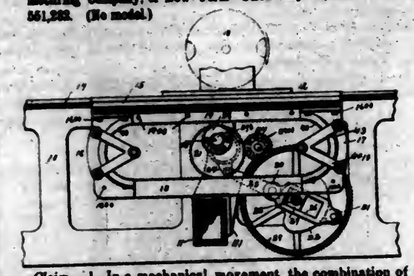
Claim.—1. The herein-described holding device for pens, pencils, &c., comprising an approximately cylindrical receptacle having an opening in one side, attaching means, and an elastic band passing transversely around and lying partially within the side opening in said receptacle, substantially as and for the purpose described.

2. In a holding device of the class described, the main body portion having attaching means connected thereto, and provided with lateral flaps which are rolled upon one side to form receptacles for pencils, &c., the said receptacles being provided with openings, and a resilient band extending around the holder and lying partially within said receptacles, substantially as described.

3. A pencil-holding device, comprising a body portion, oppositely-projecting flaps having central openings and rolled upon one side of the holder to form receptacles, a tab at one end of the body portion folded back to form a bearing-eye, a pin having its journal portion mounted in said eye, and a guard for the point of the pin formed by incising the body of the holder and deflecting the metal included by the incision, said holder being adapted to receive a resilient band around it, the arrangement being such that said band will lie partially within the receptacles for the pencil, &c., substantially as described.

4. The pencil-holder described consisting of the body portion of sheet metal and provided with means for attachment to the clothing, the edges of said body portion having integral flaps which are looped inwardly toward the body and toward each other forming two receptacles nearly cylindrical in form in front of said body and side by side, said receptacles having front openings and a retaining-piece extending across the openings, substantially as and for the purpose stated.

606,096. MECHANICAL MOVEMENT. LOUIS W. SOUTHGATE, Worcester, Mass., assignor to the Campbell Printing Press and Manufacturing Company, of New York. Filed May 31, 1895. Serial No. 551,282. (No model.)



Claim.—1. In a mechanical movement, the combination of the reciprocating bed or member, with means for giving the same its major reciprocation and a reversing mechanism consisting of a curved rack carried by said bed, a pinion fixed upon a revolving crank, adapted to engage said curved rack, a working shoulder fixed upon said crank, concentrically with said reversing-pinion, and a curved working shoulder mounted on the bed, concentrically with said curved rack, substantially as described.

2. In a mechanical movement, the combination of the reciprocating bed or member, a main driving mechanism adapted to give the same its major reciprocation, curved racks mounted at each end of said bed, a reversing-pinion fixed upon a revolving crank, and adapted to alternately engage said curved racks to reverse the movement of the bed in either direction, a working shoulder fixed concentrically with said reversing-pinion, and curved working shoulders arranged concentrically with said curved racks, substantially as described.

3. In a mechanical movement, the combination of the reciprocating bed or member, the main driving mechanism for giving the same its major reciprocation, a curved rack carried by said bed, a reversing-pinion fixed upon a revolving crank, and adapted to engage said curved rack, a working shoulder fixed concentrically with said reversing-pinion, a working shoulder arranged concentrically with said curved rack, a stud arranged concentrically with said reversing-pinion, and a roller arranged concentrically with said curved rack, substantially as described.

4. In a mechanical movement, the combination of the reciprocating bed or member having the main racks, a driving-gear arranged between said main racks, means for raising and lowering the driving-gear to alternately engage said racks, curved racks secured to each end of said bed, a reversing-pinion fixed upon the main driving-gear, a circular working shoulder fixed upon said main driving-gear concentric with the reversing-pinion, and curved working shoulders arranged on said bed concentrically with said reversing-pinion, substantially as described.

5. In a mechanical movement, the combination of the reciprocating bed or member having two racks, a raising and lowering driving-gear engaging said racks, said gear carrying a reversing-pinion 38, a working shoulder 36 and a stud as 37, depending curved racks arranged at each end of the bed, working shoulders arranged concentrically with said curved racks, and rollers with which the stud mounted on the driving-gear is adapted to coact to keep the reversing-pinion in mesh with the curved racks and the working shoulders together, substantially as described.

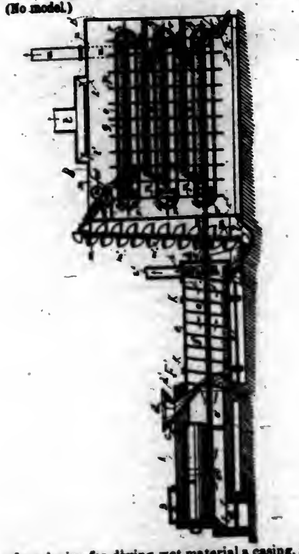
6. The combination of the reciprocating bed or member, a main driving mechanism for giving the same its major reciprocation, and a reversing mechanism consisting of a reversing-pinion mounted on a revolving crank, a curved working shoulder also fixed upon said crank concentrically with said reversing-pinion, and of a diameter substantially equal to the pitch diameter of said pinion, a curved rack depending from said bed, and a curved working shoulder carried by said bed concentrically with said curved rack of a diameter substantially equal to the pitch diameter of said curved rack, substantially as described.

7. In a mechanical movement, the combination of the reciprocating bed or member, a main driving-gear 21, a stud 35 fitting therein, said stud having a working shoulder 36 and a projecting stud 37, a reversing-pinion 38 mounted on said stud 37, and curved racks, working shoulders and rollers secured to each end of said bed, substantially as described.

8. The combination in a mechanical movement of the reciprocating bed or member, the main driving mechanism for giving the same its major reciprocation, and a reversing mechanism consisting of a reversing-pinion mounted upon a revolving crank, a curved working shoulder arranged concentrically therewith substantially the pitch diameter of the reversing-pinion, brackets depending from each

end of the bed having curved racks, and working shoulders formed integrally therewith, substantially as described.

606,097. DRYING APPARATUS. EMANUEL STAUBER, Berlin, Germany. Filed Aug. 15, 1896. Renewed Mar. 28, 1898. Serial No. 675,513. (No model.)



Claim.—In a device for drying wet material a casing, a fire-rack therein, a boiler above said rack and within said casing, a shoulder in said casing and opposite said fire-rack a rotatable cylinder engaging said shoulder, a cap, an annular inwardly-directed flange secured thereto having an opening in the lower part thereof and being adapted to receive the other end of said cylinder, a steam-pipe in connection with said boiler and passing lengthwise through said cylinder, a spiral flange within said cylinder and surrounding said pipe, an exhaust-pipe in connection with said cylinder, encircling bands having teeth on the outer end thereof, gear-wheels adapted to engage the same and a funnel in said casing and entering said cylinder, all of the said parts being combined substantially as described.

606,098. BOUQUET-HOLDER. ADOLPH STIEFEL, Hammelburg, Germany. Filed Jan. 4, 1896. Serial No. 665,525. (No model.)



Claim.—1. A bouquet-holder, comprising a plurality of adjustable sections, a ring adjustable longitudinally thereon, and means for retaining said ring in adjusted position.

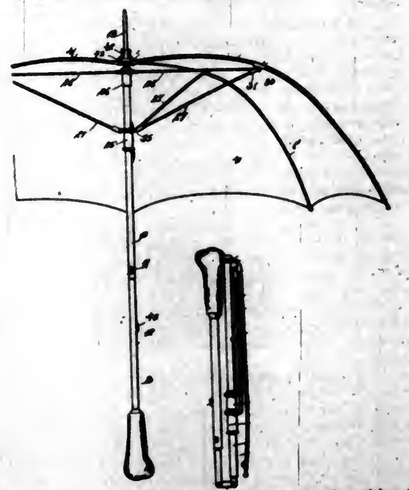
2. In a bouquet-holder, the combination with a receptacle composed of a plurality of independently-movable sections, flaring at one end, of a longitudinally-adjustable ring designed to encompass said sections, and accomplish their adjustment, and a spring for retaining said ring in adjusted position.

3. In a bouquet-holder, the combination with a receptacle composed of a base, a pin for attaching the holder to a garment, and a plurality of independently-movable sections integral with the base and flaring at their upper ends, of an adjustably-mounted ring designed to encompass said sections and to accomplish their adjustment, and a spring attached at one end to said ring and provided with an eye at its opposite end, through which the pin is adapted to be passed for retaining said ring in adjusted position.

4. The combination with a bouquet holder having an opening in the body thereof, of a flexible pin pivoted to said body and adapted to be bent so that the pointed end thereof may be passed through said opening

5. The combination with a bouquet-holder composed of a plurality of sections, of an adjusting-ring encompassing the sections designed to clamp them upon the stems of a bouquet, a pin secured at the lower end of the holder and designed to enter a minute aperture adjacent to its upper end, and a spring secured at its opposite ends to the free end of the pin, and to the ring.

606,099. FOLDING UMBRELLA. FRANK H. STOVER and FRANK G. GROVE, Luray, Va. Filed June 21, 1897. Serial No. 641,664. (No model.)



Claim.—1. In a folding umbrella, the combination with a telescoping stick, the sections of which are provided with longitudinal slots, the slot of the inner section being the longer, of a double-headed latch pivoted at about the center of its length in the slots of the sections and provided at its upper end with an extension for limiting the downward movement of the inner section, substantially as described.

2. In an umbrella, the combination, with a telescopic stick, the inner stick-section being provided with a slot and a transverse recess at its slotted portion and the outer section being provided with a slot corresponding to that of the inner section, and likewise with a transverse recess, of a latch having a double head, the space between the heads being adapted for the reception of a runner, and a pivot-pin for the latch, passed through the same and normally entering the transverse recess or slot in the inner section of the stick.

3. In an umbrella, the combination, with a stick constructed in telescopic sections, the sections being provided with longitudinally-registering slots and the slot in the inner section being longer than that in the outer section, of a latch provided with a head near each end, and an extension beyond the upper head, the latch being adapted to enter the longitudinal slots in the two sections, and a pivot for the latch, capable of entering the transverse slots and recesses in both of the sections, or in one of them only, as and for the purpose specified.

4. In a folding umbrella, a stick comprising a tubular outer section having its lower end notched, and an inner section sliding in the tube and consisting of two sections hinged together by a link, the outer member of the inner section being formed with a shoulder and lugs to enter the notches of the tubular outer section, substantially as described.

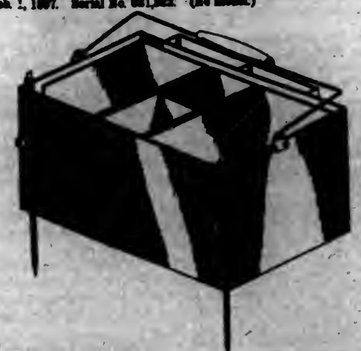
5. In a folding umbrella, the combination of a stick formed of telescoping sections provided with longitudinal slots, the slot of the inner section being the longer, the inner section of the stick being formed of two sections connected by a link, ribs carried by the stick, and formed of sections sliding one upon the other, runners on the stick, two sets of stretchers, one set for each runner, the stretchers being pivoted to the runners and to the ribs, and a double-headed latch pivoted in the slots of the stick-sections and provided with an extension for limiting the downward movement of the inner stick-section, substantially as described.

6. A folding umbrella, comprising a stick formed of an inner and outer section, each formed with a longitudinal slot, the slot of the inner section being the longer, the said inner section sliding in the outer section and formed of two members connected together by a link, ribs carried by the outer stick-section and formed of sections sliding one upon the other, runners on the outer stick-section, two sets of stretchers pivoted to the runners and to the lower rib-sections, a latch pivoted in the slots of the stick-sections and serving to lock the lower runner in position and the sections of the stick together when the umbrella is opened, and a cover secured to the lower rib-sections and provided with a central opening in which the upper end of the inner stick-section is free to slide, substantially as described.

7. A folding umbrella, consisting of a stick formed of an inner and outer section, each formed with a longitudinal slot, the slot of the inner section being the longer, the said inner section sliding in the outer section and formed of two members connected together by a link, ribs secured to the outer stick-section and formed of two sections sliding one upon the other, two runners on the outer stick-section, two sets of stretchers pivoted to the runners and to the lower rib-sections by a common pivot, a double-headed latch pivoted in the slots of the stick-sections and serving to lock the lower runner in position and the sections of the stick together when the umbrella is opened, and a cover secured to the lower rib-sections and provided with a ferrule in which the upper end of the inner stick-section is free to slide, substantially as described.

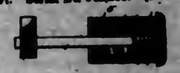
8. A folding umbrella, consisting of a stick formed of an inner and outer section, each formed with a longitudinal slot, the slot of the inner section being the longer, the said inner section sliding in the outer section and formed of two members connected together by a link, ribs carried by the outer stick-section and formed of sections sliding one upon the other, runners on the outer stick-section, two sets of stretchers pivoted to the runners and to the lower rib-sections, a double-headed latch pivoted in the slots of the stick-sections and serving to lock the lower runner in position and the stick-sections together when the umbrella is opened, the said latch being provided at one end with an extension for limiting the downward movement of the inner stick-section, and a cover secured to the lower sections of the ribs and to a ferrule in which the upper end of the inner stick-section is free to slide, substantially as herein shown and described.

606,100. COMBINATION PAINT-BUCKET. HENRY G. THOMPSON, Hollister, Cal., assignor of one-half to John Dettinger, same place. Filed Feb. 1, 1897. Serial No. 621,922. (No model.)



Claim.—The herein-described paint-bucket, comprising a receptacle having exterior pockets, a series of removable buckets located in said receptacle, sleeves located inside of said bucket in opposite corners of the latter, and pointed rods held in said sleeves and capable of independent adjustment, said rods being designed to extend at their lower ends below said receptacle, substantially as set forth.

606,101. SASH-FASTENER. JOHN T. THOMPSON, Baltimore, Md. Filed June 18, 1897. Serial No. 641,263. (No model.)



Claim.—In a sash-fastener, the combination with a window-sash, of a rack countersunk in the edge thereof, and having downwardly-disposed teeth, a window-frame, a squared spindle extending into the frame, an oscillatory dog secured to the spindle and designed to engage the rack, a rectangular locking-plate b provided with an enlarged opening for the spindle, an annular toothed projection extending from one face of the locking-plate, a cylindrical locking member, provided with a comparatively large shallow recess in one end and a deep circular recess in its opposite end defining an intermediate diaphragm, having a squared aperture for the reception of the spindle, teeth upon the locking member engaging the teeth upon the locking-plate projection, a knob extending into the deep recess in the locking member, and screwed upon the end of the spindle and having an enlarged head abutting against the outer end of the locking member, and extending beyond its periphery, said knob being designed to control the movement of the locking member upon the spindle and to oscillate the latter to operate the dog, and a leaf-spring secured to the face of the frame and having its lower end bent inwardly into engagement with the dog, substantially as specified.

606,102. COUPLING ATTACHMENT FOR RAILWAY-CARS. WILLIAM THORBURN, Shelby, Ohio, assignor to the Thorburgh Coupler Attachments Company, Limited, Detroit, Mich. Filed Nov. 19, 1897. Serial No. 659,094. (No model.)



Claim.—1. A combined draft apparatus and draft-spring housing for railway-cars consisting of two metal walls forming draft-plates to take the place of the customary draft-timbers of a car, said walls constructed with integral inwardly-projecting contacting flanges to form draft-spring housing between said walls open at the bottom of said housing, an additional device to close the bottom of said housing, and means to unite said walls, substantially as set forth.

2. In a coupler attachment for railway-cars, the combination of two metal walls forming draft-plates to take the place of the customary draft-timbers and constructed to form the side walls, top and rear of a draft-spring housing between them integral with said walls, and means to unite said walls, said walls formed with integral inwardly-projecting top and rear flanges meeting one another intermediate the sides of said walls, and forming the top and rear of said draft-spring housing, substantially as set forth.

3. In a coupler attachment for railway-cars, integrally-combined draft-plates and a draft-spring housing consisting of two metal walls forming the draft-plates to take the place of the customary draft-timbers, said walls constructed to form a draft-spring housing between them integral with said walls open at the bottom of the housing and having integral stops to limit the movement of follower-plates in said housing, a draft-spring in said housing, an additional device to close the bottom of said housing, and bolts passed horizontally through said walls to unite said walls together, said walls formed with contacting flanges intermediate the sides of the walls preventing lateral compression of said spring, substantially as set forth.

4. A combined draft apparatus and draft-spring housing for railway-cars consisting of two metal walls forming draft-plates to take the place of the customary draft-timbers constructed to form a draft-spring housing between them integral with said walls, horizontal bolts uniting said walls, and a movable gate or spider to close the bottom of said housing, said walls formed with inwardly-projecting flanges forming the top and the rear of the housing, substantially as described.

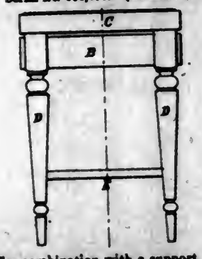
5. A combined draft apparatus and draft-spring housing for railway-cars consisting of two metal side walls independently secured to the car-sills, and constructed to form the side walls and top of a draft-

spring housing between them integral with said walls, a draft-spring in said housing, follower-plates in said housing, an additional device to close the bottom of said housing, and means to hold said side walls together, said side walls constructed with integral contacting flanges to form said housing, and with integral stops to limit the movement of said follower-plates, substantially as described.

6. In a coupler attachment for railway-cars, a housing provided with separable metal walls forming draft-plates to take the place of the customary draft-timbers, said walls formed with contacting top flanges a', a^3, and with inwardly-projecting contacting rear walls a^6, a^5, and bolts passed horizontally through said walls to unite said plates, substantially as set forth.

7. A coupler attachment for railway-cars consisting of two metal walls forming draft-plates and constructed to form a draft-spring housing between them integral with said walls, a draft-spring in said housing, follower-plates in said housing, and means to unite said walls, said walls formed with integral stops to limit the movement of the follower-plates, with inwardly-projecting flanges a', a^2 forming the top of the housing, with inwardly-projecting flanges a^3, a^4 forming the rear of the housing, and with inwardly-projecting flanges a^5, a^6 between the housing and the rear ends of said walls, substantially as set forth.

606,108. FOLDING CHAIR. CHARLES C. TOMPS, Johnstown, Pa., assignor to Thomas J. Pearl and Robert Ferguson, same place. Filed Sept. 23, 1896. Serial No. 606,758. (No model.)



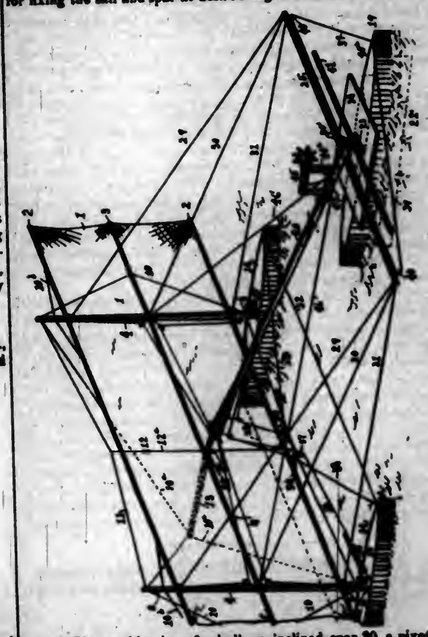
Claim.—1. The combination with a support, of a strip secured thereto and having an upper straight edge, a seat having a strip along the rear edge thereof formed with a straight surface and adapted to rest, when in folded position, directly on the top of the horizontal strip and be held in a perpendicular position, an automatically-folding leg hinged to the under portion of the said seat, and spring-hinges connecting the strip at the rear edge of the seat with the said horizontal strip, the said seat with its leg being automatically raised by the action of the spring-hinges and prevented from moving backward beyond a predetermined point by the straight surface of the rear edge thereof engaging the upper straight surface of the horizontal strip, the hinges connecting said strips being respectively applied to the under rear portion of the seat-strip and the upper outer portion of the horizontal strip, substantially as specified.

2. The combination with a support, of a horizontal strip secured thereto and provided with an upper straight edge, a seat having legs hinged to the outer front portion thereof and provided with a strip along the rear edge, also formed with a straight surface of less width than the said horizontal strip and adapted to rest on the latter when in folded position and spring-hinges connecting the strip at the rear of the seat, and the said horizontal strip and serving to automatically raise the said seat, the said seat when elevated being perpendicularly positioned and the preponderance of its weight applied to the rear of the hinges and acting as an auxiliary to the springs of said hinges to maintain the seat in elevated position.

3. The combination with a support, of a horizontal strip secured thereto and provided with an upper straight edge, a seat having a strip along the rear edge thereof formed with a straight engaging surface adapted to rest on the upper straight surface of said horizontal strip, the seat-strip being of less width than the said horizontal strip, spring-hinges connecting said horizontal strip and seat-strip and automatically operating to raise the seat, the said seat, when in elevated rested position, being perpendicular and limited in backward movement by the straight edge of the rear strip thereof engaging the upper surface of the horizontal strip to avoid the strain on the connecting hinges and also facilitate the maintenance of an upright position thereof, and legs hinged to the outer under portion of the said seat and automatically folded when the seat is raised, substantially as described.

606,104. VESSEL AND SAIL AND RIGGING THEREFOR. CHARLES TWINING, Halifax, Canada. Filed Sept. 30, 1897. Serial No. 653,464. (No model.) Patented in England Sept. 30, 1896, No. 21,635.

Claim.—1. The combination, in a sailing apparatus, of a hull, an inclined spar, a pivotal connection between said spar and the hull, a sail at the outer end of said spar and transverse thereto, and means for fixing the sail and spar at desired angles with the hub.



2. The combination of a hull, an inclined spar 20, a pivot connecting the hull and spar, a sail at the outer end of the spar, and means distinct from said hull and spar for supporting said sail.

3. The combination of a hull, an inclined spar, a pivotal connection between the hull and spar, near the center of the hull, and a sail at the outer end of the spar and transverse thereto.

4. The combination of a hull, an inclined spar, a pivotal connection between the hull and spar, a sail at the outer end of the spar and transverse thereto, and means for spreading and furling said sail from said hull.

5. The combination of a hull, an inclined spar, a sail transverse to the spar, secured to the spar at its outer end, and ropes and pulleys for spreading and furling the sail from the hull.

6. The combination of a hull, an inclined spar, a sail, at the outer end of the spar, middle and side yards for the sail, ropes extending to the hull for pulling the side yards from the middle yard to spread the sail, and ropes also extending to the hull for pulling the side yards to the middle yard to furl the sail.

7. The combination of a hull, an inclined spar, a sail at the outer end of the spar, middle and side yards for the sail, ropes extending to the hull for pulling the side yards from the middle yard to spread the sail, and ropes also extending to the hull for pulling the side yards to the middle, and ropes from one side yard over suitable pulleys to the other side yard, whereby one side yard is caused to counterbalance the other side yard.

8. The combination of a hull, an inclined spar, a sail at the outer end of the spar, middle and side yards for the sail, the former being fixed and the latter movable from and toward it, ropes extending to the hull for spreading and furling the sail, and ropes passing over pulleys and between the side yards, whereby the moving of one side yard will move the other also but in opposite direction.

9. The combination of a hull, an inclined spar, a sail at the outer end of the spar, a pivotal connection between the sail and spar, and means operated at the hull for shifting the angle between the sail and spar.

10. The combination of a hull, an inclined spar having a pivotal connection with the hull, a sail adapted to be stretched in or nearly in a vertical plane, and connected to the outer end of the spar.

11. The combination of a hull, a sail, a spar connected at one end to said hull and at the other end pivotally connected at the center of the sail, whereby when the sail is spread in the wind the spar assumes a position in a vertical plane at right angles to the length of the sail, means for changing the angle between the sail and spar, and means for securing the spar and its hull in the new position, whereby the course of the apparatus is changed.

12. The combination of a hull, an inclined spar having a pivotal connection with the hull, a sail adapted to be stretched in or nearly in a vertical plane, a pivot at the outer end of the spar connecting the spar and sail, and means operated from the hull for shifting the angle between the sail and the spar and holding the sail and spar at the angle to which they are set.

13. The combination of a main hull, an inclined spar, a vertical or nearly vertical sail connected to the outer end of the spar, and hulls, distinct from the main hull, below and supporting said sail.

14. The combination of a single rectangular sail continually supported when spread in or nearly in a vertical plane, hulls below the sail, masts at the centers of said hulls supporting the sail, a main hull at a distance to one side of the plane of the sail, a spar one end of which is pivoted to the sail at its center and the other end of which is pivotally connected to the main hull, and means for turning any of the hulls to, and securing them at, any desired angle to the plane of the sail.

15. The combination of a rectangular sail having secured thereto horizontal yards along the middle, top, and bottom of the sail, and a plurality of hulls below the sail for supporting it.

16. The combination of a rectangular sail having secured thereto horizontal yards along the middle, top, and bottom of the sail, a plurality of hulls below the sail, a vertical mast from each hull below the sail, said masts being secured to the middle yard where they cross, and the side yards having eyes adapted to slide on the masts.

17. The combination of a main hull, a spar 20 secured thereto, a sail connected to the outer end of said spar, horizontal sail-yards secured along the top, bottom and middle of the sail, a hull below the sail on each side of its center, a mast on each hull below the sail, the middle yard being connected to the masts where they cross, and the side yards having eyes adapted to slide on the masts, and ropes and pulleys for moving the side yards at will and securing them.

18. The combination of a main hull, a spar 20, a sail at the outer end of the spar, horizontal yards along the edges and middle of the sail, hulls below the sail, masts rising from said hulls the middle yard being connected to the masts where they cross, the side yards having eyes adapted to slide on the masts, ropes extending from the side yards over pulleys to the main hull for pulling the side yards away from the middle yard, and similar ropes for returning said yards whereby the sail is spread and furled.

19. The combination of a main hull, a spar 20, a sail at the outer end of said spar, hulls 14 below the sail, masts 4, I-irons secured in bearings across the decks at right angles to their length, the vertical arms of said irons entering suitable eyes on the masts 4.

20. The combination of a main hull, a I-iron secured in bearings across the deck at or near the middle thereof, a spar 20 pivoted on the vertical member of said I-iron, a sail at the outer end of the spar, and hulls below the sail for supporting it.

21. The combination of a hull, a spar 20, a sail at the outer end of the spar, hulls below the sail, I-irons secured in bearings across the decks of the hulls below the sail, masts supported by said I-irons and supporting the sail, and on which the sail can be spread.

22. The combination, of a sail, a plurality of hulls below and supporting said sail, a mast rising from the centers of each of said hulls on which said sail can be spread, said sail always extending across both said hulls at their centers, said hulls below the sail being movable to vary the horizontal angle which they make with the plane of the sail, stays holding said masts parallel, and stays holding said hulls parallel.

23. The combination of a rectangular sail, horizontal side and middle sail-yards to which the sail is connected, a plurality of hulls below the sail, masts rising from said hulls and supporting the sail and yards, stays between said masts, and stays between said masts and the middle yard holding the masts parallel, said sail always extending over all said hulls.

24. The combination of a main hull, a spar 20, a pivot therefor on the main hull, a sail at the outer end of the spar, horizontal sail-yards, an end yard over the deck of the main hull parallel with the sail and sail-yards and secured to the pivot, hulls below the sail, masts rising therefrom, and stays between the sail-yards or the masts and the end yard holding the sail and end yard parallel.

25. The combination of a main hull, a spar 20, a pivot on said hull for said spar, a sail at the outer end of the spar, sail-yards, hulls below the sail, vertical masts rising therefrom and supporting the sail, an end yard above the deck of the main hull, stays holding the sail and yard continually parallel, ropes extending from a point of leverage on the main hull to pulleys at the end of the end yard for moving the hull to any angle with the end yard and there securing it.

26. The combination of a hull, a spar 20, a pivot on the hull for said spar, a sail at the outer end of the spar, an end yard above the deck of the hull, one or more bars projecting sidewise from the deck and firmly fixed thereto so as to stand horizontal pull, and ropes from said bar through pulleys at the ends of the end yard for shifting the hull to a different angle with the end yard.

27. The combination of a hull, a mast, a sail, a vertical pivot at the bottom of the mast and near the middle of the hull, a sidewise-extending bar fixed to said hull and forming a point of attachment for turning the hull horizontally on said pivot.

28. The combination of a hull, a mast, a sail, a vertical pivot near the middle of the hull and at the bottom of the mast, a sidewise-extending bar fixed to said hull and forming a point of attachment for turning the hull horizontally on said pivot, said bar being adjustable horizontally to different angles with the hull.

29. The combination of a hull, a vertical pivot near the middle thereof, a sidewise-extending bar fixed to said hull and forming a point of attachment for turning the hull horizontally on said pivot, a rope attached to said bar for partially turning the hull, and a rope attached to an end of said hull also for further turning it.

30. The combination of a hull having a central pivot, notched boards or bodies arranged beside the pivot, a bar for turning the hull on said pivot one end of which has a bearing against the pivot the other end of which projects beyond the hull the bar being adapted to enter one or another of the notches thereby securing the bar to the hull at a desired angle.

31. The combination of a hull having a deck, hinged notched boards near the edges of the deck, and a bar 43 held in either of said notches.

32. The combination of a hull closed air-tight, a vertical pivot rising at the middle of the hull, a spar 20 secured to the pivot and a sail secured to the spar at its outer end.

33. The combination of a hull, a vertical pivot rising from the hull, a spar 20 secured to the pivot, a sail secured to the spar at its outer end, hulls closed air-tight below the sail, and masts rising from the hulls below the sail and supporting the sail.

34. The combination of a main hull closed air-tight, a spar 20, a sail at the outer end of the spar, and hulls closed air-tight below the sail and supporting it.

35. The combination with a sail, of a plurality of hulls closed air-tight below the sail and supporting it said sail always extending over all said hulls.

36. The combination with a sail, of a plurality of hulls closed air-tight below the sail and supporting it, said sail always extending over all said hulls, and means for holding the hulls at any desired horizontal angle with the sail.

37. The combination of a hull rectangular in cross-section, the sides being vertical and inclining similarly from the center to each end, a spar pivotally connected to said hull, and a sail, as set forth.

38. The combination of a main hull closed air-tight, rectangular in cross-section, a vertical pivot rising at the middle of the deck of the hull, a spar 20, a vertical sail pivotally connected to the spar at its outer end, hulls below the sail closed air-tight and rectangular in cross-section, and masts rising from the hulls below the sail and supporting it.

39. The combination of a main hull, a spar 20, a vertical pin fixed to the outer end of the spar, a sail having side yards and a middle yard, a vertical eye or socket fixed to the middle of the middle yard and receiving said vertical pin.

40. The combinations of hulls 14 and 19, spar 20 and masts 4, a sail adapted to be spread on masts 4, horizontal middle and side yards for the sail, an end yard 25 above hull 19, stays 29, 30, 31 between the ends of the end yard and the sail at or near where the sail-yards cross masts 4, and ropes from the sail where the middle yard crosses masts 4 to hull 19.

41. The combination of a hull, an inclined spar pivotally connected at one end to the hull, a sail at the other end of the spar, means for securing the hull at a desired angle with the sail, means for changing the angle between the spar and sail, and means for maintaining the same angle between the sail and hull.

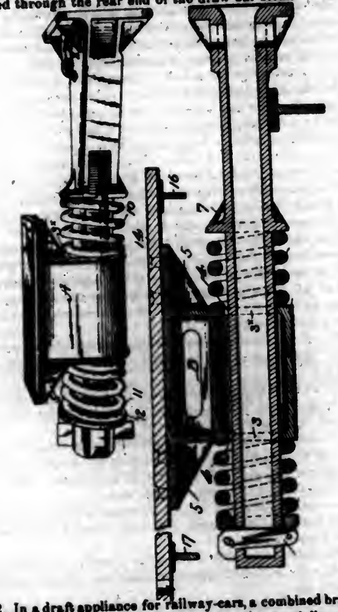
42. The combination of a vertical or nearly vertical sail, hulls inclining similarly from the middle to each end below and supporting the sail, a main hull, and a spar 20 between the main hull and the sail.

43. The combination of a vertical or nearly vertical sail, hulls inclining similarly from the middle to each end below and supporting the sail, a main hull also inclining similarly from the middle to each end and a spar 20 from the main hull to the sail.

606,105. DRAW-BAR FOR RAILWAY-CARS. WILLIAM T. VAN DORN, Chicago, Ill. Filed Jan. 14, 1898. Serial No. 666,705. (No model.)

Claim.—1. In a draft appliance for railway-cars, a combined bracket and buffer-sleeve integral with each other, a suitable supporting-bar secured to the bracket and pivotally connected to the car at one end to move on a horizontal plane, a draw-bar having its stem projected through the buffer-sleeve, and formed with an annular collar, a buffer-spring on the draw-bar between the collar and the front end of the buffer-sleeve, a relief-spring on the stem between the rear

face of the buffer-sleeve and the end of the draw-bar stem, and a key projected through the rear end of the draw-bar stem.



2. In a draft appliance for railway-cars, a combined bracket and buffer-sleeve, the buffer-sleeve part being substantially cylindrical and formed with internal annular flanges having angular openings, a suitable pivotally-secured support to which the bracket is secured and movable therewith, a hollow draw-bar projected through the buffer-sleeve and having a limited vertical play in the openings therein, and formed with an annular collar, a spring on the draw-bar between the buffer-collar and the front interior flange of the buffer-sleeve, a spring on the rear portion of the draw-bar stem between the rear internal flange of the buffer-sleeve and the end of the stem, and a key through the rear end of the draw-bar.

3. In combination with a cylindrical buffer-sleeve secured and supported to move on a pivotal support on a horizontal plane, of a draw-bar projected through the buffer-sleeve and formed with an annular buffing-collar, a buffer-spring on the stem of the draw-bar between said annular collar and the buffer-sleeve, a spring on the stem of the draw-bar between the rear of the buffer-sleeve and the rear end of the draw-bar, and a retaining means at the end of the draw-bar stem.

4. In a draft appliance for railway-cars, the combination of a supporting-bracket and a buffer-sleeve pivotally connected together, a draw-bar slidingly projected through the buffer-sleeve, springs on the draw-bar at opposite ends of the said sleeve, and a key to hold the springs and draw-bar in relative position.

5. In a draft appliance for railway-cars, the combination of a suitably-supported buffer-sleeve turning on a vertical axis, a draw-bar projected through the sleeve and having a limited vertical play therein, springs on the draw-bar on opposite ends of the buffer-sleeve with their ends bearing against the ends thereof, and means on the draw-bar stem to hold the other ends of the springs in operative position.

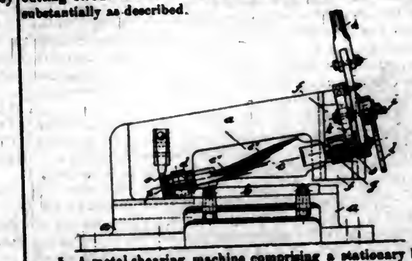
606,106. METAL-SHEARING MACHINE. BRUNO WERNEBURG, Göttingen, Germany. Filed Oct. 7, 1897. Serial No. 654,443. (No model.) Patented in Germany May 19, 1897, No. 96,141; in France Sept. 27, 1897, No. 270,785; in England Sept. 28, 1897, No. 23,163, and in Austria Oct. 22, 1897, No. 47/4,214.

Claim.—1. A metal-shearing machine comprising a stationary blade and a swiveled rotary blade substantially as described.

2. A metal-shearing machine comprising a stationary blade and a swiveled rotary spiral blade substantially as described.

3. A metal-shearing machine comprising a stationary blade, a spiral blade, and a swiveled rotary shaft for the spiral blade substantially as described.

4. A metal-shearing machine comprising a stationary blade, a spiral blade, a swiveled rotary shaft for the spiral blade, and means substantially as described for causing the shaft to rotate during the cutting stroke and to remain stationary during the return stroke substantially as described.



5. A metal-shearing machine comprising a stationary blade, a spiral blade, a rotary shaft for the spiral blade, a ratchet and pawl carrying lever for rotating the shaft in one direction and a ratchet and pawl for holding the shaft against rotation in the opposite direction substantially as described.

6. A metal-shearing machine comprising a stationary blade, a spiral blade, a rotary shaft for the spiral blade, an actuating-lever for rotating the spiral blade, and an eccentric for moving the spiral blade toward and from the other blade substantially as described.

7. A metal-shearing machine comprising a stationary blade, a spiral blade, a rotary shaft for the spiral blade, and an actuating-lever for the spiral blade, said lever having an eccentric guide-arm substantially as described.

8. A metal-shearing machine comprising a stationary blade for supporting the material operated on in the plane of the cut, a swiveled rotary blade, and actuating means substantially as described for the rotary blade.

606,107. BELT-BUCKLE. EMMA B. WINTER, New York, N. Y. Filed Sept. 8, 1897. Serial No. 650,899. (No model.)



Claim.—1. A belt-buckle provided with a buckle-frame, a hook on the back of the frame, a toothed bar on the back of the said frame and spaced therefrom, and a plate extending from the said bar and spaced from the frame for the passage of the belt between the frame and the plate, and for doubling up the end of the belt over the outer edge of the plate, to finally engage the return end of the belt with the teeth of the said bar, substantially as shown and described.

2. A belt-buckle provided with a buckle-frame, two bars on the back of the said frame and spaced therefrom, one of the bars carrying a hook for engagement with a loop or slot plate, and the other being provided with teeth for engagement with the belt material, and a relief-plate extending from the toothed bar between the hook-bar and the back of the frame, to permit of passing the belt between the back of the frame and the said plate, then doubling the belt over the outer edge of the plate, to return the end of the belt between the relief-plate and the hook-bar, and then engage the belt with the teeth and the toothed bar, substantially as shown and described.

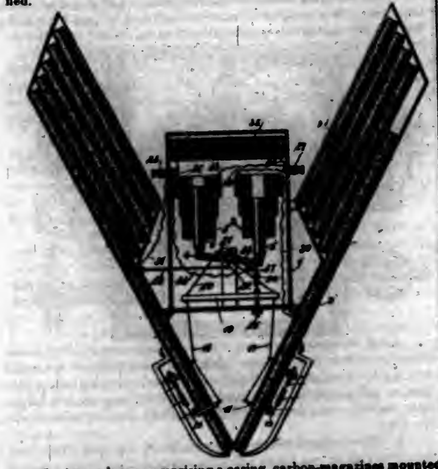
606,108. ELECTRIC-ARC LAMP. FREDERIC WRIGHT, Newburg, N. Y. Filed Oct. 7, 1897. Serial No. 654,574. (No model.)

Claim.—1. An arc-lamp, comprising a casing, carbon-magazines mounted on said casing, carbon-holder tubes extended from the magazines and converging, carbon-locking plates on the tubes, and means for automatically operating said plates, substantially as specified.

2. An arc-lamp, comprising two magazines for containing carbons, tubes extended from the lower ends of said magazines and converging, carbon-locking devices on said tubes, means for automatically operating said locking devices, and stop-fingers on the tubes, substantially as specified.

3. An arc-lamp, comprising a casing, a magazine rigidly attached to one side thereof, a magazine pivotally connected to the other side thereof, carbon-holding tubes extended from said magazines, a rocking lever, a connection between said rocking lever and the pivoted magazine, and electric means for rocking said lever, substantially as specified.

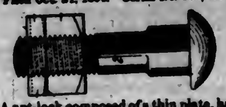
4. An arc-lamp, comprising a casing, a magazine rigidly attached to one side thereof, the said magazine having converging tubes, a rocking lever in the casing, a rod connecting said lever with the swinging magazine, a solenoid in the main circuit, and a core for said solenoid, having connection with the rocking lever, substantially as specified.



5. An arc-lamp, comprising a casing, carbon-magazines mounted on said casing, one of said magazines being mounted to swing relatively to the casing, locking-plates for the carbons, a rocking lever in the casing, connections between said lever and the locking-plates, a connection between said lever and the swinging magazine, a solenoid in the main circuit, having its core connected to one end of the rocking lever, and a solenoid in a shunt-circuit, having its core connected to the opposite end of said lever, substantially as specified.

6. An arc-lamp, comprising a casing, carbon-magazines mounted on said casing, carbon-holding tubes extending from the lower ends of said magazines, locking-plates pivoted to the lower ends of said tubes, adjustable springs for holding said plates in a locking position, a lever mounted to swing in the casing, flexible connections between said locking-plates and said lever at one side of its pivotal point, a solenoid in the main circuit, having its core connected to one end of said lever, a solenoid in a shunt-circuit, having its core connected to the opposite end of said lever, a rod extended from a metallic part carried by said lever to a connection with one of the magazines, the said rod forming a conductor, a contact point or arm operated by said lever, to engage with a fixed contact, a wire leading from said fixed contact through a resistance to the leading-in wire, and a wire leading from a magazine to the leading-out wire, substantially as specified.

606,109. NUT-LOCK. JACOB WURTHNER, Pittsburg, Pa., assignor of three-fourths to Dan Stahlo, Julius Schirra, and Mathias Schaedle, same place. Filed Oct. 21, 1896. Serial No. 609,622. (No model.)

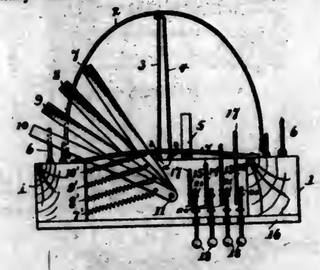


Claim.—1. A nut-lock composed of a thin plate, having a threaded center, and downwardly-turned ends, with the diagonally opposite lower edges of such ends rounded upwardly and adapted to bear upon the face of the nut, substantially as set forth.

2. In combination with a bolt and a nut thereon: a nut-lock having a threaded hole in the center, composed of a thin metallic plate of the same width as the nut and having downwardly-turned ends flush with the sides of the nut, curved on their lower edges, adapted to bear on the face of the nut and to spring the plate upon the threads, substantially as set forth.

606,110. MUSIC-LEAF TURNER. LEONARD WITHERSPOON, Letterburg, Md., assignor of one-half to Daniel C. Gilbert, Washington County, Md. Filed May 17, 1897. Serial No. 636,987. (No model.)

Claim.—The improved music-leaf turner comprising the base 1, the arched spring-brace 2 fixed to said base, the vertical parallel spring-clips 3 and 4, encompassing the arch of said brace 2 and fixed at their lower ends a a to said base by means of the staples b b, the lyre-shaped spring-clips 6 6 fixed to the outer ends of said base, parallel with each other and at right angles to said arched brace, in combination with the pivot-bolt 11, horizontally fixed in the vertical front face of said base centrally beneath said arched brace, the series of plane sheet-metal fingers 7, 8, 9, fulcrumed at their lower ends on said pivot-bolt, the springs 7', 8' and 9' operatively connected to said fingers, and the independent finger-levers 12, 13, 14, each one of which is formed with an eye 20 to receive the staple 21, by means of which it is fulcrumed to said base at a right angle to the path of said fingers 7, 8, 9 and with an angular detent or toe 17 which projects into the path of said fingers and having its outer end provided with a button 18 and the leaf-spring 5, the whole constructed and arranged, substantially as shown and described.



606,111. MUCILAGE-HOLDER. ARTHUR H. ALLEN, Chanute, Kans. Filed Mar. 2, 1898. Serial No. 672,257. (No model.)



Claim.—1. A cover portion for mucilage-holders, having a tapering opening merging into a narrow slot and under surfaces on each side of said slot inclined downwardly and oppositely to each other as they extend away from the latter, substantially as and for the purpose described.

2. A cover portion for mucilage-holders, having a tapering opening merging into a narrow slot, upper surfaces on opposite sides of the said slot sloping downwardly toward the same, and under surfaces sloping oppositely to each other and downwardly away from the slot.

3. A cover portion for mucilage-holders, of double flaring form having a tapering opening merging into a narrow slot with comparatively sharp edges, the upper surfaces around said opening and slot sloping downwardly toward the same and the under surfaces sloping downwardly away from the opening and slot on all sides thereof, substantially as described.

4. A cover portion for mucilage-holders, comprising a cylindrical internally-shouldered upper portion, a horizontal flange thereabout, a lower extension, and a web within the same having a tapering opening merging into a narrow slot and upper surfaces sloping down to said slot and under surfaces sloping oppositely to said upper surfaces.

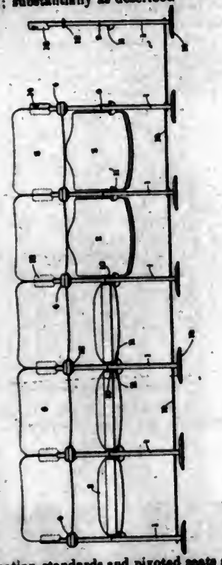
606,112. CHAIR. JAMES G. ARMOUR and CHARLES SOUTHORN, Liverpool, England. Filed Oct. 12, 1897. Serial No. 654,918. (No model.)

Claim.—1. In combination, a row of standards, each of which with the exception of those at the extreme ends of the row serves for two seats; seats provided with pivots and supported by the said standards; open-mouthed sockets on the standards to receive the seat-pivots; and brackets on the standards against which the seats abut when turned down or turned up; substantially as described.

2. In combination, a pair of standards, seats provided with pivots and supported by the said standards, open-mouthed sockets on the standards to receive the seat-pivots, and brackets on the standards against which the seats abut when turned down or turned up; substantially as described.

3. In combination the standards and seat, arm-brackets on the standards and arms with means for fixing the same to the brackets by sliding the arms forwardly into position and means for preventing the retraction of the arms on the brackets, substantially as described.

4. In combination, standards and pivoted seats supported thereby, arm-brackets on the standards with holes of keyhole form, and arms provided with studs 15 to engage said holes and affix the arms to the arm-brackets; substantially as described



5. In combination, standards and pivoted seats supported thereby, palms on the said standards for the attachment of the backs, and backs adapted to be affixed to the said palms and means to tie the backs to the palms by being slid downward into position; substantially as described.

6. In combination, standards and pivoted seats supported thereby, palms on the standards provided with holes of keyhole form, and backs provided with studs such as 15 to engage said holes and affix the backs and tie the standards together; substantially as described.

7. In combination, standards and pivoted seats supported thereby, detachable backs adapted to be slid into position and to tie the standards together at the top, and tie-bars 19 to tie the standards together at the bottom; substantially as described.

8. In combination, standards and pivoted seats supported thereby, arms affixed to arm-brackets on the standards by being slid forward thereon, and backs affixed to the standards by being slid downward thereon and abutting against the rear ends of the arms so as to prevent displacement of the latter; substantially as described.

9. In combination, standards, seats provided with pivots and supported by the standards, open-mouthed sockets on the standards to receive the seat-pivots, brackets on the standards for the seats to abut against, arms affixed to the standards by being slid forward into position, and backs affixed to the standards by being slid downward into position and adapted to tie the standards together and prevent displacement of the arms; substantially as described.

10. A standard for seats of the kind herein set forth, comprising open-mouthed sockets to receive the seat-pivots, brackets for the seats to abut against, arms and arm-brackets and backs and back-palms and means for attaching the arms and backs thereto by sliding motion; substantially as described.

11. A seat 2 provided with a pair of coaxial pivots 10 combined with open-mouthed notches 9 in the standards 1; substantially as described.

12. In combination with the standards and seats, the arm-brackets and the arms having a pair of studs adapted to fit openings in the arm-brackets to be held by engagement therewith, substantially as described.

606,113. AUTOMATIC STEAM-BEER GOVERNOR AND PRESSURE-REGULATOR. SAMUEL H. ATCHISON, San Francisco, Cal. Filed May 4, 1896. Serial No. 590,296. (No model.)

Claim.—1. An automatic regulator through which the fluid must pass, a fount to receive the liquid under pressure, and a float carrying a valve placed in the fount, combined with an outlet-pipe, a perforated inclosing case for the float, and a faucet for drawing off the fluid, substantially as described.

2. In an apparatus of the character described, the combination of a fount receiving steam-beer under pressure and provided with a vent-hole, valves adapted to control both sides of said hole, and a float actuating said valves, substantially as set forth.



3. An automatic regulator, a fount for receiving the fluid, under pressure, a float carrying two valves, and an outlet-pipe controlled by the two valves, combined with a perforated inclosing case for the float, a bell above the pipe, a valve for controlling the flow of gas from the bell, and a faucet for drawing off the fluid, substantially as specified.

4. The combination of a fount capable of receiving steam-beer, provided with an automatic valve for releasing part of the gas from the fount when the beer therein is below a certain level, means controlled by the beer for preventing the operation of the valve to release the gas after the beer has reached a certain level, a high-pressure faucet, and a regulator connected with the source of supply allowing the beer to flow into the fount while the faucet is opened, substantially as described.

606,114. SHOE-LAST. GEORGE H. RAMEY, Springvale, Me. Filed June 1, 1896. Serial No. 593,797. (No model.)

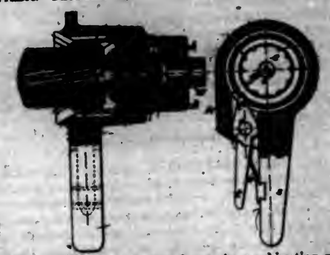


Claim.—1. A shoe-last having a recess therein, and wire loops or staples tightly packed in said recess, with the looped or bent ends thereof adjacent to the outer edge of the recess, as and for the purpose set forth.

2. A shoe-last having a recess therein, a cup fitting said recess, and wire loops or staples packed tightly in said cup, with the looped or bent ends thereof lying adjacent to the outer edge of the cup, as and for the purpose set forth.

3. A shoe-last having a series of recesses therein, cups fitting said recesses, wire loops or staples packed tightly therein and lying with the looped or bent ends thereof adjacent to the outer edge of the cups, and a protecting-plate secured to the bottom of said last having openings therein registering with said recesses, but of smaller diameter than said cups, as and for the purpose set forth.

606,115. GAS-OPERATED GUN. LAURENCE V. BENÉT, Paris, France. Filed Jan. 11, 1898. Serial No. 666,864. (No model.)



Claim.—1. In a gas-operated gun, the combination, with the barrel, of a muzzle-plug having an axial channel of smaller caliber than the bore of the gun, substantially as described and shown, and for the purpose set forth, whereby the pressure of the powder-gases may be utilized to operate the gun.

2. In a gas-operated gun, the combination, with the barrel, of a muzzle-plug having an axial channel of smaller caliber than the bore of the gun, and held in elastic contact with the muzzle, substantially as described and shown and for the purpose set forth.

3. In a gas-operated gun, the combination, with the barrel, of a muzzle-plug, substantially as described, means for holding it in elastic contact with the muzzle of the barrel, and means for allowing any surplus gas to escape in the open air, substantially as described and shown.

4. In a gas-operated gun, the combination, with the barrel, of a muzzle-plug, substantially as described, a casing for the muzzle-plug, means for holding the latter in the casing, means for holding the muzzle-plug in elastic contact with the muzzle of the barrel, and means for allowing any surplus gas to escape in the open air, substantially as described and shown.

5. In a gas-operated gun, the combination, with the barrel, of a muzzle-plug, substantially as described, a casing for the muzzle-plug, means for holding the latter in the casing, means for holding the casing to the muzzle, means for holding the muzzle-plug in elastic contact with the muzzle of the barrel, substantially as described and shown, and for the purpose set forth.

6. In a gas-operated gun, the combination, with the barrel, of a muzzle-plug, substantially as described, a casing for the muzzle-plug, means for holding the latter in the casing, means for holding the casing to the muzzle, means for holding the muzzle-plug in elastic contact with the muzzle of the gun, and means for preventing unlocking during firing, substantially as described and shown, and for the purpose set forth.

606,116. BINDING FOR BLANK BOOKS. WILLIAM B. BOGERT, New York, N. Y. Filed Jan. 8, 1898. Serial No. 666,098. (No model.)



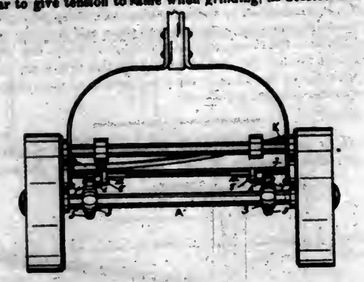
Claim.—1. A removable binding for books, comprising boards forming the sides of the cover, one of said boards being of the full width of the book and the other being narrower, flexible connections between said boards, and means for securing an intermediate portion of said flexible connection to one side of the book-body, near its back whereby either board may be folded about the back and lie smoothly against the other, substantially as described.

2. A removable binding for books, comprising boards included in the side covers, one of said boards being of the full width of its side and the other being narrower, a series of narrow sections having a flexible or hinged connection to each other and to said boards, the one of said narrow sections next the wider of said boards forming the back of the cover, and means for securing the section next said first-named section to one side of the book-body, near its back whereby either cover may be folded over the back and against the other cover and lie flat against the same, all of said strips being of a width substantially equal to the thickness of the book, substantially as described.

3. A removable binding for books, comprising two boards included in the side covers, one of said boards being of the full width of its side and the other being narrower, a series of four narrow sections having a flexible or hinged connection to each other and to said boards, the one of said narrow sections next the wider of said boards forming the back of the cover, and the next having holes therein adapted to receive staples or similar fasteners which pass through the back edge of the book-body, whereby either cover may be folded over the back and against the other cover and lie flat against the same, said strips being of a width substantially equal to the thickness of the book, substantially as described.

606,117. LAWN-MOWER GRINDER. WILLIAM W. ROGERSON, Hamilton, Canada. Filed July 19, 1897. Serial No. 645,073. (No model.)

Claim.—A lawn-mower-knife grinder of the character described consisting of a horizontal emery-bar having rear lugs, clips capable of adjustment and fastening to the binding-bar, or axle of a lawn-mower and pivoted to the said rear lugs of the emery-bar and springs on said pivotal connections to engage with the rear part of said emery-bar to give tension to same when grinding, as described.



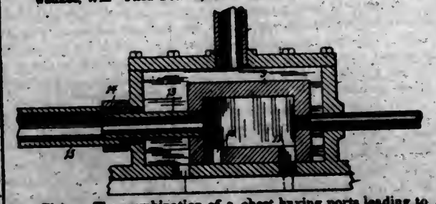
606,118. COMBINED BICYCLE LOCK AND HOLDER. DAVID BOWMAN, Berlin, Canada. Filed Aug. 4, 1896. Renewed Feb. 26, 1898. Serial No. 672,121. (No model.)



Claim.—1. In a combined bicycle lock and support, the combination with a backing, of a pivot-pin connected thereto, a piece of spring metal which is coiled around the pivot-pin and formed with free spring portions terminating in curved clamping members and normally open, and a keeper encircling the arms and adapted for manipulation to close them.

2. In a combined bicycle lock and support, the combination with pivoted arms having outwardly-bent portions and provided with curved fingers adapted to grasp a portion of the bicycle-frame, of a keeper slidable on the arms and a locking device for holding said keeper on the outwardly-extending portions of the arms, whereby the arms are prevented from spreading.

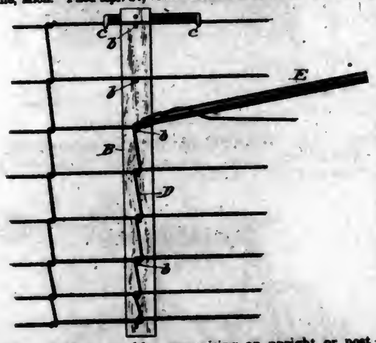
606,119. BALANCED SLIDE VALVE. JAMES CAMPBELL, Milwaukee, Wis. Filed Dec. 10, 1897. Serial No. 661,378. (No model.)



Claim.—The combination of a chest having ports leading to a cylinder, and also provided with an exhaust-passage, a pipe fitted to one end of the chest, a hollow valve located within the chest and provided with ports, one of said ports adapted, when the valve is reciprocated in one direction, to be brought into register with one of the ports of the valve-chest leading to the cylinder, the other port of the valve being closed by the bottom of the chest, and at the same time the other port of the chest leading to the cylinder being opened to the chest, and, when the valve is reciprocated in the opposite direction, said other port of the valve adapted to be brought into register with the other port of the chest leading to the cylinder, and the other port of the valve being closed by the bottom of the chest, and at the same time the other port of the chest leading to the cylinder being opened to said chest, the uncovered port of the chest in communication with the cylinder, in each instance, adapted for the passage therethrough of the exhaust-actuating agent from the cylinder, which exhaust-actuating agent is free to fill the chest and pass out

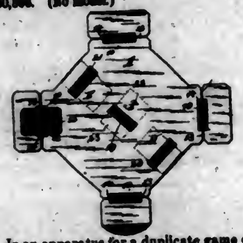
of the final exhaust-pipe, a pipe leading from one end of the valve, and extending freely through the end of the chest, and telescoping freely into the pipe connected to the end of said chest, through which latter pipe the inlet-actuating agent is free to enter and pass into the pipe extending from the valve, and thence through said pipe into the valve for passage through the port of the valve which is brought into register with one of the ports of the chest leading to the cylinder, and means for reciprocating the valve.

606,120. WIRE-FENCE MACHINE. ROBERT CARTER, Jonesville, Mich. Filed Apr. 27, 1896. Serial No. 589,236. (No model.)



Claim.—A fence-machine comprising an upright or post provided with lateral projections designed to engage the horizontal wires of a fence, a cross-piece located at the upper end of the upright or post and having downward projections on its ends, and a tube adapted to receive a wire for connecting to horizontal wires, substantially as described.

606,121. APPARATUS FOR PLAYING DUPLICATE GAMES OF CARDS. SIDNEY L. CASTNER, Brownsville, Tenn. Filed July 29, 1896. Serial No. 600,896. (No model.)



Claim.—1. In an apparatus for a duplicate game of cards, a tray having holders for the reception of the cards, an extension from the body of the tray, and a guide-board provided with index projections, arranged to receive between them the said projection from the tray, for the purpose of determining throughout the game a certain preferred position of the tray, as and for the purpose specified.

2. In an apparatus for a duplicate game of cards, a tray having holders for the reception of the cards and an extension from the body of the tray, and a guide-board provided with index projections to receive between them the said extension from the tray, for the purpose of determining throughout the game a certain preferred position of the tray, the said projection from the tray having indicators applied thereto, whereby it may be readily determined whether the reverse or the obverse side of the tray is uppermost, as and for the purpose specified.

3. A game apparatus having a guide-board provided with two index projections, and a tray capable of carrying cards and provided with a projection capable of extending between the index projections, substantially as described.

4. A game apparatus having a guide-board, and a tray, the tray being capable of being held on the guide-board in a series of certain positions, substantially as described.

5. A game apparatus, the game apparatus having a guide-board provided with two index projections, and a tray having a plurality of projections each capable of extending between the index projections on the guide-board, substantially as described.

6. The combination of a board, and a guide carried thereby, with a plurality of whist-trays, each adapted to rest upon said guide and to engage with said board in one position of the tray relative thereto.

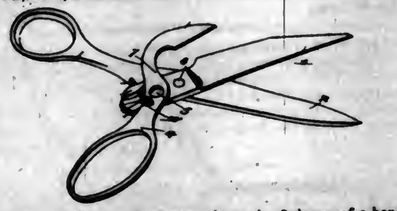
606,122. NECKTIE-FASTENER. WILLIAM H. CATLIN, Glen Ellyn, Ill. Filed Mar. 22, 1897. Serial No. 628,568. (No model.)



Claim.—1. A necktie having a band, a supplemental piece of fabric adapted to be detachably attached thereto on the inside thereof, means whereby said supplemental piece of fabric may be adjusted lengthwise of said band, said supplemental piece provided with a buttonhole arranged to extend in the direction of length of the neck-band, into which the head of the collar-button may be received, whereby the necktie may fit any size of collar and may be held against lateral and vertical displacement and the head of the collar-button be concealed without injury to the neckband of the tie, as and for the purpose set forth.

2. A necktie having a band, a series of loops formed transversely across the inside thereof, and a supplemental piece having a buttonhole worked therein and having the ends thereof adapted to engage said loops, as and for the purpose set forth.

606,123. COMBINATION SHEARS AND BUTTONHOLE-CUTTER. CLARENCE COATES, Cliftondale, Mass. Filed July 19, 1897. Serial No. 645,053. (No model.)



Claim.—1. The combination with a pair of shears, of a handle formed separately from one of the shear-blades and pivotally connected thereto, a buttonhole-cutter carried by said handle, and means for retaining said handle in fixed relation to its respective blade, substantially as described.

2. The combination with a pair of shears having means for locking the blades against relative movement, of an auxiliary buttonhole-cutter connected to one of the shear-handles and adapted to cooperate with one of the shear-blades, and means for holding the buttonhole-cutter fixed relatively to the blade with which it cooperates, substantially as described.

606,124. BICYCLE-SADDLE. WARREN H. CRAIG, Lawrence, Mass. Filed Oct. 25, 1897. Serial No. 656,255. (No model.)



Claim.—1. In a bicycle-saddle, the combination with the seat portion, of a support for said seat portion comprising an integral spring extending transversely across the saddle at the rear and having the ends of the transverse portion curved in a substantially horizontal plane toward the middle of the saddle and crossing said transverse portion to afford supporting-loops and then forward, the seat portion being mainly supported on said transverse portion and secured at its forward end to the ends of said spring, substantially as described.

2. In a bicycle-saddle, the combination with the cushioned seat portion, of a support for said seat portion comprising an integral spring extending transversely across the saddle at the rear and having the ends of the transverse portion curved in a horizontal plane toward the middle of the saddle and crossing said transverse portion to afford horizontal supporting-loops and thence downward and forward substantially parallel with the longitudinal median line of the saddle and upward, the ends of said spring being secured to the said seat portion at the front end thereof, the said seat portion being

mainly supported upon the supporting-loops aforesaid, substantially as described.

3. In a bicycle-saddle, the combination with a seat portion comprising two separate cushion-holders each having a cushion, a spring-support having two horizontal supporting-loops substantially conforming in shape to the said cushion-holders, and of sufficient size to afford an adequate support therefor, the ends of the spring extending, after said loops are formed, substantially parallel with the longitudinal median line of the saddle; and a clamping-piece to receive and connect the said ends, the said clamping-piece being also adapted to receive and secure the forward ends of said cushion-holders and connect them together and to the said support, substantially as described.

4. In a bicycle-saddle, the combination with a seat portion comprising two separate cushion-holders each provided with a cushion, of a fastening device at the forward end of each cushion-holder, a single clamp cooperating with said fastening devices to thereby connect the said cushion-holders together, an integral spring-support for said cushion-holders having a transverse portion at the end of the saddle and being curved around and across said transverse portion to afford a horizontal supporting-loop for each cushion-holder, the ends of said spring-support extending longitudinally toward the front of the saddle after the loops are formed, and means for securing the said ends to the said clamp, substantially as described.

5. In a bicycle-saddle, the combination with the seat portion comprising two separate cushioned portions, of a spring having horizontal supporting-loops of sufficient size to afford an adequate support for said cushioned portions, said spring extending transversely across the saddle and curved to form said loops, the ends of said spring extending, after said loops are formed, in a direction substantially parallel with the longitudinal median line of the saddle, a clamping-piece to receive and connect the said ends and to receive and secure the forward ends of said cushioned portions and connect them to said support, and clamping devices for securing the said portions to the transverse portion of the spring, the said clamping devices comprising bolts extending through the cushioned seat portions at the bottom thereof, clamping members having engaging projections to engage the transverse portion of the support, and nuts cooperating with said bolts and clamping members to secure the said transverse portion between the under side of the cushioned seat portions and the said clamping members, substantially as described.

6. In a bicycle-saddle, the combination with a seat portion comprising two separate cushion-holders each provided with a cushion, of a fastening device at the forward end of each cushion-holder, a single clamp cooperating with said fastening devices, said fastening devices and said clamp being arranged to afford a pivotal connection for said cushion-holders, an integral spring-support for said cushion-holders having a transverse portion curved coaxially with the aforesaid pivotal connections, means for securing the ends of said spring-support to the clamp aforesaid, and clamping devices for adjustably securing the said cushion-holders to the curved transverse portion of the spring-support, substantially as described.

7. In a bicycle-saddle, the combination with a support, of a pair of cushion-holders mounted on said support one at each side of the longitudinal median line of the saddle, a cushion-casing on each cushion-holder, a pneumatic cushion-chamber in each casing having an open passage extending from the upper to the lower surface thereof, and a fastening device to connect each cushion-casing to its cushion-holder consisting of a pin extending through said casing, said open passage, and said cushion-holder; and retaining projections at each end of said pin to engage respectively with the outer surface of the cushion-casing and the outer surface of the cushion-holder, substantially as described.

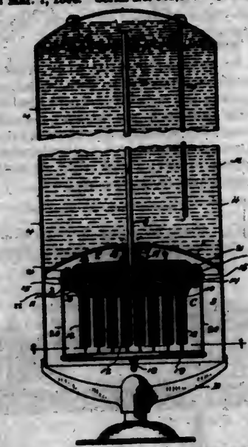
8. In a bicycle-saddle, the combination with a suitable support, of a pair of cushion-holders mounted on said support, each cushion-holder being dished or apert along its edges to receive a cushion-casing containing cushioning material, and a fastening device for securing said cushion-casing to said cushion-holder, consisting of a pin extending through said casing and having a head at the outer surface thereof, an opening for said pin through the cushion-holder, and a retaining projection or shoulder at the outside of said cushion-holder for said pin, the pins thus being adapted to form indentations one in the upper surface of each cushion, substantially as described.

606,125. THRESHING-MACHINE. THOMAS S. COLDSMITH, Abilene, Kans. Filed Sept. 12, 1897. Serial No. 651,480. (No model.)

Claim.—In a threshing-machine, the combination, with a threshing-cylinder and its driving-shaft journaled crosswise of the machine at one end of it, and driving-shafts arranged crosswise of the machine toward its other end; of a main driving-shaft provided with cranks for operating the shaker and arranged crosswise of the machine at its middle part and running at a slower speed than the said cylinder-shaft, belt-pulleys and belts extending in opposite directions and operatively connecting all the said shafts, a motor-shaft, and a universal coupling connecting the said motor-shaft to one end of the said main driving-shaft, substantially as set forth.



606,126. GAS WATER-HEATER. MICHAEL G. CUNNINGHAM, Bridgeport, Conn., assignor of one-half to Charles D. Woodruff, same place. Filed Mar. 7, 1898. Serial No. 673,628. (No model.)



Claim.—1. A water-heater comprising an upper chamber, a lower chamber, depending tubes closed at their lower ends and opening into the lower chamber, open-ended tubes opening into the upper chamber and passing downward through the lower chamber and nearly to the bottom of the tubes having closed ends, a cold-water pipe communicating with the upper chamber and a hot-water pipe leading from the lower chamber, substantially as described and shown.

2. In a water-heater the combination with plates 13 and 14 having between them an intermediate plate whereby upper and lower water-chambers are formed, of a cold-water pipe leading into the upper chamber, depending tubes 12 closed at their lower ends and opening into the lower chamber, open-ended tubes 10 which open into the upper chamber and extend downward through the lower chamber and nearly to the bottom of tubes 12 and a hot-water pipe leading from the lower chamber and passing through the upper chamber and through the cold-water pipe, substantially as described and shown.

606,127. ELECTRODE FOR ARC-LIGHTS. CHARLES S. DOLLEY, Philadelphia, Pa., assignor of one-half to Howard T. Goodwin, same place. Filed Nov. 21, 1896. Serial No. 612,908. (No specimens.)

Claim.—1. An electric-arc electrode manufactured of calcium carbid (CaC_2) substantially as described.

2. An electric-arc electrode manufactured of calcium carbid (CaC_2), of size, shape and resistance proportional to the amount of current used, substantially as described and for the purpose specified.

3. An electric-arc electrode for use in connection with electric-arc lamps, the same consisting of calcium carbid, (Ca_2C_2) of size, shape and resistance proportionate to the amount of current used, substantially as described and for the purpose specified.

606,128. BICYCLE-SUPPORT. HARVEY H. DRAPER, Arkansas City, Kans. Filed Nov. 10, 1897. Serial No. 658,068. (No model.)

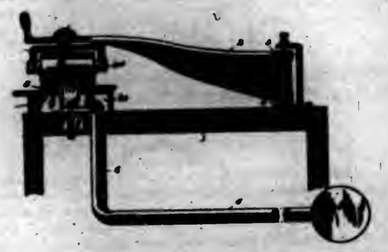
Claim.—1. A bicycle-support comprising a sleeve having lateral projections, a support detachably pivotally mounted thereon and having a central spring portion in proximity to its pivot and an extended portion forming a handle, and a spring on the sleeve for engaging the support to hold it in its inoperative position, substantially as specified.

2. A bicycle attachment comprising a sleeve with attaching means, projections extending laterally from the sleeve, a support of spring-wire having a central spring portion in proximity to its pivot and loops detachably and pivotally engaged with said projections, and a spring-plate attached to the sleeve at right angles to the projections and having a shoulder to engage the support when the latter is in its horizontal position, substantially as specified.



3. The combination with a sleeve having lateral projections on opposite sides thereof, and a spring-plate on its rear side and having an inclined portion and a shoulder, of a support formed of a single piece of resilient material formed near each end with a coil to engage detachably over said projections and one end extended to form a handle, the support being formed with a central spring portion having a bend to engage over the said shoulder of the spring on the sleeve, substantially as and for the purpose specified.

606,129. CIGAR-WRAPPER-CUTTING MACHINE. NAPOLEON DU BEUL, Cincinnati, Ohio. Filed Feb. 1, 1897. Serial No. 621,513. (No model.)



Claim.—1. The combination of a cutting-die, a closely-fitting wrapper-supporting block constructed with deep "kerf-like" channels extending through the surrounding wall of the block and providing downwardly and laterally extending air-passages having outlets below the cutting-die, an air-chest surrounding the cutting-die, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest; substantially as described.

2. The combination of a cutting-die, a closely-fitting wrapper-supporting block constructed with deep intersecting "kerf-like" channels extending through the surrounding wall of the block and providing downwardly and laterally extending air-passages having outlets below the cutting-die, an air-chest surrounding the cutting-die, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest; substantially as described.

3. The combination of a cutting-die, a closely-fitting wrapper-supporting block constructed with deep transverse "kerf-like" channels extending through the surrounding wall of the block and providing downwardly and laterally extending air-passages having outlets below the cutting-die, an air-chest surrounding the cutting-die, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest; substantially as described.

4. The combination of a cutting-die, a closely-fitting wrapper-supporting block constructed with deep longitudinal "kerf-like" channels extending through the surrounding wall of the block and providing downwardly and laterally extending air-passages having outlets below the cutting-die, an air-chest surrounding the cutting-die, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest; substantially as described.

5. The combination of a cutting-die, a closely-fitting wrapper-supporting block constructed with deep longitudinal, and with still deeper transverse "kerf-like" channels extending through the surrounding wall of the block and providing downwardly and laterally extending air-passages having outlets below the cutting-die, an air-chest surrounding the cutting-die, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest; substantially as described.

6. A cigar-wrapper-cutting machine comprising a cutting-die, an air-chest surrounding the cutting-die, a wrapper-supporting block within the cutting-die, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest; substantially as described.

7. A cigar-wrapper-cutting machine comprising a cutting-die, an air-chest surrounding the cutting-die, a wrapper-supporting block with the cutting-die constructed with deep "kerf-like" channels extending through the surrounding wall of the block and providing downwardly and laterally extending air-passages, and means for exhausting the air through the wall of the block beneath the cutting-die and from the air-chest; substantially as described.

8. A cigar-wrapper-cutting machine comprising an air-chest, a cutting-die supported in pendent position within the air-chest and surrounded by the latter, a wrapper-supporting spring-block adapted to slide within the cutting-die, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest; substantially as described.

9. A cigar-wrapper-cutting machine comprising an air-chest, a cutting-die supported in pendent position within the air-chest and surrounded by the latter, a wrapper supporting spring-block adapted to slide within the cutting-die, means for adjusting the spring-block exposed beneath the air-chest, and means for exhausting the air laterally from beneath the cutting-die and from the air-chest located at one side of the cutting-die; substantially as described.

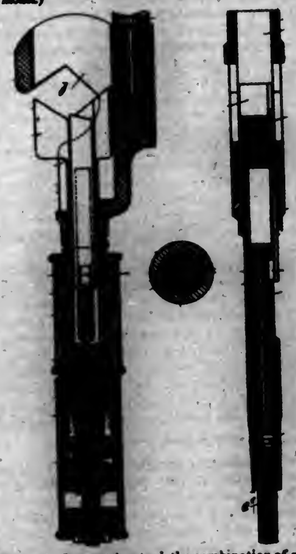
10. A cigar-wrapper-cutting machine comprising a suitable frame, a cutting-die, a swinging arm, a self-adjusting frame loosely suspended from the swinging arm, and a roller mounted in the frame; substantially as described.

11. A cigar-wrapper-cutting machine comprising a suitable frame, a cutting-die, a swinging arm, a self-adjusting frame having a rocking bearing by which it is suspended from the swinging arm, and a roller mounted in the frame; substantially as described.

12. A cigar-wrapper-cutting machine comprising a cutting-die, a swinging arm, and a roller suitably mounted on the said arm and having its sides tapered toward the center of oscillation of the said arm; substantially as described.

13. A cigar-wrapper-cutting machine comprising a cutting-die, a swinging arm, the frame having a rocking bearing on the said arm, and a tapered roller mounted in the frame and adapted to bear horizontally on the cutting-die; substantially as described.

606,180. CUTTING-TOOL FOR PIPES AND BARS. HENRY FORTANER, Munich, Germany. Filed Apr. 4, 1896. Serial No. 585,988. (No model.)

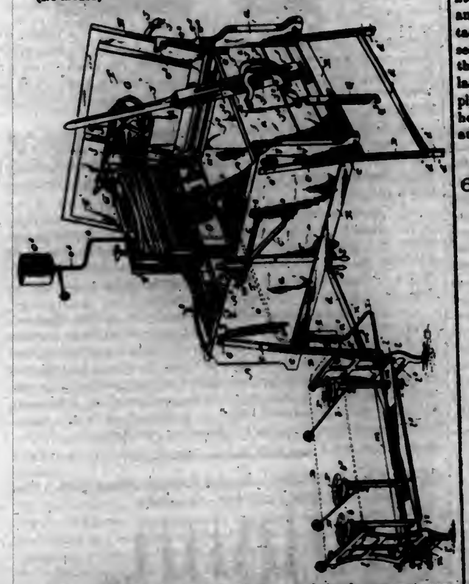


Claim.—1. In a cutting-tool, the combination of a stationary jaw having an opening therethrough and a movable jaw adapted to enter said opening, an exteriorly-threaded tubular stem to said stationary jaw and a tubular stem for the movable jaw arranged within the same, an interiorly-threaded sleeve to screw on said stationary-jaw stem and having the movable-jaw stem attached thereto, a bar within the movable-jaw stem, a screw-spindle rotatably coupled to said bar, a lower sleeve fixed to said screw-spindle and rotatable on said interiorly-threaded sleeve, a cutter and means for attaching the same to the carrier-bar substantially as described.

2. The combination of a stationary cheek *a* having orifice *j* therethrough and guide-cheeks a^2, a movable cheek *c* to move between said guide-cheeks and into said orifice, a tubular stem to said stationary cheek and a tubular stem guided therein to said movable cheek, a cutter and cutter carrier-bar within said movable-jaw stem, and means for adjustably attaching the two parts, an outer sleeve *d* to adjust the jaws against each other, and a lower sleeve *g* mounted on said outer sleeve and means in connection therewith for adjusting the position of the cutter and carrier-bar relatively to the movable jaw but independently of both jaws substantially as described.

3. In a cutting-tool having a stationary cheek and a movable cheek the combination of an opening in the stationary cheek and guide-cheeks on the same for the reception of the movable cheek, a tubular stem to the said stationary cheek and a hollow stem therein for the movable cheek, a cutter and a cutter carrier-bar mounted within the stem of the movable cheek and means in connection with said stems and bar to adjust the position of the jaws or cheeks, and means for adjusting the position of the cutter relative to the movable jaw and for adjusting the position of the cutter on its carrier-bar, and a socket in the upper part of the stationary jaw substantially as described.

606,181. WASHING-MACHINE. JOHN J. FRANCIS and LOUIS C. FRANCIS, Cincinnati, Ohio. Filed Sept. 10, 1896. Serial No. 562,107. (No model.)



Claim.—1. The combination of a receptacle having separate compartments, and a wringer-carrier arranged exteriorly to the receptacle and movable bodily in a horizontal direction thereon to a position opposite an end wall of either compartment of said receptacle, as and for the purposes described.

2. The combination with a receptacle divided by a partition into two compartments, of a wringer-carrying bar, and means substantially such as described for supporting said bar whereby the bar may be held over the partition or over an end wall of the receptacle, substantially as and for the purposes described.

3. The combination with a receptacle, of a pivoted wringer-carrying bar adapted to be turned vertically, and an adjustable support for said wringer-bar to hold the same over the partition or one end of the tub, substantially as and for the purposes described.

4. The combination with a divided receptacle, of a crane, a swiveled bracket carried thereby, and a wringer-bar attached to said bracket, substantially as and for the purposes described.

5. The combination with a divided receptacle, of a swinging crane pivoted to the receptacle, means for locking said crane in either of its adjusted positions, and a wringer-bar carried by the crane, substantially as described.

6. The combination with a divided receptacle, of a pivoted reversible crane, a bracket swiveled to the crane, and a wringer-bar carried by the bracket, substantially as and for the purposes described.

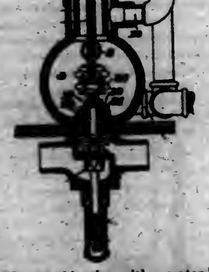
7. The combination with a divided receptacle, of a notched or recessed lid for said receptacle, a pivoted wringer-bar adapted to fit in the notch or recess of said lid and having fasteners for engaging with the receptacle to detachably connect said bar to said receptacle, and a movable support for the wringer-bar, substantially as described.

8. The combination with a receptacle having a transverse partition, of a reversible crane pivotally supported in the receptacle between one end thereof and the partition, a vertical bracket swiveled by a vertical bolt on the free end of the crane and supported thereon to turn in a horizontal plane, and a wringer-bar pivoted to the bracket by a horizontal bolt to adapt said bar to turn in a vertical plane, whereby the wringer-bar may be turned on its pivotal bolt to clear the receptacle and the bracket can be adjusted to fold with the wringer-bar alongside of the receptacle, substantially as and for the purposes described.

9. The combination of a receptacle, provided with a notched cleat f^9 near its upper end, a perforated false bottom fitted on the bottom of said receptacle and having a notch f^4, a vertical locking-bar having its lower end fitted in the notched false bottom and its upper end seated in the notched cleat, and a catch to drop over the upper end of the locking-bar and hold the same within the notched cleat, substantially as and for the purposes described.

10. The combination with a receptacle, of the pendent hanger *q* attached to said receptacle, a supply-pipe attached to the receptacle and having its lower end fitted in the hanger *q*, another hanger attached to the opposite end of the receptacle and provided with a seat at its lower end, a heater having a horizontal pipe which, when the heater is adjusted below the receptacle, fits in the seat of the last-mentioned hanger, and a swiveled coupling which unites the supply-pipe and the heater-pipe and furnishes a hinge on which the heater may be swung out bodily from the receptacle, substantially as and for the purposes described.

606,182. WATER-HEATER VALVE. HENRY F. GAHM, Pittsburg, Pa. Filed Nov. 3, 1897. Serial No. 657,353. (No model.)



Claim.—1. The combination with a water-heater having a supply-pipe leading thereto, of a burner arranged to heat the water in the heater, a valved supply-pipe leading thereto, a water-regulating valve in the supply-pipe leading to the heater, said valve being connected to and arranged to actuate the gas-valve, and a valved by-pass leading from between the regulating-valve and the heater to the water-supply pipe and arranged to allow liquid under pressure to flow back from the heater into the supply-pipe.

2. A regulator for water-heaters arranged to be placed in the water-supply pipe to the heater, said regular coming a regulating-valve, and having a valved by-pass arranged to connect the pipe leading to the regulator with that leading from the regulator to the heater, so as to give a direct connection between the heater and the supply-pipe, in combination with a gas-valve connected to the regulating-valve and arranged to be placed in the gas-supply leading to the burner.

3. The combination with a water-heater having a heating-burner, of a water-supply pipe leading to the heater, a water-regulator in said supply-pipe, a gas-supply pipe leading to the burner, a valve in said

gas-supply connected to and actuated by the water-regulator, a valved by-pass connecting the water-supply pipe to the regulator with the feed-pipe leading from the regulator to the heater, and a valved pipe leading from the by-pass to the regulator.

4. An automatic regulator for water-heaters comprising a cylinder having slots in its upper end portion, a piston movable therein, a supply-pipe leading into the cylinder below the piston, an outer casing surrounding the cylinder, and an outlet-pipe leading from this casing below the level of the slots in combination with a gas-regulating valve connected to and operated by the piston.

5. An automatic regulator for water-heaters comprising a cylinder having an opening in its upper end, a piston movable therein, a supply-pipe leading into the cylinder below the piston, means for adjusting the piston longitudinally upon its rod, said rod having a stop arranged to limit its movement, an outer casing surrounding the cylinder, and an outlet-pipe leading from this casing at a point below the level of the upper opening in the cylinder in combination with a gas-valve connected to and operated by the piston.

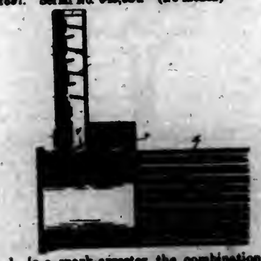
6. The combination with a fixed element forming the wall of a chamber and having a hole, of a rod movable through the hole, and a flexible diaphragm arranged to pack the rod or stem, said diaphragm surrounding the rod and having at one end a flange clamped to the fixed element and at the other a flange clamped to the rod, said diaphragm having an inwardly-curved annular portion arranged to double upon itself during movement of the rod, thereby preventing contact of the curved portion with the rod.

606,183. CONVERTIBLE COUCH. JABE GIDDINS, Rutland, Vt. Filed May 24, 1897. Serial No. 638,623. (No model.)



Claim.—In a convertible couch and bed, the combination with a main body portion provided with supporting-legs and with an inclined and hinged end section forming the head of the couch, of a folding section hinged to one side of said main body portion and adapted to be turned to either a vertical or a horizontal position to form a back for the couch or a part of the bed, elongated sliding bolts or rods carried by the section hinged to one side of the main body portion, eyes on said body portion adapted to engage said bolts for holding said section upright said bolts being adapted to be withdrawn from said eyes and extended below the rear edge of the body portion for supporting said hinged end section, in horizontal position, and a hinged lateral extension of the hinged end section upholstered on its outer side to form a pillow when folded over upon said end section, substantially as described.

606,184. SPARK-ARRESTER. MAX GOTTER, Sturgis, S. D., assignor to William G. Smith and Charles C. Polk, same place. Filed Aug. 26, 1897. Serial No. 649,634. (No model.)

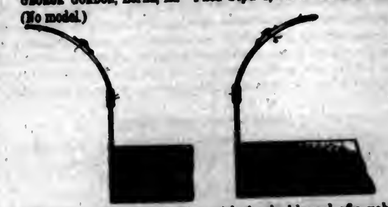


Claim.—1. In a spark-arrester, the combination, with a boiler, of a smoke-stack, a smoke-box secured to the base of the stack on the outer side of the boiler and in communication with both the boiler and stack, said stack and box being provided with doors, an inclined deflector located in the base of the stack and projecting upwardly therefrom into the smoke-box, and a series of perforated screen-plates secured in said stack, said screen-plates being alternately arranged at opposite sides of the stack and each having its inner edge projecting beyond the vertical center of the stack, whereby said screen-plates are caused to overlap each other and thereby effectually prevent the escape of live sparks and the like from the stack, substantially as described.

2. In a spark-arrester, the combination with a stack, of a smoke-box projecting therefrom and opening thereinto, a deflector disposed at the base of the stack and projecting into the smoke-box, and a series of perforated screen-plates secured in said stack, said screen-plates being alternately arranged at opposite sides of the stack and each having its inner edge projecting beyond the vertical center of the stack, whereby said screen-plates are caused to overlap each other and thereby effectually prevent the escape of live sparks and the like from the stack, substantially as described.

3. In a spark-arrester, the combination, with a stack, of a smoke-box projecting therefrom and opening therein, an inclined deflector secured within said stack and projecting into the smoke-box, and a series of inclined perforated screen-plates also arranged within the stack, the perforations of the said screen-plates being formed by punching the plates and bending the punched portion downwardly to permit of the free passage of the smoke but effectually preventing the egress of live sparks and the like, substantially as set forth.

606,185. REVERSIBLE MUD-GUARD AND STORM-FENDER. GEORGE GORDON, Lorne, Ill. Filed Sept. 1, 1897. Serial No. 650,200. (No model.)



Claim.—1. The combination with the dashboard of a vehicle, of a reversible mud-guard and storm-fender, consisting of a rectangular frame comprising two portions hinged to each other and curved as shown, and means for retaining them in an unfolded position and in attachment to the dashboard of the vehicle, all substantially as herein shown and set forth.

2. The combination with the dashboard of a vehicle, of a detachable and reversible mud-guard and storm-fender, consisting of a frame portion comprising two parts hinged to each other laterally, and a flexible portion covering said frame, substantially as herein shown and set forth.

3. The combination with the dashboard of a vehicle, of a reversible and detachable folding mud-guard and storm-protector, consisting of a metal frame divided and hinged laterally, means for retaining said portions in an unfolded position, and means for securing the lower of said hinged portions upon the dashboard of the vehicle, all substantially as herein shown and set forth.

4. The combination with the dashboard of a vehicle, of a mud-guard and storm-protector, consisting of two curved frame portions laterally hinged to each other and provided with a continuous cover of impervious flexible material, means whereby the said portions of the frame may be maintained in a folded position, and means in connection with the lower portion of said frame whereby the device may be secured to the dashboard either as a mud-guard or as a storm-fender, all substantially as herein shown and set forth.

606,186. BURNER. CHARLES HAFFNER, Baltimore, Md. Filed May 15, 1897. Serial No. 636,663. (No model.)



Claim.—1. In a gas-burner, the following elements in combination, viz., a base-plate having a series of holes and raised sides and a covering-plate with nozzles which register with the said holes in the base-plate, a duct to convey gas and air to the said receptacle, and tubes which pass through the nozzles and the holes in the base-plate and are fastened therein, the said tubes having apertures in their walls for the admission of the mixture of gas and air to the interior of the said tubes, substantially as specified.

2. In a gas-burner, a base-plate having a series of holes therein and raised sides, and a covering-plate with nozzles, which rests on the said raised sides to form with the base-plate a receptacle for air and gas, the said nozzles registering with the holes in the base-plate, combined with perforated tubes which pass through the said holes and nozzles and are secured therein, and a deflecting-plate in the said receptacle with annular spaces around the tubes to distribute the mixture of air and gas equally to the various tubes, substantially as specified.

606,187. TANGLED-GRAIN SEPARATOR FOR HARVESTING-MACHINES. ALFRED A. HANLEIN, Philadelphia, Pa. Filed July 17, 1896. Serial No. 599,530. (No model.)



Claim.—1. The combination in a harvesting or reaping machine, of a tangled-grain separator having an upturned nose extending a considerable distance beyond the cutter-bar and having arms projecting rearwardly and extending to a point higher than the intersection of the tangled grain when upright so as to completely separate the tangled grain to be cut from the grain at the side of the machine, substantially as and for the purpose set forth.

2. An attachment for application to a harvester or reaper for separating entangled grain, of a head having a rearward extension, means for securing said extension to the machine and arms extending upwardly and rearwardly from the head and to a point higher than the intersection of the tangled grain when upright so that they will completely separate the grain before it is cut by the cutter-bar of the machine, substantially as described.

3. The combination in an attachment for harvesting or reaping machines for separating entangled grain, of a head adapted to be secured to the machine and having a socket on its under side to receive the nose of the machine, the under side of the head being beveled from the said socket to the nose so that the machine can be adjusted to make a low cut, and arms projecting upwardly and rearwardly from the head to a point higher than the intersection of the tangled grain when upright so that they will completely separate the tangled grain before it is cut, substantially as described.

4. The combination in an attachment for harvesting and reaping machines for separating entangled grain, of a head having a socket on its under side adapted to receive the nose of the permanent separator, a vertically-arranged board extending rearwardly from the head and adapted to be secured on edge to the separator-board of the machine, the under side of the head being beveled from the socket up to the nose, and arms projecting rearwardly and upwardly from the head to a point higher than the intersection of the tangled grain when upright so that the tangled grain will be completely separated thereby before it is cut, substantially as described.

5. The combination in an attachment for harvesting and reaping machines for separating entangled grain, of a head adapted to be secured to the separator-board of the machine having a socket on its under side in which the nose of the separator-board rests, the under side of the head being beveled, a fixed arm projecting rearwardly and upwardly from the head and an adjustable bracket pivoted to the head at the outer side, means for securing the bracket after adjustment, and an arm attached to said bracket and extending rearwardly, said arms extending to a point higher than the intersection of the tangled grain when upright, so that the tangled grain will be completely separated thereby before it is cut, substantially as described.

6. The combination in an attachment for harvesting and reaping machines for separating entangled grain, of a head adapted to be secured to the separator-board of the machine, and means for securing said board to the separator-board of the machine, a socket on the under side of the head to secure the nose of the separator-board of the machine, said head being inclined upward to the nose to allow the machine to be adjusted for a low cut, a plate secured to the upper edge of the head forming the nose of the attachment and a socket, a rearwardly-extending arm secured in the said socket, a bracket pivoted at its forward end to the head and slotted, a bolt adapted to the slot in the bracket and a rearwardly-extending arm secured to the bracket, said arms extending to a point higher than the intersection of the tangled grain when upright so that they will completely separate the tangled grain before it is cut, substantially as described.

606,188. CONCENTRATOR AND SLIMER. FRANKLIN W. HARLOW, Eureka, Colo. Filed Mar. 11, 1897. Serial No. 627,008. (No model.)

Claim.—1. A device of the class described, provided with a bed or pan, the said bed or pan having a depression or pocket formed in its bottom and outlet-funnels having spouts the outer ends of which extend through the bottom of the bed at the said pocket, the funnel-bodies being held above the bottom of the bed and extending upward to allow the concentrates to settle in the bottom of the bed and to permit the water and tailings to flow down through the funnels and a caisson arranged over each funnel and open at the top and bottom, the lower end of each caisson being located a short distance above the top of the corresponding funnel-body, as and for the purpose set forth.



2. A device of the class described, provided with a bed or pan having its bottom formed of inclined portions extending in opposite directions and forming a pocket at the angle or junction of said inclined portion, and outlet-funnels located at the junction of said inclined portions of the bed and having spouts extending through the bottom of the bed, the funnel-bodies being held above the bottom of the bed and extending upward therein, a caisson located over each funnel-body, the lower end of each caisson being larger than the funnel-body and terminating a short distance above the same, a hopper located below the bed and arranged to receive the material passing through the said funnels, and an endless apron arranged to travel beneath the said hopper and upon which the material is discharged, substantially as described.

3. A device of the class described, comprising a bed or pan provided in its lower portion with outlet-funnels each having a spout extending through the bottom of the bed and a funnel-body extending upward in the bed, a caisson arranged over each funnel and open at the top and bottom, the lower end of each caisson being located a short distance above the top of the funnel-body, and an endless apron arranged to travel and adapted to receive the discharge from the said funnels, substantially as shown and described.

4. In a device of the class described, the combination with a swinging bed or pan, and a hopper carried by the said pan, of a water-box discharging into the said pan, and a frame carrying the said water-box and resting on rollers journaled in the support for the said bed or pan, the said frame being provided with guides engaging fixed guideways, substantially as shown and described.

5. A device of the class described, comprising a fixed frame provided with standards, a frame mounted to swing in said fixed frame and adapted to receive successive concussions, a bed or pan carried by said swinging frame, a feed-hopper secured to said swinging frame near the front end thereof, a water-supply box, and a frame carrying the said water-supply box and provided with guides engaging guideways on the standards of the fixed frame, the said frame carrying the water-supply box resting loosely on friction-rollers journaled in the sides of the said swinging frame, substantially as shown and described.

6. A device of the class described, comprising a bed or pan mounted to swing and adapted to receive successive concussions, a fixed water-supply at the upper end of said bed, a hopper moving with the bed and adapted to discharge the material upon the bed always at the same place a series of funnels arranged in the lower portion or pocket formed in the bottom of the said bed, each funnel having a spout extending through the bottom of the bed, a funnel-body held above the bottom of the bed and extending upward in the bed, and a caisson arranged over each funnel and open at the top and bottom, the lower end of the caisson being located a short distance above

the top of the corresponding funnel-body, substantially as shown and described.

7. A device of the class described, provided with a bed or pan mounted to swing and adapted to receive successive concussions, the said bed being formed in its bottom with a pocket, a series of transversely-arranged funnels held in the said pocket, each provided with a spout extending through the bottom of the bed and a funnel-body held above the bottom and extending up into the pan or bed, and a caisson for each funnel located above the same and fixed to the bed, each caisson being funnel-shaped and open at the top and bottom, the lower end of the caisson being larger than the top of the funnel-body and terminating a short distance above the same, substantially as shown and described.

8. A device of the class described, provided with a bed or pan mounted to swing and adapted to receive successive concussions, the bottom of said bed or pan having inclined portions extending upward in opposite directions forming a pocket at the angle or junction of the inclined portions, a series of transversely-arranged funnels held in the said pocket, each provided with a spout extending through the bottom of the bed, the inner ends of the spouts extending above the bottom of the bed, and a funnel-body held above bottom of the bed and extending up into the bed, and a caisson for each funnel located above the same and fixed to the bed, each caisson being funnel-shaped with beveled sharp-edged ends, the lower end of the caisson being larger than the top of the funnel-body, and terminating a short distance above the said top of the funnel body, substantially as described.

9. In a device of the class described, the combination with a bed or pan, a swinging support for said bed or pan, and a hopper adapted to discharge the pulp into the said bed or pan, the said hopper being secured to said swinging support and movable therewith, whereby the material is discharged upon the bed or pan always at the same place, of a fixed water-box discharging into the said bed in front of the said hopper, and a frame supporting the said water-box and resting loosely on rollers journaled in the swinging support for the said bed or pan, substantially as shown and described.

10. In a device of the class described, the combination with a fixed frame, of a swinging frame, a bed or pan carried by said swinging frame, a feed-hopper fixed to said swinging frame and movable therewith, whereby the pulp is deposited upon the bed or pan always at the same place, a water-supply box, a frame carrying the said water-supply box and resting loosely on friction-rollers journaled in the sides of the swinging frame, and guide-plates located at the rear ends of the frame carrying said water-supply box, the said guide-plates engaging vertical guideways on the fixed frame, substantially as shown and described.

11. In a device of the class described, the combination with a frame mounted to swing and adapted to receive successive concussions, a bed or pan carried by said frame, a hopper carried by the frame and adapted to discharge the material into said pan, and an endless traveling apron adapted to receive the discharge from said pan, of a water-supply box discharging into the said bed or pan, a frame carrying the said water-supply box and resting loosely on friction-rollers journaled in the said swinging frame, and means for preventing longitudinal movement of the said frame carrying the water-supply box during the forward and backward travel of the swinging frame, substantially as shown and described.

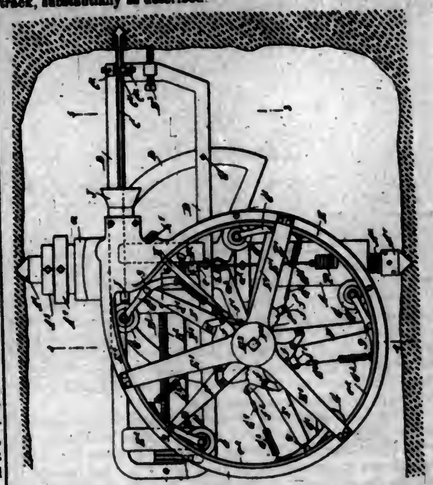
12. A device of the class described, provided with a bed or pan formed in its lower portion with outlet-funnels each having a spout extending through the bottom of the bed and a funnel-body extending upward in the bed, an endless apron adapted to receive the discharge from the said funnels, an adjustable table under the upper run of the said apron, a shaft journaled in the frame of the device and on which the rear end of said table is mounted, a drum formed with flanges at its ends and secured on said shaft, and a similar drum journaled in adjustable bearings held on the forward or free end of the table, the said apron being arranged to travel over the said drums, and the sides of the apron extending up on the said flanges, substantially as shown and described.

606,189. PERCUSSION-DRILL. JOSEPH P. HARTMAN, Pueblo, Colo. Filed Aug. 10, 1897. Serial No. 648,437. (No model.)

Claim.—1. A percussion-drill, comprising a hammer-track which is mainly circular in outline and has a segment of increasing radius, hammer-supports pivoted to revolve within said track, hammers having arms pivoted to said supports, and rollers engaging the track, substantially as described.

2. A percussion-drill, comprising a hammer-track which is mainly circular in outline and has a segment of increasing radius, hammer-supports pivoted to revolve within said track, hammers connected thereto having cylindrical heads rolling on the track, and positive means for holding the hammers against the upper portion of the track, substantially as described.

3. A percussion-drill, comprising an orbital hammer-track, hammer-supports revolving within said track, hammers mounted on handles which are pivoted to said supports, and springs attached thereto and adapted to at all times hold the hammers against the hammer-track, substantially as described.



4. A percussion-drill, comprising an orbital hammer-track, hammer-supports revolving within said track, hammers mounted on handles which are pivoted to said supports, springs connected to the hammer-handles, levers connected to the opposite ends of the springs, and a cam engaging said levers to tension the springs while the hammers are passing through the upper part of their orbit, substantially as described.

5. A percussion-drill, comprising a hammer-track which is mainly circular and has a segment of increasing radius, hammer-supports pivoted to revolve within said track, hammers having arms pivoted to said supports, and heads engaging said track, and a drill-socket in line with the hammers when in their outermost position, substantially as described.

6. A percussion-drill, comprising a hammer-track which is mainly circular and has a segment of increasing radius, hammer-supports pivoted to revolve within said track, hammers having arms pivoted to said supports and heads engaging said track, a drill-socket in line with the hammers when in their outermost position, and connections between the drill-socket and the revolving hammer-supports, whereby the drill-socket is revolved, substantially as described.

7. A percussion-drill, comprising a hammer-track which is mainly circular and has a segment of increasing radius, hammer-supports pivoted to revolve within said track, hammers having arms pivoted to said supports and heads engaging said track, a drill-socket in line with the hammers when in their outermost position, and gear connections between the same and the shaft of the hammer-supports, substantially as described.

8. A percussion-drill having a revolvable frame, a series of hammers mounted upon arms which are pivoted to the frame, a central fixed cam having a notched or toothed outer surface, levers pivoted to the frame having notched surfaces engageable with the cam at one point in their revolution, and connections between said levers and the hammer-arms, substantially as described.

9. A percussion-drill having a revolvable frame, a series of hammers mounted upon arms which are pivoted to the frame, a central fixed cam having a notched or toothed outer surface, levers pivoted to the frame having notched surfaces engageable with the cam at one point in their revolution, and a spring connecting said levers and the hammer-arms, substantially as described.

606,140. FOLDING EGG-CRATE. JAMES A. HASKETT, Parsons, Kans. Filed May 3, 1897. Serial No. 634,940. (No model.)

Claim.—A folding crate, comprising the sides 1 2, ends 3 4, bottom and top, 5 and 19 respectively, and partition 17, each side provided with a square end 8 and a bevel end 9, while each end piece is provided with a beveled end 10, opposing the bevel end of the side piece and with a square end 11, opposing the square end of the side piece, hinges secured to the outside of the beveled ends of the end and side pieces, hinges secured to the inside of the square ends of the end and side pieces, cleats 14 secured to the inner faces of the side pieces near their lower edges and provided with recesses 15, cross-pieces secured to the under side of the bottom piece and seated in said recesses, and fasteners for securing the top piece in place, substantially as set forth.



606,141. INFLATABLE TIRE. LAWRENCE W. KEELAR, Dallas, Tex., assignor of one-half to Walter S. Stone, same place. Filed Feb. 8, 1897. Serial No. 622,944. (No model.)



Claim.—The inflatable, non-puncturable tire, comprising the seamless innermost tube, the intermediary fabric layers, the threads of one layer crossing the threads of the other layer, the layer of rawhide interposed between said intermediary fabric layers, and the outermost seamless tube or jacket inclosing the aforesaid tubes, substantially as set forth.

606,142. TABLE. BENJAMIN M. KIRBY, North Adams, Mass. Filed Nov. 6, 1896. Serial No. 611,308. (No model.)



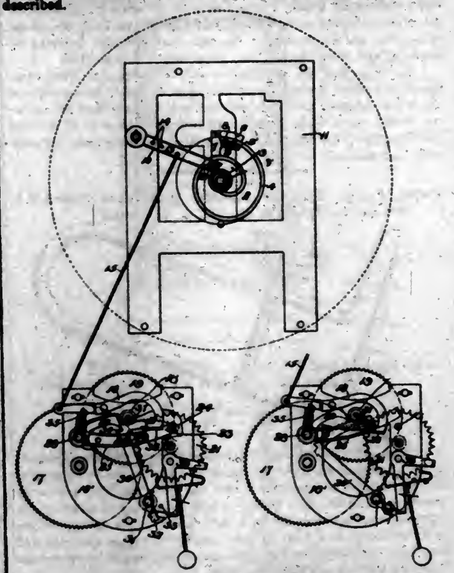
Claim.—1. A table, comprising a base and standard, a stationary annular rim supported thereon, and a circular table rotatably mounted within the annular rim, the inner edge of the rim and the outer edge of the rotatable table being provided with pockets or recesses, in combination with retaining-strips conforming to the curvature of the adjacent edges of the stationary rim and rotatable table, said strips being provided with projecting tongues adapted to enter the pockets or recesses and to bind the cloth upon both sections of the table, substantially as described.

2. A table comprising a base, a supporting standard, cross-arms thereon, a stationary annular rim on said cross-arms, and a rotatable table mounted within the annular rim, both the rim and rotatable table being provided in their meeting or adjacent edges with pockets or recesses, and retaining-strips conforming to the curvature of said meeting edges and having laterally-projecting tongues adapted to enter said pockets or recesses for the purpose specified, the said strips lying opposite each other and serving to mutually support and retain each other in place, substantially as described.

606,143. ALARM-CLOCK. FREDERICK D. HOOPS, Pittsburg, Pa. Filed July 19, 1892. Serial No. 440,892. (No model.)

Claim.—1. In a clock, the combination with the clock-movement, of an alarm-movement, an alarm-controlling cam rotated by the clock-movement more than once in a certain period of time and arranged to actuate the alarm-movement once in the same period, an alarm-setting plate having divisions, and an indicator operated by the alarm-setting plate and arranged to indicate continuously the position of the alarm-controlling cam; substantially as described.

2. In a clock, the combination of the clock-movement arranged to complete one cycle of motion in twelve hours, an alarm-movement, an alarm-controlling cam rotated by the clock-movement twice in twenty-four hours and arranged to actuate the alarm but once in the same time, an alarm-setting dial having twelve divisions, and a movable sign operated by the alarm-setting dial arranged to indicate continuously the position of the alarm-controlling cam; substantially as described.



3. In a clock, the combination with the clock-movement, of an alarm-movement, an alarm-controlling mechanism arranged to be rotated by the clock-movement more than once in a certain period of time and to actuate the alarm but once in the same time, said mechanism consisting of a flat spiral cam of more than one convolution, the path of the convolutions receding from the center of the spiral, an element cooperating with the cam, one of said parts being arranged to actuate the other, and an alarm-setting dial having divisions; substantially as described.

4. In a clock, the combination with the clock-movement, of an alarm-movement, mechanism operated by the clock-movement for controlling the alarm-movement, stop mechanism for the alarm, means connected with the alarm-controlling mechanism for operating the stop mechanism, a pivoted lever which may be adjusted to alter the duration of the alarm, and mechanism for retaining said lever in its adjusted position; substantially as described.

5. In a clock, the combination with the clock-movement, of an alarm-movement, means for controlling the same, stop mechanism for the alarm, mechanism which may be adjusted to alter the duration of the alarm, means for retaining said adjusting mechanism in its adjusted position, means operated by the clock-movement to disengage the stop mechanism, and mechanism for automatically returning the stop mechanism to its locking position; substantially as described.

6. In a clock, the combination with the clock-movement, of an alarm-movement, a flat spiral cam of more than one convolution the path of the convolutions receding from the center of the spiral, mechanism in engagement with said cam for operating the alarm-movement, and mechanism near the outer terminus of the cam by which the mechanism in engagement with the cam is brought to a position to be returned to its starting-point at the center of the cam; substantially as described.

7. In a clock, the combination with the clock-movement, of an alarm-movement, a pivoted lever for starting and stopping the alarm, means operated by the clock-movement to disengage said lever for the purpose of sounding the alarm, and a toothed lever by which said pivoted lever is returned to its alarm-stopping position; substantially as described.

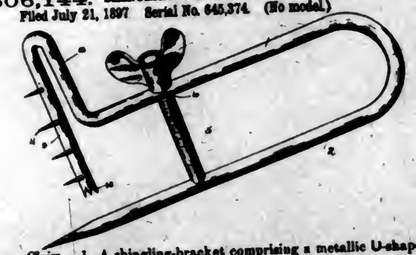
8. In a clock, the combination of an alarm-movement, means for controlling the same, stop mechanism for the alarm, a pivoted adjusting-lever for altering the duration of the alarm, and an indicator for indicating the different durations of the alarm; substantially as described.

9. In a clock, the combination with the clock-movement, of an alarm-movement, a cam, a lever adapted to engage with said cam for operating the alarm-movement, and a bridge-piece for returning the lever to its starting position after it has reached the outer terminus of the cam; substantially as described.

10. In a clock, the combination with the clock-movement, of an alarm-movement, a cam, a lever having in its end a spring-actuated pin or stud adapted to engage with said cam for operating the alarm-movement, and mechanism on the cam near its outer terminus for engaging and retracting the pin; substantially as described.

11. In a clock, the combination with the clock-movement, of an alarm-movement, a cam, a lever having in its end a spring-actuated pin or stud adapted to engage with said cam for operating the alarm-movement, and a bridge-piece for returning the lever to its starting position after it has reached the outer terminus of the cam; substantially as described.

606,144. SHINGLING-BRACKET. ISAAC HOMER, Philmont, N. Y. Filed July 21, 1897. Serial No. 645,574. (No model.)



Claim.—1. A shingling-bracket comprising a metallic U-shaped body having parallel arms, the end of one of said arms being pointed to adapt it to enter beneath a shingle, the end of the other arm being bent to form an auxiliary U-shaped arm extending at substantially right angles to said parallel arms, said auxiliary arm being provided at its extremity with teeth or spurs adapted to engage a shingle, and means for regulating the distance between said parallel arms and for clamping them in any desired position.

2. A shingling-bracket comprising a U-shaped body having substantially parallel arms, the end of one arm being adapted for insertion beneath a shingle, and the end of the other arm being bent away from the first arm and then recurved or bent upon itself, and extended toward the first arm and at substantially right angles thereto, the said right-angular arm being provided at its extremity with teeth or spurs and along its length with laterally-projecting spurs or prongs, and means for regulating the distance between said parallel arms and for clamping them in any desired position.

606,145. NUT-LOCK. ISAAC HOMER, Philmont, N. Y. Filed Aug. 11, 1897. Serial No. 647,892. (No model.)



Claim.—1. In a nut-lock, the combination of a spring-plate having a bolt-hole therein, a plate hinged at one end to said spring-plate and provided at its opposite end with a hinged section, and adapted to engage a nut, and means for locking said hinged section to said curved plate.

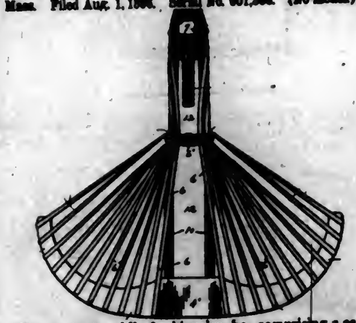
2. In a nut-lock, the combination of a spring-plate having a bolt-hole therein, and provided with a flange, a plate hinged at one end to said spring-plate and adapted to engage a nut, said plate being provided at its opposite end with a hinged section adapted to engage the flange of said spring-plate and lock them together.

3. In a nut-lock, the combination of a spring-plate having a bolt-hole therein, a locking-plate hinged at one end to said spring-plate, and having a nut-engaging hole therein registering with the bolt-hole in the spring-plate, said locking-plate being also provided with a hinged section adapted to engage said spring-plate and lock them together.

4. In a nut lock, the combination of a spring-plate curved longitudinally and provided with a bolt-hole and with a flange at one end, and a locking-plate composed of a pair of jointed sections hinged to said spring-plate at one end and engaging the flange at the other end adapted to engage the nut.

5. In a nut-lock, the combination of a spring-plate provided with a bolt-hole and with an inturned flange extending across one end thereof, a locking-plate provided with a nut-hole coincident with the bolt-hole in the spring-plate, said locking-plate being composed of a pair of jointed sections, one of said sections being hinged to the end of the spring-plate opposite the flange and the free end of the other section of the locking plate being designed to engage said flange.

606,146. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Aug. 1, 1896. Serial No. 601,266. (No model.)

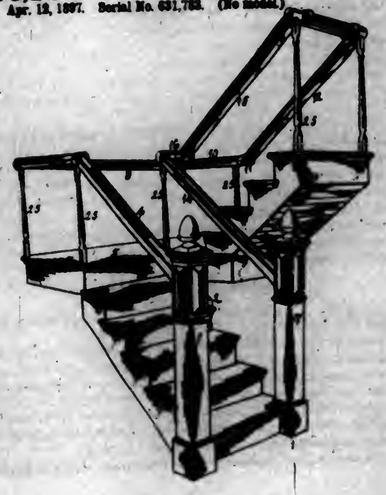


Claim.—1. A saddle for bicycles, &c., comprising a cantle-plate, a pommel-plate, a spring or support intermediate the cantle and pommel, and strips or lacing, and a retaining band or device therefor, some of said strips extending from the cantle-plate through openings in said retaining-band to the pommel-plate, and others of said strips extending from the cantle-plate only as far as the retaining-band, substantially as shown and described.

2. A saddle for bicycles, &c., comprising a cantle-plate, a pommel-plate, a spring or support intermediate the cantle and pommel, and strips or lacing, and a retaining band or device therefor, some of said strips extending from the cantle-plate through openings in said retaining-band to the pommel-plate, and others of said strips extending from the cantle-plate only as far as the retaining band, and through openings therein back to the cantle-plate, substantially as shown and described.

3. A saddle for bicycles, &c., comprising a cantle-plate, a pommel-plate, a spring or support intermediate the cantle and pommel, and strips or lacing, and a transverse retaining band or device therefor, said band grooved or recessed in its upper surface, and some of said strips extending from the cantle-plate through openings in said retaining-band to the pommel-plate, and others of said strips extending from the cantle-plate only as far as the retaining-band, and over the ends of the retaining-band, and in through the openings therein, and back of the central part of the band to hold it in place, substantially as shown and described.

606,147. STAIR-RAIL. SAMUEL HUNTER, Lockburg, Pa. Filed Apr. 12, 1897. Serial No. 631,783. (No model.)

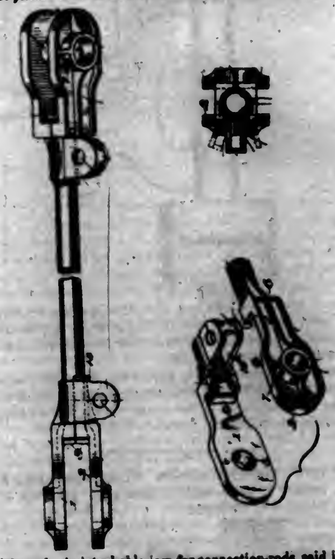


Claim.—1. The combination of two baluster-rails and a cylindrical cross-head, the ends of the rails shaped to fit the same and being secured thereto on opposite sides of a medial transverse plane of the cross-head.

2. The combination of a support consisting of two cylindrical surfaces located at an angle to each other and a rail secured to each surface having their ends cut to conform thereto.

3. The combination of two baluster-rails and a cylindrical cross-head in two sections adjustably joined together, the ends of the rails being shaped to fit the same and secured thereto, one to each section and both located on the same side of the cross-head.

606,148. BRAKE CONNECTION-ROD. CHARLES F. HUNTOON, Chicago, Ill., assignor to the Chicago Railway Equipment Company, same place. Filed Dec. 30, 1897. Serial No. 664,668. (No model.)



Claim.—1. A detachable jaw for connection-rods, said jaw composed of lateral sections, each having an axial rod-groove, and one of said sections having transverse clamp-ears; substantially as and for the purposes specified.

2. A detachable jaw for connection-rods, composed of lateral sections each having an axial rod-groove and one or more of said sections having a stop-lug adjacent to the rod-groove, and means for confining the jaw-sections; substantially as and for the purposes specified.

3. A detachable jaw for connection-rods, composed of lateral sections each having an axial tapered rod-groove, one of said sections having a stop-lug adjacent to the rod-groove, and one of said sections having laterally-projecting clamp-ears adapted to inclose the other section; substantially as and for the purposes specified.

4. A detachable jaw for connection-rods, composed of lateral sections each having a rod-groove, one of said sections having laterally-projecting perforated clamp-ears, and the other having a tapered rib on the portion included between the clamp-ears of the first-named section; substantially as and for the purposes specified.

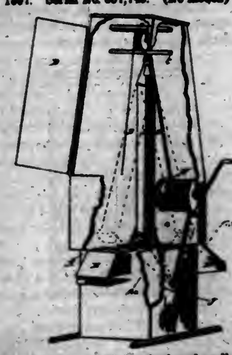
606,149. PORTABLE ASSAY-FURNACE. JOHN G. ILG, San Francisco, Cal. Filed Dec. 4, 1897. Serial No. 660,812. (No model.)

Claim.—1. A portable assay-furnace comprising substantially a four-sided sheet-metal body each side of which is convex in cross-section, lining-tiles having flat inner faces and convex outer faces inclosing a rectangular furnace-space, the angular cast-metal plates secured to the sheet-metal body and adapted to support the tiles, the cast-metal top within the sheet-metal body, and to which the same is riveted, said top having a rectangular opening, slidable covers on said top and fixed guide-rails carrying said covers, an opening in the front of the furnace-body for inserting a muffle, a grate-surface in the lower part of the furnace-body, a fuel-opening in the front provided with doors and an ash-pit below the grate-surface closed at the bottom and having an opening covered by a door.

2. An assay-furnace having a four-sided sheet-metal body, each side of which is convex in horizontal cross-section, in combination with lining-tiles having convex outer faces and flat inner faces, said tiles when in place producing a fire-space substantially rectangular in horizontal cross-section and the cast-metal angle-plates riveted to the sheet-metal body and adapted to support the lining-tiles.



606,150. WELL-CURB. ALBERT A. JAMES, Tecumseh, Okla. Filed May 22, 1897. Serial No. 637,749. (No model.)



Claim.—The combination with an inclosed well-curb having a door in one of its sides in its upper portion and covered discharge-spouts provided with screen-wire bottoms located at opposite sides of said curb above the base of the same, of a windlass journaled in said inclosed well-curb, a rope or chain connected with the windlass, a pulley, over which said rope or chain runs, suspended from the upper part of said casing, a bucket connected with the lower end of said rope or chain, and provided in its lower end with a filling and discharging valve, a bucket-guide fulcrumed in the sides of the well-curb, provided with a ring at the upper end of its shorter arm encircling the valve-bucket, a lever for shifting the bucket to either of the discharge-spouts, and a notched lever-guard for holding the lever to either of its three adjustments, substantially as specified.

606,151. BORDER FOR FLOWER-BEDS. EVERITTE F. JOHNSON, Nicholson, Pa. Filed Oct. 2, 1897. Serial No. 653,884. (No model.)

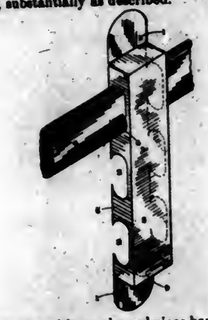


Claim.—1. A border of the character set forth comprising inner and outer flanges, a flat or horizontal plate, and an inner swell or enlargement, substantially as described.

2. A border of the character set forth comprising inner and outer flanges having lower penetrating edges and a flat or horizontal plate, and an inner swell or enlargement, substantially as described.

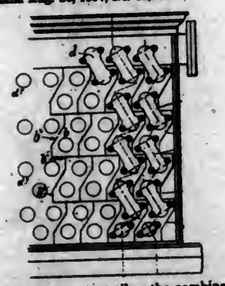
606,152. BRACKET FOR SUPPORTING CURTAIN-RODS. JOHN JOHNS, Liverpool, England. Filed May 19, 1897. Serial No. 637,136. (No model.) Patented in England Mar. 26, 1896, No. 6,969.

Claim.—1. A curtain-bracket comprising the channel-piece having the sides 2 connected at one edge by the plate forming the bottom of the channel leaving the other edges of the sides free, and the right-angular attaching-clip at the end of channel and extending from the bottom plate, substantially as described.



2. A bracket comprising a channel-piece having perforations extending through its sides laterally, and the right-angular attaching-clip at the end, said clip having the hole 9 therein, substantially as described.

606,158. **WATER-TUBE BOILER.** CONRAD C. S. KNAP, London, England. Filed Dec 15, 1897. Serial No. 662,041. (No model.) Patented in England Aug. 30, 1897, No. 19,251.



Claim.—1. In a water-tube boiler, the combination with a number of vertically-disposed headers having their middle parts directed obliquely or at an angle relative to their ends and arranged in vertical series of connecting-caps connecting up each header with the next adjacent header of its particular series and inclined in opposite directions to the said header middles, substantially as described.

2. In a water-tube boiler, the combination with a number of vertically-disposed headers having their middle parts directed obliquely or at an angle relative to their ends and arranged in vertical series, each header connecting together the ends of two tubes disposed one at a relatively higher plane than the other, of connecting-caps connecting up each header with the next adjacent header of its particular series and inclined in opposite directions to the header middles, substantially as described.

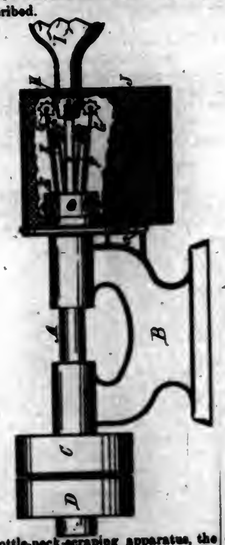
3. In a water-tube boiler, the combination with a number of vertically-disposed headers having their middle parts directed obliquely or at an angle relative to their ends and arranged in vertical series, each header connecting together the ends of two tubes disposed one at a relatively higher plane than the other and having its ends breaking joint with the ends of the headers of the next adjacent series, of connecting-caps connecting up each header with the next adjacent header of its particular series and inclined in opposite directions to the said header middles, substantially as described.

606,154. **FOIL-REMOVING APPARATUS.** GEORGE A. MUELLER, Cincinnati, Ohio, assignor, by mesne assignments, to YAWMAN & ERBE, Rochester, N. Y. Filed Feb. 19, 1898. Serial No. 670,941. (No model.)

Claim.—1. In a bottle-neck-scraping apparatus, the combination with a revolving head, of a pivoted and yielding series of toothed scraping-wheels carried thereby, substantially as described.

2. In a bottle-neck-scraping apparatus, the combination of a revolving head, of a series of yielding metal bars, and toothed scraping-wheels pivoted at the ends of the bars, substantially as described.

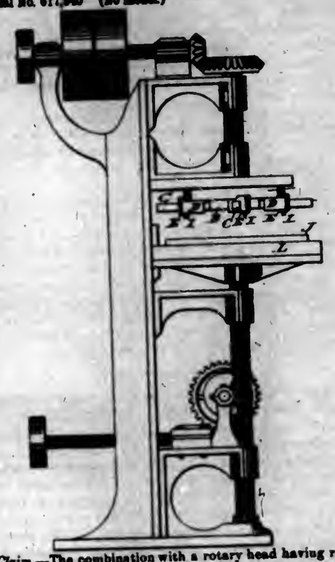
3. In a bottle-neck-scraping apparatus, the combination of a frame, a revolving head therein, yielding scrapers carried thereby, and a hood secured to the frame and surrounding the scrapers, substantially as described.



4. In a bottle-neck-scraping apparatus, the combination of a frame, a revolving head therein, yielding scrapers carried thereby, and a combined hood and receptacle, the former surrounding the scrapers, substantially as described.

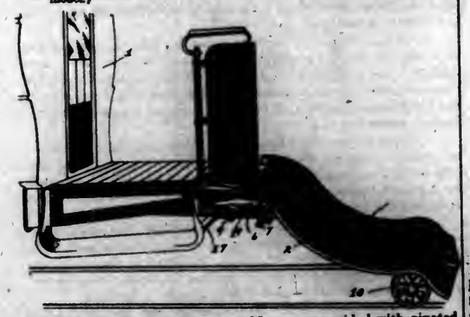
5. In a bottle-neck-scraping apparatus, the combination of a frame, a revolving head therein, yielding scrapers carried thereby, a transparent hood surrounding the scrapers and a foil-receptacle beneath the scrapers, substantially as described.

606,155. **ROUTING-MACHINE.** WILLIAM S. RICHARDS, Albany, Oreg., assignor to Angie Richards, same place. Filed Jan. 4, 1897. Serial No. 617,945. (No model.)



Claim.—The combination with a rotary head having radial supports, cutter-heads sliding on such supports and having tool-holders rotatably mounted in said cutter-heads and routing-chisels secured in said tool-holders, of a continuous-pattern form engaging directly surfaces on tool-holders and governing the angular relation of said tool-holders to the cutter-heads as well as the position of the cutter-heads on the radial supports so that the face of the routing-chisel is always normal to the direction of travel of the chisel.

606,156. **DEVICE FOR ATTACHING FENDERS TO CARS.** CHRISTIAN SAUERBREY, Owego, N. Y., assignor of one-half to Theodore D. Gere, same place. Filed Oct. 4, 1897. Serial No. 654,022. (No model.)



Claim.—1. The combination with a car provided with pivoted fender-supporting bars which extend, approximately, to the end of the car, and a wheeled fender, of a detachable rigid connection between the free ends of the fender-supporting bars and the fender, whereby lateral movement of the fender, independent of the supporting-bars, is prevented.

2. The combination with a car provided with pivoted fender-supporting bars extending approximately, to the end of the car, and a wheeled fender provided with coupling-bars, of a detachable rigid connection between the free ends of the fender-supporting bars and the coupling-bars attached to said fender, whereby the fender may be detached at will.

3. The combination with a car provided with pivoted fender-supporting bars carrying coupling-hooks, and a wheeled fender provided with coupling-bars carrying segmental coupling-arms, of means for securing the coupling parts together, whereby accidental uncoupling is prevented, and a rigid connection obtained.

4. The combination with a car provided with pivoted fender-supporting bars carrying coupling-hooks, and a wheeled fender provided with coupling-bars carrying segmental coupling-arms, of a pin or bolt securing said segmental arms against accidental uncoupling.

5. The combination with a car body or truck, of pivoted supporting-bars, each one carrying a set of coupling-hooks separated by a space, and a wheeled fender provided with rigid coupling-bars, carrying segmental coupling-arms which are received in the spaces between said coupling-hooks, with the transverse pins resting in the bottom of the hooks, thereby forming a rigid detachable connection between the fender and the fender-supporting bars.

6. The combination with a car body or truck, of pivoted fender-supporting bars, each bar carrying a set of spaced coupling-hooks, a wheeled fender provided with the bars 3 and 5, a segmental coupling-arm pivoted to each set of bars, and means for securing the coupling-hooks and coupling-arms against accidental uncoupling.

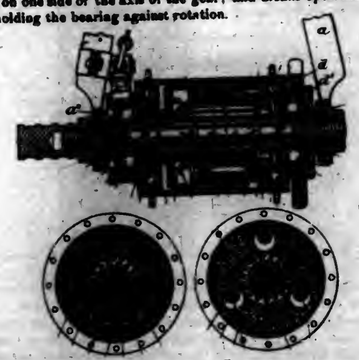
7. The combination with a car provided with fender-supporting bars, pivoted to move laterally in the arc of a circle and supported horizontally at the outer ends, and a wheeled fender, of a rigid detachable connection between the fender and pivoted attachment to the car body or truck.

8. The combination with a car provided with pivoted fender-supporting bars formed with curves 21, a transverse bar supporting the outer ends of said bars horizontally, and a wheeled fender, of a rigid detachable connection between the fender and pivoted attachment to the car body or truck.

9. The combination with a car provided with fender-supporting bars, pivoted to move laterally in the arc of a circle, and a wheeled fender, of detachable means for rigidly connecting the bars to the fender, between the pivotal point of the supporting-bars and the fender, whereby lateral motion of the fender, independent of the supporting-bars, is prevented.

606,157. **MECHANICAL MOVEMENT.** VICTOR BELANGER, Boston, Mass., assignor to Mrs. R. F. Wood, same place. Filed Feb. 8, 1897. Serial No. 622,463. (No model.)

Claim.—1. A mechanical movement, comprising a toothed gear; a revoluble toothed ring arranged eccentrically of the said gear and in engagement therewith; an outer wheel concentric with the said gear; a bearing concentric with the said gear; antifriction devices interposed between the said ring and the bearing of greater thickness on one side of the axis of the gear; and means operable at will for holding the bearing against rotation.



2. A mechanical movement comprising a power-transmitting pinion, an outer hub or wheel concentric with the pinion, an intermediate eccentrically-arranged internally-toothed ring meshing with the pinion, and connected to said hub or wheel, antifriction rollers or balls having different diameters for maintaining said ring in its eccentric arrangement, and means controllable at will for causing said pinion to revolve said ring about the axis of said ring or else about the axis of the pinion.

3. A mechanical movement comprising a power-transmitting pinion, an outer hub or wheel concentric with the pinion, an intermediate eccentrically-arranged internally-toothed ring meshing with the pinion, and connected to said hub or wheel, a bearing concentric with the hub and arranged between the hub and the internally-toothed ring, means for holding said bearing stationary and releasing it, and antifriction devices having varying diameters interposed between the toothed ring and the bearing.

4. A mechanical movement comprising a power-transmitting pinion, an outer hub or wheel concentric with the pinion, an intermediate eccentrically-arranged toothed ring meshing with the pinion, and connected to said hub or wheel, a bearing concentric with the hub and arranged between the hub and the internally-toothed ring, a revoluble cup in which said bearing is mounted, antifriction-bearings for said cup, antifriction devices between the bearing and the ring of greater thickness on one side of the axis of said bearing, and a brake-strap operable at will for locking said cup and said bearing against rotation.

5. A mechanical movement comprising a toothed gear, an outer hub or wheel concentric with the gear, an eccentrically-arranged toothed ring meshing with the gear, a bearing concentric with the hub, means for holding said bearing stationary and releasing it, and antifriction devices of greater thickness on one side of the axis of the bearing interposed between the said toothed ring and said bearing and revoluble about the axis of said gear.

6. In combination, a spindle having a bearing-cone at each end, a sleeve formed with external gear-teeth intermediate of its ends, antifriction-balls interposed between said sleeve and said cones, a sprocket-wheel mounted on the end of said sleeve, a wheel-hub concentric with the pinion, an internally-toothed ring arranged eccentrically about the external teeth of the sleeve and in engagement therewith, means connecting said toothed ring to said hub, a revoluble bearing concentric with the pinion and the wheel-hub, said bearing being mounted on antifriction-bearings, antifriction devices having different diameters interposed between said bearing and said toothed ring, and means operable at will for holding said revoluble bearing against rotation.

7. A mechanical movement comprising a spindle, a hub concentric with the spindle, a toothed gear concentric with said spindle, a toothed ring eccentric of the spindle and intermeshing with the toothed gear, a bearing concentric with said spindle, antifriction devices having varying diameters and placed between said toothed ring and said bearing, and controllable means for locking or releasing the said bearing whereby the said ring may revolve on its own axis or on the axis of the spindle.

606,158. **MECHANICAL MOVEMENT.** VICTOR BELANGER, Boston, Mass., assignor to Mrs. R. F. Wood, same place. Filed Dec. 28, 1898. Serial No. 617,208. (No model.)

Claim.—1. In combination, a driving-pinion, an internally and

externally toothed eccentric sleeve meshing with said pinion, a driven internally-toothed ring concentric with the pinion and meshing with the said sleeve, and graded balls for maintaining said sleeve in its eccentric relation to the said pinion and ring.



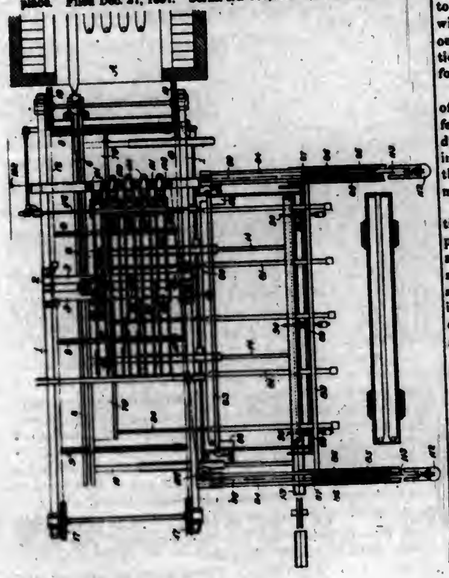
2. In combination a driving-pinion, a concentric driven internally-toothed ring, an intermediate internally and externally toothed eccentric sleeve, graded balls for maintaining the eccentric relation of the said sleeve, and a drum for supporting the graded balls.

3. Gearing comprising in its construction a pinion; driving means for said pinion; a sleeve encircling said pinion formed with an internal gear, and having gear-teeth formed upon the exterior thereof arranged to engage with the teeth of an internal gear; graded balls interposed between the sleeve and a ring; means for maintaining the balls in their proper relative positions, and a ring concentric with the pinion and encircling the sleeve formed with internal gear-teeth, substantially as described.

4. Gearing comprising in its construction a pinion; a driven internally-toothed ring; driving means for said pinion; a sleeve encircling said pinion formed with an internal gear, and having gear-teeth formed upon the exterior thereof arranged to engage with the teeth of an internally-toothed ring; graded balls interposed between the sleeve and a ring; a separator formed with notches for the reception of the balls, each notch of a size to accommodate its respective ball; and a ring concentric with the pinion and encircling the sleeve formed with internal gear-teeth, substantially as described.

5. Gearing comprising, a driving-pinion, a driven internally-toothed ring, an eccentric internally and externally toothed sleeve meshing with said pinion and said ring, a rotary drum, graded balls, between said drum and said sleeve, and a separator formed with notches to receive the balls.

606,159. APPARATUS FOR MANUFACTURING PIPE. PETER BOYD, Wheeling, W. Va., assignor to the Riverside Iron Works, same place. Filed Dec. 27, 1897. Serial No. 663,666. (No model.)



Claim.—1. In an apparatus for bending or welding pipe, the combination of a support or table for pipe blanks or skelps arranged in front of the heating-furnace, reciprocating draft mechanism, and a pusher operated by the draft mechanism for shifting the blank or skelp from said support or table into the furnace, substantially as set forth.

2. In an apparatus for bending or welding pipe, the combination of a support or table for pipe blanks or skelps, a reciprocating draft mechanism, means for adjusting the table and draft mechanism across the charging-opening of the furnace and a pusher connected to the draft mechanism for shifting the blanks or skelps from the table into the furnace, substantially as set forth.

3. In an apparatus for bending or welding pipe, the combination of a table or support, mechanism for feeding blanks or skelps onto said table, and a reciprocating pusher for shifting the blanks or skelps from the table into the furnace, and connections from the pusher to the blank-feeding mechanism whereby the latter is operated by the pusher, substantially as set forth.

4. In an apparatus for bending or welding pipe, the combination of a table or support, mechanism for feeding blanks or skelps onto said table, a reciprocating draft mechanism, and a pusher operated by the draft mechanism for shifting the blanks or skelps from the table into the furnace, substantially as set forth.

5. In an apparatus for the manufacture of pipe, the combination of mechanism for shifting blanks or skelps into feeding position in front of a furnace, a pusher for shifting the blanks or skelps into the furnace, and a draft mechanism for pulling the blanks from the furnace and for operating the pusher, substantially as set forth.

6. In an apparatus for the manufacture of pipe, the combination of a laterally-movable bench, a laterally-movable draft mechanism, a table or support for blanks or skelps movable with the bench and a pusher for shifting the blanks or skelps into the furnace, operative by the draft mechanism, substantially as set forth.

7. In an apparatus for the manufacture of pipe, the combination of a table or support, a pusher for shifting the blank or skelp into the furnace, a draft mechanism for pulling the blanks or skelps from the furnace, and mechanism controlled by the draft mechanism for shifting the table-pusher and draft mechanism laterally, substantially as set forth.

8. In an apparatus for manufacturing pipe, the combination of mechanism for shifting blanks or skelps into feeding position, a pusher for shifting the blanks or skelps into the furnace, a draft mechanism for pulling blanks from the furnace, the pusher and shifting mechanism being operative by the draft mechanism, substantially as set forth.

9. In an apparatus for the manufacture of pipe, the combination of a frame for shifting blanks or skelps laterally to feed position, a draft mechanism and pulling mechanism operative by the draft mechanism for shifting the frame laterally, substantially as set forth.

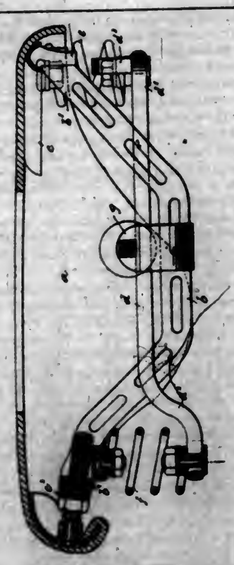
10. In an apparatus for the manufacture of pipe, the combination of a draft mechanism, a frame for laterally shifting blanks or skelps to feed position, pulling mechanism having a detachable connection with the draft mechanism for shifting said frame, and means operative on a predetermined movement of the frame for releasing the connection between the draft and pulling mechanism, substantially as set forth.

11. In an apparatus for the manufacture of pipe, the combination of draft mechanism, a frame for laterally shifting blanks or skelps to feed position, a series of pulling mechanisms for shifting the frame to different positions, means for detachably connecting one of said pulling mechanisms to the draft mechanism during the back stroke of the latter and means for releasing such connection on a predetermined movement of the draft mechanism, substantially as set forth.

12. In an apparatus for the manufacture of pipe, the combination of a laterally-adjustable draft mechanism, a laterally-adjustable pusher for feeding blanks or skelps into a furnace, a frame for laterally shifting blanks or skelps to feed position, a series of pulling mechanisms for shifting the frame to different positions, means for detachably connecting one of said pulling mechanisms to the draft mechanism during the back stroke of the latter and means for releasing such connection on a predetermined movement of the latter, substantially as set forth.

606,160. CYCLE-SADDLE. JOHN B. BROOKS, Birmingham, England. Filed Jan. 3, 1898. Serial No. 665,454. (No model.)

Claim.—In a bicycle-saddle, the combination with a base-framing the front ends of the members of which are close together and bent downward to provide a spring-space, and the rear ends of which are separated, and an attaching boss or clip carried by said framing intermediate its ends, of seat-stretcher members the front ends of which are outside and the rear ends inside the corresponding ends of the base-framing, and the middle portions of which are carried beneath the corresponding portion of the base-framing and the attaching boss or clip, and seat-supporting springs carried by the base-framing, substantially as described.



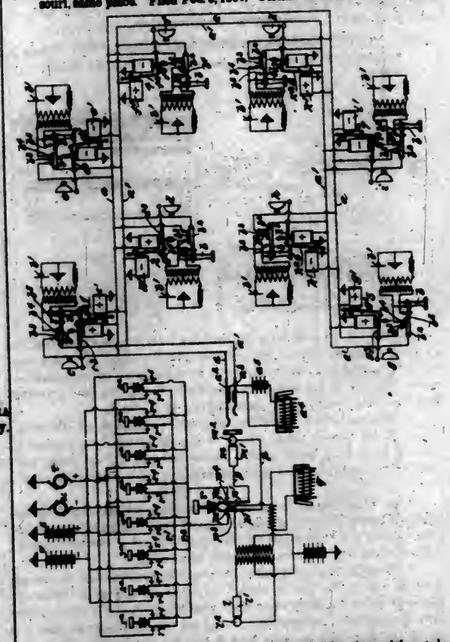
606,161. CISTERN-CLEANER. WILLIAM R. CONWAY and SHERA A. MURRAY, Menominee, Wis.; said Murray assignor to said Conway. Filed Sept. 1, 1897. Serial No. 650,202. (No model.)



Claim.—1. A well or cistern cleaner comprising a bucket hermetically sealed at its top and bottom, means for lowering the same to the bottom of the cistern and raising it therefrom, a hinged bottom for said receptacle, an opening in the said bottom, a valve adapted to close the said opening, a catch adapted to engage the said valve to close the same and provided with a depending lug extending below the bucket, a valve provided in the top of said bucket carried by a sliding stem adapted to extend below the bottom of the bucket, substantially as described.

2. A well or cistern cleaner comprising a hermetically-sealed receptacle, a pipe connected with the top of said receptacle extending to the top of the cistern, a valve provided in the said pipe, an opening provided in the bottom of said receptacle, a valve for closing said opening, a catch for holding the said valve in a closed position carrying a depending projection for releasing said valve when coming in contact with the bottom of the cistern, an opening provided in the top of said receptacle, and a valve adapted to keep said opening normally closed, having a stem mounted on the receptacle and projecting below the bottom thereof for opening the said valve when coming in contact with the bottom of the well, substantially as described.

606,162. TELEPHONE-EXCHANGE SYSTEM. WILLIAM W. DEAN, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed Feb. 6, 1897. Serial No. 622,948. (No model.)



Claim.—1. In a telephone system, the combination with a telephone-line extending from an exchange to a plurality of substations, of a plurality of positively and negatively polarized bells and electromagnets connected therewith located at the substations, mechanical means controlled by said electromagnets for preventing the actuation of said bells, and means at the central office for including said electromagnets in circuit with direct current of positive or negative sign, and including said bells in circuit with ringing-current of positive or negative sign, substantially as described.

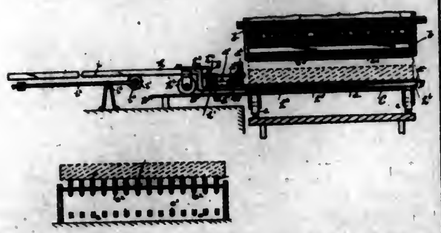
2. In a telephone system, the combination with a telephone-line extending in two limbs from an exchange to a plurality of substations, of a plurality of positively and negatively polarized bells and a plurality of positively and negatively polarized electromagnets connected with each limb of the telephone-line, each substation having a bell connected with one limb and an electromagnet connected with the other limb, mechanical means controlled by said electromagnets for preventing the operation of said bells, and means at the exchange for including said electromagnets in circuit with direct current of positive or negative sign and for including said bells in circuit with ringing-current of positive or negative sign, substantially as described.

3. In a telephone system, the combination with a telephone-line extending in two limbs from an exchange to a plurality of substations, of a plurality of positively and negatively polarized bells, and a plurality of positively and negatively polarized electromagnets, two grounded branches at each substation, each limb of the telephone-line being connected thereat with one of said branches, a bell being included in one of the branches, while an electromagnet is included in the other branch, mechanical means controlled by said electromagnets for preventing the operation of said bells, a source of direct current, a source of ringing-current and switching apparatus for directing positive or negative direct current to operate the electromagnet at the selected station and for directing ringing-current of positive or negative sign over the line, whereby the bell at the selected station may alone be operated, substantially as described.

4. In a telephone system, the combination with a telephone-line

extending in two limbs from an exchange to three substations, a bell at each station connected in circuit with the telephone-line thereat, two positively and negatively polarized electromagnets connected with the same limb of the telephone-line, each electromagnet being included at a substation in a grounded branch, a third electromagnet connected in circuit with the telephone-line at a third substation, mechanical means controlled by said electromagnets for preventing the operation of said bells, and means at the exchange for including said electromagnets in circuit with direct current of positive or negative sign and for including said bells in circuit with ringing-current, substantially as described.

606,163. APPARATUS FOR FORMING HAIR FELT. HIRAM W. FRENCH, Bellevue, Pa. Filed Aug. 6, 1892. Serial No. 442,365. (No model.)



Claim.—1. In apparatus for forming hair felt, the combination of a lower felting-platen and an upper platen, a traveling-chain carrier adapted to carry the material to be felted between said platens, means for moving the same, and mechanism for raising and lowering said traveling-chain carrier, substantially as set forth.

2. In apparatus for forming hair felt, the combination of a lower felting-platen and an upper platen, a carrier normally in operative position with said lower platen, means for moving the same, and mechanism for raising and lowering said carrier, substantially as set forth.

3. In apparatus for forming hair felt, the combination of a lower felting-platen and an upper platen, a carrier normally flush with said lower platen and mechanism for raising and lowering said carrier and means for moving same, substantially as set forth.

4. In apparatus for forming hair felt, the combination of towers through which the hair is caused to fall, a reciprocating table or platform below the same whereby a mass or bat of hair is distributed over the platform, substantially as and for the purposes set forth.

5. In apparatus for forming hair felt, the combination of one or more towers through which the hair is caused to fall, a reciprocating table or platform below the same, and aprons extending from the ends and center of the platform to the towers so as to protect the hair distributed upon the table, substantially as and for the purposes set forth.

6. In apparatus for forming hair felt, the combination of one or more towers through which the hair is caused to fall, a reciprocating table or platform below the same, aprons extending from the ends of the platform to the towers so as to protect the hair distributed upon the table, and means for taking up the aprons as the table reciprocates, substantially as and for the purposes set forth.

7. In apparatus for forming hair felt, the combination of one or more towers through which the hair is caused to fall, a reciprocating table or platform below the same, aprons extending from the ends and center of the platform to the towers so as to protect the hair distributed upon the table, and spring-rollers for taking up the aprons as the table reciprocates, substantially as and for the purposes set forth.

8. In apparatus for forming hair felt, the combination of a reciprocating table, one or more towers through which the hair is caused to drop, and air-blast pipes in said towers for controlling the dropping of the hair, substantially as and for the purposes set forth.

9. In apparatus for forming hair felt, the combination of a reciprocating table having a tine carrier supported thereon, one or more towers above the same through which the hair is caused to drop, and mechanism for engaging said tine carrier to lift the bat from the platform, substantially as and for the purposes set forth.

10. In apparatus for forming hair felt, the combination of a reciprocating table having a tine carrier supported thereon, one or more towers above the same through which the hair is caused to drop, mechanism for engaging said tine carrier to lift the bat from the platform, and mechanism for withdrawing said tine carrier from the traveling carrier after depositing the bat, substantially as and for the purposes set forth.

11. In apparatus for forming hair felt, the combination of a reciprocating table, a tine carrier on the same, a traveling carrier to which the bat is transferred by the tine carrier and felting-platens to which the bat is carried by the traveling carrier, substantially as and for the purposes set forth.

12. In apparatus for forming hair felt, the combination of a lower and upper platen, and edge-felters at the sides thereof, substantially as and for the purposes set forth.

13. In apparatus for forming hair felt, the combination of a lower felting-platen having grooves therein and traveling-chain carriers fitting in said grooves, an upper platen above the same, and edge-felters at the sides of the upper and lower platens, substantially as and for the purposes set forth.

14. In apparatus for forming hair felt, the combination of a lower felting-platen having grooves therein and traveling-chain carriers fitting into said grooves, and an upper platen above the same, substantially as and for the purposes set forth.

15. In apparatus for forming hair felt, the combination of a lower platen having grooves therein and traveling-chain carriers fitting in said grooves and forming therewith the lower platen of the felting mechanism, substantially as and for the purposes set forth.

16. In apparatus for forming hair felt, the combination of a lower platen having grooves therein and traveling-chain carriers fitting in said grooves and forming therewith the lower platen of the felting mechanism, said traveling-chain carriers being vertically movable, substantially as and for the purposes set forth.

17. In apparatus for forming hair felt, the combination of a lower felting-platen having grooves therein and traveling chains fitting in said grooves, said chains having corrugations or indentures on their upper faces, substantially as and for the purposes set forth.

18. In apparatus for forming hair felt, the combination of a lower felting-platen having grooves therein and traveling chains fitting in said grooves, said chains having grooves on their lower faces, substantially as and for the purposes set forth.

19. In apparatus for forming hair felt, the combination of a lower felting-platen having grooves therein and traveling chains fitting in said grooves, said chains being connected by a tongue-and-groove joint having a pivot therein, substantially as and for the purposes set forth.

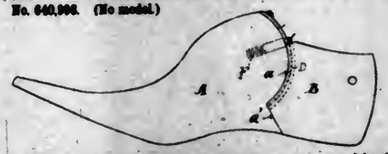
20. In a felting-machine, a driving-shaft having eccentrics provided with eccentric-collars in combination with counterbalances fitting around said eccentric-collars and reciprocated by said eccentrics, substantially as and for the purposes set forth.

21. In a felting machine, a driving-shaft having eccentrics provided with eccentric-collars in combination with counterbalances fitting around said eccentric-collars, and having weights thereon, substantially as and for the purposes set forth.

22. In a felting-machine, a driving-shaft having eccentrics provided with eccentric-collars in combination with counterbalances fitting around said eccentric-collars and having weights thereon, said weights being adjustable, substantially as and for the purposes set forth.

23. In a felting-machine, a driving-shaft having eccentrics provided with eccentric-collars and annular grooves in combination with counterbalances fitting around said eccentric-collars and attached by set-screws entering said grooves, substantially as and for the purposes set forth.

606,164. LAST. JOHN F. CRAFT, Lynn, Mass., assignor of one-half to Charles L. Holland, Boston, Mass. Filed June 16, 1897. Serial No. 640,998. (No model.)

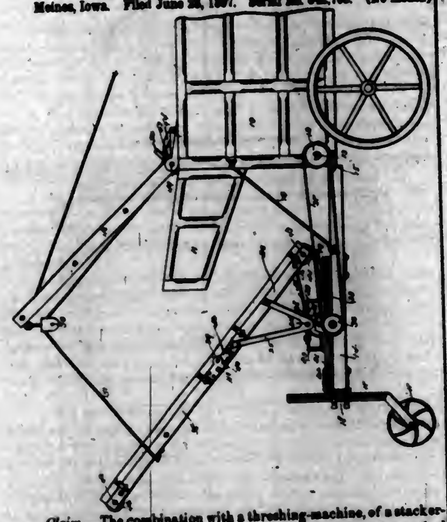


Claim.—1. A last divided transversely into a fore and heel portion by being cut between the heel and shank portion on an angle for a short distance and then on an arc of a circle, so that the two parts will fit together, the angular portion being toward the rear from the curved portion and forming a stop, a circular flaring tenon secured to the circular portion of the fore part and a circular mortise with receding sides secured to the circular part of the heel portion and adapted to fit onto said tenon on the fore part, whereby the fore and heel portions are held in close contact but so that the fore portion is free to be depressed substantially as set forth.

2. A last consisting of a fore part the rear of which is cut on an angle at the rear of the shank for a short distance and then on an arc of a circle and a heel portion cut to correspond and fit thereon the angular portion being toward the rear from the curved portion and the two parts being held together by a dovetail joint whereby the forward portion can be bent down to place a shoe upon or remove a shoe from the last and when raised the angular parts will come together and form a stop substantially as set forth.

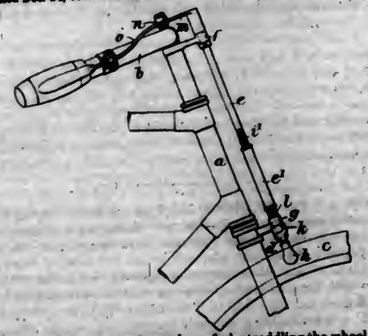
3. In combination with a last divided transversely into a fore and heel portion connected together by means of a dovetail joint, a spring locking-bolt attached to the rear of the fore portion and projecting below the edge of the heel portion to hold the two portions in the closed position but capable of being depressed so as to pass within the heel portion so that the fore part of the last can be pressed down substantially as set forth.

606,165. STRAW-STACKER. HENRY R. GREGORY and RICHARD H. RATTOS, Prescott, Iowa, assignors of one-half to C. H. Dicks, Des Moines, Iowa. Filed June 28, 1897. Serial No. 642,769. (No model.)



Claim.—The combination with a threshing-machine, of a stacker-frame hinged thereto in such a manner as to be capable of a vertical movement and all lateral movement be prevented, and so that the stacker-frame is held in alinement with the threshing-machine frame at all times, a caster-wheel having an upright connected therewith, bearings on the rear central portion of the stacker-frame designed to receive said upright and permit it to be adjusted vertically therein, clamping devices for fixing the upright in any desirable position relative to the said bearing, and straw-stacking mechanism on said frame, substantially as and for the purposes stated.

606,166. BICYCLE-BRAKE. JOHN HARRISON, Peterborough, England, assignor to the Elliptic Cycle Company, Limited, same place. Filed Dec. 24, 1897. Serial No. 663,333. (No model.)

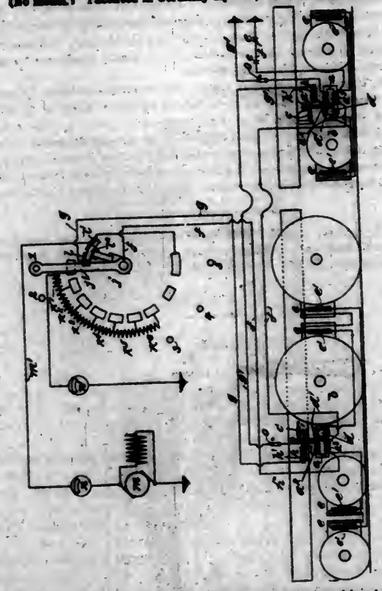


Claim.—1. In a brake for cycles, a fork straddling the wheel, and means for rotating it so as to cause the arms of said fork to make contact with the sides of the wheel-tire, substantially as described.

2. In a brake for cycles, the combination of a fork straddling the wheel-tire, a shaft made in two parts telescoping one into the other, the lower end of which shaft carries the said fork, and means for forcing down such fork and also for imparting rotary motion to it, substantially as set forth.

3. In a brake wherein a fork which straddles a wheel-tire is adapted to be rotated upon its axis, the combination of a bracket having a groove *j*, a fork having an inclined lug for causing the depression of the said fork, and a spring for returning the fork to its normal position when released, substantially as described.

606,167. ELECTRIC BRAKE. ERNST W. G. G. HOFFMANN, Charlottenburg, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Dec. 29, 1897. Serial No. 664,388. (No model.) Patented in Germany Apr. 14, 1896, No. 92,760.



Claim.—1. In an electric braking system, the combination with a dynamo suitably mounted to be driven by the movement of the controlled wheel or wheels, of an electromagnetic brake appliance connected with said dynamo, a controlling-circuit, and an electromagnetic controlling device connected in said circuit adapted to secure the transmission of current from said dynamo to the brake appliance when the said device is actuated, substantially as described.

2. In a braking system for cars or vehicles, the combination with a dynamo connected with and driven by the wheels of the car or vehicle, of an electromagnetic brake appliance connected with the said dynamo and adapted to be actuated thereby, a controlling-circuit, and an electromagnetic controlling device connected in said controlling-circuit adapted normally to prevent the actuation of the brake appliance by the said dynamo-electric machine, substantially as described.

3. The combination with a dynamo-electric machine *a* adapted to be driven by the controlled wheel or part, of an electromagnetic brake appliance *c* electrically connected with said dynamo, a controlling-circuit *g g'*, a circuit-controlling device *j*, and an electromagnetic device *k''* associated with said dynamo and adapted normally to prevent the actuation of the dynamo by the controlled wheel or part, substantially as described.

4. The combination in an electric-brake system with a dynamo *a* adapted to be moved into and out of operative engagement with the controlled wheel *b* by which the same is adapted to be driven, of an electromagnetic brake appliance acting upon said wheel, a controlling-circuit *g g'*, a controller *j*, and an electromagnetic controlling device *k''* connected in said circuit adapted to secure the operative connection and disconnection of the dynamo with the actuating-wheel *b*, substantially as described.

5. The combination with a dynamo-electric machine *a* adapted to be driven by the controlled wheel or part, of an electromagnetic brake appliance *c* electrically connected with said dynamo, a controlling-circuit *g g'*, a circuit-controlling device *j*, and an electromagnetic controlling device *k''* associated with the dynamo and adapted

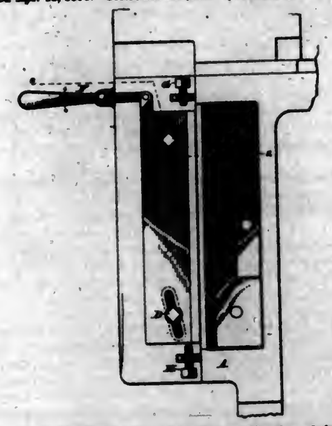
normally to prevent the actuation of the brake appliance by said dynamo, substantially as described.

6. The combination with a dynamo-electric machine *a* adapted to be driven by the controlled wheel or part, the said dynamo having a normally-excited field-winding a^3, of an electromagnetic brake appliance *e* electrically connected with said dynamo, a controlling-circuit *g g'*, a circuit-controlling device *j*, and an electromagnetic device h'' associated with said dynamo and adapted normally to prevent the actuation of the dynamo by the controlled wheel or part, substantially as described.

7. The combination with a dynamo-electric machine *a* adapted to be driven by the controlled wheel or part, the said dynamo being provided with means for augmenting its normal field of force, of an electromagnetic brake appliance *e* electrically connected with said dynamo, a controlling-circuit *g g'*, a circuit-controlling device *j*, and an electromagnetic device h'' associated with the dynamo and adapted normally to prevent the actuation of the brake appliance by said dynamo, substantially as described.

8. In an electric braking system the combination with a dynamo-electric machine *a* adapted to be driven by the rotation of the controlled wheel or part, of an electromagnetic brake appliance connected with said dynamo and adapted to be actuated thereby, a controlling device h'' associated with said dynamo and adapted normally to prevent the actuation of the brake appliance by said dynamo, and means for governing the controlling device, substantially as described.

606,168. LINOTYPE-MACHINE. THOMAS H. KELLER, New York, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed Apr. 12, 1886. Serial No. 582,167. (No model.)



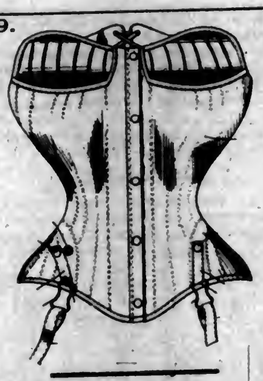
Claim.—1. In a linotype-machine the combination of the stationary knife, a movable opposing knife having its edge parallel therewith, obliquely-arranged guiding devices for the movable knife, independent adjustable stops to limit the motion in opposite directions, and a mechanical means for effecting the movement at will.

2. In a linotype-machine the combination of a stationary knife, an obliquely-guided knife, a lever whereby the latter may be moved endwise and stop devices adjusted to permit the movement of the knife, but limiting its motion in both directions whereby the knife may be instantly adjusted to trim slugs of either of two predetermined thicknesses.

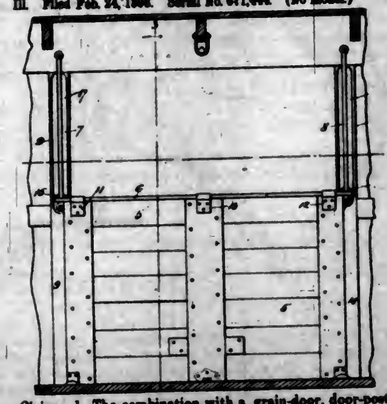
606,169. CORSET. MURRAY C. MAYER, Chicago, Ill., assignor to the Sage-Downs Company, same place. Filed July 28, 1897. Serial No. 646,276. (No model.)

Claim.—In a corset, the combination with a corset-body having a binding applied to its lower edge, of a vertically-arranged strap applied to the outer face of the corset, and having its lower end extended under and permanently secured in place within the said binding, and a fastening device comprising two members, one of which is attached to the upper end of the strap, and the other of which is attached to the body of the corset in position to hold the strap flat against the outer face of the corset-body and taut when the two members of the fastening device are engaged with each other, whereby a suspension-loop passed over the strap is crowded by the lower end thereof against the body of the corset at a point substantially in line with the upper edge of the said binding, so that a portion of the draft or strain imposed upon the loop is borne by the corset-body in a line coincident with the same.

606,169.



606,170. GRAIN-CAR DOOR. WILLIAM A. MCGUIRE, Chicago, Ill. Filed Feb. 24, 1896. Serial No. 671,444. (No model.)



Claim.—1. The combination with a grain-door, door-posts provided with grooves, and guide-rods arranged in said grooves, of a pivot-rod secured upon the upper edge of said door, said rod extending from end to end of said door and having eyes at its ends adapted to embrace the guide-rods and move vertically thereon in said grooves, substantially as described.

2. The combination with a grain-door, door-posts provided with grooves, and guide-rods secured in said grooves, of a pivot-rod secured upon the upper edge of said door, said pivot-rod extending from end to end of said door and having eyes at its ends adapted to embrace the guide-rods and move vertically thereon in said grooves, and means preventing endwise movement of the door upon said pivot-rod, substantially as described.

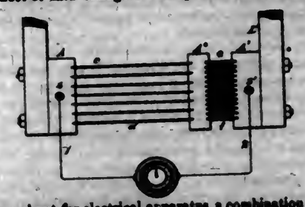
3. The combination with a grain-door, door-posts and guide-rods secured to said door-posts, of a pivot-rod secured upon the upper edge of said door, said pivot-rod extending from end to end of said door, and having eyes at its ends adapted to embrace the guide-rods and move vertically thereon, bearing-plates secured to said door and supporting said pivot-rod, said pivot-rod having shoulders at each side of one of said bearing-plates whereby endwise movement of the door upon said pivot-rod is prevented, substantially as described.

606,171. SHUNT FOR ELECTRIC CIRCUITS. OLIVER B. SHALLENBERGER, Rochester, Pa.; Mary W. Shallenberger executrix of said Oliver B. Shallenberger, deceased. Filed Apr. 22, 1897. Serial No. 633,261. (No model.)

Claim.—1. An electric shunt comprising two groups of conductors which have different temperature coefficients, substantially as described.

2. A shunt having a resistance varying with changes of temperature, and a second resistance connected therewith for the purpose of modifying such variations in resistance, each of said resistances comprising a group of conductors arranged in multiple, substantially as described.

3. A composite shunt having a plurality of multiple resistances differently affected by changes in the temperature of the surrounding air, said resistances being connected to act conjointly in modifying the effect of said changes in temperature, substantially as described.



4. In a shunt for electrical apparatus, a combination of multiple resistances in which a plurality of conducting materials is employed, said material having different degrees of variation in resistance for a given change in the temperature of the surrounding air, substantially as and for the purpose described.

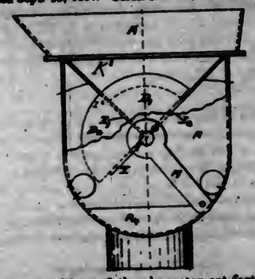
5. In a shunt for electrical apparatus designed to have a certain definite variation in resistance for a given change in the temperature of the surrounding air, the combination of a group of conductors having a greater variation, and a second group of conductors having a less variation than the said definite variation required.

6. In a shunt for electrical apparatus, the combination of a multiple resistance which varies with changes in the temperature of the surrounding air, and a second multiple resistance having a comparatively small variation for like changes in temperature, substantially as described.

7. The combination with an electrical device comprising a circuit having a resistance varying with changes in the temperature of the surrounding air, of a shunt thereto comprising conductors composed of materials having different temperature coefficients, said conductors being so proportioned that their joint resistance shall vary with changes in the temperature of the air so as to maintain a practically fixed ratio between the resistances of said shunt and said circuit.

8. The combination with an electrical measuring instrument in which the indications for a given difference of potential are rendered inaccurate by changes in the temperature of the surrounding air, of a shunt thereto comprising two conductors having temperature coefficients differing from each other and adjusted to jointly vary the resistance of said shunt with changes in the temperature of the air so as to compensate for the variations of said measuring instrument.

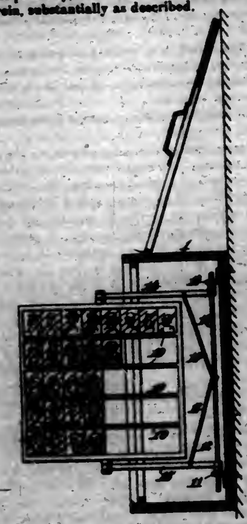
606,172. SAND-BOX FOR RAILROAD-CARS. HENRY M. SPELLER, Newark, N. J., assignor of one-half to Halsey M. Barrett, Bloomfield, N. J. Filed Sept. 15, 1897. Serial No. 651,718. (No model.)



Claim.—In a sand-box of the character set forth, a top part or funnel having four sides, suitably attached to the main body or shell, a sand receiving and distributing compartment having two chambers, whose sides lie in alinement with the four sides of the top part, a main body or shell inclosing and supporting the receiving and distributing compartment, and having the funnel secured to its top, having two hubs, a screw-cut pivot having its screw-cut part fitting in the similarly screw-cut aperture in one of the hubs aforesaid, a second pivot secured loose in the hub of the main body and attached to a hub on the receiving and distributing compartment, a lever-arm firmly secured to the pin, loosely pivoted in the hub of the main body, all for the purposes as set forth, substantially as illustrated and described.

606,173. DEVICE FOR DISPLAYING PICTURES, ADVERTISEMENTS, &c. RICHARD SYLVESTER, Washington, D. C. Filed May 14, 1896. Serial No. 592,722. (No model.)

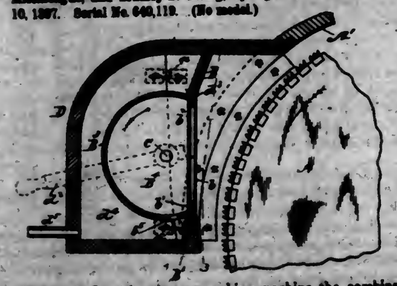
Claim.—1. A device for displaying photographs, and the like, comprising a casing, two parallel, horizontally-disposed angle-irons secured on the inner side of the back thereof, a series of frame-supports pivotally mounted in said angle-irons, and a series of picture-carrying frames pivotally mounted in said frame-supports and axially revolvable therein, substantially as described.



2. A device for displaying photographs, and the like, comprising a casing, two parallel, horizontally-disposed angle-irons secured on the inner side of the back thereof, and provided with a series of apertures, a series of frame-supports pivotally mounted in said casing, each of which comprises a rod, the opposite ends of which pass through corresponding apertures in said angle-irons, and arms extending at right angles to said rod at points near its upper and lower ends, respectively, and a picture-carrying frame pivotally mounted in the outer ends of said arms and free to revolve axially on its supports, substantially as described.

3. In a device for displaying photographs, and the like, the combination with an oblong casing, of two parallel, horizontally-disposed angle-irons secured on the inner side of the back thereof and provided with a series of apertures, a series of frame-supports pivotally mounted in said casing, each of which comprises a vertical rod, the opposite ends of which pass through corresponding apertures in said angle-irons, arms extending at right angles to said rod and secured thereto at points near its upper and lower ends, respectively, and brace rods connecting said arms and said vertical rod, and a picture-carrying frame pivotally mounted in the outer ends of said arms and free to revolve axially on its supports, substantially as described.

606,174. BEATING OR WASHING ENGINE. ALLEN A. WHEAT, West Springfield, Mass., assignor of two-thirds to Charles McKernon, Mittineague, and Bradley D. Rising, Springfield, Mass. Filed June 10, 1897. Serial No. 640,119. (No model.)



Claim.—1. In a beating or washing machine the combination with a rotary beating-cylinder, of an inclosing casing for said cylinder, an auxiliary drum-chamber opening into said first-named chamber, and a rotary drum to close said opening, said drum being provided with a screen on one side and a water-outlet.

2. In a beating or washing engine, the combination with a rotary beating-cylinder, of an inclosing casing for said cylinder, an

auxiliary chamber in proximity to said casing, a partition separating the interiors of the said casing and chamber and having an opening therethrough, a rotary drum having a flattened screened side and a cylindrical imperforate portion which are adapted to be alternately interchanged to close the opening in said partition and provided with a water-outlet.

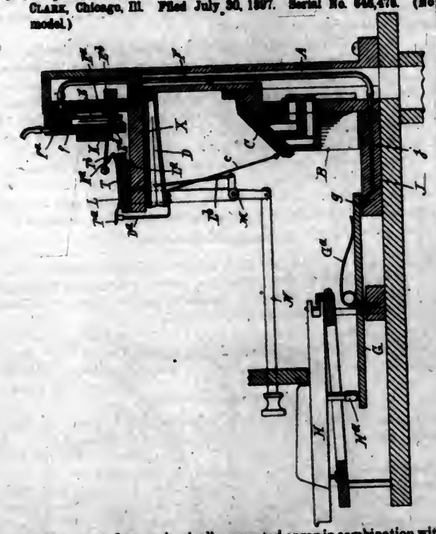
3. The combination in a beating or washing engine with the beating-cylinder A, of the drum-chamber d^4 having an opening between it and the cylinder-casing, a drum B^4 contained within said chamber d^4, means for turning said drum B^4, the screen-partition B^2 carried by said drum B^4, and the curved drum-section B^3 having a water-outlet.

4. The combination in a beating or washing engine of the beating-cylinder A, the case D having a chamber d^4, an opening between the said chamber and the cylinder-casing, the partial partitions B, B' and the rotary drum B^4 having the screen B^2, an outlet, the curved section B^3, the said curved section B^3 maintaining a close joint with the lower edge or bottom of the partition B as the drum is being turned to move the screen from an operative to an inoperative position and the section B^3 to a position to close the opening.

5. In a beating or washing engine, the combination with a beating-cylinder, of an inclosing casing for said cylinder, an auxiliary chamber, a partition having an opening separating the interiors of said cylinder-casing and auxiliary chamber, a screen to span the opening in said partition, a cover to close the opening, and mechanism by means of which the cover is thrown into operative position when the screen is moved out of operative relation to the beating-cylinder and the screen is brought into operative position when the cover is moved away from said opening.

6. In a beating or washing engine, the combination with a beating-cylinder, of an inclosing casing for said cylinder, an auxiliary chamber removably secured in proximity to said cylinder-casing, a partition having an opening separating the interiors of said cylinder-casing and auxiliary chamber, a screen to span the opening in said partition pivoted in said auxiliary chamber, a cover, also pivoted in said auxiliary chamber, to close the opening, and mechanism by means of which the cover is thrown into operative position when the screen is moved out of operative relation to the beating-cylinder and the screen is brought into operative position when the cover is moved away from said opening.

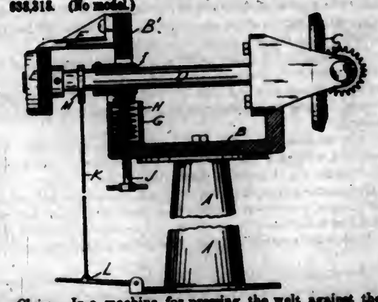
606,175. COUPLER FOR PNEUMATIC ORGANS. MELVILLE CLARK, Chicago, Ill. Filed July 30, 1897. Serial No. 646,478. (No model.)



Claim.—1. In a mechanically-operated organ in combination with the reed-valves, motor-pneumatics which operate them, primary pneumatics which cause the motor-pneumatics to act; vent-valves for the primary pneumatics, and lever-arms extending from the motor-pneumatics and from the vent-valves respectively; a pivoted coupler-board; rock-shafts mounted obliquely thereon having lever-arms at their opposite ends adapted to cooperate respectively with the lever-arms of the motor-pneumatics and with those of the vent-valves of the octave-distant primary pneumatics, the coupler-board pivot being so located that at one position of the board the rock-shaft lever-arms at one end will be encountered and actuated by the motor-pneumatic lever-arms, and those at the other end will encounter and actuate the vent-valve lever-arms, and at another position said rock-shaft lever-arms at one end shall be out of operative relation to the lever-arms of the cooperating part.

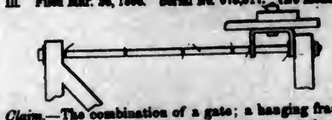
2. In a pneumatic organ in combination with the horizontally-located motor-pneumatics and the board X upon the under side of which they are mounted; the primary pneumatics having vent-valves K; a coupler-board mounted upon the upper side of the board X; and the rock-shafts mounted obliquely thereon having lever-arms at their opposite ends respectively, one octave distance apart; the motor-pneumatics having the lever-arms D^5 and the vent-valves having the lever-arms K^5 in position to cooperate with the front and rear rock-shaft arms respectively; the coupler-board being pivoted at one edge and provided with stop connections for tilting it on its pivot, to carry the lever-arms at one end of the rock-shafts into and out of operative relation with the lever-arms of their respective cooperating parts.

606,176. SOLE-LAYING MACHINE. GEORGE A. MOORE and HARRY J. ROSENKAUF, Philadelphia, Pa. Filed May 26, 1897. Serial No. 638,318. (No model.)



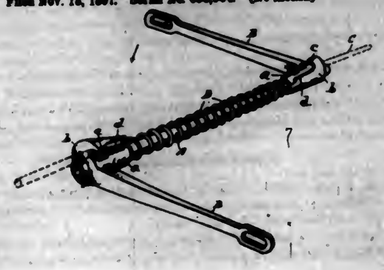
Claim.—In a machine for pressing the welt against the outer edge of the sole, a rigid lip that is secured to the frame, combined with a vertically-adjustable roller placed upon a driven shaft and which roller projects beyond the outer end of the lip, and forms a support for the sole of the shoe; the outer end of the lip being formed so as to enter the crease between the upper and the welt, and flat on its under side so as to straighten out the wrinkles in the welt, substantially as shown.

606,177. FARM-GATE. ROBERT B. MCCLELLAND, Williamsville, Ill. Filed Mar. 26, 1898. Serial No. 675,317. (No model.)



Claim.—The combination of a gate; a hanging frame to which the gate is secured; a bar pivoted at the ends of the arms of the hanging frame, which bar has several grooves formed in it, perpendicular to its central line; a stirrup which is bolted to the gate and which slides on the bar through slots in the arms of the stirrup; a collar fitting about the bar between the arms of the stirrup and which fits into the grooves in the bar and thus controls the movement of the stirrup on the bar, all substantially as and for the purposes set forth.

606,178. DEVICE FOR TIGHTENING WIRE. JAMES B. VAIL, Weston, Mich., assignor of one-half to Wellington C. Smith, same place. Filed Nov. 13, 1897. Serial No. 658,504. (No model.)



Claim.—1. In a device for crimping and tightening wire, the combination of the supporting-shaft, a shoulder at one end of said shaft adapted to engage a lateral wire, a pivoted lever at the opposite end of said shaft having a reversed shoulder also adapted to engage said wire whereby a spiral twist may be placed in said wire by a rotation of said lever.

2. In a wire-tightening device, the combination of a supporting-shaft, opposed engaging shoulders on the opposite ends of said shaft adapted to receive a lateral wire, and means for rotating one of said shoulders to crimp the lateral wire spirally around said shaft.

3. In a wire-tightening device, the combination of a supporting-shaft, the opposed levers pivoted on opposite ends of said shaft, the opposed engaging hooks carried by said levers adapted to engage a lateral wire whereby said wire may be wound spirally around said shaft by a reverse movement of said levers.

4. In a wire-tightening device, the combination of a supporting-shaft, the opposed levers pivoted on the opposite ends of said shaft, the engaging hooks upon the hubs of said levers standing in opposite directions, and the coiled spring surrounding said shaft between the hubs of said levers.

606,179. STRINGING PIANOS. CHARLES S. WEBER, San José, Cal. Filed July 26, 1897. Serial No. 646,012. (No model.)



Claim.—1. In stringed instruments, a sound-bridge provided on its upper face with two longitudinal series of staple-like bearing-wires 5 spaced apart and arranged in transverse pairs, the bearing-wires of each pair being located at opposite sides of the central line of the bridge, a string or strings extending across the bearing-wires of each pair, a rail provided at its lower face with a central longitudinal series of similar-spaced staple-like bearing-wires 4 adapted to bear upon the said strings on a line between each pair of bearing-wires on the bridge, and adjustable connections uniting the bridge and rail, substantially as described.

2. In stringed instruments, the combination of a sound-board 1, a bridge 2 mounted thereon, two series of spaced staple-like bearing-wires 5 having their prongs entered into the upper face of the bridge, said series being arranged in transverse pairs located at opposite sides of the central line of the bridge, strings 7 extending across the bearing-wires of each pair, a rail 3 adapted to clamp the strings against said bearing-wires, a longitudinal series of spaced staple-like bearing-wires 4 having their prongs entered into the lower face of the rail and adapted to bear upon said strings on a line between each pair of bearing-wires 5 on the bridge, bolts 6 extending up through the sound-board, bridge and rail, a nut 14 engaging the threaded end of each bolt, and washers 10 13 encompassing each bolt between the head of the bolt and sound-board, and nut and rail, substantially as described.

REISSUES.

11,670. INDICATOR. WILL H. WIRRE, Carthage, Ohio. Filed Mar. 12, 1898. Serial No. 673,670. Original No. 563,640, dated June 4, 1897.



Claim.—1. In an indicating apparatus, the combination of a display-plate, means for advancing said plate pivotally connected thereto, and swinging means for engaging the plate as it advances and thereby causing it to turn into its display position, substantially as described.

2. In an indicating apparatus, the combination of a display-plate, means for advancing said plate pivotally connected thereto, swinging means for engaging the plate as it advances and thereby causing it to turn into its display position, and means for locking said plate in its display position, substantially as described.

3. In an indicating apparatus, the combination of a display-plate having an advancing means hinged or pivotally connected thereto, a stop whereby the plate is held in display position when advanced, and swinging restraining means for causing the plate as advanced to assume its display position, substantially as described.

4. In an indicating apparatus, the combination of a display-plate, a sliding rod pivotally connected thereto, means for engaging one side of the plate as it advances and thereby causing it to turn into its display position, and means for engaging the other side of said plate when in its display position and thereby locking it therein, substantially as described.

5. In an indicating apparatus, the combination of a display-plate, a rod pivotally connected thereto, a swinging arm adapted to engage and turn said plate as it advances into its display position, and means for locking said plate in its display position, substantially as described.

6. In an indicating apparatus, the combination of a casing provided with an aperture, a display-plate in said casing, a rod pivotally connected thereto, a swinging arm provided with a projection at its free end adapted to engage and turn said plate and means for locking said plate in its display position, substantially as described.

7. In an indicating apparatus, the combination of a casing, provided with an aperture, a display-plate in said casing, a sliding rod pivotally connected thereto, a swinging arm provided with a projection at its free end adapted to engage and turn said plate, means for automatically retracting said arm when the rod is drawn back, and means for locking said plate in its display position, substantially as described.

8. In an indicating apparatus, the combination of a casing provided with an aperture, a display-plate in said casing, a sliding rod pivotally connected thereto, two swinging arms provided with projections at their free ends, one of said arms being adapted to turn said plate as it advances and the other to lock it in its display position, substantially as described.

9. In an indicating apparatus, the combination of a casing provided with an aperture, a display-plate in said casing, a sliding rod pivotally connected to said plate, two swinging arms, each provided with a projection at its free end adapted to engage and turn said plate pivoted to said casing and arranged opposite to each other and springs for retracting said arms when the rod is drawn back, substantially as described.

10. In an indicating apparatus, the combination of a frame, an index-plate adapted to stand edgewise when not in use, and flatwise when in use as a display-sign, a reciprocating rod for advancing the plate, front abutments for the index-plate, and a reciprocating device for operating on the plate, this device consisting of a pivoted arm, and an arm angulated thereto, and a spring for elastically returning this reciprocating device to its first position when free to so do, substantially as described.

11. In an indicating apparatus, the combination of the index-plate, making its preliminary advance edgewise, and the arm M^3 hinged at one end to the frame, and provided at its free end with a projection and with an angulated arm connected to the arm M^3, and spring P^7 connected to the angulated arm and to the frame, and swinging restraining means for engagement with the display-plate, substantially as described.

12. In an indicating apparatus, a front apertured frame having detents K^2, and an index-plate adapted to make its preliminary advance toward the said aperture, and an arm M^3 hinged at one end and carrying swinging restraining means at the other, and having the angulated arm M^3, and a spring connected substantially as described and adapted to elastically draw back the arm into the first position whenever free to do so, substantially as described.

13. In an indicating apparatus, a frame having a front aperture and having detents K^2, and an index-plate adapted to make its preliminary advance toward the said aperture, and a rod for advancing the plate, and hinged thereto, and a spring for elastically keeping the plate edgewise when allowed to so do, and an arm M^3 hinged at one end and carrying the swinging restraining means and having the angulated arm M^3, and a spring adapted to elastically draw back the arm into its first position whenever free to so do, substantially as described.

14. In an indicating apparatus, a compartment or division, a front aperture thereof, and an index-plate, and means for advancing the latter, and a spring for locating the plate edgewise to the aperture when free so to do, and two sets of independent devices each having an arm M^3 hinged at its outer end, and provided at its free end with a detent projection M^5 and an angulated arm M^3, and a spring strained between the said device and a portion of the frame for drawing the arms M^3, M^3 back to a given position, the projections M^5 of the respective arms being nearest as the arms are moved, these two independent opposite devices cooperating to properly turn the plate as the latter is advanced and locate it at the aperture, and properly assist in returning the plate to its first position, substantially as and for the purposes specified.

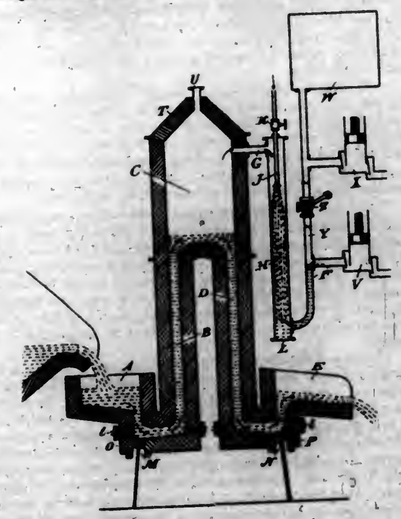
15. In an indicating apparatus, the combination of the plate in its rear position standing edgewise to the front of the machine and front abutments to receive the index-plate when advanced and in a display position, the device M consisting of the two arms M^3, M^3 each carrying the arm M^2 angulated thereto, and each having end projections M^3 and the connecting-rod M^4, and spring P operating between the rod M^4 and a fixed portion of the stationary frame of the machine, substantially as described.

16. In an indicating apparatus, the combination of the plate in its rear position standing edgewise to the front of the machine, and front abutments to receive the index-plate when advanced and in a display position, the devices M each consisting of the two arms M^3, M^3, each carrying the arm M^2 angulated thereto, and each having end projections M^3, and the connecting-rod M^4, and spring P operating between the rod M^4 and a fixed portion of the stationary frame of the machine, the devices M being present and oppositely disposed in the compartment, and coöperating to turn the plate edgewise as it is retracted, substantially as described.

17. In an indicating apparatus, the combination of the plate, in its rear position standing edgewise to the front of the machine, and front abutments to receive the index-plate when advanced and in a display position, the devices M each consisting of the two arms M^3, M^3, each carrying the arm M^2 angulated thereto, and each having swinging restraining means for causing the plate to assume its display position, and the connecting-rod M^4, and spring P operating between the rod M^4 and a fixed portion of the stationary frame of the machine, the devices M being present and oppositely disposed in the compartment, and coöperating to turn the plate edgewise as it is retracted, a rod hinged to the plate, and a spring adapted to elastically move the plate so as to bring the plate flatwise to the side of the rod, substantially as described.

18. In an indicating apparatus, the combination of the plate, in its rear position standing edgewise to the front of the machine, and front abutments to receive the index-plate when advanced and in a display position, the devices M each consisting of the two arms M^3, M^3, each carrying the arm M^2 angulated thereto, and each having end projections M^3 and the connecting-rod M^4, and spring P operating between the rod M^4 and a fixed portion of the stationary frame of the machine, the devices M being present and oppositely disposed in the compartment, and coöperating to turn the plate edgewise as it is retracted, a rod hinged to the plate, and a spring adapted to elastically move the plate so as to bring the plate flatwise to the side of the rod, and a platform for supporting the rods and guides for compelling the rod to run longitudinally in a given line, substantially as described.

11,671. MACHINE FOR EXHAUSTING MOLTEN METAL. JACOB T. WAINWRIGHT, Chicago, Ill. Filed Apr. 22, 1898. Serial No. 678,480. Original No. 596,037, dated Jan. 25, 1898.



Claim.—In combination with an exhauster; a connected vacuum-chamber with an elevated bottom, a trap inlet, and a trap outlet; substantially.

DESIGNS.

28,883. BADGE. JOHN BRATHING, Philadelphia, Pa. Filed May 12, 1898. Serial No. 680,527. Term of patent 7 years.



Claim.—The design for a badge or similar article, as herein shown and described.

28,884. BADGE. JOHN J. CLOIN, Lowell, Mass. Filed May 2, 1898. Serial No. 679,544. Term of patent 7 years.



Claim.—The design for a badge, substantially as herein shown and described.

28,885. HANDLE FOR SPOONS, &c. BENJAMIN W. GOODING and GEORGE GOODING, Plymouth, Mass. Filed Aug. 19, 1897. Serial No. 648,833. Term of patent 7 years.



Claim.—The design for a handle for spoons, forks and similar articles, substantially as herein shown and described.

28,886. TEA OR COFFEE POT STRAINER. JOHN P. BOOTH, Newton, Mass. Filed May 26, 1898. Serial No. 681,503. Term of patent 7 years.



Claim.—The design for a tea or coffee pot strainer, substantially as described.

28,887. FRAME FOR REFLECTING-SPECTACLES. JOHN STORER CORNELLY, Titusville, Pa. Filed Sept. 30, 1897. Serial No. 653,655. Term of patent 14 years.



Claim.—The design for a frame for reflecting-spectacles substantially as shown and described.

28,888. THREAD OR TWINE CUTTER. WALTER R. ROBBINS, Blenburst, Cal. Filed Mar. 16, 1898. Serial No. 673,470. Term of patent 14 years.



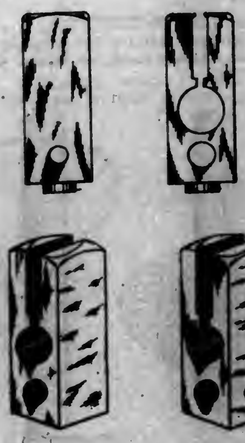
Claim.—The design for a thread and twine cutter substantially as shown and described.

28,889. FASTENER FOR FENCE-STAYS. WILLIAM ALONZO FORNER, Butler, Ohio. Filed Dec. 20, 1897. Serial No. 662,767. Term of patent 14 years.



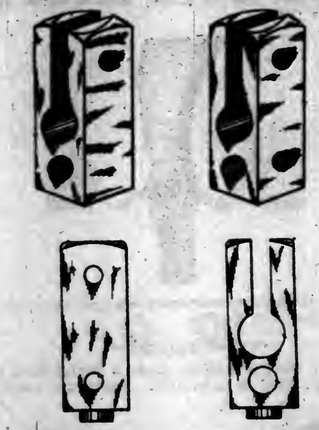
Claim.—The design for a fastener for the stays of wire fences, substantially as shown and described.

28,890. CLIP-POST. JOHN J. ZIMMER, Merchantville, N. J. Filed May 13, 1898. Serial No. 680,642. Term of patent 3½ years.



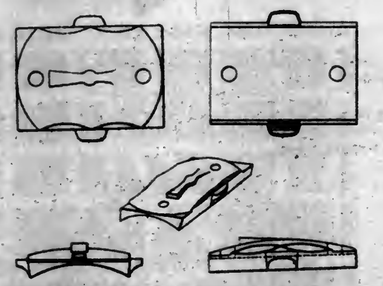
Claim.—The design for a clip-post, substantially as shown and described.

28,891. HINGE-POST. JOHN J. ZIMMER, Merchantville, N. J. Filed May 13, 1898. Serial No. 680,644. Term of patent 3½ years.



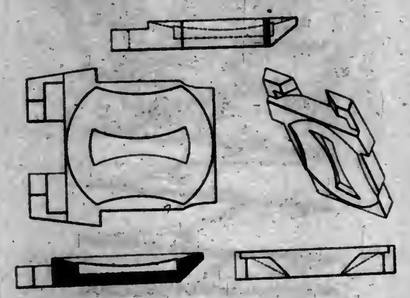
Claim.—The design for a hinge-post, substantially as shown and described.

28,892. CROWN-BACK FOR CAR AXLE BEARINGS. WILLIAM B. SMITH, New York, N. Y., assignor to the Smith Adjustable Car-Axle Bearing Company, same place. Filed May 25, 1898. Serial No. 681,751. Term of patent 14 years.



Claim.—The design for a crown-back for car-axle bearings, substantially as shown and described.

28,893. WEDGE FOR CAR-AXLE BEARINGS. WILLIAM B. SMITH, New York, N. Y., assignor to the Smith Adjustable Car-Axle Bearing Company, same place. Filed May 25, 1898. Serial No. 681,752. Term of patent 14 years.



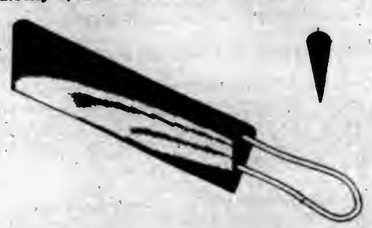
Claim.—The design for a wedge for car-axle bearings, substantially as shown and described.

28,894. SEPARATOR OR CLOVER-HULLER TOOTH. MARSHAL T. REEVES and JOHN H. KAILOR, Columbus, Ind., assignors to Reeves & Co., same place. Filed Feb. 24, 1898. Serial No. 672,106. Term of patent 14 years.



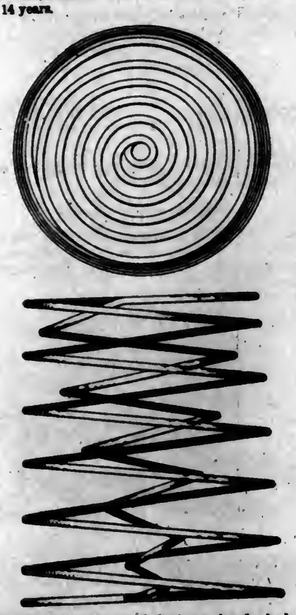
Claim.—The design for a separator or clover-huller tooth, substantially as shown and described.

28,895. SHARPENING-TOOL. ARTHUR G. HUNTLEY, Toston, Mont. Filed May 13, 1898. Serial No. 681,071. Term of patent 7 years.



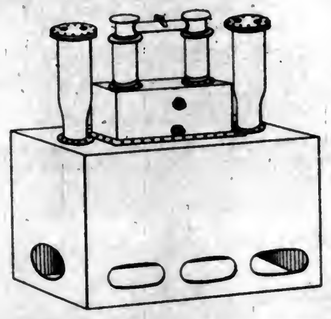
Claim.—The design for a sharpening-tool as herein shown and described.

28,896. COILED-WIRE SPRING FOR BEDS, &c. WILLIAM A. CONSTOCK, Cleveland, Ohio. Filed Dec. 21, 1897. Serial No. 662,941. Term of patent 14 years.



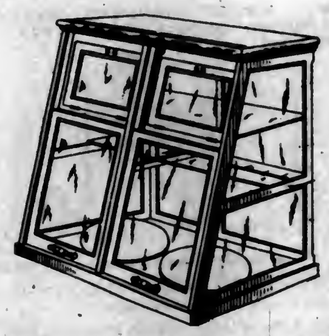
Claim.—The design for a coiled-wire spring for beds and other household furniture, substantially as herein shown and described.

28,897. FRAME FOR ICE AND REFRIGERATING MACHINES. RUSSELL D. HOLMES, Oakland, Cal. Filed May 26, 1897. Serial No. 638,175. Term of patent 7 years.



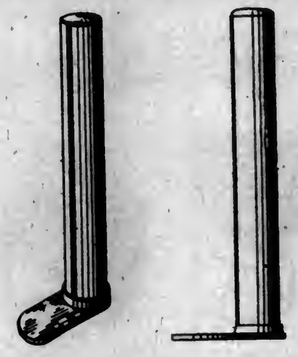
Claim.—The design for a frame for an ice and refrigerating machine, substantially as herein shown and described.

28,898. CHEESE-CABINET. FREDERICK M. KEITH, Somerville, Mass. Filed Apr. 28, 1898. Serial No. 679,142. Term of patent 7 years.



Claim.—The design for a cheese-cabinet, substantially as herein shown and described.

28,899. BODY AND BASE FOR BICYCLE-PUMPS. DEWARE B. SMITH, Deerfield, N. Y. Filed May 28, 1898. Serial No. 682,071. Term of patent 3½ years.



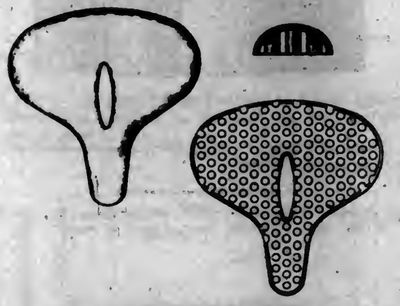
Claim.—The design for the body and base of a bicycle-pump as herein shown and described.

28,900. SEAT-POST FOR BICYCLES. BENJAMIN F. FIELD and WILLIAM J. SEEBO, Chicago, Ill. Filed Oct. 11, 1897. Serial No. 654,966. Term of patent 7 years.



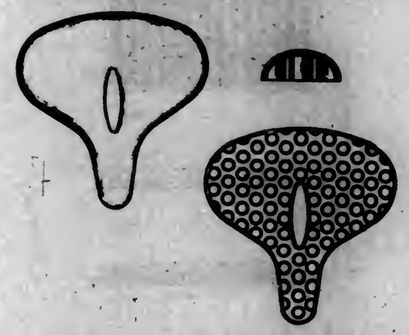
Claim.—The design for a seat-post for a bicycle-saddle substantially as herein shown and described.

28,901. SADDLE-SEAT. WILLIAM I. BUSKIRK, La Grange, Ill. Filed May 6, 1898. Serial No. 679,967. Term of patent 14 years.



Claim.—The design for a saddle-seat substantially as herein shown and described.

28,902. SADDLE-SEAT. WILLIAM I. BUSKIRK, La Grange, Ill. Filed May 7, 1898. Serial No. 680,057. Term of patent 14 years.



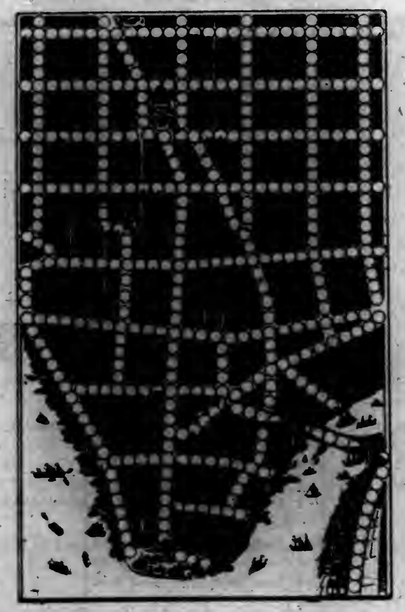
Claim.—The design for a saddle-seat substantially as herein shown and described.

28,903. CUSHION. WILLIAM H. AHORY, New York, N. Y. Filed Mar. 1, 1898. Serial No. 672,102. Term of patent 14 years.



Claim.—The design for a cushion substantially as shown and described.

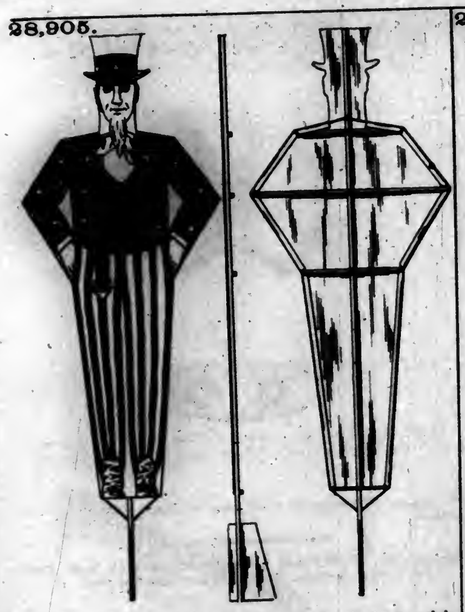
28,904. GAME-BOARD. GEORGE S. PARKER, Salem, Mass. Filed May 9, 1898. Serial No. 680,222. Term of patent 14 years.



Claim.—The design for a game-board substantially as herein shown and described.

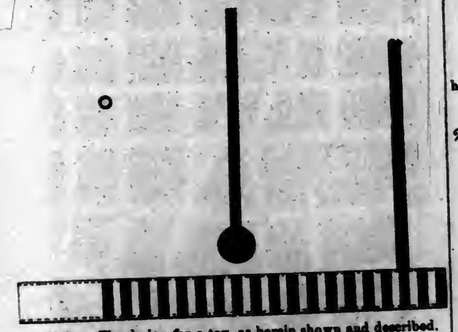
28,905. KITE-FRAME. HOWE R. DANTENBOCHER, Philadelphia, Pa. Filed Mar. 23, 1898. Serial No. 674,840. Term of patent 7 years.

28,905.



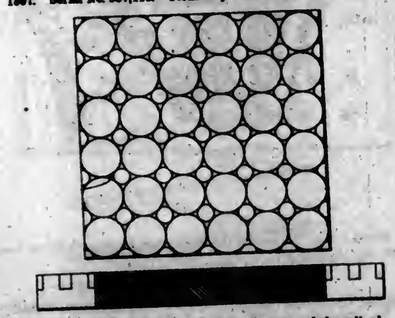
Claim.—The design for a kite-frame as herein shown and described.

28,906. TOY. ROBERT SOMMERLEY, Philadelphia, Pa. Filed Mar. 22, 1898. Serial No. 674,834. Term of patent 3½ years.



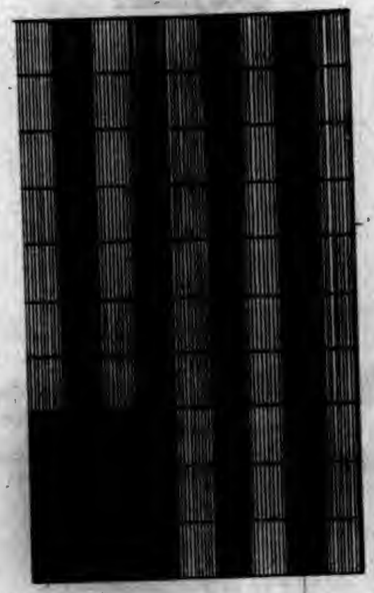
Claim.—The design for a toy, as herein shown and described.

28,907. TILE. BENJAMIN O. HAGER, Anderson, Ind. Filed Nov. 1, 1897. Serial No. 657,113. Term of patent 14 years.



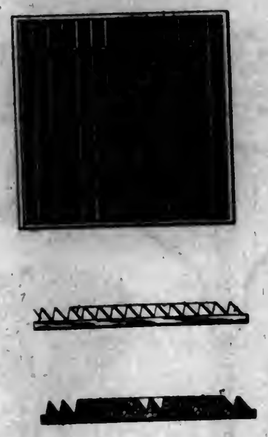
Claim.—The design for a tile herein shown and described.

28,908. ILLUMINATED PANEL. HARRY L. JENKINS, Minneapolis, Minn. Filed Nov. 19, 1897. Serial No. 659,268. Term of patent 7 years.



Claim.—The design for an illuminating-panel, substantially as herein shown and described.

28,909. PRISM-LIGHT. LOUIS J. MILLER, Chicago, Ill. Filed May 6, 1898. Serial No. 679,962. Term of patent 3½ years.



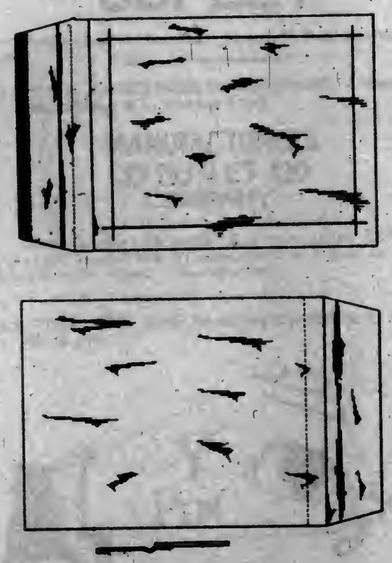
Claim.—The design for a prism-light as herein shown and described.

28,910. ORNAMENTATION FOR BOXES. NICHOLAS WITMER, Jersey City, N. J., assignor to the American Lithographic Company, New York, N. Y. Filed May 4, 1898. Serial No. 679,727. Term of patent 7 years.



Claim.—The design for the ornamentation of boxes substantially as shown and described.

28,911. BLOTTER FOR CHECK OR SIMILAR BOOKS. BENJAMIN MOTT WITMER, Philadelphia, Pa. Filed Mar. 7, 1898. Serial No. 673,012. Term of patent 14 years.



Claim.—The design for a blotter for check and similar books, substantially as shown and described.

28,912. RUBBER HEEL. HENRY C. PERKINS, Boston, Mass., assignor to Frank W. Whitcher, same place, Sanford Cranston, Melrose, and Herbert L. Turner, Malden, Mass. Filed May 23, 1898. Serial No. 681,511. Term of patent 14 years.



Claim.—The design for a rubber heel, substantially as herein shown and described.

28,913. NECKSCARF. MAX BARNER, New York, N. Y. Filed May 20, 1898. Serial No. 681,260. Term of patent 7 years.



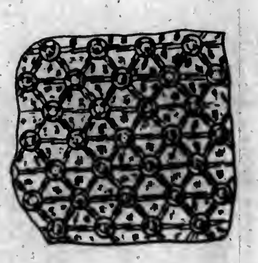
Claim.—The design for a neckscarf-section substantially as herein shown and described.

28,914. COLLAR. HARLAN P. WILSON, Gardner, Mass. Filed May 7, 1897. Serial No. 635,895. Term of patent 14 years.



Claim.—The design for a collar herein shown and described.

98,915. FABRIC. Seaman I. Fleischman, New York, N. Y. Filed May 23, 1898. Serial No. 681,510. Term of patent 3½ years.



FABRIC.

Claim.—The design for a fabric, substantially as herein shown and described.

98,916. CASKET. Leo Stern and Clayton F. Wheeler, Hoboken, N. J., assignors to the National Casket Company, same place. Filed Feb. 26, 1898. Serial No. 672,093. Term of patent 14 years.

98,916.



Claim.—The design for a casket, substantially as herein described and shown.

TRADE-MARKS

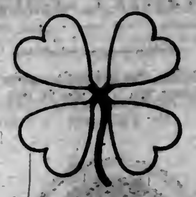
REGISTERED JUNE 21, 1898.

81,704. WRITING-PAPER. Wilmore Paper Company, Holyoke, Mass. Filed Mar. 5, 1898.

LEGION

Essential feature.—The word "Legion." Used since November, 1894.

81,705. PHOTOGRAPHIC PAPER. Rochester Aristo Company, Rochester, N. Y. Filed Mar. 2, 1898.



Essential feature.—The representation of a four-leaved clover. Used since May 15, 1897.

81,706. ART PHOTOGRAPHS. Curtis & Cameron, Boston, Mass. Filed Mar. 14, 1898.

COPLEY

Essential feature.—The word "Copley." Used since March, 1896.

81,707. CERTAIN NAMED WEARING-APPAREL. J. Sanders & Son, Providence, R. I. Filed Aug. 6, 1897.

MANUFACTURERS
OUTLET
COMPANY

Essential feature.—The words "Manufacturers' Outlet Company," together with the representation of a crown on each side of the word "Outlet." Used since 1896.

81,708. PINS. Handy Pin Company, New York, N. Y. Filed Mar. 22, 1898.



Essential feature.—The representation of a hand, a hyphen, the letter "Y," and the word "Pin," which together form a rebus indicating the words "Handy Pin." Used since January 15, 1896.

81,709. JEWELRY. Jacob Schwarzhoff and Jacob Solinger, Providence, R. I. Filed Mar. 17, 1898.



Essential feature.—The representation of a Maltese cross having on its face a monogram of the letters "S S." Used since February 14, 1898.

81,710. GLASSWARE. Edward A. Fowler & Co., Pittsburg, Pa. Filed Apr. 12, 1898.

A F

Essential feature.—The letters "A F." Used since September 15, 1897.

81,711. PILLOW-INHALERS. Pillow Inhaler Company, Washington, D. C. Filed Mar. 19, 1898.

Essential feature.—The representation of a pillow with the head of a person resting thereon. Used since July 1, 1861.

81,712. WITHDRAWN.

81,713. CERTAIN NAMED MEDICAL PREPARATION. John Linden, Cleveland, Ohio. Filed Apr. 5, 1898.



Essential feature.—The figure of a hand holding a surgical instrument, known as "John Linden's Improved Reconcentrator," and the representation of a vial bearing the words "J. Linden's Improved Oleum Bauscreidtii." Used since July, 1877.

81,714. REMEDY FOR RHEUMATISM. Giambattista Arbib, Hoboken, N. J. Filed Feb. 21, 1898.

Essential feature.—A representation of two crossed battle-axes superposed on two crossed palm-branches. Used since August 1, 1897.

81,715. TONIC ALTERATIVE COMPOUND. SHARP & DOHME, Baltimore, Md., New York, N. Y., and Chicago, Ill. Filed May 6, 1898.

MEL-MAROBA.

Essential feature.—The compound word "MEL-MAROBA." Used since April 2, 1898.

81,716. CERTAIN NAMED MEDICINAL REMEDIES. CHARLES C. COOK, Baltimore, Md. Filed Apr. 13, 1898.

THIEF

Essential feature.—The word "THIEF." Used since March 1, 1898.

81,717. WHISKY. MARSHALL, McEWEN & Co., Glasgow, Scotland. Filed May 5, 1898.

SURPRISE

Essential feature.—The word "SURPRISE." Used since April 27, 1892.

81,718. MEDICATED WHISKY. WILLIAMS & NEWBAS, Chicago, Ill. Filed Jan. 24, 1898.



Essential feature.—The pictorial representation of a bunch of celery of a green color with the words and character "ROCK & RYE" arranged in red letters horizontally across the same and the word "CELERY" in white letters upon a green scroll arranged above the same. Used since December 21, 1897.

81,719. MINERAL WATER. GEROLSTEINER SPRUDEL, W. CASTENDYK, Cologne, Germany. Filed Mar. 7, 1898.

Gerolsteiner Sprudel

Essential feature.—The words "GEROLSTEINER SPRUDEL" and the representation of a star bearing a lion arranged centrally below the said words. Used since 1883.

81,720. CERTAIN NAMED BEVERAGES AND MINERAL WATER. L. BOTH'S SONS, New York, N. Y. Filed Oct. 27, 1897.



Essential feature.—The words "MYLES STANDISH SPRING WATER" in a circle surrounding the upper portion of a figure of a man in pilgrim costume. Used since October, 1896.

81,721. COFFEE. THE ENTERPRISE COFFEE COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Mar. 26, 1898.



Essential feature.—The figure of a star surrounded by circular lines in assorted colors. Used since July 6, 1877.

81,722. ICED CONFECTIONS. DAVIS BROS., St. Louis, Mo. Filed Mar. 26, 1898.

"LUNARET"

Essential feature.—The word "LUNARET." Used since March 1, 1898.

81,723. CANDY. SEABAGOUTS TAYLOR HOPKINS, New Orleans, La. Filed Jan. 20, 1898.

JOHNNY-CROOK

Essential feature.—The words "JOHNNY-CROOK." Used since January 1, 1897.

81,724. CERTAIN CANNED AND BOXED GOODS. J. W. MATTHEWS & Co., Newburg, N. Y. Filed Feb. 4, 1898.

81,724. HIGHLAND BRAND



Essential feature.—The words "HIGHLAND BRAND" and the representation of a Highlander. Used since February 1, 1898.

81,725. CERTAIN NAMED GROCERIES. FRANCIS H. LEGGETT & Co., New York, N. Y. Filed Dec. 17, 1897.

GABRIEL TRIAT & CO.

Essential feature.—The words, character, and abbreviation "GABRIEL TRIAT & Co." Used since May, 1890.

81,726. CERTAIN NAMED GROCERIES. BROWNELL, CHITTENDEN & Co., Rochester, N. Y. Filed July 8, 1897.



Gladiator

Essential feature.—The word "GLADIATOR" with the figure of a gladiator. Used since July 6, 1892.

81,727. WHEAT-FLOUR. CHARLES B. WELLENKAMP, New York, N. Y. Filed Feb. 16, 1898.



Essential feature.—The picture of a spherical figure having an equatorial belt extending diagonally across it and stars above and below said belt. Used since January 1, 1898.

81,728. ROLLED OATS AND OATMEAL. HUMANITIES OAT MEAL COMPANY, Muscatine, Iowa. Filed Mar. 22, 1898.



Essential feature.—The representation of a hawk's eye and head. Used since February 1, 1898.

81,729. YEAST. THE AMERICAN YEAST COMPANY, Boston, Ohio. Filed Mar. 30, 1898.



Essential feature.—The picture of a loaf of bread extending across a sheaf of wheat. Used since February 18, 1898.

81,730. CATSUPS, MUSTARD, AND SOUPS. THE H. C. FLAGG COMPANY, Wheeling, W. Va. Filed May 4, 1898.

CHILIMATO

Essential feature.—The word "CHILIMATO." Used since March 1, 1898.

81,731. SEA-SALT. TIDMAN & SON, LIMITED, London, England. Filed Feb. 4, 1898.



Essential feature.—The representation of a bag placed in a vertical position, closed at the top by being tied at the two corners, with the words "TIDMAN'S SEA SALT" printed thereon. Used since January, 1861.

81,732. LEAF-TOBACCO, MANUFACTURED TOBACCO, AND CIGARS. S. HERSHFIELD, BECK & COMPANY, LIMITED, New Orleans, La. Filed June 16, 1898.



BLACK HORSE

Essential feature.—The words "BLACK HORSE" or the representation of a black horse. Used since 1865.

81,733. OILS. VACUUM OIL COMPANY, Rochester, N. Y. Filed Mar. 17, 1898.

VACUUM

Essential feature.—The word "VACUUM" represented in party-colored characters. Used since December, 1866.

81,784. OILS. VACUUM OIL COMPANY, Rochester, N. Y. Filed Mar. 17, 1898.

600 W

Essential feature.—The party-colored characters "600 W." Used since December, 1886.

81,785. OILS. VACUUM OIL COMPANY, Rochester, N. Y. Filed Apr. 21, 1898.

Vacuum

Essential feature.—The word "VACUUM." Used since April, 1867.

81,786. SHELLAC. NEW YORK SHELLAC CO., New York, N. Y. Filed Mar. 21, 1898.

A & M

Essential feature.—The letters and character "A & M." Used since February 10, 1896.

81,787. SHELLAC. NEW YORK SHELLAC CO., New York, N. Y. Filed Mar. 21, 1898.

H A T

Essential feature.—The letters "HAT" and a representation of a hat. Used since January 10, 1898.

81,788. CERTAIN NAMED TYPE-WRITERS' SUPPLIES, NOTE-BOOKS, COPYING-BOOKS, AND COPYING-CLOTHS. F. S. WHEELER COMPANY, Boston, Mass., New York, N. Y., Chicago, Ill., and London, England. Filed Apr. 13, 1898.

STAR

Essential feature.—The word "STAR" or the representation of a star. Used since April, 1894.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

WOLFENDEN *v.* PRICE.

Decided June 6, 1898.

1. INTERFERENCE—DISSOLUTION—PATENTABILITY OF CLAIMS OVER THE ISSUE—SUGGESTION BY THE EXAMINER AS TO REJECTION OF CLAIMS INVOLVED IN THE ISSUE.

Where the issue of the interference was Wolfenden's third claim and involved his first, second, and fourth claims, *Held* that as the issue is not the first, second, and fourth claims they should be dropped from the interference, and if the Examiner is of the opinion that there is no patentable invention in these claims over the subject-matter of the issue it would be better practice for him to notify Wolfenden that in the event of the interference being determined adversely to him such claims would stand rejected as involving no patentable invention.

2. SAME—SAME—CLAIMS INCLUDING IMMATERIAL LIMITATIONS—INTERFERENCE IN FACT.

Where Price's claim involved in the issue, which is Wolfenden's third claim, includes certain limitations which are not stated in Wolfenden's claim and Wolfenden's claim contains a limitation not found in Price's claim, *Held* that notwithstanding it is urged that these differences are immaterial and may be disregarded there is no interference in fact.

3. SAME—SAME—DISREGARDING LIMITATIONS IN CLAIM.

The Patent Office is no more competent than the courts to say in declaring an interference that an element which an applicant or a patentee has placed in his claim is an immaterial one.

4. SAME—SAME—SAME.

An interference is not sufficiently clear and definite which requires that certain limitations in the claims of one party should be held to be immaterial and that other limitations should be read into the claims of either one or the other party to the proposed interference in order to make them the issue of the interference.

5. SAME—SAME—SAME—SUGGESTION OF CLAIM BY EXAMINER.

A claim may be patentable in the opinion of the Examiner which does not contain certain limitations, and it is within his province, when he believes it is necessary for him to declare an interference, to indicate to the parties a patentable claim as the issue of the interference which shall omit immaterial elements and thereby make it unnecessary for the Office to hold that the issue and the claims are different from what they read.

6. SAME—SAME—SAME.

It is not necessary that identical language should be employed in the claims of every party to the interference; but when different words are used they must mean and refer to the same thing.

7. SAME—SAME—INTENT OF HAMMOND *v.* HART.

The case of *Hammond* v. *Hart* (83 O. G., 743) was intended to bring about a practice in the Office that should result in making the issue of an interference both definite and clear, and to that end to cause the parties to the proposed interference to claim substantially the same patentable invention, so as to obviate the many motions and appeals that have unnecessarily arisen in the Office.

APPEAL on motion.

HYDRAULIC VALVE.

Application of Frank Wolfenden filed June 26, 1897, No. 642,474. Application of William W. Price filed April 8, 1897, No. 631,253.

Mr. James L. Norris for Wolfenden.

Messrs. Wright, Brown & Quinby and *Mr. F. P. Davis* for Price.

DUELL, *Commissioner:*

This is an appeal from the decision of the Primary Examiner denying Wolfenden's motion for dissolution of the interference. The interference was declared with the following issues:

1. In a hydraulic valve for presses, the combination of a casing having passages communicating with high and low pressure engines, a low-pressure passage being provided with an automatic valve whereby the valve of the low-pressure passage will be closed by the high pressure, said casing also having a chamber provided with passages leading to and from the press-cylinder, and a single valve arranged in said casing between the high and low pressure passages and the passage to the press-cylinder and serving to control the passage to the press-cylinder and also to permit and cut off the supply of high and low pressure to the press-cylinder.

2. In a hydraulic valve for presses, the combination of a casing having passages communicating with high and low pressure engines, an automatic valve in the low-pressure passage and a throttled valve in the high-pressure passage, the valve of the low-pressure passage adapted to be closed by the high pressure, said casing also having a chamber provided with passages leading to and from the press-cylinder, and a single valve arranged in said casing between the high and low pressure passages and the passage to the press-cylinder and serving to control the passage to the press-cylinder and also to permit and cut off the supply of high and low pressure to the press-cylinder.

The first issue is said to be in substance Wolfenden's third claim and Price's first claim and also to involve Wolfenden's first, second, and fourth claims. That it is Wolfenden's third claim is undisputed and indisputable. That the issue is not his first, second, and fourth claims is equally certain, and, in fact, is directly admitted by counsel for Price and tacitly admitted by the Examiner, if I read his decision rightly.

Under the present practice, as laid down in *Hammond* v. *Hart*, (83 O. G., 743,) these claims should not remain directly in the interference. If the Examiner is of the opinion that there is no patentable invention in these claims over the subject-matter of the issue, it would be better practice for him to notify Wolfenden's attorney that in the event of the interference being determined adversely to him such claims would stand rejected as involving no patentable invention. At all events they should be dropped from the interference.

Upon an examination of Price's claim 1, which is the one placed in interference under the first issue, it is found to read as follows:

1. In a pressure-controlling mechanism for hydraulic presses,

the combination of check-valved passages leading from high and low pressure producers respectively and interrupted only by the check-valves, a passage leading to the press from said check-valved passages, the low-pressure passage communicating with the said press-passage at a point in advance of that where the high-pressure passage communicates with said press-passage, and the check-valve of the low-pressure passage being removed from the path of communication between the high-pressure passage and the press, and a single manually-operated valve whose manipulation establishes communication for both pressures simultaneously to the press, substantially as described.

Upon a comparison between this claim and Wolfenden's third claim, which is the first issue, it will be found that it includes certain limitations which are not stated in Wolfenden's claim, and, on the other hand, Wolfenden's claim 3 contains a limitation not found in Price's claim 1. It is argued that notwithstanding these differences there is an interference in fact and that the differences are immaterial and may be disregarded.

In deciding the case of *Hammond* v. *Hart* it was my intention to bring about a practice in the Office that would result in making the issue of an interference both definite and clear, and to that end to cause the parties to the proposed interference to claim substantially the same patentable invention, so as to obviate the many motions and appeals that have unnecessarily arisen in the Office.

There is no principle of law better settled than that whatever element is incorporated into a claim will be considered a material one, and the patentee in the courts is invariably judged by that rule. This rule has been stated in various ways:

> Our law requires the patentee to specify particularly what he claims to be new, and if he claims a combination of certain elements or parts, we cannot declare that any one of those elements is immaterial. The patentee makes them all material by the restricted form of his claim. (*Water Meter Company* v. *Desper*, 101 U. S., 332, 337.)
>
> If the claim had been intended to be a claim broadly to square shoulders, without reference to their vertical form, it would have been easy to make such a claim. But the claim industriously introduces the element of the vertical curving. The inventor must have regarded that as a material element. (*Le Fever* v. *Remington*, 22 O. G., 1537; 13 Fed. Rep., 86, 87.)
>
> * * * If the language of the specification and claim shows clearly what he (the patentee) desired to secure as a monopoly, nothing can be held to be an infringement which does not fall within the terms the patentee has himself chosen to express his invention. (*McClain* v. *Ortmayer*, 57 O. G., 1129; 141 U. S., 419, 425.)

I do not think that the Patent Office, any more than the courts, is competent, in declaring an interference, to say that an element which an applicant or a patentee has placed in his claim is an immaterial one. A claim may be patentable in the opinion of the Examiner which does not contain certain limitations, and I think it is within the province of the Examiner when he believes it is necessary for him to declare an interference to indicate to the parties a patentable claim as the issue of the interference which shall omit immaterial elements, and thereby make it unnecessary for the Office to hold that the issue and the claims are different from what they read.

Too often the question of "priority" is lost sight of and argument of counsel is directed to the question "what does the issue mean?" This should be avoided.

In *White* v. *Dunbar* (37 O. G., 1002; 119 U. S., 47, 51) the Court in referring to the construction of the claims in patents said:

> Some persons seem to suppose that a claim in a patent is like a nose of wax which may be turned and twisted in any direction, by merely referring to the specification, so as to make it include something more than, or something different from, what its words express. The context may, undoubtedly, be resorted to, and often is resorted to, for the purpose of better understanding the meaning of the claim; but not for the purpose of changing it, and making it different from what it is. The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.

This statement applies equally to the issues in an interference proceeding. I do not mean to be understood as expressing the opinion that identical language must be employed in the claims of every party to the interference; but when different words are employed they must mean and refer to the same things.

In claim 3 of Wolfenden we find recited—

> a chamber provided with passages leading to and from the press-cylinder.

It is admitted that this limitation is not found in Price's claim 1. The contention is that the limitation is immaterial. In claim 1 of Price are found the limitations that—

> the low-pressure passage communicating with the said press-passage at a point in advance of that where the high-pressure passage communicates with said press-passage, and the check-valve of the low-pressure passage being removed from the path of communication between the high-pressure passage and the press.

These limitations are not found in Wolfenden's claim 3—the issue of the interference. It is contended by Price that such limitations must be implied in Wolfenden's claim, as they are essential to an operative construction embodying the invention. On the part of Wolfenden it is insisted that he cannot make a claim with such limitations. At all events he has not done so.

It is obvious that the issue must be made "a nose of wax" in order that the claim of Price fit it.

At the present time the claims are not, in my opinion, the same, nor do they show that the parties are claiming substantially the same patentable invention.

It is conceded that if an interference is not found to exist between the claims of the first issue an interference does not exist between the claims of the second issue, and therefore it is unnecessary to enter into any elaborate statement with reference to the second issue. An interference is not sufficiently clear and definite which requires that certain limitations in the claims of one party should be held to be immaterial and that other limitations should be read into the claims of either one or the other party to the proposed interference in order to make them the issue of the interference.

It is unnecessary at the present time to pass upon the question whether there is a common patentable invention in the applications of the parties to this interference; but if there is the parties should claim it and an interference be declared based upon the claims for such common patentable invention.

The decision of the Examiner is reversed.

EX PARTE WEIL.

Decided June 14, 1898.

1. TRADE-MARK—"YUCATAN"—GEOGRAPHICAL WORD.

The word "Yucatan" is geographical and cannot be registered as a trade-mark for leather and leather goods. Any one importing hides from Yucatan or purchasing hides exported from Yucatan would be entitled to call or mark skins and tanned leather having such origin by the name "Yucatan."

2. SAME—"YUCATAN" WITHIN A DESCRIBED SQUARE FIGURE.

As "Yucatan" taken by itself is not registrable, it is not made registrable by placing it within a square figure, as the essential feature of the mark is the word "Yucatan."

3. SAME—ESSENTIAL FEATURES OF A MARK.

The essential features of a trade-mark are those which serve in whole or in part to distinguish the goods of the party by whom such mark is adopted.

ON petition.

TRADE-MARK FOR LEATHER AND LEATHER GOODS.

Application of J. M. and V. Weil for registration filed November 13, 1897, No. 54,583.

Messrs. Barton & Brown for the applicants.

DUELL, *Commissioner:*

Applicants sought originally to register as a trade-mark for skins and tanned leathers the word "Yucatan." Registration of that word having been refused by the Examiner on the ground that the word was geographically descriptive and incapable of exclusive appropriation by any one, the applicants amended their application and asked for the registry of the word "'Yucatan' within the described square figure, as shown." The Examiner having rejected the application as amended, applicants by petition seek to review his action.

While admitting the recognized principle of law that geographical terms are incapable of registration, applicants seek to except the word "Yucatan" from the general rule. It is insisted that because they carry on their business at Chicago, Ill., the word has lost its geographical significance when applied to leathers and skins of their manufacture, although *hides* may constitute a principal export of Yucatan.

I do not think their position is tenable. Any one importing hides from Yucatan or purchasing hides exported from Yucatan would, in my opinion, be entitled to call or mark skins and tanned leathers having such origin by the name "Yucatan."

The question remaining to be considered is whether by placing the word "Yucatan" within the described square figure, as shown, applicants have disclosed a registrable trade-mark. The answer to the question seems to turn upon what is to be considered the essential feature of the trade-mark. At this time it is too well settled to admit of controversy that the essential features of the trade-mark are those which serve in whole or in part to distinguish the goods of the party by whom such mark is adopted. The specification as amended states:

> The essential or distinguishing feature of our trade-mark we consider to be the word "Yucatan" within the described square figure, as shown.

In other words, it is the word "Yucatan," and the arrangement of the word within the square figure is a non-essential. As "Yucatan" taken by itself is not registrable, I do not think it is made so by placing it within the square figure. (*Ex parte Farnum & Co.*, 18 O. G., 412.) In referring to that case it was said in *ex parte Adriance, Platt & Co.*, (20 O. G., 1820,) which was a case where it was held that the name of a person, firm, or corporation does not acquire an arbitrary significance by association with an otherwise valid trade-mark, that—

in the case of *ex parte Farnum & Co.* (18 O. G., 412) I had occasion to hold that a geographical term acquired no arbitrary significance from association with an arbitrary symbol; and in the present case I feel constrained to hold, by parity of reasoning, that the name of the person, firm, or corporation does not acquire an arbitrary signification by association with an otherwise valid trade-mark, and cannot therefore be included as an essential feature of such trade-mark. This conclusion, I think, will be found to be in harmony with the decisions of the courts so far as they are applicable to the subject.

From principle and authority I am constrained to hold that the trade-mark now sought to be registered is not properly registrable, and therefore the decision of the Examiner is affirmed.

PAINTER v. HALL.

Decided May 25, 1898.

1. INTERFERENCE—MOTION TO DISSOLVE—NATURE OF SUCH MOTION.

A motion to dissolve an interference on the ground of non-patentability is in the nature of a suggestion to the Office of certain facts which are believed to negative patentability or to show that one of the parties is not entitled to make the claim. It is not a contest in which testimony can be received or anything presented for consideration which is not actually or presumably within the knowledge of the Examiner in the *ex parte* treatment of the applications of the respective parties prior to the declaration of the interference.

2. SAME—SAME—SAME.

The motion is brought not on the ground that the interest of the party bringing it would be adversely affected by the issuance of a patent for the subject-matter to his opponent, but for the reason that it appears to the moving party that the Office was in error in finding the claim patentable.

3. SAME—SAME—SAME.

The fact that the interest of the moving party may be adversely affected by the issuance of the patent for the subject-matter to his opponent does not in itself entitle him or any other person to be heard, nor is it a fact to be considered in the determination of the question by the Examiner. The question is the same question that was considered before the declaration of the interference—a question of patentability.

4. SAME—SAME—EXAMINER'S ACTION AS TO PATENTABILITY CONCLUSIVE.

If the Examiner, upon hearing the motion to dissolve, adheres to his decision that the claims are patentable and patentable to the respective parties, the contest as to these questions is concluded in so far as it is preliminary to the question of priority.

5. SAME—SAME—NON-PATENTABILITY—EX PARTE APPEAL.

Should the Examiner, upon the motion to dissolve, decide that the claims are not patentable to one of the parties, a decision which is as to one or both of the parties equivalent to a final rejection, the full course of appeal is open to the party whose claim is affected by such decision, and such appeal is *ex parte*.

6. SAME—SAME—APPEALS—"MAY BE HEARD INTER PARTES" RULE 124 CONSTRUED.

The words "may be heard *inter partes*" in Rule 124 permit the adverse party to an interference proceeding, on a motion to dissolve on the ground of non-patentability or no right to make the claim, to be heard on appeal, if considered advisable by the Examiners-in-Chief. The adverse party, however, is not heard as a matter of right, but as a matter of courtesy only.

7. SAME—SAME—DISCRETION OF THE EXAMINERS-IN-CHIEF.

On an appeal from the decision of the Primary Examiner on a motion involving the right of an applicant to make a claim it is doubtful whether the adverse party should be heard, even as a matter of courtesy. This matter should, however, be left to the discretion of the Examiners-in-Chief.

8. SAME—SAME—RIGHT OF MOVING PARTY TO BE HEARD BEFORE APPELLATE TRIBUNAL.

The party bringing such motion, so far as an appeal is concerned, is no more entitled to be heard as of right, whatever may be decided by the Office as regards his appearing before

an appellate tribunal as a matter of policy, than any person not before the Office whose rights to freely manufacture the invention covered by the claim might be curtailed by the issuance of a patent.

9. SAME—SAME—RIGHT OF PARTIES TO BE HEARD—RIGHT OF APPEAL.

Such motion is heard *inter partes* by the Primary Examiner as a matter of Office policy, in order that the facts and reasons which in the opinion of the moving party negative the patentability of the claim or show that his opponent is not entitled to make the claim may be clearly presented; but the Office does not and cannot recognize the moving party as a party in interest entitled to contest the patentability of another's claims. He has no right of appeal from a decision denying his motion.

10. SAME—SAME—SAME.

The same reasons which justify the rule which refuses the right of appeal from the decision of the Primary Examiner affirming patentability or the right of the respective parties to make the claim justify the Office in refusing to permit the appeal taken by the party whose claims are affected to be made a contest *inter partes* before the appellate tribunal.

11. SAME—SAME—SAME.

Whether or not the adverse party is to be heard upon the appeal upon the question raised by the motion to dissolve, it is clear that he cannot be heard before the appellate tribunal as to the validity of the appeal of the party against whom the question of patentability or right to make the claim has been decided by the Primary Examiner. As to questions involving validity, the appeal is *ex parte* purely.

12. SAME—SAME—TIME OF TAKING APPEAL—ESTOPPEL—RIGHT OF ADVERSE PARTIES TO BE HEARD—EX PARTE QUESTION.

The question of the time of taking appeal and the question of estoppel of a party by his adoption of a course deemed to be inconsistent with an appeal are *ex parte* questions, and an adverse party has no right to be heard as a matter of course by the Examiners-in-Chief on appeal on these questions.

13. SAME—SAME—SETTING LIMIT OF APPEAL.

On a motion to dissolve on the ground of non-patentability or of no right to make a claim the Examiner should not set a limit of appeal, as the party who is affected adversely by such decision has the full statutory limit of two years within which to appeal.

14. SAME—SAME—RELIEF OF PARTY WHEN HIS OPPONENT FAILS TO TAKE AN APPEAL.

An applicant has his remedy in case his opponent fails to take an appeal from a decision of the Primary Examiner granting the motion to dissolve an interference upon the question of non-patentability or no right to make the claim. He may ask that his own application be passed to issue unless his opponent exercises his right of appeal within a reasonable time. Failure on the part of the opponent to take an appeal within such time may perhaps be held to work an estoppel, but consideration of such questions should be *ex parte*. (Citing *Abel and Dewar* v. *Maxim* v. *Nobel*, 56 O. G., 139, and *ex parte Lombard*, 43 O. G., 1347.)

APPEAL on motion.

BOTTLE-STOPPERS.

Reissue application of William Painter filed December 26, 1895, No. 573,419. Patent granted Robert A. Hall June 18, 1895, No. 541,203.

Mr. Ellis Spear for Painter.

Messrs. Dodge & Sons for Hall.

GREELEY, *Assistant Commissioner:*

This interference was declared November 17, 1896. On January 2, 1897, Hall moved for dissolution upon the grounds of irregularity, lack of patentability to Painter, and lack of right on Painter's part to make the claims in issue. This motion was duly transmitted by the Examiner of Interferences. Appeal was taken from his decision making such transmission, and his ruling was affirmed March 29, 1897. On May 17, 1897, the motion for dissolution was decided by the Primary Examiner, who granted the motion upon the second and third grounds, denying it as to the first. His decision concluded with the following:

Limit of appeal expires June 7, 1897.

On May 18, 1897, Painter brought before the Commissioner a motion to set aside the decision of the Primary Examiner upon the grounds (1) that said decision was in plain violation of the law; (2) that appeal to the Examiners-in-Chief was in effect precluded to Painter, since the Examiner had decided that the decisions of the Examiners-in-Chief were not binding upon him; (3) that the specific ground of the Examiner's decision was *res adjudicata*, and (4) that the action of the Examiner was an abuse of discretion. On June 7, 1897, Hall brought an appeal to the Commissioner from the Examiner's denial of the first ground of his motion for dissolution. June 8, 1897, the Commissioner, Mr. Butterworth, decided that the Examiner had not violated the law and that his action in dissolving the interference was not an abuse of discretion, since the question of patentability, decided *ex parte*, could not on account of such decision be said to be *res adjudicata* when raised *inter partes*. This was in effect a negative ruling as to the second ground of the motion there considered. On June 11, 1897, (four days after the limit set by the Primary Examiner,) Painter took an appeal from the Primary Examiner's decision granting Hall's motion for dissolution to the Examiners-in-Chief, alleging that the Examiner erred in holding that the issue involved in the interference was not patentable to Painter and that Painter had no right to make the claim. This appeal was a renewal of Painter's former appeal taken August 11, 1896, from the action of the Examiner rejecting claims of the application. Upon that appeal the decision of the Examiner was reversed, the claims involved being those involved in the present interference and brought up by the present appeal for the consideration of practically the same question—viz., their allowability in view of the prior state of the art. Substantially the same question was twice presented to the Examiners-in-Chief in the prosecution of the original application, so that the claims, or at least the subject-matter of the claims now involved, has been four times decided by that tribunal to be patentable.

Hall at the hearing on the appeal now under discussion moved for the dismissal of the appeal upon the ground that it was not brought in proper time. Concerning Hall's motion the Examiners-in-Chief held as follows:

By the decision of the Principal Examiner dissolving the interference of *Painter* v. *Hall*, Painter's application became released from all interference with the patent to Hall and by Hall or his attorney, and must be prosecuted *ex parte*. This is an *ex parte* appeal on the record and in fact.

They also held that Hall had a right to be heard on the grounds of the appeal which were *inter partes* below, but had no right to be heard on any other question. They found that—

The question whether Painter's appeal has been duly taken is one between Painter and the public represented by the Patent Office. Neither Hall nor any other outside person has any right to be heard in it.

For the reason that Hall has no right to raise or be heard on the question of the validity of Painter's appeal, his motion to dismiss that appeal is dismissed.

Assuming that Hall had the right to raise and be heard on this question, we at the hearing denied the motion.

We derive our authority for such action from Commissioner's decision in *Coburn* v. *Brodie*, August 10, 1896, (recorded Commissioner's MS. Decisions, vol. 59, p. 394.)

This decision also contains the following:

At the hearing we denied the motion. Our decision stands on the ground that substantial justice required the hearing to be then had and that no one would be injured thereby, all parties being present and ready for the hearing, even to the preparation of briefs.

Hall took exceptions to this decision and then took part in the hearing, on the questions appealed, and also argued against the patentability of all of these appealed claims.

The decision of the Primary Examiner was reversed.

July 31, 1897, Hall brought an appeal, the first paragraph of which is as follows:

I hereby appeal to the Commissioner in person from the decision of the Board of Examiners-in-Chief rendered July 28, 1897, in so far as the same dismisses my motion to vacate and set aside the appeal taken by Painter to the Board of Appeals.

On August 3, 1897, he presented the same matter substantially in the motion now before me. The grounds set up are substantially error in declaring the appeal to the Examiners-in-Chief *ex parte*; error in dismissing Hall's motion to dismiss Painter's appeal without hearing argument, because the decision says "Assuming that Hall had the right to * * * be heard," whereas it was declared without argument that Hall had no such right; because the dismissal is contrary to the statute, to the rules, and to precedent; because the decision of the Primary Examiner had become binding before the appeal was taken, and the Examiners-in-Chief were without jurisdiction; because Painter having elected to pursue a different and inconsistent remedy—to wit, a motion to the Commissioner—and having failed to take his appeal within the limit his right to appeal was lost; because no motion has been made to have the case reopened, and because the decision in *Coburn* v. *Brodie* (59 MS. Dec., 394,) gives no basis for the action of the Board.

Both parties have presented briefs fully covering the points in controversy. The brief for Hall concludes with the following summary:

Painter has waived his right of appeal by failure to appeal within the limit set. He has asked no stay or extension. He has made no motion to reopen. He has declared that he wants no stay nor any reopening. He has tried another remedy inconsistent with appeal and has failed in it; he cannot now try the appeal.

It is clear that if the question of patentability raised by Hall's motion to dissolve becomes, upon the decision of the motion by the Primary Examiner, an *ex parte* question on which Painter, and he alone, can appeal, and on which he alone can *of right* be heard by the appellate tribunal, the limit of appeal is the statutory limit and cannot be set by the Primary Examiner to expire before the expiration of the statutory period, and the limit set in this case by the Primary Examiner may be disregarded.

It therefore becomes necessary to consider to what extent questions raised by motions to dissolve are to be regarded as *inter partes*.

It is clear that it is the settled practice of the Office for the Primary Examiner to hear *inter partes* all questions raised by motions to dissolve under Rule 122. Motions on the ground of no interference in fact and on the ground of irregularity are appealable to the Commissioner and are necessarily *inter partes* on such appeal. There is no conflict of authorities upon this.

There is no question that from decisions of the Primary Examiner upon motions brought under Rule 122 on the ground that an applicant's claim is not patentable or that he has no right to make the claim, appeal lies to the Examiners-in-Chief when any appeal is permissible. Decisions of the Primary Examiner affirming the patentability of the claim or the applicant's right to make the claim are conclusive upon the Office up to that point, and no appeal is permitted.

As to the question whether appeal to the Examiners-in-Chief is *ex parte* or *inter partes* there is a marked conflict of authorities.

In the case of *Stone* v. *Greaves*, (17 O. G., 260,) decided November 6, 1879, by Commissioner Paine, substantially the same question which is here raised was before the Commissioner for determination, though at a different stage of the proceedings.

In deciding that case the Commissioner said:

On one side of the question stands the rule authorizing the dissolution of an interference for want of patentability of the claim. On the other stands the statute conferring upon the applicant the right of appeal, from an adverse decision of the Primary Examiner on the patentability of his claim, to the Examiners-in-Chief, to the Commissioner, and to the Supreme Court of the District of Columbia. It is necessary to avoid, if possible, both Scylla and Charybdis; but it is necessary, in any event, to avoid a violation of the statute. If possible, that course is to be chosen which will harmonize the statute and the rule and give effect to both. If that is impossible, the rule must be sacrificed to the law.

If the Commissioner has power to dissolve an interference at this stage on the ground that the claim is not patentable, his decision to that effect, being lawfully rendered, will be binding not only on the applicants—as to whom the question of patentability, although springing out of an interference case which involves the question of priority alone, is itself an *ex parte* question—but also on the Examiners-in-Chief, and even on the Commissioner himself, except under such circumstances as would warrant a rehearing or a new trial. The action of the Examiners-in-Chief will therefore necessarily, and that of the Commissioner will ordinarily, be altogether formal; and yet it must be had in order to secure to the applicant his right of appeal to the Supreme Court of the District of Columbia under the interpretation which that court is supposed to have given to the statute.

If the Primary Examiner had held the claim to be patentable, and the Commissioner, overruling him, had held it to be unpatentable, and thereupon dissolved the interference, such decision of the Commissioner would not have infringed any right of appeal of the applicant from the Primary Examiner to the Examiners-in-Chief; for, from a favorable decision of the Primary Examiner no right of appeal is conferred by the rules. For that case all the rights which even the spirit of the law confers would be secured to the applicant if, upon the dissolution of the interference, he should take his *ex parte* case to the Primary Examiner for action by him, subject to appeal to the Examiners-in-Chief and Commissioner according to law. This would secure all that remains, namely, the appeal to the Supreme Court of the District of Columbia.

If the interference in this case shall be dissolved, it will become necessary to encounter the difficult question presented as to the relation of testimony heretofore taken to any new interference which may be hereafter declared in the event of a reversal of this decision of the Primary Examiner. On the contrary, if the interference shall not be dissolved until the *ex parte* question of patentability shall run its full course of appeal, the patent of Greaves will stand in the meantime a menace to the applicant Stone and to the public.

It seems to me to be the better practice to give the *ex parte* question of priority (patentability) its legal course of adjudication by permitting the appellants, or either of them, to demand a reconsideration by the Primary Examiner, and from a second adverse decision to appeal to the several appellate tribunals in succession, if necessary, and in the meantime to suspend the interference a reasonable period for that purpose, and to provide for its dissolution at a future day, unless the claim shall be decided to be patentable.

In *Zeidler* v. *Leech et al.*, (54 O. G., 503,) decided January 19, 1891, a case in which the question of appeal in interference cases from the decision of the Primary Examiner upon motions to dissolve on

the ground that no interference in fact existed was under consideration, Commissioner Mitchell, speaking of Rule 124, said:

That rule provides that all appeals shall be taken directly to the Commissioner from the decision of the Primary Examiner on all motions excepting three classes specified, the first class being motions which deny patentability, the second class motions which deny the right to make the claim, and the third class being all other motions "involving the merits of the invention." Questions involving "the merits of an invention" are questions concerning the meritorious or unmeritorious attitude of an alleged invention to the antecedent rights of the public; or, in other words, questions other than questions of "form" arising between the applicant and the Office. The same words which are found in Rule 124, to wit, "involving the merits of the invention," are found in Rule 133 governing the jurisdiction of the Examiners-in-Chief on appeals from the Examiner. That rule (133) provides that—

"Every applicant for a patent, any of the claims of whose application have been twice rejected for the same reasons, upon grounds involving the merits of the invention, * * * may, upon payment of a fee of $10, appeal from the decision of the Primary Examiner to the Examiners-in-Chief."

I think that there can be no room whatever for doubt that the same words in both rules refer to the same subject-matter of inquiry and that their presence in Rule 124 means no more than that the questions which go to the Examiners-in-Chief when they arise directly under Rule 133 go to the same tribunal when they arise *collaterally* under Rule 124. It is because "questions involving the merits of the invention" are *ex parte* questions arising between the applicant and the public that upon appeals to the Examiners-in-Chief under Rule 124 the party only whose claim is affected has a right to appear and be heard. If they were not *ex parte*—that is to say, if the questions which go to the Examiners-in-Chief in the first instance under Rule 124 were not always and necessarily *ex parte* questions—the rule which denies to all but one of the parties the right to be heard would be formulated injustice and nothing else.

All appeals in which, under the rule, the party only "whose claim is affected" has a right to be heard lie to the Examiners-in-Chief, and if decided adversely by them, to the Commissioner, and if by him decided adversely, to the Supreme Court of the District of Columbia. All appeals from the Examiner's decision upon motions to dissolve upon which both parties have the right to be heard go directly to the Commissioner, and from his decision there is no further appeal.

In an earlier decision (*Gessner* v. *Miller*, 50 O. G., 433) Commissioner Mitchell said in reference to this question:

It is urged with great force that an interference proceeding is thoroughly *inter partes*, and that nothing done *ex parte* by the latter applicant can serve to prove anything material to the trial. It is indeed true that the proceedings are *inter partes*; but it should be remembered that nothing is material to the trial excepting the issue of priority. Both parties enter the controversy entitled to the presumption that they are original inventors, and the trial becomes thoroughly *inter partes* only so far as relates to the issue of priority. Either party may, if he can, prove that the other was not an original inventor; but the presumption stands until it is overborne by the proofs duly taken in the case.

From these decisions it is clear that from 1879 until as late as 1891 it was the settled practice of the Office that an appeal from the decision of the Primary Examiner denying the patentability of the issue upon a motion to dissolve brought by one of the parties to an interference should be *ex parte* and that only the party whose claim was affected had the right to appear and be heard.

March 23, 1892, Commissioner Simonds amended Rule 124 by adding the words "unless the question is *inter partes*." What questions were at that time considered as coming under the rule as thus amended is not clear from any decisions, either published or manuscript, made by Commissioner Simonds.

Later Assistant Commissioner Fisher, in *Duncan* v. *Westinghouse*, (66 O. G., 1005,) decided December 15, 1893, said:

Upon the declaration of the present interference Duncan moved to dissolve on the ground that Westinghouse had no right to make the claim; but the Primary Examiner held that the question presented by this motion was *res adjudicata*, inasmuch as that question had been passed upon by the Board of Examiners-in-Chief in their decision holding that there was a sufficiency of disclosure in Westinghouse's application to warrant the claim. Duncan contends that this action of the Examiner has practically cut off his privilege under Rule 122 to bring up on proper motion Westinghouse's right to make this claim, and asks that the supervisory powers of the Commissioner under section 481, Revised Statutes, giving him the authority to "perform all duties respecting the granting and issuing of patents directed by law," be exercised to give him relief under the peculiar circumstances of this case.

Rule 124 contains the following provision:

"Decisions on these motions, when appealable, go to the Examiners-in-Chief, and upon such appeals the party only whose claim is affected shall have the right to appear and be heard, unless the question is *inter partes*."

Motions to dissolve an interference are argued before the Primary Examiner, both parties having the right to appear and be heard. If, from the decision of the Primary Examiner, an appeal is duly taken to the Commissioner both parties have the right to appear and be heard.

When, however, a decision is made on a motion to dissolve which denies the patentability of an applicant's claim, or a motion to dissolve which denies the right of applicant to make the claim, or on a motion involving the merits of the invention, the appeal to the Examiners-in-Chief is usually an *ex parte* one. It follows that only one side of the question is presented to the Examiners-in-Chief, whereas it would seem to be proper, since the appeal grew out of a contested proceeding, that the appeal itself should be a contested proceeding. Otherwise various complications are liable to result. For instance, a motion to dissolve might be brought on the ground that the issue, couched in the language of the claims of one of the applicants, was not patentable. This motion would be argued before the Primary Examiner, who would hear both parties. If he should decide the issue to be unpatentable, he would dissolve the interference. The party whose claim was thus adjudged to be unpatentable might appeal to the Examiners-in-Chief, who would then listen merely to the applicant's presentation of his case without the additional light that might be afforded by the argument of the opposing party. If the decision were in favor of the applicant, the case would then be sent back to the Primary Examiner, who, considering himself bound by the decision of the Examiners-in-Chief, would redeclare the interference, refusing, as a matter of course, a renewed motion to dissolve on the part of the other applicant on the ground that such matter was *res adjudicata*. If, then, the interference should be heard and decided by the Examiner of Interferences, and on appeal to the Examiners-in-Chief the party who had brought the motions to dissolve should attempt to renew his motion before the Examiners-in-Chief, or to have them insert in their decision a statement directing the attention of the Commissioner to a matter not relating to priority, establishing, in their opinion, the fact that a statutory bar existed to the grant of a patent to either of the parties for the claim or claims in interference, (Rule 124,) the request might be refused on the ground that the patentability of the issue had been decided by the Primary Examiner in declaring the interference. One of the parties would, therefore, be prevented from arguing the question whether or not the issue was patentable, and his only remedy would be to petition to the Commissioner to exercise his supervisory authority under section 481 of the Revised Statutes—a proceeding which ought to be discouraged, and which should never be had except under extraordinary circumstances.

The case stated above is one that actually occurred.

There seems to be an inconsistency in a practice which allows both parties to be heard by the Primary Examiner and by the Commissioner and only one of such parties by the Examiners-in-Chief. It is thought, therefore, that Rule 124 ought to be so construed that both parties could be heard in such cases.

That this was not intended to establish a practice under which, on an appeal from a decision of the Primary Examiner adverse to patentability or to the applicant's right to make the claim, the party who brought the motion should be entitled to appear before the appellate tribunal on the same footing which he had before the Primary Examiner, appears from the decision of Assistant Commissioner Fisher in *Buckley* v. *Page*, (54 MS. Dec., 485:)

It would be impossible for the Commissioner to review all the favorable decisions of the Primary Examiners, and it is under peculiar circumstances only that it would be wise or politic for him to undertake the reëxamination of favorable decisions. The rule of office practice (124) has, therefore, for many years been against any such appeal to any tribunal of the Office. The weight of authorities in the past has been in favor of considering *ex parte* all appeals on motions to dissolve which involve the merits of an interference, thus emphasizing the position that the patentability of an application is a question between the public, as represented by the Office, and the applicant, and that no single person can have an especial interest in the question to the extent of entitling him to convert the ordinary examination of an application into a contested case.

And although the rules provide for reconsidering patentability, after the declaration of an interference, upon the suggestion of a motion to dissolve, this provision did not change the fundamental relation of the parties, but was a provision of abundant caution, so that the Examiner might avail himself of an independent, careful search, made by one familiar with the application through the interference proceedings, and having generally the experience of an expert in the art, quickened by a personal interest in anticipating or defeating the claims of an opponent.

Under the present practice, however, it is thought that the consideration of the several bars which may be presented under

a motion to dissolve, would be assisted by the oral explanations and elucidations of the party suggesting the bar, and that the interests of applicants and the public alike would be better conserved if all proceedings arising out of an interference should be of an *inter partes* character. And this is the provision of *Duncan* v. *Westinghouse*. (66 O. G., 1005.)

Now, although such an appeal is *inter partes*, the moving party is not allowed to appear as a matter of right. * * * His relation to his opponent is the same now as before. He is given the privilege of a hearing. * * *

Later Assistant Commissioner Fisher, in the case of *Pell* v. *Pierpont*, (76 O. G., 1573,) decided June 23, 1896, in an interference in which the question of priority had been decided, but the Examiner directed to again consider the question of patentability, refused to direct that such consideration be *inter partes*.

Rule 67 of the Rules of Practice in force February 9, 1897, provided that—

questions *inter partes* before the Primary Examiner will be *inter partes* on appeal.

This rule was in force until June 18, 1897. Under this rule the decision of June 8, 1897, above referred to, was rendered in this interference by Commissioner Butterworth upon Painter's motion to set aside the decision of the Primary Examiner dissolving the interference.

On June 18, 1897, present Rule 124 was adopted. This rule is in substance Rule 124 of the rules of 1892, with the difference that it provides that upon appeals from decisions dissolving interferences which are appealable to the Examiners-in-Chief the question may be heard *inter partes*.

The language of this rule was not employed unadvisedly. It was intended by the use of the words "may be heard *inter partes*" to permit the adverse party to be heard, if considered advisable, by the Examiners-in-Chief, in that respect differing from the old rule, which provided that such appeals should be *ex parte*, but not prescribing that the adverse party should be entitled to be heard *as of right*. On such appeals the adverse party is heard as a matter of courtesy and not as a matter of right. In appeals on the question of patentability of the claim which is made the issue it may be that the Examiners-in-Chief may deem it desirable that the adverse party be permitted to present his views either orally or by filing a brief. It may also happen that in an interference involving three or more parties it may be expedient to hear at one time all of the parties who may insist that the subject-matter of the issue is patentable, though patentability is denied by the Examiner upon motion to dissolve. In appeals on the question of right to make the claim it appears doubtful whether the adverse party should be heard even as a matter of courtesy. This matter should, however, be left to the discretion of the Examiners-in-Chief.

Under the decisions in *Abel and Dewar* v. *Maxim* v. *Nobel* (56 O. G., 139) and *ex parte Lombard* (43 O. G., 1347) an applicant has his remedy in case his opponent fails to take his appeal upon an adverse decision of the Primary Examiner upon the question of patentability or right to make the claim raised by motion to dissolve. He may ask that his own application shall be passed to issue unless his opponent exercises his right of appeal within a reasonable time. Failure on the part of the opponent to take his appeal within such time set may perhaps be held to work an estoppel; but consideration of this question should be *ex parte*.

Under the law the Primary Examiner determines in the first instance the question of priority between parties having interfering claims, one of whom is an applicant. The contest as to this question of priority is the only contest authorized by law to be conducted before the Patent Office. As has been clearly pointed out by the Commissioner in the recent decision of *Hammond* v. *Hart*, (83 O. G., 743,) the Office cannot under the statute relating to interferences entertain a contest as to the respective rights of parties, one of whom has claims which infringe but do not interfere with the claims of the other. Such a contest should be conducted before the courts. It is of course necessary to the institution of an interference that the claims in issue be held patentable and that it be held that the respective parties have the right to make the claims. Upon a motion to dissolve seasonably brought the Examiner will under the rule review his decision allowing the claims in issue.

This motion to dissolve is in the nature of a suggestion to the Office of certain facts which are believed to negative patentability or to show that one of the parties is not entitled to make the claim. It is not a contest in which testimony can be received or anything presented for consideration which was not actually or presumably within the knowledge of the Examiner in the *ex parte* treatment of the applications of the respective parties prior to the declaration of the interference. The motion is brought not on the ground that the interests of the party bringing it would be adversely affected by the issuance of a patent to his opponent for the subject-matter in issue, but for the reason that it appears to the moving party that the Office was in error in finding the claim patentable. The fact that the interests of the moving party may be adversely affected by the issuance of a patent to his opponent for the subject-matter of the issue does not in itself entitle him or any other person to be heard, nor is it a fact to be considered in the determination of the question by the Examiner. The question is the same question that was considered before the declaration of the interference—a question of patentability. As was said by Commissioner Hall in *Ely* v. *Vinton* v. *Schwab*, (35 MS. Dec., 17:)

Patentability is a question wholly between an applicant and the Office. When an application first comes up for consideration on the question of patentability, the applicant is entitled to receive what is supposed to be the best and highest opinion, that of the Office uninfluenced by the testimony, solicitations, or views of third parties or outside experts. If after interference and dissolution thereof, such questions again arise, the same condition follows. * * * It would be a complete departure from the system of the Office if third parties could interpose or thrust affidavits before Primary Examiners when they are determining questions involving the patentability of inventions in *ex parte* proceedings.

In a very recent case, that of *Hill* v. *Hodge*, decided April 12, 1898, by the Court of Appeals of the District of Columbia, (83 O. G., 1211,) in which the question of patentability of the subject-matter of the inventions was raised, it was held that:

The Commissioner was right in refusing to entertain the issue of patentability. That the question of patentability of the claim

in interference is not involved therein has been time and again decided (*Hiney* v. *Peters*, 71 O. G., 893; *Doyle* v. *McRoberts*, 70 O. G., 1029, and cases cited therein.)

After this controversy shall have been determined the question of patentability may be raised in the Patent Office against the successful party. As a matter of fact the Commissioner, though refusing to take cognizance of the issue of patentability, regarded the evidence of prior invention and public use by Leeds as sufficiently important to require him in rendering his decision to direct the Primary Examiner to inquire into and consider the question of patentability when the matter shall again come before him. When that question shall be raised, Hill will have no other interest in its decision than as one of the general public whose interests are under the protection of the Commissioner of Patents.

The decision in the case of *Doyle* v. *McRoberts*, referred to in the above decision, is instructive upon this point. In this decision the court says:

Since the case was submitted a supplemental brief has been filed in behalf of Doyle, in which we are asked to dismiss the case because there is no invention in the patent-right claimed.

The motion is strangely at variance with the original application and the preliminary statement of Doyle, each supported by his affidavit, in which he claims to be the inventor "of a new and useful improvement," which is the very matter claimed by McRoberts. The appositeness of the reference by McRobert's counsel to the judgment of Solomon is very apparent, for it is the fictitious mother of this invention who desires to see it repudiated altogether, rather than allow the true inventor to obtain his just rights. It is obvious enough that the next best thing to success in the interference case for Doyle and his fellow stockholders in the Shickle, Harrison & Howard Company would be to have the patent to McRoberts annulled, that they may be free to use that invention without payment of any royalty.

In our opinion it is not competent for this court, in an interference proceeding, to abandon the question of priority and pass upon the patentability of the alleged invention. This was decided as far back as 1875 by the Supreme Court in general term, (*U. S., ex rel. Bigelow*, v. *Thatcher*, McA., 24,) where the petitioner in interference asked for the vacation of the patent upon the ground that the inventor had abandoned his invention to public use. In *Hiney* v. *Peters* (71 O. G., 893; 6 App. D. C., 70) the identical motion interposed here was made and was overruled upon the ground that the applicant was effectually estopped to dispute the patentability of the invention by reason of his own affirmative assertions that his claim was patentable. (See also *U. S., ex rel. Brodie*, v. *Seymour, Comr.*, 79 O. G., 506; 25 Wash. Law Rep., 161.) But it is insisted that under the authority of *Hill* v. *Wooster* (50 O. G., 560; 132 U. S., 694) the Supreme Court has settled the competency of this court to sustain this claim.

But that decision has no relevancy to a case like the present. Section 52 of the Patent Office act of July, 1870, (R. S., sec. 4915) provides that—

"Whenever a patent or application is refused, either by the Commissioner of Patents or by the Supreme Court of the District of Columbia upon appeal from the Commissioner, the applicant may have a remedy by bill in equity, and the court having cognizance thereof, on notice to adverse parties and other due proceedings may adjudge that such applicant is entitled, according to law, to receive a patent for his invention as specified in his claim as the facts in the case may appear and such adjudication, if it be in favor of the right of the applicant shall authorize the Commissioner to issue such patent," etc.

It was in a proceeding under this special statute that the Supreme Court held an equity judge was obliged, under the language of the act, to consider the patentability of the invention covered by the claim, and if he should find it not patentable should deny the application. Such a provision is in entire sympathy with the general principles of equity, which refuses to decree in favor of the most specious of two applicants under a claim of an illicit character.

But the present is not a proceeding in a court of equity; nor is it an application for the issue of a patent under the circumstances recited in the statute.

It is a proceeding as at law and under altogether different conditions, and hence the decision can have no application to the matter before us.

If the Examiner upon hearing the motion adheres to his decision that the claims are patentable and patentable to the respective parties, the contest as to these questions is concluded in so far as it is preliminary to the determination of the question of priority. Should the Examiner upon motion for dissolution decide that the claims are not patentable or not patentable to one of the parties, a decision which is as to one or both of the parties equivalent to a final rejection, the full course of appeal is open to the party whose claim is affected by such decision, and such appeal is *ex parte*. The party bringing the motion is, so far as such appeal is concerned, no more entitled to be heard as of right, whatever may be decided by the Office as regards his appearing before the appellate tribunals as a matter of policy, than any person not before the Office whose rights to freely manufacture the invention covered by the claim might be curtailed by the issuance of a patent. (*Cf. Hill* v. *Hodge*, above cited.) The moving party has a right to ask that his opponent move promptly to determine his rights. He has a right to withdraw his own claim for the subject-matter held not patentable and to defeat the patent if granted to his opponent before the courts. His right to be heard in opposition to the grant of a patent to his opponent ceases with the decision by the Primary Examiner. The interference is by the adverse decision of the Primary Examiner upon those questions virtually—though not technically—dissolved. Proceedings may be resumed upon a decision of an appellate tribunal favorable to patentability. If resumed, the question of patentability may be raised before the Examiner of Interferences and each of the appellate tribunals of the Office for such actions under Rule 126 as the case may demand. The party who denies the patentability of the claim in issue or his opponent's right to make the claim has thus his remedy in the Office and in the courts.

The motion to dissolve on the ground of non-patentability or that one of the parties has no right to make the claim is heard *inter partes* by the Primary Examiner as a matter of Office policy in order that the facts and reasons which in the opinion of the moving party negative the patentability of the claim or show that his opponent is not entitled to make the claim may be clearly presented; but the Office does not and cannot recognize the moving party as a party in interest entitled to contest the patentability of another's claims. He has no right of appeal from a decision denying his motion. His position is not unlike that of *amicus curiæ*. The same reasons which justify the rule which refuses the right of appeal from the decision of the Primary Examiner affirming patentability or the right of the respective parties to make the claim justify the Office in refusing to permit the appeal taken by the party whose claims are affected to be made a contest *inter partes* before the appellate tribunal.

It follows that the Examiners-in-Chief, being governed by the rules in force at the time of hearing Painter's appeal, were right in holding that the appeal was *ex parte* and not *inter partes*.

But whether or not the adverse party is to be heard upon the appeal upon the question raised by the motion to dissolve, it is clear that he cannot be heard before the appellate tribunal as to the validity of the appeal of the party against whom the question of patentability or right to make the claim has been decided by the Primary Examiner. As to questions involving validity, the appeal is clearly *ex parte* purely. The question of the time of taking the appeal is such a question. So, also, is the question of estoppel of a party by his adoption of a course deemed to be inconsistent with an appeal. The Examiners-in-Chief were clearly right in dismissing the motion made before them by Hall to dismiss Painter's appeal because not taken until the limit of appeal set by the Examiner had expired. Such limit of appeal should not have been set by the Examiner, and it was not binding upon Painter.

The motion to set aside the decision of the Examiners-in-Chief is denied.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 83—No. 13. TUESDAY, JUNE 28, 1898. PRICE—$5 per year.

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DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 25, 1898.

The attention of persons having business before this Office is called to the provisions of the act entitled "An act to provide ways and means to meet war expenditures, and for other purposes," approved June 13, 1898. That part of this act which relates to matters arising in this Office takes effect July 1, 1898.

The first sentence of section 9 of this act provides:

That in any and all cases where an adhesive stamp shall be used for denoting any tax imposed by this act, except as hereinafter provided, the person using or affixing the same shall write or stamp thereupon the initials of his name and the date upon which the same shall be attached or used, so that the same may not again be used.

The first sentence of section 14 provides:

That hereafter no instrument, paper, or document required by law to be stamped, which has been signed or issued without being duly stamped, or with a deficient stamp, nor any copy thereof, shall be recorded or admitted, or used as evidence in any court until a legal stamp or stamps, denoting the amount of tax, shall have been affixed thereto, as prescribed by law.

Section 15 provides:

That it shall not be lawful to record or register any instrument, paper, or document required by law to be stamped unless a stamp or stamps of the proper amount shall have been affixed and canceled in the manner prescribed by law; and the record, registry, or transfer of any such instruments upon which the proper stamp or stamps aforesaid shall not have been affixed and canceled as aforesaid shall not be used in evidence.

Schedule A contains the following provisions:

Certificates of any description required by law not otherwise specified in this act, ten cents.

* * * * * * *

Mortgage or pledge, of lands, estate, or property, real or personal, heritable, or movable, whatsoever, where the same shall be made as a security for the payment of any definite and certain sum of money, lent at the time or previously due and owing or forborne to be paid, being payable; also any conveyance of any lands, estate, or property whatsoever, in trust to be sold or otherwise converted into money, which shall be intended only as security, either by express stipulation or otherwise; on any of the foregoing exceeding one thousand dollars and not exceeding one thousand five hundred dollars, twenty-five cents; and on each five hundred dollars or fractional part thereof in excess of fifteen hundred dollars, twenty-five cents.

* * * * * * *

Power of attorney * * * to perform any and all other acts not hereinbefore specified, twenty-five cents.

Notice is hereby given that to all certificates required by law to be issued by this Office there must be affixed the proper revenue-stamp, to the value of ten cents, which must be provided or paid for by the party ordering the certificate, and that mortgages of patent-rights, and conveyances of such rights "in trust to be sold or otherwise converted into money, which shall be intended only as security, either by express stipulation or otherwise," which are offered for registration in this Office, and all powers of attorney, must be provided with the stamps required by this act. Unless every such mortgage, conveyance, or power of attorney be stamped in accordance with this act it will not be registered or entered on the records of this Office, but will be returned to the party offering it for compliance with the provisions of this act.

C. H. DUELL,
Commissioner.

Schedule of stamp taxes required upon papers filed in or issued by the United States Patent Office.

Certificates. (This includes certificates of registration of Trade-Marks, Labels, and Prints issued by the Patent Office)	$0.10
Mortgages, and conveyances in trust—	
Exceeding one thousand dollars and not exceeding fifteen hundred dollars	.25
And on each five hundred dollars or fractional part thereof in excess of fifteen hundred dollars	.25
Power of attorney	.25

CERTIFICATES OF REGISTRATION ISSUED JUNE 28, 1898.

Labels.

6,614.—Title: "KURSHEEDT'S ESCURIAL SHIRRING." (For Fancy Dry Goods.) *The Kursheedt Manufacturing Company*, New York, N. Y. Application filed May 24, 1898.

6,615.—Title: "OUR CALF SHOE." *Wallace & Vandersloot*, York, Pa. Application filed April 28, 1898.

6,616.—Title: "MILKINE." (For a Substance to Combine with Milk.) *Farm and Dairy Product Company*, New York, N. Y. Application filed May 14, 1898.

6,617.—Title: "CREME DE MENTHE BALM." (For a Medicine.) *Scotch Remedy Co.*, Wheeling, W. Va. Application filed August 20, 1897.

6,618.—Title: "HADAAR." (For Medicine.) *W. P. Frank Cobler*, Council Bluffs, Iowa. Application filed March 15, 1898.

6,619.—Title: "DEATH SURE DROPS." (For an Insecticide.) *Albert H. Tryon*, New York, N. Y. Application filed May 9, 1898.

6,620.—Title: "WHITE ROSE WASHING FLUID." *William Allen James*, St. Louis, Mo. Application filed May 21, 1898.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 21, 1898.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between two and three months.			
36	XXXV. Advertising, Baggage, Packing and Storing Vessels, Games and Toys, etc.	Mar. 24	June 13	248
102	XIX. Stoves and Furnaces	Mar. 23	June 10	200
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Apr. 14	June 7	179
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Mar. 29	June 7	223
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Mar. 31	June 4	194
265	XII. Mechanical Engineering, Store-Service, etc.	Mar. 23	June 2	212
	Between three and four months.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Mar. 19	June 14	442
111	XXXII. Bottles and Jars, Carbonating Beverages, Shipping and Storing Vessels, etc.	Feb. 26	June 13	290
99	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Mar. 21	June 10	296
248	XVIII. Steam-Engineering, etc	Mar. 1	June 8	296
358	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Mar. 2	June 7	353
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 5	June 6	278
246	I. Tillage and Fences	Mar. 1	June 6	242
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Feb. 28	June 6	265
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 23	June 6	208
159	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Mar. 21	June 4	250
263	X. Carriages and Wagons	Mar. 17	June 3	200
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Feb. 26	June 1	473
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Mar. 5	May 31	261
98	XXI. Textiles, etc	Mar. 4	May 31	309
	Between four and five months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 22	June 14	758
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Feb. 18	June 11	235
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Feb. 12	June 9	155
240	VII. Velocipedes	Feb. 1	June 8	722
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Feb. 11	June 7	410
108	II. Farm Stock, Products, etc	Feb. 1	June 3	587
	Between five and six months.			
198	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 18	June 10	311
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 8	June 9	472
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 3	June 4	535
317	XXXIII. *Trade Marks, etc., †Designs, Drafting, and Optics.	Jan. 3	May 24	945
	Between six and seven months.			
25	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Dec. 15	June 11	343
343	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Dec. 15	June 6	559
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 26	May 2	540
215	*Between seven and eight months.* XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 26	June 8	552
261	XXIII. Instruments of Precision, Acoustics, etc.	Oct. 25	June 7	480

Total number of applications awaiting action 12,694

Under one month.			
†Designs	June 18	June 16	62
*Trade-Marks	May 23	June 17	148

ISSUE OF JUNE 28, 1898.

Patents	457—No.	606,180 to No.	606,636, inclusive.
Designs	48—No.	29,917 to No.	29,964, inclusive.
Trade-Marks	30—No.	31,739 to No.	31,768, inclusive.
Labels	7—No.	6,614 to No.	6,620, inclusive.
Prints	None.		
Reissues	4—No.	11,672 to No.	11,675, inclusive.
Total issue	546		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			New Hampshire	3	
Arizona Territory		1	New Jersey	22	3
Arkansas	2		New Mexico Territory		
California	11		New York	74	13
Colorado	5		North Carolina	3	
Connecticut	14		North Dakota	2	
Delaware	3		Ohio	35	2
District of Columbia	3	1	Oklahoma Territory	2	
Florida	3		Oregon		
Georgia	2		Pennsylvania	55	2
Idaho			Rhode Island	7	
Illinois	43	2	South Carolina	1	
Indian Territory			South Dakota	2	
Indiana	15		Tennessee	1	
Iowa	12	1	Texas	5	
Kansas	6		Utah	1	
Kentucky	4		Vermont		
Louisiana	4		Virginia	7	
Maine	2	1	Washington	2	
Maryland	8		West Virginia	2	1
Massachusetts	19	5	Wisconsin	13	3
Michigan	10		Wyoming		
Minnesota	7		U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	11	1			
Montana			Total to citizens of the United States	435	36
Nebraska	2				
Nevada					

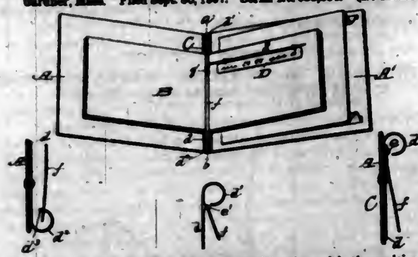
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia			Mexico		
Austria-Hungary	2		Netherlands		
Barbadoes			Newfoundland		
Belgium	1		New South Wales		
Brazil			New Zealand	1	
Canada	7		Norway	1	
Cape Colony			Portugal		
Chile, Republic of			Queensland		
China			Russia	1	
Colombia			Scotland		
Cuba			South African Republic	1	
Denmark			South Australia		
Egypt			Spain		
England	33		Sweden	2	
Finland			Switzerland		
France	10	1	Turkey		
Germany	18		Victoria	2	
Guatemala					
Hawaii			Total to citizens of foreign countries	70	1
India					
Ireland	1				

PATENTS

GRANTED JUNE 28, 1898.

606,180. WRITING-BOOK COVER. CLARENCE J. AINSWORTH, Gardner, Mass. Filed Sept. 30, 1897. Serial No. 653,832. (No model.)



Claim.—1. The book-cover A, in combination with the writing-book and copy-holder device C, the latter consisting of the back strip *d* attached to the flexible back between the leaves of said book-cover, and having the curved and preferably eye-shaped ends *d'* *d²*, with the end *d²* terminating in a pointed or hook end *d³*, the swinging arm *f*, pivoted at *e* to one end of said back strip *d*, and adapted, at its opposite end, to be attached to the hooked end *d³*, the slide *g* fitted on arm *f* and the arm *g* pivoted at one end to said slide *g*, substantially as and for the purpose set forth.

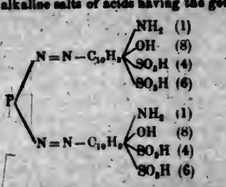
2. In a writing-book cover, the combination of the book-cover with the back strip having the eye-shaped loops formed on the ends thereof, said loops being bent upward, inward and downward to form supports for the leaves of the book-cover when closed; means for fastening the back strip to said book-cover, and the swinging arm pivoted at one end to one end of the back strip and adapted to be detachably fastened at the other end, substantially as and for the purpose set forth.

606,181. BLUE TETRAZO DYE AND PROCESS OF MAKING SAME. JOHANN BADISARE, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Dec. 20, 1897. Serial No. 662,703. (Specimens.) Patented in France Oct. 30, 1896, No. 263,725; in England Oct. 31, 1896, No. 20,578, and in Italy Dec. 31, 1896, XXVIII, 36,235, LXXI, 298.

Claim.—1. The process for producing new tetrazo dyestuffs by combining one molecule of a tetrazotized paradiamin with two molecules of 1.8 amidonaphthol 4.6 disulfo-acid substantially as hereinbefore described.

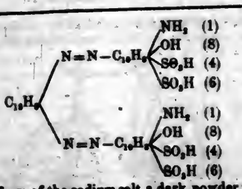
2. The process for producing a new tetrazo dyestuff by combining one molecule of a tetrazodiphenyl salt with two molecules of 1.8 amidonaphthol 4.6 disulfo-acid substantially as hereinbefore described.

3. As new articles of manufacture the new dyestuffs from tetrazotized paradiamins with two molecules of 1.8 amidonaphthol 4.6 disulfo-acid, being alkaline salts of acids having the general formula:



in which formula P means a radical of the benzidin series such as diphenyl, and which are dark powders, soluble in water with from reddish-blue to blue color, yielding on unmordanted cotton from violet-blue to blue shades substantially as described.

4. As a new article of manufacture the specific dyestuff, being an alkaline salt of an acid having the formula:



which is in the form of the sodium salt a dark powder with a bronzy luster, easily soluble in water with a reddish-blue color, being dissolved by concentrated sulfuric acid (66° Baumé) with a greenish-blue color which turns into bluish violet on adding a small quantity of ice while a bluish-violet flaky precipitate is obtained on the addition of a larger quantity of ice to the sulfuric-acid solution, dyeing unmordanted cotton violet-blue shades fast to acids and alkalies substantially as described.

606,182. WIRE-FENCE SPACER. CHARLES BAXTER, Waukesha, Wis. Filed Aug. 9, 1897. Serial No. 647,543. (No model.)



Claim.—1. A wire-fence spacer comprising the parallel bars, adjustably secured together and provided with wire-engaging prongs, and a lever pivotally secured to one of the bars and operating in a recess in the other bar, whereby, when said lever is turned to a vertical position, the recessed bar will be lifted upon the other to adjust the prongs in a position for engaging the fence-wires, and the lever locked in such position by reason of the bearing of the recessed bar upon the end of the lever above its pivotal support, substantially as described.

2. A wire-fence spacer comprising the parallel wooden bars adjustably secured together and provided with metallic wire-engaging prongs, together with a lever pivoted to one of the bars and operating in a recess in the other bar, whereby when said lever is adjusted in a vertical position, it is adapted to become locked by the bearing of the recessed bar upon its end above its pivotal support, substantially as described.

606,183. FLAT METAL TABLEWARE. GEORGE H. BRABOOK, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Sept. 28, 1897. Serial No. 652,819. (No model.)



Claim.—That improvement in the art of manufacturing flat metal tableware, which consists in first striking the article to its ultimate form, next removing the base metal from portions thereof exposed to wear, then substituting precious metal of a shape and size corresponding to the base metal removed, by welding and finally finishing and plating the article, substantially as described.

606,184. BRUSH. JOHN T. BURRIS, Melbourne, Victoria. Filed Sept. 11, 1897. Serial No. 651,307. (No model.)



Claim.—A brush for cycle-chain cleaning, consisting in two parallel brush members formed from one length of twisted wire bent in the center to a U shape, and radiating bristles tapering in length toward the points of the members, said members being held apart by a flat plate forming a rest for the thumb, substantially as described.

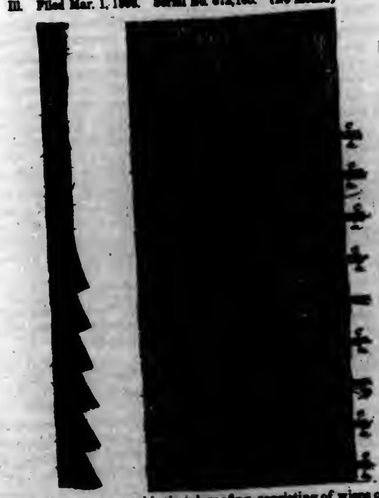
606,185. BICYCLE ATTACHMENT. MERRITT BURT, Jacksonville, Fla. Filed Mar. 10, 1897. Serial No. 626,863. (No model.)



Claim.—1. In a safety appliance for bicycles, the combination of a plate apertured to receive the terminal of the rear axle and having opposite extensions in vertical alinement and diverging parts formed with openings to receive fastenings by means of which the plate is secured to the converging ends of the machine-frame, a curved rod secured to the upper extension of the plate and having its outer terminal deflected and provided with a vertical sleeve, a horizontal brace connecting the lower extension with the lower portion of the curved rod, a rolling support having a stem mounted in the said sleeve and held from turning therein, and means for securing the rolling support at the required elevation, substantially as set forth.

2. In a safety appliance for bicycles, the combination of the plate to be secured to the converging bars of the machine-frame, a rod secured to the plate and having a sleeve at its outer end, a rolling support having its stem mounted in the sleeve so as to move vertically therein and held from turning, and a horizontally-disposed spring-actuated lever fulcrumed to the terminal portion of the aforesaid rod and adapted to operate through the sleeve and engage with the stem of the rolling support and hold the latter at the desired position, substantially as specified.

606,186. THATCH ROOFING. CHARLES H. BUSSELL, Oquawka, Ill. Filed Mar. 1, 1898. Serial No. 672,185. (No model.)



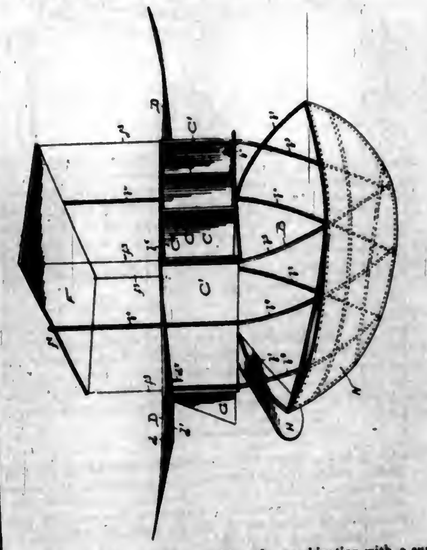
Claim.—1. A portable thatch roofing, consisting of wisps of straw or analogous material fastened together by warp wires or cords arranged in series of groups each group containing three or more of said wires or cords to form an imperforate rain-shedding fabric substantially as shown and described.

2. A portable thatch roofing, consisting of wisps of straw, or analogous material, fastened together in overlapping layers and bound together by wires or cords transversely to the length of the wisps substantially as shown and described.

3. A portable thatch roofing, consisting of wisps of straw or analogous material, fastened together by wires or cords transversely to the length of the wisps, the body part of said wisps being arranged two-ply, or with one wisp in one layer opposite the space between two wisps of the other layer, and the butt-ends of the wisps being arranged in overlapping shingle-like layers substantially as shown and described.

4. A portable thatch roofing, consisting of wisps of straw or analogous material, a series of warp wires or cords arranged in sets of three connecting the body of the wisps in two-ply relation, the butt-ends of the wisps being arranged in overlapping shingle-like layers substantially as described.

606,187. SOARING-MACHINE. WILLIAM P. BUTUROV, Chicago, Ill. Filed July 15, 1896. Serial No. 599,209. (No model.)



Claim.—1. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting at each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame so that its inclination or angle of incidence may be varied or adjusted as required, a rudder hinged to the frame at the rear of the balancing tunnels or keels, a tail connected to the frame at the rear of the balancing tunnels or keels and projecting at a downward inclination to the rudder, a ballast box or vessel below the rider's platform and furnished with a valve for emptying the same at the will of the operator, substantially as specified.

2. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting at each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame so that its inclination or angle of incidence may be varied or adjusted as required, and a rudder hinged to the frame at the rear of the balancing tunnels or keels, substantially as specified.

3. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required

for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting at each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame so that the inclination or angle of incidence may be varied or adjusted as required, a rudder hinged to the frame at the rear of the balancing tunnels or keels, and a ballast box or vessel below the rider's platform and furnished with a valve for emptying the same at the will of the operator, substantially as specified.

4. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting at each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame so that its inclination or angle of incidence may be varied or adjusted as required, a rudder hinged to the frame at the rear of the balancing tunnels or keels, and a tail connected to the frame at the rear of the balancing tunnels or keels and projecting at a downward inclination to the rudder, substantially as specified.

5. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting at each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame, so that its inclination or angle of incidence may be varied or adjusted as required, a rudder hinged to the frame at the rear of the balancing tunnels or keels, means for operating said rudder and means for adjusting said kite or plane, substantially as specified.

6. The combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine in the air and steering it up or down, of balancing tunnels or keels above the rider's platform, wings projecting at each side of the balancing tunnels or keels, a kite or plane, a rudder, and a skeleton boat-shaped framework having upper and lower longitudinal bowed ribs b, b', substantially as specified.

7. The combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine in the air and steering it up or down, of balancing tunnels or keels above the rider's platform, wings projecting at each side of the balancing tunnels or keels, a kite or plane, a rudder, and a skeleton boat-shaped framework having upper and lower longitudinal bowed ribs b, b', and longitudinal bowed side ribs b^2, upright bowed ribs b^3 b^3 b^4 on each side, substantially as specified.

8. The combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine in the air and steering it up or down, of balancing tunnels or keels above the rider's platform, wings projecting at each side of the balancing tunnels or keels, a kite or plane, a rudder, a skeleton boat-shaped framework having upper and lower longitudinal bowed ribs b, b', longitudinal bowed side ribs b^2, upright bowed ribs b^3 b^3 b^4 on each side, and front and rear cross-bars b^5, substantially as specified.

9. The combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine in the air and steering it up or down, of balancing tunnels or keels above the rider's platform, wings projecting at each side of the balancing tunnels or keels, a kite or plane, a rudder, a skeleton boat shaped framework having upper and lower longitudinal bowed ribs b, b', longitudinal bowed side ribs b^2, upright bowed ribs b^3 b^3 b^4 on each side, front and rear cross bars b^5, said upright ribs b^3 b^4 extending above the balancing tunnels or keels, and said kite or plane being pivoted thereto, substantially as specified.

10. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame so that its inclination or angle of incidence may be varied or adjusted as required, a rudder hinged to the frame at the rear of the balancing tunnels or keels, a tail connected to the frame at the rear of the balancing tunnels or keels and projecting at a downward inclination to the rudder, and a spring for holding the tail yieldingly in position, substantially as specified.

11. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting at each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame so that its inclination or angle of incidence may be varied or adjusted as required, a rudder hinged to the frame at the rear of the balancing tunnels or keels, and springs for automatically holding the rudder in its normal position, substantially as specified.

12. In a soaring-machine, the combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings projecting at each side of the balancing tunnels or keels, a skeleton boat-shaped framework rigidly connecting the rider's support or platform, the balancing tunnels or keels and the wings, a kite or plane above the balancing tunnels or keels and hinged or mounted movably on the frame so that its inclination or angle of incidence may be varied or adjusted as required, a rudder hinged to the frame at the rear of the balancing tunnels or keels, and springs for holding the wings yieldingly in position or at the required angle of incidence to the wind, substantially as specified.

13. A soaring-machine having a balancing platform or support below the sustaining devices for the rider to stand upon and balance the machine and steer it up or down by moving back and forth on said platform or support as required, and sustaining devices comprising wings projecting to each side and a kite or plane above the wings, substantially as specified.

14. A soaring-machine having a support for the rider to stand upon, adapted to permit him to balance and control the machine by movements of his body backward and forward, and sustaining devices above said rider's support comprising wings projecting to each side, a tail projecting to the rear and a kite or plane above the wings and centrally above said rider's support, substantially as specified.

15. A soaring-machine having a support or platform for the rider to stand upon and balance the machine and steer it up or down by movements of his body on said platform or support, and a rigid framework connecting such support or platform with the sustaining devices above it, and sustaining devices comprising wings projecting to each side and a kite or plane above the wings, substantially as specified.

16. The combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings, a framework connecting the rider's support or platform and said keels and wings, a kite or plane and a rudder, substantially as specified.

17. The combination with a support or platform for the rider to stand and move back and forth upon as required for balancing the machine and steering it up or down, of balancing tunnels or keels above the rider's support or platform, wings, a framework connecting the rider's support or platform and said keels and wings, a kite or plane, a rudder, and a tail, substantially as specified.

18. The combination with a support or platform for the rider, of balancing tunnels or keels above the rider's support or platform, wings, and a rigid frame connecting the rider's support or platform with the keels and wings, substantially as specified.

19. The combination with a support or platform for the rider, of balancing tunnels or keels above the rider's support or platform, and wings, substantially as specified.

20. The combination with a balancing support or platform for the rider, of balancing tunnels or keels, a frame connecting the same, and a kite or plane, substantially as specified.

21. The combination with a balancing support or platform for the rider, of balancing tunnels or keels, a frame connecting the same, a kite or plane and a rudder, substantially as specified.

22. In a soaring-machine a double boat-shaped skeleton frame, provided with lower and upper longitudinal bowed ribs b b', in combination with sustaining devices comprising wings projecting to each side and a kite or plane above the wings, substantially as specified.

23. In a soaring-machine a double boat-shaped skeleton frame provided with lower and upper longitudinal bowed ribs b b', the longitudinal bowed side ribs, upright bowed ribs on each side, and cross-bars connecting the upright bowed ribs, in combination with sustaining devices comprising wings projecting to each side and a kite or plane above the wings, substantially as specified.

24. In a soaring-machine a double boat-shaped skeleton frame provided with lower and upper longitudinal bowed ribs b b', the longitudinal bowed side ribs, upright bowed ribs on each side and cross-bars connecting the upright bowed ribs, the middle upright bowed ribs being extended to form supports for a kite or plane, in combination with sustaining devices comprising wings projecting to each side and a kite or plane above the wings, substantially as specified.

25. In a soaring-machine, the combination with a frame of balancing tunnels or keels having horizontal and vertical surfaces, wings projecting laterally from the balancing tunnels or keels, and a rudder, substantially as specified.

26. In a soaring-machine, the combination with a frame of balancing tunnels or keels having horizontal and vertical surfaces, wings projecting laterally from the balancing tunnels or keels, a rudder, and a kite or plane above the balancing tunnels or keels, substantially as specified.

27. In a soaring-machine, the combination with a frame of balancing tunnels or keels having horizontal and vertical surfaces, wings projecting laterally from the balancing tunnels or keels, a rudder, a kite or plane above the balancing tunnels or keels, and a tail, substantially as specified.

28. In a soaring-machine, the combination with a frame of balancing tunnels or keels having horizontal and vertical surfaces, wings projecting laterally from the balancing tunnels or keels, a rudder, a kite or plane above the balancing tunnels or keels, and a rider's support or platform below the balancing tunnels or keels, substantially as specified.

29. In a soaring-machine, the combination with a frame of balancing tunnels or keels having horizontal and vertical surfaces, wings projecting laterally from the balancing tunnels or keels, a rudder, a kite or plane above the balancing tunnels or keels, a rider's support or platform below the balancing tunnels or keels, means for turning the rudder, and springs for holding the rudder in its straight or normal position, substantially as specified.

30. In a soaring-machine, the combination with the wings of a hinged kite or plane above the wings and a tail projecting rearwardly below the kite or plane and centrally from the back edge of the wings, substantially as specified.

31. In a soaring-machine, the combination with the wings of a hinged kite or plane above the wings, a frame, and a balancing-support for the rider below the wings and a tail projecting rearwardly below the kite or plane and centrally from the back edge of the wings, substantially as specified.

32. In a soaring-machine, the combination with a frame, a support for the rider below, balancing tunnels or keels, and wings having a longitudinal front rib extending in one piece across the balancing tunnels or keels, substantially as specified.

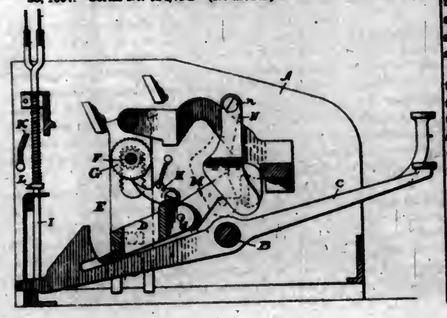
33. In a soaring-machine, the combination with a frame, a support for the rider below, balancing tunnels or keels, and wings having a longitudinal front rib extending in one piece across the balancing tunnels or keels, said wings being adapted to turn or rotate on said front rib as a pivot, substantially as specified.

34. In a soaring-machine, the combination with a frame, a support for the rider below, balancing tunnels or keels, and wings having a longitudinal front rib extending in one piece across the balancing tunnels or keels, said wings being adapted to turn or rotate on said front rib as a pivot, and springs attached to said wings and to the frame for holding the wings yieldingly in position as to their rear edges, substantially as specified.

35. In a soaring-machine, the combination with a frame, of wings having a longitudinal curved front rib extending across the frame in one piece, and means for pivotally connecting said front rib to the frame, substantially as specified.

36. In a soaring-machine, the combination with a frame having two upright standards or supports, of a kite or plane hinged near its longitudinal middle to said upright standards or supports and held adjustably in position by cords or lines at its four corners and wings projecting to each side below said kite or plane, substantially as specified.

606,188. CASH-REGISTER. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Feb. 23, 1897. Serial No. 624,734. (No model.)



Claim.—1. In a device of the class described, the combination with a key controlling a movable part, of means cooperating with the movable part to lock the key as each stroke thereof ceases and then, afterward, to automatically unlock said key.

2. In a device employing a series of keys controlling a movable part, the combination with said part, of cooperating means arranged to lock the keys as each stroke thereof ceases and then, afterward, to automatically unlock said keys while they remain at rest in normal position.

3. In a cash-register, the combination with a registering device comprising movable parts and a key arranged to actuate the register, of means cooperating with the movable parts to lock the key as each stroke thereof ceases, and then, afterward, to automatically unlock said key.

4. In a device of the class described, the combination with an operating-key, of means arranged to lock said key at a certain period and then, afterward to automatically unlock the same again.

5. In a device of the class described, the combination with a plurality of operating-keys and a movable member arranged to be operated by said keys and adapted to lock all of said keys at a certain period and then, afterward, to automatically unlock them again.

6. In a cash-register, the combination with a key controlling a movable part, of a vibrating bar moved by the actuated key to temporarily lock all of the keys after the actuated key returns to normal position and to then automatically release said keys.

7. In a device of the class described the combination with a key controlling a moving part, of a slotted plate secured to the moving part and a locking-bar cooperating with said plate arranged to temporarily lock all the keys after one of them has been actuated and to afterward automatically release said keys.

8. In a device of the class described the combination with a key controlling a moving part, of a slotted plate carried by the moving part and a locking-bar having a stud arranged to cooperate with the slot in the plate for the purpose of temporarily locking said keys after one of them has been actuated and to afterward automatically unlock said keys.

9. In a device of the class described, the combination with a key controlling a moving part, of a plate provided with a shoulder and a locking-bar arranged to cooperate with the said plate to temporarily lock said key after each actuation thereof.

10. In a device of the class described, the combination with a key controlling a moving part, of a plate provided with a shoulder and carried by the moving part, and a locking-bar bearing a stud arranged to cooperate with the shoulder on the plate to lock the key, as described.

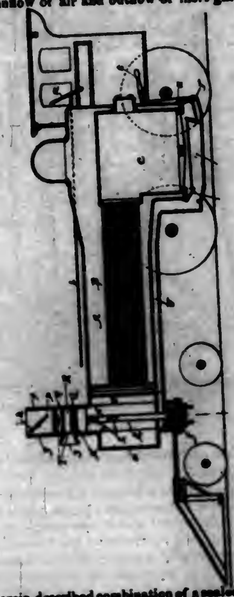
11. In a cash-register the combination with a series of keys cooperating with moving parts, of a locking-bar and a plate carried by the moving parts and arranged to throw the locking-bar into position to lock the keys for an instant after the actuation of any of the keys and to then automatically unlock said keys; substantially as described.

606,189. APPARATUS FOR FORMING GAS. DAVID CLOSE, Philadelphia, Pa. Filed Aug. 10, 1897. Serial No. 647,670. (No model.)

Claim.—1. In combination, a boiler, a fire-box connected therewith, an extension formed with the boiler having three compartments therein, adjustable slats formed in the fronts of the two side compartments, a baffle-plate above the compartments, a semicircular partition above the baffle-plate, whereby a passage is formed therebetween, said passage leading downwardly in two directions to the side compartments, a stand-pipe arranged in the central compartments having nozzles directing the steam upwardly against the baffle-plate, arms projecting from the top of the stand-pipe having nozzles directing the steam downwardly through the side compartments, a conduit leading from the side compartments to the fire-box, a passage-way for the escape of non-combustible material and a deflector-plate in said passage-way, and means for operating the deflector-plate and slats in conjunction with each other, substantially as shown and described.

2. In combination with a boiler having tubes or flues in connection therewith and a fire-box, compartments arranged in the front of the boiler, a baffle-plate arranged over said compartments to direct the products of combustion downwardly, pipes conveying exhaust-steam to said compartments, passages conveying atmospheric air and discharging it simultaneously with the steam, and means for admitting and regulating the flow of air to the compartments after the mixing of the steam, air and products of combustion, and a passage leading from the compartments to the fire-box, substantially as described.

3. In an apparatus for forming a gas from the combination of the products of combustion, exhaust-steam and a certain amount of atmospheric air and returning the same to the fire-box for the further support and increase of combustion therein, a fire-box, a boiler, tubes or flues in connection therewith, a sealed ash-pit, compartments formed in front of the boiler and connected with the tubes, a stand-pipe leading from the exhaust, nozzles connected therewith, for combining steam with the products of combustion and forcing the combination upward, baffle-plates for deflecting the gases, injectors consisting of steam-nozzles for driving the combined gases downward, means for feeding air to the combination at this point, means for admitting more or less air to the combination thereafter, a conduit for conveying the combined gases to the ash-pit, and suitable dampers and levers for regulating the inflow of air and outflow of inert gases, as specified.

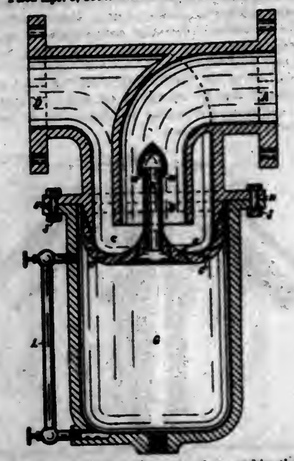


4. The herein-described combination of a sealed fire-box, a sealed ash-pit, a boiler, tubes or flues for conveying the products of combustion from the fire-box, an extension secured to the opposite end of the boiler, compartments formed in said extension, a stand-pipe leading from the exhaust and located within one of the compartments, nozzles leading from said stand-pipe for driving the products of combustion upward and commingling steam therewith, baffle-plates for deflecting said gases downward, passages for admitting atmospheric air at this point, steam-nozzles also connected with the stand-pipe for admitting more steam to the combination and injecting the combined gases downward, slats admitting a further quantity of atmospheric air, a conduit for conveying the combined gases to the ash-pit, a passage-way for permitting the non-combustible elements to escape, a deflector-plate for bringing about an indowing of air while permitting the outflow of the non-combustible elements, and means for regulating the action of the apparatus, substantially as shown and described.

5. In combination, a boiler, a sealed fire-box connected therewith, a sealed ash-pit beneath the fire-box, suitable tubes or flues for leading the products of combustion from the fire-box, an extension formed with the boiler having therein three compartments, means for admitting steam to the central compartment, baffle-plates for deflecting the steam and products of combustion downward, means for admitting air at this point, means for admitting more steam to the combination and injecting the same within the remaining compartments of the extension, means for forcing atmospheric air within the apparatus at various points, and means for permitting the escape of non-combustible elements, substantially as and for the purpose set forth.

6. An apparatus for forming gas and returning it to the fire-box consisting of a boiler, tubes or flues, a fire-box, compartments formed at the front of the boiler, baffle-plates for directing the products of combustion downwardly, pipes conveying exhaust-steam and discharging it downwardly above the compartments, air-passages for admitting air simultaneously with the steam, a series of slats arranged in the front of the compartments under the control of the engineer for admitting and regulating the flow of air to the compartments after the mixing of the steam, air and products of combustion, and a passage leading from the compartments to the fire-box, substantially as described.

606,190. STEAM-SEPARATOR. FRED B. COREY, Springfield, Mass. Filed Apr. 3, 1897. Serial No. 630,634. (No model.)



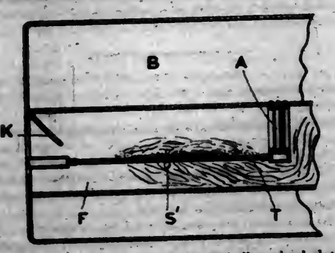
Claim.—1. In a steam-separator, the combination of a main steam-passage, a water-receiver, a perforated wall between the said main steam-passage and the said receiver and an auxiliary steam-passage extending from the upper part of the said receiver to the said main steam-passage, substantially as described.

2. In a steam-separator, the combination of a main steam-passage, a water-receiver, a perforated wall between the said main steam-passage and the said receiver, an auxiliary steam passage or pipe extending from the upper part of the said receiver to the said main steam-passage and a hollow cone overlapping the end of the said auxiliary steam passage or pipe but not in contact therewith, as set forth.

3. In a steam-separator, an inlet-pipe, a deflecting-plate in close proximity to the end of the said inlet-pipe and perforations in the said deflecting-plate, the said perforations being tangent to the inner surface of the said deflecting-plate, substantially as set forth.

4. In a steam-separator, a steam-circulating device consisting of a steam pipe or passage and a hollow cone overlapping the outlet of the said pipe or passage but not in contact therewith, the said pipe or passage being in communication with the water-receiver of the separator, substantially as described.

606,191. GRATE FOR STEAM-BOILERS. ALFRED DAVY and JOHN RENT, London, England. Filed July 21, 1897. Serial No. 645,455. (No model.) Patented in England June 4, 1897, No. 13,774.

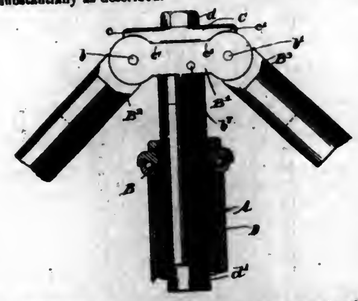


Claim.—In combination, the sliding hollow dead-plate D, the water-bridge A engaging the inner wall of the boiler, the hollow grate-bars connecting the dead-plate and the water-bridge, the outside tubes s^1 s^2 connected with the water-space of the boiler and with the dead-plate and an outlet-tube W, said tubes having valves whereby when the tube W is closed and the tubes s^1 s^2 are open the water under pressure of the boiler will pass through the grate-tubes and the water-bridge, substantially as described.

606,192. ADJUSTABLE HANDLE-BAR FOR BICYCLES. WILLIAM C. DAYHOFF, Kankakee, Ill., assignor of one-half to Daniel H. Paddock, same place. Filed Feb. 23, 1897. Serial No. 624,236. (No model.)

Claim.—1. The combination with the steering-head of a bicycle, of a handle-bar having a shank telescoping therein and slit at the

bottom, a pair of handles pivoted upon said shank in their own plane and in lines substantially at right angles to themselves and provided upon their inner ends with ratchet-teeth, a long washer extending from one of said handles to the other and provided at its ends with teeth adapted to engage with said ratchet-teeth and a bolt extending through said washer and shank, said bolt being provided at the top with a nut and at the bottom with a tapered head adapted to expand the shank whereby the tightening of the nut upon the bolt secures the handles upon the shank and the shank in the steering-head; substantially as described.



2. The combination with the steering-head, A, of a handle-bar consisting of the shank, B, having a T-shaped head, B', and the pin, b^3, the handles, B^2, B^2, pivoted in the head and having ratchet-teeth upon their inner ends, the washer, C, engaging the ratchet-teeth, and the bolt, D, having the nut, *d*, above the washer and the tapered end, *d'*, adapted to expand the bottom of the shank, said bolt being held against rotation and being limited as to vertical movement by the pin, b^3; substantially as described.

606,193. YELLOW-BROWN COTTON-DYE. ROBERT DEMUTH, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Nov. 20, 1897. Serial No. 659,329. (Specimens.) Patented in England Sept. 23, 1895, No. 17,738; in France Jan. 15, 1896, No. 253,213, and in Italy Mar. 31, 1896, XXXI, 40,694, LXXIX, 407.

Claim.—1. The process for the production of a new yellowish-brown cotton-dye by subjecting dinitrotoluenesulfo-acid ($CH_3NO_2NO_2SO_3H$ 1:2:4:6) or salts thereof to the action of an alkaline-sulfid-carrying compound at elevated temperatures.

2. As a new article of manufacture the yellowish-brown cotton-dye producible from dinitrotoluenesulfo-acid or salts thereof, forming a dark-brown mass or powder, readily soluble in water with a reddish-brown color unalterable by the addition of sodium sulfid, being separated from its watery solution by the addition of dilute hydrochloric or sulfuric acid as a brown precipitate, while sulfureted hydrogen is set free, yielding on unmordanted cotton in cold and hot baths with or without the addition of alkaline sulfid bright yellowish-brown shades fast against the action of alkalies and light.

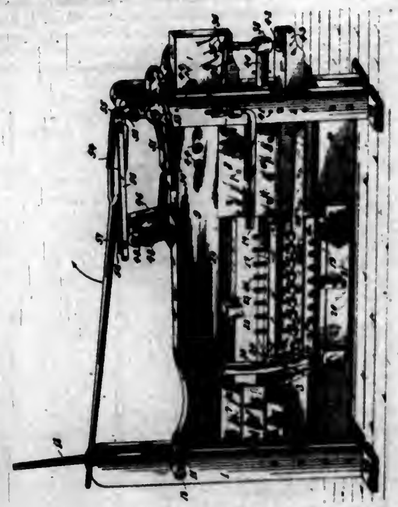
606,194. SHEARING AND PUNCHING MACHINE. JOHN E. DENHAM, Stanberry, Mo. Filed June 11, 1897. Serial No. 640,360. (No model.)

Claim.—1. In a machine of the class described, the combination with a plurality of punches arranged in series, of an operating-lever having a fixed pivot and arranged parallel with the series of punches, and a punch-driving head adjustably mounted upon the lever for movement independently of the same to arrange it in the plane of either of the punches, substantially as specified.

2. In a machine of the class described, the combination of a plurality of punches arranged in series, an operating-lever arranged parallel with the series of punches and capable of swinging movement, and a punch-driving head mounted to slide upon the operating-lever for arrangement in the plane of either of the punches, said head having inturned guide fingers or ears to engage grooves in the opposite side surfaces of the operating-lever, substantially as specified.

3. In a machine of the class described, the combination with a series of punches, of an operating-lever provided with means for successively driving the punches, a lifting arm arranged in operative relation with the punches and adapted when elevated at its free end to draw the latter, and a trip carried by the operating-lever for engaging and communicating upward movement to the free end of the lifting-arm, substantially as specified.

4. In a machine of the class described, the combination with a series of punches, of an operating-lever provided with means for successively driving the punches, a lifting-arm arranged in operative relation with the punches and adapted when elevated at its free end to draw the latter, a trip carried by the operating-lever for engaging and communicating upward movement to the free end of the lifting-arm, and means for disengaging the trip from the lifting-arm when it reaches a predetermined point, substantially as specified.



5. In a machine of the class described, the combination with a series of punches, of an operating-lever provided with means for successively driving the punches, a lifting-arm arranged in operative relation with the punches and adapted when elevated at its free end to draw the latter, a trip carried by the operating-lever for engaging and communicating upward movement to the free end of the lifting-arm, and means, consisting of a cam, on the trip, and a fixed stop for cooperation therewith, to disengage the trip from the lifting-arm, substantially as specified.

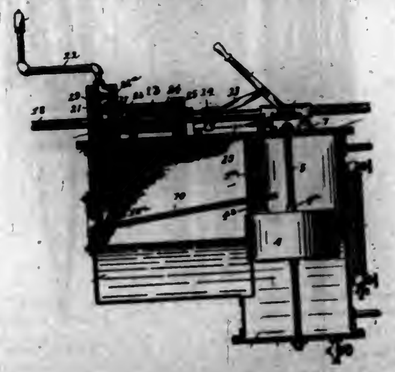
6. In a machine of the class described, the combination of terminal standards connected by stationary upper and lower bars 3 and 4, a movable bar mounted to swing in the plane of the fixed bars, means for actuating said movable bar, shear-blades carried by the movable and upper fixed bars respectively contiguous to the standards, a series of punches mounted in guides located between the shear-blades on the upper fixed bar, a die-plate carried by the lower fixed bar, adjustable means carried by the swinging bar for successively driving the punches, a lifting-arm mounted for swinging movement upon the upper fixed bar for cooperation with projections on the punches, and trip devices actuated by the swinging bar for operating the lifting-arm, substantially as specified.

7. In a machine of the class described, the combination with a fixed die, of an operating-lever provided with a socket, a punch having a head removably fitted in said socket, an adjustable latch for locking the punch-head in its socket, and a pivotally-movable guide for the punch, the same consisting of a guide-tube having a stem, and a tubular bearing adapted to receive the stem, substantially as specified.

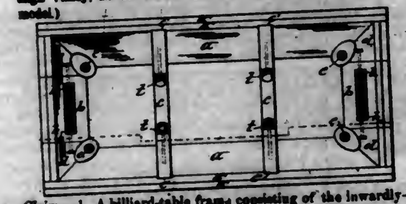
606,195. FEED-WATER REGULATOR. LOUIS DERY, Montpelier, N. D., assignor of one-fourth to Prosper Hase, same place. Filed July 30, 1897. Serial No. 646,544. (No model.)

Claim.—1. In a boiler-feed-pump regulator, the combination of a barrel or float casing having water and steam pipe connections with a boiler, a chamber in open communication at one end with the barrel and provided at its opposite end with a hand-hole, a detachable plate closing said hand-hole, a vertical guide-rod in the barrel, a float fitted to slide thereon, an operating-rod projecting across the chamber and having one end detachably connected with the float and its opposite end pivoted to said hand-hole plate, a steam-supply pipe for a feed-water pump having a valve controlling the passage of steam therethrough, a cylinder having a steam-chest supplied with steam from the chamber, a piston therein operatively connected with said valve in the feed-pump pipe, a valve-rod detachably connected at its lower end to the operating-rod and having its upper end projecting through the top of the chamber into the steam-chest of the cylinder, and valves carried thereby controlling the supply of steam to said cylinder, substantially as described.

2. In a boiler-feed-pump regulator, the combination of a barrel or float casing having water and steam supply pipe connections with a boiler; a water and steam chamber in open communication therewith; a float in the barrel; an operating-rod projecting across said chamber and pivoted at one end therein and detachably connected at its opposite end to the float; a steam-supply pipe for a feed-pump having a valve controlling the passage of steam therethrough; a lever connected with said valve; a cylinder supported on the chamber and having the following instrumentalities, viz: a piston-chamber, a steam-chest in communication with the water and steam chamber and supplied with steam therefrom and provided with a port for the escape of steam when the water in the float-casing falls to the danger-point, a pipe in communication with said port and carrying an alarm device, such as a whistle, a main port in the cylinder to admit steam from the chest to the adjacent end of said cylinder, and a passage in the cylinder to admit steam to the opposite end thereof; a piston in said cylinder operatively connected with the valve in the steam-pipe of the feed-pump; a valve-rod connected at its lower end to the pivoted operating-rod, and having its upper end projecting into the steam-chest; and a pair of slide-valves carried thereby, one controlling the alarm-port in the steam-chest and the other the said main port and passage in the cylinder, substantially as described.



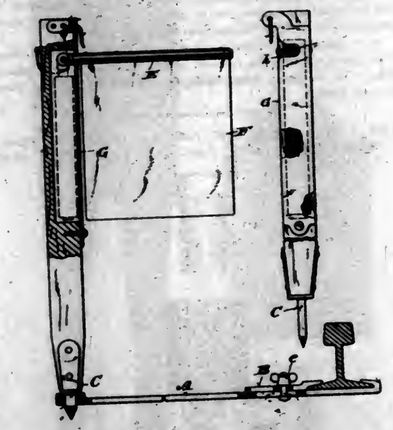
606,196. BILLIARD-TABLE FRAME. JAMES DOUNHADER, Syracuse, N. Y., assignor of one-half to Thomas W. Meacham, Onondaga Valley, N. Y. Filed Sept. 2, 1896. Serial No. 604,616. (No model.)



Claim.—1. A billiard-table frame consisting of the inwardly-inclined side broad rails each composed of a plurality of planks extending in one continuous piece from end to end of the frame and glued together throughout their length; slotted end rails; head-blocks glued to the ends of said side rails, said head-blocks and end rails each being composed of a plurality of planks glued together throughout their length; nuts countersunk in said head-blocks; bolts having their threaded ends engaged with said countersunk nuts and their heads exposed in the slots in said end rails, the supporting-legs arranged directly under the ends of said side rails and bolted to said head-blocks; the intermediate cross-beams; and diagonal bolts, having nuts each countersunk at the junction of a pair of planks of the respective side rails, for securing the intermediate beams thereto, the ends of said intermediate beams being received within recesses formed only in the inner planks of the side rails.

2. The herein-described billiard-table frame; consisting of the side broad rails, each comprising a plurality of planks rigidly united side by side throughout their entire length and each of said planks extending in one continuous piece from end to end of the frame; head-blocks permanently secured to the ends of said side rails; the end cross-rails having slots; nuts countersunk in said head-blocks and bolts engaging said nuts and having heads exposed in said slots, for securing the end rails to the head-blocks; the intermediate cross-beams; diagonal bolts, having nuts each countersunk at the junction of a pair of planks of the respective side rails, for securing the intermediate beams thereto, the ends of said intermediate beams being received within recesses formed in the inner planks of the side rails; and the supporting-legs placed directly under the ends of said side rails and attached to said head-blocks, substantially as described.

606,197. RAILWAY-SIGNAL. JOHN S. DUBE, Portage, Wis. Filed Jan. 12, 1898. Serial No. 666,559. (No model.)



Claim.—1. A portable horizontal arm having one end thereof bent in the form of a hook engageable with the inner flange of a track-rail, a jaw adjustable on the arm longitudinally thereof to engage the outer flange of the track-rail, suitable means for securing the jaw in adjusted position, and a signal having detachable connection with said arm.

2. A portable horizontal arm having one end thereof bent in the form of a hook engageable with the inner flange of a track-rail and its other end provided with an oblong aperture, a jaw adjustable on the arm longitudinally thereof to engage the outer flange of the track-rail, suitable means for securing the jaw in adjusted position, and a signal provided with a shank having detachable match fit in the aforesaid aperture.

3. A horizontal arm having one end in the form of a hook engageable with the inner flange of a track-rail and its other end provided with a suitable aperture, a jaw adjustable on the arm longitudinally thereof to engage the outer flange of the track-rail, suitable means for securing the jaw in adjusted position, a signal provided with a shank having detachable match fit in the aforesaid aperture, and a set-screw arranged to maintain the engagement of the signal-shank with said arm.

4. A longitudinally-slotted arm having one end in the form of a hook engageable with the inner flange of a track-rail, a jaw loose on the arm for engagement with the outer flange of the track-rail, a bolt extending through the arm-slot and an aperture in the jaw, a set-nut run on the bolt, and a signal having detachable connection with said arm.

5. A railway-signal comprising a staff longitudinally recessed to form a housing, a rod pivoted at one end within the upper part of the housing, a flag made fast at one edge to the rod, a pivotal closure-plate for the housing provided with a transverse rod-supporting notch, and suitable means for fastening the closure-plate parallel to the staff.

6. A railway-signal comprising a staff longitudinally recessed to form a housing, a rod pivoted at one end within the upper part of the housing, a flag made fast at one edge to the rod, a pivotal closure-plate for the housing provided with a transverse rod-supporting notch, apertured matching ears on said staff and plate, and a hook in permanent flexible connection with the aforesaid staff for engagement with said ears.

7. A railway-signal comprising a staff longitudinally recessed to form a housing, a rod pivoted at one end within the upper part of the housing, a flag made fast at one edge to the rod, a pivotal closure-plate for the housing, suitable means for fastening the closure-plate parallel to said staff, and a shank on said rod, in combination with a holder organized for temporary connection with a track-rail and provided with an aperture for the engagement of the staff-shank.

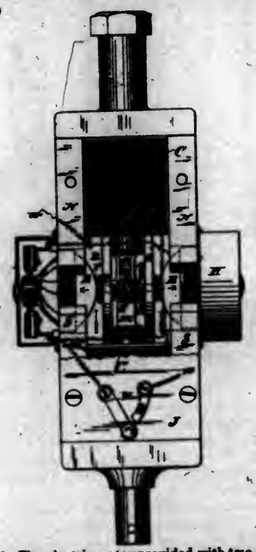
606,198. DENTAL BASE-PLATE. WARREN R. EVANS, Portland, Me., assignor to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Jan. 11, 1898. Serial No. 666,294. (No model.)



Claim.—1. A new product for making base or trial plates for use by dentists, consisting of a sheet of wax and a sheet of cloth, the two being united to form a composite sheet of wax and cloth, the cloth being on the side of the sheet which is to come in contact with a plaster model, and subsequently with the gums in a human mouth, substantially as and for the purpose set forth.

2. A dental base or trial plate consisting of wax and cloth firmly united, the cloth being on the side of the plate which is to come in contact with the gums, substantially as and for the purpose hereinbefore set forth.

606,199. INSTRUMENT FOR CALKING SHIPS. WARREN P. FREEMAN, New York, N. Y. Filed June 23, 1897. Serial No. 641,805. (No model.)



Claim.—1. The electric motor provided with two armatures, the reciprocating tool-holder mounted in operative relation to the armature-shaft of the said motor between the two armatures, and gearing operatively connecting the armature-shaft with the tool-holder for reciprocating the same, substantially as set forth.

2. The electric motor provided with two armatures, the reciprocating tool-holder mounted in operative relation to the armature-shaft of the said motor between the two armatures, operative connections between the armature-shaft and the reciprocating tool-holder for moving the holder in one direction, and a spring for moving the tool-holder in the opposite direction, substantially as set forth.

3. The electric motor provided with two armatures, the reciprocating tool-holder mounted in operative relation to the armature-shaft of the said motor between the two armatures, the Geneva gearing driven by the said armature-shaft and turning the cam R, a spring acting upon the tool-holder, and a projection upon the said tool-holder with which the said cam engages and forces the tool-holder backward against the action of the said spring, substantially as set forth.

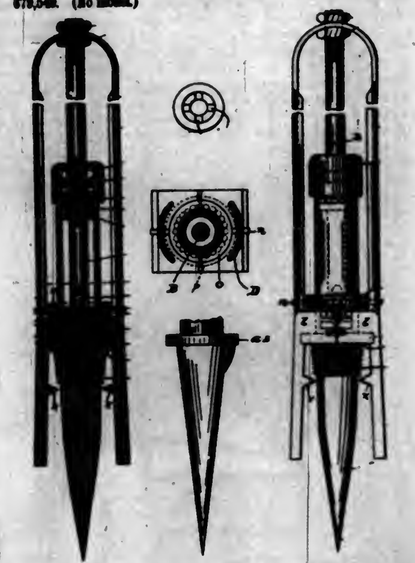
4. In combination, the double field-magnet and pair of armatures, the field-magnet windings and core extending longitudinally between the said pole-pieces, the tool-holder extending axially through the said coils, and reduction-gearing, operatively connecting the shaft of the electric motor with the said tool-holder, substantially as set forth.

5. In combination, the double field-magnet, the two armatures mounted on a shaft which is supported between the armatures at the central and neutral point of the field-magnets, and a tool actuated by the said shaft and supported upon the field-magnets.

6. In combination, an electric motor, a reciprocating tool-holder, a spring acting on the tool-holder in one direction, and the Geneva gearing actuating the said tool-holder intermittingly in the opposite direction, substantially as set forth.

7. In combination, a rotary motor, a reciprocating tool-holder, and a Geneva gear, intermittently actuating the said tool-holder, substantially as set forth.

606,200. GLASS-WORKER'S TOOL. LEWIS FRIEDRICH, Pittsburg, Pa. Filed May 26, 1897. Renewed May 2, 1898. Serial No. 679,542. (No model.)



Claim.—1. In glass-workers' tools, the combination with a pair of spring-handles having jaws, of a chaser, the rear or upper portion of which is tubular, and the forward portion thereof conical in shape; a spindle adapted to project into the tubular portion of said chaser; a cap slipped over said spindle, and clutch mechanism arranged on said spindle and in said cap for the purpose of locking said spindle, cap and chaser, substantially as herein described.

2. In glass-workers' tools, the combination with a pair of spring-handles having jaws, of a chaser provided with a forming portion, and a collar or projection adjacent to said forming portion; a spindle adapted to project into the upward portion of said tubular portion of said chaser; said spindle carrying ball-bearings arranged at both ends of the tubular portion of said chaser; a cap adapted to slip over said spindle; means carried by said spindle and said cap to lock said spindle, cap and chaser, and a guide-ring having ball-bearings arranged in an interior annular groove or recess therein, substantially as herein described.

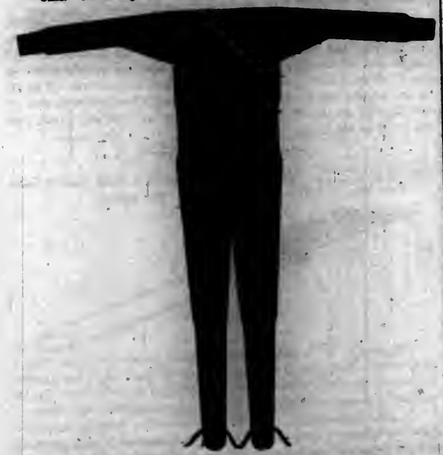
606,201. OVERSHOE ATTACHMENT. JAMES C. GILLAM, Colbyville, Kans. Filed Apr. 14, 1897. Serial No. 632,154. (No model.)



Claim.—1. The combination with a shoe, of a pin having a swiveled connection to the heel portion of the shoe and provided with an eye at its outer end, and a band or wire of spring material having one end loosely connected with the eye, said band being curved and adapted to be passed over the instep of the wearer, and being provided at its opposite end with a head or enlargement to be passed through the eye of the swiveled pin, substantially as and for the purpose set forth.

2. The combination with a shoe, of a pin inserted through the heel portion of the shoe and having its outer end bent to form an eye and provided with a plate or disk to engage the outer surface of the shoe, a perforated plate fitted over the inner end of the pin to engage the inner face of the shoe, the inner end of the pin being headed to hold said plate in place, a spring wire or band having at one end an eye loosely engaged with the eye on the outer end of the pin, said wire or band being curved to pass over the instep of the wearer and having at its free end a head or enlargement adapted to be passed through the eye at the outer end of the pin, substantially as and for the purpose set forth.

606,202. UNDERGARMENT. ISAIAH GOLDSMITH, Cleveland, Ohio. Filed July 13, 1896. Serial No. 598,991. (No model.)



Claim.—1. An undergarment constructed from a tubular blank of suitable material, one ply of the upper portion of which is cut on a dividing longitudinal line, and on a transverse line at the inner end of the longitudinal line, to produce shoulder-flaps which are folded inwardly, the said ply being also cut inwardly on diverging lines from the center of the transverse line to produce an upwardly-tapering chest flap and from the inner ends of the diverging lines outwardly of the blank to produce breast-openings which are closed by said shoulder-flaps; substantially as described.

2. An undergarment constructed from a tubular blank of suitable material with shoulder-flaps and gussets integral with the shoulder-flaps extending outward beyond the sides, and sleeves formed with openings which receive the said gussets; substantially as described.

3. An undergarment having a downwardly-projecting shoulder-flap extending beyond the body portion to provide a front arm-gusset portion, and a sleeve having a bias cut to provide a rear arm-gusset portion; the arm-gusset portions being secured together at their lower edges, the front arm-gusset portion being secured to the sleeve at its upper edge, and the rear arm-gusset portion being secured to the body portion; substantially as described.

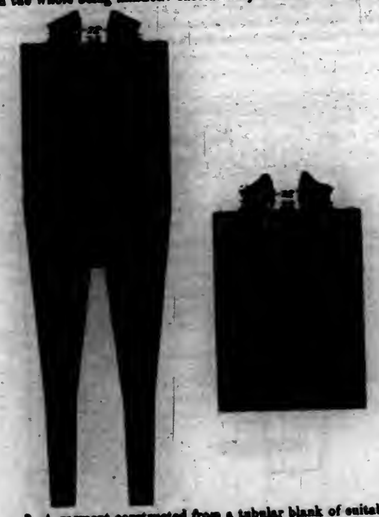
4. An undergarment having a body portion and a chest-opening extending across the body portion, an upwardly-projecting central front chest-flap and downwardly-projecting shoulder flaps extending beyond the body portion to provide front arm-gusset portions, and sleeves having bias-cut portions formed from the front thickness to provide rear arm-gusset portions; the lower edges of the arm-gusset portions being secured together; the upper edges of the front arm-gusset portions being secured to the sleeves, and inner edges of the rear arm-gusset portions being secured to the body portion; substantially as described.

5. An undergarment having a seat-opening, and symmetrically-formed overlapping closing-flaps having extensions and secured to the respective sides of the seat-opening with the extensions extending from beneath the crotch and secured in front of the garment; substantially as described.

606,203. UNDERGARMENT. ISAIAH GOLDSMITH, Cleveland, Ohio. Filed Apr. 8, 1897. Serial No. 631,943. (No model.)

Claim.—1. A garment comprising a tubular body portion cut at its central upper portion on longitudinal and transverse lines, said cut portions being turned outwardly and finished to form shoulder portions; substantially as described.

2. A garment constructed from a tubular blank of suitable material, the plies of the upper portion of which are cut on a dividing longitudinal line, and on a transverse line at the inner end of the longitudinal line toward the sides, the cut portions being doubled and the free portions turned outwardly producing shoulder-straps and armholes between the shoulder-straps and the sides of the garment, and the whole being finished: substantially as described.



3. A garment constructed from a tubular blank of suitable material, the plies of the upper portion of which are cut away on lines converging inwardly from the sides to a transverse line and also on said transverse line; the plies being also cut on a dividing longitudinal line and on a transverse line at the inner end of the longitudinal line toward the sides, the upper portions being doubled and the free portions turned outwardly, producing shoulder-straps and armholes between the shoulder-straps and the sides of the garment, and the whole being finished; substantially as described.

4. An undergarment comprising a tubular body portion the central portion of the plies of the upper portion of which are severed on longitudinal and transverse lines and turned outwardly and finished to produce shoulder-straps and armholes between the shoulder-straps and the sides of the garment; substantially as described.

5. A garment comprising a flat tubular body portion formed with diagonal cuts providing side portions, with central horizontal cuts, and with a vertical cut providing central portions partly separated from the body portion, the side portions with about one-half the width of the separated pieces being turned over on a horizontal line inside of the body portion and the side portions stitched thereto to provide double thicknesses at the armpits, and the central pieces having their free ends stitched together, and turned outwardly to provide upwardly-projecting shoulder-straps, neck-opening and armholes, and the whole finished in suitable manner; substantially as described.

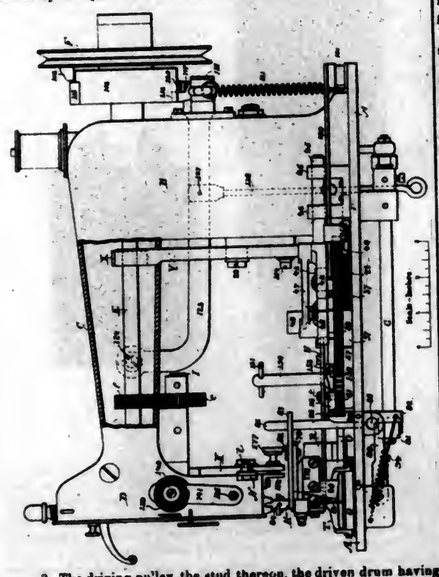
6. A garment comprising a seat-flap of ribbed fabric having the lower portion formed of a band in which the ribbing extends lengthwise of the garment, and the upper portion formed of a band folded over on a transverse line and in which the ribbing extends transversely of the garment so as to provide a yielding closure; substantially as described.

606,204. BUTTONHOLE-SEWING MACHINE. JULIUS G. GOODWIN, Philadelphia, Pa. Filed Dec. 20, 1893. Serial No. 495,946. (No model.)

Claim.—1. The work-carrier comprising a bottom laterally-moving plate and an upper slide movable lengthwise on the bottom plate, the step-by-step revolving cam-stud having a rounded triangular outline, and a slotted yoke operatively connected with said work-carrier slide, in the slot of which yoke said cam-stud enters, in combination with a rotating cam moving in unison with said cam-stud, said cam having two long dwells of different radii connected by abrupt rises, and a movable slotted plate in the slot of which said cam enters, said slotted plate being operatively connected with said carrier-plate, substantially as set forth.

2. The work-carrier comprising a laterally-movable bottom plate and an upper slide movable lengthwise on said bottom plate, the rotating toothed disk having a step-by-step rotation, the triangular cam-

stud eccentrically located on said disk, and the rectilinearly-reciprocating slotted yoke operatively connected with said slide in the slot of which said cam-stud enters, in combination with the idle-pinion engaging said toothed disk, the swinging slotted plate swinging on the same axis as that of said idle-pinion, said slotted plate being operatively connected with said work-carrier bottom plate, and a gear engaging said idle-pinion and having a cam entering the slot of said swinging slotted plate, said cam having two dwells of different radii united by abrupt rises, substantially as set forth.



3. The driving-pulley, the stud thereon, the driven drum having a recess and a notch therein, a pawl pivoted to said drum and occupying said recess, a spring holding said pawl outward in the path of said stud, said pawl having a cam-incline then exterior to the periphery of said drum out of the path of said stud, in combination with a movable nose and tappet always out of the path of said stud and normally out of the paths of said notch and cam-incline, and means for moving said nose into the path of said notch and said tappet into the path of said cam-incline, substantially as set forth.

4. The driving-pulley, the stud thereon, the driven drum having a recess and a notch therein and a projecting stop alongside of said notch, a pawl pivoted to said drum and occupying said recess, and a spring normally holding said pawl beyond the periphery of said drum and in the path of said stud, said pawl having a cam-incline then exterior to the periphery of said drum but out of the path of said stud, in combination with a movable nose and tappet normally held out of the paths of said notch, stop, and cam-incline, and means for releasing said nose and tappet, and a spring for bringing said nose into the path of said stud and notch and said tappet into the path of said cam-incline, substantially as set forth.

5. The drum, and the movable pawl, in combination with the slotted link, and pin, for limiting the movement of said pawl, substantially as set forth.

6. The main shaft E, drive-pulley F, drum 102 with notch 114, stud 103, and pawl 104, lever 117, with nose 119 and tappet 120, spring 121, lever 123, and connecting-rod 128 with catch 129, in combination with the rotating disk 41 with stop-tappet 98, trip-lever 100 with nose 99, catch-rod 131, and spring 133, substantially as set forth.

7. The main shaft E, drive-pulley F, drum 102 with notch 114, stud 103 and pawl 104, lever 117 with nose 119 and tappet 120, spring 121, lever 123, and connecting-rod 128 with catch 129 and enlargement 130, in combination with the rotating disk 41 with stop-tappet 98, trip-lever 100 with nose 99, catch-rod 131, and spring 133, substantially as set forth.

8. For adjusting the number of stitches to the inch, the operating-lever of the feeding mechanism having two slots 161, and 165, the block 162 adjustable in said slot 161, said block having a tailpiece 163 overlapping said slot 165, a set-screw passing through said slot 165 and tapping into said tailpiece, in combination with an adjustable pivot-pin upon which said block 162 turns, substantially as set forth.

9. For adjusting the number of stitches to the inch, the operating-lever of the feeding mechanism having two slots 161 and 165, the block 162 adjustable in said slot 161, said block having a tailpiece 163 overlapping said slot 165, a set-screw passing through said slot 165 and tapping into said tailpiece, in combination with the standard B, having slot 166, a nut 167 within the standard, and an adjustable pivot-pin screwing into said nut 167, upon which pin said block 162 is journaled, substantially as set forth.

10. The reciprocating work-carrier, the rotating operating-disk 41, having radial guide 155, with radial slot 156, with margins 157, in combination with movable stud 42 having legs 158 straddling said guide 155, the movable nut 159 below said margins, and the screw 160 passing through said stud and slot, and tapping into said nut, substantially as set forth.

11. The vertically-movable cutter-bar 75, spring 76, for elevating the same, carrier 79, at the lower end of the bar 75, cutter 80, on said carrier, and horizontally-swinging tappet 83, pivoted on said carrier and having slot 85, in combination with the bed-plate having slot 87, sliding bar 88, beneath said bed-plate, and vertical rod 86 attached to said bar 88 and extending upwardly through said slots 87 and 85, and means for moving said sliding bar back and forth, substantially as set forth.

606,205. CAKE-TURNER. Milton D. Good, Abilene, Kans. Filed Mar. 10, 1897. Serial No. 626,792. (No model.)



Claim.—1. In a cake-turner, a turning-plate provided with a transversely-extending U-shaped rib, in combination with a compressible handle provided with two pivots attached to the sides of the rib and being pivoted off center in the rib, substantially as described.

2. In a cake-turner, the combination with a turning-plate having a transverse hollow rib, of a handle composed of a single piece of wire forming a spring, and having longitudinal pivots at its forward ends, said pivots having bearings in the sides of the rib at points out of coincidence with the direction of pressure, substantially as described.

3. In a cake-turner, the combination with a handle composed of a single piece of wire bent to form a spring and having its forward ends turned inwardly and then longitudinally to form pivots, and a turning-plate having a transversely-extending hollow rib provided with holes for the reception of the pivots, whereby the handle is connected directly to the plate, substantially as described.

4. In a cake-turner, a reversible lifting-plate provided with a U-shaped rib, in combination with a compressible handle having forwardly-projecting pivots operating within the walls of the rib, substantially as described.

5. In a cake-turner, a reversible plate provided with a transversely-extending hollow rib, in combination with a compressible handle having inturned ends *d*, and *d'*, and forwardly-projecting ends *g*, and *g'*, constituting two pivots, one being prolonged and passed through both walls of the rib, and the other passed through one wall in the manner and for the purposes substantially as described.

6. In a cake-turner, the combination with a reversible plate of an upturned hollow rib forming a shoulder, and a compressible handle having inturned portions provided with forwardly-projecting pivots operating in the rib, substantially as described.

7. In a cake-turner, a reversible lifting-plate provided with a hollow transverse rib, in combination with a wire handle having its forward ends formed into pivots, one of which is prolonged to extend through both sides of the rib, and the other made shorter to pass through one side only of the rib, both being arranged off center in relation to each other, substantially as described.

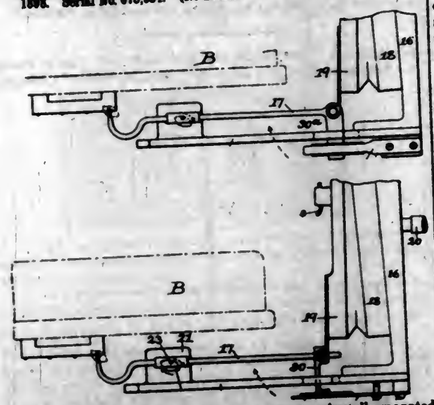
606,206. MANHOLE-COVER. Thomas P. Greene, Philadelphia, Pa. Filed Aug. 14, 1897. Serial No. 648,287. (No model.)

Claim.—The combination in a manhole-cover, of a frame or wall surmounting the manhole, two concentrically-arranged webs projecting upward from said frame, the outer web being higher than the inner web, a horizontally-arranged flange on the outer web, a dish-shaped upper member seated on the flange of the outer web, the rim or periphery of said upper member being traversed by a series of perforations or air-holes, an inner member, a series of legs secured to said inner member and fitted on the inner web to support the inner member above the inner web and a drain-pipe leading from the compartment between the webs to a sewer or other receptacle for moisture, substantially as and for the purposes described.

606,206.



606,207. PICKER DEVICE FOR STRINGED MUSICAL INSTRUMENTS. Walfrid Gunapson, New York, N. Y., assignor to the American Automatic Banjo Company, of New Jersey. Filed Mar. 31, 1898. Serial No. 675,951. (No model.)



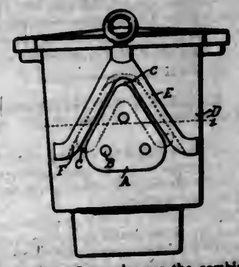
Claim.—1. In a stringed musical instrument, a pivotally-mounted reciprocating picker and a controller for frictionally engaging with the picker at one side of the plane of movement of the pivot thereof, for oscillating the picker in one direction during its forward movement and in the opposite direction during its backward movement.

2. In a stringed musical instrument, a pivotally-mounted reciprocating picker, a guiding-cam therefor, and a controller frictionally engaging with the picker at one side of the plane of movement of its pivot, whereby the picker is caused to follow the contour of the guiding-cam during its reciprocations.

3. In a stringed musical instrument, a pivotally-mounted reciprocating picker, a guiding-cam therefor, a controller, and means for resiliently pressing the controller into frictional engagement with the picker, at one side of the plane of movement of its pivot to hold the picker laterally into contact with its guiding-cam during its reciprocations.

4. In a stringed musical instrument, a pivotally-mounted reciprocating picker, a guiding-cam therefor, and a controller resiliently pressed into frictional engagement with the picker, at one side of the plane of movement of its pivot, for holding the picker laterally in contact with its guiding-cam during its reciprocations, with means for varying the intensity of the resilient frictional engagement of the controller with the picker.

606,208. TRANSFORMER BOX AND HANGER. Ludwig Gutmann, Peoria, Ill. Filed Nov. 22, 1897. Serial No. 659,498. (No model.)



Claim.—1. In a transformer-hanger the combination of a main body tapering toward the upper end, a tapering rim forming part of said hanger, located in a parallel plane to the main body, and holes or recesses in said main body for retaining screws, bolts, or other devices for fastening, as and for the purpose described.

2. In a transformer-box the combination with a receptacle for inclosing a transformer, of a groove or recess provided on one of the sides of said receptacle, a removable plate adapted to be retained in said recess, and means, such as holes in said plate, as and for the purpose described.

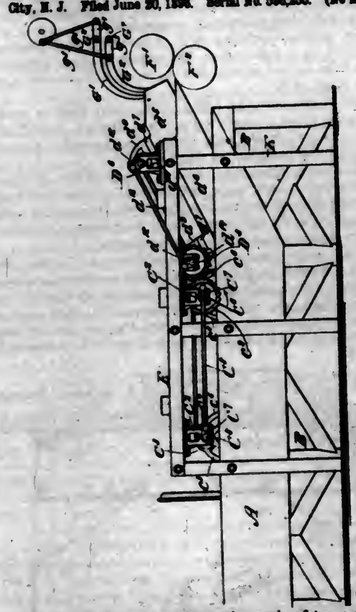
3. In a transformer-box the combination of a receptacle, a projecting rib, or ribs, provided with a slot or recess, a removable plate provided with a rim, normally engaged with said recess, and means, provided in said plate, for its attachment to a suitable support, as and for the purpose described.

4. In a transformer-box the combination of one or more projecting channels extending from a side of a receptacle inclining toward each other, adapted to retain a supporting plate or bracket, and a removable plate or bracket normally retained in said channel, and means, such as holes in said plate or bracket, for suitably attaching it, as and for the purpose described.

5. In a transformer-box the combination of a bracket or plate, means, such as holes, or recesses for attaching said plate to its place, and a projecting rim, a metallic box provided with an extension containing a recess normally engaging with said projecting rim, but removable from the latter in an upward direction.

6. In a hanger-plate the combination of a triangular main body A, a projecting flange located in a plane parallel to said main body, and means such as holes or recesses in said main body, as and for the purpose described.

606,209. MACHINE FOR TREATING TOBACCO. Orville S. Harmon, Brooklyn, N. Y., assignor to the P. Lorillard Company, Jersey City, N. J. Filed June 20, 1896. Serial No. 596,356. (No model.)



Claim.—1. The combination with a tank, of two series of horizontal parallel bars having downwardly-projecting teeth and operating above and entirely clear of the bottom of the tank, the bars of one series alternating with those of the other series, means comprising two sets of reversely-set, eccentrics one set at each end of said bars, and connections between said bars and eccentrics for moving the two series of bars in reverse order, downwardly, forwardly, upwardly and rearwardly, substantially as specified.

2. The combination with a tank, of two series of horizontal parallel bars having downwardly-projecting teeth and operating above and entirely clear of the bottom of the tank, the bars of one series alternating with those of the other series, means comprising two sets of reversely-set eccentrics respectively arranged at opposite ends of said bars, for moving the two series in reverse order, downwardly, forwardly, upwardly and rearwardly, and cranks and a connecting-rod for causing the two sets of eccentrics to move in unison, substantially as specified.

3. The combination with a tank having a horizontal bottom section, and an upwardly-inclined bottom section, of two sets of toothed bars, one set having teeth on the lower side and overlying and being parallel with said horizontal section and operating above and clear thereof, and the other set having teeth on the upper side and overlying and being parallel with said inclined section, and means for reciprocating said sets of bars, substantially as specified.

4. The combination with a tank having a bottom provided with a horizontal section, and an upwardly-inclined section, of two sets of toothed bars respectively above and lying parallel with said bottom sections, the teeth of the horizontal bars projecting downwardly and those of the inclined bars projecting upwardly, and means for simultaneously reciprocating said sets of bars, substantially as specified.

5. The combination with a tank having a bottom provided with a horizontal section, and an upwardly-inclined section at its delivery end, of two sets of bars, one set having teeth on the lower side and arranged above and parallel with said horizontal bottom section, and the other set having teeth on the upper side and arranged above and parallel with said inclined bottom section, and each set of bars comprising two series of alternately-arranged bars, reversely-set eccentrics at opposite ends of said bars, and connections between said eccentrics and series of bars for simultaneously moving the series of each set in opposite directions, substantially as specified.

6. The combination with a tank, of bars, roughened or toothed on their upper surfaces and extended upwardly out of the tank at the delivery end, means for reciprocating said bars, rollers adjacent to the upper end of said bars, and fingers oscillating opposite the said rollers, substantially as specified.

7. The combination with a tank, of bars, roughened or toothed on their upper surfaces and extended upwardly out of the tank at the delivery end, means for reciprocating said bars, rollers adjacent to the upper end of said bars, and two sets of fingers oscillating opposite the said rollers, substantially as specified.

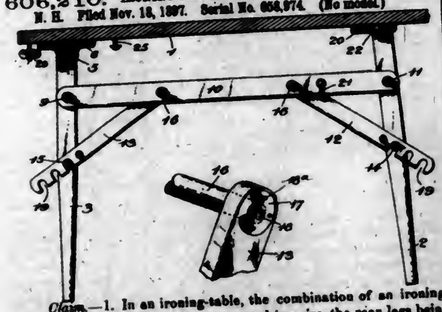
8. The combination with a tank, of horizontal bars roughened or toothed on their under edges, and provided at their infeed ends with upwardly-inclined sections likewise roughened or toothed, substantially as specified.

9. The combination with a tank, of bars, roughened or toothed on their under edges, a stop board or piece attached to such bars, and means for moving the bars downwardly, forwardly, upwardly and rearwardly, substantially as specified.

10. The combination with a tank, of horizontal bars roughened or toothed on their under edges, and provided at their infeed ends with upwardly-inclined sections likewise roughened or toothed, a stop-board supported by the bars above said inclined sections, and means for reciprocating the bars, substantially as specified.

11. The combination with a tank, of horizontal parallel bars roughened or toothed on their lower sides and operating above and entirely clear of the bottom of the tank, means for moving said bars downwardly, forwardly, upwardly and rearwardly, shafts supporting said means, bearings for said shafts, and supports for said bearings independent of and beyond the sides of the tank, substantially as described.

606,210. IRONING-TABLE. Wilbur R. Harriman, Chatham, N. H. Filed Nov. 18, 1897. Serial No. 658,974. (No model.)

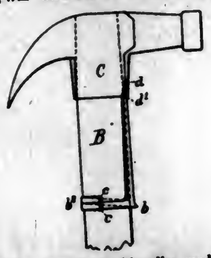


Claim.—1. In an ironing-table, the combination of an ironing-board, the front and rear legs arranged in pairs, the rear legs being hinged at their upper ends to the ironing-board, a frame located a short distance beneath the ironing-board and hinged at its terminals to the front and rear legs near the upper ends thereof, and the braces pivoted at their upper ends to the frame and extending downward and outward from the same and adjustably connected with the legs, substantially as described.

2. In an ironing-table, the combination of an ironing-board, front and rear legs arranged in pairs and provided with rungs 14 and 15, a frame located a short distance beneath the ironing-board and pivoted at its ends to the front and rear legs near their upper ends, and the front and rear braces pivoted at their upper ends to the frame and extending downward and outward to the legs, said braces being provided with side bars having notches arranged to engage the rungs 14 and 15 of the legs, substantially as described.

3. In an ironing-table, the combination with an ironing-board, front and rear legs arranged in pairs, the rear legs being hinged to the ironing-board, a frame located a short distance beneath the ironing-board and pivoted to the front and rear legs, near the upper ends thereof, the adjustable braces extending downward and outward from the frame and engaging the lower portion of the legs, guide-blocks secured to the lower face of the ironing-board and arranged between the upper ends of the front legs, one of the guide-blocks being provided at its inner edge with a projection, and a hook mounted on the frame and arranged to engage the projection for locking the parts when the ironing-table is folded, substantially as described.

606,211. PROTECTOR FOR TOOL-HANDLES. John A. Heuth, Menomonee, Wis. Filed Dec. 3, 1897. Serial No. 660,642. (No model.)

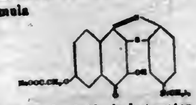


Claim.—A protector for tool-handles made from one piece of metal A embodying within itself its own means of fastening by means of pointed end *d* which may be driven into the eye of the tool side of the handle, and has formed at the other end transverse arms *b* terminating in points *c* so that the said arms may be wrapped around the handle and the points *c* driven in to secure the protector in place, said protector A being thus applied without preparation of the tool or the handle for its reception or retention thereon either before or after its application, all substantially as set forth.

606,212. BLUE DYE AND PROCESS OF MAKING SAME. Bernhard Heyman, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Dec. 21, 1897. Serial No. 662,917. (Specimens.) Patented in England Mar. 21, 1896, No. 6,686; in Belgium Dec. 3, 1896, No. 91,894; in France Mar. 12, 1894, No. 237,675, and in Italy Mar. 15, 1894, XXVIII, 39,927, LXX, 295.

Claim.—1. The process for producing a new dyestuff which consists in causing paramidodimethylasulfhydicsulfo-acid to act on nitroso 2.7 oxynaphtoxyacetic acid substantially as hereinbefore described.

2. As a new article of manufacture the new dyestuff having most probably the formula



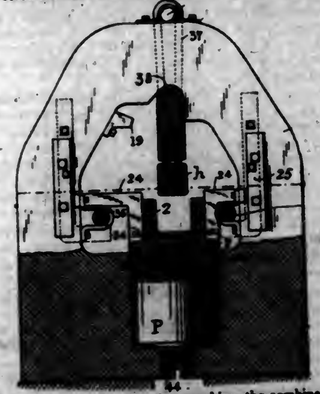
which is a dark powder soluble in hot water with a blue color, in concentrated sulfuric acid (66° Baumé) with a brown color which changes into yellowish green on the addition of a small quantity of ice, soluble in concentrated hydrochloric acid with a yellowish-green color from which solution a violet flaky precipitate is obtained on the addition of water, dyeing chrome-mordanted wool bright-blue shades fast against light and milling substantially as described.

606,218. MACHINE FOR FORMING POLYGONAL TUBES. Campbell P. Higgins, Roselle, N. J. Filed Mar. 13, 1897. Serial No. 627,306. (No model.)

Claim.—1. A power-machine for forming tubes from plates or sheets comprising a movable die, a swinging bending-arm, a mandrel suspended between the die and arm, whereby the arm is adapted to serve as an abutment for the mandrel.

2. In a machine for forming tubes from plates or sheets embracing a die and mandrel, a power device for forcing the mandrel out of the tube consisting of a cross-head connected respectively with the framework of the machine and with the power device to hold the framework of the machine and with the power device to hold the tube in place and a rod interposed between the power device and mandrel to force the latter out of the tube, substantially as described.

3. In a machine for forming tubes from plates or sheets, the combination with the die and tube of a power device having a removable connecting-rod arranged to bear upon the end of the mandrel or the tube and force the same from the die, substantially as described.

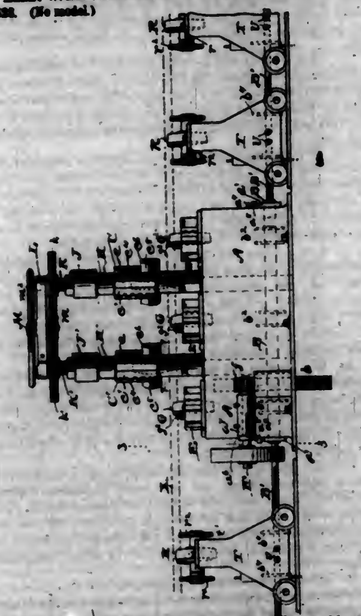


4. In a polygonal-tube-forming machine, the combination of a movable die, a suspended mandrel and an arm adapted to serve as a relative fixed abutment therefor.

5. In a polygonal-tube-forming machine and combination of a movable die, a mandrel and a movable arm adapted with one face to act as an abutment for the mandrel and with another to bend the metal being formed.

6. In a polygonal-tube-forming machine the combination of a movable die, a mandrel and a movable arm adapted with its one face to both abut the mandrel and bend the metal being formed thereon, and also in another position to bend the metal with another face.

606,214. MACHINE FOR STRAIGHTENING SHAFTS, TUBES, &c. Harry W. Hill, Cleveland, Ohio. Filed Apr. 3, 1897. Serial No. 630,332. (No model.)



Claim.—1. In a machine for straightening shafts, in combination, the obliquely-placed draft-rolls G G arranged in pairs and mounted upon a fixed base, the obliquely-placed upper draft-rolls D D likewise arranged in pairs between the lower pairs of draft-rolls, means for adjusting said upper draft-rolls vertically, and mechanism for positively driving one set of draft-rolls, substantially as specified.

2. In a machine for straightening shafts, in combination, a base, a shaft, sprocket-wheels secured thereto, pairs of draft-rolls mounted obliquely upon the base, independent sprocket-wheels rigid with said rolls, and sprocket-chains transmitting motion to the sprocket-wheels last named from those on the said shaft, upper pairs of obliquely-placed draft-rolls and means for adjusting said upper draft-rolls vertically, substantially as specified.

3. In a machine for straightening shafts, in combination, the base, pairs of positively-driven and obliquely-placed lower draft-rolls mounted upon said base, vertical standards, vertically-adjustable cross-heads which embrace and are guided by said standards, means for rigidly fastening said cross-heads to said standards, pairs of obliquely-placed draft-rolls mounted in said cross-heads, yokes secured to said standards above said cross-heads, and adjustment-screws for moving said cross-heads, which screws are supported by said yokes, substantially as specified.

4. In a machine for straightening shafts, in combination, two vertically-movable cross-heads, pairs of draft-rolls mounted thereon, vertical standards for guiding said cross-heads, yokes connecting their upper ends, screws working through said yokes and swiveled to said cross-heads and having cylindrical upper ends, gears secured to said screws, a cross-bar embracing the cylindrical parts of said screws and supported thereon, a vertical shaft mounted in and supported by said cross-bar, and a pinion secured to said screw in mesh with said gears, substantially as specified.

5. In a machine for straightening shafts, in combination, a fixed base, pairs of obliquely-set draft-rolls mounted thereon, and vertically-adjustable pairs of oblique upper draft-rolls, a counter-shaft mounted in adjustable bearings, sprocket-wheels secured respectively to the said shaft and to the lower draft-rolls, sprocket-chains, a main driving shaft, a cylindrical sleeve in which the latter shaft is eccentrically mounted, means for locking said sleeve to the base, and suitable connections between the two shafts, substantially as specified.

6. In a machine for straightening shafts, in combination, the base, obliquely-set pairs of lower draft-rolls mounted thereon, vertical standards, cross-heads, each consisting of two plates bolted together and having in their proximate faces, near their ends, vertical grooves which embrace the standards, and, between their ends, recesses for the reception of an upper pair of draft-rolls, pairs of draft-rolls mounted in said plates extending into said recesses, and means for vertically adjusting said cross-heads, substantially as specified.

7. In a machine for straightening shafts, the combination of a base, a housing fixed obliquely thereon and composed of two similarly-shaped sections *c c*, each of which has an inwardly-offset boss c^3 surrounding one of the bearings of the roll-shafts, with two draft-roll shafts mounted in bearings in said housing sections, a draft-roll, and a rigidly-connected sprocket-wheel upon each of said shafts, the hubs of said rolls being adjacent to one of said inwardly-projecting bosses c^3, and the sprocket-wheels being at the opposite ends of said rolls, substantially as specified.

8. In a machine for straightening shafts, a draft-roll housing consisting of two sections of the same size and shape, each having on its inner face an inwardly-offset boss c^3, substantially as specified.

9. In a machine for straightening shafts, a draft-roll housing consisting of two sections of the same size and shape each consisting of a horizontal base and a vertical flange on the inner edge of said base, which flange has the sector-shaped upward extension c^4, and is also offset inward and provided on this inward offset with the boss c^3, substantially as specified.

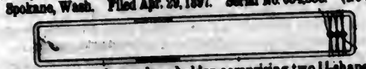
10. In a machine for straightening shafts, in combination, straightening devices comprising upper and lower pairs of obliquely set draft-rolls, an operating-shaft, mechanism for transmitting motion therefrom to the lower draft-rolls, an adjustable carriage having a bearing for said shaft and in which it may slide, a pair of obliquely-set draft-rolls mounted upon the carriage, and mechanism for transmitting motion from the shaft to said draft-rolls, whereby the end of the shaft being straightened is supported and its longitudinal movement is assisted, substantially as specified.

11. A wheel-carriage for supporting a shaft which is being straightened in a fixed straightening-machine, consisting of two side plates, a cross-bar extending between and secured to said plates and having a bearing for a shaft, a housing connecting the upper ends of said plates, a pair of oblique draft-rolls mounted in said housing, sprocket-wheels secured to said rolls, a rotating shaft loosely mounted in said cross-bar and adapted to slide through the same, two sprocket-wheels secured upon said shaft by a spline and groove, and sprocket-chains connecting the upper and lower sprocket-wheels, substantially as specified.

12. In a machine for straightening shafts, in combination, a base, one set of lower draft-rolls arranged in pairs and mounted obliquely upon said base, a set of vertically-adjustable upper draft-rolls arranged

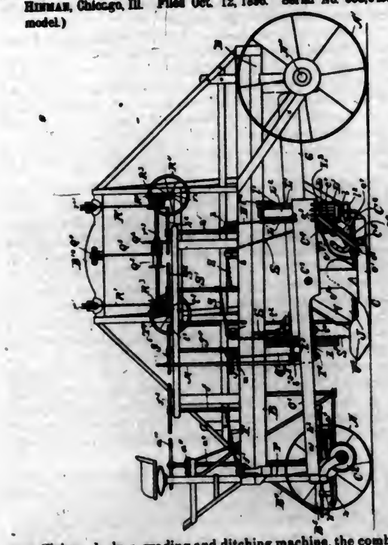
obliquely and in pairs, movable carriages on both sides of the base, obliquely-placed pairs of draft-rolls mounted on said carriages, a shaft mounted in the base and extended on both sides thereof, bearings carried by the carriages which support said shaft, whereby the carriages may be moved toward and from the base without changing their operative relation to said shaft, and mechanism for transmitting motion from this shaft to the lower pairs of draft-rolls on the base and to the draft-rolls on the carriages, substantially as specified.

606,215. CROCHET OR LACE HOLDER. WILLIAM O. HILL, Spokane, Wash. Filed Apr. 29, 1897. Serial No. 634,358. (No model.)



Claim.—A crochet or lace holder comprising two U-shaped, end-joined and separable rod-frames, each having two side limbs the outer edges of which encompass a uniform transverse width or space, for practically the entire length of the holder, thereby permitting a maximum length of uniformly-wide lace to be produced on the holder and afterward easily removed therefrom; one frame having end dowel-pins and the other frame having end recesses receiving said pins, substantially as described.

606,216. GRADING AND DITCHING MACHINE. CLEMENT F. HINMAN, Chicago, Ill. Filed Oct. 12, 1896. Serial No. 608,643. (No model.)



Claim.—1. In a grading and ditching machine, the combination, of the main supporting-frame, the plow at one side thereof, the carrier extending transversely from the plow to a point beyond the opposite side of the frame, the front ground-wheels, the rear ground-wheel on the delivery side, in the line of the preceding front wheel, and the rear ground-wheel on the plow side running outside of the line of its preceding front wheel, substantially as set forth.

2. In a grading and ditching machine, the combination, of the main frame, the plow at one side thereof, the carrier arranged transversely of the main frame and extending from the plow side to points beyond the opposite side, the rear wheel running in the line of the plow, the preceding front wheel running inside of the line of the plow, the second rear ground-wheel, and the preceding front wheel in line with the last-said rear wheel, substantially as set forth.

3. In a grading and ditching machine, the combination of the main frame, the rear axle, the rear ground-wheels, substantially equidistant from the central vertical plane of the frame, the plow at one side of the frame, the elevator extending from the plow side transversely to points beyond the opposite side, the front axle, a front ground-wheel thereon relatively near the said central vertical plane of the frame, and a second front wheel on said axle relatively farther from the frame, substantially as set forth.

4. In a grading and ditching machine, the combination of the main supporting-frame, the rear wheels, the front wheels, the axle for the front wheels pivotally connected to the main frame, the draft devices, and means independent of the draft devices for adjusting the axle relatively to the main frame, the plow connected to the main frame, and the carrier for receiving and transporting the earth from the plow, substantially as set forth.

5. In a grading and ditching machine, the combination of the main frame, the plow connected thereto, the earth-carrier, the rear ground-wheels, the front wheels, the axle for the front wheels, the draft devices, devices independent of the draft mechanism for adjusting the line of the front axle relatively to the longitudinal lines of the machine, and means accessible to the operator for actuating said adjusting devices, substantially as set forth.

6. In a grading and ditching machine, the combination of the main frame, the plow secured thereto, the earth-carrier, the rear ground-wheels, the draft devices, the front ground-wheels, the support for the last-said wheels, and means for moving one of the wheels to a transverse line in front of the transverse lies of the other independently of the draft devices, substantially as set forth.

7. In a grading and ditching machine, the combination of the main frame, the plow secured thereto, the earth-carrier, the rear ground-wheels, the front ground-wheels, the support for the front wheels, the draft devices adapted to be turned laterally relative to the main frame, and means for moving one of the front ground-wheels to a transverse line in advance of the transverse line of the other, independently of the draft devices, substantially as set forth.

8. In a grading and ditching machine, the combination of the main frame, the plow secured thereto, the earth-carrier, the rear ground-wheels, the front ground-wheels, the tongue, the frame hinged to the tongue and pivotally connected to the main frame, and means for moving one of the front ground-wheels to a transverse line in advance of the transverse line of the other, and turning both to positions inclined to the longitudinal lines of the machine, independently of the tongue, substantially as set forth.

9. In a grading and ditching machine, the combination of the main frame, the plow secured thereto, the earth-carrier, the rear ground-wheels, the tongue, the laterally-vibratable frame hinged to the tongue, the ring-like connecting device interposed between the main frame and the vibrating frame and loosely connected to the latter, the front ground-wheels and the vibrating front axle between the ring-like connecting device and the vibrating tongue-frame, substantially as set forth.

10. In a grading and ditching machine, the combination of the main frame, the plow secured thereto, the earth-carrier, the rear ground wheels, the draft devices, connected to the main frame, the front ground-wheels, the front axle, vibratable relatively to the main frame independently of the draft devices, one or more chains connected to the axle near its ends, means supported on the main frame for winding and unwinding said chain or chains, substantially as set forth.

11. In a grading and ditching machine, the combination of the wheeled supporting-frame, the plow-beam connected thereto, the plow pivoted to the beam and the yielding lock or holder permanently secured to the beam and adapted to prevent the plow from turning on said pivot until it meets with predetermined resistance, substantially as set forth.

12. In a grading and ditching machine, the combination of the wheeled frame, the plow-beam connected thereto and supported thereby, the plow pivoted to the said beam, a yielding lock or holder for the plow, supported on a pivot or a hinge, and a spring for preventing said holder from yielding until the plow exerts a predetermined pressure backward, substantially as set forth.

13. In a grading and ditching machine, the combination of the wheeled frame, the plow-beam secured thereto, the plow connected to said beam and adapted to move backward and upward to escape from the ground, a yielding lock or holder to retain the plow in operative position under ordinary pressure, and a spring for retaining said holder in its locking position and adapted to yield when the plow meets excessive resistance, substantially as set forth.

14. In a grading and ditching machine, the combination of the wheeled frame, the plow-beam connected thereto, the plow connected to the beam and adapted to move backward relatively thereto, and the toggle-like bars pivotally connected to the plow and adapted to be arranged to approximately positively lock the plow in operative position, substantially as set forth.

15. In a grading and ditching machine, the combination of the wheeled supporting-frame, the plow-beam connected thereto, the plow pivoted to the beam, the toggle-bars pivoted together and one pivoted to the beam and the other to the plow, and one or more springs connected to the toggle-bars and arranged to exert a tension upon both, across the plane of their axis of union, substantially as set forth.

16. In a grading and ditching machine, the combination of the wheeled supporting-frame, a push-beam hinged on a horizontal axis near the rear end of the supporting-frame, a plow-beam supplemental thereto, means for flexibly connecting the plow beam to the push-beam, and means for adjusting the plow-beam independently of the push-beam, substantially as set forth.

17. The combination, in a ditching and grading machine, of the wheeled supporting-frame, the plow-beam, means for suspending the plow-beam from the main frame, and a push-beam hinged on a horizontal axis near the rear end of the main frame and adapted to rise and fall independently of the plow-beam, and means for flexibly connecting the push-beam to the plow-beam, substantially as set forth.

18. In a grading and ditching machine, the combination of the wheeled supporting-frame, the push-beam supported by a hinge near the rear end of the main frame and extending forward therefrom, the plow-beam supplemental to the push-beam, and adapted to be moved or adjusted independently thereof, and means for connecting the push-beam and the plow-beam, substantially as set forth.

19. In a grading and ditching machine, the combination of the wheeled supporting-frame, the push-beam hinged on an axis near the rear end of the main frame and extending forward therefrom, the plow-beam supplemental to the push-beam, and movable independently thereof and normally substantially parallel thereto, and means for connecting the push-beam to the plow-beam, substantially as set forth.

20. In a grading and ditching machine, the combination of the wheeled supporting-frame, the push-beam hinged on an axis near the rear end of the main frame, the plow-beam supplemental to the push-beam and connected thereto and movable independently thereof, and means for adjusting the plow-beam laterally toward and from the push-beam, substantially as set forth.

21. The combination, in a grading and ditching machine, of the wheeled supporting-frame, the plow-beam, having an inward-extending arm, a rod as at I^3 for imparting motion to the plow-beam, the aforesaid inwardly-extending arm being connected to the said rod and adapted to move vertically relatively thereto, and devices on the main frame for lifting the plow-beam, substantially as set forth.

22. In a grading and ditching machine, the combination of the wheeled supporting-frame, the plow-beam, means for suspending the plow-beam from the main frame, a vibratable bar or bars I^7 connected to the main frame, devices extending to the operator's platform for vibrating the said bar, and an arm as at i connecting said bar with the plow-beam, whereby the operator can move the plow bodily out or in relatively to the main frame, substantially as set forth.

23. In a grading and ditching machine, the combination of the wheeled supporting-frame, the plow-beam, having its ends adjustable vertically, and movable laterally relatively to the main frame, the geared plates as at I^4, I^5, the swinging arm or arms I, I^7 connected to and actuated by said geared plates, whereby they can be adjusted laterally transversely of the frame, and means connecting the said bar or bars with the plow beam, substantially as set forth.

24. The combination of the wheeled transporting-frame, the plow-beam connected thereto and vertically adjustable at its ends, the laterally-adjustable power transmitting pin or rod, as at I^9, the arm connected to the plow-beam and extended inward therefrom and loosely connected to the said power-transmitting rod I^9, and the spring bearing against the inward-extending arm on the plow-beam, substantially as set forth.

25. The combination of the wheeled supporting-frame, the plow-beam connected to said frame and adjustable vertically thereon, and adapted to be rocked or tilted around longitudinal lines, a power-transmitting device connecting the plow-beam and the main frame and a spring interposed between the plow-beam and the draft-transmitting devices adapted to permit the beam and plow to rock as aforesaid, substantially as set forth.

26. The combination of the wheeled supporting-frame, the plow-beam vertically adjustable on the frame, the laterally-adjustable power-transmitting devices connecting the plow-beam to the main frame, whereby the beam may be held on lines farther from or nearer to the longitudinal center of the frame and the spring carried by said power-transmitting devices, and bearing against the plow-beam, substantially as set forth.

27. In a grading and ditching machine, the combination of the wheeled supporting-frame, the plow-beam, the push-beam, hinged at its rear end near the rear end of the main frame, and extending forward from its hinge, means for adjusting the plow-beam vertically independently of the push-beam, and a laterally-adjustable power-transmitting device connecting the push-beam with the plow-beam, substantially as set forth.

28. In a grading and ditching machine, the combination of the wheeled supporting-frame, the plow, the plow-beam flexibly supported from the main frame, and a bar or arm extending upward from the beam, by which the operator can rock or tilt the plow around longitudinal axes, while the machine is advancing, substantially as set forth.

29. In a grading and ditching machine, the combination of the wheeled supporting-frame, the plow-beam, means for adjusting the plow-beam vertically, said plow-beam being adapted to move at its rear end laterally toward and from the longitudinal center of the main frame, and a yielding holder for the plow-beam adapted to prevent such lateral movement until a predetermined pressure, laterally, has been reached, substantially as set forth.

30. In a grading and ditching machine, the combination of the wheeled supporting-frame, the vertically-adjustable plow-beam adapted to move laterally out and in relatively to the main frame, and a yielding holder for the plow-beam adapted to resist to a limited extent its lateral movements and arranged to exert a draft on the plow-beam at points relatively near the bottom of the plow, substantially as set forth.

31. In a grading and ditching machine, the combination of a wheeled supporting-frame, a vertically and laterally adjustable plow-beam, and a two-part holder for the beam adapted to resist its lateral movement, one member thereof being secured to the beam, and one connected independently thereof to the main frame, and a spring arranged to resist the yielding of the said holder under the lateral pressure of the beam, substantially as set forth.

32. In a grading and ditching machine, the combination of the main supporting-frame, the plow-beam flexibly connected to the main frame and adapted to have its rear end swing laterally relatively thereto, and a two-part holder for the beam to resist its lateral movement, one member being connected to the main frame, and the other connected to the plow, and one of said members adapted to move vertically relatively to the other, substantially as set forth.

33. The combination of the main supporting-frame, the plow-beam, connected thereto and vertically adjustable thereon, a holding-bar L' adapted to bear inward against the lateral movement of the plow, and a spring for retaining said holding-bar in normal position, substantially as set forth.

34. In a grading and ditching machine, the combination of the main supporting frame, the plow-beam connected thereto and vertically adjustable thereon, a bar or plate L carried by the plow-beam, a roller or abutment l bearing against said bar L and a yielding carrier for said abutment connected to the main frame, substantially as set forth.

35. In a grading and ditching machine, the combination of the main supporting-frame, the plow-beam connected thereto and vertically adjustable thereon and adapted to yield laterally at its rear end, and a spring interposed between the plow-beam and the main frame, and arranged to resist the lateral movement of the plow-beam until a predetermined lateral pressure thereon has been reached, substantially as set forth.

36. The combination of the main supporting-frame, the plow-beam vertically adjustable thereon and adapted to have its rear end swing laterally relatively thereto and also adapted to be tilted or rocked on longitudinal axes through the plow, a spring interposed between the plow-beam and the main frame to resist the said tilting or rocking, and a spring interposed between the beam and the main frame to resist the lateral movement of the beam, substantially as set forth.

37. The combination of the main supporting-frame, the plow-beam vertically adjustable thereon and adapted to move laterally relatively thereto, a bar or plate L secured to the plow-beam, a roller or abutment l^2 bearing against one side of said bar, and a roller or abutment l bearing against the opposite side thereof, both of said rollers being connected to the main frame and supported thereby, and one of them being adapted to yield laterally when a predetermined pressure has been reached, substantially as set forth.

38. The combination of the main supporting-frame, the plow-beam secured thereto and vertically adjustable thereon and adapted to move out and in at its rear end relatively thereto, a roller or abutment l^3, arranged to receive the inward lateral pressure of the plow, a roller or abutment l, arranged to receive the outward lateral pressure of the plow, and a spring arranged to hold the roller or abutment l in normal position until a predetermined outward lateral pressure has been reached, substantially as set forth.

39. The combination of the main supporting-frame, a rising-and-falling power beam or bar connected to the main frame, a plow-beam supplemental thereto and adapted to have its rear end rise and fall independently thereof, a vertically-yielding holder interposed between the plow-beam and the power-beam, and a laterally-yielding holder interposed between said beams, substantially as set forth.

40. The combination of the main supporting-frame, the rising-and-falling power beam or bar connected to the main frame, the plow-beam supplemental thereto and adapted to rise and fall and move laterally relatively thereto, and a two-part holder adapted to resist the lateral movement of the plow-beam, one member thereof being secured to and moving vertically with the power-beam, and the other member being secured to and moving vertically with the plow-beam, substantially as set forth.

41. In a grading and ditching machine, the combination of the main supporting-frame, the plow-beam supported thereon and vertically adjustable, and adapted to be tilted or rocked around longitudinal axes, a lever or bar secured to the plow-beam and extending upward above or toward the main frame, means for locking the lever in either of several positions, and a holder for the plow against lateral displacement situated relatively low and in the longitudinal lines of the plow, substantially as set forth.

42. In a grading and ditching machine, the combination of the main supporting-frame, the vertically-adjustable plow-beam supported from the frame and carrying the plow, said beam and plow being adapted to tilt or rock around longitudinal axes, means on the main frame for lifting the rear end of the plow, means on the main frame for lifting the front end of the plow independently of the rear end, and a lever or bar secured to and extending upward from the plow for effecting the tilting or rocking thereof while it is in operation, substantially as set forth.

43. In a grading and ditching machine, the combination of the main supporting-frame, the plow connected thereto, and adapted to rise and fall independently thereof, and a lever or bar connected to and extending upward from the plow-beam and rising and falling therewith and adapted to rock or tilt the plow relative to the frame, substantially as set forth.

44. In a grading and ditching machine, the combination of the main supporting-frame, the plow-beam, a platform or operator's support on the main frame, devices accessible to the operator while on said platform for tilting and rocking the plow while in motion, devices on the main frame for adjusting the rear end of the plow-beam vertically, and devices on the main frame for adjusting the front end of the plow vertically, independently of the rear end, substantially as set forth.

45. In a grading and ditching machine, the combination of the main supporting-frame, the plow-beam adjustable both vertically and laterally, bodily, relatively to the main frame, means for raising and lowering the plow-beam, means for moving it bodily laterally, and means accessible from above the main frame for tilting or rocking the plow on longitudinal axes while in operation, substantially as set forth.

46. In a grading and ditching machine, the combination of the main supporting-frame, the plow-beam supported thereby, lateral adjusting devices for moving the plow-beam bodily out and in relatively to the main frame, and devices independent of the said lateral adjusting devices for tilting or rocking the plow around longitudinal axes while in operation, substantially as set forth.

47. The combination of the main supporting-frame, the plow-beam adapted to rise and fall relative to the main frame and supported thereon, and the tilting lever or bar M rigidly secured to the plow-beam and extending upward to be accessible from above the main frame, substantially as set forth.

48. In a grading and ditching machine, the combination of the main supporting-frame, the plow and the carrier having a roller at the receiving end, and a roller at the delivery end, means for adjusting one of said rollers for tightening the belt, and means for moving the outer roller to either of several positions to vary the points of delivery and to elongate the load-supporting part of the belt, substantially as set forth.

49. In a grading and ditching machine, the combination of the main supporting-frame, the plow, and the carrier having a frame, an inner roller at the receiving end of the carrier, adjustable on said frame, and a roller at the outer or delivery end of said carrier, and means for moving the said outer roller to either of several distances, and a belt having two outwardly-moving portions, whereby slack is provided for elongating the load-carrying part of the belt, substantially as set forth.

50. In a grading and ditching machine, the combination of the main frame, the plow, and the carrier having an endless belt arranged to have an outward-movement load-carrying portion, and a second outward-moving, inactive portion, rollers beneath the belt at the receiving end thereof, a roller beneath the belt at the delivery end thereof, and a longitudinally-adjustable support for the last-said roll at the delivery end, substantially as set forth.

51. The combination with the main frame and the plow, of the carrier having an endless belt arranged to provide a load-carrying portion supported on one or more rollers at the receiving end and one or more rollers at the delivering end, and an inactive portion traveling continuously parallel to the load-carrying portion, an adjustable support for the roller or rollers beneath the delivery end of the load-carrying portion, and an adjustable support for the inactive portion of the belt, whereby the load-carrying portion can be elongated, and the inactive portion shortened, substantially as set forth.

52. The combination with the main frame, and the plow, of the carrier-belt having a load-carrying portion and an inactive portion, the roller under the active portion of the belt at its receiving end, the roller under the active portion at its delivery end, one or more outwardly-movable rollers for supporting the inactive portion of the belt, and means for moving outward the roller beneath the outer end of the active portion of the belt, substantially as set forth.

53. The combination with the main frame and the plow, of the carrier having the endless belt with the active portion *j* and the inactive portion *j'*, of the rollers beneath the receiving end of the active portion, the outward movable roller under the delivery end of the active portion, a support for the inactive portion, and a driving-roller engaging with the inactive portion of the belt, substantially as set forth.

54. The combination with the main frame and the plow, of the carrier-belt having the active portion *j* and the inactive portion *j'*, the roller beneath the receiving end of the active portion, the outwardly-movable roller beneath the active portion at its delivery end, the outwardly-moving roller at the inner end of the inactive portion, and the stationary roller at the outer end of the inactive portion, substantially as set forth.

55. The combination with the main frame and the plow, of the carrier-belt having the active portion *j* and the inactive portion *j'*, the support for the inner or receiving end of the active portion, the outwardly-movable support for the delivery end of the active portion, the outwardly-movable support for the inner end of the inactive portion, the stationary roller for the outer end of the inactive portion, and means for transmitting power to the last-said roller, substantially as set forth.

56. The combination with the main supporting-frame and the plow, of a carrier-belt, a roller beneath the active or load-carrying portion of the belt, a roller beneath the outer or delivery end of the active portion, and one or more intermediate rollers movable outwardly simultaneously with the said outermost roller but with different speeds, substantially as set forth.

57. The combination with the main frame and the plow, of the carrier-belt adapted to have its active or load-carrying portion varying the position of the outer delivery end of the belt and elongated, a series of two or more relatively stationary rollers beneath the inner or receiving part of the active portion of the belt, a series of two or more rollers beneath the outer or delivery portion of the belt which are movable in relation to the first aforesaid series but are stationary relatively to each other, and a third series of intermediate rollers which are movable beneath the belt relatively to both the aforesaid series of rollers, substantially as set forth.

58. The combination with the main frame and the plow, of the carrier-belt having an active or load-carrying portion and an inactive portion, and means for varying the position of the outer delivery end of the belt and elongating the active portion of the belt without varying the tension between its receiving end and its delivery end, substantially as set forth.

59. The combination with the main frame and the plow, of the carrier having a bearing on or against the main frame, between the ends of the carrier, and provided with a carrying-belt, a roller or support for the outer end of the active or load-carrying portion of the belt, means for moving the said roller outward relatively to the aforesaid bearing, and a supplemental support for an inactive portion of the belt, substantially as set forth.

60. The combination with the main frame and the plow, of the carrier having a vertically-adjustable bearing upon or against the main frame and provided with a belt with an inactive portion and an active or load-carrying portion, situated partly inside of said bearing and partly outside thereof, a roller or support for the outer or delivery end of the active portion of the belt, and means for moving the said roller or support outward and inward relatively to the said bearing to lengthen or shorten the active portion of the belt, and simultaneously shorten or lengthen the inactive portion, substantially as set forth.

61. The combination with the main frame and the plow, of the carrier-belt and the supporting-frame for said belt having a main section, provided with a series of rollers, and a second section movable relatively to the first, and provided with a second series of rollers, and supporting devices interposed between the rollers of the second series and the main frame, and supplemental to the first frame-section, substantially as set forth.

62. In a grading and ditching machine, the combination with the main frame and the plow, of the carrier having an endless belt adapted to have its active or load-carrying portion elongated, and a supporting-frame for the said belt having a main section, a series of belt-supporting rollers on said main section, a supplemental frame-section adapted to move longitudinally of the main section and to be passed across the vertical planes of the rollers on the main section, and a second roller or series of rollers mounted on said supplemental section, substantially as set forth.

63. The combination with the main frame and the plow, of the carrier having an endless belt, a frame for the carrier formed with a main section, a roller or series of rollers supported on said main section, and a supplemental frame-section supported on and movable longitudinally of the main section and arranged to move across the vertical planes of the roller or rollers on the main section, and means independent of the main section for supporting the supplemental section from the main frame, substantially as set forth.

64. The combination with the main frame, and the plow, of the carrier having a main section, with a roller or series of rollers thereon, means for adjusting said main section vertically, a supplemental frame-section supported on and movable longitudinally of the main section and arranged to travel across the vertical planes of the roller or rollers on the main section, and means on the supplemental frame-section and movable therewith for supporting the belt, substantially as set forth.

65. The combination with the main frame and the plow, of the carrier having an endless belt, a carrier-frame having a main section, a roller or rollers on the main section to support the belt, a supplemental frame-section movable longitudinally of the main section, and one or more belt-supporting rollers on the supplemental section movable relatively to both frame-sections, substantially as set forth.

66. The combination with the main frame, and the plow, of the carrier having a traveling belt or load-supporting device, a carrier-frame having a main section, means thereon for supporting the belt, a supplemental frame-section movable longitudinally of the main section, belt-supporting devices on the supplemental frame-section, and means connected to the main frame, independently of the main carrier-frame section, for sustaining the belt-supporting devices on the supplemental frame-section, substantially as set forth.

67. The combination with the main frame, and the plow, of the carrier having a traveling belt or load-supporting device, a main carrier-frame section, a supplemental frame-section movable longitudinally of the main section, a series of belt-supporting devices on the supplemental carrier-frame section movable longitudinally thereof, and means for automatically separating and drawing together the said belt-supporting devices, substantially as set forth.

68. The combination with the main frame, and the plow, of a carrier having an endless belt arranged to provide an active or load-carrying portion, *j*, and an inactive portion, as at *j'*, a main carrier-frame section, a supplemental carrier-frame section movable longitudinally of the main section, and a support for the inactive portion of the belt mounted upon and traveling with the said supplemental frame-section, substantially as set forth.

69. The combination with the main frame, and the plow, of the carrier-belt, and a frame or support for the belt having an inner or main section and an outer section at the delivery end of the belt which is adjustable longitudinally on and vertically independently of the inner section, substantially as set forth.

70. The combination with the main frame, and the plow, of the carrier-belt, the frame or support therefor having a main or inner section, a series of rollers thereon, a supplemental section between the plow and the main section and movable relatively thereto, and a third section at the delivery end of the belt adjustable vertically relatively to the main section, substantially as set forth.

71. The combination with the main frame, and the plow, of the carrier-belt, the frame or support therefor having a main section, a supplemental section between the plow and the main section and movable relatively thereto, and a third section at the delivery end of the belt which is movable both longitudinally and vertically relatively to the main section, substantially as set forth.

72. The combination with the main frame, and the plow, of the carrier frame or support having a main section, means for supporting said section at its outer end from the main frame, means for supporting it at its inner end from the main frame, a supplemental frame-section movable across the vertical planes of the connection of the supporting devices with the outer end of the main section and the single carrier-belt extended continuously around said main section and said supplemental section, substantially as set forth.

73. The combination with the main frame, and the plow, of the carrier-belt, the frame or support therefor having the main or inner section supported from the main frame, and an outer section for the delivery end of the belt movable toward and from the main frame, supplemental devices for supporting said outer movable section from the main frame, and means for holding the belt uniformly taut, independently of the position of the outer end thereof, substantially as set forth.

74. The combination with the main frame, and the plow, of the carrier-belt, and the frame or support therefor having a main section provided with a bearing on or against the main frame on a transverse line between the ends of said main section, a supplemental frame-section for the delivery end of the belt movable outwardly from and toward the said bearing, and means for holding the belt uniformly taut independently of the position of the supplemental frame-section, substantially as set forth.

75. The combination with the main frame, and the plow, of the carrier-belt, and the frame therefor having the main section provided with a bearing on or against the main frame, means for vertically supporting said section at points inside of said bearing, means for supporting said section from the main frame at points outside of said bearing, and a supplemental frame-section adjustable longitudinally of the main section and movable across the vertical plane of the aforesaid supporting devices outside of said bearing, substantially as set forth.

76. The combination with the main frame, and the plow, of the carrier-belt having a roller or support for the receiving part adjacent to the plow, and a roller or support at the place of delivery, means for adjusting the distance between the said rollers or supports to vary the tension of the belt, and means supplemental to those aforesaid for varying the distance between the said rollers or supports to elongate or shorten the active or load-carrying portion of the belt, substantially as set forth.

77. The combination with the main frame, and the plow, of the carrier-belt, and the frame or support therefor having a main section, a supplemental or second section adapted to move longitudinally of the main section, and a third section at the delivery end of the belt movably longitudinally of the main section, and vertically adjustable relatively to both the first and the second sections, substantially as set forth.

78. The combination with the main frame, and the plow, of the carrier-belt, and the frame or support therefor having a main section, and a supplemental section movable longitudinally of the main section, and one or more belt-supporting rollers on the supplemental section, devices for automatically adjusting said rollers to differing distances from each other, and means for moving the supplemental frame-section and connected to the roller-adjusting devices, substantially as set forth.

79. The combination with the main frame and the plow, of the carrier-belt, and the frame or support therefor having a main section, a supplemental frame-section movable longitudinally of the main section, a series of two or more belt-supporting rollers on the supplemental section, and a system of lazy-tong levers connected to the said rollers for moving or spacing them when the supplemental frame-section is moving, substantially as set forth.

80. The combination with the main frame, and the plow, of the carrier-belt, and the frame or support therefor having a roller for the receiving part of the belt adjacent to the plow and a roller at the delivery part of the belt, means for increasing the distance between the two said rollers, a series of two or more belt-supporting rollers between the two aforesaid, and a system of lazy-tong levers connected to the rollers of the said series and adapted to move or space them when the distance between the extreme rollers is being varied, substantially as set forth.

81. The combination with the main frame, and the plow, of the carrier, the frame or support therefor having a bearing on or against the main frame and extended to points outside of the said bearing, a lever, as at *v*, bearing against the main frame at points inside of the aforesaid bearing of the carrier-frame, means connecting the said lever to that part of the carrier-frame outside of the said bearing, and adjustable draft devices connecting the upper end of said lever to the main frame, substantially as set forth.

82. The combination with the main frame, and the plow, of the carrier-belt, the frame or support therefor having a bearing upon or against the main frame, and extending to points outside of said bearing, a lever or bar, as at *v*, arranged to bear upon the main frame at points inside of the aforesaid bearing of the carrier-frame, a connection, *u*, between said lever or bar and the outwardly-projecting part of the carrier-frame, and draft devices on the main frame connected to said lever or bar, substantially as set forth.

83. The combination with the main frame, and the plow, of the carrier-belt, the frame or support therefor having a thrust-bearing upon or against the main frame, a lever or bar arranged to have a thrust upon the main frame at points inside of the aforesaid bearing, outwardly-adjustable connecting devices for joining said lever or bar to that part of the carrier-frame which projects outward from the said bearing, and draft devices connecting the said lever or bar to the main frame, substantially as set forth.

84. The combination with the main frame, and the plow, of the carrier-belt, a frame or support therefor, a series of belt-supporting rollers, devices for moving one end of one or more of the rollers for increasing the tension of one side of the belt independently of the other side, and means extending to the operator's platform on the main frame for moving said adjusting devices, substantially as set forth.

85. The combination with the main frame, and the plow, of the carrier-belt, the frame or support therefor, the series of belt-supporting rollers on said frame, means controllable from the main frame and at one side of the elevator-belt for moving the end or ends of one or more of the rollers at that side of the belt, to vary the tension of said side independently of the other, and a supplemental set of devices controllable from the main frame at the opposite side of the belt for moving one end of a roller or rollers independently of the opposite end, substantially as set forth.

86. The combination with the main frame and the platform, of the elevator-belt having an active or load-carrying portion and a surplus inactive portion, a frame formed in two parts, of which one is adapted to be moved longitudinally of the other, means controllable by the operator from the main frame for positively moving the movable part in one direction to elongate the active portion of the belt, and also positively moving it in the opposite direction to shorten said active portion and means for adjusting vertically the entire elevator bodily, substantially as set forth.

87. The combination with the main frame, and the plow, of the carrier-belt, and the frame therefor, formed in two sections of which one is movable longitudinally of the other, the chain connected to the movable section, the rotary chain-driving device mounted on the other section, and means for actuating said chain-driving device, substantially as set forth.

88. The combination with the main frame, and the plow, of the carrier-belt, the carrier frame or support having a main section adjacent to the main frame, and an outer section at the delivery part of the carrier-belt and movable from and toward the main frame, a carrier-belt extending longitudinally, continuously around both the inner section and the outer movable section and a driving drum or wheel engaging with the belt and mounted on the inner frame-section substantially as set forth.

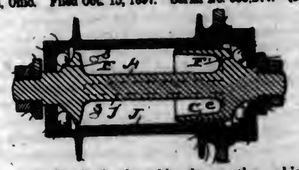
89. In a grading and ditching machine, the combination with the plow, and the main frame, of the carrier having an endless belt, a vertically-adjustable driving-drum engaging with the belt, a roller, a vertically-adjustable roller adjacent to the driving-drum, means extending to the operator's platform for adjusting said roller vertically, whereby the tightness and extent of the belt upon the drum can be varied and a vertically-movable support for the adjusting devices substantially as set forth.

90. In a grading and ditching machine, the combination of the main frame, the plow, the longitudinally-extensible elevator having its lower end supported on a roller which is inclined to the path of the plow, and an earth-guide or moldboard vertically adjustable independently of the plow and arranged in the angle between said plow and said roller, substantially as set forth.

91. In a ditching and grading machine, the combination of the main frame, the draft devices, means independent of the draft devices for guiding the main frame, the plow, the rear wheels of which one is in the line of the plow, and the front wheels of which one is arranged to be turned toward or from the unplowed land, substantially as set forth.

92. In a ditching and grading machine, the combination of the main frame, the plow, the carrier, the scraper arranged below the operative surface of the return part of the carrier near its end, and yielding devices for supporting the scraper, substantially as set forth.

606,217. BACK-PEDALING BRAKE. LOUIS B. HOFFMAN, Cleveland, Ohio. Filed Oct. 15, 1897. Serial No. 655,277. (No model.)



Claim.—1. In a brake for a bicycle, or other vehicle, in combination, a sprocket or other driving wheel, a hub to be driven, a stationary braking member within the hub, a movable braking member within the hub and normally loosely surrounding the stationary member, said movable member revolving with the hub and adapted to be forced toward the axis of the hub and thus into contact with the stationary member, and cooperating engaging cam-surfaces on the movable braking member and driving-wheel, whereby the forward rotation of the driving-wheel revolves said revolving member without forcing it inward, and backward movement of the driving-wheel relative to the hub forces said revolving member inward and into contact with the stationary member, substantially as described.

2. In a brake for a bicycle or other vehicle, a hub to be driven, a sprocket or other driving wheel, a split sleeve, lugs thereon, a limited cam engagement between said lugs and wheel, whereby the forward movement of said wheel causes a forward circular movement of said lugs and a movement of said wheel rearward with respect to said hub causes an inward movement of said lugs, and a stationary member with which said sleeve is adapted to contact when said lugs are moved inward, substantially as described.

3. In a bicycle-brake, in combination, a hub to be driven, a split sleeve carried by the hub, lugs on said split sleeve projecting through slots in said hub, and by engaging with the walls of said slots locking said sleeve to said hub, a sprocket or other driving wheel carried by said hub and surrounding said lugs and having recesses which receive said lugs and engage therewith by a cam-surface, whereby when said driving-wheel is revolved forward it drives said lugs in a circular direction, but when revolved rearward relative to the hub it drives them inward, and a stationary member from which said sleeve is normally free but with which it is adapted to contact when said lugs are driven inward, substantially as described.

4. In a brake for a bicycle or other vehicle, in combination, a hub, a sleeve within the same, said sleeve being divided part way of its length by one or more slots extending from one end, whereby that end of the sleeve forms spring-arms which may be forced inward from their natural position, and the other end of the sleeve forms a rigid body, a stationary braking member within the sleeve, and means for forcing the spring-arms of the sleeve radially inward into contact with the stationary member, substantially as described.

5. A split sleeve for a brake, consisting of a substantially cylindrical body divided by a plurality of slots extending in a direction substantially parallel with the axis from one end, but stopping short of the other end, whereby said sleeve has a plurality of projecting spring-arms, each of said arms having a lug formed on it near its free end, substantially as described.

606,218. FILTER. WOLCOTT A. HULL, New York, N. Y. Filed May 7, 1897. Serial No. 635,510. (No model.)



Claim.—1. In a filter, the combination with a case having a detachable cover, of a block of filtering material arranged within the case, a hollow rod passing through the cover and the block of filtering material and detachably engaged with the top of the case and provided with an opening or openings for the passage of fluid and means fitted to said rod beyond the cover for turning said rod, and clamping the cover in place, substantially as specified.

2. In a filter, the combination with a case having a detachable cover, of a block of filtering material arranged within the case, a rod passing through the cover and the block of filtering material and detachably engaged with the top of the case, and means for turning said rod consisting of a handpiece detachably fitted to the rod and a hollow screw for securing said handpiece to the rod, substantially as specified.

3. In a filter, the combination with a case having a detachable cover, of a block of filtering material arranged within the case, a rod passing through the cover and the block of filtering material and detachably engaged with the top of the case, a packing arranged within said cover, a plate for holding said packing in place, and means for securing the said plate to the cover, substantially as specified.

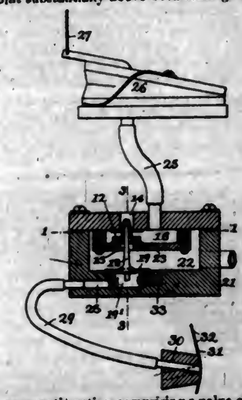
4. In a filter, the combination with a case having a detachable cover, of a block of filtering material arranged within the case, a packing arranged within said cover, a plate for holding said packing in place, means consisting of a rod passing through the cover and the block of filtering material and detachably engaged with the top of the case for securing said plate and consequently said packing in place, and means for turning said rod consisting of an end piece and a hollow screw for securing said end piece to the rod, substantially as specified.

5. In a filter, the combination of a case, a detachable cover, a packing-securing plate adjacent the cover, a block of filtering material, and a single central rod for fastening the packing-securing plate to the cover and the block of filtering material to the cover and for uniting all of these parts with the case, substantially as specified.

606,219. PNEUMATIC ACTION FOR MUSICAL INSTRUMENTS. CHARLES B. KENDALL, Boston, Mass., assignor to the American Automatic Banjo Company, of New Jersey. Filed Mar. 9, 1898. Serial No. 673,286. (No model.)

Claim.—1. In a pneumatic action comprising a valve-chamber connected by oppositely-disposed ducts to an exhaust-chest and to the atmosphere respectively, the combination of a primary, a valve

located between the ducts and provided with oppositely-disposed seating-faces therefor, and a valve-pin extending from the primary through one of the ducts, and forming a support for suspending the valve at a point substantially above both seating-faces of the valve.



2. In a pneumatic action comprising a valve-chamber connected by oppositely-disposed ducts to an exhaust-chest and to the atmosphere respectively, the combination of a primary, a valve located between the ducts and provided with oppositely-disposed seating-faces therefor, and a valve-pin pivotally supported upon the primary, and extending therefrom through one of the ducts, and forming a support for the valve at a point substantially above both seating-faces of the valve.

3. In a pneumatic action comprising a valve-chamber, connected by oppositely-disposed ducts to an exhaust-chest and to the atmosphere respectively, the combination of a primary, a valve located between the ducts and provided with oppositely-disposed seating-faces therefor, and a valve-pin pivotally mounted upon the primary and extending therefrom through one of the ducts and forming a pivotal support for suspending the valve at a point substantially above both of the respective planes of the seating-faces of the valve.

4. In a pneumatic action comprising a valve-chamber connected by oppositely-disposed ducts to an exhaust-chest and to the atmosphere respectively, the combination of a primary, a valve located between the ducts, provided with oppositely-disposed seating-faces therefor, and having a conical projection extending into one of the ducts to center the valve therewith, and a valve-pin extending from the primary through one of the ducts and forming a support for suspending the valve at a point substantially above both seating-faces of the valve.

5. In a pneumatic action, the combination of a valve, a primary therefor, and a connecting-pin having its ends seated against the valve and against the primary respectively, and a spring engaging with the valve at a plane between the ends of the connecting-pin.

6. In a pneumatic action, the combination of a valve, a primary therefor, a connecting-pin having its ends pivotally seated against the valve and the primary respectively, and a spring engaging the valve at a plane between the ends of the connecting-pin for pressing the valve toward its primary.

7. In a pneumatic action comprising a valve-chamber connected by oppositely-disposed ducts to an exhaust-chest and to the atmosphere respectively, the combination of a valve located between the ducts, a spring engaging the valve and normally pressing it upon the duct leading to the exhaust-chest, a primary for the valve and a valve-pin extending from the primary through one of the ducts and forming a pivotal support for the valve, the latter being suspended at a point above the plane of its engagement with its spring.

606,220. PICKER DEVICE FOR STRINGED MUSICAL INSTRUMENTS. CHARLES B. KENDALL and JACOB P. TIRRELL, Boston, Mass., assignors to the American Automatic Banjo Company, of New Jersey. Filed Mar. 31, 1898. Serial No. 675,955. (No model.)

Claim.—1. A guiding-cam for a picker having an aperture encircling a projection of the picker, the side walls of which are located at a suitable distance apart to allow of the desired amplitude of lateral movement of the picker, the end walls being inclined for guiding the picker at the conclusion of its stroke into the desired plane of its return movement.

2. In a stringed musical instrument, a picker arranged to vibrate in a substantially horizontal plane, a guiding-cam for the lateral vibrations of the picker, having an aperture encircling a projection of the picker, the side walls of the aperture being located at a suitable distance apart to allow of the desired amplitude of lateral vibrations, and the end walls being inclined to guide the picker at the conclusion of its longitudinal movement in each direction into the desired plane of its return movement.



3. In a stringed musical instrument, in combination with the picker thereof, a motor, and a resilient connection between the picker and the motor.

4. In a stringed musical instrument, a resiliently-supported guiding-cam for the picker.

5. In a stringed musical instrument, in combination with the picker thereof, a pivotally-mounted guiding-cam for the picker, and means for resiliently opposing the oscillations of the cam, thereby cushioning the reciprocating strokes of the picker.

606,221. ENLARGEABLE TELESCOPIC CASE OR TRAVELING-BAG. KARL KRUPPA and OSCAR LEHRER, Fort Reno, Okla. Filed Sept. 16, 1897. Serial No. 651,898. (No model.)



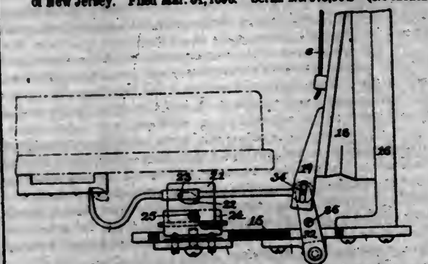
Claim.—1. In an extensible-traveling-bag section the combination of a bottom, side walls rigidly connected thereto, an extension-bottom, and extension side walls foldably connected with the extension sides and bottom and constructed and arranged to be turned down inside of the upturned bottom extension to form new end walls, when the case is diminished.

2. In a traveling-bag having duplicate sections telescoping the one into the other, a section comprising in its construction an end wall foldably connected to an extension of the bottom proper and to collapsible side extensions and constructed and arranged to be turned down inside of the upturned bottom extension to form a new end wall when the case is diminished.

3. In an extensible-traveling-bag side-wall section the combination of four triangular pieces, constructed of rigid material, bound all around with an endless metal tire or rod, covered on both sides with flexible material stitched through and through between each triangular piece where they join and form a square, and also where they join the other parts of the side wall, reinforced at the corners, and points of the triangles, substantially as described.

4. A traveling-bag handle having a slot longitudinal thereof and means secured to the bag for slidably and pivotally connecting the handle to the bag.

606,222. PICKER DEVICE FOR STRINGED MUSICAL INSTRUMENTS. WILLIAM A. LORENZ, Hartford, Conn., and CLARENCE E. DE LUE, Boston, Mass., assignors to the American Automatic Banjo Company, of New Jersey. Filed Mar. 31, 1898. Serial No. 675,964. (No model.)



Claim.—1. In a stringed musical instrument, in combination with a reciprocating and laterally-movable picker, a controller pivotally and frictionally engaging with the picker, with means for oscillating the controller during the relatively reciprocating movements of the picker, thereby moving the picker laterally.

2. In a stringed musical instrument, in combination with a reciprocating and laterally-movable picker, a guiding-cam therefor, and a controller pivotally and frictionally clamped to the picker, with means for holding other portions of the controller from following the reciprocating movements of the picker.

3. In a stringed musical instrument, in combination with a reciprocating and laterally-movable picker, a guide and controller for the lateral movements of the picker, consisting of a cam, and of a controller connected to a relatively-fixed portion of the instrument, and clamped to the picker with sufficient frictional engagement to cause the picker to follow the cam.

4. In a stringed musical instrument, a pivotally-mounted reciprocating picker, a guiding-cam therefor, and a controller connected to a relatively-fixed portion of the instrument, and frictionally attached to the picker in substantial concentricity with its pivot, whereby the frictional engagement of the relatively-fixed portion of the controller causes the picker to follow its guiding-cam.

5. In a stringed musical instrument, a pivotally-mounted reciprocating picker, a guiding cam therefor and a controller frictionally clamped to the picker concentrically with the pivot thereof, and extending therefrom substantially at right angles to the line of the reciprocation of the picker into engagement with a relatively-fixed portion of the instrument.

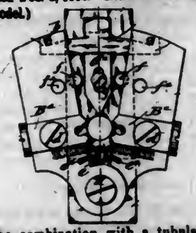
6. In combination with the picker of a stringed musical instrument, a guiding-cam therefor supported for longitudinal, lateral and angular adjustment upon a relatively-fixed portion of the instrument, whereby it may be adjusted while the instrument is in operation.

7. In combination with the picker of a stringed musical instrument, a guiding-cam therefor pivotally mounted upon a support which is fixed relatively to the picker, and provided with means for adjusting the angular position of the cam upon its pivotal support in a direction longitudinally of the movement of the picker.

8. In combination with the picker of a stringed musical instrument, a guiding-cam therefor, a pivot-screw upon which the cam is mounted, and by means of which it may be adjusted laterally to the movement of the picker, and adjusting-screws located upon opposite sides of the pivot-screw for adjusting the cam angularly upon its pivotal support in opposite directions longitudinally of the movement of the picker.

9. In combination with the picker of a stringed musical instrument, a guiding-cam therefor, a block adjustably clamped to a relatively-fixed portion of the instrument, a screw connecting the cam with the block whereby the position of the cam may be adjusted both laterally and longitudinally.

606,223. SCREW-CUTTING DIE-HEAD. KARL MISCHKE, New York, N. Y. Filed Feb. 8, 1897. Renewed Oct. 22, 1897. Serial No. 656,066. (No model.)



Claim.—1. The combination, with a tubular stock, of spring-actuated jaws pivoted to said stock, screw-cutting dies in said jaws, a spring-actuated locking-plate provided with a tubular shank whereby it is guided in said tubular stock, and a releasing device carried by said locking-plate, substantially as set forth.

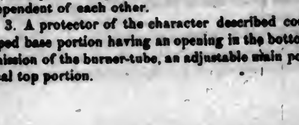
2. The combination, with a tubular stock, of spring-actuated jaws pivoted to said stock, screw-cutting dies in said jaws, a spring-actuated locking-plate located in front of said stock and provided with a tubular shank guided in said tubular stock, and a releasing device carried by said locking-plate, substantially as set forth.

3. The combination with a tubular stock, of spring-actuated jaws pivoted to said stock and provided with locking-orifices, screw-cutting dies supported by said jaws, means for guiding and stopping said jaws, a spring-cushioned locking-plate provided with a tubular shank, forwardly-projecting locking-pins carried by said locking-plate, a guard-plate carried by said locking-plate and located below the screw-cutting dies, and an adjustable releasing device carried by said locking-plate, substantially as set forth.

4. The combination with a tubular stock, of spring-actuated jaws pivoted to the same, screw-cutting dies supported by said jaws, a T-shaped guide-head for engaging the upper ends of said jaws, means for arresting the outward motion of said jaws, a spring-cushioned locking-plate having a tubular shank guided by said stock, said plate being adapted to interlock with the jaws when they are in closed position, and a longitudinally and laterally adjustable releasing device connected with the locking-plate, substantially as set forth.

5. The combination with a tubular stock having a T-shaped head, spring-actuated jaws pivoted to the lower part of the head and provided with locking orifices, a T-shaped guide-piece attached to the upper part of said head, said guide-piece engaging the upper ends of the jaws, shoulders at the outer ends of said guide-piece, engaging pins on said jaws, screw-cutting dies supported by said jaws, a spring-cushioned locking-plate provided with a tubular shank guided in the stock, having locking pins adapted to engage said locking-orifices in the jaws, and a releasing device attached to said locking-plate provided with an adjustable head, substantially as set forth.

606,224. MANTLE OR HOOD FOR WELSBACH OR OTHER INCANDESCENT LIGHTS. JULIUS MOELLER, London, England, assignor to the Welsbach Light Company, Gloucester City, N. J. Filed Dec. 1, 1896. Serial No. 614,081. (No model.) Patented in England Jan. 31, 1895, No. 2,294.



Claim.—1. An illuminant appliance for incandescent lights consisting of independent rings linked together, substantially as described.

2. An illuminant appliance for incandescent lights consisting of independent rings linked together and provided with supplemental rings, substantially as described.

3. An illuminant appliance for incandescent lights provided on its surface with projecting supplemental links adapted to become incandescent, substantially as described.

4. An illuminant appliance for an incandescent light made from fabric consisting of independent rings of thread linked together substantially as and for the purpose set forth.

606,225. GAS-BURNER. RAGLAND MORLAND, New York, N. Y., assignor to the American Lighting Company, of New Jersey. Filed July 7, 1897. Serial No. 643,700. (No model.)

Claim.—The combination of a nipple provided with converging walls terminating in an opening, a gas-mixing tube, a disk provided with a plurality of apertures, a gas-chamber between the under surface of the disk and the outer surface of the converging walls of the nipple, a projection on said disk adapted to enter the opening in the nipple, and a coupling for connecting the mixing-tube with the nipple, substantially as specified.

606,226. PROTECTOR FOR INCANDESCENT BURNERS. JOHN W. MCKINNEY, Philadelphia, Pa., assignor of three-fourths to Philip Lewin, Julius L. Lewin, Marcus Lewin, and Maurice S. Lewin, same place. Filed June 15, 1897. Serial No. 640,894. (No model.)



Claim.—1. A removable protector of the character described, consisting of independent portions, a cup-shaped base portion, an adjustable main portion, and a top or cap portion.

2. A protector of the character described, consisting of a cup-shaped base portion, an adjustable cylindrical main portion, and a cylindrical top or cap portion, and a removable top for the cap portion, said parts being removable from the burner and chimney and independent of each other.

3. A protector of the character described consisting of a cup-shaped base portion having an opening in the bottom thereof for the admission of the burner-tube, an adjustable main portion and a cylindrical top portion.

4. A protector of the character described consisting of a cup-shaped base portion having an opening in the bottom thereof, the edges of said opening and of the base portion being provided with a metallic binding, an adjustable main portion and a top portion.

5. A protector of the character described consisting of a cup-shaped base portion having an opening in the bottom thereof for the admission of the burner-tube, the edges of said opening and of the base portion having a rigid binding, a cylindrical main portion provided with rigidly-bound edges, means for adjusting the same and a top portion.

6. A protector of the character described consisting of a cup-shaped base portion having an opening in the bottom thereof for the burner-tube, the edges of said opening and of the base portion having a rigid binding, a cylindrical main portion provided with rigidly-bound edges, means for adjusting the same and a cylindrical top portion having reinforced edges.

7. A protector of the character described consisting of a cup-shaped base portion having an opening in the bottom thereof for the burner-tube, the edges of said opening and of the base portion having a rigid binding, a cylindrical main portion provided with rigidly-bound edges and with means for adjusting the same, a cylindrical top portion having reinforced edges, a removable flanged band upon the top portion and a wire disk within the band.

8. A protector of the character described consisting of a cup-shaped base portion having an opening therein for the admission of the burner-tube, the edges of said opening and of the base portion having a rigid binding, a cylindrical main portion provided with rigidly-bound edges and with means for adjusting the same, a cylindrical top portion having reinforced edges, a removable flanged band upon the top portion, and a concavo-convex wire disk removably secured within said band, all of said parts being removable from the burner and chimney and independent of each other.

606,227. CAN-LABELING MACHINE. THEODORE C. HOUSEKNECHT, JUDSON H. LAKE, and JASPER CLARK, Hudson, N. Y.; said Clark assignor to said Housknecht. Filed Jan. 12, 1895. Renewed Mar. 12, 1898. Serial No. 673,693. (No model.)



Claim.—1. In combination with the main frame having a label-holder; a mechanism for rolling the can over the label; and a device operated through said can-rolling mechanism for raising or lifting one end of the label.

2. In combination with the main frame provided with a label-holder and paste-boxes; a can-traversing mechanism; a pivoted paste-applying frame operatively connected with the can-traversing mechanism; and a device operated by the traversing mechanism to lift the end of the label.

3. In combination with the main frame, the reciprocating frame L, having the cross-bar x; the plate u; and the lever v arranged in position to be acted upon by the bar x.

4. In combination with a label-holder and mechanism for applying paste to the labels and for rolling a can over the label, the adjustable spring-scraper r, adapted to bear upon the labels near one end and to be adjusted for labels of different lengths, substantially as shown and described.

5. In a can-labeling machine, the combination with a track or way; of a can-traversing mechanism mounted upon said way or track; a second track; and a roller independent of the can-traversing mechanism, mounted upon the second track and arranged to press the label against the can.

6. In a can-labeling machine, the combination with a track or way; of a can-traversing mechanism mounted upon said way or track; a second track; a roller independent of the can-traversing mechanism, mounted upon the second track and arranged to press the label against the can; and a connection between the roller and the can-traversing mechanism.

7. In combination with a can-traversing mechanism and the tracks A'; the roller B' provided with boxes C' to fit upon the tracks; and the levers E' connected with the can-traversing mechanism and the roller-shaft.

8. In combination with a can-traversing mechanism, and the tracks A'; the roller B' provided with housings C'; the slotted levers E' connected with the can-traversing mechanism; and the springs F' to force the roller against the can.

9. In a can-labeling machine, the combination with a bed or way and a chute at the end thereof; a can-traversing mechanism mounted to travel on said way toward and from the chute; a roller to press the label against the can; and means whereby the roller is caused to press the label against the can, and to rise above the chute to clear the cans therein.

10. In a can-labeling machine, the combination with a bed; of tracks on opposite sides thereof; two can-grasping disks mounted to run directly upon the tracks; and means for moving one of said disks toward and from the other.

11. In a can-labeling machine, the combination with a bed; of tracks on opposite sides thereof, one of said tracks being cut away on its upper face, as at g; and means for moving one of said disks toward and from the other.

12. In combination with a track and a bed; a reciprocating cross-head or frame; the rigid arm R provided with disk S; the pivoted arm V provided with disk W; the spring-catch X to engage and hold the arm V; the rod Y and a stop to disengage the catch; and the cam b to act upon and rock the arm V.

13. In a can-labeling machine, the combination with a bed; of a smooth track and a rack-bar on opposite sides thereof; two can-grasping disks, one of which is toothed and the other plain, running directly upon the rack-bar and smooth track respectively; and means for moving the plain-faced disk toward and from the toothed disk.

14. In a can-labeling machine, the combination with a bed or support to receive the labels; of a pair of disks between which the can is held; devices at opposite ends of the bed for causing the disks to automatically grasp and release the cans; and means whereby the said disks are held in their open or release position during their return movement.

15. In a can-labeling machine, the combination with a bed or support to receive the labels; of a track; a pair of can-grasping disks mounted to travel upon the track; and means whereby one of said disks is tipped out of a vertical plane to release the can, and returned to position to grasp the can.

16. In a can-labeling machine, the combination with a main frame provided with paste-boxes, a label-holder, and an intermediate can-discharge orifice; of a frame pivoted to the main frame between the paste-boxes and the label-holder and provided with paste-applying blocks; said pivoted frame being arranged to swing back and forth from the paste-boxes to the labels.

17. In a can-labeling machine, the combination with a main frame provided with paste-boxes, a label-holder, and an intermediate can-discharge orifice; of a frame pivoted to the main frame and provided with paste-applying blocks, said pivoted frame being arranged to swing back and forth from the paste-boxes to the label; and a can-traversing mechanism operated by or through said pivoted frame.

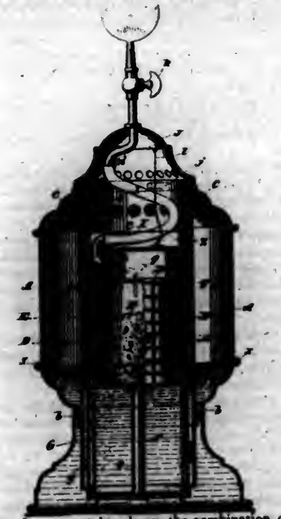
18. In a can-labeling machine, the combination with a main frame and its paste boxes, label-holder, and can-discharge orifice; of the pivoted frame provided with paste-applying blocks; a can-traversing mechanism operated by the swinging frame; and means for causing said can-grasping mechanism to automatically grasp and release the cans.

19. In a can-labeling machine, the combination with a track; of a reciprocating frame provided with the arms R and V having two or more holes; and the removable and interchangeable disks applied to said arms to run upon the track.

20. In a can-labeling machine, the combination with a track; of a reciprocating frame provided with arms R and V; removable and interchangeable disks applied to said arms to run upon the track; an arm E' adjustably secured to the frame; and a presser-roll B' carried by the arm.

21. In a can-labeling machine, the combination with a track; of a reciprocating frame having arms R and V which move in or have fixed relation to the track; and removable and interchangeable can-grasping disks secured to said arms to run upon the track.

606,228. ACETYLENE-GAS-GENERATING LAMP. HENRY OEHL, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,016. (No model.)



Claim.—1. In an acetylene-lamp, the combination of a water-containing casing, a removable cylinder supported within said casing, a carbid-cage removably connected with the cylinder, and a gas-tank contained within said cylinder and adapted to surround said carbid-cage.

2. In an acetylene-lamp, the combination of a water-containing casing, a removable cylinder supported within said casing, a carbid-cage removably connected with the cylinder, and a gas-tank adapted to be guided by and move within the cylinder and to surround the carbid-cage.

3. In an acetylene-lamp, the combination of a water-containing casing, a removable cylinder supported within said casing, a carbid-cage removably connected with the cylinder, a gas-tank adapted to be guided by and move within the cylinder and to surround the carbid-cage, a supply-pipe connected with the lamp, and a flexible connection between the supply-pipe and the gas-tank.

4. In an acetylene lamp, the combination of a water-containing casing, a removable cylinder supported within said casing, a carbid-cage removably connected with the cylinder, a hood fitting within said cage and adapted to surround the carbid therein, a gas-tank adapted to be guided by and move within the cylinder and to surround the carbid-cage, and a supply-pipe connected with the lamp, and a flexible connection between the supply-pipe and the gas-tank.

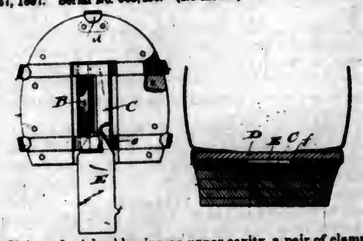
5. In an acetylene-lamp, the combination of a water-containing casing, a removable cylinder supported within said casing, a carbid-cage removably connected with the cylinder, a foraminous cup supported by said cylinder below the cage, a gas-tank adapted to be guided by and move within the cylinder and to surround the carbid-cage, a supply-pipe connected with the lamp, and a flexible connection between the supply-pipe and the gas-tank.

6. In an acetylene-lamp, the combination of a water-containing casing, a removable cylinder supported within said casing, a carbid-cage, a spider removably secured to the cylinder and adapted to connect with the carbid-cage to support the same in place, and a gas-tank adapted to be guided by and move within the cylinder and to surround the carbid-cage.

7. In an acetylene-lamp, the combination of a water-containing casing, a removable cylinder supported within said casing, a dome removably secured to the cylinder and provided with a gas-supply pipe, a carbid-cage, a spider removably secured to the cylinder and adapted to connect with the carbid-cage to support the same in place, a gas-tank adapted to be guided by and move within the cylinder and to surround the carbid-cage, and a flexible connection between said gas-tank and the gas-supply pipe.

8. In an acetylene-lamp, the combination of a water-containing casing, a carbid-support normally below the normal water-level in said casing, a gas-tank surrounding said carbid-support, a cylinder within which said gas-tank is adapted to move, and a guiding or supporting ring connected to the casing and adapted to maintain the cylinder elevated and the carbid out of contact with the water.

606,229. HEEL. JAMES R. O'NEILL, Waupaca, Wis. Filed Dec. 27, 1897. Serial No. 663,490. (No model.)



Claim.—1. A heel having an upper cavity, a pair of clamp-slides consisting of recurved metal plates having a lateral adjustment in the heel-cavity and provided with outwardly-extended hook-arms movable in corresponding guides in the heel, a wedging lock-plate engageable with the clamp-slides, and a hook-plate fast to the rear upper portion of said heel, this hook-plate and hook-arms of said clamp-slides being for engagement with a boot or shoe sole.

2. A heel having an upper cavity, a pair of clamp-slides consisting of recurved metal plates having lateral adjustment in the heel-cavity and provided with outwardly-extended hook-arms movable in corresponding guides in the heel, a wedging lock-plate engageable with the clamp slides and provided with a lateral spur that enters an aperture in the bend of one of said slides, and a hook-plate fast to the rear upper portion of said heel, this hook plate and hook-arms of the aforesaid clamp-slides being for engagement with a boot or shoe sole.

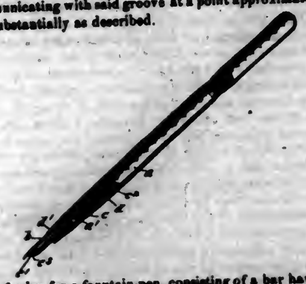
606,230. GRAVE-VAULT. GIDEON G. OWEN, Houston, Ohio. Filed May 27, 1897. Serial No. 638,437. (No model.)



Claim.—A receptacle of the class described, comprising a base provided with a flat-surfaced elevated central portion 2, and a depressed edge portion 3 provided with a cement-groove of less width than the depressed surface, said elevated portion being cut away at the corners at 4, the side walls 5 having flat lower edges to fit the depressed portions 3 at opposite sides of the central portion 2 and to cover the said groove, and having contiguous to their extremities the cross-sectionally-triangular inwardly-extending vertical enlargement 7 presenting angularly-disposed side faces fitting the cut-away portions 4 of the base, said sides being flat between their extremities and the enlargement 7 and provided in such flat portions with grooves 9, the ends 6 seated against the flat end portions of the sides and the adjacent faces of the enlargement 7 and provided with vertical grooves 10 registering with the groove 9 and with the groove of the base, said sides and ends being provided at their upper edges with continuous grooves communicating with the vertical grooves 9 and 10, and the top or cover provided with the inwardly-extending central portion 14 cut away at the corners at 15 and fitting within the sides and ends and against the side faces of the enlargement 7, said top or cover extending over the grooves of the upper edges of the sides and ends, and all the said grooves being adapted to be filled with cement from a single point and forming keys, when filled, for holding the parts against lateral displacement, substantially as described.

606,231. FOUNTAIN-PEN. GEORGE S. PARKER, Janesville, Wis. Filed July 26, 1897. Serial No. 646,804. (No model.)

Claim.—1. In a fountain-pen, the combination with a feeder-bar, the inner end whereof is formed to come into approximate contact with the wall of the ink-reservoir, of a longitudinal groove along the upper side of said feeder-bar, said groove, starting at the inner end, gradually increasing in depth to the portion under the nib of the pen, and a longitudinal capillary slit *d* in the opposite or under side of the feeder starting at its inner extremity, passing along its under side and only communicating with said groove at a point approximately under the pen, substantially as described.



2. A feeder for a fountain-pen, consisting of a bar having a longitudinal groove along the side thereof next the pen and communicating with the ink-reservoir, said bar also being provided with a capillary slit passing along the under side thereof and opening into the ink-reservoir throughout a portion of its length, and a capillary passage affording communication between said capillary slit and said groove, substantially as described.

3. A feeder for a fountain-pen, consisting of a bar having a longitudinal groove in the side next the pen communicating with the ink-reservoir, said groove gradually increasing in depth from the inner end to the outer extremity of the bar, said bar also having a capillary slit in its under side communicating at one end with the reservoir and at the other end with said groove, substantially as and for the purpose described.

4. A feeder for a fountain-pen, consisting of a bar having a longitudinal groove in the side thereof next the pen, the inner end of said bar being formed to come into approximate contact with the side of the reservoir, said bar also having a capillary slit *d* passing along the under side thereof and opening into the ink-reservoir throughout a portion of its length, a capillary slit *d'* along the bottom of said groove, and a capillary passage affording communication between said slit *d* and said slit *d'*, substantially as described.

5. In a fountain-pen, a feeder-bar provided with a capillary ink-duct opening in the reservoir at or near the lower interior wall or side of said reservoir, said capillary duct extending downwardly to an enlarged or deepened portion, said enlarged portion opening into a groove immediately under the pen on the opposite of said bar, to form a continuation of said duct, said groove forming the continuation being enlarged to form an ink-holding chamber immediately under the nib of the pen, the upper portion of said groove communicating with the reservoir to form a vent, substantially as and for the purposes described.

606,232. DUST-GUARD FOR CAR-AXLE BOXES. JAMES S. PATTEN, Baltimore, Md. Filed Dec. 26, 1896. Serial No. 617,090. (No model.)



Claim.—1. The combination, with the axle journal and box, of the cap, which is free and independent of said box, the dust-guard proper, comprising two flat, alined, and slidable members, and springs supporting the lower member and bearing upon the upper side of said cap, and also pressing in opposite directions between the cap and upper member of the guard, as shown and described.

2. The dust-guard for car-axle boxes, which comprises two alined sliding plates, or flat members, integral springs which draw the said plates together or toward each other, and also project laterally from the body of said guard, for exerting pressure against a rear wall of the axle-box, substantially as shown and described.

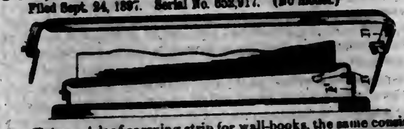
3. The combination with a car-axle and axle-box, of the improved dust-guard, comprising upper and lower alined, sliding members, springs, one end of which bears upon the upper member, the lower portion being attached to the lower member, and having an intermediate portion projecting from the latter as specified, whereby such springs are adapted to exert lateral pressure on the guard, substantially as shown and described, in addition to their primary function.

4. The combination with the dust-guard proper, and a suspension cap or bar arranged across its upper end, of a spring whose legs pass through the cap, and one of them having a shoulder that adapts it to engage the cap, so that the spring bears against and also retains its hold on the same, as shown and described.

5. The combination with the car-axle, axle-box, guard proper, and suspension-cap, of the duplicate wire springs D, which are connected with the lower member of the guard and whose upper portions have an angle where they pass through the cap, the upper extremities of the springs that project beneath said cap bearing on the upper member of the guard as shown and described.

6. The improved dust-guard, whose lower slidable member has a thick, concave upper edge provided with the transverse notches 11, which are beveled or inclined downward from the outer edge of the concave, as shown and described, for the purpose specified.

606,233. WALL-BOOK. GEORGE R. PEARL, Jamestown, N. Y. Filed Sept. 24, 1897. Serial No. 652,917. (No model.)



Claim.—A leaf-carrying strip for wall-books, the same consisting of a strip of sheet metal, folded upon a line extending through the longitudinal center of the strip, and the ends of the strip thus formed being bent at right angles to the body of the strip, and the arms thus formed being provided with eyes or openings for engaging the pintles of the hinges, substantially as shown and described.

606,234. CRUSHING-ROLL. ALFONSO PERANT, Brooklyn, N. Y. Filed Apr. 24, 1897. Serial No. 633,601. (No model.)



Claim.—1. A roll consisting of a shaft having sections of differing diameters, a roll-cylinder having sections of corresponding different diameters mounted thereon, and means for securing the roll-cylinder to the shaft, substantially as specified.

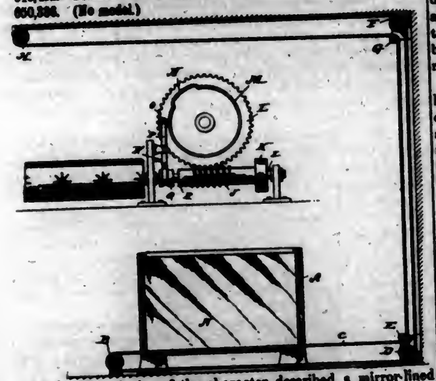
2. A roll consisting of a shaft provided with sections of differing diameters, each of which is tapering, a roll-cylinder having sections of corresponding different diameters mounted thereon, and means for securing the roll-cylinder to the shaft, substantially as specified.

606,235. PATTERN-EXHIBITOR. ADOLPHUS PETERSON, Lansdowne, Pa. Filed Jan. 16, 1897. Serial No. 619,451. (No model.)



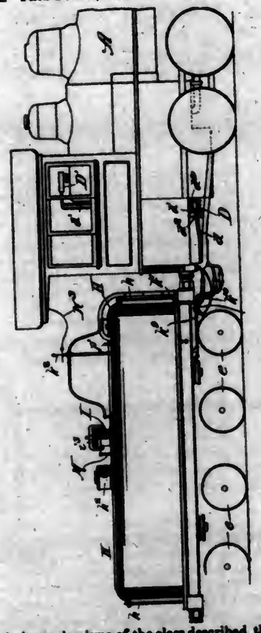
Claim.—In a display apparatus, a collapsible box lined with mirrors, curved brackets hinging the sides to the bottom of the box, a frame removably journaled to the box, reels and idle-rolls journaled to the frame and a belt carrying display-figures, passing from the reels over the idle-rolls and through the space between the ends and the bottom of the box, as and for the purpose described.

606,286. AUTOMATIC MYRIOSCOPE. ADOLPHUS PETERSEN, Lansdowne, Pa. Original application filed Jan. 16, 1897, Serial No. 619,452. Divided and this application filed Sept. 2, 1897. Serial No. 650,336. (No model.)



Claim.—In a device of the character described, a mirror-lined box having its sides terminating a slight distance from the bottom, a shaft journaled parallel with the sides, an extension formed with said shaft, a pulley, a sleeve formed therewith, said pulley and sleeve being loosely mounted on the extension, a worm-screw formed on the sleeve, a worm-wheel journaled at right angles to the shaft meshing with the worm-screw, a cam-flange formed on the face of the wheel, a centrally-pivoted lever carrying a roll bearing against the side of the flange, a clutch splined on the shaft embraced by the other end of the lever, whereby said clutch will be moved longitudinally of the shaft to engage and disengage the end of the sleeve by a corresponding movement of the lever, a roll journaled on the shaft, idle-rolls journaled parallel with the first-named roll, and an endless belt run over said rolls and through the mirror-box, as and for the purpose described.

606,287. OIL-BURNING LOCOMOTIVE. GEORGE W. PRESCOTT, Highland, Cal. Filed Dec. 14, 1896. Serial No. 615,575. (No model.)



Claim.—1. In mechanisms of the class described, the combination of a locomotive provided with a fire-box, a lining of refractory material in the fire-box, an arched upper roof covering a portion of the front of the fuel-chamber, a relatively lower roof covering a portion of the rear of the fuel chamber, a hydrocarbon-fuel burner arranged in the lower portion of the rear wall of the fire-box so as to direct the fuel across the fire-box and against the front wall thereof, and a right-angular pipe or passage arranged with its inlet-opening toward the front end of the locomotive and connected with the fire-box in the front portion thereof, so as to admit air at substantially right angles to the injection of the fuel, substantially as described.

2. In mechanisms of the class described, the combination of a locomotive provided with a fire-box or fuel-chamber, a liquid-hydrocarbon burner arranged in such fuel-chamber, a tender provided with an oil supply reservoir and a water-reservoir, an oil-supply pipe connecting the burner with the supply-chamber, a steam-pipe leading from the source of steam-supply to and around the burner and to the source of water-supply, a valve on said steam-pipe to govern the admission of steam and a second valve on said pipe arranged in the water-supply chamber, whereby steam or water may be sent through such pipe for the purposes described, substantially as described.

3. In mechanisms of the class described, the combination of a locomotive provided with a fire-box or fuel-chamber, an oil-burner arranged in such chamber, a tender provided with an oil-reservoir, an oil-supply pipe connecting the oil-reservoir with the oil-burner, a vertical perforated tube surrounding the inlet of the oil-supply pipe in the oil-chamber, a vertically-movable valve in the vertical tube, a helically-coiled spring for normally holding the vertically-movable valve closed, a pin for holding the vertically-movable valve in its open position, and means for connecting the pin on the vertically-movable valve with the locomotive so that when the normal relation of the tender and locomotive is disturbed the pin is withdrawn and the valve closed, substantially as described.

4. In mechanisms of the class described, the combination of a locomotive provided with a fire-box or fuel-chamber, an oil-burner arranged in such chamber, a tender provided with an oil-reservoir, an oil-supply pipe connecting such reservoir with the oil-burner, a vertical perforated tube surrounding the inlet of the oil-supply pipe in the oil-chamber, a vertically-movable valve in the vertical tube, a helically-coiled spring for normally holding said vertically-movable valve closed, a pin for holding the vertically-movable valve in its open position, means for connecting the pin on the vertically-movable valve with the locomotive, a supply-valve in the oil-supply pipe, and means connecting the supply-valve on the supply-pipe with the locomotive, so that when the normal relation of the tender and locomotive is disturbed such mechanisms are operated and both of the valves closed, substantially as described.

5. In mechanisms of the class described, the combination of a locomotive provided with a fire-box or fuel-chamber, an oil-burner in such chamber, a tender provided with a water-reservoir and an oil-reservoir, an oil-supply pipe in the oil-reservoir and connected with the oil-burner, a steam-supply pipe, leading from a source of steam-supply arranged contiguous to the oil-supply pipe through such reservoir and having its open end arranged in the water-supply chamber, and means for admitting either steam or water into such steam-supply pipe as desired, substantially as described.

6. In mechanisms of the class described, the combination of a locomotive provided with a fire-box or fuel-chamber, an oil-burner in such chamber, a tender provided with a water-reservoir and an oil-reservoir, an oil-supply pipe in the oil-reservoir and connected with the oil-burner, a steam-supply pipe leading from a source of steam-supply around the burner to the oil-reservoir, around the oil-supply pipe and through such reservoir, and with its open end arranged in the water-supply chamber, and means for admitting either steam or water into such steam-supply pipe as desired, substantially as described.

7. In mechanisms of the class described, a tender providing an oil-reservoir, a water-drip valve arranged flush with the bottom of the oil-receptacle, and an oil-supply valve in the lower portion of the oil-supply chamber with its inlet-opening arranged slightly above the bottom portion thereof, substantially as described.

8. In mechanisms of the class described, a tender in which there are combined inner side walls and cover to provide an oil-receptacle, a water-drip valve arranged with its inlet-opening flush with the bottom of the oil-receptacle, an oil-supply pipe with its inlet-opening arranged in such oil-reservoir slightly above the bottom portion thereof, and a combined air and gas vent arranged in the upper portion of the oil-receptacle with an automatic valve so that when the normal position of the tender is disturbed such valve will be automatically closed and oil prevented from escaping therefrom, substantially as described.

606,288. BURNER FOR LIQUID HYDROCARBONS. GEORGE W. PRESCOTT, Highland, Cal. Filed Dec. 14, 1896. Serial No. 615,576. (No model.)

Claim.—1. An oil-burner provided with an oil-supply passage, a valve in such passage adjacent to the exit-opening to regulate the

outflow of the oil, a steam or fluid pressure chamber underneath the oil-supply passage having its exit-opening underneath and substantially in line with the exit-opening for the oil and provided with a movable valve to regulate the amount of steam under pressure escaping from its exit-passage, substantially as described.



2. An oil-burner provided with an oil-supply passage, a rotatable valve in such passage adjacent to the exit-opening to regulate the supply of oil passing through the passage, a steam or fluid pressure chamber arranged under the oil-passage and with its exit-opening directly under and substantially in line with the oil-exit, a steam-supply valve arranged in the exit-opening of the steam-chamber to regulate the amount of steam under pressure issuing from said chamber to atomize the oil, substantially as described.

3. An oil-burner provided with an oil-supply chamber and an exit-opening, a rotatable valve in the burner adjacent to and intermediate the exit-opening and supply-chamber for regulating the flow of oil to the exit-opening, a fluid-pressure chamber located under the oil-supply chamber and with its exit-opening arranged under the exit-opening for the oils, and a slide-valve arranged in such opening to regulate the size of the opening and thereby the amount of steam under pressure escaping therefrom to atomize the oil, substantially as described.

4. An oil-burner provided with a central interior oil-supply chamber and an exit-passage leading from such chamber and an encompassing or inclosing chamber around the oil-supply chamber and adapted to be connected with a source of steam under pressure on one side and cool-water supply on the other side to keep the oil in the burner at substantially uniform temperature, and with steam-supply chamber connected with a source of steam-supply and having its exit-openings arranged underneath the exit-opening of the oil-chamber, a rotatable valve located between the oil-supply chamber and the exit-passage to govern the supply of oil entering the exit-passage and a slide-tapered valve arranged in the exit-opening of the steam-chamber to regulate the size of said opening, the amount of steam under pressure issuing therefrom and the atomizing of the oil, substantially as described.

5. An oil-burner provided with a central interior oil-supply chamber and an exit-passage leading from such chamber and an encompassing or inclosing steam-chamber around the oil-supply chamber and adapted to be connected with a source of steam under pressure on one side and cool-water supply on the other side, and with an independent steam-supply chamber connected with source of steam-supply and having its exit opening arranged underneath the exit-opening of the oil-chamber, a rotatable valve located between the oil-supply chamber and the exit-passage to govern the supply of oil entering the exit-passage, a slide tapered valve arranged in the exit-opening of the independent steam-pressure chamber to regulate the size of said opening, the amount of steam under pressure issuing therefrom and the atomizing of the oil, and a pressure drip-valve located in the lower portion of the independent pressure-chamber to automatically operate and allow the water to drip therefrom when the pressure in such chamber falls below a predetermined point, substantially as described.

6. An oil-burner provided with an oil-supply chamber and an exit-passage, a rotatable valve in the burner intermediate the supply-chamber and its exit-opening to govern the supply of oil, a steam or fluid pressure passage arranged underneath and with its exit-opening adjacent to that of the oil-supply passage, a valve in the steam-pressure exit-opening to govern the supply of steam under pressure, and means for adjustably supporting the burner so as to tilt it at the desired angle and form an oil-trap, substantially as described.

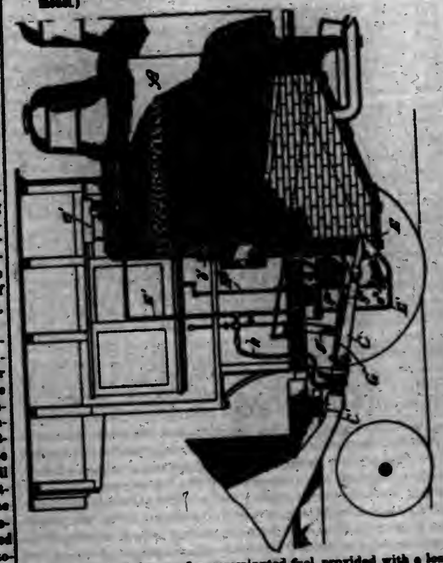
7. An oil-burner provided with a substantially rectangular oil-supply chamber and an irregular-shaped exit-passage, a partition dividing such chamber and passage, a valve in such partition to regulate the outflow of the steam, and means for tilting the burner out of a horizontal plane to form an oil-trap in the burner, substantially as described.

8. A multiple liquid-hydrocarbon burner provided with one oil-chamber and at least two independent exit-passages, a rotatable valve for each of such passages whereby the outflow of oil to the passages is regulated, a rotatable operating-rod shaft D' for each of such valves, a handle portion rigidly secured to each of such rotatable rods, gear mechanism independently and rotatably mounted upon each of said rods, mechanism for connecting and disconnecting the handle portions with the gears as desired and means for operating the gears, the whole so arranged that the valves may be operated independently or simultaneously, substantially as described.

9. A multiple liquid-hydrocarbon burner provided with one oil-chamber and at least two independent exit-passages, a rotatable valve for each of such passages whereby the supply of oil to the passages is regulated, a rotatable operating-rod shaft D' for each of such valves a handle portion rigidly secured to each of such rotatable rods, gear mechanism independently and rotatably mounted upon each of said rods, mechanism for connecting and disconnecting the handle portions with the gears as desired and means for operating the gears so that the valves may be operated independently or simultaneously, and lever mechanism connecting the rods D' with the stems of the rotatable valves for transmitting power and motion thereto, substantially as described.

10. An oil-burner provided with an oil-supply passage having an exit-passage and with a steam-supply chamber surrounding a portion of the oil chamber, a supply-pipe leading to the oil-supply passage a steam-supply pipe leading to the chamber surrounding the oil-passage, a branch pipe leading from the steam-chamber to the oil-supply pipe and provided with a valve thereon so that when desired the oil passage or supply pipe may be cleaned by steam under pressure, substantially as described.

606,289. BURNER FOR PULVERIZED COAL. GEORGE W. PRESCOTT, Highland, Cal. Filed Dec. 14, 1896. Serial No. 615,578. (No model.)



Claim.—1. A burner for comminuted fuel provided with a longitudinal fuel-passage therethrough and an independent passage for fluid-pressure having its exit-opening arranged underneath in line

with and adjacent to the burning exit-opening of the fuel-passage in the burner, so as to feed the fuel direct to the furnace, and a valve-gate in the fuel-passage movable transversely of the passage to govern the passage of fuel therethrough, substantially as described.

2. A burner for comminuted fuel provided with a longitudinal fuel-passage and an independent passage for fluid under pressure having the exit opening of the pressure-passage arranged adjacent to, in line with, and underneath the burning exit-opening of the fuel-passage so as to feed the fuel direct to the furnace, a pivoted valve gate or door forming the upper wall of the fuel-passage and movable transversely of the fuel-passage to control the flow of fuel therethrough, and a valve in the exit-opening of the pressure-passage, substantially as described.

3. In mechanisms of the class described the combination of a burner for comminuted fuel provided with a longitudinal fuel-passage and a passage for fuel under pressure having the exit-opening of the pressure-passage arranged adjacent to and underneath the exit opening of the fuel-passage, a pivoted valve gate or door forming the upper wall of the fuel-passage and movable transversely of the fuel-passage to control the flow of fuel therethrough, a valve in the exit-opening of the pressure-passage, and a flexible pipe connecting the fuel-passage of the burner with a supply-reservoir, substantially as described.

4. In mechanisms of the class described the combination of a burner for comminuted fuel provided with a longitudinal fuel-passage and a passage for fluid under pressure having the exit-opening of the pressure-passage arranged adjacent to and underneath the exit-opening of the fuel-passage, a pivoted valve gate or door forming the upper wall of the fuel-passage and movable transversely of the fuel-passage to control the flow of fuel therethrough, a valve in the exit-opening of the pressure-passage, a flexible delivery-pipe connecting the fuel-passage of the burner with a source of fuel-supply, and means for agitating such delivery-pipe, substantially as described.

5. In mechanisms of the class described, the combination of a burner provided with a longitudinal fuel-passage therethrough and a fluid-pressure passage with its exit-opening arranged adjacent to and underneath the exit-opening of the fuel-passage, a gate in such fuel-passage movable transversely in such passage, means connecting such gate with mechanism in the cab of the locomotive, a tender provided with a hopper-shaped receptacle for the reception of fuel in a comminuted condition, a flexible delivery-tube connecting the fuel-passage of the burner with the fuel-receptacle of the tender, a cam arranged on a movable part of the locomotive and means connecting the cam with the delivery-pipe so as to agitate the same during the movement of the locomotive, substantially as described.

6. In mechanisms of the class described, the combination of a burner provided with a longitudinal fuel-passage therethrough and a fluid-pressure passage with its exit-opening arranged adjacent to and underneath the exit-opening of the fuel-passage, a valve-gate in such fuel-passage movable transversely in such passage, means connecting such gate with mechanism in the cab of the locomotive to open and close the same, a tender provided with a hopper-shaped receptacle for the reception of fuel in a comminuted condition, a flexible delivery-tube connecting the fuel-passage of the burner with the fuel-receptacle of the tender, a cam arranged on a movable part of the locomotive, a flexible rod connecting the cam with the delivery-tube to agitate the same during the movement of the locomotive, and means for throwing the rod into and out of engagement with the cam, substantially as described.

7. In mechanisms of the class described, the combination of a burner provided with a longitudinal fuel-passage therethrough and a fluid-pressure passage with its exit-opening arranged adjacent to and underneath the exit-opening of the fuel-passage, a valve-gate in such fuel-passage movable transversely in such passage, means connecting such gate with mechanism in the cab of the locomotive to operate the same, a tender provided with a hopper-shaped receptacle for the reception of fuel in a comminuted condition, a flexible delivery-tube connecting the fuel-passage of the burner with the fuel-receptacle of the tender, a cam arranged on a movable part of the locomotive, means connecting the cam with the delivery-pipe so as to agitate the same during the movement of the locomotive, and a fluid-pressure injector arranged in the delivery-tube to assist in the passage of fuel therethrough and clean such delivery-tube, substantially as described.

8. In mechanisms of the class described, the combination of a burner for comminuted fuel provided with a longitudinal fuel-passage and a fluid-pressure passage with its exit-opening arranged adjacent to and underneath the exit-opening of the fuel-passage, means connecting the fluid-pressure passage with a source of fluid-pressure supply, a pivotal gate movably arranged transversely in the fuel-passage and forming an upper wall thereof, a valve in the exit-opening of the pressure-chamber, rod-and-lever mechanism connecting the gate of the fuel-passage with a handle in the locomotive-cab, mechanism arranged in the locomotive-cab connected with the valve in the pressure-chamber for operating the same, a tender provided with a hopper-shaped receptacle for holding fuel in a pulverized or comminuted condition, a flexible tube connecting the fuel-passage of the burner with the hopper-shaped receptacle, a cam on the drive-wheel axle of the locomotive, a flexible rod pivotally mounted on the locomotive connected with the flexible tube and arranged to be engaged with the cam on the driving-wheel axle to agitate the flexible tube, mechanism arranged in the locomotive-cab and connected with the flexible agitating-rod to hold the same in or out of engagement with the cam, substantially as described.

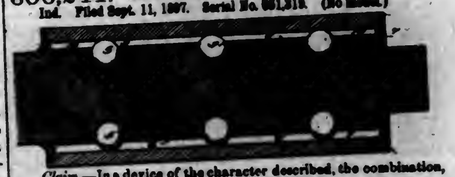
606,240. ATOMIZER. ROBERT W. PRESCOTT, Cleveland, Ohio. Filed July 24, 1897. Serial No. 645,758. (No model.)



Claim.—1. In an atomizer, the combination of a liquid-chamber, a piston-chamber centrally located within said liquid-chamber and projecting from one end thereof, a suitable piston and piston-rod, a valve-controlled liquid-inlet communicating with said liquid-chamber and the projecting end of said piston-chamber, said projecting end provided with a valve adapted to control atmospheric communication with said piston-chamber and further provided with a suitable atomizing-nozzle, substantially as set forth.

2. In an atomizer, the combination of a liquid-chamber, a piston-chamber centrally located within and projecting from one end of said liquid-chamber, a suitable piston and piston-rod, a valve-controlled liquid-inlet communicating with said liquid-chamber and the projecting portion of the piston-chamber, said projecting portion provided with a valve adapted to control atmospheric communication with said piston-chamber, the extremity of the latter provided with a helical atomizing-nozzle, substantially as set forth.

606,241. BALL-BEARING. STEPHEN T. RANDOLPH, Covington, Ind. Filed Sept. 11, 1897. Serial No. 651,319. (No model.)



Claim.—In a device of the character described, the combination, with a suitable bearing-box, of a shaft therein having annular grooves in its periphery, a casing surrounding said shaft and formed in sections having their edges beveled and extending slightly above the centers of the balls, whereby said balls are kept in the grooves, removable sections secured to the axle and having their edges conforming to the shape of the edges of the sections forming the casing, said

removable sections being adapted to be removed to permit the balls to be placed in the annular grooves, substantially as described.

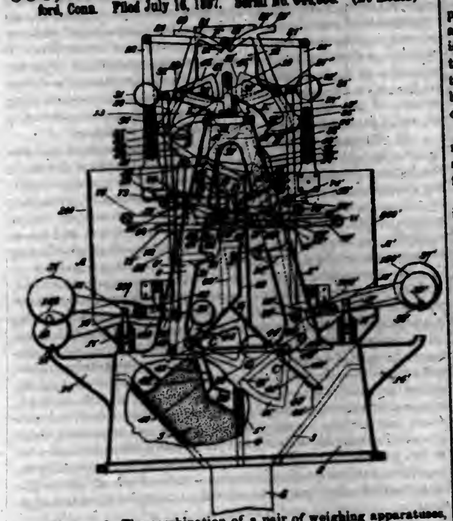
606,242. PLOW. ANDREW REINSTEDT, Marcus Hook, Pa. Filed May 20, 1897. Serial No. 637,567. (No model.)



Claim.—1. In a plow, the combination of a moldboard having a guide thereon and a slot at the lower portion thereof, a landside with an elongated guide having an upper beveled edge, an adjustable plate engaging the guide and the moldboard and projecting through the slot thereof, an elongated plow-point held on the beveled edge of the guide on the landside, and a single clamping-plate for holding the said parts in their adjusted position, substantially as and for the purposes specified.

2. In a plow, the combination of a moldboard having an adjustable share, an adjustable plow-point, and a triangular clamping-plate engaging said devices and forming the sole means of securing them in an adjusted position, substantially as and for the purposes specified.

606,243. WEIGHING-MACHINE. FRANCIS H. RICHARDS, Hartford, Conn. Filed July 16, 1897. Serial No. 644,633. (No model.)



Claim.—1. The combination of a pair of weighing apparatuses, one provided with a load-reducing instrumentality operative to reduce a load before the final discharge thereof; and actuator means intermediate said load-reducing instrumentality and the other apparatus, whereby the operation of said load-reducing instrumentality is effected at one predetermined period by and on the operation of said other apparatus.

2. The combination of a pair of weighing apparatuses, each provided with a load-reducing instrumentality operative to reduce a load before the final discharge thereof; and actuator means intermediate each apparatus and the load-reducing instrumentality of its companion apparatus, whereby the operation of the load-reducing instrumentality of one apparatus is effected at one predetermined period by and on the operation of the other apparatus.

3. A weighing-machine comprising a plurality of apparatuses, each provided with a load-reducing instrumentality operative to reduce a load before the final discharge thereof, the operation of the load-reducing instrumentality of one apparatus being effected at one predetermined period by and on the operation of another of said apparatuses.

4. A weighing-machine comprising a plurality of apparatuses, one provided with a load-reducing instrumentality operative to reduce a load before the final discharge thereof, the operation of said instrumentality being effected at one predetermined period by and on the operation of another of said apparatuses.

5. The combination of a plurality of weighing mechanisms; a load-reducing instrumentality for each of said weighing mechanisms, and operative to reduce a load before the final discharge thereof, the operation of the load-reducing instrumentality of one weighing mechanism being effected by and on the operation of another of said weighing mechanisms.

6. The combination of a plurality of weighing mechanisms, one provided with a load-reducing instrumentality operative to reduce a load before the final discharge thereof; and means adapted to effect the operation thereof, and controlled by and on the operation of another of said weighing mechanisms.

7. The combination of a pair of weighing mechanisms, each provided with a load-reducing instrumentality operative to reduce a load before the final discharge thereof; and means adapted to effect the operation of the load-reducing instrumentality of one weighing mechanism on the operation of the other weighing mechanism.

8. A weighing-machine comprehending a plurality of weighing mechanisms, one provided with a load-reducing instrumentality operated by and on the operation of another of said weighing mechanisms to reduce a load before the final discharge thereof, and adapted to cut off such reduction at one predetermined period on the operation of its own weighing mechanism.

9. A weighing-machine comprehending a plurality of weighing mechanisms, each provided with a load-reducing instrumentality operated by and on the operation of another of said weighing mechanisms to reduce a load before the final discharge thereof, and adapted to cut off such reduction at one predetermined period on the operation of its own weighing mechanism.

10. The combination of a plurality of weighing mechanisms, one provided with a load-reducing valve; and actuator means intermediate said load-reducing valve and another of said weighing mechanisms, and operative to open said load-reducing valve on the operation of said other weighing mechanism, thereby to permit the reduction of the load before the final discharge thereof, and said valve being adapted to close at one predetermined period on the operation of its own weighing mechanism, thereby to cut off such reduction.

11. A weighing-machine comprehending a plurality of weighing mechanisms, each provided with a load-reducing valve opened by and on the operation of another of said weighing mechanisms to effect the reduction of a load before the final discharge thereof.

12. A duplex weighing-machine comprising a plurality of coacting weighing mechanisms, each having a load-reducing valve operable to open and thereby effect the reduction of the load before the final discharge thereof, and adapted to close at one predetermined period on the operation of its own weighing mechanism, and thereby cut off such reduction.

13. The combination of a plurality of weighing mechanisms, each embodying a load-receiver and beam mechanism therefor; a load-reducing instrumentality for one of said weighing mechanisms, and operative by and on the operation of the beam mechanism of another of said weighing mechanisms, thereby to reduce a load before the final discharge thereof.

14. The combination of a plurality of weighing mechanisms, each embodying a load-receiver and beam mechanism therefor; a load-reducing instrumentality for each of said weighing mechanisms, the load-reducing instrumentality of one weighing mechanism being operated by the beam mechanism of another of said weighing mechanisms, thereby to reduce a load before the final discharge thereof.

15. The combination of a pair of weighing mechanisms, each embodying a load-receiver and beam mechanism therefor; a load-reducing instrumentality for each of said weighing mechanisms; and actuator means intermediate the load-reducing instrumentality of each of said weighing mechanisms and the beam mechanism of the other weighing mechanism, whereby said load-reducing instrumentality is operated, thereby to reduce a load before the final discharge thereof.

16. The combination of a pair of weighing mechanisms, each embodying a load-receiver and beam mechanism therefor; overload-supply means for each of said weighing mechanisms; a load-reducing valve for each of said weighing mechanisms; and actuator means intermediate the load-reducing valve of each of said weighing mechanisms and the beam mechanism of the other weighing mechanism, whereby said load-reducing valve is operated, thereby to reduce a load before the final discharge thereof.

17. In a weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver having a load-reducer, and said machine having the load-reducer of one weighing mechanism located to discharge the surplus material of the load of the one weighing mechanism into the load-receiver of the other weighing mechanism.

18. In a weighing-machine, the combination of a pair of weigh-

ing mechanisms, each embodying a load-receiver having a load-reducer, said machine having the load-reducer of one weighing mechanism located to discharge the surplus material of the load of the one weighing mechanism into the load-receiver of the other weighing mechanism; and said machine also having supply means for simultaneously supplying material to said receiver during its reception of such surplus material.

19. In a weighing-machine, the combination of a pair of coacting weighing mechanisms, each embodying a load-receiver; and mechanism operative to effect the overload of the receiver of one weighing mechanism during a predetermined period, and then operative to effect the reduction of such overload and the discharge of the surplus thereof into its companion receiver simultaneously with a supply of material to said companion receiver.

20. In a weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver having load-discharge means and load-reducing means; and actuator means for operating the load-reducing means of each weighing mechanism on the operation of its companion weighing mechanism, and controlled in its operation, at one predetermined period, by the load-discharge means of said companion weighing mechanism.

21. In a weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver having a closer and a load-reducer; a stream-controller for each of said receivers; reciprocally-effective locking means for each coacting stream controller and closer, and operative to lock the closer shut when the stream-controller is open, and to lock the stream-controller shut when the closer is open; and actuator means for operating the load-reducer of one weighing mechanism on the operation of its companion weighing mechanism, and controlled in its operation at one predetermined period by and on the shutting of the closer of said companion weighing mechanism.

22. In a weighing-machine, the combination of a plurality of weighing mechanisms, each embodying a load-receiver, and one of said receivers having a stream-receiving conduit, and another of said receivers having a load-reducing outlet disposed adjacent to said stream-receiving conduit.

23. In a weighing-machine, the combination of a plurality of weighing mechanisms, each embodying a load-receiver provided with a stream-receiving conduit and a load-reducing opening, each receiver having its opening disposed adjacent to the stream-receiving conduit of another of said receivers.

24. In a duplex weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver provided with a stream-receiving conduit at the lower part thereof, and a load-reducing opening at the upper part thereof, each receiver having its opening disposed adjacent to the stream-receiving conduit of the other receiver.

25. In a duplex weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver provided with a stream-receiving conduit and a load-reducing outlet, each of said receivers having its conduit and outlet disposed intermediate said receivers, and also having its outlet disposed directly above the stream-receiving conduit of the other receiver.

26. In a duplex weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver provided with a stream-receiving conduit and a load-reducing outlet, each of said receivers having its conduit and outlet disposed diagonally opposite to each other, whereby each receiver has its load-reducing opening adjacent to the stream-receiving conduit of the other receiver.

27. The combination of a plurality of weighing mechanisms, each embodying a load-receiver provided with a stream-receiving conduit and a load-reducing opening, each receiver having its opening disposed adjacent to the stream-receiving conduit of another of said receivers; and a load-reducing instrumentality for each weighing mechanism and operative to effect the reduction of the load, whereby the material discharged during the load-reducing period of one receiver will be received by another receiver.

28. The combination of a pair of weighing mechanisms, each embodying a load-receiver, one provided with a stream-receiving conduit, and the other with a load-reducing opening disposed adjacent to said stream-receiving conduit of its companion receiver; a load-reducing instrumentality for that weighing mechanism having the load-reducing opening; and actuator means intermediate said load-reducing instrumentality and the weighing mechanism having the stream-receiving conduit, whereby said instrumentality is operative by and on the operation of said last-mentioned weighing mechanism, thereby to effect a reduction of the load before the final discharge thereof, and whereby the material discharged through the load-reducing opening during the load-reducing period of said receiver will be received by the conduit of the other receiver.

29. The combination of a pair of weighing mechanisms, each embodying a load-receiver provided with a stream-receiving conduit and with a load-reducing opening, the opening of each receiver being adjacent to the stream-receiving conduit of the other receiver; a load-reducing instrumentality for each of said weighing mechanisms; and actuator means intermediate the load-reducing instrumentality of each weighing mechanism and the other weighing mechanism, whereby said instrumentality is operative, by and on the operation of said other weighing mechanism, to effect a reduction of the load before the final discharge thereof, and whereby the material discharged during the load-reducing period of one receiver will be received by the other receiver.

30. In a weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver provided with a stream-receiving conduit and with a load-reducing opening, the opening of each receiver being in juxtaposition to the stream-receiving conduit of the other receiver; a load-reducing instrumentality for each of said weighing mechanisms; and actuator means intermediate the load-reducing instrumentality of each weighing mechanism and the other weighing mechanism, whereby said instrumentality is operative by and on the operation of said other weighing mechanism to effect a reduction of a load before the final discharge thereof, and whereby the material discharged during the load-reducing period of one receiver will be received by the other receiver, and each of said load-reducing instrumentalities being operative, on the operation of its own weighing mechanism, to cut off the reduction of the load.

31. The combination of a pair of weighing apparatuses, each embodying a load-receiver having a stream-receiving conduit and a load-reducing opening, the opening of each receiver being disposed above the stream-receiving conduit of the other receiver; and a plurality of load-reducing means operative to effect the reduction of a load before the final discharge thereof, and comprising valves disposed in position one adjacent to the load-reducing opening of each receiver.

32. In a weighing-machine, the combination of a pair of weighing apparatuses, each embodying a load-receiver having a stream-receiving conduit and a load-reducing opening, the opening of each receiver being disposed above the stream-receiving conduit of the other receiver; a plurality of load-reducing means operative to effect the reduction of the load before the final discharge thereof, and comprising valves disposed in position one adjacent to the load-reducing opening of each receiver; and actuator means for operating the valve of one apparatus on the operation of the other apparatus.

33. The combination of a pair of weighing apparatuses, each embodying weighing mechanism comprising a load-receiver and beam mechanism therefor, each of said receivers having a stream-receiving conduit and a load-reducing outlet; a plurality of load-reducing valves, one carried by each receiver and adapted to control the reduction of the load before the final discharge thereof; and means operative by the beam mechanism of each apparatus for effecting the operation of the load-reducing valve of the other apparatus.

34. The combination of a pair of weighing apparatuses, each embodying weighing mechanism comprising a load-receiver and beam mechanism therefor, one of said receivers having a stream-receiving conduit, and the other of said receivers having a load-reducing outlet adjacent to said stream-receiving conduit; a load-reducing instrumentality carried by that receiver having the load-reducing outlet, and adapted to effect the reduction of a load before the final discharge thereof; overload-supply means for each of said receivers; stream-controllers for each of said overload-supply means; actuator means intermediate the weighing mechanism and stream-controller of each apparatus for effecting the operation of said stream-controller at one predetermined period; and an actuating instrumentality intermediate said load-reducing instrumentality of one of said weighing apparatuses and the stream-controller actuator of the other apparatus.

35. The combination of a pair of weighing apparatuses, each embodying weighing mechanism comprising a load-receiver and beam mechanism therefor, each of said receivers having a stream-receiving conduit and a load-reducing outlet; a plurality of load-reducing valves, one carried by each receiver and adapted to control the reduction of the load before the final discharge thereof; supply-stream controllers; actuator means intermediate the beam mechanism and stream-controller of each apparatus for effecting the operation of said stream-controller at one predetermined period; and actuator means operative by the stream-controller-actuating means of one apparatus to effect the operation of the load-reducing means of the other apparatus.

36. In a duplex weighing-machine, the combination of a pair of weighing apparatuses, each embodying weighing mechanism comprising a load-receiver and beam mechanism supporting said receiver; overload-supply means for each receiver; stream-controlling means for each of said supply means; a load-reducing instrumentality for each receiver; actuator means intermediate the beam mechanism and the stream-controlling means of each apparatus, whereby the operation of said stream-controlling means is effected at one predetermined period by the beam mechanism; and actuator means intermediate the load-reducing instrumentality of each apparatus and the stream-controlling actuator of the other apparatus, whereby, simultaneously with the operation of the stream-controlling means of one apparatus, the operation of the load-reducing instrumentality of the other apparatus is effected.

37. The combination of a pair of weighing apparatuses, each embodying a load-receiver and beam mechanism for supporting said receiver, and each of said receivers having a stream-receiving conduit and a load-reducing outlet, the outlet of each receiver being disposed above the stream-receiving conduit of the other receiver; overload-supply means for each receiver; stream-controlling means for each of said supply means; an actuator intermediate the beam mechanism and the stream-controlling means of each weighing apparatus, whereby the opening of the stream-controlling means is effected by the beam mechanism; a load-reducing instrumentality for each receiver, and in position to control the flow of material from the receiver-outlet; an actuator for each load-reducing instrumentality, the actuator for the load-reducing instrumentality of one apparatus being in position to be engaged by the stream-controller actuator of the other apparatus on the opening of said stream-controller, thereby simultaneously to operate said load-reducing instrumentality.

38. The combination of a pair of weighing apparatuses, each embodying weighing mechanism comprising a load-receiver and beam mechanism supporting said receiver, each of said receivers having a stream-receiving conduit and a load-reducing outlet, the outlet of each receiver being adjacent to the stream-receiving conduit of the other receiver; a plurality of load-reducing valves, one carried by each receiver and adapted to control the reduction of the load; overload-supply means for each of said receivers; a stream-controlling valve for each of said supply means; actuator means intermediate the beam mechanism and stream-controlling valve of each apparatus for effecting the operation of said stream-controlling means at one predetermined period; and actuator means operative by the stream-controller-actuator means of one apparatus to effect the operation of the load-reducing means of the other apparatus, whereby the discharge of the surplus material of the load of one load-receiver will occur substantially simultaneously with, and form a part of, the supply of material to the other load-receiver.

39. The combination of a pair of weighing apparatuses, each embodying a load-receiver and beam mechanism for supporting said receiver, each of said receivers having a stream-receiving conduit and a load-reducing outlet, the outlet of each receiver being disposed above the stream-receiving conduit of the other receiver; overload-supply means for each receiver; an actuator intermediate the beam mechanism and the stream-controlling means of each weighing apparatus, whereby the opening of the stream-controlling means is effected by the beam mechanism; a stop carried by each of said actuators; a load-reducing valve carried by each of said receivers, and operable to open and close the load-reducing outlet, and comprising a valve-plate and an arm pivotally secured to said receiver and provided with a stop; means for controlling the operation of said load-reducing valves, and comprising a pair of actuators pivotally secured one to each load-receiver, and each provided with an arm adapted to engage its respective valve-arm stop, the actuator for the load-reducing valve of one weighing apparatus having an end thereof extending into position to be engaged by the stop carried by the stream-controller actuator of the other weighing apparatus.

40. A weighing-machine comprising a plurality of coacting weighing mechanisms; a load-reducing instrumentality for one of said weighing mechanisms; and means connecting said weighing mechanisms whereby they coact to have the load-reducing instrumentality of said weighing mechanism reduce the load thereof during the reception of the load by another of said mechanisms.

41. A weighing-machine comprising a pair of coacting weighing mechanisms, each having a load-reducing instrumentality operable to reduce the load thereof; and means connecting said weighing mechanisms whereby they coact to have the load-reducing instrumentality of one weighing mechanism reduce the load on the ascent of the other weighing mechanism to receive its load.

42. In a weighing-machine, the combination of a pair of weighing mechanisms; a load-reducing valve carried by one of said weighing mechanisms; and means for effecting the operation of said valve, and operative by and on the operation of the other weighing mechanism.

43. The combination of a pair of weighing mechanisms each embodying a load-receiver, one of said receivers having a stream-receiving conduit, and the other of said receivers having a stream-outlet; a load-reducing valve carried by said last-mentioned receiver and operative to control the reduction of the load; a load-reducing valve-actuator also carried by said last-mentioned receiver, and extending into position to be operated by and on the operation of the other weighing mechanism.

44. The combination of a pair of weighing mechanisms, one of said weighing mechanisms embodying a load-receiver having an outlet; a load-reducing valve comprising a valve-plate and an arm pivotally secured to said receiver and provided with a stop; a valve-actuator carried by said receiver and having an arm adapted to engage said stop, and also having a part thereof extending into position to be operated by the other weighing mechanism.

45. The combination of a pair of weighing mechanisms; load-supply means for each of said weighing mechanisms; a stream-controller for regulating the supply of material to each weighing mechanism; and reciprocally-effective means intermediate said stream-controllers, and operable, when one of said stream-controllers is in operation, to lock the other against operation.

46. The combination of a pair of weighing mechanisms; load-supply means for each of said weighing mechanisms; a stream-controller for regulating the supply to each weighing mechanism; and a pair of reciprocally-effective stops carried one by each of said stream-controllers, and operative, on the opening of one stream-controller, to lock the other stream-controller shut.

47. In a weighing-machine, the combination of a plurality of coacting rising-poise weighing mechanisms; load-discharge means for each of said weighing mechanisms and operative on the ascent thereof to its poise position; a load-reducing instrumentality for each of said weighing mechanisms; means connecting said weighing mechanisms, whereby they coact to have the load-reducing instrumentality of one of said weighing mechanisms reduce the load thereof during the reception of the load by another of said weighing mechanisms; and reciprocally-effective means operative on the operation of one of said load-discharge means to lock the other against operation.

48. In a duplex weighing-machine, the combination of a plurality of weighing apparatuses, each embodying weighing mechanism comprising a load-receiver and beam mechanism supporting said receiver, and each of said receivers having a stream-receiving conduit and a stream-outlet, the stream-outlet of each receiver being above the stream-receiving conduit of the other receiver; overload-supply means for each load-receiver; a plurality of stream-controllers for regulating the supply to said receivers; a plurality of stream-controller actuators operated by the beam mechanisms for opening said stream-controllers; a load-reducing instrumentality for each of said receivers; an actuator for each of said load-reducing instrumentalities, the load-reducing-instrumentality actuator of one weighing mechanism being operated by and on the operation of the other weighing mechanism, and simultaneously with the opening of the stream-controller of said other weighing mechanism, whereby, during the supply of material to one receiver, a reduction of the overload in the other receiver takes place; load-discharge means for each receiver; locking means intermediate the stream-controller and the load-discharge means of each weighing apparatus, and operative to lock the stream-controller shut when the load-discharge means is open, and to lock the load-discharge means shut when the stream-controller is open; reciprocally-effective locking means intermediate the stream-controller means of said apparatuses, and operative to lock one stream-controller shut when the other stream-controller is open; and reciprocally-effective locking means intermediate the load-discharge means of said apparatuses, and operative to lock one load-discharge means shut when the other is open.

49. In a duplex weighing-machine, the combination of a plurality of weighing apparatuses each embodying weighing mechanism comprising a reciprocatory load-receiver having a closer and beam mechanism supporting said receiver, and each of said receivers having a stream-receiving conduit and a stream-outlet, the outlet of each receiver being directly above the stream-receiving conduit of the other receiver; overload-supply means for each load receiver; a valve for regulating the supply to each of said receivers; a plurality of valve-actuators operated by said beam mechanisms for opening said valves; a load-reducing valve carried by each of said receivers; an actuator for each of said load-reducing valves, the reducing-valve actuator of one weighing mechanism being operated by and on the operation of the beam mechanism of the other weighing mechanism, and simultaneously with the opening of the supply-valve of said other weighing mechanism, whereby, on the supply of material to one receiver, a reduction of the overload in the other receiver takes place; locking means intermediate the supply-valve and the closer of each apparatus, and operative to lock the supply-valve shut when the closer is open, and to lock the closer shut when the supply-valve is open; reciprocally-effective locking means intermediate the supply-valves of said apparatuses, and operative to lock one supply-valve shut when the other is open; and reciprocally-effective locking means intermediate the closers of said receivers and operative to lock one closer shut when the other is open.

50. The combination of a pair of weighing apparatuses each comprising weighing mechanism embodying a load-receiver and beam mechanism, one of said beam mechanisms embodying a supplemental beam-arm operative therewith, and one of said receivers having a stream-receiving conduit, and the other of said receivers having a load-reducing outlet; a load-reducing instrumentality for said last-

mentioned receiver; load-supply means for each of said receivers; a stream-controller for each of said load-supply means; an actuator intermediate said supplemental beam-arm and one of said stream-controllers and operative to open the same; and an actuator for effecting the operation of said load-reducing instrumentality, and in position to be engaged by said stream-controller actuator on the operation thereof by the beam mechanism.

51. In a duplex weighing-machine, the combination with a pair of coacting weighing mechanisms, each embodying a load-receiver and beam mechanism therefor, of mechanism operable to effect the overloading of one receiver before the completion of the load-discharge of the other receiver; and then to effect the reduction of such overload during the supply to the other receiver, whereby the surplus of the load discharged from one receiver assists the loading of the other receiver.

52. In a duplex weighing-machine, the combination of a plurality of weighing apparatuses comprising a plurality of coacting weighing mechanisms embodying a plurality of load-receivers and a plurality of beam mechanisms therefor; overload-supply means for said receivers; a plurality of stream-controlling means; a plurality of material-discharge means; a plurality of alternately-operable load-reducing instrumentalities, the load-reducing instrumentality of one apparatus being controlled by and on the operation of another of said apparatuses through the medium of the weighing mechanism thereof on its return to its normal position to receive a load after the discharge of its preceding load; a plurality of main locking means intermediate said stream controlling means and load-discharge means, and operative to lock the stream-controllers shut when the load-discharge means are open and to lock the load-discharge means shut when the stream-controllers are open, and each of which locking means embodies supplemental locking means operative to maintain the load-discharge means shut on the unlocking of the main locking means; reciprocally-effective locking means intermediate the stream-controlling means, whereby, when one of said stream-controlling means is open the other is locked shut; and reciprocally-effective locking means intermediate the load-discharge means, whereby, when one of said load-discharge means is open the other will be prevented from opening should its supplemental locking means be prematurely tripped.

53. In a weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver, and one of said weighing mechanisms having a load-reducer operative to discharge the surplus material of the load of one receiver into the load-receiver of the other weighing mechanism.

54. The combination in a weighing apparatus, of a pair of weighing mechanisms, each provided with a load-receiver and with means located and operating for reducing an overload to bring the weighing mechanism to a poise by discharging the surplus material from its load-receiver; and means for delivering the surplus of the load of one weighing mechanism into the load-receiver of the other weighing mechanism, whereby the discharged surplus of the load of one mechanism constitutes a part of the overload of the other mechanism.

55. The combination of a pair of weighing mechanisms, each embodying a load-receiver, and a load-reducer operative to reduce a load and to discharge the surplus material thereof into the other receiver, said reducers being disposed intermediate said weighing mechanisms.

56. In a weighing-machine, the combination of a pair of weighing mechanisms, each embodying a load-receiver, one of said weighing mechanisms having load-discharge means, and the other of said weighing mechanisms having load-reducing means; and actuator means for operating said load-reducing means on the operation of the other weighing mechanism, and controlled in its operation at one predetermined period by the load-discharge means of said weighing mechanism.

57. In a weighing-machine, the combination of a pair of weighing mechanisms; load-supply means for each of said weighing mechanisms, one of said weighing mechanisms having a stream-controller; and means for effecting the operation of said stream-controller at one predetermined period; and the other of said weighing mechanisms having a load-reducing instrumentality operative to reduce the load supplied thereto; and means intermediate the stream-controller-actuating means of one weighing mechanism and the load-reducing instrumentality of the other weighing mechanism for effecting the operation of said load-reducing instrumentality.

58. A weighing-machine comprising a pair of weighing mechanisms, each having a load-receiver, one of said weighing mechanisms having load-reducing means operative to reduce the load supplied to one receiver and to discharge the surplus material thereof into the other receiver intermediate its top and bottom; and means for supplying said other receiver with material at the upper part thereof, whereby said receiver is supplied with material from different sources.

59. A weighing-machine comprising a pair of weighing mechanisms, each having a load-receiver adapted to receive material at the top and also at the side thereof; means for reducing the load of each receiver, and operative to discharge the surplus thereof into the other receiver at the side thereof, and on the ascent of said receiver to receive a load; and means for supplying each of said receivers with material at the top thereof, whereby each receiver is supplied with material from different sources simultaneously during a predetermined period.

60. The combination of a pair of weighing mechanisms; load-supply means for each of said weighing mechanisms; a stream-controller for regulating the supply to each weighing mechanism; load-discharge means for each weighing mechanism; reciprocally-effective locking means intermediate the stream-controller and the load-discharge means of each weighing mechanism and operative to lock the stream-controller inoperative when the load-discharge means is in operation, and to lock said load-discharge means inoperative when the stream-controller is in operation; and reciprocally-effective means intermediate the stream-controllers of said weighing mechanisms and operative when one of said stream-controllers is in operation to lock the other inoperative.

61. The combination of a pair of weighing mechanisms; load-supply means for each of said weighing mechanisms; a stream-controller for regulating the supply to each weighing mechanism; load-discharge means for each weighing mechanism; reciprocally effective locking means intermediate the stream-controller and the load-discharge means of each weighing mechanism and operative to lock the stream-controller inoperative when the load-discharge means is in operation, and to lock said load-discharge means inoperative when the stream-controller is in operation; and reciprocally-effective means intermediate said load-discharge means and operative on the operation of one load-discharge means to lock the other against operation.

62. The combination of a pair of weighing mechanisms; load-supply means for each of said weighing mechanisms; a stream-controller for regulating the supply to each weighing mechanism; load-discharge means for each weighing mechanism; reciprocally-effective locking means intermediate the stream-controller and the load-discharge means of each weighing mechanism and operative to lock the stream-controller shut when the load-discharge means is open, and to lock said load-discharge means shut when the stream-controller is open; reciprocally-effective means intermediate the stream-controllers of said weighing mechanisms and operative when one of said stream-controllers is open to lock the other against opening; and reciprocally-effective means intermediate said load-discharge means and operative on the opening of one load-discharge means to lock the other against opening.

606,244. PLOW ATTACHMENT. SOLOMON H. RITTER, Pottsgrove, Pa. Filed Nov. 5, 1897. Serial No. 657,590. (No model.)



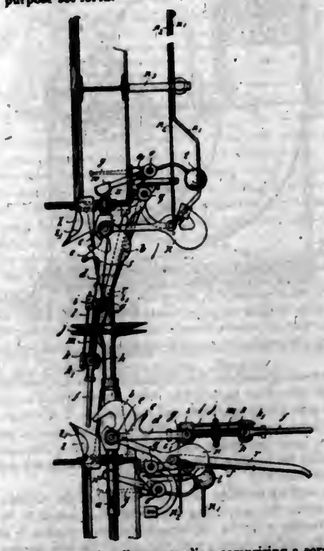
Claim.—1. The combination with plow-handles, and a pivoted beam, of a bracket fixed to said handles and having a slotted shank and a looped end, a worm or screw shaft journaled in the bracket and having one end extended into the looped end thereof, a traveling nut having a stem which passes through the slotted bracket and is attached to the beam, a notched disk or ratchet attached to the protruding end of the worm-shaft, an adjusting-lever fitted loosely on the end of the worm-shaft, a pawl on said lever, a holding-segment carried by the bracket, and a thumb latch-lever, substantially as and for the purposes described.

2. The combination with a pivoted plow-beam, of a fixed bracket, a traveling nut slidably fitted to the bracket and attached to the plow-beam for moving the latter on its pivot, a worm-shaft passing through the nut and journaled in the bracket, and means for rotating and locking the screw-shaft, substantially as described.

3. The combination with a plow-beam pivoted to turn on a vertical axis, of a fixed bracket on a plow-frame, a traveling nut slidably fitted to the bracket and connected with the beam by a vertical pivot parallel to the beam-pivot, a screw-shaft passing through the nut and journaled in the bracket, a ratchet on the screw-shaft, an adjusting-lever carrying a feed-pawl and a locking device, and a fixed segment on the bracket with which the lever-locking device is engaged, substantially as described.

606,245. CAR-COUPLING. ALFRED RUSCHER, Bruck-Ujhain, Austria-Hungary. Filed Apr. 2, 1898. Serial No. 676,192. (No model.)

Claim.—1. An improved railway-coupling comprising a screw coupling-link consisting of bars *d* having disengaging-noses *e*, the nut *i* foldable downwardly, screw *m*, nut *k* and the coupling-bow *f* turnable on its nut *k* only within small limits, in combination with a lifting device for the screw coupling-link consisting of a shaft *q* journaled transversely of the car having means for operation outside the buffers, lifting-arms *r* and an arresting-tooth *p* on said shaft *q* a second shaft *o* a click *o'* thereon disengaging-levers *w* thereon and buffers having rods *x* adapted on receiving end thrust to move said levers *w* for the purpose set forth.



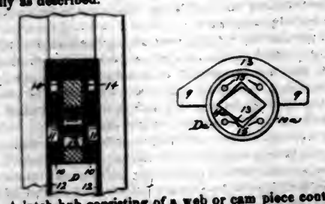
2. An improved railway-coupling comprising a screw coupling-link consisting of bars *d* having disengaging-noses *e*, the nut *i* foldable downwardly, screw *m*, nut *k* and the coupling-bow *f* turnable on its nut *k* only within small limits, in combination with a lifting device for the screw coupling-link consisting of a shaft *q* journaled transversely of the car having means for operation outside the buffers, lifting-arms *r* and an arresting-tooth *p* on said shaft *q* a second shaft *o* a click *o'* thereon disengaging-levers *w* thereon and buffers having rods *x* adapted on receiving end thrust to move said levers *w* and a D-hook *n* suspended from said hook *b* and a device for lifting the D-hook *n* consisting of a rod *n'* connected thereto guides on the carriage for said rod *n'* and draw-rods *n²* attached to rod *n'* and passing to both sides of the carriage, for the purpose set forth.

3. An improved railway-coupling comprising a screw coupling-link consisting of bars *d* having disengaging-noses *e*, the nut *i* foldable downwardly, screw *m* nut *k* and the coupling-bow *f* turnable on its nut *k* only within small limits, in combination with a lifting device for the screw coupling-link consisting of a shaft *q* journaled transversely of the car having means for operation outside the buffers, lifting-arms *r* and an arresting-tooth *p* on said shaft *q* a second shaft *o* a click *o'* thereon disengaging-levers *w* thereon and buffers having rods *x* adapted on receiving end thrust to move said levers *w* and a connecting-rod *l* between the two nuts *i k* of the screw-coupling, for the purpose of securing the same against turning, for the purpose set forth.

4. An improved railway-coupling comprising a screw coupling-link consisting of bars *d* having disengaging-noses *e*, the nut *i* foldable downwardly, screw *m* nut *k* and the coupling-bow *f* turnable on its nut *k* only within small limits, in combination with a lifting device for the screw coupling-link consisting of a shaft *q* journaled transversely of the car having means for operation outside the buffers, lifting-arms *r* and an arresting-tooth *p* on said shaft *q* a second shaft *o* a click *o'* thereon disengaging-levers *w* thereon and buffers having rods *x* adapted on receiving end thrust to move said levers *w* and a hood adapted to receive the bow *f* of the screw-coupling, for the purpose set forth.

606,246. LATCH. HENRY H. RUSSELL, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Nov. 9, 1897. Serial No. 657,976. (No model.)

Claim.—1. The combination of a latch-case having inwardly-projecting bosses, with a latch-hub having hollow side trunnions with internal bearings into which internal bearings said bosses are received and upon the interior of which bosses the hub has its bearing, substantially as described.



2. A latch-hub consisting of a web or cam piece containing the bearing-hole for the spindle and hollow trunnions rigid with said web-piece, and with their inner diameter large enough to clear the spindle, whereby the spindle may rock or tilt within the hub on said rigid web, substantially as described and for the purpose specified.

3. A latch-hub consisting of the web or cam piece with broad sides, and two separately-formed tubular trunnion-pieces having at their base a flange with its sides extending at a right angle to the axis of said trunnions and resting upon the broad sides of said web or cam piece, the said flanges being rigidly secured to said web, substantially as described.

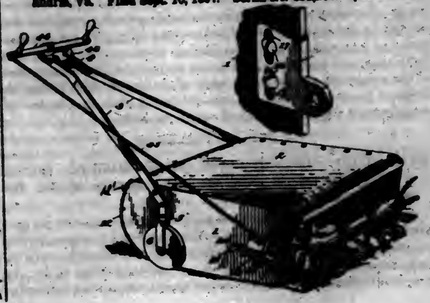
4. A latch-hub for a square spindle having a diamond-shaped spindle-hole as viewed in the longitudinal direction of the spindle, the shortest diameter of which hole is fitted to the diagonally opposite corners of the spindle, substantially as described.

606,247. INVALID-BED. JOHN M. SCRIBNER, Belmore, Canada; Elmer C. Scribner administrator of said John M. Scribner, deceased. Filed Dec. 23, 1897. Serial No. 663,209. (No model.)



Claim.—In an invalid-bed, the combination with a bedstead having head, foot and sides, of a tilting frame having its longitudinal axis pivoted in the head and foot, swivel-bars pivoted to said tilting frame and having their ends extending to the sides of the bedstead, supports on said sides adapted to engage the ends of said swivel-bars, a jointed spring-frame consisting of a fixed central section, head-section and hinged double foot-section supported upon said tilting frame, guide-bars secured to the sides and central section and adapted to engage eyes on the adjacent ends of the head and foot sections, links connecting the sides with the sides of said head and foot sections, longitudinal bearers on the cross-slats of the head and inner foot sections, levers under said bearers pivoted in the tilting frame and adapted to press on said bearers and raise the outer portion of the head and inner foot section, and wiading devices pivoted to the bedstead in suitable positions controlling said levers by means of flexible connections, substantially as set forth.

606,248. STREET-SWEEPER. ELDRIDGE J. SMITH, Washington, D. C., assignor to the Street Cleaning Company, same place and Alexandria, Va. Filed Sept. 10, 1897. Serial No. 651,307. (No model.)



Claim.—1. In a street-sweeper, the combination with a box or receiver, of a brush journaled upon said box, an oscillating handle, a reciprocating rod operated by said oscillating handle and a connection between said rod and brush whereby the latter is rotated when the rod is reciprocated.

2. In a portable sweeping-machine, the combination with a dirt-receiver, of a brush journaled upon said sweeper, a toothed wheel carried by the brush, a pair of racks arranged respectively above and below the said toothed wheel and adapted to be alternately brought into contact with said wheel to impart a rotary motion thereto, and means for reciprocating the said racks.

3. In a portable street-sweeper, the combination with a box or receiver, of a brush journaled upon said box, a ratchet-wheel carried by the brush, a ratchet-yoke cooperating with the said ratchet-wheel, an oscillating handle, and a connection between said oscillating handle and the ratchet-yoke whereby the brush is given a continuous rotary movement in one direction during the oscillation of the handle.

4. In a portable street-sweeper, the combination with the box or receiver, of a brush journaled upon the said box, a ratchet-wheel carried by the brush-head, a ratchet-yoke cooperating with the said ratchet-wheel to drive the brush in one direction, means for reciprocating the ratchet-yoke, and mechanism for throwing the teeth of the said ratchet-yoke into and out of engagement with the ratchet-wheel during its rotation.

5. In a portable street-sweeper, the combination with the box or receiver, having an open front end, a brush journaled at the said front end of the box, an oscillating handle, a connection between said handle and brush for imparting a continuous rotary movement to the latter in one direction, and an adjustable stop-plate for limiting the movement of the said oscillating handle.

6. In a portable sweeping-machine, the combination with a wheeled box or receiver having an open front end and a door at the rear end, handle-bars secured to the sides of the said box and having their lower ends bent outward to accommodate the runner-wheels and provide bearings for the runner-wheel axles, a block carried by the upper portion of the handle-bars, an oscillating handle pivoted to said block, a brush journaled at the front end of the box or receiver, a ratchet-wheel carried by the brush, a ratchet-yoke cooperating with the said ratchet-wheel to rotate the brush, and a connection between the ratchet-yoke and oscillating handle to operate the said yoke.

7. In a portable street-sweeper, the combination with a dirt-receiver, of a rotary brush journaled upon said receiver, a ratchet-wheel carried by the brush, a ratchet-yoke cooperating with the brush to impart a rotary movement thereto, an oscillating plate upon which a portion of said ratchet-yoke bears, said oscillating plate being arranged to shift the position of the ratchet-yoke with respect to the ratchet-wheel, and means for reciprocating the ratchet-yoke.

8. In a portable street-sweeper, the combination with a dirt-receiver, of a rotary brush journaled upon said receiver, a ratchet-wheel carried by the brush, a ratchet-yoke cooperating with the ratchet-wheel to impart a rotary movement to the brush, an oscillating plate upon which a portion of said ratchet-yoke rests said oscillating plate being arranged to shift the position of the ratchet-yoke with respect to the ratchet-wheel, and a spring-plate acting upon a part of the said yoke to insure its operation, and means for reciprocating the ratchet-yoke to rotate the brush.

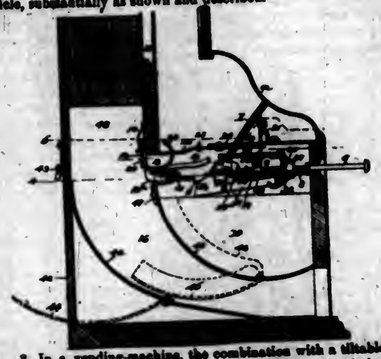
9. In a portable street-sweeper, the combination with a dirt-receiver, of a rotary brush journaled upon said receiver, a ratchet-wheel carried by the brush, a ratchet-yoke cooperating with the ratchet-wheel to rotate the brush, a rearward extension-piece on said ratchet-yoke, an oscillating plate having a ledge or projection upon which said extension-piece rests, said oscillating plate being arranged to shift the position of the yoke with respect to the ratchet-wheel, and means for imparting a reciprocating movement to the said ratchet-yoke to rotate the brush.

10. In a portable street-sweeper, the combination with a dirt-receiver, of a rotary brush journaled upon said receiver, a ratchet-wheel carried by the brush, a ratchet-yoke cooperating with the ratchet-wheel to rotate the brush, an oscillating plate upon which the said yoke rests, said oscillating plate being arranged to shift the position of the yoke with respect to the teeth of the ratchet-wheel, stops for limiting the movement of the said oscillating plate, and means for reciprocating the ratchet-yoke to rotate the brush.

606,249. COIN-CONTROLLED VENDING-MACHINE. CHARLES E. SHAFF, Grottoes, Va. Filed Sept. 7, 1897. Serial No. 650,802. (No model.)

Claim.—1. In a vending-machine, the combination with the pivoted tiltable table, having the lever-arm projecting horizontally but curved upward, of a horizontal slide having a coin-holding slot or socket, and arranged in line with, but at a lower point than, said arm, and movable toward and from the latter, as shown and described.

2. In a vending-machine, the combination with a coin-chute and reservoir or compartment for holding cigars or other articles, of a tiltable table located below said compartment, a movable coin-carrier and lever mechanism adapted to be acted on by the coin in passing through said chute, for releasing one or more cigars or other article, substantially as shown and described.



3. In a vending-machine, the combination with a tiltable table for temporarily holding cigars or other articles, said table having a curved lever-arm, of a movable coin-carrier adapted to bring the coin into contact with said arm, for tripping the table, as shown and described.

4. In a vending-machine, the combination with the reservoir-passage and the coin-chute having side slots, of the pivoted levers having beveled ends that project into and normally lie in the chute-slots, the pivoted horizontal levers projecting into the reservoir-passage and having a loose connection with the first-named or coin-operated levers, a spring for holding both sets of levers in retracted position, as shown and described.

5. In a vending-machine, the combination of the slidable coin-carrier and device for supporting a cigar or other article to be sold, said device having a curved trip-arm whose base portion is curved to adapt it for sliding contact with the end of the coin-carrier, substantially as shown and described.

6. In a vending-machine, the combination with the reservoir-passage, a movable table or support for the articles to be sold, of a hinged valve for closing the opening at rear of such support, and means connected with the support for acting on the valve to open the same, substantially as shown and described.

7. In a vending-machine, the combination with the reservoir-passage and the tiltable table arranged beneath it, and having a rigid arm or cam, of the hinged valve or plate hanging alongside the table, in such proximity as to adapt it to be acted on by said cam, and a spring for holding the valve normally closed as shown and described.

8. In a vending-machine, the combination with the reservoir-passage, of the tiltable table arranged beneath the same, and having curved fingers which are arranged in vertical planes and made of flexible material that renders them capable of retaining the form into which they may be bent, as shown and described.

9. In a vending-machine, the combination of a tiltable magnet and a movable coin-carrier adapted to tilt the magnet when moved forward substantially as shown and described.

10. In a vending-machine, the combination with the magnet pivoted horizontally and weighted at its front end, of the movable coin-carrier having a projection adapted to strike the magnet and tilt the same when moved inward as specified.

11. In a vending-machine, the combination with a coin-carrier, of the magnet weighted at one end, lugs to which it is pivoted, said lugs having shoulders which support the magnet in normal position, as shown and described.

12. In a vending-machine, the combination with the slotted, slidable coin-carrier of a spring-actuated coin-ejector pivoted beneath the carrier, and having a portion which is adapted to project upward into the slot in the carrier, and means for depressing said ejector while the coin is being moved forward as shown and described.

13. In a vending-machine, the combination of a slotted slidable bar for carrying a coin, wipers pivoted to and pendent from such bar, a spring-supported lever arranged beneath the bar and having cam projections which the wipers act on when the bar is moved forward, said lever having a coin-ejecting portion which is adapted to enter the slot in said bar substantially as shown and described.

606,250. GATE. SAMUEL STOUT, Newcomb, Ill. Filed Sept. 17, 1897. Serial No. 651,973. (No model.)

Claim.—1. The combination with the upper and lower bars integrally connected at one end to form a U-shaped whole, of the counterweight secured in the curved connecting portion, the perforated adjustable bar connecting the upper and lower bars adjacent to the said counterweight, the couplings and perforated bar connecting the upper and lower bars at their opposite ends, and the rods held in the perforations in the connecting-bars.



2. The combination with the pair of short posts, of the counterbalanced gate pivotally supported thereby, the second pair of short posts whose sides next the roadway are more distant than the bottom of the gate from the pivotal axis, the third pair of longer fulcrum-posts, levers pivoted to the latter posts and connected to the gate to swing it, and rigid ties connecting the three pairs of posts, substantially as set forth.

3. The combination with the frame made up of the tube bent to U shape and having its ends connected by the normally vertical bar, of the grooved counterweight, and the adjustable pivotal bar holding the counterweight in place.

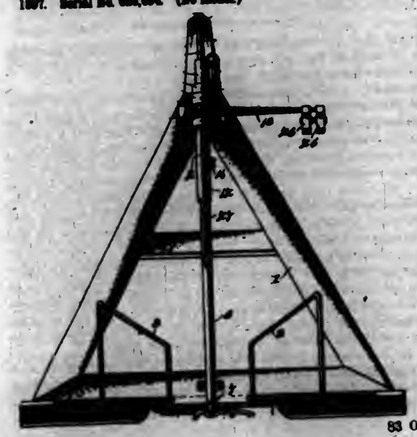
606,251. DRESS-SHIELD. BENJAMIN F. SUTTON, Brooklyn, N. Y. Filed May 3, 1897. Serial No. 634,949. (No model.)



Claim.—1. A dress-shield comprising a body or inner portion of pliable and flexible material having corrugations which extend from the line of the fold of the shield to within some distance from the edges thereof and form channels in the faces thereof and having a flat margin which constitutes a brace to said channels, substantially as herein described.

2. A dress-shield comprising a body or inner portion of pliable and flexible material having corrugations which extend from the line of the fold of the shield to within some distance of the edges thereof and having a flat or smooth margin and a binding which is folded over the edges and is attached to said flat or smooth margin beyond the termination of the corrugations, substantially as herein described.

606,252. MUSIC-LEAF TURNER. ROBERT H. SWARTZ, Creston, Iowa, assignor of one-half to C. F. Shirvis, same place. Filed Mar. 5, 1897. Serial No. 626,694. (No model.)



Claim.—1. In a leaf-turning apparatus, the combination of turning-arms arranged in contiguous planes and having concentric hubs, provided with contiguous ears or projections, and yieldingly held in their normal positions to prevent accidental rotary movement, a selecting device having a pawl mounted to traverse a path concentric with the hubs of the turning-arms, and adapted to swing in a plane which radiates from the center of the hubs, said pawl being provided with contiguous cam and flat surfaces for engagement with the ears or projections of the hubs, whereby it is adapted to swing from the axis of the hubs until its flat surface engages the ear or projection of the outermost hub, and actuating devices for moving the pawl in its concentric path, substantially as specified.

2. In a leaf-turning apparatus, the combination of turning-arms arranged in contiguous planes and having concentric hubs provided with contiguous ears or projections, said hubs being yieldingly held in their normal positions to prevent accidental rotary movement, a selecting device having a pawl mounted to traverse a path concentric with the hubs, and to swing in a plane radiating therefrom, said pawl being provided with cam and flat surfaces for engagement with the ears or projections of the hubs, and with a light spring to resist the outward-swinging movement of the pawl when its cam-surface engages the edges of the ears or projections, the resistance of said spring being less than the resistance of the turning-arms to rotary movement, whereby the pawl receives an outward-swinging movement to bring its flat surface in contact with the ear or projection of the outermost hub, and actuating devices for imparting rotary movement to the pawl, substantially as specified.

3. In a leaf-turning apparatus, the combination of turning-arms arranged in contiguous planes and having concentric hubs frictionally held from accidental rotary movement, and provided with contiguous ears or projections, a selecting device having a pawl, provided with a light actuating-spring, mounted to traverse a path concentric with the hubs and to swing in a plane radiating therefrom, and provided with means for selecting and engaging the ear or projection of the outermost hub, and actuating devices for imparting rotary movement to the pawl, substantially as specified.

4. In a leaf-turning apparatus, the combination of turning-arms having hubs provided with concentric friction-surfaces, a stationary spring in contact with the friction-surface of each hub, to hold the turning-arms in their several adjusted positions, and means for selecting and consecutively actuating the hubs in opposition to the holding-springs to impart swinging movement to the turning-arms, substantially as specified.

5. In a leaf-turning apparatus, the combination of concentric contractile journals, turning-arms having tubular hubs fitted in said journals and yieldingly held thereby in their adjusted positions, and means for consecutively actuating the arms to impart swinging movement thereto, substantially as specified.

6. In a leaf-turning apparatus, the combination with a spindle yieldingly held in its normal position, and means for actuating the same, of a series of interior journals concentric with said spindle, turning-arms having tubular hubs fitted in said journals and provided with ears arranged in a common plane, a slide fitted upon the spindle and provided with locking devices whereby it may be secured at the desired adjustment, a yielding pawl carried by the slide for engaging the ears of the turning-arm hubs consecutively, and means for adjusting said concentric journals longitudinally of the spindle, substantially as specified.

7. In a leaf-turning apparatus, the combination of a tubular bearing, a spindle mounted in said bearing and provided with a return-spring and an actuating-lever, a sleeve mounted upon the tubular bearing and carrying concentric interior journals, means for securing said sleeve at the desired vertical adjustment, turning-arms having their hubs fitted in said journals and provided with projecting ears arranged in a common transverse plane, a slide adjustably fitted upon the spindle, and a selecting-pawl carried by the slide for engaging the ears of the hubs, substantially as specified.

8. In a leaf-turning apparatus, the combination with a spindle mounted in fixed bearings and yieldingly held in its normal position, of interior journals arranged concentric with said spindle and means for adjusting the same parallel with the axis thereof, turning-arms having their hubs fitted in said journals and adjustable therewith, and a selecting device adjustably mounted upon the spindle and provided with means for consecutively engaging the hubs of the turning-arms, whereby the turning-arms and cooperating devices may be adjusted vertically to suit the height of the book or sheet of which the leaves are to be turned, substantially as specified.

9. In a leaf-turning apparatus, the combination with a rack, of a spindle, leaf-turning devices operatively connected with the spindle, an actuating-lever fixed to the spindle, a contractile return-spring attached at one end to the lever for yieldingly holding the spindle in its normal condition, a stop to limit the return movement of the lever, and an extension 10 on the lever for engaging the spring at an intermediate point when the lever is actuated in opposition to the

tension of the spring to bow the latter away from the plane of the spindle, substantially as specified.

606,258. NUT-LOCK. WEBSTER W. SWEIGART, York Road, Md. Filed Mar. 9, 1898. Serial No. 673,316. (No model.)



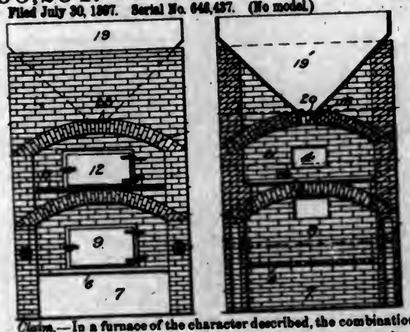
Claim.—1. A nut-lock consisting of a single piece of metal bent to form a washer to receive the bolt and the balance of the metal after the formation of the washer bent to form a spring locking-arm, the portion of the metal forming said spring-arm bent at a point at or near its middle to constitute two members at right angles or approximately at right angles to each other, one of said portions adapted to engage a base for preventing the lock from turning, and the other to engage the edge of the nut to be locked, the entire arm from the point where it leaves the washer being resilient.

2. A nut-lock consisting of a strip of metal bent to form a washer and a spring locking-arm, the portion constituting the latter being bent approximately at right angles at or near its center one portion of the arm in the plane with the washer and the other portion bent outwardly into a plane outside of the washer into the path of the nut to be locked and the extreme end of the arm being bent back below the plane of the inner face of the nut.

3. A nut-lock consisting of a strip of metal bent to form a washer, and the portion of the strip remaining after the formation of the washer bent downward and backward to form a base portion 4 and then at right angles to engage an edge of the nut to lock the latter against turning.

4. The herein-described nut-lock consisting of a single piece of resilient material bent at one end into a washer and bent downward from one side and back to the other side thereof in separated and substantially tangential relation thereto to form a base and then bent into an upright locking-arm at the latter-named side of the washer having a beveled nut-locking edge tangentially disposed in relation thereto, said arm being bowed or curved outwardly from the plane of the washer and terminating in an end bent toward the washer and lying substantially in or slightly back of the plane thereof for the purpose of guiding the corner of the nut onto the arm when the nut is unscrewed, substantially as described.

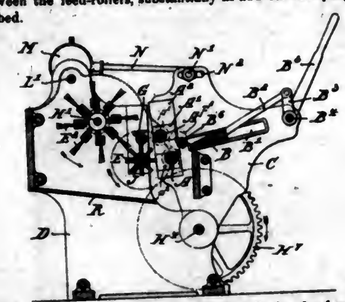
606,254. FURNACE. FRANK E. SWIFT, Washington, Iowa. Filed July 30, 1897. Serial No. 646,437. (No model.)



Claim.—In a furnace of the character described, the combination of the upper and lower arches dividing the furnace into a combustion-chamber and a roasting-chamber and said arches formed with openings, and the said chambers formed with openings leading to a kiln, the reciprocating dampers for opening and closing the openings in said arches, and the hopper having inclined walls located above the upper arch, substantially as described.

606,255. MACHINE FOR PULLING OR PLUCKING RABBIT-SKINS. JOHN TAYLOR and FRED TAYLOR, Leeds, England. Filed Jan. 9, 1897. Serial No. 618,590. (No model.) Patented in England July 15, 1896, No. 15,665.

Claim.—1. In a machine of the character described, two feed-rollers a plucking-wheel, a flexible covered roll G, a feed-apron provided with a roll around which the skin is adapted to be moved, mechanism for moving the feed-apron and roll to a position between the feed-rollers and a plucking-wheel having a series of arms, the ends of which are V-shaped and adapted to engage with the long hairs of the skin and flexible covered roll G, when the apron-roll is between the feed-rollers, substantially as and for the purposes described.



2. In a machine of the character described, a fixed main frame, a movable frame hinged thereto, two feed-rollers having bearings in said movable frame, a feed-apron provided with a roll about which the skin is placed, said apron and roll being movable in said movable frame, a plucking-wheel, a flexible covered roll G, and a revolving brush all supported in the fixed frame, said wheel adapted to deposit hair from the skin upon the roll G, and said brush adapted to remove said hair from said roll G, and means for adjusting the movable frame with respect to the fixed frame, substantially as and for the purposes described.

3. In a machine of the character described, two feed-rollers, a flexible covered roll, a feed apron or platform carrying a roll upon which the skin is supported, means for shifting said apron and roll to bring the skin between the two feed-rollers, a plucking-wheel adapted to impinge on the long hairs of the skin and flexible covered roll, a brush adapted to remove the hair from the flexible covered roll and deposit it at the end of the machine opposite to that in which the skin travels, substantially as and for the purposes described.

606,256. NON-REFILLABLE BOTTLE. JOHN A. TRIMBLE, Interior, S. D. Filed Oct. 16, 1897. Serial No. 655,302. (No model.)

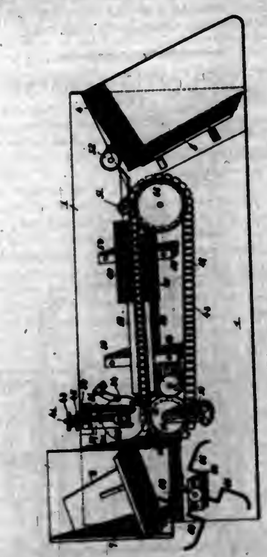


Claim.—A bottle having a closed neck, the passage of said neck being enlarged at the top, an extension projecting downwardly and outwardly from said enlarged portion at an acute angle thereto, said extension having a passage therein of greater diameter than the enlargement of the neck whereby a cork may be inserted in said extension the large end uppermost, passed sidewise into the neck and be pressed downwardly into place, and a plunger-rod run through an opening in the top of the neck, as and for the purpose described.

606,257. POSTMARKING AND STAMP-CANCELING MACHINE. EDWARD M. VAIL and GIDEON POTTER, Kewanee, Ill. Filed Dec. 16, 1896. Serial No. 615,910. (No model.)

Claim.—1. In a machine for marking mail-matter, the combination of a table for receiving the matter to be marked, a gage at the inner edge of the table, a marking mechanism located at a distance from the table and in about the same horizontal plane therewith, a race extending from the marking mechanism to the table and comprising vertical and parallel strips, the outer strip having an end portion projecting over the table and terminating about opposite the aforesaid gage, a feed-pulley located in front of the extended strip for advancing the letters through the space formed between the said projecting end portion of the strip and the gage, a feed-wheel between the table and inner strip of the race and acting jointly with a roller carried by the projected end of the aforesaid outer strip to give the letters an initial impetus, and an endless conveyer disposed horizontally and wholly below the race and the feeding and marking mechanisms, and having a portion forming a traveling bottom to the race throughout its extent, substantially as set forth.

2. In a machine for marking mail-matter, the combination of a table at one end for receiving the matter to be marked, a marking mechanism at the opposite end, a race extending from the table to the marking mechanism and comprising vertical and parallel strips, a feeder for advancing the letters from the table to the race, a second feeding mechanism at the receiving end of the race for giving the letters an initial impetus, and an endless conveyer below the race and forming a traveling bottom therefor, and connecting the marking mechanism with the feeding mechanism at the receiving end of the race for transmitting motion from one to the other, substantially as set forth.



3. In a machine for marking mail-matter, the combination of a marking mechanism comprising a printing-roller, a sprocket-wheel on a journal of the printing-roller, a feed-wheel parallel with the printing-roller and located at a distance therefrom, a sprocket-wheel on a journal of the feed-wheel, vertically-disposed parallel strips forming a race between the marking mechanism and feed-wheel, and a sprocket-chain connecting the sprocket-wheel of the printing-roller with the sprocket-wheel of the feed-wheel, and having horizontally-extending lips or flanges to project across the space formed between the walls of the race to support the letters and carry them to the marking mechanism, substantially as set forth.

4. In a machine for marking mail-matter, the combination of a horizontally-disposed bed, coöperating printing and impression rollers arranged vertically at one end of the bed, a coöperating feed-wheel and feed-roller placed vertically at the opposite end of the bed, a feed-pulley in advance of the feed-wheel and operatively connected therewith, vertical strips spaced apart and extending between the marking and feeding mechanisms, a sprocket-chain connecting sprocket-wheels applied to journals of the printing-roller and feed-wheel, and lips or flanges extending horizontally from the sprocket-chain across the space formed between the parallel strips to support and carry the letters to the marking mechanism, substantially as set forth.

5. In a machine for marking mail-matter, the combination of a marking mechanism, means for feeding the matter to be marked thereto, a table for receiving the matter after it has been marked, a stop overhanging the table and inclined on its inner edge, a shaft, and corresponding arms extending horizontally from the shaft to pass above and below the stop, and bent between their ends to throw their outer portions in advance of their inner portions, substantially as and for the purpose set forth.

6. In a machine for marking mail-matter, the combination of the marking mechanism, means for feeding the matter to be marked thereto, a table for receiving the matter after it has been marked, a stop overhanging the table and inclined on its inner edge, and a packer comprising a shaft and arms radiating from the shaft to operate above and below the aforesaid stop, and having offsets midway of their ends providing shoulders to receive the outer ends of the letters and limit their movement in one direction, and throwing the outer ends of the arms in advance of their inner ends to give ample clearance for the letters, substantially in the manner set forth.

7. In a machine for marking mail-matter, the combination with the marking mechanism, of a packer comprising a shaft and arms radiating from the shaft and having offsets midway of their ends, and having their outer portions curving rearwardly, substantially as shown and for the purpose specified.

8. In a machine for marking mail-matter, the combination with the marking mechanism, a race, and means for advancing the letters through the race to the marking mechanism, of a rebounding stop to engage with the forward end of the advancing letters and properly position them, and a spring attached at one end to a wall of the race and having its free end toothed and extending across the path of the advancing letters to engage positively therewith and prevent backward movement of the letters, and capable of yielding to permit their free forward movement, substantially as set forth.

9. In a machine for marking mail-matter, the combination of the marking mechanism, a rebounding stop carried by an element of the marking mechanism, means for feeding letters to the marking mechanism comprising a race, and a spring secured at one end to a wall of the race and having its free end toothed and extending across the path of the advancing letters to engage positively therewith and prevent backward movement when struck by the stop on its rebound, and capable of yielding to admit of the free forward movement of the letters, substantially as described.

10. In a machine for marking mail-matter, the combination of a marking mechanism, a race leading thereto, means for moving the matter to be marked through the race, a stop carried by an element of the marking mechanism to engage with and properly position the matter, a spring to insure the matter engaging with the said stop, and a toothed spring to prevent a rebound of the matter when engaging with the stop, substantially as set forth.

11. In a machine for marking mail-matter, the combination with a printing-roller, of a roller to coöperate therewith comprising a portion to rotate continuously in one direction and a rebounding impression-surface, substantially as set forth.

12. In a machine for marking mail-matter, the combination of printing and impression rollers having coöperating end portions, one of the rollers having its intermediate portion mounted concentrically with the end portions and adapted to rebound, substantially as and for the purpose set forth.

13. In a machine for marking mail-matter, the combination of printing and impression rollers, a rebounding stop mounted concentric with one of the rollers to properly position the matter to be marked, and a spring-actuated gripper to take hold of and move the matter to be marked between the rollers and against the rebounding stop, substantially as set forth.

14. In a machine for marking mail-matter, the combination of a printing-roller, an impression-roller comprising circular end portions to coöperate with corresponding parts of the printing-roller, and an intermediate rebounding portion loosely mounted and adapted to be advanced by the letters passing between the two rollers, and means for returning the intermediate portion of the impression-roller to an initial position when released from the letter, substantially as set forth.

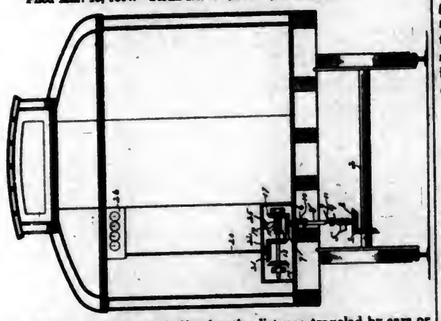
15. In a machine for marking mail-matter, the combination of a printing-roller having projecting end portions, an impression-roller formed of corresponding end portions and an intermediate segmental portion concentrically mounted with the end portions to coöperate with the printing-surface, and bearing a stop, and a spring for returning the said segmental portion to a normal position when released, substantially as set forth.

16. In combination, a printing-roller, an impression-roller comprising a rotatable portion and a segment, means for rotating the printing-roller and rotatable portion of the impression-roller continuously in the same direction, a stop attached to the said segment, a spring for returning the segment to a normal position when released from the active portion of the printing-roller, and grippers carried by the printing and impression rollers to take hold of the matter to be marked and advance the latter against the said stop so as to turn the segment, substantially as and for the purpose set forth.

17. In a machine for marking mail-matter, the combination of printing and impression rollers, a yoke having bearings at its ends in which is journaled a shaft of one of the rollers and which are mounted in guides, a stem extending from the yoke and having a threaded portion, a spring mounted upon the stem for moving the yoke to hold the printing and impression rollers at the limit of their inner movement, an adjusting-nut mounted upon the threaded portion of the stem to regulate the space between the opposing portions of the said rollers, and a support for the stem adjustable between the said spring and adjusting-nut, substantially as set forth.

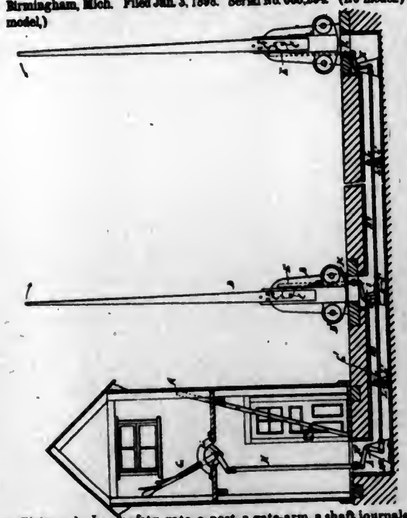
18. In combination, printing and bed rollers, a yoke having one of the rollers journaled thereto and provided with a stem having a threaded portion, a hollow set-screw mounted upon the stem, a spring placed upon the stem and confined between the yoke and the set-screw, and an adjusting-nut mounted upon the threaded portion of the stem and engaging with the set-screw, substantially as and for the purpose set forth.

606,258. MECHANISM FOR INDICATING DISTANCE TRAVELED BY CARS OR VEHICLES. JOHN H. WHITING, Belvidere, Ill. Filed Mar. 13, 1897. Serial No. 627,383. (No model.)



Claim.—A device for indicating the distance traveled by cars or vehicles, consisting of a set of dials located on the vehicle, arms revolving from said dials, a revolving axle, a perpendicular shaft carrying at its lower end a pinion, a pinion mounted on the axle, said pinions engaging each other, an arm connected by a universal joint with said perpendicular shaft, a sleeve receiving the upper end of said arm, said arm adapted to slide longitudinally within said sleeve, a shaft passing through the floor of the car and connected by means of the universal joint with said sleeve, a pinion fixed to the upper end of said shaft, a horizontal shaft journaled within the vehicle, said shaft being adapted to shift longitudinally, a collar located on said shaft, a pinion fixed to said collar, said collar having a spiral slot, a pin located on the horizontal shaft and entering said slot, a perpendicular shaft adapted to transmit motion from the horizontal shaft to the dial-arms, a beveled pinion located at the lower end of the last-said shaft, ratchets located on the upper side of the said beveled pinion, a pawl adapted to engage said ratchets and prevent reverse revolution of the last-said perpendicular shaft, beveled pinions located on the horizontal shaft on opposite sides of the pinion of the last-said perpendicular shaft, but one of the horizontal pinions adapted to engage the pinion of the perpendicular shaft at one time.

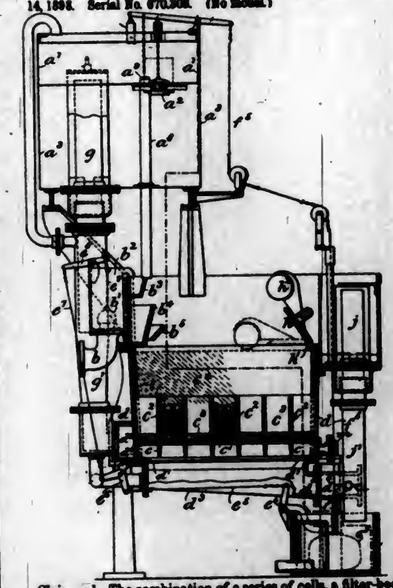
606,259. RAILWAY SAFETY-GATE. HARVEY C. WILSON, Birmingham, Mich. Filed Jan. 3, 1898. Serial No. 665,294. (No model.)



Claim.—1. In a safety-gate, a post, a gate-arm, a shaft journaled in said post to carry the gate-arm provided with a gear, a reciprocatory rack-bar meshing with said gear, a bell-crank, a rod connecting said bell-crank with said rack-bar, a lever, an additional bell-crank, a rod connecting the last-named bell-crank with said lever, and rigid connections connecting said bell-cranks whereby the rack-bar will be actuated by said lever, for the purpose set forth.

2. In a safety-gate, two posts, a gate-arm carried by each post, a shaft to actuate each of said arms, a gear to actuate each of the gate-arms, a reciprocatory rack-bar to actuate each of said gears, a guide-bracket within each of said posts in which the corresponding rack-bar reciprocates, antifriction-rollers journaled upon said bracket, two bell-cranks, a rod connecting each bell-crank with the corresponding rack-bar, a lever, an additional bell-crank, a rod connecting the last-named bell-crank with said lever, and rigid connections connecting said bell-cranks, substantially as set forth.

606,260. FILTER. JAMES WILSON, London, England. Filed Feb. 14, 1898. Serial No. 670,308. (No model.)



Claim.—1. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, means for supplying washing liquid beneath the cells and an air-valve below the cell.

2. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, means for supplying washing liquid beneath the cells, perforated pipes traversing the cells beneath the filter-bed, and means for supplying washing liquid to the pipes.

3. The combination of a filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, means for supplying washing liquid beneath its under side and a hinged screen above it allowing the washing liquid to pass but retaining the filtering material.

4. The combination of a filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, and means for emptying the tanks.

5. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, and means for emptying the tanks.

6. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, means for supplying washing liquid beneath its under side and a hinged screen above it allowing the washing liquid to pass but retaining the filtering material.

7. The combination of a filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a screen above the filter-bed and between it and the siphon, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, and means for emptying the tanks.

8. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a screen above the filter and between it and the siphon, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, and means for emptying the tanks.

9. The combination of a filter-bed, means for supplying liquid to be filtered to the upper side thereof means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, means for emptying the tanks, a second siphon at a higher level than the first discharging liquid from above the filter-bed into the second tank, an overflow from the second tank, and siphons in the tanks at such a height relatively to the overflow that they come into operation only when the second siphon discharges.

10. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, means for emptying the tanks, a second siphon at a higher level than the first discharging liquid from above the filter-bed into the second tank, an overflow from the second tank, and siphons in the tanks at such a height relatively to the overflow that they come into operation only when the second siphon discharges.

11. The combination of a filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a screen above the filter-bed and between it and the siphon, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, means for emptying the tanks, a second siphon at a higher level than the first discharging liquid from above the filter-bed into the second tank, an overflow from the second tank, and siphons in the tanks at such a height relatively to the overflow that they come into operation only when the second siphon discharges.

12. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a screen above the filter and between it and the siphon, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the filter-bed, means for emptying the tanks, a second siphon at a higher level than the first discharging liquid from above the filter-bed into the second tank, an overflow from the second tank, and siphons in the tanks at such a height relatively to the overflow that they come into operation only when the second siphon discharges.

13. The combination of a series of cells, a filter-bed occupying the top portion of the cells, perforated pipes traversing the cells beneath the filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second a float in the second tank, means operated by this float for supplying washing liquid to the under side of the cells and to the perforated pipes, and means for emptying the tanks.

14. The combination of a series of cells, a filter-bed occupying the top portion of the cells, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, means for supplying washing liquid beneath the cells, perforated pipes traversing the cells beneath the filter-bed, means for supplying washing liquid to the pipes, and a screen above the filter-bed allowing the washing liquid to pass but retaining the filtering material.

15. The combination of a series of cells, a filter-bed occupying the top portion of the cells, perforated pipes traversing the cells beneath the filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a screen above the filter and between it and the siphon, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the cells and to the perforated pipes, and means for emptying the tanks.

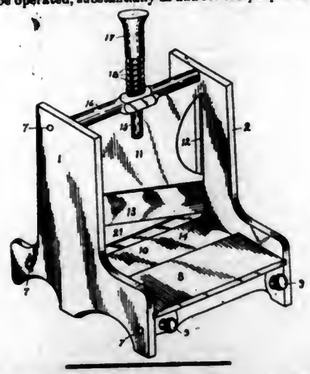
16. The combination of a series of cells, a filter-bed occupying the top portion of the cells, perforated pipes traversing the cells beneath the filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the cells and to the perforated pipes, means for emptying the tanks, a second siphon at a higher level than the first discharging liquid from above the filter-bed into the second tank, an overflow from the second tank, and siphons in the tanks at such a height relatively to the overflow that they come into operation only when the second siphon discharges.

17. The combination of a series of cells, a filter-bed occupying the top portion of the cells, perforated pipes traversing the cells beneath the filter-bed, means for supplying liquid to be filtered to the upper side thereof, means for withdrawing the filtered liquid from its under side, a tank beneath the filter-bed, an automatic siphon which discharges liquid when it accumulates above the filter-bed into the tank, a screen above the filter and between it and the siphon, a float in the tank, means operated by the float for cutting off the supply of unfiltered liquid, a second tank beneath the filter-bed, an overflow from the first tank leading into the second, a float in the second tank, means operated by this float for supplying washing liquid to the under side of the cells and to the perforated pipes, means for emptying the tanks, a second siphon at a higher level than the first discharging liquid from above the filter-bed into the second tank, an overflow from the second tank, and siphons in the tanks at such a height relatively to the overflow that they come into operation only when the second siphon discharges.

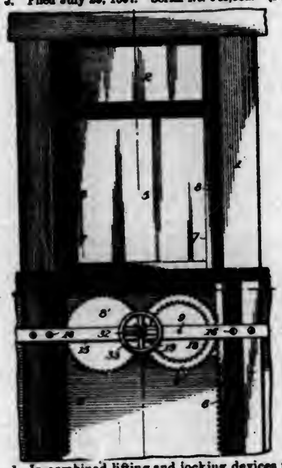
606,261. ENVELOP-OPENER. WILLIAM YATES, Richmond, Wash. Filed July 14, 1897. Serial No. 644,508. (No model.)

Claim.—An envelop-opener, consisting of uprights 1 and 2, strips 3, 6 and 16 extending therebetween, and rigidly fastened thereto, guideways formed in said uprights, a plunger adapted to move vertically in said guideways, having its lower edge beveled and provided with a cutter-blade which depends therefrom, the lug 14 formed integral with said blade, the spindle rising from the upper edge of said plunger, and passing through said strip 16, said spindle having a knob upon its upper end and a coiled spring surrounding a portion thereof, upon its upper end and a coiled spring surrounding a portion thereof, between said knob and said strip 16, the platform 8, the adjusting-screw 9 journaled in said strip 6 and screwed into the movable strip

5, upon which a cutter plate 10 is mounted, the adjusting-screw 19 journaled in said strip 3 and screwed into said strip 4, the angled gage-plate mounted upon the upper side of said strip 4, and the parts adapted to be operated, substantially as and for the purpose set forth.



606,262. SASH LIFTER AND LOCK. GEORGE C. YOUNG, Washington, N. J. Filed July 29, 1897. Serial No. 646,352. (No model.)



Claim.—1. In combined lifting and locking devices for window-sashes, the combination with the movable sash, of rack-bars depending from said sash at opposite sides thereof, one or more pairs of gear-wheels meshing with each other and with the racks, an additional gear-wheel, and a pinion meshing therewith, and means for operating said wheels in a direction to elevate the sash, and means for checking or locking the said devices against movement in the opposite direction until released by hand, substantially as described.

2. In combined lifting and locking devices for window-sashes, the combination with the movable sash, of rack-bars depending from said sash at opposite sides thereof, one or more pairs of gear-wheels meshing with each other and with the racks, an additional gear-wheel and an engaging pinion, means for operating said devices in a direction to elevate the sash, means for automatically locking said devices against return movement until released by hand, and an auxiliary locking device, the whole operating substantially as described.

3. In combined lifting and locking devices for window-sashes, the combination with the movable sash, of intermediate rack-and-gear mechanism for operating said movable sash, and a two-part clutch yielding to movement in one direction and resisting movement in the opposite direction, and a spring-actuated push-rod for holding the parts of the clutch together as well as enabling the separation of said parts, substantially as described.

4. In window-sash-lifting mechanism, the combination with the movable sash, of rack-bars depending from said sash at opposite sides thereof, two gear-wheels of equal diameter intermeshing with the racks and with each other, and means for rotating one of said gears, substantially as described.

5. In combined lifting and locking devices for window-sashes, the combination with the movable sash, of intermediate rack-and-gear mechanism for operating said movable sash, the tubular bearing-sleeve constituting one part of a clutch at its inner end, and carrying a pinion meshing with said gear mechanism, a spring supporting the other part of the clutch which engages with the first part, and a push-rod attached to the inner part of the clutch and extending outward through the tubular bearing-sleeve and provided with a push-button or lever, substantially as described.

6. In combined lifting and locking devices for window-sashes, the combination with the movable sash, of rack-bars depending therefrom on opposite sides, a pair of gear-wheels meshing with each other and with the racks, one of said wheels having an extended shaft or axis, an additional gear-wheel carried at the inner end of said extended shaft, and a pinion meshing therewith, the spring-pressed two-part clutch operating and constructed as described, and the auxiliary locking-arm formed with the inner part of the clutch and having its outer end turned over the extended shaft, substantially in the manner and for the purpose set forth.

606,263. WINDOW-SHADE ADJUSTER. FRED L. BAILEY, St. Louis, Mo. Filed June 21, 1897. Serial No. 641,722. (No model.)

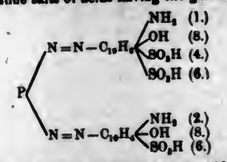


Claim.—1. In a window-shade adjuster, the combination of a rod having brackets at either end, the same being laterally adjustable, rollers mounted at the upper and lower extremities of the brackets, guide-rails secured to the window frame for engaging the rollers and a catch for holding the frame at any desired position, and shade-roller brackets mounted upon a frame for holding the shade-roller substantially as described.

2. The combination in a window-shade adjuster of a rod 5, brackets 3; means for adjusting the brackets 3 laterally on the rod 5, rollers 4 mounted at the upper and lower extremities of the brackets 3, guide-rails 2 secured to the window-frame, brackets 7 for holding the shade-roller, the roller 8 for holding the shade and the catches 11 for securing the frame at any desired position, substantially as described.

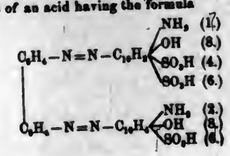
606,264. DARK-BLUE TETRAZO DYE AND PROCESS OF MAKING SAME. JOHANN BARMANN, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Dec. 20, 1897. Serial No. 662,701. (Specimens.) Patented in France Oct. 20, 1898, No. 283,723; in England Oct. 21, 1898, No. 20,579, and in Italy Dec. 31, 1898, XXVIII, 36,336, LXXI, 208.

Claim.—1. As new articles of manufacture the new tetrazo dyestuffs being alkaline salts of acids having the general formula



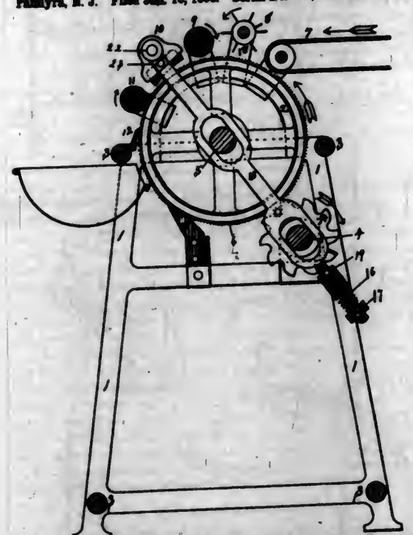
in which formula P means a radical of the benzidin series such as diphenyl, ditolyl, diphenolether, which are dark powders easily soluble in water, being rediazotizable in solution or when on fiber, yielding on unmordanted cotton from blackish-blue to blue shades substantially as described.

2. As a new article of manufacture the specific dyestuff being an alkaline salt of an acid having the formula



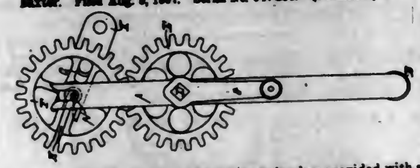
which are in the form of the sodium salt a dark powder with a metallic luster, easily soluble in water with a blackish-blue color, in concentrated sulfuric acid (66° Baumé) with a pure-blue color which changes into violet on the addition of a small quantity of ice while a violet-blue flaky precipitate is obtained on adding a larger quantity of ice to the sulfuric-acid solution, being rediazotizable in solution or when on fiber, yielding on unmordanted cotton blackish-blue shades.

606,265. MACHINE FOR SEEDING RAISINS. HENRY RADDLEY, Fairmyre, N. J. Filed Jan. 10, 1898. Serial No. 666,214. (No model.)



Claim.—In a machine for removing seed from raisins, the combination; consisting of a spiked cylinder, a pressure-roller, a beater with operating mechanism, a second pressure-roller, a doctor for removing the seed, and a series of strippers for removing the seeded raisins from the spikes, all substantially as shown and described.

606,266. FENCE-STAY-WEAVING DEVICE. CHARLES BAXTER and ALBERT SCHRADER, Waukesha, Wis.; said Schrader assignor to said Baxter. Filed Aug. 9, 1897. Serial No. 647,563. (No model.)

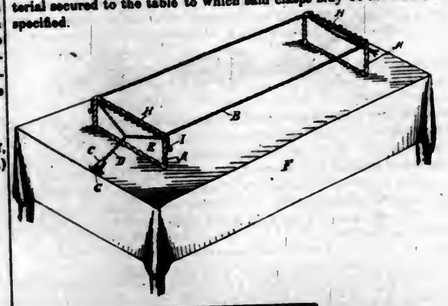


Claim.—The combination with a supporting-bar provided with a notch in one end adapted to engage the line-wire of a fence, a wheel journaled to said bar and provided with a slot corresponding to the notch in the bar, a laterally-projecting frame carried by said wheel and provided with a wire-engaging notch in its extreme end, a spindle mounted in said frame in a position parallel to that of the line-wire for holding the coil of stay-wire, and suitable crank-and-gear mechanism for actuating the slotted gear-wheel and frame, substantially as described.

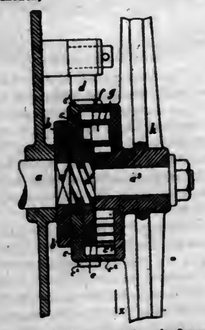
606,267. TABLE-CLOTH SUPPORTER. ALBERT R. BUNDY, Atlanta, Ind. Filed Sept. 27, 1897. Serial No. 653,194. (No model.)

Claim.—1. In combination, frames adapted to be supported upon a table, chains connecting the frames, supporting-chains secured to said frames, strips of suitable material secured to the table and means carried by the supporting-chains for engaging the strips whereby the frames are supported in an upright position, as and for the purpose described.

2. The herein-described combination of the frames A adapted to be supported upon a table, open-work H carried thereby, chains B connecting said frames, chains D attached to the frames by the branches E, clasps carried by the chains D, and strips of suitable material secured to the table to which said clasps may be attached, as specified.



606,268. BRAKE FOR HOISTS OR SIMILAR APPARATUS. ANTON BOLZANI, Berlin, Germany. Filed Dec. 23, 1897. Serial No. 663,186. (No model.)



Claim.—1. The combination, with a shaft provided with a screw-threaded portion and having a disk secured to it, of a screw-threaded disk mounted on the said screw-threaded portion, a brake-disk arranged between the two said disks and provided with means for preventing it from revolving in one direction and an internal toothed wheel, an external toothed wheel arranged concentric with the said shaft, a gyratory and revoluble toothed pinion gearing into the two said wheels, and means for supporting and gyrating the said pinion about the said shaft, substantially as set forth.

2. The combination, with a shaft provided with a screw-threaded portion and having a disk secured to it, of a screw-threaded disk mounted on the said screw-threaded portion, a brake-disk arranged between the two said disks and provided with means for preventing it from revolving in one direction and an internal toothed wheel, an external toothed wheel arranged concentric with the said shaft, a pin projecting laterally from the said screw-threaded disk, a toothed pinion mounted on the said pin and gearing into the two said wheels, and means for revolving the said external toothed wheel, whereby the said pinion is both revolved and gyrated, substantially as set forth.

606,269. SEWING-MACHINE THREADER. LOUISA J. BOWMAN, Amoret, Mo. Filed June 9, 1897. Serial No. 640,064. (No model.)

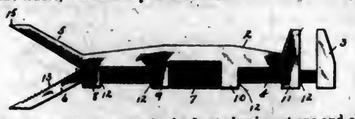


Claim.—A device for threading needles consisting of a straight bar having a longitudinal groove in one side thereof terminating in a seat, and a funnel-shaped guide leading through the bar at a proper distance from the seat, the guide having a lateral slit communicating with an open-ended slot in the bar, substantially as described.

606,270. WRENCH. JOHN BROWN, Conneaut, Ohio. Filed Sept. 22, 1897. Serial No. 652,569. (No model.)

Claim.—1. In a wrench, the frame 2, having the rigid jaw 5, the shank 4 having the sliding jaw 6 provided with serrations 13, said jaws lying upon opposite sides of the plane separating the frame and

the shank, and means for adjusting the shank longitudinally in relation to the frame, substantially as described.



2. In a nut and pipe wrench, the frame having at one end a nut-jaw and at the other end a pipe-jaw, a series of apertured lugs depending from the frame opposite the side thereof whereon the said jaws are situated, a shank seated in said lugs and having at one end a nut-jaw and at the other end a serrated pipe-jaw, said pipe-jaws forming alligator-jaws, and an adjusting nut mounted between two of said lugs and on a screw-threaded portion of the shank, substantially as described.

606,271. PNEUMATIC TIRE AND METHOD OF REPAIRING SAME. CHARLES E. BUCKNER, Flushing, Mich. Filed July 3, 1897. Serial No. 643,473. (No model.)



Claim.—1. The improved method of manufacturing and repairing single-tube pneumatic tires which consists of making an opening from two to four inches in either direction from the valve-opening as seen in ordinary single-tube tires; punching a row of eyelet-holes on either side of the opening thus made; inserting the device of thin rubber tubing with valve-tube A attached, through the opening above mentioned; securing it in place by cement, and lacing passed through the eyelet-holes, after protecting the inner tube by a piece of canvas as substantially set forth.

2. A device, consisting of an inflatable tube with sealed ends with valve-tube attached at its center, adapted to be inserted through an opening, existing in the improved tire above described, or in case of ordinary tires an opening made to allow of its insertion into the lumen of the tire and means for its forced inflation and retention after being inserted into the tire as substantially set forth, for the purpose of quickly and easily repairing a single-tube pneumatic tire when the valve-tube becomes injured or broken off.

606,272. SPECTACLE-FRAME. FRANK L. BURROWS, Cranston, R. I., assignor to Dutee Wilcox, Providence, and Charles A. Wilkinson, Warwick, R. I. Filed Nov. 10, 1897. Serial No. 658,031. (No model.)

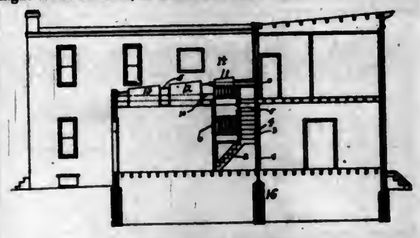


Claim.—1. The combination in spectacle-frames, having an eye-rim with end pieces secured thereto and adapted to meet each other and which are thinned at their outer portions, of a clamping-screw passing through said end pieces, a slot between the outer cut-away portions of the end pieces, a socket or recess in the inner surface of one end piece, a socket in the outer surface of the other of said end pieces, a perforation through said end piece last mentioned, concentric with said socket, a temple-rim having a screw-threaded eye, and a screw-pivot passing through the last-named end piece and into the socket of the other end piece and engaging with its thread said temple-arm, substantially as specified.

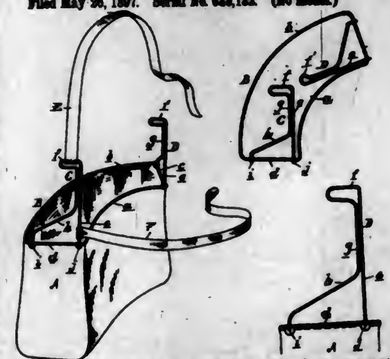
2. The combination in spectacle-frames, having an eye-rim with end pieces secured thereto adapted to meet each other and which are thinned at their outer portion, of a clamping-screw passing through said end pieces, a slot between the outer cut-away portions of the end pieces, a socket or recess in the inner surface of one end piece, a tubular socket with convex bottom formed in the other of said end pieces and opening exteriorly, a perforation through said convex end of the last-named socket and concentric therewith, a temple-arm having a screw-threaded eye, and a screw-pivot passing through the socket and perforation of the last-named end piece and engaging with its thread said temple-arm, substantially as shown.

606,273. STAIRCASE FOR DWELLINGS. HARRY R. CASSEL, Philadelphia, Pa. Filed Jan. 23, 1898. Serial No. 667,564. (No model.)

Claim.—In a dwelling, the structure described, consisting of, a lower story providing a hall and a room, and a second story, the said room extending in part under the second story and in part under and outside of a wall of the second story, a lower half-flight of stairway from the hall, a second lower half-flight from the room, the said half-flights meeting at a common midway platform, a single upper half-flight from said platform to the second floor and a built-up headway formed in the lower part of said second-story wall, to supply head room from said lower half-flight from room to said upper half-flight to second floor, as shown and described.

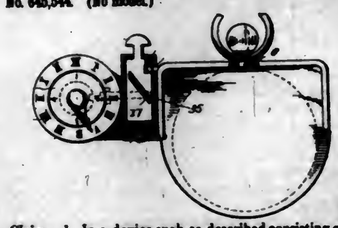


606,274. SEED-BAG HOLDER. CHARLES H. CROATE, Greenville, Mich., assignor to the American Harrow Company, Detroit, Mich. Filed May 26, 1897. Serial No. 638,122. (No model.)



Claim.—The combination with the bag having a segmental wire frame secured thereto surrounding the mouth of the bag and adapted to fit around the body of the wearer, of hanger-arms hinged to the ends of said frame formed of wire and each comprising the portion *e*, the loop *f* bent at right angles thereto, the portion *g* parallel and adjacent to the portion *e*, the outwardly-extending portion *h* and the eyes *i* and *j* at each end and bent around the wire of the frame, and the shoulder-strap adapted to be secured to said loops.

606,275. COMBINED WATCH-POCKET AND WATCH-GUARD. MORTIMER J. CLARK, Summitville, Colo. Filed July 28, 1897. Serial No. 645,544. (No model.)



Claim.—1. In a device such as described consisting of a suitable means for holding the watch, a longitudinally-moving bolt adapted to secure said means in its closed position, a combination alarm and lock attached to said bolt, a bell located in the interior of said lock and alarm, said bell having a recess, a dial located on the casing of the lock, a dial-section adapted to coact with the dial on the casing said section having a recess, the recess of said section adapted to register with the bell-recess, a longitudinally-moving dog adapted to enter at its inner end the registering recesses of the bell and the dial-section, said dog adapted to be shifted laterally as the bolt is depressed, and a clapper suitably mounted and adapted at intervals to sound the bell.

2. In a device such as described, a receptacle adapted to contain the watch, a combination lock and alarm attached to the device, a dog entering said combination lock and alarm, a longitudinally-moving bolt adapted to secure the receptacle in its closed position, the dog passing through a perforation in said bolt, said bolt having an inclined perforation, an arm passing through the end of the dog and being located in said inclined perforation of the bolt.

3. In a device such as described, a suitable means for holding the watch, a suitable means for retaining the watch containing means in its closed position, a combination alarm and lock consisting of a bell, a revolving pin attached to said bell, a spring adapted to revolve said pin, said bell having a recess, protrusions located on the inner side of the bell, a dog adapted to enter at its inner end the recess of the bell, a pawl located on said dog and adapted to engage the protrusions of the bell, a clapper suitably located and adapted to come in contact with the protrusions of the bell as the bell is revolved, a suitable means for operating the dog.

4. In a device such as described, a bell having in its interior a recess, a suitable means for revolving said bell, protrusions located on the inner surface of the bell, a dog adapted to enter at its inner end the recess of the bell, a suitable means for operating said dog, a pawl located on said dog and adapted to engage the protrusions of the bell, a clapper suitably located and adapted to come in contact with the protrusions of the bell as the bell is revolved.

5. In a device such as described, a bell adapted to revolve, a casing inclosing said bell, a dial located on said casing, a dial-section adapted to revolve within the casing, the dial-section and the bell each having a recess, said recesses adapted to register, a longitudinally-moving dog entering said bell, a suitable means for operating said dog, the inner end of said dog adapted to enter the registering recesses of the dial-section and the bell, and a clapper suitably mounted and adapted to come in contact with the bell.

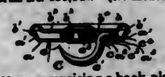
6. In a device such as described, a bell adapted to revolve, a pin fixed to the center of said bell, a casing inclosing said bell, a dial located in said casing, said dial having a recess, an indicator-section adapted to revolve in the casing, said section having a recess, a recess of the section adapted to register with the recess of the bell, an indicator-point located on the bell-pin, a dog entering said bell, said dog adapted at its inner end to enter the recesses of the dial-section in the bolt and suitable means for operating the dog, and a clapper suitably mounted and adapted to come in contact with the bell.

606,276. POT-RAIL HOLDER. MARCUS A. COOLEY, Canton, N. Y. Filed Feb. 1, 1898. Serial No. 668,697. (No model.)



Claim.—A pot-bail holder comprising a post slotted to receive a lug of the pot and a thumb-screw for securing the post thereto, the post having a spring on its upper end adapted to receive and hold the bail, substantially as shown and described.

606,277. BUTTON. AUGUSTUS S. CRANE, Newark, N. J. Filed Nov. 19, 1897. Serial No. 659,147. (No model.)



Claim.—1. A button, comprising a back-plate and face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means rotatively arranged in said hole, having a hook on the outer side of said back-plate, and a laterally-bent and eccentric retaining portion within said chamber in movable and frictional contact with the inner surfaces of said back and face plates, substantially as and for the purposes set forth.

2. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means consisting, essentially, of a shank *c* rotatively arranged in said hole, a hook *c'* on the outer side of said back-plate, a loop c^4 and eccentric portion c^5 within said chamber, said loop c^4 and portion c^5 being in movable and frictional contact with the inner surfaces of said back and face plates, substantially as and for the purposes set forth.

3. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means rotatively arranged in said hole, having a hook on the outer side of said back-plate, and a laterally-bent and eccentric retaining portion movably arranged within said chamber, and means within said chamber with which said retaining portion can be brought in holding or locked engagement, substantially as and for the purposes set forth.

4. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means rotatively arranged in said hole, having a hook on the outer side of said back-plate, a laterally-bent and eccentric retaining portion movably arranged within said chamber, and a groove or depression on the inner surface of said back-plate with which said retaining portion can be brought in holding or locked engagement, substantially as and for the purposes set forth.

5. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means, consisting, essentially, of a shank *c* rotatively arranged in said hole, a hook *c'* on the outer side of said back-plate, a loop c^4 and eccentric portion c^5 within said chamber, said loop c^4 and portion c^5 being movably arranged in said chamber, and means within said chamber, with which said portion c^5 can be brought in holding or locked engagement, substantially as and for the purposes set forth.

6. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means, consisting, essentially, of a shank *c* rotatively arranged in said hole, a hook *c'* on the outer side of said back-plate, a loop c^4 and eccentric portion c^5 within said chamber, said loop c^4 and portion c^5 being movably arranged in said chamber, said a groove or depression on the inner surface of said back-plate with which said portion c^5 can be brought in holding or locked engagement, substantially as and for the purposes set forth.

7. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means rotatively arranged in said hole, having a hook on the outer side of said back-plate, a laterally-bent and eccentric retaining portion within said chamber, a projection or protuberance on said retaining portion, and means within said chamber with which said projection or protuberance can be brought in holding or locked engagement, substantially as and for the purposes set forth.

8. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means rotatively arranged in said hole, having a hook on the outer side of said back-plate, a laterally-bent and eccentric retaining portion within said chamber, a projection or protuberance on said retaining portion, and a groove or depression on the inner surface of said back-plate with which said projection or protuberance can be brought in holding or locked engagement, substantially as and for the purposes set forth.

9. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means, consisting, essentially, of a shank *c*, a hook *c'* on the outer side of said back-plate, a loop c^4 and eccentric portion c^5 within said chamber, said loop c^4 and portion c^5 being movably arranged in said chamber, a projection or protuberance on said portion c^5, and means within said chamber with which said projection or protuberance can be brought in holding or locked engagement, substantially as and for the purposes set forth.

10. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, a fastening means, consisting, essentially, of a shank *c*, a hook *c'* on the outer side of said back-plate, a loop c^4 and eccentric portion c^5 within said chamber, said loop c^4 and portion c^5 being movably arranged in said chamber, a projection or protuberance on said portion c^5, and a groove or depression on the inner surface of said back-plate with which said projection or protuberance can be brought in holding or locked engagement, substantially as and for the purposes set forth.

11. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, and an enlargement a^6 on the outer surface of said back-plate, a fastening means rotatively arranged in said hole, having a hook adapted to be centrally arranged directly above said enlargement a^6, and a laterally-bent and eccentric retaining portion within said chamber in movable and frictional contact with the inner surfaces of said back-plate and face-plate, substantially as and for the purposes set forth.

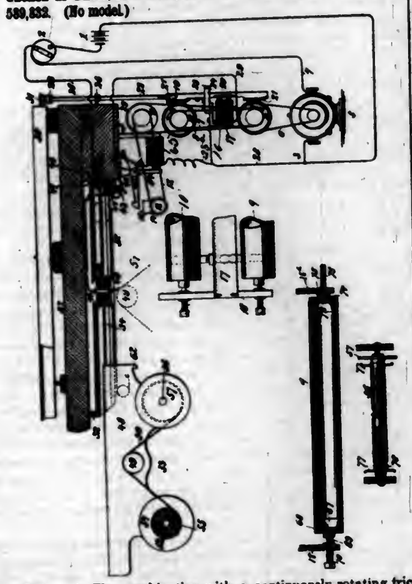
12. A button, comprising a back-plate and a face-plate, secured together to form a chamber, said back-plate having a perforation or hole, and an enlargement a^6 on the outer surface of said back-plate, a fastening means, consisting, essentially, of a shank *c* rotatively arranged in said hole, a hook *c'* on the outer side of said back-plate adapted to be centrally arranged directly above said enlargement, a loop c^4 and eccentric portion c^5 within said chamber, said loop c^4 and portion c^5 being in movable and frictional contact with the inner sur-

faces of said back and face plates, substantially as and for the purposes set forth.

606,278. PROCESS OF MAKING SLAG CEMENT. CORNELIUS J. CURTIN, Newark, N. J. Filed Oct. 27, 1897. Serial No. 656,507. (No specimens.)

Claim.—The process herein described for making slag cement, which consists in adding to burnt lime three per cent. of hydrochloric acid, then immersing the same in about twenty per cent. water, then thoroughly mixing the same and combining therewith eighty-five per cent. molten slag, then drying and pulverizing the same, substantially as described.

606,279. ELECTROMECHANICAL MUSICAL INSTRUMENT. GEORGE H. DAVIS, New York, N. Y. Filed May 1, 1896. Serial No. 589,832. (No model.)



Claim.—1. The combination with a continuously-rotating friction-drum, of a vertically-movable striker rod arranged in close proximity to said friction-drum and an armature connected thereto, said striker-rod being arranged to engage and actuate a sounding device when raised, an electromagnet disposed opposite said armature and operating, when energized, to draw the striker-rod into frictional engagement with the rotating friction-drum, and means for automatically making and breaking the magnet-circuit at predetermined intervals, substantially as described.

2. In an electromechanical musical instrument, the combination with electrically-operated playing mechanism, of a base-plate carrying a series of insulated contact-points, a music-roll-holder drawer sliding upon said base-plate and carrying a contact roller or bar arranged to contact with all of said contact-points when the drawer is closed, means for holding said drawer closed, and means for automatically opening said drawer when the latter is released, substantially as described.

3. In an electromechanical musical instrument, the combination with electrically-operated playing mechanism, of a base-plate carrying a series of insulated contact-points, a music-roll-holder drawer sliding upon said base-plate and carrying a contact roller or bar arranged to contact with all of the said contact-points when the drawer is closed, an electrically-controlled catch for holding said drawer closed, and means for automatically opening said drawer when the catch is released, substantially as described.

4. In a take-up roller for perforated music-sheets, the combination with a cylindrical roller having reduced ends as shown, of annular collars adjustably fitted over said reduced ends and having their peripheries flush with the periphery of the body of the roller, means for holding said collars fixed in their adjusted positions, and annular flanges formed on the outer ends of said collars, substantially as described and for the purpose specified.

5. The combination with a cylindrical take-up roller having reduced ends as shown, of annular collars fitted over said reduced ends and having their peripheries flush with the periphery of the body of the roller, said collars having longitudinal slots formed therein, annular flanges formed on the outer ends of said collars, and adjusting-screws screwed in said roller and projecting through said slots, substantially as described.

6. The combination with a musical instrument of a striker-rod guide having a circular-shaped body and a hole made therethrough, being lined with felt and having a pointed extension.

7. The combination with a musical instrument of a key extension, the same having a circular-shaped body, from which a pointed projection extends, and a felt or elastic disk secured to one of the faces of said body.

8. The combination with a revolubie friction-drum, of a vertical striker-rod the upper end of which engages the key or other striking mechanism, and the other end suspended in close proximity to said drum, and an electromagnet adapted when energized to attract a soft-iron armature carried by said striker-rod and thereby cause the latter to be drawn into frictional contact with the revolving drum and be forced upward to actuate the key or striking mechanism, substantially as described.

9. The combination with a delivery-roll, of a music-sheet coiled thereabout, a second cooperating rewinding-roll about which said sheet is recoiled, guides or collars adjustable endwise upon said receiving-roll, and means intermediate the rolls, cooperating with the music-sheet to control the action of sound-producing devices of a musical instrument.

606,280. MUFFLER FOR ENGINES. GEORGE L. GARDNER, Dayton, Ohio, assignor of one-half to F. D. Bittinger, same place. Filed Aug. 23, 1897. Serial No. 649,122. (No model.)



Claim.—1. A muffler or exhaust-breaker for engines, comprising a casing having a closed upper end, an inner tubular member located within said casing and forming an annular passage between it and the inner surface of said casing, a shank upon the lower end of said tubular member adapted to be secured to the exhaust-pipe of the engine, a circuitous passage through said tubular member including said annular passage, and a rotatably-mounted wheel in said circuitous passage, substantially as and for the purpose described.

2. A muffler or exhaust-breaker for engines, comprising a casing having a closed upper end, an inner tubular member located within said casing and forming an annular passage between it and the inner surface of said casing, a shank upon the lower end of said tubular member adapted to be secured to the exhaust-pipe of the engine, a circuitous passage through said tubular member including said annular passage, and a rotatably-mounted wheel in said circuitous passage whose blades are formed with openings, substantially as and for the purpose described.

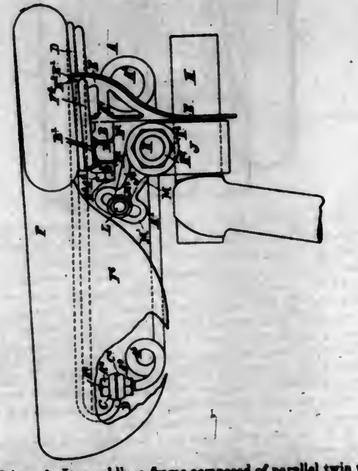
3. A muffler or exhaust-breaker for engines, comprising a casing having a closed upper end, an inner tubular member located within said casing and forming an annular passage between it and the inner surface of said casing, a shank upon the lower end of said tubular member adapted to be secured to the exhaust-pipe of the engine, a circuitous passage through said tubular member including said annular passage, a rod or shaft extending transversely of said shank, and a rotatably-mounted wheel on said rod or shaft, the blades of which terminate a short distance from the inner surface of the passage through said shank and are formed with openings, substantially as and for the purpose described.

4. A muffler or exhaust-breaker for engines, made up of a plurality of members, the lower of which has a shank upon it adapted to be attached to the exhaust-pipe of the engine, a cone-shaped spout leading from the upper end of said shank forming an annular cavity between it and the inner surface of said lower member, a cap secured to the upper end thereof, having a series of openings therein, tubes leading downwardly from said openings and fitting within said annular cavity, an intermediate tubular member fitting upon said lower member and having a cone-shaped or tapered opening at its upper end forming an annular cavity between it and the inner surface of said intermediate member, an upper member whose top is formed with a series of openings, and tubes leading downwardly from said openings and fitting within the annular cavity in the upper end of said intermediate member, substantially as and for the purpose described.

5. A muffler or exhaust-breaker for engines, made up of a plurality of members, the lower of which has a shank upon it adapted to be attached to the exhaust-pipe of the engine, a transversely-extending rotatably-mounted wheel in the passage through said shank, a cone-shaped spout leading from the upper end of said shank forming an annular cavity between it and the inner surface of said lower member, a cap secured to the upper end thereof having a series of openings therein, tubes leading downwardly from said openings and fitting within said annular cavity, an intermediate tubular member fitting upon said lower member and having a cone-shaped or tapered opening at its upper end forming an annular cavity between it and the inner surface of said intermediate member, an upper member whose top is formed with a series of openings, and tubes leading downwardly from said openings and fitting within the annular cavity in the upper end of said intermediate member, substantially as and for the purpose described.

6. A muffler or exhaust-breaker for engines, comprising a tubular casing having a closed upper end, a tubular portion located within said casing and forming an annular passage between it and the inner surface of said casing, the said inner tubular portion being made up of a plurality of members, the lower of which has a shank upon it adapted to be attached to the exhaust-pipe of the engine, a cone-shaped spout leading from the cavity between it and the inner surface of said lower member, a cap secured to the upper end thereof having a series of openings therein, tubes leading downwardly from said openings and fitting within said annular cavity, an intermediate tubular member fitting upon said lower member and having a cone-shaped or tapered opening at its upper end forming an annular cavity between it and the inner surface of said intermediate member, an upper member whose top is formed with a series of openings, tubes leading downwardly from said openings and fitting within the annular cavity in the upper end of said intermediate member, and an annular disk secured to the lower end of the tubular casing surrounding the shank on the lower member of said tubular portion and provided with a series of openings in line with said annular passage, substantially as and for the purpose described.

606,281. SADDLE. HARRY W. G. PLUMPTRE, London, England. Filed Feb. 9, 1897. Serial No. 622,653. (No model.)



Claim.—1. In a saddle, a frame composed of parallel twin wires occupying the same horizontal plane, and bent to conform to the outline of the saddle, and a cushion secured to the frame between said wires, substantially as set forth.

2. In a saddle, a frame comprising two like sections arranged side by side in the same horizontal plane, each consisting of parallel twin wires, and having a straight body portion and an outwardly-extending loop at the rear, and clamps for securing the sections together, substantially as set forth.

3. In a saddle, a frame comprising two like sections arranged side by side in the same horizontal plane, each consisting of parallel twin wires and having a straight body portion and an outwardly-extending loop at the rear, the body portions of the sections being separated to provide an intervening space and arranged to diverge toward the rear, a transverse stiffening-plate, and means for securing the sections and stiffening-plate together, substantially as set forth.

4. In a saddle, the combination with a frame comprising parallel twin wires arranged side by side in the same horizontal plane and bent to conform to the outline of the saddle, of an elongated cushion provided with a web having an edge bead and secured in place between said wires, substantially as described.

5. In a saddle, the combination with a frame comprising parallel twin wires arranged side by side in the same horizontal plane, and bent to conform to the outline of the saddle, of an inflatable tubular cushion likewise bent to conform to the outline of the saddle and secured in place between said wires, substantially as described.

6. In a saddle, the combination of the frame comprising two independent separated sections each consisting of parallel twin wires and having a straight body portion and an outwardly-extending loop at the rear, the said body portions being arranged to diverge toward the rear, means for securing the sections in position, and an elongated cushion secured to the frame between said wires and conforming to the outline of the frame, substantially as set forth.

7. In a saddle, the combination of the frame consisting of two independent sections each having an elongated body portion and an outwardly-extending loop at the rear, supporting-springs, means for securing the adjacent ends of the sections and springs together, a transverse stiffening-plate supported on said springs and engaging the loop portions of said sections, and a cushion, substantially as set forth.

8. In a saddle, the combination of the frame consisting of parallel twin wires and having a pendent sections each composed of parallel twin wires and having a straight body portion and an outwardly-extending loop at the rear, two supporting springs, means for securing the adjacent ends of said sections and springs together, a transverse stiffening-plate carried by said springs and engaging the under side of said sections, and an elongated cushion conforming to the outline of the frame and secured in place between said twin wires, substantially as set forth.

9. In a saddle, the combination of the wire frame terminating at the rear in outwardly-extending loops, the supporting-springs, and the retainers provided with openings at right angles to each other and adapted to secure the adjacent ends of said loops and springs together, substantially as set forth.

10. In a saddle, the combination of the frame consisting of two like sections, each composed of parallel twin wires and terminating at the rear in an outwardly-extending loop, the supporting springs, the tubular retainers adapted to receive the rear ends of said springs and provided with transverse slotted openings for the ends of said loops, and means on said springs for tightening said retainers, substantially as set forth.

11. The combination with the saddle having substantially parallel supporting-springs, of a clip adapted to be secured to the saddle-post, a slotted bolt therefor through which said springs pass, segmentally-slotted plates pivoted on said bolt at the sides of the clip and adapted to clamp the springs thereto, and a second bolt passing through the clip and the segmental slots of said plates, substantially as and for the purpose described.

12. The combination with the saddle having substantially parallel supporting-springs, of a split clip adapted to be secured to the saddle-post, and provided with wings extending forwardly therefrom, a bolt passing through the body of the clip and slotted to receive said springs, a block fitted to said slot, plates pivoted at their inner ends on said bolt and having segmental slots at their outer ends, and a second bolt passing through said wings and segmental slots, substantially as and for the purpose described.

606,282. LOCK. JOSEPH A. GRAY, Carrolltown, Pa. Filed June 25, 1897. Serial No. 642,308. (No model.)



Claim.—1. In a combined latch and lock, the combination with a spindle-controlled gravity-bolt, of a gravity-tumbler mounted above the bolt for differential vertical movement with respect thereto and having at one end a longitudinal guide-slot and at its enlarged end a longitudinal slot, 15, with extensions, 16, 18, of different lengths, a fixed stud playing in the guide-slot to permit the tumbler to have a swinging and sliding adjustment thereon, and another fixed stud playing in the slot, 15, to enter the short extension, 18, and sustain the tumbler in a position above and out of the path of the bolt, said tumbler having a locking-shoulder, 14, adapted to drop in rear of the bolt when the tumbler is moved to a position for the stud, 17, to enter the long extension, 16, of the slot, the whole combined and arranged for service, substantially as described.

2. In a combined latch and lock, the combination with a spindle-controlled gravity-bolt, of a gravity-tumbler mounted above the bolt for differential vertical movement with respect thereto, means for guiding and limiting both the horizontal and vertical movement of the tumbler, the latter being provided with a locking-shoulder adapted to drop in rear of the bolt, and means for sustaining the tumbler in a position above and out of the path of the bolt, all substantially as described.

606,288. SPECTACLES. ALBERT L. GREENE, Cranston, R. I.; Fannie I. Greene, administratrix of said Albert L. Greene, deceased, assignor to Charles A. Wilkinson, Warwick, and Dutee Wilcox, Providence, R. I. Filed Mar. 16, 1896. Serial No. 583,299. (No model.)



Claim.—In a device of the class described the combination with the bows having projecting ears provided with means for holding them in mutual engagement, of a cut-away portion in the inner face of each ear, a threaded perforation in one ear having its inner end countersunken, a perforation in the second ear in alinement with the first-named perforation, a temple-piece held within the cut-away portion of the ears and having a perforation in alinement with the perforations of the ears, and a pivot passed through the perforation in one ear and the temple-piece and having its end screw-threaded and in engagement with the threads of the threaded ear perforation to hold the temple-piece in place.

606,284. TRANSPORTATION SYSTEM. WALLACE GROSVENOR, Canalton, N. D. Filed Sept. 17, 1897. Serial No. 652,027. (No model.)

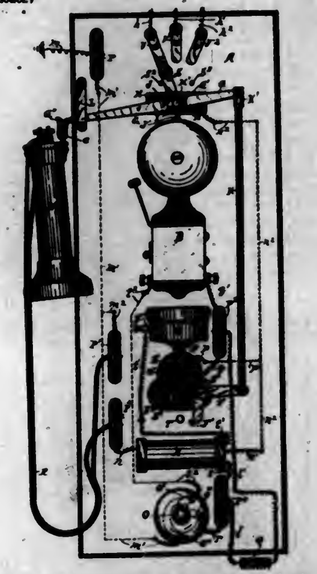


Claim.—1. In a transportation system, the combination with overhead supports of a pair of rails secured to said supports, an extended rack secured to said rails, a truck constructed to straddle said rails and provided with a pair of wheels engaging each rail, a cab or support suspended from and carried by said truck, a pair of gear-wheels mounted on said truck and engaging said rack, an intermediate gear engaging both of said gear-wheels, cranks on a common shaft, with said intermediate gear, and a pair of engines in said cab or on said support, connected one to each of said cranks, substantially as described.

2. In a transportation system, the combination with overhead supports and a rail or rails supported thereby, of a train made up of trucks mounted on and suspended from said rails, and a flexible connection connecting the several trucks, and a reel carried by the motor member of said trucks, on which said cable or flexible connection is wound, substantially as described.

3. In a transportation system, the combination with overhead supports, and a rail or rails supported thereby, of a motor-truck mounted on said rail or rails, a cab or support suspended and carried by said truck, and a brake involving brake-shoes engaging the advance and rear wheels of said truck and connected by a toggle-lever, a lever for operating said toggle, and a spring acting on said toggle and normally holding said shoes in inoperative positions, substantially as described.

606,285. TELEPHONE SYSTEM. WILTON A. GUSTAFSON, Joliet, Ill. Filed Aug. 13, 1896. Renewed Jan. 11, 1898. Serial No. 666,372. (No model.)



Claim.—1. The herein-described electric telephonic apparatus consisting of the combination of the bell-call device, the push-button device, the telephone-transmitter, the telephone-receiver, the secondary induction-coil, the battery, the line-wire contact-plates, the switch-lever mechanism, the receiver-supporting lever and latch mechanism, the binding-posts and conductors, all arranged to operate substantially as and for the purpose set forth, wherein the telephone-transmitter is supported by means of a pivoted arm, and adapted to be turned out of or into service, and adapted when turned out of service to automatically break the primary telephonic circuit, and make the bell-call circuit, and when turned into service to automatically make the said primary circuit and break the bell-call circuit, substantially as and for the purpose set forth.

2. In the telephonic apparatus described, in combination with the circuit-conductors, the stud H' having the foot-plate H, the switch-lever S sleeved on said stud, the hooked lever G having the chambered beveled end hub G' sleeved on said stud, the tension-spring S' arranged in said hub-chamber and connecting said levers, the pin I placed through the end portion of said stud in the hollow between the bevel-faces of said hub, the coil-spring placed on said hub and attached at one end to said lever G and attached at its opposite end to a stationary post, substantially as and for the purpose set forth.

3. In the telephonic apparatus described the combination of the hinged transmitter-arm D having the side latch-socket D', the hooked lever G, bell-crank latch-lever F having the beveled latch-piece F', and the non-conducting connecting-rod K, connecting said levers substantially as and for the purpose set forth.

4. In the telephonic apparatus described, the combination of the stud H', the lever G and hub G' thereof having the beveled end, the switch-lever S, and the springs S' and J substantially as and for the purpose set forth.

5. In a telephone system, the combination of the oscillating lever G, the telephone-receiver adapted to be detachably connected to the end of said lever, the switch-lever S, the means for frictionally connecting said levers, and the means for returning said switch-lever to contact with the terminal of the main line substantially as and for the purpose set forth.

606,286. CARD-INDEXING FILE AND LOCKING MECHANISM. HUGH HAMILTON, Rochester, N. Y. Filed Dec. 21, 1897. Serial No. 662,845. (No model.)



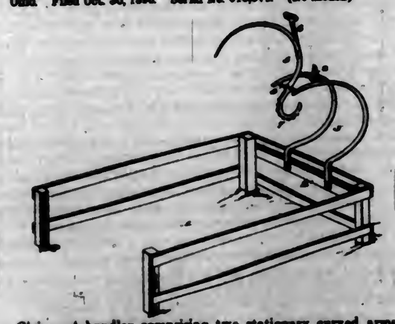
Claim.—1. In a device of the character described, a box, two rods arranged parallel with each other, having their ends secured together and journaled within the box, projections formed with the rods, a pin extending from the box into engagement with one of the projections, and a lock secured to the box the bolt of which is adapted to engage the other of said projections, as and for the purpose set forth.

2. Two rods arranged parallel with each other and secured together at their ends, said rods being journaled within a file-tray, a spring adapted to return the rods to their normal position, a projection formed with the rods, a pawl adapted to engage with said projection to hold the rods against the action of the spring, and means for automatically disengaging the pawl, as shown and described.

3. In combination, a file-tray, two rods arranged parallel with each other and connected together at their ends and journaled within said tray, a spring so arranged as to return the rods to their normal position when released, a projection extending from the rods, a pawl adapted to engage with said projection, an extension formed with the pawl for manipulating the same, a second projection extending from the rods, and a lock adapted to work in conjunction with the last-named projection for preventing the revolving of the rods, as specified.

4. In a file-tray, an adjustable angle-block having right-angular bolts fitted therein, springs forcing said bolts apart, an escutcheon-plate secured over the ends of the bolts, and thumb-screws passed through a slot in the escutcheon-plate into the ends of the bolts, as and for the purpose described.

606,287. FODDER-BUNDLER. HENRY J. KNEVER, Napoleon, Ohio. Filed Oct. 20, 1896. Serial No. 610,571. (No model.)



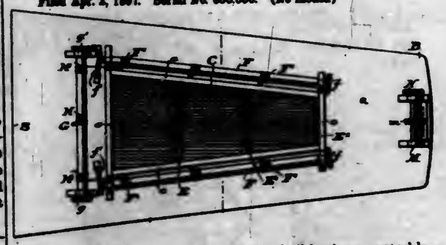
Claim.—A bundler comprising two stationary curved arms, a pivot extending between the outer ends of said stationary arms, a pawl mounted upon a cross-piece extending between said stationary arms in the rear of said pivot, a curved swinging arm mounted between its ends upon the pivot extending between said stationary arms, a handle extending from the outside of said swinging arm, and a laterally-curved end portion for said swinging arm provided with a plurality of notches or teeth to receive said pawl, substantially as described.

606,288. OXYETHYLACETANILID. OTTO KLEINER, Chicago, Ill., assignor of one-half to Albert E. Palmer, same place. Filed Sept. 18, 1897. Serial No. 652,176. (Specimens.)

Claim.—1. The product, oxyethylacetanilid, herein described, having the formula $C_{10}H_{11}NO_2(1:4)$, and the following characteristics: it is white, very light, fluffy and velvety, and has lustrous scale-crystals, and on the application of nitric acid assumes a marked yellow, changing to an orange color, depending upon the amount of acid and heat applied.

2. The herein-described process of making oxyethylacetanilid from paraamidophenetol, consisting in heating therewith equal molecules of glacial acetic acid continuously in a water-bath, then dissolving the mass in approximately eighty parts of boiling water, with the addition of animal charcoal, then filtering and crystallizing out the solid.

606,289. DUMPING-SCOW. EDUARD LATZ, New York, N. Y. Filed Apr. 2, 1897. Serial No. 630,356. (No model.)



Claim.—1. The combination with the hull having a central longitudinal well, of a plurality of separate and independent bottom doors swinging fore and aft and all opening toward one end of the hull, operating-shafts and flexible connections between each door and said shafts; whereby when the load has been discharged and the scow moved forwardly the flexible connections will allow the doors to close by the pressure of the water against their forward sides; substantially as described.

2. The combination with the hull having a central longitudinal well, of a plurality of separate and independent bottom doors swinging fore and aft and all opening downwardly toward one end of the hull, shafts extending longitudinally at opposite sides of the well, and flexible connections extending from said shafts down to the ends of every door; whereby as the scow is drawn forwardly the pressure of water on the forward sides of the doors will swing them toward their closed positions and allow the flexible connections to be easily wound on their shafts; substantially as described.

3. The combination with the hull having a central longitudinal well, of a series of transverse, hinged doors forming the bottom of the well and lying flush with the bottom of the hull; all of said doors swinging downwardly and toward the same end of the hull, transverse shields crossing the well over the hinged edges of the doors, and means for operating the doors; substantially as described.

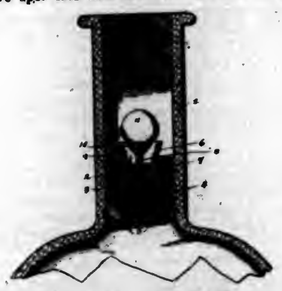
4. In a dumping-scow provided with a central well for the reception of its load, said well having true walls, C^2, and false walls, C', arranged with an interspace, and having the lower ends of the false walls arranged above the lower ends of the true walls, the combination, with the hull, of the bottom doors swinging fore and aft, and extending entirely across between the true walls; actuating-chains connected with said doors and running upward through the interspaces between the true and the false walls, and means substantially as set forth whereby said chains may be shifted to raise and secure said doors or permit them to drop.

5. In a dumping-scow, provided with a central well for the reception of its load, and also provided with bow and stern passage-ways communicating with said well, the combination with the hull, of the bottom doors swinging fore and aft; means for raising and securing said doors or permitting them to drop; the bow door, L, means substantially as set forth for actuating the same to open or close the bow passage; the stern door, and means substantially as set forth for actuating the same to open or close the stern passage.

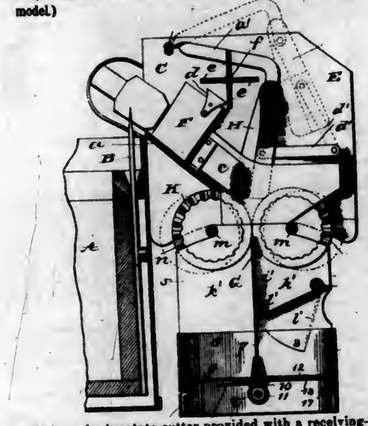
606,290. BOTTLE-STOPPER. NICOLS LINDEBERG, Nelson, Minn., assignor of one-half to Jacob P. Larson, same place. Filed Nov. 9, 1896. Serial No. 611,537. (No model.)

Claim.—The combination with a packing-ring or stopper having a central opening, of a tube or passage situated within said opening and having a flange at one end resting against the end of said stop-

per or packing-ring, an apertured plate at the other end of said tube or passage, a stem extending from said plate and provided with a head, a valve upon said stem and a flaring mouth for said tube or passage.



606,291. POTATO CUTTER AND PLANTER. JOSEPH A. MENGEL, McKeansburg, GEORGE K. BUNKLEY, Orwigsburg, and GEORGE H. GERBER, Pottsville, Pa. Filed Aug. 18, 1897. Serial No. 648,897. (No model.)



Claim.—1. A potato-cutter provided with a receiving-chamber, a movable gate-plunger controlling the discharge end of said chamber and forcing the potatoes downward, and a support for potatoes below the gate-plunger, in combination with a vertical knife below and intermediate said support.

2. A potato-cutter provided with a receiving-chamber, a movable gate-plunger controlling the discharge end of said chamber and forcing the potatoes downward, and laterally-movable supports for potatoes below said gate-plunger, in combination with a vertical knife below and intermediate said support.

3. A potato-cutter provided with a receiving-chamber, a movable gate-plunger controlling the discharge end of said chamber and forcing the potatoes downward, and movable supports for potatoes below the gate-plunger, in combination with a vertical knife below and intermediate said supports and a distributing-hopper.

4. A potato-cutter provided with a receiving-chamber, a gate-plunger controlling the discharge end of said chamber and forcing the potatoes downward, and a pair of revoluble potato-supports below the gate-plunger, in combination with a vertical knife below and intermediate said supports.

5. A potato-cutter provided with a receiving-chamber, a vertically-movable gate-plunger controlling the discharge end of said chamber and forcing the potatoes downward, and a pair of laterally-separable rollers, in combination with a knife below and intermediate said rollers.

6. A potato-cutter provided with a receiving-chamber, a pair of separable rollers, a gate-plunger above and intermediate the rollers controlling the discharge end of said chamber and forcing the potatoes downward, means for raising the gate-plunger and means for returning the rollers, in combination with a knife below and intermediate said rollers.

7. A potato-cutter provided with a receiving-chamber having a guide or deflector, and a gate-plunger controlling the discharge end of said chamber and forcing the potatoes downward, laterally-movable supports for potatoes below the gate plunger and a knife for severing potatoes, in combination with a distributing-hopper.

8. A potato-cutter consisting of a pair of laterally-separable potato-supports, a vertical knife below and intermediate said supports and extending downward into and forming a partition for a distributing-hopper, in combination with said hopper and vibratory supports for parts of potatoes above said hopper.

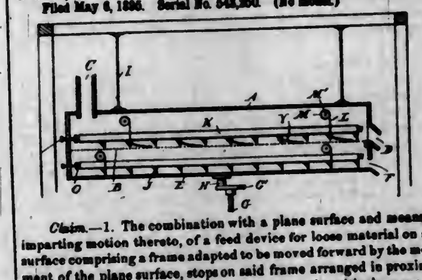
9. A potato-cutter provided with means for severing potatoes, in combination with a distributing-hopper having a horizontally-revoluble bottom provided with a discharge-opening, a valve controlling the opening, a pivoted lever connected to said valve and means on the hopper for engaging the lever.

10. A potato-cutter provided with a distributing-hopper having a horizontally-revoluble bottom and provided with a partition having a potato-cutting knife at its upper end, an opening in the bottom, a valve controlling said opening, a lever pivotally secured to the bottom and connected to said valve, lugs on the hopper for engaging said lever and a spring connected to the lever for moving the valve.

11. A potato-cutter provided with a receiving-chamber, a gate-plunger controlling the discharge end thereof and forcing the potatoes downward, means for severing potatoes, and a distributing-hopper, in combination with means connecting the distributing-hopper and the cutting mechanism.

12. A potato-cutter provided with a receiving-chamber having a movable guide or deflector, a gate-plunger controlling the discharge end of said chamber and forcing the potatoes downward, laterally-movable potato-supports, and means for severing potatoes, in combination with a distributing-hopper.

606,292. SEPARATOR. ORVILLE M. MOSES, Jackson, Mich. Filed May 6, 1896. Serial No. 542,260. (No model.)



Claim.—1. The combination with a plane surface and means for imparting motion thereto, of a feed device for loose material on said surface comprising a frame adapted to be moved forward by the movement of the plane surface, stops on said frame arranged in proximity to said plane surface and shaped to engage and positively move forward the material in the forward movement of the frame and to ride over and pass the material in the return movement of the frame.

2. The combination with the plane surface, devices for imparting motion thereto, of a feed device for the material consisting of a swinging frame having a series of separated stops fixedly secured thereon and arranged in proximity to the surface, the frame moving by the motion imparted to the surface to cause said stops to engage and positively feed and distribute the material over the surface.

3. The combination with a plane surface and means for imparting a movement thereto, of a device for positively feeding loose material on said surface comprising a frame adapted to be moved longitudinally by the motion of the plane surface, a series of separated plates or bars carried by said frame, of a shape adapted to engage and positively feed the material in the forward movement of the frame and being free to rise and ride over the material in the backward movement of the frame, and a stop for limiting the movement of the frame in one direction.

4. A feed device for loose material upon moving plane surfaces comprising an endwise-movable feed-frame, having a series of separated transverse plates or bars, having straight front faces and inclined rear faces, means for limiting the movement of the frame in one direction, the frame being so supported as to be free to rise and ride over the material in its backward or return movement.

5. A feed device for loose material upon a moving plane surface, comprising a reciprocating frame, stops thereon adapted to engage the material and positively feed it in the forward movement of the frame, and devices for supporting said frame over the plane surface so that it is free to rise in the return movement of the frame.

6. The combination of the screen-frame, the screen therein, means for imparting motion thereto, a feed-frame above the screen flexible straps for suspending the feed-frame over the screen, circular disks secured to the screen to which the upper ends of the straps are secured, and means for rotating the disks to adjust the feed-frame, substantially as described.

7. The combination of the screen frame, the screen therein, means for imparting motion thereto, a feed-frame above the screen, comprising longitudinal bars and cross-bars having the vertical front face and inclined rear face, and flexible straps for supporting the feed-frame above the screen, substantially as described.

8. The combination of the screen, the movable feed-frame thereon adapted to have a rising-and-falling movement in relation to the screen, and beaters or cleaners secured to the frame adapted to strike the screen.

606,293. NON-REFILLABLE BOTTLE. JOHN MCCAFFERTY, Wall, Pa., assignor of one-half to John James McCafferty, same place. Filed Aug 3, 1897. Serial No. 646,970. (No model.)



Claim.—1. The combination with the neck of a bottle, of a screw-plug provided with a vertical recess adapted to register with a slot in the upper edge of the said neck, and mechanism retained below said plug by means of which a ball-valve is kept in operative position, substantially as herein shown and set forth.

2. The combination with the neck portion of a bottle, provided with a slotted lip and interiorly screw-threaded in its upper portion, of a screw-plug adapted to engage with said interiorly-screw-threaded neck, a central depending portion secured to or formed integral with said plug, a disk upon said depending portion, another plug provided with lateral springs adapted to engage with an annular groove formed upon the inner surface of the neck, a ball-valve seated within a recess within said lower plug, said ball being limited in its movement by the depending portion of said screw-plug, and means for maintaining said depending portion in a central vertical position, all substantially as herein shown and set forth.

3. In a non-refillable bottle, the combination with the interiorly-screw-threaded and vertically-slotted neck portion thereof, of a screw-threaded plug adapted to engage with said interiorly-screw-threaded neck, said plug provided in its lower portion with a lateral vertical slot or recess, a portion depending from said plug, a disk secured or formed upon said depending portion, a cross-plate secured upon the lower end of said portion, another plug adapted to be depressed into the lower end of said neck, springs secured upon said lower plug having their upper ends adapted to form retaining-fingers in connection with an annular groove interiorly formed in the neck of the bottle, a ball-valve within a recess in said lower plug, said recess provided with a downwardly-extended aperture leading through said plug, and means as herein shown for limiting the movement of said valve, all substantially as and for the purpose herein shown and set forth.

4. The combination with a bottle having an interiorly-screw-threaded, slotted neck provided with an inner annular groove, of a screw-plug with a vertical slot adapted to be engaged by said screw-threaded neck, another plug recessed and apertured inserted below the first-mentioned plug a ball-valve adapted to have proper play within said recess in the lower plug, spring-catches for retaining said lower plug below said annular groove, means for limiting the play of said ball-valve, and a projected lug portion for rotating the first-mentioned plug, all substantially as herein shown and set forth.

5. The combination in a non-refillable bottle, of a neck portion interiorly screw-threaded, and provided with a vertical slot in the lip and an inner annular groove, and a screw-plug adapted to be engaged by said screw-threaded neck, said plug having a depending portion with a cross-plate secured to the lower end thereof, another plug adapted to be depressed to a point below said inner groove and retained in said position by spring-catches, a ball-valve located in a recess provided in said lower plug, above an aperture leading downwardly therethrough, means for limiting the play of said valve, and a disk on the lower end of the screw-plug, all substantially as herein shown and set forth.

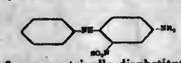
606,294. LUBRICATOR. GEORGE MCNEIL and THOMAS J. ROGERS, Chicago, Ill. Filed Feb. 25, 1897. Serial No. 625,008. (No model.)



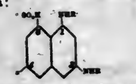
Claim.—The combination with an oil-cup, provided with an interior-threaded surface, of an adjusting-nut, engaging with said threaded surface, and having a tube connected therewith by a number of arms, one of said arms being divided, a locking-screw, inserted in the divided arm, a feed-plug, inserted in the lower end of the attaching-stem, and the removable screw inserted in the upper end of said tube, substantially as described.

606,295. BLUE AZIN DYE AND PROCESS OF MAKING SAME. PHILIPP OTT and THILO KROESER, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, of New York. Filed Nov. 23, 1897. Serial No. 659,550. (Specimens.) Patented in England June 16, 1898, No. 11,892; in Germany Feb. 27, 1894, No. 86,224; in France July 7, 1894, No. 230,092, and in Italy July 7, 1894, XXIX, 36,794, LXXII, 167.

Claim.—1. The process for producing new azin dyestuffs by acting with oxidizing agents such as bichromate of sodium on a mixture of equimolecular proportions of parasämidodiphenylaminorthosulfo-acid of the formula

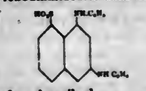


and of a sulfo-acid of a symmetrically-disubstituted 1.3 naphthylene diamin having the formula:



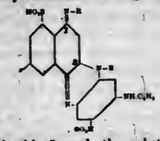
in which formula R represents the phenyl or tolyl radical, *x* either a hydrogen atom or a sulfo group, substantially as hereinbefore described.

2. The process for producing a new azin dyestuff by acting with oxidizing agents such as bichromate of sodium on a mixture prepared from one molecule of parasämidodiphenylaminsulfo-acid and one molecule of diphenylnaphthylenediaminsulfo-acid having the formula



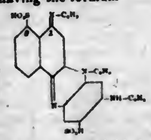
substantially as hereinbefore described.

3. As new articles of manufacture azin dyestuffs obtainable from parasämidodiphenylaminsulfo-acid and sulfo-acids of symmetrically-disubstituted 1.3 naphthylenediamins having the general formula



R and *x* representing in this formula the substituents hereinbefore defined being dark powders, soluble in water with a blue color and dyeing wool in acid-baths blue shades substantially as described.

4. As a new article of manufacture the specific azin dyestuff obtainable from parasämidodiphenylaminsulfo-acid and diphenylnaphthylenediaminsulfo-acid having the formula



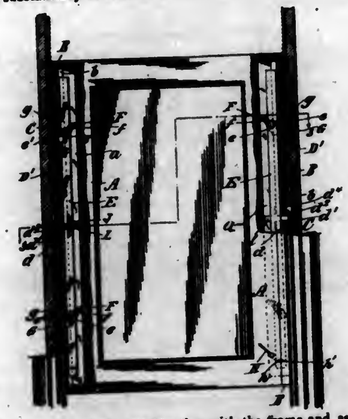
representing a darkish-brown powder, soluble in water with a splendid blue color, in concentrated sulfuric acid with a green color which turns into blue on mixing the sulfuric acid with a large quantity of water, dyeing wool brilliant-blue shades fast to the action of alkalies, of acids and likewise fast against milling substantially as described.

606,296. WINDOW-SASH. HENRY PEDERSEN, New York, N. Y. Filed Jan. 7, 1898. Serial No. 665,945. (No model.)

Claim.—1. In a window, the combination with a sash and separable traveler-rails having corresponding longitudinal saw-cuts in their adjacent surfaces, of a metal strip introduced into such saw-cuts and having projecting pins upon such metal strip engaging in curved slots in the sides of the saw-cut, substantially as described.

2. In a window, the combination with a sash and separable traveler-rails having corresponding longitudinal saw-cuts in their adjacent surfaces, of a metal strip introduced into such saw-cuts and having

projecting pins upon such metal strip engaging in curved slots in the sides of the saw-cuts, together with pivots, connecting the sash and traveler-rails, upon which the sash can be revolved when the metal strip is withdrawn into the saw-cut in the sash, and a lever adapted to withdraw such metal strip by giving to it a longitudinal and lateral motion, substantially as described.



3. In a window, the combination with the frame and sash, and separable traveler-rails, said traveler-rails being free to move vertically in the channels of the window-frame and connected to the sash by pivots upon which the sash can be revolved, of a metal strip placed within saw-cuts made in the adjacent surfaces of the sash and traveler-rails, such metal strip having projecting pins engaging in curved slots in the sides of the saw-cuts for the purpose of moving the strip into or out of the saw-cuts, and such metal strip having projecting pins engaging with a plate in the traveler rail when the metal strip is forced into the saw-cut in the traveler-rail, and adapted to lock together the sash and traveler-rail when in that position, substantially as described.

4. In a window the combination with the frame and sash and separable traveler-rails, said traveler-rails being free to move vertically in the channels of the window-frame and connected to the sash by pivots upon which the sash can be revolved, of a metal strip placed within saw-cuts made in the adjacent surfaces of the sash and traveler rails, such metal strip having projecting pins engaging in curved slots in the sides of the saw-cuts for the purpose of moving the strip into or out of the saw-cuts, and such metal strip having projecting pins engaging with a plate in the traveler rail when the metal strip is forced into the saw-cut in the traveler-rail, and adapted to lock together the sash and traveler-rail when in that position, together with a lever or cam adapted to give to the metal strip a longitudinal and lateral motion, substantially as described.

5. In a window, the combination with a sash and separable traveler-rails having corresponding longitudinal saw-cuts in their adjacent surfaces, of a metal strip introduced into such saw-cuts and having projecting pins upon such metal strip engaging in curved slots in the sides of the saw-cut, together with pivots connecting the sash and traveler-rails, upon which the sash can be revolved when the metal strip is withdrawn into the saw-cut in the sash, each pivot being longitudinally split or pierced so as to allow the metal strip to move freely between the parts thereof, and a lever adapted to withdraw such metal strip by giving to it a longitudinal and lateral motion, substantially as described.

6. In a window, the combination with a sash and separable traveler-rails, said traveler-rails being free to move vertically in the channels of the window-frame and connected to the sash by pivots upon which the sash can be revolved, of a metal strip placed within saw-cuts made in the adjacent surfaces of the sash and traveler-rails, such metal strip having projecting pins engaging in curved slots in the sides of the saw-cuts for the purpose of moving the strip into or out of the saw-cuts, and such metal strip having projecting pins engaging with plates in the traveler-rail when the metal strip is forced into the saw-cut in the traveler-rail, and adapted to lock together the sash and traveler-rail when in that position, the pivots upon which the sash is revolved being longitudinally split or pierced allowing the metal strip to move freely between the parts, substantially as described.

7. In a window, the combination with the frame and sash and separable traveler-rails, said traveler-rails being free to move vertically in the channels of the window-frame and connected to the sash by pivots upon which the sash can be revolved, of a metal strip placed within saw-cuts made in the adjacent surfaces of the sash and traveler-rails, said metal strips having projecting pins engaging in curved slots in the sides of the saw-cuts for the purpose of moving the strip into or out of the saw-cuts, and such metal strip having pins engaging with plates in the traveler-rail when the metal strip is forced into the saw-cut in the traveler-rail, and adapted to lock together the sash and the traveler-rail when in that position, together with a lever or cam adapted to give to the metal strip a longitudinal and lateral motion, the pivots upon which the sash is revolved being longitudinally split or pierced, allowing the metal strip to move freely between the parts thereof, substantially as described.

8. In a window, the combination with a sash and separable traveler-rail having corresponding longitudinal saw-cuts in their adjacent surfaces and a metal strip introduced into such saw-cuts and having a projecting pin upon such metal strip, of a metal piece countersunk in the side of either of such saw-cuts pierced by a curved slot adapted to engage with the projecting pin of such metal strip and having a semicircular face at right angles to the plane of such slot adapted to be countersunk in the surface of the sash or traveler-rail at the side of either of such saw-cuts, substantially as described.

9. In a window, the combination with a sash and separable traveler-rail having corresponding longitudinal saw-cuts in their adjacent surfaces and a metal strip introduced into such saw-cuts and having a projecting pin upon such metal strip, of a metal piece countersunk in the side of either of such saw-cuts pierced by a curved slot adapted to engage with the projecting pin, and such metal piece having a semicircular face at right angles to the plane of such slot adapted to be countersunk in the surface of the sash or traveler-rail at the side of either of such saw-cuts, together with a metal plate semicircular in shape and adapted to be countersunk in the surface of the traveler-rail at the side of the saw-cut, underneath which a projecting pin suitably placed upon the metal strip will engage, for the purpose of locking together the sash to which the metal strip may be attached and the traveler-rail upon which such metal plate is fixed, substantially as described.

10. In a window, the combination with a sash and separable traveler-rails, said traveler-rails being free to move vertically in the channels of the window-frame and connected to the sash by pivots fixed in the sash and passing through holes in the traveler-rails, upon which pivots the sash can be revolved, of bevel-washers placed near the end of the pivot-shaft in the traveler-rail and around which the cord or chain supporting the window passes, the weight of the window pressing the cord or chain between the adjacent bevel-faces of the washers so as to force them apart, one washer against a pin or stop at the end of the pivot and the other washer against the traveler-rail through which the pivot passes, this lateral pressure forcing the traveler-rail tightly against the sash, thus holding the sash firmly at any angle or position in which it may be placed when revolving upon the pivots, substantially as described.

606,297. SCREW-PROPELLER. WILLIS J. PERKINS, Grand Rapids, Mich. Filed Nov. 27, 1895. Serial No. 570,311. (No model.)



Claim.—1. The combination with a propeller-shaft stopping short of the journal-bearings for the blades and provided at its ends with a rigidly-attached journal-box, or hub, of opposite propeller-blades having male and female pivotal bearings upon their journal ends, and gearing thereon, racks having longitudinal movement and engaging said gearing, a non-rotating sleeve capable of longitudinal movement on and partially covering said hub, substantially as described.

2. The combination with a propeller-shaft and hub thereon forming pivotal supports for propeller-blades, of a sleeve encircling said shaft and partially revolving said blades through suitable mechanism, and an adjustable collar or stop on said shaft to determine amount of said blades' rotation.

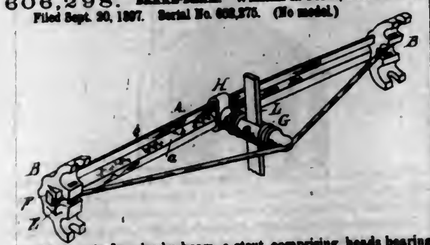
3. The combination with a propeller-shaft and a hub rigid thereon, of two propeller-blades journaled in said hub near its periphery on opposite sides of a central and third journal-bearing positively connecting said propeller-blades, means for turning the blades in either direction, and an adjustable collar on said shaft to limit their turning movement, substantially as described.

4. The combination with a propeller-shaft, and a plurality of shifting propeller-blades suitably journaled, of a hub rigid on said propeller-shaft, and a removable non-rotating section or collar at the center of the propeller-blade journal-box, said collar partly inclosing and capable of longitudinal movement on said hub, substantially as described.

5. The combination with a propeller-shaft, of two propeller-blades, each provided with a journal bearing, two pinions placed within the journal-boxes within a hub on said shaft, two racks adapted to engage with the respective pinions on opposite sides of the axis of the hub, an inward extension of one of the journals of one of the propeller-blades having a socket or opening and an inward extension of the journal on the other of said propeller-blades adapted to engage with said socket or opening, thereby forming auxiliary journals of the propeller-blades within the hub, substantially as described.

6. The combination with the blades of a propeller-wheel, of a hub composed of two parts E and F separably secured together, journals on said propeller-blades rigidly attached thereto, adapted to turn said blades, racks adapted to engage with the pinions on the journals of said propeller-blades, a movable sleeve or collar to which the said racks are secured, a sleeve partly inclosing and capable of longitudinal movement upon the journal-box, or hub, and also inclosing the said racks and a portion of the propeller-shaft, suitable stuffing-boxes preventing the water from passing through into the boat, a sleeve connected with the said collar and extending into the boat, and suitable means for giving the longitudinal movement to the said sleeve and thereby to the racks for the purpose of setting the propeller-blades in any required position, substantially as described.

606,298. BRAKE-BEAM. WILLIAM A. PENNS, Detroit, Mich. Filed Sept. 20, 1897. Serial No. 602,575. (No model.)



Claim.—1. In a brake-beam, a strut comprising heads bearing on the compression and tension members respectively, adjusting means on one of said heads to adjust the length of the strut and a rocking support for the brake-lever swiveled between the heads, the turning of which does not adjust the strut.

2. In a brake-beam, a strut comprising heads bearing on the compression and tension members respectively and an intermediate adjusting means for adjusting the length of the strut, consisting of a collar screw-threaded on one of the heads and a central portion swiveled between these heads carrying the brake-lever.

3. In a brake-beam, a strut comprising socketed heads, adjusting means screw-threaded on one of said heads and a lock-nut therefor, an intermediate swivel portion having pins engaging in said socketed heads and a slot M, in which the brake-lever is pivoted.

4. In a brake-beam, the combination of the compression member, a truss-rod, heads or nuts on the ends of the truss-rod, the brake-heads having sockets into which the heads or nuts are drawn and entering slots extending from the middle of the face portion of the brake-head to the sockets for the truss-rod to be passed through and an extensible strut by means of which the truss-rod is tensioned.

5. In a brake-beam, the combination of the compression member, a truss-rod having end heads or nuts, brake-heads having entering slots for the truss-rod and sockets for the heads the base of said sockets being arranged at an angle to the brake-heads so as to be at substantially right angles with the truss-rod when tensioned and an extensible strut.

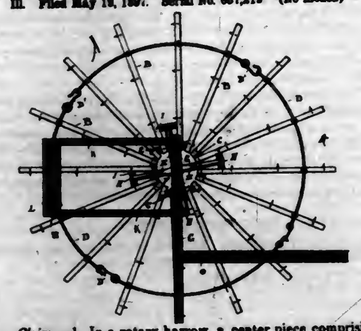
606,299. WINDOW-SHADE-BRACKET HOLDER. PAUL H. RADEMANN, Davenport, Iowa. Filed Dec. 11, 1897. Serial No. 661,483. (No model.)



Claim.—1. In a window-shade bracket, a plate, having its edges turned inwardly so as to bear against the casing, a central depressed portion provided with two parallel slits or slots, so as to separate the central depressed portion from the outer raised edges, combined with an adjustable bracket which has its ends inserted into the slots, substantially as shown.

2. In a window-shade bracket, a plate having two longitudinal parallel slits or slots, combined with an adjustable bracket having its inner portion turned outwardly at an angle, and its two opposite projecting ends to catch in said slits or slots, substantially as described.

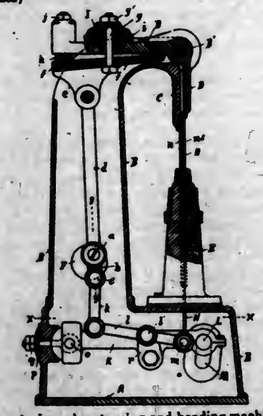
606,800. ROTARY HARROW. ROLAND RAKESTRAW, Wyoming, Ill. Filed May 19, 1897. Serial No. 637,219. (No model.)



Claim.—1. In a rotary harrow, a center piece comprising a series of radial hollow arms, a tongue pivotally secured to said center piece, a series of harrow-sections of angle-iron, a series of harrow-teeth secured to the said sections, a bar or rod secured to and projecting beyond the inner ends of the sections to engage with the said hollow arms, the track portion secured to each of the sections, means for connecting the sections together at their outer ends, a weight resting on the said track, the arm connected thereto and secured to the tongue, all arranged substantially as and for the purposes set forth and described.

2. In a rotary harrow the combination of the sections A of angle-iron, the track D secured thereto, the bars or rods H secured between the inner adjacent ends of the bars of said sections, the center portion having the hollow arms E for the entrance of the said rods H, the tongue G pivotally secured to the said center portion, the arms K secured to the tongue, the weight M with its rollers N, to run on said track D and the beam O secured to the tongue all substantially as and for the purposes set forth and described.

606,801. SHOE-UPPER TURNING AND BEADING MACHINE. SIMON ROSS, Cincinnati, Ohio. Filed June 1, 1897. Serial No. 638,999. (No model.)



Claim.—1. In a shoe turning and beading machine, in combination with the oscillating beader-jaw, a plate loosely hinged to the arm thereof, driving mechanism, a rod connecting said plate with the driving mechanism, and springs interposed between the working parts of said plate and jaw to cushion the movement of the latter, substantially as described.

2. In a shoe turning and beading machine, mechanism for reciprocating the turning-iron comprising a vertically-adjustable movable

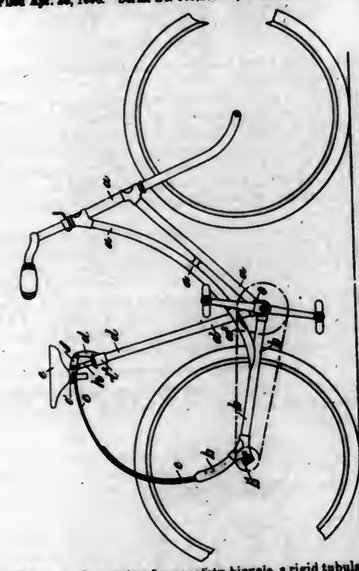
arm, a rock-arm centrally mounted thereon and having hinge connection with the turning-iron, driving mechanism, and crank-and-link mechanism connecting the rock-arm and driving mechanism, substantially as described.

3. In a shoe turning and beading machine the combination of the oscillating arm K pivoted at one end to the frame of the machine and the link *r* connected to the rocking driving-arm *l* to which the turning-iron is hinged, and means for locking said oscillating arm in various positions, substantially as specified.

4. In a shoe turning and beading machine the combination of a stationary and an oscillating beader-jaw, driving mechanism connected to the oscillating jaw, lever mechanism connecting said driving mechanism to the turning-iron, said lever mechanism being mounted upon a vertically-adjustable arm whereby the stroke of the turning-iron is controlled, substantially as specified.

5. In a shoe turning and beading machine the combination with the main shaft, of a connecting-rod pivoted thereto, and to a yielding arm for driving the oscillating beader-jaw, a rock-arm connected at one end by means of a link to the driving mechanism and at the other end to the turning-iron, said rock-arm being pivoted at a point between its ends to a vertically-adjustable arm movably secured to the frame of the machine, substantially as specified.

606,802. VELOCIPEDE. HENRY B. ROTTON, Liverpool, England. Filed Apr. 20, 1898. Serial No. 678,208. (No model.)



Claim.—1. In a spring-frame safety-bicycle, a rigid tubular frame portion *a b*, extending between the front portion and the rear-wheel axle; springs *c* on and extending from the rear end of the tubes *b* of said rigid portion, to a point above and forward of the rear-wheel axle, and carrying at this point the saddle; and a tension-tie connecting the end of the springs *c* with the rigid frame, at a point intermediate the front and rear portions of this frame, and normally holding said springs down under stress to carry the rider without bending, and providing freedom of movement vertically downward to the ends of said springs; substantially as set forth.

2. In a spring-frame safety-bicycle, a rigid tubular frame portion *a b* extending between the front portion and the rear-wheel axle; springs *c* on and extending from the rear end of the tubes *b* of said rigid portion, to a point above and forward of the rear-wheel axle, and carrying at this point the saddle; and a tie connecting said springs *c* with the frame *a b* at a point intermediate the front and rear portion of this frame, consisting of a tube *d* rigidly fixed at its lower end to the frame, and extending up toward the spring end, and connected at its upper end by a free connection to the springs' ends, whereby movement of said springs in the horizontal plane, longitudinally or laterally, is prevented, and free movement, vertically, afforded; substantially as set forth.

3. The bicycle comprising the rigid tubular frame *a b*, springs *c*, fixed on the ends of the tubes *b* and extending up and forward, and supporting the saddle *c*; the tubes *d* rigidly connected and mounted in the lower part of the frame, and extended up to near the free end of the springs *c*, a connecting-link *f*, hinged on the upper part of *d*, said having movement in the vertical plane, about said hinge, and a spring *k'*, and rod *h* in the upper end of the tube *b*, by which the constant tension on the springs *c* downward is maintained.

4. The combination with the spring *c* and the frame *a b*, of the tube *d*; link *f*, connecting the tube *d* with the end of the spring *c*; the rod *h* connected to the springs *c*, and extending down within the tube *d*; the adjusting-screw plug *i* in the upper end of *d*; the spring *k'* between the under side of the plug *i*, and the end of the rod *h*, pressing said rod *h* and spring *c* down, under constant tension; as set forth.

606,808. OILING DEVICE. JORDAN S. SCARBOROUGH, New Philadelphia, Ohio. Filed July 7, 1897. Serial No. 643,739. (No model.)



Claim.—1. A detachable discharge-spout for oil-receptacles, comprising the cylindrical sleeve 17, the oil-tube 20, the plunger 23 connected therewith and provided with the valve-seat 24 and the valve 25, provided with the stem 26 provided with the bar-nut 30, the sleeve 27 loosely encompassing said stem and the spiral spring 33 encompassing said stem and sleeve and holding said plunger in contact with said valve, substantially as shown and described.

2. A portable oiler, comprising the can 1 provided with the central concentric tube 2, the lateral compartments and an independent orifice for each compartment communicating with the central tube 2, and a gravity-valve adapted to simultaneously close one compartment and open the opposite compartment, in combination with a discharge-spout communicating with the tube 2, a plunger mounted in said spout, a valve mounted in said plunger, and means substantially as described for operating said plunger to positively discharge the oil through said spout, as and for the purpose set forth.

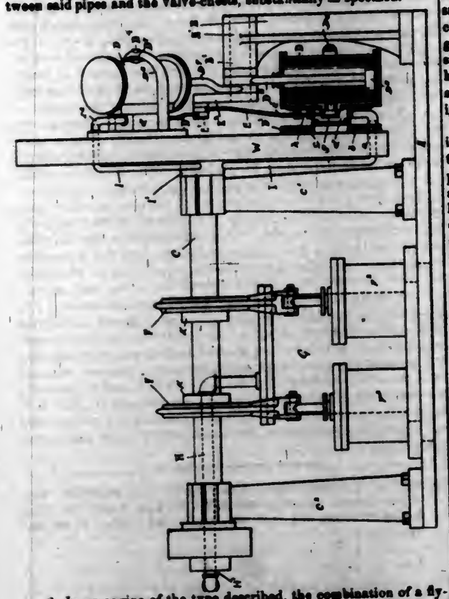
3. In oiling devices, an oil-reservoir, a valve-chamber attachably secured to one end thereof, a plunger-spout or discharge-tube sliding therein, a valve controlling the flow of oil therethrough, a stem attached to said valve and extending through said tube, a sleeve connected with said stem, a spring acting on said sleeve and stem, and means for adjusting said valve-stem, substantially as described.

4. A portable oiler comprising a can 1 provided with the central concentric tube 2 and radial walls 4 forming lateral compartments, each of said walls being provided with a discharge-orifice, gravity-valves controlling said orifices, a cylindrical sleeve 17, an oil-tube 20 sliding therein, a plunger 23 connected with said oil-tube and provided with a valve-seat 24 and a valve 25 having a stem 26, a sleeve 27 loosely encompassing said stem, and a spiral spring 33 encompassing said stem and sleeve 27 and adapted to hold said plunger in contact with said valve, substantially as described.

606,804. FLUID-PRESSURE MOTOR. PHILIPP SCHLACHTER, Streator, Ill. Filed June 7, 1897. Serial No. 639,894. (No model.)

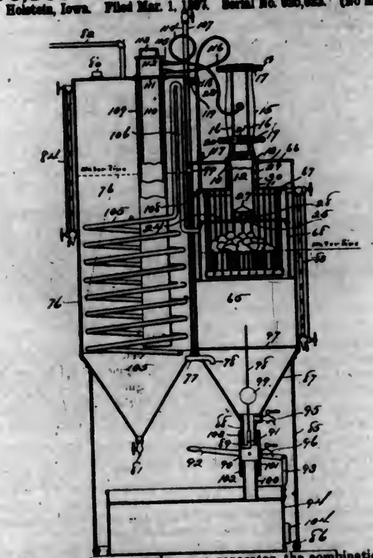
Claim.—1. In a fluid-pressure engine, the combination of a hollow shaft adapted to be connected with a source of fluid-pressure supply, a balance or fly wheel fixed on said shaft, suitably-supported wrist-pins B', E', disks connected to the face of the fly-wheel and having circular apertures and also having the walls of said apertures rabbeted at their inner sides, yokes connected to said disks, piston-cylinders arranged within said yokes and having trunnions journaled therein and also having valve-chests and heads journaled in the rabbets of the disks so as to enable the cylinders to oscillate on their centers of fixture, pistons in said cylinders connected with the wrist-pin B', slide-valves in the valve-chests connected with the wrist pin E', pipes connected to and extending radially from the hollow shaft

and transversely through the fly-wheel, and flexible connections between said pipes and the valve-chests, substantially as specified.



2. In an engine of the type described, the combination of a fly-wheel, suitably-supported wrist-pins, a disk secured to the face of said fly-wheel and having a circular aperture and also having the wall of said aperture rabbeted at its inner side, a yoke connected to the disk, a piston-cylinder arranged in the yoke and having a trunnion journaled therein and also having a valve-chest and a head journaled in the rabbet of the disk, a piston in said cylinder connected with one wrist-pin, and a valve in the chest connected with the other wrist-pin substantially as specified.

606,805. ACETYLENE-GAS GENERATOR. HENRY SCHENKLOTH, Holstein, Iowa. Filed Mar. 1, 1897. Serial No. 625,622. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a generating-chamber, a gas-supply pipe leading from the generating-chamber at a point above the supply of calcium carbid and a considerable distance below the top of the chamber, and a comparatively small tube leading from a point near the top of the gas-generating chamber into the said supply-pipe and of such a size that the flow of gas therethrough is comparatively insignificant and yet of sufficient size, so that, when the supply of gas within the generating-chamber has become exhausted, an amount will pass through the said tube sufficient to keep the burners connected with the gas-supply pipe ignited for a short time, for the purposes stated.

2. In an acetylene-gas generator, the combination of a generating-chamber, a gas-supply pipe leading therefrom at a point some distance below its top, a pressure-regulating apparatus having a supply-pipe leading thereinto, a pipe leading from the pressure-regulating apparatus, to supply burners, and a tube of comparatively small size leading from a point in the generating-chamber above the point of discharge of the supply-pipe and into the aforesaid pipe leading from the generating-chamber, all arranged and combined substantially in the manner set forth and for the purposes stated.

3. A device for charging or loading an acetylene-gas generator or the like, comprising a tube designed to be placed in the top of the generating apparatus and communicating with its interior, a gas-tight trap at its upper end portion, and a similar trap near its lower end portion, means for opening and closing said traps, and a device for withdrawing the vaporous contents of the space between the said traps.

4. A device for charging or loading an acetylene-gas generator or the like, comprising a flexible tube arranged to communicate with the interior of the generating-chamber, a gas-tight trap at its upper end portion, a similar trap at its lower end portion, means for opening and closing said traps, and a device for exhausting the vaporous contents of the tube between the traps.

5. A device for charging or loading an acetylene-gas generator, comprising a flexible tube arranged to communicate with the interior of a generating-chamber, a clamp at the top of said tube whereby it may be tightly closed, a similar clamp at the lower end portion of the tube, and a device for exhausting the vaporous contents of the tube between the said clamps.

6. A device for charging or loading an acetylene-gas generator, comprising a flexible tube arranged to communicate with the interior of a gas-generating chamber, four uprights secured to the chamber to inclose the tube, two cross-bars arranged on opposite sides of the tube near its lower end, means for slidingly mounting the bars upon said uprights to be capable of a movement toward each other, two relatively long arms pivoted to the ends of one of said bars, two relatively short arms pivoted to the ends of the other bar and also pivoted to the ends of the aforesaid arms, a similar clamping device supported at the upper ends of the said rods, and a device for exhausting the vaporous contents of the tube between the clamps, substantially as and for the purposes stated.

7. A device for charging or loading an acetylene-gas generator, comprising a metal tube slidingly mounted in the upper end of the gas-generating chamber, a gas-tight packing on the exterior of said tube, a device fixed within the generating-chamber and arranged to seal the lower end of said tube when said tube is lowered, a flexible tube secured to the top of the aforesaid tube, a gas tight trap at the lower end of said flexible tube, a similar trap at the upper end of said tube, and means for exhausting the vaporous contents of said flexible tube between the traps, for the purposes stated.

8. A device for charging or loading an acetylene-gas generator, comprising a metal tube slidingly mounted in the upper end of the gas-generating chamber, one or more elastic rings encircling the upper end portion of said tube to engage the sides of the passage leading to the gas-generating chamber, a cross-piece on the interior of the gas-generating chamber, a disk fixed to the central portion of said cross-piece, a collar on said disk, a cap on top of the collar, a rubber ring round in cross-section mounted on said collar and designed to seal the lower end of the said tube when said tube is in its lowered position, a number of uprights secured to the upper end portion of the said tube, a clamping device substantially as shown and described fixed to the said uprights at their lower end portions, a similar clamping device at the upper end portions of said uprights, a flexible tube connected to and communicating with the aforesaid metal tube and extending upwardly through said clamps, and means for exhausting the vaporous contents of said flexible tube between the clamps, substantially as and for the purposes stated.

9. In an acetylene-gas generator, the combination of a tube communicating with the interior of the generating-chamber, a trap at each end of the tube, a pump, a tube connected with the central portion of the aforesaid tube and with the pump, a valve in said tube, a similar tube leading from the pump to the gas-generating chamber, and a valve in this tube, for the purposes stated.

10. In an acetylene-gas generator, the combination of a tube communicating with the interior of the generating-chamber, a trap at each end of the tube, a pump, a pipe connected with the central

portion of the tube and with the pump, a valve in said pipe, a pipe leading from the pump to the generating-chamber, a valve in said pipe, a cut-off valve in the pipe near the generating-chamber, a branch leading from the said pipe to a point of discharge, and a cut-off valve in said pipe, for the purposes stated.

11. In an acetylene-gas generator, the combination of a tube communicating with the interior of the generating-chamber, a trap at each end thereof, a pipe leading from the central portion of said tube, a valve in said pipe, a double-walled cylinder having a space between the walls open at its upper and lower ends and attached to the said cylinder, a cylinder designed to enter the space between the double-walled cylinder, closed at its top and having the said pipe connected therewith, a pipe leading from the same cylinder to the interior of the gas-generating chamber, and a valve in said pipe, substantially as and for the purposes stated.

12. In an acetylene-gas generator, the combination of a flexible tube communicating with the interior of the generating-chamber, a trap near the lower end portion thereof, and a trap near its upper end, a pipe leading from the central portion of said tube, a valve in said pipe, a double-walled cylinder having a space between the walls open at its upper and lower ends and attached to the central cylinder, a cylinder designed to enter the space between the double-walled cylinder, closed at its top and having the said pipe connected therewith, a pipe leading from the same cylinder to the interior of the gas-generating chamber, and a valve in said pipe, substantially as and for the purposes stated.

13. In an acetylene-gas generating apparatus, the combination of two chambers having a pipe to connect them and so arranged that the gas-pressure in the generating-chamber will force the water downwardly in said chamber and upwardly in the other chamber, a water-jacket on the interior and top portion of the generating-chamber to surround and protect the grate, a pipe connecting the interior of the said jacket with the interior of the other chamber to provide means for supplying the jacket with water.

14. In an acetylene-gas generator, the combination of two chambers, a grate at the upper end portion of one of the said chambers, a pipe connecting the chambers at their lower end portions, a water-gage on the generating-chamber numbered from its top downwardly, a like gage on the other chamber numbered in a reverse way and so proportioned relative to each other and to the sizes of the chambers that when the two chambers have been filled until the gages register alike in each the two gages will continue to register alike during the rise and fall of the water in the chambers, as long as the same quantity of water is contained therein.

15. In an acetylene-gas generator, the combination of two chambers, a grate in one chamber, a tube in the top of the chamber leading to the grate, a trap in each end portion of said tube, a pipe leading from the central portion of said tube between the traps, a double-walled cylinder having a space between the walls, open at both ends, and arranged within the other chamber, with said lower end in the water normally contained in said chamber, a top for closing the upper end of the inner part of said double-walled cylinder, a cylinder closed at its top and open at its bottom inserted between the walls of the double cylinder and of a length sufficient to reach the water in the said chamber to form a water seal at its lower end, a pipe leading from the said chamber, and a valve therein, substantially as and for the purposes stated.

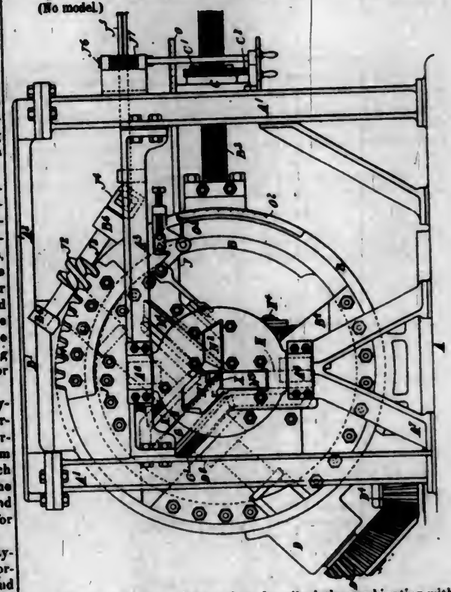
16. A device for removing waste calcium carbid from an acetylene-gas generator without exposing said waste, comprising a generating-tank, a tube projecting downwardly from its lower end, a water-tank below the generating-chamber, a tube projecting upwardly from the water-tank, a rubber ring round in cross-section placed on each of said tubes, a larger tube designed to overlap said tubes and the rings thereof, an automatic valve at the top of the upper tube, and means for closing said valve when the said larger tube is lowered, for the purposes stated.

17. A device for removing waste calcium carbid from an acetylene-gas generator without exposing same, comprising a generator-chamber, a tube projecting downwardly therefrom with its lower end flared outwardly, a rubber ring round in cross-section placed on said tube, a cross-bar within the generating-chamber, a rod slidingly mounted in said cross-bar, a ball on said rod designed, when lowered, to close the opening at the lower end of the chamber, a tank below the chamber, a tube projecting upwardly therefrom with its upper ends flared outwardly, a rubber ring round in cross-section placed on the upper end of said tube, a sleeve of larger diameter designed to admit the ends of said tubes and overlap the said rings, an arm on the inner surface of said sleeve to support said rod, substantially as and for the purpose stated.

18. A device for removing waste calcium carbid from an acetylene-gas generator without exposing same, comprising a generating-chamber, a tube projecting downwardly therefrom with its lower end flared outwardly, a rubber ring round in cross-section placed on said tube, a cross-bar within the generating-chamber, a rod slidingly mounted in said cross-bar, a ball on said rod designed, when lowered, to close the opening at the lower end of the chamber, a tank below the chamber, a tube projecting upwardly therefrom with its upper ends flared outwardly, a rubber ring round in cross-section placed on the upper end of said tube, a sleeve of larger diameter designed to admit the ends of said tubes and overlap the said rings, an arm on the inner surface of said sleeve to support said rod, and a cock to connect with the said sleeve, substantially as and for the purposes stated.

19. An acetylene-gas generator, comprising two cylinders, a water-jacket at the upper end portion of one cylinder, a pipe connecting it with the interior of the other cylinder, a grate within the water-jacket, a device for loading the grate with calcium carbid substantially as shown and described, a pump for withdrawing the vaporous contents from the said loading device and discharging said contents either into the generating-chamber or into the top of the other chamber, water-gages on the said chambers numbered in opposite directions as set forth, a gas-supply pipe leading from the generating-chamber into the other chamber bent upwardly therein then coiled and then extended outwardly, a pressure-regulating tank substantially as shown and described having said supply-pipe extending into it, supply-pipe leading from the pressure-regulating tank, a relatively small pipe leading from the top of the generating-chamber into said supply-pipe, a tank below the generating-chamber, means for providing communication between the generating-chamber and said tank, mechanisms substantially as shown and described for breaking the connection between the generating-chamber and the said tank and for closing the lower end of the generating-chamber, all arranged and combined substantially in the manner set forth and for the purposes stated.

606,306. BENDING APPARATUS FOR SHIP-FRAMES. MONTAGUE HERBERT CHURCHILL SEARS and RICHARD ERNEST CHURCHILL SEARS, Shoreham, England. Filed Aug. 7, 1897. Serial No. 647,458. (No model.)



Claim.—1. In a machine such as described, the combination with the main frame, of the roller-frame having segmental guides and the supplemental roller-frame mounted in said guides and movable independently of the main roller-frame to adjust the supplemental frame angularly with relation to the work operated upon: substantially as described.

2. In a machine such as described, the combination with the main frame, of the roller-frame having segmental guides, mechanism for moving the roller-frame horizontally the supplemental roller-frame mounted in the guides on the roller-frame and mechanism for adjusting the position of the supplemental frame angularly with relation to the work operated upon; substantially as described.

3. In a machine such as described, the combination with the main frame, of the roller-frame, having the segmental guides, the supplemental roller-frame mounted in said guides and mechanism for simultaneously adjusting the roller-frame horizontally and the supplemental frame angularly with relation to the work operated upon; substantially as described.

4. In a machine such as described, the combination with the main frame, of the frame carrying the fixed guide-rollers, the supplemental frame carried thereby and movable in an arc at right angles to the work fed through the guides, and the forming-guides carried by the supplemental frame substantially as described.

5. In a machine such as described, the combination with the main frame of the circular roller-frame, mechanism for moving said frame horizontally and guides for said circular frame; substantially as described.

6. In a machine such as described, the combination with the base-plate and bridge-bar, of the main frame having the guides therein, of the circular frame having the bracket and rib or projection thereon, received respectively in the guides of the base-plate and bridge-bar, the one rotating screw secured to said ring, the nut with which the screw engages, the worm-wheel and shaft; substantially as described.

7. In a machine such as described, the combination with the main frame, of the circular ring, the plate or frame mounted in guides in the upper part of the ring, the curved rack mounted on the plate, the shaft carrying the worm meshing with said rack and means for rotating the shaft whereby the plate may be partially rotated; substantially as described.

8. In a machine such as described, the combination with the main frame, of the circular ring, the plate mounted in guides in the upper part of the ring, the curved rack mounted on the plate, the worm-shaft mounted on the ring, the shaft for driving said worm-shaft, the universal connection between said shafts, the worm-wheel, and the feather-and-groove connection between said worm-wheel and driving-shaft; substantially as described.

9. In a machine such as described, the combination with the main frame, of the circular ring, the hollow inclined shaft D^2 supported in bearings on the ring, the shaft F received within the shaft D^2 movable longitudinally therein but not independently rotatable, the frame J carried by the ring, the inclined shaft carried by said frame and having a central passage, the shaft K received therein, and the universal connection between the shafts K and F; substantially as described.

10. In a machine such as described, the combination with the circular ring, the hollow inclined shaft D^2, having the enlarged end, the roller carried thereby, the bevel-gear thereon, the frame at the lower portion of the ring, the roller H formed with hollow bosses, the eccentrically-bored bushes mounted in bearings on the plate within which are received the bosses of the roller, means for moving the bushes to move the roll nearer to the roller G and gear on the roller H with which meshes the gear on the roll G; substantially as described.

11. In a machine such as described, the combination with the main frame, the roller-frame movable longitudinally therein, the fixed drive-shaft, the pinion carried by said shaft and movable longitudinally thereon the train of gearing carried by the roller-frame operatively connected with said drive-pinion; substantially as and for the purpose set forth.

606,307. ANTIRATTLING THILL-COUPLING. WILLIAM E. SHERWOOD, Oneida, N. Y. Filed Aug. 3, 1897. Serial No. 646,976. (No model.)



Claim.—The combination with the axle-clip and thill-iron, a coupling-pin provided with a squared end adapted to fit in a correspondingly-shaped opening in the clip-ear, a projecting bifurcated head for said coupling-pin, a frame having end and side flanges adapted to engage an elastic block and secure the same therein, an upwardly-projecting arm on one end of said frame adapted to fit between the bifurcations formed in the coupling-pin head, a locking-lever pivoted to the other end of said frame, a link pivoted to the locking-lever eccentric with the pivot of said lever, said link being adapted to engage a groove in the projecting end of the coupling-pin, substantially as described.

606,308. BRAKE-BEAM FOR RAILWAY-CARS. THOMAS H. SIMPSON and PHILIP T. HARRISON, Detroit, Mich., assignors to the Monarch Brake-Beam Company, Limited, same place. Filed Jan. 3, 1898. Serial No. 666,318. (No model.)

Claim.—1. A brake-head formed with transverse ribs intermediate the extremities of the head through which the head is bolted to the brake-beam body, said head provided with marginal strengthening-ribs extending from said transverse ribs to the extremities of the head, and with an additional rib located toward one of the outer extremities of said head and connecting the adjacent marginal ribs or braces, said connecting-rib provided with an orifice extending longitudinally of the brake-head, for the purpose set forth.



2. The combination with a brake-beam body, of a guide-pin, and a clip to engage the pin with the body, the inner end of said pin formed with a slot or recess to engage the marginal edge of said body, substantially as set forth.

606,309. NON-REFILLABLE BOTTLE. HENRY STRAWSON, Bradley, Ill. Filed June 21, 1897. Serial No. 641,635. (No model.)



Claim.—1. In combination with a bottle, a neck provided with an external breaking-groove extending approximately half-way thereabout, and an internal breaking-groove extending approximately the remainder of the distance thereabout.

2. In combination with a bottle, a neck provided with an external breaking-groove extending approximately half-way thereabout, an internal breaking-groove extending approximately the remainder of the distance, and shoulders formed beneath said breaking-grooves, a stopper held against said shoulders beneath said breaking-grooves, and a sealing device held above said stopper.

3. In combination with a bottle, a neck having shoulders formed at the lower end thereof, an external breaking-groove extending approximately half-way around said neck, an internal breaking-groove extending approximately the remainder of the distance, and a notch formed on the inside of said neck adjacent to and communicating with said internal breaking-groove to rest against said shoulders, a stopper provided with an annular groove held in the upper portion of said neck above said breaking-grooves, and a spring consisting of a piece of resilient metal formed to fit the annular groove in the stopper and provided with ends extending up into the recess, said ends normally pressing outwardly therefrom.

606,310. DEVICE FOR HEATING WATER BY STEAM. ROBERT STRATTON, Detroit, Mich. Filed Feb. 14, 1898. Serial No. 670,171. (No model.)



Claim.—1. In a device for heating water, the combination of a hollow steam-head having means for connecting it to a source of steam, a series of open-ended combining-tubes at right angles to the steam-head, a fin on the body of the steam-head to which the inner ends of said combining-tubes are united, said fin having apertures leading from the steam-head into the combining-tubes and forming segmental openings for the admission of water into the tubes on opposite sides of the fin.

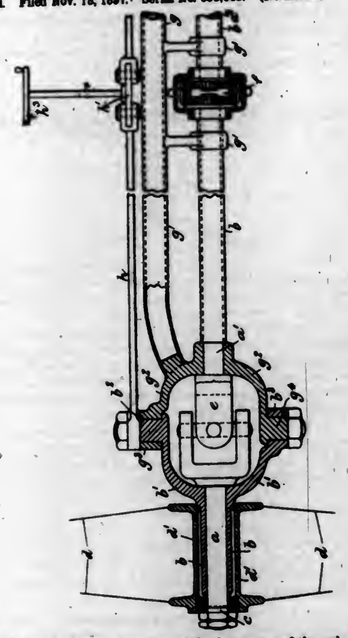
2. In a device for heating water, the combination of a hollow steam-head having means for connecting it to a source of steam, two series of open-ended combining-tubes arranged upon opposite sides thereof at right angles thereto, and two fins formed correspondingly on opposite sides of the body and to which the combining-tubes are united, said fins forming dividing-partitions across the inner ends of the combining-tubes and having perforations for admitting steam into said tubes.

3. In a device for heating water, the combination of the hollow

steam-head formed with male and female coupling members at its opposite ends and one or more rows of combining-tubes united to the steam-head by longitudinal fins integrally cast with the steam-head and combining-tubes, and steam-passages in said fins from the steam-head into the combining-tubes.

4. In a device for heating water, the combination of the hollow steam-head formed with male and female coupling members at its opposite ends respectively, the fins C formed on opposite sides of said steam-head, the grooves D formed correspondingly therewith in the steam-head, the open-ended combining-tubes B united at their inner ends to the fins, the segmental water-inlets c into the combining-tubes and the steam-passages E extending from the grooves in the steam-head into the mouth of the combining-tubes.

606,811. DRIVING-GEAR FOR MOTOR-CARS. WILLIAM SYDENHAM, FREDERICK WATKINSON, and ARTHUR SYDENHAM, London, England. Filed Nov. 18, 1897. Serial No. 658,015. (No model.)



Claim.—1. The combination of the four parts of the axle, differential gear connecting the two middle parts, parallelograms connecting the middle and outer parts, joints at the angles of the parallelograms and axial joints in their sides.

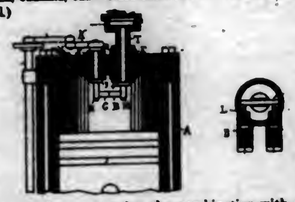
2. The combination of the four parts of the axle, differential gearing connecting the two middle parts, universal joints connecting the middle and outer parts, four sleeves forming bearings for the four parts of the axle, vertical joints connecting the outer and middle sleeves, and means for turning the outer sleeves about the joints.

3. The combination of the four parts of the axle, differential gear connecting the two middle parts, parallelograms connecting the middle and outer parts, joints at the angles of the parallelograms, axial joints in their sides, four sleeves forming bearings for the parts, vertical joints connecting the outer and middle sleeves and means for turning the outer sleeves about the joints.

4. The combination of the four parts of the axle, differential gear connecting the two middle parts, universal joints connecting the middle and outer parts, four sleeves forming bearings for the parts, vertical joints connecting the outer and middle sleeves, pinions fixed to the outer sleeves, racks gearing with the pinions, and a cam actuated by the steering-gear traversing the racks.

5. The combination of the four parts of the axle, differential gear connecting the two middle parts, parallelograms connecting the middle and outer parts, joints at the angles of the parallelograms, axial joints in their sides, four sleeves forming bearings for the parts, vertical joints connecting the outer and middle sleeves, pinions fixed to the outer sleeves, racks gearing with the pinions and a cam actuated by the steering-gear traversing the racks.

606,812. ELECTRIC IGNITER FOR GAS-ENGINES. ARNOLD J. TAGKLE, Oakland, Cal. Filed Oct. 6, 1897. Serial No. 654,155. (No model.)

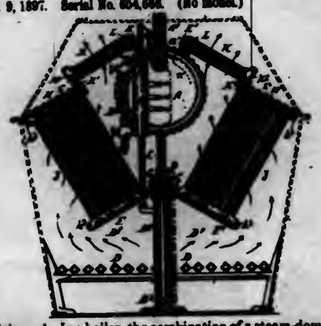


Claim.—1. In a gas-engine, the combination with the cylinder or combustion-chamber thereof, a bushing extending into cylinder or combustion-chamber through which a stem actuated by some moving part of the engine passes, carrying upon its inner end an electrode connected to one terminal of an electric circuit, a spring-controlled stem having a bar coming in contact with yielding pins rigidly fastened to its outer end, passing into cylinder or combustion-chamber through a sleeve mounted in an insulated bushing and carrying upon its inner end an electrode for yielding engagement with the first-mentioned electrode, which may travel in either direction and being connected with other terminal of electric circuit.

2. In a gas-engine, the combination with the cylinder or combustion-chamber thereof, of a positively-actuated electrode for coming in contact with a second movable electrode having a rigid cross-bar on the outer end of its stem, said stem passing into cylinder through an insulated sleeve having at its outer end an enlargement to receive said bar and two chambers opening into said enlarged part of sleeve, and a spring-seated pin having an enlarged head contained within each of said chambers and bearing respectively against opposite ends and on one and the same, side of said bar.

3. In an electric igniter, the combination with a positively-actuated electrode of a second movable electrode having a rigid cross-bar on the outer end of its stem, an insulated sleeve surrounding said stem and having at its outer end an enlargement to receive said bar, and two spring-seated pins carried by said sleeve and bearing respectively against opposite ends and on one and the same side, of said bar.

606,818. SECTIONAL BOILER. HARRISON H. TAYLOR, Detroit, Mich., assignor of one-half to George Thrall, Grosse Isle, Mich. Filed Oct. 9, 1897. Serial No. 654,666. (No model.)



Claim.—1. In a boiler, the combination of a steam-dome, a water-distributing pipe located thereabeneath and communicating therewith, and a series of steam-generating sections on opposite sides thereof connected at the base with the water-distributing pipe, and at the top with the steam-dome, the sections on opposite sides of the dome and pipe diverging at their upper ends, substantially as set forth.

2. In a boiler, the combination of a steam-dome, a water-distributing pipe located under the longitudinal center of the dome, and a series of sections on opposite sides thereof each consisting of a lower manifold and an upper manifold united by vertical uptake-pipes, each of said lower manifolds outwardly and downwardly inclined from the water-distributing pipe and connected therewith, and each of the upper manifolds similarly inclined and connected with the steam-dome, the outer extremities of said manifolds diverging on opposite sides of the dome and pipe, substantially as set forth.

3. In a boiler, the combination of a steam-dome, a water-distributing pipe, a series of vertical pipes connecting the distributing-pipe and dome, and a series of independent steam-generating sections on opposite sides thereof connected at the base with the distributing-pipe, and at the upper end thereof connected with the steam-dome, each of said sections constructed with a lower and with an upper manifold, said manifolds connected by uptake-pipes, outwardly diverging on opposite sides of the dome, substantially as set forth.

4. In a boiler, the combination of a steam-dome, a water-distributing pipe parallel therewith and therebeneath, a series of pipes connecting the distributing-pipe with the bottom of the dome, and boiler-sections outwardly diverging at their upper ends on opposite sides of the dome, said sections connected at their base with the distributing-pipe and at their upper ends with the dome, substantially as set forth.

5. In a boiler, the combination of an elongated steam-dome, an elongated distributing-pipe extending longitudinally of the dome and therebeneath, a series of pipes connecting the distributing-pipe with the base of the dome, a series of lower manifolds extending at a downward and outward incline on each side the distributing-pipe and connected therewith, a series of upper manifolds on each side the dome parallel with the lower manifolds, and a series of uptakes connecting the upper and lower manifolds, said upper manifolds connected with the steam-dome, said uptakes on opposite sides of the dome and pipe being outwardly diverging at their upper ends, substantially as set forth.

6. In a boiler, the combination of an elongated steam-dome, a water-distributing pipe underneath the dome and extending longitudinally therewith, a series of sections on opposite sides thereof constructed with upper and lower parallel manifolds connected by uptakes outwardly inclined at their upper ends on opposite sides of the dome and pipe, right and left hand threaded nipples connecting the lower manifolds separately into the distributing-pipe, a series of pipes parallel with said nipples connected into the steam-dome, and a series of right and left hand threaded nipples connecting the last-named pipes into the upper manifolds, substantially as set forth.

7. In a boiler, the combination of an elongated steam-dome, an elongated water-distributing pipe, a series of connecting-pipes connecting the distributing-pipe with the base of the dome, a series of lower manifolds connected with the distributing-pipe, a series of upper manifolds connected into the steam-dome, and a series of uptake-pipes connecting each of the lower manifolds with the corresponding upper manifolds, the upper ends of the uptake-pipes having an enlarged threaded head, and the upper manifold constructed with openings to permit the passage of the lower end of the uptake-pipes therethrough to engage the lower manifold, substantially as set forth.

8. In a boiler, the combination of a steam-dome, a water-distributing pipe therebeneath, a series of pipes connecting the distributing-pipe with the dome, and a series of sectional steam-generators on opposite sides thereof communicating at their base with the distributing-pipe, and at their upper ends with the steam-dome, said sections outwardly diverging at their upper ends on opposite sides of the dome and pipe, substantially as set forth.

9. In a boiler, the combination of a steam-dome, a supporting water-distributing pipe therebeneath and communicating therewith, a series of lower manifolds communicating with the distributing-pipe and forming a crown-sheet above the grate, a series of upper manifolds, a series of pipes connecting the upper and lower manifolds, a series of pipes leading into the steam-dome, and connections uniting said latter pipes with the upper manifolds, substantially as set forth.

10. In a boiler, the combination of a steam-dome, a water-distributing pipe connected therewith, lower manifolds on opposite sides thereof connected with the distributing-pipe, upper manifolds on opposite sides of the dome and pipe connected with the dome, and uptake-pipes connecting the manifolds, the upper manifold provided with plugs on the upper side for cleaning the uptakes, said uptakes diverging at their upper ends on opposite sides of the dome and pipe, substantially as and for the purpose described.

11. In a boiler, the combination of a steam-dome, a water-distributing pipe connected therewith, lower manifolds on opposite sides thereof connected with the distributing-pipe, upper manifolds on opposite sides of the dome and pipe connected with the dome, and uptake-pipes connecting the manifolds, said uptakes diverging at their upper ends on opposite sides of the dome and pipe, said manifolds provided with plugs at one end thereof, substantially as and for the purpose described.

12. In a boiler, the combination of a steam-dome, a water-distributing pipe connected therewith, lower manifolds on opposite sides thereof connected with the distributing-pipe, upper manifolds on opposite sides of the dome and pipe connected with the dome, and uptake-pipes connecting said manifolds, respectively, said uptakes diverging at their upper ends on opposite sides of the dome and pipe, and said lower manifolds assembled close together, substantially as and for the purpose set forth.

13. In a boiler, the combination of a steam-dome, a water-distributing pipe connected therewith, lower manifolds on opposite sides thereof connected with said pipe, upper manifolds on opposite sides of the dome and pipe connected with said dome, and uptake-pipes connecting said manifolds, the upper and lower manifolds, respectively, assembled close together forming a flue therebetween, said uptakes diverging at their upper ends on opposite sides of the dome and pipe, substantially as set forth.

14. In a boiler, the combination of a steam-dome, a water-distributing pipe connected therewith, lower manifolds on opposite sides thereof connected with said pipe, upper manifolds on opposite sides of the dome and pipe connected with said dome, and uptake-pipes connecting said manifolds, said uptake-pipes diverging at their upper ends on opposite sides of the dome and pipe and constructed with right-hand threads at their extremities of less diameter at the bottom than at the top, whereby said uptake-pipes may be simultaneously connected with the corresponding upper and lower manifolds, substantially as set forth.

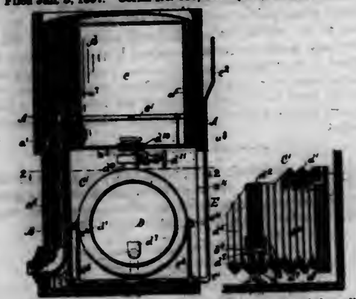
15. In a boiler, the combination of a steam-dome, a water-distributing pipe connected therewith, steam-generating sections connected at their lower ends with said pipes, and additional pipes connecting the upper ends of said sections with the steam-dome, said dome provided with an interior shield beneath the adjacent ends of the last-mentioned pipes, substantially as set forth.

606,814. BICYCLE-SEAT. WILLIAM H. THOMAS, Indianapolis, Ind. Filed Oct. 22, 1896. Serial No. 609,661. (No model.)



Claim.—The combination with a rigid bicycle-seat and the saddle post of a bicycle, of a spring-frame secured to the seat at a single point, said frame comprising two oppositely-coiled springs, forward horizontal projections from the top of each coil and similar rearward projections from the bottom of said coils, said bottom projections being united and secured to the saddle-post whereby the torsional elasticity of said arms will be developed, all substantially as described and for the purposes specified.

606,815. SMOKE-CONSUMER. THOMAS THOMSON, Scranton, Pa. Filed Jan. 5, 1897. Serial No. 618,047. (No model.)



Claim.—1. A drain-testing apparatus of the kind described comprising a casing, a chamber in said casing, said chamber having its outer walls placed a distance from the inner faces of the walls of the casing, an outlet from said chamber; means in the chamber for supporting a combustible material, and bellows for supplying a current of air to the chamber on the side of the combustible material opposite the outlet and a bell fitting over the chamber, said bell having its sides depending in the space between the walls of the chamber and the inner faces of the casing and there immersed in a sealing fluid so as to adapt it to be raised by the pressure of the air created by the operation of the bellows aforesaid and provide a steady pressure on the drain to be tested, substantially as and for the purpose described.

2. In combination with a drain-testing device a casing and chamber within said casing and means within the chamber for supporting a combustible material, means for supplying a current of air into the chamber and an outlet opposite the combustible material from that in which the air is supplied, and a bell fitting over the chamber having its sides immersed in a sealing fluid between the walls of the cham-

ber to the inner faces of an outer casing, and the said bell adapted to be raised or lowered by the pressure of the air which may be pumped into it, and means for pumping the air into said chamber, substantially as specified.

3. An apparatus of the character indicated, comprising a casing, a chamber in said casing, an outlet from said chamber, means in the chamber for supporting a combustible material, and a bellows, said bellows comprising stationary end plates, said end plates being provided with ports leading into the above-mentioned chamber, a central plate between the walls of the bellows, said central plate having an inlet-port leading to each of the chambers of the bellows, valves upon said inlet-ports, and means for reciprocating the central plate of the bellows; substantially as described.

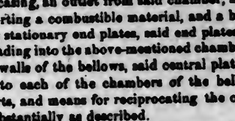
4. An apparatus of the character indicated, comprising a casing, a chamber in said casing, means in said chamber for supporting a combustible material, an outlet from said chamber, means for supplying a current of air to said chamber on the side of the combustible material opposite the outlet, and means for closing the passage into the chamber from the member for supplying the air thereto; substantially as described.

5. An apparatus of the character indicated, comprising a casing, a chamber in said casing, means in said chamber for supporting a combustible material, an outlet from said chamber, means for supplying a current of air to said chamber on the side of the combustible material opposite the outlet, and a positively-operative valve in the passage between the chamber and the member for supplying air thereto.

6. An apparatus of the character indicated, comprising a casing, a chamber in said casing, means for supporting a combustible material in said chamber, an outlet from said chamber, a bellows communicating with said chamber, said bellows comprising stationary end plates, said end plates being provided with valved ports leading into the chamber, a central plate attached to the walls of said bellows, said central plate having an inlet-port leading into each of the chambers of the bellows, valves upon said inlet-ports, a transverse rock-shaft, arms upon said shaft, pivots securing said arms to the central plate of the bellows, and an operating-lever upon said shaft; substantially as described.

7. An apparatus of the character indicated, comprising a casing, an upright partition or wall within said casing, a downwardly-extending tube or water-leg situated between said upright partition or wall and the wall of the casing, an outlet-pipe in said tube or water-leg and casing, said outlet-pipe having its upper end open, a bell covering the chamber C and the open end of the outlet-pipe, a grate across said chamber adapted to supporting combustible material, a bellows in the compartment below said chamber, said bellows comprising stationary end plates, said end plates having valved ports leading into the chamber, a central plate attached to the walls of said bellows, said central plate having an inlet-port with openings into the two chambers of the bellows, valves upon said inlet-ports into the bellows-chambers, positively-operative valves in the outlet-ports from the bellows to the first-mentioned chamber, a shaft mounted below the bellows, arms extending from said shaft; pivots upon said arms securing the same to the central plate of the bellows, and a crank-arm upon said shaft adapted to reciprocate the same, substantially as described.

606,816. SPRING-PROTECTING DEVICE FOR RAILWAY COUPLING ATTACHMENTS. William Thornburgh, Shelby, Ohio, assignor to the Thornburgh Coupler Attachments Company, Limited, Detroit, Mich. Filed Nov. 19, 1897. Serial No. 659,085. (No model.)



Claim.—1. In a spring-protecting device for railway-couplers, a draft-spring housing provided with two followers, springs arranged tandem within said housing, and means to separate said springs from each other at their adjacent ends, said followers arranged to abut one against the other to limit the compression of the springs, for the purpose described.

2. A spring-protecting device for railway-couplers consisting of followers, a spring housed in each of said followers, and separated the one from the other, said followers constructed to abut the one against the other to limit the compression of said springs, substantially as described.

3. A spring-protecting device for railway-couplers consisting of followers, a spring housed in each of said followers, and separated thereby the one from the other, said followers constructed to abut the one against the other to limit the compression of said springs, substantially as described.

4. A spring-protecting device for railway-couplers consisting of interlocked followers constructed to abut the one against the other to limit the compression of said springs, one of said followers constructed of separable sections to engage the interlocking portion of the other follower, substantially as described.

5. A spring-protecting device for railway-couplers consisting of followers arranged to engage tandem springs, said followers constructed to abut the one against the other to limit the compression of said springs, one of said followers constructed of separable sections, substantially as described.

6. A spring-protecting device for railway-couplers consisting of followers constructed to abut the one against the other to limit the compression of said springs, one of said followers formed with lateral orifices, and the other follower having its adjacent end engaged in said orifices, substantially as described.

7. A spring-protecting device for railway-couplers consisting of followers arranged to engage tandem springs, said followers constructed to abut the one against the other to limit the compression of said springs, one of said followers formed with lateral orifices, and the other follower having its adjacent end engaged in said orifices, substantially as described.

8. The spring-protecting followers herein described, consisting of two box-shaped followers the one interlocked with the other, whereby each of said followers may have a limited movement toward and from the other, substantially as described.

9. A spring-protecting device consisting of two followers having their adjacent ends G^2, and G^4 interlocked to limit the movement of each of said followers, one of said followers formed with lateral orifices to receive the adjacent end of the opposite follower, substantially as described.

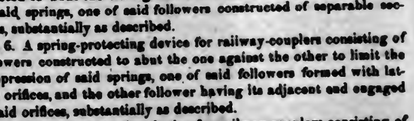
10. The combination with a draft-spring housing constructed with side walls having inwardly-projecting shoulders or stops toward the opposite extremities thereof, and with intermediate recesses, of spring-protecting followers arranged to move back and forth in said recesses, and independent springs separated one from the other located within said housing, said followers arranged to abut the one against the other to limit the compression of the springs as said housings move one toward the other, the opposite movements of the housings being limited by said stops, substantially as described.

11. The combination with a draft-spring housing, constructed with side walls having inwardly-projecting shoulders or stops toward the opposite extremities thereof, and with intermediate recesses, of spring-protecting followers arranged to move back and forth in said recesses, and independent springs arranged tandem and separated one from another located within said housing, said followers arranged to abut the one against the other to limit the compression of the springs as said housings move one toward the other, the opposite movements of the housings being limited by said stops, substantially as described.

12. In a spring-protecting device for railway-couplers, a draft-spring housing, a yoke, springs arranged tandem in said housing, means to separate said springs from each other at their adjacent ends, and two followers arranged within said housing to abut the one against the other to limit the compression of the springs, substantially as described.

13. A spring-protecting device for railway-couplers consisting of two followers, independent springs housed in said followers and separated the one from the other, said followers constructed to abut the one against the other to limit the compression of said springs, substantially as set forth.

606,817. WRENCH. George B. Van Scholck, Coldwater, Mich., assignor of one-half to F. W. Stewart, same place. Filed Nov. 30, 1897. Serial No. 660,944. (No model.)



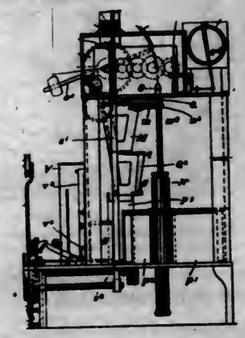
Claim.—1. In a wrench, the combination of a shank provided with teeth, a stationary jaw mounted on the shank, a sliding jaw arranged on the latter and provided with an opening or way to receive the same, a dog loosely arranged within the sliding jaw and provided with teeth for engaging the shank, an operating-lever pivoted between its ends to the dog, and a link pivoted to the lever and to the sliding jaw and forming a toggle connection between the dog and the sliding jaw, substantially as and for the purpose described.

2. In a wrench, the combination of a shank provided with teeth, a stationary jaw mounted on the shank, a sliding jaw arranged on the latter and provided with an opening or way to receive the same, a dog loosely arranged within the sliding jaw and provided with teeth for engaging the shank, an operating-lever pivoted between its ends to the dog, a link pivoted to the lever and to the sliding jaw and forming a toggle connection between the dog and the sliding jaw, and a spring engaging the toggle connection and adapted to break the same to throw the dog out of engagement with the shank, substantially as described.

3. In a wrench, the combination of a shank provided with a stationary jaw, a sliding jaw mounted on the shank and having a casing provided with notches, a dog arranged within the casing, a lever pivoted between its ends to the dog, a link connecting the lever and the sliding jaw and forming a toggle connection, said link being provided at its outer edge with a notch, a spring engaging the notch of the link and provided with legs fitting in the notches of the casing, and a stop forming a support for the spring between the ends of the same, substantially as described.

4. In a wrench, the combination of a shank provided with teeth, a stationary jaw, a sliding jaw composed of a casing and a block arranged between the sides of the casing and provided with a recess forming a face arranged at an angle to the shank and serving as a stop, a dog arranged within the sliding jaw, a lever pivoted between its ends to the dog, a link connecting the lever and the sliding jaw and arranged to engage the said face, and a spring for holding the link normally in engagement with the face of the block, substantially as described.

606,818. AUTOMATIC APPARATUS FOR TAKING PHOTOGRAPHS. Robert W. Venus, London, England. Filed Mar. 23, 1898. Serial No. 675,494. (No model.)



Claim.—1. In an automatic photographic machine, the combination with the tanks adapted to contain the developing and fixing solutions, carrier mechanism for immersing the negative successively in the solutions, suitable motor mechanism for operating said carrier mechanism, and a thermostat for controlling the speed of the motor mechanism.

2. In an automatic photographic machine, the combination with the tanks adapted to contain the developing and fixing solutions, heating means adapted to heat the solutions in the tanks, a thermostat adapted to control the supply of heat to maintain said solutions at a constantly even temperature, carrier mechanism for immersing the negative in said solutions, substantially as described.

3. In an automatic photographic machine, the combination with the tanks for the developing and fixing solutions, carrier mechanism for immersing the negatives successively in said solutions, the motor mechanism for operating said carrier mechanism, the fler for governing the speed of said motor mechanism and having adjustable wings, a thermostat and connections therefrom to the adjustable wings for regulating the speed of the motor according to the temperature, substantially as described.

4. In an automatic photographic apparatus, the combination with the tanks for the developing and fixing solutions arranged upon different levels, of the carrier mechanism comprising an upper carrier adapted to immerse the negative in the upper developing-tank, a lower carrier adapted to immerse the negative in the fixing solution, and means for effecting the transfer of the negative from one carrier to the other, substantially as described.

5. In an automatic photographic machine, in combination, a lens and shutter, a holder for the sensitive surfaces, in rear of said lens, tanks for containing the developing and fixing solutions, the carrier mechanism in duplicate for receiving the exposed negative and immersing it in the solutions, the clock mechanism, the timing-disk operated by said clock mechanism, and connections from said timing-disk to the shutter and carrier mechanism, whereby the operation of said parts and the transfer of the negative are effected by the clock mechanism, substantially as described.

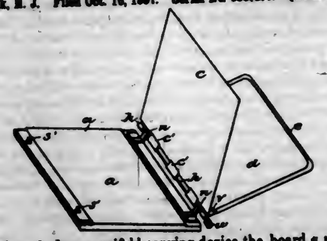
606,819. AUGER. Henry G. Watrous, Wallingford, Conn. Filed Nov. 16, 1897. Serial No. 658,676. (No model.)



Claim.—In a boring-tool, the combination of two parallel ribs, coiling around a common axis, and terminally provided, one with a router and side lip, and the other with a heel, which has two contiguous inclined faces, situated at a predetermined distance behind the path of the router, substantially as and for the purpose specified.

606,820. WITHDRAWN.

606,821. MANIFOLDING-BOOK. Howard Whitfield, Red Bank, N. J. Filed Oct. 16, 1897. Serial No. 655,409. (No model.)

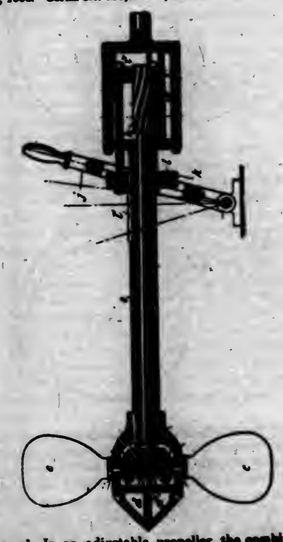


Claim.—1. In a manifold-copying device the board *a* provided with the foundation-leaf *c* and frame *c*, hinged to one side of the board *a* by means of the rod *h*, the frame *c* carrying the carbon *d* in combination with a suitable pad as *d'* secured to the opposite side of the board *a*, substantially as described.

2. The grooved arbon-carrying frame *c* hinged to the board *a* by means of the detachable clamps *r* and rod *h* in combination with a manifold book or pad as *b* and foundation-leaf *c*, substantially as set forth.

3. In a manifold-copying device the carbon-carrying frame *c*, having its edges grooved as described, in combination with a carbon-sheet having its edges reinforced to hold it within the said frame, substantially as described.

606,822. SCREW-PROPELLER. Paul A. H. Wirard, Philadelphia, Pa., assignor to the Otto Gas Engine Works, same place. Filed Jan. 13, 1898. Serial No. 676,964. (No model.)



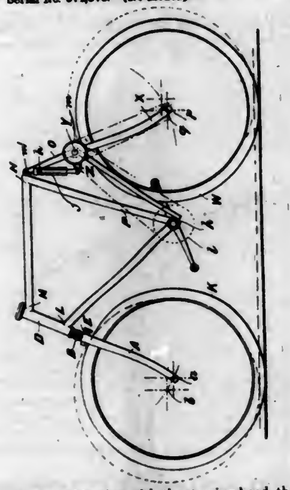
Claim.—1. In an adjustable propeller, the combination of the rotary propeller-driving shaft, consisting of a hollow portion *a*, and a second portion *a'* connected therewith outside of the circumference

of the hollow portion of the shaft, whereby a chamber or space of greater diameter than the hollow shaft is provided between the two portions of the shaft, a propeller-hub carried by the hollow portion of the shaft, propeller-blades mounted in the hub by radially-arranged journals, an adjusting-shaft located within the hollow shaft and rotating therewith, but capable of independent rotary adjustment, motion-communicating means between the end of the adjusting-shaft and the propeller-blades, mechanism located in the space between the two portions of the propeller-driving shaft, operatively connected with the adjusting-shaft and rotating with both shafts, and a shaft-adjusting device stationary with reference to the rotation of said shafts and operatively connected with said mechanism by a loose or sliding connection, whereby the pitch of the blades may be changed while they are being revolved.

2. In an adjustable propeller, the combination of the rotary propeller-driving shaft, consisting of a hollow portion *a*, and a second portion *a'* connected therewith outside of the circumference of the hollow portion of the shaft, whereby a chamber or space of greater diameter than the hollow shaft is provided between the two portions of the shaft, a propeller-hub carried by the hollow portion of the shaft, propeller-blades mounted in the hub by radially-arranged journals, an adjusting-shaft located within the hollow shaft and rotating therewith, but capable of independent rotary adjustment, motion-communicating means between the end of the adjusting shaft and the propeller-blades, mechanism located in the space between the two portions of the propeller-driving shaft, operatively connected with the adjusting-shaft and rotating with both shafts, a ring connected with said mechanism sliding in the hollow portion of the shaft and rotating therewith, a device or lever stationary with reference to the rotation of both shafts and connected with said ring to slide it in the hollow portion of the shaft to effect the adjustment of the pitch of the blades while they are being revolved.

3. In an adjustable propeller, the combination of a hollow shaft having an enlarged chamber, a shaft in the hollow shaft held against end play but free to rotate therein, a quick-pitch screw on the end of this shaft, a nut fitted on this screw and held in the chamber so as to be movable only longitudinally therein, an operating-lever, a sleeve fitted to slide on the hollow shaft, a trunnioned ring connecting the sleeve and the lever, rods extending from the sleeve through the end or head of the chamber to the quick-pitch nut, and an adjustable screw-propeller on the end of the hollow shaft and controlled and adjusted by the interoal shaft.

606,828. CYCLE. JOHN A. WROBSKI, Bortid, Russia. Filed Mar. 18, 1898. Serial No. 674,376. (No model.)

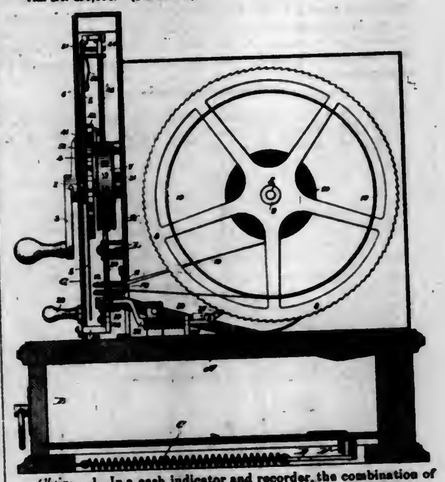


Claim.—1. In combination with the steering-head, the bolt B at the lower end thereof, the forks A, A, at opposite ends of the bolt, the ball-bearings B^3 between the forks and the steering-head, the spring-barrel extending transversely of the forks, and an arm extending down from the steering-head in between the forks, and connected with the spring in the barrel, substantially as described.

2. In combination, the frame having a rigid portion N, O, P, the rear fork X, the pivotal connection for the rear forks arranged at the end of the part O, a spring i for applying tension to the said rear forks, a barrel *j* containing said spring, a cross-head h bearing on the spring, the links and arms *z* connected with the fork X the said barrel depending in rear of the seat-standard, and sprocket connections between the crank-axle and the pivotal connection and between said pivotal connection and the rear wheel, said pivotal connection including a shaft carrying sprocket-wheels, substantially as described.

3. In combination with the front forks pivoted to the steering-head at their upper ends, a barrel E extending between the forks transversely thereof and having a spring therein, the arm connected with the steering-head and extending into the said barrel to be under pressure of the spring and having a finger-piece *c* to bear on the outer side of the barrel, substantially as described.

606,324. CASH INDICATOR AND RECORDER. WILLIAM W. WYTHE and WILLIAM H. WYTHE, Orange, N. J., assignors to the National Cash Register Company, Dayton, Ohio. Filed Oct. 26, 1893. Serial No. 450,088. (No model.)



Claim.—1. In a cash indicator and recorder, the combination of a shaft, an indicating-dial and a type-wheel fast thereon side by side, the indicating-dial being provided on its face with a series of indicating-numbers exposable singly through a sight-opening in the casing, and the type-wheel being provided with a series of type-numbers on its periphery, a platen coöperating with the type-wheel, feeding mechanism for moving the record-strip past the printing-point, an operating-handle, and connections between said handle and the feeding mechanism and platen, to advance the record-strip and effect the printing by the operation of said handle.

2. In a cash indicator and recorder, the combination of a shaft, an indicating-dial and a type-wheel fast thereon, a platen coöperating with the type-wheel, an automatically-opening cash-drawer, a lock for holding the same closed, an operating-handle independent of the drawer, and connections between said handle and the platen and drawer-lock, for effecting the printing and releasing the drawer by the operation of said handle.

3. In a cash indicator and recorder, the combination of a casing having a sight-opening shaft, an indicating-dial fast thereon and provided upon its face with a series of indicating-numbers exposable singly at the sight-opening in the casing, a type-wheel also fast upon said shaft and provided with a series of type-numbers on its periphery, a platen coöperating with the type-wheel, feeding mechanism for moving the record-strip past the printing-point, a cash-drawer, a lock therefor, an operating-handle, and connections between said handle and the feeding mechanism, platen and drawer-lock, for advancing the record-strip, effecting the printing and releasing the drawer by the operation of said handle.

4. In a cash indicator and recorder, the combination of a shaft, an indicating dial and a type-wheel fast thereon, a platen coöperating with the type-wheel, feeding mechanism for moving the record-strip past the printing-point, an automatically-opening cash-drawer, a lock therefor, a gong, a striker therefor, an operating-handle independent of the cash-drawer, and connections between said handle and the feeding mechanism, platen, drawer-lock and gong-striker, for advancing the record-strip, effecting the printing, releasing the drawer and sounding the gong by the operation of said handle.

5. In a cash indicator and recorder, the combination of a shaft,

an indicating-dial and a type-wheel fast side by side thereon, a spring-actuated platen coöperating with the type-wheel, feeding mechanism for advancing the record-strip, an operating-lever, and connections between said lever and the feeding mechanism and platen, for advancing the record-strip and retracting the platen to effect the printing by the positive stroke of said lever.

6. In a cash indicator and recorder, the combination of a shaft, an indicating-dial and a type-wheel fast thereon, a spring-actuated platen coöperating with the type-wheel, feeding mechanism for moving the record-strip past the printing-point, an automatically-opening cash-drawer, a lock therefor, an operating-lever independent of the drawer, and actuating connections between said lever and the feeding mechanism, platen, and drawer-lock, for the purpose described.

7. In a cash-indicator, the combination of a casing provided with a sight-opening, an indicating-dial adapted to expose its numbers singly at said opening, an oscillatory screen-plate interposed between said dial and sight-opening and frictionally connected with the dial so as to be moved by the latter, and means for limiting the movement of the screen-plate, for the purpose described.

8. In a cash-indicator, the combination of a casing having a sight-opening, an indicating-dial adapted to expose its numbers singly at said opening, an oscillatory screen-plate interposed between said dial and sight-opening and frictionally connected with the dial, and means for moving the screen-plate in one direction independently of the dial, for the purpose specified.

9. In a cash-indicater, the combination of a casing provided with a sight-opening, an indicating-dial adapted to expose its numbers singly at said opening, an oscillatory screen-plate loosely mounted on the axis of said dial and frictionally connected with the dial so as to be moved by the latter, and means for limiting the movement of the screen-plate, for the purpose described.

10. In a cash-indicator the combination of a casing having a sight-opening, an indicating-dial adapted to expose its numbers singly at said opening, an oscillatory screen-plate interposed between said dial and sight-opening and frictionally connected with the dial, a cash-drawer, a lock therefor, an operating-handle, and connections between said handle and the drawer-lock and screen-plate, for releasing the drawer and moving the screen-plate away from the sight-opening by the operation of said handle.

11. In a cash-indicator having a casing provided with a sight-opening, the combination of a shaft, an indicating-dial and a type-wheel fast thereon, an oscillatory screen-plate loose thereon and frictionally connected with the dial, a platen coöperating with the type-wheel, an operating-handle, and connections between said handle and the platen and screen-plate, for effecting the printing and moving the screen-plate away from the sight-opening by the operation of said handle.

12. In a cash-indicator and recorder having a casing provided with a sight-opening, the combination of a shaft, an indicating-dial and a type-wheel fast thereon, an oscillatory screen-plate loose thereon and frictionally connected with the dial, a platen coöperating with the type-wheel, feeding mechanism for moving a record-strip past the printing-point, an operating-handle, and connections between said handle and the feeding mechanism, platen and screen-plate, for the purpose described.

13. In a cash indicator and recorder having a casing provided with a sight-opening, the combination of a shaft, an indicating-dial and a type-wheel fast thereon, an oscillatory screen-plate loose thereon and frictionally connected with the dial, a platen coöperating with the type-wheel, feeding mechanism for moving a record-strip past the printing-point, a cash-drawer, a lock therefor, an operating-handle, and connections between said handle and the feeding mechanism, platen, drawer-lock and screen-plate, for the purpose described.

14. In a cash-recorder, the combination of an adjustable type-wheel, a platen coöperating therewith, an operating-handle, connections between the same and the platen for actuating the latter, and a lock for said handle controlled by the position of the type-wheel and controlling the positive movement of said handle to prevent operation of the handle except when the type-wheel is in proper position to coöperate with the platen.

15. In a cash-indicator, the combination of a casing having a sight-opening, an indicating-dial adapted to expose its numbers singly at said opening, an oscillating screen-plate coöperating with the dial to alternately hide and expose its numbers at said opening, an operating-handle, connections between the handle and screen-plate for moving the latter away from the sight-opening, and a lock for the handle controlled by the position of the indicating-dial, to prevent operation of the handle except when one of the numbers upon the dial is in proper position behind the sight-opening.

16. In a cash indicator and recorder, the combination of an indicating-dial and a type-wheel moving together, an oscillating screen-plate coöperating with the dial and a platen coöperating with the type-wheel, an operating-handle, connections between the same and the screen-plate and platen for actuating the former to expose the number upon the dial and the latter to effect its printing by the type-wheel, and a lock for said handle controlled by the position of the dial and type-wheel, to prevent operation of said handle except when said dial and type-wheel are in proper position to indicate and print one of their numbers.

17. In a cash indicator and recorder, the combination of a casing having a sight-opening, a shaft, an indicating-dial fast upon the shaft and adapted to expose its numbers singly at the sight-opening, an oscillatory screen-plate coöperating with the dial to alternately hide and expose its numbers at the sight-opening, a type-wheel also fast upon the shaft, a platen coöperating therewith, an operating-lever, connections between the same and the screen-plate and platen for actuating them, a notched disk also fast upon the shaft, and a latch or locking device coöperating with said notched disk and with the operating-lever to prevent operation of the latter except when the indicating-dial and type-wheel are in proper indicating and printing positions.

18. The combination of the casing having the sight-opening 6, the shaft 2, the handle 3 and pointer 4 fast thereon, the latter moving over a series of numbers upon the casing, the dial 5 and type-wheel 7 also fast on the shaft 2, paper-strip-feeding mechanism, a platen coöperating with the type-wheel, and means intermediate the handle and platen and feeding mechanism for actuating the platen by the movement of the handle and advancing the paper strip.

19. The combination of the shaft 2, the type-wheel 7 fast thereon, the lever 20 carrying the platen 15 coöperating with the type-wheel, the arm 31 loose upon the shaft 2 and coöperating with the lever 20, the inking-roller 32 carried by the arm 31, the spring 22 for the lever 20, the operating-lever 45, and the trip 26 carried thereby and coöperating with the lever 20, substantially as described.

20. The combination of the casing having the sight-opening 6, the shaft 2, the handle 3 and pointer 4 fast thereon, the latter coöperating with the series of numbers on the casing, the dial 5 and type-wheel 7 fast on the shaft 2, the screen-plate 51 coöperating with the dial, the lever 20, the platen 15 carried thereby and coöperating with the type-wheel, the spring 22, and the lever 45 coöperating with the screen-plate 51 and carrying the trip 26 coöperating with the lever 20, substantially as described.

21. In a cash-recorder, the combination of a shaft, a type-carrier moving therewith, a platen coöperating with the type-carrier, a money-drawer, a lock therefor, an operating handle or lever independent of the money-drawer, and connections between said lever and the platen and drawer-lock, for effecting the printing and releasing the drawer by the operation of said lever.

22. In a cash-recorder, the combination of a shaft, a type-carrier fast thereon, a platen coöperating with the type-carrier, means for drawing a record-strip between the platen and type-carrier, an operating-lever, and connections between said platen and record-strip mechanism, for advancing said strip and effecting the printing at the positive stroke of said lever.

23. In a cash-recorder, the combination of a shaft, a type-carrier fast thereon, a platen coöperating with said carrier, means for drawing a record-strip between the platen and carrier, an automatically-opening money-drawer, a lock therefor, an operating-lever independent of the money-drawer, and connections between said lever and the platen, record-strip mechanism and drawer-lock, for effecting the printing, advancing the record-strip and unlocking the drawer by the operation of said lever.

24. In a cash-indicator provided with a casing having a sight-opening, the combination of a shaft, an indicating-dial fast thereon and adapted to expose its numbers singly at said sight-opening, a screen-plate movable back and forth between said opening and the indicating-dial, a money-drawer, a lock therefor, an operating-lever, and connections between said lever and the screen-plate and drawer-lock, for moving the screen-plate away from the sight-opening and unlocking the drawer by the operation of said lever.

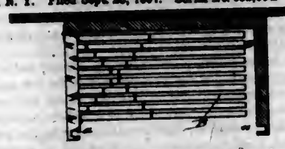
25. The combination of the shaft 2, the notched disk 41 and type-wheel 7 fast on said shaft, the lever 20 carrying the platen 15 coöperating with the type-wheel, the spring 22, the lever 45 carrying the trip 26 coöperating with the lever 20, and the lever 45^a coöperating with the disk 41 and lever 45, substantially as described.

26. The combination of the shaft 2, dial 5, type-wheel 7, lever 20, platen 15, spring 22, lever 45, trip 26, drawer B, latch-bar 47, and arm 46 interposed between the lever 45 and latch-bar 47, substantially as described.

27. The combination of the casing having the sight-opening 6, the oscillatory shaft 2, the dial 5 fast thereon, the oscillatory screen-plates 51 and 52, the springs 53 frictionally connecting the plates with the dial, and the lever 45 coöperating with the plate 51, substantially as described.

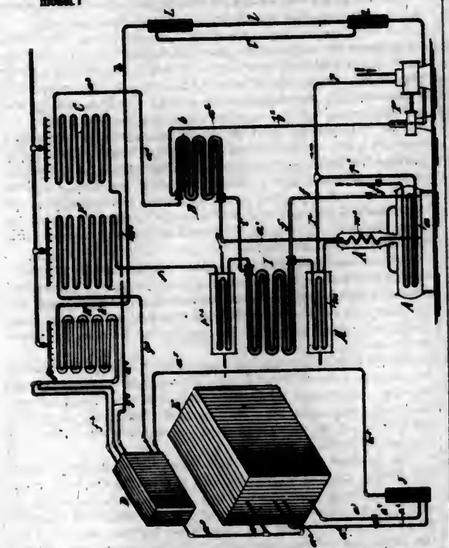
28. In a cash-recorder, the combination of the ratchet-wheel 8, provided with the storage flange or drum 19, and having the supply-roll of the record-strip carried upon its hub and led thence past the printing-point and wound upon the drum 19, and means for turning the ratchet-wheel, substantially as described.

606,825. PHOTOGRAPH-CABINET. THOMAS F. ADAMS, New York, N. Y. Filed Sept. 23, 1897. Serial No. 652,894. (No model.)



Claim.—A cabinet for storing and exhibiting photographs, consisting of a stationary rear wall at the back of the storage-chamber, a side wall hinged to the said rear wall, a series of picture-frames hinged directly to the inner side of said side wall, and a locking device located outside of and adjacent to said cabinet for holding the side wall and frames directly supported thereby in open position, substantially as set forth.

606,826. ABSORPTION REFRIGERATING-MACHINE. FRANK ALLEN, Brooklyn, N. Y. Filed Apr. 12, 1897. Serial No. 631,867. (No model.)

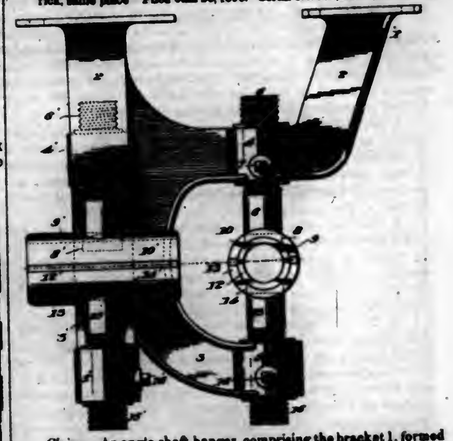


Claim.—1. The combination of a generator provided with steam-heating devices, a pump for returning the strong water of ammonia to the generator, an exhaust steam heater connected with the exhaust-port of the pump-engine and with the steam-coil in the generator, and a coil in said exhaust-steam heater through which the strong ammonia-water is passed on its return to the generator so as to be heated up to the required high temperature, substantially as set forth.

2. The combination of a generator, suitable means for heating the same, an escape-pipe for the hot ammonia-vapors, a primary heater and cooler comprising an interior coil for the hot ammonia-vapors, and an exterior coil for the strong ammonia-water, a condenser connected with the interior coil of the said primary heater and cooler, a secondary heater and cooler, comprising an interior coil for the weak ammonia-water, and an exterior coil for the strong ammonia-water, an escape-pipe connecting the generator with the interior coil of the secondary heater and cooler, a pipe connecting the exterior coil of the primary and secondary heater and cooler, a cooler for the weak ammonia-water connected with the interior coil of the secondary heater and cooler, a cooling-tank, a coil in the same for the expanded ammonia-vapors, a second coil in said tank connected with the condenser, a third coil connected with the cooler for the weak ammonia-water, an absorber connected with the first and third coils of the cooling-tank, a pump, a pipe connecting the absorber with the pump, means connected with the last pipe for preventing too great suction on the absorber, a pipe connecting the pump with the exterior coil of the primary heater and cooler, a steam-heater, a coil in the latter connected at one end with the said exterior coil of the secondary heater and cooler, and a return-pipe connecting the coil in the steam-heater with the generator, substantially as set forth.

3. The combination, with an absorber, of a pump for returning the strong ammonia-water from the absorber back to the generator, a pipe connecting the absorber with said pump, two jars located vertically one above the other in said return-pipe, a direct pipe connecting said jars, and a by-pass pipe connecting the upper ends of one jar with the other, said jars and by-pass pipe preventing the undue suction of the pump on the absorber, substantially as set forth.

606,827. SHAFT-HANGER. FREEMAN BENOUT and JAMES H. BRANDON, East Liverpool, Ohio, assignors of one-third to James C. Deidrick, same place. Filed Jan. 20, 1898. Serial No. 667,321. (No model.)



Claim.—An angle-shaft hanger, comprising the bracket 1, formed with the integral arms 2, 3, and 2' 3', the latter being arranged at a right angle to the former, the alined, internally-threaded hubs 4 and 5 formed integral with the arms 2, 3, and the alined internally-threaded hubs 4' 5' formed integral with the arms 2' 3' in combination with the threaded studs 6, 15, adjustably secured in said hubs 4 and 5, and the box-bearings 9 and 13, secured between the inner ends of said studs, the studs 6' 15' adjustably secured in the hubs 4' 5', and the box-bearings 9' 13 secured between the inner ends of said studs 6' and 15', substantially as and for the purpose set forth.

606,828. NUT-LOCK. FRANKLIN RIEH, Trenton, N. J. Filed Apr. 14, 1897. Serial No. 632,076. (No model.)



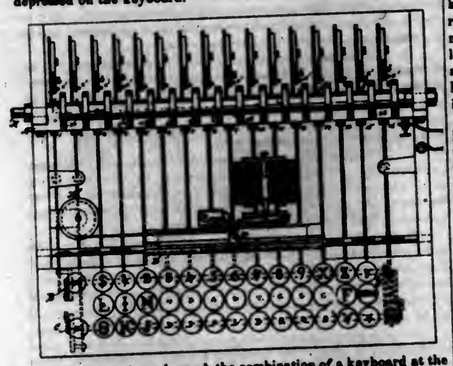
Claim.—The combination with a bolt having a threaded portion of two different diameters, with an unthreaded rectangular portion between them, of a holding-nut engaging the threaded portion of the greater diameter, and having notches on diametrically-opposite sides, and a key having diametrically oppositely disposed projections fitted to said notches and adapted to fit upon the rectangular portion of the bolt, and a lock-nut upon the outer end of said bolt, with an enlarged socket upon its inner face receiving the rectangular portion of the bolt, substantially as herein shown and described.

606,829. PRINTING-TELEGRAPH. BYRON A. BROOKS, Brooklyn, N. Y. Filed Jan. 20, 1894. Serial No. 497,553. (No model.)

Claim.—1. In a printing-telegraph, a combined transmitter and distributer, comprising a continuously-revolving shaft, a set of key-levers, a circuit changer or changers and mechanism between the levers and shaft whereby the depression of any key changes the circuit to send an impulse over the line after a predetermined time corresponding to the key.

2. In a printing-telegraph, a combined transmitter and distributer comprising a uniformly-revolving shaft, a set of key-levers, a circuit changer or changers and mechanism between the levers and shaft whereby the depression of any key changes the circuit to send an impulse over the line after a predetermined time corresponding to the key, combined with a distributer at the receiving end revolving synchronously with the shaft and an electromechanical receiver.

3. In a printing-telegraph, a combined transmitter and distributer at the sending end, a keyboard, a line-wire, a distributer at the receiving end, an electromechanical receiver and mechanism combined with said keyboard whereby the depression of any key changes the circuit at a predetermined time corresponding to the revolution of the distributer and closes a local circuit corresponding to the key depressed on the keyboard.



4. In a printing-telegraph the combination of a keyboard at the sending end, a type-carrier at the receiving end having a plurality of rows of types, a plurality of magnets at the receiving end, means for distributing to the receiving-magnets the impulses transmitted by the operation of keys at the sending end, a longitudinally-traveling platen, a translating device and means for electrically energizing said translating device, whereby the platen and type-carrier have a relative vibratory motion to present one or the other of said rows in position to print by the operation of keys on the keyboard.

5. In a printing-telegraph, the combination of a keyboard at the sending end, a type-carrier at the receiving end having a plurality of rows of types, a longitudinally-traveling paper-carriage, a translating device, means for electrically energizing the said translating device, whereby the platen and type-carrier have a relative vibratory motion to present one or the other of said rows in position to print and means for causing the impression of the type, both the translating device and means for causing the impression of the types being controlled by the operation of keys on the keyboard.

6. The combination of a keyboard, a type-bar carrying a plurality of rows of type, a vibrating and longitudinally-traveling platen and a translating device energized by a current of electricity whereby the platen is caused to vibrate transversely to the line of print by the operation of keys on the keyboard.

7. The combination of a type-carrier carrying a plurality of rows of types, a keyboard, a vibrating and longitudinally-traveling paper-carriage, translating devices controlled by a current of electricity by which the paper-carriage is caused to travel longitudinally and to vibrate transversely to the line of print so as to impress any one of the type of the several rows.

8. The combination of a keyboard, a type-carrier having a plurality of rows of types, a longitudinally-traveling platen, a translating device and means for electrically energizing said translating device whereby the platen and type-carrier have a relative vibratory motion to present one or the other of said rows in position to print by the operation of keys on the keyboard and mechanism at the sending end whereby the shifted member is automatically returned to its normal position.

9. In a printing-telegraph, the combination of a keyboard at the sending end, a type-carrier at the receiving end having a plurality of rows of type, a vibrating and longitudinally-traveling paper-carriage, a magnet by which the type-carrier is operated, a magnet by which the platen is vibrated transversely to the line of print, and means for distributing to the respective magnets the impulses transmitted by the operation of corresponding keys on the keyboard.

10. The combination of a keyboard, a type-carrier carrying a plurality of rows of type, a vibrating and longitudinally-traveling paper-carriage, means energized by a current of electricity for moving said paper-carriage longitudinally and vibrating it transversely to the line of print so as to impress any one of the types of the several rows and means for automatically returning it to its initial position.

11. In a printing-telegraph the combination of a keyboard at the sending end, a type-carrier at the receiving end having a plurality of rows of types, a longitudinally-traveling paper-carriage, a translating device controlled by a current of electricity whereby the platen and type-carrier have a relative vibratory motion to present one or the other of said rows of type in a plurality of new printing positions to print in a single line, means for holding the vibratory member in position and means for returning it to its normal position and for holding it there.

12. In an electromechanical printing mechanism the combination of a keyboard containing character-keys and a shift-key with a series of type-carriers corresponding to the character-keys on the keyboard each provided with a plurality of types and a paper-carriage, said type-carriers and paper-carriage having a vibratory movement with relation to each other so as to print the several types in line, a source of electrical energy and means controlled by the operation of said shift-key whereby the shifted member is automatically locked when the shift-key is depressed and unlocked when said key is released.

13. In a printing-telegraph, key-levers and a revolving shaft provided with contact-points at the sending end, combined with a distributer composed of a synchronously-revolving arm, and suitable contact-points, a type-carrier carrying a plurality of rows of types, a paper-carriage, said carriage and carrier having a vibratory movement in relation to each other and electrotranslating devices by means of which they are operated at the receiving end.

14. In a printing-telegraph, the combination of a keyboard at the sending end containing character-keys and a shift-key with a plurality of type-carriers at the receiving end each provided with a plurality of types and a paper-carriage said type-carriers and paper-carriage having a vibratory movement with relation to each other, a line-wire and means controlled by said shift-key whereby the paper-carriers are shifted to receive the impression of the several types on the type-carriers, an automatic lock for locking the shifted member and mechanism at the sending end whereby an impulse is sent over the line to unlock said member and allow it to return to its normal position.

15. In a printing-telegraph the combination of a keyboard containing character-keys and shift-keys, means for sending a succession of impulses over a line-wire by the operation of said keys, an electromechanical printing mechanism comprising a plurality of type-carriers each provided with a plurality of rows of type and a paper-carriage, said carriage and type-carriers having a vibratory movement with relation to each other controlled by the operation of shift-keys on the keyboard.

16. The combination with a keyboard of a scale and pointer, means for causing said pointer to advance at each printing impulse by the operation of the printing mechanism, a magnet for releasing said pointer and means for automatically returning it to its initial position.

17. In a printing-telegraph, a keyboard, a uniformly-revolving shaft, a circuit changer or changers at the sending end combined with a synchronously-revolving shaft at the receiving end, local circuits corresponding to keys and electromechanical printing mechanism comprising a plurality of type-carriers each provided with a plurality of rows of type and a paper-carriage, said carriage and carriers having a vibratory movement with relation to each other controlled by a current of electricity.

18. The combination of a keyboard, a type-carrier having a plurality of rows of types, a platen, said platen and type-carrier having a vibratory motion with relation to each other and an electromagnet by which said vibration is caused, mechanical means for retaining the vibrating member in position during the operation of printing and means for releasing said vibrating member and returning it to its normal position.

19. The combination with a type-carrier provided with a plurality of rows of type, a keyboard, a vibrating and longitudinally-traveling platen, a translating device energized by a current of electricity whereby the platen is vibrated to a plurality of new printing positions so as to impress any one of the types of the several rows by the operation of keys on the keyboard, means for holding it in its new printing position and means for returning it to its normal position.

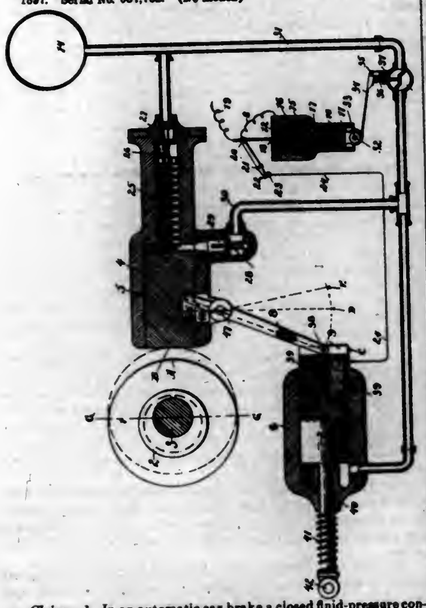
20. The combination of a keyboard, a type-carrier provided with a plurality of rows of type, a vibrating and longitudinally-traveling platen, a translating device energized by a current of electricity whereby the platen is vibrated to a plurality of new printing positions by the operation of keys on the keyboard, means for holding it in its new printing position and means for automatically returning it to its normal position and for holding it there.

21. The combination of a keyboard, a plurality of type-carriers each provided with a plurality of type, a longitudinally-traveling paper-carriage, means controlled by a current of electricity by which the paper-carriage is vibrated from a normal printing position to a plurality of new printing positions, mechanical means for retaining it in position during the operation of printing and means for returning it to its normal printing position and for holding it there.

22. In a printing-telegraph the combination of an electromechanical printing mechanism comprising a plurality of type-carriers each provided with a plurality of rows of type and a paper-carriage, said carriage and type-carriers having a vibratory movement with re-

latlies to each other, a keyboard at the sending end comprising character-keys and shift-keys and means whereby when a shift-key is operated a vibratory movement is effected in the printing mechanism between said type-carriers and paper carriage, means for retaining said vibratory member in its shifted position until printing is effected and means for automatically restoring it to its normal position.

606,880. **ELECTROHYDROSTATIC AUTOMATIC CAR-BRAKE.** JULES BUCHEL and FRANK MCGLOIN, New Orleans, La. Filed May 22, 1897. Serial No. 637,702. (No model.)



Claim.—1. In an automatic car-brake a closed fluid-pressure conduit, a pump for creating a pressure therein, a brake-cylinder connected to the conduit, a controlling-valve in the conduit, a weight tending to keep the valve closed and an electromagnet for varying the pressure of the weight upon the valve.

2. In an automatic car-brake a closed liquid-circuit, a pump operated by the car-axle for forcing the liquid, a connection from the liquid-circuit to the brake-cylinder, a controlling-valve in the circuit adapted to be opened by the pressure from the pump, a weight tending to keep the valve closed and an electromagnet for varying the pressure of the weight upon the valve.

3. In an automatic car-brake, a closed liquid-circuit, a pump for circulating the liquid, a connection leading to the brake-cylinder, a controlling-valve in the liquid-circuit, a weight tending to keep the valve closed, an electromagnet operating said weight and means for making or breaking the electrical circuit whereby the valve will be closed or allowed to open.

4. In an automatic car-brake a closed liquid-circuit provided with a pump operated from the car-axle for forcing the liquid, a connection leading to the brake-cylinder, a controlling-valve in the liquid-conduit adapted to open by the pressure from the pump, an electromagnet the core of which acts upon the valve and closes the same when the circuit is broken.

5. In an automatic car-brake, a closed liquid-conduit with a pump for forcing the liquid, a connection leading to the brake-cylinder, a controlling-valve in the conduit adapted to open with the pump-pressure, a weighted lever bearing upon the valve to close it, the lever being sufficiently thin or elastic to bend under the weight, and means for varying the weight upon the lever.

6. In an automatic car-brake a closed liquid-conduit with circulating-pump, brake-cylinder, and valve, an electromagnet controlling the valve consisting of a fixed cylindrical casing tapered to an edge at the top, a cylindrical core wound with a coil of wire moving in the casing and another coil flared to fit over the top of the casing.

7. In an automatic car-brake the eccentric fastened on the axle, the eccentric-strap consisting of an annular ring upon the eccentric provided with an annular oil-chamber and an opening from the oil-chamber to the bearing-surface between the ring or strap and eccentric.

8. In an automatic car-brake, a closed liquid-conduit, a plunger for forcing the liquid, an eccentric secured on the car-axle and an annular ring mounted to revolve upon the eccentric with its outer periphery bearing against the plunger for operating the same.

9. In an automatic car-brake a closed liquid-conduit, a plunger for forcing the liquid, an eccentric with an annular strap mounted on the car-axle, and a spring tending to keep the plunger bearing against the outer circumference of the eccentric-strap.

10. In an automatic car-brake, a closed liquid-conduit, a plunger for forcing the liquid, an eccentric secured to the car-axle, an eccentric-strap provided with an annular oil-chamber mounted on the eccentric, an opening leading from the chamber to the bearing between the eccentric and strap, and a spring forcing the plunger against the outer periphery of the eccentric-strap.

11. In an automatic car-brake, a closed liquid-conduit, a plunger operated from the car-axle for circulating the liquid, a controlling-valve in the conduit, a connection to the brake-cylinder, a spring bearing against the plunger and an electromagnet for holding the plunger stationary when the controlling-valve is open.

12. In an automatic car-brake, a closed liquid-conduit, a cylinder and plunger for forcing the liquid, a controlling-valve in the conduit, an eccentric with an annular strap mounted on the car-axle, a spring normally tending to force the plunger against the outer periphery of the eccentric-strap, and means for holding the plunger stationary and out of the path of the eccentric when the controlling-valve is open.

13. In an automatic car-brake, a closed liquid-conduit with a controlling-valve, a plunger for forcing the liquid and operated by an eccentric mounted on the car axle, a spring for forcing the plunger against the eccentric, a lever engaging the plunger and carrying an armature, and an electromagnet adapted to attract the armature and to hold the plunger away from the eccentric when the controlling-valve is open.

14. In an automatic car-brake, a closed liquid-conduit with a controlling-valve, a plunger for circulating the liquid and operated by an eccentric on the car-axle, a spring tending to force the plunger against the eccentric, a lever engaging the plunger and carrying an armature, and an electromagnet mounted upon the piston of the brake-cylinder for attracting the armature and holding the plunger away from the eccentric when the controlling-valve is open.

15. In an automatic car-brake, a closed liquid-conduit, a plunger operated by an eccentric on the car-axle for circulating the liquid, a valve in the conduit controlled by an electromagnet, a lever engaging the plunger and carrying an armature, a second electromagnet for holding the plunger away from the eccentric.

16. In an automatic car-brake, a closed liquid-conduit with a controlling-valve and momentum-pump mounted on each car, electromagnets the cores of which act as weights controlling the valves, an engine and dynamo on the locomotive, the electromagnets being the circuit from dynamo, and means for controlling the speed of the engine and thereby varying the strength of the current to the magnets.

17. In an automatic car-brake, a closed liquid-conduit with controlling-valve and momentum-pump mounted on each car, electromagnets for controlling the valves, a dynamo and engine on the locomotive, the circuit-wires connecting the dynamo with the magnets, the speed-governor for the engine and a lever bearing on the top of the governor by which the speed of the engine and also the strength of the current from the dynamos may be controlled.

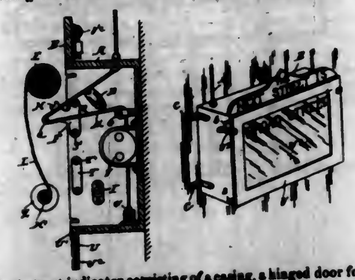
18. In an automatic car-brake a closed liquid-conduit with a controlling-valve and a momentum-pump mounted on each car, electromagnets for controlling the valves, a dynamo provided with double armatures, circuit-wires connecting the dynamos with the magnets, and a multipole switch for connecting one or both armatures with the circuit for breaking the said circuit.

19. In an automatic car-brake, a closed liquid-conduit, circulating-pump and brake-cylinder, a valve opening upward, a lever bearing on the valve, a spring forcing the valve-stem up against the lever, the electromagnet with its core acting as a weight for the lever, and means for varying the strength of the current in the coils of the electromagnet whereby the weight of the core upon the lever is varied.

606,881. **STATION-INDICATOR.** EDGAR H. B. CREW, Philadelphia, Pa. Filed Feb. 19, 1898. Serial No. 670,905. (No model.)

Claim.—1. A street or station indicator consisting of a suitable casing, fixtures secured within said casing, reels journaled within said fixtures and adapted to be removed therefrom, keepers for holding said reels in place, rods connected with said keepers, a registering-strip being attached to the reels and passing over the rods, grooved pulleys carried by the reels, and an actuating-cord passing over suitable guide-rolls and over one of the grooved pulleys for bringing about the rotation of the reels, as specified.

2. A street-indicator consisting of a casing, a hinged door for closing the front thereof, said door having a pane of glass therein, fixtures secured within the casing, reels adapted to be journaled within said fixtures or removed therefrom, a registering-strip having the names of the streets printed thereon upon both sides, and in reversed order, said strip being connected with the reels so as to be wound thereon, keepers for holding the reels in position, arms pivoted upon the same horizontal lines with the keeper, guide-rods connecting said arms and keepers over which the registering-strip passes, grooved pulleys carried by the reels, an actuating-cord passing over the upper grooved pulley, guide-rolls over which the cord passes, and a spring for drawing the cord in one direction, as specified.



3. A street-indicator consisting of a casing, a hinged door for closing the front thereof, said door having a pane of glass therein, fixtures secured within the casing, reels adapted to be journaled within said fixtures or removed therefrom, a registering-strip having the names of the streets printed thereon upon both sides, and in reversed order, said strip being connected with the reels so as to be wound thereon, keepers for holding the reels in position, arms pivoted upon the same horizontal lines with the keeper, guide-rods connecting said arms and keepers over which the registering-strip passes, grooved pulleys carried by the reels, an actuating-cord passing over the upper grooved pulley, guide-rolls over which the cord passes, a spring for drawing the cord in one direction, and ratchet mechanisms for preventing the retrograde movement of the reels, as specified.

4. A street-indicator consisting of a casing, a hinged door for closing the front thereof, said door having a pane of glass therein, fixtures secured within the casing, reels adapted to be journaled within said fixtures or removed therefrom, a registering-strip having the names of the streets printed thereon upon both sides and in reversed order, said strip being connected with the reels so as to be wound thereon, keepers for holding the reels in position, arms pivoted upon the same horizontal lines with the keeper, guide-rods connecting said arms and keepers over which the registering-strip passes, grooved pulleys carried by the reels, an actuating-cord passing over the upper grooved pulley, guide-rolls over which the cord passes, a spring for drawing the cord in one direction, a suitable battery located within the casing, a signal-bell located within the electric circuit, and means dependent upon the movement of the cord for closing the circuit to sound the bell, as specified.

5. A street or station indicator consisting of a casing, fixtures secured therein, reels removably journaled within the fixtures, keepers for holding said reels in place, rods connected with said keepers parallel with the reels, and a registering-strip attached to the reels and run over the rods, as and for the purpose set forth

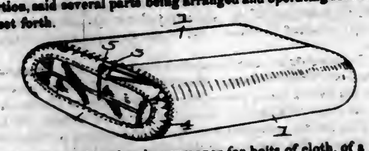
6. In a station-indicator, a casing, reels journaled therein, an electric circuit, a bell located in said circuit, a cord passing over a grooved pulley on the end of one of the reels, a spring for drawing the cord in one direction and means for completing the electric circuit when the cord is drawn against the action of said spring as and for the purpose set forth.

7. In a station-indicator, a casing, reels journaled therein, a grooved pulley on one of the reels, a cord passed around said pulley, a spring drawing said cord in one direction, batteries in the casing a bell in the circuit, one terminal being at one end of the spring and the other at the opposite end of said spring when extended, and a circuit-closer carried by the cord, as and for the purpose set forth.

606,882. **WRAPPER-COVERING.** BARLEY H. CURRIER, Bluffton, Ind. Filed Aug. 10, 1897. Serial No. 647,673. (No model.)

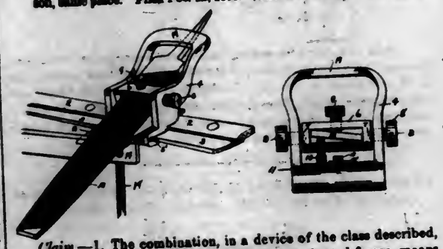
Claim.—1. A wrapper composed of a central portion 1, edge portions 2, draw-strings therein and a series of eyes secured to the main portion 1, said draw-strings being adapted to engage with different ones of said eyes from time to time, according to the size of the bolt of cloth to be covered or wrapped, substantially as set forth.

2. A wrapper for cloth, composed of a central portion 1, edge portions 2, draw-strings in the outer edges of said edge portions, means for controlling said draw-strings to adapt said wrapper to packages of different sizes and flaps centrally secured to the edges of the main portion, said several parts being arranged and operating substantially as set forth.



3. The combination, in a wrapper for bolts of cloth, of a central or main portion 1 composed of comparatively heavy and strong cloth, edge portions 2 secured thereto composed of lighter and more flexible cloth, draw-strings secured in the edges of said edge portions, a series of eyes secured to the edges of the main portion, string-fasteners secured at or near the ends of the wrapper where the free ends of the draw-string emerge, and end-covering flaps secured to the edges of the central portion of said main portion, the whole being arranged and operating substantially as set forth.

606,888. **ATTACHMENT FOR SHARPENING LAWN-MOWERS.** AARON B. DOTY, Minneapolis, Minn., assignor of one-half to Carl A. Nelson, same place. Filed Feb. 12, 1898. Serial No. 670,062. (No model.)



Claim.—1. The combination, in a device of the class described, of a file-holder, consisting of a main frame, a pivoted frame, means for adjusting the position of a file interposed in said pivoted frame, a file, and means for bringing successively all parts of the knife or blade to be sharpened to a predetermined position with respect to the file and holder, substantially as described.

2. The combination, in a device of the class described, of a file-holder frame, a file, a pivoted frame, means for adjusting the position of the file and holding the same therein, means for limiting the downward movement of said pivoted frame and file, and means whereby all parts of the knife or blade to be sharpened are brought to a predetermined position with respect to the file and holder, substantially as described.

3. The combination, in a device of the class described, of a file-holder frame, a file, a pivoted frame, a plate 11, means for regulating the lateral pitch of said file, and means for limiting the downward swing of said pivoted frame and file, substantially as described.

4. The combination, in a device of the class described, of a frame 4, a frame 6 pivoted therein, adjusting-screws 9 and 10 provided in said frame 6, a plate 11 adjustably secured to said frame 4, an adjusting-screw 13 provided on said plate 11, and a file interposed in said pivoted frame, substantially as described.

5. The combination, in a device of the class described, of a file-holder frame, a pivoted frame, a file, a plate 11 adjustably secured in said frame 4, screws 9 and 10 whereby the lateral pitch of said file is regulated, an adjusting-screw 13, a collar 15 and a set-screw thereon, substantially as described.

606,884. **BICYCLE-BRAKE.** JOHN M. DOWNER, Toronto, Canada. Filed Dec. 14, 1896. Serial No. 616,150. (No model.)

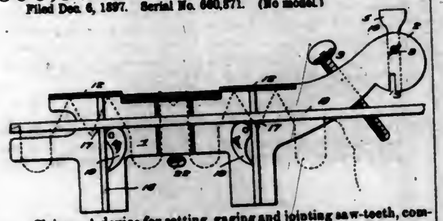


Claim.—1. In a bicycle-brake the combination with the crank-hanger and crank-axle, of the stationary sleeve or ring carried by the

hanger, the sprocket-wheel having a limited movement on the crank-axle, a brake-shoe pivoted to the sprocket-wheel and adapted to bear against the inner face of the stationary sleeve, and the cam on the crank-axle adapted to operate the brake-shoe, substantially as described.

2. In combination with the crank-hanger and crank, the stationary sleeve carried by the hanger, the sprocket-wheel rotatably mounted upon the axle, a spring-pressed brake-shoe pivoted to the sprocket within the wheel, the cam on the axle adapted to contact with the brake-shoe, and the projection from the crank engaging an elongated slot or recess in the sprocket, substantially as described.

606,335. SAW-SET. JOSEPH FREDERICKSON, Gaylord, Mich. Filed Dec. 6, 1897. Serial No. 660,871. (No model.)



Claim.—A device for setting, gaging and jointing saw-teeth, comprising a body portion formed on one side with the fixed parallel ribs 16 16 intersected by the slot 17 adapted to receive a file-blade, and the cam-levers 19 19 pivoted to the same side of said body portion near each of said ribs, so as to lock said file-blade in position in said ribs, substantially as shown and described.

606,336. SAFE FOR PASSENGER-CARS. ISAAC FRIED, Harrisburg, Pa. Filed Mar. 30, 1897. Serial No. 629,974. (No model.)



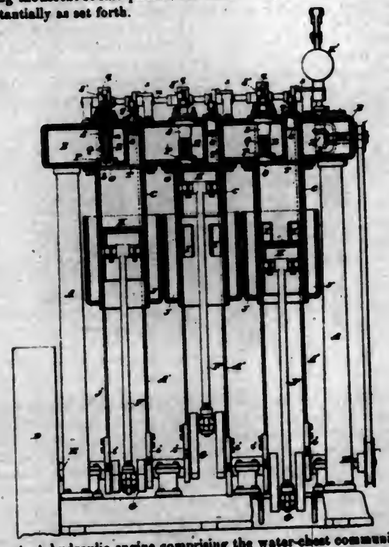
Claim.—A safe of the class described, provided with retaining-recesses, in combination with a series of stay-braces and means, substantially as described, for securing the ends of said braces within said safe, as and for the purpose set forth.

606,337. HYDRAULIC ENGINE. JOHN GILL, Jersey City, N. J., assignor of one-half to Harry G. Peckham, same place. Filed Nov. 26, 1897. Serial No. 659,772. (No model.)

Claim.—1. A hydraulic engine comprising the series of cylinders having the free discharge-ports at their lower end and the inlet and outlet openings for water and air respectively at their upper end, combined with the crank-shaft, the pistons within said cylinders, the piston-rods connecting the cranks of said shaft with said pistons, valves for said inlet and outlet openings, means for operating said valves, cut-off mechanism for said inlet-valves, and the water-chest communicating with said cylinders and also with a source of water-supply; substantially as set forth.

2. A hydraulic engine comprising the water-chest communicating with a source of water-supply, and the three cylinders connected at their upper end with said water-chest and at their lower end having the free discharge-ports for water, combined with the crank-shaft, the pistons within said cylinders, the piston-rods connecting the three cranks of said shaft with said pistons, inlet-valves controlling the inlet-ports for water from said water-chest to said cylinders, means for permitting the escape of the air from said cylinders during the ascent of said pistons, cut-off mechanism for said valves, and means for opening and closing said valves; substantially as set forth.

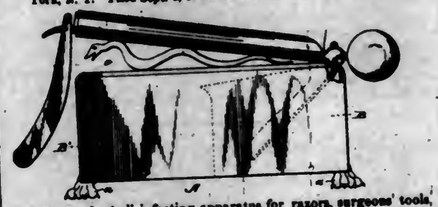
3. A hydraulic engine comprising the water-chest communicating with a source of water-supply, and the three cylinders connected at their upper end with said water-chest and at their lower end having the free discharge-ports for water, combined with the crank-shaft, the pistons within said cylinders, the piston-rods connecting the three cranks of said shaft with said pistons, inlet-valves controlling the inlet-ports for water from said water-chest to said cylinders, the inlets adapted to admit air to said cylinders during the descent of the pistons, means for permitting the escape of the air from said cylinders during the ascent of said pistons, and means for operating said valves; substantially as set forth.



4. A hydraulic engine comprising the water-chest communicating with a source of water-supply, and the three cylinders connected at their upper end with said water-chest and at their lower end having the free discharge-ports for water, combined with the crank-shaft, the pistons within said cylinders, the piston-rods connecting the three cranks of said shaft with said pistons, inlet-valves controlling the inlet-ports for water from said water-chest to said cylinders, the tubular openings extending from the upper ends of said cylinders up through said water-chest to the atmosphere, valves controlling said tubular openings and adapted to open during the ascent of said pistons, and means for operating said inlet and outlet valves; substantially as set forth.

5. A hydraulic engine comprising the series of cylinders having the free discharge-ports at their lower end and the inlet-opening for water at their upper end, combined with the crank-shaft, the pistons within said cylinders, the piston-rods connecting the cranks of said shaft with said pistons, the valves for said inlet-openings, the water-chest communicating with a source of water-supply and connected with said cylinders, the rock-shaft extending above and lengthwise of said water-chest, the governor connected with said crank-shaft and said rock-shaft, the eccentrics on said crank-shaft, the eccentric-rods connected therewith, the lever-arms connected with said rods and hung from said rock-shaft, the pawl-arms carried by said lever-arms, the projections on said rock-shaft below said pawl-arms for tripping the latter, and the lever-arms connected with the stems of said valves and adapted to be operated by said pawl-arms; substantially as set forth.

606,338. DISINFECTING APPARATUS. FRANCIS GIBB, New York, N. Y. Filed Sept. 3, 1897. Serial No. 650,966. (No model.)

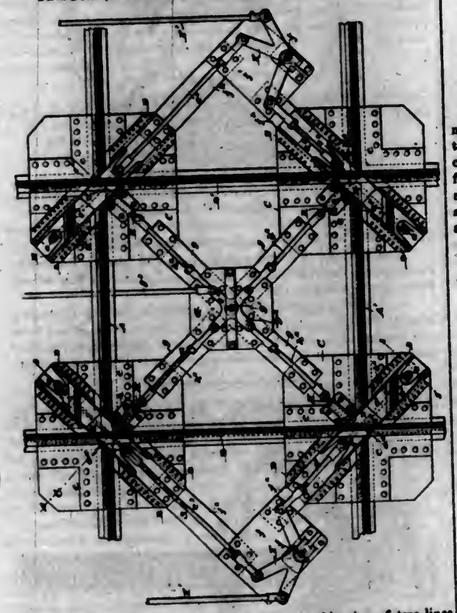


Claim.—1. A disinfecting apparatus for razors, surgeons' tools, and the like comprising a casing having within itself the supply-chamber and the waste-chamber, a disinfecting-chamber mounted upon said casing and inclined longitudinally thereon to return the waste liquid to said waste-chamber, and an atomiser also mounted on the casing and having its feed-tube connected to the supply-chamber and its discharge-nozzle extended into the lower end of said disinfecting-chamber, substantially as described.

2. A disinfecting apparatus for razors, surgeons' tools and the like, comprising a casing containing within itself a supply-chamber and a waste-chamber, a longitudinally-inclined disinfecting-chamber mounted on said casing and having means for closing its upper end, a return duct or channel inclined reversely to said disinfecting-chamber and arranged to receive from the lower end of the disinfecting-chamber and to discharge to the waste-chamber, and an atomiser situated contiguous to the lower end of said disinfecting-chamber, substantially as described.

3. A disinfecting apparatus for razors, surgeons' tools, and the like comprising a box or casing having a hinged cover and provided within itself with the supply and waste chambers, the supply-chamber having a channeled or grooved top, a disinfecting-chamber mounted on the hinged cover and arranged with its lower end to discharge the waste to the groove or channel, and a suitable atomiser connected to the supply-chamber and arranged to discharge into the disinfecting-chamber, substantially as described.

606,339. RAILROAD-CROSSING. CHARLES HAMEL, Boston, Pa. Filed Dec. 3, 1897. Serial No. 660,909. (No model.)

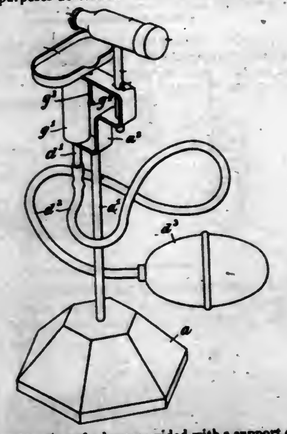


Claim.—1. In a railroad-crossing, the combination of two lines of intersecting, crossing tracks, base-plates at each intersection to which the tracks are secured, guideways carried by said base-plates and extending diagonally with respect to the tracks, rail-blocks mounted in said guideways to slide therein, means for moving said blocks into one or another position to make one or the other line of tracks practically continuous through the crossing, and a locking mechanism for said blocks, substantially as set forth.

2. In a railroad-crossing, the combination of two lines of intersecting, crossing tracks, base-plates at each intersection to which the tracks are secured, guideways carried by said base-plates and extending diagonally with respect to the tracks, rail-blocks mounted in said guideways to slide therein, means for moving said blocks into one or another position to make one or the other line of tracks practically continuous through the crossing, a locking-bolt for each of said blocks, and means for simultaneously moving all of said locking-bolts, substantially as set forth.

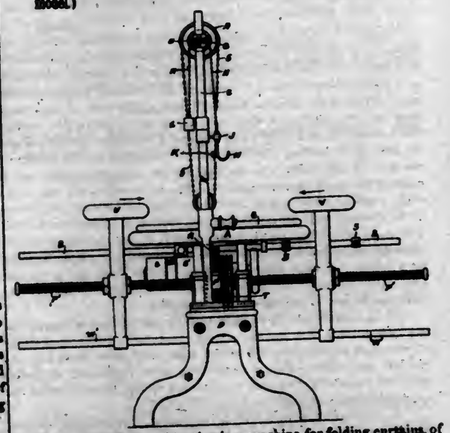
606,340. FLASH-LIGHT-POWDER APPARATUS. ALEXANDER HEMSLEY, Philadelphia, Pa. Filed Aug. 17, 1897. Serial No. 648,507. (No model.)

Claim.—1. The combination of a base provided with a support oppositely notched at one end, a rod provided with lugs on opposite sides adapted to engage the notches of said support to prevent turning of said rod carrying a lamp, an air-chambered device provided with means for forcing air therethrough and a pan provided with a tube adapted to be moved on said chambered device, substantially as and for the purposes described.



2. The combination of a base provided with a support oppositely notched at one end, a rod provided with lugs on opposite sides adapted to engage the notches of said support to prevent turning of said rod carrying a lamp, an air-chambered device provided with means for forcing air therethrough, a pan provided with a tube adapted to be moved on said chambered device, and means connected with said support and pan adapted to limit the range of movement of said pan, substantially as and for the purposes described.

606,341. MACHINE FOR FOLDING CURTAINS. JAMES HESELWOOD, Leeds, England. Filed Aug. 26, 1897. Serial No. 649,582. (No model.)



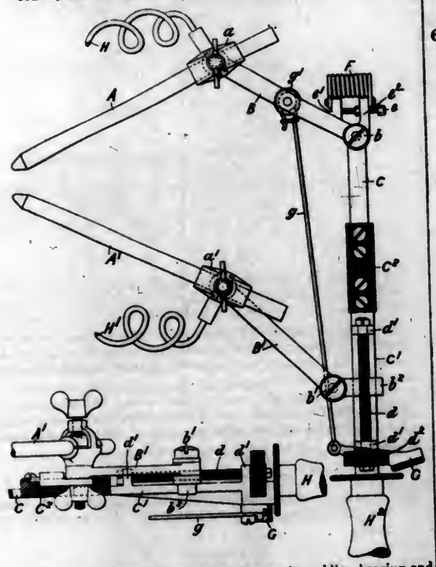
Claim.—1. The combination in a machine for folding curtains, of a balanced carrier having pins on its under side to engage the curtain at its center, a rod adjacent to the carrier for supporting the curtain at about its center, two narrow tables below and lengthwise at each side of the rod, a fixed main table and means for moving the narrow tables toward and from each other above the fixed main table, substantially as set forth.

2. The combination in a machine for folding curtains, with a fixed table, of two narrow tables above the fixed table, screw-shafts operatively connected to said narrow tables for moving the same toward and away from each other and above the fixed table, belts and driving-pulleys, a belt-shifter and tappets engaged by the narrow moving tables for operating the belts and reversing the mechanism, substantially as set forth.

3. The combination in a machine for folding curtains, with a fixed table and two narrow jaoles above the fixed table and means for

moving the narrow tables toward and from each other, of a carrier and pins on its under side, hooks at its ends and a rod carried by said hooks for supporting the curtain, and weights for balancing the carrier, substantially as set forth.

606,842. APPARATUS FOR WELDING, BRAZING, AND SOLDERING BY ELECTRICITY. ALBERT HIRSCH, Berlin, Germany. Filed Dec. 21, 1897. Serial No. 662,736. (No model.) Patented in England Oct. 16, 1895, No. 19,442.



Claim.—1. A tool or instrument for use in welding brazing and soldering by the heat of the electric arc, consisting in the combination of a pair of carbon-holding clamps, such as *a a'*, pivotally attached to a pair of lever-arms B B' mounted on insulated portions of the same bar or stem, the one being pivoted to the end of the bar or stem and the other to a slide working on said stem, a micrometer-screw mounted on the stem and adapted to traverse the slide thereon, said screw having a milled head in proximity to the handle of the tool, an adjustable stop for limiting the outward angular movement of the carbon-carrying lever which is pivoted to the end of the stem, a spring connected to the said lever and to the bar or stem so as to produce angular motion of the carbon in the outward direction, a thumb-lever pivoted at the opposite side of the bar to the micrometer-screw and in proximity to the handle of the tool and coupled by a link to the outer carbon-carrying lever so as to act in opposition to the spring for bringing the carbons momentarily together for striking the arc, all substantially as specified.

2. In a hand-tool for electric welding and analogous operations, the combination of a handle, a stem supported thereby, a plurality of electrode-carriers pivoted to the stem, electrodes carried by the carriers and inclined toward each other at an angle and manually-operated means for swinging an electrode-carrier so as to bring the electrodes into such position as to strike the arc.

3. In a tool for electric welding or analogous operations, the combination of a stem or support, a plurality of electrode-carriers one at least of which is pivotally carried thereby, electrodes carried by the electrode-carriers and inclined toward each other, manually-operated means for adjusting one of the electrode-carriers with respect to the other, and manually-operated arc-striking means, substantially as described and for the purposes set forth.

4. In a tool for electric welding and analogous operations, the combination of a plurality of electrode-carriers carried by a common support and provided with electrodes inclined toward each other, one at least of the said electrode-carriers being pivoted to its support and provided with manually-operated means for moving it toward the other electrode-carriers to bring the electrodes into such a position as to form the arc, and a spring acting upon the said electrode-carrier to separate the electrodes to strike the arc, substantially as described and for the purposes set forth.

5. In a portable electric welding apparatus, the combination of the following instrumentalities in operative relation, to wit, a handle provided with an electrode-support, a plurality of electrode-carriers carried by the said support and movable with respect thereto, one at least of the said electrode-carriers being pivotally carried by the said support, manual means for manually adjusting one of the electrodes and manually-operated arc-striking apparatus, the entire structure being supported from the handle in order to constitute a portable and transportable tool wherein the electrodes are capable of a fine manual adjustment with respect to each other and wherein the arc may be manually struck, substantially as described.

606,848. HOOF-PAD. CORNELIUS J. HORTON, White Plains, N. Y. Filed May 22, 1897. Serial No. 637,662. (No model.)



Claim.—1. A hoof-pad provided with an apertured plate having a ventilating-backing extending over the apertures therein.

2. A hoof-pad provided with an apertured plate, having connected thereto a frog or heel-piece, and a ventilating-backing for said plate.

3. A hoof-pad provided with an apertured plate, a ventilating-backing upon the rear surface thereof, and a pointed frog or heel-piece upon one end of said plate.

4. A hoof-pad provided with an apertured plate, a ventilating-backing therefor, and a frog or heel-piece upon one end of said plate, said frog having a tapering central extension and outwardly-inclined sides adapted to receive the oblique extremities of the metal shoe.

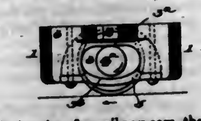
606,844. PROTRACTOR. MARTIN S. HOY, Wilkinsburg, Pa. Filed Mar. 18, 1897. Serial No. 628,121. (No model.)



Claim.—The quadrant provided with the slot 4, the blade 2 extending at one end beyond the quadrant, the head 6 secured to one corner of the quadrant and provided with the curved slot at its outer end, and the friction-rollers 12 which bear against the outer edge of the tongue of the square or angle, combined with the bevel or rule 11, the slotted head 8 secured to its inner end, and which head 8 corresponds in shape and size to the head 9; and the clamping-screw which passes through the head 9, the slot 4 in the tongue and the rule, substantially as shown and described.

606,845. SIDE BEARING FOR RAILWAY-CARS. CHARLES F. HUSTON, Chicago, Ill., assignor to the Chicago Railway Equipment Company, same place. Filed Dec. 30, 1897. Serial No. 664,689. (No model.)

Claim.—1. In a side bearing for railway-cars, the combination with an antifriction-roller, of a suspension frame or carriage having an upper horizontal track and a lower centrally-inclined track; substantially as and for the purposes specified.

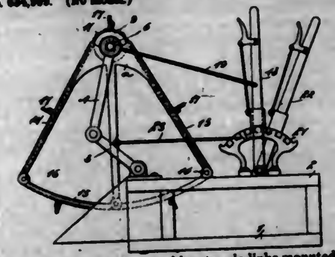


2. In a side bearing for railway-cars, the combination with a suitable frame provided with journal-slots having a plain upper edge and an arc-shaped lower edge, of an antifriction-roller having trunnions journaled in said slots, substantially as and for the purposes specified.

3. In a side bearing for railway-cars, the combination with a suspension frame or carriage having arc-shaped concentric sides, each side having a journal-slot constituting a horizontal upper and a centrally-inclined lower track, of an antifriction-roller having trunnions the face and trunnions of said roller tapering on lines converging to the center of the car-bolster; substantially as and for the purposes specified.

4. In a side bearing for railway-cars, the combination with an antifriction-roller provided with trunnions, of a suspension frame or carriage having slots for the reception of the trunnions of the roller, and provided with a detachable section or bar constituting the bottom of one of said trunnion-slots; substantially as and for the purposes specified.

606,846. GRAIN-REEL FOR REAPING-MACHINES. MARSHAL G. KERR and PETER P. KERR, Keensburg, Ill. Filed May 4, 1897. Serial No. 634,999. (No model.)



Claim.—1. In a reaping-machine, toggle-links mounted to swing on the frame thereof, means for swinging said links, relatively to the platform and one relatively to the other, a tubular shaft carried by the upper link, a reel-shaft extended through said tubular shaft, means for rotating said reel-shaft, sprocket-wheels on said shaft, sprocket-chains engaging said wheels, guideways for said sprocket-chains, comprising downwardly-diverging side portions, and a bottom portion suspended in the arc of a circle, and reel-boards attached to the chains, substantially as specified.

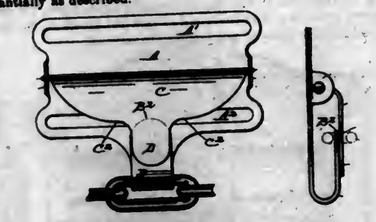
2. In a reaper, a link pivotally connected to the frame thereof, another link pivoted to the first-named link, levers having link connections with said links, means for holding the levers as adjusted, a tubular shaft supported by the upper link, a reel-shaft extended through the tubular shaft, means for rotating the reel-shaft, sprocket-wheels on the reel-shaft, another tubular shaft on the reel-shaft between said sprocket-wheels, guideways supported by the tubular shafts and each comprising downwardly-diverging side portions and bottom portions formed in the arc of a circle, rollers at the junction of the side and bottom portions, chains movable in the guideway and engaging with the sprocket-wheels, and reel-boards attached to said sprocket-chains, substantially as specified.

3. In a reaping-machine, a reel, and means for causing said reel to travel in the arc of a circle at its lower portion and in an inwardly-inclined direction at the front and rear, substantially as specified.

606,847. TRACE-CARRIER. WILLIAM P. KELLOGG, Troy, N. Y. Filed Mar. 26, 1897. Renewed May 11, 1898. Serial No. 680,419. (No model.)

Claim.—1. In a back-band buckle, the combination with the web-plate provided with parallel web-slots and journal-bearings, of an upwardly-turned trace-hook depending from the lower side of the web-plate, a wedge-plate journaled in the web-plate, a tongue comprising a downward extension of the wedge-plate overlapping the hook, and a stop outside the mouth of the hook for locking a chain-link upon the hook, substantially as described.

2. In a back-band buckle, the combination with the web-plate, and upwardly-turned hook depending from its lower edge, of a wedge-plate, and a hook-lapping tongue depending from the lower edge of the wedge-plate, inclined outwardly from the outer side of hook to the lower edge of the wedge-plate whereby it forms a stop outside the mouth of the hook for locking a chain upon the hook and the wedge-plate against vibratory opening-and-closing movements, substantially as described.



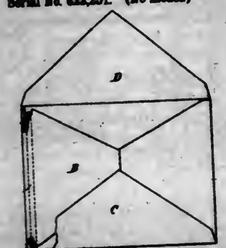
606,848. SKELETON STRUCTURE FOR FIREPROOF PARTITIONS. PAUL KÜHNE, Stapleton, N. Y., assignor to the Staten Island Construction Company, same place. Filed July 26, 1897. Serial No. 646,196. (No model.)



Claim.—1. In a skeleton structure for fireproof partition-walls, the combination of a metallic strut provided with transverse holes near its edges, flanged clamping-strips applied to each edge and having transverse holes immediately adjacent to the flanges and registering with the holes in the strut, and keys or wedges driven through the holes in the clamping-strips and strut and being in contact at each end with the flat surfaces of said flanges, substantially as set forth.

2. In a skeleton structure for fireproof partition-walls, the combination with the ceiling and floor irons, and struts connected with said irons and provided with transverse holes near their edges, of U-shaped clamping-strips provided with holes registering with the holes in said struts, and keys driven into the registering holes of the strips and struts, for clamping the filling material between the said clamping-strips, substantially as set forth.

606,849. ENVELOP. JOHN A. LEFFERTS, New York, N. Y. Filed Feb. 6, 1897. Serial No. 622,251. (No model.)

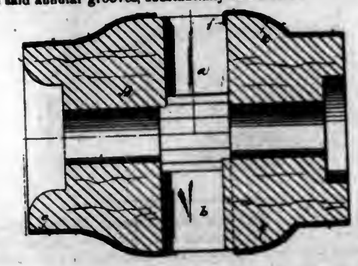


Claim.—1. An envelop having a cutting-thread lying in the interior thereof and adapted to open the envelop and a notch in the edge of one of the end flaps of the envelop and under the free flap thereof adapted to receive the free end of such thread whereby when the envelop is sealed the free end of the thread is folded down and held against the outside of the envelop substantially as and for the purpose set forth.

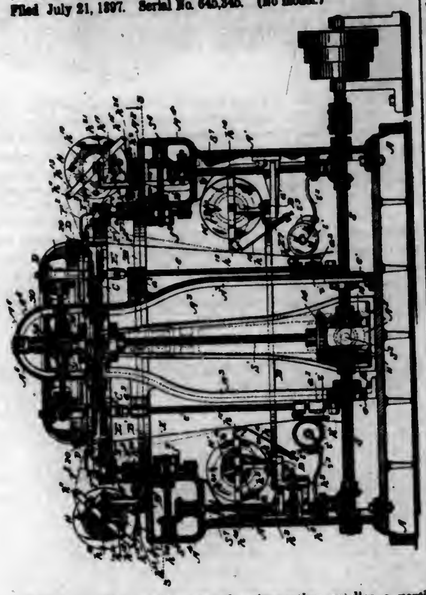
2. In an envelop a cutting-thread lying within the envelop adjacent to one end thereof and having one end bent over the edge of an end flap of the envelop and secured between the adjoining gummed surfaces of such end flap and a side flap and a notch in the opposite edge of such end flap adapted to seize such thread at a point near the free end thereof, substantially as and for the purposes set forth.

606,850. VEHICLE-HUB. WILLIAM T. LEWIS, Racine, Wis., assignor to the Mitchell & Lewis Company, Limited, same place. Filed Sept. 20, 1897. Serial No. 652,250. (No model.)

Claim.—The combination with a wooden vehicle-hub, provided with series of spoke-holes, at about the center thereof, and shallow annular grooves on each side of said spoke-holes, of a pair of continuous metallic bands, corresponding in their general contour to that of said hub and forced tightly thereon from opposite ends and stopping on each side of the line of the said spoke-holes, the said bands being in contact with the wood of said hub except at the lines of the said annular grooves, substantially as set forth.



606,851. CIRCULAR-WARP-KNITTING MACHINE. ARTHUR R. LINDNER, Wilmington, Del., assignor to Julius Kayser, New York, N. Y. Filed July 21, 1897. Serial No. 645,245. (No model.)



Claim.—1. The combination of reciprocating needles, a vertically-reciprocating presser-ring above said needles, vertically and horizontally reciprocating sinkers below the needles, upper and lower thread-guides, and means for raising and lowering and intermittently shifting said thread-guides.

2. The combination of reciprocating needles, a reciprocating presser-ring above the needles, a vertically-reciprocating sinker-ring, horizontally-reciprocating sinkers in said ring, upper and lower thread-guides, and means for vertically reciprocating and intermittently shifting said thread guides.

3. The combination of reciprocating needles, a vertically-reciprocating presser-ring above said needles, a vertically-reciprocating sinker-ring below said needles, horizontally-reciprocating sinkers guided in said sinker-ring, two sets of thread-guides, a mechanism for imparting intermittent or step-by-step rotary motion to said thread-guides in opposite directions to each other, and mechanism for imparting a vertically-reciprocating motion to said thread-guides.

4. The combination of a circular series of knitting-needles, means for reciprocating said needles, a vertically-reciprocating presser-ring above said needles, vertically and horizontally reciprocating sinkers below said needles, two sets of thread-guides, guide-rings on which the thread-guides are mounted, means for intermittently moving said guide-rings and the thread-guides mounted thereon in opposite direction around the circular series of needles, and means for vertically reciprocating said guide-rings and said thread-guides supported thereon.

5. The combination of two sets of thread-guides, guide rings for supporting said thread-guides, said guide-rings having ratchet-teeth, a ring-shaped guide-frame for said rings, two pawl-carrier rings one for each guide-ring, pawls arranged in pairs on each pawl-carrier ring, a driving-shaft, a cam on said shaft, a mechanism between said cam and the pawl carrier rings by which intermittent or step-by-step rotary motions in opposite directions are imparted to the guide-rings and thread-guides.

6. The combination of a circular series of reciprocating needles, a main guide-ring extending around said needles, two independent thread-guide-carrier rings guided in ways of the main guide-ring, two sets of thread-guides fixed to said thread-guide-carrying rings, two pawl-carrier rings one for each thread-carrier ring each provided with pawls arranged in pairs and adapted to engage the ratchet-teeth of both thread-guide-carrier rings, means for imparting intermittent or step-by-step rotary motion in opposite directions to said pawl-carrier rings, and means for intermittently raising and lowering the main guide-ring whereby a vertically-reciprocating motion is imparted to the thread-guide.

7. The combination of two sets of thread-guides, thread-guide-carrier rings, a guide-ring in which the thread-guide-carrier rings are mounted, pawl-carrier rings arranged in said guide-ring inside of the thread-guide-carrier rings, said pawl-carrier rings being each provided with pawls arranged in pairs and adapted to engage the ratchet-teeth of the thread-guide-carrier rings, means for imparting an intermittent or step-by-step rotary motion to said pawl-carrier rings alternately in opposite directions whereby a continuous step by-step motion is imparted to the thread-guide-carrier rings, and means for imparting a vertically-reciprocating motion to the guide-ring and hence to the thread-guides.

8. The combination of a circular needle bed-plate, a circular series of movable needle-carriers arranged in said bed-plate and provided with inwardly-extending shanks, groups of needles arranged in said carriers, and means for operating said needle-carriers, said means embracing horizontal bell-crank levers, and an oscillating ring concentric with said bed plate for actuating said levers.

9. The combination of a circular needle bed-plate, a circular series of movable needle-carriers guided in said bed-plate and provided with inwardly-projecting shanks, groups of needles arranged in said carriers, means for operating said needle-carriers, said means embracing horizontal bell-crank levers, and an oscillating ring engaging said bell-crank levers, a cam on the driving-shaft, and a lever connected to said cam and said oscillating ring.

10. The combination of a vertical driving-shaft provided with cams, an annular needle bed-plate surrounding said shaft, needle-carriers disposed in groups and guided in said bed-plate and provided with shanks, a mechanism between one of said cams and said shanks imparting a reciprocating motion to the same, a sinker-ring below the needle bed-plate sinker-carriers arranged in groups and guided in said sinker-ring, a mechanism between the second cam and the sinker-carriers imparting a reciprocating motion to said sinker-carriers, and a mechanism by which a vertically-reciprocating motion is imparted to the sinker-ring.

11. The combination of a vertical driving-shaft provided with two cams, an annular needle bed-plate surrounding said shaft, needle-carriers disposed in groups and movable in said bed-plate, groups of needles in said needle-carriers, a mechanism between said needle-carriers and one of the driving-cams for imparting reciprocating motion to said carriers, a presser-ring above said needles, means for imparting vertically-reciprocating motion to said presser-ring from the driving-shaft, a sinker-ring below the needles, means for imparting vertically-reciprocating motion to said sinker-ring, sinker-ring carriers arranged in groups and guided in said sinker-ring, a mechanism between said sinker-ring carriers and the lower cam on the driving-shaft for imparting a reciprocating motion to said sinkers.

12. The combination of a circular needle bed-plate, a circular series of reciprocating needles on said bed-plate, a vertically-reciprocating presser-ring above said needles, a vertically-reciprocating sinker-ring below said bed-plate, a series of horizontally-reciprocating sinkers guided in said sinker-ring, two sets of thread-guides, means for imparting a vertically-reciprocating motion to said thread-guides, means for imparting an intermittent or step-by-step motion to said thread-guides in opposite direction to each other, and intermittently-movable bobbin-rings carrying bobbins respectively for the upper and lower thread-guides, said bobbins moving with their corresponding thread-guides in opposite directions to each other.

13. The combination of a stationary needle bed-plate, a circular series of reciprocating needles guided in said bed-plate, a vertically-reciprocating presser-ring above said needles, a vertically-reciprocating sinker-ring below said needles, horizontally-reciprocating sinkers guided in said sinker-ring, two sets of thread-guides, a vertically-reciprocating main guide-ring, two carrier-rings for said thread-guides, and means for imparting an intermittent step-by-step motion to said carrier-rings in opposite directions to each other, said carrier-rings being arranged in sections, each one being operated independently of the other with the corresponding group of thread-guides supported thereon.

14. In a knitting-machine, the combination of a circular needle-bed provided with radial ways, a series of needle-slides movable in said ways, a series of needle-carriers connected with each needle-slide, each needle-carrier being adapted to receive a series of needles, and means for imparting a reciprocating motion to said slides.

15. In a knitting-machine, the combination of a needle bed-plate provided with an exterior ring having radial grooves and an interior ring connected with the exterior ring and provided with a less number of radial grooves, a series of needle-carriers the shanks of which slide in the radial grooves of the outer ring, each needle-carrier carrying a series of needles a series of needle-slides having radial shanks adapted to slide in the radial grooves of the inner ring, a series of needle-carriers being connected with each of said needle-slides, and means for reciprocating said needle-carriers.

16. In a knitting-machine, the combination of a needle bed-plate provided with an outer ring having radial grooves, and an inner ring provided with a less number of radial grooves, a series of needle-carriers, the shanks of which slide in the radial grooves of the outer ring, each needle-carrier carrying a series of needles, a series of needle-slides having radial shanks adapted to slide in the radial grooves of the inner ring, a series of needle-carriers being connected to each needle-slide, an actuating reciprocating ring, bell-crank levers pivoted to said bed-plate and connected with the shanks of said needle-slides and said reciprocating ring, and means for reciprocating said ring.

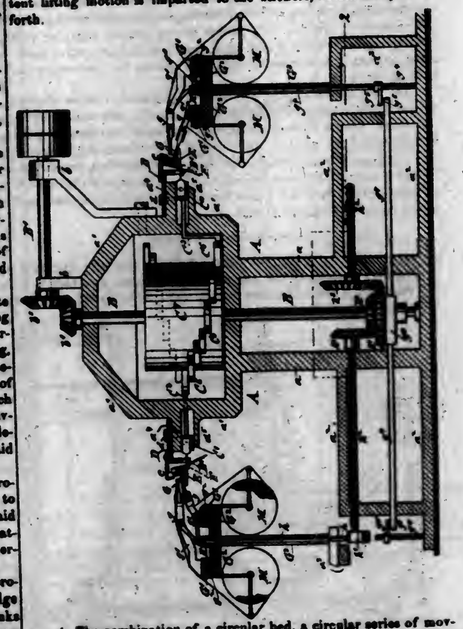
17. In a knitting-machine, the combination of a sinker-ring provided with radial grooves, sinker-slides having shanks adapted to move in said grooves, sinker-carriers vertically adjustable on said sinker-slides, each carrying a group of sinkers, means for reciprocating said sinker-slides, and means for raising and lowering said sinker-ring.

18. In a knitting-machine, the combination of a sinker-ring provided with an outer ledge, having radial grooves, and an inner ledge having a smaller number of radial grooves, sinker-slides having shanks adapted to slide in the grooves of the outer ledge, sinker-carriers vertically adjustable on said sinker-slides, and adapted to carry a series of sinkers, actuating-slides having shanks adapted to slide in the grooves of the inner ledge, said actuating-slides having each a series of sinker-slides connected therewith, means for reciprocating said actuating-slides, and means for raising and lowering said sinker-ring.

19. In a knitting-machine, the combination of a sinker-ring provided with an outer ledge having radial grooves, and an inner ledge having a smaller number of radial grooves, sinker-slides having shanks adapted to slide in the grooves of the outer ledge, sinker-carriers vertically adjustable on said sinker-slides, and adapted to carry a series of sinkers, actuating-slides having shanks adapted to slide in the grooves of the inner ledge, said actuating-slides having each a series of sinker-slides connected therewith, bell-crank levers pivoted to said sinker-ring and adapted to engage the inner ends of the shanks of said actuating-slides, a reciprocating ring for actuating said bell-crank levers, and means for reciprocating said reciprocating ring.

20. In a circular-knitting machine, the combination of a circular series of needles, a circular series of sinkers operating in connection with said needles, and a thread-guide-carrier ring surrounding said needles and sinkers and constructed in detachable sections, and means for actuating said carrier-ring.

said guide-rings in opposite directions to each other, a lifting-ring on which the ends of the guide-carriers rest, stickers for intermittently raising said lifting-ring, a central driving-shaft, and actuating mechanism between said shaft and the stickers by which an intermittent lifting motion is imparted to the stickers, substantially as set forth.



4. The combination of a circular bed, a circular series of movable needle-carriers disposed in said bed and provided with inwardly-extending radial shanks, groups of needles disposed in said carriers, a series of cams engaging said shanks to thrust said carriers, means for retracting said carriers, two thread-guides, means for oscillating and intermittently shifting said thread-guides, and sinkers.

5. The combination of a circular bed, a circular series of movable needle-carriers disposed in said bed, and provided with inwardly-extending shanks, groups of needles disposed in said-carriers, means for operating said needle-carriers embracing a separate cam for each needle-carrier, two thread-guides, means for intermittently shifting said thread-guides in opposite directions across said needles and means for intermittently moving said thread-guides between said needles.

6. The combination of a circular bed, a circular series of movable needle-carriers disposed in said bed and provided with inwardly-extending shanks terminating in different planes, means for operating said needle-carriers embracing superposed cams engaging said shanks, two thread-guides, means for shifting said thread-guides in opposite directions across said needles, and means for moving said thread-guides between said needles.

7. The combination of a vertical driving-shaft, a series of cams on said shaft, an annular bed surrounding said shaft, needle-carriers adapted to move radially on said bed and engaged by said cams, needles supported in said carriers, ring-shaped guideways larger in diameter than said bed, movable rings mounted on said guideways, thread-guides mounted on said movable rings, mechanism for shifting said rings, and mechanism for oscillating said thread-guides.

8. The combination of a vertical driving-shaft, a series of cams on said shaft, an annular bed surrounding said shaft, needle-carriers adapted to move radially on said bed and engaged by said cams, needles supported in said carriers, ring-shaped guideways larger in diameter than said bed, a lifting-ring, pivoted carriers mounted on said guide-rings carrying thread-guides and having shanks engaging said lifting-ring, intermediate mechanism between said lifting ring and driving-shaft for raising said lifting-ring to oscillate said thread-guides, and intermediate mechanism between said guide rings and said shaft for intermittently moving said guide-rings.

9. The combination of a vertical driving-shaft, a series of cams on said driving-shaft, a circular casing surrounding said cams and provided with flanges forming an annular bed, needle-carriers adapted to slide radially in said bed and provided with shanks engaging said

606,852. CIRCULAR-WARP-KNITTING MACHINE. ARTHUR R. LINDNER, Wilmington, Del., assignor to Julius Kayser, New York, N. Y. Filed Sept. 4, 1893. Renewed Jan. 12, 1898. Serial No. 666,475. (No model.)

Claim.—1. The combination of reciprocating needles, stationary needle-guides, stationary pressers above the needles, sinkers pivoted to the pressers, thread-guides, and means for oscillating and intermittently shifting said thread-guides, substantially as set forth.

2. The combination of a cylindrical supporting-frame, having circumferential guide-flanges, needle-carriers, guided in ways of said flanges, needles supported in said carriers, radial shanks applied to said carriers, guides for said shanks, helical springs applied to the guides and the needle-carriers, a central driving-shaft, and cams on said shaft and adapted to engage said shanks and impart reciprocating motion to the needle-carriers, substantially as set forth.

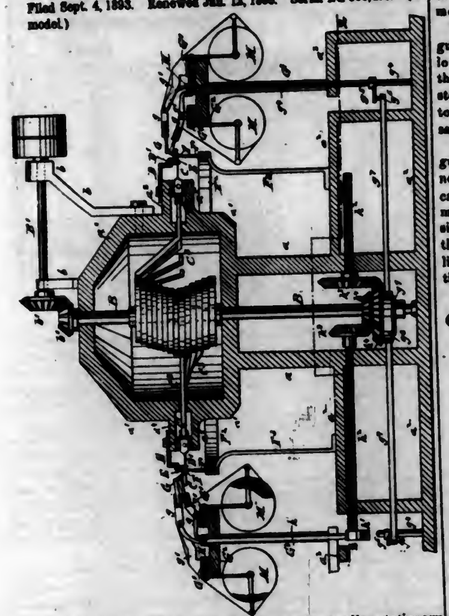
3. The combination of two sets of thread-guides, carriers for said thread-guides, guide-rings on which the guide-carriers are mounted, means for imparting intermittently a step-by-step rotary motion to

cams, groups of needles disposed in said needle-carriers, pressers engaging said needles, a series of thread guides mounted outside said bed, means for lifting said thread-guides, and means for oscillating said thread guides.

10. The combination of a vertical shaft provided with cams, an annular bed surrounding said shaft, needle-carriers disposed in groups and movable in said bed, said groups having shanks engaging said cams, groups of needles in said needle-carriers, and adjunctive mechanism operating in connection with said needles for performing the knitting operation.

11. The combination of a vertical driving-shaft, a series of cams on said driving-shaft, a circular casing surrounding said cams and provided with flanges forming an annular bed, needle-carriers adapted to slide radially in said bed and provided with shanks engaging said cams, groups of needles disposed in said needle-carriers, pressers attached to said bed and engaging said needles, a series of thread-guides mounted outside said bed, means for shifting said thread-guides, and means for oscillating said thread-guides.

606,853. CIRCULAR-WARP-KNITTING MACHINE. ARTHUR B. LINDNER, Wilmington, Del., assignor to Julius Kayser, New York, N. Y. Filed Sept. 4, 1893. Renewed Jan. 12, 1898. Serial No. 666,476. (No model.)



Claim.—1. The combination of reciprocating needles, stationary needle-guides, oscillating pressers above the needles, stationary sinkers below the needles, thread-guides, and means for oscillating and intermittently shifting said thread-guides, substantially as set forth.

2. The combination of reciprocating needles, stationary guides for the same, yielding pressers above the needles, stationary sinkers supported below the needles, thread-guides, and means for oscillating and intermittently shifting said thread-guides, substantially as set forth.

3. The combination of reciprocating needles, stationary needle-guides, pressers hinged to said needle-guides above the needles, stationary sinkers supported below the needles, thread-guides, and means for oscillating and intermittently shifting said thread-guides, substantially as set forth.

4. The combination of reciprocating needles, stationary needle-guides, pressers hinged to the needle-guides above the needles, stationary sinkers located below the needles and between the needle-guides and pressers, two sets of thread-guides, and means for oscillating and intermittently shifting said thread-guides, substantially as set forth.

5. The combination of reciprocating needles, stationary needle-guides, pressers hinged to the needle-guides above the needles, stationary sinkers located below the needles, two sets of thread-guides, mechanism for imparting an intermittent or step-by-step rotary motion to said thread-guides in opposite directions to each other, and mechanism for imparting oscillating motion to said thread-guides, substantially as set forth.

6. The combination of reciprocating knitting-needles, stationary needle-guides, pressers hinged to the needle-guides above the needles, said pressers having beveled or rounded-off ends adapted to press the beards of the needles, sinkers below the needles, two sets of thread-guides, and means for oscillating and intermittently shifting said thread-guides, substantially as set forth.

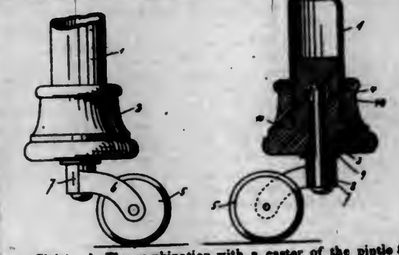
7. The combination of a cylindrical supporting-frame having circumferential flanges, needle-carriers guided between said flanges, means for reciprocating said needle-carriers, a set of needles in said carriers, stationary needle-guides supported in the top flange of the supporting-frame, pressers hinged to the needle-guides, one for each needle carrier, sinkers below the needles, a stationary sinker-ring for supporting the sinkers, thread-guides, and means for oscillating and intermittently shifting said thread-guides, substantially as set forth.

8. The combination of a cylindrical supporting-frame having circumferential flanges, needle-carriers guided between said flanges, a set of needles supported in said carriers, radial shanks applied to said carriers, means for guiding said shanks, a central driving-shaft, eccentrics on said shaft, and loose straps on said eccentrics, the shanks being connected with said straps so that a positive reciprocating motion is imparted to the needle-carriers, substantially as set forth.

9. The combination of reciprocating needles, stationary needle-guides, oscillating pressers above the needles, stationary sinkers below the needles, two sets of thread-guides, guide-rings in which the thread-guides are mounted, means for imparting intermittently or step-by-step rotary motion to said guide-rings in opposite directions to each other, and mechanism for imparting an oscillating motion to said thread-guides, substantially as set forth.

10. The combination of reciprocating needles, stationary needle-guides, oscillating pressers applied to the needle-guides above the needles, sinkers located below the needles, two sets of thread-guides, carriers for said thread-guides, guide-rings on which said carriers are mounted, means for imparting an intermittent rotary motion in opposite directions to said guide-rings, a lifting-ring engaging the ends of the thread-guide carriers, and means for intermittently raising the lifting-ring for simultaneously oscillating the thread-guides, substantially as set forth.

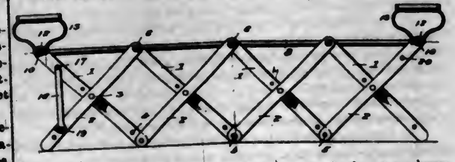
606,854. CASTER. MORTIMER G. MERRITT and FRANKLIN L. GROFF, Rome, N. Y., assignors to the Rome Metallic Bedstead Company, same place. Filed Dec. 8, 1896. Serial No. 614,963. (No model.)



Claim.—1. The combination with a caster of the pintle 8, the spring 10 secured to the side of the pintle and diverging therefrom, the washer 9 secured on the pintle and securing the spring 10 substantially as set forth.

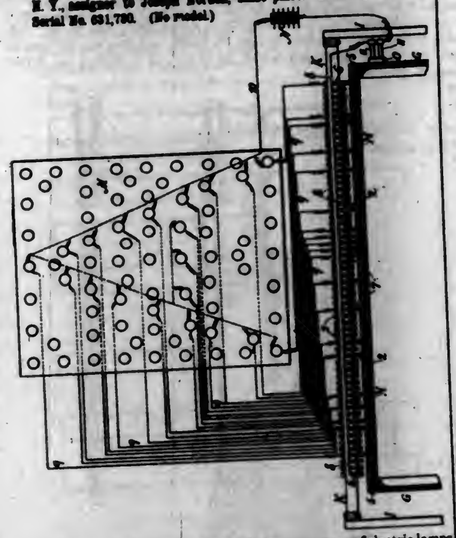
2. The combination with a leg having a caster-socket 3 with a shoulder 4ª at its upper end, of a caster having a pintle 8 and a divergent spring 10 both adapted to enter the socket, the washer 9 secured to the pintle and securing the spring to the side of the pintle, substantially as set forth.

606,855. FOLDING COT. CALVIN F. MOORE, Chicago, Ill. Filed Feb. 16, 1898. Serial No. 670,540. (No model.)



Claim.—The combination in a folding cot, of a lazy-tong lever forming the opposite parallel sides of the cot, the screw-eyes 6 6 connecting the upper contiguous ends of said levers, the transverse braces 10 10, the handles pivoted to the outer ends of said braces, the flexible bottom formed with the parallel side hems 8 8 and the end hems 9 9 encompassing said braces and the cords 15 15 extending through said side hems and screw-eyes and having their outer ends fixed in said transverse braces 10 10, substantially as shown and described

606,856. ELECTRICAL SIGN. MORTIMER NORDEN, New York N. Y., assignor to Joseph Norden, same place. Filed Apr. 13, 1897. Serial No. 631,780. (No model.)



Claim.—1. The combination with the monogram of electric lamps and the circuit connections to and from the same, of bars and spring-contacts carried by the bars, a shaft, heads, letter-bars and contacts upon the letter-bars and means for revolving the same and closing the circuits to the electric lamps by the pins acting upon the pairs of contact-springs, a segment bar and contact-brush in the main circuit for closing the circuit through the spring-contacts and for breaking such circuit when the segment separates from the contact-brush, substantially as set forth.

2. In an automatic mechanism for electric signs, a shaft and heads, means for revolving such shaft and heads, removable letter-bars and contact-pins carried by such heads and a circular range of bars and contact-springs carried by the same and circuit connections, a segment-bar upon one of the heads and a contact-brush and circuit connections, substantially as set forth.

606,857. WHIFFLETREE-HOOK. HÅKAN OLSON, Sugerville, Ill. Filed Oct. 28, 1897. Serial No. 656,863. (No model.)



Claim.—1. The combination with a whiffletree having a slot in the end and two intersecting alined holes and the collar or ferrule, of the hook comprising the curved arm having an inwardly-extending lug at the end, the shank integral with said arm formed with a horizontal slot and with a recess in its rear side, the pin passing through said slot, and the spring seated in said recess, substantially as described.

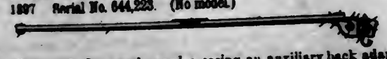
2. The combination with the whiffletree having a slot in the end and two intersecting alined holes and the collar or ferrule, of the hook comprising the curved arm having an inwardly-extending lug at the end, the integral shank formed with a horizontal slot and with a recess in the rear side, the pin passing through said slot, the spring seated in said recess, and the head at the end of the shank, substantially as described.

606,858. VALVE-REVERSING GEAR. FREDERICK QUINN, Oliver, Ill. Filed Jan. 20, 1898. Serial No. 667,206. (No model.)



Claim.—A valve-reversing gear, comprising the rock-shaft 8, the bell-crank lever 9, the connecting-rod 19 connecting the longer arm 18 of said lever 9 with the valve-operating rod 21, means for securing said bell-crank lever in two or more fixed positions and the eccentric-rod 5 pivoted to the contiguous ends of said rods 19 and 21, as and for the purpose set forth.

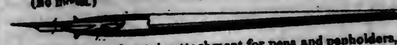
606,859. MUD-GUARD. RANDOLPH H. REID, Philadelphia, Pa., assignor of one-half to James McCormick, same place. Filed July 12, 1897. Serial No. 644,223. (No model.)



Claim.—1. In a mud-guard, a casing, an auxiliary back adapted to be secured to the bicycle-frame, and an adjustable securing device between the back and the casing, said casing being pivotally attached to said back.

2. In a detachable mud guard for cycles, the combination with a suitable casing, an auxiliary back adjustably mounted on the same, means for securing said auxiliary back to the frame of a wheel, a roller in said casing, and a flexible guard wound upon said roller, substantially as described.

606,860. FOUNTAIN ATTACHMENT FOR PENHOLDERS. CARL J. REES, New York, N. Y. Filed Aug. 19, 1897. Serial No. 648,767. (No model.)



Claim.—1. A fountain attachment for pens and penholders, comprising a body, a fingered tip at the forward end of the body and having transverse cells in its upper face, and a spring secured to the under side of the body and having its forward end curved upwardly and extending into close proximity to the under face of the tip, substantially as described.

2. A fountain attachment for pens and penholders, comprising a body, a tip integral with the body and provided with three fingers having transverse cells on their upper faces, the central finger being disconnected from the side fingers at the outer end, and a spring secured to the under side of the body and having its forward end curved upwardly under the tip and formed with claws, substantially as described.

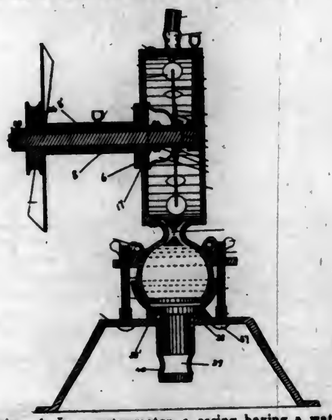
3. A fountain attachment for pens, comprising a body, a tip integral with the body and provided with three fingers the side fingers being connected at the outer ends and the intermediate finger being disconnected at said outer end with the side fingers, the fingers being provided with transverse cells in their upper faces, and a spring secured at about its center to the body and having its ends curved upwardly, the forward end being provided with claws, substantially as described.

4. In a fountain attachment for pens and penholders, a spring-body consisting of a bar, and a spring member attached to the bar, the ends whereof are curved in opposite directions, the forward end terminating in claws, and a tip or feeder forming a continuation of the said bar and extending over and beyond the claws of the spring member of the body, the tip or feeder being slotted and cellular, for the purpose specified.

5. A fountain attachment for pens and penholders, comprising a body provided at the under side with a spring, the ends whereof are curved in opposite directions, and a tip integral with the body and consisting of fingers having transverse cells in their upper faces, substantially as described.

6. A fountain attachment for pens and penholders, consisting of a body, a tip integral with the body and formed of a plurality of fingers having cells in their upper faces, and a spring on the under side of the body, the said spring being secured to the body at about its center and having its forward end formed with claws, substantially as described.

606,861. **WATER-MOTOR.** ALBERT ROSENBERG, Baltimore, Md. Filed May 18, 1897. Serial No. 637,125. (No model.)



Claim.—1. In a water-motor, a casing having a water-wheel therein; a spindle, rigidly secured to said water-wheel, projecting outside of said casing; an inlet to said casing; means for permitting the tilting of said casing; and an outlet from said casing through said tilting means; substantially as described.

2. In a water-motor; a casing having a water-wheel therein; a spindle, rigidly secured to said water-wheel, projecting outside of said casing; an inlet to said casing; a support therefor and means for permitting said casing to be tilted; an outlet from said casing through said tilting means and through said support; substantially as described.

3. In a water-motor, a casing having a water-wheel therein; a spindle, rigidly secured to said water-wheel, projecting outside of said casing; an inlet to said casing; one member, of a joint whereby the said casing may be tilted, secured to said casing; the other member, of said joint, secured to a support; means for securing the members together, and an outlet from said casing through the members of said joint; substantially as described.

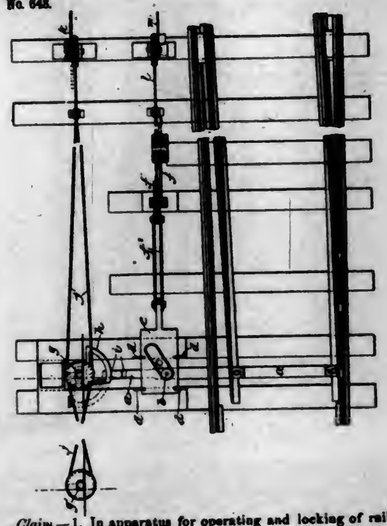
4. In a water-motor, a casing having a water-wheel therein; a spindle, rigidly secured to said watet-wheel, projecting outside of said casing; an inlet to said casing; means for permitting the universal adjustment of said casing; and an outlet from said casing through said universal adjusting means; substantially as described.

5. In a water-motor, a casing having a water-wheel therein; a spindle, rigidly secured to said water-wheel, projecting outside of said casing; an inlet to said casing; one member of a universal joint rigidly secured to said casing; the other member, of said joint, secured to a support; means for securing the members of said joint together; and an outlet from said casing through the members of said universal joint; substantially as described.

6. In a water-motor, a casing having a water-wheel therein; a spindle, rigidly secured to said water-wheel, projecting outside of said casing; an inlet to said casing; a support therefor and means for permitting the universal adjustment of said casing; and an outlet from said casing through said universal adjusting means and through said support; substantially as described.

7. In a water-motor, a casing having a water-wheel therein; a spindle, rigidly secured to said water-wheel, projecting outside of said casing; an inlet to said casing; a ball rigidly secured to said casing; a socket, for said ball, secured to a support; means for securing the ball in the socket; and an outlet from said casing through said ball and socket; substantially as described.

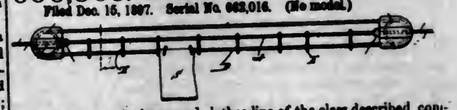
606,862. **LOCK FOR RAILWAY-SWITCHES.** CARL H. SCHAERR, Stockholm, and JOHANNES M. J. LOUDIN, Wirtan, Sweden. Filed Aug. 27, 1896. Serial No. 604,120. (No model.) Patented in Sweden Apr. 29, 1895, Nos. 6,971 and 7,196; in Norway Nov. 22, 1895, No. 4,996; in France Jan. 21, 1896, No. 253,856; in Hungary Feb. 10, 1896, No. 5,469; in England Mar. 27, 1896, No. 6,752; in Austria May 6, 1896, No. 45/1,726; in Switzerland May 12, 1896, No. 12,608; in Turkey May 30, 1896, No. 530; in Canada July 4, 1896, No. 52,824, and in Finland Oct. 3, 1896, No. 648.



Claim.—1. In apparatus for operating and locking of railway-switches the combination of a cross-bar connected to the switch-points, a cam-plate adapted to move the said cross-bar, a switch-lever connected to the said cam-plate, a second switch-lever connected to the first-mentioned switch-lever, a cam or hook connected to a signal and adapted to hold the said cross-bar in either of its extreme positions, when the signal shows "clear," and a lever for operating said signal, substantially as and for the purpose set forth.

2. In apparatus for operating and locking of railway-switches the combination of a cross-bar movable in the direction of its length and adapted to move the switch-points, a cam-plate movable in the direction of the rails and adapted to move the said cross-bar, a switch-lever adapted to move the said cam-plate, a second switch-lever provided with signs showing the position of the switch and by means of suitable transmissions, such as wire rope, connected to the first-mentioned lever, a cam or hook connected to a signal-disk and catching in suitable notches in the said cross-bar so as to hold the switch-point in either of its extreme positions, and a lever provided with signs showing the position of said signal-disk and connected so as to operate the same, as and for the purpose set forth.

606,863. **CLOTHES-LINE.** PHILIP SUSSOTT, New York, N. Y. Filed Dec. 16, 1897. Serial No. 662,016. (No model.)



Claim.—1. An improved clothes-line of the class described, comprising a longitudinal main suspending cable, pulley-blocks mounted upon and carried by said cable, an endless rope or cable passing around said pulley mechanism and forming the clothes-line proper, and a series of rings embracing and connecting the main suspending cable and the clothes-line proper and adapted to slide upon said members, substantially as and for the purpose set forth.

2. An improved clothes-line of the class described, comprising a longitudinal main suspending cable, pulley-blocks pivotally connected with and suspended from said main cable and adapted to swing thereon, an endless rope or cable passing around said pulley mechanism and forming the clothes-line proper, and a longitudinal series of rings extending between and connecting the main cable and the clothes-line cable and loosely mounted in position so that they slide freely upon said members, substantially as and for the purpose set forth.

3. An improved clothes-line of the class described, comprising a longitudinal main suspending cable provided with projections or flanges and passing through eyes or openings in pulley-blocks, the pulley-blocks being suspended from said main cable and adapted to swing thereon and bearing against said projections or flanges, an endless rope or cable passing around said pulley mechanism and forming the clothes-line proper, and the rings extending between and connecting the main cable and the clothes-line cable and arranged in a longitudinal series thereon between the pulley mechanism, said rings being adapted to freely slide, substantially as and for the purpose set forth.

606,864. **HEATING OR VULCANIZING APPARATUS.** GEORGE W. SLATER, Philadelphia, Pa. Filed Mar. 10, 1898. Serial No. 673,202. (No model.)



Claim.—1. In a heating or vulcanizing apparatus, the combination of a base, a flue or combustion-chamber supported thereupon, a bed supported upon said combustion-chamber and a clamping device, the latter consisting of a yoke having lips for engagement with lugs on said combustion-chamber, a member located above said bed, and a thumb-screw passing through said yoke and engaging said member.

2. A hollow base, a flue supported thereon, a bed mounted on said flue, a follower above the same, a screw carrying said follower and a yoke in which said screw is fitted, said flue having on its sides outwardly-turned lugs and said yoke having on its under ends inwardly-turned lips, which latter are removably engaged with said lugs.

3. A hollow base, a flue supported thereon, a bed mounted on said flue, a follower above the same, a screw carrying said follower and a yoke in which said screw is fitted, said flue having on its sides outwardly-turned lugs and said yoke having on its under ends inwardly-turned lips, which latter are removably engaged with said lugs, said bed having downwardly-projecting lugs which enter said flue.

4. In a heating and vulcanizing apparatus, a heater, a flue, a removable bed closing the top of said flue, a follower above said bed and a device for clamping said bed and follower to said flue, said bed having lugs which enter said flue, and the corners of the latter being cut away, forming discharge-openings, whereby the products of combustion directed against said bed are retarded by said lugs and discharged through said corner-openings.

5. In a device of the character stated, a flue with outwardly-projecting lugs on the sides thereof, a bed supported on said flue, a follower above said bed, a screw carrying said follower, and a yoke to which the said screw is fitted, said yoke having inturned lips which engage said lugs, the contiguous faces of said lips and lugs being reversely curved.

606,865. **WHEEL.** REGINALD H. SMITH, London, England. Filed June 20, 1897. Serial No. 642,269. (No model.)

Claim.—1. In a wheel, a slotted hub, an axle passing therethrough, springs applied to opposite sides of the hub in a line therewith, and springs applied between the outer side of the hub and the inner sides of the wheel, and a lever secured to the axle, combined with a series of pivoted levers placed upon opposite sides of the hub, the outer one of each series of levers having its outer end pivoted to the wheel, substantially as shown.

2. In a wheel, a slotted hub, the axle passing therethrough, and springs placed in opposite ends of the slot in the hub, and having their inner ends to bear against opposite sides of the axle, combined with a lever connected to the axle, and a series of levers connected to each end of the lever secured to the axle, the outer end of each one of each series being connected to the rim; and springs placed between the hub and the rim of the wheel, substantially as specified.



606,866. **ENVELOP.** GEORGE SOUTHARD, Indianapolis, Ind. Filed Dec. 21, 1897. Serial No. 662,808. (No model.)



Claim.—The combination, with an envelop having suitable slits therethrough, of a sealer adapted to fold over the open edge of the envelop and provided with ends which are adapted to pass through said slits, the ends and one side of the sealer being adapted to be secured together, substantially as shown and described.

606,867. **CARRIER FOR BICYCLES, &c.** WILLIAM M. TWEART, Yorkton, Canada. Filed Nov. 18, 1897. Serial No. 658,057. (No model.)



Claim.—1. A carrier for bicycles and similar vehicles which is adapted to be connected with the forward upright tubular head of the frame, said carrier consisting of a cross head or bar provided with a clamp which is adapted to be connected to said tubular head, rods connected with the ends of said cross-head, and adjustable vertically thereon, a bottom frame hinged to, or pivotally connected with the lower ends of said rods, a sliding extension connected with said bottom frame, a supplemental frame hinged to or pivotally connected with the upper ends of said main rods, and adapted to be held in an upright, or lowered into a horizontal position, said supplemental frame being provided with a network which is adapted to form a basket, and said supplemental frame, and the extension of the bottom being provided with straps, substantially as shown and described.

2. A carrier for bicycles and similar vehicles, consisting of a cross head or bar which is adapted to be clamped to the forward part of the frame of the vehicle, said cross head or bar being provided at each end with main rods which are connected therewith, and to the lower end of which is hinged or pivoted a bottom frame which is adapted to be held in a forwardly-directed position or to be folded upwardly a supplemental frame pivotally connected with the upper ends of said main rods and adapted to be held in a forwardly-directed position or in an upright position, said supplemental frame being provided with a network which is adapted to serve as a basket, and said bottom and said supplemental frame being provided with straps, substantially as shown and described.

3. A carrier for bicycles and similar vehicles, which is adapted

to be connected with the forward part of the frame thereof, said carrier consisting of a cross head or bar, the ends of which are carved downwardly and provided with vertically-adjustable rods, a bottom frame hinged to the lower ends of said vertically-adjustable rods, and adapted to be held in a forwardly-directed position, or to be folded into an upright position, said bottom being provided with an extension which is adjustable thereon, and a supplemental frame pivotally connected with or hinged to the upper ends of said rods, and adapted to be held in a forwardly-directed position or in an upright position, and said supplemental frame and the extension of the bottom being provided with straps, substantially as shown and described.

4. A carrier for bicycles and similar vehicles, which is adapted to be connected with the forward part of the frame thereof, said carrier consisting of a cross head or bar, the ends of which are carved downwardly and provided with vertically-adjustable rods, a bottom frame hinged to the lower ends of said vertically-adjustable rods, and adapted to be held in a forwardly-directed position, said bottom being provided with an extension which is adjustable thereon, and a supplemental frame hinged to the upper ends of said rods, and adapted to be held in a forwardly-directed position, or in an upright position, and said supplemental frame and the extension of the bottom being provided with straps, and said supplemental frame being also provided with a network which is adapted to serve as a basket, substantially as shown and described.

606,868. SAFETY-STIRRUP. JOHN W. THORN, Mechanicsburg, Va. Filed July 3, 1897. Serial No. 643,369. (No model.)



Claim.—1. A stirrup, consisting of a yoke, a rearwardly-tilting foot-piece, and a spring engaging between said yoke and foot-piece and adapted to return said foot-piece to its substantially horizontal position with relation to the yoke when displaced therefrom, substantially as set forth.

2. A stirrup, consisting of a supporting-yoke bifurcated at its lower ends, cross-bars connecting said bifurcated ends, a foot-piece supported by said cross-bars and pivotally attached to the rear one thereof, and a spring engaging between said foot-piece and the forward cross-bar and adapted to return said foot-piece into contact with said cross-bars when displaced therefrom, substantially as set forth.

3. A stirrup, consisting of a supporting-yoke bifurcated at its lower ends, the forward arms of the bifurcated portions being slightly shorter than the rear arms thereof, cross-bars connecting said bifurcated ends, and a pivoted foot-piece supported by said cross-bars, the construction being such that the forward end of said foot-piece is raised slightly above its rear end, substantially as set forth.

606,869. CURRENT-INDICATOR. THOMAS W. VARLEY, New York, N. Y., assignor to himself, and Carl P. Lenk and Rudolph A. Lenk, Brooklyn, N. Y. Filed July 2, 1897. Serial No. 643,253. (No model.)



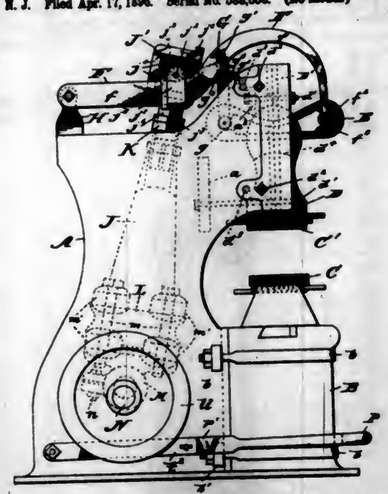
Claim.—1. The combination with the two astatic needles and a pivotal support, of a connection between the needles extending laterally, an arm for indicating the extent of movement and a case or support for the pivot open between the astatic needles for allowing the ammeter to be applied with the needles at the opposite sides of a stationary conductor, substantially as set forth.

2. The combination with the astatic needles and an indicating-arm extending out from one of the needles, of an arch connection between the needles and beneath the arm, a counterweight at the opposite side of the pivot to the arm and a support for the pivot that allows the astatic needles to be applied above and below a stationary conductor, substantially as set forth.

3. The combination with the astatic needles and an indicating-arm extending out from one of the needles, of an arch connection between the needles and beneath the arm, a counterweight at the opposite side of the pivot to the arm and a yoke for supporting the pivots and an inclosing case open between the needles for allowing the instrument to be applied to a stationary conductor, substantially as set forth.

4. The astatic needles, a pivot for the upper needle, an arch connecting the upper and lower needles, and an indicating-arm in combination with an inclosing case having a recess that allows the case to be applied to a conductor so that the conductor is between the astatic needles, and a magnet for returning the needles to a normal position, substantially as set forth.

606,870. POWER-HAMMER. CHARLES A. VAUGHN, Vineland, N. J. Filed Apr. 17, 1896. Serial No. 588,056. (No model.)



Claim.—1. In a power-hammer, the combination with a supporting-frame having an open central portion, of a cranked driving-shaft mounted in said frame, an eccentric-strap mounted on the crank of said shaft, a forked pitman secured to said eccentric-strap, a hammer-helve or operating-lever pivoted to the supporting-frame, connections between said forked pitman and helve, a hammer-head carried at the forward end of said helve, guide-plates on the frame between which said hammer-head slides, and an anvil secured to the said supporting-frame beneath said hammer.

2. In a power-hammer, the combination with a supporting-frame having an open central portion, of a cranked driving-shaft mounted in said frame, an eccentric-strap mounted on the crank of said shaft, a forked, spring-cushioned pitman secured to said eccentric-strap, a hammer-helve or operating-lever pivoted to the supporting-frame, adjustable connections between said forked pitman and helve, a hammer-head carried at the forward end of said helve, spring guide-plates on the frame between which said hammer-head slides, and an anvil secured to the said supporting-frame beneath said hammer.

3. In a power-hammer, the combination with a supporting-frame having a central opening therethrough, of a cranked driving-shaft mounted in suitable bearings in said frame, an eccentric-strap carried by the crank of said shaft, a forked pitman elastically secured to said eccentric-strap, said forked pitman having a split upper end in which is adjustably mounted an open-sided housing in which housing are carried journal-boxes, a hammer-helve or operating-lever pivoted at the rear of the main frame, an adjustable yoke carrying a journal to be held between the boxes at the upper end of the pitman supported by said hammer-helve, a flexible strap carried at the forward or free end of said hammer-helve, said strap being supported at its rear end by a cushioned hanger depending from the said operating-lever, a hammer-head supported by said strap, grooved spring guide-plates adjustably mounted on the main frame between which said hammer-head slides and a suitable anvil below said hammer.

4. In a power-hammer, the combination with the main frame having a central opening, of a driving-shaft mounted in said main frame, a forked pitman carried by said driving-shaft, a hammer-helve or operating-lever pivoted at the rear of said main frame, adjustable connections between said pitman and said operating-lever, a flexible strap supported at the forward end of the hammer-helve, a cushioned hanger depending from said hammer and supporting the rear end of said strap, a hammer-head having an aperture through which said flexible strap passes, grooved guide-plates between which the hammer-head slides, said guide-plates being provided with rearwardly-extending legs, springs interposed between said legs and the main frame to normally force the spring-plates outwardly, and bolts securing said plates to the frame, so as to permit adjustment of said plates relative to the main frame.

5. In a power-hammer, the combination of the main frame A having a central opening, of the driving-shaft N mounted in said main frame, an eccentric-strap M carried by said shaft, a forked pitman J having a transverse web L at its lower end, said web being adapted to be secured between elastic cushions m' in order to give an elastic support for said pitman, said pitman having a split upper end, a sleeve K screw-threaded into the split end of said pitman, a housing j' having a depending portion j^6 screw-threaded into said sleeve, boxes j^4 carried by said housing, a hammer-helve or operating-lever F, a yoke j^5 adjustably mounted on the said hammer-helve, a journal j^3 carried by said yoke on which the boxes j^4 have their bearing, a strap E, one end of which is supported at the extreme forward end of said hammer-helve F, a depending hanger G by which the rear end of said strap is supported, a rod g^3 pivoted to the hammer-helve and passing through the hanger G, and a cushioning device carried at the free end of said rod to receive the impact of the hanger, a hammer-head D carried by said strap, grooved spring guide-plates d' between said hammer, and an anvil B beneath said hammer.

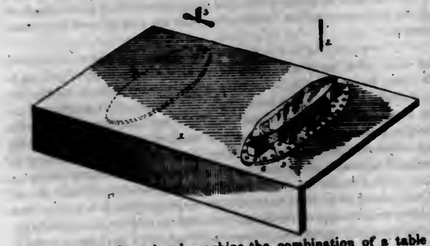
6. In a power-hammer, the combination with a main supporting-frame having a central opening, of a driving-shaft mounted in said frame, an eccentric-strap carried thereby, a forked pitman elastically supported on said strap, a hammer-helve pivoted at the rear of the main supporting-frame, adjustable connections between the said forked pitman and said hammer-helve, a hammer-head operated by said hammer-helve, a treadle pivoted to the main frame, a brake carried by said treadle, a weighted lever pivoted on the main frame engaging said treadle and normally forcing said brake against the brake-wheel mounted on the driving-shaft, and a belt-tightener adjustably secured to the main frame and connected with said foot-treadle so that when the treadle is depressed and the brake released said belt-tightener is thrown into operative relation to the belt and the driving-shaft is rotated.

7. In a power-hammer, the combination with the main frame, of the driving shaft and hammer-operating mechanism, a pivot-pin or gudgeon adjustably mounted on said main frame, an operating-lever carried by said gudgeon, a belt-tightener pulley supported by said gudgeon and adjustable therewith, means for securing an independent adjustment of said belt-tightening pulley relative to said gudgeon, an operating-treadle, and a connecting-rod between said operating lever and treadle.

8. In a power-hammer, the combination with the main frame, of the driving-shaft, the hammer-operating mechanism, and belt-tightening devices consisting of the plate R pivoted to the main frame, a gudgeon carried by said plate, a lever p^2 mounted on said gudgeon, a belt-tightening pulley s, a hanger S by which said pulley s is supported, adjustably secured to said lever p^2, an operating-treadle P and a rod p^3 connecting said treadle and lever p^2.

9. In a power-hammer, the combination with the main frame, of a driving-shaft, hammer-actuating mechanism operated thereby, a belt-tightener for said driving-shaft consisting of the plate R pivoted to the main frame, said plate R having an upper slotted portion by means of which said plate may be adjusted to various positions, a gudgeon p^4 carried by said plate R, a lever p^2 mounted on said gudgeon, said lever having a slotted scroll or plate p^5, a depending rod or hanger S mounted on said gudgeon, a screw-bolt p^6 by which said hanger S is adjustably secured to the slotted scroll or plate p^5, a belt-tightening pulley s supported by said hanger S, a treadle P and a rod p^3 connecting said treadle and lever p^2.

606,871. GAGE DEVICE FOR BRUSH-MACHINES. MCCLINTOCK YOUNG, Frederick, Md., assignor to the Palmetto Fibre Company, of Illinois. Filed June 15, 1897. Serial No. 640,888. (No model.)



Claim.—1. In a brush-machine the combination of a table or support and a portable brush-block holder provided respectively with means for securing the holder rigidly in different predetermined positions, substantially as described.

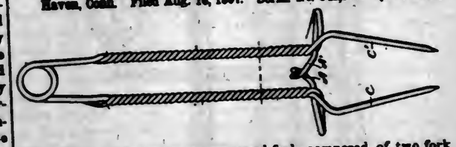
2. In a brush-machine the combination of a table or support and a portable brush-block holder provided with interlocking means substantially as described to retain the holder rigidly in different predetermined positions.

3. The combination with boring and tufting mechanisms, of a work-supporting table therefor, two pairs of pins projecting upwardly from said table and adjacent respectively to said mechanisms, a brush-block holder adapted to rest flatly on the table and provided with two rows of holes forming pairs of sockets side by side, and each pair adapted to receive either of the pairs of pins.

4. In a brush-machine the combination of an inclined table or support and a portable brush-block holder provided respectively with means for securing the holder rigidly in different predetermined positions.

5. The combination with an inclined supporting-table provided with two pins, of a brush-block holder formed with a series of pairs of holes arranged side by side and adapted to receive respectively the two pins.

606,872. DOUBLE OR COMPOUND FORK. EDWIN M. BRAMLEY New Haven, Conn., assignor of one-half to Frederick B. Street, East Haven, Conn. Filed Aug. 16, 1897. Serial No. 648,377. (No model.)



Claim.—1. A double or compound fork composed of two fork members respectively furnished with inwardly-projecting coupling-hooks, which may be utilized to couple the two fork members together, and adapt the fork to be used as a lifting-hook.

2. A double or compound fork composed of two fork members respectively furnished with inwardly-projecting coupling-hooks which may be utilized to couple the two fork members together and adapt the fork to be used as a lifting-hook, and also furnished with outwardly-projecting guards.

3. A double or compound fork composed of two fork members respectively furnished with inwardly-projecting coupling-hooks which may be utilized to couple the two fork members together and adapt the fork to be used as a lifting-hook, the said coupling-hooks being formed independently of the two fork members and secured thereto.

4. A double or compound fork composed of two fork members respectively furnished with inwardly-projecting coupling-hooks, which may be utilized to couple the two fork members together, and with outwardly-projecting guards, the hook and guard of each fork member being made integral with each other.

5. A double or compound fork composed of two fork members respectively furnished with inwardly-projecting coupling-hooks which may be utilized to couple the two fork members together and adapt the fork to be used as a lifting-hook, and with outwardly-projecting guards, the coupling-hooks and guards of the respective fork members being produced by suitably bending a piece of wire formed independently of and secured to the fork members.

6. A double or compound fork composed of two long main pieces of wire bent midway of their length, having their intermediate portions twisted upon each other to form fork-handles, and having their ends bent to form fork-tines, and two auxiliary pieces of wire intertwined with the handle portions of the fork members, and having their outer ends bent to form outwardly-projecting loop-shaped guards and inwardly-projecting coupling-hooks which latter may be utilized to couple the two fork members together and adapt the fork to be used as a lifting-hook.

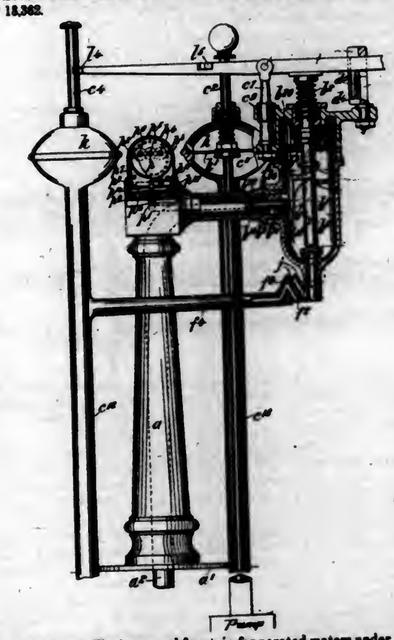
7. A double or compound fork, comprising two long main pieces of wire bent midway of their length to form independent open spring-coils lying side by side, having their intermediate portions shaped to form fork-handles, and their ends shaped to form fork-tines, and each of the two members of the fork being provided with inwardly-projecting hooks which may be utilized to couple the two members of the fork together and adapt the fork to be used as a lifting-hook.

8. A double or compound fork, comprising two long pieces of wire shaped to form fork handles and tines, and bent to form two open spring-coils uniting the respective fork members and lying side by side, and the said fork members being respectively provided with inwardly-projecting hooks arranged to coact with each other.

9. A double or compound fork, comprising two long main pieces of wire having their middle portions coiled to form two independent open spring-coils lying side by side, having their intermediate portions twisted upon each other to form twisted fork-handles, and having their ends bent to form oppositely-set fork-tines, and the said fork

also comprising two auxiliary wires intertwined with those portions of the main wires forming the fork-handles and having their outer ends shaped to form inwardly-projecting hooks and outwardly-projecting guards.

606,878. AERATED-WATER FOUNTAIN OR ENGINE. ALFRED BRAKE and ROBERT J. MCKEE, Wellington, New Zealand; said McKee assignor to said Brake. Filed Oct. 26, 1897. Serial No. 656,656. (No model.) Patented in New Zealand May 27, 1897, No. 9,560; in New South Wales June 5, 1897, No. 7,823, and in England Aug. 6, 1897, No. 18,362.



Claim.—1. The improved fountain for aerated waters under pressure, comprising the measuring-chamber, the pipe connection between said chamber and a suitable receiver, the valve normally closing said communication, the normally open valve controlling the outlet from said chamber, means for simultaneously operating said valves, an automatic gas-operated recorder and mechanism carried by said pipe connection and connected with the recorder, said mechanism being operated by the sudden rise in pressure inside the chamber, substantially as described.

2. A fountain or engine for drawing off aerated waters from bulk consisting of a suitably-supported chamber provided with a spindle carrying a washer to close an opening at the top and a valve to close the bottom of the chamber and a collar, a bell-crank lever adapted to be engaged by said collar, an admission-valve operated by said bell-crank and a lever to operate such spindle whereby all the operations are performed by one movement, substantially as and for the purposes set forth herein.

3. A fountain or engine for drawing off aerated waters from bulk consisting of a suitably-supported chamber provided with a spindle carrying a washer to close an opening at the top and a valve to close the bottom of the chamber and a collar, a bell-crank lever adapted to be engaged by said collar, an admission-valve operated by said bell-crank, a pipe connection connecting said chamber with a receiver, a recorder, mechanism connected with the recorder and operated by the sudden rise in pressure inside the chamber and a lever to operate the spindle whereby all the operations are performed by one movement, substantially as and for the purposes set forth herein.

4. A fountain or engine for drawing off aerated waters from bulk consisting of a suitably-supported chamber provided with a spindle carrying a washer to close an opening in the top and a valve to close the bottom of the chamber and a collar, a bell-crank lever adapted to be engaged by said collar to open an admission-valve, pumps for delivering flavoring-syrups, a lever having a bearing-piece adapted to operate said spindle and having tappets and a grid to operate said pumps and whereby all the operations may be performed by one movement, substantially as and for the purposes set forth herein.

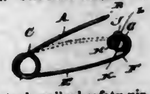
5. A fountain for drawing aerated waters from bulk comprising a chamber, a spindle movable therein and carrying a washer to close an opening at the top of chamber and a valve to close an opening at the bottom of the chamber, a pipe connection from said chamber to a receiver, a bell-crank operating a valve for controlling said pipe connection, a collar on the spindle, a recorder, and mechanism connected with said recorder and operated by the sudden rise in pressure in the chamber, pumps for delivering flavoring-syrups, a rocking lever adapted to operate said spindle, tappets carried by the pump piston-rods adapted to be engaged by said lever and a grid, substantially as described.

6. In a fountain adapted to deliver aerated water from a storage-receptacle containing it under gas-pressure, the combination with the measuring and delivering chamber having a pipe connection with such storage-receptacle, of a recorder, a diaphragm connected with said chamber and adapted to be moved by the pressure of the gas on each operation of the fountain, and a pawl-and-ratchet connection between said diaphragm and recorder, substantially as described.

7. In an aerated-water fountain, the combination with the water-delivery apparatus of the syrup-delivery pipes, the delivery-nozzles therefrom having kinked ends with an air hole in the apex of said kink, and means for sending a puff of air through said nozzle, substantially as described.

8. A fountain or engine for drawing off aerated waters from bulk consisting of a suitably-supported chamber provided with a spindle carrying a washer to close an opening in the top and a valve to close the bottom of the chamber and a collar, a bell-crank lever adapted to be engaged by said collar, an admission-valve operated by said bell-crank, pumps for delivering flavoring-syrups into a mixing-chamber, a lever adapted to operate said pumps and spindle and whereby all the operations may be performed by one movement, and a grid, substantially as and for the purposes set forth herein.

606,874. SAFETY-PIN. HENRY S. BREWINGTON, Baltimore, Md. Filed Nov. 13, 1897. Serial No. 658,435. (No model.)

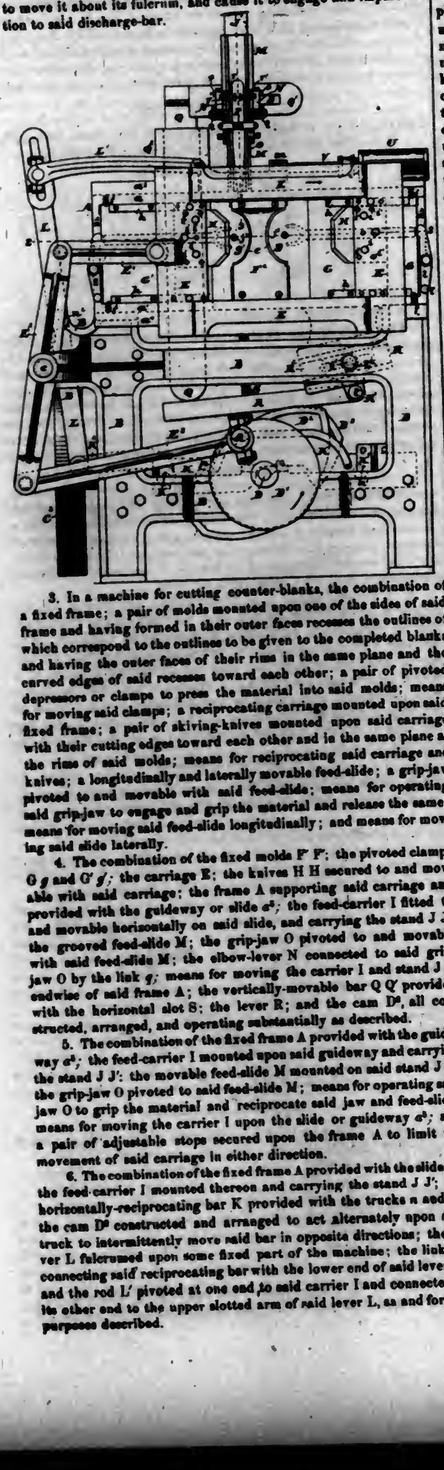


Claim.—The herein-described safety-pin, formed of a single piece of wire, comprising the pin proper A, the body E, the connecting spring-coil, the curve beyond the pin-point beginning at the point F, turned back and continued to form the coil H, the evenly-bent coil K on the opposite side of the body of the pin, and the cross-bend J on the outside of the body of the pin connecting the two coils, the end of the wire of which the pin is made abutting, at L, against the cross-bend J, all substantially as described.

606,875. COUNTER-CUTTING MACHINE. DANIEL L. CHANDLER, Ayer, Mass., assignor to the Spaulding Brothers Company, Townsend Harbor, Mass. Filed June 19, 1896. Renewed June 26, 1897. Serial No. 642,720. (No model.)

Claim.—1. In a machine for cutting counter-blanks from strips of leather-board or other material, the combination of a fixed frame; a pair of molds having in their outer faces recesses the outlines of which correspond to the desired outlines to be given to the counter-blanks when completed, with the outer faces of their rims in the same plane and their rounded edges toward each other; a pair of clamps for pressing the strip of material into said molds, mounted upon and movable about suitably-arranged axes; a reciprocating carriage mounted upon said frame; a pair of skiving knives secured to said carriage and arranged with their cutting edges in the same plane as the faces of said molds and toward each other; means for operating said clamps to press the strip of material into the molds; means for reciprocating said carriage; a blank-discharging bar carried by each of said clamps; and means for operating one of said discharging-bars by the movement of the knife-carriage at the end of each movement thereof.

2. In a machine for cutting counter-blanks from strips of leather-board or other material, the combination of a fixed mold having in its outer face a recess the outline of which corresponds to the desired outline of the blank to be cut; a fixed punch or male die having its operating end in a plane parallel to and nearly coinciding with the plane of the rim of said mold; a yielding clearer plate or block partially surrounding said punch; a clamp for pressing the strip of material into said mold, and mounted upon and movable about an axis parallel to the plane of the rim of said mold; a female die set in said clamp in position to cooperate with said punch to cut a notch in the straight edge of the blank; a reciprocating frame or carriage; a skiving-knife mounted upon said carriage with its cutting edge in the same plane as the rim of said die; means for operating said clamp to press the strip of material into said mold; means for reciprocating said carriage; a blank-discharging bar carried by said clamp; and a lever mounted upon a fixed fulcrum and constructed and arranged to be acted upon by said carriage at one extreme of its reciprocation, to move it about its fulcrum, and cause it to engage and impart motion to said discharge-bar.



3. In a machine for cutting counter-blanks, the combination of a fixed frame; a pair of molds mounted upon one of the sides of said frame and having formed in their outer faces recesses the outlines of which correspond to the outlines to be given to the completed blanks and having the outer faces of their rims in the same plane and the curved edges of said recesses toward each other; a pair of pivoted depressors or clamps to press the material into said molds; means for moving said clamps; a reciprocating carriage mounted upon said fixed frame; a pair of skiving-knives mounted upon said carriage with their cutting edges toward each other and in the same plane as the rims of said molds; means for reciprocating said carriage and knives; a longitudinally and laterally movable feed-slide; a grip-jaw pivoted to and movable with said feed-slide; means for operating said grip-jaw to engage and grip the material and release the same; means for moving said feed-slide longitudinally; and means for moving said slide laterally.

4. The combination of the fixed molds F' F'; the pivoted clamps G g and G' g'; the carriage E; the knives H H secured to and movable with said carriage; the frame A supporting said carriage and provided with the guideway or slide a^2; the feed-carrier I fitted to and movable horizontally on said slide, and carrying the stand J J'; the grooved feed-slide M; the grip-jaw O pivoted to and movable with said feed-slide M; the elbow-lever N connected to said grip-jaw O by the link q; means for moving the carrier I and stand J J' endwise of said frame A; the vertically-movable bar Q Q' provided with the horizontal slot S; the lever R; and the cam D^2, all constructed, arranged, and operating substantially as described.

5. The combination of the fixed frame A provided with the guideway a^2; the feed-carrier I mounted upon said guideway and carrying the stand J J'; the movable feed-slide M mounted on said stand J J'; the grip-jaw O pivoted to said feed-slide M; means for operating said jaw O to grip the material and reciprocate said jaw and feed-slide; means for moving the carrier I upon the slide or guideway a^2; and a pair of adjustable stops secured upon the frame A to limit the movement of said carriage in either direction.

6. The combination of the fixed frame A provided with the slide a^2; the feed-carrier I mounted thereon and carrying the stand J J'; the horizontally-reciprocating bar K provided with the trucks n and n'; the cam D^2 constructed and arranged to act alternately upon said truck to intermittently move said bar in opposite directions; the lever L fulcrumed upon some fixed part of the machine; the link K^2 connecting said reciprocating bar with the lower end of said lever L; and the rod L' pivoted at one end to said carrier I and connected at its other end to the upper slotted arm of said lever L, as and for the purposes described.

7. The combination, in a counter-cutting machine, of the fixed frame A provided with a slide a^2 and the guide-ribs a^3 and a^4; the molds F' F' having recesses formed therein corresponding to the desired shape and size to be given to the finished blank with their curved edges toward each other and the front faces of their rims in the same plane; a pair of pivoted clamps movable about suitably-arranged axes; means for vibrating said clamps to alternately clamp a section of the material and to release the covered blank; the carriage E mounted upon and movable endwise of said guide-ribs a^3 and a^4; the skiving-knives H H adjustably secured to said carriage E; means for reciprocating said carriage; the feed-carrier I mounted upon the slide a^2; the stand J J' mounted upon said carriage; means for moving said carriage endwise on said slide; the feed-slide M movable up and down upon the guide-arm J' of the stand J; the grip-jaw O pivoted to said slide M; the elbow-lever N pivoted to the slide M and provided with the arms o' and o^3; an adjustable stop-screw set in each of said arms o' and o^3; the springs p secured to the slide M, with their free ends between the stop-screws in the arms o^3 and said slide; the links q connecting the short arm of said lever N to the upper end of the grip-jaw O; the upright bar Q provided with the lateral arm Q' having the horizontal slot s to receive the long arm of the lever N; the lever R mounted upon an adjustable fulcrum; and the cam D, all constructed, arranged, and operating substantially as described.

8. In combination with the longitudinally and laterally movable feed-slide M and the grip-jaw O pivoted thereto, and means for operating said grip-jaw; the plate P provided with the finger r^3 and secured to the bar r pivoted to said feed-carriage, and the springs r^2, as set forth.

9. In a machine of the character specified, the combination of a pair of fixed molds, a pair of alternately-acting clamps for pressing blank material into said molds, mechanism for presenting one end of an elongated strip of material to the two molds and clamps alternately, and a pair of reciprocating skiving-knives movable over said molds and clamps, each knife acting to simultaneously sever a blank from the strip and to skive the blank.

10. In a machine of the character specified, the combination of a pair of fixed molds, a pair of alternately-acting clamps for pressing blank material into said molds, a feeding device having a longitudinal movement to cause it to move a strip of material forward step by step, and a lateral movement to present the strip to the two molds and clamps alternately, said feeding device including means for alternately gripping and releasing the strip, and a pair of reciprocating skiving-knives movable over said molds and clamps, each knife acting to simultaneously sever a blank from the strip and skive the blank.

11. In a machine of the character specified, the combination of a pair of fixed molds, a pair of alternately-acting clamps for pressing blank material into said molds, a longitudinally-reciprocating feeding device or slide having means for alternately gripping and releasing a strip of material, a feed-slide carrier reciprocated in a path substantially at right angles with the path of the feed-slide, and a pair of reciprocating skiving-knives movable over said molds and clamps, each knife acting to simultaneously sever a blank from the strip and skive the blank.

12. In a machine of the character specified, the combination of a mold, a clamp adapted to press blank material into said mold, a feeding device adapted to move an elongated strip of material step by step and present one end of it to the mold and clamp, and a skiving-knife movable over said mold and clamp and adapted to simultaneously sever a blank fom the strip and skive the blank.

606,876. ENDLESS BELT. ANTHON CHRISTENSEN, Chicago, Ill., assignor, by mesne assignments, to the Anthon Christensen Belting Company, same place. Filed Sept. 30, 1897. Serial No. 653,581. (No model.)

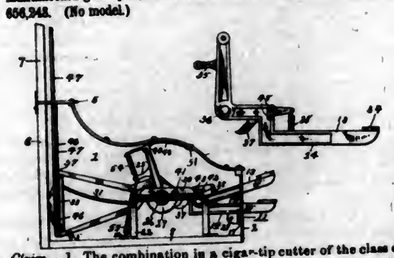


Claim.—1. As a new article of manufacture, an endless belt or band for power transmission formed from a continuous strand formed into parallel, longitudinal loops of a length corresponding to the length of the belt to be produced and the end of the outer convolution being woven transversely back and forth through and between the intermediate convolutions after the manner of a weft, the ends of said strand finally passing transversely through the body of the

belt in opposite directions and in proximity to each other and in the same relation to the longitudinal strands, as and for the purpose set forth.

2. As a new article of manufacture, an endless flat belt or band for power transmission formed from a continuous strand and comprising superimposed layers of longitudinal loops or convolutions, the ends of said strands being alternately woven through and transversely across the portions of the upper convolutions and the lower convolutions, and additional securing threads or strands, said transverse portions being arranged to pass alternately under and over said additional strands, as and for the purpose set forth.

606,877. CIGAR-TIP CUTTER. THOMAS A. COLE, Indianapolis, Ind., assignor, by direct and mesne assignments, to the American Manufacturing Company, same place. Filed Oct. 25, 1897. Serial No. 656,943. (No model.)



Claim.—1. The combination in a cigar-tip cutter of the class described, having a suitable inclosing case arranged with advertising-spaces, and a mechanism for displaying advertising-cards, of the clipping mechanism consisting of the levers 13, the shaft 26, the pivotally-mounted blades 48, and the locking lugs 51, with the alarm-gong mechanism, which is adapted to be actuated by the operation of the levers 13, and the lever-locking bar 11, having the L-shaped notches 12 and the pivotally-mounted dogs 16, whereby the levers 12 are consecutively locked after each operation, substantially as shown and described.

2. In a cigar-tip cutter of the class described, having a suitable case provided with a series of openings to receive the ends of cigars to be clipped, an automatic alarm-sounding device, whereby the alarm is sounded whenever a predetermined number of cigars have been clipped, and a series of advertising-card racks adapted to be displayed consecutively whenever the clipping mechanism connected therewith is operated, the combination of the clipping mechanism consisting of the spring-tensioned pivotally-mounted blades 48, having the cutting edges 52, adapted to slide against the under side of said case 4, opposite the openings 9, the levers, 13, having said blades 48 pivotally mounted upon their upper ends, and the shaft 26, suitably supported by brackets and carrying the levers 13, with the mechanism for successively locking said levers, consisting of a slidably-mounted spring-controlled bar 11, having L-shaped notches 12 to receive the operating-levers 13, and shoulders 15, to engage the ribs 14 on the levers 13 and hold said levers when they are depressed, said bar 11 mounted within the front 2 of said case, all as shown and described.

606,878. ELASTIC TIRE. JULES N. DAGNS, Paris, France. Filed Jan. 12, 1898. Serial No. 666,732. (No model.)



Claim.—1. An improved wheel-tire comprising the ring of wood *f* for receiving the wheel-spokes, a metallic rim or felly *a* resting against said ring *f* and having grooves in its inner face, an india-rubber cover having its edges extending around the edges of the rim *a* and seated in said grooves, and a vibrator-ring within the cover *b* for distending the same, substantially as described.

2. An improved wheel-tire, comprising the ring of wood *f* for receiving the wheel-spokes, a metallic rim or felly *a* resting against said ring *f* and having grooves in its inner face, an india-rubber cover having its edges extending around the edges of the rim *a* and seated in said grooves, and a vibrator-ring within the cover *b* for distending the same, substantially as described.

606,879. FIREPROOF MASK. PHILIP DALLIDET, New York, N. Y. Filed Jan. 27, 1898. Serial No. 668,217. (No model.)

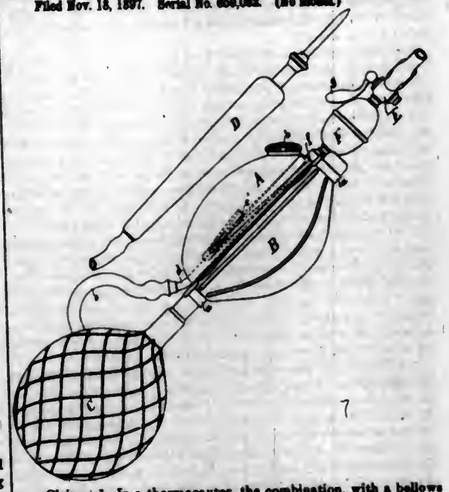


Claim.—1. An improved fireproof mask, constructed of two half spheres or sections hinged or connected together, a projection or extension having an open outer end forming a seat for a sponge, the body portion of said mask being provided with view-openings and ear-openings, and ear-protectors secured over said ear-openings and extending within the mask, said ear-protectors embodying a neck or passage and their inner ends being adapted to be connected with the ear of the user, substantially as and for the purpose set forth.

2. An improved fireproof mask, comprising the body portion provided with ear-openings, in combination with inwardly-extending ear-protectors secured over said ear-openings and projecting therefrom within the interior of the body, said ear-protectors having a narrow neck forming a passage communicating with the exterior of the mask through the ear-openings and being provided with a hollow knob-shaped head having an opening in the inner face thereof, substantially as and for the purpose set forth.

3. A fireproof mask, constructed of two half-spheres suitably hinged together, a curved projection provided with a ventilating-opening containing a sponge, the body portion of said mask being provided with view-openings and ear-openings, an inwardly-extending ear-protector secured over said ear-openings constructed of a hollow knob-shaped head having an opening in the inner face thereof, a narrow neck and a passage communicating to the exterior of the mask through the ear-opening, and fastening means for securing the hinged portions together, substantially as and for the purpose set forth.

606,880. THERMOCAUTER. CARL F. DEWITT, Berlin, Germany. Filed Nov. 18, 1897. Serial No. 659,062. (No model.)



Claim.—1. In a thermocauter, the combination, with a bellows and a receptacle for liquid hydrocarbon arranged side by side so that they may be grasped by one hand, and fastening devices connecting together the said parts; of an air vessel connected with the bellows, an air-pipe connected with the air vessel and projecting within the said receptacle, and an outlet-pipe for gas projecting within the said receptacle and provided with a regulating-valve, substantially as set forth.

2. In a thermocauter, the combination, with a hemispheroidal bellows and a hemispheroidal receptacle for liquid hydrocarbon, said bellows and receptacle being arranged with their flat sides abutting against each other, and fastening devices connecting the said parts together; of an air vessel connected with the bellows, an air-pipe connected with the air vessel and projecting within the said receptacle, and an outlet-pipe for gas projecting within the said receptacle and provided with a regulating-valve, substantially as set forth.

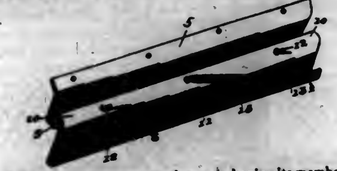
606,881. WRENCH. THEODORE DEKKELBAUM, New York, N. Y., assignor to himself and Edward Leander Gingi, same place. Filed Sept. 23, 1897. Serial No. 652,749. (No model.)



Claim.—1. In a pipe-wrench the combination with a handle, of a yoke pivotally connected therewith adjacent to one end thereof, and an independent flexible textile band adapted to encompass a pipe, and to be secured to said handle by being compressed between said handle and said yoke, substantially as described.

2. In a pipe-wrench, the combination with a handle having a semicircular end, of a yoke pivotally connected therewith adjacent to one end thereof, and an independent flexible textile band adapted to encompass a pipe and to be secured to said handle by being compressed between said handle and said yoke, substantially as described.

606,882. WEATHER-STRIP. HANS H. FRANSEN, Golden, Ill. Filed Sept. 21, 1897. Serial No. 652,440. (No model.)



Claim.—1. A two-part weather-strip having its members hinged together and a reversible spring pivoted to said members, substantially as described.

2. A two-part weather-strip having its members hinged together, and a spring arranged diagonally across the movable member, one end of said spring pivotally attached at the hinged joint of said members and its other end confined detachably at the free edge of said movable member, substantially as described.

3. In a weather-strip, the combination with two members, of a spring reversibly connected to the lapping edges of the members and serving as one of the pivots therefor, as and for the purposes described.

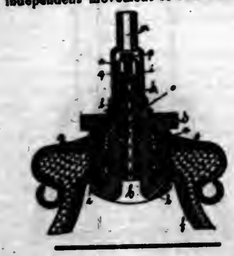
4. In a weather-strip, the combination of a fixed member having a flanged edge, a movable member bent at one edge to overlap the flanged edge of the fixed member, pivots passing through the flanged lapped edges of the two members, and a reversible spring having one end connected to the flanged lapped edges of the two members to serve as a pivot therefor and the other end of said spring connected to the movable member, as and for the purposes described.

5. In a weather-strip, the combination with the two members loosely connected at their adjacent edges and the movable member having a longitudinal fold at its free edge, of a reversible spring pivotally attached at one end to the hinged joint between said members and having its free end confined or held in the folded edge of said movable member, as and for the purposes described.

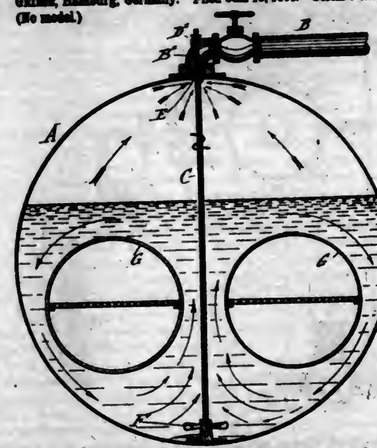
606,883. BACK-PRESSURE VALVE FOR PNEUMATIC TIRES. CARL GRAF, Mühlhausen, Germany, assignor to Ludwig Retzinger and Wilhelm Weidenhoff, Munich, Germany. Filed July 10, 1897. Serial No. 644,457. (No model.)

Claim.—1. In a back-pressure valve, the combination of a valve-seat having an internally-tapered valve-seat therein, a tapered valve cooperating with said valve-seat, an air-conveying nipple in threaded connection with the valve-seat section and adapted to be moved with relation to the valve-seat, a spring connecting the stem of said valve to the nipple whereby a movement of the nipple with relation to the valve-seat will cause a bodily movement of the valve and spring to seat and unseat the valve.

2. In a back-pressure valve, the combination of a headed exteriorly-threaded valve-section having an internally-tapered valve-seat therein, a jam-nut adapted to take the exterior threads of the section to hold a valve-seat section in place, an air-conveying two-part nipple in threaded connection with the valve-seat section and adapted to be moved with relation to the valve-seat, a tapered valve carried by and movable with and independently of said valve-seat section, and a spring connecting the stem of said valve with the nipple whereby a movement of the nipple will cause the seating and unseating of the valve and an independent movement of said valve will also be allowed.



606,884. ATTACHMENT FOR STEAM-BOILERS. AUGUST GRIMM, Hamburg, Germany. Filed Jan. 19, 1898. Serial No. 667,158. (No model.)



Claim.—1. The combination, with a Cornish or other flue-boiler, of a spindle supported in suitable bearings in said boiler, a steam-outlet pipe, said spindle passing through the end of the steam-outlet pipe adjacent to the boiler, a propelling device on said spindle in said steam-outlet pipe, and an agitating device on said spindle operated by the propelling device, substantially as set forth.

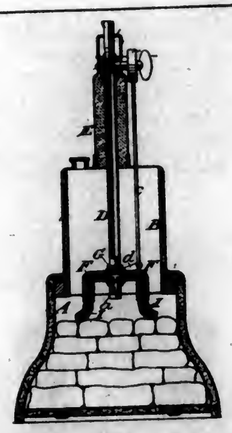
2. The combination, with a Cornish or other flue-boiler, of a spindle supported in suitable bearings in said boiler, a steam-outlet pipe, said spindle passing through the end of the steam-outlet pipe adjacent to the boiler, a helical screw on said spindle located in the steam-outlet pipe, and a screw-propeller on said spindle operated by the motion imparted to the helical screw by the outgoing steam, substantially as set forth.

606,885. ACETYLENE-GAS LAMP. GUSTAF R. HESS, Brooklyn, N. Y., assignor of two-thirds to George H. Robinson, New York, N. Y. Filed Nov. 2, 1897. Serial No. 657,144. (No model.)

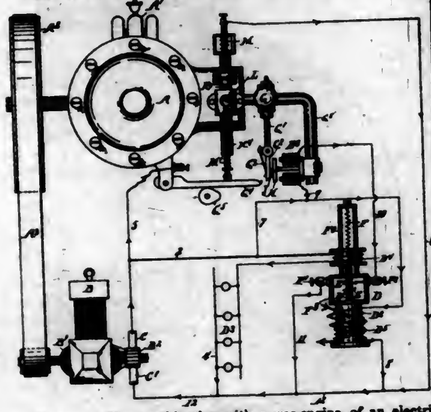
Claim.—1. The combination with the carbid-receptacle and the water-reservoir above it, of a wick-tube having a plurality of branches between said receptacle and reservoir and a cock in said wick-tube for controlling all its branches, substantially as herein described.

2. In an acetylene-lamp, the combination of a carbid-receptacle constituting a generator, a water-reservoir, a water-cock between said reservoir and said generator, a main burner and a supplementary burner supplied from said generator, a gas-cock common to both of said burners for opening either when the other is closed, and a connection between the said cocks for opening and closing the water-cock and the main burner simultaneously and for closing or opening the supplementary burner while the main burner and the water-cock are respectively open or closed, substantially as herein described.

606,885.



606,886. GAS-ENGINE. THOMAS H. HICKS, Fort Wayne, Ind. Filed Nov. 29, 1895. Serial No. 570,421. (No model.)



Claim.—1. The combination with a gas-engine, of an electric ignition device, provided with two movable conducting-plungers M, M', a transparent disk L for bringing the ends of said plungers to view while the engine is running, so that the igniting-spark may be seen for adjustment, a source of electricity, mechanical means for operating said ignition device, mechanism operated by said engine to cause one of said plungers to lift the other plunger, and means for automatically pulling one of said plungers away from the other, substantially as described.

2. The combination with a gas-engine provided with a gas-valve G, through which said engine is supplied with gas, of a valve-stem G', a hinged finger G^3 attached to said valve-stem, a cam-arm G^4 for opening the gas-valve G, through the finger G^3, an electromechanical device for connecting said finger with said cam-arm for operating said gas-valve, electric means for operating said electromechanical device, and means for cutting an electric current off from supplying said electromechanical device for the purpose of throwing said gas-valve entirely out of action in checking the speed of said engine, substantially as described.

3. The combination with a gas-engine provided with a gas-controlling valve G, of mechanical and electrical means to operate said valve in supplying gas to said engine, a governing-magnet D to assist in operating said valve, a compounding-coil D^4 arranged in combination with said governing magnet, and an electric work-circuit D^3, said work-circuit and said coil D^4 being arranged in linear series with each other, the current flowing through said coil D^4 acting in combination with said governing-magnet in controlling the speed of said engine, substantially as described.

4. The combination with a power-producing engine, of two sets of electromagnetic devices E^3 and D for controlling the speed of said engine, an electrical work-circuit D^3, and a supplemental series coil arranged in linear series with said work-circuit, said series coil acting in combination with said electromagnetic devices E^3 and D in controlling the speed of said engine, substantially as set forth.

5. The combination with a power-producing engine, of a solenoid-magnet D, an electrical work-circuit, a source of electricity, and a supplemental coil arranged in linear series with said work-circuit, said coil being arranged in combination with said magnet D to assist in controlling the speed of said engine, substantially as described.

6. The combination with a gas-engine, provided with a gas-valve, arranged to be normally out of action, and with suitable mechanical means operated by said engine for operating said valve, of electrical means for throwing said valve into action through said mechanical means operated by said engine, substantially as described.

7. The combination with a gas-engine, provided with a gas-valve, of two independent sets of mechanical attachments G^3, G^4 and G^6, G^7 operated by said engine for operating said valve, said valve being arranged to be normally out of action, and two sets of magnets for throwing said valve into action to supply gas for said engine, substantially as described.

8. The combination with a gas-engine, provided with a gas-valve, and suitable mechanical means operated by said engine for operating said valve, said valve being arranged to be normally out of action, of an electromagnet provided with suitable attachments for throwing said valve into action, a second electromagnet provided with suitable attachments for controlling the first-named magnet, and an electric generator for supplying said electromagnets with current, substantially as described.

9. The combination with a gas-engine, provided with a gas-valve G, of cam-arms G^4, G^7, fingers G^3, G^6, lever-arms H H', and electromagnets E^2, E^4, said gas-valve being arranged to be normally out of action, said magnets and levers being arranged to throw said valve into action through said cam-arms and fingers, in supplying said engine with gas, substantially as described.

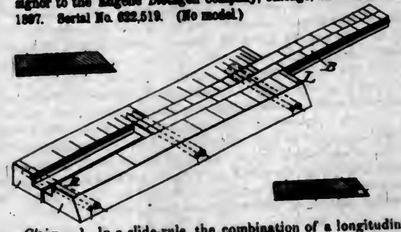
606,887. FIREPROOF PLASTERING-SUPPORT. ALBIN KÜHN, Heidelberg, Germany. Filed Jan. 6, 1897. Serial No. 618,173. (No model.)



Claim.—1. In combination, with the slats, the foundation K of reeds, rushes or the like, the wire-web applied over the foundation, the stiffening-wires passing through the wire-web and the nails or staples engaging the stiffening-wires and passing through the foundation into the lathe.

2. In combination, the foundation, the slats, the wire-webbing applied over the foundation and the stiffening-wires running through the web, substantially as described.

606,888. SLIDE-RULE. JOHN G. D. MACK, Madison, Wis., assignor to the Eugene Dietzgen Company, Chicago, Ill. Filed Feb. 8, 1897. Serial No. 622,519. (No model.)

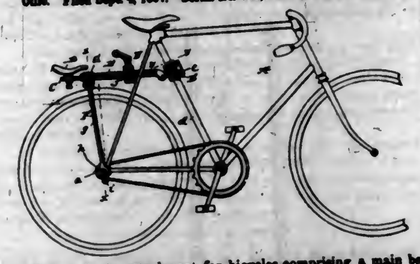


Claim.—1. In a slide-rule, the combination of a longitudinally-divided rule or slide, with a series of springs maintaining the abutting scales in contact, and a series of guides for the registering of the scales of the divided portion.

2. In a slide-rule, the combination of a longitudinally-divided rule or slide, with a series of pressure-springs, a series of guide-pins and a series of adjustable limiting-stops, substantially as described and for the purposes set forth.

3. In a compensating slide-rule, the combination of a longitudinally-divided rule or slide with transverse guide-pieces connecting the sections of the divided portion, and a series of springs, the latter being arranged so as to cause the longitudinal sliding surfaces to move under spring-pressure, for the purposes set forth in this specification.

606,889. BICYCLE ATTACHMENT. CLIFTON S. MOORE, Newark, Ohio. Filed Sept. 4, 1897. Serial No. 650,644. (No model.)

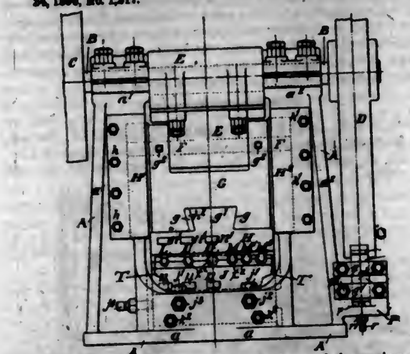


Claim.—1. An attachment for bicycles comprising a main bar terminating at its forward end in a flattened portion, a hinge-clamp adapted to be fixed on the king-post of a bicycle-frame and having a wing pivotally connected to the flat portion of the bar, a clip arranged on said bar and having apertured lugs, and a support adapted to bear on the rear axle of a bicycle; the said support having a leg provided with an eye at its upper end, and a second leg provided with a lateral threaded branch extending through the apertures of the clip and said eye, and a nut on said branch, substantially as specified.

2. The combination of a bar, a handle-bar, a hinge-clip arranged on the first-named bar and comprising one member having a socket with apertures *t*, *t'*, and a second member having an apertare, a screw extending through said aperture and the apertures *t*, *t'*, of the socket, and a stem connected to the handle-bar and arranged in the socket of the clip member, and having diametrically opposite apertures for receiving the screw, substantially as specified.

3. A foldable attachment for bicycles comprising a main bar, a clamp pivotally connected with the forward end of said bar and having two members connected in a hinged manner and one or more screws for binding said members against the king-post of a bicycle-frame, and a support comprising legs adapted to straddle the rear wheel of a bicycle and bear on the extensions of the rear axle thereof; the said support being formed of spring metal and pivotally connected with the main bar, whereby, when it is not in use, its free end may be placed and secured in the clamp on the main bar by the screw or screws of said clamp, substantially as specified.

606,890. MACHINE FOR SHAPING OR FORGING AND SHARPENING ROCK-DRILLS, &c. STEPHEN P. GNIOK, Johannesburg, South African Republic. Filed Aug. 19, 1897. Serial No. 648,900. (No model.) Patented in South African Republic Dec. 13, 1895, No. 1,037, and Sept. 24, 1896, No. 1,317.



Claim.—1. A die for shaping or forging and sharpening rock-drills and similarly-shaped edged tools fitted with an inclined cutter so disposed or arranged as to constitute that portion of the die which effects the formation of the extreme cutting edge on the drill simultaneously with the formation of the tapering or angular faces, said cutter being set at such an inclination as to form the desired bevel at the cutting-point of the drill in addition to the cutting edge substantially as described.

2. A die for shaping or forging and sharpening rock-drills and the like in which is arranged an adjustable inclined cutter for imparting the desired bevel to the drill at the cutting-point and also to form the extreme cutting edge thereon simultaneously with the formation of the tapering or angular faces substantially as described.

3. In combination, the die for forging or shaping and sharpening rock-drills and like tools, the adjustable inclined cutter, constituting a portion of the die, slightly rounded and beveled to form the slightly rounded and beveled cutting edge on the drill simultaneously with the formation of the tapering or angular faces thereon substantially as described.

4. A die-block in which is sunk or fitted a die for shaping or forging and sharpening rock-drills and the like provided with an inclined slot projecting into or terminating at one end of the die in which is fitted a removable cutter constituting that portion of the die which effects the sharpening or formation of the extreme cutting edge on the drill substantially as described.

5. In combination, a die-block, a die sunk or fitted therein for shaping or forging the tapering or angular faces on rock-drills and like tools, an inclined slot formed in the die-block projecting into said die, a cutter arranged therein and forming that portion of the die which effects the sharpening or formation of the extreme cutting edge on the drill, a further slot formed in the die-block, intersecting the inclined slot in which the cutter is arranged and an adjusting-wedge or tapered bolt fitted within this further slot and bearing against the end of the cutter for effecting any required adjustment thereof substantially as described and shown.

6. In machines or apparatus for shaping or forging and sharpening rock-drills and the like the combination of upper and lower die-blocks to the upper one of which a vertical reciprocating or up-and-down motion is imparted in any suitable manner, the die-blocks being sunk or fitted with one or more dies for effecting the shaping and sharpening of drills or tools on their tapering or angular faces, said die or dies being fitted or provided with an adjustable cutter or cutters for forming the extreme cutting edge on the drill simultaneously with the formation of the angular faces and with one or more dies for forming the drill on its slightly-spreading sides or edges and finishing same to gage substantially as described and shown.

7. In machines or apparatus for shaping or forging and sharpening rock-drills and the like the combination of upper and lower die-blocks to the upper one of which a vertical reciprocating or up-and-down motion is imparted in any suitable manner, the die-blocks being sunk or fitted with one or more dies having tapering and angular faces for effecting the shaping and sharpening of drills or tools on their tapering or angular faces, said die or dies being fitted or provided with an adjustable cutter or cutters slightly rounded and beveled and set at such an inclination in the blocks as to form the desired bevel at the cutting-point and the slightly rounded and beveled cutting edge of the drill simultaneously with the formation of the tapering and angular faces thereof substantially as described.

8. In machines or apparatus for shaping or forging and sharpening rock-drills and like tools, the combination of the upper and lower die-blocks H J, in which are sunk or fitted the set or series of dies L L' L^3 for forming the tapering or angular faces of the drill, the inclined slots or holes *l l'* formed in the die blocks and terminating at the inner ends of the dies, the cutters *m m'* fitted within the slots *l l'* and constituting the innermost portion of the dies, the slots or holes *o o'* formed in the die-blocks and intersecting the slots *l l'*, the wedges or tapered bolts *n n'* fitted in slots *o o'* and bearing upon the extremities of the cutters *m m'* for adjusting same as may be desired and a rest or stop O substantially as described and shown.

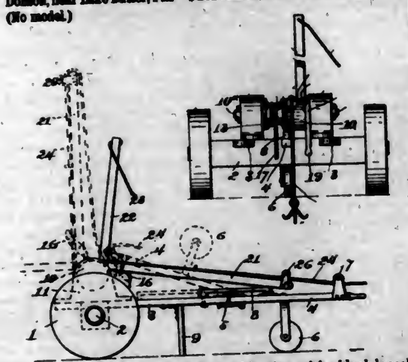
9. In machines or apparatus for shaping or forging and sharpening rock-drills and the like the combination of the bracket or extension P of the frame, the slot *p* formed therein, the slightly rounded and beveled cutter Q fitted within slot *p*, the straps or bars *q q'* affixed to the bracket P and securing cutter Q in position in the slot *p*, the adjusting-screw *r* for the cutter Q, the fly-wheel D, the slot *d* formed in the rim or periphery thereof, the slightly rounded and beveled cutter R fitted within the slot *d*, the retaining-stud r^3 and adjusting-screw r^2 for the cutter R for shearing off the bur or fine edge or strip of metal left on the cutting edge of the drill or tool after it has been passed through the dies substantially as described and shown.

10. In machines or apparatus for shaping or forging and sharpening rock-drills and the like the combination of the frame A of the machine, comprising the base *a* and the standards or pedestals $a' a^2$, the shaft B journaled therein, the driving-pulley C, the fly-wheel D, the cross-head G working in guides or recesses formed on the inside of the pedestals $a' a^2$ and coupled up with the driving-shaft B by means of an eccentric, crank or other suitable device to impart a vertical reciprocating or up-and-down motion thereto on the rotation of the shaft, the recess *g* formed in the cross-head G on the under side, the upper die-block H, the projection *g'* fitting and secured within the recess *g*, the dies L L' L^3 sunk or fitted within the die-block H, the inclined cutters *m m'* the adjusting-wedges or tapered bolts *n n'*, the stops or rests O, the dies M M' M^3 sunk or fitted within die-block H, the lower die-block J, the dies L L' L^3 sunk or fitted therein, the inclined cutters *m m'*, the adjusting-wedges or tapered bolts *n n'*, the dies M M' M^3 sunk or fitted within die-block J, the tapered or inclined under surface *j* of the die-block J the adjusting-wedge K fitted within

the base *a* upon which block J rests, the holding and adjusting screws or studs j^3 j^3 j^4 l' l^3 for the wedge K and the holding-down bolts j' for the lower die-block J substantially as described and shown.

11. In machines or apparatus for shaping or forging and sharpening rock-drills and the like, the combination of the frame A, comprising the base *a* and the standards or pedestals a' a^2, the eccentric-shaft B journaled therein, the driving-pulley C, the connecting-rod E, the cross-head G, the pin F, the screws or studs g^2, the retaining-plates H' H^2 affixed to the pedestals a' a^2, the recess *g* formed in the cross-head G on the under side, the upper die-block H, the corresponding projection g' formed thereon and fitting within the recess *g*, the wedge or tapered key k^2, the dies L L' L^2 sunk or fitted within the die-block H, the inclined cutters *m* *m'* the adjusting-wedges or tapered bolts *n* *n'*, the stops or rests O, the dies M M' M^2 sunk or fitted within die-block H, the lower die-block J, the dies L L' L^2 sunk or fitted therein, the inclined cutters *m* *m'*, the adjusting-wedges or tapered bolts *n* *n'*, the dies M M' M^2 sunk or fitted within die-block J, the tapered or inclined under surface *j* of the die-block J the adjusting-wedge K fitted within the base *a* upon which block J rests, the holding and adjusting screws or studs j^3 j^3 j^4 l' l^3 for the wedge K and the holding-down bolts j' for the lower die-block J, the bracket or extension P of the frame A, the slot *p* formed therein, the cutter Q fitted within slot *p*, the straps or bars *q* q' affixed to the bracket P and securing cutter Q in position in the slot *p*, the adjusting-screw *r* for the cutter Q, the fly-wheel D, the slot *d* formed in the rim or periphery thereof, the cutter R fitted within the slot *d*, the retaining-stud r^2 and adjusting-screw r^3 for the cutter R substantially as described and shown.

606,891. STUMP-PULLER. BERRYAN C. RIDDOX and SHADRUS DUNSON, near Lake Butler, Fla. Filed Jan. 14, 1898. Serial No. 666,846. (No model.)



Claim.—1. In a stump-puller the combination, with a block loosely mounted to turn, the levers secured to the block, and a draft-cable carried by one of said levers, of a drum having ratchet-teeth and loosely mounted on the end of the said block, and a draft-cable secured to the drum, substantially as set forth.

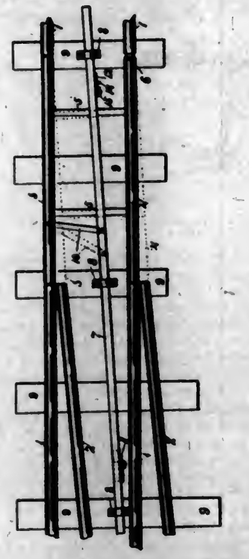
2. In a stump-puller the combination, with the block loosely mounted to turn and provided with ratchet-teeth, levers secured to the block, a draft-cable carried by one of said levers, and pawls to control the movement of said block, of a drum having ratchet-teeth upon each end and loosely mounted on the end of the block opposite the said block-teeth, a draft-cable secured to the drum, and the drum-pawls, substantially as set forth.

3. The combination, in a stump-pulling machine, of a block loosely mounted in the machine and having a toothed end and a conical end, levers secured to the block at right angles, a toothed drum having a recess to fit the conical end of said block, and the pawls for turning the drum and block together or independently by moving said levers, as set forth.

606,892. AUTOMATIC SWITCH. FINLAY W. ROSS, Birtle, Canada. Filed July 31, 1897. Serial No. 646,669. (No model.)

Claim.—1. In a tramway-switch, the combination with the main and side track rails, of a movable section of track, the two rails of which are rigidly connected to move on a single pivot, an interposed longitudinally-sliding rod connected to said section, and levers connected to said rod to be acted upon by the moving car for operating it and said pivoted section, substantially as described.

2. In a tramway-switch, the track-rails thereof having a movable section in which the two rails are rigidly connected to move on a pivot at one end of one rail of said section, in combination with a sliding rod intermediate the rails of said section and linked thereto, and upright levers adapted to be operated by the passing car for opening and closing the switch, substantially as described.

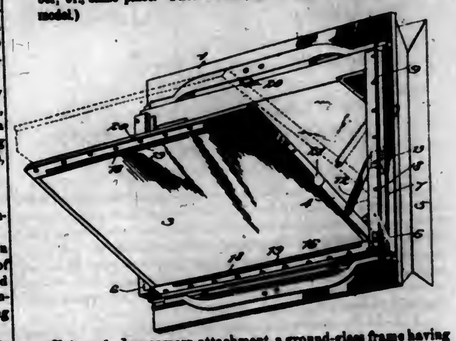


606,893. BICYCLE-SADDLE. BENJAMIN S. SEAMAN, Canton, Ohio. Filed Mar. 26, 1897. Serial No. 629,234. (No model.)



Claim.—A support for a bicycle-seat consisting of a single piece of wood so shaped as to form a cap in the center thereof, the ends thereof being bent around and forward, forming a pommel, and held in engagement by the downwardly-curved prongs of a T-headed bolt passing therethrough, and adapted to engage the spring-support, substantially as described for the purpose set forth.

606,894. FOCUSING ATTACHMENT FOR CAMERAS. DAVID R. SHARPTS, Washington, D. C., assignor of one-half to Charles R. Kleeber, Jr., same place. Filed Oct. 28, 1897. Serial No. 656,602. (No model.)



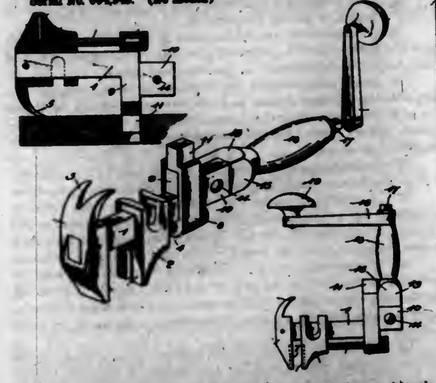
Claim.—1. In a camera attachment, a ground-glass frame having an oblong reflector provided with pivots disposed at right angles to each other, whereby either vertical or horizontal pictures may be erected, substantially as described.

2. In a camera attachment, a ground-glass frame provided with a compound reflector-frame having pivots disposed at right angles to each other whereby the reflector is capable of tilting horizontally or vertically, substantially as described.

2. In a camera attachment, the combination with a ground-glass frame, of an oblong reflector pivoted in an inner frame, said reflector having its pivots operating in an outer frame and said outer frame having pivots disposed at right angles to those of the inner frame and confined in sliding bearings on the ground-glass frame, substantially as described.

4. In a camera attachment, the combination with the ground glass, of a reflector provided with movable pivots, whereby the reflector can be moved up and down before the face of the ground glass, and its free end moved toward and away from the latter, substantially as described.

606,895. COMBINATION-TOOL. ELVIN H. SHAW, Sedalia, Mo., assignor of one-half to W. A. Fraser, same place. Filed Dec. 31, 1897. Serial No. 664,949. (No model.)



Claim.—1. In a device of the class described, the combination of a shank provided with a shoulder or stop, a stationary jaw, a movable jaw, a collar or loop arranged on the shank and abutting against the shoulder or stop, said collar or loop being provided with a lug adapted to fit in an opening or socket of a bench, and means for adjusting the movable jaw, substantially as described.

2. In a device of the class described, the combination of a shank provided at its inner end with an enlarged portion and having a perforated ear 10 laterally offset to form a shoulder 12, a stationary jaw detachably secured to the outer end of the shank, an adjustable jaw, means for operating the latter, a crank-handle provided at its inner arm with a perforation, said inner arm being adapted to be arranged longitudinally of the shank and at right angles to the same and to fit against the said shoulder 12 in both positions, and a fastening device passing through the perforations and detachably securing the crank-handle to the shank, substantially as described.

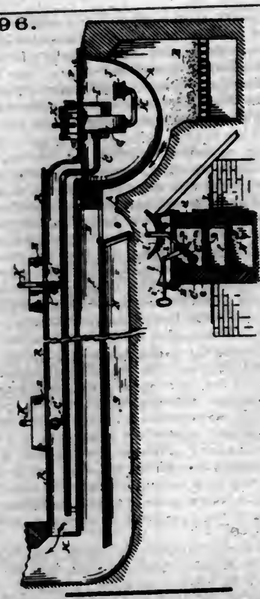
3. In a device of the class described, the combination of a shank having one end enlarged and provided beyond the enlarged portion with a laterally-offset ear forming a shoulder, a movable jaw, a detachable stationary jaw, a collar or loop arranged on the enlarged portion of the shank and provided with a lug adapted to fit in an opening or socket of a bench, and means for adjusting the movable jaw, substantially as described.

4. In a device of the class described, the combination of a shank enlarged at one end and provided with a laterally-offset ear forming a straight inner shoulder, a loop arranged on the enlarged portion of the shank, fitting against the said shoulder and provided with a lug, a sliding jaw, a stationary jaw, and a crank-handle detachably and adjustably connected to the ear of the shank and fitting against the outer edge of the said enlargement, substantially as described.

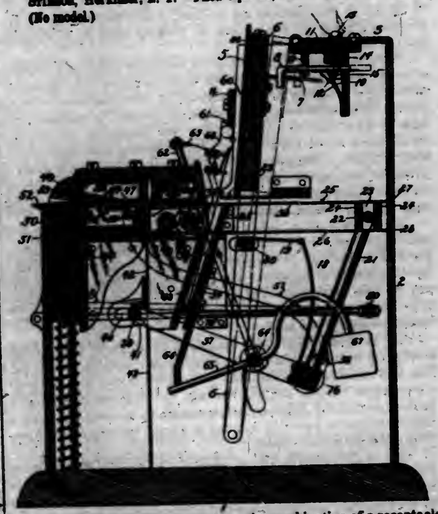
606,896. CASK-PITCHING APPARATUS. PHILIP SHERIDAN, Cleveland, Ohio. Filed Aug. 20, 1897. Serial No. 648,908. (No model.)

Claim.—In a cask-pitching apparatus the combination with the kettle and a fireplace therefor, of a pipe leading from a pump within said kettle, said pipe being provided with a series of spray-nozzles, keg-supports arranged with regard to said spray-nozzles, a drip pan under said pitch-conveying pipe and a divided controllable flue for heating said pan and leading the smoke from said fireplace all constructed and arranged substantially as and for the purpose set forth.

606,896.



606,897. PRINTING AND FOLDING MACHINE. NATHANIEL A. STILSON, Herkimer, N. Y. Filed Apr. 10, 1897. Serial No. 631,522. (No model.)



Claim.—1. In a folding-machine, the combination of a receptacle to contain successively the sheets or blanks to be folded; a slide movable across said receptacle; a second slide movable in a plane intersecting that of the first-mentioned slide; blocks or bodies on opposite sides of the slides; a rock-shaft; arms extending from the rock-shaft to the respective slides; and a lever for rocking said shaft; whereby the slides are caused to act successively upon the sheet and to fold and refold the same.

2. In a folding-machine, the combination of two slides movable in parallel planes; a third slide movable in a plane intersecting those of the other two slides; blocks or bodies on opposite sides of each slide; and means for simultaneously advancing the parallel slides and receding the intersecting slide, and for receding the parallel slides and advancing the intersecting slide; whereby one of the parallel slides is caused to act upon a sheet or slip, to produce an initial fold therein, and to deliver it across the path of the intersecting slide;

the intersecting slide is caused to produce a second fold and to deliver the folded sheet across the path of the second of the parallel slides; and said second parallel slide is caused to form a third fold in the sheet, substantially as set forth.

3. In combination with suitable guiding or confining blocks or bodies, slides 25, 26 and 42 movable between said blocks; rock-shaft 16; connecting-arms 21, 37 and 38; and a lever for rocking the shaft 16.

4. A feeding mechanism, comprising the following elements in combination: a plate or platform upon which the lower ends of sheets or slips may rest; a front bar or plate to retain said slips; a follower movable toward and from said front bar; a rock-shaft; an elastic or yielding connection between said rock-shaft and follower; arms carried by the rock-shaft; a second rock-shaft pivoted in said arms; a rod or bail carried by said second rock-shaft and provided with a feeding strip or edge; a counterbalance tending to move the rod or bail toward the follower; means for throwing the rod or bail from said follower; and a lever for rocking the main rock-shaft.

5. In combination with horizontal support 29 having an upturned edge or lip, a fixed retaining-bar 4; a follower 5; a feeding-strip 63; and means for moving the feeding-strip toward the follower, lifting it, and then moving it away from the follower, substantially as set forth; whereby the free lower end of a sheet held between the retaining-bar and follower is lifted up from behind the upturned edge or lip of support 29 and permitted to descend in front thereof.

6. The combination substantially as set forth, of a supporting-plate 29; a retaining-bar 4; a follower 5; a rock-shaft 16; an elastic or yielding connection between the rock-shaft and the follower; a feeding plate or strip 63; a connection between the rock-shaft 16 and the feeding-strip; a latch or guide 68 to hold the feeding-strip away from the follower during a portion of its movement; and means for rocking shaft 16.

7. In combination with supporting-plate 29; retaining-bar 4 provided with flexible strip 61; follower 5; rock-shaft 16; spring 18; link 19 connecting the follower and spring 18; arms 37 and 38 carried by rock-shaft 16; rock-shaft 64 pivotally supported in said arms; rod or bail 65 carried by rock-shaft 64 and provided with counterbalance 67; stop 66 located in the path of rod or bail 65; bail or rod 62 carried by rock-shaft 64 and provided with a feeding edge or lip; gravitating guide 68; and means for rocking shaft 16, all substantially as described.

8. In combination with a holder or receptacle adapted to contain sheets or slips in an upright position, a bottom support having an upturned lip or edge; a follower adapted to clamp the sheets and to release them, alternately; a feeding-strip adapted to engage or adhere to the surface of a sheet or slip; and means for carrying the feeding-strip into contact with the sheet, moving it in plane therewith, and then withdrawing it from the sheet, whereby the sheet is bowed or buckled while clamped, is lifted above the lip or edge of the bottom support, and is allowed to straighten out and thus to spring from the holder when released, substantially as set forth.

9. In combination with a sheet holder or receptacle having a retaining-bar at one side; a follower at the opposite side; a forwardly-movable stop in rear of the follower; a detent to prevent the backward movement of said stop; and a connection between the follower and the stop, permitting a limited play of the follower independently of the stop; whereby the range of movement of the follower is maintained constantly the same.

10. In combination with a receptacle for sheets or slips, having a retaining bar or plate at the front; a follower movable toward and from said retaining-bar; a slidable stop-rod 8 in rear of said follower; a connection between the follower and the stop-rod permitting a limited play of the follower independently of the stop-rod; and a locking spring or detent 12 adapted to engage the stop-rod and prevent its backward movement.

11. In combination with a follower; a stop-rod, free to move forward with the follower; a loose connection between the follower and the stop; a locking device to prevent the backward movement of the stop-rod; and means substantially as shown for throwing the locking device out of engagement with the stop-rod.

12. In combination with follower 5 provided with slotted plate 7; stop-rod 8; spring-detent 12 adapted to engage said rod; block 15 arranged to act upon and to disengage the detent; and a push-button for actuating said block.

13. In a folding-machine, the combination of the following elements: a casing or framework containing a space or receptacle for sheets to be folded; a slide 26 movable in a plane intersecting said receptacle; a slide 42, movable across the path of slide 26; a slide 25 movable across the path of slide 42; a rock-shaft 16 provided with a lever for rocking it; and connections between said rock-shaft and slides substantially such as shown and described; whereby the several slides are caused to act upon the sheet in proper sequence.

14. In combination with a casing provided with a chamber or holder to receive folded slips, and with a follower in said chamber arranged to press constantly against the folded slips therein; a folding-slide adapted to fold a sheet or slip and deliver it to the chamber; an interposed bridge-plate adapted to move forward over the follower or over the folded sheets thereon to prevent interference with an incoming slip; and means for advancing and receding the bridge-plate.

15. In a folding-machine, the combination of a casing provided with a receiving-chamber for the folded sheets; a follower contained within said chamber; overhanging fingers against which the folded sheets are pressed by the follower; a slide adapted to carry a folded slip or sheet to the receiving-chamber; a bridging-plate adapted to move forward in advance of the slide and to bear upon the follower or the uppermost folded sheet; a rock-shaft; and intermediate connections between the rock-shaft and the slide and bridge-plate, whereby said parts are advanced and receded in proper sequence.

16. In combination with casing 2 provided with fingers 49; follower 50; slide 25; plate 54 interposed between the slide and the follower; rock-shaft 16; arm 21 connecting slide 25 with said rock-shaft; and links or bars 57 connecting the plate-support and arms on the rock-shaft; substantially as described and shown.

17. In combination with folding-slide 25, and blocks or bodies 45 and 47; fingers 49 having shoulders 53.

18. In combination with folding-slide 25, and blocks or bodies 45 and 47; bridge-plate 54; fingers 49 provided with shoulders 53; and follower 50, all substantially as described and shown.

19. In a folding-machine, the combination of two parallel folding-slides in different planes; and a holder or receptacle for sheets to be folded, intersecting the planes of the slides, one slide being provided with an opening for the passage through it of the sheets, substantially as shown.

20. In combination with slide 25 having opening 30; slide 26; receptacle or sheet-holder 32; and means for reciprocating the slides.

21. In a folding-machine, the combination of a sheet holder or receptacle 32; a folding-blade 26 movable in a plane intersecting said holder; a rock-shaft 80; an arm 79 extending from said rock-shaft across the lower part of the holder; and a lever for rocking said shaft.

22. In combination with a folding-slide 26, printing-cylinder 70, provided with pin 76, in the path of said slide, adapted to be struck by the slide and to put the cylinder positively into motion, and thereafter to leave the cylinder free of the slide except as to frictional contact.

23. In combination with slide 26, printing-cylinder 70 having pin 76 and flattened bearing-face 77; and spring 78, arranged to bear normally upon said flattened face and thus to hold pin 76 in the path of the slide 26.

24. In combination with a slide 26; printing-cylinder 70, having disks or collars 74 provided with flattened faces 75, and having also pin 76 and flattened face 77; and a spring 78 arranged to bear normally upon the flattened face 77, to hold the pin 76 normally in the path of the slide 26 and to complete the rotation of said cylinder.

25. The herein-described printing mechanism, consisting of cylinder 70 provided with collars 74 having flattened faces 75, pin 76 and flattened face 77; spring 78; inking-cylinder 69; and slide 26 adapted to carry the sheet or slip to be printed and to rotate the printing-cylinder, substantially as set forth.

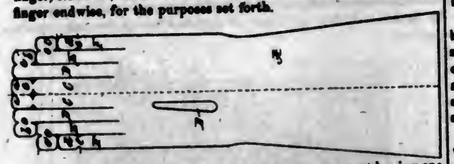
606,898. UMBRELLA-HOLDER. HARRIET T. STOCKEY, Manassville, S. C. Filed June 18, 1898. Serial No. 683,996. (No model.)



Claim.—An umbrella-holder, consisting of a plate of rigid material which is adapted to bear against the back of the operator and forms a broad bearing-surface extending from a point adjacent to the neck down to a point adjacent to the waist, and is provided with inwardly-extending loops through which the back-band of the suspenders which support the trousers of the operator are adapted to pass, and a tube or cylindrical portion secured to the rear of said plate, into which an umbrella is adapted to fit, as and for the purpose set forth.

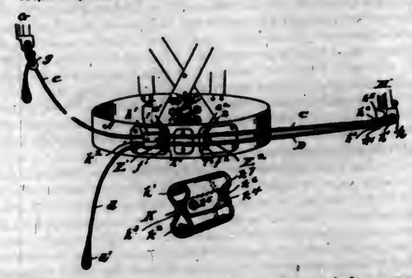
606,899. GLOVE. LEONIDAS A. VAN PRAAG, New York, N. Y. Filed Nov. 21, 1896. Renewed Dec. 4, 1897. Serial No. 660,800. (No model.)

Claim.—1. A finger-tipped glove, the finger portions whereof have integral tip-reinforcements attached to them, and projecting therefrom as follows: from the index-finger endwise; from the second finger, sidewise; from the third finger sidewise, and from the little finger endwise, for the purposes set forth.



2. A finger-tipped glove made in two parts, each part having one half of each finger, and each half of each finger having an integral tip-reinforcement attached to it, and projecting therefrom, as follows: from the index-finger endwise; from the second finger sidewise; from the third finger sidewise, and from the little finger endwise, for the purposes set forth.

606,400. SAFETY-SUPPORT FOR WINDOW-CLEANERS. HIRAM K. WHITNER, Chicago, Ill. Filed Feb. 2, 1898. Serial No. 668,815. (No model.)



Claim.—1. In a safety apparatus adapted to encircle a person, the combination with a stay and its terminals, of a guard fixed to one of said terminals and means whereby said guard is held in relative position with said stay, substantially as and for the purpose set forth.

2. In a safety apparatus adapted to encircle a person, the combination with a stay and its terminals, of a guard fixed to one of said terminals, a combination-eye fixed in said safety apparatus and means whereby said guard is held in relative position with said stay, substantially as and for the purpose set forth.

3. In a safety apparatus adapted to encircle a person, the combination with a stay and its terminals, of a guard fixed to one of said terminals, a carrier movably attached to said stay whereby said guard is held taut, and means whereby said guard is held in relative position to said stay in said safety apparatus, substantially as and for the purpose set forth.

4. In a safety apparatus adapted to encircle a person, the combination with a stay and its terminals, of a guard fixed to one of said terminals, a combination-eye fixed in said safety apparatus, and a carrier movably attached to said stay and said guard whereby said guard is held adjustable in relative position to said stay in said safety apparatus, substantially as and for the purpose set forth.

5. In a safety apparatus adapted to encircle a person, the combination with a stay and its terminals G and H, of a guard D fixed to terminal H and means whereby guard D is held in relative position to stay C, substantially as and for the purpose set forth.

6. In a safety apparatus adapted to encircle a person, the combination with stay C and its terminals, of a guard D fixed to one of said terminals, a combination-eye fixed in position E', F' and in position E^2, F^2 in said safety apparatus and means whereby guard D is held in relative position to stay C, substantially as and for the purpose set forth.

7. In a safety apparatus adapted to encircle a person, the combination with stay C and its terminals, of a guard D fixed to one of said terminals, a carrier K movably attached to stay C and guard D and means whereby guard D is held in relative position with stay C in said safety apparatus, substantially as and for the purpose set forth.

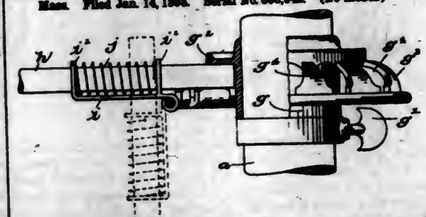
8. In a safety apparatus for window-cleaners, the combination with stay C and its terminals G and H, of a guard D fixed to terminal H, combination-eyes fixed in positions E', F' and E^2, F^2 in safety-jacket A, carrier K movably attached to stay C and guard D, substantially as and for the purpose set forth.

9. In a safety apparatus adapted to encircle a person, the combination with stay C and its terminals, of a guard D fixed to one of said terminals, a carrier K having a guardway k^2 and a stayway k' provided with a serrated tongue k^3 and means whereby said guard D is held in relative position with stay C in said safety apparatus, substantially as and for the purpose set forth.

10. In a safety apparatus adapted to encircle a person, the combination with stay C and its terminals, of a guard D fixed to one of said terminals, a combination-eye having a stay-eye E and a guard-eye F provided with antifriction-surfaces M and N and rivet-holes e and f as a means whereby said guard is held in relative position with stay C in said safety apparatus, substantially as and for the purpose set forth.

11. In a safety apparatus for window-cleaners, the combination with stay C and its terminals G and H, of a guard D fixed to terminal H, a combination-eye fixed in positions X, Y and Z in belt B, carrier K movably attached to stay C and guard D, substantially as and for the purpose set forth.

606,401. CLOTHES-DRIER. EDWARD A. WILLISTON, Boston, Mass. Filed Jan. 14, 1898. Serial No. 666,642. (No model.)



Claim.—1. A clothes-drier comprising a central column, a collar mounted to slide thereon, legs pivoted to said collar and forming a base, braces pivoted intermediate of their ends to the legs and at their lower ends to the lower end of the column, a cord connecting the upper ends of the braces, a hub mounted to slide on the column and provided with means for securing it at different heights, a flange formed on said hub, a series of brackets pivoted to the hub, a series of clothes-arms slidingly mounted in said brackets, the said arms being adapted to fold alongside of the central column or to engage the flange on the hub so as to project radially from said hub, and a spring connection between each arm and its bracket, acting to hold said arm in engagement with the flange.

2. A clothes-drier comprising a central column provided with a folding base, a hub mounted on the column, a flange formed on said hub and extending outwardly and downwardly to form a hood, substantially as set forth, apertures formed in said hood, brackets pivoted to the lower edge of said hood below each of the apertures, and arms slidingly mounted in said brackets and adapted to fold alongside of the central column, or to extend through the apertures in the hood and engage the flange on the hub, so as to project radially from said hub.

3. A clothes-drier comprising a central column provided with a folding base, a hub mounted on said column, a flange formed on said hub, brackets i i pivoted to the hub and adapted to swing in vertical planes, the said brackets being formed with flanges i' i' apertures to form a socket, clothes-arms mounted to slide in the sockets thus formed, and adapted to fold alongside of the central column or to engage the flange on the hub, so as to project radially from said hub, and springs surrounding the arms and occupying the space between the flanges of the brackets, the said springs acting to hold the arms in engagement with the flange of the hub.

606,402. MACHINE FOR FORMING PAPER TUBES. FREDERICK S. RABE, Jersey City, N. J. Filed Sept. 13, 1897. Serial No. 651,518. (No model.)

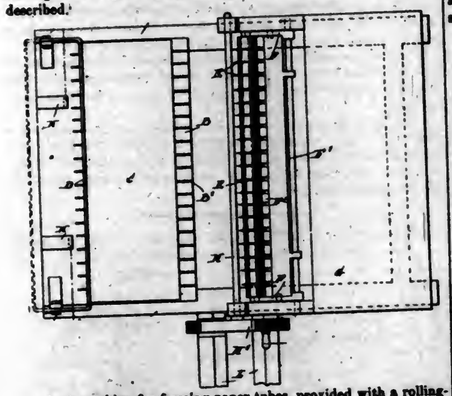
Claim.—1. A machine for forming paper tubes, comprising a rolling-table, a recessed head on the said table, and a slidable mandrel-frame carrying a revolvable mandrel adapted to engage the paper on the said recessed head, substantially as shown and described.

2. A machine for forming paper tubes, provided with a rolling and cutting table, a slidable mandrel-frame, a knife-frame pivoted in the said mandrel-frame and carrying knives for cutting a sheet of paper into strips, and a revolvable mandrel in the said frame, for winding the strips into tubes, substantially as shown and described.

3. A machine for forming paper tubes, provided with a rolling-table adapted to support strips of paper, a bar for raising the forward ends of the said strips of paper, and a head having a recess, and removably held on the said table, the said head passing under the raised ends of the said strips of paper, substantially as shown and described.

4. A machine for forming paper tubes, provided with a slidable frame carrying a revolvable mandrel, a knife-frame pivoted in the said slidable frame and spaced cutting disks or knives carried by the said

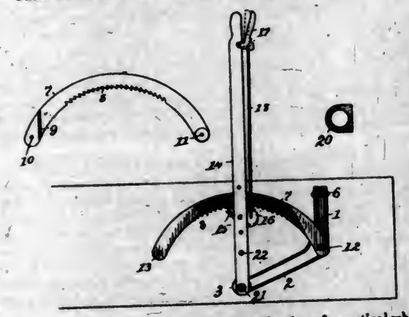
knife-frame, for cutting the sheet of paper into strips, the mandrel serving for rolling the strips into tubes, substantially as shown and described.



5. A machine for forming paper tubes, provided with a rolling-table, a gage adapted to be swung upon the said table for placing the sheet of paper in proper position on the table, a recessed head removably held on the said table, and adapted to engage the strips of paper to be rolled into tubes, and a slidable mandrel-frame carrying a revoluble mandrel, for engaging the paper in the said recessed head and for winding the paper into tubes, substantially as shown and described.

6. A machine for forming paper tubes provided with a device for lifting one end of the paper, a recessed head adapted to pass under the uplifted end of the paper, and a mandrel for engaging the uplifted end of the paper to press it into the recessed head, substantially as shown and described.

606,403. WAGON-BRAKE. WALTER L. BOARDMAN, Decatur, Ill. Filed Jan. 17, 1898. Serial No. 666,918. (No model.)

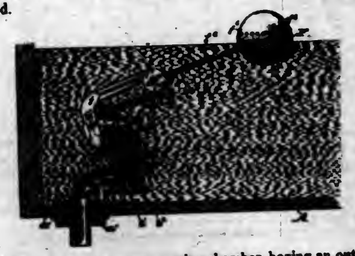


Claim.—1. In a wagon-brake, the combination of a vertical whip-socket open from end to end and having an integral pivot-arm extending downward and backward, a ratchet-rack fastened at one end to the whip-socket by a bolt which extends through the socket and forms a support for the whip, such rack being extended in an arc concentric with the end of the pivot-arm and a brake-lever pivoted on the end of the arm, substantially as set forth.

2. In a wagon-brake, the combination of the rack having teeth in its under surface, the brake-lever pivoted concentric with the rack, the pawl on the lever having the engaging end 15 and the rounded counterbalancing end 16 adapted to bear frictionally against the teeth, substantially as set forth.

606,404. VALVE. WESLEY BURNETT, Cambridge, Mass., assignor of one-half to Thomas R. Morford, same place. Filed Sept. 4, 1897. Serial No. 650,575. (No model.)

Claim.—1. In a valve apparatus, a valve-chamber provided with inlet and discharge ports at its lower end, an imperforate piston-valve movable in said chamber by fluid-pressure, to open and close the inlet, a connected main valve for the discharge-port, the chamber having an outlet above the piston-valve, a controlling-valve for said outlet located outside of the chamber, and a positive connection between the controlling and piston valves and passing through said outlet to effect positive initial movement of the piston-valve while permitting a limited relative movement of said valves, substantially as described.



2. In a valve apparatus, a valve-chamber having an outlet and provided with inlet and discharge ports, means actuated by fluid-pressure to govern the passage of a fluid from the inlet into the chamber and out by the discharge-port, and a controlling-valve for the outlet of said chamber, connected with and to impart a positive initial movement to said means, and having a limited movement independent of said means, combined with a pivoted actuating-lever for said controlling-valve having an attached float at its outer end, a rocker-arm pivotally connected with the controlling-valve, and a spring connection between said lever and rocker-arm, to impart sudden throw to said rocker-arm and thereby effect quick movement of the valve when the actuating-lever is moved beyond a certain point, substantially as described.

3. In a valve apparatus, a valve chamber provided with inlet and discharge ports, an imperforate piston-valve fitting the valve chamber closely and adapted to open and close the inlet-port, a main valve carried by said piston-valve to open and close the discharge-port, an outlet leading from the valve-chamber above the piston-valve, a controlling-valve therefor located outside of the said chamber, connections between said valves and passing through the outlet to permit a limited movement of one relatively to the other, and a spring-operated actuator to effect rapid initial movement of the controlling-valve and start the piston-valve, substantially as described.

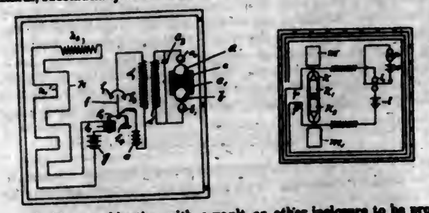
4. In a valve apparatus, the combination with a valve-chamber provided with a discharge-port, a superimposed valve-seat, an inlet-pipe entering said chamber above the discharge-port, an imperforate piston-valve fitting the valve-chamber closely and having an attached main valve to coöperate with the seat above the discharge port, and an outlet leading from the valve-chamber above the piston, of an auxiliary controlling-valve for said outlet in axial alinement with the piston-valve, means to positively actuate it, and a positive connection between said controlling and piston valves, to effect positive initial movement of the latter through movement of the controlling-valve, the piston and main valves being so arranged that as the latter moves to its seat the former gradually closes the inlet-pipe, substantially as described.

5. In a valve apparatus, a valve-chamber having an outlet and provided with inlet and discharge ports, means actuated by fluid-pressure to govern the passage of a fluid from the inlet into the chamber and out by the discharge-port, and a controlling-valve for the outlet of said chamber, connected with and to impart a positive initial movement to said means, an actuating-lever for the controlling-valve, having a perforated float attached to its outer end, spring connections between said lever and valve, and an auxiliary connection adapted to be positively engaged by the lever when depressed by fluid entering the float, to thereby close the valve, substantially as described.

6. In a valve apparatus, a valve-chamber having an outlet and provided with inlet and discharge ports, means actuated by fluid-pressure to govern the passage of a fluid from the inlet into the chamber and out by the discharge-port, and a controlling-valve for the outlet of said chamber, connected with and to impart a positive initial movement to said means, combined with a spring-operated actuator for the controlling-valve, to effect sudden and rapid movement thereof, and a controlling-float connected with said actuator and operative independent of the fluid-pressure in the valve, to move said actuator into operative position, substantially as described.

606,405. ALARM SYSTEM. CLYDE COLEMAN, Chicago, Ill., assignor, by mesne assignments, of two-thirds to George P. Jones, same place. Filed Sept. 3, 1897. Serial No. 650,475. (No model.)

Claim.—1. The combination with a vault or other inclosure to be protected, of a wave-transmitter thereat capable of transmitting vibrations to a distance through the intervening media, an alarm system for throwing said transmitter into action by an attempt to enter the vault, and a receiver at the alarm-station responsive to the waves produced by the transmitter for actuating a signal device to give an alarm, substantially as described.



2. The combination with a vault or other inclosure to be protected, of a Hertzian-wave transmitter thereat, an alarm system for actuating said transmitter by an attempt to enter the vault, a Hertzian-wave receiver at the alarm-station and a signal device actuated by said receiver, substantially as described.

3. The combination with a vault or other inclosure to be protected, of a Hertzian-wave transmitter thereat, an electrical barrier protecting said vault against entrance and arranged to actuate said transmitter when disturbed, a Hertzian-wave receiver at the alarm-station, and a signal device adapted to be actuated by said receiver, substantially as described.

4. The combination with a vault or other inclosure to be protected, of a Hertzian-wave transmitter thereat, an alarm system for throwing said transmitter into action by an attempt to enter the vault, a receiver at the alarm-station comprising a mass of particles adapted to be cohered by the Hertzian waves, and a signal device arranged to be thrown into operation by said receiver, substantially as described.

5. The combination with a vault or other inclosure to be protected, of a Hertzian-wave transmitter thereat, an alarm system for throwing said transmitter into action by an attempt to enter the vault, a receiver at the alarm-station comprising a mass of particles adapted to be cohered by the Hertzian waves, and a signal device arranged to be operated continuously by said receiver until the cohering particles have been decohered, substantially as described.

6. The combination with a vault or other inclosure to be protected, of a Hertzian-wave transmitter thereat, an alarm system for throwing said transmitter into action by an attempt to enter the vault, a receiver at the alarm-station, a signal device actuated thereby and an alarm system protecting the alarm device against access and arranged to actuate a signal device when interfered with, substantially as described.

7. The combination with a vault or other inclosure to be protected, of a Hertzian-wave transmitter thereat, an alarm system for throwing said transmitter into action by an attempt to enter the vault, a receiver at the alarm-station comprising a mass of particles adapted to be cohered by the Hertzian waves, a signal device arranged to be operated by said receiver and a normally open protective circuit guarding the alarm device against access thereto and arranged in multiple with said coherer, substantially as described.

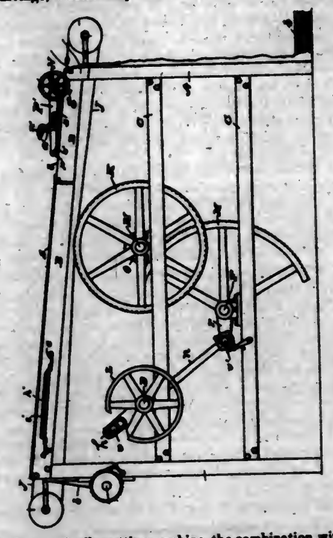
606,406. WEFT-PILE-CUTTING MACHINE. JOHN B. DAVISON, Crompton, R. I., assignor to the Crompton Company, same place. Filed Apr. 20, 1897. Serial No. 634,373. (No model.)

Claim.—1. In a weft-pile-cutting machine, the combination of a frame to hold the cloth, a knife-carriage, ways for the carriage, a screw extending crosswise of the cloth and mounted in bearings on said carriage, devices acting automatically at the close of a stroke of the carriage to rotate said screw intermittingly, a nut fitted to the screw-threaded portion of said screw, a knife, and a knife-carrying arm gravitating toward the cloth to press the knife against the latter and connected to move in unison with said nut crosswise of the cloth, with means to reciprocate said knife-carriage lengthwise of the machine, substantially as described.

2. In a machine of the class described, the combination of a frame to hold the cloth, with a knife-carriage, a knife, a knife-holder, a screw operating to feed the knife-holder and knife across the carriage, a wheel connected with said screw, a bar or rack, springs supporting said bar or rack, a cam-bar pivoted to said carriage and operating to depress said bar or rack clear of the wheel when the carriage is moving in one direction and to leave said rack up in position to engage and turn the wheel when the carriage is moving in the other direction, substantially as described.

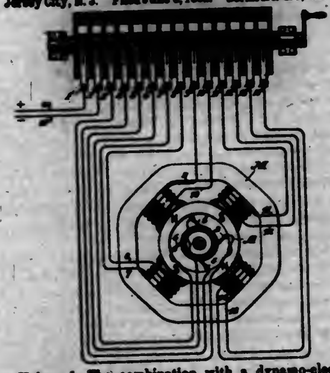
3. The combination with a frame to hold the cloth, of a knife, a knife-carriage, means to reciprocate the said knife-carriage, and devices whereby automatically to vary the position of the limits of the strokes of the knife, to break the regularity of the cuts and thereby guard against injury to the appearance of the cloth, substantially as described.

4. In a weft-pile-cutting machine, the combination with a frame to hold the cloth, of a knife-carriage, a knife mounted on said knife-carriage, a driving-shaft, and operating devices intermediate said shaft and said carriage whereby to communicate a reciprocatory movement to said carriage, the said devices embracing as a portion thereof an eccentric connection and means to effect rotary adjustment thereof, substantially as set forth, whereby to vary the strokes of the carriage, substantially as described.



5. In a weft-pile-cutting machine, the combination with a frame to hold the cloth, of a knife-carriage, a knife, a pulley, a rope attached to said carriage and pulley, a gear connected with said pulley, a segment-gear engaging said gear, and having an eccentric mounted on an arm thereof, a ratchet-wheel connected with said eccentric, a pawl to engage said ratchet-wheel when the arm moves in one direction, and actuating devices engaging with said eccentric to operate the segment-gear, substantially as described.

606,407. DYNAMO-ELECTRIC MACHINE. ROBERT S. DOBBIE, Jersey City, N. J. Filed June 6, 1898. Serial No. 683,715. (No model.)



Claim.—1. The combination with a dynamo-electric machine having two or more pairs of pole-pieces, of a switch for rendering said machine bipolar or multipolar at will.

2. The combination with a multipolar dynamo-electric machine having pairs of pole-pieces of opposite polarity, of a series of contact-points to which the terminals of the field-magnet coils and commutator-brushes are connected, and means for varying the connections between said contact-points whereby said machine is rendered bipolar or multipolar at will.

3. A dynamo electric machine or electric motor having two or more pairs of field-magnet coils and an armature provided with two

or more pairs of commutator-brushes, in combination with circuit connections for changing the relative polarities of the field-magnet poles, substantially as described.

4. A multipolar dynamo-electric machine or electric motor provided with means for causing it to produce a bipolar or multipolar effect in accordance with the work it is called upon to perform.

5. A dynamo-electric machine or electric motor having two or more pairs of field-magnet coils and a single rotary part or armature provided with two or more pairs of commutator-brushes, in combination with an operating-switch carrying circuit connections for connecting the machine or motor to a pair of current-mains, and additional circuit connections for varying the circuit relations between the field-magnet coils and the commutator-brushes in accordance with the work which the machine is called upon to perform, the field-coils and outer ends of the commutator-brushes having circuit connection with each other only through the several movable circuit connections carried by the operating-switch, whereby said machine is rendered bipolar or multipolar at will.

6. A dynamo-electric machine or electric motor having two or more pairs of field-magnet coils, both ends of which coils are connected to stationary switching-contacts, two or more armature-circuits both ends of which armature-circuits are also connected to similar stationary switching-contacts, in combination with one or more series of movable switching-contacts provided with circuit connections for varying the circuit relations through the field-magnet and armature-circuits in accordance with the work which the machine is called upon to perform, and additional circuit connections connecting said movable switching-contacts with a current feeder or main, the field-magnet coils and armature-circuits having connection with each other only through the movable switching-contacts, whereby said machine is rendered bipolar or multipolar at will.

7. The combination with a multipolar dynamo-electric machine of a switch for varying the number of effective magnetic poles at will to vary the speed or voltage of the machine.

8. The combination with a multipolar dynamo-electric machine of the direct-current type, of a series of contact-points, to which the terminals of the field-magnet coils and commutator-brushes are connected, and means for varying the connections between said contact-points, whereby the number of poles of the machine is varied at will.

606,408. SEAL-LOCK. JOHN DOWLING, Altoona, Pa. Filed May 5, 1897. Serial No. 635,235. (No model.)

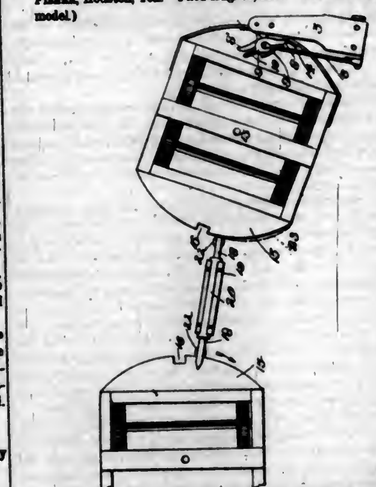


Claim.—1. In a lock, the combination of a staple or keeper adapted to be engaged by a hasp and constructed to form an elongated pin-seat of uniform cross-sectional area, a pin fitted snugly in said seat and having a seal-slot, a seal, to engage said slot, having a pin-engaging notch, and a pivotless pawl loosely mounted in a recess or cavity in the rear wall of the pin-seat to engage a notch in the pin, said recess, at its point of communication with the seat, being of smaller dimensions than the pawl, to prevent the forward displacement of the latter, and rearward displacement of the pawl being prevented by an actuating spring closing the rear side of the recess and bearing against the pawl to hold it yieldingly in its operative position, substantially as specified.

2. In a lock, the combination of a staple or keeper of rectangular exterior contour adapted to be received and entirely encircled by the opening of a hasp, and having a vertical open-ended pin-seat provided in its front wall with a longitudinal slot, a non-rotatable pin fitted to slide in the pin-seat and adapted to secure the hasp in engagement with the staple or keeper, a pawl arranged within the staple or keeper to engage a notch in the pin, a flexible connection, as a chain, attached to the pin and having an elongated link adapted to pass through said slot in the front wall of the pin-seat, and a seal fitted in a transverse opening in the pin and having a pin-engaging notch, substantially as specified.

3. In a lock, the combination of a staple or keeper provided with a base-plate for attachment to a supporting-surface, said staple projecting perpendicularly from the plane of the base-plate, and having an open-ended pin-seat of uniform cross-sectional area, extending continuously therethrough parallel with the base-plate, and also having in one side a continuous longitudinal slot communicating with the pin-seat and open at both extremities of the staple, a hasp adapted at its free end to occupy a position parallel and in contact with the base-plate, and having an opening to receive and wholly encircle the staple in rear of the pin-seat therein, or between the pin-seat and the base-plate, a pin slidably fitted in the pin-seat, and having an attached safety-chain adapted to pass through said slot in the side of the staple when the pin is removed from the pin-seat, a concealed locking device within the staple for engaging the pin and preventing movement thereof in one direction, and a seal fitted in a seat in the pin and extending laterally beyond the same, to engage the contiguous end of the staple and prevent movement of the pin in the opposite direction, substantially as specified.

606,409. STEERING DEVICE FOR VEHICLES. CHARLES H. FISHER, Houston, Tex. Filed Aug. 17, 1897. Serial No. 648,599. (No model.)



Claim.—1. In a vehicle steering device, the combination with a truck having a shouldered curved extension thereon, of a vertically-pivoted arm adapted to swing from side to side, and to engage the said extension to swing the truck, and means for swinging the arm, the arm being so positioned as to be disengaged from the shouldered extension when in its normal position, substantially as described.

2. In a vehicle steering device, the combination with a vertically-pivoted arm, having a nose on each side thereof, of means for swinging the arm from side to side, and a truck provided with a curved extension having shoulders for engagement with a nose upon the arm when the latter is swung to one side, but capable of movement with the truck without engaging the nose when the arm is in its normal position, substantially as described.

3. In a vehicle steering device, the combination with a truck having a shouldered curved extension thereon, of an arm vertically pivoted in front of the extension, and extending to within the circle described thereby, projections upon the sides of the arm adapted to engage the shoulders upon the extension to swing the truck, and means for swinging the arm, substantially as described.

4. In a vehicle steering device, the combination with a truck having a shouldered extension thereon, of a vertically-pivoted arm having spring-pressed dogs thereon adapted to engage the shoulders upon the extension, and means for swinging the arm, substantially as described.

5. In a vehicle steering device, the combination with a truck having a shouldered curved extension thereon, of an arm vertically pivoted in front of the extension and extending to within the circle described thereby, spring-pressed dogs upon the arm, adapted when the arm is swung to engage the shoulders upon the extension, and means for moving the arm, the arm being so positioned that the dogs thereon are disengaged from the shouldered extension when the arm is in its normal position.

6. In a vehicle steering device, the combination with a truck having a shouldered extension thereon, of a vertically-pivoted arm, having a pair of dogs pivoted thereon, each dog having a nose projecting to one side of the arm, and a shoulder upon the other side of the arm, springs holding the shoulders of the dogs against the arm, and means for swinging the arm, substantially as described.

7. The combination with a vehicle-body and a pivoted truck, having a curved bearing-face thereon, of a friction member carried by the vehicle-body and adapted by friction upon the curved bearing-face on the truck to swing the latter when the vehicle-body is turned thereon, substantially as described.

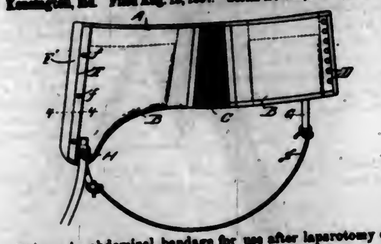
8. The combination with a vehicle-body and two pivoted trucks, each having an extension provided with a bearing-surface on each side of its center, of a lever horizontally pivoted to the vehicle and provided with rollers upon its ends, and means for tilting the said lever upon the swinging of one of the trucks, whereby one of the rollers upon the lever will be placed in position to bear upon the extension of the other truck upon the turning of the car-body thereon, substantially as described.

9. The combination with a vehicle-body and two pivoted trucks, each having an extension provided with a cam-track on its lower face, and a curved bearing-surface, and a central notch, of a lever horizontally pivoted to the vehicle body, and provided with rollers upon the lower surface of its ends, the ends of the levers being normally below the notches in the said extensions, substantially as described.

10. The combination with a vehicle-body and two pivoted trucks, each having an extension provided with a cam-track on its lower face and a curved bearing-surface flattened at its center and a central notch, of a guide-bracket secured to the body of the vehicle, a lever vertically pivoted in the said bracket and having beveled ends normally located below the notches in the said extensions, and rollers upon the lower surface of the ends of the said levers, substantially as described

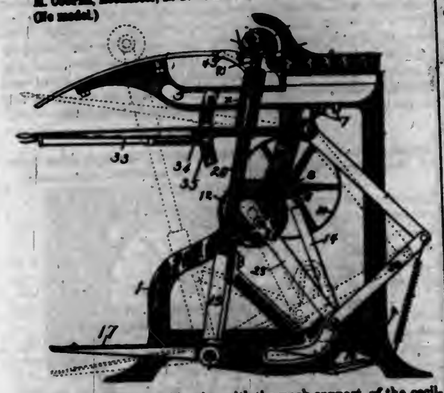
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606,410. ABDOMINAL SUPPORTER. GRAHAM L. FOWLER, Lexington, Md. Filed Aug. 13, 1897. Serial No. 648,103. (No model.)



Claim.—An abdominal bandage for use after laparotomy comprising two flexible sections A each having a substantially horizontal upper edge and curved lower edge, an elastic web C intermediate the front and rear, steels E provided with fastening devices to unite the fronts, a flap located on one section underlying the steels, textile pads B placed parallel to the front steels, a lacing device for the back of the bandage, and perineal straps G, g.

606,411. STARCHING-MACHINE. ARTHUR T. HAGEN and DANIEL M. OSBURN, Rochester, N. Y. Filed June 21, 1897. Serial No. 641,612. (No model.)



Claim.—1. The combination with the work-support, of the oscillatory frame, the roller on the frame moving over the support and cooperating therewith, a rotary shaft having a crank of determinate throw, and adjustable connections under the control of the operator arranged between said crank and the frame for varying the extent of movement of the roller over the support, substantially as described.

2. The combination with the work-support and the starch-receptacle at the end thereof, of the starch-roller movable over the support and arranged to cooperate with the starch-receptacle, power devices for actuating the roller back and forth over the support and into and out of cooperative relation with the receptacle, and means controlled by the operator for varying the extent of movement of the roller over the support while being operated upon by the power devices.

3. The combination with the work-support, the starch-receptacle at the end thereof, the roller movable over the support and cooperating with the receptacle, and the oscillating frame on which the roller is mounted, of an arm on the frame, a rotary crank-shaft, a pitman connected thereto, and means controlled by the operator for varying the connection between the pitman and arm to vary the movement of the roller over the support.

4. The combination with the work-support, a starch-receptacle at one end thereof, an oscillating frame, and a starch-carrying device thereon movable over the support, of a rotary crank-shaft, an arm on the oscillating frame, and adjustable connections between said arm and crank-shaft for varying the extent of oscillation of the frame, substantially as described.

5. The combination with the work-support, the oscillating frame, and the roller mounted thereon, of the slotted arm on the frame, the rotary crank-shaft, the pitman having the pin operating in the slot in the arm, and means for adjusting said pin in the slot, substantially as described.

6. The combination with the work-support, the pivoted oscillating frame having the actuating-arm, the spring-mounted roller on the frame, of the rotary shaft having the crank, and adjustable connections between said crank and the arm on the frame for varying the extent of the oscillations of the latter, substantially as described.

7. The combination with the work-support, the oscillating frame having the actuating-arm, and the roller on the frame, of the rotary shaft, the crank thereon, a pitman connected to the crank and operating on the actuating-arm, and the controlling-lever connected to the pitman and controlling the connection between the latter and the arm, substantially as described.

8. The combination with the work-support, the oscillating frame, and the operating device on the latter movable over the support, of a rotary shaft, adjustable connections between said shaft and the oscillating frame, whereby the extent of movement of the frame may be controlled, a starting and stopping device for the shaft, such as a clutch, connections between said starting and stopping device and the frame whereby the latter may operate the former to arrest the machine, and a starting-arm controlling the movement of the frame relatively to said device, and cooperating with the starting mechanism to start the machine when moved in one direction, substantially as described.

9. The combination with the work-support, the oscillating frame, and the operating device on the latter movable over the support, of a rotary shaft, connections between said shaft and the oscillating frame, a clutch device for controlling said shaft actuated in a direction by the frame to arrest the shaft, a starting-arm cooperating with the clutch device to start the machine and preventing the frame from actuating the clutch device when moved in one direction and permitting the frame to release the clutch when operated in the opposite direction, substantially as described.

10. The combination with the work-support, the oscillating frame, and the operating device on the latter movable over the support, and the arm on the frame having the curved slot, of the rotary shaft, the pitman having the pin operating in the slot of the arm, the lever and link controlling the pin, a clutch device for controlling the shaft, the treadle operating the frame, and connections between the treadle, arm and clutch device for starting the machine by the movement of the treadle in one direction and permitting its arrest when the treadle is released, substantially as described.

11. The combination with the work-support, the oscillatory frame, and the operating device on the latter movable over the support, of a rotary shaft, connections between the latter and the oscillating frame, a clutch for controlling the rotation of the shaft, connections between it and the frame for disengaging the clutch by the movement of the latter, a starting-arm cooperating with the clutch to engage it, and also cooperating with and limiting the movement of the frame, thereby preventing the disengagement of the clutch, substantially as described.

12. The combination with the work-support, the oscillating frame, and the operating device on the latter movable over the support, of a driving-shaft, and connections between it and the oscillating frame for actuating the latter, a starting and stopping mechanism, such as a clutch, arranged between the driving-shaft and the oscillating frame, a lever for operating said starting and stopping device engaged by the oscillating frame, and a treadle for holding the frame out of contact with the lever and also operating said lever in one direction, substantially as described.

13. In a starching-machine, the combination with the smooth work-support upon which the articles may be adjusted, and a starch-

receptacle at one end thereof, the surface of said support being accessible to the operator during the operation so that the article may be readily adjusted thereon, of a horizontally-movable frame, a starch-carrying roller mounted thereon movable over the support and adapted to enter the starch-receptacle at one extreme of its movement substantially as described.

14. In a starching-machine, the combination with the work-support, the surface of which is readily accessible and a starch-receptacle at one end thereof, of a movable frame, a starch-carrying roller mounted thereon and adapted to travel over the support and enter the receptacle, power devices for oscillating the frame, and controlling devices for varying the extent of movement of the frame while oscillating, substantially as described.

15. In a starching-machine, the combination with the work-support, and a starch-receptacle at one end thereof, of a movable frame, a starch-carrying roller mounted thereon and adapted to travel over the support and enter the receptacle, and means for rotating the roller independently of its movement over the support and while within the receptacle, substantially as described.

16. In a starching-machine, the combination with the work-support, and a starch-receptacle at one end thereof, of a movable frame, a starch-carrying roller mounted thereon and adapted to travel over the support and enter the receptacle, a pulley on the roller, and a friction driving device arranged in proximity to the receptacle for engaging the roller when the latter is in the receptacle, substantially as described.

17. In a starching-machine, the combination with the work-support, and the starch-receptacle at one end thereof, of the movable frame, the roller carried thereby movable over the support and adapted to enter the starch-receptacle, and the pivoted flap on the receptacle with which the roller cooperates, substantially as described.

18. In a starching-machine, the combination with the work-support and the starch-receptacle at one end thereof, of the movable frame, the roller carried thereby movable over the support and adapted to enter the starch-receptacle, the pivoted flap at the end of the receptacle having the rock-arms at the ends, substantially as described.

19. In a starching-machine, the combination with the work-support and the starch receptacle at the end thereof, of the movable frame, the roller carried thereby movable over the support and adapted to enter the receptacle, the pulley on the roller, the traveling belt and the belt-tightener, substantially as described.

20. The combination with the work-support, the surface of which is readily accessible and the starch-receptacle at the end thereof, of the movable frame, the roller mounted on the frame having the elastic cellular surface, devices under the control of the operator for actuating the roller over the surface of the support or into cooperative relation with the receptacle.

21. The combination with the curved work-support, the surface of which is readily accessible to the operator, of the pivoted swinging frame, the roller mounted on the frame and having the elastic cellular surface, a starch-receptacle at the end of the work-support, devices under the control of the operator for operating the roller over the support or into cooperative relation with the receptacle.

22. The combination with the hollow frame having the hollow arm, the work-support on the arm, and the starch-receptacle on the frame at the end of the work-support, of the movable frame and the starch-roller carried thereby and movable over the work-support and into and out of the receptacle, substantially as described.

23. The combination with the curved work-support, and the receptacle at the end thereof, of the rocking frame having the spring-operated telescoping arms, the roller mounted on said frame, and means for operating said roller back and forth over the support and into and out of the receptacle, substantially as described.

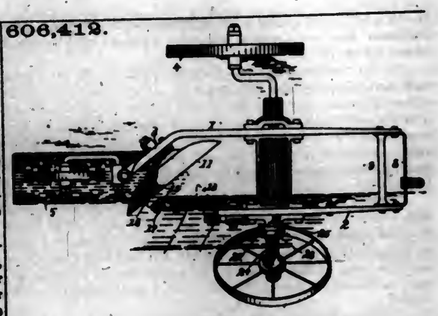
24. The combination with the work support and the starch-carrying roller, one of which is movable, and the starch-receptacle with which the roller cooperates, of power devices for operating the movable part and causing the cooperation of the roller and receptacle and means controlled by the operator for varying the extent of movement of the movable part while the power devices are in operation.

606,412. DISK PLOW. EDWARD M. HEYLMAN, Canton, Ill., assignor to the Parlin & Orendorff Company, same place. Filed Aug. 27, 1897. Serial No. 649,760. (No model.)

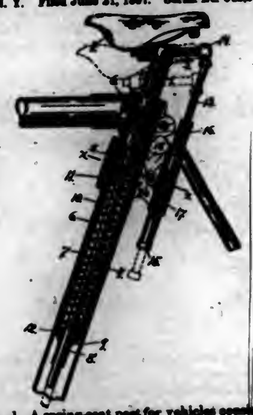
Claim.—1. In a plow the combination of a furrow-forming disk, an oblique standard having its upper end in advance of its lower end, and a horizontal blade on the lower end of the standard adapted to cut away the ridges between furrows, substantially as described.

2. In a disk plow, the combination of a disk, a beam in front of the disk, a sleeve secured to the beam and extended obliquely toward the face of the disk, a shank journaled loosely in the sleeve and a scraper on the shank presented to the disk, substantially as described.

606,413.



606,413. SPRING-SEAT FOR VEHICLES. ALBERT H. HOLLAND, Buffalo, N. Y. Filed June 21, 1897. Serial No. 641,588. (No model.)



Claim.—1. A spring-seat post for vehicles consisting of a tubular casing removably secured within the frame-tubing of a bicycle, a seat-bar within the casing, and a spiral spring between the bar and casing; a clip removably secured to the frame-tubing of the bicycle and provided with a socket in its rear end, and a keeper secured to the rear end of the seat-bar and passing through the socket, substantially as described.

2. A spring-seat post for vehicles consisting of a tubular casing removably secured within the frame-tubing of a bicycle, a seat-bar within the casing, and a spring between the bar and casing; a removable clip adjustably secured to the frame-tubing and having an upright opening near its rear end, a tubular socket held within the opening, a keeper removably secured to rear end of the seat-bar and passing through the tubular socket, and a flange near the lower end of the keeper, substantially as and for the purpose set forth.

606,414. VEHICLE RUNNING-GEAR. ALBERT A. HALE, Fitchburg, Mass. Filed June 7, 1897. Serial No. 639,647. (No model.)



Claim.—1. In a vehicle running-gear, the combination with a forked reach having its separated rear ends pivotally connected to the body of the vehicle, of a short link connecting the front end of said reach with the front running-gear, said short link being vertically pivoted at its ends, substantially as described.

2. In a vehicle running-gear, the combination with a forked reach having its separated rear ends pivotally connected to the body of the vehicle, of a short link connecting the front end of said reach with the front running-gear, said short link having a vertical pivot connection at its rear end to the reach and a compound vertical and horizontal connection at its front end to the said front running-gear, substantially as described.

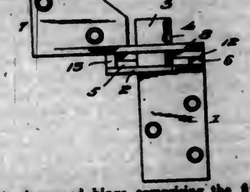
3. The combination with a forked reach, pivotally connected to a vehicle-body at its separated rear ends, and extending at its forward end close to the front axle of the vehicle, of a short casting or bracket mounted on the front running-gear, and a short link connecting said reach to said casting or bracket, said short link having a vertical pivot connection at one end and a compound vertical and horizontal connection at its other end, substantially as described.

4. In a vehicle running-gear, a link or hanger connecting the body with the front running-gear, said link having a vertical pivot at each end thereof, and being formed in two parts oppositely disposed, one above the portion to which it is secured and one below the same, said link having recesses at its respective ends concentric with its pivots to receive correspondingly-formed projections on the inclosed portions, substantially as described.

5. The combination with a reach pivotally connected to the body of the vehicle for vertical movement and rigid against lateral movement, of a short link connecting the front end of said reach with the front running-gear, said short link being vertically pivoted at its ends, substantially as described.

6. A bracket adapted to retain the shouldered ends of the reach, said bracket being formed in two plate-like parts, adapted to be overlapped on each other, and having registering bolt-holes, the inner edge of one of said overlapping parts having an interlocking portion A³ in the form of a rotatrant angle cooperating with an interlocking ridge and projection on the other part, and said parts having cup-shaped lugs extending outwardly and facing each other, substantially as described.

606,415. LOCK-HINGE. WILLIAM M. HOVALDEN, Port Byron, N. Y., assignor of one-half to Josiah Hasbrouck, same place. Filed Jan. 27, 1898. Serial No. 668,102. (No model.)



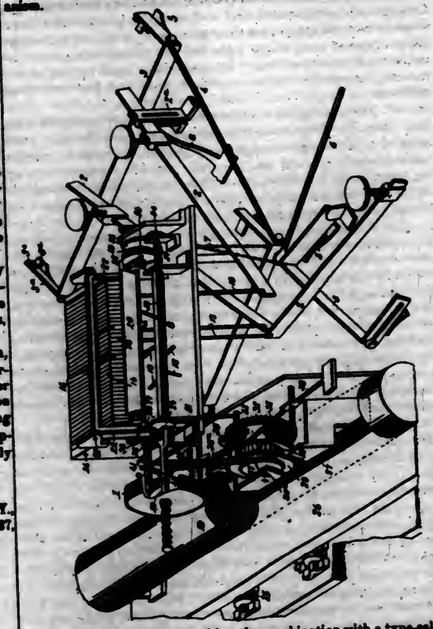
Claim.—An improved hinge comprising the fixed bracket 1 formed with the horizontal plate 2 provided with the radial recess 6, the transverse shoulder 5, the vertical tubular post 3 and the radial pin 4, in combination with the movable bracket 7 formed with the horizontal plate 8 provided with the axial orifice 9 and radial communicating recess 10, the transverse shoulder 12 and the depending lug 13, substantially as shown and described.

606,416. TYPE-WRITING MACHINE. EDUARD VON ESMARCH, Charlottenburg, Germany. Filed May 12, 1896. Serial No. 591,303. (No model.)

Claim.—1. In a type-writing machine, a type-selecting mechanism comprising key-operated means impelled through a cycle of movement embracing all the type by manipulation of any key or a number of keys simultaneously, and devices controlled by simultaneous manipulation of the keys for successive cooperation with said key-operated means in a cycle of movement thereof to select for printing the types corresponding to the keys simultaneously manipulated.

2. In a type-writing machine, a type-selecting mechanism comprising key-operated means impelled through a cycle of movement embracing all the type by manipulation of any key or a number of keys simultaneously, and devices controlled by simultaneous manipulation of the keys for successive cooperation with said key-operated means in a cycle of movement thereof to select for printing the types corresponding to the single keys simultaneously manipulated, said key-controlled devices including a stop to temporarily check the key-operated means.

3. In a type-writing machine, the combination with a type-selecting mechanism comprising key-operated means impelled through a cycle of movement embracing all the type by manipulation of a key or a number of keys simultaneously, and devices controlled by simultaneous manipulation of the keys for successive cooperation with said key-operated means in a cycle of movement thereof to select for printing the types corresponding to the single keys simultaneously manipulated, of a normally-inactive printing mechanism, and connections between the same and the type-selecting mechanism for rendering said printing mechanism active by the cooperation of the key-operated means and the key-controlled devices of said selecting mechanism.



4. In a type-writing machine, the combination with a type-selecting mechanism comprising key-operated means impelled through a cycle of movement embracing all the type by manipulation of a key or a number of keys simultaneously, and devices controlled by simultaneous manipulation of the keys for successive cooperation with said key-operated means in a cycle of movement thereof to select for printing the types corresponding to the single keys simultaneously manipulated, said key-controlled devices including a stop to temporarily check the key-operated means, of a normally-inactive printing mechanism, and connections between the same and the type-selecting mechanism for rendering said printing mechanism active by the cooperation of the key-operated means and the key-controlled devices of said selecting mechanism.

5. In a type-writing machine, the combination with a type-selecting mechanism comprising key-operated means impelled through a cycle of movement embracing all the type by manipulation of a key or a number of keys simultaneously, and devices controlled by simultaneous manipulation of keys for successive cooperation with said key-operated means in a cycle of movement thereof to select for printing the types corresponding to the single keys simultaneously manipulated, said key-controlled devices including a stop to temporarily check the key-operated means, of a normally-inactive printing mechanism, and connections between the same and the type-selecting mechanism for rendering said printing mechanism active by the cooperation of the key-operated means and the key-controlled devices of said selecting mechanism, and connections between the printing mechanism and the stop of the selecting mechanism for retracting said stop.

6. The combination of a type-carrier, means for moving the same, keys operatively connected with said means to put the same under stress to effect a cycle of movement of the type-carrier by manipulation of a key or keys, and key-controlled means for bringing together the printing-couple at different predetermined positions of the type-carrier in its cycle of movement, operation of said means being brought about by the movement of the type-carrier.

7. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipu-

lation of one or more of said keys, and key-controlled means for establishing different positions of the type-wheel in such revolution.

8. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, and key-controlled means for bringing together the printing-couple at different predetermined positions of the type-wheel in such revolution.

9. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, and key-controlled means for establishing different positions of the type-wheel in such revolution, and for bringing together the printing-couple when such positions are established.

10. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, key-controlled means for bringing together the printing-couple at different predetermined positions of the type-wheel in such revolution, operation of such means being brought about by movement of the type-wheel.

11. The combination of a type-carrier, means for moving the same, keys operatively connected with said means to put the same under stress to effect a cycle of movement embracing all the type of the type-carrier by manipulation of a key or keys, a series of projections relatively arranged to correspond with the relative location of the type on the type-carrier, and a series of abutments to coact successively with said series of projections under movement of the type-carrier by the keys, and coaction of said projections and abutments determining several printing positions of the type-carrier during one cycle of movement and bringing together the printing-couple when such positions have been established, and key-operated means controlling operative coaction of the projections and abutments.

12. The combination of a type-carrier, means for moving the same, keys operatively connected with said means to put the same under stress to effect a cycle of movement of the type-carrier embracing all the type by manipulation of a key or keys, a series of projections relatively arranged to correspond with the relative location of the type on the type-carrier, and a series of abutments to coact successively with said series of projections under movement of the type-carrier by the keys, means controlled by coaction of said projections and abutments to determine several printing positions of the type-carrier during one cycle of movement, and to bring together the printing-couple when such positions have been established, and key-operated means controlling operative coaction of the projections and abutments.

13. The combination of a type-carrier, means for moving the same, keys operatively connected with said means to put the same under stress to effect a cycle of movement of the type-carrier embracing all the type by manipulation of a key or keys, a normally-inactive motor operatively connected to effect coaction of the printing-couple, and key-controlled means for establishing several different positions of the type-carrier during one cycle of movement and for rendering said motor active for the purpose described.

14. The combination of a type-carrier, means for moving the same, keys operatively connected with said means to put the same under stress to effect a cycle of movement of the type-carrier embracing all the type by manipulation of a key or keys, a normally-inactive motor operatively connected to effect coaction of the printing-couple, a series of abutments relatively arranged to correspond with the relative location of the type-carrier, one or more projections to coact successively with said series under movement of the type-carrier by the keys, coaction of said projections and abutments determining several printing positions of the type-carrier during one cycle of movement and rendering the said motor active, and key-operated means controlling operative coaction of the projections and abutments.

15. The combination of a type-carrier, means for moving the same, keys operatively connected with said means to put the same under stress to effect a cycle of movement of the type-carrier embracing all the type by manipulation of a key or keys, a normally-restrained motor operatively connected to effect coaction of the printing-couple, and key-controlled means for establishing several different positions of the type-carrier, during one cycle of movement and for momentarily releasing the motor.

16. The combination of a type-carrier, means for moving the same, keys operatively connected with said means to put the same under stress to effect a cycle of movement of the type-carrier embracing all the type by manipulation of a key or keys, a normally-restrained motor operatively connected to effect coaction of the printing-couple, a series of abutments relatively arranged to correspond with the relative location of the type on the type-carrier, one or more projections to coact successively with said series under movement of the type-carrier by the keys, coaction of said projections and abutments determining several printing positions of the type-carrier during one cycle of movement and releasing the motor, and key-operated means controlling operative coaction of said projections and abutments.

17. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, a normally-inactive motor operatively connected to effect coaction of the printing-couple, and key-controlled means for establishing several different positions of the type-wheel in its one revolution and for simultaneously rendering said motor active.

18. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, a normally-inactive motor operatively connected to effect coaction of the printing-couple, a series of projections associated with the type-wheel and corresponding in relative location with the type, a series of key-controlled abutments to cooperate successively with said type-wheel series, and means operated by coaction of said projections and abutments to establish several predetermined positions of the type-wheel during the one revolution and render the motor active.

19. The combination of a type-wheel, means for rotating the same keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, a normally-restrained motor operatively connected to effect cooperation of the printing-couple, and key-controlled means for establishing several different positions of the type-wheel in its one revolution, and for releasing the motor.

20. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, a normally-restrained motor operatively connected to effect cooperation of the printing-couple, a series of projections associated with the type-wheel and corresponding in relative location with the type, a series of key-controlled abutments to cooperate successively with said type-wheel series, and means operated by coaction of said projections and abutments to establish predetermined positions of the type-wheel and release the motor.

21. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, a series of projections associated with the type-wheel and relatively located to correspond with the type, a corresponding series of key-supported abutments normally out of the path of rotation of the type-wheel projections but arranged to move into their paths when the keys are manipulated and to coact successively with them, a normally-restrained motor to effect coaction of the printing-couple, and an escapement therefor controlled by coaction of the projections and abutments.

22. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, a series of projections associated with the type-wheel and relatively located to correspond with the type, a corresponding series of key-supported abutments normally out of the path of rotation of the type-wheel projections, but arranged to move into their paths when the keys are manipulated and to coact successively with them, a normally-restrained motor to effect coaction of the printing-couple, an escapement therefor, and a detent engaging the escapement and arranged to be displaced by the coaction of the projections and abutments.

23. The combination of a type-wheel, means for rotating the same, keys operatively connected with said means to put the same under stress to turn the type-wheel through a single revolution by manipulation of one or more of said keys, a series of projections associated with the type-wheel and relatively located to correspond with the type, a corresponding series of key-supported abutments normally out of the path of rotation of the type-wheel projections but arranged to move into their paths when the keys are manipulated and to coact successively with them, a normally-restrained motor to effect coaction of the printing-couple, an escapement therefor, a detent engaging the escapement, type-wheel-locking means, and a member actuated by displacement of the key-supported abutments by the type-wheel projections to operate the type-wheel-locking means, and to displace the escapement-restraining detent.

24. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having one or more projections; one or more movable frames associated with the keys so as to be actuated by any of them; connections between the said frames and the type-wheel shaft for turning the latter; and key-controlled means cooperating with the shaft projections to establish predetermined positions of the type-wheel and to release the motor.

25. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having one or more projections; one or more movable frames associated with the keys so as to be actuated by any of them: gearing associated with said shaft; a drum and-chain connection between said gearing and the movable frames; and key-controlled means cooperating with the shaft projections to establish predetermined positions of the type-wheel and to release the motor.

26. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having one or more projections; one or more movable frames associated with the keys so as to be actuated by any of them; gearing engaged with said shaft through a flexible connection; means of connection between the movable frames and said gearing for turning the shaft by movement of the frames; stop mechanism for positively limiting movement of the shaft to a single revolution; and key-controlled means cooperating with the shaft projections to establish predetermined positions of the type-wheel and to release the motor.

27. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having one or more projections; one or more movable frames associated with the keys so as to be actuated by any of them; a drum carrying a pawl; a flexible connection between the said drum and the movable frames; a ratchet-wheel engaged with said pawl; gearing associated with said ratchet-wheel; flexible connections between said gearing and the type-wheel shaft; and key-controlled means cooperating with the shaft projections to establish predetermined positions of the type-wheel and to release the motor.

28. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having one or more projections; one or more movable frames associated with the keys so as to be actuated by any of them; a drum carrying a pawl; a flexible connection between the said drum and the movable frames; a ratchet-wheel engaged with said pawl; gearing associated with said ratchet-wheel; flexible connections between said gearing and the type-wheel shaft; a latch engaged with said shaft to lock the same and having a part in the path of an abutment carried by the drum; and key-controlled means cooperating with the shaft projections to establish predetermined positions of the type-wheel to release the motor.

29. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported movable abutments corresponding with the projections on the shaft and normally out of the paths of movement of the same, said abutments arranged to drop into the paths of movement of said projections when the keys are manipulated and to be displaced from such paths of movement by the action of the projections against them; and mechanism associated with said abutments and operating to lock the type-wheel in predetermined positions and to release the motor.

30. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported arms pivoted to a fixed support having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor.

31. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported pivotal arms having pendent springs with beveled blocks for coaction with the shaft projections but normally out of position for engagement therewith; a hinged frame common to said blocks and designed to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor.

32. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable to ward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; depressible key-bars; connections between the same and the shaft, whereby to rotate the latter; a series of arms pivoted to a fixed support corresponding with the shaft projections and having abutments for engagement therewith; rods rising from the key-bars and supporting the said pivotal arms with their abutments clear of the shaft projections; and detent mechanisms associated with said movable frame and adapted to lock the type wheel in predetermined positions and to release the motor.

33. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having one or more projections; key-operated means for rotating said shaft; a toothed wheel affixed on said shaft; a locking dog or pawl to engage said wheel but normally removed therefrom; key-controlled mechanism associated with said shaft projections and with the said locking-dog, to move the latter into engagement with the toothed wheel; and key-controlled detent mechanism for releasing the motor.

34. In a type-writing mechanism, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the projections on the shaft, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog, to move the same into engagement with the toothed wheel; and detent mechanism associated with the abutments and adapted to release the motor.

35. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported pivotal arms having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; a toothed wheel on the type-wheel shaft; a movable locking-dog normally disengaged from said wheel; an arm connecting said dog with the movable frame; and detent mechanism actuated by the latter to release the motor.

36. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the projections on the shaft, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog to move the same into engagement with the toothed wheel; detent mechanism associated with the abutments and adapted to release the motor; and means associated with said motor and operating to disengage the dog from the toothed wheel.

37. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported arms pivoted to a fixed support having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor.

38. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the shaft projections, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog to move the same into engagement with the toothed wheel; detent mechanism associated with the abutments and adapted to release the motor; and means associated with said motor and operating to disengage the dog from the toothed wheel; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft.

39. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported arms pivoted to a fixed support having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft.

40. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the shaft projections, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog to move the same into engagement with the toothed wheel; detent mechanism associated with the abutments and adapted to release the motor; and means associated with said motor and operating to disengage the dog from the toothed wheel; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

41. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported arms pivoted to a fixed support having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

42. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the shaft projections, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog to move the same into engagement with the toothed wheel; detent mechanism associated with the abutments and adapted to release the motor; and means associated with said motor and operating to disengage the dog from the toothed wheel; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft.

43. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported arms pivoted to a fixed support having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

44. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the shaft projections, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog to move the same into engagement with the toothed wheel; detent mechanism associated with the abutments and adapted to release the motor; and means associated with said motor and operating to disengage the dog from the toothed wheel; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

45. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported arms pivoted to a fixed support having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

46. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the shaft projections, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog to move the same into engagement with the toothed wheel; detent mechanism associated with the abutments and adapted to release the motor; and means associated with said motor and operating to disengage the dog from the toothed wheel; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

47. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-supported arms pivoted to a fixed support having abutment-pieces corresponding with the shaft projections, but normally out of position for engagement therewith; a movable frame common to all said abutment-pieces and adapted to be displaced thereby; and detent mechanisms associated with said movable frame and adapted to lock the type-wheel in predetermined positions and to release the motor; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

48. In a type-writing machine, the combination with a supporting-bed for the paper; a type-wheel movable toward and from said bed; and a normally-restrained motor operatively connected with said type-wheel to move the same toward the bed: of a shaft operatively connected with the type-wheel to rotate the same, and having a plurality of projections; key-operated means for rotating said shaft; a series of key-controlled abutments corresponding with the shaft projections, but normally out of the paths of movement of the same; a toothed wheel affixed to the shaft; a movable locking-dog normally out of engagement with said wheel; connections between the series of abutments and the said dog to move the same into engagement with the toothed wheel; detent mechanism associated with the abutments and adapted to release the motor; and means associated with said motor and operating to disengage the dog from the toothed wheel; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments; and a spring-actuated escapement-wheel and escapement controlling the movement of the shaft; and a detent controlling the escapement-wheel and arranged to be displaced by the coaction of the projections and abutments.

wheel; connections between the series of abutments and said angular lever for moving the dog into engagement with the toothed wheel; detent mechanism associated with the abutments and operating to release the motor; and a wheel associated with the latter and having inclines to act on an arm of the angular lever and disengage the dog from the toothed wheel.

38. In a type-writing machine, the combination of a bed for the paper; a type-wheel movable toward and from said bed; key-operated means for impelling said type-wheel through a complete revolution; key-controlled mechanism for establishing predetermined positions of said wheel in the course of each revolution; a spring-motor operatively connected with the movable supports of said wheel; and a key-controlled escapement for said motor.

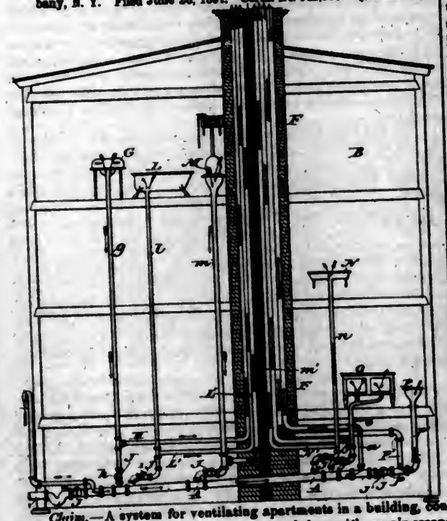
39. In a type-writing machine, the combination of a bed for the paper; a type-wheel movable toward and from said bed; key-operated means for rotating said type-wheel through a complete revolution; key-controlled mechanism for establishing predetermined positions of said wheel in the course of such revolution; a lever engaged with the movable supports of the type-wheel; a spring-motor having a cam-wheel to actuate said lever; and a key-controlled escapement for said motor.

40. In a type-writing machine, the combination of a bed for the paper; a type-wheel movable toward and from said bed; key-operated means for rotating said type-wheel through a complete revolution; key-controlled mechanism for establishing predetermined positions of said wheel in the course of such revolution; said mechanism including a movable frame; a detent-lever engaged with said frame; an escapement-lever restrained by said detent-lever; and a spring-motor operatively connected with the movable supports of the type-wheel and normally restrained by said escapement-lever.

41. In a type-writing machine, the combination of a carriage having a bed for the paper, and a rack; a toothed wheel engaging said rack; a pawl for engaging said wheel, but normally removed therefrom; a normally-restrained spring-motor; connections between the same and said toothed wheel to wind its spring by reverse movement of the paper-carriage; a type-wheel in supports movable toward and from the paper-bed; suitable connections between said motor and the type-wheel supports, and between the motor and the said pawl; means for engaging the latter with the toothed wheel upon operation of the motor; key-actuated means for rotating the type-wheel; and key-controlled means for establishing predetermined positions of said type-wheel; and for releasing the motor.

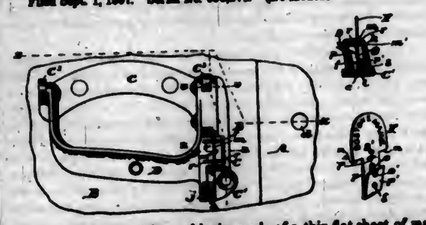
42. In a type-writing machine, the combination of a suitable bed for the paper; a type-wheel on a journal movable toward and from the said bed; a normally-restrained motor operatively connected with said type-wheel journal; a shaft in fixed bearings and connected with the latter by a universal joint; key-actuated means for rotating said shaft; and key-controlled detent mechanism for establishing predetermined positions of the type-wheel and for releasing the motor.

606,417. HOUSE-VENTILATING SYSTEM. THOMAS HYDE, Albany, N. Y. Filed June 26, 1897. Serial No. 642,266. (No model.)



Claim.—A system for ventilating apartments in a building, consisting of a drain, a fresh-air inlet connected therewith, an air-escape pipe connected with said drain, a chimney through which said air-escape pipe extends, the discharge-pipes from the plumbing-fixtures in said building connected with said drain, pipes located in said chimney connecting respectively with said discharge-pipes, in each of said discharge-pipes, between the drain and the pipes connected with said discharge-pipes extending into said flue, a means for preventing passage of air or gas from the drain through the discharge-pipes, substantially as described.

606,418. SEAL-LOCK. MORRIS H. KAHALY, Somerville, Mass. Filed Sept. 1, 1897. Serial No. 650,271. (No model.)



Claim.—1. A seal for seal-locks made of a thin flat sheet of material comprising a shank-section, the end portion of which is folded upon its main body into a position slightly diverging therefrom and having a notch or open slot formed in the end of said folded-over portion, and a slot cut through the main body of said shank with its lower end coinciding with the lower end of the notch in the folded-over portion; a head-section having shoulders to limit the inward movement of said seal; and a portion of said shank near the level of said shoulders partially severed from the main body of said shank and bent outward into an inclined position upon the side of said shank opposite to the folded-over section at its lower end.

2. A seal for seal-locks comprising a shank-section the end portion of which is folded upon the main body but slightly diverging therefrom, and having a notch or open slot formed in the upper end of said folded-over portion, and a slot cut through the main body of said shank with its lower end coinciding with the lower end of the notch in said folded-over portion; a head-section having shoulders to limit the depth to which said seal may be inserted into the chambered handle; an outwardly-projecting boss or lug on the folded-over portion of the shank; and a corresponding boss upon the head-section just above the level of its shoulders, as and for the purposes described.

3. In a seal-lock the combination of the plate C C′ provided with the tubular hub C² having the shoulder *b* in the outer end of its bore; the handle D pivoted to said plate; and the bolt E provided with the shoulder *c* to engage the shoulder *b* and pivoted to said handle by a pin fixed in said handle.

4. In a seal-lock the combination of the plate C C′ provided with the rectangular opening *e* and having the single ear *f* at one side of said opening; the tooth *g* projecting from said ear over said opening; the handle D provided on its inner face with the chamber *k*, the slot *m*, and the inclined surfaces *l*, *l*, within said chamber; and a seal having a head portion provided with the shoulders *n*, *n*, the shank portions *p*, and *p′* the latter folded upon the former and provided with the notch *o′* and the former provided with slot *o*, all constructed arranged and operating substantially as described.

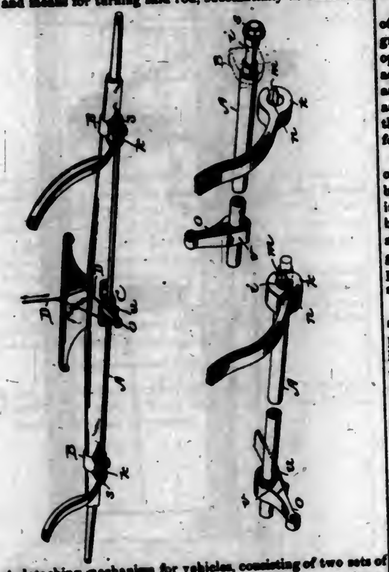
5. In a seal-lock the combination of the plate C C′ provided with the ear *f* having the tooth *g* projecting laterally therefrom; the handle D provided with the chamber *k* having the curved surfaces *l l* therein, and with the slot *m* having the enlargement *m′* on one side thereof; and a seal having a head-section provided with the shoulders *n*, *n*; and a shank composed of the parts *p* and *p′* provided respectively with the slot *o* and notch *o′*; and the hemispherical bosses *o* and *d* projecting from the shank portion *p′* and the head of the seal respectively.

6. In a seal-lock the combination of the plate C C′ provided with the perforated hub C³; the bolt E; the handle D pivoted to said plate and bolt by pins set in fixed positions in holes in said handle that extend only part way through said handle in such a manner that said pins cannot be driven out of, or withdrawn from, said handle.

7. In a seal-lock the combination of the plate C C′ having the outwardly-projecting ear *f* and the tooth *g*; the handle D provided with the chamber *k*, the inclined surfaces *l*, *l*, within said chamber and the seal-receiving slot *m*; and the ribs *r*, *r*, projecting outward from the outer face of said handle on opposite sides of said slot *m* and having their contiguous ends beveled as shown.

606,419. HORSE-DETACHER. CHARLES F. KIMBALL, Washington, D. C. Filed Jan. 13, 1896. Serial No. 575,577. (No model.)

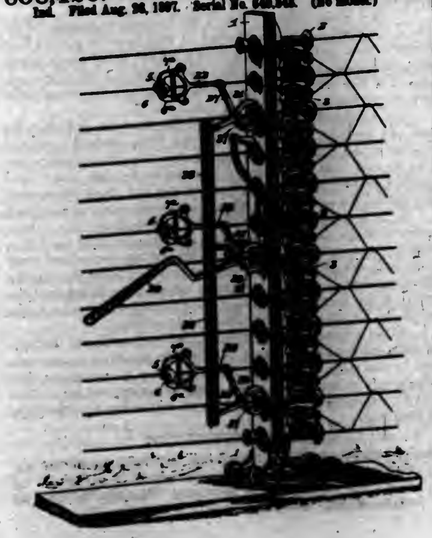
Claim.—1. A detaching mechanism for vehicles, consisting of coupling parts, one on the front axle and one on the shaft or tongue—one part being slotted, combined with a release-rod having a thin part, or section, fitted to the slot, said rod being located in the unslotted part and adapted to receive and, when turned, hold the slotted part; and means for turning said rod, substantially as described.



2. A detaching mechanism for vehicles, consisting of two sets of coupling parts, one set on the front axle and one on the shafts or tongue—one of which sets is slotted, combined with a rod the ends of which are supported in the unslotted set of coupling parts, and which rod has thin parts, or sections, adapted to enter the said slots and, when turned, to hold the slotted parts, substantially as described.

3. In combination with the front axle of a vehicle, a rod supported in brackets on said axle and having thin parts, or sections; coupling parts, as *b*, on the tongue or shafts slotted to pass over said thin parts, or sections, and to be held by said sections when turned, substantially as described.

606,420. FENCE-MACHINE. ALVA L. KIMMELMAN, Ridgeville, Ind. Filed Aug. 26, 1897. Serial No. 649,843. (No model.)



Claim.—1. The combination with supporting-brackets, of a propelling-lever fulcrumed on one of the brackets, grippers arranged to engage with line-wires of a fence, and intermediate connections between said grippers and the lever arranged to open, advance, and close the grippers, for the purposes described substantially as set forth.

2. The combination with a single controlling or propelling lever, of a series of grippers each having movable members arranged to grip a line-wire, a series of devices connected with said grippers to open and close the same, and operating connections between said actuator devices arranged to impel the said actuating devices to open and advance the grippers when the lever is moved in one direction and to close the grippers upon line-wires when the lever is moved in the other direction, for the purposes described, substantially as set forth.

3. The combination with a single controlling or propelling lever, of a series of sectional grippers each constructed to open and close by a cam movement, a series of slidable actuator devices each having a cam connection with said grippers to open or close the members of the gripper, and intermediate connections between the slidable actuator devices and the lever to advance the latter and the grippers and cause said actuator devices to open and close the grippers automatically as the lever is moved, as and for the purposes described.

4. The combination with a single controlling-lever, of a series of sectional grippers, slidable actuator devices connected with said grippers to open and close the same, operative connections between the lever and said slidable devices, and means for varying the stroke of the lever and for regulating the advancement of the actuator devices and the grippers, as and for the purposes described.

5. The combination of a series of sectional grippers each having its members provided with oppositely-inclined slots, a series of actuator devices connected with the slotted ends of the sectional grippers, a lever, and intermediate connections between the actuator devices and the lever, as and for the purposes described.

6. The combination with a series of grippers, of slidable actuator-links connected thereto, bell-cranks attached to said actuator-links, a lever, and a rod connected with the lever and with the bell-cranks, for the purposes described, substantially as set forth.

7. The combination with a series of fixed brackets, one of which carries an adjustable stop-bolt, a lever fulcrumed to said bracket with the stop-bolt, a series of grippers, slidable actuator links attached to the grippers, bell-cranks attached to the actuator-links, and a rod or bar pivoted to the lever and the bell cranks, as and for the purposes described.

8. A gripper for wire-fence machines comprising two members constructed for the passage of a fence-wire and pivoted together at a point intermediate of the length thereof, each gripper member provided, on opposite sides of the pivotal connection, with a pair of gripping-faces arranged to coact with similarly-disposed gripping-faces on the other member and a spring operatively connected with said members to normally draw the coacting gripper-faces thereof toward each other, whereby the members may be closed upon a wire to firmly grip the latter at points in opposite sides of the pivotal movement of said members, substantially as described.

9. A gripper for a wire-fence machine constructed in laterally-separable sections for the passage of a fence-wire and pivotally connected together at a point intermediate of their length, each gripper member provided with a pair of gripper-surfaces disposed on opposite sides of the gripper-pivot and coacting with similar faces on the other member, substantially as described.

10. A gripper for a wire-fence machine comprising a member having a pair of gripper-faces and a pintle slotted for the passage of a fence-wire, and another member mounted on said pintle and having gripper-faces that coact with the corresponding faces of the first-named member, substantially as described.

11. A gripper for a wire-fence machine comprising a member having a transversely-slotted pintle and the gripping-faces disposed on opposite sides of lines drawn longitudinally and transversely through the pintle, and another member loosely fitted to said pintle and having gripper-faces arranged to coact with the similar faces of the first-named member, substantially as described.

12. A gripper for a wire-fence machine, comprising a member 6 flanged to provide the gripper-faces 12 and 13 and having a slotted pintle, another gripper member perforated to fit loosely on the pintle and having the gripper-faces 17ª and 18, to coact with the faces of the first-named member, and means for confining the gripper members against lateral displacement, substantially as described.

13. A gripper for wire-fence machines comprising laterally-separable members having their coacting gripper-faces arranged for the passage of a fence-wire and united pivotally together by a transversely-slotted pintle, and the extended arms carried by the gripper members, for the purposes described, substantially as set forth.

14. In a wire-fence machine, the combination with a twister-car-

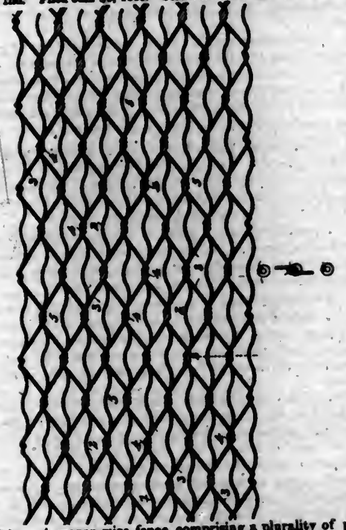
rying frame, of a series of grippers, an operating-lever fulcrumed on the frame, and links connected with the frame, the grippers and the lever for forming a positive connection from the grippers to the frame and lever; said links and lever serving to open and advance the grippers, positively close the same upon the wires, and advance or feed the machine, substantially as described.

15. In a wire-fence machine, a two-part gripper having its members pivoted together, and an operating-link having a cam-slotted connection with both gripper members, substantially as described.

16. In a wire-fence machine, a two-part gripper having its pivoted members provided with inclined slotted arms, a link slidably fitted to said slotted gripper-arms, and a spring which normally closes the gripper members, substantially as described.

17. In a wire-fence machine, the combination with a frame carrying wire-twisters, of a lever, a series of grippers, and devices connecting said lever and grippers with said frame, whereby the lever closes the grippers upon the fence-wires and feeds or moves the twister-carrying frame along the fence-wires, substantially as set forth.

606,421. WOVEN-WIRE FENCING. ALVA L. KITSELMAN, Ridgeville, Ind. Filed Jan. 26, 1898. Serial No. 668,045. (No model.)



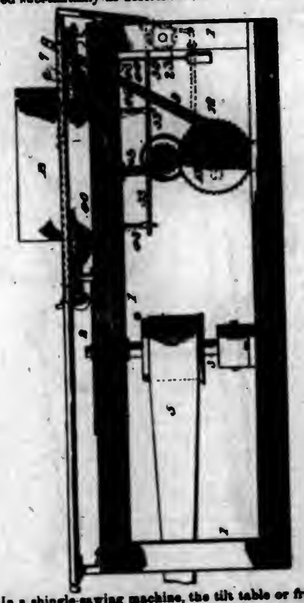
Claim.—A woven-wire fence comprising a plurality of parallel warp-wires extending longitudinally of the fence and regularly coiled throughout their entire length, and weft-wires twisted together at their points of intersection to produce diamond-shaped meshes having their greatest width disposed lengthwise of the fence, the twisted portions of the intersecting weft-wires being closely wrapped about a coil of said warp-wires, which latter bisect the diamond-shaped meshes and contract and expand therewith without becoming loose at their points of connection with the weft-wires, substantially as set forth.

606,422. SHINGLE-SAWING MACHINE. EDWARD H. KRUGER, Elizabeth City, N. C. Filed Dec. 27, 1897. Serial No. 663,618. (No model.)

Claim.—1. In a shingle-sawing machine, a horizontal saw, a traveling carriage moving in horizontal ways toward and from the saw, means for grasping a block in said carriage at the ends and in the line of movement of the carriage toward and away from said saw, and a tilt-table having a block-supporting surface constructed to yield independently of the tilting movement, all combined substantially as described.

2. In a shingle-sawing machine, a horizontal saw, a reciprocating block-carriage having holding-dogs at the end of the carriage toward the center of the saw and at the opposite end thereof, and a tilting table under such carriage, having a block-support pivoted thereto, and in position to swing toward the saw to permit the passage of a shingle projecting below the normal plane of the block-support, all combined substantially as described.

3. In a shingle-sawing machine, a horizontal saw, a horizontally-reciprocating block-carriage and means for holding the shingle bolt or block therein, a tilt-table under the retracted position of said carriage, and a block-support carried by links pivotally connected to the tilt-table, and movable out of perpendicular position, to permit a depression of the block-support independently of the tilting movement, all combined substantially as described.



4. In a shingle-sawing machine, the tilt table or frame, a block-support connected to said table by pivoted links which may swing under the forward movement of the block to depress such support, and means for restoring the block-support to normal position, all combined.

5. In a shingle-sawing machine, the tilt frame or table, the block-supports connected to said frame so as to swing toward the saw independently of the tilting movement of the frame, and a weight and connections acting to restore said block-supports to normal position, all combined substantially as described.

6. In a shingle-sawing machine, the pivoted tilt-frame, the links pivotally connected thereto in position to swing out of the perpendicular, toward the saw, to depress the block-supports carried by said links, and a stop serving to limit the swing of the links, all combined substantially as described.

7. In a shingle-sawing machine, the tilt-frame and means for tilting it, the block-supports connected to said frame by pivoted links constructed to yield by swinging toward the saw to depress the block-supports independently of the tilting movement, a draw-weight connected to said links, and an adjustable stop to limit the movement of the draw-weight, all combined.

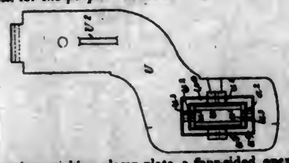
8. In a shingle-sawing machine of the character described, the saw and carriage, the tilt frame having links pivotally connected thereto in position to swing toward the saw, the block-supports carried by said links and depressed by swinging the links to a normal position slightly inclined away from the saw, and means for supporting the links in such position, all combined substantially as described.

9. In a shingle-sawing machine, the horizontal saw, the reciprocating carriage, the tilt-table having its vertically rising and falling ends in the direction of movement of the carriage toward and away from said saw, swinging links connected to said table, (bearing the block-supports) in position to yield by swinging the direction of the travel of the carriage, and means for adjusting the block-supports vertically, all combined substantially as described.

10. In a shingle-sawing machine, the horizontal saw, the horizontally reciprocating carriage, the tilt table, the block-support carried by said table and yielding under the forward movement of a shingle-butt independently of the tilting movement, and an antifriction device carried by said block-support, all combined substantially as described.

606,423. PRESSER-CLAMP FOR BUTTONHOLE-SEWING MACHINES. JOHN LAIRD, Belfast, Ireland, assignor of two-thirds to the Hope Street Factory, Limited, same place. Filed Sept. 20, 1897. Serial No. 607,234. (No model.)

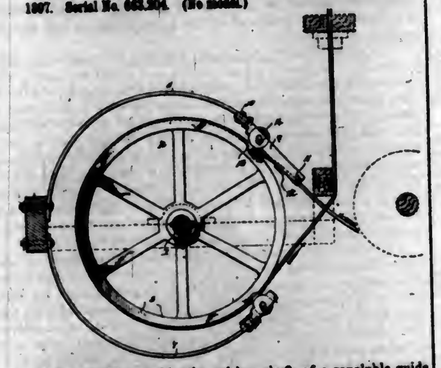
Claim.—1. A sewing-machine clamp-plate, a frame journaled in an opening thereof and having a limited movement on its journals, and a clamping-foot journaled in said frame and having its journals in the same horizontal plane but at right angles to the frame-journals, said clamping-foot having likewise a limited movement on its said journals, for the purpose set forth.



2. A sewing-machine clamp-plate, a four-sided open frame pivoted at opposite ends in an opening thereof and a four-sided clamping frame or foot pivoted at two opposite sides in the opening of the first-mentioned frame at right angles to its pivots, all the pivot-centers being in the same horizontal plane and both frames having limited movement, for the purpose set forth.

3. A sewing-machine clamp-plate, a frame pivoted in an opening thereof and projecting slightly below said plate and a clamping-frame pivoted at right angles to, and within the first-mentioned frame and projecting slightly below said frame, all the pivots being in the same plane and the frames having limited motion.

606,424. TENSION AND FEED MECHANISM FOR WIRE-FABRIC MACHINES. GEORGE R. LANE, Hudson, Mich. Filed Dec. 22, 1897. Serial No. 663,204. (No model.)



Claim.—1. The combination with a shaft, of a revoluble guide having a series of ways or channels for the direction of wires or strands, and tension devices adjacent to said ways or channels and on opposite sides of the line of feed of said wires or strands to said revoluble guide, whereby the tension devices engage the ingoing and outgoing lengths of the strands and maintain the same in intimate contact with the revoluble guide, as set forth.

2. The combination of a revoluble guide having a plurality of grooves or channels, and tension devices arranged to direct the wires or strands into intimate engagement with the grooved or channeled surfaces of the revoluble guide, substantially as described.

3. The combination of a revoluble guide having its working surface provided with a plurality of spaced circumferential grooves or channels, and two series of cushioned guide-rollers situated in close relation to the grooved or channeled face of said revoluble guide, substantially as and for the purposes described.

4. A tension and feed mechanism for fabric-forming machines, consisting of a revoluble guide having its working surface provided with a plurality of channels or grooves, an upper spring-hanger adjacent to each groove or channel in said guide, a lower spring-hanger also adjacent to each groove or channel in the guide, and independent rollers carried by said upper and lower hangers and sustained thereby in close relation to each channel or groove in the revoluble guide, substantially as and for the purposes described.

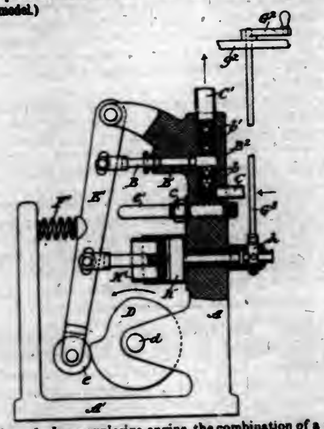
5. The combination of a revoluble guide having a grooved or channeled working face, curved spring-hangers arranged above and below the revoluble guide and having their free ends terminating adjacent to the revoluble guide at one side of the vertical axis thereof, and guide devices carried by said spring-hangers in close relation to the working face of the revoluble guide, substantially as and for the purposes described.

6. The combination of a revoluble guide having a channeled or grooved working face, an upper hanger adjacent to each channel or groove in said revoluble guide, a guide-block attached to the free end of each upper hanger and provided with a stud and bar arranged in different horizontal and vertical planes, a roller journaled in the guide-block adjacent to the groove or channel in the revoluble guide, a lower series of spring-hangers provided at their free ends with blocks or carriers, and rollers journaled in said blocks or carriers of the lower hangers, substantially as and for the purposes described.

7. A tension and feed device for fabric-making machines consisting of a shaft, a series of grooved disks or pulleys clamped to the shaft at proper intervals from each other, a series of upper spring-hangers arranged over the series of disks or pulleys and carrying rollers in close relation to the peripheral faces of said disks or pulleys, and a lower series of spring-hangers also provided with rollers adjacent to the grooved faces of said disks or pulleys, substantially as and for the purposes described.

8. A tension and feed mechanism for wire-fabric machines, comprising a shaft, a revoluble guide carried by said shaft and adapted to receive a series of strands or wires, and two sets of tension devices situated in different horizontal planes, on one side of the vertical axis of said revoluble guide, and adjacent to the working surface thereof, for the purpose described, substantially as set forth.

606,425. GOVERNOR FOR EXPLOSIVE-ENGINES. HIRAM P. MAXIM, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed Feb. 27, 1897. Serial No. 626,315. (No model.)



Claim.—1. In an explosive-engine, the combination of a working cylinder, piston and moving parts operated thereby, a pump to deliver fluid to said cylinder, an actuator operated with the engine with a definite stroke and moving the plunger of the pump in one direction, independent means to return the plunger of the pump in the opposite direction and other devices to retard the return movement of the plunger, whereby the extent of return of the plunger is automatically varied.

2. In an explosive-engine, the combination of a working cylinder, a piston and moving parts operated thereby, a pump to deliver fluid to said cylinder, an actuator operated with the engine with a definite stroke and moving the plunger of the pump in one direction, a spring to return the plunger of the pump in the opposite direction and other devices to retard the return movement of the latter as the speed of the actuator is accelerated it runs ahead of the plunger and checks the return movement of the latter.

3. In an explosive-engine, the combination of a working cylinder, a piston and moving parts operated thereby, a pump to deliver fluid to said cylinder, a cam having a relatively quick drop, operated with the engine with a definite stroke and moving the plunger of the pump in one direction means to return the plunger of the pump in the opposite direction, and other devices to retard the return movement, whereby as the speed of the cam is accelerated, it runs ahead of the plunger and checks the return movement of the latter.

4. In an explosive-engine, the combination of a working cylinder, a piston and moving parts operated thereby, a pump to deliver fluid to said cylinder, a cam having a relatively quick drop rotated with the engine and moving the plunger of the pump in the opposite direction, a spring to return the plunger of the pump in the opposite direction, and other devices to retard the return movement, whereby as the speed of the cam is accelerated, it runs ahead of the plunger and checks the return movement of the latter.

5. A feeding and governing mechanism for explosive-engines, &c., comprising a pump, an actuator operated with the engine with a definite stroke and moving the plunger of the pump in one direction, independent means to return the plunger of the pump in the opposite direction, and a dash-pot in operative relation with said plunger to retard its return movement whereby as the speed of the actuator is accelerated, it runs ahead of the plunger and checks the return movement of the latter.

6. In an explosive-engine, the combination of a working cylinder, piston and moving parts operated thereby, a pump to deliver fluid to said cylinder, an actuator operated with the engine with a definite stroke, a lever connected to the plunger of the pump and operated by said actuator in one direction, and other devices to retard the return movement of the lever and the plunger, whereby as the speed of the actuator is accelerated, it runs ahead of the plunger and checks the return movement of the latter.

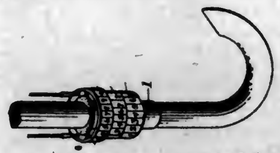
7. In an explosive-engine, the combination of a working cylinder, a piston and moving parts operated thereby, a pump to deliver fluid to said cylinder, an actuator operated with the engine with a definite stroke, a lever connected to the plunger of the pump and operated by said actuator in one direction, and a dash-pot to retard the return movement of the lever and the plunger, whereby as the speed of the actuator is accelerated, it runs ahead of the plunger and checks the return movement of the latter.

8. In an explosive-engine, the combination of a working cylinder, piston and moving parts operated thereby, a pump to deliver fluid to said cylinder, a cam having a relatively quick drop operated with the engine with a definite stroke, a lever connected to the plunger of the pump and normally bearing against said cam to be actuated thereby in one direction, and other means to retard the return movement of the lever and the plunger, whereby as the speed of the cam is accelerated, it runs ahead of the plunger and checks the return movement of the latter.

9. A feeding and governing mechanism for explosive-engines, &c., comprising a pump, a cam actuated with the engine with a definite stroke, a lever connected to the plunger of the pump and normally bearing against said cam to be actuated thereby in one direction, and a dash-pot to retard the return movement of the lever and the plunger.

10. A feeding and governing mechanism for explosive-engines, &c., comprising a pump, an actuator operated with the engine with a definite stroke and moving the plunger of the pump in one direction, independent means to return the plunger of the pump in the opposite direction, a dash-pot in operative relation with said plunger, and means to vary the action of the dash-pot.

606,426. COMBINATION-LOCK FOR UMBRELLA-TIPS. CHAS. MCCURDY, Richmond, Va. Filed June 8, 1897. Serial No. 639,896. (No model.)



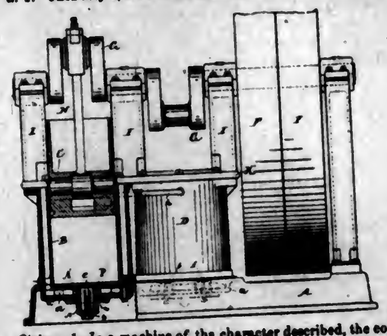
Claim.—An umbrella-lock comprising a fixed sleeve provided with an annular groove, in combination with an encompassing sleeve formed with a corresponding groove and having a longitudinal movement thereon, one or more rings rotatably mounted on said encompassing sleeve, and means substantially as described for locking or releasing said encompassing sleeve on the fixed sleeve, substantially as shown and described.

606,427. SAFETY-PIN. MINNIE REISS, Philadelphia, Pa. Filed Oct. 8, 1897. Serial No. 654,534. (No model.)



Claim.—A safety-pin consisting of a single piece of wire doubled on itself and then bent to produce a T-shaped figure having the shanks B and hooked arms A, A, the ends C, C, of the wire being bent parallel with the shanks to engage the hooks, said shanks being bent down just before their junction with the arms A, A, and the ends C, C, whereby said ends are in a plane below that of the shanks, and in combination a T-shaped plate having the arms A', A', and the shank E, said arms being bent around the arms A, A, and the shank E around the shanks B, substantially as shown and described.

606,428. AIR-COMPRESSOR. FRANK RICHARDS, New York, N. Y. Filed July 3, 1896. Serial No. 597,995. (No model.)



Claim.—1. In a machine of the character described, the combination with a plurality of upright cylinders, surrounding water-jackets, pistons in the cylinders, and means for moving them; of a base having an open bottom and comprising a flat top plate and a second plate below the top plate so as to leave water-chambers between the plates, connections between the chambers and jackets for the purpose set forth, upright tubes each integral with the plates and communicating with the bottom of the base and the interior of a cylinder, a valve-casing and air-valve removably inserted in each tube from below, connections between the casings of all the inlet-valves, and connections between the casings of all the outlet-valves, as and for the purpose set forth.

2. In a machine of the character described, the combination with a plurality of cylinders, pistons therein, and means for driving the latter; of a base having an open bottom and comprising a flat top plate and a second plate spaced below the top plate so as to leave a chamber between the plates, two sets of upright tubes for each cylinder integral with both plates and opening through them, a valve-casing consisting of a short pipe fitting each tube and having lateral ears between its ends bolted to the bottom plate, the upper end of this pipe having a valve-seat while the other end is threaded, a valve therein, a guide for the valve-stem having a head engaging said threads, and a pipe connecting the casings of the outlet-valves at points below their ears, as and for the purpose set forth.

3. In an air-compressor, the combination with a plurality of upright cylinders having surrounding water-jackets open at their lower ends, pistons in the cylinders, means for moving them, and a top plate closing the upper ends of the jackets; of a base comprising a flat top plate having ports communicating with said jackets and a bottom plate spaced therefrom so as to leave a water-chamber below each cylinder, communications between these chambers, upright tubes integral with both plates and opening through them from within the cylinders to the space beneath the bottom plate, air-outlet-valve casings consisting of short pipes removably inserted for part of their length in said tubes, a valve-seat and valve in each casing, and a pipe connecting the protruding portions of the casing-pipes and leading to a suitable air-receiver, as and for the purpose set forth.

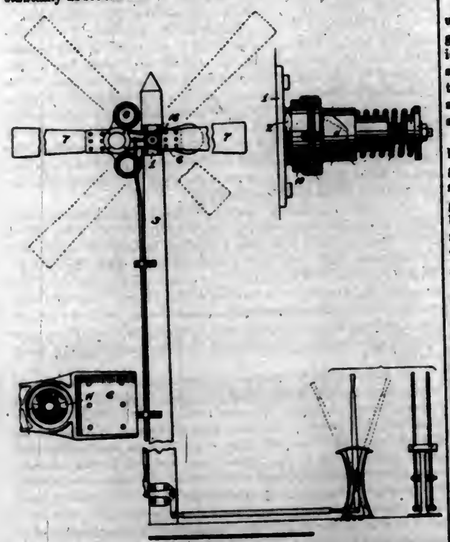
606,429. SIGNAL. JESS G. SCHRUDER, Edgewood Park, Pa., assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed Feb. 21, 1898. Serial No. 671,105. (No model.)

Claim.—1. The combination of a semaphore-signal, mechanism for shifting the signal to clear and caution positions and a mechanism operative on the signal at one side of its pivotal support for automatically shifting the signal from both clear and caution positions to normal position, substantially as set forth.

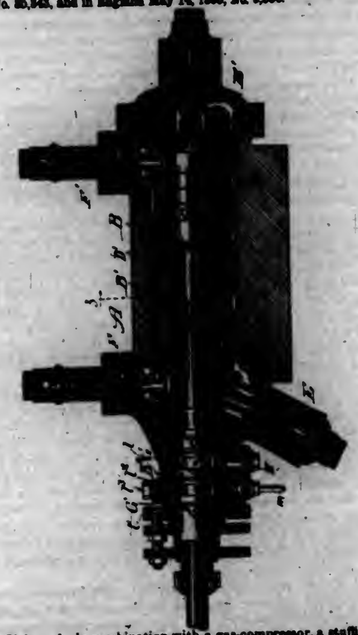
2. The combination of a semaphore-signal, mechanism for shifting the signal to clear and caution positions and a mechanism connected to the signal on one side of its pivotal support and rendered operative by the shifting of the signal for automatically returning the signal from both clear and caution positions to normal position, substantially as set forth.

3. The combination of a semaphore-signal, mechanism for shifting the signal to clear and caution positions and a spring connected to the signal at one side of its pivotal support and adapted to be placed under tension by the movement of the signal to clear and caution positions, whereby it is rendered operative to return the signal, when free to move to normal position, substantially as set forth.

4. The combination of a semaphore-signal provided with an inclined bearing-surface at one side of its pivotal support, a non-rotatable block provided with a correspondingly-inclined bearing-surface, a spring for yieldingly holding the inclined surfaces against each other and means for shifting the signal to clear and caution positions, substantially as set forth.



606,480. GAS-COMPRESSOR. JULIUS SEBLANEK, Nuremberg, Germany. Filed Aug. 30, 1897. Serial No. 649,922. (No model.) Patented in France Dec. 21, 1896, No. 264,564; in Germany Jan. 18, 1896, No. 77,119; in Austria-Hungary Mar. 18, 1898, No. 56,187 and No. 56,911, May 4, 1898, No. 1,660 and No. 5,657, and Aug. 30, 1898, No. 10,220 and No. 13,909; in Italy Mar. 26, 1898, No. 1,194; in Switzerland July 24, 1893, No. 7,343, and June 25, 1894, No. 8,796; in Belgium Aug. 26, 1894, No. 95,943, and in England May 14, 1896, No. 9,690.



Claim.—1. In combination with a gas-compressor, a stuffing-box chamber upon the piston-rod for receiving leakage-gas from the compressor, and a regulating-valve controlling the outlet from said chamber and presenting thereto one face having a surface area smaller than that on its opposite face, substantially as and for the purpose set forth.

2. In combination with a gas-compressor, a stuffing-box chamber upon the piston-rod for receiving leakage-gas from the compressor, a gas-chamber communicating with said stuffing-box chamber and having its gas contents at a lower pressure than the pressure in said stuffing-box chamber, and a regulating-valve interposed between the two said chambers and presenting a smaller surface area to the stuffing-box chamber and a larger surface area to said gas-chamber, substantially as and for the purpose set forth.

3. In combination with a gas-compressor, a plurality of stuffing-box chambers upon the piston-rod for receiving in succession leakage-gas from the compressor, a gas-chamber communicating with the stuffing-box chamber next adjacent to the compressor and having its gas contents at a lower pressure than the pressure in said stuffing-box chamber, and a regulating-valve interposed between the last-named stuffing-box chamber and said gas-chamber and presenting to the former a smaller surface area and to the latter a larger surface area, substantially as and for the purpose set forth.

4. In combination with a gas-compressor, a plurality of stuffing-box chambers upon the piston-rod for receiving in succession leakage-gas from the compressor, a gas-chamber communicating with the first stuffing-box chamber, or that next adjacent to the compressor, and having its gas contents at a lower pressure than the pressure in said stuffing-box chamber, a regulating-valve interposed between the last-named stuffing-box chamber and said gas-chamber and presenting to the former a smaller surface area and to the latter a larger surface area, and a lubricant-supply pipe leading into the second stuffing-box chamber, substantially as and for the purpose set forth.

5. In combination with the compressor and suction-chamber of an ice or refrigerating machine, a stuffing-box chamber on the piston-rod for receiving leakage gas from the compressor and communicating with said suction-chamber and a regulating-valve interposed in the communication between said stuffing-box chamber and said suction-chamber and presenting a lesser surface area to the former and a greater surface area to the latter, substantially as and for the purpose set forth.

6. In an ice or refrigerating machine, the combination with the compressor of a suction-chamber D part way surrounding the compressor-chamber B', valves E, E' and F, F', a stuffing-box chamber G on the piston rod, a passage *n* between said chamber G and the chamber of the valve E, and a valve H interposed in said passage and presenting a smaller surface area to the stuffing-box chamber and a larger surface area to the pressure from said suction-chamber, substantially as and for the purpose set forth.

7. In an ice or refrigerating machine, the combination with the compressor of a suction-chamber D part way surrounding the compressor-chamber B', valves E, E' and F, F', stuffing-box chambers G and G' on the piston-rod, a passage *n* between said chamber G and the chamber of the valve E, a valve H interposed in said passage and presenting a smaller surface area to said stuffing-box chamber and a larger surface area to the pressure from said suction-chamber, and a lubricant-supply pipe leading into said chamber G', substantially as and for the purpose set forth.

606,481. TRUNK. PAUL H. SMITH, Columbus, Ohio. Filed Feb. 10, 1898. Serial No. 669,737. (No model.)



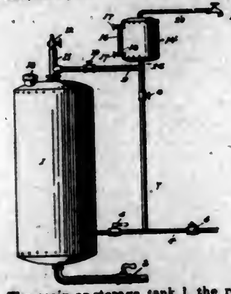
Claim.—1. A bracket-supporting tube having at its lower end a slot at one side and at the opposite side having a T-slit, the parts being bent out to form tongues or guides to prevent rotation, and just above said tongues or guides on the inside of said tube a cylindrical block with a hole through its center held in position by means of pins, substantially as described.

2. A removable tray-supporting bracket having a horizontal bar,

this bar having at one end two upright arms, at its other a depressed portion which provides a rest for a cross-arm and having on its under side a web or a strip and a socket flared at its lower end, substantially as described.

606,482. MEANS FOR RAISING OIL BY WATER-PRESSURE.

ELISHA STRETCH, East Orange, N. J., assignor of one-half to Margaret Elizabeth Stretch, same place. Filed Sept. 9, 1897. Serial No. 651,133. (No model.)

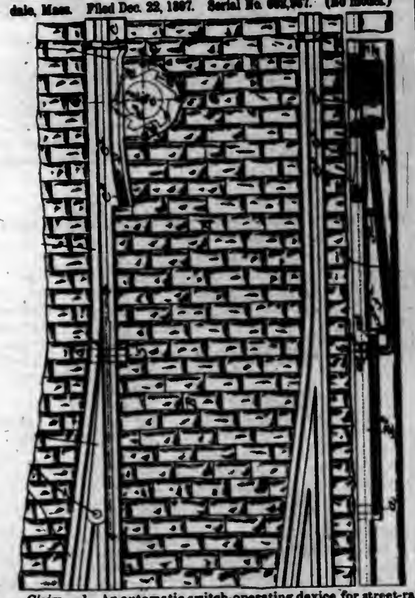


Claim.—1. The main or storage tank 1, the refuse-pipe 2, and valve 3, the water-inlet pipe 4, the valves 5 and 6, the branch pipe 7, and its valve 8 in combination with the gage-tank 14, the pipes 9 and 15 connecting both tanks and the valved pipe 7, the visual gage connected to the tank 14, and means for discharging the contents of said latter tank, as and for the purpose set forth.

2. The main or storage tank 1, the refuse-pipe 2, and valve 3, the vented oil-discharge pipe 11, in combination with the gage-tank 14, the visual gage 16 connected to said tank, and the float-ball 18 mounted in said gage, the water-supply pipe 4 connected to the main tank, and the branch pipes 7 9 and 15 connecting said supply-pipe 4 and tanks 1 and 14, and means for controlling the discharge from the tank 14, substantially as shown and described.

606,488. SWITCH-OPERATING MECHANISM FOR STREET-RAILWAYS.

FRANCIS M TYLER and WILLIAM W. TYLER, Auburndale, Mass. Filed Dec. 22, 1897. Serial No. 663,967. (No model.)



Claim.—1. An automatic switch-operating device for street-railways, comprising a channel-block next to a rail of the track, an arm projecting horizontally across said channel-block, an inclined cam connected to and operated by said arm, a switch-point, a rock-shaft extending between and journaled adjacent said switch-point and said cam and having at its ends lateral arms, one in engagement with said cam and the other connected to said switch-point, whereby movement of said horizontal arm, and thereby of said cam, serves to rock said shaft axially and shift said switch, substantially as described.

2. An automatic switch-operating device for street-railways, comprising a channel-block adjacent a rail of the track, an arm projecting across said channel-block, an inclined cam connected to and operated by said arm, a switch-point, a rock-shaft extending from said switch-point to said cam and having lateral arms, one in engagement with said cam and the other connected to said switch-point, whereby movement of said arm, and thereby of said cam, serves to rock said shaft and shift said switch, said cam having a dwell at the opposite ends of its incline, said dwell cooperating with the adjacent arm of the rock-shaft, to hold the same rigid and thereby lock the switch-point, substantially as described.

3. An automatic switch-operating device for street-railways, comprising a channel-block adjacent a track-rail, a vertical drum carrying a wheel provided with arms extending horizontally across said channel-block, said arms having their forward sides sloping rearwardly relatively to the length of the channel in all positions of the arms therein, whereby upon forward rotation of said wheel said rearwardly-sloping sides automatically remove foreign matter, a switch-point, and connections between said drum and said switch-point for operating the latter by movement of the former, substantially as described.

4. An automatic switch-operating device for street-railways, comprising a channel-block adjacent a track-rail, a vertical drum having a cam-groove carrying a horizontal wheel provided with lateral arms extending horizontally across said channel-block, said arms having their forward sides beveled at an angle to slope rearwardly relatively to the length of the channel in all positions therein, whereby upon forward rotation of said wheel said beveled sides automatically push foreign matter ahead along the channel, a switch-point, a rock-shaft extending between said drum and said switch-point, said rock-shaft having an arm at one end in engagement with and actuated by said cam-groove, and an arm at its other end in connection with and to actuate said switch-point, substantially as described.

5. In a device of the class described, a rock-shaft, means to rock the same by the passage of a car, a switch-point, a slide connected to said rock-shaft and connected to said switch-point, and means for instantly connecting or disconnecting said slide from said switch-point, substantially as described.

6. In a device of the class described, a drum, operating means therefor, a switch-point, connections between said drum and switch-point for operating the latter from the former, and a housing for said drum, said drum having an outwardly projecting and depending flange, and said housing having an upwardly-projecting flange beneath and overhung by said drum-flange, for affording the latter free movement clear of all foreign matter, substantially as described.

7. In a device of the class described, a drum, operating means therefor, a switch-point, connections between said drum and switch-point for operating the latter from the former, and a housing for said drum, said housing having at its upper end an annular flange adjacent said drum, said flange being provided with a rib, and said drum having an overhanging wheel provided with a recess to interlock with said rib, substantially as described.

8. In a device of the class described, a drum, operating means therefor, a switch-point, connections between said drum and switch-point for operating the latter from the former, and a housing for said drum, said housing having at its upper end an annular flange adjacent said drum, said flange being provided with a rib, and said drum having an overhanging wheel provided with a recess to interlock with said rib, brackets beneath said annular flange, and an electric heater held in said bracket adjacent the wall of said housing, to maintain the latter and adjacent parts normally heated, as and for the purpose set forth.

9. In a device of the class described, a drum, operating means therefor, a switch-point, connections between said drum and switch-point for operating the latter from the former, and a housing for said drum, said housing having at its upper end an annular flange adjacent said drum, said flange being provided with a rib, and said drum having an overhanging wheel provided with a recess to interlock with said rib, brackets beneath said annular flange, and an electric heater held in said bracket adjacent the wall of said housing, to maintain the latter and adjacent parts normally heated, recesses adjacent the switch-point, and an electric heater in said recess to maintain the parts adjacent the moving switch-point in heated connection, as and for the purpose set forth.

10. In a device of the class described, a switch-point, a rock-shaft to operate the same, means to actuate said rock-shaft, and a tube inclosing said rock-shaft, said tube being secured adjacent the web of a track-rail, between and within the outer edges of the base and head of the rail, said tube having at its end adjacent the switch a laterally-flared funnel-shaped portion, substantially as described.

11. A switch-point, an actuating-cam therefor, connections between said cam and said switch-point, an arm carried by said cam, a channel-block adjacent a track-rail, said arm projecting across said channel-block, the channel of the latter extending parallel to the rail for the main part of its length, and having at its forward end a lateral bend away from the rail, combined with a car device comprising a depending arm, and means to raise and lower said arm, the latter when in its lowered position being adapted to travel in said channel and thereby actuate the arm carried by said cam, said car device being provided with a spring normally tending to raise said arm, and a detent arranged to engage and hold said arm depressed, said bent-away part of said channel disengaging said arm from said detent and permitting the spring to restore the arm to its raised position, substantially as described.

12. The herein-described car device, comprising a rock-shaft, arms extending therefrom at its opposite ends, a plunger engaging one of said arms and adapted to be depressed by the foot, a depending arm connected to the free end of the second arm of said rock-shaft, a spring normally holding said depending arm in raised position, and a detent adapted to engage and hold said depending arm in depressed position, substantially as described.

606,484. BINDER FOR SHEET-MUSIC, &c.

HENRY R. VEIT, Chicago, Ill. Filed Oct. 29, 1897. Serial No. 656,759. (No model.)



Claim.—1. In a binder for sheet-music, or the like, the combination of two separable cover-sections B and C, said section B comprising an inner sheet of cardboard *l* and an outer sheet of cardboard *n*, the sheet *l* being provided with a securing-strip D having the attaching-strips *r'* of linen pasted upon the inner and outer surfaces of the rear edge of the cardboard, and the sheet *n* being provided with sheets of flexible material *s'* and *m* on the outer and inner surfaces respectively, both prolonged to produce the flexible back E, and said section C being provided similarly with inner and outer sheets of cardboard separated at the rear edges to afford a pocket *k*, said inner sheet of the section C being further provided with a securing-strip D to coact with the like strip on the section B, substantially as and for the purpose set forth.

2. In a binder for sheet-music, or the like, the combination with two separable cover-sections, of securing-strips D, each comprising narrow parallel strips of cardboard *s* pasted close together upon a wider strip of linen *r* said strip of linen being folded to bring said strips of cardboard to a superimposed position and one of the strips D being provided with binding-posts *q*, each strip of linen being of sufficient width to afford, after folding, strips *r'* between which is pasted a sheet of the cover-section, substantially as described

3. A binding-strip comprising a plurality of strips of paper, each provided with a gummed surface, said strips having their gummed surfaces turned toward each other, all being folded longitudinally, and a flexible securing-strip folded longitudinally and sewed on its line of folding to said strips of paper at their line of folding, substantially as described.

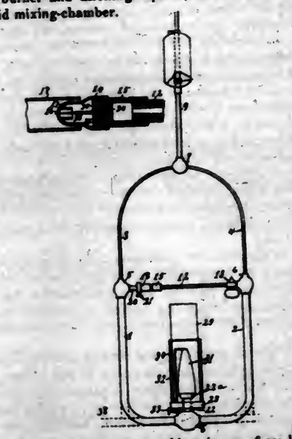
4. A binding-strip comprising a plurality of strips of paper, each provided with a gummed surface, said strips having their gummed surfaces turned toward each other, all being folded longitudinally, a strip of thick paper *h'* covered with linen h^3, a strip of cardboard h^2 connected to one edge of the strip *h'*, linen stitches or the like securing the gummed strips of paper to the combined strip *h'*, h^2 at the longitudinal center line, said strip being folded back at the line of sewing and cemented to the exposed surface of the cardboard strip h^2 and said composite securing-strip being supplied with perforations as shown, substantially as and for the purpose set forth.

606,485. GAS-GENERATING GAS-FIXTURE.

JOHN F. WILLIAMS, Kansas City, Kans., assignor to Robert M. Snyder, Kansas City, Mo. Filed June 8, 1897. Serial No. 639,912. (No model.)

Claim.—1. In a device for generating and burning gas from liquid hydrocarbons, the combination of a suitable supply-pipe; a gas-generating pipe connected thereto and provided with a gradually-decreasing internal bore toward its discharge end; a discharge-outlet for said generating-pipe; a burner; a mixing-chamber intermediate said burner and outlet; and means for admitting air into said mixing-chamber.

2. In a device for generating and burning gas from liquid hydrocarbons; the combination of a suitable supply-pipe; a gas-generating pipe connected thereto and provided with gradually-decreasing internal bore toward its discharge end; a restricted discharge-opening for said generating-pipe; a burner; a mixing-chamber intermediate said burner and discharge-opening: and means for admitting air into said mixing-chamber.



3. In a device for generating and burning gas from liquid hydrocarbons, the combination of a suitable supply-pipe, a gas-generating pipe connected thereto and provided with a gradually-decreasing internal bore toward its discharge end; a restricted outlet for said pipe; a burner located in proximity to said pipe; a mixing-chamber intermediate said burner and the generating-pipe; an air-inlet into said mixing-chamber; and means for controlling the admission of air.

4. In combination with an elevated reservoir; a discharge-pipe leading therefrom; a gas-generating chamber connected to said pipe and provided with a gradually-narrowing passage toward its discharge end; a restricted discharge-opening for said chamber; a burner located in proximity to said generating-chamber; a mixing-chamber intermediate said burner and the discharge-opening of the gas-generating chamber; and means for controlling the admission of air to said mixing-chamber.

5. The combination with a gas-fixture for generating and burning gas from liquid hydrocarbons, having a supply-pipe and mixing-pipe forming part of the fixture, a suitable burner connected with the mixing-pipe, a chimney-holder mounted below said burner, and a chimney supported thereon, of a vaporizing-tube having a gradually-decreasing bore toward its discharge end and connected with the supply-pipe arranged over said chimney, a tip mounted upon the discharge end of the tube and having a minute opening therein, and an air-supply regulator surrounding said tip connected with said mixing-pipe, substantially as set forth.

6. In a gas-fixture for generating and burning liquid hydrocarbons, the combination with a supply-pipe and a mixing-pipe forming part of the fixture, and a burner connected with the mixing-pipe and provided with a suitable chimney, of a vaporizing-tube provided with a shut-off cock connected with the supply-pipe arranged to be heated from the burner, a tip having a minute opening therein, and a coupling connecting said tip with said vaporizing-tube, arranged to form an expansion-chamber between said tip and said tube and a sleeve surrounding said tip provided with openings in the sides thereof, adjustably connected with said mixing-pipe, and arranged to regulate the air-supply, substantially as set forth.

7. In a gas-fixture for generating and burning liquid hydrocarbons, the combination with a supply-pipe and a mixing-pipe forming part of the fixture, of a vaporizing-tube connected with the supply-pipe, a tip having a minute opening and provided with an internal collar surrounding said opening, a coupling connecting said tip with said tube arranged to form an expansion-chamber between said tip and tube, and a sleeve surrounding said tip provided with openings in the sides thereof, adjustably connected with said mixing-pipe, and arranged to regulate the air-supply, substantially as set forth.

8. In a gas-fixture for generating and burning liquid hydrocarbons, a vaporizing-tube, a tip having a minute opening and provided with an internal collar surrounding said opening and a coupling connecting said tip to said tube and arranged to form an expansion-chamber between said tip and tube, substantially as set forth.

9. In a gas-fixture for generating and burning liquid hydrocarbons, a vaporizing-tube, a tip having a suitable opening and provided

with an internal collar surrounding said opening, a coupling connecting said tip with said tube, and a needle-point connected with said coupling arranged to pass through said opening in said tip to control the flow of vapor therethrough, substantially as set forth.

10. In an apparatus for generating and burning gas from liquid hydrocarbons, the combination with a suitable burner and a supply-pipe leading to a source of supply, of a vaporizing-tube having a tapering longitudinal opening arranged between said supply-pipe and the burner, said opening diminishing toward the discharge end of the tube, substantially as and for the purposes set forth.

11. In an apparatus for generating and burning gas from liquid hydrocarbons, the combination of a generator provided with a gradually-diminishing area toward its discharge end; a minute discharge-opening; a burner; a mixing-chamber intermediate the burner and said discharge-opening, said chamber being of a relatively large area; and an air-inlet for said chamber.

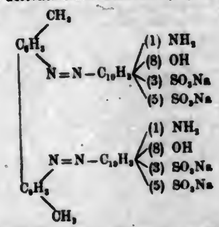
12. In an apparatus for generating and burning gas from liquid hydrocarbons, a gas-generating chamber comprising a tube of gradually-diminishing area toward its discharge end; a minute discharge-opening; and an enlarged chamber intermediate the opening and the end of the tube.

13. In an apparatus for generating and burning gas from liquid hydrocarbons, a gas-generating tube having a bar or rod mounted therein, said rod being provided with an inclined flat face upon one side and so arranged within the tube as to gradually diminish the area thereof toward the discharge end; and a discharge-tip mounted on the tube.

14. A fixture for generating and burning gas from liquid hydrocarbons, comprising in combination a tube or pipe 9 having a reservoir connected thereto; supply-pipe 4; a gas-generator 12 connected to pipe 4, and provided with a suitable valve; a mixing and conducting pipe 1 into which the gas is discharged; an air-inlet for said mixing-pipe and means for controlling it; a pipe 3 connecting pipe 9 and pipe 1; a pipe 22 communicating with the mixing-pipe; a chimney mounted on said pipe 22 below the generator 12; and a mantle of incandescing material mounted in said chimney.

606,436. BLUE DYE. FRITZ BENDER, Mühlheim, Germany, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., same place. Filed Dec. 22, 1897. Serial No. 663,042. (Specimens.) Patented in England Oct. 14, 1896, No. 19,263, and in France July 21, 1896, No. 258,853.

Claim.—As a new article of manufacture the dyestuff having in case the tetrazo derivative of tolidin is employed, the formula

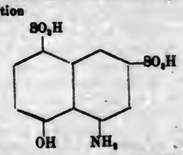


having the form of a dark powder with metallic luster, soluble in water giving a pure-blue solution, insoluble in spirit, soluble in concentrated sulfuric acid with a pure-blue color, and dyeing unmordanted cotton a pure-blue shade.

606,437. AMIDONAPHTHOLDISULFO-ACID AND PROCESS OF MAKING SAME. FRITZ BENDER, Mühlheim, Germany, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., same place. Filed Dec. 22, 1897. Serial No. 663,041. (Specimens.) Patented in England Oct. 14, 1896, No. 19,263, and in France July 21, 1896, No. 258,853.

Claim.—1. The process of producing 1.8 amidonaphthol 3.5 disulfo-acid, which process consists in sulfonating 1.8 amidonaphthol 3 monosulfo-acid, substantially as described.

2. As a new product the new 1.8 amidonaphthol 3.5 disulfo-acid having the composition

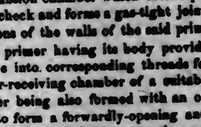


being easily soluble in hot water, but with difficulty soluble in cold water, the alkaline solution showing an intensely-violet fluorescence, the diazo compound being soluble in water with an intensely-yellow color which by carbonate of soda turns to violet; the said acid when boiled with dilute sulfuric acid at 140° centigrade yielding 1.8 amidonaphthol 3 sulfo-acid and when heated with dilute caustic-soda lye up to 230° centigrade yielding 1.8 dioxynaphthalene 3.5 (4.6) disulfo-acid, and being adapted to form an acid sodium salt.

606,438. BLUE-BLACK DYE. FRITZ BENDER, Mühlheim, Germany, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., same place. Filed Dec. 22, 1897. Serial No. 663,292. (Specimens.) Patented in England Oct. 14, 1896, No. 19,263, and in France July 21, 1896, No. 258,853.

Claim.—1. The diazo dyes derived from one molecular proportion of the herein-described "acid B" and two molecular proportions of a diazo compound such as diazo-benzene hereinabove mentioned, dissolving in water with a greenish to reddish blue color being insoluble or nearly so in spirit and dyeing wool in an acid-bath in greenish to bluish black shades.

2. The new dyestuff herein described and deriving from one molecular proportion of the "acid B" one molecular proportion of diazo-benzene and one molecular proportion of paranitrodiazo-benzene, having the formula



and which is soluble in water with a blue color but scarcely soluble in spirit, and the solution of which in concentrated sulfuric acid has a bluish-green tint and when diluted with water yields a blue precipitate; the said dyestuff dyeing wool in bluish-black shades.

606,439. GREEN DISAZO DYE. FRITZ BENDER, Mühlheim, Germany, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., same place. Filed Dec. 22, 1897. Serial No. 663,290. (Specimens.) Patented in England Oct. 14, 1896, No. 19,263, and in France July 21, 1896, No. 258,853.

Claim.—The new coloring-matter derived from 1.8 amidonaphthol 3.5 disulfo-acid, forming when dried a dark powder, dissolving in water with a green color, being scarcely soluble in spirit, giving with concentrated sulfuric acid a violet solution, which when diluted with water yields a violet precipitate; said coloring-matter dyeing unmordanted cotton in green shades.

606,440. PRIMER FOR ORDNANCE. THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Nov. 26, 1897. Serial No. 660,734. (No model.)



Claim.—1. A primer having its body provided with external threads which take into corresponding threads formed in the side walls of the primer-receiving chamber of a suitable cartridge-case, and the said primer being also provided with a laterally-expansible, annular gas-check inclosing a forwardly-opening, annular, gas receiving or expansion chamber which intercepts the gas which then expands the check and forms a gas-tight joint between it and the adjacent portions of the walls of the said primer-receiving chamber.

2. A primer having its body provided with external threads which take into corresponding threads formed in the side walls of the primer-receiving chamber of a suitable cartridge-case, and the said primer being also formed with an overhanging head which is grooved to form a forwardly-opening annular gas receiving or expansion chamber which intercepts the gas which then expands the check and forms a gas-tight joint between it and the adjacent portions of the walls of the said primer-receiving chamber.

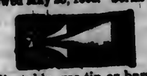
3. A primer having an overhanging head which is grooved to form a forwardly-opening annular gas-receiving chamber, inclosed by a laterally-expansible, integral, annular gas-check.

4. A primer provided with an independently-formed powder-cup fitted snugly into it, and projecting forward beyond its forward end.

5. A primer having an externally-threaded body, and provided with an independently-formed cylindrical powder-cup fitted snugly into it, and projecting forward beyond its forward end, and surrounded by a forwardly-opening annular gas-receiving chamber located at the forward end of the primer-body and inclosed by a laterally-expansible annular gas-check.

6. The combination with a cartridge-case having a threaded primer-opening, of a primer externally threaded for engagement therewith, and a laterally-expansible annular gas-check between said case and primer, substantially as described.

606,441. ACETYLENE-GAS TIP. LUDWIG K. BÖHM, New York, N. Y., assignor to the Electro Gas Company, of West Virginia. Filed May 3, 1893. Renewed May 25, 1898. Serial No. 681,754. (No model.)



Claim.—1. An adjustable gas tip or burner for mixing gas and air and consisting of an imperforate lower part having a nozzle extending therefrom which forms the outlet for the gas, an adjustable tip proper threaded at its lower outside portion and forming the outlet for the mixture and a wire-gauze mantle connecting the same, substantially as described.

2. In an adjustable gas tip or burner for mixing gas and air in various proportions and consisting of an imperforate lower part having a nozzle extending therefrom which forms the outlet for the gas, an adjustable tip proper threaded at its lower outside portion and forming the outlet for the mixture in combination with a wire-gauze mantle between the two and connecting the same, substantially as described.

606,442. CURTAIN-FIXTURE. JUDITH R. BULLIS, Ann Arbor, Mich., assignor to the Ann Arbor Manufacturing Company, same place. Filed Nov. 22, 1897. Serial No. 659,497. (No model.)



Claim.—1. The combination with a curtain-pole having inwardly-extending supporting-arms at the ends forming continuations of the pole over which the rings are adapted to be moved, of false end pieces supported free from the pole and in the line of the pole proper, substantially as described.

2. The combination with a curtain-pole having inwardly-extending supporting-arms at the ends forming continuations of the pole over which the rings are adapted to be moved, and a securing-plate at the end of these arms, of false end pieces in line with the pole proper, but separated therefrom to allow of the passage of the rings between, and arms projecting from the securing-plate supporting said false end pieces.

3. In a curtain fixture, the combination with the curtain-pole having the curved ends for the purpose described, of the arms G extending out beside the curved arms of the pole and the false end pieces C forming apparent end extensions of the pole, projecting on both sides of the arms G, for the purpose described.

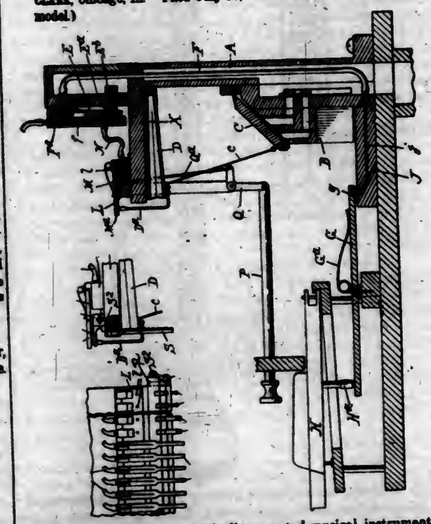
606,443. SEWING-MACHINE SHUTTLE. MARY F. BURROUGHS, Marshall, Mo. Filed May 11, 1897. Serial No. 636,093. (No model.)



Claim.—1. A shuttle, comprising a casing rounded to conform to the contour of the spool of thread, one of the end walls of the casing being hinged thereto, the opposite end being pointed, a door hinged to the casing by means of which access may be obtained to the interior of the casing for inserting the spool of thread therein, means for securing the said door in a closed position, said door being provided with a slot through which the thread is adapted to be passed, a guide upon the exterior of the door for holding and guiding the thread, and a screw adapted to be passed through the casing and bear at its end upon the spool to regulate its rotation, substantially as set forth.

2. The combination of a shuttle-carrier provided with a guiding side wall and an end wall, a shuttle comprising a casing having its end wall hinged thereto and its opposite end pointed and adapted to be positioned within the said shuttle-carrier, a door for the shuttle by means of which access is obtained to the interior thereof, a latch whereby said door is secured in closed position, a spring-guide upon the door for directing the thread from the said shuttle, and a tension device by means of which the rotation of the spool of thread is regulated, substantially as described.

606,444. COUPLER FOR PNEUMATIC-ORGANS. MELVILLE CLARK, Chicago, Ill. Filed July 30, 1897. Serial No. 646,475. (No model.)



Claim.—1. In a pneumatically-operated musical instrument, in combination with the motor-pneumatics and the primary pneumatics which operate them, vent-valves for the primary pneumatics respectively, and mechanical connections by which the motor-pneumatics may actuate the vent-valves of the octave distant primary pneumatics respectively.

2. In a pneumatically-operated musical instrument, in combination with the motor-pneumatics and primary pneumatics which operate them; vent-valves for the primary pneumatics respectively; movable mechanical connections by which the motor-pneumatics may actuate the vent-valves of the octave distant primary pneumatics, and means for moving the same into and out of movement-communicating position.

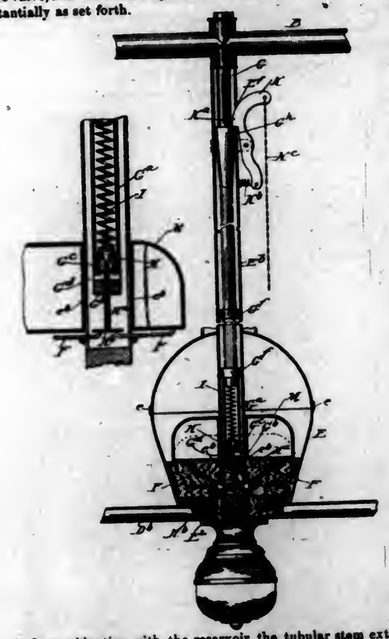
3. In a pneumatically-operated musical instrument, in combination with the motor-pneumatics and the primary pneumatics which operate them respectively; ducts leading from the primary pneumatics and valves which control such ducts located proximate to the octave distant motor-pneumatics respectively; and mechanical connections by which the motor-pneumatics act upon such proximate primary pneumatic valves to cause their respective sound-producing devices to speak.

4. In a pneumatically-operated musical instrument, in combination with the motor-pneumatics and the primary pneumatics which operate them; a coupler-board and ducts leading from the primary pneumatics respectively to such board; valves on the board which control the ducts respectively located proximate to the motor-pneumatics which are an octave distant from the primary pneumatics from which the ducts respectively lead; abutments extending from the motor-pneumatics and adapted to encounter their proximate valves respectively, the board being movable to carry such valves into and out of the range of the motor-pneumatic abutments respectively.

606,445. LAMP. ROBERT D. CODY, Chicago, Ill. Filed June 14, 1897. Serial No. 640,682. (No model.)

Claim.—1. In combination with the burner, an oil-reservoir fixed with respect thereto having an upwardly-extending tubular stem affording access into the reservoir; a fixed oil-supply pipe terminating downwardly and provided with a valve at its lower end, and adapted to be inserted with its valve through said tubular stem of the reservoir into the latter, and an annular float within the reservoir, through whose central opening the downwardly-terminating valved supply-

pipe protrudes; a plurality of levers fulcrumed within the reservoir below the float adapted to act upon the downwardly-protruding stem of the valve, and to be acted upon at their opposite ends by the float; substantially as set forth.



2. In combination with the reservoir, the tubular stem extending thereinto from the top and secured thereto at the bottom, the oil-supply pipe extending downwardly through the tubular stem, and a valve at the lower end of the pipe supported thereby and adapted to seat downwardly; the annular float without the encompassing tubular stem, and a plurality of levers fulcrumed within the reservoir underneath the float disposed radially with respect to the stem, and adapted at their inner ends to be encountered by the lower end of the valve-stem, and at their outer ends to be encountered by the float; and suitable disengageable means for securing the tubular stem to the depending supply-pipe.

606,446. FUMIGATOR. JOSEPH T. COMMONS, New York, N. Y. Filed Feb. 28, 1898. Serial No. 671,945. (No model.)

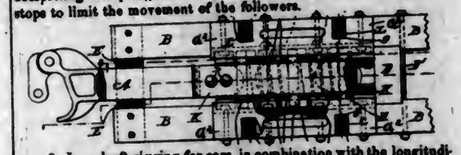


Claim.—A fumigator for toilet rooms and other similar places, composed of the strand-supporting card, with an eyelet-hole at one end for its suspension from a nail or the like, and a notched button at the other end thereof, forming a strand-holder and extinguisher, and of a strand of combustible material which is wound on the card between its ends and adapted to engage and interlock with the notched button, substantially as herein described

606,447. DRAFT-RIGGING FOR RAILWAY-CARS. JOHN CONRATH, Chicago, Ill. Filed Mar. 28, 1898. Serial No. 675,354. (No model.)

Claim.—1. In a draft-rigging for cars, in combination with the draft-timbers, a plurality of groups of springs arranged tandem between the draft-timbers; followers between consecutive groups and beyond the extreme groups in both directions; the draw-bar adapted to abut against the nearest follower; a draft connection therefrom extending beyond the most remote follower, and stops rigid with the draft-timbers to limit the inward movement of the extreme followers, each intermediate follower having a range of movement in both directions from the position at which it is held by the springs when free from any action of the draw-bar, a distance equal to the compression for which the springs are calculated.

2. In a draft-rigging for cars, in combination with the draft-timbers, face-plates G let into the proximate faces of the timbers respectively and having horizontal flanges at top and bottom which are also let into the upper and lower sides of the timbers respectively; the draw-bar and draft connections therefrom between the face-plates comprising the springs and followers; the face-plates having rigid stops to limit the movement of the followers.



3. In a draft-rigging for cars, in combination with the longitudinal sills; the draft-timbers and face-plates provided for the same having flanges extending over the upper surface of the draft-timbers, such flanges being let into said timbers, the flanges having notches; keys let into the lower side of the sills and upper side of the draft-timbers and extending through the notches in the flanges; and bolts which bind the draft-timbers up against the under side of the sills.

4. In a draft-rigging for cars, in combination with draft-timbers, the face-plates made rigid therewith; the draw-bar and draft connection therefrom, and the springs and followers associated therewith between the face-plates; the ends of the followers extending laterally beyond the springs and stops and upper guides for said ends on the face-plates, said face-plates having at their lower edges inwardly-projecting flanges cut away below the path of the followers respectively and provided with longitudinal inwardly-facing grooves between said cut-away portions; and a slide adapted to be inserted in such grooves underneath the followers and springs, and to afford lower support and guidance for the followers, and suitable key to retain such slide against longitudinal displacement.

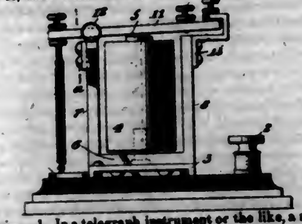
5. In a draft-rigging for cars, in combination with draft-timbers, the face-plates made rigid therewith; the draw-bar and draft connections therefrom, and the springs and followers associated therewith between the face-plates; the ends of the followers extending laterally beyond the springs and stops and upper guides for said ends on the face-plates; said face-plates having at their lower edges flanges cut away below the path of the followers respectively and provided with longitudinal inwardly-facing grooves between said cut-away portions; and a slide adapted to be inserted in such grooves underneath the followers and springs, and to afford lower support and guidance for the followers, said face-plates having each an apertured lug G^3, and the slide having a correspondingly-situated apertured lug whose apertures are adapted to register with the apertures of the lugs of the face-plates when the slide is in operative position, and a suitable removable key inserted through said apertures.

606,448. SASH-FASTENER. ORRY L. CORBIN, Columbus, Ohio. Filed Nov. 10, 1896. Serial No. 611,664. (No model.)



Claim.—A window-sash fastener consisting of an anchor-plate let into the window-frame and having a struck-up notched longitudinal rib corresponding to and forming a continuation of the parting-bead; an angle-plate let into the adjacent corner of the upper-sash stile and having corresponding notches; and a spring-seated sliding bolt on the top of the meeting-rail of the lower sash, mounted obliquely thereof, so as to be adapted to enter a notch of the anchor-plate and one of the angle-plate at the same time.

606,449. TELEGRAPH INSTRUMENT. JAMES I. OUTLER, Cincinnati, Ohio, assignor of one-half to Edwin Goodes, same place. Filed Oct. 18, 1897. Serial No. 655,532. (No model.)



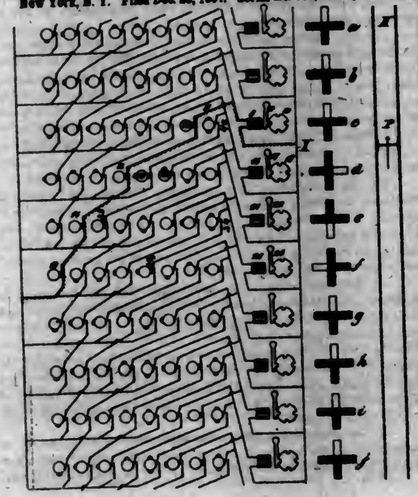
Claim.—1. In a telegraph instrument or the like, a magnet comprising a core, a coil wound thereon and a soft-iron bar connected at its central part to one end of the core and having its ends bent to form arms extending along opposite sides of the coil with their extremities adjacent to the free end of the core, in combination with an armature-lever located in the field of the magnet pivoted on one of the arms and extending in line with the free ends of the arms and core, substantially as set forth.

2. In a telegraph instrument or the like, the combination of a core, a coil wound thereon and a soft-iron bar connected at its central part to one end of the core and having its ends bent to form arms extending along opposite sides of the coil and having their extremities adjacent to the free end of the core, in combination with an armature-lever located in the field of the magnet and pivotally connected with one of said arms in position to move in line with the other arm and the core, and stops on the last-mentioned arm to limit the movement of the armature-lever substantially as set forth.

3. In a telegraph instrument or the like, the combination of a magnet comprising a core, a coil thereon and a bar connected at its central part to one end of the core and having its ends bent to form arms extending along opposite sides of the coil with their extremities adjacent to the free end of the core, a plate carried by one arm, an armature-lever pivotally connected to said plate, a plate carried by the other arm and forming a stop to limit the movement of the armature-lever, and a spring to hold said lever in its normal position, substantially as set forth.

4. In a telegraph-sounder, the combination of a magnet comprising a core, a coil wound thereon and a soft-iron bar connected at its central part to one end of the core and having its ends bent to form arms extending along opposite sides of the coil with their extremities adjacent to the free end of the core, a plate secured to one side of one arm and having upwardly-projecting side portions, an armature-lever pivoted between said side portions and arranged to move in line with the upper ends of the arms and core, stops carried by the other arm to limit the movement of the armature-lever, and a retracting-spring for the armature-lever, substantially as set forth.

606,450. RAILWAY SIGNALING SYSTEM. CHARLES H. DAVIS, New York, N. Y. Filed Dec. 30, 1897. Serial No. 664,195. (No model.)



Claim.—1. In a railroad signal system, a railway-line, a single series of signaling devices in proximity thereto, each device being constructed to exhibit a danger-signal and a safety-signal, and interlocking mechanism connecting each device with two or more immediately-succeeding signaling devices; the said devices being constructed and arranged so that a given device cannot be set to exhibit a safety-signal ahead of a train until it shall have exhibited a danger-signal as many times as there are succeeding devices interlocked with it in rear of said train, and unless said succeeding devices shall previously have been set to exhibit "danger," substantially as described.

2. In a railroad signal system, a railway-line, a single series of signaling devices in proximity thereto, each device being constructed to exhibit a danger-signal and a safety-signal and interlocking mechanism connecting said devices; the said devices and interlocking mechanism being constructed and arranged so that each device successively from one end of the line to the other may be set to exhibit a safety-signal ahead of a train provided the two or more immediately-succeeding devices in rear of said train are previously set to exhibit "danger," substantially as described.

3. In a railroad signal system, a railway-line, a single series of signaling devices in proximity thereto, each device being constructed to exhibit a danger-signal and a safety-signal and interlocking mechanism connecting said devices; the said devices and interlocking mechanism being constructed and arranged to exhibit a danger-signal everywhere when the line is unoccupied, and so that each device having once been set to "safety" cannot again be so set until it shall have exhibited a danger-signal as many times as there are succeeding devices interlocked with it, substantially as described.

4. In a railroad signal system, a single series of signal devices each having a safety-signal and a danger-signal, means for actuating said signals to cause them to be displayed, a locking device engaging with said means, circuit-closing devices controlled by said means, an electromagnet controlling said locking device and circuit connections substantially as set forth; whereby the said signaling devices are interlocked so that the safety-signal of one device cannot be exhibited ahead of a train unless the danger-signals of two or more succeeding signaling devices in rear of said train are also exhibited, substantially as described.

5. In a railroad signal system, a single series of signal devices each having a signal-arm indicating "safety" and a signal-arm indicating "danger," a rotary shaft actuated coincidently with said arms, a locking device engaging with said shaft, an electromagnet controlling said locking device, circuit-closing devices controlled by said shaft and circuit connections substantially as set forth; whereby the said signaling devices are interlocked so that the safety-signal of one device cannot be exhibited ahead of a train unless the danger-signals of two or more succeeding signaling devices are also exhibited in rear of said train, substantially as described.

606,451. PERAMBULATOR. WILLIAM H. ENGLISH, Detroit, Mich. Filed Feb. 14, 1898. Serial No. 670,201. (No model.)



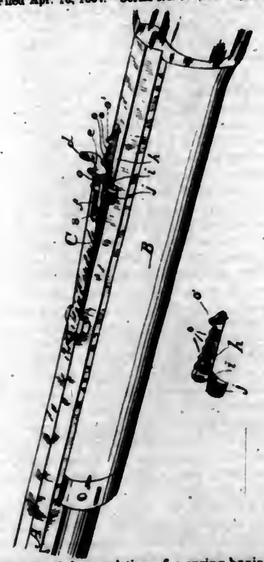
Claim.—1. In a perambulator, the combination of the frame A having wheels at the lower end, of a hinged seat, a rearwardly-extending hinged wheeled arm, a folding link connecting the arm to the stationary part of the frame and a connection from the folding link to the seat whereby the folding of both the seat and the arm is effected by moving one.

2. In a perambulator the combination of the frame A having a wheeled axle at the lower end, of a rearwardly-inclined arm I pivoted to the frame and having a wheel or wheels at the lower end, a folding link having a rule-joint connecting the axle of the frame with the arm and the link connecting the folding link with the seat, whereby the drawing up of the seat will positively fold in the arm I, substantially as described.

3. In a perambulator, the combination of the frame A, the arm I pivoted thereto and extending rearwardly and downwardly therefrom having a wheel or wheels at its lower end, the folding link L

connecting the arm with the axle K, the link having a slot connection with the arm I, the link M connecting the folding link with the seat and a bail or bar O on the seat with which the upper end of the link M has a sliding engagement, the parts arranged as and for the purpose described.

606,452. SIGHT FOR FIREARMS. SOPHIAN H. FISCHER, Hayward, Cal. Filed Apr. 16, 1897. Serial No. 632,475. (No model.)



Claim.—1. A gun-sight consisting of a spring having a sight at one end while its opposite end is secured to the barrel of the gun; a longitudinal slot formed in said spring; a hump or bend in the spring on one side of the slot; an inclined slide or elevator having its upper inclined edge provided with notches or stops adapted to move in the slot; a lug or knob at the lower end of the incline; a shank adapted to pass under the spring on one side of the slot, and a thumb-piece at the outer end of the shank, substantially as described.

2. A gun-sight comprising a spring having a sight at its rear end, while its front end is fastened to the barrel of the gun, said spring having a longitudinal slot adapted to receive a sliding elevator, and a sliding inclined block or elevator guided in said slot, said block or elevator having its upper inclined edge formed into notches to provide graduated steps for the sight-piece, said elevator having a shank extending laterally therefrom, said shank carrying a vertically-disposed shoulder opposing the outer side of the spring to prevent lateral motion of the elevator, substantially as described.

606,453. FILTERING APPARATUS. GEORGE G. FRYER, Syracuse, N. Y., assignor to The Solvay Process Company, same place. Filed Mar. 2, 1897. Serial No. 626,736. (No model.)



Claim.—1. The combination of a cylindrical filtering-body having a perforated peripheral filtering-surface, a facing consisting of an endless band encircling the filtering-surface and having its side portions extended beyond the side edges of said surface, said facing being formed with perforations of less size than the perforations of the filtering-surface, and a retaining-band wound spirally around the facing and engaged with the side portions of the facing at opposite sides of the filtering-surface for securing the facing in position, substantially as and for the purpose described.

2. The combination of a cylindrical filtering-body having a perforated peripheral filtering-surface, a facing consisting of a perforated band encircling the peripheral surface, and a retaining-band for holding the facing in position, said retaining-band being embedded into the facing and having its outer face substantially coincident with the outer face of the facing, substantially as and for the purpose specified.

3. The combination of a cylindrical filtering-body having its periphery perforated, a perforated facing encircling said periphery, and a retaining-band wound spirally around the facing and having its convolutions surrounding the intermediate or substantially central portion of the facing separated a greater distance than its convolutions surrounding the side portions of said facing, said band being embedded in the facing, substantially as and for the purpose described.

4. The combination of a cylindrical filtering-body having a filtering-surface and flanges projecting from the filtering-body at opposite sides of said surface, the adjacent faces of the flanges being provided with annular grooves formed of greater diameter than the filtering-surface, a perforated facing encircling the filtering-surface and having its side portions extended beyond said filtering-surface and inserted into the annular grooves, and a retaining-band engaged with the portion of the facing interposed between said flanges, substantially as and for the purpose specified.

5. The combination of a cylindrical filtering-body having a filtering-surface and flanges projecting from the filtering-body at opposite sides of said surface and formed with annular grooves in their adjacent faces, a facing consisting of a perforated band encircling the filtering-surface and having its side portions inserted into the annular grooves, and a retaining-band wound spirally around the portion of the facing interposed between the flanges, said retaining-band being embedded into the facing, substantially as and for the purpose set forth.

6. The combination of a cylindrical filtering-body consisting of a tubular wall and opposite end walls detachably secured to the extremities of the tubular wall, a facing consisting of a perforated band encircling the tubular wall, and a retaining-band wound spirally around the facing and having its opposite ends secured to said end walls, substantially as and for the purpose described.

7. The combination of a revoluble filtering-body consisting of a tubular wall and opposite end walls secured to the extremities of the tubular wall and having their adjacent faces formed with annular grooves, a perforated facing encircling the tubular wall and having its side edges inserted into the annular grooves, and a retaining-band wound spirally around the facing and having its ends secured to said end walls, substantially as and for the purpose specified.

8. The combination of a movable filtering-body consisting of a perforated tubular wall, and opposite end walls, one of which end walls is formed with a perforation extending therethrough, a perforated facing encircling the tubular wall, and a retaining-band wound spirally around the facing and having one of its ends passed through the perforation in said one of the end walls, substantially as and for the purpose specified.

9. The combination of a movable filtering-body consisting of a perforated tubular wall, and opposite end walls having their adjacent faces formed with annular grooves, said end walls being also formed with perforations extending therethrough from the annular grooves, a perforated facing encircling the tubular wall and having its side portions inserted into the annular grooves, and a retaining-band wound spirally around the facing and having its opposite ends passed through the perforations in the end walls, substantially as and for the purpose set forth.

10. The combination of a revoluble filtering-body consisting of a perforated tubular wall, opposite end walls having their adjacent faces formed with annular shoulders engaged with the inner faces of the opposite extremities of the tubular wall, gaskets or packing-rings interposed between the end faces of the tubular wall and the adjacent faces of the end walls, clamping means for securing together said tubular and end walls, a perforated facing surrounding the tubular wall, and a retaining-band wound around the facing and secured to the end walls, substantially as and for the purpose specified.

11. The combination of a cylindrical filtering-body having its periphery provided with grooves extending substantially parallel with the axis of the body, a facing consisting of a perforated band encircling said periphery, and a retaining-band wound spirally around the facing and extending substantially crosswise of the grooves, substantially as and for the purpose described.

12. The combination of a cylindrical filtering-body having its periphery provided with grooves arranged substantially parallel with the axis of said body and extending inwardly from said periphery and each communicating at intervals with the inner chamber of the filtering-body, a facing consisting of a perforated band encircling the periphery of the filtering-body and extending beyond the ends of the grooves, and a retaining-band extending substantially crosswise of the grooves for securing the facing in position, substantially as and for the purpose specified.

13. The combination of a cylindrical filtering-body having its periphery provided with annular grooves, a facing consisting of a perforated band encircling the periphery of the filtering-body for covering the annular grooves, and a retaining-band for securing the facing in position, said retaining-band being supported by portions of the periphery of the filtering-body arranged between the annular grooves, substantially as and for the purpose set forth.

14. The combination of a cylindrical body having the inner face of its peripheral wall provided with grooves and the periphery of said wall formed with grooves extending substantially crosswise of the first grooves and communicating at intervals with the first grooves, a facing consisting of a perforated band encircling the periphery of the filtering-wall for covering the grooves in said periphery, and a retaining-band for securing the facing in position, said retaining-band being embedded in the facing, substantially as and for the purpose described.

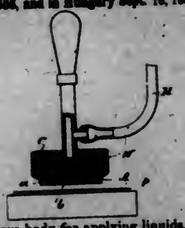
15. The combination of a cylindrical filtering-body having its peripheral wall provided with grooves arranged substantially parallel with the axis of the filtering-body and extending inwardly from said periphery and each communicating at intervals with the inner chamber of the filtering-body, said periphery being also provided with annular grooves intersecting the first grooves and formed of less depth than the first grooves, and a facing consisting of a perforated band encircling the periphery of said peripheral wall for covering said grooves and having its side portions extended beyond the ends of the first grooves and the outermost annular grooves, substantially as and for the purpose specified.

16. The combination of a cylindrical body having the inner face of its peripheral wall provided with grooves and the periphery of said wall formed with grooves extending substantially crosswise of the first grooves and communicating at intervals with said first grooves, a facing consisting of a perforated band encircling the periphery of the peripheral wall for covering the second grooves, and a retaining-band extending substantially crosswise of the second grooves for securing the facing in position, substantially as and for the purpose set forth.

17. The combination of a filtering-body formed with a tubular wall having its inner face provided with annular grooves and its periphery formed with lengthwise grooves communicating at intervals with the annular grooves, a facing consisting of a perforated band encircling the periphery of the tubular wall for covering the grooves in said periphery, and a retaining-band wound spirally around the facing and extending substantially crosswise of the second grooves for securing the facing in position, substantially as and for the purpose described.

18. The combination of a filtering-body formed with a tubular wall having its inner face provided with annular grooves communicating with the inner chamber of the filtering-body and its periphery formed with lengthwise grooves communicating at intervals with the annular grooves, said periphery being provided with annular grooves intersecting the lengthwise grooves and formed of less depth than said lengthwise grooves, a facing consisting of a perforated band encircling the periphery of the tubular wall for covering the grooves in said periphery, and a retaining-band extending substantially crosswise of the lengthwise grooves for securing the facing in position, said retaining-band being embedded in the facing, substantially as and for the purpose specified.

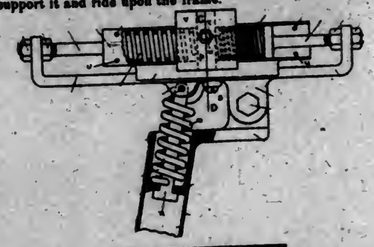
606,454. APPARATUS FOR APPLYING LIQUIDS TO TEXTILE FABRICS. FERDINAND GERARD, Paris, France. Filed Mar. 14, 1895. Serial No. 541,602. (No model.) Patented in France May 15, 1894, No. 236,545; in Spain Jan. 19, 1895, No. 16,049; in Belgium Jan. 22, 1895, No. 112,734; in England Jan. 22, 1895, No. 1,518; in Germany Jan. 26, 1895, No. 84,451; in Switzerland Jan. 26, 1895, No. 9,941; in Italy Jan. 31, 1895, XXIX, 38,153, and LXXV, 19; in Austria July 15, 1895, No. 45/2,566, and in Hungary Sept. 16, 1895, No. 4,473.



Claim.—A porous body for applying liquids, built up of sections of non-absorbent material alternating with sections of a bibulous or absorbent nature, and a porous layer or pad in contact with the inner faces of said sections, substantially as described.

606,455. BICYCLE-SEAT SUPPORT. JOSEPH M. GLENNON, Chicago, Ill. Filed Sept. 13, 1895. Serial No. 562,575. (No model.)

Claim.—In a seat-support for a bicycle or other saddle a frame; the rods provided with plungers or pistons secured thereto; a seat connection provided with tubes for said plungers and a central partition; springs placed between said partition and said plungers within said tubes, and a rider-plate attached to the seat connection adapted to support it and ride upon the frame.

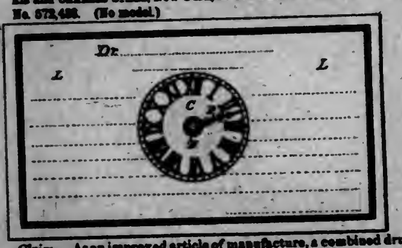


606,456. DENTAL MOUTH-MIRROR. CHARLES HARRISON, Bowmanville, Canada, assignor to James W. Ivory, Philadelphia, Pa. Filed June 1, 1896. Serial No. 593,393. (No model.)



Claim.—A dental mouth-mirror consisting of the reflector A, the angular bracket B, having said reflector A secured to one of its limbs, the sleeve D in which the horizontal limb of said bracket is adjusted, and which is provided at one end with the ball E, the spring-clamp G adapted to be secured to a tooth, and having a bent upper end and a spring-socket, the latter inclosing the ball E.

606,457. DRUGGIST'S AND MEDICINE LABEL. AARON HARRIS and CHARLES STAHL, New York, N. Y. Filed Dec. 17, 1895. Serial No. 572,488. (No model.)



Claim.—As an improved article of manufacture, a combined druggist's time-indicating and direction label, comprising a flexible card, a clock-dial imprinted thereon, a rotary indicating-hand therefor; the remaining portion of said card being appropriately lettered and ruled for said direction, substantially as described.

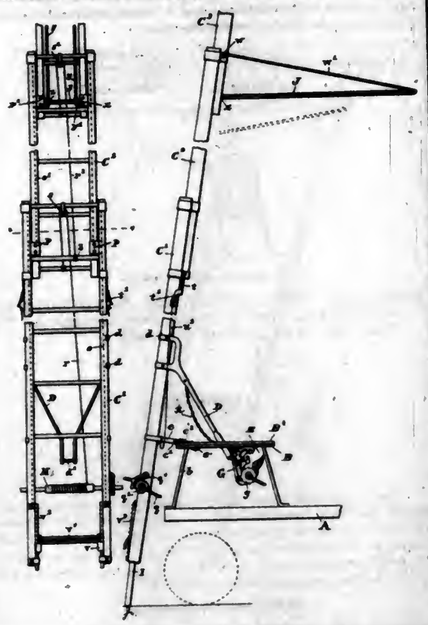
606,458. EXTENSION-LADDER. FREDERICK HEISE, Baltimore, Md. Filed Mar. 31, 1898. Serial No. 675,851. (No model.)

Claim.—1. The combination of a truck-frame; a ring turn-table elevated on standards above the truck-frame; a ladder pivoted to the movable ring of said elevated turn-table; two lifting-arms, D, each having an end attached to a different one of the side bars of the pivoted ladder and said arms inclining downward through the ring turn-table and also toward each other and their lower unattached ends joined; a winding-drum carried by the elevated movable ring; and a chain attached to the joined ends of said lifting-arms and connected with the winding-drum, as shown and described.

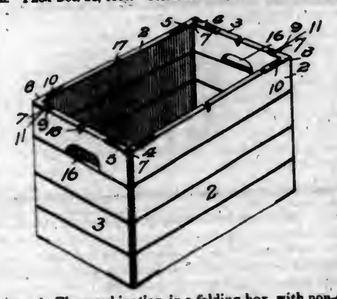
2. An extensible ladder having in combination three slidable sections; two horizontal guide-rods on the third section; a bracket having one end pivoted and also slidable on the said rods; link-rods having one end pivoted to the upper end of the second section and their other ends jointed to said bracket; and means to extend the three sections whereby when fully extended the bracket will automatically project in an inclined or horizontal position.

3. The combination of a truck; a turn-table mounted on the truck; a ladder pivoted to the movable member of the turn-table;

mechanism to raise and lower the ladder; a ratchet-bar, v^3, attached to the lower end of each side bar of the ladder; a slidable extension-bar, I, adjoining each ratchet-bar; and a dog or pawl, v, carried with each extension-bar to engage the said ratchet-bar, as set forth.



606,459. FOLDING BOX. ARTHUR O. HUBBARD, Minneapolis, Minn. Filed Dec. 21, 1897. Serial No. 662,787. (No model.)



Claim.—1. The combination, in a folding box, with non-overlapping side and end walls, of hinge-plates secured to the upper and lower edges of said walls and overlapping the same, and pivot pins or rods passing through said plates and vertically through said walls, substantially as described.

2. The combination, in a box, with the sides and ends, each composed of a series of strips or slats placed one above the other, of plates arranged between said strips and upon the upper edges of the top strips and the lower edges of the bottom strips and overlapping said sides and ends, and lacing-wires passing vertically through said plates and through said strips or slats, substantially as described.

3. The combination, in a folding box, with the sides and ends, each composed of a series of strips or slats placed one above the other, of plates arranged between said strips and upoo the upper edges of the top strips and the lower edges of the bottom strips, and overlapping said sides and ends, lacing-wires passing vertically through said plates and through said strips or slats, and pivot pins or rods also passing through said plates and said strips, substantially as described.

4. The combination, in a folding box, with the sides and end walls, of hinges secured to the upper and lower edges of one of said abutting walls at each corner of the box, said hinges composed of horizontal plates overlapping the abutting walls, and pivot pins or rods passing through the free ends of said plates, and vertically through the walls, for the purpose set forth.

5. The combination, in a folding box, with the sides and ends, of plates or straps arranged at intervals in the sides and ends at the corners of said box, and at the top and bottom thereof, means for securing said plates in the corners of the box, said plates overlapping the abutting sides and ends, and pivot-pins passing through said plates and vertically through the walls at the corners of the box, substantially as described.

6. In a folding box, the combination, with the sides and ends, of plates 4, 4, and 5, 5, arranged at two diagonal corners of the box, said plates having overlapping ends, and lacing-wires passing through said plates and vertically through said sides or ends, and pivot pins or rods passing through the overlapping ends of said plates, and vertically through the walls at the corners of the box, and angle irons or plates pivotally arranged at the other diagonal corners, substantially as described.

7. In a folding box, the combination, with the sides and ends, of plates 8, 8, having lateral extensions 9, 9, arranged at two diagonal corners of the box, lacing-wires whereby said plates are secured to the sides of the box, pivot pins or rods passing through said extensions 9, 9, and through the ends of the box and whereon the sides and ends are swung when the box is folded or unfolded, substantially as described.

8. The combination, in a folding box, with the sides and ends, of plates or straps secured to said sides and ends at the corners of the box, pins or rods passing through said plates and vertically through said sides and ends and forming pivots whereon the same are swung when the box is folded or unfolded, slots provided in the upper edges of said sides and ends, and dowel-pins in the lower edges of the same, for the purpose set forth.

9. In a folding box, the combination, with the sides and ends, of the angle irons or plates secured at two diagonal corners of the box, said irons comprising plates 8, 8, having the lateral extensions 9, 9, pivot-pins passing through said extensions and vertically through the ends of the box, a swinging bottom, the distance between said pivot-pins and the sides of the box corresponding substantially to the thickness of said bottom, for the purpose set forth.

10. The combination, in a folding box, with the sides and ends, composed of a series of strips or slats placed one above the other, of plates arranged between said strips and upon the upper edges of the top strips and the lower edges of the bottom strips and overlapping said sides and ends, lacing-wires passing vertically through said plates and through said strips or slats, and the lips or flanges provided upon the edges of said plates, for the purpose set forth.

11. The combination, in a box, of a series of slats or narrow boards making up each side and end thereof, hinge-plates overlapping the abutting side and end walls, and metallic fastenings included by the thickness of said slats or boards and passing through the same and said plates to secure them together, substantially as described.

12. The combination, in a box, of a series of slats or narrow boards making up each side and end thereof, and metallic fastenings included by the thickness of said slats or boards and between the same for securing them together, and means having fastenings within the body of the slats or boards and pivoting the sides and ends, substantially as described.

13. The combination, in a box, with non-overlapping side and end walls, of hinge-plates arranged at the corners of the box and included in the thickness of said walls and overlapping their abutting ends, and metallic fastenings passing through said plates and vertically through said walls, substantially as described.

14. In a folding box, the combination, with side and end walls and a swinging bottom, of plates included between the inner and outer surfaces of said walls and overlapping their abutting ends, pivot-pins passing through said plates and vertically through said walls at or near the apexes of two diagonal corners and in the remaining diagonal corners at a distance from their apexes corresponding substantially to the thickness of said bottom.

606,460. DENTAL MATRIX-RETAINER. JAMES W. IVORY, Philadelphia, Pa. Filed Nov. 20, 1897. Serial No. 659,286. (No model.)



Claim.—1. A matrix consisting of a band having a loop at one end and the other end passing through said loop, a barrel having a longitudinal slot therein, a follower mounted in said barrel and adapted to be connected with the free end of said band, a lip on said follower adapted to register with said slot, and a nut engaging with said follower and bearing on said barrel.

2. The combination with a matrix consisting of a band having a loop at one end and the other end passing through said loop, of a barrel having a serrated bearing end, a follower mounted in said barrel and engaging with the free end of said band, and means for moving said follower in said barrel.

3. A follower provided with a lip and means for connection with a matrix, a barrel which is adapted to receive said follower, and having a slot in which said lip is adapted to have longitudinal play, and means for operating said follower, said barrel having a recess in its side, the same being adapted to have the end of the matrix-band seated therein.

4. In a dental matrix-retainer, a barrel containing a follower which may be connected with and control a matrix, and serrations on the end of said barrel for engagement with a tooth.

606,461. WIRE-FENCE CLAMP. FERDINAND JOHNSON, New London, Pa. Filed Mar. 29, 1898. Serial No. 675,576. (No model.)



Claim.—1. A wire-fence clamp consisting of a body portion formed with parallel arms, webs projecting therefrom at angles thereto, and the integral fingers extending inwardly and approximately parallel with said arms, substantially as described.

2. The improved sheet-metal wire-fence clamp, formed with the integral alined arms 7, 7 connected at their outer ends with the integral right-angular webs 8, 8 which terminate in the alined integral fingers 9, 9, substantially as shown and described.

606,462. CASTER. JOHN A. KNIERIEM-MCGREGOR, Chicago, Ill. Filed Apr. 4, 1896. Serial No. 586,155. (No model.)



Claim.—1. A socket for a pin-caster, as herein shown and described, consisting of two parts, each having a semitubular portion, an external flange on either side, and a triangular-shaped prolongation, the two parts being riveted or otherwise secured together at the end, the mouth of the tubular portion being secured by an overhanging flanged annular plate, with which the tubular portion is caused to interlock, as shown and described.

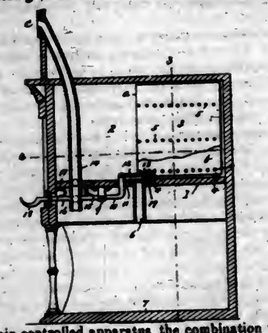
2. A wheel for casters consisting of a flat disk, two saucer-shaped spacing-disks placed on opposite sides of the flat disk with their edges leward, two shaped disks having equidistant lugs or arms turned up at right angles to the disk portions and which are placed outside the other disks and are so arranged that the arms of one shaped disk will interlock with the arms of the other shaped disk, the arms of each disk extending beyond the other disk so that by pressure in a die the extending portions may be caused to curl round and grip onto the outside of the opposite disk portion, facing pieces or disks placed outside the lining formed as above, and a length of tube, the ends of which by pressure in a die are caused to curl round inward to press the facing pieces against the lining and secure all the parts firmly, as set forth.

3. A wheel for casters consisting of spacing-pieces, two shaped disks formed with equidistant lugs or arms, the arms of one disk adapted to interlock with the arms of the other disk and to overlap, the overlapping portions being curled round by pressure in a die to grip onto the outer face of the opposite disk, as set forth.

606,468. COIN-OPERATED MECHANISM. JOHN D. KNEBLER, Sioux City, Iowa, assignor of one-half to James Henry Ball, Oakland, Nebr. Filed Mar. 29, 1897. Serial No. 629,703. (No model.)

Claim.—1. In a coin-controlled apparatus, the combination with a cabinet having a floor with a transverse opening therein, a carriage movable over said transverse opening and provided with a series of vertical spaces or compartments, together with levers operating the carriage through the intervention of a coin, one of the levers being spring-actuated and having a pawl to engage a series of projections on the carriage corresponding in number with the spaces or compartments therein, substantially as shown and set forth.

2. In a coin-controlled apparatus, the combination with a cabinet having a floor with a transverse opening 6, of a carriage movable upon the floor over said transverse opening and provided with a series of vertical spaces or compartments, lugs or projections extending from said carriage, and levers adapted to operate or move the carriage when a coin is interposed between the adjoining ends of the same, one of the levers having a pawl which engages the projections of said carriage, substantially as shown and for the purpose set forth.

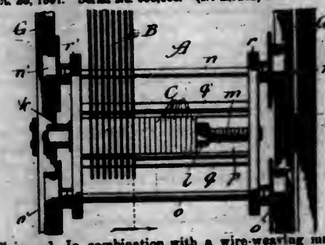


3. In a coin-controlled apparatus, the combination with a cabinet having a floor with a transverse opening, of a carriage or case movable on said floor over the transverse opening and provided with projections, a lever pivoted within the cabinet and provided with a pawl in engagement with said projections, a second lever having its inner end adjoining the end of the aforesaid lever, and a tube or coin-chute leading to the space between the adjoining ends of the levers, substantially as shown and for the purpose set forth.

4. In a coin-controlled apparatus, the combination with the floor having a transverse opening therein, of a carriage movable upon the floor over said transverse opening and provided with a series of vertical spaces or compartments, projections on said carriage corresponding in number with the vertical spaces or compartments, a lever centrally fulcrumed and provided at its rear end with a pawl in engagement with said projections and at its other end with a curved depending portion, a second lever pivoted in the cabinet and having its inner end curved downward and located adjoining the corresponding end of the other lever, and a coin-chute leading to the space between said levers, substantially as shown and for the purpose set forth.

5. In a coin-controlled apparatus, the combination with the cabinet having a floor with a transverse opening therein, of a carriage located upon the floor and having a series of vertical spaces or compartments and projections corresponding in number therewith, a lever 10 centrally fulcrumed and provided with a pawl, spring-actuated to engage the projections on the carriage, a spring for lifting the forward end of said lever, a second lever pivoted in the cabinet and having a spring for depressing the inner end thereof, the adjoining ends of the said levers being curved as shown, and a coin chute or tube leading to the space between the adjoining ends of the levers, substantially as shown and for the purpose set forth.

606,464. WARP-FEED EQUALIZER FOR WIRE-WEAVING MACHINES. CHARLES M. LAMB and JOHN W. PAGE, Adrian, Mich., assignors to the Page Woven-Wire Fence Company, same place. Filed Oct. 20, 1897. Serial No. 656,209. (No model.)



Claim.—1. In combination with a wire-weaving machine and the supply of warp-wires therefor, a warp-wire feeding and equalizing carriage provided with clamps for holding the equalized warp-wires upon it, and supported between said supply and machine to travel toward and feed the warp-wires from the supply to the machine by its operation, substantially as described.

2. In combination with a wire-weaving machine, an overhead track between said machine and the warp-wire supply thereto, and a clamping-carriage movable on said track and operating to hold

the equalized warp-wires while being fed to said machine, substantially as and for the purpose set forth.

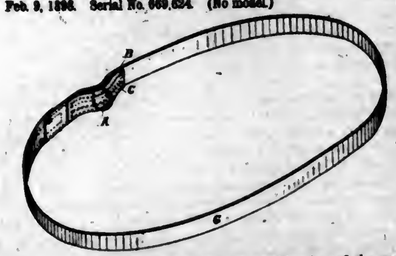
3. A clamping-carriage for holding the equalized warp-wires while being fed to a wire-weaving machine, comprising a frame, a rod supported on the frame to extend across it, clamps supported on the rod and adjustable lengthwise thereof to clamp the warp-wires between them, and means for tightening the clamps, substantially as described.

4. A clamping-carriage for holding the equalized warp-wires while being fed to a wire-weaving machine, comprising a frame, a clamp-support on said frame, clamps on said support, means for tightening said clamps against the warp-wires interposed between them, and a channeled bar below the clamps for confining them at their lower ends, substantially as described.

5. A clamping-carriage for holding the equalized warp-wires while being fed to a wire-weaving machine, comprising a frame, a threaded rod *m* supported in said frame and carrying nuts *l* and *k*, clamps C suspended on said rod and having sockets *i* for the warp-wires and sockets *i'* for spacers *h*, substantially as described.

6. A clamping-carriage for holding the equalized warp-wires while being fed to a wire-weaving machine, comprising a frame adapted to ride on a track and formed with side bars *r* and *r'*, bars *q* and *q'*, and a channeled bar *p*, a threaded rod *m* supported in said side bars and carrying nuts *l* and *k*, and clamps C suspended on said rod and having sockets *i* for the warp-wires and sockets *i'* for spacers *h*, substantially as described.

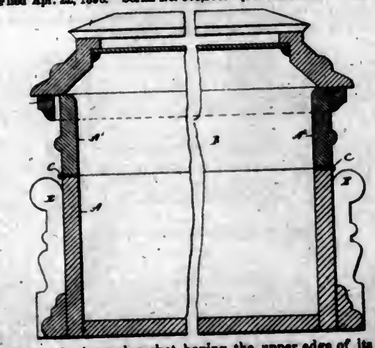
606,465. TRUSS. WILLIAM P. LE SEUR, New York, N. Y. Filed Feb. 9, 1898. Serial No. 669,634. (No model.)



Claim.—1. In a truss for hernia, the combination of the upper and lower leaf-springs B, C, inwardly curved in a horizontal plane, flexible connections D', D² of leather, pad A secured independently of the springs B, C, a webbing or belt G, and suitable securing means for the latter, as herein specified.

2. In a truss for hernia, the combination of the inwardly-curved springs B, C, having their ends secured as shown, with the double pocket D', D², and fastening provision I between them engaging the pad A and washer H, the flexible webbing or belt G, two straps J', J², of differing lengths, two buckles K', K², out of coincidence with two straps M', M², all arranged to serve substantially as herein specified.

606,466. CASKET. THOMAS H. LINAHAN, New Haven, Conn. Filed Apr. 22, 1898. Serial No. 678,536. (No model.)



Claim.—1. A couch-casket having the upper edge of its body provided with front and back and end leaves arranged to swing outward, and provided with a cover which is rigidly secured to the back leaf and which is adapted to shut over the upper edges of the front and end leaves for holding them in their closed or upright positions.

2. A couch-casket having its body provided upon its upper edge with outwardly-swinging front and back and end leaves, and provided with a cover rigidly secured to its back leaf and adapted to shut over the upper edges of the front and end leaves for securing them in their closed positions, and the said body of the casket being provided with pilasters or ornaments arranged to support the leaves in their open positions, in which the casket is converted into a couch.

606,467. FARM-GATE. THEODORE C. LEFFITT, Shenandoah, Iowa. Filed Oct. 13, 1897. Serial No. 655,071. (No model.)



Claim.—1. In a farm-gate, a series of bars and uprights pivotally connected for parallel movement in their structural plane, a pair of hinges secured to one of the end uprights, a brace rigidly connected with each hinge and the two braces joined together at a distance from the hinges forming a triangle with the hinged upright; a notched rack secured to an upright of the gate near the juncture of the said two braces and a latch secured to one of the braces adapted to engage the rack-notches, substantially as described.

2. In a farm-gate, a series of parallel bars and uprights pivotally joined, a pair of hinges secured to one of the end uprights, a notched plate secured to a midway upright to project beyond one edge thereof, braces extending from each hinge and joined near said midway upright, one of the said braces having a return or hook-shaped bend at its end to engage the projecting edge of the notched plate, and a latch to engage the notches, substantially as described.

606,468. CURTAIN-FIXTURE. ABRAHAM S. LOEB, Lynn, Mass., assignor of one-half to George H. Field, same place. Filed Dec. 29, 1896. Serial No. 617,360. (No model.)



Claim.—1. The combination in a curtain-fixture, of a pair of curtain-rolls lying in parallel and adjacent position with respect to each other, a pair of double-bearing brackets having sockets opening toward each other and having laterally-extending ears or projections adapted to engage supporting devices attached to the window frame or casing, a spacing-rod joining said sockets, and operating-cords for said rolls, as described.

2. The combination in a curtain-fixture, of a pair of curtain-rolls in close and parallel relation, a set of double-bearing brackets therefor having each a right-angle extension, supporting devices adapted to be permanently attached to the window frame or casing, a spacing-rod joining said brackets in line with said curtain-rolls, and operating-cords for said rolls; said extensions adapted to detachably engage said supporting devices and permit said rolls and brackets to be removed from or replaced in position in their normal engaged relation, as set forth.

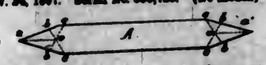
3. The herein-described improved curtain-fixture, comprising a pair of curtains, independent rolls therefor, a pair of brackets each having bearings for the spindles of said rolls, respectively, a spacing and supporting rod joining said brackets, supports for said brackets, and devices upon said brackets for detachably engaging with said supports and permitting said brackets and curtains to be detached in their engaged relation, substantially as set forth.

4. The combination in a curtain-fixture, of the rolls H H', the brackets F F' therefor each having the double bearings G G' therein, a spacing-rod R joining said brackets, and suitable supporting devices S S'; said brackets being provided the one with a horizontal slot or recess U' and the other with a vertical slot or recess U, for the purpose mentioned.

5. In a curtain fixture the combination of a pair of curtain-rolls lying parallel and adjacent, a pair of double-bearing brackets for said rolls having laterally-projecting extensions or ears, a spacing-rod joining said brackets, and supporting devices on the window frame or casing adapted for locking engagement with said extensions or ears.

6. In a curtain-fixture, a pair of curtain-rolls in parallel and adjacent relation, a pair of double-bearing brackets therefor having extensions or ears, a spacing bar or rod joining said brackets, in combination with devices upon the window-casing adapted for locking engagement with said extensions or ears.

606,469. PAIL-HOOK. CHARLES W. MITCHELL, Brooklyn, N. Y., assignor to the Twisted Wire Box Strap Company, New York, N. Y. Filed Nov. 24, 1897. Serial No. 659,723. (No model.)



Claim.—1. A pail-hook consisting of a sheet-metal strip having pointed ends bent up and folded to form points of double thickness, substantially as set forth.

2. A pail-hook consisting of a sheet-metal strip, with pointed ends bent up and folded flat together to form points of double thickness, substantially as set forth.

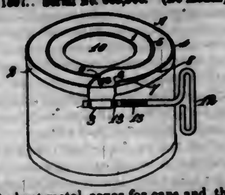
3. A pail-hook consisting of a sheet-metal strip with pointed ends bent up and folded together from each side, and with the parts of the strip at the base of the points folded down against the strip, so as to form a double thickness at the point and the part of the strip immediately supporting the same, while leaving the intermediate portion of the strip of single thickness and therefore comparatively flexible.

606,470. PROCESS OF MAKING CHLORIN DERIVATIVES OF TOLUENE. PIERRE P. MONNET, Lyons, France, assignor to La Société Chimique des Usines du Rhône, successor, Gillard P. Monnet et Cartier, same place. Filed Nov. 22, 1897. Serial No. 659,514. (No specimens.) Patented in England Dec. 24, 1896, No. 28,717.

Claim.—1. The method or process of preparing chlorin derivatives of toluene from the ortho or para toluene sulfo chlorid which consists in treating ortho or para toluene sulfo chlorid when heated with a current of dry chlorin gas, substantially as described.

2. The method or process of manufacturing chlorin derivatives of toluene from the ortho or para toluene sulfo chlorid, which consists in passing into the said sulfo chlorid heated to 150° centigrade a stream of dry chlorin gas, and maintaining the reaction at 150° to 200° centigrade until the required quantity of chlorin has been absorbed, and purifying the resultant product, substantially as described.

606,471. KEY-OPENING CAN-HEAD. BENJAMIN W. MONROE, Chicago, Ill., assignor of one-half to Hugo Engdahl, Mount Vernon, N. Y. Filed Dec. 27, 1897. Serial No. 663,869. (No model.)



Claim.—1. A sheet-metal cover for cans and the like provided with weakening-lines forming a detachable strip, a portion of which follows the contour of the cover and is located near the edge, the remaining portion being deflected inwardly and then outwardly across said edge and terminating in a projecting tongue, whereby said tongue is disposed approximately at right angles to said edge, and the strain on the weakening-lines is equalized in the ripping operation, substantially as described.

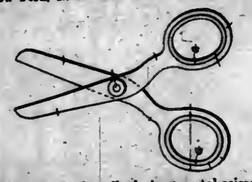
2. A flanged sheet-metal cover for cans and the like provided with weakening-lines forming a detachable strip, a portion of which follows the contour of the cover and is located near the flange, the remaining portion being deflected inwardly and then outwardly across said flange at a point adjacent to the commencement of the strip and terminating in an approximately radially-projecting tongue, substantially as described.

3. A sheet-metal cover for cans and the like having weakening-lines providing a detachable strip, said lines conforming for the major portion of their length to the contour of the cover edge, the remaining portion being deflected inwardly from the edge and thence outwardly across the latter, and an extension of the strip projecting approximately radially from said edge to provide a tongue, substantially as described.

4. A flanged sheet-metal cover for cans and the like having weakening-lines providing a detachable strip, said lines conforming for the major portion of their length to the contour of the cover edge, the remaining portion being deflected inwardly from the edge in the arc of a circle, thence outwardly in the arc of a circle across the edge and finally downwardly in vertical direction across the flange, and a right-angled extension of the flange between the said lines providing a tongue, substantially as described.

5. A flanged sheet-metal cover for cans and the like provided with weakening-lines forming a detachable strip the middle portion of which follows the contour of the cover and is located near the flange, the end portions being deflected inwardly and then outwardly across the flange approximately to each other and terminating in radially-projecting tongues, substantially as described.

606,472. SHEET-METAL SCISSORS OR SHEARS. MORTIMER C. OSBUN, New York, N. Y. Filed Dec. 6, 1897. Serial No. 660,947. (No model.)



Claim.—1. The herein-described sheet-metal scissors or shears, having bushings located within the loops and overlapping the inner edges thereof, substantially as described.

2. The herein-described sheet-metal scissors or shears, having flanged bushings inserted through the loops so as to rest upon one side thereof, and upset upon the opposite side, whereby the bushings are interlocked in the loops, substantially as described.

606,473. TOBACCO-PIPE. GEORGE G. PALMER, New York, N. Y. Filed June 18, 1897. Serial No. 641,344. (No model.)



Claim.—1. A tobacco-pipe comprising a bowl having a draft-opening, a stem, a tube located within said stem and communicating with the draft-opening, and through a similar opening with the interior of the stem, and a valve for controlling the opening in said tube.

2. A tobacco pipe comprising a bowl having a draft-opening, a stem for the bowl having an opening adjoining the bowl communicating with the outside, means for closing the opening in said stem, a tube located within said stem communicating with the draft-opening, closed at its outer end, and provided with an opening in its upper side, and a valve for the opening in said tube.

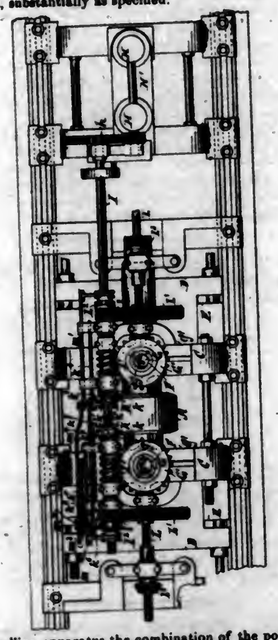
3. A tobacco-pipe comprising a bowl having a draft-opening therethrough, a curved stem secured to said bowl provided with an opening adjoining the bowl and communicating with the outside, a cap for closing said opening, a tube located within said stem communicating with the draft-opening, closed at its outer end, and having an opening in its upper side, and a gravity-valve for closing the opening in said tube, as and for the purpose set forth.

4. A tobacco-pipe comprising a bowl having a draft-opening therein, a stem for the bowl, said stem being curved, and a mouth-piece connected to the stem, the latter having an opening at or adjoining the bowl which is closed by a removable cap; together with a tube located within the stem and communicating with the draft-opening of the bowl, said tube being closed at its outer end and provided with an opening in its upper side, and a valve or flap closing the opening in the draft-tube, the parts being constructed and arranged substantially as shown and described.

606,474. ROLLING APPARATUS. DE WITT C. PRESCOTT, Duluth, Minn., assignor to the York Structural Steel Company, New York, N. Y. Filed Mar. 22, 1895. Serial No. 542,757. (No model.)

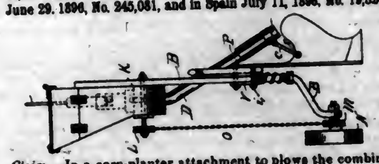
Claim.—1. In a rolling apparatus, the combination with top and bottom rolls and side rolls, of a single power-shaft, worms and worm-wheels with which said worms engage to secure the adjustment of the top and bottom rolls, clutches for operatively connecting with and disconnecting said worms from said shaft, pinions driven by said power-shaft, and driving mechanism for securing the adjustment of

the side rolls, clutches for operatively connecting said pinions with said shaft and disconnecting them therefrom, and means for operating the clutches, substantially as specified.



2. In a rolling apparatus the combination of the power-shaft I, the shafts G, G, driving the screws F, F, the worm-wheels G' G' splined to the shafts G, G, the worms I', I' driven from the shaft I and engaging with the worm-wheels G', G', the clutches K, K the pinions *l l* driving the shafts L, L, and the clutches L^2 L^2 for operatively connecting the pinions *l*, *l*, with the shaft I and disconnecting them therefrom, substantially as specified.

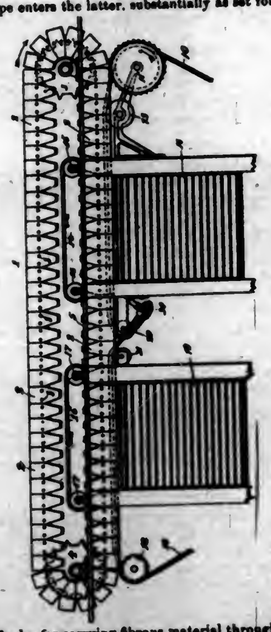
606,475. SEEDING-MACHINE. KARL PÖSKÁS, Kisujszallas, Austria-Hungary. Filed Feb. 10, 1897. Serial No. 622,883. (No model.) Patented in Hungary June 6, 1896, No. 4,599; in Belgium June 12, 1896, No. 93,878; in England June 12, 1896, No. 13,009; in Italy June 22, 1896, No. 13,618; in Austria June 25, 1896, No. 46/2,806; in France June 29, 1896, No. 245,081, and in Spain July 11, 1896, No. 19,324.



Claim.—In a corn-planter attachment to plows the combination of a seedbox on an upright supported by a wheel running with the plow and attached thereto, divided into three chambers by movable sliding partitions, and containing a feeding-wheel conveying the corn from the second to the third chamber from which the corn is discharged through a rotary pipe and delivery-tube into the furrow, motion being obtained by means of a chain-gearing engaging with the supporting-wheel as and for the purpose above specified.

606,476. FEEDER FOR SCUTCHING-MACHINES. ELIS G. A. SCHENSON, Arbra, Sweden, assignor to the Patentaktiebolaget Svea, Stockholm, Sweden. Filed Dec. 23, 1896. Serial No. 616,718. (No model.)

Claim.—1. A feeder for carrying fibrous material through a scutching or hackling machine, comprising an endless series of clips 2, arranged in a vertical plane over the said machine with its lower side adjacent thereto, the wheels on which said endless series of clips is mounted, means for moving said series of clips, an endless rope arranged in a vertical plane and its upper side engaging the jaws of the clips at the lower side of said endless series, whereby the latter carry the rope in their travel, guides on which said rope is supported, means for supplying the fiber laterally and in a regulated manner into the bite of the rope and series of clips at the point where the rope enters the latter, substantially as set forth.



2. A feeder for carrying fibrous material through a scutching or hackling machine, comprising an endless series of clips 2, arranged in a vertical plane over the said machine with its lower side adjacent thereto, the wheels on which said endless series of clips is mounted, means for moving said series of clips, an endless rope arranged in a vertical plane and its upper side engaging the jaws of the clips at the lower side of said endless series, whereby the latter carry the rope in their travel, guides on which said rope is supported, means for supplying the fiber to the feeder in a regulated manner, and means substantially as described for spreading the upper ends of the jaws of the clips 2, above the scutching-machine, substantially as set forth.

3. A feeder for carrying fibrous material through a scutching or hackling machine, comprising an endless series of clips 2, arranged in a vertical plane over the said machine with its lower side adjacent thereto, the wheels on which said endless series of clips is mounted, means for moving said series of clips, an endless rope arranged in a vertical plane and its upper side engaging the jaws of the clips at the lower side of said endless series, whereby the latter carry the rope in their travel, guides on which said rope is supported, means for supplying fiber in regulated quantity to the feeder, and means for causing the jaws of the clips 2 to clamp firmly on the fiber, said means comprising an endless belt 14 and carrying-pulleys therefor, the said belt being arranged in a vertical plane with its lower side occupying a position between the upper ends of the jaws of the clips, substantially as set forth.

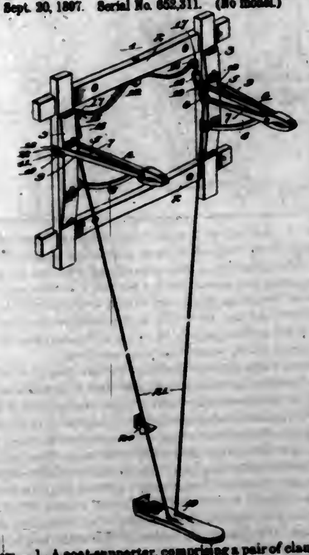
4. In a fiber feeding and carrying machine, the combination with the endless chain of clips, means for moving said clips and the endless rope 10, having its upper side embraced by the jaws of said clips, of means for turning the fiber end for end, comprising a sheave 29, which guides the rope from the clips, a toothed sheave 30, situated below and forward of the sheave 29, the rope 10 passing over both of said sheaves, the sheave 31, which guides the rope back into the clips, and the smooth bars, 32, arranged at the sides of that part of the rope 10 between the sheaves 30 and 31, substantially as set forth.

5. The combination with the endless chain of clips, means for moving said clips and the endless rope having its upper side embraced by the jaws of the clips at the lower side of the chain, of the sheave 12 which guides the rope out of the clips at the delivery end of the feeder, the triangular table 33, situated at the delivery end of the chain, and the moving endless ropes arranged at the respective sides of the table, for receiving and straightening out the fiber, substantially as set forth.

6. In a feeder for the purpose set forth, the combination with the endless rope 10, of a chain of clips 2, each composed of two jaws 6, hinged together and adapted to be clamped on the said rope, and means for spreading the other ends of the jaws to cause them to clamp on the rope, substantially as set forth.

7. The combination with the endless chain or clips, means for moving said clips and the endless rope 10, embraced and carried thereby, of means for supplying the fiber to the chain, comprising the toothed wheels 24, the rocking table 22, means for pressing the table up to the said toothed wheels, and the fixed plates 25, over the said wheels, substantially as set forth.

606,477. COAT-SUPPORT. JOHN T. STEVENS, Manning, Wis. Filed Sept. 20, 1897. Serial No. 652,311. (No model.)



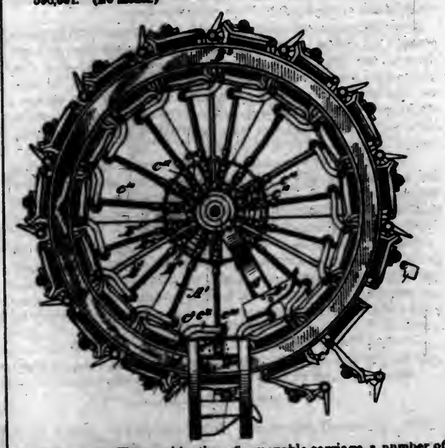
Claim.—1. A coat-supporter, comprising a pair of clamps adapted to be folded inwardly out of the way, a spring connected to the movable jaws of said clamps for holding them normally in closed position, and foot-operated mechanism for opening said clamps.

2. In a coat-supporter, the combination with a frame adapted to be secured to the wall, of a pair of clamps hinged to the upright bars of said frame and adapted to fold inwardly, means for holding said clamps in their outward operative position, a spring secured to one of the longitudinal bars of said frame, connections between said spring and the movable jaws of said clamps for holding the latter normally in closed position, and foot-operated mechanism for opening said clamps, substantially as and for the purpose described.

3. In a coat-supporter, the combination with a frame adapted to be secured to the wall, of a pair of clamps pivoted to the upright bars of said frame and adapted to fold inwardly, each of said clamps comprising a stationary jaw, a bracing-bar, a spring attached to the stationary jaw at a point adjacent to its outer end and having an opening in its rear end to receive a pin on the outer surface of said upright bar, and a movable jaw pivoted to said stationary jaw, a retractile spring secured at a point intermediate of its ends to the upper horizontal bar of said frame, connections between the outer ends of said retractile spring and the rear end of said movable jaw, and means for operating said movable jaw for opening the clamps, substantially as and for the purpose described.

4. In a coat-supporter, the combination with a frame adapted to be secured to the wall, of a pair of clamps pivoted to the upright bars of said frame and adapted to fold inwardly, each of said clamps comprising a stationary jaw, a bracing-bar connected to said stationary jaw, a spring attached to said stationary jaw extending rearwardly therefrom, having an opening in it adapted to receive a pin on the side of the upright bar of said frame, fitting within a recess in said bar and provided with a loop on its free end constituting a handle, and a movable jaw pivoted to said stationary jaw and formed with an eye at its rear end, a retractile spring secured at a point intermediate of its ends to the upper horizontal bar of said frame and formed with loops or eyes at its ends, swivels having hooks upon their ends fitting respectively in the eyes on said retractile spring and on said movable jaw, a foot-lever, and cords connecting said foot-lever with the rear end of said movable jaw, as and for the purpose described.

606,478. PRESSING-MACHINE. EDWARD S. TRENAMAN, Brooklyn, and PIERRE LORILLARD, Jr., Tuxedo, N. Y., assignors to the P. Lorillard Company, Jersey City, N. J. Filed May 8, 1896. Serial No. 590,661. (No model.)



Claim.—1. The combination of a movable carriage, a number of presses each comprising a hydraulic ram supported by said carriage, inlet and outlet valves for each ram, and stationary means in the path of the movable carriage for automatically opening and closing the valves of such rams at predetermined points as the presses are moved along, substantially as specified.

2. The combination of a movable carriage, comprising superposed rings B', B^2 and a central hub, a number of presses intermediate said rings and comprising hydraulic rams, a number of radial pipes extending from said hub to the rams, valves controlling said radial pipes, and stationary means for automatically operating said valves, substantially as specified.

3. The combination of a movable carriage, a number of presses supported by said carriage, and each comprising stationary sides, and doors or movable sides, and means carried by the presses for locking said doors or movable sides in closed position, substantially as specified.

4. The combination of a movable carriage, a number of presses supported by said carriage, and each comprising a platen, stationary sides thereon, and doors or movable sides, and means carried by the presses and brought into operation by the movement of the carriage for locking said doors or movable sides in closed position, substantially as specified.

5. The combination of a movable carriage, a number of presses supported by said carriage, and each comprising a platen, stationary sides thereon, and doors or movable sides hinged to the stationary sides, and means on the doors for locking them together, and stationary devices in position to successively secure and release said locking means as the presses are moved along, substantially as specified.

6. The combination of a movable carriage, a number of presses supported thereby and each comprising a plunger and platen, two stationary sides at right angles to each other on the platen, a movable side and door hinged respectively to said stationary sides, means for locking said movable side and door together, and stationary devices in position to successively secure and release said locking means as the presses are moved along, substantially as specified.

7. The combination of a movable carriage, a number of presses supported by said carriage, doors or movable sides for said presses, means comprising locking-cams, an oscillating rod, fingers extending from said rod, and stationary cams for locking and unlocking said doors or movable sides, substantially as specified.

8. The combination of a movable carriage, a number of presses supported thereby and each having a swinging front or door and locking means therefor, a frame adjacent to the carriage, cams on said frame arranged to successively close and lock said doors as the presses are moved along, substantially as specified.

9. The combination of a movable carriage, a number of presses supported thereby and each having a horizontally-swinging front or door, and locking means therefor, an upright frame adjacent to the carriage, cams on said frame in line to close and lock said doors, and a cam for releasing the doors as the presses are moved along, substantially as specified.

10. The combination of a movable carriage comprising superposed rings, and a central hub, a series of presses located interme-

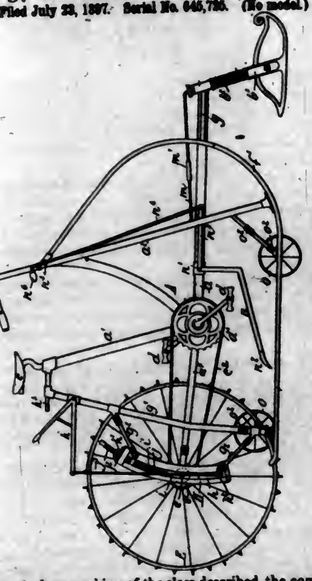
diate of said rings and each having a swinging door and locking means therefor, an upright frame pivoted at its lower end and engaging the upper ring at its opposite end, and cams on said frame in line to successively close and lock said doors as the presses are moved along, substantially as specified.

11. The combination of a movable carriage comprising superposed rings and a central hub, a series of presses located intermediate of said rings and each having a horizontally-swinging door and locking means therefor, an upright frame pivoted at its lower end and having an adjustable bearing at its opposite end engaging the upper ring of the carriage, and cams on said frame arranged to close and lock said doors as the presses are moved along, substantially as specified.

12. The combination with a carriage having superposed rings and a central hub, of a series of presses supported on the lower ring and each comprising a hydraulic ram, and suitable inlet and outlet pipes and valves therefor, and stationary stop for the presses carried by the upper ring, substantially as specified.

13. The combination with a rotating carriage, of a series of presses thereon, each comprising a hydraulic ram, and suitable inlet and outlet pipes therefor, valves in said pipes having elongated stems, and stationary cams in line to be engaged by said stems for automatically operating said valves as the carriage rotates, substantially as specified.

606,479. ICE-VELOCIPEDE. WILLIAM L. WILLIAMS, Winona, Minn. Filed July 23, 1897. Serial No. 645,735. (No model.)



Claim.—1. In a machine of the class described, the combination with a frame carrying runners, of a driving-wheel, sprocket wheel and chain mechanism for operating said driving-wheel, brackets adjustably connected with the frame, blocks movable in said brackets and affording bearings for the driving-wheel axle, springs for controlling said blocks, and means for adjusting the tension of the springs, substantially as set forth.

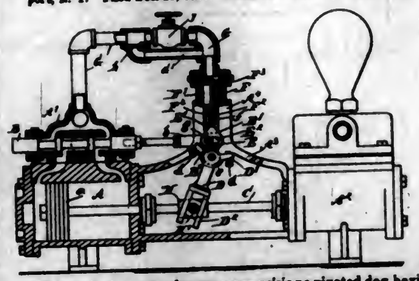
2. In a machine of the class described; the combination with a frame carrying runners, of a driving-wheel journaled in spring-controlled movable bearings, means adjustably connecting the bearings with the frame, and means for elevating said wheel above the runners, consisting of a hand-operated lever having rod connection with said bearings, and a lock for said means, substantially as described.

3. In a machine of the class described the combination with a frame carrying runners, of a driving-wheel provided on its periphery with removable and interchangeable blades and spikes, sprocket wheel and chain mechanism for operating said driving-wheel, curved brackets carrying spring-controlled movable bearings for the axle of the driving-wheel, arms adjustably connecting the brackets with the frame, and means for elevating said wheel above the runners consisting of a hand-operated lever having rod connection with the bearings, and a lock for said means, substantially as described.

4. In a machine of the class described, the combination with the frame and driving-wheel, of brackets in which the said wheel is journaled, and arms secured to the frame and having adjustable connection with said brackets, substantially as described.

5. In a machine of the class described the combination with a frame carrying runners, of wheels mounted on arms slidably connected with the frame and adapted to be moved to a position below the runners, substantially as and for the purpose set forth.

606,480. VALVE-GEAR FOR PUMPS. JOHN DOHERTY, Lockport, N. Y. Filed Dec. 29, 1897. Serial No. 664,378. (No model.)



Claim.—1. A pump valve-gear, comprising a pivoted dog having its outer edge faces inclined toward each other and forming cam-surfaces, a roller mounted to slide toward and from the pivot of said dog and engaging said cam-surfaces, a pivoted lever having vibratory connections to the pump-piston and having arms adapted to engage opposite sides of the dog, to vibrate it, but being wider than the dog so as to have lost motion between the two, and connections from said dog to the steam-valve, substantially as described.

2. A pump valve-gear, comprising a pivoted dog or lever having its outer end pointed or diamond-shaped, and a laterally-extending slot therein, a valve-operating rod having a pin extending into said slot, a roller mounted to slide toward and from the pivot of said dog and bearing upon its inclined edges, a pivoted lever having vibrating connection with the pump piston-rod, and arms upon said lever adapted to embrace the dog, to vibrate it, substantially as described.

3. A pump valve-gear, comprising a pivoted dog or lever having its outer end pointed or diamond-shaped and a laterally-extending slot therein, a valve-operating rod having a pin extending into said slot, a cylinder and plunger mounted in line with the pivot of the dog, connections from the cylinder to the steam-supply for the pump, a plunger having a roller engaging the inclined surfaces of the dog, a pivoted lever having vibrating connection with the pump piston-rod, and arms upon said lever adapted to embrace the dog, to vibrate it, substantially as described.

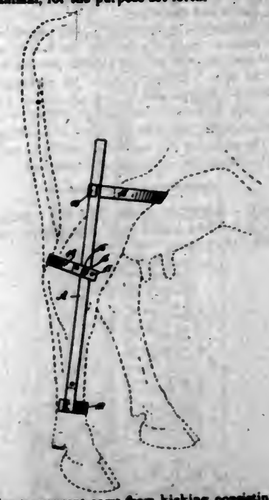
4. A pump valve-gear, comprising a pivoted dog or lever having its outer end pointed or diamond-shaped and forming inclined cam-surfaces and also having a laterally-extending slot therein, a valve-operating rod having a pin extending into said slot, a cylinder or plunger mounted in line with the pivot of the dog, connections from said cylinder to the steam-supply for the pump, a throttling-valve in said steam connection, a by-pass having a check-valve opening toward the steam-supply, a roller mounted upon the plunger and engaging the cam-surfaces of the dog, and a pivoted lever having vibrating connection with the pump piston-rod and arms adapted to embrace the dog, to vibrate it, substantially as described.

5. A pump valve-gear, comprising a pivoted dog or lever having its outer end pointed or diamond-shaped and forming inclined cam-surfaces, connections therefrom to the steam-valve, a yielding plunger having a roller bearing upon the cam-surfaces of the dog and toward its pivot, a pivoted lever having vibratory connection with the pump-rod and having arms embracing the dog, and set-screws extending through said arms whereby the slack or lost motion between the arms and the dog may be regulated, substantially as described.

6. A pump valve-gear, comprising a pivoted dog or lever having its outer end pointed or diamond-shaped and forming inclined cam-surfaces, said dog having a lateral slot, adjustable plates by which the extent of said slot may be regulated, a valve-stem connection to said slot comprising a pin entering said slot, a yielding plunger having a roller bearing upon the cam-surfaces of the dog and toward its pivot, a pivoted lever having vibratory connection with the pump-rod and having arms embracing the dog, and set-screws extending through said arms, whereby the slack or lost motion between the arms and the dog may be regulated, substantially as described.

606,481. DEVICE FOR PREVENTING COWS FROM KICKING. CHRISTOPHER A. RISBOSO, Pleasant, S. D. Filed Mar. 7, 1898. Serial No. 673,008. (No model.)

Claim.—1. A device to prevent cows from kicking, consisting of two main pivotally-connected members, oppositely-disposed clamps on said members, adapted to embrace the leg of the animal and prevent flexure thereof, and means for locking the device in place on the leg of the animal, for the purpose set forth.



2. A device to prevent cows from kicking, consisting of a body constructed of two pivotally-connected members, one member being provided with a lower and with an intermediate open clamping-band, which bands face in opposite directions, the other member being provided with an upper open clamping-band facing in the same direction as the lower clamping-band, and a locking connection between the two members of the body, for the purpose set forth.

3. In a device to prevent cows from kicking, a body comprising an outer bar, and an inner bar of less length than the outer bar and pivoted thereto, an open clamping-band secured to the lower end of the longer body-bar and facing rearward, an adjustable open binding-band pivoted on the said longer body-bar intermediate of its ends, a locking device for the intermediate band, a larger open clamping-band secured to the upper end of the shorter body-bar and facing in the same direction as the lower open band, and means for locking the two body-bars together, for the purpose specified.

4. In a device to prevent cows from kicking, the combination, with a body comprising an inner and an outer bar pivotally connected, the outer bar being the longer one and the inner bar being pivotally attached to the outer bar at a point near the lower end of the latter, of an open binding-clamp secured to the lower end of the longer body-bar and facing to the rear, a second open clamping-band pivoted upon the longer body-bar and facing to the front, a locking device for the said intermediate band, a larger open clamping-band secured to the upper end of the shorter body-bar and facing rearward, and an open loop located upon the outer face of the shorter body-bar and facing forwardly, said loop being adapted to receive within it the longer body-bar, as and for the purpose specified.

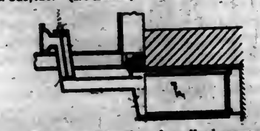
606,482. CLOTHES-LINE BRUSH. DARIUS F. GALLAGHER, New York, N. Y. Filed Feb. 12, 1898. Serial No. 670,169. (No model.)



Claim.—1. A clothes-line brush having a spirally-bent back, and bristles extending from the inside of said back to engage the exterior surface of the clothes-line, and clean the same upon pulling the line through the brush in an axial direction thereto, substantially as shown and described.

2. A clothes-line brush having a spirally-bent back, and bristles extending from the inside of said back to engage the exterior surface of the clothes-line, and clean the same upon pulling the line through the brush in an axial direction thereto, said back being provided at one end with means for loosely suspending it from a fixed support adjacent to the clothes-line, substantially as shown and described.

606,488. APPARATUS FOR DISPOSING OF GARBAGE FROM BUILDINGS. IRA C. GOODRIDGE, Rochester, N. Y. Filed July 16, 1896. Serial No. 600,720. (No model.)



Claim.—1. A device of the class described, comprising a receiver within a room of the building, a casing below the floor of the said room, a pipe leading from the receiver to the casing, and a plunger in said pipe, substantially as described.

2. A device of the class described comprising a receiver within a room of the building and provided with a lid, a casing outside of the building and below the floor of the room in which the receiver is located, said casing being provided with a door, a pipe leading from the receiver out through the wall of the building and then down into the casing, and a plunger in the portion of the pipe leading through the side of the building, substantially as described.

606,484. SASH-FASTENER. JOHN GREIFF, Dayton, Ky. Filed Oct. 1, 1897. Serial No. 653,769. (No model.)



Claim.—1. In a sash-lock, the combination with an eccentric block pivoted to lock the lower sash, of a pivotally-supported bell-crank lever, a pusher-bar loosely held on and projecting from the bell-crank lever, a presser-block on the pusher-bar, and a connecting-rod loosely engaged at its ends with the eccentric block and bell-crank lever, substantially as described.

2. In a sash-lock, the combination with a rockable friction-block adapted to lock the lower sash, of a pivoted bell-crank lever above said rockable friction-block, another friction-block on a pusher-bar which is rockable on a hub of the bell-crank and thus adapted for projection toward the upper sash to lock it, means to connect the bell-crank and lower friction-block for their simultaneous rocking movement, and a projection on the bell-crank for support of the upper friction-block when it is rocked away from the upper window-sash, substantially as described.

3. In a sash-lock, the combination with an eccentric block having a finger-piece, and a gum facing held to project from the periphery of the eccentric block, said block being eccentrically pivoted upon a bead-strip of the window-casement adjacent to the lower sash of the window, of a bell-crank lever pivoted, between two opposite limbs, on the bead-strip above the eccentric block, a connecting-rod loosely engaging its ends with the bell-crank lever and eccentric block at the same side of the pivots of said parts, a pusher-bar pivoted on the bell-crank lever so as to project therefrom toward the upper sash, an adjustable presser-block on the projected end of the

pusher-bar, and a gum facing on the presser-block adapted to contact with the upper sash, substantially as described.

606,485. ANTIFRICTION-BEARING. JAMES H. LAWRENCE, Farnham, Canada. Filed Oct. 15, 1897. Serial No. 655,298. (No model.)



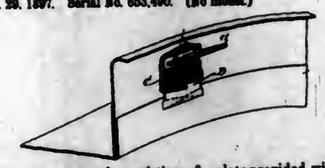
Claim.—1. An antifriction-bearing, comprising a shaft, an annulus surrounding a portion of said shaft but not engaging therewith, a series of rolling antifriction devices supported on the annulus, a series of outer rolling antifriction devices engaging the first-named antifriction devices, and a casing, bearing on the last-named antifriction devices, substantially as specified.

2. An antifriction-bearing, comprising a shaft, an annulus surrounding a portion of said shaft but not engaging therewith, balls engaging on said annulus, an outer series of balls bearing on the inner balls, a ring surrounding the shaft and having a bearing for the outer balls, and a cap connected to said ring and also having a bearing for the outer series of balls, substantially as specified.

3. An antifriction-bearing, comprising a shaft, an outwardly-extending flange on said shaft having a bearing-surface for balls, a disk supported on the shaft and having a bearing for said balls, an annulus surrounding the shaft between the flange and disk, balls supported on said annulus, outer balls engaging with the first-named balls and with the bearings of the flange and disk and a casing engaging with said outer balls, substantially as specified.

4. An antifriction-bearing, comprising a shaft or axle, an outwardly-extended flange on said shaft or axle, a disk on a portion of the shaft or axle, there being a space between the flange and disk, a grooved annulus in said space but free from the shaft or axle, balls engaging in the groove of the annulus, the said balls being within the space mentioned, an outer series of balls engaging with the first-named series and also with the peripheries of the flange and disk, a ring surrounding the shaft or axle, but free therefrom, the said ring having a raceway or bearing-surface for the outer balls, and a cap adjustable relatively to the ring, said cap also having a raceway or bearing for the outer balls, substantially as specified.

606,486. HAT-GUARD. WILLIAM LORD, New York, N. Y. Filed Sept. 29, 1897. Serial No. 653,490. (No model.)



Claim.—A hat-guard, consisting of a plate provided with means for securing one end only to the sweat-band of a hat so that the main portion of the plate will be free to permit a cord being wrapped around it, the plate being provided at its other end with a transversely-extending socket, a cord secured to the end of the plate opposite that having the socket, and a bar on the free end of the cord, whereby when not in use, the cord may be wrapped around the plate and one end of the bar inserted in the socket, as set forth.

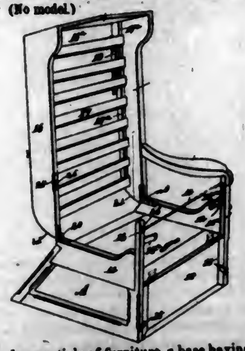
606,487. BICYCLE-SUPPORT. WILLIAM MEHRATH, Highland Park, N. J. Filed June 2, 1896. Serial No. 593,960. (No model.)



Claim.—1. In bicycle-supports, the combination, with the shouldered clip for a frame-bar B, of the pivoted head D, having the transverse open slot in its outer and free end, and a pin E^3, fixed transversely in the central upper portion of the slot, the two similar rods pivoted side by side at opposite points within said slot, their heads or upper portions being extended into the latter beyond the pivots and beveled and notched on their inner sides as specified, whereby they are adapted to fit together and engage the stop-pin E^3; when extended, as shown and described.

2. A bicycle-support, comprising a clip, adapted to be secured to the lower brace or reach of a bicycle, and having an open lengthwise slot, and rear shoulder A'; the head D, pivoted in said slot, and having itself an open transverse slot; a pin crossing the latter slot centrally; the two legs pivoted at opposite points below and equidistant from such cross-pin, and having notches in their extended upper ends for engaging the same; a spring and locking-pin arranged as specified, the aforesaid clip and head having coincident holes for receiving said locking-pin, as shown and described.

606,488. COMBINED CHAIR AND BED. BERNARD MURTAGH, Hewlett's, N. Y. Filed May 13, 1896. Renewed Dec. 22, 1897. Serial No. 663,098. (No model.)



Claim.—1. In an article of furniture, a base having front uprights and a back having a hinged connection with the base, in combination with detachable arms having rearwardly-extending tongues for entering openings in the uprights, and a slot-and-key connection between the rear ends of the arms and the back, as and for the purpose specified.

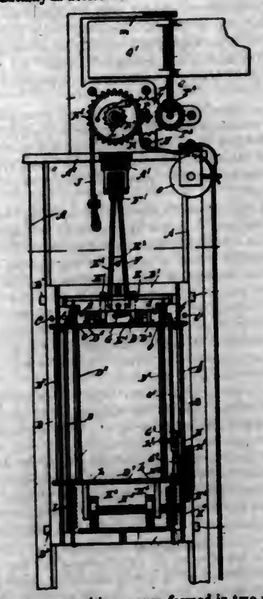
2. An article of manufacture, comprising a base having an interior chamber, side boards, and uprights at the front portion of the side boards, and a back section the side boards of which extend beyond the back board, the said back section being provided with an end board at its outer extremity and folding legs at its rear portion, the lower or inner end of the back section having a hinged connection with the side boards of the base, keepers attached to the side boards of the back section, and arms having projections at their rear ends to enter the said keepers, their forward ends being provided with tongues arranged to enter openings in the uprights, as and for the purpose specified.

3. In an article of furniture, the combination, with a chambered base, a board having a hinged connection with the front portion of the base and arranged to fold upwardly therefrom, side boards attached to the base, and uprights located at the forward ends of the side boards, of a back section comprising a back board, an upper end board and side boards, the latter having a hinged connection with the side boards of the base, folding legs attached to the back section, keepers secured to the forward edges of the back section, and arms having projections at their rear ends, removably entering the keepers of the back section, the said arms being also provided with tongues at their forward ends, arranged to enter openings in the uprights, as and for the purpose specified.

4. An article of furniture, comprising a base having uprights rising therefrom, a hinged back, removable arms terminating in downward extensions at the front ends overlapping the front of the uprights, means for engaging the rear sides of said extensions with the front faces of the uprights and means for engaging the rear ends of the arms with the hinged back, substantially as described.

606,489. SAFETY DEVICE FOR ELEVATORS. RAFFAELE FARINELLI, Jersey City, N. J. Filed Mar. 19, 1896. Serial No. 674,481. (No model.)

Claim.—1. An elevator, comprising a cage formed in two parts adapted to have relative vertical movement, a locking device adapted to normally restrain the movement of said parts in one direction, a guide-clutching mechanism actuated by the relative movements of the parts of the cage, a suspension device for the cage, having a limited yielding action, and a trip for the locking device, actuated by the recoil of the suspension device when the strain on the latter is relieved, substantially as described.



2. An elevator, comprising a cage formed in two parts adapted to have relative vertical movement, springs supporting one of said parts from the other, a locking device adapted to normally restrain the action of the springs, a guide-clutching mechanism actuated by the relative movement of the parts of the cage, a spring-influenced suspension device for the cage, having a limited yielding action, and a trip for the locking device, actuated by the recoil of the suspension device when the strain on the latter is relieved, substantially as described.

3. An elevator, comprising a cage formed in two parts adapted to have relative vertical movement, a locking device adapted to normally restrain the movement of said parts in one direction, clutch-dogs connected to the parts of the cage and actuated to engage the elevator-guides by the relative movements of the parts of the cage, a suspension device for the cage, having a limited yielding action, and a trip for the locking device actuated by the recoil of the suspension device when the strain on the latter is relieved, substantially as described.

4. An elevator, comprising a cage formed in two parts adapted to have relative vertical movement, a locking device adapted to normally restrain the movement of said parts in one direction, eccentrics pivoted upon one part of the cage and having arms connected to the other part, whereby the eccentrics are forced into engagement with the elevator-guides by the relative vertical movement of the parts of the cage, a suspension device for the cage, having a limited yielding action, and a trip for the locking device, actuated by the recoil of the suspension device when the strain on the latter is relieved, substantially as described.

5. An elevator, comprising a cage formed in two parts adapted to have relative vertical movement, springs supporting one of said parts from the other, a locking device adapted to normally restrain the action of the springs, eccentrics pivoted upon one part of the cage and having arms connected to the other part, whereby the eccentrics are forced into engagement with the elevator-guides by the relative movement of the parts of the cage, a spring-influenced suspension device for the cage, having a limited yielding action, and a trip for the locking device actuated by the recoil of the suspension device when the strain on the latter is relieved, substantially as described.

6. An elevator, comprising a cage formed in two parts, a main cage and an auxiliary frame adapted to have relative vertical movement, a suspension connection between the main cage and the auxiliary frame, eccentric clutch-dogs pivoted upon the auxiliary frame and adapted to engage the elevator-guides, said dogs having operative connection with the main cage, a lock adapted to restrain the movement of the parts of the cage, and a trip for the lock held out of action by the strain upon the suspension connection, substantially as described.

7. An elevator, comprising a cage formed in two parts, a main cage and an auxiliary frame adapted to have relative vertical movement, a suspension connection between the main cage and the auxiliary frame, eccentric clutch-dogs pivoted upon the auxiliary frame and adapted to engage the elevator-guides, said dogs having operative connection with the main cage, an eccentric pivoted upon one part of the cage and engaging the other, to hold the two separated and the clutch-dogs in inoperative position, a lock normally holding the parts in said position, springs connecting the two parts of the cage and acting in opposition to the eccentrics to throw the dogs into action, and a trip for the lock, held out of action by the strain upon the suspension connection, substantially as described.

8. An elevator, comprising a cage formed in two parts, a main cage and an auxiliary frame adapted to have relative vertical movement, a suspension connection between the main cage and the auxiliary frame, eccentric clutch-dogs pivoted upon the auxiliary frame and adapted to engage the elevator-guides, said dogs having operative connection with the main cage, an eccentric pivoted upon one part of the cage and engaging the other part to hold the two separated and the clutch-dogs in inoperative position, a crank within the cage having a rotative connection with said eccentric, a lock for said crank, springs connecting the two parts of the cage and acting in opposition to the eccentric to throw the dogs into action, and a trip for the lock, held out of action by the strain upon the suspension connection, substantially as described.

9. A lowering device for elevators, comprising a governor fixed at the top of the elevator-well and having a wheel adapted to receive a flexible connector, a flexible connector passing over said wheel and adapted to be connected with the cage to support it, means for freeing the elevator-cage and for locking it in the well, at will, and positive means by which the belt is prevented from slipping on the wheel, substantially as described.

10. A lowering device for elevators, comprising a governor fixed at the top of the elevator-well and having a wheel adapted to receive a flexible connector, a flexible connector passing over said wheel and adapted to be connected with the cage to support it, means for freeing the elevator-cage and for locking it in the well, at will, and a friction device acting upon the belt before it reaches the wheel, substantially as described.

11. In a lowering device for elevators, a governor fixed at the top of the well and having a wheel adapted to receive a flexible connector, a ratchet connection between said wheel and the governor mechanism permitting said wheel to run free in one direction, a flexible connector passing over said wheel, and adapted to be connected with the cage to support it, and means for freeing the elevator-cage and for locking it in the well, at will, substantially as described.

12. In a lowering device for elevators, a governor fixed at the top of the elevator-well and comprising a revolving vane, a wheel and multiple gearing between the vane and wheel, said wheel being adapted to receive a flexible connector, a flexible connector passing over said wheel and adapted to be connected with the cage to support it, and means for freeing the elevator-cage and for locking it in the well, at will, substantially as described.

13. In a lowering device for elevators, a governor fixed at the top of the elevator-well and comprising a revolving vane, a wheel, and multiple gearing between them, said wheel being adapted to receive a flexible connector, a flexible connector passing over said wheel and adapted to be connected with the cage to support it, means for freeing the elevator-cage and for locking it in the well, at will, and a friction device acting on the belt before it reaches the wheel, substantially as described.

606,490. PLOW. JESSE W. ROSS, New Orleans, La. Filed Oct. 20, 1897. Serial No. 655,786. (No model.)



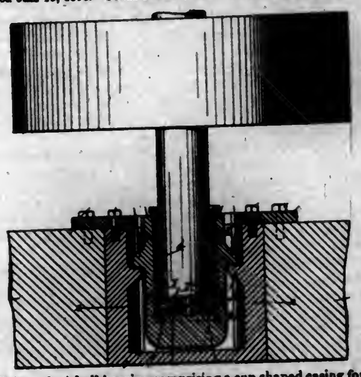
Claim.—1. The combination of two beams joined to each other at their front ends and diverging as they extend rearwardly, a plow joined to the rear end of each beam, a bracket attached to the moldboard of each plow, a handle attached to each bracket, a brace attached to each handle, the braces extending forwardly and being respectively attached to the rear portions of the beams, an arm attached to the rear portion of each beam and a roller mounted between the rear ends of the arms, the arms extending rearwardly from the plow.

2. The combination of two beams joined to each other at their front ends, the beams being separated at their rear ends, adjustably-

connected bars extending between and bracing the beams, a plow removably attached to the rear end of each beam, a handle attached to the moldboard of each plow, adjustably-connected bars extending between the handles and serving to hold them rigid with each other, and braces respectively attached to the handles and run forwardly and attached to the respective beams at the rear portions thereof.

3. The combination of two plow-beams joined to each other, a plow removably attached to the rear end of each beam, a bracket attached to the moldboard of each plow, an arm attached to the shank of each plow, two handles capable respectively of being removably connected with either the arms or the brackets, and means for bracing the handles.

606,491. BALL-BEARING. JOHN R. SAUCIER, New Iberia, La. Filed Jan. 19, 1898. Serial No. 667,148. (No model.)



Claim.—1. A ball-bearing comprising a cup-shaped casing formed at its inside with a support, an oil-box hung on the said support within the casing, a button set in the bottom of the box, and formed on its top with a circular groove, a second button above the first-named button, and on which rests the lower end of a shaft, the second button being provided in its under side with a circular groove registering with the groove in the other button, and balls filling the said grooves, to hold the buttons separated, substantially as shown and described.

2. A ball-bearing comprising a cup-shaped casing formed at its inside with a support, an oil-box hung on the said support within the casing, a lining for the box and for receiving a shaft, the lining and box being formed with apertures for admitting oil from the casing to the inner surface of the lining and the parts contained therein, a button set in the bottom of the box, and formed on its top with a circular groove, a second button above the first-named button, and on which rests the lower end of the shaft, the second button being provided in its under side with a circular groove registering with the groove in the other button, and balls filling the said grooves for holding the buttons separated, substantially as shown and described.

3. The combination of a casing, an oil-box mounted in the casing and communicating with the interior of the casing, a button seated in the oil-box and a second button revolubly seated on the first button and forming a step whereon may be mounted a revoluble shaft.

606,492. DRESS-GUARD ATTACHMENT. WILLIAM SHIRLEY, Coventry, England. Filed Sept. 15, 1897. Serial No. 651,769. (No model.) Patented in England Sept. 17, 1896, No. 20,597; in France Nov. 10, 1896, No. 261,146, and in Germany Nov. 10, 1896, No. 92,855.



Claim.—1. An attaching device for bicycle dress-guards, consisting of a keeper, and a latch adapted for locking engagement with the keeper and having casings formed upon its body the said latch being provided with spring-controlled members having movement in the said casings and arranged for attachment to the dress-guard, for the purpose set forth.

2. In a bicycle dress-guard, a latch adapted for attachment to a bicycle-frame and comprising a segmental body-plate having casings formed at its upper edge, and a spring-pressed rod arranged in each casing and extending out through the upper end thereof, the said rods being arranged for attachment to a dress-guard substantially as set forth.

3. In an attaching device for bicycle dress-guards, a latch arranged for attachment to a bicycle-frame, a cylindrical casing carried by the latch-body, and a spring-controlled rod having guided movement in the casing and terminating at its upper end in an eye, the said rod being arranged for attachment to a dress-guard, for the purpose specified.

4. In a dress-guard for bicycles, an attaching device for the said guard, consisting of a keeper adapted to be attached to the bicycle-frame, a latch arranged for locking engagement with the keeper, and spring-controlled pistons arranged for engagement with the lower portion of the dress-guard, for the purpose set forth.

5. In an attaching device for bicycle dress-guards, the combination, with a keeper adapted for attachment to the frame, the said keeper being provided with a stud, of a latch provided with a slot to receive the stud of the keeper, casings formed upon the body of the latch, and spring-controlled pistons located within the said casings and extending outwardly therefrom.

6. In an attaching device for bicycle dress-guards, the combination with a keeper adapted for attachment to the frame, the said keeper being provided with a stud, of a latch provided with a slot to receive the stud of the keeper, casings formed upon the body of the latch, spring-controlled pistons located within the said casings and extending outwardly therefrom, and a bar connecting the pistons in the said casings, the said bar being adapted to receive the loops at the lower end of the dress-guard, as and for the purpose specified.

7. The combination with a mud-guard, and a dress-guard adapted for attachment at its upper portion to the said mud-guard, of a keeper adapted to be attached to the bicycle-frame and having on its outer face a projecting stud and a latch comprising a body-plate having a slot to receive the stud of the keeper the said body-plate being provided with extensions from its upper edge forming guideways and spring-controlled rods having movement in the said guideways, the upper ends of the said rods being arranged for engagement with the lower portion of the dress-guard, for the purpose set forth.

606,493. MAGAZINE-PISTOL. WESLEY H. TRIPPETT, Redlands, Cal. Filed Jan. 2, 1897. Serial No. 617,747. (No model.)



Claim.—1. A firearm provided with a magazine mounted to turn and having a ring-shaped rim formed with bores adapted to contain cartridges, the axis of the said magazine standing at an inclination to the axis of the barrel of the firearm and the rim and bores standing at an inclination to the axis of the magazine, substantially as shown and described.

2. A firearm provided with a magazine mounted to turn beneath the barrel, the rim of the magazine being provided with bores the axes of which stand at an inclination to the axis of the magazine, substantially as shown and described.

3. A firearm having a pivot located under the barrel of the firearm and standing at an inclination thereto, and a magazine mounted to turn on said pivot and made ring-shaped, the rim of the magazine being inclined to the axis of the magazine and passing through the frame of the firearm, substantially as shown and described.

4. A firearm having a pivot located under the barrel and arranged at an inclination thereto, and a magazine mounted to turn on the said pivot and made ring-shaped, the rim of the magazine being formed with bores inclining downwardly and outwardly with respect to the axis of the magazine, the said rim passing through the frame of the firearm at the rear of the barrel, substantially as set forth.

5. A firearm provided with a magazine adapted to contain cartridges, the said magazine being mounted to turn under the barrel, the rim of the said magazine being inclined to the axis of the magazine and provided with bores, whereby when the magazine is turned, the bores are successively brought into alinement with the barrel of the firearm at the rear thereof, and an external guard for the magazine for holding the cartridges in place, substantially as shown and described.

6. A firearm provided with a magazine adapted to contain cartridges and mounted to turn under the barrel, the said magazine being ring-shaped and having its rim extending downwardly and outwardly at an inclination to the axis of the magazine, the said rim being formed with radially-arranged bores adapted to be brought into alinement with the barrel of the firearm, substantially as shown and described.

7. A firearm provided with a transverse opening at the rear of the barrel and in line therewith, a ring-shaped magazine mounted to turn on a pivot located under the barrel and having its rim inclining downwardly and outwardly and provided with bores, the said rim extending through the transverse opening at the rear of the barrel and as external guard for the magazine made cup-shaped and having an opening in its flange to permit of filling the magazine with cartridges, substantially as shown and described.

8. A firearm provided with a ring-shaped magazine pivoted beneath the barrel, said magazine having in its rim radially-arranged bores adapted to contain cartridges, said rim and bores inclining to the axis of the magazine and adapted to pass through an opening in the frame of the firearm at the rear of the barrel, and a cup-shaped inner guard for said magazine, the said guard having a flange formed with an opening at its rear for the passage of the bullet from the magazine to the barrel, the flange decreasing in thickness toward said opening, substantially as shown and described.

9. A ring-shaped magazine for firearms having its rim provided with radially-arranged bores, the axes of the said bores being inclined to the axis of the magazine, substantially as shown and described.

10. A magazine for firearms provided with a bottom plate having a central pivot-opening, and a ring-shaped rim provided with radially-arranged bores, the said rim being connected with the said plate and inclining downwardly and outwardly with respect thereto, substantially as shown and described.

606,494. CONVERTIBLE VEHICLE AND ROCKER. CHARLES W. WEBSELL and JAMES E. WATERS, Thurmont, Md. Filed Sept. 13, 1897. Serial No. 651,860. (No model.)



Claim.—1. The combination with a body, a fixed rear axle, and a fixed cleat or bolster block at the front of the body, of a front axle, wheels on both of said axles, a pivot-post secured on the front axle and loosely passing up through the bolster or cleat, a cross-handje on the top of the post, a wear-plate on the bolster, and a wear-plate on the front axle, and means for clamping the wear plates together to prevent said axle from swinging, as specified.

2. The combination with a vehicle-body, a fixed rear axle and a pivoted front axle, and wheels on both of said axles, of means for controlling the swinging movement of the front axle by the occupant of the body, a removable bottom for the body, a bottom located below the removable bottom and having two spaced elongated apertures near its forward end, a wear-plate on the body adapted to receive the threaded body of a screw-bolt, and a wear-plate secured on the front axle and in loose contact with the upper wear-plate, and having a curved slot through which the screw-bolt passes, the slot having a length adapting the two wear-plates to be slidable one on the other and to limit the swinging movement of the front axle, as specified.

3. The combination with a vehicle-body, and a front and a rear axle, of rockers removably held on the axle-spindles, as specified.

606,495. MOP. HERSHMAN A. WOLFF, New Haven, Conn. Filed Sept. 23, 1897. Serial No. 652,763. (No model.)

Claim.—1. In a mop-head, the combination, with a body-plate provided with a marginal flange and a series of transversely-arranged apertures, of a clamping-plate adapted to fit upon the apertured portion of the body-plate within the flange thereof, and locking devices whereby the clamping and body plates may be secured together, for the purpose specified.

2. In a mop-head, the combination, with a body-plate provided with a marginal flange, and openings produced in its surface within the flange, of a clamping-plate fitted to the body-plate within the flange, having its end portions roughened, and means, substantially as described, for securing the clamping-plate to the body-plate, for the purpose specified.



3. In a mop, the combination, with a body-plate provided with a marginal flange and a series of slots, and strips of absorbent material passed through the slots in the body-plate and across the webs between adjacent slots, of a clamping-plate fitted to the body-plate within the flanged portion, fastening devices whereby the body and the clamping plates are secured together, and a handle for the clamping-plate, substantially as described.

4. In a mop, the combination, with a body-plate having a marginal flange and slots in its surface within the flange, and strips of absorbent material passed downward through adjacent slots, crossing the webs between the slots, the end strips being carried upward over the ends and side portions of the flange of the body-plate adjacent to the ends, of a clamping-plate having roughened ends, the clamping-plate being fitted to the slotted portion of the body-plate, and fastening devices whereby the body and clamping plates are secured together, the said clamping-plate being provided with a socket adapted to receive a handle, for the purpose set forth.

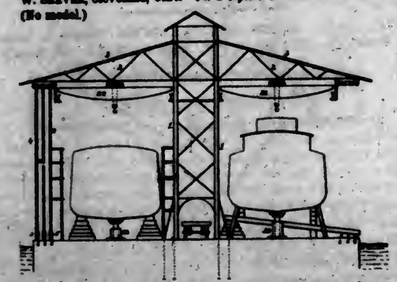
606,496. BICYCLE-BRAKE. JULIUS I. ALLEN, Mendocino, Cal. Filed Dec. 10, 1898. Serial No. 615,162. (No model.)



Claim.—1. The combination, with a bicycle-fork, of pivot-pins adapted to be attached to said fork, a wheel, and a brake for the latter, of the improved spring-support composed of a looped wire spring having its ends formed as hooks, to detachably engage the brake, and having coils that form eyes adapted to receive said pivot-pins, the closed end of the spring bearing in the crotch of the fork, as shown and described.

2. The combination, with a bicycle-fork, a wheel, and the detachable roller or drum, having radial pivot-arms, of the clamps composed of elastic bands applied to said fork, and right-angular screw-bolts whose inwardly-projecting portions constitute fulcrum-pins on which the brake-arms are pivoted, and the looped spring, having eyes for receiving said pins, and engaging the forks and roller-arms at its respective ends, as shown and described.

606,497. SHIP-BUILDING PLANT. WASHINGTON I. BABCOCK, Chicago, Ill., and SAMUEL T. WELLMAN, CHARLES H. WELLMAN, and JOHN W. SEAVER, Cleveland, Ohio. Filed Apr. 12, 1897. Serial No. 631,814. (No model.)



Claim.—1. The combination of a row of posts or columns with cantaliver roof-trusses projecting laterally therefrom, and an outer structure presenting resistance to vertical tension and serving to anchor the projecting portions of said roof-trusses, substantially as specified.

2. The combination of a row of posts or columns with cantaliver roof-trusses projecting laterally therefrom, and an outer structure serving to support or anchor the outer ends of the projecting roof-trusses, said outer structure being movable, substantially as specified.

3. The combination of a row of posts or columns with cantaliver roof-trusses projecting laterally therefrom, and sliding doors guided on the outer projecting portions of the roof-trusses and on a suitable foundation, and movable so as to open or close the outer side of the structure, substantially as specified.

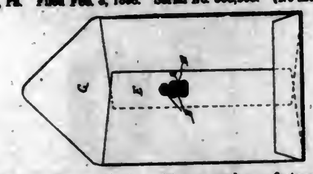
4. The combination of a row of posts or columns, cantaliver roof-trusses projecting laterally therefrom, sliding doors movable so as to open or close the outer portion of the structure, and means for effecting vertical confinement of said doors to the outer ends of the roof-trusses and to the foundation, substantially as specified.

5. The combination of a row of posts or columns having cantaliver roof-trusses projecting laterally therefrom, with an outer inclosure extending between the said roof-trusses and the foundation, and with means for vertically adjusting said outer inclosure whereby it is caused to anchor or rigidly support the outer portions of the roof-trusses, substantially as specified.

6. The combination of a row of posts or columns, with cantaliver roof-trusses projecting laterally therefrom, sliding doors movable so as to open and close the outer structure, said doors being flanged at top and bottom and flanged guides on the roof-trusses and foundation for engaging with said flanged portions of the doors, substantially as specified.

7. The combination of a row of posts or columns, cantaliver roof-trusses projecting laterally therefrom, and guides or runways mounted upon said structure and serving as a support for the bridge of a traveling crane, substantially as specified.

606,498. **ENVELOP-FASTENER.** WILLIAM BARNARD, Philadelphia, Pa. Filed Feb. 3, 1898. Serial No. 668,905. (No model.)



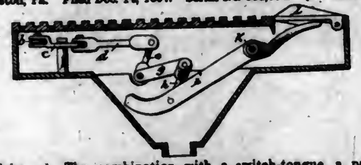
Claim.—1. In combination with an envelop, a fastener attached to the body of the envelop, said fastener having indentations in the edges thereof to produce sections adapted to fold one upon another, as and for the purpose described.

2. As a new article of manufacture, an envelop-fastener consisting of a single piece of metal having prongs by means of which it may be attached to an envelop, and sections adapted to fold one upon the other and in conjunction with the end of the closing-flap of the envelop, as specified.

3. As a new article of manufacture, an envelop-fastener consisting of a single piece of sheet metal having prongs formed thereon for attachment to the body of the envelop, and indentations in the edges thereof to produce sections adapted to fold one upon the other, as and for the purpose set forth.

4. In combination, an envelop having side flaps and a closing-flap, a fastener consisting of a single piece of sheet metal having prongs whereby it is secured to the side flaps, and indentations formed in the sides thereof for producing sections adapted to fold one upon the other in conjunction with the ends of the closing-flap, as specified.

606,499. **SWITCH-OPERATING DEVICE.** GEORGE B. BARRON, Easton, Pa. Filed Dec. 14, 1897. Serial No. 661,834. (No model.)



Claim.—1 The combination with a switch-tongue, a pusher therefor disconnected from the same, a pivoted lever projecting above the surface and operating connections between the pivoted lever and the pusher including a weighted lever for transmitting the depression of the projecting lever to the switch-tongue, the weighted lever returning both the pusher and the projecting lever to normal position, substantially as described.

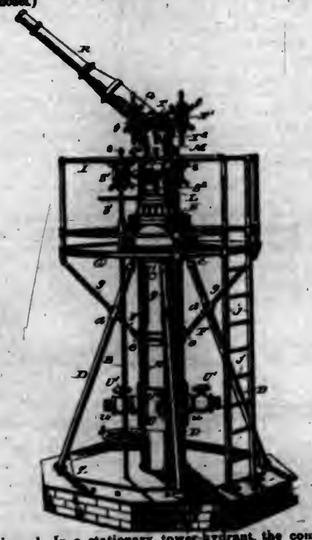
2. In combination, a switch-tongue, a horizontal pusher disconnected from the same, a weighted lever, a cover projecting above the surface pivoted independently of said lever and supported by the same and operating connections between the weighted lever and the pusher, substantially as described.

3. In combination with a switch-tongue, and operating means therefor, a car and means carried by the car for actuating the switch-tongue-controlling device, consisting of a roller, a vertically-movable depressor and locking means for said depressor, with means positively operated for both operating the locking means and lifting the depressor, substantially as described.

4. In combination with a switch-tongue and means for operating it, a roller carried by the car vertically movable thereof, a stop and a lever movable with the roller and independently of the same adapted to engage said stop and means for releasing the lever and lifting the roller, substantially as described.

5. In combination with the pilot-board of a car, a movable frame B, a roller carried thereby, a bell-crank lever also carried by the frame, a stop engaging one end of the lever, a rod 6 engaging the other end, said lever having limited movement and operating connections to the position of the driver or motorman, substantially as described.

606,500. **FIRE-HYDRANT.** NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed Sept. 5, 1896. Renewed May 11, 1898. Serial No. 680,365. (No model.)



Claim.—1. In a stationary tower-hydrant, the combination of the fixed stand-pipe, the upper and lower collars thereon, and the base, with the stays connected to the upper collar and anchored in the base, and the braces connected to the lower collar and to the stays at points above the collar and above the lower ends of the stays, substantially as and for the purpose set forth.

2. In a stationary tower-hydrant, the combination of the fixed stand-pipe, the upper and lower collars thereon, and the base; with the stays connected to the upper collar and anchored in the base, and the braces connected to the lower collar and to the stays above the base; with the platform-support G above the stays, and the braces connecting said platform-support to the stays, substantially as described.

3. In a tower-hydrant, the combination of the base, the fixed stand-pipe A rising therefrom, the collar C having sockets *c*, the inclined stays D, having nipples *d* connected to sockets *c* at top and to the base at bottom; with the collar E having sockets *c*; the braces F interposed between and connected to sockets *c* and nipples *d*; and the adjustable nozzle on the upper end of pipe A, all substantially as and for the purpose described.

4. In a tower-hydrant, the combination of the base, the fixed upright water-pipe A, the collar C having sockets *c* at the upper end of said pipe; the inclined stays D having nipples *d* secured at top to sockets *c* and at bottom to the base; the collar E on the pipe below collar C having sockets *c*, and the braces F interposed between and secured to sockets *c* and nipples *d*; with the platform-supporting ring G, the braces *g* connected to nipples *d* and supporting-ring G and the adjustable nozzle on the upper end of the pipe, all substantially as and for the purpose described.

606,501. **RAILROAD FOOT-GUARD.** CHARLES F. BERENDSEN, Centreville, Mich. Filed Jan. 28, 1898. Serial No. 668,053. (No model.)



Claim.—1. A foot-guard for converging rail-sections, comprising a spring-plate secured at one end to a stationary portion of the road-bed, covering the space between the rails and provided at its opposite end with antifrictional devices.

2. A foot-guard for converging rail-sections, consisting of a plate of spring metal secured at one end to a stationary part of the road-bed, inclosing the space between the rails and provided at its free end with rollers, as and for the purpose set forth.

3. A foot-guard for converging rail-sections, consisting of a plate of spring metal secured at one end to a tie or other stationary part of the road-bed, deflected upwardly from its point of connection with said tie, and having a flat portion covering the space between the rails, and rollers in the free end thereof bearing against the bases of the two opposite rails, and adapted to engage the lower surfaces of the heads of said rails, as and for the purpose set forth.

4. A foot-guard for converging rail-sections consisting of a plate of spring metal, secured at one end to a tie or other stationary part of the road-bed, deflected upwardly from its point of connection with said tie, having a flat portion covering the space between the rails and provided with a downwardly-deflected portion adjacent to its free end which terminates in a loop, and a double roller whose shank is inclosed by said loop and whose engaging portions bear against the bases of the rails and are adapted to engage the under side of the heads of the rails, as and for the purpose set forth.

5. A foot-guard for converging rail-sections, consisting of a plate of spring metal having a base and flat portion and an inclined web between said base and flat portion, formed by slots or recesses, the said flat portion being provided with laterally-extending tongues or fingers adapted to bear against the upper surface of the base of said rails, and the base of said plate adapted to fit beneath the base of the rails, as and for the purpose set forth.

6. The combination with a pair of converging rail-sections and the ties to which they are secured, one of said ties being cut away forming recesses beneath the bases of said rails, of a foot-guard consisting of a plate of spring metal having a base adapted to fit within the recess in said tie, provided with laterally-extending tongues or fingers adapted to bear against the top surface of the bases of said rails, provided with an inclined portion adjacent to said tongues, and a flat portion lying adjacent to the head of the rails, and covering the space between them, as and for the purpose set forth.

7. A foot-guard for converging rail-sections, comprising a spring-plate secured at one end to a stationary portion of the road-bed, covering a space between the rails and provided at its opposite end with outwardly-spring-pressed rollers, as and for the purpose set forth.

8. A foot-guard for converging rail-sections, comprising a spring-plate secured at one end to a stationary portion of the road-bed, covering the space between the rails and provided at its opposite end with a loop, a shaft fitting within said loop, rollers loosely mounted on said shaft, and a spring surrounding said shaft and engaging the adjacent ends of the hubs of said rollers, as and for the purpose set forth.

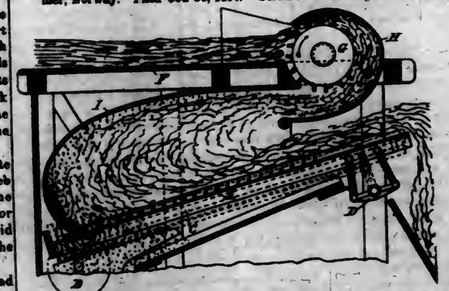
9. A foot-guard for converging rail-sections, comprising a spring-plate secured at one end to a stationary portion of the road-bed, covering the space between the rails and provided at its opposite end with a loop, a shaft fitting within said loop having heads or enlargements upon its opposite ends, rollers loosely mounted upon the ends of said shaft and provided with sockets or recesses in which said heads fit, and a coiled spring surrounding said shaft and engaging the inner ends of the hubs of said rollers, as and for the purpose set forth.

606,502. **GATE.** CARRIE D. BELL, Nicholasville, Ky. Filed Jan. 12, 1898. Serial No. 666,430. (No model.)

Claim.—The combination with a swinging gate, of a toggle-lever made up of two sections, one of which is pivoted at its lower end to a stationary point, and is provided with an elongated slot in its opposite end, and the other is pivoted at one end to the gate and at its opposite end to the first section at a point a short distance from the end of the slot therein, so that the end of said slot forms a stop, an adjustable weight upon one of said sections, operating-levers fulcrumed in posts located upon opposite sides of the gateway, and connections between the free end of said operating-levers and one end of one of the toggle-lever sections, as and for the purpose set forth.

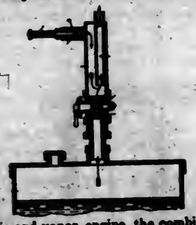


606,503. **THRESHING-MACHINE.** JULIUS BÖRSUM, Lillehammer, Norway. Filed Oct. 30, 1897. Serial No. 656,946. (No model.)



Claim.—In a threshing-machine, the combination of the feed-board the overshot threshing-cylinder, the concave, the semicylindrical deflecting-shell H, curved deflecting-shell I, beneath the feed-board, and the upwardly-inclined straw-shaker A adapted to move the straw out of the machine in a direction the reverse of that in which it is projected into said shell I by the cylinder, for the purpose set forth.

606,504. **EXPLOSIVE-ENGINE.** SAMUEL BOUTON, Philadelphia, Pa., assignor of one-half to William F. Rzwell and Alfred Rzwood, same place. Filed July 30, 1897. Serial No. 646,440. (No model.)



Claim.—In an air and vapor engine, the combination with the cylinder and piston, of a mixing-chamber having at its upper end a valve-controlled inlet for the entrance of air, a pipe leading from the cylinder to the mixing-chamber below the air-inlet thereof, a valve controlling said pipe and a vapor-reservoir in open communication with the mixing-chamber below said pipe, said valves controlling respectively the air-inlet to the mixing-chamber and the pipe leading to the cylinder being so arranged that upon the creation of a partial vacuum in the cylinder each valve will automatically open, substantially as and for the purposes described.

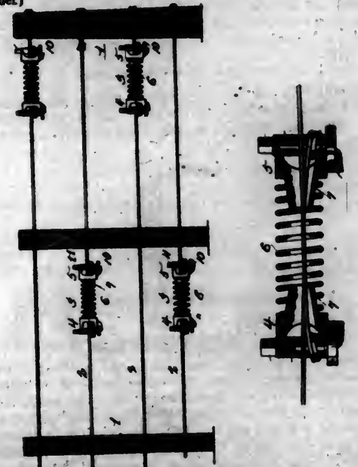
606,505. **WIRE-FENCE TIGHTENER.** SAMUEL C. BOWEN, Medina, N. Y. Filed June 17, 1898. Renewed Apr. 29, 1898. Serial No. 679,264. (No model.)

Claim.—1. A wire-fence tightener, comprising a hollow bracket formed with a solid end perforated for the passage of a fence-wire, a ratchet-head spindle journaled across the open end of said bracket, with its ratchet-head outside thereof, and a lug or detent, formed on the outside of the bracket, adapted to engage the teeth of the ratchet to prevent backward rotation of the spindle, said lug having a projection arranged to retain said spindle in proper operative position.



2. As a new article of manufacture, a fence-wire tightener, consisting of a hollow bracket formed with a solid end perforated for the passage of a fence-wire, a ratchet-head spindle journaled across the open end of said bracket, a lug or detent, formed on the outside of the bracket and adapted to engage the teeth of the ratchet-head and prevent backward movement of the spindle, a projection on said lug arranged to engage said ratchet and hold said spindle in operative position, and a wire loop having its ends passed through exterior perforations and secured in the solid end of the bracket.

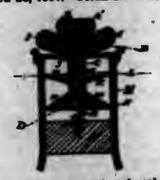
606,506. COMPENSATOR FOR WIRE FENCES. SAMUEL C. BOWERS, Medina, N. Y. Filed June 17, 1896. Serial No. 595,869. (No model.)



Claim.—1. In a fence-wire-compensating device, the combination of two hollow supporting brackets, placed end to end, each provided with a ratchet-head spindle journaled across the outer end of the bracket, with its ratchet-head outside thereof, and a lug or detent, formed on the outside of the bracket, adapted to engage the teeth of the ratchet-head, to prevent backward rotation of the spindle, said lug having a projection arranged to retain said spindle in proper operative position, with a divided fence-wire, one end of which passes through one supporting-bracket and is connected to the spindle of the other bracket, while the other end of the wire passes through the other bracket and is connected to the spindle of the first bracket.

2. In a fence-wire-compensating device, the combination of two hollow supporting-brackets, placed end to end, a spiral spring between said brackets, each bracket being provided with a ratchet-head spindle journaled across the outer end of the bracket, with its ratchet-head outside thereof, and a lug or detent, formed on the outside of the bracket, adapted to engage the teeth of the ratchet-head, to prevent backward rotation of the spindle, said lug having a projection arranged to retain said spindle in proper operative position, said device being so placed in a divided fence-wire, that one end of the wire will pass through one bracket and be secured to the spindle of the other bracket, while the other end of the wire will pass through the other bracket and be secured to the spindle of the first bracket.

606,507. NON-REFILLABLE BOTTLE. EUREKA C. BOWER, Trenton, N. J. Filed Oct. 20, 1897. Serial No. 656,796. (No model.)



Claim.—1. The combination with a bottle, of a glass-cutter arranged within the neck thereof, and adapted to be turned therein to cut said bottle and render the same capable of being severed, substantially as set forth.

2. The combination with the bottle, and its plug, F, of a plate providing bearings for the severing device, and a severing device, adapted to be turned within the neck of the bottle to scratch or cut the inner walls thereof, substantially as set forth.

3. The combination with the bottle having the impermeable plug F, and a bearing-plate G, of a severing device, comprising cutting-arms adapted to be turned in said plate and a spreader adapted to be brought into spreading engagement with said cutting-arms to force the cutting-points into forcible engagement with the side walls of the bottle, substantially as set forth.

4. A severing device for bottles, comprising a plate G, adapted to provide bearings for the cutter, a cutter arranged and adapted to be turned in said plate, said cutter having arms provided with cutting-points and a spreader adapted to engage said arms to press the extremities of the same against the side walls of the bottle, substantially as set forth.

5. The combination of the hollow shank J, having a finger-piece I, and arms M, extending downwardly, and a spreader comprising a shank C, finger-piece A', and a foot D, said foot, being arranged beneath said arms M, and being adapted to be raised into contact with the arms M, to force the same against the sides of the bottle, substantially as set forth.

6. The severing device herein described, comprising the tubular shank J, the finger-piece I, having a threaded central opening, arms M, M forming a V-shaped aperture at the lower end of the device, and a spreader comprising a shank C, having threads to engage those of the finger-piece I, a finger-piece A', and a foot D, substantially as set forth.

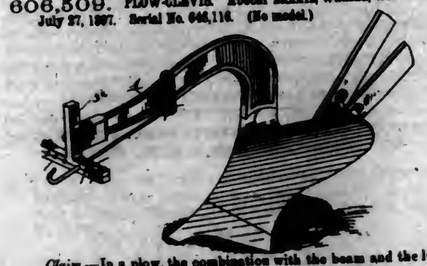
7. The combination with the bottle having a groove formed horizontally in the inner walls thereof, of a plate G, provided at its center with a perforation *g*, in which the severing device has its bearings, a hollow shank, J, having a finger-piece I, arms K, arranged in said groove, arms M, provided with cutting-points, and a spreader comprising the finger-piece A', shank C, and foot D, all arranged and operating, substantially as set forth.

606,508. LETTER-FILE. CHRISTOPHER C. BOYKIN, Norfolk, Va., assignor of one-fourth to John W. Steel and Herbert S. Hazlette, same place. Filed Apr. 23, 1897. Serial No. 633,477. (No model.)



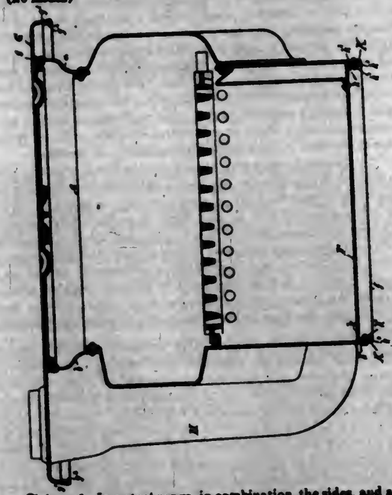
Claim.—In a letter-file, the combination of a base provided at opposite sides in its upper face with bearing-recesses, a cutting-lever provided between its ends with legs forming pintles and resting in the bearing-recesses, a fastening device extending through the lever and projecting above the same, and a coiled spring disposed on the fastening device and bearing against the upper face of the lever to hold its cutting end normally elevated, said fastening device serving to support the spring and to secure the lever to the base, substantially as described.

606,509. PLOW-CLEVIS. AUGUST BRAATE, Waseca, Wis. Filed July 27, 1897. Serial No. 646,116. (No model.)



Claim.—In a plow, the combination with the beam and the lugs at the front end thereof formed with opposite holes, of the vertically-movable arm or bar formed with a number of holes, the pin passing through said holes, the horizontal arm or bar at the lower end of said vertically-movable arm or bar formed with recesses in the under side of the bar secured thereto formed with coinciding recesses in its upper side, the set-screws connecting said bars, the rod passing through said recesses formed with a hook at the front end and the clip secured to the beam with which the rear end of said rod is connected, substantially as described.

606,510. STEEL RANGE. ADELBERT H. BROWNE, Cleveland, Ohio. Filed Dec. 4, 1896. Renewed Dec. 13, 1897. Serial No. 661,757. (No model.)



Claim.—1. In a steel range, in combination, the sides, and a steel top having an opening for the cover-frame and having the edges thereof bent down and united to some of the sides by cup-joints and bolts, substantially as and for the purpose specified.

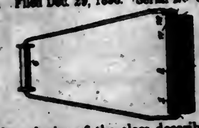
2. In a steel range, in combination, the sides having their upper portions bent outward, a steel top having an opening and having the edges of said opening bent down and in to form a seat for the cover-frame, and then down again, said last-named downwardly-bent parts being connected with the tops of the sides, substantially as and for the purpose specified.

3. In a steel range, in combination, the front having an oven-opening, a piece *a* secured to the top of said side and forming the top of said opening; the edges of said opening being folded back to form channels, and the oven-plates united with one another and having bent edges which lie and are secured in said channels, substantially as and for the purpose specified.

4. In a steel range, a door consisting of a single piece of sheet metal, the edges of which are curved inward, then outward into a plan parallel with the central part of said door, then folded back upon themselves and then curved inward again, substantially as and for the purpose specified.

5. In a steel range, in combination, the sides, and a steel top having on its outer edge a downwardly-turned flange, the edge of which is folded up against said flanges, and having an opening for the cover-frame, the edges of said opening being bent down again, substantially as and for the purpose specified.

606,511. MEAT OR VEGETABLE CUTTER. ISAAC P. BUCKLES, Fulford, Colo. Filed Dec. 29, 1896. Serial No. 617,375. (No model.)



Claim.—1. In a device of the class described, the combination with a handle having inwardly-extending stab spindles or axles, of an annular band having upper and lower cutting edges, and which is journaled on said stubs or spindles, and a spring-pressed catch adapted to lock the handle to the knife.

2. In a device of the class described, the combination with a handle, of an annular knife pivoted to said handle and adapted to be reversed, a locking-catch pivoted to the handle and provided with a free portion, and also having a locking pin or bolt adapted to engage with the knife, and a spring interposed between the handle and the free portion of said catch.

3. In a device of the class described, the combination with a handle provided with side pieces terminating in inwardly-extending stub spindles or axles, of an annular band of metal journaled to swing on said stub-spindles and having one edge formed into a smooth cutter and its other edge made into a corrugated cutter, a locking-catch pivoted to the handle and provided with a free portion and also having a locking pin or bolt adapted for reception in an opening of the knife, and a coil-spring interposed between the handle and the free portion of the locking-catch which acts to keep the locking pin or bolt normally locked in the opening of the knife whereby the knife and handle are locked together.

606,512. BELT-CLAMP. WILLIAM P. CARLEY and WILLIAM T. RICKARDS, Camden, N. J. Filed Nov. 25, 1896. Serial No. 613,285. (No model.)



Claim.—1. A belt-clamp comprising in its construction spaced side bars, cross-bars connecting the same, and rock-bars arranged outside of said cross bars and journaled in the side bars, each of the cross-bars being provided with a straight face forming biting edges, and each of the rock-bars also provided with a straight face adjacent to the straight face on the cross-bar, the construction and arrangement being such that the cross-bars are designed to have the ends of the belt passed entirely around them and the belt to extend between their flattened surfaces and those of the rock-bars, and the extreme ends of the belt to extend under the lower biting edges of the rock-bars, substantially as described.

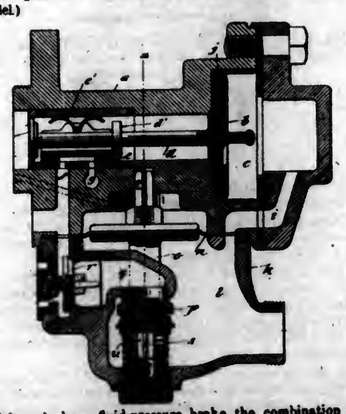
2. A belt-clamp, comprising spaced side bars, cross-bars rigidly connecting the same, and rock-bars journaled in the side bars outside thereof and extending parallel to the cross-bars, said rock-bars being journaled eccentrically, substantially as described

3. A belt-clamp comprising in its construction spaced side bars, cross-bars connecting the same, and rock-bars arranged outside of said cross-bars and journaled in the side bars and provided with spurs or teeth, each of the cross-bars being provided with a straight face forming biting edges, and each of the rock-bars also provided with a straight face adjacent to the straight face on the cross-bar, the construction and arrangement being such that the said cross-bars are designed to have the ends of the belt passed entirely around them and the belt to pass between their flattened surfaces and those of the rock-bars, and the extreme ends of the belt to extend under the lower biting edges of the rock-bars, substantially as described.

4. A belt-clamp, comprising side bars spaced apart, cross-bars rigidly connecting the same and having flat outer surfaces and rounded

inner surfaces, and rock-bars journaled in the side bars and arranged parallel to the cross-bars and opposite the flattened surfaces thereof, said rock-bars being provided with a longitudinal series of teeth or spurs adapted to engage the ends of the bolt between the cross-bars and rock-bars, substantially as described.

606,513. VALVE FOR AIR-BRAKES. JESSE F. CARPENTER, Washington, D. C. Filed Mar. 18, 1892. Serial No. 425,411. (No model.)



Claim.—1. In a fluid-pressure brake, the combination with a triple-valve mechanism, of a quick-acting-valve mechanism consisting of a piston or diaphragm exposed on one side to auxiliary-reservoir pressure and on the other to train-pipe pressure, a valve operated by said piston or diaphragm, and a passage from the train-pipe to the brake-cylinder controlled by the said valve, the two valve mechanisms being located in a casing common to both, substantially as described.

2. In a fluid-pressure brake, the combination with a triple-valve mechanism, of a quick-acting-valve mechanism consisting of a piston or diaphragm exposed on one side to auxiliary-reservoir pressure and on the other to train-pipe pressure, a valve operated by said piston or diaphragm, a passage from the train-pipe to the brake-cylinder controlled by said valve, and a check-valve in said passage, the two valve mechanisms being located in a casing common to both, substantially as described.

3. A quick-acting-valve mechanism for air brakes, comprising a diaphragm suspended in a chamber open on one side of such diaphragm to the train-pipe pressure, and on the other to the auxiliary-reservoir pressure, and movable only under an abnormal reduction of pressure in the train-pipe side of the diaphragm to the brake-cylinder, and a valve operated by the diaphragm for controlling the said duct, in combination with a triple valve and independent of any movement thereof, and a body or shell common to the two valves, substantially as described.

4. A quick-acting-valve mechanism for air-brakes, comprising a diaphragm suspended in a chamber open on one side of such diaphragm to the train-pipe pressure, and on the other to the auxiliary-reservoir pressure, and movable only under an abnormal reduction of pressure in the train-pipe, a duct projecting into the chamber and leading from the train-pipe side of the diaphragm to the brake-cylinder, a valve suspended from the diaphragm and operated by the diaphragm for controlling the said duct, and a check-valve in said duct seating with the exhaust from the brake-cylinder, combined with the triple valve, and a body or shell common to and inclosing the triple valve and the quick-acting valve, substantially as described.

5. The combination with an ordinary automatic triple valve, of a quick-acting-valve mechanism, and a body or shell common to both, said quick-acting valve comprising a diaphragm suspended in a chamber which is made in said body or shell and open on one side of such diaphragm to the train-pipe pressure, and on the other to the auxiliary-reservoir pressure, the diaphragm being movable only under an abnormal reduction of pressure in the train-pipe, a duct leading from the train-pipe side of the diaphragm to the brake-cylinder, and a valve operated by the diaphragm for controlling the said duct, substantially as described.

6. In a quick-acting-valve mechanism for air-brakes the combination of the chamber into which the train-pipe enters, a duct projecting into such chamber, a valve seating in the mouth of such duct, and a diaphragm always open to auxiliary-reservoir pressure and from which diaphragm said valve is suspended, substantially as described.

7. In a quick-acting-valve mechanism for air-brakes the combination with an ordinary triple valve, of the chamber into which the train-pipe enters, a duct projecting into such chamber, a valve seating in the mouth of such duct, a saddle or yoke in which such valve is arranged, and a diaphragm always open to auxiliary-reservoir pressure and from which diaphragm such valve is suspended, the said valve and diaphragm operating independently of any movement of the ordinary triple valve, substantially as described.

8. In a quick-acting-valve mechanism for air brakes the combination of the chamber into which the train-pipe enters, a duct projecting into such chamber, a valve seating in the mouth of such duct, a saddle or yoke in which such valve is arranged, and a diaphragm always open to auxiliary-reservoir pressure from which diaphragm said saddle or yoke is suspended, substantially as described.

606,514. DESK ATTACHMENT. WILLIAM H. CARRIER, Adrian, Mich. Filed Jan. 26, 1898. Serial No. 667,991. (No model.)



Claim.—1. A support comprising among its members, a clamping device adapted to be secured to a desk or other article, having a pair of clamping-jaws, forming a clamping-recess between them, a board-holding device pivoted to said clamping device, substantially in line with the upper and inner corner of said clamping-recess, and means for adjustably securing said board-holding device in different positions, whereby the edge of the board opposite the board-holding device will rest upon the edge of the desk or other article, substantially as described.

2. A support comprising among its members, a plate provided with a pair of clamping-jaws, forming a clamping-recess between them, for engaging the edge of a desk or other article, a board-holding device pivoted to said plate substantially in line with the upper and inner corner of said recess, and provided with means for attaching it to one edge of a board, the said plate being provided with a curved slot concentric with the said point of pivoting, and a set-screw passing through said slot and engaging said board holding device, whereby the edges of the board opposite the clamp will rest upon the edge of the desk or other article, substantially as described.

3. A support comprising among its members a clamping device provided with clamping-jaws forming a clamping-recess between them adapted to engage the edge of a desk or other article, a board-holding device provided with an adjustable clamp for holding boards of different thicknesses, pivoted to said clamping device, substantially in line with the upper and inner corner of said clamping-recess, and means for adjusting said board-holding device with respect to the clamping device to hold the board in different angular positions, whereby the edge of the board opposite the board-holding device will rest upon the edge of the desk or other article, substantially as described.

4. A support comprising among its members, a plate provided with a fixed jaw and an adjustable jaw, forming a clamping-recess between them for engaging the top of a desk or other article, said plate being provided with a pivot substantially in line with the upper and inner corner of said recess, and a curved slot concentric with said pivot and a board-holding device secured to said plate by said pivot and provided with an adjustable clamp for holding boards of different thicknesses, and an adjusting set-screw passing through said slot and engaging said board-holding device, whereby the edge of the board opposite the board-holding device will rest upon the edge of the desk or other article, substantially as described.

606,515. RAIL-CHAIR. GEORGE D. CLAFLIN, Jr., Toledo, Ohio, assignor to the American Rail Joint and Manufacturing Company, Cleveland, Ohio. Filed Dec. 6, 1897. Serial No. 660,909. (No model.)

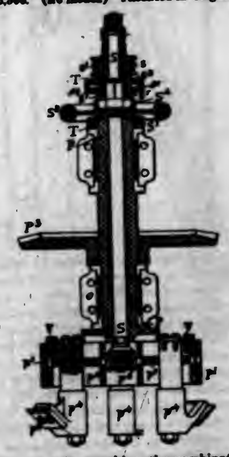


Claim.—1. A rail chair consisting of the members A and B, having oblique interlocking tongues, the member A consisting of a body

a^3, and a base having the two flat seats a' a^2 in different planes, the member B consisting of a body and a base having a flat seat b^4 which is in the same plane with the seat a^2, combined with an intermediate member which fits between two rails resting upon the seats a' and a^2 b^4, and bears against the feet and balls of said rails, substantially as specified.

2. A rail-chair consisting of the members A and B, having oblique interlocking tongues, the member A consisting of a body a^3 and a base having the two flat seats a' a^2 in different planes, and having an integral lug projecting from the inner face of the body and adapted to pass through a hole in the web of the proximate rail and into a hole in one side of the member C, the member B consisting of a body and a base having a flat seat b^4, which is in the same plane with the seat a^2, combined with an intermediate member which fits between two rails resting upon the seats a' and a^2 b^4, and bears against the feet and balls of said rails, substantially as specified.

606,516. MACHINERY FOR MANUFACTURING CASKS OR BARRELS. ROBERT COLLEN, London, England. Filed Dec. 24, 1897. Serial No. 663,366. (No model.) Patented in England July 28, 1896, No. 16,670.



Claim.—1. In a crozing-machine, the combination of a revolving head carrying tools or cutters for effecting the crozing, chiming and jiggering operations, automatic mechanism capable of giving said cutters radial movement either inward or outward with relation to the cutter-head, and means under the control of the operator and capable of causing said mechanism to operate to produce either of said radial movements of the cutters, substantially as described.

2. In a crozing-machine, a revolving cutter-head, crozing, chiming and jiggering tools carried by the cutter-head and capable of radial movement inward and outward relative thereto, means capable of giving the tools movement in either direction and means whereby the direction of movement of said tools may be controlled, substantially as described.

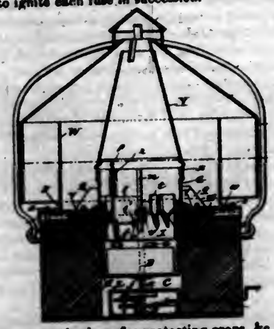
3. In a crozing-machine, a cutter-head, tools carried by said cutter-head and capable of radial movement relative thereto, a shaft supporting the cutter-head, a second shaft operatively connected to the tools on said head, and means imparting differential revolutions to the two shafts, and means capable of altering the rate of speed of one shaft with relation to the other whereby the radial movements of the tools are effected, substantially as described.

4. In a crozing-machine, a revolving cutter-shaft, cutting-tools supported thereby, an independently-rotatable shaft effecting the movement of the cutting-tools to and from their work, means imparting differential speed revolutions to the two shafts, means capable of varying the rate of speed of one of the shafts substantially as described.

5. In a crozing-machine, a revolving cutter-shaft, cutting-tools supported thereby, a second shaft concentric with the cutter-shaft and controlling the movement of the tools to and from their work, means causing one shaft to revolve faster than the other, and means for altering the rate of speed of one of the shafts to make it rotate either faster or slower than the other shaft, substantially as described.

606,517. AUTOMATIC ALARM FOR PROTECTING CROPS, &c. LAURENCE L. CUSSENDEN, Guyton, Ga. Filed Sept. 3, 1897. Serial No. 650,963. (No model.)

Claim.—1. An automatic alarm for protecting crops, &c., consisting of a plurality of barrels adapted to be charged with explosive material, and arranged at intervals on a suitable base or support having a central bore or recess, fuses extending from the charges in said barrels into said bore or recess, and an igniting device arranged in said bore to ignite each fuse in succession.



2. An automatic alarm for protecting crops, &c., consisting of a plurality of barrels each adapted to contain an explosive charge and arranged at intervals upon a stationary base, a moving continuously-burning igniting device adapted to ignite the charges in said barrels in succession.

3. An automatic alarm for protecting crops, &c., consisting of a plurality of barrels adapted to contain explosive charges arranged at intervals on a circular base having a central bore or recess, fuses extending from said charges into the said central bore, and a rotating igniting device in said bore adapted to ignite the fuses in succession.

4. In an automatic alarm for the purposes defined, the combination of a circular supporting-base having a central bore or recess, a plurality of barrels radially arranged at intervals around said bore or recess, fuses extending from the charges into said bore or recess, a lamp rotatably mounted in said bore or recess, and mechanism for continuously rotating said lamp so as to cause the flame thereof to ignite the fuses in succession at predetermined intervals.

5. In an automatic alarm for the purposes defined, the combination with a supporting-base having a central bore, of a plurality of barrels adapted to contain explosive charges radially mounted around said bore, fuses extending from the charges into said bore, a series of guard-plates between adjacent fuses, and an igniting mechanism adapted to move in contact with the fuses in succession, substantially as specified.

6. In an automatic alarm for the purposes defined, the combination of a supporting-base having a central bore, of a plurality of barrels adapted to contain explosive charges, fuses extending from said charges into the central bore, guards separating said fuses from one another, an igniting device with means for moving the same into contact with the fuses in succession, and means for covering one or more of said fuses to prevent ignition, substantially as described.

7. In an automatic alarm for the purposes defined, the combination with a supporting-base having a central bore, of a series of barrels adapted to contain explosive charges radially arranged around said bore, fuses extending from the charges into the central bore, guards between adjacent fuses, an igniting device rotatably mounted in said bore and adapted to ignite the fuses in succession, means for continuously rotating said igniting device, a movable guard adapted to cover one or more of said fuses to prevent ignition, and means for raising said guard after a predetermined interval of time, substantially as described.

8. In an automatic alarm for the purposes defined the combination of a series of barrels adapted to contain charges of explosive material, fuses leading from said charges, continuously-burning igniting mechanism for igniting the fuses in succession at predetermined intervals, and means for covering one or more of said fuses and preventing the commencement of explosion until a given time has elapsed after the device is set in motion.

9. In an automatic alarm for the purposes defined, the combination with a supporting-base having a central bore, of a series of barrels adapted to contain explosive charges radially arranged around said bore, fuses extending from the charges into the bore, an igniting device rotatably mounted in said bore, and adapted to ignite the fuses in succession, a movable guard-plate covering one or more of the fuses and having a perforation therein through which a fuse may be inserted and being in the path of the igniting device, and means for moving said plate when said fuse is ignited, whereby the apparatus may be set in motion and the explosions begun at a predetermined time, substantially as described.

10. The combination with the barrels adapted to contain explosive charges, the supporting-base therefor having a central bore, of a shell or sleeve in said bore provided with perforations through which the fuses extend into the casing, a fuse guard-plate slidably mounted in the shell and adapted to cover one or more of the fuses, said plate being provided with a perforation through which a fuse extends and is secured, a rotating igniting device adapted to ignite said fuse and release the plate, substantially as specified.

11. In an automatic alarm for the purposes defined, the combination with a supporting-base having a central bore, of a series of barrels adapted to contain explosive charges arranged around said bore, a casing fitted in said bore provided with perforations opposite each barrel, fuses extending from the charges through said perforations, a lamp for igniting said fuses in succession, a separable chimney mounted on the casing, substantially as described.

12. In an automatic alarm for the purposes defined, the combination with a supporting-base having a central bore, of a series of barrels adapted to contain explosive charges arranged around said bore, a casing fitting said bore and extending some distance above the barrels, fuses extending from the charges through perforations in said casing into the bore, a lamp for automatically igniting said fuses in succession, a chimney removably mounted on the casing, and a hood having a depending body arranged to cover and protect the operating parts.

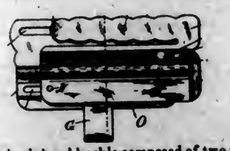
13. In an automatic alarm, the combination with the supporting-base, the barrels adapted to contain explosive charges, fuses leading from said charges, mechanism mounted in said base for igniting the fuses in succession, a shell extending above the base, a casing mounted on the base and surrounding said shell, and a hood overlapping said shell and casing and covering the operating mechanism substantially as described.

14. In an automatic alarm, the combination with a lower base-block having a central bore, an igniting device rotatably mounted therein, an upper block having a corresponding bore removably secured to said base-block, of a series of barrels adapted to contain explosive charges secured to said upper block, means for rotating said igniting device, and connections between said igniting device and the charges, substantially as described.

15. In an automatic alarm, the combination with the supporting-base having a central bore, a tubular casing mounted in said bore and extending above the base, a series of barrels adapted to contain explosive charges radially arranged around said casing; fuses extending from the charges through perforations in said casing, a sleeve located within the casing and over or through the perforations in which the fuses pass, guard-plates separating said fuses, a lamp rotatably mounted in the bore below the fuses, and mechanism for rotating said lamp, substantially as described.

16. In an automatic alarm, the combination with the supporting-base having a central bore, a tubular casing mounted in said bore and extending above the base, a series of barrels adapted to contain explosive charges radially arranged around said casing; fuses extending from the charges through perforations in said casing, a sleeve located within the casing and over or through the perforations in which the fuses pass, guard-plates supporting said fuses, a lamp rotatably mounted in the bore below the fuses, and mechanism for rotating said lamp, and a spring-actuated fuse guard-plate slidably mounted on the sleeve adapted to cover one or more of the fuses to prevent ignition until a predetermined time has elapsed after the lamp begins to rotate, substantially as described.

606,518. BACK-BAND BUCKLE FOR TRACE-CARRIERS. MADISON DALLAS, New Orleans, La. Filed Dec. 16, 1897. Serial No. 662,239. (No model.)

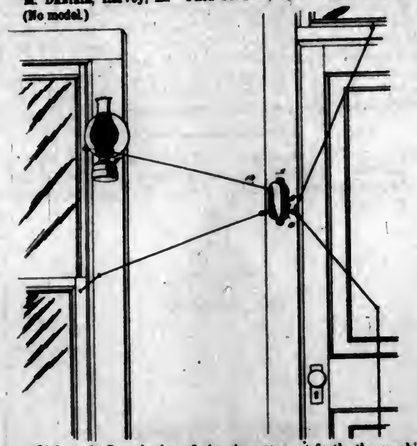


Claim.—1. A back-band buckle composed of two plates, adapted to slide the one upon the other, each plate being provided with a headed stud which engages in a slot of the other plate, and each plate being provided with a corrugation which engages with a corrugation of the other plate, substantially as described.

2. A back-band buckle composed of two plates adapted to slide the one upon the other, each plate being provided with a headed stud engaging in a slot of the other plate, one of said plates being provided with a slot and the other being provided with a serrated arm for securing the back-band to the buckle, substantially as described.

3. A back-band buckle composed of two parts adapted to slide the one upon the other, the first part being provided with two slots, a guiding-stud, two guiding projections, and a projection bent over to form a hook, and the second part being provided with a serrated arm having an upturned end, two guiding projections, a slot, a guiding-stud, a handle or catch, and a part cooperating with the projection on the first-named plate to form a hook, substantially as described.

606,519. BURGLAR-ALARM. SAMUEL B. DANIELS and MARY M. DANIELS, Harvey, Ill. Filed Sept. 24, 1897. Serial No. 652,813. (No model.)



Claim.—1. In a device of the character set forth, the combination with clock mechanism, of a sweep attached thereto, to which a cord is connected, means for sensitively holding the clock mechanism against movement, a bell-crank lever pivotally mounted adjacent to the clock mechanism and having an elongated arm to which a cord or analogous device is attached, said bell-crank lever being formed with a loop, and an arm in connection with the clock mechanism adapted to be engaged by said loop, substantially as described.

2. In a device of the character set forth, the combination of clock mechanism, including an alarm and having a trip-arm projecting from a portion thereof, a sweep attached to the clock mechanism, a bell-crank lever adjacent to the clock mechanism and having a loop for engagement with the said arm and of itself provided with an elongated arm, and cords or analogous devices attached to the sweep and elongated arm of the bell-crank lever and extending in opposite directions, substantially as described.

3. In a device of the character set forth, the combination of clock mechanism, including an alarm, a sweep attached thereto, means for sensitively holding the clock mechanism against movement, a connection running from said sweep, and an arm comprising rebent fingers to straddle a wick-shaft and embrace a thumb-wheel thereon, whereby the degree of brilliancy of a light may be controlled at a distance from the clock mechanism, substantially as described.

4. In a device of the character set forth, the combination with clock mechanism, including an alarm, a sweep attached to one portion of said mechanism, sensitive holding devices in connection with an opposite part of said clock mechanism, and cords or analogous devices attached to said sweep and sensitive holding devices and extending away from the clock mechanism in opposite directions, substantially as described.

5. In a device of the character set forth, the combination of clock mechanism, including an alarm, a sweep attached to said clock mechanism, sensitive holding devices for said mechanism, connections attached to the said sweep and sensitive holding devices and extending away from the clock mechanism in opposite directions, and an arm to which one of the cords or analogous devices is connected and mounted on a controlling device for a lamp, substantially as described.

606,520. REVOLVING COAL CHUTE AND CRIB. ROBERT T. DARRAH, Philadelphia, Pa. Filed May 10, 1897. Serial No. 635,816. (No model.)

Claim.—1. In a device of the character set forth, the combination of a revolving crib, and a telescopic coal-chute carried thereby, substantially as and for the purposes specified.

2. In combination with a wagon bed or body, a revolving crib attached thereto, a coal-chute comprising a series of telescopic sections movable into and outward from the said crib, means for holding the chute in its adjusted position, substantially as described.

3. In a device of the character set forth, the combination of a wagon bed or body, guides attached thereto, a supporting-bar adjustably mounted in said guides, and a crib having telescopic chute-sections therein rotatably attached to the said supporting-bar, substantially as and for the purposes specified.

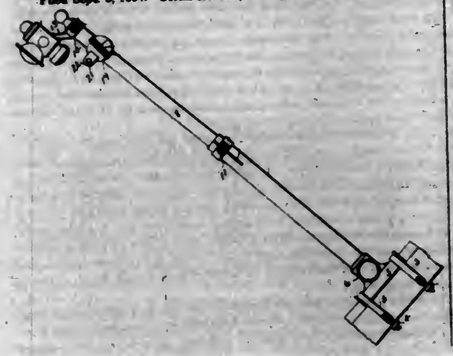


4. A coal-chute comprising a rotatable crib, a series of telescopic sections provided with opposite flanged sides having slots therein, and connecting devices carried by a part of the chute-sections and engaging the slots set forth, substantially as and for the purposes specified.

5. In a device of the character set forth, the combination of a rotatable crib having a stationary chute-section mounted therein at a downward angle of inclination, and telescopic sections attached to said stationary section and to each other and adapted to telescope into said crib, substantially as and for the purposes specified.

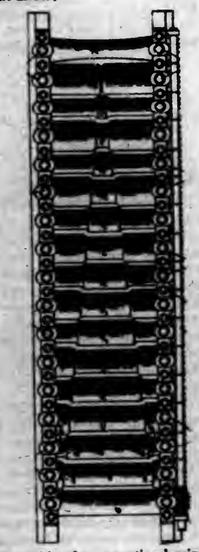
6. In a device of the character set forth, the combination of a wagon-body having stay-chains and attaching devices on parts thereof, an adjustable crib mounted in connection with said body also having stay-chains thereon, and telescopic chute-sections carried by said crib and having devices at the outer end of the outermost section adapted to be engaged by portions of said stay-chains, said chute-sections being adapted to slide into said crib, substantially as and for the purposes specified.

606,521. REIN-HOLDER. NATHAN M. DAVIS, Ferguson, Iowa. Filed Sept. 6, 1897. Serial No. 650,929. (No model.)



Claim.—In a rein-support, a standard, in combination with a rein-holder proper comprising a hollow resilient metal ball capable of longitudinal adjustment on the standard, and having diametrically opposite openings to receive the standard, means for securing said ball at any height on the standard, diametrically opposite horizontal arms projecting from said ball, and split rings at the extremities of said arms forming guides and supports for the reins, each ring consisting of coils capable of springing apart to admit one of the reins, substantially as described.

606,522. MACHINE FOR SEPARATING LAMINATED PACKS. THOMAS A. DOBBINS, Martin's Ferry, Ohio. Filed Sept. 9, 1897. Serial No. 651,094. (No model.)



Claim.—1. A machine for separating laminated packs, comprising mechanism for moving the pack forward and bending it longitudinally as it moves forward at different points successively, as set forth.

2. A machine for separating laminated packs, comprising mechanism for moving the pack forward, bending it successively at different points and flattening at a previously-made bent portion as it receives a second bend, as set forth.

3. A machine for separating laminated packs, comprising mechanism for moving the pack forward and bending it longitudinally at different points successively and alternately in opposite directions, as specified.

4. A machine for separating laminated packs, comprising a suitable frame, a series of rollers arranged in pairs, each pair of rollers having annular portions for engaging and bending the pack in a longitudinal direction, the space between such annular portions gradually decreasing from the first set of rollers to the last, substantially as shown and for the purposes described.

5. A machine for separating laminated packs, comprising a suitable frame, a series of rollers arranged in pairs journaled therein, each pair having annular flanges to engage and bend the pack longitudinally, the space between the flanges in the rollers gradually decreasing on each pair, from the foremost pair to the last one, the said annular flanges being arranged alternately on each intermediate pair of rollers, whereby the pack will be alternately bent forward and downward, substantially as shown and for the purposes described.

6. A machine for separating laminated packs, comprising a suitable frame, a series of rollers arranged in pairs having means for corrugating or crimping the pack as it passes therebetween, such crimping means on each pair of rollers being successively arranged to engage the pack at different points toward the center, and a pair of straight rollers arranged to receive the pack from the last pair of bending or corrugating rollers, substantially as shown and for the purposes described.

7. A machine for separating laminated packs, comprising a suitable frame, a pair of straight face rollers at the front end, a pair of flat rollers at the rear end, a series of intermediate rollers arranged in pairs, each pair having annular flanges for engaging and bending

the pack, the space between the flanges of each pair of rollers gradually decreasing from the first roller to the rear one, said rollers having flattening portions opposing the previous pair of rollers, substantially as shown and described.

8. In a machine for separating laminated packs, substantially as described, a pair of presser-rolls having annular portions adapted to engage and corrugate or bend the pack longitudinally as it passes therebetween, a second pair of rolls having annular portions disposed inside of the annular portions of the preceding rolls, adapted to engage and corrugate or bend the pack, and having flat pressed portions in line with the annular portions of the preceding rolls, all being arranged substantially as shown and for the purposes described.

606,523. WIRE-STRETCHER. GEORGE M. DOYLE, Jonesville, Va., assignor of three-fourths to Perry Roop, Sam B Poteet, and A. C. McNiel, Jr., same place. Filed Mar. 28, 1898. Serial No. 675,430. (No model.)



Claim.—1. A wire-stretcher comprising the frame having longitudinal guides for the stretcher-bar and provided at its opposite ends with holding-hooks and having at points near said ends rearwardly-projected offsets provided with spurs extended toward each other and having the hooks adjacent to said offsets, the chain secured at one end to the main frame between said offsets and arranged at its other end to engage the proper one of the hooks on the main frame, the stretcher-bar movable lengthwise in the guides of the main frame and having at its opposite ends the stretching-hooks and between said ends the rack-bar, and the stretching-lever meshed with said stretcher-bar substantially as set forth.

2. A wire-stretcher comprising the frame having at its opposite ends devices for engagement by a chain and the chain secured at one end to the frame between the end devices and arranged at its other end to engage said devices, and the stretcher-bar movable in the frame and its operating devices, substantially as set forth.

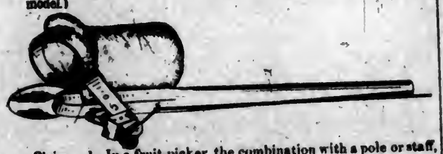
3. A wire-stretcher comprising the frame having a permanently-fixed holding hook or hooks and the stretcher-bar movable in said frame and having a hook which may be moved toward and from the fixed holding-hook on the frame substantially as set forth.

4. In a wire-stretcher the combination of the stretching devices, the main frame having a rearwardly-projecting offset provided with a spur to bite into the post, the chain for securing the frame to the post and devices whereby the chain connects with the frame substantially as set forth.

5. A wire-stretcher comprising the frame having guides for the stretcher-bar, the stretcher-bar, the stretching-lever meshed with said bar and a detent engaged with said lever whereby to secure the same, and the stretcher-bar in any desired adjustment substantially as set forth.

6. A wire-stretcher comprising the main frame having the permanently-fixed holding-hooks at its opposite ends and a guide between said holding-hooks, the stretcher-bar operating between said holding-hooks and having the stretcher-hooks at its ends, and the lever meshed with said stretcher-bar substantially as set forth.

606,524. FRUIT-PICKER. MOSES J. DRYSDALE and HINER RAYBURN, Bardwell, Ky. Filed Aug. 12, 1897. Serial No. 648,090. (No model.)

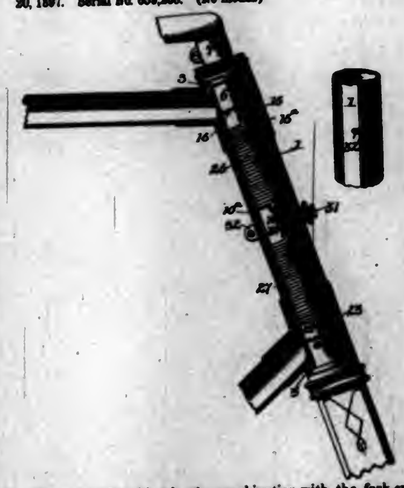


Claim.—1. In a fruit-picker, the combination with a pole or staff, of arms pivotally attached thereto and having a ring continuous therewith, a clip extending across the said arms, a spring interposed between the clip and staff and normally acting to hold the arms at an oblique angle to the said staff, a vertical disk mounted upon the staff adjacent to the said ring, a containing-receptacle attached to the ring of the arms, a supporting-band extending horizontally from the pole or staff, and an operating device attached to the arms and arranged to bring the continuous ring thereof against the vertical disk, substantially as described.

2. A fruit-gatherer having a containing-receptacle provided with resilient connections on the interior thereof adapted to raise the bottom of the receptacle upward toward the mouth of the same whereby a broad cushioned surface is provided for the fruit received, substantially as described.

3. In a fruit-picker, the combination of a pole or staff, arms movably attached thereto and having a ring or band continuous therewith, a clip extending across the said arms, a spring-arm bearing against the inner side of said clip to normally hold the arms at an oblique angle to the pole or staff, a closing disk stationarily mounted on the staff and positioned in a vertical plane, a containing-receptacle attached to the band or ring of the arms, a supporting ring or band extending horizontally from the pole or staff and having openings therein to which the said containing-receptacle is attached, elastic connections in the containing-receptacle, and means for operating the arms to bring the band or ring thereof against the closing-disk, substantially as described.

606,525. STEERING-GUIDE FOR BICYCLES. JAMES A. DUNNING, Aulander, N. C., and KENNETH BARROW, Norfolk, Va. Filed Nov. 20, 1897. Serial No. 659,265. (No model.)



Claim.—1. In a bicycle, the combination with the fork-spindle rotatably journaled in the head of the frame, of a pair of independent coiled springs seated around the said spindle within the head, means whereby one of said springs is operatively connected at one end with the said spindle when the latter is turned in one direction and means whereby the other of said springs is similarly connected with the spindle when it is turned in the opposite direction, each of said springs being disconnected from said spindle and inoperative during the time the other spring is operative, a member loose with respect to the spindle and to which the adjacent ends of the two springs are connected, and means for locking the said member to the head, substantially as specified.

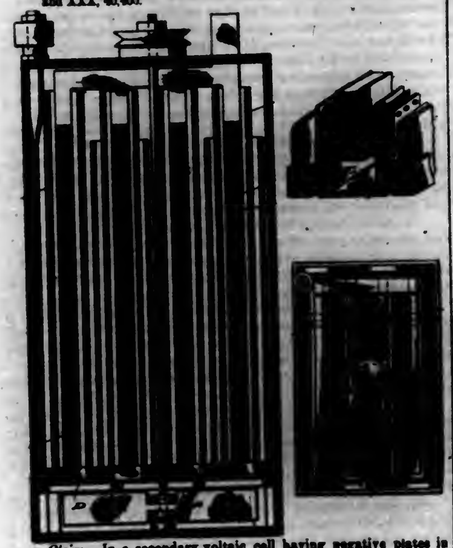
2. In a bicycle, the combination with the fork-spindle, and the frame-head, of a pair of springs coiled around the said spindle within the head, means whereby each of said springs is operatively connected to said spindle when the latter is turned in one direction but not when it is turned in the opposite direction, said means operating upon one spring when the spindle is turned in one direction, and upon the other spring when it is turned in the opposite direction, and means whereby the adjacent ends of the two springs may be connected to the frame-head, substantially as specified.

3. In a bicycle, the combination with the fork-spindle, and with the frame-head, of a sleeve loosely seated upon the said spindle, within the head, a clutch device at each end of the said sleeve and having a clutch connection therewith and also with the spindle or with a part secured thereto, the two clutch devices being arranged to operate in opposite directions, two springs coiled around the said sleeve and respectively connected at opposite ends to the respective clutch devices, and at their adjacent ends to the said sleeve, and means whereby the said sleeve may be secured to the said head, substantially as specified.

4. In a bicycle, the combination with the fork-spindle, and with the frame-head, of a sleeve loosely mounted on said spindle within the said head, and having a central enlarged portion, a clutch-sleeve loosely mounted upon each end portion of the loose sleeve and having a clutch connection with said loose sleeve and also with the fork-spindle or a part secured thereto, a clutch-ring loosely mounted upon each clutch-sleeve and adjustably secured thereto, two springs coiled around the said loose sleeve and connected each at one end to the said enlarged portion thereof, and at their opposite ends to the respective clutch-rings, and a device carried upon the exterior of the said head and adapted to engage the said enlarged portion of the loose sleeve to prevent rotary movement thereof, substantially as specified.

5. In a bicycle, the combination with the fork-spindle and the frame-head, of a sleeve loosely mounted upon the spindle within the head and having longitudinal projections at its end portions, a clutch-sleeve loosely mounted upon each end portion of the said loose sleeve and formed with an internal projection which is designed to engage the adjacent projection of the loose sleeve, and with lateral projections which are designed to engage corresponding projections upon the fork-spindle or upon a part secured to said spindle, a clutch-ring loosely seated upon each clutch-sleeve and adjustably connected thereto, the two springs coiled around the said loose sleeve and connected at one end thereto and at their opposite ends to the respective clutch-rings, and a set-screw carried by the frame-head and arranged to engage the said loose sleeve through an opening in the said head, substantially as specified.

606,526. SECONDARY VOLTAIC BATTERY. LUDWIG ENTZEN, London, England. Filed Dec. 28, 1895. Serial No. 573,649. (No model.) Patented in France Dec. 31, 1894, No. 11,414; in England Dec. 21, 1895, No. 24,516; in Belgium Dec. 21, 1895, No. 118,968; in Canada Jan. 15, 1896, No. 51,045, and in Italy Jan. 28, 1896, LXXIX, 181, and XXX, 40,405.



Claim.—In a secondary voltaic cell having negative plates in which lead oxid is the active material, and positive plates coated with amalgam of mercury and zinc, troughs in which said positive plates rest and in which the mercury is placed, and casings for the negative plates formed of porous non-conducting material inclosed between walls which surround the lower part of the plate, said walls having perforations except in their lower portions, substantially as described.

606,527. FENCE. ISAAC N. PELTENBERGER, Carnegie, Pa. Filed Aug. 12, 1897. Serial No. 648,090. (No model.)

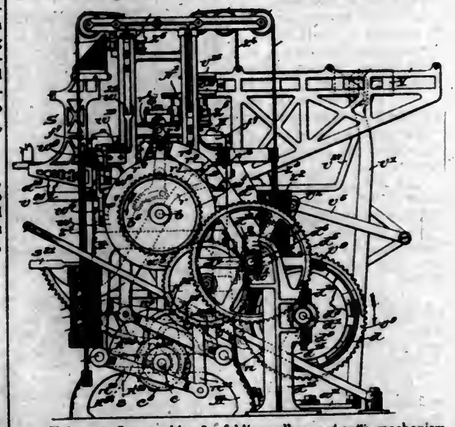


Claim.—1. In a fence, the combination with posts having oppositely-located eyes, of detachable panels having pendent pintles adapted to be removably fitted in said eyes, and keeper-plates threaded upon the upper ends of said posts and adapted to prevent upward displacement of said pintles, substantially as described.

2. A fence-post, consisting of a metal strip bent intermediate to its ends to form a transverse offset and also comprising a pendent extension which projects downward from the offset and forms a continuation of the upper portion of the post, said extension being threaded, and a plate threaded upon said extension, substantially as and for the purpose described.

3. A fence-post bent intermediate to its ends to form a transverse offset and also comprising a pendent extension below and forming a continuation of the upper portion of the post, and a plate removably fitted upon said extension, substantially as described.

606,528. MACHINE FOR FORMING AND FOLDING COLLAR-BLANKS OR THE LIKE. ALBERT D. FENWICK, Philadelphia, Pa., assignor to the Fenwick Collar and Cuff Machine Company, Portland, Me. Filed Oct. 25, 1897. Serial No. 656,284. (No model.)



Claim.—1. In a machine for folding collars and cuffs, mechanism for automatically feeding and putting in precise position the blanks to be folded, a former for holding and defining the blank, means to move said former to hold the blank after the blank has been put in place, folding devices for infolding the blank, and means to move said folding devices, substantially as described.

2. In a machine for folding collars and cuffs, mechanism for automatically feeding and putting in precise position the blanks to be folded, a former for holding and defining the blank, means to move said former to hold the blank after the blank has been put in place, folding devices for infolding the blank, means to move said folding devices, and means to deliver the folded blanks from the machine, substantially as described.

3. The combination with a machine for folding blanks and the like, and having mechanism to form and fold a blank, of feeding and positioning mechanism, said mechanism comprising means to receive and automatically carry a blank into the machine, and means to position said blank accurately, to be operated upon by said forming and folding mechanism, substantially as described.

4. In a machine for folding collars and the like, the combination with forming mechanism and folding mechanism, of automatic means for feeding the blank thereto, and a positioning device to receive and place said blank in accurate position to be folded, substantially as described.

5. In a machine for folding collars and the like, mechanism to inturn the edge and ends of the blank, combined with feeding mechanism automatically to present the said blank accurately in position to have its edge and ends infolded, a feeding-plate to which said blank is secured, substantially as described.

6. In a machine for folding collars and the like, the following instrumentalities, viz: a feeding-plate to which is attached the blank to be folded, folding mechanism, feeding mechanism composed of a carrier and a positioning device, the carrier supplying the plate to said positioning device, said feeding mechanism presenting said plate and blank automatically in position to be acted upon by said folding mechanism, substantially as described.

7. In a machine for folding collars and the like, a feeding-plate to which the blank to be folded is attached, a platen or bed having formed in it a recess to receive in it said feeding-plate leaving the edges of the blank extended beyond said feeding-plate with the top of said feeding-plate flush with the said bed, combined with mechanism to infold the edge and ends of said blank while held on said feeding-plate, substantially as described.

8. In a machine for folding collars and the like, a feeding-plate to which the blank to be folded is attached, a platen or bed having

a recess to receive in it said feeding-plate leaving the edge of the blank extended beyond said feeding-plate, combined with mechanism to infold the edge and ends of said blank while on said feeding-plate, and with a positioning device to put said feeding-plate in position in the open space of said platen, substantially as described.

9. In a machine for folding collars and the like, a feeding-plate to which the collar-blank to be folded is attached, and a platen or bed on which said plate rests while the blank is being folded, combined with a cross-head, and a former having movable end pieces or definers cooperating therewith, and means to move said cross-head, substantially as described.

10. In a machine for folding collars and the like, a cross-head and its attached multipart former, having a middle portion and independent end pieces or definers to descend on a blank to be folded, substantially as described.

11. In a machine for folding collars and the like, a cross-head, its attached multipart former, having end pieces or definers to descend in extended position on a blank to be folded, and means to move said end pieces or definers in a straight line one toward the other from said original extended position, substantially as described.

12. The cross-head, its attached multipart former, having end pieces or definers, means to contract the perimeter of said former and to withdraw its central part or body from within the folded edge of the collar-blank, leaving the end definers in place, substantially as described.

13. The cross-head, its attached multipart former, having end pieces or definers, means to contract the perimeter of said former and to withdraw its central or body part from within the folded edge of the collar-blank leaving the end definers in place, and means to thereafter move said end definers one toward the other, to withdraw them from within the infolded ends of the blank, substantially as described.

14. A series of folding-blades, the cross-head, its attached multipart former having end pieces or definers, means to contract the perimeter of said former and withdraw its central or body part from the edge fold and to lift said body part from the folded blank, leaving the definers in place, substantially as described.

15. A series of folding-blades, the cross-head, its attached multipart former having end pieces or definers, means to contract the perimeter of said former to withdraw its central part from the folded edge of the blanks and then lift it from the folded blank, leaving the end definers in place, and means to thereafter move said end definers one toward the other to withdraw them from the infolded ends of the blank, substantially as described.

16. In a machine for folding collars and the like, a former, automatic means to cause it to descend on the blank to be infolded, and folding-blades one for each end and for the edge of said blank, combined with automatic means to actuate first one of the end blades, then the edge blade, and afterward the blade for the second end, substantially as described.

17. In a machine for folding collars and the like, the following instrumentalities, viz: a multipart former having two end pieces or definers normally in extended position, means to cause the former to descend in extended position on the blank to be folded, a series of folding-blades, one for each end and one for the edge of the blank, automatic means to actuate first one of said end blades, then the edge blade, and then the opposite end blade of the folding mechanism, means to contract said multipart former and withdraw its perimeter from within the infolded edge and ends of the blanks, substantially as described.

18. In a machine for folding collars and the like, the following instrumentalities, viz: a multipart former having two end pieces or definers, means to cause said former to descend on the blank to be folded, a folding mechanism presenting a series of folding-blades, one blade for each end and one for the edge of the blank, means to actuate first one of said end blades, then the edge blade, and then the opposite end blade, means to contract the perimeter of said multipart former and withdraw it from within the infolded edge and ends, and means thereafter to cause the said folding-blades to descend, pinch, crease, and set the infolded ends and edge of the blank, substantially as described.

19. In a machine for folding collars and the like, the following instrumentalities, viz: a feeding-plate to support the blank to be folded, means to removably fasten the blank thereto; carriers having means to removably engage said plate and carry it into the machine, substantially as described.

20. In a machine for folding collars and the like, the following instrumentalities, viz: a feeding-plate to support the blank to be folded, means to removably fasten the blank thereto; carriers having means to engage said plate and carry it into the machine, and a positioning device to which said carriers deliver said plate, substantially as described.

21. In a machine for folding collars and the like, the following instrumentalities, viz: a table, a plate-holding device, a feeding-plate provided with a suitable guide cooperating with said holding device, and a carrier having holding means to engage and carry said plate into the machine, substantially as described.

22. In a machine for folding collars and the like, the following instrumentalities, viz: a table having devices to hold and receive a feeding-plate; a feeding-plate having guides to cooperate with said devices; a carrier provided with means to engage said plate and take it into the machine and leave it there, and means thereafter to re-engage said plate and deliver it from said machine to said devices mounted on said table, substantially as described.

23. In a folding-machine; a feeding-plate; feeding mechanism, and automatically-operating locking devices between said plate and said feeding mechanism to enable said mechanism and plate to be automatically locked together to take said plate into the machine, and to thereafter enable said feeding mechanism and plate to be unlocked to be delivered from the machine, substantially as described.

24. The carrier, the feeding-plate to which is attached the blank to be folded, means between said carrier and said plate to couple the same together, a positioning device, and automatic means between said carrier and said positioning device to cause said feeding-plate to be given up to said positioning device, substantially as described.

25. In a machine for folding collars, a feeding-plate, folding mechanism to fold the blank on said plate, positioning devices to put said plate and blank in position to be folded, and to remove said plate with its folded blank from the folding mechanism; a carrier having a member to deliver said feeding-plate to said positioning device, and a second member actuated by said carrier to take said plate with its folded blank from said positioning device and feed it out of the machine, substantially as described.

26. In a machine for folding collars and the like, the following instrumentalities, viz: a feeding-plate to which is secured the blank to be folded, mechanism to infold the edge and ends of the blank held on said plate; a feeding-in carrier, a feeding-out carrier; and a positioning device whereby the feeding-in carrier takes said plate and delivers it automatically to said positioning device, and said positioning device, the blank having been folded automatically, delivers said plate and blank to the feeding-out carrier, substantially as described.

27. A feeding-plate for a folding-machine of the class described, said plate comprising longitudinally-adjustable portions, and means to extend them, whereby the plate may be accommodated to different lengths of collar-blanks and the like, and means removable to secure said blanks thereto, substantially as described.

28. A feeding-plate for a folding-machine of the class described, said plate being provided with movable transverse supports, means to adjust said supports as desired in order to accommodate different styles of blanks, and means removable to secure a blank to said plate, substantially as described.

29. A feeding-plate for a folding-machine of the class described, said feeding-plate comprising a body piece, and extension-pieces longitudinally movable thereon, and removable sections provided with interlocking means to be secured between said sections as the latter are adjusted in order to accommodate different lengths of blanks, substantially as described.

30. In a machine for folding collars and the like, the combination with mechanism for infolding the edge and ends of a blank, of a feeding-plate provided with means for removably securing said blank to it, and feeding mechanism including a positioning device provided with means to hold and retain said plate and its blank immovably thereon during the folding operation, substantially as described.

31. In a machine for folding collars and the like, the combination with a feeding-plate adapted to receive and retain a blank to be folded, and provided with devices to retain said blank, of means to positively release said retaining devices from holding engagement with the blank after the latter has been folded, substantially as described.

32. In a machine for folding collars and the like, the combination with a former to rest on and hold the blank in place, of folding mechanism to fold one fold over transversely to and on another at a corner of the blank, and means to fold back from said corner the free end of said top fold at the corner, substantially as described.

33. In a machine for folding collars and the like, the combination with a former or means to hold the blank in place, of a folding-blade to fold one edge of a blank, and a second folding-blade to fold an adjacent edge of the blank, and means to move said former-blade from beneath said second fold as the latter blade is moving over in folding it, substantially as described.

34. In a machine for folding collars and the like, the combination with a former to hold the blank in place to be folded, of independent folding-blades to fold the adjacent end and edge of the blank, one of said blades having its corner yieldingly movable to permit it to move out of the way of the other blade, substantially as described.

35. In a machine for folding collars and the like, the combination with a former to rest on the blank to be folded, of folding-blades to fold the adjacent end and edge of the blank, means to raise said folding-blades from the folds formed thereby to permit the withdrawal of the former, and means to retract said former from beneath said folds, substantially as described.

36. In a machine for folding collars and the like, the combination with a former to rest on the blank to be folded, of folding-blades to fold the adjacent end and edge of the blank, means to raise said folding-blades from the folds formed thereby for the withdrawal of the former, means to retract said former from beneath said folds, and means to crease said folds after the withdrawal of said former, substantially as described.

37. In a machine for folding collars and the like, the combination with a collapsible former to rest on the blank to be folded, of folding-blades to infold the adjacent end and edge of the blank, and means to move inwardly from beneath the end fold the end of said former adjacent the end-folding blade, and thereafter to move the former from beneath said edge fold, substantially as described.

38. In a machine for folding collars and the like, a collapsible former comprising a middle portion and an end movable inwardly over said middle portion, the edge of the latter adjacent said end being beveled to permit said end to slide upwardly thereon, and means to move said end inwardly on said middle portion, substantially as described.

39. In a machine for folding collars and the like, the combination with a collapsible former to rest on the blank to be folded, said former when extended presenting a continuous edge without gaps, of folding-blades to fold the two ends and edge of the blank, and means to collapse said former by moving the ends of said former one toward the other from the end folds of the blank, and to move the longer edge of the former from beneath the edge fold of the blank, substantially as described.

40. In a machine for folding collars and the like, the combination with a former to rest on the blank to be folded, of folding-blades to fold the blank, and means to collapse or move inwardly the end pieces of the former, and means to move rearwardly the main body of the former from beneath the edge or front fold of the blank before the opposite back fold is made, and means to move the former from beneath said back fold when it is made, substantially as described.

41. In a machine for folding collars and the like, the combination with a former to rest on the blank to be folded, a folding-blade and means to move it to fold one edge of the blank, means to shift said former from beneath said fold and to place it for an opposite fold, a second folding-blade opposite said first blade to fold the edge of the blank opposite said first fold, and means to move it for said second fold, substantially as described.

42. In a machine for folding collars and the like, the combination with a former to rest on the blank to be folded, a folding-blade and means to move it to fold one edge of the blank, means to shift said former from beneath said fold and to place it for an opposite fold, a second folding-blade opposite said first blade to fold the edge of the blank opposite said first fold, means to move it for said second fold, and means to shift said former from beneath said second fold, substantially as described.

43. In a machine for folding collars and the like, the combination with a former to rest on a blank to be folded, of a folding-blade to fold one edge of the blank, means to raise said folding-blade from the fold, means to shift said former from beneath said fold while said blade is raised and to move it back again on top of the fold, and a second folding-blade to fold an edge opposite said first fold, substantially as described.

44. In a machine for folding collars and the like, the combination with means to hold a blank to be folded, and folding mechanism including folding-blades to fold the blank, of automatic means to lift said blades after said folding and bring them forcibly down on the folds to crease them, substantially as described.

45. In a machine for folding collars and the like, the combination with means to hold a blank to be folded, of two adjacent independent folding-blades to fold said blank at a corner, and means to move said blades for folding, one of said blades having an independently-movable corner, and means to lift said corner from the path of and as the other blade moves forward, substantially as described.

46. In a machine for folding collars and the like, the combination with a collapsible former having an end definer to rest upon a blank to be folded, means to move inwardly said end definer without moving the middle portion of the former, means to raise the former, and means to restore it to its original length, of an end-folding blade next to said end definer, and an adjacent side-folding blade, means to move them to fold the end and side edges of the blank over said former, means to move back said end-folding blade from beneath said raised former, and means to lower the latter, substantially as described

47. In a machine for folding collars and the like, the combination with a former to hold a blank to be folded, of adjacent independent folding-blades to fold said blank at a corner, and means to move said blades for said folding, one of said blades having a thin edge portion at its end adjacent said corner to permit the adjacent end of said other folding-blade to ride over it in making its fold, substantially as described.

48. In a machine for folding collars and the like, the combination with a bed to receive a blank, a cross-head over said bed, and a former carried by said cross-head and adapted to rest on said blank as the latter is being folded, of mechanism to shift said former obliquely to and from said bed without moving the blank, substantially as described.

49. In a machine for folding collars and the like, the combination with a bed to receive a blank, a cross-head over said bed, and a former carried by said cross-head and adapted to rest on said blank as the latter is being folded, of mechanism to shift said former obliquely to and from said bed, and means to restore said former in approximately the same oblique path of movement, substantially as described.

50. In a machine for folding collars and the like, the combination with a bed to receive a blank, a cross-head over said bed, and a collapsible former carried by said cross-head and adapted to rest on said blank as the latter is being folded of means to retract or move inwardly one end of said former, means to shift said former obliquely to and from said bed, and means to shift it back into vertical position over its previous lowered position, ready to be lowered again to the latter position, substantially as described.

51. In a machine for folding collars and the like, the combination with a former to rest upon a blank to be folded, independent folding-blades to fold said blank, and means to move said blades dissimultaneously to make said folds, of means to crease certain of said folds after they are made and before other of said folds are made, substantially as described.

52. In a machine for folding collars and the like, a folder mounted on the machine and carrying a folding-blade at its front edge, said folding-blade being movably mounted on said folder to move transversely thereof, and means to move said blade in its said transverse movement, substantially as described.

53. In a machine for folding collars and the like, a former, a bridge to hold it, and a hanger to support said bridge, said former comprising independent pieces having dovetailed connection with said bridge, whereby they may be adjusted along the latter toward and from each other, said pieces being adjustably secured in slotted brackets provided therefor adjacent said hangers, and extension-sections having transverse grooves in said bridge, whereby one or more of said sections may be interposed between said independent pieces, and means to lock said sections in place, substantially as described.

54. In a machine for folding collars and the like, a former, a bridge to hold it, and a hanger to support said bridge, said hanger, being provided with ways, and said bridge being adjustable on said ways transversely of said former, said former comprising independent pieces having dovetailed connection with said bridge, whereby they may be adjusted along the latter toward and from each other, said pieces being adjustably secured in slotted brackets provided therefor adjacent said hangers, and extension-sections having dovetails to enter transverse grooves in said bridge, whereby one or more of said sections may be interposed between said independent pieces, and means to lock said sections in place, substantially as described.

55. In a machine for folding collars and the like, a former, a bridge to hold it, and hangers supporting said bridge, said former comprising independent pieces longitudinally adjustable on said bridge, and said bridge being transversely adjustable on said hangers, substantially as described.

56. In a machine for folding collars and the like, a bed adapted to receive a plurality of blanks to be folded and having a former and folding mechanism for each blank, said folding mechanism including end-folding blades to fold the ends of said blanks, and means to move simultaneously one of said end blades for each of said blanks, and means to move simultaneously the other of said end blades for each of said blanks, said two sets of simultaneously-moving end blades being moved dissimultaneously, whereby one end of each blank is folded before the other end thereof, substantially as described.

57. In a machine for folding collars and the like, the combination with a former to rest on a blank to be folded, of a folder to fold an edge of the blank, said folder being pivotally mounted on the machine, means to move said folder to make a fold, and means to engage said pivoted folder as it moves into its forward folding position, said means forcing said folder down with a yielding pressure, substantially as described.

58. In a machine for folding collars and the like, a folder pivotally mounted on the machine and having a blade-like portion to engage a blank and make a fold, and yielding means intermittingly engaging said folder for maintaining it with a downward pressure when in folding position, substantially as described.

59. In a machine for folding collars and the like, the combination with a former adapted to rest on a blank to be folded, of independent folding-blades to fold the edges of the blank to make an acute-angled corner, a corner device to lay over the projecting edge

of the top one of said folds and fold it in from said corner, and means to raise said corner device above said folded-back corner and retract it from and without engaging the latter, substantially as described.

60. In a machine for folding collars and the like, the combination with a former adapted to rest on a blank to be folded, of independent folding-blades to fold the edges of the blank to make an actute-angled corner, means to move one of said blades to make its fold before the other, said second blade being provided with a projecting finger adjacent said acute-angled corner, and means to move said second blade forward to make its fold and obliquely away from said first fold, whereby its said finger folds over within the corner the projecting edge of its fold, substantially as described.

61. In a machine for folding collars and the like, the combination with a collapsible former to rest on a blank to be folded, and folding mechanism, of means to retract the middle portion of the former from beneath the folded edge and to raise it, and means to move inwardly toward each other the end portions of the former from beneath the end folds, substantially as described.

62. In a machine for folding collars and the like, the combination with a collapsible former to rest on a blank to be folded, and folding mechanism, of means to retract the middle portion of the former from beneath the folded edge and to raise it, means to move inwardly toward each other the end portions of the former from beneath the end folds, and means thereafter to separate said end portions and to lower the middle portion in line therewith as before, substantially as described.

63. In a machine for folding collars and the like, the combination with a collapsible former, of means to move the middle portion thereof obliquely upward, and means to move an end portion of the former obliquely forward into longitudinal alinement with said middle portion, substantially as described.

64. In a machine for folding collars and the like, a collapsible former having separate end and side portions normally extended and having an unbroken forming edge or perimeter, and means to collapse said separate portions and move them relatively inward toward each other, whereby the normal perimetar of the former is contracted, substantially as described.

65. In a machine for folding collars and the like, a collapsible former composed of interlocked separate pieces, and means to disengage said pieces from their interlocked position and move them inwardly toward each other, to shorten the perimeter of the former, substantially as described.

66. In a machine for folding collars and the like, a former, a frame carrying it, a support in which said frame is movable, said former having sliding connection with said frame, a bell-crank mounted on said support and connected to said former, and means to move said bell-crank independently of said frame, whereby the former is shifted in its sliding engagement with said frame, substantially as described.

67. In a machine for folding collars and the like, a former, a frame carrying it, a support in which said frame is movable, said former having sliding connection with said frame, a bell-crank mounted on said support and connected to said former, and means to move said bell-crank independently of said frame, whereby the former is shifted in its sliding engagement with said frame, said moving means including a plunger mounted on said support, and tripping means carried by said frame intermittingly to engage said plunger, substantially as described.

68. In a machine for folding collars and the like, a former, a frame carrying it, a support in which said frame is movable, said former having sliding connection with said frame, a bell-crank mounted on said support and connected to said former, and means to move said bell-crank independently of said frame, whereby the former is shifted in its sliding engagement with said frame, said moving means including a plunger mounted on said support, tripping means carried by said frame intermittingly to engage said plunger, and a spring normally holding said plunger in one extreme position to be engaged by said tripping means and moved in an opposite position by the movement of said frame, substantially as described.

69. In a machine for folding collars and the like, a collapsible former comprising a middle portion and opposite end portions, and means to swing said end portions relatively to said middle portion, whereby the angle of their adjustment is changed, substantially as described

70. In a machine for folding collars and the like, a former comprising a middle portion and end portions, said middle portion being composed of two independent pieces longitudinally adjustable from each other, means to correspondingly adjust said end portions, and extension-sections to be inserted between the separated middle pieces, substantially as described.

71. In a machine for folding collars and the like, the combination with a collapsible former having separate end and side portions, each comprising two or more independent pieces of means independently to move said pieces, whereby the perimeter of said former may be contracted, substantially as described.

72. In a machine for folding collars and the like, folding devices to fold a blank, a collapsible former having two longitudinal portions adapted to form and define the top and bottom respectively of a stand-up collar or the like, and mechanism to move said longitudinal portions independently from beneath the folds made over the same by said folding mechanism, substantially as described.

73. In a machine for folding collars and the like, folding devices to fold a blank, and a former comprising a longitudinal part and an end portion, the latter including two independent pieces, combined with mechanism to move said middle part from beneath a fold or folds of the blank and raise it thereover, and means independently to move said end pieces from beneath the adjacent folds into position beneath said raised middle part, substantially as described.

74. In a machine for folding collars and the like, the combination with means to hold the blank in place to be folded, of a folding-blade to fold an edge of said blank, said blade having a movable plate constituting a portion of its folding edge, and means to move said plate laterally relatively to the rest of said blade, substantially as described.

75. In a machine for folding collars and the like, the combination with means to hold a blank in place to be folded, of a folding-blade to fold an edge of the blank, a gatherer carried by said blade to embrace a fold of the blank, and means to move said gatherer relatively to said blade for creasing down said gathered fold, substantially as described.

76. In a machine for folding collars and the like, the combination with a former to hold a blank in place to be folded, of a folder having its front edge constituting a folding-blade to fold the adjacent edge of said blank, a portion of said front edge being vertically movable therefrom, and a block on said former in front of said movable portion, said block being inclined at its front edge to cause said movable portion to ride up on the block, and said block having a free limited movement on said former, in order to carry said movable portion back a portion of its movement in raised position, to free it from the infold of the blank, substantially as described.

77. In a machine for folding collars and the like, the combination with a former to hold a blank to be folded, and independent folding-blades to fold said blank at a corner, of means to raise an A-shaped portion of the blank at the corner being folded, and to lay over said A shaped portion, back from the corner, substantially as described.

78. In a machine for folding collars and the like, the combination with a former to hold a blank to be folded, of two folding-blades to fold adjacent edges of the blank, one of said blades having a movable portion at its front edge adjacent the meeting corner of said blades, an upturned knife-edge being carried on said movable portion, said other holding-blade having cooperating fingers to crease the material of the blank down at each side of said knife-edge, and means to move the blade carrying said movable portion first, and means subsequently to move the blade carrying said fingers, substantially as described.

79. In a machine for folding collars and the like, a former, a carriage and its folding-blades to cooperate with said former in folding a blank, and means to vertically lift one edge of said carriage to permit the withdrawal of said former, substantially as described.

80. In a machine for folding collars and the like, a former to rest on a blank to be folded, independent folding-blades to fold the blank, and operating mechanism including a rock-shaft, means to rock it, cams on said shaft, and independent lifting-bars from said cams to said independent folding-blades, whereby said folding-blades are independently lifted, substantially as described.

81. In a machine for folding collars and the like, a former to rest on a blank to be folded, independent folding-blades to fold the blank, and operating mechanism including a rock-shaft, means to rock it, cams on said shaft, and independent lifting-bars from said cams to said independent folding-blades, whereby said folding-blades are independently lifted, said cams being provided with movable cam projections, and means to hold said cam projections extended when the rock-shaft turns in one direction, and to permit them to be depressed when the rock-shaft turns in an opposite direction, whereby the lifting movements of said blades differ with the rocking of said shaft, substantially as described.

82. In a machine for folding collars and the like, a former to rest on a blank to be folded, independent folding blades to fold the blank, and operating mechanism including a rock-shaft, means to rock it, cams on said shaft, independent lifting-bars from said cams to said independent folding-blades, whereby said folding-blades are independently lifted, and a second rock-shaft receiving motion from said rocking means, and independent connections between said independent blades and said second shaft to move said blades toward and from said former, substantially as described.

83. In a machine for folding collars and the like, a former to rest on a blank to be folded, independent folding-blades to fold the blank, and operating mechanism including a rock shaft, means to rock it, cams on said shaft, independent lifting-bars from said cams to said independent folding-blades, whereby said folding-blades are independently lifted, lifting-bars for said former, and connections between the latter lifting-bars and said rock-shaft, for lifting said bars, substantially as described.

84. In a machine for folding collars and the like, a positioning device to properly place a blank in the machine, a former to engage the blank, folding-blades to fold the blank over said former, and operating mechanism therefor including a rock-shaft, lifting-bars operated therefrom to lift said blades, lifting-bars to lift said former, operating connections between the latter bars and said rock-shaft, and lifters extending from said latter bars to engage said positioning device, whereby the latter is lifted and lowered at the same time with said former, substantially as described.

85. In a machine for folding collars and the like, folding mechanism to fold a blank, and means to shift said folding mechanism, said means including a rock-shaft and a T-lever, said rock-shaft being provided with a bell-crank having at its opposite ends dogs pivotally mounted thereon to move away from each other and hold against movement toward each other, and means tending to maintain said dogs in radial position, whereby as said shaft rocks it causes the forward dog to engage and move the depending arm of the T-lever, and the following dog yields and passes said T-lever, being automatically restored for the return movement, substantially as described.

86. In a machine for folding collars and the like, an end-folder to fold the end of a blank, a track along which said folder slides, a rock-shaft and lever to move said folder on said track, a roll depending from one end of said rock-shaft, and a rocker-arm having a latch-like projection to engage said roll, said projection being pivoted to move the roll in one direction and to yield in the other direction, substantially as described.

87. In a machine for folding collars and the like, a bed provided with longitudinal ways and comprising independent receiving-plates movable on said ways, said plates being formed to receive a blank to be folded, and spacing-blocks to enter between the separated receiving-plates, substantially as described.

88. A bed provided with longitudinal ways and transverse ways, and having independent receiving-plates movable on said longitudinal ways, said plates being formed to receive a blank to be folded, means cooperating with said plates to move them, and spacing-blocks movable on said transverse ways to enter between the separate receiving-plates, said blocks and the adjacent ends of said receiving-plates being provided with interlocking shoulders, substantially as described.

89. A bed provided with longitudinal ways and transverse ways, and having independent receiving-plates movable on said longitudinal ways, said plates being formed to receive a blank to be folded, and spacing-blocks movable on said transverse ways to enter between the separate receiving-plates, said blocks and the adjacent ends of said receiving-plates being provided with interlocking shoulders, said plates and blocks and their said ways being dovetailed together, substantially as described.

90. In a machine for folding collars and the like, a table having a receiving shelf and a delivering-shelf, said shelves being provided with transverse ways to receive the lugs of feeding-plates, said receiving-shelf also having automatic means to engage and retain a plate delivered thereto, substantially as described.

91. In a machine for folding collars and the like, a table having a receiving-shelf and a delivering-shelf, said shelves being provided with transverse ways to receive the lugs of feeding-plates, said receiving-shelf also having automatic means to engage and retain a plate delivered thereto, and said delivering-shelf having buffers against which the lugs of the plates may rest as they are seized by the feeding mechanism of the machine, substantially as described.

92. In a machine for folding collars and the like, the combination with a table provided with receiving and delivering shelves, of a feeding-plate provided with depending lugs, said shelves having ways formed therein registering with said lugs to receive the latter and thereby retain the plate respectively for delivery and as it is received, the delivering-shelf being provided with buffer-blocks to engage said lugs, and a yielding device normally holding said blocks forward from the ends of said ways, substantially as described.

93. In a machine for folding collars and the like, a former composed of a plurality of adjustable forming portions, and means to change the shape of said former by their adjustment, substantially as described.

94. In a machine for folding collars and the like, a former to form a blank to be folded, said former including two independent pieces longitudinally adjustable from each other, and extension-sections to be inserted between said pieces, substantially as described.

95. In a machine for folding collars and the like, folding mechanism to fold a blank, and means to shift said folding mechanism, said means including a T-lever, a shaft, and movable dogs pivotally mounted on said shaft to move from their normal position in one direction, means to prevent said dogs from moving from said normal position in an opposite direction, and means tending to maintain said dogs in said normal position, to engage a depending arm of said T-lever, whereby, as said shaft moves, one dog engages said depending arm of the T-lever and moves it, and the other dog yields and passes said T-lever, being automatically restored for the return movement, substantially as described.

96. In a machine for folding collars and the like, a bed provided with longitudinal ways and transverse ways, and independent receiving-plates moving on said longitudinal ways, said plates being formed to receive a blank to be folded, and spacing-blocks movable on said transverse ways to enter between the separated receiving-plates, substantially as described.

97. In a machine for folding collars and the like, a bed provided with longitudinal ways and transverse ways, and independent receiving-plates moving on said longitudinal ways, said plates being formed to receive a blank to be folded, and spacing-blocks movable on said transverse ways to enter between the separated receiving-plates, said blocks and the adjacent ends of said receiving-plates being provided with interlocking shoulders, substantially as described.

98. The cross-head, and its attached multipart former having a middle portion and independent end pieces to descend on the blank to be folded, means to move said end pieces in a straight line one toward the other, and relatively to said middle portion, and automatic means to operate said cross-head up and down, substantially as described.

99. In a machine for folding collars and the like, a movable cross-head, and its attached multipart former, and mechanism carried by said movable cross-head for automatically collapsing said multipart former, substantially as described.

100. In a machine for folding collars and the like, a movable cross-head, and former carried thereby and movable relatively to said cross-head, and mechanism for automatically moving said former relatively to said cross-head, substantially as described.

101. In a machine for folding collars and the like, a movable cross-head, and former carried thereby and movable relatively to said cross-head, and mechanism for automatically moving said former relatively to said cross-head, said mechanism including means for giving said former a compound lateral and rearward movement, substantially as described.

102. In a machine for folding collars and the like, a movable cross-head, and former carried thereby and movable relatively to said cross-head, and mechanism for automatically moving said former relatively to said cross-head, said mechanism including means for giving said former a compound lateral and forward-and-rearward movement, substantially as described.

103. In a machine for folding collars and the like, a movable cross-head, and former carried thereby and movable relatively to said cross head, and mechanism for automatically moving said former relatively to said cross-head, said mechanism including means for shifting said former from beneath certain of the folds of a blank being folded, and means for momentarily raising said former from the blank, substantially as described.

104. In a machine for folding collars and the like, a movable cross-head, a rotary shaft journaled therein, a former carried by said cross-head and movable relatively thereto by said shaft, and means for rotating said shaft, substantially as described.

105. In a machine for folding collars and the like, a movable cross-head, a rotary shaft journaled therein, a former carried by said cross-head and movable relatively thereto by said shaft, and means for intermittingly rotating said shaft, substantially as described.

106. In a machine for folding collars and the like, a carrier for feeding the blanks to the machine, a plurality of cross-heads, each cross-head being provided with a former for engaging and holding said blanks, mechanism for alternately moving said cross heads up and down, and means to operate said carrier intermittingly as one or the other of said cross-heads is in raised position, substantially as described.

107. In a machine for folding collars and the like, a carrier for feeding the blanks to the machine, a plurality of cross-heads, each cross-head being provided with a former for engaging and holding said blanks, mechanism for alternately moving said cross-heads up and down, and means to operate said carrier intermittingly as one or the other of said cross-heads is in raised position, said cross-heads having a dwell or period of rest in their raised positions during the operation of said carrier, substantially as described.

108. In a machine for folding collars and the like, a plurality of cross-heads, means to intermittingly raise said cross-heads out of time with each other, whereby one is up when another is down, feeding mechanism for carrying the blanks, and means for operating said feeding mechanism to deliver a folded blank from the machine and carry an unfolded blank to the machine as each cross-head is in raised position, substantially as described.

109. In a machine for folding collars and the like, a plurality of sets of folding mechanisms, a plurality of formers cooperating therewith, and mechanism for automatically operating said several sets of folding mechanisms and formers out of time with each other, whereby folding operations are proceeding automatically and continuously in the machine, substantially as described.

110. In a machine for folding collars and the like, a plurality of sets of folding mechanisms, a plurality of formers cooperating therewith, and mechanism for automatically operating said several sets of folding mechanisms and formers out of time with each other, whereby folding operations are proceeding automatically and continuously in the machine, feeding mechanism for carrying the blanks to the machine and delivering them therefrom, and means for operating said feeding mechanism to cooperate successively with said plurality of sets of mechanisms for supplying and delivering blanks at the proper time for each of said sets of mechanism, substantially as described.

111. In a machine for folding collars and the like, a former to rest upon and hold stationary a blank to be folded, said former having a narrow single-piece end for defining a narrow end of the blank, such as a collar-tab or the end of a collar-band, mechanism for infolding said blank at said end, other mechanism for infolding the rest of said blank, and means to withdraw said former from beneath the folds of said tab or narrow end of the blank in the direction of the length of said narrow end, after said end has been folded and before the entire folding operation is completed, substantially as described.

112. In a machine for folding collars and the like, the combination with a former to rest on a blank to be folded, a plurality of folding-blades for infolding a plurality of the ends and edges of the blank, mechanism for moving said blades dissimultaneously, and means for shifting said former from beneath a fold before another fold is made and to place it for said other fold before the folding-blade operates to make the said latter fold, substantially as described.

113. In a machine for folding collars and the like, the combination with a former to rest on a blank to be folded, of a plurality of folding-blades for infolding a plurality of the ends and edges of the blank, mechanism for moving said blades dissimultaneously, and means for shifting said former from beneath and placing it on top of one fold and in place for another fold before said other fold is infolded, substantially as described.

114. In a machine for folding collars and the like, the combination with a former to rest on a blank to be folded, of a plurality of folding-blades, mechanism for moving said blades dissimultaneously, means for shifting said former from beneath one fold into position for another fold, and means for holding the blank against displacement during said shifting movement of the former, substantially as described.

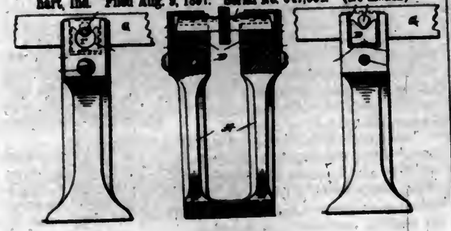
115. In a machine for folding collars and the like, a plurality of folding-blades for infolding the various ends and edges of the blank, and automatic mechanism for moving said blades in succession to make the folds one after the other with the ends of the first fold overlapped by subsequent folds, and the last fold overlapping the preceding folds, substantially as described.

116. In a machine for folding collars and the like, a plurality of folding-blades for infolding the various ends and edges of the blank, automatic mechanism for moving said blades in succession to make the folds one after the other with the ends of the first fold overlapped by subsequent folds, and the last fold overlapping the preceding folds, a former for holding the blank as it is being infolded, and means for shifting said former at times from beneath a fold and placing it for a subsequent fold, said shifting movements taking place between successive folding movements of the blades, substantially as described.

117. In a machine for folding collars and the like, the combination with a former to rest on a blank to be folded, of a folder to fold an edge of the blank, said folder including a blade to do the folding, means to move the blade into folding position, and a spring depressing said blade when in said folding position, substantially as described.

118. In a machine for folding collars and the like, the combination with a former to rest on a blank to be folded, of a folder to fold an edge of the blank, said folder including a blade to do the folding, means to move the blade into folding position, and a spring depressing said blade when in said folding position, and means to relieve the blade from its depressed condition when the folding is completed, substantially as described.

606,529. SCALE FULCRUM AND BEARING. EDWIN FIER, Elkhart, Ind. Filed Aug. 9, 1897. Serial No. 647,601. (No model.)



Claim.—1. An improved scale-bearing, including a bearing-block having a raised central pivotal support upon which it is adapted to oscillate horizontally, the top surface of the block being grooved centrally in direction of its length to receive a scale-trunnion, the block being free to oscillate vertically in direction of its length, and means for holding the block against oscillation in the direction of its width, substantially as shown and described.

2. An improved scale-bearing, including a bearing-block, and alined bottom and side bearings over and between which, respectively, the block is mounted, whereby the same is adapted to oscillate vertically and horizontally, substantially as shown and described.

3. An improved scale-bearing including a support formed with a socket, a bearing-block pivoted centrally above the socket-bottom and of less width than the socket so as to oscillate horizontally therein, the block being capable of free vertical oscillation in the direction of its length, and means for holding the block against vertical oscillation in the direction of its width, substantially as shown and described.

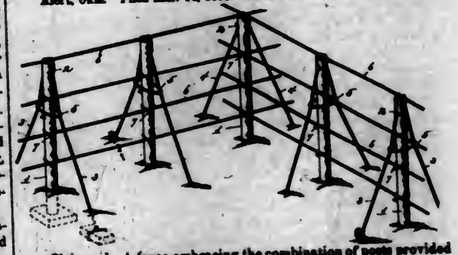
4. An improved scale-bearing, including an angular bearing-block formed with a central bottom depression, a cone bearing upon which the depressed bottom is centered and oppositely-facing upright knife-edge bearings adapted to engage opposite sides of the bearing-block, whereby the latter is sustained in upright position and capable of frictionless vertical and horizontal oscillation, substantially as shown and described.

5. An improved scale-bearing, including a support formed with a socket, a nib raised centrally from the socket-bottom, a bearing-block centered on the nib and of less width than the socket so as to oscillate horizontally therein, the block being grooved centrally on its top from end to end and capable of vertical oscillation in the direction of the length of the groove, and bearings on opposite sides of the block for maintaining the same in upright position and against oscillation in the direction of its width, substantially as shown and described.

6. An improved scale-bearing comprising a bifurcated fulcrum-post having vertical inwardly-extending projections on opposite sides of the bifurcation, and a bearing-block within and of less width than the bifurcation, and centered at a point in line with said inwardly-extending vertical projections, substantially as shown and described.

7. An improved scale-bearing comprising a bifurcated fulcrum-post having vertical inwardly-extending projections on opposite sides of the bifurcation, and a bearing-block between said projections, and centered above the bifurcation bottom, whereby said block is held in upright position and free to oscillate vertically and horizontally, substantially as shown and described.

606,530. FENCE. ALBERT FLEMMER and JOSEPH L. CRESLER, Alert, Okla. Filed Mar. 14, 1898. Serial No. 673,845. (No model.)



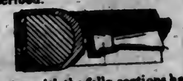
Claim.—1. A fence embracing the combination of posts provided with inclined perforations, guys or stays having one end anchored in the ground and the other extending through the perforations, and a wire or rail of the fence around which the guys are extended, substantially as described.

2. A fence involving in its structure the combination of hollow posts, guys or stays having one end anchored in the ground and the other connected with the top of the post, and a rail arranged above the top of the post, and a tension wire or clamp to take up the slack of the guys or stays, substantially as described.

3. A fence involving in its structure the combination of a hollow post, guys or stays having one end anchored in the ground and the other connected with the top of the post and the top rail of the fence, the upper end of the guy-wire being passed through the side and top of the post, around the top wire or rail of the fence, and down between the post and the guy-wire to produce a bite between the post and the guy, substantially as described.

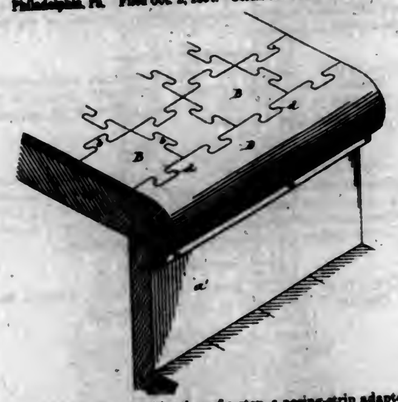
606,531. VEHICLE-WHEEL. JULIAN A. FOSTER, Salem, Wis. Filed July 10, 1897. Serial No. 644,006. (No model.)

Claim.—1. A clip for the purpose described, comprising a plate, legs extended therefrom and having their extremities corrugated on opposite sides and adapted to overlap when positioned upon the felly, substantially as described.



2. The combination with the felly-sections having elongated slots, of the elongated plate provided with slots registering with the slots in the felly, said plate being adapted to be positioned upon the felly, said plate having legs extended therefrom and adapted to be overlapped on the opposite side of the felly, the overlapping portions being corrugated and beveled on opposite sides, substantially as described.

606,532. NOSING-STRIP FOR STAIRWAYS. FRANK FURSTON, Philadelphia, Pa. Filed Oct. 2, 1897. Serial No. 653,753. (No model.)

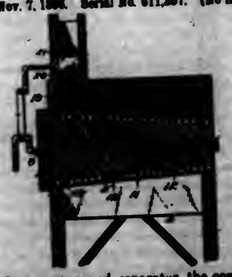


Claim.—1. The combination of a step, a nosing-strip adapted to the nosing of the step and having notches in one edge, with a tread-section meshing with the notches in the edge of the nosing-strip, substantially as described.

2. The combination of a step, a strip of rubber or equivalent material adapted to be secured to the nosing of a step, having its upper edge extended, with undercut recesses in the extended edge and means on the tread with which the undercut portions of the nosing-strip engage, substantially as described.

3. The combination of a step, interlocked rubber tiles thereon, a rubber nosing-strip adapted to the nosing of the step and locked to the tiles, substantially as described.

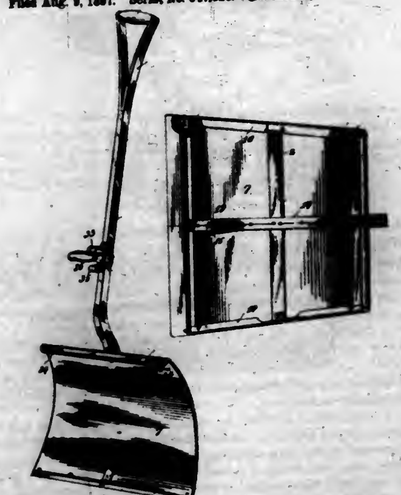
606,538. COTTON-SEED SEPARATOR. JAMES A. GARRETT, Troy, Tex. Filed Nov. 7, 1896. Serial No. 611,267. (No model.)



Claim.—1. In a cotton-seed separator, the combination of the horizontal conical drum armed with spiral rows of fingers or spikes, the horizontal conical cylinder formed with transverse perforations presenting an abrading and sifting surface, and a uniform working space between itself and the cylinder from feed to discharge, whereby the area of said working space is gradually contracted from feed to discharge and the mutual pressure and attrition of the material under treatment is maintained, and a feeder placed at the larger end of the separating-cylinder, substantially as set forth.

2. In a cotton-seed separator, the combination of an open bottom casing, a stationary horizontal conical separating-cylinder arranged within the casing out of contact with the top and sides thereof and formed with transverse perforations presenting an abrading and sifting surface, a horizontal conical drum arranged within the cylinder and armed with spiral rows of fingers or spikes, said drum forming between its periphery and the perforate cylinder a uniform working space extending from feed to discharge whereby the area of said working space is gradually contracted from feed to discharge and the mutual pressure and attrition of the material under treatment is maintained, and a feeder placed at the larger end of the cylinder, substantially as set forth.

606,584. SNOW-SHOVEL. JOHN GIFFORD, Watertown, N. Y. Filed Aug. 9, 1897. Serial No. 647,628. (No model.)



Claim.—1. In a snow-shovel, a blade comprising a frame composed of a series of parallel wooden bars connected at their ends by side rods, and a metal sheet secured upon said frame, substantially as described.

2. In a snow-shovel, a blade comprising a frame composed of a series of parallel wooden bars connected at their ends by side rods, and a metal sheet having its edge portions folded over upon said bars and side rods, substantially as described.

3. In a snow-shovel, a blade comprising a frame composed of a series of parallel wooden bars connected at their ends by side bars, a metal sheet having its edge portions folded over upon said bars and side rods, and a strip of hardened metal secured to the front edge of the metal sheet, substantially as described.

4. In a snow-shovel, a blade comprising a frame composed of a series of parallel wooden bars connected at their ends by side rods, and a metal sheet secured upon the upper face of said frame, combined with a handle secured to the lower face of the frame substantially midway its width, and a metal loop fitted over the front edge of the blade and the front end of the handle and secured thereto, substantially as described.

5. In a snow-shovel, a blade comprising a frame composed of a series of parallel wooden bars connected at their ends by side rods, and a metal sheet secured upon the upper face of said frame, combined with a handle abutting at its front end against the rear edge of the front bar of the frame, and secured to the lower faces of the other bars, and a metal loop fitted over the front edge of the blade and the front end of the handle and secured thereto, substantially as described

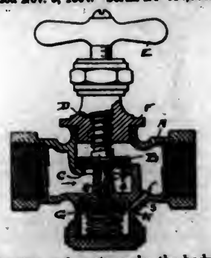
6. In a snow-shovel, the combination with the handle, of a U-shaped slide fitted upon the handle, a hand-grip frame eccentrically pivoted between the arms of the slide, and a spring loosely fitted between the lower face of said frame and the upper face of the handle, substantially as and for the purpose specified.

7. In a snow-shovel, the combination with the handle, of a U-shaped slide fitted upon the handle, a hand-grip frame having a U-shaped portion eccentrically pivoted between the arms of said slide, a spring loosely fitted between the said U-shaped part of the frame and the handle, said spring having a downwardly-curved portion to bite the handle when the hand-grip frame is rocked rearwardly upon it, substantially as and for the purpose specified.

8. In a snow-shovel, the combination with the handle, of a

U-shaped slide fitted upon the handle, a hand-grip frame having a U-shaped portion eccentrically pivoted between the arms of said slide, the arms of said slide and U-shaped part of the frame having slots in their rear edges adapted to register when the said frame is in a vertical position, a spring loosely fitted between the said U-shaped part of the frame and the handle, said spring comprising a horizontally-disposed portion to slide on the handle, and two spaced vertically-disposed loops between which the hand-grip frame is supported, and a pin secured in the rear vertical loop to engage in said slots when they register, substantially as described.

606,585. STOP AND WASTE COCK. JOSEPH H. GLAUSER, Cleveland, Ohio. Filed Nov. 9, 1897. Serial No. 657,990. (No model.)



Claim.—1. In stop and waste cocks, the body of the cock constructed with two parallel diaphragms having a space between them constantly open to water-pressure, and a tubular projection from one of said diaphragms into said water-space and the main-valve seat on the other diaphragm, substantially as described.

2. The body of the cock having two diaphragms and a waste-chamber beneath the same, one of said diaphragms having a passage for the water and the other a projection into the space between said diaphragms and open through its center into the said waste-chamber, substantially as described.

3. The body of the cock provided with two diaphragms, one of said diaphragms having a seat for the main valve and a waste-chamber covered by the other diaphragm in which is a central passage opening into said waste-chamber, in combination with the waste-valve, the main valve and a close-fitting projection extending through said central passage and engaging said waste-valve, substantially as described.

4. The body of the cock having two diaphragms with an open water-pressure space between them, and a waste-chamber beneath the lower of said diaphragms having its waste at the top, in combination with a main valve seated on the upper diaphragm and an exhaust-valve seated on the lower diaphragm to close said outlet, and a projection from the main valve engaging the waste-valve, substantially as described.

5. The body of the cock having the main-valve diaphragm therein, and a waste-chamber having a diaphragm closing the top thereof, the main valve and the waste-valve arranged to seat toward each other on said diaphragms respectively, and a waste-outlet between said valves controlled by the waste-valve, and a projection from the main valve engaging the waste-valve to open the same, substantially as described.

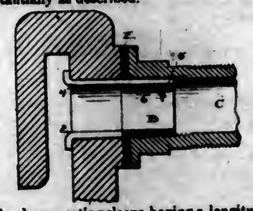
6. A stop and waste cock having one diaphragm dividing said cock into water-pressure and exhaust sides and provided with a valve-seat and a valve opening to the exhaust side from said seat, a waste-valve chamber opposite said seat and a separate diaphragm over the same separating said chamber from the water-pressure side of the cock, a valve in said chamber and means to open said valve connected with the main valve, substantially as described.

7. The body of the cock provided with a main-valve diaphragm across its center and a valve seated on the exhaust side of said diaphragm, a waste-chamber beneath said main valve and a diaphragm closing it from the water pressure over the same, a waste-valve in said waste-chamber and means extending to the main-valve stem to open the waste-valve, substantially as described.

606,586. PIPE-COUPLING FOR BROKEN WATER-CLOSET BOWLS. JOSEPH H. GLAUSER, Cleveland, Ohio. Filed Dec. 24, 1897. Serial No. 663,411. (No model.)

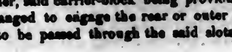
Claim.—1. The coupling for water-closet bowls consisting of a sleeve having a hook integral therewith and a channel constructed to engage a removable hook at different points therein, in combination with a removable hook embedded in said channel, substantially as described.

2. The sleeve, substantially as described, having an integral hook projecting from its inner portion, and a longitudinal channel on its outside and encircling threads, in combination with an independent hook locked in said channel beneath the engaging portion of the said threads substantially as described.



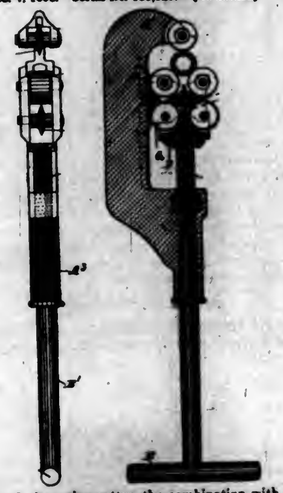
3. The hook-supporting sleeve having a longitudinal channel on its outside and a thread around said sleeve across said channel, in combination with a hook locked in said channel and embedded therein beneath the thread crossing the same, whereby connection between hook and sleeve is made without threading the back of the hook, substantially as described.

606,587. CIGARETTE. HENRY GOLDSWARD, London, England. Filed Oct. 4, 1897. Serial No. 654,056. (No model.) Patented in England Sept. 15, 1893, No. 17,257, and Nov. 2, 1893, No. 20,807, and in Germany Nov. 6, 1894, No. 83,862.



Claim.—A cigar or cigarette having a plug of absorbent material located near the end to be placed in the mouth and also provided with a mouthpiece composed of straw split and cemented to a retaining-band, said mouthpiece being cemented to the outside of the wrapper of the cigar or cigarette, substantially as described.

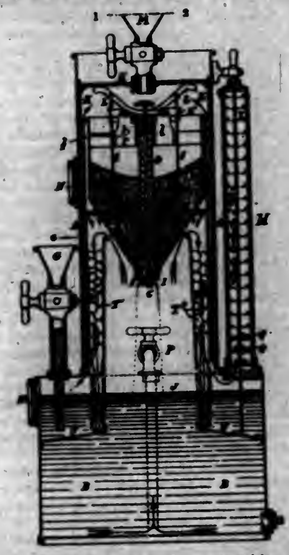
606,588. PIPE-CUTTER. DAVID S. GRANT, Methuen, Mass. Filed Feb. 7, 1898. Serial No. 669,826. (No model.)



Claim.—1. In a pipe-cutter, the combination with a frame having a disk cutter journaled in its upper end and provided on its opposite sides with longitudinal ribs having inclined slots or recesses formed intermediate their ends, of a reversible carrier-block longitudinally adjustable on said frame and having rollers in one end and cutter-disks in the other, said carrier-block being provided with hooked extensions arranged to engage the rear or outer faces of the ribs and adapted to be passed through the said slots or recesses therein to reverse the carrier-block, and means for adjusting said reversible frame to and from the upper cutter-disk, substantially as described.

2. In a pipe-cutter, the combination with a frame having a disk cutter journaled in its upper end and provided on its opposite sides with longitudinal ribs having inclined slots or recesses formed intermediate their ends, of a reversible carrier-block longitudinally adjustable on said frame and having rollers in one end and cutter-disks in the other, said carrier-block being provided with hooked extensions arranged to engage the rear or outer faces of the ribs and adapted to be passed through the said slots or recesses therein to reverse the carrier-block, a support detachably connected to the carrier-block, and a screw-threaded shank working in a nut in the frame and swiveled in said support for adjusting the position of the reversible block to and from the upper cutter, substantially as described.

606,589. APPARATUS FOR GENERATING ACETYLENE GAS. OSCAR GRISSER and JULIUS GRAEB, Lyons, France. Filed Oct. 26, 1896. Serial No. 610,466. (No model.) Patented in France Mar. 30, 1896, No. 255,154; in England Aug. 13, 1896, No. 17,904; in Italy Sept. 30, 1896, LXXXIII, 445; in Belgium Sept. 30, 1896, No. 123,606; in Luxemburg Oct. 9, 1896, No. 2,633; in Spain Nov. 21, 1896, No. 19,695; in Switzerland Feb. 26, 1897, No. 13,068; in Austria July 8, 1897, No. 47/2,649, and in Hungary July 15, 1897, No. 8,552.



Claim.—1. An acetylene-gas producer, comprising a generating vessel having an enlarged lower portion containing water, a bell having its open lower end placed in an annular chamber containing a suitable fluid and raised above the water-chamber, a distributer rigidly supported in said bell and provided with a funnel-shaped lower end, a spring-closed, tapered plug to close the outlet at said lower end, said means actuated by the opening of said plug to break up any choking of the granulated material and feed the latter in uniform quantities to the gas-generating chamber, substantially as described.

2. In an acetylene gas producer, the combination with a generating-chamber containing water of a bell rising above the said generating-chamber, its open lower end lying in a fluid in an annular chamber arranged above the water, a distributer rigidly supported in the upper part of said bell and having a funnel-shaped lower end, a tapered, spring-pressed plug to close the outlet in said lower end, a central, vertical cylinder to inclose the spring acting on said plug, a plurality of spatulæ hanging in said funnel-shaped end, levers pivoted at the top of the distributer to support said spatulæ their movable ends resting on the under surface of the closed top of the bell, and a stem in the central tube having its upper end connected to and rising above the levers between their pivoted ends and the points of suspension of the spatulæ, substantially as described.

3. In an acetylene-gas producer, the combination with a generating-chamber of a bell rising above the same, its open lower end lying in fluid in an annular chamber above the generating-chamber, a distributer having a funnel-shaped discharge end, a central tube inclosing a spring, a tapered plug connected to the spring and seated by it in the outlet, spatulæ suspended in the distributer with their ends a little above the outlet, levers pivoted at their ends in the upper end of the distributer and having the spatulæ suspended from them at points between the pivoted ends and free ends, and a stem connected to said levers and to the spring-seated plug, substantially as described.

4. In an acetylene-gas producer, the combination of the water-reservoir B having thereon the drier-cylinder H provided with perforated diaphragms Y, the annular water vessel A having the bell K inverted therein and supported above the reservoir B, the annular washer-chamber T supported in and concentric with the vessels A and B, the suspended distributing vessel D, a spring-actuated plug C to control the discharge-orifice of said distributing vessel D, and spatulæ S suspended in said distributing vessel from levers connected with the vertically-extended stem of the said plug, substantially as described.

606,540. DIRT-SCRAPER. FREDERICK GROTE, Huntingburg, Ind. Filed Nov. 2, 1897. Serial No. 657,194. (No model.)



Claim.—A road or dirt scraper, comprising two sides or runners, a top or cover, a vertical scraper at its rear end, a depending vertical flange at its front end, a lift or handle, means at the front ends for attaching a draft-animal and a rod, or stay, extending transversely from one rod to the other in front, substantially as described.

606,541. VELOCIPEDE. WILLIAM J. GROTENHUIS and HENRY T. SIDWAY, Chicago, Ill. Filed Apr. 13, 1897. Serial No. 631,869. (No model.) Patented in England Apr. 27, 1897, No. 10,471, and in France Apr. 27, 1897, No. 266,381.



Claim.—1. In a handle-bar for velocipedes, the combination of an elastic core formed of a series of metallic strips longitudinally arranged, a ring for rigidly securing the ends of one portion of the longitudinal strips together, a cup-shaped disk flexibly securing the other ends of the metallic strips together, an expanding cylindrical block adapted to be inserted into the handle-bar and provided with one or more indentations, projections on the cup-shaped disk adapted to enter the indentations on the block, and means for securing the cup-shaped disk to the block to expand the same and hold the parts in operative position, substantially as described.

2. In a handle for velocipedes, the combination of an elastic core formed of a series of metal strips longitudinally arranged and secured rigidly together at one end by means of a securing-ring and provided with bayonet-shaped free ends, a cup-shaped end portion having a series of strips formed integrally with a base portion—the free ends of such strips having indentations perforations or openings adapted to receive the bayonet-shaped ends of the metallic strips and flexibly secure the parts together, substantially as described.

606,542. PRINTING-INK. FRANCIS B. HALL, Plattsburg, N. Y. Filed Jan. 20, 1898. Serial No. 667,232. (No specimens.)

Claim.—1. A vehicle for pigment or coloring-matter, consisting essentially of sugar and water and salicylic acid, in substantially the proportions specified, the sugar being largely in excess of the water, and the acid being not materially less than three per cent. of the mass, substantially as hereinbefore set forth.

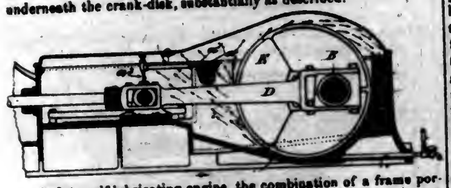
2. A vehicle for pigment or coloring-matter consisting essentially of sugar, gum-arabic, water and salicylic acid in substantially the proportions specified, the sugar being largely in excess of the water and gum-arabic and the acid being not materially less than three per cent. of the mass, substantially as hereinbefore set forth.

3. A composition of matter consisting of water, sugar, gum-arabic and salicylic acid in substantially the proportions stated, the sugar being largely in excess of the water and gum-arabic and the salicylic acid being not materially less than three per cent. of the mass, in conjunction with a suitable pigment or coloring-matter, substantially as hereinbefore set forth.

4. A composition of matter consisting of water, sugar, gum-arabic and salicylic acid taken in the proportions substantially as specified, the sugar being largely in excess of the water and gum-arabic, and the acid being not materially less than three per cent. of the mass, in conjunction with a pigment or coloring-matter, and glycerin, substantially as hereinbefore set forth.

606,548. SELF-LUBRICATING ENGINE. ELMER E. HANNA, Chicago, Ill., assignor to the Gates Iron Works, same place. Filed Dec. 16, 1897. Serial No. 662,204. (No model.)

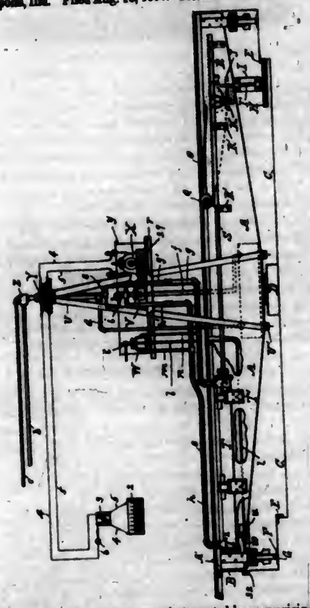
Claim.—1. In a self-lubricating engine, the combination of a frame portion having a settling chamber or reservoir, pipes connecting the upper portion of the settling-chamber with bearings to be lubricated, and return-channels leading from the lubricated bearings to a basin underneath the crank-disk, substantially as described.



2. In a self-lubricating engine, the combination of a frame portion having a settling-chamber extending to the front, underneath and rear of the crank-shaft and above the bearing portion to be lubricated, pipes connecting the upper portion of the settling-chamber with the bearings to be lubricated, and return-channels leading from the lubricated bearings to a basin underneath the crank-disk, substantially as described.

3. In a self-lubricating engine, the combination of a frame portion having a settling chamber or reservoir divided longitudinally and extending to the front, rear and underneath the crank-shaft and to a point above the bearings to be lubricated, pipes connecting the upper portion of the settling-chamber with the bearings to be lubricated, and return-channels leading from the lubricated bearings to a basin underneath the crank-disk, substantially as described.

606,544. TURN-TABLE FOR RAILWAYS. JOHN H. HARTING, Indianapolis, Ind. Filed Aug. 18, 1897. Serial No. 648,633. (No model.)



Claim.—1. An electropneumatic turn-table comprising the table suitably mounted, the arch thereon, a swivel-joint mounted upon the arch by which fluid under pressure may be conducted through pipes from a supply plant to all parts of said table while in motion or while at any point of its revolution about its center and by which an electrical circuit may be likewise conducted from any exterior point to any point upon the table while in motion, a motor on said table adapted to be operated by fluid-pressure and controlled by electric current acting upon a suitable electric motor and controlling-valve, a latch to secure said table in a fixed position and means by which it may be controlled automatically, and a suitable fluid-pressure engine by means of which said table may be rotated, substantially as described for the purposes set forth.

2. The combination of the table, a main motor thereon adapted to use fluid-pressure and to transmit power whereby said table may be rotated, an arch on said table having a central point elevated above the center of said table under which a locomotive may pass, a swivel-joint having substantially an upper part immovably fixed and a lower part fixed to said arch and adapted to rotate with relation to said upper part, said swivel-joint being adapted to convey fluid under pressure by means of suitable pipes from a fixed point exterior to said table to various parts of said table while in motion radially, and also to form a continuous electrical circuit by means of suitable wires between a fixed exterior point, to the moving parts of said table, a valve adapted to control the supply and exhaust of fluid to and from said motor, an electrical motor adapted to control said valve, wires leading from a battery to said electrical motor through said swivel-joint, a circuit closer connected to said wires, a circuit-reverser connected to said wires, pipe to convey fluid to said main motor, and means by which power may be transmitted from said main motor to actuate said table, substantially as shown and described.

3. In a railway turn-table, the combination of the arch situated centrally upon the table, a swivel-joint upon said arch and adapted to form fluid-ducts therethrough from fixed pipes to pipes movable upon the table, a fluid-pressure motor and means for transmitting power to operate said table, pipes leading from an exterior point to said swivel-joint, electric wires leading from an exterior battery to said swivel-joint, a valve to control the flow of fluids to and from said motor, pipes leading from said valve to said motor, pipes communicating between said swivel joint and said valve, an electrical motor adapted to operate said valve, said electrical motor being reversible and having its central shaft connected by means of suitable gearing to a stem attached to said valve, wires communicating between said swivel-joint and said electrical motor, the battery, the circuit-closer, the circuit-reverser, a fluid-pressure cylinder, a slidable latch to secure said table by engagement in bulkhead-pockets and having its rear portion adapted to form a piston-rod and entering said fluid-pressure cylinder, a packed piston on said piston-rod working in said cylinder, packing at the head of said cylinder around said rod, means for normally forcing said latch into bulkhead-pockets, a latch-valve adapted to be automatically operated by fluid-pressure to admit fluid to said latch cylinder to withdraw the said latch from engagement automatically in advance of the movement of said table, pipes communicating between the port-pipes of said motor and said latch-valve and between said latch-valve and said latch-cylinder, and means by which fluid may be automatically exhausted from said latch-cylinder, substantially as shown and described.

4. The combination of the turn-table, the motor comprising a cylinder having an inlet-port at each end, the piston terminating in a rack-bar suitably supported, gearing adapted to connect with said rack-bar and transmit power to actuate said table, the circular rack secured to the pit-bottom and in engagement with said gearings, the central arch upon said table, the electric motor, the main valve controlled by said motor, port-pipes between said valve and said cylinder, the latch-valve in communication with both of said port-pipes and adapted to operate automatically when pressure exists in either port-pipe to admit fluid to a latch-cylinder, a latch normally thrust outward to engage bulkhead-pockets, a latch-cylinder in communication with said latch-valve and adapted to receive fluid under pressure to withdraw said latch, a valve to automatically release the fluid from said latch-cylinder, the swivel-joint on said arch, the pipes and electric wires leading to and therefrom and suitably connected, and a supply-pipe leading to said main valve, substantially as shown and described.

5. In a turn-table, the combination with a suitable central support, of a swivel-joint consisting of the base provided with the packing box, and having the outlets adapted to receive pipe connections, the case secured centrally upon said base and having the central aperture in its top, the ball-race at the top of said case and the balls therein, the tube passing through the top of said case and terminating therein, the packed piston at the lower end of said pipe and provided with the ball-bearing against the top of said case, a collar adjustably secured to said pipe and provided with the ball-bearing against said case, the interior pipe passing through said first-mentioned pipe and terminating in said base, and means by which the upper end of said pipes may be connected to form separate ducts, substantially as described and set forth.

6. In a turn-table, the combination of the arch, the swivel-joint thereon, the fluid-pipes leading to said joint, the electric wires leading to said joint and connected to a battery, the circuit-closer, the circuit-reverser adapted to reverse the circuit over said wires, the electric motor adapted to operate in either direction and having an extended shaft provided with a screw-worm, a worm-wheel suitably supported engaging said worm and having a central opening provided with screw-threads, a main fluid-controlling valve having a stem provided with screw-threads and passing through the center of said worm-wheel, and a motor adapted to actuate said turn-table and in communication with said main valve, substantially as shown and described.

7. In a turn-table, the combination with the bulkhead having suitable pockets, of the latch-bar suitably supported by said turn-table and adapted to engage said pockets and having the extended rear end forming a piston-rod, the cylinder suitably supported on said table at the rear of said latch-bolt and having a packed head through which said piston-rod enters, the piston on said piston-rod within said cylinder, the spring seated between said piston and the opposite end of said cylinder, the pipe connected to said cylinder, the latch-valve connected to said pipe, the supply-pipes connected to said latch-valve and to the main operating-motor, the main valve, with means by which it may be supplied with fluid and controlled, substantially as shown and described.

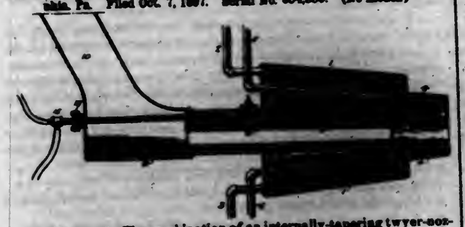
8. In a turn-table, the combination of a motor-cylinder secured to the frame thereof and situated parallel to the main beams between one end and the pivotal center of said table, said cylinder having a port and connecting port-pipe at each end thereof and a piston working in said cylinder, the piston-rod attached to said piston and passing through the packed head of said cylinder toward said pivotal center, the rack-bar attached to the outer end of said piston-rod and suitably supported, the gearing connected to said rack-bar and supported by the opposite end of said table, the circular rack anchored in the pit and engaged by said gearing, the main valve having its chamber connected to said port-pipes, the stem connected to said main valve, the electrical motor connected operatively to said stem, the swivel-joint providing conductors for fluid and electricity, and the connecting pipes and wires, substantially as shown and described.

9. The combination with the main motor and gearing, of the port-pipes, the main valve, the electric motor, the swivel-joint and supply pipes and wires connected therewith, the latch-valve in communication with said port-pipes and adapted to operate automatically as described, the latch-cylinder in communication with said latch-valve, and the latch connected to said latch-cylinder, substantially as shown and described.

10. In a turn-table, the combination of a main motor or engine, the port-pipes leading thereto, the main valve connected to said port-pipes, the electric motor adapted to operate said main valve, the arch, the swivel-joint thereon provided with fluid-ducts therethrough and having contact rings and brushes adapted to convey an electrical circuit continuously while said swivel-joint is in operation, the wires connected therewith, and the fluid-pipes adapted to supply fluid under pressure through said swivel-joint to said main valve, substantially as shown and described.

11. In a turn-table, the combination with a motor mounted thereon, and having two supply-pipes connected at opposite ends thereof, of the latch-valve comprising a cylinder having a pipe connecting one end thereof with one of said supply-pipes and a pipe connecting the opposite end thereof with the other of said supply-pipes, valve-seats at said end connections, a valve seated on each of said seats and opening inwardly, a piston connected to each of said valves, a spring interposed between said pistons, ports adapted to be closed or opened by said pistons, said ports being connected and having a communicating pipe, and the latch having the connected cylinder in connection with said communicating pipe, and means by which said supply-pipes may be charged with fluid and the same released, substantially as shown and described.

606,545. FURNACE-TWYER. SAMUEL S. HARTRANFT, Philadelphia, Pa. Filed Oct. 7, 1897. Serial No. 654,350. (No model.)

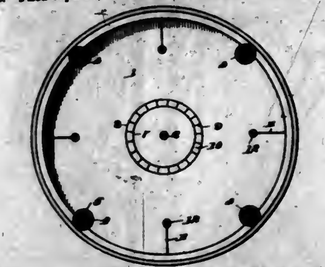


Claim.—1. The combination of an internally-tapering twyer-nozzle and a cylindrical supply-pipe therefor, with a block adapted to reduce the discharge area of the nozzle, a stem carrying said block and located in the upper portion of the supply-pipe, so as to be longitudinally in line therewith, said stem projecting outwardly beyond the supply-pipe, and provision in said supply-pipe serving to support said stem while permitting free longitudinal movement of the same, the stem being of such resiliency as to permit the block to follow the internal bevel of the nozzle, as it is moved back and forth, substantially as specified.

2. The combination of a twyer-nozzle and a supply-pipe therefor, with a block adapted to reduce the discharge area of the nozzle, a stem carrying said block and located in the upper portion of the supply-pipe and projecting outwardly beyond the same, a hooked bolt supporting said stem and passing through the pipe, a tubular lug on the outside of the pipe, and a nut or other fastening for the bolt supported by said lug, the stem being of such resiliency as to permit the block to follow the internal bevel of the nozzle as it is moved back and forth, substantially as specified.

3. The combination of the twyer-nozzle with the hollow segmental reducing-block, and its central hollow stem, said block being as to its central portion, of a thickness equal to or exceeding the diameter of the stem, but as to each side portion, tapering to a comparatively sharp rear edge, substantially as specified.

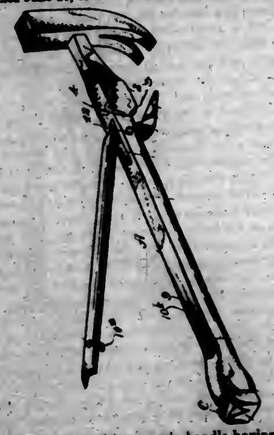
606,546. PARLOR POOL-TABLE. PETER L. HAYES, Springfield, Mo. Filed Sept. 20, 1897. Serial No. 652,355. (No model.)



Claim.—1. A pool-table of the type described, comprising a circular table-body having a cushion-rim around the edge thereof, pockets at diametrically opposite portions of the table adjoining the rim, a series of spaces or divisions arranged in a circle at the center of the table and adapted to receive the buttons or balls initially grouped or bunched therein, and a starting-point at diametrically opposite portions of the table and between the said pockets on which to place the cue-ball or taw, substantially as described.

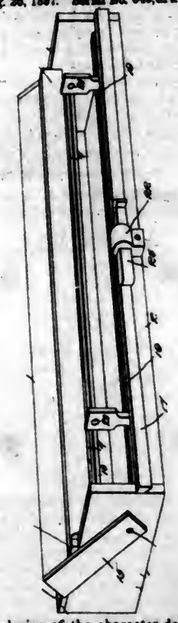
2. A cue for parlor pool-tables, comprising a cylinder, a cue-rod extending therethrough and provided at one end with an elastic tip, a handle at the other end of said rod, a cushion and gage spring between said handle and the adjoining end of the cylinder and another spring inclosed within the cylinder and connected with the cue-rod and adapted, when compressed, to force the tipped end of said rod outward, substantially as and for the purpose described.

606,547. COMBINATION-TOOL. BENJAMIN J. HILLMAN, Victor, Colo. Filed June 29, 1898. Serial No. 697,317. (No model.)



Claim.—A tool, comprising a main handle having a slot therein and an anvil thereon adjacent to said slot, the rear end of said anvil being cut away upon one side forming an inclined cutting blade or knife, and an auxiliary handle pivoted to the main handle and extending through said slot, said auxiliary handle being bent into a jaw adapted to act in connection with the anvil to provide a wire-twister, the bent portion thereof having a cutting edge adapted to fit within the cut-away portion at the rear end of said anvil, as and for the purpose set forth.

606,548. SHADE-TRIMMER. JESSE R. HEFFNER, Hiawatha, Kans. Filed Aug. 26, 1897. Serial No. 649,614. (No model.)



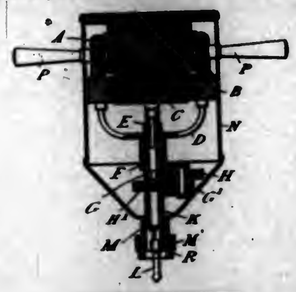
Claim.—1. A device of the character described comprising a suitable frame slotted in the direction of its length, laterally-adjustable knives extending through said slot, a knife-guard pivoted to said frame and adapted to be rocked upon the knives for the purpose set forth, suitably-guided laterally-adjustable brackets perforated for the reception of a rod, said rod being adapted to enter the curtain-roll, means for securing the knives at any desired point throughout the length of the machine, and means for similarly securing the laterally-adjustable brackets, substantially as described.

2. A device of the character described composed of end pieces, a suitable base secured to said end pieces, strips secured to the end pieces above the base and suitably spaced apart to form a longitudinal slot, a depending member secured to the rear strip and provided with a slot and a groove therein, blocks carrying knives extending through the slot, said blocks being provided with lugs or projections extending into said groove, set-screws or their equivalents passing through the slot in the depending member and into the knife-carrying blocks, whereby said blocks are held in adjusted position, a knife-guard pivoted to the frame and adapted to be rocked upon the knives, laterally-adjustable brackets suitably guided at one side of the machine, a rod extending between said brackets, and means for adjustably securing said brackets, substantially as described.

3. The herein-described device comprising a suitable base and suitable end pieces secured to said base, strips secured to the end pieces and suitably spaced apart to form a slot, the member depending from one of the strips adjacent to the slot, said member being provided with a longitudinal slot and a groove, laterally-adjustable knife-carrying blocks having knives extending through the slot in the top strip, said blocks being provided with set-screws or their equivalents passing through the slot in the depending member and lugs or projections extending into the groove in said member, a knife-guard pivoted to the end pieces and adapted to be rocked upon the knives, parallel strips at the front edge of the machine, brackets maintained and guided between said strips, said brackets being perforated for the reception of the rod, a keeper secured to the front edge of the machine and having the wedge therein adapted to be operated to move the outer strip against the bracket to maintain the same in adjusted position or permit it to be moved, substantially as described.

606,549. PORTABLE ELECTRIC DRILL. ERNEST HOLMES, London, England, assignor to Siemens Brothers & Co., Limited, same place. Filed Nov. 13, 1897. Serial No. 658,986. (No model.) Patented in England June 26, 1896, No. 14,157.

Claim.—In a portable electric drill, the combination with a magnet-core and magnet, of two crescent-shaped pole-pieces B secured to the under side of the core, a yoke-frame D secured to and depending from the said pole-pieces and terminating in a central spindle-bearing, an armature-spindle E journaled in said bearing, an armature C fixed to the upper end of said spindle and arranged to rotate between the pole-pieces, an under frame F mounted below the said yoke-frame and forming a drill-spindle bearing, a drill-spindle K journaled in said bearing and provided with a gear-wheel H', a pinion G fixed to the armature-spindle, a gear-wheel H and a pinion G' journaled one above the other in said under frame, said latter gear-wheel and pinion meshing with the aforesaid wheel and pinion, a sleeve screwed upon the lower end of the said under frame, a drill fixed to said spindle, an elastic washer fixed in said sleeve and having its lower edge exposed below the same, handles secured to the magnet-core, and a casing surrounding the operating mechanism of the drill and having its lower portion tapered toward and secured to the under frame.



606,550. LATCH AND LOCK COMBINED. GRAHAM HOLDEN, Blue Springs, Mo. Filed July 27, 1897. Serial No. 646,009. (No model.)



Claim.—1. The combination with a reciprocating latch, its protracting-spring, and means for retracting said latch, of the endwise-movable block or bolt adapted to be moved into the path of the latch behind the inner end of the same to secure it against reciprocation, spring-pressed tumblers carried by seated in and pivoted within parallel recesses or grooves in said block or bolt and having means whereby they are adapted to engage with a stationary part of the lock in both positions of said block or bolt, and a suitable key adapted to said grooves or recesses and to engage with said tumblers to retract them from engagement with said stationary part, and also to effect an endwise movement of the said block or bolt, substantially as specified.

2. The combination with the case, the reciprocating latch, its protracting-spring and retracting device, of an endwise-movable block or bolt adapted to be moved into position to lock said bolt against retraction, said block or bolt having parallel wards and a V-shaped notch or recess cutting through the said wards, the pivoted spring-pressed tumblers seated between the said wards and having each a tooth or projection at its free end portion, said tumblers also having depressions therein formed with inclined lateral walls and straight bottom walls, a stationary ward-plate having recesses therein to receive the teeth or projections of the said tumblers in both positions of the sliding block or bolt, and a suitable key adapted to said wards and tumblers, substantially as specified.

3. The combination with the reciprocating latch, of the slidable block or bolt arranged to be moved behind said latch to lock it against retraction, said block or bolt having parallel wards in one face or edge and a V-shaped notch or recess cutting through the said wards, pivoted spring-pressed tumblers seated between the said wards and having each a tooth or projection at its free end portion, a stationary ward-plate having recesses adapted to receive the teeth or projections of the said tumblers and also a semicircular recess whose wall is formed with a series of wards which are respectively in the planes of the corresponding wards of the said block or bolt, and a suitable key adapted to said wards and tumblers, the latter having intermediate beat or depressed portions upon which the key is adapted to act, substantially as specified.

606,551. RUBBER ATTACHMENT FOR PENCILS. WILLIAM P. HUFFMAN, Hickory, N. C. Filed Aug. 31, 1897. Serial No. 650,179. (No model.)

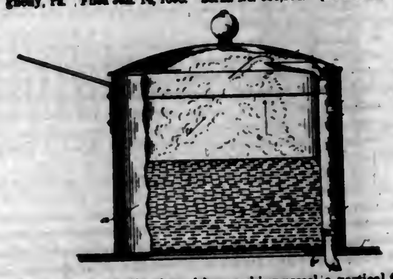


Claim.—1. The combination with a pencil, of a sleeve fitting on the front end of the pencil in rear of the point thereof and adapted to be arranged at any point on the pencil intermediate of the ends of the same, an eraser extending outward at an angle to the sleeve, whereby it may be brought into and out of position for use by simply rotating the pencil, and means connected with the sleeve for frictionally engaging the pencil, whereby the device is secured to the latter, substantially as described.

2. The combination with a pencil, of an eraser-holder provided with a short longitudinal sleeve fitting on the front end of the pencil in rear of the point and adapted to be arranged in any position between the ends of the pencil and having a tubular arm extending toward the point of the pencil, located a short distance therefrom and forming a socket for a piece of rubber or similar material, whereby the eraser may be brought in position for use by simply rotating the pencil, and an inner sleeve clamping the pencil and engaged by the longitudinal sleeve, substantially as described.

3. The combination with a pencil, of a short inner tapering sleeve split longitudinally and arranged on the pencil in rear of the point and adapted to be placed in any position between the ends of the pencil, said tapering sleeve being exteriorly threaded, and an eraser-holder having an interiorly-threaded tapering sleeve engaging the inner sleeve, said holder being arranged to support a piece of rubber or other erasing material near the point of the pencil, whereby the device may be brought into position for use by simply rotating the pencil, substantially as described.

606,552. COOKING UTENSIL. ALEXANDER F. HUMPHREY, Allegheny, Pa. Filed Jan. 14, 1898. Serial No. 666,591. (No model.)



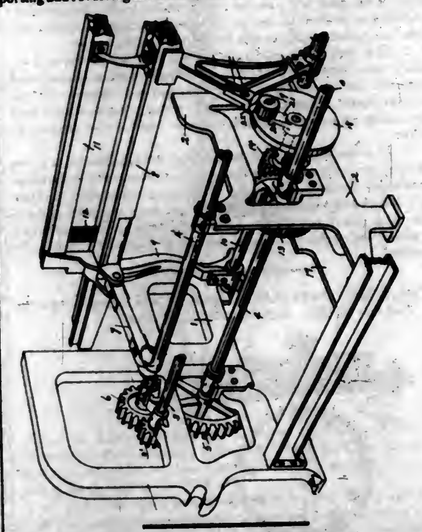
Claim.—1. In combination with a cooking vessel, a vertical flue or conductor pipe arranged therein and secured by clamps to the inner wall of the vessel, a pipe engaging in the upper end of said flue or conductor-pipe, said pipe being provided with a funnel or flaring end and an elbow fitting within the flue or condector-pipe at its lower end, and projecting downwardly into the space within the stove, substantially as shown and described.

2. In combination with a cooking vessel a vertical flue or conductor-pipe arranged therein and extending upward to a point near the rim of the vessel, said flue being adapted to receive a pipe at its upper end, which is provided with an inwardly-projecting funnel or flaring mouth, said flue or pipe being also adapted to receive an elbow-pipe at its lower end, said elbow projecting downward into the space within the stove, and thereby conducting the fumes from the vessel to the point where they may be engaged by the draft within the stove, substantially as shown and described.

606,553. LOOM. GEORGE F. HUTCHINS, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Jan. 10, 1898. Serial No. 666,142. (No model.)

Claim.—1. In a loom, the combination with the lay, and means for actuating the same, and a lay-sword intermediate the end lay-swords, having a curved or cam surface thereon, to be engaged by a roll or pin on a crank disk or arm, of said crank disk or arm carrying a roll or pin to engage said curved or cam surface during a portion only of the revolution of said crank, and means for supporting and revolving said crank, substantially as shown and described.

2. In a loom, the combination with the lay, and means for actuating the same, and a lay-sword intermediate the end lay-swords, having an adjustable curved or cam surface thereon, to be engaged by a roll or pin on a crank disk or arm, of said crank disk or arm carrying a roll or pin to engage said curved or cam surface during a portion only of the revolution of said crank, and means for supporting and revolving said crank, substantially as shown and described



606,554. VENTILATING VAULT-COVER. JACOB JACOBS, Brooklyn, N. Y. Filed Dec. 31, 1897. Serial No. 664,931. (No model.)



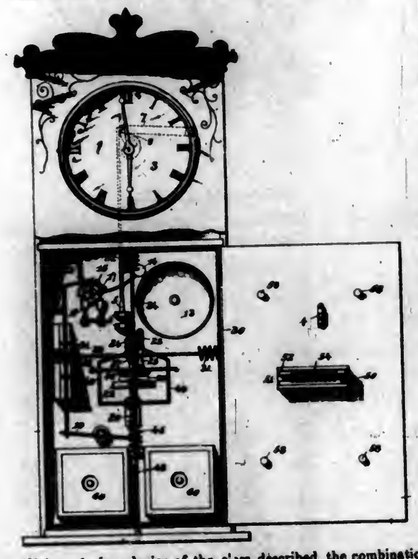
Claim.—1. In a ventilating and lighting cover, the combination of a frame formed of a ring and a series of radially-arranged bars that extend inward therefrom, between only some of which glasses are placed, no glasses being placed between the others, and inwardly-inclined plates being between the outer ends of bars between which are no glasses, and a pivoted frame over the other, having glasses adapted to be moved over and from the openings in the frame beneath, substantially as and for the purpose described.

2. In a ventilating and lighting cover, the combination of a stationary frame having a series of radially-arranged bars, between only some of which glasses are placed, said bars being extended above the surface of the glass, and a second similar frame, having bars extended downward in position to engage the upward extensions of the other frame-bars, substantially as and for the purpose described.

3. In a ventilating and lighting cover, the combination of a stationary frame having segment-shaped openings, alternate ones of which are glazed, and a pivoted frame having segment-shaped openings, alternate ones of which are glazed, and having along an edge of each glass a channel or gutter, substantially as and for the purpose described.

4. In a ventilating and lighting cover, the combination of a ring having an inwardly-projecting flange and a curb rising from the latter, a stationary frame consisting of a ring resting on said curb, and having a downwardly-extending flange surrounding the curb, and provided with glazed and unglazed openings, and a pivoted frame having glazed and unglazed openings, substantially as and for the purpose described.

606,555. SAFE-ALARM. JOSEPH F. JOHNS, Yellow Springs, Ohio. Filed Feb. 27, 1897. Serial No. 625,375. (No model.)



Claim.—1. In a device of the class described, the combination of a casing having a door, a lock provided with a bolt, a rotary cam connected with the clock mechanism, and a lever connected with the bolt and resting upon and raised by the cam and adapted to fall and actuate the bolt when released by the said cam, substantially as described.

2. In a device of the class described, the combination of a casing having a door, a hasp carried by the door, a vertically-movable bolt mounted on the casing and arranged to engage the hasp when the door is closed, and a rotary cam connected with and operated by the clock mechanism and supporting the bolt, said cam being provided at one side with a straight edge and having a curved edge extending from the inner end of the straight edge around the other side of the cam to the outer end of the straight edge, substantially as described.

3. In a device of the class described, the combination of a spring-actuated alarm having an escapement, means for holding the latter normally out of operation, a plunger connected with such means and provided with a depressible plate and adapted to actuate the said means for releasing the alarm, levers engaging the depressible plate, and means for operating the levers to depress the plate, substantially as described.

4. In a device of the class described, the combination of a casing, an alarm mechanism, a reciprocating locking-rod holding the alarm mechanism normally out of operation, a lever connected with the locking-rod, a plunger connected with the lever, and means for reciprocating the plunger to actuate the locking-rod and lift the same out of engagement with the alarm mechanism, substantially as described.

5. In a device of the class described, the combination of a casing, an alarm mechanism, means for holding the alarm mechanism normally out of operation, a spring-actuated rod arranged to engage the support upon which the safe is mounted, and connections between the rod and the means for holding the alarm mechanism out of operation, whereby the alarm mechanism will be thrown into operation when the casing is moved, substantially as described.

6. In a device of the class described, the combination of a casing, an alarm, a locking device holding the alarm normally out of operation, a reciprocating plunger connected with and adapted to release the locking device, a spring-actuated lever engaging the plunger, and an arm or rod connected with the lever and adapted to hold the same out of engagement with the plunger when the casing is in position on its support, substantially as and for the purpose described.

7. In a device of the class described, the combination of a casing, an alarm mechanism, a locking device holding the alarm mechanism normally out of operation, a spring-actuated rod connected with the locking device and adapted to disengage the same from the alarm mechanism, said rod having its outer end arranged at an opening of the casing, and a plug projecting into the said opening engaging the rod and adapted to maintain the spring in its depressed position when the casing is in its normal position, substantially as described.

8. In a device of the class described, the combination of a casing, an alarm mechanism, a locking device maintaining the alarm mechanism normally out of operation, a yieldingly-mounted lining arranged within the casing, and connections between the lining and the locking device, whereby the latter will be thrown out of engagement with the alarm mechanism should an attempt be made to perforate the casing, substantially as described.

9. In a device of the class described, the combination of a casing, an alarm mechanism, a locking device holding the alarm mechanism normally out of operation, a lining arranged within the casing, rods connected with the lining, springs secured to the casing and to the rods and yieldingly supporting the lining, and connections between the rods and the locking device whereby the latter is thrown out of engagement with the alarm mechanism when the lining is moved, substantially as described.

10. In a device of the class described, the combination of a casing, an alarm mechanism mounted in the casing, a locking device holding the alarm mechanism normally out of operation, a movable lining arranged in the casing, a plunger provided with a depressible plate and connected with the locking mechanism, rods carried by the lining, and a lever fulcrumed on a suitable support connected with the rods and arranged to engage the depressible plate, substantially as described.

11. In a device of the class described, the combination of a casing, an alarm mechanism, a locking device holding the alarm mechanism normally out of operation, a depressible plate connected with the locking mechanism, a T-shaped lever fulcrumed on a suitable support and having its arms engaging the depressible plate, whereby the latter is operated when the lever is swung in either direction or is forced downward, a movable lining, rods connected with the lining, and a yoke mounted on the rods and receiving the upper end of the lever, substantially as described.

12. In a device of the class described, the combination of a casing, an alarm mechanism, a locking device for holding the alarm mechanism out of operation, a depressible plate connected with the locking device, a lever arranged to engage the depressible plate, and a lock mounted on the door of the casing and connected with the lever, substantially as described.

13. In a device of the class described, the combination of a casing, an alarm mechanism, a locking device for holding the alarm mechanism normally out of operation, a loop connected with and adapted to disengage the locking device from the alarm mechanism when it is drawn outward, and a combination-lock provided with reciprocating bolts engaging the loops, substantially as described.

14. In a device of the class described, the combination of a casing, an alarm mechanism, a locking device for holding the alarm mechanism out of operation, a depressible plate connected with the locking mechanism, an oscillating frame provided with a loop, a lever connected with the frame and arranged to engage the depressible plate, and a lock engaging the loop, substantially as described.

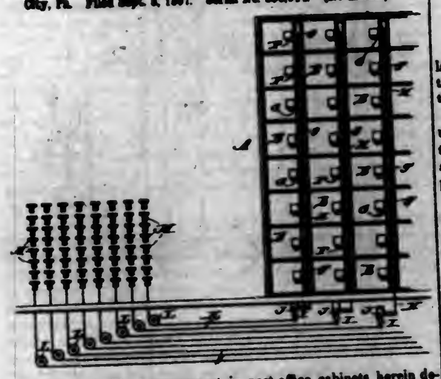
15. In a device of the class described, the combination with a casing, of a pair of reversely-reciprocating bolts mounted in the casing and extending from both sides thereof when in their locked position, said bolts being provided between their ends with teeth, a pinion interposed between the reciprocating bolts, meshing with the teeth thereof and capable of rotation in either direction to reciprocate the bolts to a locked position, a knob, and means for connecting the knob with the pinion, said means frictionally engaging one of said parts, whereby the knob is adapted to rotate the pinion sufficiently to lock the bolts and is capable of further rotation independently of the pinion, substantially as described.

16. In a device of the class described, the combination with a pair of reciprocating bolts provided with teeth, a pinion interposed between and meshing with the teeth of the bolts, a knob or stem connected with the pinion for rotating the same, and provided with a suitable index or pointer, and a stationary dial, substantially as described.

17. In a device of the class described, the combination of a casing provided with a door, an alarm mechanism mounted in the casing, a locking device for holding the alarm mechanism normally out of operation, a movable lining mounted on the inner face of the door, a plunger having a depressible plate and connected with the locking device, a lever fulcrumed on a suitable support and provided with arms extending in opposite directions and engaging the depressible plate, and connections between the door and the lever whereby the alarm mechanism will be thrown into operation when the door is drawn outward or the lining is forced inward, substantially as described.

18. In a device of the class described, the combination of a pair of reciprocating bolts provided with teeth, a pinion interposed between the bolts and meshing with the teeth thereof, the knob having a spindle loosely receiving the pinion, and a spring mounted on the spindle and engaging the pinion frictionally, substantially as described.

606,556. POST-OFFICE-BOX CABINET. JACOB C. KEITH, Elwood City, Pa. Filed Sept. 8, 1897. Serial No. 650,914. (No model.)



Claim.—1. The improvement in post-office cabinets herein described comprising the post-office-box doors, lock-bolts therefor, means by which the holders of the boxes may release the bolts, catches or seats for engagement by the bolts, a keyboard and means operated therefrom under the control of the officia) for freeing the catch and bolt from engagement, substantially as described.

2. The combination of the post-office-box door, the lock thereon having a bolt, a catch for engagement by said bolt, a keyboard, a bell-crank lever, connections between said lever and the catch, connections between the lever and the keyboard and guides for the latter connections, substantially as described.

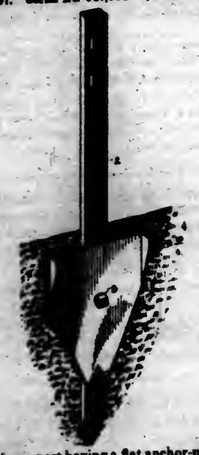
606,557. FLEXIBLE METALLIC SHEATHING FOR TUBES AND HOSES. ROBERT KNAB and MORRIS ROSENBAUM, Philadelphia, Pa. Filed Nov. 22, 1897. Serial No. 659,499. (No model.) Patented in Austria Mar. 26, 1897, No. 47/1,543; in Belgium Apr. 1, 1897, No. 127,230; in France May 28, 1897, No. 267,417, and in Canada Aug. 14, 1897, No. 57,945.



Claim.—1. The combination of a flexible article, such as a hose, rope, &c.; a sheathing composed of a series of flat wires braided or interlaced, said sheathing being secured to the finished flexible article at separated points of attachment, and being free to expand and contract between said points of attachment when the flexible article is bent, substantially as described.

2. The combination of a finished tube, a sheathing made of a series of flat wires braided into the form of a tube, said sheathing being slipped over the finished tube so as to snugly fit thereon, with means for securing the wires forming the sheathing to the tube at separated points of attachment so that the wires will have free movement between the points of attachment when the tube is bent, substantially as described.

606,558. FENCE-POST. LOUIS H. KETCHUM, Jerseyville, Ill. Filed Aug. 13, 1897. Serial No. 647,984. (No model.)



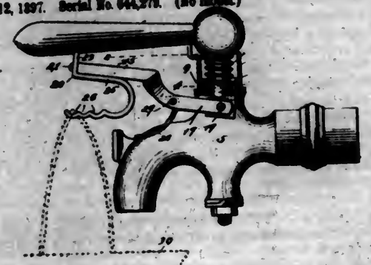
Claim.—1. A fence-post having a flat anchor-plate provided with lateral perpendicularly-disposed ears and an intermediate inclined retaining-spur, and means for detachably securing the anchor-plate to the post, substantially as specified.

2. An anchor for fence-posts consisting of a plate having lateral upstruck ears arranged approximately perpendicular to the plane of the body portion of the plate, and a lower upstruck spur arranged at an upward inclination from the plane of the body portion of the plate, substantially as specified.

3. An anchor-plate for fence-posts struck from a triangular blank and having upturned lateral angles forming bearing-ears, and an upturned terminal spur arranged at an upward inclination from the plane of the body portion of the plate, substantially as specified.

4. The herein-described fence-post provided at an intermediate point with a bolt-opening, a triangular anchor-plate arranged in contact with the post and having an alined bolt-opening, said plate being of triangular construction and having its angles upturned to form lateral bearing-ears and a lower retaining-spur, and a bolt engaging said openings to secure the anchor-plate to the post, substantially as specified.

606,559. AUTOMATIC GAGING-FAUCET. HENRY R. KNOTTERUS, St. Louis, Mo., assignor to H. C. Hess, same place. Filed July 12, 1897. Serial No. 644,279. (No model.)



Claim.—1. In a faucet, a spring-actuated valve-stem, a handle attached to said valve-stem for operating the same, a lever pivotally attached to the faucet and engaging said handle, a spring attached to said lever and engaging the faucet and a hook upon said lever, substantially as specified.

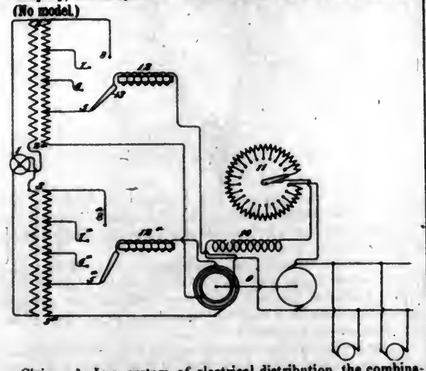
2. In combination with a faucet having a spring-actuated valve-stem, a handle secured to the upper end of the valve-stem for operating the same, a lever pivotally attached to the faucet, a spring secured to said lever and engaging the faucet as required to hold the free end of the lever yieldingly in engagement with the handle, and a hook attached to the outer end of the lever, the upper end of which hook is constructed to engage the faucet-handle, substantially as specified.

3. In combination with a faucet having a spring-actuated valve-stem, an operating-handle attached to the upper end of said valve-

stem, a spring-actuated lever pivoted to the faucet, a hook fixed to the end of the lever, in the upturned end of which is formed a recess for receiving the faucet-handle, and an ear formed integral with the side of the hook.

4. A faucet constructed with a spring-actuated valve-stem, a handle secured to the upper end of said valve-stem, a pin projecting downwardly from said handle, a lever pivoted to the faucet, in the outer top end of which is formed a series of notches, and said lever being provided with a recess to receive the lower end of the pin and a spring secured to the faucet and normally elevating the outer end of the lever, substantially as specified.

606,560. REGULATION OF ROTARY-TRANSFORMER DIRECT-CURRENT ELECTROMOTIVE FORCE. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Feb. 10, 1898. Serial No. 669,847. (No model.)



Claim.—1. In a system of electrical distribution, the combination with a stationary transformer having means for varying the electromotive force supplied by its secondary, of a rotary transformer receiving current from said transformer secondary, one or more choke-coils, means for connecting the same in said secondary circuit and means for varying the field-magnet excitation of the rotary transformer, whereby a wide variation of potential at the direct-current terminals may be secured.

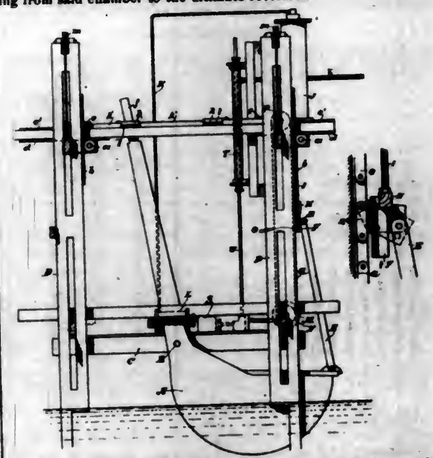
2. In a system of electrical distribution, the combination with a stationary transformer having means for varying the electromotive force supplied by its secondary, of a rotary transformer receiving current from said transformer secondary, one or more direct-current motors receiving current from said rotary transformer, one or more choke-coils, means for including the same in the alternating-current circuit and means for varying the field-magnet excitation of the rotary transformer whereby the speed of the direct-current motor or motors may be varied within wide limits.

3 In a system of electrical distribution, the combination with a stationary transformer provided with means for varying the active length of its secondary winding, of a rotary transformer, one or more direct-current motors, a choke-coil arranged to be connected with any active length of the stationary transformer secondary and means for varying the excitation of the rotary-transformer field-magnet, substantially as and for the purpose set forth.

606,561. AIR-COMPRESSING WAVE-MOTOR. JOHN H. LEONARD, Leonard Station, Cal. Filed June 18, 1897. Serial No. 641,246. (No model.)

Claim.—1. In a wave-motor, a float hinged or journaled at one end to a vertically-adjustable framework and having the other end free to move up and down by the action of the tide, air-compressing cylinders situated in line above the movable end of the float, guides and slides with which the piston-rods are connected and a pitman connecting the slide directly with the float, other compressing-cylinders situated upon the movable frame, having pistons, slides and connecting-rods uniting the cylinder-pistons with crank-wheels journaled upon the movable frame, sprocket-wheels, a chain passing between said sprocket-wheel and the corresponding one situated in line above, so that the chain travels between the guides of the cross-head of the first-named cylinders, a pawl actuated by the movement of said cross-head and pitman so as to engage the chain and advance it at each reciprocation whereby the crank-wheels are rotated intermittently and the pistons move within the cylinders, and pipes connecting the preliminary compression-cylinders with the supplemental ones whereby they operate in unison.

2. In a wave-motor, a float hinged at one end to a frame vertically adjustable in a permanently-fixed framework, said float having its outer end movable about its hinge or journal-point, cylinders situated respectively above the movable end of the float and horizontally upon the movable framework, a cross-head and slide connecting the piston-rods of the first-named cylinders, and a pitman to the movable end of the float, a chain passing around sprocket-wheels, one of which is fixed upon the crank-shaft through which motion is imparted to the pistons of the second supplemental cylinders, a pawl movable by the reciprocation of the pitman, and the end of the float adapted to engage the sprocket-chain and advance it intermittently whereby pistons of both cylinders are actuated, pipes connecting the vertical and the horizontal cylinders whereby the air compressed in the first cylinders is delivered to be further compressed by the second cylinders, a receiver into which the air from said cylinders is delivered, a vertically-disposed chamber fixed upon the permanent frame and a pipe slidable through stuffing-boxes at opposite ends of said chamber, said pipe having openings made through its sides within the chamber and connected with the compression-cylinders so that the air is delivered from said cylinders into a chamber, and a fixed conveying-pipe leading from said chamber to the ultimate receivers.



3. In a wave-motor, a fixed framework, a vertically-movable framework guided and slidable therein, with a float fulcrumed to it at one end having the other end free to rise and fall by the action of the waves, lever-arms extending upwardly from opposite sides of the float, shafts journaled across the ends of the movable frame having pinions which engage with vertically-disposed rack-bars upon the fixed frame, pinions fixed upon said shafts and engaged by rack-bars slidable upon the movable frame, slides movable in guides parallel with the rack-bars having locking-pawls which engage teeth upon the upper sides of the rack-bars, said slides standing in line with the levers projecting upwardly from the float so that said levers will contact with the slides at one end or the other whenever the rise or fall in the tide correspondingly raises or depresses the float about its fulcrum-point, and mechanism whereby the movement of said slides acts through the rack-bars to rotate the shafts and raise or depress the movable frame in unison with the rise or fall of the tide.

4. In a wave-motor, a float having one end hinged to a vertically-movable frame and levers extending upwardly from the fulcrumed or hinged end of the float, slides lying in the path of the oscillation of said levers, rack-bars extending parallel with the line of movement of said slides, pawls fixed to the slides and adapted to engage the upper surfaces of the rack-bars whereby the latter are retained in position until the oscillating arms strike those at either one end or the other of its oscillation, inclined surfaces upon the slides whereby when such contact of the oscillating levers takes place the latching-pawls will be disengaged from the rack-bars and other pawls engaged therewith so as to move the rack-bars, teeth upon the lower sides of the rack-bars engaging pinions upon shafts journaled across opposite ends of the movable frame, other pinions upon said shafts engaging vertical racks upon the fixed frame whereby the movements of the slides and rack-bars act to rotate the shaft and pinions so as to raise or depress the movable frame automatically and in unison with the rise and fall of the tide.

5. In a wave-motor, a float hinged or fulcrumed at one end to a vertically-movable frame, with the other end free to rise and fall, lever arms extending upwardly from the hinged end of said float and

movable with the oscillations of the float about its fulcrum-point, rack-bars connected through pinions upon shafts journaled across the ends of the movable frame, with vertically-disposed rack-bars upon a stationary frame within which the first-named frame may be raised or depressed, rack-teeth upon the top of said bars, slidable bars parallel with the rack-bars having spring-pressed pawls by which the slides are normally engaged with the rack-bars, said slides having their adjacent ends in the line of oscillation of the float-carried levers, whereby the rise or fall of the tide will cause the levers to contact with the slides at either one end or the other of their stroke, inclines upon said slides which are moved beneath the holding-pawls to disengage them when the slides are first struck by the levers, other pawls carried by the slides and adapted to engage and move the rack-bars after the disengagement of the holding-pawls whereby the rack-bars are caused to operate the pinions and raise or depress the movable frame in unison with the rise or fall of the tide.

6. In a wave-motor, a float fulcrumed at one end to a vertically-movable frame, a stationary guide-frame, levers projecting upwardly from the hinged or fulcrumed end of the float, slides movable horizontally having their inner ends in the line of travel of the oscillating levers adapted to make contact therewith when the rise or fall of the tide causes the levers to swing a sufficient distance at either end of their travel, slidable rack-bars engaging pinions upon shafts journaled across the opposite ends of the movable frame, other pinions upon the same shaft engaging vertical rack-bars upon the fixed frame, whereby the rotation of said shafts and pinions acts to raise or depress the movable frame with relation to the fixed frame and the surface of the water, holding-pawls fixed upon the slides and engaging teeth upon the upper sides of the rack-bars whereby the latter are prevented from movement while the levers do not contact with the slides, inclined surfaces upon the slides which act to disengage the holding-pawls from the rack-bars when the slides are first moved by contact with the levers, other pawls adapted to engage the teeth of the rack-bar so as to engage it in unison with the movement of the slides, and hinged latches adapted to swing in behind the float-carried levers when the latter have commenced to move the slides, whereby the slides are withdrawn when the return movements of the levers take place.

7. In a wave-motor, a float hinged at one end and having the free end capable of vertical motion by the action of the waves or swell, main pumps having pistons and piston-rods connecting directly with the movable end of the float whereby the pumps are utilized to compress air, supplemental pumps into which the partially-compressed air from the main pumps is delivered wherein the air is further compressed, a cooling-receiver through which the compressed air is passed, a transfer-chamber upon the fixed frame, a pipe passing through stuffing-boxes therein adapted to rise and fall with the movable float-carrying frame, said pipe having openings discharging into the fixed chamber and a pipe discharging from the fixed chamber to supplemental receivers.

8. In a wave-motor, a float hinged at one end to a vertically-movable frame with the other end free to be actuated by the rise and fall of the tide, main air-compressing pumps with pistons and piston-rods connected directly with the movable end of the float, supplemental compressing pumps and pipes whereby the air is led from the main pump thereto and is further compressed, a cooling-chamber through which the air is passed from the supplemental pumps, a pipe leading therefrom and passing through stuffing-boxes at upper and lower ends of a permanently-fixed chamber whereby the pipe connected with the movable float-carrying frame is slidable within the main chamber without severing connection therewith, openings formed in the pipe interior to the chamber whereby the air may pass from the pipe to the chamber, a fixed pipe leading from the chamber to supplemental receivers, said receivers being arranged in series and provided with intermediate balanced pressure-valves.

9. The combination in a wave-motor of a rising-and-falling float with a plurality of air compressing pumps, means for transferring the compressed air therefrom to permanent receivers, balanced valves interposed in the passages between the receivers, springs pressing upon said valves to close them against the passage of air from one receiver to another until the pressure in the first receiver has reached the desired tension, the valves being opened by any surplus pressure so as to equalize the tension between the adjacent receivers.

10. A series of receivers adapted to contain compressed air, passages and valves through which the air is transferred from the first to the last of the series, said valves having a spring-pressure whereby they are kept closed until the tension within the first receiver has reached the required degree, balancing devices into which the air-pressure from the following receiver is admitted so that only the tension of the spring must be overcome in opening the valve for the transmission of air from one receiver to the next following.

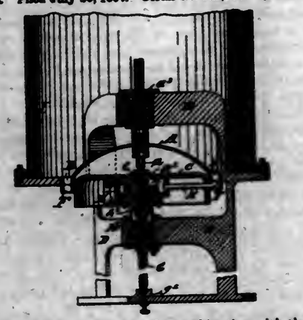
11. The combination of a series of tanks, and means for supplying the first of said tanks with compressed air, and pressure-valves interposed between successive members of the series arranged to be opened when the compressed air on one side of the valves has attained a definite pressure and admit air therethrough, whereby said tanks may be filled in succession by compressed air, substantially as described.

606,562. PUSH-BUTTON. FREDERICK J. LISK, Chelsea, Mass. Filed Nov. 5, 1897. Serial No. 657,494. (No model.)



Claim.—A circuit-closer consisting of an escutcheon provided on its inner face with a chamber *b* and a cross-bar *c*, forming a contact-point, a push-button extending through the escutcheon and having its inner end broadened or formed into a disk, the wire forming the other electrode being coiled around and upon the said disk.

606,568. ROTARY MOTOR. CONRAD F. G. LOHMANN, Northcote, Victoria. Filed July 29, 1897. Serial No. 646,364. (No model.)



Claim.—1. In a rotary motor the combination with the frame of a rotatable disk journaled therein having inclined radial blades around its periphery, a complemental rotatable disk independently journaled in said frame having radial blades around its periphery inclined oppositely to the blades on said first-named disk and having recessed delivery-ports therein, an annular chamber provided on the outer face of said complemental disk having an inlet for the motive fluid, pipes connecting said chamber with the delivery-ports of said radial blades, and a chimney encircling the disks and extending upward therefrom and closed at its lower end to communication with the outer air except through the spaces between the two sets of blades, substantially as described.

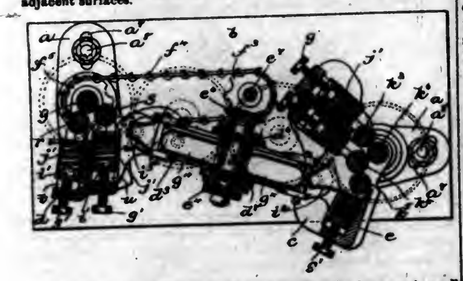
2. In a rotary motor, the combination with the frame of two shafts independently mounted therein in line with each other, means for vertically adjusting said shafts, a rotatable disk carried by each shaft having radial inclined blades around its periphery, one of said disks being located beneath the other in operative relation thereto and having its blades oppositely inclined from the blades of the upper disk and provided with recessed delivery-ports, an annular chamber provided on the outer face of the lower disk having an inlet for the motive fluid, pipes connecting said chamber with the delivery-ports of said radial blades, and a chimney encircling the upper disk and extending upward therefrom and closed at its lower end to communication with the outer air except through the spaces between the two sets of blades, substantially as described.

606,564. APPARATUS FOR DRAWING OFF IN CIRCLE-COMBS. ALBERT LOSS and ROBERT FOSTER, Lawrence, Mass. Filed Oct. 8, 1897. Serial No. 654,497. (No model.)

Claim.—1. In a circle-comb, the combination with the toothed circles and means for operating them, of a set of three or more smooth-surfaced drawing-off rolls adapted to engage the wool between their adjacent surfaces, and means for positively and continuously driving said rolls.

2. In a circle-comb, a drawing-off device comprising a smooth-surfaced roll, two other smooth-surfaced rolls coacting with the first roll at separate points to engage the wool, and means for positively and continuously driving said rolls.

3. In a circle-comb, a drawing-off device comprising a driving-shaft carrying a smooth-surfaced roll and a gear, means for continuously rotating said shaft, and two other smooth-surfaced rolls provided with gears on their shafts meshing with the gear on the driving-shaft, the rolls being adapted to engage the wool between their adjacent surfaces.



4. In a circle comb, the combination with the large and small toothed circles and means for operating them, of a series of smooth-surfaced drawing-off rolls adjacent to the large circle and adapted to engage and draw off the wool therefrom between their adjacent surfaces, means for positively and continuously driving said rolls, a series of smooth-surfaced drawing-off rolls adjacent to the small circle and adapted to engage and draw off the wool therefrom between their adjacent surfaces and to combine it with a sliver from the large circle to form a single sliver, means for positively and continuously driving said rolls, and means for guiding the sliver from the drawing-off rolls of the large circle to those of the small circle.

5. In a circle-comb, the combination with the toothed circles and means for operating them, of drawing-off devices adjacent to the respective circles, means for operating said devices, and intermediate means for guiding and advancing a sliver from one set of drawing-off devices to the other, the said means comprising a set of coacting smooth-surfaced rolls adapted to engage the wool between their adjacent surfaces, and means for positively driving said rolls.

6. In a circle-comb, drawing-off devices adjacent to the large and small toothed circles, coacting rolls adapted to guide and advance a sliver from the drawing off devices of one circle to those of the other, and stationary devices for supporting and guiding the sliver between said rolls and the drawing-off devices.

7. In a circular wool-combing machine, the combination with the large and small circles of drawing-off devices adjacent to each circle, and means for conducting a sliver from the drawing-off devices of the large circle to those of the small circle, the said means comprising a set of coacting smooth-surfaced rolls, guiding troughs or conduits on either side of said rolls, and funnel shaped guides at opposite ends of said troughs.

8. In a drawing-off device for a circle-comb, the combination of a drawing-roll and bearings therefor, a frame, a carrier provided with bearings fixed thereto, a roll journaled in said bearings, a connection between the frame and carrier to permit the latter to slide but prevent tilting thereof in the former, and means for sliding the carrier in the frame, whereby the parallel relation of the rolls is not changed as they are moved toward or away from each other.

9. In a circular wool-combing machine, two drawing-heads having smooth-surfaced drawing-off rolls, and an intermediate guiding mechanism comprising a frame adjustably mounted between and carried by said drawing-heads and suitable guiding devices on said frame adapted to guide a sliver from the rolls of one drawing-head to the rolls of the other.

10. In a circle-comb, a drawing-off device comprising a driving-shaft provided with a gear and carrying a smooth-surfaced drawing-roll, a frame or head pivotally embracing said shaft, solid frames or carriers mounted to slide in guides on said head, smooth-surfaced drawing-rolls supported in bearings on said frames and having gears mounted on their shafts and meshing with the gear on the driving-shaft, and springs interposed between the sliding carriers and the heads and operating to yieldingly actuate the carriers and their rolls toward the roll on the driving-shaft.

11. In a circle-comb, two drawing-heads provided with drawing-rolls and shafts for driving said rolls, intermediate rolls supported between said heads for guiding and advancing a sliver from one head to the other, and a sprocket-and-chain device connected with one of the driving-shafts and with said intermediate rolls, for driving the latter.

12. In a circular wool-combing machine, in combination, two independent linearly and pivotally adjustable drawing-heads having drawing-off rolls, vertical shafts for driving said rolls, an intermediate frame adjustably supported on said drawing-heads, conducting-rolls mounted on said frame for conducting a sliver from one drawing-head to the other, a sprocket-and-chain device for driving said conducting-rolls from one of the vertical shafts, a roller carried by the frame and an adjustable cam-plate cooperating with said roller to adjust said sprocket-and-chain device.

13. In a drawing-off device for a circle-comb, the combination of a drawing-roll, and bearings therefor, a frame, a carrier provided with bearings fixed thereto, a roll journaled in said bearings, a connection between the frame and carrier to permit the carrier to slide but prevent tilting thereof in the frame, and a yielding adjusting means for sliding the carrier in the frame.

14. In a drawing-off device for a circle-comb, the combination of a drawing-roll and bearings therefor, a frame, a carrier provided with bearings fixed thereto and mounted in said frame, a roll journaled in the said bearings on the carrier, a guiding connection between the frame and carrier to permit the latter to slide but prevent tilting thereof in the former, and a single set-screw for sliding the carrier in the frame.

15. The combination of the drawing-heads and drawing-off rolls, of a frame supported between said heads, conducting-rolls mounted on said frame, and means for driving the conducting-rolls from the drawing-rolls.

16. In a circle-comb, the combination of the drawing-heads and drawing-rolls, of a frame adjustably mounted between said heads, conducting-rolls mounted on said frame, and means for driving the conducting-rolls from the drawing-rolls including a sprocket-and-chain connection and means for adjusting the frame between the drawing-heads.

17. In a circle-comb, the combination of the drawing-heads and sets of drawing-rolls, of a frame, supports between said heads, conducting-rolls carried by said frame, and means including a sprocket-and-chain connection for driving the conducting-rolls from the drawing-rolls, a roller on the frame and a cam-plate adjustably mounted on one of the drawing-heads whereby to adjust the frame toward and away from one set of drawing-rolls and thereby adjust the sprocket-and-chain connection.

18. In a circle-comb, the combination of the drawing-heads and sets of drawing-rolls, of a stationary guide for supporting the sliver between the sets of drawing-rolls.

19. In a circle-comb, the combination of the drawing-heads and sets of rolls, of a stationary guide for supporting the sliver between the sets of drawing-rolls, and means at the end of the stationary guide for leading the sliver from the drawing-rolls to said guide.

20. In a circle-comb, the combination of the drawing-heads and sets of drawing-rolls, of a stationary guide for supporting the sliver between the sets of drawing-rolls, and trumpets pivotally mounted at the ends of the guide for leading the sliver from the first set of drawing-rolls to the guide and from the guide to the second set of drawing-rolls.

606,565. PESSARY. ANNA M. LOCKWOOD-POTTS, London, England, assignor of one-half to George Edward Harrison, same place. Filed Dec. 2, 1897. Serial No. 660,908. (No model.) Patented in England Nov. 12, 1896, No. 25,473.



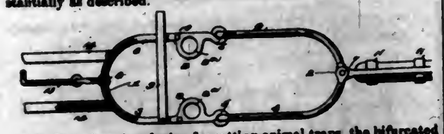
Claim.—1. In a pessary, the combination with the neck of the cup having its end screw-threaded and provided with a bore angular in cross-section, of a stem having its inner end of a shape corresponding to that of the bore of the neck, a spring in the bore of the neck and having one end secured to the stem, and a screw-cap on the end of the neck and through which the stem loosely slides, substantially as described.

2. In a pessary, the combination with the neck of the cup having its end screw-threaded and provided with a bore square in cross-section, of a stem having a square head fitting in the bore of the neck and provided with a reduced extension beyond the head, a spring in the bore of the neck and having one end secured to the extension of the stem, and a screw-cap on the end of the neck and through which the stem loosely slides, substantially as herein shown and described.

606,566. DEVICE FOR SETTING ANIMAL-TRAPS. DAVE LUTZ, Cleveland, Miss. Filed Aug. 11, 1897. Serial No. 647,261. (No model.)

Claim.—1. In a device or clamp for setting animal-traps, the pivotally-connected clamping-arms arranged in pairs to stride the trap-jaws and pivotally connected to permit their adjustment to different-sized traps, substantially as described.

2. The combination in a device for setting animal-traps, of the clamping-arms forked to stride the trap and pivotally connected, one of said clamping-forks being provided with a seat for the trap, and means for connecting and holding the free ends of said arms, substantially as described.



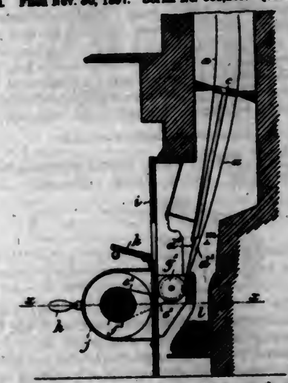
3. In a clamping device for setting animal-traps, the bifurcated and pivotally-connected arms thereof, each having the arms of its fork pivotally connected for permitting their adjustment, in combination with means for connecting and holding the free ends of said arms, substantially as described.

4. The combination in a device for setting animal-traps, of the pivotally-connected and adjustable clamping-arms arranged in pairs and adapted to be adjusted to different-sized traps, and the handle extensions of said arms, substantially as described.

5. The combination in a trap-setting clamp, of the forked arms pivotally connected at their adjacent ends, and means for adjustably connecting said arms, one with the other, substantially as described.

6. In a clamping device for setting animal-traps, the forked and pivotally-connected arms thereof, each having the arms of its fork pivotally connected to permit their adjustment, in combination with means for adjustably connecting and holding the free ends of said arms, one of the clamping-forks being provided with a seat for the trap, and a pivoted cross-bar for supporting the treadle-bar of the trap, substantially as described.

606,567. CHIMNEY-CLEANER. ABBIE MERRIMAN, Saltburn, England. Filed Nov. 30, 1897. Serial No. 660,275. (No model.)



Claim.—In a machine for sweeping chimneys, the combination of a flat plate adapted to fit a fireplace and provided with a door, a casing attached to said plate, an operating-handle supported thereon, a drum journaled in said casing, guide-pulleys also journaled in said casing, a guide-pulley fastened to the top of the chimney, a rope or chain with its ends wound in opposite directions on said drum and passing over said guide-pulleys and a brush attached by its handle to said rope or chain, substantially as described.

606,568. CARRIAGE-CLOCK. HARRY W. MITCHELL, Pueblo, Colo. Filed June 30, 1897. Serial No. 642,956. (No model.)



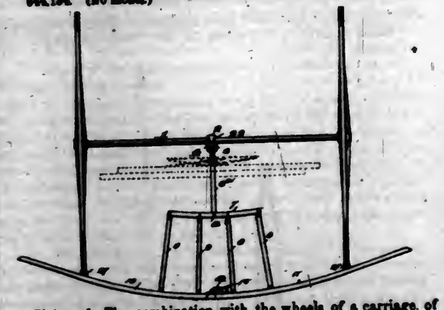
Claim.—1. The combination of the slotted holder having a pocket, and side flanges and a cover, substantially as described, and secured to the dashboard or curtain of a vehicle over a hole therein; with a timepiece set in said holder, face inward, a screw or stud secured to the timepiece engaging a slot in the holder, and a spring or springs to prevent rattling of the timepiece in the holder, substantially as and for the purpose described.

2. The combination of the dashboard or curtain provided with a hole or sight-opening, a holder fastened to the outside of the dashboard or curtain over said hole; and a cover hinged to the holder; with a timepiece secured in said pocket, and the springs E, E, interposed between the timepiece and back of pocket all substantially as and for the purpose described.

3. The combination of the dashboard or curtain provided with a hole or sight-opening, and a holder fastened to the outside of the dashboard or curtain over said hole and provided with a slot as D; with a timepiece secured in said pocket, and screws or studs *d* and *d'* on the back of the timepiece engaged in the slot D, and the springs E, E, interposed between the timepiece and back of pocket, all substantially as and for the purpose set forth.

4. The herein-described holder, or watchcase, for the purpose described, consisting of a case having a pocket A open at front and closed at top by a cover C; side flanges as B for the engagement of fastening devices; vertical slot as D, and curved lower end *d'*, with the opening *a*, all substantially as and for the purpose described.

606,569. ROCKER ATTACHMENT FOR BABY-CARRIAGES. GEORGE L. MORGAN, Kokomo, Colo. Filed July 10, 1897. Serial No. 644,154. (No model.)



Claim.—1. The combination with the wheels of a carriage, of folding rockers and means for securing said rockers to said wheels for converting the carriage into a cradle, substantially as set forth.

2. The combination with the wheels of a carriage, of folding rockers, and clamps for securing said rockers to said wheels for converting the carriage into a cradle, substantially as set forth.

3. The combination with the wheels of a carriage, of folding rockers, means for securing said rockers to said wheels, and means for holding said rockers in folded position, as set forth.

4. The combination of a carriage, sectional rockers secured thereto and adapted to be positioned beneath the wheels for converting the carriage into a cradle, and means for securing the rockers in said position, substantially as set forth.

5. The combination of a carriage, sectional rockers pivoted to the axle thereof and adapted to be folded when not in use, and means for uniting the sections of said rockers when desired for use, substantially as set forth.

6. The combination of a carriage, an arm pivoted to the axle thereof, a transversely-extending arm pivoted thereto, links pivoted at one end to said transversely-extending arms, rocker-sections to which the opposite ends of the links are pivoted, and means for uniting the said rocker-sections, substantially as set forth.

7. The combination of a carriage, a clamp for attachment to the axle thereof, an arm pivoted at one end to said clamp, a transversely-extending arm pivoted to the opposite end of said arm, links pivoted at one end to said transversely-extending arm, rocker-sections to which the opposite ends of the links are pivoted, a latch pivoted to one of the rocker-sections and adapted to engage the opposite section for uniting them, and means for attaching said rockers to the wheels of the vehicle, substantially as set forth.

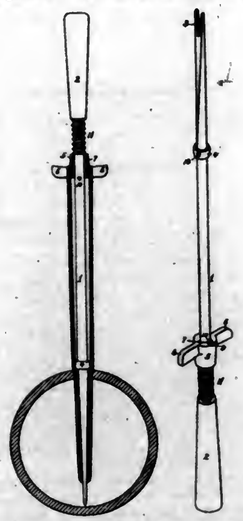
8. The combination of a carriage, clamping members secured to the axle thereof, an arm pivoted to the clamping member, a transversely-extending arm pivoted to the opposite end of said arm, links pivoted at one end to the transversely-extending arm rocker-sections to which the opposite ends of the links are pivoted, a casing carried by one of said sections and provided with a slot through its top wall, a projection carried by the opposite section and adapted to extend within the casing, a dog pivoted to said section and adapted at one end to extend through the vertical slot of the casing, means for holding the dog in said position, and clamps carried by the rocker-section for engaging the wheels of the vehicle, substantially as set forth.

9. The combination of a carriage, a clamp composed of two members adapted to embrace the axle and be secured together, one of said members having its ends bifurcated, an arm pivoted in said bifurcated end, a transversely-extending arm secured to the opposite end of said pivoted arm, links pivoted at one end of said transversely-extending arms, rocker-sections to which the opposite ends of the links are pivoted, means for uniting said sections, clamps carried by the rocker-

sections to engage the wheels of the vehicle, a spring secured to one of the clamping members and extending to the opposite side of the axle, said spring provided with a handle portion and formed with notches, and a pin carried by the upper end of the pivoted arm for engaging the notches, whereby the rocker is held in position, substantially as set forth.

10. The combination of a carriage, a clamp adapted to be secured to the axle thereof, an arm pivoted to said clamp, a transversely-extending arm secured to said pivoted arm, links secured at one end to said transversely-extending arm, rocker-sections, each section being tubular are provided with a longitudinal slot having notches in opposite sides thereof, clamps of the same contour as the rocker-section and having contractible portions, said clamps adapted to be positioned within the tubular rocker and by the expansion of its contractible portions to engage the notches thereof, the opposite ends of the links being pivoted to these clamps, means for uniting the rocker-sections, and clamps carried by the rocker-section for engaging the wheels of the vehicle to secure the rocker in position, substantially as set forth.

606,570. PUNCTURE-REPAIR NEEDLE. EDWIN P. MCALLISTER, Clifton Heights, Pa. Filed July 22, 1897. Serial No. 645,518. (No model.)



Claim.—1. A puncture-repair needle comprising a stem constructed at the inner end for entering the puncture in the tube and having, some distance from said inner end, a stop knob or collar, in combination with a winged sleeve adapted to slide on the stem of the needle, and means for retaining said winged sleeve in its retracted position.

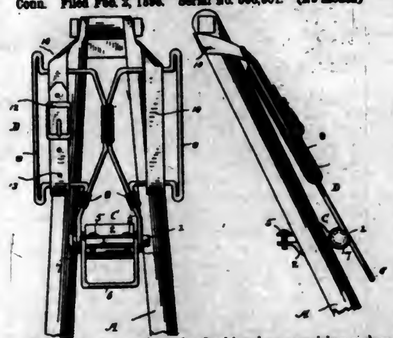
2. A puncture-repair needle consisting of a stem having a flattened and notched inner end, a stop knob or collar some distance therefrom, a winged sleeve free to slide on said stem, and provision for retaining said winged sleeve in its retracted position.

3. A puncture-repair needle consisting of a stem constructed at the inner end for entering the puncture in the tube and for receiving and retaining a rubber band or bands, a winged sleeve free to slide on said stem and having a longitudinal slot or groove therethrough, and a lug or pin projecting from the stem and serving by engagement with the inner end of the sleeve to retain the same in its retracted position, or, when brought into line with the groove, permitting the forward movement of the sleeve.

4. A puncture-repair needle consisting of a stem constructed at the inner end for entering the puncture in the tube, and for receiving and retaining a rubber band or bands, a winged sleeve free to slide on said stem and having a longitudinal slot or groove therethrough, and a notch in its inner end, and a pin or lug projecting from the stem and adapted to occupy the notch in the sleeve when the same is retracted, and to permit the forward movement of the sleeve when its slot or groove is brought into line with the pin.

5. A puncture-repair needle consisting of a stem constructed at the inner end for entering the puncture in the tube and for the reception and retention of a rubber band or bands, a winged sleeve free to slide on said stem and having a longitudinal slot or groove therethrough, a pin or lug projecting from said stem and serving by its contact with the inner end of the sleeve to retain the same in its retracted position, and a spring acting upon said sleeve and serving to press the same against said lug or pin.

606,571. PARCEL-CARRIER. DANIEL J. MCCARTHY, Ansonia, Conn. Filed Feb. 2, 1898. Serial No. 668,801. (No model.)



Claim.—1. A parcel-carrier for bicycles comprising a clamp provided with a stud 1, means for securing said clamp in place and a shelf or bracket formed from a single blank of wire pivoted on said stud and provided with a loop 6 formed from the mid-length of the blank which serves as a stop to limit the downward movement of the shelf or bracket when moved to operative position, said shelf or bracket being adapted to be folded up against the bicycle-fork when not in use.

2. The combination with clamp C consisting of upper and lower arms, a spring, a stud 1 and screws by which the stud is locked between the arms and the clamp is secured in place, of a shelf or bracket pivoted on said stud and provided with a loop 6 which engages the clamp to limit the downward movement of the shelf or bracket and straps by which parcels are held upon the shelf or bracket and the latter is held against the bicycle-fork when not in use.

606,572. PIPE-WRENCH. JAMES H. MCDONALD, Evansville, Ind. Filed Nov. 4, 1897. Serial No. 657,333. (No model.)



Claim.—1. An improved pipe-wrench consisting of a ratcheted bar having a fixed jaw, a stirrup loosely mounted on said bar, having its legs extending below the under edge of said bar, a block or dog pivotally mounted between said arms, free to rock and having a tooth or pawl at the upper angle of its top and rear side and normally out of engagement with the toothed or serrated under edge of the bar, and with the cross-bar of the stirrup resting on the upper edge of the bar said dog or block and the legs of the stirrup adapted to move backward upon the initial contact with the pipe whereby the tooth or pawl is forced into contact with the serrated surface of the bar and the cross-bar of the stirrup is raised above the upper edge of the bar.

2. In a wrench and in combination with a ratcheted bar having a fixed jaw, a pivoted jaw having a tooth or pawl and a gripping-face made smooth and declining downwardly, a stirrup straddling the bar and having spaced legs between which the pivoted jaw is mounted and free to rock, said stirrup normally resting directly on the upper edge of the ratcheted bar to maintain the pivoted jaw normally out of contact with the ratchet-surface of said bar, the legs of the stirrup and the pivoted jaw moving rearward upon the initial contact with the object to be gripped whereby the tooth or pawl of the pivoted jaw is thrown into contact with the ratchet-surface of the bar and the stirrup is raised to elevate its cross-bar above the upper edge of the ratcheted bar.

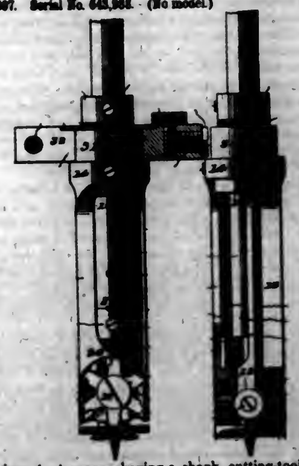
606,573. WITHDRAWN.

606,574. WOOD BLOCK FOR PAVING. JAMES NIGHTINGALE, New York, N. Y. Filed Apr. 6, 1897. Serial No. 630,998. (No model.)

Claim.—A wood block for floors having rabbeted sides, and angular rabbets underneath and back of the rabbeted sides, and having also tongues at the ends adapted to be fitted to the rabbeted sides, and having also angular rabbets at the ends underneath and back of the tongues, substantially as described.



606,575. AUGER. ASARIAH V. PEARL, Lebanon, Mo. Filed July 9, 1897. Serial No. 643,964. (No model.)



Claim.—1. An auger having a shank, cutting-tools operatively connected with for actuation by the shank, to form an angular bore, and a non-rotatable guide-frame having spaced alined bearings in which the shank is mounted, said frame corresponding in cross-sectional area and contour with the exterior contour or periphery of the cutting-tools, to fit snugly in the bore formed thereby, substantially as specified.

2. An auger having a bit-carrying shank, a non-rotatable guide-frame having spaced alined bearings in which said shank is mounted, and having cut-away sides forming discharge-openings, and side cutters mounted upon said frame and operatively connected with the shank, the upwardly-moving sides of said side cutters being arranged contiguous to the openings in the frame, substantially as specified.

3. An auger having a bit-carrying shank, a non-rotatable guide-frame having spaced alined bearings in which said shank is mounted, and having cut-away sides forming discharge-openings, side cutters mounted upon said frame and operatively connected with the shank, the upwardly-moving sides of said side cutters being arranged contiguous to the openings in the frame, and chip-deflecting fingers or projections on the guide-frame arranged terminally contiguous to the peripheries of the side cutters, substantially as specified.

4. An auger having a bit-carrying shank, a guide-frame provided with upper and lower spaced alined bearings in which the shank is mounted, and also provided with parallel diagonally opposite cross-sectionally angular arms, and side cutters mounted upon the sides of the frame and operatively connected with the shank, downwardly-moving sides of the side cutters being arranged in the paths, respectively, of said cross-sectionally angular arms of the frame, whereby said arms fit in the angles of the bore formed by the auger, substantially as specified.

5. An auger having a bit-carrying shank, a guide-frame having upper and lower alined bearings in which the shank is mounted, said frame comprising a diametrically elongated block arranged contiguous to and above the plane of the bit, parallel guide-arms arranged at the diametrically opposite angles of the block, and a collar connecting the upper extremities of the arms, and side cutters revolubly mounted upon the guide-block, parallel with its side surfaces and flush with the outsides of said arms and operatively connected with the shank, substantially as specified.

6. An auger having a rotatable bit-carrying shank, a non-rotatable frame having bearings in which said shank is mounted, and including a guide-block, side cutters mounted upon the guide-block and operatively connected with the shank, and diametrically opposite fin-removing disks removably mounted upon the frame with their axes perpendicular to the plane of the axes of the side cutters and with their faces flush with the contiguous outer surfaces of the guide-block, substantially as specified.

7. An auger having a rotatable bit-carrying shank, a non-rotatable frame having bearings in which said shank is mounted, and including a guide-block, diametrically opposite side cutters mounted upon the guide-block and operatively connected with the shank, and diametrically opposite fin-removing disks removably mounted upon the frame with their axes perpendicular to the plane of the axes of the side cutters, and with their outer faces flush with the contiguous surfaces of the guide-block, substantially as specified.

8. An auger having a rotatable bit-carrying shank, a frame provided with upper and lower bearings in which said shank is mounted, and including a diametrically elongated guide-block, side cutters mounted upon opposite sides of said guide-block and operatively connected with the shank, the sides of the frame between the planes of the inner surfaces of the side cutters being channeled to form grooves of which the floors correspond in cross-sectional contour with the periphery of the bit carried by the shank, and fin-removing disks countersunk in the ends of the guide-block with their outer faces flush with the contiguous surfaces thereof, substantially as specified.

9. An auger having a rotatable bit-carrying shank, a non-rotatable frame having bearings in which the shank is mounted and arranged to receive the downward thrust of the shank, said frame having at its upper end a collar and at its lower end a guide-block, connected by spaced cross-sectionally angular guide-arms, a collar on the shank to communicate thrust therefrom to said collar, side cutters mounted upon the guide-block, with their outer sides flush with the guide-arms and a spider or propeller for communicating motion from the shank to the side cutters, said spider having a sleeve fitted upon the shank and bearing terminally upon the upper side of the guide-block, substantially as specified.

10. An auger having a rotatable bit-carrying shank, a non-rotatable cross-sectionally angular frame in which the shank is mounted, said shank being provided with upper and lower means for bearing downwardly upon the frame to impart axial thrust thereto, and side cutters mounted upon the frame flush at their outer sides with the surface of the frame and operatively connected with the shank, substantially as specified.

11. An auger having a rotatable bit-carrying shank, a non-rotatable frame having bearings in which the shank is mounted, said which is adapted to receive axial thrust therefrom, said frame being provided at its upper end with a collar having an enlarged bore, a replaceable bushing removably fitted in said bore, a collar removably secured to the shank contiguous, and adapted to communicate pressure to, said bushing, and of less diameter than the same, whereby the said collar of the frame is relieved of pressure, and side cutters mounted upon the frame and operatively connected with the shank, substantially as specified.

12. An auger having a rotatable bit-carrying shank, a non-rotatable guide-block in which the shank is mounted, side cutters mounted upon the guide-block, and a spider or propeller carried by the shank and having radial wings provided with concaved front faces for successively engaging the arms of the side cutters, substantially as specified.

13. An auger having a rotatable shank, a bit having an upwardly-projecting collar removably fitted upon the lower end of the shank, a non-rotatable guide-block having a bearing for the shank and receiving downward thrust therefrom, said block being provided with a depending sleeve into which the collar of the bit fits, a bearing-ring interposed between the guide-block and the bit to communicate thrust from the former to the latter and inclosed by said sleeve, and side cutters mounted upon the guide-block and operatively connected with the shank, substantially as specified.

14. An auger having a rotatable bit-carrying shank, a non-rotatable guide-frame having bearings in which the shank is mounted, and carrying side cutters operatively connected with the shank, said frame having at its upper end a bearing portion or seat, and a holder removably fitted upon said bearing portion or seat, and having clamping devices whereby it may be secured to maintain the frame at the desired angular adjustment, and having a graduated ring concentric with the bit-carrying shank, substantially as specified.

15. An auger having a rotatable bit carrying shank, a non-rotatable guide-frame having bearings in which the shank is mounted, and carrying side cutters operatively connected with the shank, said frame having at its upper end a bearing portion or seat and having clamping devices whereby it may be secured to maintain the frame at the desired angular adjustment, a graduated ring mounted for rotary adjustment upon the holder, and means for locking said ring at the desired adjustment with relation to the holder, substantially as specified.

16. An auger having a rotatable bit-carrying shank, a non-rotatable frame in which said shank is mounted, and carrying side cut-

ters which are operatively connected with the shank, a holder having a split collar adapted to fit a seat at the upper end of the frame, a set-screw for contracting said collar to clamp the seat of the frame, a graduated ring countersunk in the holder concentric with the bore of the collar, and a locking-screw for the ring, substantially as specified.

606,576. ALUMINIUM SULFID AND PROCESS OF MAKING SAME. DMITRY ALEXANDROWITCH PENIAKOFF, Huy, Belgium. Filed Apr. 5, 1895. Serial No. 544,658. (No specimens.) Patented in Austria Jan. 28, 1893, No. 43,718; in France Apr. 5, 1893, No. 229,154; in England Apr. 5, 1893, No. 30,604; in Germany May 9, 1893, No. 79,781, and May 19, 1894, No. 80,063; in Belgium Oct. 4, 1893, No. 106,629; in Luxemburg Dec. 12, 1893, No. 1,942; in Italy Dec. 31, 1893, No. 53,001, and in Spain Feb. 9, 1894, No. 15,321.

Claim.—1. The herein-described process of producing aluminium sulfid or double compounds thereof with other metallic sulfids, which consists in treating heated sulfate of alumina, either alone or mixed with other metallic sulfates, by means of bisulfid of carbon or oxysulfid of carbon, at a temperature below the fusing-point of aluminium sulfid, substantially as described.

2. The herein-described process of producing aluminium sulfid, which consists in treating heated sulfate of alumina with a sulfid of carbon at a temperature below the fusing-point of aluminium sulfid, substantially as described.

3. The herein-described new substance, viz: porous aluminium sulfid, substantially as set forth.

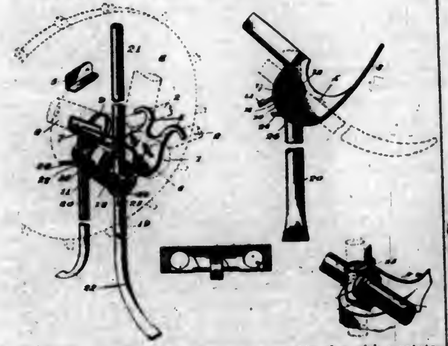
606,577. METALLIC CROSS-TIE. WILLIAM F. PENNER, Richardsville, Ky. Filed Apr. 3, 1893. Serial No. 676,934. (No model.)



Claim.—1. A device of the class described comprising a bottom plate, sides secured to the bottom plate and provided at their upper edges with recesses adapted to receive rails, the central and end top plates secured to the sides and provided at their adjacent edges with means for engaging the rails, the end plates being removable, and the blocks arranged between the sides and extending above the bottoms of the recesses and adapted to support the rails out of contact with the sides, substantially as described.

2. A device of the class described comprising a bottom plate, sides provided with upper and lower outwardly-extending flanges, secured to the bottom plate and having recesses at their upper edges, the central and end top plates secured to the upper flanges of the sides and forming clamps for engaging the bottoms of rails, and wooden blocks arranged within the tie and extending above the bottoms of the recesses and adapted to support the rails, substantially as described.

606,578. BICYCLE-SUPPORT. PAUL PERSON, Stockton, Cal. Filed Aug. 7, 1896. Serial No. 602,046. (No model.)



Claim.—1. In a bicycle-support, the combination with a rotatable shaft, of supporting-legs having feet journaled in said shaft so as to be adapted to turn on their longitudinal axes, pins projecting from the said legs, engaging devices adapted to contact with the ends of the pins, and means for holding the legs in supporting position, said parts being so disposed and related that the engaging devices actuate the pins and turn the legs on their longitudinal axes when said legs are moved to supporting position, whereby the feet of said legs are spread.

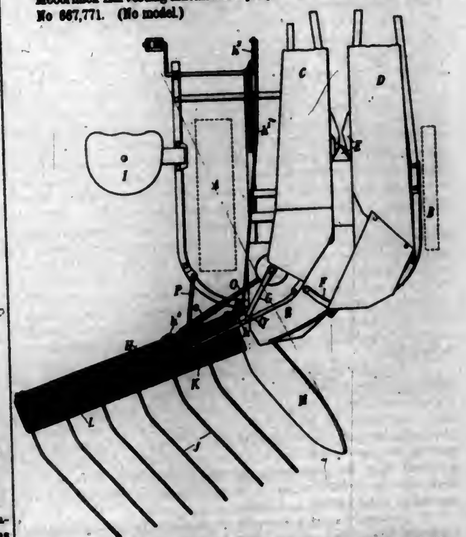
2. In a bicycle-support, the combination with a casing or housing connected to the bicycle, of a shaft journaled in said casing or housing, legs provided with feet and journaled in the shaft so that they may turn on their longitudinal axes, pivoted pins passing through the legs and loosely into the casing, said legs being normally held in raised position, but adapted for rotation with the shaft and for turning on their longitudinal axes to spread their feet when thrown around to support the bicycle, and means for holding said legs in supporting position.

3. In a bicycle-support, the combination with a casing or housing connected to the bicycle, of a shaft rotatably mounted in the casing, legs provided with feet and normally held in raised position, said legs being journaled in the shaft so that they may turn on their longitudinal axes, collars on the legs to prevent them from sliding in the shaft, pivoted screws passing through the legs and loosely into the casing, said parts being so disposed and related that when the legs and shaft are turned to bring the former to supporting position, the engagement of the pivot-screws with the casing will cause the legs to turn on their longitudinal axes thereby spreading their feet, and means for holding said legs in supporting position.

4. In a bicycle-support, the combination with a casing or housing connected to the bicycle, of a spring connected to said casing or housing and provided with a pin, a shaft journaled in the casing and provided with a friction-roller adapted to ride on the spring and abut on the pin, and supporting-legs connected to the shaft and normally held in raised position by the engagement of the spring and friction-roller, said supporting-legs being adapted to be lowered to support the bicycle and when so lowered be held locked by the engagement of the friction-roller with the pin.

5. In a bicycle-support, the combination with a casing or housing adapted for attachment to the bicycle, of a spring connected to the casing and provided with a pin, a shaft journaled in the casing and provided with a friction-roller adapted to ride on the spring and to lock with the pin, legs journaled in the shaft and provided with feet, and pivot-pins connected to the legs and projecting loosely into the casing, said parts being so disposed and related that the spring normally holds the legs in raised position, but when said legs are lowered to support the bicycle they turn on their longitudinal axes and spread the feet and are held in supporting position by the engagement of the friction-roller with the pin connected to the spring.

606,579. BUNDLE-CARRIER FOR CORN-BINDERS. JOHN W. PRIDMORE and EDWARD A. JOHNSTON, Chicago, Ill., assignors to the McCormick Harvesting Machine Company. Filed Jan. 24, 1898. Serial No. 667,771. (No model.)



Claim.—1. In combination with a binder that binds and discharges its bundles with the corn standing vertically, a bundle-carrier pivoted at its lower end to the harvester-frame, a connection between the carrier and the machine, and means for adjusting this connection whereby the upper end of the carrier can be raised and lowered.

2. In combination with a binder that binds and discharges its bundles with the corn standing practically vertical, a bundle-carrier pivoted at one end to the harvester, a connection between the carrier and the machine, an end stop attached to the carrier and actuated therewith when the carrier is moved, the carrier being positioned at an inclination to the vertically-positioned binder, substantially as and for the purpose described.

3. In combination with a binder that binds and discharges its bundles while the corn stands on end, a bundle-carrier that is pivoted at one end to the frame of the machine beneath the floor which supports the butts of the corn and the other end adjustably supported from the machine in a plane above that of the floor whereby the bundles are transported in an inclined position.

606,580. SCRAPER FOR ROADWORK OR DITCHING. JOHN R. RICE, East Chain, Minn. Filed Sept. 24, 1897. Serial No. 652,914. (No model.)



Claim.—1. In a scraper, the combination with a scraper proper, of a draft-bar, pivoted rods connecting said scraper and draft-bar, and cutters mounted on said pivoted rods, substantially as described.

2. In a scraper, the combination with a scraper proper, of a draft-bar, pivoted rods connecting said scraper and bar, cutters mounted on said rods, and adjustable devices connecting said scraper and draft-bar for varying the inclination of the former, substantially as described.

3. In a scraper, the combination with a scraper proper, of a draft-bar, pivoted rods connecting said scraper and bar, and rotatable cutting-disks mounted on said pivoted bars, substantially as described.

606,581. STOVEPIPE. WALTER P. RIVIERE, Taylor, Tex. Filed Nov. 27, 1896. Serial No. 613,823. (No model.)



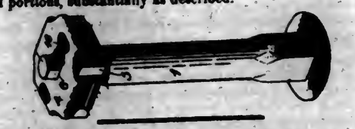
Claim.—1. A stovepipe-joint comprising a hollow body having an enlarged closed end, a thimble substantially in alinement with the small open end of the body, a second thimble extending from one side of the hollow body substantially at right angles to the first-named thimble, the closed end of the body being provided with a covered opening to one side of the thimble extending therefrom and said thimbles being in communication with the body, substantially as specified.

2. A pipe-joint comprising a hollow body of cylindrical cross-section having an enlarged closed end and a comparatively small open end arranged eccentrically with respect to the closed end, a thimble extending from the closed end of the body, substantially in alinement with the open end, a covered opening in the closed end to one side of the thimble, and a second thimble extending from the side of the body, substantially at right angles to the first-named thimble, and adjacent to the enlarged end of said body, substantially as specified.

606,582. NUT-LOCK. JOHN ROHLIN, Bureka, Kans., assignor of one-half to A. R. Shaw, same place. Filed Oct. 12, 1897. Serial No. 654,994. (No model.)

Claim.—1. The combination with a bolt having a polygonal portion, and a nut arranged on the bolt, of a locking-plate having spring-arms detachably interlocked with the nut and bowed outward adjacent to the front face of the same, said locking-plate being provided with openings adapted to permit a tool to be introduced into the bowed portions, substantially as and for the purpose described.

2. In a nut-lock, the combination with a bolt having a polygonal extension, and a nut arranged on the bolt, of a locking-plate having an opening to fit the extension and provided with spring-arms engaging the side faces and the back of the nut and bowed outward adjacent to the front face of the same, said plate being provided with side openings adapted to permit a tool to be introduced into the bowed portions, substantially as described.



606,588. CAR-COUPLING. GEORGE T. ROHN, Herriman, Ill. Filed Jan. 12, 1898. Serial No. 666,630. (No model.)



Claim.—1. The combination with a coupling and pivoted hook, of a laterally-extended, spring-actuated pivoted arm carried by the hook, and designed to effect the elevation of the opposing hook, substantially as specified.

2. The combination with a coupler provided with a depression adjacent to one side, and with a pivoted hook adjacent to its opposite side, of an angular laterally-extended arm pivoted within the slot in said hook, and a spring bearing against said arm, substantially as specified.

3. The combination with a coupler provided with a depression adjacent to one side, of a pivoted hook adjacent to the other side of the coupler, an angular laterally-extending hook-elevating arm pivotally mounted in a longitudinal slot in the said hook, a spring mounted within the slot and designed to retain the arm in its normal position, a shaft extending laterally across the car, an arm carried by the shaft and operatively connected with the hook, a connecting-rod likewise connected to said hook and extending to the top of the car, and handles upon the connecting-rod and shaft, whereby the hook may be elevated to uncouple the cars and may cause the uncoupling of the opposed hook through the medium of the laterally-extending arm, substantially as specified.

606,584. VALVE-INDICATOR. ELLIS L. ROWE, Troy, N. Y., assignor to the Rensselaer Manufacturing Company, same place. Filed Jan. 27, 1898. Serial No. 668,221. (No model.)



Claim.—1. In an indicator for valves, the combination of a stationary blind, and the stationary legend behind and above the blind; with a bracket carrying a movable legend and operated by and from the valve-spindle so as to raise said movable legend above the blind, thereby obscuring the stationary legend, or lower the movable legend behind the blind, thereby uncovering the stationary legend, substantially as described.

2. In an indicator for valves, the combination of the standard and blind, said standard projecting above the blind and carrying a legend on its face above the blind; with a movable bracket operated from the valve-spindle adapted to slide upon the standard and carrying a legend, said bracket obscuring the stationary legend when raised, and said blind obscuring the movable legend when the bracket is lowered, substantially as described.

3. In an indicator for valves, the combination of the parallel standard and blind fixedly attached to the casing, said standard projecting above the blind and carrying a legend on its outer face, with a movable bracket adapted to slide upon the standard and carrying a legend on its outer face; and means for operating said bracket from the valve-spindle, said bracket obscuring the stationary legend when raised, and said blind obscuring the movable legend when the bracket is lowered, substantially as described.

4. In a valve-indicator, the combination of a blind and a standard parallel with and behind the blind, having a legend on its front face above the blind; with a movable legend adapted to be reciprocated between the standard and blind and to obscure the fixed legend when raised, and to be itself obscured by the blind when lowered.

and means for raising and lowering said movable legend operated from the valve-spindle, substantially as described.

5. In a valve-indicator, the combination of a support adapted to be secured to the valve-casing, a blind attached to one side of said support, and a standard attached to said support parallel with and behind the blind, said standard having a fixed legend on its front face above the blind, with a movable legend operated from the valve-spindle adapted to be reciprocated between the standard and blind and to obscure the fixed legend when raised, and to be itself obscured by the blind when lowered, substantially as and for the purpose described.

6. In an indicator for valves, the combination of the parallel blind and standard rigidly connected to a support detachably secured to the casing, said standard having a legend on its outer face; with a vertically-movable bracket operated by and from the valve-spindle and carrying a legend on its outer face adapted to obscure the stationary legend when the bracket is raised, and to be itself obscured when the bracket is lowered, substantially as and for the purpose described.

7. The combination with a valve, of an indicator consisting of a blind and a standard parallel with and behind the blind, said standard having a fixed legend on its outer face above the blind; with a bracket having a loop adapted to embrace the standard and a legend on the outer face of said loop, said bracket having a ring loosely engaging the valve spindle, whereby the bracket is reciprocated when the valve-stem is rotated, and the legend on the outer face of the bracket obscured by the legend on the standard when the bracket is raised, or itself obscured by the blind when the bracket is lowered, substantially as described.

8. The combination with the valve, of a support detachably connected thereto, a blind outside of and connected to said support, and the standard parallel with and behind the blind, also connected to said support, said standard having a fixed legend on its outer face above the blind; with a bracket having a loop carrying a legend on its outer face and adapted to embrace the standard and said bracket also having a threaded annulus engaging a threaded portion on the valve spindle, whereby the bracket is reciprocated when the valve-stem is rotated, so as to cause the legend on the outer face of the bracket to obscure the legend on the standard when the bracket is raised, or to be obscured by the blind when the bracket is lowered, substantially as and for the purpose described.

9. The combination with the spindle and casing, of a valve; of an indicator, consisting of a blind and a standard parallel with the blind, said standard bearing a legend on its outer face above the blind, a threaded sleeve secured to the spindle above the stuffing-box, and a bracket having a threaded ring engaging said sleeve, and a loop fitting over said standard, said loop having a legend on its outer face obscured by the blind when the bracket is lowered, and obscuring the legend on the standard when the bracket is raised, substantially as described.

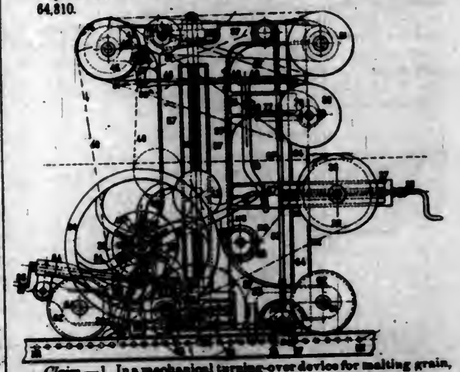
10. The combination with the spindle and casing of a valve, of a valve-indicator, consisting of a support detachably connected to the casing beside the stuffing-box thereof, a blind and a standard parallel with the blind, both secured to the said support, said standard bearing a legend on its outer face above the blind, a threaded sleeve made fast to the spindle above the stuffing-box, and a bracket having a threaded ring engaging said sleeve and a loop embracing said standard, and having a legend on its outer face obscured by the blind when the bracket is lowered, and obscuring the legend on the standard when the bracket is raised, all substantially as and for the purpose described.

606,585. CAR-BRAKE. JOSEPH RUFF, Chicago, Ill. Filed Oct. 15, 1897. Serial No. 655,202. (No model.)



Claim.—In a device of the class described, the combination with a car provided in its platform with a transverse slot, of a brake-staff, a ratchet-wheel mounted on the brake-staff, and located at the upper face of the platform of the car, the curved pawl pivoted between its ends and having two arms extending forward and arranged at an angle to each other, one of the arms engaging the ratchet-wheel, a spring holding such arm in engagement with the ratchet-wheel, a lever fulcrumed between its ends to the platform of the car and provided at one end with an upwardly-extending arm projecting through the slot and located at the outer side of the other arm of the pawl and adapted to engage the outer edge thereof, a spring engaging the lever and holding the arm thereof normally at the outer end of the slot and out of engagement with the pawl, whereby the latter is permitted to vibrate independently of the lever without vibrating the latter, and a depressible pin extending upward from the other end of the lever, substantially as described.

606,586. MALT-STIRRER. JULES A. SALADIN, Nancy, France. Filed May 8, 1895. Serial No. 548,593. (No model.) Patented in England Sept. 3, 1891, No. 14,857, and in Germany Oct. 10, 1892, No. 64,810.



Claim.—1. In a mechanical turning-over device for malting grain, the combination with spiral shovels mounted on vertical shafts, of a frame in which the shafts have bearing, means for automatically raising and lowering said frame, a tension-pulley acting on the belt of a main pulley, to draw said belt into operative engagement with said pulley, and means for automatically releasing said tension-pulley at the completion of the operation of the machine, whereby the operation of the shovels and the movement of the carriage both cease, substantially as described.

2. In a mechanical turning over apparatus for malting grain, the combination with a traveling carriage of the improved turning-over mechanism consisting of spiral shovels, shafts carrying said shovels, a frame to support the shaft, means for revolving the latter, screws for raising the frame and lowering it, a tension-pulley to preserve the operative tension of the belt, means for automatically releasing said pulley at the end of the raising or lowering movement, a movable shaft carrying all of the gears imparting motion to the mechanism, means for automatically dropping said shaft at the end of the turning-over movement, and a single transverse carriage for transporting the upper carriage to another compartment for working, substantially as described.

3. In a mechanical turning-over apparatus for malting grain, the combination with a main pulley of a tension-pulley, a lever on which the tension-pulley is mounted, a toothed sector on said lever a worm adapted to mesh therewith, a pivoted frame carrying said worm, a prop supporting the frame when the worm is in mesh, and means for automatically removing said prop, substantially as described.

4. In a mechanical turning-over apparatus for malting grain, the combination with the main driving-pulley of a tension-lever and pulley, a toothed sector on the lever, a worm adapted to mesh therewith, a pivoted frame carrying the worm, a prop to support said frame when the worm is meshed with the sector on the tension-lever, a friction-brake to engage a driven pulley, and a lever to set said brake, the end of said lever being in the path of the end of the tension-lever when the latter is released, substantially as described.

5. In a mechanical turning-over apparatus for malting grain, the combination with a carriage and with wheels which propel said carriage, of a driving-pulley, a gear driven by said pulley, a movable shaft carrying said gear, a toggle-lever to move said shaft, a rod connected to said lever, and a device for operating said rod to throw the gear into and out of mesh, said device being operated by a movable part of the apparatus, substantially as described.

6. In a mechanical turning-over mechanism for malting grain, the combination with spiral shovels on vertical shafts, of a frame carrying said shafts, a carriage on which said frame is mounted, means for propelling said carriage, a gear through which movement is transmitted, a vertically-movable shaft carrying said gear, a prop to support the shaft and keep the gear in mesh, and a cam projection on the rail along which the carriage travels, to engage a toe on the prop and remove it from beneath said shaft to unmesh the gear and arrest the movement, substantially as described.

7. The combination in a mechanical turning-over device, of a track arranged over a grain-compartment, a carriage running on said track carrying rotating shovels, means for giving said shovels a motion lengthwise of the compartment, through the grain, a motion for raising the shovels out of the grain and then returning the shovels to the starting-point, all operated by the same power, substantially as described.

8. The combination in a mechanical turning-over device, of a track arranged over a grain-compartment, a carriage running on said track carrying shovels for turning the grain, means for giving said shovels vertical motion into the grain, a rotary motion therein, a horizontal motion through the grain, a vertical motion out of the same, and a return motion to the starting-point, all operated by the same belt, substantially as described.

9. The combination in a mechanical turning-over device, of a series of tracks, arranged over a series of grain compartments, a transferring-carriage, a carriage running on said tracks carrying shovels for turning the grain, means for giving vertical motion to said shovels to force them into the grain, a rotary motion in the same, a horizontal motion from end to end of the compartment, a motion to lift them out of the grain, and to return them to the starting point and onto the transfer-carriage, all operated by the same power, substantially as described.

10. The combination in a mechanical turning-over device, of a series of tracks arranged over a series of grain-compartments, a transfer-carriage, a carriage adapted to run on said tracks carrying shovels for turning the grain, means for transferring the shovel-carriage from the transfer-carriage to the tracks, for forcing the shovels into the grain, for giving the shovels a rotary motion in and horizontally through the grain, a rising motion through the grain at the end of the horizontal motion, and for returning the shovel-carriage to the transfer-carriage, all operated by the same power, substantially as described.

11. The combination in a mechanical turning-over device, of a track set over a grain-compartment, a carriage running on said tracks carrying a series of shovels, means for giving said shovels a vertical motion into the grain in the compartment, and means for stopping said vertical motion automatically, substantially as described.

12. The combination in a mechanical turning-over device, of a track set parallel with a grain-compartment, a carriage running on said track carrying a series of shovels, means for simultaneously giving said shovels a rotary motion in the grain, and a horizontal one through the same, and automatic means for stopping said motions as the shovels reach the end of their horizontal travel, substantially as described.

13. The combination in a mechanical turning-over device, of a track set parallel with a grain-compartment, a carriage running on said track carrying a series of shovels, means for raising said shovels clear of the grain at the end of its travel through the same, and means for automatically stopping the upward motion of the shovels, substantially as described.

14. The combination in a mechanical turning-over device, of a series of tracks arranged parallel with a series of grain-compartments, a transferring-carriage, a carriage adapted to run over said tracks, and carrying a series of rotary shovels, means for moving said shovels through and out of the grain and then carrying the shovel-carriage back toward its starting-point and onto the transferring-carriage, and automatic devices for stopping said backward motion, substantially as described.

606,587. FRUIT-JAR AND CAN OPENER. JOHN J. SCHAIBLE, Glen, Tex., assignor of forty-nine one-hundredths to P. B. Hunter, El Paso County, Tex. Filed Nov. 9, 1897. Serial No. 657,960. (No model.)

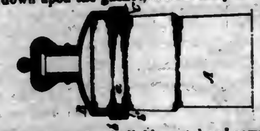


Claim.—1. A spring-metal wrench made from a strip or "blank" of metal having sharp corners upon its longitudinal edges, the said blank being twisted into the form of a spiral along its central portion, and having said twisted portion bent into the form of an arc of a circle, substantially as described.

2. A spring-metal wrench made from a strip or "blank" of metal of greater width than thickness having sharp corners upon its longitudinal edges, the said blank being twisted into the form of a spiral along its central portion, and having said twisted portion bent in the direction of its thickness into the form of an arc of a circle, substantially as described.

606,588. CAP FOR BOTTLES. WILLIAM A. SCHOLEY and FRANK C. SCHRADER, Philadelphia, Pa. Filed Oct. 21, 1896. Serial No. 609,572. (No model.)

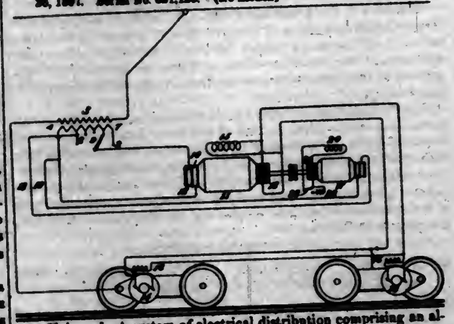
Claim.—1. A bottle-cap having a flange with an annular recess formed therein and a gasket within the recess, the end of the flange being spun down upon the gasket, substantially as described.



2. A bottle-cap made of pliable metal and comprising the body B having a flange b offset to form a recess b^2 and a gasket C contained within the recess of the flange, the lip b' of the flange which extends beyond the gasket being spun down upon the same, substantially as described.

3. The combination of a bottle having a shoulder, and a screw-threaded extension above the shoulder, with a cap having a deep flange, a screw-thread thereon adapted to the screw-thread on the bottle, and a gasket mounted in an annular recess formed by an extension of the flange, the end of said flange being spun down upon the gasket, said gasket resting upon the shoulder of the bottle, substantially as described.

606,589. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES F. SCOTT and BENJAMIN G. LAMME, Pittsburg, Pa., assignors to the Westinghouse Electric and Manufacturing Company, same place. Filed Jan. 26, 1897. Serial No. 621,123. (No model.)



Claim.—1. A system of electrical distribution comprising an alternating-current-supply circuit, one or more direct-current motors, a rotary transformer taking alternating current from said supply-circuit and supplying direct current to said motor or motors and means for varying the alternating-current electromotive force supplied to the rotary transformer and thereby varying the direct-current electromotive force and consequently the speed of the motors.

2. A system of electrical distribution comprising an alternating-current-supply circuit, one or more direct-current motors, a rotary transformer receiving alternating currents from said supply-circuit and supplying direct current to said motors, a stationary transformer interposed between the source of alternating current and the rotary transformer and means for varying the electromotive force supplied by the stationary-transformer secondary and thereby varying the speed of the motors.

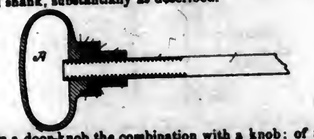
3. A system of electrical distribution comprising an alternating-current-supply circuit, a stationary transformer the primary winding of which receives current from said supply-circuit, a rotary transformer supplied from the secondary of said stationary transformer, one or more direct-current motors connected to the direct current terminals of the rotary transformer and means for varying the active length of the secondary winding of the stationary transformer and thereby varying the speed of the motor or motors.

4. A system of electrical distribution comprising an alternating-current-supply circuit, a rotary transformer, means for driving the same at synchronous speed, one or more direct-current motors connected to the direct-current terminals of said transformer, and means interposed between said transformer and the alternating-current-supply circuit for varying the electromotive force applied to the transformer and thereby varying the speed of the motor or motors.

606,590. KNOB ATTACHMENT. JOHN H. SHAW, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Mar. 5, 1898. Serial No. 672,697. (No model.)

Claim.—1. In a door-knob, the combination with the knob; of the spindle formed separate therefrom; an independent knob-shank, adapted to be screwed onto said spindle; an interlocking nut capable of longitudinal movement on said spindle but incapable of rotation

independent thereof; means for locking said nut with said shank, and a sleeve adapted to fit loosely over said nut and be secured to said knob and shank, substantially as described.



2. In a door-knob the combination with a knob; of a separate spindle substantially square in cross-section, with threaded corners of its square cross-section; an independent knob-shank adapted to be screwed onto said spindle, and having interior recesses at one end; an interlocking nut adapted to slide on said spindle but incapable of rotation independent thereof, being provided with lugs adapted to engage in said recesses of said shank; and a sleeve adapted to engage said shank and knob and hold them together, substantially as described.

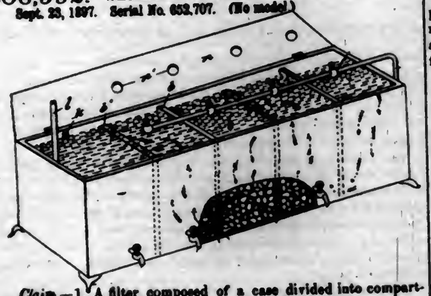
606,591. PLIERS. JOHN C. BLACK, Brooklyn, N. Y. Filed July 31, 1897. Serial No. 646,663. (No model.)



Claim.—1. The combination with a pair of pliers having notches formed in the inner faces of the jaws thereof, a groove at the inner ends of said notches, a deeper opening at the outer ends of said notches, and dies situated within said notches and provided with grooves at their ends to receive pins that are inserted in said grooves and openings.

2. The combination with a pair of pliers having notches in the inner faces of the jaws, grooves at the inner ends of said notches and openings at the outer ends of said notches, dies situated within said notches and provided with grooves at the ends thereof, pins situated within the grooves at the inner ends of the notches and extending to a greater extent in the notches of the jaws, and tapered pins in the openings at the outer ends of the notches which extend into the grooves of the dies.

606,592. WATER-FILTER. HENRY SUELL, Pittsburg, Pa. Filed Sept. 23, 1897. Serial No. 653,707. (No model.)



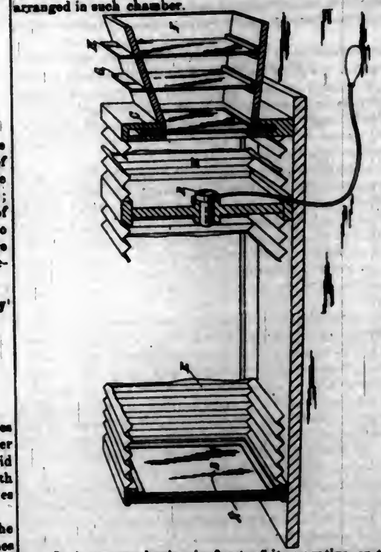
Claim.—1. A filter composed of a case divided into compartments of unequal size, each alternate partition forming the compartment being cut away at the top to permit the water to pass to the succeeding compartment, each alternate partition being provided with openings at the bottom, means for admitting water to each compartment separately, means for draining each compartment, and each of said compartments except the last being filled with filtering material, substantially as shown and described.

2. A filter composed of a case, a series of partitions dividing the case into compartments, each alternate partition being provided with openings at the bottom, the intervening partitions being provided with cut-away portions, said openings and cut-away portions permitting the water to pass from one compartment to the succeeding one, means for admitting water to each of the compartments separately, a pipe to draw the water off after it reaches a certain point, each of said compartments except the last being filled with a filtering material, and means for draining each compartment, substantially as shown and described.

606,593. PHOTOGRAPHIC COPYING-CAMERA. HERMAN STERNBERG, Prospect Park, Cal., assignor of one-half to Henry P. Ware, San Gabriel, Cal. Filed July 12, 1897. Serial No. 644,308. (No model.) Patented in Mexico Sept. 3, 1896, No. 907.

Claim.—1. A camera having a light-diffusing chamber arranged in front of its negative or transparency holder.

2. A camera provided with a light-diffusing chamber arranged between the lens and the source of light; and light-diffusing screens arranged in such chamber.

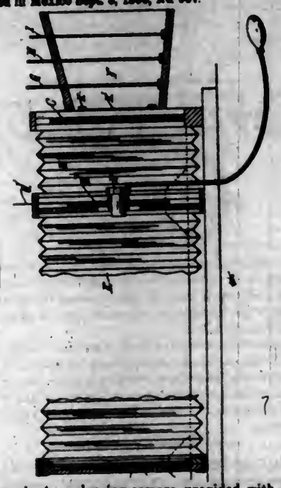


3. A camera having in front of its negative or transparency holder, a light-diffusing chamber; and a light-diffusing screen arranged in such chamber.

4. A camera comprising a plate-holder; a negative or transparency holder; a lens arranged between the plate and negative holder; a light-diffusing chamber arranged in front of the negative or transparency holder; and light-diffusing screens arranged in the light diffusing chamber.

5. The improvement in the art of printing from negatives or positives which consists in intercepting the side rays of light by arranging a light-diffusing chamber in front of the negative or positive, and diffusing the light used in printing by passing it through light-diffusing screens arranged within such chamber.

606,594. PHOTOGRAPHIC COPYING-CAMERA. HERMAN STERNBERG, Prospect Park, Cal., assignor of one-half to Henry P. Ware, San Gabriel, Cal. Filed July 12, 1897. Serial No. 644,449. (No model.) Patented in Mexico Sept. 3, 1896, No. 907.



Claim.—1. An enlarging-camera provided with a negative or transparency holder; a vignette arranged in front of such holder; and a light-diffusing chamber arranged in front of the vignette.

2. An enlarging-camera comprising a plate holder; a lens arranged between the plate-holder and the negative or transparency holder; a vignette-holder arranged in front of the negative or transparency holder; and a light-diffusing chamber arranged in front of the vignette-holder.

3. In a camera, the combination of a transversely-movable negative-holder and a lens vertically movable independently of the body of the camera.

4. In an enlarging-camera, the combination of a transversely-sliding negative-holder; a plate-holder; and a vertically-adjustable lens between the negative-holder and the plate-holder.

5. In an enlarging-camera, the combination of a transversely-sliding negative-holder; a light-diffusing chamber in front of the negative-holder; a plate-holder; and a vertically-adjustable lens between the negative-holder and the plate-holder, substantially as and for the purpose set forth.

6. In an enlarging-camera, the combination set forth of the negative or transparency holder; the light diffusing chamber, arranged in front of such holder, and colored light-diffusing screens arranged in the chamber.

7. An enlarging-camera comprising a light-diffusing chamber provided with a plurality of light-diffusing screens, one of which is of a tint to regulate the actinic quality of the white light; a plate-holder; a negative-holder between the light-diffusing chamber and the plate-holder; and a lens between the negative-holder and the plate-holder.

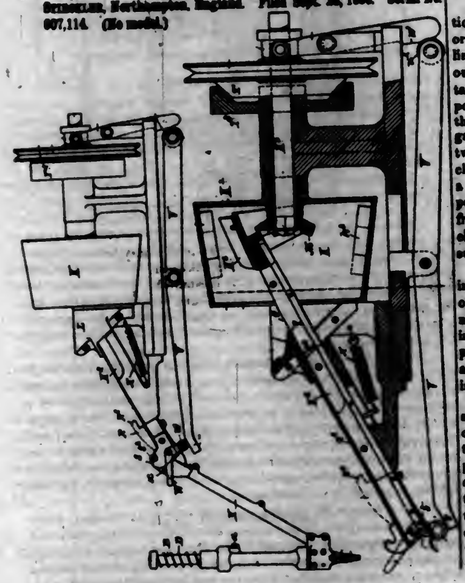
8. A camera provided with a negative-holder and a plate-holder; a lens between the negative-holder and the plate-holder; a light-diffusing chamber in front of the negative-holder and provided with two white screens; and a tinted screen arranged between the two white screens to regulate the actinic quality of the white light.

606,595. PROCESS OF MAKING PLANISHED SHEET-IRON. JOHN STRAUSS, Muncie, Ind. Filed Jan. 22, 1898. Serial No. 667,501. (No specimens.)

Claim.—1. The herein-described process of making planished sheet-iron consisting in rolling the sheets in packs, separating and changing the sheets in the pack to present different surfaces, reheating the pack to a low temperature, changing the sheets and rerolling, substantially as described.

2. The herein-described process of making planished sheet-iron, consisting in rolling the sheets in packs, separating and changing the sheets, reheating to a low temperature, subjecting the sheets to a solution of verdigris and paraffin-wax; exposing the sheets to the air to dry; subjecting the dried plates to a solution of indigo and paraffin-wax, removing the surplus solution and finally polishing the sheets substantially as described.

606,596. APPARATUS FOR DRIVING TACKS. ALBERT E. STRICKLER, Northampton, England. Filed Sept. 26, 1896. Serial No. 607,114. (No model.)



Claim.—1. In apparatus for feeding tacks, the combination of a rotary chamber to contain the tacks to be fed into the driver or tacker and means for rotating the said chamber; one or more longitudinally-adjustable ribs or lifters projecting from the interior of the rotary chamber, by which ribs or lifters the tacks are elevated when the chamber rotates, a piece in the interior of the chamber having a double inclined surface or surfaces inclining toward each other, onto which the tacks fall from the ribs or lifters; a chute to which the double inclined piece is attached, the said chute having in the top a narrow slot or opening into which the shanks of the tacks enter and down which they pass, the said tacks being supported by their heads on the top edges of the sides of the slot or opening; and means for imparting to the chute a jogging or reciprocating motion as the chamber rotates so as to cause the tacks to pass down the chute, substantially as hereinbefore described.

2. In a tack-feeding apparatus, the combination of a fixed frame and a rotary chamber to contain the tacks to be fed into the tack-driver, with a chute which is mounted in longitudinal guides in the frame and into which the tacks are caused to enter by the rotation of the chamber; and a series of tappets in the interior of the chamber engaging with the chute in combination with a spring, for imparting a longitudinal reciprocating motion to the chute in its guides, substantially as described.

3. In a tack-feeding apparatus, the combination of a rotary chamber to contain the tacks to be fed into the tack-driver, the said chamber having one end open and being adapted to rotate on a horizontal, or approximately horizontal axis, with a stationary hopper against which the open end of the chamber rotates, and an inclined reciprocating chute passing through an opening in the said hopper to the interior of the chamber, means for feeding the tacks into the chute by the rotation of the chamber, and means for imparting a longitudinal reciprocating motion to the chute, substantially as described.

4. In a tacking apparatus, the combination with a chamber to contain the tacks to be fed into the tack driver, the said chamber having one end open and arranged to rotate on a horizontal or approximately horizontal axis, a stationary hopper against which the open end of the said chamber rotates and by which the tacks are supplied to the chamber, an inclined reciprocating chute passing through an opening in the hopper to the interior of the chamber, means for feeding tacks into the chute by the rotation of the chamber, and a projection on the chute reciprocating through a passage in a plate or deflector formed on or attached to the interior of the hopper, the said projection serving to prevent the tacks from obstructing the passage through the chute, substantially as hereinbefore described.

5. In apparatus for feeding tacks into a tack driver or tacker, the combination with a longitudinally-reciprocating chute down which the tacks pass into the tacker, of a plow-shaped deflector having a passage therethrough, and a projection reciprocating in the said passage in the deflector, for preventing the tacks from obstructing the passage through the chute, substantially as hereinbefore described.

6. In a tack-feeding and tack-driving apparatus, the combination of a rotary chamber to contain the tacks to be fed into the driver or tacker, an inclined reciprocating chute composed of two parts flexibly connected together at their abutting ends to form a continuous chute for the passage of tacks from the rotary chamber to the tack-driver or tacker, a gate or stop at the lower end of the upper portion of the said chute to prevent the passage of the tacks therethrough when the two parts of the chute are separated, the said gate or stop being displaced or removed when connecting together the two portions of the chute and replaced when the said portions of the chute are detached, and a lever pivoted to the chute engaging with a projection to prevent the chute from reciprocating when the two portions of the chute are separated, the said lever being disengaged from the projection by the act of connecting the two parts of the chute so as to permit of the reciprocating movement of the chute, substantially as hereinbefore described.

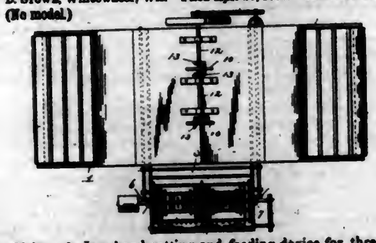
7. In a tack-driving apparatus or tacker the combination of an inclined chute down which the tacks pass into position to be acted on by the driver proper, a separating-blade for separating the lowermost tack from the rest of the tacks in the chute, the said separating-blade being operated by the plunger which carries the driver proper, and means for varying the time in the movement of the plunger at which the separating-blade shall be operated, substantially as hereinbefore described.

8. In a tack-driving apparatus or tacker, the combination of a supply chamber or chute from which tacks pass into position to be operated on by the driver proper, a separating-blade operated so as to admit one tack at a time into the passage in which the driver proper works, a recessed or flattened part on the driver proper to admit of the head of the lowermost tack in the chute to project into the passage in which the driver proper works when the lower end of the said driver is below the separating-blade, a shoulder on the lower end of the driver proper below the said flattened or recessed portion, which shoulder when the plunger rises comes into contact with the under side of the said lowermost tack and causes the shank of the

tack to enter point downward the passage in which the driver proper works, substantially as hereinbefore specified.

9. In a tack-driving apparatus, the combination of a supply-chute from which tacks pass into position to be operated on by the driver proper, and spring-jaws having a conical recess and a passage for guiding the tacks in a straight direction into the work, with a driver proper, provided with a shoulder on the lower end which, as the driver rises, comes into contact with the lower side of the head of the tack and causes the shank to enter point downward the passage in which the driver proper works, the operating end of the said driver proper being tapered at the sides at right angles to the said shoulder so as to be easily freed from between the said spring-jaws after driving a tack, substantially as hereinbefore described.

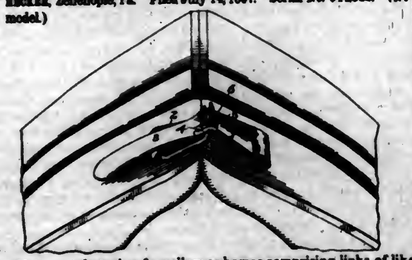
606,597. SELF-FEEDER FOR THRESHING-MACHINES. GEO. D. STOWE, Whitewater, Wis. Filed Apr. 20, 1897. Serial No. 632,933. (No model.)



Claim.—1. In a band-cutting and feeding device for threshing-machines, the combination with a frame, receiving-belts and a feeding-belt interposed between the receiving-belts and moving at right angles thereto, of knife-shafts above the belts, knives upon said shafts, a dome rising from the casing and provided with a trough at its center, the walls of said trough being provided with slots to permit the knife-shafts to extend through the trough, and mechanism carried within the trough for actuating said shafts, substantially as specified.

2. In a band-cutter and feeder, the combination with a frame, receiving-belts and a feeding-belt intermediate of the receiving-belts and moving at right angles thereto, of a pair of knife-shafts disposed above the belts and provided with rotary knives, a casing inclosing the knives and the inner ends of the belts and provided with a dome having a trough at its center extending below the knife-shafts, shafts journaled at the bottom of the trough and geared to said knife-shafts, and gearing intermediate of the shafts journaled in the trough and one of the shafts of a receiving-belt, substantially as specified.

606,598. HAME OR COLLAR FASTENER. CHARLES J. D. STROHECKER, Zelienople, Pa. Filed July 14, 1897. Serial No. 644,522. (No model.)



Claim.—A fastening for collars or hames comprising links of like formation having their side bars converging outwardly and deflected in opposite directions at their free ends, which latter are adapted to interlock by having a deflected end portion of one link passing through the deflected end portion of the opposite link, and a lever fulcrumed upon the cross-bar of the link having its outer end downwardly deflected and having a cam-shaped head notched to snugly receive the cross-bar of the link having the upwardly-deflected end, substantially as and for the purpose set forth.

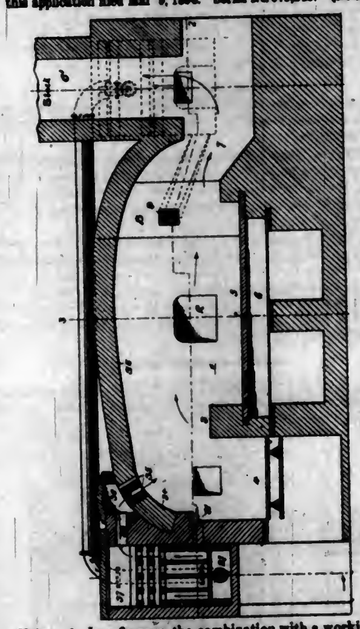
606,599. LID FOR POTS, &c. JOHN W. STROTHER, West Milford, W. Va., assignor of two-thirds to Floyd E. Morrison, Clarksburg, W. Va. Filed Dec. 30, 1897. Serial No. 664,590. (No model.)

Claim.—1. The combination of a lid, a depending loop arranged at one side of the lid and adapted to engage under the flange or shoulder at the top of a pot, and a depending loop-shaped catch located at the opposite side of the lid and provided with an outwardly-extending thumb-piece, said loop and catch being constructed of a single piece of wire having connecting portions extending from one side of the lid to the other, substantially as described.



2. The combination of a lid, a loop depending from one side of the lid and adapted to engage a pot, the catch, located at the opposite side of the lid and consisting of a depending loop bent outward to form a thumb-piece, said catch and loop being constructed of a single piece of wire having connecting portions extending across the center of the lid, and the curved plates secured to the lid at the edges thereof and fastening the said connecting portions to the same, substantially as described.

606,600. FURNACE. WILLIAM STURGEISSER, Bethlehem, Pa. Original application filed Jan. 26, 1897, Serial No. 620,816. Divided and this application filed Mar 9, 1898. Serial No. 673,315. (No model.)



Claim.—1. In a furnace, the combination with a working chamber, a stack, and a port or neck, of the preliminary heating-chambers situated on opposite sides of the uptake and each provided with an upper compartment, passages which establish communication between the working chamber, the preliminary heating-chambers, and the uptake, and circulating-pipes opening into the upper compartments of said preliminary heating-chambers, substantially as and for the purposes described.

2. In a furnace, the combination with a working chamber, a stack, and an uptake, of the preliminary heating-chambers situated on opposite sides of the uptake and each having below its roof a perforated arch which forms an upper compartment, the mixing-pipes leading from the upper compartments of said chambers, the air and steam pipes entering said upper compartments and discharging to the mixing pipes, and passages which establish communication between the preliminary heating-chambers, the working chamber, and the uptake, substantially as described.

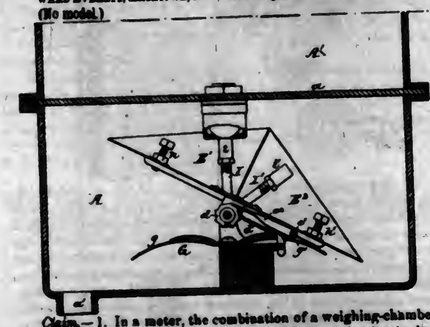
3. In a furnace, the combination with a working chamber, and a grate-chamber, of the divided regenerative chamber having the lower receiving-compartment, the isolated flues leading from said receiving-compartment of the regenerative chamber, the checker-work located in the regenerative chamber above the isolated flues therein, the mixing pipes or flues discharging into the receiving-compartment of said regenerative chamber, and the passages leading from the grate-chamber into the circulating-spaces between the isolated flues of the regenerative chamber, substantially as described.

4. In a furnace, the combination with the working and grate chamber, of the roof therefor having the arched or deflected portion over the grate-chamber, a regenerative chamber containing checker-work, mixing flues which discharge to the regenerative chamber, passages leading from the grate-chamber to the regenerative chamber, and a delivery-chamber which is in communication with the upper part of the regenerative chamber to receive therefrom and which discharges, through the ports in the arched roof, into the grate-chamber, substantially as described.

5. In a furnace, the combination with a working chamber, and a grate-chamber, of the divided regenerative chamber having the receiving-compartment, the vertical isolated flues in series within the regenerative chamber and arranged therein to provide the circulating-spaces, the checker-work above said flues, the passages leading from the grate-chamber to the circulation spaces of the regenerative chamber, the delivery-chamber over the grate-chamber, ports between the delivery and regenerative chambers, and ports leading from the delivery-chamber to the grate-chamber, substantially as described.

6. In a furnace, the combination with a grate-chamber, of a regenerative chamber having a lower receiving compartment, the checker-work in said regenerative chamber, mixing pipes or flues discharging to the receiving-compartment of the regenerative chamber, a blast-pipe below the grate of the grate-chamber and having branches which lead to the receiving-compartment of the regenerative chamber, passages leading from the grate-chamber to the regenerative chamber, and other passages leading from the upper part of the regenerative chamber back to the upper part of the grate-chamber, substantially as described.

606,601. OSCILLATING METER. ROBERT A. THAYER and EDWARD EVERETT, Allentown, Pa. Filed Aug. 7, 1897. Serial No 647,402. (No model.)



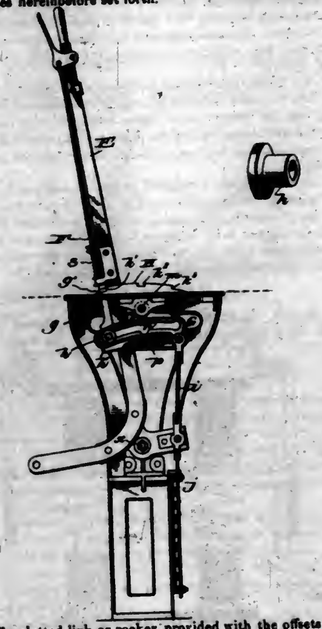
Claim.—1. In a meter, the combination of a weighing-chamber, having an outlet and a valved inlet, a registering mechanism, a shaft rotatably mounted in suitable bearings in the chamber and positively connected with the registering mechanism, a measuring vessel having two compartments rotatably mounted upon said shaft, with means on the vessel for acting directly upon the valved inlet, said vessel being thus loosely pivoted with respect to the registering mechanism, and means carried by the vessel for intermittently connecting the same with the registering mechanism to operate the latter, substantially as described.

2. The combination in a meter, of a weighing-chamber having an outlet and a valved inlet, a registering mechanism, a shaft rotatably mounted in suitable bearings in the chamber and positively connected with the registering mechanism, a measuring vessel having two compartments with adjustable posts in each compartment for acting upon the valve in the inlet, said vessel being loosely pivoted with respect to the registering mechanism, and means carried by the vessel for intermittently connecting the same with the shaft and thus operating the registering mechanism, substantially as described.

3. The combination in a meter, of the measuring-chamber, an inlet therefor, a ball-valve in said inlet, a pivoted measuring vessel having two compartments, means on the vessel for opening the valve when either of the compartments is under the inlet, two springs, one under one compartment the other under the other compartment and set-screws on the pivoted measuring vessel so as to regulate the extent of tilt of the vessel, substantially as described.

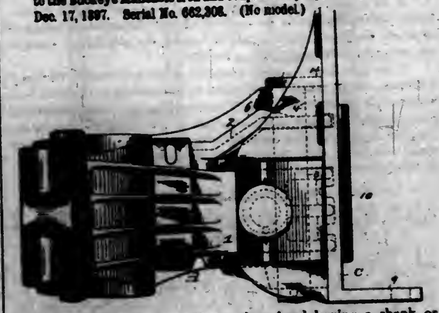
606,602. RAILWAY SWITCH AND SIGNAL MECHANISM. JOHN W. THOMAS, Jr., Nashville, Tenn. Filed Apr. 21, 1898. Serial No. 678,374. (No model.)

Claim.—1. The combination with a double-plunger facing-point switch-lock, and the lever and connections for operating the same, of the latch-lever carried by said lock-lever, the latch, latch-rod and link-block, the quadrant, the tappet, and the pivoted slotted link, connected to the tappet, and engaging the link-block and provided in the lower edge of its slot with an intermediate recess located as described to accommodate the link-block, when the latch is dropped into the intermediate notch of the quadrant, substantially as and for the purposes hereinbefore set forth.



2. The slotted link or rocker, provided with the offsets or cam-ridges p^2 p^3, and the end recess p, and the end recess p', substantially as and for the purposes hereinbefore set forth.

606,603. CAR-COUPLING. JAMES TIERNS, Columbus, Ohio, assignor to the Buckeye Malleable Iron and Coupler Company, same place. Filed Dec. 17, 1897. Serial No. 662,208. (No model.)

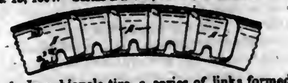


Claim.—1. In a car-coupling, a draw-head having a shank or draw-bar and an arm extending from the draw-head upwardly over the shank in position to receive the pin which holds the draw-head in place and prevents the latter from sagging.

2. The combination with a bracket having a mouth projecting outwardly therefrom, of a draw-head having a shank and an arm extending above the shank and a suitable distance from it, and means for pivotally connecting the draw-head so as to permit it to have normally a lateral movement.

3. The combination with a bracket and a draw-head, of a pin connecting the draw-head pivotally to the bracket, said pin having a head extending from one side and squared, so that it rests and fits against the bracket to prevent the rotation of the pin.

606,604. BICYCLE-TIRE. JACOB TOREN, Grand Rapids, Mich. Filed Oct. 15, 1897. Serial No. 655,326. (No model.)

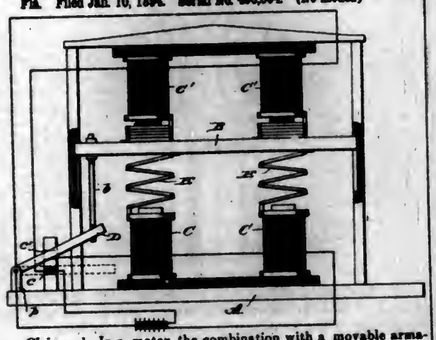


Claim.—1. In a bicycle-tire, a series of links formed from thin elastic plates, the body of said links being formed from a substantially annular blank and made dishing, arms projecting from the rims of these bodies and provided with hooks arranged to engage mortises formed therefor, the arms projecting from the inner side of said links being bent to form a longitudinal spring, substantially as and for the purpose set forth.

2. In a bicycle-tire, cup-shaped links, arms projecting from the rims of said links and arranged to engage with mortises in each succeeding link, the lower or inner arms arranged to form springs to give to the links a longitudinal flexibility, and a support at each side of the arms next to the body, substantially as and for the purpose set forth.

3. In a bicycle-tire, a series of flexible cup-shaped links formed of spring metal and flexibly connected by arms extending from the back edge of one cup and passing into slots in the face of the next succeeding cup, the lower or inner arm being arranged to reciprocate longitudinal of the tire, and a cover detachably secured around said links, substantially as and for the purpose set forth.

606,605. ELECTRIC MOTOR. JONATHAN G. TRUMAN, Lemon City, Fla. Filed Jan. 10, 1894. Serial No. 496,394. (No model.)



Claim.—1. In a motor the combination with a movable armature of a series of connecting bars or plates attached thereto and electromagnets with which the plates are also connected, substantially as set forth.

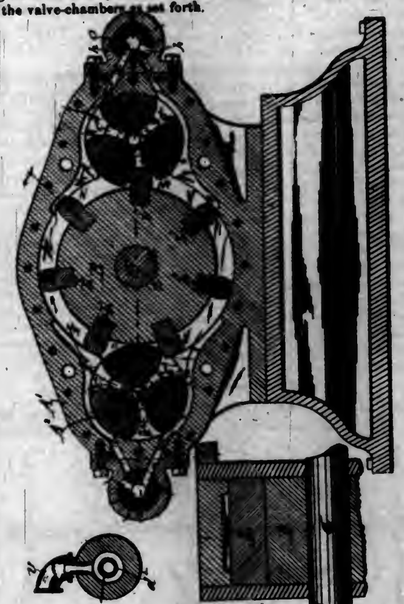
2. In a motor the combination of an armature, a series of connected plates attached to the opposite sides of the armature, magnets to which the plates are attached and means for alternately energizing the magnets substantially as set forth.

3. In an electric magnetic motor the combination with vibratory armature, electromagnets positioned on opposite sides of the same a series of plates, the plates of each series being alternately connected the opposite end plates being attached to the armature and to the magnets, a switch operated by the vibratory armature to alternately make and break circuits and an electric generator or battery, substantially as shown and for the purpose set forth.

606,606. ROTARY ENGINE. JACOB J. UEBERROTH, Syracuse, N. Y. Filed July 26, 1897. Serial No. 645,587. (No model.)

Claim.—1. The combination of the steam-cylinder, the annular steam-chambers on opposite sides of said cylinder and cylindrical valve-cages beyond said chambers all arranged axially at right angles to a straight line passing diametrically through the cylinder, the rotary piston-head having a plurality of pistons projecting from its periphery, rotary steam-induction valves in the aforesaid chambers, and each provided with an axial steam-passage, a plurality of radial steam-channels and abutments projecting from the valve between said channels, exhaust-valves in the aforesaid cages and provided with axial exhaust-channels and separate exhaust-pipes communicating directly with said axial channels, as set forth and shown.

2. The combination of the steam-cylinder, two annular steam-chambers respectively on opposite sides of said cylinder and cylindrical valve-cages beyond the said chambers all arranged axially at right angles to a straight line passing diametrically through the steam-cylinder and formed with steam-passages from the said valve-cages around opposite sides of each of the aforesaid steam-chambers and directly to the inner wall of the steam-cylinder, the rotary piston-head provided with a plurality of radially-projecting pistons, rotary steam-induction valves in the aforesaid chambers and provided with axial induction-passages and radial channels leading from said passages, abutments projecting from said valves between the radial channels and formed with convex divergent walls forming steam-tight joints with the traversing pistons, cylindrical exhaust-valves in the cages provided with axial steam-passages and radial channels extending from the axial passages to communicate with the steam-passages in the valve-chambers as set forth.



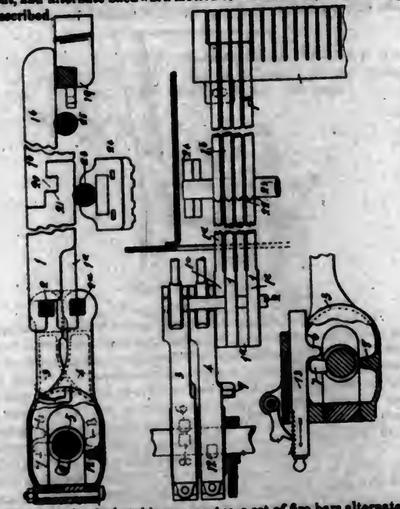
3. The combination with the engine-bed, of the steam-cylinder, two annular steam-chambers respectively on opposite sides of said cylinder and cylindrical valve-cages beyond said chambers all arranged axially at right angles to a straight line passing diametrically through the cylinder, the rotary piston-head provided with radially-projecting pistons, rotary steam-induction valves in the aforesaid chambers, steam-induction pipes journaled in the axis of said valves, and cylindrical exhaust-valves in the aforesaid cages, of pinions attached to the aforesaid induction-pipes, cranks attached to the exhaust-valves, racks engaging said pinions, a rod connecting the two cranks and a hand-lever pivoted to the engine-bed and connected to the said racks and connecting-rod substantially as set forth and shown.

606,607. MECHANICAL STOKER. JOHN VICARS, the Elder, Boot, and THOMAS VICARS and JOHN VICARS, the Younger, Liverpool, England. Filed Dec. 21, 1897. Serial No. 662,993. (No model.) Patented in England Nov. 30, 1895, No. 22,989.

Claim.—1. In a mechanical stoking apparatus, a set of fire-bars alternately connected to separate cross-bearers, a rotary shaft having actuating connections with the bearers, arranged to give a single forward, and alternate backward motion to the fire-bars, and a cam upon the shaft arranged to hold one set of bars against backward movement during a portion of the rotation; substantially as described.

2. In mechanical stoking apparatus, the combination with a set of fire-bars, of separate cross-bearers connected to alternate fire-bars, one series of bars having keys 3 with teeth 6 and 8, a rotating shaft having projections arranged to act upon the teeth, and keys 4 having teeth acted upon by projections on the shaft, and connected with the other fire-bars, and stops upon one series of bars arranged to contact with the cam upon the shaft, to prevent backward motion of the series during a part of the revolution of the shaft; substantially as described.

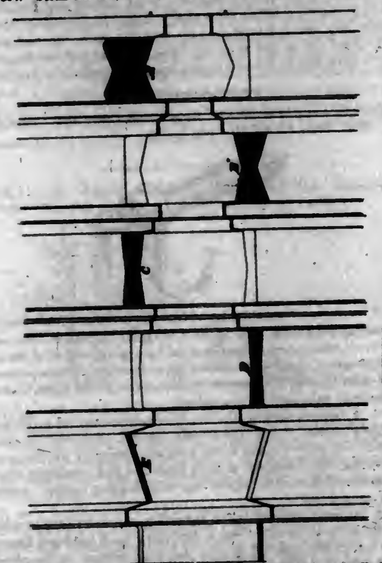
3. In mechanical stoking apparatus, the combination with a rotary shaft having projections or dogs, of separate keys having projections engaged by the dogs, at least one of the key projections being located upon an adjustable bar carried in the key, and fire-bars connected alternately to cross-bearers actuated by the keys, the connection being arranged to give a single forward motion of variable extent, and alternate backward motion to the fire-bars; substantially as described.



4. In mechanical stoking apparatus, a set of fire-bars alternately connected to upper and lower cross-bars, actuating connections between the cross-bars and a rotatory shaft, the cross-bar of one set of fire-bars being arranged to move the other bars forward, and a cam upon the shaft arranged to prevent rearward movement of one set of bars during a portion of the rearward stroke of the other bars, substantially as described.

5. In mechanical stoking apparatus, a fire-bar made in two parts, one of said parts having an end groove and a vertical slot, and the other part having a lug to enter the slot, and a reduced end portion arranged to fit in the groove and prevent side movement, and a support for the bar located beneath this loose connection; substantially as described.

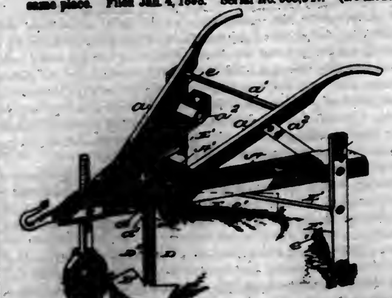
606,608. ROLLS. PETER M. WILSON, Munhall, Pa., assignor to The Carnegie Steel Company, Limited, Pittsburg, Pa. Filed May 22, 1897. Serial No. 637,900. (No model.)



Claim.—1. In apparatus for rolling flat sheets or bars, rolls having at the first pass registering projections arranged to form a single upper and lower registering groove in the metal and succeeding passes having symmetrical flatter and wider projections arranged to spread the metal symmetrically in a lateral direction and flatten the grooves to substantially the same amount upon each side.

2. In apparatus for rolling flat sheets or bars, rolls having at the first pass annular projections arranged to form a single upper and a single lower groove in the metal, said grooves registering with each other, intermediate passes provided with registering wider and shallower projections arranged to spread the metal symmetrically on each side, and a pass arranged to narrow the metal slightly and flatten the same.

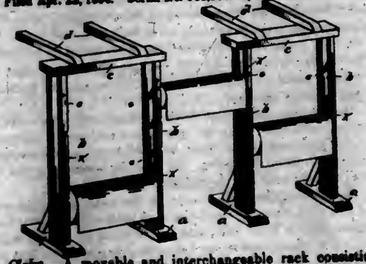
606,609. CULTIVATOR-PLOW. DEWITT C. WEED and FREDERIC ATKIN, Vickery, Ohio, assignors of one-third to Samuel M. Smart, same place. Filed Jan. 4, 1898. Serial No. 665,547. (No model.)



Claim.—1. In a cultivator of the character described the combination of the V-shaped frame provided with suitable handles, with a cutter-post secured to the middle of said frame and having on its lower end at right angles thereto a cutter-shovel, and on the rear of said frame the cutter-shovels E, E, having the cutter portions thereof at right angles and set at an angle to the direction of movement of the plow, as set forth.

2. In a cultivator of the character described a cutter-shovel located near the front of said plow and having a flaring cutting edge, and cutter-shovels, substantially as described, located near the rear of said plow-frame and having their cutting-shovels set backward at an angle to the direction of movement of the plow, substantially as and for the purpose set forth.

606,610. DISPLAY-RACK. HARLEY D. WELLS, Spencer, W. Va. Filed Apr. 22, 1896. Serial No. 588,567. (No model.)



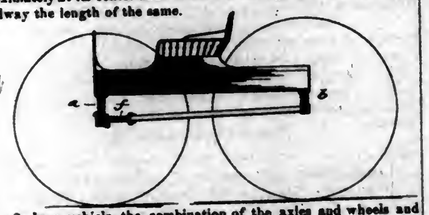
Claim.—A movable and interchangeable rack consisting of a base the uprights provided with notches forming bearings for the carrying-pins, said uprights being united at their upper ends and provided with lateral extensions by which they are held in position when arranged in pairs, the uprights having notches or bearings on their exterior by which the racks when the location thereof is changed to be set in a straight line are adapted to carry rolls or bolts between them, thus one pair forming three racks in combination with a headed tapering pin for carrying the roll, substantially as set forth.

606,611. VEHICLE. NATHANIEL WESTON, Redmonds, Va. Filed Oct. 9, 1897. Serial No. 654,636. (No model.)

Claim.—1. In a vehicle, the combination of the axles and wheels and body, suitable means for supporting the body on the rear axle, and a coil spring supporting the front end of the body on the front axle, said spring being connected at its respective ends to the axle and to the body whereby the spring may yield vertically and torsionally, as and for the purposes set forth.

2. In a vehicle, the combination of the axles and wheels and body, suitable means for supporting the body on the rear axle, and a

coil-spring supporting the front end of the body on the front axle, said spring being connected rigidly at its upper end to the body approximately at its center and at its lower end rigidly to the axle about midway the length of the same.



3. In a vehicle, the combination of the axles and wheels and body, suitable means for supporting the body on the rear axle and a coil-spring supporting the front end of the body on the front axle, means connecting the upper end of the spring to the body, and means connecting the lower end of the spring rigidly to the axle, said means consisting of a clip clamping the axle and a short bolt having its head engaging over the lower coil of the spring and its threaded shank passing through an aperture in the clip, and a nut on said bolt lying in a recess between the axle and said clip.

4. The combination of a pair of axles and supporting-wheels, a vehicle-body, means for supporting the body on the rear axle, and a resilient support directly connecting the body to the front axle, about midway the length of the latter, said support being yieldable torsionally.

5. In a vehicle, the combination of the axles and supporting-wheels, a reach connected to the rear axle, an elastic device connecting the reach to the front axle, said device being yieldable longitudinally and torsionally.

6. The combination in a vehicle of the axles and supporting-wheels, a reach extending forward from the rear axle, a strong spiral spring connecting the forward end of the reach to the front axle, the respective ends of said spring being rigidly connected to the reach and to the axle.

7. The combination of a pair of axles and supporting-wheels and a reach extending forward from the rear axle, a coil-spring interposed between the forward end of the reach and the axle, and a connecting device connecting the reach to the axle and holding the spring compressed.

8. The combination of a pair of axles and supporting wheels, a reach extending forward from the rear axle, a flexible connecting device connecting the reach to the front axle and a compressed coil-spring interposed between the reach and the axle and adapted to yield laterally and torsionally.

9. The combination of a pair of axles and supporting-wheels, a reach extending forward from the rear axle, a swinging connecting-link connecting the reach to the axle, an eyebolt attached to the front end of the link, a clip connecting the eyebolt to the axle, an eyebolt connected to the rear end of the link and provided with a rigid nut, a plate clamping said nut to the front end of the reach, and bolts connecting the plate to the reach.

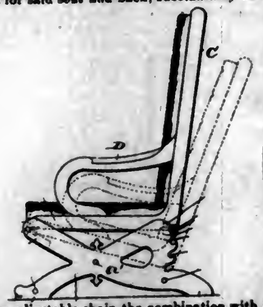
10. The combination of a pair of axles and supporting-wheels, a reach extending forward from the rear axle, a coil-spring interposed between the front end of the reach and the front axle, a swinging connecting-link within the spring, and eyebolts connecting the link respectively to the axle and the reach.

11. The combination in a vehicle, of the axles and supporting-wheels, a reach, an elastic device interposed between the forward end of the reach and the front axle, said device being yieldable longitudinally and torsionally, and means connecting the reach to said axle and holding the elastic device compressed, as and for the purpose set forth.

606,612. ADJUSTABLE CHAIR. JOSEPH J. WHITE, New Lisbon, N. J. Filed Feb. 12, 1897. Renewed Dec. 1, 1897. Serial No. 660,420. (No model.)

Claim.—1. In an adjustable chair, the combination with the base comprising the side pieces provided adjacent to their rear ends with supporting-shoulders in different horizontal planes, of a seat pivoted to said base adjacent to its front edge, and lying between said side pieces, supporting means for engaging said shoulders and directly supporting said seat adjacent to its rear end, and a back connected to said seat, whereby said seat can be adjusted vertically between said side pieces, substantially as described.

2. In an adjustable chair, the combination with the base, comprising the side pieces provided adjacent to their rear ends with supporting-shoulders in different horizontal planes, of a supporting-bar engaging said shoulders, and a combined seat and back secured together, said seat being pivoted between said side pieces adjacent to its front end and resting on said bar, between said side pieces at its rear end, whereby said seat and back may be moved vertically between said side pieces, said bar and pivotal connection forming the sole supports for said seat and back, substantially as described.



3. In an adjustable chair, the combination with the base including among its members side pieces each provided adjacent to its rear end with supporting-shoulders in different horizontal planes, of supporting means adapted to engage said shoulders and provided with devices for preventing the lateral movement of said side pieces, a seat pivotally connected adjacent to its front edge to said base and having its rear portion directly supported by said supporting means and a back rigidly connected with said seat, substantially as described.

4. In an adjustable chair, the combination with the base including among its members, side pieces each provided adjacent to its rear end with supporting-shoulders in different horizontal planes, of a supporting-bar adapted to engage said shoulders, and provided with devices for preventing the lateral movement of said side pieces, a seat pivotally connected adjacent to its front edge to said base and having its rear portion resting on said bar, a back rigidly connected with said seat and means for preventing the lateral movement of said seat and back with respect to said base, substantially as described.

5. In an adjustable chair, the combination with the base including among its members side pieces each provided adjacent to its rear end with supporting-shoulders in different horizontal planes, of a supporting-bar adapted to engage said shoulders and provided with devices for preventing the lateral movement of said side pieces, a seat pivotally connected adjacent to its front edge to said base and having its rear portion resting on said bar, a back rigidly connected with said seat, and spacing-blocks between said back and seat and the side pieces of said base, substantially as described.

6. In an adjustable chair, the combination with the base, having side pieces provided at their rear ends with plates each having a slot a series of supporting-shoulders at one side of said slot, and attaching means out of the plane of said supporting-shoulders, of a supporting-bar adapted to engage the said shoulders, the seat pivoted at its front end to said base and having its rear end resting on said bar, a back rigidly secured to said seat, substantially as described.

606,613. SAP-SPOUT. REES WILLIS, Colton, N. Y. Filed Apr. 8, 1898. Serial No. 676,941. (No model.)

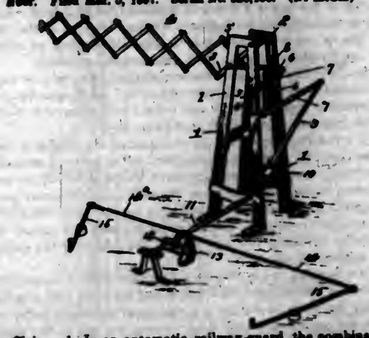


Claim.—1. A sap-spout provided with a longitudinal channel, a depending hook from said spout, a plugging portion at the rear of said hook, bearing extensions from said plugging portion at the sides thereof and of equal width therewith, and anchoring-lugs projecting from said extensions in opposite directions and of less width than said extensions; substantially as specified.

2. A sap-spout provided with a longitudinal channel, a cylindrical plugging portion at the rear of said channel, horizontal extensions merged into and of equal width with said plugging portion, a web connecting said extensions at their inner ends, and oppositely-extending anchoring-lugs of less width than said plugging portion; substantially as specified.

3. An improved sap-spout consisting of a body portion with a depending lip at its outer end, a depending hook having a flattened inner face, a rib upon the face of said body portion in the plane of said hook, a cylindrical plugging portion, extensions extending therefrom at the sides thereof, a web connecting the inner end of said extensions, and oppositely-extending lugs carried by said web and of less width than the plugging portion; substantially as specified.

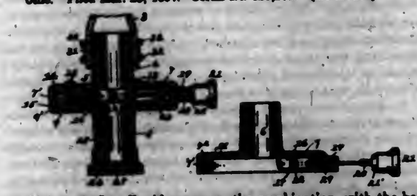
606,614. AUTOMATIC ROADWAY-GUARD. WILLIAM O. WEBB, Hooper, Nebr., assignor of one-third to Hiram A. Sturges, Omaha, Nebr. Filed Mar. 5, 1897. Serial No. 626,133. (No model.)



Claim.—1. In an automatic railway-guard, the combination of a support, upright guideways 6 thereon, said guideways being open at their upper ends, a lazy-tongs mounted in said support, the upper end of one of the levers forming the inner section of said lazy-tongs being pivotally secured to said support, a cross-bar carried by the inner, lower end of the other lever of the said inner section, said cross-bar being vertically movable in said guideways, a bell-crank lever 7 pivoted in the support below the lazy-tongs, a substantially horizontal link connecting the upward-extending arm of the bell-crank to one of the levers of said inner section of the lazy-tongs, and means connected to the other arm of said bell-crank lever and adapted to be operated by the passing vehicle whereby the lazy-tongs will be extended during the passage of the vehicle and be folded when said vehicle has passed by the guard, substantially as described.

2. In an automatic railway-guard, the combination of a support, provided with upright guideways open at their upper ends, a lazy-tongs mounted in said support, the upper end of one of the levers comprising the inner section of said lazy-tongs being pivoted to said support, a cross-bar carried by the inner, lower end of the other lever of said inner section, said cross-bar being vertically movable in the guideways and held against lateral movement therein, a substantially horizontal link connected to one of the levers of the inner section of the lazy-tongs beyond their common pivot, a bell-crank lever mounted on a support below the lazy-tongs, one arm of said lever being connected to the end of said link, a crank-shaft below the bell-crank lever, a pitman connected to the other arm of said bell-crank and also to the crank arm on said crank-shaft, another crank-arm on said shaft, and means connected to this latter crank-arm adapted to be operated by the passing vehicle, whereby the guard will be extended during the passage of the vehicle and folded when said vehicle has passed by the guard, substantially as described.

606,615. LIQUID-CONVEYER. WILLIAM J. YORK, Greenfield, Ohio. Filed Mar. 26, 1897. Serial No. 629,205. (No model.)



Claim.—1. In a liquid-conveyer, the combination, with the barrel and measuring-gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle comprising two parts, each part having a tube with an outwardly-extending flange, said flanges being secured together face to face, and a valve closing one of said tubes, substantially as set forth.

2. In a liquid-conveyer, the combination, with the barrel and measuring-gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle comprising two parts, one part having a tube 6 with a flange 7, the other part having a tube 8 with a flange 9, and a valve 16 closing one of said tubes, substantially as set forth.

3. In a liquid-conveyer, the combination, with the barrel and measuring-gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle comprising two parts, one part having a tube 6 with a flange 7, the other part having a tube 8 with a flange 9, and a valve 16 controlled by stem 20 and closing one of said tubes, substantially as set forth.

4. In a liquid-conveyer, the combination, with the barrel and measuring-gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle comprising two parts, one part having a tube 6 with a flange 7, the other part having a tube 8 with a flange 9, and a valve 16 controlled by thumb-screw 21 and closing said tube 6, substantially as set forth.

5. In a liquid-conveyer, the combination, with the barrel and measuring-gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle comprising two parts, one part having a tube 6 with a flange 7, the other part having a tube 8 with a flange 9, said flange 7 having a cylindrical projection 7', the packing 15, the valve 16, having grooves 17 and 18, the thumb-screw 21 with stem resting in groove 18, and stem-head 22 engaging groove 17, the thumb-screw being so disposed that the normal pressure of its stem against the valve forces the latter to its seat, said flanges being secured together by screws 13, substantially as set forth.

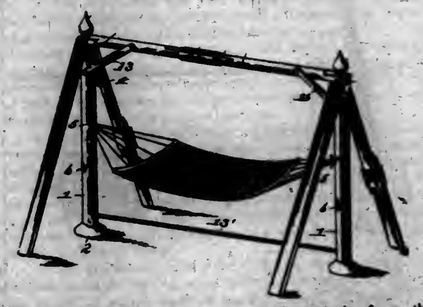
6. In a liquid-conveyer, the combination, with the barrel and measuring-gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle comprising two parts, one part having a tube 6 with a flange 7, the other part having a tube 8 with a flange 9, said flange 7 having a cylindrical projection 7', and a groove 7^2, said flange 9 having an outward projection 9', and a groove 9^2, the packing 15 between said projections 7' and 9', the packing 14 between said grooves 7^2 and 9^2, the lower part of said nozzle having the recess 23, the valve 16 working in said recess and closing said tube 6, said valve having grooves 17 and 18, the hollow threaded boss 19, projected from cylinder 7' and having packing 29, the thumb-screw 21 with stem 20 threaded to screw into said boss, the inner end of said stem working in groove 18, and stem-head 22 engaging groove 17, the threaded stem 20 of the thumb-screw being so disposed that its inner end normally forces the valve 16 to its seat, the tube 8 and flange 9 having the grooves 25, said flanges 7 and 9 being secured together by screws 13, substantially as set forth.

7. In a liquid-conveyer, the combination, with the nozzle inserted in a flexible tube, of a band wired at each side and clamped upon said flexible tube by twisting the free ends of the wires together, substantially as set forth.

8. In a liquid-conveyer, the combination, with the barrel and gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle having a cap 26', and a taper-tube 28 secured in said cap, substantially as set forth.

9. In a liquid-conveyer, the combination, with the barrel and gage, of a nozzle, a flexible tube connecting said nozzle and gage, said nozzle having a cap 26', and a taper-tube 28 secured in said cap, said taper-tube fitting in a perforation in the cap and having a flange 28' inside the cap, substantially as set forth.

606,616. HAMMOCK-FRAME. ABEL A. YOUNG, Williamsport, Ind. Filed June 14, 1897. Serial No. 640,731. (No model.)

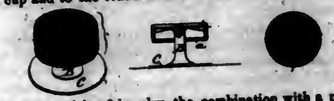


Claim.—In a folding portable hammock-supporting frame, the combination of a post having hooks arranged thereon in various positions, and legs movably attached to the upper part of opposite sides of said posts, the legs on one side being adjustable, an upper cross-bar hinged to one of the posts and having a joint intermediate of its ends, substantially as and for the purposes specified.

606,617. ARTICLE OF JEWELRY. FRANCIS X. EISENLOHR, Philadelphia, Pa. Filed Aug. 30, 1897. Serial No. 649,972. (No model.)

Claim.—1. In an article of jewelry, the combination with a per-

forated cup open at the top, of an ornamental center within the cup and below the upper edge thereof, a post forming the support for the cup extending through the perforation in the cup and secured both to the cup and to the ornamental center, substantially as described.



2. In an article of jewelry, the combination with a perforated cup, of a post forming the support for the cup passing through the perforation in the cup and secured thereto, with a rosette secured to the end of the post within the cup but not attached to the cup, substantially as described.

3. In an article of jewelry, the combination with a perforated cup, of a post forming the support for the cup, said post having a base at one end and passing through the perforation in the cup, and a rosette secured to the opposite end of the post within the cup but not attached to the cup, substantially as described.

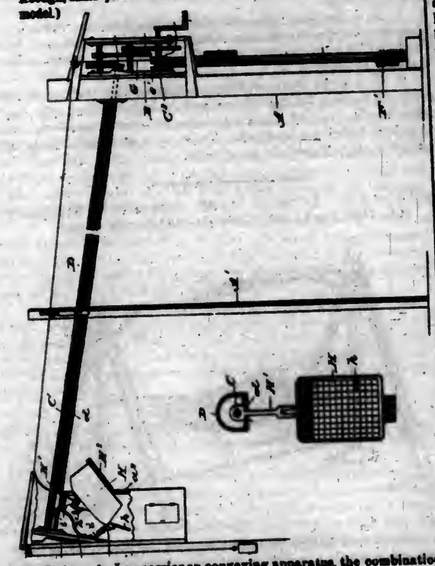
4. In an article of jewelry, the combination of the perforated cup, a post extending therethrough and secured thereto and having its end split, forming fingers, with a rosette secured to the fingers of the post within the cup, substantially as described.

5. The combination, in an article of jewelry, of a cup, a notched disk mounted within the cup, and a rosette mounted above the disk and below the top of the cup, substantially as described.

6. In an article of jewelry, the combination of a cup having an ornamental inner and outer surface and edge, a post secured to the cup, and a ribbed disk having an undulating surface and a serrated edge to represent a rosette said disk being mounted within the cup and attached to the post, substantially as described.

7. In an article of jewelry, the combination of a cup having a ribbed inner and outer surface and edge, a post secured to the cup, and a ribbed disk having an undulating surface and a serrated edge to represent a rosette, said disk being mounted within the cup and below the upper edge thereof, substantially as described.

606,618. **CARRYING APPARATUS.** JOHN ANDERSON, Walla Walla, Wash., assignor of two-thirds to William O. Fallen and John Keough, same place. Filed Feb. 25, 1898. Serial No. 671,886. (No model.)



Claim.—1. In a carrier or conveying apparatus, the combination with a screw-threaded rod or shaft, a block mounted thereon, a receptacle attached to said block, means for imparting movement to the shaft in one direction and means for effecting automatically a reverse movement of the shaft, substantially as shown.

2. In a carrying apparatus, the combination with a screw-threaded shaft, a block and carrier mounted thereon, a train of gear for imparting to the shaft a rapid rotary movement in one direction and means for automatically operating the gearing and shaft in an opposite direction to effect the return of the carrier, substantially as set forth.

3. In a carrying apparatus the combination with a rigidly-mounted slotted tube, a screw-threaded shaft within the same, a block mounted upon the shaft and provided with a depending portion from which a carrier is pivotally suspended, a train of gearing for rotating the screw-threaded shaft in one direction, means for actuating the driving-shaft of the train of gearing in a direction opposite from that from which it is driven manually and a receptacle for the reception of the contents of the carrier when the carrier reaches the limit of its movement in one direction upon the shaft, substantially as shown.

4. In a carrying apparatus, the combination of a track or way, a screw-threaded shaft, a block mounted on said shaft, a carrier pivotally suspended from said block, and a fixed receptacle with which the carrier engages, substantially as shown.

5. In a carrying apparatus, the combination of a carrier, a door having an extended portion and spring for holding the same normally closed, a spring attached to the supporting means of the carrier and to the carrier to maintain the same normally in a horizontal position; together with a receptacle having a portion with which the carrier engages to effect an inclination of the same and means for automatically operating the door against the action of the spring thereof, substantially as shown.

6. In a carrying apparatus, the combination with a supporting-block, a carrier pivotally attached thereto and provided with a spring for holding the carrier normally in a horizontal position, a buffer attached to the carrier so as to project beyond one end of the same, a door held normally closed by a spring, a receptacle having a portion for engagement with the buffer and a spring the terminal portions of which are in line with the block and projecting portion of the door, substantially as shown and for the purpose set forth.

7. In a carrying apparatus, the combination with a covered and slotted track or way, a screw-threaded shaft located therein, a carrier supported by a block which engages with the shaft, a train of gearing in mesh with a pinion on the shaft, the driving-shaft of the train having drums, belts attached to the drums and weights carried by said belts; together with a flexible connection which extends from one of the weights to a point adjacent to the discharge-station of the carrier, for the purpose set forth.

8. In a carrying apparatus, the combination with a covered and slotted track or way, a screw-threaded shaft which extends through the track or way, a block through which the shaft passes, a carrier suspended from the block, a train of gearing the driving-shaft thereof having a drum over which passes a belt, a weight attached to said belt, means for raising the weight manually and means for effecting a rotation of the driving-shaft, substantially as set forth.

9. In a carrying apparatus, the combination with a covered and slotted track or way, a screw-threaded shaft located therein, a carrier in engagement with said shaft, a train of gear for manually rotating the shaft in one direction, a drum mounted on one of the shafts of the train of gear, a weight connected by a belt to the drum, springs or cushions mounted above and below the weight and means for manually raising the weight from a distant station; together with a second drum, belt and weight for actuating the train of gearing and shaft in an opposite direction from what it is operated manually, substantially as shown and for the purpose set forth.

606,619. **STRAW OR STRAND FEEDING DEVICE.** FREDERICK E. ARMOUGHER, Worcester, Mass. Filed Nov. 26, 1897. Serial No. 659,755. (No model.)

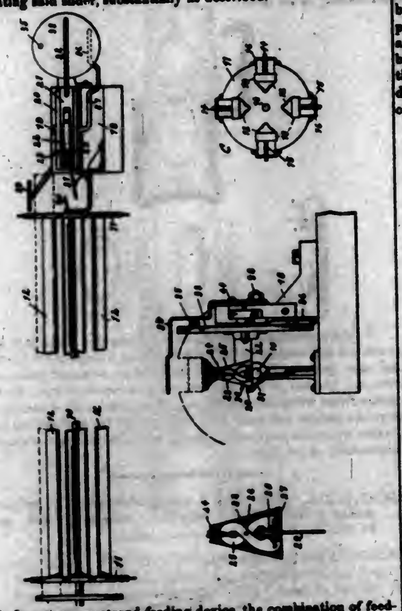
Claim.—1. In a straw or strand feeding device, the combination of feed-rolls, a carrier for a bunch of straws, a gripping device, means for moving the gripping device transversely with respect to the bunch of straws to engage a straw at a distance from its end, and means for reciprocating the gripping device substantially in line with the bunch of straws to introduce the ends of successive straws into the bite of the feed-rolls, substantially as described.

2. In a straw or strand feeding device, the combination of feed-rolls, a movable carrier or cradle for a plurality of bunches of straws, a gripping device, means for moving the gripping device transversely with respect to the bunches of straws to engage a straw at a distance from its end, and means for reciprocating the gripping device substantially in line with the bunches of straws to introduce the ends of successive straws into the bite of the feed-rolls, substantially as described.

3. In a straw or strand feeding device, the combination of a slideway, means for raising and lowering the slideway, a slider mounted therein and carrying a gripping device, and means for reciprocating said gripping device, substantially as described.

4. In a straw or strand feeding device, the combination of a carrier for a bunch of straws, feed-rolls, a slideway, means for raising and lowering the slideway, a slider carrying a gripping device, and means for reciprocating said slider to introduce successive straws into the bite of the feed-rolls, substantially as described.

5. In a straw or strand feeding device, the combination of a movable carrier, or cradle for receiving a plurality of bunches of straws, a slideway, means for raising and lowering the slideway, a slider mounted therein and carrying a gripping device, and means for reciprocating said slider, substantially as described.



6. In a straw or strand feeding device, the combination of feed-rolls, a carrier for a bunch of straws, a gripping device having spring-pressed jaws, means for moving the gripping device transversely with respect to the bunch of straws, a stop or cam for closing the gripping-jaws into engagement with a straw, at a distance from its end, means for reciprocating the gripping device substantially in line with the bunch of straws to introduce the end of a straw into the bite of the feed-rolls, and a stop or cam for releasing the spring-pressed jaws, substantially as described.

7. In a straw or strand feeding device, the combination of feed-rolls 42 and 43, a cradle or carrier C for receiving a plurality of bunches of straws, a slideway 18, a slider 21 mounted therein and carrying a gripping device, means for reciprocating said slider, means for raising and lowering the slideway, a buncher 20, and means for moving the buncher in opposition to the movement of the slideway to hold the straws in position to be engaged by the gripping device, substantially as described.

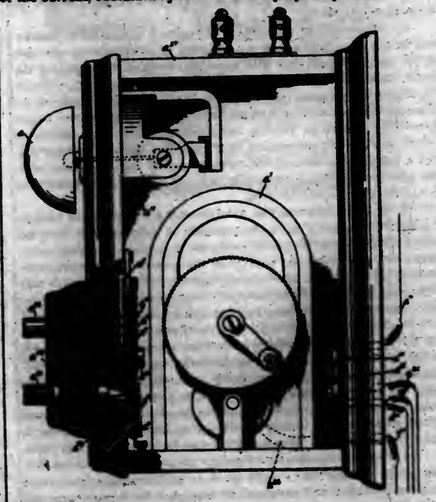
606,620. **SYSTEM FOR ELECTRICAL COMMUNICATION.** ALEXANDER T. BROWN, Syracuse, N. Y., assignor to Wilbert L. Smith, trustee. Filed Apr. 9, 1898. Serial No. 676,703. (No model.)

Claim.—1. A party-line system comprising a metallic circuit, one or more stations having responsive devices in the metallic circuit, two or more stations each having a ground-tap and a responsive device therein, a source of electrical energy with an optional ground-tap, placeable in that branch of the metallic circuit which connects the junction-points of the first and last ground-taps and includes the responsive device of the station or stations first specified, and telephonic devices at each station placeable in the metallic circuit.

2. A party-line system comprising a metallic circuit, two or more stations having responsive devices in the metallic circuit, two or more stations each having a ground-tap and a responsive device therein, a source of electrical energy with an optional ground-tap, placeable in the metallic circuit between either station in the metallic circuit and the ground-tap adjacent thereto, and telephonic devices at each station placeable in the metallic circuit.

3. A party-line system comprising a metallic circuit, two or more stations each having responsive devices in the metallic circuit, one or more stations having a ground-tap and a responsive device therein, a source of electrical energy with an optional ground-tap placeable in the metallic circuit between the ground-tap having a responsive device therein and either station in the metallic circuit adjacent thereto, and telephonic devices at each station placeable in the metallic circuit.

4. A system for electrical communication comprising two line conductors, separate stations provided with signals operated by currents of different polarity and connected to the ground and to one line conductor, additional stations provided with signals operated by currents of different polarity and connected in metallic circuit to both line conductors, means for passing electric currents of different polarity over one line conductor to the stations connected thereto and to the ground and for passing currents of different polarity over both line conductors to the additional stations, means at said stations for operating the signals of any of the stations, and switching devices at said stations for controlling the passage and the polarity of the current, substantially as and for the purpose specified.



5. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently-movable switch members provided with terminals for engaging the former terminals and regulating the passage of the current, and an operating-piece mechanically connected to each of said switch members for simultaneously actuating the same, substantially as described.

6. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently-movable switch members provided with terminals for engaging the former terminals and regulating the passage of the current, and a plurality of operating-pieces each connected to each of said switch members for independently actuating the same, substantially as and for the purpose specified.

7. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently movable switch members provided with terminals for engaging the former terminals and regulating the passage of the current, an electrically-operated device normally connected to one of said movable switch members, and a plurality of operating-pieces each connected to each of said switch members for independently actuating the same, substantially as and for the purpose described.

8. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently-movable switch members provided with terminals for engaging the former terminals and regulating the passage of the current, a source of electric energy normally connected to said movable switch members, and a plurality of operating-pieces each connected to each of said switch members for independently actuating the same, substantially as and for the purpose set forth.

9. The combination with a circuit having signals or responsive devices connected thereto, a generator; and terminals connected to the circuit; of switch members movable independently in opposite directions and provided with terminals connected to the poles of the generator and movable into engagement with the former terminals for regulating the passage of the current from the generator to the circuit, and an operating-piece for moving one switch member in one direction and engaging its terminal with one of the former terminals, and for moving the other switch member in the opposite direction and engaging its terminal with another of the former terminals during the engagement of the terminal on the first switch member with said one of the former terminals engaged therewith, substantially as and for the purpose described.

10. The combination with a circuit having signals or responsive devices connected thereto, a generator, and terminals connected to the circuit; of independently-movable switch members provided with terminals connected to the poles of the generator and movable into engagement with the former terminals for regulating the passage of the current from the generator to the circuit, and an operating-piece for moving one switch member in one direction and engaging its terminal with one of the former terminals, and for moving the other switch member a less distance than the first switch member and engaging its terminal with another of the former terminals during the engagement of the terminal on the first switch member with said one of the former terminals engaged therewith, substantially as and for the purpose set forth.

11. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently-movable switch members provided with movable terminals for engaging the former terminals and regulating the passage of the current, a plurality of operating-pieces each connected to said switch members for independently actuating the same, local conductors connected to the former conductors, an electric communicating device, an additional switch member for connecting said device to the local conductors, and a support for the electric communicating device connected to the additional switch member for operating the same, substantially as and for the purpose set forth.

12. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently-movable switch members provided with terminals for engaging the former terminals and regulating the passage of the current, said switch members being formed with apertures arranged out of alinement with each other, and operating-pieces movable into the apertures for actuating said switch members, substantially as and for the purpose described.

13. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently-movable switch members provided with terminals for engaging the former terminals and regulating the passage of the current, said switch members being provided with apertures arranged out of alinement with each other, operating-pieces movable into the apertures for actuating said switch members, and springs for returning said switch members to their normal position, substantially as and for the purpose set forth.

14. The combination with fixed terminals connected to conductors for the passage of an electric current; of independently-movable members provided with terminals for engaging the former terminals and regulating the passage of the current, said members being provided with apertures arranged out of alinement with each other, operating-pieces movable into the apertures for actuating said members, and means for holding said members in their normal position, substantially as and for the purpose specified.

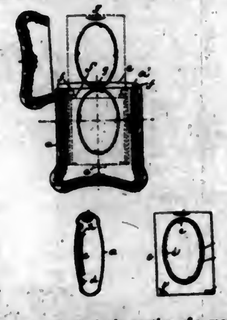
15. The combination with fixed terminals connected to conductors for the passage of an electric current; of reversely-rocking switch members provided with terminals for engaging the former terminals and regulating the passage of the current, said switch members being provided with apertures arranged out of alinement with each other, and reciprocating operating-pieces movable into the apertures for actuating said switch members, substantially as and for the purpose described.

16. The combination with a circuit having signals or responsive devices connected thereto, a generator, and terminals connected to the circuit; of movable switch members provided with terminals connected to the poles of the generator and movable into engagement with the former terminals for regulating the passage of the current from the generator to the circuit, and an operating-piece movable in a plane disposed at an angle with the plane of movement of the switch members, for moving said switch members and engaging their terminals with the former terminals, substantially as and for the purpose set forth.

17. The combination of a subscriber's circuit having responsive devices connected thereto, a generator, a switch, said switch being provided with terminals connected to the circuit, independently-movable switch members provided with terminals connected to the poles of the generator and movable into engagement with the former terminals, a plurality of operating-pieces suitably connected to the switch members for actuating the same, and means for automatically returning the switch members to their normal position, substantially as and for the purpose set forth.

606,621. COMBINED PICTURE-FRAME AND MATCH SAFE OR RECEPTACLE. JOSEPH V. CHESEK, Newark, N. J., assignor to Alling & Co., same place. Filed Oct. 9, 1897. Serial No. 654,695. (No model.)

Claim.—1. The improved picture-frame and match box or receptacle, comprising the box-body open at one end, and provided at said open end with a hinged cover, said body having formed on the inside thereof slideways and stops, a picture-frame arranged within said box-body on said slideways and limited in its sliding movement by said stops, the upper edge of said frame extending to the upper edge of the box-body at the open end and thereat provided with a nail-slot, and the center of said frame being open to receive a picture, substantially as set forth.



2. The combination with the body portion of a match-safe, open at one end and having interior slideways and a hinge-cover to cover said end opening, of a sliding picture-frame arranged within said body and adapted to be withdrawn when the cover is open, the said picture-frame being centrally open and provided with a bezel to receive the picture and hold the picture against the inside of the body portion, where the pictured surface will not be injured by the matches, substantially as set forth.

606,622. KITE. JOHN F. COOLEY, Rochester, N. Y., assignor of one-half to William R. Gray, same place. Filed Sept. 4, 1897. Serial No. 650,670. (No model.)



Claim.—1. The combination in a kite of a horizontal wing, having front and rear bars and slack air-resisting material between said bars and a smaller vertical guiding-wing intersecting said horizontal wing at right angles, and a steering device behind said wings.

2. The combination in a kite of two horizontal wings, each having front and rear bars and slack air-resisting material between said bars and a smaller vertical guiding-wing intersecting said horizontal wing at right angles, each system being connected to the other system by a longitudinal spar and the rear system having smaller wings than the other.

3. The combination in a kite of a horizontal wing, having the front edges bowed upwardly at the extremities and the rear edge straight, and the slack air-resisting material between said edges, and a smaller guiding-wing set in a plane intersecting the horizontal wing at right angles, and a steering device behind said wings.

4. The combination in a kite of two horizontal wings, each having the front edge bowed upwardly at the extremities and the rear edge straight, and each having slack air-resisting material between said edges, and a vertical guiding-wing set in a plane intersecting each horizontal member at right angles, and each system being connected to the other by suitable means, as a longitudinal spar.

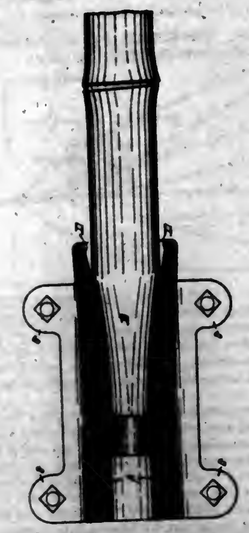
5. The combination of a main spar having two longitudinal slots in each end, at right angles to each other and horizontal and vertical wings set in said slots and intersecting each other at right angles, and a fastening at the ends of the spar, and means for bowing the front edges of the horizontal wings upwardly at the extremities.

606,623. PROCESS OF REDUCING AND SHAPING BAMBOO RODS. WALTER H. DURAND and WELLS H. PRICHARD, Milwaukee, Wis. Filed Jan. 7, 1897. Serial No. 618,906. (No model.)

Claim.—1. The process of reducing the size of bamboo stalks, consisting in subjecting the stalk to a degree of heat sufficient to soften the silicious coating, and simultaneously compressing the stalk to collapse the cell-walls of the fibers, and cause the silicious coating to fill the interstices and solder the fibers together, substantially as described.

2. The process for reducing bamboo stalks, consisting in forcing the stalks longitudinally into a tapering heated metallic die, substantially as described.

3. The process for reducing bamboo stalks, consisting in forcing the stalks longitudinally into a tapering metallic die, with the latter at a gray heat, whereby the silicious coating of the stalk and its fibers is melted to a plastic state, and the cells collapsed, substantially as described.



606,624. FOOD COMPOUND AND METHOD OF MAKING SAME. WILLIAM GERHARDT, San Antonio, Tex., assignor of one-half to Albert Krumbeck, same place. Filed July 20, 1897. Serial No. 645,550. (No specimens.)

Claim.—1. A dry powdered condiment comprising a dried and ground mixture of chilli-pepper and garlic impregnated with black pepper and origanum; together with powdered flavorants, in substantially the proportions specified.

2. A dry powdered condiment comprising a dried and ground mixture of chilli-pepper and garlic impregnated with black pepper and origanum; and powdered cumin-seed and origanum, in substantially the proportions specified.

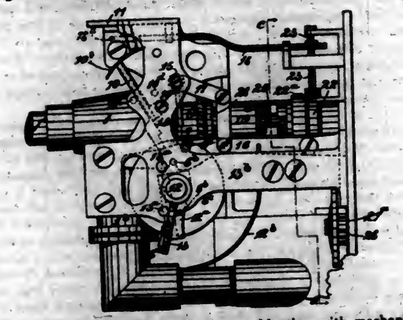
3. The herein-described process of preparing a chilli-pepper compound for use as a condiment, the same consisting in saturating a mixture of chilli-pepper hulls and garlic in a solution, in water and alcohol, of black pepper and origanum; then grinding and pressing the moist mass to form thin sheets or strips; then drying said sheets or strips; subsequently grinding the dried sheets or strips; and finally adding cumin and origanum, all being combined substantially as and in the proportions specified.

4. The herein-described process of preparing a chilli-pepper compound for use as a condiment, the same consisting in obtaining a solution of black pepper and origanum, grinding and mixing chilli-pepper and garlic, saturating the mixture with the solution, drying and granulating the saturated mixture, and adding to it powdered flavorants, substantially as and in the proportions specified.

606,625. PREPAYMENT FLUID-METER. HENRY GREER, Preston, England, assignor to himself, and Alexander G. Humphreys and Arthur Graham Glasgow, New York, N. Y. Filed June 28, 1897. Serial No. 642,217. (No model.) Patented in England Aug. 26, 1893, No. 19,067.

Claim.—1. In a prepayment-meter, the combination with mechanism adapted to be worked by fluid-pressure and mechanism adapted to be worked by hand, of a compound cock adapted to control the flow of fluid through the meter and comprising two plugs one of which is adapted to be turned by the said hand-worked mechanism into a position in which it will open a passage through said cock and the other of which is adapted to be turned by the mechanism worked by the fluid-pressure into a position in which it will close the said passage, the hand-worked mechanism and the corresponding plug being inoperative until a proper coin has been inserted in such apparatus.

2. In a prepayment-meter, a compound cock comprising two hollow plugs arranged concentrically within a barrel or shell and adapted to control the flow of fluid through said meter, mechanism whereby one of said plugs can be operated by hand, coin-operated mechanism controlling said mechanism, mechanism in driving connection with the other of the two plugs and with the measuring apparatus of the meter, and means for preventing the hand-operated plug from overrunning the fluid-operated plug.



3. In a prepayment-meter, the combination with mechanism adapted to be worked by fluid-pressure, and mechanism adapted to be worked by hand but constructed to be inoperative except when a proper coin is inserted therein, of a compound cock comprising a barrel or shell and two hollow plugs arranged concentrically one within the other, shaped to fit one another at the ends and to form an intermediate circumferential chamber between the plugs and a similar chamber between the outer plug and the barrel or shell, each of said plugs being mounted to turn independently of the other and formed with a fluid-passage, and one of them being provided with a closing part adapted by rotation of one plug to close the fluid-passage in the other plug, means connecting one plug with the hand-worked mechanism whereby it can be turned to a position in which it will open a passage through the cock, and means connecting the other plug with the mechanism worked by the fluid-pressure, whereby it is turned to a position to close said passage.

4. A prepayment-meter comprising a meter proper with measuring mechanism, a compound cock adapted to control the flow of fluid through said meter and having two hollow plugs arranged concentrically within a barrel or shell and each provided at its outer end with a driving-wheel, mechanism in driving connection with one of said wheels and its plug and with the measuring apparatus of the meter, a shaft provided with means for engaging and rotating the other wheel and its plug and with a driving disk or plate, a locking device for said driving disk or plate, a rotary coin-holder adapted to support a coin in position to operate said locking device to release said driving disk or plate, and to partly rotate said disk or plate when the same is unlocked, substantially as described.

5. In a prepayment-meter, the combination of a compound cock comprising concentrically-arranged plugs adapted to control the flow of gas through said meter and provided with separate driving-wheels 7 and 9 at their outer ends, driving mechanism in connection with said wheel 9 and with the measuring apparatus of the meter, a shaft provided with means for engaging and driving said wheel 7 and with a plate having locking-pins 6^b, and driving-pins 6^a a rotary shaft with coin-holder 12^a and operating-handle, a locking device comprising a slotted lever adapted to normally engage one or other of said pins 6^b and a lever-arm connected to said slotted lever and arranged in the path of a coin carried by said coin-holder, said driving-pins 6^a being also arranged in the path of said coin, a guard-plate 13^a arranged below said coin-holder, a slotted plate 11, a pivoted coin-chute 10 arranged below said plate and adapted to be brought in line with the slot therein and above the receptacle in the coin-holder when the same is turned upward, and a closing device 10^a adapted to close the slot in said plate when said coin-holder is moved in a direction to unlock said disk, substantially as described and for the purposes specified.

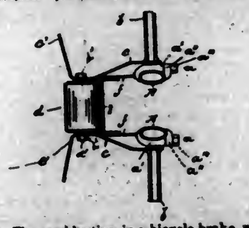
6. In a prepayment-meter, the combination with a compound cock comprising concentrically-arranged plugs adapted to control the flow of gas through said meter, coin-operated mechanism whereby one of said plugs can be turned by hand after the insertion in said mechanism of a proper coin, mechanism whereby the other of said plugs can be turned by the measuring apparatus of the meter, and a plate with a coin-slot, of a tubular extension 19 connected to one of said plugs and formed with a slot 19^a having a part of its length at right angles to said extension, and another part inclined thereto, a spindle fixed to the other plug and connected by a pin-and-slot connection to a sleeve adapted to move lengthwise upon but not to turn about said spindle, a pin fixed to said sleeve and extending through said slot, a collar mounted to slide on said extension and fixed to said

pin, a lever arranged to be operated by said collar, and a bar adapted to be moved by said lever across the slot in said plate, substantially as described and for the purpose specified.

7. A prepayment-meter comprising a meter proper with measuring apparatus, a compound cock having two concentrically-arranged hollow plugs adapted to control the flow of fluid through said meter, actuating mechanism arranged in connection with one of said plugs and worked by pressure of fluid flowing through the meter and two sets of coin-controlled hand-operated apparatus adapted to be independently connected to the other plug, whereby the combined apparatus is adapted for delivering different quantities of fluid in exchange for coins of different values, substantially as described.

8. A prepayment-meter comprising a meter proper with measuring apparatus, a compound cock having two concentrically-arranged hollow plugs adapted to control the flow of fluid through said meter and provided with driving-wheels 7 and 9 respectively, actuating mechanism arranged in driving connection with said wheel 9 and with the measuring apparatus of the meter, two sets of coin-freed mechanism each comprising a coin-chute, a rotary coin-holder arranged below said chute, a shaft provided with a mutilated toothed wheel adapted to gear with said wheel 7 and provided with a slotted or recessed plate and capable of being rotated, when released, through said coin-holder, a locking-lever having a detent or tooth that normally holds said plate with the corresponding mutilated wheel out of engagement with said wheel 7, and a lever-arm arranged in the path of a coin held by the coin-holder and connected with said locking-lever, the mutilated wheel of one coin-freed mechanism having a greater number of teeth than that of the other coin-freed mechanism, a detent arranged to prevent backward rotation of said wheel 7, a pawl that normally prevents said wheel 7 rotating in the opposite direction, and means connected with said pawl and adapted to be operated by each locking-lever so that said pawl will be moved out of engagement with said wheel when either locking-lever is operated to release its corresponding slotted or recessed plate, substantially as described for the purpose specified.

606,626. BICYCLE-BRAKE. JOHN HIGSON, London, England, assignor of one-half to William Evans, Kearny, N. J. Filed Oct. 5, 1896. Serial No. 607,879. (No model.) Patented in England Aug. 14, 1896, No. 15,908.



Claim.—1. The combination, in a bicycle-brake, with the clamps *a*, having foot-supports *b*, which serve as pivots for forwardly-projecting arms *c*, *c*, of said arms *c*, *c*, pivoted upon said foot-supports and extending forward therefrom and at their extremities bent oppositely outward to form a second pair of foot-supports *d' d'*, a brake-shoe arranged between said arms and having bearings thereon, substantially as set forth.

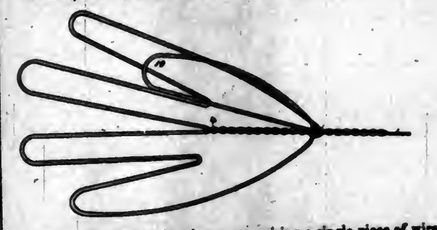
2. The improved brake device for bicycles comprising clamps *a*, *a*, having foot-supports *b*, *b*, extending laterally from said clamps and serving as pivots, arms *c*, *c*, pivoted on said laterally-extending supports bent toward one another and providing bearings for a brake-shoe and forward of said brake-shoe, being bent oppositely away from one another and forming foot-supports *d'*, *d'*, a brake-shoe secured between said arms *c*, *c*, springs *f*, and a connection *g*, for said arms, substantially as set forth.

606,627. BUCKLE. DANIEL B. HIPWELL, London, England, assignor of one-half to Samuel Carter, same place. Filed May 6, 1897. Serial No. 635,910. (No model.) Patented in England July 17, 1895, No. 13,673.



Claim.—In a buckle, the frame provided with two cross-pieces which form integral parts of the frame, the outer one of which is provided with a pocket to receive the front end of the tongue, combined with the forked operating-lever which is pivoted to the frame at its rear end, and is provided with the clips at its outer end, the two outer ends being adapted to be pressed inwardly so as to release the clips; the pivotal rod upon which the lever is pivoted and the tongue which is pivoted to the lever, and which has its free end to catch in the pocket when the buckle is closed, substantially as shown.

606,628. GLOVE-DRIER. JOHN W. HULL, Dayton, Ohio. Filed Nov. 18, 1897. Serial No. 658,518. (No model.)



Claim.—1. A drier for gloves, comprising a single piece of wire twisted upon itself to form a handle, the end of said wire on one side of said handle, forming the second and third digits, and the end of said wire on the other side of said handle, forming the fourth and fifth digits, and the thumb; and the extreme ends of said wire being clenched to an intermediate part of said handle, as herein shown and described.

2. As a new article of manufacture, a glove-drier consisting of a single piece of wire twisted to form a handle with a loop in the end and in the intermediate part thereof, and one end of said wire continuing from the twisted portion and forming the second and third digits, and having its extreme end clenched in the loop in the intermediate part of the handle, the other end of said wire continuing from said twisted handle, forming the fourth and fifth digits, and passing through the loop in the intermediate portion of the handle and forming the thumb or first digit, with the extreme end clenched in said loop, as herein shown and described.

606,629. BUCKLE. GEORGE B. LAWRENCE, Creston, Iowa, assignor of one-half to Joseph J. Mumford, same place. Filed Mar. 13, 1897. Serial No. 627,345. (No model.)



Claim.—1. A buckle composed of a fixed casing having an open side and a vertical slot in its rear part and a groove in its front part, a movable plate having a flange to cover said open side and a fastening-stud working in said groove, as set forth.

2. A buckle consisting of a fixed casing, having an open side and a central vertical slot in its rear part, and an adjustable and removable plate having a flange to cover said open side, and a retaining-stud working in said vertical slot, as set forth.

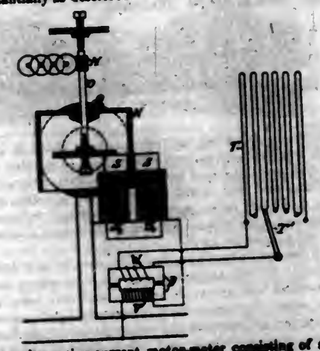
3. A buckle composed of a fixed casing having a vertical groove in part of its front and a slot in its rear part, a movable plate having a fastening-pin working in said groove and slot, as set forth.

4. A buckle composed of a fixed casing having a vertical groove in its front and a slot in its rear part respectively and a movable plate having a fastening device working in said groove and slot, as set forth.

606,630. ALTERNATING-CURRENT MOTOR-METER. JULIUS A. MÖLLINGER and KARL KUMBA, Nuremberg, Germany. Filed Dec. 27, 1897. Serial No. 663,457. (No model.)

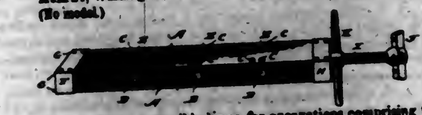
Claim.—1. An alternating-current motor-meter having a shunt-field consisting of two inductive-resistance coils placed in series with the coil of a choking device, the core or cores of the shunt-field magnet being constructed of thick sheet-iron, cast-iron plate, steel-plate or solid iron, and the core of the choking device of thin subdivided well-insulated sheet-iron, substantially as described.

2. An alternating-current motor meter having a shunt-field consisting of two inductive-resistance coils placed in series with the coil of a choking device, the core or cores of said shunt-field magnet being constructed of thick sheet-iron, cast-iron plate, steel-plate or solid iron, and the core of the choking device consisting of thin subdivided and well-insulated sheet-iron, in combination with a secondary short-circuited coil included in circuit with a variable resistance and having a magnetic core located adjacent to the core of the choking device, substantially as described.



3. An alternating-current motor-meter consisting of a coreless solenoid located in the circuit to be measured, a rotary metallic armature operatively connected with a train of gearing, a shunt-field magnet consisting of two coils, in combination with a choking device having its coil located in series with said coils, together with a secondary short-circuited coil included in circuit with a variable resistance, the cores of the secondary coil and the choking device being located in close proximity to each other and constructed of thin subdivided and well-insulated sheet-iron, while the cores of the shunt-field magnet are constructed of thick sheet-iron, cast-iron plate, steel-plate or solid iron, substantially as described.

606,631. EXTENSION-BRACE FOR EXCAVATIONS. JAMES K. MURPHY, Washington, D. C. Filed Sept. 4, 1897. Serial No. 650,647. (No model.)



Claim.—1. An extensible brace for excavations comprising two wooden side beams separated by pack-blocks at each end and at points intermediate of the ends, said pack-blocks secured in position by bolts and nuts as shown, a shoe F at one end and a casting H, screw I and nut K at the opposite end, substantially as and for the purpose set forth.

2. An excavation-brace comprising two wooden side beams A, A confined at one end by a metal shoe F and at the opposite end by a casting H a screw I and nut K, pack-blocks between the ends of the side timbers, and intermediate pack-blocks B of greater length than the end blocks the blocks being secured by bolts and nuts, whereby a double camber is produced, substantially as and for the purpose set forth.

606,632. WAVE-MOTOR. ROBERT J. ROBERTS and WILLIAM A. NELSON, Salt Lake City, Utah. Filed Sept. 3, 1897. Serial No. 650,512. (No model.)

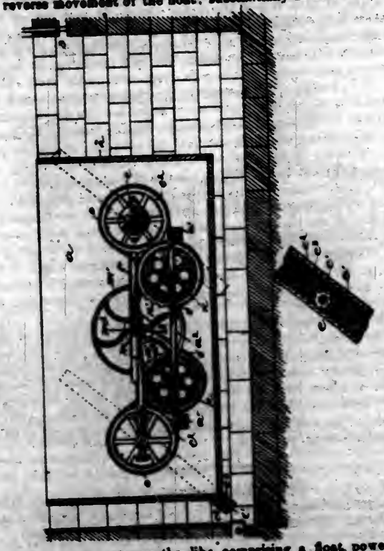
Claim.—1. A wave-motor or the like comprising a stationary rack, a second stationary rack, a float adapted to reciprocate along the racks, a power-shaft upon said float, and a pinion upon said shaft adapted to engage one of the racks in one movement of the float and to engage the other rack in the reverse movement of said float; substantially as described.

2. A wave-motor or the like comprising a frame, a power-shaft upon said frame, a pinion upon said shaft, and an obliquely-set rack adapted to mesh with the pinion for rotating the shaft, one of the members, the rack or the frame, being vertically and horizontally movable along the other; substantially as described.

3. A wave-motor or the like comprising a frame, a power-shaft upon said frame, a pinion upon said shaft, and an obliquely-set double rack with which the pinion is adapted to mesh, one of the members, the rack or the frame having vertical and horizontal reciprocation along the other; substantially as described.

4. A wave-motor or the like comprising a frame, a power-shaft upon said frame, a pinion upon said shaft, and an obliquely-set double rack having the teeth of one rack facing the teeth of the other, the pinion being adapted to engage the racks, and one of the members, the frame or the rack, having vertical and horizontal reciprocation along the other; substantially as described.

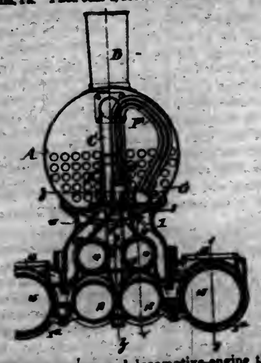
5. A wave-motor or the like comprising an obliquely-set stationary double rack, a reciprocating float, a power-shaft upon said float, and a pinion upon said shaft adapted to engage one set of teeth in the rack in one movement of the float, and the other set of teeth in the reverse movement of the float; substantially as described.



6. A wave-motor or the like comprising a float, power-shafts upon said float, a driving-shaft upon the float between said power-shafts, cross-beams between the side walls of said float, sets of longitudinal beams between the cross-beams, a counter-shaft journaled upon each set of longitudinal beams, connections between the power-shafts and the counter-shafts and between the counter-shafts and the driving-shaft, stationary members at the sides of the float, and means between the stationary members and the power-shafts for rotating the latter in the reciprocation of the float; substantially as described.

7. In a mechanism of the character indicated, an obliquely-set rack, and a pinion adapted to mesh therewith, the teeth of said rack inclining in a direction opposite to the path of travel of the pinion, and the teeth of the pinion being correspondingly oblique to the radii of the pinion; substantially as described.

606,688. COMPOUND LOCOMOTIVE-ENGINE. GEORGE S. STRONG, New York, N. Y., assignor, by mesne assignments, to Clayton E. Platt, Philadelphia, Pa. Filed Jan. 4, 1895. Serial No. 533,574. (No model.)



Claim.—1. In a compound locomotive-engine the combination of two pairs of high and low pressure cylinders, one pair arranged on each side of the engine with pistons and piston-rods working in said cylinders the weight of which is substantially equal in all the cylinders, a main driving-shaft having connected with it four cranks at ninety degrees apart, the cranks for each pair of high and low pressure cylinders set at one hundred and eighty degrees, and coun-

terweights for each crank arranged as nearly as possible in its plane of rotation, and with their center of mass revolving substantially in the same circle as that of the mass of the crank and its attachments.

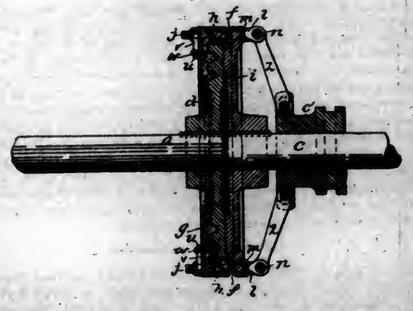
2. In a compound locomotive-engine the combination of two pairs each consisting of a high and low pressure cylinder and one pair arranged on each side of the engine, cranks for each pair of cylinders set at one hundred and eighty degrees apart on the same axle, a double valve-actuating link P *p* independently-actuated link-slides R *r* one in each part of the double link and the valves of the high and low pressure cylinders connected respectively to the slides *r* and R.

3. In a compound locomotive-engine having two pairs each consisting of a high and low pressure cylinder and one pair secured on each side of the engine, steam-passages leading from the exhaust of the high-pressure cylinders and from the admission of the low-pressure cylinders to the smoke-box, and a reheater connecting said steam-passages and consisting of a series of U-shaped pipes.

4. In a compound locomotive-engine having two pairs each consisting of a high and low pressure cylinder and one pair secured on each side of the engine, steam-passages leading from the exhaust of the high-pressure cylinders and from the admission of the low-pressure cylinders to the smoke-box, cast-iron tube-heads 8 and 10 fastened to the mouths of the steam-passages with ground joints and a series of U-shaped tubes connecting said boxes as described, and forming a reheater.

5. In a compound locomotive-engine having two pairs of high and low pressure cylinders one pair on each side, cranks for each pair of cylinders set at one hundred and eighty degrees to each other, piston-rods I′ I′ connected to said cranks, and to pistons I I² the piston-rod of one or both pistons being hollow and having an enlarged hollow head I² to which the plates of the piston are secured and the material of the two pistons and their rods being so arranged as to be substantially equal in weight.

606,684. FRICTION-CLUTCH. THOMAS H. WORRALL and ALEXANDER LEMPERANCE, Lacouia, N. H.; said Lemperance assignor to said Worrall. Filed Mar. 18, 1898. Serial No. 494,586. (No model.)



Claim.—1. In a friction-clutch, the combination of confronting clutch-disks carried by the rotary members to be connected, a ring bearing against one of said disks on its side opposite the other disk, bolts passing through the latter and the ring, cam-levers pivoted to said bolts, flat bowed springs interposed between the cam-levers and the clutch-disk, and means for operating the cam-levers.

2. In a friction-clutch, the combination of confronting clutch-disks carried by the rotary members to be connected, a ring bearing against one of said disks on its side opposite the other disk, bolts passing through the latter and the ring, nuts on said bolts and bearing against the ring, slotted locking-plates for engaging said nuts, screws supporting said plates by engagement with their slots, and means applied to the bolts and the disks they engage for drawing the disks together.

3. In a friction-clutch, the combination of confronting clutch-disks carried by the rotary members to be connected, a ring bearing against one of said disks on its side opposite the other disk, connections between the latter and the ring, cam-levers applied to said connections, means for actuating said cam-levers, and weighted levers coacting with the cam-levers to counteract centrifugal effect, substantially as described.

4. In a friction-clutch, the combination of confronting clutch-disks carried by the rotary members to be connected, a ring bearing against one of said disks on its side opposite the other disk, bolts passing through the latter and the ring, cam-levers pivoted to said bolts, means for actuating said cam-levers, and weighted levers pivoted to certain of the bolts and coacting with the cam-levers to counteract centrifugal effect, substantially as in the manner described

606,685. ROLLER-BEARING FOR VEHICLES. HENRY TIMKEN and REINHALD HEINEMAN, St. Louis, Mo., assignors of one-half to William R. Timken and Henry H. Timken, same place. Filed Aug. 27, 1897. Serial No. 649,738. (No model.)



Claim.—1. A bearing comprising a sleeve fitting on the axle and movable longitudinally thereon and having an annular rib, rollers around said sleeve provided with a groove fitting over said rib, and a box fitting over said rollers, and means for adjusting said sleeve whereby all of said rollers may be advanced and retracted evenly and in operation are without friction on their ends, substantially as and for the purpose set forth.

2. A bearing comprising a sleeve fitting on the axle and movable longitudinally thereon and having annular ribs, rollers around said sleeve provided with grooves fitting over said ribs, and a box fitting over said rollers, and means for adjusting said sleeve whereby all of said rollers may be advanced and retracted evenly and in operation are without friction on their ends, substantially as and for the purpose set forth.

3. A bearing comprising a sleeve fitting on the axle and movable longitudinally thereon and having an annular rib or ribs, rollers around said sleeve provided with a groove or grooves fitting over said rib or ribs, and a box fitting over said rollers, said axle having its end reduced and threaded, and a nut on said threaded end having an enlarged annular projection adapted to bear against said sleeve, and thin washers interposed between said nut and the shoulder of said axle, whereby all of said rollers may be advanced and retracted evenly and in operation are without friction on their ends, substantially as and for the purpose set forth.

4. A bearing comprising a bearing-cone, conical rollers thereon and a conical box fitting over said rollers, each of said rollers having a plurality of grooves, and ribs on one of the bearing-surfaces to cooperate therewith, substantially as and for the purpose set forth.

5. A vehicle-bearing comprising a conical shell fitting on the axle, conical rollers on said shell and a conical box fixed to the hub of the wheel and bearing on said rollers, said shell having a plurality of annular ribs and said rollers each having a plurality of grooves to cooperate therewith, substantially as and for the purpose set forth.

6. A vehicle-bearing comprising two conical shells fitting on the axle and tapering toward each other, conical rollers around said shells, and conical boxes in the hub of the wheel and fitting around said rollers, each of said rollers having a plurality of grooves therein and one of said bearing-surfaces having ribs projecting into said grooves, substantially as and for the purpose set forth.

7. A vehicle-bearing comprising two relatively-adjustable conical shells fitting on the axle and tapering toward each other, conical rollers around said shells, and conical boxes in the hub of the wheel and fitting around said rollers, said shells having one or more annular ribs and said rollers having grooves to receive said ribs, whereby all of said rollers may be advanced and retracted evenly and in operation are free from friction on their ends, substantially as and for the purpose set forth.

8. A vehicle-bearing comprising two conical shells fitting on the axle and tapering toward each other, conical rollers around said shells, and conical boxes in the hub of the wheel and fitting around said rollers, said shells having a plurality of annular ribs and said rollers having grooves adapted to receive said ribs, and means for adjusting said shells simultaneously, substantially as and for the purpose set forth.

9. A vehicle-bearing comprising two conical shells longitudinally movable on the axle and tapering toward each other, each provided with a groove or grooves to cooperate with said rib or ribs, conical rollers around said shells, and conical boxes fixed to the hub of the wheel, said axle having a shoulder against which one of said shells abuts and having a threaded end and a nut thereon, said nut being arranged to bear against the other shell, whereby, when said nut is tightened, all of said rollers may be advanced evenly and in operation are free from friction on their ends, substantially as and for the purpose set forth.

606,686. ROLLER-BEARING. HENRY TIMKEN and REINHALD HEINEMAN, St. Louis, Mo., assignors of one-half to William R. Timken and Henry H. Timken, same place. Filed Feb. 19, 1898. Serial No. 670,987. (No model.)

Claim.—1. A bearing comprising an inner bearing-piece and an outer bearing-piece and rollers fitting between the bearing-surfaces thereof, one of said pieces having one or more annular ribs thereon and one of said pieces having reversely-turned parts at its ends constituting grooves at said ends, and said rollers having narrow projections at their ends adapted to enter said grooves, substantially as and for the purpose set forth.



2. A bearing comprising an inner bearing-piece and an outer bearing-piece and rollers between the same, one of said pieces having reversely-turned end portions fixed thereon or integral therewith constituting grooves, one of said end portions being notched and said rollers having projecting end portions in said grooves, substantially as and for the purpose set forth.

3. A bearing comprising a conical sleeve with a rib or ribs thereon and having its ends enlarged and provided with grooves in their inner sides, conical rollers bearing on said sleeve and having grooves corresponding with said ribs and having narrow projections at their ends extending into said side grooves, substantially as and for the purpose set forth.

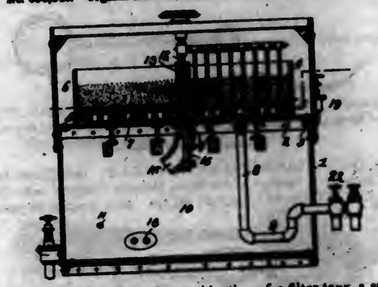
4. A bearing comprising a conical sleeve having its ends enlarged and provided with annular grooves and a notch in the back-turned portion thereof, and conical rollers around said sleeve having projections at their ends within said grooves, substantially as and for the purpose set forth.

5. A bearing comprising a conical sleeve having its ends enlarged and provided with annular grooves therein, conical rollers around said sleeve having projections at their ends within said grooves, a box around said rollers, said sleeve having raised annular surfaces, and smaller conical rollers arranged alternately with the first-mentioned rollers and upon said raised surfaces and clear of the main bearing-surfaces of the box and the sleeve, substantially as and for the purpose set forth.

6. A bearing comprising a conical sleeve, a box, and grooved conical rollers between the same, said sleeve having an annular rib or ribs cooperating with the grooves of the rollers and having grooves formed at its ends for projections at the ends of said rollers, and having raised annular surfaces in said grooves, and smaller conical rollers bearing on said raised surfaces and arranged alternately with said first-mentioned rollers and clear of the box and the main bearing-surface of the sleeve substantially as and for the purpose set forth.

REISSUES.

11,672. FILTER. OSCAR E. JEWELL, Chicago, Ill., assignor to the O. E. Jewell Filter Company, of Illinois. Filed Sept. 7, 1897. Serial No. 650,846. Original No. 563,736, dated Sept. 24, 1896.

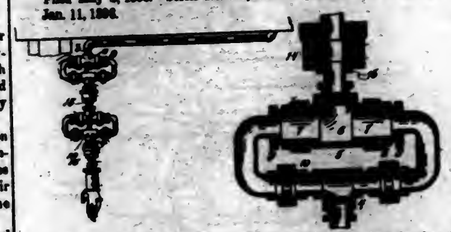


Claim.—1. In a filter, the combination of a filter-tank, a subsiding-tank, and a filter-material-holding tank, formed as described, with a central communicating passage or opening between said tanks, an agitator for said filter, the shaft of which passes through said central opening, and projects into said subsiding-chamber, and a pipe-elbow rigidly secured to said shaft, and adapted to be rotated thereby, to give force and direction to the water passing down through said central opening and elbow, for flushing out and removing the sediment from said subsiding-chamber, substantially as set forth.

2. A filter consisting of a filter-tank, a pure-water pipe communicating with the lower portion thereof, a granular filter-bed in said tank, the lower portion of said filter-bed being compacted more closely than the upper portion thereof, means for maintaining a partial vacuum in said filter-bed during filtration, and means for reversing the flow of water through said filter-bed, substantially as described.

3. A filter consisting of a filter-tank, a pure-water pipe communicating with the lower portion thereof, a granular filter-bed in said tank, means for maintaining a partial vacuum in said filter-bed during filtration, and agitators adapted to agitate the upper portion of the bed, substantially as described

11,673. BRAKE-PIPE CONNECTION. CHARLES W. VAUGHAN, Hillsdale, Mich., assignor of one-fourth to John R. Sutton, same place. Filed May 5, 1898. Serial No. 679,571. Original No. 597,049, dated Jan. 11, 1898.



Claim.—1. A connection for fluid pressure brake-pipes, having a plurality of longitudinal link members connected at their contiguous ends by an interposed axially-transverse swivel, and also having other longitudinal link members respectively connected with the first named longitudinal link members by axially-longitudinal swivels, one of the terminal longitudinal link members being provided with a coupling member for engagement with a corresponding coupling member of a cooperating connection, substantially as described.

2. A connection for fluid-pressure brake-pipes, having a plurality of links connected at their adjoining ends by an axially-longitudinal swivel each link having longitudinal tubular members connected by an axially-transverse swivel, substantially as specified.

3. A connection for railway fluid-pressure pipes comprising a plurality of links connected at their ends by an axially-longitudinal swivel, each link having longitudinal tubular members connected by an axially-transverse swivel, and a terminal coupling member (for engagement with a complementary coupler member on a cooperating connection) said coupler member being connected to a link member in such a way as to permit a rotary movement of the coupler around its axis.

4. A connection for fluid-pressure brake-pipes, comprising a plurality of links having longitudinal tubular link members, one of which is provided with an axially-transverse barrel or sleeve 6, thimbles, 7, fitted for rotary and axial movement in said barrel or sleeve, and the other link member being provided with branches detachably connected by unions with said thimbles whereby the latter may be dismounted axially and said second link member terminating in an axially-longitudinal swivel and a coupler connected to said swivel.

5. A connection for fluid-pressure brake-pipes, comprising a plurality of links connected by a longitudinal swivel, each link including a transverse swivel, and a coupler at the end of the connection.

6. A connection for fluid-pressure brake-pipes, comprising swivels, each of which comprises a barrel 14 carried by one of the connecting members, a thimble 15 in said barrel and carried by the other connecting member, the thimble being shouldered to engage a partly-closed end of the barrel and being fitted with a packing-nut and a sleeve fitted in the bore of the thimble terminally in contact with the shoulder of the same and having an enlargement to close the opposite end of the barrel to form the connection between the barrel and the member by which it is carried, substantially as described.

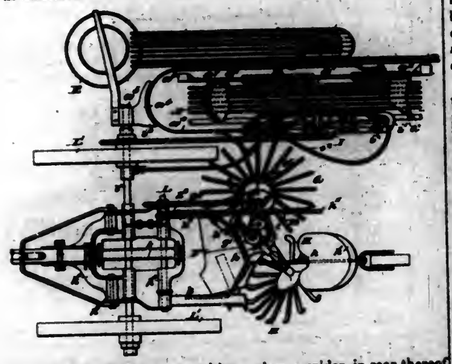
7. In a metallic pipe connection, the combination of link members joined together by swivel-joints, there being two transverse swivels and two longitudinal swivels, the longitudinal swivels being in the line of the length of the pipe, the section being provided at its end with a coupler.

11,674. POTATO-HARVESTER. JOSEPH H. COCHER, West Devonport, Tasmania. Filed Feb. 19, 1898. Serial No. 670,966. Original No. 583,511, dated Jun. 26, 1896.

Claim.—1. In a potato-harvester, a frame, a plowshare supported thereby, and a pair of spiders for collecting the potatoes, said spiders being located in rear of the share and having their meeting edges substantially at the center line of the plow, the said spiders inclining upwardly and outwardly from each other toward opposite sides of the machine, substantially as described.

2. In combination in a potato-harvester, a frame, a plow carried thereby, a spider having its inner edge back of the plow and arranged on a shaft inclined in a plane transversely of the machine, a second spider having its inner edge adjacent to the edge of the first spider, the said second spider inclining outwardly and backwardly and being on a shaft inclined in a plane extending at an angle to the transverse plane of the first shaft, the said spiders being adapted

to collect the potatoes dug by the plow the share of which presents a broad digging edge extending in front of the spiders, substantially as described.

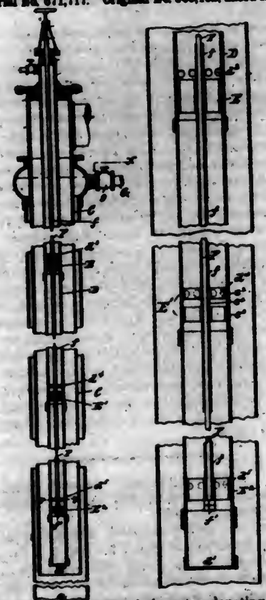


3. A potato-digger comprising a plow, a spider in rear thereof adapted to receive the potatoes from the plow and a series of curved arms on the hub of said spider for separating the tops from the tubers, substantially as described.

4. In a potato harvester an elevator, a plow, a wheel, spiders G, H, delivering said potatoes to said wheel, and a third spider I located in the entrance to said elevator-wheel, substantially as described.

5. In a potato-harvester, a plow, an elevator-wheel, spiders delivering the potatoes to the said wheel, a trough to receive the potatoes and a third spider I within the said wheel, substantially as described.

11,675. APPARATUS FOR USING COMPRESSED AIR TO ELEVATE WATER. SILAS W. TITUS, New York, N. Y., assignor to the Pneumatic Engineering Company, of West Virginia. Filed Feb 25, 1898. Serial No. 671,717. Original No. 568,102, dated Aug. 18, 1896.



Claim.—1. In a compressed air water-elevating apparatus, the combination with a water-eduction tube, of a compressed-air-supply pipe provided with lateral apertures at several different points throughout its height, whereby air may be injected into said eduction-tube at different depths, together with a series of cut-offs or valves adapted to open and close said apertures at one or more of said different points, and means for operating said cut-offs or valves; substantially as and for the purpose set forth.

2. In a compressed-air water-elevating apparatus, the combination with a water-eduction tube, of a compressed-air-supply pipe within said tube and provided with lateral apertures at several different points throughout its height, said apertures at each such point being on opposite sides of said air pipe, and a series of hollow cylindrical cut-offs within said air-pipe adapted to open and close said apertures at one or more of said different points, and means for operating said cut-offs; substantially as and for the purpose set forth.

3. In a compressed-air, water-elevating apparatus, the combination with a water-eduction tube, of a compressed-air-supply pipe within said tube and provided with lateral apertures at several different points throughout its height, and a series of cut offs or valves, within said air-pipe adapted to successively open said apertures in said air-pipe, beginning at the point nearest the discharge end of said inclosing eduction-tube, and, while each of said apertures is thus open to maintain the other apertures closed, and means for operating said cut-offs or valves; substantially as and for the purpose set forth.

4. In a compressed-air water-elevating apparatus, the combination with a water-eduction tube, of a compressed-air-supply pipe within said tube and provided with lateral apertures at several different points throughout its height, and a series of cut-offs, or valves, within said pipe, composed of hollow cylinders, the uppermost of which is of a length to maintain the uppermost apertures closed while the lower apertures are open, the lowermost of which is of a length to maintain the lowermost apertures closed until the apertures above are closed, and the intermediate of which is formed of sections adapted to successively close the intermediate apertures, and means for operating said cut-offs or valves; substantially as and for the purpose set forth.

DESIGNS.

28,917. STUD MEMBER FOR DETACHABLE FASTENERS. GEORGE H. ADAMS, New Britain, Conn. Filed May 27, 1898. Serial No. 681,068. Term of patent 3½ years.



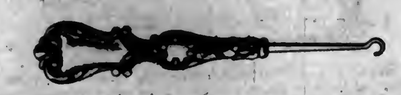
Claim.—The design for a stud member of a detachable fastener herein shown and described.

28,918. COLLAR-BUTTONER. CHARLES PATRICK MULHERIN, Augusta, Ga. Filed June 3, 1898. Serial No. 682,494. Term of patent 14 years.



Claim.—The design for a buttoner herein shown and described.

28,919. HANDLE FOR BUTTON-HOOKS, &c. LOUIS KRAHL, Providence, R. I., assignor to the Waite, Thrasher Company, same place. Filed May 23, 1898. Serial No. 681,519. Term of patent 3½ years.



Claim.—The design for the handle of a button-hook or other similar article as herein shown and described.

28,920. HANDLE FOR BUTTON-HOOKS, &c. LOUIS KRAHL, Providence, R. I., assignor to the Waite, Thrasher Company, same place. Filed Mar. 23, 1898. Serial No. 681,520. Term of patent 3½ years.



Claim.—The design for a handle for a button-hook or similar article as herein shown and described.

28,921. HANDLE FOR BUTTON-HOOKS, &c. BENJAMIN CREED and CHARLES E. COREY, Providence, R. I., assignors to the Waite, Thrasher Company, same place. Filed Mar. 18, 1898. Serial No. 681,066. Term of patent 3½ years.



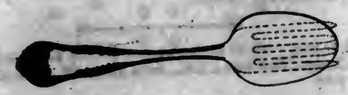
Claim.—The design for a handle for a button-hook or similar article, as herein shown and described.

28,922. BACK FOR BRUSHES, MIRRORS, OR SIMILAR ARTICLES. JOSEPH FR. LAUER, Attleborough, Mass., assignor to the James R. Blake & Company, same place. Filed June 3, 1898. Serial No. 682,493. Term of patent 7 years.



Claim.—The design for the back of a brush, mirror or similar article herein shown and described.

28,923. HANDLE FOR SPOONS, FORKS, &c. GUSTAV STRONHAKER, Wallingford, Conn., assignor to the Watrous Manufacturing Company, same place. Filed May 23, 1898. Serial No. 681,512. Term of patent 7 years.



Claim.—The design for a handle for spoons, forks or similar articles as herein shown and described.

28,924. SPOON, FORK, OR SIMILAR ARTICLE. GEORGE P. TILTON, Newburyport, Mass. Filed May 20, 1898. Serial No. 681,268. Term of patent 7 years.

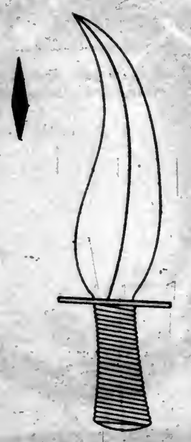


Claim.—1. In the design for a spoon, fork or similar article, the obverse as herein shown and described.

2. In the design for a spoon, fork or similar article, the reverse as herein shown and described.

3. The design for a spoon, fork, or similar article, as herein shown and described.

28,925. KNIFE. BYRON R. PECK, Bridgeport, Conn. Filed May 18, 1898. Serial No. 681,085. Term of patent 3½ years.



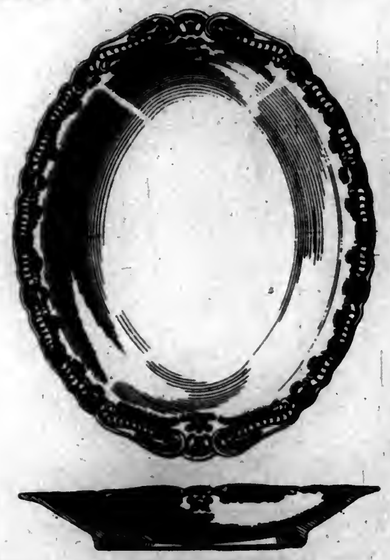
Claim.—The design for a knife, substantially as shown in the accompanying drawings.

28,926. PLATE OR DISH. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 1, 1898. Serial No. 682,301. Term of patent 7 years.



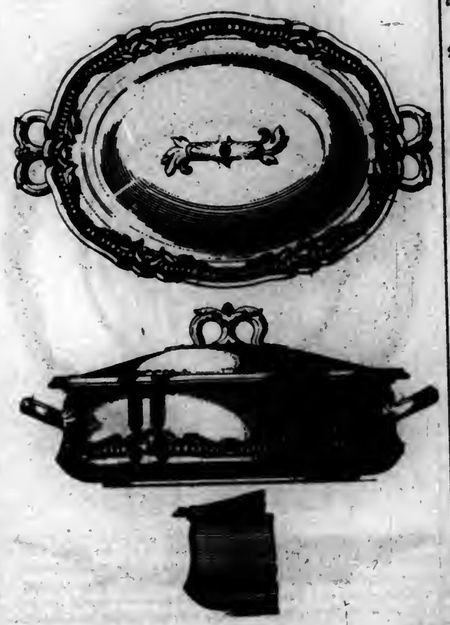
Claim.—The design for a plate or dish or similar article, substantially as shown and described.

28,927. DISH. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 1, 1898. Serial No. 682,302. Term of patent 7 years.



Claim.—The design for a dish or similar article, substantially as shown and described.

28,928. COVER-DISH. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 1, 1898. Serial No. 682,305. Term of patent 7 years.



Claim.—The design for a cover-dish or similar article, substantially as shown and described.

28,929. COVER-DISH. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 1, 1898. Serial No. 682,306. Term of patent 7 years.



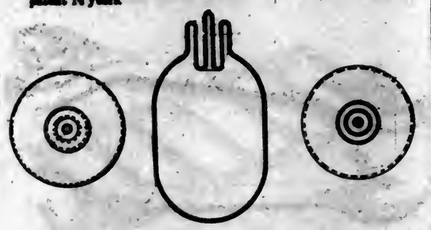
Claim.—The design for a cover-dish or similar article, substantially as shown and described.

28,930. CUP OR BOWL. CHARLES EDWARD HAVILAND, Limoges, France. Filed June 1, 1898. Serial No. 682,308. Term of patent 7 years.



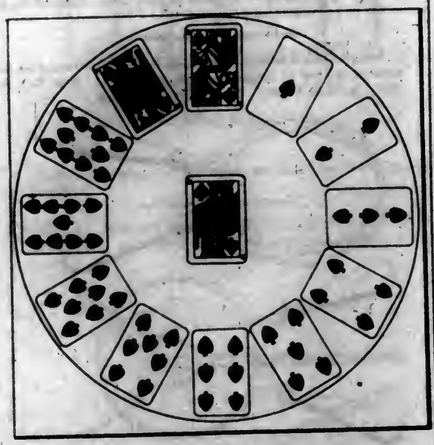
Claim.—The design for a cup or bowl or similar article, substantially as shown and described.

28,931. INCANDESCENT-LAMP BULB. JOHN THOMAS LISTER, Cleveland, Ohio. Filed Apr. 28, 1898. Serial No. 679,148. Term of patent 14 years.



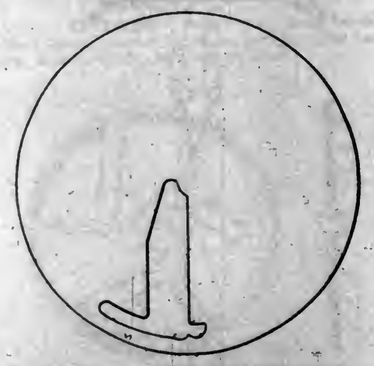
Claim.—The design for an incandescent-lamp bulb, as herein shown and described.

28,932. CLOCK-DIAL. CHARLES GOSSLAW, Tryon, N. C. Filed Apr. 16, 1898. Serial No. 677,895. Term of patent 3½ years.



Claim.—The design for a dial for a clock, substantially as herein shown and described.

28,933. INDICATOR FACE-PLATE. ORANGE O. OHAS, Dayton, Ohio. Filed Sept. 13, 1897. Serial No. 651,549. Term of patent 14 years.



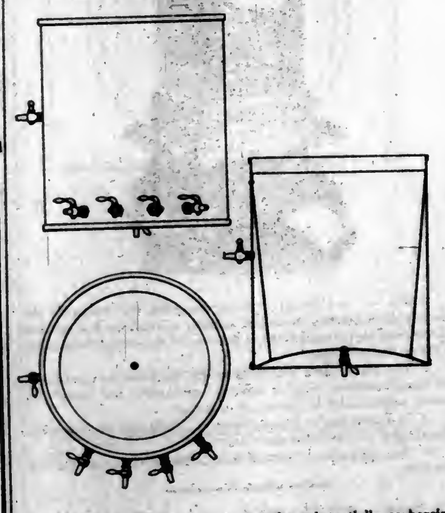
Claim.—The design for an indicator face-plate, substantially as herein shown and described.

28,934. DENTAL SEPARATOR. HENRY W. GILLETT, Newport, R. I. Filed May 28, 1897. Serial No. 638,631. Term of patent 14 years.



Claim.—The design for a dental separator, as herein shown and described.

28,935. BEER-COOLER. EMIL STAHL, Hoboken, N. J. Filed June 2, 1898. Serial No. 682,603. Term of patent 7 years.



Claim.—The design for a beer-cooler substantially as herein shown and described.

28,936. STOVE. ALPHEUS M. BLAKESLEY, Rock Island, Ill. Filed Apr. 4, 1898. Serial No. 676,470. Term of patent 3½ years.



Claim.—1. The design for a stove herein described and shown.

2. In the design for a stove the design for a base herein described and shown.

3. In the design for a stove the design for a skirt herein described and shown.

4. In the design for a stove the design for a top herein described and shown.

5. In the design for a stove the design of the door D herein described and shown.

28,937. HEATING-STOVE. EDWARD G. GERMER, Erie, Pa. Filed May 24, 1898. Serial No. 681,643. Term of patent 7 years.



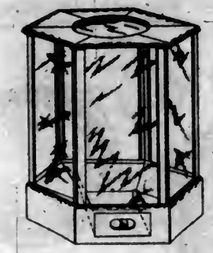
Claim.—1. In a design for a heating-stove, the design for the downwardly-depending curtain or skirting around the fire-pot and the foot-rails supported thereby at the sides of the stove, substantially as shown and described.

2. In a design for a heating-stove, the design of the stove-body, and the ornamental ledge or molding surrounding the lower part thereof, substantially as shown and described.

3. In a design for a heating-stove, the design for the stove-top, substantially as shown and described.

4. The design for a heating-stove, substantially as shown and described.

28,938. GROCER'S CABINET. WILLIAM E. HEWIT, David City, Nebr. Filed May 24, 1898. Serial No. 681,644. Term of patent 7 years.



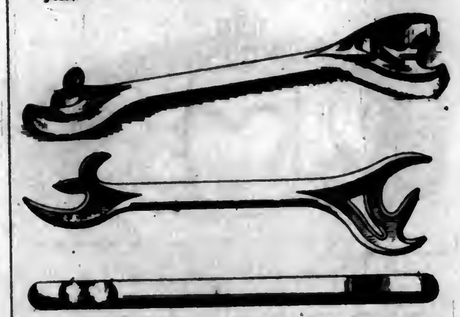
Claim.—The design for a grocer's cabinet substantially as herein shown and described.

28,939. PUNCH. JOHN H. HUMER, St. Louis, Mo. Filed May 21, 1898. Serial No. 681,380. Term of patent 7 years.



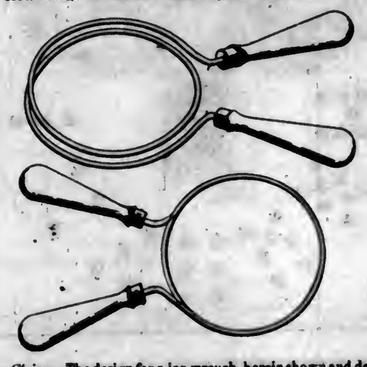
Claim.—The design for a punch, substantially as herein shown and described.

28,940. STOVE-LID AND PAN LIFTER. IRA O. MILLER, Topeka, Kans. Filed May 28, 1898. Serial No. 682,070. Term of patent 3½ years.



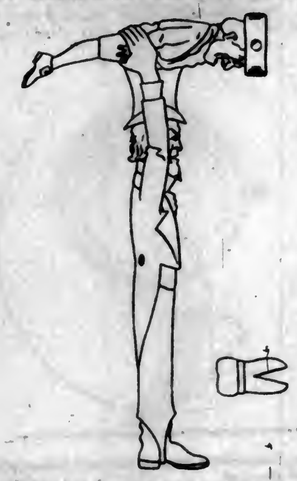
Claim.—The design for a stove-lid and pan lifter, substantially as herein shown and described.

28,941. JAR-WRENCH. ADOLPH A. FAIST, Des Moines, Iowa, assignor of one-half to Nathan B. Lentz, same place. Filed Sept. 29, 1897. Serial No. 653,531. Term of patent 14 years.



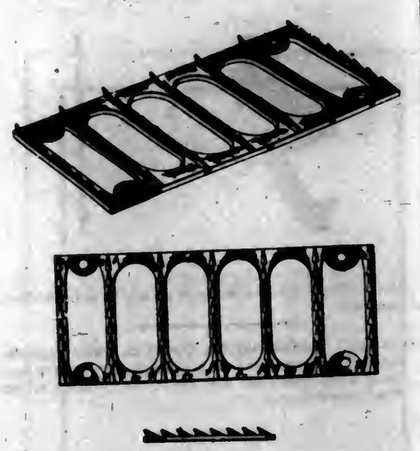
Claim.—The design for a jar-wrench, herein shown and described.

28,942. HAMMER. AUGUST W. HUTAF, Hoboken, N. J. Filed May 6, 1898. Serial No. 679,963. Term of patent 3½ years.



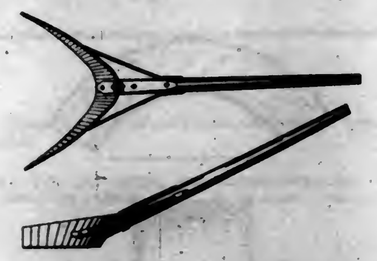
Claim.—The design for a hammer herein shown and described.

28,943. CARPET-STRETCHER PLATE. JOHN F. MARTIN, Corunna, and JULIUS W. CHEVE, Coldwater, Mich. Filed May 31, 1898. Serial No. 682,215. Term of patent 14 years.



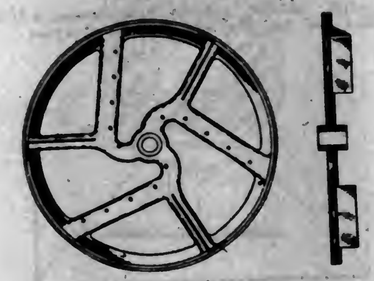
Claim.—The design for the carpet-stretcher plate herein shown and described.

28,944. DUST-SCRAPER. DARIUS FAY, Binghamton, N. Y. Filed Mar. 5, 1898. Serial No. 672,796. Term of patent 7 years.



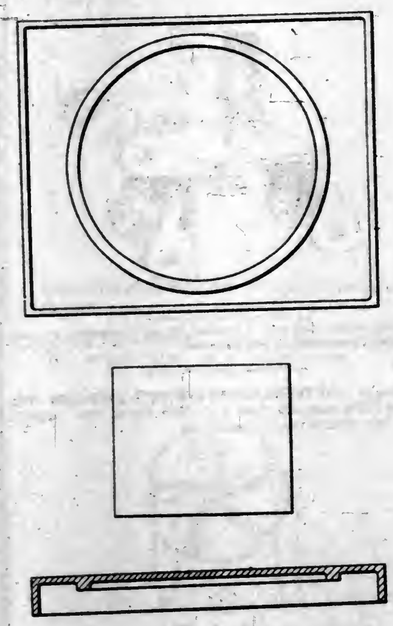
Claim.—The design for a dust-scraper, substantially as herein described and shown.

28,945. KNIFE-WHEEL. OSCAR E. BRAY, Toronto, Canada, assignor of one-half to Edward G. E. Pfalzer, same place. Filed Feb. 14, 1898. Serial No. 670,332. Term of patent 7 years.



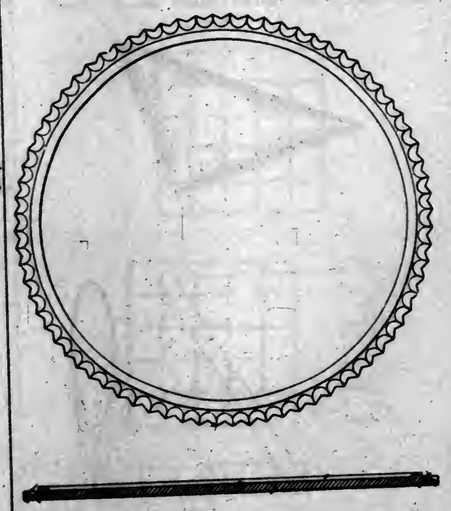
Claim.—The design for a knife-wheel, as herein shown and described.

28,946. SCALE BASE-PLATE. ORANGE O. OSIAS, Dayton, Ohio. Filed June 6, 1898. Serial No. 682,788. Term of patent 14 years.



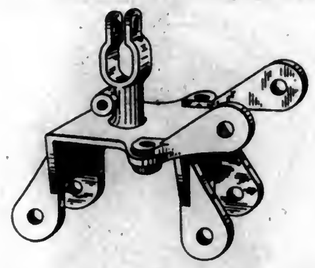
Claim.—The design for a scale base-plate, substantially as shown and described.

28,947. SCALE BASE-PLATE. ORANGE O. OSIAS, Dayton, Ohio. Filed June 6, 1898. Serial No. 682,789. Term of patent 14 years.



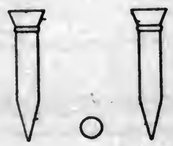
Claim.—The design for a scale base-plate substantially as herein shown and described.

28,948. BRACKET FOR PLANTERS. GEORGE W. WOOLEY, St. Paul, Minn. Filed Jan. 10, 1898. Serial No. 666,261. Term of patent 7 years.



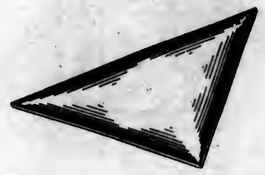
Claim.—The design for a bracket for use in planters, &c., substantially as herein shown and described.

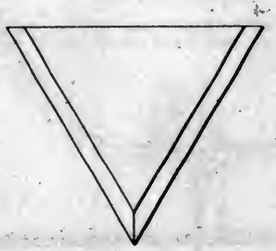
28,949. CAP FOR EXPLODING DYNAMITE-CARTRIDGES. WILLIAM P. FERGUSON, New York, N. Y. Filed May 23, 1898. Serial No. 681,513. Term of patent 14 years.



Claim.—The design for a cap for exploding dynamite-cartridges, substantially as herein shown and described.

28,950. THERMOSTATIC CHAMBER. JAMES K. GILMORE, Des Moines, Iowa, assignor to the Des Moines Incubator Company, same place. Filed Feb. 17, 1898. Serial No. 670,711. Term of patent 7 years.







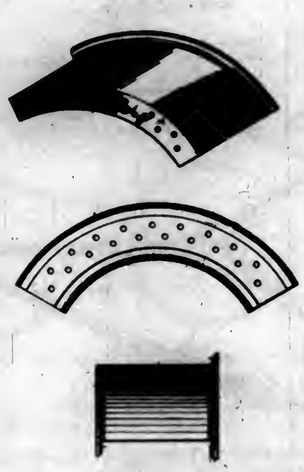
Claim.—The design for a thermostatic chamber or cell, substantially as herein shown and described.

28,951. WASHER FOR NUT-LOCKS. EDWARD THOMAS CORNER, Illiopolis, Ill. Filed Feb. 3, 1898. Serial No. 669,095. Term of patent 14 years.



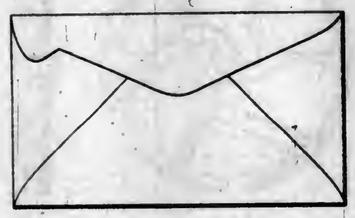
Claim.—The design for a washer for a nut-lock, as herein shown and described.

28,952. CHANNEL-BAR FOR TUNNEL OR SIMILAR CASINGS. ALBERT WELLS BUSH, New York, N. Y., assignor of one-half to David Leavitt Hough, same place. Filed Apr. 14, 1898. Serial No. 677,690. Term of patent 14 years.



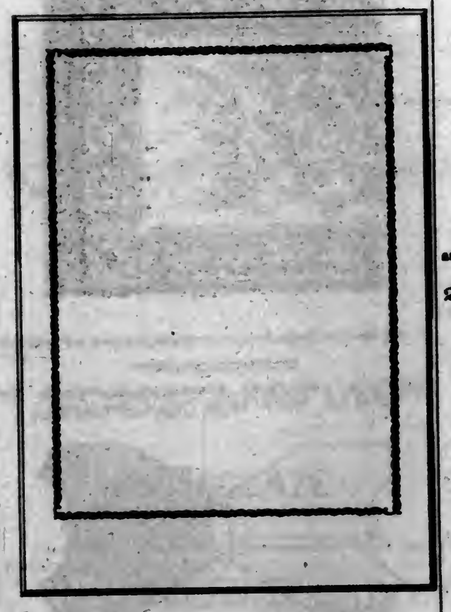
Claim.—The design for a channel-bar for tunnel and similar casings, substantially as herein shown and described.

28,953. ENVELOP. ROBERT M. JOHNSON, Hainesport, N. J. Filed May 3, 1898. Serial No. 679,632. Term of patent 14 years.



Claim.—The design for an envelop herein shown and described.

28,954. CARD-MOUNT. JOHN P. GREENE, Philadelphia, Pa., assignor to the A. H. Collins Manufacturing Company, same place. Filed May 17, 1898. Serial No. 680,980. Term of patent 7 years.



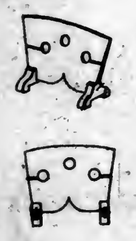
Claim.—The design for a card-mount, substantially as shown and described.

28,955. SIGN-LETTER. FRANK HAMMER, Columbus, Ohio. Filed Mar. 5, 1898. Serial No. 672,751. Term of patent 14 years.



Claim.—The design for a sign-letter, substantially as herein shown and described.

28,956. VIOLIN OR BANJO BRIDGE. JOHN REHL, French Camp, Miss. Filed May 18, 1898. Serial No. 681,087. Term of patent 14 years.



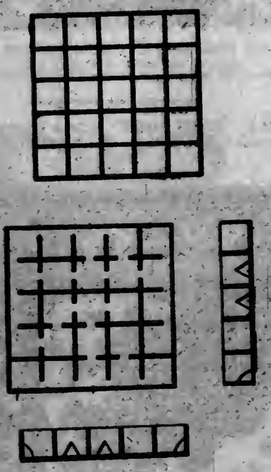
Claim.—The design for a violin or banjo bridge as herein shown and described.

28,957. CONFECTION. JOSEPH SIMON, Chicago, Ill. Filed Jan. 31, 1898. Serial No. 668,661. Term of patent 3½ years.



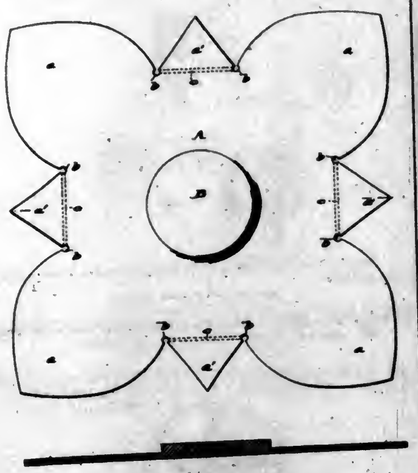
Claim.—The design for a confection, substantially as herein shown and described.

28,958. PUZZLE-BOX. JOSEPH H. MCCARVILLE, Armah, Iowa. Filed May 24, 1898. Serial No. 681,845. Term of patent 3½ years.



Claim.—The design for a puzzle-box, as herein shown and described.

28,959. DUPLICATE-WHIST BOARD. FRANK B. CRANE and EDGAR P. REMFIELD, New York, N. Y. Filed Jan. 11, 1898. Serial No. 666,349. Term of patent 14 years.



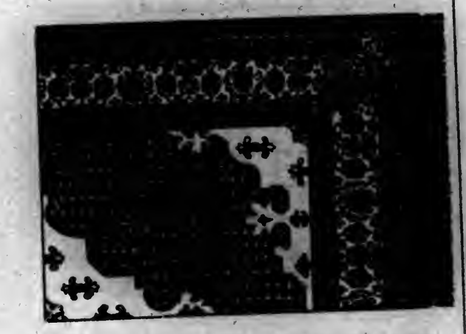
Claim.—The design for a duplicate whist board, as herein shown and described.

28,960. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 1, 1898. Serial No. 682,998. Term of patent 3½ years.



Claim.—The design for a woven fabric, as shown and described.

28,961. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 1, 1898. Serial No. 682,999. Term of patent 3½ years.



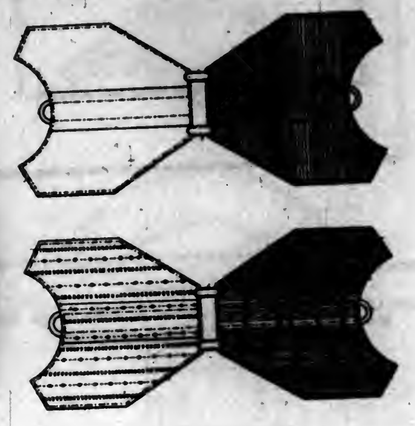
Claim.—The design for a woven fabric, as shown and described.

28,962. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 1, 1898. Serial No. 683,000. Term of patent 3½ years.



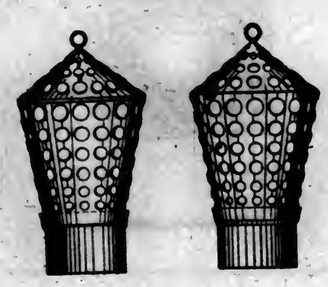
Claim.—The design for a woven fabric, as shown and described.

28,968. SHIRT-FRONT. HOWARD B. GOSSARD, Altoona, Pa. Filed July 20, 1897. Serial No. 645,266. Term of patent 3½ years.



Claim.—The design for a shirt-front herein shown and described.

28,964. STRAINER FOR CATCH-BASINS. HENRY H. WIEBER, Kingston, N. Y. Filed June 3, 1898. Serial No. 682,486. Term of patent 7 years.



Claim.—The design for a strainer for catch-basins, as herein shown and described.

TRADE-MARKS

REGISTERED JUNE 28, 1898.

81,739. AUTOHARPS, CITHERNS, AND GUITARS. FERDINAND STRAUSS, New York, N. Y. Filed May 6, 1898.

QUEEN

Essential feature.—The word "QUEEN." Used since May 2, 1898.

81,740. WRITING-PAPER AND ENVELOPES. S. & W. M. CRANE, Dalton, Mass. Filed Apr. 14, 1898.

UNDERGLAZE

Essential feature.—The word "UNDERGLAZE." Used since March 1, 1898.

81,741. CERTAIN NAMED DRY GOODS. Dreyer & Pink, New York, N. Y. Filed Mar. 4, 1898.

DARBFORDS

Essential feature.—The word "DARBFORDS." Used since January 30, 1898.

81,742. CORSETS. Bell, Schwenkens, New York, N. Y. Filed Apr. 27, 1898.

MODESCA

Essential feature.—The word "MODESCA." Used since November 15, 1897.

81,743. CORSETS. Bell, Schwenkens, New York, N. Y. Filed Apr. 27, 1898.

CLYTIE

Essential feature.—The word "CLYTIE." Used since September 1, 1897.

81,744. BOOTS AND SHOES. HURLEY & CASSIDAY, Lynn, Mass. Filed May 10, 1898.

TRIONFA.

Essential feature.—The word "TRIONFA." Used since April 12, 1898.

81,745. CERTAIN NAMED SHOE-LEATHER. HERMAN HEMLAFT LEATHER COMPANY, Milwaukee, Wis., and Boston, Mass. Filed Mar. 11, 1898.

Wisco.

Essential feature.—The word "WISCO." Used since October 1897.

81,746. CHROME-TANNED SHOE-LEATHER IN BLACK. HERMAN HEMLAFT LEATHER COMPANY, Milwaukee, Wis., and Boston, Mass. Filed Mar. 11, 1898.

Dargai.

Essential feature.—The word "DARGAI." Used since October, 1897.

81,747. BRISTLES, WOOL, FUR, HAIR, SKINS, AND HIDES. E. BRAUN & Co., New York, N. Y. Filed Apr. 18, 1898.



Essential feature.—The representation of a butterfly. Used since November, 1895.

81,748. SOFT CLEANERS FOR WALL-PAPER. JAMES DUNCOMB, Cleveland, Ohio. Filed May 9, 1898.

PAPERENE.

Essential feature.—The word "PAPERENE." Used since March 1, 1897.

81,749. LEASHES FOR LOOM-HEDDLES. NICOLAS CHAIZE and JACQUES CHAIZE, St. Etienne, France. Filed Mar. 29, 1898.



Essential feature.—The representation of two eyes or mails for the leash of a loom-heddle, each eye oblong in shape lengthwise of the leash and each colored so as to contrast with the remainder of the leash, one eye being colored red and the other blue. Used since 1883.

81,750. EXTRACTS IN TABLET OR SOLID FORM AND TINCTURES AND SPIRITS IN LIQUID FORM. ADOL. MEISSLER, Philadelphia, Pa. Filed Mar. 28, 1898.

BONDONA

Essential feature.—The word "BONDONA." Used since September 17, 1896.

81,751. CERTAIN NAMED BREWERS' SUPPLIES. RUDOLPH SCHNEIDER, New York, N. Y. Filed Apr. 20, 1898.



Essential feature.—The representation of a helmet surmounting breast and shoulder plates inclosed in a band bearing the abbreviation and words "RUD. SCHNEIDER, NEW YORK." Used since March 15, 1898.

81,752. CONDENSED MILK, CONDENSED COFFEE, CONDENSED COCOA, AND COFFEE EXTRACT. NEW YORK CONDENSED MILK COMPANY, New York, N. Y. Filed Mar. 10, 1898.

PIONEER

Essential feature.—The word "PIONEER." Used since February, 1898.

81,753. MINERAL WATERS. WHITE ROCK MINERAL SPRING COMPANY, Waukesha, Wis. Filed Mar. 16, 1898.



Essential feature.—The representation of a woman kneeling on a rock, the words "WHITE ROCK" appearing on the rock, and the words "WHITE ROCK OZONATE LITHIA." Used since October 16, 1893.

81,754. REMEDY FOR SKIN AND BLOOD DISORDERS. SULPHUR COMPANY, Chicago, Ill. Filed Oct. 26, 1897.



Essential feature.—The representation of a half-figure of a woman in the act of pouring drops or particles from a receptacle. Used since November, 1893.

81,755. MEDICAL COMPOUND FOR THE CURE OF RHEUMATISM. WALTER R. ELLIS, Maywood, N. J. Filed Feb. 7, 1898.

CIMIC

Essential feature.—The word "CIMIC." Used since October 1, 1897.

81,756. PILE REMEDY. CHARLES L. DOSS, Malvern, Ark. Filed Apr. 22, 1898.



Essential feature.—The representation of a cross, the two bars standing exactly at right angles to each other, having in the center of the cross a triangle, one apex of the triangle standing vertical to the base, in the left-hand end of the horizontal bar the letters "C. L.," in the center of the triangle "D., S.," and in the right-hand end of the horizontal bar "P. R." Used since December 1, 1897.

81,757. REMEDY FOR HOG CHOLERA. CARL BILLSTEIN, Ottoville, Ohio. Filed May 11, 1898.

Carl Billstein

Essential feature.—The signature of the registrant. Used since September 15, 1893.

81,758. DISINFECTANTS, GERMICIDES, OR DEODORIZING COMPOUNDS. HENRY S. BLACKMORE, Mount Vernon, N. Y., and Philadelphia, Pa. Filed Apr. 27, 1898.

SULPHOZYL.

Essential feature.—The word "SULPHOZYL." Used since April 10, 1898.

81,759. ANTISEPTIC MEDICATED SOAP. CHARLES I. HOOD, Lowell, Mass. Filed Feb. 11, 1898.

HOOD'S Medicated Z SOAP

Essential feature.—The words "HOOD'S MEDICATED SOAP" on a "Z" formation in white upon a deep-blue ground, in which "Z" the word "MEDICATED," in blue type, is printed in the bar sinister and the words "HOOD'S" and "SOAP," in heavier blue type, in the upper and lower horizontal bars, respectively. Used since August 11, 1897.

81,760. PORTLAND CEMENT. THE FRANK H. MOSES COMPANY, Newark, N. J., and New York, N. Y. Filed May 3, 1898.

CHIEFTAIN

Essential feature.—The word "CHIEFTAIN." Used since April 27, 1898.

81,761. PORTLAND CEMENT. THE FRANK H. MOSES COMPANY, Newark, N. J., and New York, N. Y. Filed May 3, 1898.

FEARLESS

Essential feature.—The word "FEARLESS." Used since April 27, 1898.

81,762. LUMBER. THE H. L. BERRY COMPANY, Whitfield, Fla. Filed Mar. 19, 1898.

B

Essential feature.—An octagonal figure formed of straight lines and the capital letter "B." Used since December 1, 1894.

81,763. TYPE-WRITING MACHINES. AMERICAN WRITING MACHINE COMPANY, Ilion and New York, N. Y. Filed Apr. 27, 1898.

Century

Essential feature.—The word "CENTURY." Used since October, 1897.

81,764. TYPE-WRITING MACHINES. COMMERCIAL TYPEWRITER COMPANY, New York, N. Y. Filed May 12, 1898.

EAGLE

Essential feature.—The word "EAGLE." Used since November, 1897.

81,765. PAPER-FILES, BOOKS, CABINETS, AND OTHER RECEPTACLES FOR PAPERS AND DOCUMENTS. Brown & Bigelow, Incorporated, Chicago, Ill. Filed Apr. 11, 1898.



Essential feature.—A symbolic device of substantially circular form, wherein are represented the sun and the eight planets—Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune—of the solar system, three comets, and numerous stars, said device having across its face a scroll differing in color to that of the design in chief. Used since April 1, 1897.

81,766. FLOUR-SIFTERS. The National Manufacturing Company, Worcester, Mass. Filed May 12, 1898.

VICTOR

Essential feature.—The word "Victor." Used since September, 1864.

81,767. CERTAIN NAMED BICYCLE-TIRES. Clark Cycle Tire Company, Boston, Mass. Filed Mar. 15, 1898.



Essential feature.—The representation of a foreground or landscape, with a background of sky and clouds, a game-cock standing erect against the background, and the words above the game-cock, "The Corker," all surrounded by a frame in shape like a cross-section of a bicycle-tire, in which the tread portion appears as separated from the air-tube portion. Used since September 1, 1897.

81,768. SCYTHES, GRASS-HOOKS, AND HAY-KNIVES. North Wayne Tool Company, North Wayne and Hallowell, Me. Filed Jan. 10, 1898.

LITTLE GIANT

Essential feature.—The words "Little Giant." Used since March, 1897.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

AUSTIN v. WINSLOW.

Decided April 9, 1898.

1. INTERFERENCE—TESTIMONY—COMPETENCY OF INVENTOR TO TESTIFY IN HIS OWN BEHALF.

Winslow took no testimony to prove his case, but rested on his record date. Austin testified that he disclosed the invention to Winslow, who was then in his employ and who made no claim to the invention. Austin's testimony is uncorroborated. *Held* that in interference proceedings where the fact is one that is not solely within the personal knowledge of the party to the interference his testimony cannot be ignored simply because it is uncorroborated and that Austin is a competent witness to testify as to a claimed disclosure of the subject-matter of the interference to his adversary.

2. SAME—SAME—SAME—BURDEN OF PROOF.

Held, further, that when Austin testified that he had disclosed the invention to Winslow the burden of proof was shifted and Winslow could no longer safely rely upon his record date. Where a claimed fact must be equally within the knowledge of two parties and one asserts it and the other fails to deny it, the latter cannot complain if the asserted fact is found by the tribunal called upon to pass on it to be true.

3. SAME—THE QUESTION TO BE CONSIDERED IN INTERFERENCE PROCEEDINGS—ESTOPPEL—REISSUE.

Where Austin contended that Winslow is estopped from asserting his right to the subject-matter of the issue, as claims covering the matter were presented in an original application and after rejection on references were canceled, *Held* that while it is well settled that claims contained in the reissue patent which were asserted in the original application, but were rejected and canceled, will not be sustained by the courts, and therefore should not be allowed by the Office, yet this question is one between the public and the applicant making the claims. This question of estoppel has no bearing upon the question of priority, the question for consideration in an interference proceeding, and therefore will not be considered here. (*Hoeveler et al.* v. *Verner et al.*, 43 MS. Dec., 444, 448.)

APPEAL from Examiners-in-Chief.

PLATFORM-SCALES.

Application of Stephen J. Austin filed January 12, 1895, No. 534,608. Application (reissue) of Marion H. Winslow filed June 24, 1895, No. 553,234.

Messrs. Knight Brothers for Austin.

Mr. W. S. Duvall for Winslow.

DUELL, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Austin on the following issue:

In a platform-scale, the combination of twist-shafts, a rear lever, a multiplying-lever, a short lever, carried by one of said twist-shafts and connected to said multiplying-lever, one or more eveners, and short levers, a cross-beam, and connections between the several levers.

The record in this case is very meager and unsatisfactory. Had the record contained the alleged facts set forth in the briefs of counsel the solution of the questions involved in this proceeding might have been easier.

Winslow, the senior party, has taken no testimony to prove his case, but rests on his record date. Had he seen fit to go upon the witness-stand and submit to cross-examination he might have removed the cloud which rests upon his case as presented in the record. He chose, however, to remain silent when he should have spoken and must take the consequences. It appears that on June 1, 1893, he filed an application, on which Patent No. 524,271 was granted August 7, 1894. On June 24, 1895, he filed an application for a reissue of this patent, which was put in interference with the application of Austin, the junior party, filed January 12, 1895. The date of Winslow's reduction to practice is the date of his original application, June 1, 1893, (*Smith* v. *The Goodyear Company*, 11 O. G., 246,) and it is incumbent on Austin to overcome this date in order to be awarded priority.

Before considering the proofs filed on behalf of Austin his contention that Winslow is estopped from asserting his right to the subject-matter of the issue, as claims covering this matter were presented in the original application and after rejection on references were canceled, will be disposed of.

While it is well settled that claims contained in the reissue patent which were asserted in the original application, but were rejected and canceled, will not be sustained by the courts, and therefore should not be allowed by the Office, yet this question is one between the public and the applicant making the claims. This question of estoppel has no bearing upon the question of priority, the question for consideration in an interference proceeding, and therefore will not be considered here. (*Hoeveler et al.* v. *Verner et al.*, 43 MS. Dec., 444, 448.)

Austin sets up in his preliminary statement conception in May, 1890, and an explanation to others at the same time; that he made drawings as early as December, 1890, and that he embodied the invention in full-sized scales in the spring of 1894, the patterns from which the scales were produced being made as early as November, 1893. Three drawings are offered in evidence by Austin. The drawing "Exhibit A" illustrates the invention in issue, and Austin claims that he made it in December, 1890. The drawing "Exhibit C," said to have been made

by him July 4, 1892, shows all of the machine except the rear lever. The drawing "Exhibit B" shows the rear lever, and it is claimed that it was made in January, 1893, for the purpose of making a pattern. The patterns that are said to have been made and the complete scales are not produced, and no witnesses are called to corroborate Austin as to the making of the pattern or the scales. His testimony as to the disclosure is to the effect that he described the invention to Winslow, to Licht, and, he thinks, to Keeny, in the winter of 1892–93, by drawings made on the sand floor of his shop and by sketches on pieces of dressed lumber in the shop. He also testifies that he fully explained the invention to Winslow during this winter from the drawings offered as exhibits, and that Winslow never denied that the invention was Austin's, but told him he thought, as it had been discarded by Austin as not being good enough for him, he (Winslow) would patent it.

Licht was examined as a witness for Austin; but he was asked nothing about the drawings Austin claims to have made on the sand floor and dressed lumber. When asked when Austin explained the invention to him, he said:

A. I cannot say. It has been a good many years ago; I cannot recollect the date.
Q. 8. Could you tell the year? A. I don't really think I can.

In reply to a leading question he stated that he saw Austin's drawing and Austin explained the invention to him prior to June 1, 1893, the time when Winslow filed his application. He also testifies that he was associated with Winslow in business in getting up a scale; but he never heard Winslow lay claim to the invention in controversy.

Keeny, the only other witness called on behalf of Austin, was not questioned as to any disclosure made to him by Austin. He states merely that he had seen the drawing "Exhibit A;" but when asked whether it was prior to June, 1893, he stated that he could not say—he did not know the exact date. But he states that he knew that Austin had made drawings before the application of Winslow was sent in to the Patent Office.

The whole testimony in reference to drawings and explanation offered on behalf of Austin is unsatisfactory, and the testimony of Licht and Keeny, in my opinion, falls short of corroborating Austin as to the dates when the drawings were made.

The fact of conception by an inventor, for the purpose of establishing priority, cannot be proved by his mere allegation nor by his unsupported testimony where there has been no disclosure to others or embodiment of the invention in some clearly-perceptible form, such as drawings or model, with sufficient proof of identity in point of time, for otherwise such facile means of establishing priority of invention would in many cases offer great temptation to perjury and would have the effect of virtually precluding the adverse party from the possibility of rebutting such evidence. Hence it has been ruled in many cases that the mere unsupported evidence of the alleged inventor on an issue of priority as to the fact of conception and the time thereof cannot be received as sufficient proof of the fact of prior conception. (*Mergenthaler* v. *Scudder*, 81 O. G., 1417, 1420.)

In *Young* v. *Donnelly* (82 O. G., 1417) it was held that Young's testimony alone was insufficient to prove in a proceeding like the present that he made the drawing at the time stated, especially when the onus of proof was upon him.

Austin testified that in the winter of 1892–93 he fully described the invention to Winslow, who was then in his employ. It is true that Austin's testimony is uncorroborated; but I see no reason why on that account it should be disregarded. I take it that in interference proceedings where the fact is one that is not solely within the personal knowledge of the party to the interference his testimony cannot be ignored simply because it is uncorroborated. Austin is certainly a competent witness to testify as to a claimed disclosure of the subject-matter of the interference to his adversary, Winslow. As well might it be claimed that in a suit brought on a contract where the answer denied that the plaintiff had complied with all of the terms of the contract his testimony on that point would not, if uncontradicted, be sufficient to prove that fact, or at least be sufficient proof on which to submit the question to the jury for determination.

No attempt is made to impeach Austin or to cast discredit on his testimony, save in the brief of Winslow's counsel. If Austin testified falsely as to his disclosure to Winslow, how easily the latter could have contradicted him. Winslow chose, however, to rest his case upon a technicality. His failure to contradict Austin's testimony as to the latter's disclosure to him of the invention forbids any escape from the conclusion that he could not truthfully deny the same. It would not have involved any great expense of time or money for Winslow to have gone upon the witness-stand and denied that Austin had ever disclosed the invention to him.

In my opinion when Austin testified that he had disclosed the invention to Winslow the burden of proof was shifted and Winslow could no longer safely rely upon his record date. Where a claimed fact must be equally within the knowledge of two parties and one asserts it and the other fails to deny it, the latter cannot complain if the asserted fact is found by the tribunal called upon to pass on it to be true.

In the absence of proof showing a disclosure of the invention by Austin to Winslow I should be inclined to hold that Austin's proofs were not sufficient to overcome Winslow's *prima facie* date of invention; but I cannot disregard the uncontradicted testimony as to the disclosure, nor can I lose sight of the other facts showing that Winslow never made before his co-employees any claim to the invention involved in this controversy and that he had access to Austin's office, whereby he could gain a knowledge of any steps being taken by Austin looking toward improvements in scales, of which Austin was a manufacturer.

I am therefore constrained to affirm the decision of the Examiners-in-Chief awarding priority to Austin.

EX PARTE F. H. GILSON COMPANY.

Decided June 16, 1898.

1. TRADE-MARK—"GILSON"—SURNAME—SALIENT FEATURE OF CORPORATE NAME.

The word "Gilson," being the salient feature of applicant's corporate name, refused registration as a trade-mark under the general rule that an ordinary surname cannot be appropriated as a trade-mark by any one person against others of the same name who are using it for a legitimate purpose.

2. SAME—SAME—SAME—NAME OF PATENTED DEVICE.

The word "Gilson," being the name of a patented album known as the "Gilson Album," refused registration as a trade-mark for photograph-albums and photographic exposure-tables on the ground that the name of an inventor which has become the generic name of the thing patented passes to the public when the monopoly created by the patent expires.

ON petition.

TRADE-MARK FOR BOOKS.

Application of F. H. Gilson Company for registration filed March 19, 1898, No. 55,415.

Messrs. Wright, Brown & Quinby for the applicant.

DUELL, *Commissioner:*

Applicant seeks to register the word "Gilson," the salient feature of its corporate name, as a trade-mark for photograph-albums and photographic exposure-tables and seeks by petition to review the action of the Examiner refusing its registration.

The general rule is well settled that an ordinary surname cannot be appropriated as a trade-mark by any one person against others of the same name who are using it for a legitimate purpose. (*Brown Chemical Co.* v. *Meyer*, 55 O. G., 287; 139 U. S., 540.) In that case the Court said:

It is hardly necessary to say that an ordinary surname cannot be appropriated as a trade-mark by any one person as against others of the same name, who are using it for a legitimate purpose.

In *Columbia Mill Co.* v. *Alcorn* (65 O. G., 1916; 15 U. S., 460) the Court said:

In the leading case of *Amoskeag Mfg. Co.* v. *Spear* (2 Sandf., 599) it is laid down that no one has a right to appropriate a sign or symbol which, from the nature of the fact it is used to signify, others may employ with equal truth, and, therefore, have an equal right to employ for the same purpose.

It is upon these principles that a person may put his own name upon his own goods, notwithstanding another person of the same name may, in that name, manufacture and sell the same or similar articles.

It is true that the courts have often restrained the use of surnames even by those born to such names; but in all such cases it will be found that such use has been enjoined only where "fraud upon another is manifestly intended or where he has assigned or parted with his right to use it." (*Brown Chemical Co.* v. *Meyer*, *supra.*)

That the word here sought to be registered is a part of applicant's corporate name does not change the rule of law applicable to the subject from what it would be were the applicant an individual seeking to register his own name as a trade-mark. In other words, as was said by Judge Bradley in *Celluloid Mfg. Co.* v. *Cellonite Mfg. Co.*, (41 O. G., 693; 32 Fed. Rep., 94, 97,) a suit brought to restrain the use of a corporate name:

The fact that both are corporate names is of no consequence in this connection. They are the business names by which the parties are known, and are to be dealt with precisely as if they were the names of private firms or partnerships.

The trade-mark act under which registry is sought distinctly states that no trade-mark shall be registered which is merely the name of the applicant. This would seem to be controlling, for the trade-mark here sought to be registered is the essential feature of applicant's name. The fact that the word "Gilson" is not the full name of the corporation, but only a portion of it, is to my mind immaterial.

In *ex parte Adriance, Platt & Co.*, (20 O. G., 1830,) where applicant sought to register as a trade-mark the word "Adriance," registry was refused, even when the name was used together with a symbolic representation.

Another ground for refusing the registration in this case is found in the fact stated at the hearing that the name was used in connection with a patented album. This album is known as the "Gilson album," and is so advertised, as shown by a circular to which my attention was called at the hearing. It has been held by the United States Supreme Court that where the name of the inventor has become the generic name of the thing patented this name passes to the public when the monopoly created by the patent expires. (*Singer Mfg. Co.* v. *June Mfg. Co.*, 75 O. G., 1703.) A patent is granted for a limited term, while a trade-mark once registered may be reregistered without limit. Manifestly this Office should not register the generic name of a patented thing as a trade-mark.

In this case, as I understand it, the right to use the mark on photograph-albums would expire before the first term for which the trade-mark might issue would end. In the case last cited the Court said:

It equally follows from the cessation of the monopoly and the falling of the patented device into the domain of things public, that along with the public ownership of the device there must also necessarily pass to the public the generic designation of the thing which has arisen during the monopoly, in consequence of the designation having been acquiesced in by the owner, either tacitly, by accepting the benefits of the monopoly, or expressly by his having so connected the name with the machine as to lend countenance to the resulting dedication. To say otherwise would be to hold that although the public had acquired the device covered by the patent, yet the owner of the patent or the manufacturer of the patented thing had retained the designated name which was essentially necessary to vest the public with the full enjoyment of that which had become theirs by the disappearance of the monopoly. In other words, that the patentee or manufacturer could take the benefit and advantage of the patent upon the condition that at its termination the monopoly should cease, and yet when the end was reached disregard the public dedication and practically perpetuate indefinitely an exclusive right.

However this may be, I prefer to base my decision upon the broad ground that the mere name (or part of a name) of a corporation which is a surname is no more registrable by a corporation than is the individual name by the one entitled to the use, though not exclusive thereof.

The decision of the Examiner is therefore affirmed.

EX PARTE KAPP.

Decided June 16, 1898.

DESIGN—LIMITING DESIGN TO ONE MEMBER OF A DEVICE.

Where applicant shows and describes a pair of tongs consisting of two members of the same shape or configuration pivoted together, *Held* that if applicant has invented and produced anything that is novel it is not a pair of tongs, but the shape or configuration of a member or jaw of a pair of tongs, and the description and claims should be limited accordingly.

ON petition.

DESIGN FOR DEVICES FOR REMOVING CLOTHES FROM WASHBOILERS.

Application of Levi M. Kapp and John L. Kapp filed March 26, 1897, No. 629,446.

Messrs. Louis Bagger & Co. for the applicants.

DUELL, *Commissioner:*

This is a petition from the action of the Examiner of May 24, 1898, that—

if applicant should revise his application to set up the design as residing in one of the members of the tongs, in order that the claim be for the design for the shape and configuration of an article of manufacture, and not of an organized apparatus, as is now the case, further consideration will be given the application.

Applicants show and describe a pair of tongs consisting of two members of the same shape or configuration pivoted together. In one figure of the drawing the tongs are shown with the jaws open, and the other figure shows the jaws closed. This pair of tongs seems to be an operative apparatus the form or contour of which as a whole is changed as the tongs are opened or closed. It is not the intent of the design law to cover designs of this character, and it is contrary to the practice of the Office to allow such case. (*Ex parte Smith*, 81 O. G., 969; *ex parte Tallman*, 82 O. G., 337.) If applicants have invented and produced anything that is novel, it is not a pair of tongs, but the shape or configuration of a member or jaw of a pair of tongs. Their description and claim should be limited to this. In requiring this limitation applicants have not been deprived of any of their rights. I have reached this conclusion after a careful consideration of applicants' brief and the design patents to which they refer in their petition.

The requirement of the Examiner is sustained and the petition denied.

EX PARTE ADAMS.

Decided June 11, 1898.

1. DESIGNS—ILLUSTRATION—ESSENTIAL FEATURES.
   In design patents it is permissible to show the essential features in full lines and the remaining parts of the design in dotted lines.
2. SAME—SAME.
   Design patents should disclose all and nothing more than the design which the patent is intended to cover, and the specification should recognize the fact that the entire thing disclosed constitutes the design.
3. SAME—INSTRUMENT "PRODUCED."
   The law requires that the inventor shall have "produced" a design, and this cannot be done without producing some instrument embodying the peculiar shape or configuration constituting the design. It is the instrument which has actually been produced and not the bare idea of shape which is patentable.
4. SAME—GENUS AND SPECIES.
   Modifications of designs do not exist, and there is no such distinction as genus and species as applied to design patents. (*Ex parte Eldon*, 83 O. G., 748; *Ex parte Jenks*, 83 O. G., 1513.)

ON petition.

DESIGN FOR BEDSTEADS.

Application of John M. Adams filed October 9, 1897, No. 654,726.

Mr. Geo. E. Waldo for the applicant.

GREELEY, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner making certain formal objections to the above-entitled application.

The applicant shows and describes rods of peculiar shape or configuration arranged in a particular relation to each other and said in the specification to constitute a—

panel for the head or foot of a bedstead or similar article.

The head or foot of a bed is shown in dotted lines to illustrate the embodiment of the design therein. The Examiner insists that the entire head of the bedstead should be shown in full lines and that the description and claim should cover it as a complete article of manufacture.

The applicant has disclosed the complete thing which he has produced and has merely made a distinction in the drawing between the essential features and other parts of the design. All applicants for design patents are permitted to state in the specification what constitutes the essential features of the design, and there appears to be no good reason why they should not be permitted to make the same distinction in the drawing. It is therefore held that the applicant's illustration is sufficient.

It must be held, however, that the parts shown in dotted lines constitute part of the design and that this fact should be recognized in the specification. It has been held that the drawing should illustrate the entire design and not merely a part thereof, (*ex parte Parker*, 80 O. G., 1892,) and it seems equally obvious that an applicant should not be permitted to disclose in his drawing anything more than the design upon which he wishes a patent. To disclose other features or inventions is unnecessary and is apt to lead to confusion as to what the patent covers. Since the test of infringement of design patents is the similarity of appearance, it follows that such patent should disclose all and nothing more than the design which the patent is intended to cover. It is apparent, therefore, that if the parts shown in dotted lines have any proper place in the drawing they constitute part of the design. The applicant appears to recognize the fact that these parts are necessary to properly illustrate the design.

If the parts shown in dotted lines were omitted, all that would remain would be the several separate and unconnected rods. In other words, the design would not be limited to a single article of manufacture, as provided in section 4929 of the Revised Statutes, but would cover five independent and unconnected articles.

The following quotation from *ex parte Brand* (83 O. G., 747) is pertinent on this question:

> The fact that two articles are used together does not make them, when so used, constitute a unitary design, but the result is merely an aggregation of the two designs. (*Ex parte Fatiz*, 35 O. G., 980; *ex parte Haggard*, 80 O. G., 1196.) A design must be a single unchangeable article of manufacture and must not be made up of independent detachable parts. As stated in *ex parte Brower*, (C. D., 1872, 151:)
>
> "It is arbitrary and unchangeable, either by the separation or the rearrangement of its features."

It is obvious that so long as the several rods are unconnected with each other they do not constitute a unitary design arbitrary and unchangeable either by the separation or rearrangement of these rods.

This application could not properly, and is not intended to, cover the shape or configuration of each of the rods separately, but is intended to cover their arrangement with reference to each other. Leaving out of consideration the dotted lines there is disclosed merely the idea of arrangement without any tangible embodiment of it. The law requires that the inventor shall have "produced" a design, and this cannot be done without producing some instrument embodying the peculiar shape or configuration constituting the design. It is this instrument and not the bare idea of shape which is patentable, and therefore the application should cover the instrument which has actually been produced, leaving to the courts to determine what are equivalents of it.

The applicant does not seem to recognize the fact that modifications of designs do not exist and that there is no such distinction of generic and specific design patents as there is in mechanical patents, for in the last paragraph of the specification it is said:

> * * * My invention contemplates any variation from the specific lines shown which will not impair the general effect thereof.

Such statements are not permissible in design patents. (*Ex parte Eldon*, 83 O. G., 748; *ex parte Jenks*, 83 O. G., 1513.)

The petition is granted in so far as the illustration is concerned, but as to other matters it is denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MESSINGER *v.* THE COMMISSIONER OF PATENTS.

Decided May 3, 1898.

1. APPEAL TO THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA—REFUSAL OF COMMISSIONER TO GRANT REHEARING—APPEAL DISMISSED.
   A decision was rendered by the Commissioner on February 28, 1891, rejecting the claims. There were no other or further steps taken in the case until October 23, 1896, when appellant moved for a rehearing and for leave to amend by canceling certain claims embraced by the original patent and to insert in lieu thereof modified claims filed with the motion for rehearing. This motion was on March 13, 1897, denied by the Commissioner. On appeal to the Court of Appeals from this ruling of the Commissioner refusing to rehear the case *Held* that the appeal cannot be maintained, as an appeal will not lie from a ruling refusing a rehearing or an application for leave to amend the original claims.
2. SAME—LIMIT OF APPEAL.
   Held, further, that the appeal cannot be maintained, as it was not taken from the original decision of the Commissioner of February 28, 1891, refusing the reissue of the patent, either to the Supreme Court of the District of Columbia or to the Court of Appeals of the District of Columbia, within the limits prescribed by the rule of the Court of Appeals after the rule was adopted.
3. SAME—REISSUE, DELAY IN APPLYING FOR—INADVERTENCE, ACCIDENT, OR MISTAKE.
   The original patent was issued on September 15, 1885, and an application for reissue was not filed in the Patent Office until November 6, 1888. *Held* that the application for reissue of the patent was not made within a reasonable time and that there was no sufficient evidence of inadvertence, accident, or mistake to entitle appellant to a reissue of the patent under the statute, according to the rule laid down in the case of *Topliff v. Topliff*, (59 O. G., 1357; 145 U. S., 156.)
4. REISSUE—DILIGENCE IN DISCOVERING MISTAKE IN ORIGINAL PATENT, IN APPLYING FOR REISSUE, AND IN THE PROSECUTION OF THE APPLICATION.
   From the well-settled principles of the law of reissues, as expressed by the Supreme Court, not only must the application for reissue be founded upon the same invention as that covered by the original patent and as shown by the original specification and claims, but there must be due diligence shown in discovering the mistake or inadvertence and in the application for reissue and in the prosecution of such application.

Mr. Julian C. Dowell for the appellant.

Mr. W. A. Megrath for the Commissioner of Patents.

ALVEY, *J.:*

This appeal is brought into this court from the Patent Office, and it is from a ruling or rulings in that Office refusing a reissue patent upon a patent granted to the appellant on the 15th of September, 1885, for an improvement in grain and harvester binders. The case was brought into this court by an appeal entered on the 21st of April, 1897, the record of which was filed in this court on the 22d of April, 1897.

It appears from the record produced that the original patent issued to the appellant on the 15th of September, 1885, and that on November 6, 1888, more than three years afterward, the appellant filed in the Patent Office an application for the reissue of the patent granted to him, upon the allegation that the original patent, No. 326,443, was inoperative and invalid by reason of a defective and insufficient specification, resulting from an error arising through inadvertence, accident, or mistake and without any fraudulent or deceptive intention, the said defects and insufficiencies consisting in the omission in the patent to clearly, fully, and accurately describe and claim the invention described and shown therein. This allegation was made to bring the case within the terms of section 4916, Revised Statutes of the United States. It is also shown by the record that this application for reissue was fully and fairly examined by the officials of the Patent Office, and, not finding sufficient ground for the reissue, the application was rejected. It was rejected first by the Primary Examiner, and upon appeal it was rejected by the Examiners-in-Chief, and, finally, upon appeal to the Commissioner in person, the preceding rulings by the Examiners were affirmed and the application was denied. This latter decision was rendered by the Assistant Commissioner on the 28th of February, 1891. After this decision of February 28, 1891, there was no other or further step taken in the matter until October 23, 1896, nearly six years after the final ruling refusing the application for reissue, when the appellant moved for a rehearing and for leave to amend by canceling claims 4, 5, and 6, embraced by the original patent, and inserting in lieu thereof modified claims filed with the motion for rehearing. This motion for rehearing was heard by the Commissioner, and he denied the application on March 13, 1897. There were several grounds stated by the officials in the Patent Office for the denial of the application for reissue, any one of which was sufficient to defeat the application of the appellant. The Commissioner in overruling the motion for rehearing, in referring to the principle as settled by the Supreme Court of the United States in regard to the question of the time within which an application for reissue of a patent should be made, said:

I need not refer in detail to these cases; but it was held that the application for reissue must be made seasonably and as soon as the defect is discovered, and that there is no fixed right to wait two years before applying. No countenance is given to the claim that reissues may be applied for as often as desired. The ground for these decisions appears to be that where the patentee holds a grant which covers more than he has a right to claim, he should be prompt to disaffirm that to which he has no right, and that the public should know from the patent precisely what they may do and what they may not do, and ought to be informed that there is something in the patent to which the public is entitled, and that this information should reach them at as early a day as practicable. The reason likewise holds with equal force in cases where the patentee has informed the public of his claim in the original issue of the patent, but intends further on to broaden his claim. On these grounds I am of the opinion that *ex parte Galusha* has come to be in conflict with the later Supreme Court decisions; that it is not the law, and that reissue cases are abandoned after two years of inactivity, like other cases, by operation of section 4894.

The Commissioner did not name the cases in the Supreme Court to which he alluded; but we may suppose that he had reference, among others, to the recent cases of *Parker & Whipple Co.* v. *Yale Clock Co.* (123 U. S., 87) and *Topliff* v. *Topliff*, (59 O. G., 1257; 145 U. S., 156,) where the question of time and the circumstances under which applications for reissue of patents may be made is fully discussed and the rules, with their proper limitations, are stated as the result of a full review of the preceding cases upon the subject. In the last of these cases, that of *Topliff* v. *Topliff*, *supra*, the rules deduced from the cases are thus stated, the italics being ours:

First. That it shall be for the same invention as the original patent, *as such invention appears from the specification and claims of such original.*

Second. That *due diligence must be exercised in discovering the mistake* in the original patent, and that, if it be sought for the purpose of enlarging the claim, *the lapse of two years will ordinarily, though not always,* be treated *as evidence of an abandonment of the new matter to the public* to the same extent that a failure by the inventor to apply for a patent within two years from the public use or sale of his invention is regarded by the statute as conclusive evidence of an abandonment of the patent to the public.

Third. That this Court will not review the decision of the Commissioner upon the question of inadvertence, accident or mistake, *unless the matter is manifest from the record*; but that the question whether the application was made *within a reasonable time* is, in most, if not in all such cases, *a question of law* for the Court.

It is manifest from these well-settled principles by the Supreme Court that not only must the application for reissue be founded upon the same invention as that covered by the original patent and as shown by the original specification and claims, but that there must be due diligence shown in discovering the mistake or inadvertence and in the application for reissue and in the prosecution of such application. In this case all these essentials would seem to be wanting.

The case was brought here upon appeal from the order of the Commissioner refusing to reopen the case and allow the amendment proposed to be made in respect to claims 4, 5, and 6 of the original patent, and when the case was called for argument in this court it was found that there had been a motion entered on behalf of the Patent Office to dismiss the appeal, and it being apparent that the case was not properly here and was in no condition to be heard on its merits, whatever they might be, it was suggested that possibly the Commissioner of Patents might make a ruling upon the proposed substituted claims that would open the case and present the question that it was sought to have decided upon the appeal, and the case was held over to give the appellant an opportunity to apply to the Patent Office in that behalf. The application was made, but the condition of the case has been in no respect changed. The application to reopen the case was again denied; but at the same time, with a view of placing upon the record fully the grounds upon which the application was denied, the files and contents of the case were sent to the Primary Examiner, with directions to report as to whether the claims of the proposed amendments are patentable over the state of the art, whether said claims are broader than those in the patent, and whether the applicant is entitled to a reissue patent. The Primary Examiner reported upon the questions thus submitted to him, and his report was adverse to the claims of the appellant. In the conclusion of his report he says:

> After considering the circumstances of the case, the Examiner is of the opinion that the applicant is not entitled to a reissue for the reasons that the claims are unduly enlarged; that there is no sufficient evidence of inadvertence, accident, or mistake, and the delay of more than three years is not satisfactorily accounted for.

We have stated the position of the case both in the Patent Office and in this court more fully, perhaps, than is really necessary; but we deem it proper that the real status of the case may fully appear, in view of the conclusion to which we are necessarily led. The appeal cannot be maintained, first, because an appeal will not lie from a ruling refusing a rehearing or an application for leave to amend the original claims; second, because the appeal was not taken from the original order refusing the reissue of the patent either to the Supreme Court of the District of Columbia or to this court within the limit prescribed by the rule of this court after the rule was adopted, and, third, because the application for reissue of the patent was not made until after the lapse of more than three years after the date of the original patent and because there is no sufficient evidence of the inadvertence, accident, or mistake to entitle the applicant to a reissue of the patent under the statute, according to the rules laid down in the case of *Topliff* v. *Topliff*, *supra*. It therefore follows that the appeal must be dismissed, and it is so ordered.

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I need not refer in detail to these cases; but it was held that the application for reissue must be made seasonably and as soon as the defect is discovered, and that there is no fixed right to wait two years before applying. No countenance is given to the claim that reissues may be applied for as often as desired. The ground for these decisions appears to be that where the patentee holds a grant which covers more than he has a right to claim, he should be prompt to disaffirm that to which he has no right, and that the public should know from the patent precisely what they may do and what they may not do, and ought to be informed that there is something in the patent to which the public is entitled, and that this information should reach them at as early a day as practicable. The reason likewise holds with equal force in cases where the patentee has informed the public of his claim in the original issue of the patent, but intends further on to broaden his claim. On these grounds I am of the opinion that *ex parte Galusha* has come to be in conflict with the later Supreme Court decisions; that it is not the law, and that reissue cases are abandoned after two years of inactivity, like other cases, by operation of section 4894.

The Commissioner did not name the cases in the Supreme Court to which he alluded; but we may suppose that he had reference, among others, to the recent cases of *Parker & Whipple Co.* v. *Yale Clock Co.* (123 U. S., 87) and *Topliff* v. *Topliff*, (59 O. G., 1257; 145 U. S., 156,) where the question of time and the circumstances under which applications for reissue of patents may be made is fully discussed and the rules, with their proper limitations, are stated as the result of a full review of the preceding cases upon the subject. In the last of these cases, that of *Topliff* v. *Topliff*, *supra*, the rules deduced from the cases are thus stated, the italics being ours:

'First. That it shall be for the same invention as the original patent, *as such invention appears from the specification and claims of such original.*

Second. That *due diligence must be exercised in discovering the mistake* in the original patent, and that, if it be sought for the purpose of enlarging the claim, *the lapse of two years will ordinarily, though not always,* be treated *as evidence of an abandonment of the new matter to the public* to the same extent that a failure by the inventor to apply for a patent within two years from the public use or sale of his invention is regarded by the statute as conclusive evidence of an abandonment of the patent to the public.

Third. That this Court will not review the decision of the Commissioner upon the question of inadvertence, accident or mistake, *unless the matter is manifest from the record;* but that the question whether the application was made *within a reasonable time* is, in most, if not in all such cases, *a question of law* for the Court.

It is manifest from these well-settled principles by the Supreme Court that not only must the application for reissue be founded upon the same invention as that covered by the original patent and as shown by the original specification and claims, but that there must be due diligence shown in discovering the mistake or inadvertence and in the application for reissue and in the prosecution of such application. In this case all these essentials would seem to be wanting.

The case was brought here upon appeal from the order of the Commissioner refusing to reopen the case and allow the amendment proposed to be made in respect to claims 4, 5, and 6 of the original patent, and when the case was called for argument in this court it was found that there had been a motion entered on behalf of the Patent Office to dismiss the appeal, and it being apparent that the case was not properly here and was in no condition to be heard on its merits, whatever they might be, it was suggested that possibly the Commissioner of Patents might make a ruling upon the proposed substituted claims that would open the case and present the question that it was sought to have decided upon the appeal, and the case was held over to give the appellant an opportunity to apply to the Patent Office in that behalf. The application was made, but the condition of the case has been in no respect changed. The application to reopen the case was again denied; but at the same time, with a view of placing upon the record fully the grounds upon which the application was denied, the files and contents of the case were sent to the Primary Examiner, with directions to report as to whether the claims of the proposed amendments are patentable over the state of the art, whether said claims are broader than those in the patent, and whether the applicant is entitled to a reissue patent. The Primary Examiner reported upon the questions thus submitted to him, and his report was adverse to the claims of the appellant. In the conclusion of his report he says:

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We have stated the position of the case both in the Patent Office and in this court more fully, perhaps, than is really necessary; but we deem it proper that the real status of the case may fully appear, in view of the conclusion to which we are necessarily led. The appeal cannot be maintained, first, because an appeal will not lie from a ruling refusing a rehearing or an application for leave to amend the original claims; second, because the appeal was not taken from the original order refusing the reissue of the patent either to the Supreme Court of the District of Columbia or to this court within the limit prescribed by the rule of this court after the rule was adopted, and, third, because the application for reissue of the patent was not made until after the lapse of more than three years after the date of the original patent and because there is no sufficient evidence of the inadvertence, accident, or mistake to entitle the applicant to a reissue of the patent under the statute, according to the rules laid down in the case of *Topliff* v. *Topliff*, *supra*. It therefore follows that the appeal must be dismissed, and it is so ordered.

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ABANDONED APPLICATIONS.

(See Applications, 5, 6.)

SECOND APPLICATION—ABANDONMENT.

Park filed an application May 6, 1895, which disclosed but did not claim the subject-matter of the issue and which was passed to issue November 16, 1895. The application in the interference was filed July 30, 1896, containing and claiming the subject-matter of the first application, and in addition thereto new matter. The first application became abandoned after the second application was filed. *Held* that the subject-matter of the first application being a part of the second application, any idea that Park intended to abandon the subject-matter of the application is negatived.

[Park *v.* Cain, 1345.

ABANDONED CLAIMS.

(See Reissues, 2.)

ABANDONED INVENTIONS.

(See Abandoned Applications; Reissues, 1.)

ADJUDICATION.

(See Appeal from the Court of Claims.)

AMENDMENTS.

(See Interference, 26, 27, 28.)

APPEAL—EX PARTE.

(See Appeal to the Examiners-in-Chief, 5; Motion to Dissolve Interference, 5.)

APPEAL FROM THE COURT OF CLAIMS.

SECOND SUIT—RES ADJUDICATA—ESTOPPEL.

Claimant filed a petition in the Court of Claims for royalty upon cartridges and primers alleged to have been manufactured by the United States under his patent. The petition was dismissed. A motion for new trial was filed by claimant and was also dismissed. Application for appeal was filed; but appeal was not allowed. A second petition was filed after the first petition had been dismissed and was based upon the same patent involved in the first petition. This petition was also dismissed by the Court of Claims. Appeal from this judgment was taken to the Supreme Court. The defense was that of *res adjudicata*. *Held* that even if a somewhat different theory or state of facts were developed upon the trial of the second petition the judgment in the former petition would not operate the less as an estoppel, since the patentee cannot bring suit against an infringer upon a certain state of facts and after a dismissal of his action bring another suit against the same party upon the same state of facts and recover upon a different theory. The judgment in the first action is a complete estoppel in favor of the successful party in a subsequent action upon the same state of facts. (Walk. on Pats., sec. 468; *Dubois* v. *Railway Co.*, 5 Fish., 200; *Bradley Mfg. Co.* v. *Eagle Mfg. Co.*, 58 O. G., 315; 97 Fed. Rep., 982.)

[*Hubbell *v.* United States, 1661.

APPEAL TO THE COMMISSIONER OF PATENTS.

LIMIT OF—INTERFERENCE—DECISION OF LOWER TRIBUNAL IN INTERLOCUTORY MATTERS BINDING.

Appeals upon interlocutory matters should not be accepted after the expiration of the limit of appeal. The decision of a lower tribunal in such matters should not be set aside except upon a clear showing of error.

[Orias *v.* Stimpson, 293.

APPEAL TO THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

(See Reissues, 3.)

1. INTERFERENCE—WEIGHT TO BE GIVEN TO DECISIONS OF PATENT OFFICE.

Where the several tribunals of the Patent Office concur in findings in respect to a mere matter of fact about which testimony is conflicting, *Held* there is no reasonable ground for supposing that the Court of Appeals of the District of Columbia will reverse those findings unless it be shown clearly and beyond reasonable doubt that there had been error committed in comparing and weighing the evidence.

[*Glenn *et al. v.* Adams, 156.

2. SAME—PRIORITY—DECISION OF COMMISSIONER AFFIRMED.

The decision of the Commissioner of Patents in awarding priority of invention to Adams affirmed. [*Id.

3. REFUSAL OF COMMISSIONER TO GRANT REHEARING—APPEAL DISMISSED.

A decision was rendered by the Commissioner on February 28, 1891, rejecting the claims. There were no other or further steps taken in the case until October 23, 1896, when appellant moved for a rehearing and for leave to amend by canceling certain claims embraced by the original patent and to insert in lieu thereof modified claims filed with the motion for rehearing. This motion was on March 12, 1897, denied by the Commissioner. On appeal to the Court of Appeals from this ruling of the Commissioner refusing to rehear the case *Held* that the appeal cannot be maintained, as an appeal will not lie from a ruling refusing a rehearing or an application for leave to amend the original claims.

[*Messinger *v.* Commissioner of Patents, 1995.

4. LIMIT OF APPEAL.

Held, further, that the appeal cannot be maintained, as it was not taken from the original decision of the Commissioner of February 28, 1891, refusing the reissue of the patent, either to the Supreme Court of the District of Columbia or to the Court of Appeals of the District of Columbia, within the limits prescribed by the rule of the Court of Appeals after the rule was adopted. [*Id.

APPEAL TO THE EXAMINERS-IN-CHIEF.

(See Motion to Dissolve Interference, 6; Reopening of Rejected Cases.)

1. DISCRETION OF THE EXAMINERS-IN-CHIEF.

On an appeal from the decision of the Primary Examiner on a motion involving the right of an applicant to make a claim it is doubtful whether the adverse party should be heard, even as a matter of courtesy. This matter should, however, be left to the discretion of the Examiners-in-Chief.

[Painter *v.* Hall, 1808.

2. RIGHT OF MOVING PARTY TO BE HEARD BEFORE APPELLATE TRIBUNAL.

The party bringing such motion, so far as an appeal is concerned, is no more entitled to be heard as of right, whatever may be decided by the Office as regards his appearing before an appellate tribunal as a matter of policy, than any person not before the Office whose rights to freely manufacture the invention covered by the claim might be curtailed by the issuance of a patent. [Id.

3. RIGHT OF PARTIES TO BE HEARD—RIGHT OF APPEAL.

Such motion is heard *inter partes* by the Primary Examiner as a matter of Office policy, in order that the facts and reasons which in the opinion of the moving party negative the patentability of the claim or show that his opponent is not entitled to make the claim may be clearly presented; but the Office does not and cannot recognize the moving party as a party in interest entitled to contest the patentability of another's claims. He has no right of appeal from a decision denying his motion. [Id.

4. SAME.

The same reasons which justify the rule which refuses the right of appeal from the decision of the Primary Examiner affirming patentability or the right of the respective parties to make the claim justify the Office in refusing to permit the appeal taken by the party whose claims are affected to be made a contest *inter partes* before the appellate tribunal.

[Id.

5. SAME.
Whether or not the adverse party is to be heard upon the appeal upon the question raised by the motion to dissolve, it is clear that he cannot be heard before the appellate tribunal as to the validity of the appeal of the party against whom the question of patentability or right to make the claim has been decided by the Primary Examiner. As to questions involving validity, the appeal is *ex parte* purely. [Id.

6. TIME OF TAKING APPEAL—ESTOPPEL—RIGHT OF ADVERSE PARTIES TO BE HEARD—EX PARTE QUESTION.
The question of the time of taking appeal and the question of estoppel of a party by his adoption of a course deemed to be inconsistent with an appeal are *ex parte* questions, and an adverse party has no right to be heard as a matter of course by the Examiners-in-Chief on appeal on these questions. [Id.

7. SETTING LIMIT OF APPEAL.
On a motion to dissolve on the ground of non-patentability or of no right to make a claim the Examiner should not set a limit of appeal, as the party who is affected adversely by such decision has the full statutory limit of two years within which to appeal. [Id.

8. RELIEF OF PARTY WHEN HIS OPPONENT FAILS TO TAKE AN APPEAL.
An applicant has his remedy in case his opponent fails to take an appeal from a decision of the Primary Examiner granting the motion to dissolve an interference upon the question of non-patentability or no right to make the claim. He may ask that his own application be passed to issue unless his opponent exercises his right of appeal within a reasonable time. Failure on the part of the opponent to take an appeal within such time may perhaps be held to work an estoppel, but consideration of such questions should be *ex parte*. (Citing *Abel and Dewar* v. *Maxim* v. *Nobel*, 56 O. G., 189, and *ex parte Lombard*, 43 O. G., 1347.) [Id.

APPLICANT AND PATENTEE.

(See Interference, 1, 8, 9, 10, 19, 25, 27, 28.)

APPLICATIONS.

(See Abandoned Applications; Division of Application.)

1. INCOMPLETE APPLICATION—NO DRAWING.
The rules of the Office require that in order to constitute a complete application a drawing must be filed whenever the nature of the case admits. Until a drawing is filed the application is not complete. Until an application is completed by filing all the necessary papers and the payment of the fee it cannot be examined, nor can it be placed in interference.
[Palmer and Thompson *v.* Bailey, 1207.

2. IRREGULAR PAPERS—FILING DATE OF APPLICATION.
Applicant filed a drawing and the first fee of an application on December 31, 1897. At the same time he filed an unsigned paper describing and claiming the device shown by the drawing. On January 3, 1898, he filed a petition, specification and claims, and an oath properly signed, executed, and witnessed. The application was given a filing date as a complete application, January 3, 1898. *Held* that the paper filed December 31, 1897, cannot be treated as a specification, and a petition to change the date of filing the application from January 3, 1898, to December 31, 1897, denied.
[*Ex parte* Hallberg, 1208.

3. REQUISITES OF A COMPLETE APPLICATION.
The Rules of Practice and the statutes require that the specification shall be signed by the applicant, and a complete application must comprise, in addition to the drawing and fee, a petition, specification, and oath, and an application will not be considered as complete until all its parts have been filed in this Office. [Id.

4. REFUNDING FEE—INCOMPLETE APPLICATION.
Where an applicant filed an incomplete application and first fee on December 31, 1897, and on January 3, 1898, he completed the application, with the understanding that if it were possible it would be given the earlier date, and upon consideration it was decided that the application could not be given the earlier date, *Held* that the first fee could not be refunded, as it was not paid by actual mistake, but in paying it and completing his application the applicant took his chances as to the earlier date being given to the application, and, further, the application has had a full examination on the merits. [Id.

5. CONTINUING APPLICATION.
Held, further, that while, strictly speaking, the second application for all purposes may not be susceptible of being treated as a continuation of the first application, yet for many purposes it can be so treated.
[Park *v.* Cain, 1345.

6. SAME—INTERFERENCE—CONSTRUCTIVE REDUCTION TO PRACTICE—PRIORITY.
Held, further, that the second application is, for the purpose of showing a constructive reduction to practice, a continuation of the first application, and that Park, having disclosed the subject-matter of the issue in his first application at a date prior to any date that can be given to Cain, is entitled to an award of priority. [Id.

ATTORNEYS.

1. ATTORNEYS PRACTICING BEFORE PATENT OFFICE—DISBARMENT—COMMISSIONER OF PATENTS HEARING CHARGES—SECTION 487, REVISED STATUTES, CONSTRUED.
Section 487, Revised Statutes, remits to the Commissioner of Patents the entire cognizance of cases of malpractice occurring before his Bureau and under it the hearing of such cases is to be by him and not by the Secretary of the Interior. It is eminently fitting that this should be so in view of the character of the duties, judicial or quasi-judicial, which are vested in him.
[*United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior, 206.

2. SAME—SAME—SUPERVISORY POWER OF THE SECRETARY OF THE INTERIOR OVER THE COMMISSIONER OF PATENTS IN DISBARMENT PROCEEDINGS—"SUBJECT TO THE APPROVAL OF THE SECRETARY OF THE INTERIOR" CONSTRUED.
By section 487, Revised Statutes, there is reserved to the Secretary of the Interior a supervising power over the action of the Commissioner of Patents; but this is no more than an executive or administrative proceeding. The provision that the judgment of the Commissioner shall "be subject to the approval of the Secretary of the Interior" does not make the Secretary a court for the trial of the case, nor does it make him in any proper sense an appellate tribunal before which it would be proper for a party in interest to demand and to be accorded a hearing. [*Id.

3. SAME—SAME—SAME—SAME.
The meaning of such supervisory power is not that the Secretary must try or hear the cause, but that the judgment of the Commissioner is not to be carried into effect until it receives the approval of the Secretary, and in order to give it this approval, or conversely and by implication his disapproval, the Secretary is necessitated to go over the record of the proceedings that is made up for him according to law or regulation. This, as we have said, is a judicial or quasi-judicial duty on his part; but it is not the equivalent in any sense of the hearing of a cause. [*Id.

4. SAME—SAME—OFFICER BEFORE WHOM CHARGES ARE TO BE HEARD—SECTION 487, REVISED STATUTES, AND ACT JULY 4, 1884, CONSTRUED.
When the act of July 4, 1884, and section 487, Revised Statutes, are compared and construed together, it is clear that it was not the intention of Congress to repeal section 487 by the enactment of the latter law, and if such was not the intention of Congress then the only reasonable construction of the act of 1884 was that the hearing therein provided to be given to the persons charged with malpractice was the hearing implied to be by section 487 of the Revised Statutes. So far, at least, as the Patent Office was concerned the act of 1884 made no substantial change in the law. [*Id.

5. SAME—SAME—SAME—"AFTER NOTICE AND OPPORTUNITY FOR HEARING" IN ACT JULY 4, 1884, CONSTRUED.
The provision of the act of July 4, 1884, is not that the Secretary might exclude from practice after notice and hearing of the party charged, which would be the more natural form of expression if it was the intention that the hearing should be before the Secretary in person, but that he might exclude "after notice and opportunity for a hearing," meaning plainly a hearing before some proper officer in such reasonable mode as should be provided by regulation of the Department.
[*Id.

6. SAME—SAME—SAME—SAME.
The word "hearing" in law and in this statute means something more than oral argument. It means, also, the right to adduce testimony. If the sole hearing contemplated by the statute was to be had before the Secretary, the Commissioner of Patents could not hear it at all, and the only duty that could reasonably be imposed upon that officer was that of taking the testimony and reporting it to the Secretary; but this conclusion would be in direct contravention of section 487 of the Revised Statutes, which explicitly provides that the Commissioner shall determine the matter, subject only to the approval of his action by the Secretary of the Interior.
[*Id.

7. SAME—SAME—SAME—WEIGHT TO BE GIVEN TO DEPARTMENT'S CONSTRUCTION OF STATUTE.
The construction placed by an executive department of the Government upon a statute enacted for its guidance and the regulation of its business must, unless it be plainly erroneous, receive due weight and consideration and should not be disregarded, except for cogent reasons. When, therefore, the Department, which was called upon to administer the act of 1884 and construe that act in connection with section 487 of the Revised Statutes, did so construe it that the notice and an opportunity for a hearing therein provided to be given should be given by the head of the proper Bureau and that the investigation should be conducted by such Bureau officer, subject to the approval of his findings by the Secretary of the Interior, it is not apparent that there was error in that construction.
[*Id.

8. SAME—SAME—MANDAMUS TO COMPEL THE SECRETARY TO GIVE A HEARING—JURISDICTION OF COURT TO ISSUE WRIT DOUBTFUL.
Assuming that mandamus is proper whenever an inferior court or a judicial officer charged with the exercise of discretionary or judicial functions either assumes to exercise jurisdiction when none exists or refuses to entertain jurisdiction

with which he is by law invested, without regard to the question whether there is any appeal from his judgment when rendered and when he has acted, *Held* that it is doubtful whether the refusal of the Secretary to accord to the relator the opportunity to make an argument, especially when it is not shown or in any manner intimated how or wherein the Secretary erred or was mistaken or misled, is to be regarded as a jurisdictional matter for which the writ of mandamus would be proper. [*Id.

BILL IN EQUITY.

(See Suits Under Section 4915, Revised Statutes.)

BURDEN OF PROOF.

(See Interference, 12, 37.)

CAVEATS.

1. STATUTE CONSTRUED—RIGHT OF PERSONAL REPRESENTATIVE TO FILE.
Section 4902 of the Revised Statutes of the United States, under the terms of which caveats may be filed, does not give the right to file a caveat to any one other than the inventor, and in the absence of any expressed right being vested under the statute in the personal representative of an inventor to file a caveat no such right exists, nor can it be implied.
[*Ex parte* Conklin, 1660.

2. STATUTE AND RULE CONSTRUED—RENEWAL.
Section 4902 of the Revised Statutes does not provide for the renewal of a caveat, and although the rules of the Patent Office provide for such renewal yet in the absence of any express language in the statutes giving the right of renewal in order to validate the rule the word "renewal," as employed in the rule, must be taken to mean not an extension of the caveat originally filed, but rather considered as referring to and making the so-called renewal a new caveat, based upon the papers originally filed. [Id.

3. SAME—RIGHT OF PERSONAL REPRESENTATIVE TO RENEW A CAVEAT.
If the so-called renewal must be considered in effect as a new filing of the original caveat, an executor cannot renew the caveat filed by a deceased inventor, for the reason that the executor, under the statutes, could not have filed the caveat in the first instance. [Id.

4. SAME—SAME.
An executor or an administrator of a deceased inventor is not deprived of any substantial right if he be not allowed to renew a caveat; but even if he were the remedy cannot be found in the Patent Office, but rather should be the subject of legislation by Congress. If at the time of the death of a caveator an invention had not been perfected, his executor could not file an application for patent in his representative capacity. If the invention had been perfected, then the executor could file an application for a patent, and in either case no injury that would flow from the denial of a right to renew the caveat would follow. [Id.

CHANGE OF FORM.

(See Infringement, 2.)

COMMISSIONER OF PATENTS.

(See Appeal to the Court of Appeals of the District of Columbia, 2, 3, 4; Attorneys; Copies of Patents, Exhibits, etc.; Examiners; Interference, 17, 24; Reopening of Rejected Cases.)

CONSTRUCTION OF RULES.

(See Interference, 4, 5, 6; Motion to Dissolve Interference, 6.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Designs, 1, 2, 3, 4; Infringement, 1, 8; Invention; Particular Patents; Pioneer Invention; Process.)

"SUBSTANTIALLY AS SET FORTH."
The words "substantially as set forth" have been uniformly held by the Supreme Court to import into a claim the particulars of the specification. A claim, therefore, which might otherwise be bad, as covering a function or result, when containing these words should be construed in connection with the specification, and when so construed may be held to be valid. (Citing *Seymour* v. *Osborne*, 11 Wall., 516, and *The Corn Planter Patent*, 6 O. G., 893; 23 Wall., 181.)
[*Boyden Power Brake Company *et al.* v. Westinghouse *et al.*, 1067.

CONSTRUCTION OF STATUTES.

(See Attorneys; Caveats, 1, 2.)

CONTINUOUS APPLICATIONS.

(See Applications, 5, 6.)

COPIES OF PAPERS, EXHIBITS, ETC.

INTERFERENCE—PAPER EXHIBITS, REPRODUCTION OF—DISCRETIONARY POWER OF THE COMMISSIONER TO REQUIRE.
The rules of the Patent Office do not require that paper exhibits should be reproduced, so that copies may be furnished for the convenience of the various tribunals of the Office and for the counsel for the adverse parties. In the absence of such rule it is not within the discretion of the Commissioner of Patents to make such requirement.
[Freeman *v.* Bernstein *et al.*, 155.

COURT OF CLAIMS.

(See Appeal from the Court of Claims.)

DATE OF APPLICATION OF FOREIGN PATENT.

(See Interference, 21.)

DATE OF FILING APPLICATION.

(See Applications, 2.)

DECISIONS OF THE COMMISSIONER OF PATENTS SUSTAINED.

(See Appeal to the Court of Appeals of the District of Columbia; Interference, 17.)

DECISIONS OF THE COMMISSIONER OF PATENTS TO BE FOLLOWED.

(See Examiners.)

DELAY IN APPLYING FOR REISSUE.

(See Reissues, 3, 4.)

DELAY IN FILING APPLICATION.

(See Interference, 1, 2, 19, 22.)

DESIGNS.

1. DIVISION.
The requirement of the Examiner that applicant restrict the application to one or the other design for castings for a bedstead rail-joint affirmed.
[*Ex parte* Brand, 747.

2. SAME—ARTICLES USED TOGETHER—UNITARY DESIGN—AGGREGATION.
The fact that two articles are used together does not make them, when so used, constitute a unitary design, but the result is merely an aggregation of the two designs. (*Ex parte Potts*, 82 O. G., 980; *ex parte Haggard*, 80 O. G., 1126.) [Id.

3. SAME—SAME.
From the fact that the parts are specially designed for detachment it cannot be held that the two together constitute a unitary design merely because they may be used together. [Id.

4. SAME—DETACHABLE PARTS.
A design must be a single unchangeable article of manufacture and must not be made up of independent detachable parts. [Id.

5. MISLEADING STATEMENT IN SPECIFICATION AS TO MODIFICATIONS.
The specification contained this paragraph: "While the drawings illustrate the cylindrical body of the grip as being provided with circular rows of the perforations or holes and continuous circular ribs or beads alternating with the rows of perforations or holes, it will be understood that this specific

arrangement may be modified to some extent without departing from the spirit or principle of the present invention, the essential feature of which is a cylindrical body provided with annular rows of perforations, and exterior circumferential ribs arranged between the rows of such exterior perforations." On appeal from the requirement of the Examiner that this statement be canceled *Held* that this statement was evidently intended to make the application cover some other form or modification of design than that shown in the drawing; that it either has this effect or is unnecessary and misleading and should be canceled.
[*Ex parte* Eldon, 748.

6. SAME—EFFECT OF BROADENING CLAIM.
Held, further, that such statement does not and cannot have the effect of broadening the claim so as to cover other modifications not shown, as it purports to do, and it is therefore misleading and should be canceled. [Id.

7. SAME—TESTING MODIFICATIONS BY INFRINGEMENT.
Held, further, that, while under the test laid down by the Supreme Court in the case of *Gorham Co.* v. *White* (14 Wall., 511) as to modifications, the modifications which applicant had in mind in introducing such statement may be held infringements, yet neither the applicant nor the Office can settle this question in advance, and therefore the statement purporting to do so is misleading and should be canceled. [Id.

8. SAME—MODIFICATIONS NOT SHOWN.
If a party cannot cover two modifications by disclosing them, he should not be permitted to do so by a bare statement that his application is intended to cover them, although they are not shown. [Id.

9. DESCRIBING PREFERRED FORMS OR MODIFICATIONS.
Words or phrases referring to or describing preferred forms or modifications of designs should not be permitted in an application for a design. Modifications of designs do not exist, and applicants should restrict their drawing and description to one design.
[*Ex parte* Jenks, 1513.

10. LIMITING DESIGN TO ONE MEMBER OF A DEVICE.
Where applicant shows and describes a pair of tongs consisting of two members of the same shape or configuration pivoted together, *Held* that if applicant has invented and produced anything that is novel it is not a pair of tongs, but the shape or configuration of a member or jaw of a pair of tongs, and the description and claims should be limited accordingly.
[*Ex parte* Kapp, 1903.

11. ILLUSTRATION—ESSENTIAL FEATURES.
In design patents it is permissible to show the essential features in full lines and the remaining parts of the design in dotted lines.
[*Ex parte* Adams, 1994.

12. SAME.
Design patents should disclose all and nothing more than the design which the patent is intended to cover, and the specification should recognize the fact that the entire thing disclosed constitutes the design. [Id.

13. INSTRUMENT "PRODUCED."
The law requires that the inventor shall have "produced" a design, and this cannot be done without producing some instrument embodying the peculiar shape or configuration constituting the design. It is the instrument which has actually been produced and not the bare idea of shape which is patentable. [Id.

14. GENUS AND SPECIES.
Modifications of designs do not exist, and there is no such distinction as genus and species as applied to design patents. (*Ex parte Eldon*, 88 O. G., 748; *Ex parte Jenks*, 88 O. G., 1513.) [Id.

DILIGENCE.

(See Interference, 28; Reissues, 4.)

REDUCTION TO PRACTICE.
The question of diligence cannot be determined by any general rule applicable to all cases, but necessarily depends upon the special circumstances of each case as it arises.
[*McCormick *v.* Cleal, 1514.

DISBARMENT OF ATTORNEYS.

(See Attorneys.)

DISCLAIMERS.

(See Interference, 17.)

DIVISION OF APPLICATION.

(See Designs, 1, 2, 3.)

1. DIFFERENT PROCESSES—AGGREGATION.
Where the Examiner required division between a set of claims stated to be for the process of producing woven fabric and another set for the process of winding yarn and some of the claims of the first set included the step of winding yarn, *Held* that if the claims for producing the fabric, including the step of winding yarn, are for a legitimate combination division should not be required. If they are not for such a combination, they should be rejected for aggregation, leaving the question of division to be settled after the final determination of the question of aggregation. The practice announced in *ex parte Willcox and Borton*, (45 O. G., 458,) *ex parte Bullard*, (45 O. G., 1569,) and *ex parte Carter* (46 O. G., 1201) followed.
[*Ex parte* Tymeson and Borland, 808.

2. PROCESS—PRODUCT—APPARATUS.
A woven fabric, a process of producing the fabric and winding yarn, an apparatus for winding yarn on the spool, and a yarn-spool or bank-spool are each separate and independent inventions and should form the subject of separate applications. [Id.

3. ADDITIONAL FUNCTION.
In a divisional application a mere enlargement or extension of a certain feature whereby an additional function or capability is given the apparatus may be permitted.
[*Ex parte* Keyser, 915.

4. INDEPENDENT DEVICES.
Where two devices are independent of each other and they do not mutually contribute to produce a single result and the action of one does not in any manner modify or affect the action of the other, *Held* that division should be required.
[*Ex parte* Williams, 1346.

DOCUMENTARY EVIDENCE.

(See Interference, 22.)

DRAWINGS.

(See Applications, 1, 2, 3, 4; Designs, 5, 9; Interference, 4, 12; Reduction to Practice.)

STATUTORY REQUIREMENT OF—TINTYPE.
The statutes require that whenever the nature of the case admits of drawings one copy signed by the inventor or his attorney in fact and attested by two witnesses shall be filed in the Patent Office. A tintype not signed by the inventor or his attorney and not attested by two witnesses cannot be considered a drawing within the statutes.
[Palmer and Thompson *v.* Bailey, 1207.

ENLARGEMENT OF CLAIMS.

(See Reissues, 1, 2.)

ESTOPPEL.

(See Appeal from the Court of Claims; Appeal to the Examiners-in-Chief, 6, 8; Interference, 1, 2, 3, 17, 38.)

EXAMINERS.

(See Appeal to the Examiners-in-Chief, 1, 3, 4, 5, 7, 8; Interference, 2, 5, 11, 16, 24, 26, 29, 33; Motion to Dissolve Interference, 1, 3, 4, 5; Reopening of Rejected Cases.)

PRACTICE—OPINIONS OF AN EXAMINER—FOLLOWING DECISIONS OF THE COMMISSIONER.
Whatever may be the individual opinions of an Examiner, the orderly course of business requires that the decisions of the Commissioner should be followed.
[*Ex parte* Whitney, 1659.

EXAMINERS-IN-CHIEF.

(See Appeal to the Examiners-in-Chief, 1; Reopening of Rejected Cases.)

EXECUTORS.

(See Caveats, 3.)

FEES.

(See Applications, 4.)

FOREIGN PATENTS.

(See Interference, 20, 21.)

FORMER DECISIONS AFFIRMED.

(See Appeal to the Court of Appeals of the District of Columbia; Interference, 17; Suits Under Section 4915, Revised Statutes, 1.)

FORMER DECISIONS CONSTRUED.

(See Interference, 35; Suits Under Section 4915, Revised Statutes, 2.)

FORMER DECISIONS REVERSED.

(See Designs, 5; Interference, 11.)

FUNCTIONS.

(See Construction of Specifications and Patents; Infringement, 2, 3; Particular Patents, 6, 7; Process, 2.)

GENERIC CLAIMS.

(See Interference, 7, 13, 14, 17.)

GENUS AND SPECIES.

(See Designs, 14.)

HEARING.

(See Appeal to the Examiners-in-Chief, 1, 2, 3, 4, 5, 6, 8.)

IMMATERIAL ELEMENTS.

(See Interference, 30, 31, 32, 33, 34.)

INCOMPLETE APPLICATIONS.

(See Applications, 1, 2, 3, 4.)

INFRINGEMENT.

(See Injunction; Particular Patents, 1, 5; Use and Sale of Patented Articles.)

1. DEFENDANT WITHIN THE LETTER OF THE CLAIMS OF COMPLAINANT.
If it be conceded that Boyden's device corresponds with the letter of Westinghouse's claims 1 and 4, that does not settle conclusively the question of infringement. A charge of infringement is sometimes made out, though the letter of the claims be avoided. The converse is equally true. The patentee may bring the defendant within the letter of his claims, but if the latter has so far changed the principle of the device that the claims of the patent, literally construed, have ceased to represent his actual invention he is as little subject to be adjudged an infringer as one who has violated the letter of a statute is to be convicted when he has done nothing in conflict with its spirit and intent.
[*Boyden Power Brake Company *et al. v.* Westinghouse *et al.*, 1067.

2. PIONEER INVENTION—FUNCTION OF MACHINE.
If the patent for a machine be a pioneer, the alleged infringer must have done something more than reach the same result. He must have reached it by substantially the same or similar means, or the rule that the function of a machine cannot be patented is of no particular value. To say that the patentee of a pioneer invention for a new mechanism is entitled to every mechanical device which produces the same result is to hold that he is entitled to patent his function. Mere variations of form may be disregarded, but the substance of the invention must be there. [*Id.

3. FUNCTIONAL INVENTION—DIFFERENCE IN FORM ONLY.
The ruling of the Supreme Court that where the invention is functional and the defendant's device differs from that of the patentee only in form or in rearrangement of the same elements of a combination he would be adjudged an infringer, even if in certain particulars his device be an improvement upon that of the patentee, is in no way qualified. [*Id.

4. DISSENTING OPINION.
Mr. Justice Shiras, Mr. Justice Brewer, Mr. Justice Gray, and Mr. Justice McKenna dissented from the opinion and from the decision of the Court. [*Id.

INJUNCTION.

PRELIMINARY INJUNCTION—ARTICLES IMPORTED FROM ABROAD.
Preliminary injunction granted where a party purchases abroad articles covered by a United States patent and imports them for sale in this country.
[*Dickerson *v.* Tinling, 1663.

INTERFERENCE.

(See Appeal to the Commissioner of Patents; Appeal to the Court of Appeals of the District of Columbia, 1; Applications, 1; Copies of Patents, Exhibits, etc.; Diligence; Drawings; Examiners; Motion to Dissolve Interference; Reduction to Practice.

1. REDUCTION TO PRACTICE—LACHES IN APPLYING FOR PATENT—RIVAL INVENTORS—ESTOPPEL.
Where an inventor is guilty of laches in putting aside a machine for eleven years after it was perfected and tested, he is estopped by such laches from receiving a patent by reason of the entrance into the same field of a rival inventor who reduced the invention to practice, obtained a patent, placed the invention on the market, and gave to the world the knowledge and use of such invention.
[Mower *v.* Crisp and Copeland, 155.

2. PRIORITY—ESTOPPEL—RIGHT TO A PATENT.
While M was the first to reduce to practice and therefore entitled to an award of priority, yet on account of laches in applying for a patent he is not entitled to a patent, and the Examiner directed to reject the claims of M involved in the interference after final award of priority. [Id.

3. MOTION TO DISSOLVE—RES ADJUDICATA—PRIOR SUIT IN COURT, EFFECT OF, ON OFFICE PROCEEDINGS.
Where it was moved to dissolve an interference for the reason that the question of the interference is *res adjudicata* as between the parties, that the question of priority having been determined by a court of competent jurisdiction could not be retried by the same parties in the Patent Office, and that one of the parties was estopped from asserting his right to the invention, *Held* that these questions should not be passed upon on an interlocutory motion, as they are such questions as relate to the merits of the interference and would more properly form the basis of a judgment of priority of invention than for the dissolution of the interference.
[Roth *v.* Brown and Stillman, 503.

4. CONSTRUCTION OF RULE 96.
Rule 96 means that when the formal requirements of an application—such, for example, as the requirement for a new drawing or for an amended oath or for further action upon rejected claims which are not involved in the interference or for analogous changes—have not been complied with the interference shall be declared, so that the party whose application is in proper form shall not be unnecessarily delayed in the further prosecution of his application.
[Hammond *v.* Hart, 743.

5. RULES 93, 94, 95, AND 96.
Rule 96 does not mean that the Examiner declaring the interference can ignore the requirement that the *claims* of the party in fault must be put in such condition that they will not require alteration. If Rule 96 means that, then Rule 93 means nothing. The two rules should be construed in connection with Rules 93 and 94, so as to give vitality to all. [Id.

6. INTERFERENCE BETWEEN ALLOWED AND REJECTED CLAIMS.
Under a proper interpretation of the rules there is no justification for the declaration of an interference between the *allowed claims* of one application and the *rejected claims* of another application. Two applications do not interfere in such a case. [Id.

7. GENERIC AND SPECIFIC CLAIMS.
A generic and a specific claim do not interfere, and it does not conflict with public interest to send a generic claim to issue after a specific claim has been patented. (*Drawbaugh* v. *Blake*, 88 O. G., 1261; *Reed* v. *Landman*, 55 O. G., 1275, cited.) [Id.

8. SCOPE OF CLAIMS—EX PARTE UPTON.
So far as the case of *ex parte Upton* (87 O. G., 99) holds that an interference should be declared between two applications or between an application and a prior patent whose claims are not substantially identical in tenor and scope it is not well founded in law, and this decision is overruled. [Id.

9. INTERFERENCE IN FACT—APPLICATIONS—APPLICATION AND PATENT.
There is no different rule of law applicable to an interference when it is declared between two applications than when it is declared between an application and an unexpired patent. The same principles which determine whether there would be an actual interference must apply alike in each of the conditions in which the cases are when before the Patent Office to determine whether they would interfere. (*Keagon* v. *Carter*, 86 O. G., 513, overruled.) [Id.

10. SAME.
An interference can only be instituted for the purpose of determining the question of priority of invention between two or more parties *claiming* substantially the same patentable invention; that of necessity there must be allowed claims to all parties before an interference can be declared, and that not only a patent and an application must claim in whole or in part the same invention, but also two applications must claim in whole or in part the same invention before an interference can be declared. [Id.

11. EXAMINER SUGGESTING CLAIMS TO APPLICANTS.
Where two applications are concurrently pending having claims of different scope drawn on the same structure, there is no good reason why the Examiner should not give the applicant making the specific or narrow claim an opportunity, by suggestion, if necessary, to make the broader claim. If the suggestion is followed, then the parties would be making a claim identical in tenor and scope, and an interference will properly and naturally follow. To this extent *ex parte Weeden* (60 O. G., 1191) overruled. [Id.

12. BURDEN OF PROOF—NO DRAWING—INCOMPLETE APPLICATION.
No statutory drawing having been filed by Palmer and Thompson until after the complete application of Bailey was filed, the burden of proof in the interference is upon Palmer and Thompson.
[Palmer and Thompson *v.* Bailey, 1207.

13. INTERFERENCE IN FACT—BROAD AND NARROW CLAIMS.
Where Grimm has made a broad claim and Dolan a narrow claim, *Held* that both parties are not claiming substantially the same invention, and under *Hammond* v. *Hart* (83 O. G., 743) an interference does not properly arise.
[Grimm *v.* Dolan, 1209.

14. SAME—SAME—MAKING BROAD CLAIM.
If Dolan is the inventor of the broad invention, he should make the broad claim of the issue. As the claims now stand there is no interference in fact, as an interference should not be declared between dominated and dominating claims. (Citing *Hammond* v. *Hart*, 83 O. G., 743.) [Id.

15. PATENTABILITY OF A CLAIM IN THE INTERFERENCE.
The question of patentability of the claim in interference is not involved in the interference. (*Hisey* v. *Peters*, 71 O. G., 892; *Doyle* v. *McRoberts*, 79 O. G., 1039.) After the interference shall have been finally determined the question of patentability may be raised against the successful party.
[*Hill *v.* Hodge, 1211.

16. SAME—PARTY TO THE QUESTION OF PATENTABILITY.
When the interference has been determined and the question of patentability is before the Primary Examiner, the defeated party to the interference has no other interest in the decision on patentability than as one of the general public whose interests are under the protection of the Commissioner of Patents. [*Id.

17. DISCLAIMER—ESTOPPEL—COMMISSIONER'S DECISION AFFIRMED.
Hodge's evidence in respect of his conception of the invention does not show an intention to disclaim and is not of a nature to estop him from claiming an invention as broad as the issue. The decision of the Commissioner of Patents awarding priority to Hodge affirmed. [*Id.

18. PRODUCING SPECIES—RIGHT TO BROAD CLAIM.
As a general proposition an inventor making any generic invention necessarily produces some species of it, and the fact that he has never thought of other specific forms cannot deprive him of his right to a broad claim. The inventor may not regard his invention at the time it is produced as any broader than his specific form; but the question for consideration is not as to his opinion, but is one of fact. [*Id.

19. PRIORITY.
After reviewing the testimony, *Held* that the explanation of Dickey as to delay in applying for a patent, while plausible, was not satisfactory; but the proofs show that he was the first inventor, and priority awarded to him over the patentee, Fleming. [*Dickey *v.* Fleming, 1348.

20. FOREIGN PATENT—DATE OF REDUCTION TO PRACTICE—PRIORITY.
Appert took no testimony, but relied upon a French patent dated October 19, 1868, which was issued and published on January 13, 1894. Schmertz proved conception on January 10, 1894, and reduction to practice on January 17, 1894. *Held* that Appert's date of invention is January 13, 1894, the date of the publication of his foreign patent, and as there was no delay on Schmertz's part between the date of his conception and the date of his reduction to practice priority is awarded to Schmertz.
[Schmertz *v.* Appert, 1511.

21. SAME—SAME.
It is the settled rule of the Office that it is the date of the publication of the foreign patent and not the date of the application therefor that controls in interference proceedings. (*De Ferranti* v. *Westinghouse, Jr.*, 68 O. G., 457; *Appert* v. *Parker*, 74 O. G., 1867.) This is also the rule of the courts. (*Am. Bell Telephone Co.* v. *Cushman et al.*, 65 O. G., 135.) The case of *Hawkes* v. *E. H. Godshalk Company* (79 O. G., 510) seems to hold the contrary; but the weight of authority is clearly as first above stated. [Id.

22. PROVING DATES—REFRESHING MEMORY BY DOCUMENTS—PRODUCING DOCUMENTS.
It is not necessary that documents from which a witness may have refreshed his memory as to dates be produced at the examination; but the failure to do so would often cause the facts to be regarded as of little weight. When produced and used to assist the memory, they need not be offered as evidence, and in a majority of instances they would be inadmissible if offered. [*McCormick *v.* Cleal, 1514.

23. DILIGENCE—PRIORITY.
Cleal's conception and reduction to practice is the date of his application, July 6, 1894. McCormick prepared two applications for patent in February, 1894. One he filed on March 5, 1894, for what is called "machine No. 4." The other application, the one involved in this interference, under which "machine No. 3" had been begun but laid aside for No. 4, was not filed until October 6, 1894. On April 8, 1894, he began "machine No. 5," which contained the locking mechanism of No. 4 and differs from the mechanism of the issue merely in the time of the operation of the two sets of keys, in the issue the department-key being first pressed and the cash-key thereby unlocked, while in machines Nos. 4 and 5 the cash-keys are first pressed and the department-keys thereby unlocked. *Held* that machine No. 3 fell short of being a reduction to practice; but as, judging by McCormick's actions, he neither saw the superiority of one mode of operation over the other at the time he was working on the machines nor apprehended that there was a substantial difference between the functions of the mechanism in merely reversing the time of the locking action upon the distinct sets of keys, the locking device being the important improvement, and he appreciating its value, though he may have been mistaken as to the most advantageous mode of its operation and may also for a time have supposed that it was the same invention when operated reversely, also *Held* that under such circumstances what McCormick was doing during the eight months from the date of preparing his application to the filing of it in the Patent Office was not unreasonable delay, and priority awarded to him over Cleal. [*Id.

24. RESTRAINING AN EXAMINER FROM DECLARING AN INTERFERENCE—JURISDICTION OF THE COMMISSIONER.
The Commissioner is warranted in taking jurisdiction of and granting a petition to restrain an Examiner from declaring an interference when it clearly appears that the Examiner's intended action is contrary to the practice of the Office as indicated by the decisions of the Commissioner. (Citing *ex parte Baker*, 64 MS. Dec., 71.)
[*Ex parte* Whitney, 1630.

25. PATENT AND APPLICATION—PROTECTING RIGHTS OF PATENTEE.
The Office is not bound to declare an interference between a patent and an application in order to give the patentee the opportunity of contesting the grant of a patent to the applicant because in its judgment the patentee's rights would be infringed or abridged by granting a patent on a pending application. [Id.

26. MAKING THE INTERFERENCE ISSUE.
The Examiner should not make an issue for the purpose of bringing about an interference. The applicants should make the issues by their claims. If an Examiner desires the issue to be different, he should arrive at that result by requiring the claims to be amended by the applicants. (Citing *Hammond* v. *Hart*, 83 O. G., 743.) [Id.

27. SAME—PATENTEE AND APPLICANT.
The Office has no control over a patentee to require him to amend his claims. Unless an applicant make substantially the same claim as the patentee no interference can be declared. [Id.

28. SAME—SAME—CONSTRUING CLAIMS OF THE PATENT.
For the purpose of declaring an interference the claims of a patent must be taken as they read. The Office has no authority to say that any of the limitations contained in the claims of a patent are immaterial and unessential. Presumably the patentee did not put any unnecessary limitations in his claims. [Id.

29. DISSOLUTION—PATENTABILITY OF CLAIMS OVER THE ISSUE—SUGGESTION BY THE EXAMINER AS TO REJECTION OF CLAIMS INVOLVED IN THE ISSUE.
Where the issue of the interference was Wolfenden's third claim and involved his first, second, and fourth claims, *Held* that as the issue is not the first, second, and fourth claims they should be dropped from the interference, and if the Examiner is of the opinion that there is no patentable invention in these claims over the subject-matter of the issue it would be better practice for him to notify Wolfenden that in the event of the interference being determined adversely to him such claims would stand rejected as involving no patentable invention. [Wolfenden *v.* Price, 1601.

30. SAME—CLAIMS INCLUDING IMMATERIAL LIMITATIONS—INTERFERENCE IN FACT.
Where Price's claim involved in the issue, which is Wolfenden's third claim, includes certain limitations which are not stated in Wolfenden's claim and Wolfenden's claim contains a limitation not found in Price's claim, *Held* that notwithstanding it is urged that these differences are immaterial and may be disregarded there is no interference in fact. [Id.

31. SAME—DISREGARDING LIMITATIONS IN CLAIM.
The Patent Office is no more competent than the courts to say in declaring an interference that an element which an applicant or a patentee has placed in his claim is an immaterial one. [Id.

32. SAME—SAME.
An interference is not sufficiently clear and definite which requires that certain limitations in the claims of one party should be held to be immaterial and that other limitations should be read into the claims of either one or the other party to the proposed interference in order to make them the issue of the interference. [Id.

33. SAME—SAME—SUGGESTION OF CLAIM BY EXAMINER.
A claim may be patentable in the opinion of the Examiner which does not contain certain limitations, and it is within his province, when he believes it is necessary for him to declare an interference, to indicate to the parties a patentable claim as the issue of the interference which shall omit immaterial elements and thereby make it unnecessary for the Office to hold that the issue and the claims are different from what they read. [Id.

34. SAME—SAME.
It is not necessary that identical language should be employed in the claims of every party to the interference; but when different words are used they must mean and refer to the same thing. [Id.

35. SAME—INTENT OF HAMMOND *v.* HART.
The case of *Hammond* v. *Hart* (83 O. G., 743) was intended to bring about a practice in the Office that should result in making the issue of an interference both definite and clear, and to that end to cause the parties to the proposed interference to claim substantially the same patentable invention, so as to obviate the many motions and appeals that have unnecessarily arisen in the Office. [Id.

36. TESTIMONY—COMPETENCY OF INVENTOR TO TESTIFY IN HIS OWN BEHALF.
Winslow took no testimony to prove his case, but rested on his record date. Austin testified that he disclosed the invention to Winslow, who was then in his employ and who made no claim to the invention. Austin's testimony is uncorroborated. *Held* that in interference proceedings where the fact is one that is not solely within the personal knowledge of the party to the interference his testimony cannot be ignored simply because it is uncorroborated and that Austin is a competent witness to testify as to a claimed disclosure of the subject-matter of the interference to his adversary.
[Austin *v.* Winslow, 1991.

37. SAME—SAME—BURDEN OF PROOF.
Held, further, that when Austin testified that he had disclosed the invention to Winslow the burden of proof was shifted and Winslow could no longer safely rely upon his record date. Where a claimed fact must be equally within the knowledge of two parties and one asserts it and the other fails to deny it, the latter cannot complain if the asserted fact is found by the tribunal called upon to pass on it to be true. [Id.

38. THE QUESTION TO BE CONSIDERED IN INTERFERENCE PROCEEDINGS—ESTOPPEL—REISSUE.
Where Austin contended that Winslow is estopped from asserting his right to the subject-matter of the issue, as claims covering the matter were presented in an original application and after rejection on references were canceled, *Held* that while it is well settled that claims contained in the reissue patent which were asserted in the original application, but were rejected and canceled, will not be sustained by the courts, and therefore should not be allowed by the Office, yet this question is one between the public and the applicant making the claims. This question of estoppel has no bearing upon the question of priority, the question for consideration in an interference proceeding, and therefore will not be considered here. (*Hoeveler et al.* v. *Verner et al.*, 43 MS. Dec., 444, 448.) [Id.

INTERLOCUTORY MOTIONS.

(See Appeal to the Commissioner of Patents; Interference, 3.)

INTER PARTES CASES.

(See Appeal to the Examiners-in-Chief, 3, 4; Motion to Dissolve Interference, 6.)

INVENTION.

PATENTABILITY—SYSTEM OF VENTILATION.
A system of ventilation the novel feature of which consists in supplying each of the branch pipes leading into a room or compartment to be ventilated with nozzles composed of articulated sections of such construction that the current of air forced into the pipe may be discharged in any direction in the room by the adjustment of the nozzles, so that the incoming air may be more thoroughly agitated and commingled and drafts prevented, *Held* to be patentable over the systems of ventilation disclosed by patent to Brown, No. 168,746, and to Jennison, No. 177,847.
[*McCreery *v.* Commissioner of Patents, 1210.

INVENTION DESCRIBED BUT NOT CLAIMED.

(See Abandoned Applications; Applications, 6.)

ISSUE IN INTERFERENCE CASES.

(See Interference, 26, 29, 35.)

JURISDICTION OF THE EXAMINERS-IN-CHIEF.

(See Reopening of Rejected Cases.)

LACHES.

(See Interference, 1, 2.)

LIMITATION OF CLAIMS.

(See Interference, 30, 31, 32, 34, 35.)

LIMIT OF APPEAL.

(See Appeal to the Commissioner of Patents; Appeal to the Court of Appeals of the District of Columbia, 4; Appeal to the Examiners-in-Chief, 6, 7, 8.)

MACHINES.

(See Infringement, 2; Process, 2.)

MANDAMUS.

(See Attorneys, 8.)

MODIFICATIONS OF DESIGNS.

(See Designs, 6, 7, 8, 9, 14.)

MOTION TO DISSOLVE INTERFERENCE.

See Appeal to the Examiners-in-Chief, 5, 6, 7, 8; Interference, 3.)

1. NATURE OF SUCH MOTION.
A motion to dissolve an interference on the ground of non-patentability is in the nature of a suggestion to the Office of certain facts which are believed to negative patentability or to show that one of the parties is not entitled to make the claim. It is not a contest in which testimony can be received or anything presented for consideration which is not actually or presumably within the knowledge of the Examiner in the *ex parte* treatment of the applications of the respective parties prior to the declaration of the interference.
[Painter *v.* Hall, 1803.

2. SAME.
The motion is brought not on the ground that the interest of the party bringing it would be adversely affected by the issuance of a patent for the subject-matter to his opponent, but for the reason that it appears to the moving party that the Office was in error in finding the claim patentable. [Id.

3. SAME.
The fact that the interest of the moving party may be adversely affected by the issuance of the patent for the subject-matter to his opponent does not in itself entitle him or any other person to be heard, nor is it a fact to be considered in the determination of the question by the Examiner. The question is the same question that was considered before the declaration of the interference—a question of patentability. [Id.

4. EXAMINER'S ACTION AS TO PATENTABILITY CONCLUSIVE.
If the Examiner, upon hearing the motion to dissolve, adheres to his decision that the claims are patentable and patentable to the respective parties, the contest as to these questions is concluded in so far as it is preliminary to the question of priority. [Id.

5. NON-PATENTABILITY—*EX PARTE* APPEAL.
Should the Examiner, upon the motion to dissolve, decide that the claims are not patentable to one of the parties, a decision which is as to one or both of the parties equivalent to a final rejection, the full course of appeal is open to the party whose claim is affected by such decision, and such appeal is *ex parte*. [Id.

6. APPEALS—"MAY BE HEARD INTER PARTES" RULE 124 CONSTRUED.
The words "may be heard *inter partes*" in Rule 124 permit the adverse party to an interference proceeding, on a motion to dissolve on the ground of non-patentability or no right to make the claim, to be heard on appeal, if considered advisable by the Examiners-in-Chief. The adverse party, however, is not heard as a matter of right, but as a matter of courtesy only. [Id.

NEW APPLICATION.

(See Abandoned Applications; Applications, 5, 6.)

OATH.

(See Applications, 2, 3; Interference, 4.)

PARTICULAR PATENTS.

1. RAWSON — PRODUCTION OF INCANDESCENT MANTLES — No. 407,963—PIONEER INVENTION—INFRINGEMENT.
Claim 1 of Letters Patent No. 407,963, granted July 30, 1889, to Frederick L. and William S. Rawson, for the production of incandescent mantles, consisting in coating the complete mantle with paraffin or other suitable material, construed, *Held* to be for a pioneer invention and infringed by a process consisting in coating with a solution of collodion.
[*Welsbach Light Company *v.* Sunlight Incandescent Gas Lamp Company, 505.

2. SCRIBNER—MULTIPLE SWITCHBOARDS—No. 330,061.
Claims 2 and 4 of Letters Patent No. 330,061, granted November 10, 1885, to Charles E. Scribner, for multiple switchboards for telephone-exchanges, construed in connection with the prior art and *Held* valid and infringed.
[*Western Electric Company *v.* Home Telephone Company *et al.*, 443.

3. SAME—SAME—SAME.
Claim 6 of Letters Patent No. 330,061, granted November 10, 1885, to Charles E. Scribner, for multiple switchboards for telephone-exchanges, construed and *Held* not infringed. [*Id.

4. VAN DEPOELE—ELECTRIC RAILWAYS, TRAVELING CONTACT FOR—No. 495,443—VOID—PREVIOUSLY PATENTED TO SAME INVENTOR.
Claims 2 and 4 of Letters Patent No. 495,443, for a traveling contact for electric railways, granted April 11, 1893, to the administrators of Charles A. Van Depoele, construed and *Held* to be void, as they are for the same invention which has been previously patented to the same inventor in Letters Patent No. 434,695.
[*Thomson-Houston Electric Company *v.* Union Railway Company *et al.*, 597.

5. WESTINGHOUSE, JR.—FLUID-PRESSURE AUTOMATIC-BRAKE MECHANISM—No. 360,070—NOT INFRINGED.
Claims 1, 2, and 4 of Letters Patent No. 360,070, granted March 29, 1887, to George Westinghouse, Jr., for a fluid-pressure automatic-brake mechanism, construed and *Held* not infringed.
[*Boyden Power Brake Company *et al. v.* Westinghouse *et al.*, 1067.

6. SAME—CONSTRUCTION OF CLAIM 2—FUNCTION OF MACHINE.
Claim 2 of Letters Patent No. 360,070, which reads "in a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, and a triple valve having a piston, whose preliminary traverse admits air from the auxiliary reservoir to the brake-cylinder, and which by a further traverse admits air directly from the main air-pipe to the brake-cylinder, substantially as set forth," is, to a certain extent, for a function—viz., the admission of air directly from the train-pipe to the brake-cylinder—and is only limited to such function when performed by the further traverse of the piston of the triple valve. If it be not susceptible of the interpretation that it is simply for a function, then the performance of that function must be limited to the particular means described in the specification for the admission of air from the train-pipe to the brake-cylinder. [*Id.

7. SAME—SAME—SAME.
If this claim be interpreted simply as a claim for the function of admitting air to the brake-cylinder directly from the train-pipe, it is open to the objection that the mere function of a machine cannot be patented. (Citing *Corning* v. *Burden*, 15 How., 252; *Risdon Locomotive Works* v. *Medart*, 71 O. G., 751; 158 U. S., 68, and other cases.) [*Id.

PATENTABILITY.

(See Interference, 15, 16; Invention; Particular Patents, 7; Process.)

PERSONAL REPRESENTATIVES.

(See Caveats, 1, 2.)

PETITION.

(See Applications, 2, 3.)

PIONEER INVENTION.

(See Infringement, 2; Particular Patents, 1.)

DEFINED.
The word "pioneer" is commonly understood to denote a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before.
[*Boyden Power Brake Company *et al. v.* Westinghouse *et al.*, 1067.

PRIORITY OF INVENTION.

(See Applications, 6; Interference, 1, 2, 3, 10, 19, 20, 21, 23, 38.)

PROCESS.

(See Division of Application, 1, 2.)

1. PATENTABILITY—CHEMICAL ACTION.
Risdon Locomotive Works v. *Medart* and other cases assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions.
[*Boyden Power Brake Company *et al. v.* Westinghouse *et al.*, 1067.

2. SAME—FUNCTION OF MACHINE.
Where a process is simply the function or operative effect of a machine, *Corning* v. *Burden*, *Risdon Locomotive Works* v. *Medart*, and other cases are conclusive against its patentability; but where it is one which, though ordinarily and most successfully performed by machinery, may also be performed by simple manipulation—such, for instance, as the folding of a paper in a peculiar way for the manufacture of paper bags or a new method of weaving a hammock—there are cases to the effect that such a process is patentable, though none of the powers of nature be involved to aid in producing the result. (*Eastern Paper Bag Co* v. *Standard Paper Bag Co.*, 41 O. G., 231; 30 Fed. Rep., 63; *Union Paper Bag Machine Co.* v. *Waterbury*, 39 Fb., 359; *Travers* v. *Am. Cordage Co.*, 70 O. G., 277; 64 Fed. Rep., 771.) [*Id.

PUBLICATION OF FOREIGN PATENT.

(See Interference, 21.)

REDUCTION TO PRACTICE.

(See Diligence; Interference, 1, 2, 20, 23.)

DRAWINGS.
Perfected drawings showing an invention cannot be regarded as a reduction to practice of the invention.
[*McCormick *v.* Cleal, 1514.

REFUNDMENT OF FEES.

(See Applications, 4.)

REHEARING.

(See Appeal to the Court of Appeals of the District of Columbia, 3, 4; Reopening of Rejected Cases.)

REISSUES.

(See Interference, 38; Suits Under Section 4915, Revised Statutes.)

1. ABANDONMENT OF INVENTION—SCOPE OF CLAIM.
Where the claim sought by reissue was not as broad as the claim made in the original application and canceled, *Held* that this is of no consequence where the reissue claim was included in the original claim. It is well-settled law that a reissue cannot be allowed for the restoration of claims once rejected and withdrawn. [*Denton *v.* Commissioner of Patents, 1847.

2. LIMITING SCOPE OF CLAIM—ABANDONMENT.
Where an applicant for a reissue had amended and limited an original claim to a greater extent than was necessary, *Held* that such limitation may have been a mistake of judgment, but it was certainly an abandonment of all that was contained in the original claim and which was not contained in the subsequent amendment. There can be no middle ground or retrogression to take back part of what has been abandoned any more than to take back the whole. [*Id.

3. DELAY IN APPLYING FOR—INADVERTENCE, ACCIDENT, OR MISTAKE.
The original patent was issued on September 15, 1885, and an application for reissue was not filed in the Patent Office until November 6, 1888. *Held* that the application for reissue of the patent was not made within a reasonable time and that there was no sufficient evidence of inadvertence, accident, or mistake to entitle appellant to a reissue of the patent under the statute, according to the rule laid down in the case of *Topliff* v. *Topliff*, (59 O. G., 1297; 145 U. S., 156.)
[*Messinger *v.* Commissioner of Patents, 1905.

4. DILIGENCE IN DISCOVERING MISTAKE IN ORIGINAL PATENT, IN APPLYING FOR REISSUE, AND IN THE PROSECUTION OF THE APPLICATION.
From the well-settled principles of the law of reissues, as expressed by the Supreme Court, not only must the application for reissue be founded upon the same invention as that covered by the original patent and as shown by the original specification and claims, but there must be due diligence shown in discovering the mistake or inadvertence and in the application for reissue and in the prosecution of such application. [*Id.

REJECTED CLAIMS.

(See Interference, 6, 29; Reissues, 1, 2; Reopening of Rejected Cases.)

REOPENING OF REJECTED CASES.

JURISDICTION—EXAMINERS-IN-CHIEF—PRIMARY EXAMINER—APPEAL.
Where the Examiners-in-Chief refused to consider claims rejected by the Primary Examiner and appealed to them on the ground that the Examiner had no authority to reopen the case after a decision by the Commissioner on the merits, and therefore that the Examiners-in-Chief are without jurisdiction to consider the claims rejected by the Examiner, *Held* that the record shows that the case was reopened by the Assistant Commissioner under Rule 168 and when so reopened it was reopened for all purposes—for the presentation of such claims as the applicant saw fit to offer and for consideration and examination by the Examiner de novo, just as was done. The Examiner did not exceed his authority, but acted within the practice and clear intent of the Assistant Commissioner's decision. The Examiner having the second time rejected certain claims, and appeal having been taken to the Examiners-in-Chief, the case was within their jurisdiction, and they should have considered the appealed claims on their merits.
[*Ex parte* Lynch and Hough, 1909.

SECRETARY OF THE INTERIOR.

(See Attorneys.)

SIGNATURES.

(See Applications, 2, 3, 4; Drawings.)

SPECIFICATIONS.

(See Applications, 2, 3, 4.)

SPECIFIC CLAIMS.

(See Interference, 7, 13, 14, 17.)

SUITS UNDER SECTION 4915, REVISED STATUTES.

1. BILL UNDER SECTION 4915, REVISED STATUTES—BRIGGS—ICE-PLANER—REISSUE—RIGHT TO A PATENT.
A bill in equity for a decree that John N. Briggs is entitled to a reissue of Letters Patent No. 397,397 in accordance with the provisions of Revised Statutes, section 4915, dismissed, as the question of patentability of the combination claimed had been substantially passed upon by the Circuit Court of Appeals. (60 Fed. Rep., 87.)
[*Briggs *v.* Butterworth, Commissioner of Patents, 159.

2. DOUBLE USE—PATENTABILITY—POTTS *v.* CREAGER CONSTRUED.
It is now settled that *Potts* v. *Creager* (70 O. G., 494; 155 U. S., 597) did not announce any new doctrine or modify the existing rules of law. The same principle had already been stated and applied in *Blake* v. *City of San Francisco*, (31 O. G., 380; 113 U. S., 679;) *Pa. R. R. Co.* v. *Locomotive Co.*, (37 O. G., 307; 110 U. S., 490;) *Aron* v. *Railroad Co.*, (49 O. G., 1305; 132 U. S., 158,) and in *Briggs* v. *Central Ice Co.*, (54 Fed. Rep., 376, and 60 Fed. Rep., 87.) [*Id.

SUPREME COURT OF THE UNITED STATES.

(See Infringement, 8.)

TECHNICAL TERMS.

(See Construction of Specifications and Patents; Pioneer Invention.)

TESTIMONY.

(See Interference, 36, 37.)

TRADE-MARKS.

1. "PURITY"—OLEOMARGARIN.
The word "Purity" refused registration as a trade-mark for oleomargarin as it belongs to a class of words which are descriptive or advertising in character and are not registrable as trade-marks.
[*Ex parte* Capital City Dairy Company, 295.

2. SAME—SUGGESTIVE MEANING—DECEPTION.
While the word "Purity" is not an adjective in form and may not be commonly employed to describe a quality, nevertheless it cannot be successfully denied that it has a suggestive meaning. If the word is used in a fanciful sense, as contended by applicant's counsel, then it certainly has a tendency to deceive the ordinary buyer. [Id.

3. CLASSES OF GOODS—SEPARATE REGISTRATION.
The Office is not warranted in requiring that a trade-mark be separately registered for each class of goods with which it is used in order to conform to the Office classification.
[*Ex parte* Clark-Jewell-Wells Co., 915.

4. SAME—LENGTH OF USE ON DIFFERENT GOODS.
Where a trade-mark used on several classes of goods is covered by a single registration, the applicant should state for each class of goods the length of time the trade-mark has been used for that class. [Id.

5. "BETTER THAN MOTHER'S"—MINCE-MEAT.
The phrase "Better than Mother's" refused registration as a trade-mark for mince-meat, as it expresses quality.
[*Ex parte* Ervin A. Rice Company, 1207.

6. WORDS EXPRESSING QUALITY.
A valid trade-mark cannot be predicated upon words or phrases expressing quality. No one can appropriate for his exclusive use words and phrases that all may use. Any one dealing in mince-meat can declare, if the statement be true, that his product is better than any one else's, be that other "mother," "grandmother," or "aunt." [Id.

7. "PEACH GREENVILLE"—TOBACCO.
The words "Peach Greenville" refused registration as a trade-mark for plug-tobacco on the word "Peach," previously registered, as it is not a safe practice to permit the registration of a compound trade-mark, one of the distinguishing features of which has already been registered, as purchasers using ordinary caution might easily be deceived.
[*Ex parte* Meriwether & Company, 1512.

8. REGISTERING DECEPTIVE TRADE-MARKS CONDEMNED.
The Patent Office should not give its stamp of approval to a class of trade-marks the use of which has a tendency to mislead or deceive the public, and thus take a position antagonistic to well-settled rules of law. [Id.

9. "YUCATAN"—GEOGRAPHICAL WORD.
The word "Yucatan" is geographical and cannot be registered as a trade-mark for leather and leather goods. Any one importing hides from Yucatan or purchasing hides exported from Yucatan would be entitled to call or mark skins and tanned leather having such origin by the name "Yucatan."
[*Ex parte* Weil, 1908.

10. "YUCATAN" WITHIN A DESCRIBED SQUARE FIGURE.
As "Yucatan" taken by itself is not registrable, it is not made registrable by placing it within a square figure, as the essential feature of the mark is the word "Yucatan." [Id.

11. ESSENTIAL FEATURES OF A MARK.
The essential features of a trade-mark are those which serve in whole or in part to distinguish the goods of the party by whom such mark is adopted. [Id.

12. "GILSON" — SURNAME — SALIENT FEATURE OF CORPORATE NAME.
The word "Gilson," being the salient feature of applicant's corporate name, refused registration as a trade-mark under the general rule that an ordinary surname cannot be appropriated as a trade-mark by any one person against others of the same name who are using it for a legitimate purpose.
[*Ex parte* F. H. Gilson Company, 1902.

13. SAME—SAME—NAME OF PATENTED DEVICE.
The word "Gilson," being the name of a patented album known as the "Gilson Album," refused registration as a trade-mark for photograph-albums and photographic exposure-tables on the ground that the name of an inventor which has become the generic name of the thing patented passes to the public when the monopoly created by the patent expires. [Id.

USE AND SALE OF IMPORTED ARTICLES.

(See Injunction.)

USE AND SALE OF PATENTED ARTICLES.

1. SALE ABROAD BY PATENTEE—RESTRICTIONS AS TO USE.
Even if a party who buys a patented article without restriction in a foreign country from the owner of the United States patent has the right to use and vend it in this country he has no such right if he bought it with the express condition that it be not imported into the United States.
[*Dickerson v. Tinling, 1663.

2. CONDITIONAL SALE—RIGHTS OF PATENTEE.
The patentee has the same right and power to sell the patented article upon conditions or with restrictions that he has to sell it at all. [*Id.

VALID PATENTS.

(See Particular Patents, 1, 2.)

VOID PATENTS.

(See Particular Patents, 4.)

WITNESSES.

(See Drawings; Interference, 22.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING JUNE 30, 1898.

[Claims and drawings of Designs do not appear in the Monthly Volumes or the Gazette. Separate indexes for Designs, Trade-Marks, Labels, Prints, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume. Specification	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
A. L. Moore Company. (See White, Rollin H., assignor.)						
A. M. Collins Manufacturing Company. (See Odgers, Albert M., assignor.)						
Aab, Wilhelm, New Ulm, Minn. Tire	605,986	June 21	1756	408	83	1723
Aaron, Frank, and J. R. G. Huffman, Lansing, Kans. Wrench	603,494	May 3	467	108	83	990
Abbey, Orra E., Dailey, assignor to A. M. Todd, Kalamazoo, Mich. Mint-harvester	603,292	Apr. 12	1289	270	83	246
Abeel, George H., St. Louis, Mo. Hand lasting-machine	605,770	June 14	1288	299	83	1618
Abell, John D., Tallapoosa, Ga. Budding-clasp	603,807	May 10	1023	228	83	916
Abernathey, Elizabeth. (See Favell, Sophie E., assignor.)						
Abraham, Otto, Platkow, Germany. Steam-engine	602,418	Apr. 19	1435	324	83	308
Abt, Mathew, New York, N. Y. Valve	604,595	May 24	2526	575	83	1155
Acetylene Apparatus Manufacturing Company. (See Clarke, William C., assignor.)						
Acetylene Apparatus Manufacturing Company. (See Griffen, Arthur B., assignor.)						
Acetylene House Lighting Company. (See Dolan, Edward J., assignor.)						
Achard, Anton W., Saginaw, Mich. Water-heater	603,867	May 10	1142	257	83	838
Achorn, Edgar O., *et al.* (See Guest, John H., assignor.)						
Ackerman, Otto W., New York, N. Y. Apparatus for carbonating liquids	603,051	Apr. 26	2497	566	83	518
Acklin, Alfred M., assignor to Heyl & Patterson, Pittsburg, Pa. Overhead car or like receptacle	605,620	June 14	1040	239	83	1570
Acklin, Alfred M., assignor to Heyl & Patterson, Pittsburg, Pa. Conveyer	605,621	June 14	1041	239	83	1570
Acme Supply Company. (See Oudin, Charles P., assignor.)						
Acron, John, Philadelphia, Pa. Collar-button and neckwear-retainer	604,357	May 24	2091	469	83	1075
Adam, James M., Glasgow, Scotland. Screw-propeller	603,651	Apr. 19	1882	418	83	877
Adams, Abraham L., assignor of one-half to G. E. Hawes, Bridgeport, Conn. Implement-handle	604,105	May 17	1616	363	83	964
Adams, Frederick G. W. J., London, England. Electric lantern	603,882	May 10	1168	{ 253 / 254	83	844
Adams, Frederick G. W. J., London, England. Safety incandescent electric lamp	603,883	May 10	1170	254	83	844
Adams, Harry L., Wilmington, Vt. Trestle	605,570	June 7	607	135	83	1467
Adams, Lucius F., *et al.* (See Moon, Frank D., assignor.)						
Adams, Samuel, Beaver, assignor to Frick & Lindsay Company, Pittsburg, Pa. Well-drilling cable	602,419	Apr. 19	1436	324	83	308
Adams, Thomas F., New York, N. Y. Photograph-cabinet	606,225	June 28	2407	{ 557 / 558	83	1868
Adams, Walter S. (See Brill and Adams.)						
Adams & Westlake Company. (See Caswell, Daniel W., assignor.)						
Adams & Westlake Company. (See Mosher, John A., assignor.)						
Adamson, George D., Louisville, Ky. Bicycle propulsion	604,891	May 31	2083	497	83	1273
Adcock, Arthur, assignor of three-fourths to B. Toone and J. W. Black, South Wigston, England. Machine for stamping soles of boots, shoes, &c.	604,106	May 17	1618	{ 363 / 364	83	964
Addyston Pipe and Steel Company. (See Goodhue, William F., assignor.)						
Ade, William F., Jr., Williamsport, Pa. Sectional mattress	603,718	May 10	880	191	83	784
Adrian Box Company. (See Gilliland, James F., assignor.)						
Adriance, Cornelius B., Eden, assignor of one-half to E. D. Rumsey, Cattaraugus, N. Y. Velocipede	603,418	May 3	308	68	83	658
Adriance, Platt & Company. (See Brown, Thomas S., assignor.)						
Adriance, Platt & Company. (See Case, Henry J., assignor.)						
Adt, John B., Baltimore, Md. Tobacco-cutter	605,871	June 7	608	135	83	1466
Ætna Chemical Company. (See Sturcke, Herman E., assignor.)						
Affelder, Oscar L., Allegheny, Pa. Formaldehyde-generator	605,872	June 7	609	{ 135 / 136	83	1466
Agar, John, East Orange, N. J. Hat-brim-curing machine	603,719	May 10	880	191	83	784
Agnew, Robert H., New York, N. Y. Boat hoisting or lowering apparatus	603,611	Apr. 19	1757	401	83	988
Agnew, W. I., *et al.* (See Kellerman and Crane, assignors.)						
Ahearn, Michael D., Green Bay, Wis. Patching saws	602,908	Apr. 12	1280	271	83	247
Ahern, Thomas F., Detroit, Mich. Telephone	601,865	Apr. 5	477	96	83	89
Ahscharumoff, Sergius. (See Rosenblatt and Ahscharumoff.)						
Aiken, George D., Salt Lake City, Utah. Portable pole-step	601,849	Apr. 5	449	91	83	64
Aiken, James. (See Sewell, William H., assignor.)						
Ainsworth, Clarence J., Gardiner, Mass. Writing-book cover	606,180	June 28	2119	467	83	1809
Aitchison, James, Dunedin, New Zealand. Portière-rod	604,648	May 24	2512	566	83	1173
Ake, Rosina D., Philadelphia, Pa. Combined brush and scoop	603,071	Apr. 26	2568	588	83	531
Akers, Earl C., assignor of one-half to R. E. Moss, Port Huron, Mich. Alarm for bicycles	603,022	Apr. 26	2498	566	83	518

INDEX OF PATENTS ISSUED FROM THE

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Aladdin Lamp Company. (See Wilson, Robert, assignor.)	603,943	May 3	1	1	88	601
Albrecht, Frederick W., Jr., Brooklyn, N. Y. Bung for ale-barrels	604,362	May 17	1989	484	88	1086
Albrecht, Herman S., St. Louis, Mo. Pulverizer						
Albright, John W. (See Miller, George E., assignor.)						
Albury, Frederick L., assignor of one-half to E. H. Hester and C. B. Barnard, Tampa, Fla. Fish-trap	605,834	June 21	1451	333	88	1067
Alden, Adelbert H., Lawrence, N. Y. India-rubber water-bag	604,984	May 31	2099	718	88	1295
Alden, Adelbert H., Lawrence, N. Y. India-rubber water-bag	604,985	May 31	2100	718	88	1295
	603,796	Apr. 19	2069	472	88	495
				473		
Alden, Hiram R., Portland, Oreg. Wave-motor						
Aldrich, O. W., *et al.* (See Williams, Fillmore, assignor.)	603,691	Apr. 19	1912	486	88	302
Alexander, Charles C., Bayonne, N. J. Tiling for floors, walls, ceilings, fireplaces, &c.	603,585	Apr. 19	1632	373	88	330
Alexander, Clarence L., Como, Tenn. Horse-rake						
Alexander, Henry J. (See Davis and Alexander.)	605,571	June 14	980	217	88	1558
Alexander, Julia H., Louisville, Ky. Heating utensil	604,511	May 24	2378	541	88	1198
Alexander, Philemon W., Allapaha, Ga. Driving mechanism for dynamos						
Alexander, Walter S., New York, N. Y., assignor, by mesne assignments, to New Jersey Valve Company, of New Jersey. Valve-controlling device	604,358	May 24	2091	469	88	1075
Alford, Eugene C., Portland, Oreg. Back-rest for vehicle-seats	604,384	May 17	1940	485	88	1087
Algeo, William G., Jr., Beaver Falls, Pa. Rotary straightener and polisher	603,686	May 10	1088	243	88	696
Allito, Antonio, Chicago, Ill. Stove or other grate	605,343	June 7	340	76	88	1415
Allen, Arthur N., Chanute, Kans. Mucilage-holder	605,111	June 21	1998	457	88	1767
Allen, Benjamin T. (See Hershey and Allen.)						
Allen, Charles P., Denver, Colo. Apparatus for purifying and aerating water	603,990	May 10	1348	307	88	877
				308		
Allen, Erasmus W., Holton, Kans. Washing-machine	605,997	June 21	1758	408	88	1733
Allen, Frank, Brooklyn, N. Y. Absorption refrigerating-machine	606,326	June 28	2408	556	88	1806
Allen, James, Wilmington, and M. L. Jones, Troy, N. C. Machine for sawing logs	606,041	June 21	1660	429	88	1740
Allen, John W., Davis, Ind. Ter. Tightening tires	605,534	June 14	880	201	88	1586
Allen, Julius L., Mendocino, Cal. Bicycle-brake	606,496	June 28	2712	634	88	1927
Allen, Oscar M., Kalamazoo, Mich. Burial-casket	601,823	Apr. 5	380	80	88	71
Allen, Ralph H., Fitchburg, Mass. Lock for telephones	601,786	Apr. 5	316	68	88	60
Allen, Samuel L., Moorestown, N. J. Distributer for seeds and fertilizers	603,476	May 3	421	93, 94	88	661
Allen, Stephen S., *et al.* (See Leishman, David F., assignor.)						
Allen, Thomas P. (See Gray, Walter G., assignor.)	605,050	May 31	2200	757	88	1384
				758		
Allen, William G., Hartford, Conn. Machine for making metal spokes						
Allen, William P. (See Krotz, Allen, and Kelly.)	601,766	Apr. 5	277	55	88	53
Allin, William J., Clarendon, Ark. Railway-tie plate				666		
Alling & Co. (See Christl, Joseph V., assignor.)	604,880	May 31	2019	667	88	1349
Allingham, James, Chicago, Ill., assignor to Allingham Stove Works, of Illinois. Heating and cooking device						
Allingham Stove Works. (See Allingham, James, assignor.)	604,871	May 31	2008	690	88	1267
				691		
Allington, William E., Saginaw, Mich. Dust-collector						
Allott, Sylvia, *et al.* (See Donaldson, Fred H., assignor.)	603,002	Apr. 26	2458	558	88	510
Allred, John, Rockingham, N. C. Rocking cradle or similar rocker						
Altmann, Fritz, Berlin, Germany. Apparatus for burning hydrocarbon oils with blue flame	603,072	Apr. 26	2566	593	88	593
	601,697	Apr. 5	180	36	88	86
Ament, Anson B., and M. H. Evans, Riverside, Cal. Tree-prop bracket						
American Automatic Banjo Company. (See Gustafson, Walfrid, assignor.)						
American Automatic Banjo Company. (See Kendall, Charles B., assignor.)						
American Automatic Banjo Company. (See Kendall and Tirrell, assignors.)						
American Automatic Banjo Company. (See Lorenz and De Lue, assignors.)						
American Bell Telephone Company. (See Shreeve, Herbert E., assignor.)						
American Computing Scale Company. (See Killman and Bratten, assignors.)						
American Cotton Company. (See Ball, David C., assignor.)						
American Cotton Company. (See Dyer, Frank L., assignor.)						
American Electrical Novelty and Manufacturing Company. (See Misell, David, assignor.)						
American Faucet Company. (See Rawley, William C., assignor.)						
American Harrow Company. (See Choate, Charles N., assignor.)						
American Indicator Company. (See Turner, William A., assignor.)						
American Lighting Company. (See Momand, Ragland, assignor.)						
American Manufacturing Company. (See Cole, Thomas A., assignor.)						
American Mason Safety Tread Company. (See Locke, Charles W., assignor.)						
American Metal Lath Fire Proof Construction and Manufacturing Company. (See Fordyce, Alexander R., assignor.)						
American Metal Lath Fire Proof Construction and Manufacturing Company. (See Forth, Charles, assignor.)						
American Mutoscope Company. (See Mason, Joseph, assignor.)						
American Optical Company. (See Blanchard, Frederick G., assignor.)						
American Optical Company. (See Wells, George W., assignor.)						
American Rail Joint and Manufacturing Company. (See Claflin, George D., Jr., assignor.)						
American Ring Company. (See Miller, George B., assignor.)						
American Stamping Company. (See Conners, Timothy, assignor.)						
American Type Founders Company. (See Owens, Oscar, assignor.)						
Amory, William M., New York, N. Y. Pneumatic-tire-repairing device	603,420	Apr. 19	1437	294	88	303
Amsden, Charles M., *et al.* (See Griffin, Russell B., assignor.)	602,970	Apr. 12	1148	209	88	221
Ancel, Jacques, Paris, France. Ore-sorter	603,088	Apr. 26	2498	506	88	518
Andersen, Edvard, Stavanger, Norway. Apparatus for securing fish upon wires in regular rows						
Anderson, Andrew C., *et al.* (See Larson and Branzell, assignors.)						
Anderson, Benjamin B. (See Sebastian and Anderson.)	603,617	Apr. 26	2141	436	88	451
Anderson, Edward M., Jersey City, N. J. Scrap or sample book	604,951	May 31	2124	720	88	1292
Anderson, Ellery I., and O. M. Morrill, Charleston, S. C. Lock	603,271	May 3	216	49	88	643
Anderson, Gilbert, Christchurch, New Zealand. Automatic weighing apparatus						
Anderson, Jacob. (See Smedeman, Gustaf, assignor.)						
Anderson, Jens, assignor of two-thirds to W. O. Fallon and J. Keough, Walla Walla, Wash. Carrying apparatus	606,618	June 28	2685	660	88	1970
	604,011	May 17	1451	321	88	989
Anderson, John A., Wakefield, Mass. Bicycle						
Anderson, John A. E., assignor of two-thirds to W. L. Higgins and T. O. Callis, Indianapolis, Ind. Ice-cream freezer	603,937	Apr. 26	2231	646	88	566
	605,561	June 14	910	213	88	1540
Anderson, Maurice, Chicago, Ill. Cash-receiver	605,495	June 14	797	174	88	1519
Anderson, Mildred N., New York, N. Y. Skirt-supporter	603,851	Apr. 19	1659	377	88	344
Anderson, Robert A., Mount Lehman, Canada. Fruit-picker						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Anderson, Ulrich, Eau Claire, Wis. Sawmill-carriage	603,927	Apr. 26	2336	529	88	487
				530		
Anderson, Valerius D., Cleveland, Ohio. Press	603,928	Apr. 26	2330	530	88	486
				531		
Anderson, Valerius D., Cleveland, Ohio. Press	603,929	Apr. 26	2334	531	88	488
Anderson, William E., Frewsburg, N. Y. Fire-escape	603,781	May 10	967	216	88	804
Anderson, William E., Little Rock, Ark., assignor to Standard Circular Cotton Company, Limited, Liverpool, England. Cotton-press	604,019	May 17	1483	321	88	989
				322		
				323		
Andreoli, Emile and G., London, England. Electrolytic production of amalgams, &c	605,695	June 21	1451	333	88	1067
Andreoli, Gabriel. (See Andreoli, Emile and G.)						
Andrew, Charles. (See McCallum, William A., assignor.)	603,311	May 3	114	27	88	624
Andrews, Samuel, Wadsworth, Ohio. Swing						
Andrews, W. A. (See Bagby, Alexander M., assignor.)						
Andriano, Albert K., *et al.* (See Fallek, Nathan, assignor.)						
Angell, George W., assignor of one-third to W. C. Whitehead, Cleveland, Ohio. Wire-nail machine	604,208	May 17	1795	404	88	999
Angle, Abel R. (See Gorham, George R., assignor.)						
Ann Arbor Manufacturing Company. (See Bullis, Justin B., assignor.)						
Annison, Frederick G., assignor to Publishing, Advertising and Trading Syndicate, Limited, London, England. Enameled paper and compound used to enamel same	601,927	Apr. 5	578	-----	88	110
Annison, Frederick G., assignor to Publishing, Advertising and Trading Syndicate, Limited, London, England. Coating fabrics or permeable materials with nitrocellulose compounds and product produced thereby	602,797	Apr. 19	2091	-----	88	496
	603,673	May 10	791	174	88	771
Ansley, Frank, Medical Lake, Wash. Strainer for milk-pails	604,649	May 24	2614	598	88	1173
Anson, Octavius H. S., Madison, Wis. Perpetual calendar						
Anthon Christensen Belting Company. (See Christensen, Anthon, assignor.)						
Anthony, Albert H. (See Smith and Anthony.)	604,165	May 17	1717	387	88	983
Anthony, Alonzo D., Groton, N. Y. Spring-hinge	604,932	May 31	2135	721	88	1293
Appel, Charles L., Muscatine, Iowa. Button-grinding machine	602,712	Apr. 19	1946	442	88	399
Appell, Jacob, Milwaukee, assignor of one-half to M. Lohnerer, Waukesha, Wis. Window	601,966	Apr. 5	478	97, 98	88	89
Appleby, John F., assignor, by mesne assignments, to D. Kelly, Chicago, Ill. Harvester						
Applegate, Clarence, assignor of one-half to McDonald Brothers, Evansville, Ind. Water-purifier	603,548	May 3	505	124	88	710
Archdeacon, John P., assignor of one-half to F. L. Whitcomb, Boston, Mass. Axleless sprocket for bicycles	605,214	June 7	268	66, 67	88	1405
Archibald, James, Buckie, Scotland. Puzzle	603,217	Apr. 26	2503	540	88	577
Arkell, Alfred, Headingly, Canada. Fastener for bags	603,674	May 10	792	174	88	771
Ariedter, Fritz, Perlen, Switzerland. Apparatus for making soap	605,988	June 21	1750	408	88	1733
Arlington Manufacturing Company. (See France, Joseph R., assignor.)						
Armanet, Esteban, Mexico, Mexico. Apparatus for generating acetylene gas	603,073	Apr. 26	2570	593	88	593
Armitage, James. (See Stone, Columbus, assignor.)						
Armour, James G., and C. Southorn, Liverpool, England. Chair	606,112	June 21	1998	457	88	1767
				458		
Armstead, Michael J., Lowell, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Locking-clamp for heddle-bars	603,808	May 10	1023	228	88	816
Armstrong, Edward E. (See Reese and Armstrong.)	604,188	May 17	1762	397	88	993
Armstrong, Henry T., Joshua, Tex. Railway-tie	603,017	Apr. 26	2473	561	88	514
Arnillas, Desiderio P., Santiago, Cuba. Bottle						
Arna, McKenzie, assignor to A. H. Blanchard, Bristol, Va. Composition for coloring and preserving wood, &c	601,767	Apr. 5	278	-----	88	54
	603,294	Apr. 12	1231	271	88	247
Arnold, Benjamin, East Greenwich, R. I. Foot-ball	601,986	Apr. 5	580	120	88	110
				121		
Arnold, Clinton S., Sing Sing, N. Y. Refreshment-cart						
Arnold, George. (See Tucker, Smith, assignor.)						
Arnold, Ithamar, assignor of one-half to P. K. Foote, La Fargeville, N. Y. Device for jointing, gaging, and setting saws	604,574	May 24	2495	568	88	1150
Arnold, Philip W., and J. Kell; said Arnold assignor to W. J. Curry. East Liverpool, Ohio. Rail-joint	604,285	May 17	1941	485	88	1087
	603,753	May 10	917	203	88	795
				204		
Arnoldt, Louis, Janesville, Minn. Gate	604,953	May 31	2137	721	88	1293
Arques, Camilo L., San José, Cal. Reading attachment for meters	606,619	June 28	2687	661	88	1970
Arrouquier, Fredrick E., Worcester, Mass. Straw or strand feeding device	604,260	May 17	1949	485	88	1087
Artus, René M., Gonneville, France. Vehicle-brake	601,623	Apr. 5	1	1	88	3
Ash, Manuel, Forest City, S. D. Wheel-cleaner for vehicles						
Ashby, John P. (See Barber and Ashby.)						
Ashcroft, Edgar A., Newcastle, New South Wales. Treating solutions or ores containing zinc for recovering zinc as oxide	602,295	Apr. 12	1232	-----	88	247
Ashley, George, assignor of one-third to G. B. Ashley, Jr., New Britain, Conn. Combined door closer and check	605,836	June 21	1453	333	88	1067
Ashley, George B., Jr. (See Ashley, George, assignor.)						
Ashley, Silas R., assignor of one-half to E. J. Schmidt, Centralia, Mo. Nail-pulling attachment for claw-hammers	603,228	Apr. 26	2333	645	88	583
	603,121	Apr. 26	2059	603	88	549
Ashmore, Samuel C., Caledonia, Miss. Poultry-house						
Ashton, John, *et al.* (See Ashton, Orrell, assignor.)	603,009	Apr. 26	2618	594	88	541
Ashton, John, St. Louis, Mo. Roundabout	603,394	May 3	295	57, 58	88	649
Ashton, Orrell, Milwaukee, Wis. Wire-threading machine	602,184	Apr. 19	1098	227	88	209
				228		
Ashton, Orrell, Lawrence, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Boston, Mass., trustees. Machine for nailing soles to uppers	602,390	Apr. 12	1384	309	88	279
				310		
				311		
Ashton, Orrell, assignor to J. Ashton, J. Derbyshire, Lawrence, and J. W. Brooks, Petersham, and F. F. Stanley, Boston, Mass., trustees. Shoe-nailing machine	604,650	May 24	2615	598	88	1173
Aske, Charles B., assignor of one-half to E. A. Forsythe, Duluth, Minn. Game apparatus						
Atchison, Samuel H., San Francisco, Cal. Automatic steam-beer governor and pressure-regulator	606,113	June 21	1995	456	88	1768
Atherton, Robert, Paterson, N. J. Indicator for winding, warping, and beaming machines	602,251	Apr. 12	1150	252	88	231
Atkin, Fredric. (See Weed and Atkin.)	603,866	May 10	1143	257	88	899
Atkins, James, Montclair, N. J. Wire straightening and twisting machine	604,184	May 17	1763	397	88	993
Atkinson, Henry C., Louisville, Ky. Oil-can						
Atkisson, R. C. (See Manning, Ebenezer F. and J., assignors.)						
Atterbury, Thomas B., Jr. (See Freeble, Thomas M., assignor.)						
Auburn Bolt and Nut Works. (See Morrison, John B., assignor.)						
Auria, Luigi d', Philadelphia, Pa., assignor to d'Auria Pumping Engine Company, Camden, N. J. Pump	603,664	May 10	1171	264	88	844
				265		
	603,602	Apr. 19	1884	416	88	377
Auriol, Paul, Paris, France. Motor						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Austin, Frederick C. (See Rhodes, Jay B., assignor.)	601,867	Apr. 5	461	98	88	89
Austin, Stewart, Walkerville, Canada. Car-axle lubricator	605,805	June 7	474	106	88	1449
Austin, William L., assignor to himself, G. Burnham, E. H. Williams, W. P. Hennsey, J. H. Converse, S. M. Vauclain, A. B. Johnson, and G. Burnham, Jr., Philadelphia, Pa. Railway-car	604,954	May 31	3138	107 731 788	88	1208
Auten, Benjamin C., Princeville, Ill. Musical instrument						
Automatic Photo Printing Syndicate. (See Friese-Greene, William, assignor.)						
Automatic Roller Printer Company. (See Martin, Albert R., assignor.)						
Automatic Switch Company of Baltimore City. (See Whittingham, George H., assignor.)						
Auxier, William, Staffordsville, Ky. Flow	603,495	May 3	468	104	88	690
Avery, Andrew J., Dunkirk, N. Y. Pipe-coupling	603,720	May 10	863	199	88	765
Avery, Andrew J., Dunkirk, N. Y. Pipe-coupling	603,721	May 10	864	199	88	765
Avery, Frederick C., Toledo, Ohio. Flush joint for tubular-frame constructions	603,944	May 3	9	1	88	601
Avery, Frederick C., Toledo, Ohio. Bicycle-saddle	604,955	May 31	3140	732	88	1924
Avery, John, assignor of one-half to G. W. Hudson, Galesburg, Ill. Mail-box	605,837	June 21	1455	333	88	1607
Avery, William G., Cleveland, Ohio. Mortar-hod	604,987	May 17	1944	436	88	1098
Avery, William H. (See Griffiths, George, assignor.)	605,171	June 7	208	51	88	1269
Avil, Francis S., Philadelphia, Pa. Dental plugger	603,508	Apr. 19	1736	398	88	356
Axelson, Charles F., and G. A. and R. W. Gunn, Los Angeles, Cal. Match-igniting device	603,373	May 3	219	49	88	642
Axelson, Gustavus A. (See Axelson and Gunn.)	605,698	June 21	1457	334	88	1668
Ayers, William C., Plymouth, N. C. Railway-switch	604,298	May 17	1946	436	88	1098
Ayres, William J., Bryan, Ohio. Bag holder or clamp	604,223	May 17	1889	410	88	1005
Babcock, Henry D., Leonardsville, assignor, by mesne assignments, to National Harrow Company, Utica, N. Y. Harrow	604,989	May 17	1947	436	88	1098
Babcock, Henry D., Leonardsville, N. Y., assignor to Standard Harrow Company. Spike-tooth harrow-bar	606,497	June 28	2713	625	88	1927
Babcock, Henry D., Leonardsville, N. Y., assignor to Standard Harrow Company. Harrow	602,713	Apr. 19	1947	442 443	88	899
Babcock, Washington I., Chicago, Ill., S. T. and C. H. Wellman, and J. W. Seaver, Cleveland, Ohio. Ship-building plant	601,696	Apr. 5	130	26	88	26
Babcock, William H., administrator. (See Pratt, William T. C.)						
Bachert, Max, New York, N. Y., and D. W. O'Neil, Newark, N. J., assignors to Electric Fireproofing Company, New York, N. Y. Preserved wood and preparing same						
Backhaus, Alexander, Königsberg, Germany. Bottle-stopper	603,296	Apr. 19	1383	271	88	248
Backus, John C., assignor of one-third to W. H. Hungerford, Smethport, Pa. Locking coat-hook	604,107	May 17	1090	264	88	965
Bade, Heinrich A. L., Clyde, Ohio. Mop-holder	605,067	June 7	1	1	88	1353
Badeau, Charles C., Schenectady, N. Y. Electric switch						
Badger, William. (See Duckett and Badger.)						
Badische Anilin and Soda Fabrik. (See Wolf, Hermann, assignor.)						
Baepplier, Louis. (See Friedman, Edgar, assignor.)	604,013	May 17	1443	323	88	981
Baetz, Henry, St. Louis, Mo. Air-heating apparatus	602,612	Apr. 19	1759	401	88	363
Bagby, Alexander M., assignor of one-half to W. A. Andrews, Opelika, Ala. Finishing-tool for wood-shaping machines	603,419	May 3	204	46	88	668
Baginski, Ferdinand, Allenstein, Germany, assignor to H. H. Keeling, San Francisco, Cal. Pendulum-escapement	603,337	May 3	198	44	88	630
Bagley, Preston B., Peabody, Mass. Rotary buffing-roll	603,161	Apr. 26	2716	618	88	562
Bagot, Charles F. A. H., assignor to Bagot Pneumatic Tyre Company, Limited, London, England. Manufacture of resilient or pneumatic tires						
Bagot Pneumatic Tyre Company. (See Bagot, Charles F. A. H., assignor.)						
Bahan, Walter W., assignor of one-half to G. W. Clark, New York, N. Y. Cigar-holder	603,051	Apr. 26	2284	574	88	533
Bailey, Elmer E., and T. A. Monk, Philadelphia, Pa. Air-gun	603,549	May 3	566	125	88	710
Bailey, Fred L., St. Louis, Mo. Window-shade adjuster	606,203	June 28	2290	522	88	1946
Bailey, Herbert L., assignor to Bailey Manufacturing Company, Chicago, Ill. Automatic vehicle-brake	603,245	May 3	3	1,2	88	601
Bailey Manufacturing Company. (See Bailey, Herbert L., assignor.)	603,501	May 3	631	140 141	88	734
Bailey, Thomas, New York, N. Y. Fireproof partition or other wall and ceiling						
Bailey, William K. (See Stevenson and Bailey.)	604,290	May 17	1949	437	88	1098
Bailey, William O., London, England. Miter cutting and shooting block	604,201	May 17	1951	437	88	1098
Bailey, William O., London, England. Miter cutting and shooting block						
Bailey, William T., *et al.* (See Gannoe, Thomas A., assignor.)						
Baird, Cornelius E. (See Suplee, Henry H., assignor.)	603,908	May 10	1367	311	88	858
Baird, John, Uniontown, Pa. Automatic gas shut-off	602,613	Apr. 19	1760	402	88	363
Baker & Adamson Chemical Company. (See Hart, Edward, assignor.)	602,614	Apr. 19	1761	403	88	363
Baker, David, Sparrow's Point, Md. Pyrometer						
Baker, David, Sparrow's Point, Md. Casting plant						
Baker, Ludwig. (See Wickes and Baker.)						
Baker, Meta C. (See Russell, William M., assignor.)	603,490	May 3	305	69	88	668
Baker, Oliver P., Pleasant Ridge, N. Y. Holdback device	603,535	May 3	361	58	88	650
Baker, Samuel A., and M. F. Colby, Springfield, Vt. Centrifugal machine	605,880	June 21	1460	334	88	1668
Baker, Sidney F., Santa Barbara, Cal. Telescope-box fastener						
Baker, William H., assignor to Bentley & Gerwig Furniture Company, Parkersburg, W. Va. Desk	603,168	Apr. 26	2730	618	88	562
Baker, Winthrop M., Waltham, Mass. Display-stand	605,688	June 14	1044	240	88	1571
Balcom, Charles, assignor of forty-nine one-hundredths to W. W. Crooker, Lynn, and C. A. L. Brown, Boston, Mass. Boot or shoe	605,623	June 14	1045	240	88	1571
Balding, Clement E., Holton, Kans. Feed-gage for printing-presses	603,246	May 3	7	2	88	602
Baldwin, Charles E., Brooklyn, N. Y. Puzzle or game apparatus	604,679	May 31	3009	691	88	1268
Baldwin, Clara L., National City, Cal. Plant-support	603,754	May 10	918	204	88	795
Baldwin, William D., *et al.* (See Boening, Ernest, assignor.)						
Baldwin, William W., assignor to Cleveland Co-Operative Stove and Hollow Ware Foundry Company, Cleveland, Ohio. Metallic bed	605,660	June 14	1105	255	88	1393
Bales, Alanson H., Glen Elder, Kans., assignor of one-half to J. C. Kroll, Fairbury, Nebr. Fruit-press	605,267	June 7	408	91	88	1429
Ball, Albert, Claremont, N. H., assignor to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Direct-acting engine	603,258	May 3	194	44	88	630
Ball and Socket Fastener Company. (See Richardson, William S., assignor.)	603,168	Apr. 26	2721	618 619	88	562
Ball, Chester, Belleville, Kans. Gate	603,285	May 10	1257	286	88	861
Ball, Cornelius M., Oliveville, Ky. Time-lock	603,150	Apr. 19	979	214 215	88	196
Ball, David C., St. Louis, Mo., assignor to American Cotton Company, New York, N. Y. Bagging attachment for roller-compresses	604,451	May 24	2357	507	88	1107
Ball, Herman F., Cleveland, Ohio. Car-buffer						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Ball, James H. (See Kneedler, John D., assignor.)	605,172	June 7	204	51	88	1269
Ball, Jesse E., Kendrick, Idaho. Attachment for plows	605,694	June 14	1046	240	88	1571
Ball, John F., Jr., Turtle Creek, W. Va. Car-coupling	602,421	Apr. 19	1428	325	88	308
Ball, Robert R., Bridgeport, Conn. Adjustable handle-bar	602,618	Apr. 26	2141	486	88	451
Ball, William M., Auburn, Nebr. Mole-trap	603,999	May 10	1368	311 312	88	868
Ballam, De Lacy E., assignor, by mesne assignments, to A. T. Grace, Brooklyn, N. Y. Mop-head						
Bamart, John, *et al.* (See Fawcett, John W., assignor.)						
Bammann, Johann, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Blue tetrazo dye and making same	606,161	June 28	2120	.....	88	1809
Bammann, Johann, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Dark-blue tetrazo dye and making same	606,264	June 28	2300	.....	88	1946
Bandler, Henry, Philadelphia, Pa. Pocket	605,840	June 21	1461	334	88	1668
Banes, Henry B., Bristol, Pa. Piano-stool	603,617	May 10	698	155	88	751
Banes, Henry B., Bristol, Pa. Cabinet and duet-stool	603,618	May 10	695	155	88	751
Banks, George H., Springvale, Me. Shoe-last	606,114	June 21	1999	458	88	1768
Banks, Walter F., assignor to National Electrical Manufacturing Company, Milford, Conn. Electrical signaling system and apparatus	604,712	May 31	2737	626 627 628	88	1215
Barber, Edward A., Watertown, N. Y. Storage battery	603,229	Apr. 26	2284	647	88	582
Barber, Frederick G., Rochester, Pa. Type-writer attachment	605,373	June 7	611	136	88	1408
Barber, Luther A., Buffalo, N. Y. Pianoforte-action	604,136	May 17	1069	375	88	972
Barber, Melvin, assignor of one-fourth to L. E. Johnson, Oklahoma, Okla. Ter. Bit-stock	603,825	May 10	1057	236	88	823
Barber, Melvin, and J. P. Ashby, assignors of one-third to J. B. Rolator, Oklahoma, Okla. Ter. Sash-balance	605,215	June 7	299	67	88	1405
Barclay, Robert L., Plattekill, N. Y. Means for manufacturing twist-drills	603,462	May 3	505	96	88	677
Bardsley, Henry, Palmyra, N. J. Machine for seeding raisins	606,965	June 28	2301	532 533	88	1847
Barker, Alfred K., Boonton, N. J. Apparatus for making chilled-iron castings	603,714	Apr. 19	1950	443	88	400
Barker, Gerald, London, England. Velocipede driving-gear	601,894	Apr. 5	398	80	88	72
Barker, Wells T., *et al.* (See Shields, William E., assignor.)	604,691	May 24	2695	616 617	88	1168
Barkey, John L., Toronto, Canada. Can-labeling machine						
Barnard, Calvin B., *et al.* (See Albury, Frederick L., assignor.)						
Barnard & Leas Manufacturing Company. (See Cornwall, John B., assignor.)						
Barnard, William, Philadelphia, Pa. Envelop-fastener	606,498	June 28	2715	625	88	1926
Barneck, Alexander. (See Stilwell and Barneck.)						
Barnes, Amos H., Reno, Nev. Lock	605,466	June 14	758	174	88	1519
Barnes, H. E. W. (See Swartz, Robert E., assignor.)	605,771	June 14	1295	299 300	88	1619
Barnes, Joshua F., assignor of one-half to H. B. Geell, Shannon, Ill. Gate	605,285	June 7	434	98	88	1434
Barney, Everett H., Springfield, Mass. Hockey-game skate	602,806	Apr. 12	1078	236	88	217
Baron, Alfred L., and J. F. Haffey, Tiffin, Ohio; said Haffey assignor to said Baron. Lantern						
Baron, Straus & Co. (See Baron and Ingalls, assignors.)						
Baron, Theodore S., and W. A. Ingalls, assignors to Baron, Straus & Co., Brooklyn, N. Y. Ribbed-knit pile fabric	603,164	Apr. 26	2723	619	88	563
Barr, Archibald, Glasgow, Scotland, and W. Stroud, Leeds, England. Apparatus for producing high vacuums	604,486	May 24	2358	530 531	88	1121
Barr, John C., Chicago, Ill. Locking device for bicycles	604,453	May 24	2358	507	88	1107
Barrall, Paul. (See Curran, Peter, assignor.)	605,456	June 7	747	170	88	1496
Barrath, Edward, Chicago, Ill. Key-opening can	605,457	June 7	748	170	88	1496
Barrath, Edward, Chicago, Ill. Key-opening can						
Barrett, Halsey M. (See Stiles, Henry M., assignor.)	601,994	Apr. 5	707	150	88	128
Barrett, John R., Chicago, Ill. Temporary binder	602,819	Apr. 26	2143	486	88	451
Barrick, William C., New Midway, Md. Wire-fence stay	604,512	May 24	2379	541	88	1136
Barrie, Robert, Philadelphia, Pa. Tubular-fabric-turning machine	606,499	June 28	2716	625 626	88	1926
Barro, Ferdinand. (See Peraglie and Barro.)						
Barron, George B., Easton, Pa. Switch-operating device	604,014	May 17	1444	323	88	981
Barrow, Kenneth. (See Dunning and Barrow.)						
Barrows, Elvin S., Clarendon, Vt. Hoof-spreading horseshoe	606,500	June 28	2718	626	88	1926
Barrows, George S. (See Kellner and Barrows.)						
Barry & Co., D. J. (See Bellanger, Frank S., assignor.)	605,772	June 14	1296	300	88	1619
Barry, Nicholas, Jr., Muscatine, Iowa. Fire-hydrant	605,691	June 14	1168	268 269	88	1504
Barthelemy, Aristide L. (See Barthelemy, Louis J. and A. L.)	603,895	May 10	1174	265	88	845
Barthelemy, Louis J. and A. L., New Orleans, La. Sugar-drier	605,374	June 7	612	136	88	1408
Bartholomew, George R., Ridge, Pa. Pneumatic switch-throwing mechanism	606,403	June 28	2551	591	88	1899
Bartlett, Charles H., Bristol, England. Steelyard	602,602	Apr. 19	1915	436	88	308
Bartlett, Granville, Lexington, Ky. Trace-holder	603,586	Apr. 19	1633	372 373	88	340
Barton, James G. (See Myers, Charles E., assignor.)	602,422	Apr. 19	1429	325	88	304
Barus, Frederick S., Jersey City, N. J. Machine for forming paper tubes	602,312	May 3	115	27	88	634
Basch, David, New York, N. Y. Toe-clip for bicycles	602,930	Apr. 26	2295	533	88	459
Bassett, Fred H., Waterbury, Conn. Bicycle	604,015	May 17	1446	324	88	932
Batcheller, Birney C., Philadelphia, Pa. Apparatus for locating obstructions in tubes	605,841	June 21	1462	335	88	1668
Bate, Fenimore C., Cleveland, Ohio. Show-case	605,842	June 21	1467	336 337	88	1669
Bate, William S., Brooklyn, N. Y. Rotary engine	604,956	May 31	3141	732	88	1924
Bates, Charles F. (See Borton and Bates.)	605,598	June 14	972	235	88	1533
Bates, Lindon W., Chicago, Ill. Hydraulic dredge	602,981	Apr. 26	2336	533	88	429
Bates, Lindon W., Chicago, Ill. Method of and apparatus for firing pneumatic ordnance	602,279	Apr. 12	1208	264	88	242
Bates, Lindon W., Chicago, Ill. Electrically-heated charge for cartridges or shells						
Bates, Peter S., assignor of three-fourths to E. W. Loucks, York, Pa. Letter-box						
Bates, Solomon W., Portland, Me. Machine for making match-cards						
Batey, John, Dublin, Ireland. Manufacture of wire spokes for wheels						
Battersby, James, Philadelphia, Pa. Bicycle retainer and lock						
Batton, Richard H. (See Gregory and Batton.)						
Bauer, Carl E., assignor to Simplex Railway Appliance Company, Chicago, Ill. Car-bolster	604,555	May 24	2457	559	88	1141
Bauer, Carl E., assignor to Simplex Railway Appliance Company, Chicago, Ill. Metal bolster	604,556	May 24	2458	559	88	1142
Bauer & Cie. (See Bauer and Busch, assignors.)						
Bauer, Felix, Berlin, and A. Busch, Elberfeld, assignors to Bauer & Cie., Berlin, Germany. Albumen preparation soluble in water	601,995	Apr. 5	710	.....	88	134

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Bauer, Peter, Cologne-Ehrenfeld, assignor to Lebach & Company, Gesellschaft mit Beschrinkter Haftung, Cologne, Germany. Garbage-wagon	604,575	May 24	2496	566	88	1150
Bauer, William F., Springfield, Ohio, assignor to Warder, Bushnell & Glessner Company, Springfield, Ohio, and Chicago, Ill. Roller-bearing	606,809	May 10	1145	256	88	689
Bauer, William M., Chicago, Ill. Piano	604,166	May 17	1718	387	88	963
Baugher Joseph T. (See Litchfield and Baugher.)	602,715	Apr. 19	1958	443	88	400
Baughn, Nathan, Buffington, Mo. Nut-lock	604,557	May 24	2459	559	88	1142
Baum, Heinrich, Dudweiler, Germany. Safety device for elevators	11,668	May 17	2085	467	88	1055
Bausch, George, Syracuse, N. Y. Spectacles. (Reissue)	606,188	June 28	2122	487	88	1809
Baxter, Berry A., *et al.* (See Hurst, Willis T., assignor.)						
Baxter, Charles, Waukesha, Wis. Wire-fence spacer	606,206	June 28	2308	533	88	1847
Baxter, Charles, and A. Schrader, Waukesha, Wis.; said Schrader assignor to said Baxter. Fence-stay-weaving device						
Baxter, Edwin D., *et al.* (See Hurst, Willis T., assignor.)						
Baxter, Emmett C., *et al.* (See Hurst, Willis T., assignor.)						
Bay State Shoe Machinery Company. (See Bertrand, Joseph E., assignor.)	602,259	Apr. 12	1158	263	88	282
Beach, Henry, London, England. Tire-lever	604,359	May 24	2004	499	88	1076
Beadle, Clayton. (See Cross, Bevan, and Beadle.)	602,922	Apr. 26	2340	534	88	490
Beam, Waldo P., Beamington, Ill. Vessel-closure	605,999	June 21	1760	404	88	1723
Beamisderfer, Joseph A., Syner, Pa. Wire-fence tool	604,873	May 31	2010	501	88	1208
Bean, Ivory, Brookline, Mass. Valve						
Bean, John, Los Gatos, Cal., and R. Bean, Hudson, Mich. Spraying-nozzle						
Bean, Roscoe. (See Bean, John and R.)						
Bear, J. Shuey, *et al.* (See White, Charles S., assignor.)	605,843	June 21	1471	337	88	1669
Bear, John W., Udell, Iowa. Non-refillable bottle	601,824	Apr. 5	2	1	88	3
Beard, George M., Angola, Ind. Adjustable handle-bar for bicycles	602,049	Apr. 12	799	178	88	168
Beard, George M., Angola, Ind. Bicycle crank-shaft	604,513	May 24	2360	543	88	1136
Beasley, Maria E., Chicago, Ill. Means for preventing derailment of railway-cars	605,068	June 7	2	1	88	1368
Beasley, William F., Baltimore, Md. Bag or pouch						
Beatty Felting Co. (See Roce, Edward, assignor)	604,292	May 17	1958	437	88	1029
Beatty, James S., Simpsonville, Ky. Washing-machine	605,467	June 14	759	174	88	1519
Beatty, Orin C., Cleveland, Ohio. Elevating mechanism	601,929	Apr. 5	598	121	88	110
Beatty, Robert. Tarentum, Pa. Wire-splicing pliers	603,463	May 3	396	89	88	977
Beaumel, David W., Brooklyn, N. Y. Fountain-pen						
Beaver, James A. (See Rogers, William, assignor.)	604,015	May 17	1447	324	88	902
Beavers, Porter, Easonville, Ala. Can-opener						
Bebout, Freeman, and J. H. Brandon, assignors of one-third to J. C. Deidrick, East Liverpool, Ohio. Shaft-hanger	606,327	June 28	2410	559	88	1866
Bechman, Henry F., assignor to Duplex Printing Press Company, Battle Creek, Mich.) Printing-press	604,293	May 17	1953	439	88	1029
Bechtel, Henry, and L. Fritz, Philadelphia, Pa. Signal for steam-boilers	601,909	Apr. 5	131	26	88	26
Bechtold, William S., Newark, N. J. Cuff-button	603,306	May 3	302	58	88	650
Beck, Charles E., Baltimore, Md. Luggage-carrier for bicycles	602,018	Apr. 26	2474	561	88	514
Beck, Edward, Chicago, Ill. Means for hanging and guiding sashes	605,069	June 7	4	1,2	88	1353
Beck, Milton, Racine, Wis. Gas-engine	602,880	Apr. 26	2144	486	88	451
Becker, Frederick W., Newark, N. J. Key-holder	603,947	May 3	3	2	88	603
Becker, George. (See Becker, John and G.)	602,151	Apr. 12	962	216	88	197
Becker, John and G., Hays Mill, Pa. Dumping-wagon	605,070	June 7	8	2,3	88	1354
Becker, John E. M., New York, assignor to E. M. Dunton, Hollis, N. Y. Vehicle-wheel	603,464	May 3	396	89	88	676
Becker, John E. M., New York, assignor to E. M. Dunton, Hollis, N. Y. Faucet-bung	603,601	May 3	547	145	88	727
Beebe, Dillon, Newark, N. J. Engine	601,926	May 31	2101	718	88	1355
Beeman, William S., assignor of one-half to G. B. Rinehart, Ashland, Wis. Engine	606,501	June 28	2719	627	88	1989
Beers, Charles L., Scranton, Pa. Protective bank-check system	602,397	Apr. 12	1235	271	88	242
Beerstecher, Charles F., Centreville, Mich. Railway foot-guard						
Begins, Joseph, Lisbon, Me. Picker-stick						
Behring, Emil, Halle-on-the-Saale, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Diphtheria antitoxin and making same	606,042	June 21	1868	.....	88	1741
Beittenmiller, Fredrich W. (See Rice and Beittenmiller.)						
Bélanger, Victor, assignor to J. Quincy, Boston, Mass. Mechanical movement for bicycles	605,844	June 21	1472	337	88	1670
Bélanger, Victor, assignor to J. Quincy, trustee, Boston, Mass. Change-speed mechanism	605,845	June 21	1475	338	88	1670
Bélanger, Victor, assignor to B. F. Weed, Boston, Mass. Mechanical movement	606,157	June 21	2070	476	88	1781
Bélanger, Victor, assignor to B. F. Weed, Boston, Mass. Mechanical movement	606,158	June 21	2073	476	88	1781
Belden, Eugene H., Horton, assignor of one-half to W. F. Cowham, Jackson City, Mich. Vessel for holding liquids	604,514	May 24	2361	542	88	1138
Bell, Carrie D., Nicholasville, Ky. Gate	606,508	June 28	2721	627	88	1989
Bell, Enos T. (See Forsyth and Bell.)	604,360	May 24	2005	499	88	1076
Bell, Frank M., assignor of one-half to W. Pollack, New York, N. Y. Safety device for elevators	604,361	May 24	2101	470	88	1077
Bell, Frank M., assignor of one-half to W. Pollack, New York, N. Y. Safety device for elevators				471		
Bell, Fred C., assignor to N. S. Paul, Cœur d'Alene, Idaho. Adjustable hanger for incandescent lights	601,980	Apr. 5	563	121	88	111
Bell, Robert J., *et al.* (See Finch, Edgar, assignor.)						
Bell Telephone Company of Missouri. (See Dean, William W., assignor.)						
Bell, Thomas, *et al.* (See Finch, Edgar, assignor.)						
Bellanger, Frank S., Waterbury, Conn., assignor to D. J. Barry & Co., New York, N. Y. Egg-beater	602,152	Apr. 12	962	216	88	197
Bellefeuille, Olivier, Montreal, Canada. Needle-guard for sewing-machines	606,100	Apr. 26	2230	505	88	541
Bellinger, Albert D., West Superior, Wis. Grain-spout	605,375	June 7	612	137	88	1499
Bellman, John J., and C. T. Rittenhouse, New York, N. Y. Electric transformer	605,194	June 7	246	56	88	1397
Bender, Fritz, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim, Germany. Blue dye	606,486	June 28	2688	.....	88	1910
Bender, Fritz, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim, Germany. Amidonaphtholdisulfo-acid and making same	606,487	June 28	2694	.....	88	1910
Bender, Fritz, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim, Germany. Blue-black dye	606,488	June 28	2695	.....	88	1910
Bender, Fritz, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim, Germany. Green disazo dye	606,489	June 28	2696	.....	88	1910
Benedict, Michael, Newark, N. J. Vending-machine	602,185	Apr. 12	1046	228	88	210
Benét, Laurence V., Paris, France. Gas-operated gun	606,115	June 21	2000	459	88	1768

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Bennett Combination Saw-Tool Company. (See Bennett, Richard, assignor.) (Reissue.)	602,716	Apr. 19	1958	444	88	409
Bennett, Joe, Coleman, Tex. Branding-chute	605,468	June 14	761	17	88	1519
Bennett, John, Paris, Me. Bonding and tying	604,927	May 31	2102	718	88	1396
Bennett, John T., Cape Town, Cape Colony. Apparatus for removing saccharin or other impurities from wine	11,661	Apr. 26	2356	651	88	687
Bennett, Richard, Newark, N. J., assignor to Bennett Combination Saw-Tool Company, of New York. Saw-tool. (Reissue)	606,440	June 28	2687	604	88	1910
Bennett, Thomas G., assignor to Winchester Repeating Arms Company, New Haven, Conn. Primer for ordnance	604,957	May 31	2148	722	88	1394
Bennett, Walter E., assignor to Hendrick Manufacturing Company, Limited, Carbondale, Pa. Elevator safety device	604,294	May 17	1830	410	88	1005
Bennik, Arie W. F., Apeldoirn, Netherlands. Tube-coupling	604,185	May 17	1764	397	88	908
Bennum, George W., Georgetown, Del. Submarine boat						
Benscoter, Frank J (See Gardner and Benscoter.)	605,846	June 21	1469	336	88	1671
Benseme, Charles, Tess Corners, Wis. Wagon-seat support	602,861	Apr. 26	2148	497	88	428
Benson, Charles E., Wallingford, Conn. Steam-pipe coupling for railway-cars	604,718	May 31	2750	629	88	1215
Benson, George N., Baltimore, Md. Hinge	605,071	June 7	9	3	88	1354
Benson, William A. S., London, England. Jug or vessel for containing liquids	603,945	May 3	9	3	88	603
Benson, William E., Kansas City, Mo. Bulletin-board						
Bentley & Gerwig Furniture Company. (See Baker, William H., assignor.)	605,990	June 21	1768	404	88	1724
Benton, Francis E., Stoughton, Mass. Hand-strap for cars	605,511	June 14	1868	317	88	1035
Benton, George E., Brooklyn, assignor of one-half to G. S. Elliott, New York, N. Y. Nut-lock	601,803	Apr. 5	399	69	88	68
Berg, John V., assignor to T. E. Brown, Chicago, Ill. Barrel-lining	604,566	May 24	2395	575	88	1156
Berger, Andrew, and H. Hildenbrand, New York, N. Y. Tapping apparatus						
Bergmann, Charles. (See Holtmann and Bergmann.)						
Bergmann, Sigmund, assignor to Sprague Electric Company, New York, N. Y. Lining for interior conduits	603,220	Apr. 26	2236	547	88	324
Bergström, Carl J., Finshyttan, Sweden. Dry-house for lumber, &c	603,527	May 10	1055	248	88	326
Bergstrom, John A., Passaic, N. J. Drawing instrument	605,698	June 14	1166	269	88	1505
Bergstrom, Louis. (See Miller, George, assignor.)						
Berksmeyer, Ferdinand, assignor of one-half to C. N. Cressman, Sellersville, Pa. Printing-press for cutting ribbons and counting same	605,173	June 7	205	51,88	88	1360
Bernard, John. (See Dierks, John.)	603,034	Apr. 26	2490	567	88	519
Berneis, Josef, Langenbielau, Germany. Bottle-stopper	603,035	Apr. 26	2500	567	88	519
Berneis, Josef, Langenbielau, Germany. Sealing device for bottle-stoppers	602,717	Apr. 19	1955	444	88	401
Bernhard, Louis, assignor to C. Lee, Bridgeport, Conn. Boiler-setting	605,535	June 14	861	203	88	1539
Bernhardt, Charles, assignor of one-half to J. Kaufmann, Philadelphia, Pa. Chute-wagon	604,294	May 17	1960	430	88	1031
Bernson, Charles W., assignor to Bernson Manufacturing Company, New York, N. Y. Chain adjustment for bicycles						
Bernson Manufacturing Company. (See Bernson, Charles W., assignor.)						
Bernson Manufacturing Company. (See Savage, George C., assignor.)	603,165	Apr. 26	2794		88	563
Bernstein, Alexander, Boston, Mass. Food product and making same	604,995	May 17	1961	430	88	1031
Bernstein, Charles, New York, N. Y. Fare-register-operating mechanism for cars						
Berry, William T. (See Montgomery and Berry.)						
Bersey, Walter C. (See Brougham and Bersey.)	603,936	Apr. 12	1326	273	88	248
Bertles, Andrew F., Doylestown, Pa. Gearing	603,329	May 3	196	45	88	629
Bertrand, Joseph E., Boston, Mass., assignor to Bay State Shoe Machinery Company, Portland, Me. Thread-waxing device for sewing-machines	603,949	May 3	11	3	88	603
Bessonette, Charles L., Waco, Tex. Baling-press	603,950	May 3	13	4	88	603
Bessonette, Charles L., Waco, Tex. Baling cotton	602,504	Apr. 19	1729	396	88	357
Best, Daniel, San Leandro, Cal. Oil-vapor traction-engine	603,718	Apr. 19	1956	444	88	401
Best, John A., Augusta, Ga. Index						
Bevan, Edward J. (See Cross, Bevan, and Beadle.)						
Bevan, Walter. (See Plush and Noblit, assignors.)	605,276	June 7	613	137	88	1469
Bevans, William H., Washington, D. C. Gun-carriage	605,277	June 7	617	139	88	1470
Bevans, William H., Washington, D. C. Field-mount for artillery						
Beyer, Emil O. (See Förster, Julius F., assignor.)	602,423	Apr. 19	1441	326	88	304
Besser, Henry, New Rochelle, N. Y. Railway signaling apparatus	603,798	Apr. 19	2071	467	88	428
Besser, Henry, New Rochelle, N. Y. Railway signaling system and apparatus	603,182	Apr. 26	2056	604	88	549
Bhise, Shanker A., Bombay, India. Weighing and measuring device	603,351	May 3	14	4	88	603
Bhise, Shanker A., Bombay, India. Advertising or sign lamp						
Bibb, Charles E. (See Eastwood, Bibb, and McClintock.)						
Bibb, John T., *et al.* (See Reid and MacDonnell, assignors.)						
Bibbens, Stewart S. (See Floyd, Theodore B., assignor.)	605,847	June 21	1461	329	88	1671
Biddinger, Albert W., Harrison, Ohio, assignor of one-half to B. G. Frederick, West Harrison, Ind. Railway-signal	602,020	Apr. 12	800	178	88	1394
Bierley, Henry A., Portsmouth, Ohio. Shaft-tug	604,956	May 31	2142	720	88	1394
Biesmeyer, Lorenz F., Wesgenhalle, Mo. Pessary	605,685	June 14	1048	241	88	1572
Billburgh, Edward, Grand Rapids, Mich. Awning						
Billing, Frederick. (See Sharp and Billing.)						
Billings, Phlavo L., *et al.* (See Gannoe, Thomas A., assignor.)	602,434	Apr. 19	1444	327	88	305
Billwiller, Johann S., Unterwegen, Switzerland. Burner for acetylene gas	603,866	May 10	1175	266	88	648
Bindemann, Harry O. F., Madrid, Spain. Electrical steering apparatus	602,513	Apr. 19	2132	479	88	499
Binder, Felix, assignor to Société de la Manufacture d'Indiennes, Emile Zundel, Moscow, Russia. Apparatus for singeing woven fabrics	601,695	Apr. 5	4	1	88	3
Bingham, Osmore A., Keene, N. H. Window-screen	606,286	June 28	2411	589	88	1865
Binkley, George K. (See Mengal, Binkley, and Gerber.)						
Binns, Franklin, Trenton, N. J. Nut-lock	601,700	Apr. 5	126	26	88	29
Binney, Harold, *et al.* (See Nealon, John J., assignor.)	605,942	June 7	341	78,79	88	1415
Birch, Thomas, Noblesville, Ind. Game apparatus						
Bird, Henry E., Buffalo, N. Y. Motor-carriage	605,773	June 14	1300	300	88	1880
Birkett, Edward J. (See Graham and Birkett.)						
Birkicht, George. (See Neeley, Maitland, and Birkicht.)						
Birks, William, Nottingham, England. Carving-machine	604,362	May 24	2104	472	88	1079
Birser, Charles P., assignor to Monarch Cycle Manufacturing Company, Chicago, Ill. Bicycle-brake	605,196	June 7	248	58	88	1397
Birtwisle, John, Manchester, England. Tool for making joints						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Bishop, Alice R., Atlanta, Ind. Table-cloth supporter	606,907	June 28	2308	538	68	1647
Bishop, James D., New York, N. Y. Apparatus for electrically working metals	604,187	May 17	1670	875	68	978
Bissell, Frank H. (See Neil and Bissell.)						
Bittinger, F. D. (See Gardner, George L., assignor.)						
Black & Clawson Company. (See Joslin and Schmidt, assignors.)						
Black, Clement B. (See Chambliss, Lee R., assignor.)						
Black, Jennie L., Freeport, Ohio. Compressed-meat can	601,981	Apr. 5	584	121, 122	68	111
Black, John L., assignor to Black Manufacturing Company, St. Louis, Mo. Valve	605,608	June 14	1168	200	68	1595
Black, John W., *et al.* (See Adcock, Arthur, assignor.)						
Black, Joseph A., Parnell, Iowa. Sash-fastener	602,051	Apr. 12	501	173	68	168
Black, Laura M., San Antonio, Cal. Dust-pan	603,008	Apr. 26	2454	558	68	510
Black Manufacturing Company. (See Black, John L., assignor.)						
Black, Walter, Chicago, Ill. Mortising-machine	605,774	June 14	1301	301	68	1620
Blackmore, Henry S., Mount Vernon, N. Y. Making sulfids	605,456	June 7	749	.....	68	1497
Blackmore, Henry S., Mount Vernon, N. Y. Making cyanids	605,694	June 14	1168	.....	68	1595
Blackmore, Henry S., Mount Vernon, N. Y., assignor to Pure Aluminium and Chemical Company, of West Virginia. Making aluminium sulfid	605,878	June 7	619	.....	68	1470
Blackmore, Henry S., Mount Vernon, N. Y., assignor to Pure Aluminium and Chemical Company, of West Virginia. Retort and making same	605,879	June 7	620	.....	68	1470
Blackmore, Henry S., Mount Vernon, N. Y., assignor to Pure Aluminium and Chemical Company, of West Virginia. Producing aluminium sulfid and reducing same to metallic state	605,880	June 7	621	.....	68	1470
Blackmore, Henry S., Mount Vernon, N. Y., assignor to Pure Aluminium and Chemical Company, of West Virginia. Making aluminium sulfid	605,812	June 14	1264	317	68	1695
Blackmore, Lawrence R., Newark, N. J. Printing-stamp	605,945	June 21	1671	368	68	1708
Blackmore, Sidney P., assignor of two-thirds to R. O. G. Drummond and E. J. Way, Johannesburg, South African Republic. Rock or like drill	602,668	Apr. 19	1916	426	68	395
Blair, George W., Pittsburg, Pa. Manufacture of glassware	604,959	May 31	3145	728	68	1294
Blaisdell, James M., Winthrop, Mass., assignor to Perfection Labeling Machine Company, of Maine. Paper-feeding machine	604,592	May 31	3085	697	68	1273
Blake, Alonzo E., Wilmington, N. C. Seed-planter	604,017	May 17	1449	284	68	982
Blanchard, A. H. (See Arnn, McKenzie, assignor.)						
Blanchard, Frederick G., assignor to American Optical Company, Southbridge, Mass. Lens-cutting machine	602,207	Apr. 12	1079	256, 257	68	217
Blanchard, Helen A. (See Strain, Edwin, assignor.)						
Blanchard, John C., Jr., Hyde Park, Mass. Removable bicycle-handle	605,686	June 14	1049	247	68	1573
Blane, Gilbert G., Windsor, England. Attachment for overalls, leggings, trousers, &c	602,230	Apr. 12	1236	273	68	249
Blank, August. (See Krekeler and Blank.)						
Blank, August. (See Krekeler, Israel, and Blank.)						
Blasse, Alfred R., Frostburg, Md. Hot-air furnace	603,809	May 10	1095	226	68	817
Blauhorn, Ludwig, *et al.* (See Rausch, Rudolf, assignor.)						
Blaxter, Oscar V., Gillette, assignor of one-half to W. A. Woodruff, Plainfield, N. J. Bottle	603,019	Apr. 26	2475	559	68	514
Bleier, Otto, Vienna, Austria-Hungary. Apparatus for gas analysis	605,901	June 21	1702	404	68	1704
Blessing, John G., assignor to A. Tuerk, Chicago, Ill. Time-stamp	602,036	Apr. 5	757	162, 163, 164	68	149
Blickenderfer, Richard. (See Rote, Charles V., assignor.)						
Bliss, William G., Constantinople, Turkey. Privy-stool	604,597	May 24	2288	575	68	1136
Bloch, Isidore, Paris, France. Hermetic fastening for preserve or other tins	601,787	Apr. 5	317	62	68	60
Blodgett, Aaron D., Newton, Mass. Secondary electric clock	604,455	May 24	2200	508	68	1108
Bloom, C. C. (See Maddox, John A., assignor.)						
Bloomfield, Joseph H. (See Nelson, Charles F., assignor.)						
Blum, Sylvain. (See Eldridge, Clark, and Blum.)						
Blum, Sylvain, *et al.* (See Clark, George G., assignor.)						
Boardman, Walter L., Decatur, Ill. Wagon-brake	606,408	June 28	2568	591	68	1894
Boas, Moritz. (See Terrot, Charles, assignor.)						
Bobrick, Gabriel A., Boston, Mass. Adjustable furniture	605,206	June 7	476	107	68	1442
Bobsien, August, New York, N. Y. Machine for ironing brims of straw hats	602,230	Apr. 12	1208	264	68	248
Boddam, Edmond M. T., assignor of one-tenth to G. G. Turri, Melbourne, Victoria. Pneumatic gun	605,216	June 7	291	67, 68	68	1405
Boddam, Edmond M. T., assignor of one-tenth to G. G. Turri, Melbourne, Victoria. Producing and storing gas under high pressure	605,217	June 7	296	69	68	1407
Boeck, Charles H., assignor to Novelty Manufacturing Company, Jackson, Mich. Oil-stove	602,193	Apr. 26	2059	604	68	550
Boeck, Charles H., assignor to Novelty Manufacturing Company, Jackson, Mich. Blue-flame oil-stove	602,194	Apr. 26	2061	604, 605	68	550
Boesing, Ernest, assignor of three-fourths to W. D. Baldwin, Yonkers, and J. H. Walling, Brooklyn, N. Y. Measuring-faucet	602,963	May 10	1285	204	68	874
Boesing, Ernest, assignor of three-fourths to W. D. Baldwin, Yonkers, and J. H. Walling, Brooklyn, N. Y. Beer-measuring faucet	602,964	May 10	1286	204	68	874
Bogart, Adrian L., Jamaica, assignor to W. B. M. Jordan, New York, N. Y. Induction-coil	605,174	June 7	207	59	68	1390
Bogart, Adrian L., Jamaica, assignor to W. B. M. Jordan, New York, N. Y. Insulating electrodes for electric gas-lighting burners	605,661	June 14	1106	255	68	1788
Bogroff, Carl, Odessa, Russia. Steam-radiator	605,775	June 14	1208	301	68	1620
Böhm, Ludwig K., New York, N. Y., assignor to Electro Gas Company, of West Virginia. Acetylene-gas tip	603,441	June 26	2089	604	68	1911
Bokelmann, Herman H., assignor of one-half to H. Purcell, Newark, N. J. Fruit or other jar	603,080	Apr. 26	2476	562	68	514
Boland, Ella E., *et al.* (See Boland, Joseph, assignor.)						
Boland, Joseph, assignor to C. H. Lloyd and E. E. Boland, Pittsburg, Pa. Curtain-pole bracket	603,870	May 10	1146	268	68	880
Bolen, Charles. (See Wilson, Nelson, assignor.)						
Bolton, Calvin O., Denver, Mich. Whiffletree-hook	605,861	June 7	689	129	68	1471
Bolzani, Anton, Berlin, Germany. Brake for hoists or similar apparatus	606,268	June 28	2304	532, 534	68	1647
Bonnell, Russell. (See Schmitt and Bonnell.)						
Bonsall, Seymour W., New York, N. Y. Dress-skirt and wardrobe trunk	604,346	May 17	2070	468	68	1051
Boosen, Louis, Paris, France. Bicycle	604,497	May 24	2241	521	68	1121
Boorum, William B., New York, N. Y. Binding for blank-books	605,116	June 31	2008	459	68	1709
Booth, Henry A., and J. P. Plummer, assignors of one fourth to B. Mann, Petersburg, Va. Traveling-trunk	602,027	Apr. 5	761	164	68	144
Booth, John, Bellville, Tex. Well-strainer	604,651	May 24	2617	600	68	1174
Booth, Thomas W., Windsor, Canada, assignor to Oscillating Truss Company, Detroit, Mich. Truss	603,004	Apr. 26	2455	559	68	510

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Bordner, William H., Burr Oak, Mich. Marsh-horseshoe	603,675	May 10	798	174	68	779
Borgström, Henrik E. H., Helsingfors, Russia. Carrying-frame	605,993	June 21	1703	404	68	1704
Borgström, Henrik E. H., Helsingfors, Russia. Carrying-frame	605,993	June 21	1705	405	68	1704
Boris, Pierre J., Boston, Mass. Rotary engine	604,960	May 31	3145	728, 734	68	1294
Boroughs, George C. (See Jackson and Boroughs.)						
Borst, Charles L., Ackerland, Kans. Wire-stretcher	605,849	June 21	1468	339	68	1671
Börsum, Julius, Lillehammer, Norway. Threshing-machine	606,803	June 28	2733	627	68	1989
Borton, Chester C., assignor of one-half to E. C. Dodge, Chicago, Ill. Side bearing for railway-cars	604,186	May 17	1707	396	68	994
Borton, Fred S., and C. F. Bates, Cleveland, Ohio. Fare-receipt slip	603,686	May 10	1059	236	68	880
Borton, Stockton. (See Willcox, Carleton, and Borton.)						
Borton, Stockton. (See Willcox, Gibbs, and Borton.)						
Bortree, Mary H. (See Bortree, Moses K. and M. H.)						
Bortree, Moses K. and M. H., Grand Rapids, assignors, by mesne assignments, to E. C. Bowling, Detroit, Mich. Lacing-strip	603,813	May 3	116	27	68	694
Boris, Samuel T., *et al.* (See Gannoe, Thomas A., assignor.)						
Bosanko, Alexander, assignor of one-half to E. J. D. Mountford and W. M. Pinder, Mariner's Harbor, N. Y. Belting-machine	605,946	June 21	1674	368	68	1708
Bossert, Frederick, assignor of one-half to J. E. F. Uthes, Detroit, Mich. Signal-alarm	605,043	June 21	1693	439	68	1741
Bossert, Obadiah M., Oakmont, Pa. Combination push-button card receiver and ejector	604,256	May 17	1902	440	68	1081
Bossing, Frank, Ellensburg, Wash. Twine-holder	604,961	May 31	3146	734	68	1295
Bostley, Augustus H., South Williamsport, Pa. Car-brake	603,439	May 3	343	76	68	605
Boston Check and Ticket Company. (See Jones, Frank L. and E. C., assignors.)						
Boston Fast Color Eyelet Company. (See Kempshall, Eleaser, assignor.)						
Boswell, Henry G., Lihue, Hawaii. Vacuum-pan	604,598	May 24	2289	576	68	1156
Bottini, Enrico, San Francisco, Cal. Air-compressing apparatus for vessels	604,908	May 31	3150	734	68	1295
Boudreau, Ernest A. (See Lombas, Joseph A., assignor.)						
Boughner, William W., Hamilton, Canada. Lawn-mower grinder	603,117	June 21	2008	459	68	1709
Bourne, Edwin H., Downieville, Cal. Rock-drill chuck	603,101	Apr. 26	2080	566	68	541
Bourne, Philip, Brooklyn, N. Y., assignor of one-half to C. L. Dubar and E. F. Vacheron, of New York. Extension-ladder	603,669	June 14	788	175	68	1580
Bouton, Samuel, assignor of one-half to W. F. Ruwell and A. Henwood, Philadelphia, Pa. Explosive-engine	606,504	June 28	2728	586, 587	68	1989
Bouvang, Nels, Rockford, Ill. Photographic opaque negative and printing therefrom	603,986	May 10	1260	297	68	891
Boveroux, George L., Oakland, Cal. Ball-caster	601,726	Apr. 5	198	39	68	39
Bowen, Samuel C., Medina, N. Y. Wire-fence tightener	606,505	June 28	2734	586	68	1989
Bowen, Samuel C., Medina, N. Y. Compensator for wire fences	606,506	June 28	2735	586	68	1990
Bowers, Hiram G., Canton, Ohio. Surgical table	602,571	Apr. 19	1660	384	68	350
Bowers, La Mont M., Cleveland, Ohio. Anchor	603,719	Apr. 19	1957	445	68	401
Bowes, Richard, Darlington, England. Fireplace	603,988	Apr. 26	2241	534	68	490
Bowling, Claud. (See Johnson, Carroll H., assignor.)						
Bowling, Enoch C. (See Bortree, Moses K. and M. H., assignors.)						
Bowling, James R., and G. W. Gilliland, Meredosia, Ill. Coin-operated vending apparatus	603,810	May 10	1097	229	68	817
Bowman, David, Berlin, Canada. Combined bicycle lock and holder	606,118	June 21	2004	459	68	1709
Bowman, Louisa J., Amoret, Mo. Sewing-machine threader	606,269	June 28	2306	534	68	1647
Bowman, William, Mill Grove, Mich. Fence-post	603,168	Apr. 26	2736	610	68	582
Bowne, Eureka C., Trenton, N. J. Non-refillable bottle	606,507	June 28	2736	609	68	1990
Bowne, John D., assignor to J. L. Robertson, New York, N. Y. Filter	603,720	Apr. 19	1958	445	68	401
Boyd, George R., assignor of three-fourths to C. S. Carey and E. Lemen, Cairo, Ill. Cutter-head	601,982	Apr. 5	585	122	68	111
Boyd, Peter, assignor to Riverside Iron Works, Wheeling, W. Va. Apparatus for manufacturing pipe	606,139	June 21	2075	477, 478	68	1769
Boyer, Albert L., Otto, Ind. Handle for hoes, rakes, &c	603,550	May 3	508	125	68	711
Boyer, Martin, Bigterville, Pa. Punching-machine	603,721	Apr. 19	1960	445	68	402
Boyes, David W., and J. R. Denison, Grand Rapids, Mich.; said Denison assignor to said Boyes. Range-boiler	603,722	Apr. 19	1961	445	68	402
Boykin, Christopher C., assignor of one-fourth to J. W. Steel and H. S. Haslette, Norfolk, Va. Letter-file	606,508	June 28	2736	609	68	1990
Boyle, John, Peabody, Mass. Knife-sharpening mechanism for leather-shaving machines	605,697	June 14	1020	241	68	1572
Boynton, Horace G., and C. H. Fravel, New Albany, Ohio. Stopper for jugs	603,888	Apr. 26	2145	487	68	432
Boynton, Thomas W., Duffan, Tex. Kitchen-cabinet	604,454	May 24	2222	506	68	1105
Branach, Henry, Los Angeles, Cal. Ballot-box	603,798	Apr. 19	2096	478	68	427
Brantz, August, Wausau, Wis. Plow-clevis	605,509	June 28	2739	609	68	1991
Brabrook, George H., assignor to Reed & Barton Corporation, Taunton, Mass. Flat metal tableware	605,168	June 28	2128	457	68	1609
Bracken, Howard W., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Thread or yarn guide	604,599	May 24	2280	576	68	1156
Brackett, Cephas W., assignor to himself and S. L. Rockwell, Jordan, N. Y. Faucet	603,800	Apr. 12	1289	272	68	249
Bradbury, Thomas H., Johannesburg, South African Republic, assignor to Bradbury's World Patent Drill Sharpener Company, Limited, London, England. Rock-drill sharpener	603,887	May 10	1178	296, 297	68	846
Bradbury's World Patent Drill Sharpener Company. (See Bradbury, Thomas H., assignor.)						
Braddock, Effie F., Philadelphia, Pa. Eyeglasses	604,688	May 31	3104	712	68	1289
Bradeen, Ansel R., Seattle, Wash. Rope-clamping hook	603,694	Apr. 19	1918	426	68	396
Braden, John R., Ronan, Iowa. Tree-protector	605,776	June 14	1304	301	68	1621
Bradford, Walter C., Arbuckle, Cal. Wheeled dumping scraper and grader	603,491	May 3	306	60	68	609
Bradish, Alonzo G., *et al.* (See Bradish, Frederick T., assignor.)						
Bradish, Frederick T., Boston, assignor of two-thirds to A. G. Bradish, Medford, and C. F. Fellows, Malden, Mass. Fastening device for tubs, boxes, &c	605,470	June 14	764	175	68	1580
Bradley, Allen, Floris, Va. Wagon-scale	603,997	May 10	1261	297	68	891
Bradley, Charles S., Avon, N. Y. Electric condenser	603,722	May 10	886	199	68	735
Bradley, Edwin M., New Haven, assignor of one-half to F. B. Street, East Haven, Conn. Double or compound fork	605,872	June 30	2495	580	68	1633
Bradley, Frank S., New Haven, Conn. Stapling-machine	602,121	Apr. 12	918	200, 201	68	186
Bradley, Frank S., and F. A. Cotton, New Haven, Conn. Hack-saw machine	604,714	May 31	2751	620	68	1216
Bradley & Hubbard Mfg. Co. (See Jasch, Joseph, assignor.)						
Bradley & Hubbard Mfg. Co. (See Penfield, William A., assignor.)						
Bradley, Rodney D., assignor of one-half to F. K. Mudd, Chicago, Ill. Bicycle-keeper	605,099	June 14	1051	249	68	1572
Brady, Charles N. (See Henry and Brady.)						
Brady, James M., Philadelphia, Pa. Machine for trimming wall-paper	602,958	Apr. 12	1153	253	68	228
Braender, Philip. (See Power, Nicholas, assignor.)						
Bragg, John, Cleveland, Ohio. Deodorizing and purifying petroleum-oil	604,515	May 24	2223	.....	68	1122

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bragger, John W., assignor to Hitchcock Lamp Company, Watertown, N. Y. Lantern-bracket	602,122	Apr. 12	921	201	88	186
Bragger, John W., assignor to Hitchcock Lamp Company, Watertown, N. Y. Incandescent gas-burner	605,562	June 14	912	218	88	1540
Braid, Fountain S., Brooklyn, N. Y. Elevator-controller	605,471	June 14	765	175	88	1540
Brake, Alfred, and R. J. McKee, Wellington, New Zealand; said McKee assignor to said Brake. Aerated-water fountain or engine	606,378	June 28	9498	680	88	1884
Braly, Louis. (See Tachauer and Braly.)						
Bramlette, Andrew J., Downey, Cal. Pipe slitter and perforator	602,201	Apr. 19	1240	272	88	949
Brammer, Henry F., Davenport, Iowa. Mechanical movement	606,044	June 21	1865	430	88	1741
Brand, George, Brooklyn, N. Y. Reversible rail-grip for bedsteads	605,899	June 7	625	98	88	1435
Brandes, Herman H., Corydon, Ky. Fence	605,949	June 21	1464	340	88	1679
Brandon, Frances L., and A. Roop, Hicksville, Ohio. Rim-joint for vehicle-wheels	602,128	Apr. 12	923	201	88	186
Brandon, James H. (See Bebout and Brandon.)						
Brands, Gerhard J. (See Wiens and Brands.)						
Brandt, Edward J., Watertown, Wis. Coin-delivery apparatus	604,600	May 24	2581	576 577 578	88	1157
Brandt, John, Chicago, Ill. Banjo	601,604	Apr. 5	241	69	88	64
Brannan, Edward I., Richmond, Va. Circle-cycle	605,629	June 14	1058	249	88	1573
Bransell, Charley. (See Larson and Bransell.)						
Bratten, Herschel A. (See Killman and Bratten.)						
Brauchler, Charles A., Canton, Ohio. Tire-patcher	602,052	Apr. 19	808	173	88	102
Brault, Camille, Paris, France. Secondary battery	605,695	June 14	1109	269	88	1595
Braun, Frederick. (See Eimer, Theodor D., assignor.)						
Bray, Edward W., Indianapolis, assignor of two-thirds to F. A. Williams and L. B. Hughes, Needham, Ind. Bicycle-saddle	604,347	May 17	2072	464	88	1051
Brazelton, John F., assignor of one-half to G. C. English, Butte, Mont. Scale-weight	604,715	May 31	2755	639	88	1218
Brasenor, Edward L., *et al.* (See Leask, John and T. W., assignors.)						
Breakell, Edward. (See Buist and Breakell.)						
Breed, Chancy, Farwell, Mich. Door-closer	604,716	May 31	2755	630	88	1219
Breinl, Anton R., Graslitz, Austria-Hungary. Apparatus for teaching arithmetic	604,903	May 31	3151	725	88	1295
Brendel, Michael, New York, N. Y. Resilient tire	605,026	Apr. 26	2500	567	88	519
Brengman, John, Florissant, assignor to H. C. Hamilton, R. Gapsch, J. Everman, and H. Trowbridge, Cripple Creek, Colo. Nut-lock	602,891	Apr. 26	2947	511	88	471
Brennan & Co. Southwestern Agricultural Works. (See Christman, Brennan, and Homire, assignors.)						
Brennan, Francis A., Brockville, Canada. Motor	605,392	June 7	694	189	88	1471
Brennan, Mark P., New York, N. Y. Mucilage-bottle	604,945	May 17	1899	419	88	1012
Brennan, Thomas, Jr. (See Christman, Brennan, and Homire.)						
Brenner, George K., Porterville, Kans. Disk cultivator	603,167	Apr. 26	2736	620	88	563
Brenner, Karl F. G. (See Schneider and Brenner.)						
Brett, Henry W., Boston, Mass. Gate for cars	604,395	May 17	1881	410	88	1005
Brett, Thomas, Geneva, Ohio. String instrument	601,766	Apr. 5	318	68	88	60
Brewer, Jacob H., New Straitsville, Ohio. Centering-machine	603,898	May 10	1180	267	88	846
Brewington, Henry S., Baltimore, Md. Garment-supporter	601,745	Apr. 5	241	48	88	46
Brewington, Henry S., Baltimore, Md. Safety-pin	606,374	June 28	2500	561	88	1884
Brice, Alfred L., Minneapolis, Minn. Clip for bicycle-pedals	605,536	June 14	863	202	88	1539
Brice, Stewart M., *et al.* (See Schaill, Michael S., assignor.)						
Bridgeport Brass Company. (See Rhind, Frank, assignor.)						
Brigden, Charles H., Canton, Mass., assignor to S. M. Hawes, Jr., Yonkers, N. Y. Latch mechanism	604,516	May 24	2385	542	88	1139
Brigden, Charles H., Canton, Mass., assignor to S. M. Hawes, Jr., Yonkers, N. Y. Lock	604,576	May 24	2498	568	88	1150
Brigden, Charles H., Canton, Mass., assignor to S. M. Hawes, Jr., Yonkers, N. Y. Padlock	604,577	May 24	2499	568	88	1150
Briggs, Edward R., Amesbury, Mass. Traveler's toilet-case	602,494	Apr. 19	1560	355	88	986
Briggs, Henry S., Rochester, N. Y. Washboard-fastener	602,359	May 3	16	4	88	603
Brigham, Orman H., Chatsworth, Ill. Air-compressor	604,717	May 31	2756	630	88	1219
Brill, John A., and W. S. Adams, Philadelphia, Pa.; said Adams assignor to said Brill. Differential brake mechanism	603,723	May 10	966	193	88	786
Brims, James. (See Shotwell and Brims.)						
Briner, Frederick E., assignor to Emerson Electric Manufacturing Company, St. Louis, Mo. Electric motor	605,850	June 21	1498	340	88	1679
Bristol, Henry, New Haven, Conn. Folding drying-frame for woolen garments	605,988	June 7	625	140	88	1474
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,933	Apr. 5	560	128 194	88	111
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,934	Apr. 5	564	194	88	112
Brock, Matthias, Boston, Mass., assignor, by mesne assignments, to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,935	Apr. 5	568	195 196	88	112
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,936	Apr. 5	604	196 197	88	114
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,937	Apr. 5	610	197 198	88	115
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,938	Apr. 5	614	198 199	88	115
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,939	Apr. 5	619	199 200 201	88	116
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Lasting-machine	601,940	Apr. 5	625	201 202	88	117
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Nailing apparatus	601,941	Apr. 5	629	202	88	118
Brock, Matthias, Boston, Mass., assignor to Consolidated & McKay Lasting Machine Company, Portland, Me. Hand nailing apparatus	601,942	Apr. 5	633	202	88	118
Brock, Willis J., Tamaha, Ind. Ter. Portable fence	602,986	May 10	1203	257	88	903
Brockett, Atwater E., Everett, assignor to W. G. Nixon, Braintree, Mass. Pipe-wrench	605,441	June 7	728	163	88	1432
Brodie, Hiram S., Baltimore, Md. Cyclist's riding-record	602,038	Apr. 19	808	174	88	103
Bromley, Daniel W., Wilmore, Ky. Wire fence	603,166	Apr. 26	2736	620	88	562
Bromley, Robert C., Pittsburg, Pa. Valve	603,994	June 7	686	140	88	1473
Bronson, Adelbert E., Cleveland, Ohio. Steel range	606,510	June 28	2730	620 620	88	1901
Brooks, Byron A., Brooklyn, N. Y. Printing-telegraph	606,280	June 28	2412	550	88	1806
Brooks, David, Verona, N. J. Cutting-machine	601,969	Apr. 5	429	99	88	90

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Brooks, Edward, Milton, Mass. Bowling-alley	601,696	Apr. 5	6	2	88	4
Brooks, Frank C., assignor of one-half to Joyce-Cridland Company, Dayton, Ohio. Hydraulic jack	605,620	June 14	1054	242	88	1573
Brooks, James W., *et al.*, trustees. (See Ashton, Orrell, assignor.)						
Brooks, James W., *et al.*, trustees. (See Casgrain, Louis A., assignor.)	606,160	June 21	2079	478 479	88	1788
Brooks, John B., Birmingham, England. Cycle-saddle						
Brooks, T. H., *et al.* (See Cockburn, George G., assignor.)						
Broome, Lewis H., Jersey City, N. J. Bottle-stopper	603,724	May 10	971	198	88	787
Broome, Lewis H., Jersey City, N. J. Bottle-stopper	603,725	May 10	972	194	88	787
Broomell, Albert P., York, Pa. Multiple-tube water-heater	603,169	Apr. 26	2729	621	88	564
Bromthan, Thomas H., assignor to F. A. Millett and T. H. Bromthan, Livermore Falls, Me. Bow-facing gear	604,601	May 24	2537	578	88	1156
Brougham, Reginald T. D., and W. C. Bersey, assignors to Electrical Vehicle Syndicate, Limited, London, England. Suspending batteries on carriages	603,802	Apr. 12	1242	273	88	949
Brougham, Reginald T. D., and W. C. Bersey, assignors to Electrical Vehicle Syndicate, Limited, London, England. Safety device for electric carriages	604,674	May 31	3013	601	88	1295
Brower, Asher B. (See Bunnell and Brower.)	603,314	May 3	117	27, 28	88	604
Brown, Aaron A., Baltimore, Md. Tide and wave motor						
Brown, Albert. (See Woolf, Brown, and Rickard.)	606,620	June 28	2030	481 482	88	1971
Brown, Alexander T., Syracuse, N. Y., assignor to W. L. Smith, trustee. System for electrical communication	605,385	June 7	628	140 141	88	1472
Brown, Alvin, Aurora, Ill. Street-sweeper	601,627	Apr. 5	7	2	88	4
Brown, Andrew J., Bold Spring, Ga. Sweep						
Brown, Augusta F., *et al.* (See Brown, Charles M., assignor.)						
Brown Brothers Manufacturing Company. (See Sullivan, Eugene J., assignor.)						
Brown, C. A. L., *et al.* (See Balcom, Charles, assignor.)	601,701	Apr. 5	134	27	88	20
Brown, Charles J., Long Island City, N. Y. Bicycle luggage-carrier						
Brown, Charles M., assignor to A. F. Brown, D. W. Davis, and W. Holder, Ocala, Fla. Shuffle-hoe	603,425	Apr. 19	1446	328	88	305
Brown, Charles S. (See Penn and Brown.)	605,386	June 7	630	141	88	1473
Brown, Cyril P., Spring Lake, Mich. Applicator	605,572	June 14	98	218	88	1537
Brown, Edmund C., Ellsworth, Kans. Aerial flash-light machine	604,363	May 24	2106	472	88	1079
Brown, Francis N., Chicago, Ill. Artificial tooth for crown and bridge work	602,723	Apr. 19	1002	446	88	402
Brown, Frank A., West Pike, Pa. Mail-bag	605,782	May 10	971	217	88	605
Brown, George, Long Island City, N. Y. Automatic indicator for truing wheels						
Brown, Harold P., New York, N. Y. Planet-gear motion-transmitting and speed-varying mechanism	603,253	May 3	17	5	88	604
Brown, Ira W., assignor of one-half to R. Latta, New York, N. Y. Combination sash lock and lift	605,196	June 7	949	68	88	1398
Brown, Irving E. (See Suydam, John H., Sr., assignor.)						
Brown, James G., assignor to Reading Cycle Manufacturing Company, Reading, Pa. Bicycle-crank	605,473	June 14	767	175	88	1381
Brown, James M., and L. D. Peak, Exeter, Ill. Car-coupling	603,899	May 10	1188	267	88	846
Brown, John, Providence, R. I. Bicycle-wheel	602,538	Apr. 19	1060	277	88	845
Brown, John, Conneaut, Ohio. Wrench	606,270	June 28	2306	524	88	1847
Brown, John D., Richmond, N. Y. Device for protracting land surveys	604,517	May 24	2537	549	88	1139
Brown, John W., Fort Wayne, Ind. Razor-strop casing	603,074	Apr. 26	2571	568	88	988
Brown, Lewis S., Columbus, Ohio. Coin-controlled tire-pump	605,686	June 14	1171	270	88	1596
Brown, Perry, Wilmington, Del. Lifting-jack	605,078	June 7	10	3	88	1355
Brown, Schuyler C. (See Green and Brown.)						
Brown & Sharpe Manufacturing Company. (See Davenport, William S., assignor.)						
Brown, Taylor E. (See Berg, John V., assignor.)	604,000	May 10	1370	312	88	884
Brown, Theodore H., Viroqua, Wis. Broom	604,364	May 24	2107	472 473	88	1079
Brown, Thomas E., New York, N. Y. Hydraulic lift	604,851	May 31	2967	660	88	1259
Brown, Thomas S., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Mower						
Brown, William M., Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Electric contact-shoe	603,495	Apr. 19	1360	355	88	987
Browne, Arthur B. (See Kitson and Browne.)						
Browne, Arthur W., and C. M. Kennedy, Prince's Bay, N. Y., assignors to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Saliva-ejector	603,572	Apr. 19	1028	265	88	850
Browne, Emily B., Dedham, Mass. Carpet-sweeper	601,698	Apr. 5	8	2	88	4
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Photographic-plate holder	604,455	May 24	2304	509	88	1109
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Photographic camera	605,851	June 21	1469	340 341	88	1673
Browning, William J., Bayonne, N. J. Removable calk for horseshoes	603,260	May 3	109	45	88	640
Bruhn, Friedrich W. G., Berlin, Germany. Fare indicating and registering apparatus for cabs, &c	605,449	June 7	734	163	88	1402
Brunjes, Dietrich H., *et al.* (See Craig, William S., assignor.)	603,496	Apr. 19	1561	355	88	987
Brunner, Henry, Jr., San Francisco, Cal. Trunk-harness						
Brunson, Henry H., *et al.* (See Jenkins, Edwin J., assignor.)	603,972	Apr. 26	2401	546	88	501
Brustlein, Henri A., Uzleux, France. Armor-piercing projectile	603,808	Apr. 26	2346	512	88	478
Brya, Augustus F., Champaign, Ill. Farm-gate						
Bryan Manufacturing Company. (See Couper, James H., assignor.)						
Bryan, Thomas A. (See Couper and Bryan.)						
Bryan, Thomas A. (See Day and Glacken, assignors.)	603,397	May 3	203	58, 59	88	660
Bryan, Thomas A., and J. H. Couper, Baltimore, Md. Acetylene-gas generator						
Bryan, Thomas A. (See Gannoe, Thomas A., assignor.)	603,871	May 10	1149	258	88	840
Bryner, Elmer E., *et al.* (See Gannoe, Thomas A., assignor.)	603,934	Apr. 26	2342	504	88	490
Bubilts, Friedrich J., Friedheim, Ind. Candle-holder	602,985	Apr. 26	2343	505	88	490
Buchanan, Robert, Liverpool, England. Tire	606,330	June 28	2418	560 561	88	1870
Buchel, Jules, and F. McGloin, New Orleans, La. Electrohydrostatic automatic car-brake	605,175	June 7	810	68	88	1380
Buchtel, Luise, New York, N. Y. Portable coal-sifter	603,082	Apr. 26	2149	407	88	488
Buck, Fred, and T. Huss, Saginaw, Mich. Water-filter						
Buck, James A., Crescent, assignor of one-half to L. Vermilyea, Cohoes, N. Y. Potato-digger	602,497	Apr. 19	1562	356	88	987
Buckbee, Charles E., Flushing, Mich. Pneumatic tire and repairing same	603,371	June 28	2307	524	88	1846
Buckeye Malleable Iron and Coupler Company (See Timms, James, assignor.)						
Buckham, George T. (See Vickers and Buckham.)	603,898	May 3	203	141	88	734
Buckingham, Roswell H., Evanston, Ill. Valve	606,511	June 28	2729	621	88	1921
Buckles, Isaac P., Fulford, Colo. Meat or vegetable cutter	603,872	May 10	1150	260	88	840
Bucklin, John E., assignor to A. C. Moses, Washington, D. C. Cigarette-machine						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Buckman, Joseph B., Cleveland, Ohio. Hat-body-shaping apparatus	605,073	June 7	10	3	68	1355
Buda Foundry and Manufacturing Company. (See Moore, David A., assignor.)						
Buehler, Henry W., Brooklyn, N. Y. Necktie-fastener	604,365	May 24	2110	474	68	1079
Buell, Henry A., *et al.* (See Johnston, Lysander, assignor.)						
Buhoup, Harry C., Chicago, Ill., assignor to McConway & Torley Company, Pittsburg, Pa. Release-rigging for railway-cars	604,718	May 31	2758	{ 680 / 681	68	1219
Buick, David D., Detroit, Mich. Leg for bath-tubs	608,254	May 3	21	6	68	604
Buist, David, Bernardsville, N. J., and E. Breakell, New York, N. Y. Testing-trap	605,287	June 7	689	141	68	1478
Bullis, Justin B., assignor to Ann Arbor Manufacturing Company, Ann Arbor, Mich. Curtain-fixture	608,449	June 28	2680	605	68	1911
Bullock, Benoni A., Elba, Mich. Debourner	601,906	Apr. 5	711	151	68	194
Bundy, Willard L., Binghamton, N. Y. Workman's time-recorder	605,159	June 7	184	46, 47	68	1356
Bunnell, Daniel, and A. A. Brower, Arkansas City, Kans. Wire-tightener	604,578	May 24	2503	560	68	1151
Burchfield, Sarah O., Pittsburg, Pa. Folding basket	608,573	May 10	1161	260	68	840
Burdett Rowntree Manufacturing Company. (See Smith, Humphrey R., assignor.)						
Burdick, Hiram M. (See Wiard and Burdick.)	605,266	June 7	407	98	68	1429
Burfoot, Joseph B., Mobile, Ala. Combined school desk and seat	608,099	Apr. 26	2285	574	68	524
Burford, George W., Verona, Pa. Shoe-fastener						
Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Electric block system	608,208	Apr. 12	1061	237	68	217
Burger, Franz, and H. M. Williams, Fort Wayne, Ind.; said Burger assignor of one-half to said Williams. Butter cake and means for making same	608,194	Apr. 12	988	201	68	187
Burger Manufacturing Company. (See Waller, Arthur R., assignor.)						
Burger, Rudolf, Port Richmond, N. Y. Paper decoration	608,619	May 10	607	155	68	738
Burgess, Edward T., Columbus, Ohio. Plumber's furnace	604,518	May 24	2366	543	68	1139
Burgess, Edward W., assignor to Milwaukee Harvester Company, Milwaukee, Wis. Grain-binder	608,088	Apr. 5	768	164	68	144
Burgess, Luther C., assignor to Chicago Railway Equipment Company, Chicago, Ill. Brake-beam	604,456	May 24	2365	509	68	1109
Burgher, John. (See Linton and Burgher.)	601,702	Apr. 5	135	27	68	20
Burgland, Andrew, assignor to E. Burgland, Chicago, Ill. Pail, &c.						
Burgland, Ellen. (See Burgland, Andrew, assignor.)						
Burgland, Peter, assignor of one-half to F. R. Newman, Dodge City, Kans. Whiffletree attachment	608,815	May 3	118	28	68	605
Burgwall, Oscar R. E. von, and L. Ofenschüsel, Vienna, Austria-Hungary. Primary element with regenerable negative electrode	608,890	May 10	1184	.....	68	846
Burhans, Paul C., assignor of one-half to W. Finn. Sedgwick, Kans. Lawn-mower	605,074	June 7	12	4	68	1355
Burke, Frederick W., Rochester, N. Y. Car-strap	605,075	June 7	14	4	68	1356
Burke, Horace B., Fort Pierce, Fla. Sheep-shears	604,821	May 31	2915	607	68	1349
Burke, John C., Middlesborough, Ky. Timepiece	604,307	May 17	1964	440	68	1031
Burke, Stephen E., Edon, Ohio. Button-remover	601,943	Apr. 5	636	133	68	119
Burkhardt, Charles F., Buffalo, N. Y. Bicycle-stand	608,625	May 3	300	69, 70	68	659
Bürklin, Victor, assignor to J. Hartjen, New York, N. Y. Combined lamp burner and wick	608,891	Apr. 12	1366	311	68	579
Burmah Oil Company. (See Campbell and Urie, assignors.)						
Burnett, Wesley, assignor of one-half to T. E. Morford, Cambridge, Mass. Valve	606,404	June 28	2553	598	68	1894
Burnham, Frank A., assignor to Chandler & Price Company, Cleveland, Ohio. Means for actuating ink-disks in platen printing-presses	608,496	May 3	469	104	68	661
Burnham, Frank A., assignor to Chandler & Price Company, Cleveland, Ohio. Impression throw-off for platen printing-presses	604,719	May 31	2760	631	68	1219
Burnham, George, *et al.* (See Austin, William L., assignor.)						
Burnham, George, Jr., *et al.* (See Austin, William L., assignor.)						
Burnham, George H., Lawrence, assignor to E. Rogers, Lynn, Mass. Display-stand	605,207	June 7	478	107	68	1443
Burnham, Shepard. (See Rosbrook and Burnham.)						
Burnham, Williams & Co. (See Johnson and Lukens, assignors.)						
Burnip, John T., Melbourne, Victoria. Brush	606,184	June 28	2194	467	68	1610
Burns, George J., Ayer, Mass. Paper-drying apparatus	608,799	Apr. 19	2200	474	68	427
Burns, James, Cincinnati, Ohio. Funeral-car	604,608	May 24	2339	579	68	1158
Burns, Joseph H., Cleveland, Ohio. Pie-rack	605,473	June 14	767	176	68	1581
Burns, Peter C., Chicago, Ill. Telephone-receiver	605,594	June 14	978	225	68	1559
Burns, Willis B., Syracuse, N. Y. Molding-machine	608,488	May 3	311	70	68	660
Burrill, Elvyn F., Oakland, Cal. Program-clock	601,850	Apr. 5	450	91	68	94
Burroughs, Mary F., Marshall, Mo. Sewing-machine shuttle	606,443	June 28	2681	605	68	1911
Burrows, Frank L., Cranston, assignor to D. Wilcox, Providence, and C. A. Wilkinson, Warwick, R. I. Spectacle-frame	606,278	June 28	2308	535	68	1849
Burrows, George H., Somerville, Mass. Stockless anchor	605,076	June 7	15	4, 5	68	1356
Burrows, William, Brooklyn, N. Y. Bath-tub seat	608,195	Apr. 12	924	203	68	187
Burry, John, Fort Lee, N. J. Printing-telegraph system	601,766	Apr. 5	276	56	68	54
Burs, George, assignor of one-third to F. W. Gibson, St. Louis, Mo. Coffee-roaster	608,551	May 3	569	{ 125 / 126 / 127 / 128	68	711
Burson, William W., Rockford, assignor to McCormick Harvesting Machine Company, Chicago, Ill. Binding reaping-machine	608,827	May 10	1081	{ 235 / 236 / 237 / 238 / 239	68	884
Burt, John D. (See Rolph, Henry E., assignor.)	606,185	June 28	2124	466	68	1610
Burt, Merritt, Jacksonville, Fla. Bicycle attachment	604,708	May 24	2726	595	68	1194
Burton, Charles S., Oak Park, Ill. Child's building-blocks	608,680	May 10	666	156	68	758
Burton, John B., Boston, Mass. Door-guard	601,809	Apr. 5	468	99	68	90
Busch, Albert. (See Bauer and Busch.)						
Busch, George W., Detroit, Mich. Identifying device	608,216	May 3	119	28	68	605
Bush, Charles. (See Staples and Bush.)						
Bush, James W., Sciotoville, Ohio. Paper-holding device	606,168	June 28	2135	466	68	1610
Bushnell, Charles N., Oquawka, Ill. Thatch roofing	604,246	May 17	2073	444	68	1029
Bussells, Josephus F., Irvington, Va. Cooking and pressing apparatus	604,602	May 24	2619	599	68	1174
Bust, William B., Dunedin, New Zealand. Lock	602,054	Apr. 19	604	174	68	164
Butler, Henry L., Emerson, Nebr. Nut-wrench	608,794	Apr. 19	1968	446	68	408
Butler, Winfield H., Landenburg, Pa. Bolt-nut						
Butterell, James H., *et al.* (See Reardon, James A., assignor.)						
Butterfield, John W., Columbus, Ohio. Mechanism for converting rotary to reciprocating motion	605,218	June 7	308	69, 70	68	1400
Butterfield, William, assignor to Deering Harvester Company, Chicago, Ill. Butt-adjuster for self-binding harvesters	605,269	June 7	633	143	68	1473
Butterworth, John. (See Butterworth, William H. and J.)	608,494	May 3	312	71	68	660
Butterworth, William H. and J., Trenton, N. J. Threshing-machine						
Buttifant, Archibald G. (See Gersant and Buttifant.)	602,677	Apr. 19	1869	430	68	366
Buttler, William, Redkey, Ind. Apparatus for annealing glassware						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Buttorff, John H., Fort Collins, Colo. Head-gate	608,972	Apr. 26	2403	548	68	601
Butts, Henry B., assignor to L. Butts, St. Louis, Mo. Door-fastener	608,477	May 3	427	95	68	663
Butts, Henry B., assignor to L. Butts, St. Louis, Mo. Door-fastener	604,552	May 31	2903	661	68	1359
Butts, Lucinda. (See Butts, Henry B., assignor.)	606,187	June 28	2126	{ 466 / 469	68	1610
Butusov, William P., Chicago, Ill. Soaring-machine						
Butz, August. (See Pulcher, Camielle, assignor.)						
Buxton, Willard H. (See Houghton and Buxton.)						
Byrne, Hulbert, Youngstown, Ohio. Type-case	602,651	Apr. 19	1809	411	68	371
C. B. Cottrell & Sons Company. (See Cottrell, Edgar H. and C. P., assignors.)						
C. W. Hunt Company. (See Hunt, William P., assignor.)						
Caesar, August, Butte, Mont. Fixture for curtain-rollers	608,255	May 3	22	6	68	604
Cahill, Arthur T., *et al.*, trustees. (See Cahill, Theddeus, assignor.)						
Cahill, George F., *et al.*, trustees. (See Cahill, Theddeus, assignor.)						
Cahill & Hall Elevator Company. (See Hall, Cofran L., assignor.)						
Cahill, Patrick J., Utica, N. Y. Testing-cap and clamp	602,261	Apr. 12	1904	364	68	242
Cahill, Theddeus, New York, N. Y. Linotype-machine, line-casting machine, and machine for making type-bars, linotypes, and matrices	605,777	June 14	1305	{ 302 / 308 / 304	68	1621
Cahill, Theddeus, New York, N. Y., assignor to J. B. Lambie, E. H. Jackson, G. F. and A. T. Cahill, trustees. Type-writing machine, &c	604,001	May 10	1371	{ 313 / 313 / 314 / 315	68	864
Cain, Alfred R. (See Cain, Charles E., assignor.)						
Cain, Charles E., assignor of one-half to A. R. Cain, Milwaukee, Wis. Bicycle	604,226	May 17	1822	411	68	1006
Cain, Ephraim D., Weatherby, Mo. Water-column. (Reissue)	11,602	May 3	601	154	68	735
Cain, Sarah, Huntington, W. Va. Underskirt	604,964	May 31	3152	725	68	1296
Caldwell, Frank E., Brooklyn, N. Y. Brake for children's carriages	603,005	Apr. 26	2456	559	68	511
Caldwell, Joseph F., New Wilmington, Pa. Car	603,170	Apr. 26	2731	{ 621 / 622	68	564
Callaghan, William H., Toronto, Canada. Shower-bath apparatus	608,171	Apr. 26	2733	622	68	564
Callahan & Co., W. P. (See Raab, John B., assignor.)						
Callanan, Cornelius M., Buffalo, N. Y. Globe-valve	605,359	June 7	635	142	68	1474
Callis, Theodore O., *et al.* (See Anderson, John A. E., assignor.)						
Callow, John J., Cleveland, Ohio. Graining	605,244	June 7	349	80	68	1417
Calovit Heating Company. (See Pitney, Albert L., assignor.)						
Calver, William, Washington, D. C. Solar apparatus	608,317	May 3	121	{ 28 / 29 / 30	68	605
Calvert, Harry W., McKees Rocks, Pa. Bicycle toe-clip	605,390	June 7	636	142	68	1474
Cambridge, James A. (See Sweeting, James A., assignor.)						
Cameron, Alexander, Jr., Richmond, Va. Box or can	602,653	Apr. 19	1835	418	68	377
Cameron, Alexander, Jr., Richmond, Va. Box or can	602,654	Apr. 19	1837	419	68	377
Cameron, Daniel, and D. S. Carraway, Omaha, Nebr., assignors to Cudahy Packing Company, Chicago, Ill. Recovering glycerin from tank-water	602,725	Apr. 19	1964	.....	68	403
Camp, Harry F., Carpenter, assignor of one-half to F. H. Trippe, Canton, Pa. Car-coupling	604,227	May 17	1823	411	68	1006
Campbell, Allan R., Birmingham, assignor to A. Campbell, Huntsville, Ala. Bottle	604,730	May 31	2768	631	68	1220
Campbell, Andrew, and J. Urie, Rangoon, Burmah, assignors to Burmah Oil Company, Limited, Rangoon, Burmah, and Glasgow, Scotland. Apparatus for filling oil-cans	602,988	Apr. 12	1905	365	68	242
Campbell, Archibald. (See Campbell, Allan R., assignor.)						
Campbell & Clute. (See Harshaw, Seth T., assignor.)						
Campbell, Eva K. (See Campbell, Windsor O. and E. K.)						
Campbell, Harry C., Lost, Pa., assignor to Standard Oil Company of New York, New York, N. Y. Vapor-stove	604,366	May 24	2111	474	68	1079
Campbell, James, Milwaukee, Wis. Balanced slide-valve	606,119	June 21	2005	460	68	1760
Campbell, Jeremiah, Chelsea, Mass. Hoisting and conveying apparatus	608,736	Apr. 19	1967	{ 445 / 447	68	408
Campbell, Jeremiah, Chelsea, Mass. Hoisting and conveying apparatus	604,808	May 31	3089	{ 697 / 698	68	1373
Campbell, John D., and M. E. Cummings, Paris, Me.; said Campbell assignor of one-eighth to F. M. Haskell, Boston, Mass. Device for operating railway-gates	608,681	May 10	669	156	68	758
Campbell, Lute E., Arkansas City, Kans. Overshoe	604,367	May 24	2112	474	68	1080
Campbell Printing Press and Manufacturing Company. (See Hawkins, John T., assignor.)						
Campbell Printing Press and Manufacturing Company. (See Southgate, Louis W., assignor.)	608,989	May 10	1263	287	68	882
Campbell, Richard W., Warren, S. D. Apparatus for exterminating weeds	602,055	Apr. 12	805	174	68	164
Campbell, Thomas H., Seattle, Wash. Bed attachment	602,153	Apr. 12	964	216	68	198
Campbell, Westley P. H., Stockton, Cal. Windmill-regulator	605,084	June 21	1766	405	68	1734
Campbell, William J., Milton, N. D. Seat attachment for plows	601,727	Apr. 5	200	39	68	30
Campbell, Windsor O. and E. K., Sulphur Springs, Ark. Music-chair	605,391	June 7	637	{ 142 / 143	68	1474
Canda, Ferdinand E., New York, N. Y. Car-wheel	604,875	May 31	3013	692	68	1206
Canedy, Ernest E., North Adams, Mass. Shoe-rack	608,974	Apr. 26	2404	548	68	601
Canedy, Thomas J. (See Pinkham, Almeda A., assignor.)	604,721	May 31	3763	863	68	1380
Canfield, Robert H., Corning, N. Y. Back-pedaling brake	608,991	May 10	1345	308	68	878
Canning, Alexander H., Toronto, Canada. Tea-packing machine						
Cannon, Frank A., Denver, Colo. Cable-stringer	605,995	June 21	1768	405	68	1734
Cantril, Theodric N. (See Fairbank and Cantril.)						
Cardarelli, Emilio, Boston, Mass. Combined step and extension ladder	608,373	May 3	222	49	68	643
Carder, Joshua W., assignor to S. J. Carder, Fort Worth, Tex. Hook and bushing for same.						
Carder, Sabina J. (See Carder, Joshua W., assignor.)						
Cardis, Frank C., *et al.* (See Reid and McDonnell, assignors.)						
Carey, Charles S., *et al.* (See Boyd, George E., assignor.)	608,940	May 10	1264	268	68	662
Carkin, Charles S., Hinsdale, N. H. Hanger for harness	608,519	June 28	2733	631	68	1961
Carleton, Cyrus. (See Willcox, Carleton, and Bowton.)	601,944	Apr. 5	666	133	68	120
Carley, William P., and W. T. Richards, Camden, N. J. Belt-clamp	605,245	June 7	350	80	68	1418
Carlisle, John M., Spartanburg, S. C. Corn-husker						
Carlton, Harvey B., Rochester, N. Y. Photographic finder	604,018	May 17	1451	335	68	823
Carmichael, Henry, Malden, Mass. Method of and apparatus for charging liquids with gas	605,537	June 14	868	.....	68	1389
Carmichael, Joseph B., Bonita, Tex. Insecticide						
Carnahan, Charles S. (See Carnahan, Louis K. and C. S.)	605,552	June 21	1402	{ 941 / 942	68	1473
Carnahan, Louis K. and C. S., McLouth, Kans. Rotary steam-engine						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Carnegie Steel Company. (See Weber, Peter M., assignor.)						
Carnes, John, and C. W. McKibben, Lima, Ohio. Gas-engine	603,125	Apr. 26	2065	605	88	551
Carney, James L., Brooklyn, N. Y. Clasp	605,319	June 7	305	70	88	1409
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	606,188	June 28	2128	490	88	1812
Caroll, Heinrich, Lahr, Germany. Belt	604,266	May 17	1907	440	88	1082
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Charles W., *et al.* (See Sheldon, Edward P., assignor.)	606,518	June 28	2734	681	88	1982
Carpenter, Jesse F., Washington, D. C. Valve for air-brakes	603,523	May 3	598	116	88	702
Carr, William H., and J. G. Wolf, New York, N. Y. Placket-protector and skirt-supporter	606,514	June 28	2736	682	88	1982
Carraway, Davis S. (See Cameron and Carraway.)						
Carrier, William H., Adrian, Mich. Desk attachment	602,824	Apr. 26	2150	488	88	458
Carroll, Charles P., and J. I. Gorman, Cleveland, Ohio. Flushing-tank for water-closets	604,019	May 17	1458	325	88	993
Carroll, John T., *et al.* (See Fader, Silas, assignor.)	603,220	June 7	206	70	88	1409
Carroll, Patrick J., P. C. Fenton, L. Kline, and L. B. Seltzer, Shenandoah, Pa. Stove-pipe-lock	604,722	May 31	2764	638	88	1320
Carter, James B., Culpeper, Va. Fodder-compressor	605,996	June 21	1770	406	88	1735
Carter, Jessee M., Bowie, Tex. Return-envelop	606,120	June 21	2006	460	88	1770
Carter, John R., Cincinnati, Ohio. Journal and bearing						
Carter, Robert, Jonesville, Mich. Wire-fence machine	605,077	June 7	16	5	88	1356
Carter, Samuel. (See Hipwell, Daniel E., assignor.)	603,941	May 10	1265	293	88	299
Carter, William S., Lebanon, N. H. Hunting-coat						
Cartwright, Aaron S., Birmingham, England. Tire-valve	604,935	May 31	2153	725	88	1296
Cartwright, Alonzo H., Amy, Wis. Combination potato-masher, kettle-cleaner, and vegetable-fork	604,603	May 24	2540	579	88	1159
Caruthers, John I., Ingleside, Tex. Saw	603,256	May 3	28	6	88	604
Carver, George W., Brookline, Mass. Box	604,209	May 17	1906	441	88	1078
Carver, Thomas A. B., London, England. Jacquard mechanism for looms	604,723	May 31	2765	682	88	1320
Carver, Walter S., Bloomfield, N. J. Double envelop	604,020	May 17	1453	325	88	993
Carver, William F., Chicago, Ill. Stage appliance	605,997	June 21	1771	406	88	1735
Casalonga, Dominique A., Paris, France. Steam-generator						
Cascaden, Thomas, Jr., assignor to Davis Gasoline Engine Works Company, Waterloo, Iowa. Grinding-mill	604,853	May 31	2669	681	88	1320
Case, Charles R., Allen's Hill, N. Y. Sliding-door fixture	602,727	Apr. 19	1970	447	88	404
Case, Charles R., Allen's Hill, N. Y. Sliding-door latch	602,728	Apr. 19	1973	448	88	404
Case, Charles R., Allen's Hill, N. Y. Sliding-door fixture	602,729	Apr. 19	1973	448	88	404
Case, Charles R., Allen's Hill, N. Y. Bicycle fork-head	604,724	May 31	2766	682	88	1321
Case, Frank B., assignor to E. C. Stearns & Co., Syracuse, N. Y. Bicycle fork-head	604,854	May 31	2973	681 682	88	1320
Case, Henry J., Owasco, assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Spring-tooth harrow	601,798	Apr. 5	201	39, 40	88	40
Case, John M., Cincinnati, Ohio. Scouring, disintegrating, and separating machine	602,655	Apr. 19	1895	419	88	377
Casey, James J., Holyoke, Mass. Vehicle running-gear	602,925	Apr. 26	2151	488	88	458
Casey, John, and M. S. Chism, Philadelphia, Pa. Spectacle or eyeglass case						
Casgrain, Louis A., Winchester, assignor to J. W. Brooks, Peterahem, and F. F. Stanley, Swampscott, Mass, trustees. Work-support for nailing-machines	603,045	June 21	1866	490	88	1741
Cash, Joseph, *et al.* (See Steward, George B., assignor.)	604,488	May 24	2242	531	88	1121
Cashmore, William, Birmingham, England. Breech-loading firearm	602,695	Apr. 19	1919	427	88	388
Casolin, Peter, New York, N. Y. Musical instrument	604,725	May 31	2767	682	88	1321
Cassanova, Edgar, New Orleans, La. Brushing or combing machine	605,573	June 28	2810	685	88	1545
Cassel, Harry E., Philadelphia, Pa. Staircase for dwellings	602,553	Apr. 19	1861	377	88	345
Casselberry, William H., Williamsport, Pa. Window-screen	603,891	May 10	1185	266	88	946
Cassella & Co., Leopold. (See Jacobson and Tigges, assignors.)						
Cassil, Philip W., Garner, Iowa. Screw	604,187	May 17	1766	393	88	994
Castle, William H., Weedsport, N. Y., assignor of one-half to Geneva Cycle Company, Geneva, Ohio. Bicycle	606,121	June 21	2007	460	88	1770
Castner, George L., Brownsville, Tenn. Apparatus for playing duplicate games of cards	601,689	Apr. 5	9	2	88	4
Castor, Charles, Princeton, Ky. Combined spirit-level and grading instrument	603,497	May 3	470	104	88	691
Caswell, Daniel W., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Bicycle	603,440	May 3	348	76	88	695
Catanzano, Salvatore, and N. Taccone, Birmingham, Ala. Fire-escape	606,122	June 21	2011	460	88	1770
Catlin, William E., Glen Ellyn, Ill. Necktie-fastener	602,850	Apr. 26	2249	512	88	473
Catterall, John, New Bedford, Mass. Loom-fork	605,853	June 21	1497	348 348	88	1074
Caude, Achille, Carbes, France. Machine for vending lighted cigars or cigarettes	602,826	Apr. 26	2152	488	88	458
Cavanagh, James. (See Holland, Frank, assignor.)						
Cave, George J., Elizabeth, N. J. Fastener for barrels, crates, &c	605,392	June 7	640	143	88	1474
Cavicchi, Hercules, Plattsburg, N. Y. Propelling means for bicycles or similar vehicles						
Celluloid Company. (See Harrison and Thurber, assignors.)						
Celluloid Company. (See Miller, Horace E., assignor.)						
Celluloid Company. (See Stevens, John H., assignor.)						
Celluloid Company. (See Wood and Stevens, assignors.)	603,087	Apr. 26	2508	567 568	88	519
Chace, John B., Orange, Mass. Woodworking machinery	602,208	Apr. 12	1249	273	88	250
Chadwick, George W., Chester, Pa. Heart-motion for spinning-machines	601,708	Apr. 5	186	37	88	39
Chafin, Edward L., Helena, Ark. Artificial denture	603,496	May 3	471	105	88	691
Challoner, Frank, Oshkosh, Wis. Cut-off machine	603,682	Apr. 19	1868	------	88	371
Chalmot, Guillaume de, Holcomb's Rock, Va. Obtaining free amorphous silicon	602,975	Apr. 26	2405	------	88	502
Chalmot, Guillaume de, Leaksville, N. C., assignor, by mesne assignments, to Willson Aluminum Company, New York, N. Y. Silicid of iron	602,976	Apr. 26	2407	------	88	502
Chalmot, Guillaume de, Holcomb's Rock, Va., assignor, by mesne assignments, to Willson Aluminum Company, New York, N. Y. Producing silicids of iron	604,653	May 24	2620	599	88	1174
Chaloner, Burt, and E. E. Lichtenberger, Anaconda, Colo. Flour-gold saver	602,804	Apr. 12	1243	273	88	250
Chamberland, Charles E., Paris, France. Filter	605,160	June 7	187	47	88	1366
Chambers Brothers Company. (See King, Howard K., assignor.)						
Chambers, Lansford, Bartlett, Iowa. Combined dirt roller and pulverizer	604,736	May 31	2769	682	88	1321
Chambliss, Lee R., assignor of one-half to C. B. Black, Langston, Okla. Ter. Vehicle-wheel	605,998	June 21	1773	406	88	1735
Champenois, Charles C., Newark, N. J. Button or stud	606,575	June 28	2801	681 682	88	1664
Chandler, Daniel L., Ayer, assignor to Spaulding Brothers Company, Townsend Harbor, Mass. Counter-cutting machine	601,945	Apr. 5	689	195	88	190
Chandler, James H., Boston, Mass. Invalid-table	604,578	May 31	2014	668	88	1208
Chandler & Price Company. (See Burnham, Frank A., assignor.)						
Chappius, Edward H., Marysville, Cal. Cycle-handle-bar fastening attachment	605,078	June 7	17	6	88	1356
Charles, Lorin E. (See Paige, James H., assignor.)						
Charlton, Charles H., Jr., and J. F., New Orleans, La. Nut-lock						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Charlton, John F. (See Charlton, Charles H., Jr., and J. F.)						
Charnock, John A., Cleveland, Ohio, assignor, by mesne assignments, to Shelby Steel Tube Company, Pittsburg, Pa. Tube-making machine	603,511	May 10	1090	229	88	818
Charron, Frank B., Fairhaven, Wash. Camp-stove	605,999	June 21	1774	407	88	1736
Chase, Arthur W., Fortress Monroe, Va. Protractor	601,690	Apr. 5	10	3	88	4
Chase & Co., L. C. (See Reynolds, James F., assignor.)						
Chase, Frank, Malden, Mass., assignor to W. Shaw, trustee. Sewing-machine	605,040	May 31	2282	754	88	1321
Chase, Frederick S., Waterbury, Conn. Basin-plug thimble	605,813	June 14	1895	318	88	1095
Chase, Henry A., Boston, Mass. Electric-railway system	605,814	June 14	1896	318 319	88	1095
Chase, Herbert E. (See Perry and Mitchell, assignors.)						
Chase, Jacob J., Newburyport, Mass. Magazine-camera	604,204	May 17	1796	405	88	1000
Chateau, Joseph D. C., Paris, France. Valve-controlling device for gas-burners	602,606	Apr. 19	1981	437	88	1096
Chatfield, Robert E., Sewardstone, England. Utilizing acid sulfates of soda	605,697	June 14	1178	------	88	1096
Chatwood, Samuel, London, and S. R. Chatwood, Bolton, England. Steam-engine	602,436	Apr. 19	1446	326	88	305
Chatwood, Samuel R. (See Chatwood, Samuel and S. R.)	602,804	Apr. 26	2249	513 513	88	473
Cheeseman, William E., Freehold, N. J. Transplanter						
Chemische Fabrik, vormals Sandos. (See Steiner, Arnold, assignor.)						
Chemische Fabrik auf Actien, vormals E. Schering. (See Hornheim, Alfred, assignor.)						
Chemische Fabrik von Heyden, Gesellschaft mit Beschränkter Haftung. (See Seifert, Bruno R., assignor.)	604,966	May 31	2154	725 726	88	1296
Chesterman, Wirt A., Richmond, Va. Portable swing	606,331	June 28	2424	561	88	1870
Chew, Edgar H. B., Philadelphia, Pa. Station-indicator						
Chicago Railway Equipment Company. (See Burgess, Luther C., assignor.)						
Chicago Railway Equipment Company. (See Huntoon, Charles F., assignor.)						
Chicago Railway Equipment Company. (See Robischung, Henry B., assignor.)						
Chicago Railway Equipment Company. (See Roblschung, John W., assignor.)	603,056	Apr. 12	807	174	88	164
Chicago Time Register Company. (See Deubner, John W., assignor.)	603,257	May 3	24	6	88	605
Chickering, Frank W., Cabot, Vt. Lifting-jack	604,877	May 31	2016	668	88	1309
Chickering, Frank W., Cabot, Vt. Whiffletree-coupling						
Chidsey, Charles A., Philadelphia, Pa. Cuff						
Child, Ada M. (See Jackson, Benjamin F., assignor.)	605,396	June 7	641	143	88	1475
Child, Linus M., *et al.* (See Guest, John H., assignor.)						
Childers, Frank, Wolf Creek, Ill. Fence	604,008	May 10	1412	316	88	995
Childs, Eugene, Boston, Mass., assignor to Trimont Manufacturing Company, Portland, Me. Rotary cutter for leather-work	604,009	May 10	1414	316	88	995
Childs, Eugene, assignor to E. O. Ely, Boston, Mass. Antifriction hub or wheel bearing						
Chillingworth, Rudolf, Nuremberg, Germany, assignor to Standard Weldless Tube and Cycle Components, Limited, London, England. Means for manufacturing wheel-hubs	606,046	June 21	1868	420	88	1742
Chimgar, Frank, Tower, Minn. Sewing-machine	604,737	May 31	2769	684	88	1321
Chism, Murray S. (See Casey and Chism.)	604,967	May 31	2155	726	88	1297
Chivert, Daniel H., Neuilly-sur-Seine, France. Acetylene-gas apparatus	606,574	June 28	2811	685	88	1848
Choate, Charles N., Greenville, assignor to American Harrow Company, Detroit, Mich. Seed-bag holder	606,576	June 28	2826	569	88	1895
Christenson, Anthon, assignor, by mesne assignments, to Anthon Christenson Belting Company, Chicago, Ill. Endless belt	604,300	May 17	1971	448	88	1069
Christenson, Valdemar, New York, N. Y. Cabinet-bath	603,053	Apr. 26	2526	574	88	294
Christensen, William G. (See Snyder and Christian.)	603,874	May 10	1158	260	88	840
Christiansen, Axel M., Chicago, Ill. Curtain-pole						
Christie, Louis C., San Francisco, Cal. Testing apparatus	606,021	June 28	2945	682	88	1979
Christl, Joseph V., assignor to Alling & Co., Newark, N. J. Combined picture-frame and match safe or receptacle	602,687	Apr. 26	2154	489	88	454
Christman, Edward T. Brennan, Jr., and L. W. Homire, assignors to Brennan & Co.	603,178	Apr. 26	2523	623	88	565
Southwestern Agricultural Works, Louisville, Ky. Seeding-machine	605,051	May 31	2306	758	88	1394
Christopherson, Arne, Canton, S. D. Disk-sharpener	603,999	June 7	405	93	88	1069
Christy, Henry A., Jackson, Mich. Bicycle-saddle	604,301	May 17	1972	448	88	1069
Church, Deane H., Newton, Mass. Watch-hand	604,296	May 17	1894	411	88	1006
Clabaugh, Kate A., Martinsburg, Pa. Dust-pan						
Clark, Mark B., Perry, N. Y. Folding box	606,515	June 28	2737	682	88	1982
Claflin, George D., Jr., Toledo, assignor to American Rail Joint and Manufacturing Company, Cleveland, Ohio. Rail-chair	601,946	Apr. 5	640	134	88	120
Clapham, George G., Roslyn, N. Y. Bicycle package-carrier	602,814	Apr. 19	2134	479	88	428
Clare, John H. J., assignor to L. H. Clare, Hammond, Ind. Hot-air attachment for heating-stoves	603,949	May 10	1267	298	88	809
Clare, Louis H. (See Clare, John H. J., assignor.)	604,968	May 31	2157	736 737	88	1307
Clarenbach, Eugen, Berlin, Germany. Apparatus for making fertilizers	606,000	June 21	1776	407	88	1736
Claret, Jean, and O. Vuilleumier, Paris, France. Automatic current-distributer for electric railways						
Clark, Alfred N., Athens, Mich. Tool-sharpener						
Clark, Daniel J. (See Eldridge, Clark, and Blum.)	603,198	Apr. 26	2067	605	88	559
Clark, Daniel J., *et al.* (See Clark, George G., assignor.)	604,746	Apr. 5	243	48	88	47
Clark, Edward H. G., Washington, D. C. Truss	605,999	June 14	1175	270	88	1093
Clark, Frank E., West Bend, Iowa. File-case	605,778	June 14	1827	304	88	1094
Clark, Fred D., Prattsburg, N. Y. Trellis						
Clark, Fred D., Prattsburg, N. Y. Trellis	602,815	Apr. 19	2125	480	88	432
Clark, George G., assignor to S. Blum, H. Eldridge, D. J. Clark, Galveston, and S. Lazarus, Sherman, Tex. Electric furnace	601,704	Apr. 5	187	37	88	39
Clark, George H., Boston, Mass. Machine for cutting tread-filling strips for wheel-tires	601,705	Apr. 5	189	38	88	39
Clark, George H., Boston, Mass. Pneumatic wheel-tire	604,919	May 31	2084	706	88	1295
Clark, George N., Dry Ridge, Ky. Buckle	603,676	May 10	794	175	88	773
Clark, George P., Windsor Locks, Conn. Stock-truck						
Clark, George W. (See Bahan, Walter W., assignor.)						
Clark, Jasper. (See Northcott, Lake, and Clark.)	605,970	June 7	409	93	88	1430
Clark, John A. (See Goodline and Clark.)	604,329	May 17	1973	449	88	1069
Clark, John M., Devall's Bluff, Ark. Metallic railway-tie	603,995	Apr. 26	2244	535	88	491
Clark, Leander, Greenville, Ohio. Wire-stretcher				605	88	559
Clark, Melville, Chicago, Ill. Pneumatic organ	603,187	Apr. 26	2068	606		
Clark, Melville, Chicago, Ill. Pneumatic organ	603,175	June 21	2108	494	88	1780
Clark, Melville, Chicago, Ill. Coupler for pneumatic organs	606,444	June 28	2823	605	88	1911
Clark, Melville, Chicago, Ill. Coupler for pneumatic organs	606,575	June 28	2811	685	88	1848
Clark, Mortimer J., Summitville, Colo. Combined watch-pocket and watch-guard	604,608	May 24	2702	617	88	1159
Clark, Theodore N., Toronto, Canada. Fountain-spittoon	604,738	May 31	2770	------	88	1322
Clarke, Edmund A. S., Chicago, Ill. Producing spiegel or similar metallic alloy						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clarke, George R., Montell. Tex., assignor to H. H. and A. Turner, Danbury, Conn. Pouncing-machine	602,977	Apr. 26	2408	548	83	808
Clarke, George R., Montell, Tex., assignor to H. H. and A. Turner, Danbury, Conn. Pouncing-machine	602,978	Apr. 26	2412	548	83	808
Clarke, George R., Montell, Tex., assignors to Pittsburgh Motor Vehicle Company, Pittsburg, Pa. Motor-vehicle	602,998	Apr. 19	1906	295	83	942
Clarke, Louis S., W. Morgan, and W. S. Gordon, assignors to Pittsburgh Motor Vehicle Company, Pittsburg, Pa. Motor-vehicle	601,997	Apr. 5	712	151	83	982
Clarke, Peete B., Mobile, Ala. Automatic scale for measuring material in bulk	604,021	May 17	1455	386	83	1294
Clarke, Robert, Brooklyn, N. Y. Apparatus for bending pipes	602,698	Apr. 26	2157	499	83	454
Clarke, William C., New York, N. Y., assignor to Acetylene Apparatus Manufacturing Company, of West Virginia. Apparatus for mixing air and gas	605,595	June 14	975	225	83	1560
Clarkin, P. Frank, Pontiac, Mich. Wire fence	602,697	Apr. 19	1923	.....	83	304
Classen, Alexander, Aix-la-Chapelle, Germany. Formaldehyde starch and making same. (See Roberts, Albert E., assignor.)						
Clauss, John H. (See Roberts, Albert E., assignor.)	604,949	May 17	2075	464 405	83	1053
Clavies, Emil, Chemnitz, assignor to Kunstweberei Clavies & Company, Leipsic, Germany. Making paper thread	604,950	May 17	2077	465	83	1053
Clavies, Emil, Chemnitz, assignor to Kunstweberei Clavies & Company, Leipsic, Germany. Apparatus for making yarn or thread from paper	604,654	May 24	2321	520	83	1175
Clawson, Richard E. (See Fisher, Thomas N., assignor.)						
Clawson, William H., Rob Roy, Ind. Device for contracting and expanding vehicle-rims	603,173	Apr. 26	2735	622	83	565
Clay, Henry, Fernwood, assignor to J. Johnson, trustee, Philadelphia, Pa. Motor	603,174	Apr. 26	2737	622	83	566
Clay, Henry, Fernwood, assignor to J. Slingluff, Norristown, Pa. Pneumatic-despatch tube	603,938	May 3	25	7	83	605
Clay, William H., Elizabeth, Ky. Gate	605,596	June 14	975	225	83	1560
Clayton, Henry H., Readville, Mass. Kite	601,747	Apr. 5	345	46	83	47
Cleave, John, Crediton, England. Candy-kettle	605,169	June 26	2134	480	83	1812
Clegg, David, Philadelphia, Pa. Apparatus for forming gas	603,209	Apr. 12	1068	227	83	217
Cleland, Darius, Oakland, Cal. Painter's roof-bracket	605,161	June 7	168	46	83	1393
Clement, Archie, and W. E. Wilkinson, Chicago, Ill. Nipple for nursing-bottles	603,135	Apr. 12	935	209	83	157
Clement, Trasimond, Thibodeaux, La. Fly-trap	605,507	June 14	979	225	83	1560
Clements, George R., Rock Creek, Minn. Saw-frame	601,681	Apr. 5	19	3	83	5
Clemm, William T. B., Pocahontas, Va. Lifting device	601,947	Apr. 5	941	134	83	120
Clemson, George N., Middletown, N. Y. Hack-saw	603,126	Apr. 26	2671	606	83	558
Clemson, George N., Middletown, N. Y. Hack-saw (See Cleveland, William F. and E. W.)						
Cleveland, Eugene W. (See Cleveland, William F. and E. W.)						
Cleveland Co-Operative Stove and Hollow Ware Foundry Company. (See Baldwin, William W., assignor.)	605,971	June 7	410	93	83	1430
Cleveland, Isham H., Union, Miss. Combination-lock						
Cleveland School Furniture Company. (See Hitzelberger and Spieth, assignors.)						
Cleveland School Furniture Company. (See Kennedy, Albert H., assignor.)						
Cleveland School Furniture Company. (See Wicke, Wilhelm, assignor.)	603,599	Apr. 12	1269	311 312	83	280
Cleveland, William F., and E. W., Rounthwaite, Canada. Steam-engine	601,632	Apr. 5	12	2	83	5
Cliff, Edward, Newark, N. J. Hose-reel	601,633	Apr. 5	15	4	83	5
Cliff, Edward, Newark, N. J. Hose-reel	603,057	Apr. 12	908	175 216	83	165 198
Cliff, Edward, Newark, N. J. Hose-reel	603,134	Apr. 12	935	217	83	198
Clifford, Charles C., Philadelphia, Pa. Adding-machine	603,943	May 10	1369	288 343	83	863
Clifford, Walter, London, England. Cycle-saddle	605,854	June 21	1496	344	83	1674
Cline, William, assignor to D. D. Good, J. J. Stewart, and J. Sondheimer, Lancaster, Pa. Elevator	605,668	June 14	1108	255	83	1568
Clinton Book Holder Company. (See Platt, Albert L., assignor.)	603,818	May 3	125	30	83	625
Close, John W., assignor of one-half to G. L. Lovejoy, Buffalo, N. Y. Lock-rail frog	605,894	June 7	643	144	83	1475
Clover, Howard E., Council Bluffs, Iowa. Oil-gas motor	604,208	May 24	2114	474	83	1060
Clowry, William H., Chicago, Ill. Air-brake	604,198	May 17	1671	375	83	974
Cloyes, James H., assignor to Staver Carriage Company, Chicago, Ill. Spring-seat	603,509	May 3	579	128	83	718
Clulee, Stephen J., Attleborough, Mass. Frameless spectacles or eyeglasses	603,584	May 3	598	116 117	83	708
Cluxton, James R., London, Ohio. Washboard	603,122	June 21	2012	451	83	1770
Coachman, James J., Rio Janeiro, Brasil. Electric dental-engine controller	605,079	June 7	18	6	83	1356
Coates, Clarence, Cliftondale, Mass. Combination shears and buttonhole-cutter	603,813	May 10	1082	250	83	816
Coates, John, Olive, Cal. Windmill						
Coates, Thomas, Youngstown, Ohio, assignor of one-half to J. Kenworthy, Pittsburg, Pa. Method of and apparatus for manufacturing tubing						
Costa, William T. (See Raymond and Lemley, assignors.)	602,487	Apr. 19	1440	328	83	305
Cockburn, George G., assignor to T. H. Brooks and W. H. Shepard, Cleveland, Ohio. Corner street-sign	605,598	June 14	980	226	83	1560
Cochran Company. (See Moxham, Arthur J., assignor.)						
Cochrane, Hayward, Chicago, Ill. Electric elevator	11,674	June 28	2976	690 691	83	1977
Cocker, Joseph N., West Devonport, Tasmania. Potato-harvester. (Reissue)	603,445	June 28	2934	686	83	1911
Cody, Robert D., Chicago, Ill. Lamp	605,295	June 7	645	144	83	1475
Coes, Zorester B. (See Haskins and Coes.)	601,895	Apr. 5	508	105	83	95
Coffey, John A., Anaconda, Mont. Marker for graves, lands, &c						
Coffin, Samuel, High Point, N. C. Shaft-hanger	602,573	Apr. 19	1094	255	83	350
Coggeshall, Robert D., assignor of three-fourths to J. D. Johnston, Newport, R. I. Door knocker and alarm	603,428	Apr. 19	1450	333 339	83	306
Coggins, Sarah J., Mount Morris, Ill. Ironing-table	603,976	June 28	2814	656	83	1849
Cogley, Marcus A., Croton, N. Y. Pot-ball holder	603,622	May 10	700	156 157	83	753
Cohnen, Bernhard, Grevenbroich, Germany. Apparatus for sizing and dressing hank-yarn	604,209	May 24	2114	475	83	1060
Coins, Francis J., Marshall, Tex. Protector for stay-bolts	605,855	June 21	1500	344	83	1675
Colborne, Oliver, Chicago, Ill. Vise						
Colby & Co. (See Hawes, Herbert E., assignor.)						
Colby, Melvin F. (See Baker and Colby.)						
Cole, A. D., *et al.* (See Hill, James A., assignor.)						
Cole, A. E., *et al.* (See Hill, James A., assignor.)	604,655	May 24	2325	600	83	1175
Cole, Ernest C., Council Bluffs, Iowa. Stove						
Cole, Frank E. (See Eltsroth, Forest W., assignor.)						
Cole, Thomas A., assignor to American Manufacturing Company, Indianapolis, Ind. Cigar-tip cutter	603,877	June 28	2908	682	83	1666
Cole, W. T., *et al.* (See Hill, James A., assignor.)						
Coleman, Clyde, assignor, by mesne assignments, of two-thirds to G. P. Jones, Chicago, Ill. Alarm system	606,405	June 28	2956	692	83	1804

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Coleman, Griffin B., and J. W. Duggan, Washington, D. C. Traveling contact for underground electric railways	603,678	Apr. 19	1890	430 431	83	866
Coleman, John P., Edgewood Park, assignor to Union Switch and Signal Company, Swissvale, Pa. Signal	604,203	May 17	1974	442	83	1033
Coleman, John P., Edgewood Park, assignor to Union Switch and Signal Company, Swissvale, Pa. Signal	604,204	May 17	1976	443	83	1034
Coler, Peter P., Chicago, Ill., assignor to McCormick Harvesting Machine Company. Cord-knotter for grain-binders	604,022	May 17	1456	326	83	934
Colgate, Arthur E., New York, assignor to Signal Control Company, Brooklyn, N. Y. Valve-controller	603,429	Apr. 19	1451	329	83	306
Colgate, Arthur E., New York, assignor to G. J. Schoeffel, Brooklyn, N. Y. Electrical valve-controlling device	605,197	June 7	251	59	83	1398
Collen, Robert, London, England. Machinery for manufacturing casks or barrels	605,516	June 28	2738	622 623	83	1983
Collier, Arthur, Goole, assignor to I. S. McDougall, Didsbury, England. Oil-extractor and feed-water purifier and heater	604,370	May 24	2115	475	83	1060
Collins, Charles, Los Angeles, Cal. Machine for forming springs	603,175	Apr. 26	2739	623	83	566
Collins, N. W., *et al.* (See Hopper, Thomas B., assignor.)	603,374	May 3	223	50	83	643
Colls, Clara. Beaconwood Burnt Green, England. Pneumatic tire	604,023	May 17	1456	327	83	934
Colorado Iron Works Company. (See Morcom, John H., assignor.)						
Colquhoun, James, Clifton, Ariz. Ter. Treating copper matte	606,446	June 28	2935	606	83	1912
Columbus Bicycle Company. (See Midgley, Thomas, assignor.)	602,127	Apr. 12	927	202	83	183
Commoss, Joseph T., New York, N. Y. Fumigator						
Comp, Charles A., Wilkinsburg, Pa. Sheet-music turner						
Compagnie Internationale des Procédés "Adolphe Seigle. (See Rambaud, Jean A., assignor.)	603,075	Apr. 26	2572	584	83	532
Compton, Edward F., Peoria, Ill. Glue-spreading machine	603,250	May 3	23	7	83	605
Compton, James E., Lynn, Mass. Wheel						
Conant, Frederick O. (See Smith, Frank W., assignor.)						
Conklin, Ray. (See La Fave, Joseph H., assignor.)						
Connell, James R., assignor, by mesne assignments, to League Cycle Manufacturing Company, Milwaukee, Wis. Bicycle	604,710	May 24	2732	624	83	1125
Conners, Timothy, Portland, Conn., assignor to American Stamping Company, New York, N. Y. Apparatus for shaping metal ware	601,825	Apr. 5	383	81	83	72
Connet, Ernest P., and F. A. Green, Seward, Nebr. Match-safe	605,856	June 21	1502	344	83	1675
Connor, Elizabeth T. (See Connor, Michael H., assignor.)						
Connor, Michael H., assignor, by mesne assignments, to E. T. Connor, Haverhill, Mass. Leather-staking machine	605,272	June 7	412	93	83	1430
Conrath, John, Chicago, Ill. Draft-rigging for railway-cars	606,447	June 28	2936	606 607	83	1912
Conroy, Frederick P. (See Hebaus, Joseph R., assignor.)						
Conroy, Philip J., *et al.* (See Hitchcock, Charles F., assignor.)	602,230	Apr. 12	1116	245	83	225
Conselyea, Ira W., Newark, N. J. Propelling mechanism for bicycles						
Consolidated & McKay Lasting Machine Company. (See Brock, Matthias, assignor.)						
Consolidated Rubber Works. (See Huestis, Frederick W., assignor.)				28		
Consolidated Rubber Works. (See Leigh, Richard A., assignor.)	601,706	Apr. 5	140	29 30 31	83	80
Converse, Francis B., Jr., Louisville, Ky. Type setting and justifying machine						
Converse, John H., *et al.* (See Austin, William L., assignor.)	604,894	May 31	3040	698	83	1274
Converse, Oliver E., St. Louis, Mo. Safe	606,047	June 21	1969	451	83	1743
Conway, Edward P., Southington, Conn. Axle-nut wrench	606,048	June 21	1970	451	83	1743
Conway, Thomas H., Detroit, Mich. Heating-stove						
Conway, William E., and E. A. Murray, Menominee, Wis.; said Murray assignor to said Conway. Cistern-cleaner	606,161	June 21	2060	479	83	1768
Cook, Alfred H., Jr., Joliet, Ill. File for prescriptions	604,108	May 17	1621	364	83	995
Cook, Daniel B., Superior, Wis., assignor to Cook Rotary Engine Company, of Wisconsin. Rotary engine	604,709	May 24	2729	622 624	83	1195
Cook, Egbert C., Oak Park, Ill. Tent-fastening	601,805	Apr. 5	343	70	83	24
Cook, Frederick W., Jr., San Antonio, Tex. Time-recorder	602,305	Apr. 12	1245	273	83	350
Cook, Horatio E., Lake City, Fla. Syringe	605,052	May 31	3305	759	83	1825
Cook, Leroy, assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. Wire-swaging machine	604,604	May 24	2541	570 580	83	1150
Cook, Oren F., San José, Cal. Means for lubricating shaft-bearings	603,260	May 3	29	7	83	606
Cook Rotary Engine Company. (See Cook, Daniel B., assignor.)	604,909	May 31	3160	727	83	1297
Cook, Samuel L., Jacksonville, Fla. Fireplace-grate						
Cook, Thomas W. G. (See Stern and Cook.)	604,871	May 24	2117	475	83	1061
Cook, William H., Ironwood, Mich. Collapsible and adjustable bicycle-handle						
Cook, William H., Winfred, S. D., assignor to Indiana Manufacturing Company, Indianapolis, Ind. Pneumatic stacker	603,503	May 3	633	141	83	724
Cooledge, Charles W. (See Frost, Souers, and Cooledge.)	604,729	May 31	2773	634	83	1292
Cooley, Joe H., Paris, Tex. Elevated electric car-line	605,622	June 28	2946	653	83	1972
Cooley, John F., assignor of one-half to W. R. Gray, Rochester, N. Y. Kite	602,595	Apr. 19	1732	394	83	357
Coombs, William E., San José, Cal. Device for folding toilet-paper	603,218	Apr. 26	2604	641	83	578
Coon, John D., Nathrop, Colo. Breech-loading firearm	605,857	June 21	1503	344	83	1676
Coon, Gustavus W., Herndon, Va., assignor to H. P. Holden, Washington, D. C. Fire extinguisher	601,948	Apr. 5	542	134	83	120
Coons, Alexander, Lakeview, N. J. Sash-fastener	603,802	May 10	1186	266	83	847
Coons, Warren E., Culpeper, Va. Index						
Cooper, Daniel M. (See Hagen and Cooper.)	603,261	May 3	30	8	83	606
Cooper, David P., Struthers, Ohio. Woodworking-machine						
Cooper, Edward W. (See Cooper, Louis and E. W.)	602,058	Apr. 12	810	175	83	165
Cooper, George F., Xenia, Ohio. Polishing-brush				144		
Cooper, John A., Summit, assignor of one-half to A. C. Savage, Adair, Iowa. Potato-planter	605,396	June 7	646	145	83	1476
Cooper, John W., Cherry Hill, N. J. Detachable shirt-bosom	604,970	May 31	3161	727	83	1297
Cooper, Louis and E. W., Coventry, England. Sprocket-wheel	605,443	June 7	795	168	83	1493
Cooper, William U., Shell Knob, Mo. Burglar-alarm	605,779	June 14	1329	304	83	1625
Copcutt, Frederick W., assignor of one-half to J. H. Raymond, Brooklyn, N. Y. Twine holder and take-up	603,129	Apr. 26	2673	606	83	553
Cope, Henry P., Detroit, Mich. Seat for water-closets	604,556	May 24	2420	500	83	1149
Copenhaver, Robert M., Black Rock, Ark. Fan attachment for rocking-chairs	604,519	May 24	2290	543	83	1130
Copp, David E., Woodstock, Va. Combined sprout-puller and wagon-jack	603,054	Apr. 26	2597	574	83	684
Corbett, Thomas W. (See Hogan, John J., assignor.)	606,448	June 28	2938	607	83	1912
Corbin, Oaky L., Columbus, Ohio. Sash-fastener	603,430	Apr. 19	1454	329	83	307
Corcoran, Patrick W., Forest, Ill. Weed-cutter attachment for cultivators						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Core, George M., Charlotte, N. C. Folding wagon-body	604,730	May 31	2775	634	88	1229
Corey, Fred B., Springfield, Mass. Steam-separator	606,190	June 28	2139	635	88	1813
Corkhill, Henry R., Jr., Rochester, N. Y. Machine for refolding paper tubes	605,053	May 31	2305	491	88	1235
Corkran, Willis J., Hambleton, Md. Can-labeling machine	606,049	June 21	1871	750	88	1745
Cormeny, Margaret M., Roseville, Pa. Pie or cake cooler	602,730	Apr. 19	1975	431	88	405
Cornaille, Fernand. (See Lebrun and Cornaille.)	602,231	Apr. 26	2657	446	88	584
Cornelius, James, Ridgewood, N. J. Tablet-machine	604,971	May 31	3162	647	88	1229
Cornelius, Louis A. (See Fry, John H., assignor.)	604,024	May 17	1459	728	88	1296
Cornwall, John B., assignor to Barnard & Leas Manufacturing Company, Moline, Ill. Packing-auger	604,731	May 31	2776	327	88	994
Corser, Edson J., Macedon, N. Y. Grain-drill	11,660	Apr. 19	2139	635	88	1223
Cory, Isaac, New Decatur, Ala. Duplex pencil-sharpener	601,634	Apr. 5	18	------	88	426
Cothias, Francis A., Ivry-Port, France. Alloy. (Reissue)	604,539	May 24	2461	4	88	6
Cotter, John F., and J. Tager, Kansas City, Mo. Cock or faucet				560	88	1142
Cottle, Kimball H., and R. C. Danly, assignors to F. B. Redington, Chicago, Ill. Sand-blast.						
Cotton, Frank A. (See Bradley and Cotton.)						
Cottrell, Charles P. (See Cottrell, Edgar H. and C. P.)	604,004	May 10	1415	316 317 318	88	996
Cottrell, Edgar H. and C. P., Stonington, Conn., assignors to C. B. Cottrell & Sons Company, Stonington, Conn., and New York, N. Y. Machine for cutting and folding paper.						
Coultas, James W., Chicago, Ill. Stand or chair base	602,677	May 10	796	175	88	772
Coulson, George A., and J. McCaw, Brockville, Canada. Counter-stool for stores	602,210	Apr. 12	1084	237	88	218
Coulson, William A., Moss Point, Miss. Sash-fastener	602,731	Apr. 19	1976	448 449	88	405
Coulter, Arthur W., London, England. Brush	602,431	Apr. 19	1454	330	88	307
Council, G. G. (See Paulen, Jacob W., assignor.)						
Countiss, Edmund W. (See Countiss, James H. and E. W.)	603,893	May 10	1186	268	88	847
Countiss, James H. and E. W., Camden, N. J. Ash-sifter						
Couper, James H. (See Bryan and Couper.)	605,307	June 7	650	145 146	88	1477
Couper, James H., assignor to Bryan Manufacturing Company, Baltimore, Md. Acetylene-gas generator	605,308	June 7	632	146	88	1477
Couper, James H., and T. A. Bryan, Baltimore, Md. Acetylene-gas generator	602,220	Apr. 26	2158	489	88	455
Couper, William P., Washington, D. C. Fountain-pen	603,994	May 10	1190	269	88	847
Court, John S., Memphis, Tenn. End-gate fastening	604,220	May 17	1836	411	88	1007
Cousin, Henri, Paris, France. Apparatus for manufacturing acetylene gas						
Couzineau, Henri E. (See Quesnoy, Etienne, assignor.)	604,605	May 24	2543	560	88	1159
Cousineau, Henri E., Lille, France. Machine for superposing cloths	602,623	May 10	708	157	88	753
Cowan, William E., Brooklyn, N. Y. Conduit-wiring machine						
Cowden, Thomas V., assignor to C. A. Plucker, Philadelphia, Pa. Tandem attachment for bicycles	605,699	June 14	1177	271	88	1597
Cowen, Martin, Bellaire, Ohio. Calendar	601,949	Apr. 5	643	134	88	120
Cowham, William F. (See Belden, Eugene H., assignor.)	604,955	May 31	2976	668 668	88	1260
Cowles, Arthur B., and F. S. Reynolds, Rochester, N. Y. Label-affixing machine	605,209	June 7	654	146 147	88	1477
Cowles, William B., Cleveland, Ohio. Hydraulic mechanism for closing bulkhead-doors						
Cowley, Edwin F. (See Steinacker and Cowley.)	602,206	Apr. 12	1246	274	88	251
Cowper-Coles, Sherard O., assignor to Reflector Syndicate, Limited, London, England. Manufacture of reflectors	602,608	Apr. 19	1924	437	88	394
Cox, Cary S., assignor to L. L. Gray, Fresno and Phoenix Raisin Seeding and Packing Company, Fresno county, Cal. Raisin-seeder	602,176	Apr. 26	2740	634	88	566
Cox, Henry M., Linden, assignor to International Automatic Car Coupler Company, San Joaquin county, Cal. Car-coupling	604,205	May 17	1977	443 444 445	88	1084
Cox, J. Harry, *et al.* (See Luce, Thomas C., assignor.)						
Cox, Paul F., assignor to Cox Type Setting Machine Company, Chicago, Ill. Machine for discarding leads, spaces, and quads from dead-matter						
Cox Type Setting Machine Company. (See Cox, Paul F., assignor.)	605,090	June 7	22	6	88	1257
Coxwell, Herrett I. (See Coxwell, John D., assignor.)						
Coxwell, John D., assignor to H. I. Coxwell, Augusta, Ga. Hay-press	604,560	May 24	2402	560	88	1143
Coyle, John. (See Krieger and Coyle.)				561		
Craig, James, and F. F. Slocomb, Wilmington, Del. Leather-staking machine	602,732	Apr. 19	1977	449	88	405
Craig, Warren H., Lawrence, Mass. Bicycle-saddle	606,194	June 21	2014	461 462	88	1770
Craig, Warren H., Lawrence, Mass. Bicycle-saddle						
Craig, William S., assignor to F. G. Libke and D. H. Brunjes, Chicago, Ill. Machine for labeling cans	605,956	June 21	1504	345	88	1676
Cram, Alonzo W., Haverhill, Mass. Water-closet	605,780	June 14	1330	304	88	1695
Crambitt, Frank, Baltimore, Md. Reversible window-sash	603,478	May 3	423	95	88	668
Cramer, Frederick A., and J. A. Garman, Neenah, Wis. Railway-gate mechanism	602,615	Apr. 19	1764	402	88	363
Cramer, Zenas, Danube, N. Y. Tongs for stretching wires	605,081	June 7	23	7	88	1257
Crandall, Albert L., assignor to J. S. Lee, Rochester, N. Y. Thill-coupling	602,207	Apr. 19	1949	374	88	251
Crandall, Jesse A., assignor of one-half to J. Mocs, Brooklyn, N. Y. Combined hub cap and nut	604,913	May 31	3065	708	88	1269
Crane, Augustus S., Newark, N. J. Button	606,277	June 28	2314	536	88	1849
Crane, Benjamin C. (See Kellerman and Crane.)						
Crane, Peter B., *et al.* (See Shaft and Hays, assignors.)	605,089	June 7	24	7,8	88	1257
Craney, Thomas, Bay City, Mich. Salt-making apparatus	605,050	June 21	1876	432	88	1743
Cranford, William J., Asheville, N. C. Tire-tightener						
Cranor, Ottie, *et al.* (See Green, Casper, assignor.)	602,230	Apr. 26	2160	490	88	455
Cranshaw, S. Dabney. (See Harlan, Howard, assignor.)						
Craw, John W., New York, N. Y. Reversing device	605,573	June 14	932	216	88	1553
Crawford, Albert. (See Dutton and Crawford.)				509		
Crawford, Joseph S., New Kensington, Pa. Bicycle-support	604,457	May 24	2307	510	88	1109
Crebbin, Thomas, Bridgeport, Ala. Basket-making machine						
Cressman, Charles N. (See Berkemeyer, Ferdinand, assignor.)	602,553	May 3	573	127	88	712
Creson, Irving D., Crown Point, Ind. Bedclothes-holder	604,109	May 17	1681	364 365	88	905
Crichton, William B., Bradford, England. Steam or other fluid-pressure engine						
Crippen, Henry D. (See Jackson, Manetho C., assignor.)						
Crisler, Joseph L. (See Flesher and Crisler.)						
Critchfield, C. W., *et al.* (See Williams, Fillmore, assignor.)	604,205	May 17	1900	405	88	1000
Crobarger, George T., Newton, Kans. Cultivator-shovel						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Crocker, Eben C., assignor of one-half to E. C. Howe, Bridgeport, Conn. Electric railway	603,624	May 10	705	157 158	88	754
Crocker, Eben C., and E. C. Howe, Bridgeport, Conn. Electric railway	603,625	May 10	707	158	88	754
Crocker, Edward E., McKenzie, Tenn. Bicycle handle-bar	603,177	Apr. 26	2742	634	88	567
Crocker-Wheeler Electric Company. (See Dunn, Gano S., assignor.)	605,178	June 7	212	52	88	1391
Crockett, William W., Falls City, Nebr. Lawn-mower	605,400	June 7	665	147	88	1480
Crockett, William W., Falls City, Nebr. Cutter and holder for fruit, flowers, &c	602,895	Apr. 26	2252	513	88	473
Crofoot, Louis W., and F. E. Granger, Aberdeen, S. D. Electrical selector	603,499	May 3	474	105	88	668
Croft, George H. (See Talen and Croft.)						
Croftan, Alfred C., Chicago, Ill. Making plates for electric-battery purposes						
Crompton Company. (See Daymont, John B., assignor.)						
Crompton Company. (See Sherry, John W., assignor.)						
Crompton & Knowles Loom Works. (See Goodline and Clark, assignors.)						
Crompton & Knowles Loom Works. (See Hutchins, George F., assignor.)						
Crompton & Knowles Loom Works. (See Redding, William H., assignor.)						
Crompton & Knowles Loom Works. (See Wyman, Horace, assignor.)						
Crompton & Knowles Loom Works. (See Wyman and Redding, assignors.)						
Cronyn, J. L. C. (See Farrell, Michael, assignor.)	602,308	Apr. 12	1250	275	88	251
Crook, Thomas N., York, Pa. Safety-axle						
Crooker, William W., *et al.* (See Balcom, Charles, assignor.)						
Cropper, Lionel C. (See Poore, Richard, assignor.)	602,211	Apr. 12	1095	238	88	218
Crosby, Hanford T., Boston, Mass. Sole-rounding machine	602,979	Apr. 26	2415	550	88	508
Crosby, Hanford T., Boston, Mass. Machine for channeling soles of boots or shoes	602,980	Apr. 26	2417	550	88	508
Crosby, Hanford T., Boston, Mass. Sole-channeling and flap-turning machine						
Crosby, Hanford T., Boston, Mass. Sole-channeling and flap-turning machine						
Crosby Steam Gage and Valve Company. (See Wolfe, Frank L., assignor.)	604,906	May 17	1801	------	88	1000
Cross, Charles F., E. J. Bevan, and C. Beadle, London, England. Modification of cellulose and preparing same	601,826	Apr. 5	384	81	88	72
Cross, George W., Pittston, Pa. Vehicle-tire	602,554	Apr. 19	1662	378	88	345
Cross, William D., Climax, Kans. Corn-planter						
Crossley, Eliza A. (See Crossley, William G. and E. A.)	604,372	May 24	2118	476	88	1081
Crossley, William G. and E. A., Auckland, New Zealand. Vehicle-wheel						
Crowell Apparatus Company. (See Crowell, Melvin E., assignor.)						
Crowell, Charles E., Stella, and M. F. Gale, San Francisco, Cal.; said Gale assignor to said Crowell. Separator and concentrator	603,319	May 3	126	30	88	626
Crowell, John S., Springfield, Ohio. Molding-machine for confectioners' use	601,886	Apr. 5	509	105	88	96
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Means for protecting newspapers against resale	602,896	Apr. 26	2255	513 514	88	473
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Wrapping-machine	603,262	May 3	32	8, 9	88	606
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Wrapping-machine	603,585	May 3	619	138	88	721
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Wrapping-machine	603,602	May 3	650	145 146	88	726
Crowell, Melvin E., assignor to Crowell Apparatus Company, Indianapolis, Ind. Electrical apparatus for schools	603,675	May 10	1155	260 261	88	841
Crowell, William T. (See Harkness and Crowell.)	601,635	Apr. 5	21	5	88	6
Crowley, Jerry, Cokeleys, W. Va. Vehicle-coupling						
Crown Cork and Seal Company. (See Painter, William, assignor.)						
Cruickshank, James. (See Smith, Rudolph C., assignor.)						
Crumbaker, Fred R., Mendon, assignor of one-half to H. D. Cushman, Three Rivers, Mich. Steam vacuum-pump	602,498	Apr. 19	1564	356	88	297
Cruz, Alphonse, Paris, France. Lubricating apparatus	603,155	Apr. 19	994	217	88	200
Cruzan, Newton A., Decatur, Ill. Shoveling-board	601,636	Apr. 5	23	5	88	6
Cryer, Arthur, and E. C. Newby, Cardiff, England. Excavating machinery	602,309	Apr. 12	1251	275 276	88	252
Cubbedge, Laurence L., Guyton, Ga. Automatic alarm for protecting crops, &c	606,517	June 28	2741	633	88	1988
Cudahy Packing Company. (See Cameron and Carraway, assignors.)						
Cudey, Albert L., Brosville, France. Elastic wheel-tire	603,726	May 10	874	194	88	787
Culbreath, Thomas S., Antrim, Kans. Threshing-machine	606,125	June 21	2017	469	88	1771
Culver, Ellis, Huntington, Ind. Strainer and filter for conductor-pipes	603,554	May 3	574	127	88	712
Cumberland Iron and Steel Shafting Company. (See Muncaster, Walter J., assignor.)						
Cummings, Charles, Oakland, assignor to Pneumatic Power Company, San Francisco, Cal. Governor for air-compressors	603,435	May 3	314	71	88	660
Cummings, George W. (See Thomas and Hamilton, assignors.)	601,789	Apr. 5	330	63 64 65	88	61
Cummings, Harry H., Dobbs Ferry, N. Y. Stone-sawing machine						
Cummings, Mellroy E. (See Campbell and Cummings.)	606,332	June 28	2427	561	88	1671
Cummins, Emsley H., Bluffton, Ind. Wrapper-covering	606,051	June 21	1877	432 433	88	1744
Cunningham, Albert, Milwaukee, Wis., assignor to Filer & Stowell Company, of Wisconsin. Drag-saw	605,401	June 7	666	148	88	1481
Cunningham, Chester M., Peora, W. Va. Box-fastener	605,387	June 7	486	98	88	1435
Cunningham, James E., Worcester, Mass. Car-coupling						
Cunningham, Michael F. (See McGrath, Patrick H., assignor.)						
Cunningham, Michael G., assignor of one-half to C. D. Woodruff, Bridgeport, Conn. Gas water-heater	606,126	June 21	2018	462	88	1771
Cunningham, Porteus R., and C. H. Howland-Sherman, Washington, D. C. Invertible fluid-battery	602,616	Apr. 19	1765	403 404	88	364
Cupples, Andrew M. (See Harris, Cupples, and McCann.)	602,178	Apr. 12	1088	235	88	207
Cureaw, Emile L. A., East Orange, N. J. Socket-bolt	605,859	June 21	1507	345	88	1676
Curley, Thomas. (See Metz and Curley.)						
Curran, Peter, assignor of one-half to P. Barrall, Nanticoke, Pa. Nut-lock						
Currie, Herman, *et al.* (See Leask, John and T. W., assignors.)						
Currie, Stanley C. C., Montreal, Canada, assignor to himself, and E. N. Dickerson, New York, N. Y. Treating metallic ores	604,167	May 17	1721	------	88	994
Currier, Alfred, assignor of one-half to W. P. Putnam, Grand Rapids, Mich. Fastening device	601,998	Apr. 5	715	151	88	135
Curry, Merritt H., North Pomona, Cal. Wrench	603,178	Apr. 26	2743	634	88	567
Curry, William J. (See Arnold and Kell, assignors.)						
Curtin, Cornelius J., Newark, N. J. Making slag cement	605,278	June 28	2317	------	88	1820
Curtice, Jesse M., Kansas City, Mo. Kitchen-safe	603,733	Apr. 19	1979	449	88	405
Curtis, Charles. (See Dodge, Orestes B., assignor.)						
Curtis, Charles L., assignor to F. Strauss, New York, N. Y. Harmonica	605,082	June 7	26	8	88	1388
Curtis, Edmund A., Chicago, Ill. Equalizer for car-trucks	603,055	Apr. 26	2269	575	88	894
Cushman, Henry D. (See Crumbaker, Fred R., assignor.)						
Custer, Albert W., New Whatcom, Wash. Cake-beater	601,887	Apr. 5	510	105	88	96

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cutler, Daniel R., Searsburg, Vt. Combined table and game-counter	601,637	Apr. 5	25	5	68	7
Cutler, Henry H., Chicago, Ill. Time-limit cut-out	608,594	May 3	634	141 142	68	795
Cutler, James L., assignor of one-half to E. Gooder, Cincinnati, Ohio. Telegraph instrument	606,449	June 28	2689	607	68	1913
D. M. Osborne & Company. (See Sharp, Charles S., assignor.)						
D'Auria Pumping Engine Company. (See Auria, Luigi d', assignor.)	602,897	Apr. 26	2258	514	66	473
Daboll, Nathan D., Plainfield, N. J. Shoe dip and polisher	604,561	May 24	2466	561	68	1144
Dade, Harry E., New York, N. Y. Temporary binder and lock	606,376	June 28	2510	583	68	1866
Dages, Jules N., Paris, France. Elastic tire	601,827	Apr. 5	365	61	68	72
Dahlberg, Gustaf A., New Sweden, Minn. Hand-cart	605,408	June 7	667	146	68	1461
Dailey, Parley A., Brooklyn, N. Y. Stay and fastener	601,707	Apr. 5	161	31	68	33
Dainton, John J., Chicago, Ill. Rail-bond	605,084	June 7	27	8	68	1356
Dale, Bert, Milwaukee, Wis. Inlet-valve for flush-tanks	602,617	Apr. 19	1771	404	68	995
Dale, Charles H., assignor to J. L. Dale, New York, N. Y. Hose-nipple						
Dale, Jennie L. (See Dale, Charles H., assignor.)	604,732	May 31	2777	685	68	1223
Dallas, Charles R., Pittsburg, Pa. Valve	606,518	June 28	2744	633	68	1934
Dallas, Madison, New Orleans, La. Back-band buckle for trace-carriers	606,379	June 28	2511	583	68	1866
Dallinger, Philip, New York, N. Y. Fireproof mask	605,631	June 14	1055	243 243	68	1573
Dallmann, Erich, assignor to Firm of I. Gansel, Neusalz, Germany. Electrically driven and moved plow	608,906	May 3	906	30	68	651
Dalmer, Arthur, Kiel, Germany. Bow-facing oar	602,574	Apr. 19	1694	365	68	950
Dalton, Thomas J., Boston, Mass. Chair	601,709	Apr. 5	283	56	68	54
Daly, William J., Rankin, Pa. Pillow-block	608,944	May 10	1270	259	68	963
Daly, William M., Philadelphia, Pa. Ledger-index	604,188	May 17	1709	396	68	994
Daly, William M., Philadelphia, Pa. Duplicate-whist board						
Daman, Charles N., Syracuse, N. Y. (See Green, George S., assignor.)	602,831	Apr. 26	2161	490	68	455
Dangler, David A. (See Hall, George A., assignor.)						
Daniels, Lewis S., Cleveland, Ohio. Heating-boiler						
Daniels, Mary M. (See Daniels, Samuel B. and M. M.)	606,813	May 10	1094	220	68	818
Daniels, Robert E., assignor of one-half to H. Huffstot, Youngstown, Ohio. Machine for shearing and bending metal	606,519	June 28	2745	634	68	1934
Daniels, Samuel B. and M. M., Harvey, Ill. Burglar-alarm	604,733	May 31	2779	696 696	68	1223
Daniels, William H., New York, assignor to L. Prange, Brooklyn, N. Y. Kinetographic cameras	605,065	June 7	26	8, 9	68	1358
Danielsen, Wilhelm G., and W. Merrill, Richmond, Utah; said Merrill assignor to said Danielsen. Sulky-plow	606,066	June 7	30	9, 10	68	1358
Danly, Robert C. (See Cottle and Danly.)						
Darby, Sidney C. (See Darby, Thomas A. and S. C.)						
Darby, Thomas A. and S. C., London, England. Implement for digging or cultivating land.	606,086	June 7	30	9, 10	68	1358
Darby, William H., assignor.)						
Daring, Dorr. (See Kimball, William H., assignor.)	608,361	May 3	199		68	640
Darling, James D., assignor to Harrison Bros. & Company, Incorporated, Philadelphia, Pa. Making peroxid of lead for galvanic batteries	608,585	May 3	322	117	68	703
Darmancier, Michel, St. Chamond, France. Shrapnel projectile	605,580	June 28	2747	634	68	1934
Darrah, Robert T., Philadelphia, Pa. Revolving coal chute and crib						
Darwin, George C. (See Raymond, Billings H., assignor.)	602,883	Apr. 26	2162	490	68	455
Dash, William L., London, England. Instrument for preventing deposit on interiors of kettles, &c.	604,206	May 17	1984	445 446	68	1085
Davenport, William S., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Metal-screw machine	605,221	June 7	308	70	68	1410
David, Theophilis, Corunna, Canada. Grappling-hook	605,087	June 7	29	10	68	1359
Davidsen, Meyer, Paris, France. Centrifugal machine	605,474	June 14	770	176 177	68	1521
Davidson, James A., Millsap, Tex. Bridge construction	608,052	June 21	1861	433	68	1745
Davidson, John, Holkham, England. Animal-trap	605,947	June 21	1676	388	68	1706
Davies, Charles W. T., assignor of one-half to S. L. Harris, San Francisco, Cal. Necktie.	608,268	May 3	201	46	68	640
Davies Motor Company. (See Langdon-Davies, Walter, assignor.)	608,555	May 3	575	127	68	712
Davies, William O., Jr., Chicago, Ill. Car-door fastening	601,950	Apr. 5	644	135	68	121
Davis, Abram B., Jersey City, N. J. Whistle						
Davis, Albert W., Harvey, Ill. Washing-machine	605,408	June 7	668	148	68	1461
Davis, Charles A., Pasadena, and E. L. Townsend, Los Angeles, Cal.; said Townsend assignor to said Davis. Dental bridgework	605,668	June 14	1110	255 256	68	1584
Davis, Charles H., New York, N. Y. Electric railway						
Davis, Charles H., New York, N. Y. Combined train arresting and signaling mechanism for electric railways	605,664	June 14	1113	256	68	1584
Davis, Charles H., New York, N. Y. Railway signaling system	606,450	June 28	2641	607 608	68	1913
Davis, Christopher C., Napanoch, N. Y. Hair-tie button	608,690	Apr. 19	1927	437	68	995
Davis, Decatur W., *et al.* (See Brown, Charles M., assignor.)						
Davis, Edward, Philadelphia, Pa., and H. R. Mustard, Smyrna, Del. Process of and apparatus for electrolytic tanning	608,263	May 3	36	10	68	608
Davis, Elwin W., Geneva, Minn. Roller-bearing	608,586	May 3	694	189	68	723
Davis, Emry, New York, N. Y. Inkstand	605,177	June 7	213	53	68	1391
Davis, Ezekiel F. C., assignor to Richmond Locomotive and Machine Works, Richmond, Va. Compound-engine valve device	608,441	May 3	344	77	68	666
Davis Gasoline Engine Works Company. (See Cascaden, Thomas, Jr., assignor.)						
Davis Gasoline Engine Works Company. (See Davis, William F., assignor.)	606,279	June 28	2318	536 537	68	1850
Davis, George H., New York, N. Y. Electromechanical musical instrument	605,860	June 21	1508	345	68	1676
Davis, Granville, assignor of one-half to D. D. Thomson, North Salem, Ind. Gate	608,886	May 10	1066	242	68	887
Davis, Granville, North Salem, Ind., and J. M. Davis, Henry, Ill., assignors of one-third to D. D. Thomson, North Salem, Ind. Vehicle-wrench						
Davis, Henry F., *et al.* (See Parkhurst, Edward B., assignor.)						
Davis, James M. (See Davis, Granville and J. M.)						
Davis, Jenkin P., Ludlow, Ky., assignor to Warner Elevator Manufacturing Company, Cincinnati, Ohio. Valve for hydraulic elevators	604,220	May 17	1887	412	68	1007
Davis, John A., Desert Lake, assignor of two-thirds to G. Ipson, Huntington, H. Wade, and E. Miller, Castle Gate, Utah. Rotary sickle for mowing and reaping machines	604,189	May 17	1770	399	68	994
Davis, John E., Washington, N. J. Organ	605,404	June 7	669	149	68	1461
Davis, John G. J., Augusta, Ga. Swing	602,432	Apr. 19	1455	330	68	907
Davis, Martin V. (See Payne, Lewis A., assignor.)	606,521	June 28	2749	635	68	1935
Davis, Nathan M., Ferguson, Iowa. Rein-holder						
Davis, Robert L. (See Davis, William J. and R. L.)						
Davis & Roesch Temperature Controlling Company. (See Roesch, Alfred, assignor.)	601,951	Apr. 5	646	135 136	68	121
Davis, Warren B., Brooklyn, N. Y. Kinetographic camera						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Davis, Wilbur G., Concord, Mass. Vehicle-shaft	605,682	June 14	1057	243 244	68	1573
Davis, William F., assignor to Davis Gasoline Engine Works Company, Waterloo, Iowa. Water-jacket for cylinders of engines	605,405	June 7	670	149	68	1461
Davis, William J. and R. L., Hiddenite, N. C. Coffee-roaster	608,555	Apr. 19	1664	378	68	845
Davis, William P., Warren, and H. J. Alexander, Huntington county, Ind. Swinging gate	604,110	May 17	1695	365 366	68	995
Davison, Charles W., assignor to F. P. Lane, Minneapolis, Minn. Protective seal for bicycles	605,054	May 31	3307	750	68	1395
Davison, George B., assignor to Eureka Mower Co., Utica, N. Y. Planter	601,870	Apr. 5	484	99 100	68	90
Davison, William F., Richmond, Va. Tooth-fillings	608,179	Apr. 26	2744	634	68	567
Davy, Alfred, and J. Edey, London, England. Grate for steam-boilers	606,191	June 28	2140	491	68	1813
Dawson, Arthur T., Sheffield, England. Mounting for disappearing guns	605,450	June 7	750	171	68	1497
Day, Henry L., Minneapolis, Minn. Fuel-feeder	608,076	Apr. 26	2574	584	68	583
Day, Henry L., Minneapolis, Minn. Fuel-feeder	608,077	Apr. 26	2576	584 585	68	583
Day, John, Logansport, Ind. Tether	601,952	Apr. 5	648	136	68	122
Day, John H., Cincinnati, Ohio. Mixing-machine	604,734	May 31	2781	696	68	1223
Day, Willard G., and R. M. Glacken, assignors of one-third to T. A. Bryan, Baltimore, Md. Treating oils and fats	604,807	May 17	1991	447	68	1087
Dayfoot, John B., Cambridge, assignor to Ivers & Pond Piano Company, Boston, Mass. Apparatus for tuning pianos	602,499	Apr. 19	1566	356	68	898
Dayhoff, William C., assignor of one-half to D. H. Paddock, Kankakee, Ill. Adjustable handle-bar for bicycles	606,192	June 28	2141	491	68	1813
Daymont, John B., assignor to Crompton Company, Crompton, R. I. Weft-pile-cutting machine	606,406	June 28	2557	502 503	68	1905
Dayton, George E. (See Hall, George A., assignor.)						
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)	601,638	Apr. 5	35	6	68	7
Dayton, Russell A., Burton Station, Ohio. Sand-line spool	604,489	May 24	2343	531	68	1121
De Lany, Edwin H., Cleveland, Tenn. Steam-actuated valve						
De Lue, Clarence E. (See Lorens and De Lue.)	603,130	Apr. 26	2674	606 607	68	554
De Man, Alphonse, Detroit, Mich. Fire-resisting wooden stairs	608,442	May 3	345	77	68	666
De Man, Alphonse, Detroit, Mich. Fire-resisting frame and door	601,790	Apr. 5	324	65	68	61
De Naeyer, Louis, Willebroek, Belgium. Water-tube steam-generator	602,128	Apr. 12	926	203	68	186
De Witt, Alexander A., New York, N. Y. Automatic lubricator	601,888	Apr. 5	511	105	68	99
Déacon, Albert E., Chicago, Ill. Gas-washing apparatus	605,308	June 7	478	107	68	1443
Deacon, Percy W., and A. Timpe, Manchester, England. Cyclist's pouch						
Dean, Albert E. (See Salisbury and Dean.)						
Dean, Albert E. (See Taylor, Salisbury, and Dean.)	604,308	May 17	1904	447	68	1087
Dean, John W., Winchester, Ky. Gate-operating mechanism						
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Telephone-exchange system	606,162	June 21	2081	479	68	1788
Deane, Herbert C., Fitchburg, Mass. Transfer-truck	605,163	June 7	686	48	68	1396
Decker, Ward, Owego, N. Y. Automatic telephone-exchange	604,373	May 24	2119	476	68	1051
Deckert, Thomas H., Forsyth, Mont. Musical instrument	605,041	May 31	3285	754	68	1321
Dederick, Peter K., Loudonville, N. Y. Baling-press	602,264	May 3	88	10	68	603
Dederick, Peter K., Loudonville, N. Y. Baling-press	605,278	June 7	413	98	68	1430
Deegan, Daniel J., assignor of one-half to C. E. Sanford, Bridgeport, Conn. Printer's chase	602,079	Apr. 19	1602	431	68	896
Deere & Mansur Company. (See Waterman, Lewis E., assignor.)						
Deering Harvester Company. (See Butterfield, William, assignor.)						
Defiance Machine Works. (See Seymour, Charles, assignor.)	608,556	May 3	577	127 128	68	719
Degen, Otto W., New York, N. Y. Furnace and liquid-fuel burner	606,053	June 21	1663	433	68	1745
Dehnel, Louis O., Sandusky, Ohio. Relief-valve						
Deldrick, James C. (See Bebout and Brandon, assignors.)						
Dell, James G. (See Wright and Dell.)	605,599	June 14	983	228	68	1561
Deller, Joseph, Napoleon, Ind. Automatic railway-switch	603,006	Apr. 26	2457	559	68	511
Demarest, David T., Alexandria, Va. Bicycle						
Dempsey, James J., assignor of one-half to A. G. Laubenstein, Hartford, Wis. Angling device	605,538	June 14	864	203	68	1589
Demuth, Robert, assignor to Farbenfabriken, vormals Fr. Bayer & Co., New York, N. Y. Brown sulfur dye	603,755	May 10	919		68	796
Demuth, Robert, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Yellow-brown cotton-dye	606,193	June 28	2142		68	1814
Denby, Jonas, Bingley, England. Stop mechanism for combing-machines	604,856	May 31	2964	684 685	68	1208
Denham, Howard W., assignor of one-half to H. B. Lloyd, Brouson, Fla. Sash-holder	603,783	May 10	978	217	68	606
Denham, John E., Stanberry, Mo. Shearing and punching machine	606,194	June 28	2143	492	68	1814
Denison, Hugh W., Gebhart's, assignor of one-half to J. C. Lowry, Somerset, Pa. Wire-fence tool	604,972	May 31	3164	728	68	1208
Denison, James R. (See Boyes and Denison.)						
Denmead, John W. (See Palmer and Denmead.)						
Dennis, Seba S., and T. F. Thorn, assignors of one-half to H. S. Dixson, Edina, Mo. Cutting apparatus for mowers	602,734	Apr. 19	1982	450	68	405
Deputy, Elijah E., Milford, Del. Safety-razor	605,274	June 7	416	94	68	1431
Deragon, Ernest J., Fitchburg, Mass. Clothes-hanger	605,633	June 14	1059	244	68	1574
Derbyshire, James, *et al.* (See Ashton, Orrell, assignor.)						
Deroy, Henri A., Paris, France. Apparatus for producing acetylene gas	604,025	May 17	1460	327	68	995
Dery, Louis, assignor of one-fourth to P. Nase, Montpelier, N. D. Feed-water regulator	606,195	June 28	2145	492	68	1814
Desbain, Antoine, assignor to W. J. Lewis, Montreal, Canada. Brake	605,589	June 14	805	203	68	1589
Dessolle, Emile L., Epinay-sur-Seine, France. Process of and apparatus for electrodepositing	602,212	Apr. 12	1089	230	68	219
Dethlefs, Marx C., Willow, Cal. Hillside cultivator or plow	606,001	June 21	1777	407 408	68	1795
Detwiler, Ellen, Ironbridge, Pa. Veil-holder	602,483	Apr. 19	1457	331	68	907
Detwiler, Ulysses G., Altoona, Pa. Coupling-releasing mechanism	608,880	May 10	1088	243	68	887
Deubner, John W., assignor to Chicago Time Register Company, Chicago, Ill. Time-recorder	608,220	May 3	120	31, 32	68	627
Deuther, Lorens A., Buffalo, N. Y. Sawing-machine	605,406	June 7	672	149	68	1462
Devendorf, Irving R., and C. L. Earl, Jr., Herkimer, N. Y. Hose-rack	604,281	May 17	1539	412	68	1007
Deveney, Eber W., Augusta, Ga. Cotton scraper and cultivator	605,687	June 14	1154	267	68	1596
Devine, Joseph E. (See Durham and Devine.)						
Dewease, Alva E., Quincy, Ohio. Grain-carrier	604,822	May 31	2915	667	68	1249

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dewey Corporation. (See Dewey, Mark W., assignor.)						
Dewey, Isaac H. (See Napier, Charles, assignor.)						
Dewey, Mark W., assignor to Dewey Corporation, Syracuse, N. Y. Incandescent electric lamp	608,056 606,280	Apr. 26 June 28	2530 2512	575 568	83 83	894 1666
Dewitt, Carl F., Berlin, Germany. Thermocauter						
Dewson, John A. (See Emdin and Dewson.)						
Dexter Folder Company. (See Dexter, Talbot C., assignor.)						
Dexter Folder Company. (See Dexter and Parker, assignors.)						
Dexter, Talbot C., Pearl River, N. Y. Paper assembling and stapling machine	608,816	Apr. 19	2128	480 481 482 483 484 485	83	438
Dexter, Talbot C., Pearl River, N. Y. Paper-feeding machine	605,088	June 7	33	11, 12	83	1359
Dexter, Talbot C., Pearl River, N. Y. Paper-feeding machine	605,089	June 7	37	12, 13	83	1360
Dexter, Talbot C., Pearl River, assignor to Dexter Folder Company, New York, N. Y. Paper-registering machine	608,808	Apr. 26	2260	514 515 516	83	474
Dexter, Talbot C., Pearl River, and J. J. Parker, Brooklyn, assignors to Dexter Folder Company, New York, N. Y. Paper-registering machine	605,975	June 7	417	94	83	1431
Dey, William, Golden Gate, Minn. Watering-trough	608,321	May 3	137	23	83	626
Deyo, Jacob. (See Grims, Henry L., assignor.)						
Dial, Wilbur F. (See Dimond and Dial.)	604,735	May 31	2783	636	83	1294
Diamantidi, Alexander, Freiland, Austria-Hungary. Draft-gear						
Diamond Match Company. (See Kay and Hutchinson, assignors.)						
Diamond Match Company. (See Wright, Jacob P., assignor.)						
Diamond Soda Water Manufacturing Company. (See Malmstrom, Peter E., assignor.)						
Diamond Truck and Car Gear Company. (See Gee, Horace L., assignor.)						
Dick, Bernhard. (See Fowler, Robert F., assignor.)						
Dickerson, Edward N. (See Currie, Stanley C. C., assignor.)						
Dickerson, Edward N., *et al.* (See Grimm, Maximilian, assignors.)	608,838	Apr. 26	2162	491	83	455
Dickerson, Edward N., New York, N. Y. Burning acetylene gas	608,678	May 10	797	175	83	773
Dickerson, Edward N., New York, N. Y. Acetylene-generator	604,139	May 17	1673	376	83	974
Dickerson, Edward N., New York, N. Y. Acetylene-gas-generating apparatus						
Dickey, Andrew, Niagara Falls, N. Y. Aluminium-reducing pot and means for tapping same	608,575	Apr. 19	1606	365	83	350
Dickhuth, Max P. O., assignor to Firm of H. C. Meyer, Jr., Harburg-on-the-Elbe, Germany. Treating ratan	608,800	Apr. 19	2100	------	83	427
Dickinson, Francke W. (See Watkins, Louis E., assignor.)						
Dickinson, James Q., Atlanta, assignor of one-half to E. L. C. Ward, Fulton county, Ga. Bed	608,131	Apr. 26	2075	607	83	554
Dicks, C. H. (See Gregory and Batton, assignors.)						
Dieckmann, Gustave A., Levasy, Mo. Fence-post	604,458	May 24	2278	510	83	1110
Diehl, Frank W., Detroit, Mich. Signaling device for railway-cars	608,434	Apr. 19	1459	331	83	307
Diemer, George A., Newburg, N. Y. Bottle or similar vessel	604,929	May 31	3104	714	83	1296
Dierdorf, John, Indianapolis, Ind. Piano-tuning-pin holder	608,660	Apr. 19	1894	431	83	360
Dierdorf, John, Indianapolis, Ind. Piano	608,661	Apr. 19	1895	431 432	83	360
Dierks, John, (by judicial change of name now John Bernard,) Savannah, Ga. Pen and pencil holder	604,026	May 17	1463	328	83	935
Dieterle, Wilhelm, assignor to Firm of J. Hauff, Feuerbach, Germany. Producing ortho-toluene sulfonic acid	602,662	Apr. 19	1896	------	83	269
Dight, Charles F., Washington, D. C. Thermal inspirator	603,081	Apr. 26	2477	562	83	514
Dilahay, John G., assignor of one-half to C. G. Land and G. W. Thompson, Austin, Tex. Ditching-machine	608,557	May 3	580	126	83	713
Dillon, Washington M. (See Walton and Macke, assignors.)						
Dimond, George H., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine for hemstitching	605,700	June 14	1178	271	83	1307
Dimond, George H., and W. F. Dial, assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Feeding mechanism for sewing-machines	604,005	May 10	1421	318	83	897
Dinkelberg, Theodore, assignor to himself and E. L. Gingi, New York, N. Y. Wrench	606,581	June 28	2514	564	83	1697
Dinkey, Alva C., Munhall, Pa. Gripping mechanism	604,978	May 31	3165	728	83	1296
Dinkle, Charles F., Carlisle, Pa. Back-pedaling brake	608,955	May 3	40	11	83	606
Dinsmore, Orin O., and A. M. Ireland, Lewiston, Me. Welding or swaging attachment for anvils	608,022	Apr. 26	2479	563	83	515
Dinsmore, Robert, assignor of three-fourths to C. B. Dunn, P. R. Lefferts, Passaic, N. J., and P. R. Van Mater, Washington, D. C. Magazine-firearm	601,708	Apr. 5	162	31 32 33	83	83
Diplock, Bramah J., London, England. Locomotive	608,810	Apr. 12	1238	276 277	83	232
Dipman, John W., and A. Exline, North Baltimore, Ohio. Corner-iron for vehicle-bodies	608,814	May 10	1055	231	83	819
Dittmar, August, Lawrence, Ohio. Door-operating mechanism	608,895	May 10	1191	260	83	848
Diven, S. L. (See Forrey, George J., assignor.)						
Divine, Bradford H., Utica, N. Y. Coaster for bicycles	604,168	May 17	1722	388	83	981
Dix, Joseph J., St. Louis, Mo. Bicycle-support	604,946	May 17	1670	419	83	1013
Dixon, John H., Marietta, Ohio. Fluid meter or motor	608,211	Apr. 12	1255	277	83	253
Dixon, Joseph, London, England. Combined chair and bedstead	608,896	May 10	1192	269 270	83	848
Dixon, Randall M., Philadelphia, Pa. Match-box	605,276	June 7	419	95	83	1432
Dixon, Robert M., East Orange, N. J. Heating-urn for buffet-cars	604,736	May 31	2784	637	83	1294
Dixon, Robert M., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, of New Jersey. Car-heating apparatus	605,563	June 14	913	213 214	83	1550
Dixon, Robert M., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, of New York. Lamp	606,008	June 21	1781	406	83	1727
Dixson, Henry S. (See Dennis and Thorn, assignors.)						
Dizer, Marshall C., *et al.* (See Easton, Douglas M., assignor.)						
Dizer, Silas C., *et al.* (See Easton, Douglas M., assignor.)						
Dizer, Walter M., *et al.* (See Easton, Douglas M., assignor.)	605,042	May 31	3086	------	83	1321
Doak, David P., assignor to Missouri Smelting Company, St. Louis, Mo. Mineral wool	606,407	June 28	2560	592	83	1695
Doane, Samuel E. (See Stone and Doane.)	606,823	June 28	2750	685	83	1985
Dobbie, Robert S., Jersey City, N. J. Dynamo-electric machine						
Dobbins, Thomas A., Martin's Ferry, Ohio. Machine for separating laminated packs						
Dobson, Seaborn. (See Rigdon and Dobson.)						
Dockstader, James, Syracuse, assignor of one-half to T. W. Meacham, Onondaga Valley, N. Y. Billiard-table frame	606,196	June 28	2148	493	83	1615

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Dockstader, Preston C., Colorado Springs, Colo. Seal-bolt	601,770	Apr. 5	285	56	83	55
Dockstader, Preston C., Colorado Springs, Colo. Seal-lock	605,277	June 7	430	95	83	1433
Dodd, David. (See Frisbie, Henry R., assignor.)	608,042	Apr. 5	785	170	83	146
Dodge, Alfred C., Binghamton, N. Y. Butler printer and weighing machine						
Dodge, Edgar C. (See Borton, Chester C., assignor.)						
Dodge, Orestes B., Boston, assignor of one-half to C. Curtis, Newton, Mass. Leather and rubber substitute	601,828 605,701	Apr. 5 June 14	287 1181	63 272	83 83	73 1597
Dodge, Philip T., New York, N. Y. Linotype-machine						
Doebner, Oscar, Halle-on-the-Saale, Germany, assignor to Farbenfabriken of Elberfeld Company, New York, N. Y. Condensation product from salicylic and gallic acids	602,854 604,606	Apr. 26 May 24	2162 2345	------ 530	83 83	455 1160
Doersch, George M., assignor of one-half to R. Koebke, Antigo, Wis. Tire-tightener	606,490	June 28	2668	630	83	1982
Doherty, John, Lockport, N. Y. Valve-gear for pumps						
Dolan, Edward J., Philadelphia, Pa., assignor, by mesne assignments, to Acetylene House Lighting Company, of West Virginia. Acetylene-gas burner	602,895	Apr. 26	2164	491	83	456
Dolan, Edward J., Philadelphia, Pa., assignor to Acetylene House Lighting Company, of West Virginia. Acetylene-gas generator	604,140	May 17	1673	376	83	974
Dolley, Charles S., assignor of one-half to H. T. Goodwin, Philadelphia, Pa. Electrode for arc-lights	606,127 602,896	June 21 Apr. 26	2080 2166	------ 491	83 83	1771 456
Dollfus, Alphonse, Philadelphia, Pa. Bottle-capper and cork-presser	602,897	Apr. 26	2167	491 492	83	456
Dollfus, Alphonse, Philadelphia, Pa. Corking-machine						
Donahue, John, Knoxville, Tenn., assignor to Hall & Donahue Coffin Company, of Tennessee. Coffin	602,903	Apr. 12	1201	312	83	280
Donaldson, Fred H., Garvanza, Cal., assignor to N. A. Donaldson, L. R. Williams, and S. Allott. Puzzle	602,785 605,708	Apr. 19 June 14	1984 1182	450 272	83 83	406 1597
Donaldson, Henry T., Fillmore, Ill. Marker for corn-planters	602,886	Apr. 12	1879	308	83	278
Donaldson, Martin B., and V. Kespohl, Duluth, Minn. Artificial limb						
Donaldson, Nellie A., *et al.* (See Donaldson, Fred H., assignor.)	608,966	May 3	42	11	83	609
Donley, James R., assignor of one-half to H. B. Philbrick, Hartford, Conn. Sand-box	602,500	Apr. 19	1567	357 358	83	328
Donne, Morgan, and C. J. Mathias, London, England. Hinge	604,374	May 24	2123	477	83	1082
Donner, Frank, Anderson, Ind. Doubling-shears	606,054	June 21	1884	434	83	1745
Donner, Frank, Anderson, Ind. Doubling-shears						
Donworth, Clement B. (See Gwald, Edwin F., assignor.)						
Doran, James, Pullman, Ill. Nut-lock	605,851	June 21	1509	346	83	1677
Dorn, Christian, Philadelphia, assignor to H. P. Hess, Easton, Pa. Oil-filter	608,587	May 3	605	139	83	733
Dorr, Stephen F. (See Prosser and Dorr.)						
Dorschell, Lucas D. (See Moehn, John N., assignor.)						
Dorsey, Robert L., assignor to Tucker & Dorsey Manufacturing Company, Indianapolis, Ind. Caster	604,590	May 24	2301	548	83	1130
Doss, Mikey, El Dorado, Ark. Cotton-plow	604,909	May 17	1995	447	83	1087
Dottinger, John. (See Thompson, Henry G., assignor.)						
Doty, Aaron B., assignor of one-half to C. A. Nelson, Minneapolis, Minn. Attachment for sharpening lawn-mowers	606,333 604,980	June 28 May 31	2498 3105	561 714	83 83	1871 1296
Doucet, Felix, Melrose, Mass. Sail-controlled keel	601,999	Apr. 5	715	159	83	185
Douglas, Charles H., Chicago, Ill. Saw-tooth-ribbing machine	603,007	Apr. 26	2460	560	83	511
Douglas, Charles H., Chicago, Ill. Saw-sharpener	602,899	Apr. 26	2265	516	83	474
Douglas, Ralph W., St. Joseph, Mo. Marshmallow-runner						
Douglas, Walter. (See Farrell and Douglas.)						
Douglas, William. (See Landon, George A., assignor.)						
Douglas, William B. (See Easker, John, assignor.)						
Dove, Thoma F., assignor of one-third to W. R. Roland, Cotton Gin, Tex. Cotton and corn scraper	604,207	May 17	1808	405	83	1000
Dow, George N. (See Van Steeter and Dow.)	608,928	May 10	1071	230	83	894
Dow, George N., and H. Stern, Cleveland, Ohio. Cushion-cleaning machine	608,495	May 3	318	71	83	660
Dowling, Gabriel P., Ozark, Ala. Cotton-scraper	606,408	June 28	2563	593	83	1696
Dowling, John, Altoona, Pa. Seal-lock	606,234	June 28	2432	542	83	1671
Downer, John M., Toronto, Canada. Bicycle-brake	605,948	June 21	1677	394	83	1709
Downey, Andrew A., Armstrong, Ill. Farm-gate	604,375	May 24	2194	477	83	1089
Downie, James K., Valley River, Canada. Wrench						
Doyle, George M., assignor of three-fourths to P. Roop, S. B. Poteet, and A. C. McNiel, Jr., Jonesville, Va. Wire-stretcher	606,588	June 28	2752	636	83	1936
Doyle, John. (See Dredge and Doyle.)						
Doyle, John. (See Moore and Doyle.)						
Doyle, Philip J., Memphis, Tenn. Clamp for handling hydraulic hose	601,689	Apr. 5	27	6	83	7
Doyle, Thomas M., assignor of one-half to M. Wahrer, Fort Madison, Iowa. Gas or gasoline engine	608,536	Apr. 19	1665	378 379	83	345
Drainage Construction Company. (See Waring, George E., Jr., assignor.)						
Drake, Charles, Mannington, W. Va. Clothes-drier	608,132	Apr. 26	2077	507	83	554
Drake, Dudley, Newark, N. J. Rotary engine	608,679	May 10	796	176	83	773
Drake, Thomas C., Malta, Ohio. Electric selector system	605,209	June 7	479	108	83	1443
Drake, Thomas C., Malta, Ohio. Selector signaling system	605,688	June 14	1155	268	83	1585
Draper Company. (See Armstead, Michael J., assignor.)						
Draper Company. (See Bracken, Howard W., assignor.)						
Draper Company. (See Draper, George O., assignor.)						
Draper Company. (See Hinchliffe, William, assignor.)						
Draper Company. (See Northrop, James H., assignor.)						
Draper Company. (See Rhoades, Alonzo E., assignor.)						
Draper Company. (See Roper, Charles F., assignor.)						
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Spindle-bearing	605,708 606,128	June 14 June 21	1162 2080	273 405	83 83	1585 1771
Draper, Harvey H., Arkansas City, Kans. Bicycle-support						
Draper Machine Tool Company. (See Wheeler, Benjamin A., assignor.)						
Drawe, Jennie, assignor of three-fifths to J. Drawe and W. Perren, Marine City, Mich. Invalid-rest	608,756	May 10	980	204	83	756
Drawe, John, *et al.* (See Drawe, Jennie, assignor.)						
Dredge, Joseph F., and J. Doyle, Connersville, Ind. Liquid-distributing faucet and pipe-cleaner	608,405 605,211	May 3 June 7	399 484	89 108	83 83	676 1444
Dresdner, Isidor, Brooklyn, N. Y. Plucking-machine						
Dresher, Edward C., *et al.* (See Reidenbaugh, John, assignor.)						
Dressel, Frederick W., New York, N. Y. Electric headlight	608,876	May 10	1150	261	83	942
Dresser, Daniel L., Flushing, N. Y. Engine	608,059 608,899	Apr. 12 May 3	810 908	175 60	83 83	165 651
Drewett, William A., Brooklyn, N. Y. Valve-operating device	608,288	May 3	126	22	83	602
Driggs, Edward H., Berkeley, Cal. Self-feeding oil-stove						

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Drummond, Charles S., London, England, assignor, by mesne assignments, to Esmond Cycle Saddle Company, New York, N. Y. Saddle for bicycles	602,889	Apr. 26	2170	498	88	456
Drummond, Richard O. G., *et al.* (See Blackmore, Sidney P., assignor.)	602,888	Apr. 26	2169	498	88	456
Drummond, Seigle, assignor to W. Lumley, Chicago, Ill. Letter or bill file	606,594	June 28	2753	696	88	1995
Drysdale, Moses J., and H. Raburn, Bardwell, Ky. Fruit-picker	606,139	June 21	2629	663	88	1779
Du Brul, Napoleon, Cincinnati, Ohio. Cigar-wrapper-cutting machine	602,736	Apr. 19	1985	450	88	406
Dubar, Charles L., *et al.* (See Bourne, Philip, assignor.)						
Duboeay, Percy N., de, Tallulah, Ga. Revolving book-rest	602,997	May 3	44	11,12	88	609
Duckett, Joseph D., Glasgow, Scotland, and W. Badger, Rotherham, England. Machine for sand-molding	604,006	May 10	1453	318	88	997
Duensing, Henry C., Beecher, Ill. Traction-wheel						
Duerst, Casper. (See Staub and Duerst.) (Reissue.)						
Duffek, Arthur, assignor of one-half to J. Kohn, Vienna, Austria-Hungary. Petroleum-lamp for incandescent lights	602,900	Apr. 26	2266	517	88	475
Duffner, Matthew, Allegheny, Pa. Advertising device	605,057	Apr. 26	2681	575	88	585
Duffus, William C., *et al.* (See Tomlinson, James, assignor.)	602,254	Apr. 12	1155	253	88	232
Duffy, Joseph, Paterson, N. J. Spindle						
Duggan, Joseph W. (See Coleman and Duggan.)						
Duke, Gervaise G., Chicago, Ill. Electrotherapeutic apparatus	603,815	May 10	1096	231	88	819
Dumaw, Charles, Jr., assignor of one-half to I. Piercy, Cheboygan, Mich. Countersinker	605,407	June 7	675	150	88	1482
Dumble, William K., Houston, Tex. Polisher or brush	604,087	May 17	1463	336	88	995
Dunbar, Deloss H., Jr., *et al.* (See Gannoe, Thomas A., assignor.)						
Dunbar, Miles E., Stockbridge, Mass. Folding bicycle-crate	602,443	May 3	347	78	88	666
Duncan, Andrew M., assignor of one-half to D. D. Shirley, Allerton, Iowa. Caponizer	604,737	May 31	2785	637	88	1225
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,459	May 24	2275	510 511	88	1111
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,460	May 24	2280	512 513	88	1111
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,461	May 24	2282	513 514	88	1112
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,462	May 24	2285	514 515	88	1112
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,463	May 24	2287	516 517	88	1112
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,464	May 24	2290	517 518	88	1113
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,465	May 24	2293	519 520	88	1113
Duncan, Thomas, Fort Wayne, Ind. Electric meter	604,466	May 24	2296	521 522	88	1114
Duncan, Thomas, Fort Wayne, Ind. Electric meter	605,665	June 14	1116	257 266	88	1585
Duncan, Thomas, Fort Wayne, Ind. Electric meter	605,668	June 21	1510	346 347	88	1677
Duncan, Thomas, Fort Wayne, Ind. Electric meter	605,949	June 21	1678	364 382	88	1709
Dundas, Thomas D., and G. Senior, London, England; said Senior assignor to said Dundas. Power-transmitting chain	601,748	Apr. 5	246	48	88	47
Dunham, Sumner T. (See Thomas, Harold L., assignor.)	605,668	June 21	1513	348	88	1677
Dunigan, James F., Torrington, Conn. Axle-gage						
Dunlap & Company. (See Keator, Charles E., assignor.)	602,231	Apr. 12	1117	245	88	225
Dunlap, William P., Maquoketa, Iowa. Pulverizing attachment for plows						
Dunn, Alfred W. (See Dunn, William and A. W.)						
Dunn, Charles B., *et al.* (See Dinsmore, Robert, assignor.)						
Dunn, Gano S., East Orange, N. J., assignor to Crocker-Wheeler Electric Company, of New Jersey. Electromagnetic circuit-breaker	601,871	Apr. 5	435	100	88	90
Dunn, Henry S., Jr. (See Mott and Dunn.)	603,875	May 5	224	50	88	644
Dunn, James P., Hadley, Ga. Churn	606,197	June 28	2149	498	88	1615
Dunn, John S., Portage, Wis. Railway-signal	604,807	May 24	2545	581	88	1160
Dunn, William and A. W., Honomu, Hawaii. Vapor-condenser for vacuum-pans	606,525	June 28	2754	636	88	1996
Dunning, James A., Aulander, N. C., and K. Barrow, Norfolk, Va. Steering-guide for bicycles						
Dunton, Emily M. (See Becker, John E. M., assignor.)						
Dupaw, Josiah, assignor of one-half to L. W. Gifford, Washington, D. C. Machine for automatically moistening and sealing envelops	602,801	Apr. 19	2102	474	88	428
Duplex Hanger Company. (See Mueller, John, assignor.)						
Duplex Printing Press Company. (See Bechman, Henry F., assignor.)						
Durant, Walter N., and W. H. Prichard, Milwaukee, Wis. Reducing and shaping bamboo rods	606,623	June 28	2948	668	88	1972
Durham, John E., and J. E. Devine, assignors to E. E. Weed, D. M. and C. Gerber, Douglas, Mich. Basket-making machine	605,408	June 7	676	150	88	1488
Durham, John L., Sanco, Tex. Planter	603,757	May 10	922	204	88	796
Dürkopf, Ernst, assignor to Firm of E. Merck, Darmstadt, Germany. Bismuth methylene-digallate and making it	605,946	June 7	368	.....	88	1418
Durrant, Frederick W., *et al.* (See Kinney, Israel, assignor.)	602,961	Apr. 26	2418	551	88	504
Durst, William, Brooklyn, N. Y. Traverse-ring	605,615	June 14	1398	319 320	88	1687
Duryea, James F., assignor to Duryea Motor Wagon Company, Springfield, Mass. Gas-engine	605,684	June 14	1060	244	88	1574
Duryea Motor Wagon Company. (See Duryea, James F., assignor.)						
Duryea, Wilbur O., Morning Sun, Iowa. Check-rower for corn-planters						
Duryea, William O., Blawenburg, N. J., assignor to himself, and G. Edwards, New York, N. Y. Bed-motion for cylinder printing-machines	602,840	Apr. 26	2172	498	88	457
Dustless Roadbed Company. (See Mattern, Frederick W., assignor.)						
Dustless Roadbed Company. (See Nichol, James H., assignor.)	602,020	Apr. 12	813	176	88	165
Dutton, John W., and A. Crawford, Battle Creek, Mich. Grain weigher and measure	602,656	Apr. 19	1841	419	88	378
Duwe, Adolf G., assignor to O. E. A. Wiessner, Brooklyn, N. Y. Bedstead-brace	602,435	Apr. 19	1460	331 332	88	308
Dwyer, John, Butte, Mont. Mining-car and railway system therefor	601,709	Apr. 5	174	33	88	34
Dwyer, Patrick V., assignor to L. A. Frank, St. Paul, Minn. Pipe-thimble	603,180	Apr. 26	2745	625	88	567
Dwyer, Thomas F., Brooklyn, N. Y. Pipe-hanger	603,133	Apr. 26	2678	607 608	88	534
Dwyer, William J., Hillyard, Wash. Separator for metals	604,141	May 17	1674	376 377	88	974
Dyer, Edward F., Cleveland, Ohio. Apparatus for handling comminuted materials						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dyer, Frank L., Washington, D. C., assignor to American Cotton Company, New York, N. Y. Press for baling cotton	601,806	Apr. 5	244	70,71	88	64
Dyer, Frank L., Washington, D. C., assignor to American Cotton Company, New York, N. Y. Cotton-press	603,784	May 10	974	217	88	806
Dyer, Frank L., Washington, D. C., assignor to American Cotton Company, New York, N. Y. Cotton-press	604,028	May 17	1464	328	88	995
Dyer, Frank L., Orange, N. J., assignor to American Cotton Company, New York, N. Y. Cotton-press	604,029	May 17	1467	329	88	996
Dyer, George H., San Francisco, Cal. Grinding and polishing device	602,213	Apr. 12	1090	229	88	219
Dyer, William B. (See Leonard, Charles N., assignor.)	604,788	May 31	2786	636	88	1224
Dykes, George R., Hawkinsville, Ga. Corn or seed dropper						
E. Jenckes Manufacturing Company. (See Rowe, James E., assignor.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
Eader, Charles W., Denver, Colo. Tack-driver	603,636	May 10	710	158	88	755
Eades, William T., Birmingham, and T. Matthews, Leamington, England. Load-sustainer for weight-lifters	602,312	Apr. 12	1257	277 278	88	254
Eagle Lock Company. (See Murphy, James, assignor.)						
Eagon, Frederick, assignor of one-third to H. Holzmagel, Chicago, Ill. Corner-piece for bedsteads	605,310	June 7	483	106	88	1444
Eames, Canly D., Worcester, Mass. Work-holder	603,558	May 3	551	129	88	713
Earl, Charles L., Jr. (See Devendorf and Earl.)						
Earl, Lewis F., Philadelphia, Pa. Lacing-hook for shoes	602,841	Apr. 26	2174	498	88	457
Earl, Lewis F., Philadelphia, Pa. Lacing-hook for shoes, gloves, &c.	602,842	Apr. 26	2177	498	88	458
Earl, Lewis F., Philadelphia, Pa. Lacing-hook for shoes, gloves, &c.				203		
Easker, John, assignor of one-half to W. B. Douglas, Cedar Rapids, Iowa. Automatic faucet	605,540	June 14	868	204	88	1541
Eastman, John P., assignor of one-half to F. M. Lewis, Chicago, Ill. Continuous mileage-ticket	602,214	Apr. 12	1003	240	88	230
Eastman Kodak Company. (See Brownell, Frank A., assignor.)						
Easton, Douglas M., assignor to M. C., S. C., and W. M. Dizer, Weymouth, Mass. Tanning	604,730	May 31	2788	638	88	1225
Eastwood, John H., C. E. Bibb, and F. McClintock, Colorado Springs, Colo. Automatic engine-stop	604,142	May 17	1676	377	88	975
Eaton, John O., assignor of one-fourth to J. Marshall, Fall River, Mass. Cigarette-machine	602,436	Apr. 19	1463	332 333	88	806
Ebersole, John, Chambersburg, Pa. Corn masher and cutter	605,704	June 14	1184	273	88	1506
Ebert, Lucien, New York, N. Y. Artificial-flower-crimping machine	605,409	June 7	660	150 151	88	1483
Ebert, William T., Oakland, Pa. Trap	603,479	May 3	430	95	88	668
Ecaubert, Frederic, Brooklyn, N. Y. Connection for cycle-chains	602,633	Apr. 19	1804	411	88	371
Ecaubert, Frederic, Brooklyn, N. Y., and H. Serrell, Plainfield, N. J.; said Serrell assignor to said Ecaubert. Back-pedaling brake	602,634	Apr. 19	1805	412	88	371
Echelberger, William A., Hot Springs, Ark. Stamp-pad	602,061	Apr. 12	814	176	88	166
Echols, Frank G., Hartford, Conn. Metal-working machine	602,062	Apr. 12	815	177	88	166
Eck, Joseph P., Muncie, Ind. Electrical apparatus for charging furnaces	603,090	June 7	42	13,14	88	1361
Eckart, John H., Joplin, Mo. Filter	603,223	May 3	139	32	88	636
Eckart, John H., Joplin, Mo. Nut-lock	603,224	May 3	140	33	88	639
Ecker, Herman, assignor of two-thirds to B. Lichtig and C. Sandberg, New York, N. Y. Clothes-line pulley	602,043	Apr. 5	787	171	88	149
Eckert, Jacob E., Marengo, Iowa. Autoharp	604,914	May 31	3086	709	88	1282
Ecklund, Charles E., Vilas, Kans. Corn-header	605,635	June 14	1063	244 245	88	1575
Edey, John. (See Davy and Edey.)						
Edgar, Butler, Sunbury, assignor to T. M. Righter, trustee, Mount Carmel, Pa. Lock-nut.	602,232	Apr. 12	1118	245	88	225
Edgar, Butler, Sunbury, assignor to T. M. Righter, trustee, Mount Carmel, Pa. Nut-lock.	602,233	Apr. 12	1118	246	88	225
Edgar, Butler, Sunbury, assignor to T. M. Righter, trustee, Mount Carmel, Pa. Nut-lock.	602,394	Apr. 12	1308	312	88	290
Edgar, Butler, Sunbury, assignor to T. M. Righter, trustee, Mount Carmel, Pa. Nut-lock.	602,501	Apr. 19	1570	358 359	88	336
Edgar, Ellis F., Woodbridge, N. J. Water-tube boiler	605,666	June 14	1118	268	88	1585
Edgar, John, Rochester, Minn. Thill-coupling	605,278	June 7	422	96	88	1433
Edgar, William K., Colorado Springs, Colo. Seal-lock	603,945	May 10	1271	299	88	863
Edgerton, Charles, Philadelphia, Pa. Process of and apparatus for continuously filtering and pressing garbage	602,054	Apr. 19	822	178	88	167
Edison, Thomas A., Llewellyn Park, N. J. Conveyer	604,740	May 31	2791	638 639	88	1225
Edison, Thomas A., Llewellyn Park, N. J. Governor for motors	605,475	June 14	771	177	88	1523
Edison, Thomas A., Llewellyn Park, N. J. Drying apparatus	605,667	June 14	1119	268	88	1586
Edison, Thomas A., Llewellyn Park, N. J. Phonograph	605,868	June 14	1121	269	88	1586
Edison, Thomas A., Llewellyn Park, N. J. Mixer	603,500	May 3	475	106	88	668
Edison, Nathan, Boston, Mass. Temporary binder						
Edward P. Allis Company. (See Hinkley, George M., assignor.)						
Edwards, George. (See Duryea, William C., assignor.)						
Edwards, Harry M., assignor to W. Vogel & Brothers, Brooklyn, N. Y. Lighting implement	604,693	May 24	2703	617	88	1189
Edwards, Louisa Florence, Colo. Hair-tonic	604,111	May 17	1628	.....	88	966
Edwards, Victor E., Worcester, Mass. Rolling-mill	603,108	Apr. 26	2621	595	88	543
Edwards, William W., Wilmerding, assignor to H. H. Westinghouse, Pittsburg, Pa. Pipe-coupling	604,857	May 31	2966	665	88	1268
Edwin Harrington, Son & Company. (See Haskins and Coes, assignors.)	604,576	May 24	2125	477	88	1062
Eggs, Frederick. Bridgeport, Conn. Metal-working tool	602,957	Apr. 26	2347	536	88	491
Egli, Hans W., Zurich, Switzerland. Cleaning device for gun-barrels	604,321	May 24	2202	543	88	1130
Eichert, John. Pittsburg, Pa. Account-book	606,481	June 28	2660	620	88	1988
Eidsmoe, Christopher A., Pleasant, S. D. Device for preventing cows from kicking	604,915	May 31	3087	709	88	1283
Eighmy, Annis B., Clifton Springs, N. Y. Bed-pan	605,091	June 7	44	14	88	1361
Eisenberg, Christian, assignor to Schindlers Brothers, Berlin, Germany. Lasting-machine	604,981	May 31	3107	714	88	1287
Eisendrath, Samson D., St. Paul, Minn. Filter	604,741	May 31	2793	639	88	1226
Eisner, Theodor D., West New York, N. J., assignor, by mesne assignments, to F. Braun, New York, N. Y. Fabric-holding device for embroidering-machines	604,742	May 31	2793	639	88	1226
Eisner, Theodor D., West New York, N. J., assignor, by mesne assignments, to F. Braun, New York, N. Y. Embroidery-frame	603,559	May 3	582	120	88	714
Ekstedt, Carl J., *et al.* (See Sundberg, William E., assignor.)						
Elder, Amy L., Aspen, Colo. Safety-seal for bottles	602,506	Apr. 19	1736	395	88	308
Eldred, Horace H., Brooklyn, N. Y., assignor to H. B. Metcalf, Pawtucket, R. I. Electrical apparatus	603,068	Apr. 26	2382	576	88	595
Eldridge, Hilliary, *et al.* (See Clark, George G., assignor.)						
Eldridge, Hilliary, D. J. Clark, and S. Blum, Galveston, Tex. Electrical retort						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electric Fireproofing Company. (See Bachert and O'Neil, assignors.)						
Electric Fog-Signal Syndicate. (See Tomlins, Herbert, assignor.)						
Electrical Vehicle Syndicate. (See Brougham and Bersey, assignors.)						
Electricitäts-Gesellschaft Triberg, Gesellschaft mit Beschränkter Haftung. (See Schneider, Friedrich W., assignor.)						
Electro Gas Company. (See Böhm, Ludwig K., assignor.)						
Electro Gas Company. (See Vincent, Joseph A., assignor.)						
Eliar, Henry, Clarksdale, Mo. Bicycle-coupling	605,198	June 7	253	59	88	1398
Elliot, Lilian M., New York, N. Y. Sand-board						
Elliott, George S. (See Benton, George E., assignor.)						
Elliott, J. Reed. (See Hutcheson, George C., assignor.)						
Elliott, Joseph S., Eddy, Tex. Automatic vehicle-brake	608,946	May 10	1273	{289 290}	88	864
Elliott, Thomas, Rexburg, assignor of two-thirds to G. B. Rogers and L. R. Thomas, Blackfoot, Idaho. Blank-book	604,522	May 24	2303	544	88	1180
Elliott, William E., Brashear, Mo. Reclining-swing	608,065	Apr. 12	824	{178 179}	88	167
Elliptic Cycle Company. (See Harrison, John, assignor.)						
Ellis, Alfred A., assignor to Maignen's Filtre-Rapide and Anti-Calcaire Company, Limited, London, England. Apparatus for purifying water	604,491	May 24	2346	532	88	1122
Ellis, Frederick A., London, England. Means for making cycle-frames	604,490	May 24	2344	532	88	1122
Ellis, George H., and J. F. Steward, Chicago, Ill. Ball or cop of twine	601,771	Apr. 5	286	57	88	57
Ellison, Charley, *et al.* (See Larson and Branzell, assignors.)						
Ellithorpe, Frederick T., Newark, N. J. Safety appliance for elevators	608,437	Apr. 19	1466	333	88	909
Ellithorpe, Frederick T., Newark, N. J. Means for operating doors for elevator-wells	606,003	June 21	1782	{408 409}	88	1727
Ellithorpe, Frederick T., Newark, N. J.	608,063	Apr. 12	821	178	88	167
Eltzroth, Forest W., Lafayette, assignor of one-half to F. E. Cole, Peoria, Ill. Stacker						
Elwell, Fred S. (See Poole, John H., assignor.)						
Ely, Edward O. (See Childs, Eugene, assignor.)						
Emarine, James N., Early, Iowa. Washboiler attachment	604,856	May 31	2987	665	88	1993
Emdin, Lionel, and J. A. Dewson, Reading, Pa. Thermal circuit-closer	606,004	June 21	1785	409	88	1728
Emerson Electric Manufacturing Company. (See Briner, Frederick E., assignor.)						
Emerson, Victor L., Baltimore, Md., assignor to Reliance Dry Kiln Company of Baltimore City, of Maryland. Lumber-storage plant	602,395	Apr. 12	1304	{312 313}	88	280
Emert, John H., Monmouth, Ill. Refrigerator	602,843	Apr. 26	2179	493	88	459
Emery, Abram D., Taunton, Mass., assignor to Universal Loom Company, New York, N. Y. Warp stop-motion for looms	605,600	June 14	985	227	88	1561
Emery, Abram D., Taunton, Mass., assignor to Universal Loom Company, New York, N. Y. Weft stop-motion for looms	605,601	June 14	990	{227 228}	88	1562
Emery, Abram D., Taunton, Mass., assignor to Universal Loom Company, New York, N. Y. Shuttle stop-motion for looms	605,602	June 14	993	{228 229}	88	1562
Emery, Abram D., Taunton, Mass., assignor to Universal Loom Company, New York, N. Y. Loom	605,608	June 14	995	{229 230}	88	1563
Emery, Benjamin P., Kennebunk, Me. Boiler	605,410	June 7	662	151	88	1484
Emery, Plato G., Chicago, Ill. Sliding-door lock	605,816	June 14	1307	320	88	1637
Empson, John H., Longmont, Colo. Pea-shelling machine	604,877	May 24	2126	477	88	1053
Endslow, Addie S. (See Endslow, William S., assignor.)						
Endslow, William S., Jackson, assignor to A. S. Endslow, Blain, Pa. Hitching or unhitching device	602,813	Apr. 12	1259	278	88	274
Endter, Charles F., Springfield, Ohio. Power-pulley	605,840	May 10	1089	243	88	836
Engelbrecht, William. Ash Grove, Ill. Fly-trap	601,953	Apr. 5	650	136	88	122
English, George C. (See Brazelton, John F., assignor.)						
English, William H., Detroit, Mich. Perambulator	606,451	June 28	2645	606	88	1918
Ennis, Charles, assignor of one-half to P. A. Mann, Boston, Mass. Protective device for meter-couplings	602,982	Apr. 26	2419	551	88	504
Enos, Albertus, Sioux City, Iowa, assignor of one-eighth to H. B. Jerome, Gordonsville, Minn. Sliding-jaw wrench	601,954	Apr. 5	651	136	88	122
Ensign, John W. (See Titus and Ensign.)						
Ensign Manufacturing Company. (See Titus and Ensign, assignors.)						
Ensworth, William J., assignor to Erie Cash Register Company, Limited, Erie, Pa. Adding and recording apparatus	605,705	June 14	1186	{273 274}	88	1598
Enterprise Manufacturing Company of Pennsylvania. (See Peeples, William, assignor.)						
Entwistle, James G. W., F. Starr, C. P. Talley, and H. E. Lorance, Chicago, Ill. Vapor generator and burner	608,660	May 10	800	176	88	773
Ensinger, Lorenz A., Worms, Germany. Apparatus for manufacturing filtering-plates	605,706	June 14	1189	274	88	1599
Ephraim, Joseph, London, England. Socket-joint or coupling for rods, &c	605,541	June 14	870	204	88	1541
Epstein, Ludwig, London, England. Secondary voltaic battery	606,586	June 28	2767	637	88	1937
Erb, John J., Livingston, Mont. Combined pack and sled	604,523	May 24	2295	544	88	1180
Ericson, Charles J., Salt Lake City, Utah. Changeable implement	602,314	Apr. 12	1261	279	88	295
Erie Cash Register Company. (See Ensworth, William J., assignor.)						
Erikson, Laurence, Evanston, Ill. Pendulum-escapement	608,635	Apr. 19	1807	412	88	372
Ernst, John C., assignor of two-thirds to F. B. Mallory and W. W. Hawke, Flemington, N. J. Bicycle-brake	604,089	May 17	1469	329	88	986
Eschner, Adolph, Philadelphia, Pa. Extension-table	608,078	Apr. 26	2578	585	88	538
Esmond Cycle Saddle Company. (See Drummond, Charles S., assignor.)						
Esselen, Henry M., manager. (See Folsom, George F., assignor.)						
Esselen, Henry M., Boston, Mass. Snow-guard	602,901	Apr. 26	2269	517	88	475
Essner, Urban E. (See Howell, John, assignor.)						
Etard, Alexandre, Paris, France. Treating ores containing gold, silver, or copper	601,640	Apr. 5	28	------	88	7
Eugene Dietzgen Company. (See Mack, John G. D., assignor.)						
Eureka Mower Co. (See Davison, George B., assignor.)						
Evans, Charles O., *et al.* (See Guerrant, George M., assignor.)						
Evans, Edwin. (See Parry and Evans.)						
Evans, James, David City, Nebr. Post-auger	605,411	June 7	663	151	88	1484
Evans, Joseph J., North Tonawanda, N. Y. Tumbler-washer	602,190	Apr. 12	1054	230	88	912
Evans, Marcellus H. (See Ament and Evans.)						
Evans, Scott F., Minneapolis, Minn. Dumping-platform	602,255	Apr. 12	1156	254	88	283
Evans, Warren R., Portland, Me., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental base-plate	606,198	June 28	2151	498	88	1816
Evans, William, Philadelphia, Pa. Hide, skin, or leather machinery	608,066	Apr. 12	825	179	88	168
Evans, William. (See Hilgson, John, assignor.)						
Evans, William H., Cardiff, England. Frame for bicycles	604,743	May 31	2795	639	88	1226
Evans, William S., Point Rock, N. Y. Sled	608,758	May 10	928	205	88	796

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Eveland, Samuel S. (See Hobron, Charles B., assignor.)						
Everett, Boyd, *et al.* (See McClellan, Jackson, assignor.)						
Everett, Edward. (See Thayer and Everett.)						
Everman, Joseph, *et al.* (See Brengman, John, assignor.)						
Everson, George, *et al.* (See Smith, Swan, assignor.)						
Everson, George, Detroit, Mich. Dust and cold guard for doors	608,480	May 3	431	96	88	664
Evetts, James, assignor to Red Cross Hygienic Company, Chicago, Ill. Disinfecting apparatus	604,502	May 24	2470	561	88	1145
Exline, Adam. (See Dipman and Exline.)						
Eyre, Richard, Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Track-welding	602,284	Apr. 12	1210	{266 267}	88	243
Eyster, Elmer E., assignor of one-half to F. F. Rogers, Indianapolis, Ind. Air-propelled bicycle	608,618	Apr. 19	1772	405	88	965
F. B. Fargo & Company. (See Penn, William E., assignor.)						
F. B. Fargo & Company. (See Penn and Brown, assignors.)						
F. B. Fargo & Company. (See Seaver, Fred, assignor.)						
Fabbri, Ernesto G. (See Stampacchia, Luigi, assignor.)						
Fader, Silas, assignor of one-half to A. Williams and J. T. Carroll, Vancouver, Canada. Back-pedaling brake	603,325	May 3	141	33	88	629
Fahrradwerke Weltrad, vormals Hoyer & Glahn. (See Hoyer, Gustav, assignor.)						
Fair, Andrew J., Walnut Cove, N. C. Tobacco-steamer	605,412	June 7	684	152	88	1484
Fairbank, Fred L., and T. N. Cantril, Des Moines, Iowa. Blotter-bath and absorbent composition therefor	608,841	May 10	1091	244	88	828
Fairchild, Irving B. (See Grady, William, assignor.)						
Fairfield, James, Manchester, N. H. Car-wheel	605,542	June 14	870	204	88	1541
Fairfield, John M., Hartford, Conn. Type-writing machine	605,864	June 21	1514	348	88	1678
Fairfield, James, assignor of one-half to G. J. Thackary, Bridgeport, Cal. Speaking-tube	604,694	May 24	2704	618	88	1190
Fales, Thomas, assignor of thirty-one sixtieths to F. Hess, Jr., A. K. Andriano, and I. Harris, San Francisco, Cal. Throw-off switch for telephones	608,631	May 10	801	177	88	773
Fallek, Nathan, assignor of thirty-one sixtieths to F. Hess, Jr., A. K. Andriano, and I. Harris, San Francisco, Cal. Safety-lock for incandescent lamps	605,279	June 7	424	95	88	1422
Fallon, William O., *et al.* (See Anderson, Jens, assignor.)						
Farbenfabriken of Elberfeld Company. (See Bammann, Johann, assignor.)						
Farbenfabriken of Elberfeld Company. (See Demuth, Robert, assignor.)						
Farbenfabriken of Elberfeld Company. (See Doebner, Oscar, assignor.)						
Farbenfabriken of Elberfeld Company. (See Heymann, Bernhard, assignor.)						
Farbenfabriken of Elberfeld Company. (See Kahn, Myrtil, assignor.)						
Farbenfabriken of Elberfeld Company. (See Kahn and Heidenreich, assignors.)						
Farbenfabriken of Elberfeld Company. (See Kahn and Runkel, assignors.)						
Farbenfabriken of Elberfeld Company. (See Krekeler and Blank, assignors.)						
Farbenfabriken of Elberfeld Company. (See Krekeler and Israel, assignors.)						
Farbenfabriken of Elberfeld Company. (See Krekeler and Martz, assignors.)						
Farbenfabriken of Elberfeld Company. (See Krekeler, Israel, and Blank, assignors.)						
Farbenfabriken of Elberfeld Company. (See Krekeler, Martz, and Israel, assignors.)						
Farbenfabriken of Elberfeld Company. (See Nastvogel, Oscar, assignor.)						
Farbenfabriken of Elberfeld Company. (See Ott and Kroeber, assignors.)						
Farbenfabriken of Elberfeld Company. (See Schmidt, Robert E., assignor.)						
Farbenfabriken of Elberfeld Company. (See Schmidt and Tust, assignors.)						
Farbenfabriken of Elberfeld Company. (See Demuth, Robert, assignor.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Bender, Fritz, assignor.)						
Farbwerk Mühlheim, vormals A. Leonhardt & Co. (See Behring, Emil, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See König, Ernst, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Steinike and Schmidt, assignors.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Faries, Robert, assignor.)						
Faries Manufacturing Company. (See Faries, Robert, assignor.)						
Faries, Robert, assignor to Faries Manufacturing Company, Decatur, Ill. Machine for making check-row wire	608,134	Apr. 26	2579	{608 609}	88	555
Farina, Antoninus, New York, N. Y. Machine for folding and shaping collars	602,067	Apr. 12	827	180	88	168
Faris, George W. (See Gunckel, Winfield O., assignor.)						
Farman, Arthur F., Jr., *et al.* (See Gittus, Charles, Jr., assignor.)						
Farmer, Albert J., Hartford, Conn. Lathe attachment	608,400	May 3	209	60	88	632
Farnworth, Frank. (See Simpson, Walker, Strang, and Farnworth.)						
Farrall, George A., assignor to Johnston Harvester Company, Batavia, N. Y. Grain-harvester	608,759	May 10	928	{305 306}	88	797
Farrall, Michael, Baraboo, Wis. Railway wrecking-frog	602,597	Apr. 19	1737	395	88	358
Farrar, John J., assignor of one-half to G. C. Hunt, Rapid City, S. D. Hinge	608,697	May 10	1194	270	88	848
Farrell, John A., and W. Douglas, Morenci, Ariz. Ter. Furnace-blast apparatus	608,181	Apr. 26	2746	625	88	567
Farrell, Michael, assignor of one-half to J. L. C. Cronyn, Buffalo, N. Y. Antifreezing-valve	602,737	Apr. 19	1986	450	88	406
Farthing, D. J., *et al.* (See Wagner, Isaac L., assignor.)						
Fasey, William R., London, England. Diving apparatus	601,729	Apr. 5	204	40	88	40
Faulkner, Clay, McMinnville, Tenn. Axle-bearing	608,627	May 10	711	159	88	755
Faulkner, Joseph D. (See Porter and Faulkner.)						
Favell, Sophie E., assignor of one-half to E. Abernathey, Statesville, N. C. Wire clothes-pin	605,950	June 21	1660	396	88	1709
Favorite Stove and Range Company. (See Van Wie, Peter G., assignor.)						
Fawcett, John W., assignor of two-thirds to J. N. Fox and J. Bamart, Lawrenceburg, Ind. Car-coupling	602,029	Apr. 5	705	165	88	145
Fay, Eugene, Denver, Colo. Automatic chain-cleaning device for bicycles	602,000	Apr. 5	717	152	88	135
Fay, Fred E., Los Angeles, Cal. Ironing-machine for smoothing edges of cuffs and collars. (Reissue)	11,664	May 17	2086	468	88	1055
Fay, Rimmon C., assignor to Thomas Manufacturing Company, Springfield, Ohio. Bicycle	601,710	Apr. 5	175	33	88	35
Fearl, Thomas J., *et al.* (See Tombs, Charles C., assignor.)						
Fehrmann, Woldemar, Moscow, Russia. Apparatus for vaporizing and superheating water contained in steam	604,524	May 24	2296	545	88	1130
Feighner, Leo W., *et al.* (See Shields, William E., assignor.)						
Feingold, Louis, New York, N. Y. Attachment for bicycles	608,326	May 3	143	33, 34	88	699
Feister, Henry P., Philadelphia, Pa. Match-making machine	608,481	May 3	432	96	88	684
Feister, Henry P., Philadelphia, Pa., assignor to Feister Printing Company, of Pennsylvania. Perfecting printing-press	602,306	Apr. 12	1306	{313 314 315}	88	281
Feister Printing Company. (See Feister, Henry P., assignor.)						
Feldmann, Clarence P., assignor to Helios Electritats Actien-Gesellschaft, Cologne, Germany. Alternate-current meter	602,557	Apr. 19	1668	379	88	846
Feldwag, Charles L., Clay City, Ill. Heating-stove	602,001	Apr. 5	718	153	88	136
Fellows, C. Fred, *et al.* (See Bradish, Frederick T., assignor.)						
Felsche, Reinhard, Magdeburg, Germany. Machine for composing bicycle-frames	608,844	Apr. 26	2180	494	88	459

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Feltenberger, Isaac N., Carnegie, Pa. Fence	606,597	June 28	2758	697	88	1997
Fennan, William T., assignor to C. Oldoerp, N. T. Keenan, Philadelphia, Pa., and J. J. Mahoney, Atlantic City, N. J. Device for tapping beer-barrels	601,749	Apr. 5	246	49	88	47
Fenner, George P., New London, Conn. Printing-press	604,974	May 31	3166	728 729 730	88	1996
Fenton, Patrick C. (See Carroll, Fenton, Kline, and Seltzer.)						
Fenwick, Albert D., Philadelphia, Pa., assignor to Fenwick Collar and Cuff Machine Company, Portland, Me. Machine for forming and folding collar-blanks or the like	606,588	June 28	2759	637 638 639 640 641 642 643	88	1997
Fenwick Collar and Cuff Machine Company. (See Fenwick, Albert D., assignor.)						
Fergus, Barbara M., Philadelphia, Pa. Skirt-lifter	604,310	May 17	1906	447	88	1088
Ferguson, Frank C., Indianapolis, Ind. Fountain-syringe	605,178	June 7	215	58	88	1391
Ferguson, George. (See Ferguson, James H., assignor.)						
Ferguson, James C., Fayette, Mo. Nut-lock	602,619	Apr. 19	1775	405	88	366
Ferguson, James H., assignor to G. Ferguson, Boston, Mass. Hand tack-driver	602,068	Apr. 12	890	180	88	168
Ferguson, Robert, *et al.* (See Tombs, Charles C., assignor.)	603,629	May 10	713	159	88	755
Fergusson, Thomas B., Jr., Waynesborough, Pa. Fence	604,113	May 17	1699	396	88	966
Fergusson, Alan R., assignor to H. F. and G. Miller, Baltimore, Md. Box or can	604,492	May 24	2247	533	88	1122
Fergusson, Alan R., assignor to H. F. and G. Miller, Baltimore, Md. Box or can	604,975	May 31	3128	730	88	1299
Fergusson, Alan R., assignor to H. F. and G. Miller, Baltimore, Md. Box or can	602,815	Apr. 12	1263	279	88	255
Fernandez, Aurelio, Santiago, Chile. Preserving milk	602,636	Apr. 19	1809	412 413	88	372
Ferris, Edwin. (See Nicholsburg, Henry, assignor.)						
Fetters, Wilbur, Philadelphia, Pa. Glass-pressing machine	605,636	June 14	1064	245	88	1575
Fick, Thomas A., assignor to J. Lindsay, Paris, Canada. Mucilage-bottle	602,598	Apr. 19	1739	395	88	358
Field, Charles H., *et al.* (See Matteson, Rufus S., assignor.)						
Field, Frederick F., Providence, R. I. Faucet	603,376	May 3	225	50	88	644
Field, George H. (See Lord, Abraham S., assignor.)	605,574	June 14	983	218	88	1553
Field, Samuel F., and W. T. Heck. Findlay, Ohio. Packing-ring	608,023	Apr. 26	2480	568	88	515
Field, Seymour, Quincy, Mass. Eyeleting-machine	604,805	May 31	3041	698	88	1274
Field, Seymour, Quincy, assignor to Power Eyeletting Machine Company, Boston, Mass. Eyeleting-machine						
Fielder, George B., *et al.* (See Johnston, Abner, assignor.)						
Fieweger, Julius, Menasha, Wis. Hand polishing device	604,031	May 17	1471	339	88	936
Filer & Stowell Company. (See Cunningham, Albert, assignor.)	604,916	May 31	3068	709	88	1283
Finch, Edgar, assignor of one-half to T. Bell, Toronto, Canada, and R. J. Bell, New York, N. Y. Paper box	606,529	June 28	2789	644	88	1942
Finley, John, Granby, Mo. Doubletree						
Finn, Edwin, Elkhart, Ind. Scale fulcrum and bearing	602,738	Apr. 19	1998	451	88	406
Finn, William. (See Burhans, Paul C., assignor.)	603,560	May 3	584	129	88	714
Finotti, Gustavo M., Mission Hill, S. D. Cabinet						
Firth, James N. and J. T., Newburg, N. Y. Meat-holder	604,656	May 24	2624	600	88	1175
Firth, Joseph T. (See Firth, James N. and J. T.)						
Fischer, Albert C., Cincinnati, Ohio. Curtain-fixture	605,179	June 7	216	53	88	1392
Fischer, Charles H. (See Fischer, Henry B. and C. H.)						
Fischer, Charles H. and H. B., Cincinnati, Ohio. Bottle-washer	605,180	June 7	216	53	88	1392
Fischer, Henry B. (See Fischer, Charles H. and H. B.)	608,239	Apr. 26	2489	649	88	584
Fischer, Henry B. and C. H., Cincinnati, Ohio. Bottle-washer	606,452	June 28	2646	609	88	1914
Fischer, Sigismund, New York, N. Y. Electric clock	602,295	Apr. 12	1214	267	88	244
Fischer, Sophian E., Hayward, Cal. Sight for firearms						
Fiscus, Adam, Fiscus, Iowa. Garden-cultivator	601,641	Apr. 5	29	6	88	8
Fish, William, Wellingborough, England. Counting apparatus for type-writers or like machines	604,032	May 17	1473	330	88	937
Fisher, Bevly A., Hamilton, Mont. Washing-machine	604,118	May 17	1630	366	88	966
Fisher, Charles, assignor of one-half to H. Segnitz, Milwaukee, Wis. Paper-serving machine	606,409	June 28	2563	593 594	88	1896
Fisher, Charles N., Houston, Tex. Steering device for vehicles	604,675	May 24	2660	609	88	1183
Fisher, John E., Elmsdale, Canada. Seam-ripping device	604,378	May 24	2129	478	88	1088
Fisher, Louis, and E. W. Reynolds, Brooklyn, N. Y., assignors to Mergenthaler Linotype Company, of New Jersey. Linotype-machine	602,129	Apr. 12	931	208	88	186
Fisher, Thomas N., assignor of one-third to R. E. Clawson, Cincinnati, Ohio. Seal						
Fisk, Homer W. (See Pulver, Andrew J., assignor.)	603,377	May 3	227	50	88	644
Fitch, John H., Wesley, Mich. Ratchet-wheel wrench	604,208	May 17	1803	406	88	1000
Fitch, Thaddeus S., Oakland, Cal. Pocket cigarette-machine	604,232	May 17	1840	412	88	1007
Fitshet, William R., Pinnebog, Mich. Dumb-waiter						
Fitz Gerald, W. T. (See Gray, John, assignor.)						
Flagg, George H. P., trustee. (See Graham, Charles E., assignor.)	603,947	May 10	1274	290	88	864
Flanagan, Thomas L., Vicksburg, Miss. Truck for handling railway-rails						
Flanders, Leonard H. (See Manes, James, assignor.)						
Fleming, Cephas. (See Mullins and Fleming.)						
Flemming, Carl E. (See Grommann, Hugo, assignor.)	606,580	June 28	2790	644	88	1942
Fletcher, Albert, and J. L. Crisler, Alert, Okla. Ter. Fence	603,629	May 10	714	159	88	755
Fletcher, Evelyn A., Toronto, Canada. Separable object-lesson keyboard	602,576	Apr. 19	1696	396	88	350
Fletcher, John R., Dayton, Ohio. Bracket for insulators, &c	605,413	June 7	685	152	88	1484
Fletcher, William A., Beaumont, Tex. Log-hauling locomotive	602,739	Apr. 19	1990	------	88	407
Fletcher, William M., Vicksburg, Miss. Compound for destroying vegetation						
Flickinger, William B. (See Keller, Henry, assignor.)						
Flocker, Franklin J. (See Lance and Flocker.)	601,791	Apr. 5	326	66	88	61
Flood, John, and J. Kipling, Quebec, Canada. Apparatus for generating acetylene gas	602,630	Apr. 19	1776	405 406	88	366
Flory, Eli and T., Defiance, Ohio. Apparatus for expressing cider						
Flory, Timothy. (See Flory, Eli and T.)	604,657	May 24	2625	601	88	1175
Flowers, Samuel, Gallon, Ohio. Washing-machine	606,055	June 21	1865	434	88	1746
Floyd, Theodore B., assignor of one-half to S. S. Bibbens, Syracuse, N. Y. Office-indicator	604,379	May 24	2130	478	88	1063
Flyckt, John J., Warren, Minn. Chisel-holder	606,032	June 7	46	15	88	1361
Fobes, Charles M., West Williamsfield, Ohio. Bicycle-brake	601,642	Apr. 5	30	6	88	8
Fogleman, David L., Danville, Pa. Stove-truck	604,676	May 24	2661	610	88	1183
Follansbee, John, Pittsburg, Pa. Weather-strip						
Folsom, Frank D., *et al.* (See Toward, Charles P., assignor.)						
Folsom, George F., assignor to H. M. Esselen, manager, Boston, Mass. Snow-guard	602,963	Apr. 26	2430	551	88	504

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Folts, Roy S., and C. A. Phillips, New Castle, Pa. Gage for liquid in vessels	602,060	Apr. 12	833	180	88	160
Folwell, Philip C., assignor of two-fifths to G. H. Leslie and G. Hambly, Toronto, Canada. Safety cut-off for gas-cocks	602,223 605,414	Apr. 26 June 7	2243 667	648 153	88 88	585 1485
Fonteine, Herman A., Auburn, N. Y. Vehicle-tire						
Foote, Andrew W. (See Wagner and Foote.)						
Foote, Perley K. (See Arnold, Ithamar, assignor.)	604,823	May 31	2918	668	88	1350
Forbes, Charles S., Strathdon, Scotland. Condenser	604,354	May 17	2083	467	88	1054
Ford, John B., Creighton, Pa. Tombstone	602,316	Apr. 12	1264	279	88	255
Fordham, Richard B., Rahway, N. J. Window clothes-hanger	605,247	June 7	353	80, 81	88	1418
Fordney, William J., Lancaster, Pa. Fare-recorder						
Fordyce, Alexander R., assignor to American Metal Lath Fire Proof Construction and Manufacturing Company, Newark, N. J. Roller-die for making metallic lathing	604,695	May 24	2705	618	88	1190
Forrey, George J., assignor of one-half to S. L. Diven, Carlisle, Pa. Car-coupling	601,643	Apr. 5	31	7	88	8
Forsheim, Joseph. New York, N. Y. Clasp	603,401	May 3	271	60	88	632
Forster, John D., London, England. Prepaid gas-supply meter	602,002	Apr. 5	720	153	88	136
Förster, Julius F., assignor to E. O. Beyer, Leipsic, Germany. Door-buffer	603,785	May 10	978	218	88	807
Förster, Otto, Wernigerode, Germany. Arch-stone	604,658	May 24	2626	601	88	1176
Forstner, Thomas, New Ulm, Minn. Wrench	601,772	Apr. 5	260	57	88	55
Forsyth, Ebenezer. (See Furley and Forsyth.)						
Forsyth, James B., Boston, Mass. Elastic tire for vehicles	603,268	May 3	46	12	88	609
Forsyth, Wilber D., and E. T. Bell, assignors to Union Boiler Tube Cleaner Company, Pittsburg, Pa. Boiler-tube cleaner	605,951	June 21	1681	386	88	1709
Forsythe, Edward A. (See Aske, Charles B., assignor.)	606,130	June 21	2094	463	88	1773
Fortaner, Ernst, Munich, Germany. Cutting-tool for pipes and bars	608,108	Apr. 26	2023	506	88	542
Forter, Samuel, New Castle, Pa. Reverse-valve						
Forth, Charles, assignor, by mesne assignments, to American Metal Lath Fire Proof Construction and Manufacturing Company, Newark, N. J. Die for making metallic lathing	604,525	May 24	2207	545	88	1121
Fortuño, Manuel, deceased; F. B. Turpin, Washington, D. C., administrator. Ticket-holder and register	604,923	May 31	3006	711 712	88	1284
Fosby, Charles, Rutherford, N. J. Means for stiffening circular saws	601,773	Apr. 5	260	57	88	55
Foster, Charles W., New Haven, Conn. Reversible-blade propeller	602,902	Apr. 26	2270	517 518	88	475
Foster, Duane A., Santa Rosa, Cal. Wagon-brake	604,880	May 24	2131	478	88	1083
Foster, Edwin L., assignor of one-half to T. E. King, Springfield, Mass. Device for amusing children	602,215	Apr. 12	1095	240	88	220
Foster, George S., Buda, Ill. Apparatus and building for unloading and storing grain	602,502	Apr. 19	1571	359	88	329
Foster, George S., Buda, Ill. Cork-extractor	602,503	Apr. 19	1573	359	88	329
Foster, Julian A., Salem, Wis. Vehicle-wheel	606,531	June 28	2791	644	88	1942
Foster, R. Guy, *et al.* (See Johnston, Abner, assignor.)						
Foster, Robert. (See Long and Foster.)						
Foster, William, *et al.* (See Gannoe, Thomas A., assignor.)	603,444	May 3	248	78	88	607
Foster, William T., Bozeman, Mont. Tilting gate	603,092	May 10	802	177	88	773
Fournier, Eugène, Paris, France. Aldehyde-lamp	605,476	June 14	773	178	88	1329
Fournier, Eugene, Paris, France. Syringe	604,650	May 24	2627	601	88	1176
Fournier, Joseph B., Paris, France. Apparatus for using liquefied or compressed gas	601,774	Apr. 5	291	58	88	55
Fowler, Robert F., assignor of one-half to B. Dick, Canton, Ohio. Machine for folding slip-joints for eaves-troughs	604,660	May 24	2639	601 602 603	88	1176
Fowler, Robert H., and G. S. Tuer, Leeds, England. Traction-engine with winding-drum	606,410	June 28	2567	594	88	1897
Fowler, Susannah L., Kensington, Md. Abdominal supporter	604,586	May 24	2309	546	88	1131
Fowler, Thomas J., Topaz, Cal. Pipe-wrench	606,005	June 21	1786	409 410 411	88	1728
Fowler, William M., Stamford, Conn. Machine for filling and corking bottles	606,482	May 3	435	96, 97	88	665
Fox, Charles H., Cincinnati, Ohio. Steam-boiler	606,908	May 3	478	106	88	909
Fox, Charles H., Cincinnati, Ohio. Steam-generator	602,317	Apr. 12	1265	279	88	255
Fox, George D., Buffalo, N. Y. Cooking apparatus	602,436	Apr. 19	1468	333	88	309
Fox, Jacob G., assignor to R. A. Smith, Bay City, Mich. Shipping-box						
Fox, John N., *et al.* (See Fawcett, John W., assignor.)	605,093	June 7	47	15	88	1362
Fox, Willard H., New Haven, Conn. Envelop-opener	601,851	Apr. 5	454	91	88	84
Frack, Alfred B., assignor to H. C. Marshall, Girard, Ohio. Wrench	605,895	June 21	1516	348	88	1678
Fraipont, Louis E., Paris, France. Apparatus for vaporizing oils	602,740	Apr. 19	1990	451	88	407
Frame, William H., Peabody, Mass. Fence-post						
France, Joseph R., assignor to Arlington Manufacturing Company, New York, N. Y. Manufacturing pyroxylin compounds in imitation of marble	603,596	May 3	533	117	88	703
Francis, John J. and L. C., Cincinnati, Ohio. Washing-machine	606,131	June 21	2025	464 465	88	1778
Francis, Louise C. (See Francis, John J. and L. C.)	604,878	May 31	3017	692	88	1269
Francisco, Calvin, Newark, N. J. Can-opener						
Franck, Carl, *et al.* (See Wascinski, Alexander, assignor.)						
Frank, Louise A. (See Dwyer, Patrick V., assignor.)						
Franke, Adolf, Berlin, Germany. Cash-register	603,842	May 10	1092	244 245	88	828
Franke, August H., St. Louis, Mo. Oil-filter	603,227	May 3	145	34	88	630
Franklin, Charles R., San Francisco, Cal. Steam-trap	602,657	Apr. 19	1842	420	88	378
Franz, William, Allegheny, assignor, by mesne assignments, to Improved Street Sweeper Company, Pittsburg, Pa. Street-sweeper	605,415	June 7	688	153 154	88	1485
Fransen, Harm H., Golden, Ill. Weather-strip	606,266	June 28	2514	584	88	1687
Fraser, James, London, England. Gas-producer	603,295	May 3	148	34, 35	88	631
Fraser, W. A. (See Shaw, Elver H., assignor.)	601,672	Apr. 5	488	100	88	91
Fraser, William, Dobbs Ferry, N. Y. Wagon-brake						
Fravel, Charles H. (See Boynton and Fravel.)	603,898	May 10	1195	270	88	849
Frazee, Ira B., Blairstown, Iowa. Alarm	603,816	May 10	1088	231	88	819
Frazine, William H., Montpellier, Cal. Hay-cocking machine						
Frederick, Robert G. (See Biddinger, Albert W., assignor.)	605,444	June 7	727	164	88	1402
Frederickson, Clayton E., Denver, Colo. Ratchet monkey-wrench	606,355	June 28	2431	562	88	1873
Frederickson, Jorgen, Gaylord, Mich. Saw-set	605,543	June 14	871	204	88	1541
Fredson, Samuel C., Woosung, Ill. Bouquet-holder	605,445	June 7	726	164 165	88	1402
Freeble, Thomas M., Latrobe, assignor of one-fourth to T. B. Atterbury, Jr., Pittsburg, Pa. Powder-motor	604,063	May 17	1472	330	88	937
Freed, Isaac, Harrisburg, Pa. Electrical safe-protection system	606,336	June 28	2432	562	88	1873
Freed, Isaac, Harrisburg, Pa. Safe for passenger-cars						
Freeman, Edward S. (See Kaneki and Freeman.)						
Freeman, James T., *et al.* (See Parkhurst, Edward B., assignor.)	601,955	Apr. 5	652	137	88	122
Freeman, Simon J., Bradford, Pa. Strainer for coffee-pots						

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Freeman, Thomas E. (See Henderson and Freeman.)						
Freeman, Warren P., New York, N. Y. Instrument for calking ships	606,199	June 28	2153	494	83	1816
Fremerey, Alfred, Cologne, Germany. Rope-tread horseshoe	604,084	May 17	1474	330	83	937
French, Hiram W., Bellevue, Pa. Apparatus for forming hair felt	606,163	June 21	2084	479, 480	83	1784
French, Leroy W., Phillipsburg, Kans. Animal-poke	604,744	May 31	2796	640	83	1296
French, Marcellus, Houston, Va. Balloon-torpedo	606,189	Apr. 26	2747	625	83	567
Freshour, Henry C., Bridgeport, Conn. Rubber pump-bucket	605,707	June 14	1191	274	83	1600
Fretwell, John A., Buford, Ga. Back-band for harness	606,008	Apr. 5	721	153	83	136
Fretz, Samuel S., Philadelphia, Pa. Detachable handle for umbrellas or parasols	605,708	June 14	1192	275	83	1600
Freund, Jacob, Cincinnati, Ohio. Tile and arrangement thereof in roofs	604,085	May 17	1475	330	83	937
Frick & Lindsay Company. (See Adams, Samuel, assignor.)						
Fridstrom, Axel, *et al.* (See Larson and Branzell, assignors.)						
Fried. Krupp Grusonwerk. (See Steinbach, Reinhold, assignor.)						
Friedenwald, Joseph. (See Wiesenfeld, Robert S., assignor.)						
Friedman, Edgar, assignor of one-fifth to L. Baeppler, Dobbs Ferry, N. Y. Apparatus for racking beer, ale, or other liquors	606,256	Apr. 12	1159	254	83	284
Friedrich, Ludwig, Pittsburg, Pa. Glass-worker's tool	606,200	June 28	2153	494	83	1816
Fries, William A., Sr., Brooklyn, N. Y. Bottle	603,527	May 3	585	118	83	708
Friese-Greene, William, assignor to Automatic Photo Printing Syndicate, Limited, London, England. Means for composing characters and producing photographic negatives therefrom	602,439	Apr. 19	1469	334, 335, 336	83	309
Frisbee, Daniel D., Detroit, Mich. Fence	605,004	June 7	49	15, 16	83	1362
Frisbie, Henry R., Belleville, assignor of one-half to D. Dodd, Newark, N. J. Valve-handle	604,606	May 24	2707	618	83	1190
Fritschie, Emil, assignor to himself and J. Schottmuller, New York, N. Y. Valve for pneumatic tires	603,200	May 3	47	12	83	609
Fritz, Harry A., Chicago, Ill., assignor to Universal Car Bearing Company, New York, N. Y. Car-axle bearing	605,817	June 14	1399	320	83	1638
Fritz, Louis. (See Bechtel and Fritz.)						
Fritze, Carl. (See Zeatermann, Adolph, assignor.)						
Frohlich, George W., Chicago, Ill. Display-box	605,248	June 7	355	81	83	1418
Frost, Cassius C., Fulton, Ohio. Parachute	604,976	May 31	3169	730	83	1299
Frost, Everett C. (See Haffey, James F., assignor.)						
Frost, Fred J., T. Souers, and C. W. Cooledge, Grundy Centre, Iowa. Check-hook	608,284	Apr. 26	2845	649	83	585
Frost Gear Case Company. (See Phillips, Norman A., assignor.)						
Frost, Thomas. (See Haynes, Henry, assignor.)						
Frost, Walter E., assignor to O. S. Ham, Lewiston, Me. Automatic electric fire-alarm	603,270	May 3	49	12	83	610
Frost, Walter S., London, England. Atomizer	602,070	Apr. 12	834	181	83	189
Fry, George B., Bynum, Mont. Cashier-protector	602,741	Apr. 19	1992	451	83	407
Fry, John H., assignor of one-third to L. A. Cornelius, Grand Rapids, Mich. Hose-nozzle	604,086	May 17	1476	331	83	937
Frydmane, Jules, Paris, France. Apparatus for copying, registering, checking, and adding	604,977	May 31	3170	730, 731	83	1299
Frye, Charles E., Wilton, N. H. Cutter-bar	604,311	May 17	1997	448	83	1036
Fryer, George G., assignor to Solvay Process Company, Syracuse, N. Y. Filtering apparatus	606,453	June 28	2647	609	83	1914
Frykholm, Nils E. (See Ringström, August V., assignor.)						
Fuchs, Adolph. (See Jassen, Bern, assignor.)						
Fuchs, Edward, assignor to New York Stencil Works, New York, N. Y. Fare-register	602,700	Apr. 19	1998	438	83	305
Fuchs, Gustav, assignor to M. Koblenzer, Vienna, Austria-Hungary. Device for collecting contents of contribution-boxes	604,587	May 24	2400	546	83	1131
Fugman, Godfrey, Cleveland, Ohio. Metallic partition	601,573	Apr. 5	490	101	83	91
Fuhlmann, Herman C., Eliza, Ill. Non-refillable bottle	602,156	Apr. 12	996	216	83	201
Fuhr, Henry J. (See Fuhr, John C. and H. J.)						
Fuhr, John C. and H. J., Williamsburg, Ohio. Carbureter	604,982	May 31	3108	714, 715	83	1237
Fuller, Bert, Sacramento, Cal. Carpenter's tool	602,130	Apr. 12	982	204	83	186
Fuller, Cornelius, Warren, R. I., assignor of one-half to Somerset Stove Foundry Company, Somerset, Mass. Grate	604,143	May 17	1660	377	83	976
Fuller, Frederick L., Trenton, N. J. Price-scale	602,658	Apr. 19	1843	430	83	378
Fuller, Frederick L., Trenton, N. J. Indicating or like mechanism for price-scales or other machines	603,503	May 3	481	107	83	693
Fuller, Frederick L., Trenton, N. J. Indicating or like mechanism for price-scales	603,504	May 3	484	107	83	694
Fuller, Frederick L., Trenton, N. J. Indicating or like mechanism for price-scales	603,505	May 3	489	108	83	695
Fuller, James T., Calvert, Tex. Pneumatic cotton-handling machine	604,057	May 17	1477	331	83	937
Fuller, James W. (See Snyder, William T., assignor.)						
Fuller & Johnson Manufacturing Company. (See Starks, Nils O., assignor.)						
Fuller, Lawson M., New York, N. Y. Blank cartridge	604,894	May 31	2919	668	83	1250
Funk, Emra W., Canton, Minn. Music-turner	601,644	Apr. 5	33	7, 8	83	8
Furley, Joseph F., North Sydney, and E. Forsyth, Willoughby, New South Wales. Bicycle-support	605,477	June 14	774	178	83	1522
Furness, Frank, Philadelphia, Pa. Nosing-strip for stairways	606,532	June 28	2702	644	83	1943
Fyfe, Daniel, Covington, Tenn. Differential gearing	605,416	June 7	602	154	83	1486
G. W. Jones Lumber Company. (See Stewart, David S., assignor.)						
Gabel, Henry F., Pittsburg, Pa. Gas-burner for water-heaters	604,209	May 17	1805	406	83	1001
Gabel, Henry F., Pittsburg, Pa. Water-heater valve	606,132	June 21	2033	465	83	1773
Gabel, John C., Jr. (See Owen, Gabel, and McKinney.)						
Gaffney, Charles H., assignor to W. B. Lantz, Gloucester, Mass. Seine-pursing machine	604,312	May 17	1998	448	83	1036
Gaffney, Frank C. (See Rosander and Pearson, assignors.)						
Gage-Downs Company. (See Mayer, Murray C., assignor.)						
Gaines, Charles A., assignor to C. Mendelson, New Orleans, La. Apparatus for carbonating liquids	602,986	Apr. 26	2249	536	83	491
Gair, Marie, New York, N. Y. Skirt-supporter	603,760	May 10	928	206	83	797
Gaisman, Henry J., New York, N. Y. Belt	603,034	Apr. 26	2485	564	83	516
Galbrun Gustave L., New York, N. Y. Propelling mechanism	603,440	Apr. 19	1475	336	83	310
Gale, Merritt F. (See Crowell and Gale.)						
Gallagher, Darius F., New York, N. Y. Clothes-line brush	606,488	June 28	2691	620	83	1993
Gallagher, Richard D., Jr., Chicago, Ill. Refrigerator	602,599	Apr. 19	1740	395, 396	83	359
Gallagher, Thomas M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Truck-frame	604,608	May 24	2546	581	83	1160
Gallagher, Thomas M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Transom for car-trucks	604,610	May 24	2549	582	83	1161
Gallagher, Thomas M., St. Louis, Mo., assignor to Shickle, Harrison & Howard Iron Company. Car-bolster	604,609	May 24	2548	581, 582	83	1161

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gallagher, Thomas M., St. Louis, Mo., assignor to Shickle, Harrison & Howard Iron Company. Car-coupling	605,055	May 31	2309	760	83	1336
Gallegos, José, Guatemala, Guatemala. Electrical foot-gear	603,195	Apr. 26	2055	609	83	555
Gallinowsky, Hugo, assignor, by mesne assignments, to Litbosite Manufacturing Company, St. Louis, Mo. Manufacturing cement	605,637	June 14	1068	.....	83	1576
Galloway, William J. (See Harmsel and Galloway.)						
Gallwey, Edwin J. P., Weymouth, England. Coin-freed apparatus for delivering stamps, &c	601,852	Apr. 5	455	92	83	85
Galpin, Frederic, Williamsfield, Ill. Rotary steam-engine	605,564	June 14	916	215	83	1550
Gamble, Joseph W., Philadelphia, Pa. Injector	602,587	Apr. 19	1637	378	83	340
Gannon, Thomas A., assignor of one-half to E. E. Bryner, S. T. Borts, W. Foster, O. Peterson, F. Morse, P. L. Billings, A. W. Williams, W. T. Bailey, and D. H. Dunbar, Jr., Bradford, Pa. Auger-handle	605,781	June 14	1331	305	83	1635
Gansel, Firm of I. (See Dallmann, Erich, assignor.)						
Gapsch, Richard, *et al.* (See Brengman, John, assignor.)						
Garcia, Antonio C., Modesto, Cal. Automatic steering-head for bicycles	605,417	June 7	604	154	83	1486
Gardiner, Fred A., Dedham, Mass. Boiler	603,877	May 10	1160	261, 262	83	842
Gardiner, Joseph B., Boston, assignor of one-half to A. H. Sawyer, Newburyport, Mass. Seat for couches	605,095	June 7	50	16	83	1362
Gardner, Douglas, and E. B. Hartley, Birmingham, England. Handle-bar for cycles	601,798	Apr. 5	327	66	83	62
Gardner, George L., assignor of one-half to F. D. Bittinger, Dayton, Ohio. Muffler for engines	606,280	June 28	2321	537	83	1850
Gardner, Harry F., and F. J. Benscoter, Macksville, Kans. Lock-nut	603,683	May 10	904	177	83	774
Gareau, Roch R., Detroit, Mich. Illuminated clock-dial for indicators, &c	605,312	June 7	486	109	83	1444
Garis, David V., assignor of one-half to C. L. Schwarz, Philadelphia, Pa. Hat-fastener	606,006	June 21	1790	411	83	1728
Garland, Charles L., Sydney, J. and S. E. Murray, Cowra Creek, New South Wales. Centrifugal amalgamator and separator	604,978	May 31	3176	732	83	1300
Garman, James A. (See Cramer and Garman.)						
Garneau, Joseph A., St. Roche, Canada. Corset	603,843	May 10	1095	245	83	829
Garnett, Carroll, Front Royal, Va. Bolt-fastening	604,906	May 31	3043	698	83	1274
Garrett, James A., Troy, Tex. Cotton-seed separator	605,583	June 28	2793	645	83	1943
Garrett, James V., Crawfordville, Ga. Combination-scaffold	604,979	May 31	3178	732	83	1300
Garrigus, Walter A., and R. Golling, Lenoir City, Tenn. Nut-lock	604,114	May 17	1633	366	83	997
Gartland Foundry Company. (See Short, Robert L., assignor.)						
Gartner, Alfred, assignor to Inventor's Novelty Manufacturing Company, Paterson, N. J. Exhibiting-cabinet	605,222	June 7	308	71	83	1410
Gartrell, John H., Penmance, England. Apparatus for swaging dental plates	605,223	June 7	310	71	83	1410
Garver, Martin V., Bryan, Ohio. Wheelbarrow	602,504	Apr. 19	1574	360	83	350
Gaskill, Joshua, *et al.* (See Moon, Frank D., assignor.)	604,579	May 24	2502	560	83	1151
Gass, William G., and J. Tonge, Bolton, England. Portable pump	603,271	May 3	50	13	83	610
Gates Iron Works. (See Hanna, Elmer E., assignor.)	603,272	May 3	51	13	83	610
Gatling, Richard J., New York, N. Y. Cotton-thinner	605,313	June 7	487	109	83	1444
Gaul, Ray, Brooklyn, N. Y. Furnace	608,694	June 28	2949	.....	83	1973
Gaylord, John F., Portsmouth, Va., assignor, by mesne assignments, of one-fourth to M. L. Straus, Baltimore, Md. Automatic-lever switch	606,133	June 21	2034	466	83	1774
Gebhardt, William, assignor of one-half to A. Kronkosky, San Antonio, Tex. Food compound and making same	602,538	Apr. 19	1639	373	83	341
Geddes, Jane, Rutland, Vt. Convertible couch	602,318	Apr. 12	1206	280	83	255
Gedge, George E., Springfield, Ohio. Harrow	605,952	June 21	1663	386	83	1710
Geidt, Henry, Baltimore, Md. Bicycle-support	603,684	May 10	905	177	83	774
Gee, Horace L., assignor to Diamond Truck and Car Gear Company, Kingston, N. Y. Truck for motor-cars, &c						
Geiger, John P., Orwigsburg, Pa. Throttle						
Gem Flexible Insole Company. (See Hadaway, John B., assignor.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Stone and Doane, assignors.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Wirt, Herbert C., assignor.)						
General Electric Company. Hydrant and stand-pipe	604,611	May 24	2550	582	83	1161
Geneest, Ludger, Hull, Canada.						
Geneva Cycle Company. (See Castle, William H., assignor.)	603,457	May 3	319	73	83	661
Gennert, Emil F., New York, N. Y. Candle-lamp for photographic dark rooms						
Geo. P. Blake Manufacturing Company. (See Hall, Albert F., assignor.)						
Geo. F. Blake Manufacturing Company. (See Laval, George de, assignor.)						
Gerber, Cornelius, *et al.* (See Durham and Devine, assignors.)						
Gerber, Cornelius, *et al.* (See Reed, Roger E., assignor.)						
Gerber, D. Milton, *et al.* (See Durham and Devine, assignors.)						
Gerber, D. Milton, *et al.* (See Reed, Roger E., assignor.)						
Gerber, George H. (See Mengel, Blakley, and Gerber.)						
Gere, Theodore D. (See Sauerbrey, Christian, assignor.)						
Gerry, James H., Brooklyn, N. Y., assignor, by mesne assignments, to I. P. Lampson, Cleveland, Ohio. Time-recorder	602,296	Apr. 12	1215	267, 268	83	344
Gersant, Jules, Deal, and A. G. Buttifant, London, England. Means for hermetically sealing metal boxes, &c	605,604	June 14	1000	231	83	1563
Gersant, Jules, Deal, and A. G. Buttifant, London, England. Can-side-seam-fusing machine	605,605	June 14	1001	231	83	1563
Gesner, George W., New York, assignor to H. C. Gesner, Brooklyn, N. Y. Process of and apparatus for alloying iron and hydrogen	604,580	May 24	2508	560	83	1151
Gesner, Harleston C. (See Gesner, George W., assignor.)						
Gibbs Electric Company. (See Gibbs and Stone, assignors.)						
Gibbs, George, Milwaukee, Wis., and I. Stone, Chicago, Ill., assignors to Gibbs Electric Company, Milwaukee, Wis. Automatic stop mechanism for printing-presses	605,478	June 14	776	178	83	1522
Gibbs, George, W. S. Johnson, and H. Winkenwerder, Milwaukee, Wis. Controlling mechanism for electric motors	605,953	June 21	1669	387	83	1711
Gibbs, James E. A. (See Willcox, Gibbs, and Borton.)	604,745	May 31	2798	640	83	1227
Gibbs, Lucius T., New York, N. Y. Compressed-air engine						
Gibney, John, *et al.* (See Towers, Edmund, assignor.)						
Gibson, Frank W. (See Burs, George, assignor.)	603,829	May 10	1072	240	83	894
Giddings, Charles M., Rockford, Ill. Engine-governor	605,818	June 14	1400	321	83	1686
Giddings, Howard, Chicago, Ill. Pendent cigar-lighter						
Gleeson, John. (See Janin, John V., assignor.)						
Gleisler, Arthur, assignor to Stilwell-Bierce & Smith-Vaile Company, Dayton, Ohio. Atmospheric gas-compressor	603,802	Apr. 19	2108	474, 475, 476	83	498
Gifford, Arthur, assignor to Gifford Brothers, Hudson, N. Y. Ice-handling machinery	604,007	May 10	1494	318, 319	83	897

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gifford Brothers. (See Gifford, Arthur, assignor.)						
Gifford, John, Watertown, N. Y. Snow-shovel	606,534	June 28	2795	645	83	1943
Gifford, Leander W. (See Dupaw, Josiah, assignor.)	604,144	May 17	1661	378	83	976
Gigney, Edmund H., London, England. Transposing mechanism for pianofortes	604,088	May 17	1479	333	83	936
Gilbert, Augustine N., Berlin, N. H. Rotary engine	603,620	May 10	715	160	83	756
Gilbert, Daniel C. (See Wyssinger, Leonard, assignor.)	602,954	Apr. 26	2481	551	83	504
Gilbert, Frederick A., Brookline, and E. O. Lundin, Beachmont, Mass. Electric-arc lamp.						
Gilbert, John W., and H. H. Parker, Creek, Tex. Gate	605,460	June 7	750	171	83	1497
Gilbert, Melvin E., San Francisco, assignor of one-half to F. P. Wickersham, Fresno, Cal. Rotary engine	604,313	May 17	2000	448	83	1089
Gilbertson, Gilbert G., West Mitchell, Iowa. Pulverizing attachment for cultivators	601,750	Apr. 5	347	49	83	47
Giles, John H. (See Russell, John H., assignor.)	602,319	Apr. 12	1267	280	83	255
Gilfillan, Essington N., assignor of one-half to H. A. Wheeler, Chicago, Ill. Sash-fastener.						
Gilkey, Joseph A., Springfield, Oreg. Wagon-brake	606,337	June 28	2433	563 / 564	83	1873
Gill, Arthur B. (See Preston and Gill.)						
Gill, John, assignor of one-half to H. G. Peckham, Jersey City, N. J. Hydraulic engine	606,901	June 28	2155	494	83	1616
Gillam, James C., Coffeyville, Kans. Overshoe attachment						
Gillet, Joseph. (See Hoyt and Gillet.)						
Gillett, Clarence R., and O. S. Hellwig; said Hellwig assignor to said Gillett; said Gillett assignor to Gillett Generator Company, Chicago, Ill. Acetylene-gas generator	603,506	May 3	494	108	83	697
Gillett Generator Company. (See Gillett and Hellwig, assignors.)						
Gilliland, George W. (See Bowling and Gilliland.)						
Gilliland, James F., assignor to Adrian Box Company, Adrian, Mich. Box-printing machine	603,685	May 10	806	178	83	774
Gilmore, James J., Allegheny, Pa. Binder	602,742	Apr. 19	1903	458	83	407
Gilmour, Lyle J., Long Grove, Iowa. Tool for tighten ng wire fences	604,746	May 31	2800	640	83	1227
Giltonniere, Raoul R., de la. (See Singleton and Giltonniere.)						
Gingi, Edward L. (See Dinkelberg, Theodore, assignor.)	606,454	June 28	2451	610	83	1915
Girard, Ferdinand, Paris, France. Apparatus for applying liquids to textile fabrics						
Giron-Lanauze, Guillaume. (See Lafaurie and Giron-Lanauze.)	602,845	Apr. 26	2168	494 / 495 / 496 / 668 / 669	83	459
Giroud, Peter G., Newark, N. J., assignor to J. S. MacCoy, New York, N. Y. Workman's time-recorder	604,826	May 31	2920		83	1250
Gittus, Charles, Jr., assignor of two-thirds to A. F. Farman, Jr., and L. C. Gittus, Golden Gate, Cal. Music-leaf turner	605,043	May 31	2987	755	83	1321
Gittus, Charles, London, England, assignor of one-third to C., Jr., and L. C. Gittus, Golden Gate, Cal. Pin or peg for strings of musical instruments						
Gittus, Louis C., *et al.* (See Gittus, Charles, assignor.)	606,336	June 28	2436	564	83	1872
Gittus, Louis C., *et al.* (See Gittus, Charles, Jr., assignor.)						
Gizzi, Francis, New York, N. Y. Disinfecting apparatus	604,210	May 17	1806	406	83	1001
Glacken, Raymond M. (See Day and Glacken.)						
Glase, John O., Reading, Pa. Tool holder or carrier for bicycles	603,631	May 10	720	160 / 161	83	757
Glaskin, Edwin E., *et al.* (See Steward, George R., assignor.)						
Glasmachers, Gottfried, Essen, Germany. Blackboard	601,956	Apr. 5	653	137	83	123
Glasgow, Arthur G., *et al.* (See Green, Henry, assignor.)	605,535	June 28	2797	645	83	1944
Glatz, F. E., *et al.* (See Klemm, Hermann A., assignor.)	605,536	June 28	2799	645	83	1944
Glauber, Joseph H., Cleveland, Ohio. Stop and waste cock						
Glauber, Joseph H., Cleveland, Ohio. Pipe-coupling for broken water-closet bowls	605,249	June 7	356	81 / 82 / 83	83	1419
Gleason, James E., assignor to Gleason Tool Company, Rochester, N. Y. Machine for forming gear-teeth						
Gleason, Robert M., E. J. Jackoboice, and A. H. Waterson, Grand Rapids, Mich. Glue-jointing machine	601,956	Apr. 5	653	137	83	123
Gleason, Robert W. (See McLaughlin, John G., assignor.)						
Gleason Tool Company. (See Gleason, James E., assignor.)	602,662	Apr. 19	1897	432	83	360
Gleixner, Joseph A., Fair Haven, Pa. Seed-sower	606,455	June 28	2652	610	83	1915
Glennon, Joseph M., Chicago, Ill. Bicycle-seat support	602,749	Apr. 19	1904	452	83	406
Glidden, George F., Watertown, Mass. Device for closing punctures in pneumatic tires	605,181	June 7	221	54	83	1305
Glidden, William F., Ingersoll, Canada. Bicycle-wheel belt						
Glorieux, William L. (See Warter, Antoine, assignor.)	604,089	May 17	1480	333	83	938
Godin, Eugene, Three Rivers, Canada. Acetylene-gas generator	604,392	May 24	2132	479	83	1094
Goding, Edwin L., Portland, Me. Last	604,393	May 24	2133	479	83	1094
Goding, Edwin L., Portland, Me. Last	605,416	June 7	605	154	83	1497
Goetz, Charles, Viola, Idaho. Egg-carrier	606,134	June 21	2086	466	83	1774
Goetze, Max, assignor to W. G. Smith and C. C. Polk, Sturgis, S. D. Spark-arrester						
Goff, L. S., *et al.* (See Vance, Charles G., assignor.)	604,384	May 24	2134	479	83	1084
Gold, Edward E., New York, N. Y. Electric heater	602,280	Apr. 12	1266	280 / 281	83	256
Goldberger, Ignatz, Cleveland, Ohio. Undergarment	606,902	June 28	2156	495	83	1817
Goldberger, Ignatz, Cleveland, Ohio. Undergarment	606,903	June 28	2158	496	83	1817
Goldberger, Ignatz, Cleveland, Ohio. Undergarment	606,537	June 28	2800	646	83	1944
Goldenfarb, Henry, London, England. Cigarette	606,507	May 3	495	108	83	697
Goldie, Peter C., Brockton, Mass. Trousers-protector	601,645	Apr. 5	38	8	83	9
Goldie, William, Wilkinsburg, Pa. Rail-sustaining bar	601,646	Apr. 5	40	8	83	9
Goldie, William, Wilkinsburg, Pa. Rail-sustaining bar or plate	601,647	Apr. 5	42	8	83	9
Goldie, William, Wilkinsburg, Pa. Rail-sustaining bar or plate	603,168	Apr. 26	2748	625 / 626	83	568
Goldsmith, Byron B., New York, N. Y. Magazine lead-pencil	605,163	June 7	189	48	83	1366
Goldsmith, Byron B., New York, N. Y. Eraser	605,164	June 7	191	48	83	1367
Goldsmith, Byron B., New York, N. Y. Game or puzzle						
Goldsmith, Marcus K. (See Harris and Goldsmith.)						
Goldsmith, William H. (See Hamblin, Stephen M., assignor.)						
Goldthwait, Abel G. (See Griswold and Goldthwait.)	604,365	May 24	2136	480	83	1064
Goll, Richard, Frankfort-on-the-Main, Germany. Device for admitting air to furnaces						
Golland, Henry S. (See Whyte, John D., assignor.)						
Golling, Robert. (See Garrigus and Golling.)	604,467	May 24	2200	522	83	1114
Gomber, George W., Conyngham, Pa. Sealing device	605,709	June 14	1193	275	83	1600
Gomber, George W., assignor to H. Gomber, Conyngham, Pa. Sealing device						
Gomber, Harry. (See Gomber, George W., assignor.)						
Gomes, Joseph. (See Kughler and Gomes.)						
Good, Daniel D., *et al.* (See Cline, William, assignor.)	606,305	June 28	2171	496	83	1818
Good, Milton D., Abilene, Kans. Cake-turner						
Good, Robert J., Watertown, N. Y., assignor to Stiles & Fiadd Press Company, of New York. Drop-hammer	605,544	June 14	873	205	83	1541

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Goodale, A. M. (See Ryon, Eppa H., assignor.)	605,710	June 14	1194	275	83	1600
Goodall, George B., Sanford, Me. Plush fabric						
Gooder, Edwin. (See Cutler, James L., assignor.)	601,775	Apr. 5	298	58	83	56
Goodhue, William F., Milwaukee, Wis., assignor to Addyston Pipe and Steel Company, Cincinnati, Ohio. Land-roller						
Gooding, Charles W., *et al.* (See Parsons, John H., assignor.)						
Goodline, George, Paterson, N. J., and J. A. Clark, assignors to Crompton & Knowles Loom Works, Worcester, Mass. Picking mechanism for looms	604,897	May 31	3045	699	83	1275
Goodrich, Benjamin F. (See Merritt and Goodrich.)						
Goodridge, Ira C., Rochester, N. Y. Apparatus for disposing of garbage from buildings	603,483	June 28	2602	620	83	1923
Goodson, George A., Minneapolis, Minn. Composing-machine for type casting and setting machines	606,007	June 21	1791	411 / 412 / 413 / 414	83	1729
Goodson, George A., assignor, by mesne assignments, to Goodson Type Casting and Setting Machine Company, Minneapolis, Minn. Composing-machine for type casting and setting machines	605,954	June 21	1692	387 / 388	83	1712
Goodson, George A., assignor, by mesne assignments, to Goodson Type Casting and Setting Machine Company, Minneapolis, Minn. Type casting and setting machine	605,955	June 21	1695	388 / 389	83	1712
Goodson, George A., assignor, by mesne assignments, to Goodson Type Casting and Setting Machine Company, Minneapolis, Minn. Controller for type casting and setting machines	605,956	June 21	1701	389 / 390	83	1713
Goodson, George A., assignor, by mesne assignments, to Goodson Type Casting and Setting Machine Company, Minneapolis, Minn. Differential letter-space register for composing-machines	605,957	June 21	1708	390 / 391	83	1713
Goodson Type Casting and Setting Machine Company. (See Goodson, George A., assignor.)						
Goodwin, Asabel J., Brookline, Mass. Invalid-bedstead	603,632	May 10	721	161	83	757
Goodwin, Howard T. (See Dolley, Charles S., assignor.)						
Goodwin, John M., New York, N. Y. Dumping-vehicle	603,528	May 3	537	118	83	704
Goodwin, Julius C., Philadelphia, Pa. Buttonhole-sewing machine	606,304	June 28	2161	496 / 497 / 498	83	1817
Goodwin, Wesley R., Indianapolis, Ind. Oil-can	604,386	May 24	2137	480	83	1084
Goodwin, William W., Bordentown, N. J. Acetylene-gas generator	604,879	May 31	3018	668	83	1260
Goodwin, Fred R., assignor of three-fourths to J. Weber and J. N. Goolman, Los Angeles, Cal. Electropneumatic piano-player	603,184	Apr. 26	2752	626 / 627	83	568
Goolman, John N., *et al.* (See Goolman, Fred R., assignor.)	603,136	Apr. 26	2666	610	83	556
Gordon, Frederick W., Valley View, Tex. Gang-plow	606,135	June 21	2057	466	83	1774
Gordon, George, Lerna, Ill. Reversible mud-guard and storm-fender	602,441	Apr. 19	1476	337	83	310
Gordon, John A., Sharpsburg, Iowa. Reaping-machine.						
Gordon, William S. (See Clarke, Morgan, and Gordon.)	604,880	May 31	3021	693 / 694	83	1270
Gorham, George R., Chicago, Ill., assignor of one-half to A. R. Angle, Indianapolis, Ind. Grain-treating apparatus	605,446	June 7	733	166	83	1402
Gorman, John I. (See Carroll and Gorman.)						
Gorter, Henry H., assignor to M. E. Gorter, San Francisco, Cal. Portable water-battery	603,899	May 10	1197	271	83	849
Gorter, Mary E. (See Gorter, Henry H., assignor.)						
Gorton, Robert, Newton, Mass. Garment-supporter						
Gosney, Ezra S. (See Mendenhall, Walter E., assignor.)						
Goss, Edward O., assignor to Scovill Manufacturing Company, Waterbury, Conn. Lubricator	603,696	May 10	807	178	83	774
Goss, Godfrey W., Kokomo, Ind. Carbon transmitter	605,575	June 14	985	218	83	1558
Gottlieb, Edward O. (See Zaczek and Gottlieb.)						
Gottlock, Albert W., Brooklyn, N. Y. Rule and measuring-stick	602,131	Apr. 12	933	204	83	189
Gould, Charles M. (See Richards, Willard F., assignor.)						
Gould, Charles M. (See Wilhelm and Richards, assignors.)	604,214	May 17	2002	449	83	1089
Gould, Edwin F., assignor of one-half to C. B. Donworth, Machias, Me. Candy-machine	602,577	Apr. 19	1897	396	83	361
Gould, Frank J., Marion, Ind. Stove	601,730	Apr. 5	306	41	83	40
Gould, John D., Brooklyn, N. Y. Heat-detector for electric fire-alarm systems	602,071	Apr. 12	835	181	83	170
Goulding, George P., Charlotte, N. Y. Bottle-washer	602,216	Apr. 12	1097	241	83	220
Gowen, George, Chicago, Ill. Corn-harvester	603,165	Apr. 26	2758	627	83	569
Graber, Henry W., Dallas, Tex. Cotton-seed conveyer	602,072	Apr. 12	836	181	83	170
Grace, Annie T. (See Ballam, De Lacy E., assignor.)						
Grady, James F., Boston, and M. Hart, Cambridge, Mass. Marine velocipede	605,819	June 14	1401	321	83	1638
Grady, William, Cortland, N. Y., assignor of one-half to I. B. Fairchild. Sprocket-wheel for bicycles	602,505	Apr. 19	1575	360	83	330
Grafe, Franz A. F., Hamburg, Germany. Protector for incandescent mantles						
Graf, Carl, Mühlhausen, assignor to L. Ratzinger and W. Weidenkaff, Munich, Germany. Back-pressure valve for pneumatic tires	606,383	June 28	2517	584	83	1887
Graham, Charles E., Swampscott, assignor to G. H. P. Flagg, trustee, Boston, Mass. Flexible rotary wheel or brush	603,761	May 10	929	206	83	797
Graham, Charles E., Swampscott, assignor to G. H. P. Flagg, trustee, Boston, Mass. Buffing or polishing device	604,983	May 31	3110	715	83	1267
Graham, Jacob A., and J. W. Kile, Deerfield, Va. Car wheel and axle	601,648	Apr. 5	44	9	83	9
Graham, James A., and E. J. Birkett, assignors to Milwaukee Harvester Company, Milwaukee, Wis. Harvester-truck	602,080	Apr. 5	766	165	83	145
Graham, William G., Stanley, Kans. Continuous rail-brace	605,866	June 21	1517	349	83	1676
Graham, Willie, Meridian, Miss. Lumber-stacking apparatus	604,145	May 17	1668	378 / 379	83	976
Graham, Willie, Meridian, Miss. Lumber-stacking apparatus	604,146	May 17	1668	379 / 380	83	977
Graham, Willie, Meridian, Miss. Lumber-stacking apparatus	604,169	May 17	1723	388 / 389	83	984
Grand, Julien. (See Grenier and Grand.)						
Grandstaff, Charles D. (See Holler, John W., assignor.)						
Granger, Frank E. (See Crofoot and Granger.)	602,846	Apr. 26	2187	496	83	460
Granger, Horace D., Avon, assignor of one-half to E. Shelton, Hartford, Conn. Hinge						
Grannis, Charles W., *et al.* (See Jackson, Samuel, assignor.)						
Grannis, George D., *et al.* (See Jackson, Samuel, assignor.)						
Grannis, Martin R., *et al.* (See Jackson, Samuel, assignor.)	602,442	Apr. 19	1477	337	83	310
Grant, Charles N., Hull, Mass. Roller-toboggan	606,536	June 28	2801	646	83	1944
Grant, David S., Methuen, Mass. Pipe-cutter	605,966	June 7	498	98, 99	83	1425
Grant, George B., Lexington, Mass. Calculating-machine	606,164	June 21	2060	480	83	1794
Grant, John F., Lynn, assignor of one-half to C. L. Holland, Boston, Mass. Last	602,631	Apr. 19	1776	406	83	986
Grant, William W., Brooklyn, N. Y. Motor-vehicle						

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Grantland, John W. (See Sharp and Grantland.)						
Grapes, George H., Wellington, New Zealand, assignor of one-half to A. O'Brien, Summerfield, England. Preventing fraud in connection with contents of bottles or the like	602,044 602,597	Apr. 5 Apr. 12	786 1402	171 316	88 88	149 998
Grass, George L., Kingston, Canada. Automatic bicycle-lock						
Graves, Charles W. (See Verpillier and Graves.)	605,782	June 14	1338	305	88	1686
Gray, Frank, Atlantic City, N. J. Propelling mechanism for vessels	604,147	May 17	1660	390	88	976
Gray, John, Pittsburg, Pa., assignor to W. T. Fitz Gerald. Syringe	606,928	June 28	2295	536	88	1651
Gray, Joseph A., Carrolltown, Pa. Lock						
Gray, Lee L., *et al.* (See Cox, Cary S., assignor.)	601,957	Apr. 5	656	136	88	198
Gray, Reuben F., Washington, D. C. Noria						
Gray, Walter G., Marrowbone, Tenn., assignor to himself, and T. P. Allen, Elmo, Ky. Combined cotton-seed planter and fertilizer-distributer	603,900	May 10	1190	271	88	849
Gray, William H., Eddyville, Iowa. Corn-harvester	602,157	Apr. 12	906	{218 219 420	88	901
Gray, William H., Eddyville, Iowa. Corn harvester and binder	602,679	Apr. 19	1846	{421 422	88	979
Gray, William R. (See Cooley, John F., assignor.)	605,867	June 21	1519	349	88	1679
Greaves, Charles H. and G., Gomersal, England. Tire for cycles or other vehicles						
Greaves, George. (See Greaves, Charles H. and G.)	605,224	June 7	312	71	88	1411
Green, Casper, assignor of one-half to O. Cranor and J. Hammon, Dublin, Ind. Collapsible truck	602,156	Apr. 12	1000	219	88	901
Green, David J., Frontier, Mich. Saw-handle	604,898	May 31	3047	699	88	1275
Green, Edward J., and S. C. Brown, Saratoga Springs, N. Y. Carriage-washer						
Green, Frank A. (See Connet and Green.)						
Green, George S., Kalamazoo, Mich., assignor, by mesne assignments, to D. A. Dangler, Cleveland, Ohio. Handle-bar for bicycles	602,600 603,004	Apr. 19 Apr. 5	1741 733	397 154	88 88	259 126
Green, George W., South McAlester, Ind. Ter. Railway-signal	606,625	June 28	2951	{683 684 685	88	1973
Green, Henry, Preston, England, assignor to himself, A. C. Humphreys, and A. G. Glasgow, New York, N. Y. Prepayment fluid-meter	604,861	May 31	3088	694	88	1270
Green, Henry L., Worcester, Mass. Curtain-fixture	603,999	Apr. 26	2351	536	88	998
Green, James L. and Z. R., Kansas City, Mo. Lemonade-shaker	605,623	May 10	733	168	88	757
Green, Jerry S., Maquoketa, Iowa. Clothes-line support	605,280	June 7	425	96	88	1438
Green, John C., Cleveland, Ohio. Smoke-condenser	604,315	May 17	3004	449	88	1080
Green, Joseph, Philadelphia, Pa. Coin-holder						
Green, Luther S. (See McDaniel, William D., assignor.)	604,563	May 24	3472	522	88	1146
Green, Samuel, Mossley, England. Dash-pot for steadying mule-carriages						
Green, Thomas W., assignor to Wilbraham Baker Blower Company, Philadelphia, Pa. Oiler for shafts of pressure-blowers	601,649	Apr. 5	45	9	88	10
Green, Thomas W., assignor to Wilbraham Baker Blower Company, Philadelphia, Pa. Journal-box	602,297	Apr. 12	1217	266	88	945
Green, Willard R. (See Howard, Augustus, assignor.)						
Green, Zack B. (See Green, James L. and Z. R.)						
Greene, Albert L., deceased, Cranston; F. I. Greene, administratrix, assignor to C. A. Wilkinson, Warwick, and D. Wilcox, Providence, R. I. Spectacles	606,268	June 28	2287	530	88	1602
Greene, Fannie I., administratrix. (See Greene, Albert L.)	602,234	Apr. 12	1120	246	88	895
Greene, John W., Manchester, N. Y. Single-piece sheet-metal handle	603,901	May 10	1202	271	88	850
Greene, Thomas R., Milburn, Ky. Fence	601,929	Apr. 5	599	89	88	73
Greengard, Morris D., St. Louis, Mo. Shade-holder						
Greenwood, George, Chicago, assignor of one-half to F. E. Place, Peoria, Ill. Elastic-cushioned horseshoe	602,629	Apr. 19	1788	407	88	997
Greer, George W., Concord, N. H. Shoulder-stick	604,561	May 24	2305	570	88	1158
Greer, Green B., Camden, Tenn. Fence	602,217	Apr. 19	1099	241	88	931
Greger, Thomas P., Philadelphia, Pa. Manhole-cover	606,206	June 28	2172	498	88	1616
Gregory, Frank E., Victor, Mich. Grout water-tank machine	604,397	May 24	2138	480	88	1085
Gregory, Henry R., and R. H. Batton, Prescott, assignors of one-half to C. H. Dicks, Des Moines, Iowa. Straw-stacker	606,165 606,484	June 21 June 28	2091 2098	481 621	88 88	1765 1963
Greife, John, Dayton, Ky. Sash-fastener						
Grenier, Oscar, and J. Grand, Lyons, France. Apparatus for generating acetylene gas	606,589	June 28	2802	646	88	1945
Gribben, William, and H. W. Smith, Carsonville, Mich. Cover for crocks, &c	604,040	May 17	1481	338	88	998
Griese, August, Hamburg, Germany. Attachment for steam-boilers	606,264	June 28	2518	584	88	1697
Griffen, Arthur B., Verona, N. J., assignor to Acetylene Apparatus Manufacturing Company, of West Virginia. Apparatus for generating acetylene gas	605,958	June 21	1707	391	88	1714
Griffin, Judson M. (See Hoffman, William M., assignor.)						
Griffin, Russell B., Mexico, Mo., assignor of one-half to C. M. Amsden, L. T. and H. P. Watson, Minneapolis, Minn. Kneader	602,396	Apr. 12	1408	316	88	982
Griffis, Henry L., assignor of one-half to J. Deyo, New Paltz, N. Y. Playing-card	606,186	Apr. 26	2761	628	88	569
Griffith, William H., New York, N. Y. Chain-link	604,315	May 17	2006	449	88	1089
Griffiths, Ebenezer F., Philadelphia, Pa. Prepayment gas-meter	603,079	Apr. 26	2581	586	88	534
Griffiths, George, assignor of one-half to W. H. Avery, Los Angeles, Cal. Composite fuel and making same	604,317	May 17	2005	.....	88	1040
Grigsby, William F., Bruceville, Ind. Binder	602,443	Apr. 19	1479	326	88	911
Grimes, Charles, Rapid City, S. D. Gold-washer	604,980	May 31	3179	722	88	1801
Grimm, Alva S., St. Mary's, W. Va. Garment-supporter	603,073	Apr. 12	899	182	88	170
Grimm, Maximilian, West Hoboken, N. J., assignor to E. N. Dickerson and J. J. Suckert, New York, N. Y. Process of and apparatus for burning acetylene gas	605,868	June 21	1519	{349 350	88	1679
Griscom, Walter, *et al.* (See Loutzenhiser, Charles H., assignor.)						
Griswold, John W., and A. G. Goldthwait, Troy, N. Y. Machine for making wire fencing	604,041	May 17	1462	{332 333 334	88	998
Groff, Franklin L. (See Merritt and Groff.)						
Groignard, Marius, Marseilles, France. Valve	605,711	June 14	1196	{275 276	88	1600
Grommann, Hugo, assignor to C. E. Flemming, Schoenheide, Germany. Work-holder for brush-machines	603,187	Apr. 26	2702	{688 689 690	88	570
Gronquist, John L. (See Walquist, Nelson, and Gronquist.)						
Groom, John, assignor of one-half to O. Reuter, Denver, Colo. Water-gate	602,808	Apr. 19	2105	475	88	429
Gros, Christian, and J. F. Thomas, Delphi, Ind. Fence-post	602,744	Apr. 19	1996	452	88	406
Gros, Augustus, Sydney, New South Wales. Pump for inflating pneumatic tires	603,634	May 10	725	163	88	756
Gros, Elmer S., assignor to J. H. Hopkins, Ellsworth, Me. Heel-building machine	603,005	Apr. 5	794	154	88	187
Gros, George P., Rockaway Beach, N. Y. Sidewalk-curb and culvert-cover	603,561	May 3	884	180	88	714
Gross, Joseph, Milwaukee, Wis. Sad-iron	603,230	May 3	150	35	88	631

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Grosvenor, Wallace, Casselton, N. D. Transportation system	606,284	June 28	2328	{539 540	88	1852
Grote, Frederick, Huntingburg, Ind. Dirt-scraper	606,540	June 28	2905	646	88	1945
Grotenhuis, William J., and H. T. Sidway, Chicago, Ill. Velocipede	606,541	June 28	2906	647	88	1945
Groutage, James. (See Morris, Orson, assignor.)						
Grove, Charles E. (See Snell and Grove.)	604,582	May 24	2506	570	88	1162
Grove, David, Berlin, Germany. Covering-plate for channels for pipes, &c						
Grove, Frank G. (See Stover and Grove.)	601,650	Apr. 5	46	9	88	10
Grove, George H., Hummelstown, Pa. Collapsible crate						
Grover, Albert D. (See Romans and Grover.)	605,869	June 21	1521	350	88	1679
Groves, Robert S., Philadelphia, Pa. Securing device for bedsteads						
Grundy, George H., Derby, and G. A. Lingard, Old Normanton, England. Device for decorating tiles or plane surfaces	603,137 603,006	Apr. 26 Apr. 5	2088 736	610 155	88 88	556 137
Grundy, John, Jersey City, N. J. Night-robe						
Grunert, Alfred. (See Jonkhoff, Jan A., assignor.)						
Gsell, Henry B. (See Barnes, Joshua F., assignor.)						
Gubbins, Richard B., London, England. Building circular wooden structures	603,136	Apr. 26	2089	610	88	556
Gubelmann, William S., Buffalo, N. Y. Ball-bearing	605,870	June 21	1523	350	88	1679
Gue, Albert F., assignor to Gue-Bonner Company, Boston, Mass. Carpet-cleaner	601,711	Apr. 5	176	34	88	35
Gue-Bonner Company. (See Gue, Albert F., assignor.)						
Guerrant, George M., Danville, Va., assignor of two-thirds to C. O. Evans and J. M. Sheppard, St. Louis, Mo. Friction-loosening device and brake for propeller-shafts	605,545	June 14	876	205	88	1542
Guest, John H., assignor to L. M. Child, E. O. Achorn, R. S. York, W. L. Whitcomb, Boston, Mass., and C. H. Moore, Springfield, Vt. Electric railway	604,747	May 31	2801	641	88	1227
Guest, Theodore M., Moravia, N. Y. Wire-stretcher	604,148	May 17	1091	260	88	976
Gumtow, Hermann, Vienna, Austria-Hungary. Water-spraying apparatus	602,074	Apr. 12	840	192	88	171
Gunckel, Winfield O., assignor of one-fifth to G. W. Faris, Terre Haute, Ind. Air-brake valve	604,619	May 24	2551	582	88	1161
Gundersen, Gilbert S., Dayton, Ohio. Corn-husking machine	603,844	May 10	1097	246	88	899
Gundersen, Gilbert S., Dayton, Ohio. Corn-husker	604,289	May 24	2408	547	88	1128
Gundersen, Gilbert S., Middletown, Ohio. Corn-husking machine	603,845	May 10	1098	246	88	899
Gunn, H. L., *et al.* (See Hopper, Thomas B., assignor.)						
Gunn, Robert W. (See Axelson and Gunn.)						
Gunn, Shelton J., Grand Rapids, Mich. Tube-cleaner	603,762	May 10	930	207	88	798
Gunther, William H., Owensborough, Ky. Steam-engine governor	602,578	Apr. 19	1699	{396 397	88	851
Gunther, William H., Owensborough, Ky. Steam-engine governor	602,579	Apr. 19	1701	397	88	852
Gustafson, Walfrid, New York, N. Y., assignor to American Automatic Banjo Company, of New Jersey. Picker device for stringed musical instruments	606,207	June 28	2173	499	88	1619
Gustafson, Wictor A., Joliet, Ill. Telephone system	606,285	June 28	2351	540	88	1652
Gustaveson, Frank, Wabasha, Minn. Ball-bearing	602,701	Apr. 19	1061	426	88	996
Gutmann, Ludwig, Pittsburg, Pa. Electric transformer	602,218	Apr. 12	1100	242	88	931
Gutmann, Ludwig, Peoria, Ill. Transformer box and hanger	606,208	June 28	2174	499	88	1619
Guttenberg, Frederick, Brooklyn, N. Y. Water-cooler	604,748	May 31	2906	641	88	1228
Guy, Frederick S., London, England. Handle-bar for cycles	604,981	May 31	3181	723	88	1301
Guyer, Nelson, *et al.* (See Kissell, Aaron, assignor.)						
Guyer, Nelson, J. P. Kelly, and A. Kissell, Cygnet, Ohio. Automatic cut-off for oil-tanks	603,985	May 10	1299	305	88	875
Haarlaender, Otto J., Newark, N. J. Puzzle	605,096	June 7	51	16	88	1362
Habermaas, Edward W., St. Louis, Mo. Sash-lock	604,982	May 31	3168	723	88	1301
Hachenberg, Louis, assignor to E. F. Wattson and L. Sandford, New York, N. Y. Scale	605,638	June 14	1069	{245 246	88	1576
Hacker, Charles E., Brunswick, Me. Road-making machine	603,139	Apr. 26	2090	611	88	556
Hackett, John C., St. Louis, Mo. Lifting-jack	604,583	May 24	2507	570	88	1158
Hackett, William F., Winchester, Ky. Coin-controlled apparatus for dispensing liquids	604,318	May 17	2008	450	88	1040
Hadaway, John B., Brockton, Mass., assignor, by mesne assignments, to Gem Flexible Insole Company, of Maine. Insole-reinforcing machine	603,763	May 10	988	{207 208 209	88	798
Hadaway, John B., Brockton, Mass., assignor, by mesne assignments, to Gem Flexible Insole Company, of Maine. Insole-reinforcing machine	603,764	May 10	988	{209 210	88	799
Hadley, Charles O., McKeesport, Pa. Combined shelf and table	602,321	Apr. 12	1271	281	88	956
Hadsall, Amos, Mapleton, Oreg. Device for converting motion	604,896	May 31	2988	699	88	1251
Haenichen, Adolph, Paterson, N. J. Sash-holder	601,958	Apr. 5	657	136	88	122
Haenichen, Adolph, Paterson, N. J. Sash-fastener	601,959	Apr. 5	659	136	88	124
Haffcke, Charles, Baltimore, Md. Burner	606,136	June 21	2088	{466 467	88	1774
Haffey, James F. (See Baron and Haffey.)						
Haffey, James F., assignor of one-half to E. C. Frost, Tiffin, Ohio. Wire fence	602,444	Apr. 19	1461	336	88	911
Hagan, Elijah J., assignor of one-half to R. C. Ocheltree, Bayard, Iowa. Screen-door fastening	604,468	May 24	2300	533	88	1114
Hagan, Leo S., Brewer, Mo. Fruit-picker	605,419	June 7	696	155	88	1487
Hagemann, Paul, and H. Pasler, Stettin, Germany. Spark-catcher	603,378	May 3	298	51	88	644
Hagen, Arthur T., and D. M. Cooper, Rochester, N. Y. Starching-machine	606,411	June 28	2568	{594 595	88	1897
Hager, Carl M., Worcester, Mass. Egg breaking and measuring utensil	603,635	May 10	727	163	88	758
Hagey, H. Given. (See Schneider, John B., assignor.)						
Hahner, Elizabeth, *et al.* (See Wasciniski, Alexander, assignor.)	603,563	May 3	586	130	88	714
Haight, William E., McMinnville, Oreg. Neck-yoke						
Haines Electric Company. (See Haines, John H. J., assignor.)	602,257	Apr. 12	1163	{255 256	88	934
Haines, John F., Freeport, Pa. Soda-water apparatus	603,687	May 10	809	{178 179	88	775
Haines, John H. J., New York, N. Y., assignor to Haines Electric Company, Jersey City, N. J. Electric-arc lamp	606,008	June 21	1800	414	88	1780
Haines, Jones & Cadbury. (See Sharp and Grantland, assignors.)	605,420	June 7	697	155	88	1487
Haken, Eduard von, Charlottenburg, Germany. Coin-freed automatic machine						
Haldeman, John R., Springfield, Mo. Gate-hinge						
Hale, Johnson, *et al.* (See Roach, Henry B., assignor.)						
Hale & Kilburn Manufacturing Company. (See Norcross, William M., assignor.)						
Haley, William, assignor to National Mold and Casting Company, Beaver Falls, Pa. Cooling-table for glass-molds	602,399	Apr. 12	1405	{316 317	88	889
Hall, Albert, Brooklyn, N. Y. Button-back	604,682	May 31	3094	694	88	1271
Hall, Albert F., Boston, Mass., assignor to Geo. F. Blake Manufacturing Company, of New Jersey. Direct-acting steam-pump	604,618	May 24	2553	583	88	1162
Hall, Cofran L., assignor to Cahill & Hall Elevator Company, San Francisco, Cal. Apparatus for operating elevators	605,044	May 31	2890	755	88	1382
Hall, Daniel, and J. H. Kay, Ashton-under-Lyne, England. Humidifying air	602,745	Apr. 19	1997	453	88	406
Hall & Donahue Coffin Company. (See Donahue, John, assignor.)						
Hall, Edgar J., St. Louis, Mo. Street-indicator	602,746	Apr. 19	1997	453	88	406

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Hall, Edward, Worcester, Mass. Cloth-folding machine	604,749	May 31	2807	641	88	1228
Hall, Edward S., New York, N. Y. Plunger brake-head	601,651	Apr. 5	48	10	88	10
Hall, Edward S., New York, N. Y. Bicycle-brake	603,140	Apr. 26	2091	611	88	557
	604,859	May 31	2988	685 686	88	1363
Hall, Elijah C., Braintree, Mass. Heater	606,542	June 28	2807	------	88	1045
Hall, Francis B., Plattsburg, N. Y. Printing-ink	604,043	May 17	1490	335	88	940
Hall, Frank E., Quincy, Mass. Elastic tire	603,219	Apr. 26	2806	641	88	576
Hall, George A., assignor of one-half to G. E. Dayton, New York, N. Y. Gas-burner	604,983	May 31	3166	733	88	1301
Hall, Herbert E., Brooklyn, N. Y. Sanitary bowl	604,043	May 17	1491	335	88	940
Hall, Olive E., Oconto, Wis. Mattress	602,940	Apr. 26	2351	536	88	492
Hall, Orlando C., Wilkes-Barré, Pa. Manufacture of carriage-axles	604,750	May 31	2806	642	88	1229
Hall, Osborn B., Malden, Mass. Tire	603,617	May 10	1041	238	88	820
Hallbauer, Ernst M., Chicago, Ill. Can	602,008	Apr. 5	728	155 156	88	136
Hallé, Jacques, Paris, France. Moving way or stair for transporting persons and goods	602,219	Apr. 12	1101	249	88	288
Hallenbeck, Williard A., Hudson, N. Y. Puzzle	602,075	Apr. 12	843	189 188	88	171
Halley, Walter C., Halley, Ark. Cattle-guard	603,445	May 3	350	76	88	667
Hallock, Lee T., Danbury, Conn. Hat-packing ring	602,702	Apr. 19	1962	439	88	396
Hallstrom, Sven M., *et al.* (See Reid, Robert, assignor.)	605,097	June 7	58	16, 17	88	1362
Halsted, David F., Brooklyn, N. Y. Knit fabric for underwear, &c						
Ham, Edwin W., Worcester, Mass. Telephone system						
Ham, Orland S. (See Frost, Walter E., assignor.)						
Hamblin, Stephen M., Taunton, Mass., assignor of three-fourths to W. H. Goldsmith, Central Falls, R. I. Loom-shuttle	603,141	Apr. 26	2604	611	88	557
Hamblin, Stephen M., Taunton, Mass., assignor of three-fourths to W. H. Goldsmith, Central Falls, R. I. Loom-shuttle	603,603	May 3	656	146	88	729
Hambly, George, *et al.* (See Folwell, Philip C., assignor.)	605,421	June 7	698	155	88	1487
Hamburg, Eugene F., Rochester, N. Y. Cigar-box	604,044	May 17	1492	335	88	940
Hamel, Albert H., and A. N. Hibbert, De Soto, Mo.; said Hibbert assignor to said Hamel. Orthopedic appliance	602,076	Apr. 12	844	163 184	88	171
Hamerschlag, Arthur A., and T. H. Price, New York, N. Y. Cotton-picking machine						
Hamilton, Alpheus A., Philadelphia, Pa. Tangled-grain separator for harvesting-machines	606,137	June 21	3039	467	88	1775
Hamilton, Casslus M. (See Thomas and Hamilton.)	604,398	May 24	2139	480	88	1065
Hamilton, Edgar E., Berlin, Conn. Shipping box or crate						
Hamilton, Henry C., *et al.* (See Brengman, John, assignor.)	606,286	June 28	2384	540 541	88	1858
Hamilton, Hugh, Rochester, N. Y. Card-indexing file and locking mechanism	604,289	May 24	2140	481	88	1065
Hamilton, John L., Jr., Hoopeston, Ill. Adjustable handle-bar						
Hammann, Edward, Brooklyn, assignor to J. L. Mott Iron Works, New York, N. Y. Basin-fixture	603,727	May 10	875	194	88	787
Hammer, John H., Allegheny, Pa. Projectile	603,466	May 3	401	90	88	678
Hammer, Thorvald F., Branford, Conn. Pipe-joint and union	605,098	June 7	55	17	88	1365
Hammer, Willie A., Fairlie, Tex. Axle-repairing apparatus	603,636	May 10	727	163	88	758
Hammon, James, *et al.* (See Green, Casper, assignor.)	605,225	June 7	313	72	88	1411
Hammond, Myron B., Bridgeport, Conn. Garment-supporter	605,871	June 21	1524	351	88	1680
Hampel, Ernst, Haunold, Germany. Potato-digging machine	604,390	May 24	2142	481	88	1065
Hamren, Joseph L., Moville, Iowa. Loading or unloading machine	604,190	May 17	1772	390	88	995
Hance, Anthony M., Philadelphia, Pa. Display-box	604,347	May 17	1872	420	88	1013
Hancock, George, Providence, R. I. Safety-brake for elevators	605,920	June 14	1401	321	88	1638
Hancock, George, Providence, R. I. Safety-brake for elevators	604,391	May 24	2144	482	88	1066
Hancock, Henry J., New York, N. Y. Wrench						
Hancock, Henry L. (See Hancock, Henry R., H. L., and L. G.)	603,529	May 3	539	116 119	88	704
Hancock, Henry R., H. L., and L. G., Moonta Mines, South Australia. Rock-drill						
Hancock, John C. (See Hancock and Scholes.)						
Hancock, Leigh G. (See Hancock, Henry R., H. L., and L. G.)						
Hancock, William and J. C., and E. Scholes, Hollinwood, assignors of two-fifths to J. E. Lees and F. N. Tweedale, Oldham, England. Elastic wheel-tire	605,546	June 14	878	206	88	1542
Hancock, William D., Coffeyville, Kans. Shoestring-holder	604,917	May 31	3089	710	88	1283
Hand, August, Cleveland, Ohio. Billiard-table	605,872	June 21	1526	351	88	1680
Handiges, Philip T. (See Simpson and Handiges.)	604,934	May 31	3112	715	88	1298
Handiges, Philip T., Detroit, Mich. Car-coupling						
Hanford, Charles H. (See Staples and Bush, assignors.)						
Hanington, Charles F., New York, N. Y., assignor to Mechanical Door Hinge Check Company, of New York. Door-check	601,830	Apr. 5	330	82	88	73
	606,009	June 21	1801	414 415	88	1730
Hanks, Marshall W., Madison, Wis. Electric controller	603,948	May 10	1276	290	88	865
Hanlon, Daniel H., Preston, Minn. Cyclone-vault	606,543	June 28	2809	647	88	1945
Hanna, Elmer E., assignor to Gates Iron Works, Chicago, Ill. Self-lubricating engine	604,045	May 17	1493	335	88	941
Hannahs, Fred C., assignor to Kenosha Crib Company, Kenosha, Wis. Child's chair	606,339	June 28	2438	564	88	1873
Hansel, Charles, Easton, Pa. Railway-crossing	603,189	Apr. 12	984	204	88	189
Hansell, Robert C., San Antonio, Tex. Armor for pneumatic tires	604,614	May 24	2555	588	88	1162
Hansen, Harry I., Boonton, N. J. Rope-making machine	604,918	May 31	3090	710	88	1283
Hanson, Julius L., Governor's Island, N. Y. Whistle	602,445	Apr. 19	1482	338	88	311
Hanson, Paul, Chicago, Ill. Grain-binder	602,322	Apr. 12	1272	281	88	256
Harcourt, Matthew, Detroit, Mich. Hanger for fire-harness						
Hardenbrook, Charles E., Philadelphia, Pa., assignor to Morley Button Sewing Machine Company, Boston, Mass. Button-feeding mechanism	602,904	Apr. 19	2106	475	88	499
	604,984	May 31	3184	733	88	1302
Harder, Arthur J., Williamsport, Pa. Filter	604,319	May 17	2011	450	88	1040
Harder, George D., Cobleskill, N. Y. Binding attachment for threshers or rubbers	604,469	May 24	2301	523	88	1115
Hardin, Charles B., and J. D. Mosby, Kansas City, Mo. Horse-detacher	602,747	Apr. 19	1966	458	88	408
Harding, Charles K., Chicago, Ill. Smelting phosphorus	603,949	May 10	1277	290	88	865
Harding, Charles W., Musselshell, Mont. Receptacle for chewing-gum	603,765	May 10	943	211	88	800
Harding, William E., South Framingham, Mass. Photographic retouching-table	604,390	May 17	2013	451	88	1040
Hardwick, Harry, Philadelphia, Pa. Cut-pile carpet fabric			7			
Hardy, William H., Hartlepool, England. Tool and holder for use in cutting, boring, and slotting metals	605,422	June 7	699	155	88	1487
Hare, John H., Nobiesville, Ind. Reversing-gear	605,226	June 7	314	72	88	1411
Hare, John R., Baltimore, Md. Patch for pneumatic tires	603,946	May 10	1100	247	88	830
Harfield, William H., London, England. Steam steering-gear	603,086	Apr. 26	2504	566	88	519
Harkness, Charles B., Reading, and W. T. Crowell, Boston, Mass. Shutter-controller	603,333	Apr. 19	1974	288	88	257
Harlan, Howard, Richmond, assignor of one-half to S. D. Cranshaw, Henrico county, Va. Ore-roasting furnace	602,400	Apr. 12	1407	317	88	288
Harlow, Franklin W., Eureka, Colo. Combined ore concentrator and slimer	606,138	June 21	3041	467 468	88	1775
Harlow, William O., assignor of one-half to L. A. Lohr, Shenandoah, Va. Car-door	604,899	May 31	3048	699	88	1275
Harmel, John W., and W. J. Galloway, Pekin, Ill. Boiler-furnace	605,281	June 7	436	96	88	1433
Harmon, Orville S., Brooklyn, N. Y., assignor to P. Lorillard Company, Jersey City, N. J. Machine for treating tobacco	606,200	June 28	2176	500	88	1819
Harnden, Charles, Bowmanville, Canada, assignor to J. W. Ivory, Philadelphia, Pa. Dental mouth-mirror	606,456	June 28	2653	610	88	1915
Harp, William L., Sparta, N. C. Gate	602,748	Apr. 19	2002	458	88	400
Harriman, John. (See Harriman, Josiah and J.)	605,479	June 14	777	179	88	1583
Harriman, Josiah, Lowell, Mass. Warp stop-motion for narrow-ware looms						
Harriman, Josiah and J., Lowell, Mass.; said J. Harriman assignor to said Josiah Harriman. Slack-alarm and stop-motion for looms	605,199	June 7	254	59, 60	88	1360
	606,210	June 28	2178	500 501	88	1890
Harriman, Wilbur E., Chatham, N. H. Ironing-table						
Harrington, Emma A., *et al.* (See Woodward, Walter J., assignor.)						
Harrington, Walter E. (See Starr, Charles E., Jr., assignor.)	606,457	June 28	2653	610	88	1915
Harris, Aaron, and C. Stahl, New York, N. Y. Druggist's and medicine label	603,563	May 3	587	180 181	88	714
Harris, Alexander B. B., Bristol, Tenn. Gage-adjusting tie-plate						
Harris Automatic Press Company. (See McNutt, John F., assignor.)	602,133	Apr. 12	967	204	88	189
Harris, Frederic A., A. M. Cupples, and M. McCann, Tyrone, Pa. Car-fender	603,080	Apr. 26	2583	586 587 588	88	534
Harris, George W. and W. R., Lowell, Mass. Machine for making loom-heddles						
Harris, Isidore, *et al.* (See Falkek, Nathan, assignor.)	601,889	Apr. 5	512	106	88	96
Harris, John, Shamokin, Pa. Nut-lock	602,446	Apr. 19	1485	339	88	312
Harris, Marvin A. D., Brooklyn, N. Y. Identification-button						
Harris, Robert, Bridgeport, Conn., and M. K. Goldsmith, New York, N. Y. Mechanism for lowering car-fenders	601,751	Apr. 5	249	49	88	48
Harris, Stephen L. (See Davies, Charles W. T., assignor.)						
Harris, Theodore W., *et al.* (See Luce, Thomas C., assignor.)						
Harris, W. P., *et al.* (See Williston, Benjamin F., assignor.)						
Harris, Wilbur J. (See Harris, William and W. J.)						
Harris, William, Bellebridge, Pa., and W. J. Harris, Mount Pleasant, Ohio. Railway-switch	603,902	May 10	1203	272	88	850
Harris, William R. (See Harris, George W. and W. R.)						
Harrison Bros. & Company. (See Darling, James D., assignor.)						
Harrison, Dora, Lansing, assignor to Harrison Manufacturing Company, Grand Rapids, Mich. Hose-supporter	605,480	June 14	779	179	88	1523
Harrison, Edwin D., Irvington, and C. H. Thurber, East Orange, N. J., assignors to Celluloid Company, New York, N. Y. Producing pyroxylin imitations of mosaic	602,159	Apr. 12	1001	219	88	203
Harrison, George E. (See Longshore-Potts, Anna M., assignor.)						
Harrison, John, assignor to Elliptic Cycle Company, Limited, Peterborough, England. Bicycle-brake	606,166	June 21	2093	481	88	1765
Harrison Machine Works. (See Koch, Jacob F., assignor.)						
Harrison Manufacturing Company. (See Harrison, Dora, assignor.)	601,659	Apr. 5	50	10	88	11
Harrison, William F., West Chester, Pa. Rotary-plug cock						
Harry, Edward. (See Jaixen and Harry.)						
Harshaw, Seth T., Lansingburg, assignor of one-half to Campbell & Clute, Cohoes, N. Y. Loop-cutting attachment for knitting-machines	605,873	June 21	1527	352	88	1680
	605,874	June 21	1528	352 353	88	1680
Hart, Alfred, assignor to F. E. and R. W. Hart, Chicago, Ill. Mower	605,423	June 7	700	156	88	1487
Hart, Andrew H., Winchester, Ky. Voting-machine						
Hart, Edward, assignor to Baker & Adamson Chemical Company, Easton, Pa. Apparatus for distilling acids	603,508	May 3	496	109	88	997
Hart, Frederick E., *et al.* (See Hart, Alfred, assignor.)	605,424	June 7	701	156	88	1488
Hart, Gilbert, Detroit, Mich. Connector for storage-battery plates						
Hart, John W., assignor of one-half to W. J. Kaemmerling, Pittsburg, Kans. Nutmeg-grater	604,751	May 31	2810	642	88	1220
Hart, Michael. (See Grady and Hart.)						
Hart, Peter E. (See Wolfe and Hart.)						
Hart, Ralph W., *et al.* (See Hart, Alfred, assignor.)	603,505	May 3	638	142	88	725
Hart, Sara C., Galveston, Tex. Fly-screen	604,985	May 31	3186	734	88	1302
Hartford, John, San Francisco, Cal. Spirit-level						
Hartig, John C. (See Payment and Hartig.)	606,544	June 28	2810	647 648	88	1946
Harting, John H., Indianapolis, Ind. Turn-table for railways						
Hartjen, John. (See Bürklin, Victor, assignor.)						
Hartley, Edward B. (See Gardner and Hartley.)	603,330	May 3	152	35, 36	88	631
Hartman, John M., Philadelphia, Pa. Blast-furnace iron-notch and appliance	606,139	June 21	3045	468 469	88	1776
Hartman, Joseph P., Pueblo, Colo. Percussion-drill	601,960	Apr. 5	660	138 139	88	194
Hartmann, Wilhelm, Offenbach-on-the-Main, Germany. Barrel-filling apparatus	603,061	Apr. 26	2591	589	88	535
Harton, Pembroke D., Philadelphia, Pa. Cake-machine	606,545	June 28	2815	648	88	1947
Hartranft, Samuel S., Philadelphia, Pa. Furnace-tuyer						
Hartshorn, Edmund F., Newark, N. J., assignor to Stewart Hartshorn Company, of New Jersey. Shade-roller	603,903	May 10	1206	273	88	851
Hartung, Charles C., assignor to E. Walsh, Jr., St. Louis, Mo. Method of and apparatus for rolling plate-glass	602,447	Apr. 19	1487	339	88	312
	605,425	June 7	703	156	88	1488
Harvey, Elmer E., Dolington, Pa. Cover for milk-cans	602,941	Apr. 26	2353	537	88	493
Harvey, John A., Hancock, Md. Protector for trees	603,847	May 10	1109	247	88	830
Harvey, John F., Johnsonburg, Pa. Pocket-knife						
Hasbrouck, Frederick. (See Weber, Theodore A., assignor.)						
Hasbrouck, Josiah. (See Hotaling, William M., assignor.)						
Hasbrouck, Robert M., New York, assignor of one-half to G. W. Thompson, Brooklyn, N. Y. Car-axle	602,539	Apr. 19	1640	374	88	341
	602,077	Apr. 12	846	184	88	172
Hasey, Harvey W., Hempstead, N. Y. Brush						
Haskell, Foster M. (See Campbell and Cummings, assignors.)	602,179	Apr. 12	1039	226	88	207
Haskell, Henry L., Ludington, Mich. Game-board	602,180	Apr. 12	1041	226	88	208
Haskell, Henry L., Ludington, Mich. Game-board	606,140	June 21	2048	469	88	1776
Haskett, James A., Parsons, Kans. Folding egg-crate						
Haskew, Frederick J. T., Stourbridge, England. Jig for securing cycle parts, &c., while being bored or machined	603,379	May 3	229	51	88	644
Haskins, Harry S., and Z. B. Coes, assignors to Edwin Harrington, Son & Company, Incorporated, Philadelphia, Pa. Hoisting apparatus	602,580	Apr. 19	1703	388	88	353

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Haskins, James H., Chicago, Ill. Blank threading and pointing machine	603,506	Apr. 19	1575	360 361	88	880
Hassler, Robert H., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Alternating-current electric motor	606,056	June 21	1866	494 495	88	1746
Hastings, Robert E., Philadelphia, Pa. Device for laying gold-leaf	602,985	Apr. 26	2462	558	88	505
Hastings, Robert E., Philadelphia, Pa. Device for laying gold-leaf	602,986	Apr. 26	2494	558	88	505
Hatfield, William L., Green Fork, Ind. Mail-bag crane	604,115	May 17	1634	367	88	997
Hathorn, Fred H., assignor to Hathorn Manufacturing Company, Brewer, Me. Die for rolled forgings	603,637	May 10	730	163	88	758
Hathorn Manufacturing Company. (See Hathorn, Fred H., assignor.)						
Hauff, Firm of J. (See Dieterle, Wilhelm, assignor.)						
Haupt, Carl, Brooklyn, N. Y. Trundle-hoop	603,256	Apr 12	1164	256	88	235
Hauskey, Ole R., Lake Preston, S. D. Milking apparatus	603,616	May 3	690	154	88	784
Hautsch, Anton, Nyack, N. Y. Pan-lifter	602,394	Apr. 12	1275	289	88	257
Haviland, Ebenezer W., Richmond, Ind. Roller-bearing	602,749	Apr. 19	2008	458	88	409
Hawes, George E. (See Adams, Abraham L., assignor.)						
Hawes, Herbert E., assignor to Colby & Co., Brooklyn, N. Y. Thread-trimming device for sewing-machines	603,668	May 10	812	179	88	775
Hawes, S. M., Jr. (See Brigden, Charles H., assignor.)						
Hawke, William W., *et al.* (See Ernst, John C., assignor.)						
Hawkes, Frank F., assignor of two-thirds to E. J. Smith and C. K. Prince, Westfield, Mass. Bicycle-rest	603,134	Apr. 12	996	205	88	189
Hawkins, James E., St. Louis, Mo. Cork-pulling machine	603,950	May 10	1378	291	88	865
Hawkins, John T., Taunton, Mass., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Means for securing printing-plates to cylindrical surfaces	604,149	May 17	1692	380	88	978
Hawkins, John T., Taunton, Mass., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Cushioning apparatus for printing-machines	604,752	May 31	2811	642	88	1289
Hawks, Moses L., Chicago, Ill. Knife, scissors, or skate sharpener	605,289	June 7	447	99	88	1497
Hawley, Charles G. (See Peck and Hawley.)						
Hawley, Charles G., *et al.* (See Shaft and Hays, assignors.)						
Hawley, Delia K., assignor to Rathbun Manufacturing Company, Chicago, Ill. Automatic lighter	602,045	Apr. 5	789	171 516	88	149
	602,908	Apr. 26	2273	519 520	88	476
Haworth, George D., Chicago, Ill. Corn-planter	603,638	May 10	731	163 164	88	759
Hawthorn, John, and J. P. Liddell, Newtown, New Mills, England. Apparatus for washing printers' blankets	603,360	May 3	231	58	88	645
Hay, Alexander G., Philadelphia, Pa. Engine-valve	605,875	June 21	1531	353	88	1681
Hayde, Edmund C., Chicago, Ill. Vehicle-wheel						
Hayden & Derby Manufacturing Company. (See Huber, Jacob, assignor.)	601,881	Apr. 5	398	88	88	74
Hayden, Josiah W., Jr., Boston, Mass. Corner-buffer for trunks	604,321	May 17	2018	451	88	1041
Haye, August, San Antonio, Tex. Apparatus for dispensing oil, &c	606,057	June 21	1891	435	88	1746
Hayes, Ferdinand, New York, N. Y. Scuttle or skylight operator	604,863	May 31	3025	694 695	88	1271
Hayes, George, New York, N. Y. Wheel for bicycles	606,546	June 28	2816	648	88	1947
Hayes, James R. S. (See Manning and Hayes.)						
Hayes, Pryor L., Springfield, Mo. Parlor pool-table	605,712	June 14	1196	276	88	1601
Hayne, Daniel H., *et al.* (See Le Ballister, David N., assignor.)						
Haynes, Henry, assignor of one-half to T. Frost, Philadelphia, Pa. Flushing apparatus.						
Hays, Henry. (See Shaft and Hays.)						
Haywood, Henry, and G. Totten; said Haywood assignor to said Totten; said Totten assignor of one-fourth to H. P. Lowe, Toronto, Canada. Fender for cars	601,901	Apr. 5	661	139	88	124
Hazel Glass Company. (See Henry and Brady, assignors.)						
Hazlette, Herbert S., *et al.* (See Boykin, Christopher C., assignor.)						
Hazlewood, Lee H. (See Ritter and Hazlewood.)						
Heald, Alfred, Philadelphia, Pa. Woven fabric	605,783	June 14	1333	305	88	1626
Hearn, Robert H., Dyer, Tenn. Lock	603,951	May 10	1379	291	88	865
Hearn, William H. (See Wright, Aaron, assignor.)						
Heath, Annie M., London, England. Buttonhole-casing	604,470	May 24	2304	523	88	1115
Heath, Frederick H., Tacoma, Wash. Bicycle-brake	603,331	May 3	154	36	88	621
Heath, Thomas S., Cross Timbers, Mo. Single-wheel sulky and device for attaching horses thereto	605,099	June 7	58	17	88	1363
Heath, Webster L. (See Holmes and Heath.)						
Heatly, Francis T., Camanche, Iowa. Table attachment for chairs or beds	605,100	June 7	59	18	88	1364
Hebaus, Joseph R., assignor of one-half to F. P. Conroy, Butte, Mont. Apparatus for extracting precious metals	603,904	May 10	1207	278	88	851
Heck, William T. (See Field and Heck.)						
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Pneumatic motor	605,876	June 21	1533	353	88	1661
Hedrick, Ira G. (See Waddell and Hedrick.)						
Heelan, Lawrence W., assignor of one-half to W. S. Stone, Dallas, Tex. Inflatable tire	606,141	June 21	2049	469	88	1777
Heer, Isak, Zurich, Switzerland. Thread-tension device	605,101	June 7	60	18	88	1364
Heermans, Thaddeus W., Chicago, Ill. Automatic stop mechanism for elevators	602,660	Apr. 19	1758	423	88	388
Hefel, Toney C., assignor of one-half to C. H. Russey, Muncie, Ind. Filtering plant for waterworks	603,483	May 3	437	97, 98	88	666
Hefner, William H., Rock Hill, S. C. Wheel-tire	604,589	May 24	2405	549	88	1182
Heggem, Charles O., assignor to Russell & Co., Massillon, Ohio. Governor	603,080	Apr. 26	2505	566	88	520
Heidenreich, Karl. (See Kahn and Heidenreich.)						
Heider, John. (See Scherer, Joseph, assignor.)						
Heilbronner Copierbucher Fabrik C. Holzwarth. (See Kahn, Abraham, assignor.)						
Heilmann, Jean J., Paris, France. System of electrical propulsion for vessels	602,225	Apr. 12	1276	262	88	257
Hein, Nicholas, Chilton, Wis. Windmill	603,198	Apr. 26	2764	630	88	570
Heine, Alfred N., and G. A. Nonweiler, Evansville, Ind. Table	604,222	May 17	2015	451	88	1041
Heine, Frederick, Baltimore, Md. Extension-ladder	606,458	June 28	2654	611	88	1915
Heine, Heinrich, Hanover, Germany. Writing-desk	602,226	Apr. 12	1278	262 263	88	258
Heinig, Frederick E., assignor of one-half to C. Pope, Louisville, Ky. Cigar-tip protector	603,639	May 10	733	164	88	759
Heintz, John A., Menomonee, Wis. Protector for tool-handles	606,211	June 28	2160	501	88	1630
Heinzelman, Reginald. (See Timken and Heinzelman.)						
Heiser, Valentine, and S. R. Moyer, assignors of one-third to H. A. Weller, Orwigsburg, Pa. Thread-cutter for sewing-machines	606,010	June 21	1803	415	88	1780
Heitland, John H., Quincy, Ill. Fireplace-heater	605,718	June 14	1199	276	88	1601
Helgeson, Martin and O., Linden, assignors of one-third to R. K. Rasmusson, Lake Crystal, Minn. Combined reel-carrier and feed-cart	601,807	Apr. 5	350	71, 72	88	66

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Helgeson, Olaus. (See Helgeson, Martin and O.)						
Helios Electritats Actien-Gesellschaft. (See Feldmann, Clarence P., assignor.)						
Hellwig, Emma M., Chicago, Ill. Electric brush	604,471	May 24	2305	523	88	1115
Hellwig, Otto S. (See Gillett and Hellwig.)						
Helmers, Ludwig O., assignor to Ichthyol Gesellschaft, Cordes, Hermanni & Co., Hamburg, Germany. Iodin derivative of ichthyol and thiol	602,942	Apr. 26	2354		88	498
Hempstalk, John, Lyttelton, New Zealand. Weighing-scale	604,827	May 31	2925	669	88	1351
Hemsley, Alexander, Philadelphia, Pa. Flash-light-powder apparatus	606,340	June 28	2439	565	88	1878
Henderson, Albert F., Boston, Mass. Curtain-pole	601,852	Apr. 5	394	88	88	74
Henderson, Arthur S., Loudon, Tenn. Music or copy holder	605,959	June 21	1708	391	88	1714
Henderson, James A. (See Woerner, Frank W., assignor.)						
Henderson, James P. (See Villard and Henderson.)						
Henderson, John C., New York, N. Y. Heat-economizer	604,046	May 17	1495	326 327	88	941
Henderson, Thomas M., and T. E. Freeman, Portsmouth, Va. Hitching device	602,750	Apr. 19	2004	454	88	410
Hendrick, Eli E., Carbondale, Pa. Filter-press	601,833	Apr. 5	305	88	88	74
Hendrick Manufacturing Company. (See Bennett, Walter E., assignor.)						
Hendrickson, John F., *et al.* (See Reid, Robert, assignor.)						
Henkel, Gustav, Cassel, and H. von Rom, Stuttgart, Germany. Apparatus for pickling meats	603,082	Apr. 26	2593	580	88	585
Henley, William I. (See Parker, Edmund A., assignor.)	601,798	Apr. 5	328	66	88	62
Hennig, Henry, Paterson, N. J. Steam-generating apparatus	604,753	May 31	2813	643	88	1289
Henning, George W., Mount Holly, Ohio. Wrench	603,986	May 10	1331	305	88	875
Henriod, Charles E., Bienne, Switzerland. Explosive-engine	602,751	Apr. 19	2006	454	88	410
Henry, Anijah F., Alamo, Ind. Vaginal syringe	602,684	Apr. 19	1902	438	88	390
Henry, Albert, Rochefort, France. Life-boat						
Henry, Charles F. (See Henry, George E. and C. F.)	605,227	June 7	316	72, 73	88	1411
Henry, George E. and C. F., Philadelphia, Pa. Non-refillable bottle						
Henry, George E. (See Woods and Henry.)						
Henry, Lyman. (See Henry, William J.)						
Henry, Rose A., administratrix. (See Henry, William J.)						
Henry, William A., and C. N. Brady, assignors to Hazel Glass Company, Washington, Pa. Press for making articles of glassware	603,952	May 10	1280	291	88	865
Henry, William J., deceased; R. A. Henry, Portland, Me., administratrix. Trunk-fastening	603,083	Apr. 26	2594	580	88	536
Hennessy, William P., *et al.* (See Austin, William L., assignor.)						
Henwood, Alfred, *et al.* (See Bouton, Samuel, assignor.)						
Henwood, Edwin, Hermansville, Mich. Wrench	603,530	May 3	542	119	88	705
Hepburn, Harry L. (See Parker, Alfred J., assignor.)						
Herbert, Joseph, Oakland, Cal. Coin-controlled meter	603,104	Apr. 26	2625	596	88	549
Herbstritt, Herrmann. (See Faller and Herbstritt.)						
Hercht, Pauline G., Bogota, N. J. Bottle-stopper	605,481	June 14	780	179	88	1523
Herder, Philip, Cleveland, Ohio. Extension step-ladder	603,848	May 10	1101	247	88	880
Herdman, Frank E., Winnetka, Ill. Automatic stop for hydraulic elevators	602,448	Apr. 19	1488	339 340	88	312
Herdman, Frank E., Winnetka, Ill. Switch for electric motors	603,849	May 10	1103	247 248	88	880
Herrell, Samuel W., Bull Run, Tenn. Burial-casket	605,689	June 14	1071	246	88	1577
Herrick, William, assignor to Morgan & Wright, Chicago, Ill. Device for drawing air-tubes into pneumatic-tire casings	603,847	Apr. 26	2188	496	88	460
Herreshoff Manufacturing Company. (See Herreshoff, Nathaniel G., assignor.)						
Herreshoff, Nathaniel G., assignor to Herreshoff Manufacturing Company, Bristol, R. I. Steam-boiler	605,784	June 14	1335	306	88	1626
Herreshoff, Nathaniel G., assignor to Herreshoff Manufacturing Company, Bristol, R. I. Steam-boiler	605,785	June 14	1337	306	88	1626
Herreshoff, Nathaniel G., assignor to Herreshoff Manufacturing Company, Bristol, R. I. Steam-boiler	605,786	June 14	1339	306	88	1627
Hersey Manufacturing Company. (See Tilden, James A., assignor.)	601,794	Apr. 5	330	66	88	62
Hershberger, Joseph W., Plymouth, Pa. Catch-basin for sewers	603,189	Apr. 26	2765	630 631	88	570
Hershey, Martin E., and B. T. Allen, Harrisburg, Pa.; said Allen assignor to said Hershey. Motor-governor	605,821	June 14	1403	321	88	1626
Herskovitz, Max, Chicago, Ill. Picture-frame						
Hertzler, John. (See Keiper, Henry B., assignor.)						
Herzheim, Alfred, assignor to Chemische Fabrik auf Actien, vormals E. Schering, Berlin, Germany. Waterproof paper	603,558	Apr. 19	1660		88	946
Herzog, Joseph J., Baltimore, Md. Letter-box	604,228	May 17	2016	451 452	88	1041
Heselwood, James, Leeds, England. Machine for wringing clothes	605,290	June 7	447	99	88	1497
Heselwood, James, Leeds, England. Machine for folding curtains	606,341	June 28	2440	565 566	88	1873
Hess, Frederick, Jr., *et al.* (See Falck, Nathan, assignor.)						
Hess, Harlem P. (See Dorn, Christian, assignor.)						
Hesse, Gustaf E., assignor of two-thirds to G. H. Robinson, New York, N. Y. Acetylene-gas lamp	606,365	June 28	2519	585	88	1887
Hessel, Peter, *et al.* (See Reardon, James A., assignor.)						
Hester, Ernest H., *et al.* (See Albury, Frederick L., assignor.)	606,011	June 21	1804	415	88	1731
Hetherington, Frederick A., Indianapolis, Ind. Melting-kettle for preparing asphalt						
Hettinger, John H., and B. P. Kincaid, assignors to C. W. and R. E. Shoemaker, Bridgeton, N. J. Bottle or jar closure	603,640	May 10	735	164	88	759
Heuchan, Robert B., Commerce, Mo. Work-support for caskets, &c	603,220	Apr. 12	1108	248	88	222
Hewett, John E., Wilmington, N. C. Bookbinding	603,401	Apr. 12	1408	317	88	394
Hewitt, Joseph F., Allegheny, Pa. Gas-burner	603,973	May 3	53	14	88	611
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Electrically-controlled switch	603,786	May 10	979	218	88	807
Heydebrand Incandescent Light Company. (See Heydebrand und der Lasa and Loch, assignors.)						
Heydebrand und der Lasa, Ferdinand C. von, New York, and J. Loch, Brooklyn, assignors to Heydebrand Incandescent Light Company, New York, N. Y. Incandescent gas-lamp	605,250	June 7	309	84	88	1421
Heyl & Patterson. (See Acklin, Alfred M., assignor.)						
Heyman, Edward M., assignor to Parlin & Orendorff Company, Canton, Ill. Disk plow	606,412	June 28	2372	495	88	1606
Heymann, Bernhard, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Blue dye and making same	606,212	June 28	2180		88	1630
Heyrock, John, Cavalier, N. D. Machine for loading grain from threshing-machines into wagons or sacks	603,641	May 10	736	164	88	759

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Hibbert, Arthur N. (See Hamel and Hibbert.)						
Hicks, Frank O., *et al.* (See Roach, Henry B., assignor.)						
Hicks, George F., *et al.* (See Roach, Henry B., assignor.)	606,386	June 28	2520	585	88	1668
Hicks, Thomas H., Fort Wayne, Ind. Gas-engine						
Hidden, Enoch, *et al.* (See Hidden, George A., assignor.)						
Hidden, George A., assignor of two-thirds to A. H. Lawrence and E. Hidden, Phœnix, Ariz. Ter. Horse-controlling device	605,045	May 31	2291	755	88	1338
Hidden, William B., Boston, Mass. Inhaler	604,985	May 31	2115	715	88	1266
Higginbottom, Thomas. (See Rushworth and Higginbottom.)						
Higgins, Campbell P., Roselle, N. J. Machine for forming polygonal tubes	606,213	June 28	2181	501 502	88	1660
Higgins, Charles M., Brooklyn, N. Y. Adhesive compound and producing same	604,584	May 24	2509	------	88	1153
Higgins, Charles R. (See Latshaw, Zachariah, assignor.)						
Higgins, Vernon G., Waddington, Cal. Tongs	603,084	Apr. 26	2505	589	88	536
Higgins, William L., *et al.* (See Anderson, John A. E., assignor.)						
Higgs, Marion F. (See Turbeville and Higgs.)						
Higham, Daniel, Boston, Mass., assignor to H. H. Higham, Philadelphia, Pa. Electric-arc lamp	605,714	June 14	1900	277	88	1601
Higham, Howard H. (See Higham, Daniel, assignor.)						
Highfield, George, Scranton, Pa. Non-refillable bottle	603,235	Apr. 26	2346	649	88	585
Higson, John, London, England, assignor of one-half to W. Evans, Kearny, N. J. Bicycle-brake	606,626	June 28	2026	695	88	1974
Hikki, Robert, Maple, Wis. Mortising-bit	602,752	Apr. 19	2008	454	88	1230
Hildebrandt, Charles T., Decatur, Ill. Driving mechanism	604,754	May 31	2614	643	88	1230
Hildenbrand, Henry. (See Berger and Hildenbrand.)						
Hildreth, Henry L., Saginaw, Mich. Boiler-flue cleaner	604,047	May 17	1497	337	88	942
Hill, Burton W., Somerville, Mass. Steam-trap	604,860	May 31	2990	666 667 306	88	1263
Hill, Charles F., Middle Branch, Ohio. Combination-lock	605,787	June 14	1341	307	88	1627
Hill, Edgar C., Horse Cave, Ky. Ice-cream freezer	605,606	June 14	1008	231	88	1564
Hill, Frank A., and W. E. Shehan, St. Louis, Mo. Attachment for linotype-machines	602,904	Apr. 26	2280	580	88	477
Hill, Fredrick P., Chicago, Ill. Bookbinding-machine	604,170	May 17	1731	299 300	88	966
Hill, Harry W., Cleveland, Ohio. Machine for straightening shafts, tubes, &c	606,214	June 28	2183	502 503	88	1661
Hill, Henry, Nottingham, England. Work-feeding mechanism for embroidering-machines	602,953	May 10	1288	298 299	88	866
Hill, Henry, Nottingham, England. Jacquard mechanism for embroidering-machines	604,755	May 31	2616	643	88	1230
Hill, Hugh, Anderson, Ind. Boring-tool	602,449	Apr. 19	1490	340	88	313
Hill, James A., Ravenswood, W. Va., assignor of one-half to A. E., A. D., and W. T. Cole, Maysville, Ky. Severing mechanism for aerial torpedoes	603,669	May 10	814	180	88	776
Hill, William O., Spokane, Wash. Crochet or lace holder	606,215	June 28	2185	508	88	1822
Hillegas, George F., Lane county, Oreg. Draft-equalizer	601,795	Apr. 5	331	67	88	62
Hillman, Benjamin J., Victor, Colo. Combination-tool	606,547	June 28	2818	649	88	1947
Hillman, James A., and H. M. Reed, Homestead, Pa. Window-shade supporter	603,059	Apr. 26	2536	576	88	596
Hills, Arnold F. (See Snell and Grove, assignors.)	602,753	Apr. 19	2009	455	88	411
Hilt, Joseph, Maroa, Ill. Lid-holder	602,754	Apr. 19	2010	455	88	411
Himes, John F., Roaring Spring, Pa. Feed for top rolls of grist-mills						
Hinchcliffe, Charles W. (See Wilde and Hinchcliffe.)						
Hinchliffe, William, Huntsville, Ala., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Spinning-spindle	602,987	Apr. 26	2496	559	88	505
Hineson, Thomas, Ashton-under-Lyne, England. Steam-boiler furnace	602,755	Apr. 19	2011	455 456	88	411
Hink, J. F. (See White, Charles G., assignor.)	603,040	Apr. 26	2507	589	88	530
Hinkle, William A., Forsyth, Ill. Straw-stacker						
Hinkley, George M., assignor of one-half to Edward P. Allis Company, Milwaukee, Wis. Saw-guide	602,943	Apr. 26	2355	587	88	498
Hinman, Charles W., Boston, Mass. Prepayment gas-meter	603,850	May 10	1107	249	88	882
Hinman, Clement F., Chicago, Ill. Grading and ditching machine	606,216	June 28	2187	504 505 506	88	1822
Hinman, George. (See Müller and Hinman.)	603,976	May 10	1162	262	88	842
Hinman, Lucius B., New Haven, Conn. Photograph-holder	606,548	June 28	2819	649	88	1948
Hinthorn, Jesse B., Hiawatha, Kans. Shade-trimmer	605,289	June 7	498	96	88	1433
Hinton, Samuel A., Altoona, Pa. Steam-valve for locomotives or other engines	606,627	June 28	2958	666	88	1974
Hipwell, Daniel E., assignor of one-half to S. Carter, London, England. Buckle						
Hirsch, Albert, Berlin, Germany. Apparatus for welding, brazing, and soldering by electricity	606,342	June 28	2441	566	88	1674
Hirschbach, Gustave, New York, N. Y. Plug-tobacco carrier and cutter	604,755	May 31	2617	643	88	1230
Hirsh, Benjamin M., North Adams, Mass. Table	606,142	June 21	2050	469 470	88	1777
Hiscock, Charles O., Ridgeway, Mich. Filing-case	604,986	May 31	2167	734	88	1302
Hitch, William S., assignor of one-half to J. H. Wilson, Dover, Del. Horseshoe	602,046	Apr. 5	792	171	88	150
Hitchcock, Charles F., assignor of two-thirds to U. D. Tibbetts and P. J. Conroy, St. Louis, Mo. Water-filter	604,615	May 24	2558	584	88	1163
Hitchcock Lamp Company. (See Bragger, John W., assignor.)						
Hiteshew, Harvey B., and W. F. Spieth, assignors to Cleveland School Furniture Company, Cleveland, Ohio. Lecture-room seat	601,874	Apr. 5	491	101	88	91
Hiteshew, Harvey B., and W. F. Spieth, assignors to Cleveland School Furniture Company, Cleveland, Ohio. Adjustable school furniture	601,875	Apr. 5	493	101 102	88	92
Hitt, George C., *et al.* (See White, James E., assignor.)	602,736	Apr. 19	2013	456	88	411
Hoard, Milo C., assignor of one-half to S. E. Todd, Jr., Toledo, Ohio. Hose-coupling	604,530	May 24	2406	548	88	1132
Hobbs, Clarence W., Worcester, Mass. Machine for scoring cardboard	604,150	May 17	1666	381	88	978
Hoberg, John, Sr., Green Bay, Wis. Toilet-paper cutter						
Hobron, Charles B., Boerne, Tex., assignor of one-half to S. S. Eveland, Philadelphia, Pa. Antifriction-bearing	602,047	Apr. 5	793	173	88	150
Hobron, Charles B., Boerne, Tex., assignor of one-third to S. S. Eveland, Philadelphia, Pa. Antifriction-bearing	602,642 605,298	May 10 June 7	1 786 318	165 73, 74	88 88	760 1411
Hochhausen, William, Brooklyn, N. Y. Electric-arc lamp						
Hochspeier, William F., assignor to F. Menzenhauer, Jersey City, N. J., and O. Schmidt, New York, N. Y. Target	605,814	June 7	490	109	88	1445
Hoddle, Charles. (See Thorn and Hoddle.)						
Hodge, Henry F. (See Lowell and Talcott, assignors.)	601,992	Apr. 5	662	140	88	125
Hodgen, Joseph F., Scandia, Kans. Band-cutter and feeder	604,898	May 31	2067	660	88	1259
Hodges, Harry F., New York, N. Y. Conveyer						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hodgins, George S., Windsor, Canada. Means for testing fluid-pressure systems	602,009	Apr. 5	730	156	88	126
Hodgkin, Philip E. (See Hodgkin, Stanley H. and P. E.)	608,227	Apr. 12	1279	283 284	88	268
Hodgkin, Stanley H., and P. E., London, England. Type-setting machine						
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoe, Robert, *et al.* (See Sheldon, Edward F., assignor.)	606,142	June 21	2051	470	88	1777
Hoehl, Frederick D., Pittsburg, Pa. Alarm-clock	604,010	Apr. 5	739	156	88	139
Hoenig, Alexander, Berlin, Germany. Insufflator	603,190	Apr. 26	2767	631	88	571
Hoey, Michael J., Columbus, Ohio. Automatic dust-guard for train-pipe couplings	602,457	May 3	402	90	88	676
Hoff, Margaret, Brooklyn, N. Y. Medicine-case for physicians	603,690	May 10	816	180	88	776
Hoffheins, Reuben, Chicago, Ill. Curtain-stretcher	601,968	Apr. 5	664	140	88	125
Hoffman, Charles W., New York, N. Y. Brake for dumb-waiters	603,142	Apr. 26	2606	612	88	557
Hoffman, Louis E., Cleveland, Ohio. Crank-shaft and bearing for bicycles	606,217	June 28	2203	506	88	1660
Hoffman, Louis E., Cleveland, Ohio. Back-pedaling brake						
Hoffman, William M., assignor to J. M. Griffin, [illegible]olt, Mich. Abrading-shoe for truing up car-wheels	605,056	May 31	2310	700	88	1236
Hoffmann, Ernst W. G. C., Charlottenburg, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric brake	606,167	June 21	2094	481	88	1785
Hoffmann-La Roche & Co., F. (See Schaerges and Schwars, assignors.)	604,398	May 24	2145	482	88	1066
Hogaboom, William O., Everett, Mass. Punching-press	603,601	May 10	890	181	88	777
Hogan, John D., St. Louis, Mo. Awning						
Hogan, John J., assignor of one-fourth to T. W. Corbett, New Haven, Conn. Electric-current controller	606,012	June 21	1805	416	88	1781
Hogan, Thomas J., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Automatic fluid-pressure brake apparatus	604,861	May 31	2091	667	88	1264
Hoge, Flavigenus J., Birchwood, Tenn. Churn	603,261	May 3	232	52, 53	88	645
Hohmann, Karl, Neukirchen, Germany. Speculum	605,715	June 14	1208	277	88	1632
Hoke, John L., South Bend, Ind. Harrow	603,446	May 3	350	79	88	667
Holden, Henry P. (See Coon, Gustavus W., assignor.)						
Holder, William, *et al.* (See Brown, Charles M., assignor.)						
Holinger, Emil F., McKeesport, Pa., assignor to National Tube Works Company, Boston, Mass. Tube-forming apparatus	603,787	May 10	961	219 220	88	807
Holland, Albert E. (See Richardson, Samuel T., assignor.)	603,413	June 28	2574	596	88	1898
Holland, Albert H., Buffalo, N. Y. Spring-seat for vehicles	605,547	June 14	880	206	88	1543
Holland, Alexander F., Berkeley, Cal. Vaginal dilator						
Holland, Charles L. (See Grant, John F., assignor.)						
Holland, Elias C. (See Mather and Holland.)						
Holland, Frank, assignor to J. Cavanagh, Brooklyn, N. Y. Supplying polishing compounds to polishing or cutting tools	605,989	June 7	431	97	88	1434
Holland, Joseph J., Edge, assignor of one-half to H. Mitchell, Wheelock, Tex. Cotton chopper and cultivator	605,496	June 7	708	157	88	1486
Holland, Thomas O., Philadelphia, Pa. Razor-strop	602,706	May 10	944	211	88	900
Holland, Thomas O., Philadelphia, Pa. Razor-strop	603,954	May 10	1267	293	88	998
Holler, John W., assignor of one-half to C. D. Grandstaff, Van Buren, Ind. Fence	603,274	May 3	53	14	88	611
Hollings, John C. (See Murdock, William N., assignor.)						
Hollings, John C. (See Murdock and Hollings.)						
Hollingsworth, Merrill W., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial tooth-crown	602,561	Apr. 19	1707	388	88	353
Holloway, William H., Brasil, Ind. Toy gun	603,393	May 3	234	53	88	646
Holmes, Buckley H., Duluth, Minn. Necktie-fastener	604,049	May 17	1499	337	88	949
Holmes, Ernest, assignor to Siemens Brothers & Co., Limited, London, England. Portable electric drill	606,549 603,275	June 28 May 3	2820 55	649 14	88 88	1948 611
Holmes, Homer E., Burr Oak, Kans. Duplex-writing apparatus						
Holmes, John D., and W. L. Heath, St. Louis, Mo. Automatic resetting fusible cut-out	604,616	May 24	2550	584	88	1163
Holmes, John E., Albany, N. Y. Trousers-creaser	603,078	Apr. 12	847	184	88	172
Holmes, Joseph R., Elgin, Ill. Cup-lubricator	602,160	Apr. 12	1002	220	88	302
Holmes, Obadiah, Blue Springs, Mo. Latch and lock combined	606,550	June 28	2821	649	88	1948
Holmes, Thomas E., Wilkes-Barré, Pa. Rod-packing	602,358	Apr. 12	1261	284	88	268
Holmgreen, Julius H., San Antonio, Tex. Baling-press	604,394	May 17	2019	452	88	1042
Holmgren, Carl J., Minneapolis, Minn. Buttoner	602,848	Apr. 26	2189	496	88	460
Holt, Albert A., Fitchburg, Mass. Vehicle running-gear	606,414	June 28	2575	596	88	1898
Holt, Frank E., Lynn, Mass. Apparatus for counting ballots	602,011	Apr. 5	733	157	88	139
Holtmann, Charles F., and C. Bergmann. Pittsburg, Pa. Electric railway	603,060	Apr. 26	2537	576 577	88	596
Holznagel, Herman. (See Eagon, Frederick, assignor.)	605,892	June 14	1403	302	88	1638
Homan, William C., Meriden, Conn. Registering-ring						
Homire, Leverett W. (See Christman, Brennan, and Homire.)	606,058	June 21	1892	426	88	1747
Honiss, William H., Hartford, Conn. Cartridge-packet	602,450	Apr. 19	1401	340 341	88	313
Hood, Cyrus S., Corning, N. Y. Damper-controller and automatic indicator	601,964	Apr. 5	665	141	88	126
Hood, William B., Waco, Tex. Cloth measuring and cutting device	604,398	May 24	2147	482	88	1066
Hooker, Charles C., Richmond, Ky. Device for administering medicines	605,960	June 21	1709	392	88	1714
Hooker, Lucy, Sydney, New South Wales. Incandescent gas-light tassel	603,564	May 3	569	131	88	715
Hoover, Joseph E., Waterloo, Iowa. Breast-pump						
Hope Street Factory. (See Laird, John, assignor.)	604,395	May 17	2022	452	88	1042
Hopkins, Frank T. and H. A., Washington, D. C. Self-adjustable and reversible tile						
Hopkins, Harry A. (See Hopkins, Frank T. and H. A.)						
Hopkins, J. H. (See Gross, Elmer S., assignor.)	605,487	June 7	705	157	88	1486
Hopkins, William, Dubuque, Iowa. Steam-boiler and furnace therefor	603,468	May 3	403	90	88	679
Hopkins, William B., Philadelphia, Pa. Mastic-tread horseshoe	605,498	June 7	707	157	88	1489
Hopkins, William F., Caruthersville, Mo. Carriage-step						
Hopkinson, William, and R. Tyack, Accrington, England, assignors to Howard & Bullough American Machine Company, Limited, of England. Doffer-driving mechanism for carding-engines	605,057	May 31	2311	700	88	1236
Hopkirk, James, Oakland, Cal. Single-track railway and car	602,601	Apr. 19	1743	397	88	369
Hopley, Frank D., New York, N. Y. Puzzle	604,248	May 17	1873	430	88	1013
Hopper, Edward C., Covington, Ky., and C. F. McLean, Cincinnati, Ohio. Ticket rack and register	605,165	June 7	198	49	88	1357
Hopper, Thomas B., Youngstville, assignor of one-half to N. W. Collins and H. L. Gunn, Napa, Cal. Dumping-wagon	604,607	May 24	2708	619	88	1191
Horwood, John H., assignor of one-half to Ross, Downs & Thompson, Limited, Hull, England. Water-tube boiler	603,565	May 3	580	131	88	715
Hopton, Alfred, London, England. Means for fixing rubber tires on wheels	604,982	May 31	2093	668	88	1264
Horack, Charles L., Brooklyn, N. Y. Method of and apparatus for printing yarns	606,988	May 10	1246	309	88	978
Hörbiger, Hanns, assignor of one-half to L. Lang, Buda-Pesth, Austria-Hungary. Valve	604,236	May 17	2085	458	88	1043

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Horgan, Stephen H., Hoboken, N. J., assignor of one-half to Tribune Association, New York, N. Y. Composite printing-plate and making same	604,472	May 24	2306	594	88	1115
Horn, George A., Newark, N. Y. Spraying device	604,151	May 17	1694	381	88	979
Hornish, Harry C., Indianapolis, Ind. Vapor-burner	601,752	Apr. 5	250	49	88	48
Horspool, Francis L., assignor of one-half to G. J. Kelly, Ogden, Utah. Door for steam-boiler furnaces	605,576	June 14	987	219	88	1554
Horton, Cornelius J., White Plains, N. Y. Hoof-pad	606,342	June 28	2443	566	88	1874
Horton, Edward E., Toronto, Canada. Type-writing machine	605,877	June 21	1534	{ 353 / 354	88	1661
Horton, Henry W., Wilkesborough, N. C. Truck	603,058	May 31	3312	760	88	1286
Hosier, Isaac, Philmont, N. Y. Shingling-bracket	606,144	June 21	2055	471	88	1778
Hosier, Isaac, Philmont, N. Y. Nut-lock	606,145	June 21	2056	471	88	1778
Hot Appliances Company. (See Spurr, Charles W., Jr., assignor.)						
Hotaling, William M., assignor of one-half to J. Hasbrouck, Port Ewen, N. Y. Lock-hinge	606,415	June 28	2577	506	88	1899
Hotz, Christoph, Chicago, Ill. Wagon	603,818	May 10	1042	223	88	890
Hough, Edward J., London, England. Life-boat	603,596	May 3	699	{ 142 / 143	88	736
Hough, William I. (See Lynch and Hough.)						
Houghton, Lewis T., and W. H. Buxton, Worcester, Mass. Pipe-thimble	605,640	June 14	1073	246	88	1577
Houle, Joseph, Bradford, Mass. Chimney-cap	603,451	Apr. 19	1494	341	88	813
Houston, Washington J. (See McCain, John A., assignor.)						
How, Woodbury S., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Crown-post for artificial teeth	602,582	Apr. 19	1709	368	88	353
Howard, Augustus, San Francisco, Cal., assignor to W. R. Green, Denver, Colo. Motive engine	603,161	Apr. 12	1008	220	88	209
Howard & Bullough American Machine Company. (See Hopkinson and Tyack, assignors.)						
Howard, George C., Wallingford, Pa. Means for connecting hubs, couplings, or the like to shafts	603,181	Apr. 12	1083	226	88	208
Howard, Henry J. M., Washington, D. C. Hose-rack	601,653	Apr. 5	53	10	88	11
Howard, Samuel I., Worcester, Mass. Skylight-lifter	604,473	May 24	2308	594	88	1116
Howard, William H., Wokingham, England. Stand for bicycles	605,429	June 7	708	158	88	1489
Howe, Edwin C. (See Crocker, Eben C., assignor.)						
Howe, Edwin C. (See Crocker and Howe.)	603,329	Apr. 12	1282	284	88	259
Howe, William H., and P. Stieferman, Kliever, Mo. Pulverizer	603,757	Apr. 19	1914	456	88	412
Howell, George R., Southampton, N. Y. Can-opener	603,604	May 3	656	147	88	730
Howell, John, assignor of one-third to U. E. Essner, Canton, Ohio. Carriage-tongue						
Howland-Sherman, Charles H. (See Cunningham and Howland-Sherman.)						
Hoxie, Albert N., Boston, Mass., assignor of two-thirds to N. C. Merrill, New York, N. Y. Safety gas-fixture	604,617	May 24	2301	584	88	1103
Hoy, Martin S., Wilkinsburg, Pa. Protractor	606,344	June 28	2444	566	88	1874
Hoyer, Gustav, assignor to Fahrradwerke Weltrad, vormals Hoyer & Glahn, Schönebeck, Germany. Pipe-joint	604,863	May 31	3006	688	88	1265
Hoyt, Adrian H., Penacook, N. H. Electrostatic generating-machine	603,041	Apr. 26	2508	569	88	580
Hoyt, Adrian H., Penacook, N. H. Hinge connection for electrical measuring instruments	603,042	Apr. 26	2509	569	88	581
Hoyt, Charles H. (See McTighe, Thomas J., assignor.)						
Hoyt, Iven J., Wataeka, Ill. Car	603,079	Apr. 12	848	185	88	172
Hoyt, Thomas H., and J. Gillet, assignors to Milwaukee Manufacturing Company, Milwaukee, Wis. Means for attaching crank-arms to crank-shafts	603,698	May 10	881	181	88	777
Hoyte, Phil L., and W. T. Wood, Nashville, Tenn.; said Wood assignor to said Hoyte. Measuring mechanism for box or can filling machines	603,330	Apr. 12	1268	264	88	259
Hubbard, Arthur O., Minneapolis, Minn. Folding box	606,459	June 28	2656	{ 611 / 612	88	1916
Hubbard, Oliver C., Bedford, Ind. Plow-carriage	604,351	May 17	2078	465	88	1053
Hubbell, Harvey, Bridgeport, Conn. Machine for slotting screws	603,298	Apr. 12	1218	{ 208 / 209	88	245
Huber, Edward, Marion, Ohio. Self-adjusting journal-bearing	604,936	May 31	3115	716	88	1286
Huber, Edward, and J. W. Miller, Marion, Ohio. Swinging straw-stacker	606,059	June 21	1896	{ 456 / 457	88	1747
Huber, Henry, Mansfield, Ohio. Portable adjustable ladder	604,531	May 24	2411	{ 548 / 549	88	1133
Huber, Jacob, Bridgeport, Conn., assignor to Hayden & Derby Manufacturing Company, New York, N. Y. Injector	604,283	May 17	1641	412	88	1008
Huber, Sigmund V., Youngstown, Ohio. Rolling-mill	605,699	June 14	1122	{ 259 / 260	88	1586
Hudgins, Oscar W., and J. A. Jones, Harrison, Ark. Fruit-picker	605,461	June 7	753	173	88	1497
Hudson, George W. (See Avery, John, assignor.)						
Huestis, Frederick W., assignor to Consolidated Rubber Works, Boston, Mass. Machine for making vehicle-tires	601,634	Apr. 5	397	83, 84	88	74
Huffman, Adam S., Pittsburg, Pa. Device for preventing discharge of gas	603,908	May 10	1354	309	88	890
Huffman, James R. G. (See Aaron and Huffman.)						
Huffman, William P., Hickory, N. C. Rubber attachment for pencils	606,551	June 28	2663	650	88	1949
Huffstot, Hosea. (See Daniels, Robert E., assignor.)						
Hughes, Emma, Wichita, Kans. Desk or table attachment for furniture	604,006	May 10	1426	319	88	906
Hughes, Fred C., Detroit, Mich. Telephone-switchboard system	605,670	June 14	1124	{ 260 / 261	88	1587
Hughes, Fred C., Detroit, Mich. Cord-weight for telephone-switchboards	605,671	June 14	1129	261	88	1588
Hughes, Lawson B., *et al.* (See Bray, Edward W., assignor.)						
Hulett, George H. (See McMyler and Hulett.)						
Hulings, Joseph S., Parker's Landing, Pa. Adjustable vehicle-spring	603,955	May 10	1267	294	88	897
Hull, John H. (See Rich, Louis F. C., assignor.)						
Hull, John W., Dayton, Ohio. Glove-drier	606,688	June 28	2958	686	88	1974
Hull, Wolcutt A., New York, N. Y. Filter	606,318	June 28	2305	506	88	1606
Hülsen, Eduard von, Charlottenburg, Germany. Type-writing machine	606,416	June 28	2578	{ 596 / 597	88	1899
Humphrey, Alexander F., Allegheny, Pa. Ammonia and water pistol	605,430	June 7	708	158	88	1489
Humphrey, Alexander F., Allegheny, Pa. Trolley-wheel	605,716	June 14	1208	278	88	1603
Humphrey, Alexander F., Allegheny, Pa. Cooking utensil	606,558	June 28	2694	650	88	1949
Humphrey, Seth K., Boston, Mass. Windmill	603,905	May 10	1308	272	88	851
Humphrey, Walter B., assignor to A. G. Rodgers, Windsor, Conn. Garment-supporter	603,805	Apr. 19	2108	476	88	489
Humphrey, William C., Jamestown, N. D. Cyclist's brace and back-support	604,677	May 24	2302	610	88	1188
Humphreys, Alexander C., *et al.* (See Green, Henry, assignor.)						
Humphreys, Thomas. (See Watson and Humphreys.)						
Hundhausen, Johannes, Hamm, Germany. Apparatus for draining starch	603,447	May 3	659	79	88	697

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hungerford, William H. (See Backus, John C., assignor.)						
Hunt, George C. (See Farrar, John J., assignor.)						
Hunt, Jonathan A., Westborough, Mass. Clamp for bicycle-saddles	601,890	Apr. 5	513	106	88	96
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	605,679	June 14	1130	266	88	1588
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	605,678	June 14	1129	{ 265 / 266	88	1588
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	606,146	June 21	2057	471	88	1778
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle						
Hunt, William F., West New Brighton, assignor to C. W. Hunt Company, New York, N. Y. Endless-chain conveyer	604,234	May 17	1643	413	88	1008
Hunter, David E., Cambridge, Mass. Library shelving, stack, &c	605,291	June 7	448	{ 99 / 100	88	1437
Hunter, F. E. (See Schairer, John J., assignor.)						
Hunter, Henry C., Alameda, Cal. Combined body-blank and connecting-strip for packing-cans	604,294	May 24	2148	488	88	1087
Hunter, Lytle J., Covington, Ky. Car-fender	604,395	May 24	2148	488	88	1087
Hunter, Richard J., Goodwill Hill, Pa. Power-frame for pumps	603,849	Apr. 26	2190	497	88	460
Hunter, Rudolph M., Philadelphia, Pa. Electric railway	605,284	June 14	1406	322	88	1629
Hunter, Samuel, Leechburg, Pa. Stair-rail	606,147	June 21	2058	472	88	1778
Huntoon, Charles F., assignor to Chicago Railway Equipment Company, Chicago, Ill. Brake connection-rod	606,148	June 21	2059	472	88	1779
Huntoon, Charles F., assignor to Chicago Railway Equipment Company, Chicago, Ill. Side bearing for railway-cars	606,345	June 28	2445	567	88	1674
Hunziker, Adolph A., St. Louis, Mo. File and binder	605,717	June 14	1204	278	88	1603
Hurrell, James and R. W., Brooklyn, N. Y. Safety-check for elevators	603,944	Apr. 26	2357	538	88	495
Hurrell, Robert W. (See Hurrell, James and R. W.)						
Hurst, John, Nelson, Wash. Device for removing broken drill-rods	604,327	May 17	2085	453	88	1043
Hurst, Willis T., assignor of two-thirds to B. A., E. C., and E. D. Baxter, Mansfield, Ohio. Track-cleaner	605,431	June 7	709	158	88	1489
Hurth, John A. (See Pearce, William J., assignor.)						
Huse, Warren D., Laconia, N. H. Bobbin-winding machine	602,588	Apr. 19	1711	369	88	353
Huss, Theodore. (See Buck and Huss.)						
Hussey, John E., and A. I. Summers, Bristol, England. Back-pedaling brake	603,718	June 14	1205	{ 278 / 279	88	1602
Huston, Abram F., Coatesville, Pa. Boiler-brace	605,432	June 7	711	159	88	1490
Hutcheson, George C., assignor, by mesne assignments, of one-half to J. R. Elliott, St. Louis, Mo. Car-fender	605,284	June 7	431	97	88	1484
Hutchings, George S. (See Skinner, Ernest M., assignor.) (Reissue.)						
Hutchins, George F., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shedding mechanism for looms	605,825	June 14	1414	{ 322 / 323	88	1641
Hutchins, George F., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Loom	606,553	June 28	2695	650	88	1949
Hutchinson, Daniel. (See Kay and Hutchinson.)						
Hutchinson, Edwin H., Jamestown, Ark. Saw	605,577	June 14	998	219	88	1554
Hutchinson, Thomas H., Brooklyn, N. Y. Urinal-pan	602,080	Apr. 12	849	185	88	172
Hutchison, Hugh B., *et al.* (See Tyler, William E., assignor.)						
Hutson, Henry A., Chicago, Ill. Nut and nut-lock	605,578	June 14	999	219	88	1554
Hyams, David. (See Ross, Archie L., assignor.)						
Hyatt Roller Bearing Company. (See Tellefsen, Theodore J., assignor.)						
Hyde, John, Trenton, N. J. Track-cleaner	602,081	Apr. 12	850	185	88	173
Hyde, Thomas, Albany, N. Y. House-ventilating system	606,417	June 28	2588	597	88	1902
Hygienic Refrigeration Company (See Wood, William M., assignor.)						
Hyman, Lena. (See Smyth, Charles, assignor.)						
Hysore, Alphenaus V., assignor of two-thirds to S. P. Mayo and W. J. Whitehurst, Richmond, Va. Apparatus for treating tobacco	601,654	Apr. 5	54	11	88	11
Ichthyol Gesellschaft, Cordes, Hermanni & Co. (See Helmers, Ludwig O., assignor.)						
Ide, Addie F., *et al.*, executors. (See Ide, Albert L.)						
Ide, Albert L., deceased, Springfield, Ill.; A. F., F. P., and R. W. Ide, executors. Combined crank shaft and disk	601,965	Apr. 5	667	141	88	126
Ide, Francis P., *et al.*, executors. (See Ide, Albert L.)						
Ide, Roy W., *et al.*, executors. (See Ide, Albert L.)						
Igoe, Andrew, *et al.* (See Parker, Theron N., assignor.)						
Igoe, Peter, *et al.* (See Parker, Theron N., assignor.)	605,488	June 7	712	159	88	1490
Iler, Joseph H., Troy, N. Y. Bicycle-support	606,149	June 21	2061	473	88	1779
Ill, Henry, *et al.* (See Ogden, Frederick H., assignor.)						
Ils, John G., San Francisco, Cal. Portable assay-furnace						
Improved Street Sweeper Company. (See Franz, William, assignor.)						
Indiana Manufacturing Company. (See Cook, William H., assignor.)						
Indiana Manufacturing Company. (See Perry, Earle C., assignor.)						
Indiana Manufacturing Company. (See Sharpe, Joseph K., Jr., assignor.)						
Industrial Manufacturing Company. (See Malsch, Frank, assignor.)						
Ingalls, Willis A. (See Baron and Ingalls.)						
Ingersoll-Sergeant Drill Company. (See Sergeant, Henry C., assignor.)						
Ingleby, John, Leeds, England. Machine for charging linoleum-molds	604,396	May 24	2152	{ 483 / 484	88	1088
Ingram, Nathan D., Holyoke, Mass. Button	605,202	June 7	450	100	88	1438
Ingram, Nathan D., Holyoke, Mass. Combined pencil-case and comb-case	605,674	June 14	1134	263	88	1589
International Automatic Car Coupler Company. (See Cox, Henry M., assignor.)						
International Register Company. (See Pratt, Charles E., assignor.)						
Inventor's Novelty Manufacturing Company. (See Gartner, Alfred, assignor.)						
Ipson, George, *et al.* (See Davis, John A., assignor.)	603,850	Apr. 26	2191	497	88	461
Ipson, George, Huntington, Utah. Non-refillable bottle	603,851	Apr. 19	1935	435	88	359
Ipson, George, Huntington, Utah. Apparatus for leaching tanbark						
Iredell, Charles, Elmira, N. Y. Governor						
Ireland, Atwell M. (See Dinsmore and Ireland.)	603,268	May 3	208	46	88	640
Ireland, A. Bertsell, Greene, N. Y. Governor	604,997	May 31	3117	716	88	1289
Irish, Charles, Traverse City, Mich. Bin for powdered material	601,591	Apr. 5	514	106	88	97
Irwin, Russell M., Nashville, Tenn. Portable bath-cabinet						
Israel, Adolf. (See Krekeler and Israel.)						
Israel, Adolf. (See Krekeler, Israel, and Blank.)						
Israel, Adolf. (See Krekeler, Martz, and Israel.)						
Ivers & Pond Piano Company. (See Dayfoot, John B., assignor.)						
Ivins, Ellwood, Philadelphia, Pa. Manufacture of seamless drawn tubes	601,966	Apr. 5	669	141	88	126
Ivins, Ellwood, Philadelphia, Pa. Fork side for bicycles	602,012	Apr. 5	734	157	88	139
Ivins, Ellwood, Philadelphia, Pa. Fork side for bicycles	602,013	Apr. 5	735	157	88	139
Ivory, James W. (See Harnden, Charles, assignor.)						
Ivory, James W., Philadelphia, Pa. Dental matrix-retainer	606,460	June 28	2659	619	88	1916

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
J. L. Mott Iron Works. (See Hammann, Edward, assignor.)						
Jackobolce, Edward J. (See Gleason, Jackobolce, and Waterson.)	603,046	Apr. 5	795	179	88	150
Jackson, Ambrose F., Oklahoma, Okla. Ter. Spike-extractor						
Jackson, Benjamin F., Cambridge, assignor of three-fourths to A. M. Child, Boston, Mass. Matrix-drying apparatus	603,879 604,949	May 10 May 17	1168 1874	262 430	88 88	843 1013
Jackson, Charles J., Erie, Pa. Feed-water heater						
Jackson, E. Hilton, *et al.*, trustees. (See Cahill, Thaddeus, assignor.)						
Jackson, Edwin, *et al.* (See Jackson, Samuel, assignor.)						
Jackson, Frederick S., *et al.* (See Moon, Frank D., assignor.)						
Jackson, John, and G. C. Boroughs, Battersea Rise, England. Apparatus for cutting cloth	603,851	May 10	1110	250	88	832
Jackson, John T., and F. J. Travers, Toronto, Canada. Radiator	601,655	Apr. 5	56	11	88	12
Jackson, John T., and F. J. Travers, Toronto, Canada. Steam or hot-water radiator	601,656	Apr. 5	58	12	88	12
Jackson, Manetho C., assignor of one-half to H. D. Crippen, Denver, Colo. Rock-drill	604,152	May 17	1605	382	88	979
Jackson, Samuel, assignor to G. D., M. R., and C. W. Grannis and E. Jackson, Syracuse, N. Y. Bucket hoisting and conveying machine	602,851	Apr. 26	2192	497	88	461
Jacob, Charles H., Lyons, France. Apparatus for applying finishing substances to cotton fabrics	605,434	June 7	713	159 160	88	1490
Jacobs, Jacob, Brooklyn, N. Y. Ventilating vault-cover	606,554	June 28	2696	651	88	1949
Jacobson, Paul, and H. Tigges, Berlin, assignors to L. Cassella & Co., Frankfort on-the-Main, Germany. Oxydiamidodiphenyl and making same	604,049	May 17	1500	.....	88	942
Jaeger, Charles L., Maywood, N. J. Electric recording instrument	605,548	June 14	892	206	88	1543
Jaffe, Hermann. (See Sachs and Jaffe.)						
Jaggard, Samuel P., Blackwood, N. J. Jar, top, and wrench for preserving fruits or the like	605,492	June 14	781	179	88	1562
Jaixon, Joseph, and E. Harry, Buffalo, N. Y. Burial-casket	603,767	May 10	946	211	88	801
James, Albert A., Tecumseh, Okla. Ter. Well-curb	605,150	June 21	2092	473	88	1779
James, John H., London, England. Carpet-fastener	604,757	May 31	2819	644	88	1220
Jamieson, James, Hamilton, Canada. Sheet-metal vehicle-wheel tire	605,435	June 7	715	160	88	1491
Jandro, Charles T., Paterson, N. J. Wagon-jack	602,259	Apr. 12	1165	256	88	285
Janesville Machine Company. (See Sater, Hans H., assignor.)						
Janin, John V., assignor to himself and J. Giesen, Goldbasin, Wash. Suspender-clasp	605,719	June 14	1907	279	88	1602
Jansky, Cyril M., Au Sable, Mich. Carpet stretcher and tacker	604,987	May 31	3188	734	88	1308
Jarden, Frederick V., Philadelphia, Pa. Rail-joint	603,191	Apr. 26	2768	631	88	571
Jardine, John S., Philadelphia, Pa. Stair-carpet fastener	604,585	May 24	2511	570	88	1153
Jarvis, Reuben P., Smith Centre, Kans. Rotary engine	602,708	Apr. 19	1983	439	88	306
Jassen, Bern, assignor of two-fifths to A. Fuchs, Newark, N. J. Self-oiling axle	605,836	June 14	1416	323	88	1641
Jauch, Joseph, assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Air distributer or spreader	603,105	Apr. 26	2027	507	88	543
Jeansén, Carl F., Washington, D. C. Tongs for handling projectiles	604,758	May 31	2830	644	88	1231
Jeffery, Thomas B., Chicago, Ill. Wheel tire and felly	603,956	May 10	1289	294	88	867
Jeffryes, George. (See Righter and Jeffryes.)						
Jenkins, Edwin J., Elloree, S. C. Ax	605,878	June 21	1389	354	88	1683
Jenkins, Edwin J., Elloree, assignor of part to J. M. Oliver and H. H. Brunson, Orangeburg, S. C. Railway-switch	602,014	Apr. 5	737	157 158	88	140
Jenkins, Harry L. (See Moore, Jehiel T., assignor.)						
Jerome, Henry B. (See Enos, Albertus, assignor.)						
Jenkins, McHenry. (See Vaughn and Jenkins.)						
Jenkins, William S., Licking, Mo. Lock attachment	605,730	June 14	1309	279	88	1603
Jerram, Frederic O., Liverpool, England. Sewing-machine	602,988	Apr. 26	2427	552 553	88	505
Jeschke, Wladyslaus, Brooklyn, N. Y. Cover or binder for magazines, &c	602,452	Apr. 19	1495	341	88	314
Jessen, Henry L., Watsonville, Cal. Portable crushing-mill	602,321	Apr. 12	1108	242	88	222
Jessup, Nathan, Indianapolis, assignor of one-half to J. A. Smith, Roosville, Ind. Metallic packing	604,474	May 24	2309	524	88	1116
Jetschick, Christian, Scranton, Pa. Bicycle-bell	604,864	May 31	3096	695	88	1271
Jewell, Omar H., Chicago, Ill., assignor to O. H. Jewell Filter Company, of Illinois. Filter. (Reissue)	11,672	June 28	2972	690	88	1977
Jewett, Edwin H., Toledo, Ohio. Glass-gathering machine	605,483	June 14	782	180	88	1594
Jewett, Israel D., Greensburg, Ind. Compound for healing punctures in pneumatic tires	604,582	May 24	2414	.....	88	1184
Jobbins, William F., assignor of one-half to J. Van Ruymbeke, Aurora, Ill. Apparatus for making caustic soda	605,108	June 7	61	18	88	1364
Jocelyn, George B., assignor of one-half to H. F. Kirk, Arthur, Ill. Screw driver and drawer	604,250	May 17	1876	420	88	1014
Jodoin, Pierre, Worcester, Mass. Clothes-drier	606,060	June 21	1898	437	88	1748
John V. Rice, Jr., Company. (See Rice, John V., Jr., assignor.)						
Johansson, Gustaf, assignor to himself, W. P. Smith, and D. Romaine, Jersey City, N. J. Valve	605,549	June 14	985	207	88	1544
Johnson, Adolph J., assignor of one-half to E. H. O. Nelson, Minneapolis, Minn. Horse-power bayonet	604,153	May 17	1607	382 383	88	980
Johnson, Alba B., *et al.* (See Austin, William L., assignor.)	603,997	May 10	1291	294	88	867
Johnson, Alfred, Philadelphia, Pa. Finger-gage for rings	603,484	May 3	439	98	88	686
Johnson, Andrew J., assignor of one-half to W. Kennard, Cleveland, Ohio. Automatic turret-head for lathes	605,166	June 7	194	49	88	1297
Johnson, Andrew J., assignor to A. J. Johnson & Co., Cleveland, Ohio. Lathe-chuck	602,559	Apr. 19	1670	379	88	346
Johnson, Anson S., Ithaca, N. Y. Type-writing-machine erasing-plate	602,945	Apr. 26	2359	536	88	494
Johnson, Carroll H., Oak Grove, assignor of one-half to C. Bowling, Hiler, Mo. Hame-fastener						
Johnson, Charles E. (See Norling and Johnson.)						
Johnson, Charles S., Lynn, and G. W. Spaulding, Beverly, Mass.; said Spaulding assignor to said Johnson. Attachment for sole-leveling machines	604,885	May 31	3027	695	88	1271
Johnson & Co., A. J. (See Johnson, Andrew J., assignor.)						
Johnson Company. (See Brown, William M., assignor.)						
Johnson Company. (See Eyre, Richard, assignor.)						
Johnson Company. (See Moxham, Arthur J., assignor.)						
Johnson Company. (See Nather, Frank, assignor.)						
Johnson, Eldridge R., *et al.* (See Royal, Belford G., assignor.)						
Johnson, Elias M., Brooklyn, N. Y. Car-fender	603,738	May 10	877	194	88	788
Johnson, Ernest G. (See Johnson, William L. and E. G.)						
Johnson, Eventine F., Nicholson, Pa. Border for flower-beds	606,151	June 21	2068	473	88	1779
Johnson, Ferdinand, New London, Pa. Wire-fence clamp	606,461	June 28	2660	612	88	1917
Johnson, Frank, Rhinelander, Wis. Adjustable handle-bar for bicycles	602,015	Apr. 5	736	159	88	140
Johnson, Frank M., Union City, assignor of one-half to R. C. Warner, Naugatuck, Conn. Tagging-needle	604,759	May 31	2821	644	88	1231
Johnson, Frank O., North Clarendon, Pa. Nut-lock	605,786	June 14	1343	307	88	1637

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Johnson, George E., Los Angeles, Cal. Trolley-wire hanger	605,351	June 7	871	84	88	1421
Johnson, Hans G., Waukon, Iowa. Washing-machine	605,721	June 14	1309	279	88	1608
Johnson, Henry, Rahway, N. J. Pot signal	602,852	Apr. 26	2192	498	88	461
Johnson, Henry H., Morristown, N. J. Handle-bar for bicycles	602,016	Apr. 5	739	159	88	140
Johnson, Henry J., Fargo, N. D. Steam-boiler-flue cleaner	604,397	May 24	2154	484	88	1066
Johnson, Hobart S., Madison, Wis. Tool-holder	604,009	May 10	1427	320	88	995
Johnson, Job, Glendale, N. Y. Composition for roadways, tiles, &c	602,088	Apr. 12	852	.....	88	178
Johnson, Joseph, trustee. (See Clay, Henry, assignor.)						
Johnson, Justus, and W. V. Lukens, assignors to Burnham, Williams & Co., Philadelphia, Pa. Stay-bolt	602,402	Apr. 12	1409	318	88	284
Johnson, L. E. (See Barber, Melvin, assignor.)						
Johnson, Ole, Milwaukee, Wis. Apparatus for elevating, transporting, and discharging material	603,882	May 10	1111	250 251	88	833
Johnson-Parditt Tool Company. (See Parditt, Alfred, assignor.)	605,675	June 14	1185	263	88	1589
Johnson, Talbot B., Veedersburg, Ind. Basket	604,618	May 24	2562	585	88	1164
Johnson, Warren S. (See Gibbs, Johnson, and Winkenwerder.)						
Johnson, William L. and E. G., Buffalo, N. Y. Window-ventilator	605,182	June 7	224	54	88	1306
Johnston, Abner, assignor of five-eighths to G. B. Fielder, Jersey City, N. J., and R. G. Foster, New York, N. Y. Bicycle	604,864	May 31	2997	688	88	1265
Johnston, Edward A. (See Pridmore and Johnston.)						
Johnston, George E., St. Thomas, Mo. Car-coupling	604,661	May 24	2631	608	88	1176
Johnston Harvester Company. (See Farrell, George A., assignor.)						
Johnston, Hector M., and G. W. Mason, Eau Claire, Wis. Lumber-edger	604,886	May 31	3029	695	88	1271
Johnston, J. D. (See Coggeshall, Robert D., assignor.)	605,059	May 31	3312	761	88	1336
Johnston, James B., and C. B. Little, Dayton, Ohio. Steam or hot-water boiler	605,046	May 31	3293	756	88	1332
Johnston, Johns B., assignor to Pottier & Stymus Company, New York, N. Y. Car-seat	606,192	Apr. 26	2769	631 632	88	571
Johnston, Lysander, assignor of one-half to G. I. Ladd and H. A. Buell, Chicago, Ill. Filter						
Johnston, Robert, River Falls, Wis. Hoisting apparatus	602,806	Apr. 19	2109	476	88	429
Johnston, William F., assignor of one-half to R. Walton, Philadelphia, Pa. Device for attaching stamps, sealing letters, &c	603,332	May 3	155	36	88	632
Johnstone, Arthur E., New York, N. Y. Flash-light apparatus	605,183	June 7	226	55	88	1298
Johnstone, Huger W., Atlanta, assignor of one-half to P. H. Johnstone, Idylwild, Ga. Driving connection for bicycles	603,276	May 3	58	14	88	612
Johnstone, Paul H. (See Johnstone, Huger W., assignor.)						
Johnstown Fire Escape Company. (See Shires and Kennedy, assignors.)	605,579	June 14	940	219 220	88	1554
Jolly, William L., Arrowtown, New Zealand. Pneumatic tire	601,808	Apr. 5	352	72	88	66
Jone, Friedrich A., Dresden, Germany. Flying-machine	601,809	Apr. 5	358	73, 74	88	67
Jones, Albert F., Salem, Mass., assignor to Vaughn Machine Company, Portland, Me. Machine for working hides or skins	601,967	Apr. 5	670	142	88	127
Jones, Albert F., Salem, Mass., assignor to Vaughn Machine Company, Portland, Me. Machine for working hides or skins	604,865	May 31	2998	686 689	88	1265
Jones, Charles, Liverpool, England. Hydrant, stop-valve, or the like						
Jones, Edward G., Cape Town, Cape Colony. Rail-track cleaner	604,760	May 31	2823	645	88	1231
Jones, Edwin C. (See Jones, Frank L. and E. C.)						
Jones, Frank L. and E. C., assignors to Boston Check and Ticket Company, Boston, Mass. Perfecting platen-press	604,306	May 24	2155	484	88	1066
Jones, George F. (See Coleman, Clyde, assignor.)	602,232	Apr. 12	1287	285	88	250
Jones, Henry C. (See Stagman and Jones.)	606,158	June 21	2064	474	88	1779
Jones, James A. (See Hudgins and Jones.)	606,555	June 28	2695	651 652	88	1950
Jones, James R., Waterford, Mich. Metal fabric for wire fences	602,453	Apr. 19	1497	341	88	314
Jones, Jerome, Kansas City, Mo. Stovepipe-fastener	604,629	May 31	2929	670	88	1232
Jones, John, Liverpool, England. Bracket for supporting curtain-rods	605,484	June 14	786	180 181	88	1594
Jones, Joseph F., Yellow Springs, Ohio. Safe-alarm	601,657	Apr. 5	61	12	88	13
Jones, Joseph W., assignor to himself and J. A. Vincent, Philadelphia, Pa. Gramophone-needle	604,050	May 17	1502	337	88	942
Jones, Joseph W., assignor to himself and J. A. Vincent, Philadelphia, Pa. Sound-reproducing machine	603,853	May 10	1119	262	88	834
Jones, Joseph W., assignor to himself and J. A. Vincent, Philadelphia, Pa. Sound-reproducing machine	604,761	May 31	2825	645	88	1232
Jones, Milton L. (See Allen and Jones.)	601,892	Apr. 5	516	107	88	97
Jones, Oscar J., and M. B. Kerr, Winfield, Kans. Hat-fastener						
Jones, Pembroke. (See Schule, Friedrich H., assignor.)	604,762	May 31	2826	646	88	1233
Jones, Whitfield E., Brooklyn, N. Y. Bicycle support and lock	604,235	May 17	1845	413	88	1008
Jones, William O., Marcy, N. Y. Spoke-socket						
Jonkhoff, Jan A., Dresden, assignor to A. Grunert, New Gruna, Germany. Stringed instrument	606,061	Apr. 26	2539	577	88	526
Jönköpings Tändsticks-Fabriks Aktiebolag. (See Lagerman, Alexander, assignor.)	604,866	May 31	2999	699	88	1265
Jonson, Julius, assignor to R. Jonson, New York, N. Y. Machine for cutting forks	604,298	May 17	1826	454	88	1043
Jonson, Rose. (See Jonson, Julius, assignor.)						
Jordan, A. B. (See Weltner, Rora C., assignor.)						
Jordan, Alfred, London, England. Crusher						
Jordan, Dennis, assignor to M. L. McNamara, San Francisco, Cal. Building submerged stone and concrete structures, &c						
Jordan, William B. M. (See Bogart, Adrian L., assignor.)						
Jordan, William H., Brooklyn, N. Y. Device for turning off commutators of dynamos or motors						
Jordan, William H., Brooklyn, N. Y. Signal for electric railways						
Jordan, William H., Philipsburg, Mont. Non-refillable bottle and seal						
Josin, Alfred J., Philipsburg, Mont. Non-refillable bottle and seal						
Josin, Omar T., New York, N. Y., and H. B. Schmidt, Cincinnati, assignors of one-half to Black & Clawson Company, Hamilton, Ohio. Machine for thickening liquids						
Josin, Omar T., New York, N. Y., and H. B. Schmidt, Cincinnati, assignors of one-half to Black & Clawson Company, Hamilton, Ohio. Machine for thickening liquids						
Josin, Omar T., New York, N. Y., and H. B. Schmidt, Cincinnati, assignors of one-half to Black & Clawson Company, Hamilton, Ohio. Machine for thickening liquids						
Joy, Edward E., Dexter, Kans. Car-coupling						
Joy, John M., assignor to Printing Telegraph News Company, New York, N. Y. Combined transmitter and receiver						
Joyce-Cridland Company. (See Brooks, Frank C., assignor.)						
Joyce, James A., Cleveland, Ohio. Coal or ore bucket						
Judd, Carl K., Bushong, Kans. Forceps						
Judd, Charles B., Detroit, Mich. Mechanical movement						
Judge, John S., Peterborough, Canada. Window-shade						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Julian, Henry F., Teignmouth, England. Wheel for vehicles	604,154	May 17	1699	288	88	980
Julian, Henry F., Teignmouth, England. Wheel for vehicles	604,155	May 17	1701	288	88	981
Jump, Walter H., Audubon, Iowa. End-gate	603,853	Apr. 26	2194	498	88	461
Junkins, Leander D., Somerville, Mass. Pneumatic tire	603,605	May 3	659	147	88	730
Junkins, Leander D., assignor of one-half to A. F. Munro, Boston, Mass. Wheel-rim	602,080	Apr. 5	745	160	88	141
Justeson, Henry F. S. (See Nelson and Justeson.)						
Kaemmerling, William J. (See Hart, John W., assignor.)						
Kaestner, Charles, assignor to C. Kaestner & Co., Chicago, Ill. Barrel-cleaner	601,658	Apr. 5	68	12	88	13
Kaestner, Charles, assignor to C. Kaestner & Co., Chicago, Ill. Barrel-washer	605,879	June 21	1541	354 / 355	88	1668
Kaestner & Co., Charles. (See Kaestner, Charles, assignor.)						
Kahle, George L., Council Bluffs, Iowa, assignor to F. W. Whitcher, Boston, Mass. Bicycle-support for railway-cars	603,509	May 3	497	109	88	997
Kahn, Abraham, Frankfort-on-the-Main, assignor of one-half to Heilbronner Copierbucher Fabrik C. Holzwarth, Heilbronn, Germany. Letter-press book	603,729	May 10	878	195	88	788
Kahn, Myrtil, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, New York, N. Y. Violet dye	603,540	Apr. 19	1641	------	88	341
Kahn, Myrtil, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, New York, N. Y. Violet azo dye	603,008	Apr. 26	2461	------	88	512
Kahn, Myrtil, and F. Runkel, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Bluish-red dye	603,009	Apr. 26	2462	------	88	512
Kahn, Myrtil, and K. Heidenreich, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, of New York. Black disazo dye and making same	605,108	June 7	64	------	88	1364
Kaiser, Marguerite, St. Louis, Mo. Kitchen-rack	601,758	Apr. 5	958	50	88	46
Kalamaikowski, Stanislau, New York, N. Y. Fireproof calcimine	603,698	May 10	869	------	88	777
Kanaly, Morris E., Somerville, Mass. Seal-lock	606,418	June 28	2589	597	88	1908
Kane, Thomas H., Shreveport, La. Pipe and flue cleaner	606,018	June 21	1808	417	88	1781
Kanski, Roman T., New York, and E. G. Freeman, New Rochelle, N. Y. Incubator	602,017	Apr. 5	740	159	88	140
Kargee, Julius J., Kansas City, Mo. Moistening device	603,766	May 10	947	211	88	801
Karner, Joseph C., Mexia, Tex. Combination-tool	604,880	May 31	2661	670	88	1938
Karst, Bernard W., assignor of one-half to G. E. Miller, Harlansburg, Ind. Match box or safe	603,333	Apr. 12	1266	295	88	290
	604,156	May 17	1703	288	88	981
Karrer, Frank H., Roslyn, Wash. Chair						
Kaufmann, Julius. (See Bernhardt, Charles, assignor.)						
Kautz, George, Albany, N. Y. Dumping-wagon	601,659	Apr. 5	64	12	88	13
Kautz, Joseph, Detroit, Mich. Boat	603,469	May 3	404	90	88	679
Kavanaugh, George H., Middletown, Conn. Flexible broom-handle	603,694	May 10	868	181	88	777
Kay, James H. (See Hall and Kay.)						
Kay, John F., Passaic, and D. Hutchinson, Bound Brook, N. J., assignors to Diamond Match Company, Chicago, Ill. Machine for cutting and assembling match-splints	601,893	Apr. 5	880	107 / 108	88	97
Kay, Joseph W. (See Lambert, Frank, assignor.)						
Kayser, Julius. (See Lindner, Arthur E., assignor.)						
Kearns, William F., Boston, Mass. Partition-frame	603,402	May 3	372	61	88	652
Keator, Charles E., Brooklyn, assignor of one-half to Dunlap & Company, Brooklyn and New York, N. Y. Machine for sizing hat-bodies	603,906	May 10	1210	274	88	851
Keefe, James E., Chicago, Ill. Dental disk-mandrel	604,265	May 17	2068	467	88	1054
Keeling, Henry. (See Lloyd and Keeling.)						
Keeling, Henry H. (See Baginski, Ferdinand, assignor.)						
Keenan, Nellie T., *et al.* (See Fennan, William T., assignor.)	604,399	May 24	2157	484	88	1066
Keenan, William P., Columbus, Ohio. Vent-plug	606,346	June 28	2447	567	88	1675
Keen, Marshal G. and P. P., Keensburg, Ill. Grain-reel for reaping-machines	601,796	Apr. 5	382	67	88	68
Keen, Peter P. (See Keen, Marshal G. and P. P.)						
Kehm, Frank A. and P. H., Mason City, Iowa. Thill-coupling	604,051	May 17	1508	336	88	943
Kehm, Phillip H. (See Kehm, Frank A. and P. H.)						
Keighley, William B., Vineland, N. J. Shoe-buffer	604,534	May 24	2418	550	88	1134
Keil, John. (See Arnold and Keil.)	604,668	May 24	2633	608	88	1177
Keiper, Henry B., Lancaster, Pa. Gearing	605,722	June 14	1211	280	88	1608
Keiper, Henry B., Lancaster, Pa. Gearing						
Keiper, Henry B., Lancaster, Pa. Gearing						
Keiper, Henry B., assignor of one-half to J. Hertzler, Lancaster, Pa. Ball-retainer for antifriction-bearings	604,678	May 24	2664	610	88	1186
Keith, Jacob C., Ellwood City, Pa. Post-office-box cabinet	606,556	June 28	2531	608	88	1951
Keith, Jeremiah, assignor to Simmons & Faye, Providence, R. I. Bicycle-bell	604,356	May 17	2085	467	88	1055
Keller, Henry, assignor of one-half to W. B. Flickinger, Erie, Pa. Machine for setting up, drilling, and pinning bicycle-frames	602,623	Apr. 19	1765	407	88	367
Keller, John, Philadelphia, Pa. Car-fender	601,966	Apr. 5	671	149	88	137
Keller, Julius, Philadelphia, Pa. Engine	603,786	May 10	964	220	88	806
Keller, Louis B., Minneapolis, Minn. Portable stove-hood	603,780	May 10	879	195	88	786
Keller, Thomas H., New York, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	606,166	June 21	2097	489	88	1786
Kellerman, Ellsworth D., and B. C. Crane, assignors of one-half to E. C. Story, Montesano, and W. I. Agnew, Olympia, Wash. Fire-hose nozzle	603,144	Apr. 26	2666	612	88	556
Kelley, John, Philadelphia, Pa. Spoke-expander and wheel-tightener	606,014	June 21	1809	417	88	1781
Kellner, Carl, Vienna, Austria-Hungary. Apparatus for preparing cellulose for manufacturing spun fabrics	603,393	May 3	158	36	88	633
Kellner, Franklin L., and G. S. Barrows, Philadelphia, Pa., assignors to Welsbach Light Company, Gloucester City, N. J. Electrical attachment for gas-lights	603,394	May 3	160	37	88	633
Kellogg, John H., Battle Creek, Mich. Producing alimentary products	604,498	May 24	2648	------	88	1122
Kellogg, John H., Battle Creek, Mich. Inhaler	605,436	June 7	716	161	88	1491
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Telephone circuit and apparatus	605,560	June 14	948	220 / 221	88	1555
Kellogg Switchboard and Supply Company. (See Kellogg, Milo G., assignor.)						
Kellogg, Thomas E., assignor of one-third to H. A. Reynolds, Walla Walla, Wash. Thill-coupling	604,494	May 24	2649	533	88	1122
Kellogg, William P., Troy, N. Y. Trace-carrier	606,347	June 28	2448	567	88	1675
Kellogg, William S., Little Rock, Ark. Bicycle driving-gear	603,168	Apr. 12	1005	230	88	208
Kelly, David. (See Appleby, John F., assignor.)						
Kelly, Edward, and H. B. Weaver, Port Oram, N. J. Blast-furnace	603,947	Apr. 26	2362	530	88	494
Kelly, George, Mineral Point, Wis. Boiler-covering	603,454	Apr. 19	1498	342	88	314
Kelly, George J. (See Horspool, Francis L., assignor.)						
Kelly, John P. (See Guyer, Kelly, and Kissell.)	603,799	May 10	949	212	88	801
Kelly, Michael, Buffalo, N. Y. Bicycle-support						
Kelly, Oliver S. (See Krotz, Alvaro S., assignor.)						
Kelly, Oliver S. (See Krotz, Allen, and Kelly.)						
Kelso, Robert, and M. Rosenbaum, Philadelphia, Pa. Flexible metallic sheathing for tubes and ropes	606,557	June 28	2682	653	88	1951

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kemp, Charles E. (See Kemp, Clarence M. and C. E.)						
Kemp, Clarence M. and C. E., Baltimore, Md. Pipe-testing machine	602,389	Apr. 12	1223	269	88	246
Kempshall, Eleazer, Sharon, assignor to Boston Fast Color Eyelet Company, Boston, Mass. Eyelet	606,061	June 21	1800	437	88	1748
Kendall, Charles B., Boston, Mass., assignor to American Automatic Banjo Company, of New Jersey. Pneumatic action for musical instruments	606,219	June 28	2307	506 / 507	88	1886
Kendall, Charles B., and J. P. Tirrell, Boston, Mass., assignors to American Automatic Banjo Company, of New Jersey. Picker device for stringed musical instruments	606,220	June 28	2309	507	88	1887
Kendall Rubber Tire Company. (See Kendall, Webber G., assignor.)						
Kendall, Webber G., assignor to Kendall Rubber Tire Company, Providence, R. I. Cushion-tire	604,663	May 24	2634	608	88	1177
Kennard, Walter. (See Johnson, Andrew J., assignor.)						
Kennedy, Albert H., Rockport, Ind., assignor to Cleveland School Furniture Company, Cleveland, Ohio. School-desk	601,876	Apr. 5	495	102	88	98
Kennedy, Charles M. (See Browne and Kennedy.)						
Kennedy, Frank M., Celina, Ohio, assignor of one-half to J. W. Stone, Brooklyn, N. Y. Wood molding and sawing machine	602,507	Apr. 19	1578	361 / 362	88	330
	603,905	Apr. 26	2381	530	88	477
Kennedy, John E., Montreal, Canada. Shoe-lace fastener	606,462	June 28	2661	612 / 613	88	1917
Kennedy, John Q. A. (See Shires and Kennedy.)						
Kennedy-McGregor, John A., Chicago, Ill. Caster	604,157	May 17	1704	284	88	961
Kennedy, Willis D., Easton, Pa. Circuit-closer	605,770	May 10	952	212	88	802
Kenney, Augustine, assignor of one-half to J. E. Wilson, Los Angeles, Cal. Water-wheel						
Kenosha Crib Company. (See Hannaha, Fred C., assignor.)						
Kent, George H., Cambridge, Mass. Paper-holder	603,186	Apr. 12	1050	229	88	211
Kent, William, Passaic, N. J. Furnace for steam-boilers	604,158	May 17	1705	284 / 285	88	961
Kenworthy, John. (See Coates, Thomas, assignor.)						
Kenyon, Perry B., Westerly, R. I. Nut-lock	603,819	May 10	1045	233	88	821
Keogh, John W. (See Ward, Ezra H., assignor.)						
Keough, John, *et al.* (See Anderson, Jens, assignor.)						
Keplinger, George B., Chicago, Ill. Brooch	604,763	May 31	2657	646	88	1229
Kerr, Milton B. (See Jones and Kerr.)						
Kerr, William S., Ada, Ind. Ter. Can-opener	602,455	Apr. 19	1499	342	88	314
Kersey, Thomas P., and E. W. Leach, Pulaski, Tenn. Thill-coupling	602,980	Apr. 26	2499	554	88	506
Kershner, Ferdinand. (See Kershner, Sturgeon, assignor.)						
Kershner, Sturgeon, Blue Hill, Nebr., assignor of one-fourth to F. Kershner, Marion, Iowa. Rotary engine	603,456	Apr. 19	1501	342	88	315
	604,236	May 17	1848	414	88	1008
Kervick, Emily T., Baltimore, Md. Pew-guard						
Kespohl, William. (See Donaldson and Kespohl.)						
Kessinger, William F., Blanchard, Pa. Hat-pin securer	603,880	May 10	1075	240	88	885
	603,334	Apr. 12	1280	286 / 287	88	260
Kessler, Martin C., Gilead, Ind. Rotary engine	606,267	June 28	2336	541	88	1853
Kester, Henry J., Napoleon, Ohio. Fodder-bundler	606,558	June 28	2534	653	88	1951
Ketchum, Louie E., Jerseyville, Ill. Fence-post						
Ketelair, Jean B. (See Loquet and Ketelair.)						
Ketterly, John. (See Wickes and Ketterly.)	603,695	May 10	823	181	88	777
Keuffel, Willie L. E., Hoboken, N. J. Slide-rule	603,408	May 3	378	61	88	628
Keyes, Herbert L., Hackensack, N. J., assignor to himself, and H. C. Norton, Newburg, N. Y. Window-shade carrier	604,330	May 17	2029	454	88	1043
Kibling, George F., Hanover, N. H. Mining apparatus	602,508	Apr. 19	1563	362	88	331
Kiehl, F. O. (See Kiehl, Louis E., assignor.)						
Kiehl, Louis E., assignor of one-half to F. O. Kiehl, Reedsville, Wis. Harness-buckle						
Kile, John W. (See Graham and Kile.)						
Killman, Thomas A., and H. A. Bratten, Liberty, Tenn., assignors, by mesne assignments, to American Computing Scale Company, New York, N. Y. Computing-scale	604,535	May 24	2419	550	88	1134
	605,789	June 14	1343	307 / 308 / 309	88	1627
Kimball, Robert B., Cleveland, Ohio. Adding-machine						
Kimball, William D., Milwaukee, Wis. Transferring strip and scale	603,088	Apr. 26	2600	591	88	537
Kimball, William H., assignor of one-half to D. Darling, Jonesville, Mich. Fence-post	603,807	Apr. 19	2110	476	88	429
Kimbel, Charles A., Louisville, Ky. Fly-catcher	603,083	Apr. 19	2053	185	88	173
Kimble, Samuel, Manhattan, Kans. Educational appliance	603,222	Apr. 12	1105	243	88	223
Kimmey, Peter M. (See Sandiford, William, assignor.)						
Kincaid, Barron P. (See Hettinger and Kincaid.)						
Kincheloe, Charles F., Washington, D. C. Horse-detacher	606,419	June 28	2592	598	88	1902
Kinder, Joseph J. de, and A. C. Wood, Philadelphia, Pa. Boiler and furnace	603,089	Apr. 26	2601	591 / 592	88	537
Kindt, Gustave F., assignor of one-half to C. E. Von Stege, Woodbury, N. J. Lock for prison-cells	603,277	May 3	59	15	88	619
King, Howard K., assignor to Chambers Brothers Company, Philadelphia, Pa. Paper-folding machine	602,990	Apr. 26	2430	554	88	506
King, John, London, England. Heating feed-water and circulation	604,052	May 17	1505	336 / 337	88	943
King, John C., San Francisco, Cal. Tone-modifying attachment for pianos	602,135	Apr. 12	989	205	88	190
King, Josiah A., *et al.* (See Matteson, Rufus S., assignor.)						
King, Rufus D., Bowman, Ga. Saw-jointer	605,550	June 14	887	207	88	1544
King, Thomas E. (See Foster, Edwin L., assignor.)						
King, Walter H. G., Denver, Colo. Bicycle driving-gear	602,906	Apr. 26	2261	521	88	477
King, William E., Chase, Mich. Magazine-firearm	604,764	May 31	2659	646 / 647	88	1232
Kingsbury, Herbert N. (See Merriman, Francis E., assignor.)						
Kingsley, Lewis J., Binghamton, N. Y. Reducing-press	605,167	June 7	195	49, 50	88	1366
Kinkade, John R., Sonora, Ky. Wagon-brake	605,551	June 14	888	207	88	1545
Kinnear, William R., Columbus, Ohio. Fireproof blind or curtain	603,608	Apr. 19	1744	396 / 397	88	360
Kinnear, William R., Columbus, Ohio. Metal door, partition, &c	603,106	Apr. 26	2686	507	88	542
Kinney, Israel, Detroit, Mich., assignor to J. S. Stockwell, E. M. Weatherhead, F. W. Durrant, and E. F. H. Pearson. Combined foot scraper and wiper	605,559	June 14	890	207	88	1545
Kinsbruner, Samuel L., Berlin, Germany. Roller-skate	603,704	Apr. 19	1932	440	88	397
Kinsey, Henry H., Shoshone, Idaho. Collapsible box	603,990	Apr. 12	1284	270	88	246
Kipling, Joseph. (See Flood and Kipling.)						
Kirby, Charles K., San Francisco, Cal. Continuous wine-press	603,990	May 10	1164	263	88	843
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Berth curtain-rod fixture	603,643	May 10	799	165	88	760
Kirby, Thomas E., Chicago, Ill. Car-lock	605,880	June 21	1546	355	88	1665

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Kirchhahn, Charles. (See Lecher and Kirchhahn.)						
Kirchhoff, Theodor, Milwaukee, Wis. Expansible pulley	601,660	Apr. 5	65	18	83	14
Kirk, Hugh F. (See Jocelyn, George B., assignor.)						
Kirk, Leonard G., New York, N. Y. Automatic air-valve for steam-radiators	605,315	June 7	492	110	83	1446
Kirkpatrick, Thomas J., Springfield, Ohio. Cycle-saddle	603,789	May 10	987	221	83	809
Kirkpatrick, Thomas J., Springfield, Ohio. Bicycle-saddle	605,689	June 14	1150	266	83	1594
Kiser, Alvie V., Springfield, Ohio. Rubber tire	605,881	June 21	1547	355	83	1665
Kissell, Aaron. (See Guyer, Kelly, and Kissell.)						
Kissell, Aaron, assignor of one-half to F. M. Loe and N. Guyer, Cygnet, Ohio. Automatic pulverizing-harrow	604,322	May 17	2060	466	83	1053
Kissell, Aaron, and I. J. Space, Cygnet, Ohio. Stove-leg	602,335	Apr. 12	1291	286	83	280
Kitselman, Alva L., Ridgeville, Ind. Fence-machine	606,490	June 28	2598	598	83	1908
Kitselman, Alva L., Ridgeville, Ind. Woven-wire fencing	606,491	June 28	2597	598	83	1904
Kitson, Arthur, Philadelphia, Pa., assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, of West Virginia. System and apparatus for distributing fluid. Kitson Hydrocarbon Heating and Incandescent Lighting Company. (See Kitson, Arthur, assignor.)	602,223	Apr. 12	1107	243	83	223
Kittson, Alfred B., Boston, and A. B. Browne, Cambridge, assignors of one-third to C. M. Reed, Boston, Mass. Pigment for paints	602,166	Apr. 12	1007	.....	83	208
Kittelsen, Nils M., and M. Walker, Chicago, Ill. Window frame and sash	603,597	May 3	641	143	83	726
Kittle, Charles R., Los Angeles, Cal. Hydrocarbon-burner	605,300	June 7	257	60	83	1299
Kjoer, Lauritz P. J. V., Copenhagen, Denmark. Arm-support for dentists	602,084	Apr. 12	853	195	83	173
Klauder, Clara L., Philadelphia, Pa. Game apparatus	605,723	June 14	1213	270	83	1606
Klay, Andrew, Bluffton, Ohio. Milling-cutter for metal-working machines	603,391	Apr. 12	1286	.....	83	246
Kleber, Emil, assignor to E. Scherff and G. Roscher, Berlin, Germany. Self opening or closing umbrella	604,495	May 24	2351	538	83	1122
Klein, Eugene, assignor to P. Klein, Grand Rapids, Mich. Composition for impregnating wood and fiber	605,060	May 31	3317	.....	83	1327
Klein, Pauline. (See Klein, Eugene, assignor.)						
Klein, William H., assignor to Wisconsin Furniture Company, Milwaukee, Wis. Extension-table	602,509	Apr. 19	1565	363	83	231
Kleinstuber, John, New York, N. Y. Hook for chatelaine or other bags	603,145	Apr. 26	2700	613	83	558
Klemm, Hermann A., assignor of three-fourths to J. Mettauer, New York, and F. E. Glatz, Brooklyn, N. Y. Bicycle-brake	605,047	May 31	3295	756	83	1323
Klimmek, Otto, assignor of one-half to A. E. Palmer, Chicago, Ill. Oxyethylacetanilid	606,288	June 28	2337	.....	83	1853
Kline, Charles D. (See Prendergast, William H., assignor.)	601,810	Apr. 5	362	74	83	95
Kline, John, Nescopeck, Pa. Railway-tie						
Kline, Lewis. (See Carroll, Fenton, Kline, and Seltzer.)	605,495	June 14	788	181	83	1524
Klingler, Aloysius H., Ridley Park, Pa. Brake for trolley-cars						
Kloeber, Charles E., Jr. (See Sharratts, David E., assignor.)						
Klose Ball Caster Company. (See Klose, Karl A., assignor.)						
Klose, Karl A., Des Plaines, assignor to Klose Ball Caster Company, Chicago, Ill. Ball-caster	604,400	May 24	2158	495	83	1069
Klotz, Henry D., Garden City, N. Y., assignor to Pendleton Manufacturing Company, Carbondale, Pa. Robbin	602,260	Apr. 12	1166	256	83	1760
Knap, Conrad C. S., London, England. Water-tube boiler	606,153	June 21	2065	474	83	571
Knapp, Edwin C., Syracuse, N. Y. Governor for steam-engines or other motors	603,193	Apr. 26	2772	632	83	331
Knapp, Judson N., Syracuse, N. Y. Tapping apparatus	602,510	Apr. 19	1596	363	83	1164
Knebel, Christian, St. Louis, Mo. Baker's peel	604,619	May 24	2564	585	83	
Kneedler, John D., Sioux City, Iowa, assignor of one-half to J. H. Ball, Oakland, Nebr. Coin-operated mechanism	606,468	June 28	2662	613	83	1917
Kneeland, Remus A., Benton Harbor, Mich. Wheelbarrow	605,316	June 7	493	110	83	1446
Kneisly, Daniel W., Johnsville, Ohio. Mowing-machine	604,255	May 17	2061	466	83	1054
Knickerbacker, John. (See Sulzman, Charles A., assignor.)	603,644	May 10	742	165	83	761
Knight, David W., Newman, Ill. Safety attachment for elevators						
Knight, Edward S., *et al.* (See Sabin, Chauncey R., assignor.)	602,085	Apr. 12	854	186	83	174
Knight, Frank B., Brooklyn, N. Y. Conveying apparatus	601,661	Apr. 5	67	13	83	14
Knight, Henry H., Jane Lew, W. Va. Metal egg-case						
Knight, William B., *et al.* (See Sabin, Chauncey R., assignor.)						
Knoble, Andrew M. (See Kuersten, Hugo R., assignor.)						
Knoble, John F. (See Snedeker, Charles H., assignor.)	605,104	June 7	65	19	83	1264
Knoblock, John C., South Bend, Ind. Pulley	602,541	Apr. 19	1642	374	83	241
Knoll, William, Jersey City, N. J. Device for chalking tips of billiard-cues	604,999	May 31	3190	734	83	1908
Knopping, Louis H., New York, N. Y. Bicycle tool-case	606,550	June 28	2635	653	83	1951
Knottnerus, Henry E., assignor to H. C. Neun, St. Louis, Mo. Automatic gaging-faucet						
Knowles, Elmer L. (See Meigs, Nathan J., assignor.)	604,596	May 24	2512	571	83	1153
Knowles, Mary A., Baildon, England. Car-coupling	602,694	Apr. 19	1787	408	83	366
Knowlton, Dallas, Washington, D. C. Match-safe	603,253	May 3	625	53	83	646
Knutson, Alfred M., Galesburg, Ill. Electric-arc lamp	602,854	Apr. 26	2196	498	83	462
Koblenzer, Martin. (See Fuchs, Gustav, assignor.)						
Koch, Christian H. C., Chicago, Ill. Lubricating device						
Koch, Friedrick A. (See Pattberg, Christian, assignor.)						
Koch, Jacob F., New Athens, assignor to himself, and Harrison Machine Works, Belleville, Ill. Grain-separator	605,497	June 7	716	161	83	1491
Koch, William, Lawrenceburg, Ind. Clothes-line holder	605,607	June 14	1004	231	83	1564
Koebke, Richard. (See Doersch, George M., assignor.)	605,436	June 7	719	162	83	1491
Koehler, Adolph, New York, N. Y. Air-ship	604,684	May 24	2625	604	83	1177
Koelkebeck, Carl W. A., and J. K. Smith, Pittsburg, Pa. Machine for cutting and expanding pipes	605,439	June 7	721	162	83	1492
Koetter, John F. W., St. Louis, Mo. Motor	604,836	May 24	2421	551	83	1135
Köhl, Alexis, Copenhagen, Denmark. Bicycle-lock	604,765	May 31	2630	647	83	1238
Kohl, Charles A., Cleveland, Ohio. Wringer	602,661	Apr. 19	1603	423	83	363
Kohl, Samuel M. W., Philadelphia, Pa. Shutter-fastener						
Kohn, Fritz, *et al.* (See Rausch, Rudolf, assignor.)						
Kohn, Johann (See Duffek, Arthur, assignor.)	604,620	May 24	2565	585	83	1164
Kolb, Bennett J., Florence, and M. Kolb, Newport, Ky. Window-screen	604,969	May 31	3192	735	83	1308
Kolb, Michael. (See Kolb, Bennett J. and M.)						
Koloseus, Max, Chicago, Ill. Fire-escape	602,637	Apr. 19	1614	.....	83	373
König, Ernst, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Basic red disazo dye	602,638	Apr. 19	1614	.....	83	373
König, Ernst, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Basic yellow disazo dye	602,639	Apr. 19	1615	.....	83	373
König, Ernst, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Coppery brown dye	602,640	Apr. 19	1615	.....	83	373
König, Ernst, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Red-violet basic disazo dye						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
König, Ernst, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Brown disazo dye	602,641	Apr. 19	1816	.....	83	373
Kopp, August, Hamilton, Ohio. Beer-tapping implement	603,278	May 3	61	15	83	613
Korell, Henry, Hamilton, Ohio. Table	604,766	May 31	2832	647	83	1233
Kortright, George W., Sioux City, Iowa. Telescopic clamp	605,447	June 7	735	166	83	1494
Kortum, Albert, Brooklyn, assignor to Zucker & Levett & Loeb Company, New York, N. Y. Polishing-wheel	605,641	June 14	1074	246	83	1577
Kott, Anthony, Detroit, Mich. Saw-table gage	602,261	Apr. 12	1167	257	83	235
Kotten, Herman G., New York, N. Y. Pneumatic hammer	605,486	June 14	790	181	83	1525
Kracht, William F., Mount Clemens, Mich. Fall-board for pianos	602,808	Apr. 19	2112	476	83	490
Kraeuter, August, Newark, N. J. Punch	604,564	May 24	2474	562	83	1146
Krajewski, Ryszard. (See Lubinski and Krajewski.)						
Kramer, Louis, St. Louis, Mo. Hydraulic elevator	603,566	May 3	591	131	83	715
Krebs, Peter, Shawnee, Ohio. Bicycle-brake	604,587	May 24	2513	571	83	1153
Krefft, Friedrich, Berlin, Germany. Hydrostatic vessel propelling and steering apparatus	602,224	Apr. 12	1108	243	83	223
Krekeler, Karl, and A. Blank, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Blue-black trisazo dye	602,855	Apr. 26	2197	.....	83	462
Krekeler, Karl, and A. Israel, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Black trisazo dye	602,856	Apr. 26	2198	.....	83	462
Krekeler, Karl, and E. Martz, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Brown trisazo dye	602,858	Apr. 26	2201	.....	83	463
Krekeler, Karl, and E. Martz, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Brown trisazo dye	603,090	Apr. 26	2605	.....	83	588
Krekeler, Karl, and E. Martz, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Green trisazo dye	603,645	May 10	743	.....	83	761
Krekeler, Karl, A. Israel, and A. Blank, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Black trisazo dye	602,857	Apr. 26	2200	.....	83	462
Krekeler, Karl, E. Martz, and A. Israel, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Gray trisazo dye	603,646	May 10	744	.....	83	761
Krekeler, Karl, E. Martz, and A. Israel, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Green trisazo dye	603,647	May 10	746	.....	83	762
Krekeler, Karl, E. Martz, and A. Israel, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Brown trisazo dye	603,648	May 10	747	.....	83	762
Kremser, John, Duquesne, Pa. Lowering device	602,457	Apr. 19	1503	343	83	315
Krentler, Edwin O. and G. A., Detroit, Mich. Last	603,790	May 10	988	221	83	809
Krentler, George A. (See Krentler, Edwin O. and G. A.)						
Krieger, Andrew, and J. Coyle, assignors to W. Langsenkamp, Jr., Indianapolis, Ind. Fuel-gas mixer	604,116	May 17	1635	367	83	967
Kries, John F., Charleston, W. Va. Bottle and cap	603,958	May 10	1208	295	83	868
Kroeber, Thilo. (See Ott and Kroeber.)						
Kroesing, Charles, Chilton, Wis. Eaves-trough hanger	605,882	June 21	1549	355	83	1685
Krohn, Gustave A., Goldguich, Cal. Vehicle-wheel hub	601,853	Apr. 5	457	92	83	85
Kroker, Gustav, Ohligs, Germany. Combined napkin ring and holder	605,487	June 14	792	181 / 182	83	1525
Kroll, John C. (See Bales, Alanson H., assignor.)						
Kronkosky, Albert. (See Gebhardt, William, assignor.)						
Krop, Jacobus. (See Thomassen and Krop.)				147 / 148 / 149		
Krotz, Alvaro S., assignor to O. S. Kelly, Springfield, Ohio. Electric conveying system	603,606	May 3	661	149 / 150	83	730
Krotz, Alvaro S., assignor to O. S. Kelly, Springfield, Ohio. Conveying apparatus	603,607	May 3	669	298 / 267	83	731
Krotz, Alvaro S., Springfield, Ohio, W. P. Allen, Chicago, Ill., and O. S. Kelly, Springfield, Ohio. Conductor and contact device for electric railways	602,336	Apr. 12	1292		83	260
Kruger, Edward H., Elizabeth City, N. C. Shingle-sawing machine	606,422	June 28	2598	599	83	1904
Krum, Charles L. (See McClatchey and Krum.)	602,387	Apr. 12	1380	309	83	278
Krumscheid, Peter, Boston, Mass. Cushioned horseshoe	606,221	June 28	2211	508	83	1627
Kruppa, Karl, and O. Lehrer, Fort Reno, Okla Ter. Enlargeable telescopic case or traveling-bag	605,642	June 14	1075	247	83	1577
Kubasch, Emil, Dresden, Germany. Automatic window-closer	605,883	June 21	1550	356	83	1665
Kuersten, Hugo R., assignor to A. M. Knoble, Chicago, Ill. Filter	604,767	May 31	2832	647	83	1233
Kughler, Thomas A., and J. Gomes, New York, N. Y. Hydraulic-pressure pump	606,387	June 28	2524	585	83	1885
Kuhn, Albin, Heidelberg, Germany. Fireproof plastering-support	605,168	June 7	197	50	83	1295
Kuhne, Adolph, assignor of one-half to J. C. Meeks, New York, N. Y. Gas-regulator	604,698	May 24	2710	619	83	1191
Kühne, Paul, assignor to Staten Island Construction Company, Stapleton, N. Y. Lathing. Kühne, Paul, assignor to Staten Island Construction Company, Stapleton, N. Y. Skeleton structure for fireproof partitions	606,348	June 28	2449	567	83	1875
Kunkel, Frederick J., assignor to J. N. Kunkel & Son, Baltimore, Md. Rack and pinion	602,403	Apr. 12	1409	318	83	284
Kunkel, John A., New York, N. Y. Cleaning and drying eggs	604,621	May 24	2567	.....	83	1164
Kunkel & Son, John N.. (See Kunkel, Frederick J., assignor.)						
Kunkle, John C. F., Renovo, Pa. Tool for laying gold-leaf	602,948	Apr. 26	2364	539	83	494
Kunkle, John C. F., Renovo, Pa. Tool for laying gold-leaf	602,949	Apr. 26	2365	539 / 540	83	495
Kunkle, John P., Chicago, Ill. Cushion-tire	602,907	Apr. 26	2285	521	83	478
Kunstweberei Clavies & Company. (See Clavies, Emil, assignor.)	603,881	May 10	1166	263	83	844
Kuphal, Otto, New York, N. Y. Chimney-cowl						
Kurda, Karl. (See Möllinger and Kurda.)						
Kurtz, George. (See Lotz, Alfred F. C., assignor.)	605,961	June 21	1710	392	83	1714
Kurz, Otto, Chicago, Ill. Mop holder and wringer	604,537	May 24	2423	551	83	1135
Kvernum, Ole P., Waukon, Iowa. Sash-holder	601,754	Apr. 5	254	50	83	48
Kynast, John W., Brooklyn, N. Y. Candle holder and extinguisher						
Kynaston, Josiah W. (See Wylde and Kynaston.)	604,768	May 31	2834	648	83	1233
La Clair, Frank W., Waterbury, Conn. Device for stopping holes in pneumatic tires	602,625	Apr. 19	1787	408	83	368
La Fave, Joseph H., assignor of one-half to R. Conklin, Toledo, Ohio. Adjustable han-die-bar	602,269	Apr. 12	1166	257	83	235
La France, Asa W., assignor to La France Fire Engine Company, Elmira, N. Y. Elevating-screw for aerial ladders, &c						
La France Fire Engine Company. (See La France, Asa W., assignor.)						
La Société Chimique des Usines du Rhône, anciennement Gilliard P. Monnet et Cartier. (See Monnet, Pierre P., assignor.)						
La Société Industrielle du Liège et de La Bouchonnerie Parisienne. (See Noël, Charles assignor.)	602,126	Apr. 19	941	206	83	190
Lack, Finis E., Paducah, Ky. Whiffletree-hook	602,357	Apr. 12	1295	287	83	261
Lackner, Robert E., Paragould, Ark. Tailpiece for musical instruments						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lacy, Richard H., *et al.* (See Miller, Louis E., assignor.)						
Lacy, William, Jr., *et al.* (See Miller, Louis E., assignor.)						
Ladd, Gustine L., *et al.* (See Johnston, Lysander, assignor.)						
Lafaurie, Jules, Castelmoran, and G. Giron-Lanauze, Monflanguin, France. Brush	605,724	June 14	1212	280	83	1606
Lagerman, Alexander, assignor to Jönköpings Tändsticks-Fabriks Aktiebolag, Jönköping, Sweden. Machine for filling match-boxes	604,565	May 24	2476	562, 563, 564	83	1146
Lahue, Moses M. (See Sawyer and Lahue.)						
Laidlaw, George R., assignor of two-fifths to L. Stevens, Marion, Ind. Device for converting motion	605,553	June 14	891	208	83	1545
Laird, John, assignor of two-thirds to Hope Street Factory, Limited, Belfast, Ireland. Presser-clamp for buttonhole-sewing machines	606,423	June 28	2600	599	83	1904
Lake, Judson L. (See Northcott, Lake, and Clark.)						
Lake, Robert A., Danbury, Conn. Nursing-bottle holder	602,991	Apr. 26	2483	555	83	506
Lamb, Charles M., and J. W. Page, assignors to Page Woven-Wire Fence Company, Adrian, Mich. Warp-feed equalizer for wire-weaving machines	606,464	June 28	2664	613, 614	83	1917
Lamb, George R., Hudson, Mich. Tension and feed mechanism for wire-fabric machines	606,434	June 28	2601	599	83	1905
Lamb, George B., assignor to Waterbury Machine Company, Waterbury, Conn. Wire-drawing machine	604,709	May 31	2635	648, 649	83	1233
Lamb Glove and Mitten Company. (See Lamb, Isaac W., assignor.)						
Lamb, Isaac W., assignor to Lamb Glove and Mitten Company, Perry, Mich. Knit mitten	601,894	Apr. 5	525	108	83	99
Lamb, Levi L., Chicago, Ill., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Shredder	601,712	Apr. 5	177	34	83	35
Lambert, Frank, assignor of one-half to J. W. Kay, Brooklyn, N. Y. Device for testing meters	603,485	May 3	441	90	83	686
Lambie, James B., *et al.*, trustees. (See Cahill, Thaddeus, assignor.)						
Lamme, Benjamin G. (See Scott and Lamme.)						
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. System of electrical distribution and regulation	606,015	June 21	1810	417	83	1732
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Regulation of rotary-transformer direct-current electromotive force	606,560	June 28	2837	653	83	1958
Lampson, I. P. (See Gerry, James H., assignor.)						
Lancaster, James H., New York, N. Y. Hoisting-machine	604,900	May 31	2050	700, 701	83	1276
Lancaster, James H., New York, N. Y. Cableway system and apparatus for excavating and conveying	605,488	June 14	792	182, 183	83	1525
Lancaster, James H., New York, N. Y. Grapple, bucket, &c	605,489	June 14	797	183, 184	83	1526
Lancaster, James H., New York, N. Y. Hoisting and conveying apparatus	605,884	June 21	1552	356, 357	83	1686
Lance, Andrew M., and F. J. Flocker, Bellowsville, Pa. Churn	603,091	Apr. 26	2007	502	83	536
Land, Charles G., *et al.* (See Dillahay, John G., assignor.)						
Landers, George M., Brocton, Ill. Gage-knife	602,758	Apr. 19	2015	457	83	412
Landes, Jacob H., Grater's Ford, Pa. Puzzle	601,811	Apr. 5	368	75	83	66
Landon, George A., assignor of one-half to W. Douglas, Toronto, Canada. Neck-yoke	605,490	June 14	800	184	83	1527
Landon, Thomas, Kunckle, Pa. Washing machine	605,902	June 21	1712	302	83	1715
Lane, Freeman P. (See Davison, Charles W., assignor.)						
Lane, Henry M., Cincinnati, Ohio. Steam-engine	605,985	June 21	1556	356	83	1687
Lane, John G., Philadelphia, Pa. Shutter-fastener	604,053	May 17	1507	339	83	943
Lane, Levi E., assignor of one-half to G. F. Munn, Lyons, N. Y. Fruit-gatherer	606,088	June 21	1900	457	83	1748
Lang, Alexander, Roseisle, Canada. Game device	604,401	May 24	2159	485	83	1089
Lang, Frank C., Columbus, Ohio. Vehicle running-gear	602,511	Apr. 19	1591	363, 364	83	333
Lang, Friedrich E., Leipsic-Anger, Germany. Manufacturing cutting-blocks	601,969	Apr. 5	673	339	83	127
Lang, Herbert, Oakland, Cal. Smelting-furnace	604,054	May 17	1508	340	83	943
Lang, Ladislaus. (See Hörbiger, Hanns, assignor.)						
Langdon-Davies, Walter, assignor, by mesne assignments, to Davies Motor Company, Limited, London, England. Electromagnet having rotating fields	604,055	May 17	1511	340	83	944
Langfield, John, Manchester, England. Gas-stove	605,725	June 14	1218	280	83	1608
Langheld, Erich, Steglitz, Germany. Quinin derivative and making same	605,491	June 14	801	----	83	1527
Langford, Edward P., Harwich, Canada. Dumping-wagon	603,791	May 10	990	221	83	809
Langsenkamp, William, Jr. (See Krieger and Coyle, assignors.)						
Lantz, William B. (See Gaffney, Charles H., assignor.)						
Lantz, William B., Gloucester, Mass. Rope-hauling machine	606,063	June 21	1901	436	83	1748
Lanyon, Simon D., and J. W. Tripp, Sedalia, Mo. Street-sweeper	602,458	Apr. 19	1504	343, 344	83	815
Laporte, Joseph C., Maniwaki, Canada. Automatic gate	604,402	May 24	2160	485	83	1089
Lare, Marcellus R., and J. S. Young, Pittsburg; said Young assignor to A. Lutz, Allegheny, Pa. Curtain-stretcher	602,459	Apr. 19	1508	344	83	816
Larrison, Lewis K., Schooley's Mountain, N. J. Bottle	602,338	Apr. 12	1295	287	83	261
Larson, Jacob P. (See Lindbergh, Nicols, assignor.)						
Larson, Lars H., Hartland, Minn. Corn-planter	605,608	June 14	1006	233	83	1564
Larson, Olof, and C. Branzell, assignors of part to C. Ellison, S. G. Peterson, A. Fridstrom, J. Sundell, Monsos & Larson, W. Nystrom, and A. C. Anderson, Ashland, Wis. Combined nut and pipe wrench	601,970	Apr. 5	674	142	83	127
Laskey, John H., Boston, Mass. Self-leveling marine dining-table	604,631	May 31	2033	671	83	1253
Lathrop, Charles F. (See Vredenburgh and Lathrop.)						
Latimer, Frank, Huntley, Ill. Vehicle-tire	602,759	Apr. 19	2016	457	83	412
Latshaw, Zachariah, assignor to C. R. Higgins, New York, N. Y. Water seal and valve-trap	602,665	Apr. 19	1903	433	83	391
Latshaw, Zachariah, assignor to C. R. Higgins, New York, N. Y. Sewer-valve	604,117	May 17	1667	367	83	967
Latta, Emmit G., Friendship, N. Y. Type-writing machine	605,201	June 7	258	60, 61, 62	83	1300
Latta, Robert. (See Brown, Ira W., assignor.)						
Lau, Fred J. S., Kansas City, Mo. Electric massage appliance	602,950	Apr. 26	2369	540	83	495
Laubenstein, Adolph G. (See Dempsey, James J., assignor.)						
Laughlin, Alexander, Sewickley, and J. Reuleaux, Wilkinsburg, Pa.; said Reuleaux assignor to said Laughlin. Heating-furnace. (Reissue)	11,666	May 31	2331	765, 766	83	1329
Laughter, Edward B., Laughlin, Ark. Car-coupling	605,736	June 14	1214	231	83	1604
Laurenson, Charles P. (See Miller, Augustus P., assignor.)						
Lausen, Hans C., Newman, Cal. Scissors-sharpener	604,118	May 17	1639	367	83	968

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Laval, George de, Cambridge, Mass., assignor to Geo. F. Blake Manufacturing Company, New York, N. Y. Valve mechanism for steam-pumps	604,475	May 24	2310	534	83	1116
Lavell, John R. (See Perrin, William H., assignor.)						
Lavender, Herbert P., Walsall, England. Letter-file	605,492	June 14	801	184, 185	83	1527
Lavigne, Joseph P., New Haven, Conn. Box-tool for screw-machines or lathes	602,908	Apr. 26	2266	521	83	478
Law, Hartland and H. E., San Francisco, Cal. Bath-gown	601,685	Apr. 5	309	84	83	75
Law, Herbert E. (See Law, Hartland and H. E.)						
Lawler, William F., Anderson, Ind. Wrench	603,194	Apr. 26	2775	632	83	573
Lawless, Edward J. (See Robinson and Lawless.)						
Lawrence, A. H., *et al.* (See Hidden, George A., assignor.)						
Lawrence, George E., assignor of one-half to J. J. Mumford, Creston, Iowa. Buckle	606,629	June 28	2959	686	83	1974
Lawrence, James E., Farnham, Canada. Antifriction-bearing	606,485	June 28	2695	621	83	1924
Lawrence, William, New York, N. Y., assignor to Universal Surface Electric Railway Company, of West Virginia. Electric-railway system	605,817	June 7	495	110	83	1446
Laws, George, Phillipsburg, Pa. Combination blasting-tool	605,727	June 14	1215	261	83	1604
Lawton, Albert L. and A. W., New York, N. Y. Preserving alimentary substances, &c	602,798	Apr. 19	2082	----	83	494
Lawton, Arthur W. (See Lawton, Albert L. and A. W.)						
Lawton, Edgar, Omemee, N. D. Well-drill	602,330	Apr. 12	1296	287	83	261
Lawton, Francis N., Summit, N. J. Electric-cord-adjusting device	602,235	Apr. 19	1121	246	83	225
Lays, Edward, New York, N. Y. Dumping-scow	606,280	June 28	2537	541	83	1853
Lazarus, Sam, *et al.* (See Clark, George C., assignor.)						
Le Ballister, David N., Fort Bragg, Cal., assignor, by mesne assignments, to D. H. Hayne and A. D. Stebbins, Baltimore, Md. Bicycle-brake	605,728	June 14	1216	281	83	1604
Le Beur, William F., New York, N. Y. Truss	606,465	June 28	2666	614	83	1918
Le Van, Aaron H., Reading, Pa. Dust-conveyer for railway passenger cars or coaches	604,867	May 31	2001	660	83	1266
Le Vino, Monroe, New York, N. Y. Permutation-padlock	605,493	June 14	803	185	83	1527
Leach, Edwin W. (See Kersey and Leach.)						
League Cycle Manufacturing Company. (See Connell, James R., assignor.)						
Leary, Philip F., Fall River, Mass. Metallic gasket	602,542	Apr. 19	1643	374	83	341
Leas, Theodore. (See Stevenson, George W., assignor.)						
Leask, John and T. W., assignors of two-thirds to H. Currie and E. L. Brazenor, Gore Bay, Canada. Sash-holder	603,907	May 10	1212	274, 275	83	859
Leask, Thomas W. (See Leask, John and T. W.)						
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Hydraulic press	604,056	May 17	1514	341, 342	83	945
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Machine for working sheet metal	604,057	May 17	1522	342, 343	83	945
Lebach & Company, Gesellschaft mit Beschränkter Haftung. (See Bauer, Peter, assignor.)						
Lebrun, Gustave, and F. Cornaille, Paris, France. Burner for acetylene or other gases	605,886	June 21	1557	358	83	1087
Ledowsky, Onesime, St. Petersburg, Russia. Station-indicator	605,318	June 7	496	110, 111	83	1446
Lecher, Hermann, and C. Kirchhahn, Milwaukee, Wis. Tank supply-valve	602,512	Apr. 19	1592	364	83	333
Lee, Alfred, New Whatcom, Wash. Rotary steam-engine	605,905	June 14	1372	315	83	1033
Lee Arms Company. (See Parkhurst, Edward G., assignor.)						
Lee, Charles. (See Bernhard, Louis, assignor.)						
Lee, Chester L., Ellisburg, and F. G. Lee, Pierrepont Manor, N. Y. Apparatus for separating cream from milk	605,292	June 7	373	84	83	1422
Lee, David A. and T. E., Centreville, Iowa. Mining-machine	601,971	Apr. 5	675	143	83	128
Lee, Frederick G. (See Lee, Chester L. and F. G.)						
Lee, Jesse S. (See Crandall, Albert L., assignor.)						
Lee, Job, Kettering, England. Stitch indenting and separating machine	602,859	Apr. 26	2203	499	83	463
Lee, Thomas E. (See Lee, David A. and T. E.)						
Leedham, Horatio K., Mount Pleasant, Iowa. Road-grader	602,220	Apr. 26	2211	642	83	578
Leedy, Carrie H., Keuka, Fla. Flower-carrier	603,649	May 10	749	166	83	762
Lees, John E., *et al.* (See Hancock and Scholes, assignors.)						
Lefferts, John A., New York, N. Y. Envelop	606,349	June 28	2451	508	83	1875
Lefferts, Paul R., *et al.* (See Dinsmore, Robert, assignor.)						
Leger, Edward, Chicago, Ill. Display hat-top	604,088	May 31	2118	716	83	1269
Legge, William, London, assignor to Patent Folding Perambulator Company, Limited, Croydon, England. Folding road-vehicle	604,331	May 17	2031	455	83	1044
Leggo, William A., Jr., Hartsdale, N. Y., assignor of one-fourth to Long Island Rubber and Cycle Company, of New York. Back-pedaling brake	605,643	June 14	1076	247	83	1578
Lehberger, George, assignor of one-half to F. McIlvried, Braddock, Pa. Rod-mill floor	602,021	Apr. 5	747	151	83	141
Lehmann & Mann. (See Rosler, Isidor, assignor.)						
Lehnerer, Michael. (See Appell, Jacob, assignor.)						
Lehrer, Oscar. (See Kruppe and Lehrer.)						
Leigh, Richard A., assignor, by mesne assignments, to Consolidated Rubber Works, Boston, Mass. Apparatus for securing ends of bicycle-tires	605,219	June 7	499	111	83	1447
Leigh, William H., Beaver Falls, Pa. Photographic-print washer	605,229	June 7	522	74	83	1419
Leighthan, Adlien, *et al.* (See Leightham, Joseph, assignor.)						
Leightham, Edward, *et al.* (See Leightham, Joseph, assignor.)						
Leightham, Harry, *et al.* (See Leightham, Joseph, assignor.)						
Leightham, Joseph, assignor of three-fourths to J. Shaaber, Reading, and E., H., and A. Leightham, Conshohocken, Pa. Fender or guard for tramway-cars	604,171	May 17	1735	390, 391	83	967
Leighton Machine Company. (See Rice, John H., assignor.)						
Leiman, George W. (See Leiman, William H. and G. W.)						
Leiman, William H. and G. W., New York, N. Y. Button-boring machine	603,854	May 10	1190	252	83	834
Leishman, David F., assignor to A. Strassman, Whitewater, L. V. Lewis, Sun Prairie, Wis., and S. S. Allen, Rockton, Ill. Corn-harvester	603,608	May 3	678	150, 151, 152	83	732
Leitch, Meredith, Merchantville, N. J., assignor to Warren Webster & Company, of New Jersey. Thermostatic valve	604,408	May 24	2162	486	83	1089
Lemen, Ernest, *et al.* (See Boyd, George R., assignor.)						
Lemley, Louis E. (See Raymond and Lemley.)						
Leng's Son & Co., John S. (See Racsek, Paul, assignor.)						
Lenk, Carl P., *et al.* (See Varley, Thomas W., assignor.)						
Lenk, Rudolph A., *et al.* (See Varley, Thomas W., assignor.)	606,064	June 21	1904	438	83	1749
Lennon, Nellie M., Bridgeport, Conn. Combined corset-retainer and stocking-supporter	602,560	Apr. 19	1671	390	83	346
Leonard, Charles N., assignor of one-half to W. B. Dyer, Indianapolis, Ind. Embossing-machine	603,063	Apr. 26	2549	578	83	587
Leonard, Harry W., East Orange, N. J. Rheostat	606,561	June 28	2838	654	83	1952
Leonard, John H., Leonard Station, Cal. Air-compressing wave-motor	602,998	Apr. 26	2434	555	83	507
Leonhardt, Herman. (See Ortmann, John H. W., assignor.)						
Leonhards, William F., Omaha, Nebr. Sounding-board for pianos						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Leonhart, Rudolph, Jr., Fresno, Cal. Windmill	601,972	Apr. 5	677	143, 144	83	128
Leppert, Henry, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Antifriction-washer for hinges	605,105	June 7	66	19	83	1365
Leslie, George H., *et al.* (See Folwell, Philip C., assignor.)						
Leslie, Leon M., New York, N. Y., assignor to William Mann Company, Philadelphia, Pa. Temporary binder	603,428	May 3	320	72	83	661
Lesperance, Alexander. (See Worrall and Lesperance.)						
Letton, Raphael E., Quincy, Ill. Device for correcting sounding-boards in upright pianos	605,729	June 14	1218	289	83	1604
Leu, Frederick, College Point, assignor to F. Mainella, New York, N. Y. Billiard-cue	605,353	June 7	374	84	83	1422
Levavasseur, Georges. (See Rudolph and Levavasseur.)						
Leveille, Mitchael E., assignor of one-half to J. G. Smith, Worcester, Mass. Self-threading loom-shuttle	605,690	June 14	1161	266	83	1594
Levy, Dreyfus & Co. (See Prahl, Charles, assignor.)						
Levy, Max, Philadelphia, Pa. Photographic-camera stand	604,990	May 31	3198	735	83	1304
Lewin, Julius L., *et al.* (See McKnight, John W., assignor.)						
Lewin, Marcus, *et al.* (See McKnight, John W., assignor.)						
Lewin, Maurice S., *et al.* (See McKnight, John W., assignor.)						
Lewin, Philip, *et al.* (See McKnight, John W., assignor.)						
Lewis, Fred M. (See Eastman, John P., assignor.)	604,237	May 17	1849	414, 415	83	1008
Lewis, George W., Chicago, Ill. Motor-vehicle	604,332	May 17	2083	455, 456	83	1044
Lewis, George W., Chicago, Ill. Vehicle-motor	603,448	May 3	353	80	83	668
Lewis, John A., Meridian, Miss. Machine for cleaning cotton-seed						
Lewis, Ledyard V., *et al.* (See Leishman, David F., assignor.)	605,106	June 7	67	19	83	1365
Lewis, Mortimer G., New York, N. Y. Bench-vise	605,107	June 7	68	19	83	1365
Lewis, Mortimer G., New York, N. Y. Bench-vise						
Lewis, William J. (See Desbain, Antoine, assignor.)						
Lewis, William T., assignor to Mitchell & Lewis Company, Limited, Racine, Wis. Vehicle-hub	606,350	June 28	2458	568	83	1875
Leyendecker, Thomas A., Laredo, Tex. Instrument for breaking car-seals	605,730	June 14	1219	289	83	1605
Leyner, John G., Denver, Colo. Rock-drill engine	604,538	May 24	2424	551	83	1125
Libbey, Hosea W., Boston, Mass. Electric railway	602,564	Apr. 19	1712	389	83	354
Libbey, Hosea W., Boston, Mass. Hydrocarbon-oil-gas stove	603,010	Apr. 26	2463	560	83	512
Libke, Frederick G., *et al.* (See Craig, William S., assignor.)						
Lichtenberger, Eduard E. (See Chaloner and Lichtenberger.)						
Lichtig, Bernhard, *et al.* (See Ecker, Herman, assignor.)						
Liddell, John P. (See Hawthorn and Liddell.)	604,770	May 31	2637	649	83	1234
Lieb, William J., Pratt, Minn. Pneumatic attachment for telegraph-keys	603,598	May 3	644	144	83	726
Liebau, Gustav, Maurer, N. J. Fireproof floor and ceiling	602,022	Apr. 5	746	161	83	142
Lightcap, William H., Hazel Green, Wis. Clevis	605,230	June 7	323	74	83	1412
Lightenhome, Lavine A., Olney, Pa. Brush	604,476	May 24	2313	525	83	1117
Lillie, William F., Beatrice, Nebr. Adjustable corn-husker	606,466	June 28	2697	614	83	1918
Linahan, Thomas H., New Haven, Conn. Casket	603,335	May 3	168	37	83	633
Lincoln, Albert L., Bethel, Vt. Garment-holder						
Lincoln, George E., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype and matrix for making same	604,404	May 24	2164	486	83	1000
Lind, John W., assignor of one-half to J. J. Morris, Boston, Mass. Pipe-wrench	602,840	Apr. 12	1297	286	83	261
Lindberg, Andrew H. and F. J., New York, N. Y. Furnace for heating rivets or for similar uses	603,470	May 3	405	91	83	679
Lindberg, Fritz J. (See Lindberg, Andrew H. and F. J.)	606,290	June 28	2339	541	83	1853
Lindbergh, Nicols, assignor of one-half to J. P. Larson, Nelson, Minn. Bottle-stopper	605,230	June 7	300		83	1448
Linde, George, Omaha, Nebr. Composition for removing boiler incrustations	602,860	Apr. 26	2304	499	83	464
Lindemann, Hermann, Reichenbach, Germany. Grinder	603,107	Apr. 26	2630	597	83	543
Lindemeyr, Philip, Baltimore, Md., assignor to Monarch Manufacturing Company of Baltimore City. Machine for capping bottles	603,108	Apr. 26	2631	597, 598	83	544
Lindemeyr, Philip, Baltimore, Md., assignor to Monarch Manufacturing Company of Baltimore City. Bottle	603,264	May 3	204	46	83	641
Lindemeyr, Philip, Baltimore, Md., assignor to Monarch Manufacturing Company of Baltimore City. Bottle-stopper	606,251	June 28	2453	568, 569, 570	83	1876
Lindner, Arthur E., Wilmington, Del., assignor to J. Kayser, New York, N. Y. Circular-warp-knitting machine	606,262	June 28	2461	571, 572	83	1877
Lindner, Arthur E., Wilmington, Del., assignor to J. Kayser, New York, N. Y. Circular-warp-knitting machine	606,263	June 28	2465	572, 573	83	1878
Lindner, Arthur E., Wilmington, Del., assignor to J. Kayser, New York, N. Y. Circular-warp-knitting machine	605,108	June 7	69	20	83	1365
Lindsay, Cora A. W., Pittsburg, Pa. Combined garment and hose support						
Lindsay, John. (See Fick, Thomas A., assignor.)						
Lindsay, Thomas W. A. (See Rankin, Hiram F., assignor.)	603,959	May 10	1293	295	83	668
Lindsey, Warren, Frederic, Kans. Draft-equalizer	605,321	June 7	501	111	83	1449
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Oiler	602,760	Apr. 19	2017	457	83	412
Lines, William S., Warren, Ind. Umbrella and holder						
Lingard, George A. (See Grundy and Lingard.)	605,494	June 14	804	185, 186	83	1528
Linley, Charles M., London, England. Coin-controlled game apparatus	605,968	June 21	1713	393	83	1715
Linthicum, Sweetser, Jr., Wellham's Cross Roads, Md. Combined furrower, marker, and coverer	602,137	Apr. 12	949	208	83	190
Linton, John, and J. Burgher, Homer, Mich. Level	606,467	June 28	2693	615	83	1918
Lippitt, Theodore C., Shenandoah, Iowa. Farm-gate	606,568	June 28	2842	654	83	1953
List, Frederick J., Chelsea, Mass. Push-button						
Lister & Co., R. A. (See Stokes, Alfred W., assignor.)	604,991	May 31	3196	735	83	1304
Litchfield, Charles T., and J. T. Baugher, Spokane, Wash. Stove						
Lithosite Manufacturing Company. (See Gallinowsky, Hugo, assignor.)						
Little, Clarence B. (See Johnston and Little.)						
Little, D. P. N., *et al.* (See Woodward, Walter J., assignor.)	605,731	June 14	1220	268, 269	83	1605
Little, Joseph A., assignor of one-half to H. P. Simpson, Lawrence, Mass. Vehicle-propelling mechanism	604,998	May 31	3198	736	83	1305
Little, Peter E., assignor to Ohio Rake Company, Dayton, Ohio. Cultivator	601,886	Apr. 5	400	94, 95	83	75
Littlefield, Charles A., Lowell, Mass., assignor to Northrop Loom Company, Saco, Me., and Hopedale, Mass. Shuttle-changing mechanism for looms	603,449	May 3	355	80	83	668
Livengood, David R., Tacitus, Tex. Disk harrow						
Lloyd, Charles H., *et al.* (See Boland, Joseph, assignor.)						
Lloyd, Edwin L., Philadelphia, Pa. Bottle-stopper	603,908	May 10	1213	276	83	838

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Lloyd, H. Benjamin. (See Denham, Howard W., assignor.)	604,566	May 24	2514	572	83	1153
Lloyd, Herbert S., Philadelphia, Pa. Storage battery						
Lloyd, Marshall B. (See White and Lloyd.)	604,908	May 31	3200	736	83	1305
Lloyd, William A., Ashtabula, Ohio. Water-tube boiler	604,251	May 17	1878	421	83	1014
Lloyd, William A., and H. Keeling, Birmingham, England. Cycle-pedal	601,895	Apr. 5	595	109	83	99
Lloyd, William R., New York, N. Y. Snow-plow						
Lobdell, Emous H., Mecosta, assignor of two-thirds to H. R. Walker and R. C. Smith, Ionia, Mich. Soap-holder for tubs	601,662	Apr. 5	68	13	83	14
Lobdell, Jared C., and A. Talcott, assignors of one-third to H. F. Hodge, Minneapolis, Minn. Stop-cock box	604,622	May 24	2568	585	83	1164
Loch, Joseph. (See Heydebrand und der Lasa and Loch.)	601,577	Apr. 5	497	102	83	98
Lochmann, Paul, Leipsic, Germany. Apparatus for transporting and preserving liquids						
Lochner, Lewis T., *et al.* (See Murphy, John F., assignor.)						
Locke, Charles W., Lowell, Mass., assignor to American Mason Safety Tread Company, Saco, Me. Tread for stairs, &c	605,732	June 14	1222	283	83	1605
Locke, Fred M., Victor, N. Y. Insulator	605,109	June 7	70	20	83	1365
Lockstone, Edward S., Blanchester, Ohio. Roasting-pan	604,252	May 17	1880	421	83	1015
Lodriguss, Ariard J., Belle Rose, La. Running-gear for railway-cars	601,896	Apr. 5	598	109	83	100
Loe, Frank M., *et al.* (See Kissell, Aaron, assignor.)	606,065	June 21	1904	438	83	1749
Loeffler, Hermann, Pittsburg, Pa. Emergency-brake for street-cars	605,110	June 7	71	20, 21	83	1366
Loew, Charles H., Cleveland, Ohio. Filter	604,211	May 17	1807	406	83	1001
Lofgren, Gustaf, Newark, Cal. Wave or current motor	602,164	Apr. 12	1008	221	83	208
Lofstedt, Julius A., Yonkers, N. Y. Book-support	606,563	June 28	2843	655	83	1953
Lohmann, Conrad F. C., Northcote, Victoria. Rotary motor						
Lohr, L. A. (See Harlow, William O., assignor.)						
Lombas, Joseph A., Lockport, assignor of one-half to E. A. Boudreau, Cypre Mort, La. Centrifugal filter	601,973	Apr. 5	679	144	83	128
Long, Albert, and R. Foster, Lawrence, Mass. Apparatus for drawing off in circle-combs	606,564	June 28	2845	655, 656	83	1953
Long, Edward N. (See Rickard and Long.)						
Long Island Rubber and Cycle Company. (See Leggo, William A., Jr., assignor.)	606,066	June 21	1905	439	83	1749
Long, Joseph A. and L. H., Brooklyn, N. Y. Car-heater						
Long, Lowman H. (See Long, Joseph A. and L. H.)	603,336	May 3	163	37, 38	83	633
Long, Timothy, Cleveland, Ohio. Car-unloading apparatus						
Longfellow Bros. *et al.* (See Smith, William, assignor.)						
Longshore-Potts, Anna M., assignor of one-half to G. E. Harrison, London, England. Pessary	606,565	June 28	2848	656	83	1954
Longstreth, Charles, Yeadon, assignor to United States Metallic Packing Company, Philadelphia, Pa. Rod-packing for steam-engines	603,588	May 3	627	139, 140	83	728
Lonzo, William, Fitchburg, Mass. Picker-check for looms	605,581	June 14	959	221	83	1556
Loomis, Boardman J., Los Angeles, Cal. Key	602,561	Apr. 19	1673	380	83	347
Loomis, Edward E., Elmira, N. Y., and T. J. Mooers, Blossburg, Pa. Track friction-brake	605,964	June 21	1715	393	83	1715
Loomis, Sylvester, Jr., Lee, Mass. Paper-feeding device for printing-presses						
Looper, David D., *et al.* (See Osborne, William W., assignor.)						
Looper, Alexander P., Stonington, Conn. Engine-controlling device	604,253	May 17	1880	421	83	1015
Loquet, Jean B., and J. B. Ketelair, Antwerp, Belgium. Steam-generator	605,405	June 14	906	185	83	1528
Lorance, Henry E. (See Entwistle, Starr, Talley, and Lorance.)						
Lord, Abraham S., assignor of one-half to G. H. Field, Lynn, Mass. Curtain-fixture	606,468	June 28	2669	615	83	1918
Lord, Peter, Worcester, Mass. Saw-file	603,909	May 10	1214	275	83	862
Lord, Robert W., Bath, Me. Work-holder for metal-working machines	603,025	Apr. 26	2487	564	83	516
Lord, Simeon, Philadelphia, assignor of one-half to E. Verlenden, Darby, Pa. Picture-hanger	603,146	Apr. 26	2701	613	83	558
Lord, William, New York, N. Y. Hat-guard	606,486	June 28	2696	621	83	1924
Lordly, Arthur R., St. John, Canada. Panel	603,147	Apr. 26	2701	613	83	559
Lorenz, William A., Hartford, Conn., and C. E. De Lue, Boston, Mass., assignors to American Automatic Banjo Company, of New Jersey. Picker device for stringed musical instruments	606,222	June 28	2218	508, 509	83	1827
Loretz, Arthur J. L., Brooklyn, N. Y. Hydraulic-motor-regulating device	605,169	June 7	198	50	83	1398
Lorillard, Pierre, Jr. (See Tremaine and Lorillard.)						
Loring, Walter B., Worcester, Mass. Automatic temperature-regulating apparatus	603,696	May 10	824	182, 183	83	778
Lotz, Alfred F. C., assignor of one-half to G. Kurtz, Pittsburg, Pa. Display-machine	603,109	Apr. 26	2633	598	83	544
Loucks, Edwin W. (See Bates, Peter S., assignor.)	601,755	Apr. 5	255	50	83	49
Louden, Elizabeth, Omaha, Nebr. Egg-poacher	602,341	Apr. 12	1299	288, 289	83	262
Loutzenhiser, Charles H., assignor to W. Griscom and T. McFeely, Philadelphia, Pa. Oscillating sieve or bolting-machine						
Lovatt, J. Walter. (See Miller, Thomas M., assignor.)	601,663	Apr. 5	70	14	83	14
Lovdal, Thomas B., Sacramento, Cal. Shore-protector						
Lovejoy, George L. (See Close, John W., assignor.)	602,342	Apr. 12	1301	289	83	262
Low, Isaac, East Fairfield, Ohio. Car-coupling	603,471	May 3	407	91, 92	83	679
Low, John W., Chicago, Ill. Paper-box machine						
Lowe, Harry F. (See Haywood and Totten, assignors.)						
Lowe, Milton H., Jeffersonville, assignor of one-half to T. Russell, West Baden, Ind. Surgical needle	604,119	May 17	1640	368	83	998
Lowe, William, Sydney, New South Wales. Valve-gear	602,343	Apr. 12	1302	289	83	262
Lowry, J. C. (See Denison, Hugh W., assignor.)	602,081	Apr. 5	768	165, 166	83	145
Lubbers, John H., New Kensington, Pa. Glass-annealing leer	604,833	May 31	2994	671	83	1253
Lubinski, Zygmunt, and R. Krajewski, Warsaw, Russia. Centrifugal machine	603,567	May 3	592	132	83	716
Lucas, Mary R., Omaha, Nebr. Skirt-lifter	602,191	Apr. 12	1055	231	83	219
Lucchesi, Richard A., San Francisco, Cal. Dilator for fingers of the hand	602,697	May 10	831	184	83	778
Luce, Charles J., Niantic, Conn. Cotton-collecting apparatus	604,994	May 31	3201	737	83	1305
Luce, Clarence O., Plainfield, Wis. Peanut-vending case						
Luce, Thomas C., Richmond, Mass., assignor to himself, J. H. Cox, New Lebanon, and T. W. Harris, New York, N. Y. Rotary engine	604,254	May 17	1882	422	83	1015
Ludwig, Gustav, Belleville, Ill. Vehicle	605,867	June 21	1558	358	83	1667
Lufbery, Charles E., Chauny, France. Motor-vehicle	601,731	Apr. 5	909	41	83	41
Luke, Charles, Milford, assignor to H. G. Thompson & Son, New Haven, Conn. Prepayment attachment for meters	604,255	May 17	1886	422	83	1016
Lukens, Richard L., and G. H. Zechtch, Chicago, Ill. Flue-scraper	604,058	May 17	1595	343	83	946
Lukens, William V. (See Johnson and Lukens.)						
Lumley, William. (See Drummond, Seigle, assignor.)	602,705	Apr. 19	1937	440	83	397
Lunde, Ole, Elgin, Ill. Ball-bearing						
Lundin, Emil O. (See Gilbert and Lundin.)						
Lundin, Johannes M. J. (See Schager and Lundin.)						
Lundquist, Sophia V., Upsala, Fla. Music-holder for violins	603,568	May 3	594	133	83	716

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Lutterberg, Friedrich, Mittweida, Germany. Drawing-pen	602,165	Apr. 12	1009	221	83	908
Lutz, Anton. (See Lare and Young, assignors.)	606,506	June 28	2849	657	83	1954
Luye, Dave, Cleveland, Miss. Device for setting animal-traps	603,450	May 3	356	80, 81	83	668
Lyman, James O., Waterbury, Conn. Electric program-clock	604,665	May 24	2037	604	83	1177
				605		
				606		
Lynch, Michael A., and W. I. Hough, assignors to J. J. Sheehy, A. A. Thomas, and E. J. Turner, Washington, D. C. Breech mechanism for ordnance	605,565	June 14	980	215	83	1550
				216		
Lyon, James W., Brooklyn, N. Y. Towel-rack	603,910	May 10	1215	275	83	893
Lyon, Julian P., Detroit, Mich. Jar and temporary closure therefor	603,911	May 10	1217	276	83	853
Lyon, Julian P., Detroit, Mich. Jar	602,861	Apr. 26	2205	490	83	464
Lyon, Lucy B. J., Bridgeport, Conn. Baby-harness	601,664	Apr. 5	71	14	83	15
MacCoy, James S. (See Giroud, Peter G., assignor.)	603,510	May 3	499	109	83	697
MacDonald, James H., Athol, Mass. Pressure-actuated governor for pumps	603,650	May 10	750	166	83	763
MacSpadden, John C., St. Joseph, Mo. Inflation-tube	604,995	May 31	3202	737	83	1305
Maccoun, Andrew E., and J. Noey, Braddock, Pa. Automatic electric feed-water regulator	606,388	June 28	2525	586	83	1888
Macey, Fred J., Ontonagon, Mich. Rotary engine	605,733	June 14	1223	283	83	1605
Machepy, Hubert. (See Wincqz and Machepy.)	601,776	Apr. 5	294	58	83	56
Mack, John G. D., Madison, Wis., assignor to Eugene Dietzgen Company, Chicago, Ill. Slide-rule	602,086	Apr. 12	856	186	83	174
				187		
Macke, Fred. (See Walton and Macke.)	602,706	Apr. 19	1938	440	83	397
Mäcke, Louis, Catapring, Tex. Cutter	603,011	Apr. 26	2464	560	83	512
Mackey, Charles W., Moravia, N. Y. Cork-protector	603,912	May 10	1218	276	83	853
Mackey, Frank M., Elmira, N. Y. Motor	604,901	May 31	3054	701	83	1276
Mackey, Franklin L., New Castle, Pa. Clock-controlled switch	605,293	June 7	452	702	83	1438
Macomber, Francis S., trustee. (See Selden, Arthur R., assignor.)	604,059	May 17	1527	100	83	946
Macomber, Herbert H., Kendallville, Ind. Tower	606,016	June 21	1811	101	83	1732
Macowsky, Isaac, New York, N. Y. Car-fender	605,687	June 21	1859	418	83	1016
Macphail, James, Blue Island, Ill. Mower	606,666	June 21	1559	356	83	1687
Madden, Albert F., Newark, N. J., assignor to Marsden Company, Philadelphia, Pa. Machine for reducing pithy plants	604,996	May 31	3208	359	83	1306
Maddox, John A., assignor to C. C. Bloom, West Union, Ohio. Churn	602,192	Apr. 12	1057	------	83	1906
Maebert, Alexander, Jersey City, N. J. Detachable heel for boots or shoes	604,356	May 17	1887	231	83	213
Magann, George P., *et al.* (See Taylor, Charles, assignor.)	603,296	Apr. 26	2247	423	83	1016
Magee, Lucius Q. C., Pittsburg, Pa. Steamboat paddle-wheel	604,665	May 24	2037	604	83	1177
				605		
				606		
Maginot, Albert, Vesoul, France. Helico-centrifugal pump	604,995	May 31	3202	737	83	1305
Mahoney, John J., *et al.* (See Fennan, William T., assignor.)	605,565	June 14	980	215	83	1550
Maiche, Louis, Paris, France. Purifying spirit	602,910	Apr. 26	2776	------	83	572
Maignen's Filtre-Rapide and Anti-Calcaire Company. (See Ellis, Alfred A., assignor.)	604,496	May 24	2352	533	83	1123
Maillot, John W., New York, N. Y. Knife-sharpener	604,623	May 24	2570	586	83	1165
Mainella, Felix. (See Leu, Frederick, assignor.)	603,236	Apr. 26	2247	649	83	585
Maitland, Alexander. (See Neeley, Maitland, and Birkicht.)	602,909	Apr. 26	2268	522	83	478
Malmstrom, Peter E., New York, N. Y. Apparatus for making and dispensing mineral waters	603,195	Apr. 26	2776	------	83	572
Malmstrom, Peter E., assignor to Diamond Soda Water Manufacturing Company, New York, N. Y. Apparatus for carbonating and dispensing liquids	603,404	May 3	275	61, 62	83	652
Malsch, Frank, Philadelphia, Pa., assignor to Industrial Manufacturing Company, Camden, N. J. Overseam sewing-machine	602,903	Apr. 26	2435	555	83	507
Malven, James H., Arkansas Junction, Colo. Railway-spike	605,790	June 14	1351	556	83	1629
Mandl, Alexander, assignor to M. Stiefel, New York, N. Y. Sofa-bed	604,997	May 31	3203	309	83	1306
Mandt, Targe G., assignor to T. G. Mandt Vehicle Company, Stoughton, Wis. Sleigh	605,676	June 14	1137	737	83	1589
Manes, James, assignor of one-fourth to L. H. Flanders, Denver, Colo. Metallurgical furnace	602,761	Apr. 19	2017	263	83	412
Mangels, William F., assignor of one-half to W. S. Smith, Brooklyn, N. Y. Bicycle-railway	604,998	May 31	3205	457	83	1306
				458		
				737		
				738		
Mangum, Zebulon H., Chester, S. C. Machine for unwinding warp-threads	605,965	June 21	1716	305	83	1716
				304		
Manhattan Brass Company. (See White, James H., assignor.)	603,792	May 10	991	221	83	810
Manley, Horace A., Boston, Mass., assignor to Universal Advertising Machine Company, of Maine. Coin-controlled mechanism				222		
Mann, Alexander S. (See Sebastian, Charles, assignor.)						
Mann, Bernard. (See Booth and Plummer, assignors.)						
Mann, Paul A. (See Ennis, Charles, assignor.)						
Manning, Ebenezer F. and J., Elkhart, Ind.; said J. Manning assignor to said Ebenezer F. Manning; said Ebenezer F. Manning assignor of one-half to R. C. Atkinson, Cassopolis, Mich. Wire-stretcher	605,496	June 14	807	187	83	1528
Manning, John. (See Manning, Ebenezer F. and J.)	604,060	May 17	1528	343	83	947
Manning, John, and J. R. S. Hayes, London, England. Smoothing and pressing iron	604,771	May 31	2838	344	83	1234
Mansfield, Albert K., Salem, Ohio. Throttle-valve	606,067	June 21	1907	439	83	1750
Manson, Robert. (See Mallard, William S., assignor.)						
Maquaire, Jules A., Paris, France. Fibrous material						
Marble, Edwin H. (See Marble, Edwin T. and E. H.)	604,772	May 31	2840	649	83	1234
Marble, Edwin T. and E. H., Worcester, Mass. Lappet-shearing machine	604,694	May 24	2572	650	83	1165
Marble, Webster L., Gladstone, assignor of one-half to F. H. Van Cleve, Escanaba, Mich. Safety-guard for axes	602,762	Apr. 19	2019	586	83	413
Marcus, David, London, England. Composition for dressing leather	603,913	May 10	1220	------	83	853
Marcus, David, London, England. Lacquer and lacquering	602,902	Apr. 26	2206	500	83	464
Marcuson, Philip, Baltimore, Md. Finger-guide for musical instruments	604,566	May 24	2481	565	83	1147
Marion, Jonathan N., Louisville, Ky. Machine for separating fine gold flakes from sand	602,910	Apr. 26	2268	522	83	479
Maris, John M., Chicago, Ill. Rolled-steel bolster for cars	602,763	Apr. 19	2020	458	83	413
Mark, Jacob, New York, N. Y. Lens for illuminating tiles	604,999	May 31	3119	716	83	1289
Marker, Christian, Corry, Pa. Extension-table	604,589	May 24	2428	558	83	1136
Marks, Wesley N., Braddock, Pa. Journal-box for railway-cars						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Marsden Company. (See Madden, Albert F., assignor.)						
Marshall, Edward S., assignor to Missouri Railway Equipment Company, St. Louis, Mo. Car-door	601,665	Apr. 5	73	14	83	15
	602,863	Apr. 26	2207	500	83	464
Marshall, Frank H., Marietta, Ohio. Hose-coupling						
Marshall, Henry C. (See Frack, Alfred B., assignor.)						
Marshall, John. (See Eaton, John O., assignor.)	603,110	Apr. 26	2235	596	83	544
Marshall, John B., Fresno, Cal. Non-refillable bottle	605,061	May 31	3317	761	83	1827
Martin, Albert R., assignor to Automatic Roller Printer Company, Beaver Falls, Pa. Printing attachment for paper-rolls	602,344	Apr. 12	1308	762	83	1827
				289		
Martin, Charles H., Marshall, Ill. Lace or ribbon cabinet	603,279	May 3	62	15	83	613
Martin, Harold G., Providence, R. I. Bicycle-bell	603,651	May 10	751	166	83	763
				167		
Martin, Henry M., Newark, Ohio. Adjustable bed	601,797	Apr. 5	332	67	83	63
	604,902	May 31	3055	702	83	1277
Martin, Lewis, New York, N. Y. Oil-can						
Martin, Miles, Marshall, Ind. Draft-equalizer						
Martin, Thomas W. (See McLaughlin, James R., assignor.)	603,569	May 3	505	132	83	716
Martin, William D., Sr., Jackson, Tenn. Well-bucket						
Martz, Eduard. (See Krekeler and Martz.)						
Martz, Eduard. (See Krekeler, Martz, and Israel.)						
Marvin, Russell, assignor of one-half to S. N. E. Priddy, Findlay, Ohio. Device for distributing and equalizing power	602,087	Apr. 12	861	187	83	175
				188		
Maschinenfabrik Grevenbroich, Actiengesellschaft. (See Olberg, Gustav, assignor.)	603,771	May 10	954	213	83	802
Maskelyne, John N., Jr., London, England. Projecting kinetoscope	602,460	Apr. 19	1509	344	83	816
Mason, Edrick W., Cleveland, Ohio. Safety-gate						
Mason, George W. (See Johnston and Mason.)	605,966	June 21	1718	394	83	1716
Mason, George W., Sharon, Pa. Bottle-stopper	602,166	Apr. 12	1010	221	83	208
				222		
Mason, Herbert W., Glens Falls, N. Y. Stove or range	603,531	May 3	543	119	83	705
Mason, Irving W., Aberdeen, Wash. Tool for boring tapering holes	603,111	Apr. 26	2036	590	83	545
Mason, Joseph, assignor to American Mutoscope Company, New York, N. Y. Coin-operated device	605,254	June 7	375	85	83	1422
Mason Regulator Company. (See Mason, William B., assignor.)						
Mason, Thomas, New York, N. Y. Spool-stand	605,111	June 7	73	21	83	1366
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Detachably uniting barrels to stocks	605,734	June 14	1225	283	83	1606
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Take-down gun				284		
Mason, William B., assignor to Mason Regulator Company, Boston, Mass. Governor for steam-pumps	603,026	Apr. 26	2489	564	83	517
Masters, Joseph W., *et al.* (See Smith, Swan, assignor.)	601,878	Apr. 5	498	108	83	98
Matchett, Richard, Melbourne, Victoria. Fluid-pressure regulator						
Matheny, David D. (See Matheny, Elijah F., assignor.)						
Matheny, Elijah F., Milwaukee, Wis., assignor to D. D. Matheny, Cuba, Ill. Passenger-car appurtenance	603,855	May 10	1122	252	83	834
	604,540	May 24	2430	558	83	1137
Mather, Bidney, Bridgeport, Conn. Spool	604,999	May 31	3206	736	83	1306
Mathews, Elisha C., Jacksonville, Ill. Clamp for fence-machines	602,461	Apr. 19	1510	344	83	816
				345		
Mathews, George C., Jacksonville, Fla. Bicycle						
Mathias, Charles J. (See Donne and Mathias.)						
Mathis, August. (See Mathis, Julien W. and A.)	604,405	May 24	2165	486	83	1090
Mathis, Julien W. and A., Chicago, Ill. Pneumatic-despatch apparatus	605,231	June 7	294	75	83	1413
Matignon, Laurent, La Garenne-Colombes, France. Means for raising sunken vessels	602,023	Apr. 5	750	161	83	142
Mattern, Frederick W., Los Angeles, Cal., assignor, by mesne assignments, to Dustless Roadbed Company, Camden, N. J. Dustless road, railway road-bed, &c	602,626	Apr. 19	1789	408	83	366
Matteson, Rufus S., assignor of two-thirds to C. H. Field, Providence, R. I., and J. A. King, Seekonk, Mass. Textile-roller clearer	604,940	May 31	3119	717	83	1289
Matthews, David H. (See Matthews, Watt D., assignor.)						
Matthews, John L., Baltimore, Md. Protective covering for ships' armor						
Matthews, Thomas. (See Eades and Matthews.)						
Matthews, Watt D., Pittsburg, assignor of one-half to D. H. Matthews, New Castle, Pa. Rolling-mill	602,864	Apr. 26	2208	500	83	464
	602,345	Apr. 12	1304	290	83	268
				291		
Mattijetz, Andreas, Los Angeles, Cal. Feed-cutter	602,263	Apr. 12	1169	257	83	225
Mattson, Samuel, Brooklyn, N. Y. Air-lock for caissons	602,032	Apr. 5	770	166	83	146
Mauer, Peter F., Staples, Minn. Paper-bag cabinet	603,334	May 3	238	53, 54	83	646
Maurer, Charles A., Cedar Bluff, Iowa. Steam-engine	602,562	Apr. 19	1673	380	83	347
Maxam, Frank H., Princeton, Ind. Necktie-holder	602,543	Apr. 19	1644	374	83	341
Maxham, Lowell M., Boston, Mass. Coin-operated vending-machine	606,425	June 28	2604	600	83	1905
Maxim, Hiram P., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Governor for explosive-engines	602,225	Apr. 12	1110	244	83	223
Maxwell, Arthur, Ludlow Falls, Ohio. Dump-cart	603,698	May 10	831	184	83	776
Maxwell, Charles G., West Winsted, Conn. Attachment for trunks or boxes	603,196	Apr. 26	2277	632	83	572
May, August G., St. Charles, Mo. Thill coupling-bolt	602,764	Apr. 19	2021	458	83	413
May, Joseph B., assignor of one-fourth to G. P. Ross, Lexington, Ky. Mail-bag lock	605,000	May 31	3207	738	83	1307
Maybaum, Levy, Newark, N. J. Calculating device	604,406	May 24	2166	487	83	1090
Mayer, Charles P., and J. H. Pomeroy, New Haven, Conn. Automatic gas-vending apparatus	604,407	May 24	2176	488	83	1092
Mayer, Charles P., and J. H. Pomeroy, New Haven, Conn. Guard for coin-controlled apparatus	605,735	June 14	1230	284	83	1607
Mayer, Frank H., Denver, Colo. Vehicle-brake	606,160	June 21	2098	482	83	1736
Mayer, Murray C., assignor to Gage-Downs Company, Chicago, Ill. Corset	602,246	Apr. 12	1307	291	83	203
Maynard, Charles A., Springfield, Mass. Rubber-tired wheel	604,541	May 24	2430	552	83	1137
Maynard, Charles A., Springfield, Mass. Pneumatic tire						
Mayo, S. P., *et al.* (See Hysore, Alphenas V., assignor.)	604,609	May 24	2711	619	83	1191
Mayo, Walter E., Chicago, Ill. Supplemental seat for bicycles	604,120	May 17	1641	366	83	969
Mazmanovich, Anton, New York, N. Y. Bottle	606,570	June 28	2655	658	83	1956
McAllister, Edwin P., Clifton Heights, Pa. Puncture-repair needle	603,902	May 10	1206	296	83	893
McAulay, Norman, assignor of one-half to C. von Woehrmann, Hill City, S. D. Buggy-bow rest	605,448	June 7	735	166	83	1494
McAusland, William, assignor to Reed & Barton Corporation, Taunton, Mass. Insulating handle connection	602,665	Apr. 19	1870	425	83	294
McBurney, Walter C., and W. M. Robertson, Montclair, N. J. Bicycle-stand	605,969	June 21	1780	395	83	1717
McCafferty, Harry C., Montclair, N. J. Map-holder						
McCafferty, John, assignor of one-half to J. J. McCafferty, Wall, Pa. Non-refillable bottle	606,903	June 28	2644	543	83	1855

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
McCafferty, John J. (See McCafferty, John, assignor.)						
McCain, John A., assignor of one-half to W. J. Houston, Decatur, Ga. Rail-joint and tie-plate	608,610	May 3	663	158	83	733
McCallum, John, Chippewa Falls, Wis. Grass-clipping device	608,919	May 10	1232	279 / 280	83	855
McCallum, William A., Cincinnati, Ohio. Trolley-wire hanger	602,463	Apr. 19	1514	345	83	817
McCallum, William A., assignor to C. Andrew, Cincinnati, Ohio. Machine for jointing tubes	608,337	May 3	165	38	83	698
McCann, Michael. (See Harris, Cupples, and McCann.)						
McCanna, Benjamin T. (See McCanna, John F. and B. T.)	604,072	May 17	1553	348	83	951
McCanna, John F. and B. T., Chicago, Ill. Lubricating-pump	605,646	June 14	1081	249	83	1579
McCarren, Helena C., Jersey City, N. J. Hat-pin	604,855	May 31	2088	473	83	1254
McCarroll, Samuel H., Providence, R. I. Valve	606,571	June 28	2857	658 / 659	83	1956
McCarthy, Daniel J., Ansonia, Conn. Parcel-carrier	605,741	June 14	1940	397	83	1609
McCarthy, Louis, Boston, Mass. Strain-insulator	604,778	May 31	2951	652	83	1237
McCarthy, Thomas J., Orange Valley, N. J. Hat-printing machine	605,798	June 14	1354	310	83	1630
McCarty, William N., Blanket, Tex. Combination-tool	602,605	Apr. 19	1749	399	83	861
McCaughey, Ralph H., Campbell, Cal. Car-coupling	604,567	May 24	2484	565	83	1148
McCaw, John. (See Coulson and McCaw.)						
McClain, Edward L., Greenfield, Ohio. Harness-pad	602,515	Apr. 19	1595	365 / 366	83	333
McClatchey, Augustus F., Aurora, and C. L. Krum, Chicago, Ill. Separating apparatus	601,836	Apr. 5	406	85, 86	83	76
McClean, Samuel N., Washington, Iowa. Magazine-firearm	601,839	Apr. 5	413	86	83	77
McClean, Samuel N., Washington, Iowa. Magazine bolt-gun	601,840	Apr. 5	419	87	83	79
McClean, Samuel N., Washington, Iowa. Magazine-firearm	601,841	Apr. 5	424	87	83	80
McClean, Samuel N., Washington, Iowa. Magazine bolt-gun	601,842	Apr. 5	430	88	83	81
McClean, Samuel N., Washington, Iowa. Magazine bolt-gun	601,843	Apr. 5	434	88, 89	83	81
McClean, Samuel N., Washington, Iowa. Magazine-firearm	601,844	Apr. 5	440	89	83	82
McCleary, Wallin & Crouse. (See McCleary, William, assignor.)						
McCleary, William, assignor to McCleary, Wallin & Crouse, Amsterdam, N. Y. Chenille-cutting machine	605,118	June 7	83	23	83	1368
McClellan, George H., *et al.* (See McClellan, Jackson, assignor.)						
McClellan, Jackson, Brooklyn, N. Y., assignor to himself, G. H. McClellan, Arlington, N. J., G. H. McKibbin, and B. Everett, New York, N. Y. Bookbinding-machine	608,406	May 3	280	62, 63	83	654
McClelland, Mark R., Zanesville, Ohio. Harrow	605,506	June 14	819	190	83	1531
McClelland, Robert E., Williamsville, Ill. Farm-gate	606,177	June 21	2109	465	83	1788
McClintock, Frank. (See Eastwood, Bibb, and McClintock.)	601,734	Apr. 5	218	42	83	42
McCloskey-Playter, Mary E., New York, N. Y. Corset-steel	608,405	May 3	278	62	83	653
McClurg, James A., Denver, Colo. Sample grinding and pulverizing apparatus	604,590	May 24	2517	572 / 573	83	1154
McColl, Francis P., Brooklyn, N. Y. Mold or die for plastic substances	601,732	Apr. 5	213	42	83	41
McCollom, George W., Council Bluffs, Iowa. Adjustable nursing-bottle holder	608,280	May 3	64	16	83	618
McCollum, Frank G., Cambridge, Mass. Cuspidor for dental chairs	608,114	Apr. 26	2644	600	83	547
McComish, John J., New York, N. Y. Safety-bottle						
McConway & Torley Company. (See Buhoup, Harry C., assignor.)	602,849	Apr. 12	1312	292	83	264
McCool, William A., Beaver Falls, Pa. Abrading mechanism	602,350	Apr. 12	1315	293	83	265
McCool, William A., Beaver Falls, Pa. Manufacturing cold-drawn steel tubing	602,416	Apr. 12	1429	------	83	296
McCool, William A., Beaver Falls, Pa. Manufacturing drawn tubing	602,417	Apr. 12	1430	333	83	296
McCool, William A., Beaver Falls, Pa. Manufacturing cold-drawn metallic articles						
McCormick Harvesting Machine Company. (See Burson, William W., assignor.)						
McCormick Harvesting Machine Company. (See Coler, Peter P., assignor.)						
McCormick Harvesting Machine Company. (See Pridmore and Johnston, assignors.)						
McCormick Harvesting Machine Company. (See Withaeger, Charles H., assignor.)						
McCormick, James. (See Reid, Randolph H., assignor.)						
McCormick, Thomas, Mount Pleasant, Pa. Combination curtain and window-shade holder	602,091	Apr. 12	808	189	83	176
McCoy, Joseph, Independence, Mo. Cistern cut-off	608,338	May 3	167	38, 39	83	634
McCready, Edward W., Oak Park, Ill. Bicycle handle-bar	601,818	Apr. 5	395	75	83	60
McCreery, Joseph, Toledo, Ohio. Ventilating system	605,806	June 14	1376	315 / 316	83	1634
McCrudden, James, Pontiac, Mich. Spring-hanger for vehicle-bodies	605,206	June 7	458	102	83	1439
McCue, Charles J., La Veta, Colo. Nut-lock	608,534	May 3	546	120	83	706
McCue, Thomas W., Akron, Ohio. Antiseptic surgical dressing	606,019	June 21	1816	------	83	1733
McCullough, Frank, Mooreville, Tex. Cotton-chopper	608,963	May 10	1297	296	83	900
McCullough, Frank B., and E. M. Parrott, Indianapolis, Ind. Furnace	602,464	Apr. 19	1515	345	83	817
McCullough, James A. (See Sturgis, Samuel, assignor.)	606,426	June 28	2006	601	83	1906
McCurdy, Charles, Richmond, Va. Combination-lock for umbrella-tips	602,516	Apr. 19	1600	366	83	334
McDaniel, William D., assignor of one-half to L. S. Green, Philadelphia, Pa. Toe-clip	603,231	May 3	54	16	83	618
McDermott, Thomas B., Portland, Oreg. Bicycle propelling mechanism	604,836	May 31	2940	672	83	1254
McDonald, Arthur J., Kansas City, Mo. Dental engine	604,837	May 31	2942	673 / 674	83	1254
McDonald, Arthur J., Kansas City, Mo. Dental engine	601,977	Apr. 5	685	145	83	130
McDonald Brothers. (See Applegate, Clarence, assignor.)	601,856	Apr. 5	465	94	83	86
McDonald, Charles M., Italy, N. Y. Bicycle-canopy	606,573	June 28	2858	659	83	1956
McDonald, Fred C., Chicago, Ill. Lock for bicycles	604,497	May 24	2553	534	83	1133
McDonald, James E., Evansville, Ind. Pipe-wrench						
McDonald, Joseph H., New York, N. Y. Non-refillable bottle	602,563	Apr. 19	1674	361	83	347
McDonnell, James L. (See Reid and McDonnell.)	601,898	Apr. 5	531	110	83	100
McDonough, Dennison, Eau Claire, Wis. Ironing-board	604,627	May 24	2576	587 / 588	83	1166
McDonough, Patrick J., and T. E. Shelly, Bellaire, Ohio. Machine for finishing glassware	604,698	May 24	2579	588	83	1166
McDougall, Alexander, Duluth, Minn. Apparatus for concentrating gold-bearing sand	605,008	May 31	3219	741	83	1808
McDougall, Alexander, Duluth, Minn. Dredging apparatus						
McDougall, Isaac S. (See Collier, Arthur, assignor.)						
McDowell, Robert G., Anaconda, Mont. Vehicle-wheel	605,896	June 21	1572	361	83	1690
McDuffee, Andrew J. (See Sunderland, Jesse W., assignor.)	608,517	Apr. 19	1601	367	83	835
McEwen, James H., Du Bois, Pa. Car-wheel						
McFadden, Bernard A., New York, N. Y. Exercising-machine	601,814	Apr. 5	395	76	83	60
McFeely, Thomas, *et al.* (See Loutzenhiser, Charles H., assignor.)	605,611	June 14	1011	233	83	1565
McGee, William G., Wilmington, Del. Garment-clasp	608,472	May 3	414	98	83	680
McGeoch, Alexander, Oakland, Cal. Street-sprinkling, irrigating, and fire-extinguishing systems						
McGill, Albert E., Chicago, Ill. Saddle-post						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
McGloin, Frank. (See Buchel and McGloin.)						
McGrath, Patrick H., assignor of one-half to M. F. Cunningham, Randolph, Mass. Bottle-closure	604,629	May 24	2561	589	83	1167
McGraw, William, Mount Airy, Ohio. Acetylene-gas generator	608,535	May 3	547	130	83	706
McGraw, Frank H. (See Smith and Putt, assignors.)						
McGuff, John J., assignor of one-half to O. W. Snyder, Lexington, Ky. Cooking stove or range	605,897	June 21	1573	362	83	1690
McGuire, William A., Chicago, Ill. Grain-car door	606,170	June 21	2099	482	83	1786
McHardy, James A., assignor, by mesne assignments, to Nicholson File Company, Providence, R. I. Rasp-machine	606,020	June 21	1817	418 / 419 / 420	83	1733
McIlvried, Peter. (See Lehberger, George, assignor.)	601,609	Apr. 5	80	16	83	16
McIlyar, William P., Cambridge, Ohio. Garment-hook	603,043	Apr. 26	2510	570	83	521
McIntosh, William, Winona, Minn. Blow-off cock	602,226	Apr. 12	1111	244	83	234
McKaig, Elthera P., Richmond Hill, N. Y. Pilot for railway-cars	602,766	Apr. 19	2025	459	83	414
McKay, Peter T., Toronto, Canada. Pneumatic tire						
McKee, Robert J. (See Brake and McKee.)						
McKee, William S. (See Schmunk, Charles E., assignor.)	601,899	Apr. 5	533	110	83	101
McKeen, Thomas L., New York, N. Y. Vestibule-car	601,900	Apr. 5	535	110 / 111	83	101
McKeen, Thomas L., New York, N. Y. Buffer-platform for railway-cars	601,901	Apr. 5	536	111	83	101
McKeen, Thomas L., New York, N. Y. Car-coupling						
McKenna, Thomas. (See Staub and Duerst, assignors.) (Reissue.)	602,092	Apr. 12	569	189	83	176
McKeone, Richard J., Sault Ste. Marie, Mich. Vacuum-protected high-explosive shell						
McKernon, Charles, *et al.* (See Rising, Bradley D., assignor.)						
McKernon, Charles, *et al.* (See Wheat, Allen A., assignor.)						
McKibben, Charles W. (See Carnes and McKibben.)						
McKibbin, Gilbert H., *et al.* (See McClellan, Jackson, assignor.)	602,093	Apr. 12	872	189	83	177
McKim, Elias, Cass City, Mich. Combined grain, hay, and stock rack	604,192	May 17	1775	400	83	995
McKinlay, Edward S. and W. A., Denver, Colo. Mining-machine						
McKinlay, William A. (See McKinlay, Edward S. and W. A.)						
McKinney, George F. (See Owen, Gabel, and McKinney.)	604,176	May 17	1749	394	83	991
McKinstry, Charles R., Mercersburg, Pa. Milk-pail						
McKnight, John W., assignor of three-fourths to P., J. L., M., and M. S. Lewin, Philadelphia, Pa. Protector for incandescent burners	606,226	June 28	2219	510	83	1828
McKown, Florance M., Boothbay, Me. Meat-press	602,866	Apr. 26	2210	501	83	465
McLaughlin, James R., assignor of one-half to T. W. Martin, Clifton Springs, N. Y. Handle for sheet-metal vessels	605,004	May 31	3220	741	83	1809
McLaughlin, John G., assignor of one-half to R. W. Gleason, Brooklyn, N. Y. Trolley connection for electric cars	605,226	June 7	507	113	83	1449
McLean, Charles F. (See Hopper and McLean.)	604,073	May 17	1556	349	83	952
McLean, John, New York, N. Y. Bicycle	608,222	Apr. 26	2817	643	83	580
McLean, John N., New York, N. Y. Hose-coupling	604,680	May 24	2582	589	83	1167
McLean, William J., New York, N. Y. Banjo-bell	605,793	June 14	1356	310	83	1630
McLennon, Charles, Spring Gulch, Colo. Rail-holder						
McMichael & Wildman Manufacturing Company. (See Wildman, Frank B., assignor.)	605,898	June 21	1574	------	83	1690
McMillin, Henry C., Lima, Ohio. Composition of matter for plastering	605,327	June 7	508	114	83	1449
McMullen, Albert R., Lennox, S. D. Foldable straw-carrier for threshing-machines	605,794	June 14	1357	311	83	1630
McMullen, Francis F., Bondville, Ill. Gate	601,670	Apr. 5	61	16, 17	83	17
McMyler, John, and G. H. Hulett, Cleveland, Ohio. Loading or unloading apparatus						
McNamara, Mary L. (See Jordan, Dennis, assignor.)						
McNeil, Chester, Rogers Park, assignor to Union Special Sewing Machine Company, Chicago, Ill. Presser-foot and throat-plate for sewing-machines	605,449	June 7	726	167	83	1494
McNeil, George, and T. J. Rogers, Chicago, Ill. Lubricator	606,294	June 28	2346	543	83	1855
McNiel, A. C., Jr., *et al.* (See Doyle, George M., assignor.)						
McNish, Alexander, Salem, N. Y. Gable-door	605,899	June 21	1575	362	83	1690
McNish, Thomas N., Kearny, N. J. Gas-lighter	602,351	Apr. 12	1317	293	83	265
McNutt, John F., Warren, assignor to Harris Automatic Press Company, Niles, Ohio. Counter	601,879	Apr. 5	500	108	83	94
McNutt, John F., Warren, assignor to Harris Automatic Press Company, Niles, Ohio. Paper-feeding machine	605,328	June 7	511	114	83	1450
McPherson, Arthur G., Highland Park, Ill. Electric switch	602,767	Apr. 19	2025	460	83	414
McPherson, Frank G., Beaver Falls, assignor of one-half to G. W. Miller, Rochester, Pa. Musical instrument	602,352	Apr. 12	1318	293	83	266
McQueen, William A., *et al.* (See Wagner, Isaac L., assignor.)	608,199	Apr. 26	2780	634	83	873
McRae, Henry C., Macon, Fla. Cuspidor	605,742	June 14	1241	287	83	1609
McTaggart, Francis, Iroquois, S. D. Car-coupling						
McTighe, Thomas J., Brooklyn, assignor to C. H. Hoyt, New York, N. Y. Method of incinerating incandescent gas-mantles and apparatus therefor	604,121	May 17	1642	368	83	968
McvGwire, William W., Dungarvan, Ireland. Life-boat	602,912	Apr. 26	2294	523	83	490
Meacham, Thomas W. (See Dockstader, James, assignor.)	608,914	May 10	1221	276	83	853
Mead, Frank S., Montreal, Canada. Gas or oil engine						
Mead, Theodore H., *et al.* (See Crowell, Luther C., assignor.)						
Mead, Theodore H., *et al.* (See Sheldon, Edward P., assignor.)	608,951	Apr. 26	2370	540	83	496
Mealey, Johnston, Howard Lake, Minn. Harness-buckle	606,260	June 21	1561	359	83	1688
Mealey, Robert C., Howard Lake, Minn. Milk-weighing machine						
Mechanical Door Hinge Check Company. (See Hanington, Charles F., assignor.)						
Meeks, James C. (See Kuhne, Adolph, assignor.)						
Mehner, Carl H., assignor of one-half to A. H. Sylvester, Berlin, Germany. Cigarette-wrapper	604,257	May 17	1689	------	83	1016
Meigs, Nathan J., West Haven, assignor of one-half to E. L. Knowles, New Haven, Conn. Latch	605,170	June 7	201	51	83	1368
Melly, George H., *et al.* (See Schalil, Michael S., assignor.)	601,974	Apr. 5	680	144	83	129
Meissner, Paul, Glenville, Md. Suspending device for horse-boots, &c.	608,589	May 3	698	140	83	728
Meissner, William E., Rockaway Beach, N. Y. Merry-go-round	608,915	May 10	1223	277 / 278	83	854
Melrose, Alexander F., and H. B. Van Deusen, Pittsfield, Mass. Apparatus for dyeing	608,497	June 14	808	187	83	1598
Melton, Pink, Winkler, Tex. Root or sod cutter	602,408	Apr. 19	1512	345	83	817
Mendel, Jacob, Nyack, N. Y. Car-truck						
Mendelson, Charles. (See Gaines, Charles A., assignor.)						
Mendenhall, Walter E., assignor of one-half to E. S. Gosney, Flagstaff, Ariz. Ter. Ore-concentrator	604,061	May 17	1580	344 / 345	83	947
Mengel, Joseph A., McKeansburg, G. K. Binkley, Orwigsburg, and G. H. Gerber, Pottsville, Pa. Potato cutter and planter	606,291	June 28	2340	542	83	1854
Menier, Henri, Paris, France. Apparatus for joining telegraph-cables	604,358	May 17	1690	423	83	1016
Mense, Charles T., St. Louis, Mo. Cithern	608,600	May 10	1232	184	83	779

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Menzenhauer, Frederick, *et al.* (See Hochspeier, William F., assignor.)						
Mercer, Frederic W. (See Palmer and Mercer.)						
Merck, Firm of E. (See Dürkopf, Ernst, assignor.)						
Mergenthaler Linotype Company. (See Fisher and Reynolds, assignors.)						
Mergenthaler Linotype Company. (See Keller, Thomas H., assignor.)						
Mergenthaler Linotype Company. (See Lincoln, George E., assignor.)						
Merker, Mont C., Philadelphia, Pa. Dental chair	605,255	June 7	376	85,86	83	1422
Merrill, E. Delmont, *et al.* (See Toward, Charles P., assignor.)						
Merrill, Nathaniel C. (See Hoxie, Albert N., assignor.)						
Merrill, William. (See Danielsen and Merrill.)						
Merriman, Francis E., Boston, assignor to H. N. Kingsbury, Westfield, Mass. Cutting-tool	605,582	June 14	951	221	83	1556
Merritt, Andrew A. (See Merritt, Otis J., assignor.)						
Merritt, Francis L., London, assignor of three-eighths to H. A. Naismith, Croydon, England. Internal-combustion engine	605,583	June 14	954	221, 222	83	1556
Merritt, James M., and B. F. Goodrich, Homer, Mich.; said Merritt assignor to said Goodrich. Hydrocarbon-burner	605,554	June 14	803	206	83	1545
Merritt, Mortimer G., and F. L. Groff, assignors to Rome Metallic Bedstead Company, Rome, N. Y. Caster	606,354	June 28	2469	573	83	1878
Merritt, Otis J., assignor of one-half to A. A. Merritt, Seneaguoteen, Idaho. Animal-destroyer	605,890	June 21	1563	360	83	1688
Mersch, Paul. (See Weber, Edgard, assignor.)						
Mershon, Ralph D., Colorado Springs, Colo. Insulator	605,256	June 7	380	86	83	1422
Merwarth, Charles H., South Bethlehem, Pa. Steam-packing	605,801	June 21	1564	360	83	1689
Messenger, Annie, Saltburn, England. Chimney-cleaner	606,567	June 28	2851	657	83	1955
Messick, Frank, Bloomington, Ill. Gasolene-purifier	603,960	May 10	1294	295	83	868
Messinger, William T., Boston, Mass. Fastening device	604,406	May 24	2179	498	83	1092
Mesta, George, Pittsburg, Pa. Motor in apparatus for pickling and washing metal plates	602,686	Apr. 19	1005	433, 434	83	291
Metcalf, Henry B. (See Eldred, Horace H., assignor.)						
Metcalf, John, *et al.* (See Vermilyea, Eugene, assignor.)						
Metcalf, Warren, Skippersville, Ala. Automatic bicycle-pump	604,625	May 24	2573	586	83	1165
Metcalfe, Sanford D., Brocton, Ill. End-gate	602,138	Apr. 12	943	206	83	190
Metropolitan Filter Company. (See Tyden, Emil, assignor.)						
Mettauer, John, *et al.* (See Klemm, Hermann A., assignor.)						
Metz, Charles H., and T. Curley, Waltham, Mass. Crank-pedal	604,919	May 31	3091	710	83	1293
Metzger, Jacob J., Cleveland, Ohio. Bicycle-canopy	603,916	May 10	1226	278	83	855
Metzrath, William, Highland Park, N. J. Bicycle-support	606,487	June 28	2697	621	83	1984
Meyer & Cie, C. A. (See Steiger, Eugen, assignor.)						
Meyer, Firm of H. C., Jr. (See Dickhuth, Max P. O., assignor.)						
Meyer, Frederick L., Brooklyn, N. Y. Bottle	604,062	May 17	1534	345	83	948
Meyer, John H., Philadelphia, Pa. Rotary engine	601,854	Apr. 5	450	98	83	65
Meyer, Svend M., Brooklyn, N. Y. Electrical lighting device for kerosene or other burners	604,626	May 24	2574	586, 587	83	1165
Meyrick, Joseph, Jr., Louisville, Ky. Ball-bearing device	603,570	May 3	506	132	83	717
Meyrowitz, Emil B., assignor to Meyrowitz Manufacturing Company, Ridgefield, N. J. Adjustable support for optical instruments	603,148	Apr. 26	2708	613, 614	83	539
Meyrowitz Manufacturing Company. (See Meyrowitz, Emil B., assignor.)						
Meyrowitz Manufacturing Company. (See Vetter, Alexander F., assignor.)						
Michael, Willie F., Enterprise, W. Va. Safety-pin	601,666	Apr. 5	74	15	83	15
Michaelson, Otto H., Charleston, W. Va. Incandescent electric lamp	605,498	June 14	809	187	83	1529
Michalk, Wilhelm, Deuben, Germany. Lubricator	604,409	May 24	2181	486	83	1093
Michel, Firmin, Philadelphia, Pa. Beef-roaster	601,812	Apr. 5	364	75	83	99
Michon, Eugene, Grand Chenier, La. Planter	601,897	Apr. 5	529	109	83	100
Midgley, Thomas, assignor of one-half to Columbus Bicycle Company, Columbus, Ohio. Crank-hanger for bicycles	603,149	Apr. 26	2704	614	83	559
Midland Foundry and Machine Works Company. (See Walker, Thomas C., assignor.)						
Mikesell, Jacob R., Charlotte, Mich. Axle-bearing and hub	605,499	June 14	810	187, 188	83	1529
Milburn, Herschel C., Whiteville, La. Agricultural implement	602,033	Apr. 5	771	167	83	146
Miles, David B., Blackwater, Mo. Cultivator	601,773	May 31	2944	650	83	1235
Miles, H. D., *et al.* (See Williston, Benjamin F., assignor.)						
Millen, George, assignor of one-half to L. Bergstrom, San Antonio, Tex. Wheel	605,112	June 7	76	22	83	1367
Miller, Andrew J., Metamora, Ind. Drying apparatus	605,736	June 14	1232	285	83	1607
Miller, Augustus P., Baltimore, assignor of one-half to C. P. Laurenson, Towson, Md. Device for carrying off cinders and smoke	602,865	Apr. 26	2209	500	83	465
Miller, David, Garden City, Mo. Gate	603,708	May 10	903	222	83	610
Miller, Elijah H. (See Petit and Miller.)						
Miller, Eugene, *et al.* (See Davis, John A., assignor.)						
Miller, Frank R., Springfield, Ill. Knife-sharpener	602,994	Apr. 26	2457	556	83	507
Miller, George, *et al.* (See Fergusson, Alan R., assignor.)						
Miller, George B., assignor to American Ring Company, Waterbury, Conn. Eyelet	605,802	June 21	1566	360	83	1689
Miller, George E. (See Karst, Bernard W., assignor.)						
Miller, George E., assignor of one-half to J. W. Albright, Middletown, Pa. Recessing-tool for lathes	605,184	June 7	227	55	83	1364
Miller, George H., Norwalk, Ohio. Spacer-bar for wire fences	603,772	May 10	956	214	83	808
Miller, George W. (See McPherson, Frank G., assignor.)						
Miller, Henry F., *et al.* (See Fergusson, Alan R., assignor.)						
Miller, Horace E., Newark, N. J., assignor to Celluloid Company, New York, N. Y. Brush	605,185	June 7	229	55	83	1364
Miller, Isaac N., and J. B. Moss, St. Joseph, Mo. Suppository	604,003	May 17	1534	345	83	948
Miller, Jacob W. (See Huber and Miller.)						
Miller, James A., New Haven, Conn. Fortification	603,451	May 3	350	81, 82	83	669
Miller, James S., Reading, Pa. Apparatus for purifying sewage-water	603,221	Apr. 26	2813	542, 543	83	579
Miller, Jannet E., Hinton, W. Va. Curtain-pole ring	605,967	June 21	1719	394	83	1716
Miller, Jeremiah, Cleveland, Ohio. Tube-cutter	605,257	June 7	381	86	83	1423
Miller, Lee A., Milwaukee, Wis., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Bobbin or under-thread case for sewing-machines	601,587	Apr. 5	405	85	83	75
Miller, Louis E., assignor of one-half to W., Jr., and R. H. Lacy, Los Angeles, Cal. Riveting machine	602,130	Apr. 19	944	306, 307	83	191
Miller, Richard, Appleton, Wis. Umbrella-support	602,662	Apr. 19	1065	424	83	393
Miller, Sebastian N., Piedmont, W. Va. Paper-making machine	603,197	Apr. 26	2778	633	83	572
Miller & Son, H. F. (See Schler, Oscar B., assignor.)						
Miller, Thomas H. (See Newstrom and Miller.)						
Miller, Thomas M., assignor of one-half to J. W. Lovatt, Bethlehem, Pa. Elastic horseshoe	602,236	Apr. 12	1121	246	83	225

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Miller, Thomas S., South Orange, N. J. Conveying apparatus	601,756	Apr. 5	226	50, 51	83	49
Miller, William G., Cambridge, Mass. Hoisting apparatus	602,608	Apr. 19	1746	398	83	360
Miller, William L., Pittsburg, Pa. Automatic water-heater	606,068	June 21	1908	439	83	1750
Millett & Brosnihan. (See Millett, Frank A., assignor.)						
Millett, Frank A., *et al.* (See Brosnihan, Thomas H., assignor.)	602,952	Apr. 26	2371	540, 541	83	496
Millett, Frank A., assignor to Millett & Brosnihan, Livermore Falls, Me. Device for leveling horses' feet	604,064	May 17	1535	345	83	948
Milligan, Stephen W., Brooklyn, N. Y. Dust-pan	603,731	May 10	880	195	83	788
Millington, Charles, Clifford, England. Tooth-powder box						
Mills, James M. (See Mills, Samuel, assignor.)	603,150	Apr. 26	2704	614	83	559
Mills, Samuel, assignor of one-half to J. M. Mills, Buckeye City, Ohio. Railway-signal						
Milwaukee Harvester Company. (See Burgess, Edward W., assignor.)						
Milwaukee Harvester Company. (See Graham and Birkett, assignors.)						
Milwaukee Manufacturing Company. (See Hoyt and Gillet, assignors.)						
Miner, Julius U. (See Pease, Roger S., assignor.)	606,223	June 28	2216	509	83	1898
Mischke, Karl, New York, N. Y. Screw-cutting die-head	603,112	Apr. 26	2641	600	83	546
Misell, David, New York, N. Y., assignor, by mesne assignments, to American Electrical Novelty and Manufacturing Company, of New York. Electric lamp	605,113	June 7	78	22	83	1367
Missimer, Jacob G., Philadelphia, Pa. Rib for umbrellas						
Mississippi Glass Company. (See Sheppard, Joseph W., assignor.)						
Missouri Railway Equipment Company. (See Marshall, Edward S., assignor.)						
Missouri Smelting Company. (See Doak, David P., assignor.)						
Mitchell, Chandler. (See Mitchell, Claude G., assignor.)						
Mitchell, Charles W., Brooklyn, assignor to Twisted Wire Box Strap Company, New York, N. Y. Pail-hook	606,469	June 28	2671	615	83	1919
Mitchell, Claude G., assignor of one-half to C. Mitchell, Chrisman, Ill. Staple-extractor	602,911	Apr. 26	2293	522	83	490
Mitchell, Frank H., New York, N. Y., assignor of one-third to C. T. Root, East Orange, and C. G. Phillips, Montclair, N. J. Dress-shield attachment	603,778	May 10	957	214	83	809
Mitchell, Frederick J., New York, N. Y. Disinfecting apparatus	603,012	Apr. 26	2465	560	83	512
Mitchell, Harry W., Pueblo, Colo. Carriage-clock	606,568	June 28	2952	657	83	1955
Mitchell, Henry. (See Holland, Joseph J., assignor.)						
Mitchell, Herbert L., Pittsburg, Pa. Coffee-pot	603,700	May 10	883	184	83	779
Mitchell, James, Sr., Arrow River, Canada. Life-boat	603,532	May 3	544	120	83	705
Mitchell, James C. (See Perry and Mitchell.)						
Mitchell & Lewis Company. (See Lewis, William T., assignor.)						
Mitchell, William A., Weaverville, N. C. Buckle	605,114	June 7	78	22	83	1367
Mitscherlich, Alexander, Freiburg, Germany. Process of and apparatus for utilizing horn or similar material	602,237	Apr. 12	1123	247	83	226
Mitscherlich, Alexander, Freiburg, Germany. Converting wood into fibers suitable for use in the arts	606,017	June 21	1813	418	83	1732
Mocs, Joseph. (See Crandall, Jesse A., assignor.)	604,774	May 31	2845	650	83	1235
Moehn, John N., Milwaukee, Wis. Oval holder for toilet-paper	602,995	Apr. 26	2439	556	83	507
Moehn, John N., Milwaukee, assignor of one-half to L. D. Dorschell, Chilton, Wis. Toilet-paper cabinet	606,224	June 28	2217	509	83	1898
Moeller, Julius, London, England, assignor to Welsbach Light Company, Gloucester City, N. J. Mantle or hood for Welsbach or other incandescent lights	605,115	June 7	79	22	83	1367
Moffat, George, New York, N. Y. Rail-bond	604,065	May 17	1537	346	83	948
Mohler, Levi S., Covington, Ohio. Fence-stay	606,069	June 21	1912	440	83	1750
Mohs, Julius, Brandenburg-on-the-Havel, Germany. Valve for pneumatic tires	603,064	Apr. 26	2545	578	83	537
Molacek, Thomas E., *et al.* (See Urbanek, Joseph, assignor.)						
Mole, John G., Batavia, Ill. Grinding-mill	606,630	June 28	2960	686	83	1974
Möllinger, Julius A., and K. Kurda, Nuremberg, Germany. Alternating-current motor-meter	606,225	June 28	2218	509	83	1898
Momand, Ragland, New York, N. Y., assignor to American Lighting Company, of New Jersey. Gas-burner	604,666	May 24	2644	606	83	1179
Monarch Brake-Beam Company. (See Simpson and Hantiges, assignors.)						
Monarch Cycle Manufacturing Company. (See Birner, Charles P., assignor.)						
Monarch Manufacturing Company of Baltimore City. (See Lindemeyr, Philip, assignor.)						
Money-Kent, Julian M. V. (See Pringle, Percival J., assignor.)						
Monfort, Charles P., Leonidas, Mich. Envelop	604,191	May 17	1773	400	83	995
Monk, Thomas A. (See Bailey and Monk.)						
Monnet, Pierre P., Lyons, France. Vessel for containing and administering volatile liquids	604,066	May 17	1538	------	83	948
Monnet, Pierre P., assignor to Société Chimique des Usines du Rhône, anciennement Gilliard P. Monnet et Cartier, Lyons, France. Making pyrocatechin-sulfonic acid	606,470	June 28	2673	------	83	1919
Monnet, Pierre P., assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard P. Monnet et Cartier, Lyons, France. Making chlorin derivatives of toluene						
Monnett, John T., *et al.* (See Reidenbaugh, John, assignor.)						
Monoline Composing Company. (See Scudder, Wilbur S., assignor.)						
Monsees & Larson *et al.* (See Larson and Bransell, assignors.)						
Monteer, Alexander N., Springfield, assignor of one-half to W. A. Nettleton, Kansas City, Mo. Roof-securing device	604,775	May 31	2846	650	83	1236
Montgomery, John F., and W. T. Berry, Oconawattee, Ga. Grain-drill	605,322	June 7	502	111	83	1446
Mood, Asbury F. (See Sparks, James H., assignor.)						
Moores, Thomas J. (See Loomis and Moores.)						
Moon, Frank D., assignor of three-twentieths to L. F. Adams, J. Gaskill, Lockport, and F. S. Jackson, Holland, N. Y. Rotary steam-engine	604,333	May 17	2030	456	83	1045
Moore, Calvin F., Chicago, Ill. Folding cot	606,355	June 28	2470	573	83	1878
Moore, Charles E., and J. Doyle, Chicago, Ill. Car-coupling	605,737	June 14	1234	295, 296	83	1608
Moore, Charles H., *et al.* (See Guest, John H., assignor.)	605,555	June 14	895	208, 209	83	1546
Moore, Charles L., and C. V. Pugh, Bowling Green, Mo. Burial apparatus	604,668	May 24	2078	613	83	1186
Moore, Daniel M., Newark, N. J. Apparatus for producing luminous or similar effects	604,667	May 24	2061	613	83	1186
Moore, Daniel M., Newark, N. J. Circuit-interrupting mechanism	604,669	May 24	2062	614	83	1186
Moore, Daniel M., Newark, N. J. Circuit-interrupter	602,953	Apr. 26	2373	541	83	496
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Electric luminous alphabet and board for same	604,679	May 24	2065	611	83	1183
Moore, Daniel M., assignor to Moore Electrical Company, New York, N. Y. Incandescent-electric-lamp regulator	604,680	May 24	2066	611	83	1184
Moore, Daniel M., assignor to Moore Electrical Company, New York, N. Y. Electric-lamp regulator	604,681	May 24	2068	611	83	1184
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Interrupter for electric-lighting systems	604,682	May 24	2069	611, 612	83	1184
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Magnetic circuit-breaker						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Magnetic circuit-breaker	604,683	May 24	2671	612	88	1184
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Automatic vibratory interrupter	604,684	May 24	2673	612	88	1185
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Electric-lighting apparatus	604,685	May 24	2676	612 613	88	1185
Moore, David A., Harvey, assignor to Buda Foundry and Manufacturing Company, Chicago, Ill. Railway-track drill	604,410	May 24	2188	489	88	1098
Moore, Edward J., Philadelphia, Pa. Steam-boiler	605,791	June 14	1352	309 310	88	1629
Moore Electrical Company. (See Moore, Daniel M., assignor.)						
Moore, Elisha, Meductic, Canada. Fishing-reel	603,599	Apr. 19	1714	390	88	854
Moore, Frank L., Chatham, N. J. Fastener for straps	602,604	June 14	1008	233	88	1565
Moore, George, Boston, Mass. Convertible street-railway car	606,176	Apr. 19	1748	398 399	88	360
Moore, George A., and H. J. Rosegrant, Philadelphia, Pa. Sole-laying machine	606,176	June 21	2108	484	88	1788
Moore, Jehiel T., assignor of one-half to H. L. Jenkins, Minneapolis, Minn. Telephone-holder	605,294	June 7	455	101	88	1439
Moore, John C., Eastbourne, England. Harvesting-machine	603,652	May 10	753	167 168	88	763
Moore, John M., Atlanta, Ga. Copying-press	603,414	Apr. 12	1425	322	88	297
Moore, Joseph R., Denver, Colo. Bicycle-stand	602,415	Apr. 12	1427	323	88	297
Mora, Giuseppe, Milan, Italy. Producing copies of oil-paintings	603,583	May 3	545	------	88	706
Moran, George N., *et al.* (See White, Charles S., assignor.)						
Moran, James B., New Haven, Conn. Eyelet-hole-finishing device	604,589	May 24	2516	572	88	1154
Moran, John. (See Morrison and Moran.)						
Morch, John H. (See Weeks, John, assignor.)						
Morcom, John H., assignor to Colorado Iron Works Company, Denver, Colo. Slag-truck	605,506	June 14	922	216	88	1551
Morden, George. (See Young and Morden.)						
Morfoot, Benjamin W., Chicago, Ill., assignor of one-half to H. Ziegfeld, Mount Vernon, N. Y. Key-opening can-head	606,471	June 28	2673	615	88	1919
Morford, Thomas E. (See Burnett, Wesley, assignor.)						
Morgan, Charles, Freeport, Ill. Lemon-squeezer	602,088	Apr. 12	465	188	88	175
Morgan, Fred W., assignor to Morgan & Wright, Chicago, Ill. Elastic tire and means for attaching same	604,067	May 17	1539	346	88	949
Morgan, Fred W., Chicago, and E. W. Young, Austin, assignors to Morgan & Wright, Chicago, Ill. Manufacture of pneumatic-tire tubes	605,644	June 14	1077	247 248	88	1578
Morgan, George L., Kokomo, Colo. Rocker attachment for baby-carriages	606,569	June 28	2653	658	88	1955
Morgan, James M. (See Trapp, Carles C. and F., assignors.)						
Morgan, John W., Harriman, Tenn. Bicycle-saddle	604,068	May 17	1541	346	88	949
Morgan, Waitman M., and F. E. Parker, Kansas City, Mo. Process of and apparatus for roasting and separating ores	605,001	May 31	2309	739 740	88	1307
Morgan, William. (See Clarke, Morgan, and Gordon.)						
Morgan, William H., Alliance, Ohio. Overhead traveling crane	602,765	Apr. 19	2023	459	88	413
Morgan, William H., Peabody, Kans. Roller-brake	603,996	Apr. 26	2440	557	88	508
Morgan & Wright. (See Herrick, William, assignor.)						
Morgan & Wright. (See Morgan, Fred W., assignor.)						
Morgan & Wright. (See Morgan and Young, assignors.)						
Morgel, Henry W., Brazil, Ind. Lawn-mower	602,513	Apr. 19	1508	364 365	88	333
Moritz, Louis J. A., State Centre, Iowa. Lid-lifter	604,477	May 24	2314	525	88	1117
Morley Button Sewing Machine Company. (See Hardenbrook, Charles E., assignor.)						
Morrill, Oscar M. (See Anderson and Morrill.)						
Morrill, Osgood. (See Wells and Morrill.)						
Morris, Henry G., and P. G. Salom, Philadelphia, Pa. Electrically-propelled vehicle	603,198	Apr. 26	2779	633 634	88	573
Morris, John, West Pullman, assignor to Piano Manufacturing Company, Chicago, Ill. Header platform connection	604,069	May 17	1542	347	88	949
Morris, John H., Seward, Nebr. Permutation-lock	601,975	Apr. 5	681	144 145	88	129
Morris, John J. (See Lind, John W., assignor.)						
Morris, Orson, assignor of one-half to J. Groutage, Red Canyon, Wyo. Mowing-machine	602,586	Apr. 19	1715	390	88	854
Morrison, Chester A., and J. Moran; said Moran assignor and said Morrison assignor of part of his right to L. E. Morrison, Manitou, and W. Whelan, El Paso county, Colo. Windlass	603,237	Apr. 26	2649	649 650	88	566
Morrison, David B., Kansas City, Mo. Filter	605,500	June 14	812	188	88	1589
Morrison, Floyd E. (See Strother, John W., assignor.)						
Morrison, John R., assignor to Auburn Bolt and Nut Works, Auburn Pa. Tube-making machine	603,486	May 3	442	99	88	697
Morrison, Joseph C., Akron, Ohio. Cutter for trimming or cutting boiler-tubes	605,501	June 14	813	188	88	1589
Morrison, Laura E., *et al.* (See Morrison and Moran, assignors.)						
Morrison, Thomas. (See Slick and Morrison.)						
Morrow, Charley R., Pine, Ind. Fence-stay	603,961	May 10	1295	295	88	868
Morrow, George L. K., Detroit, Mich. Grate-bar and furnace	602,642	Apr. 19	1817	414 415	88	373
Morrow, George L. K., Detroit, Mich. Furnace	602,643	Apr. 19	1820	415 416	88	374
Morrow, Oliver A., Whitehall, Ill. Wire-fence machine	603,917	May 10	1227	278 279	88	855
Morse, Clifton S., Newark, Ohio. Bicycle attachment	606,369	June 28	2526	596	88	1899
Morse, Everett F., Trumansburg, N. Y. Sprocket-and-chain gear	603,609	May 3	662	158	88	733
Morse, Frank, *et al.* (See Gannoe, Thomas A., assignor.)						
Morse, Joel N., Oneida, Kans. Stove	603,113	Apr. 26	2643	600	88	546
Morse, Orville M., Jackson, Mich. Separator	606,292	June 28	2342	542 543	88	1854
Morton, Albert H., Lowell, Mass. Milling-cutter	604,776	May 31	2847	651	88	1236
Mosby, James D. (See Hardin and Mosby.)						
Moser, Joshua D., Orrville, Ohio. Washing-machine	603,511	May 3	500	109	88	698
Moses, Arthur C. (See Bucklin, John E., assignor.)						
Moses, Otto A., New York, N. Y. Fabric	605,567	June 14	923	216	88	1551
Moses, William S., Tracy, Minn. Reed-organ	604,070	May 17	1546	347 348	88	950
Mosher, John A., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Hasp-fastener	605,645	June 14	1080	248	88	1576
Mosher, Orin B., Joliet, Ill. Handle-bar	604,071	May 17	1551	348	88	951

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Moss, Josiah B. (See Miller and Moss.)						
Moss, Ransom E. (See Akers, Earl C., assignor.)						
Motherwell, David M., Chicago, Ill., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Cultivator	601,713	Apr. 5	178	35	88	35
Motherwell, David M., Chicago, Ill., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Cultivator	602,663	Apr. 19	1866	424	88	388
Motherwell, David M., Chicago, Ill., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Cultivator	604,172	May 17	1736	391	88	988
Motley, Peter, Philadelphia, Pa. Nursery-gate	604,411	May 24	2185	489	88	1094
Motley, Peter, Philadelphia, Pa. Safety-gate	605,502	June 14	814	188	88	1580
Motley, Thomas H., Grainthorpe, assignor of one-half to W. H. Owen, Louth, England. Manure-distributer	605,002	May 31	3216	740	88	1306
Mott, Arthur F., and H. S. Dunn, Jr., Brooklyn, N. Y. Non-refillable bottle	603,701	May 10	884	185	88	779
Moulthrop, Samuel P., Rochester, N. Y. Wardrobe	601,855	Apr. 5	464	94	88	86
Mountford, Edward J. D., *et al.* (See Bosanko, Alexander, assignor.)						
Mower, Eugene B., Minneapolis, Minn. Soda-water fountain	603,856	May 10	1128	252 253	88	885
Mower, Samuel E., assignor to H. G. Thompson & Son, New Haven, Conn. Prepayment attachment for meters	604,173	May 17	1739	392 393	88	988
Mower, Samuel E., assignor to H. G. Thompson & Son, New Haven, Conn. Registering mechanism for meters	604,174	May 17	1745	393	88	990
Mower, Samuel E., assignor to H. G. Thompson & Son, New Haven, Conn. Coin-controlling and recording mechanism for meters	604,175	May 17	1747	393 394	88	990
Moxham, Arthur J., assignor to Johnson Company, Lorain, Ohio. Electric railway	605,508	June 14	816	189	88	1580
Moxham, Arthur J., assignor to Cochran Company, Lorain, Ohio. Gate-valve	605,908	June 21	1790	394	88	1716
Moy, Robert, Modena, Wis. Straw-stacker	601,667	Apr. 5	75	15	88	16
Moyer, Solomon R. (See Heiser and Moyer.)						
Moyes, Laurie M., Philadelphia, Pa. Water-tube boiler	604,777	May 31	2848	651	88	1236
Moyet, Alfred, Lyons, France. Sterilizing apparatus	605,738	June 14	1236	286	88	1608
Mudd, Frank X. (See Bradley, Rodney D., assignor.)						
Mueller, George A., Cincinnati, Ohio, assignor, by mesne assignments, to Yawman & Erbe, Rochester, N. Y. Foil-removing apparatus	606,154	June 21	2066	475	88	1780
Mueller, John, assignor to Duplex Hanger Company, Cleveland, Ohio. Electric-arc lamp	602,404	Apr. 12	1410	318	88	284
Mueller, John M., Jr., Cincinnati, Ohio. Polishing marble	601,668	Apr. 5	79	16	88	16
Mueller, Philip, Decatur, Ill. Pipe-reamer	605,988	June 21	1567	361	88	1689
Muffly, Clarence M., Howard, Pa. Key-holder	605,584	June 14	958	222	88	1537
Muhlenfels, Charles, New York, N. Y. Bicycle-brake	603,774	May 10	958	214	88	803
Muhr, Joseph, Dunkirk, N. Y. Closure for couplings	605,223	June 7	508	112	88	1443
Mullenhoff, Leopold, Buffalo, N. Y. Trap for sinks, &c.	605,202	June 7	370	62	88	1401
Miller, Carl A., and G. Hinman, San Francisco, Cal. Window-cleaning seat	605,610	June 14	1009	233	88	1565
Miller, Henry, London, England. Tuning-pin	602,514	Apr. 19	1595	395	88	333
Miller, Rudold, Lins, Austria-Hungary. Machine for lifting doors and holding same	604,983	May 31	2496	671	88	1253
Mullins, Michael, and C. Fleming, U. S. Army. Rail-joint and nut-lock	605,739	June 14	1237	286	88	1608
Mumford, Joseph J. (See Lawrence, George E., assignor.)						
Muncaster, Walter J., assignor of one-half to Cumberland Iron and Steel Shafting Company, Cumberland, Me. Tool holder or carrier	605,504	June 14	817	189	88	1580
Munde, Patrick, Easthampton, Mass. Fruit-picker	606,018	May 10	1230	279	88	855
Munger, Elbert E., Spencer, Iowa. Bed	602,347	Apr. 12	1309	291	88	264
Munn, George F. (See Lane, Levi E., assignor.)						
Munro, Alexander F. (See Junkins, Leander D., assignor.)						
Munson, Harvey S., New Haven, Conn. Paper box	603,664	Apr. 19	1868	425	88	384
Murdock, George F., Wellsville, Ohio. Stair-carpet fastener	602,348	Apr. 12	1310	292	88	264
Murdock, William K., assignor to J. C. Hollings, Boston, Mass. Hat-fastener	605,116	June 7	80	23	88	1367
Murdock, William N., Boston, and J. C. Hollings, Cambridge, Mass.; said Murdock assignor to said Hollings. Vehicle-tire	605,117	June 7	81	23	88	1368
Murfin, Thomas J., Sleepy Eye, Minn. Drainable pipe for tanks	605,295	June 7	457	102	88	1439
Murphy, Frank J. (See White and Murphy.)						
Murphy, James, *et al.* (See Murphy, John F., assignor.)						
Murphy, James, assignor to Eagle Lock Company, Terryville, Conn. Padlock	605,740	June 14	1238	286	88	1608
Murphy, James K., Washington, D. C. Extension-brace for excavations	606,631	June 28	2061	637	88	1975
Murphy, John F., assignor of two-thirds to J. Murphy and L. T. Lochner, Adrian, Mich. Bicycle	602,084	Apr. 5	772	167	88	146
Murphy, John H., New York, N. Y. Manifolding cash-sales book	602,405	Apr. 12	1411	319	88	284
Murphy, Peter H., East St. Louis, Ill. Center-bearing	602,089	Apr. 19	866	186	88	175
Murphy, Peter H., East St. Louis, Ill. Center-bearing	602,090	Apr. 19	867	186	88	176
Murray, Charles T., Kansas City, Mo. Stereotype-plate	605,804	June 21	1506	361	88	1689
Murray, Charles T., Kansas City, Mo. Steam-generator	605,805	June 21	1570	361	88	1689
Murray, Emera A. (See Conway and Murray.)						
Murray, Frank H., Salina, Kans. Wagon-body lining	601,976	Apr. 5	684	145	88	129
Murray, George T., assignor of one-third to G. Phipps, Corsicana, Tex. Bed and cylinder printing-machine	602,406	Apr. 12	1413	319	88	284
Murray, Glenn B., Lakeland, Fla. Cabinet for medicine, &c.	606,018	June 21	1815	418	88	1732
Murray, John. (See Garland and Murray.)						
Murray, May, Detroit, Mich. Glove	605,505	June 14	819	190	88	1581
Murray, Sampson E. (See Garland and Murray.)						
Murrell, George B., Newport, Ky. Gasolene-stove	603,458	May 3	364	82	88	670
Murtagh, Bernard, Hewlett's, N. Y. Combined chair and bed	606,488	June 28	2098	622	88	1994
Mustard, Horace R. (See Davis and Mustard.)						
Muther, Lorenz, Oak Park, assignor to Union Special Sewing Machine Company, Chicago, Ill. Folding-guide for sewing-machines	605,324	June 7	504	112	88	1443
Muther, Lorenz, Oak Park, and E. C. Holland, Austin, assignors to Union Special Sewing Machine Company, Chicago, Ill. Sewing-machine	605,325	June 7	505	112 113	88	1449
Myers, Charles E., assignor of one-half to J. G. Barton, Detroit, Mich. Burial-casket	604,234	May 17	2042	457	88	1046
Myers, Joseph W., Sikeston, Mo. Chute	604,834	May 31	2987	672	88	1253
N. V. Perry Manufacturing Company. (See Perry, Nathaniel V., assignor.)						
Nagell, John R., Tacoma, Wash. Bicycle-frame	604,838	May 31	2946	673	88	1255
Nalesmith, Henry A. (See Merritt, Francis L., assignor.)						
Napier, Charles, assignor to L. H. Dewey, Rochester, N. Y. Step and extension ladder	601,714	Apr. 5	179	35	88	35
Nash, Myron H., Vicksburg, Mich. Threshing-machine	605,048	May 31	2296	756	88	1838
Nash, Samuel. (See Rouston, William H., assignor.)						
Nastvogel, Oscar, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Diphenylnaphthylmethane dye	605,119	June 7	85	------	88	1368
Nathan, Albert F., Kansas City, Mo. Marking meats	605,120	June 7	87	23	88	1368
Nather, Frank, Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Railway-track structure	602,364	Apr. 12	1170	256	88	236

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
National Cash Register Company. (See Carney, Thomas, assignor.)						
National Cash Register Company. (See Wythe, William W. and W. H., assignors.)						
National Computing Scale Company. (See Sanderson, William H., assignor.)						
National Computing Scale Company. (See Swihart, John H., assignor.)						
National Electrical Manufacturing Company. (See Banks, Walter F., assignor.)						
National Harrow Company. (See Babcock, Henry D., assignor.)						
National Harrow Company. (See Sharp, Charles S., assignor.)						
National Harrow Company. (See Shelbley, Jacob E., assignor.)						
National Harrow Company. (See Wiard and Burdick, assignors.)						
National Malleable Castings Company. (See Tower, Clinton A., assignor.)						
National Mold and Casting Company. (See Haley, William, assignor.)						
National Tube Works Company. (See Holinger, Emil F., assignor.)	604,779	May 31	2953	652	83	1237
Naus, Theodore, Manitowoc, Wis. Mower attachment	603,702	May 10	895	185	83	779
Nax, William, Philadelphia, Pa. Tobacco-pipe						
Naze, Prosper. (See Dery, Louie, assignor.)	602,085	Apr. 5	773	{167 168	83	146
Neal, Nathan P., Waxahachie, Tex. Life-insurance table or chart	605,329	June 7	512	114	83	1451
Neal, Thomas G., Warren, Pa. Hot-air furnace, &c.	603,430	May 3	322	72	83	661
Nealon, John J., assignor to M. J. Nealon, Bayonne, N. J., and H. Binney, New York, N. Y. Hose-supporter						
Nealon, Mary J., *et al.* (See Nealon, John J., assignor.)	604,074	May 17	1558	349	83	992
Nebendahl, Carl F., Wandsbeck, Germany. Automatic igniting device for gas-lamps, &c.	606,070	June 21	1914	440	83	1751
Neeb, William, Cross Plains, Tex. Implement for stretching wire-fence strands	604,478	May 24	2315	525	83	1117
Neeley, George S., A. Maitland, and G. Birkicht, Pacific, Mo. Combination-tool	605,121	June 7	88	24	83	1366
Neer, Adam, St. Paris, Ohio. Corn-harvester	602,094	Apr. 12	873	{189 190	83	177
Nef, John J., New York, N. Y. Air-brake	606,071	June 21	1915	440	83	1751
Nehring, William, Evansville, Ind. Step-ladder	603,536	May 3	549	120	83	706
Neidhardt, Henry, Brooklyn, N. Y. Saw-set	601,671	Apr. 5	83	17	83	17
Neil, Michael, and F. H. Bissell, Dayton, Ohio. Wire-fence stay	602,867	Apr. 26	2211	501	83	465
Neil, Michael, and F. H. Bissell, Dayton, Ohio. Wire fence						
Nelden, William A. (See Robinson and Nelden.)						
Nelson, Carl A. (See Doty, Aaron B., assignor.)						
Nelson, Charles A. (See Olund, Axel A., assignor.)						
Nelson, Charles F., assignor of one-half to J. H. Bloomfield, Galesburg, Ill. Combined mailing-signal and door-bell	602,997	Apr. 26	2441	557	83	506
Nelson, Christian, and H. F. S. Justeson, Arrowsmith, Ill. Potato-bug destroyer	604,631	May 24	2583	589	83	1167
Nelson, Edward H. O. (See Johnson, Adolph J., assignor.)						
Nelson, Gulbrand. (See Walquist, Nelson, and Gronquist.)						
Neptune Meter Company. (See Thomson, John, assignor.)	604,236	May 17	1856	415	83	1010
Nerney, Peter, Attleborough, Mass. Spectacle eye guard or shield						
Nettleton, W. A. (See Monteer, Alexander N., assignor.)	602,193	Apr. 12	1058	231	83	213
Neuert, Charles A., Boston, Mass. Brush	605,900	June 21	1576	362	83	1691
Neuhs, Werner, Cleveland, Ohio. Baker's oven	603,200	Apr. 26	2781	.....	83	578
Neumark, Julius, New York, N. Y. Extracting tin from tin-plate waste						
Neun, H. C. (See Knottnerus, Henry E., assignor.)						
Neverslip Manufacturing Company (See Whitaker, Richard, assignor.)	601,978	Apr. 5	687	146	83	130
Nevill, Henry, Southampton, England. Bicycle, &c.						
New, Harry S., *et al.* (See White, James E., assignor.)						
New Haven Clock Company. (See Porter, Wilson E., assignor.)						
New Jersey Valve Company. (See Alexander, Walter S., assignor.)	605,203	June 7	271	63	83	1401
New, William W., Morrellville, Ill. Wool-spinning machine						
New York Stencil Works. (See Fuchs, Edward, assignor.)	603,339	May 3	168	39	83	634
Newburg, John I., Vicksburg, Miss. Car-fender	603,340	May 3	169	39	83	634
Newburg, John I., Vicksburg, Miss. Car-coupling						
Newby, Edgar C. (See Cryer and Newby.)	605,507	June 14	820	190	83	1531
Newcomb, Charles N., Davenport, Iowa. Carpet-loom frame						
Newcomb, Charles S. (See Patchel, Robert R., assignor.)	602,095	Apr. 12	874	190	83	177
Newell, George H., Gloucester, Mass. Bicycle handle-bar and handle	601,672	Apr. 5	84	17	83	17
Newell, John G., assignor of one-half to L. T. Snow, New Haven, Conn. Wrench						
Newell, John G., assignor of one-half to F. B. Street and C. S. Scoville, New Haven, Conn. Pipe-wrench	605,901	June 21	1577	362	83	1691
Newell, John H., Urbana, Ohio. Corn-harvester	605,122	June 7	91	24, 25	83	1369
Newell, Philo, Oakville, assignor of one-half to F. J. Wooster, Waterbury, Conn. Device for repairing pneumatic tires	605,330	June 7	514	115	83	1451
Newlin, Joseph S., Crocketville, S. C. Air-feeding apparatus for boilers	606,072	June 21	1916	440	83	1751
Newman, Fred R. (See Burgland, Peter, assignor.)	602,707	Apr. 19	1941	{440 441	83	306
Newman, George A., Cliff, Nebr. Explosive-engine	602,167	Apr. 12	1011	222	83	208
Newstrom, Charles L., and T. H. Miller, Maiden Rock, Wis. Grain-car door						
Ney, Roscoe W., New Rochelle, assignor to Zucker & Levett & Loeb Company, of New York. Rheostat	603,527	Apr. 26	2400	505	83	517
Niagara Falls Power Company. (See Sellers, Coleman, assignor.)	605,123	June 7	95	25	83	1370
Nicholes, Anthony, Freeport, Ill. Tie for bales, bundles, &c.						
Nichol, James H., Haddonfield, assignor to Dustless Roadbed Company, Camden, N. J. Oil-distributing apparatus	604,479	May 24	2316	{525 526	83	1117
Nichols, Charles E., Milan, Wash. Railway attachment for bicycles	606,073	June 21	1919	441	83	1751
Nichols, George L., De Kalb, Ill. Cattle-stanchion	605,005	May 31	3221	741	83	1309
Nichols, Joseph E., Rochester, N. H. Lamp-stove	603,341	May 3	171	39	83	634
Nicholsburg, Henry, New York, N. Y., assignor of one-half to E. Ferris, Montclair, N. J. Nozzle	605,049	May 31	3298	757	83	1324
Nicholson File Company. (See McHardy, James A., assignor.)	604,887	May 31	3080	696	83	1272
Nickel, David, Morris, Ill. Door-hanger	604,888	May 31	3081	696	83	1272
Nickel, David, Morris, Ill. Caster	603,633	May 10	755	168	83	764
Nickerson, Freeman, Boston, Mass. Hanger for goods or garments						
Nicol, John A., *et al.* (See Tyler, William E., assignor.)	603,732	May 10	882	{195 196 197	83	789
Nicolle, Philip, Toronto, Canada. Combination water-closet, seat, &c.	604,177	May 17	1751	{394 395	83	991
Niebling, William F., Cincinnati, Ohio. Apparatus for treating milk hygienically	605,909	June 21	1578	363	83	1691
Niederer, John J., New York, N. Y. Fabric-holding frame for embroidering-machines	601,979	Apr. 5	699	146	83	130
Nielson, Christen, Brooklyn, N. Y. Electric welding-machine	606,574	June 28	2991	650	83	1956
Nightingale, James, New York, N. Y. Wood block for paving	604,498	May 24	2354	534	83	1123
Nilson, Carl F., Gile, Wis. Combined motor-cradle and child's carriage	605,331	June 7	515	115	83	1451
Nilson, Carl F., Gile, Wis. Bicycle						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nilson, Nils, Minneapolis, Minn. Steam-separator	602,866	Apr. 26	2212	501	83	465
Nister, Ernst, Nuremberg, Germany. Sheet-delivery mechanism for printing-machines	602,298	Apr. 12	1196	247	83	326
Nitrogen Processing Company. (See Snyder and Seidner, assignors.)	603,065	Apr. 26	2547	579	83	528
Nixon, John C., Texarkana, Ark. Fly-trap						
Nixon, William G. (See Brockett, Atwater E., assignor.)						
Noble, Oscar L., Winthrop, assignor to F. Wood, trustee, Boston, Mass. Cutter for trimming heel-seats and rands for boots or shoes	605,647	June 14	1082	249	83	1579
Noblit, George H. (See Plush and Noblit.)	605,297	June 7	459	{102 103 104	83	1439
Noël, Charles, assignor to La Société Industrielle du Liege et de La Bouchonnerie Parisienne, Paris, France. Machine for cutting corks						
Noey, John. (See Maccoun and Noey.)	605,006	May 31	3223	742	83	1309
Nolan, John F., Chicago, Ill. Cuspidor-cleaner						
Nonweiler, Gustav A. (See Heine and Nonweiler.)						
Norcross, William M., Philadelphia, Pa., assignor to Hale & Kilburn Manufacturing Company, of Pennsylvania. Foot-rest for car-seats	605,124	June 7	96	25	83	1370
Norden, Joseph. (See Norden, Mortimer, assignor.)	606,356	June 28	2470	574	83	1879
Norden, Mortimer, assignor to J. Norden, New York, N. Y. Electrical sign						
Norling, Jacob, and C. E. Johnson, Chicago, assignors to G. B. Robbins, Hinsdale, Ill. Car-ventilator	603,115	Apr. 26	2645	601	83	547
Norman, Addison, Toronto, Canada. Electromagnetic-switch railway	605,970	June 21	1721	395	83	1717
Norris, Edward H., Providence, R. I. Attachment for bicycles	603,654	May 10	756	169	83	764
Norris, Thomas A., Brockton, Mass. Buffing-wheel	602,913	Apr. 26	2206	523	83	490
Northall, William H., and F. W. Schepman, Evansville, Ind. Sales-recording check-book	603,571	May 3	508	133	83	717
Northcott, Theodore C., J. N. Lake, and J. Clark, Elmira, N. Y.; said Clark assignor to said Northcott. Can-labeling machine	606,227	June 28	2221	{510 511	83	1829
Northrop, James H., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Thread-cutting temple for looms	604,632	May 24	2585	590	83	1167
Northrop, James H., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Thread-guide	605,062	May 31	3319	762	83	1328
Northrop Loom Company. (See Littlefield, Charles A., assignor.)	603,964	May 10	1297	296	83	909
Northrup, Louese A. D., Shoreham, Vt. Umbrella-holder	603,151	Apr. 26	2706	615	83	560
Norton, Bernard W., Meriden, Conn. Device for preventing fraudulent filling of bottles						
Norton Bros. (See Norton, Edwin, assignor.)	602,096	Apr. 12	878	191	83	178
Norton, Edwin, Maywood, assignor to Norton Bros., Chicago, Ill. Canning food						
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Screw-cap sealing-nozzle for cans	602,465	Apr. 19	1516	346	83	318
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Shipping-package	602,466	Apr. 19	1517	346	83	318
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Can	602,467	Apr. 19	1521	346	83	319
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Shipping-can	602,468	Apr. 19	1522	{346 347	83	319
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Shipping-box or package	602,469	Apr. 19	1525	347	83	320
Norton, Edwin, Maywood, assignor to himself and O. W. Norton, Chicago, Ill. Wood-veneer-jacketed shipping-can	602,768	Apr. 19	2029	460	83	415
Norton, Harry C. (See Keyes, Herbert L., assignor.)						
Norton, Oliver W. (See Norton, Edwin, assignor.)						
Novelty Manufacturing Company. (See Boeck, Charles H., assignor.)	604,780	May 31	2854	652	83	1236
Noyes, La Verne W., Chicago, Ill. Shaft-support for windmills						
Nuhring, Charles. (See Thompson and Nuhring.)						
Nulsen, Frank E., St. Louis, Mo., assignor to Universal Car Bearing Company, New York, N. Y. Car-axle bearing	605,827	June 14	1417	323	83	1641
Nunns, John W., New York, N. Y. Canvas-stretcher	602,353	Apr. 12	1319	298	83	266
Nurnberger, John, Jr., near Atherton, Ind. Hand snap-hook	603,238	Apr. 26	2350	650	83	596
Nutt, William, Indianapolis, Ind. Stopper	605,125	June 7	97	26	83	1370
Nye, Benjamin F., Quincy, Mich. Eaves-trough	603,611	May 3	694	153	83	733
Nystrom, Walfrid, *et al.* (See Larson and Brancell, assignors.)						
O. H. Jewell Filter Company. (See Jewell, Omar H., assignor.) (Reissue.)						
O'Brien, Alfred. (See Grapes, George H., assignor.)	603,116	Apr. 26	2647	601	83	547
O'Brien, James H., St. Louis, Mo. Lamp-burner	602,265	Apr. 12	1178	258	83	236
O'Counell, John, Chicopee, Mass. Cotton-opener	603,708	May 10	836	185	83	779
O'Connor, James V., Brockton, Mass. Propeller						
O'Neil, David W. (See Bachert and O'Neil.)	602,869	Apr. 26	2214	502	83	406
O'Neil, Joseph, Taylorstown, Pa. Pump	605,648	June 14	1083	{249 250	83	1579
O'Neill, Frank, Cicero, Ind. Machine for manufacturing glassware	606,229	June 28	2228	{511 512	83	1830
O'Neill, James E., Waupaca, Wis. Heel	605,008	May 31	3226	742	83	1310
O'Keefe, William H., Lockport, N. Y. Adjusting device for chairs	604,122	May 17	1644	{368 369	83	966
O'Thayne, Patrick, New York, N. Y. Garment distender and drier	601,673	Apr. 5	85	.....	83	17
Oakes, Francis J., New York, N. Y. Mordanting	604,412	May 24	2186	490	83	1004
Oakes, Lucian R., Bloomington, Ind. Lamp-burner	606,074	June 21	1921	441	83	1752
Oakley, Francis, Newport, R. I. Liquid-cooler						
Ocheltree, Robert C. (See Hagan, Elijah J., assignor.)	605,126	June 7	99	26	83	1371
Odell, Robert C., New York, N. Y. Folding bed						
Odgers, Albert M., assignor to A. M. Collins Manufacturing Company, Philadelphia, Pa. Card-mount	605,007	May 31	3225	742	83	1310
Odin, Frank A., Bridgeton, N. J. Can-cleaner	605,677	June 14	1136	264	83	1569
Odonnell, Edward G., Bennington, Vt. Water-pipe or hose-nozzle	603,487	May 3	444	90	83	697
Odonnell, Henry New York, N. Y. Acetylene-gas-generating lamp	606,228	June 28	2225	511	83	1830
Oehl, Firm of K. (See Rudolph, Christian, assignor.)						
Oehler, Christopher H., New York, N. Y. Asparagus-holder	602,097	Apr. 12	880	191	83	178
Oertle, Christopher H., New York, N. Y. Asparagus-holder	601,777	Apr. 5	295	58, 59	83	56
Oesterreich, August F., Winneconne, Wis. Treating wheat in manufacturing flour						
Ofenschüssl, Leopold. (See Burgwall and Ofenschüssl.)	603,655	May 10	757	169	83	764
Ogburn, Calvin, Phœnix, Ariz. Ter. Acetylene-gas generator	602,687	Apr. 19	1906	{434 435	83	391
Ogden, Frederick H., New York, N. Y., assignor to H. Ill and C. Winckhofer, Newark, N. J. Door-check	602,688	Apr. 19	1909	435	83	392
Ogden, Frederick H., New York, N. Y., assignor to H. Ill and C. Winckhofer, Newark, N. J. Door-check	606,473	June 28	2075	616	83	1919
Ogden, Mortimer C., New York, N. Y. Sheet-metal scissors or shears						
Ohio Rake Company. (See Little, Peter E., assignor.)						
Ohio Storage Battery Company. (See Washburn, George A., assignor.)	602,354	Apr. 12	1320	294	83	236
Ohlgart, George P., Baltimore, Md. Bicycle	603,478	May 3	415	.....	83	660
Ohlhaver, Hinrich P. D., Hamburg, Germany. Mantle for incandescent gas-burners						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ohmer, Wilfred L., Dayton, Ohio. Petroleum-burner	604,781	May 31	2655	668	83	1236
Olberg, Gustav, assignor to Maschinenfabrik Grevenbroich, Actiengesellschaft, Grevenbroich, Germany. Purifying condensation-water from oil by filtration	602,096	Apr. 12	861	191 / 192	83	179
Oldham, George, Philadelphia, Pa. Shedding-motion for looms	603,269	May 3	66	17	83	614
Oldoerp, Carl, *et al.* (See Fennan, William T., assignor.)	601,674	Apr. 5	86	17	83	17
Olin, Franklin W., Alton, Ill. Weighing apparatus	605,127	June 7	101	97	83	1871
Olin, Franklin W., Alton, Ill. Weighing apparatus						
Oliver, Frederick W., assignor to Publishing, Advertising and Trading Syndicate, London, England. Cartridge-case and making same	601,909	Apr. 5	536	111	83	101
Oliver, J. M., *et al.* (See Jenkins, Edwin J., assignor.)	603,578	May 3	599	133	83	717
Olsen, Frederick, New York, N. Y. Wrench	606,257	June 28	2472	574	83	1879
Olson, Halkan, Soperville, Ill. Whiffletree-hook	603,573	May 3	600	133	83	716
Olson, Neil L., Butte, Mont. Horseshoe	605,795	June 14	1358	311	83	1630
Olsson, Herman A., Quincy, Mass. Automatic electric fire-alarm	604,075	May 17	1560	349	83	952
Olund, Axel A., assignor of one-half to C. A. Nelson, Minneapolis, Minn. Line-dividing scale	601,715	Apr. 5	180	35	83	36
Onstad, John H., Dayton, Ohio. Window-screen						
Ordway, Albert H. (See Ordway, Oscar H., assignor.)						
Ordway, Oscar H., assignor to A. H. Ordway, South Framingham, Mass. Dowel-making machine	603,965	May 10	1300	297	83	899
Ormiston, Robert B., Winnipeg, Canada. Thawing apparatus	605,556	June 14	997	209	83	1546
Orr, Robert S., Allegheny, Pa. Bicycle-brake	602,470	Apr. 19	1598	347	83	321
Orr, Thomas E. (See Woodall and Orr.)						
Orrell, Ephraim E., Ware, assignor to Whitin Machine Works, Incorporated, Whitinsville, Mass. Clearer-roll for carding-machines	603,044	Apr. 26	2514	570	83	522
Ortmann, John H. W., assignor to H. Leonhardt, Hamburg, Germany. Pasteurizing liquids	603,920	May 10	1234	280	83	856
Orvis, Orel D., St. Louis, Mo. Steam-generator	603,223	Apr. 26	2618	643 / 644 / 645	83	580
Osborne, William W., assignor of two-thirds to F. B. Turner and D. D. Looper, Kansas City, Mo. Mathematical toy	602,954	Apr. 26	2375	541	83	407
Oscillating Truss Company. (See Booth, Thomas W., assignor.)	603,733	May 10	884	197	83	789
Osten, James H., White City, Kans. Tire-tightener	606,075	June 21	1922	441 / 442	83	1752
Oster, Mathew C., Wahpeton, N. D. Railway-signal	603,066	Apr. 26	2548	579 / 580	83	598
Ostrander, Willis H., Boston, Mass. Magazine-firearm						
Oswego Crate Company. (See Ryan, Michael C., assignor.)						
Otis Brothers & Company. (See Sundt, August, assignor.)	603,342	May 3	172	40	83	635
Ott, Benedict, La Crosse, Wis. Fountain						
Ott, Philipp, and T. Kroeber, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Blue azin dye	602,544	Apr. 19	1647	------	83	349
Ott, Philipp, and T. Kroeber, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, New York, N. Y. Blue azin dye	603,013	Apr. 26	2467	------	83	513
Ott, Philipp, and T. Kroeber, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, of New York. Blue azin dye and making same	606,295	June 28	2847	------	83	1955
Otto, Albin P., Trenton, N. J. Method of and apparatus for enameling	605,908	June 21	1579	363	83	1691
Otto Gas Engine Works. (See Winand, Paul A. N., assignor.)						
Otto, John W., Altoona, Pa. Churn	605,649	June 14	1099	250	83	1580
Oudin, Charles P., New York, N. Y., assignor, by mesne assignments, to Acme Supply Company, of New York. Mail-marking machine	604,660	May 24	2083	614 / 615	83	1186
Ovenden, Albert, Akron, Ohio. Electric alarm system	606,076	June 21	1919	442 / 443	83	1753
Overton, John B., Port Jefferson, N. Y. Water-elevator	601,990	Apr. 5	690	146	83	130
Oviatt, Moseman C., Traverse City, Mich. Bicycle-wheel	603,574	May 3	601	134	83	718
Owen, Elerson P., Manchester, assignor of one-half to M. Riddle, Jr., Petersburg, Va. Signal and switch interlocking apparatus	601,757	Apr. 5	258	51	83	49
Owen, Elerson P., Manchester, assignor of one-half to M. Riddle, Jr., Petersburg, Va. Switch throwing and locking apparatus	604,782	May 31	2855	653	83	1236
Owen, George A., Springfield, Mass. Revolver	602,870	Apr. 26	2215	502	83	466
Owen, Gideon G., Houston, Ohio. Grave-vault	606,280	June 28	2228	512	83	1880
Owen, James E., J. C. Gabel, Jr., and G. F. McKinney, Onarga, Ill. Door-hanger	606,077	June 21	1935	443	83	1754
Owen, Thomas G., Newport, R. I. Garment-hanger	605,389	June 7	516	115	83	1451
Owen, William H. (See Motley, Thomas H., assignor.)						
Owens, George H., Addison, N. Y. Crate	604,076	May 17	1561	349 / 350	83	953
Owens, John A., assignor of one-half to J. C. Saunders, Bonham, Tex. Jeweler's stone-setting instrument	603,201	Apr. 26	2788	634	83	573
Owens, Michael J., assignor to Toledo Glass Company, Toledo, Ohio. Machine for blowing glass. (Reissue)	11,668	June 14	1437	329 / 330 / 331	83	1645
Owens, Oscar, San Francisco, Cal., assignor to American Type Founders Company. Igniter for explosive-engines	605,333	June 7	517	115 / 116	83	1451
Oynas, John J., Eau Claire, Wis. Handle for stove-dampers	602,644	Apr. 19	1824	416	83	375
P. Lorillard Company. (See Harmon, Orville S., assignor.)						
P. Lorillard Company. (See Tremaine and Lorillard, assignors.)						
Paddock, Daniel H. (See Dayhoff, William C., assignor.)						
Padgett, James M., Topeka, Kans. Flue-stopper	605,128	June 7	104	27	83	1371
Page, John W. (See Lamb and Page.)						
Page Woven-Wire Fence Company. (See Lamb and Page, assignors.)						
Page Woven-Wire Fence Company. (See Snedeker, James W., assignor.)						
Page, William H., Basic City, Va. Draft-supply apparatus	603,453	May 3	908	88	83	671
Paige, James H., Manchester, assignor to L. E. Charles, Bedford, N. H. Support for curling or crimping irons	605,807	June 14	1379	316	83	1634
Paige, James H., Manchester, assignor to L. E. Charles, Bedford, N. H. Broom-support	605,808	June 14	1380	316	83	1634
Paige, Sam K., *et al.* (See Paige, Van R., assignor.)						
Paige, Van R., Hopkinton, assignor of two-thirds to K. D. Pierce, Hillsborough, and S. K. Paige, Warner, N. H. Spike	602,955	Apr. 26	2377	542	83	497
Paine, Henry H., Merchantville, N. J. Convertible chair	604,941	May 31	2190	717	83	1290
Painter, William, Baltimore, Md. Pencil	602,355	Apr. 12	1328	294	83	206
Painter, William, assignor to Crown Cork and Seal Company, Baltimore, Md. Sheet-feeding mechanism for punching-machines	605,334	June 7	519	116 / 117	83	1402
Palacio, Martin A. de, Madrid, Spain. Aerial railway	602,230	Apr. 12	1128	248	83	227
Paley, George. (See Sutcliffe, James A., assignor.)						
Palm, Albert, Sterling, Ill. Cutting apparatus	604,413	May 24	2167	490	83	1094

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Palmenberg, Emil T., assignor to J. R. Palmenberg's Sons, New York, N. Y. Display-fixture for stores	605,678	June 14	1140	265	83	1590
Palmenberg's Sons, J. R. (See Palmenberg, Emil T., assignor.)						
Palmer, Albert E. (See Klimmek, Otto, assignor.)						
Palmer, Charles H., and J. W. Denmead, Akron, Ohio. Paper-box-making machine	603,140	Apr. 12	948	207 / 208	83	191
Palmer, George G., New York, N. Y. Tobacco-pipe	606,478	June 28	2676	616	83	1919
Palmer, Herbert R., Cleveland, Ohio. Hoisting and conveying apparatus	602,166	Apr. 12	1013	233	83	204
Palmer, Isaac E., Middletown, Conn. Hammock attachment	603,014	Apr. 26	2469	551	83	513
Palmer, Isaac E., Middletown, Conn. Means for forming wide sheds of warp from narrow or short supply-beams	603,407	May 3	284	63	83	655
Palmer, Isaac E., Middletown, Conn. Seat attachment for hammocks	603,408	May 3	286	64	83	655
Palmer, Isaac E., Middletown, Conn. Chair	604,212	May 17	1808	407	83	1001
Palmer, Isaac E., Middletown, Conn. Hammock-spreader	604,942	May 31	2121	717	83	1290
Palmer, Isaac E., Middletown, Conn. Fringe-making attachment for hammock-looms	605,971	June 21	1723	395 / 396	83	1717
Palmer, John F., Riverside, Ill. Repair device for pneumatic tires	603,045	Apr. 26	2515	570	83	522
Palmer, Joseph C., Norwich, Conn. Display-frame	603,099	Apr. 12	884	192	83	179
Palmer, Morris, *et al.* (See Urbanek, Joseph, assignor.)						
Palmer, Reuben T., Jr., and F. W. Mercer, New London, Conn. Device for supporting and stretching bed-comfortables	604,414	May 24	2189	490	83	1094
Palmer, Samuel B., Lockhart, Minn. Combined wood and straw burning heating and cooking stove	603,998	Apr. 26	2443	557	83	508
Palmetto Fibre Company. (See Young, McClintock, assignor.)						
Pancoast, Richard M., Camden, N. J., assignor to Pancoast Ventilator Company, of New Jersey. Ventilator and ventilator-brace	605,508	June 14	821	191	83	1531
Pancoast Ventilator Company. (See Pancoast, Richard M., assignor.)	604,783	May 31	2656	653	83	1236
Parbel, Joseph, and J. A. Staven, Grand Rapids, Mich. Carpet-sweeper	604,633	May 24	2586	500	83	1167
Parfitt, Alfred, Topeka, Kans., assignor, by mesne assignments, to Johnson-Parfitt Tool Company, Springfield, Ill. Pneumatic hammer	605,904	June 21	1580	363	83	1692
Park, Harvey S., Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Air-brake	605,905	June 21	1583	363 / 364	83	1692
Park, Harvey S., Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Air-brake	605,509	June 14	824	191	83	1531
Park, Richard G., West Chester, Pa. Hinge	602,018	Apr. 5	743	160	83	141
Parker, Alfred J., Newark, N. J., assignor to H. L. Hepburn, New York, N. Y. Saddle-support for velocipedes	602,769	Apr. 19	2081	460	83	415
Parker, Charles F., Washington Court-House, Ohio. Wainscoting and parquetry for hard-wood floors, &c	604,259	May 17	1801	423	83	1016
Parker, Edmund A., Meriden, Conn., assignor of one-half to W. I. Henley, New York, N. Y. Bottle-stopper	602,356	Apr. 12	1296	294	83	207
Parker, Edward F., Denver, Colo. Ore stamping and crushing mill	604,542	May 24	2433	553	83	1137
Parker, Ernestus N., Springfield, Mass. Fastener	606,231	June 28	2230	512	83	1880
Parker, Francis E. (See Morgan and Parker.)						
Parker, George S., Janesville, Wis. Fountain-pen						
Parker, Harmon H. (See Gilbert and Parker.)						
Parker, James J. (See Dexter and Parker.)						
Parker, Theron N., assignor of one-half to P. and A. Igoe, Brooklyn, N. Y. Stake for plants, flowers, or trees	604,260	May 17	1802	424	83	1016
Parker, Wallace O., Norman, Okla. Ter. Adjustable wrench	603,575	May 3	602	134	83	718
Parker, Willis O., Leach, Ind. Collapsible shipping-crate	602,357	Apr. 12	1328	295	83	207
Parkhurst, Edward B., assignor to J. T. Freeman and H. F. Davis, Woburn, Mass. Leather-dressing machine	604,903	May 31	2056	703 / 704	83	1277
Parkhurst, Edward G., Hartford, Conn. Cartridge-packet	606,021	June 21	1822	420 / 421	83	1734
Parkhurst, Edward G., Hartford, Conn., assignor to Lee Arms Company, of Connecticut. Magazine bolt-gun	604,904	May 31	2058	703 / 704	83	1277
Parkinson, Edgar H., Bradford, England. Flushing-cistern	605,972	June 21	1735	396	83	1717
Parlin & Orendorff Company. (See Heylman, Edward M., assignor.)						
Parmenter, George A., and S. H. Peirce, Cambridge, Mass. Track-cleaner for street-railway cars	604,543	May 24	2434	553	83	1137
Parnell, Jacob B. (See Selvidge, Charles W., assignor.)	606,489	June 28	2700	632	83	1924
Paroselli, Raffaele, Jersey City, N. J. Safety device for elevators	605,450	June 7	738	167	83	1495
Parrish, Rob Roy, Independence, Oreg. Nut						
Parrott, Eugene M. (See McCullough and Parrott.)						
Parry, John H. (See Parry and Evans, assignors.)						
Parry, Robert R., and E. Evans, Poultney, Vt., assignors of one-third to J. H. Parry, Utica, N. Y. Dish-cleaner	604,634	May 24	2586	590 / 591	83	1168
Parsons, Francis F., Paterson, N. J. Boiler-furnace	601,880	Apr. 5	501	103	83	94
Parsons, George W., assignor of one-third to F. S. Rich, Newton, Iowa. Self-feeder for threshing-machines	605,904	June 7	273	63, 64	83	1401
Parsons, John H., assignor of one-half to C. W. Gooding, A. D. and C. Warner, Jr., Wilmington, Del. Rotary engine	605,906	June 21	1586	364	83	1692
Parsons, John H., assignor of one-half to C. W. Gooding, A. D. and C. Warner, Jr., Wilmington, Del. Rotary engine	605,907	June 21	1586	365	83	1692
Parvillée, Louis, Paris, France. Fabricating metallooceramic resistances	602,227	Apr. 12	1112	------	83	234
Pasler, Heinrich. (See Hagemann and Pasler.)						
Patchel, Robert R., assignor of one-half to C. S. Newcomb, Cambridge, Mass. Tripod-stand for cameras, &c	606,022	June 21	1826	421	83	1734
Patchett, Samuel, Easton, Md. Fastening device	605,510	June 14	825	192	83	1532
Patent Folding Perambulator Company. (See Legge, William, assignor.)						
Patentaktiebolaget Svea. (See Schenson, Elis G. A., assignor.)						
Pattberg, Christian, assignor to F. A. Koch, Brooklyn, N. Y. Tonsilotome	606,078	June 21	1937	444	83	1755
Pattee, Joseph O. (See Vaughan and Pattee.)	606,232	June 28	2232	513	83	1831
Patten, James S., Baltimore, Md. Dust-guard for car-axle boxes	601,815	Apr. 5	366	76	83	69
Patterson, Andrew W., Aurora, Mo. Ore-separator	604,198	May 17	1777	400 / 401	83	996
Patterson, John C., Philadelphia, Pa. Bottle	602,100	Apr. 12	885	192	83	179
Patterson, Reubin C., Summit, Ga. Axle-bearing for vehicle-wheels	604,235	May 17	2043	457 / 458	83	1046
Paul, Andrew G., Boston, Mass. Steam-heating system						
Paul, N. S. (See Bell, Fred C., assignor.)	605,003	May 31	2321	702	83	1398
Paulen, Jacob W., assignor of one-half to G. G. Council, Williamsville, Ill. Farm-gate	606,079	June 21	1938	444	83	1755
Paulis, John A., St. Louis, Mo. Buggy-top-bow support	604,635	May 24	2591	591 / 592	83	1168
Pavyer, James G., St. Louis, Mo. Apparatus for casting type						

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Payette, Joseph, Worcester, Mass. Ash-sifter	603,704	May 10	837	185	83	780
Payment, Francois X., and J. C. Hartig, Chicago, Ill. Window-frame	605,335	June 7	523	117	83	1422
Payne, Joseph T., Sweet Springs, Mo. Safety-pin	601,961	Apr. 5	690	146	83	131
Payne, Lewis A., assignor of one-half to M. V. Davis, San José, Cal. Bicycle pump attachment	606,023	June 21	1926	421	83	1734
Peak, Leo D. (See Brown and Peak.)	606,060	June 21	1939	444 / 445	83	1755
Pearce, William J., assignor of one-half to J. A. Hurth, Clinton, Ind. Rotary engine	606,575	June 28	2062	600	83	1957
Pearl, Azariah Y., Lebanon, Me. Auger	603,656	May 10	759	169	83	764
Pearson, Edward F. H., *et al.* (See Kinney, Israel, assignor.)						
Pearson, Fred S., Boston, Mass. Conduit for railways	603,587	May 3	550	121	83	706
Pearson, John R. (See Rosander and Pearson.)						
Pearson, Walter G., Newburyport, Mass. Feed-mixer	602,194	Apr. 12	1058	231 / 232	83	213
Pease, Edward L., Darlington, England. Portable house	606,233	June 28	2234	513	83	1851
Pease, George R., Jamestown, N. Y. Wall-book	604,077	May 17	1564	360	83	953
Pease, Roger S., Rose, assignor, by mesne assignments, of one-half to J. U. Miner, Minneapolis, Minn. Apparatus for controlling temperature	603,734	May 10	895	197	83	789
Peck, Arthur Z., and C. G. Hawley, Minneapolis, Minn.; said Hawley assignor to said Peck. Bicycle-seat	602,906	Apr. 12	1174	258	83	237
Peck, Laura A., Geneva, N. Y. Blackboard-cleaner	604,784	May 31	2658	653 / 654	83	1236
Peckham, Edgar, New York, N. Y. Car-truck	606,206	June 28	2249	543	83	1855
Peckham, Harry G. (See Gill, John, assignor.)						
Pedersen, Henry, New York, N. Y. Window-sash	602,564	Apr. 19	1675	381	83	347
Peeples, George, Philadelphia, Pa. Insulated pipe-coupling						
Pehl, Wilhelm. (See Schleidt and Pehl.)						
Peirce, Stephen H. (See Parmenter and Peirce.)	601,962	Apr. 5	691	147	83	131
Peirson, Martin, Bristol, Conn. Watchcase	605,557	June 14	899	209	83	1546
Pell, Harry S., Toronto, Canada. Pulley	603,026	Apr. 26	2403	565	83	517
Pell, Henry K. and H. W., Rome, N. Y. Wagon-spring						
Pell, Henry W. (See Pell, Henry K. and H. W.)						
Pendleton, Gurdon, Jr., assignor to Pendleton Manufacturing Company, Carbondale, Pa. Bobbin	602,240	Apr. 12	1130	248	83	227
Pendleton, Gurdon, Jr., assignor to Pendleton Manufacturing Company, Carbondale, Pa. Bobbin	602,241	Apr. 12	1131	248	83	227
Pendleton Manufacturing Company. (See Klots, Henry D., assignor.)						
Pendleton Manufacturing Company. (See Pendleton, Gurdon, Jr., assignor.)						
Pendry, William A., Detroit, Mich. Button-blank-cutting machine	601,675	Apr. 5	86	18	83	18
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Wick-lifting device	605,186	June 7	220	56	83	1394
Péniakoff, Dmitry A., Huy, Belgium. Aluminium sulfid and making same	606,576	June 28	2267	------	83	1958
Péniakoff, Donitry A., Selzaete, Belgium. Making alkaline aluminates	603,657	May 10	761	------	83	765
Penn, William E., assignor to F. B. Fargo & Company, Lake Mills, Wis. Milk measuring and discharging machine	604,261	May 17	1803	434 / 435	83	1017
Penn, William E., and C. S. Brown, assignors to F. B. Fargo & Company, Lake Mills, Wis. Churn and butter-worker	604,262	May 17	1803	435 / 436	83	1019
Penner, William F., Richardsville, Ky. Metallic cross-tie	606,577	June 28	2268	660	83	1958
Pennsylvania Globe Gas Light Company. (See Wilson, Thomas, assignor.)						
Pennsylvania Salt Manufacturing Company. (See Reese and Armstrong, assignors.)						
Pennsylvania Salt Manufacturing Company. (See Reese and Armstrong, assignors.)						
Peoples, William, assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Clamp for securing pumps to barrels	604,263	May 17	1906	426	83	1080
Pepin, Hector, Victor, Colo. Dump for ore-buckets	601,909	Apr. 5	540	111	83	102
Peraglie, Martino, and F. Barro, New York, N. Y. Soap-holder	606,084	June 21	1830	422	83	1735
Perfection Labeling Machine Company. (See Blaisdell, James M., assignor.)						
Perkins, William C., Rocky Hill Station, Ky. Car-coupling	602,359	Apr. 12	1330	295 / 296	83	266
Perkins, William C., Rocky Hill Station, Ky. Car-coupling	602,914	Apr. 26	2297	523 / 524	83	480
Perkins, William C., Rocky Hill Station, Ky. Car-coupling	606,207	June 28	2252	544	83	1856
Perkins, Willis J., Grand Rapids, Mich. Screw-propeller	603,794	May 10	905	223	83	810
Perks, Archibald F., Port Hope, Canada, assignor of one-half to W. R. Sullivan, Alma, Mich. Gold-separating machine						
Perren, William, *et al.* (See Drawe, Jennie, assignor.)						
Perrin, William H., assignor of one-half to J. R. Lavell, Smith's Falls, Canada. Sulky-plow	605,298	June 7	468	104	83	1440
Perroté, Eugène, Sandwich, Mass. Frying-pan and lifter	603,857	May 10	1125	258	83	835
Perrottet, Marie L., New York, N. Y. Corset-shield	605,299	June 7	464	104	83	1440
Perrottet, Marie L., New York, N. Y. Dish-drainer	605,336	June 7	594	117	83	1453
Perry, Earle C., assignor to Indiana Manufacturing Company, Jeffersonville, Ind. Waffle-iron	603,101	Apr. 19	897	198	83	179
Perry, Joel C., South River, N. J. Water-faucet	606,025	June 21	1831	422	83	1735
Perry, John F., Chicago, Ill. Bottle-stopper	605,908	June 21	1589	365	83	1668
Perry, Levi B., and J. C. Mitchell, assignors of three-twentieths to H. E. Chase, Lewiston, Me. Fifth-wheel for railway-cars	605,305	June 7	276	64	83	1402
Perry, Nathaniel V., Falls Church, Va., assignor to N. V. Perry Manufacturing Company, Hartford, Conn. Metal-working machine	603,994	May 10	1355	309	83	980
Perry, William H., Hamilton, Canada. Game-board	603,358	Apr. 12	1329	295	83	267
Person, Paul, Stockton, Cal. Bicycle-support	606,578	June 28	2269	660	83	1958
Pervilhac, Henry, Lyons, France. Plaiting-machine	604,889	May 31	2047	474	83	1255
Pesant, Alfonso, Brooklyn, N. Y. Crushing-roll	606,224	June 28	2265	518	83	1851
Peterfish, Millard F., Staunton, Va. Collapsible egg-crate	602,627	Apr. 19	1700	408	83	368
Peters Cartridge Company. (See Peters, Gershom M., assignor.)						
Peters Cartridge Company. (See Place, William B., assignor.)						
Peters, Edwin R. (See Peters, George B. and E. R.)	605,909	June 21	1590	365 / 366 / 367	83	1698
Peters, George B. and E. R., Emporia, Kans. Calculating-machine						
Peters, Gershom M., assignor to Peters Cartridge Company, Cincinnati, Ohio. Wad-placing mechanism for cartridge-machines	605,258	June 7	393	87, 88	83	1494
Petersen, Emil B., Kearny, N. J. Heat or cold indicator	605,129	June 7	104	27	83	1371
Peterson, Adolphus, Lansdowne, Pa. Pattern-exhibitor	606,235	June 28	2236	514	83	1851
Peterson, Adolphus, Lansdowne, Pa. Automatic myrioscope	606,236	June 28	2237	514	83	1852
Peterson, Jesse, assignor to United Indurated Fibre Company, Lockport, N. Y. Baking-varnish	604,735	May 31	2031	------	83	1239
Peterson, John E., Washington, D. C. Remedial appliance	602,236	Apr. 12	1113	244	83	234
Peterson, John G., New Britain, Conn. Striking mechanism for bells	605,046	Apr. 26	2516	570	83	523

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Peterson, Otto, *et al.* (See Gannoe, Thomas A., assignor.)						
Peterson, S. Gust, *et al.* (See Larson and Bransell, assignors.)	602,518	Apr. 19	1604	367	83	335
Petit, William A., and E. H. Miller, Stephensport, Ky. Lock	605,337	June 7	525	118	83	1453
Pétorin, Georges L. E., San Francisco, Cal. Lock	603,961	May 10	1236	280	83	856
Petri, Peter, Peoria, Ill. Washing-machine	603,393	May 3	67	17	83	614
Pettengill, Timothy H., Amsterdam, N. Y. Electric-arc lamp	603,586	May 3	551	121	83	707
Petterson, Lars M., *et al.* (See Sundberg, William E., assignor.)	603,059	Apr. 26	2494	565	83	517
Pettibone, James, Cincinnati, Ohio. Sword-slinging hook						
Pettit, George, Jr., Fresno, Cal. Stemming and cleaning fruit						
Pfau, Charles, assignor to Pfau Manufacturing Company, Cincinnati, Ohio. Water-closet tank	602,195	Apr. 12	1060	232	83	213
Pfau Manufacturing Company. (See Pfau, Charles, assignor.)						
Pfeil, George H. (See Smith, Luke, assignor.)	603,202	Apr. 26	2764	634 / 635	83	573
Pfenning, Carl A., Barmen, Germany. Fastener for gloves	604,499	May 24	2356	534	83	1124
Pfund, Richard, New York, N. Y. Multiple telephony and telegraphy	605,000	May 31	2227	743	83	1310
Phagan, James F., Cheyenne, Wyo. Bed-spring stretcher	604,213	May 17	1810	407	83	1001
Phelps, Augustus, Newark, N. J. Badge	604,159	May 17	1708	385	83	961
Phelps, Frederick A., Jr., Johnstown, Pa. Pipe-coupling	602,587	Apr. 19	1716	390 / 391	83	354
Phelps, Thomas C., Newton, Mass. Tent	603,705	May 10	838	186	83	780
Phelps, William J., Chicago, Ill. Electric incandescent lamp						
Philadelphia Safety Window Company. (See Schmitz, Theodore H., assignor.)						
Philbrick, Halsey B. (See Donley, James R., assignor.)						
Phillippi, Theodore F., St. Louis, Mo. Rail-joint	602,102	Apr. 12	866	193	83	180
Phillips, Charles A. (See Foltz and Phillips.)						
Phillips, Charles G., *et al.* (See Mitchell, Frank H., assignor.)						
Phillips, Darius T., Chicago, Ill. Corn-harvester	605,650	June 14	1069	251	83	1580
Phillips, David, Pony, Mont. Thawing apparatus	604,264	May 17	1907	427	83	1080
Phillips, John J., Grayson, Ky. Thill-coupling	603,966	May 10	1302	297	83	869
Phillips, Norman A., New Castle, Pa., assignor to Frost Gear Case Company, New York, N. Y. Gear-case	601,733	Apr. 5	214	42, 43	83	41
Phillips, Willis E., Saguache, Colo. Harrow	605,651	June 14	1004	252	83	1581
Phillips, Wilson H., Wampum, Pa. Rotary engine	605,565	June 14	950	222 / 223	83	1557
Phipps, Gordon. (See Murray, George T., assignor.)						
Phoenix Interior Telephone Company. (See Sutton, George W., assignor.)						
Phoenix Raisin Seeding and Packing Company. (See Cox, Cary S., assignor.)						
Pickering, William H., Cambridge, Mass. Motor-vehicle	603,047	Apr. 26	2517	571	83	522
Pierce, Kirk D., *et al.* (See Paige, Van R., assignor.)						
Piercy, Isaac. (See Dumaw, Charles, Jr., assignor.)	606,061	June 21	1941	445 / 446	83	1756
Piers, Eustace F., London, England. Engine for driving tramway-cars	603,454	May 3	369	88	83	672
Pierson, James H., Worthington, Ind. Fence-post	601,904	Apr. 5	542	112	83	102
Pike, Lyman, Anaheim, Cal. Machine for digging beets	606,082	June 21	1943	446	83	1756
Pilkington, Joseph H., Waterbury, Conn. Clasp	605,206	June 7	278	64	83	1402
Pillatt, Andrew, Nottingham, England. Furnace	605,511	June 14	826	192	83	1532
Pillatt, Andrew, Nottingham, England. Furnace for water-tube boilers	603,431	May 3	323	73	83	669
Pinckney, William E., Chicago, Ill. Carburetor						
Pindar, William M., *et al.* (See Bosanko, Alexander, assignor.)						
Pinkham, Almeda A., assignor of one-half to T. J. Canedy, North Adams, Mass. Adjustable skirt-pattern	602,471	Apr. 19	1529	347 / 348	83	321
Pinkham, Ralph H., Wakefield, Mass. Apparatus for removing gravel from frozen ground	605,512	June 14	867	199	83	1532
Pinney, Charles L., Los Angeles, Cal. Pipe-binder	603,455	May 3	371	83	83	672
Pinover, Alexander, New York, N. Y. Chain-adjusting device	605,743	June 14	1949	267	83	1609
Piron, Henri J., Brussels, Belgium. Slow-combustion stove	603,967	May 10	1303	298	83	870
Pitkin, Albert J., Schenectady, N. Y. Steam-propelled car	603,284	May 3	99	17, 18	83	614
Pitney, Albert L., Washington, D. C., assignor to Calovit Heating Company. Gas-stove	603,456	May 3	371	84	83	672
Pitt, Thomas S., Boston, Mass. Endoscopic instrument	605,652	June 14	1095	252	83	1581
Pittsburgh Motor Vehicle Company. (See Clarke, Morgan, and Gordon, assignors.)						
Place, Frank E. (See Greenwood, George, assignor.)						
Place, John W., New York, N. Y. Cabinet	603,103	Apr. 12	869	193	83	180
Place, William B., King's Mills, Ohio. Machine for heading cartridge-shells	605,338	June 7	527	118	83	1453
Place, William B., King's Mills, assignor to Peters Cartridge Company, Cincinnati, Ohio. Machine for priming or capping heads of cartridge-shells	605,339	June 7	533	119 / 120	83	1454
Place, William B., King's Mills, assignor to Peters Cartridge Company, Cincinnati, Ohio. Machine for assembling heads of cartridge-shells	605,340	June 7	537	120 / 121	83	1455
Plaisted, Charles C., Hartford, Conn. Bicycle-support	602,141	Apr. 12	959	208	83	192
Plano Manufacturing Company. (See Morris, John, assignor.)						
Platt, Albert L., assignor to Clinton Book Holder Company, Clinton, Ill. Book-holder	602,169	Apr. 12	1015	223	83	204
Platt, Clayton E. (See Strong, George S., assignor.)						
Platt, Irving G., deceased; L. A. Platt, Waterbury, Conn., administrator. Button	605,130	June 7	107	27	83	1372
Platt, James F. (See Tracy and Platt.)						
Platt, John, Warrington, England. Apparatus for cutting piled fabrics	603,224	Apr. 26	2221	645	83	581
Platt, John W., administrator. (See Tracy and Platt.)						
Platt, Lewis A., administrator. (See Platt, Irving G.)						
Pletcher, Levi L., Malta, Ohio. Coffin-fastener	604,786	May 31	2202	654	83	1239
Plimpton, Walter H., Boston, Mass. Door-fastener	605,800	June 14	1361	317	83	1634
Plucker, Catherine A. (See Cowden, Thomas V., assignor.)						
Plummer, John P. (See Booth and Plummer.)						
Plunkett, Harry W. G., London, England. Saddle	606,361	June 28	2323	537 / 538	83	1851
Plush, Abram L., and G. H. Noblit, Bryn Mawr, assignors of one-third to W. Bevan, Rosemont, Pa. Elevator	605,910	June 21	1597	367 / 368	83	1695
Plush, Abram L., and G. H. Noblit, Bryn Mawr, assignors of one-third to W. Bevan, Rosemont, Pa. Safety device for elevators	605,911	June 21	1599	368	83	1695
Pneumatic Elevator and Weigher Company. (See Schumann, James B., assignor.)						
Pneumatic Engineering Company. (See Titus, Silas W., assignor.)						
Pneumatic Engineering Company. (See Titus, Silas W., assignor.) (Reissue.)						
Pneumatic Power Company. (See Cummings Charles, assignor.)						
Poincenot, Adolphe. (See Raymond and Poincenot.)						
Pojarkow, Stepšan, Yekaterinoslav, Russia. Contrivance for automatically stopping trains, &c	605,973	June 21	1727	396	83	1718
Polk, Charles C., *et al.* (See Goetze, Max, assignor.)						
Polka, Jacob, Smith Centre, Kans. Combined buckle and snap-hook	603,576	May 3	603	134	83	718

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Pollack, Wilima. (See Bell, Frank M., assignor.)						
Pomeroy, John H. (See Mayer and Pomeroy.)	608,831	May 10	1076	240	88	885
Pool, Alma A., Waukesha, Wis. Ironing-board	608,086	June 21	1631	422	88	1735
Poole, John H., Randolph, assignor of one-third to F. S. Elwell, Malden, Mass. Anti-refilling device	605,010	May 31	3220	743	88	1811
Poore, Richard. (See West, William, assignor.)						
Poore, Richard, assignor to L. C. Cropper, London, England. Hollow stud or rivet						
Pope, Curran. (See Heinig, Frederick E., assignor.)						
Pope Manufacturing Company. (See Maxim, Hiram P., assignor.)	608,995	May 3	71	18	88	615
Porteck, Otto, St. Louis, Mo. Dust-collector	608,794	Apr. 19	2094	473	88	484
Porritt, Josiah, San Francisco, Cal. Engine	608,645	Apr. 19	1995	416	88	375
Porter, Henry, New York, N. Y. Door spring and check	608,735	May 10	897	197	88	799
Porter, Horatio A., Holyoke, Mass. Bicycle-seat attachment	608,956	Apr. 26	2378	542	88	497
Porter, Louis H., Rockdale, Tex. Apparatus for cooling milk	604,514	May 17	1812	407	88	1002
Porter, Robert L., and J. D. Faulkner, Galena, Kans. Ice-cream freezer						
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Hammer for striking clocks	605,744	June 14	1343	287	88	1609
	605,992	June 7	396	75	88	1413
Posh, Charles E., Winfield, Kans. Attachment for rubber shoes	608,519	Apr. 19	1605	----	88	385
Postlethwaite, Charles E., London, England. Compound for cleaning wood						
Poteet, Sam B., *et al.* (See Doyle, George M., assignor.)						
Potter, Gideon. (See Vail and Potter.)	606,022	June 21	1944	447	88	1756
Potter, John A., Cleveland, Ohio. Regenerator	608,226	May 3	73	19	88	615
Potthoff, Louis, Flushing, N. Y. Electroplating apparatus						
Pottier & Stymus Company. (See Johnston, Johns S., assignor.)						
Pouncy, Charles H., *et al.* (See Pouncy, John H., assignor.)						
Pouncy, John H., Quito, assignor of one-half to C. H. and W. D. Pouncy, Shelby county, Tenn. Swing	608,182	Apr. 26	2708	615	88	560
Pouncy, William D., *et al.* (See Pouncy, John H., assignor.)	606,084	June 21	1945	447 446	88	1757
Poupon, Charles, Eagle Lake, Fla. Extension-table	608,686	Apr. 19	1791	409	88	369
Powell, David C., assignor of one-half to E. J. Powell, Michigan City, Ind. Grater	608,995	May 10	1961	209	88	862
Powell, Edward J. (See Powell, David C., assignor.)						
Powell, George G., Cleveland, Ohio. Handle-bar for bicycles						
Powell, James, Avondale, assignor to William Powell Company, Cincinnati, Ohio. Lubricator	604,265	May 17	1908	427	88	1020
Power Eyeletting Machine Company. (See Field, Seymour, assignor.)						
Power, Nicholas, New York, assignor to P. Braender, White Plains, N. Y. Differential piston-valve	608,983	May 10	1937	220	88	856
Prahl, Charles, assignor of three-fourths to Levy, Dreyfus & Co., New York, N. Y. Repeating watch	608,086	Apr. 5	776	166	88	147
Prange, Leo. (See Daniels, William H., assignor.)						
Prasse, Oscar C., West New Brighton, N. Y. Electric lantern	601,758	Apr. 5	263	51	88	50
Pratt, Charles C., *et al.* (See Pratt, William T. C., assignor.)						
Pratt, Charles E., assignor, by mesne assignments, to International Register Company, Chicago, Ill. Fare-register	605,912	June 21	1602	368 369 370	88	1695
Pratt, Emmeline A., *et al.* (See Pratt, William T. C., assignor.)						
Pratt, Emmeline F., *et al.* (See Pratt, William T. C., assignor.)	608,588	Apr. 19	1718	391	88	355
Pratt, Eugene E., Andover, S. D. Folding box	608,770	Apr. 19	2063	460 461	88	415
Pratt, Nathaniel P., Atlanta, Ga. Exhauster						
Pratt, William T. C., deceased; W. H. Babcock, Washington, D. C., administrator, assignor to E. A., E. F., and C. C. Pratt, Sneyd Park, and M. A. B. Wreaford, née Pratt, Portsea, England. Railway signaling apparatus	604,711	May 31	2735	695	88	1215
Prendergast, William H., assignor of one-half to C. D. Kline, Savannah, Ga. Metallic packing	608,736	May 10	899	198	88	790
Prescott, De Witt C., Duluth, Minn., assignor to York Structural Steel Company, New York, N. Y. Rolling apparatus	606,474	June 28	2677	616	88	1919
Prescott, Eugene A., Kingston, N. H. Ironing-board	608,267	Apr. 12	1177	268	88	227
Prescott, Frank C., Canton, N. Y. Carousel	608,438	May 3	396	73	88	668
Prescott, George W., Highland, Cal. Oil-burning locomotive	606,257	June 28	2638	514 515 516	88	1889
Prescott, George W., Highland, Cal. Burner for liquid hydrocarbons	606,258	June 28	2643	517 518	88	1889
Prescott, George W., Highland, Cal. Burner for pulverized coal	606,259	June 28	2645	519 520	88	1889
Prescott, George W., Highland, Cal.	606,240	June 28	2649	520	88	1884
Prescott, Robert W., Cleveland, Ohio. Atomizer	601,676	Apr. 5	22	19	88	19
Prescott, Samuel A., Wilkinsonville, Mass. Brick-cleaning machine	604,194	May 17	1778	401	88	906
Prest, John E., Cohoes, N. Y. Spinning and twisting machine spindle	608,188	Apr. 12	1093	226 227	88	206
Preston, Edwin J., and A. B. Gill, assignors to J. Stone & Co., London, England. Dynamo for electric-car-lighting systems	606,087	June 21	1899	452	88	1735
Prewett, William, Cheriton, England. Reflector attachment for lamps or lanterns	604,500	May 24	2058	535	88	1134
Price, Andrew M., Lincolnton, N. C. Stop mechanism for doubling and twisting machines.						
Price, Theodore H. (See Hamerschlag and Price.)						
Prichard, George S., and J. W. Taylor, Goldsborough, N. C., assignors of one-fifteenth to J. E. Smith, Washington, D. C. Bag-stringing machine	608,915	Apr. 26	2606	594	88	461
Prichard, Wells H. (See Durant and Prichard.)						
Priddy, S. N. E. (See Marvin, Russell, assignor.)	604,226	May 17	2046	458	88	1047
Pridmore, Henry E., Chicago, Ill. Cord-knotter for self-binding harvesters	604,227	May 17	2050	459	88	1047
Pridmore, Henry E., Chicago, Ill. Cord-knotting device	608,809	Apr. 19	2113	477	88	480
Pridmore, John W., Chicago, Ill. Grain-adjuster for harvesters						
Pridmore, John W., and E. A. Johnston, Chicago, Ill., assignors to McCormick Harvesting Machine Company. Bundle-carrier for corn-binders	606,579	June 28	2871	661	88	1908
Pries, Charles F. (See Tyler and Pries.)	608,737	May 10	899	198	88	790
Priestley, Frank, Sioux Rapids, Iowa. Rotary engine						
Prince, Clarence K., *et al.* (See Hawkes, Frank F., assignor.)	608,843	May 3	174	40	88	685
Pringle, John N., Milledgeville, Pa. Brake-shoe	608,148	Apr. 12	958	209 210	88	198
Pringle, Percival J., assignor of one-half to J. M. V. Money-Kent, London, England. Supply system for electric railways	605,011	May 31	2880	763	88	1811
Pringle, Robert, London, England. Gas-stove for cooking purposes, &c						
Printing Telegraph News Company. (See Joy, John M., assignor.)	605,013	May 31	2881	763 744	88	1811
Prins, William H., Austin, assignor to Saladin Pneumatic Malting Construction Company, Chicago, Ill. Apparatus for drying malt	605,796	June 14	1899	311	88	1630
Prisk, John N., Johnstown, Pa. Trolley-pole	605,856	June 14	1418	288	88	1661
Pritchard, Albert R., Rochester, N. Y. Vessel-handle						

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Probaska, Antos, Philadelphia, Pa. Shears	602,360	Apr. 12	1331	206	88	203
Prosser, Frank H., and S. F. Dorr, Antigo, Wis. Fire-lighter	602,871	Apr. 26	2217	503	88	466
Pschorr, Max, Marxville, Wis. Spark-extinguisher	605,131	June 7	108	26	88	1973
Publishing, Advertising and Trading Syndicate. (See Annison, Frederick G., assignor.)						
Publishing, Advertising and Trading Syndicate. (See Oliver, Frederick W., assignor.)						
Pugh, Cortez V. (See Moore and Pugh.)						
Pugh, William J., Muscatine, Iowa, assignor to Walter Automatic Air Coupler Company, Charleston, W. Va. Automatic air and steam brake coupling	601,905	Apr. 5	548	112 113	88	108
Pulcher, Camielle, assignor of one-half to A. Butz, Murphysborough, Ill. Pneumatic-tire pump	604,787	May 31	2564	654	88	1230
Pulver, Andrew J., assignor of one-half to H. W. Fisk, Milan, Ohio. Furnace	601,923	Apr. 5	602	147	88	131
Punga, William A., Detroit, Mich. Brake-beam	606,906	June 28	2354	544	88	1857
Purcell, Henry. (See Bokelmann, Herman H., assignor.)						
Purdy, Percival J., Manchester, England. Apparatus for reseating valves, boring cylinders, &c	608,577	May 3	605	134	88	716
Purdy, Percival J., Manchester, England. Apparatus for reseating valves, boring cylinders, &c	605,810	June 14	1382	317	88	1634
Pure Aluminium and Chemical Company. (See Blackmore, Henry S., assignor.)	606,475	June 28	2678	617	88	1920
Páskás, Karl, Klausjszallas, Austria-Hungary. Seeding-machine						
Putnam, William F. (See Currier, Alfred, assignor.)						
Putt, Harry M. (See Smith and Putt.)	608,539	May 3	558	121	88	707
Pycroft, Henry T., Parnell, New Zealand. Game apparatus	608,540	May 3	554	122	88	707
Pycroft, Henry T., Auckland, New Zealand. Curtain-tassel attachment	604,215	May 17	1814	407	88	1002
Quarry, William J., Newport, Ky. Detachable foot for screens, &c						
Quennoy, Etienne, assignor to H. E. Couzineau, Lille, France. Cliché for printing patterns	608,578	May 3	605	135	88	719
Quick, Stephen P., Johannesburg, South African Republic. Machine for shaping or forging and sharpening rock-drills, &c	606,390	June 28	2527	586	88	1869
Quincey, Richard, El Paso, Tex. Hame-strap	608,987	May 10	1933	205	88	870
Quincy, Josiah. (See Bélanger, Victor, assignor.)						
Quinn, Frederick, Oliver, Ill. Valve-reversing gear	606,358	June 28	2473	574	88	1879
R. A. Lister & Company. (See Stokes, Alfred W., assignor.)						
Raab, Carl D., Kaiserslautern, Germany. Motor-wattmeter	604,501	May 24	2361	535	88	1125
Raab, John B., assignor to W. P. Callahan & Co., Dayton, Ohio. Oil-filter	604,568	May 24	2485	565 566	88	1148
Raburn, Hiner. (See Drysdale and Raburn.)						
Rachels, Jasper N., assignor to M. Woffard and M. M. Rachels, Judsonia, Ark. Spoke and felly adjuster	608,208	Apr. 12	1178	259	88	287
Rachels, Mary M., *et al.* (See Rachels, Jasper N., assignor.)						
Raczek, Paul, Brooklyn, assignor to J. S. Leng's Son & Co., New York, N. Y. Velocipede-handle	604,216	May 17	1815	408	88	1002
Rademann, Paul N., Davenport, Iowa. Window-shade-bracket holder	606,290	June 28	2355	545	88	1857
Radgesky, Lewis D. (See Twist, Joseph F., assignor.)						
Raenhart, Francis A., Helena, Ark. Gate-latch	608,580	Apr. 19	1606	367	88	325
Rahn, Max, Berlin, Germany. Show-stand	608,208	Apr. 26	2785	635	88	574
Rakestraw, Roland, Wyoming, Ill. Rotary harrow	606,300	June 28	2356	545	88	1857
Rakov, Harmon, Buffalo, N. Y. Excavating-tool	608,658	May 10	1136	253	88	835
Ralston, Samuel H., Norristown, Pa. Die for forging solid-metal car-wheels	608,196	Apr. 12	1061	232 233	88	218
Ramage, Lawson, Holyoke, Mass. Cut-off for gas-jets	605,128	June 7	109	28	88	1372
Rambaud, Jean A., assignor to Compagnie Internationale des Procédés Adolphe Seigle, Paris, France. Apparatus for heating by means of liquid hydrocarbons	608,656	May 10	782	199	88	765
Ramsey, William R., Keno, Oreg. Coffee-roaster	608,923	May 10	1238	281	88	856
Randolph, Stephen T., Covington, Ind. Ball-bearing	606,941	June 28	2250	530	88	1894
Rankin, Hiram F., assignor of one-half to T. W. A. Lindsay, Ottawa, Canada. Reclining-chair	608,197	Apr. 12	1063	233	88	214
Ransdell, French E., *et al.* (See Tyler, William E., assignor.)	608,204	Apr. 26	2786	635	88	574
Rapp, Frank R., Easton, Pa. Car-coupling						
Rapp, John G. (See Smith and Rapp.)						
Rappleye, Hannibal W., Philadelphia, Pa. Method of and apparatus for condensing fumes or gases	601,677	Apr. 5	94	19	88	20
Rasmusson, R. K. (See Helgeson, Martin and O., assignors.)						
Rathbone, John A., assignor to United States Heater Company, Detroit, Mich. Water-heater	608,409	May 3	287	64	88	655
Rathbone, Sard & Company. (See Van Buren, Jafew S., assignor.)						
Rathbun Manufacturing Company. (See Hawley, Delia K., assignor.)						
Ratzinger, Ludwig, *et al.* (See Graf, Carl, assignor.)						
Rausch, Rudolf, assignor of two-thirds to F. Kohn and L. Blauhorn, Vienna, Austria-Hungary. Bicycle-brake	603,706	May 10	843	186	88	781
Rawley, William C., assignor to American Faucet Company, San Francisco, Cal. Bushing and faucet for barrels	605,612	June 14	1612	383	88	1566
Ray, Forest A., Boston, Mass. Telephone-transmitter	605,913	June 21	1610	371	88	1697
Ray, William F., Cincinnati, Ohio. Water heater or condenser	602,521	Apr. 19	1607	366	88	385
Raymond, Billings H., assignor of three-eighths to G. C. Darwin, Detroit, Mich. Device for preventing reeling vessels	604,700	May 24	2713	620	88	1192
Raymond, Frederick, Sedalia, Mo. Cartridge loading and crimping machine	608,143	Apr. 12	968	210 211	88	194
Raymond, John H. (See Copcutt, Frederick W., assignor.)						
Raymond, John M., and L. E. Lemley, assignors of one-third to W. T. Coats, New Orleans, La. Acetylene-gas generator	608,905	Apr. 26	2786	636	88	574
Read, Frederic, Brooklyn, N. Y. Handle	605,745	June 14	1944	226	88	1609
Read, Harry V. R., London, England. Stopper for discharge of aerating capsules	608,209	Apr. 12	1179	259	88	287
Reade, Mellard T., Liverpool, England. Collapsible boat	605,513	June 14	886	198 199	88	1539
Reading Cycle Company. (See Brown, James G., assignor.)						
Reagan, James, Philadelphia, Pa. Indestructible block for boiler-furnaces	605,797	June 14	1961	312	88	1631
Reardon, James A., assignor of two-thirds to J. H. Butterell and P. Hensel, St. Louis, Mo. Steam-engine	604,418	May 24	2190	490 491	88	1065
Reasons, Ross T., Hopkinsville, Ky. Transplanter	601,984	Apr. 5	604	147	88	131
Record, George J., Conneaut, Ohio. Pail and packare	604,078	May 17	1566	350	88	954
Record, George J., Conneaut, Ohio. Device for closing cans or other receptacles	604,079	May 17	1567	351	88	954
Red Cross Cement and Rubber Company. (See Rein, Bernard, assignor.)						
Red Cross Hygienic Company. (See Evetts, James, assignor.)						
Redding, William H. (See Wyman and Redding.)						
Redding, William H., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Loom for cross-weaving	608,237	May 3	73	19	88	615

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Redfield, Charles T., Glen Haven, N. Y. Antirattling nut-locking device for thill-couplings	606,085	June 21	1950	449	88	1758
Redgrave, Montague, Jersey City, N. J. Bagatelle-board	603,788	May 10	891	196	88	790
Redington, Frank B. (See Cottle and Danly, assignors.)						
Reed & Barton Corporation. (See Brabrook, George H., assignor.)						
Reed & Barton Corporation. (See McAusland, William, assignor.)						
Reed, Charles M. (See Kittson and Browne, assignors.)						
Reed, Harry M. (See Hillman and Reed.)						
Reed, Roger E., assignor of two-thirds to E. E. Weed, D. M. and C. Gerber, Douglas, Mich. Basket-making machine	601,778	Apr. 5	397	50, 60	88	56
Reeds, Lucian B., Fulton, Ky. Clothes pin or clamp	605,207	June 7	879	64	88	1408
Reepmaker, Jacob, Rotterdam, Netherlands. Bicycle-tire	602,565	Apr. 19	1677	361	88	848
Reepmaker, Jacob, Rotterdam, Netherlands. Toy or puzzle	604,416	May 24	2198	491	88	1095
Reepmaker, Jacob, Rotterdam, Netherlands.	603,730	May 10	893	198 199	88	790
Rees, Harrison, Farmington, Iowa. Corn-planter	603,590	May 3	629		88	724
Rees, Joseph R. (See Williams and Rees.)						
Reese, George W., Kittanning, Pa. Copper-smelting	605,451	June 7	730	167 166	88	1495
Reese, William S., and E. E. Armstrong, Natrona, assignors to Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. Continuous smelting plant	605,464	June 7	754	172 173	88	1498
Reese, William S., and E. E. Armstrong, Natrona, assignors to Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. Continuous smelting plant	603,844	May 3	175	40	88	695
Reeve, Richard H., *et al.* (See Royal, Belford G., assignor.)						
Reeves, James R. G., McComb City, Miss. Trough for well-curbs	603,067	Apr. 26	2556	560 561	88	529
Reeves, Milton O., assignor to Reeves Pulley Company, Columbus, Ind. Speed-varying mechanism						
Reeves Pulley Company. (See Reeves, Milton O., assignor.)						
Reflector Syndicate. (See Cowper-Coles, Sherard O., assignor.)						
Reich, Henry O., and C. I. Van Dyke, Lattimer Mines, Pa. Hand-stamp	602,957	Apr. 26	2379	542	88	497
Reichel, Emil B. W., Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Switching device and circuit arrangement for electrically-propelled vehicles	605,013	May 31	2333	744	88	1312
Reichel, Emil B. W., and F. W. V. Stein, Berlin, Germany, assignors to Siemens & Halske Electric Company of America, Chicago, Ill. Mounting for electric motors	605,679	June 14	1149	265	88	1590
Reid, Douglas, New Richmond, Wis. Folding egg-crate	602,473	Apr. 19	1530	348	88	821
Reid, Randolph H., assignor of one-half to J. McCormick, Philadelphia, Pa. Mud-guard	606,359	June 28	2474	575	88	1679
Reid, Robert, assignor of one-fourth to S. M. Hallstrom, Beverly, and J. F. Hendrickson, Boston, Mass. Machine for cutting out and channeling soles	603,966	May 10	1304	295 300	88	870
Reid, Robert T., and J. L. McDonnell, assignors of one-half to F. C. Cardin and J. T. Bibb, Tacoma, Wash. Telephone system	605,341	June 7	546	122	88	1457
Reidenbaugh, John, assignor of one-half to E. C. Dresher and J. T. Monnett, Marion, Ohio. Hydrocarbon-burner	603,740	May 10	894	199	88	791
Reifsnyder, Andrew, Marcus Hook, Pa. Plow	606,243	June 28	2351	530	88	1635
Rein, Bernard, assignor of one-half to Red Cross Cement and Rubber Company, Rochester, N. Y. Brazing apparatus	604,080	May 17	1568	351	88	954
Rein, Bernard, assignor of one-half to Red Cross Cement and Rubber Company, Rochester, N. Y. Vulcanizer	604,788	May 31	2266	655	88	1240
Reinhard, John N., St. Louis, Mo. Adjustable shade-support	603,104	Apr. 12	691	198	88	180
Reinhardt, Henry L., Wheeling, W. Va. Glass-mold	605,138	June 7	119	29 30	88	1373
Reissmann, Frederick, West Point, N. Y. Frame clamp and support	604,160	May 17	1709	365	88	962
Reliance Dry Kiln Company of Baltimore City. (See Emerson, Victor L., assignor.)						
Renrew, Charles L., East Windsor, Conn. Electric railway-signal	605,798	June 14	1368	312 313	88	1631
Rensselaer Manufacturing Company. (See Rowe, Ellis L., assignor.)						
Renwick, Thomas, Miami, Canada. Game apparatus	602,187	Apr. 12	1050	229	88	211
Rens, Carl J., New York, N. Y. Fountain attachment for penholders	606,360	June 28	2475	575	88	1679
Replogle, Mark A., Akron, Ohio. Mechanical speed-governor	603,345	May 3	176	41	88	696
Replogle, Mark A., Akron, Ohio. Electrical governor	604,544	May 24	2426	553	88	1167
Replogle, Mark A., Akron, Ohio. Speed-governor	605,014	May 31	2355	744	88	1312
Reuleaux, Josef. (See Laughlin and Reuleaux.) (Reissue.)						
Reuter, Oscar. (See Groom, John, assignor.)	605,514	June 14	881	198	88	1533
Reuterberg, John, Two Harbors, Minn. Combination-lock	603,689	Apr. 19	1911	435	88	993
Reymond, James, and A. Poincenot, St. Imier, Switzerland. Screw-cutting machine	604,502	May 24	2302	536	88	1125
Reynolds, Edward W. (See Fisher and Reynolds.)						
Reynolds, Edwin, Milwaukee, Wis. Stamp-mill	603,289	Apr. 5	2651	650	88	586
Reynolds, Frank S. (See Cowles and Reynolds.)						
Reynolds, Harry A. (See Kellogg, Thomas E., assignor.)						
Reynolds, Horace J., Corning, Iowa. Cooling vessel	604,696	May 24	2302	542	88	1166
Reynolds, James F., Lynn, assignor to L. C. Chase & Co., Boston, Mass. Device for repairing rubber tires	604,840	May 31	2048	674	88	1256
Reynolds, John R., Hartford, Conn. Governing mechanism for throttle-valve closers	604,789	May 31	2306	655	88	1240
Reynolds, Oliver B., Brockton, Mass. Dumping-wagon	604,790	May 31	2271	656	88	1241
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Coupling	606,427	June 28	2307	501	88	1306
Rhine, Minnie, Philadelphia, Pa. Safety-pin	602,771	Apr. 19	2036	461	88	416
Rhoades, Alonzo E., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warper-comb	604,480	May 24	2319	526 527	88	1118
Rhodes, Jay B., assignor to F. C. Austin, Chicago, Ill. Impact-tool	603,775	May 10	939	214	88	803
Rice, Frank. (See Sears and Rice.)						
Rice, James T., Cleveland, Ohio. Extension gas-chandelier	604,636	May 24	2306	502 503	88	1160
Rice, John H., assignor to Leighton Machine Company, Manchester, N. H. Knitting machine	604,841	May 31	2050	674 675	88	1256
Rice, John V., Jr., assignor to John V. Rice, Jr., Company, Edgewater Park, N. J. Naphtha-retort	604,266	May 17	1910	497	88	1021
Rice, Joseph S., and F. W. Beittenmiller, Philadelphia, Pa. Overhead switch	604,980	May 31	2008	710	88	1284
Rich, Elmer M., Silverton, Colo. Ore-concentrator	606,580	June 28	2372	661	88	1959
Rich, Fred S. (See Parsons, George W., assignor.)						
Rich, John E., East Chain, Minn. Scraper for roadwork or ditching	605,250	June 7	360	88	88	1496
Rich, Louis F. C., Cheltenham, England, assignor to himself, and J. H. Hull, New York, N. Y. Tool for boring conical holes						
Richards, Angie. (See Richards, William S., assignor.)	602,861	Apr. 12	1328	296 297	88	208
Richards, Benjamin F., Chicago, Ill. Window	603,105	Apr. 12	693	194	88	180
Richards, Francis H., Hartford, Conn. Actuating mechanism for sewing-machine loopers.						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Richards, Francis H., Hartford, Conn. Weighing-machine	606,343	June 28	2362	521 522	88	1665
Richards, Frank, New York, N. Y. Valve for air-compressors	602,473	Apr. 19	1531	348	88	821
Richards, Frank, New York, N. Y. Air-compressor	606,498	June 28	2008	601	88	1906
Richards, Hubert P., New Britain, Conn. Tension device	602,532	Apr. 19	1608	368	88	836
Richards, John W., Muscatine, Iowa. Awning	602,772	Apr. 19	2037	461	88	416
Richards, Joseph B., Thomson, Ga., assignor of one-half to L. E. Steinmann, New York, N. Y. Tag-fastener	603,365	May 3	905	47	88	641
Richards, Joseph W., and C. W. Roepper, Bethlehem, Pa. Producing chemical compounds by electrolysis	602,872	Apr. 26	2218	.....	88	467
Richards, Joseph W., and C. W. Roepper, Bethlehem, Pa. Electrolytically manufacturing metallic sulfids	602,873	Apr. 26	2220	.....	88	467
Richards, Morgan. (See Williams, Thomas, and Richards.)						
Richards, Willard F. (See Wilhelm and Richards.)						
Richards, Willard F., assignor to C. M. Gould, Buffalo, N. Y. Electric-lighting system for railway-cars	604,081	May 17	1570	351	88	955
Richards, Willard F., assignor to C. M. Gould, Buffalo, N. Y. Electric-lighting system for railway-cars	604,082	May 17	1572	351	88	955
Richards, Willard F., assignor to C. M. Gould, Buffalo, N. Y. Electric-lighting apparatus for railway-cars	604,083	May 17	1574	352	88	955
Richards, Willard F., assignor to C. M. Gould, Buffalo, N. Y. Electric-lighting apparatus for railway-cars	604,084	May 17	1576	352 353	88	956
Richards, Willard F., assignor to C. M. Gould, Buffalo, N. Y. Electric-lighting apparatus for railway-cars	604,085	May 17	1578	353	88	956
Richards, William E., New York, N. Y. Handle	604,880	May 31	2032	696	88	1272
Richards, William S., assignor to A. Richards, Albany, Oreg. Routing-machine	605,155	June 21	2066	475	88	1780
Richards, Windsor E., Wilkinsburg, Pa. Air-indicator for bicycle-tires	602,242	Apr. 12	1132	249	88	227
Richardson, Henry B., Keytesville, Mo. Lock	605,342	June 7	552	123	88	1458
Richardson, John W., London, England. Saddle for velocipedes	602,523	Apr. 19	1610	368	88	836
Richardson, Julius C., assignor of two-thirds to E. Wende and L. H. Van Allen, Buffalo, N. Y. Nail-making machine	602,566	Apr. 19	1678	381 382	88	848
Richardson, Orrin, Clipper Gap, Cal. Step-ladder	603,579	May 3	607	135	88	719
Richardson, Samuel T., assignor of one-third to A. E. Holland, Baltimore, Md. Mechanical movement	604,417	May 24	2198	491	88	1095
Richardson, William S., Boston, Mass. Fastener for gloves, &c	605,883	June 14	1432	329	88	1644
Richardson, William S., Boston, Mass., assignor to Ball and Socket Fastener Company, Boston, Mass., and Nashua, N. H. Fastener	G34,637	May 24	2593	592	88	1160
Richmond Locomotive and Machine Works. (See Davis, Ezekiel F. C., assignor.)						
Richter, Adolf, Rudolstadt, Germany. Mechanical musical instrument	605,134	June 7	120	30, 31	88	1374
Richter, Frederick W., Chicago, Ill. Scrubbing appliance	601,678	Apr. 5	97	19	88	21
Richter, Otto F., Holyoke, Mass. Branch-pipe-holding device for plumbers' use	605,613	June 14	1014	234	88	1566
Richter, Reinhold, Reichenberg, Austria-Hungary. Apparatus for cutting double-pile fabrics	604,701	May 24	2714	620 621	88	1192
Rickard, Clyde A., and E. N. Long, Seville, Ohio. Treating tobacco-leaves	604,338	May 17	2053	.....	88	1048
Rickard, James R. (See Woolf, Brown, and Rickard.)						
Rickards, William T. (See Carley and Rickards.)						
Ricketts, Adellie, Monte Vista, Colo. Dish-cleaner	603,158	Apr. 26	2709	616	88	560
Riddle, Edward C., Browning, Mo. Mechanical movement	605,015	May 31	2328	745	88	1312
Riddle, Morton, Jr. (See Owen, Elerson P., assignor.)						
Riehl, Peter, Jr., Pittsburg, Pa. Hose-coupling	603,366	May 3	906	47	88	641
Rigdon, Berryan C., and S. Dobson, near Lake Butler, Fla. Stump-puller	605,891	June 28	2551	587	88	1890
Rigg, James, London, England. Oscillating tippler	603,048	Apr. 26	2519	572 573	88	529
Riggleman, Howard H., New London, Conn. Drawers-supporter	602,958	Apr. 26	2380	542 543	88	497
Riggs, Adolphus, Kennett, Mo. Saw-gumming machine	605,515	June 14	832	193 194	88	1533
Righter, Thomas M., trustee. (See Edgar, Butler, assignor.)						
Righter, Thomas M., and G. Jeffryes, Mount Carmel, Pa. Pipe-wrench	602,229	Apr. 12	1115	245	88	224
Riker, Andrew L., New York, N. Y. Electric motor or dynamo	604,842	May 31	2059	675 676	88	1256
Riker, Andrew L., New York, N. Y. Former for winding armature-coils	604,843	May 31	2053	676	88	1257
Riley, John W., Ogden, Utah. Safety-envelop	603,969	May 10	1308	300	88	870
Riley, Michael, London, Ohio. Railway-tie	605,333	June 7	327	75	88	1413
Riley, Michael, London, Ohio. Frogless switch	606,095	June 21	1958	449	88	1739
Rinehart, George B. (See Beeman, William S., assignor.)						
Ring, Byron, San Francisco, and B. W. Stickney, Oakland, Cal. Renewing matrices	604,123	May 17	1646	369	88	969
Ringström, August V., Orebro, assignor to N. E. Frykholm, Stockholm, Sweden. Grinding, abrading, or cutting material and preparing same	604,569	May 24	2466	566	88	1146
Rink, William E., Newark, N. J. Tuck-creaser	601,857	Apr. 5	466	94	88	67
Rinke, Bert, Detroit, Mich. Beer-pipe cleaner	604,791	May 31	2272	656	88	1241
Ripley, Prentiss T., Cambridge, Mass. Coupling for bicycles	605,790	June 14	1306	313	88	1638
Rising, Bradley D., *et al.* (See Wheat, Allen A., assignor.)						
Rising, Bradley D., Springfield, assignor of two-thirds to C. McKernon and A. A. Wheat, West Springfield, Mass. Rotary bleaching-boiler	604,086	May 17	1580	353	88	956
Ritchie, Harvey W. (See Ritchie, John and H. W.)						
Ritchie, John and H. W., Cook county, Ill. Hydraulic steering mechanism for vessels	601,679	Apr. 5	100	20	88	21
Ritchie, Lizzie. Patchogue, N. Y. Washboard	603,410	May 3	998	64	88	655
Rittenhouse, Charles T. (See Bellman and Rittenhouse.)						
Ritter, Frank, Rochester, N. Y. Dental chair	605,974	June 21	1738	397 398	88	1718
Ritter, Hiram K., Reading, Pa. Clamp for rails	604,792	May 31	2272	656	88	1241
Ritter, John L., Shenandoah, and L. H. Hazlewood, Richmond, assignors to said Ritter and J. G. Whitlock, Shenandoah, Va. Heating-stove	602,474	Apr. 19	1533	348 349	88	821
Ritter, Solomon H., Pottsgrove, Pa. Plow attachment	606,244	June 28	2363	522	88	1638
Riverside Iron Works. (See Boyd, Peter, assignor.)						
Riviere, Walter P., Taylor, Tex. Stovepipe	606,581	June 28	2372	662	88	1959
Rix, Edward A., San Francisco, Cal. Air-valve	602,170	Apr. 12	1016	228	88	204
Rix, Edward A., San Francisco, Cal. Pneumatic pumping-engine	605,167	June 7	231	56	88	1304
Roach, Henry B., Paris, assignor of one-half to G. F. and F. O. Hicks and J. Hale, Lamar county, Tex. Washing-machine	602,567	Apr. 19	1668	383	88	849
Roach, Thomas N., Fort Wayne, Ind. Plumb-level	602,874	Apr. 26	2221	508	88	467
Robbins, Charles F., Aldrich, Ala. Hook and eye	601,816	Apr. 5	368	77	88	69
Robbins, Edward S., Parker, S. D. Display-rack	605,016	May 31	2340	745	88	1313
Robbins, George B. (See Norling and Johnson, assignors.)						
Roberts, Albert E., Norwalk, assignor of one-half to J. H. Clauss, Fremont, Ohio. Fence-making machine	604,905	May 31	2066	705	88	1276

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Roberts, Albert E., Norwalk, assignor of one-half to J. H. Clauss, Cleveland, Ohio. Fence-making machine	604,906	May 31	3068	705	88	1279
Roberts, Charles E., Oak Park, Ill. Tool for dressing emery-wheels	602,106	Apr. 12	805	194	88	181
Roberts, George I., New Rochelle, N. Y. Steam-separator	604,844	May 31	2955	677	88	1257
Roberts, George P., Fremont, Ohio. Chalk-holder	601,779	Apr. 5	306	60	88	58
Roberts, John R., Homer City, Pa. Incubator	603,859	May 10	1127	253 / 254	88	835
Roberts, Woodbury D., Portland, Oreg. Lock. (See Bowne, John D., assignor.)	602,144	Apr. 12	966	211	88	194
Robertson, James L. (See McBurney and Robertson.)						
Robertson, William M. (See McBurney and Robertson.)						
Robertson, William T., Washington, D. C., assignor to J. T. Underwood, Brooklyn, N. Y. Type-writer	605,516	June 14	883	194	88	1533
Robinson, Cornelia S., New York, N. Y. Garbage-closet	606,067	June 21	1954	449	88	1759
Robinson, Edward H. (See Robinson, Robert and E. H.)	605,975	June 21	1783	399	88	1719
Robinson, Frank E., New York, N. Y. Binder for leaves						
Robinson, George H. (See Hesse, Gustaf E., assignor.)						
Robinson, John G., Warsaw, Ky. Automatic wagon-brake	605,135	June 7	122	31	88	1374
Robinson, Robert and E. H., Chicago, Ill. Hot-air furnace	605,517	June 14	834	194	88	1533
Robinson, Robert J., and W. A. Nelden, Salt Lake City, Utah. Wave-motor	606,632	June 28	2908	687	88	1975
Robinson, Walter H., New York, N. Y., and E. J. Lawless, Orange, N. J. Wrench	605,746	June 14	1245	288	88	1600
Robischung, Henry B., Kalamazoo, Mich., assignor to Chicago Railway Equipment Company, Chicago, Ill. Brake-beam	605,800	June 14	1367	313	88	1632
Roby, Giles C. (See Roby, Leroy H. and G. C.)	602,773	Apr. 19	2099	462	88	417
Roby, Leroy H. and G. C., Fostoria, Ohio. Convertible piano stool and chair	602,584	Apr. 19	1613	360	88	336
Rockey, Glendon M., and C. H. Strain, Dayton, Ohio. Combination-tool						
Rockwell, Stephen L. (See Brackett, Cephas W., assignor.)	604,217	May 17	1816	408	88	1002
Rockwood, George I., Worcester, Mass. Hot-blast radiator						
Rodgers, Ashmead G. (See Humphrey, Walter B., assignor.)	604,845	May 31	2958	677	88	1257
Rodler, Edmond, New York, N. Y. Non-refillable bottle	605,914	June 21	1612	371	88	1697
Roemheld, Jules E., Chicago, Ill. Pinion-bracket for turn-tables						
Roepper, Charles W. (See Richards and Roepper.)						
Roesch, Alfred, Bridgeport, Conn., assignor to Davis & Roesch Temperature Controlling Company, of New Jersey. Temperature-regulator	602,107	Apr. 12	806	194	88	181
Roesch, Alfred, Bridgeport, Conn., assignor to Davis & Roesch Temperature Controlling Company, of New Jersey. Diaphragm-chamber	602,108	Apr. 12	808	195	88	182
Rogers, Elizabeth. (See Burnham, George H., assignor.)						
Rogers, Frank F. (See Eyster, Elmer E., assignor.)						
Rogers, George B., *et al.* (See Elliott, Thomas, assignor.)	603,970	May 10	1309	300	88	871
Rogers, James P., Kyle, Tex. Automatic bench clamp and dog	602,959	Apr. 26	2261	543	88	498
Rogers, John, Kansas City, Kans. Lubricating journal-box						
Rogers, Thomas J. (See McNeil and Rogers.)						
Rogers, William, Leechburg, assignor of one-half to J. A. Beaver, Bellefonte, Pa. Process of and apparatus for manufacturing tin-plate	604,195	May 17	1779	401	88	996
Röhl, Hermann, and H. Usedom, Neubrandenberg, Germany. Apparatus for removing butter, &c	604,194	May 17	1647	369	88	969
Rohlin, John, assignor of one-half to A. E. Shaw, Eureka, Kans. Nut-lock	606,562	June 28	2874	662	88	1950
Rohn, George T., Hersman, Ill. Car-coupling	606,563	June 28	2875	662	88	1950
Rohrer, William W. (See Walters and Rohrer.)						
Roland, W. R. (See Dove, Thoms F., assignor.)						
Rolator, Joseph B. (See Barber and Ashby, assignors.)	605,586	June 14	961	223	88	1557
Rollins, George H., Pittsville, Wis. Stump-extractor	605,915	June 21	1613	371	88	1697
Rollins, Robert W., Hartford, Conn. Electric clock-controlled switch mechanism	603,015	Apr. 26	2470	561	88	513
Rolph, Henry E., assignor of one-half to J. D. Burt, St. Paul, Minn. Brake for vehicles						
Rom, Hermann von. (See Henkel and Rom.)						
Romaine, De Witt, *et al.* (See Johansson, Gustaf, assignor.)						
Romans, John G. W., Weymouth, and A. D. Grover, Malden, Mass. Fraud-preventing device for coin-controlled machines	603,741	May 10	896	199	88	791
Rome Metallic Bedstead Company. (See Merritt and Groff, assignors.)	601,680	Apr. 5	101	20	88	22
Romuender, William, Milwaukee, Wis. Detachable sash	605,188	June 7	253	56	88	1395
Rondell, Carl, Minneapolis, Minn. Bundle-carrier for bicycles						
Roney, Alexander B., assignor to himself and J. Roney, Chicago, Ill. Drum-wind elevator	603,599	May 3	645	144	88	737
Roney, James. (See Roney, Alexander B., assignor.)	603,541	May 3	554	122	88	708
Rood, Charles F., Ford, Ky. Sawing-machine	605,135	June 7	194	31, 33	88	1375
Rooney, Patrick B., New York, N. Y. Bed						
Roop, Amos. (See Brandon and Roop.)						
Roop, Perry, *et al.* (See Doyle, George M., assignor.)	602,407	Apr. 12	1414	319	88	265
Roos, Edward, assignor to Beatty Felting Co., Mishawaka, Ind. Wool boot	602,109	Apr. 12	900	.....	88	188
Roos, Israel, Frankfort-on-the-Main, Germany. Making salts of paramidophenol						
Root, Charles T., *et al.* (See Mitchell, Frank H., assignor.)						
Roper, Charles F., Hopedale, Mass., assignor to Draper Company, Portland, Me. Apparatus for making crank-shafts	604,207	May 17	1911	428	88	1021
Rosander, Robert A. W., and J. R. Pearson, assignors of thirteen-twentieths to F. C. Gaffney, Brooklyn, N. Y. Cash-register	601,681	Apr. 5	102	20	88	22
Rosbrook, Charles J., and S. Burnham, Dixon, Ill. Curtain for vehicles	602,519	May 3	508	110	88	698
Roscher, Gustav, *et al.* (See Kleber, Emil, assignor.)						
Rose, Downs & Thompson. (See Hopwood, John H., assignor.)						
Rose, Georges. (See Rose, Henri and G.)	605,432	June 7	740	168	88	1495
Rose, Henri and G., Poissy, France. Granulating-disk						
Rosegrant, Harry J. (See Moore and Rosegrant.)						
Rosenbaum, Morris. (See Kelso and Rosenbaum.)	604,218	May 17	1817	408	88	1003
Rosenberg, Albert, Baltimore, Md. Spittoon	606,561	June 28	2477	575	88	1660
Rosenberg, Albert, Baltimore, Md. Water-motor						
Rosenberg, Meyer, Brooklyn, N. Y. Device for preventing fraudulent refilling of bottles	604,545	May 24	2429	554	88	1138
Rosenblatt, Nicholas, and S. Abscharumoff, St. Petersburg, Russia. Elastic wheel for carriages	602,154	Apr. 26	2710	616	88	560
Rosenbluth, Edwin M., Philadelphia, Pa. Lantern	606,026	June 21	1894	433	88	1736
Rosensteel, William W., Mineral Ridge, Ohio. Car-wheel	603,600	May 3	646	144	88	727
Rosler, Isidor, assignor to Lehmann & Mann, Berlin, Germany. Accumulator-plate	604,418	May 24	2104	493	88	1096
Ross, Archis L., assignor of one-half to D. Hyams, New York, N. Y. Bag-closure	605,343	June 7	554	122	88	1456
Ross, Finlay W., Birtle, Canada. Automatic switch	606,302	June 28	2538	567	88	1800
Ross, George P. (See May, Joseph B., assignor.)	602,875	Apr. 26	2233	508	88	497
Ross, James K., Springfield, Ohio. Cartridge-shell	606,490	June 28	2708	623	88	1925
Ross, Jesse W., New Orleans, La. Plow	606,501	June 28	2757	545	88	1857
Ross, Simon Cincinnati, Ohio. Shoe-upper turning and beading machine						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rote, Charles V., assignor of one-half to R. Blickenderfer, Lancaster, Pa. Track-sander	605,558	June 14	900	210 / 211	88	1547
Roth, Edward B., St. Louis, Mo. Means for making wedges for splitting stone, &c	603,513	May 3	505	110	88	696
Roth, Reuben D., Mummasburg, Pa. Cow-milker	603,049	Apr. 26	2521	573	88	688
Rousseau, Elbert V. D., Bound Brook, N. J. Envelop	604,419	May 24	2195	498	88	1096
Roussy de Salex, Georges de, Lyons, France. Carbid-cartridge	603,971	May 10	1311	301	88	871
Roussy de Salex, Georges de, Lyons, France. Apparatus for generating acetylene gas	604,697	May 24	2645	606	88	1179
Rouston, William H., assignor of one-half to S. Nash, Detroit, Mich. Switch-actuating mechanism for railways	601,858	Apr. 5	467	95	88	87
Rowbotham, Walter, Birmingham, England. Galvanic battery	602,362	Apr. 12	1335	297 / 298	88	209
Rowe, Ellis L., assignor to Rensselaer Manufacturing Company, Troy, N. Y. Valve-indicator	606,564	June 28	2877	663	88	1959
Rowe, G. A. (See Smith, Chris N., assignor.)	604,490	May 24	2196	498 / 499	88	1096
Rowe, James E., assignor to E. Jenckes Manufacturing Company, Pawtucket, R. I. Knitting-machine	604,570	May 24	2487	566 / 567	88	1148
Rowe, James E., assignor to E. Jenckes Manufacturing Company, Pawtucket, R. I. Knitting-machine	605,089	June 21	1836	422 / 424	88	1736
Rowe, James E., assignor to E. Jenckes Manufacturing Company, Pawtucket, R. I. Thread-changer for knitting-machines	604,320	May 17	2054	460	88	1048
Rowe, Myron, assignor of one-half to N. J. Walrath, Clarksville, Iowa. Riding-harrow	601,780	Apr. 5	307	60	88	58
Rowe, Thomas, Woonsocket, R. I. Apparatus for detecting wrinkles in cloth	606,050	June 21	1840	424	88	1737
Rowell, Samuel C., Boston, Mass. Puzzle	604,798	May 31	2874	656 / 657	88	1242
Rowland, William, Independence, Kans. Corn-cutter	602,368	Apr. 12	1336	.....	88	209
Rowlands, William E., Seacombe, England. Making fertilizers	603,206	Apr. 26	2760	636	88	575
Rowley, John T., Beaver Falls, Pa. Producing hollow ingots	605,899	June 14	1419	324	88	1642
Rowling, Arthur L., Waukegan, Ill. Milk-strainer						
Royal, Belford G., assignor of seven-ninths to R. H. Reeve, Camden, A. C. and E. S. Wood, Cinnaminson, N. J., and E. R. Johnson, Philadelphia, Pa. Grain cleaning and scalping machine	604,702	May 24	2717	621	88	1198
Royer, William E., Painter Creek, Ohio. Fence-stay	601,682	Apr. 5	106	21	88	23
Royston, Ernest R., Liverpool, England. Velocipede	606,302	June 28	2358	545 / 546	88	1858
Ruby, Charles W., Brooklyn, N. Y. Hose rack or support	603,207	Apr. 26	2790	637	88	575
Rudasill, Eli A., Shelby, N. C. Water-motor	601,905	Apr. 5	547	118	88	104
Rudolph, Charles, and G. Levavasseur, Paris, France. Flexible metallic pipe	605,887	June 14	902	223	88	1558
Rudolph, Christian, assignor to Firm of K. Oehler, Offenbach-on-the-Main, Germany. Blue azo dye	601,859	Apr. 5	471	.....	88	98
Ruff, Joseph, Chicago, Ill. Car-brake	606,535	June 28	2879	663	88	1960
Ruggles, William B., Bayoune, N. J. Drying apparatus	603,208	Apr. 26	2791	637	88	575
Ruhland, John F., Wellston, Mo. Railway-switch	603,707	May 10	843	187	88	781
Rumpel, Julius, Weston, Mo. Automatic alarm-cell	603,980	Apr. 26	2283	543	88	498
Rumpf, Heinrich C., Dahlhausen, Germany. Apparatus for manufacturing railway-spikes	604,891	May 24	2519	573	88	1154
Rumph, Eugene M., Marshallville, Ga. Planter	602,364	Apr. 12	1336	296	88	209
Rumsey, Emmett D. (See Adriance, Cornelius B., assignor.)						
Runkel, Friedrich. (See Kahn and Runkel.)						
Rusch, Henry A., deceased, Newark, N. J. (S. E. Rusch, administratrix,) assignor of one-half to N. Schroder, Brooklyn, N. Y. Bicycle-saddle	606,031	June 21	1841	434	88	1737
Rusch, Sarah E., administratrix. (See Rusch, Henry A.)	606,945	June 28	2264	522	88	1836
Ruscher, Alfred, Bruck-Ujfalu, Austria-Hungary. Car-coupling	602,110	Apr. 12	901	195	88	188
Rushworth, William M., and T. Higginbottom, Lowell, Mass. Spindle-bearing	601,966	Apr. 5	694	148	88	131
Russ, Hiram P., assignor of one-half to F. C. Taber, Addison, N. Y. Rocker attachment	603,433	May 3	330	74	88	663
Russell, Benjamin F., Fandon, Nebr. Draft-equaliser						
Russell & Co. (See Heggem, Charles O., assignor.)						
Russell & Erwin Manufacturing Company. (See Leppert, Henry, assignor.)						
Russell & Erwin Manufacturing Company. (See Russell, Henry E., assignor.)						
Russell & Erwin Manufacturing Company. (See Urban, Anton, assignor.)						
Russell & Erwin Manufacturing Company. (See Voight, Henry G., assignor.)						
Russell, George E. (See Russell, William H. and G. E.)						
Russell, Henry E., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Latch	606,946	June 28	2266	523	88	1899
Russell, John H., assignor of one-half to J. H. Giles, Amsterdam, N. Y. Paper-box-making machine	604,546	May 24	2441	554 / 555	88	1198
Russell, Theo. (See Lowe, Milton H., assignor.)						
Russell, William H. and G. E., Hasbrouck Heights, N. J. Apparatus for manufacturing carbureted hydrogen	603,408	Apr. 19	1415	320	88	295
Russell, William M., New York, N. Y. Locomotive	604,421	May 24	2285	507	88	1118
Russell, William M., assignor to M. C. Baker, Chicago, Ill. Binder for loose sheets	605,916	June 21	1617	372	88	1686
Russey, Charles H. (See Hefel, Toney C., assignor.)	603,411	May 3	289	64	88	655
Rutschman, Francis S., Philadelphia, Pa. Machine for plotting soap						
Ruwell, William F., *et al.* (See Bouton, Samuel, assignor.)	603,988	May 3	75	19	88	616
Ryan, Andrew, Grand Rapids, Minn. Snap-hook	605,917	June 21	1618	372	88	1686
Ryan, Austin, Preston, Canada. Tire	605,680	June 14	1143	265	88	1560
Ryan, James B., New York, N. Y. Bed-bottom						
Ryan, Michael C., Oswego, N. Y., assignor to Oswego Crate Company, of New York. Crate-corner	603,409	Apr. 19	1417	320	88	295
Ryan, Thomas W., Concord, Mass. Automatic shut-off ball-cock	603,080	Apr. 26	2405	565	88	518
Ryan, Thomas W., Concord, assignor of one-half to J. H. Walsh, Boston, Mass. Self-sealing bottle	603,705	May 10	997	228	88	811
Rybold, Louis, New York, N. Y. Broom-holder	602,943	Apr. 19	1128	249	88	336
Ryder, Benjamin P., New York, N. Y. Bicycle-frame	603,269	May 3	76	20	88	616
Ryer, John C. (See Schmidt, Julius H., assignor.)						
Ryley, Alfred G., Memphis, Tenn. Heating-stove	603,748	May 10	899	200	88	791
Ryon, Eppa H., assignor of one-half to A. M. Goodale, Waltham, Mass. Spindle-support	602,171	Apr. 12	1018	228	88	205
S. S. White Dental Manufacturing Company. (See Browne and Kennedy, assignors.)						
S. S. White Dental Manufacturing Company. (See Evans, Warren R., assignor.)						
S. S. White Dental Manufacturing Company. (See Hollingsworth, Merrill W., assignor.)						
S. S. White Dental Manufacturing Company. (See How, Woodbury S., assignor.)						
S. S. White Dental Manufacturing Company. (See Vogt, Henry G., assignor.)						
Sabin, Chauncey R., assignor of two-thirds to W. B. and E. S. Knight, St. Louis, Mo. Combined burglar-alarm and lock	605,344	June 7	556	126	88	1402
Sachs, Stanislaw, Berlin, and H. Jaffe, Parchim, Germany. Exercising apparatus	605,747	June 14	1046	239	88	1610
Sackett, Howard T., Fond du Lac, Wis. Bicycle-support	602,370	Apr. 12	1180	269	88	327
Safety Car Heating and Lighting Company. (See Dixon, Robert M., assignor.)	603,680	Apr. 19	1702	409	88	969
Sager, James H., Rochester, N. Y. Angle-gearing						

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Saladin, Jules A., Nancy, France. Malt-stirrer	603,566	June 28	2880	663, 664, 665, 666, 667, 668	88	1960
Saladin Pneumatic Malting Construction Company. (See Prinz, William H., assignor.)						
Saling, Thomas W., Marshall, Tex. Draft-beam for cars	604,421	May 24	2200	498	88	1097
Salisbury, Edgar E. (See Taylor, Salisbury, and Dean.)						
Salisbury, Edgar E., and A. E. Dean, assignors to themselves and F. B. Taylor, Tacoma, Wash. Call-box system	605,345	June 7	557	124	88	1459
Salom, Pedro G. (See Morris and Salom.)						
Sammis, George S., Bloomfield, N. J. Strap-fastener	605,800	June 7	467	105	88	1440
Sample, Charles, Valley Grove, W. Va. Vehicle-brake	604,606	May 24	2648	607	88	1189
Sample, James B., Columbus, Ga. Capstan	605,346	June 7	561	124	88	1459
Samuelson, Andrew, Chicago, Ill. Combination step-ladder and ironing-board	603,880	May 10	1046	223	88	821
Sanborn, Karen C., Brooklyn, N. Y. Ventilating attachment for windows	606,098	June 21	1955	449	88	1759
Sandberg, Charles, *et al.* (See Ecker, Herman, assignor.)						
Sanders, C. W., *et al.* (See Woodward, Walter J., assignor.)						
Sanderson, William H., assignor to National Computing Scale Company, Cleveland, Ohio. Platform-scale	601,861	Apr. 5	503	108	88	94
Sandford, Lawson, *et al.* (See Hachenberg, Louis, assignor.)						
Sandiford, John, Sr., Wyndmoor, Pa. Brake	605,801	June 14	1366	313	88	1632
Sandiford, William, assignor of one-half to P. M. Kimmey, Chicago, Ill. Lathe-dog	602,606	Apr. 19	1751	399	88	361
Sandow, Eugen, London, England. Electric muscular-exerciser	602,774	Apr. 19	2044	468	88	417
Sanford, Charles E. (See Deegan, Daniel J., assignor.)						
Sanford, Pardon B., Fall River, Mass. Yarn guide, tension, and clearer	605,918	June 21	1630	372	88	1699
Sanger, Ella M. (See Toepfer, William G., assignor.)						
Sargeant, John F., Bracknell, England. Handle-bar for cycles	603,542	May 3	556	123	88	708
Sargent & Company. (See Sargent, Henry B., assignor.)						
Sargent & Company. (See Shaw, John H., assignor.)						
Sargent, Frederick G., Graniteville, Mass. Ducker for wool-washing machines	605,653	June 14	1096	252	88	1561
Sargent, Henry B., assignor to Sargent & Company, New Haven, Conn. Bolt-case	602,371	Apr. 12	1182	250	88	236
Sargent, James F., Saugus, assignor to H. M. Sylvester, Melrose, Mass. Window-awning	604,097	May 17	1592	354	88	957
Sargent, Justin B., West Lebanon, N. H. Nut-lock	603,050	Apr. 26	2523	573	88	523
Sater, Hans H., assignor to Janesville Machine Company, Janesville, Wis. Sulky-plow	606,032	June 21	1843	424	88	1737
Saucier, John R., New Iberia, La. Ball-bearing	606,491	June 28	2705	623	88	1926
Sauer, Theodor B., Oberreifenberg, Germany. Pipe-hanger	603,994	May 10	1239	281	88	856
Sauerbrey, Christian, assignor of one-half to T. D. Gere, Owego, N. Y. Device for attaching fenders to cars	606,156	June 21	2068	475, 476	88	1781
Saunders, John C. (See Owens, John A., assignor.)						
Saunderson, George, *et al.* (See Taylor, Charles, assignor.)						
Savage, Arthur C. (See Cooper, John A., assignor.)						
Savage, George C., assignor to Bernson Manufacturing Company, New York, N. Y. Bicycle-chain adjustment	602,545	Apr. 19	1649	375	88	342
Saville, Jason. (See Waite and Saville.)						
Saw, Charles, Philadelphia, Pa. Apparatus for carbonating and bottling malt liquids	601,735	Apr. 5	219	43	88	42
Sawyer, Albert H. (See Gardiner, Joseph B., assignor.)						
Sawyer, Orren A., and M. M. Lahue, Lowell, Mass.; said Sawyer assignor to said Lahue. Protector stop mechanism for looms	603,800	May 10	1130	254	88	836
Sawyer Spindle Company. (See Stimpson, Wallace I., assignor.)						
Sawyer, Theodore, Towanda, Ill. Gate	605,748	June 14	1947	260	88	1610
Sayer, Robert C., Bristol, England. Car-coupling	603,995	May 10	1363	310	88	862
Saylor, Franklin G., Boston, Mass. Steam or hot-water grate and generator	604,066	May 17	1568	354, 355	88	967
Sayre, Thomas E., Janesville, Wis. Box-fastener	605,919	June 21	1629	372	88	1699
Scarborough, Josiah S., New Philadelphia, Ohio. Oiling device	606,308	June 28	2260	546	88	1658
Scarth, John W., Pudsey, and W. A. Thornton, Wetherby, England. Apparatus for generating acetylene gas	605,137	June 7	126	29	88	1375
Schaake, Henry, New Westminster, Canada. Can ending or heading machine	605,180	June 7	234	56, 57	88	1395
Schaedle, Mathias, *et al.* (See Wurthner, Jacob, assignor.)						
Schaerges, Carl F. M., and P. Schwarz, assignors to F. Hoffmann-La Roche & Co., Basle, Switzerland. Making alkaline acetosulfanilate	602,646	Apr. 19	1886	------	88	375
Schaerges, Carl F. M., and P. Schwarz, assignors to F. Hoffmann-La Roche & Co., Basle, Switzerland. Acetyl derivative of phenetidin	602,690	Apr. 19	1912	------	88	392
Schafer, Louis, St. Louis, Mo. Apparatus for recrimping crown-seals for bottles	602,916	Apr. 26	2202	525	88	481
Schaffer, Morse B., St. Louis, Mo. Car-truck	603,457	May 3	373	81, 85	88	672
Schager, Carl H., Stockholm, and J. M. J. Lundin, Wärtan, Sweden. Lock for railway-switches	606,362	June 28	2478	575, 576	88	1880
Schaill, Michael S., assignor of one-half to G. H. Melly and S. M. Brice, Lima, Ohio. Disconnecting-coupling for pull-rods	602,087	Apr. 5	778	168, 169	88	147
Schairer, John J., Clint, assignor of forty-nine one-hundredths to F. E. Hunter, El Paso county, Tex. Fruit-jar and can opener	606,587	June 28	2666	668	88	1961
Schaub, Jacob, Salt Lake City, Utah. Photographic-plate holder	603,972	May 10	1312	301	88	871
Schaum, Otto W., Philadelphia, Pa. Centrifugal machine	605,017	May 31	2242	745	88	1313
Scheinkman, Bernard, New York, N. Y. Self-retaining splint	602,917	Apr. 26	2203	525	88	482
Schellinger, Isaac M., Royersford, Pa. Demijohn	604,089	May 17	1586	355	88	968
Schenson, Ellis G. A., Arbra, assignor to Patentaktiebolaget Svea, Stockholm, Sweden. Feeder for scutching-machines	606,476	June 28	2679	617, 618	88	1920
Schepman, Frederick W. (See Northall and Schepman.)						
Scherer, Joseph, assignor to himself and J. Helder, Buffalo, N. Y. Hand clamping device for molding-flasks	605,347	June 7	562	124	88	1460
Scherff, Edmund, *et al.* (See Kleber, Emil, assignor.)						
Schermerhorn, James B., Malden, N. Y. Medicine-dropper	603,973	May 10	1313	301	88	871
Scheuber, August W., assignor to M. Zinn, New York, N. Y. Combined belt-buckle and purse or bag	603,974	May 10	1314	301	88	871
Schier, Oscar B., assignor to H. F. Miller & Son, Baltimore, Md. Apparatus for pasteurizing and sterilizing milk, &c.	605,990	June 21	1621	373	88	1699
Schild, Peter J., Ionia, Mich. Wire fence	601,986	Apr. 5	695	146	88	151
Schindehütte, Ernst J., McKee's Rocks, Pa. Rail-joint	606,089	June 21	1956	450	88	1760
Schindlers Brothers. (See Eisenberg, Christian, assignor.)						
Schirra, Julius, *et al.* (See Wurthner, Jacob, assignor.)						
Schlachter, Philipp, Streator, Ill. Fluid-pressure motor	606,304	June 28	2368	546, 547	88	1856
Schleicher, Frank J., assignor to St. Louis Paper Box Company, St. Louis, Mo. Can	602,775	Apr. 19	2045	462	88	418

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Schleidt, Adam, and W. Pehl, Wiesbaden, Germany; said Pehl assignor to said Schleidt. Cock	605,018	May 31	2343	745	88	1313
Schluder, Gustav, Deuben, Germany. Means for keeping glass clear in regenerative glass furnaces	602,111	Apr. 12	908	195	88	188
Schmahl, John A., assignor to S. M. Schmahl, Fairman, Ill. Railway-tie	602,336	Apr. 12	1362	309	88	276
Schmahl, Sarah M. (See Schmahl, John A., assignor.)						
Schmid, Charles, Brussels, Belgium. Making artificial musk	602,961	Apr. 26	2365	------	88	498
Schmid, Jakob, assignor to Society of Chemical Industry, Basle, Switzerland. Bismuth-oxyiodin tannate	604,571	May 24	2491	------	88	1149
Schmidt, Edward J. (See Ashley, Silas R., assignor.)						
Schmidt, Erich, and A. F. Schneider, New York, N. Y. Coin-operated lock for vehicle-wheels	605,749	June 14	1949	299	88	1611
Schmidt, Friedrich. (See Steinike and Schmidt.)						
Schmidt, Herman B. (See Joslin and Schmidt.)						
Schmidt, Herman C., New York, N. Y. Water-tower	602,344	Apr. 12	1133	249, 250	88	226
Schmidt, Jacob, Rio Vista, Cal. Compressed-air hammer	602,196	Apr. 12	1064	233	88	214
Schmidt, Julius H., assignor to J. C. Ryer, Bayonne, N. J. Cigarette-making machine	603,488	May 3	445	99, 100, 101, 102	88	667
Schmidt, Oscar, *et al.* (See Hochspeier, William F., assignor.)						
Schmidt, Robert E., Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, New York, N. Y. Dark-green alizarin derivative	603,659	May 10	768	------	88	705
Schmidt, Robert E., Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Anthraquinone dye	605,568	June 14	925	------	88	1551
Schmidt, Robert E., and P. Tust, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, of New York. Blue anthraquinone dye	605,921	June 21	1894	------	88	1699
Schmidt, Wilhelm, Ballenstedt, Germany. Apparatus for regulating superheated steam	604,547	May 24	2444	555	88	1139
Schmitt, Henry J., Hoboken, and R. Bonnell, Elizabeth, N. J. Valve	604,598	May 24	2520	573	88	1184
Schmitt, Martin, Caborn, Ind. Horseshoe-nail clencher and hoof-trimmer	603,975	May 10	1315	302	88	872
Schmitt, Thomas F., Fairview, Kans. Portable grain-elevator	603,776	Apr. 19	2046	463	88	418
Schmitz, Theodore H., Philadelphia, Pa. Window structure	604,866	May 31	3003	689, 690	88	1266
Schmitz, Theodore H., Philadelphia, Pa., assignor to Philadelphia Safety Window Company, Camden, N. J. Window structure	602,245	Apr. 12	1138	250	88	229
Schmunk, Charles E., Pittsburg, Pa. Apparatus for manufacturing articles of glassware	604,908	May 31	3076	706, 707	88	1280
Schmunk, Charles E., Pittsburg, assignor of one-half to W. S. McKee, Allegheny, Pa. Apparatus for manufacturing glassware	604,907	May 31	3070	705, 706, 547	88	1279
Schneckloth, Henry, Holstein, Iowa. Acetylene-gas generator	606,305	June 28	2363	548	88	1859
Schneible, Joseph, New York, N. Y. Collecting gas from fermenting liquors	604,125	May 17	1643	370	88	969
Schneider, Adolph F. (See Schmidt and Schneider.)						
Schneider, Carl, Brooklyn, N. Y. Attachment for sewing-machines	604,161	May 17	1712	386	88	982
Schneider, Friedrich W., assignor to Electricitäts-Gesellschaft Triberg, Gesellschaft mit Beschränkter Haftung, Triberg, Germany. Secondary battery	602,172	Apr. 12	1019	234	88	205
Schneider, Gustav J., Sheboygan, and K. F. G. Brenner, Kaukauna, Wis. Blackboard	604,423	May 24	2202	494	88	1097
Schneider, John B., assignor to H. G. Hagey, St. Louis, Mo. Sheet-metal stove-leg	604,630	May 24	2520	573	88	1184
Schneider, Joseph, assignor of one-half to W. Wolff, San Francisco, Cal. Game-counter	603,514	May 3	506	110	88	668
Schneider, Louis H., Brooklyn, N. Y. Rivet-setting machine	603,743	May 10	1010	200	88	791
Schneider, Richard, Dresden, Germany. Furnace for working zinc and lead	605,808	June 14	1309	314	88	1632
Schock, Gustav, New York, N. Y. Barrel-washer	605,198	June 7	128	32, 33	88	1376
Schock, Gustav, New York, N. Y. Barrel-washer	605,199	June 7	131	33, 34	88	1376
Schoeffel, George J. (See Colgate, Arthur E., assignor.)						
Schofield, James D., Dallas, Tex. Planter	602,173	Apr. 12	1020	224	88	205
Schofield, James D., assignor to Texas Implement and Machine Company, Dallas, Tex. Adjustable cultivator-tooth seat	605,140	June 7	124	34	88	1377
Schoen, Charles T., Philadelphia, Pa. Bolster for railway-cars	604,794	May 31	2875	657	88	1942
Schoettle, Ferdinand, deceased, Philadelphia, Pa.; M. A. and W. C. Schoettle, executors. Machine for making paper tubes	604,090	May 17	1567	356, 357	88	968
Schoettle, Mary A., *et al.*, executors. (See Schoettle, Ferdinand.)						
Schoettle, William C., *et al.*, executors. (See Schoettle, Ferdinand.)						
Scholes, Edmondson. (See Hancock and Scholes.)						
Scholey, William A., and F. C. Schrader, Philadelphia, Pa. Cap for bottles	606,588	June 28	2367	668	88	1961
Schottmuller, Joseph. (See Fritschle, Emil, assignor.)						
Schou, Christian W., Antvorskov, Denmark. Tiled roof	605,760	June 14	1851	389	88	1611
Schou, Gunerius, Christiania, Norway. Magazine bolt-gun	604,498	May 24	2208	494	88	1097
Schrader, Albert. (See Baxter and Schrader.)						
Schrader, Frank C. (See Scholey and Schrader.)						
Schrader, George H. F., New York, N. Y. Tire-valve or the like	604,434	May 24	2209	495	88	1099
Schrader, George H. F., New York, N. Y. Tire-valve, &c	604,435	May 24	2211	495	88	1099
Schreiner, Clara, Brownville, Nebr. Soap-receptacle	605,976	June 21	1734	399	88	1719
Schrender, Jens G., Edgewood Park, assignor to Union Switch and Signal Company, Swissvale, Pa. Signal	606,429	June 28	2609	601, 602	88	1906
Schroder, Nicholas. (See Rusch, Henry A., assignor.)						
Schroeder, Henry F., Cleveland, Ohio. Hydraulic pump	602,666	Apr. 19	1871	435	88	364
Schroedter, Richard, Chicago, Ill. Wheel and axle for vehicles	602,475	Apr. 19	1535	349	88	333
Schuetz, Charles, Newark, N. J. Clip for drop-light wires	601,860	Apr. 5	471	95	88	88
Schule, Friedrich H., Hamburg, Germany, assignor to P. Jones, New Hanover county, N. C. Grain-polishing apparatus	605,922	June 21	1625	373	88	1699
Schule, Friedrich H., Hamburg, Germany, assignor to P. Jones, New Hanover county, N. C. Drum for glazing grains, &c	605,923	June 21	1626	373	88	1700
Schule, Friedrich H., Hamburg, Germany, assignor to P. Jones, New Hanover county, N. C. Oscillating support for shaking-sieves	605,924	June 21	1626	374	88	1700
Schultz, Fred P., New York, N. Y. Shoe-lace fastener	604,126	May 17	1650	370	88	970
Schultz, Louis, assignor to L. Schultz, New York, N. Y. Stop-motion for sewing-machines	602,576	Apr. 26	2293	508	88	467
Schultz, Louise. (See Schultz, Louis, assignor.)						
Schultz, Walter W., assignor to Wayne Works, Richmond, Ind. Seeding-machine	605,348	June 7	564	125	88	1460
Schulze, Frederick. (See Schulze, Robert and L. F., assignors.)						
Schulze, Gustav, Eisleben, Germany. Cement roofing-tile	605,654	June 14	1097	258	88	1581
Schulze, Leon F. (See Schulze, Robert and L. F.)						
Schulze, Robert and L. F., assignors to F. Schulze, Cleveland, Ohio. Ball-grinding machine	602,265	Apr. 12	1340	299	88	370
Schumacher, Johann K., Wermelskirchen, Germany. Selvage-weaving device for looms	602,266	Apr. 12	1343	299	88	371

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Schuman, James B., Columbia, assignor to Pneumatic Elevator and Weigher Company, Indianapolis, Ind. Pneumatic elevator	603,995	May 10	1240	261 / 262	83	857
Schunck, Jacob M., and A. L. Zender, Celina, Ohio. Movable-top writing-desk	603,090	June 21	1957	450	83	1760
Schureman, David S., Rockford, Ill. Water-closet	604,548	May 24	2447	556	83	1139
Schussler, George, San Francisco, Cal. Water-filter	603,708	May 10	845	187	83	781
Schwabe, Georg, Biala, Austria-Hungary. Shuttle-box-operating mechanism for looms	604,089	May 24	2050	607 / 606	83	1180
Schwartz, Henry P., Rolla, Mo. Ax	604,943	May 31	2122	716	83	1200
Schwarz, Arthur, Berlin, Germany. Photographic-printing apparatus	601,892	Apr. 5	504	104	83	95
Schwarz, Arthur, Berlin, Germany. Photographic-printing apparatus	601,893	Apr. 5	506	104	83	95
Schwarz, Charles L. (See Garis, David V., assignor.)						
Schwarz, Paul. (See Schaerges and Schwarz.)	603,709	May 10	846	187 / 188	83	781
Schwedtmann, Ferdinand, St. Louis, Mo. Dynamo or motor	604,795	May 31	2276	656	83	1242
Schwey, Edward H., Shoals, Ind. Sack-holder	605,661	June 14	1144	206	83	1590
Schwing, George, Newark, N. J. Lift for sashes, transoms, or skylights						
Scofield, Richard J., Manchester, England. Appliance for indicating position of punctures in pneumatic tires	601,907	Apr. 5	549	113	83	104
Scott, Charles F., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Means for compensating for temperature-resistance changes	606,083	June 21	1844	425	83	1738
Scott, Charles F., and B. G. Lamme, assignors to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. System of electrical distribution	606,589	June 28	2886	668	83	1961
Scott, Charles L., McIntire, Iowa. Tank-valve	602,595	Apr. 19	1614	309	83	336
Scott, James, Pittsburg, Pa. Means for protecting furnace-walls	601,759	Apr. 5	264	52	83	51
Scott, John W., Albionville, Queensland. Curing hides or skins for transport	602,476	Apr. 19	1536	.....	83	329
Scott, Robert W. (See Williams and Swinglehurst, assignors.)						
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Yarn-changing device for rib-knitting machines	604,640	May 24	2600	594	83	1170
Scovill Manufacturing Company. (See Goss, Edward O., assignor.)						
Scovill Manufacturing Company. (See Lines, John, assignor.)						
Scoville, Charles S., *et al.* (See Newell, John G., assignor.)	603,744	May 10	903	201	83	792
Scoville, Elijah U., Manlius, N. Y. Faucet						
Scribner, Elmer C., administrator. (See Scribner, John M.)	606,947	June 28	2367	523 / 524	83	1639
Scribner, John M., deceased, Balsover, Canada; E. C. Scribner, administrator. Invalid-bed	602,777	Apr. 19	2047	463	83	418
Scrogge, Joseph W., Rogers, Ark. Pessary	603,141	June 7	196	34 / 35 / 36 / 37 / 38 / 39	83	1377
Scudder, Wilbur S., Brooklyn, N. Y., assignor to Monoline Composing Company, Washington, D. C. Monoline composing-machine	605,690	June 14	1490	334	83	1642
Scuri, Allessandro G. B., Gravedona, Italy. Distance-measuring instrument	605,518	June 14	836	195	83	1584
Seaman, Benjamin S., Canton, Ohio. Bicycle-seat clamp	606,998	June 28	2534	587	83	1890
Seaman, Benjamin S., Canton, Ohio. Bicycle-saddle	604,488	May 24	2327	528	83	1119
Seaman, William O., Springfield, Mass. Step-ladder						
Seaquest, Alfred L. (See Seaquest, Charles L. and A. L.)	606,091	June 21	1957	450	83	1760
Seaquest, Charles L. and A. L., Portland, Oreg. Mud-guard for bicycles						
Search, Casper F., Oak Park, Ill., assignor to Search Manufacturing Company, Sheboygan Falls, Wis. Feed-cutter	604,127	May 17	1651	371	83	970
Search Manufacturing Company. (See Search, Casper F., assignor.)						
Sears, Lee A., Nevada, Mo., and F. Rice, Kansas City, Kans. Smoke-consuming furnace	602,962	Apr. 26	2286	544	83	498
Seaver, Fred, assignor to F. B. Fargo & Company, Lake Mills, Wis. Steam-motor	603,660	May 10	765	170	83	765
Seaver, John W. (See Babcock, Wellman, and Seaver.)	602,918	Apr. 26	2304	525	83	492
Sebastian, Charles, assignor to A. S. Mann, St. Louis, Mo. Pocket-register	605,655	June 14	1098	258	83	1585
Sebastian, John, and B. B. Anderson, Chicago, Ill. Railway-ticket	603,474	May 3	417	98	83	660
Sebold, John G., New York, N. Y. Ironing-table	602,477	Apr. 19	1537	349	83	322
Secor, John A., Brooklyn, N. Y. Explosive-engine	603,346	May 3	178	41	83	695
Sedgwick, Harry A., Athol, Mass. Ball-cock						
Sedlacek, Julius, Nuremberg, Germany. Condensing-water and air cooling apparatus for refrigerating-machines	601,716	Apr. 5	188	35, 36	83	36
Sedlacek, Julius, Nuremberg, Germany. Refrigerating-machine	603,199	Apr. 12	1067	234	83	215
Sedlacek, Julius, Nuremberg, Germany. Cooling and sealing	604,162	May 17	1714	386	83	968
Sedlacek, Julius, Nuremberg, Germany. Gas-compressor	606,430	June 28	2611	608	83	1907
Seeger, William M., Louisville, Ky. Rubber-dam holder	604,800	May 31	2082	696	83	1272
Seekel, Theodore C., Bay City, Mich. Machine for sawing barrel-hoops	605,349	June 7	565	135	83	1460
Seeley, William W., Brooklyn, N. Y. Gas-burner	603,661	May 10	767	170	83	766
Segnitz, Herman. (See Fisher, Charles, assignor.)						
Segschneider, Gustav, Yonkers, N. Y. Machine for curling hat-brims	602,946	Apr. 12	1140	250	83	220
Seibert, Elisabet, Chicago, Ill. Vaginal syringe	605,669	June 14	1146	206	83	1591
Seifert, Bruno R., assignor to Chemische Fabrik von Heyden, Gesellschaft mit Beschränkter Haftung, Radebeul, Germany. Making orthosulfamin-benzoic-acid alkyl esters	604,508	May 24	2364	.....	83	1125
Seifert, Bruno R., assignor to Chemische Fabrik von Heyden, Gesellschaft mit Beschränkter Haftung, Radebeul, Germany. Oxyphenyl-guanidin and making same	605,977	June 21	1734	.....	83	1719
Seifert, John W., Dallas, Tex. Cotton elevator, cleaner, and feeder	604,496	May 24	2213	495	83	1100
Seiler, Paul. (See Williams and Seiler.)	605,519	June 14	837	195	83	1584
Selby, Wallace J., Burr Oak, Mich. Stove or furnace	605,751	June 14	1232	289 / 290	83	1611
Selden, Arthur R., assignor to F. S. Macomber, trustee, Rochester, N. Y. Starching-machine						
Seldner, Jonas J. (See Snyder and Seldner.)						
Selle, Gustav, Brandenburg, Germany. Photographic-plate holder for three-color processes	604,366	May 17	1914	498	83	1021
Selle, Gustav, Brandenburg, Germany. Photographs in natural colors	604,369	May 17	1914	.....	83	1021
Sellers, Coleman, Philadelphia, Pa., assignor, by mesne assignments, to Niagara Falls Power Company, Niagara Falls, N. Y. Thrust-bearing	602,589	Apr. 19	1730	391 / 392	83	355
Sellers, Morris, Chicago, Ill. Base-plate for railway-rail joints	605,520	June 14	839	195	83	1584
Sellman, William, Dorking, England. Preparing liquid food	605,190	June 7	296	.....	83	1906
Selvidge, Charles W., Mexia, Tex. Machine for stretching wire or other purposes	606,092	June 21	1959	460	83	1760
Selvidge, Charles W., assignor of one-half to J. B. Parnell, Mexia, Tex. Ant-trap	602,410	Apr. 12	1418	330	83	395
Seltzer, Lewis B. (See Carroll, Fenton, Kline, and Seltzer.)	606,098	June 21	1960	451	83	1760
Semke, William, Harrison, Kans. Boiler-flue cleaner						
Seneca Glass Company. (See Stenger, August, assignor.)						
Senior, George. (See Dundas and Senior.)						
Sergeant, Henry C., Westfield, N. J., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Compressor for air, &c	602,877	Apr 26	2295	504	83	466

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Serrell, Harold. (See Keaubert and Serrell.)						
Sessions, Henry H., Chicago, Ill., assignor to Standard Coupler Company, of New Jersey. Buffer equipment for railway-cars	605,581	June 14	840	196	83	1584
Sessions, Henry H., Chicago, Ill., assignor to Standard Coupler Company, of New Jersey. Center-bearing for railway-cars	605,582	June 14	843	197	83	1585
Sewall, Charles H., Chicago, Ill. Underground conduit for electric conductors	603,745	May 10	904	201	83	792
Seward, Oliver G., Minneapolis, Minn. Acetylene-gas lamp	603,746	May 10	906	201	83	793
Seward, Oliver G., Minneapolis, Minn. Acetylene-gas generator	603,747	May 10	909	201 / 202	83	793
Sewell, William H., Coleraine, Ireland, assignor of one-half to J. Aiken, Cowdenbeath, Scotland. Pneumatic tire	603,710	May 10	847	188	83	781
Seyffarth, Gustav, Philadelphia, Pa. Lubricator	603,997	May 10	1205	310 / 311	83	992
Seymour, Charles, assignor to Defiance Machine Works, Defiance, Ohio. Bending-machine	603,995	May 10	1243	293	83	857
Shaaber, Jacob, *et al.* (See Leightham, Joseph, assignor.)	604,270	May 17	1915	486	83	1088
Shaffer, Homer J., Scott, Ind. Device for cutting iron						
Shaft, Grant D., St. Paul, and H. Hays; said Shaft assignor and said Hays assignor of one-fourth to C. G. Hawley and P. B. Crane, Minneapolis, Minn. Fare register and recorder	603,861	May 10	1122	255	83	896
Shallenberger, Mary W., executrix. (See Shallenberger, Oliver B.)						
Shallenberger, Oliver B., deceased, Rochester, Pa.; M. W. Shallenberger, executrix. Shunt for electric circuits	606,171	June 21	2100	488	83	1786
Shanahan, Stephen, Charleston, W. Va. Brace-holder	603,267	Apr. 12	1344	300	83	272
Shann, Montague H. C. and R. E. C., Shoreham, England. Bending apparatus for shipframes	603,306	June 28	2271	548 / 549	83	1660
Shann, Richard E. C. (See Shann, Montague H. C. and R. E. C.)	601,760	Apr. 5	265	53	83	51
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Corn-harvester.	601,761	Apr. 5	269	53, 54	83	51
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Corn-harvester.						
Sharp, Charles S., Auburn, assignor, by mesne assignments, to National Harrow Company, Utica, N. Y. Spring-tooth harrow	604,271	May 17	1916	490	83	1092
Sharp, Joseph W., Jr., and J. W. Grantland, assignors to Haines, Jones & Cadbery, Philadelphia, Pa. Water-closet	605,583	June 14	1404	322	83	1636
Sharp, Thomas B., and F. Billing, Birmingham, England. Machine for manufacturing metal tubes	603,576	Apr. 26	2227	504	83	468
Sharpe, Joseph K., Jr., assignor to Indiana Manufacturing Company, Indianapolis, Ind. Fan for pneumatic straw-stackers	605,985	June 21	1698	374	83	1709
Sharretts, David E., assignor of one-half to C. E. Kloeber, Jr., Washington, D. C. Focusing attachment for cameras	606,204	June 28	2534	567 / 568	83	1890
Shaw, A. E. (See Robilia, John, assignor.)	604,796	May 31	2279	658	83	1243
Shaw, Charles J., Owosso, assignor to W. H. Shaw, Duffield, Mich. Standard	605,580	May 3	606	135	83	719
Shaw, Edgar, Swampscott, Mass. Dish-cleaner	606,805	June 28	2536	588	83	1891
Shaw, Elver H., assignor of one-half to W. A. Fraser, Sedalia, Mo. Combination-tool	606,800	June 28	2260	609	83	1961
Shaw, John H., assignor to Sargent & Company, New Haven, Conn. Knob attachment.						
Shaw, W. H. (See Shaw, Charles J., assignor.)						
Shaw, Walter, trustee. (See Chase, Frank, assignor.)						
Shay, Benjamin F. (See Shay, William H., assignor.)	604,846	May 31	2258	677	83	1257
Shay, William H., Newburg, assignor of one-half to B. F. Shay, Poughkeepsie, N. Y. Valve	603,588	May 10	1077	241	83	885
Shea, Patrick, Boston, Mass. Block or smoothing plane						
Sheehy, James J., *et al.* (See Lynch and Hough, assignors.)						
Shehan, William E. (See Hill and Shehan.)						
Shelbley, Jacob E., Harrisburg, Pa., assignor, by mesne assignments, to National Harrow Company, of New Jersey. Spring-tooth harrow	604,272	May 17	1918	490	83	1092
Shelby Steel Tube Company. (See Charnock, John A., assignor.)						
Shelby Steel Tube Company. (See Stiefel, Ralph C., assignor.)	604,847	May 31	2259	677 / 678 / 679	83	1258
Sheldon, Edward P., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Folding and cutting mechanism						
Shelly, Thomas E. (See McDonough and Shelly.)						
Shelton, Edward. (See Granger, Horace D., assignor.)						
Shepard, Harvey G., assignor to H. G. Shepard & Sons, New Haven, Conn. Handle-bar for cycles	605,758	June 14	1357	320	83	1612
Shepard, Mary M., Darlington, S. C. Bathing-suit	601,781	Apr. 5	308	61	83	59
Shepard & Sons, H. G. (See Shepard, Harvey G., assignor.)						
Shepard, W. H., *et al.* (See Cockburn, George G., assignor.)	605,978	June 21	1737	399	83	1730
Shepherd, George B., Grayson, Ky. Carpet or rug fastener						
Sheppard, John M., *et al.* (See Guerrant, George M., assignor.)	602,479	Apr. 19	1530	350	83	322
Sheppard, Joseph W., assignor to Mississippi Glass Company, St. Louis, Mo. Washboard	602,478	Apr. 19	1536	349	83	322
Sheppard, John W., Charlton, Iowa. Doubletree	605,234	June 7	398	76	83	1413
Shepperd, John W. (See Shann, Montague H. C. and R. E. C.)	606,366	June 28	2537	588	83	1891
Sherk, Truman C. O., Buffalo, N. Y. Smoke-bell	605,019	May 31	2245	746	83	1313
Sherrer, Philip, Cleveland, Ohio. Cask-pitching apparatus	606,207	June 28	2275	549	83	1861
Sherry, John W., Crompton, assignor to Crompton Company, Providence, R. I. Loom.						
Sherwood, William E., Oneida, N. Y. Antirattling thill-coupling	605,101	June 7	220	57	83	1396
Sherwood, William E., and Howard Iron Company. (See Gallagher, Thomas M., assignor.)	604,497	May 24	2215	496	83	1100
Shickle, Harrison & Howard Iron Company. Puzzle						
Shields, Edgar A., New York, N. Y. Apparatus for manufacturing gas						
Shields, Henry C., Troy, N. Y. Apparatus for manufacturing gas	604,498	May 24	2218	496	83	1100
Shields, William E., assignor to W. T. Barker and L. W. Feighner, Nashville, Mich. Clothes-drier	602,776	Apr. 19	2048	462	83	419
Shimer, Samuel J., Milton, Pa. Gage for cutter-knives	605,976	May 10	1216	308	83	879
Shimer, Samuel J., Milton, Pa. Cutter-head	604,797	May 31	2260	658 / 659	83	1243
Shires, Michael, Spring Mills, and J. Q. A. Kennedy, assignors to Johnstown Fire Escape Company, Limited, Johnstown, Pa. Machine for making fire-escape ladders						
Shirley, David D. (See Duncan, Andrew M., assignor.)	606,492	June 28	2706	633	83	1988
Shirley, William, Coventry, England. Dress-guard attachment	601,987	Apr. 5	608	146	83	132
Shirray, William, Detroit, Mich. Sheet-metal handle for shovels						
Shoemaker, Clement W., *et al.* (See Hettinger and Kincaid, assignors.)						
Shoemaker, Robert E., *et al.* (See Hettinger and Kincaid, assignors.)	605,614	June 14	1015	234	83	1536
Sholder, Louis H., Cleveland, Ohio. Combined auger and cutter	602,368	Apr. 12	1345	300	83	271
Short, Bertrand H., Vancouver, Canada. Soldering-machine	605,753	June 14	1359	320 / 321	83	1612
Short, Robert L., assignor to Gartland Foundry Company, Cleveland, Ohio. Furnace	601,717	Apr. 5	184	36	83	37
Short, Sidney H., Cleveland, Ohio. Solenoid blow-out for dispersing arcs formed in breaking electric circuits	603,927	May 10	1244	292 / 293	83	858
Short, Sidney H., Cleveland, Ohio. Means for suspending motors on vehicles						

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Short, Sidney H., Cleveland, Ohio. Trolley for electric railways	604,196	May 17	1783	402	88	997
Short, Sidney H., Cleveland, Ohio. Mounting for third rails	605,260	June 7	305	89	88	1426
Short, Sidney H., Cleveland, Ohio. Third rail for electric railways	605,261	June 7	304	89	88	1427
Shortliff, Thomas. (See Willerton and Shortliff.)						
Shotwell, Eli L., and J. Brims, David City, Nebr. Wire-reel	603,796	May 10	906	223	88	811
Shreeve, Herbert E., assignor to American Bell Telephone Company, Boston, Mass. Telephone-transmitter	602,174	Apr. 12	1023	224	88	906
Shuler, Elmer E., Havelock, Nebr. Acetylene-gas generator	605,926	June 21	1639	374	88	1700
Shuler, William A., Arcanum, Ohio. Vehicle-tire	602,088	Apr. 5	779	169	88	147
Shulin, Neal P., Butte, Mont. Lawn-mower	605,927	June 21	1631	375	88	1701
Shuman, Frank, Philadelphia, Pa. Process of and machine for embedding wire in glass	605,754	June 14	1261	291	88	1613
Shurter, Justin, Rosendale, N. Y. Combined thill-support and antirattler	603,776	May 10	900	215	88	808
Shuster, Franklin B., New Haven, Conn. Drilling and tapping machine for door-knob spindles	602,272	Apr. 12	1188	260	88	238
Shuster, Franklin B., New Haven, Conn. Sheet-metal straightening and cutting-off machine	602,273	Apr. 12	1186	260 / 261	88	238
Shuster, Franklin B., New Haven, Conn. Device for metal straightening and cutting-off machines	605,928	June 21	1633	375 / 376	88	1701
Sidway, Henry T. (See Grotenhuis and Sidway.)						
Sieber & Trussell Manufacturing Co. (See Trussell, Emory A., assignor.)						
Siegfried, Louis, Easton, Pa. Press-board holder	602,708	Apr. 19	1042	441	88	398
Siemens Brothers & Company. (See Holmes, Ernest, assignor.)						
Siemens Brothers & Company. (See Stopher, Arthur J., assignor.)						
Siemens & Halske Electric Company of America. (See Hoffmann, Ernst W. G. C., assignor.)						
Siemens & Halske Electric Company of America. (See Reichel, Emil B. W., assignor.)						
Siemens & Halske Electric Company of America. (See Reichel and Stein, assignors.)						
Sier, Ferdinand, Allentown, Pa. Adjustable holdback	605,020	May 31	2247	746	88	1314
Sieverling, George B., Roodhouse, Ill. Billiard-chalk holder	605,683	June 14	1147	266	88	1591
Sigesmond, Simon B., New York, N. Y. Envelop	602,411	Apr. 12	1419	321	88	286
Signal Control Company. (See Colgate, Arthur E., assignor.)						
Silberstein, Alex J., Framingham, Mass. Nest-box for henneries	605,979	June 21	1738	399	88	1720
Sill, Cyrus B., Niles, Ohio. Sheet or plate girder	602,274	Apr. 12	1189	261	88	294
Silver & Company. (See Silver, William H., assignor.)						
Silver, Hugh, Lindsay, Canada. Machine for graining lumber	601,908	Apr. 5	550	113 / 114	88	130
Silver, William H., assignor to Silver & Company, Brooklyn, N. Y. Vaporizing oil-stove	604,708	May 24	2719	621	88	1198
Simmons, Alonzo M., Marlborough, Mass. Nail-setting machine	602,275	Apr. 12	1190	261	88	239
Simmons & Paye. (See Keith, Jeremiah, assignor.)						
Simms, Frederick R., London, England. Pneumatic tire	605,021	May 31	2249	746	88	1314
Simms, Frederick R., London, England. Wheel for motor-cars or other vehicles	605,022	May 31	2251	747	88	1314
Simon, Henry, Manchester, England. Purifier for middlings	601,817	Apr. 5	370	77	88	70
Simonds, Amos B., Youngstown, Ohio. Bicycle-frame	602,200	Apr. 12	1047	200	88	272
Simplex Railway Appliance Company. (See Bauer, Carl E., assignor.)						
Simpson, Daniel H., J. Walker, Cheadle Hulme, J. Strang, Entwistle, and F. Farnworth, Ramsbottom, England. Machine for washing printers' blankets	604,504	May 24	2365	536 / 537	88	1125
Simpson, Hugh P. (See Little, Joseph A., assignor.)						
Simpson, James M. (See Simpson, Williams, and Simpson.)						
Simpson, Matthew P., E. P. Williams, and J. M. Simpson, McPherson, Kans. Disk planter	605,755	June 14	1262	291	88	1613
Simpson, Rufus A., Florence, Cal. Hay rake and stacker	602,145	Apr. 12	968	211 / 219	88	195
Simpson, Thomas H., and P. T. Handiges, assignors to Monarch Brake-Beam Company, Limited, Detroit, Mich. Brake-beam for railway-cars	606,308	June 28	2376	550	88	1861
Singleton, Frederica J., and R. R. de la Giltonniere, Haseley, England. Wheel-guard for vehicles	602,480	Apr. 19	1540	350	88	295
Singer, Emil, Peoria, Ill. Siphon-head	602,200	Apr. 12	1069	234	88	251
Sinner, Eduard, Tipton, Kans. Automatic wagon-brake	605,235	June 7	209	76	88	1412
Sinnott, Philip, New York, N. Y. Clothes-line	606,263	June 28	2490	576	88	1890
Sipp, Christopher E., Brooklyn, N. Y. Means for fastening neckties and collars to shirts	605,263	June 7	206	89	88	1427
Sise, Robert W., Medford, Mass. Chain-cleaning attachment	604,420	May 24	2219	496	88	1100
Sisley, Samuel L., Perryopolis, Pa. Wagon-brake	604,704	May 24	2721	622	88	1198
Sittig, Lena, Brooklyn, N. Y. Trunk for undergarments	602,186	Apr. 12	1058	230	88	212
Sivan, Casimir, Geneva, Switzerland, assignor to J. A. Vincent, Philadelphia, Pa. Talking watch or clock	605,192	June 7	240	57	88	1306
Skarin, Gustaf A., Buffalo, N. Y. Wheel-hub	605,208	June 7	280	65	88	1408
Skelton, Robert H. (See Staley, James, assignor.)						
Skevington, Henry H., and W. L. Whitehead, Philadelphia, Pa. Sinker-top for hosiery-knitting machines	606,094	June 21	1960	451	88	1760
Skinner, Ernest M., Boston, assignor of one-half to G. S. Hutchings, Cambridge, Mass. Pipe-organ. (Reissue)	11,669	June 14	1443	331 / 332	88	1646
Skinner, Frank, Philadelphia, Pa. Pipe-hanger and shield for bicycle-riders	606,142	June 7	161	40	88	1381
Skirvin, C. F. (See Swartz, Robert E., assignor.)						
Skoglund, Jean V., Bayonne, N. J., assignor to himself, and A. Winter, New York, N. Y. Condenser for nitric acid	603,412	May 3	990	65	88	656
Skrine, Francis H., London, England. Means for carrying velocipedes in railway-cars	603,777	May 10	901	215	88	808
Slack, John C., Brooklyn, N. Y. Pliers	606,591	June 28	2891	669	88	1902
Slater, George W., Philadelphia, Pa. Heating or vulcanizing apparatus	606,364	June 28	2481	576	88	1861
Slick, Edwin E., and T. Morrison, Braddock, Pa. Cinder-car	603,117	Apr. 26	2648	601 / 602	88	548
Slingluff, John. (See Clay, Henry, assignor.)	603,461	Apr. 19	1541	350	88	323
Sloane, Joseph H., Meriden, Conn. Folding rack						
Slocomb, Frank F. (See Craig and Slocomb.)						
Slocum, William A., Lansing, Mich. Automatic switch-lock for railways	603,395	May 3	999	54	88	646
Slomka, Adolf, New York, N. Y. Refrigerator lunch-box	601,798	Apr. 5	333	67	88	68
Smalley, Albert G., Boston, Mass. Bottle attachment	601,968	Apr. 5	600	146	88	132
Smart, Samuel M. (See Weed and Atkin, assignors.)						
Smead, Isaac D., Toledo, Ohio. Dish-cleaner	605,929	June 21	1697	376	88	1702
Smedeman, Gustaf, Washburn, assignor of one-half to J. Anderson, Racine, Wis. Tamping-machine	603,119	Apr. 12	904	196	88	188
Smetters, Andrew J., Chicago, Ill. Music or book holder and rack	601,786	Apr. 5	321	44	88	43
Smillie, George W., Newark, N. J. Car-coupling	603,879	Apr. 26	2226	504	88	466
Smith, Alfred B., and J. G. Rapp, Chicago, Ill. Laundry-ironer	603,607	Apr. 19	1752	400	88	361
Smith, Alva B., Oakland, Tenn. Combination-tool	601,787	Apr. 5	322	44	88	43
Smith, Amos H., assignor of one-half to F. T. Van Hoesen, Brooklyn, N. Y. Printing-press	605,350	June 7	507	125	88	1460
Smith, Andy C., Sigel, Pa. Oil-well-tubing attachment	605,756	June 14	1264	292	88	1613

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smith, Charles G., Minneapolis, Minn. Overalls	605,236	June 7	230	76,77	88	1414
Smith, Charles H., Coulterville, Cal. Car-coupling	604,505	May 24	2367	537	88	1126
Smith, Charles H., assignor of one-half to G. A. Rowe, Elgin, Ill. Coffin-lid fastener	604,848	May 31	2962	679	88	1958
Smith, Chris N., Deerfield, N. Y. Swivel hose-coupling	601,083	Apr. 5	107	21	88	23
Smith, De Wane B., Deerfield, N. Y. Swivel hose-coupling	603,909	Apr. 26	2703	633	88	576
Smith, Edwin A., New York, N. Y. Hair-crimper	604,091	May 17	1590	357	88	958
Smith, Edwin F., Springfield, Ill. Horseshoe						
Smith, Edwin J., *et al.* (See Hawkes, Frank F., assignor.)						
Smith, Eldridge J., Washington, D. C., assignor to Smith Flexible Chair Manufacturing Company of Virginia. Foot-rest	603,155	Apr. 26	2711	616	88	560
Smith, Eldridge J., Washington, D. C., assignor to Street Cleaning Company, Washington, D. C., and Alexandria, Va. Street-sweeper	606,248	June 28	2269	534	88	1889
Smith, Eli, Dresser, Ill. Railway bed and tie	601,799	Apr. 5	394	68	88	68
Smith Flexible Chair Manufacturing Company of Virginia. (See Smith, Eldridge J., assignor.)						
Smith, Frank W., Portland, Me. Apparatus for treating or sterilizing canned food	604,642	May 24	2608	594 / 595	88	1171
Smith, Frank W., assignor of one-half to F. O. Conant, Portland, Me. Can-filling machine	606,084	June 21	1846	495	88	1788
Smith, Franklin C., Los Angeles, Cal. Process of and composition for preserving eggs	602,795	Apr. 19	2066		88	425
Smith, George H., Lowell, Mass. Street-car fender	604,944	May 31	3122	718	88	1200
Smith, Harvey W. (See Gribben and Smith.)						
Smith, Henry T., assignor to Standard Seamless Wire Company, Pawtucket, R. I. Display-card	605,351	June 7	569	125	88	1460
Smith, Hubert M., New York, N. Y. Wrench	603,290	May 3	78	20	88	616
Smith, Humphrey R., assignor to Burdett Rowntree Manufacturing Company, Chicago, Ill. Electrical apparatus for operating elevator-doors	604,126	May 17	1653	371	88	970
Smith, Irby M., Pasquo, Tenn. Reversible drive-gate	604,921	May 31	3093	711	88	1284
Smith, James E. (See Prichard and Taylor, assignors.)	604,197	May 17	1785	408	88	997
Smith, James F., San Francisco, Cal. Safety attachment for gas-cocks	605,352	June 7	569	126	88	1461
Smith, James R., Jefferson, Ala. Wire-fencing tool						
Smith, John A. (See Jessup, Nathan, assignor.)						
Smith, John G. (See Leveille, Michael H., assignor.)	602,880	Apr. 26	2290	505	88	468
Smith, John T., deceased, Rock Fall, Conn.; O. A. Smith, administrator. Pliers	604,798	May 31	2984	659	88	1244
Smith, John W., *et al.* (See Young, Harland H., assignor.)						
Smith, John W., and A. H. Anthony, Worcester, Mass. Governor mechanism	602,175	Apr. 12	1025	225	88	206
Smith, Joseph K. (See Koelkebeck and Smith.)	602,370	Apr. 12	1348	301	88	279
Smith, Joseph T., London, England. Puzzle	604,431	May 24	2223	497	88	1101
Smith, Libbie B., Belle Plaine, Iowa. Garden-tool	602,089	Apr. 5	780	169	88	147
Smith, Leon C., Columbus, Ohio. Electric signal for railway-crossings	605,265	June 28	2482	576 / 577	88	1861
Smith, Luke, assignor of one-half to G. H. Pfeil, Easton, Pa. Milling-cutter						
Smith, Michael H., London, England. Wheel	604,092	May 17	1591	357	88	959
Smith, Mathew. (See Steele, John R., assignor.)						
Smith, Milton W., Long Island City, N. Y. Kitchen utensil	604,430	May 24	2220	497	88	1101
Smith, Otis A., administrator. (See Smith, John T.)	605,143	June 7	102	40	88	1381
Smith, Paul H., Columbus, Ohio. Trunk	605,431	June 28	2613	602	88	1907
Smith, Paul H., Columbus, Ohio. Trunk						
Smith, Paul H., Columbus, Ohio. Trunk						
Smith, Richard A. (See Fox, Jacob G., assignor.)						
Smith, Robert C., *et al.* (See Lobdell, Emory H., assignor.)	601,909	Apr. 5	553	114	88	105
Smith, Rudolph C., Yonkers, assignor of one-half to J. Cruickshank, Kingston, N. Y. Elevator	601,845	Apr. 5	444	89	88	88
Smith, Sidney M., San Francisco, Cal. Safety ash-receiver	602,861	Apr. 26	2231	505	88	469
Smith, Stephen N., assignor to Union Eyelet Company, Providence, R. I. Machine for setting lacing-hooks	602,862	Apr. 26	2233	505 / 506	88	469
Smith, Swan, assignor of one-half to G. Everson and J. W. Masters, Brooklyn, N. Y. Paper-cutting machine	605,523	June 14	844	197	88	1535
Smith, Uzziel P., Chicago, Ill. Pneumatic tire	604,909	May 31	3080	707	88	1251
Smith, Walter L., Marshall, Tex. Broom-rack	604,129	May 17	1658	372	88	971
Smith, Walter P., Clarksville, Iowa. Corn-planter attachment	605,757	June 14	1265	293	88	1614
Smith, Walter W., Detroit, Mich. Journal-box	606,095	June 21	1962	451	88	1761
Smith, Washington E. E., Liberty, N. Y. Pencil-holder						
Smith, Wellington C. (See Vail, James B., assignor.)						
Smith, Wilbert L., trustee. (See Brown, Alexander T., assignor.)						
Smith, Willard P., *et al.* (See Johansson, Gustaf, assignor.)						
Smith, William, Marietta, assignor to Longfellow Bros. and R. Stephens, Macksburg, Ohio. Rotary engine	602,630	Apr. 19	1795	410	88	369
Smith, William F., Cripple Creek, Colo. Automatic dumping-bucket	604,432	May 24	2224	498	88	1101
Smith, William G., *et al.* (See Goetze, Max, assignor.)						
Smith, William L., and H. M. Putt, assignors of one-third to F. H. McGraw, Huntingdon, Pa. Combined latch and lock	605,353	June 7	570	126	88	1461
Smith, William S. (See Mangels, William F., assignor.)	605,054	May 31	3322	769	88	1338
Smyth, Charles, assignor of one-half to L. Hyman, Dayton, Ohio. Toy savings-bank	605,615	June 14	1017	234	88	1357
Smyth, David M., Pasadena, Cal. Ore-stamp	606,249	June 28	2273	525	88	1840
Snapp, Charles E., Grottoes, Va. Coin-controlled vending-machine	603,602	May 10	769	170	88	766
Snedeker, Charles H., assignor of one-half to J. F. Knoble, Rosedale, Md. Pipe or tube cutter	602,608	Apr. 19	1754	400	88	362
Snedeker, James W., assignor to Page Woven Wire Fence Company, Adrian, Mich. Door-mat	605,023	May 31	3323	747	88	1315
Snell, Albion T., and C. E. Grove, assignors of one-third to A. F. Hills, London, England. Electric switch for use with electrically-propelled vehicles or locomotives, &c	606,592	June 28	2892	669	88	1902
Snell, Henry, Pittsburg, Pa. Water-filter						
Snow, Levi T. (See Newell, John G., assignor.)						
Snyder, Benjamin B., and J. J. Seidner, Baltimore, Md., assignors to Nitrogen Processing Company, New York, N. Y. Drying apparatus	603,612	May 3	993	153	88	728
Snyder, Frank B., Brice, Ohio. Self-adjustable bicycle-lamp	605,854	June 7	572	126	88	1461
Snyder, John A. L., Somis, Cal. Permutation-padlock	603,711	May 10	847	188	88	762
Snyder, John H., Canton, Ill. Device for holding fish-hooks	605,758	June 14	1266	293	88	1614
Snyder, Lyman H., and W. G. Christian, Rocky Hill, Conn.; said Christian assignor to said Snyder. Floor and ceiling plate	605,024	May 31	3325	748	88	1315
Snyder, O. W. (See McGuff, John J., assignor.)						
Snyder, Robert M. (See Williams, John F., assignor.)						
Snyder, Samuel, *et al.* (See Vermilyea, Eugene, assignor.)						
Snyder, W. A. (See Thomasson, Henry A., assignor.)						
Snyder, William T., assignor of one-half to J. W. Fuller, Catasauqua, Pa. Self-lubricating car-wheel	603,201	May 3	79	20	88	617

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Snyder, William T., assignor of one-half to J. W. Fuller, Catasauqua, Pa. Self-lubricating car-wheel	608,992	May 3	80	21	88	617
Société Chimique des Usines du Rhône, Anciennement Gilliard P. Monnet et Cartier. (See Monnet, Pierre P., assignor.)						
Société de la Manufacture d'Indiennes Emile Zundel. (See Binder, Felix, assignor.)						
Society of Chemical Industry. (See Schmid, Jakob, assignor.)						
Soderlund, Gustive A., Somerville, Mass. Hot and cold water faucet	601,718	Apr. 5	187	36	88	37
Solodovnikoff, Valerian, St. Petersburg, Russia. Locking device for gun-barrels	604,273	May 17	1980	{429 480	{88	1088
Solvay Process Company. (See Fryer, George G., assignor.)						
Somerset Stove Foundry Company. (See Fuller, Cornelius, assignor.)						
Sondheimer, Joseph, *et al.* (See Cline, William, assignor.)						
Songer, Frederic W., Alcott, Colo. Tack-holder	602,146	Apr. 12	971	219	88	195
Sörensen, Niels G., Stockholm, Sweden. Packing-box	602,976	Apr. 12	1191	262	88	290
Souers, Theodore. (See Frost, Souers, and Cooledge.)						
Southard, George, Indianapolis, Ind. Envelop	606,366	June 28	3484	577	88	1661
Southgate, Louis W., Worcester, Mass., assignor to Campbell Printing Press and Manufacturing Company, of New York. Mechanical movement	606,096	June 21	1968	{451 458	{88	1761
Southgate, Philip W., Worcester, Mass., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	605,616	June 14	1018	{234 235	{88	1567
Southorn, Charles. (See Armour and Southorn.)						
Space, Irving J. (See Kissell and Space.)						
Spacke, Fred W., Indianapolis, Ind. Governor	605,694	June 14	1148	{266 267	{88	1591
Spang, Anthony V., New Haven, Conn. Convertible running-gear for vehicles	605,759	June 14	1267	268	88	1614
Sparks, James H., Hobbieville, assignor of one-half to A. F. Mood, Buena Vista, Ind. Fence-post	605,355	June 7	572	126	88	1461
Spaulding Brothers Company. (See Chandler, Daniel L., assignor.)						
Spaulding, George W. (See Johnson and Spaulding.)						
Speaker, Elwyn, Egan City, Ill. Window-screen	604,799	May 31	2665	659	88	1944
Spear, Fred H., Burlington, Vt. Self-oiling pulley	605,980	June 21	1739	400	88	1730
Speer, William H., Martinsville, Miss. Plant-support	601,782	Apr. 5	310	61	88	59
Spelman, Byron T., Jacksonville, Ill. Grain-drill	605,594	June 14	845	198	88	1535
Spencer, Charlie F., Alexandria Bay, N. Y. Paint-pot hook and brush-holder	604,549	May 24	2449	556	88	1140
Spencer, George O., Manchester, N. H. Car-fender	604,910	May 31	3061	707	88	1261
Spencer, Hadley J., Port Chester, N. Y. Boiler for steam heating apparatus	601,818	Apr. 5	371	76	88	70
Spencer, James W., Providence, R. I. Wool-drier	605,095	May 31	3256	748	88	1316
Spencer, John E., Salem, Mass. Hydraulic lubricator	608,371	Apr. 19	1349	301	88	272
Spencer, William L., Admire, Kans. Runner for seed-planters	604,800	May 31	2967	690	88	1244
Spengler, Charles W., Jeffersonville, Ohio. Wheel-wrench	608,186	Apr. 26	2712	{616 617	{88	561
Sperry, Arthur D., Hamilton, Mont. Combination plow and harrow	604,274	May 17	1988	480	88	1082
Spielman, Mary E., Alma, Kans. Book-holder	608,663	May 10	770	171	88	766
Spies, Gustav A., Irwin, Pa. Fountain-pen	608,883	May 10	1079	241	88	885
Spieth, William F. (See Hitschew and Spieth.)						
Spiller, Arthur F., Manchester, N. H. Storm-window fastener	604,945	May 31	2195	718	88	1391
Spink, Fenton E., Cleveland, Ohio. Exercising device	605,227	June 7	338	77	88	1414
Spitzenberg, Georg K., Tharandt, Germany. Marking-cord	603,157	Apr. 26	2714	617	88	561
Spraggins, John C., New Orleans, La. Transferable show-case	608,210	Apr. 26	2794	636	88	576
Sprague, Archibell N., Westfield, Mass. Filter	608,884	May 10	1080	241	88	885
Sprague, Austin V. M., Brooklyn, N. Y. Therapeutical apparatus	601,684	Apr. 5	108	21	88	23
Sprague & Co. (See Sprague, Watson N., assignor.)						
Sprague Electric Company. (See Bergmann, Sigmund, assignor.)						
Sprague, Watson N., Greenwich, assignor to Sprague & Co., Middle Falls, N. Y. Shank for boots or shoes	608,367	May 3	207	47	88	641
Springborn, Richard, Cleveland, Ohio. Instructing device	605,144	June 7	168	40	88	1351
Springer, Lorin C., Chicago, Ill. Pipe-wrench	602,590	Apr. 19	1721	398	88	355
Springsteen, Nelson E., Royal Oak, Mich. Ticket-case	605,201	June 7	466	106	88	1440
Spruner-Mertz, Victor de, Brussels, Belgium. Globe for incandescent lamps	605,086	May 31	2257	748	88	1316
Spurlin, Crawford, Denison, Tex. Ventilating-canopy for cook stoves or ranges	608,966	May 3	241	54	88	647
Spurr, Charles W., Jr., Brooklyn, assignor to Hot Appliances Company, New York, N. Y. Hot appliance	602,810	Apr. 19	2116	477	88	430
Squire, John B., London, England. Support for ends of railway-rails	605,145	June 7	163	41	88	1398
Squires, Charles W., Springfield, Mass. Railway-switch-operating mechanism	602,667	Apr. 19	1873	426	88	385
St. Clair, Mike. (See Weaver, John R., assignor.)						
St. Louis Paper Box Company. (See Schleicher, Frank J., assignor.)						
Stagman, Harrison E., and H. C. Jones, Cincinnati, Ohio. Nut-lock	602,919	Apr. 26	2306	525	88	492
Stahl, Charles. (See Harris and Stahl.)						
Stahlman, Orison U., North Baltimore, Ohio. Pumping-jack	602,492	Apr. 19	1542	{350 351	{88	323
Staley, James, assignor of one-half to R. H. Skelton, Scottsborough, Ala. Horse-detacher	608,434	May 3	331	74	88	663
Stampacchia, Luigi, Bologna, Italy, assignor to E. G. Fabbri, New York, N. Y. Apparatus for manufacturing closed-ended vessels	601,738	Apr. 5	224	44	88	43
Standard Circular Cotton Company. (See Anderson, William E., assignor.)						
Standard Coupler Company. (See Seessions, Henry H., assignor.)						
Standard Harrow Company. (See Babcock, Henry D., assignor.)						
Standard Oil Company of New York. (See Campbell, Harry C., assignor.)						
Standard Pump and Filter Company. (See Stark, William F., assignor.)						
Standard Seamless Wire Company. (See Smith, Henry T., assignor.)						
Standard Weldless Tube and Cycle Components. (See Chillingworth, Rudolf, assignor.)						
Stanley, F. F., *et al.*, trustees. (See Ashton, Orrell, assignor.)						
Stanley, Frank F., *et al*, trustees. (See Casgrain, Louis A., assignor.)						
Stanley, Henry F., New Orleans, La. Refrigerator-car	602,483	Apr. 19	1544	351	88	323
Stanley Instrument Company. (See Stanley, William, assignor.)						
Stanley, William, Pittsfield, Mass., assignor to Stanley Instrument Company, of Massachusetts. Electrical apparatus	608,515	May 3	508	{110 111	{88	699
Stansbury, Fremont, Denver, Colo. Boring-bar device for lathes	608,908	May 3	81	21	88	617
Staples, John A., and C. Bush, assignors to C. H. Hanford, Newburg, N. Y. Nail-machine	602,084	Apr. 5	738	168	88	142
Stark, William F., New York, N. Y., assignor to Standard Pump and Filter Company, of New Jersey. Hydraulic air-compressor	602,947	Apr. 12	1143	251	88	320
Starks, Nils O., assignor to Fuller & Johnson Manufacturing Company, Madison, Wis. Cultivator	602,779	Apr. 19	2049	464	88	419
Starks, Nils O., assignor to Fuller & Johnson Manufacturing Company, Madison, Wis. Cultivator	604,130	May 17	1660	{372 373	{88	973

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Starr, Charles E., Jr., assignor to W. E. Harrington, Camden, N. J. Sign	608,092	Apr. 26	2606	592	88	539
Starr, Emory E., Bowling Green, Ohio. Furnace	608,372	Apr. 12	1350	{301 302	{88	272
Starr, Fred. (See Entwistle, Starr, Talley, and Lorance.)						
Starrett, Laroy S., Athol, Mass. Speed-indicator	601,800	Apr. 5	335	66	88	63
Staten Island Construction Company. (See Kühne, Paul, assignor.)						
Staub, Henry, and C. Duerst, Allegheny, assignors, by mesne assignments, to T. McKenna, Pittsburg, Pa. Bottle-filling apparatus. (Reissue)	11,667	May 31	3334	706	88	1330
Stauber, Emanuel, Berlin, Germany. Drying apparatus	605,097	June 21	1967	432	88	1702
Staudenmayer, John G., Allegheny, Pa. Milk-can lock	608,480	May 3	450	102	88	699
Stauffer, John H., Gap, Pa. Wire-picket-twisting device	605,980	June 21	1630	376	88	1702
Staven, Joseph A. (See Parbel and Staven.)						
Staver Carriage Company. (See Cloyes, James H., assignor.)						
Stearns, Albert, Trenton, Mich. Machine for filling, weighing, and assorting packages	608,413	May 3	292	65, 66	88	656
Stearns & Co., E. C. (See Case, Frank B., assignor.)						
Stebbins, Arthur D., *et al.* (See Le Baillister, David N., assignor.)						
Stebbins, William F., Springfield, Mass. Pneumatic cushion for billiard or pool tables	608,490	May 3	460	109	88	699
Stech, John, Butte, Mont. Shoe-fastener	602,147	Apr. 12	972	212	88	195
Steedman, George F., St. Louis, Mo. Shingle-sawing machine	608,998	May 10	1246	{283 284	{88	858
Steegmüller, Richard, New York, N. Y. Horn extension for can-body-forming machines	602,647	Apr. 19	1827	{416 417	{88	575
Steel, John W., *et al.* (See Boykin, Christopher C., assignor.)						
Steele, John R., assignor of one-fourth to M. Smith, Sandy Valley, Pa. Skate	608,435	May 3	333	74	88	663
Steen, Anker B., Buxton, N. D. Permutation-padlock	601,801	Apr. 5	336	66	88	63
Steenken, Carl, Dinglingen, Germany. Stirrup	604,801	May 31	2997	660	88	1244
Stefany, Felix, New York, N. Y. Hat-pin	601,989	Apr. 5	609	149	88	132
Stehle, Don, *et al.* (See Wurthner, Jacob, assignor.)						
Steiger, Eugen, assignor to C. A. Meyer & Cie, Zurich, Switzerland. Machine for multiplying copies of manuscript	604,849	May 31	2964	{679 680	{88	1256
Stein, Friedrich W. V. (See Reichel and Stein.)						
Steinacker, Frank W., and E. F. Cowley, Cleveland, Ohio. Electric-arc lamp	604,219	May 17	1819	{408 409	{88	1008
Steinbach, Reinhold, assignor to Fried. Krupp Grusonwerk, Magdeburg-Buckau, Germany. Ball-mill	603,977	May 10	1317	302	88	872
Steiner, Arnold, assignor to Chemische Fabrik, vormals Sandoz, Basle, Switzerland. Triphenylmethane-blue dye	608,016	Apr. 26	2471	------	88	514
Steinke, Georg, and F. Schmidt, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Black diamo wool-dye	608,008	Apr. 26	2609	------	88	539
Steinmann, Louis E. (See Richards, Joseph B., assignor.)						
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Alternating-current induction-motor	602,930	Apr. 26	2307	526	88	492
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Alternating-current induction-motor	602,921	Apr. 26	2211	526	88	488
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	605,585	June 14	847	198	88	1536
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	605,520	June 14	848	{198 199	{88	1536
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	608,835	May 10	1082	241	88	886
Stendahl, Anders, Ala, Sweden. Lift for piling lumber	606,593	June 28	2893	670	88	1962
Stender, Herman, Prospect Park, assignor of one-half to H. P. Ware, San Gabriel, Cal. Photographic copying-camera	606,594	June 28	2895	670	88	1962
Stender, Herman, Prospect Park, assignor of one-half to H. P. Ware, San Gabriel, Cal. Photographic copying-camera	601,685	Apr. 5	112	22	88	24
Stenger, August, assignor to Seneca Glass Company, Morgantown, W. Va. Machine for cutting and smoothing tumblers	602,526	Apr. 19	1615	------	88	337
Stephens, Albert G., assignor of one-half to W. Whelan, Colorado Springs, Colo. Composition for extracting gold from refractory ores	605,760	June 14	1270	{203 204	{88	1615
Stephens, Alejandro, Guadalajara, Mexico. Rotary engine	606,595	June 28	2893	------	88	1963
Stephens, John, Muncie, Ind. Making planished sheet-iron	608,158	Apr. 26	2715	617	88	561
Stephens, Robert, *et al.* (See Smith, William, assignor.)						
Stephenson, Clement L., assignor to H. C. Stephenson, New York, N. Y. Waist-belt attachment	601,910	Apr. 5	556	------	88	106
Stephenson, Helen C. (See Stephenson, Clement L., assignor.)						
Stephenson, Taylor, Manning, Iowa. Paint	603,823	May 10	1048	{233 234	{88	881
Stephenson, William, Morris, Canada. Traction-engine	608,862	May 10	1134	255	88	897
Stephenson, William, Morris, Canada. Seed-drill	608,863	May 10	1134	255	88	897
Stephenson, William, Morris, Canada. Seed-drill-disk shoe	608,978	May 10	1319	302	88	873
Stephenson, William, Morris, Canada. Threshing-machine feeder	608,979	May 10	1321	302	88	873
Stephenson, William, Morris, Canada. Gang-plow	602,010	Apr. 5	744	160	88	141
Steppan, Josef, Pforzheim, Germany. Toy						
Stern, Herman. (See Dow and Stern.)						
Stern, Leopold H., and T. W. G. Cook, New York, N. Y.; said Cook assignor to said Stern. Machine for grinding and polishing diamonds	605,198	June 7	242	58	88	1397
Steven, Henri, San Sebastian, Spain. Engine	604,643	May 24	2605	595	88	1171
Stevens, Charles D., New York, N. Y. Wheel	601,802	Apr. 5	338	68	88	68
Stevens, John H. (See Wood and Stevens.)						
Stevens, John H., Newark, N. J., assignor to Celluloid Company, New York, N. Y. Purifying nitrocellulose	605,931	June 21	1640	------	88	1702
Stevens, Lee. (See Laidlaw, George B., assignor.)						
Stevens, Lewis W., Los Angeles, Cal. Surf-boat	608,211	Apr. 26	2795	{638 639	{88	576
Stevens, John T., Manning, Wis. Coat-support	606,477	June 28	2662	618	88	1921
Stevens, John W., St. Paul, Minn. Seal-lock	604,433	May 24	2295	498	88	1101
Stevens, Samuel M., Manchester, N. H. Fire-extinguisher	605,982	June 21	1649	377	88	1702
Stevens, Seriah, Boston, Mass. Surgical lounge	601,702	Apr. 5	272	53	88	52
Stevens, Sylvester G., Lincoln, N. Y. Revolving gate	608,212	Apr. 26	2707	639	88	576
Stevenson, Elbert B., Philipsburg, Canada. Clothes-tongs	608,484	Apr. 19	1547	351	88	324
Stevenson, George W., assignor of one-half to T. Leas, Cramer's Hill, N. J. Presser-foot for sewing-machines	601,861	Apr. 5	472	95	88	86
Stevenson, James A., New Castle, Pa. Water-heater	604,131	May 17	1661	373	88	979
Stevenson, William M., and W. K. Bailey, Honey Grove, Tex. Water-tank	602,373	Apr. 12	1352	302	88	273
Steward, Clarence S., Chattanooga, Tenn. Gas-burner	608,618	May 3	686	153	88	734
Steward, George R., assignor of two-thirds to E. E. Glaskin, London, and J. Cash, Coventry, England. Furnace-door	604,093	May 17	1598	358	88	959

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steward, John F. (See Ellis and Steward.)						
Stewart, Alexander T., Ream's Station, Va. Seed-planter	603,213	Apr. 26	2798	639	88	576
Stewart, David S., assignor of one-half to G. W. Jones Lumber Company, Clintonville, Wis. Sawing-machine	606,035	June 21	1848	426	88	1736
Stewart, F. W. (See Van Schoick, George R., assignor.)						
Stewart Hartshorn Company. (See Hartshorn, Edmund F., assignor.)						
Stewart, John J., *et al.* (See Cline, William, assignor.)	604,869	May 31	2005	660	88	1907
Stewart, John K., Chicago, Ill. Mechanism for operating animal-shears, &c.	604,802	May 31	2998	660	88	1944
Stewart, Rolla, and W. R. Winchel, Wolcott, N. Y. Hoisting device	601,739	Apr. 5	227	45	88	44
Stewart, Scott, and J. F. Swisher, Rivesville, W. Va. Grain measurer and register	605,761	June 14	1273	294	88	1615
Stewart, Theodore L., Brooklyn, N. Y., assignor, by mesne assignments, to Venetian Iron Company, of New Jersey. Tool for cutting and binding metallic strips	603,989	May 10	1249	284	88	859
Stickel, Jacob, Williamsport, Pa. Floating power-house						
Stickney, Benjamin W. (See Ring and Stickney.)	605,702	June 14	1275	295	88	1616
Stickney, Natt, Bradford Mass. Dumping-scow	606,096	June 21	1966	452	88	1762
Stiefel, Adolph, Hammelburg, Germany. Bouquet-holder						
Stiefel, Moses. (See Mandl, Alexander, assignor.)						
Stiefel, Ralph C., Ellwood City, assignor to Shelby Steel Tube Company, Pittsburg, Pa. Mechanism for expanding or enlarging metallic tubes	605,087	May 31	2259	748 749	88	1816
Stieferman, Peter. (See Howe and Stieferman.)						
Stiles, Edward R., Decatur, Ill. Railway-rail tie	605,356	June 7	574	127	88	1402
Stiles & Fladd Press Company. (See Good, Robert J., assignor.)						
Stiles, Henry M., Newark, assignor of one-half to H. M. Barrett, Bloomfield, N. J. Sand-box for railway-cars	606,172	June 21	2102	483	88	1767
Stille, Friedrich, Lingerich, Germany. Grinding-mill	603,516	May 8	509	111	88	949
Stillwell, Charles J., Winfield, Kans. Box-fastener	604,923	May 31	3095	711	88	1284
Stillwell-Bierce & Smith-Vaile Company. (See Gleaser, Arthur, assignor.)						
Stillwell, Wallace A., and A. Barneck, Salina, Kans. Telephone signal system	604,484	May 24	2296	499 500	88	1108
Stimpson, Wallace I., Milford, assignor to Sawyer Spindle Company, Boston, Mass. Spindle and bearing	601,846	Apr. 5	444	90	88	88
Stimson, Charles W., New York, N. Y. Button	603,517	May 3	510	111	88	699
Stimson, Nathaniel A., Herkimer, N. Y. Printing and folding machine	606,397	June 28	2536	588 589	88	1801
Stirckler, Albert E., Northampton, England. Apparatus for driving tacks	606,596	June 28	2899	670 671	88	1968
Stirling, Edward M., Newark, N. J. Flushing-tank	604,178	May 17	1754	395	88	991
Stirling, Henry R., Barton, Ark. Mowing-machine	601,911	Apr. 5	357	114	88	106
Stivers, William D., Jersey City, N. J. Turret-joint for naval vessels	602,374	Apr. 12	1353	302	88	978
Stivers, William D., Jersey City, N. J. Turret for war vessels	604,435	May 24	2231	500 501	88	1102
Stockwell, Joseph S., *et al.* (See Kinney, Israel, assignor.)	604,946	May 31	3127	719	88	1391
Stoddard, Abbott L., Providence, R. I. Guide and guard for variety molding-machines	606,086	June 21	1949	436	88	1730
Stoecker, Louis, Jersey City, N. J. Pencil-sharpener	602,780	Apr. 19	2051	464	88	419
Stokes, Alfred W., London, assignor to R. A. Lister & Co., Limited, Dursley, England. Apparatus for determining fat in milk	605,146	June 7	165	41	88	1398
Stokes, Alfred W., London, assignor to R. A. Lister & Co., Limited, Dursley, England. Pipette	604,220	May 17	1857	415 416	88	1010
Stolz, Ferdinand C., New York, N. Y. Lantern for ovens	603,294	May 3	84	21	88	617
Stone, Columbus, Home, assignor of one-sixth to J. Armitage, Greenville, Tenn. Grain-scourer						
Stone & Co., J. (See Preston and Gill, assignors.)						
Stone, Irving. (See Gibbs and Stone.)						
Stone, Jane W. (See Kennedy, Frank M., assignor.)						
Stone, Joseph P., Schenectady, N. Y., and S. E. Doane, Marlborough, Mass., assignors to General Electric Company, of New York. Starting device	603,778	May 10	969	215	88	803
Stone, Walter S. (See Heelan, Lawrence W., assignor.)	603,901	Apr. 12	1070	235	88	216
Stone, William G., Charlotte, N. C. Churn	602,781	Apr. 19	2052	465 466	88	419
Stopher, Arthur J., assignor to Siemens Brothers & Company, Limited, London, England. Apparatus for controlling electric motors	603,797	May 10	1000	------	88	812
Storer, Thomas, Glasgow, Scotland. Extracting nickel from nickel ores						
Story, E. C., *et al.* (See Kellerman and Crane, assignors.)						
Stott, Jesse A. (See Todd and Stott.)	606,250	June 28	2275	526	88	1840
Stout, Samuel, Newcomb, Ill. Gate	604,275	May 17	1923	430	88	1094
Stover, Frank E., Luray, Va. Self-closing umbrella	606,099	June 21	1969	458 459	88	1762
Stover, Frank E., and F. G. Grove, Luray, Va. Folding umbrella	606,597	June 28	2908	671	88	1964
Stowe, George D., Whitewater, Wis. Self-feeder for threshing-machines	601,912	Apr. 5	558	115	88	100
Stowe, Lorenzo, Chattanooga, Tenn. Combined frame-brace and stake-socket						
Strain, Charley H. (See Rockey and Strain.)						
Strain, Edwin, Melrose, Mass., assignor of one-half to H. A. Blanchard, New York, N. Y. Split needle	603,822	May 10	1049	234	88	881
Strang, Joseph. (See Simpson, Walker, Strang, and Farnworth.)	603,712	May 10	850	189	88	762
Stransky, Anton, Gravesville, Wis. Swinging hammock-chair	605,586	June 14	903	223	88	1556
Strasburg, Charles A., Cridersville, Ohio. Mail-bag fastener						
Strassman, Adolphus, *et al.* (See Leishman, David F., assignor.)						
Straus, Meyer L. (See Gaylord, John F., assignor.)						
Strauss, Ferdinand. (See Curtis, Charles L., assignor.)	604,808	May 31	2989	660 661	88	1945
Strauss, Henry, New York, N. Y. Bath-tub attachment	606,309	June 28	2377	550	88	1861
Strawson, Henry, Bradley, Ill. Non-refillable bottle	605,098	May 31	2963	749	88	1817
Strecker, George, Chicago, Ill. Foot-propelled vehicle						
Street Cleaning Company. (See Smith, Eldridge J., assignor.)						
Street, Frederick B. (See Bradley, Edwin M., assignor.)						
Street, Frederick B., *et al.* (See Newell, John G., assignor.)						
Stretch, Elisha, assignor of one-half to M. E. Stretch, East Orange, N. J. Means for raising oil by water-pressure	606,432	June 28	2614	608	88	1908
Stretch, Joseph, East Orange, N. J. Apparatus for distilling water	604,550	May 24	2450	557	88	1140
Stretch, Margaret E. (See Stretch, Elisha, assignor.)	606,310	June 28	2378	550	88	1861
Stretch, Robert, Detroit, Mich. Device for heating water by steam	606,598	June 28	2905	672	88	1964
Strohecker, Charles J. D., Zelienople, Pa. Hame or collar fastener	606,633	June 28	2964	697 698	88	1975
Strong, George S., New York, N. Y., assignor, by mesne assignments, to C. E. Platt, Philadelphia, Pa. Compound locomotive-engine						
Strother, John W., West Milford, assignor of two-thirds to F. E. Morrison, Clarksburg, W. Va. Lid for pots, &c.	606,599	June 28	2906	672	88	1964

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stroud, William. (See Barr and Stroud.)						
Strunz, Frederick B., Pittsburg, Pa. Apparatus for making caustic soda	604,670	May 24	2632	606	88	1181
Strunz, Frederick B. and S. C., Pittsburg, Pa. Soap-crutching machine	604,671	May 24	2654	608	88	1181
Strunz, Stephen C. (See Strunz, Frederick B. and S. C.)						
Stubbers, Joseph, Covington, Ky. Apparatus for conveying air and vapor to burners	603,436	May 3	334	74	88	664
Stubblebine, William, Bethlehem, Pa. Furnace	606,600	June 28	2307	672 673	88	1964
Stubbs, William E., Chester, Pa. Mechanism for indicating travel of bicycles, &c	601,666	Apr. 5	113	22	88	24
Stuckey, Harriet T., Manville, S. C. Umbrella-holder	606,398	June 28	2545	590	88	1898
Stull, William B., Bayonne, N. J. Commutator-brush holder	604,220	May 17	1894	409	88	1004
Stumpf, John, Chicago, Ill. Cut-off mechanism for steam-engines	603,475	May 3	418	93	88	690
Sturcke, Herman E., Jamaica, assignor to Ætna Chemical Company, New York, N. Y. Preparing amorphous carbonate of lime from residues	603,225	Apr. 26	2823	645	88	581
Sturcke, Herman E., Jamaica, assignor to Ætna Chemical Company, New York, N. Y. Preparing amorphous carbonate of lime from residues	603,226	Apr. 26	2827	646	88	588
Sturgeon, John C., Erie, Pa. Mechanism for piercing metal ingots	601,783	Apr. 5	311	61, 62	88	50
Sturgeon, John C., Erie, Pa. Mechanism for rolling out hollow metal ingots into tubes	601,784	Apr. 5	313	62	88	50
Sturges, Hiram A. (See Wisner, William O., assignor.)						
Sturges, Joseph C., Aurora, Ill. Harrow	603,796	May 10	1001	224	88	813
Sturges, Lee, Chicago, Ill. Shuttle for looms	604,804	May 31	2890	661	88	1245
Sturgis, Samuel, West Manayunk, assignor to J. A. McCullough, Philadelphia, Pa. Dumping-wagon	604,644	May 24	2607	595 596	88	1172
Stutsman, Reuben O., Des Moines, Iowa. Apparatus for popping corn	605,617	June 14	1021	235	88	1567
Succie, Fred, Brewer, Me. Steam or hot-water heater	601,687	Apr. 5	117	23	88	25
Suck, Frederick A. (See White, Maurice W., assignor.)						
Suckert, Julius J., *et al.* (See Grimm, Maximilian, assignor.)						
Sulka, Frank J., Philadelphia, Pa. Roller-skate	604,179	May 17	1757	395	88	992
Sullivan, Daniel F. (See White and Sullivan.)						
Sullivan, Eugene J., River Forest, assignor to Brown Brothers Manufacturing Company, Chicago, Ill. Illuminating-lens for sidewalks	603,799	May 10	1002	224	88	812
Sullivan, Herbert W., London, England. Electrical measuring instrument	603,527	Apr. 19	1615	360	88	337
Sullivan, John J., Troy, N. Y. Punching-machine	603,664	May 10	771	171	88	766
Sullivan Machinery Company. (See Ball, Albert, assignor.)						
Sullivan, Mary. (See White and Sullivan, assignors.)						
Sullivan, Warren R. (See Perks, Archibald F., assignor.)						
Sulzman, Charles A., Waterford, assignor of one-half to J. Knickerbacker, Troy, N. Y. Fire-hydrant	603,295	May 3	86	22	88	618
Summers, Arthur L. (See Hussey and Summers.)						
Sundberg, William E., assignor to L. M. Patterson and C. J. Ekstedt, trustees, Worcester, Mass. Telephone-transmitter	605,832	June 14	1431	328	88	1644
Sundell, John, *et al.* (See Larson and Brannell, assignors.)						
Sunderland, Jesse W., assignor of one-half to A. J. McDuffee, Chicago, Ill. Gearing for velocipedes	605,938	June 21	1644	377	88	1708
Sundstrom, Herman T., Galveston, Tex. Machine for sealing newspapers	603,458	May 3	374	85 86 87	88	672
Sundt, August, assignor to Otis Brothers & Company, New York, N. Y. Control apparatus for elevators	603,665	May 10	772	171	88	767
Supiee, Henry H., assignor to C. E. Baird, Philadelphia, Pa. Apparatus for generating acetylene gas	606,087	June 21	1850	427	88	1739
Susemihl, Francis G., and A. Torrey, Detroit, Mich. Roller-bearing	605,147	June 7	165	41	88	1398
Sutcliffe, James A., Blackburn, assignor to himself, and G. Paley, Preston, England. Sheet-metal bobbin	602,168	Apr. 12	1087	227	88	209
Suter, Robert R., Media, Pa. Removable sprocket-rim	601,990	Apr. 5	700	149	88	139
Sutfin, Willis A., Marysville, Cal. Automatic hose-coupling	605,238	June 7	333	77	88	1414
Sutton, Benjamin F., Brooklyn, N. Y. Dress-shield	606,351	June 28	2276	536	88	1841
Sutton, George W., New Rochelle, assignor to Phœnix Interior Telephone Company, New York, N. Y. Combined annunciator and spring-jack	604,340	May 17	2056	460	88	1049
Sutton, John R. (See Vaughan, Charles W., assignor.) (Reissue.)	604,976	May 17	1985	430 431	88	1094
Sutton, William S., Belvidere, Ill. Rotary engine						
Suydam, John H., Sr., assignor of one-half to I. E. Brown, New Brunswick, N. J. Lath-carrying device for wall-paper or other machines	603,375	Apr. 12	1056	208	88	273
Swan, George E., Beaver Dam, Wis. Heel-spring for boots or shoes	604,805	May 31	2991	661	88	1245
Swan, Henry C., Oshkosh, Wis. Adjustable vehicle-iron	604,198	May 17	1786	408	88	997
Swan, Henry C., Oshkosh, Wis. Step-pad	605,357	June 7	576	127	88	1469
Swank, Charles H., Linville, Va. Tongue-support	603,367	May 3	243	55	88	647
Swartz, Harry E., Reading, Pa. Soap-press	604,436	May 24	2234	501	88	1108
Swartz, Robert E., assignor of one-half to H. E. W. Barnes, Creston, Iowa. Ball-and-socket clamp	605,527	June 14	850	199	88	1536
Swartz, Robert E., assignor of one-half to C. F. Skirvin, Creston, Iowa. Music-leaf turner	606,252	June 28	2277	526	88	1841
Sweeney, John, New York, N. Y. Horseshoe-pad	603,485	Apr. 19	1547	338	88	324
Sweeney, Peter, Toronto, Canada. Window-washer	603,414	May 3	207	66	88	637
Sweet, Benjamin W., Knoxville, Tenn. Gold-separating machine	602,113	Apr. 12	906	196 197	88	184
Sweet, Frederick D., Elyria, Ohio. Electric railway	604,911	May 31	3082	708	88	1289
Sweeting, James A., assignor of one-half to J. A. Cambridge, New York, N. Y. Combined knife and scoop	605,209	June 7	288	65	88	1408
Swelgard, Emanuel W., Chicago, Ill. Photographic-printing frame	603,713	May 10	851	189	88	762
Swelgard, Emanuel W., Chicago, Ill. Combination-tool for bicycles	605,453	June 7	741	169	88	1495
Swelgart, Webster W., York Road, Md. Nut-lock	606,253	June 28	2279	526	88	1842
Sweitzer, William H., Danville, Ill. Die-stock	603,980	May 10	1250	284	88	859
Swift, Frank E., Washington, Iowa. Furnace	606,254	June 28	2281	527	88	1842
Swift, George W., Jr., Bordentown, N. J. Printing-machine	602,377	Apr. 19	1102	252 253	88	940
Swift, Orrin W., New Haven, Conn. Apparatus for cooling and purifying liquids	605,685	June 14	1151	267	88	1598
Swihart, John H., assignor to National Computing Scale Company, Cleveland, Ohio. Scale	603,415	May 3	298	67	88	637
Swinglehurst, Harry, Jr. (See Williams and Swinglehurst.)	606,668	Apr. 19	1876	426	88	365
Swink, Charlie E., Chicago, Ill. Medicine-carton						
Swisher, John F. (See Stewart and Swisher.)						
Sydenham, Arthur. (See Sydenham, Watkinson, and Sydenham.)						
Sydenham, William, F. Watkinson, and A. Sydenham, London, England. Driving-gear for motor-cars	606,311	June 28	2279	550 551	88	1869
Sykes, Joshua W., Detroit, Mich. Holder for nursery-bottles. (Reissue)	11,663	May 17	2089	466	88	1055

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Sylvester, Alonzo H. (See Mehner, Carl H., assignor.)						
Sylvester, Herbert M. (See Sargent, James F., assignor.)						
Sylvester, Richard, Washington, D. C. Device for displaying pictures, &c	606,148	June 7	167	42	83	1999
Sylvester, Richard, Washington, D. C. Device for displaying pictures, advertisements, &c	606,173	June 21	2108	488	83	1767
Symes, Henry, Alexandra South, New Zealand. Mechanism for propelling vehicles	608,518	May 3	512	111 119	83	690
Szulczewski, Antoni and J., South Bend, Ind. Pneumatic cushion	608,496	Apr. 19	1546	362	83	394
Szulczewski, Joseph. (See Szulczewski, Antoni and J.)						
T. G. Mandt Vehicle Company. (See Mandt, Targe G., assignor.)						
Taber, Fred C. (See Russ, Hiram P., assignor.)						
Tachauer, Adolphe, Marseilles, and L. Braly, Lyons, France. Composition for making matches	608,666	May 10	777	------	83	703
Taccone, Nicholas. (See Catanzano and Taccone.)						
Tackle, Arnold J., Oakland, Cal. Electric igniter for gas-engines	606,312	June 28	2260	552	83	1862
Tait, Felix B., Decatur, Ill. Corn-sheller	605,984	June 21	1646	378	83	1708
Taft, George W., Kennett Square, Pa. Tongue-truck connection for reversible road-rollers	601,819	Apr. 5	372	78	83	70
Tager, Joseph. (See Cotter and Tager.)						
Talcott, Asa. (See Lobdell and Talcott.)						
Talen, Maurice, and G. H. Croft, Genesco, Ill. Ripping attachment for sewing-machines	608,981	May 10	1258	285	83	859
Talen, Maurice, and G. H. Croft, Genesco, Ill. (See Entwistle, Starr, Talley, and Lorance.)						
Talley, Orren P.	604,437	May 24	2234	501	83	1103
Tarbox, Ubert P., Toronto, Canada. Clothes rack or drier	608,546	Apr. 19	1450	375	83	343
Tarver, George W., London, England. Bicycle-trainer	601,913	Apr. 5	359	115	83	106
Tarver, Peyton B., Ardmore, Ind. Ter. Tip-fastener for billiard-cues	608,667	May 10	778	178	83	706
Tate, James E., Cincinnati, Ohio. Kitchen-cabinet	608,609	Apr. 19	1755	400	83	802
Tatro, Joseph L., New Bedford, Mass. Bicycle	604,806	May 31	2368	661	83	1945
Taylor, Andrew J., Vineland, N. J. Electrical belt						
Taylor, Charles, assignor of two-thirds to G. Saunderson, Montreal, and G. P. Magann, Toronto, Canada. Tire	601,763	Apr. 5	373	53	83	53
Taylor, Frank B. (See Salisbury and Dean, assignors.)						
Taylor, Frank B., E. E. Salisbury, and A. E. Dean, Tacoma, Wash. Signaling device	605,358	June 7	576	127	83	1468
Taylor, Fred. (See Taylor, John and F.)						
Taylor, George H., near Rockdale, assignor of two-thirds to R. C. and D. R. Wallis, Rockdale, Tex. Clevis	605,656	June 14	1101	268	83	1566
Taylor, Harrison H., Detroit, assignor of one-half to G. Thrall, Grosse Isle, Mich. Sectional boiler	606,318	June 28	2268	552	83	1862
Taylor, James, Heathercliffe Helsby, England. Telephone-switchboard plug	604,094	May 17	1566	356	83	950
Taylor, James W. (See Prichard and Taylor.)						
Taylor, James W., Herndon, Va., assignor to United States Sanitary Company, of Virginia. Dumping-cart	605,029	May 31	2264	749 750	83	1317
Taylor, John and F., Leeds, England. Machine for pulling or plucking rabbit-skins	606,255	June 28	2268	557 558	83	1842
Taylor, John D., Chillicothe, Ohio. Railway signaling and switching apparatus	605,359	June 7	580	128 129	83	1463
Taylor, John H., assignor to J. H. Wilson & Co., Cohoes, N. Y. Cutting-machine	601,719	Apr. 5	186	36, 37	83	37
Taylor, Joseph B., and H. V. Walker, Brooklyn, N. Y. Process of and apparatus for recovering ammonia and waste products from garbage	608,668	May 10	779	172	83	706
Taylor, Walter, Brisbane, Queensland. Hand driving-gear for cycles	605,559	June 14	906	211 212	83	1548
Teamer, James M., Palestine, Tex. Protected rail-joint	602,782	Apr. 19	2053	466	83	490
Tebbetts, Charles F., Boston, Mass., assignor to Tebbetts Labelling Machine Company, of West Virginia. Pneumatic labeling-machine	608,669	May 10	782	172 173	83	706
Tebbetts Labelling Machine Company. (See Tebbetts, Charles F., assignor.)						
Tegart, William M., Yorkton, Canada. Carrier for bicycles, &c	606,367	June 28	2465	577	83	1861
Telford, Samuel W., Little Rock, Ark. Nut-lock	601,699	Apr. 5	118	23	83	25
Tellefsen, Theodore J., Newark, N. J., assignor to Hyatt Roller Bearing Company, of New Jersey. Guide-frame for loose rolls in journal-bearings	604,572	May 24	2491	567	83	1149
Templeman, Robert L., Tackett's Mills, Va. Shipping-crate	608,398	May 3	244	55	83	647
Tenney, Frank M., Decatur, Ill. Scoop-board	604,807	May 31	2695	662	83	1946
Terrot, Charles, Cannstadt, Germany, assignor to M. Boas, St. Hyacinthe, Canada. Knitting-machine	605,065	May 31	2323	703 704	83	1398
Texas Implement and Machine Company. (See Schofield, James D., assignor.)						
Thackary, George J. (See Fales, Thomas, assignor.)						
Tharp, Frank, Elkin, N. C. Stovepipe-joint	605,923	June 7	397	89	83	1427
Tharp, William R. E., Glidden, Iowa. Fire-kindler	604,426	May 24	2235	502	83	1105
Thau, William, Gnadenfeld, Germany. Tool-holder for boring and shaping machines	608,748	May 10	913	208	83	794
Thayer, Russel A., and E. Everett, Allentown, Pa. Oscillating meter	606,601	June 28	2010	472	83	1905
Thill, William J., Waukon, Iowa. Pneumatic display-last	605,299	June 7	395	77	83	1414
Thoens, Burchard, New Orleans, La. Steam-trap	608,990	May 10	1322	308	83	873
Thomas, A. A., *et al.* (See Lynch and Hough, assignors.)						
Thomas, Addison C., and C. M. Hamilton, Chicago, Ill., assignors to G. W. Cummings, New York, N. Y. Rotary stenciling-machine	604,506	May 24	2268	537 538	83	1126
Thomas, Harold L., Brooklyn, N. Y., assignor to S. T. Dunham, of New York. Smoke-consumer	604,940	May 17	1658	416	83	1010
Thomas, James B., St. Louis, Mo. Combined automatic car and air-brake coupling	608,623	May 10	1051	235	83	822
Thomas, James B., St. Louis, Mo. Automatic combined car and air-brake coupling	608,624	May 10	1053	235	83	822
Thomas, John F. (See Gros and Thomas.)						
Thomas, John G., Lima, Ohio. Fastener for wire-stays	602,788	Apr. 19	2055	466	83	490
Thomas, John J. (See Williams, Thomas, and Richards.)						
Thomas, John W., Jr., Nashville, Tenn. Railway switch and signal mechanism	606,602	June 28	2011	674	83	1905
Thomas, John W., Jr., *et al.* (See Elliott, Thomas, assignor.)						
Thomas, Lorenzo R., *et al.* (See Fay, Rimmon C., assignor.)						
Thomas Manufacturing Company. (See Fay, Rimmon C., assignor.)						
Thomas, Mary A. L., Springfield, Tenn. Thread holder and cutter for spools	608,389	May 3	246	55	83	648
Thomas, William D., Allegheny, Pa. Rotary engine	601,914	Apr. 5	360	115 116	83	106
Thomas, William H., Indianapolis, Ind. Bicycle-seat	606,314	June 28	2265	552	83	1862
Thomassen, Hermanus, and J. Krop, Amsterdam, Netherlands. Cornish boiler	605,149	June 7	360	42	83	1353
Thomasson, Henry A., assignor of one-half to W. A. Snyder, Mount Hope, W. Va. Nut-lock	608,347	May 3	181	41	83	537
Thomforde, Ernest A., Englewood, N. J. Gripping device	605,454	June 7	743	169	83	1406
Thompson, Charles A. (See Wine and Thompson.)						
Thompson, Charles A., assignor to M. J. Wine, Washington, D. C. Stamp-money and letter packet	608,118	Apr. 26	2649	602	83	548
Thompson, Courtenay W., London, England. Valve mechanism for engines	605,080	May 31	2265	750 751	83	1317
Thompson, Elias H., Newark, Cal. Wind-wheel	608,119	Apr. 26	2650	602	83	548

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Thompson, George F., Omaha, Nebr. Removable head or cover for barrels, &c	608,348	May 3	182	41	83	687
Thompson, George W. (See Hasbrouck, Robert M., assignor.)						
Thompson, George W., *et al.* (See Dillahay, John G., assignor.)						
Thompson, Henry G., assignor of one-half to J. Dottinger, Hollister, Cal. Combination paint-bucket	606,100	June 21	1972	453	83	1763
Thompson, John T., Baltimore, Md. Sash-fastener	606,101	June 21	1973	453	83	1763
Thompson, Joseph T., Hatton, N. D. Steam flue-cleaner	604,551	May 24	2452	557	83	1140
Thompson, Lewis C., Indianapolis, Ind. Combination-lock	608,114	Apr. 12	908	197 198	83	184
Thompson, Robert. (See Thompson, William H. and R.)						
Thompson, Robert R., Bloomington, Ill. Box-lounge	608,487	Apr. 19	1549	352 353	83	394
Thompson & Son, Henry G. (See Luke, Charles, assignor.)						
Thompson & Son, Henry G. (See Mower, Samuel E., assignor.)						
Thompson, Walter M., and C. Nuhring, Cincinnati, Ohio. Apparatus for extinguishing fire and distributing disinfectants	604,439	May 24	2237	502	83	1103
Thompson, William H. and R., London, England. Lubricator	604,132	May 17	1662	373 374	83	972
Thompson, William P. (See Van Gelder, Pieter, assignor.)						
Thomson, Bessie W. (See Weston, Henry B., assignor.)						
Thomson, David D. (See Davis, Granville, assignor.)						
Thomson, David D. (See Davis, Granville and J. M., assignors.)						
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	602,922	Apr. 26	2313	527	83	284
Thomson, Elihu, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Distribution of electric currents	602,963	Apr. 26	2387	544	83	498
Thomson-Houston Electric Company. (See Thomson, Elihu, assignor.)						
Thomson, John, Brooklyn, N. Y., assignor to Neptune Meter Company, Jersey City, N. J. Mechanism for controlling actions of oscillating disks	602,376	Apr. 12	1358	304	83	274
Thomson, John, Brooklyn, N. Y., assignor to Neptune Meter Company, Newark, N. J. Apparatus for preventing damage to water-meters	602,377	Apr. 12	1360	304	83	274
Thomson, John, Brooklyn, N. Y., assignor to Neptune Meter Company, Jersey City, N. J. Water-meter	602,378	Apr. 12	1361	304	83	274
Thomson, Thomas, Scranton, Pa. Smoke-generator	606,315	June 28	2386	553	83	1863
Thorn, Frederick S., and C. Hoddle, London, England. Apparatus for generating acetylene gas	604,199	May 17	1787	403	83	906
Thorn, Henry A. A., London, England. Single-trigger mechanism for guns	602,610	Apr. 19	1756	401	83	903
Thorn, John W. Mechanicsburg, Va. Safety-stirrup	606,366	June 28	2487	578	83	1982
Thorn, Thomas F. (See Dennis and Thorn.)						
Thornburgh Coupler Attachments Company. (See Thornburgh, William, assignor.)						
Thornburgh, William, Shelby, Ohio, assignor to Thornburgh Coupler Attachments Company, Limited, Detroit, Mich. Coupling attachment for railway-cars	606,102	June 21	1974	453 454	83	1763
Thornburgh, William, Shelby, Ohio, assignor to Thornburgh Coupler Attachments Company, Limited, Detroit, Mich. Spring-protecting device for railway coupling attachments	606,316	June 28	2266	553	83	1864
Thorne, Levi E., New York, N. Y. Sound-locating instrument	605,081	May 31	2269	751	83	1318
Thorne, Richard H., El Paso, Tex. Burial apparatus	605,360	June 7	586	130 131	83	1463
Thornton, William A. (See Scarth and Thornton.)						
Thornycroft, John I., London, England. Steam-generator	608,800	May 10	1004	234 235	83	812
Thrall, George. (See Taylor, Harrison H., assignor.)						
Thum, Hugo, Grand Rapids, Mich. Sticky fly-paper	608,961	May 10	1324	303 304	83	874
Thunderbolt, Edward, Carlton, Victoria. Clutch-gear	602,568	Apr. 19	1685	388	83	349
Thurber, Charles H. (See Harrison and Thurber.)						
Thurmond, John R., Denver, Colo. Nut-lock	601,915	Apr. 5	362	116	83	107
Thurner, Michael. (See Weber and Thurner.)						
Tibbetts, Urville D., *et al.* (See Hitchcock, Charles F., assignor.)						
Tice, Levi. (See Tice, Wilson M. and L.)						
Tice, Wilson M. and L., Bethlehem, Pa. Filter for rainwater	602,498	Apr. 19	1550	353	83	395
Tigges, Hermann. (See Jacobson and Tigges.)						
Tilden, James A., Hyde Park, assignor to Hersey Manufacturing Company, Boston, Mass. Pneumatic malting-drum	602,528	Apr. 19	1619	370	83	337
Tilley, John B. (See Tilley, Joseph B., J. B., and L. F.)	601,764	Apr. 5	375	54	83	53
Tilley, Joseph B., J. B., and L. F., Keighley, Kans. Kafir-corn header	605,985	June 21	1647	378	83	1708
Tilley, Licaneory F. (See Tilley, Joseph B., J. B., and L. F.)	602,501	Apr. 19	1723	392	83	356
Tillman, William M., Salt Lake City, Utah. Blowpipe	606,635	June 28	2968	689	83	1976
Timberlake, Orville A., Norwood, Ohio. Vehicle-spring	606,636	June 28	2970	690	83	1976
Timken, Henry, and R. Heinzelman, assignors of one-half to W. R. and H. H. Timken, St. Louis, Mo. Roller-bearing for vehicles	606,608	June 28	2914	674 675	83	1905
Timken, Henry, and R. Heinzelman, assignors of one-half to W. R. and H. H. Timken, St. Louis, Mo. Roller-bearing	604,947	May 31	2128	719	83	1291
Timken, Henry H., *et al.* (See Timken and Heinzelman, assignors.)	604,552	May 24	2453	557 558	83	1141
Timken, William R., *et al.* (See Timken and Heinzelman, assignors.)						
Timms, James, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Car-coupling						
Timpe, Adolf. (See Deacon and Timpe.)						
Tinkham, Francis M., Springfield, Mass. Bedstead						
Tinkham, Howard A., Norton, assignor to White Warner Company, Taunton, Mass. Hot-air furnace						
Tirrell, Jacob P. (See Kendall and Tirrell.)						
Titus, Ivor R., and J. W. Ensign, assignors to Ensign Manufacturing Company, Huntington, W. Va. Self-oiling wheel	602,379	Apr. 12	1362	305	83	274
Titus, John F., Boone county, Ind. Nut-lock	603,670	May 10	787	173	83	770
Titus, Silas W., Brooklyn, assignor to Pneumatic Engineering Company, New York, N. Y. Tube-well	602,547	Apr. 19	1652	376	83	343
Titus, Silas W., New York, N. Y., assignor to Pneumatic Engineering Company, of West Virginia. Apparatus for using compressed air to elevate water. (Reissue)	11,675	June 28	2978	691	83	1976
Tobey, Fred W., Grand Rapids, Mich. Lock	604,673	May 24	2656	609	83	1188
Todd, Albert M. (See Abbey, Orra E., assignor.)						
Todd, Albert V., Oelwein, Iowa. Burglar-alarm	605,589	June 14	905	224	83	1558
Todd, Alfred M., Bordeaux, France. Toy	604,180	May 17	1757	396	83	962
Todd, Richard, Heaton Chapel, and J. A. Stott, Manchester, England. Apparatus for spinning textile fibers	608,068	Apr. 26	2558	581	83	530

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Todd, S. E., Jr. (See Hoard, Milo C., assignor.)						
Toepfer, Antoinette, administratrix. (See Toepfer, William G.)						
Toepfer, William G., deceased, (A. Toepfer, administratrix,) assignor to himself and E. M. Sanger, New York, N. Y. Bicycle-bell	605,926 604,377	June 21 May 17	1648 1927	376 431	83 83	1704 1084
Tofft, Peter A., New York, N. Y. Knockdown house						
Toland, Charles M., Wilmington, Del. Support-bracket for lamps, gas-burners, or the like	604,133	May 17	1666	374	83	973
Toledo Glass Company. (See Owens, Michael J., assignor.) (Reissue.)						
Tombs, Charles C., assignor to T. J. Fearl and R. Ferguson, Johnstown, Pa. Folding chair	606,108	June 21	1976	454	83	1764
Tomlins, Herbert, assignor to Electric Fog-Signal Syndicate, Limited, London, England. Fog signaling apparatus for railways	605,361	June 7	502	131 132	83	1464
Tomlinson, Elizabeth, *et al.* (See Tomlinson, James, assignor.)						
Tomlinson, James, assignor to E. Tomlinson and W. C. Duffus, Detroit, Mich. Storing-package for liquids	603,240	Apr. 26	2852	650	83	586
Tonge, James. (See Gass and Tonge.)	603,296	May 3	87	.....	83	618
Tooker, George W., New York, N. Y. Gilding china, earthenware, or porcelain articles.						
Toone, Benjamin, *et al.* (See Adcock, Arthur, assignor.)	605,657	June 14	1108	254	83	1582
Toquet, Benjamin H., Westport, Conn. Pencil	603,604	June 28	2915	675	83	1966
Torea, Jacob, Grand Rapids, Mich. Bicycle-tire	601,820	Apr. 5	374	79	83	70
Torkelson, Reinhard T., Worcester, Mass. Breech-loading firearm						
Torrey, Augustus. (See Susemihl and Torrey.)						
Totten, George. (See Haywood and Totten.)						
Toward, Charles P., Worcester, Mass., assignor of one-half to E. D. Merrill and F. D. Folsom. Combination cutter, connector, and pliers	603,349	May 3	183	42	83	637
Tower, Clinton A., assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling	601,847	Apr. 5	445	90	83	83
Tower, Wallace G., *et al.* (See Young, Harland H., assignor.)						
Towers, Edmund, Yonkers, assignor of three-fourths to J. Gibney and J. C. S. Wellis, Sing Sing, N. Y. Bottle	603,350	May 3	184	42	83	637
Towles, Henry O. (See Walquist, Nelson, and Gronquist, assignors.)						
Towne, Nathan P., Philadelphia, Pa. Gun-turret	606,038	June 21	1858	427 428	83	1739
Towne, Nathan P., Philadelphia, Pa. Turret-driving mechanism	606,039	June 21	1856	428	83	1739
Townsend, Elvin E., Capitola, Cal. Seat trip mechanism for flushing-tanks of water-closets	605,150	June 7	170	42	83	1383
Townsend, Emory L. (See Davis and Townsend.)						
Tracy, John D., and J. F. Platt, deceased, Sterling, Ill.; J. W. Platt, administrator. Corn-planter	602,148	Apr. 12	973	212 213 214	83	196
Trapp, Carles C. and F., assignors of one-half to J. M. Morgan, Port Washington, Wis. Revolving chair	602,480	Apr. 19	1582	353	83	325
Trapp, Edward A., New York, N. Y. Bicycle-support	602,669	Apr. 19	1877	426 427	83	386
Trapp, Edward A., New York, N. Y. Bicycle-support	602,670	Apr. 19	1879	427	83	386
Trapp, Edward A., New York, N. Y. Bicycle-support	602,784	Apr. 19	2056	466 467	83	420
Trapp, Frank. (See Trapp, Carles C. and F.)	605,961	June 21	1741	400	83	1720
Trautner, Charles, Terre Haute, Ind. Device for temporarily disabling bicycles						
Travers, Fergus J. (See Jackson and Travers.)	606,478	June 28	2084	618 619	83	1921
Tremaine, Edward G., Brooklyn, and P. Lorillard, Jr., Tuxedo, N. Y., assignors to P. Lorillard Company, Jersey City, N. J. Pressing-machine	602,671	Apr. 19	1882	428	83	386
Trench, John T., Kenmare, Ireland. Pneumatic-tired wheel						
Tribune Association. (See Horgan, Stephen H., assignor.)	605,862	June 7	596	132	83	1465
Trimble, Frank, Greensburg, Ind. Mop-wringing attachment for pails	606,256	June 28	2283	528	83	1842
Trimble, John A., Interior, S. D. Non-refillable bottle	601,916	Apr. 5	563	116	83	107
Trimont Manufacturing Company. (See Childs, Eugene, assignor.)						
Triplett, Claiborne W., Leland, Oreg. Rotary engine						
Tripp, John W. (See Lanyon and Tripp.)						
Trippe, Fred H. (See Camp, Harry F., assignor.)	606,498	June 28	2707	624	83	1926
Trippett, Wesley H., Redlands, Cal. Magazine-pistol	604,507	May 24	2370	536 539	83	1126
Trosain, Otto, Hamburg, Germany. Steam-turbine	605,240	June 7	330	78	83	1415
Trotter, Charles W., Rochester, N. Y. Furnace	603,397	May 3	88	22	83	618
Trotter, Walter F., Marshalltown, Iowa. Oil or gas engine	605,363	June 7	506	133	83	1465
Troutt, James W., Elkton, Ky. Spark-arrester						
Trowbridge, Henry, *et al.* (See Brengman, John, assignor.)	606,040	June 21	1858	428	83	1740
Truba, Edward L., Detroit, Mich. Ball-bearing	603,491	May 3	463	108	83	699
Trueblood, Hezekiah L., Indianapolis, Ind. Combination saw-tool	606,605	June 28	2916	675	83	1966
Truman, Jonathan G., Lemon City, Fla. Electric motor	605,763	June 14	1275	295	83	1616
Trunk, Benjamin W., St. Joseph, Mo. Triangle	605,302	June 7	469	105 106	83	1441
Trusler, Charles L., Indianapolis, Ind. Triturator	604,095	May 17	1594	358	83	959
Trussell, Emory A., assignor to Sieber & Trussell Manufacturing Co., St. Louis, Mo. Order-holder	601,884	Apr. 5	507	104	83	95
Tucker & Dorsey Manufacturing Company. (See Dorsey, Robert L., assignor.)	603,932	May 10	1253	285	83	800
Tucker, Frank P., Somerville, Mass. Carton	601,821	Apr. 5	377	79	83	71
Tucker, Smith, assignor of one-half to G. Arnold, Medina, N. Y. Truss-pad	602,202	Apr. 12	1071	235	83	216
Tucker, William W., Hartford, Conn. Ball-bearing for cycles or velocipedes						
Tuckerman, Albert W., Wakefield, Mass. Gas-cock						
Tuer, George S. (See Fowler and Tuer.)						
Tuerk, Albert. (See Blessing, John G., assignor.)	603,214	Apr. 26	2799	630	83	577
Tunnah, James, Little Rock, Ark. Printer's chase	601,740	Apr. 5	229	45	83	44
Turbeville, John B., and M. F. Higgs, Lingleville, Tex. Washing-machine						
Turner, Albert, *et al.* (See Clarke, George R., assignor.)	602,509	Apr. 19	1686	384	83	340
Turner, Donald L., Wellington, New Zealand. Releasing device						
Turner, E. J., *et al.* (See Lynch and Hough, assignors.)						
Turner, Frank B., *et al.* (See Osborne, William W., assignor.)	605,987	June 21	1651	379	83	1704
Turner, Frederick E., Kansas City, Mo. Elevator						
Turner, Henry H., *et al.* (See Clarke, George R., assignor.)						
Turner, Herbert C., assignor to American Indicator Company, San Francisco, Cal. Station-indicator	605,986	June 21	1653	379	83	1705
Turner, William A., assignor to American Indicator Company, San Francisco, Cal. Station-indicator	604,493	May 24	2398	538	83	1119
Turpin, David R., Fairmount, Ill. Trestle	603,351	May 3	185	42	83	637

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Turpin, Perry B., administrator. (See Fortuño, Manuel.)						
Turri, George G. (See Boddam, Edmond M. T., assignor.)						
Tust, Paul. (See Schmidt and Tust.)						
Tustison, Frank A., Montana, Kans. Combined chair, crib, cradle, bed, and walker	604,341	May 17	2057	460 461	83	1049
Tuttle, Daniel M., Oneida, N. Y. Gas-engine	604,941	May 17	1900	416 417	83	1010
Tweedale, Frederick N., *et al.* (See Hancock and Scholes, assignors.)						
Twining, Charles, Halifax, Canada. Vessel and sail and rigging therefor	606,104	June 21	1977	454 455	83	1764
Twist, Joseph F., assignor of one-half to L. D. Radgesky, San Francisco, Cal. Bicycle-saddle	605,151	June 7	171	43	83	1383
Twisted Wire Box Strap Company. (See Mitchell, Charles W., assignor.)						
Twitchell, Selden, Philadelphia, Pa. Filtering apparatus	605,152	June 7	173	43	83	1384
Tyack, Richard. (See Hopkinson and Tyack.)						
Tyden, Emil, assignor to Metropolitan Filter Company, Chicago, Ill. Water-filter	602,883	Apr. 26	2234	506	83	469
Tyler, Charles R., and C. F. Fries; said Tyler assignor to C. F. Walther, Brooklyn, N. Y. Water-heater	602,040	Apr. 5	782	169 170	83	148
Tyler, Elias M., Auburn, Cal. Reversible ratchet-wrench	603,159	Apr. 26	2716	617	83	568
Tyler, Francis M. and W. W., Auburndale, Mass. Switch-operating mechanism for street-railways	606,488	June 28	2615	608	83	1908
Tyler, William E., assignor of three-fourths to H. B. Hutchison, Aldie, J. A. Nicol, and F. E. Ransdell, Manassas, Va. Lifting-jack	605,210	June 7	282	65	83	1408
Tyler, William W. (See Tyler, Francis M. and W. W.)						
Ullman, Peter, Stafford, Ohio. Car-coupling	603,296	May 3	91	22, 23	83	619
Unbehend, Jacob J., Syracuse, N. Y. Rotary engine	606,606	June 28	2917	675 676	83	1966
Underwood, Franklin, Burr's Mills, N. Y. Fire-escape	604,096	May 17	1596	359	83	960
Underwood, John T. (See Robertson, William T., assignor.)						
Underwood, Walter H., Hutchinson, Kans. Evaporating apparatus	603,543	May 3	557	123	83	708
Union Boiler Tube Cleaner Company. (See Forsyth and Bell, assignors.)						
Union Eyelet Company. (See Smith, Stephen N., assignor.)						
Union Special Sewing Machine Company. (See McNeil, Chester, assignor.)						
Union Special Sewing Machine Company. (See Muther, Lorenz, assignor.)						
Union Special Sewing Machine Company. (See Muther and Holland, assignors.)						
Union Special Sewing Machine Company. (See Coleman, John P., assignor.)						
Union Switch and Signal Company. (See Schreuder, Jens G., assignor.)						
Union Switch and Signal Company. (See Schreuder, Jens G., assignor.)						
United Alkali Company. (See Wylde and Kynaston, assignors.)						
United Indurated Fibre Company. (See Peterson, Jesse, assignor.)						
United States Heater Company. (See Rathbone, John A., assignor.)						
United States Metallic Packing Company. (See Longstreth, Charles, assignor.)						
United States Sanitary Company. (See Taylor, James W., assignor.)						
Universal Advertising Machine Company. (See Manley, Horace A., assignor.)						
Universal Car Bearing Company. (See Fritz, Harry A., assignor.)						
Universal Car Bearing Company. (See Nulsen, Frank E., assignor.)						
Universal Loom Company. (See Emery, Abram D., assignor.)						
Universal Surface Electric Railway Company. (See Lawrence, William, assignor.)	605,082	May 31	3271	751	83	1318
Unz, Henry H., Philadelphia, Pa. Type-writing-machine ribbon-spool	604,808	May 31	2806	662	83	1246
Uptegrove, Frank A., Caney, Kans. Lifting-jack	602,884	Apr. 26	2236	506 507 508	83	470
Urban, Anton, Vienna, Austria-Hungary, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Machine for milling variable grooves in screw-dies	603,801	May 10	1007	225 226	83	813
Urbanek, Joseph, assignor of two-thirds to T. E. Molacek and M. Palmer, Schuyler, Nebr. Corn-planter	604,809	May 31	2898	663	83	1346
Urie, James. (See Campbell and Urie.)	603,561	May 3	609	136	83	719
Urmson, William G., New Brunswick, N. J. Valve						
Urmston, Sarah. Indianapolis, Ind. Window-washer						
Usedom, Hellmuth. (See Röhl and Usedom.)						
Uthes, John E. F. (See Bossert, Frederick, assignor.)						
Vacheron, Eugene F., *et al.* (See Bourne, Philip, assignor.)						
Vail, Edward M., and G. Potter, Kewanee, Ill. Postmarking and stamp-canceling machine	606,257	June 28	2284	529	83	1842
Vail, James B., assignor of one-half to W. C. Smith, Weston, Mich. Device for tightening wire	606,178	June 21	2109	495	83	1798
Van Allen, Lucas H., *et al.* (See Richardson, Julius C., assignor.)						
Van Buren, Jafew S., assignor to Rathbone, Sard & Company, Albany, N. Y. Stove and grate	602,889	Apr. 19	1621	370	83	326
Van Buskirk, Charles L., Lodi, Cal. Conveyer for endless-rope railways	603,215	Apr. 26	2800	640	83	577
Van Buskirk, George, New Lisbon, Ind. Gate	601,991	Apr. 5	701	149	83	183
Van Cleve, Frank H. (See Marble, Webster L., assignor.)						
Van Deusen, Henry B. (See Melrose and Van Deusen.)						
Van Dorn, William T., Chicago, Ill. Draw-bar for railway-cars	606,105	June 21	1984	455	83	1765
Van Dyke, Colin I. (See Reich and Van Dyke.)						
Van Gelder, Pieter, Sowerby Bridge, assignor to W. P. Thompson, Liverpool, England. Machine for separating dust from air	602,964	Apr. 26	2388	544	83	499
Van Hoesen, Frederick T. (See Smith, Amos H., assignor.)	601,720	Apr. 5	191	37	83	38
Van Hoesen, Theodore W., Troy, N. Y. Machine for grinding glass tubes	603,614	May 3	698	153	83	734
Van Horn, Paul R., *et al.* (See Dinsmore, Robert, assignor.)	603,542	May 3	610	136	83	719
Van Melick, Joseph, Cleveland, Ohio. Combination chair, washbench, &c.	606,399	June 28	2546	590	83	1802
Van Pelt, Harmon, New Athens, Ill. Corn-shock compressor	605,083	May 31	2873	758	83	1318
Van Praag, Leonidas A., New York, N. Y. Glove						
Van Riper, Abram H., Nutley, N. J. Fire-extinguisher	606,317	June 28	2391	553	83	1864
Van Ruymbeke, Joseph. (See Jobbins, William F., assignor.)	603,241	Apr. 26	2853	651	83	598
Van Schoick, George R., assignor of one-half to F. W. Stewart, Coldwater, Mich. Wrench.						
Van Steeter, John H., and G. N. Dow, Salt Lake City, Utah. Running-gear	604,948	May 31	2139	719 720	83	1301
Van Vriesland, Adolphe L., Paris, France. Carbureter	602,041	Apr. 5	784	170	83	148
Van Wie, Peter G., assignor to Favorite Stove and Range Company, Piqua, Ohio. Gas-stove	605,311	June 7	294	66	83	1404
Vanasselt, Jacob H., Seattle, Wash. Trolley-switch	604,949	May 17	1898	418	83	1011
Vance, Alpheus J., Grand Junction, Colo. Water-lifting machine	602,580	Apr. 19	1692	370 371	83	398
Vance, Charles G., assignor of two-thirds to J. B. Vance and L. S. Goff, Spencer, W. Va. Rotary engine	602,999	Apr. 26	2445	558	83	806
Vance, J. B., *et al.* (See Vance, Charles G., assignor.)	601,992	Apr. 5	702	149	83	183
Vandegrift, Andrew J., St. Louis, Mo. Wheel	603,299	May 3	96	23	83	619
Vanderbeck, Alexis, Scammon, Kans. Electric brake mechanism						
Vanderman, William, Willimantic, Conn. Shower-bath apparatus						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Dr'g.	Official Gazette. Vol.	Page.
Vantuyl, Thomas Nichols, Iowa. Handle-bar	603,671	May 10	788	173	88	771
Varley, Thomas W., New York, assignor to himself, C. P. and R. A. Lenk, Brooklyn, N. Y. Current-indicator	606,369	June 28	2488	576	88	1868
Vaucain, Samuel M., *et al.* (See Austin, William L., assignor.)						
Vaughan, Charles W., assignor of one-fourth to J. R. Sutton, Hillsdale, Mich. Brake-pipe connection. (Reissue)	11,673	June 28	2975	690	88	1977
Vaughan, Henry H., and J. O. Pattee, St. Paul, Minn. Ball-joint for brake-couplings or other uses	605,989	June 21	1656	380	88	1706
	606,370	June 28	2489	578 / 579	88	1868
Vaughn, Charles A., Vineland, N. J. Power-hammer	605,084	May 31	2373	758	88	1818
Vaughn, James R., and M. Jenkins, Walnut Shade, Tenn. Folding hay-rake	602,115	Apr. 12	910	198	88	184
Vaughn Machine Company. (See Jones, Albert F., assignor.)						
Vedder, Irving S., Schenectady, N. Y. Egg-tester	602,412	Apr. 12	1490	321	88	366
Veeder, Curtis H., assignor to Veeder Manufacturing Company, Hartford, Conn. Machine for printing index-rings	606,434	June 28	2618	603	88	1909
Veeder Manufacturing Company. (See Veeder, Curtis H., assignor.)						
Velt, Henry E., Chicago, Ill. Binder for sheet-music, &c	603,714	May 10	853	189	88	768
Veith, Jacob, *et al.* (See Wasciniski, Alexander, assignor.)	604,163	May 17	1715	386	88	983
Veith, Jacob, Kansas City, Kans. Pocket cigarette-former	602,948	Apr. 12	1146	251	88	230
Velasko, Adolph G., Syracuse, N. Y. Undergarment						
Venetian Iron Company. (See Stewart, Theodore L., assignor.)						
Verdier, Mary E., Easton, Pa. Attachment for musical instruments						
Verlenden, Enos. (See Lord, Simeon, assignor.)						
Vermilyea, Eugene, assignor of one-half to S. Snyder and J. Metcalf, Waterford, N. Y. Knitting-machine cylinder	604,440	May 24	2298	503	88	1104
Vermilyea, Le Roy. (See Buck, James A., assignor.)						
Vernon, Thomas B., Wallington, England. Apparatus for keeping letters or other documents	602,116	Apr. 12	912	198 / 199	88	185
	604,243	May 17	1865	418	88	1012
Verpillier, Emil, and C. W. Graves, Newark, N. J. Doll						
Vetter, Alexander F., Long Island City, N. Y., assignor, by mesne assignments, to Meyrowitz Manufacturing Company, Ridgefield, N. J. Apparatus for reducing electric currents and voltage	602,709	Apr. 19	1943	441	88	398
	606,607	June 28	2916	677	88	1966
Vicars, John, Sr., Boot, T. and J. Vicars, Jr., Liverpool, England. Mechanical stoker						
Vicars, Thomas. (See Vicars, John, Sr., T., and J., Jr.)						
Vickers, Douglas, and G. T. Buckham, assignors to Vickers Sons & Co., Limited, Sheffield, England. Breech-loading ordnance	602,785	Apr. 19	2061	467 / 468	88	421
Vickers Sons & Co. (See Vickers and Buckham, assignors.)						
Vidal, Henri R., Paris, France. Making carboxylated products of triphenylmethane	603,300	May 3	98	------	88	619
Vidal, Raymond, Paris, France. Black dye and making same. (Reissue)	11,659	Apr. 5	797	------	88	151
Vile, Albion, Cardiff, England. Gage-glass mounting	604,441	May 24	2240	502	88	1104
Villard, John, and J. P. Henderson, Bonham, Tex. Match-safe	603,301	May 3	94	23	88	619
Vincent, Joseph A. (See Jones, Joseph W., assignor.)						
Vincent, Joseph A. (See Sivan, Casimir, assignor.)						
Vincent, Joseph A., Philadelphia, Pa. Combined clock and gramophone	602,490	Apr. 19	1553	354	88	325
Vincent, Joseph A., Philadelphia, Pa., assignor to Electro Gas Company, of West Virginia. Apparatus for generating acetylene gas	602,189	Apr. 12	1053	230	88	219
	601,721	Apr. 5	198	37, 38	88	36
Vine, George, Ansonia, Conn. Instrument for measuring diameters	606,318	June 28	2392	553 / 554	88	1865
Vining, Robert W., London, England. Automatic apparatus for taking photographs	602,665	Apr. 26	2240	506 / 509	88	470
Vittner, Frank, Chicago, Ill. Window						
Vogel & Brothers, William. (See Edwards, Harry M., assignor.)						
Vogeler, Henry, San Francisco, Cal. Bicycle-trainer	604,200	May 17	1790	408	88	908
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Latch	602,866	Apr. 26	2249	509	88	470
	602,551	Apr. 19	1626	371	88	339
Vollmer, John C., Jr., Kingston, Ill. Milk-pail rest	604,278	May 17	1980	438	88	1085
Vollrath, Louis F., San Antonio, Tex. Expanding hub						
Von Stege, Charles E. (See Kindt, Gustave F., assignor.)						
Vredenburgh, Frank C., and C. F. Lathrop, Atlantic, Iowa. Plumb-level	603,368	May 3	208	47	88	641
Vuilleumier, Olivier. (See Claret and Vuilleumier.)						
W. W. Kimball Company. (See Hedgeland, Frederick W., assignor.)	602,887	Apr. 26	2243	509 / 510	88	471
Wache, Arnold, Breslau, Germany. Carving-machine	604,810	May 31	2900	663	88	1247
Waddell, John A. L., Kansas City, Mo. Automatic jetty for deepening tidal ways	605,153	June 7	176	43, 44	88	1364
Waddell, John A. L., and I. G. Hedrick, Kansas City, Mo. Suspension-bridge						
Wade, Harry, *et al.* (See Davis, John A., assignor.)						
Wadsworth, John E. (See Yergin and Wadsworth.)	603,544	May 3	559	123	88	709
Wagenblast, Franz, New York, N. Y. Holder for hats, coats, umbrellas, &c	603,372	May 3	186	42	88	637
Wagner, Frank B., and A. W. Foote, Cleveland, Ohio. Rail-joint bridge	601,917	Apr. 5	565	117	88	107
Wagner, Hubert, Buffalo, N. D. Farrier's pincers						
Wagner, Isaac L., assignor of one-half to D. J. Farthing and W. A. McQueen, Butler, Tenn. Wagon-brake	602,786	Apr. 19	2002	466	88	421
Wahrer, Maurice. (See Doyle, Thomas M., assignor.)						
Wainwright, Jacob T., Chicago, Ill. Machine for exhausting molten metal. (Reissue)	11,671	June 21	2116	486	88	1790
Walt, Henry H., assignor to Western Electric Company, Chicago, Ill. Instrument-winding device	605,154	June 7	177	44	88	1364
Waite, Fred, Otley and J. Saville, Bradford, England. Machine for folding and wrapping newspapers	601,741	Apr. 5	230	45, 46	88	44
	604,442	May 24	2241	508	88	1104
Waitt, Arthur M. Cleveland, Ohio. Car-buffer	602,491	Apr. 19	1556	354	88	326
Walder, Jacob, deceased, Paterson, N. J.; M. Walder, executrix. Loom						
Walder, Mary, executrix. (See Walder, Jacob.)	605,264	June 7	509	123	88	1465
Wales, Joshua R., Marlborough, Mass. Bookbinding	605,308	June 7	472	106	88	1441
Walker, Arthur W., Malden, Mass. Cooking-stove	605,940	June 21	1659	380 / 381	88	1706
Walker, Byron A., Erie, Pa. Bearing						
Walker Company. (See Zweigbergk, Thorsten von, assignor.)	604,181	May 17	1758	------	88	908
Walker, George, New York, N. Y. Pyroxylin composition						
Walker, H. R., *et al.* (See Lobdell, Emons H., assignor.)						
Walker, Henry V. (See Taylor and Walker.)	604,097	May 17	1597	369	88	960
Walker, James E. A., Walkerton, Canada. Street-car fender						
Walker, John. (See Simpson, Walker, Strang, and Farnworth.)	601,722	Apr. 5	194	38	88	36
Walker, Lillian S., Boston, Mass. Corset						
Walker, Michel. (See Kittelsen and Walker.)						
Walker, Thomas C., assignor to Midland Foundry and Machine Works Company, Denver, Colo. Attachment for lathes	602,965	Apr. 26	2290	545	88	499
	604,443	May 24	2243	503	88	1105
Walker, William, Summit, N. J. Bottle-stopper						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Dr'g.	Official Gazette. Vol.	Page.
Walkins, Louis E., assignor of one-half to F. W. Dickinson, Springfield, Mass. Trolley-device for electric-railway cars	603,673	May 10	789	173 / 174	88	771
Walkins, Louis E., assignor of one-half to F. W. Dickinson, Springfield, Mass. Rail-conductor for electric systems	604,098	May 17	1599	389	88	961
Walkins, Louis E., assignor of one-half to F. W. Dickinson, Springfield, Mass. Third-rail underground electric-railway system	605,096	May 31	2329	764	88	1329
	604,811	May 31	2300	663	88	1247
Wallace, Robert H., New Concord, Ohio. Running-gear for vehicles	603,906	Apr. 26	2308	545	88	499
Wallach, Leopold, New York, N. Y. Vacuum-tube lantern						
Waller, Arthur R., Belleville, assignor to Burger Manufacturing Company, Hoboken, N. J. Sheet-metal can	602,643	Apr. 19	1880	417	88	376
Walling, James H., *et al.* (See Boening, Ernest, assignor.)						
Wallis, D. R., *et al.* (See Taylor, George H., assignor.)	601,689	Apr. 5	119	23	88	35
Wallis, George W., Saginaw, Mich. Hose-coupling reshaper	604,444	May 24	2243	503 / 504	88	1105
Wallis, Mounteney, Philadelphia, Pa. Bicycle-handle						
Wallis, R. C., *et al.* (See Taylor, George H., assignor.)						
Walquist, Frank W., G. Nelson, and J. L. Gronquist, Brooklyn, N. Y.; said Walquist assignor of one-third to H. O. Towles, Washington, D. C. Saw	604,279	May 17	1931	433	88	1085
Walrath, Nelson J. (See Rowe, Myron, assignor.)						
Walsh, Edward, Jr. (See Hartung, Charles C., assignor.)	605,598	June 14	852	190	88	1537
Walsh, Francis A., Milwaukee, Wis. Closure for vessels	603,988	Apr. 26	2244	510	88	471
Walsh, James H. (See Ryan, Thomas W., assignor.)						
Walsh, John E., New York, N. Y. Lightering vessel	601,600	Apr. 5	190	23	88	36
Walter Automatic Air Coupler Company. (See Pugh, William J., assignor.)						
Walter, John P., Edgerton, Ohio. Tool-handle	603,809	May 3	96	24	88	630
Walters, James H., Mooresville, N. C., and W. H. Walters, Waynesborough, Ga. Gin-saw-filing machine	603,615	May 3	668	154	88	784
Walters, William H. (See Walters, James H. and W. H.)						
Walters, William J., and W. W. Rohrer, Guthrie, Okla. Ter. Curtain-fixture	604,553	May 24	2455	558	88	1141
Walther, Charles F. (See Tyler and Price, assignors.)						
Walton, Ernest, and F. Macke, assignors of one-third to W. M. Dillon, Sterling, Ill. Nail-making machine	604,812	May 31	2901	663 / 664	88	1247
Walton, Frederick H., Orono, Me. Rotary lawn-rake	604,944	May 17	1807	418 / 419	88	1012
Walton, Roscoe. (See Johnston, William F., assignor.)						
Wands, John C., St. Louis Mo. Air-brake controller	604,949	May 31	3131	730	88	1392
Wappler, Fredrick H. (See Wappler, Reinhold H. and F. H.)						
Wappler, Reinhold H. and F. H., New York, N. Y. Rheostat for electric lamps	604,812	May 31	2904	664	88	1247
Ward, Edward L. C. (See Dickinson, James Q., assignor.)	605,589	June 14	854	200	88	1537
Ward, Ezra H., assignor to J. W. Keogh, Chicago, Ill. Shredding-knife	604,814	May 31	2905	664 / 665	88	1247
Ward, William E., Montclair, N. J. Desk-lamp						
Ward, William H., Dodd City, Tex. Plow						
Warder, Bushnell & Glessner Company. (See Bauer, William F., assignor.)						
Ware, Henry P. (See Stender, Herman, assignor.)						
Waring, George E., Jr., Newport, R. I., assignor to Drainage Construction Company, Boston, Mass. Sewer construction	601,742	Apr. 5	226	46	88	46
	605,155	June 7	178	44, 45	88	1365
Warman, John L., Chicago, Ill. Velocipede						
Warner, Alfred D., *et al.* (See Parsons, John H., assignor.)						
Warner, Charles, Jr., *et al.* (See Parsons, John H., assignor.)						
Warner Elevator Manufacturing Company. (See Davis, Jenkin P., assignor.)	603,353	May 3	187	43	88	698
Warner, Lewis E., Northampton, Mass. Shaft-adjusting device						
Warner, Richard C. (See Johnson, Frank M., assignor.)	604,099	May 17	1601	360	88	961
Warner, William H., Melvern, Kans. Wire-fence-weaving machine	605,156	June 7	181	45	88	1235
Warnock, Frank, Elyria, Ohio. Coupling for pneumatic tires	605,440	June 7	725	163	88	1402
Warren, Frank W., San Francisco, Cal. Pencil-splicer	605,982	June 21	1743	400 / 401	88	1721
Warren, Herbert C., Hartford, Conn. Machine for generating gear-teeth	605,983	June 21	1747	401	88	1721
Warren, Herbert C., Hartford, Conn. Gear-tooth-generating machine	601,923	Apr. 5	370	79, 80	88	71
Warren, Jabez T., Buffalo, N. Y. Hot-air furnace	603,563	May 3	611	136	88	730
Warren, John D., Chicago, Ill. Hardware-drawer						
Warren Webster & Company. (See Leitch, Meredith, assignor.)						
Warter, Antoine, Newark, assignor of one-half to W. L. Glorieux, Irvington, N. J. Pneumatic elevating device for liquids	605,212	June 7	265	66	88	1404
	603,099	Apr. 26	2262	522	88	530
Warth, Nathaniel G., Indianapolis, Ind. Electric cable	604,445	May 24	2245	504	88	1105
Wartmann, Otto, London, England. Cigar-machine						
Wasciniski, Alexander, Jersey City, N. J., assignor to E. Hahner, C. Franck, and J. Veith, New York, N. Y. Violin or mandolin cithern	605,764	June 14	1276	295	88	1616
Washburn, George A., assignor to Ohio Storage Battery Company, Cleveland, Ohio. Storage battery	602,176	Apr. 12	1096	225	88	207
Washburn & Moen Manufacturing Company. (See Cook, Leroy, assignor.)						
Washburn, William G., Thomaston, Me. Garment-supporter	604,184	May 17	1667	374	88	973
Washburne, James V., Waterbury, Conn. Glove-fastener	603,308	May 3	99	24	88	630
Waterbury Machine Company. (See Lamb, George B., assignor.)						
Waterer, Heeea, Philadelphia, Pa. Jardinière	603,498	May 3	464	108	88	990
Waterman, Lewis E., Brooklyn, N. Y. Fountain-pen	604,690	May 24	2667	616	88	1187
Waterman, Lewis E., assignor to Deere & Mansur Company, Moline, Ill. Check-row corn-planter	603,584	May 3	612	135 / 137	88	730
Waters, James K. (See Weddell and Waters.)						
Waterson, Alfred H. (See Gleason, Jackobsled and Waterson.)						
Watkinson, Frederick. (See Sydenham, Watkinson, and Sydenham.)	605,319	June 28	2395	555	88	1365
Watrous, Henry G., Wallingford, Conn. Auger	601,918	Apr. 5	566	117	88	107
Watson, Guy M., New Haven, Conn. Slack-adjuster for brake-gear						
Watson, Henry P., *et al.* (See Griffin, Russell B., assignor.)						
Watson, Louis T., *et al.* (See Griffin, Russell B., assignor.)						
Watson, Seth F. (See Watson, William B., assignor.)	601,691	Apr. 5	121	24	88	36
Watson, William B., assignor of one-half to S. F. Watson, Richmond, Ind. Tree-box	605,765	June 14	1278	295 / 296 / 297	88	1616
Watson, William D., and T. Humphreys, Rochdale, England; said Humphreys assignor to said Watson. Apparatus for supplying or measuring currents of electricity	603,160	Apr. 26	2717	616	88	568
Watson, William J. B., Antwerp, Belgium. Cycle-wheel	604,446	May 24	2247	504	88	1105
Wattles, Joseph W., Canton, Mass. Doffer-guard and stopper for lubricating-tubes for spindles	605,890	June 14	967	234	88	1538
Watts, John T., Golden, Ill. Weather-strip	605,580	June 14	855	200	88	1538
Wattson, Edward F., *et al.* (See Hachenberg, Louis, assignor.)						
Way, Charles A., Charlestown, N. H. Tricycle for invalids						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Way, Edward J., *et al* (See Blackmore, Sidney P., assignor.)	603,779	May 10	903	215	88	804
Wayland, James, Newark, N. J. Rail-joint						
Wayne Works. (See Schultz, Walter W., assignor.)	603,242	Apr. 26	2854	651	88	587
Weatherhead, Edward H., Cleveland, Ohio Hydraulic air-compressing pump						
Weatherhead, Edward M., *et al.* (See Kinney, Israel, assignor.)	605,365	June 7	599	133	88	1465
Weaver, Albert S., Hamilton, Canada. Bicycle						
Weaver, Harry B. (See Kelly and Weaver.)						
Weaver, John R., assignor of one-half to M. St. Clair, Commerce, Tex. Sewing-machine brake	601,692	Apr. 5	122	24	88	26
Weaver, Levi W., Elnora, Ind. Pocket shoe-blacking outfit	603,989	May 10	1235	304	53	674
Webb, George B., assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Type-writing machine	605,264	June 7	397	90	88	1477
Webber, Joseph A., Vancouver, Wash. Combined cultivator and harrow	601,743	Apr. 5	228	47	88	46
Weber, Charles S., San José, Cal. Stringing pianos	606,179	June 21	2110	485	88	1780
Weber, Edgard, assignor to P. Mersch, Paris, France. Electric-arc lamp	602,380	Apr. 12	1364	305	88	975
Weber, George A., New York, N. Y. Rail-joint	605,305	June 7	402	90	88	1496
Weber, John, *et al.* (See Goolman, Fred R., assignor.)	604,349	May 17	2059	461	88	1049
Weber, John, and M. Thurner, Springfield, Ohio. Portable farm-stove	605,264	June 7	397	90	88	1477
Weber, Peter M., Munhall, assignor to Carnegie Steel Company, Limited, Pittsburg, Pa. Rolls	606,608	June 28	2980	677	88	1967
Weber, Theodore A., assignor to F. Hasbrouck, New York, N. Y. Labeling-machine	604,182	May 17	1750	396	88	992
Webster, Le Roy C., U. S. Navy. Bottle-stoppering device	603,304	May 3	100	24	88	621
Webster, William G., Grand River, Ohio. Non-refillable bottle	605,591	June 14	909	224	88	1559
Weddell, Charles W., and J. K. Waters, Thurmont, Md. Convertible vehicle and rocker	606,494	June 28	2709	634	88	1997
Weed, B. F. (See Bélanger, Victor, assignor.)						
Weed, Dewitt C., and F. Atkin, assignors of one-third to S. M. Smart, Vickery, Ohio. Cultivator-plow	606,609	June 28	2980	677	88	1967
Weed, Elmer E., *et al.* (See Durham and Devine, assignors.)						
Weed, Elmer E., *et al.* (See Reed, Roger E., assignor.)	603,982	May 10	1254	285	88	860
Weeks, George H., New York, N. Y. Spraying device for carburetors						
Weeks, John, assignor of three-fourths to J. H. Morch, Brooklyn, N. Y. Fountain-pen	605,085	May 31	2274	752	88	1319
Weeks, Pauline Young. (See Young, Pauline.)						
Weidenkaff, Wilhelm, *et al.* (See Graf, Carl, assignor.)	602,880	Apr. 26	2245	510 511	88	471
Weil, Abraham, Steinheim, Germany. Roofing-tile	601,919	Apr. 5	567	117	88	106
Weil, Henry, New York, N. Y. Bottle	603,906	May 3	104	25	88	621
Weil, Jacob, Las Animas, Colo. Face and neck protector						
Weills, John C. S., *et al.* (See Towers, Edmund, assignor.)	604,705	May 24	2738	622	88	1193
Weinz, Henry, Pittsburg, Pa. Cork-cutting machine	604,673	May 24	2657	609	88	1182
Weir, Hamilton, La Porte, Ind. Miter-saw guide	602,204	Apr. 12	1074	235	88	816
Weis, Andrew L., Toledo, Ohio. Combined cement-tube and distributing-brush	605,908	June 14	1370	314	88	1653
Weiss, Charles P., Hornellsville, N. Y. Sand-box for locomotives	604,447	May 24	2249	505 506	88	1106
Weiss, Georg, Chicago, Ill. Nut-tapping machine	603,416	May 3	369	67	88	657
Weiss, Louis T., Brooklyn, N. Y. Check-protector	603,305	May 3	103	25	88	621
Weiss, Martin, San Marcos, Tex. Wrench	602,672	Apr. 19	1853	428	88	986
Weiander, Andrew J., Omaha, Nebr. Dice-box						
Weller, H. A. (See Heiser and Moyer, assignors.)						
Weller, Joseph R., De Graff, Ohio. Label-holder	605,218	June 7	287	66	88	1405
Wellman, Charles H. (See Babcock, Wellman, and Seaver.)						
Wellman, Samuel T. (See Babcock, Wellman, and Seaver.)	602,967	Apr. 26	2308	545	88	500
Wells, George, Montreal, Canada. Collapsible blind for arched windows						
Wells, George W., assignor to American Optical Company, Southbridge, Mass. Nose-guard for eyeglasses	604,448	May 24	2253	506	88	1106
Wells, Harlan P., and O. Morrill, Amesbury, Mass. Curtain-box for vehicles	601,744	Apr. 5	240	47	88	46
Wells, Harley D., Spencer, W. Va. Display-rack	606,610	June 28	2982	677 678	88	1967
Wells, James E., Syracuse, N. Y. Trolley	602,923	Apr. 26	2315	537	88	494
Wells, James G., Jackson, Tenn. Plow-handle clamp	601,765	Apr. 5	276	54	88	58
Welsbach Light Company. (See Kellner and Barrows, assignors.)						
Welsbach Light Company. (See Moeller, Julius, assignor.)						
Welsh, Hamilton E., Columbia, Pa. Combined draw-head, rigging, coupling, and latch device	603,864	May 10	1137	256	88	837
Weitner, Rora C., Roxaiana, assignor of one-half to A. B. Jordan, Spencer, W. Va. Produce-carrier	603,000	Apr. 26	2449	558	88	509
Wende, Ernest, *et al.* (See Richardson, Julius C., assignor.)						
Wentscher, Ernst, Berlin, Germany. Justifying device for type-setting or other machines	605,618	June 14	1094	235 236 237	88	1568
Wentscher, Ernst, Berlin, Germany. Type-writing machine	605,619	June 14	1095	238	88	1569
Wentz, Samuel L., Philadelphia, Pa. Register for pocket-books	603,493	May 3	466	108	88	690
Weppio, Isaac, Bandon, Minn. Rotary steam-engine	602,787	Apr. 19	2064	468 469	88	421
Werner, Louis C., Broad Brook, Conn. Electric signal system	603,969	May 3	210	48	88	642
Werner, Louis C., Broad Brook, Conn. Electric signal system	603,890	May 3	347	55, 56	88	646
Werner, Louis C., Broad Brook, Conn. Electric block-signal system for railways	605,941	June 21	1660	381 382	88	1706
Werts, Albert, Camden, N. J. Pipe-wrench	601,723	Apr. 5	195	35	88	39
Wesselmann, Bruno, Göttingen, Germany. Metal-shearing machine	606,106	June 21	1966	456	88	1766
West, Julius H., Berlin, Germany. Automatic apparatus for telephone-switchboards	605,659	June 14	1103	254	88	1569
West, William, Aston, assignor of two-thirds to R. Poore, London, England. Solitaire, button, &c	604,815	May 31	2906	665	88	1248
Westland, Frank G., McCook, Nebr. Folding spring-seat	602,788	Apr. 19	2066	469	88	488
Western Electric Company. (See Walt, Henry H., assignor.)						
Westinghouse Air Brake Company. (See Hogan, Thomas J., assignor.)						
Westinghouse Air Brake Company. (See Park, Harvey S., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Hassler, Robert H., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Lamme, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Scott, Charles F., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Scott and Lamme, assignors.)						
Westinghouse, Henry H. (See Edwards, William W., assignor.)	603,715	May 10	854	190	88	783
Weston, Edward B., Dayton, Ohio. Convertible shelves and table	604,449	May 24	2255	507	88	1107
Weston, Edward B., Dayton, Ohio. Twine-holder						

Alphabetical list of patentees, April to June, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Weston, Henry B., assignor of one-half to B. W. Thomson, Kenton, Ohio. Gate	605,455	June 7	745	169 170	88	1496
Weston, Nathaniel, Redmonds, Va. Vehicle	606,611	June 28	2923	678	88	1967
Wetmore, Job B., Wellsborough, Pa. Fire-escape	603,673	Apr. 19	1664	428	88	987
Wheat, Allen A., *et al.* (See Rising, Bradley D., assignor.)						
Wheat, Allen A., West Springfield, assignor of two-thirds to C. McKernon, Mittineague, and B. D. Rising, Springfield, Mass. Beating or washing engine	606,174	June 21	2105	484	88	1767
Wheeler, Benjamin A., assignor to Draper Machine Tool Company, Worcester, Mass. Engine-lathe	603,984	Apr. 26	2317	535	88	495
Wheeler, H. A. (See Gilfillan, Essington N., assignor.)	601,980	Apr. 5	568	118	88	108
Wheeler, Milo L. G., North Yakima, Wash. Pump						
Wheeler & Wilson Manufacturing Company. (See Dimond, George H., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Dimond and Dial, assignors.)						
Wheeler & Wilson Manufacturing Company. (See Miller, Lee A., assignor.)	602,710	Apr. 19	1945	442	88	990
Wheeler, Zadoc L., Cedar Falls, Iowa. Thill-coupling						
Whelan, William. (See Stephens, Albert G., assignor.)						
Whelan, William, *et al.* (See Morrison and Moran, assignors.)	604,343	May 17	2061	461 462	88	1050
Whipple, Effinger E., St. John's, Mich. Harrow	601,794	Apr. 5	197	38	88	39
Whipple, Henry J. P., New Haven, Conn. Knob attachment	603,365	May 10	1139	256	88	833
Whitaker, Charles G., Westfield, Mass. Vehicle-wheel						
Whitaker, John B., assignor of one-half to B. P. Wynn, Tennille, Ga. Fertilizer-distributer and planter attachment for cultivators	603,902	May 10	1019	226	88	814
Whitaker, Richard, assignor to Neversiip Manufacturing Company, New Brunswick, N. J. Horseshoe-calk	605,786	June 14	1268	307	88	1617
Whitchen, Frank W. (See Kahle, George L., assignor.)						
Whitcomb, Frank L. (See Archdeacon, John P., assignor.)						
Whitcomb, William L., *et al.* (See Guest, John H., assignor.)	604,344	May 17	2064	462	88	1050
White, Albert, and D. F. Sullivan; said Sullivan assignor to M. Sullivan, Lowell, Mass. Stop-motion for circular-knitting machines	602,025	Apr. 5	756	162	88	142
White, Charles E., Quincy, assignor to W. B. White, Boston, Mass. Eyeglass-case	602,498	Apr. 19	1567	354	88	995
White, Charles G., assignor of one-half to J. F. Hink, Woodland, Cal. Pump	604,450	May 24	2256	507	88	1107
White, Charles S., assignor of one-half to J. S. Bear, Minneapolis, and G. N. Moran, Eden Prairie, Minn. Gasolene-filter	605,531	June 14	1421	324 325 326 327 328	88	1649
White, Clarence O., and M. B. Lloyd, assignors to Woven Wire Machinery Company, Minneapolis, Minn. Apparatus for weaving coiled-wire fabric						
White, Frank, New York, N. Y., and F. J. Murphy, Pomona, Cal. Plumber's clamp	603,351	Apr. 12	1365	305	88	975
White, George H. (See Williams and White.)	604,484	May 24	2253	509	88	1120
White, James, Melvale, Md. Hot-water heater						
White, James E., assignor of one-half to G. C. Hitt and H. S. New, Indianapolis, Ind. Mail-catcher	603,740	May 10	913	202	88	794
White, James H., Brooklyn, assignor to Manhattan Brass Company, New York, N. Y. Lamp-burner	603,417	May 3	302	68	88	653
White, Joseph J., New Lisbon, N. J. Adjustable chair	606,612	June 28	2985	678 679	88	1968
White, Louis L., San Francisco, Cal. Dental impression material	603,808	May 10	1014	226	88	815
White, Maurice W., Somerville, assignor of one-half to F. A. Suck, Boston, Mass. Violin	605,942	June 21	1667	392	88	1707
White, Rollin H., assignor to A. L. Moore Company, Cleveland, Ohio. Clamping device	602,149	Apr. 12	978	214	88	196
White Warner Company. (See Timkham, Howard A., assignor.)						
White, William B. (See White, Charles E., assignor.)						
Whitehead, Wilbur C. (See Angell, George W., assignor.)	604,508	May 24	2273	539 540	88	1197
Whitehead, William, Manchester, England. Electric clock						
Whitehead, William L. (See Skevington and Whitehead.)						
Whitehurst, W. J., *et al.* (See Hysore, Alpheus V., assignor.)	606,821	June 28	2997	555	88	1805
Whitfield, Howard, Red Bank, N. J. Manifolding-book						
Whitin Machine Works. (See Orrell, Ephraim E., assignor.)						
Whiting, John H., Belvidere, Ill. Mechanism for indicating distance traveled by cars or vehicles	606,258	June 28	2980	529	88	1844
Whiting, Louis R., Terrell, Tex. Car-coupling	602,498	Apr. 19	1558	355	88	995
Whitlock, James G. (See Ritter and Hazlewood, assignors.)	602,369	Apr. 12	1363	300	88	978
Whitlow, Samuel C., Newburg, N. Y. Seat or saddle support for bicycles, &c						
Whitman & Barnes Manufacturing Company. (See Lamb, Levi L., assignor.)						
Whitman & Barnes Manufacturing Company. (See Motherwell, David M., assignor.)	603,437	May 3	337	75	88	664
Whitman, Eugene, Vernon, La. Plow attachment	606,400	June 28	2547	500	88	1582
Whitner, Hiram K., Chicago, Ill. Safety-support for window-cleaners	605,767	June 14	1268	298	88	1617
Whitney, Charles H., Cookeville, Tenn. Combined plow, planter, and cultivator	601,981	Apr. 5	570	118	88	108
Whitted, Robert H., Crawfordsville, Ind. Grocer's cabinet						
Whittingham, George H., Baltimore, Md., assignor to Automatic Switch Company of Baltimore City, of Maryland. Automatic device for removing resistance in starting electric motors	603,418	Apr. 12	1423	329	88	986
Whittington, William L., St. Joseph, Mo. Syringe	604,645	May 24	2606	596	88	1179
Whyte, George L., Danville, Ind. Power-transmitting device	603,674	Apr. 19	1665	429 430	88	987
Whyte, John D., Urmston, England. Yarn-winding machine	605,984	June 21	1750	401 402	88	1728
Whyte, John D., Urmston, assignor of one-fourth to H. S. Golland, Worsley, England. Yarn-guide for spinning-mules	604,508	May 24	2261	574	88	1155
Wiard, Harry, and H. M. Burdick, Syracuse, assignors, by mesne assignments, to National Harrow Company, Utica, N. Y. Harrow	604,345	May 17	2066	462 463	88	1050
Wiart, Ernest, Paris, France. Milk-can	602,675	Apr. 19	1666	430	88	987
Wicke, Wilhelm, assignor to Cleveland School Furniture Company, Cleveland, Ohio. Adjustable furniture	601,928	Apr. 5	473	95, 96	88	88
Wickers, William H., Indianapolis, Ind. Card-display cabinet	604,221	May 17	1995	409	88	1005
Wickersham, Enoch G., Grover Hill, Ohio. Vocal and instrumental note-reading device	605,157	June 7	189	45	88	1395
Wickersham, Frank P. (See Gilbert, Melvin E., assignor.)						
Wickes, Jesse S., and J. Ketterly, Pittsburg, Pa. Car-brake	605,881	June 14	857	201	88	1598
Wickes, William J., and L. Baker, Saginaw, Mich. Upright water-tube boiler	604,509	May 24	2275	540	88	1197
Widness, Lawrence J., Brooklyn, N. Y. Cleaner	602,598	Apr. 19	1785	369	88	995
Wiedersheim, John A., Philadelphia, Pa. Apparatus for filtering or purifying and aerating water	605,985	June 21	1764	408	88	1732
Wieland, George A., Duluth, Minn. Pocket-book	601,982	Apr. 5	571	119	88	108

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Wiens, Adolph R., and G. J. Brands, Milwaukee, Wis. Hand-grip	604,706	May 24	2794	622	88	1194
Wiesenfeld, Robert S., assignor of one-half to J. Friedenwald, Baltimore, Md. Soft-tread horseshoe	604,816	May 31	2908	605	88	1248
Wiesner, Oscar E. A. (See Duwe, Adolf G., assignor.)						
Wight, William P., Colorado Springs, Colo. Tile bench for hothouses	602,649	Apr. 19	1880	417	88	876
Wilbraham Baker Blower Company. (See Green, Thomas W., assignor.)						
Wilcox, Darius, Mechanicsburg, Pa. Fifth-wheel	603,070	Apr. 26	2566	592	88	881
Wilcox, Dutee, *et al.* (See Burrows, Frank L., assignor.)						
Wilcox, Dutee, *et al.* (See Greene, Albert L., assignor.)						
Wilcox, Harvey M., Owen Sound, Canada. Cutter-head	604,707	May 24	2795	622	88	1194
Wilde, Charles T., and C. W. Hinchcliffe, Lawrence, Mass. Roundabout	604,154	May 17	1716	397	88	968
Wilder, William J., St. Louis, Mo. Plating sheet metal	602,526	Apr. 19	1627	371	88	899
Wilder, William J., St. Louis, Mo. Plating metals	604,901	May 17	1791	.....	88	998
Wildman, Frank B., Norristown, Pa., assignor to McMichael & Wildman Manufacturing Company, of Pennsylvania. Knitting-machine	604,100	May 17	1609	381	88	968
Wildman, William, Spadra, Cal. Land-roller	602,966	Apr. 26	2295	546	88	500
Wiler, Lucien M., Philadelphia, Pa. Gun-rack	602,177	Apr. 12	1027	235	88	307
Wilhelm, Edward, and W. P. Richards, assignors to C. M. Gould, Buffalo, N. Y. Electric-lighting apparatus for cars	604,101	May 17	1611	{ 361 / 382	88	968
Wilhelmi, Valentin, Paterson, N. J. Range-boiler	602,650	Apr. 19	1881	417	88	876
Wilkinson, Charles A., *et al.* (See Burrows, Frank L., assignor.)						
Wilkinson, Charles A., *et al.* (See Greene, Albert L., assignor.)						
Wilkinson, Edward F., New York, N. Y. Curtain-holder	605,096	May 31	2276	702	88	1319
Wilkinson, William E. (See Clement and Wilkinson.)						
Wilkinson, William T., Lafayette, Colo. Metallic railway-tie	602,780	Apr. 19	2068	469	88	922
Willats, Arthur C., Buffalo, N. Y. Filter	604,950	May 31	2133	730	88	1208
Willcox, Charles H., New York, N. Y., C. Carleton, Providence, R. I., and S. Borton, Brooklyn, assignors to Willcox & Gibbs Sewing Machine Company, New York, N. Y. Sewing-machine	603,998	May 10	1334	{ 305 / 306	88	876
Willcox, Charles H., New York, N. Y., J. E. A. Gibbs, Raphine, Va., and S. Borton, Brooklyn, assignors to Willcox & Gibbs Sewing Machine Company, New York, N. Y. Sewing-machine	603,999	May 10	1339	307	88	877
Willcox & Gibbs Sewing Machine Company. (See Willcox, Carleton, and Borton, assignors.)						
Willcox & Gibbs Sewing Machine Company. (See Willcox, Gibbs, and Borton, assignors.)	604,641	May 24	2601	594	88	1170
Willerton, William, and T. Shortliff, Kipp, Mont. Rotary engine						
William Mann Company. (See Leslie, Leon M., assignor.)						
William Powell Company. (See Powell, James, assignor.)						
Williams, Adolphus, *et al.* (See Fader, Silas, assignor.)						
Williams, Agnes W., *et al.* (See Gannoe, Thomas A., assignor.)						
Williams, Albert J., J. J. Thomas, and M. Richards, Uniontown, Pa. Window lock and operator	605,509	June 14	926	217	88	1551
	601,863	Apr. 5	474	96	88	88
Williams, Edgar L., Peoria, Ill. Game apparatus						
Williams, Edward H., *et al.* (See Austin, William L., assignor.)	605,241	June 7	338	78	88	1415
Williams, Edwin F., New York, N. Y. Fluid-motor governor						
Williams, Eli P. (See Simpson, Williams, and Simpson.)						
Williams, Fillmore, Columbus, Ohio, assignor to O. W. Aldrich and C. W. Critchfield. Railway-signal	602,676	Apr. 19	1888	430	88	886
Williams, Franklin A., *et al.* (See Bray, Edward W., assignor.)						
Williams, George H., Los Angeles, Cal. Non-refilling bottle	602,811	Apr. 19	2117	477	88	431
	603,519	May 3	514	{ 112 / 113	88	699
Williams, George H., Newton, Mass. Bicycle-support						
Williams, Henry M. (See Burger, Franz, assignor.)						
Williams, Henry M. (See Burger and Williams.)						
Williams, Ida, Wichita, Kans. Dress-chart	602,117	Apr. 12	912	199	88	185
Williams, Jenkin, and J. R. Rees, Pueblo, Colo. Fluid-pressure regulator	601,923	Apr. 5	573	119	88	109
Williams, John F., Kansas City, Kans., assignor to R. M. Snyder, Kansas City, Mo. Gas-generating gas-fixture	606,435	June 28	2630	604	88	1909
	602,790	Apr. 19	2069	470	88	422
Williams, John R., Baltimore, Md. Knife-sharpener	602,960	Apr. 26	2306	{ 546 / 547	88	500
Williams, Joseph, Gowerton, and G. H. White, Pontardulais, England. Apparatus for separating metal plates or sheets						
Williams, Louis N. D. (See Scott, Robert W., assignor.)						
Williams, Louis N. D., Ashbourne, and H. Swinglehurst, Jr., assignors to said Williams and R. W. Scott, Philadelphia, Pa. Circular-knitting machine	604,646	May 24	2600	597	88	1172
Williams, Lydia R., *et al.* (See Donaldson, Fred H., assignor.)						
Williams, Milton F., assignor to Williams Patent Crusher and Pulverizer Company, St. Louis, Mo. Breaking-machine	604,485	May 24	2336	{ 589 / 590	88	1120
Williams Patent Crusher and Pulverizer Company. (See Williams, Milton F., assignor.)						
Williams, William E. H., and P. Seiler, San Francisco, Cal. Electric controller for gas-regulators	602,546	Apr. 19	1654	376	88	843
	602,545	May 3	560	123	88	700
Williams, William F., London, England. Bicycle or tricycle	606,479	June 28	2686	619	88	1922
Williams, William L., Winona, Minn. Ice-velocipede	605,532	June 14	859	201	88	1536
Williams, Willis S., London, England. Pneumatic tire	606,613	June 28	2688	679	88	1905
Willis, Eben, Colton, N. Y. Sap-spout						
Williston, Benjamin F., Jackson, assignor of one-half to H. D. Miles and W. P. Harris, Detroit, Mich. Foundation-pier	603,354	May 3	186	43	88	636
	606,401	June 28	2550	{ 590 / 591	88	1896
Williston, Edward A., Boston, Mass. Clothes-drier	605,570	June 14	928	217	88	1552
	601,698	Apr. 5	123	24	88	96
Willix, Enos B., Mount Vernon, Iowa. Fence						
Willoughby, Alfred B., Philadelphia, Pa. Water-feed for boilers	605,158	June 7	188	46	88	1385
Willson Aluminum Company. (See Chalmot, Guillaume de, assignor.)						
Wilmsen, Bernhard, Philadelphia, Pa. Christmas-tree ornament	602,970	Apr. 26	2308	547	88	500
Wilson & Co., J. H. (See Taylor, John H., assignor.)						
Wilson, David, Fort Gay, W. Va. Clothes-pin	602,118	Apr. 12	914	199	88	185
Wilson, Frank C., Aurora, Ill. Stove	606,250	June 28	2360	530	88	1844
Wilson, Harvey C., Birmingham, Mich. Railway safety-gate	606,260	June 28	2361	{ 530 / 531	88	1844
Wilson, James, London, England. Filter						
Wilson, James H. (See Hitch, William S., assignor.)						
Wilson, John E. (See Kenney, Augustine, assignor.)						
Wilson, John T., Jersey Shore, Pa. Balanced valve	605,943	June 21	1669	382	88	1707
Wilson, John W. and W. W., Dallas, Tex. Air-tight heating-stove	605,037	May 31	2277	753	88	1319
Wilson, Nelson, assignor of one-third to C. Bolen, Portland, Oreg. Machine for restoring insulated wire	601,694	Apr. 5	125	24	88	97

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Wilson, Robert, Newark, N. J., assignor, by mesne assignments, to Aladdin Lamp Company, of New Jersey. Toy or puzzle	601,934	Apr. 5	574	119	88	100
Wilson, Thomas, Philadelphia, Pa., assignor to Pennsylvania Globe Gas Light Company, of Pennsylvania. Gas-burner	604,102	May 17	1612	382	88	968
	604,510	May 24	2276	541	88	1128
	601,846	Apr. 5	446	90	88	88
Wilson, Thomas E., Farmland, Ind. Handle-fastener or shank-lock	605,984	May 10	1256	295	88	861
Wilson, William, Oakland, Cal. Bottle	605,750	May 10	914	202	88	705
Wilson, William A., Centropolis, Kans. Corn-header						
Wilson, William P., Trenton, N. J. Combined hose-pipe nozzle and spraying device	604,573	May 24	2496	567	88	1149
Wilson, William W. (See Wilson, John W. and W. W.)						
Wilson, William W., Holyoke, Mass. Filter	606,382	June 28	2596	555	88	1865
Winand, Paul A. N., assignor to Otto Gas Engine Works, Philadelphia, Pa. Screw-propeller						
Winchel, William R. (See Stewart and Winchel.)						
Winchell, Charles B., assignor to Winchell & Hutchinson, New York, N. Y. Band-saw clamp and filing-guide	602,905	Apr. 12	1076	236	88	216
Winchell & Hutchinson. (See Winchell, Charles B., assignor.)						
Winchester Repeating Arms Company. (See Bennett, Thomas G., assignor.)						
Winchester Repeating Arms Company. (See Mason, William, assignor.)						
Winckhofer, Charles, *et al.* (See Ogden, Frederick H., assignor.)						
Wincqz, Grégoire, and H. Machepy, Soignies, Belgium. Machine for cutting stone	602,890	Apr. 26	2246	511	88	471
	11,670	June 21	2112	{ 485 / 486	88	1789
Winder, Will H., Carthage, Ohio. Indicator. (Reissue)						
Wine, Miletus J. (See Thompson, Charles A., assignor.)						
Wine, Miletus J., and C. A. Thompson, Washington, D. C.; said Thompson assignor to said Wine. Letter-box	605,592	June 14	970	224	88	1550
	602,262	Apr. 12	1367	306	88	275
	604,355	May 3	189	43	88	638
Winegard, Clarence L., Richmondville, N. Y. Railway-rail joint						
Wing, Herbert H., Buffalo, N. Y. Rotary drier	605,804	June 14	1371	315	88	1633
Winkenwerder, Henry. (See Gibbs, Johnson, and Winkenwerder.)	604,105	May 17	1614	382	88	964
Winkler, Olof, Helsingborg, Sweden. Fountain-pen						
Winsor, Robert P., Auburn, R. I. Cloth-clamp for textile machinery	606,107	June 21	1987	456	88	1766
Winter, Albert. (See Skoglund, Jean V., assignor.)						
Winter, Emma B., New York, N. Y. Belt-buckle	602,119	Apr. 12	915	{ 199 / 200	88	185
Winter, John H., Brooks, Ill. Land-marker	605,696	June 14	1153	267	88	1508
Winters, David L., Chicago, Ill. Fire-escape	605,306	June 7	602	134	88	1406
Winters, George D., Reno, Nev. Barricade-alarm for doors	603,804	May 10	1015	227	88	815
Wintrode, Charles E., Huntington, Ind. Fence-stay-wire lock	601,785	Apr. 5	315	62	88	60
Wireback, John F., Scranton, Pa. Filter	602,925	Apr. 26	2324	528	88	486
Wirt, Herbert C., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electric metering	605,098	May 31	2279	753	88	1320
Wirt, John L., Washington, D. C. Bag or box	604,554	May 24	2456	558	88	1141
Wisconsin Furniture Company. (See Klein, William H., assignor.)	601,925	Apr. 5	575	119	88	109
Wise, Robert, New York, N. Y. Hose-nozzle						
Wiser, George L., Plymouth, Ind. Joint for rims of vehicle-wheels	606,614	June 28	2089	679	88	1909
Wisner, William O., Hooper, assignor of one-third to H. A. Sturges, Omaha, Nebr. Automatic roadway-guard	602,807	May 3	106	25	88	688
Withaeger, Charles H., Schaumberg, Ill., assignor to McCormick Harvesting Machine Company. Machine for harvesting corn	602,583	Apr. 19	1630	.....	88	899
Wismann, Jacob, Chicago, Ill. Painting	601,864	Apr. 5	473	96	88	89
Withey, Henry, Hastings, Mich. Device for applying stay-wires to wire fences	601,908	Apr. 5	705	150	88	133
Wittkowsky, Carl, Berlin, Germany. Manufacturing casks or barrels from veneers	605,089	May 31	2280	{ 753 / 754	88	1320
Wixcel, Samuel M., Marcus, Iowa. Corn-planter						
Woehrmann, Camillo von. (See McAulay, Norman, assignor.)						
Woerner, Frank W., Indianapolis, Ind., assignor to J. A. Henderson, Danville, Va. Label-affixer	602,812	Apr. 19	2119	478	88	431
Woffard, Moses, *et al.* (See Rachels, Jasper N., assignor.)	603,716	May 10	856	190	88	768
Wohlenberg, Fred W., Chicago, Ill. Combined track and wheel brake for street-cars	604,647	May 24	2619	597	88	1173
Wolf, Charles K., Xenia, Ohio. Machine for crimping wire-fence stays	603,711	Apr. 19	1945	443	88	909
Wolf, Frederick, Quincy, Ill. Plowshare	604,280	May 17	1983	{ 432 / 433	88	1035
Wolf, Hermann, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Process of and apparatus for refining crude petroleum, &c.						
Wolf, John G. (See Carr and Wolf.)	603,866	May 10	1141	257	88	923
Wolf, William H., Pittsburg, Pa. Hose-bridge	601,695	Apr. 5	127	25	88	97
Wolfe, Edgar A., and P. E. Hart, Salt Lake City, Utah. Shipping crate or case	603,391	May 3	209	56	88	645
Wolfe, Frank L., Medford, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Pressure-recorder	603,546	May 3	561	124	88	709
	603,547	May 3	564	124	88	710
Wolff, Herrmann A., New Haven, Conn. Dry vacuum-cooker	606,495	June 28	2711	624	88	1987
Wolff, Herrmann A., New Haven, Conn. Mop-wringer						
Wolff, Herrmann A., New Haven, Conn. Mop						
Wolff, Herrmann A. (See Schneider, Joseph, assignor.)						
Wolff, William. (See Schneider, Joseph, assignor.)						
Wood, Albert C. (See Kinder and Wood.)						
Wood, Alexander C., *et al.* (See Royal, Belford G., assignor.)						
Wood, Edward S., *et al.* (See Royal, Belford G., assignor.)						
Wood, Frank, trustee. (See Noble, Oscar L., assignor.)	604,261	May 17	1995	433	88	1035
Wood, Franz J., Pipe Stone, Minn. Band-cutter and feeder for threshing-machines	605,966	June 7	403	91	88	1499
Wood, George, Prescott, Ariz. Ter. Feeder for stamp-mills						
Wood, Jeanie B., administratrix. (See Wood, William M.)						
Wood, William H., East Orange, and J. H. Stevens, Newark, N. J., assignors to Celluloid Company, New York, N. Y. Waterproof fabric	603,001	Apr. 26	2450	.....	88	510
Wood, William M., deceased, Boston, Mass.; J. B. Wood, administratrix, assignor to Hygienic Refrigeration Company, of New Jersey. Rotary pump	603,805	May 10	1016	227	88	815
Wood, William T. (See Hoyte and Wood.)						
Woodall, Benjamin. Wilkinsburg, and T. E. Orr, Pittsburg, Pa. Nut-lock	602,540	Apr. 19	1656	376	88	844
Woodard, Alvin N., Mansfield, Ohio. Non-refillable bottle	604,104	May 17	1615	382	88	964
Woodhull, Morris, Dayton, Ohio. Vehicle-body	602,550	Apr. 19	1657	377	88	844
Woodruff, Charles D. (See Cunningham, Michael G., assignor.)						
Woodruff, William A. (See Blazier, Oscar V., assignor.)	603,751	May 10	915	203	88	705
Woods, William B., and L. Henry, Bridgeport, Ohio. Charging-buggy	604,674	May 24	2658	609	88	1189
Woodward, Arthur T., Bendigo, Victoria. Umbrella-holder for cycles	606,276	Apr. 12	1901	368	88	941
Woodward, Frank L., Hudson, Mich. Plow						
Woodward, Hattie I., *et al.* (See Woodward, Walter J., assignor.)						
Woodward, Walter J., assignor to H. I. Woodward, National City, D. P. N. Little, C. W. Sanders, and E. A. Harrington, Los Angeles, Cal. Wooden-pipe-banding machine	603,362	May 3	254	56	88	646

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Woodworth, Hattie B., administratrix. (See Woodworth, James E.)						
Woodworth, James E., deceased, Milwaukee, Wis.; H. B. Woodworth, administratrix. Temporary binder	604,817	May 31	2909	665	88	1946
Woolf, William, Burmingham, A. Brown, and J. R. Rickard, London, England. Machinery for grinding and polishing steel balls	604,594	May 24	2224	574 575	88	1155
Wooster, Frederick J. (See Newell, Philo, assignor.)	605,538	June 14	959	201	88	1586
Worcester, William W., Jeffersonville, Ind. Shoe-brush						
Worrall, Thomas H., and A. Lesperance, Laconia, N. H.; said Lesperance assignor to said Worrall. Friction-clutch	606,684	June 28	2966	699	88	1976
Worth, John S., Coatesville, Pa. Machine for dishing metal	608,094	Apr. 26	2610	598	88	539
Worth, John S., Coatesville, Pa. Machine for dishing metal	608,095	Apr. 26	2612	598	88	539
Worth, John S., Coatesville, Pa. Machine for dishing or forming metal	608,096	Apr. 26	2614	598	88	540
Worth, Mary C., New York, N. Y. Reservoir-attachment for pens	608,097	Apr. 26	2616	594	88	540
Worth, William P., Coatesville, Pa. Machine for dishing metal	608,098	Apr. 26	2617	594	88	540
Worthington, Charles C., Irvington, N. Y. Strainer	608,120	Apr. 26	2651	608	88	548
Woven Wire Machinery Company. (See White and Lloyd, assignors.)						
Wrenford, née Pratt, Mary A. B., *et al.* (See Pratt, William T. C., assignor.)	604,850	May 31	2906	660	88	1950
Wright, Aaron, Hudson, N. Y. Knife	605,944	June 21	1670	382	88	1707
Wright, Aaron, assignor of two-thirds to W. H. Hearn, Hudson, N. Y. Knife	608,180	Apr. 12	917	200	88	186
Wright, Albert S., Battle Creek, Mich. Nut-lock	605,705	June 14	1285	298	88	1417
Wright, Ellery C., Brockton, Mass. Last	608,780	May 10	964	216	88	804
Wright, Francis H., New York, N. Y. Locking device for bicycles	606,108	June 21	1666	456	88	1706
Wright, Frederic, Newburg, N. Y. Electric-arc lamp						
Wright, Jacob P., New Haven, Conn., assignor to Diamond Match Company, Chicago, Ill. Match-making machine	608,450	May 3	891	97, 98	88	676
Wright, Jacob P., New Haven, Conn., assignor to Diamond Match Company, Chicago, Ill. Machine for sanding box-shucks	608,530	May 3	516	113 114	88	700
Wright, James C., Lincoln, Mo. Combined planter and marker	608,363	Apr. 12	1368	306 307	88	276
Wright, James K., New York, N. Y. Automatic safety stop device	608,364	Apr. 12	1370	307	88	276
Wright, James K., New York, N. Y. Automatic safety-stop for engines	608,365	Apr. 12	1375	308	88	277
Wright, William H., and J. G. Dell, Huntingdon, Pa. Coupling for hammock-supports	605,367	June 7	605	134	88	1467
Wright, William J., Pittsburg, Pa. Oil-well pump	604,308	May 17	1798	404	88	998
Wronski, John A., Bornd, Russia. Cycle	606,383	June 28	2400	556	88	1696
Wrubilk, Rudolf, Chicago, Ill. Crosscut-saw	605,366	June 7	604	134	88	1467
Wunderlich, Frederick A., Brooklyn, N. Y. Hose-coupling	608,460	May 3	906	98	88	677
Wurthner, Jacob, assignor of three-fourths to D. Stehle, J. Schirra, and M. Schaedle, Pittsburg, Pa. Nut-lock	606,109	June 21	1660	457	88	1707
Wurzburg, Ludwig, London, England. Jar or other receptacle for preserves, &c.	608,791	Apr. 19	2069	470	88	423
Wyckoff, Seamans & Benedict. (See Southgate, Philip W., assignor.)						
Wyckoff, Seamans & Benedict. (See Webb, George B., assignor.)						
Wylde, Josiah R., and J. W. Kynaston, assignors to United Alkali Company, Limited, Liverpool, England. Making hydrochloric acid	605,369	June 7	605	134	88	1467
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Lappet-loom	608,521	May 3	880	114 115	88	700
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shuttle-box-operating mechanism for looms	608,522	May 3	894	116	88	701
Wyman, Horace, and W. H. Redding, assignors to Crompton & Knowles Loom Works, Worcester, Mass. Shedding mechanism for looms	608,308	May 3	108	26	88	638
Wyman, William F., Oshkosh, Wis. Skirt-protector material	604,818	May 31	2910	666	88	1946
Wynn, Bryant P. (See Whitaker, John B., assignor.)						
Wyssinger, Leonard, Leitersburg, assignor of one-half to D. C. Gilbert, Washington county, Md. Muzzle-loaf turner	606,110	June 21	1991	457	88	1767
Wythe, William H. (See Wythe, William W. and W. H.)						
Wythe, William W. and W. H., Orange, N. J., assignors to National Cash Register Company, Dayton, Ohio. Cash indicator and recorder	606,224	June 28	2401	556 557	88	1666
Yalden, James E. G., New York, N. Y. Slide-rule	608,370	May 3	217	46	88	642
Yarger, Samuel J. (See Zwissler, Valentine, assignor.)						
Yates, John W., Nashville, Tenn. Heating apparatus	604,819	May 31	2911	666	88	1946
Yates, William, Richmond, Wash. Envelop-opener	606,261	June 28	2395	581	88	1645
Yawman & Erbe. (See Mueller, George A., assignor.)						
Yeagley, Frank, Lebanon, Pa. Grain-measure	608,309	May 3	111	26	88	622
Yergin, William L., and J. E. Wadsworth, La Porte, Ind. Combined post and winding apparatus	605,709	June 14	1296	296	88	1618
Yetter, Frederick G., Greenfield, Mass. Apparatus for preventing kettles boiling dry	608,461	May 3	904	98	88	677
York, R. Sherman, *et al.* (See Guest, John H., assignor.)						
York Structural Steel Company. (See Prescott, De Witt C., assignor.)						
York, William J., Greenfield, Ohio. Liquid-conveyer	606,615	June 28	2980	679 680	88	1969
Young, Alba R., Murray, Nebr. Attachment for corn-planters	602,534	Apr. 19	1631	371	88	359
Young, Anne A., Williamsport, Ind. Hammock-frame	606,616	June 28	2982	680	88	1969
Young, Ernest W. (See Morgan and Young.)						
Young, George C., Washington, N. J. Sash lifter and lock	606,262	June 28	2396	582	88	1646
Young, Harland H., assignor of two-thirds to J. W. Smith and W. G. Tower, Kansas City, Mo. Machine for splitting beeves	601,926	Apr. 5	576	130	88	110
Young, Jonathan E., and G. Morden, Conneaut, Ohio. Railway-switch-operating mechanism	602,249	Apr. 12	1147	232	88	231
Young, Joseph S. (See Lare and Young.)	602,971	Apr. 26	2300	547	88	501
Young, Leland G., Muscatine, Iowa. Hammer	606,371	June 28	2408	579	88	1668
Young, McClintock, Frederick, Md., assignor to Palmetto Fibre Company, of Illinois. Gage device for brush-machines	604,135	May 17	1606	375	88	973
Young, Pauline, (now by marriage Pauline Young Weeks,) Philadelphia, Pa. Hook and eye	603,739	May 10	916	208	88	795
Young, Samuel, Peel Green Patricroft, England. Rail-joint	604,222	May 17	1868	409	88	1005
Zacsek, Stefan, and E. O. Gottlieb, New York, N. Y. Incandescent burner	604,870	May 31	3006	690	88	1967
Zeglen, Casimir, Chicago, Ill. Bullet-proof fabric	603,316	Apr. 26	2308	.....	88	577
Zeh, Otto, Eisfeld, Germany. Coloring doll-heads						
Zender, Anton L. (See Schunck and Zender.)						
Zestermann, Adolph, assignor of one-half to C. Fritze, Cincinnati, Ohio. Scoring device for games	608,356	May 3	191	44	88	636
Zeugschmidt, Sophia, Allegheny, Pa. Chatelaine	601,735	Apr. 5	199	39	88	30
Ziegfeld, Hugo. (See Morfoot, Benjamin W., assignor.)	604,988	May 17	1967	433 434	88	1086
Zimmer, John, Pittsburg, Pa. Straightening-machine						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Dr's.	Official Gazette. Vol.	Page.
Zinn, Mary. (See Scheuber, August W., assignor.)	605,500	June 14	908	212	88	1549
Zippler, Michael, Allegheny, Pa. Gas-heater	606,617	June 28	2983	680	88	1969
Zirnkilton, Francis X., Philadelphia, Pa. Article of jewelry	603,368	May 3	258	57	88	649
Zogg, Nicholas, New York, N. Y. Automatic filler for lubricators	608,717	May 10	858	191	88	784
Zook, John G., Lititz, Pa. Fly-screen						
Zschech, Gustaf H. (See Lukens and Zschech.)						
Zucker & Levett & Loeb Company. (See Kortum, Albert, assignor.)						
Zucker & Levett & Loeb Company. (See Ney, Roscoe W., assignor.)	602,986	Apr. 26	2325	529	88	497
Zucker & Levett & Loeb Company. Means for making wheel-rims	605,304	June 7	473	106	88	1441
Zühlke, Julius, Neuwied, Germany.	601,606	Apr. 5	198	25	88	28
Zweigbergk, Thorsten von, assignor to Walker Company, Cleveland, Ohio. Controller.	608,606	May 10	1021	227	88	816
Zwiebel, Anton, Burlington, Wis. Rotary steam-engine	608,310	May 3	112	26	88	622
Zwiebel, Anton, Burlington, Wis. Windmill						
Zwirow, Apollo, Hoboken, N. J. Back-pedaling brake	608,488	May 3	838	75	88	665
Zwissler, Valentine, assignor to S. J. Yarger, Philadelphia, Pa. Staple driving and clenching machine						

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Page.
A. M. Collins Manufacturing Company. (See Odgers, John P., assignor.)				
Acetylene House Lighting Company. (See Unger, Ernest, assignor.)				
Ackley, Orin, New Albany, Pa. Spike-hole plug	28,851	June 14	83	1649
Adams, George E., New Britain, Conn. Trimming for garment-supporters	28,679	June 14	83	1654
Adams, George E., New Britain, Conn. Stud member for detachable fasteners	28,917	June 28	83	1978
Adams, John L., New York, N. Y. Mold for paving-blocks	28,715	May 24	83	1203
Adler, Henry, Allegheny, Pa. Gas-stove	28,497	Apr. 19	83	499
Ambler, Henry L. and W., Cleveland, Ohio. Clamp	28,539	May 3	83	786
Ambler, William. (See Ambler, Henry L. and W.)				
American Lithographic Company. (See Speakman, Charles A., assignor.)				
American Lithographic Company. (See Witsch, Nicholas, assignor.)				
American Ring Company. (See Schuyler, Edwin J., assignor.)				
American Tire Company. (See Broderick, John J., assignor.)	28,903	June 21	83	1798
Amory, William N., New York, N. Y. Cushion				
Anderson, Alma H., assignor to Specialty Manufacturing Company, Indianapolis, Ind. Handle for postal marking and canceling stamps	28,645	May 17	83	1059
Andrews, William M., Glasgow, Scotland. Shirt-bosom	28,480	Apr. 19	83	496
Appleby, Benjamin G. (See Dolson and Appleby.)	28,464	Apr. 12	83	259
Arnold, Oscar M., New York, N. Y. Parasol	28,853	June 14	83	1652
Baker, James H., Allegheny, Pa. Channel-iron	28,854	June 14	83	1652
Baker, James H., Allegheny, Pa. Channel-iron	28,855	June 14	83	1652
Baker, James H., Allegheny, Pa. Angle-iron	28,455	Apr. 5	83	153
Baker, Walter H., assignor to National Lead Company, St. Louis, Mo. Metal ingot	28,769	May 31	83	1339
Baldwin, William W., assignor to Cleveland Co-Operative Stove and Hollow Ware Foundry Company, Cleveland, Ohio. Bedstead	28,913	June 21	83	1795
Baadler, Max, New York, N. Y. Neckscarf	28,478	Apr. 12	83	268
Basch, David, New York, N. Y. Bicycle toe-clip	28,704	May 24	83	1199
Bauer, Jacob M. (See Bauer, John G. and J. M.)	28,757	June 7	83	1499
Bauer, John G. and J. M., Lawrenceburg, Ind. Barrel-hoop	28,758	June 7	83	1499
Becker, Julius, New York, N. Y. Pipe	28,754	May 31	83	1337
Beckers, Albert M., Philadelphia, Pa. Book-cover				
Beckrow, Albert G., Saginaw, Mich. Bicycle-stand	28,684	June 7	83	1507
Beckworth, Otto O. (See Sprague, Charles D., assignor.)				
Bennett, Ernest H., East Orange, N. J., assignor to J. H. and E. Bromley, Philadelphia, Pa. Rug.				
Berdg, Joseph F., *et al.* (See Emison, Hubert H., assignor.)				
Bergener, Charles, assignor to C. T. Ham Manufacturing Company, Rochester, N. Y. Lamp-body	28,805	June 7	83	1502
Bergman, Martin L. (See Taylor and Bergman.)	28,475	Apr. 12	83	201
Bernstein, William F., Philadelphia, Pa. Bedstead-post	28,476	Apr. 12	83	201
Bernstein, William F., Philadelphia, Pa. Bedstead-post				
Berrang & Zacharias. (See Sieghortner, August L., assignor.)	28,875	June 14	83	1654
Betty, Thomas H., Manchester, Va. Churn-body and support	28,776	May 31	83	1341
Bietta, Henry C., Toronto, Canada. Toy	28,570	May 10	83	901
Binks, Joseph, River Forest, Ill. Valve-disk	28,628	May 17	83	1056
Bippart, Achill, Newark, N. J. Collar-button or stud				
Bishop, Alfred S. (See Corbett, George, assignor.)	28,906	June 28	83	1961
Blakesley, Alpheus M., Rock Island, Ill. Stove	28,866	June 14	83	1658
Bless, James F., Newark, N. J. Sad-iron	28,488	Apr. 19	83	497
Bloomberg, William, New York, N. Y. Suspender-buckle piece	28,746	May 31	83	1335
Blount, Edward, assignor to D. J. McEachern, Morven, Ga. Barrel-closure ring	28,731	May 31	83	1332
Bogert, Matthew J., Demerest, N. J. Pill-bottle	28,714	May 24	83	1201
Boggis, Henry, Philadelphia, Pa. Game-board	28,569	May 10	83	901
Bolens, Harry W., Port Washington, Wis. Sickle-grinder base	28,623	May 10	83	910
Boston Woven Hose and Rubber Company. (See Cowen, Robert, assignor.)				
Bottomley, Samuel, Providence, R. I. Woven fabric	28,571	May 10	83	901
Bowers, George S., *et al.* (See Limbert, Samuel H., assignor.)	28,505	May 10	83	900
Bradley, Christopher C., Syracuse, N. Y. Washer for thill-couplings	28,889	June 21	83	1790
Branch, Elisha R., Waterville, Me. Clamp for door-securers	28,945	June 28	83	1962
Bratzing, John, Philadelphia, Pa. Badge	28,450	Apr. 5	83	153
Bray, Oscar E., assignor of one-half to E. G. E. Ffolkes, Toronto, Canada. Knife-wheel				
Brinkerhoff, Warren M., Auburn, N. Y. Section-knife for mowing-machines	28,567	May 10	83	900
Brinkman, Louies H., assignor to New York Pipe Bending and Machine Company, Brooklyn, N. Y. Plumber's trap	28,501	Apr. 19	83	440
Broderick, John J., St. Louis, Mo., assignor to American Tire Company, New York, N. Y. Bicycle-tire	28,846	June 14	83	1649
Brogan, Anthony D., and A. M. Malloch, Glasgow, Scotland. Surface ornamentation of glass				
Bromley, Edward, *et al.* (See Bennett, Ernest H., assignor.)				
Bromley, Edward, *et al.* (See Petzold, Adolph, assignor.)				
Bromley, John H., *et al.* (See Bennett, Ernest H., assignor.)				
Bromley, John H., *et al.* (See Petzold, Adolph, assignor.)	28,573	May 10	83	901
Brooks, Charles, New York, N. Y. Pattern for pipe-coverings	28,541	May 3	83	786
Brown, Benjamin C., Creston, Iowa. Shackle-bolt link	28,661	May 17	83	1060
Brown, Frederick W., assignor to T. S. Paterson, Boston, Mass. Bicycle-lock	28,465	Apr. 12	83	269
Brown, James L., Lancaster, Pa. Umbrella or parasol case	28,607	May 10	83	907
Brown, John W., Jr., Philadelphia, Pa. Frame for fruit-seeding machines	28,690	May 24	83	1198
Brown, Samuel D., Andrews Settlement, Pa. File	28,638	May 17	83	1060
Brown, Simeon and T. P., Purity, Ohio. Washing-machine plunger	28,784	June 7	83	1499
Brown, Thomas P. (See Brown, Simeon and T. P.)	28,741	May 31	83	1334
Brown, William C., Bridgeport, Conn. Trading-stamp	28,667	May 17	83	1062
Brown, Worthington, Hannibal, Mo. Trace-fastener				
Brundage, James W., Montgomery City, Mo. Kitchen-cabinet				

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Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Brundrett, Ernest L. (See Page and Brundrett.)				
Brunhoff, Edward, Cincinnati, Ohio. Casing or frame for vending-machines	28,856	June 14	88	1650
Brunnworth, F. William. (See Tabor, William B., assignor.)				
Brunt, Henry, Baltimore, Md. Plate	28,840	June 14	88	1647
Bryce, Howard M., assignor to A. A. Vantine & Co., New York, N. Y. Fabric	28,676	May 17	88	1053
Buel, Albert W., assignor of one-half to D. L. Hough, New York, N. Y. Channel-bar for tunnel or similar casings	28,952	June 28	88	1984
Bunker, William I., La Grange, Ill. Saddle-seat	28,553	May 10	88	908
Bunker, William I., La Grange, Ill. Saddle-seat	28,756	May 31	88	1337
Bunker, William I., La Grange, Ill. Saddle-seat	28,757	May 31	88	1337
Bunker, William I., La Grange, Ill. Saddle-seat	28,758	May 31	88	1337
Bunker, William I., La Grange, Ill. Saddle-seat	28,759	May 31	88	1337
Bunker, William I., La Grange, Ill. Saddle-seat	28,901	June 21	88	1793
Bunker, William I., La Grange, Ill. Saddle-seat	28,903	June 21	88	1793
Bunker, William I., La Grange, Ill. Saddle-seat	28,703	May 31	88	1335
Burdick, Bainbridge W., Albany, N. Y. Plate-keeper shell	28,705	May 31	88	1335
Burdick, Bainbridge W., Albany, N. Y. Founder's core-supporting shell	28,704	May 31	88	1335
Burdick, Bainbridge W., Albany, N. Y. Stove-door-catch shell				
Burger, Franz. (See Williams, Henry M., assignor.)				
Burton, Bedford F., *et al.* (See Prentis, George P., assignor.)	28,831	May 10	88	910
Buschner, Carl F., New York, N. Y. Fringe	28,847	June 14	88	1640
Buttler, William, Redkey, Ind. Sheet or plate glass				
C. A. Edgarton Manufacturing Company. (See Edgarton, Charles F., assignor.)				
C. T. Ham Manufacturing Company. (See Bergener, Charles, assignor.)	28,633	May 17	88	1057
Cameron, Brock, assignor of one-half to W. B. Ker, Guelph, Canada. Ink-bottle				
Carlisle, James C., *et al.* (See Emison, Hubert H., assignor.)	28,959	June 28	88	1985
Chase, Frank B., and E. P. Redfield, New York, N. Y. Duplicate-whist board				
Chéron, Pierre J., New York, N. Y., assignor to F., H., and F. Fuchs, Jersey City, N. J. Border for silverware	28,504	Apr. 26	88	598
Cheshire Manufacturing Company. (See Ives, Frederick A., assignor.)				
Clarke, Hiram C., West Winfield, N. Y. Puzzle-box	28,614	May 10	88	909
Clarke, John H., Framingham, Mass. Hat-fastener	28,791	June 7	88	1500
Clas, Alfred C., assignor to Milwaukee Carnival Association, Milwaukee, Wis. Badge or similar article	28,685	May 17	88	1056
Cleveland Co-Operative Stove and Hollow Ware Foundry Company. (See Baldwin, William W., assignor.)	28,884	June 21	88	1790
Cluin, John J., Lowell, Mass. Badge				
Cluise, John, assignor to Simpson Hall Miller & Company, Wallingford, Conn. Handle for spoons, forks, &c	28,595	May 3	88	736
Cochran Chair Co. (See Franz, John, assignor.)	28,560	May 10	88	900
Coleman, Aaron, New York, N. Y. Suspender-buckle	28,906	June 21	88	1793
Comstock, William A., Cleveland, Ohio. Coiled-wire spring for beds, &c	28,796	June 7	88	1501
Conlin, Robert E., Poughkeepsie, N. Y. Hair-crimper member	28,887	June 21	88	1791
Connelly, John S., Titusville, Pa. Frame for reflecting-spectacles	28,588	May 3	88	736
Conner, Frederick J., Waterville, Me. Badge or similar article	28,951	June 28	88	1984
Connor, Edward T., Illiopolis, Ill. Washer for nut-locks	28,581	May 3	88	737
Conway, Joseph L., Sioux City, Iowa. Box-lid holder	28,738	May 31	88	1338
Cook, Lewis P., New York, N. Y. Loving-cup	28,710	May 24	88	1201
Cooper, William S., Birmingham, Ala. Medicine-case and desk	28,477	Apr. 12	88	291
Copeland, James S., Hartford, Conn. Frame for bicycles	28,567	May 10	88	904
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Bicycle-frame	28,568	May 10	88	904
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Bicycle-frame	28,677	May 24	88	1195
Corbett, George, New York, N. Y., assignor to A. S. Bishop, trustee, Pittsburg, Pa. Badge	28,708	May 24	88	1199
Coulter, James A., Ingersoll, Canada. Bicycle-hub				
Court, Charles S. (See Crees and Court.)				
Cowen, Robert, Cambridge, assignor to Boston Woven Hose and Rubber Company, Boston, Mass. Elastic tire	28,566	May 10	88	904
Crandon, Sanford, *et al.* (See Peters, Heber C., assignor.)				
Crees, Eustace, and C. S. Court, assignors to Waite, Thresher Company, Providence, R. I. Handle for button-hooks or similar articles	28,554	May 10	88	899
Crees, Eustace, and C. S. Court, assignors to Waite, Thresher Company, Providence, R. I. Handle for button-hooks or similar articles	28,555	May 10	88	899
Crees, Eustace, and C. S. Court, assignors to Waite, Thresher Company, Providence, R. I. Handle for button-hooks or similar articles	28,556	May 10	88	899
Crees, Eustace, and C. S. Court, assignors to Waite, Thresher Company, Providence, R. I. Handle for button-hooks or similar articles	28,557	May 10	88	899
Crees, Eustace, and C. S. Court, assignors to Waite, Thresher Company, Providence, R. I. Handle for button-hooks, &c	28,921	June 28	88	1978
Crouch, George, New York, N. Y. Trunk-slat	28,563	May 10	88	900
Crouch, George, New York, N. Y. Trunk-slat	28,564	May 10	88	900
Curtice, William H., Louisville, Ky. Flour-tank	28,718	May 24	88	1202
Cushman, Joseph W., assignor of one-half to G. F. Wilcoxson, New York, N. Y. Oil-can	28,560	May 10	88	908
D. M. Osborne & Company. (See Sharp, Charles S., assignor.)				
Daniels, Robert E., Youngstown, Ohio. Corner-protector strip	28,509	Apr. 26	88	599
Dantzebecher, Howe E., Philadelphia, Pa. Kite-frame	28,905	June 21	88	1793
Daschbach, Edward J., Pittsburg, Pa. Gas-burner	28,699	May 24	88	1199
Davies, Benjamin, West Hoboken, N. J., assignor to L. Straus & Sons, New York, N. Y. Bowl or vessel	28,733	May 31	88	1333
Davis, Charles W. and M. R., Festone, Kans. Gang-frame for cultivators	28,747	May 31	88	1335
Davis, Morton R. (See Davis, Charles W. and M. R.)				
Davis, Robert H., *et al.* (See Gatewood, Cortez, assignor.)	28,708	May 24	88	1199
De Hart, Harry A., Thorofare, N. J. Wagon-body	28,611	May 10	88	908
Dennett, Fred A., Sheboygan, Wis. Bent-wood chair-seat				
Des Moines Incubator Company. (See Gilcrest, Jacob K., assignor.)	28,682	May 17	88	1050
Dettelbach, Benjaman, Cleveland, Ohio. Basin-clamp	28,736	May 31	88	1333
Dieffenbacher, Joseph A., York, Nebr. Dry measure				
Dill, William F., *et al.* (See Levering, Mark S., assignor.)	28,458	Apr. 5	88	153
Dolson, Harry, and B. G. Appleby, Saginaw, Mich. Bicycle-stand				
Donovan, James, assignor to Roberts, Throp & Company, Three Rivers, Mich. Foot-guard for switches	28,494	Apr. 19	88	439
Dowd, Henry C., Carthage, N. C. Hoe	28,611	June 7	88	1503
Draper, Lucius D., Boston, Mass. Plate for garment-supporters	28,467	Apr. 12	88	289
Driscoll, William W. (See Thomas and Driscoll.)				
Du Brul, Napoleon, Cincinnati, Ohio. Machine-plate	28,657	May 17	88	1049

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Dunlap & Son, John. (See Fromuth, August G., assignor.)	28,514	Apr. 26	88	599
Easterly, Eugene, assignor to Sill Stove Works, Rochester, N. Y. Water-front frame	28,535	May 3	88	737
Eastwood & Park. (See Schleicher, Herman F. W., assignor.)				
Eckstein, Albert, New York, N. Y. Hook for garment-fasteners	28,792	June 7	88	1500
Edgarton, Charles F., assignor to C. A. Edgarton Manufacturing Company, Shirley, Mass. Suspender-end	28,632	May 17	88	1057
Egge, Gustave C., assignor to G. K. Webster, North Attleborough, Mass. Back for brushes or similar articles	28,472	Apr. 12	88	290
Electro Lamp Company. (See Iden, Charles W., assignor.)	28,519	Apr. 26	88	599
Elliott, William R., Red Bank, N. J. Sewer's tree	28,466	Apr. 12	88	289
Ellrich, Robert C., assignor to Peck, Stow & Wilcox Company, Southington, Conn. Wrench-frame.				
Ellsworth, Herbert, assignor to W. Noville, Cleveland, Ohio. Umbrella-stand	28,498	Apr. 19	88	438
Emison, Hubert H., Tipton, Ind., assignor of two-thirds to J. F. Berdg and J. C. Carlisle, Fostoria, Ohio. Casing for spark-arresters	28,928	June 14	88	1651
Endle, Karl, Sandusky, Ohio. Spittoon-cover	28,491	Apr. 19	88	438
Enyart, Ralph C., assignor to P. H. & F. M. Roots Company, Connersville, Ind. Head for rotary pumps	28,697	May 17	88	1057
Estes, Webster C., New York, N. Y. Wooden jar	28,642	May 17	88	1052
Estes, Webster C., New York, N. Y. Wooden box	28,895	June 21	88	1790
Eustis, John P., Newton, Mass. Tea or coffee pot strainer	28,643	May 17	88	1053
Everitt, James A., Indianapolis, Ind. Atomizer-body	28,660	May 17	88	1050
Everitt, James A., Indianapolis, Ind. Hopper for seed-planters	28,893	June 14	88	1647
Fairchild, Le Roy C., New York, N. Y. Pencil-case barrel	28,595	May 10	88	905
Farles, Robert, Decatur, Ill. Holder for shades of incandescent lamps	28,941	June 28	88	1982
Faust, Adolph A., assignor of one-half to N. B. Lents, Des Moines, Iowa. Jar-wrench	28,944	June 28	88	1982
Fay, Darius, Binghamton, N. Y. Dust-scraper	28,618	May 10	88	909
Felcher, Robert, Brenham, Tex. Packing-jar				
Feisenthal, Gabe. (See Stauber, Benjamin F., assignor.)	28,949	June 28	88	1984
Ferguson, William P., New York, N. Y. Cap for exploding dynamite-cartridges				
Fiolkes, Edward G. E. (See Bray, Oscar E., assignor.)	28,900	June 21	88	1793
Field, Benjamin F., and W. J. Shadd, Chicago, Ill. Seat-post for bicycles	28,723	May 31	88	1331
Field, Ida M., New York, N. Y. Belt-book	28,753	May 31	88	1337
Finch, Stanley W., Washington, D. C. Frame or body for bicycle-skates	28,915	June 21	88	1795
Fletcher, Sigmund L., New York, N. Y. Fabric	28,651	May 17	88	1050
Fletcher, George W., Mendon, Ill. Holdback-iron for thills	28,655	May 17	88	1050
Folsom, George P., Boston, Mass. Snow-guard	28,495	Apr. 19	88	439
Foote, Frederick H., Chicago, Ill. Brick for hot-blast stoves	28,889	June 21	88	1791
Forbes, William A., Butler, Ohio. Fastener for fence-stays	28,722	May 31	88	1331
Foraheim, Joseph, New York, N. Y. Buckle-plate	28,588	May 3	88	736
Foster, Theodore W., Providence, R. I. Back for brushes, &c	28,587	May 3	88	736
Foster, Theodore W., Providence, R. I. Cover for puff-boxes	28,586	May 3	88	737
Foster, Theodore W., Providence, R. I. Handle for manicure or similar articles	28,589	May 3	88	737
Foster, Theodore W., Providence, R. I. Handle for scissors	28,695	May 24	88	1196
Foster, Theodore W., Providence, R. I. Box	28,737	May 31	88	1339
Foster, Theodore W., Providence, R. I. Box	28,604	May 10	88	907
Fowler, Arthur H., Philadelphia, Pa., assignor to Fowler & Wolfe Manufacturing Company, of Pennsylvania. Radiator	28,760	May 31	88	1338
Fowler, Arthur H., Philadelphia, Pa., assignor to Fowler & Wolfe Manufacturing Company, of Pennsylvania. Radiator-section	28,761	May 31	88	1338
Fowler, Arthur H., Philadelphia, Pa., assignor to Fowler & Wolfe Manufacturing Company, of Pennsylvania. Radiator-section	28,725	May 31	88	1331
Fowler & Wolfe Manufacturing Company. (See Fowler, Arthur H., assignor.)				
Frank, Henry C., New York, N. Y. Cuff-holder	28,629	May 10	88	910
Frank M. Whiting Company. (See Theobold, Jean G., assignor.)	28,818	June 7	88	1504
Franz, Charles, assignor to A. A. Vantine & Co., New York, N. Y. Woven fabric	28,779	June 7	88	1499
Franz, John, assignor to Cochran Chair Co., Cochran, Ind. Chair-seat	28,688	June 14	88	1655
French, William L., New York, N. Y. Badge	28,488	Apr. 19	88	439
Fromuth, August G., assignor to J. Dunlap & Son, Philadelphia, Pa. Carpet				
Frost, Charles L., Grand Rapids, Mich. Door-catch				
Frost, Harvey F. (See Webber, Arthur C., assignor.)				
Fuchs, Ferdinand, *et al.* (See Chéron, Pierre J., assignor.)				
Fuchs, Frederick, *et al.* (See Chéron, Pierre J., assignor.)				
Fuchs, Henry, *et al.* (See Chéron, Pierre J., assignor.)	28,506	May 10	88	900
Gear, Scott & Company. (See Stevens, William, assignor.)	28,808	June 7	88	1502
Galt, Thomas A., Sterling, Ill. Hand-sprayer				
Gardner, Annie M. and W. H., Jr., Salem, Mass. Picture or mirror frame				
Gardner, William H., Jr. (See Gardner, Annie M. and W. H., Jr.)				
Gatewood, Cortez, Washington, D. C., assignor to himself, R. H. Davis, A. T. and T. B. Harms, New York, N. Y. Puzzle-block	28,775	May 31	88	1340
Gem Flexible Insole Company. (See Hadaway, John B., assignor.)	28,817	June 7	88	1504
Gerber, Nicholas, Zurich, Switzerland. Butyrometer	28,639	May 17	88	1053
Gere, William B., assignor to Merrell-Soule Company, Syracuse, N. Y. Carton or envelop	28,937	June 28	88	1982
Germer, Edward G., Erie, Pa. Heating-stove	28,804	June 7	88	1502
Gerritson, Charles S., Boston, Mass. Lamp stand or holder	28,617	May 10	88	909
Gerstendorfer, Albert and M., New York, N. Y. Advertising-column	28,616	May 10	88	909
Gerstendorfer, Albert and M., New York, N. Y. Advertising-column				
Gerstendorfer, Max. (See Gerstendorfer, Albert and M.)				
Gibbs, Lewis, Canton, Ohio. Embroidery-hoop	28,671	May 17	88	1052
Gilbride, Thomas J., Scranton, Pa. Horseshoe-calk	28,853	June 14	88	1650
Gilcrest, Jacob K., assignor to Des Moines Incubator Company, Des Moines, Iowa. Thermostatic chamber	28,950	June 28	88	1984
Gilbee, Manuel A. T., Philadelphia, Pa. Picture frame or mount	28,806	June 7	88	1502
Gilbee, Manuel A. T., Philadelphia, Pa. Picture frame or mount	28,807	June 7	88	1502
Gillespie, Frank P., assignor of one-half to J. I. Town, Erie, Pa. Shell for gas-fuel burners	28,597	May 10	88	905
Gillespie, Frank P., assignor of one-half to J. I. Town, Erie, Pa. Shell for gas-fuel burners	28,598	May 10	88	906
Gillett, Henry W., Newport, R. I. Dental separator	28,934	June 28	88	1981
Gladhill, Eugene W., Abingdon, Ill. Churn-dasher	28,705	May 24	88	1200
Gleason, Marshall W., Brooklyn, N. Y. Globe	28,660	May 24	88	1197
Godshaw, Charles, Tryon, N. C. Clock-dial	28,932	June 28	88	1981
Goldsmith, Byron B., New York, N. Y. Lead-pencil	28,558	May 10	88	899
Gooding, Benjamin W. and G., Plymouth, Mass. Handle for spoons, &c	28,695	June 21	88	1790
Goodiss, George. (See Gooding, Benjamin W. and G.)				
Goodman, Isaac H., Philadelphia, Pa. Textile fabric	28,816	Apr. 26	88	600
Goodell Company. (See Rising, Frederick B., assignor.)				
Goss, John H., assignor to Scovill Manufacturing Company, Waterbury, Conn. Head and shank member for bicycle-pumps	28,872	June 14	88	1653

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Gossard, Newton B., Altoona, Pa. Shirt-front	28,908	June 26	83	1908
Grant, James F., Baltimore, Md., assignor to Sovereign Grand Lodge of the Independent Order of Odd Fellows, of Maryland. Official certificate	28,782	June 7	83	1499
Great Western Fixture Works. (See Morrow, Charles B., assignor.)				
Green, William M., New York, N. Y. Jardinière	28,626	May 17	83	1058
Gregory, William E., Astoria, Oreg. Shoe-horn clamp	28,495	Apr. 19	83	890
Griffith, Martin E., Manor Station, Pa. Bottle or jar	28,942	June 14	83	1648
Griggs, Cooper & Co. (See Wyman, Clark E., assignor.)				
Groff, Orlando W., *et al.* (See Miller, Edward, assignor.)				
Grunwaldt, Albert W., Abrams, Wis. Secretary	28,606	May 17	83	1052
Guett, Monroe, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Push-button	28,646	May 17	83	1059
Hadaway, John B., Brockton, assignor to Gem Flexible Insole Company, Boston, Mass. Cement-receptacle	28,547 28,955	May 3 June 26	83 83	730 1905
Haettel, Frank, Columbus, Ohio. Sign-letter				
Hall, Thomas. (See Yarrington and Hall.)	28,797	June 7	83	1501
Hamilton, James, Newburg, N. Y. Spool-stand	28,736	May 31	83	1394
Hamlin, John H., Salt Lake City, Utah. Tip for tool-handles	28,800	June 7	83	1501
Hare, Lewis, Custer, S. D. Instep-stiffener				
Harma, Alexander T., *et al.* (See Gatewood, Cortez, assignor.)				
Harma, Thomas B., *et al.* (See Gatewood, Cortez, assignor.)				
Harriman, Wilbur E., North Chatham, N. H. Handle socket-piece for hand-scrapers	28,505	May 10	83	901
Hart, Edwin, assignor to Waterbury Watch Company, Waterbury, Conn. Cyclometer-bracket	28,590	May 10	83	904
Hart, Edwin, assignor to Waterbury Watch Company, Waterbury, Conn. Cyclometer-casing	28,591	May 10	83	905
Hart & Hegeman Manufacturing Company. (See Guett, Monroe, assignor.)				
Hart, Willis O., Unionville, Conn. Spoon	28,609	May 17	83	1056
Haugh, Benjamin O., Anderson, Ind. Tile	28,907	June 21	83	1794
Havell, George, and A. G. Williams, Newark, N. J. Bicycle-lamp body	28,592	May 10	83	905
Haviland, Charles E., Limoges, France. Plate or dish	28,929	June 26	83	1979
Haviland, Charles E., Limoges, France. Dish	28,927	June 26	83	1980
Haviland, Charles E., Limoges, France. Cover-dish	28,926	June 26	83	1980
Haviland, Charles E., Limoges, France. Cover-dish	28,930	June 26	83	1980
Haviland, Charles E., Limoges, France. Cup or bowl	28,930	June 26	83	1980
Haynes, William E., Somerville, N. J. Badge	28,517	Apr. 26	83	590
Hasen, Frederick C., Los Angeles, Cal. Clothes-pin	28,608	May 24	83	1195
Heaton, Peter, Allegheny, Pa. Hook	28,734	May 31	83	1381
Heitmann, Henry, Miamisburg, Ohio. Cigar	28,596	June 14	83	1647
Hensel, Colladay Company. (See Patton, Oliver S., assignor.)				
Hensel, Colladay Company. (See Poyet, John B., assignor.)				
Hertzler, John. (See Keiper, Henry B., assignor.)				
Hewit, William E., David City, Nebr. Grocer's cabinet	28,926	June 26	83	1909
Hewitt, Joseph F., Allegheny, Pa. Grate-front	28,871	June 7	83	1504
Hildreth, Le Roy M., New Haven, Conn. Bicycle-saddle	28,874	June 14	83	1654
Hills, James E., New York, N. Y. Display-card	28,713	May 24	83	1201
Hitchcock Lamp Company. (See Rose, Clarence H., assignor.)				
Hobson, Henry D., Brooklyn, N. Y. Puzzle board or card	28,773	May 31	83	1340
Holabird, Louis, Chicago, Ill. Bicycle wrench and scraper	28,871	June 14	83	1603
Holabird, Russell D., Oakland, Cal. Frame for ice and refrigerating machines	28,897	June 21	83	1792
Holeday, John W., Akron, Ohio. Furnace bar grate-support	28,868	June 14	83	1650
Holden, George P., Kingston, N. Y. Bicycle-saddle spring	28,513	Apr. 26	83	589
Hough, David L. (See Buel, Albert W., assignor.)				
Howard, Andrew, Wilkinsburg, Pa. Chimney	28,845	June 14	83	1649
Huenefeld, Ernst H., Cincinnati, Ohio. Heating-stove	28,496	Apr. 19	83	889
Huennekens, Frederick W., Milwaukee, Wis. Washer	28,511	Apr. 26	83	589
Huff, William J., Decatur, Ill. Meat-block	28,815	June 7	83	1503
Hufschmidt, Charly W., Prairie du Chien, Wis. Cover for memorandum-books	28,550	May 3	83	725
Humes, John H., St. Louis, Mo. Punch	28,740	May 31	83	1394
Humes, John H., St. Louis, Mo. Punch	28,939	June 26	83	1908
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	28,490	Apr. 5	83	158
Hunt, Jonathan A., Westborough, Mass. Saddle spring or support	28,479	Apr. 12	83	302
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	28,822	June 7	83	1505
Huntley, Arthur G., Toston, Mont. Sharpening-tool	28,895	June 21	83	1792
Hutaf, August W., Hoboken, N. J. Hammer	28,942	June 26	83	1908
Hutchins, George F., Worcester, Mass. Jack-lever	28,579	May 10	83	908
Ideal Couch and Casket Company. (See Lautner, William C., assignor.)				
Iden, Charles W., New York, N. Y., assignor to Electro Lamp Company, of West Virginia. Lamp	28,843	June 14	83	1646
Iden, Charles W., New York, N. Y., assignor to Electro Lamp Company, of West Virginia. Lamp	28,844	June 14	83	1646
Ingram, Nathan D., Holyoke, Mass. Pencil-holder	28,589	May 10	83	880
Ireland, David M., Detroit, Mich. Stove-urn	28,765	May 31	83	1396
Isaacs, Frederic H., Newark, N. J. Necktie-shield	28,794	June 7	83	1500
Ives, Frederick A., assignor to Cheshire Manufacturing Company, Cheshire, Conn. Hook for garment-clasps	28,561	May 10	83	900
Ives, Hobart B., New Haven, Conn. Bead-engaging thimble	28,859	June 14	83	1651
Ives, Hobart B., New Haven, Conn. Bead-engaging thimble	28,860	June 14	83	1651
Ivory, James W., Philadelphia, Pa. Handle for punches	28,739	May 31	83	1394
Jackson, Austin F., Taunton, Mass. Teapot or like article	28,494	Apr. 19	83	437
Jackson, Austin F., Taunton, Mass. Teapot or like article	28,609	May 24	83	1197
Jackson, Frances C. (See Walker and Jackson.)				
James E. Blake & Company. (See Laurin, Joseph F., assignor.)				
James E. Blake & Company. (See Pretzer, Louis W., assignor.)				
Jellenik, Felix, trustee. (See Phillips, Fred K., assignor.)	28,908	June 21	83	1794
Jenkins, Harry L., Minneapolis, Minn. Illuminated panel				
Johns, Harry E. (See Rowse and Johns.)	28,798	June 7	83	1500
Johnson, Bernhard, Boston, Mass. Shoe-lace fastening	28,849	June 14	83	1649
Johnson, Frank P., Danville, Pa. Antirattler	28,953	June 26	83	1984
Johnson, Robert M., Hainesport, N. J. Envelop	28,578	May 10	83	908
Johnston, George, San Francisco, Cal. Concentrator-band				
Kallor, John N. (See Reeves and Kallor.)				
Kallor, John N., and M. T. Reeves, assignors to Reeves & Company, Columbus, Ind. Concave-section for separators	28,454	Apr. 5	83	158
Keiper, Henry B., assignor of one-half to J. Hertzler, Lancaster, Pa. Ball-retainer	28,869	June 14	83	1653
Keith, Frederick M., Somerville, Mass. Cheese-cabinet	28,893	June 21	83	1792
Ker, William B. (See Cameron, Brock, assignor.)				
Kieckhefer Brothers Company. (See Mohr, Ernst, assignor.)				
Kimes, Hugh W., assignor to Stilwell-Bierce & Smith-Vaile Company, Dayton, Ohio. Pump-housing	28,546	May 3	83	730

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Kirkwood, Hugh, Minneapolis, Minn. File-case for sales-books	28,880	June 14	83	1647
Kitselman, Davis M., Ridgeville, Ind. Pattern for wire fencing	28,515	Apr. 26	83	589
Klein, Frederick W., assignor to Reading Braid Company, Reading, Pa. Braid	28,777	May 31	83	1341
Knothe, Frank F., New York, N. Y. Suspender-end	28,876	June 14	83	1654
Koch, Justus, Philadelphia, Pa. Fabric for hangings	28,481	Apr. 19	83	436
Kohler, Frederick E., Canton, Ohio. Lawn-rake head	28,612	June 7	83	1503
Kohler, Frederick E., Canton, Ohio. Lawn-rake head	28,613	June 7	83	1503
Kohlman, Celia, New York, N. Y. Waist-belt	28,480	Apr. 5	83	158
Konrad, John C., assignor to C. W. Wood, New York, N. Y. Body for delivery-wagons	28,749	May 31	83	1338
Konrad, John C., assignor to C. W. Wood, New York, N. Y. Body for delivery-wagons	28,750	May 31	83	1338
Konrad, John C., assignor to C. W. Wood, New York, N. Y. Body for delivery-wagons	28,751	May 31	83	1338
Konrad, John C., assignor to C. W. Wood, New York, N. Y. Body for delivery-wagons	28,752	May 31	83	1338
Kranz, Louis, assignor to Waite, Thresher Company, Providence, R. I. Handle for button-hooks, &c	28,919	June 26	83	1978
Kranz, Louis, assignor to Waite, Thresher Company, Providence, R. I. Handle for button-hooks, &c	28,920	June 26	83	1978
La Pierre, Frank H., East Orange, N. J. Clothes-brush	28,662	May 24	83	1196
La Pierre, Frank H., East Orange, N. J. Hair-brush	28,663	May 24	83	1196
La Pierre, Frank H., East Orange, N. J. Hand-glass	28,664	May 24	83	1196
La Pierre, Frank H., East Orange, N. J. Bracelet or similar article	28,730	May 31	83	1381
Laurin, Joseph F., assignor to James E. Blake & Company, Attleborough, Mass. Back for brushes, mirrors, or similar articles	28,922	June 26	83	1979
Lautner, William C., assignor to Ideal Couch and Casket Company, Rochester, N. Y. Burial-casket	28,675	May 17	83	1062
Law, Frank W., Pittsburg, Pa. Gas-burner	28,808	June 7	83	1501
Laws, Frank P., Beebe, Ark. Head for buttons	28,679	May 24	83	1198
Lawson, Henry S., Jersey City, assignor to Pantasote Leather Company, Passaic, N. J. Textile fabric	28,825	June 7	83	1505
Lawson, Jennie E. (See Snow, Frank E., assignor.)	28,770	May 31	83	1389
Lager, Edward, Chicago, Ill. Garment-rack				
Lantz, Nathan B. (See Faust, Adolph A., assignor.)				
Lavering, Mark S., Atlantic City, N. J., assignor of one-half to W. F. Dill and H. R. Miller, Philadelphia, Pa. Hose-mending device	28,544	May 3	83	726
Lavison, Joseph A., New York, N. Y. Skirt-supporter	28,506	Apr. 26	83	586
Limbert, Samuel H., assignor to G. S. Bowers and A. Meise, Springfield, Ohio. Game-board	28,822	June 7	83	1505
Lindemeyr, Philip, assignor to Monarch Manufacturing Company, Baltimore, Md. Bottle	28,841	June 14	83	1647
Lindenberg, Charles H., Columbus, Ohio. Regalia-collar	28,717	May 24	83	1202
Lindsay, Robert W., Middletown, N. Y. Game-board	28,674	May 17	83	1060
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Tire-valve cap	28,584	May 10	83	903
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Tire-valve cap	28,585	May 10	83	904
Lippincott, Walter, Philadelphia, Pa. Door-button	28,508	Apr. 26	83	588
List, Edward R., Odin, Ill. Shoe-polisher frame	28,659	May 17	83	1060
Lister, John T., Cleveland, Ohio. Incandescent-lamp bulb	28,981	June 28	83	1981
Losser, Daniel A., assignor to R. Wallace & Sons Manufacturing Company, Wallingford, Conn. Metallic border	28,460	Apr. 12	83	300
Long, Eugene F., assignor of one-half to G. A. Long, Scranton, Pa. Miner's lamp	28,594	May 10	83	905
Long, George A. (See Long, Eugene F., assignor.)				
Love, Fred T., assignor to Rockford Silver Plate Company, Rockford, Ill. Handle for spoons, &c	28,660	May 24	83	1196
Love, Fred T., assignor to Rockford Silver Plate Company, Rockford, Ill. Handle for spoons, &c	28,661	May 24	83	1196
Ludwick, William F., Beaumont, Kans. Garden-hoe	28,490	Apr. 19	83	436
Lusk, Otto A. (See Martinek and Lusk.)				
Lynch, Jerry J., Erie, Pa. Trousers-stretcher	28,647	May 17	83	1059
Lynott, John P., Louisiana, Mo. Stove	28,608	May 10	83	906
Mackinnon, Alexander H., Olympia, Wash. Seal-press case	28,799	June 7	83	1501
Macy, Bernard F., Roslindale, Mass. Egg-separator	28,876	June 14	83	1654
Maddock, Thomas, *et al.* (See Simons, John F., assignor.)				
Malloch, Andrew M. (See Brogan and Malloch.)				
Marshall, Edward S., assignor to Missouri Railway Equipment Company, St. Louis, Mo. Car-door track	28,742	May 31	83	1334
Martens, Rudolph H., Colfax, Wash. Door-latch	28,540	May 3	83	726
Martin, Henry J., Chicago, Ill., assignor to Whitman & Barnes Manufacturing Company, Akron, Ohio. Wrench-jaw	28,487	Apr. 19	83	438
Martin, John F., Ceresco, and J. W. Orton, Coldwater, Mich. Carpet-stretcher plate	28,943	June 26	83	1983
Martinek, Fredrick, and O. A. Lusk, Chicago, Ill. Nipple for bicycle-valves	28,701	May 24	83	1199
Maurer, Alexander C., *et al.* (See Maurer, Frank H., assignor.)				
Maurer, Frank H., assignor to J. W., W. H., A. C., and F. H. Maurer, Philadelphia, Pa. Fringe	28,894	June 7	83	1505
Maurer, Joseph W., *et al.* (See Maurer, Frank H., assignor.)				
Maurer, William H., *et al.* (See Maurer, Frank H., assignor.)				
Maxim, Hiram P., Hartford, Conn. Plug for electrical purposes	28,744	May 31	83	1335
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,886	June 7	83	1505
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,887	June 7	83	1505
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,888	June 7	83	1505
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,889	June 7	83	1505
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,890	June 7	83	1505
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,891	June 7	83	1505
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,892	June 7	83	1505
May, Anna K., assignor to W. H. and I. McCallum, Philadelphia, Pa. Carpet	28,893	June 7	83	1505
McCallum, Irving, *et al.* (See May, Anna K., assignor.)				
McCallum, William H., *et al.* (See May, Anna K., assignor.)				
McCarville, Joseph H., Armah, Iowa. Puzzle-box	28,956	June 26	83	1985
McClain, Edward L., Greenfield, Ohio. Sweat-pad	28,576	May 10	83	908
McCormick, Francis J., Jr., and F. J., Dayton, Ohio. Water-closet bowl	28,545	May 3	83	730
McDonald, William B., Chicago, Ill. Insulator-plate	28,743	May 31	83	1334
McEachern, Duncan J. (See Blount, Edward, assignor.)				
McFadden & Brother, George H. (See McFadden, James F., assignor.)				
McFadden, James F., assignor to G. H. McFadden & Brother, Philadelphia, Pa. Tag	28,619	May 10	83	910
McMillan, Albert B., Auburn, Wash. Stove	28,601	May 10	83	908
McNamee, John H. H., Cambridge, Mass. Badge or button	28,502	Apr. 26	83	586
McShane, Patrick J., Stapleton, N. Y. Knife for opening seams	28,796	June 7	83	1501
Meise, Albert, *et al.* (See Limbert, Samuel H., assignor.)				
Meicher, Woodbury, East Orange, N. J. Pin	28,837	June 14	83	1647
Merrell-Soule Company. (See Gere, William B., assignor.)				
Merriam, William J., Almont, Mich. Wheat-steamer casing	28,609	May 10	83	908
Merriman, Francis E., Boston, Mass., assignor to Sovereign Grand Lodge of the Independent Order of Odd Fellows, Baltimore, Md. Badge	28,780	June 7	83	1499
Meyer, William C., Boston, Mass. Knife	28,530	May 3	83	727
Miller, Edward, assignor of two-thirds to O. W. Groff and A. Rapp, Akron, Ohio. Bulb for electric lamps	28,458	Apr. 5	83	158

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Miller, Edward, assignor of two-thirds to O. W. Groff and A. Rapp, Akron, Ohio. Bulb for electric lamps	28,453	Apr. 5	88	153
Miller, George, Jersey City, N. J. Bottle	28,709	June 7	88	1500
Miller, Howard R., *et al.* (See Levering, Mark S., assignor.)				
Miller, Ira O., Topeka, Kans. Stove-lid and pan lifter	28,940	June 28	88	1988
Miller, Louis J., Chicago, Ill. Prism-light	28,909	June 21	88	1794
Mills, Americus C., Jr., Rochester, N. Y. Display-rack	28,771	May 31	88	1340
Milwaukee Carnival Association. (See Clas, Alfred C., assignor.)				
Minetto, Emile and J., New York, N. Y. Game-board	28,673	May 17	88	1098
Minetto, John. (See Minetto, Emile and J.)				
Missouri Lamp and Manufacturing Company. (See Schaefer, Edward, assignor.)				
Missouri Railway Equipment Company. (See Marshall, Edward S., assignor.)	28,655	May 17	88	1057
Modes, Edward C., Cicero, Ind. Bottle	28,488	Apr. 19	88	497
Modes, Edward C., assignor to Modes Glass Company, Cicero, Ind. Bottle				
Modes Glass Company. (See Modes, Edward C., assignor.)	28,474	Apr. 12	88	280
Mohler, John P., Burlingham, Ohio. Fence-post	28,709	June 7	88	1500
Mohr, Ernst, assignor to Kieckhefer Brothers Company, Milwaukee, Wis. Spoon				
Monarch Manufacturing Company. (See Lindemeyr, Philip, assignor.)	28,773	May 31	88	1340
Morrow, Charles B., assignor to Great Western Fixture Works, Chicago, Ill. Display-rack	28,530	May 3	88	740
Morrow, George L. K., Detroit, Mich. Bicycle-frame	28,916	June 28	88	1978
Mulberin, Charles P., Augusta, Ga. Collar-buttoner	28,784	May 31	88	1388
Müller, Hermann O., New York, N. Y. Lamp-holder	28,762	May 31	88	1288
Murray, John P., Newton, Ill. Kitchen-cabinet	28,640	May 17	88	1056
Myers, Phineas B., New York, N. Y. Paper box	28,780	May 31	88	1388
Myers, Phineas B., New York, N. Y. Paper box				
National Casket Company. (See Stein and Wetmore, assignors.)				
National Lead Company. (See Baker, Walter H., assignor.)	28,880	June 14	88	1653
Nauds, Frederick, New York, N. Y. Pattern-plate for garments	28,780	May 31	88	1381
Neuss, Robert, Aachen, Germany. Pin or needle card	28,471	Apr. 12	88	280
New York Pipe Bending and Machine Company. (See Brinkman, Louies H., assignor.)				
Newton, William J., New York, N. Y. Fuse-carrier	28,780	May 31	88	1388
Nichols, Henry B. (See Taylor and Nichols.)	28,505	Apr. 26	88	599
Nieding, Adam H., Cleveland, Ohio. Cigar-box				
Noble, Howard C., New Britain, Conn. Buckle	28,878	June 14	88	1653
Noville, William. (See Ellsworth, Herbert, assignor.)				
Ocumpaugh, Charles H., Rochester, N. Y. Bicycle-frame	28,711	May 24	88	1201
Odgers, John P., assignor to A. M. Collins Manufacturing Company, Philadelphia, Pa. Picture-mount	28,954	June 28	88	1995
Odgers, John P., assignor to A. M. Collins Manufacturing Company, Philadelphia, Pa. Card-mount	28,459	Apr. 5	88	153
Osderdonk, Lansing, Winthrop, Mass. Saddle-cushion	28,988	June 28	88	1981
Orton, Julius W. (See Martin and Orton.)	28,946	June 28	88	1983
Ozias, Orange O., Dayton, Ohio. Indicator face-plate	28,947	June 28	88	1983
Ozias, Orange O., Dayton, Ohio. Scale base-plate				
Ozias, Orange O., Dayton, Ohio. Scale base-plate				
P. H. & F. M Roots Company. (See Enyart, Ralph C., assignor.)	28,451	Apr. 5	88	152
Page, Carter H., Jr., and E. L. Brundrett, Philadelphia, Pa. Burner	28,470	Apr. 12	88	280
Page, Carter H., Jr., and E. L. Brundrett, Philadelphia, Pa. Shade-support	28,697	May 24	88	1197
Paine, Bennett R., Hamden Junction, Ohio. Bottle	28,746	May 31	88	1385
Painter, Jesse E., Julesburg, Colo. Grass and weed cutter	28,561	May 10	88	908
Palmer, Edwin C., assignor to Standard Tool Company, Cleveland, Ohio. Bicycle L saddle-post	28,559	May 10	88	908
Palmer, Edwin C., assignor to Standard Tool Company, Cleveland, Ohio. Bicycle T saddle-post	28,448	Apr. 5	88	151
Palmer, Harold L., Utica, N. Y. Cuff-button	28,904	June 21	88	1788
Pantasote Leather Company. (See Lawson, Henry S., assignor.)				
Parker, George S., Salem, Mass. Game-board	28,468	Apr. 19	88	385
Paterson, Thomas S. (See Brown, Frederick W., assignor.)	28,985	June 28	88	1979
Patton, Oliver S., Philadelphia, Pa., assignor to Hensel, Colladay Company, of Pennsylvania. Skirt-protector				
Peck, Eugene B., Bridgeport, Conn. Knife	28,502	May 10	88	900
Peck, Stow & Wilcox Company. (See Ellrich, Robert C., assignor.)	28,869	June 14	88	1633
Peddrick, Charles H., Jr., New York, N. Y. Tip for umbrella or parasol ribs	28,709	June 7	88	1499
Perkins, Albert, Chicopee, Mass. Cage for ball-bearings				
Perky, Henry D., Worcester, Mass. Wafer	28,919	June 21	88	1795
Peters, Heber C., assignor to F. W. Whitcher, Boston, S. Crandon, Melrose, and H. L. Turner, Malden, Mass. Rubber heel	28,923	June 7	88	1503
Petzold, Adolph, assignor to J. H. and E. Bromley, Philadelphia, Pa. Rug	28,469	Apr. 19	88	486
Phillips, Fred K., assignor to F. Jellenik, trustee, New York, N. Y. Lamp-body	28,795	June 7	88	1500
Pietschmann, Emil, assignor to Wm. H. Horstmann Company, Philadelphia, Pa. Skirt-protector	28,574	May 10	88	908
Player, John, Topeka, Kans. Car-bolster				
Pope Manufacturing Company. (See Copeland, James S., assignor.)				
Poyet, John B., Philadelphia, Pa., assignor to Hensel, Colladay Company, of Pennsylvania. Skirt-protector	28,461	Apr. 12	88	280
Poyet, John B., Philadelphia, Pa., assignor to Hensel, Colladay Company, of Pennsylvania. Skirt-protector	28,469	Apr. 12	88	280
Prentis, George P., assignor of one-half to N. L. Rogers and B. F. Burton, Wickliffe, Ky. Harness-buckle frame	28,605	May 24	88	1198
Protzer, Louis W., assignor to James E. Blake & Company, Attleborough, Mass. Back for brushes or similar articles	28,508	Apr. 26	88	599
Price, Harry G., Philadelphia, Pa. Lock-clasp	28,857	June 14	88	1632
Pringle, William T., Primos, Pa. Receptacle for attachment-plugs	28,698	May 24	88	1199
R. Wallace & Sons Manufacturing Company. (See Loeser, Daniel A., assignor.)				
R. Wallace & Sons Manufacturing Company. (See Wallace, Henry L., assignor.)				
Rapp, Anton, *et al.* (See Miller, Edward, assignor.)	28,735	May 31	88	1385
Rayment, William A., assignor to Reed & Barton Corporation, Taunton, Mass. Lamp-body	28,447	Apr. 5	88	151
Reach, Robert, Philadelphia, Pa. Roller-skate frame				
Reading Braid Company. (See Klein, Frederick W., assignor.)	28,620	May 10	88	910
Beam, Flora V., Somerset, Ohio. Curtain	28,850	June 14	88	1649
Redfield, Charles T., Glen Haven, N. Y. Antirattler plate				
Redfield, Edgar P. (See Chase and Redfield.)				
Reed & Barton Corporation. (See Rayment, William A., assignor.)	28,956	June 28	88	1985
Reel, John, French Camp, Miss. Violin or banjo bridge				
Reeves & Company. (See Kallor and Reeves, assignors.)				
Reeves & Co. (See Reeves and Kallor, assignors.)				
Reeves, Marshall T. (See Kallor and Reeves.)				
Reeves, Marshal T., and J. N. Kallor, assignors to Reeves & Co., Columbus, Ind. Separator or clover-huller tooth	28,894	June 21	88	1793

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Renfro, John R., Jr., Vernon, Tex. Churn-dash	28,606	May 10	88	907
Renner, Sydnie C., Lansing, Mich. Chopping-knife	28,608	May 10	88	908
Reynolds, Stanley, Rochester, assignor to Stein Casket Company, New York, N. Y. Burial-casket	28,615	May 10	88	908
Richards, George H., Somerville, Mass. Box	28,641	May 17	88	1057
Richardson, Christopher, Newark, N. J. Carving-fork	28,444	Apr. 5	88	151
Richardson, Christopher, Newark, N. J. Carving-fork	28,445	Apr. 5	88	151
Richardson, Christopher, Newark, N. J. Carving-fork				
Rising, Frederick B., assignor to Goodell Company, Antrim, N. H. Frame for fruit or vegetable parers	28,705	May 24	88	1200
Roberts, Dugald H., Detroit, Mich. Lubricator-body	28,653	May 17	88	1056
Roberts, Dugald H., Detroit, Mich. Lubricator-body	28,654	May 17	88	1056
Roberts, Thropp & Company. (See Donovan, James, assignor.)				
Robertson, Wilfred M., San Francisco, Cal. Top or cover for lunch-buckets	28,495	Apr. 19	88	492
Rockford Silver Plate Company. (See Love, Fred T., assignor.)				
Rogers & Brother. (See Silber, Chris, assignor.)				
Rogers, Nathaniel L., *et al.* (See Prentis, George P., assignor.)				
Rome Manufacturing Company. (See Turney, George W., assignor.)				
Rose, Clarence H., assignor to Hitchcock Lamp Company, Watertown, N. Y. Quarter-bend coupling	28,573	May 10	88	908
Rossbro, Walter E., Elmhurst, Cal. Thread or twine cutter	28,956	June 21	88	1794
Rosenbluth, Edwin M., Philadelphia, Pa. Bicycle-lamp bracket	28,709	May 24	88	1199
Rowse, Edwin F., and H. E. Johns, Homestead, Pa. Ironing-board	28,612	May 10	88	908
Rahlo, Rose, Chicago, Ill. Waist-front distender	28,536	May 3	88	740
Salich, August, Denton, Tex. Trousers-fastener member	28,646	May 17	88	1056
Sanders, Samuel, Leavenworth, Kans. Kitchen-cabinet	28,707	May 31	88	1388
Savage, William C., New York, N. Y. Pipe-coupling member	28,636	May 17	88	1056
Schaefer, Edward, assignor to Missouri Lamp and Manufacturing Company, St. Louis, Mo. Body for cigar-lighters	28,522	May 3	88	736
Schaffler, Peter H. (See Schmidt, Julius H., assignor.)	28,906	June 21	88	1794
Scheifley, Robert, Philadelphia, Pa. Toy				
Schilling, Frank, Muncie, Ind., assignor to T. A. Snider Preserve Company, Cincinnati, Ohio. Bottle	28,634	May 17	88	1057
Schleicher, Herman F. W., assignor to Eastwood & Park, Newark, N. J. Handle for button-hooks or similar articles	28,559	May 10	88	909
Schloss, Meyer W., New York, N. Y. Braid	28,851	June 14	88	1655
Schlumberger, Robert, Allegheny, Pa. Coil-pipe for water-heaters	28,650	May 17	88	1059
Schmidt, Julius H., assignor of one-half to P. H. Schaffler, Bayonne, N. J. Suspension-holder for umbrellas	28,877	June 14	88	1654
Schrage, William, Sheboygan, Wis. Bent-wood chair-seat	28,695	May 17	88	1061
Schuyler, Edwin J., assignor to American Ring Company, Waterbury, Conn. Spring for glove-fasteners	28,528	May 3	88	737
Scovill Manufacturing Company. (See Goss, John H., assignor.)				
Scovill Manufacturing Company. (See Lines, John, assignor.)				
Scranton Stove Works. (See Woodhull, Bradley, assignor.)				
See, Horace, New York, N. Y. Boiler-drumhead	28,575	May 10	88	908
Seelhorst, Otto, Philadelphia, Pa. Puzzle-board	28,774	May 31	88	1340
Selman, Benjamin T., Chattanooga, Tenn. Charm	28,626	May 17	88	1058
Selman, Benjamin T., Chattanooga, Tenn. Charm	28,627	May 17	88	1058
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Harrow-frame	28,814	June 7	88	1503
Shedd, William J. (See Field and Shedd.)				
Sieghortner, August L., assignor to Berrang & Zacharias, Asbury Park, N. J. Cap for collapsible tubes	28,854	June 14	88	1650
Silber, Chris, Meriden, assignor to Rogers & Brother, Waterbury, Conn. Handle for spoons, forks, &c	28,681	May 17	88	1064
Sill Stove Works. (See Easterly, Eugene, assignor.)	28,957	June 28	88	1985
Simon, Joseph, Chicago, Ill. Confection				
Simons, Edward S., *et al.* (See Simons, John F., assignor.)				
Simons, Frederic M., *et al.* (See Simons, John F., assignor.)				
Simons, John F., assignor to himself and T. Maddock, Philadelphia, Pa., F. M. Simons, Swarthmore, Pa., and E. S. Simons, Orange, N. J. Thimble	28,731	May 31	88	1381
Simpson Hall Miller & Company. (See Cluiss, John, assignor.)	28,756	June 7	88	1499
Singley, Christian G., Manheim, Pa. Cigar or similar article	28,499	Apr. 19	88	492
Slack, George W., Northville, N. Y. Ladder-hook	28,523	May 3	88	736
Smile, Harry S., North Baltimore, Ohio. Seal				
Smith Adjustable Car-Axle Bearing Company. (See Smith, William B., assignor.)				
Smith, Albert C., Boulder, Colo. Brackets for curtain-poles and shade-rollers	28,855	June 14	88	1651
Smith, Charles G., Detroit, Mich. Pattern for wire fabric	28,694	May 10	88	910
Smith, Charles H., Park City, Most. Corn-cutter	28,510	June 7	88	1503
Smith, Dewaze R., Deerfield, N. Y. Body and base for bicycle-pumps	28,859	June 21	88	1793
Smith, Samuel V., Philadelphia, Pa. Wagon body and top	28,457	Apr. 5	88	149
Smith, William B., assignor to Smith Adjustable Car-Axle Bearing Company, New York, N. Y. Crown-back for car-axle bearings	28,902	June 21	88	1791
Smith, William B., assignor to Smith Adjustable Car-Axle Bearing Company, New York, N. Y. Wedge for car-axle bearings	28,903	June 21	88	1791
Smith, William F., San Francisco, Cal. Switchboard for telephone operators	28,697	May 24	88	1199
Smith, William T., Philadelphia, Pa. Woven fabric	28,716	May 24	88	1200
Smith, William T., Philadelphia, Pa. Woven fabric	28,940	June 28	88	1983
Smith, William T., Philadelphia, Pa. Woven fabric	28,951	June 28	88	1983
Smith, William T., Philadelphia, Pa. Woven fabric	28,952	June 28	88	1983
Smith, William T., Philadelphia, Pa. Woven fabric	28,953	June 28	88	1983
Snow, Frank E., assignor to J. R. Lawson, Chicago, Ill. Lamp-case	28,595	May 10	88	905
Snyder, Edmund F., Brooklyn, N. Y. Spice-cabinet	28,605	May 10	88	907
Snyder, Lyman H., Bristol, Conn. Holder for curling-tongs heaters	28,727	May 31	88	1339
Snyder, Lyman H., Bristol, Conn. Bicycle-holder spring	28,755	May 31	88	1387
Sohn, Ernst, St. Louis, Mo. Ornamental box	28,696	May 24	88	1197
Son, Eleanor D., Utica, N. Y. Tailpiece for stringed instruments	28,507	Apr. 26	88	599
Sovereign Grand Lodge of the Independent Order of Odd Fellows. (See Grant, James F., assignor.)				
Sovereign Grand Lodge of the Independent Order of Odd Fellows. (See Merriman, Francis E., assignor.)				
Speakman, Charles A., assignor to American Lithographic Company, New York, N. Y. Print or pattern for cigar-boxes	28,521	May 3	88	736
Specialty Manufacturing Company. (See Anderson, Alma H., assignor.)	28,761	June 7	88	1502
Sprague, Charles D., assignor of one-half to O. Q. Beckworth, Minneapolis, Minn. Badge	28,500	Apr. 19	88	492
Stofe, Jesse H., Kokomo, Ind. Wire fence				
Stafford, Frank E., assignor to Waite, Thresher Company, Providence, R. I. Handle for button-hooks, &c	28,538	May 10	88	909

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Stahl, Emil, Hoboken, N. J. Beer-cooler	28,985	June 28	88	1961
Standard Tool Company. (See Palmer, Edwin C., assignor.)				
Stauber, Benjamin F., assignor to G. Felsenthal, Chicago, Ill. Frame for looking-glasses	28,616	May 10	88	909
Stein Casket Company. (See Reynolds, Stanley, assignor.)				
Stein, Leo, and C. F. Wetmore, assignors to National Casket Company, Hoboken, N. J. Casket-body	28,835	June 7	88	1507
Stein, Leo, and C. F. Wetmore, assignors to National Casket Company, Hoboken, N. J. Casket.	28,916	June 21	88	1795
Stevens, George J., London, England. Bearing-bracket for bicycles	28,548	May 3	88	739
Stevens, John W., St. Paul, Minn. Seal-plate for seal-locks	28,606	May 24	88	1193
Stevens, William, assignor to Gaar, Scott & Company, Richmond, Ind. Tooth for cylinders and concaves of threshing-machines	28,543	May 3	88	736
Stewart, Frank, assignor to Stockham Manufacturing Company, Chicago, Ill. Furniture-foot	28,709	May 24	88	1200
Stilwell-Bierce & Smith-Vaile Company. (See Kimes, Hugh W., assignor.)				
Stockham Manufacturing Company. (See Stewart, Frank, assignor.)				
Stover Bicycle Manufacturing Company. (See Stover, Daniel C., assignor.)				
Stover, Daniel C., assignor to Stover Bicycle Manufacturing Company, Freeport, Ill. Bicycle-crank	28,549	May 3	88	738
Straus & Sons, L. (See Davies, Benjamin, assignor.)	28,577	May 10	88	908
Streich, Gabriel, Oshkosh, Wis. Fire-hose-wagon body	28,923	June 28	88	1979
Strohhaker, Gustav, assignor to Watrous Manufacturing Company, Wallingford, Conn. Handle for spoons, forks, &c.	28,519	Apr. 26	88	590
Stubenbord, Charles, New York, N. Y. Stove	28,670	June 14	88	1653
Sturges, Lee, Elmhurst, Ill. Sprocket-wheel	28,691	May 24	88	1196
Swartz, Harry E., Reading, Pa. Screw-driver	28,689	May 17	88	1068
Sweeney, Charles P., and H. Wrigley, Philadelphia, Pa. Base for coin-scales	28,666	May 17	88	1061
T. A. Snider Preserve Company. (See Schilling, Frank, assignor.)				
Tabor, William B., assignor of one-half to F. W. Brunnworth, Alhambra, Ill. Kitchen-cabinet	28,673	May 17	88	1068
Takvorian, Onnik, Boston, Mass. Wrapped candy	28,736	May 31	88	1338
Tanner, Merritt M., Hawkinsville, N. Y. Box	28,657	June 14	88	1651
Taplin, Clarence A., assignor to Taplin Manufacturing Company, Forestville, Conn. Window-stop adjuster	28,686	May 17	88	1057
Taplin Manufacturing Company. (See Taplin, Clarence A., assignor.)				
Tappan, Herman, New York, N. Y. Bottle-cap	28,946	June 14	88	1649
Taylor, George B., and H. B. Nichols, Philadelphia, Pa. Railway-rail	28,493	Apr. 19	88	498
Taylor, Zack, and M. L. Bergman, Spokane, Wash. Battery-electrode	28,680	May 17	88	1056
Theobold, Jean G., assignor to Frank M. Whiting Company, North Attleborough, Mass. Spoon or fork handle	28,518	Apr. 26	88	590
Thielke, Ferdinand, Brooklyn, N. Y. Handle for button-hooks, &c.	28,670	May 17	88	1068
Thomas, Evalena S., Lindenwold, N. J. Tile	28,852	June 7	88	1501
Thomas, Jacob A., Reading, Pa. Bearing-screw for shade-rollers	28,698	May 24	88	1196
Thomas, Jacob A., and W. W. Driscoll, Reading, Pa. Nozzle	28,819	June 7	88	1504
Thommen, William, assignor to Wisconsin Chair Company, Port Washington, Wis. Chair	28,534	May 3	88	727
Thomson, James, Glenside, Pa. Fastening-eye	28,924	June 28	88	1979
Tilton, George P., Newburyport, Mass. Spoon, fork, or similar article	28,719	May 31	88	1331
Todd & Co., Edward. (See Todd, Edward, Jr., assignor.)				
Todd, Edward, Jr., assignor to E. Todd & Co., New York, N. Y. Spoon				
Town, Jos. L. (See Gillespie, Frank P., assignor.)				
Turner, Herbert L., *et al.* (See Peters, Heber C., assignor.)				
Turney, George W., Chicago, Ill., assignor of one-half to Rome Manufacturing Company, Rome, N. Y. Spout for tea-kettles or similar articles	28,644	May 17	88	1056
Unger, Ernest, New York, N. Y., assignor, by mesne assignments, to Acetylene House Lighting Company, of West Virginia. Burner	28,649	May 17	88	1059
United States Hardware Company. (See Wright, Granville W., assignor.)	28,855	June 14	88	1650
Updegrave, William M., Johnstown, Pa. Advertising-stand	28,610	May 10	88	908
Van Bergh, Frederick W., assignor to Van Bergh Silver Plate Co., Rochester, N. Y. Tea or coffee pot	28,745	May 31	88	1335
Van Bergh Silver Plate Co. (See Van Bergh, Frederick W., assignor.)				
Van Nortwick, Benjamin K., Undercliff, N. J. Casing for steam-jet blowers				
Vantine & Co., A. A. (See Bryce, Howard M., assignor.)				
Vantine & Co., A. A. (See Franz, Charles, assignor.)				
W. J. Loth Stove Company. (See Weller, Ferdinand S., assignor.)	28,538	May 3	88	737
Wagner, Constantine, New York, N. Y. Bottle				
Waite, Thresher Company. (See Crees and Court, assignors.)				
Waite, Thresher Company. (See Kranz, Louis, assignor.)				
Waite, Thresher Company. (See Stafford, Frank R., assignor.)	28,448	Apr. 5	88	158
Walker, Adeline M., Elizabeth, N. J., and F. C. Jackson, New York, N. Y. Garment-hanger	28,449	Apr. 5	88	158
Walker, Adeline M., Elizabeth, N. J., and F. C. Jackson, New York, N. Y. Garment-hanger	28,600	May 10	88	905
Walker, Arthur W., Malden, Mass. Range	28,712	May 24	88	1201
Wall, Louis J. W., St. Louis, Mo. Pattern for paper	28,472	Apr. 12	88	300
Wallace, David S., Kokomo, Ind. Flush-tank for water-closets	28,534	May 3	88	736
Wallace, Henry L., assignor to R. Wallace & Sons Manufacturing Company, Wallingford, Conn. Handle for spoons, forks, &c	28,800	June 7	88	1502
Wandersee, Charles, Chicago, Ill. Shaft-tug	28,801	June 7	88	1501
Warren, Robert H., Newark, N. J. Stair-carpet button				
Waterbury Watch Company. (See Hart, Edwin, assignor.)				
Watrous Manufacturing Company. (See Strohhaker, Gustav, assignor.)	28,816	June 7	88	1503
Webber, Arthur C., assignor of one-half to H. F. Frost, Knowlesville, N. Y. Cream-separator	28,589	May 10	88	904
Webster, George K. (See Egge, Gustave C., assignor.)				
Wedmore, Henry S., Guilford, Conn. Bicycle-holder	28,606	May 10	88	907
Weller, Ferdinand S., Quincy, Ill., assignor to W. J. Loth Stove Company, Waynesborough, Va. Heater	28,537	May 3	88	736
West, Mansfield M., Cleveland, Ohio. Shoe-plate	28,651	June 14	88	1651
Wetherald, James T., Boston, Mass. Syringe-nozzle				
Wetmore, Clayton F. (See Stein and Wetmore.)				
Wetmore, Frank W., *et al.* (See Peters, Heber C., assignor.)				
Whitcher, Frederick L. (See Zimmerman and White.)				
White, Frederick L. (See Martin, Henry J., assignor.)				
Whitman & Barnes Manufacturing Company. (See Martin, Henry J., assignor.)	28,542	May 3	88	738
Whitney, Oliver B., Marlborough, N. Y. Brake-shoe	28,707	May 24	88	1200
Whittemore, William E., Hartford, Conn. Cuspidor-cleaner	28,954	June 28	88	1965
Wieber, Henry E., Kingston, N. Y. Strainer for catch-basins	28,911	June 21	88	1795
Wiggins, Benjamin M., Philadelphia, Pa. Blotter for check or similar books	28,914	June 21	88	1795
Wilcoxson, George F. (See Cushman, Joseph W., assignor.)				
Wilder, Harlan P., Gardner, Mass. Collar	28,768	June 7	88	1499
Williams, Alfred G. (See Havell and Williams.)	28,703	May 24	88	1200
Williams, Henry M., assignor of one-fourth to F. Burger, Fort Wayne, Ind. Spoon				
Wipfler, Charles W., Detroit, Mich. Reservoir for stoves				

Alphabetical list of patentees of designs, April to June, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Wisconsin Chair Company. (See Thommen, William, assignor.)				
Witsch, Nicholas, Jersey City, N. J., assignor to American Lithographic Company, New York, N. Y. Ornamentation for boxes	28,910	June 21	88	1795
Wm. H. Horstmann Company. (See Pletschmann, Emil, assignor.)				
Wood, Clarence W. (See Konrad, John C., assignor.)	28,694	May 24	88	1198
Wood, Frederick, Liverpool, England. Snap-hook				
Woodhull, Bradley, Dunmore, assignor to Scranton Stove Works, Scranton, Pa. Shelf-section for stoves or ranges	28,899	May 10	88	906
Woodhull, Bradley, Dunmore, assignor to Scranton Stove Works, Scranton, Pa. Stove or range	28,922	May 17	88	1061
Woodhull, Bradley, Dunmore, assignor to Scranton Stove Works, Scranton, Pa. Stove or range	28,924	May 17	88	1061
Woodhull, Bradley, Dunmore, assignor to Scranton Stove Works, Scranton, Pa. Heating-stove	28,796	May 31	88	1336
Woodhull, Bradley, Dunmore, assignor to Scranton Stove Works, Scranton, Pa. Heating-stove	28,880	June 7	88	1504
Woodhull, Bradley, Dunmore, assignor to Scranton Stove Works, Scranton, Pa. Heating-stove	28,948	June 28	88	1964
Wooley, George W., St. Paul, Minn. Bracket for planters	28,551	May 3	88	740
Wright, Granville W., assignor to United States Hardware Company, New Haven, Conn. Toy	28,498	Apr. 19	88	499
Wrigley, Horatio. (See Sweeney and Wrigley.)	28,776	May 31	88	1341
Wyman, Clark E., assignor to Griggs, Cooper & Co., St. Paul, Minn. Grocer's cabinet	28,668	May 17	88	1061
Yarrington, Ella M., and T. Hall, New York, N. Y. Child's napkin	28,675	May 24	88	1195
Young, George K., Auburn, N. Y. Hammer-body	28,880	June 21	88	1791
Zeltmacher, Tillie J., New York, N. Y. Locket	28,891	June 21	88	1791
Zimmele, John J., Merchantville, N. J. Clip-post				
Zimmele, John J., Merchantville, N. J. Hinge-post				
Zimmerman, John, Chicago, Ill., and F. L. White, Waterbury, Conn.; said White assignor to said Zimmerman. Vehicle-lamp	28,898	May 10	88	905

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Ætna Powder Company, Ætna, Ind., and Chicago, Ill. Dynamite, dynamite-cartridges, blasting-gelatin, detonating caps, and fuses	$1,588	May 10	69	913
Akron Varnish Company, Akron, Ohio. Varnish for interior and exterior finishing	$1,589	May 10	69	911
Akron Varnish Company, Akron, Ohio. Varnish	$1,603	May 24	69	1206
Aktiebolaget Södertälje Tändsticksfabrik, Södertälje, Sweden. Safety-matches	$1,469	Apr. 19	68	886
Allen & Hanburys, Limited, London, England. Medicaments having as a base fluid extract of malt	$1,493	Apr. 19	68	888
Allen & Hanburys, Limited, London, England. Compound of malt and cod-liver oil	$1,504	May 3	68	741
Allen & Hanburys, Limited, London, England. Medicinal preparations and medicated foods	$1,505	May 3	68	741
Allen & Hanburys, Limited, London, England. Medicinal preparations and medicated foods	$1,506	May 3	68	741
Allen & Hanburys, Limited, London, England. Fluid extract of malt	$1,604	June 14	69	1207
Allen & Marshall, Philadelphia, Pa. Cigars	$1,497	May 3	68	741
Altman, Benjamin, New York, N. Y. Gloves	$1,543	May 17	68	1064
American News Company, New York, N. Y. Bicycles	$1,545	May 21	68	1344
American News Company, New York, N. Y. Bicycles	$1,546	May 21	68	1344
American Writing Machine Company, Ilion and New York, N. Y. Type-writing machines	$1,703	June 28	69	1959
American Yeast Company, Berea, Ohio. Yeast	$1,720	June 21	69	1799
Anderson Bros. & Co., New York, N. Y. Ceylon tea	$1,670	June 7	69	1510
Anti-Cephalic Chemical Co., Indianapolis, Ind. Medicinal tablets	$1,539	May 24	69	1204
Ardito, Giambattista, Hoboken, N. J. Remedy for rheumatism	$1,714	June 21	69	1797
Arkell Publishing Company, New York, N. Y. Periodicals	$1,484	Apr. 26	68	991
Armour & Co., Chicago, Ill. Family soap	$1,461	Apr. 12	68	809
Armstrong Manufacturing Company, Berwick, Me., and Boston, Mass. Effervescent granules for beverages and medicinal purposes	$1,680	June 14	69	1056
Arnold, William W., Denver, Colo. Cigars	$1,689	June 7	69	1509
Arnold, William W., Denver, Colo. Cigars, tobacco, and cigarettes	$1,697	June 14	69	1057
Ashcroft Manufacturing Company, Bridgeport, Conn., and New York, N. Y. Steam-gages	$1,465	Apr. 12	68	804
Avery Stamping Company, Cleveland, Ohio. Steel shovels, spades, and scoops	$1,508	May 17	68	1063
Baldwin Cycle Chain Company, Worcester, Mass. Bicycle-chains	$1,509	May 17	68	1063
Ballin & Sons, M., New York, N. Y. Certain named wearing-apparel for men, boys, and youths	$1,626	May 31	68	1548
Barnes & Co., A. S., New York, N. Y. Pens	$1,669	June 7	69	1509
Barton & Guestier, Bordeaux, France. Wines	$1,469	May 3	68	741
Bauer & Cie., Berlin, Germany. Dietetic albuminous preparations	$1,543	May 3	68	741
Bennett Combination Saw-Tool Company, New York, N. Y. Saws and saw-tools	$1,473	Apr. 19	68	441
Bent, George P., Chicago, Ill. Pianos and organs	$1,558	May 17	68	1063
Bernard & Co., Leith, Scotland. Whisky	$1,797	June 28	69	1959
Bildstein, Carl, Ottoville, Ohio. Remedy for hog-cholera	$1,465	Apr. 26	68	990
Birmingham Small Arms Company, Limited, Birmingham, England. Bicycles, tricycles, velocipedes, and parts thereof	$1,708	June 14	69	1680
Bissell Carpet Sweeper Company, Grand Rapids, Mich. Carpet-sweepers	$1,795	June 28	69	1959
Blackmore, Henry S., Mount Vernon, N. Y., and Philadelphia, Pa. Disinfectants, germicides, or deodorizing compounds	$1,613	May 31	68	1548
Boston Manufacturing Company, Waltham, Mass. Cotton sheetings	$1,613	May 31	68	1548
Boston Manufacturing Company, Waltham, Mass. Cotton sheetings	$1,720	June 21	69	1799
Boyer's Sons, L., New York, N. Y. Certain named beverages and mineral waters	$1,552	May 10	68	918
Boyle & McGhan, Philadelphia, Pa. Whisky	$1,549	May 24	68	1205
Bragg, Harry, Connersville, Ind. Hog-cholera remedies	$1,619	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,620	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,621	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,622	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,623	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,624	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,625	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,626	May 31	68	1548
Brandauer & Co., C., Birmingham, England. Metallic pens	$1,747	June 28	69	1957
Brauns & Co., R., New York, N. Y. Bristles, wool, fur, hair, skins, and hides	$1,695	Apr. 26	68	991
Bray Clothing Company, Louisville, Ky. Pants, coats, vests, and overalls	$1,726	June 21	69	1798
Brewster, Chittenden & Co., Rochester, N. Y. Certain named groceries	$1,705	June 28	69	1959
Brown & Bonty, Incorporated, Chicago, Ill. Paper-files, desks, cabinets, and other receptacles for papers and documents	$1,569	May 24	69	1204
Busy Bee Candy Kitchen Company, Columbus, Ohio. Candy	$1,626	May 31	69	1544
C. F. Blanke Tea and Coffee Company, St. Louis, Mo. Coffee	$1,627	May 31	69	1548
C. F. Monroe Company, Meriden, Conn. Opal glassware	$1,502	May 3	68	741
Central Chemical Company, New York, N. Y. Proprietary articles	$1,749	June 28	69	1958
Chatas, Jacques. (See Chatas, Nicolas and J.)	$1,629	May 31	69	1548
Chatas, Nicolas and J., St. Etienne, France. Leashes for loom-heddles	$1,707	June 28	69	1960
Chicago Athletic Association, Chicago, Ill. Havana cigars	$1,475	Apr. 19	68	442
Clark Cycle Tire Company, Boston, Mass. Certain named bicycle-tires	$1,495	Apr. 5	68	194
Clotworthy, William F., Baltimore, Md. Farinaceous compound used as a dessert	$1,570	May 24	69	1205
Columbus Bicycle Company, Columbus, Ohio. Bicycles	$1,704	June 28	69	1958
Commercial Knitting Mills Company, Troy, N. Y. Ladies' pants	$1,690	June 14	69	1057
Commercial Typewriter Company, New York, N. Y. Type-writing machines	$1,716	June 21	69	1798
Consolidated Milling Company, Minneapolis, Minn. Wheat-flour	$1,668	June 7	69	1509
Cook, Charles C., Baltimore, Md. Certain named medicinal remedies	$1,740	June 28	69	1957
Cramer, Max, Boston, Mass. Tonics and restoratives	$1,551	May 17	68	1062
Crane, E. & W. M., Dalton, Mass. Writing-paper and envelops	$1,617	May 31	68	1548
Crawford & Co., Robert, Edinburgh and Leith, Scotland. Whisky	$1,705	June 21	69	1797
Curtis & Cameron, Boston, Mass. Art photographs	$1,627	May 31	68	1544
Curtis & Cameron, Boston, Mass. Art photographs	$1,560	May 17	68	1062
Dadirrian, Markar G., New York, N. Y. Medicated tonic wines	$1,722	June 21	69	1798
Daniel Crawford & Son, Limited, Glasgow, Scotland. Whisky				
Davis Bros., St. Louis, Mo. Iced confections				

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Davis Sewing Machine Company, Dayton, Ohio. Sewing-machines	$1,708	June 14	83	1658
Davis, Wilbur H., Boston, Mass., and Toano, Va. Natural mineral water and carbonated beverages	$1,561	May 24	83	1204
De Land Medical Company, Boston, Mass. Proprietary medicines for colds and kindred complaints	$1,453	Apr. 5	83	154
Deere & Webber Company, Minneapolis, Minn. Vehicle-springs	$1,567	May 17	83	1066
Detroit Oak Belting Company, Detroit, Mich. Leather belting	$1,495	Apr. 26	83	591
Devoe & Peck, New York, N. Y. Certain named dry goods	$1,741	June 28	83	1957
Deyoung, Charles, Philadelphia, Pa. Dyspepsia-pads and pads for cure of disease by absorption	$1,580	May 10	83	918
Diamond Match Company, Chicago, Ill. Matches	$1,463	Apr. 12	83	296
Diamond Match Company, Chicago, Ill.; Wilmington, Del.; Detroit, Mich., and Westville, Conn. Friction-matches	$1,499	May 3	83	741
Diamond Rubber Company, Akron, Ohio. Certain named rubber goods	$1,650	June 7	83	1508
Diamond Rubber Company, Akron, Ohio. Certain named rubber goods	$1,651	June 7	83	1508
Diamond Rubber Company, Akron, Ohio. Certain named rubber goods	$1,679	June 14	83	1656
Dios Chemical Company, St. Louis, Mo. Certain named proprietary medicinal preparation	$1,454	Apr. 5	83	154
Dodson-Braun Manufacturing Company, St. Louis, Mo. Preparation of mustard and horse-radish	$1,554	May 17	83	1064
Donoghue, James, Cleveland, Ohio. Soft cleaners for wall-paper	$1,746	June 28	83	1957
Dorn, Charles L., Malvern, Ark. Pile remedy	$1,756	June 28	83	1998
Dunham Carrigan & Hayden Company, San Francisco, Cal. Axes, saws, and hatchets	$1,700	June 14	83	1658
E. C. Flaccus Company, Wheeling, W. Va. Catsups, mustard, and sauces	$1,730	June 21	83	1799
E. T. Smith Company, Worcester, Mass. Blended coffee, containing Java and Mocha	$1,556	May 17	83	1065
Eberding, Henry, New York, N. Y. Welding compound	$1,476	Apr. 19	83	442
Eddystone Manufacturing Company, Philadelphia, Pa. Printed drapery fabric	$1,647	June 7	83	1508
Edmonds, William, Providence, R. I. Remedy for chronic constipation, hepatic torpor, and jaundice	$1,607	May 24	83	1206
Edmund, William O., Lumberton, N. C. Colic and lung-fever cure	$1,558	May 10	83	913
Ellis, Walter E., Edgewater, N. J. Medical compound for the cure of rheumatism	$1,755	June 28	83	1998
Enterprise Coffee Company of Baltimore City, Baltimore, Md. Roasted coffee and roasted and ground coffee	$1,639	May 31	83	1344
Enterprise Coffee Company of Baltimore City, Baltimore, Md. Roasted and ground coffee	$1,640	May 31	83	1344
Enterprise Coffee Company of Baltimore City, Baltimore, Md. Roasted and ground coffee	$1,698	June 14	83	1657
Enterprise Coffee Company of Baltimore City, Baltimore, Md. Coffee	$1,731	June 21	83	1798
Ernst, Wilhelm, Hanover, Germany. Hemorrhoidal suppositories	$1,697	June 7	83	1509
Explosivstoff-Werke Spiralit, Gesellschaft mit Beschränkter Haftung, Hamburg, Germany. Explosives and cartridges	$1,673	June 7	83	1510
F. O. Pierce Company, New York, N. Y. Calcimine—a mixture of dry powder with water	$1,630	May 31	83	1343
F. S. Webster Company, Boston, Mass.; New York, N. Y.; Chicago, Ill., and London, England. Certain named type-writers' supplies, note-books, copying-books, and copying-cloths	$1,736	June 21	83	1800
Farbenfabriken of Elberfeld Company, New York, N. Y. Intestinal astringents	$1,557	May 10	83	913
Farbenfabriken of Elberfeld Company, New York, N. Y. Certain named chemical compounds	$1,699	June 7	83	1509
Fay, Fred E., Los Angeles, Cal. Collars and cuffs	$1,517	May 10	83	911
Fay, Fred E., Los Angeles, Cal. Ironing-machines	$1,542	May 10	83	914
Feder, Harry, New York, N. Y. Chewing-gum	$1,491	Apr. 26	83	592
Frank E. Morse Company, Newark, N. J., and New York, N. Y. Portland cement	$1,657	June 14	83	1656
Frank E. Morse Company, Newark, N. J., and New York, N. Y. Portland cement	$1,760	June 28	83	1999
Frank E. Morse Company, Newark, N. J., and New York, N. Y. Portland cement	$1,761	June 28	83	1999
Fuqua Hardware Company, Limited, Baton Rouge, La. Certain named agricultural implements and hardware	$1,605	May 24	83	1206
Gerolsteiner Sprudel W. Castendyck, Cologne, Germany. Mineral water	$1,719	June 21	83	1798
Gerstle, Leopold, Chattanooga, Tenn. Certain named publications	$1,516	May 10	83	911
Gerstle, Leopold, Chattanooga, Tenn. Certain named medical compounds	$1,533	May 10	83	913
Goddard & Sons, J. W., New York, N. Y. Linings	$1,640	June 7	83	1508
Goldberg Bros. & Co., New York, N. Y. Boys' outer clothing	$1,456	Apr. 12	83	296
Granger & Gregg Brewing Company, Hudson, N. Y. Ale, beer, and porter	$1,479	Apr. 19	83	442
Grosjean, Clarence W., New York, N. Y. Artificial fur with a body of knitted or woven fabric and fur on both faces	$1,457	Apr. 12	83	296
H. L. Berry Company, Whitfield, Fla. Lumber	$1,702	June 28	83	1999
H-O (Hornby's Oatmeal) Company, New York, N. Y. Cereal food products	$1,555	May 17	83	1065
H-O (Hornby's Oatmeal) Company, New York, N. Y. Cereal food products	$1,577	May 24	83	1204
Hage & Co., J. D., New York, N. Y. Sugar-syrup	$1,698	June 14	83	1657
Hakansson, Per, Ealöf, Sweden. Antiseptic preparation	$1,660	June 7	83	1509
Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Folding bedsteads	$1,496	Apr. 26	83	592
Hall & Munson Company, Bay Mills, Mich. Certain lumber-mill and log products	$1,472	Apr. 19	83	441
Hall & Ruckel, New York, N. Y. Dentifrices	$1,661	June 14	83	1658
Hamburger & Company, New York, N. Y. Dolls	$1,614	May 31	83	1343
Handy Pin Company, New York, N. Y. Pins	$1,708	June 21	83	1797
Hardtmuth, L. & C., Vienna and Budweis, Austria-Hungary, and London, England. Certain named stationery articles and materials for artists and draftsmen	$1,572	May 24	83	1203
Harvey Steel Company, Newark, N. J., and New York, N. Y. Supercarburized steel articles made under registrant's process	$1,565	May 17	83	1066
Hatch, David P., Los Angeles, Cal. Books, pamphlets, and leaflets	$1,545	May 17	83	1064
Hauthaway & Sons, C. L., Boston, Mass. Liquid blacking for boots and shoes	$1,597	May 24	83	1205
Hendee, George M., Springfield, Mass. Safety-bicycles and their component parts	$1,644	May 31	83	1344
Herman Zöhrlaut Leather Company, Milwaukee, Wis., and Boston, Mass. Certain named shoe-leather	$1,745	June 28	83	1997
Herman Zöhrlaut Leather Company, Milwaukee, Wis., and Boston, Mass. Chrome-tanned shoe-leather in black	$1,746	June 28	83	1997
Hickok, Franklin K., New Haven, Conn. Certain named articles of ladies' wear	$1,609	May 31	83	1343
Hicks, John T., Boston, Mass. Certain paper goods for hotel checking systems	$1,653	June 7	83	1508
Hildreth, Herbert L., Boston, Mass. Candy	$1,557	May 10	83	913
Hill, Basil, Pittsburg, Pa. Compound for the cure of dyspepsia	$1,553	May 17	83	1064
Hoffnung & Co., S., New York, N. Y. Illuminating oil	$1,666	June 7	83	1509
Holzapfel's Compositions Company, Limited, Newcastle-upon-Tyne, England, and New York, N. Y. Antifouling paint for ships' bottoms	$1,551	May 17	83	1064
Hopkins, Robert C., Boston, Mass. Type-writing machines and named supplies	$1,701	June 14	83	1656
Hopkins, Stanaforth T., New Orleans, La. Candy	$1,723	June 21	83	1798
Hood, Charles I., Lowell, Mass. Antiseptic medicated soap	$1,759	June 28	83	1999
Hood Rubber Company, Boston, Mass. India-rubber products	$1,615	May 31	83	1343
Hood Rubber Company, Boston, Mass. India-rubber products	$1,616	May 31	83	1343
Hubinger, Jacob J., New Haven, Conn. Starch	$1,586	May 10	83	913
Hurley & Cashman, Lynn, Mass. Boots and shoes	$1,744	June 28	83	1997
J. I. Case Threshing Machine Co., Racine, Wis. Engines and threshing machinery	$1,677	June 7	83	1510
Jefferis Glass Works, Fairton, N. J., and Philadelphia, Pa. Bottles	$1,539	May 10	83	913
Jewell Nursery Company, Lake City, Mich. Plum-trees, scions of plum-trees, and plums	$1,471	Apr. 19	83	441
Johnson, Mary E., Fitchburg, Mass. Bicycles and similar vehicles	$1,514	May 4	83	742

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Johnston, Holloway & Co., Philadelphia, Pa. Medicated ointment for the skin	$1,634	May 10	83	913
Johnston, Holloway & Co., Philadelphia, Pa. Bitters	$1,566	May 24	83	1204
Johnston, Holloway & Co., Philadelphia, Pa. Medicated confections, a worm specific	$1,634	May 24	83	1204
Johnston, Holloway & Co., Philadelphia, Pa. Toilet soap	$1,638	May 24	83	1205
Jones, V. K. & A. H., Lynn, Mass. Shoes	$1,469	Apr. 19	83	441
Jordan, Marsh & Co., Boston, Mass. Corset-clasps, dress-shields, machine silk and threads, hooks and eyes, dress-stays, and hose-supporters	$1,470	Apr. 19	83	441
Joseph Crosfield & Sons, Limited, Warrington, England. Soap, perfumery, and toilet preparations for the teeth, skin, and hair	$1,569	May 24	83	1205
Ketseback & Co., W. H., Mapleton, Minn. Wheat-flour	$1,556	May 17	83	1065
Kineavy, Robert F. (See Woolfel and Kineavy.)				
La Société Chimique des Usines du Rhône, Anciennement Gilliard, P. Monet et Cartier, Lyons, France. Certain named apparatus and supplies	$1,699	June 14	83	1657
Ladd & Coffin, New York, N. Y. Soaps, cosmetics, salves, and lotions for the skin	$1,501	May 3	83	741
Landell, Edwin A., Jr., Philadelphia, Pa. Chamois leather and other finished leathers	$1,468	Apr. 19	83	441
Law, Russell & Co., Bradford, England. Woolen piece goods and garments	$1,648	June 7	83	1508
Leggett & Co., Francis H., New York, N. Y. Certain named groceries	$1,705	June 21	83	1799
Levy, Ernest & Herman, New York, N. Y. Ribbons	$1,547	May 17	83	1064
Ligneau, Charles, Paris, France. Vegetable acids	$1,668	May 31	83	1343
Linden, John, Cleveland, Ohio. Certain named medical preparation	$1,713	June 21	83	1797
Lindenmeyer & Sons, Henry, New York, N. Y. Paper	$1,468	Apr. 26	83	591
Lindsey & Co., H. C., Cincinnati, Ohio. Washing-powder	$1,669	May 31	83	1343
London & Johnson, New York, N. Y. Tea	$1,671	June 7	83	1510
Lucas & Sampson, New York, N. Y. Paints	$1,490	Apr. 26	83	592
Majert & Ebers, Gesellschaft mit Beschränkter Haftung, Grünau, Germany. Pharmaceutical product, prepared from milk-sugar, used as medicine	$1,475	Apr. 19	83	441
Marchal, Walter E. F., St. Mandé, France. Covers for bicycle and other transmission chains	$1,606	May 24	83	1205
Marshall, McEwen & Co., Glasgow, Scotland. Whisky	$1,717	June 21	83	1798
Martinez, William J., New Orleans, La. Men's and women's shoes	$1,611	May 31	83	1343
Matthews & Co., J. W., Newburg, N. Y. Certain canned and boxed goods	$1,794	June 21	83	1798
McCaw, Stevenson & Orr, Limited, Belfast, Ireland. Cement for uniting various materials and articles	$1,592	May 10	83	911
McEwen, Clarence S., Columbus, Ohio. Liquid cough medicine	$1,590	May 10	83	913
Merrick & Co., C. S., New Haven, Conn. Tin and terne plates	$1,568	May 17	83	1065
Meyer-Bleck, Elisabeth, Berlin, Germany. Medicinal herb compounds prepared after a certain named system	$1,661	June 7	83	1509
Miller, James L., New York, N. Y. Remedy for insect bites and stings and for vegetable poison	$1,558	May 17	83	1064
Miller, John H., Philadelphia, Pa. Powdered preparations for cleaning or polishing silver	$1,600	May 24	83	1206
Mishler, Abel, Philadelphia, Pa. Extracts in tablet or solid form and tinctures and spirits in liquid form	$1,750	June 28	83	1998
Mississippi Glass Company, St. Louis, Mo. Rolled sheet-glass and wired glass	$1,672	June 7	83	1510
Missoula Mercantile Company, Missoula, Mont. Hosiery	$1,549	May 17	83	1064
Monarch Fire Appliance Co., New York, N. Y. Fire-extinguishing compounds and receptacles therefor	$1,521	May 10	83	911
Montigny, Emile J., Toledo, Ohio. Corsets	$1,678	June 14	83	1656
Morel, Veuve Charles, Marseilles, France. Soap	$1,585	May 10	83	913
Morgan & Wright, Chicago, Ill. Pneumatic tires	$1,543	May 10	83	914
Morgan & Wright, Chicago, Ill. Pneumatic tires	$1,544	May 10	83	914
Mountain Copper Company, Limited, London, England. Copper in ingots, bars, and other unmanufactured forms	$1,564	May 17	83	1065
Mülhens & Kropff, New York, N. Y. Hair-tonic	$1,668	June 14	83	1656
Muscatine Oat Meal Company, Muscatine, Iowa. Rolled oats and oatmeal	$1,738	June 21	83	1799
Napoletano, Raffaele, New York, N. Y. Stomach-bitters	$1,664	June 7	83	1509
National League of Commission Merchants of the United States, Chicago, Ill. Certain named stationery	$1,467	Apr. 19	83	441
National Manufacturing Company, Worcester, Mass. Flour-sifters	$1,766	June 28	83	1999
National Mining and Milling Company, Canton, Md. Paints and painters' supplies	$1,601	May 24	83	1205
National Mining and Milling Company, Canton, Md. Paints and painters' supplies	$1,602	May 24	83	1205
New York Condensed Milk Company, New York, N. Y. Condensed milk, condensed coffee, condensed cocoa, and coffee extract	$1,752	June 28	83	1998
New York Shellac Co., New York, N. Y. Shellac	$1,736	June 21	83	1800
New York Shellac Co., New York, N. Y. Shellac	$1,737	June 21	83	1800
Noblesville Milling Company, Noblesville, Ind. Wheat-flour	$1,537	May 17	83	1065
Nordlinger, E. J. & L., New York, N. Y. Fire-crackers	$1,508	May 24	83	1205
Nordlinger, E. J. & L., New York, N. Y. Fire-crackers	$1,509	May 24	83	1205
Norris, Alfred E., Philadelphia, Pa. Whisky	$1,695	May 31	83	1344
North Wayne Tool Company, North Wayne and Hallowell, Me. Scythes, grass-hooks, and hay-knives	$1,768	June 28	83	1999
Norton-Pringle Gas Heating Company, Limited, London, England. Gas-stoves	$1,474	Apr. 19	83	441
O. F. Zurn Company, Philadelphia, Pa. Cables, ropes, cords, and twines	$1,519	May 3	83	742
Oberhäusser & Landauer, Würzburg, Germany. Medicines, medicinal specialties, and articles for the toilet	$1,590	May 24	83	1205
Ohlemacher Lime Company, Sandusky, Ohio. Portland and similar cements	$1,464	Apr. 12	83	296
Olsen, Terje, Stockholm, Sweden. Oils for certain named purposes	$1,595	May 24	83	1205
P. C. West Company, York, Pa. Combination of milk and molasses candy	$1,685	May 31	83	1344
Paddock, Loveland, Watertown, N. Y. Preparation for rough or chapped skin	$1,460	Apr. 12	83	296
Parton, George P., Scranton, Pa. Combustible powders for flash-lights	$1,694	June 14	83	1656
Pfromm, Adam, Philadelphia, Pa. Indigo bluing	$1,696	June 14	83	1656
Pia, Peter F., New York, N. Y. Toys	$1,652	June 7	83	1508
Pillsbury-Washburn Flour Mills Company, Limited, Minneapolis, Minn. Wheat breakfast-food	$1,575	May 24	83	1205
Pillsbury-Washburn Flour Mills Company, Limited, Minneapolis, Minn. Wheat breakfast-food	$1,576	May 24	83	1205
Pillow Inhaler Company, Washington, D. C. Pillow-inhalers	$1,711	June 21	83	1797
Planten, John R., New York, N. Y. Capsules	$1,535	May 10	83	913
Planten, John R., New York, N. Y. Capsules	$1,536	May 10	83	913
Postum Cereal Company, Limited, Battle Creek, Mich. Cereal food for human consumption	$1,699	June 14	83	1657
Power & Co., Edward A., Pittsburg, Pa. Glassware	$1,710	June 21	83	1797
Power Specialty Co., New York, N. Y. Engines	$1,599	May 17	83	1065
Prout, William A., London, England. Pills	$1,567	May 24	83	1204
Prout, William A., London, England. Pills	$1,666	June 7	83	1509
Radiotint, Limited, London, England. Certain named photographic material, apparatus, and products	$1,574	May 24	83	1203
Radiotint, Limited, London, England. Certain photographic apparatus and material	$1,655	June 7	83	1508
Ragan Co., James T., Boone, Iowa. Internal remedy for rheumatism	$1,641	May 31	83	1344
Reichenbach, Morey & Will Company, Rochester, N. Y. Photographic printing-out paper and prints made thereon	$1,480	Apr. 26	83	591
Reichenbach, Morey & Will Company, Rochester, N. Y. Photographic printing-out paper	$1,481	Apr. 26	83	591

Alphabetical list of registrants of trade-marks, April to June, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Reichenbach, Morey & Will Company, Rochester, N. Y. Photographic printing-out paper	31,492	Apr. 26	83	591
Reichenbach, Morey & Will Company, Rochester, N. Y. Photographic paper	31,705	June 21	83	1797
Ricker & Co., Frank H., Boston, Mass. Whisky	31,695	June 14	83	1637
Rudisch, Phineas, New York, N. Y. Disinfecting and antiseptic preparations	31,695	June 14	83	1636
Ryan, Charles V., Springfield, Mass. Medicinal preparations having antiseptic qualities	31,536	May 10	83	913
S. Hernsheim, Bros. & Company, Limited, New Orleans, La. Leaf-tobacco, manufactured tobacco, and cigars	31,732	June 21	83	1799
S. S. Pierce Company, Boston, Mass. Bottled cider	31,550	May 24	83	1204
Samuels & Bro., J., Providence, R. I. Certain named wearing-apparel	31,707	June 21	83	1797
Saunders, Catherine C. S., New York, N. Y. Certain named medicinal remedies and toilet preparations and articles	31,591	May 24	83	1205
Sayre, Theodore H., New York, N. Y. Certain antiseptic and healing lotion or preparation for the skin	31,488	Apr. 26	83	591
Scharmann, Gustav, New York, N. Y. Preparation for the painless treatment of irritated pulps	31,495	Apr. 12	83	308
Schneider, Rudolph, New York, N. Y. Certain named brewers' supplies	31,751	June 28	83	1668
Schwarzkopf, Jacob, and J. Solinger, Providence, R. I. Jewelry	31,709	June 21	83	1797
Schweinburg, Emil, New York, N. Y. Corsets	31,742	June 28	83	1667
Schweinburg, Emil, New York, N. Y. Corsets	31,743	June 28	83	1667
Sharp & Dohme, Baltimore, Md.; New York, N. Y., and Chicago, Ill. Tonic alterative compound	31,715	June 21	83	1703
Shipe, Walter S., Toronto, Canada. Wooden skewers	31,569	May 17	83	1065
Showell & Fryer, Limited, Philadelphia, Pa. Olive-oil	31,661	June 14	83	1627
Shuman & Co., A., Boston, Mass. Boys' trousers	31,518	May 10	83	911
Sibley, Lindsay & Curr Company, Rochester, N. Y. Certain named underwear and umbrellas	31,610	May 31	83	1342
Sleneau, Kate G., Jackson, Mich. Polishing preparation	31,509	May 3	83	741
Sloat Bros. Co., Valdosta, Ga. Liquid remedy for diarrhœa, dysentery, and dyspepsia	31,537	May 10	83	913
Smith & Co., I. D., Chicago, Ill. Polishing and dressing compounds for leather	31,490	Apr. 26	83	592
Smith, Freeborn G., New York and Saratoga Springs, N. Y.; Washington, D. C.; Jersey City, Newark, and Paterson, N. J.; Chicago, Ill., and St. Louis and Kansas City, Mo. Organs	31,509	May 3	83	742
Smith, Freeborn G., New York and Saratoga Springs, N. Y.; Washington, D. C.; Jersey City, Newark, and Paterson, N. J.; Chicago, Ill., and St. Louis and Kansas City, Mo. Pianofortes	31,510	May 3	83	742
Smith, Freeborn G., New York and Saratoga Springs, N. Y.; Washington, D. C.; Jersey City, Newark, and Paterson, N. J.; Chicago, Ill., and Kansas City, Mo. Pianofortes and organs	31,541	May 10	83	914
Smith, Kline & French Company, Philadelphia, Pa. Liniment	31,565	May 24	83	1204
Smith, Kline & French Company, Philadelphia, Pa. Liniment	31,566	May 24	83	1204
Solinger, Jacob. (See Schwarzkopf and Solinger.)				
Springfield Drop Forging Company, Springfield, Mass. Drop-forgings, wrenches, and bicycle parts	31,645	May 31	83	1344
St. Louis Pop Corn Company, St. Louis, Mo. Prepared pop-corn	31,684	May 31	83	1344
Steel, John T., New York, N. Y. Liniment	31,508	May 3	83	741
Stohn's Sons, C., Jersey City, N. J. Silk vestings, button-stock, and dress-goods	31,571	May 24	83	1203
Strauss, Ferdinand, New York, N. Y. Autoharps, citherns, and guitars	31,739	June 28	83	1667
Sulphume Company, Chicago, Ill. Remedy for skin and blood disorders	31,754	June 28	83	1668
Supplee Hardware Company, Philadelphia, Pa. Axes and hatchets	31,604	May 24	83	1205
Supplee Hardware Company, Philadelphia, Pa. Bicycles, tricycles, and velocipedes	31,676	June 7	83	1510
Swift & Company, Chicago, Ill., and St. Paul, Minn. Certain named meats and compounds	31,578	May 24	83	1204
Syracuse Chilled Plow Company, Syracuse, N. Y. Plows and their parts	31,554	May 10	83	912
Teutonia Misburger Portland Cementwerk, Misburg, Germany. Portland cement	31,631	May 31	83	1343
Thaddeus Davids Company, New York, N. Y. Mucilage and paste	31,668	June 7	83	1509
Thaddeus Davids Company, New York, N. Y. Black ink	31,540	May 10	83	913
Thomas Evans Company, Pittsburg, Pa. Lamp-chimneys	31,731	June 21	83	1799
Tidman & Son, Limited, London, England. Sea-salt	31,663	June 7	83	1509
Trevisanello, Charles, Newark, N. J. Medicinal tonics	31,546	May 17	83	1064
Tschiermann, Robert F., London, England; New York, N. Y., and Washington, D. C. Combs	31,656	June 7	83	1508
Ullrich & Co., J., New York, N. Y. Stylographic and fountain pens	31,733	June 21	83	1799
Vacuum Oil Company, Rochester, N. Y. Oils	31,734	June 21	83	1800
Vacuum Oil Company, Rochester, N. Y. Oils	31,735	June 21	83	1800
Vacuum Oil Company, Rochester, N. Y. Oils	31,507	May 3	83	742
Valentine, Charles R., Lee, England. Certain foods and relishes	31,506	May 3	83	742
Valentine, Charles R., Lee, England. Certain foods and relishes	31,493	Apr. 26	83	592
Van Nostrand, Alonzo G., Boston, Mass. Ale, lager-beer, and porter	31,570	May 24	83	1204
Vermont Condensed Milk Company, Burlington and Richmond, Vt. Condensed milk	31,665	June 7	83	1509
Walker, Robert A., Buffalo, N. Y. Remedy in tablet form	31,477	Apr. 19	83	442
Walley, Charles P., New York, N. Y. Gelatinous compounds	31,596	May 24	83	1205
Warrick Frères, Grasse, France, and New York, N. Y. Oils and certain named toilet articles and preparations	31,666	June 14	83	1637
Webb & Meyer, New York, N. Y. Whisky	31,737	June 21	83	1799
Wellenkamp, Charles E., New York, N. Y. Wheat-flour	31,511	May 3	83	742
West Boylston Manufacturing Company, West Boylston, Mass. Tubular cheese-cloth bandages	31,550	May 17	83	1064
West India Fibre Company, Salem and Boston, Mass. Fibrous material for stuffing purposes				
Western Camera Manufacturing Company, Chicago, Ill., and New York, N. Y. Photographic printing-paper	31,654	June 7	83	1508
Western Camera Manufacturing Company, Chicago, Ill., and New York, N. Y. Photographic cameras	31,666	June 14	83	1637
Wheeler, Michael A., Troy, N. Y. Ointment	31,668	June 14	83	1636
White Rock Mineral Spring Company, Waukesha, Wis. Mineral waters	31,753	June 28	83	1668
Whiting Paper Company, Holyoke, Mass. Writing-paper	31,515	May 10	83	911
Whiting Paper Company, Holyoke, Mass. Writing-paper	31,572	May 24	83	1203
Whiting Paper Company, Holyoke, Mass. Writing-paper	31,618	May 31	83	1343
Whiting Paper Company, Holyoke, Mass. Writing-paper	31,701	June 21	83	1797
Williams & Newman, Chicago, Ill. Medicated whisky	31,718	June 21	83	1798
Winchester Repeating Arms Company, New Haven, Conn. Ammunition for small-arms	31,674	June 7	83	1510
Woelfel, Joseph M., and R. F. Kineavy, Philadelphia, Pa. Soap powders	31,626	May 31	83	1343
Wolf, Martin L., Philadelphia, Pa. Whisky	31,498	Apr. 26	83	592
Wolff, George S., Philadelphia, Pa. Leather	31,519	May 10	83	911
Woodstock Iron Works, Anniston, Ala. Pig-iron	31,675	June 7	83	1510
Woodward & Bailey, New York, N. Y. Men's shirts	31,487	Apr. 26	83	591
Wright, Firm of Alfred, Rochester, N. Y. Perfumery	31,594	May 24	83	1205
Yost, Sarah A., Arkansas City, Kans. Crumb home-made yeast	31,494	Apr. 26	83	592

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
American Chemical Co., Cleveland, Ohio. "Pearls of Health Tablets"	6,602	June 14	83	1517
American Lithographic Company, New York, N. Y. "Mikky Nic." (For Cigar-Boxes)	6,577	May 3	83	339
American Lithographic Company, New York, N. Y. "Queen Jenny." (For Cigars)	6,597	June 14	83	1517
American Lithographic Company, New York, N. Y. "Cuban Daisy." (For Cigars)	6,604	June 21	83	1665
Anheuser-Busch Brewing Association, St. Louis, Mo. "Black & Tan." (For Beer)	6,596	June 14	83	1517
Bishop, Lauren E., and H. L. Halliday, Elmira, N. Y. "Milk of Wild Olives." (For a Lotion for the Skin)	6,585	May 10	83	749
Bohea Importing Company, Baltimore, Md. "Royal Crest." (For Tea)	6,574	Apr. 26	83	449
Bohea Importing Company, Baltimore, Md. "Pennant Chop." (For Tea)	6,575	Apr. 26	83	449
Buttfield, W. J., New York, N. Y. "Our Choice T, Good Luck and Swan Chop"	6,603	June 21	83	1665
Cabler, W. P. Frank, Council Bluffs, Iowa. "Hadaah." (For Medicine)	6,618	June 28	83	1807
Corbett, Winfield S., Kansas City, Mo. "Log Cabin Baking Powder"	6,608	June 14	83	1517
Crocker, Frank, Washington, D. C. "Velvetta Kid." (For Leather and Kid)	6,598	May 24	83	1073
Elliott, Henry H., Washington, D. C. "Blue Point Raccoon Creek Rye Whiskey"	6,605	June 21	83	1665
Farm and Dairy Product Company, New York, N. Y. "Milkene." (For a Substance to Combine with Milk)	6,616	June 28	83	1807
Frick, Robert J., Louisville, Ky. "Chira." (For a Medicine)	6,587	May 10	83	749
Gould, Charles W., New York, N. Y. "San Pablo Olives"	6,578	May 3	83	599
Gould, Charles W., New York, N. Y. "Olive Label." (For Olives)	6,589	May 17	83	927
Green, Asher and W., New York, N. Y. "Imperial Silver Polish"	6,611	June 21	83	1665
Green, Woolf. (See Green, Asher and W.)				
H. S. Lincoln Co., Boston, Mass. "Ramsey's Golden Gate Bitters"	6,588	May 10	83	749
Halliday, Harry L. (See Bishop and Halliday.)				
Heron, Martin W., Memphis, Tenn. "Southern Comfort." (For a Beverage)	6,588	May 10	83	749
Hewitt & Co., J. W., Stockton, N. J. "Dr. L. Reese's Brazilian Herbine." (For Medicine)	6,590	May 17	83	927
James, William A., St. Louis, Mo. "White Rose Washing Fluid"	6,620	June 28	83	1807
Johnson, Marshall R., Springfield, Mass. "Dr. Bennett's Malarial Cure and Blood Tonic"	6,572	Apr. 19	83	301
Kunsheedt Manufacturing Company, New York, N. Y. "Kunsheedt's Escurial Shirring." (For Fancy Dry Goods)	6,614	June 28	83	1807
Lansing & Co., R. H., Chillicothe, Ohio. "American Baking Powder"	6,576	May 3	83	599
Lee Broom and Duster Company, Davenport, Iowa, and Lincoln, Nebr. "Fairy Queen." (For Brooms and Dusters)	6,612	June 21	83	1665
Long Island Brewery, Brooklyn, N. Y. "Regal Lager." (For Beer)	6,599	June 14	83	1517
Lutmer Cigar Co., Cincinnati, Ohio. "The American Boy." (For Cigars)	6,595	June 14	83	1517
M. Hyman Cigar and Importing Company, Denver, Colo. "Yellowstone Gems." (For Cigars)	6,570	Apr. 19	83	301
McLoughlin Bros., Brooklyn, N. Y. "The Game of Jack and the Bean Stalk"	6,571	Apr. 19	83	301
McLoughlin Bros., Brooklyn, N. Y. "The Game of Kris Kringle's Visits"				
Myers, Charles F., Washington, D. C. "Ger-American Herb Compound, the Great Blood Purifier, Liver and System Regulator"	6,594	June 7	83	1351
Pepsin Cream Baking Powder Company, Cleveland, Ohio. "Pepsin Cream Baking Powder"	6,582	May 10	83	749
Petersen, Thora, Chicago, Ill. "Court's Great Stomach and Nerve Tonic"	6,591	May 24	83	1073
Phillips, Lydia, Fort Plain, N. Y. "Eureka Hair Restorer"	6,600	June 14	83	1517
Pillsbury, Ulysses G., Derry Depot, N. H. "Pillsbury's Improved Self-Raising Prepared Flour"	6,573	Apr. 26	83	449
Raynor, George A., New York, N. Y. "Raynor's Bug Meal"	6,584	May 10	83	749
Rold, William, Chicago, Ill. "Herbarium System Bitters"	6,601	June 14	83	1517
Scotch Remedy Co., Wheeling, W. Va. "Creme De Ménthe Balm." (For a Medicine)	6,617	June 28	83	1807
Shaw & Co., Charles W., Baltimore, Md. "Golden Rod." (For Syrup)	6,609	June 21	83	1665
Sheaffer, Alfred B., Philadelphia, Pa. "Dewey's Victory." (For Whisky)	6,606	June 21	83	1665
Sheaffer, Alfred B., Philadelphia, Pa. "Old Glory." (For Whisky)	6,607	June 21	83	1665
Shephard, Charles H., New York, N. Y. "The Silent." (For a Device for Making Flushing-Tanks Noiseless)	6,593	May 31	83	1213
Silver Suds Manufacturing Co., Philadelphia, Pa. "Medicated French Tissue." (For a Preparation for Corns and the Like)	6,613	June 21	83	1665
Tryon, Albert H., New York, N. Y. "Death Sure Drops." (For an Insecticide)	6,619	June 28	83	1807
Tucker, Jane A., Boston, Mass. "Rose Leaf Balm." (For the Complexion)	6,579	May 3	83	599
Wähmann, Christian J., New York, N. Y. "Diana." (For Whisky)	6,586	May 10	83	749
Wallace & Vandersloot, York, Pa. "Our Calf Shoe"	6,615	June 28	83	1807
Wolf, Sayer & Heller, Chicago, Ill. "Holland Flour"	6,610	June 21	83	1665
Wookey, Louisa N., New York, N. Y. "The Rana Furniture Polish"	6,580	May 3	83	599
Worms, Samuel, New York, N. Y. "Lygia Hair Balsam"	6,581	May 3	83	599

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
American Lithographic Company, New York, N. Y. "Color Bearer." (For Cigars)	63	May 17	83	997
American Lithographic Company, New York, N. Y. "Just Out." (For Cigars)	64	May 24	83	1073
American Lithographic Company, New York, N. Y. "Royal Scot." (For Cigars)	65	May 31	83	1213
Freeland-Loomis Company, Boston, Mass. "The Continental Gold Bond." (For a Suit of Clothes)	66	May 24	83	1073
Goode, Thomas F., Boydton, Va. "Buffalo Lithia Water"	67	May 24	83	1073
Hammond Typewriter Company, New York, N. Y. "Hammond Type Writer for All Nations and Tongues"	61	May 3	83	509
Hudepohl & Kotte, Cincinnati, Ohio. "Golden Jubilee." (For Beer)	69	June 7	83	1351
Knapp, Joseph P., New York, N. Y. "My Lady's Glove"	70	June 21	83	1685
McInnerney, Thomas H., New York, N. Y. "Dewey's Chewies." (For Confections)	62	May 3	83	510
Tettenborn, Frederick, Cincinnati, Ohio. "Good Meal." (For Stoves and Ranges)				

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Volume.	Page.
Eastman, George, and William H. Walker, Rochester, N. Y.; disclaimer filed by assignee. Sensitive photographic film	356,846	Apr. 6, 1898	83	161
Firman, Leroy B., Chicago, Ill.; disclaimer filed by assignee. Multiple switchboard for telephone-exchange	338,576	Apr. 8, 1898	83	161
Platt, Clark M., Waterbury, Conn.; disclaimer filed by assignee. Button	568,546	June 6, 1898	83	1517

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abdominal supporter	S. L. Fowler	606,410	June 28	2567	504	83	1897
Abrading mechanism	W. A. McCool	602,349	Apr. 12	1312	293	83	264
Accumulator-plate	I. Rosler	604,418	May 24	2194	492	83	1098
Acetosulfanilate. Making alkaline	C. F. M. Schaerges and P. Schwarz.	602,646	Apr. 19	1826	.....	83	375
Acetyl derivative of phenetidin	C. F. M. Schaerges and P. Schwarz.	602,690	Apr. 19	1912	.....	83	392
Acetylene-generator	E. N. Dickerson	603,678	May 10	797	175	83	772
Acid alkyl esters. Making orthosulfamin-benzoic-	B. R. Seifert	604,503	May 24	2264	.....	83	1135
Acid and making same. Amidonaphtholdisulfo-	F. Bender	606,437	June 28	2624	.....	83	1910
Acid condenser. Nitric	J. V. Skoglund	602,412	May 3	290	65	83	656
Acid. Making hydrochloric	J. R. Wylde and J. W. Kynaston	605,960	June 7	605	134	83	1467
Acid. Making pyrocatechin-sulfonic	P. P. Monnet	604,066	May 17	1538	.....	83	948
Acid. Producing orthotoluene sulfonic	W. Dieterle	602,629	Apr. 19	1896	.....	83	389
Acid sulfates of soda. Utilizing	R. E. Chatfield	605,097	June 14	1173	.....	83	1596
Acids. Condensation product from salicylic and gallic	O. Doebner	602,834	Apr. 26	2163	.....	83	455
Adding and recording apparatus	W. J. Ensworth	605,705	June 14	1186	273, 274	83	1598
Adding-machine	C. C. Clifford	602,154	Apr. 12	985	216, 217	83	198
Adding-machine	R. E. Kimball	605,780	June 14	1343	307, 308, 309	83	1627
Adhesive compound and producing same	C. M. Higgins	604,584	May 24	2509	.....	83	1153
Adjustable chair	J. J. White	606,612	June 28	2925	678, 679	83	1968
Adjustable wrench	W. O. Parker	603,575	May 3	602	194	83	718
Advertising device	M. Duffner	603,057	Apr. 26	2331	575	83	585
Advertising or sign lamp	S. A. Bhise	603,251	May 3	14	4	83	603
Aerated-water fountain or engine	A. Brake and R. J. McKee	606,373	June 28	2498	580	83	1894
Agricultural implement	H. C. Milburn	602,083	Apr. 5	771	167	83	146
Air and gas mixing apparatus	W. C. Clarke	602,526	Apr. 26	2157	499	83	454
Air and steam brake coupling. Automatic	W. J. Pugh	601,905	Apr. 5	543	113, 118	83	103
Air-brake	W. H. Clowry	605,394	June 7	643	144	83	1475
Air-brake	J. J. Nef	602,094	Apr. 12	873	189, 190	83	177
Air-brake	H. S. Park	605,904	June 21	1580	363	83	1698
Air-brake	H. S. Park	605,905	June 21	1583	363, 364	83	1698
Air-brake controller	J. C. Wands	604,244	May 17	1867	418, 419	83	1012
Air-compressing apparatus for vessels	E. Bottini	604,962	May 31	3150	724	83	1293
Air-compressor	O. H. Brigham	604,717	May 31	2756	630	83	1219
Air-compressor	F. Richards	606,428	June 28	2008	601	83	1906
Air-compressor	H. C. Sergeant	602,877	Apr. 26	2225	504	83	466
Air, &c. Compressor for	C. Cummings	603,425	May 3	314	71	83	660
Air-compressor governor	W. F. Stark	602,947	Apr. 12	1143	251	83	220
Air-compressor. Hydraulic	F. Richards	602,473	Apr. 19	1531	349	83	321
Air-compressor valve	J. Jauch	603,105	Apr. 26	2327	507	83	543
Air distributer or spreader	L. T. Gibbs	604,745	May 31	2796	640	83	1297
Air engine. Compressed-	P. Van Gelder	602,964	Apr. 26	2268	544	83	499
Air. Machine for separating dust from	D. Hall and J. H. Kay	602,745	Apr. 19	1997	459	83	406
Air. Means for humidifying	A. Koehler	605,438	June 7	719	162	83	1491
Air-ship							
Alarm: *See* Automatic alarm. Bicycle-alarm. Burglar-alarm. Door barricade-alarm. Fire-alarm. Loom slack-alarm. Safe-alarm. Signal-alarm.							
Alarm	I. B. Frazee	603,898	May 10	1195	270	83	849
Alarm system	C. Coleman	606,405	June 28	2556	502	83	1894
Alarm system. Electric	A. Ovenden	606,076	June 21	1989	442, 443	83	1753
Albumen preparation soluble in water	F. Bauer and A. Busch	601,995	Apr. 5	710	.....	83	134
Alimentary products. Producing	J. H. Kellogg	604,498	May 24	2348	.....	83	1132
Alizarin derivative. Dark-green	R. E. Schmidt	603,659	May 10	763	.....	83	795
Alloy	F. A. Cothias. (Reissue)	11,660	Apr. 19	2199	.....	83	436
Alloying iron and hydrogen. Process of and apparatus for	G. W. Gesner	604,580	May 24	2503	509	83	1151
Aluminates. Making alkaline	D. A. Péniakoff	603,657	May 10	761	.....	83	765
Aluminium-reducing pot and means for tapping same	A. Dickey	603,575	Apr. 19	1606	385	83	350
Aluminium sulfid and making same	D. A. Péniakoff	606,576	June 28	2367	.....	83	1958
Aluminium sulfid and reducing same to metallic state. Producing	H. S. Blackmore	605,360	June 7	621	.....	83	1470
Aluminium sulfid. Making	H. S. Blackmore	605,378	June 7	619	.....	83	1470
Aluminium sulfid. Making	H. S. Blackmore	605,812	June 14	1884	317	83	1635
Amalgamator and separator. Centrifugal	C. L. Garland, J., and S. E. Murray	604,978	May 31	3176	788	83	1300

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Amalgams, &c. Electrolytic production of	E. and G. Andreoli	605,885	June 21	1451	333	83	1667
Ammonia and waste products from garbage. Process of and apparatus for recovering	J. B. Taylor and H. V. Walker	605,668	May 10	779	173	83	793
Anchor	L. M. Bowers	602,719	Apr. 19	1957	445	83	401
Anchor Stockless	G. H. Burrows	605,076	June 7	15	4,5	83	1256
Angling device	J. J. Dempsey	605,536	June 14	864	208	83	1589
Animal-destroyer	O. J. Merritt	605,890	June 21	1563	360	83	1668
Animal-trap	J. Davidson	606,052	June 21	1881	433	83	1745
Animal-trap	D. Luye	606,566	June 28	2849	667	83	1954
Animal-trap-setting device	G. W. Sutton	604,340	May 17	2066	460	83	1049
Annunciator and spring-jack. Combined	C. W Selvidge	602,410	Apr. 12	1418	330	83	265
Ant-trap	J. H. Poole	606,096	June 21	1831	422	83	1735
Antirefilling device	E. Behring	606,042	June 21	1803		83	1741
Antitoxin and making same. Diphtheria	O. O. Dinsmore and A. M. Ireland	603,028	Apr. 26	9470	563	83	516
Anvils. Welding or swaging attachment for	C. P. Brown	605,396	June 7	230	141	83	1473
Applicator	O. Förster	604,658	May 24	2086	501	83	1176
Arch-stone	A. L. Riker	604,942	May 31	2053	676	83	1297
Armature-coils. Former for winding	J. L. Matthews	604,940	May 31	3119	717	83	1299
Armor. Protective covering for ships'	W. H. Bevans	605,377	June 7	617	138 139	83	1470
Artillery field-mount	S. M. Smith	601,845	Apr. 5	444	80	83	56
Ash-receiver. Safety	C. H. Oertle	602,097	Apr. 12	880	191	83	176
Asparagus-holder	F. A. Hetherington	606,011	June 21	1804	415	83	1731
Asphalt. Melting-kettle for preparing	J. G. Ils	606,140	June 21	2061	473	83	1779
Assay-furnace. Portable	W. S. Frost	606,070	Apr. 12	884	181	83	169
Atomizer	R. W. Prescott	606,240	June 28	2249	520	83	1894
Atomizer	A. Y. Pearl	606,575	June 28	2848	660	83	1957
Auger	H. G. Watrous	606,319	June 28	2295	525	83	1665
Auger	L. H. Sholder	605,614	June 14	1015	234	83	1566
Auger and cutter. Combined	T. A. Gannoe	605,781	June 14	1331	305	83	1695
Auger-handle	J. B. Cornwall	604,971	May 31	3168	728	83	1298
Auger. Packing-	J. Evans	605,411	June 7	688	151	83	1484
Auger. Post-	J. E. Eckert	604,914	May 31	3086	709	83	1933
Autoharp	L. L. Cubbedge	606,517	June 28	2741	633	83	1955
Automatic alarm for protecting crops, &c	J. C. Laporte	604,408	May 24	2160	485	83	1059
Automatic gate	J. F. Gaylord	605,213	June 7	497	109	83	1444
Automatic-lever switch	A. A. De Witt	602,128	Apr. 12	928	203	83	186
Automatic lubricator	F. W. Ross	606,308	June 28	2532	587	83	1890
Automatic switch	E. Billburgh	605,685	June 14	1048	241	83	1573
Awning	J. D. Hogan	602,601	May 10	820	181	83	777
Awning	J. W. Richards	602,773	Apr. 19	2037	461	83	416
Awning	J. F. Sargent	604,087	May 17	1589	354	83	957
Awning. Window-	E. J. Jenkins	605,878	June 21	1535	354	83	1668
Ax	H. P. Schwartz	604,943	May 31	3123	718	83	1290
Ax	W. L. Marble	604,694	May 24	2279	526	83	1165
Ax safety-guard	J. S. Patten	606,233	June 28	2228	513	83	1881
Axle boxes. Dust-guard for car-	R. M. Hasbrouck	602,539	Apr. 19	1640	374	83	341
Axle. Car-	J. F. Dunigan	605,863	June 21	1513	348	83	1677
Axle-gage	S. Austin	601,827	Apr. 5	451	98	83	59
Axle lubricator Car-	W. A. Hammer	602,096	May 10	727	168	83	758
Axle-repairing apparatus	T. N. Crook	602,208	Apr. 12	1250	275	83	251
Axle. Safety-	B. Jassen	605,886	June 14	1416	328	83	1641
Axle. Self-oiling	O. C. Hall	606,240	Apr. 26	2251	526	83	422
Axles. Manufacture of carriage-	L. B. J. Lyon	602,861	Apr. 26	2305	499	83	464
Baby-harness	R. H. Canfield	602,974	Apr. 26	2404	548	83	501
Back-pedaling brake	C. F. Dinkle	606,965	May 3	40	11	83	606
Back-pedaling brake	F. Ecaubert and H. Serrell	602,634	Apr. 19	1805	419	83	371
Back-pedaling brake	S. Fader	606,395	May 3	141	33	83	689
Back-pedaling brake	L. E. Hoffman	606,217	June 28	2208	506	83	1886
Back-pedaling brake	J. E. Hussey and A. I. Summers	605,718	June 14	1205	278 279	83	1608
Back-pedaling brake	W. A. Leggo, Jr	605,643	June 14	1076	247	83	1576
Back-pedaling brake	A. Zwirow	606,310	May 3	112	26	83	693
Back-pedaling brake	A. Phelps	604,213	May 17	1810	407	83	1001
Badge							
Bag: *See* Mail-bag. Rubber water-bag.	A. L. Ross	605,343	June 7	554	123	83	1455
Bag-closure	A. Arkell	602,674	May 10	792	174	83	771
Bag-fastener	W. J. Ayres	605,858	June 21	1457	334	83	1668
Bag holder or clamp	C. N. Choate	606,274	June 28	2311	535	83	1846
Bag holder. Seed-	J. Kleinstuber	602,145	Apr. 26	2700	613	83	559
Bag hook. Chatelaine or other	J. L. Wirt	605,088	May 31	3079	753	83	1280
Bag or box	W. F. Beasley	605,068	June 7	3	1	83	1268
Bag or pouch	G. S. Prichard and J. W. Taylor	602,915	Apr. 26	2293	524	83	461
Bag-stringing machine	M. Redgrave	602,736	May 10	801	196	83	790
Bagatelle-board	C. L. Bessonette	602,250	May 3	13	4	83	605
Baling cotton	C. L. Bessonette	602,249	May 3	11	3	83	605
Baling-press	P. K. Dederick	602,264	May 3	38	10	83	606
Baling-press	P. K. Dederick	605,272	June 7	413	98	83	1430
Baling-press	J. H. Holmgreen	604,284	May 17	2019	459	83	1042
Baling-press	F. L. Dyer	601,806	Apr. 5	344	70, 71	83	64
Baling press. Cotton-							
Ball: *See* Foot-ball. Twine-ball.	R. E. Swartz	605,527	June 14	850	190	83	1586
Ball-and-socket clamp	H. H. Vaughan and J. O. Pattee	605,989	June 21	1656	380	83	1706
Ball-joint for brake-couplings, &c	R. Steinbach	602,977	May 10	1317	303	83	573
Ball-mill	H. Brassch	602,798	Apr. 19	2096	473	83	427
Ballot-box	F. E. Holt	602,011	Apr. 5	733	167	83	139
Ballot-counting apparatus	W. N. Durant and W. H. Prichard	606,688	June 28	2846	663	83	1972
Bamboo rods. Reducing and shaping	J. F. Hodgen	601,902	Apr. 5	341	80	83	64
Band-cutter and feeder	J. Brandt	601,804	Apr. 5	2528	589	83	1107
Banjo	W. J. McLean	604,630	May 24	63	12	83	13
Banjo-bell	C. Kaestner	601,658	Apr. 5		128 129	83	194
Barrel-cleaner	W. Hartmann	601,960	Apr. 5	660	150	83	66
Barrel-filling apparatus	J. V. Berg	601,808	Apr. 5	389	69	83	66
Barrel-lining							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Barrel-washer	C. Kaestner	605,879	June 21	1541	354 355	83	1668
Barrel-washer	G. Schock	605,188	June 7	126	32, 33	83	1276
Barrel-washer	G. Schock	605,189	June 7	131	33, 34	83	1276
Barrel-washer	G. J. Cave	602,695	Apr. 26	2152	466	83	453
Barrels, crates, &c. Fastener for	G. F. Thompson	603,348	May 3	188	41	83	827
Barrels, &c. Removable head or cover for	W. Mason	605,111	June 7	73	21	83	787
Barrels to stocks. Detachably uniting	E. Hammann	603,727	May 10	675	194	83	1635
Basin-fixture	F. S. Chase	605,813	June 14	1395	318	83	1549
Basin-plug thimble	T. B. Johnson	605,675	June 14	1135	263	83	1549
Basket	S. O. Burchfield	603,879	May 10	1151	250	83	840
Basket. Folding	T. Crebbin	604,457	May 24	2367	509 510	83	1109
Basket-making machine	J. E. Durham and J. E. Devine	605,408	June 7	676	150	83	1488
Basket-making machine	R. E. Reed	601,778	Apr. 5	297	59, 60	83	56
Basket-making machine							
Bath: *See* Cabinet-bath.	W. H. Callaghan	603,171	Apr. 26	2732	622	83	564
Bath apparatus. Shower-	W. Vanderman	603,299	May 3	92	23	83	619
Bath apparatus. Shower-	R. M. Irwin	601,691	Apr. 5	514	106	83	97
Bath-cabinet. Portable	H. and H. E. Law	601,685	Apr. 5	509	64	83	75
Bath-gown	H. Strauss	604,803	May 31	2989	660 661	83	1945
Bath-tub attachment	D. D. Buick	603,254	May 3	21	6	83	604
Bath-tub leg	W. Burrows	602,125	Apr. 12	924	209	83	187
Bath-tub seat	M. M. Shepard	601,781	Apr. 5	308	61	83	59
Bathing-suit	J. D. Darling	603,361	May 3	199		83	640
Batteries. Making peroxid of lead for galvanic							
Battery: *See* Fluid-battery. Storage battery. Galvanic battery. Voltaic battery. Secondary battery. Water-battery.	G. Hart	605,424	June 7	701	156	83	1488
Battery plates. Connector for storage-	A. C. Crofton	603,499	May 3	474	105	83	629
Battery purposes. Making plates for electric-	A. J. Johnson	604,153	May 17	1697	382 383	83	980
Bayonet. Horse-power	B. A. Walker	605,940	June 21	1659	380 381	83	1706
Bearing	J. R. Mikesell	605,499	June 14	810	187 188	83	1529
Bearing and hub. Axle-	C. B. Hobron	602,047	Apr. 5	798	178	83	150
Bearing. Antifriction-	C. B. Hobron	603,642	May 10	738	165	83	780
Bearing. Antifriction-	J. E. Lawrence	606,485	June 28	2695	621	83	1924
Bearing. Antifriction-	E. Childs	604,008	May 10	1414	316	83	896
Bearing. Antifriction hub or wheel	C. Faulkner	603,627	May 10	711	159	83	755
Bearing. Axle-	W. S. Gubelmann	605,870	June 21	1523	350	83	1679
Bearing. Ball-	F. Gustaveson	602,701	Apr. 19	1931	438	83	306
Bearing. Ball-	O. Lunde	602,705	Apr. 19	1937	440	83	307
Bearing. Ball-	S. T. Randolph	606,241	June 28	2250	520	83	1894
Bearing. Ball-	J. R. Saucier	606,491	June 28	2705	623	83	1936
Bearing. Ball-	E. L. Trube	606,040	June 21	1858	428	83	1740
Bearing. Ball-	H. A. Fritz	605,817	June 14	1399	320	83	1638
Bearing. Car-axle	F. E. Nulsen	605,827	June 14	1417	323	83	1641
Bearing. Car-axle	P. H. Murphy	602,089	Apr. 12	866	186	83	175
Bearing. Center-	P. H. Murphy	602,090	Apr. 12	867	186	83	176
Bearing. Center-	J. Meyrick, Jr	603,570	May 3	596	133	83	717
Bearing device. Ball-	W. W. Tucker	601,821	Apr. 5	377	79	83	71
Bearing for cycles or velocipedes. Ball-	W. F. Bauer	603,393	May 10	1145	258	83	889
Bearing. Roller-	E. W. Davis	603,589	May 3	624	139	83	723
Bearing. Roller-	E. W. Haviland	602,749	Apr. 19	2003	453	83	409
Bearing. Roller-	F. G. Susemihl and A. Torrey	605,147	June 7	165	41	83	1382
Bearing. Roller-	H. Timken and R. Heinselman	606,696	June 28	2970	660	83	1976
Bearing. Roller-	C. Sellers	602,589	Apr. 19	1790	391 392	83	335
Bearing. Thrust-	H. Timken and R. Heinselman	606,695	June 28	2968	660	83	1976
Bearing. Vehicle roller-	R. C. Patterson	602,100	Apr. 12	895	198	83	179
Bearing. Vehicle-wheel axle-	H. B. Keiper	604,678	May 24	2264	510	83	1183
Bearings. Ball-retainer for antifriction-	A. A. Wheat	606,174	June 21	2105	484	83	1787
Beating or washing engine	J. Q. Dickinson	603,181	Apr. 26	2675	607	83	554
Bed	E. E. Munger	602,347	Apr. 12	1309	291	83	264
Bed	P. B. Rooney	605,136	June 7	124	31, 32	83	1275
Bed	H. M. Martin	603,651	May 10	751	166 167	83	763
Bed. Adjustable	T. H. Campbell	602,055	Apr. 12	905	174	83	164
Bed attachment	J. B. Ryan	605,660	June 14	1143	265	83	1560
Bed-bottom	I. D. Creason	603,353	May 3	573	127	83	713
Bedclothes-holder	R. T. Palmer, Jr., and F. W. Mercer	604,414	May 24	2189	490	83	1094
Bed-comfortables. Device for supporting and stretching	R. C. Odell	605,126	June 7	99	26	83	1371
Bed. Folding	J. M. Scribner	606,247	June 28	2267	523 524	83	1889
Bed. Invalid-	W. W. Baldwin	605,660	June 14	1105	255	83	1568
Bed. Metallic	A. B. Eighmy	604,915	May 31	3087	709	83	1932
Bed-pan	A. Mandl	604,997	May 31	3208	737	83	1305
Bed. Sofa-	J. F. Phagan	605,009	May 31	3227	743	83	1310
Bed-spring stretcher	F. M. Tinkham	604,947	May 31	3128	719	83	1301
Bedstead	A. G. Duwe	602,656	Apr. 19	1941	419	83	378
Bedstead-brace	F. Eagon	605,510	June 7	493	108	83	1444
Bedstead corner-piece	A. J. Goodwin	603,632	May 10	721	161	83	757
Bedstead. Invalid-	B. S. Groves	605,989	June 21	1821	350	83	1679
Bedstead securing device	G. Brand	605,266	June 7	435	98	83	1435
Bedsteads. Reversible rail-grip for	F. Michel	601,819	Apr. 5	364	75	83	69
Beef-roaster	S. H. Atchison	606,113	June 21	1905	458	83	1708
Beer governor and pressure-regulator. Automatic steam-	B. Rinke	604,791	May 31	2872	656	83	1941
Beer-pipe cleaner	H. H. Young	601,926	Apr. 5	576	130	83	110
Beeves. Machine for splitting	C. Jetschick	604,884	May 31	3036	695	83	1271
Bell. Bicycle-							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Bell. Bicycle	J. Keith	604,356	May 17	2085	467	83	1055
Bell. Bicycle	H. G. Martin	603,379	May 3	62	15	83	613
Bell. Bicycle	W. G. Toepfer	605,986	June 21	1648	378	83	1764
Bell. Bicycle	J. G. Peterson	603,046	Apr. 26	2516	570	83	223
Bell striking mechanism	H. Caroll	604,208	May 17	1967	440	83	1088
Belt	H. J. Galsman	604,284	Apr. 26	2435	564	83	516
Belt	C. L. Stephenson	603,186	Apr. 26	2715	617	83	561
Belt attachment. Waist-	W. P. Carley and W. T. Rickards	605,519	June 28	2733	631	83	1981
Belt-clamp	A. J. Taylor	604,906	May 31	2698	661	83	1945
Belt. Electrical	A. Christensen	606,376	June 28	2506	589	83	1895
Belt. Endless							
Bench:							
See Hothouse tile bench.							
Bench clamp and dog. Automatic	J. P. Rogers	603,970	May 10	1309	300	83	871
Bending-machine	C. Seymour	603,995	May 10	1343	322	83	857
Berth curtain-rod fixture	J. Kirby, Jr.	603,643	May 10	730	165	83	700
Bicycle	J. A. Anderson	604,011	May 17	1431	321	83	980
	F. H. Bassett	602,536	Apr. 19	1653	372 / 373	83	340
Bicycle		604,487	May 24	2341	531	83	1121
Bicycle	L. Boonen	604,226	May 17	1653	411	83	1006
Bicycle	C. E. Cain	604,187	May 17	1768	398	83	994
Bicycle	W. H. Castle	603,497	May 3	470	104	83	691
Bicycle	D. W. Caswell	604,710	May 24	2738	624	83	1195
Bicycle	J. R. Connell	603,006	Apr. 26	2457	559	83	511
Bicycle	D. T. Demarest	601,710	Apr. 5	175	34	83	35
Bicycle	R. C. Fay	605,182	June 7	224	54	83	1998
Bicycle	A. Johnston	602,461	Apr. 19	1510	244 / 245	83	316
Bicycle	G. C. Mathews						
Bicycle		604,078	May 17	1536	349	83	992
Bicycle	J. McLean	603,054	Apr. 5	772	167	83	146
Bicycle	J. F. Murphy	601,976	Apr. 5	667	146	83	120
Bicycle	H. Nevill	605,331	June 7	515	115	83	1451
Bicycle, &c.	C. F. Nilson	602,354	Apr. 12	1380	294	83	996
Bicycle	G. P. Ohlgart	602,609	Apr. 19	1755	400	83	302
Bicycle	J. L. Tatro	605,395	June 7	590	133	83	1465
Bicycle	A. S. Weaver	602,618	Apr. 19	1773	405	83	305
Bicycle	E. E. Eyster	603,082	Apr. 26	2498	566	83	518
Bicycle. Air-propelled	E. C. Akers	606,185	June 28	2124	466	83	1810
Bicycle-alarm	M. Burt	603,326	May 3	143	33, 34	83	689
Bicycle attachment	L. Feingold	605,360	June 28	2626	586	83	1889
Bicycle attachment	C. S. Morse	603,654	May 10	756	169	83	764
Bicycle attachment	E. H. Norris	605,496	June 28	2712	624	83	1927
Bicycle attachment	J. L. Allen	604,368	May 24	2104	473	83	1078
Bicycle-brake	C. P. Birner	606,354	June 28	2439	538	83	1871
Bicycle-brake	J. M. Downer	604,080	May 17	1469	329	83	996
Bicycle-brake	J. C. Ernst	605,008	June 7	46	15	83	1351
Bicycle-brake	C. M. Fobes	603,140	Apr. 26	2691	611	83	557
Bicycle-brake	E. S. Hall	606,166	June 21	2008	461	83	1785
Bicycle-brake	J. Harrison	603,351	May 3	154	36	83	691
Bicycle-brake	F. H. Heath	606,686	June 28	2956	665	83	1974
Bicycle-brake	J. Higson	605,047	May 31	2695	756	83	1323
Bicycle-brake	H. A. Klemm	604,587	May 24	2513	571	83	1153
Bicycle brake	P. Krebs	604,728	June 14	1916	381	83	1604
Bicycle-brake	D. N. Le Ballister	603,774	May 10	958	214	83	806
Bicycle-brake	C. Muhlenfels	602,470	Apr. 19	1598	347	83	321
Bicycle-brake	R. S. Orr	603,706	May 10	843	186	83	781
Bicycle-brake	R. Rausch	605,188	June 7	233	56	83	1395
Bicycle-brake	C. Rondell	601,977	Apr. 5	665	145	83	120
Bicycle bundle-carrier	C. M. McDonald	603,916	May 10	1226	278	83	855
Bicycle-canopy	J. J. Metzger	604,294	May 17	1900	439	83	1061
Bicycle-canopy	C. W. Bernson	602,545	Apr. 19	1649	375	83	342
Bicycle-chain adjustment	G. C. Savage	602,000	Apr. 5	717	158	83	125
Bicycle-chain adjustment	E. Fay	604,166	May 17	1723	388	83	994
Bicycle-chain-cleaning device. Automatic	B. H. Divine	605,453	June 7	741	166	83	1405
Bicycle-coaster	E. W. Swelgard	603,501	May 3	478	106	83	692
Bicycle combination-tool	H. Ellar	605,799	June 14	1956	313	83	1632
Bicycle-coupling	P. T. Ripley	605,472	June 14	767	176	83	1321
Bicycle-coupling	J. G. Brown	603,149	Apr. 26	2704	614	83	550
Bicycle-crank	T. Midgley	602,049	Apr. 19	799	173	83	163
Bicycle crank-hanger	G. M. Beard	603,142	Apr. 26	2696	612	83	557
Bicycle crank-shaft	L. E. Hoffman	605,188	June 7	236	55	83	1396
Bicycle crank-shaft and bearing	H. W. Johnstone	603,102	Apr. 12	1005	220	83	208
Bicycle driving connection	W. S. Kellogg	603,906	Apr. 26	2981	521	83	477
Bicycle driving-gear	W. H. G. King	604,734	May 31	2706	628	83	1221
Bicycle driving-gear	F. B. Case	602,012	Apr. 5	734	157	83	139
Bicycle fork-head	E. Ivins	602,013	Apr. 5	735	157	83	139
Bicycle fork side	E. Ivins	604,743	May 31	2705	630	83	1235
Bicycle fork side	W. H. Evans	604,886	May 31	2946	673	83	1955
Bicycle-frame	J. R. Nagell	603,260	May 3	76	20	83	616
Bicycle-frame	B. P. Ryder	602,209	Apr. 12	1247	300	83	272
Bicycle-frame	A. B. Simonds	602,844	Apr. 26	2180	494	83	439
Bicycle-frame	R. Felsche	603,023	Apr. 19	1785	407	83	307
Bicycle-frames. Machine for composing	H. Keller	604,444	May 24	2243	503 / 504	83	1105
Bicycle-frames. Machine for setting up, drilling, and pinning	M. Wallis	603,177	Apr. 26	2742	624	83	567
Bicycle-handle	E. E. Crocker	602,600	Apr. 19	1741	397	83	339
Bicycle handle-bar	G. S. Green	602,016	Apr. 5	739	159	83	140
Bicycle handle-bar	H. H. Johnson	601,812	Apr. 5	625	75	83	69
Bicycle handle-bar	E. W. McCready	603,905	May 10	1361	309	83	883
Bicycle handle-bar	G. G. Powell	601,694	Apr. 5	3	1	83	3
Bicycle handle-bar	G. M. Beard	606,192	June 28	2141	491	83	1813
Bicycle handle-bar. Adjustable	W. C. Dayhoff	602,015	Apr. 5	738	159	83	140
Bicycle handle-bar. Adjustable	F. Johnson	602,095	Apr. 12	974	199	83	177
Bicycle handle-bar. Adjustable	G. H. Newell	604,371	May 24	2117	475	83	1061
Bicycle handle-bar and handle	W. H. Cook	605,625	June 14	1049	241	83	1573
Bicycle-handle. Collapsible and adjustable	J. C. Blanchard, Jr						
Bicycle-handle. Removable							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle-keeper	R. D. Bradley	605,698	June 14	1051	242	83	1573
Bicycle-lock	A. Köhl	604,536	May 24	2421	551	83	1135
Bicycle-lock	F. C. McDonald	601,856	Apr. 5	465	94	83	95
Bicycle-lock	D. Bowman	606,118	June 21	2004	459	83	1769
Bicycle lock and holder. Combined	G. L. Grass	602,397	Apr. 12	1402	316	83	232
Bicycle-lock. Automatic	J. C. Barr	604,452	May 24	2259	507	83	1107
Bicycle locking device	F. H. Wright	603,730	May 10	964	216	83	804
Bicycle locking device	C. E. Beck	603,018	Apr. 26	2474	561	83	514
Bicycle luggage-carrier	C. J. Brown	601,701	Apr. 5	184	27	83	29
Bicycle luggage-carrier	V. Bélanger	605,944	June 21	1672	337	83	1670
Bicycle mechanical movement	C. L. and A. L. Seaquest	606,091	June 21	1957	450	83	1760
Bicycle mud-guard	W. F. Williams	603,545	May 3	560	123	83	709
Bicycle or tricycle	G. G. Clapham	601,946	Apr. 5	640	134	83	120
Bicycle package-carrier	A. L. Brice	605,536	June 14	862	202	83	1589
Bicycle-pedal clip	I. W. Conselyea	602,220	Apr. 12	1116	245	83	225
Bicycle-propelling mechanism	T. B. McDermott	603,261	May 3	64	16	83	618
Bicycle-propelling mechanism	G. D. Adamson	604,891	May 31	2083	497	83	1272
Bicycle propulsion	C. W. Davison	605,054	May 31	2307	759	83	1325
Bicycle protective seal	L. A. Payne	606,023	June 21	1838	421	83	1734
Bicycle pump attachment	W. Metcalf	604,695	May 24	2572	595	83	1165
Bicycle-pump. Automatic	C. E. Nichols	605,073	June 21	1919	441	83	1751
Bicycle railway attachment	F. F. Hawkes	602,134	Apr. 12	938	205	83	189
Bicycle-rest	J. Battersby	602,279	Apr. 12	1202	264	83	242
Bicycle retainer and lock	F. Skinner	605,142	June 7	161	40	83	1381
Bicycle-riders. Pipe-hanger and shield for	F. C. Avery	604,955	May 31	3140	722	83	1294
Bicycle-saddle	H. A. Christy	604,347	May 17	2072	464	83	1051
Bicycle-saddle	W. H. Craig	605,051	May 31	2303	758	83	1324
Bicycle-saddle	W. H. Craig	602,732	Apr. 19	1977	449	83	405
Bicycle-saddle	C. S. Drummond	606,124	June 21	2014	461 / 462	83	1770
Bicycle-saddle	J. A. Hunt	602,839	Apr. 26	2170	492	83	456
Bicycle-saddle	J. A. Hunt	605,673	June 14	1130	262	83	1588
Bicycle-saddle	J. A. Hunt	605,674	June 14	1132	262 / 263	83	1588
Bicycle-saddle	J. A. Hunt	606,146	June 21	2057	471	83	1778
Bicycle-saddle	T. J. Kirkpatrick	605,669	June 14	1159	268	83	1594
Bicycle-saddle	J. W. Morgan	604,068	May 17	1541	346	83	949
Bicycle-saddle	H. A. Rusch	606,081	June 21	1841	424	83	1737
Bicycle-saddle	B. S. Seaman	606,293	June 28	2534	587	83	1890
Bicycle-saddle	J. F. Twist	605,153	June 7	171	43	83	1388
Bicycle-saddle	J. A. Hunt	601,890	Apr. 5	513	106	83	96
Bicycle-saddle clamp	A. E. Peck and C. G. Hawley	603,784	May 10	965	197	83	789
Bicycle-seat	W. H. Thomas	606,314	June 28	2385	552	83	1863
Bicycle-seat	H. A. Porter	603,785	May 10	967	197	83	789
Bicycle-seat attachment	B. S. Seaman	605,518	June 14	836	195	83	1534
Bicycle-seat clamp	W. E. Mayo	604,699	May 24	2711	619	83	1191
Bicycle-seat. Supplemental	J. M. Gleenon	606,455	June 28	2653	610	83	1915
Bicycle-seat support	W. Grady	605,819	June 14	1401	321	83	1636
Bicycle sprocket-wheel	C. F. Burkhardt	603,422	May 3	309	69, 70	83	639
Bicycle-stand	W. H. Howard	605,499	June 7	708	158	83	1459
Bicycle-stand	W. C. McBurney and W. M. Robertson.	602,665	Apr. 19	1870	425	83	384
Bicycle-stand	J. R. Moore	602,415	Apr. 12	1427	323	83	287
Bicycle steering-guide	J. A. Dunning and K. Barrow	606,925	June 28	2754	636	83	1936
Bicycle steering-head. Automatic	A. C. Garcia	605,417	June 7	694	154	83	1486
Bicycle-support	J. S. Crawford	605,573	June 14	982	218	83	1593
Bicycle-support	J. J. Dix	604,946	May 17	1870	419	83	1013
Bicycle-support	H. H. Draper	606,128	June 21	2020	463	83	1771
Bicycle-support	J. F. Furley and E. Forsyth	605,477	June 14	774	178	83	1522
Bicycle-support	H. Geidt	602,318	Apr. 12	1206	280	83	255
Bicycle-support	J. H. Iler	605,433	June 7	712	159	83	1490
Bicycle-support	M. Kelly	603,780	May 10	949	212	83	801
Bicycle-support	W. Metzrath	606,487	June 28	2697	621	83	1924
Bicycle-support	P. Person	606,576	June 28	2869	660	83	1958
Bicycle-support	C. C. Plaisted	602,141	Apr. 12	952	208	83	192
Bicycle-support	H. T. Sackett	602,270	Apr. 12	1180	259	83	237
Bicycle-support	E. A. Trapp	602,669	Apr. 19	1877	426 / 427	83	386
Bicycle-support	E. A. Trapp	602,670	Apr. 19	1879	427	83	386
Bicycle-support	E. A. Trapp	602,784	Apr. 19	2056	466 / 467	83	490
Bicycle-support	G. H. Williams	603,519	May 3	514	112 / 113	83	699
Bicycle-support and lock	W. E. Jones	604,050	May 17	1502	337	83	942
Bicycle tandem attachment	T. V. Cowden	605,699	June 14	1177	271	83	1597
Bicycle toe-clip	D. Basch	602,602	Apr. 19	1915	436	83	308
Bicycle toe-clip	H. W. Calvert	605,390	June 7	696	142	83	1474
Bicycle tool-case	L. H. Knopping	604,998	May 31	3190	734	83	1309
Bicycle tool holder or carrier	J. O. Glase	604,210	May 17	1876	406	83	1001
Bicycle-trainer	G. W. Tarver	602,546	Apr. 19	1650	375	83	343
Bicycle-trainer	H. Vogeler	604,300	May 17	1790	403	83	998
Bicycle-wheel	J Brown	602,562	Apr. 19	1660	377	83	345
Bicycle-wheel	G. Hayes	604,883	May 31	3025	694 / 695	83	1271
Bicycle-wheel	M. C. Oviatt	603,574	May 3	601	134	83	718
Bicycle-wheel belt	W. F. Glidden	605,161	June 7	221	54	83	1393
Bicycles. Axleless sprocket for	J. P. Archdeacon	605,314	June 7	298	66, 67	83	1405
Bicycles, &c. Carrier for	W. M. Tegart	606,362	June 28	2485	577	83	1851
Bicycles. Device for temporarily disabling	C. Trautner	605,951	June 21	1741	400	83	1730
Bicycles, &c. Mechanism for indicating travel of	W. E. Stubbs	601,695	Apr. 5	113	22	83	94
Bicycles, &c. Propelling means for	H. Cavicchi	605,368	June 7	640	143	83	1474
Bicycles, &c. Seat or saddle support for	G. B. Sieverling	602,289	Apr. 12	1368	309	83	276
Billiard-chalk holder	S. C. Whitlow	605,653	June 14	1147	266	83	1591
Billiard-cue	F. Lea	605,258	June 7	374	94	83	1432
Billiard-cue-tip fastener	P. B. Tarver	601,913	Apr. 5	559	115	83	106
Billiard-cue tips. Device for chalking	W. Knoll	602,541	Apr. 19	1642	374	83	341

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Billiard or pool tables. Pneumatic cushion for	W. F. Stebbins	603,490	May 3	460	108	83	669
Billiard-table	A. Hand	605,872	June 21	1536	351	83	1680
Billiard-table frame	J. Dockstader	606,196	June 28	2146	498	83	1815
Bin for powdered material	C. Irish	604,987	May 31	2117	716	83	1269
Binder	J. J. Gilmore	604,743	Apr. 19	1909	452	83	407
Binder	W. F. Grigsby	602,443	Apr. 19	1479	336	83	811
Binder	H. E. Dade	604,561	May 24	2466	561	83	1144
Binder	F. E. Robinson	605,975	June 21	1733	399	83	1719
Binder for leaves	W. M. Russell	605,916	June 21	1617	372	83	1698
Binder for loose sheets	H. E. Veit	606,434	June 28	2618	608	83	1909
Binder for sheet-music, &c	J. R. Barrett	601,994	Apr. 5	707	150	83	132
Binder. Temporary	N. Edson	603,500	May 3	475	106	83	668
Binder. Temporary	L. M. Leslie	603,428	May 3	380	72	83	661
Binder. Temporary	J. E. Woodworth	604,817	May 31	2909	665	83	1248
Binder. Temporary	E. Dürkopf	605,946	June 7	392	.....	83	1418
Bismuth methylene-digallate and making it	J. Schmid	604,571	May 24	2491	.....	83	1149
Bismuth-oxyiodin tannate							
Bit: *See* Mortising-bit.	M. Barber	603,825	May 10	1057	236	83	823
Bit-stock	G. Glasmachers	603,631	May 10	730	160 / 161	83	757
Blackboard	G. J. Schneider and K. F. G. Brenner.	604,422	May 24	2302	494	83	1097
Blackboard	L. A. Peck	602,266	Apr. 12	1174	258	83	237
Blackboard-cleaner	L. W. Weaver	603,962	May 10	1325	304	83	874
Blacking outfit. Pocket shoe-	J. H. Haskins	602,506	Apr. 19	1575	360 / 361	83	330
Blank threading and pointing machine	E. Kelly and H. B. Weaver	602,947	Apr. 26	2362	530	83	404
Blast-furnace	G. Laws	605,727	June 14	1215	261	83	1604
Blasting-tool. Combination	B. D. Rising	60[illegible]66	May 17	1580	353	83	956
Bleaching-boiler. Rotary	G. Wells	602,967	Apr. 26	2308	545	83	500
Blind for arched windows. Collapsible							
Block: *See* Pillow-block. Wood block.	F. Burger	603,206	Apr. 12	1081	237	83	217
Block system. Electric	F. L. Fairbank and T. N. Cantril	603,841	May 10	1001	244	83	828
Blotter-bath and absorbent composition therefor	W. M. Tillman	605,985	June 21	1647	378	83	1708
Blowpipe							
Board: *See* Bulletin-board. Scoop-board. Ironing-board. Washboard. Sand-board. Whist-board.	J. Kautz	603,469	May 3	404	90	83	679
Boat	M. T. Reade	605,513	June 14	888	192 / 193	83	1532
Boat. Collapsible	R. H. Agnew	602,611	Apr. 19	1757	401	83	302
Boat hoisting or lowering apparatus	A. Henry	602,684	Apr. 19	1908	433	83	800
Boat. Life-	E. J. Hough	603,596	May 3	639	142 / 143	83	736
Boat. Life-	W. W. McoGwire	602,912	Apr. 26	2294	523	83	480
Boat. Life-	J. Mitchell, Sr	603,532	May 3	544	120	83	705
Boat. Life-	G. W. Bennum	604,185	May 17	1751	397 / 398	83	908
Boat. Submarine	L. W. Stevens	603,211	Apr. 26	2705	638 / 639	83	576
Boat. Surf-	H. D. Klots	602,260	Apr. 12	1166	256	83	235
Bobbin	G. Pendleton, Jr	602,240	Apr. 12	1130	248	83	227
Bobbin	G. Pendleton, Jr	602,241	Apr. 12	1131	248	83	227
Bobbin	J. A. Sutcliffe	602,183	Apr. 12	1087	237	83	209
Bobbin. Sheet-metal							
Boiler: *See* Bleaching-boiler. Steam-boiler. Cornish boiler. Steam or hot-water boiler. Heating-boiler. Range-boiler. Water-tube boiler. Sectional boiler.	B. P. Emery	605,410	June 7	682	151	83	1484
Boiler	F. A. Gardiner	603,877	May 10	1160	261 / 262	83	842
Boiler	J. S. Newlin	606,072	June 21	1916	440	83	1751
Boiler air-feeding apparatus	J. J. de Kinder and A. C. Wood	603,089	Apr. 26	2601	591 / 592	83	587
Boiler and furnace	A. Griese	606,384	June 28	2518	584	83	1887
Boiler attachment. Steam-	A. F. Huston	605,432	June 7	711	159	83	1490
Boiler-brace	G. Kelly	602,454	Apr. 19	1498	342	83	814
Boiler-covering	H. L. Hildreth	604,047	May 17	1497	337	83	942
Boiler-flue cleaner	W. Semke	606,098	June 21	1960	451	83	1760
Boiler-flue cleaner	H. J. Johnson	604,397	May 24	2154	484	83	1066
Boiler-flue cleaner. Steam-	H. J. Spencer	601,818	Apr. 5	371	78	83	70
Boiler for steam heating apparatus	J. W. Harmel and W. J. Galloway	605,261	June 7	636	96	83	1452
Boiler-furnace	F. F. Parsons	601,880	Apr. 5	501	103	83	94
Boiler-furnace	T. Hineson	602,755	Apr. 19	2011	455 / 456	83	411
Boiler furnace. Steam-	W. Kent	604,168	May 17	1705	384 / 385	83	961
Boiler furnace. Steam-	A. Pillatt	605,511	June 14	886	192	83	1532
Boiler furnace. Water-tube-	A. Davy and J. Edey	606,191	June 28	2140	491	83	1813
Boiler grate. Steam-	G. Linde	605,390	June 7	500	.....	83	1446
Boiler incrustations. Composition for removing	L. Bernhard	602,717	Apr. 19	1955	444	83	401
Boiler-setting	H. Bechtel and L. Fritz	601,699	Apr. 5	181	95	83	98
Boiler signal. Steam-	W. D. Forsyth and E. T. Bell	605,951	June 21	1681	386	83	1709
Boiler-tube cleaner	J. C. Morrison	605,501	June 14	813	198	83	1529
Boiler-tubes. Cutter for trimming or cutting	C. E. Bauer	604,556	May 24	2458	550	83	1142
Bolster. Metal							
Bolt: *See* Seal-bolt. Stay-bolt. Socket-bolt. Thill coupling-bolt.	H. B. Sargent	602,271	Apr. 12	1189	269	83	298
Bolt-case	C. Garnett	604,606	May 31	2043	698	83	1274
Bolt-fastening	F. J. Colns	604,960	May 24	2114	475	83	1060
Bolt protector. Stay-							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Bolting-machine	A. Bosanko	605,946	June 21	1674	393	83	1708
Bonding and tying	J. Bennett	606,468	June 14	761	174	83	1519
Book. Account-	J. Eichert	604,581	May 24	2393	543	83	1134
Bookbinding	J. E. Hewett	602,401	Apr. 12	1406	317	83	334
Bookbinding	J. E. Wales	605,364	June 7	590	138	83	1465
Bookbinding-machine	F. P. Hill	604,170	May 17	1731	389 / 390	83	966
Bookbinding-machine	J. McClellan	602,406	May 3	390	88, 89	83	654
Book binding. Blank-	W. B. Boorum	606,116	June 21	2002	459	83	1760
Book. Blank-	T. Elliott	604,562	May 24	2305	544	83	1130
Book cover. Writing-	C. J. Ainsworth	606,160	June 28	2119	487	83	1809
Book-holder	A. L. Platt	602,169	Apr. 12	1015	223	83	204
Book-holder	M. E. Spielman	603,033	May 10	770	171	83	766
Book-holder	H. Whitfield	606,321	June 28	2397	555	83	1935
Book. Manifolding-	J. H. Murphy	602,405	Apr. 12	1411	319	83	334
Book. Manifolding cash-sales	P. N. de Dubocay	602,736	Apr. 19	1965	450	83	406
Book-rest. Revolving	W. H. Northall and F. W. Schepman	603,571	May 3	508	133	83	717
Book. Sales-recording check-	E. M. Anderson	602,817	Apr. 26	2141	496	83	451
Book. Scrap or sample	J. A. Lofstedt	602,164	Apr. 12	1008	221	83	206
Book-support	G. R. Pease	605,253	June 28	2234	513	83	1591
Book. Wall-	C. Balcom	605,663	June 14	1045	240	83	1571
Boot or shoe	W. N. Sprague	603,367	May 3	307	47	83	641
Boot or shoe shank	E. Roos	602,407	Apr. 12	1414	319	83	285
Boot. Wool-	W. Thau	603,749	May 10	912	202	83	794
Boring and shaping machine tool-holder	L. F. C. Rich	605,359	June 7	390	88	83	1426
Boring conical holes. Tool for	I. W. Mason	603,531	May 3	543	119	83	705
Boring tapering holes. Tool for	H. Hill	602,449	Apr. 19	1490	340	83	313
Boring-tool	D. P. Arnillas	603,017	Apr. 26	2472	561	83	514
Bottle	O. V. Blazier	603,019	Apr. 26	2475	562	83	514
Bottle	A. R. Campbell	604,720	May 31	2762	631	83	1230
Bottle	W. A. Fries, Sr	603,527	May 3	535	118	83	703
Bottle	L. K. Larrison	602,338	Apr. 12	1295	287	83	261
Bottle	P. Lindemeyr	603,108	Apr. 26	2631	597 / 598	83	544
Bottle	A. Mazzanovich	604,120	May 17	1641	368	83	968
Bottle	F. L. Meyer	604,062	May 17	1584	345	83	948
Bottle	J. C. Patterson	604,193	May 17	1777	399 / 400 / 401	83	996
Bottle	E. Towers	603,350	May 3	184	42	83	637
Bottle	H. Weil	601,919	Apr. 5	567	117	83	108
Bottle	W. Wilson	601,848	Apr. 5	446	90	83	83
Bottle	J. F. Kries	603,958	May 10	1292	295	83	868
Bottle and cap	A. J. Jose	604,228	May 17	2026	454	83	1043
Bottle and seal. Non-refillable	A. G. Smalley	601,988	Apr. 5	699	148	83	132
Bottle attachment	W. A. Scholey and F. C. Schrader	606,588	June 28	2987	668	83	1961
Bottle-cap	A. Dolifus	602,836	Apr. 26	2166	491	83	456
Bottle-capper and cork-presser	P. Lindemeyr	603,107	Apr. 26	2630	597	83	542
Bottle-capping machine	P. H. McGrath	604,629	May 24	2561	589	83	1167
Bottle-closure	W. M. Fowler	606,005	June 21	1786	409 / 410 / 411	83	1728
Bottle filling and corking machine	H. Staub and C. Duerst. (Reissue)	11,667	May 31	2334	786	83	1330
Bottle-filling apparatus	G. W. McCollom	601,782	Apr. 5	213	49	83	41
Bottle holder. Adjustable nursing-	J. W. Sykes. (Reissue)	11,665	May 17	2089	468	83	1055
Bottle holder. Nursery-	R. A. Lake	602,991	Apr. 26	2433	555	83	506
Bottle holder. Nursing-	M. P. Brennan	604,245	May 17	1869	419	83	1012
Bottle. Mucilage-	T. A. Fick	605,636	June 14	1064	245	83	1575
Bottle. Mucilage-	A. Clement and W. E. Wilkinson	605,161	June 7	188	48	83	1266
Bottle nipple. Nursing-	J. W. Bear	605,843	June 21	1477	357	83	1689
Bottle. Non-refillable	E. C. Bowne	606,507	June 28	3736	689	83	1980
Bottle. Non-refillable	H. C. Fuhlmann	602,156	Apr. 12	996	218	83	201
Bottle. Non-refillable	G. E. and C. F. Henry	605,237	June 7	316	72, 73	83	1411
Bottle. Non-refillable	G. Highfield	603,235	Apr. 26	2546	649	83	595
Bottle. Non-refillable	G. Ipson	602,850	Apr. 26	2191	497	83	461
Bottle. Non-refillable	J. B. Marshall	603,110	Apr. 26	2635	598	83	544
Bottle. Non-refillable	J. McCafferty	606,393	June 28	2344	543	83	1855
Bottle. Non-refillable	J. H. McDonald	604,497	May 24	2353	534	83	1128
Bottle. Non-refillable	A. F. Mott and H. S. Dunn, Jr	603,701	May 10	884	185	83	779
Bottle. Non-refillable	E. Rodier	604,845	May 31	2958	677	83	1257
Bottle. Non-refillable	H. Strawson	606,309	June 28	2377	550	83	1851
Bottle. Non-refillable	J. A. Trimble	606,256	June 28	2283	528	83	1842
Bottle. Non-refillable	W. G. Webster	605,501	June 14	909	224	83	1539
Bottle. Non-refillable	A. N. Woodard	604,104	May 17	1615	362	83	954
Bottle. Non-refillable	G. H. Williams	602,811	Apr. 19	2117	477	83	421
Bottle. Non-refilling	J. H. Hettinger and B. P. Kincaid	603,640	May 10	735	164	83	739
Bottle or jar closure	G. A. Diemer	601,989	May 31	3104	714	83	1329
Bottle or similar vessel	J. J. McCornish	603,114	Apr. 26	2644	600	83	547
Bottle. Safety-	T. W. Ryan	606,795	May 10	997	222	83	811
Bottle. Self-sealing	A. Backhaus	601,608	Apr. 5	130	28	83	26
Bottle-stopper	J. Berneis	603,084	Apr. 26	2499	567	83	519
Bottle-stopper	L. H. Broome	603,724	May 10	871	193	83	787
Bottle-stopper	L. H. Broome	603,725	May 10	873	194	83	787
Bottle-stopper	P. G. Hercht	605,451	June 14	780	179	83	1588
Bottle-stopper	N. Lindbergh	606,290	June 28	2889	541	83	1838
Bottle-stopper	P. Lindemeyr	603,864	May 3	304	46	83	641
Bottle-stopper	E. L. Lloyd	603,908	May 10	1213	275	83	833
Bottle-stopper	G. W. Mason	605,966	June 21	1716	394	83	1716
Bottle-stopper	E. A. Parker	604,259	May 17	1891	433	83	1016
Bottle-stopper	J. F. Perry	605,908	June 21	1589	365	83	1699
Bottle-stopper	W. Walker	604,443	May 24	2243	508	83	1105
Bottle-stopper	L. C. Webster	603,804	May 3	100	24	83	671
Bottle-stoppering device	C. H. and H. B. Fischer	605,179	June 7	216	53	83	1382
Bottle-washer	H. B. and C. H. Fischer	605,180	June 7	218	53	83	1382
Bottle-washer	G. P. Goulding	602,071	Apr. 12	685	161	83	170
Bottle washer	B. W. Norton	603,151	Apr. 26	2706	615	83	860
Bottles. Device for preventing fraudulent filling of							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bottles. Device for preventing fraudulent refilling of	M. Rosenberg	604,545	May 24	2439	554	88	1188
Bottles, &c. Means for preventing fraud in connection with contents of	G. H. Grapes	603,044	Apr. 5	788	171	88	149
Bouquet-holder	S. C. Fredson	605,543	June 14	871	204	88	1541
Bouquet-holder	A. Stiefel	606,008	June 21	1968	452	88	1768
Bowling-alley	E. Brooks	601,686	Apr. 5	6	2	88	4
Box: *See* Ballot-box, Car sand-box, Cigar-box, Cigarette-box, Cock-box, Collapsible box, Dice-box, Display-box, Folding box, Journal-box, Letter-box, Mail-box, Match-box, Nest-box, Packing-box, Paper box, Refrigerator lunch-box, Sand-box, Shipping-box, Tooth-powder box.							
Box	G. W. Carver	603,356	May 3	23	6	88	904
Box-fastener	C. M. Cunningham	605,401	June 7	666	148	88	1481
Box-fastener	T. E. Sayre	605,919	June 21	1620	373	88	1609
Box-fastener	C. J. Stillwell	604,922	May 31	3095	711	88	1284
Box fastener. Telescope-	S. F. Baker	605,830	June 21	1460	334	88	1605
Box or can	A. Cameron, Jr	602,653	Apr. 19	1835	418	88	977
Box or can	A. Cameron, Jr	602,654	Apr. 19	1837	419	88	977
Box or can	A. R. Fergusson	604,112	May 17	1639	366	88	966
Box or can	A. R. Fergusson	604,492	May 24	2347	533	88	1122
Box or can	A. R. Fergusson	604,975	May 31	3168	730	88	1290
Box or can	J. P. Wright	603,580	May 3	516	113 / 114	88	700
Box-shuck-sanding machine	S. Shanahan	602,967	Apr. 12	1344	300	88	971
Brace: *See* Cyclist's brace, Excavation extension-brace, Frame-brace.							
Brace-holder	A. Desbain	605,539	June 14	865	206	88	1539
Bracket: *See* Curtain-pole bracket, Curtain-rod bracket, Lantern-bracket, Roof-bracket, Shingling-bracket, Tree-prop bracket.	J. Sandiford, Sr	605,801	June 14	1366	313	88	1638
Brake: *See* Air-brake, Back-pedaling brake, Bicycle-brake, Car-brake, Car emergency-brake, Carriage-brake, Dumb-waiter brake, Electric brake, Elevator safety-brake, Roller-brake, Sewing-machine brake, Track friction-brake, Vehicle-brake, Wagon-brake.	T. J. Hogan	604,861	May 31	2991	697	88	1264
Brake	L. C. Burgess	604,456	May 24	2265	509	88	1109
Brake apparatus. Automatic fluid-pressure	W. A. Pungs	606,398	June 28	2254	544	88	1857
Brake-beam	H. B. Robischung	605,800	June 14	1367	313	88	1639
Brake-beam	C. F. Huntoon	606,148	June 21	2059	472	88	1779
Brake connection-rod	A. Bolzani	606,926	June 28	2304	533 / 534	88	1847
Brake for hoists or similar apparatus	G. M. Watson	601,916	Apr. 5	566	117	88	107
Brake-gear slack-adjuster	J. A. Brill and W. S. Adams	603,723	May 10	666	153	88	785
Brake mechanism. Differential	A. Vanderbeck	601,992	Apr. 5	703	149	88	133
Brake mechanism. Electric	C. W. Vaughan. (Reissue)	11,673	June 28	2275	530	88	1977
Brake-pipe connection	J. N. Pringle	603,343	May 3	174	40	88	635
Brake-shoe	J. Bennett	602,716	Apr. 19	1958	444	88	400
Branding-chute	B. Rein	604,080	May 17	1568	351	88	954
Brazing apparatus	M. F. Williams	604,495	May 24	2336	530 / 530	88	1120
Breaking-machine	S. A. Prescott	601,676	Apr. 5	99	19	88	19
Brick-cleaning machine	J. A. Davidson	605,474	June 14	770	176 / 177	88	1521
Bridge construction	J. A. L. Waddell and I. G. Hedrick	605,153	June 7	176	43, 44	88	1264
Bridge. Suspension-	G. B. Keplinger	604,768	May 31	2927	646	88	1228
Brooch	T. H. Brown	604,000	May 10	1370	313	88	884
Broom	G. H. Kavanaugh	603,694	May 10	622	161	88	777
Broom-handle. Flexible	L. Rybold	603,943	Apr. 12	1138	249	88	286
Broom-holder	W. I. Smith	604,909	May 31	3080	707	88	1281
Broom-rack	J. H. Paige	605,908	June 14	1380	316	88	1634
Broom-support	J. T. Burnip	606,184	June 28	2194	497	88	1810
Brush	A. W. Coulter	603,431	Apr. 19	1454	330	88	807
Brush	H. W. Haecy	603,077	Apr. 12	846	184	88	172
Brush	J. Lafaurie and G. Giron-Lanauze	605,794	June 14	1212	280	88	1603
Brush	L. A. Lightenhome	605,330	June 7	323	74	88	1413
Brush	H. E. Miller	605,165	June 7	229	55	88	1394
Brush	C. A. Neuert	603,198	Apr. 12	1058	231	88	813
Brush	R. D. Ake	603,071	Apr. 26	2508	588	88	981
Brush and scoop. Combined	D. F. Gallagher	606,498	June 28	2091	490	88	1698
Brush. Clothes-line	E. M. Hellwig	604,471	May 24	2305	532	88	1115
Brush. Electric	M. Young	606,371	June 28	2408	570	88	1868
Brush-machine gage device	H. Grommann	603,187	Apr. 26	2768	668 / 669 / 670	88	670
Brush-machines. Work-holder for	G. F. Cooper	603,058	Apr. 12	810	175	88	165
Brush. Polishing	W. W. Worcester	605,533	June 14	859	201	88	1536
Brush. Shoe	E. Cassanova	604,795	May 31	2767	633	88	1221
Brushing or combing machine	W. F. Smith	604,438	May 24	2324	496	88	1101
Bucket. Automatic dumping-	J. A. Joyce	603,143	Apr. 26	2697	612	88	899

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bucket. Well-	W. D. Martin, Sr	603,509	May 3	595	133	88	716
Buckle	G. N. Clark	604,913	May 31	3084	708	88	1288
Buckle	D. E. Hipwell	605,687	June 28	2958	686	88	1974
Buckle	G. E. Lawrence	606,629	June 28	2959	686	88	1974
Buckle	W. A. Mitchell	605,114	June 7	78	23	88	1397
Buckle	W. A. Mitchell	603,974	May 10	1314	301	88	971
Buckle and purse or bag. Combined belt-	A. W. Scheuber	603,576	May 3	608	134	88	718
Buckle and snap-hook. Combined	J. Polka	606,107	June 21	1967	456	88	1766
Buckle. Belt-	E. B. Winter	602,508	Apr. 19	1583	362	88	331
Buckle. Harness-	L. E. Kiehl	602,951	Apr. 26	2270	510	88	496
Buckle. Harness-	J. Mealey	606,518	June 28	2744	633	88	1984
Buckle for trace-carriers. Back-band	M. Dallas	603,807	May 10	1023	228	88	816
Budding-clasp	J. D. Abell	604,983	May 31	3110	715	88	1287
Buffing or polishing device	C. E. Graham	603,357	May 3	198	44	88	639
Buffing-roll. Rotary	P. B. Bagley	602,913	Apr. 26	2296	523	88	450
Buffing-wheel	T. A. Norris	603,963	May 10	1396	306	88	808
Buggy-bow rest	N. McAulay	606,079	June 21	1938	444	88	1755
Buggy-top-bow support	J. A. Paulis	604,706	May 24	2726	623	88	1194
Building-blocks. Child's	C. S. Burton	605,899	June 7	654	146 / 147	88	1477
Bulkhead-doors. Hydraulic mechanism for closing	W. B. Cowles	604,870	May 31	3006	690	88	1267
Bullet-proof fabric	C. Zeglen	603,948	May 3	9	2	88	608
Bulletin-board	W. E. Benson	603,943	May 3	1	1	88	601
Bung. Ale-barrel	F. W. Albrecht	603,464	May 3	308	69	88	678
Bung. Faucet-	D. Beebe	605,779	June 14	1329	304	88	1625
Burglar-alarm	W. U. Cooper	606,519	June 28	2745	634	88	1984
Burglar-alarm	S. B. and M. M. Daniels	605,590	June 14	965	224	88	1558
Burglar-alarm	A. V. Todd	605,344	June 7	556	123	88	1458
Burglar-alarm and lock. Combined	C. R. Sabin	605,555	June 14	895	208 / 209	88	1546
Burial apparatus	C. L. Moore and C. V. Pugh	605,260	June 7	566	130 / 131	88	1463
Burial apparatus	R. H. Thorne	601,833	Apr. 5	390	80	88	71
Burial-casket	O. M. Allen	605,639	June 14	1071	246	88	1577
Burial-casket	S. W. Herrell	603,767	May 10	946	211	88	801
Burial-casket	J. Jaixen and E. Harry	604,334	May 17	2042	457	88	1046
Burial-casket	C. E. Myers						
Burner: *See* Coal-burner, Gas-burner, Hydrocarbon-burner, Incandescent burner, Lamp-burner, Petroleum-burner, Vapor-burner.							
Burner	C. Haffcke	606,136	June 21	2038	466 / 467	88	1774
Burners. Apparatus for conveying air and vapor to	J. Stubbers	603,436	May 3	334	74	88	664
Burning hydrocarbon oils with blue flame. Apparatus for	F. Altmann	603,072	Apr. 26	2568	588	88	532
Bushing and faucet for barrels	W. C. Rawley	605,612	June 14	1012	233	88	1566
Butter, &c. Apparatus for removing	H. Röhl and H. Usedom	604,194	May 17	1647	369	88	969
Butter cake and means for making same	F. Burger and H. M. Williams	602,124	Apr. 12	923	201	88	137
Butter printer and weighing machine	A. C. Dodge	603,042	Apr. 5	785	170	88	148
Button	A. S. Crane	606,277	June 28	2314	536	88	1849
Button	N. D. Ingram	605,392	June 7	450	100	88	1498
Button	I. G. Platt	605,130	June 7	107	27	88	1373
Button	C. W. Stimson	603,517	May 3	510	111	88	690
Button	J. Acron	604,257	May 24	2091	469	88	1075
Button and neckwear-retainer. Collar-	A. Hall	604,998	May 31	3094	694	88	1271
Button-back	W. A. Pendry	601,675	Apr. 5	86	18	88	18
Button-blank-cutting machine	W. H. and G. W. Leiman	606,864	May 10	1120	252	88	624
Button-boring machine	W. S. Bechtold	603,396	May 3	202	58	88	650
Button. Cuff-	C. E. Hardenbrook	602,804	Apr. 19	2106	475	88	429
Button-feeding mechanism	C. L. Appel	604,938	May 31	3135	721	88	1288
Button-grinding machine	A. M. Heath	604,470	May 24	2304	523	88	1115
Buttonhole-casing	M. A. D. Harris	602,446	Apr. 19	1495	339	88	312
Button. Identification-	C. C. Champenois	605,906	June 21	1773	406	88	1735
Button or stud	S. E. Burke	601,943	Apr. 5	636	133	88	119
Button-remover	C. J. Holmgren	602,848	Apr. 26	2169	496	88	460
Buttoner	G. M. Finotti	602,738	Apr. 19	1988	451	88	406
Cabinet	J. W. Place	602,103	Apr. 12	889	193	88	180
Cabinet	H. B. Banes	603,618	May 10	695	155	88	751
Cabinet and duet-stool	V. Christensen	604,200	May 17	1971	441	88	1082
Cabinet-bath	A. Gartner	605,223	June 7	308	71	88	1410
Cabinet. Exhibiting-	G. B. Murray	606,018	June 21	1815	418	88	1733
Cabinet for medicine, &c	R. H. Whitted	601,981	Apr. 5	570	118	88	103
Cabinet. Grocer's	T. W. Boynton	604,454	May 24	2303	508	88	1109
Cabinet. Kitchen-	J. E. Tate	605,667	May 10	778	179	88	766
Cabinet. Kitchen-	C. H. Martin	602,244	Apr. 12	1308	289	88	303
Cabinet. Lace or ribbon	T. F. Adams	606,385	June 28	2407	557 / 558	88	1606
Cabinet. Photograph-	F. A. Cannon	603,991	May 10	1345	308	88	878
Cable-stringer	S. Mattson	602,368	Apr. 12	1169	257	88	585
Caisson air-lock	A. W. Custer	601,987	Apr. 5	510	105	88	96
Cake-beater	P. D. Harton	603,061	Apr. 26	2501	589	88	535
Cake-machine	M. D. Good	606,305	June 28	2171	498	88	1818
Cake-turner	L. Maybaum	605,000	May 31	2207	726	88	1307
Calculating device	G. B. Grant	605,998	June 7	426	98, 99	88	1435
Calculating-machine	G. B. and E. R. Peters	605,909	June 21	1890	365 / 366 / 367	88	1668
Calendar	M. Cowen	601,949	Apr. 5	643	134	88	120
Calendar. Perpetual	O. H. S. Anson	604,649	May 24	2514	598	88	1173
Call-box system	E. E. Salisbury and A. E. Dean	605,345	June 7	557	124	88	1429
Camera focusing attachment	D. E. Sharretts	606,994	June 28	2334	537 / 538	88	1890
Camera. Kinetographic	W. H. Daniels	604,738	May 31	2779	635 / 636	88	1228

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Camera. Kinetographic	W. B. Davis	601,951	Apr. 5	646	135	83	121
Camera. Magazine	J. J. Chase	604,204	May 17	1796	135	83	1000
Camera. Photographic	F. A. Brownell	605,851	June 21	1489	340	83	1673
Camera. Photographic copying	H. Stender	606,593	June 28	2895	341	83	1968
Camera. Photographic copying	H. Stender	606,594	June 28	2895	670	83	1968
Camera stand. Photographic	M. Levy	604,990	May 31	3198	735	83	1804
Can: *See* Key-opening can. Meat-can. Milk-can. Oil-can. Sheet-metal can. Shipping-can.							
Can	E. M. Hallbauer	603,617	May 10	1041	226	83	690
Can	E. Norton	602,467	Apr. 19	1821	346	83	319
Can	F. J. Schleicher	603,775	Apr. 19	2045	462	83	418
Can	R. Steegmüller	602,647	Apr. 19	1827	416 417	83	375
Can-body-forming machines. Horn extension for	F. A. Odin	605,677	June 14	1138	264	83	1599
Can-cleaner	E. E. Harvey	605,425	June 7	708	156	83	1428
Can cover. Milk	H. Schaake	605,180	June 7	284	56, 57	83	1305
Can ending or heading machine	A. Campbell and J. Urie	602,222	Apr. 12	1205	265	83	243
Can-filling apparatus. Oil	F. W. Smith	606,084	June 21	1846	495	83	1736
Can-filling machine	B. W. Morfoot	606,471	June 28	2073	615	83	1919
Can-head. Key-opening	J. G. Staudenmayer	603,489	May 3	459	108	83	669
Can lock. Milk	P. Beavers	604,016	May 17	1447	294	83	998
Can-opener	C. Francisco	604,878	May 31	3017	608	83	1260
Can-opener	G. R. Howell	602,757	Apr. 19	2014	456	83	412
Can-opener	W. S. Kerr	602,455	Apr. 19	1499	349	83	314
Can-opener	J. Gersant and A. G. Buttifant	605,605	June 14	1091	231	83	1563
Can-side-seam-fusing machine	H. C. Hunter	604,594	May 24	2148	482	83	1067
Cans. Combined body-blank and connecting-strip for packing	G. J. Record	604,079	May 17	1567	351	83	954
Cans, &c. Device for closing	E. Norton	602,465	Apr. 19	1516	346	83	318
Cans. Screw-cap sealing-nozzle for	E. Norton	602,606	Apr. 12	978	191	83	178
Canning food	E. Norton	603,871	May 10	1149	256	83	840
Candle-holder	F. J. Bubiltz	601,754	Apr. 5	254	50	83	48
Candle holder and extinguisher	J. W. Kynast	604,314	May 17	2002	449	83	1039
Candy-machine	E. F. Gould	602,253	Apr. 12	1219	203	83	208
Canvas-stretcher	J. W. Nunns	604,737	May 31	2765	627	83	1224
Caponizer	A. M. Duncan	605,346	June 7	561	124	83	1459
Capstan	J. B. Sample	603,170	Apr. 26	2731	621 662	83	564
Car	J. F. Caldwell	602,079	Apr. 12	848	185	83	172
Car	I. J. Hoyt	603,894	May 10	1053	235	83	823
Car and air-brake coupling. Automatic combined	J. B. Thomas	603,823	May 10	1051	235	83	822
Car and air-brake coupling. Combined automatic	J. B. Thomas	602,435	Apr. 19	1460	331 333	83	308
Car and railway system therefor. Mining	J. Dwyer	603,855	May 10	1122	252	83	884
Car appurtenance. Passenger	E. F. Matheny	603,509	May 3	497	109	83	697
Car bicycle-support. Railway	G. L. Kahle	604,555	May 24	2457	559	83	1141
Car-bolster	C. E. Bauer	604,009	May 24	2048	581 582	83	1161
Car-bolster	T. M. Gallagher	604,794	May 31	2875	657	83	1249
Car bolster. Railway	C. T. Schoen	602,910	Apr. 26	2292	522	83	479
Car-bolster. Rolled-steel	J. M. Maris	603,439	May 3	342	76	83	665
Car-brake	A. H. Bostley	606,595	June 28	2879	663	83	1960
Car-brake	J. Ruff	605,581	June 14	867	201	83	1538
Car-brake	J. S. Wickes and J. Ketterly	606,308	June 28	2576	550	83	1861
Car brake-beam. Railway	T. H. Simpson and P. T. Handiges	606,330	June 28	2418	560 561	83	1870
Car-brake. Electrohydrostatic automatic	J. Buchel and F. McGloin	605,485	June 14	766	161	83	1534
Car brake. Trolley	A. H. Klingler	604,451	May 24	2857	507	83	1107
Car-buffer	H. F. Ball	604,442	May 24	2941	508	83	1104
Car-buffer	A. M. Waitt	605,521	June 14	840	196	83	1534
Car buffer equipment. Railway	H. H. Sessions	601,900	Apr. 5	595	110 111	83	101
Car buffer-platform. Railway	T. L. McKeen	605,562	June 14	843	196 197	83	1535
Car center-bearing. Railway	H. H. Sessions	603,117	Apr. 26	2648	601 602	83	548
Car. Cinder	E. E. Slick and T. Morrison	603,804	Apr. 19	1748	398 399	83	360
Car. Convertible street-railway	G. Moore	605,634	June 14	1046	240	83	1571
Car-coupling	J. F. Ball, Jr	603,889	May 10	1158	257	83	846
Car-coupling	J. M. Brown and L. D. Peak	604,227	May 17	1883	411	83	1006
Car-coupling	H. F. Camp	603,176	Apr. 26	2740	624	83	566
Car-coupling	H. M. Cox	605,257	June 7	436	98	83	1435
Car-coupling	J. E. Cunningham	603,039	Apr. 5	795	165	83	145
Car-coupling	J. W. Fawcett	601,643	Apr. 5	31	7	83	8
Car-coupling	G. J. Forrey	605,055	May 31	3300	760	83	1326
Car-coupling	T. M. Gallagher	604,934	May 31	3113	715	83	1288
Car-coupling	P. T. Handiges	604,864	May 31	2997	686	83	1265
Car-coupling	G. B. Johnston	603,063	Apr. 26	2541	577	83	536
Car-coupling	E. E. Joy	604,595	May 24	2512	571	83	1153
Car-coupling	M. A. Knowles	605,795	June 14	1214	281	83	1604
Car-coupling	E. B. Laughter	602,342	Apr. 12	1301	269	83	262
Car-coupling	I. Low	602,605	Apr. 19	1749	399	83	351
Car-coupling	R. H. McCaughey	601,901	Apr. 5	536	111	83	101
Car-coupling	T. L. McKeen	605,742	June 14	1241	287	83	1600
Car-coupling	F. McTaggart	605,737	June 14	1234	285 286	83	1606
Car-coupling	C. E. Moore and J. Doyle	606,340	May 3	169	39	83	684
Car-coupling	J. I. Newburg	603,350	Apr. 12	1280	295 296	83	366
Car-coupling	W. C. Perkins	602,914	Apr. 26	2897	682 684	83	490
Car-coupling	W. C. Perkins						

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Car-coupling	F. R. Rapp	603,504	Apr. 26	2766	625	83	574
Car-coupling	G. T. Rohn	606,583	June 28	2875	668	83	1960
Car-coupling	A. Ruscher	606,945	June 28	2954	688	83	1998
Car-coupling	R. C. Sayer	606,996	May 10	1262	310	83	822
Car-coupling	G. W. Smillie	603,879	Apr. 26	2836	504	83	485
Car-coupling	C. H. Smith	604,505	May 24	2267	537	83	1126
Car-coupling	J. Timms	606,608	June 28	2914	674 675	83	1985
Car-coupling	C. A. Tower	601,647	Apr. 5	445	90	83	68
Car-coupling	P. Ullman	603,298	May 3	91	22, 23	83	619
Car-coupling	L. R. Whiting	603,495	Apr. 19	1658	355	83	385
Car-coupling	W. Thornburgh	606,102	June 21	1974	453 454	83	1768
Car coupling attachment. Railway	W. O. Harlow	604,899	May 31	3046	660	83	1275
Car-door	E. S. Marshall	601,665	Apr. 5	73	14	83	15
Car-door	W. O. Davies, Jr	603,260	May 3	201	46	83	640
Car-door fastening	W. A. McGuire	606,170	June 21	2090	462	83	1785
Car door. Grain	C. L. Newstrom and T. H. Miller	603,167	Apr. 12	1011	222	83	208
Car door. Grain	T. W. Saling	604,421	May 24	2200	493	83	1097
Car draft-beam	J. Conrath	606,447	June 28	2936	606 607	83	1912
Car draft-rigging. Railway	W. T. Van Dorn	606,105	June 21	1984	455	83	1765
Car draw-bar. Railway	W. Sydenham, F. Watkinson, and A. Sydenham	606,811	June 28	2379	550 551	83	1868
Car driving-gear. Motor	H. Loeffler	606,065	June 21	1904	436	83	1749
Car emergency-brake. Street	F. A. Harris, A. M. Cuppies, and M. McCann.	602,183	Apr. 12	987	204	83	189
Car-fender	H. Haywood and G. Totten	601,961	Apr. 5	661	139	83	124
Car-fender	L. J. Hunter	604,925	May 24	2146	483	83	1097
Car-fender	G. C. Hutcheson	605,284	June 7	431	97	83	1434
Car-fender	E. M. Johnson	606,726	May 10	877	194	83	798
Car-fender	J. Keller	601,908	Apr. 5	671	142	83	127
Car-fender	I. Macowsky	603,912	May 10	1218	276	83	878
Car-fender	J. I. Newburg	603,330	May 3	168	39	83	634
Car-fender	G. O. Spencer	604,910	May 31	3061	707	83	1281
Car-fender	R. Harris and M. K. Goldsmith	601,751	Apr. 5	249	49	83	48
Car-fender-lowering mechanism	J. Leightham	604,171	May 17	1785	360 361	83	987
Car fender or guard. Tramway	G. H. Smith	604,944	May 31	3123	716	83	1290
Car fender. Street	J. E. A. Walker	604,097	May 17	1587	359	83	960
Car fender. Street	C. Sauerbrey	606,156	June 21	2068	475 476	83	1761
Car-fenders. Device for attaching	L. B. Perry and J. C. Mitchell	605,205	June 7	276	64	83	1402
Car fifth-wheel. Railway	J. Burns	604,008	May 24	2330	579	83	1158
Car. Funeral	H. W. Brett	604,225	May 17	1881	410	83	1005
Car-gate	F. E. Benton	605,990	June 21	1762	404	83	1734
Car hand-strap	J. A. and L. H. Long	606,066	June 21	1905	439	83	1749
Car-heater	R. M. Dixon	605,563	June 14	913	213 214	83	1550
Car-heating apparatus	W. N. Marks	604,589	May 24	2428	552	83	1136
Car journal-box. Railway	E. J. Preston and A. B. Gill	602,182	Apr. 12	1033	226 227	83	206
Car-lighting systems. Dynamo for electric	J. H. Cooley	604,739	May 31	2773	624	83	1222
Car-line. Elevated electric	T. B. Kirby	605,880	June 21	1546	355	83	1605
Car-lock	A. M. Acklin	605,680	June 14	1040	229	83	1570
Car or like receptacle. Overhead	E. P. McKaig	602,236	Apr. 12	1111	244	83	224
Car pilot. Railway	W. L. Austin	605,305	June 7	474	105 107	83	1442
Car. Railway	H. C. Buhoup	604,718	May 31	2758	620 621	83	1219
Car release-rigging. Railway	A. J. Lodriguss	601,696	Apr. 5	598	100	83	100
Car running-gear. Railway	H. M. Stiles	606,172	June 21	2109	463	83	1787
Car sand-box. Railway	J. S. Johnston	605,050	May 31	2819	761	83	1295
Car-seat	W. M. Norcross	605,194	June 7	96	85	83	1370
Car-seat foot-rest	C. C. Borton	604,196	May 17	1767	398	83	994
Car side bearing. Railway	C. F. Huntoon	606,845	June 28	2445	567	83	1874
Car side bearing. Railway	F. W. Diehl	602,494	Apr. 19	1459	331	83	307
Car signaling device. Railway	A. J. Pitkin	603,254	May 3	90	17, 18	83	614
Car. Steam-propelled	F. W. Burke	605,075	June 7	14	4	83	1256
Car-strap	T. Long	606,236	May 3	163	37, 39	83	532
Car-unloading apparatus	J. Norling and C. E. Johnson	603,115	Apr. 26	2545	601	83	547
Car-ventilator	T. L. McKeen	601,809	Apr. 5	583	110	83	101
Car. Vestibule	F. E. Canda	605,891	June 7	637	142 143	83	1474
Car-wheel	J. Fairfield	605,542	June 14	870	204	83	1541
Car-wheel	J. H. McEwen	605,806	June 21	1573	361	83	1600
Car-wheel	W. W. Rossmässler	606,600	May 3	646	144	83	787
Car-wheel	J. A. Graham and J. W. Kile	601,648	Apr. 5	44	8	83	9
Car wheel and axle	W. T. Snyder	603,921	May 3	79	20	83	617
Car-wheel. Self-lubricating	W. T. Snyder	603,922	May 3	80	21	83	617
Car-wheel. Self-lubricating	W. M. Hoffman	605,056	May 31	3310	760	83	1330
Car-wheels. Abrading-shoe for truing up	F. W. Wohlenberg	603,716	May 10	856	190	83	768
Cars. Combined track and wheel brake for street	E. Wilhelm and W. F. Richards	604,101	May 17	1611	361 362	83	988
Cars. Electric-lighting apparatus for	W. F. Richards	604,083	May 17	1574	358	83	965
Cars. Electric-lighting apparatus for railway	W. F. Richards	604,084	May 17	1576	358 359	83	966
Cars. Electric-lighting apparatus for railway	W. F. Richards	604,085	May 17	1578	359	83	966
Cars. Electric-lighting apparatus for railway	W. F. Richards	604,081	May 17	1570	351	83	955
Cars. Electric-lighting system for railway	W. F. Richards	604,082	May 17	1573	351	83	955
Cars. Electric-lighting system for railway	W. F. Richards	603,777	May 10	961	215	83	808
Cars. Means for carrying velocipedes in railway	F. H. Skrine	604,513	May 24	2360	542	83	1135
Cars. Means for preventing derailment of railway	M. E. Beasley	604,867	May 31	3001	689	83	1266
Cars or coaches. Dust-conveyer for railway passenger	A. H. Le Van	602,821	Apr. 26	2148	467	83	459
Cars. Steam-pipe coupling for railway	C. E. Benson	605,575	June 14	985	218	83	1553
Carbon transmitter	G. W. Goss						

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Carbonating and bottling malt liquids. Apparatus for	C. Saw	601,735	Apr. 5	219	43	83	42
Carbonating and dispensing apparatus. Liquid	P. E. Malmstrom	603,404	May 3	275	61, 62	83	662
Carbonating apparatus. Liquid	O. W. Ackerman	603,031	Apr. 26	2497	566	83	518
Carbonating apparatus. Liquid	C. A. Gaines	602,936	Apr. 26	2349	536	83	491
Carboxylated products of triphenylmethane. Making	H. R. Vidal	603,300	May 3	96	.....	83	619
Carburetor	J. C. and H. J. Fuhr	604,988	May 31	3108	714 715	83	1267
Carburetor	W. E. Pinckney	603,431	May 3	323	73	83	663
Carburetor	A. I. Van Vriesland	604,948	May 31	3129	719 720	83	1291
Carburetor	G. H. Weeks	603,983	May 10	1284	285	83	990
Carburetor spraying device	C. W. Hobbs	604,580	May 24	2406	546	83	1132
Cardboard-scoring machine	A. M. Odgers	605,007	May 31	3525	742	83	1310
Card-mount	H. L. Grims	603,186	Apr. 26	2761	628	83	509
Card. Playing	W. Hopkinson and R. Tyack	605,057	May 31	3511	760	83	1296
Carding-engine doffer-driving mechanism	E. E. Orrell	603,044	Apr. 26	2514	570	83	522
Carding-machine clearer-roll	F. C. Prescott	603,493	May 3	395	73	83	662
Carousel	B. Fuller	603,130	Apr. 12	932	204	83	168
Carpenter's tool	A. F. Gue	601,711	Apr. 5	176	24	83	35
Carpet-cleaner	H. Hardwick	604,390	May 17	3012	451	83	1040
Carpet fabric. Cut-pile	J. H. James	604,757	May 31	2819	644	83	1230
Carpet-fastener	J. S. Jardine	604,565	May 24	3511	570	83	1153
Carpet fastener. Stair	G. F. Murdock	603,348	Apr. 12	1310	298	83	264
Carpet fastener. Stair	G. B. Shepherd	605,978	June 21	1737	309	83	1730
Carpet or rug fastener	C. M. Jansky	604,987	May 31	3168	734	83	1308
Carpet stretcher and tacker	E. B. Browne	601,628	Apr. 5	8	2	83	4
Carpet-sweeper	J. Parbel and J. A. Staven	604,788	May 31	2858	653	83	1236
Carpet-sweeper	F. E. Caldwell	603,005	Apr. 26	2456	559	83	511
Carriage brake. Child's	H. R. Bird	605,243	June 7	341	78, 79	83	1415
Carriage. Motor	G. L. Morgan	606,569	June 28	2833	656	83	1955
Carriage rocker attachment. Baby	R. T. D. Brougham and W. C. Bersey.	604,874	May 31	3013	691	83	1268
Carriage safety device. Electric		605,681	June 7	707	157	83	1489
Carriage-step	W. F. Hopkins	604,866	May 31	3047	690	83	1275
Carriage-washer	E. J. Green and S. C. Brown	603,154	Apr. 26	2710	616	83	560
Carriage-wheel. Elastic	N. Rosenblatt and S. Abscharumoff	602,302	Apr. 12	1243	273	83	240
Carriages. Suspending batteries on	R. T. D. Brougham and W. C. Bersey.						
Carrier: *See* Flower-carrier. Parcel-carrier.	J. Anderson	606,618	June 28	2985	690	83	1970
Carrying apparatus	H. E. H. Borgström	605,998	June 21	1763	404	83	1734
Carrying-frame	H. E. H. Borgström	605,998	June 21	1765	405	83	1734
Carrying-frame	A. Maxwell	602,225	Apr. 12	1110	244	83	223
Cart. Dump	J. W. Taylor	605,089	May 31	3264	749 750	83	1317
Cart. Dumping	G. A. Dahlberg	601,827	Apr. 5	365	61	83	72
Cart. Hand	C. S. Arnold	601,928	Apr. 5	580	120 121	83	110
Cart. Refreshment	F. P. Tucker	601,884	Apr. 5	507	104	83	95
Carton	J., M. Fuller	604,894	May 31	3919	668	83	1250
Cartridge. Blank	G. de Roussy de Sales	603,971	May 10	1311	301	83	971
Cartridge. Carbid	F. W. Oliver	601,908	Apr. 5	536	111	83	101
Cartridge-case and making same	F. Raymond	602,143	Apr. 12	903	210 211	83	194
Cartridge loading and crimping machine	G. M. Peters	605,256	June 7	283	87, 88	83	1424
Cartridge-machine wad-placing mechanism	W. H. Honiss	606,056	June 21	1802	435	83	1747
Cartridge-packet	E. G. Parkhurst	606,081	June 21	1822	430 431	83	1734
Cartridge-packet	J. K. Ross	602,875	Apr. 26	2292	503	83	467
Cartridge-shell	W. B. Place	605,336	June 7	567	118	83	1453
Cartridge-shell-heading machine	W. B. Place	605,340	June 7	567	120 121	83	1455
Cartridge-shell heads. Machine for assembling	W. B. Place	605,339	June 7	566	119 120	83	1454
Cartridge-shell heads. Machine for priming or capping	L. W. Bates	605,842	June 21	1467	336 337	83	1609
Cartridges or shells. Electrically-heated charge for	W. Birks	605,773	June 14	1300	300	83	1620
Carving-machine	A. Wache	602,887	Apr. 26	2943	509 510	83	471
Carving-machine	W. W. and W. H. Wythe	606,224	June 28	2401	556 557	83	1866
Case: *See* Bicycle tool-case. Pencil-case. Bolt-case. Show-case. Egg-case. Spectacle or eyeglass case. Eyeglass-case. Telescopic case. File-case. Ticket-case. Filing-case. Toilet-case. Medicine-case. Peanut-vending case. Type-case.	M. Anderson	605,561	June 14	910	213	83	1540
Cash indicator and recorder	T. Carney	606,188	June 28	2133	490	83	1812
Cash-receiver	A. Franke	603,843	May 10	1002	244 245	83	686
Cash-register	R. A. W. Rosander and J. R. Pearson.	601,681	Apr. 5	108	20	83	22
Cash-register	G. B. Fry	602,741	Apr. 19	1008	451	83	407
Cashier-protector	R. Collen	606,516	June 28	2798	632 633	83	1966
Cask or barrel manufacturing machinery	P. Sherrer	606,395	June 28	2537	595	83	1891
Cask-pitching apparatus	C. Wittkowsky	601,903	Apr. 5	705	150	83	133
Casks or barrels from veneers. Manufacturing	T. H. Linahan	606,465	June 28	2697	614	83	1918
Casket	R. B. Heuchan	602,220	Apr. 12	1108	242	83	222
Caskets, &c. Work-support for	R. L. Dorsey	604,580	May 24	2391	543	83	1130
Caster							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Caster	J. A. Kennedy-McGregor	606,402	June 28	2661	613 613	83	1917
Caster	M. G. Merritt and F. L. Groff	606,354	June 28	2469	573	83	1878
Caster	D. Nickel	604,866	May 31	3031	696	83	1272
Caster. Ball	G. L. Boveroux	601,736	Apr. 5	199	39	83	39
Caster. Ball	K. A. Kloss	604,400	May 24	2158	495	83	1089
Casting plant	D. Baker	602,514	Apr. 19	1761	402	83	368
Castings. Apparatus for making chilled iron	A. K. Barker	602,714	Apr. 19	1950	443	83	400
Cattle-guard	W. C. Halley	603,075	Apr. 12	843	183 183	83	171
Cell. Automatic alarm	J. Rumpel	602,960	Apr. 26	2883	543	83	498
Cell lock. Prison	G. F. Kindt	603,277	May 3	59	15	83	612
Cellulose and preparing same. Modification of	C. F. Cross, E. J. Bevan, and C. Beadle.	604,206	May 17	1801	.....	83	1000
Cellulose for manufacturing spun fabrics. Apparatus for preparing	C. Kellner	603,333	May 3	158	36	83	632
Cement. Making slag	C. J. Curtin	606,278	June 28	2317	.....	83	1850
Cement. Manufacturing	H. Gallinowsky	605,637	June 14	1068	.....	83	1576
Cement tube and distributing-brush. Combined	A. L. Weis	602,304	Apr. 12	1074	235	83	216
Centering-machine	J. H. Brewer	603,866	May 10	1180	267	83	946
Centrifugal machine	S. A. Baker and M. F. Colby	603,395	May 3	251	58	83	650
Centrifugal machine	M. Davidsen	605,087	June 7	32	10	83	1259
Centrifugal machine	Z. Lubinski and R. Krajewski	604,582	May 31	2934	671	83	1258
Centrifugal machine	O. W. Schaum	605,017	May 31	3242	743	83	1312
Centrifugal machine	A. Pinover	605,743	June 14	1242	287	83	1600
Chain-adjusting device	R. W. Sise	604,429	May 24	2219	496	83	1100
Chain-cleaning attachment	F. Ecaubert	602,653	Apr. 19	1804	411	83	371
Chain connection. Cycle	W. H. Griffith	604,316	May 17	2005	449	83	1089
Chain-link	T. D. Dundas and G. Senior	601,748	Apr. 5	246	48	83	47
Chain. Power-transmitting							
Chair: *See* Adjustable chair. Hammock-chair. Child's chair. Music-chair. Convertible chair. Reclining-chair. Dental chair. Revolving chair. Folding chair.							
Chair	J. G. Armour and C. Southorn	606,112	June 21	1998	457 458	83	1767
Chair	T. J. Dalton	602,574	Apr. 19	1694	385	83	350
Chair	F. H. Karrer	604,136	May 17	1708	383	83	981
Chair	I. E. Palmer	604,212	May 17	1806	407	83	1001
Chair adjusting device	W. H. O'Keefe	605,008	May 31	3226	742	83	1310
Chair and bed. Combined	B. Murtagh	606,498	June 28	2008	622	83	1994
Chair and bedstead. Combined	J. Dixon	606,806	May 10	1198	269 270	83	848
Chair, crib, cradle, bed, and walker. Combined	F. A. Tustison	604,341	May 17	2057	460 461	83	1049
Chair fan attachment. Rocking	R. M. Copenhaver	604,519	May 24	2390	543	83	1129
Chair, washbench, &c. Combination	J. Van Melick	606,614	May 3	688	153	83	734
Chalk-holder	G. P. Roberts	601,779	Apr. 5	306	60	83	58
Chandelier. Extension gas	J. T. Rice	606,751	May 10	969	214	83	808
Charging-buggy	W. B. Woods and L. Henry	606,775	May 10	915	208	83	795
Chart. Dress	I. Williams	601,725	Apr. 5	199	39	83	39
Chatelaine	S. Zeugschmidt	606,284	Apr. 26	2845	649	83	585
Check-hook	F. J. Frost, T. Souers, and C. W. Cooledge.	606,416	May 3	300	67	83	657
Check-protector	L. T. Weiss	604,936	May 31	3101	718	83	1235
Check system. Protective bank	C. L. Beers	602,872	Apr. 26	2918	.....	83	467
Chemical compounds by electrolysis. Producing	J. W. Richards and C. W. Roepper.	605,116	June 7	83	23	83	1366
Chenille-cutting machine	W. McCleary	606,215	Apr. 12	1095	240	83	220
Children. Device for amusing	E. L. Foster	604,045	May 17	1498	335	83	941
Child's chair	F. C. Hannahs	602,451	Apr. 19	1494	311	83	313
Chimney-cap	J. Houle	606,567	June 28	2851	657	83	1955
Chimney-cleaner	A. Messenger	608,881	May 10	1166	268	83	944
Chimney-cowl	O. Kuphal	604,379	May 24	2130	478	83	1093
Chisel-holder	J. J. Flyckt	606,470	June 28	2672	.....	83	1919
Chlorin derivatives of toluene. Making	P. P. Mounet						
Chopper: *See* Cotton-chopper.	B. Wilmsen	605,158	June 7	183	46	83	1385
Christmas-tree ornament	A. J. Johnson	605,166	June 7	194	49	83	1387
Chuck. Lathe	E. H. Bourne	603,101	Apr. 26	2020	505	83	541
Chuck. Rock-drill	J. P. Dunn	603,375	May 3	224	50	83	644
Churn	F. J. Hoge	603,351	May 3	223	58, 59	83	645
Churn	A. M. Lance and F. J. Flocker	603,001	Apr. 26	2007	502	83	536
Churn	J. A. Maddox	604,039	May 17	1537	343	83	946
Churn	J. W. Otto	605,649	June 14	1068	250	83	1580
Churn	W. G. Stone	602,901	Apr. 12	1070	235	83	216
Churn	W. E. Penn and C. S. Brown	604,989	May 17	1908	495 496	83	1019
Churn and butter-worker	J. W. Myers	604,634	May 31	2987	673	83	1233
Chute	R. T. Darrah	606,580	June 28	2747	634	83	1984
Chute and crib. Revolving coal	E. and T. Flory	602,690	Apr. 19	1776	405 406	83	366
Cider. Apparatus for expressing	E. F. Hamburg	605,421	June 7	606	155	83	1467
Cigar-box	W. W. Bahan	603,051	Apr. 26	2534	574	83	1238
Cigar-holder	H. Giddings	605,818	June 14	1400	321	83	1668
Cigar-lighter. Pendent	O. Wartmann	604,445	May 24	2245	504	83	1105
Cigar-machine	T. A. Cole	606,377	June 28	2509	592	83	1869
Cigar-tip cutter	F. E. Helnig	602,639	May 10	733	164	83	730
Cigar-tip protector	N. Du Brul	606,189	June 21	2022	463	83	1773
Cigar-wrapper-cutting machine		605,853	June 21	1497	343 343	83	1674
Cigars or cigarettes. Machine for vending lighted	A. Caude	606,537	June 28	2800	646	83	1944
Cigarette	H. Goldenfarb	603,878	May 10	1150	259	83	940
Cigarette-box	J. E. Bucklin	604,668	May 24	2370	536	83	1165
Cigarette-former	W. S. Mallard	603,714	May 10	853	189	83	762
Cigarette-former. Pocket	J. Veith						

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Cooler: *See* Liquid-cooler. Water-cooler. Pie or cake cooler.	J. Sedlacek	604,168	May 17	1714	286	88	992
Cooling and sealing	H. J. Reynolds	608,229	Apr. 26	2851	650	88	586
Cooling vessel	E. Steiger	604,849	May 31	2964	679 / 680	88	1258
Copies of manuscript. Machine for multiplying	J. M. Moore	602,414	Apr. 12	1495	222	88	287
Copying-press	J. Frydmane	604,977	May 31	3170	730 / 731	88	1299
Copying, registering, checking, and adding apparatus	J. Colquhoun	604,023	May 17	1458	327	88	984
Copper matte. Treating	H. E. Pridmore	604,337	May 17	2050	490	88	1047
Cord-knotting device	J. Jonson	601,869	Apr. 5	516	107	88	97
Cork-cutting machine	C. Noël	605,297	June 7	459	103 / 104	88	1439
Cork-cutting machine	H. Weinz	604,705	May 24	2722	622	88	1198
Cork-extractor	G. S. Foster	602,508	Apr. 19	1573	339	88	329
Cork-protector	C. W. Mackey	601,776	Apr. 5	204	56	88	56
Cork-pulling machine	J. E. Hawkins	603,950	May 10	1278	201	88	805
Corking-machine	A. Dollfus	602,837	Apr. 26	2167	491 / 492	88	456
Corn-binder bundle-carrier	J. W. Pridmore and E. A. Johnston	605,579	June 28	2871	661	88	1958
Corn-cutter	W. Rowland	604,793	May 31	2874	656 / 657	88	1242
Corn-header	C. E. Ecklund	605,685	June 14	1068	244 / 245	88	1575
Corn-header	W. A. Wilson	603,934	May 10	1256	295	88	861
Corn header. Kafir-	J. B., J. B., and L. F. Tilley	601,764	Apr. 5	373	54	88	53
Corn-husker	J. M. Carlisle	601,944	Apr. 5	636	133	88	120
Corn-husker	G. S. Gundersen	604,528	May 24	2403	547	88	1128
Corn-husker. Adjustable	W. F. Lillie	604,479	May 24	2312	525	88	1117
Corn-husking machine	G. S. Gundersen	605,944	May 10	1097	246	88	829
Corn-husking machine	G. S. Gundersen	603,845	May 10	1098	246	88	829
Corn masher and cutter	J. Ebersole	605,704	June 14	1184	273	88	1596
Corn or seed dropper	G. R. Dykes	604,738	May 31	2786	638	88	1234
Corn-popping apparatus	R. O. Stutsman	605,617	June 14	1081	235	88	1567
Corn-sheller	F. B. Tait	605,984	June 21	1646	378	88	1708
Corn-shock compressor	H. Van Pelt	603,582	May 3	610	136	88	719
Cornish boiler	H. Thomassen and J. Krop	605,149	June 7	169	42	88	1393
Corset	J. A. Garneau	603,843	May 10	1085	245	88	829
Corset	M. C. Mayer	606,169	June 21	2048	469	88	1786
Corset	L. S. Walker	601,722	Apr. 5	194	38	88	36
Corset-retainer and stocking-supporter. Combined	N. M. Lennon	606,064	June 21	1904	438	88	1749
Corset-shield	M. L. Perrottet	605,209	June 7	464	104	88	1440
Corset-steel	M. E. McCloskey-Playter	601,734	Apr. 5	218	43	88	42
Cot. Folding	C. F. Moore	606,355	June 28	2470	573	88	1878
Cotton-chopper	F. McCullough	603,903	May 10	1297	296	88	809
Cotton chopper and cultivator	J. J. Holland	605,426	June 7	708	157	88	1488
Cotton-collecting apparatus	C. J. Luce	603,697	May 10	881	184	88	778
Cotton elevator, cleaner, and feeder	J. W. Seifert	604,426	May 24	2213	495	88	1100
Cotton fabrics. Apparatus for applying finishing substances to	C. H. Jacob	605,434	June 7	713	159 / 160	88	1490
Cotton-handling machine. Pneumatic	J. T. Fuller	604,087	May 17	1477	331	88	937
Cotton-opener	J. O'Connell	602,265	Apr. 12	1173	258	88	286
Cotton-picking machine	A. A. Hamerschlag and T. H. Price	602,076	Apr 12	844	183 / 184	88	171
Cotton-press	W. E. Anderson	604,012	May 17	1433	321 / 322	88	929
Cotton-press	F. L. Dyer	603,784	May 10	974	217	88	806
Cotton-press	F. L. Dyer	604,028	May 17	1464	326	88	985
Cotton-press	F. L. Dyer	604,029	May 17	1467	329	88	986
Cotton-press	R. J. Gatling	603,271	May 3	50	13	88	610
Cotton-thinner	J. Geddes	606,183	June 21	2084	466	88	1774
Couch. Convertible	J. B. Gardiner	605,095	June 7	50	16	88	1393
Couch-seat	J. F. McNutt	601,879	Apr. 5	500	108	88	94
Counter	D. L. Chandler	603,375	June 28	2501	561 / 562	88	1684
Counter-cutting machine	C. Dumaw, Jr	605,407	June. 7	675	150	88	1488
Countersinker							
Coupling: *See* Air and steam brake coupling. Bicycle-coupling. Car-coupling. Car and air-brake coupling. Hammock-support coupling. Hose-coupling. Insulated pipe-coupling. Pipe-coupling. Thill-coupling. Tire-coupling. Tube-coupling. Vehicle-coupling. Whiffletree-coupling.	F. Rhind	604,790	May 31	2871	656	88	1241
Coupling	J. Muhr	605,223	June 7	508	112	88	1448
Coupling-closure	U. G. Detwiler	603,880	May 10	1066	243	88	827
Coupling-releasing mechanism	W. Gribben and H. W. Smith	604,040	May 17	1461	328	88	986
Cover for crocks, &c	W. Jeschke	602,452	Apr. 19	1495	341	88	314
Cover or binder for magazines, &c	C. A. Eidsmoe	606,481	June 28	2060	480	88	1622
Cows from kicking. Device for preventing	C. F. Nilson	604,496	May 24	2354	534	88	1132
Cradle and child's carriage. Combined motor	J. Allred	603,008	Apr. 26	2458	558	88	510
Cradle or similar rocker. Rocking	W. H. Morgan	602,765	Apr. 19	2023	459	88	413
Crane. Overhead traveling	T. H. Hoyt and J. Gillet	603,608	May 10	881	181	88	777
Crank-arms to crank-shafts. Means for attaching	C. H. Metz and T. Curley	604,919	May 31	3001	710	88	1253
Crank-pedal	G. H. Owens	604,076	May 17	1561	349 / 350	88	993
Crate	G. H. Grove	601,650	Apr. 5	46	9	88	10
Crate. Collapsible	M. F. Peterfish	603,697	Apr. 19	1790	408	88	866
Crate. Collapsible egg-	W. O. Parker	603,357	Apr 12	1388	305	88	267
Crate. Collapsible shipping	M. C. Ryan	603,409	Apr. 12	1417	320	88	285
Crate-corner							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Coat. Hunting-	W. S. Carter	605,077	June 7	16	5	88	1356
Coat-support	J. T. Stevens	606,477	June 28	2022	618	88	1921
Cock	A. Schleidt and W. Pehl	605,018	May 31	2843	745	88	1312
Cock. Automatic shut-off ball-	T. W. Ryan	603,080	Apr. 26	2495	565	88	516
Cock. Ball-	H. A. Sedgwick	603,846	May 3	178	41	88	696
Cock. Blow-off	W. McIntosh	603,043	Apr. 26	2510	570	88	521
Cock box. Stop-	J. C. Lobdell and A. Talcott	604,623	May 24	2568	585	88	1164
Cock. Gas-	A. W. Tuckerman	603,902	Apr. 12	1071	235	88	216
Cock or faucet	J. F. Cotter and J. Tager	601,624	Apr. 5	18	4	88	6
Cock. Rotary-plug	W. F. Harrison	601,623	Apr. 5	50	10	88	11
Cock safety attachment. Gas-	J. F. Smith	604,197	May 17	1765	402	88	997
Cock safety cut-off. Gas-	P. C. Folwell	603,383	Apr. 26	2643	648	88	595
Cock. Stop and waste	J. H. Glauber	606,585	June 28	2797	645	88	1944
Coffee-pot	H. L. Mitchell	603,700	May 10	833	184	88	779
Coffee-roaster	G. Burs	603,551	May 3	569	125 / 126	88	711
Coffee-roaster	W. J. and R. L. Davis	603,535	Apr. 19	1664	378	88	345
Coffee-roaster	W. R. Ramsey	603,923	May 10	1238	281	88	856
Coffee-roaster	J. Donahue	603,986	Apr. 19	1391	312	88	280
Coffin	L. L. Pletcher	604,786	May 31	2902	654	88	1239
Coffin-fastener	C. N. Smith	604,848	May 31	2902	679	88	1258
Coffin-lid fastener	C. P. Mayer and J. H. Pomeroy	604,407	May 24	2176	488	88	1002
Coin-controlled-apparatus guard	J. G. W. Romans and A. D. Grover	603,741	May 10	896	199	88	791
Coin-controlled machines. Fraud-preventing device for	H. A. Manley	603,792	May 10	991	221 / 222	88	810
Coin-controlled mechanism	J. Herbert	603,104	Apr. 26	2625	596	88	542
Coin-controlled meter	E. J. Brandt	604,600	May 24	2531	577 / 578	88	1157
Coin-delivery apparatus	E. von Haken	605,008	June 21	1900	414	88	1730
Coin-freed automatic machine	J. Green	604,215	May 17	2004	449	88	1039
Coin-holder	J. Mason	603,111	Apr. 26	2636	599	88	545
Coin-operated device	J. D. Kneedler	605,463	June 28	2092	613	88	1917
Coin-operated mechanism	H. H. Kinsey	602,990	Apr. 12	1224	270	88	246
Collapsible box					637 / 638 / 639		
Collar-blanks, &c. Machine for forming and folding	A. D. Fenwick	606,528	June 28	2759	640 / 641 / 642 / 643	88	1937
Collar folding and shaping machine	A. Farina	602,007	Apr. 12	827	180	88	166
Comb: *See* Warper-comb.	A. Long and R. Foster	606,564	June 28	2845	655 / 656	88	1953
Combs. Apparatus for drawing off in circle	J. Denby	604,856	May 31	2964	693 / 694	88	1269
Combing-machine stop mechanism	I. H. Cleveland	605,271	June 7	410	98	88	1430
Combination-lock	C. F. Hill	605,787	June 14	1841	306 / 307	88	1627
Combination-lock	J. Reuterberg	605,514	June 14	831	198	88	1533
Combination-lock	L. C. Thompson	602,114	Apr. 12	908	197 / 198	88	184
Combination-lock	E. F. Dyer	604,141	May 17	1674	376 / 377	88	974
Comminuted materials. Apparatus for handling	W. B. Stull	604,220	May 17	1824	409	88	1004
Commutator-brush holder	W. H. Jordan	603,051	Apr. 26	2539	577	88	526
Commutators of dynamos or motors. Device for turning off	W. Friese-Greene	602,429	Apr. 19	1469	334 / 335 / 336	88	909
Composing characters and producing photographic negatives therefrom. Means for	W. S. Scudder	605,141	June 7	136	34 / 35 / 36 / 37 / 38 / 39	88	1377
Composing-machine. Monoline	G. A. Goodson	605,957	June 21	1708	390 / 391	88	1713
Composing-machines. Differential letter-space register for	D. C. Ball	602,150	Apr. 12	979	214 / 215	88	196
Compresses. Bagging attachment for roller	C. S. Forbes	604,823	May 31	2918	666	88	1250
Condenser	S. Bergmann	603,230	Apr. 26	2595	647	88	594
Conduit lining. Interior-	W. E. Cowan	603,623	May 10	703	157	88	753
Conduit-wiring machine	J. S. Crowell	601,986	Apr. 5	509	105	88	96
Confectioner's molding-machine	G. Fuchs	604,527	May 24	2400	546	88	1131
Contribution-boxes. Device for collecting contents of	T. von Zweigbergk	605,304	June 7	473	106	88	1441
Controller	H. H. Paine	604,941	May 31	3120	717	88	1290
Convertible chair	A. M. Acklin	605,621	June 14	1041	230	88	1570
Conveyer	T. A. Edison	602,004	Apr. 12	822	178	88	167
Conveyer	H. F. Hodges	604,226	May 31	2927	660	88	1268
Conveyer	W. F. Hunt	604,284	May 17	1842	413	88	1008
Conveyer. Endless-chain	F. B. Knight	602,085	Apr. 12	854	186	88	174
Conveying apparatus	A. S. Krotz	603,607	May 3	609	149 / 150	88	731
Conveying apparatus	T. S. Miller	601,756	Apr. 5	256	50, 51	88	49
Conveying apparatus	A. S. Krotz	603,606	May 3	661	147 / 148 / 149	88	730
Conveying system. Electric	H. A. Wolff	602,546	May 3	561	124	88	709
Cooker. Dry vacuum-	J. F. Bussells	604,346	May 17	2073	404	88	1052
Cooking and pressing apparatus	G. D. Fox	602,317	Apr. 19	1365	279	88	255
Cooking apparatus	A. F. Humphrey	605,552	June 28	2884	650	88	1949
Cooking utensil							

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Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cigarette-machine	J. O. Eaton	602,426	Apr. 19	1463	333	83	908
Cigarette-machine. Pocket	T. S. Fitch	604,908	May 17	1808	406	83	1000
Cigarette-making machine	J. H. Schmidt	603,486	May 3	445	99, 100, 101, 102	83	687
Cigarette-wrapper	C. H. Mehner	604,257	May 17	1689	-----	83	1016
Cinders and smoke. Device for carrying off	A. P. Miller	602,865	Apr. 26	2209	500	83	405
Circuit-breaker. Electromagnetic	G. S. Dunn	601,871	Apr. 5	485	100	83	90
Circuit-breaker. Magnetic	D. M. Moore	604,682	May 24	2669	611, 612	83	1184
Circuit-breaker. Magnetic	D. M. Moore	604,683	May 24	2671	613	83	1184
Circuit-closer	W. D. Kennedy	604,157	May 17	1704	384	83	981
Circuit-closer. Thermal	L. Emdin and J. A. Dewson	606,004	June 21	1785	409	83	1726
Circuit-interrupter	D. M. Moore	604,682	May 24	2662	614	83	1185
Circuit-interrupting mechanism	D. M. Moore	604,687	May 24	2681	613	83	1185
Cistern-cleaner	W. E. Conway and E. A. Murray	606,161	June 21	2080	479	83	1783
Cithern	C. T. Menze	603,699	May 10	882	184	83	779
Cithern. Violin or mandolin	A. Wasciniski	605,764	June 14	1276	295	83	1616
Clamp: *See* Ball-and-socket clamp. Belt-clamp. Bench-clamp. Bicycle-saddle clamp. Bicycle-seat clamp. Cloth-clamp. Fence-clamp. Fence-machine clamp. Frame-clamp. Heddle-bar locking-clamp. Plow-handle clamp. Plumber's clamp. Rail-clamp. Saw-clamp. Sewing machine presser-clamp. Telescopic clamp.							
Clamping device	R. H. White	602,149	Apr. 12	978	214	83	196
Clasp: *See* Budding-clasp. Garment-clasp. Suspender-clasp.							
Clasp	J. L. Carney	605,219	June 7	305	70	83	1409
Clasp	J. Forsheim	603,401	May 3	271	60	83	652
Clasp	J. H. Pilkington	606,088	June 21	1943	446	83	1755
Cleaner: *See* Barrel-cleaner. Beer-pipe cleaner. Blackboard-cleaner. Boiler-flue cleaner. Boiler-tube cleaner. Can-cleaner. Carpet-cleaner. Cistern-cleaner. Cuspidor-cleaner. Dish-cleaner. Flue-cleaner. Pipe and flue cleaner. Rail-track cleaner. Railway-track cleaner. Track-cleaner. Tube-cleaner. Wheel-cleaner.							
Cleaner	L. J. Widness	602,592	Apr. 19	1725	328	83	356
Clevis	W. H. Lightcap	602,022	Apr. 5	748	161	83	143
Clevis	G. H. Taylor	605,656	June 14	1101	258	83	1569
Clevis. Plow	A. Braatz	606,509	June 28	2729	620	83	1961
Clip: *See* Bicycle-pedal clip. Bicycle toe-clip. Drop-light-wire clip. Toe-clip.							
Clock. Alarm	F. D. Hoehl	606,143	June 21	2051	470	83	1777
Clock and gramophone. Combined	J. A. Vincent	602,490	Apr. 19	1553	354	83	395
Clock. Carriage	H. W. Mitchell	606,568	June 28	2892	657	83	1955
Clock-controlled switch	F. L. Mackey	602,706	Apr. 19	1966	440	83	997
Clock-dial for indicators, &c. Illuminated	R. R. Gareau	605,212	June 7	486	109	83	1444
Clock. Electric	S. Fischer	603,232	Apr. 26	2330	648	83	564
Clock. Electric	W. Whitehead	604,508	May 24	2373	539, 540	83	1127
Clock. Electric program	J. O. Lyman	603,450	May 3	256	80, 81	83	668
Clock. Program	E. F. Burrill	601,850	Apr. 5	450	91	83	84
Clock. Secondary electric	A. D. Blodgett	604,483	May 24	2360	508	83	1108
Clocks. Hammer for striking	W. E. Porter	605,744	June 14	1943	287	83	1609
Closet: *See* Garbage-closet.							
Cloth. Apparatus for detecting wrinkles in	T. Rowe	601,780	Apr. 5	307	60	83	58
Cloth-clamp for textile machinery	R. P. Winsor	604,108	May 17	1614	362	83	904
Cloth-cutting apparatus	J. Jackson and G. C. Boroughs	603,851	May 10	1110	250	83	822
Cloth-folding machine	E. Hall	604,749	May 31	2807	641	83	1226
Cloth-superposing machine	H. E. Couzineau	604,605	May 24	2543	580	83	1159
Clothes-drier	C. Drake	603,132	Apr. 26	2077	607	83	554
Clothes-drier	P. Jodoin	606,000	June 21	1896	437	83	1748
Clothes-drier	D. M. Moore	604,685	May 24	2681	613	83	1185
Clothes-drier	W. E. Shields	604,428	May 24	2218	496	83	1100
Clothes-drier	E. A. Williston	606,401	June 28	2550	590, 591	83	1608
Clothes-hanger	E. J. Deragon	605,633	June 14	1059	244	83	1574
Clothes-hanger. Window	R. B. Fordham	603,316	Apr. 12	1264	279	83	255
Clothes-line	P. Sinnott	606,363	June 28	2480	576	83	1680
Clothes-line holder	W. Koch	605,607	June 14	1004	231	83	1564
Clothes-line pulley	H. Ecker	603,043	Apr. 5	767	171	83	149
Clothes-line support	J. S. Green	603,633	May 10	723	163	83	757
Clothes-pin	D. Wilson	602,970	Apr. 26	2093	547	83	500
Clothes pin or clamp	L. B. Reeds	605,207	June 7	7279	64	83	1403
Clothes-pin. Wire	S. E. Favell	605,950	June 21	1960	386	83	1709
Clothes rack or drier	U. P. Tarbox	604,457	May 24	2234	501	83	1103
Clothes-tongs	E. B. Stevenson	602,484	Apr. 19	1547	351	83	394
Clutch. Friction	T. H. Worrall and A. Lesperance	606,634	June 28	2906	650	83	1976
Clutch-gear	E. Thunderbolt	603,568	Apr. 19	1655	368	83	340
Coal burner. Pulverized	G. W. Prescott	606,390	June 28	2846	519, 520	83	1838
Coat-hook. Locking	J. C. Backus	603,996	Apr. 12	1238	271	83	946

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Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Crate. Folding bicycle	M. E. Dunbar	603,443	May 3	347	78	83	668
Crate. Folding egg	J. A. Haskett	605,140	June 21	2048	469	83	1776
Crate. Folding egg	D. Reid	603,473	Apr. 19	1530	348	83	321
Crate or case. Shipping	E. A. Wolfe and P. E. Hart	601,695	Apr. 5	127	25	83	27
Crate. Shipping	R. L. Templeman	603,266	May 3	244	55	83	647
Cream from milk. Apparatus for separating	C. L. and F. G. Lee	605,226	June 7	373	84	83	1432
Crochet or lace holder	W. O. Hill	606,215	June 28	2186	508	83	1988
Cross-tie. Metallic	W. F. Penner	606,577	June 28	2908	660	83	1988
Crusher	A. Jordan	604,702	May 31	2686	646	83	1232
Crushing-mill. Portable	H. L. Jesson	603,221	Apr. 12	1103	242	83	223
Crushing-roll	A. Peasant	605,234	June 28	2895	513	83	1881
Cuff	C. A. Chidsey	604,877	May 31	3016	662	83	1299
Cultivator	P. E. Little	604,998	May 31	3198	736	83	1305
Cultivator	D. B. Miles	604,773	May 31	2844	650	83	1235
Cultivator	D. M. Motherwell	601,718	Apr. 5	178	35	83	35
Cultivator	D. M. Motherwell	1866	Apr. 19	1866	434	83	398
Cultivator	D. M. Motherwell	602,668	Apr. 19	1736	391	83	966
Cultivator	N. O. Starks	604,173	May 17	2049	464	83	419
Cultivator	N. O. Starks	602,779	Apr. 19	1660	372, 373	83	972
Cultivator	J. A. Webber	604,180	May 17	1660	373	83	46
Cultivator and harrow. Combined	G. K. Brenner	601,743	Apr. 5	238	47	83	563
Cultivator. Disk	J. B. Whitaker	603,167	Apr. 26	2726	620	83	814
Cultivator fertilizer-distributer and planter attachment	A. Fiscus	603,808	May 10	1012	226	83	
Cultivator. Garden	M. C. Dethlefs	602,285	Apr. 12	1214	267	83	244
Cultivator or plow. Hillside	G. G. Gilbertson	606,001	June 21	1777	407, 408	83	1726
Cultivator pulverizing attachment	G. T. Croberger	604,313	May 17	2000	448	83	1089
Cultivator-shovel	J. D. Schofield	604,905	May 17	1900	405	83	1000
Cultivator-tooth seat. Adjustable	P. W. Corcoran	605,140	June 7	124	24	83	1377
Cultivator weed-cutter attachment	J. R. Holmes	602,430	Apr. 19	1464	329	83	307
Cup-lubricator	G. P. Gross	602,160	Apr. 12	1002	220	83	208
Curb and culvert-cover. Sidewalk	J. H. Paige	603,561	May 3	584	130	83	714
Curling or crimping iron support	T. W. Varley	605,807	June 14	1379	316	83	1634
Current-indicator	C. P. Steinmetz	606,269	June 28	2486	578	83	1682
Current induction-motor. Alternating	C. P. Steinmetz	602,920	Apr. 26	2207	526	83	488
Current induction-motor. Alternating	C. P. Feldmann	602,921	Apr. 26	2311	526	83	488
Current meter. Alternate	T. McCormick	602,557	Apr. 19	1668	379	83	346
Curtain and window-shade holder. Combination	J. B. Bullis	602,091	Apr. 12	966	189	83	176
Curtain-fixture	A. C. Fischer	605,442	June 28	2630	605	83	1911
Curtain-fixture	H. L. Green	604,656	May 24	2024	600	83	1175
Curtain-fixture	A. S. Lord	604,881	May 31	3023	664	83	1270
Curtain-fixture	W. J. Walters and W. W. Rohrer	606,466	June 28	2669	615	83	1918
Curtain-fixture	J. Heselwood	603,615	May 3	666	154	83	734
Curtain-folding machine	E. F. Wilkinson	606,341	June 28	2440	565, 566	83	1873
Curtain-holder	A. M. Christiansen	605,086	May 31	2876	753	83	1319
Curtain-pole	A. F. Henderson	603,033	Apr. 26	2226	574	83	594
Curtain-pole	J. Boland	601,832	Apr. 5	304	58	83	74
Curtain-pole bracket	J. E. Miller	603,870	May 10	1146	268	83	820
Curtain-pole ring	J. Jones	605,967	June 21	1719	391	83	1716
Curtain-rod bracket	A. Caesar	606,158	June 21	2064	474	83	1770
Curtain-roller fixture	R. Hoffheins	603,355	May 3	22	6	83	604
Curtain-stretcher	M. R. Lare and J. S. Young	603,690	May 10	816	190	83	776
Curtain-stretcher	H. T. Pycroft	602,459	Apr. 19	1508	344	83	316
Curtain-tassel attachment		603,540	May 3	554	129	83	707
Cushion: *See* Pneumatic cushion.							
Cushion-cleaning machine	G. N. Dow and H. Stern	603,826	May 10	1071	239	83	594
Cuspidor	H. C. McRae	603,199	Apr. 26	2780	634	83	578
Cuspidor-cleaner	J. F. Nolan	605,006	May 31	3223	742	83	1309
Cut-off. Cistern	J. McCoy	603,338	May 3	167	36, 39	83	634
Cut-off machine	F. Challoner	603,498	May 3	471	105	83	691
Cut-out. Automatic resetting fusible	J. D. Holmes and W. L. Heath	604,616	May 24	2550	584	83	1163
Cut-out. Time-limit	H. H. Cutler	603,504	May 3	634	141, 142	83	795
Cutter: *See* Band-cutter. Cigar-tip cutter. Corn-cutter. Feed-cutter. Meat or vegetable cutter. Milling-cutter. Paper-cutter. Pipe-cutter. Pipe or tube cutter. Potato-cutter. Root or sod cutter. Threshing-machine hand-cutter. Tobacco-cutter. Tube-cutter.							
Cutter	I. Micke	605,733	June 14	1223	263	83	1605
Cutter-bar	G. E. Frye	604,311	May 17	1997	448	83	1087
Cutter, connector, and pliers. Combination	C. P. Toward	603,349	May 3	183	42	83	111
Cutter-head	G. R. Boyd	601,993	Apr. 5	585	122	83	572
Cutter-head	S. J. Shimer	603,976	May 10	1316	308	83	1194
Cutter-head	H. M. Wilcox	604,707	May 24	2725	623	83	1094
Cutting apparatus	A. Palm	604,413	May 24	2187	490	83	127
Cutting-blocks. Manufacturing	F. E. Lang	601,580	Apr. 5	673	-----	83	90
Cutting-machine	D. Brooks	601,893	Apr. 5	488	99	83	97
Cutting-machine	J. H. Taylor	601,719	Apr. 5	188	36, 37	83	1526
Cutting-tool	F. E. Merriman	605,592	June 14	951	221	83	1595
Cyanids. Making	H. S. Blackmore	605,694	June 14	1168	-----	83	1666
Cycle	J. A. Wronski	606,388	June 28	2400	556	83	1573
Cycle. Circle	E. I. Brannan	605,699	June 14	1093	249	83	1138
Cycle-frames. Means for making	F. A. Ellis	604,490	May 24	2344	538	83	
Cycle hand driving-gear	W. Taylor	605,559	June 14	906	211, 212	83	1548
Cycle handle-bar	D. Gardner and E. B. Hartley	601,798	Apr. 5	827	66	83	62
Cycle handle-bar	F. S. Guy	604,981	May 31	3161	733	83	1301
Cycle handle-bar	J. F. Sargeant	603,543	May 3	556	129	83	708
Cycle handle-bar	H. G. Shepard	605,758	June 14	1357	290	83	1612

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Cycle-handle-bar fastening attachment	E. H. Chappius	604,876	May 31	3014	608	88	1266
Cycle-pedal	W. A. Lloyd and H. Keeling	604,351	May 17	1878	431	88	1014
Cycle-saddle	J. B. Brooks	608,160	June 21	2079	478 / 479	88	1768
Cycle-saddle	W. Clifford	608,943	May 10	1999	393	88	892
Cycle-saddle	T. J. Kirkpatrick	608,769	May 10	987	321	88	809
Cycle-saddle	A. T. Woodward	604,674	May 24	2653	609	88	1163
Cycle umbrella-holder	W. J. R. Watson	606,160	Apr. 26	2717	618	88	560
Cycle-wheel	W. C. Humphrey	604,677	May 24	2669	610	88	1163
Cyclist's brace and back-support	P. W. Deacon and A. Timpe	605,306	June 7	478	107	88	1443
Cyclist's pouch	H. S. Brodie	602,068	Apr. 12	808	174	88	169
Cyclist's riding-record	D. H. Hanlon	608,948	May 10	1976	390	88	895
Cyclone-vault	C. S. Hood	602,450	Apr. 19	1491	340 / 341	88	813
Damper-controller and automatic indicator	J. J. Oyaas	608,644	Apr. 19	1694	416	88	875
Damper handle. Stove-	B. A. Bullock	601,996	Apr. 5	711	151	88	134
Dehorner	I. M. Schellinger	604,989	May 17	1586	355	88	968
Demijohn	W. R. Evans	606,198	June 28	2151	498	88	1616
Dental base-plate	C. A. Davis and E. L. Townsend	605,408	June 7	668	148	88	1481
Dental bridgework	M. C. Merker	605,255	June 7	376	85, 86	88	1429
Dental chair	F. Ritter	605,974	June 21	1798	397 / 398	88	1718
Dental chair	F. G. McCollum	603,280	May 3	64	16	88	613
Dental-chair cuspidor	J. E. Keefe	604,355	May 17	2033	467	88	1054
Dental disk-mandrel	A. J. McDonald	604,896	May 31	2940	672	88	1254
Dental engine	A. J. McDonald	604,837	May 31	2942	672 / 673	88	1254
Dental engine	J. J Coachman	608,524	May 3	598	116 / 117	88	702
Dental-engine controller. Electric	L. L. White	603,808	May 10	1014	226	88	615
Dental impression material	J. W. Ivory	606,460	June 28	2650	612	88	1916
Dental matrix-retainer	C. Harnden	606,456	June 28	2653	610	88	1915
Dental mouth-mirror	J. H. Gartrell	605,223	June 7	310	71	88	1410
Dental-plate-swaging apparatus	F. S. Avil	605,171	June 7	308	61	88	1399
Dental plugger	L. P. J. V. Kjoer	602,084	Apr. 12	853	186	88	173
Dentist's arm-support	E. L. Chaffin	601,708	Apr. 5	186	37	88	99
Denture, Artificial	J. Bragg	604,615	May 24	2362	------	88	1138
Deodorizing and purifying petroleum-oil	W. H. Baker	603,162	Apr. 26	2720	618	88	562
Desk	J. B. Burfoot	605,908	June 7	407	92	88	1429
Desk and seat. Combined school	W. H. Carrier	606,514	June 28	2736	626	88	1932
Desk attachment	J. M. Schunck and A. L. Zender	606,090	June 21	1957	450	88	1760
Desk. Movable-top writing-	E. Hughes	604,008	May 10	1426	319	88	866
Desk or table attachment for furniture	A. H. Kennedy	601,876	Apr. 5	495	102	88	98
Desk. School-	H. Heine	602,296	Apr. 12	1378	282 / 283	88	256
Desk. Writing-	L. H. Stern and T. W. G. Cook	605,198	June 7	242	58	88	1397
Diamond grinding and polishing machine	A. Roesch	602,106	Apr. 12	806	195	88	182
Diaphragm-chamber	A. J. Welander	602,672	Apr. 19	1868	428	88	826
Dice-box	F. H. Hathorn	603,687	May 10	730	168	88	756
Die for rolled forgings	W. H. Sweitzer	603,980	May 10	1850	364	88	880
Die-stock							
Digger:							
See Potato-digger.							
Digging machine. Beet-	L. Pike	601,904	Apr. 5	542	112	88	102
Digging or cultivating implement. Land	T. A. and S. C. Darby	605,096	June 7	80	9, 10	88	1368
Dilator. Vaginal	A. F. Holland	605,547	June 14	880	206	88	1543
Dining-table. Self-leveling marine	J. H. Laskey	604,831	May 31	2933	671	88	1253
Direct-acting engine	A. Ball	603,358	May 3	194	44	88	630
Dirt roller and pulverizer. Combined	L. Chambers	605,160	June 7	187	47	88	1366
Dish-cleaner	R. R. Parry and E. Evans	604,634	May 24	2568	590 / 591	88	1168
Dish-cleaner	A. Ricketts	608,153	Apr. 26	2709	616	88	560
Dish-cleaner	E. Shaw	608,580	May 3	606	135	88	719
Dish-cleaner	I. D. Smead	605,929	June 21	1657	376	88	1702
Dish-drainer	M. L. Perrottet	605,326	June 7	324	117	88	1468
Disinfecting apparatus	J. Evetts	604,562	May 24	2470	561	88	1145
Disinfecting apparatus	F. Gizzi	606,326	June 28	2436	564	88	1872
Disinfecting apparatus	F. J. Mitchell	608,012	Apr. 26	2465	560	88	812
Disinfecting apparatus	J. Thomson	608,876	Apr. 12	1358	304	88	274
Disks. Mechanism for controlling action of oscillating	G. W. Frohlich	605,948	June 7	355	81	88	1418
Display-box	A. M. Hance	604,190	May 17	1772	399	88	995
Display-box	W. H. Wickers	604,221	May 17	1686	400	88	1005
Display cabinet. Card-	H. T. Smith	605,351	June 7	509	125	88	1466
Display-card	E. T. Palmenberg	605,678	June 14	1140	265	88	1590
Display-fixtures for stores	J. C. Palmer	608,080	Apr. 12	884	192	88	179
Display-frame	E. Leger	604,988	May 31	3118	716	88	1299
Display hat-top	W. J. Thill	605,230	June 7	335	77	88	1414
Display-last. Pneumatic	A. F. C. Lotz	608,109	Apr. 26	2633	598	88	844
Display-machine	E. S. Robbins	605,016	May 31	3240	745	88	1313
Display-rack	H. D. Wells	606,610	June 28	2922	677 / 678	88	1967
Display-rack	W. M. Baker	605,628	June 14	1044	240	88	1371
Display-stand	G. H. Burnham	605,207	June 7	478	107	88	1443
Display-stand	R. Sylvester	605,148	June 7	167	49	88	1282
Displaying pictures, &c. Device for	R. Sylvester	606,173	June 21	2103	488	88	1787
Displaying pictures,advertisements,&c. Device for	J. H. Whiting	606,358	June 28	2289	530	88	1844
Distance traveled by cars, &c. Mechanism for indicating	E. Hart	608,508	May 3	498	109	88	697
Distilling apparatus. Acid-	J. Stretch	604,550	May 24	2450	557	88	1140
Distilling apparatus. Water-	J. G. Dillahay	608,557	May 3	580	128	88	718
Ditching-machine	W. R. Facey	601,720	Apr. 5	204	40	88	40
Diving apparatus	E. Verpillier and C. W. Graves	604,943	May 17	1985	416	88	1012
Doll	O. Zeh	608,216	Apr. 26	2603	------	88	977
Doll-heads. Coloring	G. D. Winters	605,366	June 7	602	134	88	1466
Door barricade-alarm	J. F Förster	608,785	May 10	976	218	88	807
Door-buffer	C. F. Hanington	601,880	Apr. 5	360	88	88	73
Door-check	F. H. Ogden	602,687	Apr. 19	1906	434 / 435	88	891
Door-check	F. H. Ogden	602,688	Apr. 19	1909	435	88	892
Door-closer	C. Breed	604,716	May 31	2755	680	88	1319
Door closer and check. Combined	G. Ashley	605,886	June 21	1453	333	88	1667
Door dust and cold guard	G. Everson	608,480	May 3	431	96	88	664
Door-fastener	H. B. Butts	608,477	May 3	427	95	88	663
Door-fastener	H. B. Butts	604,832	May 31	2966	661	88	1259
Door-fastener	W. H. Plimpton	605,809	June 14	1381	317	88	1634
Door fastening. Screen-	E. J. Hagan	604,466	May 24	2300	528	88	1114
Door fixture. Sliding-	C. R. Case	602,727	Apr. 19	1970	447	88	404
Door fixture. Sliding-	C. R. Case	602,729	Apr. 19	1973	448	88	404
Door. Gable-	A. McNish	605,809	June 21	1575	362	88	1660
Door-guard	J. B. Burton	603,620	May 10	668	156	88	782
Door-hanger	D. Nickel	604,857	May 31	3020	666	88	1272
Door-hanger	J. E. Owen, J. C. Gabel, Jr., and G. F. McKinney.	606,077	June 21	1985	443	88	1754
Door knocker and alarm	R. D. Coggeshall	602,573	Apr. 19	1694	395	88	880
Door lock. Sliding-	P. G. Emery	605,516	June 14	1297	330	88	1637
Door-mat	J. W. Snedeker	602,608	Apr. 19	1754	400	88	862
Door-operating mechanism	A. Dittmar	605,805	May 10	1191	309	88	848
Door, partition, &c. Metal	W. R. Kinnear	608,106	Apr. 26	2628	597	88	843
Door spring and check	H. Porter	602,645	Apr. 19	1885	416	88	875
Doors and holding same. Machine for lifting	R. Müller	604,553	May 31	2936	671	88	1253
Double or compound fork	E. M. Bradley	606,372	June 28	2495	580	88	1823
Doubletree	J. Finley	604,916	May 31	3068	709	88	1283
Doubletree	J. W. Shepperd	602,478	Apr. 19	1598	349	88	282
Doubling and twisting machine stop mechanism	A. M. Price	604,500	May 24	2355	535	88	1124
Doubling-shears	F. Donner	604,374	May 24	2169	477	88	1082
Doubling-shears	F. Donner	606,054	June 21	1894	434	88	1745
Dowel-making machine	O. H. Ordway	608,965	May 10	1300	307	88	869
Draft-equaliser	G. F. Hillegas	601,795	Apr. 5	231	67	88	62
Draft-equaliser	W. Lindsey	604,902	May 31	3055	702	88	1277
Draft-equaliser	M. Martin	608,433	May 3	330	74	88	663
Draft-equaliser	B. F. Russell	604,735	May 31	2768	686	88	1284
Draft-equaliser	A. Diamantidi	608,453	May 3	368	83	88	671
Draft-gear	W. H. Page	605,295	June 7	457	102	88	1430
Draft-supply apparatus	T. J. Murlin	603,864	May 10	1137	256	88	837
Drainable pipe for tanks	H. E. Welsh	603,583	May 3	611	136	88	720
Draw-head, rigging, coupling, and latch device. Combined	J. D. Warren	602,958	Apr. 26	2380	548	88	497
Drawer. Hardware-	H. H. Riggleman	605,602	June 14	1166	269	88	1505
Drawers-supporter	J. A. Bergstrom	604,015	May 17	1446	324	88	982
Drawing instrument	L. W. Bates	604,688	May 24	2579	588	88	1166
Dredge. Hydraulic	A. McDougall	606,402	June 28	2706	622	88	1936
Dredging apparatus	W. Shirley	606,251	June 28	2676	595	88	1841
Dress-guard attachment	B. F. Sutton	608,775	May 10	957	214	88	808
Dress-shield	F. H. Mitchell						
Dress-shield attachment							
Drier:							
See Clothes-drier. Sugar-drier.							
Glove-drier. Wool-drier.							
Rotary drier.							
Dry-house for lumber, &c	C. J. Bergström	608,837	May 10	1085	242	88	886
Drying apparatus	T. A. Edison	605,475	June 14	771	177	88	1522
Drying apparatus	A. J. Miller	605,736	June 14	1329	295	88	1607
Drying apparatus	W. B. Ruggles	608,906	Apr. 26	2791	637	88	575
Drying apparatus	B. B. Snyder and J. J. Seldner	608,612	May 3	695	153	88	733
Drying apparatus	E. Stauber	605,097	June 21	1967	452	88	1768
Drying apparatus	H. Bristol	605,393	June 7	635	140	88	1472
Drying-frame for woolen garments. Folding							
Drill:							
See Electric drill. Rock-drill.							
Grain-drill. Rock or like drill.							
Percussion-drill. Seed-drill.							
Railway-track drill. Well drill.							
Drill-rods. Device for removing broken	J. Hurst	604,287	May 17	2085	493	88	1043
Drills, &c. Machine for shaping or forging and sharpening rock-	S. P. Quick	606,200	June 28	2537	586	88	1869
Drills. Means for manufacturing twist-	R. L. Barclay	608,462	May 3	595	88	88	677
Drilling and tapping machine for door-knob spindles.	F. B. Shuster	602,272	Apr. 12	1165	260	88	226
Drive-gate. Reversible	I. M. Smith	604,921	May 31	3069	711	88	1284
Driving mechanism	C. T. Hildebrandt	604,754	May 31	2814	642	88	1220
Drop-light-wire clip	C. Schuets	601,960	Apr. 5	471	95	88	88
Dropper:							
See Corn or seed drop- Medicine-dropper.							
per.							
Drum-wind elevator	A. B. Roney	608,599	May 3	645	144	88	727
Dumb-waiter	W. R. Fitchet	604,228	May 17	1840	412	88	1007
Dumb-waiter brake	C. W. Hoffman	601,903	Apr. 5	664	140	88	135
Dump for ore-buckets	H. Pepin	601,908	Apr. 5	540	111	88	109
Dumping-platform	S. F. Evans	602,255	Apr. 12	1156	254	88	223
Dust-collector	W. E. Allington	604,871	May 31	3008	690 / 691	88	1267
Dust-collector	O. Porbeck	608,985	May 3	71	18	88	615
Dust-pan	L. M. Black	608,003	Apr. 26	2454	559	88	510
Dust-pan	K. A. Clabaugh	604,801	May 17	1972	449	88	1033
Dust-pan	S. W. Milligan	604,054	May 17	1535	345	88	949
Dye and making same. Black	R. Vidal. (Reissue)	11,659	Apr. 5	797	------	88	151
Dye and making same. Black dianso	M. Kahn and K. Heidenreich	605,103	June 7	64	------	88	1364
Dye and making same. Blue	B. Heymann	608,212	June 28	2180	------	88	1380
Dye and making same. Blue satin	P. Ott and T. Kroeber	608,605	June 28	2847	------	88	1695
Dye and making same. Blue tetrazo	J. Bammann	606,181	June 28	2130	------	88	1809
Dye and making same. Dark-blue tetrazo	J. Bammann	606,364	June 28	2300	------	88	1548
Dye. Anthraquinone	R. E. Schmidt	605,508	June 14	995	------	88	1551
Dye. Basic red dianso dye	E. König	608,537	Apr. 19	1814	------	88	878
Dye. Basic yellow dianso	E. König	608,538	Apr. 19	1814	------	88	878

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
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Door-fastener	H. B. Butts	604,832	May 31	2966	661	88	1259
Door-fastener	W. H. Plimpton	605,809	June 14	1381	317	88	1634
Door fastening. Screen-	E. J. Hagan	604,466	May 24	2300	528	88	1114
Door fixture. Sliding-	C. R. Case	602,727	Apr. 19	1970	447	88	404
Door fixture. Sliding-	C. R. Case	602,729	Apr. 19	1973	448	88	404
Door. Gable-	A. McNish	605,809	June 21	1575	362	88	1660
Door-guard	J. B. Burton	603,620	May 10	668	156	88	782
Door-hanger	D. Nickel	604,857	May 31	3020	666	88	1272
Door-hanger	J. E. Owen, J. C. Gabel, Jr., and G. F. McKinney.	606,077	June 21	1985	443	88	1754
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Drawers-supporter	J. A. Bergstrom	604,015	May 17	1446	324	88	982
Drawing instrument	L. W. Bates	604,688	May 24	2579	588	88	1166
Dredge. Hydraulic	A. McDougall	606,402	June 28	2706	622	88	1936
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Dress-shield attachment							
Drier:							
See Clothes-drier. Sugar-drier.							
Glove-drier. Wool-drier.							
Rotary drier.							
Dry-house for lumber, &c	C. J. Bergström	608,837	May 10	1085	242	88	886
Drying apparatus	T. A. Edison	605,475	June 14	771	177	88	1522
Drying apparatus	A. J. Miller	605,736	June 14	1329	295	88	1607
Drying apparatus	W. B. Ruggles	608,906	Apr. 26	2791	637	88	575
Drying apparatus	B. B. Snyder and J. J. Seldner	608,612	May 3	695	153	88	733
Drying apparatus	E. Stauber	605,097	June 21	1967	452	88	1768
Drying apparatus	H. Bristol	605,393	June 7	635	140	88	1472
Drying-frame for woolen garments. Folding							
Drill:							
See Electric drill. Rock-drill.							
Grain-drill. Rock or like drill.							
Percussion-drill. Seed-drill.							
Railway-track drill. Well drill.							
Drill-rods. Device for removing broken	J. Hurst	604,287	May 17	2085	493	88	1043
Drills, &c. Machine for shaping or forging and sharpening rock-	S. P. Quick	606,200	June 28	2537	586	88	1869
Drills. Means for manufacturing twist-	R. L. Barclay	608,462	May 3	595	88	88	677
Drilling and tapping machine for door-knob spindles.	F. B. Shuster	602,272	Apr. 12	1165	260	88	226
Drive-gate. Reversible	I. M. Smith	604,921	May 31	3069	711	88	1284
Driving mechanism	C. T. Hildebrandt	604,754	May 31	2814	642	88	1220
Drop-light-wire clip	C. Schuets	601,960	Apr. 5	471	95	88	88
Dropper:							
See Corn or seed drop- Medicine-dropper.							
per.							
Drum-wind elevator	A. B. Roney	608,599	May 3	645	144	88	727
Dumb-waiter	W. R. Fitchet	604,228	May 17	1840	412	88	1007
Dumb-waiter brake	C. W. Hoffman	601,903	Apr. 5	664	140	88	135
Dump for ore-buckets	H. Pepin	601,908	Apr. 5	540	111	88	109
Dumping-platform	S. F. Evans	602,255	Apr. 12	1156	254	88	223
Dust-collector	W. E. Allington	604,871	May 31	3008	690 / 691	88	1267
Dust-collector	O. Porbeck	608,985	May 3	71	18	88	615
Dust-pan	L. M. Black	608,003	Apr. 26	2454	559	88	510
Dust-pan	K. A. Clabaugh	604,801	May 17	1972	449	88	1033
Dust-pan	S. W. Milligan	604,054	May 17	1535	345	88	949
Dye and making same. Black	R. Vidal. (Reissue)	11,659	Apr. 5	797	------	88	151
Dye and making same. Black dianso	M. Kahn and K. Heidenreich	605,103	June 7	64	------	88	1364
Dye and making same. Blue	B. Heymann	608,212	June 28	2180	------	88	1380
Dye and making same. Blue satin	P. Ott and T. Kroeber	608,605	June 28	2847	------	88	1695
Dye and making same. Blue tetrazo	J. Bammann	606,181	June 28	2130	------	88	1809
Dye and making same. Dark-blue tetrazo	J. Bammann	606,364	June 28	2300	------	88	1548
Dye. Anthraquinone	R. E. Schmidt	605,508	June 14	995	------	88	1551
Dye. Basic red dianso dye	E. König	608,537	Apr. 19	1814	------	88	878
Dye. Basic yellow dianso	E. König	608,538	Apr. 19	1814	------	88	878

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Dye. Black disazo wool-	G. Steinike and F. Schmidt	603,098	Apr. 26	2009	.....	68	530
Dye. Black trisazo	K. Krekeler and A. Israel	603,556	Apr. 26	2198	.....	68	462
Dye. Black trisazo	K. Krekeler, A. Israel, and A. Blank	603,557	Apr. 26	2200	.....	68	462
Dye. Blue	F. Bender	603,496	June 28	2023	.....	68	1910
Dye. Blue anthraquinone	R. E. Schmidt and P. Tust	605,321	June 21	1694	.....	68	1699
Dye. Blue azin	P. Ott and T. Kroeber	603,544	Apr. 19	1647	.....	68	342
Dye. Blue azin	P. Ott and T. Kroeber	603,013	Apr. 26	2467	.....	68	518
Dye. Blue azin	P. Ott and T. Kroeber	601,959	Apr. 5	471	.....	68	65
Dye. Blue azin	C. Rudolph	606,426	June 28	2025	.....	68	1910
Dye. Blue azo	F. Bender	603,855	Apr. 26	2197	.....	68	462
Dye. Blue-black	K. Krekeler and A. Blank	603,009	Apr. 26	2468	.....	68	518
Dye. Blue-black trisazo	M. Kahn and F. Runkel	603,641	Apr. 19	1816	.....	68	373
Dye. Bluish-red	E. König	603,755	May 10	919	.....	68	726
Dye. Brown disazo	R. Demuth	603,858	Apr. 26	2201	.....	68	462
Dye. Brown sulfur	K. Krekeler and E. Martz	603,060	Apr. 26	2005	.....	68	526
Dye. Brown trisazo	K. Krekeler and E. Martz	603,646	May 10	747	.....	68	726
Dye. Brown trisazo	K. Krekeler, E. Martz, and A. Israel	603,639	Apr. 19	1815	.....	68	373
Dye. Brown trisazo	E. König	605,119	June 7	65	.....	68	1206
Dye. Coppery-brown	O. Nastvogel	603,646	May 10	744	.....	68	761
Dye. Diphenylnaphthylmethane	K. Krekeler, E. Martz, and A. Israel	603,438	June 28	2026	.....	68	1910
Dye. Gray trisazo	F. Bender	603,645	May 10	743	.....	68	761
Dye. Green disazo	K. Krekeler and E. Martz	603,647	May 10	748	.....	68	726
Dye. Green trisazo	K. Krekeler, E. Martz, and A. Israel	603,640	Apr. 19	1815	.....	68	373
Dye. Green trisazo	E. König	603,016	Apr. 26	2471	.....	68	514
Dye. Red-violet basic disazo	A. Steiner	603,540	Apr. 19	1641	.....	68	341
Dye. Triphenylmethane-blue	M. Kahn	603,008	Apr. 26	2461	.....	68	518
Dye. Violet	M. Kahn	606,198	June 28	2142	.....	68	1814
Dye. Violet azo	R. Demuth	603,915	May 10	1223	977	68	854
Dye. Yellow-brown cotton-					976		
Dyeing apparatus	A. F. Melrose and H. B. Van Deusen	604,511	May 24	2378	541	68	1126
Dynamo driving mechanism	P. W. Alexander	603,709	May 10	846	167	68	781
Dynamo or motor	F. Schwedtmann				169		
Eaves-trough	B. F. Nye	603,611	May 3	664	153	68	733
Eaves-trough hanger	C. Kroesing	605,892	June 21	1549	355	68	1665
Eaves-troughs. Machine for folding slip-joints for	R. F. Fowler	601,774	Apr. 5	291	58	68	55
Educational appliance	S. Kimble	603,232	Apr. 12	1105	243	68	282
Egg-beater	F. S. Bellanger	603,152	Apr. 12	988	215	68	197
Egg breaking and measuring utensil	C. M. Hager	603,695	May 10	737	168	68	758
Egg-carrier	C. Goetz	605,418	June 7	995	154	68	1487
Egg-case. Metal	H. H. Knight	601,951	Apr. 5	67	13	68	14
Egg-poacher	E. Louden	601,755	Apr. 5	255	50	68	49
Egg-tester	I. S. Vedder	602,115	Apr. 12	910	196	68	184
Eggs. Cleaning and drying	J. A. Kunkel	604,621	May 24	2567	.....	68	1164
Eggs. Process of and composition for preserving	F. C. Smith	603,795	Apr. 19	2066	.....	68	495
Electric brake	E. W. G. C. Hoffmann	606,167	June 21	2094	481	68	1735
Electric cable	N. G. Warth	603,009	Apr. 26	2569	582	68	530
Electric-circuit shunt	O. B. Shallenberger	606,171	June 21	2100	482	68	1736
Electric circuits. Solenoid blow-out for dispersing arcs formed in breaking	S. H. Short	601,717	Apr. 5	184	36	68	57
Electric condenser	C. S. Bradley	603,722	May 10	866	198	68	735
Electric conductors. Underground conduit for	C. H. Sewall	603,745	May 10	904	201	68	726
Electric contact-shoe	W. M. Brown	603,495	Apr. 19	1560	355	68	327
Electric controller	M. W. Hanks	606,009	June 21	1801	414	68	1730
Electric cord-adjusting device	F. N. Lawton	603,235	Apr. 12	1121	415	68	285
Electric current controller	J. J. Hogan	603,012	June 21	1805	246	68	1731
Electric current distribution	E. Thomson	602,963	Apr. 26	2367	416	68	498
Electric currents and voltage. Apparatus for reducing	A. F. Vetter	603,709	Apr. 19	1943	544	68	936
Electric drill. Portable	E. Holmes	606,549	June 28	2220	441	68	1946
Electric elevator	H. Cochrane	605,598	June 14	990	649	68	1560
Electric furnace	G. G. Clark	603,515	Apr. 19	2125	282	68	428
Electric heater	E. E. Gold	604,364	May 24	2184	490	68	1064
Electric-lighting apparatus	D. M. Moore	604,695	May 24	2276	479	68	1165
Electric-lighting systems. Interrupter for	D. M. Moore	604,691	May 24	2266	611	68	1164
Electric luminous alphabet and board for same	D. M. Moore	603,263	Apr. 26	2373	612	68	496
Electric machine. Dynamo-	R. S. Dobbie	606,497	June 28	2260	841	68	1805
Electric meter	T. Duncan	604,459	May 24	2275	588	68	1111
Electric meter	T. Duncan	604,460	May 24	2280	510	68	1111
Electric meter	T. Duncan	604,461	May 24	2283	511	68	1112
Electric meter	T. Duncan	604,462	May 24	2285	512	68	1112
Electric meter	T. Duncan	604,463	May 24	2287	513	68	1112
Electric meter	T. Duncan	604,464	May 24	2290	514	68	1113
Electric meter	T. Duncan	604,465	May 24	2293	515	68	1113
Electric meter	T. Duncan	604,466	May 24	2295	516	68	1114
Electric meter	T. Duncan	605,665	June 14	1116	517	68	1555
Electric meter	T. Duncan	605,869	June 21	1510	518	68	1677
Electric meter	T. Duncan	605,949	June 21	1676	519	68	1709
Electric-metering system	H. C. Wirt	603,235	Apr. 26	2284	520	68	496
Electric motor	F. E. Briner	605,880	June 21	1495	521	68	1677
Electric motor	J. G. Truman	606,605	June 28	2016	522	68	1906
Electric motor. Alternating-current	R. H. Hasseler	606,056	June 21	1866	523	68	1746

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Electric-motor-controlling apparatus	A. J. Stopher	603,781	Apr. 19	2068	465	68	419
Electric-motor controlling mechanism	G. Gibbs, W. S. Johnson, and H. Winkenwerder.	605,953	June 21	1699	467	68	1711
Electric-motor mounting	E. B. W. Reichel and F. W. V. Stein.	605,679	June 14	1142	205	68	1560
Electric motor or dynamo	A. L. Riker	604,842	May 31	2052	675	68	1256
Electric-motor switch	F. E. Herdman	603,849	May 10	1103	676	68	880
Electric motors. Automatic device for removing resistance in starting	G. H. Whittingham	602,413	Apr. 12	1423	247	68	286
Electric selector system	T. C. Drake	605,209	June 7	479	248	68	1442
Electric switch	C. C. Badeau	605,057	June 7	1	108	68	1253
Electric switch	A. G. McPherson	602,767	Apr. 19	2025	1	68	414
Electric switch for use with electrically-propelled vehicles or locomotives, &c.	A. T. Snell and C. E. Grove	605,033	May 31	2052	460	68	1315
Electric transformer	J. J. Bellman and C. T. Rittenhouse.	605,194	June 7	946	747	68	1307
Electric transformer	L. Gutmann	603,218	Apr. 12	1100	56	68	221
Electrical apparatus	H. H. Eldred	603,596	Apr. 19	1736	242	68	356
Electrical apparatus	W. Stanley	603,515	May 3	506	305	68	699
Electrical apparatus for schools	M. E. Crowell	603,875	May 10	1155	110	68	841
Electrical communication. System for	A. T. Brown	606,030	June 28	2080	111	68	1971
Electrical distribution and regulation. System of	B. G. Lamme	606,015	June 21	1610	260	68	1728
Electrical-distribution system	C. F. Scott and B. G. Lamme	606,589	June 28	2033	261	68	1961
Electrical-distribution system	C. P. Steinmetz	605,595	June 14	847	661	68	1536
Electrical-distribution system	C. P. Steinmetz	605,596	June 14	848	662	68	1536
Electrical lighting device for kerosene or other burners.	S. M. Meyer	604,696	May 24	2274	199	68	1165
Electrical retort	H. Eldridge, D. J. Clark, and S. Blum.	603,058	Apr. 26	2032	567	68	525
Electrical selector	L. W. Crofoot and F. E. Granger	603,605	Apr. 26	2352	576	68	479
Electrically-controlled switch	E. M. Hewlett	603,786	May 10	979	518	68	807
Electricity. Apparatus for supplying or measuring currents of	W. D. Watson and T. Humphreys	605,765	June 14	1278	205	68	1616
Electrode for arc-lights	C. S. Dolley	606,127	June 21	2080	206	68	1771
Electrodepositing. Process of and apparatus for	E. L. Denecile	603,212	Apr. 12	1089	207	68	219
Electromagnet having rotating fields	W. Langdon-Davies	604,055	May 17	1511	220	68	944
Electromotive force. Regulation of rotary-transformer direct-current	B. G. Lamme	606,560	June 28	2087	640	68	1953
Electroplating apparatus	L. Potthoff	603,226	May 3	73	658	68	615
Electrostatic generating-machine	A. H. Hoyt	603,041	Apr. 26	2508	19	68	530
Electrotherapeutic apparatus	G. G. Duke	603,515	May 10	1086	509	68	819
Elevating mechanism	O. C. Beatty	605,467	June 14	759	281	68	1519
Elevating, transporting, and discharging material. Apparatus for	O. Johnson	603,852	May 10	1111	174	68	833
Elevator:					350		
See Cotton-elevator. Grain-elevator.					351		
Drum-wind elevator. Hydraulic elevator.							
Pneumatic elevator.							
Electric elevator. Water-elevator.							
Elevator	W. Cline	605,854	June 21	1498	343	68	1674
Elevator	A. L. Plush and G. H. Noblit	605,910	June 21	1597	344	68	1695
Elevator	R. C. Smith	601,909	Apr. 5	553	367	68	105
Elevator	F. E. Turner	605,987	June 21	1651	114	68	1704
Elevator	A. Sundt	603,665	May 10	772	379	68	767
Elevator control apparatus	F. S. Braid	605,471	June 14	765	171	68	1590
Elevator-controller	H. R. Smith	604,128	May 17	1653	175	68	970
Elevator-doors. Electrical apparatus for operating	F. T. Ellithorpe	606,003	June 21	1782	371	68	1727
Elevator-doors. Means for operating	C. I. Hall	605,044	May 31	2200	406	68	1222
Elevator-operating apparatus	F. T. Ellithorpe	602,437	Apr. 19	1466	409	68	309
Elevator safety appliance	D. W. Knight	603,644	May 10	742	753	68	761
Elevator safety attachment	G. Hancock	604,347	May 17	1572	165	68	1012
Elevator safety-brake	G. Hancock	605,820	June 14	1401	490	68	1636
Elevator safety-brake	J. and R. W. Hurrell	602,944	Apr. 26	2357	321	68	498
Elevator safety-check	H. Baum	604,537	May 24	2459	538	68	498
Elevator safety device	F. M. Bell	604,360	May 24	2095	559	68	1142
Elevator safety device	F. M. Bell	604,361	May 24	2101	560	68	1076
Elevator safety device	W. E. Bennett	604,957	May 31	2142	469	68	1077
Elevator safety device	R. Paroselli	606,489	June 28	2700	470	68	1994
Elevator safety device	A. L. Plush and G. H. Noblit	605,911	June 21	1599	471	68	1994
Elevator safety device	T. W. Heermans	602,660	Apr. 19	1656	472	68	1695
Elevator stop mechanism. Automatic	F. E. Herdman	602,448	Apr. 19	1466	722	68	369
Elevators. Automatic stop for hydraulic	C. N. Leonard	602,560	Apr. 19	1671	733	68	1994
Embossing-machine	H. Hill	603,953	May 10	1268	239	68	312
Embroidering-machine work-feeding mechanism	H. Hill	604,755	May 31	2816	240	68	346
Embroidering-machine Jacquard mechanism	T. D. Eisner	604,741	May 31	2798	360	68	806
Embroidering-machines. Fabric-holding device for	J. J. Niederer	605,903	June 21	1578	305	68	1220
Embroidering-machines. Fabric-holding frame for	T. D. Eisner	604,742	May 31	2798	306	68	1225
Embroidery-frame	C. E. Roberts	602,103	Apr. 12	895	330	68	1091
Emery-wheel-dressing tool	A. P. Otto	605,903	June 21	1579	194	68	161
Enameling. Method of and apparatus for	W. H. Jump	602,853	Apr. 26	2194	308	68	1091
End-gate	S. D. Metcalfe	602,138	Apr. 12	943	498	68	461
End-gate					205	68	190

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
End-gate fastening	J. S. Court	608,894	May 10	1190	209	88	847
Endoscopic instrument	T. S. Pitt	605,669	June 14	1095	228	88	1561
Engine: *See* Air-engine. Beating or washing engine. Dental engine. Direct-acting engine. Explosive-engine. Gas-engine. Gas or gasolene engine. Gas or oil engine. Hydraulic engine. Internal-combustion engine. Locomotive-engine. Motive engine. Oil or gas engine. Pumping-engine. Rock-drill engine. Rotary engine. Rotary steam-engine. Self-lubricating engine. Steam-engine. Steam or other fluid-pressure engine. Traction-engine.							
Engine	W. S. Beeman	608,601	May 3	647	145	88	707
Engine	D. L. Dresser	602,059	Apr. 12	810	175 176	88	165
Engine		608,788	May 10	984	220	88	808
Engine	J. Keller	602,704	Apr. 19	2084	473	88	494
Engine	J. Porritt	604,643	May 24	2605	595	88	1171
Engine	H. Steven	604,253	May 17	1880	421	88	1015
Engine	A. P. Loper	608,475	May 3	416	96	88	690
Engine-controlling device	J. Stumpf	605,405	June 7	670	140	88	1461
Engine cut-off mechanism. Steam-	W. F. Davis	606,061	June 21	1941	445 446	88	1756
Engine-cylinders. Water-jacket for	E. F. Piers				115 116	88	1451
Engine for driving tramway-cars	O. Owens	605,333	June 7	517		88	1850
Engine igniter. Explosive-	G. L. Gardner	606,280	June 28	2321	537	88	975
Engine-muffler	J. H. Eastwood, C. E. Bibb, and F. McClintock	604,143	May 17	1676	377	88	277
Engine-stop. Automatic	J. K. Wright	608,395	Apr. 19	1375	308	88	1868
Engines. Automatic safety-stop for	A. J. Tackle	608,312	June 28	2260	559	88	1875
Engines. Electric igniter for gas-	J. A. Lefferts	606,249	June 28	2451	566	88	1179
Envelop	C. P. Monfort	604,686	May 24	2544	606	88	1095
Envelop	E. V. D. Rousseau	604,419	May 24	2195	498	88	1095
Envelop	S. B. Sigesmond	602,411	Apr. 12	1419	321	88	998
Envelop	G. Southard	606,366	June 28	2484	577	88	1661
Envelop	W. S. Carver	604,738	May 31	2765	633	88	1320
Envelop	W. Barnard	608,408	June 28	2715	630	88	1928
Envelop. Double-	W. H. Fox	605,008	June 7	47	1	88	1262
Envelop-fastener	W. Yates	605,961	June 28	2295	551	88	1845
Envelop-opener	J. M. Carter	604,738	May 31	2764	633	88	1220
Envelop-opener	J. W. Riley	604,999	May 10	1808	300	88	670
Envelop. Return-	B. B. Goldsmith	605,163	June 7	189	46	88	1846
Envelop. Safety-	W. H. Underwood	605,548	May 3	557	128	88	706
Eraser	J. H. Lancaster	605,486	June 14	798	188 189	88	1565
Evaporating apparatus							
Excavating and conveying. Cableway system and apparatus for	A. Cryer and E. C. Newby	608,309	Apr. 12	1251	275 276	88	252
Excavating machinery	H. Rakov	608,858	May 10	1196	253	88	995
Excavating-tool	J. K. Murphy	608,681	June 28	2261	497	88	1975
Excavation extension-brace	E. Sandow	608,774	Apr. 19	2044	468	88	417
Exercises. Electric muscular	S. Sachs and H. Jaffe	605,747	June 14	1246	266	88	1610
Exercising apparatus	F. E. Spink	605,237	June 7	338	77	88	1414
Exercising device	B. A. McFadden	602,517	Apr. 19	1601	367	88	285
Exercising-machine	N. P. Pratt	602,770	Apr. 19	2088	460 461	88	415
Exhauster	S. Bouton	606,504	June 28	2723	627 628	88	1980
Explosive-engine	C. E. Henriod	608,986	May 10	1381	305	88	675
Explosive-engine	G. A. Newman	608,707	Apr. 19	1941	440 441	88	308
Explosive-engine	J. A. Secor	608,477	Apr. 19	1537	340	88	282
Explosive-engine	A. Eschner	608,078	Apr. 26	2578	585	88	585
Extension-table	W. H. Klein	602,509	Apr. 19	1595	353	88	281
Extension-table	C. Marker	604,989	May 31	3119	716	88	1969
Extension-table	C. Poupon	606,084	June 21	1945	447 448	88	1757
Extension-table							
Extractor: *See* Cork-extractor. Oil-extractor. Spike-extractor. Staple-extractor. Stump-extractor.							
Eyeglass-case	C. E. White	608,095	Apr. 5	756	169	88	148
Eyeglass nose-guard	G. W. Wells	604,448	May 24	2253	506	88	1106
Eyeglasses	E. F. Braddock	604,998	May 31	3104	712	88	1268
Eyelet	E. Kempshall	606,061	June 21	1899	437	88	1748
Eyelet	G. B. Miller	605,802	June 21	1566	360	88	1660
Eyelet-hole-finishing device	J. B. Moran	604,589	May 24	2516	572	88	1154
Eyeleting-machine	S. Field	608,023	Apr. 26	9480	563	88	515
Eyeleting-machine	S. Field	605,574	June 14	933	216	88	1553
Fabric: *See* Bullet-proof fabric. Knit fabric. Knit pile fabric. Plush fabric. Waterproof fabric. Woven fabric.							
Fabric	O. A. Moses	605,567	June 14	923	216	88	1551
Fabric-turning machine. Tubular-	R. Barrie	604,519	May 24	2570	541	88	1128
Fabrics. Apparatus for applying liquids to textile.	F. Girard	606,454	June 28	2661	610	88	1915
Fabrics or permeable materials with nitrocellulose compounds and product produced thereby. Coating	F. G. Annison	602,797	Apr. 19	2091	.....	88	426
Face and neck protector	J. Weil	608,206	May 3	104	25	88	621
Fare indicating and registering apparatus for cabs, &c.	F. W. G. Bruhn	605,442	June 7	794	168	88	1492
Fare-receipt slip	F. S. Borton and C. F. Bates	608,896	May 10	1050	236	88	823

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fare-recorder	W. J. Fordney	605,947	June 7	353	80, 81	88	1418
Fare-register	E. Fuchs	602,700	Apr. 19	1988	432 203	88	395
Fare-register	C. E. Pratt	605,918	June 21	1608	269 270	88	1665
Fare register and record	G. D. Shaft and H. Hays	608,861	May 10	1132	255	88	996
Fare-register-operating mechanism. Car	C. Bernstein	604,295	May 17	1961	430	88	1081
Farm-gate	A. F. Brya	602,898	Apr. 26	2248	512	88	472
Farm-gate	A. A. Downey	605,948	June 21	1677	384	88	1709
Farm-gate	T. C. Lippitt	605,467	June 28	2668	615	88	1918
Farm-gate	R. E. McClelland	606,177	June 21	2109	485	88	1768
Farm-gate	J. W. Paulen	605,063	May 31	3281	769	88	1288
Farm-gate	E. N. Parker	604,542	May 24	2433	553	88	1137
Fastener	W. S. Richardson	604,657	May 24	2602	598	88	1169
Fastener	A. Currier	601,998	Apr. 5	716	151	88	135
Fastening device	W. T. Messinger	604,408	May 24	2179	493	88	1089
Fastening device	S. Patchett	605,510	June 14	985	192	88	1529
Fastening device	C. W. Brackett	602,300	Apr. 12	1289	272	88	249
Faucet	F. F. Field	608,808	Apr. 19	1739	395	88	325
Faucet	E. U. Scoville	608,744	May 10	908	201	88	732
Faucet	J. F. Dredge and J. Doyle	608,465	May 3	399	89	88	676
Faucet and pipe-cleaner. Liquid-distributing	J. Easker	605,540	June 14	808	203 204	88	1541
Faucet. Automatic	H. E. Knottnerus	605,550	June 28	2685	653	88	1951
Faucet. Automatic gaging-	E. Boening	608,984	May 10	1288	304	88	874
Faucet. Beer-measuring	G. A. Soderlund	601,718	Apr. 5	167	36	88	37
Faucet. Hot and cold water	E. Boening	608,983	May 10	1286	304	88	874
Faucet. Measuring-	J. C. Perry	605,025	June 21	1531	422	88	1735
Faucet. Water-	A. Mattijetz	602,345	Apr. 12	1304	200 201	88	263
Feed-cutter	C. F. Search	604,127	May 17	1651	371	88	979
Feed-cutter	A. B. Willoughby	601,668	Apr. 5	123	24	88	24
Feed for boilers. Water-	W. G. Pearson	608,587	May 3	550	121	88	706
Feed-mixer	J. King	604,038	May 17	1505	330 331	88	943
Feed-water and circulation. Heating-	C. J. Jackson	604,249	May 17	1874	420	88	1013
Feed-water heater	L. Dery	606,195	June 28	2145	498	88	1814
Feed-water regulator	A. E. Macoun and J. Noey	608,650	May 10	750	166	88	708
Feed-water regulator. Automatic electric	H. W. French	608,163	June 21	2084	479 480	88	1784
Felt. Apparatus for forming hair	H. H. Brandes	605,849	June 21	1464	340	88	1672
Fence	F. Childers	605,393	June 7	641	143	88	1475
Fence	I. N. Feltenberger	606,527	June 28	2758	637	88	1997
Fence	T. B. Ferguson, Jr.	608,698	May 10	713	160	88	755
Fence	A. Flesher and J. L. Crisler	606,580	June 28	2790	644	88	1342
Fence	D. D. Frisble	605,094	June 7	49	15, 16	88	1792
Fence	T. R. Greene	608,901	May 10	1203	271	88	859
Fence	G. B. Greer	608,917	Apr. 12	1099	241	88	291
Fence	J. W. Holler	608,374	May 3	53	14	88	611
Fence	E. B. Willix	605,570	June 14	986	217	88	1538
Fence	F. Johnson	606,461	June 28	2800	612	88	1917
Fence clamp. Wire-	S. C. Bowen	606,506	June 28	2735	626	88	1960
Fence compensator. Wire-	A. L. Kitselman	606,490	June 28	2698	598	88	1905
Fence-machine	E. C. Mathews	604,999	May 31	2805	788	88	1306
Fence-machine clamp	R. Carter	606,120	June 21	2006	460	88	1770
Fence machine. Wire-	O. A. Morrow	608,917	May 10	1287	278 279	88	855
Fence machine. Wire-	A. E. Roberts	604,905	May 31	3065	705	88	1276
Fence-making machine	A. E. Roberts	604,906	May 31	3066	705	88	1276
Fence-making machine	W. J. Brock	608,988	May 10	1382	307	88	675
Fence. Portable-	W. Bowman	608,186	Apr. 26	2729	619	88	586
Fence-post	G. A. Dieckmann	604,488	May 24	2373	510	88	1110
Fence-post	W. H. Frame	602,740	Apr. 19	1960	451	88	407
Fence-post	C. Gros and J. F. Thomas	608,744	Apr. 19	1996	456	88	408
Fence-post	L. E. Ketchum	606,559	June 28	2684	653	88	1951
Fence-post	W. H. Kimball	608,807	Apr. 19	2130	476	88	420
Fence-post	J. H. Pierson	608,454	May 3	399	88	88	679
Fence-post	J. H. Sparks	606,355	June 7	972	196	88	1461
Fence-post	C. Baxter	606,189	June 28	2132	487	88	1809
Fence spacer. Wire-	G. H. Miller	608,773	May 10	995	214	88	802
Fence spacer-bar. Wire-	L. S. Mohler	604,085	May 17	1887	346	88	943
Fence-stay	C. R. Morrow	608,961	May 10	1205	295	88	883
Fence-stay	W. E. Boyer	601,698	Apr. 5	126	31	88	29
Fence-stay	C. Baxter and A. Schrader	606,205	June 28	2208	532	88	1847
Fence-stay-weaving device	W. C. Barrick	608,819	Apr. 26	2143	498	88	461
Fence stay. Wire-	M. Neil and F. H. Bissell	601,671	Apr. 5	68	17	88	17
Fence stay. Wire-	C. E. Wintrode	608,804	May 10	1015	227	88	615
Fence-stay-wire lock	C. K. Wolf	604,647	May 24	2619	597	88	1173
Fence stays. Machine for crimping wire-	W. Neeb	608,070	June 21	1914	440	88	1751
Fence strands. Implement for stretching wire-	S. C. Bowen	606,505	June 28	2734	628	88	1960
Fence-tightener. Wire-	L. J. Gilmour	604,746	May 31	2800	640	88	1997
Fence-tightening tool. Wire-	J. A. Beamiederfer	608,982	Apr. 26	2340	534	88	490
Fence tool. Wire-	H. W. Denison	604,972	May 31	3164	726	88	1326
Fence tool. Wire-	W. H. Warner	604,090	May 17	1601	360	88	961
Fence-weaving machine. Wire-	D. W. Bromley	608,166	Apr. 26	2726	620	88	568
Fence. Wire-	P. F. Clarkin	605,595	June 14	975	225	88	1560
Fence. Wire-	J. F. Heffley	608,444	Apr. 19	1451	326	88	311
Fence. Wire-	M. Neil and F. H. Bissell	608,697	Apr. 26	2911	501	88	495
Fence. Wire-	P. J. Schild	601,695	Apr. 5	608	148	88	121
Fence. Wire-	H. Withey	601,864	Apr. 5	475	98	88	89
Fences. Device for applying stay-wires to wire-	J. R. Jones	604,398	May 24	2155	494	88	1088
Fences. Metal fabric for wire-	J. W. Griswold and A. G. Goldthwait	604,041	May 17	1488	332 334	88	938
Fencing. Machine for making wire-	J. R. Smith	605,332	June 7	500	126	88	1461
Fencing tool. Wire-	A. L. Kitselman	606,421	June 28	2697	668	88	1904
Fencing. Woven-wire							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Fender:							
See Car-fender.							
Fertilizers. Apparatus for making	E. Clarenbach	608,942	May 10	1967	288	88	908
Fertilizers. Making	W. E. Rowlands	608,363	Apr. 12	1336	.....	88	299
Fibrous material	J. A. Maquaire	606,070	Apr. 26	2586	562	88	1750
Fifth-wheel	D. Wilcox	605,717	June 14	1204	378	88	1608
File and binder	A. A. Hunsiker	606,286	June 28	2334	{ 540 / 541	88	1853
File and locking mechanism. Card-indexing	H. Hamilton	601,746	Apr. 5	243	46	88	47
File-case	F. E. Clark	606,506	June 28	2736	699	88	1980
File. Letter	C. C. Boykin	605,498	June 14	801	{ 184 / 185	88	1527
File. Letter	H. P. Lavender	608,898	Apr. 26	2169	498	88	456
File. Letter or bill	S. Drummond	604,106	May 17	1681	364	88	965
File. Prescription	A. H. Cook, Jr	604,986	May 31	3167	784	88	1803
Filing-case	C. O. Hiscock	602,730	Apr. 19	1958	445	88	401
Filter	J. D. Bowne	608,304	Apr. 12	1943	273	88	250
Filter	C. E. Chamberland	608,393	May 3	130	32	88	695
Filter	J. H. Eckart	604,981	May 31	3107	714	88	1907
Filter	S. D. Eisendrath	604,984	May 31	3164	733	88	1808
Filter	A. J. Harder	606,218	June 28	2305	506	88	1696
Filter	W. A. Hull	11,673	June 28	2972	690	88	1977
Filter	O. H. Jewell. (Reissue)	605,046	May 31	3328	756	88	1288
Filter	L. Johnston	605,883	June 21	1550	356	88	1695
Filter	H. R. Kuersten	605,110	June 7	71	20, 21	88	1305
Filter	C. H. Loew	605,500	June 14	812	186	88	1520
Filter	D. B. Morrison	603,984	May 10	1060	241	88	695
Filter	A. N. Sprague	604,950	May 31	3133	730	88	1998
Filter	A. C. Willats	606,260	June 28	2201	{ 530 / 531	88	1844
Filter	J. Wilson	604,578	May 24	2498	567	88	1149
Filter	W. W. Wilson	601,785	Apr. 5	315	68	88	60
Filter	J. F. Wireback	601,973	Apr. 5	979	144	88	139
Filter	J. A. Lombas	604,450	May 24	1056	507	88	1107
Filter. Centrifugal	C. S. White	608,597	May 3	695	139	88	723
Filter. Gasolene	C. Dorn	608,897	May 3	145	34	88	680
Filter. Oil	A. H. Franke	604,566	May 24	2485	{ 505 / 506	88	1148
Filter. Oil	J. B. Raab	601,888	Apr. 5	395	88	88	74
Filter-press	E. E. Hendrick	602,466	Apr. 19	1550	358	88	285
Filter. Rain-water	W. M. and L. Tice	602,893	Apr. 26	2149	487	88	453
Filter. Water	F. Buck and T. Huss	604,615	May 24	2558	584	88	1163
Filter. Water	C. F. Hitchcock	609,708	May 10	845	187	88	781
Filter. Water	G. Schussler	606,502	June 28	2692	669	88	1902
Filter. Water	H. Snell	602,863	Apr. 26	2234	506	88	469
Filter. Water	E. Tyden	603,945	May 10	1271	280	88	803
Filtering and pressing garbage. Process of and apparatus for continuously	C. Edgerton	606,453	June 28	2647	609	88	1914
Filtering apparatus	G. G. Fryer	605,152	June 7	173	43	88	1284
Filtering apparatus	S. Twitchell	605,965	June 21	1754	402	88	1722
Filtering or purifying and aerating water. Apparatus for	J. A. Wiedersheim	608,458	May 3	437	97, 98	88	665
Filtering plant for waterworks	T. C. Hefel	605,706	June 14	1189	274	88	1509
Filtering-plates. Apparatus for manufacturing	L. A. Enzinger	602,008	Apr. 12	881	{ 191 / 198	88	179
Filtration. Purifying condensation-water from oil by	G. Olberg	602,191	Apr. 12	1055	231	88	212
Finger-dilator	R. A. Luccheni	603,957	May 10	1291	294	88	867
Finger-gage for rings	A. Johnson	608,270	May 3	49	12	88	610
Fire-alarm. Automatic electric	W. E. Frost	605,795	June 14	1358	311	88	1630
Fire-alarm. Automatic electric	H. A. Olsson	601,730	Apr. 5	206	41	88	40
Fire-alarm systems. Heat-detector for electric	J. D. Gould	604,486	May 24	2342	531	88	1121
Firearm. Breech-loading	W. Cashmore	608,218	Apr. 26	2304	541	88	578
Firearm. Breech-loading	J. D. Coon	601,880	Apr. 5	374	79	88	70
Firearm. Breech-loading	R. T. Torkelson	601,708	Apr. 5	163	31, 32	88	38
Firearm. Magazine	R. Dinsmore	604,764	May 31	2939	{ 646 / 647	88	1232
Firearm. Magazine	W. E. King	601,898	Apr. 5	406	85, 86	88	76
Firearm. Magazine	S. N. McClean	601,840	Apr. 5	419	87	88	79
Firearm. Magazine	S. N. McClean	601,843	Apr. 5	434	88, 89	88	81
Firearm. Magazine	S. N. McClean	601,844	Apr. 5	440	89	88	83
Firearm. Magazine	W. H. Ostrander	608,066	Apr. 26	2548	{ 579 / 580	88	528
Firearm. Magazine	S. E. Fischer	606,452	June 28	2646	609	88	1914
Firearm-sight	W. E. Anderson	608,761	May 10	967	216	88	904
Fire-escape	S. Catanzano and N. Taccone	608,440	May 3	343	76	88	665
Fire-escape	M. Koloseus	604,960	May 31	3102	735	88	1803
Fire-escape	F. Underwood	604,066	May 17	1596	359	88	960
Fire-escape	J. B. Westmore	602,673	Apr. 19	1884	428	88	397
Fire-escape	D. L. Winters	605,686	June 14	1163	267	88	1546
Fire-escape ladders. Machine for making	M. Shires and J. Q. A. Kennedy	604,797	May 31	2880	{ 558 / 559	88	1243
Fire-extinguisher	G. W. Coon	605,857	June 21	1508	344	88	1676
Fire-extinguisher	S. M. Stevens	605,922	June 21	1642	377	88	1702
Fire-extinguisher	A. H. Van Riper	605,033	May 31	3272	758	88	1818
Fire-extinguishing and disinfectant-distributing apparatus	W. M. Thompson and C. Nuhring	604,439	May 24	2237	508	88	1103
Fire-harness hanger	M. Harcourt	602,882	Apr. 12	1272	291	88	256
Fire-hose nozzle	E. D. Kellerman and B. C. Crane	608,144	Apr. 26	2098	612	88	536
Fire-hydrant	N. Barry, Jr	606,500	June 28	2718	696	88	1922
Fire-hydrant	C. A. Sulzman	608,295	May 3	68	22	88	618
Fire-kindler	W. R. E. Tharp	604,438	May 24	2335	502	88	1103
Fire-lighter	F. H. Prosser and S. F. Dorr	602,671	Apr. 26	2217	508	88	406
Fireplace	R. Bowes	602,983	Apr. 26	2341	534	88	490
Fireplace-heater	J. H. Heitland	605,713	June 14	1190	276	88	1601

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Fireproof blind or curtain	W. R. Kinnear	608,608	Apr. 19	1744	{ 397 / 398	88	960
Fireproof calcimine	S. Kalamalkowski	608,698	May 10	822	.....	88	777
Fireproof floor and ceiling	G. Liebau	608,506	May 3	644	144	88	736
Fireproof mask	P. Dallinger	606,379	June 28	2511	582	88	1886
Fireproof partition or other wall and ceiling	T. Bailey	608,591	May 3	631	{ 140 / 141	88	784
Fireproof partitions. Skeleton structure for	P. Kühne	606,348	June 28	2449	567	88	1875
Fireproof plastering-support	A. Kühn	606,367	June 28	2524	585	88	1886
Fire-resisting frame and door	A. De Man	608,443	May 3	345	77	88	666
Fire-resisting wooden stairs	A. De Man	608,130	Apr. 26	2074	{ 606 / 607	88	554
Fish-hook-holding device	J. H. Snyder	605,758	June 14	1266	292	88	1614
Fish-trap	F. L. Albury	605,894	June 21	1451	333	88	1667
Fish upon wires in regular rows. Apparatus for securing	E. Andersen	608,083	Apr. 26	2498	506	88	518
Fishing-reel	E. Moore	608,595	Apr. 19	1714	390	88	854
Flash-light apparatus	A. E. Johnstone	608,338	May 3	155	36	88	632
Flash-light machine. Aerial	E. C. Brown	605,573	June 14	981	218	88	1532
Flash-light-powder apparatus	A. Hemsley	606,340	June 28	2439	565	88	1873
Floor and ceiling plate	L. H. Snyder and W. G. Christian	605,084	May 31	3255	748	88	1815
Flower-bed border	E. F. Johnson	606,151	June 21	2068	478	88	1779
Flower-carrier	C. H. Leedy	608,649	May 10	749	166	88	703
Flower-crimping machine. Artificial	L. Ebert	605,409	June 7	680	{ 150 / 151	88	1488
Flour. Treating wheat in manufacturing	A. F. Oesterreich	601,777	Apr. 5	295	55, 59	88	56
Flue-cleaner. Steam	J. T. Thompson	604,551	May 24	2452	557	88	1140
Flue-scraper	R. L. Lukens and G. H. Zschech	604,058	May 17	1585	343	88	946
Flue-stopper	J. M. Padgett	605,128	June 7	104	27	88	1371
Fluid-battery. Invertible	P. R. Cunningham and C. H. Howland-Sherman.	608,616	Apr. 19	1765	{ 403 / 404	88	364
Fluid-distributing system and apparatus	A. Kitson	602,228	Apr. 12	1107	243	88	228
Fluid meter and motor	J. H. Dixon	602,311	Apr. 12	1255	277	88	253
Fluid-meter. Prepayment	H. Green	606,625	June 28	2951	{ 683 / 684 / 685	88	1973
Fluid-pressure motor	P. Schlachter	606,204	June 28	2208	{ 546 / 547	88	1858
Fluid-pressure regulator	R. Matchett	601,878	Apr. 5	496	103	88	98
Fluid-pressure regulator	J. Williams and J. R. Rees	601,923	Apr. 5	573	110	88	109
Fluid-pressure systems. Means for testing	G. S. Hodgins	602,009	Apr. 5	730	156	88	136
Flush joint for tubular-frame constructions	F. C. Avery	608,944	May 3	9	1	88	601
Flushing apparatus	H. Haynes	605,712	June 14	1196	276	88	1601
Flushing-cistern	E. H. Parkinson	605,973	June 21	1725	390	88	1717
Flushing-tank	E. M. Stirling	604,178	May 17	1754	395	88	991
Fly-catcher	C. A. Kimbel	602,083	Apr. 12	853	195	88	173
Fly-paper. Sticky	H. Thum	608,981	May 10	1294	{ 303 / 304	88	874
Fly-screen	S. C. Hart	608,595	May 3	686	143	88	725
Fly-screen	J. G. Zook	603,717	May 10	958	191	88	784
Fly-trap	T. Clement	602,126	Apr. 12	925	208	88	187
Fly-trap	W. Engelbrecht	601,963	Apr. 5	250	135	88	128
Fly-trap	J. C. Nixon	608,065	Apr. 26	2547	579	88	595
Flying-machine	F. A. Jone	605,579	June 14	940	{ 219 / 220	88	1534
Fodder-bundler	H. J. Kester	606,287	June 28	2336	541	88	1853
Fodder-compressor	J. B. Carter	605,220	June 7	306	70	88	1409
Foil-removing apparatus	G. A. Mueller	606,154	June 21	2066	475	88	1780
Folding and cutting mechanism	E. P. Sheldon	604,847	May 31	2959	{ 677 / 678 / 679	88	1858
Folding box	M. B. Claff	604,298	May 17	1694	{ 411 / 611	88	1006
Folding box	A. O. Hubbard	606,450	June 28	2656	{ 612 / 613	88	1916
Folding box	E. E. Pratt	602,586	Apr. 19	1716	391	88	365
Folding chair	C. C. Tombs	605,108	June 21	1976	454	88	1764
Folding rack	J. H. Sloane	602,481	Apr. 19	1541	350	88	292
Food. Apparatus for treating or sterilizing canned	F. W. Smith	604,642	May 24	2008	{ 594 / 595	88	1171
Food compound and making same	W. Gebhardt	606,694	June 28	2949	.....	88	1973
Food. Preparing liquid	W. Sellman	605,190	June 7	238	.....	88	1366
Food product and making same	A. Bernstein	608,165	Apr. 26	2724	.....	88	568
Foot-ball	B. Arnold	608,204	Apr. 12	1231	271	88	247
Foot-gear. Electrical	J. Gallegos	603,185	Apr. 26	2685	609	88	555
Foot-rest	E. J. Smith	603,155	Apr. 26	2711	616	88	560
Foot scraper and wiper. Combined	I. Kinney	605,552	June 14	880	207	88	1545
Forceps	C. K. Judd	602,946	Apr. 26	2351	530	88	494
Forging solid-metal car-wheels. Die for	S. H. Ralston	602,196	Apr. 12	1061	{ 232 / 233	88	213
Fork: *See* Double or compound fork.	O. I. Affelder	605,372	June 7	609	{ 135 / 136	88	1468
Formaldehyde-generator	A. Classen	602,697	Apr. 19	1922	.....	88	394
Formaldehyde starch and making same	J. A. Miller	608,451	May 3	650	81, 88	88	669
Fortification							
Fountain: *See* Aerated-water fountain.							
Fountain	B. Ott	608,342	May 3	172	40	88	635
Frame: *See* Carrying-frame. Drying-frame. Display-frame. Embroidery-frame.							
Frame-brace and stake-socket. Combined	L. Stowe	601,912	Apr. 5	558	115	88	108
Frame clamp and support	F. Reissmann	604,160	May 17	1709	365	88	988
Frogless switch	M. Riley	606,096	June 21	1952	449	88	1750
Fruit, flowers, &c. Cutter and holder for	W. W. Crockett	605,400	June 7	665	147	88	1480
Fruit-gatherer	L. E. Lane	606,092	June 21	1900	437	88	1748
Fruit or other jar	H. H. Bokelmann	603,080	Apr. 26	2476	588	88	514

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fruit-picker	R. A. Anderson	602,551	Apr. 19	1659	377	88	344
Fruit-picker	M. J. Drysdale and H. Raburn	606,594	June 28	2753	636	88	1936
Fruit-picker	L. S. Hagan	605,419	June 7	696	155	88	1457
Fruit-picker	O. W. Hudgins and J. A. Jones	605,461	June 7	733	172	88	1497
Fruit-picker	P. Munde	602,918	May 10	1230	279	88	955
Fruit-picker	A. H. Bales	605,367	June 7	405	91	88	1499
Fruit-press	G. Pettit, Jr	603,089	Apr. 26	2494	565	88	517
Fruit. Stemming and cleaning	G. Griffiths	603,857	May 10	1125	258	88	985
Frying-pan and lifter	E. Perroté	604,317	May 17	2006	------	88	1040
Fuel and making same. Composite	H. L. Day	603,076	Apr. 26	2574	594	88	598
Fuel-feeder	H. L. Day	603,077	Apr. 26	2576	594 / 595	88	598
Fuel-feeder	H. W. Rappleye	601,677	Apr. 5	94	19	88	90
Fumes or gases. Method of and apparatus for condensing	J. T. Commoss	606,446	June 28	2695	606	88	1912
Fumigator							
Furnace: *See* Assay-furnace. Blast-furnace. Boiler-furnace. Electric furnace. Heating-furnace. Hot-air furnace. Metallurgical furnace. Ore-roasting furnace. Plumber's furnace. Smelting-furnace. Smoke-consuming furnace.							
Furnace	R. Gaul	603,372	May 3	51	12	88	610
Furnace	F. B. McCullough and E. M. Parrott	603,464	Apr. 19	1515	345	88	317
Furnace	G. L. K. Morrow	603,643	Apr. 19	1880	415 / 416	88	374
Furnace	A. Pillatt	605,206	June 7	278	64	88	1403
Furnace	A. J. Pulver	601,985	Apr. 5	608	147	88	181
Furnace	R. L. Short	605,758	June 14	1259	290 / 291	88	1612
Furnace	E. E. Starr	603,373	Apr. 12	1350	301 / 309 / 672	88	272
Furnace	W. Stubblebine	606,600	June 28	2907	673	88	1954
Furnace	F. E. Swift	606,354	June 28	2261	527	88	1842
Furnace	C. W. Trotter	605,240	June 7	336	78	88	1415
Furnace	O. W. Degen	603,556	May 3	577	127 / 128	88	712
Furnace and liquid-fuel burner	J. A. Farrell and W. Douglas	603,181	Apr. 26	2746	635	88	567
Furnace-blast apparatus	G. R. Steward	604,096	May 17	1593	358	88	950
Furnace-door	F. L. Horspool	605,576	June 14	987	219	88	1554
Furnace door. Steam-boiler	A. H. and F. J. Lindberg	603,470	May 3	405	91	88	979
Furnace for heating rivets or for similar uses	R. Schneider	605,802	June 14	1269	314	88	1632
Furnace for working zinc and lead	J. M. Hartman	603,380	May 3	152	35, 36	88	681
Furnace iron-notch and appliance. Blast-	J. Scott	601,750	Apr. 5	264	59	88	51
Furnace-walls. Means for protecting	R. Goll	604,365	May 24	2136	480	88	1094
Furnaces. Device for admitting air to	J. P. Eck	605,090	June 7	42	13, 14	88	1361
Furnaces. Electrical apparatus for charging	J. Reagan	605,797	June 14	1861	419	88	1631
Furnaces. Indestructible block for boiler-	G. A. Bobrick	605,806	June 7	476	107	88	1442
Furniture. Adjustable	W. Wicke	601,868	Apr. 5	473	95, 96	88	88
Furniture. Adjustable	H. B. Hiteshew and W. F. Spieth	601,875	Apr. 5	493	101 / 102	88	90
Furniture. Adjustable school	S. Linthicum, Jr	605,963	June 21	1712	393	88	1715
Furrower, marker, and coverer. Combined							
Gage: *See* Axle-gage. Finger-gage. Knife-gage. Saw-table gage.							
Gage for liquid in vessels	R. S. Foltz and C. A. Phillips	602,069	Apr. 12	893	180	88	169
Gage-glass mounting	A. Ville	604,441	May 24	2240	508	88	1104
Gage-knife	G. M. Landers	602,758	Apr. 19	2015	457	88	413
Galvanic battery	W. Rowbotham	602,362	Apr. 12	1335	297 / 298	88	269
Game apparatus	C. B. Aske	604,650	May 24	2615	598	88	1173
Game apparatus	T. Birch	601,700	Apr. 5	183	36	88	36
Game apparatus	C. L. Klauder	605,729	June 14	1218	280	88	1603
Game apparatus	H. T. Pycroft	603,539	May 3	552	121	88	707
Game apparatus	T. Renwick	602,187	Apr. 12	1050	239	88	211
Game apparatus	E. L. Williams	601,863	Apr. 5	474	96	88	88
Game apparatus. Coin-controlled	C. M. Linley	605,494	June 14	804	185 / 186	88	1536
Game-board	H. L. Haskell	602,179	Apr. 12	1069	253	88	207
Game-board	H. L. Haskell	602,180	Apr. 12	1071	253	88	208
Game-board	W. H. Perry	602,356	Apr. 12	1320	295	88	267
Game-counter	J. Schneider	603,514	May 3	505	110	88	696
Game device	A. Lang	604,401	May 24	2150	485	88	1069
Game or puzzle	B. B. Goldsmith	605,164	June 7	191	43	88	1387
Game-scoring device	A. Zestermann	603,258	May 3	191	44	88	636
Games of cards. Apparatus for playing duplicate	G. L. Castner	606,121	June 21	2007	460	88	1770
Garbage-closet	C. S. Robinson	606,087	June 21	1954	449	88	1759
Garbage from buildings. Apparatus for disposing of	I. C. Goodridge	606,488	June 28	2092	620	88	1923
Garden-tool	L. B. Smith	602,370	Apr. 12	1348	301	88	272
Garment and hose support. Combined	C. A. W. Lindsay	605,108	June 7	60	20	88	1365
Garment-clasp	W. G. McGee	601,814	Apr. 5	365	76	88	60
Garment distender and drier	P. O'Thayne	604,122	May 17	1644	366 / 369	88	968
Garment-hanger	T. G. Owen	605,332	June 7	516	115	88	1451
Garment-holder	A. L. Lincoln	603,335	May 3	168	37	88	633
Garment-hook	W. P. McIlyar	601,660	Apr. 5	60	16	88	16
Garment-supporter	H. S. Brewington	601,745	Apr. 5	241	48	88	46
Garment-supporter	R. Gorton	603,899	May 10	1197	271	88	849
Garment-supporter	A. S. Grimm	602,073	Apr. 12	859	188	88	170
Garment-supporter	M. B. Hammond	606,235	June 7	313	72	88	1411
Garment-supporter	W. B. Humphrey	602,305	Apr. 19	2103	476	88	489
Garment-supporter	W. G. Washburn	604,124	May 17	1697	374	88	973
Garment-supporter	O. Bleier	605,991	June 21	1792	404	88	1734
Gas analysis. Apparatus for	D. H. Chivert	604,997	May 31	2155	796	88	1297
Gas apparatus. Acetylene-	J. B. Fournier	604,659	May 24	2627	601	88	1176
Gas. Apparatus for using liquefied or compressed							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gas-burner	G. A. Hall	603,219	Apr. 26	2808	641	88	578
Gas-burner	J. F. Hewitt	603,373	May 3	52	14	88	611
Gas-burner	R. Momand	603,225	June 28	2218	509	88	1883
Gas-burner	W. W. Seeley	603,661	May 10	767	170	88	766
Gas-burner	C. S. Steward	603,612	May 3	656	153	88	734
Gas-burner	T. Wilson	604,108	May 17	1613	362	88	963
Gas-burner	J. S. Billwiller	603,494	Apr. 19	1444	327	88	305
Gas burner. Acetylene-	E. J. Dolan	603,535	Apr. 26	2164	491	88	456
Gas burner. Acetylene-	J. W. Bragger	605,568	June 14	919	213	88	1549
Gas-burner. Incandescent	H. F. Gabel	604,209	May 17	1805	406	88	1001
Gas-burner for water-heaters	J. D. C. Chateau	603,695	Apr. 19	1921	437	88	394
Gas-burner valve-controlling device	H. P. D. Ohlhaver	603,473	May 3	415	------	88	660
Gas-burners. Mantle for incandescent	E. N. Dickerson	603,533	Apr. 26	2162	491	88	455
Gas. Burning acetylene	J. Sedlacek	606,430	June 22	2611	602	88	1907
Gas-compressor	A. Giesler	602,802	Apr. 19	2108	474 / 475	88	498
Gas compressor. Ammoniacal-	A. S. Huffman	603,903	May 10	1354	309	88	990
Gas. Device for preventing discharge of	M. Beck	602,820	Apr. 26	2144	486 / 487	88	451
Gas-engine	J. Carnes and C. W. McKibben	603,125	Apr. 26	2005	455	88	551
Gas-engine	J. F. Duryea	605,815	June 14	1302	319 / 320	88	1637
Gas-engine	T. H. Hicks	606,396	June 28	2580	595	88	1866
Gas-engine	D. M. Tuttle	604,241	May 17	1880	416 / 417	88	1010
Gas-fixture. Safety	A. N. Hoxie	604,617	May 24	2561	584	88	1163
Gas-forming apparatus	D. Clegg	606,180	June 28	2134	490	88	1812
Gas from fermenting liquors. Collecting	J. Schneible	604,125	May 17	1646	370	88	949
Gas-generating apparatus. Acetylene-	E. Armanet	602,073	Apr. 26	2570	588	88	538
Gas-generating apparatus. Acetylene-	E. N. Dickerson	604,120	May 17	1672	376	88	974
Gas-generating apparatus. Acetylene-	J. Flood and J. Kipling	601,791	Apr. 5	295	66	88	61
Gas-generating apparatus. Acetylene-	O. Grenier and J. Grand	606,530	June 28	2802	646	88	1945
Gas-generating apparatus. Acetylene-	A. B. Griffen	605,908	June 21	1707	391	88	1714
Gas-generating apparatus. Acetylene-	G. de Rousay de Sales	604,667	May 24	2645	602	88	1179
Gas-generating apparatus. Acetylene-	J. W. Scarth and W. A. Thornton	605,137	June 7	126	32	88	1375
Gas-generating apparatus. Acetylene-	H. H. Staples	606,087	June 21	1850	427	88	1730
Gas-generating apparatus. Acetylene-	F. S. Thorn and C. Hoddle	604,190	May 17	1767	405	88	995
Gas-generating apparatus. Acetylene-	J. A. Vincent	602,189	Apr. 19	1623	380	88	313
Gas-generating apparatus. Acetylene-	J. F. Williams	606,435	June 28	2080	604	88	1909
Gas-generating gas-fixture	T. A. Bryan and J. H. Couper	603,397	May 3	288	68, 69	88	650
Gas generator. Acetylene-	J. H. Couper	605,397	June 7	650	145 / 146	88	1477
Gas generator. Acetylene-	J. H. Couper and T. A. Bryan	605,398	June 7	652	146	88	1477
Gas generator. Acetylene-	E. J. Dolan	604,140	May 17	1673	376	88	974
Gas generator. Acetylene-	C. R. Gillett and O. S. Hellwig	603,506	May 3	494	108	88	697
Gas generator. Acetylene-	E. Godin	604,039	May 17	1480	333	88	920
Gas generator. Acetylene-	W. W. Goodwin	604,879	May 31	3018	608	88	1399
Gas generator. Acetylene-	W. McGraw	606,535	May 3	547	120	88	705
Gas generator. Acetylene-	C. Ogburn	603,655	May 10	757	169	88	764
Gas generator. Acetylene-	J. M. Raymond and L. E. Leonley	606,205	Apr. 26	2786	626	88	574
Gas generator. Acetylene-	H. Schneckloth	606,305	June 28	2363	547 / 548	88	1850
Gas generator. Acetylene-	O. G. Seward	603,747	May 10	909	201 / 202	88	798
Gas generator. Acetylene-	E. E. Shuler	605,926	June 21	1629	374	88	1700
Gas generator. Acetylene-	M. Zippler	605,560	June 14	908	213	88	1549
Gas-heater	L. Ramage	605,138	June 7	109	28	88	1373
Gas-jet cut-off	F. L. Kellner and G. S. Barrows	606,334	May 3	160	37	88	633
Gas-light electrical attachment	L. Hooker	605,960	June 21	1709	393	88	1714
Gas-light tassel. Incandescent	T. N. McNish	602,351	Apr. 19	1317	293	88	266
Gas-lighter	T. J. McTighe	604,121	May 17	1643	368	88	968
Gas-mantles and apparatus therefor. Method of incinerating incandescent	H. C. Shields	604,427	May 24	2215	496	88	1100
Gas-manufacturing apparatus	H. Cousin	604,220	May 17	1686	411	88	1007
Gas-manufacturing apparatus. Acetylene-	E. F. Griffiths	603,079	Apr. 26	2561	585	88	534
Gas-meter. Prepayment	C. W. Hinman	603,260	May 10	1107	249	88	889
Gas-meter. Prepayment	A. Krieger and J. Coyle	604,116	May 17	1635	367	88	967
Gas mixer. Fuel-	H. K. Clover	605,818	May 3	196	30	88	636
Gas motor. Oil-	T. M. Doyle	602,536	Apr. 19	1665	378 / 379	88	345
Gas or gasolene engine	F. S. Mead	603,914	May 10	1221	276	88	853
Gas or oil engine	M. Grimm	605,868	June 21	1519	349 / 350	88	1679
Gas. Process of and apparatus for burning acetylene	J. Fraser	603,398	May 3	148	34, 35	88	631
Gas-producer	H. A. Deroy	604,085	May 17	1460	327	88	905
Gas-producing apparatus. Acetylene-	A. Kuhne	605,168	June 7	197	50	88	1388
Gas-regulator	W. E. H. Williams and P. Seller	602,545	Apr. 19	1654	376	88	343
Gas-regulators. Electric controller for	J. Baird	603,998	May 10	1207	311	88	869
Gas shut-off. Automatic	J. D. Forster	603,008	Apr. 5	720	153	88	186
Gas-supply meter. Prepaid	L. K. Böhm	606,441	June 28	2089	604	88	1911
Gas tip. Acetylene-	E. M. T. Boddam	605,217	June 7	298	69	88	1407
Gas under high pressure. Producing and storing	C. P. Mayer and J. H. Pomeroy	604,406	May 24	2166	467	88	1060
Gas-vending apparatus. Automatic	A. E. Deacon	604,408	May 24	2165	467	88	98
Gas-washing apparatus	G. Lebrun and F. Cornaille	601,898	Apr. 5	511	105	88	98
Gases. Burner for acetylene or other	P. F. Leary	605,866	June 21	1557	358	88	1657
Gasket. Metallic	F. Messick	602,543	Apr. 19	1643	374	88	341
Gasolene-purifier		603,960	May 10	1204	295	88	883
Gate: *See* Automatic gate. Car-gate. Drive-gate. End-gate. Farm-gate. Head-gate. Nursery-gate. Railway safety-gate. Revolving gate. Safety-gate. Swinging gate. Tilting gate. Water-gate.							
Gate	L. Arnoldt	603,753	May 10	917	203 / 204	88	795

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Gate	C. Ball	603,163	Apr. 26	2721	618	83	552
					619		
Gate	J. F. Barnes	605,771	June 14	1295	299	83	1619
					300		
Gate	C. D. Bell	603,503	June 28	2721	627	83	1989
Gate	W. H. Clay	603,256	May 3	25	7	83	605
Gate	G. Davis	605,993	June 21	1508	345	83	1676
Gate	J. W. Gilbert and H. H. Parker	603,984	Apr. 26	2421	551	83	504
Gate	W. I. Harp	603,748	Apr. 19	2008	458	83	409
Gate	F. F. McMullen	605,794	June 14	1357	311	83	1620
Gate	D. Miller	603,793	May 10	903	202	83	810
Gate	T. Sawyer	605,748	June 14	1347	309	83	1610
Gate	S. Stout	606,250	June 28	2275	526	83	1840
Gate	G. Van Buskirk	601,991	Apr. 5	701	149	83	188
Gate	H. B. Weston	605,455	June 7	745	169	83	1496
					170		
Gate	J. W. Dean	604,308	May 17	1994	447	83	1087
Gate-operating mechanism	N. A. Phillips	601,733	Apr. 5	214	42, 43	83	41
Gear-case	H. P. Brown	603,253	May 3	17	5	83	604
Gear motion-transmitting and speed-varying mechanism. Planet-	J. H. Hare	605,226	June 7	314	72	83	1411
Gear. Reversing-	E. F. Morse	603,609	May 3	663	152	83	733
Gear. Sprocket-and-chain	J. E. Gleason	605,249	June 7	356	81	83	1419
					82		
Gear-teeth. Machine for forming	H. C. Warren	605,982	June 21	1743	400	83	1721
					401		
Gear-tooth-generating machine	H. C. Warren	605,983	June 21	1747	401	83	1721
Gear-tooth-generating machine	A. F. Bertles	603,926	Apr. 12	1286	272	83	249
Gearing	H. B. Keiper	604,534	May 24	2416	550	83	1134
Gearing	H. B. Keiper	604,662	May 24	2639	602	83	1177
Gearing	H. B. Keiper	605,738	June 14	1311	290	83	1603
Gearing	H. B. Keiper	602,659	Apr. 19	1702	409	83	369
Gearing. Angle-	J. H. Sager	605,416	June 7	662	154	83	1466
Gearing. Differential	D. Fyfe						
Generator: *See* Acetylene-generator. Formaldehyde-generator. Gas-generator. Smoke-generator. Steam-generator. Vapor-generator.							
Gilding china, earthenware, or porcelain articles	G. W. Tooker	603,296	May 3	57	.....	83	616
Gin-saw-filing machine	J. H. and W. H. Walters	603,303	May 3	96	24	83	620
Girder. Sheet or plate	C. B. Sill	602,274	Apr. 12	1189	261	83	250
					165		
Glass-annealing leer	J. H. Lubbers	602,051	Apr. 5	708	166	83	145
					330		
Glass-blowing machine	M. J. Owens. (Reissue)	11,068	June 14	1497	330	83	1645
					331		
Glass-furnaces. Means for keeping glass clear in regenerative	G. Schlueder	602,111	Apr. 12	908	195	83	183
Glass-gathering machine	E. H. Jewett	603,488	June 14	798	160	83	1594
Glass. Method of and apparatus for rolling plate	C. C. Hartung	602,447	Apr. 19	1487	339	83	312
					28		
Glass-mold	H. L. Reinhardt	605,133	June 7	119	29	83	1373
					30		
Glass-mold cooling-table	W. Haley	602,399	Apr. 12	1405	316	83	288
					317		
Glass-pressing machine	W. Fetters	602,636	Apr. 19	1809	418	83	372
Glass. Process of and machine for embedding wire in	F. Shuman	605,754	June 14	1261	291	83	1613
Glass tubes. Machine for grinding	T. W. Van Hoesen	601,720	Apr. 5	191	37	83	98
Glass-worker's tool	L. Friedrich	606,200	June 28	2153	494	83	1616
Glassware-annealing apparatus	W. Buttler	602,677	Apr. 19	1689	420	83	398
					706		
Glassware articles. Apparatus for manufacturing	C. E. Schmunk	604,908	May 31	3076	707	83	1260
Glassware-finishing machine	P. J. McDonough and T. E. Shelly	601,898	Apr. 5	531	110	83	100
Glassware. Manufacture of	G. W. Blair	604,959	May 31	3145	723	83	1294
					705		
Glassware-manufacturing apparatus	C. E. Schmunk	604,907	May 31	3070	706	83	1279
					249		
Glassware-manufacturing machine	F. O'Neill	605,648	June 14	1063	250	83	1579
Glassware. Press for making articles of	W. A. Henry and C. N. Brady	603,952	May 10	1260	201	83	805
Glove	M. Murray	605,505	June 14	819	190	83	1531
Glove	L. A. Van Praag	606,209	June 28	2546	500	83	1608
Glove-drier	J. W. Hull	606,626	June 28	2958	620	83	1974
					634		
Glove-fastener	C. A. Pfenning	603,202	Apr. 26	2784	635	83	573
Glove-fastener	J. V. Washburne	603,303	May 3	99	24	83	620
Gloves, &c. Fastener for	W. S. Richardson	605,833	June 14	1422	329	83	1644
Glue-jointing machine	R. M. Gleason, E. J. Jackoboice, and A. H. Waterson.	601,956	Apr. 5	653	187	83	193
Glue-spreading machine	E. F. Compton	603,075	Apr. 26	2579	584	83	539
Glycerin from tank-water. Recovering	D. Cameron and D. S. Carraway	602,725	Apr. 19	1904	.....	83	408
					597		
Gold-bearing sand. Apparatus for concentrating	A. McDougall	604,627	May 24	2576	598	83	1166
Gold flakes from sand. Machine for separating fine	J. N. Marion	604,566	May 24	2481	595	83	1147
Gold from refractory ores. Composition for extracting	A. G. Stephens	602,526	Apr. 19	1615	.....	83	337
Gold-leaf. Device for laying	R. E. Hastings	602,985	Apr. 26	2422	552	83	505
Gold-leaf. Device for laying	R. E. Hastings	602,986	Apr. 26	2424	553	83	505
Gold-leaf. Tool for laying	J. C. F. Kunkle	602,948	Apr. 26	2364	520	83	494
					538		
Gold-leaf. Tool for laying	J. C. F. Kunkle	602,949	Apr. 26	2365	540	83	495
Gold saver. Flour-	B. Chaloner and E. E. Lichtenberger	604,653	May 24	2620	599	83	1174
Gold-separating machine	A. F. Perks	603,794	May 10	995	233	83	810
					235		

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Gold-separating machine	B. W. Sweet	603,113	Apr. 12	906	196	83	184
					197		
Gold-washer	C. Grimes	604,980	May 31	3179	732	83	1301
Governor	C. O. Heggem	603,089	Apr. 26	2505	568	83	580
Governor	A. B. Ireland	603,303	May 3	208	46	83	640
					206		
Governor	F. W. Spacke	605,684	June 14	1148	207	83	1501
Governor	M. A. Replogle	604,544	May 24	2426	553	83	1187
Governor. Electrical	C. M. Giddings	603,899	May 10	1072	240	83	894
Governor. Engine-	H. P. Maxim	606,425	June 28	2604	600	83	1905
Governor. Explosive-engine	E. F. Williams	605,941	June 7	286	78	83	1415
Governor. Fluid-motor	E. C. Knapp	603,193	Apr. 26	2772	632	83	571
Governor for steam-engines or other motors	J. W. Smith and A. H. Anthony	604,796	May 31	2884	659	83	1344
					636		
Governor mechanism	T. A. Edison	604,740	May 31	2791	639	83	1295
					630		
Governor. Motor-	M. E. Hershey and B. T. Allen	603,189	Apr. 26	2765	631	83	570
					396		
Governor. Motor-	W. H. Gunther	603,578	Apr. 19	1699	397	83	351
Governor. Steam-engine	W. H. Gunther	603,579	Apr. 19	1701	397	83	352
Governor. Steam-engine	H. K. Leedham	603,220	Apr. 26	2611	642	83	578
Grader. Road-	C. F. Hinman	606,216	June 28	2187	504	83	1622
					505		
Grading and ditching machine	G. S. Foster	602,502	Apr. 19	1571	506	83	329
Grain. Apparatus and building for unloading and storing	E. W. Burgess	602,086	Apr. 5	763	164	83	144
Grain-binder	P. Hanson	603,445	Apr. 19	1452	386	83	311
Grain-binder	P. P. Coler	604,022	May 17	1456	326	83	934
Grain-binder cord-knotter	A. E. Deweese	604,882	May 31	2915	667	83	1249
Grain-carrier	B. G. Royal	604,703	May 24	2717	621	83	1193
Grain cleaning and scalping machine	E. J. Corser	604,094	May 17	1459	327	83	934
Grain-drill	J. F. Montgomery and W. T. Berry	605,223	June 7	508	111	83	1445
Grain-drill	B. T. Spelman	605,524	June 14	845	198	83	1535
Grain-drill	T. F. Schmitt	602,776	Apr. 19	2046	463	83	416
Grain-elevator. Portable	J. Heyrock	603,641	May 10	736	164	83	750
Grain from threshing-machines into wagons or sacks. Machine for loading	E. McKim	602,008	Apr. 12	872	189	83	177
Grain, hay, and stock rack. Combined	F. H. Schule	605,922	June 21	1625	373	83	1599
Grain-polishing apparatus	C. Stone	603,204	May 3	84	21	83	617
Grain-scourer	J. F. Koch	605,437	June 7	716	161	83	1491
Grain-separator	A. D. Bellinger	605,375	June 7	612	137	83	1469
Grain-spout	G. R. Gorham	604,880	May 31	3021	693	83	1270
					694		
Grain-treating apparatus	F. H. Schule	605,923	June 21	1626	373	83	1700
Grains, &c. Drum for glazing	J. J. Callow	605,944	June 7	347	80	83	1417
Graining	H. Silver	601,908	Apr. 5	550	113	83	104
					114		
Graining machine. Lumber-	J. W. Jones	603,453	Apr. 19	1497	341	83	314
Gramophone-needle	H. and G. Rose	605,452	June 7	740	166	83	1495
Granulating-disk	J. H. Lancaster	605,480	June 14	797	183	83	1526
					184		
Grapple, bucket, &c	T. David	605,221	June 7	506	70	83	1410
Grappling-hook	J. McCallum	603,919	May 10	1232	279	83	955
Grass-clipping device	C. Fuller	604,143	May 17	1680	280	83	976
Grate	G. L. K. Morrow	603,642	Apr. 19	1817	377	83	578
					414		
Grate-bar and furnace	S. L. Cook	604,909	May 31	3160	415	83	1207
Grate. Fireplace-	D. C. Powell	603,628	Apr. 19	1791	727	83	309
Grater	J. W. Hart	604,751	May 31	2810	642	83	1239
Grater. Nutmeg-	R. H. Pinkham	605,518	June 14	827	198	83	1532
Gravel from frozen ground. Apparatus for removing	H. Lindemann	603,660	Apr. 26	2304	499	83	464
Grinder	W. W. Boughner	606,117	June 21	2008	459	83	1709
Grinder. Lawn-mower	A. V. Ringström	604,569	May 24	2486	565	83	1145
Grinding, abrading, or cutting material and preparing same	G. H. Dyer	603,213	Apr. 12	1000	229	83	219
Grinding and polishing device	W. Woolf, A. Brown, and J. R. Rickard	604,594	May 24	2584	574	83	1155
Grinding and polishing steel balls. Machinery for	J. A. McClurg	603,405	May 3	378	575	83	653
Grinding and pulverizing apparatus. Sample	R. and L. F. Schulze	603,355	Apr. 12	1240	292	83	270
Grinding machine. Ball-	T. Cascaden, Jr	604,553	May 31	2969	681	83	1289
Grinding-mill	J. G. Mole	604,084	Apr. 26	2545	578	83	587
Grinding-mill	F. Stille	603,516	May 3	509	111	83	660
Grinding-mill	A. R. Wiens and G. J. Brands	604,706	May 24	2704	608	83	1194
Grip. Hand-	E. A. Thomforde	605,454	June 7	743	169	83	1499
Gripping device	A. C. Dinkey	604,978	May 31	3165	726	83	1283
Gripping mechanism	J. F. Himes	602,754	Apr. 19	2010	455	83	411
Grist-mills. Feed for top rolls of	C. W. Harding	602,940	May 10	1277	200	83	955
Gum receptacle. Chewing-	E. E. Bailey and T. A. Monk	603,549	May 3	566	135	83	710
Gun. Air-	H. W. Egli	602,987	Apr. 26	2347	533	83	491
Gun-barrel-cleaning device	V. Solodovnikoff	604,973	May 17	1980	430	83	1088
Gun-barrel locking device	W. H. Bevans	605,876	June 7	613	136	83	1469
Gun-carriage	L. V. Benét	606,115	June 21	2000	459	83	1708
Gun. Gas-operated	S. N. McClean	601,890	Apr. 5	413	86	83	77
Gun. Magazine bolt-	S. N. McClean	601,841	Apr. 5	434	87	83	80
Gun. Magazine bolt-	S. N. McClean	601,843	Apr. 5	430	86	83	81
Gun. Magazine bolt-	E. G. Parkhurst	604,904	May 31	3058	703	83	1277
					704		
Gun. Magazine bolt-	G. Schou	604,498	May 24	2393	494	83	1097
Gun. Magazine bolt-	A. T. Dawson	605,459	June 7	750	171	83	1497
Gun mounting. Disappearing-	E. M. T. Boddam	605,216	June 7	501	67, 68	83	1435
Gun. Pneumatic	L. M. Wiler	603,177	Apr. 12	1087	285	83	207
Gun-rack							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Gun single-trigger mechanism	H. A. A. Thorn	602,610	Apr. 19	1756	401	88	302
Gun. Take-down	W. Mason	605,784	June 14	1295	293 294	88	1606
Hair-crimper	E. A. Smith	602,909	Apr. 26	2792	695	88	576
Hair-tie button	C. C. Davis	602,699	Apr. 19	1987	497	88	335
Hair-tonic	L. Edwards	604,111	May 17	1628		88	909
Hame-fastener	C. H. Johnson	602,945	Apr. 26	2830	696	88	1004
Hame or collar fastener	C. J. D. Strohecker	606,598	June 28	2605	672	88	1264
Hame-strap	R. Quincey	603,987	May 10	1633	395	88	870
Hammer	L. G. Young	602,971	Apr. 26	2820	547	88	501
Hammer. Compressed-air	J. Schmidt	602,198	Apr. 12	1094	283	88	314
Hammer. Drop	R. J. Good	605,544	June 14	873	205	88	1541
Hammer nail-pulling attachment. Claw	S. R. Ashley	603,299	Apr. 26	2833	646	88	568
Hammer. Pneumatic	H. G. Kotten	605,486	June 14	790	181	88	1525
Hammer. Pneumatic	A. Parfitt	604,688	May 24	2566	590	88	1167
Hammer. Power	C. A. Vaughn	606,370	June 28	2489	578 579	88	1888
Hammock attachment	I. E. Palmer	603,014	Apr. 26	2469	561	88	513
Hammock-chair. Swinging	A. Stransky	603,712	May 10	880	189	88	788
Hammock-frame	A. A. Young	606,516	June 28	2932	680	88	1999
Hammock seat attachment	I. E. Palmer	603,408	May 3	236	54	88	655
Hammock-spreader	I. E. Palmer	604,942	May 31	3121	717	88	1900
Hammock-support coupling	W. H. Wright and J. G. Dell	605,367	June 7	608	134	88	1467
Handle: *See* Broom-handle. Damper-handle. Implement-handle. Saw-handle. Sheet-metal handle. Tool-handle. Velocipede-handle. Vessel-handle.							
Handle	F. Read	605,745	June 14	1244	288	88	1609
Handle	W. E. Richards	604,880	May 31	3088	696	88	1273
Handle-bar	O. B. Mosher	604,071	May 17	1551	348	88	951
Handle-bar	T. Vantuyl	603,671	May 10	788	173	88	771
Handle-bar. Adjustable	R. R. Ball	602,421	Apr. 19	1426	325	88	303
Handle-bar. Adjustable	J. L. Hamilton, Jr	601,360	May 24	2140	481	88	1065
Handle-bar. Adjustable	J. H. La Fave	602,625	Apr. 19	1767	408	88	366
Handle-fastener or shank-lock	T. E. Wilson	604,510	May 24	2876	541	88	1126
Handle for hoes, rakes, &c	A. L. Boyer	603,550	May 3	506	125	88	711
Handle for sheet-metal vessels	J. R. McLaughlin	605,004	May 31	3230	741	88	1309
Hanger: *See* Clothes-hanger. Door-hanger. Eaves-trough hanger. Fire-harness hanger. Garment-hanger. Harness-hanger. Incandescent-light hanger. Picture-hanger. Pipe-hanger. Shaft-hanger. Shovel-hanger.							
Hanger for goods or garments	F. Nickerson	603,653	May 10	755	166	88	764
Harmonica	C. L. Curtis	605,083	June 7	95	8	88	1356
Harness back-band	J. A. Fretwell	603,005	Apr. 5	721	158	88	199
Harness-hanger	C. S. Carkin	603,940	May 10	1264	295	88	869
Harness-pad	E. L. McClain	604,567	May 24	2484	545	88	1149
Harrow	H. D. Babcock	604,268	May 17	1046	236	88	1035
Harrow	H. D. Babcock	604,269	May 17	1047	236	88	941
Harrow	G. E. Gedge	603,538	Apr. 19	1639	379	88	367
Harrow	J. I. Hoke	603,446	May 3	350	79	88	1531
Harrow	M. R. McClelland	605,506	June 14	619	190	88	1561
Harrow	W. E. Phillips	605,651	June 14	1094	228	88	619
Harrow	J. C. Sturges	603,798	May 10	1001	224	88	1050
Harrow	E. E. Whipple	604,343	May 17	2061	461 462 463	88	1050
Harrow	H. Wiard and H. M. Burdick	604,345	May 17	2066	463	88	1088
Harrow. Automatic pulverizing	A. Kissell	604,353	May 17	2080	465	88	1005
Harrow-bar. Spike-tooth	H. D. Babcock	604,223	May 17	1899	410	88	699
Harrow. Disk	D. R. Livengood	603,449	May 3	355	80	88	1049
Harrow. Riding	M. Rowe	604,339	May 17	2054	460	88	1897
Harrow. Rotary	R. Rakestraw	606,300	June 28	2856	545	88	1260
Harrow. Spring-tooth	H. J. Case	604,854	May 31	3073	661 662	88	1022
Harrow. Spring-tooth	C. S. Sharp	604,271	May 17	1916	420	88	1088
Harrow. Spring-tooth	J. E. Shelbley	604,272	May 17	1918	420	88	89
Harvester	J. F. Appleby	601,366	Apr. 5	478	97, 98	88	379
Harvester and binder. Corn	W. H. Gray	602,659	Apr. 19	1846	430 431 438	88	1047
Harvester cord-knotter. Self-binding	H. E. Pridmore	604,336	May 17	2046	458	88	220
Harvester. Corn	G. Gowen	602,216	Apr. 12	1097	241	88	901
Harvester. Corn	W. H. Gray	602,157	Apr. 12	996	218 219 150 151 158	88	739
Harvester. Corn	D. F. Leishman	603,608	May 3	678	94	88	1366
Harvester. Corn	A. Neer	605,121	June 7	88	91	88	1359
Harvester. Corn	J. H. Newell	605,122	June 7	91	94, 95	88	1580
Harvester. Corn	D. T. Phillips	604,650	June 14	1080	251	88	51
Harvester. Corn	C. S. Sharp	601,760	Apr. 5	525	52	88	51
Harvester. Corn	C. S. Sharp	601,761	Apr. 5	525	52, 53	88	51
Harvester. Corn							
Harvester. Grain	G. A. Farrall	603,750	May 10	7989	205 206	88	797
Harvester grain-adjuster	J. W. Pridmore	602,809	Apr. 19	2113	477	88	430
Harvester. Mint	O. E. Abbey	602,998	Apr. 12	1289	270	88	947
Harvester. Potato	J. N. Cocker. (Reissue)	11,674	June 28	2676	600 601	88	1977
Harvester-truck	J. A. Graham and E. J. Birkett	603,080	Apr. 5	733	165	88	145
Harvesters. Butt-adjuster for self-binding	W. Butterfield	605,366	June 7	608	142	88	1473

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Harvesting-machine	J. C. Moore	603,652	May 10	753	167 168	88	768
Harvesting machine. Corn	C. H. Withaeger	603,307	May 3	106	25	88	682
Harvesting-machines. Tangled-grain separator for	A. A. Hamilton	606,137	June 21	2080	467	88	1775
Hasp-fastener	J. A. Mosher	605,645	June 14	1060	246	88	1578
Hat-body-shaping apparatus	J. B. Buckman	605,073	June 7	10	3	88	1355
Hat-body-sizing machine	C. E. Keator	603,926	May 10	1210	274	88	851
Hat-brim-curling machine	J. Agar	603,719	May 10	860	191	88	784
Hat-brim-curling machine	G. Segschneider	602,246	Apr. 12	1140	250	88	259
Hat brims. Machine for ironing straw	A. Bobelen	602,389	Apr. 12	1208	264	88	248
Hat-fastener	D. V. Garis	606,006	June 21	1790	411	88	1728
Hat-fastener	O. J. Jones and M. B. Kerr	601,657	Apr. 5	61	12	88	18
Hat-fastener	W. N. Murdock	605,116	June 7	80	23	88	1357
Hat-fastener	W. Lord	606,486	June 28	2606	621	88	1981
Hat-guard	L. T. Hallock	603,445	May 3	350	78	88	667
Hat-packing ring	H. C. McCarren	605,646	June 14	1061	249	88	1570
Hat-pin	F. Stefany	601,980	Apr. 5	699	149	88	1328
Hat-pin	W. F. Kesminger	603,880	May 10	1075	240	88	685
Hat-pin securer	F. Wagenblass	603,544	May 3	559	128	88	709
Hats, coats, umbrellas, &c. Holder for	W. H. Frazine	603,816	May 10	1093	231	88	819
Hay-cocking machine	J. D. Coxwell	605,080	June 7	29	6	88	1357
Hay-press	R. A. Simpson	602,145	Apr. 12	908	211 212	88	195
Hay rake and stacker	J. R. Vaughn and M. Jenkins	603,034	May 31	3273	739	88	1318
Hay-rake. Folding	J. H. Buttorff	602,973	Apr. 26	2468	548	88	501
Head-gate	J. Morris	601,069	May 17	1542	347	88	949
Header platform connection	F. W. Dressel	600,876	May 10	1159	261	88	842
Headlight. Electric	J. C. Henderson	601,046	May 17	1495	336 337	88	941
Heat-economizer	E. B. Petersen	605,129	June 7	104	27	88	1371
Heat or cold indicator							
Heater: *See* Car-heater. Electric heater. Feed-water heater. Fireplace-heater. Gas-heater. Hot-water heater. Steam or hot-water heater. Water-heater.							
Heater	E. C. Hall	604,859	May 31	2998	686 687	88	1263
Heating and cooking device	J. Allingham	604,880	May 31	3012	686 687	88	1249
Heating apparatus	J. W. Yates	604,819	May 31	3011	686	88	1248
Heating apparatus. Air	H. Baetz	604,013	May 17	1443	333	88	981
Heating-boiler	L. S. Daniels	602,831	Apr. 26	2161	490	88	455
Heating by means of liquid hydrocarbons. Apparatus for	J. A. Rambaud	603,658	May 10	702	160	88	765
Heating-furnace	A. Laughlin and J. Reuleaux. (Reissue.)	11,666	May 31	3331	765 766	88	1309
Heating or vulcanizing apparatus	G. W. Slater	606,364	June 28	2481	576	88	1881
Heating system. Steam	A. G. Paul	604,385	May 17	2063	457 458	88	1046
Heating utensil	J. H. Alexander	605,571	June 14	930	217	88	1538
Heddle-bar locking-clamp	M. J. Armstead	603,808	May 10	1083	238	88	816
Heel	J. E. O'Neill	606,220	June 28	2226	511 512	88	1830
Heel-building machine	E. S. Gross	602,005	Apr. 5	734	154	88	187
Heel for boots or shoes. Detachable	A. Maebert	606,016	June 21	1611	418	88	1722
Heel-seats and rands for boots or shoes. Cutter for trimming	O. L. Noble	605,647	June 14	1062	249	88	1579
Heel-spring. Boot or shoe	G. E. Swan	604,805	May 31	2991	661	88	1245
Hermetic fastening for preserve or other tins	I. Bloch	601,787	Apr. 5	517	69	88	60
Hide, skin, or leather machinery	W. Evans	602,096	Apr. 12	925	179	88	168
Hides or skins for transport. Curing	J. W. Scott	602,476	Apr. 19	1326		88	382
Hides or skins. Machine for working	A. F. Jones	601,808	Apr. 5	639	73	88	66
Hides or skins. Machine for working	A. F. Jones	601,809	Apr. 5	658	73, 74	88	67
Hinge	G. N. Benson	604,718	May 31	2750	608	88	1218
Hinge	M. Donne and C. J. Mathias	602,530	Apr. 19	1567	357 358	88	226
Hinge	J. J. Farrar	603,897	May 10	1194	270	88	648
Hinge	H. D. Granger	602,946	Apr. 26	2187	496	88	480
Hinge	R. G. Park	605,500	June 14	824	191	88	1531
Hinge	J. R. Haldeman	605,420	June 7	697	155	88	1457
Hinge. Gate	W. M. Hotaling	606,415	June 28	2577	596	88	1899
Hinge. Lock	A. D. Anthony	604,165	May 17	1717	397	88	909
Hinge. Spring	H. Leppert	605,105	June 7	66	19	88	1355
Hinge-washer. Antifriction	T. M. Henderson and T. E. Freeman	602,750	Apr. 19	2004	454	88	410
Hitching device	W. S. Endslow	602,313	Apr. 12	1259	279	88	954
Hitching or unhitching device	W. G. Avery	604,267	May 17	1944	436	88	1089
Hod. Mortar	C. M. Brown	603,495	Apr. 19	1446	328	88	305
Hoe. Shuffle	J. Campbell	602,736	Apr. 19	1957	446 447	88	408
Hoisting and conveying apparatus	J. Campbell	604,898	May 31	3089	697 698	88	1273
Hoisting and conveying apparatus	J. H. Lancaster	605,894	June 21	1538	356 357	88	1686
Hoisting and conveying apparatus	H. R. Palmer	603,168	Apr. 12	1013	238	88	204
Hoisting and conveying machine. Bucket	S. Jackson	602,851	Apr. 26	2192	497	88	461
Hoisting apparatus	H. S. Haskins and Z. B. Coes	602,580	Apr. 19	1705	388	88	338
Hoisting apparatus	R. Johnston	603,198	Apr. 26	2769	631 632	88	571
Hoisting apparatus	W. G. Miller	603,608	Apr. 19	1746	396	88	390
Hoisting device	R. Stewart and W. B. Winchel	604,803	May 31	2995	680	88	1244
Hoisting-machine	J. H. Lancaster	604,900	May 31	3060	700 701	88	1276
Holdback. Adjustable	F. Sier	605,080	May 31	2947	746	88	1214
Holdback device	O. P. Baker	603,490	May 3	305	69	88	698
Hoof-pad	C. J. Horton	603,843	June 28	2443	586	88	1874

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hook: *See* Bag-hook, Check-hook, Coat-hook, Garment-hook, Grappling-hook, Lacing-hook, Pail-hook, Paint-pot hook, Rope-clamping hook, Snap-hook, Sword-slinging hook, Whiffletree-hook.							
Hook and bushing for same	J. W. Carder	608,573	May 3	222	49	83	643
Hook and eye	C. F. Robbins	601,816	Apr. 5	308	77	83	69
Hook and eye	P. Young, (now by marriage P. Young Weeks.)	604,135	May 17	1606	375	83	978
Hoop: *See* Trundle-hoop.							
Hoop-sawing machine. Barrel-	T. C. Seekel	605,349	June 7	565	125	83	1460
Horn or similar material. Process of and apparatus for utilizing	A. Mitscherlich	602,227	Apr. 12	1123	247	83	226
Horse-boots, &c. Suspending device for	P. Meissner	601,974	Apr. 5	660	144	83	139
Horse-controlling device	G. A. Hidden	605,045	May 31	2091	753	83	1322
Horse-detacher	C. B. Hardin and J. D. Mosby	604,469	May 24	2601	583	83	1115
Horse-detacher	C. F. Kincheloe	606,419	June 28	2598	598	83	1902
Horse-detacher	J. Staley	603,434	May 3	331	74	83	663
Horse-detacher	F. A. Millett	602,953	Apr. 26	2371	540 / 541	83	496
Horse-foot-leveling device	C. L. Alexander	602,535	Apr. 19	1632	373	83	339
Horse-rake	W. S. Hitch	602,040	Apr. 5	792	171	83	150
Horseshoe	N. L. Olson	603,573	May 3	600	139	83	716
Horseshoe	E. F. Smith	604,091	May 17	1580	357	83	956
Horseshoe	R. Whitaker	605,706	June 14	1282	297	83	1617
Horseshoe-calk	W. J. Browning	603,280	May 3	199	45	83	640
Horseshoe-calk. Removable	P. Krumscheid	602,357	Apr. 12	1380	309	83	278
Horseshoe. Cushioned	T. M. Miller	602,295	Apr. 12	1121	246	83	225
Horseshoe. Elastic	G. Greenwood	602,622	Apr. 19	1792	407	83	367
Horseshoe. Elastic-cushioned	W. B. Hopkins	603,466	May 3	408	90	83	679
Horseshoe. Elastic-tread	E. S. Barrows	604,014	May 17	1444	333	83	931
Horseshoe. Hoof-spreading	W. H. Bordner	603,675	May 10	798	174	83	772
Horseshoe. Marsh-	M. Schmitt	603,975	May 10	1315	308	83	873
Horseshoe-nail clencher and hoof-trimmer	J. Sweeney	603,485	Apr. 19	1547	350	83	894
Horseshoe-pad	A. Fremerey	604,084	May 17	1474	330	83	987
Horseshoe. Rope-tread	R. S. Wiesenfeld	604,616	May 31	2006	665	83	1249
Horseshoe. Soft-tread	W. H. Wolf	603,866	May 10	1141	267	83	886
Hose-bridge	P. J. Doyle	601,639	Apr. 5	27	6	83	7
Hose. Clamp for handling hydraulic	M. C. Hoard	602,753	Apr. 19	2012	456	83	411
Hose-coupling	F. H. Marshall	603,863	Apr. 26	2207	500	83	464
Hose-coupling	J. N. McLean	603,228	Apr. 26	2817	643	83	580
Hose-coupling	P. Riehl, Jr	603,366	May 3	206	47	83	641
Hose-coupling	F. A. Wunderlich	603,400	May 3	308	68	83	677
Hose-coupling	W. A. Sutfin	605,238	June 7	338	77	83	1414
Hose-coupling. Automatic	G. W. Wallis	601,699	Apr. 5	119	23	83	25
Hose-coupling reshaper	D. B. Smith	601,688	Apr. 5	107	21	83	23
Hose-coupling. Swivel	C. H. Dale	602,617	Apr. 19	1771	404	83	365
Hose-nipple	J. H. Fry	604,095	May 17	1476	331	83	927
Hose-nozzle	R. Wise	604,554	May 24	2456	556	83	1141
Hose-nozzle	W. P. Wilson	605,750	May 10	914	208	83	795
Hose-pipe nozzle and spraying device. Combined	I. R. Devendorf and C. L. Earl, Jr	604,381	May 17	1839	412	83	1007
Hose-rack	H. J. M. Howard	601,653	Apr. 5	52	10	83	11
Hose-rack	C. W. Ruby	603,307	Apr. 26	2790	637	83	575
Hose rack or support	E. Cliff	601,682	Apr. 5	18	3	83	5
Hose-reel	E. Cliff	601,681	Apr. 5	15	4	83	5
Hose-reel	E. Cliff	602,057	Apr. 12	806	175	83	165
Hose-reel	D. Harrison	605,480	June 14	779	179	83	1383
Hose-supporter	J. J. Nealon	603,430	May 3	362	72	83	661
Hose-supporter	A. R. Blasse	603,809	May 10	1025	228	83	817
Hot-air furnace	T. G. Neal	605,282	June 7	512	114	83	1451
Hot-air furnace, &c	R. and E. H. Robinson	605,517	June 14	884	194	83	1533
Hot-air furnace	H. A. Tinkham	604,532	May 24	2453	557 / 558	83	1141
Hot-air furnace	J. T. Warren	601,822	Apr. 5	879	79, 80	83	71
Hot-air furnace	C. W. Spurr, Jr	602,810	Apr. 19	2116	477	83	430
Hot appliance	W. P. Wight	602,649	Apr. 19	1880	417	83	376
Hothouse tile bench	J. White	604,484	May 24	2383	529	83	1120
Hot-water heater							
House: *See* Dry-house, Knockdown house, Portable house, Poultry-house, Power-house.							
Hub cap and nut. Combined	J. A. Crandall	604,913	May 31	2065	708	83	1282
Hub. Expanding	L. F. Vollrath	604,978	May 17	1920	432	83	1025
Hub. Vehicle-	W. T. Lewis	606,350	June 28	2452	566	83	1675
Hub. Vehicle-wheel	G. A. Krohn	601,953	Apr. 5	457	98	83	85
Hub. Wheel-	G. A. Skarin	605,208	June 7	280	65	83	1408
Hubs, couplings, or the like to shafts. Means for connecting	G. C. Howard	602,181	Apr. 12	1082	236	83	208
Hubs. Means for manufacturing wheel-	R. Chillingworth	606,046	June 21	1866	430	83	1743
Hydrant and stand-pipe	L. Genest	604,611	May 24	2550	588	83	1161
Hydrant, stop-valve, or the like	C. Jones	601,967	Apr. 5	970	142	83	127
Hydraulic elevator	L. Kramer	603,566	May 3	591	131	83	715
Hydraulic engine	J. Gill	606,337	June 28	2438	542 / 544	83	1672
Hydraulic jack	F. C. Brooks	605,680	June 14	1054	242	83	1573
Hydraulic lubricator	J. E. Spencer	602,371	Apr. 12	71349	301	83	272
Hydraulic-motor-regulating device	A. J. L. Loretz	605,169	June 7	198	50	83	1398
Hydraulic press	F. M. Leavitt	604,066	May 17	1514	340 / 341 / 342	83	945
Hydrocarbon-burner	C. R. Kittle	605,200	June 7	257	60	83	1399
Hydrocarbon-burner	J. M. Merritt and B. F. Goodrich	605,554	June 14	808	208	83	1545
Hydrocarbon-burner	J. Reidenbaugh	603,740	May 10	804	199	83	791

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hydrocarbon burner. Liquid-	G. W. Prescott	606,228	June 28	2242	517 / 518	83	1533
Hydrogen. Apparatus for manufacturing carbureted	W. H. and G. E. Russell	602,406	Apr. 12	1415	330	83	265
Ice-cream freezer	J. A. E. Anderson	603,227	Apr. 26	2231	646	83	583
Ice-cream freezer	E. C. Hill	605,606	June 14	1008	231	83	1564
Ice-cream freezer	R. L. Porter and J. D. Faulkner	604,314	May 17	1812	407	83	1008
Ice-cream freezer	A. Gifford	604,007	May 10	1424	318 / 319	83	897
Ice-handling machinery	G. W. Busch	601,869	Apr. 5	483	99	83	90
Identifying device	J. B. Rhodes	604,480	May 24	2319	526 / 527	83	1118
Impact-tool	C. J. Ericson	602,314	Apr. 12	1261	279	83	255
Implement. Changeable	A. L. Adams	604,105	May 17	1616	363	83	964
Implement-handle	S. Zacsek and E. O. Gottlieb	604,222	May 17	1828	409	83	1005
Incandescent burner	J. W. McKnight	606,226	June 28	2219	510	83	1898
Incandescent-burner protector	F. C. Bell	601,980	Apr. 5	583	121	83	111
Incandescent-light hanger. Adjustable	J. Moeller	606,234	June 28	2217	509	83	1898
Incandescent lights. Mantle or hood for Welsbach or other	F. A. F. Graefe	602,505	Apr. 19	1575	360	83	330
Incandescent-mantle protector	R. T. Kanski and E. S. Freeman	602,017	Apr. 5	740	159	83	140
Incubator	J. B. Roberts	603,850	May 10	1127	253 / 254	83	835
Incubator	J. A. Best	602,718	Apr. 19	1956	444	83	401
Index	W. E. Coons	603,802	May 10	1186	268	83	847
Index	W. M. Daly	603,944	May 10	1270	289	83	863
Index. Ledger-							
Indicator: *See* Cash-indicator, Current-indicator, Heat or cold indicator, Office-indicator, Speed-indicator, Station-indicator, Street-indicator, Valve-indicator.							
Indicator	W. H. Winder. (Reissue)	11,670	June 21	3112	485 / 486	83	1789
Induction-coil	A. L. Bogart	605,174	June 7	207	52	83	1390
Inflation-tube	J. C. MacSpadden	603,510	May 3	499	109	83	697
Ingots. Mechanism for piercing metal	J. C. Sturgeon	601,763	Apr. 5	311	61, 62	83	59
Ingots. Producing hollow	J. T. Rowley	603,206	Apr. 26	2789	636	83	575
Inhaler	W. B. Hidden	604,935	May 31	3115	715	83	1288
Inhaler	J. H. Kellogg	605,436	June 7	716	161	83	1491
Injector	J. W. Gamble	602,537	Apr. 19	1637	373	83	340
Injector	J. Huber	604,233	May 17	1841	412	83	1008
Ink. Printing-	F. B. Hall	606,542	June 28	2807	------	83	1945
Inkstand	E. Davis	605,177	June 7	213	53	83	1391
Insecticide	J. B. Carmichael	605,537	June 14	903	207 / 208	83	1539
Insole-reinforcing machine	J. B. Hadaway	603,763	May 10	932	209 / 210	83	798
Insole-reinforcing machine	J. B. Hadaway	603,764	May 10	933	209 / 210	83	799
Inspirator. Thermal	C. F. Dight	603,021	Apr. 26	2477	562	83	514
Instructing device	R. Springborn	605,144	June 7	162	40	83	1381
Insufflator	A. Hoenig	602,010	Apr. 5	732	156	83	139
Insulated pipe-coupling	G. Peeples	602,564	Apr. 19	1675	361	83	347
Insulated wire. Machine for restoring	N. Wilson	601,694	Apr. 5	125	24	83	27
Insulating electrodes for electric gas-lighting burners.	A. L. Bogart	605,661	June 14	1106	255	83	1568
Insulating handle connection	W. McAusland	605,448	June 7	735	166	83	1494
Insulator	F. M. Locke	605,109	June 7	70	20	83	1365
Insulator	R. D. Mershon	605,256	June 7	380	86	83	1423
Insulator	L. McCarthy	605,741	June 14	1240	287	83	1600
Insulator. Strain-	J. R. Fletcher	602,576	Apr. 19	1696	386	83	350
Insulators, &c. Bracket-	F. L. Merritt	605,583	June 14	954	221 / 222	83	1556
Internal-combustion engine	D. M. Moore	604,684	May 24	2673	612	83	1185
Interrupter. Automatic vibratory	J. Drawe	602,756	May 10	930	204	83	796
Invalid-rest	J. H. Chandler	601,945	Apr. 5	939	183	83	120
Invalid-table	L. O. Helmers	602,943	Apr. 26	2354	------	83	498
Iodin derivative of ichthyol and thiol							
Iron: *See* Sad-iron, Smoothing and pressing iron.							
Iron-cutting device	H. J. Shaffer	604,270	May 17	1915	428	83	1022
Iron. Making planished sheet-	J. Stephens	605,595	June 28	2808	------	83	1963
Iron. Producing silicids of	G. de Chalmot	602,976	Apr. 26	2407	------	83	502
Iron. Silicid of	G. de Chalmot	602,975	Apr. 26	2406	------	83	502
Ironer. Laundry-	A. B. Smith and J. G. Rapp	602,607	Apr. 19	1753	400	83	361
Ironing-board	D. McDonough	602,563	Apr. 19	1674	381	83	347
Ironing-board	E. A. Procott	603,831	May 10	1076	240	83	825
Ironing-board	F. E. Fay. (Reissue)	602,267	Apr. 12	1177	258	83	227
Ironing-machine for smoothing cuff and collar edges	S. J. Coggins	11,664	May 17	2096	468	83	1055
Ironing-table	W. E. Harriman	602,498	Apr. 19	1450	320 / 321	83	306
Ironing-table	J. G. Sebold	606,210	June 28	2178	500 / 501	83	1890
Ironing-table		603,474	May 3	417	93	83	660
Jack: *See* Hydraulic jack, Lifting-jack, Pumping-jack, Wagon-jack.							
Jar: *See* Fruit-jar, Fruit or other jar.							
Jar	J. P. Lyon	603,911	May 10	1217	276	83	853
Jar and can opener. Fruit-	J. J. Schairer	606,587	June 28	2686	603	83	1931
Jar and temporary closure therefor	J. P. Lyon	603,910	May 10	1215	275	83	853
Jar or other receptacle for preserves, &c	L. Wurmburg	603,701	Apr. 19	2060	470	83	422
Jar, top, and wrench for preserving fruits, &c	G. P. Jaggard	605,488	June 14	781	179	83	1383
Jardinière	H. Waterer	603,493	May 3	464	108	83	669

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Jaw wrench. Sliding	A. Enos	601,954	Apr. 5	651	126	83	122
Jetty for deepening tidal ways. Automatic	J. A. L. Waddell	604,810	May 31	2900	668	83	1947
Jeweler's stone-setting instrument	J. A. Owens	602,701	Apr. 26	2768	634	83	573
Jewelry. Article of	F. X. Zirnkilton	606,617	June 28	3033	690	83	1969
Jig for securing cycle parts, &c., while being bored or machined.	F. J. T. Haskew	605,979	May 3	220	51	83	644
Joint:							
See Ball-joint. Flush joint. Pipe-joint. Rail-joint. Railway-rail joint. Socket-joint. Stovepipe-joint. Wheel-rim joint.							
Joint-making tool	J. Birtwisle	605,195	June 7	248	58	83	1207
Journal and bearing	J. R. Carter	605,906	June 21	1770	406	83	1735
Journal-bearing. Self-adjusting	E. Huber	604,986	May 31	3115	716	83	1998
Journal-bearings. Guide-frame for loose rolls in	T. J. Tellefsen	604,573	May 24	2401	507	83	1149
Journal-box	T. W. Green	602,987	Apr. 12	1217	268	83	345
Journal-box	W. W. Smith	605,757	June 14	1265	292	83	1614
Journal-box	J. Rogers	606,959	Apr. 26	2661	543	83	408
Journal-box. Lubricating	W. A. S. Benson	606,071	June 7	9	3	83	1354
Jug or vessel for containing liquids	H. G. Boynton and C. H. Fravel	602,522	Apr. 26	2149	487	83	459
Jug-stopper	F. Doucet	604,980	May 31	3105	714	83	1998
Keel. Sail-controlled	J. Cleave	601,747	Apr. 5	245	48	83	47
Kettle. Candy	F. G. Yetter	603,461	May 3	204	98	83	677
Kettles boiling dry. Apparatus for preventing	W. L. Dash	602,892	Apr. 26	2162	490	83	455
Kettles, &c. Instrument for preventing deposit in interiors of	B. J. Loomis	602,561	Apr. 19	1673	380	83	247
Key	E. A. Fletcher	602,629	May 10	714	159	83	755
Keyboard. Separable object-lesson	F. W. Becker	603,247	May 3	6	2	83	602
Key-holder	C. M. Muffly	605,584	June 14	956	223	83	1557
Key-holder	E. Barrath	605,456	June 7	747	170	83	1406
Key-opening can	E. Barrath	605,457	June 7	748	170	83	1406
Key-opening can	J. N. Maskelyne, Jr	603,771	May 10	954	213	83	902
Kinetoscope. Projecting	M. Kaiser	601,758	Apr. 5	258	50	83	48
Kitchen-rack	M. W. Smith	604,098	May 17	1591	357	83	959
Kitchen utensil	H. H. Clayton	605,596	June 14	975	225 226	83	1560
Kite	J. F. Cooley	603,688	June 28	2946	663	83	1972
Kite	R. B. Griffin	603,306	Apr. 12	1408	316	83	283
Kneader							
Knife:							
See Gage-knife. Pocket-knife. Shredding-knife.							
Knife	A. Wright	604,850	May 31	2906	660	83	1959
Knife	A. Wright	605,944	June 21	1670	382	83	1707
Knife and scoop. Combined	J. A. Sweeting	605,209	June 7	228	66	83	1403
Knife gage. Cutter	S. J. Shimer	602,778	Apr. 19	2048	462	83	419
Knit fabric for underwear, &c.	D. F. Halsted	602,708	Apr. 19	1933	439	83	396
Knit mitten	I. W. Lamb	601,894	Apr. 5	565	106	83	99
Knit pile fabric. Ribbed	T. S. Baron and W. A. Ingalls	603,164	Apr. 26	2723	619	83	563
Knitting-machine	J. H. Rice	604,636	May 24	2506	562 563	83	1169
Knitting-machine	J. E. Rowe	604,490	May 24	2196	492 493	83	1096
Knitting-machine	J. E. Rowe	604,570	May 24	2487	566 567	83	1148
Knitting-machine	C. Terrot	605,085	May 31	3223	763 764	83	1398
Knitting-machine	F. B. Wildman	604,100	May 17	1606	361	83	962
Knitting machine. Circular	L. N. D. Williams and H. Swinglehurst, Jr.	604,646	May 24	2600	597	83	1173
Knitting machine. Circular-warp	A. E. Lindner	606,251	June 28	2453	568 569 570	83	1876
Knitting machine. Circular-warp	A. E. Lindner	606,252	June 28	2461	571 572 573	83	1877
Knitting machine. Circular-warp	A. E. Lindner	606,253	June 28	2465	573 574	83	1878
Knitting-machine cylinder	E. Vermilyea	604,440	May 24	2236	508	83	1104
Knitting-machine loop-cutting attachment	S. T. Harshaw	605,873	June 21	1547	352	83	1660
Knitting-machine sinker-top. Hosiery	H. H. Skevington and W. L. Whitehead.	606,094	June 21	1960	451	83	1760
Knitting-machine stop-motion. Circular	A. White and D. F. Sullivan	604,344	May 17	2054	468	83	1050
Knitting-machine thread-changer	J. E. Rowe	606,089	June 21	1936	433	83	1736
Knitting machines. Yarn-changing device for rib-	R. W. Scott	604,640	May 24	2600	594	83	1170
Knob attachment	J. H. Shaw	606,500	June 28	2930	660	83	1961
Knob attachment	H. J. P. Whipple	601,734	Apr. 5	197	38	83	39
Knockdown house	P. A. Tofft	604,277	May 17	1967	431	83	1094
Label-affixer	F. W. Woerner	602,512	Apr. 19	2119	478 668	83	481
Label-affixing machine	A. B. Cowles and F. S. Reynolds	604,655	May 31	2976	668	83	1900
Label. Druggist's and medicine	A. Harris and C. Stahl	606,457	June 28	2652	610	83	1915
Label-holder	J. R. Weller	605,218	June 7	287	66	83	1405
Labeling-machine	T. A. Weber	604,188	May 17	1759	396	83	908
Labeling machine. Can	J. L. Barkey	604,601	May 24	2695	616 617	83	1186
Labeling machine. Can	W. J. Corkran	606,049	June 21	1871	431 432	83	1742
Labeling machine. Can	W. S. Craig	605,658	June 21	1504	345	83	1676
Labeling machine. Can	T. C. Northcott, J. N. Lake, and J. Clark.	606,227	June 28	2221	510 511	83	1889
Labeling-machine. Pneumatic	C. F. Tebbetts	603,669	May 10	788	179 178	83	706
Lace fastener. Shoe	J. E. Kennedy	602,905	Apr. 26	2321	530	83	477
Lace fastener. Shoe	F. P. Schults	604,128	May 17	1650	370	83	970
Lacing-hook for shoes	L. F. Earl	602,941	Apr. 26	2474	498	83	497
Lacing-hook for shoes, gloves, &c.	L. F. Earl	602,942	Apr. 26	2177	498	83	498
Lacing-hook-setting machine	S. N. Smith	602,881	Apr. 26	2321	503	83	469

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Lacing-strip	M. K. and M. H. Bortree	603,313	May 3	116	27	83	624
Lacquer and lacquering	D. Marcus	603,913	May 10	1220	283	83	863
Ladder and ironing-board. Combination step-	A. Samuelson	603,580	May 10	1046	243	83	661
Ladder. Combined step and extension	E. Cardarelli	605,905	June 21	1768	405	83	1734
Ladder. Extension	P. Bourne	605,469	June 14	762	175	83	1520
Ladder. Extension	F. Heine	606,458	June 28	2654	611	83	1915
Ladder. Extension step	P. Herder	606,848	May 10	1101	247 548	83	520 1123
Ladder. Portable adjustable	H. Huber	604,531	May 24	2411	549	83	1751
Ladder. Step	W. Nehring	606,071	June 21	1915	440	83	719
Ladder. Step	O. Richardson	603,579	May 3	607	135	83	1119
Ladder. Step	W. O. Seaman	604,488	May 24	2327	526	83	35
Ladder. Step and extension	C. Napier	601,714	Apr. 5	179	35	83	1911
Lamp	R. D. Cody	606,445	June 28	2634	606	83	1727
Lamp	R. M. Dixon	606,002	June 21	1781	408	83	1697
Lamp. Acetylene-gas	O. E. Heese	606,265	June 28	2519	585	83	798
Lamp. Acetylene-gas	O. G. Seward	603,746	May 10	906	201	83	1830
Lamp. Acetylene-gas-generating	H. Oehl	606,283	June 28	2625	511	83	921
Lamp. Aldehyde	E. Fournier	603,683	May 10	809	177	83	773
Lamp-burner	J. H. O'Brien	603,115	Apr. 26	2647	601	83	547
Lamp-burner	L. R. Oakes	601,412	May 24	2186	490	83	1094
Lamp-burner	J. H. White	603,417	May 3	302	68	83	658
Lamp-burner	V. Bürklin	602,291	Apr. 12	1388	311	83	279
Lamp burner and wick. Combined	W. E. Ward	605,599	June 14	854	200	83	1537
Lamp. Desk	D. Miseli	603,112	Apr. 26	2641	600	83	545
Lamp. Electric	F. A. Gilbert and E. O. Lundin	603,630	May 10	715	160	83	756
Lamp. Electric-arc	J. H. J. Haines	603,687	May 10	809	178 179	83	775
Lamp. Electric-arc	D. Higham	605,714	June 14	1200	277	83	1601
Lamp. Electric-arc	W. Hochhausen	605,228	June 7	218	73, 74	83	1411
Lamp. Electric-arc	A. W. Knutson	603,853	May 3	225	53	83	646
Lamp. Electric-arc	J. Mueller	602,404	Apr. 12	1410	318	83	284
Lamp. Electric-arc	T. H. Pettengill	603,253	May 3	67	17	83	614
Lamp. Electric-arc	F. W. Steinacker and E. F. Cowley.	604,219	May 17	1819	408 409	83	1003
Lamp. Electric-arc	E. Thomson	602,980	Apr. 26	2313	527	83	484
Lamp. Electric-arc	E. Weber	602,380	Apr. 12	1364	305	83	275
Lamp. Electric-arc	F. Wright	606,108	June 21	1988	456	83	1765
Lamp. Electric incandescent	W. J. Phelps	603,705	May 10	886	186	83	789
Lamp for incandescent lights. Petroleum	A. Duffek	602,900	Apr. 26	2266	517	83	475
Lamp globe. Incandescent	V. de Sprüner-Mertz	605,085	May 31	3257	748	83	1315
Lamp. Incandescent electric	M. W. Dewey	603,056	Apr. 26	2630	575	83	584
Lamp. Incandescent electric	O. H. Michaelson	605,498	June 14	909	187	83	1529
Lamp. Incandescent gas	F. C. von Heydebrand und der Lasa and J. Loch.	605,250	June 7	369	84	83	1421
Lamp or lantern reflector attachment	W. Prewett	606,027	June 21	1882	422	83	1735
Lamp regulator. Electric	D. M. Moore	604,660	May 24	2066	611	83	1184
Lamp regulator. Incandescent-electric	D. M. Moore	604,670	May 24	2065	611	83	1163
Lamp. Safety incandescent electric	F. G. W. J. Adams	606,263	May 10	1170	264	83	844
Lamp safety-lock. Incandescent	E. Faller and H. Herbstritt	606,279	June 7	424	95	83	1432
Lamp. Self-adjustable bicycle	F. S. Snyder	606,354	June 7	572	126	83	1461
Lamps, &c. Automatic igniting device for gas-	C. F. Nebendahl	604,074	May 17	1558	349	83	958
Lamps, gas-burners, &c. Support-bracket for	C. M. Toland	604,183	May 17	1666	374	83	973
Land-roller	W. F. Goodhue	601,775	Apr. 5	293	56	83	56
Land-roller	W. Wildman	602,968	Apr. 26	2295	548	83	500
Lantern	A. L. Baron and J. F. Haffey	602,206	Apr. 12	1078	236	83	217
Lantern	E. M. Rosenbluth	606,023	June 21	1834	422	83	1736
Lantern-bracket	J. W. Bragger	602,122	Apr. 12	921	201 202	83	186
Lantern. Electric	F. G. W. J. Adams	603,682	May 10	1168	264 265	83	844
Lantern. Electric	O. C. Prasse	601,758	Apr. 5	263	51 415	83	50 1010
Lantern. Oven	F. C. Stolz	604,239	May 17	1857	416	83	499
Lantern. Vacuum-tube	L. Wallach	602,966	Apr. 26	2293	545 649	83	1234
Lappet-shearing mechanism	E. T. and E. H. Marble	604,772	May 31	2940	650	83	1094
Last	E. L. Goding	604,382	May 24	2132	479	83	1094
Last	E. L. Goding	604,383	May 24	2133	479	83	1784
Last	J. F. Grant	606,164	June 21	2090	490	83	809
Last	E. O. and G. A. Krentler	603,790	May 10	988	221	83	1617
Last	E. C. Wright	605,766	June 14	1295	296	83	1766
Last. Shoe	G. H. Banks	606,114	June 21	1909	458 123	83	111
Lasting-machine	M. Brock	601,933	Apr. 5	596	123 124	83	112
Lasting-machine	M. Brock	601,934	Apr. 5	594	124 125	83	112
Lasting-machine	M. Brock	601,935	Apr. 5	598	125 126	83	114
Lasting-machine	M. Brock	601,936	Apr. 5	604	127 128	83	115
Lasting-machine	M. Brock	601,937	Apr. 5	610	128 129	83	115
Lasting-machine	M. Brock	601,938	Apr. 5	614	129 130	83	116
Lasting-machine	M. Brock	601,939	Apr. 5	619	130 131	83	117
Lasting-machine	M. Brock	601,940	Apr. 5	625	131 132	83	1351
Lasting-machine	C. Eisenberg	605,091	June 7	44	14	83	1618
Lasting-machine. Hand	G. H. Abeel	605,770	June 14	1288	290	83	1288
Latch	N. J. Meigs	605,170	June 7	301	51	83	1890
Latch	H. E. Russell	606,246	June 28	2206	523	83	470
Latch	H. G. Voight	603,966	Apr. 26	2242	509	83	948
Latch and lock combined	O. Holmes	606,550	June 28	2321	649	83	1949

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Latch and lock. Combined	W. L. Smith and H. M. Putt	605,353	June 7	570	126	83	1461
Latch. Gate-	F. A. Raenhart	602,590	Apr. 19	1606	267	83	1135
Latch mechanism	C. H. Brigden	604,516	May 24	2385	543	83	1199
Latch. Sliding-door	C. R. Case	602,728	Apr. 19	1972	448	83	404
Lathe attachment	A. J. Farmer	603,400	May 3	299	60	83	652
Lathe attachment	T. C. Walker	602,905	Apr. 26	2390	545	83	499
Lathe boring-bar device	F. Stansbury	603,208	May 3	81	21	83	617
Lathe-dog	W. Sandiford	602,606	Apr. 19	1751	399	83	361
Lathe. Engine-	B. A. Wheeler	602,934	Apr. 26	2317	526	83	485
Lathe recessing-tool	G. E. Miller	605,184	June 7	227	55	83	1394
Lathe turret-head. Automatic	A. J. Johnson	603,484	May 3	439	96	83	686
Lathing	P. Kühne	604,698	May 24	2710	619	83	1191
Lathing. Die for making metallic	C. Forth	604,525	May 24	2397	545	83	1131
Lathing. Roller-die for making metallic	A. R. Fordyce	604,695	May 24	2705	618	83	1190
Lawn-rake. Rotary	F. H. Walton	604,812	May 31	2001	663 664 445	83	1247
Leads, spaces, and quads from dead-matter. Machine for discarding	P. F. Cox	604,305	May 17	1977	444 445	83	1084
Leather and rubber substitute	O. B. Dodge	601,826	Apr. 5	267	88	83	72
Leather-dressing composition	D. Marcus	602,702	Apr. 19	2019	.....	83	413
Leather-dressing machine	E. B. Parkhurst	604,908	May 31	3056	703	83	1277
Leather-shaving-machine knife-sharpening mechanism.	J. Boyle	605,627	June 14	1050	241	83	1572
Leather-staking machine	M. H. Connor	605,272	June 7	412	93	83	1430
Leather-staking machine	J. Craig and F. F. Slocomb	604,500	May 24	2402	560 561	83	1143
Leather-work. Rotary cutter for	E. Childs	604,002	May 10	1413	316	83	895
Lecture-room seat	H. B. Hiteshew and W. F. Spieth	601,874	Apr. 5	491	101	83	91
Lemon-squeezer	C. Morgan	602,088	Apr. 12	965	188	83	175
Lemonade-shaker	J. L. and Z. R. Green	602,989	Apr. 26	2351	536	83	498
Lens-cutting machine	F. G. Blanchard	602,907	Apr. 12	1079	236 237	83	217
Lens for illuminating tiles	J. Mark	602,763	Apr. 19	2020	456	83	413
Lens for sidewalks. Illuminating-	E. J. Sullivan	603,799	May 10	1002	224	83	812
Letter-box	P. S. Bates	604,956	May 31	3141	722	83	1294
Letter-box	J. J. Herzog	604,323	May 17	2018	451 452	83	1041
Letter-box	M. J. Wine and C. A. Thompson	605,592	June 14	970	224	83	1589
Letter-press book	A. Kahn	603,729	May 10	878	195	83	788
Letters, &c. Apparatus for keeping	T. B. Vernon	602,116	Apr. 12	912	198 199	83	185
Level	J. Linton and J. Burgher	602,137	Apr. 12	942	206	83	190
Level and grading instrument. Combined spirit-	C. Castor	601,629	Apr. 5	9	2	83	4
Level. Plumb-	T. N. Roach	602,874	Apr. 26	2221	508	83	467
Level. Plumb-	F. C. Vredenburgh and C. F. Lathrop.	603,368	May 3	208	47	83	641
Level. Spirit-	J. Hartford	604,995	May 31	3186	734	83	1302
Lid for pots, &c	J. W. Strother	606,599	June 28	2906	672	83	1964
Lid-holder	J. Hitt	603,753	Apr. 19	2009	455	83	411
Lid-lifter	L. J. A. Moritz	604,477	May 24	2314	525	83	1117
Life-insurance table or chart	N. P. Neal	602,085	Apr. 5	773	167 168	83	146
Lift. Hydraulic	T. E. Brown	604,364	May 24	2107	473 473	83	1079
Lifter: *See* Lid-lifter. Pan-lifter. Sash-lifter. Skirt-lifter. Skylight-lifter.							
Lifting device	W. T. B. Clemm	601,631	Apr. 5	12	3	83	5
Lifting-jack	P. Brown	605,072	June 7	10	3	83	1355
Lifting-jack	F. W. Chickering	602,056	Apr. 12	807	174	83	164
Lifting-jack	J. C. Hackett	604,583	May 24	2507	570	83	1159
Lifting-jack	W. E. Tyler	605,210	June 7	223	65	83	1403
Lifting-jack	F. A. Uptegrove	604,808	May 31	2996	699	83	1246
Lifting-jack	D. K. Hawley	602,045	Apr. 5	780	171	83	149
Lighter. Automatic	H. M. Edwards	604,698	May 24	2708	617	83	1189
Lighting implement	M. B. Donaldson and W. Kespohl	602,866	Apr. 19	1879	308	83	278
Limb. Artificial	H. E. Sturcke	603,295	Apr. 26	2823	645	83	561
Lime from residues. Preparing amorphous carbonate of	H. E. Sturcke	603,296	Apr. 26	2827	646	83	562
Lime from residues. Preparing amorphous carbonate of	J. Ingleby	604,306	May 24	2153	483 484	83	1088
Linoleum-mold-charging machine	G. E. Lincoln	604,404	May 24	2164	486	83	1090
Linotype and matrix for making same	P. T. Dodge	605,701	June 14	1181	272	83	1527
Linotype-machine	L. Fisher and E. W. Reynolds	604,378	May 24	2129	478	83	1093
Linotype-machine	T. H. Keller	606,166	June 21	2097	492	83	1786
Linotype-machine	F. A. Hill and W. E. Shehan	602,904	Apr. 26	2280	520	83	477
Linotype-machine attachment	T. Cahill	605,777	June 14	1305	302 303 304	83	1621
Linotype-machine, line-casting machine, and machine for making type-bars, linotypes, and matrices.	W. J. York	606,615	June 28	2980	679 680	83	1969
Liquid-conveyer	F. Oakley	606,074	June 21	1921	441	83	1758
Liquid-cooler	O. W. Swift	605,665	June 14	1151	267	83	1591
Liquid cooling and purifying apparatus	W. F. Hackett	604,818	May 17	2008	450	83	1040
Liquid-dispensing apparatus. Coin-controlled	E. H. Belden	604,514	May 24	2381	548	83	1123
Liquid-holding vessel	O. T. Joslin and H. B. Schmidt	603,085	Apr. 26	2596	590	83	536
Liquid-thickening machine	O. T. Joslin and H. B. Schmidt	603,086	Apr. 26	2597	590	83	536
Liquid-thickening machine	O. T. Joslin and H. B. Schmidt	603,087	Apr. 26	2598	590 591	83	536
Liquid transporting and preserving apparatus	P. Lochmann	601,877	Apr. 5	497	102	83	98
Liquids. Pasteurizing	J. H. W. Ortmann	603,980	May 10	1284	260	83	856
Liquids. Pneumatic elevating device for	A. Warter	605,212	June 7	235	66	83	1404

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Liquids. Storing-package for	J. Tomlinson	603,240	Apr. 26	2353	650	83	586
Liquids. Vessel for containing and administering volatile	P. P. Monnet	604,191	May 17	1773	400	83	995
Liquids with gas. Method of and apparatus for charging	H. Carmichael	604,018	May 17	1451	325	83	983
Load-sustainer for weight-lifters	W. T. Eades and T. Matthews	602,312	Apr. 12	1257	277 278	83	254
Loading or unloading apparatus	J. McMyler and G. H. Hulett	601,670	Apr. 5	81	16,17	83	17
Loading or unloading machine	J. L. Hamren	604,390	May 24	2142	481	83	1085
Lock: *See* Bicycle-lock. Caisson air-lock. Can-lock. Car-lock. Cell-lock. Combination-lock. Door-lock. Lamp safety-lock. Mail-bag lock. Padlock. Permutation-lock. Sash-lock. Seal-lock. Telephone-lock. Time-lock. Window-lock.							
Lock	E. I. Anderson and O. M. Morrill	604,961	May 31	3134	730	83	1298
Lock	A. H. Barnes	605,466	June 14	758	174	83	1519
Lock	C. H. Brigden	604,576	May 24	2493	568	83	1150
Lock	W. B. Bust	604,652	May 24	2619	599	83	1174
Lock	J. A. Gray	606,282	June 28	2926	538	83	1851
Lock	R. H. Hearn	603,951	May 10	1279	291	83	865
Lock	W. A. Petit and E. H. Miller	602,518	Apr. 19	1604	367	83	335
Lock	G. L. E. Pétorin	605,337	June 7	525	118	83	1433
Lock	H. B. Richardson	605,342	June 7	552	123	83	1458
Lock	W. D. Roberts	602,144	Apr. 12	966	211	83	194
Lock	F. W. Tobey	604,672	May 24	2656	609	83	1183
Lock	W. S. Jenkins	605,720	June 14	1209	279	83	1608
Lock attachment	B. J. Diplock	602,310	Apr. 12	1252	276 277	83	252
Locomotive	W. M. Russell	604,481	May 24	2325	527	83	1118
Locomotive	G. S. Strong	606,633	June 28	2964	687 688	83	1975
Locomotive-engine. Compound	W. A. Fletcher	605,413	June 7	685	152	83	1484
Locomotive. Log-hauling	G. W. Prescott	606,237	June 28	2238	514 515 516	83	1832
Locomotive. Oil-burning	C. P. Weiss	605,803	June 14	1370	314	83	1633
Locomotive sand-box	A. D. Emery	605,608	June 14	995	229 230	83	1563
Loom	G. F. Hutchins	606,553	June 28	2825	650	83	1949
Loom	J. W. Sherry	605,019	May 31	3245	746	83	1314
Loom	J. Walder	602,401	Apr. 19	1556	354	83	326
Loom	W. H. Redding	603,237	May 3	73	19	83	615
Loom for cross-weaving	J. Catterall	602,893	Apr. 26	2249	512	83	472
Loom-fork	C. N. Newcomb	605,507	June 14	880	190	83	1581
Loom frame. Carpet-	G. W. and W. R. Harris	603,080	Apr. 26	2583	586 587 588	83	584
Loom-heddles. Machine for making	T. A. B. Carver	604,299	May 17	1968	441 114	83	1033
Loom jacquard mechanism	H. Wyman	603,521	May 3	530	115	83	700
Loom Lappet-	W. Lonzo	605,561	June 14	950	221	83	1556
Loom picker-check	G. Goodline and J. A. Clark	604,897	May 31	3045	699	83	1275
Loom picking mechanism	O. A. Sawyer and M. M. Lahue	603,860	May 10	1130	254	83	836
Loom protector stop mechanism	G. F. Hutchins	605,695	June 14	1414	322 323	83	1641
Loom shedding mechanism	H. Wyman and W. H. Redding	603,308	May 3	108	26	83	622
Loom shedding mechanism	G. Oldham	603,282	May 3	66	17	83	614
Loom shedding-motion	S. M. Hamblin	603,141	Apr. 26	2094	611	83	557
Loom-shuttle	S. M. Hamblin	603,603	May 3	656	146	83	739
Loom-shuttle	L. Sturges	604,804	May 31	2890	651	83	1245
Loom-shuttle	G. Schwabe	604,669	May 24	2650	607 608	83	1180
Loom shuttle-box-operating mechanism	H. Wyman	603,522	May 3	524	116	83	701
Loom shuttle-box-operating mechanism	C. A. Littlefield	601,836	Apr. 5	400	84, 85	83	75
Loom shuttle-changing mechanism	M. H. Leveille	605,690	June 14	1161	268	83	1594
Loom-shuttle. Self-threading	A. D. Emery	605,602	June 14	908	228 229	83	1562
Loom shuttle stop-motion	J. and J. Harriman	605,199	June 7	254	59, 60	83	1399
Loom slack-alarm and stop-motion	J. H. Northrop	604,632	May 24	2595	590	83	1167
Loom thread-cutting temple	A. D. Emery	605,600	June 14	905	227	83	1561
Loom warp stop-motion	J. Harriman	605,479	June 14	777	179	83	1523
Loom warp stop-motion. Narrow-ware	A. D. Emery	605,601	June 14	909	227 228	83	1562
Loom weft stop-motion	I. E. Palmer	605,971	June 21	1723	395 396	83	1717
Looms. Fringe-making attachment for hammock-	J. K. Schumacher	602,366	Apr. 12	1343	299	83	271
Looms. Selvage-weaving device for	R. R. Thompson	602,487	Apr. 19	1549	352 353	83	334
Lounge. Box-	J. Kremser	602,457	Apr. 19	1503	343	83	315
Lowering device	A. Cruz	602,155	Apr. 12	994	217	83	200
Lubricating apparatus	C. H. C. Koch	602,854	Apr. 26	2196	498	83	462
Lubricating device	J. F. and B. T. McCanna	604,072	May 17	1553	348	83	951
Lubricating-pump	O. F. Cook	603,260	May 3	29	7	83	606
Lubricating shaft-bearings. Means for							
Lubricator: *See* Automatic lubricator. Axle-lubricator. Cup-lubricator. Hydraulic lubricator.							
Lubricator	E. O. Goss	603,686	May 10	907	178	83	774
Lubricator	G. McNeil and T. J. Rogers	606,204	June 28	2946	543	83	1855
Lubricator	W. Michalk	604,400	May 24	2181	486	83	1092
Lubricator	J. Powell	604,365	May 17	1908	427	83	1030

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lubricator	G. Seyffarth	603,907	May 10	1365	310	83	669
Lubricator	W. H. and R. Thompson	604,132	May 17	1602	311 373 374	83	973
Lubricator-filler. Automatic	N. Zogg	603,303	May 3	258	57	83	649
Lumber-edger	H. M. Johnston and G. W. Mason	604,661	May 24	2631	606	83	1176
Lumber-piling lift	A. Stendahl	603,835	May 10	1082	241	83	806
Lumber-stacking apparatus	W. Graham	604,145	May 17	1632	378 379	83	976
Lumber-stacking apparatus	W. Graham	604,146	May 17	1636	379 380	83	977
Lumber-stacking apparatus	W. Graham	604,169	May 17	1723	388 389	83	984
Lumber-storage plant	V. L. Emerson	602,395	Apr. 12	1394	313 313	83	280
Luminous or similar effects. Apparatus for producing	D. M. Moore	604,686	May 24	2678	613	83	1186
Mail-bag	F. A. Brown	602,723	Apr. 19	1902	446	83	402
Mail-bag crane	W. L. Hatfield	604,115	May 17	1634	367	83	967
Mail-bag fastener	C. A. Strasburg	605,588	June 14	963	223	83	1558
Mail-bag lock	J. B. May	602,784	Apr. 19	2021	458	83	418
Mail-box	J. Avery	605,857	June 21	1455	333	83	1667
Mail-catcher	J. E. White	603,749	May 10	913	209	83	794
Mail-marking machine	C. P. Oudin	604,689	May 24	2683	614 615	83	1186
Mailing-signal and door-bell. Combined	C. F. Nelson	602,907	Apr. 26	2441	557	83	508
Malt-drying apparatus	W. H. Prinz	605,012	May 31	3231	743 744	83	1311
Malt-stirrer	J. A. Saladin	606,586	June 28	2880	663 664 665 666 667 668	83	1960
Malting drum. Pneumatic	J. A. Tilden	602,598	Apr. 19	1619	370	83	337
Manhole-cover	T. P. Greger	606,206	June 28	2172	408	83	1818
Manure-distributer	T. H. Motley	605,909	June 21	1720	395	83	1717
Map-holder	H. C. McCafferty	601,668	Apr. 5	70	16	83	16
Marble. Polishing	J. M. Mueller, Jr	605,395	June 7	645	144	83	1475
Marker for graves, lands, &c	J. A. Coffey	602,119	Apr. 12	915	199 200	83	185
Marker. Land	J. H. Winter	603,157	Apr. 26	2714	517	83	561
Marking-cord	G. K. Spitzenberg	602,899	Apr. 26	2265	516	83	474
Marshmallow-runner	R. W. Douglas	603,950	Apr. 26	2309	540	83	495
Massage appliance. Electric	F. J. S. Lau						
Mat: *See* Door-mat.							
Match-box	R. M. Dixon	605,276	June 7	419	95	83	1432
Match-box-filling machine	A. Lagerman	604,565	May 24	2476	562 563 564	83	1146
Match box or safe	B. W. Karst	602,338	Apr. 12	1288	285	83	260
Match-card-making machine	S. W. Bates	605,598	June 14	973	225	83	1559
Match-igniting device	C. F. and G. A. Axelson and R. W. Gunn.	602,593	Apr. 19	1736	395	83	356
Match-making machine	H. P. Feister	603,481	May 3	432	96	83	684
Match-making machine	J. P. Wright	603,459	May 3	391	87, 88	83	676
Match-safe	E. P. Connet and F. A. Green	605,856	June 21	1502	344	83	1675
Match-safe	D. Knowlton	602,694	Apr. 19	1787	408	83	368
Match-safe	J. Villard and J. P. Henderson	603,301	May 3	94	23	83	619
Match-splint cutting and assembling machine	J. F. Kay and D. Hutchinson	601,898	Apr. 5	520	107 108	83	97
Matches. Composition for making	A. Tachauer and L. Braly	603,666	May 10	777	------	83	768
Matrices. Renewing	B. Ring and B. W. Stickney	604,123	May 17	1646	369	83	969
Matrix-drying apparatus	B. F. Jackson	603,879	May 10	1163	262	83	843
Mattress	O. E. Hall	604,043	May 17	1491	335	83	940
Mattress. Sectional	W. F. Ade, Jr	603,718	May 10	859	191	83	784
Measure. Grain	F. Yeagley	603,300	May 3	111	26	83	623
Measurer and register. Grain	S. Stewart and J. F. Swisher	601,739	Apr. 5	327	45	83	44
Measuring and cutting device. Cloth	W. B. Hood	601,964	Apr. 5	965	141	83	126
Measuring diameters. Instrument for	G. Vine	601,721	Apr. 5	192	37, 38	83	38
Measuring instrument. Distance	A. G. B. Scuri	603,890	June 14	1420	324	83	1642
Measuring instrument. Electrical	H. W. Sullivan	602,567	Apr. 19	1615	369	83	337
Measuring instruments. Hinge connection for electrical	A. H. Hoyt	603,042	Apr. 26	2509	569	83	521
Measuring mechanism for box or can filling machines.	P. L. Hoyte and W. T. Wood	602,330	Apr. 12	1283	284	83	259
Meat can. Compressed	J. L. Black	601,981	Apr. 5	584	121 122	83	111
Meat-holder	J. N. and J. T. Firth	603,560	May 3	534	129	83	714
Meat or vegetable cutter	I. P. Buckles	606,511	June 28	2738	631	83	1931
Meat-pickling apparatus	G. Henkel and H. von Rom	603,082	Apr. 26	2508	599	83	535
Meat-press	F. M. McKown	602,866	Apr. 26	2210	501	83	465
Meats. Marking	A. F. Nathan	605,120	June 7	67	23	83	1269
Mechanical movement	V. Bélanger	606,157	June 21	3070	476 476	83	1781
Mechanical movement	V. Bélanger	606,158	June 21	3078	477 477	83	1781
Mechanical movement	H. F. Brammer	606,044	June 21	1865	430	83	1741
Mechanical movement	C. B. Judd	604,010	May 10	1429	330	83	808
Mechanical movement	S. T. Richardson	604,417	May 24	2193	491	83	1095
Mechanical movement	E. C. Riddle	605,015	May 31	3238	745	83	1312
Mechanical movement	L. W. Southgate	606,096	June 21	1968	451 452	83	1761
Medicine-carton	C. E. Swink	602,668	Apr. 19	1876	420	83	395
Medicine-case. Physician's	M. Hoff	603,467	May 3	402	90	83	676
Medicine-dropper	J. B. Schermerhorn	603,973	May 10	1313	301	83	971

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Medicines. Device for administering	C. C. Hooker	604,998	May 24	2147	488	83	1099
Merry-go-round	W. E. Meissner	603,589	May 3	628	140	83	723
Metal-dishing machine	J. S. Worth	603,094	Apr. 26	2610	508	83	539
Metal-dishing machine	W. P. Worth	603,095	Apr. 26	2612	508	83	539
Metal-dishing machine	J. S. Worth	603,096	Apr. 26	2617	504	83	540
Metal dishing or forming machine	J. T. Wainwright. (Reissue)	603,096	Apr. 26	2614	508	83	540
Metal. Machine for exhausting molten	G. Mesta	11,671	June 21	2116	486	83	1700
Metal plates. Motor in apparatus for pickling and washing	J. Williams and G. H. White	602,686	Apr. 19	1905	432 434	83	391
Metal plates or sheets. Apparatus for separating	W. J. Dwyer	602,969	Apr. 26	2396	546 547	83	500
Metal-separator	R. E. Daniels	603,133	Apr. 26	2678	607 608	83	554
Metal shearing and bending machine	B. Wesselmann	603,813	May 10	1084	230	83	618
Metal-shearing machine	F. B. Shuster	606,106	June 21	1966	456	83	1766
Metal straightening and cutting-off machines. Device for	T. Conners	605,928	June 21	1633	376 376	83	1701
Metal ware. Apparatus for shaping	F. G. Echols	601,895	Apr. 5	383	81	83	73
Metal-working machines	N. V. Perry	603,028	Apr. 12	815	177	83	165
Metal-working machine	R. W. Lord	603,994	May 10	1365	300	83	880
Metal-working machines. Work-holder for	F. Egge	603,095	Apr. 26	2487	564	83	516
Metal-working tool	J. D. Bishop	604,376	May 24	2125	477	83	1092
Metals. Apparatus for electrically working	W. H. Hardy	604,137	May 17	1670	375	83	973
Metals. Tool and holder for use in cutting, boring, and slotting	W. A. McCool	605,422	June 7	609	155	83	1487
Metallic articles. Manufacturing cold-drawn	C. Rudolph and G. Levavasseur	602,417	Apr. 12	1490	323	83	268
Metallic pipe. Flexible	T. L. Stewart	605,587	June 14	962	223	83	1558
Metallic strips. Tool for cutting and binding	L. Parvillée	605,761	June 14	1277	294	83	1615
Metalloceramic resistances. Fabricating	J. Manes	602,227	Apr. 12	1112	------	83	224
Metallurgical furnace		602,761	Apr. 19	2017	457 458	83	412
Meter: *See* Coin-controlled meter. Current-meter. Electric meter. Fluid-meter. Gas-meter. Gas-supply meter. Motor-meter. Oscillating meter. Water-meter. Wattmeter.							
Meter coin-controlling and recording mechanism	S. E. Mower	604,175	May 17	1747	393 394	83	990
Meter-coupling protective device	C. Ennis	602,988	Apr. 26	2419	551	83	504
Meter prepayment attachment	C. Luke	604,255	May 17	1866	498	83	1016
Meter prepayment attachment	S. E. Mower	604,173	May 17	1739	398 398	83	989
Meter-reading attachment	C. L. Arques	604,953	May 31	3137	721	83	1293
Meter registering mechanism	S. E. Mower	604,174	May 17	1745	398	83	990
Meter-testing device	F. Lambert	603,455	May 3	441	99	83	686
Middlings-purifier	H. Simon	601,817	Apr. 5	370	77	83	70
Milk. Apparatus for determining fat in	A. W. Stokes	603,780	Apr. 19	2051	464	83	419
Milk-can	E. Wiart	602,675	Apr. 19	1668	429	83	367
Milk-cooling apparatus	L. H. Porter	602,956	Apr. 26	2378	542	83	497
Milk hygienically. Apparatus for treating	W. F. Niebling	604,177	May 17	1751	395 494	83	991
Milk measuring and discharging machine	W. E. Penn	604,951	May 17	1803	495 495	83	1017
Milk. Preserving	A. Fernandez	602,315	Apr. 12	1263	279	83	255
Milker. Cow	R. D. Roth	603,049	Apr. 26	2521	573	83	523
Milking apparatus	O. R. Hauskey	603,616	May 3	660	154	83	734
Mill: *See* Ball-mill. Crushing-mill. Grinding-mill. Rolling-mill. Stamp-mill. Stamping and crushing mill. Windmill.							
Milling-cutter	A. H. Morton	604,776	May 31	2847	651	83	1236
Milling-cutter	L. Smith	602,089	Apr. 5	780	169	83	147
Milling-cutter for metal-working machines	A. Klay	602,291	Apr. 12	1226	270	83	246
Mineral waters. Apparatus for making and dispensing	P. E. Malmstrom	602,809	Apr. 26	2393	522	83	478
Mineral wool	D. P. Doak	605,042	May 31	3236	------	83	1321
Mining apparatus	G. F. Kibling	604,380	May 17	2089	454	83	1043
Mining-machine	D. A. and T. E. Lee	601,971	Apr. 5	675	143	83	128
Mining-machine	E. S. and W. A. McKinlay	604,192	May 17	1775	400	83	995
Miter cutting and shooting block	W. O. Bailey	604,290	May 17	1949	487	83	1088
Miter cutting and shooting block	W. O. Bailey	604,291	May 17	1951	487	83	1088
Mixer: *See* Feed-mixer. Gas-mixer.							
Mixer	T. A. Edison	605,668	June 14	1121	259	83	1566
Mixing-machine	J. H. Day	604,734	May 31	2781	686	83	1293
Moistening and sealing envelops. Machine for automatically	J. Dupaw	602,601	Apr. 19	2102	474	83	438
Moistening device	J. J. Karges	603,768	May 10	947	211	83	801
Mold: *See* Glass-mold.							
Molding-flasks. Hand clamping device for	J. Scherer	605,347	June 7	568	124	83	1460
Molding-machine	W. B. Burns	603,423	May 3	311	70	83	660
Molding machine. Sand	J. D. Duckett and W. Badger	603,927	May 3	44	11, 12	83	609
Molding-machines. Guide and guard for variety	A. L. Stoddard	604,946	May 31	3127	719	83	1291
Mole-trap	W. M. Ball	602,818	Apr. 26	2141	488	83	451
Monkey-wrench. Ratchet	C. E. Frederickson	605,444	June 7	737	164	83	1488
Mop	H. A. Wolff	605,495	June 28	2711	624	83	1927
Mop-head	D. E. Ballam	603,999	May 10	1308	311 312	83	959
Mop-holder	H. A. L. Bade	604,107	May 17	1680	364	83	985
Mop holder and wringer	O. Kurz	605,951	June 21	1710	368	83	1714
Mop-wringer	H. A. Wolff	603,547	May 3	564	124	83	710
Mop-wringing attachment for pails	F. Trimble	605,368	June 7	506	120	83	1465

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mordanting	F. J. Oakes	601,673	Apr. 5	85	.....	83	17
Mortising-bit	R. Hikki	602,753	Apr. 19	2008	454	83	410
Mortising-machine	W. Black	605,774	June 14	1301	301	83	1620
Motion. Device for converting	A. Hadsall	604,396	May 31	2283	669	83	1251
Motion. Device for converting	G. R. Laidlaw	605,553	June 14	891	208	83	1545
Motion. Mechanism for converting rotary to reciprocating	J. W. Butterfield	605,218	June 7	308	99, 70	83	1409
Motive engine	A. Howard	602,161	Apr. 12	1008	290	83	208
Motor: *See* Current induction-motor. Electric motor. Fluid-pressure motor. Gas-motor. Pneumatic motor. Powder-motor. Rotary motor. Steam-motor. Tide and wave motor. Vehicle-motor. Water-motor. Wave-motor. Wave or current motor.							
Motor	P. Auriol	602,652	Apr. 19	1634	418	83	377
Motor	F. A. Brennan	605,262	June 7	624	139	83	1471
Motor	H. Clay	608,173	Apr. 26	2735	623	83	565
Motor	J. F. W. Koetter	605,439	June 7	721	162	83	1469
Motor	F. M. Mackey	602,086	Apr. 12	856	{185 / 187}	83	174
Motor	J. A. Möllinger and K. Kurda	606,630	June 28	2960	686	83	1974
Motor-meter. Alternating-current	J. Hallé	602,008	Apr. 5	728	{155 / 156}	83	136
Moving way or stair for transporting persons and goods	T. S. Brown	604,851	May 31	2967	660	83	1250
Mower	A. Hart	605,874	June 21	1598	{352 / 353}	83	1660
Mower	J. Macphail	604,901	May 31	3054	{701 / 702}	83	1276
Mower	T. Naus	604,779	May 31	2853	658	83	1237
Mower attachment	S. S. Dennis and T. F. Thorn	602,734	Apr. 19	1982	450	83	405
Mower cutting apparatus	P. C. Burhans	605,074	June 7	12	4	83	1355
Mower. Lawn-	W. W. Crockett	605,176	June 7	213	52	83	1391
Mower. Lawn-	H. W. Morgel	602,513	Apr. 19	1596	{354 / 365}	83	338
Mower. Lawn-	N. P. Shulin	606,927	June 21	1631	375	83	1701
Mower. Lawn-	J. A. Davis	604,189	May 17	1770	399	83	994
Mowing and reaping machines. Rotary sickle for	D. W. Kneisly	604,358	May 17	2061	466	83	1054
Mowing-machine	O. Morris	602,586	Apr. 19	1715	390	83	254
Mowing-machine	H. R. Stirling	601,911	Apr. 5	557	114	83	106
Mowing-machine	A. N. Allen	606,111	June 21	1993	457	83	1707
Mucilage-holder	R. H. Reid	606,259	June 28	2474	575	83	1879
Mud-guard	G. Gordon	606,185	June 21	2037	466	83	1774
Mud-guard and storm-fender. Reversible	S. Green	604,562	May 24	2472	562	83	1146
Mule-carriages. Dash-pot for steadying	W. O. and E. K. Campbell	601,727	Apr. 5	200	39	83	59
Music-chair	C. Gittus, Jr	604,825	May 31	2020	{668 / 669}	83	1250
Music-leaf turner	R. E. Swartz	606,258	June 28	2277	526	83	1841
Music-leaf turner	L. Wysinger	606,110	June 21	1991	457	83	1707
Music-leaf turner	A. J. Smetters	601,736	Apr. 5	221	44	83	45
Music or book holder and rack	E. W. Funk	606,259	June 21	1708	391	83	1714
Music or copy holder	C. A. Comp	601,644	Apr. 5	33	7, 8	83	8
Music-turner	B. C. Auten	604,954	May 31	3138	{721 / 722}	83	1298
Music turner. Sheet-	P. Casolin	602,695	Apr. 19	1919	437	83	398
Musical instrument	T. H. Deckert	605,041	May 31	3245	754	83	1321
Musical instrument	F. G. McPherson	602,352	Apr. 12	1316	298	83	266
Musical instrument	M. E. Verdier	602,948	Apr. 12	1146	251	83	230
Musical-instrument attachment	G. H. Davis	606,279	June 28	2316	{596 / 597}	83	1650
Musical instrument. Electromechanical	A. Richter	605,134	June 7	120	30, 31	83	1374
Musical instrument. Mechanical	W. Gustafson	606,207	June 28	2173	499	83	1819
Musical-instrument picker device. Stringed-	C. B. Kendall and J. P. Tirrell	606,220	June 28	2200	507	83	1827
Musical-instrument picker device. Stringed-	W. A. Lorenz and C. E. De Lue	606,222	June 28	2213	{508 / 509}	83	1827
Musical-instrument pneumatic action	C. B. Kendall	606,219	June 28	2207	{506 / 507}	83	1826
Musical-instrument strings. Pin or peg for	C. Gittus	605,043	May 31	3287	753	83	1321
Musical-instrument tailpiece	R. E. Lackner	602,337	Apr. 12	1205	297	83	261
Musical instruments. Finger-guide for	P. Marcuson	602,802	Apr. 26	2205	500	83	464
Musk. Making artificial	C. Schmid	602,961	Apr. 26	2385	.....	83	499
Myrioscope. Automatic	A. Peterson	606,236	June 28	2227	514	83	1822
Nail-machine	J. A. Staples and C. Bush	602,024	Apr. 5	752	162	83	142
Nail machine. Wire-	G. W. Angell	604,908	May 17	1795	404	83	999
Nail-making machine	J. C. Richardson	602,566	Apr. 19	1678	{381 / 382}	83	348
Nail-making machine	E. Walton and F. Macke	604,553	May 24	2455	556	83	1141
Nail-setting machine	A. M. Simmons	602,575	Apr. 12	1190	261	83	230
Nailing apparatus	M. Brock	601,941	Apr. 5	620	132	83	116
Nailing apparatus. Hand	M. Brock	601,942	Apr. 5	633	133	83	116
Nailing-machine work-support	L. A. Casgrain	606,045	June 21	1866	430	83	1741
Napkin ring and holder. Combined	G. Kroker	605,487	June 14	798	{161 / 162}	83	1585
Necktie	C. W. T. Davies	605,947	June 21	1676	383	83	1708
Necktie-fastener	H. W. Buehler	604,265	May 24	2710	474	83	1079
Necktie-fastener	W. E. Catlin	606,122	June 21	2011	460	83	1770
Necktie-fastener	B. H. Holmes	604,048	May 17	1490	357	83	948
Necktie-fastener	I. H. Mallin	606,236	Apr. 26	2247	549	83	555
Necktie-fastener	F. H. Maxam	602,502	Apr. 19	1673	380	83	347
Necktie-holder	C. E. Sipp	605,268	June 7	206	60	83	1427
Neckties and collars to shirts. Means for fastening	E. P. McAllister	606,370	June 28	2555	556	83	1956
Needle. Puncture-repair	E. Strain	602,852	May 10	1049	254	83	231
Needle. Split	F. M. Johnson	604,760	May 31	2821	644	83	1231
Needle. Tagging							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nest-box for beneries	A. J. Silberstein	605,979	June 21	1726	399	83	1720
Newspaper folding and wrapping machine	F. Waite and J. Saville	601,741	Apr. 5	220	45, 46	83	44
Newspapers against resale. Means for protecting	L. C. Crowell	608,896	Apr. 26	2255	{513 / 514}	83	473
Nickel from nickel ores. Extracting	T. Storer	603,797	May 10	1000	.....	83	812
Nitrocellulose. Purifying	J. H. Stevens	605,981	June 21	1640	.....	83	1708
Noria	R. F. Gray	601,957	Apr. 5	656	138	83	133
Note-reading device. Vocal and instrumental	E. G. Wickersham	605,157	June 7	162	45	83	1395
Nozzle	H. Nicholsburg	606,049	May 31	3298	757	83	1394
Nozzle. Spraying	J. and R. Bean	604,873	May 31	3010	691	83	1268
Nozzle. Water-pipe or hose	E. G. Odonnell	608,487	May 3	444	99	83	687
Nursery-gate	P. Motley	304,411	May 24	2185	492	83	1094
Nut	R. R. Parrish	605,450	June 7	738	167	83	1495
Nut and nut-lock	H. A. Hutson	605,578	June 14	930	219	83	1554
Nut and pipe wrench. Combined	O. Larson and C. Branzell	601,970	Apr. 5	674	149	83	127
Nut. Bolt-	W. H. Butler	602,794	Apr. 19	1963	446	83	408
Nut-lock	N. Baughn	602,715	Apr. 19	1952	443	83	400
Nut-lock	G. E. Benton	605,511	June 14	1383	317	83	1635
Nut-lock	F. Binn	606,288	June 28	2431	559	83	1866
Nut-lock	J. Breegman	602,891	Apr. 26	2347	511	83	471
Nut-lock	C. H., Jr., and J. F. Charlton	605,078	June 7	17	6	83	1356
Nut-lock	P. Curran	605,859	June 21	1507	345	83	1670
Nut-lock	J. Doran	605,861	June 21	1509	346	83	1677
Nut-lock	J. H. Eckart	603,394	May 3	140	33	83	620
Nut-lock	B. Edgar	602,233	Apr. 12	1102	246	83	225
Nut-lock	B. Edgar	602,394	Apr. 12	1302	312	83	280
Nut-lock	J. C. Ferguson	602,619	Apr. 19	1775	405	83	366
Nut-lock	W. A. Garrigus and R. Golling	604,114	May 17	1633	366	83	967
Nut-lock	J. Harris	601,889	Apr. 5	512	106	83	96
Nut-lock	I. Hosier	606,145	June 21	2056	471	83	1778
Nut-lock	F. O. Johnson	605,786	June 14	1343	307	83	1627
Nut-lock	P. B. Kenyon	603,519	May 10	1045	233	83	821
Nut-lock	C. J. McCue	605,534	May 3	546	120	83	706
Nut-lock	J. Rohlin	606,568	June 28	2874	662	83	1959
Nut-lock	J. B. Sargent	603,050	Apr. 26	2523	573	83	532
Nut-lock	H. E. Stagman and H. C. Jones	602,919	Apr. 26	2306	525	83	488
Nut-lock	W. W. Sweigart	606,253	June 28	2279	526	83	1842
Nut-lock	S. W. Telford	601,688	Apr. 5	118	23	83	35
Nut-lock	H. A. Thomasson	603,247	May 3	181	41	83	637
Nut-lock	J. R. Thurmend	601,915	Apr. 5	562	116	83	107
Nut-lock	J. F. Titus	603,670	May 10	1656	378	83	770
Nut-lock	B. Woodall and T. E. Orr	602,549	Apr. 19	1656	378	83	344
Nut-lock	A. S. Wright	602,120	Apr. 12	917	200	83	186
Nut-lock	J. Wurthner	606,109	June 21	1990	457	83	1707
Nut-lock	B. Edgar	602,232	Apr. 12	1118	245	83	225
Nut. Lock-	H. F. Gardner and F. J. Benscoter	603,693	May 10	804	177	83	774
Nut. Lock-	G. Weiss	604,447	May 24	2249	{505 / 506}	83	1106
Nut-tapping machine	H. L. Butler	602,054	Apr. 12	904	174	83	164
Nut-wrench	E. P. Conway	606,047	June 21	1809	451	83	1749
Nut wrench. Axle-	T. H. Brosnihan	604,001	May 24	2537	578	83	1158
Oar. Bow-facing	A. Dalmer	603,308	May 3	266	59	83	651
Oar. Bow-facing	T. B. Floyd	606,055	June 21	1865	434	83	1746
Office-indicator	A. Haye	604,321	May 17	2013	451	83	1041
Oil, &c. Apparatus for dispensing	E. Stretch	606,423	June 28	2614	608	83	1908
Oil by water-pressure. Means for raising	H. C. Atkinson	604,184	May 17	1763	397	83	992
Oil-can	W. R. Goodwin	604,386	May 24	2187	480	83	1084
Oil-can	L. Martin	601,797	Apr. 5	332	67	83	63
Oil-can	J. H. Nichol	604,479	May 24	2316	{535 / 536}	83	1117
Oil-distributing apparatus	A. Collier	604,270	May 24	2115	475	83	1060
Oil-extractor and feed-water purifier and heater	W. F. Trotter	602,297	May 3	88	22	83	618
Oil or gas engine	N. Guyer, J. P. Kelly, and A. Kissell	603,965	May 10	1329	305	83	875
Oil-tanks. Automatic cut-off for	W. G. Day and R. M. Glacken	604,307	May 17	1901	447	83	1087
Oils and fats. Treating	J. Lines	605,321	June 7	501	111	83	1448
Oiler	T. W. Green	601,649	Apr. 5	45	9	83	10
Oiler for shafts of pressure-blowers	J. S. Scarborough	606,808	June 28	2360	546	83	1858
Oiling device	E. B. Meyrowitz	603,148	Apr. 26	2708	{613 / 614}	83	559
Optical instruments. Adjustable support for	E. A. Trussell	604,005	May 17	1594	358	83	959
Order-holder	D. Vickers and G. T. Buckham	602,785	Apr. 19	2061	{467 / 468}	83	421
Ordnance. Breech-loading	M. A. Lynch and W. I. Hough	604,665	May 24	2637	{604 / 605 / 606}	83	1177
Ordnance breech mechanism	L. W. Bates	605,841	June 21	1462	335	83	1666
Ordnance. Method of and apparatus for firing pneumatic	W. E. Mendenhall	604,061	May 17	1530	{344 / 345}	83	947
Ore-concentrator	E. M. Rich	604,920	May 31	3092	710	83	1284
Ore-concentrator	F. W. Harlow	606,126	June 21	2041	{467 / 468}	83	1775
Ore concentrator and slimer. Combined	H. Harlan	602,400	Apr. 12	1407	317	83	293
Ore-roasting furnace	A. W. Patterson	601,815	Apr. 5	506	76	83	69
Ore-separator	J. Ancel	602,250	Apr. 12	1148	252	83	231
Ore-sorter	A. Etard	601,640	Apr. 5	98	.....	83	7
Ores containing gold, silver, or copper. Treating	W. M. Morgan and F. E. Parker	605,001	May 31	2909	{739 / 740}	83	1307
Ores. Process of and apparatus for roasting and separating	S. C. C. Currie	604,167	May 17	1781	.....	83	994
Ores. Treating metallic	J. E. Davis	605,404	June 7	669	146	83	1461
Organ	M. Clark	606,175	June 21	2105	484	83	1768
Organ coupler. Pneumatic	M. Clark	606,444	June 28	2632	605	83	1911
Organ coupler. Pneumatic	E. M. Skinner. (Reissue)	11,669	June 14	1448	{331 / 332}	83	1646
Organ. Pipe	M. Clark	602,936	Apr. 26	2344	535	83	491
Organ. Pneumatic							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Organ. Pneumatic	M. Clark	603,127	Apr. 26	2066	606	83	552
Organ. Reed	W. S. Moses	604,070	May 17	1546	347	83	960
Orthopedic appliance	A. H. Hamel and A. N. Hibbert	604,044	May 17	1498	385	83	940
Orthotoluenesulfo-chlorid. Purifying	W. Majert	603,195	Apr. 26	2776	.....	83	572
Oscillating meter	R. A. Thayer and E. Everett	605,901	June 28	3910	672	83	1965
Oven. Baker's	W. Neuhs	605,900	June 21	1576	362	83	1691
Overalls	C. G. Smith	605,286	June 7	330	76, 77	83	1414
Overalls, leggings, trousers, &c. Attachment for	G. G. Blane	602,299	Apr. 12	1236	272	83	249
Overhead switch	J. S. Rice and F. W. Bettenmiller	604,386	May 17	1910	427	83	1021
Overshoe	L. E. Campbell	604,367	May 24	2,112	474	83	1080
Overshoe attachment	J. C. Gillam	606,201	June 28	2155	494	83	1816
Oxydiamidodiphenyl and making same	P. Jacobson and H. Tigges	604,049	May 17	1500	.....	83	942
Oxyethylacetanilid	O. Klimmek	606,288	June 28	2237	.....	83	1868
Oxyphenyl-guanidin and making same	B. R. Seifert	605,977	June 21	1734	.....	83	1719
Pack and sled. Combined	J. J. Erb	604,523	May 24	2305	544	83	1190
Package filling, weighing, and assorting machine	A. Stearns	603,413	May 3	293	63, 68	83	656
Package. Shipping	E. Norton	603,466	Apr. 19	1517	346	83	816
Packing-box	N. G. Sörensen	602,976	Apr. 12	1191	262	83	239
Packing. Metallic	N. Jessup	604,474	May 24	2309	524	83	1116
Packing. Metallic	W. H. Prendergast	602,736	May 10	898	198	83	700
Packing-ring	S. F. Field and W. T. Heck	603,376	May 3	225	50	83	644
Packing. Rod	T. H. Holmes	602,328	Apr. 12	1281	284	83	258
Packing. Steam	C. H. Merwarth	605,891	June 21	1564	360	83	1689
Packing. Steam-engine rod	C. Longstreth	603,586	May 3	627	139 140	83	722
Pad: *See* Harness-pad. Stamp-pad. Heof-pad. Step-pad. Horseshoe-pad. Truss-pad.							
Paddle-wheel. Steamboat	L. Q. C. Magee	604,256	May 17	1867	423	83	1016
Padlock	C. H. Brigden	604,577	May 24	2499	568	83	1150
Padlock	J. Murphy	605,740	June 14	1238	266	83	1608
Padlock	J. A. L. Snyder	603,711	May 10	847	189	83	788
Padlock. Permutation	A. B. Steen	601,801	Apr. 5	336	68	83	68
Padlock. Permutation	M. Le Vino	605,402	June 14	803	185	83	1527
Padlock. Permutation	A. Burgland	601,702	Apr. 5	135	27	83	29
Pail, &c	G. J. Record	604,078	May 17	1566	350	83	954
Pail and package	C. W. Mitchell	606,469	June 28	2671	615	83	1919
Pail-hook	C. R. McKinstry	604,176	May 17	1749	394	83	991
Pail. Milk	J. C. Vollmer, Jr	602,531	Apr. 19	1696	371	83	339
Pail rest. Milk	T. Stephenson	601,910	Apr. 5	556	.....	83	106
Paint	H. G. Thompson	606,100	June 21	1972	453	83	1768
Paint-bucket. Combination	A. B. Kittson and A. B. Browne	602,163	Apr. 12	1007	.....	83	203
Paint-pigment	C. F. Spencer	604,549	May 24	2449	556	83	1140
Paint-pot hook and brush-holder	J. Wissmann	602,533	Apr. 19	1630	.....	83	339
Painting	G. Mora	603,533	May 3	545	.....	83	706
Paintings. Producing copies of oil							
Pan: *See* Dust-pan. Roasting-pan. Frying-pan. Vacuum-pan.							
Pan-lifter	A. Hautsch	602,304	Apr. 12	1275	262	83	257
Panel	A. R. Lordly	603,147	Apr. 26	2701	613	83	559
Paper and compound used to enamel same. Enameled	F. G. Annison	601,927	Apr. 5	578	.....	83	110
Paper. Apparatus for making yarn or thread from	E. Claviez	604,350	May 17	2077	465	83	1053
Paper assembling and stapling machine	T. C. Dexter	602,816	Apr. 19	2128	480 481 482 483 484 485	83	433
Paper-bag cabinet	P. F. Mauer	602,092	Apr. 5	770	166	83	146
Paper box	E. Finch	604,081	May 17	1471	329	83	936
Paper box	H. S. Munson	602,664	Apr. 19	1868	425	83	364
Paper-box machine	J. W. Low	603,471	May 3	407	91, 92	83	679
Paper-box-making machine	C. H. Palmer and J. W. Denmead	602,140	Apr. 12	948	207 208	83	191
Paper-box-making machine	J. H. Russell	604,546	May 24	2441	554 555	83	1136
Paper cabinet. Toilet	J. N. Moehn	602,995	Apr. 26	2430	556	83	807
Paper cutter. Toilet	J. Hoberg, Sr	604,150	May 17	1603	361	83	978
Paper cutting and folding machine	E. H. and C. P. Cottrell	604,004	May 10	1415	316 317 318 505	83	896
Paper-cutting machine	S. Smith	602,882	Apr. 26	2233	506	83	469
Paper decoration	R. Burger	603,619	May 10	897	155	83	752
Paper-drying apparatus	G J. Burns	602,799	Apr. 19	2099	474	83	427
Paper-feeding machine	J. M. Blaisdell	604,932	May 31	3035	697	83	1273
Paper-feeding machine	T. C. Dexter	605,086	June 7	23	11, 12	83	1359
Paper-feeding machine	T. C Dexter	605,090	June 7	37	12, 13	83	1360
Paper-feeding machine	J. F. McNutt	605,328	June 7	511	114	83	1430
Paper-folding device. Toilet	W. E. Coombs	602,595	Apr. 19	1783	394	83	357
Paper-folding machine	H. K. King	602,990	Apr. 26	2430	554	83	806
Paper-holder	G H. Kent	602,186	Apr. 12	1060	220	83	211
Paper-holding device	J. W. Bush	603,316	May 3	119	26	83	685
Paper-making machine	S. N. Miller	602,197	Apr. 26	2778	633	83	572
Paper or other machines. Lath-carrying device for wall	J. H. Suydam, Sr	602,375	Apr. 12	1356	309	83	973
Paper. Oval holder for toilet	J. N. Moehn	604,774	May 31	2645	620	83	1395
Paper-registering machine	T. C. Dexter	602,998	Apr. 26	2260	514 515 516	83	474
Paper-registering machine	T. C. Dexter and J. J. Parker	605,275	June 7	417	94	83	1431

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Paper-serving machine	C. Fisher	604,113	May 17	1630	366	83	966
Paper thread. Making	E. Claviez	604,349	May 17	2075	464 465	83	1053
Paper-trimming machine. Wall	J. M. Brady	602,253	Apr. 12	1153	253	83	232
Paper-tube-forming machine	F. S. Barus	606,402	June 28	2551	591	83	1803
Paper-tube-making machine	F. Schoettle	604,090	May 17	1567	356 357	83	968
Paper-tube-refolding machine	H. R. Corkhill, Jr	605,053	May 31	3305	759	83	1225
Paper. Waterproof	A. Herzheim	602,538	Apr. 19	1669	.....	83	346
Parachute	C. C. Frost	604,976	May 31	3169	730	83	1909
Paramidophenol. Making salts of	I. Roos	603,109	Apr. 12	900	.....	83	183
Parcel-carrier	D. J. McCarthy	606,571	June 28	2657	658 659	83	1956
Partition-frame	W. F. Kearns	603,402	May 3	272	61	83	659
Partition. Metallic	G. Fugman	601,873	Apr. 5	490	101	83	91
Pasteurizing and sterilizing milk, &c. Apparatus for	O. B. Schier	605,920	June 21	1621	373	83	1699
Pattern. Adjustable skirt	A. A. Pinkham	603,471	Apr. 19	1529	347 348	83	821
Pattern-exhibitor	A. Peterson	606,325	June 28	2236	514	83	1881
Pea-shelling machine	J. H. Empson	604,377	May 24	2126	477	83	1088
Peanut-vending case	C. O. Luce	604,994	May 31	3201	737	83	1305
Peel. Baker's	C. Knebel	604,619	May 24	2564	585	83	1164
Pen and pencil holder	J. Dierks, (by judicial change of name now J. Bernard.)	604,026	May 17	1463	338	83	995
Pen. Drawing	F. Lutterberg	602,165	Apr. 12	1009	221	83	208
Pen. Fountain	D. W. Beaumel	603,463	May 3	396	89	83	677
Pen. Fountain	W. P. Couper	602,829	Apr. 26	2158	499	83	555
Pen. Fountain	G. S. Parker	606,231	June 28	2230	513	83	1880
Pen. Fountain	G. A. Spies	603,833	May 10	1079	241	83	895
Pen. Fountain	L. E. Waterman	604,690	May 24	2087	615	83	1187
Pen. Fountain	J. Weeks	605,085	May 31	3274	752	83	1319
Pen. Fountain	O. Winkler	605,804	June 14	1371	315	83	1583
Pen. Fountain	C. J. Renz	606,360	June 28	2475	575	83	1879
Penholder fountain attachment	M. C. Worth	608,097	Apr. 26	2616	594	83	540
Pen reservoir attachment	W. Painter	602,355	Apr. 12	1322	294	83	395
Pencil	R. H. Toquet	605,657	June 14	1108	254	83	1568
Pencil	N. D. Ingram	605,674	June 14	1134	263	83	1589
Pencil-case and comb-case. Combined	W. E. E. Smith	606,095	June 21	1902	451	83	1761
Pencil-holder	B. B. Goldsmith	603,188	Apr. 26	2748	625 626	83	568
Pencil. Magazine lead	W. P. Huffman	606,551	June 28	2823	650	83	1949
Pencil rubber attachment	L. Stoecker	606,036	June 21	1849	426	83	1739
Pencil-sharpener	I. Cory	604,731	May 31	2776	635	83	1923
Pencil-sharpener. Duplex	F. W. Warren	605,440	June 7	723	163	83	1492
Pencil-splicer	F. Baginski	603,419	May 3	304	69	83	658
Pendulum-escapement	L. Erikson	602,635	Apr. 19	1807	408	83	372
Pendulum-escapement	W. H. English	606,451	June 28	2645	608	83	1913
Perambulator	J. P. Hartman	606,139	June 21	2045	468 469	83	1776
Percussion-drill	J. H. Morris	601,975	Apr. 5	681	144 145	83	129
Permutation-lock	L. F. Biesmeyer	604,958	May 31	3143	728	83	1294
Pessary	A. M. Longshore-Potts	606,565	June 28	2848	656	83	1954
Pessary	J. W. Scroggs	602,777	Apr. 19	2047	468	83	418
Pessary	W. I. Ohmer	604,781	May 31	2855	659	83	1238
Petroleum-burner	H. Wolf	604,290	May 17	1932	432 433	83	1025
Petroleum, &c. Process of and apparatus for refining crude	E. T. Kervick	604,236	May 17	1848	414	83	1008
Pew-guard	T. A. Edison	605,667	June 14	1119	258	83	1586
Phonograph	L. B. Hinman	603,878	May 10	1168	262	83	842
Photograph-holder	R. W. Vining	606,318	June 28	2392	553 554	83	1865
Photographs. Automatic apparatus for taking	G. Selle	604,969	May 17	1914	.....	83	1021
Photographs in natural colors	E. F. Gennert	603,427	May 3	319	72	83	661
Photographic dark rooms. Candle-lamp for	H. B. Carlton	605,345	June 7	350	80	83	1418
Photographic finder	N. Bouvang	603,936	May 10	1260	287	83	861
Photographic opaque negative and printing therefrom	F. A. Brownell	604,455	May 24	2264	508	83	1109
Photographic-plate holder	J. Schaub	603,973	May 10	1312	301	83	871
Photographic-plate holder for three-color processes	G. Selle	604,208	May 17	1914	438	83	1021
Photographic-print washer	W. H. Leigh	605,229	June 7	328	74	83	1413
Photographic-printing apparatus	A. Schwarz	601,882	Apr. 5	504	104	83	95
Photographic-printing apparatus	A. Schwarz	601,883	Apr. 5	506	104	83	95
Photographic-printing frame	E. W. Sweigard	603,713	May 10	951	189	83	783
Photographic retouching-table	W. E. Harding	603,765	May 10	943	211	83	800
Piano	W. M. Bauer	604,166	May 17	1718	387	83	988
Piano	J. Dierdorf	602,681	Apr. 19	1895	431 432	83	886
Piano fall-board	W. F. Kracht	602,808	Apr. 19	2112	476	83	420
Pianoforte-action	L. A. Barber	604,136	May 17	1669	375	83	973
Pianoforte transposing mechanism	E. H. Gigney	604,144	May 17	1681	378	83	976
Piano-player. Electropneumatic	F. R. Goolman	603,184	Apr. 26	2759	626 627	83	566
Piano sounding-board	W. F. Leonhardt	602,992	Apr. 26	2434	550	83	507
Piano-tone-modifying attachment	J. C. King	602,135	Apr. 12	939	205	83	190
Piano-tuning apparatus	J. B. Dayfoot	602,499	Apr. 19	1566	356	83	326
Piano-tuning-pin holder	J. Dierdorf	602,680	Apr. 19	1894	431	83	886
Pianos. Device for correcting sounding-boards in upright	R. E. Letton	605,739	June 14	1518	283	83	1604
Pianos. Stringing	C. S. Weber	606,179	June 21	2110	485	83	1769
Picker: *See* Fruit-picker.							
Picker-stick	J. Begins	602,297	Apr. 12	1235	271	83	246
Picture-frame	M. Heraskovits	605,281	June 14	1402	321	83	1665

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Picture-frame and match safe or receptacle. Combined	J. V. Christl	606,021	June 28	2945	662	83	1973
Picture-hanger	S. Lord	603,146	Apr. 26	2701	618	83	555
Pie or cake cooler	M. M. Cormeny	602,730	Apr. 19	1975	448	83	405
Pie-rack	J. H. Burns	605,473	June 14	767	176	83	1321
Pier. Foundation-	B. F. Williston	603,854	May 3	188	43	83	638
Pile-cutting machine. Weft-	J. B. Daymont	606,405	June 28	2567	{592 / 593}	83	1895
Piled-fabric-cutting apparatus	J. Platt	603,224	Apr. 26	2821	645	83	561
Pile fabrics. Apparatus for cutting double-	R. Richter	604,701	May 24	2714	{620 / 621}	83	1192
Pillow-block	W. J. Daly	601,769	Apr. 5	263	56	83	54
Pin: *See* Clothes-pin. Safety-pin. Hat-pin.	H. Wagner	601,917	Apr. 5	565	117	83	107
Pincers. Farrier's							
Pipe: *See* Drainable pipe. Tobacco-pipe. Metallic pipe.							
Pipe and bar cutting tool	E. Fortaner	606,120	June 21	2094	463	83	1778
Pipe and flue cleaner	T. H. Kane	606,013	June 21	1808	417	83	1731
Pipe. Apparatus for manufacturing	P. Boyd	606,159	June 21	2075	{477 / 478}	83	1789
Pipe-bending apparatus	R. Clarke	604,081	May 17	1455	336	83	988
Pipe-binder	C. L. Pinney	603,455	May 3	371	88	83	672
Pipe-coupling	A. J. Avery	603,730	May 10	803	192	83	785
Pipe-coupling	A. J. Avery	603,731	May 10	864	192	83	785
Pipe-coupling	W. W. Edwards	604,857	May 31	2986	685	83	1203
Pipe-coupling	F. A. Phelps, Jr	604,159	May 17	1708	395	83	961
Pipe-coupling	J. H. Glauber	606,526	June 28	2799	645	83	1944
Pipe-coupling for broken water-closet bowls	M. J. Hoey	603,190	Apr. 26	2767	631	83	571
Pipe couplings. Automatic dust-guard for train-	D. S. Grant	606,598	June 28	2801	646	83	1944
Pipe-cutter	C. W. A. Koelkebeck and J. K. Smith	604,664	May 24	2695	604	83	1177
Pipe cutting and expanding machine	T. F. Dwyer	603,180	Apr. 26	2745	635	83	567
Pipe-hanger	T. B. Sauer	603,284	May 10	1289	291	83	856
Pipe-hanger	G. Hoyer	604,993	May 31	2996	686	83	1205
Pipe-joint	T. F. Hammer	605,009	June 7	55	17	83	1308
Pipe-joint and union	C. H. Snedeker	603,663	May 10	799	170	83	705
Pipe or tube cutter	A. J. Bramlette	602,901	Apr. 12	1240	273	83	249
Pipe slitter and perforator	C. M. and C. E. Kemp	603,289	Apr. 12	1223	269	83	246
Pipe-testing machine	P. V. Dwyer	601,709	Apr. 5	174	38	83	34
Pipe-thimble	L. T. Houghton and W. H. Buxton	605,640	June 14	1073	246	83	1577
Pipe-thimble	A. E. Brockett	605,441	June 7	728	163	83	1498
Pipe-wrench	T. J. Fowler	604,586	May 24	2390	546	83	1131
Pipe-wrench	J. W. Lind	602,940	Apr. 12	1297	286	83	261
Pipe-wrench	J. E. McDonald	606,572	June 28	2956	650	83	1956
Pipe-wrench	J. G. Newell	605,901	June 21	1577	362	83	1691
Pipe-wrench	T. M. Righter and G. Jeffryes	602,220	Apr. 12	1115	245	83	224
Pipe-wrench	L. C. Springer	602,590	Apr. 19	1721	392	83	355
Pipe-wrench	A. Werts	604,582	May 24	2506	570	83	1152
Pipes, &c. Covering-plate for channels for	D. Grove	605,146	June 7	165	41	83	1322
Pipette	A. W. Stokes	605,430	June 7	708	158	83	1469
Pistol. Ammonia and water	A. F. Humphrey	606,498	June 28	2707	624	83	1906
Pistol. Magazine-	W. H. Trippett	603,523	May 3	528	116	83	703
Placket-protector and skirt-supporter	W. H. Carr and J. G. Wolf	604,889	May 31	2947	674	83	1255
Plaiting-machine	H. Pervilhac	603,332	May 10	1077	241	83	825
Plane. Block or smoothing	P. Shea	603,754	May 10	918	204	83	796
Plant-support	C. L. Baldwin	601,782	Apr. 5	310	61	83	59
Plant-supporter	W. H. Speer	604,260	May 17	1502	424	83	1015
Plants, flowers, &c. Stake for	T. N. Parker	605,298	June 7	458	{100 / 101}	83	1438
Plants. Machine for reducing pithy	A. F. Madden	601,870	Apr. 5	484	{99 / 100}	83	90
Planter	G. B. Davison	603,757	May 10	922	204	83	796
Planter	J. L. Durham	601,897	Apr. 5	569	109	83	100
Planter	E. Michon	602,364	Apr. 12	1338	298	83	399
Planter	E. M. Rumph	602,173	Apr. 12	1020	224	83	205
Planter	J. D. Schofield	603,900	May 10	1199	271	83	849
Planter	W. G. Gray						
Planter and fertilizer-distributer. Combined cotton-seed	J. C. Wright	603,388	Apr. 12	1308	{306 / 307}	83	276
Planter and marker. Combined	W. P. Smith	604,139	May 17	1658	373	83	971
Planter attachment. Corn-	A. R. Young	602,584	Apr. 19	1631	371	83	339
Planter attachment. Corn-	L. E. Waterman	603,584	May 3	612	{136 / 137}	83	720
Planter. Check-row corn-	W. O. Duryea	605,634	June 14	1060	244	83	1574
Planter check-rower. Corn-	W. D. Cross	603,554	Apr. 19	1668	378	83	345
Planter. Corn-	G. D. Haworth	603,908	Apr. 26	2278	{518 / 519}	83	476
Planter. Corn-	L. H. Larson	605,008	June 14	1006	230	83	1564
Planter. Corn-	H. Rees	603,730	May 10	892	{198 / 199}	83	790
Planter. Corn-	J. D. Tracy and J. F. Platt	603,148	Apr. 12	973	{212 / 213 / 214}	83	196
Planter. Corn-	J. Urbanek	603,801	May 10	1007	{225 / 226}	83	813
Planter. Corn-	S. M. Wixcel	605,089	May 31	2980	{753 / 754}	83	1330
Planter. Disk	M. P. Simpson, E. P. Williams, and J. M. Simpson.	605,755	June 14	1268	291	83	1612
Planter marker. Corn	H. T. Donaldson	605,702	June 14	1189	272	83	1597
Planter. Potato-	J. A. Cooper	605,906	June 7	646	{144 / 145}	83	1476

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Planter runner. Seed-	W. L. Spencer	604,800	May 31	2887	660	83	1944
Planter. Seed-	A. E. Blake	604,017	May 17	1449	324	83	982
Planter. Seed-	A. T. Stewart	603,213	Apr. 26	2708	639	83	576
Plastering. Composition of matter for	H. C. McMillin	605,898	June 21	1574		83	1690
Plastic substances. Mold or die for	F. P. McColl	604,590	May 24	2517	{572 / 573}	83	1154
Platen-press. Perfecting	F. L. and E. C. Jones	604,760	May 31	2823	645	83	1231
Platform: *See* Dumping-platform.	W. J. Wilder	604,201	May 17	1701		83	998
Plating metals	W. J. Wilder	602,582	Apr. 19	1627	371	83	339
Plating sheet metal	J. C. Slack	606,591	June 28	2891	669	83	1962
Pliers	J. T. Smith	602,880	Apr. 26	2290	505	83	468
Pliers. Wire-splicing	R. Beatty	601,969	Apr. 5	502	121	83	110
Plow	W. Auxier	603,495	May 3	468	104	83	690
Plow	A. Reifsnyder	606,242	June 28	2251	520	83	1835
Plow	J. W. Ross	606,490	June 28	2703	622	83	1935
Plow	W. H. Ward	604,814	May 31	2905	{664 / 665}	83	1247
Plow	F. L. Woodward	602,278	Apr. 12	1201	263	83	241
Plow	A. D. Sperry	604,274	May 17	1922	430	83	1023
Plow and harrow. Combination	J. E. Ball	605,172	June 7	204	51	83	1389
Plow attachment	S. H. Ritter	606,244	June 28	2263	522	83	1886
Plow attachment	E. Whitman	603,457	May 3	337	75	83	664
Plow attachment	O. C. Hubbard	604,351	May 17	2078	465	83	1053
Plow-carriage	M. Doss	604,309	May 17	1995	447	83	1037
Plow. Cotton-	D. C. Weed and F. Atkin	606,609	June 28	2930	677	83	1967
Plow. Cultivator-	E. M. Heylman	606,412	June 28	2572	{242 / 243}	83	1573
Plow. Disk	E. Dallmann	605,631	June 14	1055	243		
Plow. Electrically driven and moved	F. W. Gordon	608,126	Apr. 26	2686	610	83	556
Plow. Gang-	W. Stephenson	603,979	May 10	1321	308	83	873
Plow. Gang-	J. G. Wells	601,765	Apr. 5	276	54	83	53
Plow-handle clamp	C. H. Whitney	605,767	June 14	1263	298	83	1617
Plow, planter, and cultivator. Combined	W. P. Dunlap	602,231	Apr. 12	1117	245	83	225
Plow pulverizing attachment	W. J. Campbell	605,994	June 21	1766	405	83	1734
Plow seat attachment	F. Wolf	602,711	Apr. 19	1945	442	83	320
Plowshare	W. G. Danielsen and W. Merrill	605,085	June 7	28	8, 9	83	1358
Plow. Sulky-	W. H. Ferrin	605,298	June 7	463	104	83	1440
Plow. Sulky-	H. H. Saber	605,311	June 7	484	108	83	1444
Plow. Sulky-	I. Dreschner	605,613	June 14	1014	234	83	1566
Plucking-machine	O. F. Richter	602,381	Apr. 12	1365	305	83	275
Plumber's branch-pipe-holding device	F. White and F. J. Murphy	604,518	May 24	2388	543	83	1129
Plumber's clamp	E. T. Burgess	601,651	Apr. 5	48	10	83	10
Plumber's furnace	E. S. Hall	605,710	June 14	1194	275	83	1600
Plunger brake-head	G. B. Goodall	602,486	Apr. 19	1548	352	83	394
Plush fabric	A. and J. Szulczewski	604,405	May 24	2165	496	83	1060
Pneumatic cushion	J. W. and A. Mathis	603,174	Apr. 26	2737	628	83	566
Pneumatic-despatch apparatus	H. Clay	603,925	May 10	1240	{281 / 282}	83	857
Pneumatic-despatch tube	J. B. Schuman	605,876	June 21	1533	353	83	1661
Pneumatic elevator	F. W. Hedgeland	602,671	Apr. 19	1882	428	83	366
Pneumatic motor	J. T. Trench	605,840	June 21	1461	334	83	1668
Pneumatic-tired wheel	H. Bandler	606,375	June 28	2311	536	83	1848
Pocket	M. J. Clark	601,962	Apr. 5	571	119	83	108
Pocket and guard. Combined watch	G. A. Wieland	603,495	May 3	466	103	83	690
Pocket-book	S. L. Wentz	603,647	May 10	1100	247	83	830
Pocket-book register	J. F. Harvey	602,918	Apr. 26	2304	525	83	482
Pocket-knife	C. Sebastian	604,744	May 31	2796	640	83	1236
Pocket-register	L. W. French	601,849	Apr. 5	449	91	83	84
Poke. Animal-	G. D. Aiken	604,027	May 17	1463	328	83	985
Pole-step. Portable	W. K. Dumble	605,283	June 7	431	97	83	1434
Polisher or brush	F. Holland						
Polishing compounds to polishing or cutting tools. Supplying	J. Fleweger	604,895	May 31	3041	698	83	1274
Polishing device. Hand	A. Kortum	605,641	June 14	1074	246	83	1577
Polishing-wheel	P. L. Hayes	606,546	June 28	2516	581	83	1947
Pool-table. Parlor	E. L. Pease	602,194	Apr. 12	1058	{329 / 330}	83	218
Portable house	J. Aitchison	604,648	May 24	2613	598	83	1173
Portière-rod							
Post: *See* Fence-post.							
Post and winding apparatus. Combined	W. L. Yergin and J. E. Wadsworth	605,789	June 14	1286	298	83	1618
Post-office-box cabinet	J. C. Keith	606,556	June 28	2881	668	83	1951
Postmarking and stamp-canceling machine	E. M. Vail and G. Potter	606,257	June 28	2284	530	83	1842
Pot-hall holder	M. A. Cogley	606,276	June 28	2314	536	83	1849
Pot signal	H. Johnson	602,852	Apr. 26	2198	486	83	461
Potato-bug destroyer	C. Nelson and H. F. S. Justesson	604,681	May 24	2563	589	83	1167
Potato cutter and planter	J. A. Mengel, G. K. Binkley, and G. B. Gerber.	606,991	June 28	2940	548	83	1954
Potato-digger	J. A. Buck	602,497	Apr. 19	1562	356	83	397
Potato-digging machine	E. Hampel	605,871	June 21	1594	351	83	1660
Potato-masher, kettle-cleaner, and vegetable-fork. Combination	A. H. Cartwright	604,965	May 31	3159	725	83	1266
Poultry-house	S. C. Ashmore	603,121	Apr. 26	2653	603	83	540
Pouncing-machine	G. R. Clarke	602,977	Apr. 26	2408	{548 / 549}	83	509
Pouncing-machine	G. R. Clarke	602,978	Apr. 26	2412	{549 / 550}	83	509
Powder-motor	T. M. Freeble	605,445	June 7	728	{164 / 165}	83	1402
Power distributing and equalizing device	R. Marvin	603,087	Apr. 19	861	{187 / 188}	83	175
Power-house. Floating	J. Stickel	603,929	May 10	1249	284	83	859
Power-transmitting device	G. L. Whyte	603,674	Apr. 19	1855	{426 / 427}	83	367

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Precious metals. Apparatus for extracting	J. R. Hebæus	603,904	May 10	1207	273	83	851
Preserving alimentary substances, &c	A. L. and A. W. Lawton	603,793	Apr. 19	1063	.....	83	494
Press: *See* Baling-press. Copying-press. Cotton-press. Filter-press. Fruit-press. Hay-press. Hydraulic press. Meat-press. Platen-press. Printing-press. Punching-press. Reducing-press. Soap-press. Wine-press.							
Press	V. D. Anderson	603,926	Apr. 26	2330	530 / 531	83	486
Press	V. D. Anderson	603,989	Apr. 26	2334	531	83	486
Press-board holder	L. Siegfried	603,708	Apr. 19	1949	441	83	396
Pressing-machine	E. G. Tremaine and P. Lorillard, Jr.	605,478	June 28	2684	618 / 619	83	1921
Pressure-recorder	F. L. Wolfe	603,391	May 3	252	56	83	646
Primary element with regenerable negative electrode.	O. R. E. von Burgwall and L. Ofenschlisel.	603,890	May 10	1184	.....	83	846
Primer. Ordnance	T. G. Bennett	606,440	June 28	2627	604	83	1910
Printers' blankets. Apparatus for washing	J. Hawthorn and J. P. Liddell	603,638	May 10	731	163 / 164	83	759
Printers' blankets. Machine for washing	D. H. Simpson, J. Walker, J. Strang, and F. Farnworth.	604,504	May 24	2365	535 / 537	83	1125
Printer's chase	D. J. Deegan	602,679	Apr. 19	1892	431	83	366
Printer's chase	J. Tunnah	603,214	Apr. 26	2799	639	83	577
Printing and folding machine	N. A. Stimson	606,397	June 28	2536	588 / 589	83	1891
Printing attachment. Paper-roll	A. R. Martin	605,061	May 31	3317	761 / 762	83	1327
Printing index-rings. Machine for	C. H. Veeder	602,412	Apr. 12	1420	321	83	286
Printing-machine	G. W. Swift, Jr	602,277	Apr. 12	1102	262 / 263	83	240
Printing-machine. Bed and cylinder	G. T. Murray	602,406	Apr. 12	1413	319	83	284
Printing machine. Box	J. F. Gilliland	603,665	May 10	806	178	83	774
Printing-machine cushioning apparatus	J. T. Hawkins	604,752	May 31	3511	842	83	1229
Printing machine. Hat	T. J. McCarthy	604,778	May 31	3851	952	83	1287
Printing-machine sheet-delivery mechanism	E. Nister	603,236	Apr. 12	1126	247	83	226
Printing-machines. Bed-motion for cylinder	W. C. Duryea	603,940	Apr. 26	2179	492	83	457
Printing patterns. Cliché for	E. Quennoy	603,578	May 3	005	135	83	719
Printing-plate and making same. Composite	S. H. Horgan	604,472	May 24	2206	524	83	1115
Printing-plates to cylindrical surfaces. Means for securing	J. T. Hawkins	604,149	May 17	1698	360	83	978
Printing-press	H. F. Bechman	604,298	May 17	1953	438 / 439	83	1029
Printing-press	G. P. Fenner	604,974	May 31	3166	728 / 729 / 730	83	1298
Printing-press	A. H. Smith	605,350	June 7	567	125	83	1460
Printing-press feed-gage	C. E. Balding	603,946	May 3	7	2	83	602
Printing-press for cutting ribbons and counting same.	F. Berkemeyer	605,173	June 7	905	51, 52	83	1269
Printing-press. Perfecting	H. P. Feister	602,396	Apr. 12	1306	312 / 314 / 315	83	281
Printing-presses. Automatic stop mechanism for	G. Gibbs and I. Stone	605,478	June 14	776	178	83	1522
Printing-presses. Impression throw-off for platen	F. A. Burnham	604,719	May 31	2760	631	83	1219
Printing-presses. Means for actuating ink-disks in platen	F. A. Burnham	603,493	May 3	469	104	83	691
Printing yarns. Method of and apparatus for	C. L. Horack	603,992	May 10	1346	308	83	878
Privy-stool	W. G. Bliss	604,597	May 24	2329	575	83	1156
Produce-carrier	R. C. Weltner	603,000	Apr. 26	2449	556	83	509
Projectile	J. H. Hammer	603,466	May 3	401	90	83	678
Projectile. Armor-piercing	H. A. Brustlein	602,973	Apr. 26	2401	548	83	501
Projectile. Shrapnel	M. Darmancier	603,525	May 3	532	117	83	708
Projectiles. Tongs for handling	C. F. Jeansén	604,758	May 31	2820	644	83	1231
Propeller	J. V. O'Connor	603,703	May 10	836	165	83	779
Propeller. Reversible-blade	C. W. Foster	602,908	Apr. 26	2270	514 / 516	83	475
Propeller. Screw	J. M. Adam	602,651	Apr. 19	1832	416	83	377
Propeller. Screw	W. J. Perkins	606,397	June 28	2352	544	83	1856
Propeller. Screw	P. A. N. Winand	606,322	June 28	2306	533	83	1895
Propeller-shafts. Friction-lessening device and brake for	G. M. Guerrant	605,545	June 14	576	205	83	1542
Propelling and steering apparatus. Hydrostatic vessel	F. Krefft	602,294	Apr. 12	1108	243	83	238
Propelling mechanism	G. L. Galbrun	602,440	Apr. 19	1475	336	83	310
Propelling mechanism. Vessel	F. Gray	605,788	June 14	1332	305	83	1625
Propulsion of vessels. System of electrical	J. J. Hellmann	602,325	Apr. 12	1276	288	83	257
Protracting land surveys. Device for	J. D. Brown	604,517	May 24	2287	542	83	1129
Protractor	A. W. Chase	601,630	Apr. 5	10	3	83	4
Protractor	M. S. Hoy	606,244	June 28	2444	566	83	1874
Puller: *See* Sprout-puller. Stump-puller.							
Pulley	J. C. Knoblock	605,104	June 7	65	19	83	1264
Pulley	H. S. Pell	605,557	June 14	609	209	83	1546
Pulley	T. Kirchhoff	601,660	Apr. 5	65	13	83	14
Pulley. Expansible	C. F. Endter	603,840	May 10	1099	245	83	822
Pulley. Power	F. H. Spear	605,980	June 21	1739	400	83	1790
Pulley. Self-oiling	H. S. Albrecht	604,933	May 17	1989	434	83	1086
Pulverizer	W. H. Howe and P. Stieferman	602,389	Apr. 19	1228	284	83	259
Pulverizer	L. d'Auria	603,554	May 10	1171	264 / 265	83	844
Pump	J. O'Neil	602,809	Apr. 26	2214	501	83	466
Pump	M. L. G. Wheeler	601,980	Apr. 5	565	118	83	106
Pump	C. G. White	603,498	Apr. 19	1557	354	83	926

Alphabetical list of designs, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pump. Breast	J. H. Hoover	603,884	May 3	599	121	83	715
Pump. Direct-acting steam	A. F. Hall	604,613	May 24	2352	588	83	1102
Pump governor. Steam	W. B. Mason	603,026	Apr. 26	2499	564	83	517
Pump. Helico-centrifugal	A. Magnot	605,888	June 21	1559	358 / 359	83	1687
Pump. Hydraulic	H. F. Schroeder	603,660	Apr. 19	1371	425	83	384
Pump. Hydraulic air-compressing	E. H. Weatherhead	603,942	Apr. 26	2354	651	83	567
Pump. Hydraulic-pressure	T. A. Kughler and J. Gomes	604,767	May 31	2832	647	83	1233
Pump. Oil-well	W. J. Wright	604,208	May 17	1793	404	83	993
Pump. Portable	W. G. Gess and J. Tonge	604,579	May 24	2502	599	83	1151
Pump. Rotary	W. M. Wood	603,805	May 10	1016	227	83	816
Pump. Steam vacuum	F. R. Crumbaker	603,498	Apr. 19	1564	356	83	927
Pump valve-gear	J. Doherty	606,480	June 28	2663	620	83	1969
Pump valve mechanism. Steam	G. de Laval	604,475	May 24	2310	534	83	1116
Pumps. Power-frame for	R. J. Hunter	603,849	Apr. 26	2190	497	83	460
Pumps. Pressure-actuated governor for	J. H. MacDonald	601,664	Apr. 5	71	14	83	15
Pumps to barrels. Clamp for securing	W. Peoples	604,268	May 17	1906	426	83	1080
Pumping-engine. Pneumatic	E. A. Rix	605,167	June 7	231	56	83	1504
Pumping-jack	O. U. Stahlman	603,482	Apr. 19	1542	350 / 351	83	928
Punch	A. Kraeuter	604,564	May 24	2474	562	83	1146
Punching-machine	M. Boyer	602,721	Apr. 19	1960	445	83	402
Punching-machine	J. J. Sullivan	603,054	May 10	771	171	83	766
Punching-machine sheet-feeding mechanism	W. Painter	605,334	June 7	519	116 / 117	83	1552
Punching-press	W. O. Hogaboom	604,302	May 24	2145	493	83	1068
Push-button	F. J. List	606,502	June 28	2442	654	83	1893
Push-button card receiver and ejector. Combination	O. M. Bossert	604,206	May 17	1962	440	83	1051
Puzzle	J. Archibald	603,217	Apr. 26	2303	640	83	577
Puzzle	F. H. Donaldson	602,735	Apr. 19	1084	450	83	406
Puzzle	O. J. Haarlaender	605,096	June 7	51	16	83	1362
Puzzle	W. A. Hallenbeck	602,219	Apr. 12	1101	242	83	229
Puzzle	F. D. Hopley	604,248	May 17	1872	420	83	1013
Puzzle	J. H. Landes	601,611	Apr. 5	363	75	83	66
Puzzle	S. C. Rowell	606,080	June 21	1840	424	83	1737
Puzzle	E. A. Shields	605,191	June 7	239	57	83	1506
Puzzle	J. T. Smith	602,175	Apr. 12	1085	225	83	206
Puzzle	C. E. Baldwin	604,872	May 31	3009	691	83	1266
Puzzle or game apparatus	D. Baker	602,613	Apr. 19	1760	408	83	363
Pyrometer	G. Walker	604,181	May 17	1758	.....	83	992
Pyroxylin composition	J. R. France	603,596	May 3	533	117	83	708
Pyroxylin compounds in imitation of marble. Manufacturing	E. D. Harrison and C. H. Thurber	602,159	Apr. 12	1001	219	83	202
Pyroxylin imitations of mosaic. Producing	E. Langheld	605,491	June 14	801	.....	83	1597
Quinin derivative and making same							
Rack: *See* Broom-rack. Clothes-rack. Display-rack. Folding rack. Grain, hay, and stock rack. Gun-rack. Hose-rack. Kitchen-rack. Pie-rack. Shoe-rack. Ticket-rack. Towel-rack.							
Rack and pinion	F. J. Kunkel	602,403	Apr. 12	1409	318	83	284
Racking beer, ale, &c. Apparatus for	E. Friedman	602,256	Apr. 12	1150	254	83	234
Radiator	J. T. Jackson and F. J. Travers	601,655	Apr. 5	56	11	83	12
Radiator. Hot-blast	G. I. Rockwood	604,217	May 17	1816	408	83	1002
Radiator. Steam	C. Bogroff	605,775	June 14	1308	301	83	1690
Radiator. Steam or hot-water	J. T. Jackson and F. J. Travers	601,656	Apr. 5	58	12	83	12
Radiators. Automatic air-valve for steam	L. G. Kirk	605,815	June 7	402	110	83	1446
Rail-bond	G. Moffet	601,707	Apr. 5	161	31	83	33
Rail-bond	J. J. Dainton	605,115	June 7	79	22	83	1307
Rail-brace. Continuous	W. G. Graham	605,806	June 21	1517	349	83	1678
Rail-chair	G. D. Claflin, Jr	605,515	June 28	2737	636	83	1969
Rail-clamp	H. K. Ritter	604,702	May 31	2673	656	83	1231
Rail conductor for electric systems	L. E. Walkins	604,098	May 17	1599	359	83	961
Rail frog. Lock	J. W. Close	605,662	June 14	1108	255	83	1583
Rail-holder	C. McLennon	605,794	June 14	1356	310	83	1680
Rail-joint	P. W. Arnold and J. Keil	604,365	May 17	1941	435	83	1027
Rail-joint	F. V. Jarden	606,191	Apr. 26	2768	631	83	571
Rail-joint	T. F. Philippi	602,108	Apr. 12	898	193	83	180
Rail-joint	E. J. Schindehütte	606,069	June 21	1956	450	83	1760
Rail-joint	J. Wayland	602,779	May 10	903	215	83	804
Rail-joint	G. A. Weber	605,365	June 7	402	90	83	1439
Rail-joint	S. Young	602,758	May 10	916	203	83	795
Rail-joint	M. Mullins and C. Fleming	605,780	June 14	1237	286	83	1609
Rail-joint	J. A. McCain	603,610	May 3	663	153	83	733
Rail-joint	F. B. Wagner and A. W. Foote	603,352	May 3	186	42	83	687
Rail-joint. Protected	J. M. Teamer	602,788	Apr. 19	2053	466	83	430
Rail mounting. Third	S. H. Short	605,260	June 7	308	69	83	1426
Rail-sustaining bar	W. Goldie	601,645	Apr. 5	36	8	83	9
Rail-sustaining bar or plate	W. Goldie	601,646	Apr. 5	40	8	83	9
Rail-sustaining bar or plate	W. Goldie	601,647	Apr. 5	42	8	83	9
Rail-track cleaner	E. G. Jones	604,905	May 31	2998	686 / 689	83	1205
Railway. Aerial	M. A. de Palacio	602,330	Apr. 12	1128	248	83	207
Railway and cars. Single-track	J. Hopkirk	602,601	Apr. 19	1743	397	83	359
Railway bed and tie	E. Smith	601,799	Apr. 5	334	66	83	62
Railway. Bicycle	W. F. Mangels	604,998	May 31	3205	737 / 738	83	1305
Railway conductor and contact device. Electric	A. S. Krotz, W. P. Allen, and O. S. Kelly.	602,336	Apr. 12	1309	265 / 267	83	209
Railway-conduit	F. S. Pearson	606,626	May 10	759	169	83	764
Railway coupling attachments. Spring-protecting device for	W. Thornburgh	606,316	June 28	2366	538	83	1884
Railway-crossing	C. Hansel	606,389	June 28	2433	564	83	1878

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Railway-crossing signal. Electric	L. C. Smith	604,481	May 24	2222	497	88	1101
Railway. Electric	E. C. Crocker	603,694	May 10	705	157	88	754
Railway. Electric	E. C. Crocker and E. C. Howe	603,695	May 10	707	158	88	754
Railway. Electric	C. H. Davis	605,663	June 14	1110	355	88	1564
Railway. Electric	J. H. Guest	604,747	May 31	2801	641	88	1227
Railway. Electric	C. F. Holtmann and C. Bergmann	603,060	Apr. 26	2537	577	88	586
Railway. Electric	R. M. Hunter	605,834	June 14	1406	323	88	1690
Railway. Electric	H. W. Libbey	602,584	Apr. 19	1712	399	88	854
Railway. Electric	A. J. Moxham	605,548	June 14	816	189	88	1690
Railway. Electric	F. D. Sweet	604,911	May 31	3088	708	88	1229
Railway. Electric	A. Norman	605,970	June 21	1721	395	88	1717
Railway. Electromagnetic-switch	H. Tomlins	605,361	June 7	868	131	88	1464
Railway fog signaling apparatus	C. F. Beerstecher	606,501	June 28	2719	627	88	1920
Railway foot-guard	F. A. Cramer and J. A. Garman	603,615	Apr. 19	1764	408	88	903
Railway-gate mechanism	J. D. Campbell and M. E. Cummings	603,621	May 10	699	156	88	752
Railway-gate-operating device	J. B. Squire	605,145	June 7	168	41	88	1368
Railway-rail-end support	C. L. Winegard	602,382	Apr. 12	1397	306	88	975
Railway-rail joint	M. Sellers	605,520	June 14	809	195	88	1584
Railway-rail-joint base-plate	E. R. Stiles	605,856	June 7	574	127	88	1462
Railway-rail tie	H. C. Wilson	606,259	June 28	2800	580	88	1644
Railway safety-gate	A. W. Biddinger	605,847	June 21	1481	289	88	1671
Railway-signal	J. S. Dunn	606,197	June 28	2149	498	88	1615
Railway-signal	G. W. Green	602,004	Apr. 5	738	154	88	135
Railway-signal	S. Mills	603,150	Apr. 26	2704	614	88	559
Railway-signal	M. C. Oster	606,075	June 21	1922	441	88	1732
Railway-signal	F. Williams	602,676	Apr. 19	1698	442	88	866
Railway signal. Electric	W. H. Jordan	604,866	May 31	3000	690	88	1265
Railway-signal. Electric	C. L. Renrew	605,798	June 14	1302	313	88	1631
Railway signaling apparatus	H. Bezer	602,423	Apr. 19	1441	318	88	904
Railway signaling apparatus	W. T. C. Pratt	604,711	May 31	2735	327	88	1215
Railway signaling and switching apparatus	J. D. Taylor	605,359	June 7	580	625	88	1463
Railway signaling system	C. H. Davis	606,450	June 28	2641	129	88	1913
Railway signaling system and apparatus	H. Bezer	602,798	Apr. 19	2071	607	88	423
Railway-spike	J. H. Malven	605,790	June 14	1351	470	88	1689
Railway-spikes. Apparatus for manufacturing	H. C. Rumpf	604,501	May 24	2519	471	88	1154
Railway supply system. Electric	P. J. Pringle	602,142	Apr. 12	953	309	88	193
Railway-switch	W. C. Ayers	603,372	May 3	319	210	88	643
Railway-switch	W. and W. J. Harris	603,902	May 10	1203	49	88	850
Railway-switch	E. J. Jenkins	602,014	Apr. 5	737	272	88	140
Railway-switch	J. F. Ruhland	603,707	May 10	843	157	88	781
Railway-switch	W. H. Rouston	601,856	Apr. 5	467	156	88	87
Railway switch-actuating mechanism	J. W. Thomas, Jr.	606,602	June 28	2911	96	88	1905
Railway switch and signal mechanism	J. Deller	605,599	June 14	983	274	88	1561
Railway-switch. Automatic	C. H. Schager and J. M. J. Lundin	606,362	June 28	2478	295	88	1660
Railway-switch lock	W. A. Slocum	603,385	May 3	230	575	88	646
Railway switch-lock. Automatic	C. W. Squires	602,667	Apr. 19	1673	54	88	866
Railway-switch-operating mechanism	J. E. Young and G. Morden	602,949	Apr. 12	1147	456	88	231
Railway-switch-operating mechanism	F. M. and W. W. Tyler	606,433	June 28	2615	351	88	1908
Railway-switch-operating mechanism. Street-	H. A. Chase	605,814	June 14	1366	603	88	1665
Railway system. Electric	W. Lawrence	605,317	June 7	495	319	88	1445
Railway system. Third-rail underground electric	L. E. Walkins	605,066	May 31	3329	110	88	1229
Railway-tie	H. T. Armstrong	604,189	May 17	1768	764	88	998
Railway-tie	J. Kline	601,810	Apr. 5	393	397	88	68
Railway-tie	M. Riley	605,233	June 7	327	74	88	1418
Railway-tie	J. A. Schmahl	602,366	Apr. 12	1382	75	88	978
Railway-tie	J. M. Clark	605,270	June 7	409	300	88	1490
Railway-tie. Metallic	W. T. Wilkinson	603,789	Apr. 19	2066	98	88	482
Railway-tie. Metallic	W. J. Allin	601,705	Apr. 5	377	460	88	68
Railway-tie plate	G. A. Parmenter and S. H. Peirce	604,543	May 24	2484	55	88	1127
Railway-track cleaner for street-cars	D. A. Moore	604,410	May 24	2182	553	88	1127
Railway-track drill	F. Nather	602,364	Apr. 12	1170	499	88	1068
Railway track structure	J. H. Harting	606,544	June 28	2810	258	88	886
Railway turn-table	M. Farrall	602,597	Apr. 19	1737	647	88	1946
Railway wrecking-frog	J. Claret and O. Vuilleumier	604,968	May 31	3157	648	88	356
Railways. Automatic current-distributer for electric	C. H. Davis	605,664	June 14	1118	727	88	1297
Railways. Combined train arresting and signaling mechanism for electric	C. L. Van Buskirk	603,215	Apr. 26	2600	356	88	1584
Railways. Conveyer for endless rope	L. C. Werner	605,941	June 21	1660	640	88	577
Railways. Electric block-signal system for	S. H. Short	605,361	June 7	394	281	88	1705
Railways. Third rail for electric	G. B. Coleman and J. W. Duggan	603,678	Apr. 19	1890	389	88	1427
Railways. Traveling contact for underground electric	C. S. Cox	602,606	Apr. 19	1694	430	88	866
Raisin-seeder	H. Bardsley	606,965	June 28	2301	437	88	394
Raisin-seeding machine	D. W. Boyes and J. R. Denison	603,722	Apr. 19	1961	333	88	1647
Rake: *See* Hay-rake. Horse-rake. Lawn-rake.	V. Wilhelmi	603,650	Apr. 19	1881	445	88	402
Range-boiler					417	88	376
Range-boiler							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Range. Steel	A. E. Bronson	606,510	June 28	2730	629	88	1981
Rasp-machine	J. A. McHardy	606,020	June 21	1817	630	88	1733
Ratan. Treating	M. P. O. Dickhuth	602,800	Apr. 19	2100	419	88	427
Ratchet-wheel wrench	J. H. Fitch	603,377	May 3	227	50	88	644
Ratchet-wrench. Reversible	E. M. Tyler	603,159	Apr. 26	2716	617	88	562
Razor. Safety	E. E. Deputy	605,574	June 7	416	94	88	1431
Razor-strop	T. O. Holland	603,705	May 10	944	211	88	800
Razor-strop	T. O. Holland	603,954	May 10	1287	293	88	966
Razor-strop casing	J. W. Brown	603,074	Apr. 26	2571	583	88	532
Reamer. Pipe	P. Mueller	605,808	June 21	1567	361	88	1689
Reaping-machine	J. A. Gordon	602,441	Apr. 19	1476	337	88	810
Reaping-machine. Binding	W. W. Burson	603,927	May 10	1061	236	88	994
Reaping-machine grain-reel	M. G. and P. P. Keen	606,346	June 28	2447	567	88	1875
Reclining-chair	H. F. Rankin	602,197	Apr. 12	1063	233	88	214
Recorder: *See* Fare-recorder. Time-recorder. Pressure-recorder.	C. L. Jaeger	605,548	June 14	862	206	88	1543
Recording instrument. Electric	L. J. Kingsley	605,167	June 7	195	49,50	88	1398
Reducing-press							
Reel: *See* Fishing-reel. Wire-reel. Hose-reel.	M. and O. Helgeson	601,807	Apr. 5	350	71,72	88	66
Reel-carrier and feed-cart. Combined	S. O. Cowper-Coles	602,306	Apr. 12	1246	274	88	251
Reflectors. Manufacture of	J. Sedlacek	602,199	Apr. 12	1067	234	88	215
Refrigerating-machine	F. Allen	606,326	June 28	2408	558	88	1868
Refrigerating-machine. Absorption	J. Sedlacek	601,716	Apr. 5	182	35,36	88	36
Refrigerating-machines. Condensing-water and air cooling apparatus for	J. H. Emert	602,843	Apr. 26	2179	493	88	459
Refrigerator	R. D. Gallagher, Jr.	602,599	Apr. 19	1740	395	88	359
Refrigerator	J. A. Potter	606,083	June 21	1944	396	88	1756
Regenerator	H. F. Stanley	602,483	Apr. 19	1544	447	88	323
Refrigerator-car	A. Slomka	601,796	Apr. 5	333	351	88	33
Refrigerator lunch-box					67	88	68
Register: *See* Cash-register. Pocket-register. Fare-register. Pocket-book register.	W. C. Homan	605,892	June 14	1403	322	88	1638
Registering-ring							
Regulator: *See* Feed-water regulator. Gas-regulator. Lamp-regulator. Fluid-pressure regulator. Temperature-regulator. Windmill-regulator.	N. M. Davis	606,521	June 28	2749	635	88	1935
Rein-holder	D. L. Turner	602,509	Apr. 19	1686	394	88	349
Releasing device	J. E. Peterson	602,228	Apr. 12	1113	244	88	224
Remedial appliance	H. S. Blackmore	605,379	June 7	620	.....	88	1470
Retort and making same	J. V. Rice, Jr	604,841	May 31	2950	674	88	1256
Retort. Naphtha	J. W. Craw	603,880	Apr. 26	2160	675	88	455
Reversing device	G. A. Owen	603,870	Apr. 26	2215	490	88	466
Revolver	C. C. and F. Trapp	603,489	Apr. 19	1558	353	88	335
Revolving chair	S. G. Stevens	603,212	Apr. 26	2797	650	88	576
Revolving gate	H. W. Leonard	603,063	Apr. 26	2543	578	88	537
Rheostat	R. W. Ney	603,027	Apr. 26	2490	565	88	517
Rheostat	R. H. and F. H. Wappler	604,949	May 31	3131	720	88	1223
Rheostat. Electric-lamp							
Ring: *See* Curtain-pole ring. Packing-ring. Hat-packing ring. Registering-ring. Napkin-ring. Traverse-ring.	L. H. Schneider	603,743	May 10	900	200	88	792
Rivet-setting machine	L. E. Miller	602,139	Apr. 12	944	206	88	191
Rivet-sticking machine	O. E. Hacker	603,139	Apr. 26	2690	207	88	556
Road-making machine	F. W. Mattern	603,023	Apr. 5	750	611	88	143
Road, railway road-bed, &c. Dustless	G. W. Taft	601,819	Apr. 5	372	161	88	70
Road-rollers. Tongue-truck connection for	W. O. Wisner	606,614	June 28	2929	78	88	1909
Roadway-guard. Automatic	J. Johnson	602,082	Apr. 12	852	679	88	1772
Roadways, tiles, &c. Composition for					.....	88	178
Roaster: *See* Beef-roaster. Coffee-roaster.	E. S. Lockstone	604,222	May 17	1660	421	88	1015
Roasting-pan	J. Grundy	603,006	Apr. 5	736	155	88	137
Robe. Night	H. R., H. L., and L. G. Hancock	603,589	May 3	539	118	88	704
Rock-drill	M. C. Jackson	604,152	May 17	1695	119	88	979
Rock-drill	J. G. Leyner	604,538	May 24	2434	551	88	1135
Rock-drill engine	S. P. Blackmore	602,603	Apr. 19	1916	486	88	893
Rock or like drill	H. P. Russ	601,995	Apr. 5	604	148	88	181
Rocker attachment	G. Lehberger	603,021	Apr. 5	747	161	88	141
Rod-mill floor	M. S. Schaill	603,057	Apr. 5	778	168	88	147
Rods. Disconnecting-coupling for pull					169		
Roller: *See* Dirt-roller. Shade-roller. Land-roller.	W. H. Morgan	603,906	Apr. 26	2440	537	88	508
Roller-brake	D. C. Prescott	605,474	June 28	2977	616	88	1919
Rolling apparatus	V. E. Edwards	603,103	Apr. 26	2631	595	88	543
Rolling-mill	S. V. Huber	605,660	June 14	1122	239	88	1566
Rolling-mill	W. D. Matthews	603,864	Apr. 26	2803	260	88	464
Rolling-mill					500		

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rolling out hollow metal ingots into tubes. Mechanism for	J. C. Sturgeon	601,784	Apr. 5	313	68	88	50
Rolls	P. M. Weber	606,008	June 28	2080	677	88	1967
Roof-bracket. Painter's	D. Cleland	602,909	Apr. 12	1083	287	88	217
Roof-securing device	A. N. Monteer	604,775	May 31	2646	650	88	1286
Roof. Tiled	C. W. Schou	605,750	June 14	1251	299	88	1611
Roofing. Thatch	C. N. Bushnell	606,186	June 28	2125	486	88	1810
Root or sod cutter	P. Melton	605,497	June 14	808	187	88	1269
Rope-clamping hook	A. R. Bradeen	602,694	Apr. 19	1918	436	88	308
Rope-hauling machine	W. B. Lantz	606,083	June 21	1901	428	88	1748
Rope-making machine	H. I. Hansen	604,614	May 24	2555	568	88	1168
Rotary drier	H. H. Wing	605,355	May 3	189	43	88	636
Rotary engine	W. S. Bate	602,980	Apr. 26	2336	532	88	459
Rotary engine	P. J. Boris	604,960	May 31	3145	723 / 724	88	1294
Rotary engine	D. B. Cook	604,709	May 24	2730	622 / 624	88	1195
Rotary engine	D. Drake	603,679	May 10	796	176	88	773
Rotary engine	A. N. Gilbert	604,086	May 17	1479	332	88	986
Rotary engine	M. E. Gilbert	605,460	June 7	750	171	88	1497
Rotary engine	R. P. Jarvis	602,708	Apr. 19	1933	430	88	309
Rotary engine	S. Kershner	602,456	Apr. 19	1501	345	88	315
Rotary engine	M. C. Kessler	602,334	Apr. 12	1289	295 / 296	88	200
Rotary engine	T. C. Luce	604,254	May 17	1868	423	88	1015
Rotary engine	F. J. Macey	604,995	May 31	3803	737	88	1305
Rotary engine	J. H. Meyer	601,354	Apr. 5	450	98	88	85
Rotary engine	J. H. Parsons	605,906	June 21	1586	364	88	1698
Rotary engine	J. H. Parsons	605,907	June 21	1586	365	88	1698
Rotary engine	W. J. Pearce	606,060	June 21	1989	444	88	1735
Rotary engine	W. H. Phillips	605,585	June 14	980	222 / 223	88	1557
Rotary engine	F. Priestley	603,787	May 10	880	198	88	790
Rotary engine	W. Smith	602,680	Apr. 19	1795	410	88	360
Rotary engine	A. Stephens	605,760	June 14	1270	293 / 294	88	1615
Rotary engine	W. S. Sutton	604,276	May 17	1985	450 / 451	88	1084
Rotary engine	W. D. Thomas	601,914	Apr. 5	560	115 / 116	88	106
Rotary engine	C. W. Triplett	601,916	Apr. 5	563	116	88	107
Rotary engine	J. J. Unbehend	606,606	June 28	2017	675 / 676	88	1966
Rotary engine	C. G. Vance	602,580	Apr. 19	1623	370 / 371	88	336
Rotary engine	W. Willerton and T. Shortliff	604,641	May 24	2601	594	88	1170
Rotary engine	C. F. C. Lohmann	606,563	June 28	2843	655	88	1958
Rotary motor	L. K. and C. S. Carnahan	605,852	June 21	1498	341 / 342	88	1673
Rotary steam-engine	F. Galpin	605,564	June 14	916	215	88	1550
Rotary steam-engine	A. Lee	605,805	June 14	1372	315	88	1638
Rotary steam-engine	F. D. Moon	604,333	May 17	2039	456	88	1045
Rotary steam-engine	I. Wepplo	602,787	Apr. 19	2064	468 / 469	88	421
Rotary steam-engine	A. Zwiebel	601,606	Apr. 5	196	35	88	28
Rotary steam-engine	C. E. Graham	603,761	May 10	999	230	88	797
Rotary wheel or brush. Flexible	J. Ashton	605,099	Apr. 26	2618	594	88	541
Roundabout	C. T. Wilde and C. W. Hinchcliffe	604,164	May 17	1716	387	88	988
Roundabout	W. S. Richards	606,155	June 21	2068	475	88	1780
Routing-machine	W. M. Seeger	604,800	May 31	3039	696	88	1278
Rubber-dam holder	H. C. Freshour	606,707	June 14	1191	274	88	1600
Rubber pump-bucket	C. E. Posh	605,333	June 7	326	75	88	1413
Rubber-shoe attachment	C. A. Maynard	602,346	Apr. 12	1307	291	88	203
Rubber-tired wheel	A. H. Alden	604,994	May 31	3099	712	88	1295
Rubber water-bag. India	A. H. Alden	604,995	May 31	3100	713	88	1295
Rubber water-bag. India	A. W. Gottlock	602,131	Apr. 12	933	204	88	189
Rule and measuring-stick	W. L. E. Keuffel	603,695	May 10	823	181	88	777
Rule. Slide	J. G. D. Mack	606,388	June 28	2695	586	88	1858
Rule. Slide	J. E. G. Yalden	603,370	May 3	217	48	88	649
Rule. Slide	J. H. Van Steeter and G. N. Dow	603,941	Apr. 26	2653	651	88	598
Running-gear	E. H. Schwey	604,795	May 31	2876	632	88	1249
Sack-holder	J. Gross	603,289	May 3	150	35	88	631
Sad-iron	H. W. G. Plunkett	606,261	June 28	2383	527 / 528	88	1851
Saddle	A. E. McGill	603,473	May 3	414	92	88	660
Saddle-post	O. E. Converse	604,594	May 31	3040	668	88	1274
Safe	J. F. Jones	606,555	June 28	2893	651 / 652	88	1950
Safe-alarm	J. M. Curtice	603,733	Apr. 19	1979	449	88	405
Safe. Kitchen-	I. Freed	606,326	June 28	2432	562	88	1872
Safe. Passenger-car	I. Freed	604,033	May 17	1473	330	88	957
Safe-protection system. Electrical	E. W. Mason	603,460	Apr. 19	1509	344	88	316
Safety-gate	P. Motley	605,508	June 14	814	188	88	1530
Safety-gate	H. S. Brewington	606,374	June 28	2500	551	88	1884
Safety-pin	W. E. Michael	601,666	Apr. 5	74	15	88	15
Safety-pin	J. T. Payne	601,981	Apr. 5	580	146	88	121
Safety-pin	M. Rhine	606,427	June 28	2607	601	88	1906
Safety-pin	A. W. Browne and C. M. Kennedy	602,572	Apr. 19	1609	365	88	330
Saliva-ejector	T. Craney	605,028	June 7	24	7.9	88	1357
Salt-making apparatus	K. H. Cottle and R. C. Danly	604,559	May 24	2461	560	88	1149
Sand-blast	L. M. Elliot	605,198	June 7	253	59	88	1396
Sand-board	J. R. Donley	603,393	May 3	42	11	88	609
Sand-box	R. A. Dayton	601,688	Apr. 5	25	6	88	7
Sand-line spool	H. R. Hall	604,988	May 31	3168	738	88	1301
Sanitary bowl	E. Willis	606,618	June 28	2986	679	88	1908
Sap-spout	M. Barber and J. P. Ashby	605,215	June 7	289	67	88	1403
Sash-balance							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sash. Detachable	W. Romuender	601,680	Apr. 5	101	20	88	28
Sash-fastener	J. A. Black	602,051	Apr. 12	801	173	88	163
Sash-fastener	A. Coons	601,948	Apr. 5	542	134	88	120
Sash-fastener	O. L. Corbin	606,448	June 28	2038	607	88	1912
Sash-fastener	W. A. Coulson	602,731	Apr. 19	1976	448 / 449	88	405
Sash-fastener	E. N. Gilfillan	601,750	Apr. 5	347	49	88	47
Sash-fastener	J. Greife	606,484	June 28	2098	621	88	1923
Sash-fastener	A. Haenichen	601,959	Apr. 5	650	138	88	194
Sash-fastener	J. T. Thompson	606,101	June 21	1973	453	88	1763
Sash-fastener	H. W. Denham	603,783	May 10	973	217	88	806
Sash-holder	A. Haenichen	601,958	Apr. 5	657	136	88	193
Sash-holder	O. P. Kvernum	604,537	May 24	2423	551	88	1135
Sash-holder	J. and T. W. Leask	603,907	May 10	1213	274 / 275	88	852
Sash-holder	G. C. Young	606,262	June 28	2296	532	88	1846
Sash lifter and lock	E. W. Habermaas	604,952	May 31	3182	733	88	1301
Sash-lock	I. W. Brown	605,196	June 7	249	58	88	1306
Sash lock and lift. Combination	F. Cramblitt	603,476	May 3	428	95	88	668
Sash. Reversible window	H. Pedersen	606,226	June 28	2349	543	88	1855
Sash. Window	E. Beck	605,069	June 7	4	1.9	88	1353
Seabos. Means for hanging and guiding	G. Schwing	605,681	June 14	1144	266	88	1590
Seabos, transoms, &c. Lift for	J. I. Caruthers	604,608	May 24	2540	579	88	1159
Saw	E. H. Hutchinson	605,577	June 14	998	219	88	1554
Saw	F. W. Walquist, G. Nelson, and J. L. Gronquist.	604,279	May 17	1981	432	88	1095
Saw	C. B. Winchell	602,205	Apr. 12	1076	236	88	216
Saw clamp and filing-guide. Band	R. Wrublik	605,368	June 7	604	134	88	1467
Saw. Crosscut	A. Cunningham	606,051	June 21	1877	432 / 433	88	1744
Saw. Drag	P. Lord	603,909	May 10	1214	275	88	852
Saw-file	G. B. Clements	605,597	June 14	979	226	88	1560
Saw-frame	G. M. Hinkley	602,943	Apr. 26	2355	537	88	498
Saw-guide	H. Weir	604,673	May 24	2657	609	88	1182
Saw guide. Miter	A. Riggs	605,515	June 14	832	193 / 194	88	1533
Saw-gumming machine	G. N. Clemson	601,947	Apr. 5	641	134	88	120
Saw. Hack	G. N. Clemson	603,128	Apr. 26	2971	606	88	553
Saw. Hack	D. I. Green	602,158	Apr. 12	1000	219	88	201
Saw-handle	R. D. King	605,550	June 14	887	207	88	1544
Saw-jointer	I. Arnold	604,574	May 24	2495	568	88	1150
Saw jointing, staging, and setting device	F. S. Bradley and F. A. Cotton	604,714	May 31	2751	629	88	1218
Saw machine. Hack	U. Anderson	603,987	Apr. 26	2286	523 / 524	88	457
Sawmill-carriage	J. Frederickson	606,335	June 28	2431	569	88	1873
Saw-set	H. Neidhardt	603,536	May 3	549	120	88	706
Saw-set	C. H. Douglas	603,007	Apr. 26	2460	580	88	511
Saw-sharpener	A. Kott	602,261	Apr. 12	1167	257	88	235
Saw-table gage	R. Bennett. (Reissue)	11,051	Apr. 26	2256	551	88	587
Saw-tool	H. L. Trueblood	603,491	May 3	403	103	88	699
Saw-tool. Combination	C. H. Douglas	601,999	Apr. 5	716	152	88	135
Saw-tooth-ribbing machine	C. Fosby	601,775	Apr. 5	390	57	88	55
Saws. Means for stiffening circular	M. D. Abearn	602,208	Apr. 12	1280	271	88	247
Saws. Patching	F. Chimgar	604,727	May 31	2769	634	88	1221
Sawing-machine	L. A. Deuther	605,406	June 7	673	149	88	1482
Sawing-machine	C. F. Rood	603,541	May 3	554	122	88	706
Sawing-machine	D. S. Stewart	606,035	June 21	1848	426	88	1736
Sawing-machine	J. Allen and M. L. Jones	606,041	June 21	1860	429	88	1740
Sawing machine. Log	J. V. Garrett	604,979	May 31	3178	732	88	1300
Scaffold. Combination	L. Hachenberg	605,636	June 14	1069	245 / 246	88	1576
Scale	J. H. Swihart	603,415	May 3	298	67	88	657
Scale	T. A. Killman and H. A. Bratten	604,535	May 24	2419	550	88	1134
Scale. Computing	P. B. Clarke	601,997	Apr. 5	712	151	88	134
Scale for measuring material in bulk. Automatic	E. Finn	605,529	June 28	2789	644	88	1942
Scale fulcrum and bearing	A. A. Olund	604,675	May 17	1560	349	88	952
Scale. Line-dividing	W. H. Sanderson	601,951	Apr. 5	508	108	88	94
Scale. Platform	F. L. Fuller	603,656	Apr. 19	1843	420	88	378
Scale. Price	A. Bradley	603,957	May 10	1261	287	88	851
Scale. Wagon	J. Hempstalk	604,827	May 31	2925	669	88	1251
Scale. Weighing	J. F. Braselton	604,715	May 31	2755	630	88	1218
Scale-weight	F. L. Fuller	603,508	May 3	481	107	88	603
Scales, &c. Indicating or like mechanism for price	F. L. Fuller	603,504	May 3	484	107	88	604
Scales. Indicating or like mechanism for price	F. L. Fuller	603,505	May 3	489	108	88	605
Scales. Indicating or like mechanism for price	M. C. Ogden	606,472	June 28	2675	616	88	1919
Scissors or shears. Sheet-metal	F. M. Tenney	604,807	May 31	2895	668	88	1246
Scoop-board							
Scourer: *See* Grain-scourer.							
Scouring, disintegrating, and separating machine	J. M. Case	601,726	Apr. 5	201	39, 40	88	40
Scow. Dumping	E. Lays	606,259	June 28	2337	541	88	1853
Scow. Dumping. Cotton	N. Stickney	605,769	June 14	1275	295	88	1616
Scraper and cultivator	E. W. Deveney	605,267	June 14	1154	267	88	1593
Scraper and grader. Wheeled dumping	W. C. Bradford	603,421	May 3	306	69	88	659
Scraper. Cotton	G. P. Dowling	603,495	May 3	318	71	88	660
Scraper. Cotton and corn	T. F. Dove	604,207	May 17	1808	405	88	1000
Scraper. Dirt	F. Grote	606,540	June 28	2805	646	88	1945
Scraper for roadwork or ditching	J. E. Rich	606,580	June 28	2872	661	88	1909
Screen: *See* Fly-screen. Window-screen.							
Screens, &c. Detachable foot for	W. J. Quarry	604,215	May 17	1814	407	88	1003
Screw	P. W. Cassil	603,891	May 10	1185	266	88	846
Screw-cutting die-head	K. Mischke	603,283	June 28	2216	509	88	1885
Screw-cutting machine	J. Reymond and A. Poincenot	603,689	Apr. 19	1911	425 / 426	88	388
Screw-dies. Machine for milling variable grooves in	A. Urban	603,884	Apr. 26	2286	506 / 507 / 508	88	470
Screw driver and drawer	G. B. Jocelyn	604,260	May 17	1876	430	88	1014

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Screw for aerial ladders, &c. Elevating-	A. W. La France	602,262	Apr. 12	1168	257	83	235
Screw machine. Metal-	W. S. Davenport	604,306	May 17	1984	445 446	83	1065
Screw-machines or lathes. Box-tool for	J. P. Lavigne	602,908	Apr. 26	2286	521	83	478
Screw-slotting machine	H. Hubbell	602,268	Apr. 12	1218	298 299	83	245
Scrubbing appliance	F. W. Richter	601,678	Apr. 5	97	19	83	21
Scutching-machine feeder	E. G. A. Schenson	606,476	June 28	2679	617 618	83	1080
Scuttle or skylight operator	F. Hayes	606,057	June 21	1891	435	83	1746
Seal	T. N. Fisher	602,129	Apr. 12	981	208	83	188
Seal-bolt	P. C. Dockstader	601,770	Apr. 5	285	55	83	55
Seal. Bottle safety-	A. L. Elder	603,559	May 3	583	129	83	714
Seal-breaking instrument. Car-	T. A. Leyendecker	605,730	June 14	1219	282	83	1605
Seal-lock	P. C. Dockstader	605,377	June 7	430	95	83	1432
Seal-lock	J. Dowling	606,408	June 28	2563	508	83	1696
Seal-lock	W. K. Edgar	605,278	June 7	422	95	83	1432
Seal-lock	M. E. Kanaly	606,418	June 28	2589	507	83	1908
Seal-lock	J. W. Stevens	604,433	May 24	2326	496	83	1101
Seal-lock	L. Schafer	602,915	Apr. 26	2303	525	83	481
Seals for bottles. Apparatus for recrimping crown-	G. W. Gomber	604,467	May 24	2329	522	83	1114
Sealing device	G. W. Gomber	605,709	June 14	1193	275	83	1600
Sealing device	J. Berneis	603,085	Apr. 26	2300	567	83	519
Sealing device for bottle-stoppers	H. T. Sundstrom	603,458	May 3	374	85 86 87	83	672
Sealing machine. Newspaper-	J. Gersant and A. G. Buttlfant	605,604	June 14	1000	231	83	1563
Sealing metal boxes, &c. Means for hermetically	J. E. Fisher	604,675	May 24	2060	609	83	1188
Seam-ripping device							
Seat: *See* Couch-seat. Spring-seat. Lecture-room seat. Window-cleaning seat.							
Secondary battery	C. Brault	605,695	June 14	1169	269	83	1595
Secondary battery	F. W. Schneider	602,172	Apr. 12	1019	224	83	205
Sectional boiler	H. H. Taylor	606,313	June 28	2568	552	83	1699
Seed and fertilizer distributer	S. L. Allen	603,476	May 3	421	93, 94	83	661
Seed-cleaning machine. Cotton-	J. A. Lewis	603,448	May 3	353	80	83	668
Seed conveyer. Cotton-	H. W. Graber	603,185	Apr. 26	2758	627	83	569
Seed-drill	W. Stephenson	603,862	May 10	1134	255	83	887
Seed-drill-disk shoe	W. Stephenson	603,863	May 10	1134	255	83	887
Seed separator. Cotton-	J. A. Garrett	606,593	June 28	2792	645	83	1943
Seeding-machine	E. Christman, T. Brennan, Jr., and L. W. Homire.	602,827	Apr. 26	2154	489	83	454
Seeding-machine	K. Puskás	606,475	June 28	2678	617	83	1080
Seeding-machine	W. W. Schultz	605,348	June 7	564	125	83	1460
Seine-pursing machine	C. H. Gaffney	604,312	May 17	1998	448	83	1059
Self-lubricating engine	E. E. Hanna	606,543	June 28	2809	647	83	1945
Self-oiling wheel	I. R. Titus and J. W. Ensign	602,379	Apr. 12	1363	305	83	274
Separating apparatus	A. F. McClatchey and C. L. Krum	602,515	Apr. 19	1595	365 366	83	338
Separating laminated packs. Machine for	T. A. Dobbins	606,522	June 28	2750	695	83	1985
Separator: *See* Grain-separator. Seed-separator. Metal-separator. Steam-separator. Ore-separator.							
Separator	O. M. Morse	606,292	June 28	2342	542 543	83	1654
Separator and concentrator	C. E. Crowell and M. F. Gale	603,319	May 3	196	30	83	666
Sewer catch-basin	J. W. Hershberger	601,794	Apr. 5	350	66	83	22
Sewer construction	G. E. Waring, Jr	601,742	Apr. 5	286	46	83	46
Sewing-machine	F. Chase	605,040	May 31	3363	754	83	1321
Sewing-machine	F. O. Jerram	603,988	Apr. 26	2427	552 553	83	505
Sewing-machine	L. Muther and E. C. Holland	605,285	June 7	505	112 113	83	1449
Sewing-machine	C. H. Willcox, C. Carleton, and S. Borton.	603,986	May 10	1284	305 306	83	876
Sewing-machine	C. H. Willcox, J. E. A. Gibbs, and S. Borton.	603,989	May 10	1339	307	83	877
Sewing-machine attachment	C. Schneider	604,161	May 17	1712	386	83	992
Sewing-machine bobbin or under-thread case	L. A. Miller	601,597	Apr. 5	405	85	83	76
Sewing-machine brake	J. R. Weaver	601,698	Apr. 5	122	24	83	96
Sewing machine. Buttonhole-	J. C. Goodwin	606,904	June 28	2161	496 497 498	83	1817
Sewing-machine feeding mechanism	G. H. Dimond and W. F. Dial	604,005	May 10	1421	316	83	807
Sewing-machine folding-guide	L. Muther	605,294	June 7	504	112	83	1448
Sewing-machine for hemstitching	G. H. Dimond	605,700	June 14	1178	271	83	1597
Sewing-machine-looper-actuating mechanism	F. H. Richards	602,105	Apr. 12	998	194	83	180
Sewing-machine needle-guard	O. Bellefeuille	605,100	Apr. 26	2020	505	83	541
Sewing-machine. Overseam	F. Malech	605,993	Apr. 26	2425	555	83	507
Sewing-machine presser-clamp. Buttonhole-	J. Laird	606,425	June 28	2600	599	83	1904
Sewing-machine presser-foot	G. W. Stevenson	601,861	Apr. 5	472	95	83	88
Sewing-machine presser-foot and throat-plate	C. McNeil	605,449	June 7	736	167	83	1494
Sewing-machine ripping attachment	M. Talen and G. H. Croft	602,981	May 10	1259	295	83	859
Sewing-machine shuttle	M. F. Burroughs	606,443	June 28	2631	605	83	1911
Sewing-machine stop-motion	L. Schultz	602,876	Apr. 26	2223	508	83	467
Sewing-machine thread-cutter	V. Heiser and S. R. Moyer	606,010	June 21	1803	415	83	1730
Sewing-machine thread-trimming device	H. E. Hawes	603,668	May 10	812	179	83	775
Sewing-machine thread-waxing device	J. E. Bertrand	603,359	May 3	196	45	83	699
Sewing-machine threader	L. J. Bowman	606,999	June 28	2806	634	83	1947
Shade adjuster. Window-	F. L. Bailey	606,993	June 28	2890	652	83	1946
Shade-bracket holder. Window-	P. N. Rademann	606,995	June 28	2855	645	83	1857
Shade carrier. Window-	H. L. Keyes	603,403	May 3	373	61	83	668
Shade-holder	M. D. Greengard	601,599	Apr. 5	366	88	83	75
Shade-roller	E. F. Harishorn	603,908	May 10	1306	278	83	851
Shade-support. Adjustable	J. N. Reinhard	602,104	Apr. 12	991	198	83	180
Shade supporter. Window-	J. A. Hillman and H. M. Reed	603,059	Apr. 26	2286	576	83	586

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Shade-trimmer	J. B. Hinthorn	606,548	June 28	2819	649	83	1948
Shade. Window-	J. S. Judge	604,329	May 17	2027	454	83	1043
Shaft-adjusting device	L. E. Warner	603,353	May 3	187	42	83	636
Shaft and disk. Combined crank	A. L. Ide	601,995	Apr. 5	367	141	83	126
Shaft-hanger	F. Bebout and J. H. Brandon	606,327	June 28	2410	559	83	1866
Shaft-hanger	S. Coffin	601,885	Apr. 5	508	105	83	96
Shaft. Vehicle-	W. G. Davis	605,682	June 14	1057	243 244	83	1573
Shafts. Apparatus for making crank-	C. F. Roper	604,367	May 17	1911	428	83	1021
Shafts, tubes, &c. Machine for straightening	H. W. Hill	606,214	June 28	2183	502 503	83	1821
Sharpener. Disk-	A. Christopherson	603,172	Apr. 26	2733	622	83	565
Sharpener. Knife-	J. W. Mallot	602,192	Apr. 12	1057	231	83	213
Sharpener. Knife-	F. R. Miller	602,994	Apr. 26	2457	556	83	507
Sharpener. Knife-	J. R. Williams	602,790	Apr. 19	2069	470	83	428
Sharpener. Knife-	M. L. Hawks	605,289	June 7	447	99	83	1457
Sharpener. Knife, scissors, or skate	T. H. Bradbury	603,887	May 10	1178	266 267	83	846
Sharpener. Rock-drill	H. C. Lausen	604,118	May 17	1639	367	83	908
Sharpener. Scissors-	A. N. Clark	606,000	June 21	1776	407	83	1736
Sharpener. Tool-	A. B. Doty	606,333	June 28	2428	561	83	1871
Sharpening lawn-mowers. Attachment for	J. E. Denham	606,194	June 28	2143	492	83	1814
Shearing and punching machine							
Shears: *See* Doubling-shears. Sheep-shears.							
Shears	A. Prohaska	602,360	Apr. 12	1331	296	83	968
Shears and buttonhole-cutter. Combination	C. Coates	606,123	June 21	2013	461	83	1770
Shears, &c. Mechanism for operating animal-	J. K. Stewart	604,809	May 31	3005	690	83	1349
Sheep-shears	H. B. Burke	604,821	May 31	2915	667	83	1376
Sheet-metal can	A. R. Waller	602,648	Apr. 19	1830	417	83	225
Sheet-metal handle. Single-piece	J. W. Greene	602,234	Apr. 12	1120	246 260	83	238
Sheet-metal straightening and cutting-off machine	F. B. Shuster	602,273	Apr. 12	1186	261 342	83	945
Sheet-metal-working machine	F. M. Leavitt	604,057	May 17	1522	343	83	256
Shelf and table. Combined	C. O. Hadly	602,321	Apr. 12	1271	281	83	788
Shelves and table. Convertible	E. B. Weston	603,715	May 10	854	190	83	1437
Shelving, stack, &c. Library	D. E. Hunter	605,291	June 7	448	99 100	83	176
Shell. Vacuum-protected high-explosive	R. J. McKeone	602,092	Apr. 12	869	189	83	
Sheller: *See* Corn-sheller.	E. H. Krüger	606,422	June 28	2598	599 600	83	1904
Shingle-sawing machine	G. F. Steedman	603,926	May 10	1246	294	83	858
Shingle-sawing machine	I. Hosier	606,144	June 21	2055	471	83	1778
Shingling-bracket	W. I. Babcock, S. T. and C. H. Wellman, and J. W. Seaver.	606,497	June 28	2713	625	83	1927
Ship-building plant	W. P. Freeman	606,199	June 28	2152	494	83	1816
Ship-calking instrument	M. H. C. and R. E. C. Shann	606,306	June 28	2371	548 549	83	1800
Ship-frame-bending apparatus	J. G. Fox	602,436	Apr. 19	1468	333	83	209
Shipping-box	E. E. Hamilton	604,388	May 24	2139	480	83	1085
Shipping box or crate	E. Norton	602,469	Apr. 19	1525	347 346	83	330
Shipping box or package	E. Norton	602,468	Apr. 19	1523	347	83	319
Shipping-can	E. Norton	602,766	Apr. 19	2069	460	83	415
Shipping-can. Wood-veneer-jacketed	J. W. Cooper	604,970	May 31	3161	727	83	1297
Shirt-bosom. Detachable	W. B. Keighley	604,051	May 17	1503	338	83	943
Shoe-buffer	N. D. Daboll	602,827	Apr. 26	2258	514	83	473
Shoe dip and polisher	G. W. Burford	606,052	Apr. 26	2565	574	83	594
Shoe-fastener	J. Stech	602,147	Apr. 12	972	212 309	83	196
Shoe-fastener	O. Ashton	602,390	Apr. 12	1384	310 311	83	279
Shoe-nailing machine	E. E. Canedy	604,875	May 31	3013	669	83	1208
Shoe-rack	W. D. Hancock	604,917	May 31	3089	710	83	1288
Shoestring-holder	S. Ross	606,301	June 28	2357	545	83	1857
Shoe-upper turning and beading machine	T. B. Lovdal	601,663	Apr. 5	70	14	83	14
Shore-protector	G. W. Greer	604,581	May 24	2305	570	83	1158
Shoulder-stick							
Shovel: *See* Cultivator-shovel. Snow-shovel.							
Shovel-handle. Sheet-metal	W. Shirray	601,997	Apr. 5	698	148	83	128
Shoveling-board	N. A. Crusan	601,696	Apr. 5	92	5	83	6
Show-case	F. C. Bate	603,312	May 3	115	27	83	634
Show-case. Transferable	J. C. Spraggins	603,210	Apr. 26	2794	636	83	576
Show-stand	M. Rahn	603,208	Apr. 26	2755	625	83	574
Shredder	L. L. Lamb	601,712	Apr. 5	177	34	83	35
Shredding-knife	E. H. Ward	604,513	May 31	2904	664	83	1247
Shutter-controller	C. B. Harkness and W. T. Crowell	603,223	Apr. 12	1274	283	83	257
Shutter-fastener	G. M. W. Kohl	602,661	Apr. 19	1803	423	83	388
Shutter-fastener	J. G. Lane	604,053	May 17	1507	339 288	83	943
Sieve or bolting-machine. Oscillating	C. H. Loutzenhiser	602,341	Apr. 12	1299	289 290	83	202
Sieves. Oscillating support for shaking-	F. H. Schule	605,924	June 21	1696	374	83	1700
Sifter. Ash-	J. H. and E. W. Counties	603,208	May 10	1188	266	83	847
Sifter. Ash-	J. Payette	603,704	May 10	837	185	83	760
Sifter. Portable coal-	L. Buchtel	605,175	June 7	210	58	83	1300
Sign	C. E. Starr, Jr	603,098	Apr. 26	2608	598	83	530
Sign. Corner street-	G. G. Cockburn	603,427	Apr. 19	1449	328	83	305
Sign. Electrical	M. Norden	606,356	June 28	2470	574	83	1879
Signal: *See* Boiler-signal. Railway-signal. Mailing-signal. Railway-crossing signal. Pot signal.							
Signal	J. P. Coleman	604,303	May 17	1974	443	83	1083
Signal	J. P. Coleman	604,304	May 17	1976	443	83	1084

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Signal	J. G. Schrender	606,429	June 28	2609	601	83	1906
Signal-alarm	F. Bossert	606,043	June 21	1863	429	83	1741
Signal and switch interlocking apparatus	E. P. Owen	601,707	Apr. 5	206	51	83	49
Signal system. Electric	L. C. Werner	606,399	May 3	210	48	83	643
Signal system. Electric	L. C. Werner	606,390	May 3	247	55, 56	83	643
Signaling device	F. B. Taylor, E. E. Salisbury, and A. E. Dean.	605,358	June 7	576	127	83	1469
Signaling system and apparatus. Electrical	W. F. Banks	604,712	May 31	2737	626	83	1215
Signaling system. Selector	T. C. Drake	605,668	June 14	1155	266	83	1598
Silicon. Obtaining free amorphous	G. de Chalmot	606,833	Apr. 19	1803		83	371
Singeing woven fabrics. Apparatus for	F. Binder	606,813	Apr. 19	2123	479	83	432
Siphon-head	E. Singer	606,900	Apr. 12	1009	234	83	215
Skate	J. R. Steele	606,435	May 3	333	74	83	663
Skate. Hockey-game	E. H. Barney	605,395	June 7	434	98	83	1434
Skate. Roller	S. L. Kinsbruner	606,704	Apr. 19	1936	440	83	307
Skate. Roller	F. J. Sulke	604,179	May 17	1757	395	83	992
Skins. Machine for pulling or plucking rabbit	J. and F. Taylor	606,355	June 28	2262	527	83	1643
Skirt-lifter	B. M. Fergus	604,310	May 17	1996	447	83	1038
Skirt-lifter	M. R. Lucas	606,567	May 3	598	132	83	716
Skirt-protector material	W. F. Wyman	604,818	May 31	2910	666	83	1246
Skirt-supporter	M. N. Anderson	605,465	June 14	757	174	83	1519
Skirt-supporter	M. Gair	606,760	May 10	928	206	83	797
Skylight-lifter	S. I. Howard	604,473	May 24	2306	524	83	1116
Sled	W. S. Evans	606,758	May 10	923	205	83	796
Sleigh	T. G. Mandt	605,676	June 14	1137	263	83	1589
Smelting. Copper	G. W. Reese	608,590	May 3	629	264	83	724
Smelting-furnace	H. Lang	604,054	May 17	1508	339	83	943
Smelting phosphorus	C. K. Harding	602,747	Apr. 19	1998	340	83	408
Smelting plant. Continuous	W. S. Reese and E. E. Armstrong	605,451	June 7	739	453	83	1495
Smelting plant. Continuous	W. S. Reese and E. E. Armstrong	605,464	June 7	754	167	83	1498
Smoke-bell	T. C. O. Sherk	605,234	June 7	398	178	83	1413
Smoke-condenser	J. C. Green	605,280	June 7	435	96	83	1433
Smoke-consumer	H. L. Thomas	604,240	May 17	1858	416	83	1010
Smoke-consuming furnace	L. A. Sears and F. Rice	602,902	Apr. 26	2396	544	83	498
Smoke-generator	T. Thomson	606,315	June 28	2366	558	83	1663
Smoothing and pressing iron	J. Manning and J. R. S. Hayes	604,060	May 17	1528	343	83	947
Snap-hook	A. Ryan	608,298	May 3	75	19	83	616
Snap-hook. Hand	J. Nurnberger, Jr	608,238	Apr. 26	2350	650	83	586
Snow-guard	H. M. Esselen	602,901	Apr. 26	2399	517	83	475
Snow-guard	G. F. Folsom	602,963	Apr. 26	2420	551	83	504
Snow-plow	W. R. Lloyd	601,805	Apr. 5	226	109	83	99
Snow-shovel	J. Gifford	606,534	June 28	2795	645	83	1943
Soap-crutching machine	F. B. and S. C. Strunz	604,671	May 24	2654	608	83	1181
Soap-holder	M. Peraglie and F. Barro	606,024	June 21	1830	422	83	1735
Soap-holder for tubs	E. H. Lobdell	601,602	Apr. 5	68	13	83	14
Soap-making apparatus	F. Arledter	605,988	June 21	1759	408	83	1723
Soap-plotting machine	F. S. Rutschman	603,411	May 3	289	64	83	655
Soap-press	H. E. Swartz	604,486	May 24	2234	501	83	1103
Soap-receptacle	C. Schreiner	605,976	June 21	1734	399	83	1719
Soaring-machine	W. P. Butusov	606,187	June 28	2196	488	83	1610
Socket-bolt	E. L. A. Cureau	602,178	Apr. 12	1028	225	83	207
Socket-joint or coupling for rods, &c	J. Ephraim	605,541	June 14	870	204	83	1541
Soda. Apparatus for making caustic	W. F. Jobbins	605,102	June 7	61	18	83	1364
Soda. Apparatus for making caustic	F. B. Strunz	604,670	May 24	2652	606	83	1181
Soda-water apparatus	J. F. Haines	602,257	Apr. 12	1163	255	83	234
Soda-water fountain	E. B. Mower	608,856	May 10	1123	256	83	835
Solar apparatus	W. Calver	608,317	May 3	121	28	83	625
Soldering-machine	B. H. Short	602,368	Apr. 12	1345	300	83	271
Sole-channeling and flap-turning machine	H. T. Crosby	602,980	Apr. 26	2417	550	83	503
Sole channeling machine. Boot or shoe	H. T. Crosby	602,979	Apr. 26	2415	550	83	503
Sole cutting-out and channeling machine	R. Reid	606,968	May 10	1304	298	83	870
Sole-laying machine	G. A. Moore and H. J. Rosegrant	606,176	June 21	2108	484	83	1766
Sole-leveling-machine attachment	C. S. Johnson and G. W. Spaulding	604,895	May 31	3027	695	83	1271
Sole-rounding machine	H. T. Crosby	602,211	Apr. 12	1065	238	83	218
Soles of boots, shoes, &c. Machine for stamping	A. Adcock	604,106	May 17	1618	363	83	964
Soles to uppers. Machine for nailing	O. Ashton	602,184	Apr. 12	1038	227	83	209
Solitaire, button, &c	W. West	604,815	May 31	2906	665	83	1248
Sound-locating instrument	L. E. Thorne	605,081	May 31	3269	751	83	1818
Sound-reproducing machine	J. W. Jones	604,889	May 31	2949	670	83	1252
Sound-reproducing machine	J. W. Jones	605,484	June 14	786	180	83	1534
Sower. Seed	J. A. Gleixner	602,668	Apr. 19	1897	438	83	389
Spark-arrester	M. Goetze	606,184	June 21	2096	466	83	1774
Spark arrester	J. W. Troutt	605,363	June 7	508	128	83	1465
Spark-catcher	P. Hagemann and H. Pasler	605,878	May 3	228	51	83	644
Spark-extinguisher	M. Pschorr	605,151	June 7	103	28	83	1372
Speaking-tube	T. Fales	604,694	May 24	2704	618	83	1190
Spectacle eye guard or shield	P. Nerney	604,238	May 17	1856	415	83	1010

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Spectacle-frame	F. L. Burrows	606,272	June 28	2308	535	83	1648
Spectacle or eyeglass case	J. Casey and M. S. Chism	602,825	Apr. 26	2151	499	83	453
Spectacles	G. Bausch. (Reissue)	11,668	May 17	2065	467	83	1055
Spectacles	A. L. Greene	606,263	June 28	2257	530	83	1858
Spectacles	S. J. Clulee	604,186	May 17	1671	375	83	974
Spectacles or eyeglasses. Frameless	K. Hohmann	605,715	June 14	1208	277	83	1602
Speculum	M. A. Replogle	605,014	May 31	3225	744	83	1312
Speed-governor	M. A. Replogle	608,345	May 3	176	41	83	636
Speed-governor. Mechanical	L. S. Starrett	601,800	Apr. 5	235	68	83	68
Speed-indicator	V. Bélanger	605,845	June 21	1475	338	83	1670
Speed mechanism. Change	M. O. Reeves	608,067	Apr. 26	2556	580	83	529
Speed-varying mechanism	E. A. S. Clarke	604,728	May 31	2770	581	83	1228
Spiegel or similar metallic alloy. Producing	V. R. Paige	602,955	Apr. 26	2377	542	83	497
Spike	A. F. Jackson	602,048	Apr. 5	795	179	83	150
Spike-extractor							
Spindle: *See* Spinning-spindle.							
Spindle	J. Duffy	602,254	Apr. 12	1155	253	83	232
Spindle and bearing	W. I. Stimpson	601,846	Apr. 5	444	90	83	83
Spindle-bearing	G. O. Draper	605,708	June 14	1183	278	83	1598
Spindle-bearing	W. M. Rushworth and T. Higginbottom.	602,110	Apr. 12	901	195	83	183
Spindle-support	E. H. Ryon	602,171	Apr. 12	1018	223	83	205
Spindles. Doffer-guard and stopper for lubricating-tubes for	J. W. Wattles	604,446	May 24	2247	504	83	1105
Spinning and twisting machine spindle	J. E. Prest	604,194	May 17	1778	401	83	996
Spinning-machine heart-motion	G. W. Chadwick	602,808	Apr. 12	1242	273	83	250
Spinning machine. Wool	W. W. New	605,208	June 7	271	63	83	1401
Spinning-mule yarn-guide	J. D. Whyte	604,593	May 24	2321	574	83	1155
Spinning-spindle	W. Hinchliffe	602,987	Apr. 26	2426	559	83	505
Spinning textile fibers. Apparatus for	R. Todd and J. A. Stott	603,068	Apr. 26	2558	581	83	530
Spirit. Purifying	L. Maiche	604,998	May 31	3208		83	1306
Spittoon	A. Rosenberg	604,218	May 17	1817	408	83	1008
Spittoon. Fountain	T. N. Clark	604,698	May 24	2703	617	83	1189
Splint. Self-retaining	B. Scheinkman	602,917	Apr. 26	2393	525	83	482
Spoke and felly adjuster	J. N. Rachels	602,208	Apr. 12	1178	259	83	237
Spoke-expander and wheel-tightener	J. Kelley	606,014	June 21	1809	417	83	1731
Spoke-making machine. Metal	W. G. Allen	605,050	May 31	3300	757	83	1394
Spoke-socket	W. O. Jones	608,653	May 10	1119	756	83	884
Spokes for wheels. Manufacture of wire	J. Batey	602,931	Apr. 26	2328	252	83	489
Spool	S. Mather	604,540	May 24	2480	533	83	1137
Spool-stand	T. Mason	605,254	June 7	375	532	83	1422
Spraying device	G. A. Horn	604,151	May 17	1694	85	83	979
Spring: *See* Door-spring. Vehicle-spring. Heel-spring. Wagon-spring.					381	83	979
Spring-forming machine	C. Collins	603,175	Apr. 26	2739	633	83	566
Spring-seat	J. H. Cloyes	604,368	May 24	2114	474	83	1080
Spring-seat. Folding	F. G. Westland	602,798	Apr. 19	2066	469	83	428
Sprocket-rim. Removable	R. R. Suter	601,990	Apr. 5	700	149	83	132
Sprocket-wheel	L. and E. W. Cooper	605,448	June 7	725	183	83	1403
Sprout-puller and wagon-jack. Combined	D. E. Copp	604,054	Apr. 26	2527	574	83	594
Stacker	F. W. Eltzroth	602,063	Apr. 19	821	178	83	167
Stacker fan. Pneumatic-straw	J. K. Sharpe, Jr	605,925	June 21	1628	374	83	1700
Stacker. Pneumatic	W. H. Cook	608,593	May 3	638	141	83	724
Stacker. Straw	H. R. Gregory and R. H. Batton	606,165	June 21	2091	481	83	1765
Stacker. Straw	W. A. Hinkle	608,040	Apr. 26	2507	569	83	520
Stacker. Straw	R. Moy	601,667	Apr. 5	75	15	83	17
Stacker. Swinging straw	E. Huber and J. W. Miller	606,059	June 21	1896	436	83	1747
Stage appliance	W. F. Carver	604,080	May 17	1433	437	83	993
Staircase for dwellings	H. E. Cassel	606,272	June 28	2310	325	83	1648
Stair-rail	S. Hunter	606,147	June 21	2095	535	83	1778
Stairs, &c. Tread for	C. W. Locke	605,738	June 14	1235	478	83	1605
Stairway nosing-strip	F. Furness	606,583	June 28	2762	378	83	1943
Stamp. Hand	H. O. Reich and C. I. Van Dyke	602,957	Apr. 26	2370	644	83	497
Stamp-mill	E. Reynolds	604,503	May 24	2268	543	83	1135
Stamp-mill feeder	G. Wood	605,393	June 7	408	536	83	1488
Stamp-money and letter packet	C. A Thompson	603,118	Apr. 26	2549	91	83	545
Stamp. Ore	D. M. Smyth	605,615	June 14	1017	608	83	1597
Stamp-pad	W. A. Echelberger	608,061	Apr. 12	814	284	83	166
Stamp. Printing	L. R. Blackmore	605,945	June 21	1671	176	83	1708
Stamp. Time	J. G. Blessing	602,026	Apr. 5	757	163	83	143
Stamps, &c. Coin-freed apparatus for delivering	E. J. P. Gallwey	601,882	Apr. 5	405	164	83	95
Stamps, sealing letters, &c. Device for attaching	W. F. Johnston	602,806	Apr. 19	2109	476	83	429
Stamping and crushing mill. Ore	R. F. Parker	602,956	Apr. 19	1326	204	83	267
Stanchion. Cattle	G. L. Nichols	605,005	May 31	3221	741	83	1309
Stand: *See* Camera-stand. Show-stand. Display-stand. Tripod-stand.							
Stand or chair base	J. W. Coultas	608,677	May 10	796	175	83	772
Standard	C. J. Shaw	604,796	May 31	2879	658	83	1243
Staple driving and clenching machine	V. Zwissler	608,426	May 3	636	75	83	665
Staple-extractor	C. G. Mitchell	608,911	Apr. 26	2398	522	83	480
Stapling-machine	F. S. Bradley	608,121	Apr. 12	916	200	83	186
Starch-draining apparatus	J. Hundhausen	608,447	May 3	353	201	83	667
Starching-machine	A. T. Hagen and D. M. Cooper	606,411	June 28	2568	594	83	1697
Starching-machine	A. R. Selden	605,751	June 14	1232	595	83	1611
Starting device	J. P. Stone and S. E. Doane	608,778	May 10	992	200	83	803
Station-indicator	E. H. B. Chew	606,351	June 28	2494	215	83	1670

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Station-indicator	O. Ledowsky	605,318	June 7	496	110	83	1447
					111		
Station-indicator	H. C. Turner	605,988	June 21	1653	379	83	1705
Station-indicator	W. A. Turner	604,483	May 24	2328	528	83	1119
Stay and fastener	P. A. Dailey	605,402	June 7	667	148	83	1461
Stay-bolt	J. Johnson and W. V. Lukens	602,402	Apr. 12	1409	316	83	994
Steam. Apparatus for regulating superheated	W. Schmidt	604,547	May 24	2444	555	83	1130
Steam. Apparatus for vaporizing and superheating water contained in	W. Fehrmann	604,594	May 24	2396	545	83	1130
Steam-boiler	C. H. Fox	603,492	May 3	435	96, 97	83	665
Steam-boiler	N. G. Herreshoff	605,784	June 14	1395	306	83	1096
Steam-boiler	N. G. Herreshoff	605,785	June 14	1397	306	83	1096
Steam-boiler	N. G. Herreshoff	605,786	June 14	1399	306	83	1097
Steam-boiler	E. J. Moore	605,791	June 14	1392	309	83	1099
					310		
Steam-boiler	W. Hopkins	605,427	June 7	705	157	83	1466
Steam-boiler and furnace therefor	O. Abraham	602,418	Apr. 19	1435	324	83	908
Steam-engine	S. and S. R. Chatwood	602,426	Apr. 19	1448	328	83	905
Steam-engine	W. F. and E. W. Cleveland	602,392	Apr. 12	1389	311	83	990
					313		
Steam-engine	H. M. Lane	605,885	June 21	1556	358	83	1667
Steam-engine	C. A. Maurer	603,594	May 3	226	53, 54	83	646
Steam-engine	J. A. Reardon	604,415	May 24	2190	490	83	1095
					491		
Stool for stores. Counter-	G. A. Coulson and J. McCaw	602,210	Apr. 12	1084	237	83	916
Steam-generating apparatus	H. Hennig	601,798	Apr. 5	326	66	83	66
Steam-generator	D. A. Casalonga	605,997	June 21	1771	406	83	1735
Steam-generator	C. H. Fox	603,502	May 3	478	106	83	668
Steam-generator	J. B. Loquet and J. B. Ketelair	605,495	June 14	606	166	83	1586
Steam-generator	E. Makin, Jr	604,496	May 24	2352	533	83	1132
Steam-generator	C. T. Murray	605,895	June 21	1570	361	83	1669
					643		
Steam-generator	O. D. Orvis	603,228	Apr. 26	2818	644	83	560
					645		
Steam-generator	J. I. Thornycroft	603,800	May 10	1004	224	83	812
					225		
Steam-generator	L. De Naeyer	601,790	Apr. 5	324	65	83	61
Steam-generator. Water-tube	F. Seaver	603,660	May 10	765	170	83	795
Steam-motor	J. B. Johnston and C. B. Little	604,886	May 31	3039	695	83	1271
Steam or hot-water boiler	F. G. Saylor	604,088	May 17	1583	354	83	987
					355		
Steam or hot-water grate and generator	F. Succie	601,687	Apr. 5	117	23	83	25
Steam or hot-water heater	W. B. Crichton	604,109	May 17	1681	364	83	995
					365		
Steam or other fluid-pressure engine	F. B. Corey	606,190	June 28	2139	491	83	1813
Steam-separator	N. Nilson	602,866	Apr. 26	2212	501	83	1465
Steam-separator	G. I. Roberts	604,844	May 31	2955	677	83	1257
Steam-separator	C. R. Franklin	602,657	Apr. 19	1842	420	83	978
Steam-trap	B. W. Hill	604,980	May 31	2990	686	83	1263
					687		
Steam-trap	B. Thoens	603,980	May 10	1322	302	83	845
Steam-trap	C. H. Bartlett	603,985	May 10	1174	305	83	845
Steelyard	H. O. F. Bindemann	603,596	May 10	1175	306	83	519
Steering apparatus. Electrical	W. H. Harfield	605,098	Apr. 26	2504	508	83	21
Steering-gear. Steam	J. and H. W. Ritchie	601,679	Apr. 5	100	20	83	
Steering mechanism for vessels. Hydraulic	A. C. Thomas and C. M. Hamilton	604,506	May 24	2368	537	83	1126
					538		
Stenciling-machine. Rotary	H. C. Swan	605,357	June 7	576	127	83	1462
Step-pad	C. T. Murray	605,894	June 21	1568	361	83	1669
Stereotype-plate	A. Moyet	605,736	June 14	1296	296	83	1606
Sterilizing apparatus	C. Steenken	604,801	May 31	2887	660	83	1244
Stirrup	J. W. Thorn	606,366	June 28	2487	578	83	1852
Stirrup. Safety-	J. Lee	602,859	Apr. 26	2208	499	83	468
Stitch indenting and separating machine	J., Sr., T., and J. Vicars, Jr	606,607	June 28	2918	677	83	1908
Stoker. Mechanical	G. Wincqz and H. Machepy	602,890	Apr. 26	2246	511	83	471
Stone-cutting machine	H. H. Cummings	601,789	Apr. 5	320	63	83	61
					64		
					65		
Stone-sawing machine	L. H. and G. C. Roby	602,773	Apr. 19	2089	462	83	417
Stool and chair. Convertible piano	H. B. Banes	605,617	May 10	998	155	83	751
Stool. Piano-	J. K. Wright	602,384	Apr. 12	1370	307	83	976
Stop device. Automatic safety	W. Nutt	605,125	June 7	97	26	83	1370
Stopper:	H. V. R. Read	602,909	Apr. 12	1179	260	83	227
See Bottle-stopper. Jug-stopper. Flue-stopper.	E. A. Barber	603,220	Apr. 26	2834	647	83	558
Stopper	H. S. Lloyd	604,588	May 24	2514	572	83	1138
Stopper for discharge of aerating capsules	G. A. Washburn	602,176	Apr. 12	1086	235	83	907
Storage battery	E. C. Cole	604,055	May 24	2022	500	83	1175
Storage battery	F. J. Gould	602,577	Apr. 19	1007	266	83	351
Storage battery	C. T. Litchfield and J. T. Baugher	604,901	May 31	3196	735	83	1204
Stove	J. N. Morse	602,113	Apr. 26	2043	600	83	546
Stove	F. C. Wilson	602,116	Apr. 12	914	199	83	165
Stove	J. W. and W. W. Wilson	605,087	May 31	3277	753	83	1319
Stove. Air-tight heating-	J. S. Van Buren	602,599	Apr. 19	1621	370	83	386
Stove and grate	C. H. Boeck	602,124	Apr. 26	2661	604	83	550
					605		
Stove. Blue-flame oil-	F. B. Charroin	605,999	June 21	1774	407	83	1736
Stove. Camp-	S. B. Palmer	602,998	Apr. 26	2443	557	83	505
Stove. Combined wood and straw burning heating and cooking	A. W. Walker	605,208	June 7	472	106	83	1441
Stove. Cooking-	R. Pringle	605,011	May 31	3280	743	83	1311
Stove for cooking purposes, &c. Gas-	J. Langfield	605,795	June 14	1313	280	83	1603
Stove. Gas-	A. L. Pitney	603,456	May 3	371	84	83	672
Stove. Gas-	P. G. Van Wie	602,041	Apr. 5	784	170	83	148
Stove. Gasolene-	G. B. Murrell	603,458	May 3	364	88	83	670
Stove. Heating-	T. H. Conway	606,048	June 21	1870	431	83	1742
Stove. Heating-	C. L. Feldweg	602,001	Apr. 5	718	158	83	136
					348		
Stove. Heating-	J. L. Ritter and L. H. Haslewood	602,474	Apr. 19	1553	349	83	321
Stove. Heating-	A. G. Ryley	602,749	May 10	899	200	83	791
Stove-hood. Portable	L. B. Keller	602,780	May 10	879	195	83	766
Stove. Hydrocarbon-oil-gas	H. W. Libbey	603,010	Apr. 26	2463	560	83	512
Stove. Lamp-	J. E. Nichols	603,341	May 3	171	29	83	634
Stove-leg	A. Kissell and I. J. Space	602,335	Apr. 12	1291	286	83	960
Stove-leg. Sheet-metal	J. B. Schneider	604,689	May 24	2599	598	83	1170
Stove. Oil-	C. H. Boeck	603,123	Apr. 26	2659	604	83	550
Stove or furnace	W. J. Selby	605,519	June 14	637	195	83	1534
Stove or other grate	A. Alitto	605,942	June 7	340	78	83	1415
					221		
					222	83	908
Stove or range	H. W. Mason	602,166	Apr. 12	1010	223	83	1660
Stove or range. Cooking	J. J. McGuff	605,897	June 21	1573	362	83	1049
Stove. Portable farm-	J. Weber and M. Thurner	604,342	May 17	2059	461	83	1059
Stovepipe	W. P. Riviere	605,581	June 28	2873	662	83	250
Stovepipe-fastener	J. Jones	602,332	Apr. 12	1287	285	83	1457
Stovepipe-joint	F. Tharp	605,208	June 7	397	89	83	933
Stovepipe-lock	P. J. Carroll, P. C. Fenton, L. Kline, and L. B. Beltzer.	604,019	May 17	1452	295	83	
Stove. Self-feeding oil-	E. H. Driggs	602,322	May 3	186	32	83	626
Stove. Slow-combustion	H. J. Piron	602,967	May 10	1308	226	83	870
Stove. Vapor-	H. C. Campbell	604,206	May 24	2111	474	83	1079
Stove. Vaporizing oil-	W. H. Silver	604,708	May 24	2719	631	83	1198
Stoves. Hot-air attachment for heating	J. H. J. Clare	602,814	Apr. 19	3194	479	83	432
Stoves or ranges. Ventilating-canopy for cook	C. Spurlin	603,396	May 3	241	54	83	647
Straightener and polisher. Rotary	W. G. Algeo, Jr	603,886	May 10	1068	242	83	836
Straightening-machine	J. Zimmer	604,292	May 17	1987	433	83	1086
					434		
Strainer	C. C. Worthington	603,120	Apr. 26	2651	602	83	548
Strainer and filter for conductor-pipes	E. Culver	603,554	May 3	574	127	83	712
Strainer. Coffee-pot	S. J. Freeman	601,955	Apr. 5	658	137	83	122
Strainer. Milk-	A. L. Rowling	605,829	June 14	1419	324	83	1642
Strainer. Milk-pail	F. Ansley	603,673	May 10	791	174	83	771
Strainer. Well-	J. Booth	604,651	May 24	2617	590	83	1174
Strap: *See* Car-strap. Hame-strap. Car hand-strap.	F. L. Moore	605,609	June 14	1008	223	83	1565
Strap-fastener	G. S. Sammis	605,300	June 7	467	105	83	1440
Strap-fastener	F. E. Arrouquier	606,619	June 28	2937	661	83	1970
Straw or strand feeding device	E. J. Hall	602,746	Apr. 19	1997	453	83	408
Street-indicator	A. McGeoch	605,611	June 14	1011	233	83	1565
Street-sprinkling, irrigating, and fire-extinguishing system.	A. Brown	605,385	June 7	628	140	83	1473
					141		
Street-sweeper	W. Franz	605,415	June 7	668	158	83	1485
					154		
Street-sweeper	S. D. Lanyon and J. W. Tripp	602,458	Apr. 19	1504	343	83	315
					344		
Street-sweeper	E. J. Smith	606,248	June 28	2269	554	83	1839
Street-sweeper	T. Brett	601,798	Apr. 5	316	62	83	60
String instrument	J. A. Jonkhoff	604,761	May 31	2885	645	83	1288
Stringed instrument	R. Poore	605,010	May 31	3230	742	83	1311
Stud or rivet. Hollow	G. H. Rollins	605,596	June 14	961	223	83	1557
Stump-extractor	B. C. Rigdon and S. Dobson	606,391	June 28	2531	587	83	1900
Stump-puller	D. Jordan	604,235	May 17	1845	413	83	1008
Submerged stone and concrete structures, &c. Building	L. J. and A. L. Barthelemy	605,772	June 14	1298	300	83	1619
Sugar-drier	J. W. Richards and C. W. Roepper	602,573	Apr. 26	2230	------	83	467
Sulfids. Electrolytically manufacturing metallic	H. S. Blackmore	605,458	June 7	749	------	83	1497
Sulfids. Making	T. S. Heath	605,099	June 7	58	17	83	1363
Sulky and device for attaching horses thereto. Single-wheel	I. N. Miller and J. B. Moss	604,062	May 17	1534	345	83	948
Suppository	T. W. McCue	605,019	June 21	1816	------	83	1739
Surgical dressing. Antiseptic	S. Stevens	601,768	Apr. 5	272	53	83	58
Surgical lounge	H. G. Bowers	604,119	May 17	1640	396	83	966
Surgical needle	M. H. Lowe	602,571	Apr. 19	1699	394	83	350
Surgical table	J. V. Janin	605,719	June 14	1207	279	83	1602
Suspender-clasp	A. J. Brown	601,697	Apr. 5	7	2	83	4
Sweep	S. Andrews	603,311	May 3	114	27	83	634
Swing	J. G. J. Davis	602,433	Apr. 19	1455	330	83	397
Swing	J. H. Pouncy	603,159	Apr. 26	2708	615	83	560
Swing	W. A. Chesterman	604,906	May 31	3154	725	83	1206
					726		
Swing. Portable	W. E. Elliott	602,065	Apr. 12	894	178	83	167
					179		
Swing. Reclining-	W. P. Davis	604,110	May 17	1685	365	83	966
					366		
Swinging gate							
Switch: *See* Automatic switch. Automatic-lever switch. Clock-controlled switch. Electric switch. Electric-motor switch. Electrically-controlled switch. Frogless switch. Overhead switch. Railway-switch. Telephone throw-off switch. Trolley-switch.	R. W. Rollins	605,915	June 21	1613	371	83	1697
Switch mechanism. Electric clock-controlled	G. B. Barron	606,499	June 28	2716	635	83	1926
Switch-operating device	E. P. Owen	604,789	May 31	2955	653	83	1266
Switch throwing and locking apparatus							

Alphabetical list of inventions, April to June, inclusive—Continued.

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Switch-throwing mechanism. Pneumatic	G. R. Bartholomew	605,691	June 14	1162	268	88	1594
Switching device and circuit arrangement for electrically-propelled vehicles.	E. B. W. Reichel	605,013	May 31	3233	269 744	88	1312
Sword-slinging hook	J. Pettibone	606,586	May 3	551	121	88	707
Syringe	H. E. Cook	605,052	May 31	3305	759	88	1285
Syringe	E. Fournier	605,476	June 14	773	178	88	1562
Syringe	J. Gray	604,147	May 17	1690	380	88	978
Syringe	W. L. Whittington	604,645	May 24	2608	596	88	1172
Syringe	F. C. Ferguson	605,178	June 7	215	53	88	1391
Syringe. Fountain	A. F. Henry	606,751	Apr. 19	2006	454	88	410
Syringe. Vaginal	E. Seibert	605,688	June 14	1146	266	88	1591
Syringe. Vaginal							
Table: *See* Billiard-table. Dining-table. Extension-table. Invalid-table. Ironing-table. Pool-table. Surgical table.							
Table	A. N. Heine and G. A. Nonweiler	604,322	May 17	2015	451	88	1041
Table	B. M. Hirsh	606,142	June 21	3050	469 470	88	1777
Table	H. Korell	604,706	May 31	3832	549	88	1233
Table	D. R. Cutler	601,637	Apr. 5	35	5	88	7
Table and game-counter. Combined	F. T. Heatly	605,100	June 7	59	18	88	1364
Table attachment for chairs or beds	A. R. Bishop	606,257	June 28	2303	333	88	1947
Table-cloth supporter	G. H. Brabrook	606,183	June 28	2123	497	88	1809
Tableware. Flat metal	J. Cornelius	603,231	Apr. 26	2837	647	88	564
Tablet-machine	C. W. Eader	603,626	May 10	710	158	88	755
Tack-driver	J. H. Ferguson	603,068	Apr. 12	830	180	88	168
Tack-driver. Hand	A. E. Stirckler	606,506	June 28	2999	670 671	88	1963
Tack-driving apparatus	F. W. Songer	603,146	Apr. 12	971	212	88	195
Tack-holder	J. B. Richards	603,365	May 3	205	47	88	641
Tag-fastener	G. Smedeman	602,112	Apr. 12	904	196	88	183
Tamping-machine	C. Iredell	602,331	Apr. 12	1285	285	88	350
Tanbark-leaching apparatus							
Tank: *See* Flushing-tank. Water-tank. Water-closet tank.							
Tanning	D. M. Easton	604,739	May 31	2786	638	88	1225
Tanning. Process of and apparatus for electrolytic	E. Davis and H. R. Mustard	603,263	May 3	36	10	88	606
Tapping apparatus	A. Berger and H. Hildenbrand	604,596	May 24	2593	575	88	1156
Tapping apparatus	J. N. Knapp	602,510	Apr. 19	1566	368	88	381
Tapping device. Beer-barrel	W. T. Fennan	601,749	Apr. 5	246	49	88	47
Tapping implement. Beer	A. Kopp	603,278	May 3	61	15	88	613
Target	W. F. Hochspeier	605,314	June 7	490	109	88	1445
Tea-packing machine	A. H. Canning	604,721	May 31	2763	632	88	1220
Teaching arithmetic. Apparatus for	A. R. Breinl	604,963	May 31	3151	725	88	1295
Telegraph-cables. Apparatus for joining	H. Menier	604,258	May 17	1890	423	88	1016
Telegraph-keys. Pneumatic attachment for	W. J. Lieb	604,770	May 31	2837	640	88	1234
Telegraph instrument	J. L. Cutler	606,449	June 28	2630	607	88	1913
Telegraph. Printing	B. A. Brooks	606,320	June 28	2412	559 560	88	1868
Telegraph system. Printing	J. Burry	601,768	Apr. 5	278	55	88	54
Telephone	T. F. Ahern	601,865	Apr. 5	477	96	88	89
Telephone circuit and apparatus	M. G. Kellogg	605,580	June 14	943	220 221	88	1555
Telephone-exchange. Automatic	W. Decker	604,373	May 24	2119	476	88	1081
Telephone-exchange system	W. W. Dean	606,162	June 21	2081	479	88	1788
Telephone-holder	J. T. Moore	605,294	June 7	455	101	88	1439
Telephone-lock	R. H. Allen	601,786	Apr. 5	316	62	88	60
Telephone-receiver	P. C. Burns	605,594	June 14	973	225	88	1559
Telephone signal system	W. A. Stilwell and A. Barneck	604,434	May 24	2298	499 500	88	1102
Telephone-switchboard cord-weight	F. C. Hughes	605,671	June 14	1129	261	88	1586
Telephone-switchboard plug	J. Taylor	604,094	May 17	1593	358	88	950
Telephone-switchboard system	F. C. Hughes	605,670	June 14	1124	260 261	88	1587
Telephone-switchboards. Automatic apparatus for	J. H. West	605,659	June 14	1108	254	88	1582
Telephone system	W. A. Gustafson	606,285	June 28	2331	540	88	1952
Telephone system	E. W. Ham	605,097	June 7	53	16, 17	88	1393
Telephone system	R. T. Reid and J. L. McDonnell	605,341	June 7	546	122	88	1457
Telephone throw-off switch	N. Fallek	603,681	May 10	901	177	88	773
Telephone-transmitter	F. A. Ray	605,913	June 21	1610	371	88	1697
Telephone-transmitter	H. E. Shreeve	602,174	Apr. 12	1023	224	88	206
Telephone-transmitter	W. E. Sundberg	605,892	June 14	1431	328	88	1644
Telephony and telegraphy. Multiple	R. Pfund	604,499	May 24	2356	534	88	1124
Telescopic case or traveling-bag. Enlargeable	K. Kruppa and O. Lehrer	606,221	June 28	2211	508	88	1927
Telescopic clamp	G. W. Kortright	605,447	June 7	785	166	88	1494
Temperature-controlling apparatus	R. S. Pease	604,077	May 17	1564	350	88	953
Temperature-regulating apparatus. Automatic	W. B. Loring	603,696	May 10	884	182 183	88	778
Temperature-regulator	A. Roesch	602,107	Apr. 12	806	194	88	181
Temperature-resistance changes. Means for compensating for	C. F. Scott	605,033	June 21	1844	435	88	1738
Tension device	H. P. Richards	602,522	Apr. 19	1608	366	88	336
Tent	T. C. Phelps	602,587	Apr. 19	1716	390 391	88	354
Tent-fastening	E. C. Cook	601,805	Apr. 5	343	70	88	64
Testing-cap and clamp	P. J. Cahill	602,381	Apr. 12	1304	284	88	242
Testing apparatus	L. C. Christie	603,874	May 10	1159	259	88	840
Testing-trap	D. Buist and E. Breakell	605,287	June 7	632	141	88	1473
Tether	J. Day	601,959	Apr. 5	646	136	88	122
Textile-roller clearer	R. S. Matteson	602,636	Apr. 19	1789	408	88	398
Thawing apparatus	R. B. Ormiston	605,556	June 14	897	209	88	1546
Thawing apparatus	D. Phillips	604,264	May 17	1907	437	88	1020
Therapeutical apparatus	A. V. M. Sprague	601,694	Apr. 5	108	21	88	22
Thermocauter	C. F. Dewitt	606,260	June 28	2512	583	88	1866

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Thill-coupling	A. L. Crandall	602,307	Apr. 12	1949	274	88	351
Thill-coupling	J. Edgar	605,665	June 14	1118	256	88	1585
Thill-coupling	F. A. and P. H. Kehm	601,798	Apr. 5	329	67	88	68
Thill-coupling	T. E. Kellogg	604,494	May 24	2349	533	88	1123
Thill-coupling	T. P. Kersey and E. W. Leach	602,969	Apr. 26	2429	554	88	506
Thill-coupling	J. J. Phillips	603,966	May 10	1302	307	88	909
Thill-coupling	Z. L. Wheeler	602,710	Apr. 19	1945	442	88	309
Thill-coupling	W. E. Sherwood	605,307	June 28	2375	549	88	1951
Thill-coupling. Antirattling	A. G. May	603,196	Apr. 26	2777	633	88	573
Thill coupling-bolt	C. T. Redfield	605,085	June 21	1950	449	88	1758
Thill-couplings. Antirattling nut-locking device for	J. Shurter	603,776	May 10	960	215	88	808
Thill-support and antirattler. Combined	J. H. Northrop	605,093	May 31	3319	762	88	1528
Thread-guide	M. A. L. Thomas	603,390	May 3	246	55	88	648
Thread holder and cutter for spools	H. W. Bracken	604,509	May 24	2530	576	88	1156
Thread or yarn guide	I. Heer	605,101	June 7	60	18	88	1364
Thread-tension device	G. D. Harder	604,319	May 17	2011	450	88	1040
Thresher or rubber binding attachment	J. Börsum	606,503	June 28	2722	627	88	1939
Threshing-machine	W. H. and J. Butterworth	603,494	May 3	312	71	88	660
Threshing-machine	T. S. Culbreath	606,125	June 21	2017	462	88	1771
Threshing-machine	M. H. Nash	605,048	May 31	3296	756	88	1333
Threshing-machine	F. J. Wood	604,281	May 17	1985	433	88	1038
Threshing-machine band-cutter and feeder	W. Stephenson	603,978	May 10	1319	302	88	573
Threshing-machine feeder	A. R. McMullen	605,227	June 7	508	114	88	1449
Threshing-machine foldable straw-carrier	G. W. Parsons	605,204	June 7	273	63, 64	88	1401
Threshing-machine self-feeder	G. D. Stowe	606,597	June 28	2973	671	88	1964
Threshing-machine self-feeder	J. P. Geiger	603,664	May 10	805	177	88	774
Throttle	N. E. Springsteen	605,301	June 7	468	105	88	1440
Ticket-case	J. F. Eastman	602,214	Apr. 12	1098	240	88	220
Ticket. Continuous mileage	E. C. Hopper and C. F. McLean	604,923	May 31	3096	711 712	88	1284
Ticket holder and register	J. Sebastian and B. B. Anderson	605,165	June 7	122	49	88	1367
Ticket rack and register	A. A. Brown	605,655	June 14	1098	253	88	1582
Ticket. Railway		603,314	May 3	117	27, 28	88	624
Tide and wave motor							
Tie: *See* Cross-tie. Railway-tie. Railway-rail tie.							
Tie for bales, bundles, &c	A. Nichless	605,123	June 7	95	25	88	1370
Tie-plate. Gage-adjusting	A. B. B. Harris	603,563	May 3	587	130 131	88	714
Tile and arrangement thereof in roofs	J. Freund	604,085	May 17	1475	330	88	987
Tile. Cement roofing	G. Schulze	605,654	June 14	1097	252	88	1581
Tile. Roofing	A. Weil	602,889	Apr. 26	2245	510 511	88	471
Tile. Self-adjustable and reversible	F. T. and H. A. Hopkins	604,225	May 17	2022	452	88	1048
Tiles or plane surfaces. Device for decorating	G. H. Grundy and G. A. Lingard	605,137	Apr. 26	2668	610	88	556
Tiling for floors, walls, ceilings, fireplaces, &c	C. C. Alexander	602,691	Apr. 19	1913	426	88	302
Tilting gate	W. T. Foster	603,444	May 3	348	78	88	657
Time-lock	C. M. Ball	603,985	May 10	1257	286	88	951
Timepiece	J. C. Burke	604,297	May 17	1964	440	88	1031
Time-recorder	F. W. Cook, Jr	602,305	Apr. 12	1245	273	88	250
Time-recorder	J. W. Deubner	603,390	May 3	130	31, 32	88	627
Time-recorder	J. H. Gerry	602,286	Apr. 12	1215	267 268	88	244
Time-recorder	W. L. Bundy	605,159	June 7	164	46, 47	88	1386
Time-recorder. Workman's	P. G. Giroud	602,845	Apr. 26	2182	494 495 496	88	459
Time-recorder. Workman's	J. Neumark	603,200	Apr. 26	2761	.....	88	573
Tin from tin-plate waste. Extracting	W. Rogers	604,195	May 17	1779	401	88	996
Tin-plate. Process of and apparatus for manufacturing	J. Rigg	603,048	Apr. 26	2519	572 573	88	522
Tippler. Oscillating	W. Aab	605,986	June 21	1756	408	88	1762
Tire	R. Buchanan	602,934	Apr. 26	2342	534	88	490
Tire	R. Buchanan	602,935	Apr. 26	2343	535	88	490
Tire	O. B. Hall	604,750	May 31	2808	642	88	1229
Tire	A. Ryan	605,917	June 21	1618	372	88	1698
Tire	C. Taylor	601,703	Apr. 5	273	53	88	59
Tire	W. E. Richards	602,242	Apr. 12	1132	249	88	227
Tire	T. B. Jeffery	603,956	May 10	1289	294	88	967
Tire air-indicator. Bicycle	F. W. Morgan	604,087	May 17	1539	346	88	949
Tire and felly. Wheel	C. E. Buckbee	606,271	June 28	2207	534	88	1948
Tire and means for attaching same. Elastic	J. Reepmaker	602,595	Apr. 19	1677	381	88	348
Tire and repairing same. Pneumatic	J. Toren	606,604	June 28	2915	675	88	1966
Tire. Bicycle	W. Herrick	602,847	Apr. 26	2186	496	88	460
Tire. Bicycle	F. Warnock	605,156	June 7	181	45	88	1385
Tire casings. Device for drawing air-tubes into pneumatic	W. G. Kendall	604,663	May 24	2634	608	88	1177
Tire coupling. Pneumatic	J. P. Kunkle	602,907	Apr. 26	2393	521	88	478
Tire. Cushion	J. N. Dages	606,378	June 28	2510	568	88	1966
Tire. Cushion	F. E. Hall	604,042	May 17	1490	335	88	940
Tire. Elastic	J. B. Forsyth	603,968	May 3	46	12	88	609
Tire. Elastic	A. L. Cudey	603,726	May 10	874	194	88	787
Tire. Elastic vehicle	W. and J. C. Hancock and E. Scholes	605,543	June 14	878	206	88	1543
Tire. Elastic wheel	R. A. Leigh	605,219	June 7	499	111	88	1447
Tire. Elastic wheel	C. H. and G. Greaves	605,967	June 21	1519	349	88	1679
Tire ends. Apparatus for securing bicycle	L. W. Heelan	606,141	June 21	2049	469	88	1777
Tire for cycles, &c	H. Beach	602,253	Apr. 12	1153	253	88	228
Tire. Inflatable	J. R. Hare	603,846	May 10	1100	247	88	880
Tire-lever	C. A. Brauchler	602,052	Apr. 12	802	178	88	183
Tire patch. Pneumatic	C. Colls	603,374	May 3	223	50	88	643
Tire-patcher	W. L. Jolly	603,276	May 3	58	14	88	613
Tire. Pneumatic	L. D. Junkins	603,605	May 3	650	147	88	730
Tire. Pneumatic	C. A. Maynard	604,541	May 24	2420	538	88	1187
Tire. Pneumatic	P. T. McKay	602,766	Apr. 19	1695	459	88	414
Tire. Pneumatic	W. H. Sewell	603,710	May 10	847	188	88	781

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tire. Pneumatic	F. R. Simms	605,021	May 31	3249	746	83	1314
Tire. Pneumatic	U. P. Smith	605,583	June 14	844	197	83	1535
Tire. Pneumatic	W. S. Williams	605,532	June 14	850	201	83	1536
Tire. Pneumatic wheel	G. H. Clark	601,705	Apr. 5	139	28	83	29
Tire-pump. Coin-controlled	L. S. Brown	605,606	June 14	1171	270	83	1506
Tire pump. Pneumatic	C. Pulcher	604,787	May 31	2864	654	83	1299
Tire repair device. Pneumatic	J. F. Palmer	605,045	Apr. 26	2515	570	83	522
Tire-repairing device. Pneumatic	W. N. Amory	602,420	Apr. 19	1437	324	83	306
Tire. Resilient	M. Brendel	603,036	Apr. 26	2500	567	83	519
Tire. Rubber	A. V. Kiser	605,861	June 21	1547	355	83	1685
Tire. Sheet-metal vehicle-wheel	J. Jamieson	605,435	June 7	715	160	83	1491
Tire-tightener	W. J. Cranford	606,050	June 21	1876	432	83	1743
Tire-tightener	G. M. Doersch	604,606	May 24	2545	580	83	1160
Tire-tightener	J. H. Osten	603,733	May 10	864	197	83	790
Tire tubes. Manufacture of pneumatic	F. W. Morgan and E. W. Young	605,644	June 14	1077	247 / 248	83	1578
Tire-valve	A. S. Cartwright	603,941	May 10	1265	288	83	862
Tire-valve, &c	G. H. F. Schrader	604,424	May 24	2200	495	83	1099
Tire-valve, &c	G. H. F. Schrader	604,425	May 24	2211	495	83	1099
Tire valve. Pneumatic	E. Fritschle	603,269	May 3	47	12	83	609
Tire valve. Pneumatic	J. Mohs	606,009	June 21	1912	440	83	1750
Tire. Vehicle	G. W. Cross	601,826	Apr. 5	384	81	83	72
Tire. Vehicle	H. A. Fonteine	605,414	June 7	697	153	83	1485
Tire. Vehicle	F. Latimer	602,759	Apr. 19	2016	457	83	412
Tire. Vehicle	W. N. Murdock and J. C. Hollings	605,117	June 7	81	23	83	1368
Tire. Vehicle	W. A. Shuler	602,038	Apr. 5	779	169	83	147
Tire. Vehicle	W. H. Hefner	604,529	May 24	2405	548	83	1132
Tire. Wheel	R. J. Scofield	601,907	Apr. 5	549	113	83	104
Tires. Appliance for indicating position of punctures in pneumatic	R. C. Hansell	602,132	Apr. 12	984	204	83	189
Tires. Armor for pneumatic	C. Graf	606,393	June 28	2517	584	83	1897
Tires. Back-pressure valve for pneumatic	I. D. Jewett	604,583	May 24	2414	.....	83	1134
Tires. Compound for healing punctures in pneumatic	G. F. Glidden	602,743	Apr. 19	1994	452	83	408
Tires. Device for closing punctures in pneumatic	P. Newell	605,330	June 7	514	115	83	1451
Tires. Device for repairing pneumatic	J. F. Reynolds	604,036	May 24	2592	592	83	1168
Tires. Device for repairing rubber	F. W. La Clair	604,708	May 31	2884	648	83	1235
Tires. Device for stopping holes in pneumatic	G. H. Clark	601,704	Apr. 5	137	27	83	29
Tires. Machine for cutting tread-filling strips for wheel	F. W. Huestis	601,894	Apr. 5	307	83.84	83	74
Tires. Machine for making vehicle	C. F. A. H. Bagot	608,161	Apr. 26	2718	618	83	582
Tires. Manufacture of resilient or pneumatic	A. Hopton	604,962	May 31	2996	686	83	1264
Tires on wheels. Means for fixing rubber	A. Gross	603,634	May 10	725	162	83	758
Tires. Pump for inflating pneumatic	J. W. Allen	605,584	June 14	960	201	83	1536
Tires. Tightening	G. Hirschbach	604,756	May 31	2817	643	83	1220
Tobacco carrier and cutter. Plug	J. B. Adt	605,371	June 7	906	185	83	1468
Tobacco-cutter	C. A. Rickard and E. N. Long	604,239	May 17	2053	.....	83	1048
Tobacco-leaves. Treating	W. Nax	603,709	May 10	835	185	83	779
Tobacco-pipe	G. G. Palmer	606,473	June 28	2676	616	83	1919
Tobacco-pipe	A. J. Fair	606,412	June 7	664	152	83	1484
Tobacco-steamer	A. V. Hysore	601,654	Apr. 5	54	11	83	11
Tobacco-treating apparatus	O. S. Harmon	606,209	June 28	2176	500	83	1819
Tobacco-treating machine	C. N. Grant	602,442	Apr. 19	1477	337	83	310
Toboggan. Roller	W. D. McDaniel	602,516	Apr. 19	1600	366	83	334
Toe-clip	E. R. Briggs	602,494	Apr. 19	1560	355	83	326
Toilet-case. Traveler's	J. B. Ford	604,354	May 17	2068	467	83	1054
Tombstone	V. G. Higgins	603,084	Apr. 26	2595	589	83	536
Tongs	J. Howell	603,604	May 3	656	147	83	790
Tongue. Carriage	C. H. Swank	603,267	May 3	242	55	83	647
Tongue-support	C. Pattberg	606,078	June 21	1937	444	83	1755
Tonsilotome	B. J. Hillman	606,547	June 28	2818	649	83	1947
Tool. Combination	J. C. Karner	604,880	May 31	2981	670	83	1289
Tool. Combination	W. N. McCarty	605,792	June 14	1354	310	83	1680
Tool. Combination	G. S. Neeley, A. Maitland, and G. Birkicht	604,478	May 24	2315	525	83	1117
Tool. Combination	G. M. Rockey and C. H. Strain	602,594	Apr. 19	1612	369	83	226
Tool. Combination	E. H. Shaw	606,395	June 28	2536	588	83	1891
Tool. Combination	A. B. Smith	601,737	Apr. 5	222	44	83	43
Tool-handle	J. P. Walter	601,690	Apr. 5	120	28	83	26
Tool-handle protector	J. A. Heintz	606,211	June 28	2180	501	83	1880
Tool-holder	H. S. Johnson	604,009	May 10	1427	320	83	998
Tool holder or carrier	W. J. Muncaster	605,504	June 14	817	189	83	1530
Tooth-crown. Artificial	M. W. Hollingsworth	602,581	Apr. 19	1707	386	83	353
Tooth-crown post. Artificial	W. S. How	602,582	Apr. 19	1709	386	83	353
Tooth-fillings	W. F. Davison	603,179	Apr. 26	2744	624	83	567
Tooth for crown and bridge work. Artificial	F. N. Brown	604,363	May 24	2106	472	83	1079
Tooth-powder box	C. Millington	603,731	May 10	880	195	83	788
Torpedo. Balloon	M. French	603,182	Apr. 26	2747	625	83	567
Torpedoes. Severing mechanism for aerial	J. A. Hill	603,699	May 10	814	180	83	776
Towel-rack	J. W. Lyon	605,565	June 14	980	215 / 216	83	1550
Tower	H. H. Macomber	603,011	Apr. 26	2464	560	83	512
Toy	J. Steppan	602,019	Apr. 5	744	160	83	141
Toy	A. M. Todd	604,180	May 17	1757	396	83	998
Toy gun	W. H. Holloway	603,262	May 3	224	53	83	646
Toy. Mathematical	W. W. Osborne	603,264	Apr. 26	2375	541	83	497
Toy or puzzle	J. Reepmaker	604,416	May 24	2192	491	83	1095
Toy or puzzle	R. Wilson	601,984	Apr. 5	574	119	83	109
Toy savings-bank	C. Smyth	605,064	May 31	3337	768	83	1338
Trace-carrier	W. P. Kellogg	606,347	June 28	2448	567	83	1875
Trace-holder	G. Bartlett	605,374	June 7	613	136	83	1469
Track-cleaner	W. T. Hurst	605,451	June 7	709	158	83	1490
Track-cleaner	J. Hyde	602,061	Apr. 12	850	185	83	173
Track friction-brake	E. E. Loomis and T. J. Mooers	605,964	June 21	1715	398	83	1715
Track-sander	C. V. Rote	605,558	June 14	909	210 / 211	83	1547

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Traction-engine	W. Stephenson	603,821	May 10	1048	223 / 224	83	881
Traction-engine. Oil-vapor	D. Best	602,594	Apr. 19	1739	399 / 394	83	357
Traction-engine with winding-drum	R. H. Fowler and G. S. Tuer	604,660	May 24	2039	601 / 602 / 603	83	1176
Traction-wheel	H. C. Duensing	604,006	May 10	1423	318	83	897
Trains, &c. Contrivance for automatically stopping	S. Pojarkow	605,973	June 21	1727	396	83	1718
Transferring strip and scale	W. D. Kimball	603,068	Apr. 26	2600	591	83	537
Transformer box and hanger	L. Gutmann	606,208	June 28	2174	499	83	1819
Transmitter and receiver. Combined	J. M. Joy	604,533	May 24	2415	549 / 550	83	1134
Transplanter	W. E. Cheeseman	602,894	Apr. 26	2249	512 / 513	83	472
Transplanter	R. T. Reasons	601,984	Apr. 5	604	147	83	131
Transportation system	W. Grosvenor	606,284	June 28	2328	539 / 540	83	1652
Trap: *See* Animal-trap. Ant-trap. Fish-trap. Fly-trap. Mole-trap. Steam-trap. Testing-trap.							
Trap	W. T. Ebert	603,479	May 3	430	95	83	693
Trap for sinks, &c	L. Mullenhoff	605,202	June 7	270	62	83	1401
Traverse-ring	W. Durst	602,981	Apr. 26	2418	551	83	504
Tree-box	W. B. Watson	601,691	Apr. 5	121	24	83	26
Tree-prop bracket	A. B. Ament and M. H. Evans	601,697	Apr. 5	130	26	83	26
Tree-protector	J. R. Braden	605,776	June 14	1304	301	83	1621
Tree-protector	J. A. Harvey	602,941	Apr. 26	2253	537	83	492
Trellis	F. D. Clark	605,608	June 14	1175	270	83	1506
Trellis	H. L. Adams	605,778	June 14	1327	304	83	1624
Trestle	D. R. Turpin	605,370	June 7	697	135	83	1467
Trestle	B. W. Trunk	603,251	May 3	185	42	83	637
Triangle	C. A. Way	605,763	June 14	1275	295	83	1616
Tricycle for invalids		605,580	June 14	855	200	83	1538
Trimmer: *See* Shade-trimmer.							
Tripod-stand for cameras, &c	R. R. Patchel	606,022	June 21	1896	421	83	1734
Triturator	C. L. Trusler	605,302	June 7	409	105 / 106	83	1441
Trolley	J. E. Wells	602,923	Apr. 26	2315	527	83	484
Trolley connection for electric cars	J. G. McLaughlin	605,326	June 7	507	118	83	1449
Trolley device for electric-railway cars	L. E. Watkins	603,672	May 10	789	173 / 174	83	771
Trolley. Electric-railway	S. H. Short	604,196	May 17	1763	409	83	997
Trolley-pole	J. N. Prisk	605,796	June 14	1359	311	83	1630
Trolley-switch	J. H. Vanasselt	605,211	June 7	384	66	83	1404
Trolley-wheel	A. F. Humphrey	605,716	June 14	1203	278	83	1602
Trolley-wire hanger	G. E. Johnson	605,251	June 7	371	84	83	1421
Trolley-wire hanger	W. A. McCallum	603,463	Apr. 19	1514	345	83	817
Trough: *See* Eaves-trough. Well-curb trough. Watering-trough.							
Trousers-creaser	J. E. Holmes	602,078	Apr. 12	847	184	83	173
Trousers-protector	P. C. Goldie	603,507	May 3	495	108	83	697
Truck	H. W. Horton	605,058	May 31	3312	760	83	1396
Truck. Car	J. Mendel	603,462	Apr. 19	1512	345	83	817
Truck. Car	E. Peckham	604,784	May 31	2858	653 / 654	83	1288
Truck. Car	M. B. Schaffer	603,457	May 3	373	84, 85	83	673
Truck. Collapsible	C. Green	605,224	June 7	312	71	83	1411
Truck equalizer. Car	E. A. Curtis	603,055	Apr. 26	2529	575	83	594
Truck for handling railway-rails	T. L. Flanagan	603,947	May 10	1274	290	83	864
Truck for motor-cars, &c	H. L. Gee	605,959	June 21	1663	386	83	1710
Truck-frame	T. M. Gallagher	604,608	May 24	2546	581	83	1160
Truck. Slag	J. H. Morcom	605,566	June 14	992	216	83	1551
Truck. Stock	G. P. Clark	603,676	May 10	794	175	83	772
Truck. Stove	D. L. Fogleman	601,643	Apr. 5	80	6	83	8
Truck. Transfer	H. C. Deane	605,163	June 7	186	48	83	1398
Truck transom. Car	T. M. Gallagher	604,610	May 24	2549	582	83	1161
Trundle-hoop	C. Haupt	602,358	Apr. 12	1164	256	83	235
Trunk	P. H. Smith	604,430	May 24	2220	497	83	1101
Trunk	P. H. Smith	605,143	June 7	182	40	83	1351
Trunk	P. H. Smith	606,431	June 28	2613	603	83	1907
Trunk	J. W. Hayden, Jr.	601,881	Apr. 5	308	68	83	74
Trunk corner-buffer	S. W. Bonsall	604,346	May 17	2070	493	83	1051
Trunk. Dress-skirt and wardrobe	W. J. Henry	603,493	Apr. 26	2504	569	83	536
Trunk-fastening	H. Brunner, Jr	603,496	Apr. 19	1561	355	83	327
Trunk-harness	C. G. Maxwell	603,698	May 10	831	184	83	778
Trunk or box attachment	H. A. Booth and J. P. Plummer	602,087	Apr. 5	761	164	83	144
Trunk. Traveling	T. W. Booth	603,004	Apr. 26	2455	559	83	510
Truss	E. H. G. Clark	603,126	Apr. 26	2667	605	83	553
Truss	W. F. Le Seur	606,465	June 28	2666	614	83	1918
Truss	S. Tucker	603,932	May 10	1253	265	83	860
Truss-pad							
Tube: *See* Inflation-tube. Speaking-tube.							
Tube-cleaner	S. J. Gunn	603,702	May 10	930	207	83	798
Tube-coupling	A. W. F. Bennik	604,294	May 17	1850	410	83	1005
Tube-cutter	J. Miller	605,357	June 7	981	88	83	1466
Tube-forming apparatus	E. F. Holinger	603,787	May 10	981	219 / 220	83	807
Tube-jointing machine	W. A. McCallum	603,327	May 3	165	38	83	633
Tube-making machine	J. A. Charnock	603,511	May 10	1020	229	83	816
Tube-making machine	J. R. Morrison	603,496	May 3	442	99	83	697
Tubes and ropes. Flexible metallic sheathing for	B. Kelso and M. Rosenbaum	605,567	June 28	2382	653	83	1961

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Tubes. Apparatus for locating obstructions in	B. C. Batcheller	602,422	Apr. 19	1439	385	83	304
Tubes. Machine for forming polygonal	C. P. Higgins	605,213	June 28	2181	501	83	1680
Tubes. Machine for manufacturing metal	T. B. Sharp and F. Billing	602,878	Apr. 26	2227	504	83	466
Tubes. Manufacture of seamless drawn	E. Ivins	601,966	Apr. 5	669	141	83	196
Tubes. Mechanism for expanding or enlarging metallic	R. C. Stiefel	605,067	May 31	2359	748 749	83	1816
Tubing. Manufacturing cold-drawn steel	W. A. McCool	602,350	Apr. 19	1315	293	83	295
Tubing. Manufacturing drawn	W. A. McCool	602,416	Apr. 12	1429	.....	83	298
Tubing. Method of and apparatus for manufacturing	T. Coates	603,812	May 10	1033	230	83	618
Tubs, boxes, &c. Fastening device for	F. T. Bradish	605,470	June 14	764	175	83	1580
Tuck-creaser	W. E. Rink	601,837	Apr. 5	429	94	83	87
Tug. Shaft-	H. A. Bierley	602,050	Apr. 12	900	173	83	168
Tumbler cutting and smoothing machine	A. Stenger	601,995	Apr. 5	112	29	83	26
Tumbler-washer	J. J. Evans	602,190	Apr. 12	1054	230	83	212
Tuning-pin	H. Müller	602,514	Apr. 19	1505	365	83	336
Turbine. Steam-	O. Trossin	604,507	May 24	2370	538 539	83	1136
Turn-table pinion-bracket	J. E. Roemheld	605,914	June 21	1612	371	83	1697
Turret-driving mechanism	N. P. Towne	606,089	June 21	1656	426	83	1739
Turret for war vessels	W. D. Stivers	604,495	May 24	2231	500 501	83	1108
Turret. Gun-	N. P. Towne	606,088	June 21	1653	427 428	83	1739
Twine ball or cop	G. H. Ellis and J. F. Steward	601,771	Apr. 5	226	57	83	55
Twine-holder	F. Bossong	604,961	May 31	3149	734	83	1295
Twine-holder	E. B. Weston	604,449	May 24	1055	507	83	1107
Twine-holder	F. W. Copcutt	603,129	Apr. 26	2672	606	83	553
Twine holder and take-up	S. S. Hartranft	606,545	June 28	2615	648	83	1947
Twyer. Furnace-	H. Byxbe	602,681	Apr. 19	1802	411	83	371
Type-case	G. A. Goodson	605,955	June 21	1695	386	83	1712
Type casting and setting machine	G. A. Goodson	605,954	June 21	1692	387 388	83	1712
Type casting and setting machines. Composing-machine for	G. A. Goodson	606,007	June 21	1791	411 412 413 414	83	1720
Type casting and setting machines. Controller for	G. A. Goodson	605,956	June 21	1701	389 390	83	1713
Type-casting apparatus	J. G. Pavyer	604,635	May 24	2501	591 592	83	1168
Type setting and justifying machine	F. B. Converse, Jr.	601,706	Apr. 5	140	28 29 30 31	83	30
Type-setting machine	S. H. and P. E. Hodgkin	602,327	Apr. 12	1279	283 284 285	83	286
Type-setting or other machines. Justifying device for	E. Wentscher	605,618	June 14	1084	236 237	83	1566
Type-writer	W. T. Robertson	605,516	June 14	833	194	83	1533
Type-writer attachment	F. G. Barber	605,373	June 7	611	136	83	1466
Type-writers or like machines. Counting apparatus for	W. Fish	601,641	Apr. 5	20	6	83	6
Type-writing machine, &c	T. Cahill	604,001	May 10	1371	312 313 314 315	83	884
Type-writing machine	J. M. Fairfield	605,864	June 21	1514	348	83	1678
Type-writing machine	E. E. Horton	605,877	June 21	1534	353 354	83	1681
Type-writing machine	E. von Hülsen	606,416	June 28	2578	596 597	83	1800
Type-writing machine	E. G. Latta	605,901	June 7	958	60 61 62	83	1309
Type-writing machine	P. W. Southgate	605,616	June 14	1018	264 265	83	1567
Type-writing machine	G. B. Webb	605,964	June 7	907	90	83	1437
Type-writing machine	E. Wentscher	605,619	June 14	1035	226	83	1569
Type-writing-machine erasing-plate	A. S. Johnson	602,559	Apr. 19	1670	379	83	346
Type-writing-machine ribbon-spool	H. H. Unz	605,032	May 31	3271	751	83	1316
Umbrella and holder	W. S. Lines	602,760	Apr. 19	2017	457	83	412
Umbrella. Folding	F. E. Stover and F. G. Grove	606,090	June 21	1660	458 459	83	1709
Umbrella-holder	L. A. D. Northrup	603,964	May 10	1207	206	83	860
Umbrella-holder	H. T. Stuckey	606,398	June 28	2545	590	83	1802
Umbrella-rib	J. G. Missimer	605,113	June 7	78	22	83	1307
Umbrella. Self-closing	F. E. Stover	604,975	May 17	1023	430	83	1034
Umbrella. Self opening or closing	E. Kleber	604,495	May 24	2351	543	83	1123
Umbrella-support	R. Miller	602,602	Apr. 19	1665	424	83	363
Umbrella-tip combination-lock	C. McCurdy	606,495	June 28	2606	601	83	1806
Umbrellas or parasols. Detachable handle for	S. S. Fretz	605,706	June 14	1102	275	83	1600
Undergarment	I. Goldberger	602,320	Apr. 12	1266	250 251	83	256
Undergarment	I. Goldberger	606,302	June 28	2186	495	83	1617
Undergarment	I. Goldberger	606,303	June 28	2186	496	83	1617
Undergarment	A. G. Velasko	604,163	May 17	1715	396	83	966
Undergarment-trunk	L. Sittig	602,166	Apr. 12	1052	220	83	212
Underskirt	S. Cain	604,964	May 31	3128	725	83	1295
Urinal-pan	T. H. Hutchinson	602,060	Apr. 12	940	185	83	173
Urn for buffet-cars. Heating-	R. M. Dixon	604,736	May 31	2764	637	83	1284
Vacuum-pan	H. G. Boswell	604,598	May 24	2339	576	83	1156
Vacuum-pans. Vapor-condenser for	W. and A. W. Dunn	604,607	May 24	2545	551	83	1160

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Vacuums. Apparatus for producing high	A. Barr and W. Stroud	604,486	May 24	2338	530 531	83	1121
Valve	M. Abt	604,595	May 24	2226	575	83	1155
Valve	I. Bean	605,989	June 21	1760	404	83	1723
Valve	J. L. Black	605,698	June 14	1168	269	83	1595
Valve	R. C. Bromley	605,984	June 7	926	140	83	1472
Valve	R. H. Buckingham	603,582	May 3	633	141	83	794
Valve	W. Burnett	606,404	June 28	2553	592	83	1804
Valve	C. R. Dallas	604,782	May 31	2777	635	83	1223
Valve	M. Groignard	605,711	June 14	1196	275 276	83	1600
Valve	H. Hörbiger	604,226	May 17	2023	453	83	1042
Valve	G. Johansson	605,549	June 14	885	207	83	1544
Valve	S. H. McCarroll	604,685	May 31	2988	672	83	1254
Valve	H. J. Schmitt and R. Bonnell	604,592	May 24	2530	573	83	1154
Valve	W. H. Shay	604,846	May 31	2958	677	83	1257
Valve	W. G. Urmson	604,809	May 31	2896	663	83	1246
Valve	E. A. Rix	602,170	Apr. 12	1016	223	83	204
Valve. Air-	J. F. Carpenter	605,513	June 28	2734	631	83	1162
Valve. Air-brake	W. O. Gunckel	604,612	May 24	2551	582	83	1161
Valve. Air-brake	M. Farrell	602,737	Apr. 19	1986	450	83	406
Valve. Antifreezing-	J. T. Wilson	605,943	June 21	1669	382	83	1707
Valve. Balanced	J. Campbell	606,119	June 21	2005	460	83	1769
Valve. Balanced slide-	J. R. Reynolds	604,940	May 31	2948	674	83	1256
Valve closers. Governing mechanism for throttle-	A. E. Colgate	602,429	Apr. 19	1451	329	83	306
Valve-controller	W. S. Alexander	604,358	May 24	2091	469	83	1075
Valve-controlling device	A. E. Colgate	605,197	June 7	251	59	83	1593
Valve-controlling device. Electrical	E. F. C. Davis	603,441	May 3	344	77	83	696
Valve device. Compound-engine	N. Power	603,922	May 10	1257	280	83	856
Valve. Differential piston-	B. Dale	603,380	May 3	231	52	83	645
Valve. Engine-	S. A. Hinton	605,084	June 7	27	8	83	1358
Valve for flush-tanks. Inlet-	A. J. Moxham	605,292	June 7	426	96	83	1433
Valve for locomotives or other engines. Steam-	W. Lowe	605,908	June 21	1720	394	83	1716
Valve. Gate-	C. M. Callanan	602,343	Apr. 12	1302	289	83	262
Valve-gear	H. B. Frisbie	605,389	June 7	635	142	83	1474
Valve. Globe-	J. P. Davis	604,695	May 24	2707	618	83	1190
Valve-handle	E. L. Rowe	604,220	May 17	1887	412	83	1007
Valve. Hydraulic-elevator	C. W. Thompson	606,584	June 28	2877	663	83	1959
Valve-indicator	W. A. Drewett	605,030	May 31	2965	750 751	83	1817
Valve mechanism. Engine-	L. O. Dehnel	603,399	May 3	268	60	83	651
Valve-operating device	S. Forter	606,053	June 21	1883	433	83	1745
Valve. Relief-	F. Quinn	603,108	Apr. 26	2023	506	83	542
Valve. Reverse-	Z. Latshaw	606,358	June 28	2473	574	83	1670
Valve-reversing gear	E. H. De Lany	604,1.7	May 17	1657	367	83	967
Valve. Sewer-	C. L. Scott	604,489	May 24	2343	531	83	1121
Valve. Steam-actuated	H. Leches and C. Kirchhahn	602,525	Apr. 19	1614	309	83	336
Valve. Tank-	M. Leitch	602,512	Apr. 19	1502	264	83	333
Valve. Tank supply-	A. K. Mansfield	604,408	May 24	2162	486	83	1089
Valve. Thermostatic	H. F. Gabel	604,771	May 31	2938	649	83	1234
Valve. Throttle-	P. J. Purdy	606,182	June 21	2003	465	83	1772
Valve. Water-heater	P. J. Purdy	603,577	May 8	905	134	83	718
Valves, boring cylinders, &c. Apparatus for re-seating	H. C. Hornish	605,810	June 14	1382	317	83	1684
Valves, boring cylinders, &c. Apparatus for re-seating	J. G. W. Entwistle, F. Starr, O. P. Talley, and H. E. Lorance.	601,782	Apr. 5	250	49	83	46
Vapor-burner	L. E. Fraipont	603,690	May 10	800	176	83	778
Vapor generator and burner	J. Peterson	605,865	June 21	1516	348	83	1678
Vaporizing apparatus. Oil-	J. Jacobs	604,785	May 31	2961	.....	83	1239
Varnish. Baking-	G. G. Owen	606,554	June 28	2396	651	83	1949
Vault-cover. Ventilating	W. M. Fletcher	606,220	June 28	2228	512	83	1830
Vault. Grave-	G. Ludwig	603,720	Apr. 19	1990	.....	83	407
Vegetation. Compound for destroying	N. Weston	605,887	June 21	1558	358	83	1687
Vehicle	C. W. Weddell and J. K. Waters	606,611	June 28	2923	678	83	1967
Vehicle	M. Woodhull	606,494	June 28	2709	624	83	1927
Vehicle and rocker. Convertible	J. W. Dipman and A. Exline	602,550	Apr. 19	1657	377	83	344
Vehicle-body	J. McCrudden	603,814	May 10	1035	231	83	819
Vehicle-body corner-iron	R. M. Artus	605,296	June 7	458	102	83	1439
Vehicle-body spring-hanger	F. H. Mayer	604,396	May 17	1042	435	83	1067
Vehicle-brake	H. E. Rolph	605,735	June 14	1290	294	83	1607
Vehicle-brake	C. Sample	603,015	Apr. 26	2470	561	83	513
Vehicle-brake	H. L. Bailey	604,668	May 24	2648	607	83	1180
Vehicle-brake. Automatic	J. S. Elliott	603,945	May 3	3	1, 2	83	601
Vehicle-brake. Automatic	J. Crowley	606,946	May 10	1273	289 290	83	864
Vehicle-coupling	C. J. Rosbrook and S. Burnham	601,695	Apr. 5	21	5	83	6
Vehicle-curtain	H. P. Wells and O. Morrill	603,512	May 3	502	110	83	606
Vehicle curtain-box	J. M. Goodwin	601,744	Apr. 5	240	47	83	46
Vehicle. Dumping-	H. G. Morris and P. G. Salom	603,528	May 3	537	118	83	704
Vehicle. Electrically-propelled	W. Legge	603,196	Apr. 26	2779	633 634	83	578
Vehicle. Folding road-	G. Strecker	604,331	May 17	2031	455	83	1044
Vehicle. Foot-propelled	H. C. Swan	605,038	May 31	3263	749	83	1312
Vehicle-iron. Adjustable	L. S. Clarke, W. Morgan, and W. S. Gordon.	604,198	May 17	1786	402	83	907
Vehicle. Motor-	W. W. Grant	603,283	Apr. 12	1306	305 306	83	242
Vehicle. Motor-	G. W. Lewis	602,621	Apr. 19	1778	406	83	365
Vehicle. Motor-	C. E. Lufbery	604,237	May 17	1849	414 415	83	1008
Vehicle motor	W. H. Pickering	601,731	Apr. 5	209	41	83	41
Vehicle-propelling mechanism	G. W. Lewis	603,047	Apr. 26	2517	571	83	529
	J. A. Little	604,332	May 17	2033	455 456	83	1044
		605,731	June 14	1290	293 294	83	1605

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle-propelling mechanism	H. Symes	603,518	May 8	512	111	83	699
Vehicle-rims. Device for contracting and expanding	W. H. Clawson	604,654	May 24	2021	112 599 600	83	1175
Vehicle running-gear	J. J. Casey	603,655	Apr. 19	1838	419	83	377
Vehicle running-gear	A. A. Holt	606,414	June 28	2575	596	83	1806
Vehicle running-gear	F. C. Lang	602,511	Apr. 19	1591	368 364	83	333
Vehicle running-gear	R. H. Wallace	604,811	May 31	2900	663	83	1947
Vehicle running-gear	E. C. Alford	604,994	May 17	1940	435	83	1027
Vehicle-seat back-rest	O. A. Timberlake	602,591	Apr. 19	1723	392	83	356
Vehicle-spring	A. H. Holland	606,413	June 28	2574	596	83	1806
Vehicle spring-seat	J. S. Hulings	603,955	May 10	1287	294	83	907
Vehicle-spring. Adjustable	C. N. Fisher	606,409	June 28	2565	593 594	83	1806
Vehicle steering device	J. E. M. Becker	605,070	June 7	8	2, 3	83	1354
Vehicle-wheel	L. R. Chambliss	604,720	May 31	2769	633	83	1221
Vehicle-wheel	W. G. and E. A. Crossley	604,372	May 24	2118	476	83	1061
Vehicle-wheel	J. A. Foster	606,531	June 28	2791	644	83	1943
Vehicle-wheel	E. C. Hayde	605,875	June 21	1531	353	83	1081
Vehicle-wheel	H. F. Julian	604,154	May 17	1699	383	83	960
Vehicle-wheel	H. F. Julian	604,155	May 17	1701	383	83	961
Vehicle-wheel	H. F. Julian	605,003	May 31	3819	741	83	1808
Vehicle-wheel	R. G. McDowell	603,865	May 10	1139	256	83	838
Vehicle-wheel	C. G. Whitaker	602,475	Apr. 19	1535	349	83	352
Vehicle-wheel	R. Schroedter	605,749	June 14	1249	289	83	1611
Vehicle wheel and axle	E. Schmidt and A. F. Schneider	603,886	May 10	1096	242	83	887
Vehicle-wheels. Coin-operated lock for	G. and J. M. Davis	605,759	June 14	1267	293	83	1614
Vehicle-wrench	A. V. Spang	603,927	May 10	1244	282 285	83	856
Vehicles. Convertible running-gear for	S. H. Short	603,433	Apr. 19	1457	331	83	307
Vehicles. Means for suspending motors on	E. Detwiler	603,418	May 3	302	68	83	655
Veil-holder	C. B. Adriance	606,541	June 28	2806	647	83	1945
Velocipede	W. J. Grotenhuis and H. T. Sidway	606,902	June 28	2359	545 546	83	1866
Velocipede	E. R. Royston	605,155	June 7	178	44, 45	83	1385
Velocipede	J. I. Warman	601,894	Apr. 5	362	80	83	72
Velocipede driving-gear	G. Barker	605,983	June 21	1644	377	83	1708
Velocipede-gearing	J. W. Sunderland	604,216	May 17	1515	406	83	1002
Velocipede-handle	P. Raczek	606,479	June 28	2698	619	83	1923
Velocipede. Ice-	W. L. Williams	602,072	Apr. 19	1393	181	83	170
Velocipede. Marine	J. F. Grady and M. Hart	602,523	Apr. 19	1610	368	83	335
Velocipede-saddle	J. W. Richardson	602,018	Apr. 5	743	160	83	141
Velocipede saddle-support	A. J. Parker	602,185	Apr. 12	1046	228 229	83	210
Vending-machine	M. Benedict	603,810	May 10	1027	229	83	817
Vending apparatus. Coin-operated	J. R. Bowling and G. W. Gilliland	606,949	June 28	2373	525	83	1840
Vending-machine. Coin-controlled	C. E. Snapp	602,543	Apr. 19	1644	374	83	341
Vending-machine. Coin-operated	L. M. Maxham	604,399	May 24	2157	484	83	1068
Vent-plug	W. P. Keenan	605,806	June 14	1376	315 316	83	1634
Ventilating system	J. McCreery	606,417	June 28	2588	597	83	1909
Ventilating system. House-	T. Hyde	605,506	June 14	821	191	83	1531
Ventilator: *See* Car-ventilator. Window-ventilator.	R. M. Pancoast	606,104	June 21	1977	454 455	83	1764
Ventilator and ventilator-brace	C. Twining	604,359	May 24	2094	469	83	1076
Vessel and sail and rigging therefor	W. P. Beam	605,598	June 14	852	199	83	1537
Vessel-closure	F. A. Walsh	605,898	June 14	1418	323	83	1641
Vessel-closure	A. R. Pritchard	603,899	Apr. 26	2344	510	83	471
Vessel-handle	J. E. Walsh	601,786	Apr. 5	224	44	83	43
Vessel. Lightering	L. Stampacchia	604,700	May 24	2713	620	83	1198
Vessels. Apparatus for manufacturing closed-ended	B. H. Raymond	605,231	June 7	284	75	83	1419
Vessels. Device for preventing refilling	L. Matignon	602,874	Apr. 12	1353	308	83	273
Vessels. Means for raising sunken	W. D. Stivers	605,942	June 21	1667	389	83	1707
Vessels. Turret-joint for naval	M. W. White	605,568	May 3	594	132	83	716
Violin	S. V. Lundquist	605,855	June 21	1500	344	83	1675
Violin music-holder	O. Colborne	605,105	June 7	67	19	83	1305
Vise	M. G. Lewis	605,107	June 7	68	19	83	1305
Vise. Bench-	M. G. Lewis	606,586	June 28	2737	607	83	1907
Vise. Bench-	L. Epstein	605,423	June 7	700	156	83	1487
Voltaic battery. Secondary	A. H. Hart	604,795	May 31	2666	655	83	1240
Voting-machine	B. Rein	602,101	Apr. 12	887	192	83	179
Vulcanizer	E. C. Perry	603,818	May 10	1042	233	83	890
Waffle-iron	C. Hotz	604,730	May 31	2775	634 635	83	1222
Wagon	G. M. Core	601,976	Apr. 5	694	145	83	129
Wagon-body. Folding	F. H. Murray	606,408	June 28	2559	591	83	1894
Wagon-body lining	W. L. Boardman	604,360	May 24	2131	478	83	1063
Wagon-brake	D. A. Foster	601,872	Apr. 5	488	100	83	91
Wagon-brake	W. Fraser	602,319	Apr. 12	1267	280	83	255
Wagon-brake	J. A. Gilkey	606,551	June 14	668	307	83	1545
Wagon-brake	J. R. Kinkade	604,704	May 24	2721	624	83	1198
Wagon-brake	S. L. Sisley	603,786	Apr. 19	2068	466	83	421
Wagon-brake	I. L. Wagner	605,125	June 7	122	31	83	1374
Wagon-brake	J. G. Robinson	605,235	June 7	290	76	83	1418
Wagon-brake. Automatic	E. Sinner	605,535	June 14	861	209	83	1539
Wagon-brake. Automatic	C. Bernhardt	602,151	Apr. 12	968	215	83	197
Wagon. Chute-	J. and G. Becker	604,997	May 24	2708	619	83	1191
Wagon. Dumping-	T. B. Hopper	601,859	Apr. 5	64	12	83	13
Wagon. Dumping-	G. Kautz	603,791	May 10	990	221	83	809
Wagon. Dumping-	E. P. Langford	604,789	May 31	2668	655	83	1240
Wagon. Dumping-	O. B. Reynolds	604,644	May 24	2007	505 506	83	1173
Wagon. Dumping-	S. Sturgis						

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wagon. Garbage-	P. Bauer	604,575	May 24	2466	586	83	1180
Wagon-jack	C. T. Jandro	602,269	Apr. 12	1165	256	83	225
Wagon-seat support	C. Benecke	605,846	June 21	1480	328	83	1671
Wagon-spring	H. K. and H. W. Fell	603,088	Apr. 26	2402	565	83	517
Wardrobe	S. P. Moulthrop	601,855	Apr. 5	464	94	83	89
Wainscoting and parquetry for hard-wood floors, &c.	C. F. Parker	602,769	Apr. 19	2031	480	83	415
Warp from narrow or short supply-beams. Means for forming wide sheds of	I. E. Palmer	603,407	May 3	284	68	83	655
Warp-threads. Machine for unwinding	Z. H. Mangum	605,965	June 21	1716	302 304	83	1716
Warper-comb	A. E. Rhoades	602,771	Apr. 19	2036	461	83	416
Washboard	J. R. Clurton	603,558	May 3	578	126	83	713
Washboard	L. Ritchie	603,410	May 3	288	64	83	655
Washboard	J. W. Sheppard	602,479	Apr. 19	1539	350	83	333
Washboard	H. S. Briggs	603,958	May 3	16	4	83	603
Washboard-fastener	J. N. Emarine	604,858	May 31	2987	665	83	1303
Washboiler attachment							
Washer: *See* Barrel-washer. Photographic-print washer. Bottle-washer. Carriage-washer. Tumbler-washer. Gold-washer. Window-washer. Hinge-washer.							
Washing-machine	E. W. Allen	605,967	June 21	1758	408	83	1723
Washing-machine	J. S. Beatty	604,392	May 17	1952	437	83	1029
Washing-machine	A. W. Davis	601,950	Apr. 5	644	135	83	121
Washing-machine	B. A. Fisher	604,052	May 17	1472	330	83	987
Washing-machine	S. Flowers	604,557	May 24	2025	601	83	1175
Washing-machine	J. J. and L. C. Francis	606,131	June 21	2025	464 465	83	1773
Washing-machine	H. G. Johnson	605,731	June 14	1209	279	83	1608
Washing-machine	T. Landon	605,902	June 21	1712	302	83	1715
Washing-machine	J. D. Moser	608,511	May 3	500	100	83	606
Washing-machine	P. Petri	603,921	May 10	1236	260	83	856
Washing-machine	H. B. Roach	603,567	Apr. 19	1693	388	83	249
Washing-machine	J. B. Turbeville and M. F. Higgs	601,740	Apr. 5	290	45	83	44
Washing-machine	M. Peirson	601,989	Apr. 5	661	147	83	131
Watchcase	D. H. Church	605,269	June 7	408	92	83	1429
Watch-hand	C. Sivan	605,192	June 7	240	57	83	1396
Watch or clock. Talking	C. Prahl	603,086	Apr. 5	776	168	83	147
Watch. Repeating	S. W. Titus. (Reissue)	11,675	June 28	2978	691	83	1978
Water. Apparatus for using compressed air to elevate	H. H. Gorter	605,446	June 7	733	166	83	1492
Water-battery. Portable	R. Stretch	606,310	June 28	2378	550	83	1851
Water by steam. Device for heating	A. W. Cram	605,780	June 14	1330	304	83	1595
Water-closet	D. S. Schureman	604,548	May 24	2447	556	83	1139
Water-closet	J. W. Sharp, Jr., and J. W. Grantland	605,893	June 14	1404	322	83	1638
Water-closet	C. P. Carroll and J. I. Gorman	602,894	Apr. 26	2150	486	83	453
Water-closet flushing-tank	E. E. Townsend	605,150	June 7	170	42	83	1388
Water-closet flushing-tanks. Seat trip mechanism for	H. P. Cope	604,558	May 24	2460	560	83	1142
Water-closet seat	P. Nicolle	608,782	May 10	992	195 196 197	83	780
Water-closet, seat, &c. Combination	C. Pfau	602,195	Apr. 12	1060	233	83	213
Water-closet tank	E. D. Cain. (Reissue)	11,662	May 3	691	154	83	735
Water-column	F. Guttenberg	604,745	May 31	2806	641	83	1225
Water-cooler	J. B. Overton	601,950	Apr. 5	660	146	83	130
Water-elevator	J. Groom	602,806	Apr. 19	2105	475	83	432
Water-gate	A. W. Achard	603,897	May 10	1142	267	83	838
Water-heater	J. A. Ratchbone	603,409	May 3	287	64	83	655
Water-heater	J. A. Stevenson	604,131	May 17	1661	373	83	978
Water-heater	C. R. Tyler and C. F. Price	602,040	Apr. 5	782	169 170	83	148
Water-heater	W. L. Miller	606,066	June 21	2016	452	83	1750
Water-heater. Automatic	M. G. Cunningham	606,126	June 21	2039	466	83	1771
Water-heater. Gas	A. P. Broomell	603,160	Apr. 26	2789	621	83	564
Water-heater. Multiple-tube	W. F. Ray	603,521	Apr. 19	1607	366	83	385
Water heater or condenser	A. J. Vance	604,342	May 17	1868	418	83	1011
Water-lifting machine	J. Thomson	602,878	Apr. 12	1351	304	83	274
Water-meter	J. Thomson	602,877	Apr. 12	1350	304	83	274
Water-meters. Apparatus for preventing damage to	A. Rosenberg	606,351	June 28	2477	575	83	1880
Water-motor	E. A. Rindelli	601,906	Apr. 5	547	113	83	104
Water-motor	W. H. Wood and J. H. Stevens	603,001	Apr. 26	2450		83	510
Waterproof fabric	C. Applegate	603,548	May 3	565	134	83	710
Water-purifier	C. P. Allen	603,900	May 10	1343	307 308	83	877
Water purifying and aerating apparatus	A. A. Ellis	604,491	May 24	2246	532	83	1132
Water-purifying apparatus	J. S. Miller	603,221	Apr. 26	2813	642 643	83	879
Water-purifying apparatus. Sewage-	Z. Latshaw	603,695	Apr. 19	1908	433	83	901
Water seal and valve-trap	H. Gumtow	603,074	Apr. 12	840	182	83	171
Water-spraying apparatus	W. M. Stevenson and W. K. Bailey	603,373	Apr. 12	1358	302	83	272
Water-tank	F. E. Gregory	604,267	May 24	2198	480	83	1065
Water-tank machine. Grout	H. C. Schmidt	602,944	Apr. 12	1138	249 250	83	205
Water-tower	E. F. Edgar	602,801	Apr. 19	1570	349 350	83	335
Water-tube boiler	J. H. Hopwood	603,565	May 3	590	131	83	715
Water-tube boiler	C. C. S. Knap	606,158	June 21	2065	474	83	1730
Water-tube boiler	W. A. Lloyd	604,993	May 31	2800	736	83	1205
Water-tube boiler	L. M. Moyes	604,777	May 31	2648	651	83	1088
Water-tube boiler	W. J. Wickes and L. Baker	604,509	May 24	2275	540	83	1127
Water-tube boiler. Upright	A. Kenney	603,770	May 10	969	212	83	809
Water-wheel	W. Dey	603,321	May 3	187	38	83	635
Watering-trough							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wattmeter. Motor-	C. D. Raab	604,501	May 24	2261	385	88	1195
Wave-motor	H. R. Alden	608,796	Apr. 19	2089	472 472	88	495
Wave-motor	R. J. Robinson and W. A. Nelden	608,638	June 28	2992	697	88	1975
Wave-motor. Air-compressing	J. H. Leonard	608,561	June 28	2826	664	88	1882
Wave or current motor	G. Lofgren	604,311	May 17	1607	408	88	1001
Weather-strip	J. Follansbee	604,676	May 24	2261	610	88	1188
Weather-strip	H. H. Franzen	608,329	June 28	3514	584	88	1887
Weather-strip	E. B. Roth	605,500	June 14	927	224	88	1556
Weather-strip	J. T. Watts	608,518	May 3	505	110	88	698
Wedges for splitting stone, &c. Means for making	R. W. Campbell	608,989	May 10	1208	287	88	992
Weed-exterminating apparatus	J. W. Dutton and A. Crawford	602,060	Apr. 12	813	176	88	165
Weigher and measure. Grain	S. A. Bhise	608,122	Apr. 26	2056	603 604	88	549
Weighing and measuring device	F. W. Olin	601,674	Apr. 5	66	17	88	17
Weighing apparatus	F. W. Olin	605,127	June 7	101	27	88	1371
Weighing apparatus	G. Anderson	6.6,371	May 3	218	49	88	643
Weighing apparatus. Automatic	F. H. Richards	606,243	June 28	2992	581 582	88	1885
Weighing-machine	R. C. Mealey	605,899	June 21	1561	350	88	1686
Weighing machine. Milk-	A. Hirsch	606,242	June 28	2441	506	88	1874
Welding, brazing, and soldering by electricity. Apparatus for	C. Nielson	601,979	Apr. 5	689	146	88	190
Welding-machine. Electric	R. Eyre	602,284	Apr. 12	1210	266 267	88	943
Welding. Track-	A. A. James	606,150	June 21	2062	473	88	1779
Well-curb	J. R. G. Reeves	603,344	May 3	175	44	88	695
Well-curb trough	E. Lawton	602,339	Apr. 12	1296	287	88	261
Well-drill	S. Adams	602,419	Apr. 19	1430	324	88	308
Well-drilling cable	S. W. Titus	602,547	Apr. 19	1652	376	88	548
Well. Tube-	A. C. Smith	605,756	June 14	1264	302	88	1613
Well-tubing attachment. Oil-							
Wheel: *See* Bicycle-wheel. Bicycle sprocket-wheel. Buffing-wheel. Car-wheel. Car fifth-wheel. Cycle-wheel. Fifth-wheel. Paddle-wheel. Pneumatic-tired wheel. Polishing-wheel. Rotary wheel. Rubber-tired wheel. Self-oiling wheel. Sprocket-wheel. Traction-wheel. Trolley-wheel. Vehicle-wheel. Water-wheel. Wind-wheel.							
Wheel	J. E. Compton	602,250	May 3	28	7	88	605
Wheel	G. Millen	605,112	June 7	76	22	88	1367
Wheel	M. H. Smith	606,365	June 28	2462	576 577	88	1861
Wheel	C. D. Stevens	601,902	Apr. 5	388	93	88	66
Wheel	A. J. Vandegrift	602,999	Apr. 26	2445	556	88	508
Wheel	M. Ash	601,622	Apr. 5	1	1	88	3
Wheel cleaner. Vehicle-	F. R. Simms	605,022	May 31	3251	747	88	1314
Wheel for motor-cars, &c.	F. J. Singleton and R. R. de la Gillonniere	602,480	Apr. 19	1540	350	88	323
Wheel-guard. Vehicle	L. D. Junkins	602,020	Apr. 5	745	160	88	141
Wheel-rim	F. L. Brandon and A. Roop	602,123	Apr. 12	922	201	88	186
Wheel rim-joint. Vehicle-	G. L. Wiser	601,925	Apr. 5	575	119	88	109
Wheel rim-joint. Vehicle-	J. Zühlke	602,996	Apr. 26	2325	509	88	497
Wheel-rims. Means for making	C. W. Spengler	603,156	Apr. 26	2719	616 617	88	561
Wheel-wrench	G. Brown	608,782	May 10	971	217	88	605
Wheels. Automatic indicator for truing	M. V. Garver	602,504	Apr. 19	1574	360	88	230
Wheelbarrow	R. A. Kneeland	605,316	June 7	493	110	88	1446
Wheelbarrow	P. Burgland	608,315	May 3	118	28	88	625
Whiffletree attachment	F. W. Chickering	603,257	May 3	24	6	88	605
Whiffletree-coupling	C. O. Bolton	605,381	June 7	623	139	88	1471
Whiffletree-hook	F. E. Lack	602,136	Apr. 12	941	206	88	190
Whiffletree-hook	H. Olson	606,357	June 28	2472	574	88	1879
Whiffletree-hook	C. N. Daman	604,186	May 17	1760	398	88	994
Whist board. Duplicate-	A. B. Davis	603,555	May 3	575	197	88	712
Whistle	J. L. Hanson	604,918	May 31	3090	710	88	1393
Whistle	W. A. Penfield	605,186	June 7	230	56	88	1394
Wick-lifting device	H. H. Walt	605,154	June 7	177	44	88	1394
Winding device. Instrument-	W. D. Huse	603,569	Apr. 19	1711	399	88	858
Winding machine. Bobbin-	J. D. Whyte	605,984	June 21	1750	401 402	88	1782
Winding machine. Yarn-	R. Atherton	603,251	Apr. 12	1150	258	88	231
Winding, warping, and beaming machine indicator	C. A. Morrison and J. Moran	603,287	Apr. 26	2049	649 650	88	566
Windlass	J. Coates	605,079	June 7	18	6	88	1356
Windmill	N. Hein	603,188	Apr. 26	2764	630	88	570
Windmill	S. K. Humphrey	603,905	May 10	1208	272	88	651
Windmill	R. Leonhart, Jr	601,972	Apr. 5	677	143 144	88	126
Windmill	A. Zwiebel	603,506	May 10	1021	227	88	816
Windmill-regulator	W. P. H. Campbell	603,153	Apr. 12	994	219	88	198
Windmill shaft-support	L. W. Noyes	604,780	May 31	2854	659	88	1236
Wind-wheel	H. Thompson	603,119	Apr. 26	2630	603	88	546
Window	J. Appell	603,712	Apr. 19	1946	442	88	360
Window	B. F. Richards	602,361	Apr. 12	1338	296 297	88	263
Window	F. Vittner	602,895	Apr. 26	2240	508 509	88	470
Window	H. K. Whitner	603,400	June 28	2547	580	88	1593
Window-cleaner's safety support	C. A. Müller and G. Hinman	605,610	June 14	1099	233	88	1585
Window-cleaning seat	E. Kubasch	603,648	June 14	1075	247	88	1577
Window-closer. Automatic	A. P. Spiller	604,945	May 31	3135	718	88	1391
Window fastener. Storm-							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Window-frame	F. X. Payment and J. C. Hartig	605,335	June 7	522	117	88	1492
Window frame and sash	N. M. Kittelsen and M. Walker	608,597	May 3	641	143	88	736
Window lock and operator	A. J. Williams, J. J. Thomas, and M. Richards	605,569	June 14	926	217	88	1551
Window-screen	O. A. Bingham	601,625	Apr. 5	4	1	88	3
Window-screen	W. H. Casselberry	602,558	Apr. 19	1661	377	88	345
Window-screen	B. J. and M. Kolb	604,620	May 24	2566	585	88	1164
Window-screen	J. H. Onstad	601,715	Apr. 5	180	35	88	26
Window-screen	E. Speaker	604,799	May 31	2865	659	88	1244
Window-screen	T. H. Schmitz	602,245	Apr. 12	1138	260	88	239
Window structure	T. H. Schmitz	604,808	May 31	3008	689 690	88	1305
Window structure	K. C. Sanborn	606,088	June 21	1955	449	88	1759
Window ventilating attachment	W. L. and E. G. Johnson	604,618	May 24	2562	585	88	1164
Window-ventilator	P. Sweeney	603,414	May 3	297	66	88	657
Window-washer	S. Urmston	608,581	May 3	609	136	88	719
Window-washer	J. T. Bennett	604,927	May 31	3102	713	88	1295
Wine. Apparatus for removing saccharin or other impurities from	C. K. Kirby	603,880	May 10	1164	263	88	843
Wine-press. Continuous	G. B. Lamb	604,709	May 31	2835	648 649 324 325 326 327 328	88	1283
Wire-drawing machine	C. O. White and M. B. Lloyd	605,331	June 14	1421		88	1642
Wire fabric. Apparatus for weaving coiled-	G. R. Lamb	606,424	June 28	2601	599	88	1905
Wire-fabric machine tension and feed mechanism	F. Faries	603,134	Apr. 26	2679	608 609	88	555
Wire. Machine for making check-row	C. W. Selvidge	606,092	June 21	1959	450	88	1760
Wire or other purposes. Machine for stretching	J. H. Stauffer	605,980	June 21	1639	376	88	1702
Wire-picket-twisting device	E. L. Shotwell and J. Brims	603,796	May 10	998	223	88	811
Wire-reel	J. G. Thomas	602,783	Apr. 19	2055	466	88	490
Wire-stay fastener	J. Atkins	603,993	May 10	1143	257	88	880
Wire straightening and twisting machine	C. L. Borst	605,848	June 21	1488	339	88	1671
Wire-stretcher	L. Clark	604,312	May 17	1973	442	88	1083
Wire-stretcher	G. M. Doyle	606,523	June 28	2752	636	88	1936
Wire-stretcher	T. M. Guest	604,148	May 17	1691	390	88	978
Wire-stretcher	E. F. and J. Manning	605,495	June 14	807	187	88	1508
Wire-stretcher	Z. Cramer	605,061	June 7	23	7	88	1357
Wire-stretching tongs	L. Cook	604,604	May 24	2541	579 580	88	1159
Wire-swaging machine	O. Ashton	603,394	May 3	258	57, 58	88	649
Wire-threading machine	D. Bunnell and A. A. Brower	604,578	May 24	2502	569	88	1151
Wire-tightener	J. B. Vall	606,178	June 21	2109	485	88	1788
Wire-tightening device	C. M. Lamb and J. W. Page	606,464	June 28	2664	613 614	88	1917
Wire-weaving machines. Warp-feed equalizer for	E. Klein	605,060	May 31	3317	-----	88	1327
Wood and fiber. Composition for impregnating	M. Bachert and D. W. O'Neil	602,718	Apr. 19	1947	442 443	88	399
Wood and preparing same. Preserved	J. Nightingale	606,574	June 28	2661	659	88	1956
Wood block for paving	C. E. Postlethwaite	602,519	Apr. 19	1605	-----	88	335
Wood-cleaning compound	M. Arnn	601,767	Apr. 5	278	-----	88	54
Wood, &c. Composition for coloring and preserving	A. Mitscherlich	606,017	June 21	1818	418	88	1732
Wood into fibers suitable for use in the arts. Converting	F. M. Kennedy	602,507	Apr. 19	1678	361 362	88	330
Wood molding and sawing machine	A. M. Bagby	602,612	Apr. 19	1759	401	88	362
Wood-shaping machine finishing-tool	W. J. Woodward	603,292	May 3	254	56	88	648
Wooden-pipe-banding machine	R. R. Gubbins	608,139	Apr. 26	2689	610	88	556
Wooden structures. Building circular	D. P. Cooper	608,261	May 3	30	8	88	606
Woodworking-machine	J. B. Chace	603,037	Apr. 26	2502	567 568	88	519
Woodworking machinery	J. W. Spencer	605,025	May 31	3256	748	88	1316
Wool-drier	F. G. Sargent	605,653	June 14	1096	252	88	1581
Wool-washing-machine ducker	C. D. Eames	603,558	May 3	581	199	88	713
Work-holder	A. Heald	605,763	June 14	1338	305	88	1626
Woven fabric	E. H. Cummins	606,332	June 28	2427	561	88	1871
Wrapper-covering	L. C. Crowell	609,293	May 3	32	9	88	606
Wrapping-machine	L. C. Crowell	608,585	May 3	619	136	88	721
Wrapping-machine	L. C. Crowell	603,602	May 3	650	145 146	88	726
Wrapping-machine							
Wrench: *See* Adjustable wrench. Jaw-wrench. Monkey-wrench. Nut-wrench. Nut and pipe wrench. Pipe-wrench. Ratchet-wrench. Ratchet-wheel wrench. Vehicle-wrench. Wheel-wrench.							
Wrench	F. Aaron and J. R. G. Huffman	603,494	May 3	467	108	88	660
Wrench	J. Brown	606,270	June 28	2806	624	88	1847
Wrench	M. H. Curry	603,178	Apr. 26	2743	624	88	567
Wrench	T. Dinkelberg	606,381	June 28	2514	584	88	1887
Wrench	J. K. Downie	604,375	May 24	2194	477	88	1092
Wrench	T. Forstner	601,779	Apr. 5	260	57	88	55
Wrench	A. B. Frack	601,951	Apr. 5	454	91	88	64
Wrench	H. J. Hancock	604,291	May 24	2144	468	88	1055
Wrench	G. W. Heaning	604,753	May 31	2818	643	88	1229
Wrench	E. Henwood	603,530	May 3	548	119	88	705
Wrench	W. F. Lawler	608,194	Apr. 26	2775	632	88	572
Wrench	J. G. Newell	601,672	Apr. 5	84	17	88	17
Wrench	F. Olsen	608,572	May 3	599	133	88	717
Wrench	W. H. Robinson and E. J. Lawless	605,746	June 14	1945	398	88	1609
Wrench	H. M. Smith	603,290	May 3	76	20	88	616
Wrench	G. R. Van Schoick	608,817	June 28	2201	559	88	1264
Wrench	M. Weiss	603,305	May 3	108	25	88	631
Wrench							

Alphabetical list of inventions, April to June, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wringer:							
See Mop-wringer.							
Wringer	C. A. Kohl	604,705	May 31	2080	647	83	1282
Wringing machine. Clothes-	J. Heselwood	605,200	June 7	447	99	83	1497
Writing apparatus. Duplex-	H. E. Holmes	603,273	May 3	55	14	83	611
Yarn guide, tension, and clearer	P. B. Sanford	605,918	June 21	1690	373	83	1699
		603,022	May 10	700	155	83	753
					157		
Yarn sizing and dressing apparatus. Hank-	B. Cohnen	603,502	May 3	586	130	83	714
Yoke. Neck-	W. E. Haight	605,490	June 14	800	184	83	1527
Yoke. Neck-	G. A. Landon	603,205	Apr. 12	1333	.....	83	347
Zinc for recovering zinc as oxids. Treating solutions or ores containing	E. A. Ashcroft						

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Advertising-column	A. and M. Gerstendorfer	28,617	May 10	83	909
Advertising-column	A. and M. Gerstendorfer	28,618	May 10	83	909
Advertising-stand	W. M. Updegrave	28,855	June 14	83	1639
Angle-iron	J. H. Baker	28,905	June 14	83	1639
Antirattler	F. P. Johnson	28,849	June 14	83	1649
Antirattler plate	C. T. Redfield	28,850	June 14	83	1649
Atomizer-body	J. A. Everitt	28,643	May 17	83	1056
Badge	J. Bratsing	28,858	June 21	83	1790
Badge	J. J. Cluin	28,864	June 21	83	1790
Badge	G. Corbett	28,677	May 24	83	1195
Badge	W. L. French	28,779	June 7	83	1498
Badge	W. E. Haynes	28,517	Apr. 26	83	580
Badge	F. E. Merriman	28,780	June 7	83	1498
Badge	C. D. Sprague	28,781	June 7	83	1498
Badge	J. H. H. McNamee	28,508	Apr. 26	83	583
Badge or button	A. C. Clas	28,695	May 17	83	1056
Badge or similar article	F. J. Conner	28,888	May 3	83	726
Badge or similar article	H. B. Keiper	28,806	June 14	83	1653
Ball-retainer	E. Blount	28,746	May 31	83	1285
Barrel-closure ring	B. Dettelbach	28,698	May 17	83	1059
Basin-clamp	H. B. Ives	28,859	June 14	83	1651
Bead-engaging thimble	H. B. Ives	28,860	June 14	83	1651
Bead-engaging thimble	A. Perkins	28,899	June 14	83	1653
Bearing cage. Ball-	W. W. Baldwin	28,799	May 31	83	1289
Bedstead	W. F. Bernstein	28,475	Apr. 12	83	291
Bedstead-post	W. F. Bernstein	28,476	Apr. 12	83	291
Bedstead-post	W. F. Bernstein	28,985	June 28	83	1961
Beer-cooler	E. Stahl	28,450	Apr. 5	83	168
Belt. Waist-	C. Kohlman	28,548	May 3	83	730
Bicycle bearing-bracket	G. J. Stevens	28,549	May 3	83	730
Bicycle-crank	D. C. Stover	28,477	Apr. 12	83	291
Bicycle-frame	J. S. Copeland	28,567	May 10	83	904
Bicycle-frame	J. S. Copeland	28,568	May 10	83	904
Bicycle-frame	J. S. Copeland	28,850	May 3	83	740
Bicycle-frame	G. L. E. Morrow	28,878	June 14	83	1658
Bicycle-frame	C. H. Ocumpaugh	28,569	May 10	83	904
Bicycle-frame	H. S. Wedmore	28,735	May 31	83	1287
Bicycle-holder	L. H. Snyder	28,709	May 24	83	1199
Bicycle-holder spring	J. A. Coulter	28,561	May 10	83	903
Bicycle-hub	E. C. Palmer	28,700	May 24	83	1199
Bicycle saddle-post	E. M. Rosenbluth	28,661	May 17	83	1060
Bicycle-lamp bracket	F. W. Brown	28,899	June 21	83	1792
Bicycle-lock	D. B. Smith	28,878	June 14	83	1653
Bicycle-pump body and base	J. H. Goss	28,874	June 14	83	1654
Bicycle-pumps. Head and shank member for	L. M. Hildreth	28,460	Apr. 5	83	153
Bicycle-saddle	J. A. Hunt	28,998	June 7	83	1505
Bicycle-saddle	J. A. Hunt	28,513	Apr. 26	83	580
Bicycle-saddle	G. P. Holden	28,900	June 21	83	1792
Bicycle-saddle spring	B. F. Field and W. J. Shedd	28,753	May 31	83	1287
Bicycle seat-post	S. W. Finch	28,754	May 31	83	1287
Bicycle-skate frame or body	A. G. Beckrow	28,458	Apr. 5	83	153
Bicycle-stand	H. Dolson and B. G. Appleby	28,559	May 10	83	903
Bicycle-stand	E. C. Palmer	28,478	Apr. 12	83	292
Bicycle T saddle-post	D. Basch	28,701	May 24	83	1199
Bicycle toe-clip	F. Martinek and O. A. Lusk	28,871	June 14	83	1653
Bicycle-valve nipple	L. Holabird	28,911	June 21	83	1795
Bicycle wrench and scraper	B. M. Wiggins	28,745	May 31	83	1285
Blotter for check or similar books	B. K. Van Nortwick	28,575	May 10	83	908
Blower casing. Steam-jet-	H. See	28,541	May 3	83	729
Boiler-drumhead	B. C. Brown	28,788	June 7	83	1499
Bolt link. Shackle-	A. M. Beckers	28,580	May 3	83	735
Book-cover	C. W. Hutschmidt	28,841	June 14	83	1647
Book cover. Memorandum-	P. Lindemeyr	28,790	June 7	83	1500
Bottle	G. Miller	28,483	Apr. 19	83	427
Bottle	E. C. Modes	28,695	May 17	83	1057
Bottle	E. C. Modes	28,697	May 24	83	1197
Bottle	B. R. Paine	28,694	May 17	83	1057
Bottle	F. Schilling	28,888	May 3	83	737
Bottle	C. Wagner	28,696	May 17	83	1057
Bottle	H. Tappan	28,683	May 17	83	1057
Bottle-cap	B. Cameron	28,843	June 14	83	1646
Bottle. Ink-	M. E. Griffith	28,781	May 31	83	1288
Bottle or jar	M. J. Bogert	28,788	May 31	83	1288
Bottle. Pill-	B. Davies	28,695	May 24	83	1196
Bowl or vessel	T. W. Foster	28,727	May 31	83	1283
Box	T. W. Foster	28,641	May 17	83	1056
Box	G. H. Richards	28,786	May 31	83	1288
Box	M. M. Tanner	28,881	May 3	83	737
Box	J. L. Conway	28,698	May 24	83	1197
Box-lid holder	E. Sohn	28,910	June 21	83	1795
Box. Ornamental	N. Witsch	28,640	May 17	83	1056
Box ornamentation	P. B. Myers	28,780	May 31	83	1288
Box. Paper	P. B. Myers				
Box. Paper					

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Box. Wooden	W. C. Estes	26,642	May 17	83	1058
Bracelet or similar article	F. H. La Pierre	26,720	May 31	83	1331
Braid	F. W. Klein	26,777	May 31	83	1341
Braid	M. W. Schloss	26,861	June 14	83	1655
Brake-shoe	O. B. Whitney	26,549	May 3	83	723
Brick for hot-blast stoves	F. H. Foote	26,495	Apr. 19	83	439
Brush. Clothes	F. H. La Pierre	26,668	May 24	83	1196
Brush. Hair	F. H. La Pierre	26,668	May 24	83	1196
Brushes, &c. Back for	G. C. Eggo	26,638	May 17	83	1057
Brushes, &c. Back for	T. W. Foster	26,526	May 3	83	726
Brushes, &c. Back for	L. W. Pretzer	26,509	Apr. 26	83	598
Brushes, &c. Back for	J. F. Laurin	26,922	June 28	83	1979
Brushes, mirrors, or similar articles. Back for	W. M. Robertson	26,495	Apr. 19	83	437
Bucket top or cover. Lunch	H. C. Noble	26,505	Apr. 26	83	598
Buckle	G. P. Prentis	26,695	May 24	83	1198
Buckle frame. Harness	W. Bloomberg	26,496	Apr. 19	83	437
Buckle piece. Suspender	J. Forsbeim	26,722	May 31	83	1331
Buckle-plate	A. Coleman	26,560	May 10	83	900
Buckle. Suspender	W. C. Lautner	26,675	May 17	83	1068
Burial-casket	S. Reynolds	26,615	May 10	83	909
Burial-casket	C. H. Page, Jr., and E. L. Brundrett	26,451	Apr. 5	83	153
Burner	E. Unger	26,649	May 17	83	1059
Burner	H. L. Palmer	26,443	Apr. 5	83	151
Button. Cuff	F. P. Laws	26,679	May 24	83	1196
Button-head	E. Cress and C. S. Court	26,554	May 10	83	899
Button-hooks, &c. Handle for	E. Cress and C. S. Court	26,555	May 10	83	899
Button-hooks, &c. Handle for	E. Cress and C. S. Court	26,556	May 10	83	899
Button-hooks, &c. Handle for	E. Cress and C. S. Court	26,557	May 10	83	899
Button-hooks, &c. Handle for	L. Kranz	26,921	June 28	83	1979
Button-hooks, &c. Handle for	L. Kranz	26,919	June 28	83	1978
Button-hooks, &c. Handle for	L. Kranz	26,920	June 28	83	1978
Button-hooks, &c. Handle for	H. F. W. Schieckser	26,552	May 10	83	899
Button-hooks, &c. Handle for	F. R. Stafford	26,553	May 10	83	899
Button-hooks, &c. Handle for	F. Thielke	26,518	Apr. 26	83	599
Button-hooks, &c. Handle for	A. Bippert	26,698	May 17	83	1056
Button or stud. Collar	C. P. Mulherin	26,918	June 28	83	1978
Buttoner. Collar	N. Gerber	26,817	June 7	83	1504
Butyrometer	F. M. Keith	26,926	June 21	83	1792
Cabinet. Cheese	W. E. Hewit	26,929	June 28	83	1982
Cabinet. Grocer's	C. E. Wyman	26,496	Apr. 19	83	437
Cabinet. Grocer's	J. W. Brundege	26,667	May 17	83	1058
Cabinet. Kitchen	J. P. Murray	26,706	May 31	83	1330
Cabinet. Kitchen	S. Sanders	26,767	May 31	83	1330
Cabinet. Kitchen	W. B. Tabor	26,666	May 17	83	1061
Cabinet. Kitchen	E. F. Snyder	26,605	May 10	83	907
Cabinet. Spice	J. W. Cushman	26,560	May 10	83	903
Can. Oil	O. Takvorian	26,673	May 17	83	1062
Candy. Wrapped	W. P. Ferguson	26,949	June 28	83	1984
Cap for exploding dynamite-cartridges	W. B. Smith	26,892	June 21	83	1791
Car-axle bearings. Crown-back for	W. B. Smith	26,893	June 21	83	1791
Car-axle bearings. Wedge for	J. Player	26,574	May 10	83	908
Car-bolster	E. S. Marshall	26,742	May 31	83	1334
Car-door track	J. P. Odgers	26,954	June 28	83	1985
Card-mount	A. G. Fromuth	26,862	June 14	83	1655
Carpet	A. K. May	26,895	June 7	83	1505
Carpet	A. K. May	26,687	June 7	83	1505
Carpet	A. K. May	26,688	June 7	83	1506
Carpet	A. K. May	26,689	June 7	83	1506
Carpet	A. K. May	26,690	June 7	83	1506
Carpet	A. K. May	26,691	June 7	83	1506
Carpet	A. K. May	26,692	June 7	83	1506
Carpet	A. K. May	26,901	June 7	83	1501
Carpet	R. H. Warren	26,943	June 28	83	1983
Carpet button. Stair	J. F. Martin and J. W. Orton	26,620	May 17	83	1056
Carpet-stretcher plate	W. B. Gere	26,916	June 21	83	1796
Carton or envelop	L. Stein and C. F. Wetmore	26,835	June 7	83	1507
Casket	L. Stein and C. F. Wetmore	26,547	May 3	83	730
Casket-body	J. B. Hadaway	26,819	June 7	83	1504
Cement-receptacle	W. Thommen	26,818	June 7	83	1504
Chair	J. Franz	26,611	May 10	83	908
Chair-seat	F. A. Dennett	26,665	May 17	83	1061
Chair-seat. Bent-wood	W. Schrage	26,863	June 14	83	1656
Chair-seat. Bent-wood	J. H. Baker	26,864	June 14	83	1656
Channel-iron	J. H. Baker	26,666	May 17	83	1056
Channel-iron	B. T. Selman	26,667	May 17	83	1056
Charm	B. T. Selman	26,845	June 14	83	1649
Charm	A. Howard	26,875	June 14	83	1654
Chimney	T. H. Betty	26,606	May 10	83	907
Churn-body and support	J. R. Renfro, Jr	26,706	May 24	83	1200
Churn-dash	E. W. Gladhill	26,886	June 14	83	1647
Churn-dasher	H. Heitmann	26,720	May 31	83	1329
Cigar	A. H. Nieding	26,581	May 3	83	732
Cigar-box	C. A. Speakman	26,522	May 3	83	725
Cigar-box print or pattern	E. Schaefer	26,786	June 7	83	1499
Cigar-lighter body	C. G. Singley	26,539	May 3	83	726
Cigar or similar article	H. L. and W. Ambler	26,890	June 21	83	1791
Clamp	J. J. Zimmele	26,928	June 28	83	1981
Clip-post	C. Godshaw	26,698	May 24	83	1198
Clock-dial	F. C. Hazen	26,914	June 21	83	1795
Clothes-pin	H. F. Wilder	26,578	May 10	83	908
Collar	G. Johnston	26,957	June 28	83	1985
Concentrator-band	J. Simon	26,708	May 31	83	1330
Confection	B. W. Burdick	26,810	June 7	83	1503
Core-supporting shell. Founder's	C. H. Smith	26,509	Apr. 26	83	599
Corn-cutter	R. E. Daniels	26,572	May 10	83	901
Corner-protector strip	C. H. Rose	26,816	June 7	83	1503
Coupling. Quarter-bend	A. C. Webber				
Cream-separator					

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cuff-holder	H. C. Frank	26,725	May 31	83	1331
Cultivator gang-frame	C. W. and M. E. Davis	26,747	May 31	83	1335
Cup or bowl	C. E. Haviland	26,930	June 28	83	1980
Curling-tongs-heater holder	L. H. Snyder	26,737	May 31	83	1333
Curtain	F. V. Ream	26,650	May 10	83	910
Curtain-pole and shade-roller bracket	A. C. Smith	26,859	June 14	83	1651
Cushion	W. N. Amory	26,903	June 21	83	1798
Cuspidor-cleaner	W. E. Whittemore	26,707	May 24	83	1200
Cyclometer-bracket	E. Hart	26,590	May 10	83	904
Cyclometer-casing	E. Hart	26,591	May 10	83	905
Dental separator	H. W. Gillett	26,984	June 28	83	1981
Dish	C. E. Haviland	26,987	June 28	83	1980
Dish. Cover	C. E. Haviland	26,988	June 28	83	1980
Dish. Cover	C. E. Haviland	26,989	June 28	83	1980
Display-card	J. E. Hills	26,713	May 24	83	1201
Display-rack	A. C. Mills, Jr	26,771	May 31	83	1340
Display-rack	C. B. Morrow	26,772	May 31	83	1340
Display-rack	W. Lippincott	26,508	Apr. 26	83	598
Door-button	C. L. Frost	26,498	Apr. 19	83	438
Door-catch	E. R. Branch	26,565	May 10	83	900
Door-securer clamp	D. Fay	26,944	June 28	83	1983
Dust-scraper	B. F. Macy	26,876	June 14	83	1654
Egg-separator	H. P. Maxim	26,744	May 31	83	1335
Electrical purposes. Plug for	Z. Taylor and M. L. Bergman	26,498	Apr. 19	83	438
Electrode. Battery	L. Globe	26,671	May 17	83	1062
Embroidery-hoop	R. M. Johnson	26,953	June 28	83	1984
Envelop	H. M. Bryce	26,676	May 17	83	1063
Fabric	S. L. Fleischer	26,915	June 21	83	1796
Fabric	J. Koch	26,481	Apr. 19	83	436
Fabric for hangings	I. H. Goodman	26,516	Apr. 26	83	599
Fabric. Textile	H. S. Lawson	26,885	June 7	83	1505
Fabric. Textile	J. Thomson	26,534	May 3	83	727
Fastening-eye	J. P. Mohler	26,474	Apr. 12	83	290
Fence-post	W. A. Forbes	26,889	June 21	83	1791
Fence-stay fastener	J. H. Srofe	26,500	Apr. 19	83	440
Fence. Wire	D. M. Kitselman	26,515	Apr. 26	83	599
Fencing pattern. Wire	S. D. Brown	26,690	May 24	83	1198
File	H. Kirkwood	26,839	June 14	83	1647
File-case. Sales-book	G. Streich	26,577	May 10	83	903
Fire-hose-wagon body	W. H. Curtice	26,718	May 24	83	1200
Flour-tank	C. Richardson	26,444	Apr. 5	83	151
Fork. Carving	C. Richardson	26,445	Apr. 5	83	151
Fork. Carving	C. Richardson	26,446	Apr. 5	83	151
Fork. Carving	C. F. Buschner	26,681	May 10	83	910
Fringe	F. H. Maurer	26,894	June 7	83	1505
Fringe	J. W. Brown, Jr	26,907	May 10	83	907
Fruit-seeding-machine frame	J. W. Holaday	26,928	June 14	83	1650
Furnace bar grate-support	F. Stewart	26,709	May 24	83	1200
Furniture-foot	W. J. Newton	26,471	Apr. 19	83	390
Fuse-carrier	H. Boggis	26,714	May 24	83	1201
Game-board	S. H. Limbert	26,882	June 7	83	1505
Game-board	R. W. Lindsay	26,674	May 17	83	1063
Game-board	E. and J. Minetto	26,673	May 17	83	1062
Game-board	G. S. Parker	26,904	June 21	83	1793
Game-board	A. M. Walker and F. C. Jackson	26,446	Apr. 5	83	153
Garment-hanger	A. M. Walker and F. C. Jackson	26,449	Apr. 5	83	153
Garment-hanger	F. Nauds	26,860	June 14	83	1655
Garment pattern-plate	E. Leger	26,770	May 31	83	1339
Garment-rack	L. D. Draper	26,497	Apr. 19	83	439
Garment-supporter plate	G. E. Adams	26,879	June 14	83	1654
Garment-supporter trimming	E. J. Deschbach	26,699	May 24	83	1199
Gas-burner	F. W. Law	26,893	June 7	83	1501
Gas-burner	F. P. Gillespie	26,507	May 10	83	905
Gas-fuel burners. Shell for	F. P. Gillespie	26,508	May 10	83	906
Gas-fuel burners. Shell for	W. Buttler	26,847	June 14	83	1649
Glass. Sheet or plate	A. D. Brogan and A. M. Malloch	26,846	June 14	83	1649
Glass surface ornamentation	M. W. Gleason	26,699	May 24	83	1197
Globe	E. J. Schuyler	26,533	May 3	83	727
Glove-fastener spring	J. K. Painter	26,748	May 31	83	1335
Grass and weed cutter	J. F. Hewitt	26,881	June 7	83	1504
Grate-front. Sickle	H. W. Bolens	26,569	May 10	83	901
Grinder base. Sickle	R. E. Conlin	26,795	June 7	83	1501
Hair-crimper member	A. W. Hutaf	26,942	June 28	83	1982
Hammer	G. K. Young	26,662	May 17	83	1060
Hammer-body	F. H. La Pierre	26,694	May 24	83	1197
Hand-glass	T. W. Foster	26,686	May 3	83	727
Handle for manicure or similar articles	C. S. Sharp	26,814	June 7	83	1503
Harrow-frame	J. H. Clarke	26,791	June 7	83	1500
Hat-fastener	F. S. Weller	26,638	May 10	83	907
Heater	R. Schlumberger	26,620	May 17	83	1059
Heaters. Coil-pipe for water	J. J. Zimmele	26,891	June 21	83	1791
Hinge-post	H. C. Dowd	26,811	June 7	83	1503
Hoe	W. F. Ludwick	26,490	Apr. 19	83	436
Hoe. Garden	G. W. Fletcher	26,651	May 17	83	1059
Holdback-iron. Thill	F. Heaton	26,734	May 31	83	1331
Hook	I. M. Field	26,723	May 31	83	1331
Hook. Belt	F. A. Ives	26,551	May 10	83	900
Hook. Garment-clasp	A. Eckstein	26,535	May 3	83	727
Hook. Garment-fastener	F. Wood	26,694	May 24	83	1198
Hook. Snap	J. G. and J. M. Bauer	26,704	May 24	83	1199
Hoop. Barrel	T. J. Gilbride	26,853	June 14	83	1650
Horseshoe-calk	M. S. Levering	26,744	May 3	83	726
Hose-mending device	R. D. Holabird	26,927	June 21	83	1793
Ice and refrigerating machine frame	O. O. Ozias	26,988	June 28	83	1981
Indicator face-plate	W. H. Baker	26,455	Apr. 5	83	153
Ingot. Metal	L. Hare	26,800	June 7	83	1501
Instep-stiffener					

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Insulator-plate	W. B. McDonald	28,743	May 31	83	1894
Ironing-board	E. F. Rowse and H. E. Johns	28,613	May 10	83	909
Jar. Packing	R. Feischer	28,627	May 17	83	1057
Jar. Wooden	W. C. Estes	28,628	May 17	83	1058
Jardinière	W. M. Green	28,905	June 21	83	1798
Kite-frame	H. E. Dantzebecher	28,590	May 3	83	737
Knife	W. C. Meyer	28,886	June 28	83	1979
Knife	E. B. Peck	28,606	May 10	83	908
Knife	S. C. Renner	28,798	June 7	83	1501
Knife. Chopping	P. J. McShane	28,945	June 28	83	1988
Knife for opening seams	O. E. Bray	28,788	June 7	83	1500
Knife-wheel	B. Johnson	28,469	Apr. 19	83	488
Lace fastening. Shoe	G. W. Slack	28,643	June 14	83	1648
Ladder-hook	C. W. Iden	28,644	June 14	83	1648
Lamp	C. W. Iden	28,805	June 7	83	1502
Lamp	C. Bergener	28,468	Apr. 19	83	486
Lamp-body	F. K. Phillips	28,735	May 31	83	1888
Lamp-body	W. A. Rayment	28,622	May 10	83	905
Lamp-body	G. Havell and A. G. Williams	28,462	Apr. 5	83	153
Lamp body. Bicycle	E. Miller	28,460	Apr. 5	83	153
Lamp bulb. Electric	E. Miller	28,921	June 28	83	1981
Lamp bulb. Electric	J. T. Lister	28,595	May 10	83	905
Lamp bulb. Incandescent	F. E. Snow	28,734	May 31	83	1888
Lamp-case	H. O. Müller	28,594	May 10	83	905
Lamp-holder	E. F. Long	28,596	May 10	83	905
Lamp. Miner's	R. Faries	28,804	June 7	83	1502
Lamp-shade holder. Incandescent	C. S. Gerritson	28,598	May 10	83	905
Lamp stand or holder	J. Zimmerman and F. L. White	28,540	May 3	83	735
Lamp. Vehicle	R. H. Martin	28,955	June 28	83	1989
Latch. Door	F. Haettel	28,579	May 10	83	903
Letter. Sign	G. F. Hutchins	28,667	June 14	83	1653
Lever. Jack	H. G. Price	28,673	May 24	83	1195
Lock-clasp	T. J. Zeltmacher	28,693	May 24	83	1198
Locket	J. W. Stevens	28,616	May 10	83	909
Locks. Seal-plate for seal	B. F. Stauber	28,726	May 31	83	1888
Looking-glass frame	L. P. Cook	28,688	May 17	83	1060
Loving-cup	D. H. Roberts	28,654	May 17	83	1060
Lubricator-body	D. H. Roberts	28,657	May 17	83	1060
Lubricator-body	N. Du Brul	28,736	May 31	83	1888
Machine-plate	J. A. Dieffenbacher	28,615	June 7	83	1503
Measure. Dry	W. J. Huff	28,710	May 24	83	1901
Meat-block	W. S. Cooper	28,469	Apr. 12	83	290
Medicine-case and desk	D. A. Loeser	28,456	Apr. 5	83	152
Metallic border	W. M. Brinkerhoff	28,778	May 31	83	1841
Mowing-machine section-knife	E. M. Yarrington and T. Hall	28,794	June 7	83	1500
Napkin. Child's	F. H. Isaacs	28,698	May 24	83	1198
Necktie-shield	J. A. Thomas and W. W. Driscoll	28,931	June 28	83	1984
Nozzle	E. T. Connor	28,788	June 7	83	1499
Nut-lock washer	J. F. Grant	28,908	June 21	83	1794
Official certificate	H. L. Jenkins	28,719	May 24	83	1901
Panel. Illuminated	L. J. W. Wall	28,464	Apr. 12	83	289
Paper pattern	O. M. Arnold	28,705	May 24	83	1900
Parasol	F. B. Rising	28,715	May 24	83	1902
Parers. Frame for fruit or vegetable	J. L. Adams	28,588	June 14	83	1647
Paving-block mold	L. C. Fairchild	28,539	May 10	83	899
Pencil-case barrel	N. D. Ingram	28,558	May 10	83	899
Pencil-holder	B. B. Goldsmith	28,806	June 7	83	1503
Pencil. Lead	M. A. T. Gillbee	28,807	June 7	83	1503
Picture frame or mount	M. A. T. Gillbee	28,711	May 24	83	1901
Picture frame or mount	J. P. Odgers	28,808	June 7	83	1503
Picture-mount	A. M. and W. H. Gardner, Jr.	28,587	June 14	83	1647
Picture or mirror frame	W. Melcher	28,738	May 31	83	1881
Pin	R. Neuss	28,787	June 7	83	1499
Pin or needle card	J. Becker	28,656	May 17	83	1060
Pipe	W. C. Savage	28,573	May 10	83	901
Pipe-coupling member	C. Brooks	28,946	June 28	83	1984
Pipe-covering pattern	G. W. Wooley	28,660	May 17	83	1060
Planter-bracket	J. A. Everitt	28,640	June 14	83	1647
Planter hopper. Seed	H. Brunt	28,732	May 31	83	1888
Plate	B. W. Burdick	28,926	June 28	83	1979
Plate-keeper shell	C. E. Haviland	28,567	May 10	83	900
Plate or dish	L. H. Brinkman	28,909	June 21	83	1794
Plumber's trap	L. J. Millet	28,527	May 3	83	736
Prism-light	T. W. Foster	28,491	Apr. 19	83	489
Puff-box cover	R. C. Enyart	28,546	May 3	83	739
Pump head. Rotary	H. W. Kimes	28,740	May 31	83	1884
Pump-housing	J. H. Humes	28,689	June 28	83	1982
Punch	J. H. Humes	28,739	May 31	83	1884
Punch	J. W. Ivory	28,648	May 17	83	1059
Punch-handle	M. Guett	28,775	May 31	83	1840
Push-button	C. Gatewood	28,774	May 31	83	1840
Puzzle-block	O. Seelhorst	28,773	May 31	83	1840
Puzzle-board	H. D. Hobson	28,614	May 10	83	909
Puzzle board or card	H. C. Clarke	28,956	June 28	83	1985
Puzzle-box	J. H. McCarville	28,604	May 10	83	907
Puzzle-box	A. H. Fowler	28,760	May 31	83	1836
Radiator	A. H. Fowler	28,761	May 31	83	1836
Radiator-section	A. H. Fowler	28,846	June 14	83	1640
Radiator-section	G. B. Taylor and H. B. Nichols	28,612	June 7	83	1503
Railway-rail	F. E. Kohler	28,618	June 7	83	1508
Rake head. Lawn	F. E. Kohler	28,600	May 10	83	906
Rake head. Lawn	A. W. Walker	28,698	May 24	83	1199
Range	W. T. Pringle	28,717	May 24	83	1902
Receptacle for attachment-plugs	C. H. Lindenberg	28,912	June 21	83	1795
Regalia-collar	H. C. Peters	28,834	June 7	83	1507
Rubber heel	A. H. Bennett				
Rug					

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Rug	A. Petzold	28,888	June 7	83	1505
Sad-iron	J. F. Blees	28,499	June 14	83	1652
Saddle-cushion	L. Onderdonk	28,582	Apr. 5	83	155
Saddle-seat	W. I. Bunker	28,756	May 10	83	908
Saddle-seat	W. I. Bunker	28,757	May 31	83	1887
Saddle-seat	W. I. Bunker	28,758	May 31	83	1887
Saddle-seat	W. I. Bunker	28,759	May 31	83	1887
Saddle-seat	W. I. Bunker	28,901	June 21	83	1795
Saddle-seat	W. I. Bunker	28,902	June 21	83	1795
Saddle-seat	W. I. Bunker	28,479	Apr. 12	83	292
Saddle-seat	J. A. Hunt	28,699	May 17	83	1062
Saddle spring or support	C. P. Sweeney and H. Wrigley	28,945	June 28	83	1988
Scale base. Coin	O. O. Ozias	28,947	June 28	83	1988
Scale base-plate	O. O. Ozias	28,912	June 21	83	1795
Scale base-plate	M. Bandler	28,589	May 3	83	737
Scarf. Neck	T. W. Foster	28,593	May 10	83	901
Scissors-handle	W. E. Harriman	28,691	May 24	83	1196
Scrapers. Handle socket-piece for hand	H. E. Swartz	28,533	May 3	83	736
Screw-driver	H. S. Smith	28,799	June 7	83	1501
Seal	A. H. Mackinnon	28,625	May 17	83	1058
Seal-press case	A. W. Grunwaldt	28,454	Apr. 5	83	152
Secretary	J. N. Kallor and M. T. Reeves	28,894	June 21	83	1793
Separator concave-section	M. T. Reeves and J. N. Kallor	28,473	Apr. 12	83	290
Separator or clover-huller tooth	W. H. Elliott	28,809	June 7	83	1501
Sewer's tree	J. A. Thomas	28,470	Apr. 12	83	290
Shade-roller bearing-screw	C. H. Page, Jr., and E. L. Brundrett	28,895	June 21	83	1793
Shade-support	A. G. Huntley	28,480	Apr. 19	83	488
Sharpening-tool	W. M. Andrews	28,902	June 28	83	1986
Shirt-bosom	N. B. Gossard	28,465	Apr. 12	83	290
Shirt-front	W. E. Gregory	28,527	May 3	83	736
Shoe-horn clamp	M. M. West	28,659	May 17	83	1060
Shoe-plate	E. E. List	28,504	Apr. 26	83	568
Shoe-polisher frame	P. J. Chérou	28,447	Apr. 5	83	151
Silverware-border	R. Reach	28,463	Apr. 12	83	288
Skate frame. Roller	O. S. Patton	28,795	June 7	83	1500
Skirt-protector	E. Pietzschmann	28,461	Apr. 12	83	288
Skirt-protector	J. B. Poyet	28,462	Apr. 12	83	288
Skirt-protector	J. B. Poyet	28,806	Apr. 26	83	568
Skirt-protector	J. A. Levison	28,655	May 17	83	1060
Skirt-supporter	G. F. Folsom	28,493	Apr. 19	83	488
Snow-guard	H. H. Emison	28,667	June 21	83	1791
Spark-arrester casing	J. S. Connelly	28,851	June 14	83	1649
Spectacles frame. Reflecting	Q. Ackley	28,852	June 14	83	1651
Spike-hole plug	E. Endle	28,797	June 7	83	1501
Spittoon-cover	J. Hamilton	28,653	May 17	83	1058
Spool-stand	W. O. Hart	28,789	June 7	83	1500
Spoon	E. Mohr	28,710	May 31	83	1881
Spoon	E. Todd, Jr	28,793	June 7	83	1499
Spoon	H. M. Williams	28,924	June 28	83	1979
Spoon	G. P. Tilton	28,650	May 17	83	1056
Spoon, fork, or similar article	J. G. Theobald	28,585	May 3	83	735
Spoon or fork handle	J. Ciulee	28,651	May 17	83	1056
Spoons, forks, &c. Handle for	C. Silber	28,688	June 28	83	1979
Spoons, forks, &c. Handle for	G. Strohhaker	28,894	May 3	83	736
Spoons, forks, &c. Handle for	H. L. Wallace	28,695	June 21	83	1792
Spoons, forks, &c. Handle for	B. W. and G. Gooding	28,680	May 24	83	1196
Spoons, &c. Handle for	F. T. Love	28,661	May 24	83	1196
Spoons, &c. Handle for	F. T. Love	28,595	May 10	83	900
Spoons, &c. Handle for	T. A. Galt	28,896	June 21	83	1792
Sprayer. Hand	W. A. Comstock	28,784	June 7	83	1499
Spring for beds, &c. Coiled-wire	W. C. Brown	28,645	May 17	83	1059
Stamp. Trading	A. H. Anderson	28,609	May 10	83	908
Stamps. Handle for postal marking and canceling	W. J. Merriam	28,686	June 28	83	1981
Steamer casing. Wheat	A. M. Blakesley	28,602	May 10	83	906
Stove	J. P. Lynott	28,601	May 10	83	906
Stove	A. B. McMillan	28,519	Apr. 26	83	570
Stove	C. Stubenbord	28,784	May 31	83	1838
Stove	B. W. Burdick	28,497	Apr. 19	83	489
Stove-door-catch shell	H. Adler	28,927	June 28	83	1982
Stove. Gas	E. G. Germer	28,496	Apr. 19	83	489
Stove. Heating	E. H. Huemefeld	28,705	May 31	83	1886
Stove. Heating	B. Woodhull	28,880	June 7	83	1504
Stove. Heating	B. Woodhull	28,940	June 28	83	1058
Stove. Heating	I. O. Miller	28,663	May 17	83	1061
Stove-lid and pan lifter	B. Woodhull	28,664	May 17	83	1061
Stove or range	B. Woodhull	28,599	May 10	83	906
Stove or range	B. Woodhull	28,708	May 24	83	1200
Stove or range shelf-section	C. W. Whipfler	28,705	May 31	83	1838
Stove-reservoir	D. M. Ireland	28,964	June 28	83	1986
Stove-urn	H. E. Wieber	28,898	June 21	83	1790
Strainer for catch-basins	J. P. Eustis	28,507	Apr. 26	83	566
Strainer. Tea or coffee pot	E. D. Son	28,917	June 28	83	1979
Stringed-instrument tailpiece	G. E. Adams	28,792	June 7	83	1500
Stud member for detachable fasteners	C. F. Edgarton	28,678	June 14	83	1654
Suspender-end	F. F. Knothe	28,576	May 10	83	903
Suspender-end	E. L. McClain	28,494	Apr. 19	83	489
Sweat-pad	J. Donovan	28,851	June 14	83	1651
Switch foot-guard	J. T. Wetherald	28,619	May 10	83	910
Syringe-nozzle	J. F. McFadden	28,644	May 17	83	1058
Tag	G. W. Turney	28,610	May 10	83	908
Tea-kettles, &c. Spout for	F. W. Van Bergh	28,494	Apr. 19	83	487
Tea or coffee pot	A. F. Jackson	28,696	May 24	83	1197
Teapot or like article	A. F. Jackson	28,697	May 24	83	1198
Teapot or like article	W. F. Smith	28,920	June 28	83	1984
Telephone-operator's switchboard	J. K. Gilcrest	28,571	May 10	83	901
Thermostatic chamber	C. C. Bradley				
Thill-coupling washer					

Alphabetical list of designs, April to June, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Thimble	J. F. Simons	28,731	May 31	83	1861
Thread or twine cutter	W. E. Rosebro	28,826	June 21	83	1791
Threshing-machine cylinder and concave tooth	W. Stevens	28,543	May 3	83	736
Tile	B. O. Haugh	28,907	June 21	83	1794
Tile	E. S. Thomas	28,670	May 17	83	1062
Tire. Bicycle	J. J. Broderick	28,501	Apr. 19	83	440
Tire. Elastic	R. Cowen	28,595	May 10	83	904
Tire-valve cap	J. Lines	28,594	May 10	83	904
Tire-valve cap	J. Lines	28,595	May 10	83	904
Tool-handle tip	J. H. Hamlin	28,726	May 31	83	1294
Toy	H. C. Biette	28,775	May 31	83	1841
Toy	R. Scheifley	28,906	June 21	83	1794
Toy	G. W. Wright	28,551	May 3	83	740
Toy	W. Brown	28,741	May 31	83	1334
Trace-fastener	A. Salich	28,646	May 17	83	1059
Trousers-fastener member	J. J. Lynch	28,647	May 17	83	1059
Trousers-stretcher	G. Crouch	28,563	May 10	83	900
Trunk-slat	G. Crouch	28,564	May 10	83	900
Trunk-slat	A. L. Siegbortner	28,654	June 14	83	1650
Tube cap. Collapsible	C. Wandersee	28,809	June 7	83	1509
Tug. Shaft	A. W. Buel	28,932	June 28	83	1994
Tunnel or similar casings. Channel-bar for	J. L. Brown	28,465	Apr. 19	83	299
Umbrella or parasol case	C. H. Peddrick, Jr	28,563	May 10	83	907
Umbrella or parasol ribs. Tip for	H. Ellsworth	28,469	Apr. 19	83	299
Umbrella-stand	J. H. Schmidt	28,677	June 14	83	1654
Umbrella suspension-holder	J. Binks	28,570	May 10	83	901
Valve-disk	E. Brunhoff	28,656	June 14	83	1650
Vending-machine casing or frame	J. Reel	28,956	June 28	83	1995
Violin or banjo bridge	H. D. Perky	28,765	June 7	83	1499
Wafer	H. A. De Hart	28,708	May 24	83	1199
Wagon-body	S. V. Smith	28,457	Apr. 5	83	153
Wagon body and top	J. C. Konrad	28,749	May 31	83	1335
Wagon body. Delivery	J. C. Konrad	28,750	May 31	83	1335
Wagon body. Delivery	J. C. Konrad	28,751	May 31	83	1335
Wagon body. Delivery	J. C. Konrad	28,752	May 31	83	1335
Waist-front distender	R. Sahlin	28,536	May 3	83	736
Washer	F. W. Huenekens	28,511	Apr. 26	83	589
Washing-machine plunger	S. and T. P. Brown	28,658	May 17	83	1060
Water-closet bowl	F. J., Jr., and F. J. McCormick	28,545	May 3	83	739
Water-closet flush-tank	D. S. Wallace	28,472	Apr. 12	83	290
Water-front frame	E. Easterly	28,514	Apr. 26	83	589
Wheel. Sprocket	L. Sturges	28,670	June 14	83	1653
Whist board. Duplicate	F. B. Chase and E. P. Redfield	28,909	June 28	83	1995
Window-stop adjuster	C. A. Taplin	28,657	June 14	83	1651
Wire-fabric pattern	C. G. Smith	28,694	May 10	83	910
Woven fabric	S. Bottomley	28,693	May 10	83	910
Woven fabric	C. Frans	28,692	May 10	83	910
Woven fabric	W. T. Smith	28,716	May 24	83	1202
Woven fabric	W. T. Smith	28,900	June 28	83	1995
Woven fabric	W. T. Smith	28,901	June 28	83	1995
Woven fabric	W. T. Smith	28,902	June 28	83	1995
Woven fabric	R. C. Ellrich	28,513	Apr. 26	83	589
Wrench-frame	A. A. Faust	28,941	June 28	83	1992
Wrench. Jar	H. J. Martin	28,467	Apr. 19	83	486
Wrench-jaw					

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Acids. Vegetable	C. Ligneau	31,632	May 31	83	1343
Agricultural implements and hardware. Certain named	Fuqua Hardware Company	31,605	May 24	83	1206
Ale, beer, and porter	Granger & Gregg Brewing Company.	31,479	Apr. 19	83	443
Ale, lager-beer, and porter	A. G. Van Nostrand	31,492	Apr. 26	83	592
Ammunition for small-arms	Winchester Repeating Arms Company.	31,674	June 7	83	1510
Antiseptic preparation	P. Hakansson	31,660	June 7	83	1509
Apparel. Certain named wearing	J. Samuels & Bro	31,707	June 21	83	1797
Apparel for men, boys, and youths. Certain named wearing	M. Ballin & Sons	31,606	May 31	83	1342
Astringents. Intestinal	Farbenfabriken of Elberfeld Company.	31,587	May 10	83	912
Autoharps, citherns, and guitars	F. Strauss	31,720	June 28	83	1997
Axes and hatchets	Supplee Hardware Company	31,604	May 24	83	1206
Axes, saws, and hatchets	Dunham Carrigan & Hayden Company.	31,700	June 14	83	1658
Bedsteads. Folding	Hale & Kilburn Manufacturing Company.	31,496	Apr. 26	83	592
Belting. Leather	Detroit Oak Belting Company	31,496	Apr. 26	83	591
Beverages and medicinal purposes. Effervescent granules for	Armstrong Manufacturing Company.	31,680	June 14	83	1655
Beverages and mineral waters. Certain named	L. Boyer's Sons	31,730	June 21	83	1798
Bicycle	American News Company	31,642	May 31	83	1344
Bicycle and other transmission chains. Covers for	American News Company	31,643	May 31	83	1344
Bicycle-chains	W. E. F. Marchal	31,606	May 24	83	1206
Bicycles	Baldwin Cycle Chain Company	31,568	May 17	83	1066
Bicycles and similar vehicles	Columbus Bicycle Company	31,455	Apr. 5	83	154
Bicycles and their component parts. Safety	M. E. Johnson	31,514	May 3	83	742
Bicycles, tricycles, and velocipedes	G. M. Hendee	31,644	May 31	83	1344
Bicycles, tricycles, velocipedes, and parts thereof	Supplee Hardware Company	31,676	June 7	83	1510
Bitters	Birmingham Small Arms Company	31,495	Apr. 26	83	592
Bitters. Stomach	Johnston, Holloway & Co	31,568	May 24	83	1204
Blacking for boots and shoes. Liquid	R. Napoletano	31,664	June 7	83	1509
Bluing. Indigo	C. L. Hauthaway & Sons	31,597	May 24	83	1205
Books, pamphlets, and leaflets	A. Ptromm	31,666	June 14	83	1656
Boots and shoes	D. P. Hatch	31,545	May 17	83	1064
Bottles	Hurley & Cashman	31,744	June 28	83	1997
Brewers' supplies. Certain named	Jafferis Glass Works	31,580	May 10	83	913
Bristles, wool, fur, hair, skins, and hides	R. Schneider	31,751	June 28	83	1998
Cables, ropes, cords, and twines	R. Brauns & Co	31,747	June 28	83	1997
Calcimine—a mixture of dry powder with water	O. F. Zurn Company	31,513	May 3	83	749
Cameras. Photographic	F. O. Pierce Company	31,620	May 31	83	1343
Candy	Western Camera Manufacturing Company.	31,606	June 14	83	1657
Candy	Busy Bee Candy Kitchen Company	31,582	May 24	83	1204
Candy	H. L. Hildreth	31,587	May 10	83	913
Candy. Combination of milk and molasses	S. T. Hopkins	31 723	June 21	83	1798
Canned and boxed goods. Certain	P. C. Wiest Company	31,605	May 31	83	1344
Capsules	J. W. Matthews & Co	31,794	June 21	83	1798
Capsules	J. R. Planten	31,525	May 10	83	913
Carpet-sweepers	J. R. Planten	31,526	May 10	83	913
Catsups, mustard, and sauces	Bissell Carpet Sweeper Company	31,708	June 14	83	1656
Cement for uniting various materials and articles	E. C. Flaccus Company	31,730	June 21	83	1799
Cement. Portland	McCaw, Stevenson & Orr	31,538	May 10	83	911
Cement. Portland	Frank E. Morse Company	31,657	June 14	83	1655
Cement. Portland	Frank E. Morse Company	31,760	June 28	83	1999
Cement. Portland	Frank E. Morse Company	31,761	June 28	83	1999
Cement. Portland	Teutonia Misburger Portland Cementwerk	31,594	May 10	83	913
Cements. Portland and similar	Ohlemacher Lime Company	31,464	Apr. 12	83	298
Certain named apparatus and supplies	La Société Chimique des Usines du Rhône, Anciennement Gilliard, P. Monnet et Cartier.	31,609	June 14	83	1657
Cheese-cloth bandages. Tubular	West Boylston Manufacturing Company.	31,511	May 3	83	742
Chemical compounds. Certain named	Farbenfabriken of Elberfeld Company.	31,659	June 7	83	1509
Cider. Bottled	S. S. Pierce Company	31,580	May 24	83	1204
Cigars	Allen & Marshall	31,497	May 3	83	741
Cigars	W. W. Arnold	31,669	June 7	83	1509
Cigars. Havana	Chicago Athletic Association	31,688	May 31	83	1342
Cigars, tobacco, and cigarettes	W. W. Arnold	31,607	June 14	83	1657
Clothing. Boys' outer	Goldberg Bros. & Co	31,456	Apr. 12	83	298
Coffee	O. F. Blanke Tea and Coffee Company.	31,696	May 31	83	1344
Coffee	Enterprise Coffee Company of Baltimore City.	31,731	June 21	83	1798
Coffee and roasted and ground coffee. Roasted	Enterprise Coffee Company of Baltimore City.	31,639	May 31	83	1344
Coffee, containing Java and Mocha. Blended	E. T. Smith Company	31,558	May 17	83	1065
Coffee. Roasted and ground	Enterprise Coffee Company of Baltimore City.	31,640	May 31	83	1344

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Coffee. Roasted and ground	Enterprise Coffee Company of Baltimore City.	$1,608	June 14	88	1657
Colic and lung-fever cure	W. O. Edmund	$1,559	May 10	88	913
Collars and cuffs	F. E. Fay	$1,517	May 10	88	911
Combs	R. F. Tochtermann	$1,548	May 17	88	1064
Compound for the cure of dyspepsia	B. Hill	$1,623	May 17	88	1064
Confections. Iced	Davis Bros	$1,732	June 21	88	1795
Copper in ingots, bars, and other unmanufactured forms	Mountain Copper Company	$1,564	May 17	88	1065
Corsets	E. J. Montigny	$1,676	June 14	88	1656
Corsets	E. Schweinburg	$1,742	June 28	88	1937
Corsets	E. Schweinburg	$1,743	June 28	88	1937
Corsets	Jordan, Marsh & Co	$1,470	Apr. 19	88	441
Corset-clasps, dress-shields, machine silk and thread, hooks and eyes, dress-stays, and hose-supporters.	Boston Manufacturing Company	$1,619	May 31	88	1342
Cotton sheetings	Boston Manufacturing Company	$1,618	May 31	88	1342
Cotton sheetings	Hall & Ruckel	$1,661	June 14	88	1656
Dentifrices	Bauer & Cie	$1,699	June 14	88	1656
Dietetic albuminous preparations	H. S. Blackmore	$1,722	June 28	88	1939
Disinfectants, germicides, or deodorizing compounds	P. Rudisch	$1,625	June 14	88	1656
Disinfecting and antiseptic preparations	Hamburger & Company	$1,614	May 31	88	1342
Dolls	Eddystone Manufacturing Company.	$1,647	June 7	88	1508
Drapery fabric. Printed	Devoe & Peck	$1,741	June 28	88	1937
Dry goods. Certain named	Ætna Powder Company	$1,586	May 10	88	913
Dynamite, dynamite-cartridges, blasting-gelatin, detonating caps, and fuses.	C. Deyoung	$1,580	May 10	88	913
Dyspepsia-pads and pads for cure of disease by absorption	Power Specialty Co	$1,569	May 17	88	1065
Engines	J. I. Case Threshing Machine Co	$1,677	June 7	88	1510
Engines and threshing machinery	Explosivstoff-Werke Spiralit, Gesellschaft mit Beschränkter Haftung.	$1,676	June 7	88	1510
Explosives and cartridges	A. Mishler	$1,750	June 28	88	1938
Extracts in tablet or solid form and tinctures and spirits in liquid form.	W. P. Clotworthy	$1,478	Apr. 19	88	442
Farinaceous compound used as a dessert	West India Fibre Company	$1,550	May 17	88	1064
Fibrous material for stuffing purposes	Brown & Besly	$1,765	June 28	88	1940
Files, desks, cabinets, and other receptacles for papers and documents. Paper-	E. J. & L. Nordlinger	$1,598	May 24	88	1305
Fire-crackers	E. J. & L. Nordlinger	$1,599	May 24	88	1305
Fire-crackers	Monarch Fire Appliance Co	$1,581	May 10	88	911
Fire-extinguishing compounds and receptacles therefor	G. P. Parton	$1,694	June 14	88	1656
Flash-lights. Combustible powders for	Consolidated Milling Company	$1,690	June 14	88	1657
Flour. Wheat	W. H. Ketzeback & Co	$1,559	May 17	88	1065
Flour. Wheat	Noblesville Milling Company	$1,557	May 17	88	1065
Flour. Wheat	C. E. Wellenkamp	$1,727	June 21	88	1789
Flour. Wheat	Postum Cereal Company	$1,699	June 14	88	1657
Food for human consumption. Cereal	H-O (Hornby's Oatmeal) Company	$1,555	May 17	88	1065
Food products. Cereal	H-O (Hornby's Oatmeal) Company	$1,577	May 24	88	1304
Food products. Cereal	Pillsbury-Washburn Flour Mills Company.	$1,576	May 24	88	1303
Food. Wheat breakfast	Pillsbury-Washburn Flour Mills Company.	$1,576	May 24	88	1303
Food. Wheat breakfast	C. R. Valentine	$1,507	May 3	88	742
Foods and relishes. Certain	C. R. Valentine	$1,506	May 3	88	742
Foods and relishes. Certain	Springfield Drop Forging Company	$1,645	May 31	88	1344
Forgings, wrenches, and bicycle parts. Drop-	C. W. Grosjean	$1,497	Apr. 19	88	442
Fur with a body of knitted or woven fabric and fur on both faces. Artificial	C. P. Walley	$1,677	Apr. 19	88	442
Gelatinous compounds	Mississippi Glass Company	$1,673	June 7	88	1510
Glass. Rolled sheet and wired	E. A. Power & Co	$1,710	June 21	88	1797
Glassware	C. F. Monroe Company	$1,637	May 31	88	1343
Glassware. Opal	B. Altman	$1,548	May 17	88	1064
Gloves	Brewster, Crittenden & Co	$1,726	June 21	88	1790
Groceries. Certain named	F. H. Leggett & Co	$1,725	June 21	88	1790
Groceries. Certain named	H. Feder	$1,491	Apr. 26	88	592
Gum. Chewing	Millhens & Kropff	$1,668	June 14	88	1656
Hair-tonic	Missoula Mercantile Company	$1,549	May 17	88	1064
Hosiery	Thaddeus Davids Company	$1,656	June 7	88	1509
Ink. Black	Woodstock Iron Works	$1,675	June 7	88	1510
Iron. Pig	F. E. Fay	$1,543	May 10	88	914
Ironing-machines	J. Schwarzkopf and J. Solinger	$1,709	June 21	88	1797
Jewelry	F. K. Hickok	$1,600	May 31	88	1343
Ladies' wear. Certain named articles of	Thomas Evans Company	$1,540	May 10	88	913
Lamp-chimneys	G. S. Wolff	$1,519	May 10	88	911
Leather	Herman Zöhriaut Leather Company.	$1,745	June 28	88	1937
Leather. Certain named shoe	E. A. Landell, Jr	$1,468	Apr. 19	88	441
Leather. Chamois and other finished	Herman Zöhriaut Leather Company.	$1,746	June 28	88	1937
Leather in black. Chrome-tanned shoe	I. D. Smith & Co	$1,490	Apr. 26	88	592
Leather polishing and dressing compounds	Smith, Kline & French Company	$1,595	May 24	88	1304
Liniment	Smith, Kline & French Company	$1,596	May 24	88	1304
Liniment	J. T. Steel	$1,508	May 3	88	741
Liniment	J. W. Goddard & Sons	$1,649	June 7	88	1508
Linings	N. and J. Chaise	$1,749	June 28	88	1939
Loom-heddle leashes	T. H. Sayre	$1,489	Apr. 26	88	591
Lotion or preparation for the skin. Certain antiseptic and healing	H. L. Berry Company	$1,728	June 28	88	1939
Lumber	Hall & Munson Company	$1,472	Apr. 19	88	441
Lumber-mill and log products. Certain	Allen & Hanburys	$1,504	May 3	88	741
Malt and cod-liver oil. Compound of	Allen & Hanburys	$1,694	June 14	88	1657
Malt. Fluid extract of	Diamond Match Company	$1,462	Apr. 12	88	308
Matches	Diamond Match Company	$1,499	May 3	88	741
Matches. Friction-	Aktiebolaget Södertelje Tändsticksfabrik.	$1,462	Apr. 12	88	308
Matches. Safety-	Swift & Company	$1,576	May 24	88	1304
Meats and compounds. Certain named					

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Medical compounds. Certain named	L. Gerstle	$1,533	May 10	88	913
Medical compound for the cure of rheumatism	W. E. Ellis	$1,755	June 28	88	1939
Medical preparation. Certain named	J. Linden	$1,713	June 21	88	1797
Medicaments having as a base fluid extract of malt	Allen & Hanburys	$1,459	Apr. 12	88	308
Medicated confections, a worm specific	Johnston, Holloway & Co	$1,584	May 24	88	1304
Medicated ointment for the skin	Johnston, Holloway & Co	$1,584	May 10	88	913
Medicated tonic wines	M. G. Dadirrian	$1,627	May 31	88	1344
Medicated whisky	Williams & Newman	$1,716	June 21	88	1798
Medicinal herb compounds prepared after a certain named system.	E. Meyer-Block	$1,661	June 7	88	1509
Medicinal preparation. Certain named proprietary	Dios Chemical Company	$1,454	Apr. 5	88	154
Medicinal preparations and medicated foods	Allen & Hanburys	$1,505	May 3	88	741
Medicinal preparations and medicated foods	Allen & Hanburys	$1,506	May 3	88	741
Medicinal preparations having antiseptic qualities	C. V. Ryan	$1,598	May 10	88	913
Medicinal remedies and toilet preparations and articles. Certain named	C. C. S. Saunders	$1,591	May 24	88	1305
Medicinal remedies. Certain named	C. C. Cook	$1,716	June 21	88	1798
Medicinal tablets	Anti-Cephalic Chemical Co	$1,598	May 24	88	1304
Medicinal tonics	C. Trevisanello	$1,653	June 7	88	1509
Medicine for colds and kindred complaints. Proprietary	De Land Medical Company	$1,453	Apr. 5	88	154
Medicine. Liquid cough	C. S. McEwen	$1,599	May 10	88	913
Medicine. Pharmaceutical product from milk used as	Majert & Ebers, Gesellschaft mit Beschränkter Haftung.	$1,475	Apr. 19	88	441
Medicines, medicinal specialties, and articles for the toilet	Oberhäusser & Landauer	$1,590	May 24	88	1305
Milk. Condensed	Vermont Condensed Milk Company	$1,579	May 24	88	1304
Milk, condensed coffee, condensed cocoa, and coffee extract. Condensed	New York Condensed Milk Company.	$1,752	June 28	88	1938
Mineral water	Gerolsteiner Sprudel W. Castendyck.	$1,719	June 21	88	1798
Mineral water and carbonated beverages. Natural	W. H. Davis	$1,551	May 24	88	1304
Mineral waters	White Rock Mineral Spring Company.	$1,753	June 28	88	1938
Mucilage and paste	Thaddeus Davids Company	$1,631	May 31	88	1342
Mustard and horse-radish. Preparation of	Dodson-Braun Manufacturing Company.	$1,554	May 17	88	1064
Oats and oatmeal. Rolled	Muscatine Oat Meal Company	$1,732	June 21	88	1790
Oil. Illuminating	S. Hofmann & Co	$1,668	June 7	88	1509
Oil. Olive	Showell & Fryer	$1,691	June 14	88	1657
Oils	Vacuum Oil Company	$1,733	June 21	88	1790
Oils	Vacuum Oil Company	$1,734	June 21	88	1790
Oils	Vacuum Oil Company	$1,735	June 21	88	1790
Oils	Warrick Frères	$1,596	May 24	88	1305
Oils and certain named toilet articles and preparations	T. Olsen	$1,595	May 24	88	1305
Oils for certain named purposes	M. A. Wheeler	$1,663	June 14	88	1656
Ointment	F. G. Smith	$1,509	May 3	88	742
Organs	Holsapfel's Compositions Company.	$1,551	May 17	88	1064
Paint for ships' bottoms. Antifouling	Lucas & Sampson	$1,489	Apr. 26	88	592
Paints	National Mining and Milling Company.	$1,601	May 24	88	1306
Paints and painters' supplies	National Mining and Milling Company	$1,602	May 24	88	1306
Paints and painters' supplies	Bray Clothing Company	$1,485	Apr. 26	88	591
Pants, coats, vests, and overalls	Commercial Knitting Mills Company.	$1,570	May 24	88	1303
Pants. Ladies'	H. Lindenmeyr & Sons	$1,488	Apr. 26	88	591
Paper	Z. & W. M. Crane	$1,740	June 28	88	1937
Paper and envelops. Writing	J. T. Hicks	$1,653	June 7	88	1508
Paper goods for hotel checking systems. Certain	J. Donoghue	$1,743	June 28	88	1937
Paper. Soft cleaners for wall	Whiting Paper Company	$1,515	May 10	88	911
Paper. Writing	Whiting Paper Company	$1,573	May 24	88	1303
Paper. Writing	Whiting Paper Company	$1,618	May 31	88	1342
Paper. Writing	Whiting Paper Company	$1,704	June 21	88	1797
Paper. Writing	Whiting Paper Company	$1,657	June 7	88	1509
Pens	A. S. Barnes & Co	$1,619	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,620	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,621	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,622	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,623	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,624	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,625	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,626	May 31	88	1343
Pens. Metallic	C. Brandauer & Co	$1,656	June 7	88	1508
Pens. Stylographic and fountain	J. Ullrich & Co	$1,594	May 24	88	1305
Perfumery	Firm of A. Wright	$1,494	Apr. 26	88	591
Periodicals	Arkell Publishing Company	$1,655	June 7	88	1508
Photographic apparatus and material. Certain	Radiotint, Limited	$1,574	May 24	88	1303
Photographic material, apparatus, and products. Certain named	Radiotint, Limited	$1,705	June 21	88	1797
Photographic paper	Reichenbach, Morey & Will Company.	$1,481	Apr. 26	88	591
Photographic printing-out paper	Reichenbach, Morey & Will Company.	$1,482	Apr. 26	88	591
Photographic printing-out paper	Reichenbach, Morey & Will Company.	$1,480	Apr. 26	88	591
Photographic printing-out paper and prints made thereon	Western Camera Manufacturing Company.	$1,654	June 7	88	1508
Photographic printing-paper	Curtis & Cameron	$1,617	May 31	88	1342
Photographs. Art	Curtis & Cameron	$1,706	June 21	88	1797
Photographs. Art	Curtis & Cameron	$1,510	May 3	88	742
Pianofortes	F. G. Smith	$1,541	May 10	88	914
Pianofortes and organs	F. G. Smith	$1,473	Apr. 19	88	441
Pianos and organs	G. P. Bent	$1,711	June 21	88	1797
Pillow-inhalers	Pillow Inhaler Company	$1,597	May 24	88	1304
Pills	W. A. Prout	$1,666	June 7	88	1509
Pills	W. A. Prout	$1,708	June 21	88	1797
Pins	Handy Pin Company				

Alphabetical list of trade-marks, April to June, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Plows and their parts	Syracuse Chilled Plow Company	31,466	Apr. 12	88	294
Plum-trees, scions of plum-trees, and plums	Jewell Nursery Company	31,471	Apr. 19	88	441
Polishing preparation	K. G. Sleneau	31,500	May 3	88	741
Popcorn. Prepared	St. Louis Pop Corn Company	31,524	May 21	88	1344
Preparation for rough or chapped skin	L. Paddock	31,460	Apr. 12	88	295
Preparation for the painless treatment of irritated pulps	G. Scharmann	31,453	Apr. 12	88	295
Proprietary articles	Central Chemical Company	31,509	May 3	88	741
Publications. Certain named	L. Gerstle	31,516	May 10	88	911
Remedies. Hog-cholera	C. Bragg	31,589	May 24	88	1305
Remedy for chronic constipation, hepatic torpor, and jaundice.	W. Edmonds	31,607	May 24	88	1308
Remedy for diarrhea, dysentery, and dyspepsia. Liquid	Sloat Bros. Co	31,581	May 10	88	913
Remedy for hog-cholera	C. Bildstein	31,797	June 28	88	1989
Remedy for insect bites and stings and for vegetable poison	J. L. Miller	31,593	May 17	88	1064
Remedy for rheumatism	G. Ardito	31,714	June 21	88	1797
Remedy for rheumatism. Internal	J. F. Regan Co	31,641	May 31	88	1344
Remedy for skin and blood disorders	Sulphume Company	31,754	June 28	88	1988
Remedy in tablet form	R. A. Walker	31,605	June 7	88	1509
Remedy. Pile	C. L. Dorn	31,756	June 28	88	1988
Ribbons	E. & H. Levy	31,547	May 17	88	1064
Rubber goods. Certain named	Diamond Rubber Company	31,650	June 7	88	1508
Rubber goods. Certain named	Diamond Rubber Company	31,651	June 7	88	1508
Rubber goods. Certain named	Diamond Rubber Company	31,679	June 14	88	1642
Rubber products. India-	Hood Rubber Company	31,615	May 31	88	1342
Rubber products. India-	Hood Rubber Company	31,616	May 31	88	1342
Salt. Sea-	Tidman & Son	31,731	June 21	88	1799
Saws and saw-tools	Bennett Combination Saw-Tool Company.	31,513	May 3	88	743
Scythes, grass-hooks, and hay-knives	North Wayne Tool Company	31,708	June 28	88	1990
Sewing-machines	Davis Sewing Machine Company	31,703	June 14	88	1638
Shellac	New York Shellac Co	31,736	June 21	88	1800
Shellac	New York Shellac Co	31,737	June 21	88	1800
Shirts. Men's	Woodward & Bailey	31,497	Apr. 26	88	591
Shoes	V. K. & A. H. Jones	31,499	Apr. 19	88	441
Shoes. Men's and women's	W. J. Martines	31,611	May 31	88	1342
Shovels, spades, and scoops. Steel	Avery Stamping Company	31,506	May 17	88	1066
Sifters. Flour-	National Manufacturing Company	31,705	June 28	88	1990
Silk vestings, button-stock, and dress goods	C. Stohn's Sons	31,571	May 24	88	1308
Silver. Powdered preparations for cleaning or polishing	J. H. Miller	31,600	May 24	88	1308
Skewers. Wooden	W. S. Shipe	31,508	May 17	88	1065
Soap	Veuve Charles Morel	31,535	May 10	88	913
Soap. Antiseptic medicated	C. I. Hood	31,756	June 28	88	1989
Soap. Family	Armour & Co	31,461	Apr. 12	88	295
Soap, perfumery, and toilet preparations for the teeth, skin, and hair.	Joseph Crosfield & Sons	31,568	May 24	88	1305
Soap powders	J. M. Woelfel and R. F. Kineavy	31,626	May 31	88	1343
Soap. Toilet	Johnston, Holloway & Co	31,506	May 24	88	1305
Soaps, cosmetics, salves, and lotions for the skin	Ladd & Coffin	31,501	May 3	88	741
Starch	J. J. Hubinger	31,536	May 10	88	913
Stationary articles and materials for artists and draftsmen. Certain named	L. & C. Hardtmuth	31,572	May 24	88	1308
Stationery. Certain named	National League of Commission Merchants of the United States.	31,467	Apr. 19	88	441
Steam-gages	Ashcroft Manufacturing Company	31,465	Apr. 12	88	294
Steel articles made under registrant's process. Supercarburized	Harvey Steel Company	31,565	May 17	88	1066
Stoves. Gas-	Morton-Pringle Gas Heating Company.	31,474	Apr. 19	88	441
Sugar-syrup	J. D. Hage & Co	31,698	June 14	88	1637
Suppositories. Hemorrhoidal	W. Ernst	31,667	June 7	88	1509
Tea	Loudon & Johnson	31,671	June 7	88	1510
Tea. Ceylon	Anderson Bros. & Co	31,670	June 7	88	1510
Tin and terne plates	C. S. Merwick & Co	31,593	May 17	88	1065
Tires. Certain named bicycle-	Clark Cycle Tire Company	31,707	June 28	88	1990
Tires. Pneumatic	Morgan & Wright	31,543	May 10	88	914
Tires. Pneumatic	Morgan & Wright	31,544	May 10	88	914
Tobacco and cigars. Leaf and manufactured	S. Hernsheim, Bros. & Company	31,728	June 21	88	1799
Tonic alterative compound	Sharp & Dohme	31,715	June 21	88	1799
Tonics and restoratives	M. Cramer	31,668	June 7	88	1509
Toys	A. Shuman & Co	31,516	May 10	88	911
Trousers. Boys'	F. S. Webster Company	31,726	June 21	88	1800
Type-writers' supplies, note-books, copying-books, and copying-cloths. Certain named	American Writing Machine Company.	31,764	June 28	88	1989
Type-writing machines	Commercial Typewriter Company	31,701	June 14	88	1636
Type-writing machines	R. G. Hopkins	31,610	May 31	88	1342
Type-writing machines and named supplies	Sibley, Lindsay & Curr Company	31,603	May 24	88	1306
Underwear and umbrellas. Certain named	Akron Varnish Company	31,520	May 10	88	911
Varnish	Akron Varnish Company	31,567	May 17	88	1066
Varnish for interior and exterior finishing	Deere & Webber Company	31,609	May 31	88	1343
Vehicle-springs	H. C. Lindsey & Co	31,476	Apr. 19	88	442
Washing-powder	H. Eberding	31,559	May 17	88	1065
Welding compound	Bernard & Co	31,526	May 10	88	913
Whisky	Boyle & McGlinn	31,561	May 17	88	1065
Whisky	R. Crawford & Co	31,560	May 17	88	1065
Whisky	Daniel Crawford & Son	31,717	June 21	88	1799
Whisky	Marshall, McEwen & Co	31,625	May 31	88	1344
Whisky	A. E. Norris	31,695	June 14	88	1637
Whisky	F. H. Richer & Co	31,696	June 14	88	1637
Whisky	Webb & Meyer	31,493	Apr. 26	88	599
Whisky	M. L. Wolf	31,499	May 3	88	741
Whisky	Barton & Guestier	31,648	June 7	88	1508
Wines	Law, Russell & Co	31,730	June 21	88	1799
Woolen piece goods and garments	American Yeast Company	31,494	Apr. 26	88	599
Yeast	S. A. Yost				
Yeast. Crumb home-made					

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"American Baking Powder"	R. H. Lansing & Co	6,576	May 3	88	599
"Black & Tan." (For Beer)	Anheuser-Busch Brewing Association.	6,598	June 14	88	1517
"Blue Point Raccoon Creek Rye Whiskey"	H. H. Elliott	6,605	June 21	88	1665
"Chira." (For a Medicine)	R. J. Frick	6,597	May 10	88	749
"Court's Great Stomach and Nerve Tonic"	T. Petersen	6,591	May 24	88	1073
"Creme De Ménthe Balm." (For a Medicine)	Scotch Remedy Co	6,617	June 28	88	1807
"Cuban Daisy." (For Cigars)	American Lithographic Company	6,604	June 21	88	1665
"Death Sure Drops." (For an Insecticide)	A. H. Tryon	6,619	June 28	88	1807
"Dewey's Victory." (For Whisky)	A. B. Sheaffer	6,606	June 21	88	1665
"Diana." (For Whisky)	C. J. Wahlmann	6,586	May 10	88	749
"Dr. Bennett's Malarial Cure and Blood Tonic"	M. R. Johnson	6,572	Apr. 19	88	301
"Dr. L. Reese's Brazilian Herbine." (For Medicine)	J. W. Hewitt & Co	6,600	May 17	88	927
"Eureka Hair Restorer"	L. Phillips	6,600	June 14	88	1517
"Fairy Queen"	Lee Broom and Duster Company	6,612	June 21	88	1665
"Ger-American Herb Compound, the Great Blood Purifier, Liver and System Regulator."	C. F. Myers	6,594	June 7	88	1351
"Golden Rod." (For Syrup)	C. W. Shaw & Co	6,609	June 21	88	1665
"Hadash." (For Medicine)	W. P. F. Cabler	6,618	June 28	88	1807
"Herbarium System Bitters"	W. Rold	6,601	June 14	88	1517
"Holland Flour"	Wolf, Sayer & Heller	6,610	June 21	88	1665
"Imperial Silver Polish"	A. and W. Green	6,611	June 21	88	1665
"Kursheedt's Escurial Shirring." (For Fancy Dry Goods)	Kursheedt Manufacturing Company.	6,614	June 28	88	1807
"Log Cabin Baking Powder"	W. S. Corbett	6,608	June 14	88	1517
"Lygia Hair Balsam"	S. Worms	6,581	May 3	88	599
"Medicated French Tissue." (For a Preparation for Corns and the Like.)	Silver Suds Manufacturing Co	6,613	June 21	88	1665
"Milk of Wild Olives." (For a Lotion for the Skin)	L. E. Bishop and H. L. Halliday	6,585	May 10	88	749
"Milkene." (For a Substance to Combine with Milk)	Farm and Dairy Product Company	6,616	June 28	88	1807
"Nizey Nit." (For Cigar-Boxes)	American Lithographic Company	6,577	May 3	88	599
"Old Glory." (For Whisky)	A. B. Sheaffer	6,607	June 21	88	1665
"Olive Label." (For Olives)	C. W. Gould	6,589	May 17	88	927
"Our Calf Shoe"	Wallace & Vanderslcot	6,615	June 28	88	1807
"Our Choice T, Good Luck and Swan Chop"	W. J. Buttfield	6,608	June 21	88	1665
"Pearls of Health Tablets"	American Chemical Co	6,602	June 14	88	1517
"Pennant Chop." (For Tea)	Bohea Importing Company	6,575	Apr. 26	88	449
"Pepsin Cream Baking Powder"	Pepsin Cream Baking Powder Company.	6,582	May 10	88	749
"Pillsbury's Improved Self-Raising Prepared Flour"	U. G. Pillsbury	6,573	Apr. 26	88	449
"Queen Jenny." (For Cigars)	American Lithographic Company	6,597	June 14	88	1517
"Ranney's Golden Gate Bitters"	H. S. Lincoln	6,583	May 10	88	749
"Raynor's Bug Meal"	G. A. Raynor	6,584	May 10	88	749
"Regal Lager." (For Beer)	Long Island Brewery	6,599	June 14	88	1517
"Rose Leaf Balm." (For the Complexion)	J. A. Tucker	6,579	May 3	88	599
"Royal Crest." (For Tea)	Bohea Importing Company	6,574	Apr. 26	88	449
"San Pablo Olives"	C. W. Gould	6,578	May 3	88	599
"Southern Comfort." (For a Beverage)	M. W. Heron	6,588	May 10	88	749
"The American Boy." (For Cigars)	Lutmer Cigar Co	6,595	June 14	88	1517
"The Game of Jack and the Bean Stalk"	McLoughlin Bros	6,570	Apr. 19	88	301
"The Game of Kris Kringle's Visits"	McLoughlin Bros	6,571	Apr. 19	88	301
"The Rana Furniture Polish"	L. N. Wookey	6,580	May 3	88	599
"The Silent." (For a Device for Making Flushing-Tanks Noiseless.)	C. H. Shepherd	6,593	May 31	88	1213
"Velvetta Kid." (For Leather and Kid)	F. Crocker	6,592	May 24	88	1073
"White Rose Washing Fluid"	W. A. James	6,620	June 28	88	1807
"Yellowstone Gems." (For Cigars)	M. Hyman Cigar and Importing Company.	6,596	June 14	88	1517

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Buffalo Lithia Water"	T. F. Goode	66	May 24	83	1073
"Color Bearer." (For Cigars)	American Lithographic Company	68	May 17	83	987
"Dewey's Chewies." (For Confections)	T. H. McInerney	70	June 21	83	1665
"Golden Jubilee." (For Beer)	Hudepohl & Kotte	81	May 3	83	599
"Good Meal." (For Stoves and Ranges)	F. Tettenborn	82	May 3	83	599
"Hammond Type Writer for All Nations and Tongues"	Hammond Typewriter Company	67	May 24	83	1073
"Just Out." (For Cigars)	American Lithographic Company	44	May 24	83	1073
"My Lady's Glove"	J. P. Knapp	69	June 7	83	1251
"Royal Scot." (For Cigars)	American Lithographic Company	88	May 31	83	1215
"The Continental Gold Bond." (For a Suit of Clothes)	Freeland-Loomis Company	65	May 24	83	1073

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Volume.	Page.
Button	Clark M. Platt	508,546	Sept. 29, 1896	June 6, 1898	83	1517
Multiple switchboard for telephone exchange.	Leroy B. Firman	252,576	Jan. 17, 1882	Apr. 8, 1898	83	161
Sensitive photographic film	G. Eastman and W. H. Walker	358,848	Mar. 8, 1887	Apr. 6, 1898	83	161

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